

Lancaster Waste to Renewable Hydrogen (WTRH2) Project
AIR QUALITY AND GHG TECHNICAL REPORT

Prepared for:

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1. Introduction

This technical report has been prepared to document the preliminary findings of air quality and greenhouse gas (GHG) emissions evaluations conducted for the Lancaster Waste to Renewable Hydrogen (WTRH2) Project (proposed project), a gasification facility that would produce hydrogen (H₂) from paper feedstock in Lancaster, California.

The Air Quality and GHG Technical Report provides background information on air quality conditions, describes the proposed project, the physical and regulatory setting of the project, and addresses the likely extent of air quality and GHG impacts resulting from implementation of the project.

2. Understanding of the Project

Project Location

The proposed project site is located in the Antelope Valley in the southern portion of the City of Lancaster, just north of the City of Palmdale and is approximately 2 miles east of California State Route (CA-) 138/CA-14. The project would be constructed on an approximately 15-acre property located north of Avenue M between 5th and 6th Street East. The project site is located on three parcels (Assessor's Parcel Numbers [APNs] 3126-017-028, 3126-017-040, and 3126-017-039) and is bounded by East Avenue L-12 to the north, 6th Street East to the east, East Avenue M to the south, and 5th Street East to the west.

Project Description

The proposed project would consist of the construction and operation of a facility that would produce hydrogen (H₂) from paper feedstock. (Feedstock is defined as a raw material to supply or fuel a machine or industrial process.) The feedstock would be gasified (i.e., converted from a solid into a gas) to produce a H₂-rich gas that would be further processed to reach 99.99 percent pure renewable H₂ for retail sale. The H₂ gas and produced carbon dioxide (CO₂) would be transported off-site by truck in pressurized containers.

Construction Equipment Fleet and Schedule

Construction activity would occur within approximately 16 months and would include the following:

- Site preparation, grading, and paving;
- Installation of foundations and structural components for process equipment;
- Construction of administrative/control and warehouse building; and
- Underground trenching for utilities, including electrical, process and potable water piping, and sewer piping.

The construction workforce would include up to 281 staff onsite during construction.

Operational Activities

The proposed project would receive unrecyclable mixed waste-paper feedstock and produce H₂ through a gasification process. During purification of the produced H₂, the facility would generate waste heat that

would be recovered to generate electricity for onsite use and CO₂ that would be recovered in a liquefaction unit. The process equipment is described in further detail below.

Transportation would require up to 90 truck trips daily to deliver feed to the facility, export the products of H₂ and CO₂, and dispose of slag and brine waste. Additionally, the project would require approximately 43 individuals for long-term operation who would commute to the site daily. The project would generate an increase in vehicle miles traveled (VMT) and motor vehicle emissions as a mix heavy-duty and medium-duty trucks would be used for deliveries and disposal, and employee commute trips would be primarily in light-duty vehicles.

Up to 10,000 pounds of H₂ would be stored onsite at any given time (4,000 pounds in on-site permanent/stationary storage tanks and 6,000 pounds in filled/filling H₂ transport modules/trucks); this amount of H₂ storage is below the threshold quantity for H₂ of 10,000 pounds for applicability in the US Environmental Protection Agency's (USEPA) Risk Management Program (RMP) under Section 112(r) of the 1990 Clean Air Act amendments and the California Accidental Release Prevention (CalARP) program. Accordingly, the facility would not require a risk management plan or hazard assessment of the potential effects of an accidental release of H₂.

Process Equipment and Stationary Sources of Emissions

The applicant proposes to install the following process equipment and potential stationary sources of emissions (from Data Request Response, 3.3):

- Solena Plasma Enhanced Gasification (SPEG) technology with three plasma torches of 600-kilowatt hour (kWh) capacity each to generate high-temperature plasma jets and convert feedstock to syngas (CO and H₂).
- Power Block and Boiler to be fired on a mix of pipeline natural gas and the off-gas from the pressure swing adsorption (PSA) or PSA tail gas with a total heat input capacity of up to 15 million Btu per hour (MMBtu/hr) with low-NOx burner (cite: SGH2 email, July 6, 2022).
- Cooling Tower Drift & Evaporation, based on 2,610 milligrams per liter of total dissolved solids in cooling water.
- Process fugitive emissions, from flanges, pump seals, and valve stems (to be determined during final engineering and design).
- Ground flare thermal oxidizer for controlling emergency releases.
- Emergency Diesel Generator Engine: rated at 500 kW.
- Emergency Diesel Fire Water Pump Engine: rated at 250 kW.

Additionally, the facility would consume electric power from the grid at a rate of up to 10 MW, with the potential to produce up to 2.3 MW for internal plant consumption; the onsite electricity would be produced with a waste heat steam boiler/generator and fuel cell (from Data Request Response, 3.1c).

3. Environmental Setting

The project site is located within the western portion of the Mojave Desert Air Basin (MDAB) and is under the local air quality jurisdiction of the Antelope Valley Air Quality Management District (AVAQMD). The air quality in the project area is highly influenced by the transport of air pollutants from the San Joaquin

Valley Air Basin to the west and the South Coast Air Basin to the south. The following provides a summary of the regional climate and meteorology, and representative recent local ambient air quality conditions.

Baseline Environmental Conditions

Meteorology. The project site is located in the high desert and has a climate that is characterized by warm, dry summers and cool winters with a small amount of seasonal precipitation that occurs primarily during the winter months. Summers typically have clear skies and dry, hot temperatures. Prevailing winds in the MDAB, and at the project site, are out of the west and southwest with high wind events occurring frequently. Annual average precipitation in Lancaster varies around a 30-year range of 6.0 to 7.7 inches (Cal-Adapt, 2022).

Criteria Air Pollutants. Air quality is determined by measuring ambient concentrations of certain criteria air pollutants. The criteria pollutants are ozone, respirable particulate matter (PM10), fine particulate matter (PM2.5), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and lead. Ozone is an example of a secondary pollutant that is not emitted directly from a source (e.g., an automobile tailpipe), but it is formed in the atmosphere by chemical and photochemical reactions. Reactive organic gases (ROG), including volatile organic compounds (VOC), are regulated as precursors to ozone formation.

The California Air Resources Board (ARB) and the U.S. Environmental Protection Agency (U.S. EPA) have independent authority to develop and establish health-protective ambient air quality standards. The California air quality standards are set at levels to adequately protect the health of the public, including infants and children, with an adequate margin of safety (California Health and Safety Code Section 39606), and in general, the CAAQS are more stringent than the corresponding health-protective NAAQS.

Monitored levels of the pollutants are compared to the current National and California Ambient Air Quality Standards (NAAQS and CAAQS) to determine degree of existing air quality degradation. The standards currently in effect in California are shown in Table 1.

Table 1. California and National Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards
Ozone	1-hour	0.09 ppm	—
	8-hour	0.070 ppm	0.070 ppm
Respirable Particulate Matter (PM10)	24-hour	50 µg/m ³	150 µg/m ³
	Annual Mean	20 µg/m ³	—
Fine Particulate Matter (PM2.5)	24-hour	—	35 µg/m ³
	Annual Mean	12 µg/m ³	12 µg/m ³
Carbon Monoxide (CO)	1-hour	20 ppm	35 ppm
	8-hour	9.0 ppm	9.0 ppm
Nitrogen Dioxide (NO ₂)	1-hour	0.18 ppm	0.100 ppm
	Annual Mean	0.030 ppm	0.053 ppm
Sulfur Dioxide (SO ₂)	1-hour	0.25 ppm	0.075 ppm
	24-hour	0.04 ppm	0.14 ppm
	Annual Mean	—	0.030 ppm

Notes: ppm=parts per million; µg/m³= micrograms per cubic meter; “—“ = no standard

Source: ARB (<https://ww2.arb.ca.gov/resources/documents/ambient-air-quality-standards>), May 2016.

Ambient Air Quality Attainment Status and Air Quality Plans. The U.S. EPA, ARB, and the local air district classify an area as attainment, unclassified, or nonattainment with regard to certain pollutants, and these designations dictate the air quality management planning activities needed to make future air pollutant

reductions. The classification depends on whether the monitored ambient air quality data show compliance, insufficient data available, or non-compliance with the ambient air quality standards, respectively.

Table 2 summarizes attainment status for criteria pollutants in comparison with both the state and federal standards, for the Antelope Valley portion of the Mojave Desert Air Basin.

Table 2. Attainment Status for Antelope Valley portion of the Mojave Desert Air Basin

Pollutant	California Designation	Federal Designation
Ozone	Nonattainment	Nonattainment
PM10	Nonattainment	Attainment
PM2.5	Attainment	Attainment
NO ₂	Attainment	Attainment
CO	Attainment	Attainment
SO ₂	Attainment	Attainment

Source: Antelope Valley AQMD Attainment Status, 2017.

Toxic Air Contaminants. Toxic air contaminants (TACs) are air pollutants that may lead to serious illness or increased mortality, or which may pose a present or potential hazard to human health (California Health and Safety Code Section 39655), even when present in relatively low concentrations.

Potential human health effects of TACs include birth defects, neurological damage, cancer, and death. There are hundreds of different types of TACs with varying degrees of toxicity. Individual TACs vary greatly in the health risk they present; at a given level of exposure, one TAC may pose a hazard that is many times greater than another's. TACs do not have ambient air quality standards but are regulated by the local air districts using a risk-based approach. Local air districts review new or modified stationary sources for potential TACs emissions when issuing permits and require controls for larger stationary sources of DPM, including standby diesel-fueled engines.

Valley Fever. Coccidioidomycosis, often referred to Valley Fever, is an infectious disease caused by a fungus that lives in the soil and dirt, commonly in hot dry areas with alkaline soil. This disease affects both humans and animals and is caused by inhalation of arthroconidia (spores) of the fungus *Coccidioides immitis* (CI). CI spores are found in the top few inches of soil and may be stirred up by wind, vehicles, excavation, or other ground-disturbing activities and become airborne.

Construction workers and others who work outdoor are at risk for Valley Fever, especially if they dig or disturb soil, operate heavy machinery, or work under windy conditions. By California law (under Assembly Bill 203 of 2019), construction employers who work in counties with high rates of Valley Fever must annually train employees on minimizing the risk of Valley Fever (CDPH, 2022). Steps that can be taken to limit workers' exposure to dust, such as watering down the soil before digging, reduce the risk of Valley Fever (CDPH, 2019). The Antelope Valley is a location where Valley Fever is highly endemic, meaning that the annual incidence rate of Valley Fever is greater than 20 cases per 100,000 persons per year (Cal. Labor Code section 6709).¹

¹ Based on 2014 to 2016 data from Los Angeles County, Public Health Department in the Acute Communicable Disease Control. (<http://publichealth.lacounty.gov/acd/Diseases/Cocci.htm>), and 2016 Annual Report (<http://publichealth.lacounty.gov/acd/Diseases/Cocci.pdf>).

Regulatory Background

Federal

Federal Clean Air Act (CAA). The Federal Clean Air Act was enacted in 1970, and the act established the NAAQS for criteria air pollutants. With SCAQMD and ARB, the U.S. EPA shares the responsibility to establish regulations, enforce air pollution control requirements, and develop the necessary air quality management to achieve the NAAQS. The U.S. EPA implements most aspects of the CAA, and reviews local and state air quality management plans and regulations to ensure attainment with the NAAQS.

State of California

California Clean Air Act. The California Clean Air Act is implemented by the ARB. This act established broad authority for California to regulate emissions from mobile sources and requires regions to develop and enforce strategies to attain CAAQS. Each regional air district is responsible for demonstrating how these standards are met.

U.S. EPA/ARB Off-Road Mobile Sources Emission Reduction Program. The California Clean Air Act mandates that ARB achieve the maximum degree of emission reductions from all off-road mobile sources in order to attain the state ambient air quality standards. Off-road mobile sources include construction equipment. The earliest (Tier 1) standards for large compression-ignition engines used in off-road mobile sources became effective in California in 1996. Since then, the Tier 3 standards for large compression-ignition engines used in off-road mobile sources went into effect in California for most engine classes in 2006, and Tier 4 or Tier 4 Interim (4i) standards apply to all off-road diesel engines model year 2012 or newer. These standards and standards applicable to fleets that are already in-use provide comprehensive regulation and control to reduce NO_x and toxic particulate matter emissions from diesel use throughout the State.

California ARB In-Use Off-Road Diesel Fueled Fleets Regulation. The regulations for in-use off-road diesel equipment are designed to reduce NO_x and toxic diesel particulate matter (DPM). Depending on the size of the fleet of equipment, the owner would need to ensure that the average emissions performance of the fleet meets certain state-wide standards. In lieu of improving the emissions performance of the fleet, electric systems can be installed to replace diesel equipment in the fleet average calculations. Presently, all equipment owners are subject to a five-minute idling restriction in the rule (13 California Code of Regulations, Chapter 10, Section 2449).

California ARB Portable Equipment Registration Program (PERP). This program allows owners or operators of portable engines and associated equipment commonly used for construction or farming to register their units under a statewide portable program. This program allows them to operate their equipment throughout California without having to obtain individual permits from local air districts.

California ARB Airborne Toxic Control Measures (ATCM). Diesel engines on portable equipment and vehicles are subject to various ATCM that dictate how diesel sources must be controlled statewide to protect public health. For example, the ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling generally limits idling of commercial motor vehicles (including buses and trucks) within 100 feet of a school or residential area for more than five consecutive minutes or periods aggregating more than five minutes in any one hour (13 California Code of Regulations, Chapter 10, Section 2485). Diesel engines used in portable equipment fleets are subject to stringent DPM emissions standards, generally requiring use of only newer engines or verified add-on particulate filters (17 CCR §93116).

California ARB ATCM for Emergency Standby Diesel-Fueled Engines. This Statewide regulation governs the use of and emissions performance standards for emergency standby diesel-fueled engines, including those of the project. As defined in regulation (17 CCR §93115.4(a)(29)), an emergency standby engine is, among other possible use, one that provides electrical power during an emergency use and is not the source of primary power at the facility and is not operated to supply power to the electric grid. The corresponding ATCM (17 CCR §93115.6) restricts each emergency standby engine to operate no more than 50 hours per year for maintenance and testing purposes. The ATCM establishes no limit on engine operation for emergency use or for emission testing to show compliance with the ATCM's standards.

AVAQMD Rules and Regulations

The AVAQMD has primary responsibility for regulating stationary sources of air pollution situated within its jurisdictional boundaries. By adopting rules and regulations consistent with the air quality management programs to achieve state and federal mandates, the AVAQMD protects air quality by directly overseeing the air pollution sources owned by businesses or individuals in its jurisdiction. The AVAQMD rules and regulations pertinent to the proposed project include

- **Regulation II, Permits and Regulation XIII, New Source Review.** The AVAQMD New Source Review (NSR) program requires any facility with stationary sources of emissions to obtain an Authority to Construct (ATC) prior to the building, erecting, installation, alteration or replacement of any source of emissions, which may act as a temporary Permit to Operate (PTO).
- **Rule 401, Visible Emissions.** This rule specifies that a person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than three minutes in any one hour which is: (A) As dark or darker in shade as that designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines; or (B) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subparagraph (b)(1)(A) of the rule.
- **Rule 402, Nuisance.** Rule 402 states that a person shall not discharge from any source whatsoever such quantities of contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or that endanger the comfort, repose, health, or safety of such persons or the public or that cause or have a natural tendency to cause injury or damage to business or property.
- **Rule 403, Fugitive Dust.** The purpose of this rule is to reduce the amount of Particulate Matter entrained in the ambient air as a result of man-made Fugitive Dust sources by requiring actions to prevent, reduce or mitigate Fugitive Dust emissions. The rule specifies requirements for active operation of construction, excavation, extraction and other earth-moving activities, demolition, and bulk storage or materials. Requires AVAQMD approval of a site-specific Dust Control Plan (DCP) prior to the start of any construction activity on any site that will include ten acres or more for residential developments, or five acres or more for non-residential development.
- **Rule 1146, Limits on NO_x for Boilers, Steam Generators, and Process Heaters.** This rule limits NO_x emissions (not to exceed 40 ppm) and CO emissions (not to exceed 400 ppm) and requires monitoring of the heat input derived from each fuel stream used in the boiler.
- **Rule 1302, NSR Procedure and Rule 1303, NSR Requirements.** Requires installation of the Best Available Control Technology (BACT) for any new or modified emissions unit with the potential to emit more than 25 lb/day of any nonattainment pollutant; and requires any facility to obtain offsets if the potential to emit exceeds: 15 tpy PM₁₀; 25 tpy NO_x, VOC, or SO_x.

- **Rule 1401, New Source Review for Toxic Air Contaminants.** This rule requires pre-construction review of all new or modified facilities that have the potential to emit hazardous air pollutants or TACs. Requires Best Available Control Technology for Toxics for any emission unit that could cause a “significant health risk,” which is an impact where maximum individual cancer risk (MICR) is greater than or equal to ten (10) in a million (or 1×10^{-5}) or a hazard index (HI) is greater than or equal to one (1), as determined by a Health Risk Assessment (HRA) Report.

Sensitive receptors are defined in AVAQMD Rule 1401 as: “Any location outside the boundaries of a Facility at which a person may be impacted by the emissions of that Facility. Receptors include, but are not limited to residential units, commercial workplaces, industrial workplaces and sensitive sites such as hospitals, nursing homes, residential care facilities, schools and day care centers.”

The proposed project must comply with all applicable AVAQMD rules during both the operational and construction phases of the project.

4. Air Quality Impact Assessment

Methodology

All construction- and operation-related emissions are quantified based on the best available forecast of activities. This analysis uses the California Emissions Estimator Model (CalEEMod; version 2020.4.0) software developed by the California Air Pollution Control Officers Association (CAPCOA). This is the most recent version of the CalEEMod software, and it relies upon mobile source emission factors from the ARB OFFROAD inventory and EMFAC2017 models. Where project-specific design features are not yet defined, default and typical settings from CalEEMod are used. Default emission factors used in this analysis appear in the CalEEMod User’s Guide Appendix D (May 2021).

Consistency with Applicable Air Quality Plan

Each of California’s local air districts is responsible for managing local air quality and administering the state and federal air quality control programs to ensure implementation of applicable air quality management plans. The AVAQMD has adopted a single attainment plan for ozone. The AVAQMD adopted its Federal Ozone Attainment Plan in May 2008. The attainment plan relies on the established rules and regulations and control measures for emission sources within the AVAQMD jurisdiction, including the New Source Review program with a 25 ton per year major source level for ozone precursors (AVAQMD, 2016).

The regional air quality management plan anticipates a baseline level of construction activity and some permanent population growth. The anticipated growth includes the addition of industry and employment growth. A project could be inconsistent with the applicable air quality management plan or attainment plan if it could cause population and/or employment growth or growth in vehicle-miles traveled in excess of the growth forecasts included in the attainment plan. The proposed project is expected to employ approximately 43 individuals for long-term operation and up to 281 staff onsite during construction; this level of population growth would not be substantial in light of the population growth in the AVAQMD jurisdiction.

All activities associated with proposed project would be subject to compliance with applicable air quality rules and regulations administered by AVAQMD to ensure progress towards achieving attainment. This means that all construction and operational activity would be required to comply with all applicable AVAQMD rules, including Rule 403 requirements for a Dust Control Plan, and air permitting requirements

for stationary source emissions controls. Because the project-related stationary sources would be subject to the AVAQMD permitting authority for avoiding substantial emissions increases of ozone precursors, the project would not conflict with or obstruct implementation of the applicable air quality plan.

Net Emissions Increases

This discussion addresses whether the proposed project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment. Within the western portion of the Mojave Desert Air Basin and jurisdiction of AVAQMD, emissions that exceed quantitative thresholds for ozone precursors, PM10, or PM2.5 could represent a cumulatively considerable net increase by contributing to existing violations of the ambient air quality standards for ozone or particulate matter. The thresholds are defined by AVAQMD in the “California Environmental Quality Act (CEQA) and Federal Conformity Guidelines” (AVAQMD, 2016).

Construction Emissions

Construction-phase emissions would be the result of project development activity on unpaved and paved surfaces, ground disturbance, and materials hauling, which cause fugitive dust (PM10 and PM2.5), and the necessary use of equipment and motor vehicles that cause tailpipe emissions through the use of motor gasoline or diesel fuel. Typical fugitive dust sources include earth-moving activities (e.g., site preparation, grading, and installing foundations). Installation of structural components and process equipment would require use of heavy-duty trucks for delivering and unloading materials, and a fleet of diesel-powered off-road equipment, such as cement mixers, loaders, lifts, and cranes. Tailpipe emissions result from the combustion of fuels by the off-road construction equipment and on-road vehicles.

Overall construction-phase emissions would span two calendar years. Table 3 shows the total quantities of criteria air pollutants that could be emitted over the full duration of construction, without consideration of additional controls.

Table 3. Overall Construction Emissions (tons)

Year of Construction	VOC	NOx	CO	SOx	PM10	PM2.5
Year 1 (2023)	1.02	7.25	9.57	0.02	2.19	1.04
Year 2 (2024)	0.57	3.77	5.90	0.01	0.83	0.32
Maximum (tons/year)	1.02	7.25	9.57	0.02	2.19	1.04
Significant Emissions Thresholds	25	25	100	25	15	12

Source: Attachment 1, Emissions Overview - Project Summary.

Project construction activities would need to be compliant with federal, state, and local air district rules and regulations. Table 3 shows that during construction, the emissions generated would not exceed the significance threshold levels for any air pollutants. At these levels, the construction emissions would not result in a cumulatively considerable new increase of any criteria air pollutants and would not be likely to violate any air quality standard.

Operational Emissions

The following types of operation-related emissions sources would occur:

- Mobile sources: vehicle trips generated by the operation of project including trucks to deliver feed to the facility, export the products of H₂ and CO₂, and dispose of slag and brine waste, and employee vehicles.

- Area and offroad sources: for activities such as landscaping and routine site maintenance.
- Stationary sources subject to air permitting requirements: power block and boiler, cooling tower, process fugitive leaks, a ground flare thermal oxidizer for emergency use, and the diesel-fueled standby emergency generator engine and fire water pump engine.

The proposed project would primarily emit criteria air pollutants through the operation-related transportation demand and the associated mobile source activity to deliver feed and distribute produced H₂ and CO₂. The motor vehicle emissions depend on the numbers of vehicle trips generated by the facility and the lengths of the trips. Biomass as a feedstock would be supplied from within Los Angeles County, such as Lancaster, Palmdale, and Burbank, and product would be delivered to H₂ refueling stations (HRS) located throughout California. This analysis assumes H₂ export trucks would travel approximately 90 miles (one-way) for each trip length to reach HRS outlets as far as Bakersfield or Torrance.

New stationary sources of emissions would be included in the proposed project that require preconstruction permits from the AVAQMD. The stationary sources are regulated through air permitting requirements in AVAQMD Regulations II and XIII for New Source Review (NSR), and the facility would be subject to the AVAQMD Rule 1401 NSR for air toxics. These evaluations and permits are typically issued after the CEQA process.

Table 4 shows the annual quantities of criteria air pollutants that could be emitted during routine operation of the proposed project. Emissions from the power block and boiler, cooling tower, and testing of the emergency standby engines are quantified in this analysis. Upon final design of the facility, additional emissions quantification would be necessary to account for process fugitive leaks and any non-emergency use of the proposed ground flare thermal oxidizer, although these emissions are likely be minor in comparison to those quantified here.

Table 4. Operation Emissions, Annual (tons per year)

Source Category	VOC	NOx	CO	SOx	PM10	PM2.5
Mobile	0.209	12.774	3.100	0.065	2.446	0.735
Area	0.001	0.000	0.006	0.000	0.000	0.000
Offroad	0.002	0.022	0.040	0.000	0.001	0.001
Stationary Sources, Combustion	0.266	0.573	4.103	0.025	0.316	0.316
Stationary Sources, Cooling Tower Drift	---	---	---	---	3.767	3.767
Total (tons/year)	0.477	13.369	7.249	0.089	6.529	4.818
Significant Emissions Thresholds	25	25	100	25	15	12

Source: Attachment 1, Emissions Overview - Project Summary.

Emissions from process equipment and motor vehicle trips would be below the thresholds for triggering any additional requirements control technologies or for obtaining offsets under AVAQMD Rule 1303 (NSR Requirements). Table 4 shows that the emissions from the proposed project would not exceed the significance threshold levels for any air pollutants. As a result, operation of the project would not result in a cumulatively considerable net increase of any criteria pollutant and would not be likely to violate any air quality standard.

Potential to Result in Substantial Pollutant Concentrations

Construction Impacts

Construction emissions would present a potential health risk due to emissions of diesel particulate matter (DPM), which is classified as a TAC because many toxic compounds adhere to diesel exhaust particles. There would be transportation emissions during construction, but those emissions are spread over a large area, rather than being concentrated at the project site. The on-site DPM emissions during construction would occur over a relatively short period of approximately 16 months in relation to potential life-time exposure periods. Because of the limited duration of construction, project-related TAC emissions would not result in substantial pollutant concentrations for nearby receptors.

Fugitive dust generated during construction could increase the risk of exposing nearby people, as well as workers at the project site, to Valley Fever. There is the potential that CI spores would be made airborne during excavation, grading, and earth-moving activities, exposing construction workers and nearby people to an elevated risk of contracting Valley Fever. Construction fugitive dust emissions would be controlled by an AVAQMD-approved site-specific Dust Control Plan; however, additional mitigation is recommended to reduce the potential health risks to the extent feasible.

Implementation of **Mitigation Measure MM AQ-1, Valley Fever Awareness and Prevention**, would provide personal protective respiratory equipment to construction workers and provide information to all construction personnel and visitors about Valley Fever and the risk of exposure to Valley Fever. Accordingly, impacts would be less than significant with mitigation.

MM AQ-1 Valley Fever Awareness and Prevention. Prior to ground disturbance activities, the project operator shall provide evidence to the Development Services Director that the project operator and/or construction manager has developed a “Valley Fever Training Handout”, training, and schedule of sessions for education to be provided to all construction personnel. All evidence of the training session materials, handout(s) and schedule shall be submitted to the Development Services Director within 24 hours of the first training session. Multiple training sessions may be conducted if different work crews will come to the site for different stages of construction; however, all construction personnel shall be provided training prior to beginning work. The evidence submitted to the Development Services Director regarding the “Valley Fever Training Handout” and Session(s) shall include the following:

- A sign-in sheet (to include the printed employee names, signature, and date) for all employees who attended the training session.
- Distribution of a written flier or brochure that includes educational information regarding the health effects of exposure to criteria pollutant emissions and Valley Fever.
- Training on methods that may help prevent Valley Fever infection.
- A demonstration to employees on how to use personal protective equipment, such as respiratory equipment (masks), to reduce exposure to pollutants and facilitate recognition of symptoms and earlier treatment of Valley Fever. Where respirators are required, the equipment shall be readily available and shall be provided to employees for use during work. Proof that the demonstration is included in the training shall be

submitted to the county. This proof can be via printed training materials/agenda, DVD, digital media files, or photographs.

The project operator also shall consult with the Los Angeles County Public Health to develop a Valley Fever Dust Management Plan that addresses the potential presence of the *Coccidioides* spore and mitigates for the potential for *Coccidioidomycosis* (Valley Fever). Prior to issuance of permits, the project operator shall submit the Plan to the Los Angeles County Public Health for review and comment. The Plan shall include a program to evaluate the potential for exposure to Valley Fever from construction activities and to identify appropriate safety procedures that shall be implemented, as needed, to minimize personnel and public exposure to potential *Coccidioides* spores. Measures in the Plan shall include the following:

- Provide HEP-filters for heavy equipment equipped with factory enclosed cabs capable of accepting the filters. Cause contractors utilizing applicable heavy equipment to furnish proof of worker training on proper use of applicable heavy equipment cabs, such as turning on air conditioning prior to using the equipment.
- Provide communication methods, such as two-way radios, for use in enclosed cabs.
- Require National Institute for Occupational Safety and Health (NIOSH)-approved half-face respirators equipped with minimum N-95 protection factor for use during worker collocation with surface disturbance activities, as required per the hazard assessment process.
- Cause employees to be medically evaluated, fit-tested, and properly trained on the use of the respirators, and implement a full respiratory protection program in accordance with the applicable Cal/OSHA Respiratory Protection Standard (8 CCR 5144).
- Provide separate, clean eating areas with hand-washing facilities.
- Install equipment inspection stations at each construction equipment access/egress point. Examine construction vehicles and equipment for excess soil material and clean, as necessary, before equipment is moved off-site.
- Train workers to recognize the symptoms of Valley Fever, and to promptly report suspected symptoms of work-related Valley Fever to a supervisor.
- Work with a medical professional to develop a protocol to medically evaluate employees who develop symptoms of Valley Fever.
- Work with a medical professional, in consultation with the Los Angeles County Public Health, to develop an educational handout for on-site workers and surrounding residents within three miles of the project site, and include the following information on Valley Fever: what are the potential sources/ causes, what are the common symptoms, what are the options or remedies available should someone be experiencing these symptoms, and where testing for exposure is available. Prior to construction permit issuance, this handout shall have been created by the project operator and reviewed by the project operator and reviewed by the Development Services Director. No less than 30 days prior to any work commencing, this handout

shall be mailed to all existing residences within a specified radius of the project boundaries as determined by the Development Services Director. The radius shall not exceed three miles and is dependent upon the location of the project site.

- When possible, position workers upwind or crosswind when digging a trench or performing other soil-disturbing tasks.
- Prohibit smoking at the worksite outside of designated smoking areas; designated smoking areas will be equipped with handwashing facilities.
- Post warnings on-site and consider limiting access to visitors, especially those without adequate training and respiratory protection.
- Audit and enforce compliance with relevant Cal OSHA health and safety standards on the job site.

Operational Impacts

Operation of the project includes stationary sources that would be new sources of TACs from fuel combustion by the boiler and diesel-fired emergency equipment. The boiler would burn a blend of pipeline natural gas and tail gas, which would be a residual gas from the PSA and CO₂ removal process that includes a blend of hydrogen, carbon dioxide, and carbon monoxide. Use of these gaseous fuels and diesel in the emergency equipment is subject to permitting through the New Source Review program for TACs (AVAQMD Rule 1401), which requires a health risk assessment (HRA) for any source that the AVAQMD determines to be of a high priority.

Also during operation, the heavy-duty truck travel created by the project would emit DPM. Statewide programs for heavy-duty vehicle fleets focus on managing this pollutant through motor vehicle fuels, engine, and tailpipe standards. The majority of truck travel emissions would occur along the routes of delivery and not in the vicinity of the project site. Land use compatibility study by ARB indicates that concentrations of mobile-source DPM emissions are typically reduced by 70 percent at a distance of approximately 500 feet (ARB, 2005). Accordingly, project-related TAC emissions from the anticipated stationary and mobile sources would not result in substantial pollutant concentrations for nearby receptors.

5. GHG Emissions Assessment

Project construction would cause GHG emissions during a 16-month period from the use of diesel fuel and gasoline to power construction vehicles and equipment. The different sources of GHG emissions include diesel-powered off-road equipment and the diesel and gasoline-powered construction vehicles including trucks and autos for moving crews, equipment, materials, and water. Equipment and motor vehicles would directly emit CO₂, CH₄, and N₂O due to fuel use and combustion. Motor vehicle fuel combustion emissions in terms of CO₂e are approximately 95 percent CO₂, with CH₄ and N₂O emissions occurring at rates of less than 1 percent of the mass of combustion CO₂ emissions.

Construction phase GHG emissions would be temporary and limited to the short-term duration of construction. The one-time quantity of GHG emitted during construction of the project would be a total of approximately 3,335 MTCO₂e, spanning two calendar years.

Project operation would create GHG through the transportation demand to deliver feed and distribute products and dispose of project wastes. Additionally, stationary sources would use fossil fuels in the routine operation of process equipment. Operation of the facility would also use up to 10 MW in electric power from the grid for routine operations while producing up to 2.3 MW for onsite use.

Table 5 shows the total GHG emissions related to the proposed project construction and operational activities. This total does not include the indirect and off-site effects of the new H₂ supplies that could displace the end-use of gasoline by motor vehicles, which are difficult to quantify but would provide a beneficial effect to overall GHG emissions in California. Proposed project GHG emissions would be well below the AVAQMD recommended annual GHG emissions significance threshold of 100,000 tons (AVAQMD, 2016), equivalent to 90,719 MTCO₂e per year, and would not have a significant impact on the environment.

Table 5. Construction and Operation GHG Emissions (MTCO₂e)

Year of Construction	One-Time During Construction (MTCO ₂ e)	Annual Proposed Project Operation (MTCO ₂ e/year)
Year 1 (2023)	2,027.60	---
Year 2 (2024)	1,307.25	---
Total, Duration of Construction	3,334.85	---
Operation and Maintenance		
Mobile	---	6,493.37
Area	---	0.01
Offroad	---	5.40
Stationary Sources, Combustion	---	4,462.36
Waste	---	407.46
Water	---	757.18
Total, Operation (MTCO₂e/year)	---	12,125.79
Significant Emissions Thresholds	---	90,719

Source: Attachment 1, Emissions Overview - Project Summary.

The State and City GHG emissions reduction plans that would be applicable to the proposed project are the ARB Climate Change Scoping Plan (ARB, 2017) and the City's Climate Action Plan. These plans are discussed in the following paragraphs.

The following major policies are listed as "known commitments" within the 2017 Climate Change Scoping Plan (ARB, 2017):

- **Renewables Portfolio Standard (RPS) and SB 350.** Reducing GHG emissions in the electricity sector through the implementation of the 50 percent RPS and doubling of energy savings (SB 350).
- **Low Carbon Fuel Standard.** Transition to less-polluting transportation fuels that have a lower carbon footprint.
- **Mobile Source Strategy.** Reduce GHG and other pollutants from the transportation sector through transition to zero-emission and low-emission vehicles, cleaner transit systems, and reduction of vehicle miles traveled.
- **California Sustainable Freight Action Plan.** Improve freight efficiency, transition to zero emission technologies, and increase competitiveness of California's freight system.
- **Cap-and-Trade Program.** Implement the post-2020 program to reduce GHG from large sources, such as transportation fuel suppliers, through declining caps to ensure the State's 2030 target is achieved.

The ARB's Draft 2022 Scoping Plan Update is presently under development to document ongoing progress towards statutory 2030 targets and to establish a path to achieving carbon neutrality no later than 2045 (ARB, 2022). The Draft 2022 Scoping Plan Update addresses the increasingly stringent 60 percent RPS goal by 2030, as set by SB 100; SB 100 also sets a target for California to achieve a GHG-free electricity supply for 100 percent of retail sales of electricity to California end-use customers by December 31, 2045. Although different scenarios and a range of actions remain under evaluation, some similarities include the following characteristics:

- Drastic reduction in fossil fuel dependence, with some remaining in-state demand for fossil fuels for aviation, marine, and locomotion applications, and for gas for buildings and industry.
- Ambitious deployment of efficient non-combustion technologies such as zero emission vehicles and heat pumps.
- Rapid growth in the production and distribution of clean energy such as zero carbon electricity and hydrogen.
- Progressive phasedown of fossil fuel production and distribution activities as part of the transition to clean energy.

Project activities related to both construction and operation would emit GHG mostly by using transportation fuels that are within the present-day management commitments identified in the 2017 Climate Change Scoping Plan. The majority of emissions would be from mobile sources, the off-road equipment and on-road motor vehicles, that are not directly subject to GHG controls but would be users of transportation fuels from refiners and suppliers that are required to comply with Cap-and-Trade Program and Low Carbon Fuel Standard regulations to reduce GHG emissions.

The project would add to California's supply low carbon transportation fuel by producing H₂ for distribution to motor vehicle refueling stations. The project would use a mixed waste-paper feedstock and consume electricity from the grid that is from 100 percent renewable resources, consistent with California's RPS, as set forth by SB 350 and SB 100. Accordingly, the GHG emissions associated with the

project construction and operation activities would not conflict with the California's GHG emissions reduction targets, as set forth within the ARB 2017 Climate Change Scoping Plan and carried forward in the Draft 2022 Scoping Plan Update.

The City Council adopted Resolution No. 17-14 (March 28, 2017), approving the City of Lancaster's Climate Action Plan (CAP) and certifying the associated Initial Study. By certifying the Initial Study for the CAP, the City has allowed the CEQA process for other development projects to be streamlined (City of Lancaster, 2017). As part of the CAP, the City developed a GHG emissions inventory which consisted of both community-wide emissions and emissions from government operations for future years based on demographic growth. The CAP also identified projects that would enhance the City's ability to further reduce GHG emissions. A total of 61 projects/measures across eight sectors were identified, which include: 1) traffic; 2) energy; 3) municipal operations; 4) water; 5) waste; 6) built environment; 7) community; and 8) land use. Forecasts for both community and government operations were prepared for 2020, 2030, 2040, and 2050. Under all scenarios assessed, the City meets the 2020 target and makes substantial progress towards achieving the post-2020 reductions (City of Lancaster, 2016).

The following two CAP Measures would be relevant to the project:

- Measure 4.2.1a, Renewable Energy Purchase Plan. Increase Lancaster Choice Energy's renewable energy and carbon free energy purchases.
- Measure 4.2.1f, Bio-Fuels. Install a biodiesel plant to convert used cooking oil into bio-fuel to power City fleet.

The project would commit to using only renewable and carbon-free electricity from Lancaster Choice Energy. As a result, the project would be supportive of the CAP by becoming a consumer of the renewable and carbon-free resources offered by City CAP Measure 4.2.1a, Renewable Energy Purchase Plan. By producing a new supply of H₂ for use as an alternative transportation fuel, the project would also be supportive of the CAP by providing an alternative fuel resource with benefits similar to those envisioned by City CAP Measure 4.2.1f, Bio-Fuels. The project would not have the potential to conflict with the ARB Scoping Plan or the City's CAP.

References

- ARB (Air Resources Board). 2022. Draft Scoping Plan Update. Dated: May 10, 2022. Accessed August 6, 2022. <https://ww2.arb.ca.gov/sites/default/files/2022-05/2022-draft-sp.pdf>.
- _____. 2017. California's 2017 Climate Change Scoping Plan. November. Accessed August 6, 2022. https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping_plan_2017.pdf.
- _____. 2016. Ambient Air Quality Standards. https://ww2.arb.ca.gov/sites/default/files/2020-03/aaqs2_0.pdf.
- _____. 2005. Air Quality and Land Use Handbook: A Community Health Perspective. April. <https://www.arb.ca.gov/ch/handbook.pdf>.
- AVAQMD (Antelope Valley Air Quality Management District). 2017. Attainment Status. <https://avaqmd.ca.gov/files/e0986ab83/AVAQMD+2017+Attainment+Status+Table.pdf>.
- _____. 2016. California Environmental Quality Act (CEQA) and Federal Conformity Guidelines. August. <https://avaqmd.ca.gov/files/818bd8682/AVCEQA2016+Updated+Contact+Info.pdf>.
- Cal-Adapt. 2022. Local Climate Change Snapshot, for Lancaster, California. Accessed July 28, 2022. <https://cal-adapt.org/tools/local-climate-change-snapshot>.
- CDPH (California Department of Public Health). 2022. Occupational Health Branch, Preventing Work-Related Valley Fever. Accessed August 5, 2022. <https://www.cdph.ca.gov/Programs/CCDC/DEODC/OHB/Pages/Cocci.aspx>.
- _____. 2020. Epidemiologic Summary of Valley Fever in California, 2019. September. Accessed August 5, 2022. <https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/CocciEpiSummary2019.pdf>.
- City of Lancaster. 2017. Staff Report, Adoption of the Climate Action Plan. https://lancaster.granicus.com/Viewer.php?view_id=&clip_id=1471&meta_id=81196.
- _____. 2016. Draft Climate Action Plan. June. <https://www.cityoflancasterca.org/home/showpublisheddocument/32356>.
- Los Angeles County, Public Health Department. 2018. Acute Communicable Disease Control, 2016 Annual Report. Accessed August 5, 2022. <http://publichealth.lacounty.gov/acd/Diseases/Cocci.pdf>.

Attachment 1

Emissions Overview - Project Summary

Emissions Overview - Project Summary

Lancaster Waste to Renewable Hydrogen (WTRH2) Project

Construction Overall (Maximum Daily Emissions, CalEEMod Output)

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Year	lb/day									
2023	11.02	81.14	96.06	0.23	27.99	3.33	31.32	12.55	3.12	15.67
2024	8.22	54.76	83.99	0.20	9.46	2.10	11.56	2.52	1.98	4.50
Maximum	11.02	81.14	96.06	0.23	27.99	3.33	31.32	12.55	3.12	15.67

Construction Overall (Annual Emissions, CalEEMod Output)

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	CO2e
Year	tons/yr										MT/yr
2023	1.02	7.25	9.57	0.02	1.90	0.30	2.19	0.76	0.28	1.04	2,027.60
2024	0.57	3.77	5.90	0.01	0.69	0.14	0.83	0.18	0.13	0.32	1,307.25
Maximum	1.02	7.25	9.57	0.02	1.90	0.30	2.19	0.76	0.28	1.04	
Construction GHG Emissions, CalEEMod Output											MT Overall
											3,334.85

Overall Operational (Annual Emissions, CalEEMod Output with Cooling Tower Drift)

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	CO2e
Category	tons/yr										MT/yr
Area	0.001	0.000	0.006	0.000		0.000	0.000		0.000	0.000	0.01
Energy	0.000	0.000	0.000	0.000		0.000	0.000		0.000	0.000	0.00
Mobile	0.209	12.774	3.100	0.065	2.353	0.093	2.446	0.646	0.089	0.735	6,493.37
Offroad	0.002	0.022	0.040	0.000		0.001	0.001		0.001	0.001	5.40
Stationary (Combustion)	0.266	0.573	4.103	0.025		0.316	0.316		0.316	0.316	4,462.36
Waste						0	0		0	0	407.46
Water						0	0		0	0	757.18
Total	0.477	13.369	7.249	0.089	2.353	0.410	2.763	0.646	0.406	1.052	

Stationary (Cooling Tower)						lb/day	tons/yr		lb/day	tons/yr
Cooling Tower Drift						20.640	3.767		20.640	3.767
							6.529			4.818

Operation GHG Emissions, CalEEMod Output

CO2e
MT/yr
12,125.79

Construction Activity - Overview of Fleet

Lancaster Waste to Renewable Hydrogen (WTRH2) Project

Reference: SGH2 Resp 2.1 Resources and Phasing (dated 6/16/2022).

Equipment (weekly)	Typical #	HDT (weekly)	LDA/LDT (weekly)
Excavator Case D Series	2		
Backhoe 580 Case	2		
Backhoe Demo - Mech Attachment			
Diesel grader			
Vibrating plate compactor (gasoline)	4		
Roller vibrator, diesel	2		
Water truck (gasoline)		1	HDT (onroad)
Concrete pump, trailer mount			
Concrete pump, truck mount	2		
Mortar mixer, gasoline			
Concrete trucks, diesel		20	HDT (onroad)
Paving machine			
Dump trucks		175	HDT (onroad)
Semi Tractor		2	HDT (onroad)
Crane, diesel (400 ton)			
Crane, diesel (1600 ton)			
Crane, Pile Rig	4		
Manlift, telescoping, diesel	2		
Welder, diesel (250 amp)	6		
Air compressor, diesel (185 cfm)	2		
Air compressor, diesel (375 cfm)			
Generator, diesel (6 kW)	2		
Forklift, diesel (15 Ton)	2		
Forklift, diesel (4 ton)			
Fuel truck		1	HDT (onroad)
Pickup truck, ½-ton 2WD			6 LDA/LDT (onroad)
Car, gasoline			281 LDA/LDT (onroad)
Stakebed truck		1	HDT (onroad)
Bus 50 passenger			
Hydrotest pump			
Light tower, diesel (4 kW)	4		
SPMT			
Bobcat skip loader	2		
Scissor Lifts			

Equipment Count, peak overlapping 36

Operational Activity - Motor Vehicle Trips
Lancaster Waste to Renewable Hydrogen (WTRH2) Project

Trip Lengths

	miles
Distance to Burbank	60
Distance to Palmdale	10
Distance to Bakersfield	90
Distance for H2 sales (e.g., LAX, Sta Monica est'd)	90
Home to work average distance	20

	#
Employees onsite each day	75

Operational Phase Vehicle Trips

	Trips (one-way)	Distance (mi)	VTM per day
	per Day	per Trip	
Haul Truck (Deliveries or Export)			
Biomass	40	35	1400 *assume avg distance between Palmdale and Burbank
Biochar	1	60	60 *assume from Burbank
Lime	0.5	60	30 *assume from Burbank
Chemical	0.1	60	6 *assume from Burbank - as needed basis - assume approximately once weekly
H2 liquid	80	90	7200 *To Shell/Iwatani for retail sales, assume West LA marketplace
CO2 liquid	40	90	3600 *Distance to Bakersfield
Slag waste	2	90	180 *assume to Bakersfield
Brine waste	6	90	540 *assume to Bakersfield
Worker / Employee Trips	150	20	3000

		VTM per year	fraction of VMT by class
Haul Trips	MDT & HHDT's	4,750,840	0.81
Worker Trips	LDA & LDT's	1,095,000	0.19

Operational Stationary Sources - Criteria Air Pollutants Worksheet

Lancaster Waste to Renewable Hydrogen (WTRH2) Project

Stationary Sources: Proposed Emergency Backup Generator Engine(s)

ARB ATCM applies (17 CCR 93115 through 93115.15, Table 1)

Diesel, emergency use only

From SGH2 (6/29/2022) : diesel fire water pump engine @ 250 kW ; backup generator @ 500 kW -- no specification for diesel particulate filter.

0.73 load factor, CalEEMod default
1 hr/day, testing

500 kW, genset

671 hp

50 hours/year

Emergency Use only (ATCM Table 1, model year 2008+)

Optional: Tier 4 Final - 13 CCR 2423, Table 1b

(g/kW-hr)

0.19 NMHC

0.4 NOx

3.5 CO

SOx

0.02 PM

(g/hp-hr)

1 ROG (as NMHC)

2.85 NOx

2.6 CO

0.005 SOx

0.15 PM10/PM2.5

Hourly

(lb/hr)

1.079

3.075

2.806

0.005

0.162

Daily

(lb/d)

1.079 ROG

3.075 NOx

2.806 CO

0.005 SOx

0.162 PM10/PM2.5

Annual

(ton/yr)

0.027

0.077

0.070

0.000

0.004

250 kW, fire water pump

335 hp

50 hours/year

Emergency Use only (ATCM Table 2, fire pump 2009+)

(g/hp-hr)

1 ROG (as NMHC)

2.85 NOx

2.6 CO

0.005 SOx

0.15 PM10/PM2.5

Hourly

(lb/hr)

0.540

1.538

1.403

0.003

0.081

Daily

(lb/d)

0.540 ROG

1.538 NOx

1.403 CO

0.003 SOx

0.081 PM10/PM2.5

Annual

(ton/yr)

0.013

0.038

0.035

0.000

0.002

Stationary Sources: Mixed fuel PSA Tail Gas + Natural Gas-Fired Boiler, Steam Generator

AVAQMD Rule 1146 requires not to exceed NOx @ 40 ppm (0.05 lb/MMBtu)

AVAQMD BACT may be more stringent, low-NOx @ 10 ppm

Emission factors from USEPA AP-42, Table 1.4-1 and 1.4-2 - Natural gas

24 hr/day, routine op

From SGH2 (7/6/2022) : Natural gas and tail gas w/ low NOx burner (10 ppm) assume 0.012 lb NOx/MMBtu

9.9800 MMBtu/hr

8322 hours/year

1 unit(s)

(lb/MMBtu)

0.0054 VOC

0.012 NOx

0.082 CO

0.001 SOx

0.007 PM10/PM2.5

Hourly

(lb/hr)

0.054

0.120

0.822

0.006

0.074

Daily

(lb/d)

1.29 VOC

2.88 NOx

19.73 CO

0.14 SOx

1.78 PM10/PM2.5

Annual

(ton/yr)

0.224

0.498

3.420

0.024

0.309

(lb/MMBtu)

117.6470588 CO2

1,174

28,179 CO2

(MT/y)

4,428

Attachment 2

CalEEMod Results

WTRH2 City of Lancaster - Antelope Valley APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

**WTRH2 City of Lancaster
Antelope Valley APCD Air District, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	653.40	1000sqft	15.00	653,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	9			Operational Year	2024
Utility Company	Lancaster Choice Energy				
CO2 Intensity (lb/MW hr)	615.98	CH4 Intensity (lb/MW hr)	0.033	N2O Intensity (lb/MW hr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - New facility on 15 acre site

Construction Phase - SGH2 Resp 2.1 approx 80 weeks overall duration

Off-road Equipment - installation phase w 26 pcs off-road equipment

Off-road Equipment - paving phase w 6 pcs off-road equipment

Off-road Equipment - site prep w 14 pcs off-road equipment

Off-road Equipment - utilities and trenching w 8 pcs off-road equipment

Trips and VMT - 281 daily staff worker roundtrips, 40 daily HHDT or MHDT vendor and hauling roundtrips, 400 overall HDT longer distance roundtrips

Grading - cut and fill balanced in 15 acres site graded

Vehicle Trips - operational travel at overall avg trip length including product export

Consumer Products - consumer products not applicable

Area Coating - architectural coatings not applicable

WTRH2 City of Lancaster - Antelope Valley APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Energy Use - applicant proposes to self-generate or use GHG-free electricity from grid

Water And Wastewater - defaults for indirect energy due to water wastewater use

Solid Waste - defaults for indirect GHG due to solid waste stream

Operational Off-Road Equipment - operation and maint may include occasional use of loader or lift

Fleet Mix - custom operational fleet mix for 82 pct of VMT in MDTs LHDs HHDTs

Stationary Sources - Emergency Generators and Fire Pumps - operation includes occasional testing of emergency generator and fire pump engine

Stationary Sources - Process Boilers - operation includes tail gas boiler appx 10 MMBtu per hr

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	0
tblAreaCoating	Area_EF_Nonresidential_Interior	250	0
tblAreaCoating	Area_EF_Parking	250	0
tblAreaCoating	Area_EF_Residential_Exterior	250	0
tblAreaCoating	Area_EF_Residential_Interior	250	0
tblAreaCoating	Area_Nonresidential_Exterior	326700	0
tblAreaCoating	Area_Nonresidential_Interior	980100	0
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstructionPhase	NumDays	300.00	360.00
tblConstructionPhase	NumDays	20.00	80.00
tblConstructionPhase	NumDays	10.00	100.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	3.10	0.00
tblEnergyUse	NT24E	5.75	0.00
tblEnergyUse	NT24NG	4.45	0.00
tblEnergyUse	T24E	2.01	0.00
tblEnergyUse	T24NG	13.51	0.00
tblFleetMix	HHD	9.1440e-003	0.82

WTRH2 City of Lancaster - Antelope Valley APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblFleetMix	LDA	0.59	0.04
tblFleetMix	LDT1	0.05	0.02
tblFleetMix	LDT2	0.14	0.01
tblFleetMix	LHD1	0.03	0.02
tblFleetMix	LHD2	7.3230e-003	0.02
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.12	0.05
tblFleetMix	MH	6.5310e-003	0.00
tblFleetMix	MHD	0.01	0.02
tblFleetMix	OBUS	6.7800e-004	0.00
tblFleetMix	SBUS	2.5010e-003	0.00
tblFleetMix	UBUS	4.9500e-004	0.00
tblGrading	AcresOfGrading	175.00	15.00
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.31	0.31
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Aerial Lifts
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00

WTRH2 City of Lancaster - Antelope Valley APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	6.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	1.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblStationaryBoilersUse	AnnualHeatInput	0.00	83,220.00
tblStationaryBoilersUse	BoilerRatingValue	0.00	10.00
tblStationaryBoilersUse	DailyHeatInput	0.00	240.00
tblStationaryBoilersUse	NumberOfEquipment	0.00	1.00
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	671.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	335.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	60.00
tblTripsAndVMT	HaulingTripNumber	0.00	800.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	107.00	80.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripLength	10.80	20.00
tblTripsAndVMT	WorkerTripLength	10.80	20.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblTripsAndVMT	WorkerTripLength	10.80	20.00
tblTripsAndVMT	WorkerTripNumber	274.00	562.00
tblVehicleTrips	CC_TL	7.30	50.10
tblVehicleTrips	CNW_TL	7.30	50.10
tblVehicleTrips	CW_TL	9.50	50.10
tblVehicleTrips	HO_TL	0.00	50.10
tblVehicleTrips	HS_TL	0.00	50.10
tblVehicleTrips	HW_TL	0.00	50.10
tblVehicleTrips	ST_TR	6.42	0.50
tblVehicleTrips	SU_TR	5.09	0.50
tblVehicleTrips	WD_TR	3.93	0.50

2.0 Emissions Summary

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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					
2023	1.0229	7.2494	9.5662	0.0226	1.8967	0.2963	2.1930	0.7606	0.2785	1.0390	0.0000	2,005.126 1	2,005.126 1	0.2981	0.0504	2,027.599 7
2024	0.5663	3.7741	5.8974	0.0145	0.6869	0.1413	0.8281	0.1834	0.1332	0.3167	0.0000	1,292.753 2	1,292.753 2	0.1781	0.0337	1,307.248 9
Maximum	1.0229	7.2494	9.5662	0.0226	1.8967	0.2963	2.1930	0.7606	0.2785	1.0390	0.0000	2,005.126 1	2,005.126 1	0.2981	0.0504	2,027.599 7

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					
2023	1.0229	7.2494	9.5662	0.0226	1.8967	0.2963	2.1930	0.7606	0.2785	1.0390	0.0000	2,005.124 8	2,005.124 8	0.2981	0.0504	2,027.598 5
2024	0.5663	3.7741	5.8974	0.0145	0.6869	0.1413	0.8281	0.1834	0.1332	0.3167	0.0000	1,292.752 5	1,292.752 5	0.1781	0.0337	1,307.248 1
Maximum	1.0229	7.2494	9.5662	0.0226	1.8967	0.2963	2.1930	0.7606	0.2785	1.0390	0.0000	2,005.124 8	2,005.124 8	0.2981	0.0504	2,027.598 5

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-2-2023	4-1-2023	1.5747	1.5747
2	4-2-2023	7-1-2023	2.5412	2.5412
3	7-2-2023	10-1-2023	2.1574	2.1574
4	10-2-2023	1-1-2024	1.9880	1.9880
5	1-2-2024	4-1-2024	1.7884	1.7884
6	4-2-2024	7-1-2024	2.0300	2.0300
7	7-2-2024	9-30-2024	0.4645	0.4645
		Highest	2.5412	2.5412

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	5.5000e-004	5.0000e-005	5.9900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0117	0.0117	3.0000e-005	0.0000	0.0124
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.2087	12.7736	3.0995	0.0647	2.3530	0.0930	2.4460	0.6461	0.0889	0.7350	0.0000	6,214.0118	6,214.0118	0.0395	0.9341	6,493.3706
Offroad	1.5800e-003	0.0220	0.0403	6.0000e-005		5.8000e-004	5.8000e-004		5.3000e-004	5.3000e-004	0.0000	5.3540	5.3540	1.7300e-003	0.0000	5.3973
Stationary	0.2656	0.5731	4.1031	0.0247		0.3161	0.3161		0.3161	0.3161	0.0000	4,460.1661	4,460.1661	0.0878	0.0000	4,462.3612
Waste						0.0000	0.0000		0.0000	0.0000	164.4673	0.0000	164.4673	9.7197	0.0000	407.4609
Water						0.0000	0.0000		0.0000	0.0000	47.9367	549.7150	597.6516	4.9530	0.1198	757.1848
Total	0.4765	13.3687	7.2489	0.0894	2.3530	0.4097	2.7627	0.6461	0.4056	1.0517	212.4040	11,229.2585	11,441.6625	14.8018	1.0540	12,125.7872

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	5.5000e-004	5.0000e-005	5.9900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0117	0.0117	3.0000e-005	0.0000	0.0124
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.2087	12.7736	3.0995	0.0647	2.3530	0.0930	2.4460	0.6461	0.0889	0.7350	0.0000	6,214.0118	6,214.0118	0.0395	0.9341	6,493.3706
Offroad	1.5800e-003	0.0220	0.0403	6.0000e-005		5.8000e-004	5.8000e-004		5.3000e-004	5.3000e-004	0.0000	5.3540	5.3540	1.7300e-003	0.0000	5.3973
Stationary	0.2656	0.5731	4.1031	0.0247		0.3161	0.3161		0.3161	0.3161	0.0000	4,460.1661	4,460.1661	0.0878	0.0000	4,462.3612
Waste						0.0000	0.0000		0.0000	0.0000	164.4673	0.0000	164.4673	9.7197	0.0000	407.4609
Water						0.0000	0.0000		0.0000	0.0000	47.9367	549.7150	597.6516	4.9530	0.1198	757.1848
Total	0.4765	13.3687	7.2489	0.0894	2.3530	0.4097	2.7627	0.6461	0.4056	1.0517	212.4040	11,229.2585	11,441.6625	14.8018	1.0540	12,125.7872

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

3.0 Construction Detail

Construction Phase

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/2/2023	5/19/2023	5	100	
2	Building Construction	Building Construction	3/13/2023	7/26/2024	5	360	
3	Utilities	Trenching	6/1/2023	11/15/2023	5	120	
4	Paving	Paving	3/9/2024	6/28/2024	5	80	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Cement and Mortar Mixers	2	7.00	9	0.56
Building Construction	Cranes	4	7.00	231	0.29
Building Construction	Forklifts	2	8.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	4	7.00	97	0.37
Building Construction	Welders	6	8.00	46	0.45
Utilities	Skid Steer Loaders	2	6.00	65	0.37
Utilities	Trenchers	2	6.00	78	0.50
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Site Preparation	Graders	1	4.00	187	0.41

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Site Preparation	Plate Compactors	4	6.00	8	0.43
Site Preparation	Rollers	2	6.00	80	0.38
Building Construction	Aerial Lifts	2	4.00	63	0.31
Building Construction	Skid Steer Loaders	2	8.00	65	0.37
Building Construction	Bore/Drill Rigs	2	8.00	221	0.50
Utilities	Welders	4	4.00	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	14	35.00	4.00	0.00	20.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	26	562.00	80.00	800.00	20.00	7.30	60.00	LD_Mix	HDT_Mix	HHDT
Utilities	8	20.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	4.00	0.00	20.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.9113	0.0000	0.9113	0.4974	0.0000	0.4974	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1599	1.6491	1.1231	2.3400e-003		0.0751	0.0751		0.0692	0.0692	0.0000	203.5044	203.5044	0.0648	0.0000	205.1241
Total	0.1599	1.6491	1.1231	2.3400e-003	0.9113	0.0751	0.9864	0.4974	0.0692	0.5666	0.0000	203.5044	203.5044	0.0648	0.0000	205.1241

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3000e-004	8.1300e-003	3.1300e-003	4.0000e-005	1.3300e-003	4.0000e-005	1.3700e-003	3.8000e-004	3.0000e-005	4.2000e-004	0.0000	3.6525	3.6525	2.0000e-005	5.3000e-004	3.8104
Worker	7.9600e-003	7.4900e-003	0.0935	2.3000e-004	0.0261	1.6000e-004	0.0262	6.9300e-003	1.4000e-004	7.0700e-003	0.0000	21.4052	21.4052	5.9000e-004	6.2000e-004	21.6041
Total	8.1900e-003	0.0156	0.0966	2.7000e-004	0.0274	2.0000e-004	0.0276	7.3100e-003	1.7000e-004	7.4900e-003	0.0000	25.0577	25.0577	6.1000e-004	1.1500e-003	25.4146

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3.2 Site Preparation - 2023

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					0.9113	0.0000	0.9113	0.4974	0.0000	0.4974	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1599	1.6491	1.1231	2.3400e-003		0.0751	0.0751		0.0692	0.0692	0.0000	203.5042	203.5042	0.0648	0.0000	205.1239
Total	0.1599	1.6491	1.1231	2.3400e-003	0.9113	0.0751	0.9864	0.4974	0.0692	0.5666	0.0000	203.5042	203.5042	0.0648	0.0000	205.1239

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3000e-004	8.1300e-003	3.1300e-003	4.0000e-005	1.3300e-003	4.0000e-005	1.3700e-003	3.8000e-004	3.0000e-005	4.2000e-004	0.0000	3.6525	3.6525	2.0000e-005	5.3000e-004	3.8104
Worker	7.9600e-003	7.4900e-003	0.0935	2.3000e-004	0.0261	1.6000e-004	0.0262	6.9300e-003	1.4000e-004	7.0700e-003	0.0000	21.4052	21.4052	5.9000e-004	6.2000e-004	21.6041
Total	8.1900e-003	0.0156	0.0966	2.7000e-004	0.0274	2.0000e-004	0.0276	7.3100e-003	1.7000e-004	7.4900e-003	0.0000	25.0577	25.0577	6.1000e-004	1.1500e-003	25.4146

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3.3 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.5043	4.3679	4.4517	9.3100e-003		0.1842	0.1842		0.1746	0.1746	0.0000	789.4464	789.4464	0.1949	0.0000	794.3188
Total	0.5043	4.3679	4.4517	9.3100e-003		0.1842	0.1842		0.1746	0.1746	0.0000	789.4464	789.4464	0.1949	0.0000	794.3188

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.9000e-004	0.0756	0.0115	3.7000e-004	0.0120	5.0000e-004	0.0125	3.3000e-003	4.8000e-004	3.7800e-003	0.0000	36.0414	36.0414	2.1000e-004	5.6700e-003	37.7350
Vendor	9.6300e-003	0.3413	0.1316	1.6000e-003	0.0560	1.5200e-003	0.0575	0.0162	1.4500e-003	0.0176	0.0000	153.4062	153.4062	8.8000e-004	0.0222	160.0377
Worker	0.2685	0.2527	3.1527	7.7700e-003	0.8796	5.3100e-003	0.8849	0.2336	4.8900e-003	0.2385	0.0000	721.7817	721.7817	0.0200	0.0208	728.4913
Total	0.2790	0.6696	3.2958	9.7400e-003	0.9476	7.3300e-003	0.9549	0.2530	6.8200e-003	0.2599	0.0000	911.2293	911.2293	0.0211	0.0487	926.2640

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3.3 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.5043	4.3679	4.4517	9.3100e-003		0.1842	0.1842		0.1746	0.1746	0.0000	789.4455	789.4455	0.1949	0.0000	794.3178
Total	0.5043	4.3679	4.4517	9.3100e-003		0.1842	0.1842		0.1746	0.1746	0.0000	789.4455	789.4455	0.1949	0.0000	794.3178

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.9000e-004	0.0756	0.0115	3.7000e-004	0.0120	5.0000e-004	0.0125	3.3000e-003	4.8000e-004	3.7800e-003	0.0000	36.0414	36.0414	2.1000e-004	5.6700e-003	37.7350
Vendor	9.6300e-003	0.3413	0.1316	1.6000e-003	0.0560	1.5200e-003	0.0575	0.0162	1.4500e-003	0.0176	0.0000	153.4062	153.4062	8.8000e-004	0.0222	160.0377
Worker	0.2685	0.2527	3.1527	7.7700e-003	0.8796	5.3100e-003	0.8849	0.2336	4.8900e-003	0.2385	0.0000	721.7817	721.7817	0.0200	0.0208	728.4913
Total	0.2790	0.6696	3.2958	9.7400e-003	0.9476	7.3300e-003	0.9549	0.2530	6.8200e-003	0.2599	0.0000	911.2293	911.2293	0.0211	0.0487	926.2640

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Building Construction - 2024

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	0.3392	2.9332	3.1579	6.6600e-003		0.1173	0.1173		0.1111	0.1111	0.0000	564.2118	564.2118	0.1384	0.0000	567.6723
Total	0.3392	2.9332	3.1579	6.6600e-003		0.1173	0.1173		0.1111	0.1111	0.0000	564.2118	564.2118	0.1384	0.0000	567.6723

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	6.4000e-004	0.0526	8.2000e-003	2.6000e-004	8.5900e-003	3.9000e-004	8.9800e-003	2.3600e-003	3.7000e-004	2.7300e-003	0.0000	25.1214	25.1214	1.4000e-004	3.9500e-003	26.3020
Vendor	6.7400e-003	0.2389	0.0916	1.1200e-003	0.0400	1.1700e-003	0.0412	0.0115	1.1200e-003	0.0127	0.0000	107.2515	107.2515	6.1000e-004	0.0155	111.8745
Worker	0.1774	0.1597	2.0234	5.4100e-003	0.6283	3.5800e-003	0.6318	0.1669	3.2900e-003	0.1701	0.0000	505.9995	505.9995	0.0128	0.0137	510.3976
Total	0.1848	0.4512	2.1232	6.7900e-003	0.6768	5.1400e-003	0.6820	0.1808	4.7800e-003	0.1855	0.0000	638.3724	638.3724	0.0135	0.0331	648.5740

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3.3 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3392	2.9332	3.1579	6.6600e-003		0.1173	0.1173		0.1111	0.1111	0.0000	564.2111	564.2111	0.1384	0.0000	567.6716
Total	0.3392	2.9332	3.1579	6.6600e-003		0.1173	0.1173		0.1111	0.1111	0.0000	564.2111	564.2111	0.1384	0.0000	567.6716

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	6.4000e-004	0.0526	8.2000e-003	2.6000e-004	8.5900e-003	3.9000e-004	8.9800e-003	2.3600e-003	3.7000e-004	2.7300e-003	0.0000	25.1214	25.1214	1.4000e-004	3.9500e-003	26.3020
Vendor	6.7400e-003	0.2389	0.0916	1.1200e-003	0.0400	1.1700e-003	0.0412	0.0115	1.1200e-003	0.0127	0.0000	107.2515	107.2515	6.1000e-004	0.0155	111.8745
Worker	0.1774	0.1597	2.0234	5.4100e-003	0.6283	3.5800e-003	0.6318	0.1669	3.2900e-003	0.1701	0.0000	505.9995	505.9995	0.0128	0.0137	510.3976
Total	0.1848	0.4512	2.1232	6.7900e-003	0.6768	5.1400e-003	0.6820	0.1808	4.7800e-003	0.1855	0.0000	638.3724	638.3724	0.0135	0.0331	648.5740

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3.4 Utilities - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0676	0.5393	0.5593	8.0000e-004		0.0294	0.0294		0.0276	0.0276	0.0000	65.6703	65.6703	0.0164	0.0000	66.0802
Total	0.0676	0.5393	0.5593	8.0000e-004		0.0294	0.0294		0.0276	0.0276	0.0000	65.6703	65.6703	0.0164	0.0000	66.0802

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4000e-004	4.8800e-003	1.8800e-003	2.0000e-005	8.0000e-004	2.0000e-005	8.2000e-004	2.3000e-004	2.0000e-005	2.5000e-004	0.0000	2.1915	2.1915	1.0000e-005	3.2000e-004	2.2863
Worker	3.7500e-003	3.0800e-003	0.0378	9.0000e-005	9.6600e-003	6.0000e-005	9.7300e-003	2.5700e-003	6.0000e-005	2.6200e-003	0.0000	8.0265	8.0265	2.9000e-004	2.6000e-004	8.1119
Total	3.8900e-003	7.9600e-003	0.0396	1.1000e-004	0.0105	8.0000e-005	0.0106	2.8000e-003	8.0000e-005	2.8700e-003	0.0000	10.2180	10.2180	3.0000e-004	5.8000e-004	10.3981

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3.4 Utilities - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0676	0.5393	0.5593	8.0000e-004		0.0294	0.0294		0.0276	0.0276	0.0000	65.6702	65.6702	0.0164	0.0000	66.0801
Total	0.0676	0.5393	0.5593	8.0000e-004		0.0294	0.0294		0.0276	0.0276	0.0000	65.6702	65.6702	0.0164	0.0000	66.0801

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4000e-004	4.8800e-003	1.8800e-003	2.0000e-005	8.0000e-004	2.0000e-005	8.2000e-004	2.3000e-004	2.0000e-005	2.5000e-004	0.0000	2.1915	2.1915	1.0000e-005	3.2000e-004	2.2863
Worker	3.7500e-003	3.0800e-003	0.0378	9.0000e-005	9.6600e-003	6.0000e-005	9.7300e-003	2.5700e-003	6.0000e-005	2.6200e-003	0.0000	8.0265	8.0265	2.9000e-004	2.6000e-004	8.1119
Total	3.8900e-003	7.9600e-003	0.0396	1.1000e-004	0.0105	8.0000e-005	0.0106	2.8000e-003	8.0000e-005	2.8700e-003	0.0000	10.2180	10.2180	3.0000e-004	5.8000e-004	10.3981

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3.5 Paving - 2024

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	0.0395	0.3810	0.5850	9.1000e-004		0.0187	0.0187		0.0172	0.0172	0.0000	80.1061	80.1061	0.0259	0.0000	80.7538
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0395	0.3810	0.5850	9.1000e-004		0.0187	0.0187		0.0172	0.0172	0.0000	80.1061	80.1061	0.0259	0.0000	80.7538

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8000e-004	6.3700e-003	2.4400e-003	3.0000e-005	1.0700e-003	3.0000e-005	1.1000e-003	3.1000e-004	3.0000e-005	3.4000e-004	0.0000	2.8600	2.8600	2.0000e-005	4.1000e-004	2.9833
Worker	2.5300e-003	2.2700e-003	0.0288	8.0000e-005	8.9400e-003	5.0000e-005	8.9900e-003	2.3800e-003	5.0000e-005	2.4200e-003	0.0000	7.2028	7.2028	1.8000e-004	1.9000e-004	7.2655
Total	2.7100e-003	8.6400e-003	0.0312	1.1000e-004	0.0100	8.0000e-005	0.0101	2.6900e-003	8.0000e-005	2.7600e-003	0.0000	10.0629	10.0629	2.0000e-004	6.0000e-004	10.2488

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3.5 Paving - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0395	0.3810	0.5850	9.1000e-004		0.0187	0.0187		0.0172	0.0172	0.0000	80.1060	80.1060	0.0259	0.0000	80.7537
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0395	0.3810	0.5850	9.1000e-004		0.0187	0.0187		0.0172	0.0172	0.0000	80.1060	80.1060	0.0259	0.0000	80.7537

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8000e-004	6.3700e-003	2.4400e-003	3.0000e-005	1.0700e-003	3.0000e-005	1.1000e-003	3.1000e-004	3.0000e-005	3.4000e-004	0.0000	2.8600	2.8600	2.0000e-005	4.1000e-004	2.9833
Worker	2.5300e-003	2.2700e-003	0.0288	8.0000e-005	8.9400e-003	5.0000e-005	8.9900e-003	2.3800e-003	5.0000e-005	2.4200e-003	0.0000	7.2028	7.2028	1.8000e-004	1.9000e-004	7.2655
Total	2.7100e-003	8.6400e-003	0.0312	1.1000e-004	0.0100	8.0000e-005	0.0101	2.6900e-003	8.0000e-005	2.7600e-003	0.0000	10.0629	10.0629	2.0000e-004	6.0000e-004	10.2488

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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	0.2087	12.7736	3.0995	0.0647	2.3530	0.0930	2.4460	0.6461	0.0889	0.7350	0.0000	6,214.0118	6,214.0118	0.0395	0.9341	6,493.3706
Unmitigated	0.2087	12.7736	3.0995	0.0647	2.3530	0.0930	2.4460	0.6461	0.0889	0.7350	0.0000	6,214.0118	6,214.0118	0.0395	0.9341	6,493.3706

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	326.70	326.70	326.70	5,556,035	5,556,035
Total	326.70	326.70	326.70	5,556,035	5,556,035

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	50.10	50.10	50.10	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.040000	0.020000	0.010000	0.050000	0.020000	0.020000	0.020000	0.820000	0.000000	0.000000	0.000000	0.000000	0.000000

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

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	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	5.5000e-004	5.0000e-005	5.9900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0117	0.0117	3.0000e-005	0.0000	0.0124
Unmitigated	5.5000e-004	5.0000e-005	5.9900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0117	0.0117	3.0000e-005	0.0000	0.0124

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	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.5000e-004	5.0000e-005	5.9900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0117	0.0117	3.0000e-005	0.0000	0.0124
Total	5.5000e-004	5.0000e-005	5.9900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0117	0.0117	3.0000e-005	0.0000	0.0124

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6.2 Area by SubCategory

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	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.5000e-004	5.0000e-005	5.9900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0117	0.0117	3.0000e-005	0.0000	0.0124
Total	5.5000e-004	5.0000e-005	5.9900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0117	0.0117	3.0000e-005	0.0000	0.0124

7.0 Water Detail

7.1 Mitigation Measures Water

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	597.6516	4.9530	0.1198	757.1848
Unmitigated	597.6516	4.9530	0.1198	757.1848

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	151.099 / 0	597.6516	4.9530	0.1198	757.1848
Total		597.6516	4.9530	0.1198	757.1848

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7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	151.099 / 0	597.6516	4.9530	0.1198	757.1848
Total		597.6516	4.9530	0.1198	757.1848

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	164.4673	9.7197	0.0000	407.4609
Unmitigated	164.4673	9.7197	0.0000	407.4609

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8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	810.22	164.4673	9.7197	0.0000	407.4609
Total		164.4673	9.7197	0.0000	407.4609

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	810.22	164.4673	9.7197	0.0000	407.4609
Total		164.4673	9.7197	0.0000	407.4609

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Aerial Lifts	1	1.00	260	63	0.31	Diesel

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Skid Steer Loaders	1	1.00	260	65	0.37	Diesel
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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					
Aerial Lifts	5.6000e-004	8.5500e-003	0.0178	3.0000e-005		1.5000e-004	1.5000e-004		1.4000e-004	1.4000e-004	0.0000	2.3973	2.3973	7.8000e-004	0.0000	2.4167
Skid Steer Loaders	1.0100e-003	0.0134	0.0225	3.0000e-005		4.3000e-004	4.3000e-004		4.0000e-004	4.0000e-004	0.0000	2.9567	2.9567	9.6000e-004	0.0000	2.9806
Total	1.5700e-003	0.0220	0.0403	6.0000e-005		5.8000e-004	5.8000e-004		5.4000e-004	5.4000e-004	0.0000	5.3540	5.3540	1.7400e-003	0.0000	5.3973

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	1	50	671	0.73	Diesel
Fire Pump	1	1	50	335	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
Boiler	1	240	83220	10	CNG

User Defined Equipment

Equipment Type	Number
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10.1 Stationary Sources

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					
Boiler - CNG (5 - 75 MMBTU)	0.2244	0.4577	3.9979	0.0245		0.3100	0.3100		0.3100	0.3100	0.0000	4,441.0120	4,441.0120	0.0851	0.0000	4,443.1400
Emergency Generator - Diesel (600 - 750 HP)	0.0275	0.0769	0.0702	1.3000e-004		4.0500e-003	4.0500e-003		4.0500e-003	4.0500e-003	0.0000	12.7758	12.7758	1.7900e-003	0.0000	12.8205
Fire Pump - Diesel (300 - 600 HP)	0.0137	0.0384	0.0350	7.0000e-005		2.0200e-003	2.0200e-003		2.0200e-003	2.0200e-003	0.0000	6.3784	6.3784	8.9000e-004	0.0000	6.4007
Total	0.2656	0.5731	4.1031	0.0247		0.3161	0.3161		0.3161	0.3161	0.0000	4,460.1661	4,460.1661	0.0878	0.0000	4,462.3612

11.0 Vegetation

WTRH2 City of Lancaster - Antelope Valley APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

**WTRH2 City of Lancaster
Antelope Valley APCD Air District, Winter**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	653.40	1000sqft	15.00	653,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	33
Climate Zone	9			Operational Year	2024
Utility Company	Lancaster Choice Energy				
CO2 Intensity (lb/MW hr)	615.98	CH4 Intensity (lb/MW hr)	0.033	N2O Intensity (lb/MW hr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - New facility on 15 acre site

Construction Phase - SGH2 Resp 2.1 approx 80 weeks overall duration

Off-road Equipment - installation phase w 26 pcs off-road equipment

Off-road Equipment - paving phase w 6 pcs off-road equipment

Off-road Equipment - site prep w 14 pcs off-road equipment

Off-road Equipment - utilities and trenching w 8 pcs off-road equipment

Trips and VMT - 281 daily staff worker roundtrips, 40 daily HHDT or MHDT vendor and hauling roundtrips, 400 overall HDT longer distance roundtrips

Grading - cut and fill balanced in 15 acres site graded

Vehicle Trips - operational travel at overall avg trip length including product export

Consumer Products - consumer products not applicable

Area Coating - architectural coatings not applicable

WTRH2 City of Lancaster - Antelope Valley APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Energy Use - applicant proposes to self-generate or use GHG-free electricity from grid

Water And Wastewater - defaults for indirect energy due to water wastewater use

Solid Waste - defaults for indirect GHG due to solid waste stream

Operational Off-Road Equipment - operation and maint may include occasional use of loader or lift

Fleet Mix - custom operational fleet mix for 82 pct of VMT in MDTs LHDs HHDTs

Stationary Sources - Emergency Generators and Fire Pumps - operation includes occasional testing of emergency generator and fire pump engine

Stationary Sources - Process Boilers - operation includes tail gas boiler appx 10 MMBtu per hr

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	0
tblAreaCoating	Area_EF_Nonresidential_Interior	250	0
tblAreaCoating	Area_EF_Parking	250	0
tblAreaCoating	Area_EF_Residential_Exterior	250	0
tblAreaCoating	Area_EF_Residential_Interior	250	0
tblAreaCoating	Area_Nonresidential_Exterior	326700	0
tblAreaCoating	Area_Nonresidential_Interior	980100	0
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstructionPhase	NumDays	300.00	360.00
tblConstructionPhase	NumDays	20.00	80.00
tblConstructionPhase	NumDays	10.00	100.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblEnergyUse	LightingElect	3.10	0.00
tblEnergyUse	NT24E	5.75	0.00
tblEnergyUse	NT24NG	4.45	0.00
tblEnergyUse	T24E	2.01	0.00
tblEnergyUse	T24NG	13.51	0.00
tblFleetMix	HHD	9.1440e-003	0.82

WTRH2 City of Lancaster - Antelope Valley APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblFleetMix	LDA	0.59	0.04
tblFleetMix	LDT1	0.05	0.02
tblFleetMix	LDT2	0.14	0.01
tblFleetMix	LHD1	0.03	0.02
tblFleetMix	LHD2	7.3230e-003	0.02
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.12	0.05
tblFleetMix	MH	6.5310e-003	0.00
tblFleetMix	MHD	0.01	0.02
tblFleetMix	OBUS	6.7800e-004	0.00
tblFleetMix	SBUS	2.5010e-003	0.00
tblFleetMix	UBUS	4.9500e-004	0.00
tblGrading	AcresOfGrading	175.00	15.00
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.31	0.31
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Aerial Lifts
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00

WTRH2 City of Lancaster - Antelope Valley APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	6.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	1.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblStationaryBoilersUse	AnnualHeatInput	0.00	83,220.00
tblStationaryBoilersUse	BoilerRatingValue	0.00	10.00
tblStationaryBoilersUse	DailyHeatInput	0.00	240.00
tblStationaryBoilersUse	NumberOfEquipment	0.00	1.00
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	671.00
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	335.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	60.00
tblTripsAndVMT	HaulingTripNumber	0.00	800.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	107.00	80.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripLength	10.80	20.00
tblTripsAndVMT	WorkerTripLength	10.80	20.00

WTRH2 City of Lancaster - Antelope Valley APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblTripsAndVMT	WorkerTripLength	10.80	20.00
tblTripsAndVMT	WorkerTripNumber	274.00	562.00
tblVehicleTrips	CC_TL	7.30	50.10
tblVehicleTrips	CNW_TL	7.30	50.10
tblVehicleTrips	CW_TL	9.50	50.10
tblVehicleTrips	HO_TL	0.00	50.10
tblVehicleTrips	HS_TL	0.00	50.10
tblVehicleTrips	HW_TL	0.00	50.10
tblVehicleTrips	ST_TR	6.42	0.50
tblVehicleTrips	SU_TR	5.09	0.50
tblVehicleTrips	WD_TR	3.93	0.50

2.0 Emissions Summary

WTRH2 City of Lancaster - Antelope Valley APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	11.0166	81.1395	96.0606	0.2315	27.9878	3.3295	31.3173	12.5506	3.1153	15.6659	0.0000	22,674.57 75	22,674.57 75	3.7038	0.5276	22,924.38 87
2024	8.2228	54.7588	83.9941	0.2028	9.4584	2.1033	11.5617	2.5221	1.9783	4.5004	0.0000	19,953.65 24	19,953.65 24	2.9478	0.4955	20,175.01 20
Maximum	11.0166	81.1395	96.0606	0.2315	27.9878	3.3295	31.3173	12.5506	3.1153	15.6659	0.0000	22,674.57 75	22,674.57 75	3.7038	0.5276	22,924.38 87

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	11.0166	81.1395	96.0606	0.2315	27.9878	3.3295	31.3173	12.5506	3.1153	15.6659	0.0000	22,674.57 75	22,674.57 75	3.7038	0.5276	22,924.38 87
2024	8.2228	54.7588	83.9941	0.2028	9.4584	2.1033	11.5617	2.5221	1.9783	4.5004	0.0000	19,953.65 24	19,953.65 24	2.9478	0.4955	20,175.01 19
Maximum	11.0166	81.1395	96.0606	0.2315	27.9878	3.3295	31.3173	12.5506	3.1153	15.6659	0.0000	22,674.57 75	22,674.57 75	3.7038	0.5276	22,924.38 87

WTRH2 City of Lancaster - Antelope Valley APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	6.1500e-003	6.0000e-004	0.0666	0.0000		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004		0.1430	0.1430	3.7000e-004		0.1523
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.1121	69.7135	16.8462	0.3557	13.1566	0.5119	13.6686	3.6059	0.4895	4.0954		37,663.3641	37,663.3641	0.2373	5.6653	39,357.5477
Offroad	0.0121	0.1691	0.3097	4.7000e-004		4.4600e-003	4.4600e-003		4.1000e-003	4.1000e-003	0.0000	45.3984	45.3984	0.0147		45.7655
Stationary	2.9448	7.2543	27.2687	0.1491		2.0311	2.0311		2.0311	2.0311		29,080.3278	29,080.3278	0.6596		29,096.8176
Total	4.0752	77.1374	44.4911	0.5053	13.1566	2.5477	15.7044	3.6059	2.5249	6.1308	0.0000	66,789.2333	66,789.2333	0.9120	5.6653	68,500.2831

WTRH2 City of Lancaster - Antelope Valley APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	lb/day										lb/day					
Area	6.1500e-003	6.0000e-004	0.0666	0.0000		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004		0.1430	0.1430	3.7000e-004		0.1523
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.1121	69.7135	16.8462	0.3557	13.1566	0.5119	13.6686	3.6059	0.4895	4.0954		37,663.3641	37,663.3641	0.2373	5.6653	39,357.5477
Offroad	0.0121	0.1691	0.3097	4.7000e-004		4.4600e-003	4.4600e-003		4.1000e-003	4.1000e-003	0.0000	45.3984	45.3984	0.0147		45.7655
Stationary	2.9448	7.2543	27.2687	0.1491		2.0311	2.0311		2.0311	2.0311		29,080.3278	29,080.3278	0.6596		29,096.8176
Total	4.0752	77.1374	44.4911	0.5053	13.1566	2.5477	15.7044	3.6059	2.5249	6.1308	0.0000	66,789.2333	66,789.2333	0.9120	5.6653	68,500.2831

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/2/2023	5/19/2023	5	100	
2	Building Construction	Building Construction	3/13/2023	7/26/2024	5	360	
3	Utilities	Trenching	6/1/2023	11/15/2023	5	120	

WTRH2 City of Lancaster - Antelope Valley APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4	Paving	Paving	3/9/2024	6/28/2024	5	80
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Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Cement and Mortar Mixers	2	7.00	9	0.56
Building Construction	Cranes	4	7.00	231	0.29
Building Construction	Forklifts	2	8.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	4	7.00	97	0.37
Building Construction	Welders	6	8.00	46	0.45
Utilities	Skid Steer Loaders	2	6.00	65	0.37
Utilities	Trenchers	2	6.00	78	0.50
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Site Preparation	Graders	1	4.00	187	0.41
Site Preparation	Plate Compactors	4	6.00	8	0.43
Site Preparation	Rollers	2	6.00	80	0.38
Building Construction	Aerial Lifts	2	4.00	63	0.31
Building Construction	Skid Steer Loaders	2	8.00	65	0.37
Building Construction	Bore/Drill Rigs	2	8.00	221	0.50

WTRH2 City of Lancaster - Antelope Valley APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Utilities	Welders	4	4.00	46	0.45
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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	14	35.00	4.00	0.00	20.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	26	562.00	80.00	800.00	20.00	7.30	60.00	LD_Mix	HDT_Mix	HHDT
Utilities	8	20.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	4.00	0.00	20.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.2253	0.0000	18.2253	9.9479	0.0000	9.9479			0.0000			0.0000
Off-Road	3.1985	32.9819	22.4626	0.0467		1.5017	1.5017		1.3839	1.3839		4,486.5047	4,486.5047	1.4283		4,522.2125
Total	3.1985	32.9819	22.4626	0.0467	18.2253	1.5017	19.7270	9.9479	1.3839	11.3317		4,486.5047	4,486.5047	1.4283		4,522.2125

WTRH2 City of Lancaster - Antelope Valley APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3900e-003	0.1634	0.0636	7.6000e-004	0.0271	7.3000e-004	0.0278	7.8000e-003	6.9000e-004	8.5000e-003		80.6493	80.6493	4.5000e-004	0.0117	84.1351
Worker	0.1709	0.1415	1.7444	4.4800e-003	0.5321	3.1500e-003	0.5353	0.1411	2.9000e-003	0.1440		458.9375	458.9375	0.0128	0.0131	463.1565
Total	0.1753	0.3049	1.8080	5.2400e-003	0.5592	3.8800e-003	0.5631	0.1489	3.5900e-003	0.1525		539.5868	539.5868	0.0132	0.0248	547.2916

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.2253	0.0000	18.2253	9.9479	0.0000	9.9479			0.0000			0.0000
Off-Road	3.1985	32.9819	22.4626	0.0467		1.5017	1.5017		1.3839	1.3839	0.0000	4,486.5047	4,486.5047	1.4283		4,522.2125
Total	3.1985	32.9819	22.4626	0.0467	18.2253	1.5017	19.7270	9.9479	1.3839	11.3317	0.0000	4,486.5047	4,486.5047	1.4283		4,522.2125

WTRH2 City of Lancaster - Antelope Valley APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3900e-003	0.1634	0.0636	7.6000e-004	0.0271	7.3000e-004	0.0278	7.8000e-003	6.9000e-004	8.5000e-003		80.6493	80.6493	4.5000e-004	0.0117	84.1351
Worker	0.1709	0.1415	1.7444	4.4800e-003	0.5321	3.1500e-003	0.5353	0.1411	2.9000e-003	0.1440		458.9375	458.9375	0.0128	0.0131	463.1565
Total	0.1753	0.3049	1.8080	5.2400e-003	0.5592	3.8800e-003	0.5631	0.1489	3.5900e-003	0.1525		539.5868	539.5868	0.0132	0.0248	547.2916

3.3 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.8026	41.5993	42.3969	0.0887		1.7541	1.7541		1.6628	1.6628		8,287.7688	8,287.7688	2.0460		8,338.9195
Total	4.8026	41.5993	42.3969	0.0887		1.7541	1.7541		1.6628	1.6628		8,287.7688	8,287.7688	2.0460		8,338.9195

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.2200e-003	0.7136	0.1106	3.5700e-003	0.1166	4.7700e-003	0.1213	0.0320	4.5700e-003	0.0365		378.5065	378.5065	2.1500e-003	0.0595	396.2929
Vendor	0.0879	3.2677	1.2724	0.0153	0.5420	0.0145	0.5565	0.1560	0.0139	0.1699		1,612.9866	1,612.9866	9.0500e-003	0.2332	1,682.7022
Worker	2.7441	2.2722	28.0100	0.0720	8.5447	0.0506	8.5953	2.2658	0.0466	2.3124		7,369.2241	7,369.2241	0.2051	0.2101	7,436.9701
Total	2.8402	6.2535	29.3930	0.0909	9.2032	0.0699	9.2731	2.4538	0.0650	2.5188		9,360.7172	9,360.7172	0.2163	0.5028	9,515.9651

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.8026	41.5993	42.3969	0.0887		1.7541	1.7541		1.6628	1.6628	0.0000	8,287.7688	8,287.7688	2.0460		8,338.9195
Total	4.8026	41.5993	42.3969	0.0887		1.7541	1.7541		1.6628	1.6628	0.0000	8,287.7688	8,287.7688	2.0460		8,338.9195

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3.3 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.2200e-003	0.7136	0.1106	3.5700e-003	0.1166	4.7700e-003	0.1213	0.0320	4.5700e-003	0.0365		378.5065	378.5065	2.1500e-003	0.0595	396.2929
Vendor	0.0879	3.2677	1.2724	0.0153	0.5420	0.0145	0.5565	0.1560	0.0139	0.1699		1,612.9866	1,612.9866	9.0500e-003	0.2332	1,682.7022
Worker	2.7441	2.2722	28.0100	0.0720	8.5447	0.0506	8.5953	2.2658	0.0466	2.3124		7,369.2241	7,369.2241	0.2051	0.2101	7,436.9701
Total	2.8402	6.2535	29.3930	0.0909	9.2032	0.0699	9.2731	2.4538	0.0650	2.5188		9,360.7172	9,360.7172	0.2163	0.5028	9,515.9651

3.3 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.5229	39.1093	42.1056	0.0888		1.5642	1.5642		1.4815	1.4815		8,292.4942	8,292.4942	2.0344		8,343.3544
Total	4.5229	39.1093	42.1056	0.0888		1.5642	1.5642		1.4815	1.4815		8,292.4942	8,292.4942	2.0344		8,343.3544

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.2400e-003	0.6955	0.1103	3.4800e-003	0.1166	5.1400e-003	0.1217	0.0320	4.9200e-003	0.0369		369.3572	369.3572	2.1200e-003	0.0581	386.7140
Vendor	0.0860	3.2039	1.2399	0.0150	0.5420	0.0157	0.5577	0.1560	0.0150	0.1711		1,578.8000	1,578.8000	8.7700e-003	0.2276	1,646.8441
Worker	2.5453	2.0117	25.1786	0.0701	8.5447	0.0477	8.5924	2.2658	0.0439	2.3097		7,233.4502	7,233.4502	0.1832	0.1933	7,295.6375
Total	2.6395	5.9111	26.5287	0.0886	9.2032	0.0685	9.2718	2.4538	0.0638	2.5176		9,181.6074	9,181.6074	0.1941	0.4790	9,329.1956

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.5229	39.1093	42.1056	0.0888		1.5642	1.5642		1.4815	1.4815	0.0000	8,292.4942	8,292.4942	2.0344		8,343.3544
Total	4.5229	39.1093	42.1056	0.0888		1.5642	1.5642		1.4815	1.4815	0.0000	8,292.4942	8,292.4942	2.0344		8,343.3544

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	8.2400e-003	0.6955	0.1103	3.4800e-003	0.1166	5.1400e-003	0.1217	0.0320	4.9200e-003	0.0369		369.3572	369.3572	2.1200e-003	0.0581	386.7140
Vendor	0.0860	3.2039	1.2399	0.0150	0.5420	0.0157	0.5577	0.1560	0.0150	0.1711		1,578.8000	1,578.8000	8.7700e-003	0.2276	1,646.8441
Worker	2.5453	2.0117	25.1786	0.0701	8.5447	0.0477	8.5924	2.2658	0.0439	2.3097		7,233.4502	7,233.4502	0.1832	0.1933	7,295.6375
Total	2.6395	5.9111	26.5287	0.0886	9.2032	0.0685	9.2718	2.4538	0.0638	2.5176		9,181.6074	9,181.6074	0.1941	0.4790	9,329.1956

3.4 Utilities - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1266	8.9879	9.3221	0.0133		0.4906	0.4906		0.4602	0.4602		1,206.4846	1,206.4846	0.3013		1,214.0163
Total	1.1266	8.9879	9.3221	0.0133		0.4906	0.4906		0.4602	0.4602		1,206.4846	1,206.4846	0.3013		1,214.0163

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Utilities - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2000e-003	0.0817	0.0318	3.8000e-004	0.0136	3.6000e-004	0.0139	3.9000e-003	3.5000e-004	4.2500e-003		40.3247	40.3247	2.3000e-004	5.8300e-003	42.0676
Worker	0.0661	0.0487	0.5886	1.4000e-003	0.1643	1.0200e-003	0.1653	0.0436	9.4000e-004	0.0445		143.4402	143.4402	5.2800e-003	4.6400e-003	144.9565
Total	0.0683	0.1304	0.6204	1.7800e-003	0.1779	1.3800e-003	0.1792	0.0475	1.2900e-003	0.0488		183.7649	183.7649	5.5100e-003	0.0105	187.0240

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1266	8.9879	9.3221	0.0133		0.4906	0.4906		0.4602	0.4602	0.0000	1,206.4846	1,206.4846	0.3013		1,214.0163
Total	1.1266	8.9879	9.3221	0.0133		0.4906	0.4906		0.4602	0.4602	0.0000	1,206.4846	1,206.4846	0.3013		1,214.0163

WTRH2 City of Lancaster - Antelope Valley APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Utilities - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2000e-003	0.0817	0.0318	3.8000e-004	0.0136	3.6000e-004	0.0139	3.9000e-003	3.5000e-004	4.2500e-003		40.3247	40.3247	2.3000e-004	5.8300e-003	42.0676
Worker	0.0661	0.0487	0.5886	1.4000e-003	0.1643	1.0200e-003	0.1653	0.0436	9.4000e-004	0.0445		143.4402	143.4402	5.2800e-003	4.6400e-003	144.9565
Total	0.0683	0.1304	0.6204	1.7800e-003	0.1779	1.3800e-003	0.1792	0.0475	1.2900e-003	0.0488		183.7649	183.7649	5.5100e-003	0.0105	187.0240

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963

WTRH2 City of Lancaster - Antelope Valley APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3000e-003	0.1602	0.0620	7.5000e-004	0.0271	7.9000e-004	0.0279	7.8000e-003	7.5000e-004	8.5500e-003		78.9400	78.9400	4.4000e-004	0.0114	82.3422
Worker	0.0679	0.0537	0.6720	1.8700e-003	0.2281	1.2700e-003	0.2293	0.0605	1.1700e-003	0.0617		193.0636	193.0636	4.8900e-003	5.1600e-003	194.7234
Total	0.0722	0.2139	0.7340	2.6200e-003	0.2552	2.0600e-003	0.2572	0.0683	1.9200e-003	0.0702		272.0036	272.0036	5.3300e-003	0.0165	277.0656

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963

WTRH2 City of Lancaster - Antelope Valley APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3000e-003	0.1602	0.0620	7.5000e-004	0.0271	7.9000e-004	0.0279	7.8000e-003	7.5000e-004	8.5500e-003		78.9400	78.9400	4.4000e-004	0.0114	82.3422
Worker	0.0679	0.0537	0.6720	1.8700e-003	0.2281	1.2700e-003	0.2293	0.0605	1.1700e-003	0.0617		193.0636	193.0636	4.8900e-003	5.1600e-003	194.7234
Total	0.0722	0.2139	0.7340	2.6200e-003	0.2552	2.0600e-003	0.2572	0.0683	1.9200e-003	0.0702		272.0036	272.0036	5.3300e-003	0.0165	277.0656

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.1121	69.7135	16.8462	0.3557	13.1566	0.5119	13.6686	3.6059	0.4895	4.0954		37,663.36 41	37,663.36 41	0.2373	5.6653	39,357.54 77
Unmitigated	1.1121	69.7135	16.8462	0.3557	13.1566	0.5119	13.6686	3.6059	0.4895	4.0954		37,663.36 41	37,663.36 41	0.2373	5.6653	39,357.54 77

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	326.70	326.70	326.70	5,556,035	5,556,035
Total	326.70	326.70	326.70	5,556,035	5,556,035

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	50.10	50.10	50.10	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.040000	0.020000	0.010000	0.050000	0.020000	0.020000	0.020000	0.820000	0.000000	0.000000	0.000000	0.000000	0.000000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	6.1500e-003	6.0000e-004	0.0666	0.0000		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004		0.1430	0.1430	3.7000e-004		0.1523
Unmitigated	6.1500e-003	6.0000e-004	0.0666	0.0000		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004		0.1430	0.1430	3.7000e-004		0.1523

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.1500e-003	6.0000e-004	0.0666	0.0000		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004		0.1430	0.1430	3.7000e-004		0.1523
Total	6.1500e-003	6.0000e-004	0.0666	0.0000		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004		0.1430	0.1430	3.7000e-004		0.1523

WTRH2 City of Lancaster - Antelope Valley APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.1500e-003	6.0000e-004	0.0666	0.0000		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004		0.1430	0.1430	3.7000e-004		0.1523
Total	6.1500e-003	6.0000e-004	0.0666	0.0000		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004		0.1430	0.1430	3.7000e-004		0.1523

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Aerial Lifts	1	1.00	260	63	0.31	Diesel
Skid Steer Loaders	1	1.00	260	65	0.37	Diesel

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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	lb/day										lb/day					
Aerial Lifts	4.3300e-003	0.0658	0.1366	2.1000e-004		1.1400e-003	1.1400e-003		1.0500e-003	1.0500e-003	0.0000	20.3275	20.3275	6.5700e-003		20.4918
Skid Steer Loaders	7.7900e-003	0.1033	0.1731	2.6000e-004		3.3200e-003	3.3200e-003		3.0600e-003	3.0600e-003	0.0000	25.0709	25.0709	8.1100e-003		25.2736
Total	0.0121	0.1691	0.3097	4.7000e-004		4.4600e-003	4.4600e-003		4.1100e-003	4.1100e-003	0.0000	45.3984	45.3984	0.0147		45.7655

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	1	50	671	0.73	Diesel
Fire Pump	1	1	50	335	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
Boiler	1	240	83220	10	CNG

User Defined Equipment

Equipment Type	Number
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10.1 Stationary Sources

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	lb/day										lb/day					
Boiler - CNG (5 - 75 MMBTU)	1.2941	2.6400	23.0592	0.1412		1.7883	1.7883		1.7883	1.7883		28,235.7765	28,235.7765	0.5412		28,249.3062
Emergency Generator - Diesel (600 - 750 HP)	1.1010	3.0777	2.8077	5.2900e-003		0.1620	0.1620		0.1620	0.1620		563.3140	563.3140	0.0790		565.2884
Fire Pump - Diesel (300 - 600 HP)	0.5497	1.5366	1.4018	2.6400e-003		0.0809	0.0809		0.0809	0.0809		281.2372	281.2372	0.0394		282.2230
Total	2.9448	7.2543	27.2687	0.1491		2.0311	2.0311		2.0311	2.0311		29,080.3278	29,080.3278	0.6596		29,096.8176

11.0 Vegetation
