Appendix B

Air Quality and Greenhouse Gas Impact Analysis

Air Quality & Greenhouse Gas Impact Analysis

For the Proposed

Modified Pixley Groundwater Banking Project

Tulare County, CA

January 2017

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AAM	Annual Arithmetic Mean
ARB	California Air Resources Board
AQAP	Air Quality Attainment Plan
CAAQS	California Ambient Air Quality Standards
CCAA	California Clean Air Act
CEQA	California Environmental Quality Act
CH_4	Methane
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
DPM	Diesel-Exhaust Particulate Matter or Diesel-Exhaust PM
DRRP	Diesel Risk Reduction Plan
FCAA	Federal Clean Air Act
GHG	Greenhouse Gases
HAP	Hazardous Air Pollutant
IPCC	Intergovernmental Panel on Climate Change
N_2O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards or National AAQS
NESHAPs	National Emission Standards for HAPs
NOA	Naturally-Occurring Asbestos
NO_x	Oxides of Nitrogen
OAP	Ozone Attainment Plan
O_3	Ozone
Pb	Lead
PM	Particulate Matter
PM_{10}	Particulate Matter (less than 10 µm)
$PM_{2.5}$	Particulate Matter (less than 2.5 µm)
ppb	Parts per Billion
ppm	Parts per Million
ROG	Reactive Organic Gases
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO_2	Sulfur Dioxide
TAC	Toxic Air Contaminant
TSCA	Toxic Substances Control Act
UFP	Ultra-Fine Particles
$\mu g/m^3$	Micrograms per cubic meter
U.S. EPA	United State Environmental Protection Agency

INTRODUCTION

This report provides a description of the existing environment in the project area and identifies potential impacts associated with the proposed Pixley Groundwater Banking Project (Project) in relation to regional and local air quality, as well as increased emissions of greenhouse gases (GHGs). This report was prepared in accordance with the San Joaquin Valley Air Pollution Control District's (SJVAPCD) *Guidance for Assessing and Mitigating Air Quality Impacts* (2015).

PROJECT DESCRIPTION SUMMARY

The proposed Project is planned to be a 30,000 acre-feet per year dry-year return water bank facility, with total groundwater storage availability of 90,000 acre-feet. The Project includes approximately 1,012 acres within which up to 720 acres of recharge basins would be constructed, with sixteen recovery wells distributed within the boundaries of all the basins. Water would be conveyed to these new recharge basin facilities via new turnouts and pipelines from the Friant-Kern Canal (FKC) and Deer Creek. Figure 1 shows the facilities associated with the Project and the Project's area of potential effect. Up to five groundwater recovery wells within an approximate 3,500-acre in-lieu service area could also be developed, if beneficial or allowable under the Sustainable Groundwater Management Act, along with appurtenant grower turnouts, related control facilities, and connecting pipeline to the mainline along Avenue 80 to facilitate return of groundwater to the FKC.

AIR QUALITY

EXISTING SETTING

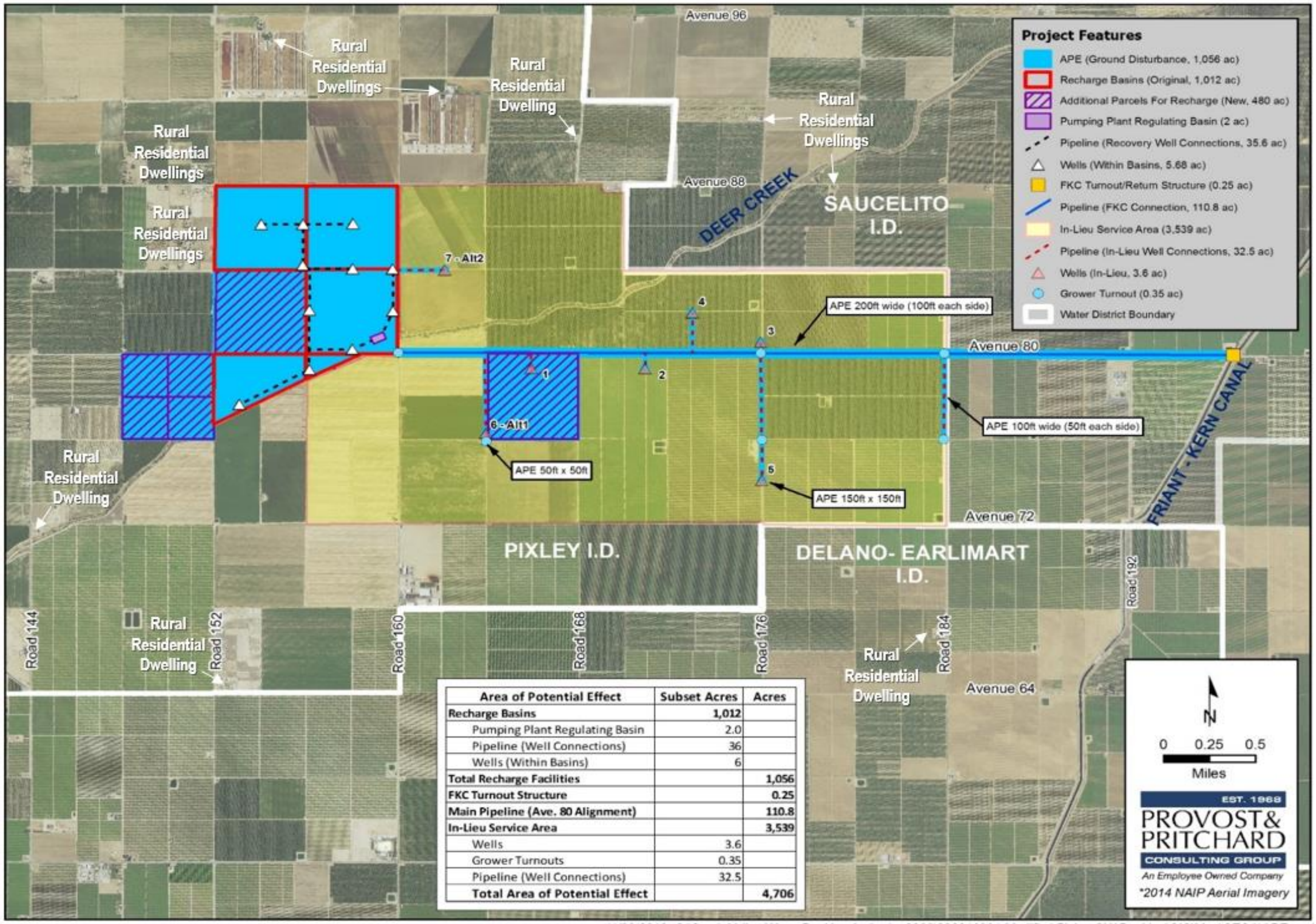
The project is located within the San Joaquin Valley Air Basin (SJVAB) and within the jurisdiction of the SJVAPCD. The SJVAB consists of eight counties: Fresno, Kern (western and central), Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare. The SJVAB and project location within the SJVAB is depicted in Figure 2.

Air pollution in the SJVAB can be attributed to both human-related (anthropogenic) and natural (non-anthropogenic) activities. Air pollution from significant anthropogenic activities in the SJVAB includes a variety of industrial-based sources as well as on- and off-road mobile sources. Activities that tend to increase mobile activity include increases in population, increases in general traffic activity (including automobiles, trucks, aircraft, and rail), urban sprawl (which will increase commuter driving distances), and general local land management practices as they pertain to modes of commuter transportation. Air pollution within the SJVAB is also influenced by topographical, and meteorological conditions, including climate, wind patterns, temperature, and precipitation. These factors are discussed in greater detail, as follows (SJVAPCD 2015):

Topography

The SJVAB is the southern half of California's Central Valley and is approximately 250 miles long and averages 35 miles wide. The SJVAB is bordered by the Sierra Nevada Mountains in the east (8,000 to 14,491 feet in elevation), the Coast Ranges in the west (averaging 3,000 feet in elevation), and the Tehachapi mountains in the south (6,000 to 7,981 feet in elevation). There is a slight downward elevation gradient from Bakersfield in the southeast end (elevation 408 feet) to sea level at the northwest end where the valley opens to the San Francisco Bay at the Carquinez Straits. At its northern end is the Sacramento Valley, which comprises the northern half of California's Central Valley. The bowl-shaped topography inhibits movement of pollutants out of the valley.

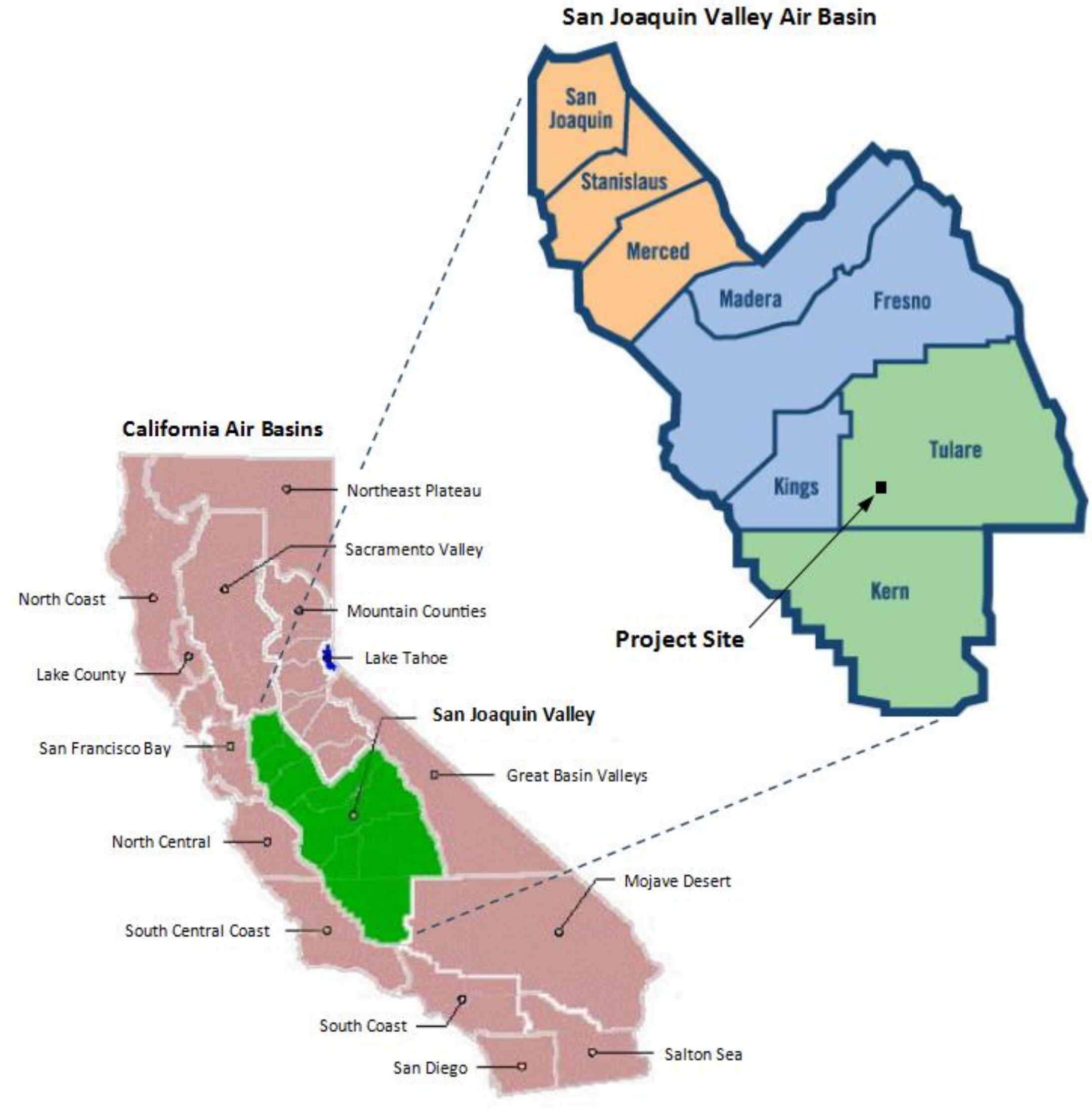
Figure 1
Proposed Project Location and Nearby Sensitive Receptors



Area of Potential Effect	Subset Acres	Acres
Recharge Basins	**1,012**	
Pumping Plant Regulating Basin	2.0	
Pipeline (Well Connections)	36	
Wells (Within Basins)	6	
Total Recharge Facilities		**1,056**
FKC Turnout Structure		**0.25**
Main Pipeline (Ave. 80 Alignment)		**110.8**
In-Lieu Service Area		**3,539**
Wells	3.6	
Grower Turnouts	0.35	
Pipeline (Well Connections)	32.5	
Total Area of Potential Effect		**4,706**

**Not to scale. All locations are approximate.*
Image Source: P&P 2016

Figure 2
SJVAB & Project Site Location



Not to scale. All locations are approximate.
Image Source: SJVAPCD 2015

Climate

The SJVAB is in a Mediterranean Climate Zone. Mediterranean Climates Zones occur on the west coast of continents at 30 to 40 degrees latitude and are influenced by a subtropical high-pressure cell most of the year. Mediterranean climates are characterized by sparse rainfall, which occurs mainly in winter. Summers are hot and dry. Summertime maximum temperatures often exceed 100 degrees Fahrenheit in the Valley. The subtropical high-pressure cell is strongest during spring, summer and fall and produces subsiding air, which can result in temperature inversions in the Valley. A temperature inversion can act like a lid, inhibiting vertical mixing of the air mass at the surface. Any emissions of pollutants can be trapped below the inversion. Most of the surrounding mountains are above the normal height of summer inversions (1,500-3,000 feet). Wintertime high pressure events can often last many weeks with surface temperatures often lowering into the thirties degree Fahrenheit. During these events, fog can be present and inversions are extremely strong. These wintertime inversions can inhibit vertical mixing of pollutants to a few hundred feet.

Wind Patterns

Wind speed and direction play an important role in dispersion and transport of air pollutants. Wind at the surface and aloft can disperse pollution by mixing and by transporting the pollution to other locations. Especially in summer, winds in the Valley most frequently blow from the northwesterly direction. The region's topographic features restrict air movement and channel the air mass towards the southeastern end of the Valley. Marine air can flow into the basin from the San Joaquin River Delta and over Altamont Pass and Pacheco Pass, where it can flow along the axis of the valley, over the Tehachapi pass, into the Southeast Desert Air Basin. The Coastal Range is a barrier to air movement to the west and the high Sierra Nevada range is a significant barrier to the east (the highest peaks in the southern Sierra Nevada reach almost halfway through the Earth's atmosphere). Many days in the winter are marked by stagnation events where winds are very weak. Transport of pollutants during winter can be very limited. A secondary but significant summer wind pattern is from the southeasterly direction and can be associated with nighttime drainage winds, prefrontal conditions and summer monsoons.

Two significant diurnal wind cycles that occur frequently in the Valley are the sea breeze and mountain-valley upslope and drainage flows. The sea breeze can accentuate the northwest wind flow, especially on summer afternoons. Nighttime drainage flows can accentuate the southeast movement of air down the valley. In the mountains during periods of weak synoptic scale winds, winds tend to be upslope during the day and downslope at night. Nighttime and drainage flows are especially pronounced during the winter when flow from the easterly direction is enhanced by nighttime cooling in the Sierra Nevada. Eddies can form in the valley wind flow and can re-circulate a polluted air mass for an extended period. Such an eddy occurs in the Fresno area during both winter and summer.

Temperature Inversions

The vertical dispersion of air pollutants in the SJVAB can be limited by persistent temperature inversions. Air temperature in the lowest layer of the atmosphere typically decreases with altitude. A reversal of this atmospheric state, where the air temperature increases with height, is termed an inversion. The height of the base of the inversion is known as the "mixing height". This is the level to which pollutants can mix vertically. Mixing of air is minimized above and below the inversion base. The inversion base represents an abrupt density change where little air movement occurs. Inversion layers are significant in determining pollutant concentrations. Concentration levels can be related to the amount of mixing space below the inversion. Temperature inversions that occur on the summer days are usually encountered 2,000 to 2,500 feet above the valley floor. In winter months, overnight inversions occur 500 to 1,500 feet above the valley floor.

Temperature

Solar radiation and temperature are particularly important in the chemistry of ozone formation. The SJVAB averages over 260 sunny days per year. Photochemical air pollution (primarily ozone) is produced by the atmospheric reaction of organic substances (such as volatile organic compounds) and nitrogen dioxide under the influence of sunlight. Ozone concentrations are very dependent on the amount of solar radiation, especially during late spring, summer and early fall. Ozone levels typically peak in the afternoon. After the sun goes down, the chemical reaction between nitrous oxide and ozone begins to dominate. This reaction tends to scavenge the ozone in the metropolitan areas through the early morning hours, resulting in the lowest ozone levels, possibly reaching zero at sunrise in areas with high nitrogen oxides emissions. At sunrise, nitrogen oxides tend to peak, partly due to low levels of ozone at this time and also due to the morning commuter vehicle emissions of nitrogen oxides.

Generally, the higher the temperature, the more ozone formed, since reaction rates increase with temperature. However, extremely hot temperatures can "lift" or "break" the inversion layer. Typically, if the inversion layer doesn't lift to allow the buildup of contaminants to be dispersed, the ozone levels will peak in the late afternoon. If the inversion layer breaks and the resultant afternoon winds occur, the ozone will peak in the early afternoon and decrease in the late afternoon as the contaminants are dispersed or transported out of the SJVAB. Ozone levels are low during winter periods when there is much less sunlight to drive the photochemical reaction

Precipitation, Humidity and Fog

Precipitation and fog may reduce or limit some pollutant concentrations. Ozone needs sunlight for its formation, and clouds and fog can block the required solar radiation. Wet fogs can cleanse the air during winter as moisture collects on particles and deposits them on the ground. Atmospheric moisture can also increase pollution levels. In fogs with less water content, the moisture acts to form secondary ammonium nitrate particulate matter. This ammonium nitrate is part of the Valleys $PM_{2.5}$ and PM_{10} problem. The winds and unstable air conditions experienced during the passage of winter storms result in periods of low pollutant concentrations and excellent visibility. Between winter storms, high pressure and light winds allow cold moist air to pool on the basin floor. This creates strong low-level temperature inversions and very stable air conditions, which can lead to Tule fog. Wintertime conditions favorable to fog formation are also conditions favorable to high concentrations of $PM_{2.5}$ and PM_{10}.

CRITERIA AIR POLLUTANTS

For the protection of public health and welfare, the Federal Clean Air Act (FCAA) required that the United States Environmental Protection Agency (U.S. EPA) establish National Ambient Air Quality Standards (NAAQS) for various pollutants. These pollutants are referred to as "criteria" pollutants because the U.S. EPA publishes criteria documents to justify the choice of standards. These standards define the maximum amount of an air pollutant that can be present in ambient air. An ambient air quality standard is generally specified as a concentration averaged over a specific time period, such as one hour, eight hours, 24 hours, or one year. The different averaging times and concentrations are meant to protect against different exposure effects. Standards established for the protection of human health are referred to as primary standards; whereas, standards established for the prevention of environmental and property damage are called secondary standards. The FCAA allows states to adopt additional or more health-protective standards. The air quality regulatory framework and ambient air quality standards are discussed in greater detail later in this report.

The following provides a summary discussion of the primary and secondary criteria air pollutants of primary concern. In general, primary pollutants are directly emitted into the atmosphere, and secondary pollutants are formed by chemical reactions in the atmosphere.

Ozone (O_3) is a reactive gas consisting of three atoms of oxygen. Ozone occurs in two layers of the atmosphere. The layer surrounding the earth's surface is the troposphere. The troposphere extends to a level about 10 miles up where it meets the second layer, the stratosphere. While ozone in the upper atmosphere protects the earth from harmful ultraviolet radiation, high concentrations of ground-level ozone can adversely affect the human respiratory system.

Ozone, a colorless gas which is odorless at ambient levels, is the chief component of urban smog. Ozone is not directly emitted as a pollutant, but is formed in the atmosphere when hydrocarbon and NOx precursor emissions react in the presence of sunlight. Meteorology and terrain play major roles in ozone formation. Generally, low wind speeds or stagnant air coupled with warm temperatures and cloudless skies provide the optimum conditions for ozone formation. As a result, summer is generally the peak ozone season. Because of the reaction time involved, peak ozone concentrations often occur far downwind of the precursor emissions. Therefore, ozone is a regional pollutant that often impacts a large area (ARB 2013).

Sources of precursor gases number in the thousands and include common sources such as consumer products, gasoline vapors, chemical solvents, and combustion byproducts of various fuels. Emissions of the ozone precursors ROG and NO_X most commonly originate from motor vehicles, as well as, commercial, and industrial uses.

Many respiratory ailments, as well as cardiovascular disease, are aggravated by exposure to high ozone levels. High levels of ozone may negatively affect immune systems, making people more susceptible to respiratory illnesses, including bronchitis and pneumonia. Long-term exposure to ozone is linked to aggravation of asthma, and is likely to be one of many causes of asthma development. Long-term exposures to higher concentrations of ozone may also be linked to permanent lung damage, such as abnormal lung development in children. People most at risk from breathing air containing ozone include people with asthma, children, older adults, and people who are active outdoors, especially outdoor workers. In addition, people with certain genetic characteristics, and people with reduced intake of certain nutrients, such as vitamins C and E, are at greater risk from ozone exposure (U.S. EPA 2016a).

Reactive Organic Gases and Volatile Organic Compounds. Hydrocarbons are organic gases that are formed solely of hydrogen and carbon. There are several subsets of organic gases, including VOCs and ROGs, which include all hydrocarbons except those exempted by ARB. Therefore, ROGs are a set of organic gases based on state rules and regulations. VOCs are similar to ROGs in that they include all organic gases except those exempted by Federal law.

Both VOCs and ROGs are emitted from incomplete combustion of hydrocarbons or other carbon-based fuels. Combustion engine exhaust, oil refineries, and oil-fueled power plants are the primary sources of hydrocarbons. Another source of hydrocarbons is evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

The primary health effects related to hydrocarbons stem from ozone (see discussion above). High levels of hydrocarbons in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. There are no separate national or California ambient air quality standards for ROG. Carcinogenic forms of ROG are considered TACs. An example is benzene, which is a carcinogen. The health effects of individual ROGs are described under the "Toxic Air Contaminants" heading below.

Nitrogen Dioxide (NO_2) and Nitrogen Oxides

NO_2 is one of a group of highly reactive gases known as "oxides of nitrogen (NOx)." NO_2 is the component of greatest interest and the indicator for the larger group of nitrogen oxides. It forms quickly from emissions from cars, trucks and buses, powerplants, and off-road equipment. NO_X is a strong oxidizing agent that reacts in the air to form corrosive nitric acid as well as toxic organic nitrates.

NO_X is emitted from solvents and combustion processes in which fuel is burned at high temperatures. Mobile sources (including on-road and off-road vehicles) and stationary sources such as electric utilities and industrial boilers, constitute a majority of the statewide NOx emissions. To a lesser extent, area-wide sources, such as residential heaters, gas stoves, and managed burning and disposal, also contribute to total state-wide NOx emissions (ARB 2013). NO_X is also linked to the formation of ground-level ozone and fine particle pollution (refer to discussions of ozone and particulate pollution for additional discussion of health-related impacts).

Direct inhalation of NO_X can cause a wide range of health effects. NO_X can irritate the lungs, cause lung damage, and lower resistance to respiratory infections such as influenza. Short-term exposures (e.g., less than 3 hours) to low levels of nitrogen dioxide (NO_2) may lead to changes in airway responsiveness and lung function in individuals with pre-existing respiratory illnesses. These exposures may also increase respiratory illnesses in children. Long-term exposures to NO_2 may lead to increased susceptibility to respiratory infection and may cause irreversible lung damage. Other health effects are an increase in the incidence of chronic bronchitis and lung irritation. Chronic exposure may lead to eye and mucus membrane aggravation, along with pulmonary dysfunction. NO_X can cause fading of textile dyes and additives, deterioration of cotton and nylon, and corrosion of metals due to the production of particulate nitrates. Airborne NO_X can also impair visibility.

NO_X also contributes to a wide range of environmental effects both directly and indirectly when combined with other precursors in acid rain and ozone. Increased nitrogen inputs to terrestrial and wetland systems can lead to changes in plant species composition and diversity. Similarly, direct nitrogen inputs to aquatic ecosystems such as those found in estuarine and coastal waters can lead to eutrophication (a condition that promotes excessive algae growth, which can lead to a severe depletion of dissolved oxygen and increased levels of toxins that are harmful to aquatic life). Nitrogen, alone or in acid rain, also can acidify soils and surface waters. Acidification of soils causes the loss of essential plant nutrients and increased levels of soluble aluminum, which is toxic to plants. Acidification of surface waters creates low pH conditions and levels of aluminum that are toxic to fish and other aquatic organisms. NO_X also contributes to haze and visibility impairment (U.S. EPA, 2016b, 2016c).

Particulate Matter (PM) is a mixture of substances that includes elements such as carbon and metals; compounds such as nitrates, sulfates, and organic compounds; and complex mixtures such as diesel exhaust and soil. $PM_{2.5}$ includes fine particles with a diameter of 2.5 microns or smaller and is a subset of PM_{10}. These particles come in many sizes and shapes and can be made up of hundreds of different chemicals. Some particles, known as primary particles are emitted directly from a source, such as construction sites, unpaved roads, fields, smokestacks or fires. Others form in complicated reactions in the atmosphere of chemicals such as sulfur dioxides and nitrogen oxides that are emitted from power plants, industries and automobiles. These particles, known as secondary particles, make up most of the fine particle pollution in the country (ARB 2013).

Area-wide sources account for about 65 and 83 percent of the statewide emissions of directly emitted $PM_{2.5}$ and PM_{10}, respectively. The major area-wide sources of $PM_{2.5}$ and PM_{10} are fugitive dust, especially dust from unpaved and paved roads, agricultural operations, and construction and demolition. Sources of PM_{10} include crushing or grinding operations, and dust stirred up by vehicles traveling on roads. Sources of $PM_{2.5}$ include all types of combustion, including motor vehicles, power plants, residential wood burning, forest fires, agricultural burning, and some industrial processes. Exhaust emissions from mobile sources contribute only a very small portion of directly emitted $PM_{2.5}$ and PM_{10} emissions, but are a major source of the VOC and NO_X that form secondary particles (ARB 2013).

PM_{10} and $PM_{2.5}$ particles are small enough to be inhaled and lodged in the deepest parts of the lung where they evade the respiratory system's natural defenses. Health problems begin as the body reacts to these foreign particles. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases; heart and lung disease; and coughing, bronchitis, and respiratory illnesses in children. Recent mortality studies have shown a statistically significant direct association between mortality and daily concentrations of particulate matter in the air. PM_{10} and $PM_{2.5}$ can aggravate respiratory disease and cause lung damage, cancer, and premature death.

Sensitive populations, including children, the elderly, exercising adults, and those suffering from chronic lung disease such as asthma or bronchitis are especially vulnerable to the effect of PM_{10}. Non-health-related effects include reduced visibility and soiling of buildings.

Carbon Monoxide (CO) is an odorless, colorless gas that is highly toxic. CO is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. CO is an odorless, colorless, poisonous gas that is highly reactive.

CO enters the bloodstream and binds more readily to hemoglobin, the oxygen-carrying protein in blood, than oxygen, thereby reducing the oxygen-carrying capacity of blood and reducing oxygen delivery to organs and tissues. The health threat from CO is most serious for those who suffer from cardiovascular disease. Healthy individuals are also affected but only at higher levels of exposure. Exposure to CO can cause chest pain in heart patients, headaches, and reduced mental alertness. At high concentrations, CO can cause heart difficulties in people with chronic diseases and can impair mental abilities. Exposure to elevated CO levels is associated with visual impairment, reduced work capacity, reduced manual dexterity, poor learning ability, difficulty performing complex tasks, and, with prolonged enclosed exposure, death.

Very high levels of CO are not likely to occur outdoors. However, when CO levels are elevated outdoors, they can be of particular concern for people with some types of heart disease. These people already have a reduced ability for getting oxygenated blood to their hearts in situations where the heart needs more oxygen than usual. They are especially vulnerable to the effects of CO when exercising or under increased stress. In these situations, short-term exposure to elevated CO may result in reduced oxygen to the heart accompanied by chest pain also known as angina (EPA 2016e).

Sulfur Dioxide (SO_2) is one of a group of highly reactive gases known as "oxides of sulfur (SO_X)." It is a colorless, irritating gas with a "rotten egg" smell that is formed primarily by the combustion of sulfur-containing fossil fuels. The largest source of SO_2 in the atmosphere is the burning of fossil fuels by power plants and other industrial facilities. Smaller sources of SO_2 emissions include: industrial processes such as extracting metal from ore; natural sources such as volcanoes; and locomotives, ships and other vehicles and heavy equipment that burn fuel with a high sulfur content. State and national ambient air quality standards for SO_2 are designed to protect against exposure to the entire group of sulfur oxides (SO_X). SO_2 is the component of greatest concern and is used as the indicator for the larger group of gaseous sulfur oxides.

High concentrations of SO_2 can result in temporary breathing impairment for asthmatic children and adults who are active outdoors. Short-term exposures of asthmatic individuals to elevated SO_2 levels during moderate activity may result in breathing difficulties that can be accompanied by symptoms such as wheezing, chest tightness, or shortness of breath. Other effects that have been associated with longer term exposures to high concentrations of SO_2 in conjunction with high levels of particulate matter include aggravation of existing cardiovascular disease, respiratory illness, and alterations in the lungs' defenses. The subgroups of the population that may be affected under these conditions include individuals with heart or lung disease, as well as the elderly and children.

Together, SO_2 and NO_X are the major precursors to acidic deposition (acid rain), which is associated with the acidification of soils, lakes, and streams and accelerated corrosion of buildings and monuments. SO_2 also is a major precursor to $PM_{2.5}$, which is a significant health concern, and a main contributor to poor visibility. (See also the discussion of the health effects of particulate matter below.) (U.S. EPA 2016d, 2016f).

Lead (Pb) is a naturally occurring bluish-gray metal found in small amounts in the earth's crust. Lead can be found in all parts of our environment. Much of it comes from human activities including burning fossil fuels, mining, and manufacturing. Lead has many different uses. It is used in the production of batteries, ammunition, metal products (solder and pipes), and devices to shield X-rays. Because of health concerns, lead from paints and ceramic products, caulking, and pipe solder has been dramatically reduced in recent years. The use of lead as an additive to gasoline was banned in 1996 in the United States.

Exposure to lead occurs mainly through inhalation of air and ingestion of lead in food, water, soil, or dust. The effects of lead are the same regardless of the path of exposure. Lead can affect almost every organ and system in your body. The main target for lead toxicity is the nervous system, both in adults and children. Long-term exposure of adults can result in decreased performance in some tests that measure functions of the nervous system. It may also cause weakness in fingers, wrists, or ankles. Lead exposure also causes small increases in blood pressure, particularly in middle-aged and older people and can cause anemia. Exposure to high lead levels can severely damage the brain and kidneys in adults or children and ultimately cause death. In pregnant women, high levels of exposure to lead may cause miscarriage. High level exposure in men can damage the organs responsible for sperm production.

Exposure to lead is more dangerous for young and unborn children. Unborn children can be exposed to lead through their mothers. Harmful effects include premature births, smaller babies, decreased mental ability in the infant, learning difficulties, and reduced growth in young children. These effects are more common if the mother or baby was exposed to high levels of lead. Some of these effects may persist beyond childhood (ATSDR 2016a).

Hydrogen Sulfide (H2S) is a colorless gas with the odor of rotten eggs. Hydrogen sulfide occurs naturally and is also produced by human activities. Hydrogen sulfide (H_2S) occurs naturally in crude petroleum, natural gas, volcanic gases, and hot springs. It can also result during bacterial decomposition of sulfur-containing organic substances. Emissions of H_2S associated with human activities including various industrial activities, such as oil and gas production, refining, sewage treatment plants, food processing, and confined animal feeding operations.

Studies in humans suggest that the respiratory tract and nervous system are the most sensitive targets of hydrogen sulfide toxicity. 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. Respiratory distress or arrest has been observed in people exposed to very high concentrations of hydrogen sulfide. Exposure to low concentrations of hydrogen sulfide may cause headaches, poor memory, tiredness, and balance problems. Brief exposures to high concentrations of hydrogen sulfide can cause loss of consciousness. In most cases, the person appears to regain consciousness without any other effects. However, in some individuals, there may be permanent or long-term effects such as headaches, poor attention span, poor memory, and poor motor function. Hydrogen sulfide is extremely hazardous in high concentrations; especially in enclosed spaces. In some instances, exposure to high concentrations can cause death (ATSDR 2016b)

Other Pollutants

The State of California has established air quality standards for some pollutants not addressed by Federal standards. The California Air Resources Board (ARB) has established state standards for hydrogen sulfide, sulfates, vinyl chloride, and visibility reducing particles. The following section summarizes these pollutants and provides a description of the pollutants' physical properties, health and other effects, sources, and the extent of the problems.

Sulfates (SO_4- SO_2) are the fully oxidized ionic form of sulfur. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to sulfur dioxide (SO_2) during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features.

The ARB's sulfates standard is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in ventilatory function, aggravation of asthmatic symptoms, and an increased risk of cardio-pulmonary disease. Sulfates are particularly effective in degrading visibility, and, due to fact that they are usually acidic, can harm ecosystems and damage materials and property (ARB, 2016a).

Visibility Reducing Particles. This standard is a measure of visibility. ARB does not have a measuring method that is accurate or precise enough to designate areas in the state as attainment or nonattainment with respect to visibility. The entire state is labeled as unclassified.

Vinyl Chloride (C_2H_3Cl or **VCM)** monomer is a sweet-smelling colorless gas at ambient temperature. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. PVC can be fabricated into several products, such as pipes, pipe fittings, and plastics. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Short-term exposure to high levels of vinyl chloride in air causes central nervous system effects, such as dizziness, drowsiness, and headaches. Long-term exposure to vinyl chloride through inhalation and oral exposure causes in liver damage. Cancer is a major concern from exposure to vinyl chloride via inhalation. Vinyl chloride exposure has been shown to increase the risk of angiosarcoma, a rare form of liver cancer in humans. (ARB, 2016b,c; U.S. EPA. 2016g).

ODORS

Typically, odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from the psychological (i.e. irritation, anger, or anxiety) to the physiological, including circulatory and respiratory effects, nausea, vomiting, and headache.

The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor and in fact an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word strong to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

Neither the state nor the federal governments have adopted rules or regulations for the control of odor sources. The SJVAPCD does not have an individual rule or regulation that specifically addresses odors; however, odors would be subject to SJVAPCD's *Rule 4102, Nuisance*. Any actions related to odors would be based on citizen complaints to local governments and the SJVAPCD.

TOXIC AIR CONTAMINANTS

Toxic air contaminants (TACs) are air pollutants that may cause or contribute to an increase in mortality or serious illness, or which may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air, but due to their high toxicity, they may pose a threat to public health even at very low concentrations. Because there is no threshold level below which adverse health impacts are not expected to occur, TACs differ from criteria pollutants for which acceptable levels of exposure can be determined and for which state and federal governments have set ambient air quality standards. TACs, therefore, are not considered "criteria pollutants" under either the FCAA or the California Clean Air Act (CCAA), and are thus not subject to National or California ambient air quality standards (NAAQS and CAAQS, respectively). Instead, the U.S. EPA and the ARB regulate Hazardous Air Pollutants (HAPs) and TACs, respectively, through statutes and regulations that generally require the use of the maximum or best available control technology to limit emissions. In conjunction with District rules, these federal and state statutes and regulations establish the regulatory framework for TACs. At the national levels, the U.S. EPA has established National Emission Standards for HAPs (NESHAPs), in accordance with the requirements of the FCAA and subsequent amendments. These are technology-based source-specific regulations that limit allowable emissions of HAPs.

Within California, TACs are regulated primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for ARB to designate substances as TACs. The following provides a summary of the primary TACs of concern within the State of California and related health effects:

Diesel Particulate Matter (DPM) was identified as a TAC by the ARB in August 1998. DPM is emitted from both mobile and stationary sources. In California, on-road diesel-fueled vehicles contribute approximately 42% of the statewide total, with an additional 55 percent attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and transport refrigeration units. Stationary sources, contributing about 3 percent of emissions, include shipyards, warehouses, heavy equipment repair yards, and oil and gas production operations. Emissions from these sources are from diesel-fueled internal combustion engines. Stationary sources that report DPM emissions also include heavy construction, manufacturers of asphalt paving materials and blocks, and diesel-fueled electrical generation facilities (ARB. 2013).

In October 2000, the ARB issued a report entitled: *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*, which is commonly referred to as the Diesel Risk Reduction Plan (DRRP). The DRRP provides a mechanism for combating the DPM problem. The goal of the DRRP is to reduce concentrations of DPM by 85 percent by the year 2020, in comparison to year 2000 baseline emissions. The key elements of the DRRP are to clean up existing engines through engine retrofit emission control devices, to adopt stringent standards for new diesel engines, and to lower the sulfur content of diesel fuel to protect new, and very effective, advanced technology emission control devices on diesel engines. When fully implemented, the DRPP will significantly reduce emissions from both old and new diesel fueled motor vehicles and from stationary sources that burn diesel fuel. In addition to these strategies, the ARB continues to promote the use of alternative fuels and electrification. As a result of these actions, DPM concentrations and associated health risks in future years are projected to decline (ARB 2013). In comparison to year 2010 inventory of statewide DPM emissions, ARB estimates that emissions of DPM in 2035 will be reduced by more than 50 percent.

DPM is typically composed of carbon particles ("soot", also called black carbon, or BC) and numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene. Diesel exhaust also contains gaseous pollutants, including volatile organic compounds and oxides of nitrogen (NO_x). NO_x emissions from diesel engines are important because they can undergo chemical reactions in the atmosphere leading to formation of $PM_{2.5}$ and ozone (ARB, 2016d).

In California, DPM has been identified as a carcinogen accounting for an estimated 70% of the total known cancer risks in California. DPM is estimated to increase statewide cancer risk by 520 cancers per million residents exposed over an estimated 70-year lifetime. Non-cancer health effects associated with exposure to DPM include premature death, exacerbated chronic heart and lung disease, including asthma, and decreased lung function in children. Short-term exposure to diesel exhaust can also have immediate health effects. Diesel exhaust can irritate the eyes, nose, throat and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. In studies with human volunteers, diesel exhaust particles made people with allergies more susceptible to the materials to which they are allergic, such as dust and pollen. Exposure to diesel exhaust also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks (ARB, 2016d).

Individuals most vulnerable to non-cancer health effects of DPM are children whose lungs are still developing and the elderly who often have chronic health problems. The elderly and people with emphysema, asthma, and chronic heart and lung disease are especially sensitive to DPM (ARB, 2016d). In addition to its health effects, DPM significantly contributes to haze and reduced visibility. DPM also plays an important role in climate change. As noted above, a large proportion of DPM is composed of BC. Recent studies cited in the Intergovernmental Panel on Climate Change report estimate that emissions of BC are the second largest contributor to global warming, second only to emissions of carbon dioxide (ARB, 2016d). (Refer to the Greenhouse Gas section of this report for additional discussion of BC and climate change.)

Acetaldehyde is a federal HAP and the ARB identified acetaldehyde as a TAC in April 1993 under AB 2728. This bill required the ARB to identify all federal HAPs as TACs. In California, acetaldehyde is identified as a carcinogen. This compound also causes chronic non-cancer toxicity in the respiratory system.

Acetaldehyde is both directly emitted into the atmosphere and formed in the atmosphere as a result of photochemical oxidation. Sources of acetaldehyde include emissions from combustion processes such as exhaust from mobile sources and fuel combustion from stationary internal combustion engines, boilers, and process heaters. In California, photochemical oxidation is the largest source of acetaldehyde concentrations in the ambient air. Approximately 30 percent of the statewide acetaldehyde emissions can be attributed to on-road motor vehicles, with an additional 50 percent attributed to other mobile sources such as construction and mining equipment, aircraft, recreational boats, and agricultural equipment. Area-wide sources of emissions, which contribute 18 percent of the statewide acetaldehyde emissions, include the burning of wood in residential fireplaces and wood stoves. Stationary sources contribute two percent of the statewide acetaldehyde emissions. The primary stationary sources are from fuel combustion from the petroleum industry (ARB 2009).

Benzene is highly carcinogenic and occurs throughout California. The ARB identified benzene as a TAC in January 1985. A majority of benzene emitted in California (roughly 87 percent) comes from motor vehicles, including evaporative leakage and unburned fuel exhaust. These sources include on-road motor vehicles, recreational boats, off-road recreational vehicles, and lawn and garden equipment. Benzene is also formed as a partial combustion product of larger aromatic fuel components. To a lesser extent, industry-related stationary sources are also sources of benzene emissions. The primary stationary sources of reported benzene emissions are crude petroleum and natural gas mining, petroleum refining, and electric generation that involves the use of petroleum products.

Acute inhalation exposure of humans to benzene may cause drowsiness, dizziness, headaches, as well as eye, skin, and respiratory tract irritation, and, at high levels, unconsciousness. Chronic inhalation exposure has caused various disorders in the blood, including reduced numbers of red blood cells and aplastic anemia, in occupational settings. Reproductive effects have been reported for women exposed by inhalation to high levels, and adverse effects on the developing fetus have been observed in animal tests. Increased incidences of leukemia (cancer of the tissues that form white blood cells) have been observed in humans occupationally exposed to benzene. The U.S. EPA has classified benzene as known human carcinogen for all routes of exposure (U.S. EPA 2014). In California, Benzene has been identified as a human carcinogen (ARB 2009).

1,3-butadiene was identified by the ARB as a TAC in 1992. Most of the emissions of 1,3-butadiene are from incomplete combustion of gasoline and diesel fuels. Mobile sources account for a majority of the total statewide emissions. Additional sources include agricultural waste burning, open burning associated with forest management, petroleum refining, manufacturing of synthetics and man-made materials, and oil and gas extraction. The primary natural sources of 1,3-butadiene emissions are wildfires (ARB 2009).

Acute exposure to 1,3-butadiene by inhalation in humans results in irritation of the eyes, nasal passages, throat, and lungs. Epidemiological studies have reported a possible association between 1,3-butadiene exposure and cardiovascular diseases. Epidemiological studies of workers in rubber plants have shown an association between 1,3-butadiene exposure and increased incidence of leukemia. Animal studies have reported tumors at various sites from 1,3-butadiene exposure. In California, 1,3-butadiene has been identified as a human carcinogen (ARB 2009).

Carbon Tetrachloride was identified by the ARB as a TAC in 1987 under California's TAC program (ARB 2013). The primary stationary sources reporting emissions of carbon tetrachloride include chemical and allied product manufacturers and petroleum refineries. In the past, carbon tetrachloride was used for dry cleaning and as a grain-fumigant. Usage for these purposes is no longer allowed in the United States. Carbon tetrachloride has not been registered for pesticidal use in California since 1987. Also, the use of carbon tetrachloride in products to be used indoors has been discontinued in the United States. The statewide emissions of carbon tetrachloride are small (about 1.96 tons per year), and background concentrations account for most of the health risk (ARB 2009).

The primary effects of carbon tetrachloride in humans are on the liver, kidneys, and central nervous system. Human symptoms of acute inhalation and oral exposures to carbon tetrachloride include headache, weakness, lethargy, nausea, and vomiting. Acute exposures to higher levels and chronic (long-term) inhalation or oral exposure to carbon tetrachloride produces liver and kidney damage in humans. Human data on the carcinogenic effects of carbon tetrachloride are limited. Studies in animals have shown that ingestion of carbon tetrachloride increases the risk of liver cancer. In California, carbon tetrachloride has been identified as a human carcinogen (ARB 2009).

Hexavalent chromium was identified as a TAC in 1986. Hexavalent chromium is produced by heating trivalent chromium (Cr^{+3}) in the presence of mineral bases and oxygen, and is used in the manufacturing of paint, dyes and pigments. Hexavalent chromium can also be a by-product of an industrial process, (i.e., thermal spraying, hard chromium electroplating, stainless steel welding, power plant combustion, refining, and leather tanning). Hexavalent chromium is found primarily in industrial settings. Three industries that are major sources of hexavalent chromium are: metallurgical, refractory and chemical. Occupational exposure can be from thermal spraying, welding of alloys or steel, leather tanning, chromate production, textiles and wood preservatives. Exposure to hexavalent chromium can also occur from airborne emissions from chemical plants, incineration facilities, cement plants and tobacco smoke (ARB 2009).

Exposure to hexavalent chromium can be through inhalation, ingestion and dermal (skin) contact. Inhalation exposure to hexavalent chromium has been known to cause lung and nasal cancers, respiratory irritation, severe nasal and skin ulcerations and lesions, perforation in the nasal septum, liver and kidney failure and birth defects. In California, hexavalent chromium has been identified as a human carcinogen (ARB 2004a, 2009)

Para-Dichlorobenzene was identified by the ARB as a TAC in April 1993. The primary area-wide sources that have reported emissions of para-dichlorobenzene include consumer products such as non-aerosol insect repellants and solid/gel air fresheners. These sources contribute nearly all of the statewide para-dichlorobenzene emissions.

Acute exposure to paradichlorobenzene via inhalation results in irritation to the eyes, skin, and throat in humans. In addition, long-term inhalation exposure may affect the liver, skin, and central nervous system in humans. California has identified para-dichlorobenzene as a human carcinogen (ARB 2009, 2016e).

Formaldehyde was identified by the ARB as a TAC in 1992. Formaldehyde is both directly emitted into the atmosphere and formed in the atmosphere as a result of photochemical oxidation. Photochemical oxidation is the largest source of formaldehyde concentrations in California ambient air. Directly emitted formaldehyde is a product of incomplete combustion. One of the primary sources of directly-emitted formaldehyde is vehicular exhaust. Formaldehyde is also used in resins, can be found in many consumer products as an antimicrobial agent, and is also used in fumigants and soil disinfectants. The primary area sources of formaldehyde emissions include wood burning in residential fireplaces and wood stoves (ARB 2009).

Exposure to formaldehyde may occur by breathing contaminated indoor air, tobacco smoke, or ambient urban air. Acute and chronic inhalation exposure to formaldehyde in humans can result in respiratory symptoms, and eye, nose, and throat irritation. Limited human studies have reported an association between formaldehyde exposure and lung and nasopharyngeal cancer. Animal inhalation studies have reported an increased incidence of nasal squamous cell cancer. In California, formaldehyde has been identified as a human carcinogen (ARB 2004b, 2009).

Methylene Chloride was identified by the ARB as a TAC in 1987. Methylene chloride is used as a solvent, a blowing and cleaning agent in the manufacture of polyurethane foam and plastic fabrication, and as a solvent in paint stripping operations. Paint removers account for the largest use of methylene chloride in California, where methylene chloride is the main ingredient in many paint stripping formulations. Plastic product manufacturers, manufacturers of synthetics, and aircraft and parts manufacturers are stationary sources reporting emissions of methylene chloride (ARB 2009).

The acute effects of methylene chloride inhalation in humans consist mainly of nervous system effects including decreased visual, auditory, and motor functions, but these effects are reversible once exposure ceases. The effects of chronic exposure to methylene chloride suggest that the central nervous system is a potential target in humans and animals. Human data are inconclusive regarding methylene chloride and cancer. Animal studies have shown increases in liver and lung cancer and benign mammary gland tumors following the inhalation of methylene chloride. In California, methylene chloride has been identified as a human carcinogen (ARB 2009).

Perchloroethylene was identified by the ARB as a TAC in 1991. Perchloroethylene is used as a solvent, primarily in dry cleaning operations. Perchloroethylene is also used in degreasing operations, paints and coatings, adhesives, aerosols, specialty chemical production, printing inks, silicones, rug shampoos, and laboratory solvents. In California, the stationary sources that have reported emissions of perchloroethylene are dry cleaning plants, aircraft part and equipment manufacturers, and fabricated metal product manufacturers. The primary area sources include consumer products such as automotive brake cleaners and tire sealants and inflators (ARB 2009).

Acute inhalation exposure to perchloroethylene vapors can result in irritation of the upper respiratory tract and eyes, kidney dysfunction, and at lower concentrations, neurological effects, such as reversible mood and behavioral changes, impairment of coordination, dizziness, headaches sleepiness, and unconsciousness. Chronic inhalation exposure can result in neurological effects, including sensory symptoms such as headaches, impairments in cognitive and motor neurobehavioral functioning, and color vision decrements. Cardiac arrhythmia, liver damage, and possible kidney damage may also occur. In California, perchloroethylene has been identified as a human carcinogen (ARB 2009).

ASBESTOS

Asbestos is a term used for several types of naturally-occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in California. Serpentine rock often contains chrysotile asbestos. Serpentine rock, and its parent material, ultramafic rock, is abundant in the Sierra foothills, the Klamath Mountains, and Coast Ranges. The project site, however, is not located in an area of known ultramafic rock.

Asbestos is commonly found in ultramafic rock, including serpentine, and near fault zones. The amount of asbestos that is typically present in these rocks range from less than 1 percent up to about 25 percent, and sometimes more. Asbestos is released from ultramafic and serpentine rock when it is broken or crushed. This can happen when cars drive over unpaved roads or driveways which are surfaced with these rocks, when land is graded for building purposes, or at quarrying operations. It is also released naturally through weathering and erosion. Once released from the rock, asbestos can become airborne and may stay in the air for long periods of time.

Additional sources of asbestos include building materials and other manmade materials. The most common sources are heat-resistant insulators, cement, furnace or pipe coverings, inert filler material, fireproof gloves and clothing, and brake linings. Asbestos has been used in the United States since the early 1900's; however, asbestos is no longer allowed as a constituent in most home products and materials. Many older buildings, schools, and homes still have asbestos containing products.

Naturally-occurring asbestos was identified by ARB as a TAC in 1986. The ARB has adopted two statewide control measures which prohibits the use of serpentine or ultramafic rock for unpaved surfacing and controls dust emissions from construction, grading, and surface mining in areas with these rocks. Various other laws have also been adopted, including laws related to the control of asbestos-containing materials during the renovation and demolition of buildings.

All types of asbestos are hazardous and may cause lung disease and cancer. Health risks to people are dependent upon their exposure to asbestos. The longer a person is exposed to asbestos and the greater the intensity of the exposure, the greater the chances for a health problem. Asbestos-related disease, such as lung cancer, may not occur for decades after breathing asbestos fibers. Cigarette smoking increases the risk of lung cancer from asbestos exposure (CAPCOA 2002, 2016).

VALLEY FEVER

Coccidioides spores circulate in the air after contaminated soil and dust are disturbed by humans, animals, or the weather. The spores are too small to see without a microscope. When people breathe in the spores, they are at risk for developing valley fever. After the spores enter the lungs, the person's body temperature allows the spores to change shape and grow into spherules. When the spherules get large enough, they break open and release smaller pieces (called endospores) which can then potentially spread within the lungs or to other organs and grow into new spherules. In extremely rare cases, the fungal spores can enter the skin through a cut, wound, or splinter and cause a skin infection.

Symptoms of valley fever may appear between 1 and 3 weeks after exposure. Symptoms commonly include: fatigue, coughing, fever, shortness of breath, headaches, night sweats, muscle aches and joint pain, and rashes on the upper body or legs.

Approximately 5 to 10 percent of people who get valley fever will develop serious or long-term problems in their lungs. In an even smaller percent of people (about 1 percent), the infection spreads from the lungs to other parts of the body, such as the central nervous system (brain and spinal cord), skin, or bones and joints. Certain groups of people may be at higher risk for developing the severe forms of valley fever, such as people who have weakened immune systems. The fungus that causes valley fever, Coccidioides, can't spread from the lungs between people or between people and animals. However, in extremely rare instances, a wound infection with Coccidioides can spread valley fever to someone else, or the infection can be spread through an organ transplant with an infected organ.

For many people, the symptoms of valley fever will go away within a few months without any treatment. Healthcare providers choose to prescribe antifungal medication for some people to try to reduce the severity of symptoms or prevent the infection from getting worse. Antifungal medication is typically given to people who are at higher risk for developing severe valley fever. The treatment typically occurs over a period of roughly 3 to 6 months. In some instances, longer treatment may be required. If valley fever develops into meningitis life-long antifungal treatment is typically necessary.

Between the years 1998 to 2012, nearly 130,000 valley fever cases were reported to the Centers for Disease Control (CDC). In states where valley fever is endemic and reportable (Arizona, California, Nevada, New Mexico, and Utah), overall incidence in 2011 was 42.6 cases per 100,000 population and was highest among persons aged 60-79 years.

Scientists continue to study how weather and climate patterns affect the habitat of the fungus that causes valley fever. Coccidioides is thought to grow best in soil after heavy rainfall and then disperse into the air most effectively during hot, dry conditions. For example, hot and dry weather conditions have been shown to correlate with an increase in the number of valley fever cases in Arizona and in California. The ways in which climate change may be affecting the number of valley fever infections, as well as the geographic range of Coccidioides, is not yet known, but is a subject for further research (CDC 2014).

AMBIENT AIR QUALITY

Air pollutant concentrations are measured at several monitoring stations in the SJVAB. The Porterville-1839 Newcomb Street and the Visalia-N. Church Street monitoring station are the closest representative monitoring stations to the proposed project site with sufficient data to meet U.S. EPA and/or ARB criteria for quality assurance. Measured concentration data of O_3 was obtained from the Porterville-1839 Newcomb Street monitoring station. Measured concentration data for NO_X, PM_{10}, and $PM_{2.5}$ were obtained from the Visalia-N. Church Street monitoring station. Ambient monitoring data was obtained for the last three years of available measurement data (i.e., 2013 through 2015) and are summarized in Table 1. As depicted, the state and federal ozone, $PM_{2.5}$, and state PM_{10} standards were exceeded on numerous occasions during the past 3 years.

SENSITIVE RECEPTORS

One of the most important reasons for air quality standards is the protection of those members of the population who are most sensitive to the adverse health effects of air pollution, termed "sensitive receptors." The term sensitive receptors refer to specific population groups, as well as the land uses where individuals would reside for long periods. Commonly identified sensitive population groups are children, the elderly, the acutely ill, and the chronically ill. Commonly identified sensitive land uses would include facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Residential dwellings, schools, parks, playgrounds, childcare centers, convalescent homes, and hospitals are examples of sensitive land uses.

Sensitive land uses located in the project area consist predominantly of rural residential land uses located at varying distances from the project area. The nearest rural residential land uses are depicted in Figure 1.

REGULATORY FRAMEWORK

Air quality within the project area is regulated by several jurisdictions including the U.S. EPA, ARB, and the SJVAPCD. Each of these jurisdictions develops rules, regulations, and policies to attain the goals or directives imposed upon them through legislation. Although U.S. EPA regulations may not be superseded, both state and local regulations may be more stringent.

Table 1
Summary of Ambient Air Quality Monitoring Data

Pollutant	Monitoring Year		
	2013	2014	2015
Ozone (O_3)[(1)]			
Maximum concentration (1-hour/8-hour average)	0.112/0.103	0.085/0.074	0.100/0.091
Number of days state/national 1-hour standard exceeded	5/0	0/0	4/0
Number of days state/national (2015) 8-hour standard exceeded	52/48	5/4	42/41
Nitrogen Dioxide (NO_2)[(2)]			
Maximum concentration (1-hour average)	62.3	64.5	62.3.
Annual average	12	10	9
Number of days state/national standard exceeded	0/0	0/0	0/0
Suspended Particulate Matter ($PM_{2.5}$)[(2)]			
Maximum concentration (national/state)	124.2	81.3	86.3
Annual Average (national/state)	18.9	17.8	16.1
Number of days national standard exceeded (measured/calculated)[(3)]	14/46.5	12/35.5	5/17.9
Suspended Particulate Matter (PM_{10})[(2)]			
Maximum concentration (national/state)	155.0/160.0	102.4/104.2	67.3/140.3
Number of days state standard exceeded (measured/calculated)[(3)]	16/94.0	17/NA	67/NA
Number of days national standard exceeded (measured/calculated)[(3)]	1/3.3	0/0.0	0/NA

ppm = parts per million by volume, µg/m³ = micrograms per cubic meter, NA=Not Available

1. *Based on ambient concentrations obtained from the Porterville-1839 Newcomb St. Monitoring Station.*
2. *Based on ambient concentrations obtained from the Visalia-N. Church St. Monitoring Station*
3. *Measured days are those days that an actual measurement was greater than the standard. Calculated days are estimated days that a measurement would have exceeded the standard had measurements been collected every day.*

Source: ARB 2016h

FEDERAL

U.S. Environmental Protection Agency

At the federal level, the U.S. EPA has been charged with implementing national air quality programs. The U.S. EPA's air quality mandates are drawn primarily from the FCAA, which was signed into law in 1970. Congress substantially amended the FCAA in 1977 and again in 1990.

Federal Clean Air Act

The FCAA required the U.S. EPA to establish NAAQS, and also set deadlines for their attainment. Two types of NAAQS have been established: primary standards, which protect public health, and secondary standards, which protect public welfare from non-health-related adverse effects, such as visibility restrictions. NAAQS are summarized in Table 2.

Toxic Substances Control Act

The Toxic Substances Control Act first authorized the U.S. EPA to regulate asbestos in schools and Public and Commercial buildings under Title II of the law, which is also known as the Asbestos Hazard Emergency Response Act (AHERA). AHERA requires Local Education Agencies to inspect their schools for asbestos-containing building materials (ACBM) and to prepare management plans to reduce the asbestos hazard. The Act also established a program for the training and accreditation of individuals performing certain types of asbestos work.

Table 2
Summary of Ambient Air Quality Standards & Attainment Designations

Pollutant	Averaging Time	California Standards	National Standards	
			Primary	Secondary
Ozone (O_3)	1-hour	0.09 ppm	–	Same as Primary
	8-hour	0.070 ppm	0.070 ppm	
Particulate Matter (PM_{10})	AAM	20 μg/m^3	–	Same as Primary
	24-hour	50 μg/m^3	150 μg/m^3	
Fine Particulate Matter ($PM_{2.5}$)	AAM	12 μg/m^3	12 μg/m^3	Same as Primary
	24-hour	No Standard	35 μg/m^3	15 μg/m^3
Carbon Monoxide (CO)	1-hour	20 ppm	35 ppm	–
	8-hour	9 ppm	9 ppm	
	8-hour (Lake Tahoe)	6 ppm	–	
Nitrogen Dioxide (NO_2)	AAM	0.030 ppm	0.053 ppm	–
	1-hour	0.18 ppm	0.100 ppb[b]	Same as Primary
Sulfur Dioxide (SO_2)	AAM	–	0.03 ppm	–
	24-hour	0.04 ppm	0.14 ppm	Same as Primary
	3-hour	–	--	–
	1-hour	0.25 ppm	75 ppb	–
Lead	30-day Average	1.5 μg/m^3	–	–
	Calendar Quarter	–	1.5 μg/m^3	Same as Primary
	Rolling 3-Month Average	–	0.15 μg/m^3	
Sulfates	24-hour	25 μg/m^3	No Federal Standards	
Hydrogen Sulfide	1-hour	0.03 ppm (42 μg/m^3)		
Vinyl Chloride	24-hour	0.01 ppm (26 μg/m^3)		
Visibility-Reducing Particle Matter	8-hour	Extinction coefficient: 0.23/kilometer-visibility of 10 miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70%.		

a. No federal 1-hour standard.
b. To attain this standard, the 3-year average of the 98th percentile daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010).
Source: ARB 2016f

National Emission Standards for Hazardous Air Pollutants

Pursuant to the FCAA of 1970, the U.S. EPA established the National Emission Standards for Hazardous Air Pollutants (NESHAPs). These are technology-based source-specific regulations that limit allowable emissions of HAPs. Among these sources include ACBM. NESHAPs include requirements pertaining to the inspection, notification, handling, and disposal of ACBM associated with the demolition and renovation of structures.

STATE

California Air Resources Board

The ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act of 1988. Other ARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control districts and air quality management districts), establishing CAAQS, which in many cases are more stringent than the NAAQS, and setting emissions standards for new motor vehicles. The CAAQS are summarized in Table 2. The emission standards established for motor vehicles differ depending on various factors including the model year, and the type of vehicle, fuel and engine used.

California Clean Air Act

The CCAA requires that all air districts in the state endeavor to achieve and maintain CAAQS for O_3, CO, SO_2, and NO_2 by the earliest practical date. The CCAA specifies that districts focus particular attention on reducing the emissions from transportation and area-wide emission sources, and the act provides districts with authority to regulate indirect sources. Each district plan is required to either (1) achieve a 5 percent annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each non-attainment pollutant or its precursors, or (2) to provide for implementation of all feasible measures to reduce emissions. Any planning effort for air quality attainment would thus need to consider both state and federal planning requirements.

Assembly Bills 1807 & 2588 - Toxic Air Contaminants

Within California, TACs are regulated primarily through AB 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics Hot Spots Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for ARB to designate substances as TACs. This includes research, public participation, and scientific peer review before ARB designates a substance as a TAC. Existing sources of TACs that are subject to the Air Toxics Hot Spots Information and Assessment Act are required to: (1) prepare a toxic emissions inventory; (2) prepare a risk assessment if emissions are significant; (3) notify the public of significant risk levels; and (4) prepare and implement risk reduction measures.

REGULATORY ATTAINMENT DESIGNATIONS

Under the CCAA, ARB is required to designate areas of the state as attainment, nonattainment, or unclassified with respect to applicable standards. An "attainment" designation for an area signifies that pollutant concentrations did not violate the applicable standard in that area. A "nonattainment" designation indicates that a pollutant concentration violated the applicable standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria. Depending on the frequency and severity of pollutants exceeding applicable standards, the nonattainment designation can be further classified as serious nonattainment, severe nonattainment, or extreme nonattainment, with extreme nonattainment being the most severe of the classifications. An "unclassified" designation signifies that the data does not support either an attainment or nonattainment designation. The CCAA divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category.

The U.S. EPA designates areas for O_3, CO, and NO_2 as "does not meet the primary standards," "cannot be classified," or "better than national standards." For SO_2, areas are designated as "does not meet the primary standards," "does not meet the secondary standards," "cannot be classified," or "better than national standards." However, ARB terminology of attainment, nonattainment, and unclassified is more frequently used. The U.S. EPA uses the same sub-categories for nonattainment status: serious, severe, and extreme. In 1991, U.S. EPA assigned new nonattainment designations to areas that had previously been classified as Group I, II, or III for PM_{10} based on the likelihood that they would violate national PM_{10} standards. All other areas are designated "unclassified."

The state and national attainment status designations pertaining to the SJVAB are summarized in Table 3. The SJVAB is currently designated as a nonattainment area with respect to the state PM_{10} standard, ozone, and $PM_{2.5}$ standards. The SJVAB is designated nonattainment for the national 8-hour ozone and $PM_{2.5}$ standards. On September 25, 2008, the U.S. EPA redesignated the San Joaquin Valley to attainment for the PM_{10} NAAQS and approved the PM_{10} Maintenance Plan (SJVAPCD 2016a).

Table 3
SJVAB Attainment Status Designations

Pollutant	National Designation	State Designation
Ozone, 1 hour	No Standard (Revoked in 2005)*	Nonattainment/Severe
Ozone, 8 hour	Nonattainment/Extreme	Nonattainment
PM_{10}	Attainment	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
Carbon Monoxide	Attainment	Unclassified/Attainment
Nitrogen dioxide	Unclassified/Attainment	Attainment
Sulfur dioxide	Unclassified/Attainment	Attainment
Lead (particulate)	No Designation/Classification	Attainment
Hydrogen sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility-reducing particulates	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment

** Although the Federal 1-hour ozone standard was revoked in 2005, areas must still attain this standard, and the District recently requested an EPA finding that the Valley has attained the standard based on 2011-2013 data.*
Source: SJVAPCD 2016a

San Joaquin Valley Air Pollution Control District

The SJVAPCD is the agency primarily responsible for ensuring that NAAQS and CAAQS are not exceeded and that air quality conditions are maintained in the SJVAB, within which the proposed project is located. Responsibilities of the SJVAPCD include, but are not limited to, preparing plans for the attainment of ambient air quality standards, adopting and enforcing rules and regulations concerning sources of air pollution, issuing permits for stationary sources of air pollution, inspecting stationary sources of air pollution and responding to citizen complaints, monitoring ambient air quality and meteorological conditions, and implementing programs and regulations required by the FCAA and the CCAA. The SJVAPCD Rules and Regulations that are applicable to the proposed project include, but are not limited to, the following (SJVAPCD 2016d):

- *Regulation VIII (Fugitive Dust Prohibitions). Regulation VIII (Rules 8011-8081).* This regulation is a series of rules designed to reduce particulate emissions generated by human activity, including construction and demolition activities, carryout and trackout, paved and unpaved roads, bulk material handling and storage, unpaved vehicle/traffic areas, open space areas, etc.
- *Rule 4002 (National Emissions Standards for Hazardous Air Pollutants).* This rule may apply to projects in which portions of an existing building would be renovated, partially demolished or removed. With regard to asbestos, the NESHAP specifies work practices to be followed during renovation, demolition or other abatement activities when friable asbestos is involved. Prior to demolition activity, an asbestos survey of the existing structure may be required to identify the presence of any asbestos containing building materials (ACBM). Removal of identified ACBM must be removed by a certified asbestos contractor in accordance with CAL-OSHA requirements.
- *Rule 4102 (Nuisance).* Applies to any source operation that emits or may emit air contaminants or other materials.
- *Rule 4103 (Open Burning).* This rule regulates the use of open burning and specifies the types of materials that may be open burned. Section 5.1 of this rule prohibits the burning of trees and other

vegetative (non-agricultural) material whenever the land is being developed for non-agricultural purposes.

- *Rule 9510 (Indirect Source Review - ISR).* Requires developers of larger residential, commercial, recreational, and industrial projects to reduce smog-forming and particulate emissions from their projects' baselines. If project emissions still exceed the minimum baseline reductions, a project's developer will be required to mitigate the difference by paying an off-site fee to the SJVAPCD, which would then be used to fund clean-air projects. For projects subject to this rule, the ISR rule requires developers to mitigate and/or offset emissions sufficient to achieve: (1) 20-percent reduction of construction equipment exhaust NO_X; (2) 45-percent reduction of construction equipment exhaust PM_{10}; (3) 33-percent reduction of operational NO_X over 10 years; and (4) 50-percent reduction of operational PM_{10} over 10 years. SJVAPCD ISR applications must be filed "no later than applying for a final discretionary approval with a public agency."

Air Quality Plans

The SJVAPCD has developed plans to attain state and federal standards for ozone and particulate matter. The SJVAPCD's air quality plans include emissions inventories to measure the sources of air pollutants, to evaluate how well different control methods have worked, and to show how air pollution will be reduced. The plans also use computer modeling to estimate future levels of pollution and make sure that the Valley will meet air quality goals. The SJVAPCD's attainment plans are subject to approval by the SJVAPCD's Governing Board. SJVAPCD's air quality plans are discussed in greater detail, as follows (SJVAPCD 2016b):

1-hour Extreme Ozone Attainment Demonstration Plan (Extreme OADP)

Although EPA revoked its 1979 1-hour ozone standard in June 2005, many planning requirements remain in place, and the Valley must still attain this standard before it can rescind CAA Section 185 fees. The SJVAPCD's most recent 1-hour ozone plan, the *2013 Plan for the Revoked 1-hour Ozone Standard*, demonstrated attainment of the 1-hour O_3 standard by 2017. The SJVAB now meets the 1-hour O_3 standard based on the most recent three-year period air monitoring data. On May 6, 2014, the SJVAPCD submitted a formal request that the EPA determine that the SJVAB has attained the federal 1-hour O_3 standard.

8-Hour Ozone *Attainment Demonstration Plan*

SJVAPCD adopted the *2007 8-Hour Ozone Plan* in April 2007. This plan addresses EPA's 8-hour O_3 standard of 84 ppb, which was established by EPA in 1997. The SJVAPCD's *2007 Ozone Plan* demonstrates attainment of EPA's 1997 8- hour ozone standard by 2023. EPA approved the *2007 Ozone Plan* effective April 30, 2012.

The SJVAPCD is now in the process of developing the *2016 Ozone Plan* to address EPA's 2008 8-hour O_3 standard, which the Valley must attain by 2032. This is a very tough standard that is nearing the Valley's naturally-occurring background concentrations. Attainment may not be possible without the virtual elimination of fossil fuel combustion.

PM_{10} Attainment Demonstration Plan

Based on PM_{10} measurements from 2003-2006, EPA found that the SJVAB has reached Federal PM_{10} standards. On September 21, 2007, the SJVAPCD's Governing Board adopted the *2007 PM_{10} Maintenance Plan and Request for Redesignation*. This plan demonstrates that the Valley will continue to meet the PM_{10} standard. EPA approved the document and on September 25, 2008, the SJVAB was redesignated to attainment/maintenance.

$PM_{2.5}$ Attainment Planning

The SJVAPCD Governing Board adopted the *2008 $PM_{2.5}$ Plan* on April 30, 2008. This plan is designed to assist the SJVAB in attaining all $PM_{2.5}$ standards, including the 1997 federal standards, the 2006 federal standards, and the state standard, at the earliest possible date.

The SJVAPCD's *2008 $PM_{2.5}$ Plan* demonstrated 2014 attainment of EPA's first *$PM_{2.5}$* standard, set in 1997. EPA lowered the *$PM_{2.5}$* standard in 2006, and the SJVAPCD's *2012 $PM_{2.5}$ Plan* showed attainment of this standard by 2019, with the majority of the Valley seeing attainment much sooner. On July 13, 2011, the EPA issued a rule partially disapproving the *2008 $PM_{2.5}$ Plan*. Subsequently, on November 9, 2011, the EPA issued a final rule approving most of the plan with an effective date of January 9, 2012. However, the EPA disapproved the plan's contingency measures because they would not provide sufficient emission reductions.

Approved by the SJVAPCD Governing Board on December 20, 2012, the *2012 $PM_{2.5}$ Plan* addresses attainment of EPA's 24-hour *$PM_{2.5}$* standard of 35 micrograms per cubic meter (µg/m³) established in 2006. In addition to reducing direct emissions of *$PM_{2.5}$*, this plan focuses on reducing emissions of NO_X, which is a predominant pollutant in the formation of *$PM_{2.5}$* in the SJVAB. The *2012 $PM_{2.5}$ Plan* demonstrated that the SJVAB would achieve attainment of the federal *$PM_{2.5}$* standard by the attainment deadline of 2019.

On April 16, 2015, the SJVAPCD Governing Board adopted the *2015 Plan for the 1997 $PM_{2.5}$ Standard*. This plan addresses the EPA's annual *$PM_{2.5}$* standard of 15 micrograms per cubic meter (µg/m3) and 24-hour *$PM_{2.5}$* standard of 65 µg/m3 established in 1997. This plan includes a request for a one-time extension of the attainment deadline for the 24-hour standard to 2018 with an attainment date for the annual standard of 2020.

IMPACTS & MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Criteria for determining the significance of air quality impacts were developed based on information contained in the California Environmental Quality Act Guidelines (CEQA Guidelines, Appendix G). According to those guidelines, a project may have a significant effect on the environment if it would result in the following conditions:

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

To assist local jurisdictions in the evaluation of air quality impacts, the SJVAPCD has published the *Guide for Assessing and Mitigating Air Quality Impacts* (SJVAPCD 2015). This guidance document includes recommended thresholds of significance to be used for the evaluation of short-term construction, long-term operational, odor, toxic air contaminant, and cumulative air quality impacts. Accordingly, the SJVAPCD-recommended thresholds of significance are used to determine whether implementation of the proposed project would result in a significant air quality impact. The thresholds of significance are summarized below.

- Short-term Emissions—Construction impacts associated with the proposed project would be considered significant if project-generated emissions would exceed 100 tons per year (TPY) of CO, 10 TPY of ROG or NO_X, 27 TPY of SO_X, or 15 TPY of PM_{10} or $PM_{2.5}$.
- Long-term Emissions—Operational impacts associated with the proposed project would be considered significant if project generated emissions would exceed 100 tons per year (TPY) of CO, 10 TPY of ROG or NO_X, 27 TPY of SO_X, or 15 TPY of PM_{10} or $PM_{2.5}$.
- Conflict with or Obstruct Implementation of Applicable Air Quality Plan—Due to the region's non-attainment status for ozone, $PM_{2.5}$, and PM_{10}, if project-generated emissions of ozone precursor pollutants (i.e., ROG and NO_x) or PM would exceed the SJVAPCD's significance thresholds, then the project would be considered to conflict with the attainment plans.

- Local Mobile-Source CO Concentrations—Local mobile source impacts associated with the proposed project would be considered significant if the project contributes to CO concentrations at receptor locations in excess of the CAAQS (i.e., 9.0 ppm for 8 hours or 20 ppm for 1 hour).
- Exposure to toxic air contaminants (TAC) would be considered significant if the probability of contracting cancer for the Maximally Exposed Individual (i.e., maximum individual risk) would exceed 20 in 1 million or would result in a Hazard Index greater than 1.
- Odor impacts associated with the proposed project would be considered significant if the project has the potential to frequently expose members of the public to objectionable odors.

In addition to the above thresholds, the SJVAPCD also recommends the use of daily emissions thresholds for the evaluation of project impacts on localized ambient air quality. Based on these recommended thresholds, the proposed project would also be considered to result in a significant contribution to localized ambient air quality if onsite emissions of ROG, NO_X, PM_{10}, $PM_{2.5}$, CO, or SO_2 associated with either short-term construction or long-term operational activities would exceed a daily average of 100 pounds per day (lbs/day) for each of the recommended pollutants evaluated (SJVAPCD 2015).

METHODOLOGY

Short-term Construction-Generated Emissions

Short-term construction emissions associated with the proposed project, including emissions associated with the operation of off-road equipment, haul-truck trips, on-road worker vehicle trips, and vehicle travel on paved and unpaved surfaces and fugitive dust from material handling activities were calculated using the California Emissions Estimator Model (CalEEMod), version 2016.3.1. Emissions modeling was based on estimated construction schedules for the project and assuming an overall construction period of approximately 15 months. Emissions modeling includes emissions generated during site preparation/grading, as well as, the installation of basin and in-lieu bank infrastructure and pipelines. Emissions were quantified based on anticipated construction schedules and construction equipment requirements provided by the project applicant. Haul truck trips for the removal of the existing orchards were based on a total of 720 acres and an estimated 1.5 haul trucks/acre assuming that all material would be chipped and exported off site (P&P 2016). The import/export of soil is not anticipated to be required for this project. All remaining assumptions were based on the default parameters contained in the model.

Mitigated construction-generated fugitive dust emissions were quantified assuming an on-site speed limit of 15 miles per hour (mph), a control efficiency of 61% for watering of disturbed surfaces, and a 50% control efficiency for watering of on-site unpaved roadways. Watering control efficiencies were based on a minimum application rate of three times daily, sufficient to keep soils and roadway base materials moist. Short-term increases of odors and toxic air contaminants attributable to the proposed project were qualitatively assessed. Emissions modeling assumptions and output files are included in Appendix A of this report.

Long-term Operational Emissions

The CalEEMod computer program, version 2016.3.1 was used to estimate emissions of criteria pollutants (i.e., NO_X, ROG, PM_{10}, $PM_{2.5}$, SO_X, and CO) associated with long-term operation of the proposed Project. During long-term operation of the Project, emissions would be associated on-site energy use, motor vehicle operations, and the operation of off-road equipment associated with routine maintenance activities. Onsite emissions associated with energy use, motor vehicle operations, and off-road equipment operations were based on operational data provided by the project applicant and the default emission factors and usage rates contained in CalEEMod. Net increases in emissions were calculated in comparison to existing operational emissions, which include the operation of off-road equipment, worker commute trips, and water pumps. To be conservative, haul truck trips associated with the transport of agricultural products were not included in the analysis. Existing emission sources and associated annual emissions for the project buildout year 2019 conditions are summarized in Table 4. Emissions modeling assumptions and output files are included in Appendix A of this report.

Table 4
Existing Annual Emissions of Criteria Air Pollutants

Source	Annual Emissions (tons/year)[1]					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Off-Road Agricultural Equipment[1]	0.01	0.06	0.05	<0.01	<0.01	<0.01
On-Road Motor Vehicles (Worker Commute)[2]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Stationary Sources (Well Pumps)[3]	0.18	1.53	1.44	<0.01	0.06	0.06
Total:	0.2	1.6	1.5	<0.01	0.06	0.06

Emissions were quantified using CalEEMod, version 2016.3.1. Totals may not sum due to rounding.
1. *Includes 2 tractors 80 hours/year minimum; 1 tree shaker 80 hours/year minimum; 1 blower 80 hours/year minimum.*
2. *Includes minimum of 10 trips/month average (120 trips per year) for worker commute. To be conservative, excludes haul truck trips for transport of agricultural produce.*
3. *Includes removal of a minimum of 1 CNG 200hp pump, 1 CNG 125hp pump, 1 elec. 200hp pump, 1 elec. 60hp pump, 2 elec. 75hp pumps.*

Refer to Appendix A for modeling results and assumptions.

Project-Level Impacts & Mitigation Measures

IMPACT AQ-1: Would the proposed project conflict with or obstruct implementation of the applicable air quality plan?

Implementation of the project would generate both temporary construction and long-term operational emissions which could conflict with or obstruct with air quality attainment and maintenance planning efforts. Consistency with air quality plans is typically conducted based on a comparison of project-generated growth in employment, population, and vehicle miles traveled (VMT) within the region, which is used for development of the emissions inventories contained in the air quality plans. In addition, projects that exceed applicable project-level CEQA significance thresholds would also be considered to have a potentially significant cumulative impact to regional air quality, which could interfere with regional air quality attainment and maintenance planning efforts.

The proposed project is consistent with current zoning and general plan land use designations. As such, the proposed project would be considered consistent with employment and VMT growth projections identified in local plans, upon which applicable ambient air quality plans are based. However, as noted in Impact AQ-3, project-generated construction emissions would exceed SJVAPCD's project-level significance thresholds. As a result, this impact is considered ***potentially significant***. (Refer to Impact AQ-3 for additional discussion of air quality impacts and mitigation measures.)

Mitigation Measures

Implement Mitigation Measures AQ-1 and AQ-2 [refer to Impact AQ-3]

Level of Significance after Mitigation

Implementation of Mitigation Measures AQ-1 would require the project to comply with SJVAPCD Regulation VIII for the control of fugitive dust. Mitigation Measures AQ-2 would include additional measures to reduce emissions of NO_X. With implementation of the proposed mitigation measures, project-generated emissions would not exceed SJVAPCD's significance thresholds and would not conflict with applicable air quality plans. As a result, this impact is considered ***less than significant***.

IMPACT AQ-2: Would the proposed project violate any air quality standards or contribute substantially to an existing or projected air quality violation?

As noted in Impact AQ-3, daily construction emissions of NO_X would exceed SJVAPCD's localized significance thresholds of 100 lbs/day. In addition, although emissions of PM would not exceed SJVAPCD's significance thresholds, uncontrolled PM emissions could result in localized increases in pollutant concentrations at nearby residential dwellings. Ground disturbing activities may also result in increased potential for exposure of nearby individuals to Coccidioides spores and contraction of Valley Fever. As a result, this impact is considered ***potentially significant***. (Refer to Impact AQ-3 and AQ-4 for additional discussion of air quality impacts and mitigation measures.)

Mitigation Measures

Implement Mitigation Measures AQ-1, AQ-2 and AQ-3 [refer to Impacts AQ-3 and AQ-4]

Level of Significance after Mitigation

Implementation of Mitigation Measures AQ-1 would require the project to comply with SJVAPCD Regulation VIII for the control of fugitive dust. Mitigation Measures AQ-2 would include additional measures to reduce emissions of NO_X. With implementation of the proposed mitigation measures, project-generated emissions would not exceed SJVAPCD's significance thresholds and would not conflict with applicable air quality plans. As a result, this impact is considered ***less than significant***.

IMPACT AQ-3: Would the proposed result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Short-term Construction

Short-term increases in emissions would occur during the construction process. Construction-generated emissions are of temporary duration, lasting only as long as construction activities occur, but have the potential to represent a significant air quality impact. The construction of the proposed project would result in the temporary generation of emissions associated with various activities, including site preparation, grading, and installation of project infrastructure. Emissions of fugitive dust would be primarily associated with ground-disturbing activities and vehicle travel on unpaved surfaces. Emissions of ozone-precursor pollutants (ROG and NO_X) would be largely associated with off-road equipment use and on-road vehicle operations associated with workers commuting to and from the project site and haul truck trips.

Annual Emissions

Estimated annual construction-generated emissions are summarized in Table 5. Assuming that construction of the recharge basin, in-lieu banking area, and pipeline installation were to occur simultaneously during the initial year of construction, the proposed project would generate maximum uncontrolled annual emissions of approximately 0.9 tons/year of ROG, 9.4 tons/year of NO_X, 5.8 tons/year of CO, 0.1 tons/year of SO_X, 1.2 tons/year of PM_{10}, and 0.6 tons/year of $PM_{2.5}$. Construction-generated emissions occurring during the second year of construction would be less. As depicted, annual construction-generated emissions would not exceed the SJVAPCD'S significance thresholds.

Daily Emissions

Estimated daily construction-generated emissions are summarized in Table 6. Assuming that construction of the recharge basin, in-lieu banking area, and pipeline installation were to occur simultaneously, daily emissions from onsite sources would total approximately 12.4 lbs/day of ROG and 131.2 lbs/day of NO_X, 80.6 lbs/day of CO, 0.2 lbs/day of SO_X, 17.4 lbs/day of PM_{10}, and 9.5 lbs/day of $PM_{2.5}$ during the initial year of

Table 5
Annual Construction-Generated Emissions of Criteria Air Pollutants - Unmitigated

Construction Activity/Source	Duration (Months)	Emissions (tons/year)(1)					
		ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Recharge Basin (Construction Year 1)							
Site Preparation & Orchard Removal: On-Site	2	0.05	0.48	0.27	<0.01	0.15	0.09
Site Preparation & Orchard Removal: Off-Site		0.01	0.34	0.07	<0.01	0.02	0.01
Grading: On-Site	10	0.54	6.34	3.60	<0.01	0.78	0.29
Grading: Off-Site		0.03	0.03	0.24	<0.01	0.09	0.02
Total:		0.63	7.19	4.18	0.04	1.04	0.41
Recharge Basin (Construction Year 2)							
Grading: On-Site	4	0.13	1.52	0.90	<0.01	0.58	0.11
Grading: Off-Site		0.01	0.01	0.06	<0.01	0.03	0.01
Excavation: On-Site	4.75	0.01	0.13	0.16	<0.01	0.01	0.01
Excavation: Off-Site		<0.01	<0.01	0.01	<0.01	<0.01	<0.01
Well Drilling: On-Site	1	0.01	0.08	0.05	<0.01	<0.01	<0.01
Well Drilling: Off-Site		<0.01	<0.01	0.01	<0.01	<0.01	<0.01
Infrastructure: On-Site	4.75	0.02	0.24	0.16	<0.01	0.01	0.01
Infrastructure: Off-Site		<0.01	<0.01	0.01	<0.01	<0.01	<0.01
Total:		0.21	2.01	1.36	0.08	0.67	0.18
In-Lieu Banking Area							
Excavation: On-Site	1.5	0.02	0.17	0.11	<0.01	<0.01	<0.01
Excavation: Off-Site		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Trenching: On-Site	0.5	<0.01	0.01	0.01	<0.01	<0.01	<0.01
Trenching: Off-Site		<0.01	<0.01	<0.01	0.00	<0.01	<0.01
Total:		0.05	0.20	0.14	0.03	0.04	0.04
Pipeline Installation							
Trenching: On-Site	9	0.15	1.54	1.12	<0.01	0.07	0.07
Trenching: Off-Site		0.01	0.01	0.06	<0.01	<0.01	<0.01
Lift Stations: On-Site	3	0.04	0.40	0.28	<0.01	0.02	0.02
Lift Stations: Off-Site		<0.01	<0.01	0.01	<0.01	<0.01	<0.01
Total:		0.21	1.96	1.47	0.04	0.11	0.11
Maximum Annual Emissions – Year 1:		0.9	9.4	5.8	0.1	1.2	0.6
Maximum Annual Emissions – Year 2:		0.5	4.2	3.0	0.2	0.8	0.3
Significance Thresholds:		*10*	*10*	*100*	*27*	*15*	*15*
Exceed Thresholds?		*No*	*No*	*No*	*No*	*No*	*No*

Emissions were quantified using CalEEMod, version 2016.3.1. Totals may not sum due to rounding. To be conservative, maximum annual emissions assumes construction of in-lieu banking area and pipelines could potentially occur during either of the basin construction years. Refer to Appendix A for modeling results and assumptions.

Table 6
Daily Construction-Generated Emissions of Criteria Air Pollutants - Unmitigated

Construction Activity/Source	Emissions (lbs/day)[1]					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Recharge Basin (Construction Year 1)						
Site Preparation & Orchard Removal: On-Site	2.50	24.0	13.50	0.50	7.50	4.50
Site Preparation & Orchard Removal: Off-Site	0.50	17.00	3.50	0.50	1.00	0.50
Grading: On-Site	5.40	63.40	36.00	0.10	7.80	2.90
Grading: Off-Site	0.30	0.30	2.40	0.10	0.90	0.20
Total:	8.70	104.70	55.40	0.16	17.20	8.10
Recharge Basin (Construction Year 2)						
Grading: On-Site	3.25	38.00	22.50	0.05	14.50	2.75
Grading: Off-Site	0.25	0.25	1.50	0.00	0.75	0.25
Excavation: On-Site	0.21	2.74	3.37	0.00	0.21	0.21
Excavation: Off-Site	0.21	0.21	0.21	0.00	0.21	0.21
Well Drilling: On-Site	0.70	8.00	5.00	0.02	0.30	0.30
Well Drilling: Off-Site	0.10	0.08	0.80	0.00	0.20	0.05
Infrastructure: On-Site	0.80	9.60	6.40	0.02	0.28	0.40
Infrastructure: Off-Site	0.04	0.03	0.32	0.00	0.08	0.02
Total:	5.32	58.62	40.06	0.09	16.36	3.89
In-Lieu Banking Area						
Excavation: On-Site	1.33	11.33	7.33	0.02	0.47	0.47
Excavation: Off-Site	0.03	0.02	0.20	0.00	0.04	0.01
Trenching: On-Site	0.20	2.00	2.00	0.00	0.18	0.18
Trenching: Off-Site	0.02	0.02	0.18	0.00	0.04	0.01
Total:	1.58	13.37	9.71	0.02	0.73	0.67
Pipeline Installation						
Trenching: On-Site	1.67	17.11	12.44	0.02	0.78	0.78
Trenching: Off-Site	0.11	0.11	0.67	0.00	0.03	0.11
Lift Stations: On-Site	1.33	13.33	9.33	0.02	0.67	0.67
Lift Stations: Off-Site	0.07	0.03	0.33	0.00	0.10	0.02
Total:	3.18	30.59	22.78	0.04	1.58	1.58
Maximum Daily Onsite Emissions – Year 1:	12.4	**131.2**	80.6	0.2	17.4	9.5
Maximum Daily Onsite Emissions – Year 2:	9.5	**102.1**	68.4	0.2	17.4	5.8
Significance Thresholds:[2]	*100*	*100*	*100*	*100*	*100*	*100*
Exceed Thresholds?	*No*	***Yes***	*No*	*No*	*No*	*No*

1. Emissions were quantified using CalEEMod, version 2016.3.1. Totals may not sum due to rounding. Maximum average-daily emissions assumes in-lieu banking and pipeline construction could occur during either recharge basin construction years. Total onsite and off-site emissions are presented for informational purposes. Refer to Appendix A for modeling results and assumptions.
2. SJVAPCD significance thresholds for localized impacts are based on onsite emission sources.

construction. Daily emissions during the second year of construction would total approximately 9.5 lbs/day of ROG and 102.1 lbs/day of NO_X, 68.4 lbs/day of CO, 0.2 lbs/day of SO_X, 17.4 lbs/day of PM_{10}, and 5.8 lbs/day of $PM_{2.5}$. Daily emissions of NO_X would exceed SJVAPCD's localized significance thresholds of 100 lbs/day. In addition, although emissions of PM would not exceed SJVAPCD's significance thresholds, uncontrolled PM emissions could result in nuisance impacts to occupants of nearby residential dwellings. As a result, exposure to localized concentrations of NO_X and PM would be considered a ***potentially significant impact***.

Long-term Operation

Estimated annual and daily operational emissions are summarized in Tables 7 and 8, respectively. As depicted in Table 7, annual operation of the proposed project would generate a total of approximately 1.2 tons/year of ROG, 11.3 tons/year of NO_X, 5.6 tons/year of CO, 0.4 tons/year of PM_{10}, and 0.4 tons/year of $PM_{2.5}$. Emissions of SO_X would be negligible, totaling less than 0.1 ton/year. In comparison to existing emissions (refer to Table 4), the proposed project would result in a net increase of approximately 1.0 tons/year of ROG, 9.7 tons/year of NO_X, 4.1 tons/year of CO, 0.3 tons/year of PM_{10}, and 0.3 tons/year of $PM_{2.5}$. Net increases in annual emissions of criteria air pollutants would not exceed SJVAPCD's significance thresholds. It is important to note that existing emissions are conservative and actual net increases in annual operational emissions would likely be less.

As depicted in Table 8, daily operational emissions associated with onsite sources would total approximately 1.7 lbs/day of ROG, 17.5 lbs/day of NO_X, 7.9 lbs/day of CO, <0.1 lbs/day of SO_X, 2.1 lbs/day of PM_{10}, and 0.7 lbs/day of $PM_{2.5}$. Daily onsite emissions would not exceed SJVAPCD's significance thresholds for localized air quality impacts. Because annual and daily emissions would not exceed SJVAPCD's significance thresholds, this impact would be considered ***less than significant***.

Table 7
Annual Operational Emissions of Criteria Air Pollutants - Unmitigated

Source	Annual Emissions (tons/year)(1)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Road Grading: On-Site Off-Road Equipment	<0.01	0.03	0.01	<0.01	<0.01	<0.01
Road Grading: Off-Site Worker Trips	<0.01	<0.01	<0.01	0.00	<0.01	<0.01
Discing: On-Site Off-Road Equipment	<0.01	0.01	0.01	<0.01	<0.01	<0.01
Discing: Off-Site Worker Trips	<0.01	<0.01	<0.01	0.00	<0.01	<0.01
Spraying: On-Site Off-Road Equipment	<0.01	0.007	<0.01	<0.01	<0.01	<0.01
Spraying: Off-Site Worker Trips	<0.01	<0.01	<0.01	0.00	<0.01	<0.01
Booster Lift & Well Pumps: Off-Site Electricity Use	1.16	11.29	5.57	0.03	0.35	0.35
Worker Trips: Off-Site Routine Maintenance & Inspection	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total:	*1.2*	*11.3*	*5.6*	*<0.0*	*0.4*	*0.4*
Existing Emissions to be Removed:	*0.2*	*1.6*	*1.5*	*<0.1*	*0.1*	*0.1*
Net Increase:	*1.0*	*9.7*	*4.1*	*<0.0*	*0.3*	*0.3*
Significance Thresholds:	*10*	*10*	*100*	*27*	*15*	*15*
Exceed Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Emissions were quantified using CalEEMod, version 2016.3.1. Totals may not sum due to rounding.
Refer to Table 5 for existing sources and associated emissions. To be conservative, existing emissions do not include mobile-source emissions associated with the transport of agricultural products.
Refer to Appendix A for modeling results and assumptions.

Table 8
Daily Operational Emissions of Criteria Air Pollutants - Unmitigated

Source	Daily Emissions (lbs/day)(1)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Road Grading: On-Site Off-Road Equipment	0.96	9.60	3.20	0.01	1.28	0.32
Discing: On-Site Off-Road Equipment	0.23	2.29	2.29	<0.00	0.69	0.23
Spraying: On-Site Off-Road Equipment	0.48	5.60	2.40	0.01	0.16	0.16
Total Onsite Sources:	1.7	17.5	7.9	<0.1	2.1	0.7
On-Site Significance Thresholds:(2)	*100*	*100*	*100*	*100*	*100*	*100*
On-Site Emissions Exceed Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

Emissions were quantified using CalEEMod, version 2016.3.1. Totals may not sum due to rounding.
1. Onsite Emissions include off-road equipment operations.
2. SJVAPCD significance threshold for localized impacts applies to onsite emissions only.
Refer to Appendix A for modeling results and assumptions.

Mitigation Measures

Mitigation Measure AQ-1: Comply with SJVAPCD's Regulation VIII-Fugitive Dust Prohibitions. Construction of the proposed project shall comply with SJVAPCD's *Regulation VIII Fugitive Dust Prohibitions* and implement all applicable control measures. In accordance with SJVAPCD's Regulation VIII, a Dust Control Plan (DCP) shall be prepared for the proposed project. The DCP shall be submitted to and approved by the SJVAPCD prior to issuance of construction/grading permits. Fugitive dust control measures to be included in the DCP shall include, but are not limited to, the following:

- All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover.
- All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.
- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut & fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.
- With the demolition of buildings up to six stories in height, all exterior surfaces of the building shall be wetted during demolition.
- When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained.
- All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.) (Use of blower devices is expressly forbidden.)
- Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions
- utilizing sufficient water or chemical stabilizer/suppressant.
- Within urban areas, trackout shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday.
- An owner/operator of any site with 150 or more vehicle trips per day, or 20 or more vehicle trips per day by vehicles with three or more axles shall implement measures to prevent carryout and trackout.

Mitigation Measure AQ-2: **Implement Measures to Reduce Construction Emissions of NO_X.** The following measures shall be implemented to reduce mobile-source emissions of NO_X:

- To the extent locally available, alternative fueled, electrically driven, hybrid, or catalyst construction equipment shall be used.
- Heavy-duty (50 hp, or greater) off-road construction equipment shall, at a minimum, meet U.S. EPA Tier 3 emission standards.
- A minimum of 50% of construction waste materials shall be recycled.
- When not in use, idling of on-site construction equipment and vehicles shall be minimized. Idling of on-site diesel-powered equipment and vehicles shall be limited to no more than 5 minutes when not in use.

Level of Significance after Mitigation

To ensure compliance with SJVAPCD Regulation VIII requirements, Mitigation Measure AQ-1 would require the preparation of a DCP to reduce emissions of fugitive dust generated during project construction. Compliance with SJVAPCD Regulation VIII would reduce overall construction-generated PM emissions by approximately 50 percent. In addition, Mitigation Measure AQ-2 includes additional measures that would reduce construction-generated emissions of NO_X. Based on the modeling conducted for this project, implementation of these measures would reduce onsite construction emissions of NO_X to a maximum of approximately 80.9 lbs/day (refer to Table 9). With implementation of Mitigation Measure AQ-2, construction-generated emissions of NO_X would be reduced to below the SJVAPCD's daily significance threshold of 100 lbs/day. It is also important to note that compliance with Mitigation Measure AQ-2 would also result in overall reductions in annual emissions. With implementation of Mitigation Measure AQ-2, annual emissions of ROG and NO_X would be reduced by approximately 65 percent and 40 percent, respectively. Because annual and daily construction-generated emissions would not exceed SJVAPCD's significance thresholds, this impact would be considered ***less than significant*** *with mitigation*.

IMPACT AQ-4: Would the proposed project expose sensitive receptors to substantial pollutant concentrations?

Pollutants of primary concern commonly associated with construction-related activities include toxic air contaminants (i.e., DPM), asbestos, and fugitive dust. Within the project area, the potential for increased occurrences of Valley Fever is also of concern. Localized air quality impacts associated with these pollutants are discussed in greater detail, as follows:

Toxic Air Contaminants

Construction of the proposed project, as well as, long-term project operations, may result in temporary increases in emissions of DPM associated with the use of off-road diesel-fueled equipment. Health-related risks associated with diesel-exhaust emissions are primarily associated with long-term exposure and associated risk of contracting cancer. As such, the calculation of cancer risk associated with exposure of to TACs are typically calculated based on a long-term (e.g., 70-year) period of exposure. Construction activities would occur over an approximate 15-month construction period, which would constitute roughly two percent of the typical 70-year exposure period. The use of diesel-fueled equipment for construction and routine maintenance activities, however, would be episodic and would occur over a relatively large area. It is also important to note that construction-generated emissions of PM would not exceed SJVAPCD's significance thresholds for localized impacts (refer to Impact AQ-3). In addition, implementation of Mitigation Measure AQ-2 would further minimize emissions of DPM from off-road equipment and vehicles. For these reasons and given the relatively high dispersive properties of DPM, exposure to construction-generated DPM would not be anticipated to exceed applicable thresholds (i.e., incremental increase in cancer risk of 20 in one million). Exposure to construction-generated DPM would be considered to have a ***less-than-significant*** impact.

Table 9
Daily Construction-Generated On-site Emissions of Criteria Air Pollutants - Mitigated

Construction Activity/Source	Onsite Emissions (lbs/day)[1]					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Recharge Basin (Construction Year 1)						
Site Preparation & Orchard Removal: On-Site	0.50	10.50	12.50	0.02	3.00	2.00
Grading: On-Site	1.90	37.00	42.40	0.01	3.60	1.80
Total:	2.40	47.50	54.90	0.03	6.60	3.80
Recharge Basin (Construction Year 2)						
Grading: On-Site	1.25	25.00	27.50	0.05	6.00	1.50
Excavation: On-Site	0.13	2.53	4.00	0.01	0.13	0.13
Well Drilling: On-Site	0.40	9.00	10.00	0.02	0.40	0.40
Infrastructure: On-Site	0.40	8.00	9.20	0.02	0.40	0.40
Total:	2.18	44.53	50.70	0.09	6.93	2.43
In-Lieu Banking Area						
Excavation: On-Site	0.67	8.67	10.67	0.02	0.67	0.67
Trenching: On-Site	0.08	1.80	2.00	0.00	0.12	0.12
Total:	0.75	10.47	12.67	0.02	0.79	0.79
Pipeline Installation						
Trenching: On-Site	0.67	12.89	17.22	0.02	0.56	0.56
Lift Stations: On-Site	0.67	10.00	12.67	0.02	0.33	0.33
Total:	1.33	22.89	29.89	0.04	0.89	0.89
Maximum Daily Onsite Emissions – Year 1:	4.48	80.86	97.46	0.10	8.28	5.48
Maximum Daily Onsite Emissions – Year 2:	4.26	77.88	93.26	0.16	8.60	4.10
Significance Thresholds:[2]	*100*	*100*	*100*	*100*	*100*	*100*
Exceed Thresholds?	*No*	*No*	*No*	*No*	*No*	*No*

1. *Emissions were quantified using CalEEMod, version 2016.3.1. Totals may not sum due to rounding. Maximum average-daily emissions assume in-lieu banking and pipeline construction could occur during either recharge basin construction years. Refer to Appendix A for modeling results and assumptions.*
2. *SJVAPCD significance thresholds for localized impacts are based on onsite emission sources.*

Naturally Occurring Asbestos

Naturally-occurring asbestos, which was identified by ARB as a TAC in 1986, is located in many parts of California and is commonly associated with ultramafic rock. The project site is not located near any areas that are likely to contain ultramafic rock (DOC 2000). As a result, risk of exposure to asbestos during the construction process would be considered ***less than significant***.

Localized Particulate Concentrations

Construction of the proposed project would include ground-disturbing activities which would be anticipated to result in increased emissions of airborne particulates. As noted in Impact AQ-3, onsite PM emissions would be primarily associated with ground-disturbing activities, including site preparation and grading activities.

As previously noted in Impact AQ-3, short-term construction and long-term operation of the proposed project would not result in increased daily onsite emissions of particulate matter that would exceed the SJVAPCD's screening thresholds for localized air quality impacts (refer to Tables 6 and 8). However, if uncontrolled, PM emissions could result in nuisance impacts to occupants of nearby residential dwellings. As a result, exposure to localized concentrations of PM would be considered a ***potentially significant*** impact.

Mitigation Measures

Implement *Mitigation Measure AQ-1* and AQ-2

Level of Significance after Mitigation

Mitigation Measure AQ-1 includes measures to ensure compliance with SJVAPCD Regulation VIII for the control of construction-generated emissions of fugitive dust, which would reduce nuisance impacts to occupants of nearby land uses. In addition, Mitigation Measure AQ-2 would result in additional reductions of mobile-source PM emissions. With mitigation, this impact would be considered ***less than significant***.

Carbon Monoxide

Localized concentrations of CO are typically associated with the idling of vehicles, particularly in highly congested areas. For this reason, the areas of primary concern are congested roadway intersections that experience high levels of vehicle traffic with degraded levels of service (LOS). With regard to potential increases in CO concentrations that could potentially exceed applicable ambient air quality standards, signalized intersections that are projected to operate at an unacceptable LOS E or F are of particular concern.

Vehicle trips generated by the proposed project would be primarily associated with routine maintenance activities. In comparison to existing agricultural operations, implementation of the proposed project is not anticipated to result in overall long-term increases in vehicle trips along area roadways or at nearby intersections. As a result, implementation of the proposed project would not be anticipated to result in a substantial increase in localized CO concentrations having the potential to exceed applicable ambient air quality standards. This impact would be considered ***less than significant***.

Valley Fever

As noted earlier in this report, Valley Fever is an infection caused by the fungus Coccidioides. Coccidioides spores can become airborne after contaminated soil and dust are disturbed. Construction activities would include ground-disturbing activities, which could result in an increased potential for exposure of nearby individuals and onsite construction workers to airborne spores. As a result, the potential for increased exposure and contraction of Valley Fever would be considered to have a ***potentially significant*** impact.

Mitigation Measures

Implement *Mitigation Measure AQ-1*; and

Mitigation Measure AQ-3: To minimize personnel and public exposure to potential Valley Fever–containing dust both on- and off-site, the following additional control measures shall be included in the DCP to be prepared for this project as required by *Mitigation Measure AQ-1*:

a. Equipment, vehicles, and other items shall be thoroughly cleaned of dust before they are moved offsite to other work locations.
b. Wherever possible, grading and trenching work shall be phased so that earth-moving equipment is working well ahead or down-wind of workers on the ground.
c. The area immediately behind grading or trenching equipment shall be sprayed with water before ground workers move into the area.
d. In the event that a water truck runs out of water before dust is sufficiently dampened, ground workers being exposed to dust are to leave the area until a full truck resumes water spraying.

e. All heavy-duty earth-moving vehicles shall be closed-cab and equipped with a HEP-filtered air system.
f. Workers shall receive training to recognize the symptoms of Valley Fever, and shall be instructed to promptly report suspected symptoms of work-related Valley Fever to a supervisor.
g. A Valley Fever informational handout shall be provided to all on-site construction personnel. The handout shall, at a minimum, provide information regarding the symptoms, health effects, preventative measures, and treatment.
h. Onsite personnel shall be trained on the proper use of personal protective equipment, including respiratory equipment. National Institute for Occupational Safety and Health (NIOSH)-approved respirators shall be provided to onsite personal, upon request.

Level of Significance after Mitigation

In addition to the dust control measures specified in *Mitigation Measure AQ-1*, implementation of *Mitigation Measure AQ-3* would require the inclusion of additional measures in the DCP to minimize personnel and public exposure to potential Valley Fever–containing dust. These measures would include a program for the training of onsite personnel and identification of measures to be implemented to minimize the potential for exposure to Valley Fever. With mitigation, this impact would be considered ***less than significant***.

IMPACT AQ-5: Would the proposed project create objectionable odors affecting a substantial number of people?

The occurrence and severity of odor impacts depends on numerous factors, including the nature, frequency, and intensity of the source, the wind speed and direction, and the sensitivity of the receptor. Types of land uses that typically pose potential odor problems include agriculture, wastewater treatment plants, food processing and rendering facilities, chemical plants, composting facilities, landfills, waste transfer stations, and dairies. The proposed project would not result in the installation of major sources of odorous emissions. Therefore, the project would not create objectionable odors that would affect a substantial number of people and odor impacts are considered to be ***less than significant***.

GREENHOUSE GASES AND CLIMATE CHANGE

This section describes the existing setting related to climate change, provides a summary of the regulatory framework, and evaluates potential greenhouse gas (GHG) impacts associated with the proposed project.

EXISTING SETTING

To fully understand global climate change, it is important to recognize the naturally occurring "greenhouse effect" and to define the GHGs that contribute to this phenomenon. Various gases in the earth's atmosphere, classified as atmospheric GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space and a portion of the radiation is absorbed by the earth's surface. The earth emits this radiation back toward space, but the properties of the radiation change from high-frequency solar radiation to lower-frequency infrared radiation. GHGs, which are transparent to solar radiation, are effective in absorbing infrared radiation. As a result, this radiation that otherwise would have escaped back into space is now retained, resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect. Among the prominent GHGs contributing to the greenhouse effect are carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Primary GHGs attributed to global climate change, are discussed, as follows:

- **Carbon Dioxide**. Carbon dioxide (CO_2) is a colorless, odorless gas. CO_2 is emitted in a number of ways, both naturally and through human activities. The largest source of CO_2 emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, industrial facilities, and other sources. A number of specialized industrial production processes and product uses such as mineral production, metal production, and the use of petroleum-based products can also lead to CO_2 emissions. The atmospheric lifetime of CO_2 is variable because it is so readily exchanged in the atmosphere (U.S. EPA 2008a).
- **Methane**. Methane (CH_4) is a colorless, odorless gas that is not flammable under most circumstances. CH_4 is the major component of natural gas, about 87% by volume. It is also formed and released to the atmosphere by biological processes occurring in anaerobic environments. Methane is emitted from a variety of both human-related and natural sources. Human-related sources include fossil fuel production, animal husbandry (enteric fermentation in livestock and manure management), rice cultivation, biomass burning, and waste management. These activities release significant quantities of methane to the atmosphere. Natural sources of methane include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and other sources such as wildfires. Methane's atmospheric lifetime is about 12 years (U.S. EPA 2015a).
- **Nitrous Oxide**. Nitrous oxide (N_2O) is a clear, colorless gas with a slightly sweet odor. N_2O is produced by both natural and human-related sources. Primary human-related sources of N_2O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, adipic acid production, and nitric acid production. N_2O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of N_2O is approximately 120 years (U.S. EPA 2015b).
- **Hydrofluorocarbons.** Hydrofluorocarbons (HFCs) are man-made chemicals, many of which have been developed as alternatives to ozone-depleting substances for industrial, commercial, and consumer products. The only significant emissions of HFCs before 1990 were of the chemical HFC-23, which is generated as a byproduct of the production of HCFC-22 (or Freon 22, used in air conditioning applications). The atmospheric lifetime for HFCs varies from just over a year for HFC-152a to 260 years for HFC-23. Most of the commercially used HFCs have atmospheric lifetimes of less than 15 years (e.g., HFC-134a, which is used in automobile air conditioning and refrigeration, has an atmospheric life of 14 years) (U.S. EPA 2015c).
- **Perfluorocarbons.** Perfluorocarbons (PFCs) are colorless, highly dense, chemically inert, and nontoxic. There are seven PFC gases: perfluoromethane (CF_4), perfluoroethane (C_2F_6), perfluoropropane (C_3F_8), perfluorobutane (C_4F_{10}), perfluorocyclobutane (C_4F_8), perfluoropentane (C_5F_{12}), and perfluorohexane (C_6F14). Natural geological emissions have been responsible for the PFCs that have accumulated in

the atmosphere in the past; however, the largest current source is aluminum production, which releases CF_4 and C_2F_6 as byproducts. The estimated atmospheric lifetimes for CF_4 and C_2F_6 are 50,000 and 10,000 years, respectively (U.S. EPA 2015a).

- **Nitrogen Trifluoride**. Nitrogen trifluoride (NF_3) is an inorganic, colorless, odorless, toxic, nonflammable gas used as an etchant in microelectronics. Nitrogen trifluoride is predominantly employed in the cleaning of the plasma-enhanced chemical vapor deposition chambers in the production of liquid crystal displays and silicon-based thin film solar cells. In 2009, NF_3 was listed by California as a potential GHG to be listed and regulated under Assembly Bill (AB) 32 (Section 38505 Health and Safety Code).
- **Sulfur Hexafluoride**. Sulfur hexafluoride (SF_6) is an inorganic compound that is colorless, odorless, nontoxic, and generally nonflammable. SF_6 is primarily used as an electrical insulator in high voltage equipment. The electric power industry uses roughly 80% of all SF_6 produced worldwide. Leaks of SF_6 occur from aging equipment and during equipment maintenance and servicing. SF_6 has an atmospheric life of 3,200 years (U.S. EPA 2015d).
- **Black Carbon**. Black carbon is the most strongly light-absorbing component of particulate matter (PM) emitted from burning fuels such as coal, diesel, and biomass. Black carbon contributes to climate change both directly by absorbing sunlight and indirectly by depositing on snow and by interacting with clouds and affecting cloud formation. Black carbon is considered a short-lived species, which can vary spatially and, consequently, it is very difficult to quantify associated global-warming potentials. The main sources of black carbon in California are wildfires, off-road vehicles (locomotives, marine vessels, tractors, excavators, dozers, etc.), on-road vehicles (cars, trucks, and buses), fireplaces, agricultural waste burning, and prescribed burning (planned burns of forest or wildlands). California has been an international leader in reducing emissions of black carbon, with close to 95 percent control expected by 2020 due to existing programs that target reducing PM from diesel engines and burning activities (ARB 2014a).

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO_2e), which weight each gas by its global warming potential (GWP). Expressing GHG emissions in carbon dioxide equivalents takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted. Based on a 100-year time horizon, Methane traps over 25 times more heat per molecule than CO_2, and N_2O absorbs roughly 298 times more heat per molecule than CO_2. Additional GHGs with high GWP include Nitrogen trifluoride, Sulfur hexafluoride, Perfluorocarbons, and black carbon.

Sources of GHG Emissions

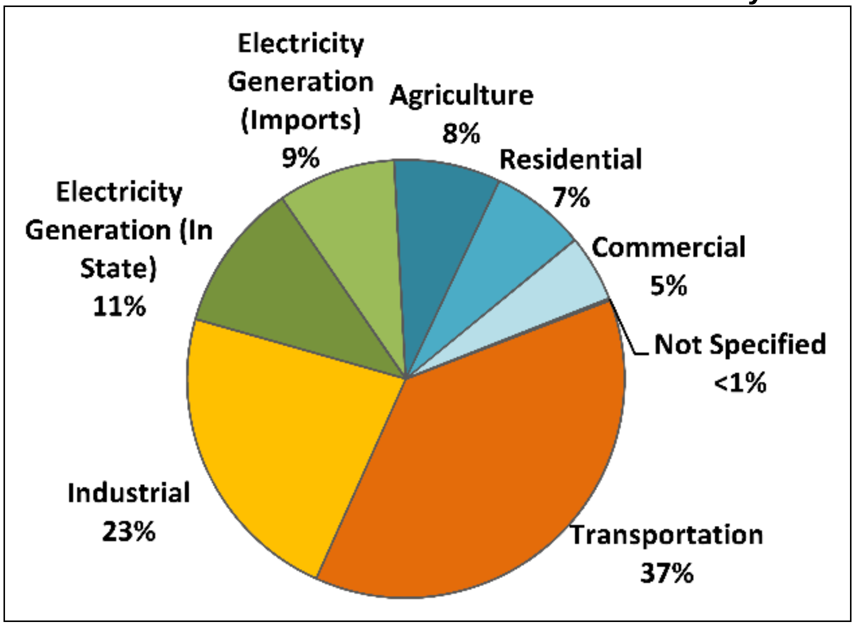
On a global scale, GHG emissions are predominantly associated with activities related to energy production; changes in land use, such as deforestation and land clearing; industrial sources; agricultural activities; transportation; waste and wastewater generation; and commercial and residential land uses. World-wide, energy production including the burning of coal, natural gas, and oil for electricity and heat is the largest single source of global GHG emissions (U.S. EPA 2015d).

In 2013, GHG emissions within California totaled 459 million metric tons (MMT) of CO_2e. GHG emissions, by sector, are summarized in Figure 3. Within California, the transportation sector is the largest contributor, accounting for approximately 37 percent of the total statewide GHG emissions. Emissions associated with industrial uses are the second largest contributor, totaling roughly 23 percent. Electricity generation totaled roughly 20 percent (ARB 2014b).

Effects of Global Climate Change

There are uncertainties as to exactly what the climate changes will be in various local areas of the earth. There are also uncertainties associated with the magnitude and timing of other consequences of a warmer planet: sea level rise, spread of certain diseases out of their usual geographic range, the effect on agricultural production, water supply, sustainability of ecosystems, increased strength and frequency of storms, extreme heat events, increased air pollution episodes, and the consequence of these effects on the economy.

Figure 3
California Greenhouse Gas Emissions Inventory



Source: ARB 2014b.

Within California, climate changes would likely alter the ecological characteristics of many ecosystems throughout the state. Such alterations would likely include increases in surface temperatures and changes in the form, timing, and intensity of precipitation. For instance, historical records are depicting an increasing trend toward earlier snowmelt in the Sierra Nevada. This snow pack is a principal supply of water for the state, providing roughly 50 percent of state's annual runoff. If this trend continues, some areas of the state may experience an increased danger of floods during the winter months and possible exhaustion of the snowpack during spring and summer months. An earlier snowmelt would also impact the state's energy resources. Currently, approximately 20 percent of California's electricity comes from hydropower. An early exhaustion of the Sierra snowpack, may force electricity producers to switch to more costly or non-renewable forms of electricity generation during spring and summer months. A changing climate may also impact agricultural crop yields, coastal structures, and biodiversity. As a result, resultant changes in climate will likely have detrimental effects on some of California's largest industries, including agriculture, wine, tourism, skiing, recreational and commercial fishing, and forestry (CCCC 2012).

REGULATORY FRAMEWORK

FEDERAL

INTERNATIONAL REGULATION AND THE KYOTO PROTOCOL

The United States participates in the United Nations Framework Convention on Climate Change (UNFCCC). While the United States signed the Kyoto Protocol, which would have required reductions in GHGs, Congress never ratified the protocol. The federal government chose voluntary and incentive-based programs to reduce emissions and has established programs to promote climate technology and science. In 2002, the United States announced a strategy to reduce the GHG intensity of the American economy by 18 percent over a 10-year period from 2002 to 2012.

As part of the commitments to the UNFCCC, the US Environmental Protection Agency (U.S. EPA) has developed an inventory of anthropogenic emissions by sources and removals by sinks of all GHGs. This inventory is periodically updated, with the latest update in 2010 (U.S. EPA 2010). The U.S. EPA reports that total

US emissions rose by 14 percent from 1990 to 2007, while the US gross domestic product increased by 59 percent over the same period (U.S. EPA 2010). A 2.9 percent decrease in emissions was noted from 2007 to 2008, which is reported to be attributable to climate conditions, reduced use of petroleum products for transportation, and increased use of natural gas over other fuel sources (U.S. EPA 2010). The inventory notes that the transportation sector emits about 32 percent of CO_2 emissions, with 53 percent of those emissions coming from personal automobile use. Residential uses, primarily from energy use, accounted for 21 percent of CO_2 emissions (U.S. EPA 2010).

As a part of the U.S. EPA's responsibility to develop and update an inventory of U.S. GHG emissions and sinks, the U.S. EPA compared trends of other various US data. Over the period between 1990 and 2008, GHG emissions grew at an average rate of about 0.7 percent per year. Population growth was slightly higher at 1.1 percent, while energy and fossil fuel consumption grew at 0.9 and 0.8 percent, respectively. Gross domestic product and energy generation grew at much higher rates (U.S. EPA 2010).

Executive Order 13514

Executive Order 13514 is focused on reducing GHGs internally in federal agency missions, programs and operations, but also direct federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

On April 2, 2007, in Massachusetts v. U.S. EPA, 549 U.S. 497 (2007), the Supreme Court found that GHGs are air pollutants covered by the Clean Air Act and that the U.S. EPA has the authority to regulate GHG. The Court held that the U.S. EPA Administrator must determine whether or not emissions of GHGs from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision.

On December 7, 2009, the U.S. EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the Clean Air Act:

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

Although these findings did not themselves impose any requirements on industry or other entities, this action was a prerequisite to finalizing the U.S. EPA's *Proposed Greenhouse Gas Emission Standards for Light-Duty Vehicles*, which was published on September 15, 2009. On May 7, 2010, the final *Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards* was published in the Federal Register.

U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations. These steps were outlined by President Obama in a Presidential Memorandum on May 21, 2010.

The final combined U.S. EPA and NHTSA standards that make up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards require these vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile, (the equivalent to 35.5 miles per gallon if the automobile industry were to meet this CO_2 level solely through fuel economy improvements). Together, these standards will cut GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016). On November 16, 2011, U.S. EPA and NHTSA issued their joint proposal to extend this national program of coordinated GHG and fuel economy standards to model years 2017 through 2025 passenger vehicles.

STATE

Assembly Bill 1493

AB 1493 (Pavley) of 2002 (Health and Safety Code Sections 42823 and 43018.5) requires the California Air Resources Board (ARB) to develop and adopt the nation's first GHG emission standards for automobiles. These standards are also known as Pavley I. The California Legislature declared in AB 1493 that global warming is a matter of increasing concern for public health and the environment. It cites several risks that California faces from climate change, including a reduction in the state's water supply, an increase in air pollution caused by higher temperatures, harm to agriculture, an increase in wildfires, damage to the coastline, and economic losses caused by higher food, water, energy, and insurance prices. The bill also states that technological solutions to reduce GHG emissions would stimulate California's economy and provide jobs. In 2004, the State of California submitted a request for a waiver from federal clean air regulations, as the state is authorized to do under the Clean Air Act, to allow the state to require reduced tailpipe emissions of CO_2. In late 2007, the U.S. EPA denied California's waiver request and declined to promulgate adequate federal regulations limiting GHG emissions. In early 2008, the state brought suit against the U.S. EPA related to this denial.

In January 2009, President Obama instructed the U.S. EPA to reconsider the Bush Administration's denial of California's and 13 other states' requests to implement global warming pollution standards for cars and trucks. In June 2009, the U.S. EPA granted California's waiver request, enabling the state to enforce its GHG emissions standards for new motor vehicles beginning with the current model year.

Also in 2009, President Obama announced a national policy aimed at both increasing fuel economy and reducing GHG pollution for all new cars and trucks sold in the US. The new standards would cover model years 2012 to 2016 and would raise passenger vehicle fuel economy to a fleet average of 35.5 miles per gallon by 2016. When the national program takes effect, California has committed to allowing automakers who show compliance with the national program to also be deemed in compliance with state requirements. California is committed to further strengthening these standards beginning in 2017 to obtain a 45 percent GHG reduction from the 2020 model year vehicles.

Executive Order No. S-3-05

Executive Order S-3-05 (State of California) proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established total GHG emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, to the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

The Executive Order directed the secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The secretary will also submit biannual reports to the governor and state legislature describing (1) progress made toward reaching the emission targets, (2) impacts of global warming on California's resources, and (3) mitigation and adaptation plans to combat these impacts. To comply with the Executive Order, the secretary of CalEPA created a Climate Action Team made up of members from various state agencies and commissions. The Climate Action Team released its first report in March 2006 and continues to release periodic reports on progress. The report proposed to achieve the targets by building on voluntary actions of California businesses, local government and community actions, as well as through state incentive and regulatory programs.

Assembly Bill 32 - California Global Warming Solutions Act of 2006

AB 32 (Health and Safety Code Sections 38500, 38501, 28510, 38530, 38550, 38560, 38561–38565, 38570, 38571, 38574, 38580, 38590, 38592–38599) requires that statewide GHG emissions be reduced to 1990 levels by the year 2020. The gases that are regulated by AB 32 include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, nitrogen trifluoride, and sulfur hexafluoride. The reduction to 1990 levels will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then ARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires that ARB adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap, institute a schedule to meet the emissions cap, and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions.

Climate Change Scoping Plan

In October 2008, ARB published its Climate Change Proposed Scoping Plan, which is the state's plan to achieve GHG reductions in California required by AB 32. The Scoping Plan contains the main strategies California will implement to achieve reduction of 169 million metric tons of CO_2e, or approximately 30 percent from the state's projected 2020 emissions level of 596 $MMTCO_2e$ under a business-as-usual scenario (this is a reduction of 42 $MMTCO_2e$, or almost 10 percent, from 2002–2004 average emissions). The Scoping Plan also includes ARB-recommended GHG reductions for each emissions sector of the state's GHG inventory. The largest proposed GHG reduction recommendations are from improving emissions standards for light-duty vehicles (estimated reductions of 31.7 $MMTCO_2e$), implementation of the Low Carbon Fuel Standard (15.0 $MMTCO_2e$) program, energy efficiency measures in buildings and appliances and the widespread development of combined heat and power systems (26.3 $MMTCO_2e$), and a renewable portfolio standard for electricity production (21.3 $MMTCO_2e$). The Scoping Plan identifies the local equivalent of AB 32 targets as a 15 percent reduction below baseline GHG emissions level, with baseline interpreted as GHG emissions levels between 2003 and 2008.

A key component of the Scoping Plan is the Renewable Portfolio Standard, which is intended to increase the percentage of renewables in California's electricity mix to 33 percent by year 2020, resulting in a reduction of 21.3 $MMTCO_2e$. Sources of renewable energy include, but are not limited to, biomass, wind, solar, geothermal, hydroelectric, and anaerobic digestion. Increasing the use of renewables will decrease California's reliance on fossil fuels, thus reducing GHG emissions.

The Scoping Plan states that land use planning and urban growth decisions will play important roles in the state's GHG reductions because local governments have primary authority to plan, zone, approve, and permit how land is developed to accommodate population growth and the changing needs of their jurisdictions. (Meanwhile, ARB is also developing an additional protocol for community emissions.) ARB further acknowledges that decisions on how land is used will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emissions sectors. The Scoping Plan states that the ultimate GHG reduction assignment to local government operations is to be determined. With regard to land use planning, the Scoping Plan expects approximately 5.0 $MMTCO_2e$ will be achieved associated with implementation of Senate Bill 375, which is discussed further below. The Climate Change Proposed Scoping Plan was approved by ARB on December 11, 2008.

The First Update to the *Climate Change Scoping Plan* was approved by ARB on May 22, 2014. ARB is moving forward with a second update to the Scoping Plan to reflect the 2030 target established in Executive Order B-30-15 and SB32.

Senate Bill 1368

Senate Bill (SB) 1368 (codified at Public Utilities Code Chapter 3) is the companion bill of AB 32. SB 1368 required the California Public Utilities Commission (CPUC) to establish a GHG emissions performance standard for baseload generation from investor-owned utilities by February 1, 2007. The bill also required the California Energy Commission (CEC) to establish a similar standard for local publicly owned utilities by June 30, 2007. These standards cannot exceed the GHG emission rate from a baseload combined-cycle natural-gas-fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the CPUC and the CEC.

Senate Bill 1078 and Governor's Order S-14-08 (California Renewables Portfolio Standards)

Senate Bill 1078 (Public Utilities Code Sections 387, 390.1, 399.25 and Article 16) addresses electricity supply and requires that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide a minimum 20 percent of their supply from renewable sources by 2017. This Senate Bill will affect statewide GHG emissions associated with electricity generation. In 2008, Governor Schwarzenegger signed Executive Order S-14-08, which set the Renewables Portfolio Standard target to 33 percent by 2020. It directed state government agencies and retail sellers of electricity to take all appropriate actions to implement this target. Executive Order S-14-08 was later superseded by Executive Order S-21-09 on September 15, 2009. Executive Order S-21-09 directed the ARB to adopt regulations requiring 33 percent of electricity sold in the state come from renewable energy by 2020. This Executive Order was superseded by statute SB X1-2 in 2011, which obligates all California electricity providers, including investor-owned utilities and publicly owned utilities, to obtain at least 33 percent of their energy from renewable electrical generation facilities by 2020, with interim targets of 20 percent by 2013 and 25 percent by 2016.

ARB is required by current law, AB 32 of 2006, to regulate sources of GHGs to meet a state goal of reducing GHG emissions to 1990 levels by 2020 and an 80 percent reduction of 1990 levels by 2050. The CEC and CPUC serve in advisory roles to help ARB develop the regulations to administer the 33 percent by 2020 requirement. ARB is also authorized to increase the target and accelerate and expand the time frame.

Mandatory Reporting of GHG Emissions

Reporting of GHGs by major sources is required by the California Global Warming Solutions Act (AB 32, 2006). Revisions to the existing ARB mandatory GHG reporting regulation were considered at the board hearing on December 16, 2010. The revised regulation was approved by the California Office of Administrative Law and became effective on January 1, 2012. The revised regulation affects industrial facilities, suppliers of transportation fuels, natural gas, natural gas liquids, liquefied petroleum gas, and carbon dioxide, operators of petroleum and natural gas systems, and electricity retail providers and marketers.

Cap-and-Trade Regulation

The cap-and-trade regulation is a key element in California's climate plan. It sets a statewide limit on sources responsible for 85 percent of California's GHG emissions, and establishes a price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy. The cap-and-trade rules came into effect on January 1, 2013 and apply to large electric power plants and large industrial plants. In 2015, they will extend to fuel distributors (including distributors of heating and transportation fuels). At that stage, the program will encompass around 360 businesses throughout California and nearly 85 percent of the state's total GHG emissions.

Under the cap-and-trade regulation, companies must hold enough emission allowances to cover their emissions, and are free to buy and sell allowances on the open market. California held its first auction of GHG allowances on November 14, 2012. California's GHG cap-and-trade system will reduce GHG emissions from regulated entities by approximately 16 percent, or more, by 2020.

California Building Code

The California Building Code (CBC) contains standards that regulate the method of use, properties, performance, or types of materials used in the construction, alteration, improvement, repair, or rehabilitation of a building or other improvement to real property. The California Building Code is adopted every three years by the Building Standards Commission (BSC). In the interim, the BSC also adopts annual updates to make necessary mid-term corrections. The CBC standards apply statewide; however, a local jurisdiction may amend a CBC standard if it makes a finding that the amendment is reasonably necessary due to local climatic, geological, or topographical conditions.

Green Building Standards

In essence, green buildings standards are indistinguishable from any other building standards. Both are contained in the California Building Code and regulate the construction of new buildings and improvements. The only practical distinction between the two is that whereas the focus of traditional building standards has been protecting public health and safety, the focus of green building standards is to improve environmental performance.

AB 32, which mandates the reduction in GHG emissions in California to 1990 levels by 2020, increased the urgency around the adoption of green building standards. In its scoping plan for the implementation of AB 32, ARB identified energy use as the second largest contributor to California's GHG emissions, constituting roughly 25 percent of all such emissions. In recommending a green building strategy as one element of the scoping plan, ARB estimated that green building standards would reduce GHG emissions by approximately 26 million metric tons of CO_2e ($MMTCO_2e$) by 2020.

The green buildings standards, commonly referred to as CalGreen standards, were most recently updated in 2013. The 2013 building energy efficiency standards are 25 percent more efficient than previous standards for residential construction and 30 percent more efficient for non-residential construction (CEC 2015).

Senate Bill 32

SB 32 was signed by Governor Brown on September 8, 2016. SB 32 effectively extends California's GHG emission-reduction goals from year 2020 to year 2030. This new emission-reduction target of 40 percent below 1990 levels by 2030 is intended to promote further GHG-reductions in support of the state's ultimate goal of reducing GHG emissions by 80 percent below 1990 levels by 2050. SB 32 also directs the ARB to update the Climate Change Scoping Plan to address this interim 2030 emission-reduction target.

Senate Bill 375 (Sustainable Communities and Climate Protection Act)

SB 375 supports the state's climate action goals to reduce GHG emissions through coordinated transportation and land use planning with the goal of developing more sustainable communities. Under SB 375, ARB sets regional targets for GHG emissions reductions associated with passenger vehicle use. Each of California's metropolitan planning organizations must prepare a "sustainable communities strategy" (SCS) as an integral part of its regional transportation plan (RTP). The SCS contains land use, housing, and transportation strategies that, if implemented, would allow the region to meet its GHG emission reduction targets. The Sustainable Communities Act also establishes incentives to encourage local governments and developers to implement the identified GHG-reduction strategies.

San Joaquin Valley Air Pollution Control District

SJVAPCD Climate Change Action Plan

On August 21, 2008, the SJVAPCD Governing Board approved the SJVAPCD's *Climate Change Action Plan* with the following goals and actions:

Goals:

- Assist local land-use agencies with California Environmental Quality Act (CEQA) issues relative to projects with GHG emissions increases.
- Assist Valley businesses in complying with mandates of AB 32.
- Ensure that climate protection measures do not cause increase in toxic or criteria pollutants that adversely impact public health or environmental justice communities.

Actions:

- Authorize the Air Pollution Control Officer to develop GHG significance threshold(s) or other mechanisms to address CEQA projects with GHG emissions increases. Begin the requisite public process, including public workshops, and develop recommendations for Governing Board consideration in the spring of 2009.

- Authorize the Air Pollution Control Officer to develop necessary regulations and instruments for establishment and administration of the San Joaquin Valley Carbon Exchange Bank for voluntary GHG reductions created in the Valley. Begin the requisite public process, including public workshops, and develop recommendations for Governing Board consideration in spring 2009.
- Authorize the Air Pollution Control Officer to enhance the SJVAPCD's existing criteria pollutant emissions inventory reporting system to allow businesses subject to AB32 emission reporting requirements to submit simultaneous streamlined reports to the SJVAPCD and the state of California with minimal duplication.
- Authorize the Air Pollution Control Officer to develop and administer voluntary GHG emission reduction agreements to mitigate proposed GHG increases from new projects.
- Direct the Air Pollution Control Officer to support climate protection measures that reduce GHG emissions as well as toxic and criteria pollutants. Oppose measures that result in a significant increase in toxic or criteria pollutant emissions in already impacted area.

SJVAPCD CEQA GHG Guidance.

On December 17, 2009, the SJVAPCD Governing Board adopted *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* and the policy, *District Policy—Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency*. The SJVAPCD concluded that the existing science is inadequate to support quantification of the impacts that project specific GHG emissions have on global climatic change. The SJVAPCD found the effects of project-specific emissions to be cumulative, and without mitigation, that their incremental contribution to global climatic change could be considered cumulatively considerable. The SJVAPCD found that this cumulative impact is best addressed by requiring all projects to reduce their GHG emissions, whether through project design elements or mitigation.

The SJVAPCD's approach is intended to streamline the process of determining if project-specific GHG emissions would have a significant effect. Projects exempt from the requirements of CEQA, and projects complying with an approved plan or mitigation program would be determined to have a less than significant cumulative impact. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources and have a certified final CEQA document.

Best performance standards (BPS) would be established according to performance-based determinations. Projects complying with BPS would not require specific quantification of GHG emissions and would be determined to have a less than significant cumulative impact for GHG emissions. Projects not complying with BPS would require quantification of GHG emissions and demonstration that GHG emissions have been reduced or mitigated by 29 percent, as targeted by ARB's AB 32 Scoping Plan. Furthermore, quantification of GHG emissions would be required for all projects for which the lead agency has determined that an Environmental Impact Report is required, regardless of whether the project incorporates BPSs. The SJVAPCD, however, has not yet identified BPSs for development projects.

For stationary source permitting projects, best performance standards are "the most stringent of the identified alternatives for control of GHG emissions, including type of equipment, design of equipment and operational and maintenance practices, which are achieved-in-practice for the identified service, operation, or emissions unit class." For development projects, best performance standards are "any combination of identified GHG emission reduction measures, including project design elements and land use decisions that reduce project specific GHG emission reductions by at least 29 percent compared with business as usual." The SJVAPCD proposes to create a list of all approved BPSs to help in the determination as to whether a stationary source has reduced its GHG emissions by 29 percent.

For stationary sources, the SJVAPCD also considers implementation of identified Best Performance Standards (BPS) to have a less than significant impact. BPS are defined as the most effective achieved-in-practice means of reducing or limiting GHG emissions from a GHG emissions source. For typical stationary sources, BPS is identified taking into consideration the source type, source design, and operational and maintenance practices associated with source operations, service, and emissions generated. With regard to irrigation pump engines, the SJVAPCD is currently in the process of developing identified BPS. However, although the SJVAPCD has not yet identified BPS for irrigation pump engines, the electrification of pump engines is commonly considered BPS and is also consistent with Best Available Control Technology (BACT) identified for permitting purposes.

IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

In accordance with Appendix G of the CEQA Guidelines Initial Study Checklist, a project would be considered to have a significant impact to climate change if it would:

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

San Joaquin Valley Air Pollution Control District

In accordance with the SJVAPCD's *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects Under CEQA* (SJVAPCD 2009), a project would be considered to have a less than significant impact on climate change if it would comply with at least one of the following criteria:

- Comply with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located. Such plans or programs must be specified in law or approved by the lead agency with jurisdiction over the affected resource and supported by a CEQA compliant environmental review document adopted by the lead agency, or
- Implement approved best performance standards, or
- Quantify project GHG emissions and reduce those emissions by at least 29 percent compared to "business as usual" (BAU).

It is important to note that quantification of project-generated GHG emissions in comparison to BAU conditions to determine consistency with AB 32's reduction goals may be considered appropriate in some instances. However, based on a recent California Supreme Court's decision in *Center for Biological Diversity v. California Department of Fish and Wildlife and Newhall Land and Farming (2015) 224 Cal.App.4th 1105 (CBD vs. CDFW;* also known as the *"Newhall Ranch case")*, substantial evidence would need to be provided to document that project-level reductions in comparison to a BAU approach would be consistent with achieving AB 32's overall statewide reduction goal. Given that AB 32's statewide goal includes reductions that are not necessarily related to an individual development project, the use of this approach may be difficult to support given the lack of substantial evidence to adequately demonstrate a link between the data contained in the AB 32 Scoping Plan and individual development projects. Alternatively, the Court identified potential options for evaluating GHG impacts for individual development projects, which included the use of GHG efficiency metrics, compliance with regulatory programs designed to reduce GHG emissions, or the use of numerical GHG significance thresholds.

With regard to numerical GHG significance thresholds, the SJVAPCD has not developed a recommended significance threshold. However, other air districts within the State of California have recently adopted recommended numerical CEQA significance thresholds for GHG emissions. For instance, on March 28, 2012 the San Luis Obispo Air Pollution Control District (SLOAPCD) Board approved thresholds of significance for the evaluation of project-related increases of GHG emissions. The SLOAPCD's significance thresholds include both qualitative and quantitative threshold options, which include a bright-line threshold of 1,150 $MTCO_2e$/year. On October 23, 2014, the Sacramento Metropolitan Air Quality Management District (SMAQMD) adopted a similar significance threshold of 1,100 $MTCO_2e$/year. Similarly, the Bay Area Air Quality Management District (BAAQMD) also recommends a numerical GHG threshold of 1,100 $MTCO_2e$/year. In addition, San Diego County recommends a numerical threshold of 2,500 $MTCO_2e$/year. The GHG significance thresholds are based on AB 32 GHG emission reduction goals, which take into consideration the emission reduction strategies outlined in ARB's Scoping Plan. Development projects located within these jurisdictions that would not exceed these thresholds would be considered to have a less-than-significant impact on the environment and would not conflict with applicable GHG-reduction plans, policies and regulations. For purposes of this analysis, project-generated emissions (excluding stationary sources) in excess of 1,100 $MTCO_2e$/year would be considered to have a potentially significant impact. To be conservative, construction-generated GHG emissions were amortized based on an estimated 25-year project life and included in annual operational GHG emissions estimates.

With regard to stationary sources, various air districts in California including the BAAQMD, SLOAPCD, and South Coast Air Quality Management District have identified a numerical GHG threshold of 10,000 $MTCO_2e$/year for stationary source emissions. This threshold represents the level below which a project would not be expected to have a significant impact. For non-residential development, such as industrial operations, the State of California requires mandatory reporting and verification for annual GHG emissions of 25,000 $MTCO_2$ or more. For stationary sources, GHG emissions exceeding 10,000 $MTCO_2$ /year would be considered to have a potentially significant impact.

METHODOLOGY

Short-term Construction-Generated Emissions

Short-term construction emissions associated with the proposed project, including emissions associated with the operation of off-road equipment, haul-truck trips, and on-road worker vehicle trips, were calculated using the CalEEMod computer program, version 2016.3.1. Emissions modeling was based on estimated construction schedules for the project and assuming an overall construction period of approximately 15 months. Emissions modeling includes emissions generated during site preparation/grading, as well as, the installation of basin and in-lieu bank infrastructure and pipelines. Emissions were quantified based on anticipated construction schedules and construction equipment requirements provided by the project applicant. Haul truck trips for the removal of the existing orchards were based on a total of 720 acres and an estimated 1.5 haul trucks/acre assuming that all material would be chipped and exported off site (P&P 2016). The import/export of soil is not anticipated to be required for this project. All remaining assumptions were based on the default parameters contained in the model. Emissions modeling assumptions and output files are included in Appendix A of this report.

Long-term Operational Emissions

The CalEEMod computer program, version 2016.3.1 was used to estimate operational emissions. Operational emissions would be associated routine maintenance activities, including the use of on-road vehicles and off-road equipment, as well as the operation of stationary sources (e.g., booster and well pumps). Emissions were calculated based on operational data provided by the project applicant and the default emission factors and usage rates contained in CalEEMod. Net increases in emissions were calculated in comparison to existing operational emissions associated with onsite agricultural uses. To be conservative, haul truck trips associated with the transport of agricultural products were not included in the analysis. Emissions modeling assumptions and output files are included in Appendix A of this report.

PROJECT IMPACTS

IMPACT GHG-1: Would the proposed project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Short-term Construction

Construction of the proposed project would result in the temporary generation of emissions associated with various activities, including site preparation, grading, and the construction of project infrastructure. GHG emissions would be largely associated with off-road equipment use, as well as on-road vehicle operations associated with workers commuting to and from the project site and haul truck trips.

Estimated increases in GHG emissions associated with construction of the proposed project are summarized in Table 10. As depicted, annual emissions of GHGs associated with construction of the proposed project would total approximately 1,469.2 $MTCO_2e$. Amortized construction-generated GHG emissions, when averaged over the assumed minimum 25-year life of the project, would total approximately 58.8 $MTCO_2e$/year. There would also be a small amount of GHG emissions from waste generated during construction; however, this amount is speculative.

The SJVAPCD has not adopted guidance that would apply to project-generated construction emissions. For the purposes of this analysis, construction-generated emissions were amortized over a 25-year period and included with the operational emissions. Because there is no separate GHG threshold for construction-generated GHGs, the evaluation of significance is discussed in the analysis of operational GHG emissions.

Table 10
Annual Construction GHG Emissions

Construction Phase/Source	GHG Emissions ($MTCO_2e$)
Recharge Basin Construction (Year 1)	877.7
Recharge Basin Construction (Year 2)	273.5
In-Lieu Banking Area	27.5
Pipeline Installation	290.5
Total	1,469.2
Amortized (25-Year Project Life)	58.8

Totals may not sum due to rounding.
Refer to Appendix A for modeling results and assumptions.

Long-term Operation

Estimated operational GHG emissions are summarized in Table 11. With the inclusion of amortized construction emissions, the proposed project would generate approximately 66.4 $MTCO_2e$/year in year 2020, excluding emissions from stationary sources. GHG emissions would be primarily associated with the operation of off-road equipment and on-road worker commute vehicles. With the removal of existing GHG emission sources, net increases in mobile-source emissions would total approximately 60.6 $MTCO_2e$/year. Operational emissions from these sources would not exceed the threshold of 1,100 $MTCO_2e$/year. In addition, stationary-source GHG emissions would total approximately 2,796.1 $MTCO_2e$/year and would not exceed the numerical threshold of 10,000 $MTCO_2e$/year. GHG emissions in future years, beyond year 2020, would be lower due to improvements in vehicle emission rates and the increased use of renewable energy sources.

It is important to note that the proposed booster and well pumps would be electrically powered, consistent with SJVAPACD's Best Available Control Technology requirements for pumps with engines of at least 50 horsepower, or greater. In addition, implementation of Mitigation Measure AQ-2 includes various measures that would reduce project-generated GHG emissions, including limitation on construction vehicle and equipment idling, the use of newer lower-emission equipment, and the recycling of construction-generated waste. The use of newer lower-emission equipment and idling limitations for off-road equipment and on-road vehicles would further reduce GHG emissions, including emissions of black carbon. Furthermore, it is important to recognize that project-generated GHG emissions would be predominantly associated with electricity use and fuel combustion. GHG emissions associated with electricity use and fuel combustion would be subject to the State's Cap and Trade regulations. In accordance with SJVAPCD's recommendations for the evaluation of GHG emissions, emissions that are subject to the State's Cap and Trade regulations would be considered to be mitigated through compliance with the Cap and Trade regulatory requirements and would, therefore, be considered to have a less-than-significant impact (SJVAPCD 2014). For these reasons, GHG emissions would be considered to have a ***less-than-significant*** impact.

Table 11
Annual Operational GHG Emissions - Unmitigated

Source	Annual GHG Emissions ($MTCO_2e$/Year)[1]
Mobile Sources	
Operational Maintenance Activities (On-Road Vehicles & Off-Road Equipment)	7.6
Amortized Construction Emissions	58.8
Total:	66.4
Existing Emissions to be Removed:[2]	5.8
Net Increase:	60.6
Significance Threshold:	1,100
Exceed Thresholds?	No
Stationary Sources	
Stationary Sources (Booster Lift & Well Pumps)	2,796.1
Existing Emissions to be Removed:[3]	*367.6*
Net Increase:	*2,428.5*
Significance Thresholds:	*10,000*
Exceed Thresholds?	*No*

1. Emissions were quantified using CalEEMod, version 2016.3.1. Totals may not sum due to rounding.
2. Existing emissions include emissions associated with the use of off-road equipment, worker commute trips. To be conservative, existing emissions do not include mobile-source emissions associated with the transport of agricultural products.
3. Includes the operation of existing stationary sources (water pumps).
Refer to Appendix A for modeling results and assumptions.

IMPACT GHG-2: Would the proposed project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

In accordance with SJVAPCD's CEQA thresholds for the evaluation of GHG impacts, a project would not have a significant GHG impact if it is consistent with an applicable GHG-reduction plan. Applicable GHG-reduction plans include Tulare County Association of Government's *2014 Regional Transportation Plan/Sustainable Communities Strategy* (*2014 RTP/SCS*) and ARB's *Climate Change Scoping Plan*. Consistency with these plans is discussed in greater detail as follows:

2014 RTP/SCS

The *2014 RTP/SCS* identifies various strategies intended to reduce motor vehicle use, including increased use of transit, alternative means of transportation, as well as, smart growth and transportation practices. These strategies are intended to accommodate future population and economic growth and decrease motor vehicle use. The proposed project is consistent with the projected land use development patterns identified in the 2014 RTP/SCS, would not interfere to implementation of these strategies, and would not result in a substantial increase in motor vehicle use. As a result, the proposed project would be consistent with the *2014 RTP/SCS*.

Climate Change Scoping Plan

The *Climate Change Scoping Plan* describes the approach California will take to reduce GHGs to achieve the goal of reducing emissions to 1990 levels by 2020. The Scoping Plan was first approved by ARB in 2008 and is updated every five years. The First Update to the *Climate Change Scoping Plan* was approved by ARB on May 22, 2014. ARB is moving forward with a second update to the Scoping Plan to reflect the 2030 target established in Executive Order B-30-15 and SB32.

The *Climate Change Scoping Plan* identifies strategies to reduce California's GHG emissions in support of AB32. Many of the strategies identified in the Scoping Plan are more programmatic and are not applicable to individual development projects. These strategies are grouped into 18 categories, as follows:

1. *California Cap-and-Trade Program Linked to Western Climate Initiative Partner Jurisdictions*. Implement a broad-based California cap-and-trade program to provide a firm limit on emissions. Link the California cap–and-trade program with other Western Climate Initiative Partner programs to create a regional market system to achieve greater environmental and economic benefits for California. Ensure California's program meets all applicable AB 32 requirements for market-based mechanisms.
2. *California Light-Duty Vehicle Greenhouse Gas Standards*. Implement adopted Pavley standards and planned second phase of the program. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs with long-term climate change goals.
3. *Energy Efficiency*. Maximize energy efficiency building and appliance standards, and pursue additional efficiency efforts including new technologies, and new policy and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California (including both investor-owned and publicly owned utilities).
4. *Renewables Portfolio Standards*. Achieve 332 percent renewable energy mix statewide.
5. *Low Carbon Fuel Standard*. Develop and adopt the Low Carbon Fuel Standard.
6. *Regional Transportation-Related Greenhouse Gas Targets*. Develop regional greenhouse gas emissions reduction targets for passenger vehicles.
7. *Vehicle Efficiency Measures*. Implement light-duty vehicle efficiency measures.
8. *Goods Movement*. Implement adopted regulations for the use of shore power for ships at berth. Improve efficiency in goods movement activities.
9. *Million Solar Roofs Program*. Install 3,000 megawatts of solar-electric capacity under California's existing solar programs.
10. *Medium- and Heavy-Duty Vehicles*. Adopt medium- and heavy-duty vehicle efficiencies. Aerodynamic efficiency measures for HD trucks pulling trailers 53-feet or longer that include improvements in trailer aerodynamics and use of rolling resistance tires were adopted in 2008 and went into effect in 2010. Future, yet to be determined improvements, includes hybridization of medium- and heavy-duty transport trucks.
11. *Industrial Emissions*. Require assessment of large industrial sources to determine whether individual sources within a facility can cost-effectively reduce greenhouse gas emissions and provide other pollution reduction co-benefits. Reduce greenhouse gas emissions from fugitive emissions from oil and gas extraction and gas transmission. Adopt and implement regulations to control fugitive methane emissions and reduce flaring at refineries.
12. *High-Speed Rail*. Support implementation of a high-speed rail system.
13. *Green Building Strategy*. Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.
14. *High Global Warming Potential Gases*. Adopt measures to reduce high warming global potential gases.
15. *Recycling and Waste*. Reduce methane emissions at landfills. Increase waste diversion, composting and other beneficial uses of organic materials, and mandate commercial recycling. Move toward zero-waste.
16. *Sustainable Forests*. Preserve forest sequestration and encourage the use of forest biomass for sustainable energy generation. The 2020 target for carbon sequestration is 5 million $MTCO_2e$/year.
17. *Water*. Continue efficiency programs and use cleaner energy sources to move and treat water.
18. *Agriculture*. In the near-term, encourage investment in manure digesters and at the five-year Scoping Plan update determine if the program should be made mandatory by 2020.

The proposed project's consistency with the action items contained in the *Climate Change Scoping Plan* are summarized in Table 12. As noted, the project would not conflict with the provisions of the *Climate Change Scoping Plan*. The proposed project would be consistent with the *Climate Change Scoping Plan*.

Table 12
Summary of Project Consistency with AB32 Scoping Plan

Action Item	Project Consistency
Cap-and-Trade Program	*Not Applicable*. The Cap-and-Trade Program applies to emissions associated with electricity generation, large industrial facilities, and fuels. This action item does not directly apply to the proposed project.
Light-Duty Vehicle Standards	*Not Applicable*. This is a statewide measure to reduce vehicle emissions standards. This action item does not directly apply to the proposed project.
Energy Efficiency	*Not Applicable*. This is a statewide measure to increase energy efficiency standards. This action item does not directly apply to the proposed project.
Renewables Portfolio Standard	*Not Applicable*. This standard requires increasing amounts of electricity provided within the state to be derived from renewable sources. This action item does not directly apply to the proposed project.
Low Carbon Fuel Standard	*Not Applicable*. Establishes reduced carbon intensity of transportation fuels. This action item does not directly apply to the proposed project.
Regional Transportation-Related Greenhouse Gas Targets	*Not Applicable*. This is a statewide measure and is not within the purview of this Project.
Vehicle Efficiency Measures	*Not Applicable*. Identifies measures such as minimum tire-fuel efficiency, lower friction oil, and reduction in air conditioning use. This action item does not directly apply to the proposed project.
Goods Movement	*Not applicable*. Identifies measures to improve goods movement efficiencies such as advanced combustion strategies, friction reduction, waste heat recovery, and electrification of accessories. While these measures are yet to be implemented and will be voluntary, the proposed Project would not interfere with their implementation.
Million Solar Roofs (MSR) Program	*Consistent*. The MSR program sets a goal for increased implementation and use of solar photovoltaic systems. While the project currently does not include solar energy generation, mitigation has been included that requires the building roof structure to be designed to support the future installation of solar panels.
Medium- & Heavy-Duty Vehicles	*Consistent*. On-road construction haul trucks associated with the proposed project would be subject to aerodynamic and hybridization requirements as established by ARB; no feature of the project would interfere with implementation of these requirements and programs. Long-term project operations would not require the use of medium or heavy-duty on-road vehicles.
Industrial Emissions	*Not Applicable*. These measures are applicable to large industrial facilities (> 500,000 MTCOE2/YR) and other intensive uses such as refineries. This action item does not directly apply to the proposed project.
High Speed Rail	*Not Applicable*. Supports increased mobility choice. This action item does not directly apply to the proposed project.
Green Building Strategy	*Not Applicable*. Includes a variety of increased efficiency standards pertaining to building, water and energy use, and solid waste consistent with CALGREEN building standards. This action item does not directly apply to the proposed project.
High Global Warming Potential Gases	*Not Applicable*. This action item includes various measures related to the manufacture, use, and sale of high GWPs, including refrigerants, and perfluorocarbons in semiconductor manufacturing. The proposed warehouses would not be air refrigerated/air conditioned and would not be considered substantial sources of high GWP emissions. Use of refrigerants in air conditioning equipment for other structures would comply with applicable regulatory requirements.
Recycling and Waste	*Consistent*. The project will be required recycle a minimum of 50 percent from construction activities per state requirements.
Sustainable Forests	*Not Applicable*. The project does not affect forested lands. This action item does not directly apply to the proposed project.
Water	*Not Applicable*. The use of low-flow fixtures and efficient landscaping does not apply to the proposed project. Water pumps would be electrically powered per SJVAPCD-identified Best Available Control Technology.
Agriculture	*Not Applicable*. Includes measures to reduce GHG emissions associated with agricultural waste, including promotion of investments in manure digesters. This action item does not directly apply to the proposed project.

Source: ARB 2014

REFERENCES

Air Quality

Agency for Toxic Substances & Disease Registry (ATSDR). Accessed: October 23, 2016a. Toxic Substances Portal-Lead. Website url: https://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=93&tid=22.

Agency for Toxic Substances & Disease Registry (ATSDR). Accessed: October 23, 2016b. Toxic Substances Portal-Hydrogen Sulfide/Carbonyl Sulfide. Website url: https://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=388&tid=67.

California Air Pollution Control Officers Association (CAPCOA). 2002. Asbestos-Containing Rock and Soil. Available at website url: http://www.capcoa.org/Docs/noa/%5B8%5D%20CARB%20asbestos%20brochure%20rock%20and%20soil.pdf.

———. Accessed: October 2, 2016. NOA. Website url: http://www.capcoa.org/noa/.

California Air Resources Board (ARB). Accessed: October 7, 2016a. History of Sulfates Air Quality Standard. Website url: https://www.arb.ca.gov/research/aaqs/caaqs/sulf-1/sulf-1.htm

———. Accessed: October 7, 2016b. Vinyl Chloride. Website url: https://www.arb.ca.gov/research/aaqs/caaqs/vc/vc.htm

———. Accessed: October 7, 2016c. Vinyl Chloride. Website url: https://www.arb.ca.gov/research/aaqs/caaqs/vc/vc.htm

———. Accessed: October 7, 2016d. Overview of Diesel Exhaust and Health. Website url: https://www.arb.ca.gov/research/diesel/diesel-health.htm).

———. Accessed: October 7, 2016e. AQ Monitoring Results: Wilmington: Para-Dichlorobenzene. Website url: https://www.arb.ca.gov/ch/aq_result/wilmington/wm_pdcb.htm.

———. *Accessed: October 13, 2016f. Air Quality Standards and Area Designations. Website url: http://www.arb.ca.gov/desig/desig.htm.*

———. *Accessed: October 13, 2016g. Almanac Emission Projection Data (Published in 2013). Website url: http://www.arb.ca.gov/app/emsinv/2013/emseic1_query.php.*

———. *Accessed: October 13, 2016h.iADAM: Air Quality Data Statistics. Website url: https://www.arb.ca.gov/adam/index.html.*

———. March 16, 2004a. Fact Sheet: Hexavalent Chromium. Available at website url: https://www.arb.ca.gov/coatings/thermal/factsheets/factsheethexchrome.pdf.

———. March 16, 2004b. Indoor Air Quality Guideline: Formaldehyde in the Home. Available at website url: https://www.arb.ca.gov/research/indoor/formaldGL08-04.pdf.

———. 2000. *Diesel Risk Reduction Plan*. Available at url: http://www.arb.ca.gov/diesel/documents/rrpapp.htm.

———. 2009. The California Almanac of Emissions and Air Quality-2009 Edition. Available at website url: https://www.arb.ca.gov/aqd/almanac/almanac.htm.

———. 2013. The California Almanac of Emissions and Air Quality-2013 Edition. Available at website url: https://www.arb.ca.gov/aqd/almanac/almanac.htm.

California Department of Conservation (DOC). August 2000. *A General Location Guide for Ultramafic Rocks in California, Areas More Likely to Contain Naturally Occurring Asbestos*.

Centers for Disease Control and Prevention (CDC). Accessed: November 13, 2014. *Valley Fever: Awareness is Key*. Website url: http://www.cdc.gov/features/valleyfever/.

Provost & Pritchard (P&P). 2016. Personal communications with Kurt Legleiter, Principle, AMBIENT Air Quality & Noise Consulting.

San Joaquin Valley Air Pollution Control District (SJVAPCD). March 2015. *Guidance for Assessing and Mitigating Air Quality Impacts.*

———. Accessed: October 7, 2016a. Ambient Air Quality Standards & Valley Attainment Status. Website url: http://www.valleyair.org/aqinfo/attainment.htm

———. Accessed: October 7, 2016b. Ozone Plans. Website url: http://www.valleyair.org/Air_Quality_Plans/Ozone_Plans.htm

———. Accessed: October 7, 2016c. ISR Home. Website url: http://www.valleyair.org/ISR/ISRHome.htm

———. Accessed: October 7, 2016d. Current District Rules and Regulations Website url: http://www.valleyair.org/rules/1ruleslist.htm

South Coast Air Quality Management District (SCAQMD). California Emissions Estimator Model User's Guide. Version 2016.3.1.

U.S. Environmental Protection Agency (U.S. EPA). Accessed: November 12, 2014. *Technology Transfer Network – Pollutants and Sources.* Website url: http://www.epa.gov/ttn/atw/pollsour.html.

———. Accessed: October 17, 2016a. Ozone Pollution. Website url: https://www.epa.gov/ozone-pollution

———. Accessed: October 7, 2016b. Basic Information about NO2. Website url: https://www.epa.gov/no2-pollution/basic-information-about-no2#What%20is%20NO2.

———. Accessed: October 7, 2016c. Effects of Acid Rain. Website url: https://www.epa.gov/acidrain/effects-acid-rain.

———. 2016e. Accessed: October 7, 2016e. Carbon Monoxide (CO) Pollution in Outdoor Air. Website url: https://www.epa.gov/co-pollution.

———. Accessed: October 22, 2016d. Air Trends. Sulfur Dioxide. Website url: ftp://ftp.soc.uoc.gr/students/aslanidis/My%20documents/Aslanidis%20&%20Xepapadeas%20(2004)/EPA%20Air%20Trends%20Sulfur%20Dioxide.htm

———. Accessed: October 7, 2016f. Accessed: October 22, 2016f. Website url: Vinyl Chloride. https://www.epa.gov/sites/production/files/2016-09/documents/vinyl-chloride.pdf

———. Accessed: October 7, 2016g. Health Effects Notebook for Hazardous Air Pollutants. Available at website url: https://www.epa.gov/haps/health-effects-notebook-hazardous-air-pollutants.

Greenhouse Gases

California Air Resources Board (ARB). Assembly Bill 32 Overview. Accessed: January 23, 2014. Website url: http://www.arb.ca.gov/cc/ab32/ab32.htm.

———. May 2014a. *Climate Change Scoping Plan*.

———. May 2014b. California Greenhouse Gas Emissions Inventory: 2000-2012. Available at website url: www.arb.ca.gov/cc/inventory/.../ghg_inventory_00-12_report.pdf.

California Climate Change Center (CCCC). 2012. *Our Changing Climate 2012*. Available at Website url: http://www.energy.ca.gov/2012publications/CEC-500-2012-007/CEC-500-2012-007.pdf.

California Energy Commission (CEC). Accessed: May 1, 2015. Energy Commission Approves More Efficient Buildings for California's Future. Website url: http://www.energy.ca.gov/releases/2012_releases/2012-05-31energy_commission_approves_more_efficient_buildings_nr.html.

California Public Utilities Commission (CPUC). 2014. *Renewables Portfolio Standard Quarterly Report. 3rd Quarter 2014*. Available at website url: http://www.cpuc.ca.gov/NR/rdonlyres/CA15A2A8-234D-4FB4-BE41-05409E8F6316/0/2014Q3RPSReportFinal.pdf

San Joaquin Valley Air Pollution Control District (SJVAPCD). 2009. *Guidance for Valley Land Use Agencies in Addressing GHG Emission Impacts for New Projects Under CEQA.*

San Joaquin Valley Air Pollution Control District (SJVAPCD). 2014. *CEQA Determinations of Significance for Projects Subject to ARB's GHG Cap-and-Trade Regulation*.

Tulare County Association of Governments (TCAG). *2014 Regional Transportation Plan/Sustainable Communities Strategy.*

United States Environmental Protection Agency (U.S. EPA). 2010. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2008*

———. 2015a. Methane. Website url: http://www.epa.gov/climatechange/ghgemissions/gases/ch4.html.

———. 2015b. Nitrous Oxide. Website url: http://www.epa.gov/nitrousoxide/index.html.

———. 2015c. High Global Warming Potential Gases. Website url: http://www.epa.gov/highgwp/ scientific.html.

———. 2015d. Global Greenhouse Gas Emissions Data. Website url: http://epa.gov/climatechange/ghgemissions/global.html

APPENDIX A

Emissions Modeling

ANNUAL CONSTRUCTION EMISSIONS - UNMITIGATED

	MONTHS	ROG	NOX	CO	SO2	PM10	PM2.5
Recharge Basin (Constru+A2:H29ction Year 1)							
Site Preparation & Orchard Removal: On-Site	2	0.05	0.48	0.27	0.00	0.15	0.09
Site Preparation & Orchard Removal: Off-Site		0.01	0.34	0.07	0.00	0.02	0.01
Grading: On-Site	10	0.54	6.34	3.60	0.01	0.78	0.29
Grading: Off-Site		0.03	0.03	0.24	0.00	0.09	0.02
	Total:	0.63	7.19	4.18	0.01	1.04	0.41
Recharge Basin (Construction Year 2)							
Grading: On-Site	4	0.13	1.52	0.90	0.00	0.58	0.11
Grading: Off-Site		0.01	0.01	0.06	0.00	0.03	0.01
Infrastructure-Excavation: On-Site	4.75	0.01	0.13	0.16	0.00	0.01	0.01
Infrastructure-Excavation: Off-Site		0.00	0.00	0.01	0.00	0.00	0.00
Well Drilling: On-Site	1	0.01	0.08	0.05	0.00	0.00	0.00
Well Drilling: Off-Site		0.00	0.00	0.01	0.00	0.00	0.00
Infrastructure-Trenching: On-Site	4.75	0.02	0.24	0.16	0.00	0.01	0.01
Infrastructure-Trenching: Off-Site		0.00	0.00	0.01	0.00	0.00	0.00
	Total:	0.18	1.98	1.35	0.00	0.64	0.14
In-Lieu Banking Area							
Excavation: On-Site	1.5	0.02	0.17	0.11	0.00	0.01	0.01
Excavation: Off-Site		0.00	0.00	0.00	0.00	0.00	0.00
Trenching: On-Site	0.5	0.00	0.01	0.01	0.00	0.00	0.00
Trenching: Off-Site		0.00	0.00	0.00	0.00	0.00	0.00
	Total:	0.02	0.18	0.12	0.00	0.01	0.01
Pipeline Installation							
Trenching: On-Site	9	0.15	1.54	1.12	0.00	0.07	0.07
Trenching: Off-Site		0.01	0.01	0.06	0.00	0.00	0.01
Lift Stations: On-Site	3	0.04	0.40	0.28	0.00	0.02	0.02
Lift Stations: Off-Site		0.00	0.00	0.01	0.00	0.00	0.00
	Total:	0.20	1.95	1.47	0.00	0.10	0.10

	ROG	NOX	CO	SO2	PM10	PM2.5
YR 1	0.85	9.32	5.77	0.01	1.14	0.52
YR 2	0.40	4.11	2.95	0.01	0.74	0.25

DAILY CONSTRUCTION EMISSIONS - UNMITIGATED

	DAYS	ROG	NOX	CO	SO2	PM10	PM2.5
Recharge Basin (Constru+A2:H29ction Year 1)							
Site Preparation & Orchard Removal: On-Site	40	2.50	24.00	13.50	0.02	7.50	4.50
Site Preparation & Orchard Removal: Off-Site		0.50	17.00	3.50	0.05	1.00	0.50
Grading: On-Site	200	5.40	63.40	36.00	0.08	7.80	2.90
Grading: Off-Site		0.30	0.30	2.40	0.01	0.90	0.20
	Total:	8.70	104.70	55.40	0.16	17.20	8.10
Recharge Basin (Construction Year 2)							
Grading: On-Site	80	3.25	38.00	22.50	0.05	14.50	2.75
Grading: Off-Site		0.20	0.15	1.50	0.00	0.75	0.15
Infrastructure-Excavation: On-Site	95	0.21	2.74	3.37	0.00	0.21	0.21
Infrastructure-Excavation: Off-Site		0.02	0.02	0.17	0.00	0.04	0.01
Well Drilling: On-Site	20	0.70	8.00	5.00	0.02	0.30	0.30
Well Drilling: Off-Site		0.10	0.08	0.80	0.00	0.20	0.05
Infrastructure-Trenching: On-Site	50	0.80	9.60	6.40	0.02	0.28	0.40
Infrastructure-Trenching: Off-Site		0.04	0.03	0.32	0.00	0.08	0.02
	Total:	5.32	58.62	40.06	0.09	16.36	3.89
In-Lieu Banking Area							
Excavation: On-Site	30	1.33	11.33	7.33	0.02	0.47	0.47
Excavation: Off-Site		0.03	0.02	0.20	0.00	0.04	0.01
Trenching: On-Site	10	0.20	2.00	2.00	0.00	0.18	0.18
Trenching: Off-Site		0.02	0.02	0.18	0.00	0.04	0.01
	Total:	1.58	13.37	9.71	0.02	0.73	0.67
Pipeline Installation							
Trenching: On-Site	180	1.67	17.11	12.44	0.02	0.78	0.78
Trenching: Off-Site		0.11	0.11	0.67	0.00	0.03	0.11
Lift Stations: On-Site	60	1.33	13.33	9.33	0.02	0.67	0.67
Lift Stations: Off-Site		0.07	0.03	0.33	0.00	0.10	0.02
	Total:	3.18	30.59	22.78	0.04	1.58	1.58

Max Daily Onsite - Yr 1:	12.43	131.18	80.61	0.17	17.39	9.49
Max Daily Onsite - Year 2:	9.49	102.11	68.38	0.15	17.38	5.75

ANNUAL CONSTRUCTION EMISSIONS - MITIGATED

	MONTHS	ROG	NOX	CO	SO2	PM10	PM2.5
Recharge Basin (Constru+A2:H29ction Year 1)							
Site Preparation & Orchard Removal: On-Site	2	0.01	0.21	0.25	0.00	0.06	0.04
Site Preparation & Orchard Removal: Off-Site							
Grading: On-Site	10	0.19	3.70	4.24	0.00	0.36	0.18
Grading: Off-Site							
Total:		0.20	3.91	4.49	0.00	0.42	0.22
Recharge Basin (Construction Year 2)							
Grading: On-Site	4	0.05	1.00	1.10	0.00	0.24	0.06
Grading: Off-Site							
Infrastructure-Excavation: On-Site	4.75	0.01	0.12	0.19	0.00	0.01	0.01
Infrastructure-Excavation: Off-Site							
Well Drilling: On-Site	1	0.00	0.09	0.10	0.00	0.00	0.00
Well Drilling: Off-Site							
Infrastructure-Trenching: On-Site	4.75	0.01	0.20	0.23	0.00	0.01	0.01
Infrastructure-Trenching: Off-Site							
Total:		0.07	1.41	1.62	0.00	0.26	0.08
In-Lieu Banking Area							
Excavation: On-Site	1.5	0.01	0.13	0.16	0.00	0.01	0.01
Excavation: Off-Site							
Trenching: On-Site	0.5	0.00	0.01	0.01	0.00	0.00	0.00
Trenching: Off-Site							
Total:		0.01	0.14	0.17	0.00	0.01	0.01
Pipeline Installation							
Trenching: On-Site	9	0.06	1.16	1.55	0.00	0.05	0.05
Trenching: Off-Site							
Lift Stations: On-Site	3	0.02	0.30	0.38	0.00	0.01	0.01
Lift Stations: Off-Site							
Total:		0.08	1.46	1.93	0.00	0.06	0.06

YR 1	0.29	5.51	6.59	0.00	0.49	0.29
YR 2	0.16	3.01	3.72	0.01	0.33	0.15

DAILY CONSTRUCTION EMISSIONS - MITIGATED

	DAYS	ROG	NOX	CO	SO2	PM10	PM2.5
Recharge Basin (Constru+A2:H29ction Year 1)							
Site Preparation & Orchard Removal: On-Site	40	0.50	10.50	12.50	0.02	3.00	2.00
Site Preparation & Orchard Removal: Off-Site							
Grading: On-Site	200	1.90	37.00	42.40	0.01	3.60	1.80
Grading: Off-Site							
	Total:	2.40	47.50	54.90	0.03	6.60	3.80
Recharge Basin (Construction Year 2)							
Grading: On-Site	80	1.25	25.00	27.50	0.05	6.00	1.50
Grading: Off-Site							
Infrastructure-Excavation: On-Site	95	0.13	2.53	4.00	0.01	0.13	0.13
Infrastructure-Excavation: Off-Site							
Well Drilling: On-Site	20	0.40	9.00	10.00	0.02	0.40	0.40
Well Drilling: Off-Site							
Infrastructure-Trenching: On-Site	50	0.40	8.00	9.20	0.02	0.40	0.40
Infrastructure-Trenching: Off-Site							
	Total:	2.18	44.53	50.70	0.09	6.93	2.43
In-Lieu Banking Area							
Excavation: On-Site	30	0.67	8.67	10.67	0.02	0.67	0.67
Excavation: Off-Site							
Trenching: On-Site	10	0.08	1.80	2.00	0.00	0.12	0.12
Trenching: Off-Site							
	Total:	0.75	10.47	12.67	0.02	0.79	0.79
Pipeline Installation							
Trenching: On-Site	180	0.67	12.89	17.22	0.02	0.56	0.56
Trenching: Off-Site							
Lift Stations: On-Site	60	0.67	10.00	12.67	0.02	0.33	0.33
Lift Stations: Off-Site							
	Total:	1.33	22.89	29.89	0.04	0.89	0.89

	ROG	NOX	CO	SO2	PM10	PM2.5
YR 1	4.48	80.86	97.46	0.10	8.28	5.48
YR 2	4.26	77.88	93.26	0.16	8.60	4.10

ANNUAL OPERATIONAL EMISSIONS - UNMITIGATED

	HOURS/YEAR	ROG	NOX	CO	SO2	PM10	PM2.5
Road Grading: On-Site Off-Road Equipment	50	0.003	0.03	0.01	0.00004	0.004	0.001
Road Grading: Off-Site Worker Trips	50	0.0001	0.0001	0.0009	0	0.0002	0.00006
Discing: On-Site Off-Road Equipment	70	0.001	0.01	0.01	0.00002	0.003	0.001
Discing: Off-Site Worker Trips	70	0.0002	0.0001	0.001	0	0.0003	0.00008
Spraying: On-Site Off-Road Equipment	20	0.0006	0.007	0.003	0.00001	0.0002	0.0002
Spraying: Off-Site Worker Trips	20	0.00005	0.00004	0.0004	0	0.00009	0.00003
Booster Lift & Well Pumps: Off-Site Electricity Use	173	1.1597	11.29	5.57	0.03	0.35	0.35
Worker Trips: Off-Site Routine Maintenance & Inspection	173	0.0004	0.0003	0.003	0.00001	0.0007	0.0002
	TOTAL:	1.2	11.3	5.6	0.0	0.4	0.4

DAILY OPERATIONAL EMISSIONS - UNMITIGATED

	HOURS/DAY	ROG	NOX	CO	SO2	PM10	PM2.5
Road Grading: On-Site Off-Road Equipment	8	0.96	9.60	3.20	0.01	1.28	0.32
Road Grading: Off-Site Worker Trips	8	0.03	0.03	0.29	0.00	0.06	0.02
Discing: On-Site Off-Road Equipment	8	0.23	2.29	2.29	0.00	0.69	0.23
Discing: Off-Site Worker Trips	8	0.05	0.02	0.23	0.00	0.07	0.02
Spraying: On-Site Off-Road Equipment	8	0.48	5.60	2.40	0.01	0.16	0.16
Spraying: Off-Site Worker Trips	8	0.04	0.03	0.32	0.00	0.07	0.02
Booster Lift & Well Pumps: Off-Site Electricity Use	24	321.77	3132.49	1545.43	8.32	97.11	97.11
Worker Trips: Off-Site Routine Maintenance & Inspection	8	0.04	0.03	0.28	0.00	0.06	0.02
	TOTAL ONSITE & OFFSITE:	323.6	3150.1	1554.4	8.3	99.5	97.9
	TOTAL ONSITE:	1.67	17.49	7.89	0.03	2.13	0.71

GHG EMISSIONS

	MTCO2e/Yr
Recharge Basin (Construction Year 1)	877.7
Recharge Basin (Construction Year 2)	273.50
In-Lieu Banking Area	27.50
Pipeline Installation	290.50
Total:	1469.2
Amortized (25-Yr Project Life):	58.8
Operational Maintenance Activities (On-Road Vehicles & Off-Road Equipment)	7.4
Total with Amortized Construction (Excludes Stationary Sources):	66.2
Existing Emissions to be Removed	
Off-Road Equipment	5.4
Worker Commute	0.4
Total	5.8
Stationary Sources (Pumps)	367.6

ESTIMATED CONSTRUCTION ACTIVITY SCHEDULE

CONSTRUCTION OF THE RECHARGE BASIN

START DATE (MONTH/YEAR):	1/1/2018	
OVERALL DURATION	15	MONTHS
SOIL IMPORT/EXPORT	NONE (BALANCED ONSITE)	
WOOD CHIPPING HAUL RATE	1.5	TRUCK LOADS/ACRE
ORCHARD REMOVAL (WOOD CHIPPING EXPORT)	2160	TRUCK TRIPS (ONE-WAY)

CONSTRUCTION OF THE IN-LIEU BANKING AREA

START DATE (MONTH/YEAR):	1/1/2018
OVERALL DURATION	(REFER TO EQUIPMENT WORKSHEET)

CONSTRUCTION OF THE PIPELINE

START DATE (MONTH/YEAR):	1/1/2018
OVERALL DURATION	(REFER TO EQUIPMENT WORKSHEET)

OFFROAD CONSTRUCTION EQUIPMENT USE

RECHARGE BASIN CONSTRUCTION

SITE PREPARATION/ORCHARD REMOVAL

TYPE	NUMBER OF EQUIP	AVG NUMBER OF USE DAYS/PIECE OF EQUP	AVG HOURS/ DAY/PIECE
Dozer	1	40 days	8hrs
Wheel Loader	2	40 days	8hrs

GRADING

TYPE	NUMBER OF EQUIP	AVG NUMBER OF USE DAYS/PIECE OF EQUP	AVG HOURS/ DAY/PIECE
Earthmover	2	280 days	8 hrs
Tractor	1	280 days	8 hrs
Motor Grader	1	280 days	8 hrs
Water Trucks	2	280 days	8 hrs
Tractor	1	280 days	8 hrs

WELL DRILLING (PER WELL SITE)

TYPE	NUMBER OF EQUIP	AVG NUMBER OF USE DAYS/PIECE OF EQUP	AVG HOURS/ DAY/PIECE
DRILL RIG	1	20 days	12
FE LOADER	1	20 days	8

INFRASTRUCTURE

TYPE	NUMBER OF EQUIP	AVG NUMBER OF USE DAYS/PIECE OF EQUP	AVG HOURS/ DAY/PIECE
Excavator	1	95 days	8 hrs
Backhoe	1	50 days	8 hrs
Water Truck	1	50 days	8 hrs

*Based on data provided by the project applicant.

OFFROAD CONSTRUCTION EQUIPMENT USE

IN LIEU BANKING AREA CONSTRUCTION

Not Applicable

TYPE	NUMBER OF EQUIP	AVG NUMBER OF USE DAYS/PIECE OF EQUP	AVG HOURS/ DAY/PIECE
Not Applicable			

Not Applicable

TYPE	NUMBER OF EQUIP	AVG NUMBER OF USE DAYS/PIECE OF EQUP	AVG HOURS/ DAY/PIECE
Not Applicable			

Not Applicable

TYPE	NUMBER OF EQUIP	AVG NUMBER OF USE DAYS/PIECE OF EQUP	AVG HOURS/ DAY/PIECE
Not Applicable			

INFRASTRUCTURE

TYPE	NUMBER OF EQUIP	AVG NUMBER OF USE DAYS/PIECE OF EQUP	AVG HOURS/ DAY/PIECE
Excavator	1	30 days	8 hrs
Backhoe	1	10 days	8 hrs
Water Truck	1	5 days	8 hrs

*Based on data provided by the project applicant.

OFFROAD CONSTRUCTION EQUIPMENT USE

PIPELINE CONSTRUCTION

Not Applicable

TYPE	NUMBER OF EQUIP	AVG NUMBER OF USE DAYS/PIECE OF EQUP	AVG HOURS/ DAY/PIECE
Not Applicable			

TRENCHING

TYPE	NUMBER OF EQUIP	AVG NUMBER OF USE DAYS/PIECE OF EQUP	AVG HOURS/ DAY/PIECE
Excavator	1	180 days	8 hrs
Excavator	1	90 days	8 hrs
Water Truck	1	90 days	8 hrs
Backhoe	1	90 days	8 hrs

LIFT STATION CONSTRUCTION (PER STATION SITE)

TYPE	NUMBER OF EQUIP	AVG NUMBER OF USE DAYS/PIECE OF EQUP	AVG HOURS/ DAY/PIECE
Excavator	1	30 days	8 hrs
Backhoe	1	25 days	8 hrs
Water Truck	1	5 days	8 hrs

Not Applicable

TYPE	NUMBER OF EQUIP	AVG NUMBER OF USE DAYS/PIECE OF EQUP	AVG HOURS/ DAY/PIECE
Not Applicable			

*Based on data provided by the project applicant.

PROPOSED PROJECT MAINTENANCE EQUIPMENT & VEHICLE USE

	HP	Annual Hours
ROAD GRADER	400	50
SPRAY RIG	200	20
TRACTOR/DISC	120	70
ON-ROAD LD TRUCK	200	40

PROPOSED PROJECT ELECTRICAL PUMPS

RECHARGE BASIN

NUMBER OF BOOSTER LIFT STATIONS	1	
BOOSTER LIFT POWER SOURCE	ELECTRIC	
BOOSTER LIFT SIZE	960	HP
NUMBER OF WELL PUMPS	11	
PUMP POWER SOURCE	ELECTRIC	
PUMP SIZE	300	HP

Power for 8 month return period (worst case). Several years will have no pumping at all

IN-LIEU BANKING AREA

NUMBER OF WELL PUMPS	5	
PUMP POWER SOURCE	ELECTRIC	
PUMP SIZE	300	HP

Power for 8 month return period (worst case). Several years will have no pumping at all

EXISTING OPERATIONAL DATA

EXISTING PUMPS TO BE REMOVED

	# 1	# 2	# 3	# 4	# 5	# 6
POWER SOURCE	Natural Gas	Natural Gas	Electric	Electric	Electric	Electric
SIZE	200 hp	125 hp	200 hp	60 hp	75 hp	75 hp
ESTIMATED ANNUAL HOURS OF OPERATION	1152	1152	1152	1300	1200	1000
USAGE RATE (DAYS)	150	150	150	163	150	125
HRS/DAY	8	8	8	8	8	8

Based on data provided by the project applicant.

EXISTING AGRICULTURAL USES & EQUIPMENT USE

CROP TYPE	NUMBER	EQUIPMENT USE	H.P	ANNUAL HOURS/EQUIP	HRS/DAY	DAYS/YR
ORCHARD	2	Tractor/ spray	90	80	8	10
	1	Tree shaker	90	80	8	10
	1	Blower	90	80	8	10

Based on data provided by the project applicant.

EXISTING AGRICULTURAL VEHICLE TRIPS

CROP TYPE	LDT TRIPS/MO	LDT TRIPS ANNUAL	AVERAGE DISTANCE (MILES)
ORCHARD	10	120	20

Based on data provided by the project applicant.

Pixley GW Bank - Recharge Basin
Tulare 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	720.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	51
Climate Zone	7			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	546.6	**CH4 Intensity (lb/MWhr)**	0.025	**N2O Intensity (lb/MWhr)**	0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Includes intensity factor adjustment for RPS.

Land Use - Modeling based on construction information provided by the project applicant/engineers.

Construction Phase - Based on information provided by project applicant/engineer.

Off-road Equipment - 1 dozer, 2 loaders

Off-road Equipment - 1 excavator

Off-road Equipment - 2 scrapers, 2 tractors, 1 grader, 2 water trucks

Off-road Equipment - 1 backhoe, 1 water truck

Off-road Equipment - 1 dozer, 2 loaders, 1 chipper (750hp), 1 shredder (175hp)

Off-road Equipment - 1 drill rig, 1 loader

Trips and VMT - Worker and vendor trips are based on model defaults. Soil balanced onsite. Site prep includes an average of 1.5 trucks/acre for removal of chipped material, 720 acres total, 2160 one-way trips.

Grading - Based on model defaults calculated based on number of earthmoving equipment used and default distance of travel/pc of equipment/8-hr day and total grading days (980 ac eqiv).

Vehicle Trips - Operational emissions calculated separately.

Energy Use - .

Land Use Change -

Construction Off-road Equipment Mitigation - Watering: 45%CE for roads, 61%CE for graded surfaces; 15mph speed limit onsite unpaved surfaces. Offroad equipment: T3

Operational Off-Road Equipment - .

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
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tblConstructionPhase	NumDays	12,400.00	50.00
tblConstructionPhase	NumDays	1,240.00	280.00
tblConstructionPhase	NumDays	480.00	40.00
tblConstructionPhase	PhaseEndDate	8/21/2018	9/18/2019
tblConstructionPhase	PhaseEndDate	10/30/2018	11/27/2019
tblConstructionPhase	PhaseEndDate	3/13/2018	3/22/2019
tblConstructionPhase	PhaseEndDate	2/14/2017	2/23/2018
tblConstructionPhase	PhaseEndDate	7/24/2018	8/2/2019
tblConstructionPhase	PhaseStartDate	7/25/2018	8/22/2019
tblConstructionPhase	PhaseStartDate	8/22/2018	9/19/2019
tblConstructionPhase	PhaseStartDate	2/15/2017	2/24/2018
tblConstructionPhase	PhaseStartDate	12/21/2016	1/1/2018
tblConstructionPhase	PhaseStartDate	3/14/2018	3/23/2019
tblGrading	AcresOfGrading	700.00	980.00
tblGrading	AcresOfGrading	700.00	0.00
tblLandUse	LotAcreage	0.00	720.00
tblOffRoadEquipment	HorsePower	172.00	750.00

tblOffRoadEquipment	HorsePower	172.00	175.00
tblOffRoadEquipment	LoadFactor	0.42	0.34
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.025
tblProjectCharacteristics	CO2IntensityFactor	641.35	546.6
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2018	2020
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	2,160.00
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tblVehicleEF	HHD	0.04	0.04
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tblVehicleEF	LDA	0.12	0.16
tblVehicleEF	LDA	0.04	0.05

tblVehicleEF	LDA	0.01	0.02
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tblVehicleEF	LDA	0.12	0.16
tblVehicleEF	LDA	0.02	0.02

tblVehicleEF	LDA	0.01	0.02
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tblVehicleEF	LDA	0.02	0.02
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tblVehicleEF	LDT1	0.04	0.07
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tblVehicleEF	LDT1	0.50	0.57
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tblVehicleEF	LDT1	0.06	0.10
tblVehicleEF	LDT1	0.30	0.35
tblVehicleEF	LDT1	0.41	0.54
tblVehicleEF	LDT1	0.02	0.03
tblVehicleEF	LDT1	0.02	0.03
tblVehicleEF	LDT1	2.55	3.44
tblVehicleEF	LDT1	4.34	5.45
tblVehicleEF	LDT1	357.77	375.07
tblVehicleEF	LDT1	75.29	78.42
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.21	0.27
tblVehicleEF	LDT1	0.28	0.34
tblVehicleEF	LDT1	3.3420e-003	4.0160e-003
tblVehicleEF	LDT1	4.8210e-003	5.7330e-003
tblVehicleEF	LDT1	3.0810e-003	3.7090e-003
tblVehicleEF	LDT1	4.4340e-003	5.2850e-003
tblVehicleEF	LDT1	0.69	0.80
tblVehicleEF	LDT1	0.64	0.75
tblVehicleEF	LDT1	0.40	0.47

tblVehicleEF	LDT1	0.05	0.08
tblVehicleEF	LDT1	0.29	0.34
tblVehicleEF	LDT1	0.31	0.41
tblVehicleEF	LDT1	3.6130e-003	3.8010e-003
tblVehicleEF	LDT1	8.3000e-004	8.8200e-004
tblVehicleEF	LDT1	0.69	0.80
tblVehicleEF	LDT1	0.64	0.75
tblVehicleEF	LDT1	0.40	0.47
tblVehicleEF	LDT1	0.07	0.11
tblVehicleEF	LDT1	0.29	0.34
tblVehicleEF	LDT1	0.34	0.45
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	1.95	2.71
tblVehicleEF	LDT1	6.41	7.99
tblVehicleEF	LDT1	313.91	329.72
tblVehicleEF	LDT1	75.29	78.42
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.24	0.32
tblVehicleEF	LDT1	0.32	0.40
tblVehicleEF	LDT1	3.3420e-003	4.0160e-003
tblVehicleEF	LDT1	4.8210e-003	5.7330e-003
tblVehicleEF	LDT1	3.0810e-003	3.7090e-003
tblVehicleEF	LDT1	4.4340e-003	5.2850e-003
tblVehicleEF	LDT1	0.09	0.11
tblVehicleEF	LDT1	0.50	0.58
tblVehicleEF	LDT1	0.07	0.07

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tblVehicleEF	LDT1	0.04	0.07
tblVehicleEF	LDT1	0.35	0.41
tblVehicleEF	LDT1	0.44	0.59
tblVehicleEF	LDT1	3.1660e-003	3.3360e-003
tblVehicleEF	LDT1	8.6700e-004	9.2800e-004
tblVehicleEF	LDT1	0.09	0.11
tblVehicleEF	LDT1	0.50	0.58
tblVehicleEF	LDT1	0.07	0.07
tblVehicleEF	LDT1	0.06	0.10
tblVehicleEF	LDT1	0.35	0.41
tblVehicleEF	LDT1	0.49	0.64
tblVehicleEF	LDT2	7.9430e-003	0.01
tblVehicleEF	LDT2	0.01	0.02
tblVehicleEF	LDT2	1.00	1.31
tblVehicleEF	LDT2	2.46	3.25
tblVehicleEF	LDT2	369.98	391.70
tblVehicleEF	LDT2	85.93	90.39
tblVehicleEF	LDT2	0.17	0.17
tblVehicleEF	LDT2	0.12	0.16
tblVehicleEF	LDT2	0.21	0.29
tblVehicleEF	LDT2	1.7070e-003	1.7960e-003
tblVehicleEF	LDT2	2.6060e-003	2.8200e-003
tblVehicleEF	LDT2	1.5700e-003	1.6540e-003
tblVehicleEF	LDT2	2.3970e-003	2.5970e-003
tblVehicleEF	LDT2	0.10	0.13
tblVehicleEF	LDT2	0.19	0.23
tblVehicleEF	LDT2	0.07	0.09

tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.10	0.12
tblVehicleEF	LDT2	0.17	0.24
tblVehicleEF	LDT2	3.7090e-003	3.9310e-003
tblVehicleEF	LDT2	9.0200e-004	9.6100e-004
tblVehicleEF	LDT2	0.10	0.13
tblVehicleEF	LDT2	0.19	0.23
tblVehicleEF	LDT2	0.07	0.09
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.10	0.12
tblVehicleEF	LDT2	0.19	0.26
tblVehicleEF	LDT2	9.1570e-003	0.01
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	1.24	1.61
tblVehicleEF	LDT2	2.05	2.72
tblVehicleEF	LDT2	406.55	430.30
tblVehicleEF	LDT2	85.93	90.39
tblVehicleEF	LDT2	0.17	0.17
tblVehicleEF	LDT2	0.11	0.15
tblVehicleEF	LDT2	0.20	0.28
tblVehicleEF	LDT2	1.7070e-003	1.7960e-003
tblVehicleEF	LDT2	2.6060e-003	2.8200e-003
tblVehicleEF	LDT2	1.5700e-003	1.6540e-003
tblVehicleEF	LDT2	2.3970e-003	2.5970e-003
tblVehicleEF	LDT2	0.24	0.29
tblVehicleEF	LDT2	0.23	0.29
tblVehicleEF	LDT2	0.16	0.19

tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.09	0.11
tblVehicleEF	LDT2	0.14	0.20
tblVehicleEF	LDT2	4.0780e-003	4.3220e-003
tblVehicleEF	LDT2	8.9500e-004	9.5100e-004
tblVehicleEF	LDT2	0.24	0.29
tblVehicleEF	LDT2	0.23	0.29
tblVehicleEF	LDT2	0.16	0.19
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	0.09	0.11
tblVehicleEF	LDT2	0.16	0.22
tblVehicleEF	LDT2	7.4670e-003	0.01
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.92	1.22
tblVehicleEF	LDT2	3.00	3.96
tblVehicleEF	LDT2	355.03	375.92
tblVehicleEF	LDT2	85.93	90.39
tblVehicleEF	LDT2	0.17	0.17
tblVehicleEF	LDT2	0.13	0.18
tblVehicleEF	LDT2	0.23	0.32
tblVehicleEF	LDT2	1.7070e-003	1.7960e-003
tblVehicleEF	LDT2	2.6060e-003	2.8200e-003
tblVehicleEF	LDT2	1.5700e-003	1.6540e-003
tblVehicleEF	LDT2	2.3970e-003	2.5970e-003
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.19	0.23
tblVehicleEF	LDT2	0.03	0.03

tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.11	0.14
tblVehicleEF	LDT2	0.20	0.28
tblVehicleEF	LDT2	3.5590e-003	3.7730e-003
tblVehicleEF	LDT2	9.1200e-004	9.7400e-004
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.19	0.23
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.11	0.14
tblVehicleEF	LDT2	0.22	0.31
tblVehicleEF	LHD1	4.7200e-003	4.8820e-003
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.13	0.14
tblVehicleEF	LHD1	1.64	1.87
tblVehicleEF	LHD1	2.66	2.99
tblVehicleEF	LHD1	9.62	9.62
tblVehicleEF	LHD1	689.51	695.77
tblVehicleEF	LHD1	25.97	26.80
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.11	0.11
tblVehicleEF	LHD1	2.74	2.93
tblVehicleEF	LHD1	0.88	0.90
tblVehicleEF	LHD1	1.1970e-003	1.1920e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.03	0.03

tblVehicleEF	LHD1	9.6500e-004	1.1500e-003
tblVehicleEF	LHD1	1.1450e-003	1.1400e-003
tblVehicleEF	LHD1	2.6040e-003	2.5960e-003
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	8.8900e-004	1.0630e-003
tblVehicleEF	LHD1	3.8940e-003	4.0450e-003
tblVehicleEF	LHD1	0.10	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.5280e-003	1.5470e-003
tblVehicleEF	LHD1	0.19	0.20
tblVehicleEF	LHD1	0.29	0.28
tblVehicleEF	LHD1	0.26	0.29
tblVehicleEF	LHD1	6.7460e-003	6.8140e-003
tblVehicleEF	LHD1	3.1000e-004	3.2400e-004
tblVehicleEF	LHD1	3.8940e-003	4.0450e-003
tblVehicleEF	LHD1	0.10	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.5280e-003	1.5470e-003
tblVehicleEF	LHD1	0.23	0.24
tblVehicleEF	LHD1	0.29	0.28
tblVehicleEF	LHD1	0.29	0.32
tblVehicleEF	LHD1	4.7200e-003	4.8820e-003
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.13	0.14
tblVehicleEF	LHD1	1.68	1.91
tblVehicleEF	LHD1	2.48	2.79

tblVehicleEF	LHD1	9.62	9.62
tblVehicleEF	LHD1	689.51	695.77
tblVehicleEF	LHD1	25.97	26.80
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.11	0.11
tblVehicleEF	LHD1	2.59	2.77
tblVehicleEF	LHD1	0.83	0.85
tblVehicleEF	LHD1	1.1970e-003	1.1920e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	9.6500e-004	1.1500e-003
tblVehicleEF	LHD1	1.1450e-003	1.1400e-003
tblVehicleEF	LHD1	2.6040e-003	2.5960e-003
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	8.8900e-004	1.0630e-003
tblVehicleEF	LHD1	8.9590e-003	9.3810e-003
tblVehicleEF	LHD1	0.12	0.13
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	3.3600e-003	3.4720e-003
tblVehicleEF	LHD1	0.19	0.20
tblVehicleEF	LHD1	0.29	0.28
tblVehicleEF	LHD1	0.25	0.28
tblVehicleEF	LHD1	6.7470e-003	6.8140e-003
tblVehicleEF	LHD1	3.0600e-004	3.2100e-004
tblVehicleEF	LHD1	8.9590e-003	9.3810e-003
tblVehicleEF	LHD1	0.12	0.13
tblVehicleEF	LHD1	0.02	0.02

tblVehicleEF	LHD1	3.3600e-003	3.4720e-003
tblVehicleEF	LHD1	0.23	0.25
tblVehicleEF	LHD1	0.29	0.28
tblVehicleEF	LHD1	0.27	0.30
tblVehicleEF	LHD1	4.7200e-003	4.8820e-003
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.13	0.14
tblVehicleEF	LHD1	1.62	1.85
tblVehicleEF	LHD1	2.90	3.25
tblVehicleEF	LHD1	9.62	9.62
tblVehicleEF	LHD1	689.51	695.77
tblVehicleEF	LHD1	25.97	26.80
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	0.11	0.11
tblVehicleEF	LHD1	2.81	3.00
tblVehicleEF	LHD1	0.94	0.96
tblVehicleEF	LHD1	1.1970e-003	1.1920e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	9.6500e-004	1.1500e-003
tblVehicleEF	LHD1	1.1450e-003	1.1400e-003
tblVehicleEF	LHD1	2.6040e-003	2.5960e-003
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	8.8900e-004	1.0630e-003
tblVehicleEF	LHD1	1.2720e-003	1.2960e-003
tblVehicleEF	LHD1	0.11	0.11

tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	6.5600e-004	6.4700e-004
tblVehicleEF	LHD1	0.19	0.20
tblVehicleEF	LHD1	0.32	0.31
tblVehicleEF	LHD1	0.28	0.31
tblVehicleEF	LHD1	6.7460e-003	6.8130e-003
tblVehicleEF	LHD1	3.1400e-004	3.2900e-004
tblVehicleEF	LHD1	1.2720e-003	1.2960e-003
tblVehicleEF	LHD1	0.11	0.11
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	6.5600e-004	6.4700e-004
tblVehicleEF	LHD1	0.23	0.24
tblVehicleEF	LHD1	0.32	0.31
tblVehicleEF	LHD1	0.31	0.34
tblVehicleEF	LHD2	3.4540e-003	3.6090e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	9.8240e-003	0.01
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	0.95	1.09
tblVehicleEF	LHD2	1.33	1.55
tblVehicleEF	LHD2	14.96	15.02
tblVehicleEF	LHD2	728.57	739.40
tblVehicleEF	LHD2	21.49	21.91
tblVehicleEF	LHD2	5.7980e-003	6.6400e-003
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	2.20	2.60
tblVehicleEF	LHD2	0.54	0.58

tblVehicleEF	LHD2	1.4520e-003	1.4720e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	4.3500e-004	5.1400e-004
tblVehicleEF	LHD2	1.3900e-003	1.4080e-003
tblVehicleEF	LHD2	2.7220e-003	2.7190e-003
tblVehicleEF	LHD2	0.02	0.03
tblVehicleEF	LHD2	4.0100e-004	4.7400e-004
tblVehicleEF	LHD2	1.6780e-003	1.8860e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	6.9500e-004	7.4700e-004
tblVehicleEF	LHD2	0.15	0.17
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	0.13	0.16
tblVehicleEF	LHD2	1.4500e-004	1.4600e-004
tblVehicleEF	LHD2	7.0750e-003	7.1830e-003
tblVehicleEF	LHD2	2.4000e-004	2.4800e-004
tblVehicleEF	LHD2	1.6780e-003	1.8860e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.9500e-004	7.4700e-004
tblVehicleEF	LHD2	0.18	0.19
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	0.15	0.17
tblVehicleEF	LHD2	3.4540e-003	3.6090e-003
tblVehicleEF	LHD2	0.01	0.02

tblVehicleEF	LHD2	9.2990e-003	0.01
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	0.96	1.11
tblVehicleEF	LHD2	1.24	1.44
tblVehicleEF	LHD2	14.96	15.02
tblVehicleEF	LHD2	728.57	739.40
tblVehicleEF	LHD2	21.49	21.91
tblVehicleEF	LHD2	5.7980e-003	6.6400e-003
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	2.09	2.46
tblVehicleEF	LHD2	0.51	0.55
tblVehicleEF	LHD2	1.4520e-003	1.4720e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	4.3500e-004	5.1400e-004
tblVehicleEF	LHD2	1.3900e-003	1.4080e-003
tblVehicleEF	LHD2	2.7220e-003	2.7190e-003
tblVehicleEF	LHD2	0.02	0.03
tblVehicleEF	LHD2	4.0100e-004	4.7400e-004
tblVehicleEF	LHD2	3.8310e-003	4.3430e-003
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.5090e-003	1.6590e-003
tblVehicleEF	LHD2	0.15	0.17
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	0.13	0.15
tblVehicleEF	LHD2	1.4500e-004	1.4600e-004

tblVehicleEF	LHD2	7.0750e-003	7.1830e-003
tblVehicleEF	LHD2	2.3800e-004	2.4600e-004
tblVehicleEF	LHD2	3.8310e-003	4.3430e-003
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.5090e-003	1.6590e-003
tblVehicleEF	LHD2	0.18	0.20
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	0.14	0.16
tblVehicleEF	LHD2	3.4540e-003	3.6090e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	0.94	1.08
tblVehicleEF	LHD2	1.44	1.68
tblVehicleEF	LHD2	14.96	15.02
tblVehicleEF	LHD2	728.57	739.40
tblVehicleEF	LHD2	21.49	21.91
tblVehicleEF	LHD2	5.7980e-003	6.6400e-003
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	2.25	2.65
tblVehicleEF	LHD2	0.58	0.62
tblVehicleEF	LHD2	1.4520e-003	1.4720e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	4.3500e-004	5.1400e-004
tblVehicleEF	LHD2	1.3900e-003	1.4080e-003

tblVehicleEF	LHD2	2.7220e-003	2.7190e-003
tblVehicleEF	LHD2	0.02	0.03
tblVehicleEF	LHD2	4.0100e-004	4.7400e-004
tblVehicleEF	LHD2	5.6100e-004	6.1700e-004
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.0400e-004	3.1700e-004
tblVehicleEF	LHD2	0.15	0.16
tblVehicleEF	LHD2	0.12	0.14
tblVehicleEF	LHD2	0.14	0.16
tblVehicleEF	LHD2	1.4500e-004	1.4600e-004
tblVehicleEF	LHD2	7.0740e-003	7.1820e-003
tblVehicleEF	LHD2	2.4200e-004	2.5000e-004
tblVehicleEF	LHD2	5.6100e-004	6.1700e-004
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.0400e-004	3.1700e-004
tblVehicleEF	LHD2	0.18	0.19
tblVehicleEF	LHD2	0.12	0.14
tblVehicleEF	LHD2	0.15	0.18
tblVehicleEF	MCY	0.39	0.38
tblVehicleEF	MCY	0.16	0.17
tblVehicleEF	MCY	21.72	22.97
tblVehicleEF	MCY	9.94	9.91
tblVehicleEF	MCY	160.84	159.24
tblVehicleEF	MCY	48.53	49.40
tblVehicleEF	MCY	4.4020e-003	4.5610e-003

tblVehicleEF	MCY	1.18	1.19
tblVehicleEF	MCY	0.31	0.31
tblVehicleEF	MCY	1.7070e-003	1.6530e-003
tblVehicleEF	MCY	4.1650e-003	4.5260e-003
tblVehicleEF	MCY	1.6040e-003	1.5570e-003
tblVehicleEF	MCY	3.9440e-003	4.2950e-003
tblVehicleEF	MCY	1.72	1.70
tblVehicleEF	MCY	1.04	1.04
tblVehicleEF	MCY	0.91	0.90
tblVehicleEF	MCY	2.24	2.32
tblVehicleEF	MCY	0.76	0.80
tblVehicleEF	MCY	2.24	2.28
tblVehicleEF	MCY	2.0260e-003	2.0320e-003
tblVehicleEF	MCY	7.1400e-004	7.2300e-004
tblVehicleEF	MCY	1.72	1.70
tblVehicleEF	MCY	1.04	1.04
tblVehicleEF	MCY	0.91	0.90
tblVehicleEF	MCY	2.71	2.78
tblVehicleEF	MCY	0.76	0.80
tblVehicleEF	MCY	2.44	2.48
tblVehicleEF	MCY	0.38	0.37
tblVehicleEF	MCY	0.14	0.14
tblVehicleEF	MCY	22.15	23.42
tblVehicleEF	MCY	9.19	9.23
tblVehicleEF	MCY	160.84	159.24
tblVehicleEF	MCY	48.53	49.40
tblVehicleEF	MCY	4.4020e-003	4.5610e-003

tblVehicleEF	MCY	1.02	1.03
tblVehicleEF	MCY	0.29	0.29
tblVehicleEF	MCY	1.7070e-003	1.6530e-003
tblVehicleEF	MCY	4.1650e-003	4.5260e-003
tblVehicleEF	MCY	1.6040e-003	1.5570e-003
tblVehicleEF	MCY	3.9440e-003	4.2950e-003
tblVehicleEF	MCY	4.17	4.14
tblVehicleEF	MCY	1.55	1.53
tblVehicleEF	MCY	2.35	2.34
tblVehicleEF	MCY	2.18	2.25
tblVehicleEF	MCY	0.75	0.78
tblVehicleEF	MCY	1.92	1.94
tblVehicleEF	MCY	2.0310e-003	2.0360e-003
tblVehicleEF	MCY	6.9100e-004	7.0200e-004
tblVehicleEF	MCY	4.17	4.14
tblVehicleEF	MCY	1.55	1.53
tblVehicleEF	MCY	2.35	2.34
tblVehicleEF	MCY	2.64	2.69
tblVehicleEF	MCY	0.75	0.78
tblVehicleEF	MCY	2.08	2.11
tblVehicleEF	MCY	0.41	0.40
tblVehicleEF	MCY	0.20	0.20
tblVehicleEF	MCY	23.33	24.75
tblVehicleEF	MCY	11.40	11.33
tblVehicleEF	MCY	160.84	159.24
tblVehicleEF	MCY	48.53	49.40
tblVehicleEF	MCY	4.4020e-003	4.5610e-003

tblVehicleEF	MCY	1.29	1.30
tblVehicleEF	MCY	0.34	0.34
tblVehicleEF	MCY	1.7070e-003	1.6530e-003
tblVehicleEF	MCY	4.1650e-003	4.5260e-003
tblVehicleEF	MCY	1.6040e-003	1.5570e-003
tblVehicleEF	MCY	3.9440e-003	4.2950e-003
tblVehicleEF	MCY	0.48	0.47
tblVehicleEF	MCY	1.07	1.09
tblVehicleEF	MCY	0.25	0.24
tblVehicleEF	MCY	2.37	2.46
tblVehicleEF	MCY	0.88	0.92
tblVehicleEF	MCY	2.69	2.74
tblVehicleEF	MCY	2.0560e-003	2.0640e-003
tblVehicleEF	MCY	7.5200e-004	7.6100e-004
tblVehicleEF	MCY	0.48	0.47
tblVehicleEF	MCY	1.07	1.09
tblVehicleEF	MCY	0.25	0.24
tblVehicleEF	MCY	2.86	2.94
tblVehicleEF	MCY	0.88	0.92
tblVehicleEF	MCY	2.93	2.98
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	1.91	2.18
tblVehicleEF	MDV	4.47	5.12
tblVehicleEF	MDV	516.15	534.03
tblVehicleEF	MDV	117.23	120.15
tblVehicleEF	MDV	0.15	0.17

tblVehicleEF	MDV	0.24	0.29
tblVehicleEF	MDV	0.42	0.49
tblVehicleEF	MDV	1.7530e-003	1.8170e-003
tblVehicleEF	MDV	2.6780e-003	2.8780e-003
tblVehicleEF	MDV	1.6200e-003	1.6790e-003
tblVehicleEF	MDV	2.4670e-003	2.6540e-003
tblVehicleEF	MDV	0.13	0.14
tblVehicleEF	MDV	0.26	0.26
tblVehicleEF	MDV	0.10	0.10
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	0.14	0.14
tblVehicleEF	MDV	0.36	0.42
tblVehicleEF	MDV	5.1810e-003	5.3650e-003
tblVehicleEF	MDV	1.2520e-003	1.2940e-003
tblVehicleEF	MDV	0.13	0.14
tblVehicleEF	MDV	0.26	0.26
tblVehicleEF	MDV	0.10	0.10
tblVehicleEF	MDV	0.07	0.08
tblVehicleEF	MDV	0.14	0.14
tblVehicleEF	MDV	0.40	0.46
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.02	0.03
tblVehicleEF	MDV	2.33	2.66
tblVehicleEF	MDV	3.77	4.32
tblVehicleEF	MDV	565.61	585.23
tblVehicleEF	MDV	117.23	120.15
tblVehicleEF	MDV	0.15	0.17

tblVehicleEF	MDV	0.23	0.27
tblVehicleEF	MDV	0.40	0.46
tblVehicleEF	MDV	1.7530e-003	1.8170e-003
tblVehicleEF	MDV	2.6780e-003	2.8780e-003
tblVehicleEF	MDV	1.6200e-003	1.6790e-003
tblVehicleEF	MDV	2.4670e-003	2.6540e-003
tblVehicleEF	MDV	0.31	0.31
tblVehicleEF	MDV	0.30	0.31
tblVehicleEF	MDV	0.22	0.22
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	0.14	0.14
tblVehicleEF	MDV	0.30	0.35
tblVehicleEF	MDV	5.6820e-003	5.8840e-003
tblVehicleEF	MDV	1.2390e-003	1.2790e-003
tblVehicleEF	MDV	0.31	0.31
tblVehicleEF	MDV	0.30	0.31
tblVehicleEF	MDV	0.22	0.22
tblVehicleEF	MDV	0.08	0.09
tblVehicleEF	MDV	0.14	0.14
tblVehicleEF	MDV	0.33	0.39
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	1.79	2.05
tblVehicleEF	MDV	5.42	6.21
tblVehicleEF	MDV	495.93	513.10
tblVehicleEF	MDV	117.23	120.15
tblVehicleEF	MDV	0.15	0.17

tblVehicleEF	MDV	0.27	0.32
tblVehicleEF	MDV	0.46	0.54
tblVehicleEF	MDV	1.7530e-003	1.8170e-003
tblVehicleEF	MDV	2.6780e-003	2.8780e-003
tblVehicleEF	MDV	1.6200e-003	1.6790e-003
tblVehicleEF	MDV	2.4670e-003	2.6540e-003
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.26	0.26
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	0.17	0.17
tblVehicleEF	MDV	0.43	0.50
tblVehicleEF	MDV	4.9780e-003	5.1540e-003
tblVehicleEF	MDV	1.2690e-003	1.3130e-003
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.26	0.26
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.06	0.08
tblVehicleEF	MDV	0.17	0.17
tblVehicleEF	MDV	0.47	0.55
tblVehicleEF	MH	0.05	0.06
tblVehicleEF	MH	0.03	0.04
tblVehicleEF	MH	4.35	6.12
tblVehicleEF	MH	7.48	8.85
tblVehicleEF	MH	1,230.39	1,238.57
tblVehicleEF	MH	58.66	63.98
tblVehicleEF	MH	8.1800e-004	9.4900e-004

tblVehicleEF	MH	2.34	2.56
tblVehicleEF	MH	0.97	1.04
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	1.6350e-003	2.3960e-003
tblVehicleEF	MH	3.2680e-003	3.2660e-003
tblVehicleEF	MH	0.04	0.05
tblVehicleEF	MH	1.5150e-003	2.2390e-003
tblVehicleEF	MH	1.88	2.11
tblVehicleEF	MH	0.11	0.12
tblVehicleEF	MH	0.47	0.52
tblVehicleEF	MH	0.19	0.25
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.46	0.59
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	7.1800e-004	7.9700e-004
tblVehicleEF	MH	1.88	2.11
tblVehicleEF	MH	0.11	0.12
tblVehicleEF	MH	0.47	0.52
tblVehicleEF	MH	0.25	0.33
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.50	0.64
tblVehicleEF	MH	0.06	0.07
tblVehicleEF	MH	0.03	0.04
tblVehicleEF	MH	4.52	6.33
tblVehicleEF	MH	6.83	8.23
tblVehicleEF	MH	1,230.39	1,238.57

tblVehicleEF	MH	58.66	63.98
tblVehicleEF	MH	8.1800e-004	9.4900e-004
tblVehicleEF	MH	2.17	2.37
tblVehicleEF	MH	0.92	0.98
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	1.6350e-003	2.3960e-003
tblVehicleEF	MH	3.2680e-003	3.2660e-003
tblVehicleEF	MH	0.04	0.05
tblVehicleEF	MH	1.5150e-003	2.2390e-003
tblVehicleEF	MH	4.38	4.95
tblVehicleEF	MH	0.13	0.14
tblVehicleEF	MH	1.04	1.17
tblVehicleEF	MH	0.19	0.26
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.43	0.55
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	7.0700e-004	7.8600e-004
tblVehicleEF	MH	4.38	4.95
tblVehicleEF	MH	0.13	0.14
tblVehicleEF	MH	1.04	1.17
tblVehicleEF	MH	0.26	0.34
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.47	0.60
tblVehicleEF	MH	0.05	0.06
tblVehicleEF	MH	0.04	0.05
tblVehicleEF	MH	4.27	6.16

tblVehicleEF	MH	8.37	9.85
tblVehicleEF	MH	1,230.39	1,238.57
tblVehicleEF	MH	58.66	63.98
tblVehicleEF	MH	8.1800e-004	9.4900e-004
tblVehicleEF	MH	2.42	2.66
tblVehicleEF	MH	1.04	1.12
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	1.6350e-003	2.3960e-003
tblVehicleEF	MH	3.2680e-003	3.2660e-003
tblVehicleEF	MH	0.04	0.05
tblVehicleEF	MH	1.5150e-003	2.2390e-003
tblVehicleEF	MH	0.60	0.66
tblVehicleEF	MH	0.12	0.14
tblVehicleEF	MH	0.24	0.26
tblVehicleEF	MH	0.19	0.26
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.50	0.64
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	7.3300e-004	8.1400e-004
tblVehicleEF	MH	0.60	0.66
tblVehicleEF	MH	0.12	0.14
tblVehicleEF	MH	0.24	0.26
tblVehicleEF	MH	0.25	0.33
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.54	0.70
tblVehicleEF	MHD	0.02	0.02

tblVehicleEF	MHD	9.9630e-003	0.02
tblVehicleEF	MHD	0.08	0.11
tblVehicleEF	MHD	0.45	0.58
tblVehicleEF	MHD	0.64	1.09
tblVehicleEF	MHD	5.65	8.00
tblVehicleEF	MHD	197.27	193.05
tblVehicleEF	MHD	1,217.94	1,227.27
tblVehicleEF	MHD	36.41	44.67
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	1.39	1.80
tblVehicleEF	MHD	2.60	4.01
tblVehicleEF	MHD	14.90	14.48
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.06	0.12
tblVehicleEF	MHD	8.5800e-004	1.7740e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.06	0.11
tblVehicleEF	MHD	7.8900e-004	1.6560e-003
tblVehicleEF	MHD	1.8990e-003	2.8560e-003
tblVehicleEF	MHD	0.05	0.08
tblVehicleEF	MHD	0.05	0.06
tblVehicleEF	MHD	7.2900e-004	1.0910e-003
tblVehicleEF	MHD	0.15	0.29
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	0.33	0.52
tblVehicleEF	MHD	1.8890e-003	1.8500e-003
tblVehicleEF	MHD	0.01	0.01

tblVehicleEF	MHD	4.6300e-004	5.8900e-004
tblVehicleEF	MHD	1.8990e-003	2.8560e-003
tblVehicleEF	MHD	0.05	0.08
tblVehicleEF	MHD	0.06	0.07
tblVehicleEF	MHD	7.2900e-004	1.0910e-003
tblVehicleEF	MHD	0.17	0.33
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	0.36	0.57
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.07	0.10
tblVehicleEF	MHD	0.32	0.41
tblVehicleEF	MHD	0.64	1.10
tblVehicleEF	MHD	5.25	7.57
tblVehicleEF	MHD	209.07	204.61
tblVehicleEF	MHD	1,217.94	1,227.27
tblVehicleEF	MHD	36.41	44.67
tblVehicleEF	MHD	0.02	0.02
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tblVehicleEF	MHD	2.47	3.81
tblVehicleEF	MHD	14.86	14.43
tblVehicleEF	MHD	8.9610e-003	0.01
tblVehicleEF	MHD	0.06	0.12
tblVehicleEF	MHD	8.5800e-004	1.7740e-003
tblVehicleEF	MHD	8.5740e-003	0.01
tblVehicleEF	MHD	0.06	0.11
tblVehicleEF	MHD	7.8900e-004	1.6560e-003

tblVehicleEF	MHD	4.4910e-003	6.8420e-003
tblVehicleEF	MHD	0.06	0.10
tblVehicleEF	MHD	0.05	0.06
tblVehicleEF	MHD	1.7070e-003	2.5950e-003
tblVehicleEF	MHD	0.15	0.29
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	0.31	0.49
tblVehicleEF	MHD	2.0010e-003	1.9590e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	4.5600e-004	5.8100e-004
tblVehicleEF	MHD	4.4910e-003	6.8420e-003
tblVehicleEF	MHD	0.06	0.10
tblVehicleEF	MHD	0.06	0.07
tblVehicleEF	MHD	1.7070e-003	2.5950e-003
tblVehicleEF	MHD	0.18	0.33
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	0.34	0.54
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	9.8240e-003	0.02
tblVehicleEF	MHD	0.08	0.12
tblVehicleEF	MHD	0.61	0.78
tblVehicleEF	MHD	0.63	1.09
tblVehicleEF	MHD	6.16	8.69
tblVehicleEF	MHD	181.19	177.33
tblVehicleEF	MHD	1,217.94	1,227.27
tblVehicleEF	MHD	36.41	44.67
tblVehicleEF	MHD	0.02	0.02

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tblVehicleEF	MHD	2.65	4.09
tblVehicleEF	MHD	14.95	14.54
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.06	0.12
tblVehicleEF	MHD	8.5800e-004	1.7740e-003
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.06	0.11
tblVehicleEF	MHD	7.8900e-004	1.6560e-003
tblVehicleEF	MHD	5.7400e-004	8.3900e-004
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tblVehicleEF	MHD	0.05	0.07
tblVehicleEF	MHD	2.8500e-004	4.1200e-004
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tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	0.35	0.56
tblVehicleEF	MHD	1.7370e-003	1.7010e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	4.7200e-004	6.0100e-004
tblVehicleEF	MHD	5.7400e-004	8.3900e-004
tblVehicleEF	MHD	0.05	0.09
tblVehicleEF	MHD	0.07	0.08
tblVehicleEF	MHD	2.8500e-004	4.1200e-004
tblVehicleEF	MHD	0.17	0.33
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	0.39	0.61
tblVehicleEF	OBUS	0.01	0.01

tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	0.31	0.31
tblVehicleEF	OBUS	0.98	1.30
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tblVehicleEF	OBUS	1,360.94	1,375.36
tblVehicleEF	OBUS	66.36	69.13
tblVehicleEF	OBUS	1.8190e-003	1.8100e-003
tblVehicleEF	OBUS	0.97	1.03
tblVehicleEF	OBUS	2.76	3.24
tblVehicleEF	OBUS	3.68	3.65
tblVehicleEF	OBUS	4.6100e-004	6.1900e-004
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	9.0200e-004	1.1150e-003
tblVehicleEF	OBUS	4.4100e-004	5.9200e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.2900e-004	1.0330e-003
tblVehicleEF	OBUS	3.1830e-003	3.5420e-003
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	9.2500e-004	1.0030e-003
tblVehicleEF	OBUS	0.11	0.13
tblVehicleEF	OBUS	0.05	0.06
tblVehicleEF	OBUS	0.47	0.56
tblVehicleEF	OBUS	1.4860e-003	1.3980e-003
tblVehicleEF	OBUS	0.01	0.01

tblVehicleEF	OBUS	7.9800e-004	8.4800e-004
tblVehicleEF	OBUS	3.1830e-003	3.5420e-003
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	9.2500e-004	1.0030e-003
tblVehicleEF	OBUS	0.13	0.16
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tblVehicleEF	OBUS	0.51	0.61
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.04	0.04
tblVehicleEF	OBUS	0.28	0.29
tblVehicleEF	OBUS	1.00	1.33
tblVehicleEF	OBUS	6.96	8.14
tblVehicleEF	OBUS	162.69	152.89
tblVehicleEF	OBUS	1,360.94	1,375.36
tblVehicleEF	OBUS	66.36	69.13
tblVehicleEF	OBUS	1.8190e-003	1.8100e-003
tblVehicleEF	OBUS	1.00	1.06
tblVehicleEF	OBUS	2.61	3.06
tblVehicleEF	OBUS	3.61	3.57
tblVehicleEF	OBUS	3.8900e-004	5.2200e-004
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tblVehicleEF	OBUS	9.0200e-004	1.1150e-003
tblVehicleEF	OBUS	3.7200e-004	4.9900e-004
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tblVehicleEF	OBUS	8.2900e-004	1.0330e-003

tblVehicleEF	OBUS	7.3440e-003	8.2550e-003
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tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	2.0240e-003	2.2410e-003
tblVehicleEF	OBUS	0.11	0.13
tblVehicleEF	OBUS	0.05	0.06
tblVehicleEF	OBUS	0.44	0.52
tblVehicleEF	OBUS	1.5640e-003	1.4710e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.8600e-004	8.3500e-004
tblVehicleEF	OBUS	7.3440e-003	8.2550e-003
tblVehicleEF	OBUS	0.03	0.04
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	2.0240e-003	2.2410e-003
tblVehicleEF	OBUS	0.13	0.16
tblVehicleEF	OBUS	0.05	0.06
tblVehicleEF	OBUS	0.48	0.57
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tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	0.34	0.35
tblVehicleEF	OBUS	0.95	1.27
tblVehicleEF	OBUS	8.51	9.88
tblVehicleEF	OBUS	143.14	134.69
tblVehicleEF	OBUS	1,360.94	1,375.36
tblVehicleEF	OBUS	66.36	69.13
tblVehicleEF	OBUS	1.8190e-003	1.8100e-003

tblVehicleEF	OBUS	0.93	0.99
tblVehicleEF	OBUS	2.82	3.31
tblVehicleEF	OBUS	3.77	3.75
tblVehicleEF	OBUS	5.6100e-004	7.5400e-004
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	9.0200e-004	1.1150e-003
tblVehicleEF	OBUS	5.3700e-004	7.2100e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.2900e-004	1.0330e-003
tblVehicleEF	OBUS	1.0620e-003	1.1530e-003
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	4.7600e-004	5.0300e-004
tblVehicleEF	OBUS	0.11	0.13
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	0.50	0.60
tblVehicleEF	OBUS	1.3770e-003	1.2970e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.1300e-004	8.6500e-004
tblVehicleEF	OBUS	1.0620e-003	1.1530e-003
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	4.7600e-004	5.0300e-004
tblVehicleEF	OBUS	0.13	0.16
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	0.55	0.65
tblVehicleEF	SBUS	0.85	0.85

tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.08	0.11
tblVehicleEF	SBUS	4.59	4.69
tblVehicleEF	SBUS	0.76	1.22
tblVehicleEF	SBUS	4.76	6.10
tblVehicleEF	SBUS	1,332.31	1,334.04
tblVehicleEF	SBUS	1,180.54	1,185.76
tblVehicleEF	SBUS	28.82	29.38
tblVehicleEF	SBUS	1.1550e-003	1.2110e-003
tblVehicleEF	SBUS	14.15	15.26
tblVehicleEF	SBUS	5.88	6.66
tblVehicleEF	SBUS	16.47	16.50
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	4.5200e-004	7.1800e-004
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	2.8130e-003	2.8110e-003
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	4.1500e-004	6.6000e-004
tblVehicleEF	SBUS	4.7030e-003	7.4620e-003
tblVehicleEF	SBUS	0.03	0.05
tblVehicleEF	SBUS	0.55	0.56
tblVehicleEF	SBUS	1.2760e-003	1.8120e-003
tblVehicleEF	SBUS	0.13	0.15
tblVehicleEF	SBUS	0.02	0.04
tblVehicleEF	SBUS	0.25	0.34

tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	3.7100e-004	4.0000e-004
tblVehicleEF	SBUS	4.7030e-003	7.4620e-003
tblVehicleEF	SBUS	0.03	0.05
tblVehicleEF	SBUS	0.77	0.79
tblVehicleEF	SBUS	1.2760e-003	1.8120e-003
tblVehicleEF	SBUS	0.15	0.19
tblVehicleEF	SBUS	0.02	0.04
tblVehicleEF	SBUS	0.28	0.37
tblVehicleEF	SBUS	0.85	0.85
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.07	0.09
tblVehicleEF	SBUS	4.41	4.50
tblVehicleEF	SBUS	0.77	1.25
tblVehicleEF	SBUS	3.20	4.10
tblVehicleEF	SBUS	1,403.02	1,404.69
tblVehicleEF	SBUS	1,180.54	1,185.76
tblVehicleEF	SBUS	28.82	29.38
tblVehicleEF	SBUS	1.1550e-003	1.2110e-003
tblVehicleEF	SBUS	14.60	15.75
tblVehicleEF	SBUS	5.57	6.30
tblVehicleEF	SBUS	16.45	16.47
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	4.5200e-004	7.1800e-004

tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	2.8130e-003	2.8110e-003
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	4.1500e-004	6.6000e-004
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.03	0.05
tblVehicleEF	SBUS	0.54	0.56
tblVehicleEF	SBUS	2.7660e-003	4.0750e-003
tblVehicleEF	SBUS	0.13	0.16
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	0.20	0.27
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	3.4500e-004	3.6600e-004
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.03	0.05
tblVehicleEF	SBUS	0.77	0.79
tblVehicleEF	SBUS	2.7660e-003	4.0750e-003
tblVehicleEF	SBUS	0.15	0.19
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	0.22	0.30
tblVehicleEF	SBUS	0.85	0.85
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.10	0.13
tblVehicleEF	SBUS	4.83	4.96
tblVehicleEF	SBUS	0.74	1.19
tblVehicleEF	SBUS	6.45	8.26

tblVehicleEF	SBUS	1,234.66	1,236.48
tblVehicleEF	SBUS	1,180.54	1,185.76
tblVehicleEF	SBUS	28.82	29.38
tblVehicleEF	SBUS	1.1550e-003	1.2110e-003
tblVehicleEF	SBUS	13.52	14.58
tblVehicleEF	SBUS	6.00	6.80
tblVehicleEF	SBUS	16.50	16.54
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	4.5200e-004	7.1800e-004
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	2.8130e-003	2.8110e-003
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	4.1500e-004	6.6000e-004
tblVehicleEF	SBUS	1.5580e-003	2.3350e-003
tblVehicleEF	SBUS	0.03	0.05
tblVehicleEF	SBUS	0.55	0.57
tblVehicleEF	SBUS	6.7100e-004	9.2900e-004
tblVehicleEF	SBUS	0.13	0.15
tblVehicleEF	SBUS	0.02	0.04
tblVehicleEF	SBUS	0.30	0.40
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	3.9900e-004	4.3600e-004
tblVehicleEF	SBUS	1.5580e-003	2.3350e-003
tblVehicleEF	SBUS	0.03	0.05

tblVehicleEF	SBUS	0.78	0.80
tblVehicleEF	SBUS	6.7100e-004	9.2900e-004
tblVehicleEF	SBUS	0.15	0.19
tblVehicleEF	SBUS	0.02	0.04
tblVehicleEF	SBUS	0.33	0.44
tblVehicleEF	UBUS	1.78	1.96
tblVehicleEF	UBUS	0.11	0.12
tblVehicleEF	UBUS	10.51	11.68
tblVehicleEF	UBUS	22.17	24.72
tblVehicleEF	UBUS	1,910.74	1,934.28
tblVehicleEF	UBUS	143.24	142.44
tblVehicleEF	UBUS	1.3710e-003	1.4830e-003
tblVehicleEF	UBUS	5.97	6.92
tblVehicleEF	UBUS	14.15	14.55
tblVehicleEF	UBUS	0.51	0.52
tblVehicleEF	UBUS	0.07	0.08
tblVehicleEF	UBUS	1.2980e-003	1.2850e-003
tblVehicleEF	UBUS	0.22	0.22
tblVehicleEF	UBUS	0.06	0.08
tblVehicleEF	UBUS	1.1940e-003	1.1820e-003
tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	0.16	0.18
tblVehicleEF	UBUS	4.5290e-003	4.7430e-003
tblVehicleEF	UBUS	0.68	0.80
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	1.48	1.60
tblVehicleEF	UBUS	0.01	0.01

tblVehicleEF	UBUS	1.8270e-003	1.8630e-003
tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	0.16	0.18
tblVehicleEF	UBUS	4.5290e-003	4.7430e-003
tblVehicleEF	UBUS	2.53	2.83
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	1.62	1.75
tblVehicleEF	UBUS	1.78	1.96
tblVehicleEF	UBUS	0.10	0.11
tblVehicleEF	UBUS	10.66	11.86
tblVehicleEF	UBUS	18.04	20.11
tblVehicleEF	UBUS	1,910.74	1,934.28
tblVehicleEF	UBUS	143.24	142.44
tblVehicleEF	UBUS	1.3710e-003	1.4830e-003
tblVehicleEF	UBUS	5.58	6.47
tblVehicleEF	UBUS	13.97	14.36
tblVehicleEF	UBUS	0.51	0.52
tblVehicleEF	UBUS	0.07	0.08
tblVehicleEF	UBUS	1.2980e-003	1.2850e-003
tblVehicleEF	UBUS	0.22	0.22
tblVehicleEF	UBUS	0.06	0.08
tblVehicleEF	UBUS	1.1940e-003	1.1820e-003
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	0.21	0.23
tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	0.70	0.81
tblVehicleEF	UBUS	0.03	0.03

tblVehicleEF	UBUS	1.31	1.42
tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	1.7560e-003	1.7840e-003
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	0.21	0.23
tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	2.55	2.86
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	1.43	1.55
tblVehicleEF	UBUS	1.77	1.95
tblVehicleEF	UBUS	0.12	0.13
tblVehicleEF	UBUS	10.36	11.50
tblVehicleEF	UBUS	27.02	30.12
tblVehicleEF	UBUS	1,910.74	1,934.28
tblVehicleEF	UBUS	143.24	142.44
tblVehicleEF	UBUS	1.3710e-003	1.4830e-003
tblVehicleEF	UBUS	6.15	7.13
tblVehicleEF	UBUS	14.35	14.77
tblVehicleEF	UBUS	0.51	0.52
tblVehicleEF	UBUS	0.07	0.08
tblVehicleEF	UBUS	1.2980e-003	1.2850e-003
tblVehicleEF	UBUS	0.22	0.22
tblVehicleEF	UBUS	0.06	0.08
tblVehicleEF	UBUS	1.1940e-003	1.1820e-003
tblVehicleEF	UBUS	4.6910e-003	4.9380e-003
tblVehicleEF	UBUS	0.18	0.19
tblVehicleEF	UBUS	2.2060e-003	2.2530e-003

tblVehicleEF	UBUS	0.67	0.78
tblVehicleEF	UBUS	0.04	0.04
tblVehicleEF	UBUS	1.67	1.80
tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	1.9090e-003	1.9540e-003
tblVehicleEF	UBUS	4.6910e-003	4.9380e-003
tblVehicleEF	UBUS	0.18	0.19
tblVehicleEF	UBUS	2.2060e-003	2.2530e-003
tblVehicleEF	UBUS	2.51	2.81
tblVehicleEF	UBUS	0.04	0.04
tblVehicleEF	UBUS	1.83	1.97

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.6304	7.1926	4.1778	9.5200e-003	0.7536	0.2855	1.0392	0.1518	0.2627	0.4145						877.7164
2019	0.1840	1.9689	1.3318	3.0200e-003	0.5460	0.0805	0.6265	0.0629	0.0741	0.1370						273.5409
Maximum	**0.6304**	**7.1926**	**4.1778**	**9.5200e-003**	**0.7536**	**0.2855**	**1.0392**	**0.1518**	**0.2627**	**0.4145**						**877.7164**

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					
2018	0.2434	4.2828	4.8049	9.5200e-003	0.3632	0.1649	0.5281	0.0772	0.1648	0.2420						877.7155
2019	0.0794	1.3969	1.7147	3.0200e-003	0.2290	0.0593	0.2883	0.0286	0.0593	0.0879						273.5406
Maximum	**0.2434**	**4.2828**	**4.8049**	**9.5200e-003**	**0.3632**	**0.1649**	**0.5281**	**0.0772**	**0.1648**	**0.2420**						**877.7155**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**60.37**	**38.01**	**-18.33**	**0.00**	**54.44**	**38.76**	**50.99**	**50.71**	**33.48**	**40.18**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
5	12-21-2017	3-20-2018	1.4125	0.8773
6	3-21-2018	6-20-2018	2.0649	1.1751
7	6-21-2018	9-20-2018	2.0648	1.1750
8	9-21-2018	12-20-2018	2.0433	1.1631
9	12-21-2018	3-20-2019	1.8399	1.1485
10	3-21-2019	6-20-2019	0.0403	0.0255
		Highest	2.0649	1.1751

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Offroad	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Waste						0.0000	0.0000		0.0000	0.0000						0.0000
Water						0.0000	0.0000		0.0000	0.0000						0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**						**2.0000e-005**

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		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
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Offroad	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Waste						0.0000	0.0000		0.0000	0.0000						0.0000
Water						0.0000	0.0000		0.0000	0.0000						0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**						**2.0000e-005**

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

2.3 Vegetation

Vegetation

	CO2e
Category	MT
Vegetation Land Change	-992.0000
Total	**-992.0000**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2018	2/23/2018	5	40	Basin-Site Prep
2	Grading	Grading	2/24/2018	3/22/2019	5	280	Basin-Grading
3	Excavation	Trenching	3/23/2019	8/2/2019	5	95	Basin-Excavation
4	Well Drilling	Building Construction	8/22/2019	9/18/2019	5	20	Basin-Well Drilling
5	Infrastructure	Building Construction	9/19/2019	11/27/2019	5	50	Basin-Infrastructure

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 980

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

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Other Construction Equipment	1	8.00	750	0.34
Site Preparation	Other Construction Equipment	1	8.00	175	0.42
Site Preparation	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Excavators	0	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Off-Highway Trucks	2	8.00	402	0.38
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Excavation	Excavators	1	8.00	158	0.38
Well Drilling	Bore/Drill Rigs	1	12.00	221	0.50
Well Drilling	Cranes	0	7.00	231	0.29
Well Drilling	Forklifts	0	8.00	89	0.20
Well Drilling	Generator Sets	0	8.00	84	0.74
Well Drilling	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Well Drilling	Welders	0	8.00	46	0.45
Infrastructure	Cranes	0	7.00	231	0.29
Infrastructure	Forklifts	0	8.00	89	0.20
Infrastructure	Generator Sets	0	8.00	84	0.74
Infrastructure	Off-Highway Trucks	1	8.00	402	0.38
Infrastructure	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Infrastructure	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	5	13.00	0.00	2,160.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Excavation	1	3.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Well Drilling	2	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Infrastructure	2	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2018

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					0.1204	0.0000	0.1204	0.0662	0.0000	0.0662						0.0000
Off-Road	0.0453	0.4797	0.2656	4.2000e-004		0.0262	0.0262		0.0241	0.0241						38.7331
Total	**0.0453**	**0.4797**	**0.2656**	**4.2000e-004**	**0.1204**	**0.0262**	**0.1466**	**0.0662**	**0.0241**	**0.0903**						**38.7331**

3.2 Site Preparation - 2018

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	0.0100	0.3418	0.0557	8.8000e-004	0.0184	1.4600e-003	0.0199	5.0600e-003	1.3900e-003	6.4600e-003						83.8927
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.1200e-003	1.6100e-003	0.0158	3.0000e-005	3.2200e-003	2.0000e-005	3.2400e-003	8.6000e-004	2.0000e-005	8.8000e-004						2.9132
Total	**0.0121**	**0.3434**	**0.0715**	**9.1000e-004**	**0.0216**	**1.4800e-003**	**0.0231**	**5.9200e-003**	**1.4100e-003**	**7.3400e-003**						**86.8060**

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					0.0470	0.0000	0.0470	0.0258	0.0000	0.0258						0.0000
Off-Road	0.0103	0.2104	0.2517	4.2000e-004		0.0102	0.0102		0.0102	0.0102						38.7331
Total	**0.0103**	**0.2104**	**0.2517**	**4.2000e-004**	**0.0470**	**0.0102**	**0.0572**	**0.0258**	**0.0102**	**0.0360**						**38.7331**

3.2 Site Preparation - 2018

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	0.0100	0.3418	0.0557	8.8000e-004	0.0184	1.4600e-003	0.0199	5.0600e-003	1.3900e-003	6.4600e-003						83.8927
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.1200e-003	1.6100e-003	0.0158	3.0000e-005	3.2200e-003	2.0000e-005	3.2400e-003	8.6000e-004	2.0000e-005	8.8000e-004						2.9132
Total	**0.0121**	**0.3434**	**0.0715**	**9.1000e-004**	**0.0216**	**1.4800e-003**	**0.0231**	**5.9200e-003**	**1.4100e-003**	**7.3400e-003**						**86.8060**

3.3 Grading - 2018

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					0.5197	0.0000	0.5197	0.0561	0.0000	0.0561						0.0000
Off-Road	0.5406	6.3449	3.5984	7.6900e-003		0.2575	0.2575		0.2369	0.2369						707.6048
Total	**0.5406**	**6.3449**	**3.5984**	**7.6900e-003**	**0.5197**	**0.2575**	**0.7772**	**0.0561**	**0.2369**	**0.2930**						**707.6048**

3.3 Grading - 2018

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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0324	0.0246	0.2423	4.9000e-004	0.0919	3.6000e-004	0.0923	0.0236	3.4000e-004	0.0239						44.5726
Total	**0.0324**	**0.0246**	**0.2423**	**4.9000e-004**	**0.0919**	**3.6000e-004**	**0.0923**	**0.0236**	**3.4000e-004**	**0.0239**						**44.5726**

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					0.2027	0.0000	0.2027	0.0219	0.0000	0.0219						0.0000
Off-Road	0.1886	3.7043	4.2394	7.6900e-003		0.1528	0.1528		0.1528	0.1528						707.6040
Total	**0.1886**	**3.7043**	**4.2394**	**7.6900e-003**	**0.2027**	**0.1528**	**0.3555**	**0.0219**	**0.1528**	**0.1747**						**707.6040**

3.3 Grading - 2018

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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0324	0.0246	0.2423	4.9000e-004	0.0919	3.6000e-004	0.0923	0.0236	3.4000e-004	0.0239						44.5726
Total	**0.0324**	**0.0246**	**0.2423**	**4.9000e-004**	**0.0919**	**3.6000e-004**	**0.0923**	**0.0236**	**3.4000e-004**	**0.0239**						**44.5726**

3.3 Grading - 2019

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					0.5197	0.0000	0.5197	0.0561	0.0000	0.0561						0.0000
Off-Road	0.1328	1.5181	0.9015	2.0500e-003		0.0607	0.0607		0.0559	0.0559						185.7891
Total	**0.1328**	**1.5181**	**0.9015**	**2.0500e-003**	**0.5197**	**0.0607**	**0.5804**	**0.0561**	**0.0559**	**0.1120**						**185.7891**

3.3 Grading - 2019

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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	7.7000e-003	5.6800e-003	0.0562	1.3000e-004	0.0245	9.0000e-005	0.0246	6.2900e-003	9.0000e-005	6.3800e-003						11.5496
Total	**7.7000e-003**	**5.6800e-003**	**0.0562**	**1.3000e-004**	**0.0245**	**9.0000e-005**	**0.0246**	**6.2900e-003**	**9.0000e-005**	**6.3800e-003**						**11.5496**

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					0.2027	0.0000	0.2027	0.0219	0.0000	0.0219						0.0000
Off-Road	0.0503	0.9889	1.1318	2.0500e-003		0.0408	0.0408		0.0408	0.0408						185.7888
Total	**0.0503**	**0.9889**	**1.1318**	**2.0500e-003**	**0.2027**	**0.0408**	**0.2435**	**0.0219**	**0.0408**	**0.0627**						**185.7888**

3.3 Grading - 2019

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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	7.7000e-003	5.6800e-003	0.0562	1.3000e-004	0.0245	9.0000e-005	0.0246	6.2900e-003	9.0000e-005	6.3800e-003						11.5496
Total	**7.7000e-003**	**5.6800e-003**	**0.0562**	**1.3000e-004**	**0.0245**	**9.0000e-005**	**0.0246**	**6.2900e-003**	**9.0000e-005**	**6.3800e-003**						**11.5496**

3.4 Excavation - 2019

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	0.0124	0.1274	0.1550	2.5000e-004		6.1400e-003	6.1400e-003		5.6500e-003	5.6500e-003						22.1993
Total	**0.0124**	**0.1274**	**0.1550**	**2.5000e-004**		**6.1400e-003**	**6.1400e-003**		**5.6500e-003**	**5.6500e-003**						**22.1993**

3.4 Excavation - 2019

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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.0300e-003	7.6000e-004	7.5400e-003	2.0000e-005	1.7600e-003	1.0000e-005	1.7800e-003	4.7000e-004	1.0000e-005	4.8000e-004						1.5497
Total	**1.0300e-003**	**7.6000e-004**	**7.5400e-003**	**2.0000e-005**	**1.7600e-003**	**1.0000e-005**	**1.7800e-003**	**4.7000e-004**	**1.0000e-005**	**4.8000e-004**						**1.5497**

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	6.0400e-003	0.1167	0.1861	2.5000e-004		5.6300e-003	5.6300e-003		5.6300e-003	5.6300e-003						22.1992
Total	**6.0400e-003**	**0.1167**	**0.1861**	**2.5000e-004**		**5.6300e-003**	**5.6300e-003**		**5.6300e-003**	**5.6300e-003**						**22.1992**

3.4 Excavation - 2019

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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.0300e-003	7.6000e-004	7.5400e-003	2.0000e-005	1.7600e-003	1.0000e-005	1.7800e-003	4.7000e-004	1.0000e-005	4.8000e-004						1.5497
Total	**1.0300e-003**	**7.6000e-004**	**7.5400e-003**	**2.0000e-005**	**1.7600e-003**	**1.0000e-005**	**1.7800e-003**	**4.7000e-004**	**1.0000e-005**	**4.8000e-004**						**1.5497**

3.5 Well Drilling - 2019

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	6.5200e-003	0.0788	0.0540	1.7000e-004		3.1300e-003	3.1300e-003		2.8800e-003	2.8800e-003						15.5298
Total	**6.5200e-003**	**0.0788**	**0.0540**	**1.7000e-004**		**3.1300e-003**	**3.1300e-003**		**2.8800e-003**	**2.8800e-003**						**15.5298**

3.5 Well Drilling - 2019

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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**						**0.0000**

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	4.2700e-003	0.0852	0.0994	1.7000e-004		3.7900e-003	3.7900e-003		3.7900e-003	3.7900e-003						15.5298
Total	**4.2700e-003**	**0.0852**	**0.0994**	**1.7000e-004**		**3.7900e-003**	**3.7900e-003**		**3.7900e-003**	**3.7900e-003**						**15.5298**

3.5 Well Drilling - 2019

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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**						**0.0000**

3.6 Infrastructure - 2019

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	0.0236	0.2382	0.1575	4.1000e-004		0.0104	0.0104		9.6000e-003	9.6000e-003						36.9236
Total	**0.0236**	**0.2382**	**0.1575**	**4.1000e-004**		**0.0104**	**0.0104**		**9.6000e-003**	**9.6000e-003**						**36.9236**

3.6 Infrastructure - 2019

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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**						**0.0000**

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	9.9800e-003	0.1996	0.2337	4.1000e-004		8.9700e-003	8.9700e-003		8.9700e-003	8.9700e-003						36.9235
Total	**9.9800e-003**	**0.1996**	**0.2337**	**4.1000e-004**		**8.9700e-003**	**8.9700e-003**		**8.9700e-003**	**8.9700e-003**						**36.9235**

3.6 Infrastructure - 2019

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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**						**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.506900	0.034567	0.171206	0.149208	0.024362	0.005798	0.021031	0.077362	0.001819	0.001371	0.004402	0.001155	0.000818

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

5.2 Energy by Land Use - NaturalGas

Mitigated

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

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0				0.0000
Total					**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0				0.0000
Total					**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

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

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	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000						2.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						**2.0000e-005**

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	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000						2.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						**2.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0				0.0000
Total					**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0				0.0000
Total					**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

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
Total					**0.0000**

Mitigated

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

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Surfacing Equipment	0	8.00	260	263	0.30	Diesel

UnMitigated/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
Equipment Type	tons/yr										MT/yr					
Surfacing Equipment	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						**0.0000**

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

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated				-992.0000

11.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Cropland	160 / 0				-992.0000
Total					**-992.0000**

Pixley GW Bank - In Lieu Banking Area Construction

Tulare 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	1.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	51
Climate Zone	7			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	546.6	**CH4 Intensity (lb/MWhr)**	0.025	**N2O Intensity (lb/MWhr)**	0.005

1.3 User Entered Comments & Non-Default Data