

## **Appendix 4.3-A – Air Quality Assessment**

# **AIR QUALITY ASSESSMENT**

**Gates 500 kV Dynamic Reactive Support  
Fresno County, CA**

*Prepared By:*

***Ldn Consulting, Inc.***  
42428 Chisolm Trail  
Murrieta, California 92562  
760-473-1253

*Prepared for:*

**Heritage Environmental Consultants, LLC  
8071 E 33<sup>rd</sup> Ave  
Denver, CO 80238**

**February 13, 2021**

## **TABLE OF CONTENTS**

<b>TABLE OF CONTENTS.....</b>	<b>II</b>
<b>LIST OF FIGURES.....</b>	<b>III</b>
<b>LIST OF TABLES .....</b>	<b>III</b>
<b>ATTACHMENTS .....</b>	<b>III</b>
<b>LIST OF COMMON ACRONYMS.....</b>	<b>IV</b>
<b>1.0 INTRODUCTION .....</b>	<b>1</b>
1.1 PURPOSE OF THIS ASSESSMENT.....	1
1.2 PROJECT LOCATION.....	1
1.3 PROJECT DESCRIPTION.....	1
1.4 PROJECT CONSTRUCTION .....	2
<b>2.0 EXISTING ENVIRONMENTAL SETTING.....</b>	<b>6</b>
2.1 EXISTING SETTING.....	6
2.2 CLIMATE AND METEOROLOGY .....	6
2.3 REGULATORY STANDARDS .....	6
2.3.1 FEDERAL STANDARDS AND DEFINITIONS .....	6
2.3.2 STATE STANDARDS AND DEFINITIONS.....	8
2.3.3 REGIONAL STANDARDS .....	10
2.4 CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) SIGNIFICANCE THRESHOLDS .....	11
2.5 SJCAPCD AIR QUALITY IMPACT ASSESSMENT SIGNIFICANCE THRESHOLDS .....	11
2.6 DISTRICT RULE 9510 INDIRECT SOURCE REVIEW (ISR) .....	12
2.7 LOCAL AIR QUALITY .....	12
<b>3.0 METHODOLOGY.....</b>	<b>14</b>
3.1 CONSTRUCTION EMISSIONS CALCULATIONS .....	14
3.2 CONSTRUCTION ASSUMPTIONS.....	16
3.3 OPERATIONAL ASSUMPTIONS .....	18
3.4 ODOR (ONSITE).....	18
<b>4.0 FINDINGS.....</b>	<b>19</b>
4.1 CONSTRUCTION EMISSION FINDINGS .....	19
4.2 CONSTRUCTION HEALTH RISKS.....	20
4.3 OPERATIONAL FINDINGS .....	21
4.4 ODOR FINDINGS.....	21
4.5 CUMULATIVE CONSTRUCTION IMPACTS.....	21
4.6 CUMULATIVE OPERATIONS IMPACTS.....	22
4.7 CONCLUSION OF FINDINGS .....	22
<b>5.0 REFERENCES .....</b>	<b>23</b>
<b>6.0 CERTIFICATIONS .....</b>	<b>24</b>

## **LIST OF FIGURES**

FIGURE 1-A: PROJECT VICINITY MAP .....	3
FIGURE 1-B: PROJECT SITE AND PRELIMINARY GEN-TIE ALIGNMENT OPTIONS .....	4
FIGURE 1-C: PRELIMINARY PROJECT SITE LAYOUT .....	5
FIGURE 3-A: CONSTRUCTION HEALTH RISK MODEL SETUP.....	16

## **LIST OF TABLES**

TABLE 2.1: AMBIENT AIR QUALITY STANDARDS .....	9
TABLE 2.2: SAN JOAQUIN VALLEY ATTAINMENT STATUS BY POLLUTANT.....	10
TABLE 2.3: SJVAPCD SIGNIFICANCE THRESHOLDS FOR CRITERIA POLLUTANTS.....	12
TABLE 2.4: THREE-YEAR AMBIENT AIR QUALITY SUMMARY SAN JOAQUIN AIR BASIN .....	13
TABLE 3.1: ANTICIPATED CONSTRUCTION EQUIPMENT AND DURATIONS.....	17
TABLE 4.1: EXPECTED CONSTRUCTION EMISSIONS SUMMARY – TONS PER YEAR .....	20
TABLE 4.2: EXPECTED POLLUTANT GENERATION (TONS/YEAR).....	21

## **ATTACHMENTS**

CALEEMOD 2016.3.2 .....	25
AERMOD - UNMITIGATED .....	56
HEALTH RISK CALCULATIONS - CONSTRUCTION.....	64

## **LIST OF COMMON ACRONYMS**

California Air Resource Board (CARB)  
California Ambient Air Quality Standards (CAAQS)  
California Environmental Quality Act (CEQA)  
Carbon Monoxide (CO)  
Carbon Dioxide (CO<sub>2</sub>)  
Diesel Particulate Matter (DPM)  
Environmental Protection Agency (EPA)  
Hydrogen Sulfide (H<sub>2</sub>S)  
Level of Service (LOS)  
National ambient air quality standards (NAAQS)  
Nitrogen Dioxide (NO<sub>2</sub>)  
Ozone (O<sub>3</sub>)  
Reactive Organic Gas (ROG)  
Regional Air Quality Strategy (RAQS)  
San Joaquin Valley Air Pollution Control District (SJVAPCD)  
State Implementation Plan (SIP)  
Volatile Organic Compounds (VOC)

## **1.0 INTRODUCTION**

### **1.1 Purpose of this Assessment**

The purpose of this Air Quality Assessment is to determine potential air quality impacts (if any) that may be created during construction or operation of the proposed Gates 500 kilovolt (kV) Dynamic Reactive Support Project (Project), located in the unincorporated area of Fresno County near Huron Ca. Should the potential for air quality impacts be identified, the intent of this assessment would be to recommend mitigation measures, which would reduce those impacts to a level of insignificance.

### **1.2 Project Location**

The 15 acre Project site is located within a 72 acre parcel which is currently being used for agricultural uses and is located immediately west of South Trinity Avenue between Phelps Avenue to the north and W Jayne Avenue to the south and is located within the northeast quarter of Public Land Survey System (PLSS) Section 33 of Township 20 South and 17 East. The primary access to the Proposed Project for both construction and operations will be along Jayne Avenue. The site is located approximately 3.5 miles southwest of the City of Huron. Figure 1-A shows the project vicinity.

### **1.3 Project Description**

The proposed project which would be constructed and operated by LS Power Grid California (LSPGC). The project seeks to construct two new STATCOM facilities and two new single circuit 500kV transmission lines that will connect to the existing PG&E Gates Substation. The STATCOM facility will support the regional transmission system by providing voltage support and grid stability at the Gates 500kV bus. This will facilitate the reliable operation of the extra high voltage transmission system buses in the electrical proximity of the Gates 500kV substation after the retirement of the Diablo Canyon nuclear generating units. The transmission system in the vicinity of the Proposed Project includes the existing PG&E Gates Substation which currently serves the electrical needs of PG&E customers and operates various 500kV transmission lines, 230kV transmission lines, and 70kV transmission lines. The Gates Substation will need to be expanded to provide two new 500kV bus positions, one for each STATCOM unit.

The Proposed Project will include the following main components:

- Construction of two new STATCOM facilities with a rated real power output of 0 MW, and a nominal terminal voltage of 500 kV;

- Improvement of existing public and private dirt roads to facilitate construction, operation, and maintenance of the STATCOM units;
- Installation of two new approximately 300-feet 500 kV single-circuit overhead electrical transmission lines between the STATCOM units and the Gates Substation;
- Expansion of the Gates Substation to provide two new bus positions, one for each STATCOM unit. This will require the addition of two new 500kV breakers, 500kV disconnect switches, PT's & CT's, protection and control, take-off structures, and associated equipment.
- A 4,000 square-foot (SF) control building for each STATCOM facility.
- 3,200 lineal feet (LF) of 20 foot wide gravel covered access roads.

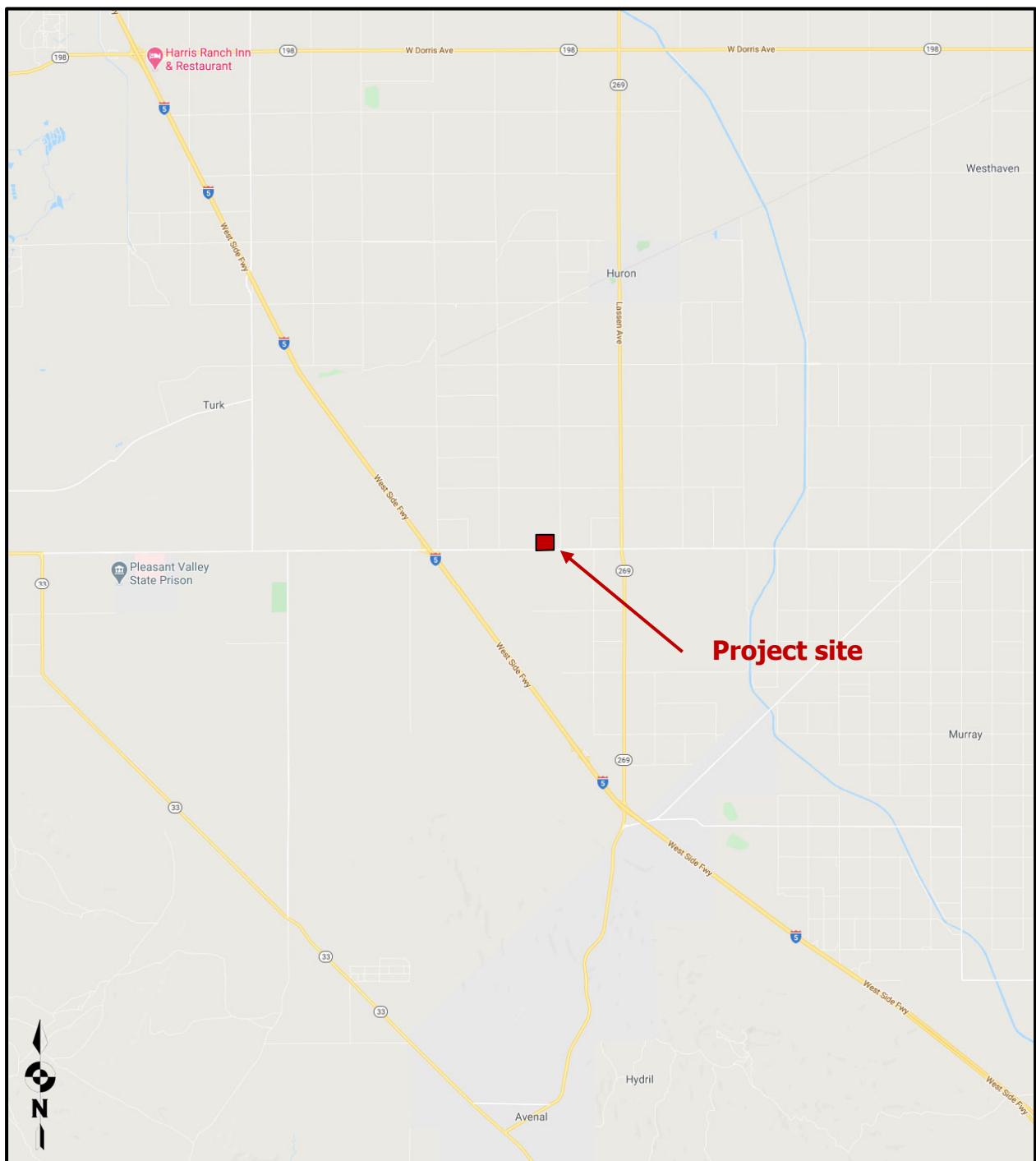
The Gates 500 kV Dynamic Reactive Support Project (Proposed Project or Project) was approved by the California Independent System Operator Corporation (CAISO) to ensure the reliability of a major portion of the CAISO controlled grid and accommodate maintenance and contingencies of the reactive device. This would be accomplished through the construction of a dynamic reactive device between two equally sized blocks. The general project area is shown in Figure 1-B.

The Project will be operated, monitored and dispatched remotely on a day-to-day basis. Crews of two to four person's will periodically visit the site (approximately twice per month) for routine inspection and maintenance of the facilities and site. The Developer will own and maintain the facility up to the point where the system enters PG&E property.

#### 1.4 Project Construction

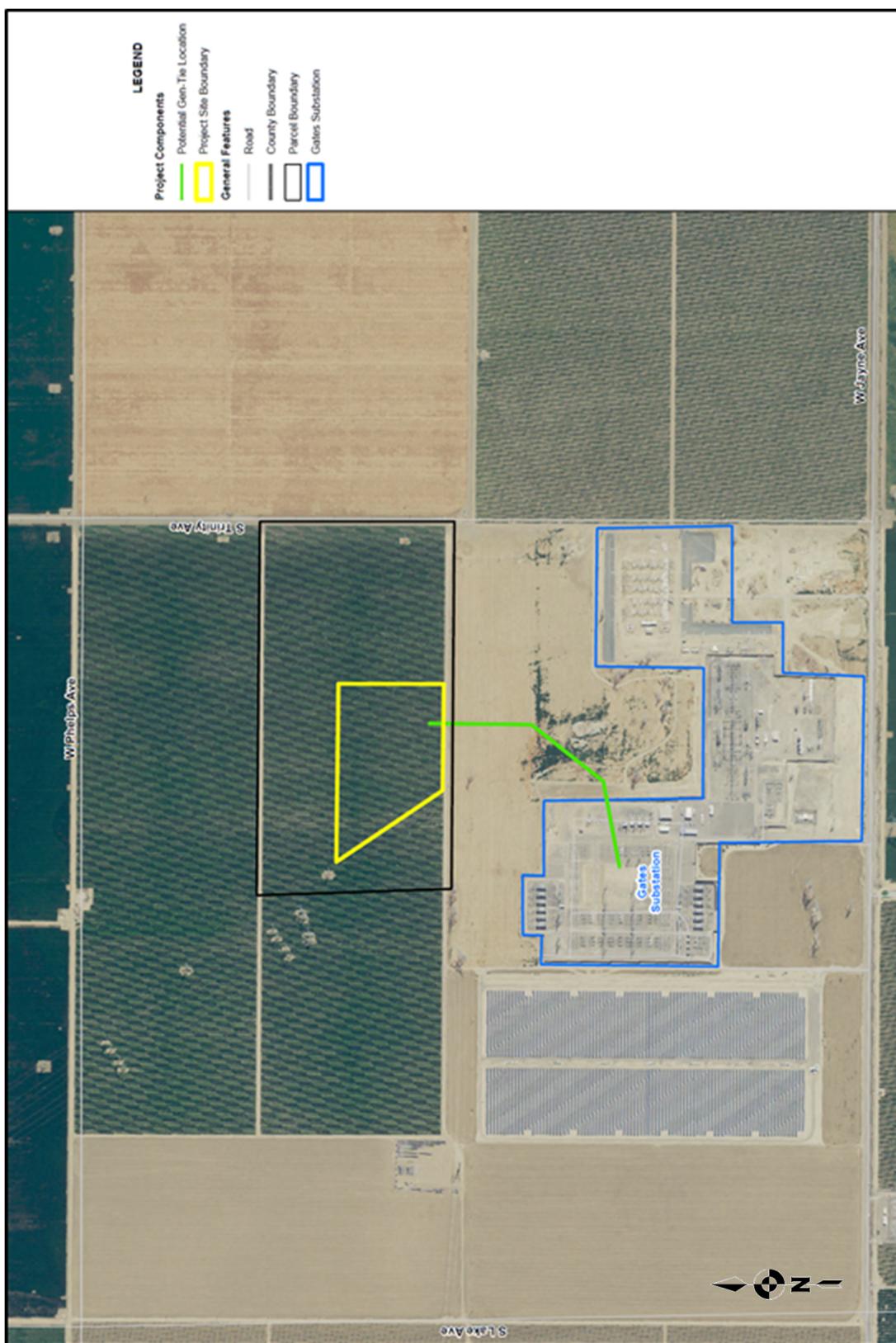
Project construction includes site preparation and grading, installation of drainage and retention basins, foundations/supports, setting of equipment, wiring and electrical system installation, and assembly of the accessory components. The Project would require the grading of approximately 9.2 acres and will require an import of roughly 17,000 CY of suitable site materials and export of roughly 2,000 CY of excess material. The Project plans to start grading and construction in the second quarter of 2022 and be completed in the fourth quarter of 2023. Additionally, the project will require 740,000 gallons of water which would be trucked to the site daily. Also, it should be noted that the peak construction activities will be during the earthwork phase of the project between March and May of 2022. The site grading plan is shown in Figure 1-C.

**Figure 1-A: Project Vicinity Map**

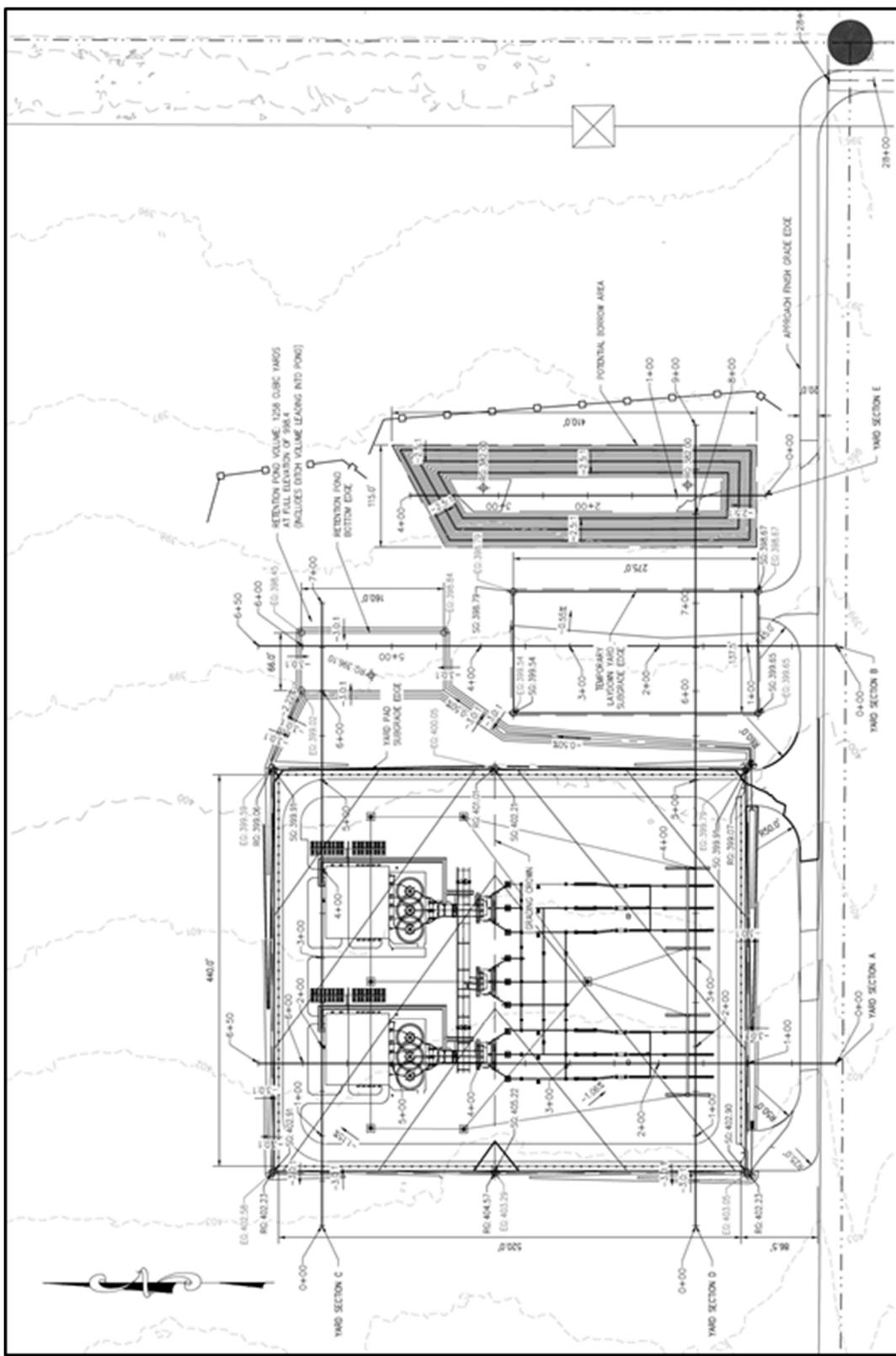


Source: (Google, 2017)

**Figure 1-B: Project Site and Preliminary Gen-tie Alignment Options**



**Figure 1-C: Preliminary Project site Layout**



Source: (LS Power Grid California, 2020)

## **2.0 EXISTING ENVIRONMENTAL SETTING**

### 2.1 Existing Setting

The subject property is generally level and has been previously disturbed for mostly agricultural uses. The site is generally flat, and onsite elevations are at or around 400 feet above mean sea level. The Project is located in an area utilized for agricultural and Utility infrastructure uses with industrial uses nearby. Residential receptors near the Project site are identified in Figure 3.A.

### 2.2 Climate and Meteorology

Climate within the San Joaquin Valley Air Basin (SJVAB) is a large air district within the state and encompasses Fresno, Kern (western and central), Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare. Weather is typically warm and dry in the summer and during the winter months, the high-pressure system drops to the south and brings cooler, moister weather from the north. It is common for inversion layers to develop within high-pressure areas over parts of the basin. These inversions are caused when a thin layer of the atmosphere increases in temperature with height. An inversion acts like a lid preventing vertical mixing of air through convective overturning.

Meteorological trends within the project area has average daytime highs ranging between 55°F in the winter to approximately 97°F in the summer with July usually being the hottest month. Precipitation is generally about 8.4 inches per year (WRCC, 2020). Prevailing wind patterns for the area vary during any given month during the year and also vary depending on the time of day or night. The predominant pattern though throughout the year is usually from the west or westerly (WRCC, 2018).

### 2.3 Regulatory Standards

#### 2.3.1 Federal Standards and Definitions

The Federal Air Quality Standards were developed per the requirements of The Federal Clean Air Act, which is a federal law that was passed in 1970 and further amended in 1990. This law provides the basis for the national air pollution control effort. An important element of the act included the development of National Ambient Air Quality Standards (NAAQS) for major air pollutants.

The Clean Air Act established two types of air quality standards otherwise known as primary and secondary standards. **Primary Standards** set limits for the intention of protecting public

health, which includes sensitive populations such as asthmatics, children and elderly. **Secondary Standards** set limits to protect public welfare to include the protection against decreased visibility, damage to animals, crops, vegetation and buildings.

The EPA Office of Air Quality Planning and Standards has set NAAQS for principal pollutants, which are called "criteria" pollutants. These pollutants are defined below:

1. **Carbon Monoxide (CO):** is a colorless, odorless, and tasteless gas and is produced from the partial combustion of carbon-containing compounds, notably in internal-combustion engines. Carbon monoxide usually forms when there is a reduced availability of oxygen present during the combustion process. Exposure to CO near the levels of the ambient air quality standards can lead to fatigue, headaches, confusion, and dizziness. CO interferes with the blood's ability to carry oxygen.
2. **Lead (Pb):** is a potent neurotoxin that accumulates in soft tissues and bone over time. The major sources of lead emissions have historically been motor vehicles (such as cars and trucks) and industrial sources. Because lead is only slowly excreted, exposures to small amounts of lead from a variety of sources can accumulate to harmful levels. Effects from inhalation of lead near the level of the ambient air quality standard include impaired blood formation and nerve conduction. Lead can adversely affect the nervous, reproductive, digestive, immune, and blood-forming systems. Symptoms can include fatigue, anxiety, short-term memory loss, depression, weakness in the extremities, and learning disabilities in children.
3. **Nitrogen Dioxide (NO<sub>2</sub>):** is a reactive, oxidizing gas capable of damaging cells lining the respiratory tract and is one of the nitrogen oxides emitted from high-temperature combustion, such as those occurring in trucks, cars, power plants, home heaters, and gas stoves. In the presence of other air contaminants, NO<sub>2</sub> is usually visible as a reddish-brown air layer over urban areas. NO<sub>2</sub> along with other traffic-related pollutants is associated with respiratory symptoms, respiratory illness and respiratory impairment. Studies in animals have reported biochemical, structural, and cellular changes in the lung when exposed to NO<sub>2</sub> above the level of the current state air quality standard. Clinical studies of human subjects suggest that NO<sub>2</sub> exposure to levels near the current standard may worsen the effect of allergens in allergic asthmatics, especially in children.
4. **Particulate Matter (PM<sub>10</sub> or PM<sub>2.5</sub>):** is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary in shape, size and chemical composition, and can be made up of multiple materials such as metal, soot, soil, and dust. PM<sub>10</sub> particles are 10 microns ( $\mu\text{m}$ ) or less and PM<sub>2.5</sub> particles are 2.5 ( $\mu\text{m}$ ) or less. These particles can contribute significantly to regional haze and reduction of visibility in California. Exposure to PM levels exceeding current air quality standards increases the risk of allergies such as asthma and respiratory illness.
5. **Ozone (O<sub>3</sub>):** is a highly oxidative unstable gas capable of damaging the linings of the respiratory tract. This pollutant forms in the atmosphere through reactions between chemicals directly emitted from vehicles, industrial plants, and many other sources. Exposure to ozone above ambient air quality standards can lead to human health effects such as lung inflammation, tissue damage and impaired lung functioning. Ozone can also damage materials such as rubber, fabrics and plastics.
6. **Sulfur Dioxide (SO<sub>2</sub>):** is a gaseous compound of sulfur and oxygen and is formed when sulfur-containing fuel is burned by mobile sources, such as locomotives, ships, and off-road diesel equipment. SO<sub>2</sub> is also emitted from several industrial processes, such as petroleum refining and metal processing. Effects from SO<sub>2</sub> exposures at levels near the one-hour standard include bronchoconstriction accompanied by symptoms, which may include wheezing, shortness of breath and chest tightness, especially during exercise or physical activity.

*Children, the elderly, and people with asthma, cardiovascular disease or chronic lung disease (such as bronchitis or emphysema) are most susceptible to these symptoms. Continued exposure at elevated levels of SO<sub>2</sub> results in increased incidence of pulmonary symptoms and disease, decreased pulmonary function, and increased risk of mortality.*

### 2.3.2 State Standards and Definitions

California Air Resource Board (CARB) sets the laws and regulations for air quality on the state level. The California Ambient Air Quality Standards (CAAQS) is similar to the NAAQS and also restricts four additional contaminants. Table 2.1 on the following page identifies both the NAAQS and CAAQS. The additional contaminants as regulated by the CAAQS are defined below:

1. **Visibility Reducing Particles:** Particles in the Air that obstruct the visibility.
2. **Sulfates:** are salts of Sulfuric Acid. Sulfates occur as microscopic particles (aerosols) resulting from fossil fuel and biomass combustion. They increase the acidity of the atmosphere and form acid rain.
3. **Hydrogen Sulfide (H<sub>2</sub>S):** is a colorless, toxic and flammable gas with a recognizable smell of rotten eggs or flatulence. H<sub>2</sub>S occurs naturally in crude petroleum, natural gas, volcanic gases, and hot springs. Usually, H<sub>2</sub>S is formed from bacterial breakdown of organic matter. Exposure to low concentrations of hydrogen sulfide may cause irritation to the eyes, nose, or throat. It may also cause difficulty in breathing for some asthmatics. Brief exposures to high concentrations of hydrogen sulfide (greater than 500 Parts per Million (ppm)) can cause a loss of consciousness and possibly death.
4. **Vinyl Chloride:** also known as chloroethene and is a toxic, carcinogenic, colorless gas with a sweet odor. It is an industrial chemical mainly used to produce its polymer, polyvinyl chloride (PVC).

**Table 2.1: Ambient Air Quality Standards**

Ambient Air Quality Standards								
Pollutant	Average Time	California Standards <sup>1</sup>		Federal Standards <sup>2</sup>				
		Concentration <sup>3</sup>	Method <sup>4</sup>	Primary <sup>3,5</sup>	Secondary <sup>3,6</sup>	Method <sup>7</sup>		
Ozone ( $O_3$ ) <sup>8</sup>	1 Hour	0.09 ppm (180 $\mu\text{g}/\text{m}^3$ )	Ultraviolet Photometry	-	Same as Primary Standard	Ultraviolet Photometry		
	8 Hour	0.070 ppm (137 $\mu\text{g}/\text{m}^3$ )		0.070 ppm (137 $\mu\text{g}/\text{m}^3$ )				
Respirable Particulate Matter (PM10) <sup>9</sup>	24 Hour	50 $\mu\text{g}/\text{m}^3$	Gravimetric or Beta Attenuation	150 $\mu\text{g}/\text{m}^3$	Same as Primary Standard	Inertial Separation and Gravimetric Analysis		
	Annual Arithmetic Mean	20 $\mu\text{g}/\text{m}^3$		-				
Fine Particulate Matter (PM2.5) <sup>9</sup>	24 Hour	No Separate State Standard		35 $\mu\text{g}/\text{m}^3$	Same as Primary Standard	Inertial Separation and Gravimetric Analysis		
	Annual Arithmetic Mean	12 $\mu\text{g}/\text{m}^3$	Gravimetric or Beta Attenuation	12 $\mu\text{g}/\text{m}^3$				
Carbon Monoxide (CO)	8 hour	9.0 ppm (10mg/m <sup>3</sup> )	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m <sup>3</sup> )	-	Non-Dispersive Infrared Photometry		
	1 hour	20 ppm (23 mg/m <sup>3</sup> )		35 ppm (40 mg/m <sup>3</sup> )				
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m <sup>3</sup> )		-				
Nitrogen Dioxide (NO <sub>2</sub> ) <sup>10</sup>	Annual Arithmetic Mean	0.030 ppm (57 $\mu\text{g}/\text{m}^3$ )	Gas Phase Chemiluminescence	0.053 ppm (100 $\mu\text{g}/\text{m}^3$ ) <sup>8</sup>	Same as Primary Standard	Gas Phase Chemiluminescence		
	1 Hour	0.18 ppm (339 $\mu\text{g}/\text{m}^3$ )		0.100 ppm <sup>8</sup> (188/ $\mu\text{g}/\text{m}^3$ )				
Sulfur Dioxide (SO <sub>2</sub> ) <sup>11</sup>	Annual Arithmetic Mean	-	Ultraviolet Fluorescence	0.030 ppm <sup>10</sup> (for Certain Areas)	-	Ultraviolet Fluorescence; Spectrophotometry (Pararoosaniline Method) <sup>9</sup>		
	24 Hour	0.04 ppm (105 $\mu\text{g}/\text{m}^3$ )		0.14 ppm <sup>10</sup> (for Certain Areas) (See Footnote 9)	-			
	3 Hour	-		-	0.5 ppm (1300 $\mu\text{g}/\text{m}^3$ )			
	1 Hour	0.25 ppm (655 $\mu\text{g}/\text{m}^3$ )		75 ppb (196 $\mu\text{g}/\text{m}^3$ )	-			
Lead <sup>12,13</sup>	30 Day Average	1.5 $\mu\text{g}/\text{m}^3$	Atomic Absorption	-	-	-		
	Calendar Quarter	-		1.5 $\mu\text{g}/\text{m}^3$	Same as Primary Standard	High Volume Sampler and Atomic Absorption		
	Rolling 3-Month Average	-		0.15 $\mu\text{g}/\text{m}^3$				
Visibility Reducing Particles	8 Hour	See footnote 14						
Sulfates	24 Hour	25 $\mu\text{g}/\text{m}^3$	Ion Chromatography					
Hydrogen Sulfide	1 Hour	0.03 ppm (42 $\mu\text{g}/\text{m}^3$ )	Ultraviolet Fluorescence					
Vinyl Chloride <sup>12</sup>	24 Hour	0.01 ppm (26 $\mu\text{g}/\text{m}^3$ )	Gas Chromatography					
<p>1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, 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.</p> <p>2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 <math>\mu\text{g}/\text{m}^3</math> is equal to or less than one. For PM2.5, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.</p> <p>3. 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.</p> <p>4. Any equivalent procedure which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.</p> <p>5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.</p> <p>6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.</p> <p>7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.</p> <p>8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.</p> <p>9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 <math>\mu\text{g}/\text{m}^3</math> to 12.0 <math>\mu\text{g}/\text{m}^3</math>. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 <math>\mu\text{g}/\text{m}^3</math>, as was the annual secondary standard of 15 <math>\mu\text{g}/\text{m}^3</math>. The existing 24-hour PM10 standards (primary and secondary) of 150 <math>\mu\text{g}/\text{m}^3</math> also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.</p> <p>10. 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.</p> <p>11. On June 2, 2010, a new 1-hour SO<sub>2</sub> 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<sub>2</sub> national standards (24-hour and annual) remain in effect until one 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.</p> <p>12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.</p> <p>13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 <math>\mu\text{g}/\text{m}^3</math> as a quarterly average) remains in effect until one 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.</p> <p>14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.</p>								

### 2.3.3 Regional Standards

The State of California has 35 specific air districts, which are each responsible for ensuring that the criteria pollutants are below the NAAQS and CAAQS. Air basins that exceed either the NAAQS or the CAAQS for any criteria pollutants are designated as “non-attainment areas” for that pollutant. Currently, there are 15 non-attainment areas for the federal ozone standard and two non-attainment areas for the PM<sub>2.5</sub> standard and many areas are in non-attainment for PM<sub>10</sub> as well. California therefore created the California State Implementation Plan (SIP), which is designed to provide control measures needed to attain ambient air quality standards.

The San Joaquin Valley Air Control District (SJVAPCD) is the government agency which regulates sources of air pollution within County of Fresno and it is the jurisdictional entity that is responsible for implementing the SIP. The SJVAPCD developed a Regional Air Quality Management plan to provide control measures to try to achieve attainment status for state ozone standards. An attainment plan is available for O<sub>3</sub> Particulate Matter and Carbon Monoxide (SJVAPCD, 2020).

**Table 2.2: San Joaquin Valley Attainment Status by Pollutant**

Criteria Pollutant	Federal Designation	State Designation
Ozone (1-Hour)	No Federal Standard*	Nonattainment/Severe
Ozone (8-Hour)	Nonattainment/Extreme**	Nonattainment
PM10	Attainment	Nonattainment
PM2.5	Non-Attainment***	Nonattainment
Carbon Monoxide	Attainment/Unclassified	Attainment/Unclassified
Nitrogen Dioxide	Attainment/Unclassified	Attainment
Sulfur Dioxide	Attainment/Unclassified	Attainment
Lead	No Designation/Classification	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment

\* Effective June 15, 2005, the U.S. Environmental Protection Agency (EPA) revoked the federal 1-hour ozone standard, including associated designations and classifications. EPA had previously classified the SJVAB as extreme nonattainment for this standard. EPA approved the 2004 Extreme Ozone Attainment Demonstration Plan on March 8, 2010 (effective April 7, 2010). Many applicable requirements for extreme 1-hour ozone nonattainment areas continue to apply to the SJVAB.

\*\* Though the Valley was initially classified as serious nonattainment for the 1997 8-hour ozone standard, EPA approved Valley reclassification to extreme nonattainment in the Federal Register on May 5, 2010 (effective June 4, 2010).

\*\*\* The Valley is designated nonattainment for the 1997 PM2.5 NAAQS. EPA designated the Valley as nonattainment for the 2006 PM2.5 NAAQS on November 13, 2009 (effective December 14, 2009). (SJVAPCD, 2020)

## 2.4 California Environmental Quality Act (CEQA) Significance Thresholds

The California Environmental Quality Act has provided a checklist to identify the significance of air quality impacts. These guidelines are found in Appendix G of the CEQA guidelines and are as follows:

AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the Project:

- A: Conflict with or obstruct implementation of the applicable air quality plan?
- B: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?
- C: Expose sensitive receptors to substantial pollutant concentrations?
- D: Result in other emissions (such as those leading to odors adversely affecting a substantial number of people?)

## 2.5 SJCAPCD Air Quality Impact Assessment Significance Thresholds

The SJVAPCD has established thresholds for Criteria Pollutants for use in all County related Air Quality Impact Assessments and for determining CEQA air quality impacts (SJVAPCD, 2015). These significance thresholds can be used to demonstrate that a project's total emissions would not result in a significant impact as defined by CEQA. Should emissions be found to exceed these thresholds, additional modeling is required to demonstrate that a project's total air quality impacts are below the state and federal ambient air quality standards. The significance thresholds for construction and daily operations are shown in Table 2.3.

Non-Criteria pollutants such as Hazardous Air Pollutants or Toxic Air Contaminants (TACs) are also regulated by the SJVAPCD. These are broken out into Carcinogens and Non-Carcinogens (Acute and Chronic). A project that cannot increase the cancer risk to greater than 20 for the Maximally Exposed Individual (MEI). For both Acute and Chronic Non-Carcinogens, A project can not increase the Hazard Index to greater than 1 for the MEI. (SJVAPCD, 2015)

**Table 2.3: SJVAPCD Significance Thresholds for Criteria Pollutants**

Pollutant/Precursor	Construction Emissions	Operational Emissions	
		Permitted Equipment and Activities	Non-Permitted Equipment and Activities
	Emissions (Tons/Yr)	Emissions (Tons/Yr)	Emissions (Tons/Yr)
Carbon Monoxide (CO)	100	100	100
Nitrogen Oxide (NO <sub>x</sub> )	10	10	10
Reactive Organic Gases (ROG)	10	10	10
Sulfur Oxide (SO <sub>x</sub> )	27	27	27
Respirable Particulate Matter (PM <sub>10</sub> and PM <sub>2.5</sub> )	15	15	15

## 2.6 District Rule 9510 Indirect Source Review (ISR)

District Rule 9510 Indirect Source Review (ISR), was adopted by the District's Governing Board in 2005 to reduce the impacts of growth in emissions resulting from new land development in the San Joaquin Valley (SJVAPCD, 2005). District Rule 9510 applies to new development projects that would equal or exceed specific size limits called "applicability thresholds." The applicability thresholds were established at levels intended to capture projects that emit at least two tons of NOx or two tons of PM10 per year (SJVAPCD, 2012). Projects which exceed these levels are required to reduce emissions for the exceeded emission by 20 percent NOx or 45 percent PM10 when compared to unmitigated project baseline emissions (SJVAPCD, 2020).

## 2.7 Local Air Quality

Criteria pollutants are measured continuously throughout the San Joaquin Valley Air Basin. This data is used to track ambient air quality patterns throughout the County. As mentioned earlier, this data is also used to determine attainment status when compared to the NAAQS and CAAQS. The SJVAPCB is responsible for monitoring and reporting monitoring data and CARBs data is updated yearly (CARB, 2020). Table 2.4 on the following page identifies the criteria pollutants monitored at the stations. It should be noted: that within the Valley, none of SJVAPCDs air quality monitors measure Carbon Monoxide (CO).

**Table 2.4: Three-Year Ambient Air Quality Summary San Joaquin Air Basin**

Pollutant	Closest Recorded Ambient Monitoring Site	Averaging Time	CAAQS	NAAQS	2016	2017	2018	Days Exceeded over 3 years	
O <sub>3</sub> (ppm)	San Joaquin Valley Air Basin Average	1 Hour	0.09 ppm	No Standard	0.131	0.143	0.129	3	
		8 Hour	0.070 ppm	0.070 ppm	0.101	0.112	0.101	345	
PM <sub>10</sub> (µg/m <sup>3</sup> )		24 Hour	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	132.5	210	250.4	435	
		Annual Arithmetic Mean	20 µg/m <sup>3</sup>	No Standard	47.3	48.4	53.0	<sup>1</sup> Not Reported	
PM <sub>2.5</sub> (µg/m <sup>3</sup> )		24 Hour	No Standard	35 µg/m <sup>3</sup>	66.4	113.4	189.8	142	
		Annual Arithmetic Mean	12 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>	16	16.8	18.7	<sup>1</sup> Not Reported	
NO <sub>2</sub> (ppm)		Annual Arithmetic Mean	0.030 ppm	0.053 ppm	0.012	0.020	0.013	<sup>1</sup> Not Reported	
		1 Hour	0.18 ppm	0.100 ppm	0.072	0.066	0.076	No exceedances identified	
1. Not Reported data is data that does not exist. The annual emissions are over the year and therefore do not have daily exceedance (CARB, 2020)									

### **3.0 METHODOLOGY**

#### 3.1 Construction Emissions Calculations

Potential air quality impacts related to Project construction and operations were calculated using the latest CalEEMod 2016.3.2 air quality model, which was developed by BREEZE Software for SCAQMD in 2017. The construction module in CalEEMod is used to calculate the emissions associated with Project construction and uses methodologies presented in the U.S. EPA AP-42 document with emphasis on Chapter 11.9. The CalEEMod input/output model is shown in ***Attachment A*** to this Assessment.

The AERMOD dispersion model will be used to determine the concentration for air pollutants at any location near the pollutant generator. Additionally, the model will predict the maximum exposure distance and concentrations. The notable toxic air contaminant from construction is diesel exhaust, since exposure to diesel exhaust is known to cause cancer and acute and chronic health effects. Diesel exhaust emissions can be estimated using the annual PM<sub>10</sub> exhaust emissions from onsite construction operations obtained from the annual CalEEMod model output by summing each onsite source for the construction duration. The AERMOD files for the Project are provided in ***Attachments B*** for the unmitigated scenario.

Once the dispersed concentrations of diesel particulates are estimated in the surrounding air, they are used to evaluate estimated exposure to people. Exposure is evaluated by calculating the dose in milligrams per kilogram body weight per day (mg/kg/d). For residential exposure, the breathing rates are determined for specific age groups, so inhalation dose (Dose-air) is calculated for each of these age groups, 3rd trimester, 0<2, 2<9, 2<16, 16<30 and 16-70 years. The following algorithms calculate this dose for exposure through the inhalation pathways. The worst-case cancer risk dose calculation is defined in Equation 1 below (OEHHA, February 2015)

*Equation 1*

$$Dose_{air} = C_{air} * (BR/BW) * A * EF * (1 \times 10^{-6})$$

Dose <sub>air</sub>	=	Dose through inhalation (mg/kg/d)
C <sub>air</sub>	=	Concentration in air (µg/m <sup>3</sup> ) Annual average DPM concentration in µg/m <sup>3</sup> - AERMOD predicts annual averages.
BR/BW	=	Daily breathing rate normalized to body weight (L/kg BW-day). See Table I.2 for the daily breathing rate for each age range.
A	=	Inhalation absorption factor (assumed to be 1)
EF	=	Exposure frequency (unitless, days/365 days)
1x10 <sup>-6</sup>	=	Milligrams to micrograms conversion (10 <sup>-3</sup> mg/ µg), cubic meters to liters conversion (10 <sup>-3</sup> m <sup>3</sup> /l)

Cancer risk is calculated by multiplying the daily inhalation or oral dose, by a cancer potency factor, the age sensitivity factor, the frequency of time spent at home and the exposure

duration divided by averaging time, to yield the excess cancer risk. As described below, the excess cancer risk is calculated separately for each age grouping and then summed to yield cancer risk for any given location. Specific factors as modeled are shown within the Project models attached to this Assessment. The worst-case cancer risk calculation is defined in Equation 2 below (OEHHA, February 2015):

*Equation 2*

$$\text{RISK}_{\text{inh-res}} = \text{DOSE}_{\text{air}} \times \text{CPF} \times \text{ASF} \times \text{ED/AT} \times \text{FAH}$$

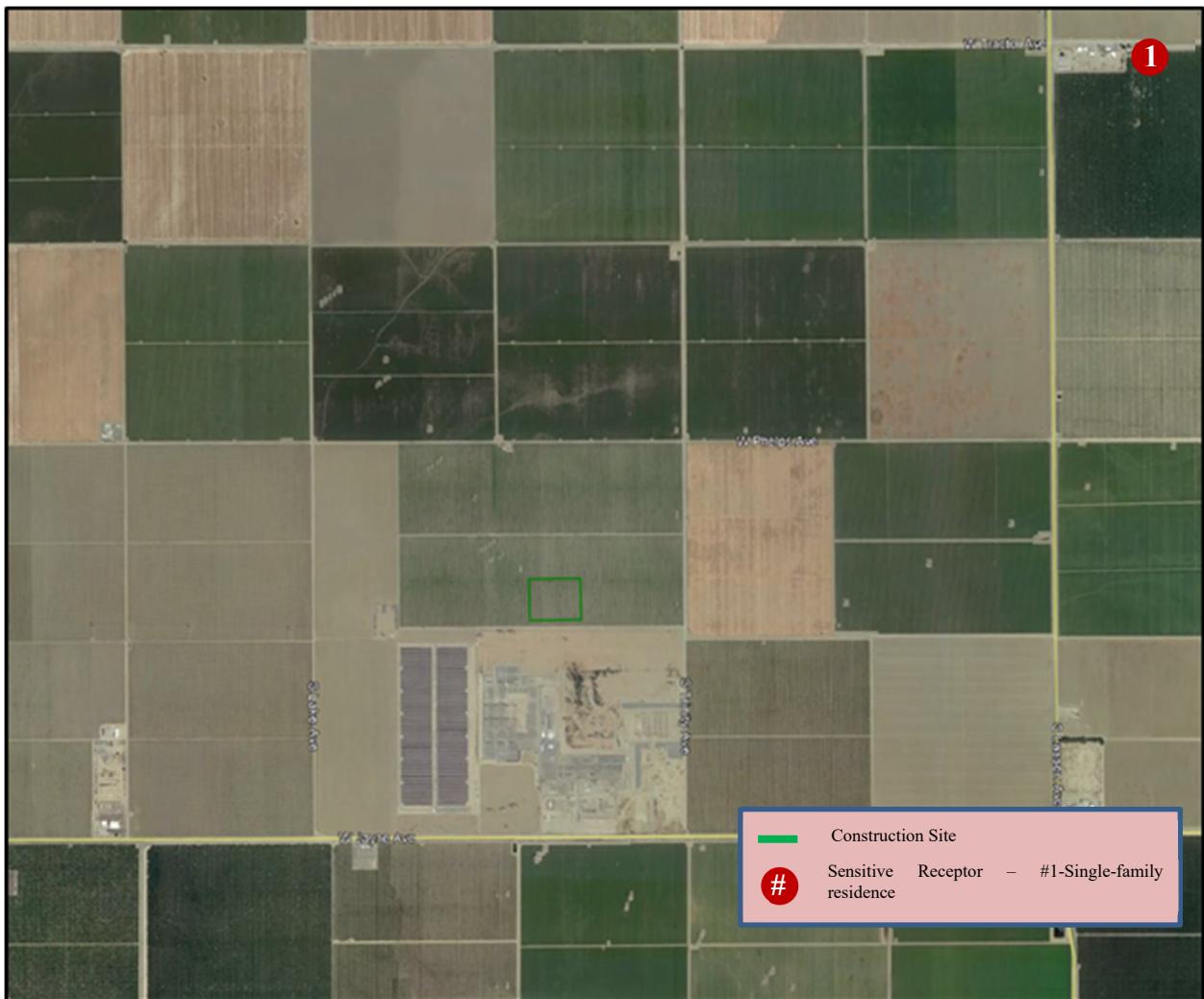
RISK <sub>inh-res</sub>	=	Residential inhalation cancer risk
DOSE <sub>air</sub>	=	Daily inhalation dose (mg/kg-day)
CPF	=	Inhalation cancer potency factor (mg/kg-day <sup>-1</sup> )
ASF	=	Age sensitivity factor for a specified age group (unitless)
ED	=	Exposure duration (in years) for a specified age group
AT	=	Averaging time for lifetime cancer risk (years)
FAH	=	Fraction of time spent at home (unitless)

The California Office of Environmental Health Hazard Assessment (OEHHA) recommends that an exposure duration (residency time) of 30 years be used to estimate individual cancer risk for the Maximally Exposed Individual Resident (MEIR). OEHHA also recommends that the 30-year exposure duration be used as the basis for public notification and risk reduction audits and plans. Exposure durations of 9-years and 70-years are also recommended to be evaluated for the MEIR to show the range of cancer risk based on residency periods. If a facility is notifying the public regarding cancer risk, the 9-and 70-year cancer risk estimates are useful for people who have resided in their current residence for periods shorter and longer than 30 years. Health risk calculations are shown in **Attachment C** to this Assessment.

Non-Cancer risks or risks defined as chronic or acute are also known with respect to Diesel Particulate Matter (DPM) and are determined by the hazard index. To calculate hazard index, DPM concentration is divided by its chronic Reference Exposure Levels (REL). Where the total equals or exceeds one, a health hazard is presumed to exist. RELs are published by the Office of Environmental Health Hazard Assessment (OEHHA, February 2015). Diesel Exhaust has a REL of 5 µg/m<sup>3</sup> and targets the respiratory system.

A graphical representation of the modeling locations for the Project is shown on an aerial of the Project site and vicinity below in Figure 3-A. The red point (#1) represent the closest and only sensitive residential receptor location near the project site and is approximately 1.8 miles from the project. AERMOD was prepared to calculate emissions at this location.

**Figure 3-A: Construction Health Risk Model Setup**



Source: (Google Earth Pro, 2020)

The California Air Resources Board (CARB) regulations require that – starting in 2020 – all off-road equipment needs to be Tier 4 with over one third of the total equipment in the state being Tier 4 Final (California Air Resources Board, 2009). The project will be under construction in 2022 and 2023.

### 3.2 Construction Assumptions

Project construction includes site preparation and grading, installation of drainage and retention basins, foundations/supports, setting of equipment, wiring and electrical system installation, and assembly of the accessory components. The Project would require the grading of approximately 9.2 acres and will require an import of roughly 17,000 CY of suitable base material and export of roughly 2,000 CY. The Project plans to start grading and

construction in the second quarter of 2022 and be completed in the fourth quarter of 2023 and was assumed to have a six-day working week. Material hauling/truck details along with worker trips were provided within the project description (See Table 3-6) and was manually updated within the CalEEMod software. Table 3.1 shows the expected equipment and durations as provided by the Project Engineer/Applicant.

**Table 3.1: Anticipated Construction Equipment and Durations**

Equipment Identification	Estimated Start	Estimated Completion	Quantity	HP
<b>Site Prep/roadway work</b>	03/15/2022	5/28/2022		
Graders			1	250
Off-Highway Trucks (Dump Truck)			4	415
Off-Highway Trucks (Water Truck)			4	300
Rollers			1	405
Rubber Tired Loaders (4-5 yard)			1	275
<b>Below Grade Construction</b>	06/1/2022	8/30/2022		
Excavators			1	108
Off-Highway Trucks (Water Truck)			4	300
Forklifts			1	100
Tractors/Loaders/Backhoes			1	68
Excavators			1	70
Rubber Tired Loaders (4-5 yard)			1	275
Drill Rig			1	125
Off-Highway Trucks (Dump Truck)			1	415
Skid Steer Loaders			1	74
Trenchers			1	75
<b>Above Grade Construction</b>	09/1/2022	8/15/2023		
Aerial Lifts			1	49
Aerial Lifts			1	74
Cranes (17 Ton)			1	250
Cranes (30 ton)			1	130
Forklifts			2	130
Welders			1	395
<b>1Commissioning and Testing</b>	8/16/23	12/15/23		
Forklifts			2	130
Aerial Lifts			1	49

1. Commissioning and Testing estimated between 6/15/23 – 12/15/23. For purposes of modeling and to avoid double counting, Forklifts and Aerial Lifts are the same units as Above Grade Construction. For this purpose, commissioning and testing was modeled with a start date of 8/16/23.

### 3.3 Operational Assumptions

Once operational, the Project would generate very few air quality emissions from daily operations. Operational emissions sources would include the consumption of little energy onsite from Project auxiliary equipment, such as control room HVAC units, communications equipment and lighting. It's assumed that the total demand onsite would be 6 kw continuous per building or roughly 105,120 kWh per year and was modeled as such within CalEEMod.

Mobile vehicle visits to the Project site associated with periodic operations and maintenance would also generate air emissions. Monthly operations staff operations and maintenance visits, with crews of two to four persons are expected to generate 2 to 4 trips twice per month. For purposes of preparing an overly conservative analysis, it was assumed that the Project would generate 4 trips per day using a rural setting. CalEEMod has been updated to reflect Project-related operational conditions.

### 3.4 Odor (Onsite)

The Project may create temporary construction odors from combustion engine equipment but would not be considered significant due to the highly dispersive nature of diesel exhaust. Therefore, less than significant impacts are expected.

## **4.0 FINDINGS**

### **4.1 Construction Emission Findings**

Construction emissions in tons per year from the construction activities and equipment identified in Section 3.2 above is shown in Table 4.1. Based on the modeling, the Project would not exceed SJVAPCD standards though would exceed SJVAPCD Rule 9510 for NOx. Based on this exceedance, the project would need to incorporate mitigation to comply.

Reducing NOx within construction equipment can generally be achieved by providing a mixture of standard equipment and Tier 4 construction equipment. Tier 4 construction equipment has been a requirement for all diesel construction equipment since 2014. Equipment newer than 2014 would meet these requirements. Based on Table 3.1 above, the horsepower of all the equipment identified sums up to 7,767 HP. It was found that a mix of equipment identified in CalEEMod having a total combined horsepower of 2,543 HP or roughly 32% by total HP of the fleet would be required to Meet Tier 4 standards or would need a manufacture date after 2014.

Additionally, as noted above, the Developer would decommission the Project once its lifecycle has been reached and would include demolition and removal of the equipment. This phase would be accomplished within a few months and would involve minimal equipment. Demolition intensity would be significantly less than Project construction and would therefore have a less than significant impact.

**Table 4.1: Expected Construction Emissions Summary – Tons per Year**

Year	ROG	NOx	CO	SO2	PM10 (Dust)	PM10 (Exhaust)	PM10 (Total)	PM2.5 (Dust)	PM2.5 (Exhaust)	PM2.5 (Total)
2022 (Unmitigated)	0.41	<b>3.69</b>	2.96	0.01	0.10	0.13	0.23	0.02	0.12	0.15
2023 (Unmitigated)	0.13	1.17	1.02	0.00	0.08	0.04	0.12	0.02	0.04	0.06
SJVAPCD Significance Threshold (Tons/Year)	10	10	100	27	-	-	15	-	-	15
Rule 9510 Significance Threshold (Tons/Year)		2					2			
Impact?	No	<b>Yes</b>	No	No	-	-	No	-	-	No
2022 (Mitigated)	-	2.89	-	-	-	-	-	-	-	-
2023 (Mitigated)	-	1.14	-	-	-	-	-	-	-	-
Mitigated Reduction	-	0.80	-	-	-	-	-	-	-	-
Mitigation Reduction Percent	-	21.7%	-	-	-	-	-	-	-	-
Rule 9510 reduction threshold (Percent)	-	20%	-	-	-	-	-	-	-	-
Mitigated Impact?	-	No	-	-	-	-	-	-	-	-

## 4.2 Construction Health Risks

The nearest sensitive receptors to the Project site are identified in Figure 2-A above and are greater than one mile from the Project site. Based upon the annual air quality modeling results attached to this report, worst-case unmitigated PM<sub>10</sub> from exhaust emissions would cumulatively produce 0.143 tons over 547 workdays under a 6 day work week and an elapsed duration of 640-days. Over the construction duration, the project would emit an average of 0.00235 grams/second. The average emission rate over the grading area is 5.85x10<sup>-8</sup> g/m<sup>2</sup>/s, which was calculated as follows:

$$\frac{0.00235 \frac{\text{grams}}{\text{second}}}{9.2 \text{ acres} * 4,046 \frac{\text{meters}^2}{\text{acre}}} = 6.32 * 10^{-8} \frac{\text{grams}}{\text{meters}^2 \text{ second}}$$

Utilizing the AERMOD dispersion model, the worst-case annual concentration of DPM from Project construction is estimated at 0.00006 µg/m<sup>3</sup>. Utilizing the risk equation identified above

in Section 3.1, the inhalation cancer risk for the closest residential receptor was found to be less than one in one million exposed which is less than the allowable 20 per one million exposed. Finally, there are known acute and chronic health risks associated with diesel exhaust which are considered non-cancer risks. These risks are calculated based on methods identified in Section 3.1 of this report. The annual concentration of 0.00006 µg/m<sup>3</sup> divided by the REL of 5 µg/m<sup>3</sup> yields a Health Hazard Index less than one. Therefore, no acute or chronic health risks are expected and all health risks are considered less than significant.

#### 4.3 Operational Findings

Project operations are expected to begin in 2023. To reflect potential worst-case trip generation, it was assumed that the Project would generate four daily trips. The expected daily pollutant generation from mobile sources is estimated in CalEEMod using emission factors from EMFAC2014. The daily pollutants calculated for summer and winter are shown in Table 4.2 below. Based upon these calculations, the Project would produce less than significant air quality impacts during operations.

**Table 4.2: Expected Pollutant Generation (Tons/Year)**

	<b>ROG</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>x</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
Area	0.04	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.00	0.01	0.01	0.00	0.00	0.00
<b>Total (Unmitigated)</b>	<b>0.04</b>	<b>0.01</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
SJVAPCD Significance Threshold (Tons/Year)	10	10	100	27	15	15
<b>Significant?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

#### 4.4 Odor Findings

The Project may create temporary construction odors from combustion engine equipment but would not be considered significant due to the highly dispersive nature of diesel exhaust. These odors would be generated only during a short period and would not occur following the completion of construction activities. Operational odors would not be expected.

#### 4.5 Cumulative Construction Impacts

Cumulative construction impacts could exist if a project was to produce air quality emissions simultaneous to a nearby construction project such that the addition of both project emissions could exceed significance thresholds. For this Project, the construction emissions are well

below significance as shown in Table 4.2 above. If a nearby project was to be under construction at the same time, that project would need to produce significantly more emissions and be relatively close to the Project site. Also, all other future projects developed in the project vicinity would be required to meet the same SJVAPCD rules and requirements to limit the generation of pollutant emissions from construction activities. Given this, the cumulative air quality emissions impacts would be less than significant.

#### 4.6 Cumulative Operations Impacts

The Project will have no significant sources of air emissions during operations. Based on this, the Project does not conflict with or prevent the implementation of SJVAPCD air quality management plans and would be consistent with the SIP.

#### 4.7 Conclusion of Findings

Construction of the Project is anticipated to start in 2022 and be completed in 2023. The Project was found to generate less than significant health risk impacts from diesel exhaust during construction and would also generate less than significant criteria pollutant air quality emissions. The project would not require mitigation requirements beyond standard best management practices during construction.

Project operational activities would generate emissions from vehicle trips and ongoing maintenance activities. Based on the analysis provided, emissions generated during operations would be less than significant.

The Project may generate short-term odors from use of temporary construction equipment. Since odors from this equipment would be short-term, no significant odor impacts would be expected. Also, the Project would not produce long-term odors and would therefore result in less than significant odor impacts.

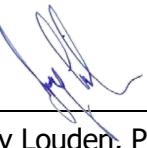
The project was found to generate less than significant construction and operational cumulative impacts and the project would not impede SJVAPCD's ability to implement the districts Long Term Air Quality Management plan and would therefore conform to the SIP.

## **5.0 REFERENCES**

- California Air Resources Board. (2009). Retrieved from  
<http://www.stancounty.com/publicworks/pdf/off-rd-diesel-vehicle-regulation.pdf>
- CARB. (2020). <https://www.arb.ca.gov>. Retrieved from Top 4 Summary for San Joaquin Valley Air Basin: <https://www.arb.ca.gov/adam/topfour/topfour1.php>
- Google. (2017). Retrieved from <https://www.google.com/maps/@33.7585759,-116.2430233,13z>
- Google Earth Pro. (2020).
- LS Power Grid California. (2020). *Site Grading Plan*.
- OEHHA. (February 2015). *Air Toxics Hot Spots Program - Risk Assessment Guidelines - Guidance Manual for Preparation of Health Risk Assessments*. OEHHA.
- SJVAPCD. (2005). *Rule 9510 – Indirect Source Review (ISR) and Rule 3180 – Administrative Fees for Indirect Source Review*. Retrieved from  
[http://www.valleyair.org/ISR/Documents/Rule\\_9510\\_StaffReport.pdf](http://www.valleyair.org/ISR/Documents/Rule_9510_StaffReport.pdf)
- SJVAPCD. (2012). *ISR Overview*. Retrieved from <http://www.valleyair.org/ISR/ISROverview.htm#GoalofISR>
- SJVAPCD. (2015). *Air Quality Thresholds of Significance – Criteria Pollutants*. Retrieved from  
<http://www.valleyair.org/transportation/0714-GAMAQI-Criteria-Pollutant-Thresholds-of-Significance.pdf>
- SJVAPCD. (2015). *Air Quality Thresholds of Significance – Toxic Air Contaminants*. Retrieved from <http://www.valleyair.org/transportation/0714-GAMAQI-TACs-Thresholds-of-Significance.pdf>
- SJVAPCD. (2018). *RULE 9510 INDIRECT SOURCE REVIEW (ISR)*. Retrieved from  
<http://www.valleyair.org/rules/currntrules/r9510-a.pdf>
- SJVAPCD. (2020). *Air Quality Attainment Plans*. Retrieved from  
[http://valleyair.org/Air\\_Quality\\_Plans/air-quality-plans.htm](http://valleyair.org/Air_Quality_Plans/air-quality-plans.htm)
- SJVAPCD. (2020). *Ambient Air Quality Standards & Valley Attainment Status*. Retrieved from  
<https://valleyair.org/aqinfo/attainment.htm>
- SJVAPCD. (2020). *Frequently Asked Questions Rule 9510 Indirect Source Review (ISR)*. Retrieved from [https://www.valleyair.org/ISR/Documents/ISR\\_FAQ\\_4-30-20.pdf](https://www.valleyair.org/ISR/Documents/ISR_FAQ_4-30-20.pdf)
- WRCC. (2018). Retrieved from  
[https://wrcc.dri.edu/Climate/comp\\_table\\_show.php?stype=wind\\_dir\\_avg](https://wrcc.dri.edu/Climate/comp_table_show.php?stype=wind_dir_avg)
- WRCC. (2018). *WRCC*.
- WRCC. (2020). *HANFORD 1 S, CALIFORNIA (043747)*. Retrieved from  
<https://wrcc.dri.edu/summary/Climsmsca.html>: <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca3747>

## **6.0 CERTIFICATIONS**

The contents of this Assessment represent an accurate depiction of the air quality environment and impacts within and surrounding the proposed development.



---

Jeremy Louden, Principal  
Ldn Consulting, Inc.  
jlouden@ldnconsulting.net  
760-473-1253

Date February 13, 2021

**ATTACHMENT A**

CALEEMOD 2016.3.2

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

**Gates 500 kV Dynamic Reactive Support Project (Operational 2023)**  
**Fresno County, Annual****1.0 Project Characteristics****1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	9.20	8,000.00	0

**1.2 Other Project Characteristics**

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	45
Climate Zone	3			Operational Year	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	335.11	CH4 Intensity (lb/MWhr)	0.015	N2O Intensity (lb/MWhr)	0.003

**1.3 User Entered Comments & Non-Default Data**

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

Project Characteristics - 2019 RPS Annual Report...PGE achieved 39% RPS in 2018. 2030 will achieve 60% or 1.75% per year. By 2023 47.8% achieved.

Land Use - Site area is 9.2 Acre; 2 small control buildings will be installed (Estimated to be 8,000 SF)

Construction Phase - LSPGC Gates Schedule and includes Construction List provided by applicant.

Off-road Equipment - construction sched per PD

Off-road Equipment - Above Grade... 16 week duration equipment set

Off-road Equipment - Per revised construction sched. Added three additional 300 HP Water Truck

Off-road Equipment - Dates were modified to reflect the fact that aerial lifts in this phase and forklifts are identical to above ground work.

Off-road Equipment - Per revised construction sched. Added one additional 415 HP Dump Truck

Trips and VMT - Daily vehicle trips identified in Table 3-6 of PD. Hauling trips incorporated in average ADT for Trucks and worker trips. Vehicle Class for Vender modified to HHDT only to be conservative

Grading -

Architectural Coating -

Vehicle Trips - 4 trips per weekday

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Area Coating -

Energy Use - 6kw per building average demand  $6*24*365=52,560$  kWh per building... 2 buildings (105,120kWh) or 13.14 kWh per SF ( $8000\text{ SF }* 13.14\text{ kWh/sf}$ )  
 $=105,120$  kWh

Construction Off-road Equipment Mitigation - t4 30%

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	230.00	299.00
tblConstructionPhase	NumDays	230.00	105.00
tblConstructionPhase	NumDays	20.00	65.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblEnergyUse	NT24E	0.00	13.14
tblGrading	AcresOfGrading	40.63	33.75
tblGrading	MaterialExported	0.00	2,000.00
tblGrading	MaterialImported	0.00	17,000.00
tblLandUse	LandUseSquareFeet	0.00	8,000.00
tblLandUse	LotAcreage	0.00	9.20
tblOffRoadEquipment	HorsePower	187.00	250.00
tblOffRoadEquipment	HorsePower	402.00	300.00
tblOffRoadEquipment	HorsePower	402.00	415.00
tblOffRoadEquipment	HorsePower	80.00	405.00
tblOffRoadEquipment	HorsePower	203.00	275.00
tblOffRoadEquipment	HorsePower	221.00	125.00
tblOffRoadEquipment	HorsePower	158.00	108.00
tblOffRoadEquipment	HorsePower	158.00	70.00
tblOffRoadEquipment	HorsePower	89.00	100.00
tblOffRoadEquipment	HorsePower	402.00	300.00
tblOffRoadEquipment	HorsePower	402.00	415.00
tblOffRoadEquipment	HorsePower	203.00	275.00

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

tblOffRoadEquipment	HorsePower	65.00	74.00
tblOffRoadEquipment	HorsePower	97.00	68.00
tblOffRoadEquipment	HorsePower	78.00	75.00
tblOffRoadEquipment	HorsePower	63.00	74.00
tblOffRoadEquipment	HorsePower	63.00	49.00
tblOffRoadEquipment	HorsePower	231.00	250.00
tblOffRoadEquipment	HorsePower	231.00	130.00
tblOffRoadEquipment	HorsePower	89.00	130.00
tblOffRoadEquipment	HorsePower	46.00	395.00
tblOffRoadEquipment	HorsePower	63.00	49.00
tblOffRoadEquipment	HorsePower	89.00	130.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	7.00	10.00
tblOffRoadEquipment	UsageHours	7.00	5.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.015
tblProjectCharacteristics	CO2IntensityFactor	641.35	335.11
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.003
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	2,375.00	0.00
tblTripsAndVMT	VendorTripLength	6.60	20.00
tblTripsAndVMT	VendorTripLength	6.60	20.00
tblTripsAndVMT	VendorTripLength	6.60	20.00

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

tblTripsAndVMT	VendorTripLength	6.60	20.00
tblTripsAndVMT	VendorTripNumber	0.00	15.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	1.00	5.00
tblTripsAndVMT	VendorTripNumber	1.00	5.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	WorkerTripLength	16.80	50.00
tblTripsAndVMT	WorkerTripLength	16.80	50.00
tblTripsAndVMT	WorkerTripLength	16.80	50.00
tblTripsAndVMT	WorkerTripLength	16.80	50.00
tblTripsAndVMT	WorkerTripNumber	28.00	8.00
tblTripsAndVMT	WorkerTripNumber	33.00	15.00
tblTripsAndVMT	WorkerTripNumber	3.00	15.00
tblTripsAndVMT	WorkerTripNumber	3.00	5.00
tblVehicleTrips	CC_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	0.00	4.00

**2.0 Emissions Summary**

---

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

**2.1 Overall Construction****Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Year	tons/yr											MT/yr					
2022	0.4126	3.6929	2.9611	9.9700e-003	0.0988	0.1349	0.2338	0.0235	0.1243	0.1478	0.0000	886.7201	886.7201	0.2461	0.0000	892.8730	
2023	0.1304	1.1714	1.0186	3.0500e-003	0.0763	0.0441	0.1204	0.0204	0.0409	0.0612	0.0000	279.5258	279.5258	0.0503	0.0000	280.7822	
Maximum	0.4126	3.6929	2.9611	9.9700e-003	0.0988	0.1349	0.2338	0.0235	0.1243	0.1478	0.0000	886.7201	886.7201	0.2461	0.0000	892.8730	

**Mitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Year	tons/yr											MT/yr					
2022	0.3271	2.8894	3.4906	9.9700e-003	0.0988	0.1028	0.2016	0.0235	0.0951	0.1186	0.0000	886.7192	886.7192	0.2461	0.0000	892.8721	
2023	0.1273	1.1396	1.0275	3.0500e-003	0.0763	0.0424	0.1187	0.0204	0.0392	0.0596	0.0000	279.5256	279.5256	0.0503	0.0000	280.7820	
Maximum	0.3271	2.8894	3.4906	9.9700e-003	0.0988	0.1028	0.2016	0.0235	0.0951	0.1186	0.0000	886.7192	886.7192	0.2461	0.0000	892.8721	

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	16.34	17.17	-13.53	0.00	0.00	18.93	9.57	0.00	18.66	14.73	0.00	0.00	0.00	0.00	0.00	0.00

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
5	1-1-2022	3-31-2022	0.4106	0.3161
6	4-1-2022	6-30-2022	1.9143	1.4426
7	7-1-2022	9-30-2022	1.2220	0.9148
8	10-1-2022	12-31-2022	0.5329	0.5219
9	1-1-2023	3-31-2023	0.4630	0.4540
10	4-1-2023	6-30-2023	0.4661	0.4570
11	7-1-2023	9-30-2023	0.2883	0.2791
		Highest	1.9143	1.4426

**2.2 Overall Operational****Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Area	0.0368	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005	
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	15.9786	15.9786	7.2000e-004	1.4000e-004	16.0391	
Mobile	8.0000e-004	9.0600e-003	7.6900e-003	4.0000e-005	2.6300e-003	2.0000e-005	2.6600e-003	7.1000e-004	2.0000e-005	7.3000e-004	0.0000	4.1871	4.1871	3.4000e-004	0.0000	4.1956	
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Total	0.0376	9.0600e-003	7.7000e-003	4.0000e-005	2.6300e-003	2.0000e-005	2.6600e-003	7.1000e-004	2.0000e-005	7.3000e-004	0.0000	20.1657	20.1657	1.0600e-003	1.4000e-004	20.2347	

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

**2.2 Overall Operational****Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Area	0.0368	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005	
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	15.9786	15.9786	7.2000e-004	1.4000e-004	16.0391	
Mobile	8.0000e-004	9.0600e-003	7.6900e-003	4.0000e-005	2.6300e-003	2.0000e-005	2.6600e-003	7.1000e-004	2.0000e-005	7.3000e-004	0.0000	4.1871	4.1871	3.4000e-004	0.0000	4.1956	
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
<b>Total</b>	<b>0.0376</b>	<b>9.0600e-003</b>	<b>7.7000e-003</b>	<b>4.0000e-005</b>	<b>2.6300e-003</b>	<b>2.0000e-005</b>	<b>2.6600e-003</b>	<b>7.1000e-004</b>	<b>2.0000e-005</b>	<b>7.3000e-004</b>	<b>0.0000</b>	<b>20.1657</b>	<b>20.1657</b>	<b>1.0600e-003</b>	<b>1.4000e-004</b>	<b>20.2347</b>	

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**3.0 Construction Detail****Construction Phase**

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Prep/roadway work	Grading	3/15/2022	5/28/2022	6	65	
2	Below Grade Construction	Trenching	6/1/2022	8/30/2022	6	78	
3	Above Grade Construction	Building Construction	9/1/2022	8/15/2023	6	299	
4	Commissioning and Testing	Building Construction	8/16/2023	12/15/2023	6	105	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Prep/roadway work	Graders	1	10.00	250	0.41
Site Prep/roadway work	Off-Highway Trucks	4	10.00	300	0.38
Site Prep/roadway work	Off-Highway Trucks	4	5.00	415	0.38
Site Prep/roadway work	Rollers	1	10.00	405	0.38
Site Prep/roadway work	Rubber Tired Loaders	1	10.00	275	0.36
Below Grade Construction	Bore/Drill Rigs	1	10.00	125	0.50
Below Grade Construction	Excavators	1	10.00	108	0.38
Below Grade Construction	Excavators	1	5.00	70	0.38
Below Grade Construction	Forklifts	1	4.00	100	0.20
Below Grade Construction	Off-Highway Trucks	4	10.00	300	0.38
Below Grade Construction	Off-Highway Trucks	1	8.00	415	0.38
Below Grade Construction	Rubber Tired Loaders	1	10.00	275	0.36
Below Grade Construction	Skid Steer Loaders	1	10.00	74	0.37
Below Grade Construction	Tractors/Loaders/Backhoes	1	5.00	68	0.37
Below Grade Construction	Trenchers	1	5.00	75	0.50
Above Grade Construction	Aerial Lifts	1	4.00	74	0.31
Above Grade Construction	Aerial Lifts	1	4.00	49	0.31
Above Grade Construction	Cranes	1	10.00	250	0.29
Above Grade Construction	Cranes	1	5.00	130	0.29
Above Grade Construction	Forklifts	2	5.00	130	0.20
Above Grade Construction	Welders	1	2.00	395	0.45
Commissioning and Testing	Aerial Lifts	1	4.00	49	0.31
Commissioning and Testing	Forklifts	2	5.00	130	0.20

Trips and VMT

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Prep/roadway work	11	8.00	15.00	0.00	50.00	20.00	20.00	LD_Mix	HHDT	HHDT
Below Grade Construction	13	15.00	10.00	0.00	50.00	20.00	20.00	LD_Mix	HHDT	HHDT
Above Grade Construction	7	15.00	5.00	0.00	50.00	20.00	20.00	LD_Mix	HHDT	HHDT
Commissioning and Testing	3	5.00	5.00	0.00	50.00	20.00	20.00	LD_Mix	HHDT	HHDT

**3.1 Mitigation Measures Construction**

Use Cleaner Engines for Construction Equipment

**3.2 Site Prep/roadway work - 2022**Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr											MT/yr				
Fugitive Dust					0.0190	0.0000	0.0190	2.1000e-003	0.0000	2.1000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1718	1.5349	1.1003	3.9600e-003		0.0555	0.0555		0.0511	0.0511	0.0000	347.6613	347.6613	0.1124	0.0000	350.4724
Total	0.1718	1.5349	1.1003	3.9600e-003	0.0190	0.0555	0.0745	2.1000e-003	0.0511	0.0532	0.0000	347.6613	347.6613	0.1124	0.0000	350.4724

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

**3.2 Site Prep/roadway work - 2022****Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Vendor	3.4400e-003	0.1150	0.0171	3.8000e-004	8.3400e-003	3.5000e-004	8.6800e-003	2.2900e-003	3.3000e-004	2.6200e-003	0.0000	36.2010	36.2010	3.0800e-003	0.0000	36.2781	
Worker	3.4300e-003	2.3400e-003	0.0234	8.0000e-005	9.6100e-003	5.0000e-005	9.6700e-003	2.5500e-003	5.0000e-005	2.6000e-003	0.0000	7.5731	7.5731	1.6000e-004	0.0000	7.5770	
Total	6.8700e-003	0.1173	0.0405	4.6000e-004	0.0180	4.0000e-004	0.0184	4.8400e-003	3.8000e-004	5.2200e-003	0.0000	43.7740	43.7740	3.2400e-003	0.0000	43.8551	

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Fugitive Dust					0.0190	0.0000	0.0190	2.1000e-003	0.0000	2.1000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Off-Road	0.1309	1.1543	1.3696	3.9600e-003		0.0412	0.0412		0.0381	0.0381	0.0000	347.6609	347.6609	0.1124	0.0000	350.4719	
Total	0.1309	1.1543	1.3696	3.9600e-003	0.0190	0.0412	0.0601	2.1000e-003	0.0381	0.0402	0.0000	347.6609	347.6609	0.1124	0.0000	350.4719	

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

**3.2 Site Prep/roadway work - 2022****Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Vendor	3.4400e-003	0.1150	0.0171	3.8000e-004	8.3400e-003	3.5000e-004	8.6800e-003	2.2900e-003	3.3000e-004	2.6200e-003	0.0000	36.2010	36.2010	3.0800e-003	0.0000	36.2781	
Worker	3.4300e-003	2.3400e-003	0.0234	8.0000e-005	9.6100e-003	5.0000e-005	9.6700e-003	2.5500e-003	5.0000e-005	2.6000e-003	0.0000	7.5731	7.5731	1.6000e-004	0.0000	7.5770	
Total	6.8700e-003	0.1173	0.0405	4.6000e-004	0.0180	4.0000e-004	0.0184	4.8400e-003	3.8000e-004	5.2200e-003	0.0000	43.7740	43.7740	3.2400e-003	0.0000	43.8551	

**3.3 Below Grade Construction - 2022****Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Off-Road	0.1551	1.3043	1.2691	3.6400e-003		0.0541	0.0541		0.0498	0.0498	0.0000	319.4545	319.4545	0.1033	0.0000	322.0375	
Total	0.1551	1.3043	1.2691	3.6400e-003		0.0541	0.0541		0.0498	0.0498	0.0000	319.4545	319.4545	0.1033	0.0000	322.0375	

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

**3.3 Below Grade Construction - 2022****Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Vendor	2.7500e-003	0.0920	0.0137	3.0000e-004	6.6700e-003	2.8000e-004	6.9500e-003	1.8300e-003	2.7000e-004	2.1000e-003	0.0000	28.9608	28.9608	2.4700e-003	0.0000	29.0225	
Worker	7.7300e-003	5.2700e-003	0.0527	1.9000e-004	0.0216	1.2000e-004	0.0218	5.7500e-003	1.1000e-004	5.8500e-003	0.0000	17.0394	17.0394	3.5000e-004	0.0000	17.0483	
Total	<b>0.0105</b>	<b>0.0973</b>	<b>0.0663</b>	<b>4.9000e-004</b>	<b>0.0283</b>	<b>4.0000e-004</b>	<b>0.0287</b>	<b>7.5800e-003</b>	<b>3.8000e-004</b>	<b>7.9500e-003</b>	<b>0.0000</b>	<b>46.0002</b>	<b>46.0002</b>	<b>2.8200e-003</b>	<b>0.0000</b>	<b>46.0708</b>	

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Off-Road	0.1117	0.8948	1.5263	3.6400e-003		0.0370	0.0370		0.0343	0.0343	0.0000	319.4542	319.4542	0.1033	0.0000	322.0371	
Total	<b>0.1117</b>	<b>0.8948</b>	<b>1.5263</b>	<b>3.6400e-003</b>		<b>0.0370</b>	<b>0.0370</b>		<b>0.0343</b>	<b>0.0343</b>	<b>0.0000</b>	<b>319.4542</b>	<b>319.4542</b>	<b>0.1033</b>	<b>0.0000</b>	<b>322.0371</b>	

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

**3.3 Below Grade Construction - 2022****Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Vendor	2.7500e-003	0.0920	0.0137	3.0000e-004	6.6700e-004	2.8000e-004	6.9500e-003	1.8300e-003	2.7000e-004	2.1000e-003	0.0000	28.9608	28.9608	2.4700e-003	0.0000	29.0225	
Worker	7.7300e-003	5.2700e-003	0.0527	1.9000e-004	0.0216	1.2000e-004	0.0218	5.7500e-003	1.1000e-004	5.8500e-003	0.0000	17.0394	17.0394	3.5000e-004	0.0000	17.0483	
Total	0.0105	0.0973	0.0663	4.9000e-004	0.0283	4.0000e-004	0.0287	7.5800e-003	3.8000e-004	7.9500e-003	0.0000	46.0002	46.0002	2.8200e-003	0.0000	46.0708	

**3.4 Above Grade Construction - 2022****Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Off-Road	0.0562	0.5701	0.4048	9.6000e-004		0.0242	0.0242		0.0224	0.0224	0.0000	87.3995	87.3995	0.0222	0.0000	87.9533	
Total	0.0562	0.5701	0.4048	9.6000e-004		0.0242	0.0242		0.0224	0.0224	0.0000	87.3995	87.3995	0.0222	0.0000	87.9533	

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

**3.4 Above Grade Construction - 2022****Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Vendor	1.8500e-003	0.0619	9.2000e-003	2.0000e-004	4.4900e-003	1.9000e-004	4.6800e-003	1.2300e-003	1.8000e-004	1.4100e-003	0.0000	19.4928	19.4928	1.6600e-003	0.0000	19.5344	
Worker	0.0104	7.0900e-003	0.0709	2.5000e-004	0.0291	1.6000e-004	0.0293	7.7400e-003	1.5000e-004	7.8800e-003	0.0000	22.9377	22.9377	4.8000e-004	0.0000	22.9496	
<b>Total</b>	<b>0.0123</b>	<b>0.0690</b>	<b>0.0801</b>	<b>4.5000e-004</b>	<b>0.0336</b>	<b>3.5000e-004</b>	<b>0.0340</b>	<b>8.9700e-003</b>	<b>3.3000e-004</b>	<b>9.2900e-003</b>	<b>0.0000</b>	<b>42.4305</b>	<b>42.4305</b>	<b>2.1400e-003</b>	<b>0.0000</b>	<b>42.4840</b>	

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Off-Road	0.0549	0.5567	0.4078	9.6000e-004		0.0235	0.0235		0.0217	0.0217	0.0000	87.3994	87.3994	0.0222	0.0000	87.9532	
<b>Total</b>	<b>0.0549</b>	<b>0.5567</b>	<b>0.4078</b>	<b>9.6000e-004</b>		<b>0.0235</b>	<b>0.0235</b>		<b>0.0217</b>	<b>0.0217</b>	<b>0.0000</b>	<b>87.3994</b>	<b>87.3994</b>	<b>0.0222</b>	<b>0.0000</b>	<b>87.9532</b>	

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

**3.4 Above Grade Construction - 2022****Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Vendor	1.8500e-003	0.0619	9.2000e-003	2.0000e-004	4.4900e-003	1.9000e-004	4.6800e-003	1.2300e-003	1.8000e-004	1.4100e-003	0.0000	19.4928	19.4928	1.6600e-003	0.0000	19.5344	
Worker	0.0104	7.0900e-003	0.0709	2.5000e-004	0.0291	1.6000e-004	0.0293	7.7400e-003	1.5000e-004	7.8800e-003	0.0000	22.9377	22.9377	4.8000e-004	0.0000	22.9496	
Total	0.0123	0.0690	0.0801	4.5000e-004	0.0336	3.5000e-004	0.0340	8.9700e-003	3.3000e-004	9.2900e-003	0.0000	42.4305	42.4305	2.1400e-003	0.0000	42.4840	

**3.4 Above Grade Construction - 2023****Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Off-Road	0.0972	0.9543	0.7377	1.7700e-003		0.0401	0.0401		0.0371	0.0371	0.0000	161.4798	161.4798	0.0409	0.0000	162.5013	
Total	0.0972	0.9543	0.7377	1.7700e-003		0.0401	0.0401		0.0371	0.0371	0.0000	161.4798	161.4798	0.0409	0.0000	162.5013	

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

**3.4 Above Grade Construction - 2023****Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Vendor	2.3200e-003	0.0774	0.0141	3.7000e-004	8.2900e-003	1.3000e-004	8.4300e-003	2.2800e-003	1.3000e-004	2.4100e-003	0.0000	34.8171	34.8171	2.0800e-003	0.0000	34.8692	
Worker	0.0180	0.0117	0.1200	4.5000e-004	0.0538	2.8000e-004	0.0541	0.0143	2.6000e-004	0.0146	0.0000	40.7877	40.7877	7.9000e-004	0.0000	40.8074	
Total	<b>0.0203</b>	<b>0.0891</b>	<b>0.1340</b>	<b>8.2000e-004</b>	<b>0.0621</b>	<b>4.1000e-004</b>	<b>0.0625</b>	<b>0.0166</b>	<b>3.9000e-004</b>	<b>0.0170</b>	<b>0.0000</b>	<b>75.6048</b>	<b>75.6048</b>	<b>2.8700e-003</b>	<b>0.0000</b>	<b>75.6766</b>	

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Off-Road	0.0951	0.9337	0.7435	1.7700e-003		0.0390	0.0390		0.0361	0.0361	0.0000	161.4796	161.4796	0.0409	0.0000	162.5011	
Total	<b>0.0951</b>	<b>0.9337</b>	<b>0.7435</b>	<b>1.7700e-003</b>		<b>0.0390</b>	<b>0.0390</b>		<b>0.0361</b>	<b>0.0361</b>	<b>0.0000</b>	<b>161.4796</b>	<b>161.4796</b>	<b>0.0409</b>	<b>0.0000</b>	<b>162.5011</b>	

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

**3.4 Above Grade Construction - 2023****Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Vendor	2.3200e-003	0.0774	0.0141	3.7000e-004	8.2900e-003	1.3000e-004	8.4300e-003	2.2800e-003	1.3000e-004	2.4100e-003	0.0000	34.8171	34.8171	2.0800e-003	0.0000	34.8692	
Worker	0.0180	0.0117	0.1200	4.5000e-004	0.0538	2.8000e-004	0.0541	0.0143	2.6000e-004	0.0146	0.0000	40.7877	40.7877	7.9000e-004	0.0000	40.8074	
Total	0.0203	0.0891	0.1340	8.2000e-004	0.0621	4.1000e-004	0.0625	0.0166	3.9000e-004	0.0170	0.0000	75.6048	75.6048	2.8700e-003	0.0000	75.6766	

**3.5 Commissioning and Testing - 2023****Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Off-Road	8.4700e-003	0.0839	0.1177	1.8000e-004		3.4900e-003	3.4900e-003		3.2100e-003	3.2100e-003	0.0000	16.2384	16.2384	5.2500e-003	0.0000	16.3697	
Total	8.4700e-003	0.0839	0.1177	1.8000e-004		3.4900e-003	3.4900e-003		3.2100e-003	3.2100e-003	0.0000	16.2384	16.2384	5.2500e-003	0.0000	16.3697	

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

**3.5 Commissioning and Testing - 2023****Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Vendor	1.2600e-003	0.0419	7.6200e-003	2.0000e-004	4.4900e-003	7.0000e-005	4.5600e-003	1.2300e-003	7.0000e-005	1.3000e-003	0.0000	18.8443	18.8443	1.1300e-003	0.0000	18.8725	
Worker	3.2500e-003	2.1200e-003	0.0216	8.0000e-005	9.7100e-003	5.0000e-005	9.7600e-003	2.5800e-003	5.0000e-005	2.6300e-003	0.0000	7.3586	7.3586	1.4000e-004	0.0000	7.3622	
Total	4.5100e-003	0.0440	0.0293	2.8000e-004	0.0142	1.2000e-004	0.0143	3.8100e-003	1.2000e-004	3.9300e-003	0.0000	26.2029	26.2029	1.2700e-003	0.0000	26.2347	

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Off-Road	7.3700e-003	0.0728	0.1208	1.8000e-004	2.8700e-003	2.8700e-003	2.8700e-003	2.6500e-003	2.6500e-003	0.0000	16.2384	16.2384	5.2500e-003	0.0000	16.3697		
Total	7.3700e-003	0.0728	0.1208	1.8000e-004		2.8700e-003	2.8700e-003		2.6500e-003	2.6500e-003	0.0000	16.2384	16.2384	5.2500e-003	0.0000	16.3697	

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

**3.5 Commissioning and Testing - 2023****Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Vendor	1.2600e-003	0.0419	7.6200e-003	2.0000e-004	4.4900e-003	7.0000e-005	4.5600e-003	1.2300e-003	7.0000e-005	1.3000e-003	0.0000	18.8443	18.8443	1.1300e-003	0.0000	18.8725	
Worker	3.2500e-003	2.1200e-003	0.0216	8.0000e-005	9.7100e-003	5.0000e-005	9.7600e-003	2.5800e-003	5.0000e-005	2.6300e-003	0.0000	7.3586	7.3586	1.4000e-004	0.0000	7.3622	
Total	4.5100e-003	0.0440	0.0293	2.8000e-004	0.0142	1.2000e-004	0.0143	3.8100e-003	1.2000e-004	3.9300e-003	0.0000	26.2029	26.2029	1.2700e-003	0.0000	26.2347	

**4.0 Operational Detail - Mobile****4.1 Mitigation Measures Mobile**

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr												MT/yr				
Mitigated	8.0000e-004	9.0600e-003	7.6900e-003	4.0000e-005	2.6300e-003	2.0000e-005	2.6600e-003	7.1000e-004	2.0000e-005	7.3000e-004	0.0000	4.1871	4.1871	3.4000e-004	0.0000	4.1956	
Unmitigated	8.0000e-004	9.0600e-003	7.6900e-003	4.0000e-005	2.6300e-003	2.0000e-005	2.6600e-003	7.1000e-004	2.0000e-005	7.3000e-004	0.0000	4.1871	4.1871	3.4000e-004	0.0000	4.1956	

## 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated		Mitigated	
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT	Annual VMT	Annual VMT
User Defined Industrial	4.00	0.00	0.00	6,864	6,864	6,864	6,864
Total	4.00	0.00	0.00	6,864	6,864	6,864	6,864

## 4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	14.70	6.60	6.60	0.00	100.00	0.00	100	0	0

## 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.496766	0.030510	0.170483	0.111467	0.014688	0.004287	0.033704	0.127678	0.002360	0.001460	0.004966	0.001070	0.000562

## 5.0 Energy Detail

Historical Energy Use: N

Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

## **5.1 Mitigation Measures Energy**

## 5.2 Energy by Land Use - NaturalGas

### **Unmitigated**

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

**5.2 Energy by Land Use - NaturalGas****Mitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>			<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	

**5.3 Energy by Land Use - Electricity****Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	105120	15.9786	7.2000e-004	1.4000e-004	16.0391
<b>Total</b>		<b>15.9786</b>	<b>7.2000e-004</b>	<b>1.4000e-004</b>	<b>16.0391</b>

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

**5.3 Energy by Land Use - Electricity****Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	105120	15.9786	7.2000e-004	1.4000e-004	16.0391
<b>Total</b>		<b>15.9786</b>	<b>7.2000e-004</b>	<b>1.4000e-004</b>	<b>16.0391</b>

**6.0 Area Detail****6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0368	0.0000	1.0000e-005	0.0000			0.0000	0.0000		0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Unmitigated	0.0368	0.0000	1.0000e-005	0.0000			0.0000	0.0000		0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

**6.2 Area by SubCategory****Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	5.5600e-003						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0312						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000			0.0000	0.0000		0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
<b>Total</b>	<b>0.0368</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>			<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>

**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	5.5600e-003						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0312						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000			0.0000	0.0000		0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
<b>Total</b>	<b>0.0368</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>			<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>

**7.0 Water Detail**

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

**7.1 Mitigation Measures Water**

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

**7.2 Water by Land Use****Unmitigated**

	Indoor/Out door Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

**7.2 Water by Land Use****Mitigated**

	Indoor/Out door Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**8.0 Waste Detail****8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

**8.2 Waste by Land Use****Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**9.0 Operational Offroad**

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

## Gates 500 kV Dynamic Reactive Support Project (Operational 2023) - Fresno County, Annual

## 10.0 Stationary Equipment

---

### Fire Pumps and Emergency Generators

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

### Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

### User Defined Equipment

Equipment Type	Number
----------------	--------

## 11.0 Vegetation

---

**ATTACHMENT B**

AERMOD - Mitigated

1 AERMOD PRIME - (DATED 19191)  
AERMODPrMSPx VERSION  
(C) COPYRIGHT 1998-2017, Trinity Consultants

Run Began on 2/03/2021 at 14:03:06

\*\* BREEZE AERMOD  
\*\* Trinity Consultants  
\*\* VERSION 9.0

CO STARTING  
CO TITLEONE Gates 500KV Construction DPM  
CO MODELOPT DEFAULT CONC NODRYDPLT NOWETDPLT  
CO RUNORNOT RUN  
CO AVERTIME ANNUAL  
CO POLLUTID PM10  
CO FINISHED

SO STARTING  
SO ELEVUNIT METERS  
SO LOCATION KNTN800B AREA 758390.4 4004113.5 0  
\*\* SRCDESCR construction area  
SO SRCPARAM KNTN800B 6.32E-08 3 173 215 88.8 1  
SO SRCGROUP ALL  
SO FINISHED

RE STARTING  
RE ELEVUNIT METERS  
RE DISCCART 760969 4006325.7 0 0  
\*\* SENSITIV  
\*\* RCPDESCR D1  
RE FINISHED

ME STARTING  
ME SURFFILE "C:\Users\RYAN~1.DES\OneDrive\LDNONE~1\METDAT~1\FRESNO~1\FRESNO~1\93193\_2017.SFC"  
\*\* SURFFILE "C:\Users\RYAN~1.DES\OneDrive\LDNONE~1\METDAT~1\FRESNO~1\FRESNO~1\93193\_2017.SFC"  
ME PROFILE "C:\Users\RYAN~1.DES\OneDrive\LDNONE~1\METDAT~1\FRESNO~1\FRESNO~1\93193\_2017.PFL"  
\*\* PROFILE "C:\Users\RYAN~1.DES\OneDrive\LDNONE~1\METDAT~1\FRESNO~1\FRESNO~1\93193\_2017.PFL"  
ME SURFDATA 93193 2017  
ME UAIRDATA 23230 2017  
ME PROFBASE 0 METERS  
ME FINISHED

OU STARTING  
OU FILEFORM FIX  
OU PLOTFILE ANNUAL ALL ALL`ANNUAL.plt 10000  
OU FINISHED

\*\* \*\*\*\*\*  
\*\* It is recommended that the user not edit any data below this line  
\*\* \*\*\*\*\*

\*\* AMPTYPE  
\*\* AMPDATUM -1  
\*\* AMPZONE -1  
\*\* AMPHEMISPHERE  
  
\*\* PROJECTIONWKT  
PROJCS["UTM\_6326\_Zone11",GEOGCS["WGS\_84",DATUM["World\_Geodetic\_System\_1984",SPHEROID["WGS\_1984",6378137,298.2572235  
63],TOWGS84[0,0,0,0,0,0,0]],PRIMEM["Greenwich",0],UNIT["Degree",0.0174532925199433]],PROJECTION["Universal\_Transver  
se\_Mercator"],PARAMETER["Zone",11],UNIT["Meter",1,AUTHORITY["EPSG","9001"]]]  
\*\* PROJECTION UTM  
\*\* DATUM WGE  
\*\* UNITS METER  
\*\* ZONE 11  
\*\* HEMISPHERE N  
\*\* ORIGINLON 0

```

** ORIGINLAT  0
** PARALLEL1  0
** PARALLEL2  0
** AZIMUTH   0
** SCALEFACT 0
** FALSEEAST 0
** FALSENORTH 0

** POSTFMT  UNFORM
** TEMPLATE UserDefined
** AERMODEXE AERMOD_BREEZE_19191_64.EXE
** AERMAPEXE AERMAP_EPA_18081_64.EXE

```

\*\*\* Message Summary For AERMOD Model Setup \*\*\*

----- Summary of Total Messages -----

A Total of	0 Fatal Error Message(s)
A Total of	2 Warning Message(s)
A Total of	0 Informational Message(s)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
 \*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*

ME W186	43	MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used	0.50
ME W187	43	MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET	

\*\*\*\*\*  
 \*\*\* SETUP Finishes Successfully \*\*\*  
 \*\*\*\*\*

▲ \*\*\* AERMOD - VERSION 19191 \*\*\* \*\*\* Gates 500KV Construction DPM \*\*\*  
 02/03/21  
 \*\*\* AERMET - VERSION 18081 \*\*\* \*\*\*  
 14:03:06

PAGE 1  
 \*\*\* MODELOPTs: RegDEFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL ADJ\_U\*

\*\*\* MODEL SETUP OPTIONS SUMMARY \*\*\*

-- DEPOSITION LOGIC --  
 \*\*NO GAS DEPOSITION Data Provided.  
 \*\*NO PARTICLE DEPOSITION Data Provided.  
 \*\*Model Uses NO DRY DEPLETION. DRYDPLT = F  
 \*\*Model Uses NO WET DEPLETION. WETDPLT = F

\*\*Model Uses RURAL Dispersion Only.

\*\*Model Uses Regulatory DEFAULT Options:  
 1. Stack-tip Downwash.  
 2. Model Accounts for ELEVated Terrain Effects.  
 3. Use Calms Processing Routine.  
 4. Use Missing Data Processing Routine.  
 5. No Exponential Decay.

\*\*Other Options Specified:  
 ADJ\_U\* - Use ADJ\_U\* option for SBL in AERMET  
 CCVR\_Sub - Meteorological data includes CCVR substitutions  
 TEMP\_Sub - Meteorological data includes TEMP substitutions

\*\*Model Assumes No FLAGPOLE Receptor Heights.

\*\*The User Specified a Pollutant Type of: PM10

\*\*Model Calculates ANNUAL Averages Only

\*\*This Run Includes: 1 Source(s); 1 Source Group(s); and 1 Receptor(s)

with: 0 POINT(s), including  
0 POINTCAP(s) and 0 POINTHOR(s)  
and: 0 VOLUME source(s)  
and: 1 AREA type source(s)  
and: 0 LINE source(s)  
and: 0 RLINE/RЛИNEXT source(s)  
and: 0 OPENPIT source(s)  
and: 0 BUOYANT LINE source(s) with 0 line(s)

\*\*Model Set To Continue RUNning After the Setup Testing.

\*\*The AERMET Input Meteorological Data Version Date: 18081

\*\*Output Options Selected:

Model Outputs Tables of ANNUAL Averages by Receptor  
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

\*\*NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours  
m for Missing Hours  
b for Both Calm and Missing Hours

\*\*Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 0.00 ; Decay Coef. = 0.000 ; Rot. Angle = 0.0  
Emission Units = GRAMS/SEC ; Emission Rate Unit Factor = 0.10000E+07  
Output Units = MICROGRAMS/M\*\*3

\*\*Approximate Storage Requirements of Model = 3.5 MB of RAM.

\*\*Input Runstream File: aermod.inp

\*\*Output Print File: aermod.out

▲ \*\*\* AERMOD - VERSION 19191 \*\*\* \*\*\* Gates 500KV Construction DPM \*\*\*  
02/03/21 \*\*\* AERMET - VERSION 18081 \*\*\* \*\*\*  
14:03:06 \*\*\*

PAGE 2  
\*\*\* MODELOPTs: RegDEFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL ADJ\_U\*

\*\*\* AREA SOURCE DATA \*\*\*

URBAN SOURCE	NUMBER EMISSION RATE	COORD (SW CORNER)	BASE	RELEASE	X-DIM	Y-DIM	ORIENT.	INIT.
SOURCE SCALAR VARY	PART. (GRAMS/SEC)	X	Y	ELEV.	HEIGHT OF AREA	OF AREA	OF AREA	SZ
ID BY	CATS. /METER**2)	(METERS)	(METERS)	(METERS)	(METERS)	(METERS)	(DEG.)	(METERS)
- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -

KNTN800B 0 0.63200E-07 758390.4 4004113.5 0.0 3.00 173.00 215.00 88.80 1.00

NO

▲ \*\*\* AERMOD - VERSION 19191 \*\*\* \*\*\* Gates 500KV Construction DPM \*\*\*  
02/03/21 \*\*\*

\*\*\* AERMET - VERSION 18081 \*\*\* \*\*\*

14:03:06

PAGE 3  
\*\*\* MODELOPTS: RegDEFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL ADJ\_U\*

### \*\*\* SOURCE IDs DEFINING SOURCE GROUPS \*\*\*

SRCGROUP ID SOURCE IDs  
----- -----

ALL KNTN800B ,  
▲ \*\*\* AERMOD - VERSION 19191 \*\*\* \*\*\* Gates 500KV Construction DPM \*\*\*  
02/03/21  
\*\*\* AERMET - VERSION 18081 \*\*\* \*\*\* \*\*\*  
14:03:06

PAGE 4  
\*\*\* MODELOPTS: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL ADJ\_U\*

\*\*\* METEOROLOGICAL DAYS SELECTED FOR PROCESSING \*\*\*  
(1=YES; 0=NO)

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

\*\*\* UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES \*\*\*  
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,  
\*\*\* AERMOD - VERSION 19191 \*\*\*    \*\*\* Gates 500KV Construction DPM    \*\*\*  
02/03/21  
\*\*\* AERMET - VERSION 18081 \*\*\*    \*\*\*    \*\*\*  
14:03:06

PAGE 5  
\*\*\* MODELOPTS: RegDFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL ADJ\_U\*

\*\*\* UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA \*\*\*

Surface file: C:\Users\RYAN~1.DES\OneDrive\LDNONE~1\METDAT~1\FRESNO~1\FRESNO~1\93193\_2017.SFC Met Version: 18081

Profile file: C:\Users\RYAN~1.DES\OneDrive\LDNONE~1\METDAT~1\FRESNO~1\FRESNO~1\93193\_2017.PFL  
Surface format: FREE

### Profile format: FREE

Surface station no.: 93193  
Name: UNKNOWN  
Year: 2017

### First 24 hours of scalar data

### First hour of profile data

```

YR MO DY HR HEIGHT F WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
17 01 01 01 10.0 1 171.    2.36  279.3 99.0 -99.00 -99.00

```

F indicates top of profile (=1) or below (=0)

► \*\*\* AERMOD - VERSION 19191 \*\*\*    \*\*\* Gates 500KV Construction DPM  
02/03/21

\*\*\* AERMET - VERSION 18081 \*\*\*  
14:03:06

PAGE 6

REGISTRAZIONE CONCORSO DI RICERCA DI DOTTORATO DI RICERCHE IN SCIENZE DELLA SICUREZZA

\*\*\* THE ANNUAL AVERAGE CONCENTRATION      VALUES AVERAGED OVER    1 YEARS FOR SOURCE GROUP: ALL  
\*\*\*  
      INCLUDING SOURCE(S):      KNTN800B      ,

\*\*\* SENSITIVE DISCRETE RECEPTOR POINTS \*\*\*

\*\* CONC OF PM10      IN MICROGRAMS/M\*\*3      \*\*

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
760969.00	4006325.70	0.00006			

▲ \*\*\* AERMOD - VERSION 19191 \*\*\*    \*\*\* Gates 500KV Construction DPM      \*\*\*  
02/03/21  
\*\*\* AERMET - VERSION 18081 \*\*\*    \*\*\*      \*\*\*  
14:03:06

PAGE 7  
\*\*\* MODELOPTs: RegDEFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL ADJ\_U\*

\*\*\* THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER    1 YEARS \*\*\*

\*\* CONC OF PM10      IN MICROGRAMS/M\*\*3      \*\*

NETWORK GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG) OF TYPE
GRID-ID		

ALL	1ST HIGHEST VALUE IS	0.00006 AT ( 760969.00, 4006325.70, 0.00, 0.00, 0.00) SR
	2ND HIGHEST VALUE IS	0.00000 AT ( 0.00, 0.00, 0.00, 0.00, 0.00)
	3RD HIGHEST VALUE IS	0.00000 AT ( 0.00, 0.00, 0.00, 0.00, 0.00)
	4TH HIGHEST VALUE IS	0.00000 AT ( 0.00, 0.00, 0.00, 0.00, 0.00)
	5TH HIGHEST VALUE IS	0.00000 AT ( 0.00, 0.00, 0.00, 0.00, 0.00)
	6TH HIGHEST VALUE IS	0.00000 AT ( 0.00, 0.00, 0.00, 0.00, 0.00)
	7TH HIGHEST VALUE IS	0.00000 AT ( 0.00, 0.00, 0.00, 0.00, 0.00)
	8TH HIGHEST VALUE IS	0.00000 AT ( 0.00, 0.00, 0.00, 0.00, 0.00)
	9TH HIGHEST VALUE IS	0.00000 AT ( 0.00, 0.00, 0.00, 0.00, 0.00)
	10TH HIGHEST VALUE IS	0.00000 AT ( 0.00, 0.00, 0.00, 0.00, 0.00)

\*\*\* RECEPTOR TYPES: GC = GRIDCART  
GP = GRIDPOLR  
DC = DISCCART  
DP = DISCPOLR

▲ \*\*\* AERMOD - VERSION 19191 \*\*\*    \*\*\* Gates 500KV Construction DPM      \*\*\*  
02/03/21  
\*\*\* AERMET - VERSION 18081 \*\*\*    \*\*\*      \*\*\*  
14:03:06

PAGE 8  
\*\*\* MODELOPTs: RegDEFAULT CONC ELEV NODRYDPLT NOWETDPLT RURAL ADJ\_U\*

\*\*\* Message Summary : AERMOD Model Execution \*\*\*

----- Summary of Total Messages -----

A Total of      0 Fatal Error Message(s)  
A Total of      2 Warning Message(s)  
A Total of      173 Informational Message(s)

A Total of      8760 Hours Were Processed

A Total of      33 Calm Hours Identified

A Total of 140 Missing Hours Identified ( 1.60 Percent)

\*\*\*\*\* FATAL ERROR MESSAGES \*\*\*\*\*  
\*\*\* NONE \*\*\*

\*\*\*\*\* WARNING MESSAGES \*\*\*\*\*  
ME W186 43 MEOPEN: THRESH\_1MIN 1-min ASOS wind speed threshold used 0.50  
ME W187 43 MEOPEN: ADJ\_U\* Option for Stable Low Winds used in AERMET

\*\*\*\*\*  
\*\*\* AERMOD Finishes Successfully \*\*\*  
\*\*\*\*\*

**ATTACHMENT C**

Health Risk Calculations - Construction

Air Quality Health Risk Calculations (Worst-Case) Gates 500KV Mitigated						
From CalEE Annual Output	Emission per day (Ton/Total Construction Duration)					<b>0.14357</b>
	Construction Start					<b>3/15/2022</b>
	Construction Complete					<b>12/15/2023</b>
	Days					<b>640</b>
	Construction Emission per day (lb/day)					<b>0.44865625</b>
	Annual Duration (Days)					<b>365</b>
	Annualized Emission Rate (Grams/Second)					<b>0.00235233</b>
	Project Site Size (Acres)					<b>9.2</b>
	Project Site Size (meters^2)					<b>37231.07909</b>
	Length of Smalles Side (meters)					<b>192.9535672</b>
Used as an input to AERMOD	Emission Rate over Grading Area( g/s-m^2)					<b>6.32E-08</b>
From AERMOD	Concentration Annual (Ug/M^3)					<b>0.00006</b>
Duration	Days	Days to years				
	640	1.753424658				
Age (Years)	3rd Trimester (0.25)	0-2	2-9	2-16	16-30	16-70
Cair (annual) - From F15	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006
Breathing Rate per agegroup BR/BW (Page 5-25)	361	1090	861	745	335	290
A (Default is 1)	1	1	1	1	1	1
Exposure Frequency = EF (days/365days)	0.96	0.96	0.96	0.96	0.96	0.96
10^-6 Microgram to Milligram / liters to m3	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001
Dose-inh	0.0000002	0.0000006	0.0000005	0.0000004	0.0000002	0.0000002
Construction Days	640	1.753424658				
potency factor for Diesel	1.1	1.1	1.1	1.1	1.1	1.1
Age Sensitivity Factor	10	10	3	3	1	1
ED	0.25	1.753424658	1.753424658	1.753424658	1.753424658	1.753424658
AT	70	70	70	70	70	70
FAH	0.85	0.85	0.72	0.72	0.73	0.73
Risk for Each Age Group	6.94358E-10	1.47045E-08	2.95162E-09	2.55396E-09	3.88125E-10	3.35989E-10
Risk per million Exposed	0.000694358	0.01470448	0.002951625	0.002553961	0.000388125	0.000335989
Cancer Risk Per Million 9-years	0.02					
Cancer Risk Per Million 30-years	0.02					
<b>Cancer Risk Per Million 70-years</b>	<b>0.02</b>					