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AIR QUALITY IMPACT ASSESSMENT FOR THE SMALL POWER PLANT EXEMPTION APPLICATION

Oppidan Investment Company > Santa Clara, CA Mission College Backup Generating Facility



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Trinity Consultants, Inc. (Trinity) has prepared an air quality and greenhouse gas (GHG) impact assessment, collectively referred to as the Air Quality Impact Assessment (AQIA), to evaluate potential impacts associated with the proposed construction and operation of the Mission College Backup Generating Facility (MCBGF) (the Project) proposed by Oppidan Investment Company (Oppidan). This AQIA supports Oppidan's application for a Small Power Plant Exemption (SPPE) pursuant to Public Resources Code Section 25541 and Section 1934 et seq. of the California Energy Commission (Commission) regulations for the MCBGF. The MCBGF will be located within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD), as such this AQIA was prepared in accordance with the standards, procedures, and methodologies established in the BAAQMD California Environmental Quality Act (CEQA) Air Quality Guidelines, dated May 2017, and the California Natural Resources Agency's CEQA Guidelines (BAAQMD, 2017b and California Natural Resources Agency, 2019).

The MCBGF will consist of a total of 45 diesel-fired emergency generators that will be used exclusively to provide backup power generation to support the Mission College Data Center (MCDC), located at 2305 Mission College Boulevard in Santa Clara, California. Forty-three (43) of the emergency generators will be 3,634 brake horsepower (bhp) each, herein referred to as critical backup generators. Two of the emergency generators will be smaller generators rated at 900 bhp each to support fire suppression and other emergency operations, herein referred to as life safety generators. The MCBGF is designed to operate only when electricity from Silicon Valley Power (SVP) is unavailable to the MCDC.

The proposed Project comprises two primary phases: Phase I and Phase II. Phase I will include the installation of 23 backup generators and one life safety generator to support the MCDC east building. Phase II will include the installation of 20 backup generators and one life safety generator to support the MCDC west building. The first phase will also include the construction of an electrical substation on the northeast corner of the site property. Construction emissions from the construction of the MCDC will result from demolition activities, ground preparation, grading activities, building erection, parking lot construction activities, and use of onsite construction equipment. All off-road equipment to be used in the construction project will achieve a project wide fleet-average 28 percent reduction in NO_x and 70 percent reduction in PM compared to the CalEEMod modeled average used in this AQIA.

In 2018, Oppidan proposed a project with similar features to the MCDC and MCBGF (the 2018 Data Center Project) to the City of Santa Clara (the City). The City prepared an Initial Study (IS) and adopted a Mitigated Negative Declaration (MND) and a Mitigation Monitoring and Reporting Plan (MMRP) for the 2018 Data Center Project in March 2018. Although Oppidan has since modified the 2018 Data Center Project for development of the MCDC and MCBGF, the 2018 Data Center Project was approved by the City and shares fundamental similarities with the proposed Project. The proposed Project has fewer backup generators, modifications to individual backup generator engine horsepower and layout, and the addition of life safety generators. Therefore, the proposed Project requires an updated AQIA of the generators in addition to the AQIA completed for the 2018 Data Center Project. Thus, the main purpose of this AQIA is to evaluate the impact of the 45 generators on air quality and GHGs as a supplement to the AQIA already approved by the City.

CEQA requires that a lead agency evaluate the potential air pollutant and GHG emissions of a project and determine whether the emissions would result in significant effects. The AQIA evaluates the potential emissions related to the proposed Project through individual calculations of air emissions for the proposed Project as well as a discussion of existing air quality and GHG conditions associated with the proposed project location. Emissions are evaluated for the construction phase and operational phase of the MCBGF, consistent with the BAAQMD CEQA Air Quality Guidelines. Sources of emissions from the Project include:

- Various construction equipment (construction phase)
- > 43 critical backup generators (operational phase)
- > 2 life safety generators (operational phase)

The proposed Project would result in emissions of reactive organic gases (ROG), carbon monoxide (CO), nitrogen oxides (NO $_x$), sulfur oxides (SO $_x$), particulate matter (PM $_{10}$ and PM $_{2.5}$), and GHGs. Table 1-1 summarizes the operational phase emissions associated with the proposed Project and comparison to the BAAQMD thresholds of significance, as provided in the BAAQMD CEQA Air Quality Guidelines. The AQIA provides substantial evidence that emissions resulting from the Project would be below the BAAQMD's thresholds of significance and would result in *less than significant* impacts associated with criteria air pollutant and GHG emissions, except for NO $_x$. As the vast majority of NO $_x$ emissions result from operation of the 45 generators, NO $_x$ emission offsets will be purchased for the operation of the 45 generators through the BAAQMD air permitting process, resulting in a *less than significant impact with mitigation incorporated*.

Table 1-1: Summary of Operational Emissions

		Pollutant					
Activity	PM ₁₀	PM _{2.5}	CO	NOx	ROG/ VOC	SO_2	CO ₂ e
				Pounds	per Day	(lb/day)	
Generator							
Operational	3.17	3.17	157	928	41.2	1.32	
Emissions							
Mobile and Building							For this analysis and
Operational	1.07	0.49	5.28	4.27	12.47	0.03	comparison to
Emissions							thresholds, GHG
Total Project							emissions are calculated
Operational	4.24	3.66	162	932	53.7	1.35	on an annual basis only.
Emissions							on an annual basis only.
Significance Threshold	82	54	N/A	54	54	N/A	
Significant Impact?	No	No	No	Yes	No	No	
Activity		т	ons per Y	oar (tny	7)		Metric Tons per Year
Activity			ons per i	ear (tpy	'J		(MT/yr)
Generator							
Operational	0.12	0.12	5.84	33.0	1.68	0.05	3,875
Emissions							
Mobile and Building							
Operational	0.20	0.09	0.96	0.78	2.28	0.01	2,663
Emissions							
Total Project							
Operational	0.32	0.21	6.8	33.8	3.96	0.06	6,538
Emissions							
Significance Thresholds	15	10	N/A	10	10	N/A	10,000
Significant Impact?	No	No	No	Yes	No	No	No

The AQIA also evaluates the potential health risks associated with emissions of diesel particulate matter (DPM) from the operational phase of the Project. AERMOD dispersion modeling software and the Hotspots Analysis and Reporting Program (HARP) are used to estimate carcinogenic, chronic, and acute health risk at residential and sensitive receptors as a result of the DPM emissions from the operation of the 45 generators. The analysis

concludes that the Project individual and cumulative health risk is below BAAQMD's thresholds of significance for Risk and Hazards and therefore would result in a *less than significant* impact.

The AQIA also includes an air dispersion modeling analysis for emissions of CO, NO_x , PM_{10} , $PM_{2.5}$, and SO_2 from operation of the 45 generators. Air dispersion modeling results are compared to the National Ambient Air Quality Thresholds (NAAQS) and California Ambient Air Quality Standards (CAAQS). While the BAAQMD CEQA Air Quality Guidelines do not require comparison to the NAAQS and CAAQS, the air dispersion modeling results are included based on historic requests for air dispersion modeling results from the California Energy Commission (the CEC or the Commission) for similar SPPE applications. Air dispersion modeling results suggest that the proposed Project would result in a *less than significant*.

Table 1-2 below summarizes the checklist questions from Appendix G of the California state CEQA Guidelines for air quality and greenhouse gas impacts and the impact results for the proposed Project (California Natural Resources Agency, 2019).

Table 1-2: Environmental Impact Significance Determinations

. A	Air Quality				
Would the project:	Potentially Significant Impact Less than Significant w Mitigation Incorporat		Less than Significant Impact	No Impact	
a. Conflict with or obstruct implementation of the applicable air quality plan?				X	
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable Federal or State ambient air quality standard?		X			
c. Expose sensitive receptors to substantial pollutant concentrations?			x		
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?				X	
Greenho	use Gas Emissio	ons	l		
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X		
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			x		

2.1. INTRODUCTION

This AQIA evaluation was prepared to evaluate potential air quality and greenhouse gas impacts associated with the proposed construction of the MCBGF proposed by Oppidan. This AQIA supports Oppidan's application for a SPPE pursuant to Public Resources Code Section 25541 and Section 1934 et seq. of the Commission regulations for the MCBGF. The MCBGF will be located within the jurisdiction of the BAAQMD, as such this AQIA was prepared in accordance with the standards, procedures, and methodologies established in the BAAQMD CEQA Air Quality Guidelines, dated May 2017 and the California Natural Resources Agency's CEQA Guidelines (California Natural Resources Agency, 2019).

2.2. GENERAL FACILITY BACKGROUND

The MCBGF will be exclusively used to provide emergency electricity to the MCDC located at 2305 Mission College Boulevard in Santa Clara, California (see Figure 2-1 for the regional location and Figure 2-2 for the surrounding local area). The MCBGF will be equipped with 45 diesel-fueled emergency generators. Forty-three (43) generators will be rated at 3,634 bhp each to support the need for the MCDC to provide uninterruptible power supply for its tenants' servers, herein referred to as critical backup generators. Two (2) generators will be rated at 900 bhp each to support fire suppression and other emergency operations, herein referred to as life safety generators. The proposed site occupies approximately 15 acres.

Unlike the typical electrical generating facilities reviewed by the Commission, the MCBGF is designed to operate only when electricity from SVP is unavailable to the MCDC. The MCBGF will not be electrically interconnected to the electrical transmission grid. Rather, it will consist of two generation yards, each separately electrically interconnected to the two data center buildings that make up the MCDC. The MCDC's purpose is to provide customers with mission critical space to support their servers, to which interruptions of power could lead to damage or corruption of data and software. To ensure no interruption of electricity service to the servers housed in the MCDC building, the servers will be connected to uninterruptible power supply (UPS) systems that store energy and provide near-instantaneous protection from input power interruptions. However, to provide electricity during a prolonged power interruption, the UPS systems will require a power generation source to continue supplying steady power to the servers and other equipment. The MCBGF provides that backup power generation source.

The site is currently developed with an existing two-story, 358,000 square-foot office building, and an associated paved parking lot. The site is located in a mixed-use residential, office, and commercial area in Santa Clara. The topography is flat and views of the eastern foothills from public view points are partially blocked by existing industrial and commercial structures in the area. The site is located northwest of Montague Expressway, north of Mission College Boulevard, and south of Agnew Road. With the exception of a multifamily residential development north of the site on Agnew road, the area consists primarily of light industrial office and commercial buildings.

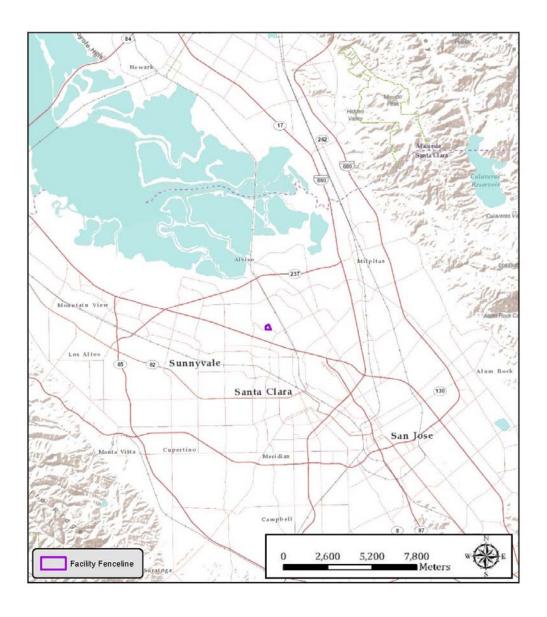


Figure 2-1: Regional Location

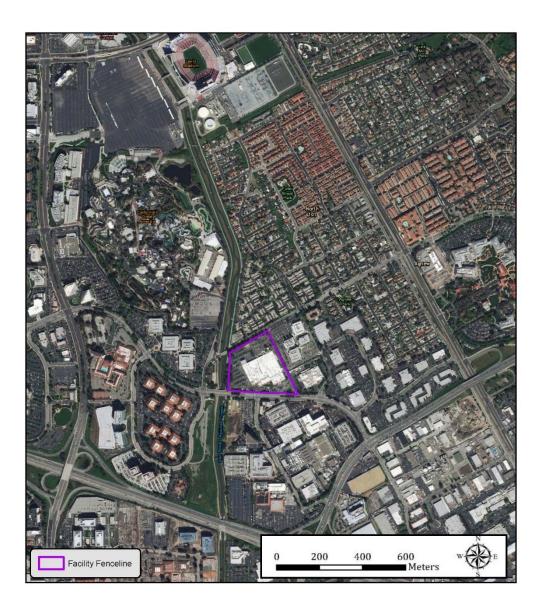


Figure 2-2: Surrounding Local Area

2.3. PROJECT DESCRIPTION

The MCBGF will be a backup power generating facility to ensure the power supply to the MCDC tenants' computer servers remains uninterrupted. The MCBGF will consist of 43 critical backup generators arranged in two generation yards, each designed to serve one of the two data center buildings that make up the MCDC. Additionally, each data center building will be equipped with a life safety generator to support fire suppression and other emergency operations. In total, the MCBGF will encompass 45 emergency generators.

In 2018, Oppidan proposed a project with similar features to the MCDC and MCBGF (the 2018 Data Center Project) to the City of Santa Clara (the City). The City prepared an Initial Study (IS) and adopted a Mitigated Negative Declaration (MND) and a Mitigation Monitoring and Reporting Plan (MMRP) for the 2018 Data Center Project in March 2018. The IS, MND and MMRP included a main data center building and 120 diesel-fired backup generators. A copy of the MND which includes the IS, MMRP, and supporting technical studies can be found on the City's website (City of Santa Clara, 2017). Although Oppidan has since modified the 2018 Data Center Project for development of the MCDC and MCBGF, the 2018 Data Center Project was approved by the

City and shares fundamental similarities with the proposed Project. These similarities include both facilities being located at the same site, which in turn signifies that sensitive receptors and cumulative risk thresholds only differ due to surrounding sites changing between March 2018 and the proposed Project implementation date. Another similarity is both facilities' design and purpose as data centers to host tenants' servers, and both facilities' resulting need for backup power generation.

The modifications from the 2018 Data Center Project to the proposed Project include changes in building quantity, building size, construction timeline, backup generator quantity, generator horsepower and generator layout. These changes are summarized as follows:

- Construction of two smaller, three-story data center buildings encompassing a total of 490,000 square feet for the proposed Project instead of one larger, 495,610 square foot, two-story data center building for the 2018 Data Center Project;
- Construction period of approximately 748 days for the proposed Project instead of 336 days for the 2018 Data Center Project;
- Decreasing the number of generators to 45 generators for the proposed Project from the 120 generators that were approved for the 2018 Data Center Project.
- Changing the individual generator horsepower to 3,634 bhp and 900 bhp for the proposed Project from 932 bhp in the case of the 2018 Data Center Project.

Oppidan is presenting the similarities and modifications to the 2018 Data Center Project previously approved by the City to provide a broader picture to the Commission when evaluating the potential effects of the MCDC and MCBGF. While the proposed Project has fewer generators, the modifications to individual generator horsepower and layout requires an updated impact assessment of the emergency generators in addition to the AQIA completed for the 2018 Data Center Project. Thus, the main purpose of this AQIA is to evaluate the impact of the 45 generators on air quality as a supplement to the AQIA already approved by the City.

2.3.1. MCBGF General Site Arrangement and Layout

The MCBGF will be constructed to support the MCDC which will be comprised of two, three-story buildings with a total size of 490,000 square feet. The MCBGF will consist of 45 emergency generators located at the site in generation yards at two separate locations within the MCDC towards the middle of the site property. Each generation yard will be adjacent to the building it serves. The MCDC eastern building will be equipped with 23 critical backup generators and one life safety generator, designated as Phase I of the Project. The MCDC western building will be equipped with 20 critical backup generators and one life safety generator, designated as Phase II of the Project. Appendix AQ-1 includes a detailed layout of the site plan.

Some of the critical backup generators will be supported in a stacked configuration for Phase I, and all the critical backup generators will be constructed in a stacked configuration for Phase II. Neither of the life safety generators will be constructed in a stacked configuration. The top-level critical backup generators will each have a day tank capable of storing 500 gallons of diesel fuel, which is fed from the lower level belly fuel tank, with a diesel storage capacity of 10,000 gallons. Critical backup generators not in a stacked configuration will have a belly fuel tank with a storage capacity of 5,000 gallons. Each of the two life safety generators will be located within the generation yard supporting its respective building and will have a belly fuel tank with a storage capacity of 1,000 gallons. Each generation yard will be electrically interconnected to the building it serves through a combination of underground and above ground conduit/cabling to a location within the building that houses electrical distribution equipment.

2.3.2. Electrical Generation Equipment

Each of the 43 critical backup generators will be a 3,634 brake bhp, Caterpillar Model 3516C, Tier-2 emergency diesel-fired generator equipped with a Rypos HDPF/C diesel particulate filter (DPF). Each of the two life safety generators will be a 900 bhp, Caterpillar Model C-18, Tier-2 emergency diesel-fired generator equipped with a Rypos HDPF/C DPF. The DPF for both generator models is verified by the California Air Resources Board (CARB) under Executive Order DE-07-001-07 to reduce emissions of diesel particulate matter by 85% or more (CARB, 2019d). The Executive Order specifically notes the DPF is designed for standby engines, which typically operate at various loads. Furthermore, the Executive Order notes that duty cycles of the standby engines which are approved under the Executive Order (including those proposed for the Project) are reviewed to ensure compatibility DPF, meaning that the DPF is compatible at all duty loads. The CARB Executive Order is provided in Appendix AQ-2. Specification sheets from the generator manufacturers are provided in Appendix AQ-2. The generators will use ultra-low sulfur diesel which has a sulfur content of 0.0015% as defined under 40 CFR 80, Subpart I. The generators will each be equipped with a flapper-type rain cap which is a hinged cap that opens to release exhaust vertically into the atmosphere when the generator is operating.

2.3.3. Facility Operation

The generators will be run for short periods for testing and maintenance purposes and otherwise will not operate unless there is a disturbance or interruption of the utility supply. BAAQMD Rule 9-8 *Nitrogen Oxide Oxides and Carbon Monoxide from Stationary Internal Combustion Engines* and the CARB Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines limits each engine to no more than 50 hours of operation annually for testing and maintenance purposes (CARB, 2019e).

Table 2-1 below summarizes the routine maintenance and testing schedule for each of the generators. The volume of fuel consumption at each load is provided by the manufacturer specification sheets in Appendix AQ-2, under "Vol Fuel Consumption (VFC)" in the General Performance Data section. Note that for bi-weekly readiness testing, the generators are tested in a manner that does not generate a load and does not consume fuel.

Event	Frequency	Maximum Duration (min)	Maximum Number of Generators Tested Concurrently ^a	Maximum Number of Generators Tested per Day ^a	Typical Load Range	Fuel Consumption per Event
Readiness Testing	Bi-weekly	15	1	23	0%	Approximately 0 gallons
Company	Annual				25% for 30 min.	
Generator Maintenance	3 years	3 years 120	1	1	50% for 30 min.	Approximately 252 gallons
and Testing	6 years				100% for 1 hour	a activities conducted

Table 2-1: Generator Testing and Maintenance Events

Any electricity generated during maintenance and testing of the generators will be directed to a load bank, which is a device that develops electrical load and then converts or dissipates the power output of the generators by applying that load. In other words, the load bank uses the energy generated by the emergency generators to test the generators, without any electricity entering the electrical transmission grid.

a. Oppidan proposes to limit operation to one generator at a time for routine maintenance and testing activities conducted pursuant to manufacturer specifications.

2.4. PROJECT PHASING AND CONSTRUCTION

Construction of the MCBGF will take place in two phases; one for each generation yard which will be constructed to serve each of the two MCDC Buildings. Phase I will include the installation of 23 critical backup generators and one life safety generator to support the MCDC eastern building. Phase II will include the installation of 20 critical backup generators and one life safety generator to support the MCDC western building. The first phase will also include the construction of an electrical substation on the northeast corner of the site property.

Construction emissions from the construction of the MCDC will result from demolition activities, ground preparation and grading activities, building erection, parking lot construction activities, and use of onsite construction equipment. Construction emissions from the MCBGF are low, and similar to that of the 2018 Data Center Project previously approved by the City, but are included in this AQIA for completeness purposes. MCBGF offsite construction emissions will result primarily from materials transport to and from the site, materials placement in the generation yard, and worker travel.

Construction of the generation yard to support the Phase I MCDC Building is anticipated to begin between December 2019 and January 2020. Phase I construction is expected to take approximately 14.5 months. Construction personnel are estimated to range from 10 – 15 workers per generation yard including one crane operator. Phase II construction is assumed to occur immediately following completion of the first generation yard and the substation, and to take approximately 10.5 months.

As the generators are expected to be installed at the Project site in 2021, an Authority to Construct (ATC) application will be submitted to the BAAQMD in 2020. The Project will qualify for a Minor Source Permit under BAAQMD regulations. It should be noted that BAAQMD has accepted Tier 2 backup generators of the same horsepower as those in the proposed Project as Best Available Control Technology (BACT) for other sites of similar design and purpose in calendar year 2019.

Provided below is an overview of the local and regional air quality environment, the physical setting of the Project area, a discussion of GHGs and global climate change, and existing regulations related to air quality and GHGs.

3.1. INTRODUCTION

The Project site is located in a developed area in Santa Clara County within the City of Santa Clara and within the boundaries of the San Francisco Bay Area Air Basin (Bay Area Air Basin). The Bay Area Air Basin encompasses all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo and Santa Clara Counties; the southwestern portion of Solano County; and the southern portion of Sonoma County. The BAAQMD acts as the regulatory agency for air pollution control in the Bay Area Air Basin and is the local agency empowered to regulate air pollutant emissions for the proposed Project area.

The BAAQMD develops and adopts Air Quality Management Plans (AQMPs), which serve as a blueprint to bring the Bay Area Air Basin into compliance with federal and state clean air standards and adopts rules to reduce emissions from various sources, including specific types of equipment, activities, processes, and products.

3.2. ENVIRONMENTAL SETTING

3.2.1. Climate and Meteorology

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features that influence pollutant movement and dispersion. Atmospheric conditions such as wind speed, wind direction, atmospheric stability, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersion of air pollutants, and consequently affect air quality (Abbott, 2003).

The climate of the San Francisco Bay Area is determined largely by a high-pressure system that is almost always present over the eastern Pacific Ocean off the West Coast of North America. High-pressure systems are characterized by an upper layer of dry air that warms as it descends, restricting the mobility of cooler marine-influenced air near the ground surface and resulting in the formation of subsidence inversions. In winter, the Pacific high-pressure system shifts southward, allowing storms to pass through the region. During summer and fall, emissions generated within the San Francisco Bay Area can combine with abundant sunshine under the restraining influences of topography and subsidence inversions to create conditions that are conducive to the formation of photochemical pollutants such as ozone (O_3) (Abbott, 2003).

More specifically, the Project Area is located in the Santa Clara Valley climatological subregion. The BAAQMD CEQA Air Quality Guidelines characterizes the Santa Clara Valley as:

"...bounded by the Bay to the north and by mountains to the east, south and west. Temperatures are warm on summer days and cool on summer nights, and winter temperatures are fairly mild. At the northern end of the valley, mean maximum temperatures are in the low-80's during the summer and the high-50's during the winter, and mean minimum temperatures range from the high-50's in the summer to the low-40's in the winter. Further inland, where the moderating effect of the Bay is not as strong, temperature extremes are greater...

Winds in the valley are greatly influenced by the terrain, resulting in a prevailing flow that roughly parallels the valley's northwest-southeast axis. A north-northwesterly sea breeze flows through the valley during the afternoon and early evening, and a light south-southeasterly drainage flow occurs during the late evening and early morning. In the summer the southern end of the valley sometimes becomes a "convergence zone," when air flowing from the Monterey Bay gets channeled northward into the southern end of the valley and meets with the prevailing north-northwesterly winds.

Wind speeds are greatest in the spring and summer and weakest in the fall and winter. Nighttime and early morning hours frequently have calm winds in all seasons, while summer afternoons and evenings are quite breezy. Strong winds are rare, associated mostly with the occasional winter storm.

The air pollution potential of the Santa Clara Valley is high. High summer temperatures, stable air and mountains surrounding the valley combine to promote O_3 formation. In addition to the many local sources of pollution, O_3 precursors from San Francisco, San Mateo and Alameda Counties are carried by prevailing winds to the Santa Clara Valley. The valley tends to channel pollutants to the southeast. In addition, on summer days with low level inversions, O_3 can be recirculated by southerly drainage flows in the late evening and early morning and by the prevailing northwesterlies in the afternoon. A similar recirculation pattern occurs in the winter, affecting levels of CO and CO anation CO and CO and CO and CO and CO and CO and CO

Pollution sources are plentiful and complex in this subregion. The Santa Clara Valley has a high concentration of industry at the northern end, in the Silicon Valley. Some of these industries are sources of air toxics as well as criteria air pollutants. In addition, Santa Clara Valley's large population and many work-site destinations generate the highest mobile source emissions of any subregion in the [Bay Area Air Basin]."

3.2.2. Regional Air Quality

National Ambient Air Quality Standards (NAAQS) are established by the U.S. EPA for various pollutants: O_3 , PM_{10} , $PM_{2.5}$, CO, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead (Pb). These standards set maximum concentrations over different averaging periods—primarily to protect public human health and secondarily to protect public welfare (protect against decreased visibility as well as damage to animals, crops, vegetation, and buildings).

California Ambient Air Quality Standards (CAAQS) are established by the State of California and are in some cases more stringent than the NAAQS and include other pollutants in addition to the criteria pollutants. Pollutants covered by the CAAQS include O_3 , PM_{10} , $PM_{2.5}$, CO, NO_2 , SO_2 , Pb, sulfates, hydrogen sulfide (H_2S), and vinyl chloride.

Both state and national air quality standards consist of two parts: an allowable concentration of a pollutant, and an averaging time over which the concentration is measured. The allowable concentrations are based on the results of studies of the effects of the pollutants on human health, crops and vegetation, and, in some cases, damage to paint and other materials. The averaging times are based on whether the damage caused by the pollutant is more likely to occur during exposure to a high concentration for a short time (e.g., one hour), or to a relatively lower average concentration over a longer period (e.g., 8 hours, 24 hours, or one year). For some pollutants there is more than one air quality standard, reflecting both its short-term and long-term effects. Table 3-1 below presents the CAAQS and NAAQS for selected common pollutants, including pollutants applicable to the Project.

The degree to which a region's air quality is healthy or unhealthy is determined by comparing pollutant concentrations in ambient air samples to the state and national standards presented in Table 3-1. California standards for O3, CO (except 8-hour Lake Tahoe), SO_2 , NO_2 , PM_{10} , $PM_{2.5}$, and visibility reducing particles are

values that are not to be exceeded. All other CAAQS are not to be equaled or exceeded. Compliance with the national standards (other than O_3 , PM_{10} , $PM_{2.5}$, and those based on annual averages) is achieved if the standards are not exceeded more than once per year. The O_3 standard is attained when the fourth-highest eight-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10} , the 24-hour standard is attained when the number of days per calendar year with a 24-hour average concentration above the standard is equal to or less than one, averaged over three years. Nonattainment areas are subject to additional restrictions and standards, as required by the U.S. EPA. The air quality data collected at local monitoring stations are also used to monitor progress in attaining air quality standards.

Under the provisions of the Federal Clean Air Act, the Bay Area Air Basin is classified as either in attainment, nonattainment, or unclassified/attainment with respect to the NAAQS. Table 3-2 provides the NAAQS and CAAQS classification statuses for the Bay Area Air Basin based on the local criteria pollutant concentrations and federal and state designations.

The human health and environmental effects of the criteria pollutants for which NAAQS are set are summarized in Table 3-3 below. The sections following Table 3-3 provide a more detailed discussion of the typical sources of such criteria pollutants.

Table 3-1: Summary of Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS	NAAQS	Major Pollutant Sources
	8-hour	0.070 ppm	0.070 ppm	Formed when ROG and NO _x react in the presence of sunlight. Major sources
Ozone (O ₃)	1-hour	0.09 ppm		include on-road motor vehicles, solvent evaporation, and commercial/industrial mobile equipment.
Carbon Monoxide (CO)	8-hour	9.0 ppm	9 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles
carbon Monoxide (CO)	1-hour	20 ppm	35 ppm	internal combustion engines, primarily gasonne-powered infotor venicles
Nitrogen Dioxide (NO ₂)	Annual Average	0.030 ppm	0.053 ppm	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships,
Mid ogen Dioxide (NO2)	1-hour	0.18 ppm	0.100 ppm	and railroads
	Annual Average		0.030 ppm	
Sulfur Dioxide (SO ₂)	24-hour	0.04 ppm	0.14 ppm	Fuel combustion, chemical plants, sulfur recovery plants and metal processing
Sullul Dioxide (SO2)	3-hour		0.5 ppm	ruel combustion, chemical plants, sulful recovery plants, and metal processing
	1-hour	0.25 ppm	0.075 ppm	
Respirable Particulate	Annual Arithmetic Mean	20 μg/m³		Dust- and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised
Matter (PM ₁₀)	24-hour	50 μg/m³	150 μg/m³	dust and ocean sprays); also, formed from photochemical reactions of other pollutants, including NO _x , sulfur oxides, and organics.
Fine Particulate Matter	Annual Arithmetic Mean	12 μg/m³	12 μg/m³	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; also, formed from photochemical reactions
(PM _{2.5})	24-hour		35 μg/m ³	of other pollutants, including NO _x , sulfur oxides, and organics.
	Calendar Quarter		1.5 μg/m ³	
Lead (Pb)	30-day Average	1.5 μg/m ³		Present sources: Pb smelters, battery manufacturing, and recycling facilities.
Leau (r b)	3-month Rolling Average		0.15 μg/m³	Past source: combustion of leaded gasoline.
Hydrogen Sulfide (H ₂ S)	1-hour	0.03 ppm		Geothermal power plants, petroleum production and refining
Vinyl Chloride	24-hour	0.01 ppm		Production of PVC plastic
Visibility Reducing Particles	8-hour	Extinction of 0.23/km; visibility of ≥ 10 miles		See PM _{2.5} .
Sulfates	24-hour	25 μg/m ³		Formed from SO ₂ emitted from combustion of petroleum-derived fuels

Sources: BAAQMD, 2017b; CARB, 2009, 2016, and 2019.

ppm = parts per million, g/m^3 = micrograms per cubic meter

Table 3-2: Summary of BAAQMD Attainment Status

Pollutant	California AAQS ^a	NAAQS ^b
O ₃ —1-hour	Nonattainment	N/A
O ₃ —8-hour	Nonattainment	Nonattainment
CO —1-hour	Attainment	Attainment
CO —8-hour	Attainment	Attainment
Nitrogen Dioxide (NO ₂)—1-hour	Attainment	Unclassified
Nitrogen Dioxide (NO ₂) —Annual	N/A	Attainment
Sulfur Dioxide (SO ₂)—1-hour	Attainment	Unclassified
Sulfur Dioxide (SO ₂)—3-hour	N/A	Attainment
Sulfur Dioxide (SO ₂) —24-hour	Attainment	Attainment
Sulfur Dioxide (SO ₂) —Annual	N/A	Attainment
PM ₁₀ —24-hour	Nonattainment	Unclassified
PM ₁₀ —Annual	Nonattainment	N/A
PM _{2.5} —24-hour	N/A	Nonattainment ^c
PM _{2.5} —Annual	Nonattainment	Unclassified/Attainment
Lead (Pb)	N/A ^d	Attainment
Hydrogen Sulfide (H ₂ S)	Unclassified	N/A
Vinyl Chloride	N/A ^d	N/A
Visibility Reducing Particles	Unclassified	N/A
Sulfates	Attainment	N/A

Sources: BAAQMD, 2017a and 2017c

Notes: AAQS = ambient air quality standards.

N/A = Not Applicable

a. See CCR Title 17 Sections 60200-60210

b. See 40 CFR Part 81

c. U.S. EPA tightened the national 24-hour PM_{2.5} standard from 65 to 35 µg/m³ in 2006. On January 9, 2013, U.S. EPA issued a final rule to determine that the Bay Area Air Basin was in attainment with respect to the 24-hour PM_{2.5} national standard. This U.S. EPA rule suspends key state implementation plan (SIP) requirements as long as monitoring data continue to show that the Bay Area Air Basin attains the standard. Despite this U.S. EPA action, the Bay Area Air Basin will continue to be designated as nonattainment for the national 24-hour PM_{2.5} standard until the BAAQMD submits a redesignation request and a maintenance plan to U.S. EPA, and U.S. EPA approves the proposed redesignation.

d. CARB has identified Pb and vinyl chloride as "toxic air contaminants" with no threshold level of exposure below which no adverse health effects have been determined.

Table 3-3: Summary of Health and Environmental Effects of Key Criteria Pollutants

Pollutant	Health Effects	Environmental Effects	Examples of Sources
03	 Respiratory symptoms Worsening of lung disease leading to premature death Damage to lung tissue 	 Crop, forest, and ecosystem damage Damage to a variety of materials, including rubber, plastics, fabrics, paint and metals 	Formed by chemical reactions of air pollutants in the presence of sunlight; common sources are motor vehicles, industries, and consumer products
PM ₁₀	Premature death & hospitalization, primarily for worsening of respiratory disease	Reduced visibility and material soiling	Cars and trucks (especially diesel), fireplaces, wood stoves, windblown dust from roadways, agriculture, and construction activities
PM _{2.5}	 Premature death Hospitalization for worsening of cardiovascular disease Hospitalization for respiratory disease Asthma-related emergency room visits Increased symptoms, increased inhaler usage 	Reduced visibility and material soiling	Cars and trucks (especially diesel), fireplaces, wood stoves, windblown dust from roadways, agriculture, and construction activities
СО	 Chest pain in patients with heart disease Headache Light-headedness Reduced mental alertness 	• None	Any source that burns fuel such as cars, trucks, construction and farming equipment, and residential heaters and stoves
NO ₂	Lung irritationEnhanced allergic responses	Reacts to form acid precipitation and deposition	Any source that burns fuel such as cars, trucks, construction and farming equipment, and residential heaters and stoves
SO ₂	Worsening of asthma: increased symptoms, increased medication usage, and emergency room visits	Reacts to form acid precipitation and deposition	Coal and oil burning power plants, refineries, and diesel engines
Pb	 Impaired mental functioning in children Learning disabilities in children Brain and kidney damage 	Soil and water pollutant	Metal smelters, resource recovery, leaded gasoline, Pb paint

Source: CARB, 2009.

3.2.2.1. Ozone (O₃)

 O_3 , or smog, is a highly reactive and unstable gas not emitted directly into the environment. O_3 is formed in the atmosphere by complex chemical reactions between ROG and NO_x in the presence of sunlight. O_3 formation is greatest on warm, windless, sunny days. The main sources of NO_x and ROG—often referred to as O_3 precursors—are combustion processes (including motor vehicle engines); the evaporation of solvents, paints, and fuels; and biogenic sources. O_3 is a main contributor to visible smog in the Bay Area Air Basin and is also a strong oxidant (BAAQMD, 2017b). O_3 levels typically build up during the day and peak in the afternoon hours.

3.2.2.2. Respirable and Fine Particulate Matter (PM₁₀ and PM_{2.5})

Particulate matter refers to a wide range of tiny solid and/or liquid particles in the atmosphere, including smoke, dust, aerosols, and metallic oxides. Respirable PM with an aerodynamic diameter of 10 micrometers or less is referred to as PM_{10} . $PM_{2.5}$ is a subgroup of fine particulates that have an aerodynamic diameter of 2.5 micrometers or less. Some particulate matter, such as pollen, is naturally occurring. Atmospheric reactions between primary gaseous emissions such as SO_2 and NO_X from power plants can also form particulate sulfates as $PM_{2.5}$. Wood burning in fireplaces and stoves are also large sources of fine particulates, especially during the winter season (BAAQMD, 2017b).

3.2.2.3. Carbon Monoxide (CO)

CO is an odorless, colorless gas. It is formed by the incomplete combustion of fuels. Because CO is emitted directly from internal combustion engines, mobile sources are the primary source of CO in the BAAQMD. Emissions are highest during cold starts, hard acceleration, stop-and-go driving, and when a vehicle is moving at low speeds. CO can also be formed by photochemical reactions in the atmosphere from methane (CH_4) and non- CH_4 hydrocarbons and organic molecules in water and soil (BAAQMD, 2017b).

3.2.2.4. Nitrogen Oxides (NO_X)

 NO_2 is a pungent-smelling gas that is brownish red in color. Of the gases referred to as NO_x , NO_2 and nitric oxide (NO) are the two most prevalent gases. Nitrogen oxides are created during combustion processes and are also created in the atmosphere when NO photochemically reacts with other pollutants to create NO_2 . Automobiles and industrial operations are the main sources of NO_2 . Ambient concentrations of NO_2 are related to traffic density, and as such, commuters in heavy traffic may be exposed to higher concentrations of NO_2 than the concentrations indicated by regional monitors (CARB, 2019a). NO_2 may be visible as a coloring component of a brown cloud on high pollution days, especially in conjunction with high O_3 levels (BAAQMD, 2017b).

3.2.2.5. Sulfur Dioxide (SO₂)

 SO_2 is a colorless acid gas with a pungent odor. It is produced by the combustion of sulfur-containing fuels, such as oil, coal and diesel. It is also formed from chemical processes occurring at chemical plants and refineries. When SO_2 oxidizes in the atmosphere, it forms sulfates (SO_4). Collectively, these pollutants are referred to as sulfur oxides (SO_x) (CARB, 2019b and CARB, 2019c).

3.2.2.6. Lead (Pb)

Pb is a metal found naturally in the environment as well as in manufactured products. The major sources of Pb emissions have historically been mobile and industrial sources. As a result of the phase-out of leaded gasoline, metal processing is currently the primary source of Pb emissions. The highest levels of Pb in the air are generally found near Pb smelters. Other stationary sources include waste incinerators, utilities, and Pb-acid battery manufacturers. Several decades ago, mobile sources were the main contributor to Pb concentrations in the

ambient air due to leaded gasoline. In the early 1970s, the U.S. EPA set national regulations to gradually reduce the Pb content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. The U.S. EPA banned the use of leaded gasoline in highway vehicles in December 1995. As a result of the U.S. EPA's regulatory efforts, emissions of Pb from the transportation sector and levels of Pb in the air have decreased substantially (BAAQMD, 2017b).

3.2.3. Local Air Quality

BAAQMD operates a regional monitoring network that measures the ambient concentrations of the six criteria air pollutants within the Bay Area Air Basin. Existing levels of air pollutants in the Project area can generally be inferred from ambient air quality measurements conducted by the BAAQMD at nearby monitoring stations. The nearest permanent station to the Project site is the Jackson Street monitoring station in San Jose, approximately 5 miles to the southeast. The Jackson Street monitoring station measures criteria pollutants, including O_3 , NO_2 , SO_2 , CO, PM_{10} , and $PM_{2.5}$. Table 3-4 presents the most recent three years of data (2016-2018) available for the Jackson Street monitoring station.

The ambient air quality data in Table 3-4 show that NO_2 , SO_2 , and CO levels are below the applicable state and federal standards. At the closest BAAQMD monitoring station to the proposed Project location, the federal and/or state ambient air quality standards (AAQS) were exceeded for PM_{10} and $PM_{2.5}$. Attainment status designations can be seen in Table 3-2.

Table 3-4: Existing Air Quality Monitoring Data in Proposed Project Area a,b,c

Pollutant	Units	Averaging Time	Basis of Yearly/Design Concentrations	2016	2017	2018	Design									
		1-Hr	CAAQS - 1st Highs/3-yr Max	87	121	78	N/A									
Ozone	ppb	0 11	CAAQS - 1st Highs/3-yr Max	66	98	61	N/A									
		8-Hr	NAAQS - 4th Highs/3-yr Avg	61	75	53	N/A									
		1 11	CAAQS - 1st Highs/3-yr Max	51	68	86	86									
Nitrogen		1-Hr	NAAQS - 98th %s/3-yr Avg	41.8	49.6	59	50									
dioxide (NO2)	ppb	Annual	CAAQS - AAM/3-yr Max	11	12	13	13									
		Annual	NAAQS - AAM/3-yr Avg	11.3	12.2	12	12									
		1 11	CAAQS - 1st Highs/3-yr Max	2.0	2.1	2.5	2.5									
Carbon	ppm	1-Hr	NAAQS - 2nd Highs/3-yr Max	1.9	2.1	2.5	2.5									
monoxide (CO)		8-Hr	CAAQS - 1st Highs/3-yr Max	1.4	1.8	2.1	2.1									
			NAAQS - 2nd Highs/3-yr Max	1.3	1.8	2.1	2.1									
	1-	1 11	CAAQS - 1st Highs/3-yr Max	1.8	3.6	6.9	6.9									
	ppb	1-Hr	NAAQS - 99th %s/3-yr Avg	1.6	3.1	3.2	3									
Sulfur dioxide (SO ₂)	ppm	3-Hr	NAAQS - 2nd Highs/1-yr	0.0013	0.0023	0.0028	0.0028									
(302)	ppb	24-Hr	CAAQS - 1st Highs/3-yr Max	0.8	1.1	1.1	1.1									
	ppb	Annual	NAAQS - AAM/3-yr Avg	1.8	3.8	6.9	4.2									
		24-Hr	CAAQS - 1st Highs/3-yr Max	41	70	122	122									
Respirable Particulate Matter (PM ₁₀) ^d	μg/m³	μg/m³	$\mu g/m^3$	$\mu g/m^3$	μg/m³	μg/m³	μg/m³	μg/m³	μg/m³	μg/m³	24-Hr	NAAQS - 2nd Highs/3-yr 4th High ^e	35	67	111	71
		Annual	CAAQS - AAM/3-yr Max	19	22	23	23									
· ·		24-Hr	NAAQS - 98th %s/3-yr Avg	19	34	73	42									
Fine Particulate Matter (PM _{2.5}) d	μg/m³	Annual	CAAQS - AAM/3-yr Max	8.4	9.5	13	13									
1.14((1 1.12.5)		Annual	NAAQS - AAM/3-yr Avg	8.4	9.7	13	10									

a. All monitoring values from 158 East Jackson Street, San Jose, CA, the nearest BAAQMD monitoring site (all applicable pollutants measured).

measured).
b. CAAQS Data sources: Bay Area Air Pollution Summary (2016, 2017, 2018). Available at the following links, respectively:

http://www.baaqmd.gov/~/media/files/communications-and-outreach/annual-bay-area-air-quality-summaries/pollsum2016-pdf.pdf?la=en http://www.baaqmd.gov/~/media/files/communications-and-outreach/annual-bay-area-air-quality-summaries/pollsum2017-pdf.pdf?la=en http://www.baaqmd.gov/~/media/files/communications-and-outreach/annual-bay-area-air-quality-summaries/pollsum2018-pdf.pdf?la=en c. NAAQS Data sources: USEPA AirData Air Quality Monitors Data (2016, 2017, 2018). For PM2.5 24-Hr NAAQS data: CARB Select 8 Summary.

c. NAAQS Data sources: USEPA AirData Air Quality Monitors Data (2016, 2017, 2018). For PM_{2.5} 24-Hr NAAQS data: CARB Select 8 Sum Available at the following link: https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=5f239fd3e72f424f98ef3d5def547eb5&extent=-146.2334,13.1913,-

^{46.3896,56.5319}

d. Note that significant wildfires occurred in California in 2017 and 2018, resulting in higher concentrations of particulate matter than in years without significant wildfires.

e. Design value is the average of PM10 24-Hr second highs from 2016, 2017, and 2018 per Section 2.1 of Appendix K to 40 CFR Section 50.6.

3.2.4. Sensitive Land Uses Near the Proposed Project Area

For the purposes of this AQIA, sensitive receptors are considered locations with people who are more sensitive than the general public to the effects of air pollutants. The reasons for increased sensitivity include preexisting health problems, proximity to emissions sources, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be sensitive receptors because children, the infirm, and elderly people are more susceptible to respiratory distress and other air-quality-related health problems than the general public. Residential areas are also considered sensitive to poor air quality because residents are often home for extended periods of time which results in greater exposure to ambient air quality; however, residential receptors are considered a separate receptor type from sensitive receptors. Table 3-5 lists the nearest sensitive receptors within two miles of the Project's property boundary.

Table 3-5: Sensitive Receptors near the Project Area

Name of Sensitive Receptor	Address of Sensitive Receptor	Distance from Property Boundary to Sensitive Receptor [miles]
1. Stanford Primary Care in Santa Clara	2518 Mission College Blvd #101, Santa Clara, CA 95054	0.13
2. Knowledge Preschool	2192 Hunter Pl, Santa Clara, CA 95054	0.21
3. Hackett Child Care	4493 Cheeney Street, Santa Clara, CA 95054	0.39
4. Anna's Daycare	4639 Snead Dr, Santa Clara, CA 95054	0.64
5. Valley House Rehabilitation Center	991 Clyde Ave, Santa Clara, CA 95054	0.71
6. North Valley Baptist School	941 Clyde Ave, Santa Clara, CA 95054	0.73
7. Matangi Family Daycare	901 Clyde Ave, Santa Clara, CA 95054	0.78
8. Granada Islamic School	3003 Scott Blvd, Santa Clara, CA 95054	0.80
9. Agape Family Daycare	871 Clyde Ave, Santa Clara, CA 95054	0.81
10. Martinson Child Development	1350 Hope Dr, Santa Clara, CA 95054	0.85
11. Crossover Health at San Tomas	2371 Owen St, Santa Clara, CA 95054	0.89
12. Hughes Preschool	4949 Calle De Escuela, Santa Clara, CA 95054	0.94
13. Kathryn Hughes Elementary School	4949 Calle De Escuela, Santa Clara, CA 95054	0.95
14. Montague Preschool	720 Laurie Ave, Santa Clara, CA 95054	0.97
15. Action Urgent Care	3970 Rivermark Plaza, Santa Clara, CA 95054	1.00
16. Montague Elementary School	750 Laurie Ave, Santa Clara, CA 95054	1.02
17. FounderCare	3375 Scott Blvd Suite 336, Santa Clara, CA 95054	1.03
18. One Medical	1299 Oakmead Pkwy Ste A, Sunnyvale, CA 94085	1.14
19. Stepping Stone World Preschool	3766 Pinewood Pl, Santa Clara, CA 95054	1.16
20. Don Callejon School	4176 Lick Mill Blvd, Santa Clara, CA 95054	1.17
21. Santa Clara Angel Christian Family Daycare	5009 Avenida De Lago, Santa Clara, CA 95054	1.17
22. Little Panda Family Day Care	1230 Sandia Ave, Sunnyvale, CA 94089	1.24
23. Kaiser	1263 E. Arques Ave, Sunnyvale, CA 94085	1.28
24. Santa Clara Sunshine Daycare and Learning Center	457 Greenwood Drive, Santa Clara, CA 95054	1.29
25. Little Learners Daycare	441 Greenwood Drive, Santa Clara, CA 95054	1.29
26. Fairwood Elementary School	1110 Fairwood Ave, Sunnyvale, CA 94089	1.32
27. U.S. HealthWorks Medical Group	988 Walsh Ave, Santa Clara, CA 95050	1.55
28. Nmci Medical Clinic	1871 Martin Ave, Santa Clara, CA 95050	1.56
29. Cisco Life Connections Health Center	Q, 3571 N 1st St, San Jose, CA 95134	1.58
30. Stanford Express Care San Jose	52 Skytop St #10, San Jose, CA 95134	1.59
31. California Senior Care	2454 Alvarado Dr, Santa Clara, CA 95051	1.59
32. ANTS Daycare	4176 Sophia Way, San Jose, CA 95134	1.62
33. Concentra Urgent Care	1197 E Arques Ave, Sunnyvale, CA 94085	1.64
34. US HealthWorks Sunnyvale	1197 E Arques Ave, Sunnyvale, CA 94085	1.64
35. Community Child Care Council	150 River Oaks Pkwy F-1, San Jose, CA 95134	1.78

Name of Sensitive Receptor	Address of Sensitive Receptor	Distance from Property Boundary to Sensitive Receptor [miles]		
Nearest Residential Areas				
North Residences		0.02		
Northeast Residences	0.19			
Southeast Residences	0.62			
West Residences		1.04		

Source: Google Earth, 2019

Figure 3-1 identifies the locations of the sensitive receptors listed in Table 3-5 as green markers. The closest areas with residences are identified with blue and the site property boundary is denoted with a yellow outline.



Figure 3-1: Location of Sensitive Receptors and Surrounding Residential Areas

3.2.5. Greenhouse Gases

Greenhouse gases (GHGs) comprise a set of compounds whose presence in the atmosphere is associated with the differential absorption of incoming solar radiation and outgoing radiation from the surface of the earth. In theory, GHGs in the atmosphere affect the global energy balance of the atmosphere-ocean-land system and thereby affect climate change. More specifically, GHGs absorb the long-wave radiation emitted by the earth and

hence are capable of warming the atmosphere. Regulated GHGs in California are carbon dioxide (CO_2), CH_4 , nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and nitrogen trifluoride (NF_3). Other GHGs, such as water vapor, are not regulated.

To quantify the impact of specific GHGs, each gas is assigned a global warming potential (GWP). Individual GHG compounds have varying GWP and atmospheric lifetimes. The GWP of a GHG is a measure of how much a given mass of a GHG is estimated to contribute to global warming relative to CO_2 , which is assigned a GWP of 1.0.

The GWP is used to determine the CO_2 equivalent (CO_2 e) mass of each GHG. Calculation of the CO_2 e is the accepted methodology for comparing GHG emissions since it normalizes various GHG emissions to a consistent reference gas, CO_2 . For example, CH_4 's GWP of 25 indicates that the global warming effect of CH_4 is 25 times greater than that of CO_2 on a molecule per molecule basis. CO_2 e is the mass emissions of an individual GHG multiplied by its GWP.

Natural processes and human activities emit GHGs. The presence of GHGs in the atmosphere affects the earth's temperature. As discussed in more detail below, many scientists believe that emissions from human activities, such as electricity production and vehicle use, have led to elevated concentrations of these gases in the atmosphere beyond the level of naturally occurring concentrations. Table 3-6 lists GHGs, GWPs, a description of each GHG, and sources for each of the GHGs.

Table 3-6: GWPs, Properties, and Sources of GHGs

Constituent	GWP	Description and Physical Properties	Sources
Carbon Dioxide (CO ₂)	1	CO_2 is an odorless, colorless, naturally occurring GHG.	CO ₂ is emitted from natural and anthropocentric (human) sources. Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic out gassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood.
Methane (CH4)	25	CH ₄ is an organic, colorless, naturally occurring, flammable gas. Its atmospheric concentration is less than CO ₂ , and its lifetime in the atmosphere is brief (10-12 years) compared to other GHGs.	CH ₄ has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of CH ₄ . Other anthropogenic sources include fossil-fuel and biomass combustion, as well as landfilling and wastewater treatment.

Constituent	GWP	Description and Physical Properties	Sources
Nitrous Oxide (N ₂ O)	298	N ₂ O, commonly referred to as "laughing gas," is a colorless, nonflammable GHG. It is a powerful oxidizer and breaks down readily in the atmosphere.	Nitrous oxide is produced by microbial processes in soil and water, including those reactions that occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used as an aerosol spray propellant, e.g., in whipped cream bottles, and it is also used in potato chip bags to keep chips fresh. It is used in rocket engines and in race cars.
Hydrofluorocarbons (HFCs)	92 - 14,900	HFCs are synthetic man-made chemicals that form one of the GHGs with the highest global warming potential	HFCs are man-made for applications such as automobile air conditioners and refrigerants.
Perfluorocarbons (PFCs)	6,288 - 17,700	PFCs are colorless, non-flammable, dense gases that have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years.	The two main sources of PFCs are primary aluminum production and semiconductor manufacture.
Sulfur Hexafluoride (SF ₆)	22,800	SF ₆ is an inorganic, odorless, colorless, nontoxic, nonflammable gas.	SF ₆ is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.
Nitrogen Triflouride (NF ₃)	17,200	NF ₃ is an inorganic, colorless, odorless, nonflammable gas.	NF_3 is used primarily in the plasma etching of silicon wafers

Source: CARB, 2018b.

There is growing concern about GHG emissions and their adverse impacts on the world's climate and on the environment. These concerns relate to the change in the average weather of the earth that may be measured by changes in wind patterns, storms, precipitation, and temperature. Although there is disagreement as to the rate of global climate change and the extent of the impacts attributable to human activities, most in the scientific community agree that there is a direct link between increased emissions of GHGs and long-term global temperature increases. There are several gases that act as GHGs—their common attribute is that they allow

sunlight to enter the atmosphere, but trap a portion of the outward-bound infrared radiation, which warms the air. The process is similar to the effect greenhouses have in raising the air temperature inside the greenhouse, hence the name GHGs. The presence of GHGs in the atmosphere regulates the earth's temperature; however, emissions from human activities such as fossil fuel-based electricity production and the use of motor vehicles have elevated the concentration of GHGs in the atmosphere. It generally is believed that this accumulation of GHGs is contributing to global climate change (BAAQMD, 2017a).

Global climate change refers to the change in average meteorological conditions on the earth with respect to temperature, precipitation, and storms, lasting for decades or longer. The term "global climate change" is often used interchangeably with the term "global warming," but "global climate change" is preferred by some scientists and policymakers to "global warming" because it helps convey the notion that in addition to rising temperatures, other changes in global climate may occur. Climate change may result from the following influences:

- Natural factors, such as changes in the sun's intensity or slow changes in the earth's orbit around the sun;
- Natural volcanic activity;
- > Natural processes within the climate system (e.g., changes in ocean circulation); and/or

Human activities that change the atmosphere's composition (e.g., through burning fossil fuels) and the land surface (e.g., deforestation, reforestation, urbanization, and desertification).

As determined from worldwide meteorological measurements between 1990 and 2005, the primary observed effect of global climate change has been a rise in the average global tropospheric temperature of 0.36 degree Fahrenheit (°F) per decade. Climate change modeling shows that further warming could occur, which could induce additional changes in the global climate system during the current century. Changes to the global climate system, ecosystems, and the environment of California could include higher sea levels, drier or wetter weather, changes in ocean salinity, changes in wind patterns, or more energetic aspects of extreme weather (e.g., droughts, heavy precipitation, heat waves, extreme cold, and increased intensity of tropical cyclones).

According to the 2006 California Climate Action Team (CAT) Report, several climate change effects can be expected in California over the course of the next century (CalEPA, 2006). These are based on trends established by the IPCC and are summarized below.

- > A diminishing Sierra Nevada snowpack, declining by 70% to 90%, and thereby threatening the state's water supply.
- A rise in sea levels, resulting in the displacement of coastal businesses and residences. During the past century, sea levels along California's coast have risen about seven inches.
- An increase in temperature and extreme weather events. Climate change is expected to lead to increases in the frequency, intensity, and duration of extreme heat events and heat waves in California.
- > Increased risk of large wildfires if rain increases as temperatures rise. Wildfires in the grasslands and chaparral ecosystems of southern California are estimated to increase by approximately 30% toward the end of the 21st century because more winter rain will stimulate the growth of more plant fuel available to burn in the fall. In contrast, a hotter, drier climate could promote up to 90% more northern California fires by the end of the century by drying out and increasing the flammability of forest vegetation.
- > Reductions in the quality and quantity of certain agricultural products. The crops and products likely to be adversely affected include wine grapes, fruit, nuts, and milk.
- Increased electricity demand, particularly in the hot summer months.

➤ Increased ground-level O₃ formation due to higher reaction rates of O₃ precursors.

Worldwide emissions of GHGs in 2008 were 30.1 billion metric tons of $CO_{2}e$ and have increased considerably since then (United Nations, 2011). It is important to note that the global emissions inventory data are not all from the same year and may vary depending on the source of the data (U.S. EPA, 2016a). Emissions from the top five emitting countries and the European Union accounted for approximately 55% of total global GHG emissions. The United States was the number two producer of GHG emissions. The primary GHG emitted by human activities in the United States was CO_{2} , representing approximately 84% of total GHG emissions (U.S. EPA, 2016a).

CARB is responsible for developing and maintaining the California GHG emissions inventory. This inventory estimates the amount of GHGs emitted into and removed from the atmosphere by human activities within the state of California and supports the Assembly Bill (AB) 32 Climate Change Program. CARB's current GHG emission inventory covers the years 1990 through 2017 and is based on fuel use, equipment activity, industrial processes, and other relevant data (e.g., housing, landfill activity, and agricultural lands).

California's net emissions of GHGs decreased by 10% from 471 million metric tons (MMT) of CO_2e in 2000 to 424 MMT in 2017, with a maximum of 493.9 MMT in 2004. Driven by a noticeable drop in on-road transportation emissions, statewide GHG emissions dropped from 487 MMT CO_2e in 2008 to 457 MMT in 2009 (2009 also reflects the beginning of the economic recession and fuel price spikes). Despite the economy recovering, GHG emissions have stayed constant from 2010 to 2015 and even experienced a drop in 2016 and 2017. During the same time period from 2000 to 2017, California's GHG emissions per person decreased by 23%, despite the state's population increase of 17% (CARB 2017b).

CARB estimates that transportation was the source of approximately 40.1% of California's GHG emissions in 2017, followed by electricity generation at 21.1%. Other sources of GHG emissions were industrial sources at 14.7%, residential plus commercial activities at 9.7%, and agriculture at 7.6% (CARB, 2017b).

CARB has projected statewide GHG emissions for the year 2020, which represent the emissions that would be expected to occur with reductions anticipated from Pavley I and the Renewables Portfolio Standard (RPS) (38 MMT CO_2e total), will be 507 MMT of CO_2e (CARB, 2014). GHG emissions from the transportation and electricity sectors as a whole are expected to increase at approximately 36% and 22% of total CO_2e emissions, respectively, as compared to 2009. The industrial sector consists of large stationary sources of GHG emissions and the percentage of the total 2020 emissions is projected to be 18% of total CO_2e emissions. The remaining sources of GHG emissions in 2020 are high global warming potential gases at 7%, residential and commercial activities at 9%, agriculture at 6%, and recycling and waste at 2%.

3.3. EXISTING POLICIES AND REGULATIONS - AIR QUALITY

Established federal, state, and regional regulations provide the framework for analyzing and controlling air pollutant emissions and thus general air quality. The U.S. EPA is responsible for implementing the programs established under the federal Clean Air Act, such as establishing and reviewing the federal ambient air quality standards and judging the adequacy of State Implementation Plans (SIPs), described further below. However, the U.S. EPA has delegated the authority to implement many of the federal programs to the states while retaining an oversight role to ensure that the programs continue to be implemented. In California, CARB is responsible for establishing and reviewing the state ambient air quality standards, developing and managing the California SIP, securing approval of this plan from the U.S. EPA, and identifying toxic air contaminants (TACs). CARB also regulates mobile emissions sources in California, such as construction equipment, trucks, and automobiles, and oversees the activities of air quality management districts (AQMDs), which are organized at the county or

regional level. An AQMD is primarily responsible for regulating stationary emissions sources at facilities within its geographic areas and for preparing the air quality plans that are required under the federal Clean Air Act and 1988 California Clean Air Act. The BAAQMD is the regional agency with regulatory authority over emission sources in the nine-county San Francisco Bay Area.

3.3.1. Federal Regulatory Authority

The U.S. EPA has responsibility for enforcing, on a national basis, the requirements of many of the country's environmental laws. Region 9 is responsible for the local administration of U.S. EPA programs for California, Arizona, Nevada, Hawaii, and certain Pacific trust territories. California is under the jurisdiction of U.S. EPA Region 9, which has its offices in San Francisco. The U.S. EPA's activities, relative to the California air pollution control program, focus principally on reviewing California's submittals for the SIP. The SIP is required by the federal Clean Air Act to demonstrate how all areas of the state will meet the NAAQS within the federally specified deadlines.

The Federal Clean Air Act (CAA) establishes a federal requirement for the U.S. EPA to develop and adopt air quality standards, the NAAQS (see Table 3-1), and specifies future dates for achieving air quality compliance. The CAA further mandates that states submit and implement SIPs for those areas not meeting these standards. The SIPs must include air pollution control measures that demonstrate how the NAAQS will be met. The 1990 amendment to the CAA requires that areas not meeting NAAQS demonstrate reasonable further progress toward attainment and incorporate sanctions for failure to attain or meet specific attainment milestones. Each state is required to adopt an implementation plan outlining pollution control measures to attain the federal standards in nonattainment areas of the state. CARB is responsible for incorporating AQMPs for local air basins into a SIP, which is then reviewed and approved by the U.S. EPA.

In addition to requiring the establishment of NAAQS and the development and maintenance of SIPs, the CAA authorizes the U.S. EPA to establish regulations on certain categories of stationary sources of air pollution.

Specifically, Section 111 of the CAA authorizes the U.S. EPA to establish standards of performance for new and existing sources, commonly referred to as New Source Performance Standards (NSPSs). NSPS Subpart IIII establishes emission standards, fuel requirements, testing requirements, and other compliance requirements for manufacturers, owners, and operators of stationary compression ignition internal combustion engines.

The generators are subject to Subpart IIII. Per 40 CFR §60.4205(b) and §60.4202, emergency compression ignition (CI) engines rated between 50 bhp and 3,000 bhp are subject to the emissions standards in 40 CFR §89.112, Table 1, as follows. Further, emergency CI engines rated above 3,000 bhp that are not fire pump engines are subject to the same emission standards, as follows:

- NOx+NMHC: 6.4 g/kw-hr (4.8 g/bhp-hr)
- CO: 3.5 g/kw-hr (2.6 g/bhp-hr)
- PM: 0.20 g/kw-hr (0.15 g/bhp-hr)

Using the recommended BAAQMD procedure for separating the NO_x+NMHC value, the applicable standard for NO_x would be 4.56 g/bhp-hr, and the applicable standard for NMHC (ROG) would be 0.24 g/bhp-hr (BAAQMD, 2004).¹

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¹ Assume a breakdown of 5% NMHC and 95% NO_x.

The proposed critical backup generators and life safety generators will satisfy these requirements based upon EPA engine family certification levels supplied by the manufacturer. In addition, the proposed generators will utilize a diesel particulate filter which will reduce the PM emissions down to 0.0135 g/bhp-hr for the critical backup generators and 0.0123 g/bhp-hr for the life safety generators.

Similarly, Section 112 of the CAA authorizes the U.S. EPA to establish emission standards for listed hazard air pollutants, commonly referred to as National Emission Standards for Hazardous Air Pollutants (NESHAPs). NESHAP Subpart ZZZZ establishes national emission and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines located at major and area sources of HAP emissions. The proposed generators meet the requirements of NESHAP Subpart ZZZZ through compliance with NSPS Subpart IIII per 40 CFR §63.6590(c)(1).

The U.S. EPA also has jurisdiction over emissions from non-stationary sources that are under the authority of the federal government, including aircraft, locomotives, and emissions sources outside state waters. The U.S. EPA also establishes emission standards for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission requirements set by CARB.

3.3.2. State of California Regulatory Authority

CARB is responsible for ensuring implementation of the California Clean Air Act and for regulating emissions from consumer products and motor vehicles. The California Clean Air Act mandates achievement of the maximum degree of emissions reductions possible from vehicular and other mobile sources in order to attain CAAQS by the earliest practical date. CARB established the CAAQS for all pollutants for which the federal government has NAAQS. Additional standards for sulfates, visibility-reducing particles, H₂S, and vinyl chloride have been established; however, they are not considered to be a regional air quality problem at this time. H₂S, vinyl chloride, sulfates, and visibility-reducing particles are not measured at any monitoring stations in the Bay Area Air Basin. Generally, the CAAQS are equal to or more stringent than the NAAQS.

3.3.3. Regional Regulatory Authority

The Clean Air Act requires that regional planning and air pollution control agencies prepare a regional Air Quality Plan to outline the measures by which both stationary and mobile sources of pollutants can be controlled in order to achieve all standards specified in the Clean Air Act. The California Clean Air Act also requires the development of air quality plans and strategies to meet state air quality standards in areas designated as nonattainment (with the exception of areas designated as nonattainment for the state PM standards). Maintenance plans are required for attainment areas that had previously been designated nonattainment in order to ensure continued attainment of the standards.

For air quality planning purposes, the Bay Area Air Basin is classified as a nonattainment area for O₃ and PM_{2.5}. BAAQMD is required to update its Clean Air Plan to reflect progress in meeting the air quality standards and to incorporate new information regarding the feasibility of control measures and new emission inventory data. The Bay Area's record of progress in implementing previous measures must also be reviewed. Bay Area plans are prepared with the cooperation of the Metropolitan Transportation Commission (MTC), and the Association of Bay Area Governments (ABAG). On April 19, 2017, the BAAQMD adopted the most recent revision to the Clean Air Plan - the BAAQMD 2017 Clean Air Plan: Spare the Air, Cool the Climate (BAAQMD, 2017a) (2017 Clean Air Plan). The 2017 Clean Air Plan serves to:

Describe a comprehensive control strategy to protect public health and the climate;

- ▶ Update the *Bay Area 2010 Clean Air Plan* in accordance with the requirements of the California Clean Air Act to implement "all feasible measures" to reduce emissions of O₃ precursors and to reduce transport of O₃ and its precursors to neighboring air basins;
- > Enhance efforts to reduce emissions of particulate matter and toxic air contaminants; and
- Lay the groundwork for a long-term effort to reduce GHG emissions in the Bay Area Air Basin.

3.3.4. Local Regulatory Authority

BAAQMD Rules and Regulations. The BAAQMD is the regional agency responsible for rulemaking, permitting, and enforcement activities affecting stationary sources of air pollutant emissions in the Bay Area Air Basin. Specific rules and regulations adopted by the BAAQMD limit the emissions that can be generated by various activities and identify specific pollution reduction measures that must be implemented in association with these activities. These rules regulate not only emissions of the six criteria air pollutants, but also toxic emissions and acutely hazardous non-radioactive materials emissions.

Emissions sources subject to these rules are regulated through the BAAQMD's permitting process and standards of operation. Through this permitting process, including an annual permit review, the BAAQMD monitors generation of stationary emissions and uses this information in developing its air quality plans. Any sources of stationary emissions constructed as part of a project within BAAQMD's jurisdiction are subject to the BAAQMD Rules and Regulations. Both federal and state O_3 plans rely upon stationary source control measures set forth in BAAQMD's Rules and Regulations.

BAAQMD Regulation 2 Rule 2 – New Source Review (NSR) applies to all new or modified sources requiring a Permit to Operate for any new source with actual or potential emissions above the rule trigger limit. The rule also specifies when Best Available Control Technology (BACT) is required. Per the BACT requirements for CI Stationary Emergency engines rated at greater than 50 bhp (BAAQMD, 2010), the following emission limits are BACT for the proposed generators:

- PM: 0.15 g/bhp-hr
- NMHC+NO_x: 4.8 g/bhp-hr
- CO: 2.6 g/bhp-hr
- SO₂: fuel sulfur content not to exceed 15 ppmw

Using the recommended CARB procedure for separating the NO_x+NMHC value, the applicable standard for NO_x would be 4.56 g/bhp-hr, and the applicable standard for NMHC (ROG) would be 0.24 g/bhp-hr.

Both the critical backup generators and the life safety generators proposed for the Project meet these emission limits, so BACT is satisfied. In addition, the proposed generators will utilize a diesel particulate filter which will reduce the PM emissions down to 0.0135 g/bhp-hr for the critical backup generators and 0.0123 g/bhp-hr for the life safety generators.

Santa Clara County General Plan. The Health and Safety Chapter of the *Santa Clara County General Plan*, 1995-2010 (Santa Clara County, 1994) was amended in 2015. The *Health Element of the Santa Clara County General Plan* has been prepared as a new element, incorporating and updating certain existing subject matter and policies from the existing Health and Safety Chapters (Santa Clara County, 2015). The new Health Element includes strategies and policies that are intended to convey a comprehensive approach for improving air quality, protecting the climate, and protecting public health. Air Quality and Climate Change Strategy #1 is to "[s]trive for

air quality improvement through regional and local land use, transportation, and air quality planning." Listed below are the air quality related policies related to Strategy #1 with potential relevance to the proposed Project.

- **HE-G.1** Air quality environmental review. Continue to utilize and comply with the Air District's project-and plan-level thresholds of significance for air pollutants and greenhouse gas emissions.
- **HE-G.2 Coordination with regional agencies.** Coordinate with the Air District to promote and implement stationary and area source emission measures.
- **HE-G.3 Fleet upgrades.** Promote Air District mobile source measures to reduce emissions by accelerating the replacement of older, dirtier vehicles and equipment, and by expanding the use of zero-emission and plug-in vehicles.
- **HE-G.4 Off-road sources.** Encourage mobile source emission reduction from off-road equipment such as construction, farming, lawn and garden, and recreational vehicles by retrofitting, retiring, and replacing equipment and by using alternate fuel vehicles.
- **HE-G.5 GHG reduction.** Support efforts to reduce GHG emissions from mobile sources, such as reducing vehicle trips, vehicle use, VMT, vehicle idling, and traffic congestion. These efforts may include improved transit service, better roadway system efficiency, state-of-the-art signal timing, and Intelligent Transportation Systems (ITS), transportation demand management, parking and roadway pricing strategies, and growth management measures.
- **HE-G.7 Sensitive receptor uses.** Promote measures to protect sensitive receptor uses, such as residential areas, schools, day care centers, recreational playfields and trails, and medical facilities by locating uses away from major roadways and stationary area sources of pollution, where possible, or incorporating feasible, effective mitigation measures.
- **HE.G.9 Health infill development.** Promote measures and mitigations for infill development to protect residents from air and noise pollution, such as more stringent building performance standards, proper siting criteria, development and environmental review processes, and enhanced air filtration.
- **HE-G.12 Energy technologies.** Support regional and local initiatives that promote integrated building systems, distributed generation, demand response programs, smart grid infrastructure, energy storage and backup, and electric transportation infrastructure.

3.3.5. Regulatory Authority for Odors and Nuisances

Although offensive odors from stationary sources rarely cause any physical harm, they remain unpleasant and can lead to public distress, generating citizen complaints to local governments. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the distance from and sensitivity of receptors. The BAAQMD's CEQA Air Quality Guidelines recommend that odor impacts be considered for any proposed new odor sources located near existing receptors, as well as any new sensitive receptors located near existing odor sources (BAAQMD, 2017b).

3.3.6. Toxic Air Contaminants Regulations - Air Quality

TACs are regulated under both state and federal laws. Federal laws use the term "Hazardous Air Pollutants" (HAPs) to refer to similar types of compounds that are referred to as TACs under state law, however there are some differences between HAPs and TACs. Both terms encompass essentially the same compounds. Under the 1990 Clean Air Act Amendments, 189 substances were regulated as HAPs. Since 1990, the U.S. EPA has modified the list through rulemaking to include 187 HAPs.

AB 2588. With respect to state law, in 1983 the California legislature adopted AB 1807, which establishes a process for identifying TACs and provides the authority for developing retrofit air toxics control measures on a

statewide basis. Air toxics in California also may be regulated under the Air Toxics "Hot Spots" Information and Assessment Act of 1987, or AB 2588.

Under AB 2588, TACs from individual facilities must be quantified and reported to the local air pollution control agency or air quality management district. The facilities are then prioritized by the local agencies based on the quantity and toxicity of these emissions, and on their proximity to areas where the public may be exposed. In establishing priorities, the air districts are to consider the potency, toxicity, quantity, and volume of hazardous materials released from the facility; the proximity of the facility to potential receptors; and any other factors that the air district determines may indicate that the facility may pose a significant risk. High priority facilities are required to perform a Health Risk Assessment (HRA), and, if specific risk thresholds are exceeded, they are required to communicate the results to the public through notices and public meetings. Depending on the health risk levels, emitting facilities can be required to implement varying levels of risk reduction measures. CARB identified approximately 200 TACs, including the 187 federal HAPs, under AB 2588.

AB 617. In July 2017, AB 617 was approved by the Governor. AB617 aims to reduce criteria pollutant and toxic air contaminant emissions within the state of California. The bill presents four main elements in order to achieve this goal:

Monitoring

- Identification and recommendation of communities that have a high cumulative exposure burden
- Establishment of a statewide monitoring plan
- Set-up and operation of District and Community networks including public availability/presentation of statewide data
- Community Emission Reduction Plans
 - For identified communities and integration with the statewide strategy for AB617 implementation
 - Potentially resulting in development of District Community Emission Reduction Plans
 - Potentially resulting in development of state and District emission reduction strategies
- ➤ Best Available Retrofit Control Technology (BARCT)
 - Development of a Statewide BACT/BARCT clearinghouse
 - BARCT implementation and the adoption of an expedited timeline for select source categories
- **Emission Reporting**
 - Development of a Uniform Statewide Reporting platform
 - Establishment of a statewide pollution mapping tool

BAAQMD is responsible for administering federal and state regulations related to TACs in the Bay Area Air Basin. Under federal law, these regulations include NESHAPs and Maximum Achievable Control Technology (MACT) for affected sources. BAAQMD also administers the state regulations AB 1807 and AB 2588, which were discussed above. In addition, the agency requires that new or modified facilities that emit TACs perform air toxics screening analyses as part of the permit application. TAC emissions from new and modified sources are limited through the air toxics new source review program, which superseded the BAAQMD Risk Management Policy, in BAAQMD Regulation 2, Rule 5 for New Source Review of Toxic Air Contaminants. Sources must use the Best Available Control Technology for Toxics (TBACT) if health risk modeling identifies an individual source cancer risk of greater than 1 in a million or a chronic hazard index greater than 0.20.

Specific TAC regulations and considerations relevant to the Project are described below.

Diesel Exhaust Control Program. In August 1998, CARB identified particulate emissions from diesel-fueled engines (diesel particulate matter [DPM]) as TACs. CARB developed the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles* and the *Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines* (CARB, 2000a and 2000b). The goal of these programs is to reduce DPM emissions and the associated health risk by 75 percent in 2010 and by 85 percent in 2020 and to implement regulations that include increasingly stringent emissions standards for on-road diesel trucks and buses, off-road diesel vehicles and equipment, and stationary diesel engines.

In 2001, the U.S. EPA promulgated regulations 40 CFR Parts 69, 80, and 86 (U.S. EPA, 2001b) requiring that the sulfur content in motor on-road vehicle diesel fuel be reduced to less than 15 ppm as of June 1, 2006. The U.S. EPA also finalized a comprehensive national emissions control program, the 2007 Heavy-duty Highway Diesel Program (also known as the HD 2007 Program), which regulates highway heavy-duty vehicles and diesel fuel as a single system. Under the HD 2007 program, the U.S. EPA established new emission standards that would significantly reduce PM and NO_X from highway heavy-duty vehicles by the time the current heavy-duty vehicle fleet has been completely replaced in 2030.

The U.S. EPA also promulgated new emission standards for nonroad diesel engines and sulfur reductions in nonroad diesel fuel that would dramatically reduce emissions attributed to nonroad diesel engines. Similar but more stringent standards have been established by CARB. This affects emissions from construction equipment, locomotives, and marine diesel equipment and vehicles. The general objective is to reduce PM emissions from diesel vehicles to levels of below 0.01 grams per brake horsepower-hour (g/bhp-hr) beginning with 2007 model year engines.

3.4. EXISTING POLICIES AND REGULATIONS - GHGS

3.4.1. International Regulation - GHG

Intergovernmental Panel on Climate Change. In 1988, the United Nations created the IPCC to provide independent scientific information regarding climate change to policymakers. The IPCC does not conduct research itself, but rather compiles information from a variety of sources into reports regarding climate change and its impacts. The IPCC has thereafter periodically released reports on climate change, and in 2018 released its Global Warming of 1.5 degrees C, which concluded that "[w]arming of the climate system is unequivocal," and that "[a]nthropogenic GHG emissions ... are extremely likely to have been the dominant cause of the observed warming since the mid-20th century" (IPCC, 2018).

United Nations Framework Convention on Climate Change. On March 21, 1994, the United States joined a number of countries around the world in signing the United Nations Framework Convention on Climate Change (Convention). Under the Convention, governments gather and share information on GHGs, national policies, and best practices; launch national strategies for addressing GHGs and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

Kyoto Protocol. The Kyoto Protocol is an international agreement linked to the Convention (discussed above). The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing GHGs an average of 5% against 1990 levels over the five-year period from 2008–2012. Whereas the Convention only encouraged industrialized countries to stabilize emissions, the Protocol commits them to do so. Developed countries have contributed more emissions over the last 150 years

than underdeveloped countries; therefore, the Protocol places a heavier burden on developed nations under the principle of "common but differentiated responsibilities." The United States has not entered into force of the Kyoto Protocol.

3.4.2. Federal Regulations and Standards - GHG

Consolidated Appropriations Act of 2008 - Mandatory Reporting of GHG. The Consolidated Appropriations Act of 2008, passed in December 2007, requires the establishment of mandatory GHG reporting requirements. On September 22, 2009, the U.S. EPA issued the Final Mandatory Reporting of GHGs rule. The rule requires reporting of GHG emissions from large sources and suppliers in the United States and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions are required to submit annual reports to the U.S. EPA.

Federal Regulation of Climate Change. The United States historically has had a voluntary approach to reducing GHG emissions. However, on April 2, 2007, the U.S. Supreme Court ruled that the U.S. EPA has the authority to regulate CO_2 emissions under the CAA. While there currently are no adopted federal regulations for the control or reduction of GHG emissions, the U.S. EPA commenced several actions in 2009 that are required to implement a regulatory approach to global climate change, as mentioned in the sections above.

3.4.3. State Regulations and Standards - GHG

Executive Order S-3-05. Executive Order S-3-05 was signed by the Governor in 2005 proclaiming California is vulnerable to the impacts of climate change. It states that increased temperatures could reduce the Sierra Nevada's snowpack, worsen California's air quality problems, and potentially cause a rise in sea levels. The Executive Order establishes total GHG emission targets that require reducing GHG emissions to the 2000 level by 2010, the 1990 level by 2020, and to 80% below the 1990 level by 2050. The 2050 reduction goal represents what scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be an aggressive, but achievable, midterm target.

AB 32. California's major initiative for reducing GHG emissions is outlined in AB 32, the California Global Warming Solutions Act of 2006, passed by the Legislature on August 31, 2006. This effort aims at reducing GHG emissions to 1990 levels by 2020. CARB has established the level of GHG emissions in 1990 at 427 MMT CO₂e. The emissions target of 427 MMT requires the reduction of 169 MMT from the state's projected business-asusual 2020 emissions of 596 MMT. AB 32 requires CARB to prepare a Scoping Plan that outlines the main state strategies for meeting the 2020 deadline and to reduce GHGs that contribute to global climate change.

AB 32 requires CARB and the Climate Action Team² to take the following actions:

- Adopt a list of discrete early action measures by July 1, 2007, that can be implemented before January 1, 2010;
- > Establish a statewide GHG emissions cap for 2020 based on 1990 emissions and adopt mandatory reporting rules for significant sources of GHGs by January 1, 2008;
- Indicate how emission reductions will be achieved from significant GHG sources via regulations, market mechanisms, and other actions by January 1, 2009; and

² The Climate Action Team is a consortium of representatives from state agencies who have been charged with coordinating and implementing GHG emission reduction programs that fall outside of CARB's jurisdiction.

Adopt regulations by January 1, 2011, to achieve the maximum technologically feasible and cost-effective reductions in GHGs, including provisions for using both market mechanisms and alternative compliance mechanisms.

In June 2007, CARB approved a list of 37 early action measures, including three discrete early action measures: Low Carbon Fuel Standard, Restrictions on High GWP Refrigerants, and Landfill CH₄ Capture. Discrete early action measures are measures that were required to be adopted as regulations and made effective no later than January 1, 2010, the date established by Health and Safety Code Section 38560.5.

CARB adopted additional early action measures in October 2007 that tripled the number of discrete early action measures (CARB, 2007a). These measures relate to truck efficiency, port electrification, reduction of perfluorocarbons from the semiconductor industry, reduction of propellants in consumer products, proper tire inflation, and SF_6 reductions from the non-electricity sector. The combination of early action measures is estimated to reduce statewide GHG emissions by nearly 16 MMT of $CO_{2}e$ (CARB, 2007b).

CARB AB 32 Scoping Plan. CARB adopted the initial Climate Change Scoping Plan (Scoping Plan) in 2008, which outlines actions recommended to obtain that goal. The Scoping Plan calls for an "ambitious but achievable" reduction in California's GHG emissions, cutting approximately 30% from business-as-usual emission levels projected for 2020, or about 10% from today's levels. On a per-capita basis, that means reducing annual emissions of 14 tons of CO₂ per person in California down to about 10 tons per person by 2020. The First Update to the Climate Change Scoping Plan was released on May 15, 2014, and built upon the initial Scoping Plan with new recommendations.

The Scoping Plan contains the following 18 emission reduction measures to reduce the state's emissions (CARB, 2008):

- 1. California Cap-and-Trade Program Linked to Western Climate Initiative. Implement a broad-based California Cap-and-Trade program to provide a firm limit on emissions. Link the California cap-and-trade program with other Western Climate Initiative Partner programs to create a regional market system to achieve greater environmental and economic benefits for California. Ensure California's program meets all applicable AB 32 requirements for market-based mechanisms.
- 2. *California Light-Duty Vehicle GHG Standards*. Implement adopted standards and planned the second phase of the program. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs with long-term climate change goals.
- 3. *Energy Efficiency*. Maximize energy efficiency building and appliance standards; pursue additional efficiency including new technologies, policy, and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California.
- 4. *Renewable Portfolio Standard*. Achieve a 33% renewable energy mix statewide. Renewable energy sources include (but are not limited to) wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas.
- 5. Low Carbon Fuel Standard. Develop and adopt the Low Carbon Fuel Standard.
- 6. *Regional Transportation-Related GHG Targets.* Develop regional GHG emissions reduction targets for passenger vehicles. This measure refers to Senate Bill 375 (SB 375).
- 7. Vehicle Efficiency Measures. Implement light-duty vehicle efficiency measures.
- 8. *Goods Movement.* Implement adopted regulations for the use of shore power for ships at berth. Improve efficiency in goods movement activities.

- 9. *Million Solar Roofs Program.* Install 3,000 MW of solar-electric capacity under California's existing solar programs.
- 10. *Medium/Heavy-Duty Vehicles*. Adopt medium- and heavy-duty vehicle efficiency measures.
- 11. *Industrial Emissions*. Require an assessment of large industrial sources to determine whether individual sources within a facility can cost-effectively reduce GHG emissions and provide other pollution reduction co-benefits. Reduce GHG emissions from fugitive emissions from oil and gas extraction and gas transmission. Adopt and implement regulations to control fugitive CH₄ emissions and reduce flaring at refineries.
- 12. *High-Speed Rail*. Support implementation of a high-speed rail system.
- 13. *Green Building Strategy.* Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.
- 14. High GWP Gases. Adopt measures to reduce high GWP gases.
- 15. *Recycling and Waste.* Reduce CH₄ emissions at landfills. Increase waste diversion, composting, and commercial recycling. Move toward zero-waste.
- 16. *Sustainable Forests.* Preserve forest sequestration and encourage the use of forest biomass for sustainable energy generation.
- 17. Water. Continue efficiency programs and use cleaner energy sources to move and treat water.
- 18. *Agriculture.* In the near-term, encourage investment in manure digesters; at the five-year Scoping Plan update, determine if the program should be made mandatory by 2020.

SB 375 (discussed in more detail below) took effect in 2009 and required regional municipal planning organizations to develop regional land use plans that demonstrate how the regions will achieve compliance with the GHG reduction goals of AB 32. Cities located within these regions are then required, in turn, to update their General Plans in accordance with the regional plans. Non-compliance with SB 375 will result in transportation funds being withheld from the regional and/or local agency.

AB 398. AB 398, signed in July 2017, aims to reduce GHG emissions within the state of California. The bill outlines new requirements for California's GHG Cap-and-Trade program that includes, among others, extending the program through 2030, limiting the use of offsets, and requiring CARB to establish a price ceiling for GHG allowances.

SB 1368. In September 2006, the Governor signed Senate Bill 1368, which calls for the adoption of a GHG performance standard for in-state and imported electricity generators to mitigate climate change. On January 25, 2007, the CPUC adopted an interim GHG emissions performance standard. This standard is a facility-based emissions standard requiring all new long-term commitments for base load generation to serve California consumers with power plants that have emissions no greater than those from a combined cycle gas turbine plant. The established level is 1,100 pounds of CO_2 per megawatt-hour.

SB 375. Signed into law on October 1, 2008, SB 375 provides emissions-reduction goals around which regions can plan; integrates disjointed planning activities; and provides incentives for local governments and developers to implement "smart growth" planning and development strategies, which are to include reductions in average vehicle miles traveled (VMT), commuting distances, and criteria and GHG air pollutant emissions. SB 375 has three major components:

- Using the regional transportation planning process to achieve reductions in GHG emissions consistent with AB 32's goals;
- Offering CEQA incentives to encourage projects that are consistent with a regional plan that achieves GHG emission reductions; and
- > Coordinating the regional housing needs allocation process with the regional transportation process while maintaining local authority over land use decisions.

SB 375 requires each Metropolitan Planning Organization (MPO) to include a Sustainable Communities Strategy (SCS) in the regional transportation plan that demonstrates how the region will meet the GHG emission targets and creates CEQA streamlining incentives for projects that are consistent with the regional SCS. The focus of SB 375 is on the location of new residential projects and coordinated transportation planning.

SB 743. SB 743 of 2013 amended CEQA to change the conventional approaches to transportation impact analysis which focus on vehicle level of service (LOS) and vehicle delay. SB 743 changes the focus of transportation impact analysis in CEQA from measuring impacts to drivers, to measuring the impact of driving on the environment, including GHG emissions. SB 743 amendments to CEQA require that the LOS metric be replaced with a metric considering vehicle mile traveled (VMT). This shift in transportation impact focus is expected to better align transportation impact analysis and mitigation outcomes with the State's goals to reduce GHG emissions, encourage infill development, and improve public health through more active transportation. Amendments to the CEQA Guidelines were approved in December 2018 and included incorporation of changes to address SB 743. Guidelines, Section 15064.3(c) states, "A lead agency may elect to be governed by the provisions of this section immediately. Beginning on July 1, 2020, the provisions of this section shall apply statewide."

3.4.4. Regional Policies - GHG

BAAQMD 2017 Clean Air Plan. The BAAQMD 2017 Clean Air Plan includes climate protection as a primary goal and specifies the GHG-related priorities listed below.

- Reduce emissions of "super-GHGs" such as CH₄, black carbon and fluorinated gases
- > Decrease demand for fossil fuels (gasoline, diesel and natural gas)
 - Increase efficiency of industrial processes, energy, and transportation systems
 - Reduce demand for vehicle travel, and high-carbon goods and services
- Decarbonize our energy system
 - Make the electricity supply carbon-free
 - Electrify the transportation and building sectors

The Clean Air Plan lays the groundwork for a long-term effort to reduce Bay Area GHG emissions 40% below 1990 levels by 2030 and 80% below 1990 levels by 2050, consistent with the state GHG reduction targets. The Plan includes a comprehensive control strategy for GHGs that the District intends to implement over the next three to five years.

Santa Clara County Climate Action Plan. Adopted by the Board of Supervisors in September 2009, the Santa Clara County Climate Action Plan (CAP) focuses on County operations, facilities, and employee actions to reduce greenhouse gas emissions, energy and water consumption, solid waste, and fuel consumption. The Plan focuses

on steps needed to reach a 15% GHG reduction goal by 2020 and also identifies policies and actions needed to reduce emissions beyond 2020.

Along with the municipal climate action plan, the Silicon Valley 2.0 project is a countywide effort to minimize the anticipated impacts of climate change and reduce local greenhouse gas emissions. The project uses a risk management framework to evaluate the exposure of populations to climate impacts, examines the potential consequences of this exposure, and develops adaptation strategies that improve community resilience.

4.1. SIGNIFICANCE CRITERIA

Appendix G of the California state CEQA Guidelines recognizes the following significance criteria related to air quality and GHG emissions (California Natural Resources Agency, 2019). Based on the criteria, potential impacts to air quality would be significant if the proposed Project would:

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

The Project would cause adverse impacts associated with GHG emissions if it would:

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

The CEQA Air Quality Guidelines (BAAQMD, 2017b) contain numerical thresholds of significance that are designed to implement the above general criteria for air quality and GHG impacts in the Bay Area Air Basin. The BAAQMD thresholds of significance are based on extensive studies, and serve as a means of translating the general standards set forth in Appendix G into quantitative thresholds against which a proposed project's air pollutant and GHG emissions can be measured (BAAQMD, 2017b). Thus, the BAAQMD thresholds of significance are considered appropriate for use in evaluating the proposed Project.

Table 4-1 presents the BAAQMD thresholds of significance used as applicable in this AQIA for air quality and GHG emissions associated with the proposed Project. The table presents thresholds for construction-related and operational-related emissions. The applicability and use of the specific project-level thresholds for evaluation of the proposed Project is explained in the discussion of each impact in Section 4.2 through Section 4.7 below.

Table 4-1: BAAQMD Air Quality CEQA Thresholds of Significance

Pollutant/Criteria	Construction-Related	Operational-Related ^a
ROG	54 lb/day	54 lb/day ; 10 tpy
NO _x	54 lb/day	54 lb/day ; 10 tpy
PM_{10}	82 lb/day (exhaust)	82 lb/day ; 15 tpy
$PM_{2.5}$	54 lb/day (exhaust)	54 lb/day ; 10 tpy
$PM_{10} / PM_{2.5}$	Best Management	None
(Fugitive Dust)	Practices	None
Local CO	None	 9.0 ppm (8-hour average), 20.0 ppm (1-hour average) OR meet screening criteria: 1. Consistent with applicable congestion management plan 2. Not increase intersection volumes to more than 44,000 vehicle per hour 3. Not increase intersection volumes to more than 24,000 where mixing is substantially limited
GHGs -Stationary Sources	None	10,000 MT CO ₂ e/yr
Risk and Hazards for new sources and receptors (Individual Project)	Same as Operational Standards	Compliance with Qualified Community Risk Reduction Plan OR Increased cancer risk of > 10.0 in a million Increased non-cancer risk of > 1.0 Hazard Index (Chronic or Acute) Ambient PM _{2.5} increase: > 0.3 µg/m³ annual average
Risk and Hazards for new sources and receptors (Cumulative Threshold	Same as Operational Standards	Compliance with Qualified Community Risk Reduction Plan OR Cancer: > 100 in a million (from all local sources) Non-cancer: > 10.0 Hazard Index (from all local sources) (Chronic) PM _{2.5} : > 0.8 µg/m ³ annual average (from all local sources)
Accidental Release of Acutely Hazardous Air Pollutants	None	Storage or use of acutely hazardous materials locating near receptors or new receptors locating near stored or used acutely hazardous materials considered significant
Odors	None	5 confirmed complaints per year averaged over 3 years

Source: BAAQMD, 2017b

Notes:

a. BAAQMD construction-related thresholds and operational-related thresholds that are not applicable to the Project are not listed. The daily emission thresholds reflect average daily emissions values. The annual emission thresholds reflect maximum annual emissions values.

4.2. PROJECT EMISSIONS

4.2.1. Project Construction Emissions

The proposed Project involves two phases that include construction activities. Construction emissions from the construction of the MCDC will result from demolition activities, ground preparation and grading activities, building erection, parking lot construction activities, and use of onsite construction equipment. Construction emissions from the MCBGF are nearly negligible but are included in the MCDC construction emission calculations. MCBGF offsite construction emissions will result primarily from material transport to and from the site, material placement in the generation yard, and worker travel. All off-road equipment to be used in the construction project will achieve a project wide fleet-average of 28 percent reduction in NO_x and 70 percent reduction in PM compared to the California Emissions Estimator Model (CalEEMod) modeled average used in this AQIA. Table 4-2 summarizes the equipment used for construction activities.

Table 4-2: Construction Equipment

Phase Name	Off Road Equipment Type	Off Road Equipment Unit Amount	Horse Power	Load Factor
Site and Building #1 - Demolition	Concrete/Industrial Saws	8	81	0.73
Site and Building #1 - Demolition	Crushing/Proc. Equipment	1	85	0.78
Site and Building #1 - Demolition	Excavators	4	162	0.38
Site and Building #1 - Demolition	Rubber Tired Dozers	4	255	0.4
Site and Building #1 - Demolition	Tractors/Loaders/Backhoes	2	97	0.37
Site and Building #1 - Site Preparation	Graders	2	174	0.41
Site and Building #1 - Site Preparation	Rubber Tired Dozers	3	255	0.4
Site and Building #1 - Site Preparation	Tractors/Loaders/Backhoes	4	97	0.37
Site and Building #1 - Grading	Excavators	3	162	0.38
Site and Building #1 - Grading	Graders	1	174	0.41
Site and Building #1 - Grading	Scrapers	2	361	0.48
Site and Building #1 - Grading	Tractors/Loaders/Backhoes	4	97	0.37
Site and Building #1 - Trenching	Excavators	3	162	0.38
Site and Building #1 - Trenching	Tractors/Loaders/Backhoes	4	97	0.37
Site and Building #1 - Building Construction	Cranes	2	226	0.29
Site and Building #1 - Building Construction	Forklifts	2	89	0.2
Site and Building #1 - Building Construction	Tractors/Loaders/Backhoes	1	97	0.37
Site and Building #1 - Building Construction	Welders	3	46	0.45
Site and Building #1 - Paving	Pavers	1	125	0.42
Site and Building #1 - Paving	Paving Equipment	1	130	0.36
Site and Building #1 - Paving	Rollers	2	80	0.38

Site and Building #1 - Paving	Tractors/Loaders/Backhoes	1	97	0.37
Building #2 - Grading	Excavators	3	162	0.38
Building #2 - Grading	Graders	1	174	0.41
Building #2 - Grading	Scrapers	2	361	0.48
Building #2 - Grading	Tractors/Loaders/Backhoes	4	97	0.37
Building #2 - Trenching	Excavators	3	162	0.38
Building #2 - Trenching	Tractors/Loaders/Backhoes	4	97	0.37
Building #2 - Building	Cranes	2	226	0.29
Construction	Craffes	2	220	0.29
Building #2 - Building	Forklifts	2	89	0.2
Construction	FOIRIITS	2	09	0.2
Building #2 - Building	Tractors/Loaders/Backhoes	1	97	0.37
Construction	Tractors/ Loaders/ Backhoes	1	97	0.57
Building #2 - Building	Welders	3	46	0.45
Construction	Welders	3	40	0.43
Site and Building #2 - Paving	Pavers	1	125	0.42
Site and Building #2 - Paving	Paving Equipment	1	130	0.36
Site and Building #2 - Paving	Rollers	2	80	0.38
Site and Building #2 - Paving	Tractors/Loaders/Backhoes	1	97	0.37

Construction of Phase I to support the first MCDC Building is anticipated to begin in December 2019 or January 2020 and take 14.5 months. Construction of Phase II is conservatively assumed to occur immediately following the completion of the first generation yard and to take approximately 12.5 months. This assumption calculates conservative construction emissions as construction equipment emission profiles improve over time.

Construction emissions are computed using CalEEMod, Version 2016.3.2, The construction schedule and projected equipment usage were provided as inputs for the model. Inputs to the CalEEMod model are summarized as follows:

Land Uses. "General Light Industry" 490,000 square feet on 11.25 acres. "Parking Lot" 140 spaces, 56,000 square feet on 1.26 acres.

Demolition. An 88-day demolition phase is assumed that includes the assumed off-haul of building materials for 370,000 square feet of buildings during Phase I. The modeling assumes 2,633 haul truck trips associated with this activity as summarized in Table 4-3.

Site Preparation and Grading. The site preparation phase is anticipated to last 110 days as part of Phase I and the Grading and Excavation phase will be 13 days for Phase I and 13 days for Phase II. The modeling accounts for the export of 22,410 cubic yards and the import of 46,000 cubic yards of soil. Model inputs for grading that are modified from CalEEMod defaults are summarized in Table 4-3.

Building Construction. Building construction is modeled as two phases: exterior building (using the Building Construction phase) and interior construction (using the Architectural Coating phase). Model inputs for building construction that are modified from CalEEMod defaults are summarized in Table 4-3.

Paving. The paving phase includes the import of 2,400 cubic yards of paving material, modeled as 120 total hauling trips per the default average truck capacity of 20 cubic yards.

Table 4-3 summarizes significant modifications to default inputs of CalEEMod, which were made based on project-specific representations of construction activity. Appendix AQ-4 includes a comprehensive list of all modifications to default inputs of CalEEMod.

Table 4-3: CalEEMod Significant Modifications to Default Inputs

CalEEMod Phase Name	Worker Trips (per day)	Vendor Trips (per day)	Total Trips Hauling	Trip Length Hauling (miles)
Site and Building #1 – Demolition	38	Default	2,633	Default
Site and Building #1 – Site Preparation	Default	Default	2,801	Default
Site and Building #1 - Grading	Default	Default	5,750	Default
Site and Building #1 - Building Phase	168	66	13,000	7.3
Site and Building #1 - Architectural Coating Phase	34	Default	Default	Default
Site and Building #1 - Paving	15	Default	60	7.3
Site and Building #2 – Building Phase	168	66	13,000	7.3
Site and Building #2 - Architectural Coating Phase	34	Default	Default	Default
Site and Building #2 – Paving	15	Default	60	7.3

Based on a construction start date of December 15, 2019 and an anticipated completion date of January 13, 2022, CalEEMod computes 748 construction days. Total construction emissions from full build out of the Project are shown in Table 4-4. Average daily emissions are computed by taking the maximum annual emissions and assuming that construction occurs 260 days of the year, which is a conservative estimate based on the number of working days in a year.

The AQIA submitted for the 2018 Data Center Project includes construction period emissions for PM, NO_x , and ROG, as shown in Table 2 of Appendix AQ-7. Comparison of the 2018 Data Center Project's AQIA construction emissions to those shown in Table 4-4 below shows that the construction emissions of PM_{10} and $PM_{2.5}$ from the proposed Project are less than those of the 2018 Data Center Project. The 2018 Data Center Project had PM_{10} exhaust emissions of 0.49 tons per year and $PM_{2.5}$ exhaust emissions of 0.46 tons per year, while the proposed Project has maximum total PM_{10} emissions of 0.60 tons per year and maximum total $PM_{2.5}$ emissions of 0.22 tons per year. Therefore, due to modifications between the 2018 Data Center Project and the proposed Project resulting in similar or lower construction emissions, it is reasonable to assume that a construction HRA for the proposed Project would result in similar conclusions as the 2018 Data Center Project's construction HRA, which was accepted by the City of Santa Clara. Further, it is reasonable to estimate that the HRA results would be lower for the proposed Project due to the reduction in annual $PM_{2.5}$ construction emissions resulting from those modifications. Of particular note are the 5,610 square foot reduction in total building area constructed and the 412 day extension to construction time period to increase emission dispersion.

By applying Mitigation Measure AQ-1 to reduce particulate matter emissions, the 2018 Data Center Project completed a construction HRA that was accepted by the City of Santa Clara. Since the proposed Project will have fewer annual emissions of particulate matter and will apply the same Mitigation Measure AQ-1 to further reduce those PM emissions, it is reasonable to conclude that the City of Santa Clara's acceptance also applies to the proposed Project. Table 4-4 includes a summary of emissions due to construction of the proposed Project in comparison to the BAAQMD CEQA thresholds of significance.

Construction period GHG emissions are also computed using CalEEMod as described above. Table 4-4 includes a summary of the GHG emissions due to construction of the proposed Project.

Construction period emissions of $PM_{2.5}$ and PM_{10} due to fugitive dust are calculated using CalEEMod and are summarized in Table 4-4. The soil type of dust from material movement is input as a default value of 6.9% material silt content. Material moisture content of dust from material movement is input as a default value of 7.9% for bulldozing and 12% for truck loading. Material moisture content of on-road fugitive dust is input as a default value of 0.5% for all construction activities. Wind speed data is based on project location, CEC Forecasting Climate Zone and information from the Western Regional Climate Center. For the proposed Project, the windspeed is input as 2.2 miles per hour (mph). Control methods and control efficiencies are included in the CalEEMod calculations as Mitigation. Per BAAQMD recommended measures, the proposed Project will implement Mitigation Measure AQ-1 as further described below. Associated CalEEMod inputs include a Water Exposed Area with a Frequency of two (2) times per day resulting in 55% PM_{10} and $PM_{2.5}$ reduction and a Vehicle Speed limited to 15 mph.

Table 4-4: Project Construction Emissions Summary and Comparison to Significance Thresholds a,b,c

					Poll	utant				
Activity	Fugitive PM ₁₀	Fugitive PM _{2.5}	PM ₁₀	PM _{2.5}	со	NOx	ROG/ VOC	SO ₂	CO ₂ e	
				Pou	ınds per	Day (lb/c	day)			
Construction Emissions ²	4.11	1.25	4.59	1.70	30.7	41.9	33.7	0.10	For this analysis and comparison to	
Significance Threshold	N/A	N/A	82	54	N/A	54	54	N/A	thresholds, GHG emissions are	
Significant Impact?	No	No	No	No	No	No	No	No	calculated on an annual basis only.	
Activity			To	ns per Ye	ar (tpy)				Metric Tons per Year (MT/yr)	
Construction Emissions ²	0.53	0.16	0.60	0.22	3.99	5.44	4.39	0.01	1,231	
Significance Thresholds ³	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Significant Impact?	No	No	No	No	No	No	No	No	N/A	

- a. Fugitive emissions will be controlled with best management practices, in accordance with the significance threshold.
- b. Construction emissions represent the maximum mitigated emissions based on 260 total weekdays per year.
- c. There are no annual construction-related thresholds of significance.

Although construction period NO_x emissions would not be significant, Mitigation Measure AQ-1 will reduce NO_x emissions further below the threshold, as addressed in detail below. Appendix AQ-4 includes the CalEEMod output file that is the basis of the construction emission calculations.

Mitigation Measure AQ-1. Include construction equipment exhaust controls and measures to control dust and exhaust during construction.

During any construction period ground disturbance, Oppidan shall ensure that the project contractor implement measures to control dust and exhaust. Implementation of the measures recommended by BAAQMD in their CEQA Air Quality Guidelines and those listed below would reduce the air quality impacts associated with grading and new construction to a less than significant level. The contractor shall implement the following best management practices that are required of all projects:

Basic Measures

- a. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- b. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- c. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- d. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).
- e. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- f. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
- g. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- h. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Applicable Enhanced Control Measures

- i. All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe.
- j. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph and visible dust extends beyond site boundaries.
- k. Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction adjacent to sensitive receptors. Wind breaks should have at maximum 50 percent air porosity.
- l. Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
- m. The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.
- n. Avoid tracking of visible soil material on to public roadways by employing the following measures if necessary: (1) Site accesses to a distance of 100 feet from public paved roads shall be treated with a 6 to

- 12-inch compacted layer of wood chips, mulch, or gravel and (2) washing truck tires and construction equipment of prior to leaving the site.
- o. Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- p. Minimizing the idling time of diesel-powered construction equipment to two minutes.

Exhaust Control Measures

- q. The project shall develop a plan demonstrating that the off-road equipment (more than 25 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 28 percent NO_x reduction and 70 percent PM reduction compared to the CalEEMod modeled average used in this report, to meet the emission values as summarized in Table 4-4 above. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available. The following are examples of feasible methods:
 - 1. All construction equipment larger than 25 horsepower used at the site for more than two continuous days or 20 hours total shall meet U.S. EPA emission standards for Tier 3 engines and include particulate matter emissions control equivalent to CARB Level 2 verifiable diesel emission control devices that altogether achieve a 85percent reduction in particulate matter exhaust; alternatively (or in combination)
 - 2. Use of diesel construction equipment that meets U.S. EPA Tier 4 interim of Tier 4 final emission standards.
- r. Provide line power to the site during the early phases of construction to minimize the use of diesel-powered stationary equipment, such as generators.

Effectiveness of Mitigation

The effects of Mitigation Measure AQ-1 were modeled for the 2018 Data Center Project using CalEEMod and found to reduce overall NOx emissions by 32 percent and overall exhaust particulate matter emissions by 68 percent, including off-site truck emissions. Emissions from on-site off-road equipment operation and on- or near-site truck travel were calculated to be reduced by over 70 percent. Therefore, Mitigation Measure AQ-1 more effectively controls fugitive dust than the basic control measures recommended by BAAQMD in their CEQA Air Quality Guidelines. Thus, Oppidan proposes to implement Mitigation Measure AQ-1 in the proposed Project as with the 2018 Data Center Project and expects comparably effective control of fugitive dust and NO_x emissions.

4.2.2. Operational Emissions Calculation Methodology

This section discusses methods used for calculating emissions associated with the proposed Project operations. An overview is provided below and details for each emission source are provided in Tables 4-5 through 4-6.

Proposed Project Overview. Operational air pollutant and GHG emissions are those that result from operation of the 45 generators for non-emergency testing and maintenance purposes, mobile sources such as employee vehicles, and general operation of the MCDC buildings.

For the purposes of comparison to the BAAQMD maximum annual emission thresholds of significance, the Project emission calculations assume 50 hours per year per generator for non-emergency operation testing and maintenance operation per Title 17, CCR Section 93115.6(a)(3)(A)(1)(c): ATCM for Stationary CI Engines. For purposes of comparison to the BAAQMD average daily emission thresholds of significance, Project emission calculations assume 24 hours per day for all critical backup generators combined and 24 hours per day for all life safety generators combined.

Generator Emissions. The calculation methods utilize for estimating the proposed Project operational emissions are explained in detail in the following paragraphs. Emission factors and calculation methods used to quantify emissions from the proposed Project are based on facility information and data available from generally accepted public sources.

In the proposed Project, the MCBGF is equipped with 43 critical backup generators and two life safety generators. Oppidan proposes to limit operation to one generator at a time for routine maintenance and testing activities conducted pursuant to manufacturer specifications. Generator operation for emergency use and emission testing for compliance purposes is not limited (BAAQMD, 2019e). The emission calculations are based on the generator engine horsepower, hours of operation, and EPA family emission factors. Each generator will be equipped with a diesel particulate filter, for which a control efficiency of 85% is assumed per CARB Executive Order DE-07-001-07. Per this executive order, CARB states that a diesel particulate filter efficiency of 85% can be applied to emergency standby engines for approved engine models, of which both of the generator models for the proposed Project are included. The executive order also notes that duty cycles must be reviewed to ensure compatibility prior to retrofitting a generator with a diesel particulate filter. Since the proposed generators are included in the executive order, the 85% control efficiency is compatible.

Emission factors for PM, NO_x , ROG and CO are provided by the EPA engine family certification levels (U.S. EPA, 2019b). The emission factors for sulfur dioxide (SO₂) are calculated with the assumption that the proposed generators will use ultra-low sulfur diesel fuel which contains 0.0015% sulfur as defined under 40 CFR 80, Subpart I. Per this assumption, the SO_2 emission factor from AP-42 Section 3.4, Table 3.4-1 applies.

Operational GHG emissions are calculated using global warming potentials from Subpart A of 40 CFR 98, Table A-1 for carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O). Using emissions factors from Subpart C of 40 CFR 98 Tables C-1 and C-2, the equivalent emissions of CO_2 are calculated for CH_4 and N_2O to determine total potential CO_2 -equivalent (CO_2 e) emissions representing the GHG emissions for all generators (U.S. EPA, 2019a).

Mobile and Building Operation Emissions. Emissions from mobile sources and general operation of the MCDC buildings are calculated using the CalEEMod. Once Phase I and Phase II are complete, the Project would generate approximately 124 round trips daily to the MCDC encompassing employee and visitor trips. Additionally, the MCDC would generate building operational emissions from the use of consumer products, architectural coating, landscaping work, energy usage, solid waste disposal, and water usage. CalEEMod output files are included in Appendix AQ-4.

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³ Emission factor for carbon dioxide obtained from 40 CFR 98, Table C-1 to Subpart C for Distillate Fuel Oil No. 2. Emission factors for methane and nitrous oxide obtained from 40 CFR 98, Table C-2 to Subpart C.

4.2.3. Project Operational Emissions

Table 4-5 summarizes estimated hourly, daily and annual emissions for the operational emissions associated with the proposed Project. The hourly emissions are separated by generator type. The daily and annual emissions account for the maximum daily and annual hours of operation, respectively, per generator type and then combine these into a total value. The detailed calculations are provided in Appendix AQ-3. It is expected that the daily and annual operational emissions in Table 4-5 and Table 4-6 encompass emissions from start-up and shutdown conditions, however the manufacturer does not provide speciated emission profiles for specific start-up and shutdown conditions.

Table 4-5: Project Operational Emissions

	Hourly E	missions	Daily Emissions	Annual Emissions
Pollutant	Backup Generators	Life Safety Generators	All Generators	All Generators
	Pounds per Hour	Pounds per Hour	Pounds per Day	Tons per Year
PM/PM ₁₀ /PM _{2.5}	0.11	0.02	3.17	0.12
NOx	30.29	8.36	928	33.0
ROG/VOC	1.55	0.16	41	1.68
CO	5.38	1.18	157	5.84
SO ₂	0.044	0.011	1.3	0.048
				Metric Tons per Year
CO ₂				3,862
CH ₄	For this analysis and	olds, GHG emissions	3.92	
N_2O	are calc	ulated on an annual ba	9.34	
Total CO2e				3,875

Table 4-6: Project Operational Emissions Summary and Comparison to Significance Thresholds

]	Pollutan	t		
Activity	PM ₁₀	PM _{2.5}	СО	NOx	ROG/ VOC	SO ₂	CO ₂ e	
			l	Pounds	per Day	(lb/day)		
Generator Operational Emissions	3.17	3.17	157	928	41.2	1.32		
Mobile and Building Operational Emissions	1.07	0.49	5.28	4.27	12.5	0.03	For this analysis and comparison to	
Total Project Operational Emissions	4.24	3.66	162	932	53.7	1.35	thresholds, GHG emissions are calculated on an annual basis only.	
Significance Threshold	82	54	[see note a]	54	54	N/A		
Significant Impact?	No	No	No	Yes	No	No		
Activity		Т	ons per Y	ear (tpy	·)		Metric Tons per Year (MT/yr)	
Generator Operational Emissions	0.12	0.12	5.84	33.0	1.68	0.05	3,875	
Mobile and Building Operational Emissions	0.20	0.09	0.96	0.78	2.28	0.01	2,663	
Total Project Operational Emissions	0.32	0.21	6.80	33.8	3.96	0.06	6,538	
Significance Thresholds	15	10	[see note a]	10	10	N/A	10,000	
Significant Impact?	No	No	No	Yes	No	No	No	

a. CO is evaluated in this AQIA based on screening criteria identified in Table 4-1 for Local CO.

The following should be noted with respect to Table 4-6 above:

- 1. Project average daily and maximum annual NO_x emissions exceed the BAAQMD CEQA thresholds of significance.
- 2. Per the ambient air dispersion model discussed in the Section 4.5 below, the concentration of NO_x as a result of the proposed Project is below the applicable NAAQS and CAAQS.
- 3. The emissions of NO_x from the generators will be mitigated through procurement of NO_x emission offsets.

With regards to the threshold of significance for local CO, it should be noted that the limited level of offsite mobile source activity during project operations would not increase peak hour intersection level of service and therefore would have an immeasurable effect on local CO levels at nearby roadway intersections. This is due to the minimal number of employees and visitors at the site. Therefore, local CO emissions are determined to be less than significant and are not further assessed in other sections of this report.

BAAQMD sets an odor threshold of significance where if there are a maximum of five odor complaints per year averaged over three years it will result in significant adverse air quality impacts. The Project is not considered a typical odor producing source such as a wastewater (sewage) treatment plant, landfill, composting facility, refinery, or chemical plant. As such, it is assumed that the Project will not exceed the identified threshold of significance for odor.

Impacts from toxic air contaminants and comparison to the BAAQMD thresholds of significance for Risks and Hazards are discussed in section 4.6 below.

4.3. AIR DISPERSION MODELING METHODOLOGY

This section presents the modeling methods used prior to evaluating potential air quality impacts and health risks associated with the proposed Project. Each model incorporates the same components and inputs described below. AERMOD dispersion modeling is used in this AQIA to perform a load screening analysis and comparison to AAQS standards based on the equipment associated with the Project. The concentrations of pollutants from the proposed Project with incorporation of background concentration data do not exceed the NAAQS or CAAQS except for PM₁₀ and PM_{2.5} for 24-hour and annual averaging period. This is addressed further in Section 4.5.4.

Ambient air quality modeling was not completed for the construction period of the proposed Project. As many sources of emissions relating to construction of the proposed Project will be consistently moving into, out of, and within the site and will not be at the site for more than one year, it is atypical to model ambient air quality for the construction period. Additionally, it should be noted that Oppidan is implementing the best mitigation strategies available for construction emissions by ensuring all off-road equipment to be used in the construction phase of the Project will achieve a project wide fleet-average 28 percent reduction in NO_x and 70 percent reduction in PM compared to the CalEEMod modeled average used in this AQIA and by implementing Mitigation Measure AQ-1. Further, full operation will not commence until construction has been completed.

4.3.1. Air Dispersion Model

The air quality analysis is conducted according to U.S. EPA guidelines. The AERMOD model (version 19191) is used with Trinity Consultants' (Trinity's) *BREEZETM AERMOD Suite* software to calculate ground-level concentrations the regulatory default parameters. All model runs for this analysis use the BREEZE-developed parallel processing executable. This executable retains all of the U.S. EPA AERMOD code, but adds code to allow AERMOD to run on multiple processor cores simultaneously, producing faster results.

4.3.2. Coordinate System

The locations of emission sources and receptors are represented in the Universal Transverse Mercator (UTM) coordinate system using the World Geodetic System (WGS84) projection. The UTM grid divides the world into coordinates that are measured in north meters (measured from the equator) and east meters (measured from the central meridian of a particular zone, which is set at 500 km).

4.3.3. Terrain Elevations

The terrain elevation for each receptor and emission source is determined using the United States Geological Survey (USGS) 1/3 arc-second National Elevation Dataset (NED). The data, obtained from the USGS, have terrain elevations at 10-meter intervals. The terrain height for each individual modeled receptor and emission source is determined by assigning the interpolated height from the digital terrain elevations surrounding each modeled receptor or emission source.

In addition, the AERMOD terrain preprocessor, AERMAP (version 18081), is used to compute the hill height scales for each receptor. AERMAP searches all NED data points for the terrain height and location that has the greatest influence on each receptor to determine the hill height scale for that receptor. AERMOD then uses the hill height scale in order to select the correct critical dividing streamline and concentration algorithm for each receptor.

4.3.4. Meteorological Data

Meteorological data is provided by BAAQMD for the calendar years 2013 through 2017. Surface data is from the San José International Airport (Station ID 23293; elevation of 15.5 meters); upper air data is from the Oakland International Airport (Station ID 23230). The closest meteorological stations are selected for surface and upper air data.

4.3.5. Building Downwash

Emission sources' proximity to nearby structures creates potential for downwash of the emission plume and elevated ground-level concentrations. Based on applicable stack parameters, no sources associated with the Project are within the structure influence zone of the buildings outside the facility, therefore no buildings beyond the facility boundary are included in the models. As such, only buildings within the facility boundary are accounted for in building downwash. Building dimensions were determined from the facility site plans provided in Appendix AQ-1 and generator enclosure dimensions are determined from the equipment specifications in Appendix AQ-2.

The Building Profile Input Program (BPIP) with Plume Rise Model Enhancements (PRIME) (version 04274) is used to determine the building downwash characteristics for each stack in 10-degree intervals. The PRIME version of BPIP features enhanced plume dispersion coefficients due to turbulent wake and reduced plume rise caused by a combination of the descending streamlines in the lee of the building and the increased entrainment in the wake.

4.3.6. Receptors

According to U.S. EPA regulations, "ambient air" is defined as the portion of the atmosphere external to source, to which the public has access. The dispersion modeling concentrations are determined for ambient air locations (i.e., receptors). Oppidan's property boundary is the ambient air boundary for the modeling demonstrations. The following receptors are used to ensure ambient air is protected:

- Boundary receptors with 20-meter (m) spacing; and
- A variable density receptor grid with 20 m intervals from the facility boundary to 500 m, 50 m intervals to 1,000 m, 100 m intervals to 2,000 m, 200 m intervals to 5,000 m, and 500 m intervals to 10,000 m.

All receptors are set at a flagpole height of 1.8 meters to conservatively represent an average human's breathing height as recommended by the California Office of Environmental Health Hazard Assessment (OEHHA) guidelines (OEHHA, 2015).

4.4. LOAD SCREENING ANALYSIS

The proposed generators will operate at varying loads for purposes of maintenance and testing, in which the pollutant emission rates and stack parameters (specifically exhaust temperature and flow rate) will differ for each load. The generators will not all operate simultaneously on a short-term basis for routine maintenance and testing activities conducted pursuant to manufacturer specifications. A load screening analysis model was completed to determine the worst-case load and generator for each pollutant and short-term averaging consistent with the averaging periods of the Federal and/or State AAQS. The worst-case generator and load is then used to develop the AAQS models described further in Section 4.5.

4.4.1. Emission Sources

AERMOD allows for emission units to be represented as point, volume, area, or road sources. The modeled generators are considered point sources and are modeled as such. There is a total of 217 point sources in the model, based on five point sources representing each of the 43 critical backup generators and one point source representing each of the 2 life safety generators. The five point sources at each critical backup generator represented 10%, 25%, 50%, 75% and 100% loads using the load-specific stack parameters per manufacturer specification sheets. The point sources at each life safety generator represent 100% load. Refer to Appendix AQ-5 for a summary of emission unit modeling parameters. Critical backup generators will either be double-stacked or single-stacked as described in Section 2.3.1. Double-stacked generators consist of two point sources per generator enclosure while the single-stacked generators and life safety generators have one point source. Figure 4-1 demonstrates the model set up.

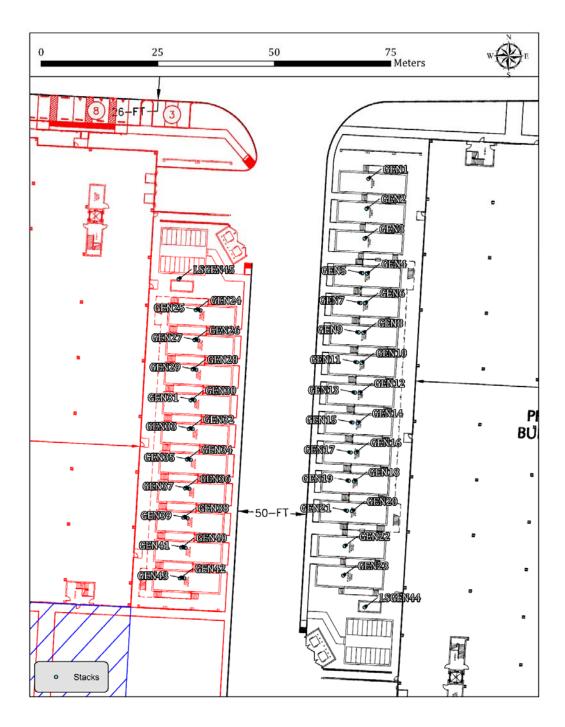


Figure 4-1: Modeled Emission Sources for the Proposed Project

The stack parameters for each critical backup generator load and the 100% load for the life safety generators are summarized in Table 4-7.

Table 4-7: Load Screening Analysis Generator Parameters

Generator Category		Critica	erators		Life Safety Generators	
Operating Scenario	A	В	С	D	E	F
Load (%)	100	75	50	25	10	100
Horsepower (bhp)	3633	2760	1889	1029	497	900
Stack Temperature (F)	915.2	858.5	850.7	831.1	647.3	994.3
Stack flow rate (cfm)	19,579	15,893	12,413	7,845	4,800	4,785.1
Stack velocity (m/s)	45.59	37.01	28.90	18.27	11.18	69.64
PM Emission Factor (g/bhp-hr)	0.006	0.0045	0.0075	0.015	3.00E-02	0.012
NO _x Emission Factor (g/bhp-hr)	5.32	4.3	3.12	2.92	5.39	4.21
ROG Emission Factor (g/bhp-hr)	0.1	0.14	0.22	0.3	0.67	0.082
CO Emission Factor (g/bhp-hr)	0.42	0.26	0.32	0.82	2.37	0.60
SO ₂ Emission Factor (g/bhp-hr)	0.0055	0.0055	0.0055	0.0055	0.0055	0.0055
PM Short-term Emissions (g/s/generator)	6.06E-03	3.45E-03	3.94E-03	4.29E-03	4.14E-03	3.08E-03
NO _x Short-term Emissions (g/s/generator)	5.369	3.297	1.637	0.835	0.744	1.053
ROG Short-term Emissions (g/s/generator)	0.101	0.107	0.115	0.0858	0.0925	0.0205
CO Short-term Emissions (g/s/generator)	0.424	0.199	0.168	0.234	0.327	0.149
SO ₂ Short-term Emissions (g/s/generator)	5.55E-03	4.22E-03	2.89E-03	1.57E-03	7.60E-04	1.38E-03
	3.064E-02	1.882E-02	9.344E-03	4.764E-03	4.247E-03	6.012E-03
SO ₂ Annualized Emissions (g/s/generator)	3.171E-05	2.41E-05	1.65E-05	8.98E-06	4.34E-06	7.85E-06

a. Critical backup generator operating parameters come from manufacturer performance data sheet titled "Performance Data [EM 1894]", dated February 13, 2019, General Performance Data. Life safety generator horsepower comes from the South Coast AQMD Certified ICE-Emergency Generators spreadsheet updated 8/15/2019 for a Caterpillar C-18 600kWe engine: http://www.aqmd.gov/home/programs/business/business-detail?title=certified-equipment&parent=certified-products. Life safety generator horsepower operating parameters come from the manufacturer's generator specification sheet. Listed parameters are assumed to correspond to 100% operating load.

b. Stack velocity $(m/s) = [Stack flow rate (cfm)] / [Stack area <math>(ft^2)] * [0.3048 m/ft] / [60 sec/min]$. The stack diameter is 20 inches for all critical emergency generators. The stack diameter is 8 inches for the life safety generators.

c. Critical backup generator emission factors come from manufacturer performance data sheet titled "Performance Data [EM1894]", dated February 13, 2019, Emissions Data section: Rated Speed Nominal Data: 1800 rpm. Life safety generator emission factors come from the EPA engine family certification levels for engine family KCPXL18.1NYS accessed October 2019 online here: https://www.epa.gov/sites/production/files/2019-02/nonroad-compression-ignition-2011-present.xlsx

d. The proposed generators will use ultra-low sulfur diesel fuel which contains 0.0015% sulfur as defined under 40 CFR 80, Subpart I. The SO₂ emission factor is from AP-42 Section 3.4, Table 3.4-1 (10/96).

e. Short-term emissions (g/s/generator) = [Pollutant Emission Factor (g/bhp-hr)] * [Engine Horsepower (bhp)] / [3600 s/hr]

f. Per EPA guidance and concurrence from local Air District agencies, 1-hour NO_2 and SO_2 emissions from intermittent sources are modeled using the annual emission rate unitized to an hourly basis. https://www.epa.gov/sites/production/files/2015-07/documents/appwno2_2.pdf

4.4.2. Emission Rates

The AERMOD dispersion model is run with a point source unit emission rate of 1 g/s for "Other" pollutant as reflected in the load screening analysis model inputs included in Appendix AQ-5.

4.4.3. Load Screening Analysis Model Results

The AERMOD dispersion model results are scaled to the emission factors provided for each pollutant and generator load per the critical backup generators' manufacturer performance specifications and life safety generators' EPA engine family certification levels. The generator which contributed most to the maximum ambient concentrations is determined by comparing the scaled results to the short-term Federal and/or State AAQS. A detailed summary of the worst-case generator at the worst-case load for each criteria pollutant and AAQS averaging period based on these scaled results is included in Table 4-8. The location of the worst-case generators for each pollutant and averaging period is depicted in Figure 4-1 and Table 4-8. Background concentration data at the ambient air monitoring station in closest proximity to the Project was determined as described in Section 3.2.3 of this AQIA. AERMOD dispersion model outputs are included in Appendix AQ-6.

Pollutant	Averaging Period	Worst-Case Generator	Worst-Case Load	Pollutant Unitized Emission Rate (g/s/generator)
NO ₂	1-hour	GEN42	100%	3.064E-02
СО	1-hour	GEN23	10%	3.27E-01
	8-hour	GEN22	10%	3.27E-01
SO ₂	1-hour	GEN42	100%	3.17E-05
	3-hour	GEN22	100%	5.55E-03
	24-hour	GEN34	100%	5.55E-03
PM ₁₀	24-hour	GEN22	10%	4.14E-03
PM _{2.5}	24-hour	GEN22	10%	4.14E-03

Table 4-8: Load Screening Analysis Model Worst-Case Scenario Results

4.5. AIR DISPERSION MODELING ANALYSIS

Using the worst-case scenarios from the load screening analysis model and critical backup generator and life safety generator emissions calculations, the generator emissions are compared to the short-term NAAQS and CAAQS. All generators are included in the annual modeling scenarios. Ambient air quality standards define clean air and provide protection to public health, including the health of sensitive populations such as children and the elderly. Therefore, modeling in comparison to the NAAQS and CAAQS provides insight into the impact of the proposed Project on public health and clean air in the area surrounding the proposed Project area.

4.5.1. Emission Sources

Air dispersion models for averaging periods of less than one year include the representative worst-case generator based on location as determined per the load screening analysis. Stack parameters correspond to the representative the worst-case load identified in the load screening analysis.

Air dispersion models for annual averaging periods include all 43 critical backup generators and two life safety generators. Stack parameters for the critical backup generators, such as temperature and flow rate, are conservatively set at 10% load, representing the lowest temperature and flow rate. Low temperatures and low flow rates are considered to be most conservative because cooler, slow-moving plumes are less ideal for dispersion and tend to concentrate closer to the Project area and surrounding area, resulting in higher concentrations. In contrast, hot and fast-moving plumes will disperse more quickly and create lower concentrations in and around the facility.

4.5.2. Emission Rates

The AERMOD dispersion model is run with different unit emission rates dependent upon the averaging period of the model. For averaging periods of less than one year, the emissions factors from the manufacturer specification sheets for the worst-case representative generator load are converted to a gram-per-second equivalent value. This equivalent value is input as the emission rate into the AERMOD dispersion model. The worst-case unitized emission rates for each short-term AAQS is summarized in Table 4-7.

Operation will be limited to one generator at a time for routine maintenance and testing activities conducted pursuant to manufacturer specifications. The short-term AAQS models represent the most conservative emissions' scenario in which the worst-case load and generator operates over the entire averaging period.

For annual averaging periods the Potential to Emit (PTE) calculated in the emission calculations in Section 4.2.2 per generator was converted to a gram-per-second equivalent value for the critical backup generators and life safety generators. These equivalent values were inputted as the emission rate for the respective type of generator into the AERMOD dispersion model.

4.5.3. Background Concentration

Background concentration data at the ambient air monitoring station in closest proximity to the Project is determined as described in Section 3.2.3 of this AQIA.

As shown in Table 4-9, the background concentrations of $PM_{2.5}$ and PM_{10} at certain averaging periods exceed the AAQS in some instances. Therefore, any additional Project emissions of PM_{10} or $PM_{2.5}$ at the same averaging periods would also exceed the AAQS, regardless of the magnitude of potential emissions from the proposed Project.

4.5.4. Ambient Air Dispersion Model Results

The representative worst-case generators from the load screening analysis model were modeled and the resulting concentrations were compared to the NAAQS and CAAQS for each pollutant at each applicable averaging period. A detailed summary of the results and the comparison to NAAQS and CAAQS is included in Table 4-9. The total concentration of PM₁₀ from both background concentration and Project emissions exceed the 24-hour CAAQS and the annual CAAQS. The total concentration of PM_{2.5} from both background concentration and Project emissions exceed the 24-hour NAAQS and the annual CAAQS. However, for each of these exceedances, the concentrations of pollutant emissions resulting from the Project are less than 0.70 μ g/m³ and are below the applicable Class II Significant Impact Levels (SIL) thresholds which represent the concentrations of criteria pollutants in the ambient air that are considered inconsequential in comparison to the NAAQS (U.S. EPA, 2018). As stated previously, the background concentration data for each of these cases already exceeds the AAQS and thus despite the comparably minimal Project emissions the AAQS is exceeded. Additionally, as demonstrated in Table 4-6, the operational PM₁₀ and PM_{2.5} emissions from the proposed Project are well under

the BAAQMD thresholds of significance. Due to these circumstances, Oppidan does not consider the Project emissions as significantly impacting the state or federal air quality plans.

The following should be noted with respect to Table 4-9:

- a. The concentration of PM_{10} is above the 24-hour and annual CAAQS and the concentration of $PM_{2.5}$ is above the 24-hour NAAQS and annual CAAQS when cumulated with background concentration data available from BAAQMD ambient air monitors.
- b. The concentrations of PM_{10} and $PM_{2.5}$ resulting from the proposed Project alone are significantly below the NAAQS and CAAQS. Additionally, the concentration of PM_{10} resulting from the proposed Project is below the PM_{10} 24-hour and annual SIL. The concentration of $PM_{2.5}$ is below the $PM_{2.5}$ 24-hour SIL and $PM_{2.5}$ annual SIL.
- c. The background concentration data for PM_{10} is above the 24-hour and annual CAAQS and the background concentration data for $PM_{2.5}$ is above the 24-hour NAAQS and annual CAAQS without including concentrations from the proposed Project. Therefore, the background concentrations of PM_{10} and $PM_{2.5}$ are responsible for the proposed Project's total concentration exceeding the NAAQS and CAAQS for PM_{10} and $PM_{2.5}$.
- d. Per the BAAQMD CEQA thresholds of significance, PM_{10} and $PM_{2.5}$ emissions are much lower than the significance thresholds, as discussed in Section 4.2.3.

4.6. HEALTH RISK ANALYSIS

This section presents the evaluation of potential health risks from TACs associated with the proposed Project. The air toxic sources associated with the proposed Project are the emissions of diesel from emergency generators. AERMOD dispersion modeling and the Hotspots Analysis and Reporting Program (HARP) Air Dispersion Modeling and Risk Tool (ADMRT) (version 19121) is used in this AQIA to estimate carcinogenic and chronic health risks at residential and worker receptors as a result of the emissions associated with the Project.⁴ The analysis concludes that the health risk is below BAAQMD's HRA thresholds. The increased risk is evaluated on a per-receptor basis using the results from HRAs conducted for the proposed Project emissions scenario. The results support a less than significant air quality impact on air toxic pollutant emissions. The following sections detail the parameters relevant to the air dispersion model and HRA.

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⁴ DPM is the only toxic pollutant emitted from the Project's operations, which does not have acute health risk effects.

Table 4-9: Ambient Air Quality Dispersion Model Results and Comparison to AAQS

PAHHTANT		Ambien Quality Sta (AAQ		Standardized Concentration	Background Concentration	Total Concentration		Comparison to Ambient Air Quality Standards	
Tonacant	Period	CAAQSa	NAAQS ^b	(/ 2)	(/ 2)	6 / 22	CAAQS	NAAQS	
		(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)	Below Threshold?	Below Threshold?	
NO ₂	1-hour	339		3.07	162	165	Yes		
			188	2.13	94	96.5		Yes	
	Annual	57		16	24	40	Yes		
			100	15.1	22	37.4		Yes	
СО	1-hour	23,000		65	2,864	2,929	Yes		
			40,000	64	2,838	2,902		Yes	
	8-hour	10,000		46	2,406	2,452	Yes		
			10,000	42	2,406	2,448		Yes	
SO ₂	1-hour	655		0.00352	7.9	7.91	Yes		
			196	0.00259	6.9001	6.9027		Yes	
	3-hour		1,300	0.30	7.3	7.6		Yes	
	24-hour	105		0.357	2.9	3.24	Yes		
	Annual		80	0.024	18.34	18.37		Yes	
PM ₁₀	24-hour	50		0.44	122.00	122.44	No		
			150	0.40	71.0	71.4		Yes	
	Annual	20		0.070	23.10	23.17	No		
PM _{2.5}	24-hour		35	0.31	42.10	42.41		No	
	Annual		12	0.059	10.30	10.36		Yes	
		12		0.070	12.80	12.87	No		

a. The CAAQS are codified in the California Code of Regulations Title 17 § 70200 Table of Standards and accessed

September 2019 here: https://govt.westlaw.com/calregs/Document/I020618D0D60811DE88AEDDE29ED1DC0A?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.Default)

b. The NAAQS are codified in 40 CFR Part 50, National Primary and Secondary Ambient Air Quality Standards and accessed

September 2019 here: https://www.ecfr.gov/cgi-bin/text-idx?SID=f455d98eb15c432be5a7b38a03257511&mc=true&node=pt40.2.50&rgn=div5

4.6.1. Receptors

The fenceline and refined variable density receptors used for the air dispersion modeling are also used to evaluate the project health risks associated with the proposed Project. Section 4.3.6 provides details on the receptors that are used to evaluate project risk.

The Point of Maximum Impact (PMI) is selected as the highest risk receptor regardless of location. The Maximum Exposed Individual Resident (MEIR) and Maximum Exposed Individual Worker (MEIW) are selected from the receptor grid points that best align with either a residence or workplace, respectively, where the highest impacts occur.

As the risk varied greatly throughput the area of the MEIR, a spatial averaging grid is utilized to more accurately represent the residential cancer risk. The spatial averaging grid receptors are spaced approximately 4 meters apart and encompass the area of the house (OEHHA, 2015). The layout of the spatial averaging grid is depicted in Figure 4-2.



Figure 4-2: MEIR Spatial Averaging Grid

4.6.2. Emission Sources

For the HRA, the AERMOD dispersion model is run with point sources representing each of the 43 critical backup generators and two life safety generators. Stack parameters such as temperature and flow rate for the backup generators are conservatively set at 10% load, representing the lowest temperature and flow rate. Stack parameters for the life safety generators are set at 100% load due to the availability of manufacturer-specified stack parameter data.

4.6.3. Emission Rates

The AERMOD dispersion model is run with a point source unit emission rate of 1 g/s for "Other" pollutant. The AERMOD results are scaled by the project operational annual PTE per generator calculated in the emission calculations in Section 4.2.2 for input into HARP.

4.6.4. Exposure Pathways

Results from the air dispersion modeling assessment are combined with applicable TAC emission rates in HARP to model risk and exposure. Exposure pathways are generally classified as primary pathways and secondary pathways. Inhalation is the primary exposure pathway for all modeled sources and substances. For multipathway substances, non-inhalation exposure pathways are also to be evaluated. As DPM does not contribute to acute health risk, only cancer risks and chronic hazard indices are considered for the analysis.

Residential cancer risks and chronic hazard indices are evaluated for the following exposure pathways: dermal absorption, soil ingestion (0.02 m/s for particulate controlled sources), and mother's milk. HARP default parameters were used for numerical pathway inputs. The default fraction of time at residence to age bins greater than or equal to 16 years is applied to account for adults spending a portion of the day away from their residence. The fraction of time at residence to age bins less than or equal to 16 years is not applied because sensitive receptors are located within the Zone of Impact (ZOI) which is the 1 per million or greater cancer risk zone from the Project (OEHHA, 2015). Figure 4-3 demonstrates the ZOI (the 1 per million or greater cancer risk zone) and the zone of influence (the 1,000 feet zone around the property boundary) in relation to the sensitive receptors.

Worker cancer risks and chronic hazard indices are evaluated based on worker multi-pathway exposure for the following exposure pathways: dermal absorption, soil ingestion (deposition rate = 0.02 m/s for particulate-controlled sources). An 8-hour breathing rate with moderate intensity and a 4.2 worker adjustment factor (WAF) was applied to the inhalation pathway to conservatively account for exposure to workers while testing occurred primarily during regular business hours.

4.6.5. Operational Project Air Toxic Modeling Results

The risk from the proposed Project for each residential or worker receptor is evaluated against the BAAQMD significance thresholds. Figure 4-4 shows the location of the MEIR, MEIW, and the PMI. The MEIR, MEIW, and PMI are the same for cancer risk and chronic hazard indices.

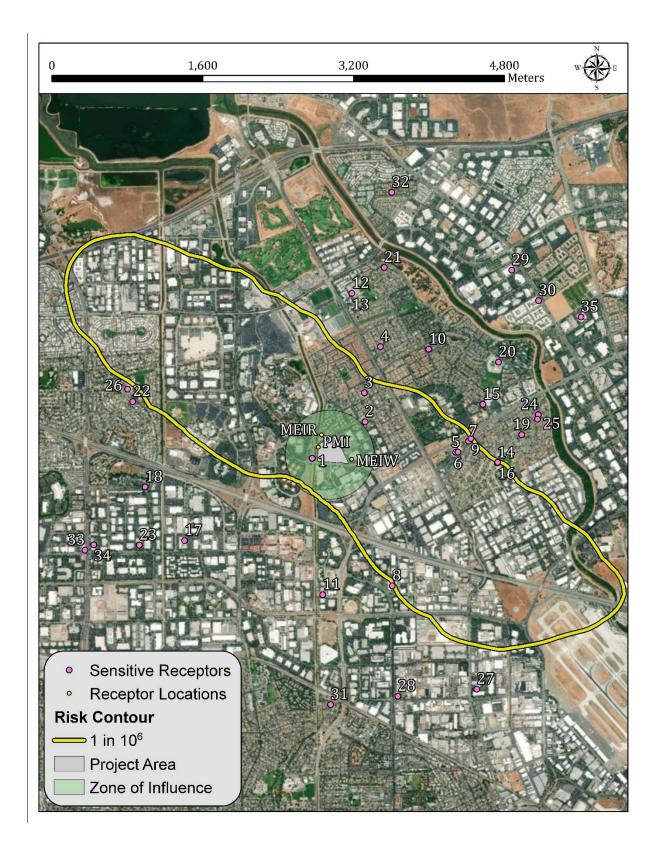


Figure 4-3: One in 10⁶ Risk Zone of Impact

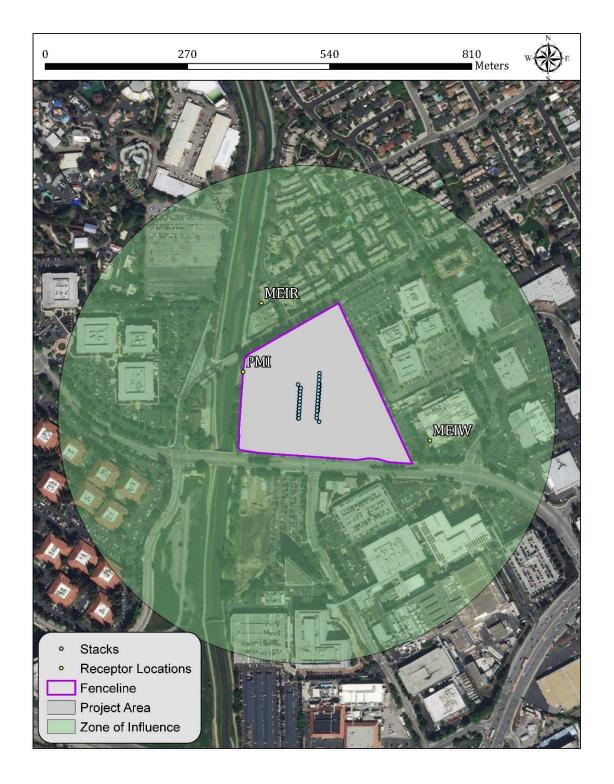


Figure 4-4: Location of MEIR, MEIW, and PMI

The MEIR's cancer risk is the arithmetic average of the cancer risk from the spatial averaging grid described in Section 4.6.1. The spatially averaged residential cancer risk and the highest residential chronic hazard index, worker cancer risk, and worker chronic hazard index are all below the BAAQMD significance thresholds for

health risk. These risks are listed in Table 4-10. The HRA concludes that the Project would not have a significant health risk.

Table 4-10: Health Risk Assessment Results

	D	Location	Cancer Risk ion (in 1 million)		Chronic H	C'a d'Carad	
Receptor	Receptor ID	(UTM Zone 10)	Project Risk	Significance Threshold	Project Hazard Index	Significance Threshold	Significant Impact?
MEIR	2091	591376.0 m E, 4138821.4 m N	-	10.0	2.59E-03	1.0	No
MEIR	Spatial Averaging Grid	Various	9.98	10.0	-	1.0	No
MEIW	3202	591696.0 m E, 4138561.4 m N	6.91	10.0	5.32E-03	1.0	No
PMI	10131	591341.3 m E 4138691.5 m N	51.39	N/A	1.19E-02	N/A	N/A

4.6.6. Cumulative Health Risk Assessment Results

In additional to the HRA described above, an assessment of the proposed Project's impact summed with the impacts of sources within 1,000 feet of the Project was conducted and compared to the BAAQMD CEQA cumulative thresholds of significance (BAAQMD, 2017b). The cumulative cancer risk, hazard index, and $PM_{2.5}$ concentration was calculated using a Health Risk Calculator and emissions data from stationary sources within 1,000 feet of the proposed Project, as provided by BAAQMD. The Health Risk Calculator incorporates factors such as risk associated with individual toxic air pollutants emitted from a stationary source and how far a stationary source is from the Project's MEIR or MEIW to calculate overall cancer risk, hazard index, and $PM_{2.5}$ concentration from a stationary source. The cancer risk and $PM_{2.5}$ concentration from highways, major streets and rails within 1,000 feet of the Project was determined using BAAQMD raster files that incorporate annual average daily traffic (AADT) per EMFAC 2014 data for fleet mix and includes OEHHA's 2015 Guidance Methods. The raster files encompass highways, major streets and rails with greater than 30,000 AADT. Table 4-11 summarizes the impacts of from cumulative sources in comparison to the BAAQMD threshold of significance for cumulative risk and hazards.

⁵ Per the BAAQMD CEQA Guidelines, the zone of influence for the cumulative threshold is 1,000 feet from the source or receptor.

Table 4-11: Impacts from Cumulative Sources

Source	Distance from MEIR ^a (m)	Distance from MEIW ^a (m)	Maximum Cancer Risk (per million)	Maximum Hazard Index	Maximum Annual PM _{2.5} (μg/m³)
Project Operation of Generators	[see note b]	[see note b]	9.98	2.59E-03	0.070
Plant No. 10647, California's Great America	216	630	0.78	1.72E-03	0
Plant No. 17717, 2350 Mission Building, LLC	478	328	4.05E-02	6.26E-05	0
Plant No. 18982, Omni Vision	252	118	2.25E-01	4.66E-04	0
Plant No. 17406, General Dynamics – Mission Systems	268	215	1.16	1.80E-03	0
Cumulative Impacts from Surrounding Highways, Main Streets, and Railways	Varies	Varies	37	[see note c]	0.61
Maximum Cumulative Sources			49.19	0.01	0.68
Maximum Cumulative Sources + within 1,000 feet	1 Future Data	Center	59.17	0.01	0.75
Significance Threshold			100	10.0	0.8
Significant Impact?			No	No	No

a. BAAQMD's Health Risk Calculator uses a multiplier to reduce the risks associated with a stationary source in relation to the distance the stationary source is from the MEIR or MEIW. Thus, stationary sources that are farther from the MEIR or MEIW contribute less cancer risk, hazard index and PM_{2.5} to the cumulative sum. The risk associated with the MEI in closest proximity was conservatively used for the cumulative calculation.

The cumulative cancer risk, hazard index, and $PM_{2.5}$ concentration were conservatively calculated using the maximum value in relation to the MEIR and MEIW. Based on the results of the comparison to cumulative thresholds for the proposed Project, the Project's health risk does not exceed the cumulative health risk thresholds when summed with the health risk of sources within 1,000 feet of the Project.

With regards to future projects, assuming one new data center is constructed within 1,000 feet of the Project site boundary with the same cancer risk, hazard index and $PM_{2.5}$ concentration as the proposed Project, the

b. Due to a distance multiplier not being applied to the cancer risk, hazard index or PM_{2.5} concentration from the Project Operation of Generators, the distance to the MEIR and MEIW is not included in this table.

c. Hazard index is not provided for highways, mains streets and railways per the BAAQMD raster files.

cumulative thresholds of significance would still not be exceeded. However, as data for future projects is not available from BAAQMD, the cumulative HRA was performed based on existing operations that are quantified by BAAQMD.

4.7. IMPACT SUMMARY AND MITIGATION RECOMMENDATIONS

Table 4-12 summarizes the checklist questions from Appendix G of the California State CEQA Guidelines for air quality and GHG impacts and determinations resulting from the proposed Project analysis.

Table 4-12: Environmental Impact Significance Determinations

Air Quality				
Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?				X
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable Federal or State ambient air quality standard?		x		
c. Expose sensitive receptors to substantial pollutant concentrations?			x	
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?				x
Greenhouse Gas Emissions				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			x	
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	

4.7.1. Types of Impacts

Direct Impacts. Direct impacts are the result of a project itself (from its operation) in the form of emissions generated at a project location. For example, exhaust emissions from vehicles and fugitive dust are direct impacts.

Indirect Impacts. Indirect impacts are those that may occur at locations other than a project location, or on a regional basis. For example, an increase in electricity usage could affect regional air quality.

Cumulative Impacts. Cumulative impacts are the combination of a project's direct and/or indirect impacts along with other existing, proposed, and reasonably foreseeable projects that may be related to the project. For example, the cumulative impact of all operational activity in an air basin may affect regional air quality.

Consistency with Plans and Programs. A project may be considered to have a significant impact if it conflicts with or delays implementation of any applicable air quality attainment or maintenance plan. A project is conforming if it complies with the applicable rules and regulations, complies with all proposed control measures that are not yet adopted from the applicable plan(s), and is consistent with the growth forecasts in the applicable plan(s) (or is directly included in the applicable plan).

4.7.2. Impact: Air Quality Criteria A and D

All impact categories are first screened to determine if they would have no impacts or would clearly be below any applicable significance threshold. The impact criteria described below meet this screening review and do not require further assessment.

Potential to conflict with or obstruct implementation of the applicable air quality plan (Criterion A) (No Impact).

As shown in Table 4-6, the emissions associated with the proposed Project would not exceed applicable significance thresholds and would result in less than significant operational impacts, except for daily and annual NOx emissions. As explained in Section 4.2.3 and 4.5.4, although the NO_x emissions exceed the BAAQMD CEQA thresholds of significance, the concentration of NO_x resulting from the proposed Project does not exceed the NAAQS and CAAQS. As explained in Section 4.5.4, the ambient air quality dispersion model resulted in some pollutants exceeding the NAAQS and CAAQS, however this was due to background concentration data rather than pollutant concentrations resulting from the Project. Furthermore, for pollutants which exceeded the NAAQS and CAAQS due to high background pollutant concentrations, Project emissions were below applicable SILs. Therefore, the proposed Project would not conflict with or have any adverse impact on implementation of the 2017 Bay Area Clean Air Plan nor would the proposed Project disrupt or hinder implementation of any plan control measures.

Potential to result in other emissions (such as those leading to odors) adversely affecting a substantial number of people (Criterion D) (No Impact).

The proposed Project would not involve the development of the types of land uses that would result in emissions that are typically associated with odor issues, such as wastewater (sewage) treatment plants, landfills, composting facilities, refineries, or chemical plants. Nor would the Project locate sensitive receptors within proximity of these types of odor-producing sources. Therefore, the proposed Project would not result in impacts associated with odor.

4.7.3. Impact: Air Quality Criteria B and C

The following discuss the Project's air quality impact based on air quality significance Criteria B and C.

> Potential to result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (Criterion B) (Less than Significant, With Mitigation Incorporated).

As shown in Table 4-6, the proposed Project would result in a net emissions increase for PM_{10} , $PM_{2.5}$, CO, NO_x , SO_X and ROG on a daily and annual basis. The Project region is nonattainment for $PM_{2.5}$ and 8-hour ozone. All net emissions increases of PM_{10} , $PM_{2.5}$, CO, SO_x and ROG are below the BAAQMD CEQA thresholds of significance. The net emissions increase of NO_x is above the BAAQMD significance threshold, but below the NAAQS and CAAQS. NOx emissions from operation of the 45 proposed generators will be mitigated through procurement of NOx emission offsets. NOx emissions from construction impacts will be mitigated through Mitigation Measure AQ-1.

Per the ambient air dispersion model results, the concentration of PM_{10} is above the 24-hour and Annual CAAQS and the concentration of $PM_{2.5}$ is above the 24-hour NAAQS and Annual CAAQS when cumulated with background concentration data available from BAAQMD ambient air monitors. However, the concentrations of PM_{10} and $PM_{2.5}$ resulting from the proposed Project alone are significantly below the NAAQS and CAAQS and below the applicable SILs.

Therefore, the proposed Project's operational emissions will be less than significant with mitigation incorporated. Because the proposed does not conflict with any applicable air quality plans with mitigation incorporated, the proposed Project would also not contribute to cumulatively considerable air quality impacts.

> Potential to expose sensitive receptors to substantial pollutant concentrations (Criterion C) (Less than Significant, No Mitigation Required).

The primary air toxic source associated with the proposed Project is DPM from the operation of the 45 proposed generators. Health risk to local receptors is analyzed using dispersion modeling as presented above in Sections 4.3 through 4.6 above. The results of the health risk assessment shown in Table 4-10 demonstrate the highest cancer, chronic, and acute risks as a result of this Project are below BAAQMD's thresholds of significance for Risks and Hazards. Additionally, cumulative health risk impacts were assessed for all sources within 1,000 feet of the Project boundary (per BAAQMD CEQA Air Quality Guidelines) and are below the BAAQMD CEQA threshold of significance for cumulative health risk impacts.

Further, the Project would result in an ambient PM_{2.5} increase of $0.070~\mu g/m^3$ which is well below the significance threshold of $0.3~\mu g/m^3$ and is therefore considered to be a less than significant impact. Additionally, as summarized in Table 4-11 above, cumulative impacts of PM_{2.5} are also below the cumulative threshold of significance of $0.8~\mu g/m^3$.

Therefore, no significant health risks are expected to occur from the operations of the proposed Project and no mitigation is required.

4.7.4. Impact: Greenhouse Gases Criteria A and B

The following discuss the Project's impact based on GHG significance Criteria A and B.

> Potential to generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment (Criterion A) (Less than Significant, No Mitigation Required).

The proposed Project's operational emissions are presented in Table 4-6 above and are compared to the BAAQMD threshold of significance applicable to the GHG emissions from stationary sources. GHG emissions associated with the proposed Project would be well below the $10,000 \, \text{MT CO}_2\text{e}$ per year significance threshold. The proposed Project's operational emissions are therefore considered to have less than significant GHG impacts and no mitigation is required.

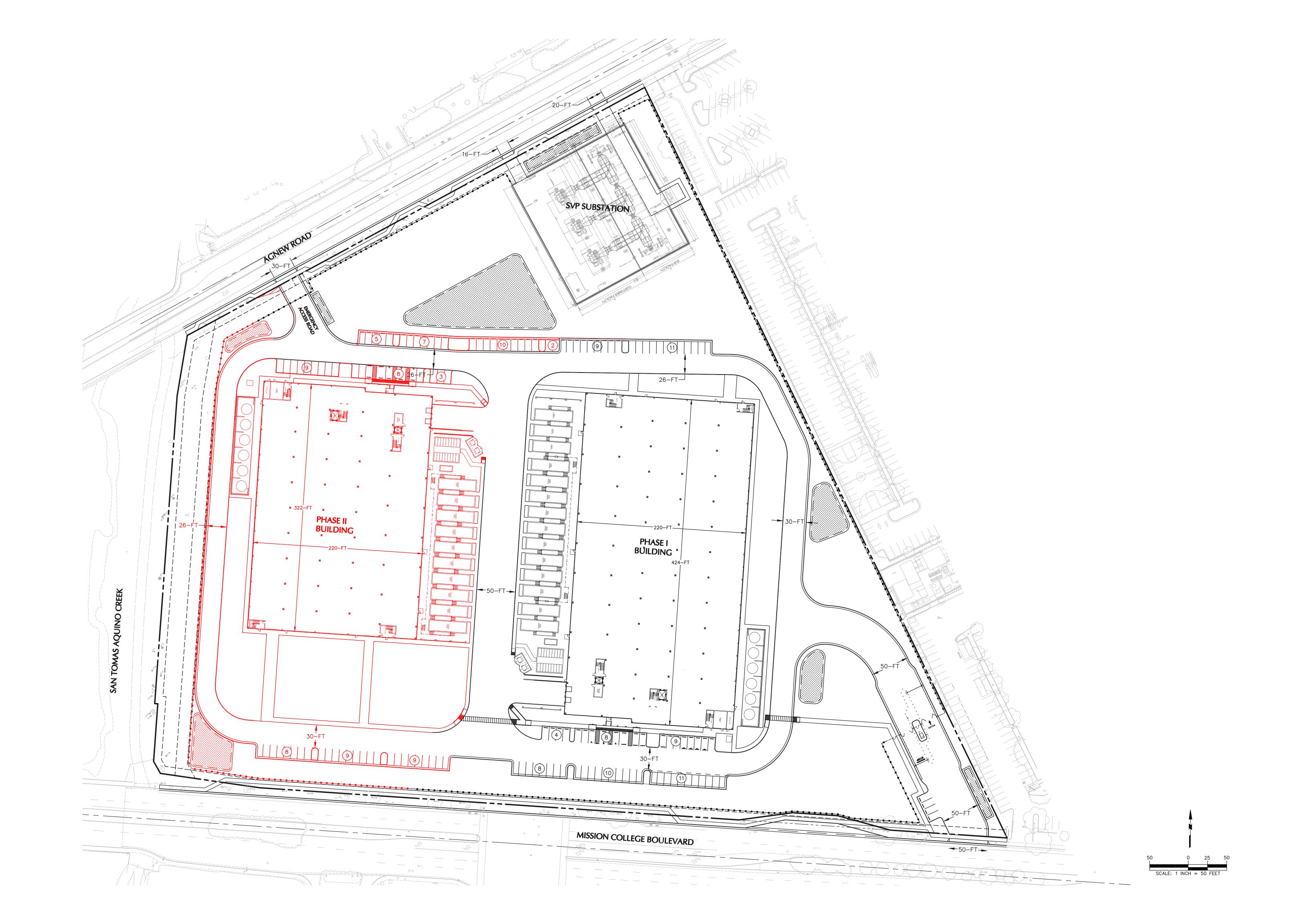
Potential to conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. (Criterion B) (Less than Significant, No Mitigation Required).

None of the proposed Project elements, nor the Project as a whole, conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. The proposed Project does not conflict with the goals of AB 32, will not hinder the implementation of any of the measures specified in the updated AB 32 Scoping Plan, and will comply with all applicable GHG measures already adopted under AB 32 and other authorities. Nor would the proposed Project conflict with the Santa Clara County Climate Action Plan. For these reasons, the proposed Project's GHG emissions are considered to have less than significant impact associated with potential conflicts with a plan, policy or regulation adopted for the purpose of reducing GHG emissions and no mitigation is required.

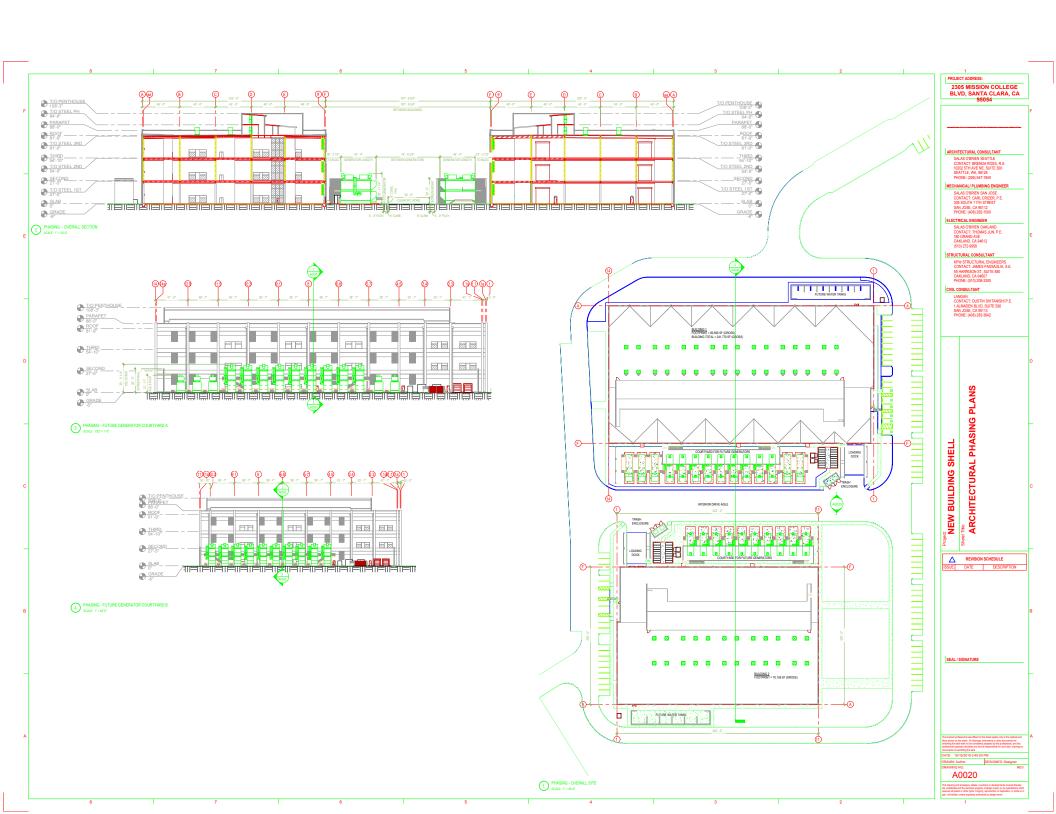
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APPENDIX AQ-2: EQUIPMENT SPECIFICATIONS

Cat® 3516C

Diesel Generator Sets





Bore – mm (in)	170 (6.69)			
Stroke – mm (in)	215 (8.46)			
Displacement – L (in³)	78 (4764.73)			
Compression Ratio	14.7:1			
Aspiration	TA			
Fuel System	EUI			
Governor Type	ADEM™ A3			

Image shown may not reflect actual configuration

Standby 60 Hz ekW (kVA)	Mission Critical 60 Hz ekW (kVA)			Emissions Performance
2500 (3125)	2500 (3125)	2250 (2812)	2050 (2562)	U.S. EPA Stationary Emergency Use Only (Tier 2)

Standard Features

Cat® Diesel Engine

- Meets U.S. EPA Stationary Emergency Use Only (Tier 2) emission standards
- Reliable performance proven in thousands of applications worldwide

Generator Set Package

- Accepts 100% block load in one step and meets other NFPA 110 loading requirements
- Conforms to ISO 8528-5 G3 load acceptance requirements
- Reliability verified through torsional vibration, fuel consumption, oil consumption, transient performance, and endurance testing

Alternators

- Superior motor starting capability minimizes need for oversizing generator
- Designed to match performance and output characteristics of Cat diesel engines

Cooling System

- Cooling systems available to operate in ambient temperatures up to 50°C (122°F)
- · Tested to ensure proper generator set cooling

EMCP 4 Control Panels

- · User-friendly interface and navigation
- Scalable system to meet a wide range of installation requirements
- Expansion modules and site specific programming for specific customer requirements

Warranty

- 24 months/1000-hour warranty for standby and mission critical ratings
- 12 months/unlimited hour warranty for prime and continuous ratings
- Extended service protection is available to provide extended coverage options

Worldwide Product Support

- Cat dealers have over 1,800 dealer branch stores operating in 200 countries
- Your local Cat dealer provides extensive post-sale support, including maintenance and repair agreements

Financing

- Caterpillar offers an array of financial products to help you succeed through financial service excellence
- Options include loans, finance lease, operating lease, working capital, and revolving line of credit
- Contact your local Cat dealer for availability in your region

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Optional Equipment

Engine	Power Termination	Vibration Isolators		
Air Cleaner ☐ Single element ☐ Dual element Muffler ☐ Industrial grade (15 dR)	Type □ Bus bar □ Circuit breaker □ 1600A □ 2000A □ 2500A □ 3000A	□ Rubber □ Spring □ Seismic rated Cat Connect		
☐ Industrial grade (15 dB) Starting ☐ Standard batteries ☐ Oversized batteries ☐ Standard electric starter(s)	☐ 3200A ☐ 4000A ☐ 5000A ☐ IEC ☐ UL ☐ 3-pole ☐ 4-pole ☐ Manually operated	Connectivity ☐ Ethernet ☐ Cellular ☐ Satellite		
☐ Heavy duty electric starter(s)	☐ Electrically operated	Extended Service Options		
☐ Air starter(s) ☐ Jacket water heater	Trip Unit □ LSI □ LSI-G □ LSIG-P	Terms ☐ 2 year (prime) ☐ 3 year		
Alternator	Control System	☐ 5 year		
Output voltage □ 380V □ 6300V	Control System	☐ 10 year		
□ 440V □ 6600V □ 480V □ 6900V □ 12470V □ 2400V □ 13200V □ 13800V	Controller □ EMCP 4.2B □ EMCP 4.3 □ EMCP 4.4 Attachments	Coverage ☐ Silver ☐ Gold ☐ Platinum ☐ Platinum Plus Ancillary Equipment		
Temperature Rise	☐ Local annunciator module☐ Remote annunciator module☐			
(over 40°C ambient) □ 150°C □ 125°C/130°C	□ Expansion I/O module □ Remote monitoring software	□ Automatic transfer switch (ATS)		
□ 105°C	Charging	☐ Uninterruptible power supply (UPS)		
□ 80°C Winding type □ Random wound	□ Battery charger – 10A □ Battery charger – 20A	☐ Paralleling switchgear☐ Paralleling controls		
☐ Form wound	☐ Battery charger – 35A	Certifications		
Excitation ☐ Internal excitation (IE) ☐ Permanent magnet (PM)		☐ UL2200☐ CSA☐ IBC seismic certification☐ OSHPD pre-approval		
Attachments ☐ Anti-condensation heater ☐ Stater and hearing temperature		■ Ooi ii D pie-appiovai		

Note: Some options may not be available on all models. Certifications may not be available with all model configurations. Consult factory for availability.

monitoring and protection

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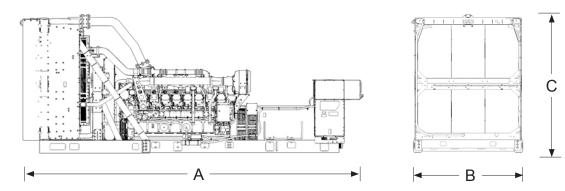
Package Performance

Performance	Sta	ındby	Missio	n Critical	Pr	ime	Cont	inuous
Frequency	60) Hz	60) Hz	60) Hz	60) Hz
Gen set power rating with fan	250	0 ekW	250	0 ekW	2250	0 ekW	2050	0 ekW
Gen set power rating with fan @ 0.8 power factor	312	5 kVA	3125 kVA		2812 kVA		256	2 kVA
Emissions	EPA ES	E (TIER 2)	EPA ESE (TIER 2)		EPA ESE (TIER 2)		EPA ES	E (TIER 2)
Performance number	EM1	894-01	EM1	895-02	DM8	447-04	DM8	268-03
Fuel Consumption								
100% load with fan – L/hr (gal/hr)	656.8	(175.3)	656.8	(175.3)	593.0	(156.6)	549.3	(145.1)
75% load with fan – L/hr (gal/hr)	510.8	(134.9)	510.8	(134.9)	467.8	(123.6)	435.6	(115.1)
50% load with fan – L/hr (gal/hr)	372.4	(98.4)	372.4	(98.4)	341.9	(90.3)	316.8	(83.7)
25% load with fan – L/hr (gal/hr)	219.3	(57.9)	219.3	(57.9)	203.0	(53.6)	188.9	(49.9)
Cooling System								
Radiator air flow restriction (system) – kPa (in. water)	0.12	(0.48)	0.12	(0.48)	0.12	(0.48)	0.12	(0.48)
Radiator air flow – m³/min (cfm)	2800.0	(98881)	2800.0	(98881)	2800.0	(98881)	2800.0	(98881)
Engine coolant capacity – L (gal)	233.0	(61.6)	233.0	(61.6)	233.0	(61.6)	233.0	(61.6)
Radiator coolant capacity – L (gal)	268.8	(71.0)	268.8	(71.0)	268.8	(71.0)	268.8	(71.0)
Total coolant capacity – L (gal)	501.8	(132.6)	501.8	(132.6)	501.8	(132.6)	501.8	(132.6)
Inlet Air								
Combustion air inlet flow rate – m³/min (cfm)	242.2	(7212.2)	242.2	(7212.2)	193.1	(6819.8)	183.8	(6491.7)
Exhaust System								
Exhaust stack gas temperature – °C (°F)	490.7	(915.2)	490.7	(915.2)	471.3	(880.4)	463.6	(866.5)
Exhaust gas flow rate – m³/min (cfm)	554.5	(19578.8)	554.5	(19578.8)	507.9	(17935.1)	476.5	(16826.7)
Exhaust system backpressure (maximum allowable) – kPa (in. water)	6.7	(27.0)	6.7	(27.0)	6.7	(27.0)	6.7	(27.0)
Heat Rejection								
Heat rejection to jacket water – kW (Btu/min)	826	(46992)	826	(46992)	777	(44160)	739	(42021)
Heat rejection to exhaust (total) – kW (Btu/min)	2502	(142265)	2502	(142265)	2243	(127532)	2092	(118949)
Heat rejection to aftercooler – kW (Btu/min)	786	(44723)	786	(44723)	690	(39224)	619	(35176)
Heat rejection to atmosphere from engine – kW (Btu/min)	161	(9146)	161	(9146)	150	(8542)	145	(8229)
Heat rejection from alternator – kW (Btu/min)	121	(6853)	121	(6853)	99	(5607)	94	(5368)
Emissions (Nominal)								
NOx mg/Nm³ (g/hp-h)	2349.1	(5.32)	2349.1	(5.32)	2206.7	(4.95)	2038.1	(4.62)
CO mg/Nm³ (g/hp-h)	195.4	(0.42)	195.4	(0.42)	141.2	(0.30)	124.8	(0.27)
HC mg/Nm³ (g/hp-h)	42.1	(0.10)	42.1	(0.10)	44.4	(0.11)	49.2	(0.12)
PM mg/Nm³ (g/hp-h)	14.1	(0.04)	14.1	(0.04)	10.9	(0.03)	11.0	(0.03)
Emissions (Potential Site Variation)								
NOx mg/Nm³ (g/hp-h)	2818.9	(6.38)	2818.9	(6.38)	2648.0	(5.94)	2445.8	(5.55)
CO mg/Nm³ (g/hp-h)	351.8	(0.76)	351.8	(0.76)	254.2	(0.55)	224.6	(0.49)
HC mg/Nm³ (g/hp-h)	55.9	(0.14)	55.9	(0.14)	59.1	(0.15)	65.5	(0.16)
PM mg/Nm³ (g/hp-h)	19.7	(0.05)	19.7	(0.05)	15.2	(0.04)	15.3	(0.04)

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Weights and Dimensions



Dim "A"	Dim "B"	Dim "C"	Dry Weight
mm (in)	mm (in)	mm (in)	kg (lb)
7495 (295.1)	2569 (101.2)	3009 (118.5)	

Note: For reference only. Do not use for installation design. Contact your local Cat dealer for precise weights and dimensions.

Ratings Definitions

Standby

Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Mission Critical

Output available with varying load for the duration of the interruption of the normal source power. Average power output is 85% of the mission critical power rating. Typical peak demand up to 100% of rated power for up to 5% of the operating time. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Prime

Output available with varying load for an unlimited time. Average power output is 70% of the prime power rating. Typical peak demand is 100% of prime rated ekW with 10% overload capability for emergency use for a maximum of 1 hour in 12. Overload operation cannot exceed 25 hours per year.

Continuous

Output available with non-varying load for an unlimited time. Average power output is 70-100% of the continuous power rating. Typical peak demand is 100% of continuous rated kW for 100% of the operating hours.

Applicable Codes and Standards

AS1359, CSA C22.2 No100-04, UL142, UL489, UL869, UL2200, NFPA37, NFPA70, NFPA99, NFPA110, IBC, IEC60034-1, ISO3046, ISO8528, NEMA MG1-22, NEMA MG1-33, 2014/35/EU, 2006/42/EC, 2014/30/EU.

Note: Codes may not be available in all model configurations. Please consult your local Cat dealer for availability.

Data Center Applications

Tier III/Tier IV compliant per Uptime Institute requirements. ANSI/TIA-942 compliant for Rated-1 through Rated-4 data centers.

Fuel Rates

Fuel rates are based on fuel oil of 35° API [16° C (60° F)] gravity having an LHV of 42,780 kJ/kg (18,390 Btu/lb) when used at 29°C (85° F) and weighing 838.9 g/liter (7.001 lbs/U.S. gal.)

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Materials and specifications are subject to change without notice. The International System of Units (SI) is used in this publication.

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Model Year: 2019

Engine Family: KCPXL78.1NZS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY 2019 MODEL YEAR **CERTIFICATE OF CONFORMITY** WITH THE CLEAN AIR ACT

OFFICE OF TRANSPORTATION AND AIR QUALITY ANN ARBOR, MICHIGAN 48105

Certificate Issued To: Caterpillar Inc.

(U.S. Manufacturer or Importer)

Certificate Number: KCPXL78.1NZS-014

Manufacturer Type: Original Engine Manufacturer

Effective Date: 07/24/2018

Expiration Date: 12/31/2019

Byron J. Bunker, Division Director

Revision Date: N/A

Issue Date:

07/24/2018

Mobile/Stationary Indicator: Stationary Emissions Power Category: kW>560

Fuel Type: Diesel

After Treatment Devices: No After Treatment Devices Installed

Non-after Treatment Devices: Electronic Control, Engine Design Modification

Compliance Division

Pursuant to Section 111 and Section 213 of the Clean Air Act (42 U.S.C. sections 7411 and 7547) and 40 CFR Part 60, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following engines, by engine family, more fully described in the documentation required by 40 CFR Part 60 and produced in the stated model year.

This certificate of conformity covers only those new compression-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 60 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 60.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 60. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void ab initio for other reasons specified in 40 CFR Part 60.

This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

Performance Number: EM1894 Change Level: 03

SALES MODEL: 3516C BRAND: CAT ENGINE POWER (BHP): 3,634 GEN POWER WITH FAN (EKW): 2,500.0 COMPRESSION RATIO: 14.7 **RATING LEVEL:** STANDBY PUMP QUANTITY: **FUEL TYPE:** DIESEL MANIFOLD TYPE: DRY GOVERNOR TYPE: ADEM3 **ELECTRONICS TYPE:** ADEM3 CAMSHAFT TYPE: STANDARD

IGNITION TYPE: INJECTOR TYPE: EUI FUEL INJECTOR: 3920221 UNIT INJECTOR TIMING (IN): 64.34 REF EXH STACK DIAMETER (IN):

MAX OPERATING ALTITUDE (FT): 2,953 COMBUSTION: DI ENGINE SPEED (RPM): 1,800 FAN POWER (HP): 130.1 ASPIRATION: TA AFTERCOOLER TYPE: ATAAC AFTERCOOLER CIRCUIT TYPE: JW+OC, ATAAC INLET MANIFOLD AIR TEMP (F):

JACKET WATER TEMP (F): 210.2 TURBO CONFIGURATION: PARALLEL TURBO QUANTITY:

TURBOCHARGER MODEL: GT6041BN-48T-1.10 CERTIFICATION YEAR: 2006 CRANKCASE BLOWBY RATE (FT3/HR): 3,619.4 FUEL RATE (RATED RPM) NO LOAD (GAL/HR): 16.2 PISTON SPD @ RATED ENG SPD (FT/MIN): 2,539.4

INDUSTRY	SUBINDUSTRY	APPLICATION		
OIL AND GAS	LAND PRODUCTION	PACKAGED GENSET		
ELECTRIC POWER	STANDARD	PACKAGED GENSET		

General Performance Data

THIS STANDBY RATING IS FOR A STANDBY ONLY ENGINE ARRANGEMENT. RERATING THE ENGINE TO A PRIME OR CONTINUOUS RATING IS NOT PERMITTED.

THE INLET MANIFOLD AIR TEMP LISTED IN THE HEADER, AND IN THE GENERAL PERFORMANCE DATA, IS THE AVERAGE INLET MANIFOLD TEMP FRONT TO REAR ON THE ENGINE.

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP
EKW	%	BHP	PSI	LB/BHP-HR	GAL/HR	IN-HG	DEG F	DEG F	IN-HG	DEG F
2,500.0	100	3,633	336	0.334	173.5	78.1	121.9	1,235.6	67.6	915.2
2,250.0	90	3,283	303	0.335	157.1	71.3	119.4	1,190.0	61.3	881.2
2,000.0	80	2,935	271	0.339	142.3	64.3	116.9	1,158.9	55.3	864.0
1,875.0	75	2,760	255	0.342	134.9	60.7	115.8	1,145.6	52.3	858.5
1,750.0	70	2,586	239	0.346	127.6	57.0	114.7	1,133.3	49.3	854.6
1,500.0	60	2,237	207	0.354	113.0	49.5	112.7	1,112.4	43.2	851.2
1,250.0	50	1,889	174	0.365	98.4	41.3	111.0	1,091.8	36.8	850.7
1,000.0	40	1,547	143	0.373	82.5	31.4	109.4	1,061.5	29.3	856.6
750.0	30	1,203	111	0.385	66.2	21.7	107.9	1,010.3	22.1	848.2
625.0	25	1,029	95	0.394	57.9	17.2	107.2	968.3	18.7	831.1
500.0	20	854	79	0.403	49.2	12.7	106.4	902.0	15.5	796.1
250.0	10	497	46	0.441	31.3	4.8	104.1	700.7	9.8	647.3

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
EKW	%	BHP	IN-HG	DEG F	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
2,500.0	100	3,633	85	466.7	7,212.2	19,578.8	32,046.3	33,260.4	7,001.7	6,362.4
2,250.0	90	3,283	78	443.0	6,831.8	17,980.7	30,219.3	31,318.8	6,593.0	6,013.7
2,000.0	80	2,935	70	417.8	6,404.5	16,560.6	28,284.6	29,277.2	6,151.5	5,625.4
1,875.0	75	2,760	66	404.7	6,173.3	15,893.2	27,261.3	28,202.4	5,928.1	5,427.1
1,750.0	70	2,586	63	391.2	5,929.9	15,232.6	26,196.0	27,086.8	5,698.4	5,222.0
1,500.0	60	2,237	55	363.5	5,411.9	13,879.0	23,947.5	24,739.5	5,205.5	4,779.1
1,250.0	50	1,889	46	334.6	4,843.3	12,413.0	21,444.3	22,133.2	4,657.5	4,283.2
1,000.0	40	1,547	36	297.5	4,121.4	10,609.5	18,262.0	18,840.0	3,963.0	3,647.2
750.0	30	1,203	25	249.8	3,423.0	8,763.8	15,175.3	15,640.3	3,294.6	3,037.8
625.0	25	1,029	21	223.4	3,104.6	7,844.6	13,765.1	14,171.8	2,988.1	2,760.8
500.0	20	854	16	197.2	2,791.2	6,823.5	12,376.2	12,722.2	2,671.7	2,476.1
250.0	10	497	7	152.3	2,237.9	4,800.2	9,917.6	10,136.8	2,132.0	1,999.8

Heat Rejection Data

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	REJECTION TO JACKET WATER	REJECTION TO ATMOSPHERE	REJECTION TO EXH	EXHUAST RECOVERY TO 350F	FROM OIL COOLER	FROM AFTERCOOLE	WORK R ENERGY	LOW HEAT VALUE ENERGY	HIGH HEAT VALUE ENERGY
EKW	%	BHP	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN
2,500.0	100	3,633	46,992	9,146	142,265	79,907	19,835	44,723	154,077	372,403	396,702
2,250.0	90	3,283	44,242	8,557	127,929	70,449	17,960	39,380	139,243	337,204	359,207
2,000.0	80	2,935	41,477	8,162	116,879	63,561	16,262	34,167	124,444	305,311	325,233
1,875.0	75	2,760	40,076	8,007	111,588	60,518	15,425	31,612	117,053	289,608	308,505
1,750.0	70	2,586	38,657	7,874	106,293	57,637	14,588	29,085	109,651	273,881	291,752
1,500.0	60	2,237	35,755	7,684	95,729	52,220	12,915	24,201	94,874	242,485	258,307
1,250.0	50	1,889	32,626	7,527	85,184	46,626	11,245	19,401	80,109	211,118	224,893
1,000.0	40	1,547	29,235	7,262	72,693	40,153	9,427	13,873	65,583	176,995	188,544
750.0	30	1,203	25,476	6,784	59,425	32,726	7,565	8,706	51,005	142,037	151,305
625.0	25	1,029	23,394	6,435	52,542	28,568	6,621	6,496	43,653	124,317	132,429
500.0	20	854	21,006	5,995	44,739	23,683	5,624	4,534	36,223	105,594	112,484
250.0	10	497	15,737	5,026	27,795	12,371	3,578	1,916	21,071	67,181	71,564

Sound Data

SOUND PRESSURE DATA FOR THIS RATING CAN BE FOUND IN PERFORMANCE NUMBER - DM8779.

Emissions Data

RATED SPEED POTENTIAL SITE VARIATION: 1800 RPM

GENSET POWER WITH FAN		EKW	2,500.0	1,875.0	1,250.0	625.0	250.0
PERCENT LOAD		%	100	75	50	25	10
ENGINE POWER		BHP	3,633	2,760	1,889	1,029	497
TOTAL NOX (AS NO2)		G/HR	22,948	14,101	7,004	3,568	3,185
TOTAL CO		G/HR	2,726	1,304	1,092	1,496	2,098
TOTAL HC		G/HR	500	499	543	408	437
PART MATTER		G/HR	185.5	123.7	132.1	139.5	141.0
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,818.9	2,229.5	1,544.3	1,352.7	2,230.2
TOTAL CO	(CORR 5% O2)	MG/NM3	351.8	213.9	252.3	594.6	1,552.7
TOTAL HC	(CORR 5% O2)	MG/NM3	55.9	72.8	108.8	140.7	282.4
PART MATTER	(CORR 5% O2)	MG/NM3	19.7	16.5	25.8	48.5	88.2
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,373	1,086	752	659	1,086
TOTAL CO	(CORR 5% O2)	PPM	281	171	202	476	1,242
TOTAL HC	(CORR 5% O2)	PPM	104	136	203	263	527
TOTAL NOX (AS NO2)		G/HP-HR	6.38	5.15	3.74	3.50	6.47
TOTAL CO		G/HP-HR	0.76	0.48	0.58	1.47	4.26
TOTAL HC		G/HP-HR	0.14	0.18	0.29	0.40	0.89
PART MATTER		G/HP-HR	0.05	0.05	0.07	0.14	0.29
TOTAL NOX (AS NO2)		LB/HR	50.59	31.09	15.44	7.87	7.02
TOTAL CO		LB/HR	6.01	2.88	2.41	3.30	4.62
TOTAL HC		LB/HR	1.10	1.10	1.20	0.90	0.96
PART MATTER	_	LB/HR	0.41	0.27	0.29	0.31	0.31

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN		EKW	2,500.0	1,875.0	1,250.0	625.0	250.0
PERCENT LOAD		%	100	75	50	25	10
ENGINE POWER		BHP	3,633	2,760	1,889	1,029	497
TOTAL NOX (AS NO2)		G/HR	19,123	11,751	5,837	2,974	2,654
TOTAL CO		G/HR	1,515	725	607	831	1,165
TOTAL HC		G/HR	376	375	408	307	329
TOTAL CO2		KG/HR	1,740	1,340	966	559	296
PART MATTER		G/HR	132.5	88.4	94.3	99.6	100.7
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,349.1	1,857.9	1,286.9	1,127.3	1,858.5
TOTAL CO	(CORR 5% O2)	MG/NM3	195.4	118.8	140.1	330.3	862.6
TOTAL HC	(CORR 5% O2)	MG/NM3	42.1	54.8	81.8	105.8	212.3
PART MATTER	(CORR 5% O2)	MG/NM3	14.1	11.8	18.4	34.7	63.0
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,144	905	627	549	905

TOTAL CO	(CORR 5% O2)	PPM	156	95	112	264	690
TOTAL HC	(CORR 5% O2)	PPM	79	102	153	197	396
TOTAL NOX (AS NO2)		G/HP-HR	5.32	4.30	3.12	2.92	5.39
TOTAL CO		G/HP-HR	0.42	0.26	0.32	0.82	2.37
TOTAL HC		G/HP-HR	0.10	0.14	0.22	0.30	0.67
PART MATTER		G/HP-HR	0.04	0.03	0.05	0.10	0.20
TOTAL NOX (AS NO2)		LB/HR	42.16	25.91	12.87	6.56	5.85
TOTAL CO		LB/HR	3.34	1.60	1.34	1.83	2.57
TOTAL HC		LB/HR	0.83	0.83	0.90	0.68	0.72
TOTAL CO2		LB/HR	3,836	2,955	2,130	1,233	654
PART MATTER		LB/HR	0.29	0.19	0.21	0.22	0.22
OXYGEN IN EXH		%	9.4	10.4	11.3	12.2	14.4
DRY SMOKE OPACITY		%	1.7	1.4	1.9	2.5	3.8
BOSCH SMOKE NUMBER			0.58	0.49	0.62	0.92	1.27

Regulatory Information

EPA EMERGENCY STATIO	NARY	2011		
GASEOUS EMISSIONS DAT	TA MEASUREMENTS PROVIDED T	O THE EPA ARE CONSISTENT WITH THO	SE DESCRIBED IN EPA 40 CFR PART 60 SUE	BPART IIII AND ISO 8178 FOR MEASURING HC,
CO, PM, AND NOX. THE "MA	AX LIMITS" SHOWN BELOW ARE	WEIGHTED CYCLE AVERAGES AND ARE I	N COMPLIANCE WITH THE EMERGENCY ST	ATIONARY REGULATIONS.
Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
U.S. (INCL CALIF)	EPA	STATIONARY	EMERGENCY STATIONARY	CO: 3.5 NOx + HC: 6.4 PM: 0.20

Altitude Derate Data

ALTITUDE CORRECTED POWER CAPABILITY (BHP)

AMBIENT OPERATING TEMP (F)	30	40	50	60	70	80	90	100	110	120	NORMAL	
ALTITUDE (FT)												
0	3,634	3,634	3,634	3,634	3,634	3,634	3,634	3,634	3,634	3,634	3,634	
1,000	3,634	3,634	3,634	3,634	3,634	3,634	3,634	3,634	3,634	3,561	3,634	
2,000	3,634	3,634	3,634	3,634	3,634	3,634	3,634	3,604	3,541	3,480	3,634	
3,000	3,628	3,628	3,628	3,628	3,628	3,603	3,537	3,474	3,413	3,354	3,628	
4,000	3,504	3,504	3,504	3,504	3,504	3,471	3,408	3,347	3,289	3,232	3,504	
5,000	3,384	3,384	3,384	3,384	3,384	3,344	3,283	3,225	3,168	3,113	3,384	
6,000	3,269	3,269	3,269	3,269	3,269	3,221	3,162	3,105	3,051	2,998	3,269	
7,000	3,159	3,159	3,159	3,159	3,159	3,101	3,044	2,990	2,937	2,887	3,159	
8,000	3,052	3,052	3,052	3,052	3,041	2,985	2,930	2,878	2,827	2,779	3,052	
9,000	2,950	2,950	2,950	2,950	2,926	2,872	2,820	2,769	2,721	2,674	2,950	
10,000	2,851	2,851	2,851	2,851	2,815	2,763	2,713	2,664	2,617	2,544	2,851	

Cross Reference

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number
4577175	LL1857	5084280	GS336	-	SBK02483	
4581566	LL6759	5157721	PG243	-	LYM00001	

Supplementary Data

Туре	Classification	Performance Number
SOUND	SOUND PRESSURE	DM8779

Performance Parameter Reference

Parameters Reference:DM9600-11

PERFORMANCE DEFINITIONS

PERFORMANCE DEFINITIONS DM9600

APPLICATION:

Engine performance tolerance values below are representative of a typical production engine tested in a calibrated dynamometer test cell at SAF J1995 standard reference conditions. Caternillar maintains ISO9001:2000 certified quality management systems for engine test Facilities to assure accurate calibration of test equipment. Engine test data is corrected in accordance with SAE J1995. Additional reference material SAE J1228, J1349, ISO 8665, 3046-1:2002E, 3046-3:1989, 1585, 2534, 2288, and 9249 may apply in part or are similar to SAE J1995. Special engine rating request (SERR) test data shall be noted.

PERFORMANCE PARAMETER TOLERANCE FACTORS:

Power +/- 3%

Torque +/- 3%

Exhaust stack temperature +/- 8%

Inlet airflow +/- 5%

Intake manifold pressure-gage +/- 10%

Exhaust flow +/- 6%

Specific fuel consumption +/- 3%

Fuel rate +/- 5%

Specific DEF consumption +/- 3%

DEF rate +/- 5%

Heat rejection +/- 5%

Heat rejection exhaust only +/- 10%

Heat rejection CEM only +/- 10%

Heat Rejection values based on using treated water.

Torque is included for truck and industrial applications, do not

use for Gen Set or steady state applications.

On C7 - C18 engines, at speeds of 1100 RPM and under these values are provided for reference only, and may not meet the tolerance

listed. These values do not apply to C280/3600. For these models, see the

tolerances listed below C280/3600 HEAT REJECTION TOLERANCE FACTORS:

Heat rejection +/- 10%

Heat rejection to Atmosphere +/- 50%

Heat rejection to Lube Oil +/- 20%

Heat rejection to Aftercooler +/- 5%

TEST CELL TRANSDUCER TOLERANCE FACTORS:

Torque +/- 0.5% Speed +/- 0.2%

Fuel flow +/- 1.0%

Temperature +/- 2.0 C degrees

Intake manifold pressure +/- 0.1 kPa

OBSERVED ENGINE PERFORMANCE IS CORRECTED TO SAE J1995 REFERENCE

AIR AND FUEL CONDITIONS

REFERENCE ATMOSPHERIC INLET AIR

FOR 3500 ENGINES AND SMALLER

SAE J1228 AUG2002 for marine engines, and J1995 JAN2014 for other

engines, reference atmospheric pressure is 100 KPA (29.61 in hg),

and standard temperature is 25deg C (77 deg F) at 30% relative

humidity at the stated aftercooler water temp, or inlet manifold

FOR 3600 ENGINES

Engine rating obtained and presented in accordance with ISO 3046/1

and SAE J1995 JANJAN2014 reference atmospheric pressure is 100

KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity and 150M altitude at the stated

aftercooler water temperature.

MEASUREMENT LOCATION FOR INLET AIR TEMPERATURE

Location for air temperature measurement air cleaner inlet at

stabilized operating conditions.

REFERENCE EXHAUST STACK DIAMETER

The Reference Exhaust Stack Diameter published with this dataset is only used for the calculation of Smoke Opacity values displayed in this dataset. This value does not necessarily represent the actual stack diameter of the engine due to the variety of exhaust stack adapter options available. Consult the price list, engine order or general dimension drawings for the actual stack diameter

size ordered or options available. REFERENCE FUEL

DIESEL

Reference fuel is #2 distillate diesel with a 35API gravity;

A lower heating value is 42,780 KJ/KG (18,390 BTU/LB) when used at

29 deg C (84.2 deg F), where the density is

838.9 G/Liter (7.001 Lbs/Gal).

GAS

Reference natural gas fuel has a lower heating value of 33.74 KJ/L (905 BTU/CU Ft). Low BTU ratings are based on 18.64 KJ/L (500 BTU/CU FT) lower heating value gas. Propane ratings are based on 87.56 KJ/L (2350 BTU/CU Ft) lower heating value gas.

ENGINE POWER (NET) IS THE CORRECTED FLYWHEEL POWER (GROSS) LESS EXTERNAL AUXILIARY LOAD

Engine corrected gross output includes the power required to drive standard equipment; lube oil, scavenge lube oil, fuel transfer, common rail fuel, separate circuit aftercooler and jacket water pumps. Engine net power available for the external (flywheel) load is calculated by subtracting the sum of auxiliary load from the corrected gross flywheel out put power. Typical auxiliary loads are radiator cooling fans, hydraulic pumps, air compressors and battery charging alternators. For Tier 4 ratings additional Parasitic losses would also include Intake, and Exhaust Restrictions.

ALTITUDE CAPABILITY

Altitude capability is the maximum altitude above sea level at standard temperature and standard pressure at which the engine could develop full rated output power on the current performance data set.

Standard temperature values versus altitude could be seen on TM2001.

When viewing the altitude capability chart the ambient temperature is the inlet air temp at the compressor inlet.

Engines with ADEM MEUI and HEUI fuel systems operating at conditions above the defined altitude capability derate for atmospheric pressure and temperature conditions outside the values defined, see TM2001.

Mechanical governor controlled unit injector engines require a setting change for operation at conditions above the altitude defined on the engine performance sheet. See your Caterpillar technical representative for non standard ratings.

REGULATIONS AND PRODUCT COMPLIANCE

TMI Emissions information is presented at 'nominal' and 'Potential Site Variation' values for standard ratings. No tolerances are applied to the emissions data. These values are subject to change at any time. The controlling federal and local emission requirements need to be verified by your Caterpillar technical representative.

Customer's may have special emission site requirements that need to be verified by the Caterpillar Product Group engineer.

EMISSIONS DEFINITIONS:

Emissions : DM1176

EMISSION CYCLE DEFINITIONS

1. For constant-speed marine engines for ship main propulsion, including, diesel-electric drive, test cycle E2 shall be applied,

for controllable-pitch propeller sets test cycle E2 shall be applied.

2. For propeller-law-operated main and propeller-law-operated auxiliary engines the test cycle E3 shall be applied.

For constant-speed auxiliary engines test cycle D2 shall be applied.

4. For variable-speed, variable-load auxiliary engines, not included above, test cycle C1 shall be applied.

HEAT REJECTION DEFINITIONS:

Diesel Circuit Type and HHV Balance : DM9500

HIGH DISPLACEMENT (HD) DEFINITIONS:

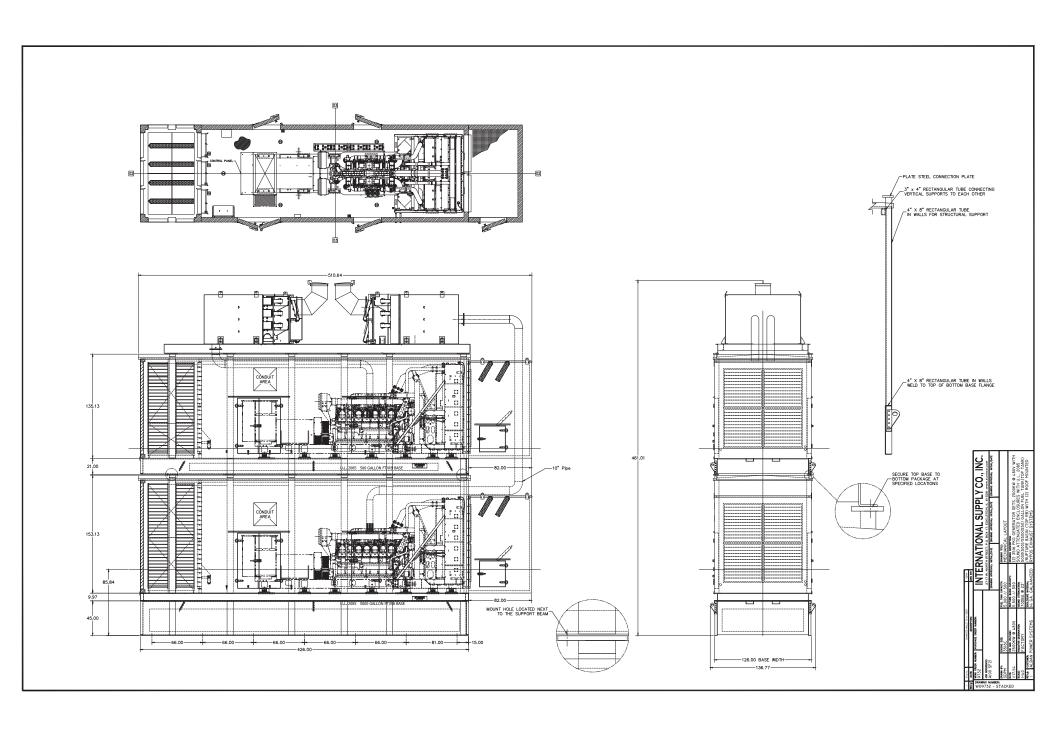
3500: EM1500

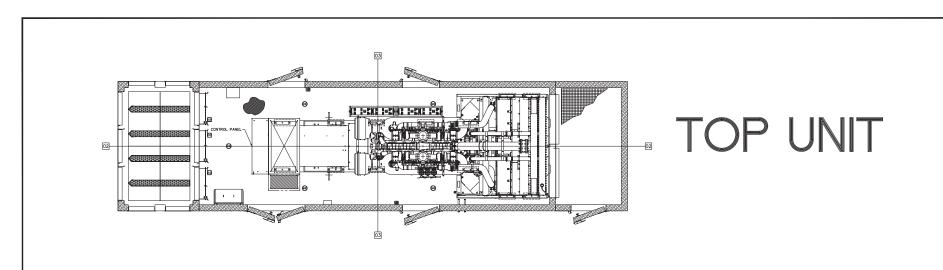
RATING DEFINITIONS:
Agriculture: TM6008
Fire Pump: TM6009
Generator Set: TM6035
Generator (Gas): TM6041
Industrial Diesel: TM6010
Industrial (Gas): TM6040
Irrigation: TM5749
Locomotive: TM6037
Marine Auxiliary: TM6036

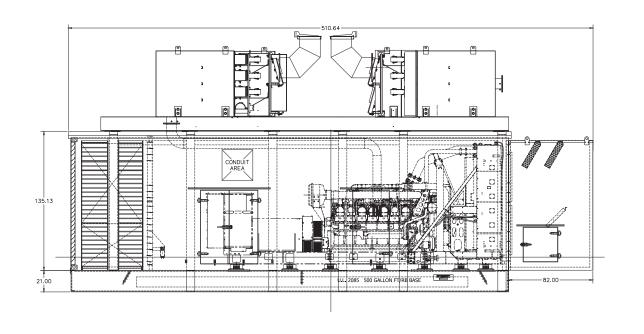
Marine Prop (Except 3600): TM5747 Marine Prop (3600 only): TM5748

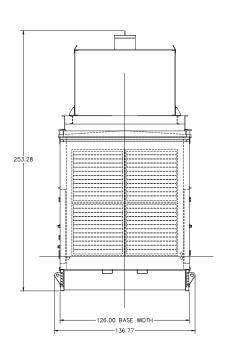
MSHA: TM6042

Oil Field (Petroleum): TM6011 Off-Highway Truck: TM6039 On-Highway Truck: TM6038 SOUND DEFINITIONS: Sound Power: DM8702 Sound Pressure: TM7080 Date Released: 11/29/18

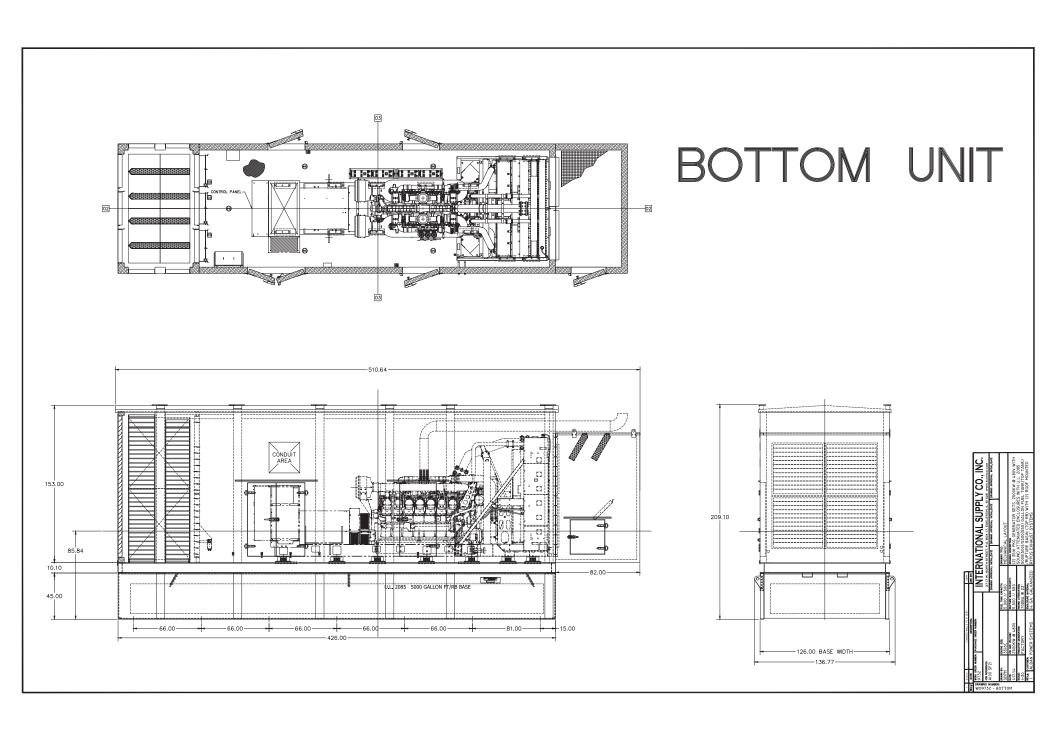












DIESEL GENERATOR SET





Image shown may not reflect actual package.

STANDBY 600 ekW 750 kVA

60 Hz 1800 rpm 480 Volts

Caterpillar is leading the power generation marketplace with Power Solutions engineered to deliver unmatched flexibility, expandability, reliability, and cost-effectiveness.

FEATURES

FUEL/EMISSIONS STRATEGY

 EPA Certified for Stationary Emergency Application (EPA Tier 2 emissions levels)

DESIGN CRITERIA

 The generator set accepts 100% rated load in one step per NFPA 110 and meets ISO 8528-5 transient response

UL 2200 / CSA - Optional

- UL 2200 Listed packages
- CSA Certified

Certain restrictions may apply. Consult with your Cat® Dealer.

FULL RANGE OF ATTACHMENTS

- Wide range of bolt-on system expansion attachments, factory designed and tested
- Flexible packaging options for easy and cost effective installation

SINGLE-SOURCE SUPPLIER

Fully prototype tested with certified torsional vibration analysis available

WORLDWIDE PRODUCT SUPPORT

- Cat dealers provide extensive post sale support including maintenance and repair agreements
- Cat dealers have over 1,800 dealer branch stores operating in 200 countries
- The Cat S◆O◆SSM program cost effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by-products

CAT C18 ATAAC DIESEL ENGINE

- Utilizes ACERT™ Technology
- Reliable, rugged, durable design
- Field-proven in thousands of applications worldwide
- Four-stroke-cycle diesel engine combines consistent performance and excellent fuel economy with minimum weight
- Electronic controlled governor

CAT GENERATOR

- Matched to the performance and output characteristics of Cat engines
- UL 1446 Recognized Class H insulation
- CSA Certified

CAT EMCP 4 CONTROL PANELS

- Simple user friendly interface and navigation
- Scalable system to meet a wide range of customer needs
- Integrated Control System and Communications Gateway
- Integrated Voltage Regulation

SEISMIC CERTIFICATION

- Seismic Certification available
- Anchoring details are site specific, and are dependent on many factors such as generator set size, weight, and concrete strength.
- IBC Certification requires that the anchoring system used is reviewed and approved by a Professional Engineer
- Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, IBC 2012, CBC 2007, CBC 2010

60 Hz 1800 rpm 480 Volts



FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional
Air Inlet	Disposable air filter	[] Canister type, dual element [] Heavy duty air cleaner
Cooling	Package mounted radiator	
Exhaust	Exhaust flange outlet	[] Industrial [] Residential / Critcal
Fuel	Primary fuel filter with integral water separatorSecondary fuel filtersFuel priming pump	
Generator	Matched to the performance and output characteristics of Cat engines Internal excitation (IE) IP23 Protection	[] Permanent magnet excitation (PMG) [] Anti-condensation space heater [] Coastal insulation protection
Power Termination	Power terminal strips	[] Circuit breakers – 100% rated assembly, UL Listed [] SUSE (Suitable for use as service equipment)
Control Panels	• EMCP 4.2	[] EMCP 4.3 [] EMCP 4.4 [] Local and remote annuniciator modules [] Remote monitoring software
Mounting	Rubber vibration isolators	
Starting/Charging	24 volt starting motor & charging alternatorBatteries	[] Battery chargers [] Oversize batteries [] Jacket water heater
General	Paint - Caterpillar Yellow except rails and radiators gloss black Narrow skid base	The following options are based on regional and product configuration: [] Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, IBC 2012, CBC 2007, CBC 2010 [] UL 2200 Listed package [] CSA Certified [] Wide skid base [] Weather sound attenuated enclosure [] Protective enclosure [] Integral dual wall UL Listed 8 hr fuel tank [] Sub-base dual wall UL Listed 48 hr fuel tank

60 Hz 1800 rpm 480 Volts



SPECIFICATIONS

STANDARD CAT GENE	STANDARD CAT GENERATOR						
Frame size	LC7024F						
Excitation	Internal Excitation						
Pitch	0.6667						
Number of poles	4						
Number of bearings	Single bearing						
Number of leads	12						
Insulation	UL 1446 Recognized Class H with tropicalization and antiabrasion						
IP Rating	IP23						
Alignment	Pilot shaft						
Overspeed capability (%)	125						
Wave form deviation (%)	2						
Voltage regulator	Three phase sensing						
Voltage regulation	+/- 0.25% (steady state)						
- Consult your Cat dealer for other	er available voltages						
CAT DIESEL ENGINE							
C18 ATAAC, I-6, 4-Stroke W	ater-cooled Diesel						
Bore	145.00 mm (5.71 in)						
Stroke	183.00 mm (7.2 in)						
Displacement	18.13 L (1106.36 in³)						
Compression ratio	14.5:1						
Aspiration	Air-to-air aftercooled						
Fuel system	MEUI						
Governor type	Caterpillar ADEM control system						

CAT EMCP 4 SERIES CONTROLS

EMCP 4 controls including:

- Run / Auto / Stop Control
- Speed and Voltage Adjust
- Engine Cycle Crank
- 24-volt DC operation
- Environmental sealed front face
- Text alarm/event descriptions

Digital indication for:

- RPM
- DC volts
- Operating hours
- Oil pressure (psi, kPa or bar)
- Coolant temperature
- Volts (L-L & L-N), frequency (Hz)
- Amps (per phase & average)
- ekW, kVA, kVAR, kW-hr, %kW, PF (4.2 only)

Warning/shutdown with common LED indication of:

- Low oil pressure
- High coolant temperature
- Overspeed
- Emergency stop
- Failure to start (overcrank)
- Low coolant temperature
- Low coolant level

Programmable protective relaying functions:

- Generator phase sequence
- Over/Under voltage (27/59)
- Over/Under Frequency (81 o/u)
- Reverse Power (kW) (32) (4.2 only)
- Reverse reactive power (kVAr) (32RV)
- Overcurrent (50/51)

Communications:

- Four digital inputs (4.1)
- Six digital inputs (4.2 only)
- Four relay outputs (Form A)
- Two relay outputs (Form C)
- Two digital outputs
- Customer data link (Modbus RTU) (4.2 only)
- Accessory module data link (4.2 only)
- Serial annunciator module data link (4.2 only)
- Emergency stop pushbutton

Compatible with the following:

- Digital I/O module
- Local Annunciator
- Remote CAN annunciator
- Remote serial annunciator

60 Hz 1800 rpm 480 Volts



TECHNICAL DATA

Open Generator Set 1800 rpm/60 Hz/480 Volts		DM8518				
EPA Certified for Stationary Emergency Application (EPA Tier 2 emissions levels)						
Generator Set Package Performance Genset power rating @ 0.8 pf Genset power rating with fan		750 kVA 600 ekW				
Fuel Consumption 100% load with fan 75% load with fan 50% load with fan	161.6 L/hr 129.8 L/hr 91.7 L/hr	42.7 gal/hr 34.3 gal/hr 24.2 gal/hr				
Cooling System¹ Air flow restriction (system) Air flow (max @ rated speed for radiator arrangement) Engine Coolant capacity with radiator/exp. tank Engine coolant capacity Radiator coolant capacity	0.12 kPa 568 m³/min 54.9L 20.8 L 34.1 L	0.48 in. water 20059 cfm 14.5 gal 5.5 gal 9.0 gal				
Inlet Air Combustion air inlet flow rate	47.8 m³/min	1688.0 cfm				
Exhaust System Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size (internal diameter) Exhaust system backpressure (maximum allowable)	534.6°C 135.5 m³/min 203 mm 10.0 kPa	994.3°F 4785.1 cfm 8 in 40.2 in. water				
Heat Rejection Heat rejection to coolant (total) Heat rejection to exhaust (total) Heat rejection to aftercooler Heat rejection to atmosphere from engine Heat rejection to atmosphere from generator	189 kW 634 kW 153 kW 86.0 kW 41.0 kW	10748 Btu/min 36056 Btu/min 8701 Btu/min 4891 Btu/min 2331.7 Btu/min				
Alternator ² Motor starting capability @ 30% voltage dip Frame Temperature rise	1633 skVA LC7024F 150°C	270°F				
Lubrication System Sump refill with filter	64.0 L	16.9 gal				
Emissions (Nominal) ³ NOx g/hp-hr CO g/hp-hr HC g/hp-hr PM g/hp-hr	5.75 g/hp-hr 0.46 g/hp-hr 0.01 g/hp-hr 0.03 g/hp-hr					

¹ For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.

² Generator temperature rise is based on a 40° C (104° F) ambient per NEMA MG1-32. Some packages may have oversized generators with a different temperature rise and motor starting characteristics.

³ Emissions data measurement procedures are consistent with those described in EPA CFR 40 Part 89, Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NOx. Data shown is based on steady state operating conditions of 77°F, 28.42 in HG and number 2 diesel fuel with 35° API and LHV of 18,390 btu/lb. The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% load and thus cannot be used to compare to EPA regulations which use values based on a weighted cycle.

60 Hz 1800 rpm 480 Volts



RATING DEFINITIONS AND CONDITIONS

Applicable Codes and Standards:

AS1359, CSA C22.2 No100-04, UL142,UL489, UL869, UL2200, NFPA37, NFPA70, NFPA99, NFPA110, IBC, IEC60034-1, ISO3046, ISO8528, NEMA MG1-22,NEMA MG1-33, 72/23/EEC, 98/37/EC, 2004/108/EC.

Standby – Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions.

Fuel Rates are based on fuel oil of 35° API (16°C or 60°F) gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29°C (85°F) and weighing 838.9 g/liter (7.001 lbs/U.S. gal.).

Additional Ratings may be available for specific customer requirements. Consult your Cat representative for details.

60 Hz 1800 rpm 480 Volts



DIMENSIONS

Package Dimensions						
Length	3361 mm	132.3 in				
Width	1580 mm	62.2 in				
Height	2078 mm	81.8 in				

NOTE: For reference only – do not use for installation design. Please contact your local dealer for exact weight and dimensions.

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Materials and specifications are subject to change without notice. The International System of Units (SI) is used in this publication.

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Performance No.: DM8518

Feature Code: C18DE6E

Gen. Arr. Number: 4183897

Source: U.S. Sourced





Picture shown may not reflect actual package.

FEATURES ROBUST / HIGHLY CORROSION RESISTANT CONSTRUCTION

- · Factory installed on skid base
- Environmentally friendly, polyester powder baked paint
- 14 gauge steel
- · Zinc plated or stainless steel fasteners
- Internally mounted super critical exhaust silencing system
- Designed and tested to comply with UL 2200 Listed generator set package
- · Compression door latches providing solid door seal

EXCELLENT ACCESS

- Large cable entry area for installation ease
- Accommodates side mounted single or multiple breakers
- Three doors on both sides
- Vertically hinged allow 180° opening rotation and retention with door stays
- Lube oil and coolant drains piped to the exterior of the enclosure base
- · Radiator fill cover

SECURITY AND SAFETY

- Lockable access doors which give full access to control panel and breaker
- Cooling fan and battery charging alternator fully guarded
- Fuel fill, oil fill, and battery can only be reached via lockable access
- Externally mounted emergency stop button
- Designed for spreader bar lifting to ensure safety
- Stub-up area is rodent proof

C15 / C18 SOUND ATTENUATED ENCLOSURES

US Sourced 60 Hz

TRANSPORTABILITY

These enclosures are of extremely rugged construction to withstand outdoor exposure and rough handling common on many construction sites.

OPTIONS

- · Caterpillar yellow or white paint
- · Control panel viewing window
- UL Listed 8 hour integral fuel tank
- UL Listed 24 or 48 hour sub base fuel tanks
- Seismic certification per applicable building codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, IBC 2012, CBC 2007, CBC 2010
- IBC Certification for 90 mph wind loading
- Anchoring details are site specific and are dependent on many factors such as generator set size, weight, and concrete strength. IBC Certification requires that the anchoring system used is reviewed and approved by a professional engineer.



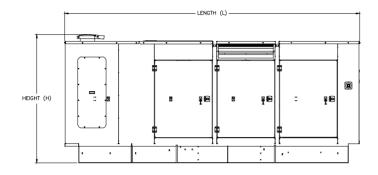
Sound Attenuated Enclosure Sound Levels

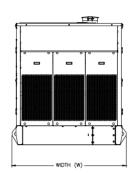
Sound	Sound Attenuated Cooling Air		Ambient		Sound Pressure Levels (dBA) at						
	nclosure		Rate		oility*	1m (3	1m (3.3 ft) 7m (23 ft) 15m		3 ft) 15m (49 ft)		
Model	Standby ekW	m³/s	cfm	°C	°F	100% Load	75% Load	100% Load	75% Load	100% Load	75% Load
	350	10.4	22072	59	138	83.5	82.9	72.5	72.4	69.8	69.2
C15	400	10.4	22072	51	124	84.0	84.0	73.0	73.1	70.0	69.5
CIS	450	10.4	22072	46	115	84.7	83.5	74.2	72.5	70.5	69.8
	500	12.5	26415	48	118	86.7	86.0	75.3	74.1	71.6	70.7
C10	550	8.1	17234	45	113	87.3	86.9	75.3	74.2	72.6	71.9
C18	600	8.1	17234	43	109	87.6	87.1	75.4	74.8	72.8	72.0

^{*} Cooling system performance with sound attenuated enclosure restriction



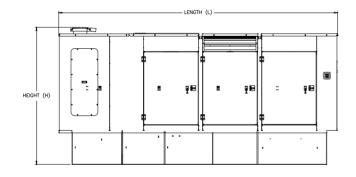
Sound Attenuated Enclosure Weights and Dimensions

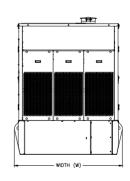




Sound Attenuated on Skid Base

	Rating	Lengt	Length "L"		Width "W"		Height "H"		Weight	
Model	ekW	mm	in	mm	in	mm	in	kg	lb	
	350				70.2	2220		4040	10675	
C1E	400	4948	104.0	2014			01.2			
C15	450	4946	194.8	2014	79.3	2320	91.3	4842	10675	
	500									
C10	550	E104	0045	0044	70.0	2262	000	5007	11000	
C18	600	5194	204.5	2014	79.3	2262	89.1	5367	11832	



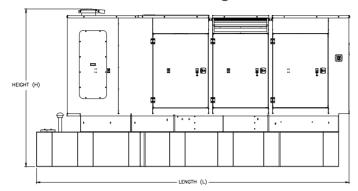


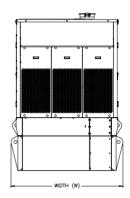
Sound Attenuated on a UL Listed Integral Fuel Tank Base

	Rating	Lengt	Length "L"		Width "W"		Height "H"		Weight	
Model	ekW	mm	in	mm	in	mm	in	kg	lb	
	350									
C15	400	4948	194.8	2014	79.3	2619	103.1	5857	12912	
C15	450	4340	134.0	2014	79.3	2019	103.1	3657	12912	
	500									
C18	550	5194	204.5	2014	70.0	2557	100.7	0407	14100	
CTO	600	519 4	204.5	2014	79.3	2557	100.7	6427	14169	



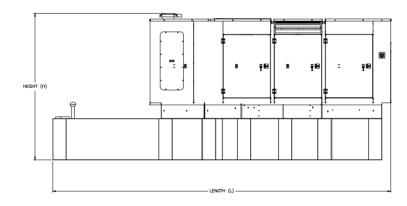
Sound Attenuated Enclosure Weights and Dimensions

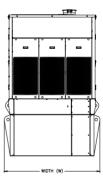




Sound Attenuated on a UL Listed 24 Hour Sub Base Fuel Tank Base

	Rating	Length "L"		Width "W"		Height "H"		Weight	
Model	ekW	mm	in	mm	in	mm	in	kg	lb
C15	350	5741	226.0	2056	80.9	2955	116.3	6501	14332
	400								
	450								
	500								
C18	550	5741	226.0	2056	80.9	2897	114.1	7026	15490
	600								





Sound Attenuated on a UL Listed 48 Hour Sub Base Fuel Tank Base

	Rating	Length "L"		Width "W"		Height "H"		Weight	
Model	ekW	mm	in	mm	in	mm	in	kg	lb
C15	350	- 6382	243.5	2056	80.9	3209	126.3	6717	14808
	400								
	450								
	500								
C18	550	7265	286.0	2056	80.9	3151	124.1	7517	16572
	600								



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State of California AIR RESOURCES BOARD

EXECUTIVE ORDER DE-07-001-07

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code, Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code sections 39515 and 39616 and Executive Order G-14-012;

Relating to Verification under sections 2700 through 2711 of Title 13 of the California Code of Regulations

Rypos, Inc.
Hybrid Diesel Particulate Filter (HDPF/C)

The California Air Resources Board (CARB) staff has reviewed Rypos' request for verification of their hybrid active diesel particulate filter and diesel oxidation catalyst system (Rypos HDPF/C). Based on an evaluation of the data provided, and pursuant to the terms and conditions specified below, the Executive Officer of CARB hereby finds that the Rypos HDPF/C reduces emissions of diesel particulate matter (PM) consistent with a Level 3 device (greater than or equal to 85 percent reduction) (Title 13 California Code of Regulations [CCR] sections 2702 [f] and [g] and section 2708) and complies with the CARB January 1, 2009, nitrogen dioxide (NO₂) limit (Title 13 California Code of Regulations [CCR] Appendix A section 2702 [f] and section 2706 [a]). Accordingly, the Executive Officer determines that the Rypos HDPF/C merits verification as a Level 3 Plus system for diesel engines on stationary emergency standby generators and emergency standby pumps, subject to the terms and conditions specified below.

This verification is subject to the following terms and conditions:

- The engine must be used in a stationary application associated with emergency standby generators or emergency standby pumps.
- The engine is greater than 50 hp and model year 1996 or newer, certified to nonroad diesel engine emission standards Tier 1, Tier 2, Tier 3, Tier 4i with a rated horse power between 50 and 75 or over 750, or Tier 4 Alt 20% NOx and PM, and having the engine family names listed in Attachment.
- The engine must be a certified off-road engine with particulate matter (PM) emission levels less than or equal to 0.2 g/bhp-hr (as tested on an appropriate steady-state certification cycle outlined in the CARB off-road regulations similar to ISO 8178 D2).
- The engine must be in its original certified configuration.
- The engine must not employ exhaust gas recirculation.
- The engine must not have a pre-existing oxidation catalyst.
- The engine must not have a pre-existing diesel particulate filter.
- The engine can be a two or four-stroke.
- The engine can be turbocharged or naturally-aspirated.
- The engine must be certified for use in California.

- Rypos must review actual operating conditions (duty cycle, baseline emissions, exhaust temperature profiles, and engine backpressure) prior to retrofitting an engine with the HDPF/C to ensure compatibility.
- The engine should be well maintained and not consume lubricating oil at a rate greater than that specified by the engine manufacturer.
- The other terms and conditions specified in Table 1 below.

Table 1: Summary of Conditions for the Rypos HDPF/C System					
Parameter	Value				
PM Verification Level	Level 3 Plus:				
	PM - at least 85% reduction.				
	NO ₂ - meets January 2009 limit.				
Regeneration System	Active				
Applications	Stationary Emergency Standby Generators or				
	Pumps.				
Engine Type	Diesel-fueled, with or without turbocharger,				
	certified off-road engine with particulate matter				
	(PM) emission levels less than or equal to 0.2				
	g/bhp-hr.				
Engine Models	1996 or newer and listed in Attachment 1 to the				
	Executive Order.				
Engine Horsepower	Greater than 50 hp.				
Fuel	California diesel fuel with less than or equal to 15				
	ppm sulfur or a biodiesel blend provided that the biodiesel portion of the blend complies with ASTM				
	D6751, the diesel portion of the blend complies				
	with Title 13 (CCR), sections 2281 and 2282, and				
	the blend contains no more than 20 percent				
	biodiesel by volume.				
Minimum Exhaust Temperature for	Not Applicable (NA). Active DPF.				
Filter Regeneration					
Maximum consecutive minutes at	NA. Active DPF.				
idle					
Number of Cold Start and 30	NA. Active DPF.				
Minute Idle Sessions before					
Regeneration Required					
Number of Hours of Operation	Inspect every 1000 hours and clean if needed.				
Before Cleaning of Filter Required	Active DPF				

The Rypos HDPF/C consists of a filter housing, electrical control circuit, and filter cartridges made of sintered metal fibers, referred to as an active sintered metal diesel particulate filter, and a downstream diesel oxidation catalyst.

This Executive Order is valid provided that installation instructions for Rypos HDPF/C do not recommend tuning the engine to specifications different from those specified by the engine manufacturer.

No changes are permitted to the device unless approved by CARB. CARB must be notified in writing of any changes to any part of the Rypos HDPF/C and these changes must be evaluated and approved by CARB. Failure to report any changes shall invalidate this Executive Order.

Changes made to the design or operating conditions of Rypos HDPF/C which adversely affect the performance of the engine's pollution control system shall invalidate this Executive Order.

No person shall alter, physically disable, disconnect, bypass, or tamper with an installed CARB verified diesel emission control strategy, as outlined in Title 13 CCR section 2711(e). Should CARB become aware that a design feature of a verified device is altered, physically disabled, disconnected, bypassed, or tampered on multiple units by independent persons, Rypos will be responsible to propose a design modification and recall plan to the Executive Officer to minimize existing and potential for future tampering of the verified device.

Marketing of the Rypos HDPF/C using identification other than that shown in this Executive Order or for an application other than that listed in this Executive Order shall be prohibited unless prior approval is obtained from CARB.

As specified in the Diesel Emission Control Strategy Verification Procedure (Title 13 CCR section 2706 [g]), CARB assigns each Diesel Emission Control Strategy a family name. The designated family name for the verification as outlined above is:

CA/RYP/2007/PM3+/N00/ST/DPF01

Additionally, as stated in the Diesel Emission Control Strategy Verification Procedure, Rypos, Inc., is responsible for honoring their warranty (section 2707) and conducting in-use compliance testing (section 2709).

In addition, Rypos, Inc. must conduct in-use compliance testing (section 2709), which involves the following: in-use compliance field testing after 100 units have been sold or leased in California and in-use compliance emissions testing after 300 units have been sold or leased in California (section 2709 (a)). Both the in-use compliance field and emissions testing proposals have to be submitted within 90 days after selling or leasing in California the 100th unit and 300th unit, respectively (section 2709 (d)). The in-use compliance field and emission testing reports must be submitted no later than 18 months after selling or leasing the 100th and 300th units in the California market, respectively, as outlined in section 2709 (k).

In addition to the foregoing, CARB reserves the right in the future to review this Executive Order and the verification provided herein to assure that the verified system continues to meet the standards and procedures of California Code of Regulations, Title 13, section 2222, et seq and California Code of Regulations, Title 13, sections 2700 through 2711.

Systems verified under this Executive Order shall conform to all applicable California emissions regulations.

Violation of any of the above conditions shall be grounds for revocation of this Executive Order.

Executive Order DE-07-001-06 is hereby superseded and is of no further force and effect.

Richard W. Corey **Executive Officer**

by

Cynthia Marvin, Chief

Transportation and Toxics Division

Attachment: CARB Approved Model Year 1996 to 2019 Engine Families for the Rypos HDPF/C.

Attachment: Rypos HPDF/C Off-Road Certified Engine Family List (0<=0.2 g/bhp-hr PM)

Model Year 1996 Engines

Model Ye	ar 1	1998	Engine	s

Manufacturer	Engine Families
Caterpillar	TCP14.RZDBRK
	TCP10.RZDBRD
Deutz AG	TDZ16.RGDARA
	TDZ16.RGDARB
	TDZ7.1R6DARA
	TDZ7.1R6DARB
Generac	TGN13.R6DARA
Komatsu	TKL11.RZDARB
Navistar	TNV466R6DARA
	TNV466R6DARB
	TNV466R6DASC
	TNV466R6DASD
	TNV530R6DARA
	TNV530R6DARB
	TNV530R6DASD
	TNV530R8DASC

Model Year 1997 Engines

Manufacturer	Engine Families
Caterpillar	VCP10.RZDARD
	VCP14.RZDARK
Deere	VJD10.RJDBRB
	VJD6.8R6DBRA
	VJD8.1R6DBRA
	VJD8.1RBDRB
Deutz AG	VDZ16.RGDARA
	VDZ16.RGDARB
	VDZ7.1R6DARA
	VDZ7.1R6DARB
Generac	VGN13.R6DARA
Navistar	VNV466R6DASC
	VNV466R6DASD
	VNV530R6DARB
	VNV530R6DASC
	VNV530R6DASD

Manufacturer	Engine Families
AB Volvo Penta	WVPXL09.6ACB
	WVPXL12.0ACB
Case	WX9XL0239ACA
	WX9XL0359ABA
	WX9XL0505ABA
	WX9XL0505ABB
	WX9XL0505ACA
Caterpillar	WCPXL07.0MRB
	WCPXL10.5MRD
	WCPXL10.5MRG
	WCPXL14.6ERK
	WCPXL14.6MRJ
Cummins	WCEXL019.AAA
	WCEXL0359ABA
	WCEXL0359ABB
	WCEXL0505ABA
	WCEXL0505ABB
	WCEXL0505ACA
	WCEXL0661AAA
	WCEXL0855AAA
	WCEXL0855AAB
Daewoo	WDWXL11.1BHT
	WDWXL11.1BIA
Detroit Diesel Corporation	VDDXL08.5TJD
(WDDXL09.0TFE
	WDDXL11.1THD
	WDDXL12.1TFE
	WDDXL12.1TFM
	WDDXL12.7TGD
	WDDXL15.9TRE
	WDDXL23.9TRE
Deere	WJDXL06.8012
	WJDXL08.1007
	WJDXL08.1008
	WJDXL08.1009
	WJDXL10.5003

Model Year 1998 Engines Continued

Manufacturer	Engine Families
Deutz AG	WDZXL07.1003
	WDZXL07.1004
	WDZXL15.9001
	WDZXL15.9002
GMC	WGNXL13.3HTA
ISUZU	WSZXL06.4DTA
Komatsu	WKDXL0239AAA
	WKDXL0359ABA
	WKLXL11.0DB1
	WKLXL11.0DC1
	WKLXL15.2EB1
	WKLXL23.2FC1
	WKLXL7.15CB1
	WKLXL7.15CC1
MTU	WMUXL12.0G2V
Navistar	WNVXL0530BNB
	WNVXL0530BND

Model Year 1999 Engines

Manufacturer	Engine Families
AB Volvo Penta	XVPXL07.3ABB
	XVPXL07.3ACB
	XVPXL09.6ACB
	XVPXL12.0ACB
Case	XX9XL0239ACA
	XX9XL0359ABA
	XX9XL0505ABA
	XX9XL0505ABB
	XX9XL0505ACA
Caterpillar	XCPXL07.0MRB
	XCPXL10.5MRD
	XCPXL10.5MRG
	XCPXL14.6ERK
Cummins	XCEXL019.AAA
	XCEXL0359ABA
	XCEXL0505ABA
	XCEXL0505ABB
	XCEXL0505ACA
	XCEXL0661AAA
	XCEXL0855AAA
	XCEXL0855AAB

Model Year 1999 Engines Continued

Manufacturer	Engine Families
Daewoo	XDWXL03.3AMN
	XDWXL03.3BMN
	XDWXL03.3LMN
	XDWXL05.8AOA
	XDWXL05.8ARN
	XDWXL05.8ATT
	XDWXL08.1ACN
	XDWXL08.1ADT
	XDWXL11.1BIA
	XDWXL11.1BHT
	XDWXL11.1DJA
	XDWXL14.6AZA
	XDWXL14.6CVT
	XDWXL18.3ASA
Detroit Diesel	XDDXL08.5TJD
Corporation	
	XDDXL09.1TFE
	XDDXL11.1THD
	XDDXL12.1TFE
	XDDXL12.1TFM
	XDDXL12.7TGD
	XDDXL14.0TLD
	XDDXL15.9TRE
	XDDXL23.9TRE
Deere	XJDXL06.8012
	XJDXL08.1007
	XJDXL08.1008
	XJDXL10.5022
Deutz AG	XDZXL02.7014
	XDZXL07.1005
	XDZXL07.1004
	XDZXL15.9002
	XDZXL15.9003
Generac	XGNXL13.3HTA

Model Year 1999 Engines Continued

Manufacturer **Engine Families** XKLXL03.3JA1 Komatsu XKLXL11.0DB1 XKLXL11.0DC1 XKLXL15.2EC1 XKLXL23.2FC1 XKLXL7.15CB1 XKLXL7.15CC1 XKDXL0239ACA XKDXL0359ABA XKDXL0505ABB XKDXL0505ACA KUBOTA XKBXL03.3BAC XKBXL03.3BCC XMTXL07.5D6C Mitsubishi XMTXL11.9D6A Navistar XNVXL0466BNA XNVXL0530ANA XNVXL0530ANB XNVXL0530ANC XNVXL0530AND XNVXL0530BNA XNVXL0530BNB XNVXL0530BNC XNVXL0530BND Yanmar XYDXL2.00D4T XYDXL2.78D4N XYDXL4.41D4N XYDXL4.41D4T

Model Year 2000 Engines

Manufacturer	Engine Families
AB Volvo Penta	YVPXL07.3ABB
	YVPXL07.3ACB
	YVPXL09.6ACB
	YVPXL12.0ACB
Case	YX9XL0239ACA
	YX9XL0239ADA
	YX9XL0359ABA
	YX9XL0359ABB
	YX9XL0505ABA
	YX9XL0505ABB
	YX9XL0505ACA
Caterpillar	YCPXL07.0MRB
C sitts i pinish	YCPXL10.5MRD
	YCPXL10.5MRG
	YCPXL14.6ERK
	YCPXL27.0MRH
	YCPXL27.0MRS
	YCPXL34.5ERK
	YCPXL69.OERK
Cummins	YCEXL03.3AAA
	YCEXL03.3AAB
	YCEXL015.ABA
	YCEXL019.AAA
	YCEXL019.AAB
	YCEXL030.ABA
	YCEXL050.ABA
	YCEXL0239ACA
	YCEXL0239ADA
	YCEXL0359AAA
	YCEXL0359ABA
	YCEXL0359ABC
	YCEXL050.AAA
	YCEXL0505ABA
	YCEXL0505ABB
	YCEXL0505ACA
	YCEXL060.ABA
	YCEXL0661AAA
	YCEXL0855AAA
	YCEXL0855AAB
Deere	YJDXL06.8012
	YJDXL08.1007
	YJDXL08.1008
	YJDXL10.5022

Model Year 2000 Engines Continued

Manufacturer **Engine Families** Detroit Diesel YDDXL08.5TJD Corporation YDDXL11.1THD YDDXL12.1TFE YDDXL12.1TFM YDDXL12.7TGD YDDXL14.0TLD YDDXL15.9TRE YDDXL23.9TRE YDDXL31.8VRE YDDXL65.0VTE Deutz AG YDZXL02.7014 YDZXL07.1004 YDZXL07.1005 YDZXL15.9002 YDZXL15.9003 YDZXL17.5001 Genrac YGNXL13.3HAA YGNXL13.3HTA YGNXL16.0MAA YKLXL0505ACA Komatsu YKLXL11.0DB1 YKLXL11.0DC1 YKLXL15.2EC1 YKLXL23.2FC1 YKLXL23.2FC2 YKLXL30.5GC1 YKLXL7.15CB1 YKLXL7.15CC1 YNVXL0466ANA Navistar YNVXL0530ANA YNVXL0530ANB YNVXL0530ANC YNVXL0530AND VM Motori YV5XI02.1R3V YV5XL02.8R2T

Model Year 2001 Engines

Manufacturer	Engine Families
AB Volvo Penta	1VPXL07.3ABB
	1VPXL07.3ACB
	1VPXL09.6ACB
	1VPXL12.1ACB
Case	1X9XL0239ACA
	1X9XL0239ADA
	1X9XL0359ABA
	1X9XL0359ABB
	1X9XL0505ABA
	1X9XL0505ABB
	1X9XL0505ACA
Caterpillar	1CPXL07.0MRB
-	1CPXL10.5MRD
	1CPXL10.5MRG
	1CPXL12.0ESK
	1CPXL14.6ESK
	1CPXL15.8ESK
	1CPXL18.0HRN
	1CPXL27.0HRK
	1CPXL27.0MRS
	1CPXL27.0MRT
	1CPXL34.5ERK
	1CPXL78.1ERK
Cummins	1CEXL03.3AAA
Garrinino	1CEXL03.3AAB
	1CEXL015.AAA
	1CEXL015.ABA
	1CEXL019.AAB
	1CEXL0239ACA
	1CEXL0239ADA
	1CEXL030.ABA
	1CEXL0359ABA
	1CEXL0359ABB
	1CEXL0359ABC
	1CEXL0359ABD
	1CEXL05039ABB
	1CEXL050.ABA
	1CEXL050.ABA
	1CEXL0505ABA
	1CEXL0505AGA
	1CEXL0505ACA
	1CEXL0661AAA
	1CEXL0661AAD

Model Year 2001 Engines Continued

Manufacturer	Engine Families
Cummins continued	1CEXL060.ABA
Daewoo	1DWXL2.37ANT
	1DWXL03.3AMN
	1DWXL03.3BMA
	1DWXL03.3LMN
	1DWXL05.8AOA
	1DWXL05.8ARN
	1DWXL08.1ACN
	1DWXL11.1BIA
	1DWXL14.6AZA
	1DWXL14.6CVT
	1DWXL18.3ASA
	1DWXL21.9AYA
Detroit Diesel	1DDXL08.5TJD
Corporation	
	1DDXL08.5YJD
	1DDXL12.7VGD
	1DDXL14.0VLD
	1DDXL14.0WLD
	1DDXL15.9WRE
	1DDXL23.9WRE
	1DDXL31.8XRE
	1DDXL65.0XTE
Deere	1JDXL06.8012
	1JDXL06.8038
	1JDXL06.8039
	1JDXL08.1007
	1JDXL08.1008
	1JDXL08.1036
	1JDXL08.1037
Deutz	1DZXL02.7014
	1DZXL02.7015
	1DDXL08.5TJD
	1DDXL08.5YJD
	1DZXL07.1005
	1DZXL15.9002
	1DZXL15.9003
Generac	1GNXL04.0HAA
	1GNXL04.0HNA
	1GNXL05.0FAA
Isuzu	1SZXL06.5BTA
	1SZXL09.8EXA
	1SZXL15.7ETA
	1SZXL15.7EXA

Manufacturer	Engine Families
International	1NVXL0530ANC
	1NVXL0530AND
	1NVXL0530ANF
Komatsu	1KLXL0239ACA
	1KLXL0239ADA
	1KLXL0359ABA
	1KLXL0359ABC
	1KLXL0505ABB
	1KLXL0505ACA
	1KLXL03.3JA1
	1KLXL03.3JB1
	1KLXL7.15CB1
	1KLXL7.15CC1
	1KLXL11.0DD3
	1KLXL15.2EC3
	1KLXL30.5GC1
	1KLXL30.5GD1
Mitsubishi	1MTXL07.5D6A
	1MTXL07.5D6C
	1MTXL11.9D6A

Model Year 2002 Engines

Manufacturer	Engine Families
Case	2X9XL0239ACA
	2X9XL0239ADA
	2X9XL0359ABA
	2X9XL0359ABB
	2X9XL0359ABE
	2X9XL0505ABA
	2X9XL0505ABB
	2X9XL0505ABD
	2X9XL0505ACA
Caterpillar	2CPXL07.0MRB
•	2CPXL10.5MRD
	2CPXL10.5MRG
	2CPXL27.0MRS
	2CPXL27.0MRT
	2CPXL34.5ERK
	2CPXL78.1ERK
Cummins	2CEXL03.3AAA
	2CEXL03.3AAB
	2CEXL015.AAA
	2CEXL015.AAB
	2CEXL015.ABA
	2CEXL019.AAB
	2CEXL0239ACA
	2CEXL0239ADA
	2CEXL0359ABA
	2CEXL0359ABB
	2CEXL0359ABC
	2CEXL0359ABE
	2CEXL0505ABA
	2CEXL0505ABB
	2CEXL0505ABD
	2CEXL0505ACA
	2CEXL0505ACB
	2CEXL0505ACE
	2CEXL060.ABA
	2CEXL0661AAA
	2CEXL0661AAD

Manufacturer	Engine Families
Detroit Diesel	2DDXL08.5TJD
	2DDXL08.5YJD
	2DDXL12.7VGD
	2DDXL14.0VLD
	2DDXL31.8XRE
	2DDXL65.0XTE
Deere	2JDXL06.8012
	2JDXL06.8038
	2JDXL06.8039
	2JDXL06.8041
	2JDXL06.8044
	2JDXL06.8049
	2JDXL08.1007
	2JDXL08.1008
	2JDXL08.1036
	2JDXL08.1037
Deutz AG	2DZXL02.7014
	2DZXL02.7015
	2DZXL05.7033
	2DZXL07.1004
	2DZXL07.1005
	2DZXL07.1032
	2DZXL15.9002
	2DZXL15.9003
Daewoo	2DWXL2.37ANT
	2DWXL03.3AMN
	2DWXL03.3BMA
	2DWXL03.3LMN
	2DWXL05.8AOA
	2DWXL05.8ARN
	2DWXL08.1ACN
	2DWXL11.1BIA
	2DWXL14.6CVT
	2DWXL21.9AYA
Generac	2GNXL04.0HAA
	2GNXL04.0HNA
	2GNXL05.0FAA
Isuzu	2SZXL06.5BTA
	2SZXL09.8EXA
	2SZXL15.7ETA
	2SZXL15.7EXA

Model Year 2002 Engines Continued

Manufacturer **Engine Families** International Truck 2NVXL0444ANA 2NVXL0530ANC 2NVXL0530AND 2NVXL0530ANF Komatsu 2KLXL0239ACA 2KLXL0239ADA 2KLXL0359ABA 2KLXL0359ABC 2KLXL0505ABB 2KLXL0505ABD 2KLXL0505ACA 2KLXL03.3JA1 2KLXL03.3JB1 2KLXL11.0DB1 2KLXL11.0DD3 2KLXL15.2EC3 2KLXL30.5GC1 2KLXL30.5GD1 2KLXL46.3HC1 2KLXL7.15CB1 2KLXL7.15CC1 Mitsubishi 2MTXL07.5D6A 2MTXL07.5D6C 2MTXL11.9D6A 2MVXL24.5AAB 2MVXL65.4ABA 2MVXL65.4ABB 2MVXL65.4ABC AB Volvo Penta 2VPXL07.3ABB 2VPXL07.3ACB 2VPXL09.6ACB 2VPXL12.1ABA 2VPXL12.1ACA 2VPXL12.1ACB VM Motori 2V5XL02.8R2T

Model Year 2003 Engines

Manufacturer	Engine Families
Caterpillar	3CPXL18.0HRX
	3CPXL27.0MRS
	3CPXL27.0MRT
	3CPXL34.5ERK
	3CPXL58.6ERK
	3CPXL78.1ERK
CNH Engine Corp	3X9XL0239AAA
	3X9XL0239ABA
	3X9XL0359AAC
	3X9XL0359ABE
	3X9XL0505AAB
	3X9XL0505ABD
Cummins	3CEXL015.AAB
	3CEXL015.ABA
	3CEXL023.AAA
	3CEXL0239AAD
	3CEXL0239AAF
	3CEXL0275AAA
	3CEXL0275AAB
	3CEXL030.ABA
	3CEXL0359AAB
	3CEXL0359AAC
	3CEXL0359ABC
	3CEXL0359ABE
	3CEXL050.ABA
	3CEXL0505ABD
	3CEXL0505ACB
	3CEXL060.ABA
	3CEXL0661AAD
	3CEXL078.AAB
Daewoo Motors	3DWXL05.8COA
	3DWXL11.1DJA
	3DWXL21.9AYA

Model Year 2003 Engines Continued

Engine Families Manufacturer Detroit Diesel 3DDXL08.5YJD 3DDXL12.7VGD 3DDXL14.0VLD 3DDXL15.9WRE 3DDXL31.8XRE 3DDXL35.8GRP 3DDXL65.0GTP 3DDXL65.0XTE 3JDXL06.8038 Deere 3JDXL06.8039 3JDXL06.8041 3JDXL06.8044 3JDXL06.8048 3JDXL06.8049 3JDXL08.1037 Deutz AG 3DZXL05.7033 3DZXL06.1028 3DZXL07.1032 3DZXL15.9002 Daewoo Heavy Ind. 3DWXL08.1CPA 3DWXL18.3ASC 3DWXL2.37ANT 3SZXL09.8EXA Isuzu 3SZXL15.7ETA 3SZXL15.7EXA International Truck 3NVXL0530ANF Komatsu 3KLXL0239AAD 3KLXL0239AAF 3KLXL0359AAB 3KLXL0359ABC 3KLXL0505ABD 3KLXL11.0DD3 3KLXL15.2EC3 3KLXL23.2FD4 3KLXL30.5GC1 3KLXL30.5GD1

Manufacturer	Engine Families
Lombardini Motori	3LBDL2.07CHT
Mack Trucks	3MKXL11.9P69
Mitsubishi Heavy Ind	3MVXL24.5AAB
•	3MVXL24.5ABA
	3MVXL24.5ABB
	3MVXL24.5ABD
	3MVXL24.5ABE
	3MVXL33.9ABA
	3MVXL33.9ABB
	3MVXL33.9ABD
	3MVXL33.9ABE
	3MVXL37.1ABA
	3MVXL37.1ABB
	3MVXL37.1ABC
	3MVXL37.1ABD
	3MVXL49.0ABA
	3MVXL49.0ABB
	3MVXL49.0ABC
	3MVXL65.4ABA
	3MVXL65.4ABB
	3MVXL65.4ABC
	3MVXL65.4ABD
	3MVXL65.4ABE
	3MVXL65.4ABF
	3MVXL65.4ABG
AB Volvo Penta	3VPXL07.3ACB
	3VPXL09.6ACB
	3VPXL12.1ABA
	3VPXL12.1ACA
	3VPXL12.1ACB
	3VPXL16.0ACB

Manufacturer	Engine Families
Caterpillar	4CPXL15.8ERK
	4CPXL18.0ESK
	4CPXL18.0HRX
	4CPXL27.0MRS
	4CPXL27.0MRT
	4CPXL34.5ERK
	4CPXL58.6ERK
	4CPXL78.1ERK
CNH Engine Corp.	4X9XL0239AAC
	4X9XL0359AAK
	4X9XL0359ABE
	4X9XL0505AAB
	4X9XL0505ABD
Cummins	4CEXL015.AAB
	4CEXL015.ABA
	4CEXL023.AAA
	4CEXL0239AAD
	4CEXL0239AAF
	4CEXL0239AAG
	4CEXL0275AAB
	4CEXL0275AAC
	4CEXL0275AAF
	4CEXL03.3ABA
	4CEXL03.3ABB
	4CEXL030.ABA
	4CEXL0359AAB
	4CEXL0359AAC
	4CEXL0359AAD
	4CEXL0359AAE
	4CEXL0359AAF
	4CEXL0359AAH
	4CEXL0359ABC
	4CEXL0359ABE
	4CEXL050.ABA
	4CEXL0505ABD
	4CEXL0505ACB
	4CEXL060.ABA
	4CEXL0661AAD
	4CEXL078.AAB
	4CEXL2.28A41
	4CEXL2.28A42
L	

Manufacturer	Engine Families
Detroit Diesel	4DDXL08.5YJD
	4DDXL12.7VGD
	4DDXL14.0VLD
	4DDXL23.9WRE
	4DDXL31.8XRE
	4DDXL35.8GRP
	4DDXL65.0GTP
	4DDXL65.0XTE
	4DDXL90.0XTP
Deere	4JDXL03.0064
	4JDXL06.8038
	4JDXL06.8041
	4JDXL06.8048
	4JDXL06.8049
	4JDXL08.1037
Deutz AG	4DZXL03.1039
	4DZXL03.1040
	4DZXL03.1041
	4DZXL05.7033
	4DZXL06.1038
	4DZXL06.5036
	4DZXL06.5037
	4DZXL06.5042
	4DZXL06.5043
	4DZXL07.1032
	4DZXL15.9002
	4DZXL71.0021
Daewoo	4DWXL05.8COA
	4DWXL05.8CRN
	4DWXL08.1CPA
	4DWXL11.1BIA
	4DWXL11.1DJA
	4DWXL18.3ASC
	4DWXL2.37ANT
	4DWXL21.9AYA
Isuzu	4SZXL03.1GTB
	4SZXL06.5FXG
	4SZXL15.7ETA
	4SZXL15.7EXA

Model Year 2004 Engines Continued

Manufacturer **Engine Families** International Truck 4NVXL0530ANF 4VEXL05.9DGS lveco 4VEXL12.9GEN Kubota 4KBXL03.3ACD 4KBXL03.3BAC 4KBXL03.3BCC 4KBXL03.8ACD Komatsu 4KLXL0239AAD 4KLXL0239AAF 4KLXL0239ADA 4KLXL0275AAC 4KLXL03.3JA3 4KLXL03.3JB3 4KLXL03.3JD3 4KLXL0359AAB 4KLXL0359AAE 4KLXL0359ABC 4KLXL0505ABD 4KLXL11.0DD3 4KLXL15.2EC3 4KLXL23.2FD4 4KLXL30.5GC1 4KLXL30.5GD1 MACK Trucks 4MKXL11.9P69 4MKXL11.9P72 MOTORENFABRIK HATZ 4HZXL3.43C42 4HZXL3.43V42 Mitsubishi Heavy Ind. 4MVXL05.0AAA 4MVXL05.0AAD 4MVXL24.5AAB 4MVXL24.5ABA 4MVXL24.5ABB 4MVXL24.5ABD 4MVXL24.5ABE 4MVXL33.9ABB 4MVXL33.9ABE 4MVXL37.1ABB 4MVXL37.1ABC 4MVXL37.1ABD 4MVXL49.0ABA 4MVXL49.0ABB

Manufacturer	Engine Families
Mitsubishi Heavy	
Ind (continued)	4MVXL49.0ABC
	4MVXL49.0ABD
	4MVXL49.0ABE
	4MVXL65.4ABA
	4MVXL65.4ABB
	4MVXL65.4ABC
	4MVXL65.4ABD
	4MVXL65.4ABE
	4MVXL65.4ABF
	4MVXL65.4ABG
	4MVXL65.4ABH
MTU	4MTUL21.9R2A
Nissan Diesel	4NDXL03.0FTA
AB Volvo Penta	4VPXL07.3ACB
	4VPXL09.4ACA
	4VPXL09.4ACB
	4VPXL09.4ACC
	4VPXL09.6ACB
	4VPXL09.6ACC
	4VPXL12.1ABA
	4VPXL12.1ACA
	4VPXL12.1ACB
Yanmar	4YDXL3.05M4N
	4YDXL3.32J4N
	4YDXL3.32J4T
	4YDXL3.32K4N
	4YDXL3.32K4T
	4YDXL4.41K4T
Perkins	4PKXL15.8H16
Scania AB	4Y9XL11.7BBG
	4Y9XL15.6BDA

Model Year 2005 Engines

Manufacturer	Engine Families
Caterpillar	5CPXL15.2ESK
•	5CPXL15.8ERK
	5CPXL18.0ESK
	5CPXL27.0MRS
	5CPXL27.0MRT
	5CPXL34.5ERK
	5CPXL58.6ERK
	5CPXL78.1ERK
CNH Engine Corp.	5X9XL0239AAC
	5X9XL0359AAK
	5X9XL0359ABE
	5X9XL0505AAB
	5X9XL0505ABD
	5X9XL0540AAB
Cummins	5CEXL015.AAB
Garrinino	5CEXL015.ABA
	5CEXL019.AAB
	5CEXL023.AAA
	5CEXL0239AAD
	5CEXL0239AAF
	5CEXL0239AAG
	5CEXL0275AAB
	5CEXL0275AAC
	5CEXL0275AAF
	5CEXL03.3ABA
	5CEXL03.3ABB
	5CEXL030.ABA
	5CEXL0359AAB
	5CEXL0359AAC
	5CEXL0359AAC
	5CEXL0359AAD
	5CEXL0359AAE
	5CEXL0359AAF
	5CEXL0359AATI
	5CEXL0359ABC
	5CEXL0339ABE
	5CEXL0409AAC
	5CEXL0409AAC
	5CEXL0505AAE
	5CEXL0505ABD
	5CEXL0505ACB

Manufacturer	Engine Families
Cummins	5CEXL0540AAB
	5CEXL060.ABA
	5CEXL078.AAB
	5CEXL2.28A41
	5CEXL2.28A42
Detroit Diesel	
Corporation	5DDXL08.5YJD
	5DDXL15.9WRE
	5DDXL31.8XRR
	5DDXL35.8GRP
	5DDXL65.0GTE
	5DDXL65.0GTP
	5DDXL65.0XTE
	5DDXL90.0XTP
Deere	5JDXL04.5083
	5JDXL06.8038
	5JDXL06.8041
	5JDXL06.8048
	5JDXL06.8049
	5JDXL06.8078
	5JDXL06.8101
	5JDXL08.1037
	5JDXL08.1059
	5JDXL09.0102
Deutz	5DZXL03.1039
	5DZXL03.1040
	5DZXL05.7033
	5DZXL06.1038
	5DZXL06.5036
	5DZXL06.5037
	5DZXL06.5042
	5DZXL06.5043
	5DZXL07.1032
	5DZXL15.9002
	5DZXL71.0021
Daewoo Heavy Ind.	5DWXL08.1CPA
	5DWXL18.3ASC
	5DWXL21.9AYA
MotorenFabrik HATZ GMBH	5HZXL3.43C42

Model Year 2005 Engines (Continued)

Manufacturer	Engine Families
Isuzu	5SZXL03.1GTB
	5SZXL04.3GTG
	5SZXL06.5FXG
	5SZXL09.8EXA
	5SZXL15.7ETA
	5SZXL15.7EXA
Iveco	5VEXL05.9DGS
	5VEXL06.7DGA
	5VEXL12.9GEN
Komatsu	5KLXL0239AAD
	5KLXL0239AAF
	5KLXL0239ADA
	5KLXL0275AAC
	5KLXL03.3JA3
	5KLXL03.3JB3
	5KLXL03.3JD3
	5KLXL0359AAB
	5KLXL0359AAE
	5KLXL0359AAL
	5KLXL0359ABC
	5KLXL0409AAB
	5KLXL0409AAC
	5KLXL0505ABD
Komatsu	5KLXL23.2FD4
	5KLXL30.5GC1
	5KLXL30.5GD1
Kuboto	5KBXL03.3BAC
	5KBXL03.3BCC
KUKJ	5KMCL2.28A41
	5KMCL2.28A42
Lombardini Motori	5LBDL2.19CHT
Mitsubishi Heavy	
Industries	5MVXL05.0AAA
	5MVXL05.0AAC
	5MVXL05.0AAD
	5MVXL24.5ABB
	5MVXL33.9ABB
	5MVXL37.1ABC
	5MVXL49.0ABD
	5MVXL65.4ABB
	5MVXL65.4ABH

Manufacturer	Engine Families
MITF	5MFTL07.5D6A
MTU-	5MTUL21.9R2A
Friedrichshafen	
Nissan Diesel	5NDXL02.7TNA
	5NDXL03.0FTA
AB Volvo Penta	5VPXL07.3ACB
	5VPXL09.4ACA
	5VPXL09.4ACB
	5VPXL09.4ACC
	5VPXL09.6ACB
	5VPXL12.1ABA
	5VPXL12.1ACA
	5VPXL12.1ACB
	5VPXL16.1ACB
	5VPXL16.1ACC
	5VPXL16.1ACD
	5VPXL16.1ACE
	5VPXL16.1ACF
Yanmar	5YDXL3.05M4N
	5YDXL3.32J4N
	5YDXL3.32J4T
	5YDXL3.32K4N
	5YDXL3.32K4T
	5YDXL4.41K4T

Manufacturer	Engine Families
AB Volvo Penta	6VPXL12.1BAA
	6VPXL16.1ACB
	6VPXL9.4BAA
Caterpillar	6CPXL15.2ESK
	6CPXL18.0ESK
	6CPXL18.1ESK
	6CPXL18.1ESL
	6CPXL32.0ESK
	6CPXL34.5E2T
	6CPXL34.5T2E
	6CPXL58.6E2T
	6CPXL58.6T2E
	6CPXL78.1E2T
	6CPXL78.1T2E
CNH Engine Corp.	6X9XL0239AAC
	6X9XL0359AAM
	6X9XL0359ABE
	6X9XL0505ABD
	6X9XL0540AAB
Cummins	6CEXK0505AAE
	6CEXL015.AAB
	6CEXL019.AAB
	6CEXL019.AAC
	6CEXL023.AAA
	6CEXL0239AAD
	6CEXL0239AAF
	6CEXL0239AAG
	6CEXL0275AAB
	6CEXL0275AAC
	6CEXL0275AAG
	6CEXL0275AAH
	6CEXL030.AAB
	6CEXL030.AAD
	6CEXL030.ABA
	6CEXL03.3ABC
	6CEXL0359AAB
	6CEXL0359AAC
	6CEXL0359AAD
	6CEXL0359AAF
	6KLXL0359AAL
	6CEXL0359AAN
	6CEXL0359ABC
	6CEXL0359ABE

Manufacturer	Engine Families
Cummins (cont.)	6CEXL0409AAB
	6CEXL0409AAC
	6CEXL050.AAD
	6CEXL050.ABA
	6CEXL0505ABD
	6CEXL0540AAB
	6CEXL060.AAD
	6CEXL078.AAB
DAIMLERCHRYSLER	6MBXL7.20RJA
	6MBXL12.8RJB
Deere	6JDXL03.0064
	6JDXL04.5057
	6JDXL04.5083
	6JDXL06.8001
	6JDXL06.8004
	6JDXL06.8006
	6JDXL06.8038
	6JDXL06.8041
	6JDXL06.8048
	6JDXL06.8049
	6JDXL06.8078
	6JDXL08.1037
	6JDXL09.0102
	6JDXL12.5035
	6JDXL12.5073
	6JDXL13.5103
Detroit Diesel	
Corporation	6DDXL14.0VLD
	6DDXL31.8XRR
Deutz	6DZXL06.1038
	6DZXL06.1028
	6DZXL05.7033
	6DZXL06.5036
	6DZXL06.5037
	6DZXL06.5042
	6DZXL03.1066
	6DZXL03.1039
	6DZXL03.1040
Isuzu	6SZXL04.3GTG
	6SZXL06.5FXG
	6SZXL05.2HXA
	6SZXL05.2IXA
	6SZXL07.8HXA
	6SZXL15.7HXA

Manufacturer	Engine Families
IVECO	6VEXL04.5DGT
	6VEXL04.5DGN
	6VEXL06.7DGA
	6VEXL06.7DGB
	6VEXL06.7DGS
Komatsu	6KLXL0239AAD
	6KLXL0239AAF
	6KLXL0239ADA
	6KLXL0275AAC
	6KLXL0275AAG
	6KLXL0275AAH
	6KLXL03.3JD3
	6KLXL0359AAB
	6KLXL0359AAE
	6KLXL0359AAL
	6KLXL0359ABC
	6KLXL0409AAB
	6KLXL0409AAC
	6KLXL0505ABD
Kubota	6KBXL03.3CCD
Mitsubishi Fuso	
Truck & Bus Corp	6MFTL05.8D3A
Mitsubishi Heavy	
Industries	6MVXL05.0AAA
	6MVXL05.0AAD
	6MVXL05.0DDD
	6MVXL06.4DDD
	6MVXL06.4EEE
MotorenFabrik	
HATZ GMBH	6HZXL3.43C42
	6HZXL3.43V42
Nissan	6NDXL03.0FTA
VMMI	6V5XL04.2G5V
Yanmar	6YDXL3.32J4T
	6YDXL3.32K4T
	6YDXL4.41K4T

Manufacturer	Engine Families
AB Volvo Penta	7VPXL09.4BAA
	7VPXL12.1BAA
	7VPXL16.1ACB
Caterpillar	7CPXL07.2ESL
- 1	7CPXL08.8ESK
	7CPXL11.1ESK
	7CPXL12.5ESK
	7CPXL15.2ESK
	7CPXL15.2ESL
	7CPXL18.1ESK
	7CPXL18.1ESL
	7CPXL27.0ESK
	7CPXL32.0ESK
	7CPXL51.8E2W
	7CPXL78.1ERK
	7CPXL34.5T2E
	7CPXL58.6T2E
	7CPXL78.1T2E
CNH Engine Corp.	7X9XL0505AAE
J - 1	7X9XL0540AAB
	7X9XL0239AAB
	7NHXL04.5DAA
	7NHXL04.5DCA
	7NHXL06.7DAA
	7NHXL06.7DCA
	7NHXL06.7DCB
	7NHXL06.7DTA
	7NHXL06.7DTC
Cummins	7CEXL015.AAA
	7CEXL015.AAB
	7CEXL015.AAE
	7CEXL019.AAD
	7CEXL023.AAA
	7CEXL0239AAG
	7CEXL0275AAC
	7CEXL0275AAG
	7CEXL0275AAH
	7CEXL03.3ABA
	7CEXL03.3ABB
	7CEXL03.3ACA
	7CEXL03.3ACB
	7CEXL030.AAB
	7CEXL030.AAD
	7CEXL030.AAD

Manufacturer	Engine Families
Cummins (cont.)	7CEXL030.ABA
	7CEXL038.AAA
	7CEXL0409AAB
	7CEXL0409AAC
	7CEXL045.AAA
	7CEXL050.AAC
	7CEXL050.AAD
	7CEXL050.ABA
	7CEXL0505AAE
	7CEXL0540AAB
	7CEXL060.AAB
	7CEXL060.AAD
	7CEXL0661AAF
	7CEXL0661AAG
	7CEXL0661AAH
	7CEXL0661AAJ
	7CEXL078.AAA
	7CEXL078.AAB
DAIMLERCHRYSLER	7MBXL12.8RJB
	7MBXL15.9RJA
Deere	7JDXL03.0064
	7JDXL04.5075
	7JDXL04.5076
	7JDXL04.5081
	7JDXL04.5083
	7JDXL06.8038
	7JDXL06.8039
	7JDXL06.8041
	7JDXL06.8044
	7JDXL06.8048
	7JDXL06.8049
	7JDXL06.8078
	7JDXL06.8080
	7JDXL06.8084
	7JDXL06.8101
	7JDXL06.8104
	7JDXL06.8105
	7JDXL06.8106
	7JDXL08.1037
	7JDXL09.0102
	7JDXL12.5035
	7JDXL12.5073
	7JDXL13.5103

Model Year 2007 Engines (Continued)

Manufacturer	Engine Families
Detroit Diesel	
Corporation	7DDXL14.0VLD
	7DDXL14.0WLD
Deutz	7DZXL03.1039
	7DZXL03.1040
	7DZXL03.1066
	7DZXL06.1038
	7DZXL06.1059
	7DZXL06.1060
	7DZXL06.1061
	7DZXL06.1063
	7DZXL06.5042
	7DZXL06.5043
	7DZXL07.1051
	7DZXL07.1053
	7DZXL07.1055
	7DZXL15.9065
Doosan Infracore	7DWXL05.8CRN
	7DWXL05.8UTA
	7DWXL07.6UPA
	7DWXL11.0UJA
	7DWXL21.9UYA
GNH UK LTD	7NHXL06.7DCC
Hino Motors	7HMXL05.1JTA
	7HMXL07.7JTM
	7HMXL10.5PUN
Ishikawajima-	
Shibaura Machinery	7H3XL2.22N4L
Isuzu	7SZXL03.0IXA
	7SZXL03.1GNA
	7SZXL03.1GNB
	7SZXL03.1GTB
	7SZXL04.3GTG
	7SZXL04.3GXA
	7SZXL05.2HXA
	7SZXL05.2IXA
	7SZXL07.8HXA
	7SZXL07.8HXB
	7SZXL09.8HXA
	7SZXL15.7HXA
	7SZXL15.7HXB

Manufacturer	Engine Families
IVECO	7VEXL03.9B1Z
	7VEXL04.5DAA
	7VEXL04.5DGN
	7VEXL04.5DGT
	7VEXL06.7DAA
	7VEXL06.7DCA
	7VEXL06.7DCB
	7VEXL06.7DCC
	7VEXL06.7DGB
	7VEXL06.7DGS
	7VEXL06.7DTA
	7VEXL06.7DTC
	7VEXL08.7TR3
	7VEXL10.3MLR
	7VEXL12.9IGR
	7VEXL12.9MLR
	7VEXL12.9TR3
	7VEXL20.1DSL
Komatsu	7KLXL0239ADA
	7KLXL0275AAC
	7KLXL0275AAG
	7KLXL0275AAH
	7KLXL03.3JA3
	7KLXL03.3JB3
	7KLXL03.3JD3
	7KLXL03.3JD6
	7KLXL03.3JD7
	7KLXL0359AAE
	7KLXL038.AAA
	7KLXL0409AAB
	7KLXL0409AAC
	7KLXL045.AAA
	7KLXL050.AAC
	7KLXL0505AAE
	7KLXL060.AAB
	7KLXL078.AAA
	7klxl11.0DD6
	7KLXL11.0DD6
	7KLXL15.2ED6
	7klxl15.2ED6
	7KLXL15.2ED7
	7KLXL23.2FD6
	7KLXL30.5GD3

Model Year 2007 Engines (Continued)

Manufacturer	Engine Families
Kubota	7KBXL02.0FAD
	7KBXL02.4HCD
	7KBXL03.3BAC
	7KBXL03.3BAD
	7KBXL03.3BBD
	7KBXL03.3BCC
	7KBXL03.3BCD
	7KBXL03.3CCD
	7KBXL03.8AHD
Lombardini S.R.L.	7LBDL2.19CHT
MAHINDRA &	
MAHINDRA LTD.,	7MMLL03.1NEF
	7MMLL03.2NEF
	7MMLL03.2NET
	7MMLL03.4NEF
	7MMLL03.5NEF
Mitsubishi Fuso	
Truck & Bus Corp	7MFTL02.8M4A
•	7MFTL04.9M5A
	7MFTL07.5M6A
	7MFTL12.9M7A
Mitsubishi Heavy	
Industries	7MVXL05.0AAA
	7MVXL05.0AAC
	7MVXL05.0AAD
	7MVXL06.4FFF
	7MVXL24.5BBA
	7MVXL33.9BBA
	7MVXL37.1BBA
	7MVXL49.0BBA
	7MVXL65.4BBA
MotorenFabrik	
HATZ GMBH	7HZXL2.57C41
	7HZXL3.43C42
	7HZXL3.43V42
MTU Detroit Diesel,	
Inc.	7MDDL31.8XRR
	7MDDL95.4XTR
Nissan	7NDXL02.7TNA
	7NDXL03.0FTA
	7NDXL03.2TNA

Manufacturer	Engine Families
Perkins Engines	7PKXL03.3DD1
	7PKXL04.4NH1
	7PKXL04.4RE1
	7PKXL06.6PJ1
	7PKXL06.6PJ2
	7PKXL15.2TA2
	7PKXL15.2TAG
	7PKXL18.1TAG
SCANIA CV AB	7Y9XL11.7BBA
	7Y9XL11.7BBB
	7Y9XL15.6BDE
Shandong Weichai	
Huafeng Power	7SDWL4.33BBB
	7SDWL7.52AAA
Sisu Diesel	7SIDL03.3G4A
	7SIDL04.4J2A
	7SIDL07.4G4D
	7SIDL07.4G4E
	7SIDL07.4G5B
	7SIDL07.4G5C
	7SIDL08.4H5B
Volvo Construction	
Equipment AB	7VSXL09.4CE3
	7VSXL12.1CE3
	7VSXL16.1CE3
Yanmar	7YDXL3.05M4N
	7YDXL3.05P4N
	7YDXL3.32J4N
	7YDXL3.32J4T
	7YDXL3.32K4T
	7YDXL3.32P4N
	7YDXL4.41K4T

Model Year 2008 Engines

Manufacturer	Engine Families
AB Volvo Penta	8VPXL09.4BAA
	8VPXL12.1BAA
	8VPXL12.8BCA
	8VPXL16.1ACB
	8VPXL16.1ACW
Caterpillar	8CPXL07.2ESL
	8CPXL08.8ESK
	8CPXL106.T2E
	8CPXL11.1ESK
	8CPXL12.5ESK
	8CPXL15.2ELW
	8CPXL15.2ESW
	8CPXL18.1ESK
	8CPXL18.1ESW
	8CPXL18.1ESX
	8CPXL27.0ESK
	8CPXL27.0ESW
	8CPXL27.0ESX
	8CPXL32.0ESW
	8CPXL32.0ESX
	8CPXL34.5E2W
	8CPXL34.5T2E
	8CPXL51.8E2W
	8CPXL58.6T2E
	8CPXL58.6T2X
	8CPXL78.1E2W
	8CPXL78.1T2E
CNH Engine	8X9XL0540AAB
CNH UK LTD	8NHXL04.5DAA
	8NHXL04.5DAB
	8NHXL04.5DCA
	8NHXL04.5DCB
	8NHXL06.7DAA
	8NHXL06.7DCA
	8NHXL06.7DCB
	8NHXL06.7DCC

Manufacturer	Engine Families
Cummins	8CEXL015.AAA
	8CEXL015.AAB
	8CEXL015.AAE
	8CEXL015.AAH
	8CEXL015.AAJ
	8CEXL019.AAD
	8CEXL023.AAA
	8CEXL023.AAB
	8CEXL023.AAC
	8CEXL0275AAG
	8CEXL0275AAH
	8CEXL0275AAK
	8CEXL03.3ACA
	8CEXL03.3ACB
	8CEXL03.3ACD
	8CEXL03.3ACE
	8CEXL030.AAB
	8CEXL030.AAD
	8CEXL030.ABA
	8CEXL0409AAB
	8CEXL0409AAC
	8CEXL0409AAD
	8CEXL045.AAA
	8CEXL050.AAA
	8CEXL050.AAC
	8CEXL050.AAD
	8CEXL050.ABA
	8CEXL0505AAE
	8CEXL0540AAB
	8CEXL060.AAB
	8CEXL060.AAD
	8CEXL0661AAF
	8CEXL0661AAG
	8CEXL0661AAH
	8CEXL0661AAJ
	8CEXL078.AAA
	8CEXL078.AAB
	8CEXL2.28A41

Model Year 2008 Engines (Continued)

Manufacturer	Engine Families
DAIMLERCHRYSLER	8MBXL07.2RJA
	8MBXL12.8RJB
	8MBXL15.9RJA
Detroit Diesel	8DDXL14.0VLD
Deutz	8DZXL02.3099
	8DZXL02.7096
	8DZXL03.2088
	8DZXL03.6081
	8DZXL03.6082
	8DZXL03.6084
	8DZXL03.6086
	8DZXL03.6097
	8DZXL03.6098
	8DZXL04.1069
	8DZXL04.1070
	8DZXL04.1076
	8DZXL04.1078
	8DZXL04.1079
	8DZXL04.1080
	8DZXL04.8064
	8DZXL04.8068
	8DZXL04.8071
	8DZXL05.4087
	8DZXL06.1057
	8DZXL06.1059
	8DZXL06.1060
	8DZXL06.1061
	8DZXL06.1063
	8DZXL06.1067
	8DZXL06.1077
	8DZXL06.5074
	8DZXL06.5075
	8DZXL07.1051
	8DZXL07.1053
	8DZXL07.1055
	8DZXL07.1056
	8DZXL15.9065
DOOSAN INFRACORE	8DWXL05.8UTA
	8DWXL07.6UPA
	8DWXL11.0UJA
	8DWXL21.9UYA
HINO MOTORS	8HMXL05.1JTA
DOOSAN INFRACORE HINO MOTORS	8DZXL07.1056 8DZXL15.9065 8DWXL05.8UTA 8DWXL07.6UPA 8DWXL11.0UJA 8DWXL21.9UYA

Manufacturer	Engine Families
Ishikawajima	8H3XL2.00N4T
isiikawajiila	8H3XL2.22N4L
	8H3XL2.22N4T
louzu	8SZXL02.2UTA
Isuzu	8SZXL02.2UXA
	8SZXL03.0IXA
	8SZXL03.0JTA
	8SZXL03.0JXA
	8SZXL03.0JXB
	8SZXL03.0UTB
	8SZXL05.2HXA
	8SZXL05.2IXA
	8SZXL05.2IXB
	8SZXL07.8HXA
	8SZXL07.8HXB
	8SZXL09.8HXA
	8SZXL09.8HXB
	8SZXL15.7HXA
	8SZXL15.7HXB
IVECO	8VEXL03.2TAI
	8VEXL03.2TCE
	8VEXL03.2TCI
	8VEXL04.5DAA
	8VEXL04.5DAB
	8VEXL04.5DCA
	8VEXL04.5DCB
	8VEXL06.7DAA
	8VEXL06.7DCA
	8VEXL06.7DCB
	8VEXL06.7DCC
	8VEXL06.7DGB
	8VEXL06.7DGS
	8VEXL08.7TR3
	8VEXL10.3MLR
	8VEXL10.3TR3
	8VEXL12.9IGR
	8VEXL12.9MLR
	8VEXL12.9TCD
	8VEXL20.1DSL
JCB Power Systems	
, 1121 3 j 212.110	8JCBL04.4TA8
	8JCBL04.4TAE
	8JCBL04.4TC6
	000DE01.7100

Model Year 2008 Engines (Continued)

Engine Families
8JDXL03.0064
8JDXL03.0208
8JDXL04.5075
8JDXL04.5083
8JDXL04.5107
8JDXL06.8038
8JDXL06.8039
8JDXL06.8041
8JDXL06.8049
8JDXL06.8078
8JDXL06.8080
8JDXL06.8101
8JDXL06.8104
8JDXL06.8105
8JDXL06.8106
8JDXL08.1037
8JDXL09.0102
8JDXL09.0114
8JDXL12.5035
8JDXL13.5103
8KLXL0275AAG
8KLXL0275AAH
8KLXL03.3JA6
8KLXL03.3JB6
8KLXL03.3JD6
8KLXL03.3JD7
8KLXL03.3JD9
8KLXL0409AAB
8KLXL0409AAC
8KLXL050.AAA
8KLXL050.AAC
8KLXL0505AAE
8KLXL060.AAA
8KLXL060.AAB
8KLXL078.AAA
8KLXL11.0DD6
8KLXL15.2ED6
8KLXL15.2ED7
8KLXL23.2FD5
8KLXL23.2FD6
8KLXL23.2FD7
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Manufacturer	Engine Families
Kubota	8KBXL02.4FAD
	8KBXL02.4HAD
	8KBXL02.6EAD
	8KBXL03.3CAD
	8KBXL03.6BAC
	8KBXL03.6BAD
	8KBXL03.6BCD
	8KBXL03.6DAD
	8KBXL03.8AAC
	8KBXL03.8AGD
Kukje Machinery	8KMCL2.28A41
M/S. SIMPSON & C.	8SCLL02.7V50
Liebherr Machines	8LHAL10.5LPA
	8LHAL10.5LPE
	8LHAL12.0KPA
	8LHAL12.8RMC
	8LHAL24.2VCE
	8LHAL9.54SPA
Liebherr Werk	8LHAL21.9VMR
Mitsubishi	8MVXL02.5HHH
	8MVXL03.3AAC
	8MVXL04.2BBB
	8MVXL04.2CCC
	8MVXL05.0AAD
	8MVXL05.0AAG
	8MVXL06.4FFF
	8MVXL24.5BBA
	8MVXL33.9BBA
	8MVXL37.1BBA
	8MVXL49.0BBA
	8MVXL65.4BBA
MAHINDRA & MAHINDRA	8MMLL02.5N52
	8MMLL02.5N57
	8MMLL02.5N59
	8MMLL02.5N62
	8MMLL02.5N64
	8MMLL02.7M30
	8MMLL03.3N75
	8MMLL03.3N79

Manufacturer	Engine Families
MOTORENFABRIK	8HZXL3.43C42
	8HZXL3.43V42
MTU DETROIT DIESEL,	8MDDL31.8XRR
	8MDDL35.8GRR
	8MDDL95.4XTR
NISSAN DIESEL	8NDXL03.2TNA
	8NDXL04.2TNA
Perkins Engines	8PKXL04.4NH1
	8PKXL04.4NJ1
	8PKXL04.4NJ2
	8PKXL04.4NM1
	8PKXL04.4RG3
	8PKXL06.6PJ1
	8PKXL06.6PJ2
	8PKXL15.2TA2
	8PKXL15.2TAG
	8PKXL18.1TAG
Scania	8Y9XL11.7BBA
	8Y9XL11.7BBB
	8Y9XL15.6BDE
Volvo	8VSXL09.4CE3
	8VSXL12.1CE3
	8VSXL16.1CE3
Yanmar	8YDXL2.00N4T
	8YDXL3.32C4N
	8YDXL3.32C4T
	8YDXL3.32R4N
	8YDXL3.32M4N
	8YDXL3.32M4T

Manufacturer	Engine Families
AB Volvo Penta	9VPXL09.4BAA
	9VPXL12.1BAA
	9VPXL12.8BCA
	9VPXL16.1ACB
	9VPXL16.1ACW
	9VPXL16.1BEA
	9VSXL09.4CE3
	9VSXL12.1CE3
	9VSXL16.1CE3
Caterpillar	9CPXL07.2ESL
Gatorpinal	9CPXL08.8ESK
	9CPXL106.T2E
	9CPXL11.1ESK
	9CPXL12.5ESK
	9CPXL12.5ESX
	9CPXL14.2ELW
	9CPXL15.2ESW
	9CPXL18.1ESK
	9CPXL18.1ESW
	9CPXL18.1ESX
	9CPXL27.0ESK
	9CPXL27.0ESW
	9CPXL27.0ESX
	9CPXL27.0ESX
	9CPXL32.0ESP
	9CPXL32.0ESW
	9CPXL32.0ESX
	9CPXL34.5T2C
	9CPXL34.5T2E
	9CPXL58.6T2E
	9CPXL58.6T2X
	9CPXL58.6T2Y
	9CPXL78.1E2W
	9CPXL78.1T2E
CNH UK LTD	9NHXL04.5DAA
	9NHXL04.5DAB
	9NHXL04.5DCA
	9NHXL04.5DCB
	9NHXL06.7DAA
	9NHXL06.7DCA
	9NHXL06.7DCB
	9NHXL06.7DCC
	JUNITALUU.1 DUU

Manufacturer	Engine Families
Cummins	9CEXL015.AAA
	9CEXL015.AAE
	9CEXL015.AAH
	9CEXL015.AAJ
	9CEXL019.AAD
	9CEXL023.AAA
	9CEXL023.AAB
	9CEXL023.AAC
	9CEXL0275AAG
	9CEXL0275AAH
	9CEXL0275AAK
	9CEXL03.3ACA
	9CEXL03.3ACB
	9CEXL03.3ACD
	9CEXL03.ACE
	9CEXL030.AAB
	9CEXL030.AAD
	9CEXL030.ABA
	9CEXL0409AAB
	9CEXL0409AAC
	9CEXL0409AAD
	9CEXL045.AAA
	9CEXL050.AAA
	9CEXL050.AAC
	9CEXL050.AAD
	9CEXL050.AAF
	9CEXL050.ABA
	9CEXL0505AAE
	9CEXL0540AAB
	9CEXL0540AAD
	9CEXL060.AAB
	9CEXL060.AAD
	9CEXL0661AAF
	9CEXL0661AAG
	9CEXL0661AAH
	9CEXL0661AAJ
	9CEXL078.AAA
	9CEXL2.28A41
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Model Year 2009 Engines (Continued)

Engine Families Manufacturer **Detroit Diesel** 9DDXL14.DVLD Deutz 9DXZL04.8071 9DZL04.8073 9DZXL02.3048 9DZXL02.3099 9DZXL02.7096 9DZXL03.2088 9DZXL03.6081 9DZXL03.6082 9DZXL03.6084 9DZXL03.6086 9DZXL03.6097 9DZXL03.6098 9DZXL04.1069 9DZXL04.1070 9DZXL04.1072 9DZXL04.1076 9DZXL04.1078 9DZXL04.1079 9DZXL04.1080 9DZXL04.8064 9DZXL04.8068 9DZXL06.1057 9DZXL06.1059 9DZXL06.1060 9DZXL06.1061 9DZXL06.1063 9DZXL06.1067 9DZXL06.1077 9DZXL06.5074 9DZXL07.1051 9DZXL07.1053 9DZXL07.1055 9DZXL07.1056 9DZXL15.9065 DOOSAN INFRACORE |9DICL05.8UTA 9DICL07.6UPA 9DICL11.0UJA **HINO MOTORS** 9HMXL04.0NUA 9HMXL05.1JTA 9HMXL07.7JTM 9HMXL10.5PUN 9HMXL10.5PUP

9HXML12.9EUV

Manufacturer	Engine Families
Isuzu	9SZXL02.2UXA
	9SZXL03.0IXA
	9SZXL03.0JTA
	9SZXL03.0JXA
	9SZXL03.0JXB
	9SZXL03.0UTB
	9SZXL05.2HXA
	9SZXL05.2IXA
	9SZXL05.2IXB
	9SZXL07.8HXA
	9SZXL07.8HXB
	9SZXL09,8HXA
	9SZXL09.8HXB
	9SZXL15.7HXA
	9SZXL15.7HXB
IVECO	9VEXL03.2TCE
	9VEXL03.2TCI
	9VEXL04.4DCB
	9VEXL04.5DAA
	9VEXL04.5DAB
	9VEXL04.5DCA
	9VEXL06.7DAA
	9VEXL06.7DCA
	9VEXL06.7DCB
	9VEXL06.7DCC
	9VEXL06.7DGB
	9VEXL06.7DGS
	9VEXL08.7TR3
	9VEXL10.3MLR
	9VEXL10.3TR3
	9VEXL12.9IGR
	9VEXL12.9MLR
	9VEXL12.9TCD
	9VEXL20.1DSL
JCB Power Systems	9JCBL04.4TA7
<u>-</u>	9JCBL04.4TA8
	9JCBL04.4TAE
	9JCBL04.4TC6

Model Year 2009 Engines (Continued)

Manufacturer	Engine Families
John Deere Power	9JDXL03.0064
	9JDXL03.0113
	9JDXL03.0203
	9JDXL03.0208
	9JDXL04.5083
	9JDXL04.5107
	9JDXL06.8049
	9JDXL06.8080
	9JDXL06.8101
	9JDXL06.8104
	9JDXL06.8105
	9JDXL06.8106
	9JDXL08.1037
	9JDXL09.0102
	9JDXL09.0114
	9JDXL13.5103
Komatsu	9KLXL0275AAG
	9KLXL0275AAH
	9KLXL03.3JA6
	9KLXL03.3JB6
	9KLXL03.3JD6
	9KLXL03.3JD7
	9KLXL0409AAB
	9KLXL0409AAC
	9KLXL050.AAA
	9KLXL050.AAC
	9KLXL0505AAE
	9KLXL060.AAA
	9KLXL060.AAB
	9KLXL11.0DD6
	9KLXL15,2ED7
	9KLXL15.2ED6
	9KLXL23.2FD5
	9KLXL23.2FD6
	9KLXL23.2FD7
	9KLXL30.5GD3
	9XLXL03.3JD9

Manufacturer	Engine Families
Kubota	9KBXL02.4FAD
	9KBXL02.4HAD
	9KBXL02.6EAD
	9KBXL03.3CAD
	9KBXL03.6BAC
	9KBXL03.6BAD
	9KBXL03.6BCD
	9KBXL03.6DAD
	9KBXL03.8AAC
	9KBXL03.8AGD
	9KBXL03.8AHD
	9KBXL06.1AHD
Kukje Machinery	9KMCL2.28A41
Liebherr Machines	9LHAL10.5LPA
	9LHAL10.5LPE
	9LHAL12.0KPA
	9LHAL12/8RMC
	9LHAL24.2VCE
	9LHAL24.2VCI
LOMBARDINI MOTORI	9LBDL2.19CH2
Mitsubishi	9MFTL02.8M4B
	9MFTL04.9M5A
	9MFTL07.5M6A
	9MFTL12.9M7A
	9MVXL03.3AAC
	9MVXL03.3AAH
	9MVXL04.2BBB
	9MVXL04.2CCC
	9MVXL05.0AAD
	9MVXL06.4FFF
	9MVXL24.5BBA
	9MVXL33.9BBA
	9MVXL37.1BBA
	9MVXL49.0BBA
	9MVXL65.4BBA

Manufacturer	Engine Families
MOTORENFABRIK	9HZXL2.57C41
WOTOKENFADKIK	9HZXL2.57V41
	9HZXL3.43C42
	9HZXL3.43V42
MTU DETROIT DIESEL	
WITO DETITION DIEGLE	9MDDL35.8GRR
	9MDDL95.4XTR
NAVISTAR	9NVXL0466ANA
NISSAN DIESEL	9NDXL03.2TNA
	9NDXL04.2TNA
Perkins Engines	9PKXL04.4NJ1
	9PKXL04.4NJ2
	9PKXL04.4NM1
	9PKXL04.4NM2
	9PKXL04.4RG3
	9PKXL06.6PJ1
	9PKXL06.6PJ2
	9PKXL12.5TAG
	9PKXL15.2TAG
	9PKXL15.2TAG
	9PKXL18.1TAG
Scania	9Y9XL11.7BBA
	9Y9XL11.7BBB
	9Y9XL15.6BDE
TOYOTA	
INDUSTRIAL	9TALL02.51DZ
Yanmar	9YDXL2.00N4T
	9YDXL3.05K4N
	9YDXL3.32C4N
	9YDXL3.32C4T
	9YDXL3.32M4N
	9YDXL3.32M4T

Model Year 2010 Engines

Manufacturer	Engine Families
AB Volvo Penta	AVPXL16.1ACB
	AVPXL16.1ACG
	AVPXL16.1ACW
AGCO Sisu	ASIDL07.4G5C
CATERPILLAR	ACPXL07.2ESL
	ACPXL08.8ESK
	ACPXL08.8ESL
	ACPXL08.8ESX
	ACPXL10.3ESL
	ACPXL11.1ESK
	ACPXL12.5ESK
	ACPXL12.5ESX
	ACPXL14.6ESK
	ACPXL15.2ELW
	ACPXL15.2ESW
	ACPXL15.2ESX
	ACPXL18.1ESK
	ACPXL18.1ESW
	ACPXL18.1ESX
	ACPXL27.0ESK
	ACPXL27.0ESW
	ACPXL27.0ESX
	ACPXL32.0ESP
	ACPXL32.0ESW
	ACPXL32.0ESX
	ACPXL34.5T2C
	ACPXL34.5T2E
	ACPXL58.6T2E
	ACPXL58.6T2X
	ACPXL58.6T2Y
	ACPXL78.1E2W
	ACPXL78.1ERK
	ACPXL78.1T2E
	ACPXL78.1T2X
	ACPXL106.T2E
	ACPXL106.T2M

Manufacturer	Engine Families
CNH UK	ANHXL04.5DCB
Cummins	ACEXL2.28A41
	ACEXL03.3ACA
	ACEXL03.3ACB
	ACEXL03.3ACD
	ACEXL03.3ACE
	ACEXL03.3BAA
	ACEXL015.AAE
	ACEXL015.AAH
	ACEXL015.AAJ
	ACEXL019.AAD
	ACEXL023.AAA
	ACEXL023.AAB
	ACEXL023.AAC
	ACEXL030.AAB
	ACEXL030.AAD
	ACEXL030.ABA
	ACEXL045.AAA
	ACEXL050.AAA
	ACEXL050.AAC
	ACEXL050.AAD
	ACEXL050.AAF
	ACEXL050.ABA
	ACEXL060.AAB
	ACEXL060.AAD
	ACEXL060.AAE
	ACEXL078.AAA
	ACEXL078.AAE
	ACEXL0275AAG
	ACEXL0275AAH
	ACEXL0275AAK
	ACEXL0409AAB
	ACEXL0409AAC
	ACEXL0409AAD
	ACEXL0505AAE
	ACEXL0540AAB
	ACEXL0540AAC
	ACEXL0540AAD
	ACEXL0661AAF
	ACEXL0661AAG
	ACEXL0661AAJ

Model Year 2010 Engines (Continued)

Manufacturer	Engine Families
Daimler AG	AMBXL07.2RJA
	AMBXL12.8RJB
	AMBXL15.9RJA
Detroit Diesel	ADDXL14.0WLD
DEUTZ AG	ADZXL07.1052
Doosan Infracore	ADICL05.8UTA
	ADICL07.6UPA
	ADICL11.0UJA
	ADICL18.3USA
	ADICL21.9UYA
Hyundai	AHYXL03.9TDI
IHI Shibaura	AH3XL2.00N4T
	AH3XL2.22N4L
IVECO	AVEXL04.5DCB
	AVEXL06.7DGB
	AVEXL06.7DGS
	AVEXL08.7TR3
	AVEXL10.3MLR
	AVEXL10.3TR3
	AVEXL12.9IGR
	AVEXL12.9MLR
	AVEXL12.9TCD
	AVEXL20.1DSL
JCB	AJCBL04.4TA7
	AJCBL04.4TA8
	AJCBL04.4TAE
	AJCBL04.4TC6
John Deere	AJDXL03.0064
	AJDXL03.0113
	AJDXL03.0203
	AJDXL03.0206
	AJDXL03.0208
	AJDXL04.5083
	AJDXL04.5107
	AJDXL06.8049
	AJDXL06.8078
	AJDXL06.8080
	AJDXL06.8104
	AJDXL06.8105
	AJDXL06.8106
	AJDXL06.8117
	AJDXL08.1037
	AJDXL09.0114

Manufacturer	Engine Families
Komatsu	AKLXL0409AAB
	AKLXL050.AAC
	AKLXL0505AAE
	AKLXL060.AAB
	AKLXL0275AAG
	AKLXL0275AAH
	AKLXL03.3JA6
	AKLXL03.3JB6
	AKLXL03.3JD6
	AKLXL03.3JD7
	AKLXL03.3JD9
	AKLXL0409AAC
	AKLXL050.AAA
	AKLXL060.AAA
	AKLXL078.AAA
	AKLXL23.2FD5
	AKLXL23.2FD6
	AKLXL23.2FD7
	AKLXL30.5GD3
KUBOTA	AKBXL02.4HAD
	AKBXL03.6BCD
Kukje	AKMCL2.28A41
	AKMCL2.39A44
Liebherr	ALHAL10.5LPA
	ALHAL12.0KPA
	ALHAL24.2VCI
	ALHAL9.54SPA
Mitsubishi Fuso	AMFTL02.8M4B
Mitsubishi	AMVXL02.5HHH
	AMVXL03.3AAC
	AMVXL03.3AAE
	AMVXL03.3AAH
	AMVXL04.2BBB
	AMVXL04.2CCC
	AMVXL05.0AAD
	AMVXL05.0AAG
	AMVXL06.4FFF
	AMVXL24.5BBA
	AMVXL33.9BBA
	AMVXL37.1BBA
	AMVXL49.0BBA
	AMVXL65.4BBA
	AMVXL65.4BBB

Manufacturer	Engine Families
MTU Detroit Diesel	AMDDL21.0GWR
	AMDDL31.8XRR
	AMDDL35.8GRR
	AMDDL90.0GTP
	AMDDL95.4GTP
	AMDDL95.4XTR
Nissan Diesel	ANDXL02.7TNA
	ANDXL03.2TNA
	ANDXL04.2TNA
Perkins	APKXL04.4NJ1
	APKXL04.4NJ2
	APKXL04.4NM1
	APKXL04.4NM2
	APKXL04.4RG3
	APKXL06.6PJ1
	APKXL06.6PJ2
	APKXL12.5TAG
	APKXL15.2TA2
	APKXL15.2TAG
	APKXL18.1TAG
SCANIA	AY9XL11.7BBA
	AY9XL11.7BBB
	AY9XL15.6BDE
TOYOTA	ATALL02.51DZ
	ATALL03.503Z
	ATALL05.215Z
VM Motori	AV5XL04.5T60
Yanmar	AYDXL3.32R4N
Zhejiang Xinchai	AZHXL3.17AAA

Manufacturer	Engine Families
AB Volvo Penta	BVPXL16.1ACB
	BVPXL16.1ACG
	BVPXL16.1ACW
AGCO Sisu	BSIDL07.4G4E
	BSIDL07.4G5C
Caterpillar Inc.	BCPXL08.8NZS
•	BCPXL106.NZS
	BCPXL11.1ESK
	BCPXL12.5ESK
	BCPXL15.2ESW
	BCPXL15.2NYS
	BCPXL15.2NZS
	BCPXL18.1ESK
	BCPXL18.1NYS
	BCPXL18.1NZS
	BCPXL27.0NZS
	BCPXL32.0NZS
	BCPXL78.1NZS
CNH UK LTD	BNHXL04.5DCB
	BNHXL06.7DCA
	BNHXL06.7DCB
Cummins Inc.	BCEXL015.AAH
	BCEXL015.AAJ
	BCEXL023.AAB
	BCEXL0275AAG
	BCEXL0275AAH
	BCEXL0275AAK
	BCEXL03.3ACA
	BCEXL03.3ACB
	BCEXL03.3ACD
	BCEXL03.3ACE
	BCEXL030.AAD
	BCEXL0409AAB
	BCEXL0409AAC
	BCEXL0409AAD
	BCEXL050.AAC
	BCEXL050.AAD
	BCEXL0505AAE
	BCEXL0540AAB
	BCEXL060.AAB
	BCEXL060.AAD

Manufacturer	Engine Families
Daimler AG	BMBXL04.3RJA
Detroit Diesel	BDDXL14.0WLD
Doosan Infracore	BDICL05.8UTA
	BDICL18.3USA
	BDICL21.9UYA
Hyundai	BHYXL03.9TDI
IHI Shibaura	BH3XL2.00N4T
	BH3XL2.22N4L
Iseki Matsuyama	BICLL2.96D4H
	BICLL3.37D4H
	BICLL3.37D4I
IVECO S.p.A.	BVEXL03.2TAI
	BVEXL04.5DAA
	BVEXL04.5DAB
	BVEXL04.5DCA
	BVEXL04.5DCB
	BVEXL06.7DAA
	BVEXL06.7DCA
	BVEXL06.7DCB
	BVEXL06.7DCC
	BVEXL06.7DGB
	BVEXL06.7DGS
	BVEXL08.7TR3
	BVEXL10.3TR3
	BVEXL12.9IGR
JCB	BJCBL04.4TA7
	BJCBL04.4TA8
	BJCBL04.4TAE
	BJCBL04.4TC6
John Deere	BJDXL03.0064
	BJDXL03.0113
	BJDXL03.0203
	BJDXL03.0206
	BJDXL03.0208
	BJDXL04.5107
	BJDXL04.5130
	BJDXL06.8078
	BJDXL06.8104
	BJDXL06.8105
	BJDXL06.8106
	BJDXL06.8117
	BJDXL06.8120
	BJDXL09.0114
	BJDXL13.5132

Model Year 2011 Engines (Continued)

Manufacturer	Engine Families
Komatsu Ltd	BKLXL0275AAG
Komatsu Ltd	BKLXL0275AAH
Komatsu Ltd	BKLXL03.3JA6
Komatsu Ltd	BKLXL03.3JB6
Komatsu Ltd	BKLXL03.3JD6
Komatsu Ltd	BKLXL03.3JD7
Komatsu Ltd	BKLXL03.3JD9
Komatsu Ltd	BKLXL0409AAC
Komatsu Ltd	BKLXL050.AAC
Komatsu Ltd	BKLXL060.AAB
Komatsu Ltd	BKLXL23.2FD5
KUBOTA	BKBXL02.4HAD
KUBOTA	BKBXL03.6BCD
Kukje	BKMCL2.28A41
Kukje	BKMCL2.39A44
Kukje	BKMCL3.41D42
Mitsubishi	BMVXL02.5HHH
Mitsubishi	BMVXL03.3AAC
Mitsubishi	BMVXL03.3AAH
Mitsubishi	BMVXL04.2BBB
Mitsubishi	BMVXL04.2CCC
Mitsubishi	BMVXL05.0AAD
Mitsubishi	BMVXL05.0AAG
Mitsubishi	BMVXL06.4FFF
Mitsubishi	BMVXL24.5BBA
Mitsubishi	BMVXL33.9BBA
Mitsubishi	BMVXL37.1BBA
Mitsubishi	BMVXL49.0BBA
Mitsubishi	BMVXL65.4BBA
Mitsubishi	BMVXL65.4BBB
Mitsubishi Fuso	BMFTL02.8M4B
MTU Detroit Diesel	BMDDL14.0ZWK
MTU Detroit Diesel	BMDDL21.0ZWR
MTU Detroit Diesel	BMDDL31.8XRR
MTU Detroit Diesel	BMDDL35.8GRR
MTU Detroit Diesel	BMDDL95.4XTR

Manufacturer	Engine Families
Perkins	BPKXL04.4NJ1
Perkins	BPKXL04.4NJ2
Perkins	BPKXL04.4NM1
Perkins	BPKXL04.4NM2
Perkins	BPKXL04.4RG3
Perkins	BPKXL06.6PJ1
Perkins	BPKXL06.6PJ2
Perkins	BPKXL06.6PJ3
Perkins	BPKXL12.5TAG
Perkins	BPKXL15.2TA2
Perkins	BPKXL15.2TAG
Perkins	BPKXL18.1TAG
Simpson & Co	BSCLL02.7V58
Simpson & Co	BSCLL03.6V74
TOYOTA	BTALL02.51DZ
TOYOTA	BTALL05.215Z
UD Trucks	BNDXL02.7TNA
UD Trucks	BNDXL03.2TNA
UD Trucks	BNDXL04.2TNA
VM Motori	BV5XL04.5T60
Yanmar	BYDXL3.32R4N

Manufacturer	Engine Families
Caterpillar Inc.	CCPXL07.2ESJ
Outerpliidi iiio.	CCPXL08.8ESJ
	CCPXL08.8NZS
	CCPXL06.6NZS
	CCPXL106.N2S
	CCPXL11.1ESK
	CCPXL12.5ESJ
	CCPXL12.5ESK
	CCPXL15.2ESJ
	CCPXL15.2ESW
	CCPXL15.2HZA
	CCPXL15.2NYS
	CCPXL15.2NZS
	CCPXL18.1ESJ
	CCPXL18.1ESK
	CCPXL18.1HZA
	CCPXL18.1NYS
	CCPXL18.1NZS
	CCPXL27.0ESJ
	CCPXL27.0HYA
	CCPXL27.0HZA
	CCPXL27.0NZS
	CCPXL32.0HZA
	CCPXL32.0NZS
	CCPXL78.1NZS
Cummins Inc.	CCEXL15.0AAI
	CCEXL015.AAH
	CCEXL015.AAJ
	CCEXL019.AAD
	CCEXL023.AAB
	CCEXL0275AAG
	CCEXL0275AAH
	CCEXL0275AAK
	CCEXL03.3ACD
	CCEXL03.3ACE
	CCEXL030.AAD
	CCEXL0409AAB
	CCEXL0409AAB
	CCEXL0409AAC
	CCEXL050.AAD
	CCEXL0505AAE
	CCEXL0540AAB
	CCEXL060.AAD
	CCEXL0661AAH

Manufacturer	Engine Families
DAEDONG	CDCLL02.2D7T
B/ (EB O) (O	CDCLL02.4B7T
DEERE	CJDXL03.0113
BELIKE	CJDXL03.0203
	CJDXL03.0206
	CJDXL03.0208
	CJDXL04.5107
	CJDXL04.5119
	CJDXL04.5130
	CJDXL04.5130
	CJDXL04.5212
	CJDXL04.3212
	CJDXL06.8116
	CJDXL06.8117
	CJDXL06.8120
	CJDXL09.0114
	CJDXL09.0140
	CJDXL13.5103
	CJDXL13.5132
Detroit Diesel	CDDXL14.0VLD
	CDDXL14.0WLD
DEUTZ AG	CDZXL02.3099
	CDZXL02.7096
	CDZXL03.6081
	CDZXL03.6082
	CDZXL03.6084
	CDZXL03.6085
	CDZXL05.4087
Doosan Infracore	CDICL18.3USA
	CDICL21.9UYA
FPT INDUSTRIAL	CFPXL03.2SCE
	CFPXL03.2TAI
	CFPXL03.2TCI
	CFPXL06.7DGB
	CFPXL06.7DGS
	CFPXL08.7TR3
	CFPXL10.3TR3
	CFPXL12.9IGR
	0.17.212.01010

Model Year 2012 Engines (continued)

Manufacturer	Engine Families
ISEKI	CICLL2.96D4H
	CICLL3.37D4H
ISM	CH3XL2.00N4T
	CH3XL2.22N4L
ISUZU	CSZXL02.2UTA
	CSZXL02.2UXA
	CSZXL03.0UTA
	CSZXL03.0UTB
JCB POWER SYS	CJCBL04.4TC5
KOMATSU LTD.	CKLXL03.3JA6
	CKLXL03.3JB6
	CKLXL03.3JD9
	CKLXL23.2FD5
KUBOTA	CKBXL02.4FAD
	CKBXL02.4HAD
	CKBXL02.6EAD
	CKBXL03.3CAD
	CKBXL03.6BAC
	CKBXL03.6BCD
	CKBXL03.6DAD
	CKBXL03.8AAC
	CKBXL03.8CGD
KUKJE	CKMCL2.28A41
	CKMCL3.41D43
M&M	CMMLL02.5N52
	CMMLL02.5N59
	CMMLL02.5N62
	CMMLL02.5N64
MFTA	CMFTL02.8M4B
MITSUBISHI	CMVXL02.5HHH
	CMVXL03.3AAC
	CMVXL03.3AAH
	CMVXL05.0AAD
MOTORENFABRIK HATZ	CHZXL3.43C42
TIMIZ	CHZXL3.43V42
MTU DD	CMDDL14.0ZWK
IVITO DD	CMDDL14.02WR
	CMDDL31.8XRR
	CMDDL35.7XNC
	CMDDL35.7XNC
	CIVIDDE33.0GIXIX

Manufacturer	Engine Families
MTU DD (cont.)	CMDDL57.2XTC
	CMDDL95.4XTR
NISSAN DIESEL	CNDXL02.7TNA
	CNDXL03.2TNA
PERKINS	CPKXL04.4NH1
	CPKXL04.4NJ1
	CPKXL04.4NJ2
	CPKXL04.4NM1
	CPKXL04.4NM2
	CPKXL06.6PJ1
	CPKXL06.6PJ2
	CPKXL06.6PJ3
	CPKXL12.5TAG
	CPKXL15.2TA2
	CPKXL15.2TAG
	CPKXL18.1TAG
SIMPSON & CO	CSCLL02.7V58
	CSCLL03.6V74
TIEM	CTIEL02.51DZ
	CTIEL05.26CA
VOLKSWAGEN	CVWXL02.0CBJ
VPX	CVPXL09.4BAA
	CVPXL12.8BCA
	CVPXL16.1ACB
	CVPXL16.1ACG
	CVPXL16.1ACW
	CVPXL16.1ADA
	CVPXL16.1BDA
	CVPXL16.1BEA
YANGDONG	CYNDL2.55AAA
YANMAR	CYDXL2.00N4T
	CYDXL3.32C4N
	CYDXL3.32C4T
	CYDXL3.32F4T
	CYDXL3.32M4N
	CYDXL3.32R4N

Manufacturer	Engine Families
Caterpillar Inc.	DCPXL07.2ESJ
Caterplilai IIIC.	DCPXL08.8ESJ
	DCPXL08.8NZS
	DCPXL106.NZS
	DCPXL11.1ESJ
	DCPXL12.5ESJ
	DCPXL15.2NYS
	DCPXL15.2NZS
	DCPXL18.1ESJ
	DCPXL18.1NYS
	DCPXL18.1NZS
	DCPXL27.0NZS
	DCPXL32.0NZS
	DCPXL78.1NZS
Cummins Inc.	DCEXL015.AAH
	DCEXL015.AAJ
	DCEXL019.AAD
	DCEXL023.AAB
	DCEXL0275AAG
	DCEXL0275AAH
	DCEXL0275AAK
	DCEXL030.AAD
	DCEXL0409AAB
	DCEXL0409AAC
	DCEXL0409AAD
	DCEXL050.AAD
	DCEXL0505AAE
	DCEXL0540AAB
	DCEXL060.AAD
	DCEXL0661AAH
DEERE	DJDXL03.0208
DLLINL	DJDXL03.0208
	DJDXL04.5111
	DJDXL04.5130
	DJDXL04.5141
	DJDXL04.5212
	DJDXL04.5214
	DJDXL06.8104
	DJDXL06.8105
	DJDXL06.8106
	DJDXL06.8120
	DJDXL09.0114
	DJDXL13.5132

Manufacturer	Engine Families
DETROIT DIESEL	DDDXL14.0WLD
DOOSAN	DDICL18.3USA
	DDICL21.9UYA
FPT INDUSTRIAL	DFPXL04.5DTD
	DFPXL06.7DGB
	DFPXL06.7DGS
	DFPXL08.7TR3
	DFPXL10.3TR3
ISM	DH3XL2.22N4L
KOMATSU LTD.	DKLXL060.AAE
	DKLXL23.2FD5
KUKJE MACHINERY	DKMCL3.41D43
MITSUBISHI	DMVXL24.5BBA
	DMVXL33.9BBA
	DMVXL37.1BBA
	DMVXL49.0BBA
	DMVXL65.4BBA
	DMVXL65.4BBB
MTU DD	DMDDL14.0ZWK
	DMDDL21.0ZWR
	DMDDL31.8XRR
	DMDDL35.8GRR
	DMDDL95.4XTR
PERKINS	DPKXL04.4NH1
	DPKXL04.4NJ1
	DPKXL04.4NJ2
	DPKXL04.4NM1
	DPKXL04.4NM2
	DPKXL06.6PJ1
	DPKXL06.6PJ2
	DPKXL06.6PJ3
	DPKXL12.5TAG
	DPKXL15.2TA2
	DPKXL15.2TAG
	DPKXL18.1TAG
VPX	DVPXL16.1ACB
	DVPXL16.1ACG
	DVPXL16.1ACW

Model Year 2014 Engines

Cummins Inc.

DEERE

Engine Families ECPXL08.8NZS ECPXL106.NZS ECPXL12.5NYS

ECPXL15.2NYS ECPXL15.2NZS ECPXL18.1NYS ECPXL18.1NZS ECPXL27.0NZS ECPXL32.0NZS ECPXL78.1NZS ECEXL015.AAH

ECEXL015.AAJ ECEXL019.AAD ECEXL0275AAG ECEXL0275AAH ECEXL0275AAK ECEXL03.3ACF ECEXL03.3ACG ECEXL03.3ACH ECEXL03.3ACK ECEXL030.AAD ECEXL0409AAB ECEXL0409AAC ECEXL0409AAD ECEXL050.AAD ECEXL0505AAE ECEXL0540AAB ECEXL060.AAD ECEXL0661AAH ECEXL13.0AAA

EJDXL03.0208 EJDXL04.5119 EJDXL04.5130 EJDXL04.5141 EJDXL04.5212 EJDXL04.5214 EJDXL06.8105 EJDXL06.8120 EJDXL09.0114 EJDXL13.5132 EJDXL13.5146

Manufacturer Caterpillar Inc.

Manufacturer	Engine Families
DETROIT DIESEL	EDDXL14.0WLD
DOOSAN	EDICL18.3USA
	EDICL21.9UYA
FPT INDUSTRIAL	EFPXL08.7TR3
	EFPXL06.7DGS
	EFPXL10.3TR3
	EFPXL06.7DGB
ISM	EH3XL2.22CN3
	EH3XL2.22N4L
KOMATSU LTD.	EKLXL23.2FD5
	EKLXL060.AAE
KUKJE	EKMCL3.41D43
MACHINERY	
MITSUBISHI	EMVXL24.5BBA
	EMVXL33.9BBA
	EMVXL37.1BBA
	EMVXL49.0BBA
	EMVXL65.4BBA
	EMVXL65.4BBB
MTU DD	EMDDL14.0ZWK
	EMDDL21.0ZWR
	EMDDL31.8XRR
	EMDDL35.8GRR
	EMDDL95.4XTR
PERKINS	EPKXL04.4NH1
	EPKXL04.4NH3
	EPKXL04.4NJ1
	EPKXL04.4NJ2
	EPKXL04.4NJ3
	EPKXL04.4NM1
	EPKXL04.4NM2
	EPKXL06.6PJ1
	EPKXL06.6PJ2
	EPKXL07.0PW1
VPX	EVPXL16.1ACB
	EVPXL16.1ACG
	EVPXL16.1ACW

Model Year 2015 Engines

Engine Families Manufacturer Caterpillar Inc. FCPXL08.8NZS FCPXL106.NZS FCPXL12.5NYS FCPXL15.2NYS FCPXL15.2NZS FCPXL18.1NYS FCPXL18.1NZS FCPXL27.0NZS FCPXL32.0NZS FCPXL78.1NZS Cummins Inc. FCEXL015.AAH FCEXL015.AAJ FCEXL019.AAD FCEXL023.AAB FCEXL0275AAG FCEXL0275AAH FCEXL0275AAK FCEXL030.AAD FCEXL0409AAB FCEXL0409AAC FCEXL0409AAD FCEXL050.AAD FCEXL0505AAE FCEXL0540AAB FCEXL060.AAD FCEXL0661AAH FCEXL13.0AAA FCEXL95.0AAA DEERE FJDXL04.5119 FJDXL04.5141 FJDXL04.5212 FJDXL04.5214 FJDXL06.8120 FJDXL09.0114 FJDXL13.5132 FJDXL13.5146 **DETROIT DIESEL** FDDXL14.0WLD

Manufacturer	Engine Families
FPT INDUSTRIAL	FFPXL03.2TCI
	FFPXL04.5DCB
	FFPXL06.7DGB
	FFPXL06.7DGS
	FFPXL08.7TR3
	FFPXL10.3TR3
ISM	FH3XL2.22N4L
KOMATSU LTD.	FKLXL23.2FD5
KUKJE	FKMCL3.41D43
MACHINERY	
MERCEDES-	FMBXL07.2RJC
BENZ	
MITSUBISHI	FMVXL24.5BBA
	FMVXL33.9BBA
	FMVXL37.1BBA
	FMVXL49.0BBA
	FMVXL65.4BBA
MTU DD	FMDDL14.0ZWK
	FMDDL21.0ZWR
	FMDDL31.8XRR
	FMDDL35.8GRR
	FMDDL40.1GNR
	FMDDL95.4XTR
PERKINS	FPKXL04.4NH1
	FPKXL04.4NJ1
	FPKXL04.4NM1
	FPKXL04.4NM2
	FPKXL04.4NR2
	FPKXL06.6PJ1
	FPKXL06.6PJ2
	FPKXL07.0PW1
	FPKXL07.0PW2
VPX	FVPXL16.1ACB
	FVPXL16.1ACG
	FVPXL16.1ACW

Model Year 2016 Engines

Manufacturer	Engine Families
Caterpillar Inc.	GCPXL08.8NZS
	GCPXL106.NZS
	GCPXL12.5NYS
	GCPXL15.2NYS
	GCPXL15.2NZS
	GCPXL18.1NYS
	GCPXL18.1NZS
	GCPXL27.0NZS
	GCPXL32.0NZS
	GCPXL78.1NZS
Cummins Inc.	GCEXL015.AAH
	GCEXL015.AAJ
	GCEXL019.AAD
	GCEXL023.AAB
	GCEXL0275AAG
	GCEXL0275AAH
	GCEXL0275AAK
	GCEXL030.AAD
	GCEXL0409AAB
	GCEXL0409AAC
	GCEXL0409AAD
	GCEXL050.AAD
	GCEXL0505AAE
	GCEXL0540AAB
	GCEXL060.AAD
	GCEXL0661AAH
	GCEXL13.0AAA
	GCEXL95.0AAA
DEERE	GJDXL02.9142
	GJDXL04.5119
	GJDXL04.5141
	GJDXL04.5212
	GJDXL04.5214
	GJDXL06.8120
	GJDXL09.0114
	GJDXL13.5132
	GJDXL13.5146
DETROIT DIESEL	GDDXL14.0WLD
FPT INDUSTRIAL	GFPXL04.5DCB
	GFPXL06.7DGB
	GFPXL06.7DGS
	GFPXL08.7TR3
	GFPXL10.3TR3
	GFPXL12.9IGR

Manufacturer	Engine Families
ISM	GH3XL2.22N4L
KUBOTA.	GKBXL03.6BAC
KUKJE	GKMCL3.41D43
MACHINERY	
MERCEDES- BENZ	GMBXL07.2RJC
MITSUBISHI	GMVXL03.3AAJ
	GMVXL03.3CBA
	GMVXL24.5BBA
	GMVXL33.9BBA
	GMVXL37.1BBA
	GMVXL49.0BBA
	GMVXL65.4BBA
MTU DD	GMDDL14.0ZWK
	GMDDL21.0ZWR
	GMDDL31.8XRR
	GMDDL35.8GRR
	GMDDL40.1GNR
	GMDDL95.4GTR
PERKINS	GPKXL04.4NH1
	GPKXL04.4NJ1
	GPKXL04.4NM1
	GPKXL04.4NM2
	GPKXL04.4NR1
	GPKXL04.4NR2
	GPKXL06.6PJ1
	GPKXL06.6PJ2
	GPKXL07.0PW1
	GPKXL07.0PW2
VPX	GVPXL16.1ACB
	GVPXL16.1ACG
	GVPXL16.1ACW

Model Year 2017 Engines

Manufacturer **Engine Families** Caterpillar Inc. HCPXL08.8NZS HCPXL106.NZS HCPXL12.5NYS HCPXL15.2NYS HCPXL15.2NZS HCPXL18.1NYS HCPXL18.1NZS HCPXL27.0NZS HCPXL32.0NZS HCPXL78.1NZS Cummins Inc. HCEXL015.AAH HCEXL015.AAJ HCEXL019.AAD HCEXL023.AAB HCEXL0275AAG HCEXL0275AAH HCEXL0275AAK HCEXL030.AAD HCEXL0409AAB HCEXL0409AAC HCEXL0409AAD HCEXL050.AAD HCEXL0505AAE HCEXL0540AAB HCEXL060.AAD HCEXL0661AAH HCEXL95.0AAA **DEERE** HJDXL02.9142 HJDXL04.5119 HJDXL04.5141 HJDXL04.5212 HJDXL04.5214 HJDXL06.8120 HJDXL09.0114 HJDXL13.5132 HJDXL13.5146 **DETROIT DIESEL** HDDXL14.0WLD FPT INDUSTRIAL HFPXL04.5DCB HFPXL06.7DGB HFPXL06.7DGS HFPXL08.7TR3 HFPXL10.3TR3 HFPXL12.9IGR

Model Year 2017 Engines (continued)

Manufacturer	Engine Families
ISM	HH3XL2.22N4L
KUBOTA.	HKBXL03.6BAC
KUKJE	HKMCL3.41D43
MACHINERY	
LMB	HLHAL45.0ESP
	HLHAL103.ESP
MERCEDES- BENZ	HMBXL07.2RJC
MITSUBISHI	HMVXL03.3AAJ
	HMVXL03.3CBA
	HMVXL24.5BBA
	HMVXL33.9BBA
	HMVXL37.1BBA
	HMVXL49.0BBA
	HMVXL65.4BBA
MTU DD	HMDDL14.0ZWK
	HMDDL21.0ZWR
	HMDDL31.8XRR
	HMDDL35.8GRR
	HMDDL40.1GNR
	HMDDL95.4GTR
PERKINS	HPKXL04.4NL1
	HPKXL04.4NM1
	HPKXL04.4NM2
	HPKXL04.4NP1
	HPKXL04.4NR1
	HPKXL04.4NR2
	HPKXL07.0PW1
	HPKXL07.0PW2
VPX	HVPXL16.1ACB
	HVPXL16.1ACG
	HVPXL16.1ACW

Model Year 2018 Engines

Manufacturer **Engine Families** Caterpillar Inc. JCPXL08.8NZS JCPXL106.NZS JCPXL12.5NYS JCPXL15.2NYS JCPXL15.2NZS JCPXL18.1NYS JCPXL18.1NZS JCPXL27.0NZS JCPXL32.0NZS JCPXL78.1NZS Cummins Inc. JCEXL015.AAH JCEXL015.AAJ JCEXL019.AAD JCEXL023.AAB JCEXL0275AAG JCEXL0275AAH JCEXL0275AAK JCEXL030.AAD JCEXL0409AAB JCEXL0409AAC JCEXL0409AAD JCEXL050.AAD JCEXL0505AAE JCEXL0540AAB JCEXL060.AAD JCEXL0661AAH JCEXL95.0AAA JJDXL02.9142 **DEERE** JJDXL04.5119 JJDXL04.5141 JJDXL04.5214 JJDXL06.8120 JJDXL09.0114 JJDXL13.5132 JJDXL13.5146 **FPT INDUSTRIAL** JFPXL06.7DGB JFPXL06.7DGS JFPXL08.7TR3 JFPXL10.3TR3 JFPXL12.9IGR **KOEL AMERICAS** JKOEL3.24TAX

Model Year 2018 Engines (continued)

Manufacturer	Engine Families
KUBOTA.	JKBXL03.6BAC
KUKJE	JKMCL3.41D43
MACHINERY	
LMB	JLHAL45.0ESP
	JLHAL103.ESP
MERCEDES- BENZ	JMBXL07.2RJC
MITSUBISHI	JMVXL03.3AAJ
	JMVXL03.3CBA
	JMVXL24.5BBA
	JMVXL33.9BBA
	JMVXL37.1BBA
	JMVXL49.0BBA
	JMVXL65.4BBA
MTU DD	JMDDL14.0ZWK
	JMDDL21.0ZWR
	JMDDL35.8GRR
	JMDDL40.1GNR
	JMDDL95.4GTR
PERKINS	JPKXL04.4NL1
	JPKXL04.4NM1
	JPKXL04.4NM2
	JPKXL04.4NP1
	JPKXL04.4NR1
	JPKXL04.4NR2
	JPKXL07.0PW1
	JPKXL07.0PW2
VPX	JVPXL16.1ACB
	JVPXL16.1ACG
	JVPXL16.1ACW

Model Year 2019 Engines

Engine Families Manufacturer Caterpillar Inc. KCPXL08.8NZS KCPXL106.NZS KCPXL12.5NYS KCPXL15.2NYS KCPXL15.2NZS KCPXL18.1NYS KCPXL18.1NZS KCPXL27.0NZS KCPXL32.0NZS KCPXL78.1NZS Cummins Inc. KCEXL015.AAH KCEXL015.AAJ KCEXL019.AAD KCEXL023.AAB KCEXL0275AAG KCEXL0275AAH KCEXL0275AAK KCEXL030.AAD KCEXL0409AAB KCEXL0409AAC KCEXL0409AAD KCEXL050.AAD KCEXL0505AAE KCEXL0540AAB KCEXL060.AAD KCEXL0661AAH KCEXL95.0AAA **DEERE** KJDXL02.9142 KJDXL04.5119 KJDXL04.5141 KJDXL04.5214 KJDXL06.8120 KJDXL09.0114 KJDXL13.5132 KJDXL13.5146 **FPT INDUSTRIAL** KFPXL06.7DGB KFPXL06.7DGS KFPXL08.7TR3 KFPXL10.3TR3 KFPXL12.9IGR

Model Year 2019 Engines (continued)

Manufacturer	Engine Families
KUBOTA.	KKBXL03.6BAC
KUKJE	KKMCL3.41D43
MACHINERY	
LMB	KLHAL45.0ESP
	KLHAL103.ESP
MITSUBISHI	KMVXL03.3AAJ
	KMVXL03.3CBA
	KMVXL24.5BBA
	KMVXL33.9BBA
	KMVXL37.1BBA
	KMVXL49.0BBA
	KMVXL65.4BBA
MTU DD	KMDDL14.0ZWK
	KMDDL21.0ZWR
	KMDDL35.8GRR
	KMDDL40.1GNR
	KMDDL95.4GTR
PERKINS	KPKXL04.4NL1
	KPKXL04.4NM1
	KPKXL04.4NM2
	KPKXL04.4NP1
	KPKXL04.4NR1
	KPKXL04.4NR2
	KPKXL07.0PW1
	KPKXL07.0PW2
VPX	KVPXL16.1ACB
	KVPXL16.1ACG
	KVPXL16.1ACW

APPENDIX AQ-3: EMISSION	CALCULATIONS

Table 1a. Emergency Generator Engine Parameters

Parameter	Value
Make	Caterpillar
Model	3516C
Model Year	2019
Tier	2
Engine Family	KCPXL78.1NZS
Estimated Annual Hours of Operation per Engine (hr/yr) ¹	50
Power Output at full load per Engine (bhp) ²	3,634
Fuel Consumption Rate at full load per Engine (gal/hr) ²	175.30
Heating Value of Diesel per Engine (Btu/gal) ³	137,000
Heat Input per Engine (MMBtu/hr) ⁴	24.02
Fuel	Diesel
Number of Engines	43
Diesel Particulate Filter Control Efficiency (%) ⁵	85

- 1. The emergency engine is limited to 50 hr/yr for non-emergency purposes per Title 17, CCR Section 93115.6(a)(3)(A)(1)(c): ATCM for Stationary CI Engines.
- 2. Based on manufacturer data.
- 3. Heating value of diesel provided in AP-42, Appendix A (09/85).
- 4. Heat Input (MMBtu/hr) = Fuel Consumption Rate (gal/hr) * Heating Value of Diesel (Btu/gal) / 1,000,000 (Btu/MMBtu).
- $5. \ Control\ efficiency\ for\ the\ Rypos\ HDPF/C\ diesel\ particulate\ filter\ per\ California\ Air\ Resource\ Board$ Executive Order DE-07-001-07, available here:

https://ww3.arb.ca.gov/diesel/verdev/vt/stationary/rypos/eode0700107.pdf

Table 1b. Life Safety Generator Engine Parameters

Parameter	Value
Make	Caterpillar
Model	C-18
Model Year	2019
Tier	2
Engine Family	KCPXL18.1NYS
Estimated Annual Hours of Operation per Engine (hr/yr) 1	50
Power Output at full load per Engine (bhp) ²	900
Fuel Consumption Rate at full load per Engine (gal/hr) ²	42.70
Heating Value of Diesel per Engine (Btu/gal) ³	137,000
Heat Input per Engine (MMBtu/hr) ⁴	5.85
Fuel	Diesel
Number of Engines	2
Diesel Particulate Filter Control Efficiency (%) ⁵	85

- 1. The emergency engine is limited to 50 hr/yr for non-emergency purposes per Title 17, CCR Section 93115.6(a)(3)(A)(1)(c): ATCM for Stationary CI Engines.
- 2. Based on manufacturer data.
- 3. Heating value of diesel provided in AP-42, Appendix A (09/85).
- 4. Heat Input (MMBtu/hr) = Fuel Consumption Rate (gal/hr) * Heating Value of Diesel (Btu/gal) /
- 1,000,000 (Btu/MMBtu).
- 5. Control efficiency for the Rypos HDPF/C diesel particulate filter per California Air Resource Board Executive Order DE-07-001-07, available here:

https://ww3.arb.ca.gov/diesel/verdev/vt/stationary/rypos/eode0700107.pdf

Table 2a. Emergency Generator Engine Criteria Pollutant Emission Factors

Pollutant	Emission Factor
PM(grams/bhp-hr) 1,2	0.09
$\mathrm{NO_x}$ (grams/bhp-hr) 1	3.78
ROG (grams/bhp-hr) ¹	0.19
CO (grams/bhp-hr) ¹	0.67
SO_2 (g/bhp-hr) 3	5.50E-03

^{1.} Emission factors per EPA engine family certification levels.

Table 2b. Life Safety Generator Engine Criteria Pollutant Emission Factors

Pollutant	Emission Factor
PM(grams/bhp-hr) 1,2	0.082
$\mathrm{NO_x}$ (grams/bhp-hr) 1	4.21
ROG (grams/bhp-hr) ¹	0.082
CO (grams/bhp-hr) ¹	0.60
SO ₂ (g/bhp-hr) ³	5.50E-03

^{1.} Emission factors per EPA engine family certification levels.

^{2.} It is conservatively assumed that emission factors for PM_{10} and $PM_{2.5}$ are equivalent to the emission factor for PM.

^{3.} The proposed engines will use ultra low sulfur diesel fuel which contains 0.0015% sulfur as defined under 40 CFR 80, Subpart I. The $\rm SO_2$ emission factor is from AP-42 Section 3.4, Table 3.4-1 (10/96).

^{2.} It is conservatively assumed that emission factors for PM_{10} and $PM_{2.5}$ are equivalent to the emission factor for PM.

^{3.} The proposed engines will use ultra low sulfur diesel fuel which contains 0.0015% sulfur as defined under 40 CFR 80, Subpart I. The SO_2 emission factor is from AP-42 Section 3.4, Table 3.4-1 (10/96).

Table 3. Generator Engine Criteria Pollutant Potential to Emit

	Facility-Wide Generator Engine Emissions ¹										
Pollutant	Potential Emiss (lb/h	Potential Daily Emissions	Potential Annual								
	Emergency Generator	Life Safety Generator	(lb/day) ⁴	Emissions (tpy) ⁵							
$PM/PM_{10}/PM_{2.5}$	0.11	0.02	3.17	0.12							
NO_x	30.29	8.36	928	33.0							
ROG	1.55	0.16	41	1.68							
СО	5.38	1.18	157	5.84							
SO_2	0.044	0.011	1.3	0.048							

- 1. This table reflects emission estimates for routine maintenance and testing activities conducted pursuant to manufacturer specifications.
- 2. Conversion from gram to pound:

- g = 0.0022 l
- 3. Potential emissions per engine for NO_x , ROG, CO, and SO_2 (lb/hr) = Diesel Emission Factor (gram/bhp-hr) * 0.0022 lbs/gram * Power Output (bhp). Potential emissions per engine for PM, PM_{10} , and $PM_{2.5}$ (lb/hr) = Diesel Emission Factor (gram/bhp-hr) * 0.0022 lbs/gram * Power Output (bhp) * [1-Control Efficiency (%)].
- 4. Potential daily emissions (lb/day) = Emergency Generator Potential Emissions (lb/hr) * Emergency Generator Maximum Hours Per Day (hr/day) + Life Safety Generator Potential Emissions (lb/hr) * Life Safety Generator Maximum Hours Per Day (hr/day).

The Emergency Generator Maximum Hours Per Day for any combination of emergency generator engines is

hours.

The Maximum Hours Per Day is based on the most conservative maintenance and operating schedule in which all engines on-site are tested for 15 minutes with a safety factor of 2 and rounded to 24 hours per day.

The Life Safety Generator Maximum Hours Per Day is

24 hours.

5. Potential emissions (tpy) = Emergency Generator Potential Emissions (lb/hr) * Emergency Generator Maximum Hours Per Year (hr/yr) * 43 engines / 2,000 (lb/ton) + Life Safety Generator Potential Emissions (lb/hr) * Life Safety Generator Maximum Hours Per Day (hr/yr) * 2 engines / 2,000 (lb/ton)

Table 4. Generator Engine Greenhouse Gas Potential to Emit

Pollutant	Global Warming	Emission Factor		₂ e Emissions ngine ryear) ³	Facility-Wide Generator Engine Potential CO ₂ e Emissions	
	Potential ¹	(kg/MMBtu) ²	Emergency Generator	Life Safety Generator	(all engines) (MT per year) ⁴	
CO_2	1	74	88.81	21.63	3,862	
CH ₄	25	3.00E-03	0.09	0.02	3.92	
N_2O	298	6.00E-04	0.21	0.05	9.34	
			Total CO ₂ e	Emissions (MT):	3,875	

^{1.} Global Warming Potentials are obtained from Subpart A of 40 CFR 98, Table A-1 "Global Warming Potentials" (11/29/13).

- 2. Emission factor for carbon dioxide is obtained from 40 CFR 98, Table C-1 to Subpart C for Distillate Fuel Oil No. 2. Emission factors for methane and nitrous oxide are obtained from 40 CFR 98, Table C-2 to Subpart C. 3. CO_2e Potential Emissions Per Engine per Pollutant (MT per year) = EF (kg/MMBtu) * GWP * Heat Input (MMBtu/hr)* Annual Hours of Operation (hr/yr) /1,000 kg/MT).
- 4. Total CO_2 e Potential Emissions (MT per year) = Sum of CO_2 e Potential Emissions per Emergency Generator Engine per Pollutant (MT per year) * 43 engines + Sum of CO_2 e Potential Emissions per Life Safety Generator Engine per Pollutant (MT per year) * 2 engines.

Table 5. Generator Engine Comparison to BAAQMD CEQA Thresholds of Significance

Pollutant	BAAQMD CEQA Operational Significance Threshold ¹ (lb/	Facility-Wide Generator Engine Emissions day)	Daily Threshold Exceeded?	BAAQMD CEQA Operational Significance Threshold ¹	Facility-Wide Generator Engine Emissions	Annual Threshold Exceeded?	
PM_{10}	82	3.17	No	15	0.12	No	
PM _{2.5}	54	3.17	No	10	0.12	No	
NO_x	54	928	Yes	10	33.0	Yes	
ROG	54	41.2	No	10	1.68	No	
CO	N/A	157	N/A	N/A	5.84	N/A	
SO_2	N/A	1.32	N/A	N/A	0.05	N/A	
GHGs - Stationary Sources (MT per year)				10,000	3,875	No	

1. Per Table 2-1 of the BAAQMD California Environmental Quality Act Air Quality Guidelines, May 2017 available here: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en

Construction: Criteria Pollutants		Pollutant (tpy)						Pollutant (lb/day)												
Construction Year	VOC	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total*	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total*	VOC	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total*	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total*
Unmitigated																				
2019	0.040	0.443	0.328	0.001	0.096	0.019	0.115	0.031	0.018	0.049	0.307	3.405	2.519	0.005	0.739	0.143	0.882	0.237	0.136	0.373
2020	0.483	6.319	3.993	0.013	0.806	0.181	0.987	0.258	0.170	0.427	3.713	48.608	30.717	0.102	6.202	1.390	7.592	1.981	1.305	3.286
2021	4.385	2.946	1.904	0.008	0.354	0.063	0.417	0.082	0.058	0.141	33.733	22.665	14.648	0.058	2.722	0.482	3.204	0.635	0.448	1.082
2022	0.983	0.022	0.028	5.00E-05	1.79E-03	9.70E-04	2.76E-03	4.80E-04	8.90E-04	1.37E-03	7.561	0.168	0.214	0.000	0.014	0.007	0.021	0.004	0.007	0.011
Mitigated																				
2019	0.040	0.348	0.328	0.001	0.065	0.006	0.070	0.019	0.006	0.025	0.307	2.676	2.519	0.005	0.497	0.045	0.542	0.148	0.043	0.191
2020	0.483	5.440	3.993	0.013	0.534	0.062	0.596	0.162	0.058	0.221	3.713	41.846	30.717	0.102	4.108	0.478	4.586	1.249	0.450	1.699
2021	4.385	2.656	1.904	0.008	0.310	0.022	0.333	0.078	0.021	0.099	33.733	20.432	14.648	0.058	2.386	0.172	2.558	0.599	0.160	0.759
2022	0.983	0.017	0.028	0.000	0.002	0.000	0.002	0.000	0.000	0.001	7.561	0.130	0.214	0.000	0.014	0.002	0.016	0.004	0.002	0.006
Maximum Mitigated Emissions	4.39	5.44	3.99	0.01	0.53	0.06	0.60	0.16	0.06	0.22	33.73	41.85	30.72	0.10	4.11	0.48	4.59	1.25	0.45	1.70
BAAQMD CEQA Thresholds	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	54	54	N/A	N/A	N/A	N/A	82	N/A	N/A	54
Exceeds Thresholds?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NO	NO	N/A	N/A	N/A	N/A	NO	N/A	N/A	NO

Construction daily emissions based on 260 total weekdays per year.

^{*}PM Totals are inclusive of Fugitive and Exhaust emissions

Operation (2022): Criteria Pollutants		Pollutant (tpy)				Pollutant (lb/day)														
Category	VOC	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total*	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total*	VOC	NOx	СО	S02	Fugitive PM10	Exhaust PM10	PM10 Total*	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total*
Area	2.17	0.00	0.01	0.00			0.00			0.00	11.92	0.00	0.03	0.00			0.00			0.00
Energy	0.07	0.63	0.53	0.00			0.05			0.05	0.38	3.47	2.92	0.02			0.26			0.26
Mobile	0.03	0.15	0.43	0.00			0.15			0.04	0.18	0.80	2.33	0.01			0.81			0.22
Waste							0.00			0.00	0.00	0.00	0.00	0.00			0.00			0.00
Water							0.00			0.00	0.00	0.00	0.00	0.00			0.00			0.00
Total Emissions	2.28	0.78	0.96	0.01			0.20			0.09	12.47	4.27	5.28	0.03			1.07			0.49
BAAQMD CEQA Thresholds	10	10	N/A	N/A			15			10	54	54	N/A	N/A			82			54
Exceeds Thresholds?	NO	NO	N/A	N/A			NO			NO	NO	NO	N/A	N/A			NO			NO

Operational daily emissions based on 365 total weekdays per year.

^{*}PM Totals are inclusive of Fugitive and Exhaust emissions

Construction: GHGs	Pollutant (MT/yr)						
Phase	Bio-CO2	Nbio-CO2	Total CO2	CH4	N20	CO2e	
Unmitigated							
2019	0.00	63.54	63.54	0.01	0.00	63.76	
2020	0.00	1227.62	1227.62	0.13	0.00	1230.88	
2021	0.00	697.96	697.96	0.07	0.00	699.67	
2022	0.00	5.11	5.11	0.00	0.00	5.13	
Mitigated							
2019	0.00	63.54	63.54	0.01	0.00	63.76	
2020	0.00	1227.62	1227.62	0.13	0.00	1230.88	
2021	0.00	697.96	697.96	0.07	0.00	699.67	
2022	0.00	5.11	5.11	0.00	0.00	5.13	
Maximum Mitigated Emissions	0.00	1227.62	1227.62	0.13	0.00	1231	
BAAQMD CEQA Thresholds	N/A	N/A	N/A	N/A	N/A	N/A	
Exceeds Thresholds?	N/A	N/A	N/A	N/A	N/A	N/A	

Operation (2022): GHGs	Pollutant (MT/yr)						
Category	Bio-CO2	Nbio-CO2	Total CO2	CH4	N20	CO2e	
Area	0.00	0.01	0.01	0.00	0.00	0.01	
Energy	0.00	1872.93	1872.93	0.07	0.02	1881.66	
Mobile	0.00	142.20	142.20	0.00	0.00	142.31	
Waste	123.34	0.00	123.34	7.29	0.00	305.56	
Water	35.95	178.37	214.32	3.70	0.09	333.30	
Total Emissions	159.29	2193.51	2352.79	11.06	0.11	2663	
BAAQMD CEQA Thresholds	N/A	N/A	N/A	N/A	N/A	10,000	
Exceeds Thresholds?	N/A	N/A	N/A	N/A	N/A	NO	

CalEEMod Version: CalEEMod.2016.3.2 Page 1 of 59 Date: 11/7/2019 12:48 PM

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	490.00	1000sqft	11.25	490,000.00	0
Parking Lot	140.00	Space	1.26	56,000.00	0

1.2 Other Project Characteristics

UrbanizationUrbanWind Speed (m/s)2.2Precipitation Freq (Days)58Climate Zone4Operational Year2022

Utility Company Pacific Gas & Electric Company

 CO2 Intensity
 641.35
 CH4 Intensity
 0.029
 N20 Intensity
 0.006

 (lb/MWhr)
 (lb/MWhr)
 (lb/MWhr)
 (lb/MWhr)

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Per revised 10-3-19 AQ Construction Data Request Form SKA 82619. Assume Building #2 construction starts immediately after Building #1 construction ends. Assume same phasing structure for Building #2 as Building #1.

Off-road Equipment - Per revised AQ Construction Data Request Form SKA 82619 provided by Oppidan on 11-4-19

Off-road Equipment - Per revised AQ Construction Data Request Form SKA 82619 provided by Oppidan on 11-4-19

Off-road Equipment - Per revised AQ Construction Data Request Form SKA 82619 provided by Oppidan on 11-4-19

Off-road Equipment - Per revised AQ Construction Data Request Form SKA 82619 provided by Oppidan on 11-4-19

Off-road Equipment - Per revised AQ Construction Data Request Form SKA 82619 provided by Oppidan on 11-4-19

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Off-road Equipment - Per revised AQ Construction Data Request Form SKA 82619 provided by Oppidan on 11-4-19 Off-road Equipment - Per revised AQ Construction Data Request Form SKA 82619 provided by Oppidan on 11-4-19

Off-road Equipment - Per revised AQ Construction Data Request Form SKA 82619 provided by Oppidan on 11-4-19

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Off-road Equipment - Per revised AQ Construction Data Request Form SKA 82619 provided by Oppidan on 11-4-19

Off-road Equipment - Per revised AQ Construction Data Request Form SKA 82619 provided by Oppidan on 11-4-19

Off-road Equipment - Per revised AQ Construction Data Request Form SKA 82619 provided by Oppidan on 11-4-19

Trips and VMT - This run assesses emissions from construction equipment only

Demolition - Per revised 10-3-19 AQ Construction Data Request Form SKA 82619

Grading - Per revised 10-3-19 AQ Construction Data Request Form SKA 82619

Architectural Coating -

Vehicle Trips - This run assesses emissions from construction equipment only

Road Dust - This run assesses emissions from construction equipment only

Consumer Products - This run assesses emissions from construction equipment only

Area Coating - This run assesses emissions from construction equipment only

Landscape Equipment - This run assesses emissions from construction equipment only

Energy Use - This run assesses emissions from construction equipment only

Water And Wastewater - This run assesses emissions from construction equipment only

Solid Waste - This run assesses emissions from construction equipment only

Construction Off-road Equipment Mitigation - Per 2017 AQIA Appendix A, watering of construction site will occur 2x daily and vehicle speeds will be reduced to 15 mph (per BAAQMD recommendations)

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	150	0
tblAreaCoating	Area_EF_Nonresidential_Interior	100	0
tblAreaCoating	Area_EF_Parking	150	0
tblAreaCoating	Area_EF_Residential_Exterior	150	0

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tblAreaCoating	Area_EF_Residential_Interior	100	0
tblAreaCoating	Area_Nonresidential_Exterior	245000	0
tblAreaCoating	Area_Nonresidential_Interior	735000	0
tblAreaCoating	Area_Parking	3360	0
tblAreaCoating	ReapplicationRatePercent	10	0
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorV alue	150	0
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorV alue	100	0
tblAreaMitigation	UseLowVOCPaintResidentialExteriorValu e	150	0
tblAreaMitigation	UseLowVOCPaintResidentialInteriorValu e	100	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	21.00
tblConstructionPhase	NumDays	20.00	21.00
tblConstructionPhase	NumDays	300.00	197.00
tblConstructionPhase	NumDays	300.00	197.00
tblConstructionPhase	NumDays	20.00	88.00
tblConstructionPhase	NumDays	30.00	13.00
tblConstructionPhase	NumDays	30.00	13.00
tblConstructionPhase	NumDays	20.00	11.00
tblConstructionPhase	NumDays	20.00	11.00
tblConstructionPhase	NumDays	10.00	110.00
tblEnergyUse	LightingElect	3.08	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	NT24E	3.70	0.00
tblEnergyUse	NT24NG	6.67	0.00
tblEnergyUse	T24E	1.48	0.00
tblEnergyUse	T24NG	19.71	0.00
	•	·!	

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tblGrading	AcresOfGrading	27.14	75.00
tblGrading	AcresOfGrading	24.62	75.00
tblGrading	AcresOfGrading	31.62	0.00
tblGrading	MaterialExported	0.00	22,410.00
tblGrading	MaterialImported	0.00	46,000.00
tblOffRoadEquipment	HorsePower	231.00	226.00
tblOffRoadEquipment	HorsePower	231.00	226.00
tblOffRoadEquipment	HorsePower	158.00	162.00
tblOffRoadEquipment	HorsePower	158.00	162.00
tblOffRoadEquipment	HorsePower	158.00	162.00
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tblOffRoadEquipment	HorsePower	158.00	162.00
tblOffRoadEquipment	HorsePower	187.00	174.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	8.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	8.00	4.50
tblOffRoadEquipment	UsageHours	7.00	1.00

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tblOffRoadEquipment	UsageHours	7.00	1.10
tblOffRoadEquipment	UsageHours	8.00	2.30
tblOffRoadEquipment	UsageHours	8.00	6.20
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tblOffRoadEquipment	UsageHours	8.00	9.10
tblOffRoadEquipment	UsageHours	8.00	9.10
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tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	8.60
tblOffRoadEquipment	UsageHours	8.00	5.50
tblOffRoadEquipment	UsageHours	8.00	3.60
tblOffRoadEquipment	UsageHours	8.00	3.60
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tblOffRoadEquipment	UsageHours	8.00	3.30
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	2.30
tblOffRoadEquipment	UsageHours	8.00	6.20
tblOffRoadEquipment	UsageHours	8.00	6.20
tblOffRoadEquipment	UsageHours	7.00	2.70
tblOffRoadEquipment	UsageHours	7.00	2.80
tblOffRoadEquipment	UsageHours	8.00	6.20
tblOffRoadEquipment	UsageHours	8.00	6.20
tblOffRoadEquipment	UsageHours	8.00	2.30
<u> </u>			

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tblOffRoadEquipment	UsageHours	8.00	1.
thIOffRoadEquipment	HeagoHoure	8 ∩∩	1

tblOffRoadEquipment	UsageHours	8.00	1.50		
tblOffRoadEquipment	UsageHours	8.00	1.50		
tblSolidWaste	SolidWasteGenerationRate	607.60	0.00		
tblTripsAndVMT	HaulingTripNumber	1,683.00	0.00		
tblTripsAndVMT	HaulingTripNumber	2,801.00	0.00		
tblTripsAndVMT	HaulingTripNumber	5,750.00	0.00		
tblTripsAndVMT	VendorTripNumber	89.00	0.00		
tblTripsAndVMT	VendorTripNumber	89.00	0.00		
tblTripsAndVMT	WorkerTripNumber	48.00	0.00		
tblTripsAndVMT	WorkerTripNumber	229.00	0.00		
tblTripsAndVMT	WorkerTripNumber	46.00	0.00		
tblTripsAndVMT	WorkerTripNumber	13.00	0.00		
tblTripsAndVMT	WorkerTripNumber	23.00	0.00		
tblTripsAndVMT	WorkerTripNumber	25.00	0.00		
tblTripsAndVMT	WorkerTripNumber	18.00	0.00		
tblTripsAndVMT	WorkerTripNumber	229.00	0.00		
tblTripsAndVMT	WorkerTripNumber	46.00	0.00		
tblTripsAndVMT	WorkerTripNumber	13.00	0.00		
tblTripsAndVMT	WorkerTripNumber	25.00	0.00		
tblTripsAndVMT	WorkerTripNumber	18.00	0.00		
tblVehicleTrips	ST_TR	1.32	0.00		
tblVehicleTrips	SU_TR	0.68	0.00		
tblVehicleTrips	WD_TR	6.97	0.00		
tblWater	ElectricityIntensityFactorForWastewaterTr eatment	1,911.00	0.00		
tblWater	ElectricityIntensityFactorForWastewaterTr eatment	1,911.00	0.00		
tblWater	ElectricityIntensityFactorToDistribute	1,272.00	0.00		
tblWater	ElectricityIntensityFactorToDistribute	1,272.00	÷ 0.00		

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tblWater	ElectricityIntensityFactorToSupply	2,117.00	0.00
tblWater	ElectricityIntensityFactorToSupply	2,117.00	0.00
tblWater	ElectricityIntensityFactorToTreat	111.00	0.00
tblWater	ElectricityIntensityFactorToTreat	111.00	0.00
tblWater	IndoorWaterUseRate	113,312,500.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	СО	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					ton	ıs/yr					MT/yr					
<mark>2019</mark>	0.0355	0.3381	0.2968	4.0000e- 004	0.0573	0.0182	0.0755	0.0211	0.0173	<mark>0.0384</mark>	0.0000	35.3650	35.3650	7.5500e- 003	0.0000	35.5539
<mark>2020</mark>	<mark>0.3329</mark>	<mark>3.1392</mark>	<mark>2.8830</mark>	4.1300e- 003	<mark>0.4554</mark>	0.1694	<mark>0.6248</mark>	<mark>0.1686</mark>	0.1589	<mark>0.3275</mark>	<mark>0.0000</mark>	<mark>358.7315</mark>	<mark>358.7315</mark>	<mark>0.0901</mark>	0.0000	360.9828
<mark>2021</mark>	<mark>4.2708</mark>	<mark>1.0366</mark>	<mark>1.0407</mark>	1.6100e- 003	<mark>0.0398</mark>	0.0576	<mark>0.0974</mark>	4.2900e- 003	0.0534	<mark>0.0577</mark>	<mark>0.0000</mark>	138.8474	<mark>138.8474</mark>	<mark>0.0427</mark>	0.0000	<mark>139.9140</mark>
<mark>2022</mark>	<mark>0.9809</mark>	<mark>0.0179</mark>	<mark>0.0228</mark>	3.0000e- 005	0.0000	9.5000e- 004	9.5000e- 004	<mark>0.0000</mark>	8.7000e- 004	8.7000e- 004	<mark>0.0000</mark>	<mark>3.0048</mark>	3.0048	9.7000e- 004	0.0000	<mark>3.0291</mark>
Maximum	4.2708	3.1392	2.8830	4.1300e- 003	0.4554	0.1694	0.6248	0.1686	0.1589	0.3275	0.0000	358.7315	358.7315	0.0901	0.0000	360.9828

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2.1 Overall Construction

Mitigated Construction

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9-15-2021

12-14-2021

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5 Tota	Bio- CO2	NBio- CO2	2 Total CO2	CH4	N2O	CO2e
					PM10	PM10	Total	PM2.5	PM2.5							
Year					tor	ns/yr							М	T/yr		
2019	0.0355	0.3381	0.2968	4.0000e- 004	0.0258	0.0182	0.0440	9.4900e- 003	0.0173	0.0268	0.0000	35.3650	35.3650	7.5500e- 003	0.0000	35.5538
2020	0.3329	3.1392	<mark>2.8830</mark>	4.1300e- 003	0.2049	0.1694	0.3743	<mark>0.0759</mark>	0.1589	0.2348	0.0000	<mark>358.7311</mark>	358.7311	0.0901	0.0000	360.9824
<mark>2021</mark>	4.2708	1.0366	1.0407	1.6100e- 003	<mark>0.0179</mark>	0.0576	<mark>0.0755</mark>	1.9300e- 003	0.0534	0.0553	0.0000	138.8472	138.8472	<mark>0.0427</mark>	0.0000	139.9139
2022	0.9809	<mark>0.0179</mark>	<mark>0.0228</mark>	3.0000e- 005	0.0000	9.5000e- 004	9.5000e- 004	0.0000	8.7000e- 004	8.7000e- 004	0.0000	3.0048	3.0048	9.7000e- 004	0.0000	3.0291
Maximum	4.2708	3.1392	2.8830	4.1300e- 003	0.2049	0.1694	0.3743	0.0759	0.1589	0.2348	0.0000	358.7311	358.7311	0.0901	0.0000	360.9824
	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	55.00	0.00	38.05	55.00	0.00	25.14	0.00	0.00	0.00	0.00	0.00	0.00
Quarter	St	art Date	Enc	l Date	Maxim	um Unmitig	ated ROG +	NOX (tons/	quarter)	Maxir	num Mitigat	ted ROG + N	NOX (tons/qı	ıarter)		
1	12-	-15-2019	3-14	1-2020			1.8867					1.8867				
2	3-	15-2020	6-14	1-2020			1.4449					1.4449				
3	6-	15-2020	9-14	1-2020			0.2214					0.2214				
4	9-	15-2020	12-1	4-2020			0.2190					0.2190				
5	12-	-15-2020	3-14	1-2021	2.8979			2.8979								
6	3-	15-2021	6-14	1-2021	0.4071			0.4071								
7	6-	15-2021	9-14	1-2021			0.1967					0.1967				

0.1945

0.1945

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9	12-15-2021	3-14-2022	2.5595	2.5595
		Highest	2.8979	2.8979

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
Area	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	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

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2.2 Overall Operational

Mitigated Operational

	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
Area	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	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

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

3.0 Construction Detail

Construction Phase

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site and Building #1 - Demolition	Demolition	12/15/2019	4/15/2020	5	88	
2	Site and Building #1 - Site Preparation	Site Preparation	12/15/2019	5/15/2020	5	110	
3	Site and Building #1 - Grading	Grading	4/15/2020	5/1/2020	5	13	
4	Site and Building #1 - Trenching	Trenching	4/15/2020	5/29/2020	5	33	
5	Site and Building #1 - Building Construction	Building Construction	5/1/2020	2/1/2021	5	197	
6	Site and Building #1 - Architectural Coating	Architectural Coating	2/1/2021	3/1/2021	5	21	
7	Site and Building #1 - Paving	Paving	2/15/2021	3/1/2021	5	11	
8	Building #2 - Grading	Grading	3/2/2021	3/18/2021	5	13	
9	Building #2 - Trenching	Trenching	3/2/2021	4/15/2021	5	33	
10	Building #2 - Building Construction	Building Construction	3/16/2021	12/15/2021	5	197	
11	Building #2 - Architectural Coating	Architectural Coating	12/15/2021	1/12/2022	5	21	
12	Building #2 - Paving	Paving	12/30/2021	1/13/2022	5	11	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 1.26

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 735,000; Non-Residential Outdoor: 245,000; Striped Parking Area: 3,360 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site and Building #1 - Demolition	Concrete/Industrial Saws	8	4.50	81	0.73
Site and Building #1 - Demolition	Crushing/Proc. Equipment	1	0.60	85	0.78
Site and Building #1 - Demolition	Excavators	4	2.30	162	0.38
Site and Building #1 - Demolition	Rubber Tired Dozers	4:	3.30	255	0.40

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Site and Building #1 - Demolition					
Site and Building #1 - Demonition	Tractors/Loaders/Backhoes	2	3.30	97	0.37
Site and Building #1 - Site Preparation	Graders	2	2.30	174	0.41
Site and Building #1 - Site Preparation	Rubber Tired Dozers	3	2.30	255	0.40
Site and Building #1 - Site Preparation	Tractors/Loaders/Backhoes	4	2.30	97	0.37
Site and Building #1 - Grading	Excavators	3	6.20	162	0.38
Site and Building #1 - Grading	Graders	1	8.60	174	0.41
Site and Building #1 - Grading	Rubber Tired Dozers	0	0.00	255	0.40
Site and Building #1 - Grading	Scrapers	2	6.20	361	0.48
Site and Building #1 - Grading	Tractors/Loaders/Backhoes	4	6.20	97	0.37
Site and Building #1 - Trenching	Excavators	3	7.30	162	0.38
Site and Building #1 - Trenching	Tractors/Loaders/Backhoes	4	7.30	97	0.37
Site and Building #1 - Building Construction	Cranes	2	1.10	226	0.29
Site and Building #1 - Building Construction	Forklifts	2	9.10	89	0.20
Site and Building #1 - Building Construction	Generator Sets	0	0.00	84	0.74
Site and Building #1 - Building Construction	Tractors/Loaders/Backhoes	1	2.80	97	0.37
Site and Building #1 - Building Construction	Welders	3	1.50	46	0.45
Site and Building #1 - Architectural Coating	Aerial Lifts	0	0.00	63	0.31
Site and Building #1 - Architectural Coating	Air Compressors	0	0.00	78	0.48
Site and Building #1 - Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Site and Building #1 - Paving	Pavers	1	3.60	125	0.42
Site and Building #1 - Paving	Paving Equipment	1	3.60	130	0.36
Site and Building #1 - Paving	Rollers	2	3.60	80	0.38
Site and Building #1 - Paving	Tractors/Loaders/Backhoes	1	3.60	97	0.37
Building #2 - Grading	Excavators	3	6.20	162	0.38
Building #2 - Grading	Graders	1	5.50	174	0.41

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Building #2 - Grading	Rubber Tired Dozers	0	0.00	255	0.40
Building #2 - Grading	Scrapers	2	6.20	361	0.48
Building #2 - Grading	Tractors/Loaders/Backhoes	4	6.20	97	0.37
Building #2 - Trenching	Excavators	3	7.30	162	0.38
Building #2 - Trenching	Tractors/Loaders/Backhoes	4	7.30	97	0.37
Building #2 - Building Construction	Cranes	2	1.00	226	0.29
Building #2 - Building Construction	Forklifts	2	9.10	89	0.20
Building #2 - Building Construction	Generator Sets	0	0.00	84	0.74
Building #2 - Building Construction	Tractors/Loaders/Backhoes	1	2.70	97	0.37
Building #2 - Building Construction	Welders	3	1.50	46	0.45
Building #2 - Architectural Coating	Aerial Lifts	0	0.00	63	0.31
Building #2 - Architectural Coating	Air Compressors	0	0.00	78	0.48
Building #2 - Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Building #2 - Paving	Pavers	1	3.60	125	0.42
Building #2 - Paving	Paving Equipment	1	3.60	130	0.36
Building #2 - Paving	Rollers	2	3.60	80	0.38
Building #2 - Paving	Tractors/Loaders/Backhoes	1	3.60	97	0.37

Trips and VMT

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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 and Building #1 -	19	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site and Building #1 -	9	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site and Building #1 -	10	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site and Building #1 -	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site and Building #1 -	8	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site and Building #1 -	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site and Building #1 -	5	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building #2 - Grading	10	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building #2 -	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building #2 - Building	8	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building #2 -	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building #2 - Paving	5	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

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3.2 Site and Building #1 - Demolition - 2019 Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
1 agilive Busi					0.0248	0.0000	0.0248	3.7600e- 003	0.0000	3.7600e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0259	0.2387	0.2209	3.1000e- 004		0.0131	0.0131		0.0125	0.0125	0.0000	27.3725	27.3725	5.0300e- 003	0.0000	27.4982
Total	0.0259	0.2387	0.2209	3.1000e- 004	0.0248	0.0131	0.0379	3.7600e- 003	0.0125	0.0163	0.0000	27.3725	27.3725	5.0300e- 003	0.0000	27.4982

Unmitigated Construction Off-Site

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.2 Site and Building #1 - Demolition - 2019 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					ton	s/yr							MT	/yr		
Fugitive Dust					0.0112	0.0000	0.0112	1.6900e- 003	0.0000	1.6900e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0259	0.2387	0.2209	3.1000e- 004		0.0131	0.0131	i i	0.0125	0.0125	0.0000	27.3725	27.3725	5.0300e- 003	0.0000	27.4981
Total	0.0259	0.2387	0.2209	3.1000e- 004	0.0112	0.0131	0.0242	1.6900e- 003	0.0125	0.0142	0.0000	27.3725	27.3725	5.0300e- 003	0.0000	27.4981

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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.2 Site and Building #1 - Demolition - 2020 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					ton	s/yr							MT	/yr		
Fugitive Dust					0.1573	0.0000	0.1573	0.0238	0.0000	0.0238	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1510	1.3853	1.3583	1.9800e- 003		0.0732	0.0732		0.0701	0.0701	0.0000	171.6317	171.6317	0.0312	0.0000	172.4109
Total	0.1510	1.3853	1.3583	1.9800e- 003	0.1573	0.0732	0.2305	0.0238	0.0701	0.0939	0.0000	171.6317	171.6317	0.0312	0.0000	172.4109

Unmitigated Construction Off-Site

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.2 Site and Building #1 - Demolition - 2020 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					ton	s/yr							MT	/yr		
Fugitive Dust					0.0708	0.0000	0.0708	0.0107	0.0000	0.0107	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1510	1.3853	1.3583	1.9800e- 003		0.0732	0.0732		0.0701	0.0701	0.0000	171.6315	171.6315	0.0312	0.0000	172.4107
Total	0.1510	1.3853	1.3583	1.9800e- 003	0.0708	0.0732	0.1440	0.0107	0.0701	0.0808	0.0000	171.6315	171.6315	0.0312	0.0000	172.4107

Mitigated Construction Off-Site

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.3 Site and Building #1 - Site Preparation - 2019 Unmitigated Construction On-Site

	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
Fugitive Dust					0.0324	0.0000	0.0324	0.0173	0.0000	0.0173	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.5800e- 003	0.0994	0.0759	9.0000e- 005		5.1700e- 003	5.1700e- 003		4.7600e- 003	4.7600e- 003	0.0000	7.9925	7.9925	2.5300e- 003	0.0000	8.0557
Total	9.5800e- 003	0.0994	0.0759	9.0000e- 005	0.0324	5.1700e- 003	0.0376	0.0173	4.7600e- 003	0.0221	0.0000	7.9925	7.9925	2.5300e- 003	0.0000	8.0557

Unmitigated Construction Off-Site

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.3 Site and Building #1 - Site Preparation - 2019 <u>Mitigated Construction On-Site</u>

	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					ton	s/yr							MT	/yr		
Fugitive Dust					0.0146	0.0000	0.0146	7.8000e- 003	0.0000	7.8000e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.5800e- 003	0.0994	0.0759	9.0000e- 005		5.1700e- 003	5.1700e- 003	1	4.7600e- 003	4.7600e- 003	0.0000	7.9925	7.9925	2.5300e- 003	0.0000	8.0557
Total	9.5800e- 003	0.0994	0.0759	9.0000e- 005	0.0146	5.1700e- 003	0.0198	7.8000e- 003	4.7600e- 003	0.0126	0.0000	7.9925	7.9925	2.5300e- 003	0.0000	8.0557

Mitigated Construction Off-Site

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.3 Site and Building #1 - Site Preparation - 2020 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					ton	s/yr							МТ	/yr		
Fugitive Dust					0.2558	0.0000	0.2558	0.1401	0.0000	0.1401	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0726	0.7436	0.5922	7.3000e- 004		0.0381	0.0381		0.0351	0.0351	0.0000	63.8390	63.8390	0.0207	0.0000	64.3552
Total	0.0726	0.7436	0.5922	7.3000e- 004	0.2558	0.0381	0.2939	0.1401	0.0351	0.1752	0.0000	63.8390	63.8390	0.0207	0.0000	64.3552

Unmitigated Construction Off-Site

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.3 Site and Building #1 - Site Preparation - 2020 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					ton	s/yr							MT	/yr		
Fugitive Dust					0.1151	0.0000	0.1151	0.0630	0.0000	0.0630	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0726	0.7436	0.5922	7.3000e- 004		0.0381	0.0381	 	0.0351	0.0351	0.0000	63.8390	63.8390	0.0207	0.0000	64.3551
Total	0.0726	0.7436	0.5922	7.3000e- 004	0.1151	0.0381	0.1532	0.0630	0.0351	0.0981	0.0000	63.8390	63.8390	0.0207	0.0000	64.3551

Mitigated Construction Off-Site

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.4 Site and Building #1 - Grading - 2020 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					ton	s/yr							MT	/yr		
Fugitive Dust					0.0424	0.0000	0.0424	4.6900e- 003	0.0000	4.6900e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0228	0.2449	0.2023	3.4000e- 004		0.0118	0.0118	1 1 1	0.0108	0.0108	0.0000	29.5300	29.5300	9.5500e- 003	0.0000	29.7688
Total	0.0228	0.2449	0.2023	3.4000e- 004	0.0424	0.0118	0.0541	4.6900e- 003	0.0108	0.0155	0.0000	29.5300	29.5300	9.5500e- 003	0.0000	29.7688

Unmitigated Construction Off-Site

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.4 Site and Building #1 - Grading - 2020 Mitigated Construction On-Site

	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
Fugitive Dust					0.0191	0.0000	0.0191	2.1100e- 003	0.0000	2.1100e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0228	0.2449	0.2023	3.4000e- 004		0.0118	0.0118		0.0108	0.0108	0.0000	29.5300	29.5300	9.5500e- 003	0.0000	29.7687
Total	0.0228	0.2449	0.2023	3.4000e- 004	0.0191	0.0118	0.0308	2.1100e- 003	0.0108	0.0129	0.0000	29.5300	29.5300	9.5500e- 003	0.0000	29.7687

Mitigated Construction Off-Site

	ROG	NOx	СО	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					ton	s/yr							МТ	/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.5 Site and Building #1 - Trenching - 2020 Unmitigated Construction On-Site

	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
	0.0240	0.2385	0.2886	4.3000e- 004		0.0134	0.0134		0.0124	0.0124	0.0000	37.4444	37.4444	0.0121	0.0000	37.7472
Total	0.0240	0.2385	0.2886	4.3000e- 004		0.0134	0.0134		0.0124	0.0124	0.0000	37.4444	37.4444	0.0121	0.0000	37.7472

Unmitigated Construction Off-Site

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.5 Site and Building #1 - Trenching - 2020 Mitigated Construction On-Site

	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
	0.0240	0.2385	0.2886	4.3000e- 004		0.0134	0.0134		0.0124	0.0124	0.0000	37.4444	37.4444	0.0121	0.0000	37.7471
Total	0.0240	0.2385	0.2886	4.3000e- 004		0.0134	0.0134		0.0124	0.0124	0.0000	37.4444	37.4444	0.0121	0.0000	37.7471

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.6 Site and Building #1 - Building Construction - 2020 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					ton	s/yr							MT	/yr		
	0.0626	0.5270	0.4415	6.6000e- 004		0.0328	0.0328		0.0305	0.0305	0.0000	56.2863	56.2863	0.0166	0.0000	56.7008
Total	0.0626	0.5270	0.4415	6.6000e- 004		0.0328	0.0328		0.0305	0.0305	0.0000	56.2863	56.2863	0.0166	0.0000	56.7008

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.6 Site and Building #1 - Building Construction - 2020 Mitigated Construction On-Site

	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
	0.0626	0.5270	0.4415	6.6000e- 004		0.0328	0.0328	1 1 1	0.0305	0.0305	0.0000	56.2863	56.2863	0.0166	0.0000	56.7007
Total	0.0626	0.5270	0.4415	6.6000e- 004		0.0328	0.0328		0.0305	0.0305	0.0000	56.2863	56.2863	0.0166	0.0000	56.7007

	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.6 Site and Building #1 - Building Construction - 2021 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					ton	s/yr							MT	/yr		
1	7.0500e- 003	0.0605	0.0544	8.0000e- 005		3.5700e- 003	3.5700e- 003		3.3200e- 003	3.3200e- 003	0.0000	7.0763	7.0763	2.0600e- 003	0.0000	7.1279
Total	7.0500e- 003	0.0605	0.0544	8.0000e- 005		3.5700e- 003	3.5700e- 003		3.3200e- 003	3.3200e- 003	0.0000	7.0763	7.0763	2.0600e- 003	0.0000	7.1279

	ROG	NOx	СО	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					ton	s/yr							МТ	/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.6 Site and Building #1 - Building Construction - 2021 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					ton	s/yr							MT	/yr		
1	7.0500e- 003	0.0605	0.0544	8.0000e- 005		3.5700e- 003	3.5700e- 003		3.3200e- 003	3.3200e- 003	0.0000	7.0763	7.0763	2.0600e- 003	0.0000	7.1279
Total	7.0500e- 003	0.0605	0.0544	8.0000e- 005		3.5700e- 003	3.5700e- 003		3.3200e- 003	3.3200e- 003	0.0000	7.0763	7.0763	2.0600e- 003	0.0000	7.1279

	ROG	NOx	СО	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					ton	s/yr							МТ	/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.7 Site and Building #1 - Architectural Coating - 2021 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					ton	s/yr							MT	/yr		
Archit. Coating	1					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	 	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	2.5667	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

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.7 Site and Building #1 - Architectural Coating - 2021 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					ton	s/yr							MT	/yr		
Archit. Coating	2.5667					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	 	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	2.5667	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

	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.8 Site and Building #1 - Paving - 2021 Unmitigated Construction On-Site

	ROG	NOx	СО	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					ton	s/yr							MT	-/yr		
- Cirrioda	2.4600e- 003	0.0251	0.0280	4.0000e- 005		1.3900e- 003	1.3900e- 003		1.2800e- 003	1.2800e- 003	0.0000	3.6713	3.6713	1.1900e- 003	0.0000	3.7010
Paving	1.6500e- 003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.1100e- 003	0.0251	0.0280	4.0000e- 005		1.3900e- 003	1.3900e- 003		1.2800e- 003	1.2800e- 003	0.0000	3.6713	3.6713	1.1900e- 003	0.0000	3.7010

	ROG	NOx	СО	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					ton	s/yr							МТ	/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.8 Site and Building #1 - Paving - 2021 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					ton	s/yr							MT	/yr		
On Road	2.4600e- 003	0.0251	0.0280	4.0000e- 005		1.3900e- 003	1.3900e- 003		1.2800e- 003	1.2800e- 003	0.0000	3.6713	3.6713	1.1900e- 003	0.0000	3.7010
1	1.6500e- 003		 			0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.1100e- 003	0.0251	0.0280	4.0000e- 005		1.3900e- 003	1.3900e- 003		1.2800e- 003	1.2800e- 003	0.0000	3.6713	3.6713	1.1900e- 003	0.0000	3.7010

	ROG	NOx	СО	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					ton	s/yr							МТ	/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.9 Building #2 - Grading - 2021 Unmitigated Construction On-Site

	ROG	NOx	СО	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					ton	s/yr							МТ	/yr		
I agilive busi					0.0398	0.0000	0.0398	4.2900e- 003	0.0000	4.2900e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0194	0.2049	0.1857	3.2000e- 004		9.5100e- 003	9.5100e- 003	! !	8.7500e- 003	8.7500e- 003	0.0000	28.1696	28.1696	9.1100e- 003	0.0000	28.3974
Total	0.0194	0.2049	0.1857	3.2000e- 004	0.0398	9.5100e- 003	0.0493	4.2900e- 003	8.7500e- 003	0.0130	0.0000	28.1696	28.1696	9.1100e- 003	0.0000	28.3974

	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
1	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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.9 Building #2 - Grading - 2021 Mitigated Construction On-Site

	ROG	NOx	СО	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					ton	s/yr							МТ	/yr		
Fugitive Dust					0.0179	0.0000	0.0179	1.9300e- 003	0.0000	1.9300e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0194	0.2049	0.1857	3.2000e- 004		9.5100e- 003	9.5100e- 003	 	8.7500e- 003	8.7500e- 003	0.0000	28.1696	28.1696	9.1100e- 003	0.0000	28.3974
Total	0.0194	0.2049	0.1857	3.2000e- 004	0.0179	9.5100e- 003	0.0274	1.9300e- 003	8.7500e- 003	0.0107	0.0000	28.1696	28.1696	9.1100e- 003	0.0000	28.3974

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.10 Building #2 - Trenching - 2021 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					ton	s/yr							MT	/yr		
	0.0219	0.2139	0.2877	4.3000e- 004		0.0116	0.0116		0.0106	0.0106	0.0000	37.4547	37.4547	0.0121	0.0000	37.7575
Total	0.0219	0.2139	0.2877	4.3000e- 004		0.0116	0.0116		0.0106	0.0106	0.0000	37.4547	37.4547	0.0121	0.0000	37.7575

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.10 Building #2 - Trenching - 2021 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					ton	s/yr							MT	/yr		
	0.0219	0.2139	0.2877	4.3000e- 004		0.0116	0.0116		0.0106	0.0106	0.0000	37.4547	37.4547	0.0121	0.0000	37.7575
Total	0.0219	0.2139	0.2877	4.3000e- 004		0.0116	0.0116		0.0106	0.0106	0.0000	37.4547	37.4547	0.0121	0.0000	37.7575

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.11 Building #2 - Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
Off-Road	0.0619	0.5277	0.4798	7.3000e- 004		0.0313	0.0313		0.0291	0.0291	0.0000	61.8080	61.8080	0.0180	0.0000	62.2573
Total	0.0619	0.5277	0.4798	7.3000e- 004		0.0313	0.0313		0.0291	0.0291	0.0000	61.8080	61.8080	0.0180	0.0000	62.2573

	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.11 Building #2 - Building Construction - 2021 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					ton	s/yr							MT	/yr		
Off-Road	0.0619	0.5277	0.4798	7.3000e- 004		0.0313	0.0313		0.0291	0.0291	0.0000	61.8079	61.8079	0.0180	0.0000	62.2573
Total	0.0619	0.5277	0.4798	7.3000e- 004		0.0313	0.0313		0.0291	0.0291	0.0000	61.8079	61.8079	0.0180	0.0000	62.2573

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.12 Building #2 - Architectural Coating - 2021 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					ton	s/yr							MT	/yr		
Archit. Coating						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.5889	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

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.12 Building #2 - Architectural Coating - 2021 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					ton	s/yr							MT	/yr		
Archit. Coating	1.5889					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.5889	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

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.12 Building #2 - Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Archit. Coating	0.9778					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.9778	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

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.12 Building #2 - Architectural Coating - 2022

Mitigated Construction On-Site

	ROG	NOx	СО	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					ton	s/yr							МТ	/yr		
Archit. Coating						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.9778	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

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.13 Building #2 - Paving - 2021 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					ton	s/yr							МТ	/yr		
1	4.5000e- 004	4.5700e- 003	5.0900e- 003	1.0000e- 005		2.5000e- 004	2.5000e- 004		2.3000e- 004	2.3000e- 004	0.0000	0.6675	0.6675	2.2000e- 004	0.0000	0.6729
1	3.0000e- 004		i i		 	0.0000	0.0000	 	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	7.5000e- 004	4.5700e- 003	5.0900e- 003	1.0000e- 005		2.5000e- 004	2.5000e- 004		2.3000e- 004	2.3000e- 004	0.0000	0.6675	0.6675	2.2000e- 004	0.0000	0.6729

	ROG	NOx	СО	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					ton	s/yr							МТ	/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.13 Building #2 - Paving - 2021 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					ton	s/yr							МТ	/yr		
Off-Road	4.5000e- 004	4.5700e- 003	5.0900e- 003	1.0000e- 005		2.5000e- 004	2.5000e- 004		2.3000e- 004	2.3000e- 004	0.0000	0.6675	0.6675	2.2000e- 004	0.0000	0.6729
Paving	3.0000e- 004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	7.5000e- 004	4.5700e- 003	5.0900e- 003	1.0000e- 005		2.5000e- 004	2.5000e- 004		2.3000e- 004	2.3000e- 004	0.0000	0.6675	0.6675	2.2000e- 004	0.0000	0.6729

	ROG	NOx	СО	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					ton	s/yr							МТ	/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.13 Building #2 - Paving - 2022 Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	Γ/yr		
J. Trodd	1.7700e- 003	0.0179	0.0228	3.0000e- 005		9.5000e- 004	9.5000e- 004		8.7000e- 004	8.7000e- 004	0.0000	3.0048	3.0048	9.7000e- 004	0.0000	3.0291
l aving	1.3500e- 003		 			0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	3.1200e- 003	0.0179	0.0228	3.0000e- 005		9.5000e- 004	9.5000e- 004		8.7000e- 004	8.7000e- 004	0.0000	3.0048	3.0048	9.7000e- 004	0.0000	3.0291

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.13 Building #2 - Paving - 2022 Mitigated Construction On-Site

	ROG	NOx	СО	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					ton	s/yr							MT	-/yr		
- Cirricad	1.7700e- 003	0.0179	0.0228	3.0000e- 005		9.5000e- 004	9.5000e- 004		8.7000e- 004	8.7000e- 004	0.0000	3.0048	3.0048	9.7000e- 004	0.0000	3.0291
Paving	1.3500e- 003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	3.1200e- 003	0.0179	0.0228	3.0000e- 005		9.5000e- 004	9.5000e- 004		8.7000e- 004	8.7000e- 004	0.0000	3.0048	3.0048	9.7000e- 004	0.0000	3.0291

Mitigated Construction Off-Site

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

4.0 Operational Detail - Mobile

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4.1 Mitigation Measures Mobile

	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Avei	rage Daily Trip Ra	ite	Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

		Miles			Trip %			Trip Purpos	e %
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

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Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.610498	0.036775	0.183084	0.106123	0.014413	0.005007	0.012610	0.021118	0.002144	0.001548	0.005312	0.000627	0.000740
Parking Lot	0.610498	0.036775	0.183084	0.106123	0.014413	0.005007	0.012610	0.021118	0.002144	0.001548	0.005312	0.000627	0.000740

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	СО	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					ton	s/yr							МТ	/уг		
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated				 		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	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	0.0000

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5.2 Energy by Land Use - NaturalGas <u>Unmitigated</u>

	NaturalGa s Use	ROG	NOx	СО	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					ton	s/yr							МТ	/yr		
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	i i i	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	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	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	0.0000

Mitigated

	NaturalGa s 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					ton	s/yr							MT	/yr		
General Light 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	0.0000
Parking Lot	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	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	0.0000

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5.3 Energy by Land Use - Electricity Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr		МТ	-/yr	
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	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 Light Industry	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	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					ton	s/yr							MT	/yr		
Mitigated	0.0000			 		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000			i i i		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
Conting	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

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6.2 Area by SubCategory

Mitigated

	ROG	NOx	СО	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					ton	s/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
Total	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category		МТ	√yr	
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

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7.2 Water by Land Use <u>Unmitigated</u>

	Indoor/Out door Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal		МТ	√yr	
General Light Industry	0/0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0/0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Indoor/Out door Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal		MT	-/yr	
General Light Industry	0/0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0/0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail

8.1 Mitigation Measures Waste

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Category/Year

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

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons		MT	-/yr	
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

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8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons		МТ	-/yr	
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type Number Tious/Day Days/Teal Tiouse Fower Load Factor Fuel Type	Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
--	----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	490.00	1000sqft	11.25	490,000.00	0
Parking Lot	140.00	Space	1.26	56,000.00	0

1.2 Other Project Characteristics

UrbanizationUrbanWind Speed (m/s)2.2Precipitation Freq (Days)58Climate Zone4Operational Year2022

Utility Company Pacific Gas & Electric Company

 CO2 Intensity
 641.35
 CH4 Intensity
 0.029
 N20 Intensity
 0.006

 (lb/MWhr)
 (lb/MWhr)
 (lb/MWhr)
 (lb/MWhr)

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Per revised 10-3-19 AQ Construction Data Request Form SKA 82619. Assume Building #2 construction starts immediately after Building #1 construction ends. Assume same phasing structure for Building #2 as Building #1.

Off-road Equipment - This run assesses emissions from construction mobile trips only

Off-road Equipment - This run assesses emissions from construction mobile trips only

Off-road Equipment - This run assesses emissions from construction mobile trips only

Off-road Equipment - This run assesses emissions from construction mobile trips only

Off-road Equipment - This run assesses emissions from construction mobile trips only

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Off-road Equipment - This run assesses emissions from construction mobile trips only Off-road Equipment - This run assesses emissions from construction mobile trips only

Off-road Equipment - This run assesses emissions from construction mobile trips only

Off-road Equipment - This run assesses emissions from construction mobile trips only

Off-road Equipment - This run assesses emissions from construction mobile trips only

Off-road Equipment - This run assesses emissions from construction mobile trips only

Off-road Equipment - This run assesses emissions from construction mobile trips only

Trips and VMT - Per Appendix A from past AQIA CalEEMod Report (5/22/17), Section 3.0 "Trips and VMT". 2400 CY imported for Paving, at 20 CY per truck, = 120 total trips, split between 2 phases = 60 haul trips per each paving phase.

Demolition - This run assesses emissions from construction mobile trips only

Grading - This run assesses emissions from construction mobile trips only

Architectural Coating - This run assesses emissions from construction mobile/onroad trips only

Vehicle Trips - This run assesses emissions from construction mobile/onroad trips only

Construction Off-road Equipment Mitigation - Per 2017 AQIA Appendix A, watering of construction site will occur 2x daily and vehicle speeds will be reduced to 15 mph (per BAAQMD recommendations)

Fleet Mix -

Road Dust - This run assesses emissions from construction mobile/onroad trips only

Consumer Products - This run assesses emissions from construction mobile/onroad trips only

Area Coating - This run assesses emissions from construction mobile/onroad trips only

Landscape Equipment - This run assesses emissions from construction mobile/onroad trips only

Energy Use - This run assesses emissions from construction mobile/onroad trips only

Water And Wastewater - This run assesses emissions from construction mobile/onroad trips only

Solid Waste - This run assesses emissions from construction mobile/onroad trips only

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	245,000.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	245,000.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	735,000.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	735,000.00	0.00

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tblArchitecturalCoating	ConstArea_Parking	3,360.00	0.00
	8		
tblArchitecturalCoating	ConstArea_Parking	3,360.00	0.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	150	0
tblAreaCoating	Area_EF_Nonresidential_Interior	100	0
tblAreaCoating	Area_EF_Parking	150	0
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tblAreaCoating	Area_EF_Residential_Interior	100	0
tblAreaCoating	Area_Nonresidential_Exterior	245000	0
tblAreaCoating	Area_Nonresidential_Interior	735000	0
tblAreaCoating	Area_Parking	3360	0
tblAreaCoating	ReapplicationRatePercent	10	0
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorV alue	150	0
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorV alue	100	0
tblAreaMitigation	UseLowVOCPaintParkingValue	150	0
tblAreaMitigation	UseLowVOCPaintResidentialExteriorValu e	150	0
tblAreaMitigation	UseLowVOCPaintResidentialInteriorValu e	100	0
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tblConstructionPhase	NumDays	30.00	13.00
tblConstructionPhase	NumDays	30.00	13.00
tblConstructionPhase	NumDays	20.00	11.00
tblConstructionPhase	NumDays	20.00	11.00
	-		

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tblConstructionPhase	NumDays	10.00	110.00			
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tblEnergyUse	LightingElect	0.35	0.00			
tblEnergyUse	NT24E	3.70	0.00			
tblEnergyUse	NT24NG	6.67	0.00			
tblEnergyUse	T24E	1.48	0.00			
tblEnergyUse	T24NG	19.71	0.00			
tblGrading	AcresOfGrading	0.00	75.00			
tblGrading	AcresOfGrading	0.00	75.00			
tblOffRoadEquipment	HorsePower	231.00	226.00			
tblOffRoadEquipment	HorsePower	231.00	226.00			
tblOffRoadEquipment	HorsePower	158.00	162.00			
tblOffRoadEquipment	HorsePower	158.00	162.00			
tblOffRoadEquipment	HorsePower	158.00	162.00			
tblOffRoadEquipment	HorsePower	187.00	174.00			
tblOffRoadEquipment	HorsePower	187.00	174.00			
tblOffRoadEquipment	HorsePower	130.00	125.00			
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tblOffRoadEquipment	HorsePower	132.00	130.00			
tblOffRoadEquipment	HorsePower	132.00	130.00			
tblOffRoadEquipment	HorsePower	247.00	255.00			
tblOffRoadEquipment	HorsePower	247.00	255.00			
tblOffRoadEquipment	HorsePower	247.00	255.00			
tblOffRoadEquipment	HorsePower	247.00	255.00			
tblOffRoadEquipment	HorsePower	367.00	361.00			
tblOffRoadEquipment	HorsePower	367.00	361.00			
tblOffRoadEquipment	HorsePower	158.00	162.00			

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tblOffRoadEquipment	HorsePower	158.00	162.00		
tblOffRoadEquipment	HorsePower	187.00	174.00		
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00		
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00		
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00		
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00		
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00		
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00		
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00		
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00		
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00		

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tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
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tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00

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tblOffRoadEquipment	UsageHours	7.00	0.00			
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tblOffRoadEquipment	UsageHours	8.00	0.00			
tblOffRoadEquipment	UsageHours	8.00	0.00			
tblOffRoadEquipment	UsageHours	8.00	0.00			
tblOffRoadEquipment	UsageHours	8.00	0.00			
tblSolidWaste	SolidWasteGenerationRate	607.60	0.00			
tblTripsAndVMT	HaulingTripLength	20.00	7.30			
tblTripsAndVMT	HaulingTripLength	20.00	7.30			
tblTripsAndVMT	HaulingTripLength	20.00	7.30			
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tblTripsAndVMT	HaulingTripNumber	0.00	13,000.00			
tblTripsAndVMT	HaulingTripNumber	0.00	60.00			
tblTripsAndVMT	HaulingTripNumber	0.00	2,801.00			
tblTripsAndVMT	HaulingTripNumber	0.00	5,750.00			
tblTripsAndVMT	HaulingTripNumber	0.00	13,000.00			
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tblTripsAndVMT	VendorTripNumber	89.00	66.00			
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tblTripsAndVMT	WorkerTripNumber	48.00	38.00			
tblTripsAndVMT	WorkerTripNumber	229.00	168.00			
tblTripsAndVMT	WorkerTripNumber	46.00	34.00			
tblTripsAndVMT	WorkerTripNumber	13.00	15.00			
tblTripsAndVMT	WorkerTripNumber	229.00	168.00			
tblTripsAndVMT	WorkerTripNumber	46.00	34.00			
tblTripsAndVMT	WorkerTripNumber	13.00	15.00			

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tblVehicleTrips	ST_TR	1.32	0.00		
tblVehicleTrips	SU_TR	0.68	0.00		
tblVehicleTrips	WD_TR	6.97	0.00		
tblWater	ElectricityIntensityFactorForWastewaterTr eatment	1,911.00	0.00		
tblWater	ElectricityIntensityFactorForWastewaterT reatment	1,911.00	0.00		
tblWater	ElectricityIntensityFactorToDistribute	1,272.00	0.00		
tblWater	ElectricityIntensityFactorToDistribute	1,272.00	0.00		
tblWater	ElectricityIntensityFactorToSupply	2,117.00	0.00		
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tblWater	ElectricityIntensityFactorToTreat	111.00	0.00		
tblWater	ElectricityIntensityFactorToTreat	111.00	0.00		
tblWater	IndoorWaterUseRate	113,312,500.00	0.00		

2.0 Emissions Summary

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2.1 Overall Construction <u>Unmitigated Construction</u>

	ROG	NOx	СО	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							
2019	4.3500e- 003	0.1045	0.0307	2.9000e- 004	0.0388	4.2000e- 004	0.0392	9.7500e- 003	4.0000e- 004	0.0102	0.0000	<mark>28.1785</mark>	28.1785	1.2700e- 003	0.0000	28.2103		
<mark>2020</mark>	<mark>0.1498</mark>	<mark>3.1798</mark>	<mark>1.1102</mark>	9.0800e- 003	0.3509	0.0113	<mark>0.3622</mark>	<mark>0.0889</mark>	0.0108	<mark>0.0997</mark>	0.0000	868.8920	868.8920	0.0403	0.0000	869.8981		
<mark>2021</mark>	<mark>0.1145</mark>	<mark>1.9098</mark>	0.8635	5.8900e- 003	<mark>0.3141</mark>	5.0500e- 003	<mark>0.3192</mark>	<mark>0.0782</mark>	4.7900e- 003	<mark>0.0830</mark>	<mark>0.0000</mark>	<mark>559.1137</mark>	<mark>559.1137</mark>	<mark>0.0257</mark>	0.0000	<mark>559.7554</mark>		
<mark>2022</mark>	2.0300e- 003	3.9500e- 003	5.0000e- 003	2.0000e- 005	1.7900e- 003	2.0000e- 005	1.8100e- 003	4.8000e- 004	2.0000e- 005	4.9000e- 004	0.0000	<mark>2.1008</mark>	<mark>2.1008</mark>	7.0000e- 005	0.0000	<mark>2.1027</mark>		
Maximum	0.1498	3.1798	1.1102	9.0800e- 003	0.3509	0.0113	0.3622	0.0889	0.0108	0.0997	0.0000	868.8920	868.8920	0.0403	0.0000	869.8981		

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2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Tota	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Year					tor	s/yr					MT/yr						
<mark>2019</mark>	4.3500e- 003	0.1045	0.0307	2.9000e- 004	0.0388	4.2000e- 004	0.0392	9.7500e- 003	4.0000e- 004	0.0102	0.0000	28.1785	28.1785	1.2700e- 003	0.0000	28.2103	
<mark>2020</mark>	0.1498	<mark>3.1798</mark>	<mark>1.1102</mark>	9.0800e- 003	0.3291	0.0113	0.3404	0.0865	0.0108	0.0973	0.0000	868.8920	868.8920	0.0403	0.0000	869.8981	
<mark>2021</mark>	0.1145	1.9098	0.8635	5.8900e- 003	0.2923	5.0500e- 003	0.2973	0.0759	4.7900e- 003	0.0807	0.0000	559.1137	559.1137	0.0257	0.0000	559.7554	
<mark>2022</mark>	2.0300e- 003	3.9500e- 003	5.0000e- 003	2.0000e- 005	1.7900e- 003	2.0000e- 005	1.8100e- 003	4.8000e- 004	2.0000e- 005	4.9000e- 004	0.0000	2.1008	2.1008	7.0000e- 005	0.0000	2.1027	
Maximum	0.1498	3.1798	1.1102	9.0800e- 003	0.3291	0.0113	0.3404	0.0865	0.0108	0.0973	0.0000	868.8920	868.8920	0.0403	0.0000	869.8981	
	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e	
Percent Reduction	0.00	0.00	0.00	0.00	6.20	0.00	6.06	2.66	0.00	2.45	0.00	0.00	0.00	0.00	0.00	0.00	
Quarter	Sta	art Date	End	l Date	Maxim	um Unmitig	ated ROG +	NOX (tons/o	quarter)	Maxir	num Mitigat	ed ROG + N	ΟΧ (tons/qι	ıarter)	•	_	
1	12-	15-2019	3-14	I-2020			0.5597					0.5597					
2	3-	15-2020	6-14	1-2020			1.3779					1.3779					
3	6-1	15-2020	9-14	l-2020			0.6477					0.6477					
4	9-	15-2020	12-1	4-2020	0.64							0.6473					
5	12-	15-2020	3-14	I-2021			0.3413				0.3413						
6	3-	15-2021	6-14	I-2021	0.5939 0.5939												
7	6-1	15-2021	9-14	I-2021		0.5980				0.5980							
8	9-	15-2021	12-1	4-2021			0.5968			0.5968							

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9	12-15-2021	3-14-2022	0.0149	0.0149
		Highest	1.3779	1.3779

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr										MT/yr						
Area	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Water	,			 		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Total	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	

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2.2 Overall Operational

Mitigated Operational

	ROG	NOx	СО	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					ton	s/yr				MT	/yr					
Area	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste	 		 			0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000	 	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	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

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

3.0 Construction Detail

Construction Phase

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site and Building #1 - Demolition	Demolition	12/15/2019	4/15/2020	5	88	
2	Site and Building #1 - Site Preparation	Site Preparation	12/15/2019	5/15/2020	5	110	
3	Site and Building #1 - Grading	Grading	4/15/2020	5/1/2020	5	13	
4	Site and Building #1 - Trenching	Trenching	4/15/2020	5/29/2020	5	33	
5	Site and Building #1 - Building Construction	Building Construction	5/1/2020	2/1/2021	5	197	
6	Site and Building #1 - Architectural Coating	Architectural Coating	2/1/2021	3/1/2021	5	21	
7	Site and Building #1 - Paving	Paving	2/15/2021	3/1/2021	5	11	
8	Building #2 - Grading	Grading	3/2/2021	3/18/2021	5	13	
9	Building #2 - Trenching	Trenching	3/2/2021	4/15/2021	5	33	
10	Building #2 - Building Construction	Building Construction	3/16/2021	12/15/2021	5	197	
11	Building #2 - Architectural Coating	Architectural Coating	12/15/2021	1/12/2022	5	21	
12	Building #2 - Paving	Paving	12/30/2021	1/13/2022	5	11	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 1.26

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 and Building #1 - Demolition	Concrete/Industrial Saws	8	0.00	81	0.73
Site and Building #1 - Demolition	Crushing/Proc. Equipment	1	0.00	85	0.78
Site and Building #1 - Demolition	Excavators	4	0.00	162	0.38
Site and Building #1 - Demolition	Rubber Tired Dozers	4:	0.00	255	0.40

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Site and Building #1 - Demolition	Tractors/Loaders/Backhoes	2	0.00	97	0.37
Site and Building #1 - Site Preparation	Graders	2	0.00	174	0.41
Site and Building #1 - Site Preparation	Rubber Tired Dozers	3	0.00	255	0.40
Site and Building #1 - Site Preparation	Tractors/Loaders/Backhoes	4	0.00	97	0.37
Site and Building #1 - Grading	Excavators	3	0.00	162	0.38
Site and Building #1 - Grading	Graders	 1	0.00	174	0.41
Site and Building #1 - Grading	Rubber Tired Dozers	0	0.00	255	0.40
Site and Building #1 - Grading	Scrapers	2	0.00	361	0.48
Site and Building #1 - Grading	Tractors/Loaders/Backhoes	4	0.00	97	0.37
Site and Building #1 - Trenching	Excavators	3	0.00	162	0.38
Site and Building #1 - Trenching	Tractors/Loaders/Backhoes	4	0.00	97	0.37
Site and Building #1 - Building Construction	Cranes	2	0.00	226	0.29
Site and Building #1 - Building Construction	Forklifts	2	0.00	89	0.20
Site and Building #1 - Building Construction	Generator Sets	0	0.00	84	0.74
Site and Building #1 - Building Construction	Tractors/Loaders/Backhoes	1	0.00	97	0.37
Site and Building #1 - Building Construction	Welders	3	0.00	46	0.45
Site and Building #1 - Architectural Coating	Aerial Lifts	0	0.00	63	0.31
Site and Building #1 - Architectural Coating	Air Compressors	0	0.00	78	0.48
Site and Building #1 - Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Site and Building #1 - Paving	Pavers	1	0.00	125	0.42
Site and Building #1 - Paving	Paving Equipment	1	0.00	130	0.36
Site and Building #1 - Paving	Rollers	2	0.00	80	0.38
Site and Building #1 - Paving	Tractors/Loaders/Backhoes	1	0.00	97	0.37
Building #2 - Grading	Excavators	3	0.00	162	0.38
Building #2 - Grading	Graders	1	0.00	174	0.41

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Building #2 - Grading	Rubber Tired Dozers	0	0.00	255	0.40
Building #2 - Grading	Scrapers	2	0.00	361	0.48
Building #2 - Grading	Tractors/Loaders/Backhoes	4	0.00	97	0.37
Building #2 - Trenching	Excavators	3	0.00	162	0.38
Building #2 - Trenching	Tractors/Loaders/Backhoes	4	0.00	97	0.37
Building #2 - Building Construction	Cranes	2	0.00	226	0.29
Building #2 - Building Construction	Forklifts	2	0.00	89	0.20
Building #2 - Building Construction	Generator Sets	0	0.00	84	0.74
Building #2 - Building Construction	Tractors/Loaders/Backhoes	1	0.00	97	0.37
Building #2 - Building Construction	Welders	3	0.00	46	0.45
Building #2 - Architectural Coating	Aerial Lifts	0	0.00	63	0.31
Building #2 - Architectural Coating	Air Compressors	0	0.00	78	0.48
Building #2 - Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Building #2 - Paving	Pavers	1	0.00	125	0.42
Building #2 - Paving	Paving Equipment	1	0.00	130	0.36
Building #2 - Paving	Rollers	2	0.00	80	0.38
Building #2 - Paving	Tractors/Loaders/Backhoes	1	0.00	97	0.37

Trips and VMT

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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 and Building #1 -	19	38.00	0.00	2,633.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site and Building #1 -	9	23.00	0.00	2,801.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site and Building #1 -	10	25.00	0.00	5,750.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site and Building #1 -	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site and Building #1 -	8	168.00	66.00	13,000.00	10.80	7.30	7.30	LD_Mix	HDT_Mix	HHDT
Site and Building #1 -	0	34.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site and Building #1 -	5	15.00	0.00	60.00	10.80	7.30	7.30	LD_Mix	HDT_Mix	HHDT
Building #2 - Grading	10	25.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building #2 -	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building #2 - Building	8	168.00	66.00	13,000.00	10.80	7.30	7.30	LD_Mix	HDT_Mix	HHDT
Building #2 -	0	34.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building #2 - Paving	5	15.00	0.00	60.00	10.80	7.30	7.30	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

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3.2 Site and Building #1 - Demolition - 2019 Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
I agilive busi					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	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					ton	s/yr							MT	/yr		
Hauling	1.6300e- 003	0.0559	0.0110	1.4000e- 004	0.0175	2.1000e- 004	0.0177	4.3800e- 003	2.1000e- 004	4.5900e- 003	0.0000	13.8348	13.8348	6.5000e- 004	0.0000	13.8510
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.3000e- 004	6.2000e- 004	6.3700e- 003	2.0000e- 005	1.8100e- 003	1.0000e- 005	1.8200e- 003	4.8000e- 004	1.0000e- 005	4.9000e- 004	0.0000	1.6008	1.6008	4.0000e- 005	0.0000	1.6018
Total	2.4600e- 003	0.0565	0.0174	1.6000e- 004	0.0193	2.2000e- 004	0.0195	4.8600e- 003	2.2000e- 004	5.0800e- 003	0.0000	15.4356	15.4356	6.9000e- 004	0.0000	15.4529

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3.2 Site and Building #1 - Demolition - 2019 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					ton	s/yr							MT	/yr		
1 agilive Busi					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
Hauling	1.6300e- 003	0.0559	0.0110	1.4000e- 004	0.0175	2.1000e- 004	0.0177	4.3800e- 003	2.1000e- 004	4.5900e- 003	0.0000	13.8348	13.8348	6.5000e- 004	0.0000	13.8510
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.3000e- 004	6.2000e- 004	6.3700e- 003	2.0000e- 005	1.8100e- 003	1.0000e- 005	1.8200e- 003	4.8000e- 004	1.0000e- 005	4.9000e- 004	0.0000	1.6008	1.6008	4.0000e- 005	0.0000	1.6018
Total	2.4600e- 003	0.0565	0.0174	1.6000e- 004	0.0193	2.2000e- 004	0.0195	4.8600e- 003	2.2000e- 004	5.0800e- 003	0.0000	15.4356	15.4356	6.9000e- 004	0.0000	15.4529

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3.2 Site and Building #1 - Demolition - 2020 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					ton	s/yr							MT	/yr		
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	ROG	NOx	СО	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					ton	s/yr							МТ	-/yr		
Hauling	9.4500e- 003	0.3299	0.0676	9.0000e- 004	0.0216	1.0700e- 003	0.0226	5.8600e- 003	1.0300e- 003	6.8800e- 003	0.0000	86.7182	86.7182	3.9700e- 003	0.0000	86.8173
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8000e- 003	3.4500e- 003	0.0361	1.1000e- 004	0.0115	7.0000e- 005	0.0115	3.0500e- 003	7.0000e- 005	3.1100e- 003	0.0000	9.8214	9.8214	2.4000e- 004	0.0000	9.8274
Total	0.0143	0.3334	0.1037	1.0100e- 003	0.0330	1.1400e- 003	0.0342	8.9100e- 003	1.1000e- 003	9.9900e- 003	0.0000	96.5395	96.5395	4.2100e- 003	0.0000	96.6447

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3.2 Site and Building #1 - Demolition - 2020 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					ton	s/yr							MT	/yr		
1 agilive Busi					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	ROG	NOx	СО	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					ton	ıs/yr							MT	/yr		
Hauling	9.4500e- 003	0.3299	0.0676	9.0000e- 004	0.0216	1.0700e- 003	0.0226	5.8600e- 003	1.0300e- 003	6.8800e- 003	0.0000	86.7182	86.7182	3.9700e- 003	0.0000	86.8173
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8000e- 003	3.4500e- 003	0.0361	1.1000e- 004	0.0115	7.0000e- 005	0.0115	3.0500e- 003	7.0000e- 005	3.1100e- 003	0.0000	9.8214	9.8214	2.4000e- 004	0.0000	9.8274
Total	0.0143	0.3334	0.1037	1.0100e- 003	0.0330	1.1400e- 003	0.0342	8.9100e- 003	1.1000e- 003	9.9900e- 003	0.0000	96.5395	96.5395	4.2100e- 003	0.0000	96.6447

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3.3 Site and Building #1 - Site Preparation - 2019 Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	ROG	NOx	СО	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					ton	s/yr							МТ	/yr		
Hauling	1.3900e- 003	0.0476	9.4000e- 003	1.2000e- 004	0.0184	1.8000e- 004	0.0186	4.6000e- 003	1.7000e- 004	4.7700e- 003	0.0000	11.7741	11.7741	5.5000e- 004	0.0000	11.7878
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e- 004	3.7000e- 004	3.8600e- 003	1.0000e- 005	1.0900e- 003	1.0000e- 005	1.1000e- 003	2.9000e- 004	1.0000e- 005	3.0000e- 004	0.0000	0.9689	0.9689	3.0000e- 005	0.0000	0.9695
Total	1.8900e- 003	0.0479	0.0133	1.3000e- 004	0.0195	1.9000e- 004	0.0197	4.8900e- 003	1.8000e- 004	5.0700e- 003	0.0000	12.7429	12.7429	5.8000e- 004	0.0000	12.7574

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3.3 Site and Building #1 - Site Preparation - 2019 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					ton	s/yr							MT	/yr		
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	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					ton	s/yr							MT	/yr		
Hauling	1.3900e- 003	0.0476	9.4000e- 003	1.2000e- 004	0.0184	1.8000e- 004	0.0186	4.6000e- 003	1.7000e- 004	4.7700e- 003	0.0000	11.7741	11.7741	5.5000e- 004	0.0000	11.7878
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e- 004	3.7000e- 004	3.8600e- 003	1.0000e- 005	1.0900e- 003	1.0000e- 005	1.1000e- 003	2.9000e- 004	1.0000e- 005	3.0000e- 004	0.0000	0.9689	0.9689	3.0000e- 005	0.0000	0.9695
Total	1.8900e- 003	0.0479	0.0133	1.3000e- 004	0.0195	1.9000e- 004	0.0197	4.8900e- 003	1.8000e- 004	5.0700e- 003	0.0000	12.7429	12.7429	5.8000e- 004	0.0000	12.7574

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3.3 Site and Building #1 - Site Preparation - 2020 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					ton	s/yr							MT	/yr		
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	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					ton	s/yr							МТ	√yr		
Hauling	0.0104	0.3621	0.0742	9.8000e- 004	0.0231	1.1800e- 003	0.0243	6.2900e- 003	1.1300e- 003	7.4200e- 003	0.0000	95.1645	95.1645	4.3500e- 003	0.0000	95.2733
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7400e- 003	2.6900e- 003	0.0282	8.0000e- 005	8.9400e- 003	6.0000e- 005	9.0000e- 003	2.3800e- 003	5.0000e- 005	2.4300e- 003	0.0000	7.6653	7.6653	1.9000e- 004	0.0000	7.6700
Total	0.0141	0.3648	0.1024	1.0600e- 003	0.0320	1.2400e- 003	0.0333	8.6700e- 003	1.1800e- 003	9.8500e- 003	0.0000	102.8297	102.8297	4.5400e- 003	0.0000	102.9433

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3.3 Site and Building #1 - Site Preparation - 2020 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					ton	s/yr							MT	/yr		
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
Hauling	0.0104	0.3621	0.0742	9.8000e- 004	0.0231	1.1800e- 003	0.0243	6.2900e- 003	1.1300e- 003	7.4200e- 003	0.0000	95.1645	95.1645	4.3500e- 003	0.0000	95.2733
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7400e- 003	2.6900e- 003	0.0282	8.0000e- 005	8.9400e- 003	6.0000e- 005	9.0000e- 003	2.3800e- 003	5.0000e- 005	2.4300e- 003	0.0000	7.6653	7.6653	1.9000e- 004	0.0000	7.6700
Total	0.0141	0.3648	0.1024	1.0600e- 003	0.0320	1.2400e- 003	0.0333	8.6700e- 003	1.1800e- 003	9.8500e- 003	0.0000	102.8297	102.8297	4.5400e- 003	0.0000	102.9433

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3.4 Site and Building #1 - Grading - 2020 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					ton	s/yr							MT	/yr		
Fugitive Dust					0.0398	0.0000	0.0398	4.2900e- 003	0.0000	4.2900e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0398	0.0000	0.0398	4.2900e- 003	0.0000	4.2900e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
Hauling	0.0239	0.8343	0.1709	2.2700e- 003	0.0487	2.7100e- 003	0.0515	0.0134	2.5900e- 003	0.0160	0.0000	219.2785	219.2785	0.0100	0.0000	219.5293
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4000e- 004	3.9000e- 004	4.0700e- 003	1.0000e- 005	1.2900e- 003	1.0000e- 005	1.3000e- 003	3.4000e- 004	1.0000e- 005	3.5000e- 004	0.0000	1.1052	1.1052	3.0000e- 005	0.0000	1.1059
Total	0.0244	0.8347	0.1749	2.2800e- 003	0.0500	2.7200e- 003	0.0528	0.0137	2.6000e- 003	0.0163	0.0000	220.3838	220.3838	0.0101	0.0000	220.6352

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3.4 Site and Building #1 - Grading - 2020 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					ton	s/yr							MT	/yr		
Fugitive Dust					0.0179	0.0000	0.0179	1.9300e- 003	0.0000	1.9300e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	1 1 1	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	0.0179	0.0000	0.0179	1.9300e- 003	0.0000	1.9300e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	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					ton	s/yr							MT	/yr		
Hauling	0.0239	0.8343	0.1709	2.2700e- 003	0.0487	2.7100e- 003	0.0515	0.0134	2.5900e- 003	0.0160	0.0000	219.2785	219.2785	0.0100	0.0000	219.5293
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4000e- 004	3.9000e- 004	4.0700e- 003	1.0000e- 005	1.2900e- 003	1.0000e- 005	1.3000e- 003	3.4000e- 004	1.0000e- 005	3.5000e- 004	0.0000	1.1052	1.1052	3.0000e- 005	0.0000	1.1059
Total	0.0244	0.8347	0.1749	2.2800e- 003	0.0500	2.7200e- 003	0.0528	0.0137	2.6000e- 003	0.0163	0.0000	220.3838	220.3838	0.0101	0.0000	220.6352

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3.5 Site and Building #1 - Trenching - 2020 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					ton	s/yr							MT	/yr		
	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.9000e- 004	7.1000e- 004	7.4300e- 003	2.0000e- 005	2.3600e- 003	2.0000e- 005	2.3700e- 003	6.3000e- 004	1.0000e- 005	6.4000e- 004	0.0000	2.0200	2.0200	5.0000e- 005	0.0000	2.0213
Total	9.9000e- 004	7.1000e- 004	7.4300e- 003	2.0000e- 005	2.3600e- 003	2.0000e- 005	2.3700e- 003	6.3000e- 004	1.0000e- 005	6.4000e- 004	0.0000	2.0200	2.0200	5.0000e- 005	0.0000	2.0213

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3.5 Site and Building #1 - Trenching - 2020 Mitigated Construction On-Site

	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.9000e- 004	7.1000e- 004	7.4300e- 003	2.0000e- 005	2.3600e- 003	2.0000e- 005	2.3700e- 003	6.3000e- 004	1.0000e- 005	6.4000e- 004	0.0000	2.0200	2.0200	5.0000e- 005	0.0000	2.0213
Total	9.9000e- 004	7.1000e- 004	7.4300e- 003	2.0000e- 005	2.3600e- 003	2.0000e- 005	2.3700e- 003	6.3000e- 004	1.0000e- 005	6.4000e- 004	0.0000	2.0200	2.0200	5.0000e- 005	0.0000	2.0213

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3.6 Site and Building #1 - Building Construction - 2020 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					ton	s/yr							MT	/yr		
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	ROG	NOx	СО	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	0.0243	0.9536	0.1788	2.0300e- 003	0.0392	2.1800e- 003	0.0414	0.0107	2.0900e- 003	0.0128	0.0000	196.1537	196.1537	0.0120	0.0000	196.4540
Vendor	0.0229	0.6576	0.1751	1.5700e- 003	0.0380	3.2600e- 003	0.0413	0.0110	3.1200e- 003	0.0141	0.0000	150.9832	150.9832	6.9200e- 003	0.0000	151.1563
Worker	0.0488	0.0351	0.3679	1.1100e- 003	0.1166	7.5000e- 004	0.1173	0.0310	6.9000e- 004	0.0317	0.0000	99.9820	99.9820	2.4500e- 003	0.0000	100.0433
Total	0.0960	1.6463	0.7218	4.7100e- 003	0.1938	6.1900e- 003	0.1999	0.0527	5.9000e- 003	0.0586	0.0000	447.1189	447.1189	0.0214	0.0000	447.6536

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3.6 Site and Building #1 - Building Construction - 2020 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					ton	s/yr							MT	/yr		
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
Hauling	0.0243	0.9536	0.1788	2.0300e- 003	0.0392	2.1800e- 003	0.0414	0.0107	2.0900e- 003	0.0128	0.0000	196.1537	196.1537	0.0120	0.0000	196.4540
Vendor	0.0229	0.6576	0.1751	1.5700e- 003	0.0380	3.2600e- 003	0.0413	0.0110	3.1200e- 003	0.0141	0.0000	150.9832	150.9832	6.9200e- 003	0.0000	151.1563
Worker	0.0488	0.0351	0.3679	1.1100e- 003	0.1166	7.5000e- 004	0.1173	0.0310	6.9000e- 004	0.0317	0.0000	99.9820	99.9820	2.4500e- 003	0.0000	100.0433
Total	0.0960	1.6463	0.7218	4.7100e- 003	0.1938	6.1900e- 003	0.1999	0.0527	5.9000e- 003	0.0586	0.0000	447.1189	447.1189	0.0214	0.0000	447.6536

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3.6 Site and Building #1 - Building Construction - 2021 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					ton	s/yr							MT	/yr		
	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	ROG	NOx	СО	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					ton	s/yr							MT	⁻ /yr		
Hauling	2.8800e- 003	0.1125	0.0219	2.5000e- 004	0.0313	2.4000e- 004	0.0315	7.8100e- 003	2.3000e- 004	8.0400e- 003	0.0000	24.3601	24.3601	1.4600e- 003	0.0000	24.3966
Vendor	2.3700e- 003	0.0746	0.0199	2.0000e- 004	4.7800e- 003	1.7000e- 004	4.9400e- 003	1.3800e- 003	1.6000e- 004	1.5400e- 003	0.0000	18.8055	18.8055	8.2000e- 004	0.0000	18.8260
Worker	5.6900e- 003	3.9400e- 003	0.0423	1.3000e- 004	0.0147	9.0000e- 005	0.0148	3.9000e- 003	8.0000e- 005	3.9800e- 003	0.0000	12.1329	12.1329	2.8000e- 004	0.0000	12.1398
Total	0.0109	0.1911	0.0840	5.8000e- 004	0.0507	5.0000e- 004	0.0512	0.0131	4.7000e- 004	0.0136	0.0000	55.2986	55.2986	2.5600e- 003	0.0000	55.3624

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3.6 Site and Building #1 - Building Construction - 2021 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					ton	s/yr							MT	/yr		
	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	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					ton	s/yr							МТ	⁻ /yr		
Hauling	2.8800e- 003	0.1125	0.0219	2.5000e- 004	0.0313	2.4000e- 004	0.0315	7.8100e- 003	2.3000e- 004	8.0400e- 003	0.0000	24.3601	24.3601	1.4600e- 003	0.0000	24.3966
Vendor	2.3700e- 003	0.0746	0.0199	2.0000e- 004	4.7800e- 003	1.7000e- 004	4.9400e- 003	1.3800e- 003	1.6000e- 004	1.5400e- 003	0.0000	18.8055	18.8055	8.2000e- 004	0.0000	18.8260
Worker	5.6900e- 003	3.9400e- 003	0.0423	1.3000e- 004	0.0147	9.0000e- 005	0.0148	3.9000e- 003	8.0000e- 005	3.9800e- 003	0.0000	12.1329	12.1329	2.8000e- 004	0.0000	12.1398
Total	0.0109	0.1911	0.0840	5.8000e- 004	0.0507	5.0000e- 004	0.0512	0.0131	4.7000e- 004	0.0136	0.0000	55.2986	55.2986	2.5600e- 003	0.0000	55.3624

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3.7 Site and Building #1 - Architectural Coating - 2021 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					ton	s/yr							MT	/yr		
Archit. Coating						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	ROG	NOx	СО	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					ton	s/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	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
	1.1000e- 003	7.6000e- 004	8.1700e- 003	3.0000e- 005	2.8300e- 003	2.0000e- 005	2.8500e- 003	7.5000e- 004	2.0000e- 005	7.7000e- 004	0.0000	2.3439	2.3439	5.0000e- 005	0.0000	2.3452
Total	1.1000e- 003	7.6000e- 004	8.1700e- 003	3.0000e- 005	2.8300e- 003	2.0000e- 005	2.8500e- 003	7.5000e- 004	2.0000e- 005	7.7000e- 004	0.0000	2.3439	2.3439	5.0000e- 005	0.0000	2.3452

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3.7 Site and Building #1 - Architectural Coating - 2021 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					ton	s/yr							MT	/yr		
Archit. Coating	:					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e- 003	7.6000e- 004	8.1700e- 003	3.0000e- 005	2.8300e- 003	2.0000e- 005	2.8500e- 003	7.5000e- 004	2.0000e- 005	7.7000e- 004	0.0000	2.3439	2.3439	5.0000e- 005	0.0000	2.3452
Total	1.1000e- 003	7.6000e- 004	8.1700e- 003	3.0000e- 005	2.8300e- 003	2.0000e- 005	2.8500e- 003	7.5000e- 004	2.0000e- 005	7.7000e- 004	0.0000	2.3439	2.3439	5.0000e- 005	0.0000	2.3452

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3.8 Site and Building #1 - Paving - 2021 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					ton	s/yr							МТ	/yr		
Off-Road	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
Paving	1.6500e- 003		 		 	0.0000	0.0000	 	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.6500e- 003	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

	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					ton	s/yr							МТ	√yr		
l lading	1.2000e- 004	4.6500e- 003	9.1000e- 004	1.0000e- 005	1.9000e- 004	1.0000e- 005	2.0000e- 004	5.0000e- 005	1.0000e- 005	6.0000e- 005	0.0000	1.0068	1.0068	6.0000e- 005	0.0000	1.0083
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e- 004	1.8000e- 004	1.8900e- 003	1.0000e- 005	6.5000e- 004	0.0000	6.6000e- 004	1.7000e- 004	0.0000	1.8000e- 004	0.0000	0.5417	0.5417	1.0000e- 005	0.0000	0.5420
Total	3.7000e- 004	4.8300e- 003	2.8000e- 003	2.0000e- 005	8.4000e- 004	1.0000e- 005	8.6000e- 004	2.2000e- 004	1.0000e- 005	2.4000e- 004	0.0000	1.5484	1.5484	7.0000e- 005	0.0000	1.5502

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3.8 Site and Building #1 - Paving - 2021 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					ton	s/yr							MT	/yr		
Off-Road	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
Paving	1.6500e- 003	 				0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.6500e- 003	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

	ROG	NOx	СО	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					ton	s/yr							MT	/уг		
Hauling	1.2000e- 004	4.6500e- 003	9.1000e- 004	1.0000e- 005	1.9000e- 004	1.0000e- 005	2.0000e- 004	5.0000e- 005	1.0000e- 005	6.0000e- 005	0.0000	1.0068	1.0068	6.0000e- 005	0.0000	1.0083
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e- 004	1.8000e- 004	1.8900e- 003	1.0000e- 005	6.5000e- 004	0.0000	6.6000e- 004	1.7000e- 004	0.0000	1.8000e- 004	0.0000	0.5417	0.5417	1.0000e- 005	0.0000	0.5420
Total	3.7000e- 004	4.8300e- 003	2.8000e- 003	2.0000e- 005	8.4000e- 004	1.0000e- 005	8.6000e- 004	2.2000e- 004	1.0000e- 005	2.4000e- 004	0.0000	1.5484	1.5484	7.0000e- 005	0.0000	1.5502

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3.9 Building #2 - Grading - 2021 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					ton	s/yr							MT	/yr		
Fugitive Dust					0.0398	0.0000	0.0398	4.2900e- 003	0.0000	4.2900e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0398	0.0000	0.0398	4.2900e- 003	0.0000	4.2900e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	ROG	NOx	СО	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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Worker	5.0000e- 004	3.5000e- 004	3.7200e- 003	1.0000e- 005	1.2900e- 003	1.0000e- 005	1.3000e- 003	3.4000e- 004	1.0000e- 005	3.5000e- 004	0.0000	1.0669	1.0669	2.0000e- 005	0.0000	1.0675	
Total	5.0000e- 004	3.5000e- 004	3.7200e- 003	1.0000e- 005	1.2900e- 003	1.0000e- 005	1.3000e- 003	3.4000e- 004	1.0000e- 005	3.5000e- 004	0.0000	1.0669	1.0669	2.0000e- 005	0.0000	1.0675	

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3.9 Building #2 - Grading - 2021 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					0.0179	0.0000	0.0179	1.9300e- 003	0.0000	1.9300e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Total	0.0000	0.0000	0.0000	0.0000	0.0179	0.0000	0.0179	1.9300e- 003	0.0000	1.9300e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

	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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Worker	5.0000e- 004	3.5000e- 004	3.7200e- 003	1.0000e- 005	1.2900e- 003	1.0000e- 005	1.3000e- 003	3.4000e- 004	1.0000e- 005	3.5000e- 004	0.0000	1.0669	1.0669	2.0000e- 005	0.0000	1.0675	
Total	5.0000e- 004	3.5000e- 004	3.7200e- 003	1.0000e- 005	1.2900e- 003	1.0000e- 005	1.3000e- 003	3.4000e- 004	1.0000e- 005	3.5000e- 004	0.0000	1.0669	1.0669	2.0000e- 005	0.0000	1.0675	

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3.10 Building #2 - Trenching - 2021 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					ton	s/yr							MT	/yr		
	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Worker	9.1000e- 004	6.3000e- 004	6.7900e- 003	2.0000e- 005	2.3600e- 003	1.0000e- 005	2.3700e- 003	6.3000e- 004	1.0000e- 005	6.4000e- 004	0.0000	1.9499	1.9499	4.0000e- 005	0.0000	1.9510	
Total	9.1000e- 004	6.3000e- 004	6.7900e- 003	2.0000e- 005	2.3600e- 003	1.0000e- 005	2.3700e- 003	6.3000e- 004	1.0000e- 005	6.4000e- 004	0.0000	1.9499	1.9499	4.0000e- 005	0.0000	1.9510	

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3.10 Building #2 - Trenching - 2021 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					ton	s/yr							MT	/yr		
	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

Mitigated Construction Off-Site

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.1000e- 004	6.3000e- 004	6.7900e- 003	2.0000e- 005	2.3600e- 003	1.0000e- 005	2.3700e- 003	6.3000e- 004	1.0000e- 005	6.4000e- 004	0.0000	1.9499	1.9499	4.0000e- 005	0.0000	1.9510
Total	9.1000e- 004	6.3000e- 004	6.7900e- 003	2.0000e- 005	2.3600e- 003	1.0000e- 005	2.3700e- 003	6.3000e- 004	1.0000e- 005	6.4000e- 004	0.0000	1.9499	1.9499	4.0000e- 005	0.0000	1.9510

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3.11 Building #2 - Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Unmitigated 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					ton	s/yr							MT	/yr		
Hauling	0.0258	1.0075	0.1961	2.2500e- 003	0.0403	2.1700e- 003	0.0425	0.0111	2.0800e- 003	0.0132	0.0000	218.1340	218.1340	0.0131	0.0000	218.4606
Vendor	0.0212	0.6680	0.1778	1.7600e- 003	0.0428	1.4800e- 003	0.0443	0.0124	1.4200e- 003	0.0138	0.0000	168.3950	168.3950	7.3400e- 003	0.0000	168.5785
Worker	0.0510	0.0353	0.3786	1.2000e- 003	0.1312	8.3000e- 004	0.1321	0.0349	7.6000e- 004	0.0357	0.0000	108.6445	108.6445	2.4700e- 003	0.0000	108.7063
Total	0.0979	1.7108	0.7525	5.2100e- 003	0.2143	4.4800e- 003	0.2188	0.0584	4.2600e- 003	0.0626	0.0000	495.1735	495.1735	0.0229	0.0000	495.7454

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3.11 Building #2 - Building Construction - 2021

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					ton	s/yr							MT	/yr		
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	i i i	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	0.0000

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					ton	s/yr							MT	/yr		
Hauling	0.0258	1.0075	0.1961	2.2500e- 003	0.0403	2.1700e- 003	0.0425	0.0111	2.0800e- 003	0.0132	0.0000	218.1340	218.1340	0.0131	0.0000	218.4606
Vendor	0.0212	0.6680	0.1778	1.7600e- 003	0.0428	1.4800e- 003	0.0443	0.0124	1.4200e- 003	0.0138	0.0000	168.3950	168.3950	7.3400e- 003	0.0000	168.5785
Worker	0.0510	0.0353	0.3786	1.2000e- 003	0.1312	8.3000e- 004	0.1321	0.0349	7.6000e- 004	0.0357	0.0000	108.6445	108.6445	2.4700e- 003	0.0000	108.7063
Total	0.0979	1.7108	0.7525	5.2100e- 003	0.2143	4.4800e- 003	0.2188	0.0584	4.2600e- 003	0.0626	0.0000	495.1735	495.1735	0.0229	0.0000	495.7454

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3.12 Building #2 - Architectural Coating - 2021 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					ton	s/yr							MT	/yr		
Archit. Coating	0.0000					0.0000	0.0000	! !	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	1	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	0.0000

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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.8000e- 004	4.7000e- 004	5.0600e- 003	2.0000e- 005	1.7500e- 003	1.0000e- 005	1.7600e- 003	4.7000e- 004	1.0000e- 005	4.8000e- 004	0.0000	1.4510	1.4510	3.0000e- 005	0.0000	1.4518
Total	6.8000e- 004	4.7000e- 004	5.0600e- 003	2.0000e- 005	1.7500e- 003	1.0000e- 005	1.7600e- 003	4.7000e- 004	1.0000e- 005	4.8000e- 004	0.0000	1.4510	1.4510	3.0000e- 005	0.0000	1.4518

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3.12 Building #2 - Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

Mitigated Construction Off-Site

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.8000e- 004	4.7000e- 004	5.0600e- 003	2.0000e- 005	1.7500e- 003	1.0000e- 005	1.7600e- 003	4.7000e- 004	1.0000e- 005	4.8000e- 004	0.0000	1.4510	1.4510	3.0000e- 005	0.0000	1.4518
Total	6.8000e- 004	4.7000e- 004	5.0600e- 003	2.0000e- 005	1.7500e- 003	1.0000e- 005	1.7600e- 003	4.7000e- 004	1.0000e- 005	4.8000e- 004	0.0000	1.4510	1.4510	3.0000e- 005	0.0000	1.4518

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3.12 Building #2 - Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	/yr		
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Unmitigated Construction Off-Site

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e- 004	2.6000e- 004	2.8600e- 003	1.0000e- 005	1.0800e- 003	1.0000e- 005	1.0900e- 003	2.9000e- 004	1.0000e- 005	2.9000e- 004	0.0000	0.8605	0.8605	2.0000e- 005	0.0000	0.8609
Total	3.9000e- 004	2.6000e- 004	2.8600e- 003	1.0000e- 005	1.0800e- 003	1.0000e- 005	1.0900e- 003	2.9000e- 004	1.0000e- 005	2.9000e- 004	0.0000	0.8605	0.8605	2.0000e- 005	0.0000	0.8609

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3.12 Building #2 - Architectural Coating - 2022

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					ton	s/yr							МТ	/yr		
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	 	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

Mitigated Construction Off-Site

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e- 004	2.6000e- 004	2.8600e- 003	1.0000e- 005	1.0800e- 003	1.0000e- 005	1.0900e- 003	2.9000e- 004	1.0000e- 005	2.9000e- 004	0.0000	0.8605	0.8605	2.0000e- 005	0.0000	0.8609
Total	3.9000e- 004	2.6000e- 004	2.8600e- 003	1.0000e- 005	1.0800e- 003	1.0000e- 005	1.0900e- 003	2.9000e- 004	1.0000e- 005	2.9000e- 004	0.0000	0.8605	0.8605	2.0000e- 005	0.0000	0.8609

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3.13 Building #2 - Paving - 2021 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					ton	s/yr							MT	/yr		
- On Road	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
	3.0000e- 004		i i			0.0000	0.0000	 	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	3.0000e- 004	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Unmitigated Construction Off-Site

	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
Hauling	2.0000e- 005	8.5000e- 004	1.6000e- 004	0.0000	1.5000e- 004	0.0000	1.5000e- 004	4.0000e- 005	0.0000	4.0000e- 005	0.0000	0.1831	0.1831	1.0000e- 005	0.0000	0.1833
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e- 005	3.0000e- 005	3.4000e- 004	0.0000	1.2000e- 004	0.0000	1.2000e- 004	3.0000e- 005	0.0000	3.0000e- 005	0.0000	0.0985	0.0985	0.0000	0.0000	0.0985
Total	7.0000e- 005	8.8000e- 004	5.0000e- 004	0.0000	2.7000e- 004	0.0000	2.7000e- 004	7.0000e- 005	0.0000	7.0000e- 005	0.0000	0.2815	0.2815	1.0000e- 005	0.0000	0.2819

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3.13 Building #2 - Paving - 2021 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					ton	s/yr							MT	/yr		
Off-Road	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
	3.0000e- 004		1 1 1		 	0.0000	0.0000	1 1 1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	3.0000e- 004	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

Mitigated Construction Off-Site

	ROG	NOx	СО	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					ton	s/yr							МТ	/уг		
Hauling	2.0000e- 005	8.5000e- 004	1.6000e- 004	0.0000	1.5000e- 004	0.0000	1.5000e- 004	4.0000e- 005	0.0000	4.0000e- 005	0.0000	0.1831	0.1831	1.0000e- 005	0.0000	0.1833
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e- 005	3.0000e- 005	3.4000e- 004	0.0000	1.2000e- 004	0.0000	1.2000e- 004	3.0000e- 005	0.0000	3.0000e- 005	0.0000	0.0985	0.0985	0.0000	0.0000	0.0985
Total	7.0000e- 005	8.8000e- 004	5.0000e- 004	0.0000	2.7000e- 004	0.0000	2.7000e- 004	7.0000e- 005	0.0000	7.0000e- 005	0.0000	0.2815	0.2815	1.0000e- 005	0.0000	0.2819

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3.13 Building #2 - Paving - 2022 Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Off-Road	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
Paving	1.3500e- 003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.3500e- 003	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Unmitigated Construction Off-Site

	ROG	NOx	СО	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					ton	s/yr							МТ	/уг		
Hauling	9.0000e- 005	3.5600e- 003	7.2000e- 004	1.0000e- 005	1.8000e- 004	1.0000e- 005	1.8000e- 004	5.0000e- 005	1.0000e- 005	5.0000e- 005	0.0000	0.8133	0.8133	5.0000e- 005	0.0000	0.8145
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e- 004	1.3000e- 004	1.4200e- 003	0.0000	5.4000e- 004	0.0000	5.4000e- 004	1.4000e- 004	0.0000	1.5000e- 004	0.0000	0.4271	0.4271	1.0000e- 005	0.0000	0.4273
Total	2.8000e- 004	3.6900e- 003	2.1400e- 003	1.0000e- 005	7.2000e- 004	1.0000e- 005	7.2000e- 004	1.9000e- 004	1.0000e- 005	2.0000e- 004	0.0000	1.2404	1.2404	6.0000e- 005	0.0000	1.2418

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3.13 Building #2 - Paving - 2022 Mitigated Construction On-Site

	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
Off-Road	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
Paving	1.3500e- 003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.3500e- 003	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

Mitigated Construction Off-Site

	ROG	NOx	СО	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					ton	s/yr							MT	⁻ /yr		
Hauling	9.0000e- 005	3.5600e- 003	7.2000e- 004	1.0000e- 005	1.8000e- 004	1.0000e- 005	1.8000e- 004	5.0000e- 005	1.0000e- 005	5.0000e- 005	0.0000	0.8133	0.8133	5.0000e- 005	0.0000	0.8145
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e- 004	1.3000e- 004	1.4200e- 003	0.0000	5.4000e- 004	0.0000	5.4000e- 004	1.4000e- 004	0.0000	1.5000e- 004	0.0000	0.4271	0.4271	1.0000e- 005	0.0000	0.4273
Total	2.8000e- 004	3.6900e- 003	2.1400e- 003	1.0000e- 005	7.2000e- 004	1.0000e- 005	7.2000e- 004	1.9000e- 004	1.0000e- 005	2.0000e- 004	0.0000	1.2404	1.2404	6.0000e- 005	0.0000	1.2418

4.0 Operational Detail - Mobile

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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					ton	s/yr							MT	/yr		
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Ave	rage Daily Trip Ra	ate	Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

		Miles		Trip % -NW H-W or C-W H-S or C-C H-O or C- 59.00 28.00 13.00				Trip Purpos	e %
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

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Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.610498	0.036775	0.183084	0.106123	0.014413	0.005007	0.012610	0.021118	0.002144	0.001548	0.005312	0.000627	0.000740
Parking Lot	0.610498	0.036775	0.183084	0.106123	0.014413	0.005007	0.012610	0.021118	0.002144	0.001548	0.005312	0.000627	0.000740

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	СО	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					ton	s/yr							MT	/уг		
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated	,,				1 1	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000	1 1	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	0.0000

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5.2 Energy by Land Use - NaturalGas <u>Unmitigated</u>

	NaturalGa s Use	ROG	NOx	СО	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					ton	s/yr							МТ	/yr		
General Light 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	0.0000
Parking Lot	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	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	0.0000

Mitigated

	NaturalGa s 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					ton	s/yr							MT	/yr		
General Light 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	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000	 	0.0000	0.0000	1 1 1 1	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	0.0000

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5.3 Energy by Land Use - Electricity Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr		МТ	-/yr	
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	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		МТ	⁻/yr	
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	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					ton	s/yr							MT	/yr		
Mitigated	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	i i		i i i	i i	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

6.2 Area by SubCategory

<u>Unmitigated</u>

	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					ton	s/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
Total	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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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					ton	s/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
Total	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category		МТ	√yr	
Mitigated	0.0000 	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

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7.2 Water by Land Use <u>Unmitigated</u>

	Indoor/Out door Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal		МТ	√yr	
General Light Industry	0/0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0/0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Indoor/Out door Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal		MT	-/yr	
General Light Industry	0/0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0/0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail

8.1 Mitigation Measures Waste

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Category/Year

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

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons		МТ	-/yr	
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

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8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons		МТ	-/yr	
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	490.00	1000sqft	11.25	490,000.00	0
Parking Lot	140.00	Space	1.26	56,000.00	0

1.2 Other Project Characteristics

UrbanizationUrbanWind Speed (m/s)2.2Precipitation Freq (Days)58Climate Zone4Operational Year2022

oporano a la companya de la companya

Utility Company Pacific Gas & Electric Company

 CO2 Intensity
 641.35
 CH4 Intensity
 0.029
 N20 Intensity
 0.006

 (lb/MWhr)
 (lb/MWhr)
 (lb/MWhr)
 (lb/MWhr)

1.3 User Entered Comments & Non-Default Data

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Project Characteristics -

Land Use -

Construction Phase - Default construction timeline as this run assesses only operational emissions

Off-road Equipment - Zeroed out all construction equipment as this run assesses only operational emissions

Off-road Equipment - Zeroed out all construction equipment as this run assesses only operational emissions

Off-road Equipment - Zeroed out all construction equipment as this run assesses only operational emissions

Off-road Equipment - Zeroed out all construction equipment as this run assesses only operational emissions

Off-road Equipment - Per revised 10-3-19 AQ Construction Data Request Form SKA 82619

Off-road Equipment - Zeroed out all construction equipment as this run assesses only operational emissions

Off-road Equipment - Zeroed out all construction equipment as this run assesses only operational emissions

Off-road Equipment - Zeroed out all construction equipment as this run assesses only operational emissions

Off-road Equipment - Zeroed out all construction equipment as this run assesses only operational emissions

Off-road Equipment - Zeroed out all construction equipment as this run assesses only operational emissions

Off-road Equipment - Zeroed out all construction equipment as this run assesses only operational emissions

Trips and VMT - Zeroed out all construction trips as this run assesses only operational emissions

Demolition -

Grading - This run assesses only operational emissions

Vehicle Trips - Per anticipated trip information provided by client: total 30 full time & 27 part time employees per day, plus 5 non-worker visitors per day. This breaks down to 92% worker and 8% non-worker trips per day.

Construction Off-road Equipment Mitigation - This run assesses operational emissions only

Architectural Coating - This run assesses only operational emissions

Mobile Land Use Mitigation - No operational mitigation applied

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	245,000.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	245,000.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	735,000.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	735,000.00	0.00

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tblArchitecturalCoating	ConstArea_Parking	3,360.00	0.00
tblArchitecturalCoating	ConstArea_Parking	3,360.00	0.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblGrading	AcresOfGrading	0.00	75.00
tblGrading	AcresOfGrading	0.00	75.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblTripsAndVMT	VendorTripNumber	89.00	0.00
tblTripsAndVMT	VendorTripNumber	89.00	0.00
tblTripsAndVMT	WorkerTripNumber	229.00	0.00
tblTripsAndVMT	WorkerTripNumber	46.00	0.00
tblTripsAndVMT	WorkerTripNumber	229.00	0.00
tblTripsAndVMT	WorkerTripNumber	46.00	0.00
tblVehicleTrips	CC_TTP	28.00	0.00
tblVehicleTrips	CNW_TTP	13.00	8.00
tblVehicleTrips	CW_TTP	59.00	92.00
tblVehicleTrips	ST_TR	1.32	0.25
tblVehicleTrips	SU_TR	0.68	0.25
tblVehicleTrips	WD_TR	6.97	0.25

2.0 Emissions Summary

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2.1 Overall Construction <u>Unmitigated Construction</u>

	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					ton	s/yr							MT	/yr		
2019	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
2020	0.0000	0.0000	0.0000	0.0000	0.0795	0.0000	0.0795	8.5900e- 003	0.0000	8.5900e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2021	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
2022	3.3000e- 003	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
Maximum	3.3000e- 003	0.0000	0.0000	0.0000	0.0795	0.0000	0.0795	8.5900e- 003	0.0000	8.5900e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Tota	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year					tor	ıs/yr							M	T/yr		
20.0	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	0.0000	0.0000	0.0000
2020	0.0000	0.0000	0.0000	0.0000	0.0795	0.0000	0.0795	8.5900e- 003	0.0000	8.5900e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2021	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
2022	3.3000e- 003	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
Maximum	3.3000e- 003	0.0000	0.0000	0.0000	0.0795	0.0000	0.0795	8.5900e- 003	0.0000	8.5900e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
11	6-15-2022	9-14-2022	0.0024	0.0024
12	9-15-2022	9-30-2022	0.0009	0.0009
		Highest	0.0024	0.0024

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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					ton	s/yr							MT	/yr		
Area	2.1745	5.0000e- 005	5.8000e- 003	0.0000		2.0000e- 005	2.0000e- 005		2.0000e- 005	2.0000e- 005	0.0000	0.0113	0.0113	3.0000e- 005	0.0000	0.0120
Energy	0.0697	0.6336	0.5323	3.8000e- 003		0.0482	0.0482		0.0482	0.0482	0.0000	1,872.928 2	1,872.928 2	0.0667	0.0237	1,881.663 2
Mobile	0.0324	0.1462	0.4252	1.5500e- 003	0.1460	1.3000e- 003	0.1473	0.0391	1.2100e- 003	0.0403	0.0000	142.1994	142.1994	4.5400e- 003	0.0000	142.3129
Waste						0.0000	0.0000		0.0000	0.0000	123.3373	0.0000	123.3373	7.2890	0.0000	305.5630
Water						0.0000	0.0000		0.0000	0.0000	35.9488	178.3677	214.3165	3.7004	0.0889	333.3032
(Total)	2.2766	0.7799	0.9633	5.3500e- 003	0.1460	0.0495	0.1955	0.0391	0.0494	0.0885	159.2861	2,193.506 6	2,352.792 7	11.0607	0.1126	2,662.854 2

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2.2 Overall Operational

Mitigated Operational

	ROG	NOx	СО	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					tor	ıs/yr							M٦	Г/уг		
Area	2.1745	5.0000e- 005	5.8000e- 003	0.0000	1 1 1	2.0000e- 005	2.0000e- 005	! !	2.0000e- 005	2.0000e- 005	0.0000	0.0113	0.0113	3.0000e- 005	0.0000	0.0120
Energy	0.0697	0.6336	0.5323	3.8000e- 003	,	0.0482	0.0482	,	0.0482	0.0482	0.0000	1,872.928 2	1,872.928 2	0.0667	0.0237	1,881.663 2
Mobile	0.0324	0.1462	0.4252	1.5500e- 003	0.1460	1.3000e- 003	0.1473	0.0391	1.2100e- 003	0.0403	0.0000	142.1994	142.1994	4.5400e- 003	0.0000	142.3129
Waste	6:			,	 	0.0000	0.0000	; ; ; ;	0.0000	0.0000	123.3373	0.0000	123.3373	7.2890	0.0000	305.5630
Water	e: •:			,	,	0.0000	0.0000	,	0.0000	0.0000	35.9488	178.3677	214.3165	3.7004	0.0889	333.3032
Total	2.2766	0.7799	0.9633	5.3500e- 003	0.1460	0.0495	0.1955	0.0391	0.0494	0.0885	159.2861	2,193.506 6	2,352.792 7	11.0607	0.1126	2,662.854 2
_	ROG	N	lOx C	o s	O2 Fug	itive Exh	aust PM2	2.5 Bio-	CO2 NBio-	CO2 Total	CO2 CH	14 N2	20 C			

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

3.0 Construction Detail

Construction Phase

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site and Building #1 - Demolition	Demolition	12/15/2019	1/10/2020	5	20	
2	Site and Building #1 - Site Preparation	Site Preparation	1/11/2020	1/24/2020	5	10	
3	Site and Building #1 - Grading	Grading	1/25/2020	3/6/2020	5	30	
4	Building #2 - Grading	Grading	3/7/2020	4/17/2020	5	30	
5	Site and Building #1 - Building Construction	Building Construction	4/18/2020	6/11/2021	5	300	
6	Building #2 - Building Construction	Building Construction	6/12/2021	8/5/2022	5	300	
7	Site and Building #1 - Paving	Paving	8/6/2022	9/2/2022	5	20	
8	Building #2 - Paving	Paving	9/3/2022	9/30/2022	5	20	
9	Site and Building #1 - Architectural Coating	Architectural Coating	10/1/2022	10/28/2022	5	20	
10	Building #2 - Architectural Coating	Architectural Coating	10/29/2022	11/25/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 1.26

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 and Building #1 - Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Site and Building #1 - Demolition	Excavators	0	8.00	158	0.38
Site and Building #1 - Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Site and Building #1 - Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site and Building #1 - Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site and Building #1 - Grading	Excavators	0	8.00	158	0.38

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Site and Building #1 - Grading	Graders	0	8.00	187	0.41
Site and Building #1 - Grading	Rubber Tired Dozers	0	8.00	247	0.40
Site and Building #1 - Grading	Scrapers	0	8.00	367	0.48
Site and Building #1 - Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site and Building #1 - Building Construction	Cranes	0	7.00	231	0.29
Site and Building #1 - Building Construction	Forklifts	0	8.00	89	0.20
Site and Building #1 - Building Construction	Generator Sets	0	8.00	84	0.74
Site and Building #1 - Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Site and Building #1 - Building Construction	Welders	0	8.00	46	0.45
Site and Building #1 - Architectural Coating	Air Compressors	0	6.00	78	0.48
Site and Building #1 - Paving	Pavers	0	8.00	130	0.42
Site and Building #1 - Paving	Paving Equipment	0	8.00	132	0.36
Site and Building #1 - Paving	Rollers	0	8.00	80	0.38
Building #2 - Grading	Excavators	0	8.00	158	0.38
Building #2 - Grading	Graders	0	8.00	187	0.41
Building #2 - Grading	Rubber Tired Dozers	0	8.00	247	0.40
Building #2 - Grading	Scrapers	0	8.00	367	0.48
Building #2 - Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building #2 - Building Construction	Cranes	0	7.00	231	0.29
Building #2 - Building Construction	Forklifts	0	8.00	89	0.20
Building #2 - Building Construction	Generator Sets	0	8.00	84	0.74
Building #2 - Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Building #2 - Building Construction	Welders	0	8.00	46	0.45
Building #2 - Architectural Coating	Air Compressors	0	6.00	78	0.48
Building #2 - Paving	Pavers	0	8.00	130	0.42
Building #2 - Paving	Paving Equipment	0	8.00	132	0.36

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	E	Building #2 - Paving	Rollers	0	8.00	80	0.38
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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 and Building #1 -	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site and Building #1 -	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site and Building #1 -	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site and Building #1 -	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site and Building #1 -	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site and Building #1 -	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building #2 - Grading	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building #2 - Building	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building #2 -	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building #2 - Paving	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

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3.2 Site and Building #1 - Demolition - 2019 Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
1 agilive Busi					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

Unmitigated Construction Off-Site

	ROG	NOx	СО	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					ton	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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.2 Site and Building #1 - Demolition - 2019 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					ton	s/yr							MT	/yr		
Fugitive Dust	11 11 11				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

Mitigated Construction Off-Site

	ROG	NOx	СО	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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
Worker	0.0000	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				
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	0.0000	0.0000	0.0000				

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3.2 Site and Building #1 - Demolition - 2020 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					ton	s/yr							MT	/yr		
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

Unmitigated Construction Off-Site

	ROG	NOx	СО	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					ton	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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.2 Site and Building #1 - Demolition - 2020 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							
1 agilive Busi					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		
Total	0.0000	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		

Mitigated Construction Off-Site

	ROG	NOx	СО	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					ton	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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.3 Site and Building #1 - Site Preparation - 2020 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					ton	s/yr							MT	/yr		
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.3 Site and Building #1 - Site Preparation - 2020 <u>Mitigated Construction On-Site</u>

	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					ton	s/yr							MT	/yr		
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.4 Site and Building #1 - Grading - 2020 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					ton	s/yr							MT	/yr		
I agilive busi					0.0398	0.0000	0.0398	4.2900e- 003	0.0000	4.2900e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0398	0.0000	0.0398	4.2900e- 003	0.0000	4.2900e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.4 Site and Building #1 - Grading - 2020 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					ton	s/yr							MT	/yr		
Fugitive Dust					0.0398	0.0000	0.0398	4.2900e- 003	0.0000	4.2900e- 003	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	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0398	0.0000	0.0398	4.2900e- 003	0.0000	4.2900e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	ROG	NOx	СО	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					ton	s/yr							МТ	/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.5 Building #2 - Grading - 2020 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					ton	s/yr							MT	/yr		
Fugitive Dust					0.0398	0.0000	0.0398	4.2900e- 003	0.0000	4.2900e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	 	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0398	0.0000	0.0398	4.2900e- 003	0.0000	4.2900e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.5 Building #2 - Grading - 2020 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					ton	s/yr							MT	/yr		
Fugitive Dust					0.0398	0.0000	0.0398	4.2900e- 003	0.0000	4.2900e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	1 1 1	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	0.0398	0.0000	0.0398	4.2900e- 003	0.0000	4.2900e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.6 Site and Building #1 - Building Construction - 2020 Unmitigated Construction On-Site

	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
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	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	0.0000

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.6 Site and Building #1 - Building Construction - 2020 Mitigated Construction On-Site

	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.6 Site and Building #1 - Building Construction - 2021 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					ton	s/yr							MT	/yr		
	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.6 Site and Building #1 - Building Construction - 2021 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					ton	s/yr							MT	/yr		
	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.7 Building #2 - Building Construction - 2021 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					ton	s/yr							MT	/yr		
	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	ROG	NOx	СО	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					ton	s/yr							МТ	/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.7 Building #2 - Building Construction - 2021 Mitigated Construction On-Site

	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.7 Building #2 - Building Construction - 2022 Unmitigated Construction On-Site

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

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.7 Building #2 - Building Construction - 2022 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					ton	s/yr							MT	/yr		
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	ROG	NOx	СО	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					ton	s/yr							МТ	/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.8 Site and Building #1 - Paving - 2022 <u>Unmitigated Construction On-Site</u>

	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
J. Troud	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
, aving	1.6500e- 003	 	1			0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.6500e- 003	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

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.8 Site and Building #1 - Paving - 2022 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					ton	s/yr							MT	/yr		
Off-Road	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
Paving	1.6500e- 003		1 1 1 1			0.0000	0.0000	 	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.6500e- 003	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

	ROG	NOx	СО	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					ton	s/yr							МТ	/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.9 Building #2 - Paving - 2022 Unmitigated Construction On-Site

	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
Off-Road	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
Paving	1.6500e- 003	 		i i	 	0.0000	0.0000	1 1 1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.6500e- 003	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

	ROG	NOx	СО	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					ton	s/yr							МТ	/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.9 Building #2 - Paving - 2022 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					ton	s/yr							МТ	/yr		
- Cirrioud	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
1	1.6500e- 003		i i		 	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.6500e- 003	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

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.10 Site and Building #1 - Architectural Coating - 2022 Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	ROG	NOx	СО	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					ton	s/yr							МТ	/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.10 Site and Building #1 - Architectural Coating - 2022 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					ton	s/yr							MT	/yr		
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	ROG	NOx	СО	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					ton	s/yr							МТ	/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.11 Building #2 - Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

	ROG	NOx	СО	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					ton	s/yr							МТ	/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

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3.11 Building #2 - Architectural Coating - 2022

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					ton	s/yr							MT	/yr		
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	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

Mitigated Construction Off-Site

	ROG	NOx	СО	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					ton	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	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
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	0.0000	0.0000	0.0000

4.0 Operational Detail - Mobile

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4.1 Mitigation Measures Mobile

	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
Mitigated	0.0324	0.1462	0.4252	1.5500e- 003	0.1460	1.3000e- 003	0.1473	0.0391	1.2100e- 003	0.0403	0.0000	142.1994	142.1994	4.5400e- 003	0.0000	142.3129
Unmitigated	0.0324	0.1462	0.4252	1.5500e- 003	0.1460	1.3000e- 003	0.1473	0.0391	1.2100e- 003	0.0403	0.0000	142.1994	142.1994	4.5400e- 003	0.0000	142.3129

4.2 Trip Summary Information

	Ave	rage Daily Trip Ra	ate	Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	124.00	124.00	124.00	392,576	392,576
Parking Lot	0.00	0.00	0.00		
Total	124.00	124.00	124.00	392,576	392,576

4.3 Trip Type Information

		Miles			Trip %			Trip Purpos	e %
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	92.00	0.00	8.00	92	5	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

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Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.610498	0.036775	0.183084	0.106123	0.014413	0.005007	0.012610	0.021118	0.002144	0.001548	0.005312	0.000627	0.000740
Parking Lot	0.610498	0.036775	0.183084	0.106123	0.014413	0.005007	0.012610	0.021118	0.002144	0.001548	0.005312	0.000627	0.000740

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	СО	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					ton	s/yr							МТ	√yr		
Electricity Mitigated						0.0000	0.0000	i i	0.0000	0.0000	0.0000	1,183.136 9	1,183.136 9	0.0535	0.0111	1,187.772 8
Electricity Unmitigated	,,			 	,	0.0000	0.0000	,	0.0000	0.0000	0.0000	1,183.136 9	1,183.136 9	0.0535	0.0111	1,187.772 8
NaturalGas Mitigated	0.0697	0.6336	0.5323	3.8000e- 003	;	0.0482	0.0482	,	0.0482	0.0482	0.0000	689.7913	689.7913	0.0132	0.0127	693.8903
NaturalGas Unmitigated	0.0697	0.6336	0.5323	3.8000e- 003	,	0.0482	0.0482	yr	0.0482	0.0482	0.0000	689.7913	689.7913	0.0132	0.0127	693.8903

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5.2 Energy by Land Use - NaturalGas <u>Unmitigated</u>

	NaturalGa s 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					ton	s/yr							MT	/yr		
General Light Industry	1.29262e +007	0.0697	0.6336	0.5323	3.8000e- 003		0.0482	0.0482		0.0482	0.0482	0.0000	689.7913	689.7913	0.0132	0.0127	693.8903
Parking Lot	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	0.0000
Total		0.0697	0.6336	0.5323	3.8000e- 003		0.0482	0.0482		0.0482	0.0482	0.0000	689.7913	689.7913	0.0132	0.0127	693.8903

Mitigated

	NaturalGa s Use	ROG	NOx	СО	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					ton	s/yr							MT	/yr		
General Light Industry	1.29262e +007	0.0697	0.6336	0.5323	3.8000e- 003		0.0482	0.0482		0.0482	0.0482	0.0000	689.7913	689.7913	0.0132	0.0127	693.8903
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	1 1 1 1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0697	0.6336	0.5323	3.8000e- 003		0.0482	0.0482		0.0482	0.0482	0.0000	689.7913	689.7913	0.0132	0.0127	693.8903

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5.3 Energy by Land Use - Electricity Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr		МТ	-/yr	
General Light Industry	4.0474e +006	1,177.435 1	0.0532	0.0110	1,182.048 6
Parking Lot	19600	5.7019	2.6000e- 004	5.0000e- 005	5.7242
Total		1,183.136 9	0.0535	0.0111	1,187.772 8

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr		МТ	⁻/yr	
General Light Industry	4.0474e +006	1,177.435 1	0.0532	0.0110	1,182.048 6
Parking Lot	19600	5.7019	2.6000e- 004	5.0000e- 005	5.7242
Total		1,183.136 9	0.0535	0.0111	1,187.772 8

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					ton	s/yr							МТ	-/yr		
Mitigated	2.1745	5.0000e- 005	5.8000e- 003	0.0000		2.0000e- 005	2.0000e- 005		2.0000e- 005	2.0000e- 005	0.0000	0.0113	0.0113	3.0000e- 005	0.0000	0.0120
Unmitigated	2.1745	5.0000e- 005	5.8000e- 003	0.0000		2.0000e- 005	2.0000e- 005		2.0000e- 005	2.0000e- 005	0.0000	0.0113	0.0113	3.0000e- 005	0.0000	0.0120

6.2 Area by SubCategory Unmitigated

	ROG	NOx	СО	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					ton	s/yr							МТ	-/yr		
Architectural Coating	0.2567					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.9173					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.4000e- 004	5.0000e- 005	5.8000e- 003	0.0000		2.0000e- 005	2.0000e- 005		2.0000e- 005	2.0000e- 005	0.0000	0.0113	0.0113	3.0000e- 005	0.0000	0.0120
Total	2.1745	5.0000e- 005	5.8000e- 003	0.0000		2.0000e- 005	2.0000e- 005		2.0000e- 005	2.0000e- 005	0.0000	0.0113	0.0113	3.0000e- 005	0.0000	0.0120

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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					ton	s/yr							MT	/yr		
Architectural Coating	0.2567					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.9173					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.4000e- 004	5.0000e- 005	5.8000e- 003	0.0000		2.0000e- 005	2.0000e- 005		2.0000e- 005	2.0000e- 005	0.0000	0.0113	0.0113	3.0000e- 005	0.0000	0.0120
Total	2.1745	5.0000e- 005	5.8000e- 003	0.0000		2.0000e- 005	2.0000e- 005		2.0000e- 005	2.0000e- 005	0.0000	0.0113	0.0113	3.0000e- 005	0.0000	0.0120

7.0 Water Detail

7.1 Mitigation Measures Water

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	Total CO2	CH4	N2O	CO2e
Category		МТ	√yr	
	214.3165	3.7004	0.0889	333.3032
	214.3165	3.7004	0.0889	333.3032

7.2 Water by Land Use Unmitigated

	Indoor/Out door Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal		МТ	-/yr	
General Light Industry	113.313 / 0	214.3165	3.7004	0.0889	333.3032
Parking Lot	0/0	0.0000	0.0000	0.0000	0.0000
Total		214.3165	3.7004	0.0889	333.3032

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7.2 Water by Land Use

Mitigated

	Indoor/Out door Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal		МТ	-/yr	
General Light Industry	113.313 / 0	214.3165	3.7004	0.0889	333.3032
Parking Lot	0/0	0.0000	0.0000	0.0000	0.0000
Total		214.3165	3.7004	0.0889	333.3032

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
		МТ	-/yr	
	123.3373	7.2890	0.0000	305.5630
	123.3373	7.2890	0.0000	305.5630

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8.2 Waste by Land Use <u>Unmitigated</u>

	Waste Disposed	Total CO2	CH4	N2O	CO2e			
Land Use	tons	MT/yr						
General Light Industry	607.6	123.3373	7.2890	0.0000	305.5630			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000			
Total		123.3373	7.2890	0.0000	305.5630			

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons		MT	/yr	
General Light Industry	607.6	123.3373	7.2890	0.0000	305.5630
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		123.3373	7.2890	0.0000	305.5630

9.0 Operational Offroad

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

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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

ADDENDLY AO E. LOAD CODEENING ANALYCIC MODEL INDIE
APPENDIX AQ-5: LOAD SCREENING ANALYSIS MODEL INPUT

Load Screening Analysis AERMOD Point Source Data Inputs

		sis AERMOD Point Source Data Input	_	Ty 11 .	- I	n	a. 11 11.	ā. 1.	a. 1 1	0. 1 11
Index	ID	Description	X coordinate	Y coordinate	Elevation	Emission rate	Ü	Stack temp.	Stack velocity	Stack diameter
	07774.4		m	m	meters	g/s	meters	K	m/s	meters
1	GEN1A	Generator 1 at 100% Load	591486.6	4138688.8	6.51	1	7.650526	763.816667	45.589245	0.508
2	GEN1B	Generator 1 at 75% Load	591486.6	4138688.8	6.51	1	7.650526	732.316667	37.007324	0.508
3	GEN1C	Generator 1 at 50% Load	591486.6	4138688.8	6.51	1	7.650526	727.983333	28.903676	0.508
4	GEN1D	Generator 1 at 25% Load	591486.6	4138688.8	6.51	1	7.650526	717.094444	18.266155	0.508
5	GEN1E	Generator 1 at 10% Load	591486.6	4138688.8	6.51	1	7.650526	614.983333	11.177268	0.508
6	GEN2A	Generator 2 at 100% Load	591486.2	4138682.4	6.61	1	7.650526	763.816667	45.589245	0.508
7	GEN2B	Generator 2 at 75% Load	591486.2	4138682.4	6.61	1	7.650526	732.316667	37.007324	0.508
8	GEN2C	Generator 2 at 50% Load	591486.2	4138682.4	6.61	1	7.650526	727.983333	28.903676	0.508
9	GEN2D	Generator 2 at 25% Load	591486.2	4138682.4	6.61	1	7.650526	717.094444	18.266155	0.508
10	GEN2E	Generator 2 at 10% Load	591486.2	4138682.4	6.61	1	7.650526	614.983333	11.177268	0.508
11	GEN3A	Generator 3 at 100% Load	591485.8	4138676	6.72	1	7.650526	763.816667	45.589245	0.508
12	GEN3B	Generator 3 at 75% Load	591485.8	4138676	6.72	1	7.650526	732.316667	37.007324	0.508
13	GEN3C	Generator 3 at 50% Load	591485.8	4138676	6.72	1	7.650526	727.983333	28.903676	0.508
14	GEN3D	Generator 3 at 25% Load	591485.8	4138676	6.72	1	7.650526	717.094444	18.266155	0.508
15	GEN3E	Generator 3 at 10% Load	591485.8	4138676	6.72	1	7.650526	614.983333	11.177268	0.508
16	GEN4A	Generator 4 at 100% Load	591486.3	4138668.4	6.84	1	11.70965	763.816667	45.589245	0.508
17	GEN4B	Generator 4 at 75% Load	591486.3	4138668.4	6.84	1	11.70965	732.316667	37.007324	0.508
18	GEN4C	Generator 4 at 50% Load	591486.3	4138668.4	6.84	1	11.70965	727.983333	28.903676	0.508
19	GEN4D	Generator 4 at 25% Load	591486.3	4138668.4	6.84	1	11.70965	717.094444	18.266155	0.508
20	GEN4E	Generator 4 at 10% Load	591486.3	4138668.4	6.84	1	11.70965	614.983333	11.177268	0.508
21	GEN5A	Generator 5 at 100% Load	591485.3	4138668.5	6.84	1	11.70965	763.816667	45.589245	0.508
22	GEN5B	Generator 5 at 75% Load	591485.3	4138668.5	6.84	1	11.70965	732.316667	37.007324	0.508
23	GEN5C	Generator 5 at 50% Load	591485.3	4138668.5	6.84	1	11.70965	727.983333	28.903676	0.508
24	GEN5D	Generator 5 at 25% Load	591485.3	4138668.5	6.84	1	11.70965	717.094444	18.266155	0.508
25	GEN5E	Generator 5 at 10% Load	591485.3	4138668.5	6.84	1	11.70965	614.983333	11.177268	0.508
26	GEN6A	Generator 6 at 100% Load	591485.9	4138662.1	6.92	1	11.70965	763.816667	45.589245	0.508
27	GEN6B	Generator 6 at 75% Load	591485.9	4138662.1	6.92	1	11.70965	732.316667	37.007324	0.508
28	GEN6C	Generator 6 at 50% Load	591485.9	4138662.1	6.92	1	11.70965	727.983333	28.903676	0.508
29	GEN6D	Generator 6 at 25% Load	591485.9	4138662.1	6.92	1	11.70965	717.094444	18.266155	0.508
30	GEN6E	Generator 6 at 10% Load	591485.9	4138662.1	6.92	1	11.70965	614.983333	11.177268	0.508
31	GEN7A	Generator 7 at 100% Load	591484.9	4138662.1	6.91	1	11.70965	763.816667	45.589245	0.508
32	GEN7B	Generator 7 at 75% Load	591484.9	4138662.1	6.91	1	11.70965	732.316667	37.007324	0.508
33	GEN7C	Generator 7 at 50% Load	591484.9	4138662.1	6.91	1	11.70965	727.983333	28.903676	0.508
34	GEN7D	Generator 7 at 25% Load	591484.9	4138662.1	6.91	1	11.70965	717.094444	18.266155	0.508
35	GEN7E	Generator 7 at 10% Load	591484.9	4138662.1	6.91	1	11.70965	614.983333	11.177268	0.508
36	GEN8A	Generator 8 at 100% Load	591485.5	4138655.7	6.98	1	11.70965	763.816667	45.589245	0.508
37	GEN8B	Generator 8 at 75% Load	591485.5	4138655.7	6.98	1	11.70965	732.316667	37.007324	0.508
38	GEN8C	Generator 8 at 50% Load	591485.5	4138655.7	6.98	1	11.70965	727.983333	28.903676	0.508
39	GEN8D	Generator 8 at 25% Load	591485.5	4138655.7	6.98	1	11.70965	717.094444	18.266155	0.508
40	GEN8E	Generator 8 at 10% Load	591485.5	4138655.7	6.98	1	11.70965	614.983333	11.177268	0.508
41	GEN9A	Generator 9 at 100% Load	591484.5	4138655.8	6.98	1	11.70965	763.816667	45.589245	0.508
42	GEN9B	Generator 9 at 75% Load	591484.5	4138655.8	6.98	1	11.70965	732.316667	37.007324	0.508
43	GEN9C	Generator 9 at 50% Load	591484.5	4138655.8	6.98	1	11.70965	727.983333	28.903676	0.508
44	GEN9D	Generator 9 at 25% Load	591484.5	4138655.8	6.98	1	11.70965	717.094444	18.266155	0.508
45	GEN9E	Generator 9 at 10% Load	591484.5	4138655.8	6.98	1	11.70965	614.983333	11.177268	0.508

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Load Screening Analysis AERMOD Point Source Data Inputs

	_	sis AERMOD Point Source Data Input	_	37 1	[F]	In	C. 11 · 1.	C. 1.	lc. 1 1 ··	C. 1 1: .
Index	ID	Description	X coordinate	Y coordinate	Elevation	Emission rate		Stack temp.	Stack velocity	Stack diameter
	07774.04		m	m	meters	g/s	meters	K	m/s	meters
46	GEN10A	Generator 10 at 100% Load	591485.1	4138649.3	7.05	1	11.70965	763.816667	45.589245	0.508
47	GEN10B	Generator 10 at 75% Load	591485.1	4138649.3	7.05	1	11.70965	732.316667	37.007324	0.508
48	GEN10C	Generator 10 at 50% Load	591485.1	4138649.3	7.05	1	11.70965	727.983333	28.903676	0.508
49	GEN10D	Generator 10 at 25% Load	591485.1	4138649.3	7.05	1	11.70965	717.094444	18.266155	0.508
50	GEN10E	Generator 10 at 10% Load	591485.1	4138649.3	7.05	1	11.70965	614.983333	11.177268	0.508
51	GEN11A	Generator 11 at 100% Load	591484.1	4138649.4	7.05	1	11.70965	763.816667	45.589245	0.508
52	GEN11B	Generator 11 at 75% Load	591484.1	4138649.4	7.05	1	11.70965	732.316667	37.007324	0.508
53	GEN11C	Generator 11 at 50% Load	591484.1	4138649.4	7.05	1	11.70965	727.983333	28.903676	0.508
54	GEN11D	Generator 11 at 25% Load	591484.1	4138649.4	7.05	1	11.70965	717.094444	18.266155	0.508
55	GEN11E	Generator 11 at 10% Load	591484.1	4138649.4	7.05	1	11.70965	614.983333	11.177268	0.508
56	GEN12A	Generator 12 at 100% Load	591484.7	4138642.8	7.1	1	11.70965	763.816667	45.589245	0.508
57	GEN12B	Generator 12 at 75% Load	591484.7	4138642.8	7.1	1	11.70965	732.316667	37.007324	0.508
58	GEN12C	Generator 12 at 50% Load	591484.7	4138642.8	7.1	1	11.70965	727.983333	28.903676	0.508
59	GEN12D	Generator 12 at 25% Load	591484.7	4138642.8	7.1	1	11.70965	717.094444	18.266155	0.508
60	GEN12E	Generator 12 at 10% Load	591484.7	4138642.8	7.1	1	11.70965	614.983333	11.177268	0.508
61	GEN13A	Generator 13 at 100% Load	591483.7	4138642.9	7.1	1	11.70965	763.816667	45.589245	0.508
62	GEN13B	Generator 13 at 75% Load	591483.7	4138642.9	7.1	1	11.70965	732.316667	37.007324	0.508
63	GEN13C	Generator 13 at 50% Load	591483.7	4138642.9	7.1	1	11.70965	727.983333	28.903676	0.508
64	GEN13D	Generator 13 at 25% Load	591483.7	4138642.9	7.1	1	11.70965	717.094444	18.266155	0.508
65	GEN13E	Generator 13 at 10% Load	591483.7	4138642.9	7.1	1	11.70965	614.983333	11.177268	0.508
66	GEN14A	Generator 14 at 100% Load	591484.3	4138636.4	7.16	1	11.70965	763.816667	45.589245	0.508
67	GEN14B	Generator 14 at 75% Load	591484.3	4138636.4	7.16	1	11.70965	732.316667	37.007324	0.508
68	GEN14C	Generator 14 at 50% Load	591484.3	4138636.4	7.16	1	11.70965	727.983333	28.903676	0.508
69	GEN14D	Generator 14 at 25% Load	591484.3	4138636.4	7.16	1	11.70965	717.094444	18.266155	0.508
70	GEN14E	Generator 14 at 10% Load	591484.3	4138636.4	7.16	1	11.70965	614.983333	11.177268	0.508
71	GEN15A	Generator 15 at 100% Load	591483.2	4138636.5	7.16	1	11.70965	763.816667	45.589245	0.508
72	GEN15B	Generator 15 at 75% Load	591483.2	4138636.5	7.16	1	11.70965	732.316667	37.007324	0.508
73	GEN15C	Generator 15 at 50% Load	591483.2	4138636.5	7.16	1	11.70965	727.983333	28.903676	0.508
74	GEN15D	Generator 15 at 25% Load	591483.2	4138636.5	7.16	1	11.70965	717.094444	18.266155	0.508
75	GEN15E	Generator 15 at 10% Load	591483.2	4138636.5	7.16	1	11.70965	614.983333	11.177268	0.508
76	GEN16A	Generator 16 at 100% Load	591483.9	4138630.1	7.21	1	11.70965	763.816667	45.589245	0.508
77	GEN16B	Generator 16 at 75% Load	591483.9	4138630.1	7.21	1	11.70965	732.316667	37.007324	0.508
78	GEN16C	Generator 16 at 50% Load	591483.9	4138630.1	7.21	1	11.70965	727.983333	28.903676	0.508
79	GEN16D	Generator 16 at 25% Load	591483.9	4138630.1	7.21	1	11.70965	717.094444	18.266155	0.508
80	GEN16E	Generator 16 at 10% Load	591483.9	4138630.1	7.21	1	11.70965	614.983333	11.177268	0.508
81	GEN17A	Generator 17 at 100% Load	591482.8	4138630.1	7.21	1	11.70965	763.816667	45.589245	0.508
82	GEN17B	Generator 17 at 75% Load	591482.8	4138630.1	7.21	1	11.70965	732.316667	37.007324	0.508
83	GEN17C	Generator 17 at 50% Load	591482.8	4138630.1	7.21	1	11.70965	727.983333	28.903676	0.508
84	GEN17D	Generator 17 at 25% Load	591482.8	4138630.1	7.21	1	11.70965	717.094444	18.266155	0.508
85	GEN17E	Generator 17 at 10% Load	591482.8	4138630.1	7.21	1	11.70965	614.983333	11.177268	0.508
86	GEN18A	Generator 18 at 100% Load	591483.5	4138623.8	7.25	1	11.70965	763.816667	45.589245	0.508
87	GEN18B	Generator 18 at 75% Load	591483.5	4138623.8	7.25	1	11.70965	732.316667	37.007324	0.508
88	GEN18C	Generator 18 at 50% Load	591483.5	4138623.8	7.25	1	11.70965	727.983333	28.903676	0.508
89	GEN18D	Generator 18 at 25% Load	591483.5	4138623.8	7.25	1	11.70965	717.094444	18.266155	0.508
90	GEN18E	Generator 18 at 10% Load	591483.5	4138623.8	7.25	1	11.70965	614.983333	11.177268	0.508

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Load Screening Analysis AERMOD Point Source Data Inputs

		sis AERMOD Point Source Data Input	_	1	T=x .		1	T	T	T
Index	ID	Description	X coordinate	Y coordinate	Elevation	Emission rate		Stack temp.	Stack velocity	Stack diameter
			m	m	meters	g/s	meters	K	m/s	meters
91	GEN19A	Generator 19 at 100% Load	591482.4	4138623.9	7.25	1	11.70965	763.816667	45.589245	0.508
92	GEN19B	Generator 19 at 75% Load	591482.4	4138623.9	7.25	1	11.70965	732.316667	37.007324	0.508
93	GEN19C	Generator 19 at 50% Load	591482.4	4138623.9	7.25	1	11.70965	727.983333	28.903676	0.508
94	GEN19D	Generator 19 at 25% Load	591482.4	4138623.9	7.25	1	11.70965	717.094444	18.266155	0.508
95	GEN19E	Generator 19 at 10% Load	591482.4	4138623.9	7.25	1	11.70965	614.983333	11.177268	0.508
96	GEN20A	Generator 20 at 100% Load	591483.1	4138617.4	7.3	1	11.70965	763.816667	45.589245	0.508
97	GEN20B	Generator 20 at 75% Load	591483.1	4138617.4	7.3	1	11.70965	732.316667	37.007324	0.508
98	GEN20C	Generator 20 at 50% Load	591483.1	4138617.4	7.3	1	11.70965	727.983333	28.903676	0.508
99	GEN20D	Generator 20 at 25% Load	591483.1	4138617.4	7.3	1	11.70965	717.094444	18.266155	0.508
100	GEN20E	Generator 20 at 10% Load	591483.1	4138617.4	7.3	1	11.70965	614.983333	11.177268	0.508
101	GEN21A	Generator 21 at 100% Load	591482	4138617.5	7.3	1	11.70965	763.816667	45.589245	0.508
102	GEN21B	Generator 21 at 75% Load	591482	4138617.5	7.3	1	11.70965	732.316667	37.007324	0.508
103	GEN21C	Generator 21 at 50% Load	591482	4138617.5	7.3	1	11.70965	727.983333	28.903676	0.508
104	GEN21D	Generator 21 at 25% Load	591482	4138617.5	7.3	1	11.70965	717.094444	18.266155	0.508
105	GEN21E	Generator 21 at 10% Load	591482	4138617.5	7.3	1	11.70965	614.983333	11.177268	0.508
106	GEN22A	Generator 22 at 100% Load	591481.5	4138609.9	7.35	1	7.650526	763.816667	45.589245	0.508
107	GEN22B	Generator 22 at 75% Load	591481.5	4138609.9	7.35	1	7.650526	732.316667	37.007324	0.508
108	GEN22C	Generator 22 at 50% Load	591481.5	4138609.9	7.35	1	7.650526	727.983333	28.903676	0.508
109	GEN22D	Generator 22 at 25% Load	591481.5	4138609.9	7.35	1	7.650526	717.094444	18.266155	0.508
110	GEN22E	Generator 22 at 10% Load	591481.5	4138609.9	7.35	1	7.650526	614.983333	11.177268	0.508
111	GEN23A	Generator 23 at 100% Load	591481.2	4138603.6	7.38	1	7.650526	763.816667	45.589245	0.508
112	GEN23B	Generator 23 at 75% Load	591481.2	4138603.6	7.38	1	7.650526	732.316667	37.007324	0.508
113	GEN23C	Generator 23 at 50% Load	591481.2	4138603.6	7.38	1	7.650526	727.983333	28.903676	0.508
114	GEN23D	Generator 23 at 25% Load	591481.2	4138603.6	7.38	1	7.650526	717.094444	18.266155	0.508
115	GEN23E	Generator 23 at 10% Load	591481.2	4138603.6	7.38	1	7.650526	614.983333	11.177268	0.508
116	GEN24A	Generator 24 at 100% Load	591449.6	4138660.6	7.27	1	11.70965	763.816667	45.589245	0.508
117	GEN24B	Generator 24 at 75% Load	591449.6	4138660.6	7.27	1	11.70965	732.316667	37.007324	0.508
118	GEN24C	Generator 24 at 50% Load	591449.6	4138660.6	7.27	1	11.70965	727.983333	28.903676	0.508
119	GEN24D	Generator 24 at 25% Load	591449.6	4138660.6	7.27	1	11.70965	717.094444	18.266155	0.508
120	GEN24E	Generator 24 at 10% Load	591449.6	4138660.6	7.27	1	11.70965	614.983333	11.177268	0.508
121	GEN25A	Generator 25 at 100% Load	591450.6	4138660.5	7.25	1	11.70965	763.816667	45.589245	0.508
122	GEN25B	Generator 25 at 75% Load	591450.6	4138660.5	7.25	1	11.70965	732.316667	37.007324	0.508
123	GEN25C	Generator 25 at 50% Load	591450.6	4138660.5	7.25	1	11.70965	727.983333	28.903676	0.508
124	GEN25D	Generator 25 at 25% Load	591450.6	4138660.5	7.25	1	11.70965	717.094444	18.266155	0.508
125	GEN25E	Generator 25 at 10% Load	591450.6	4138660.5	7.25	1	11.70965	614.983333	11.177268	0.508
126	GEN26A	Generator 26 at 100% Load	591449.3	4138654.2	7.27	1	11.70965	763.816667	45.589245	0.508
127	GEN26B	Generator 26 at 75% Load	591449.3	4138654.2	7.27	1	11.70965	732.316667	37.007324	0.508
128	GEN26C	Generator 26 at 50% Load	591449.3	4138654.2	7.27	1	11.70965	727.983333	28.903676	0.508
129	GEN26D	Generator 26 at 25% Load	591449.3	4138654.2	7.27	1	11.70965	717.094444	18.266155	0.508
130	GEN26E	Generator 26 at 10% Load	591449.3	4138654.2	7.27	1	11.70965	614.983333	11.177268	0.508
131	GEN27A	Generator 27 at 100% Load	591450.1	4138654.1	7.26	1	11.70965	763.816667	45.589245	0.508
132	GEN27B	Generator 27 at 75% Load	591450.1	4138654.1	7.26	1	11.70965	732.316667	37.007324	0.508
133	GEN27C	Generator 27 at 50% Load	591450.1	4138654.1	7.26	1	11.70965	727.983333	28.903676	0.508
134	GEN27D	Generator 27 at 25% Load	591450.1	4138654.1	7.26	1	11.70965	717.094444	18.266155	0.508
135	GEN27E	Generator 27 at 10% Load	591450.1	4138654.1	7.26	1	11.70965	614.983333	11.177268	0.508

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Load Screening Analysis AERMOD Point Source Data Inputs

Load Scr	eening Analy:	sis AERMOD Point Source Data Inputs	3							
Index	ID	Description	X coordinate	Y coordinate	Elevation	Emission rate	Stack height	Stack temp.	Stack velocity	Stack diameter
			m	m	meters	g/s	meters	K	m/s	meters
136	GEN28A	Generator 28 at 100% Load	591448.9	4138647.9	7.29	1	11.70965	763.816667	45.589245	0.508
137	GEN28B	Generator 28 at 75% Load	591448.9	4138647.9	7.29	1	11.70965	732.316667	37.007324	0.508
138	GEN28C	Generator 28 at 50% Load	591448.9	4138647.9	7.29	1	11.70965	727.983333	28.903676	0.508
139	GEN28D	Generator 28 at 25% Load	591448.9	4138647.9	7.29	1	11.70965	717.094444	18.266155	0.508
140	GEN28E	Generator 28 at 10% Load	591448.9	4138647.9	7.29	1	11.70965	614.983333	11.177268	0.508
141	GEN29A	Generator 29 at 100% Load	591449.7	4138647.8	7.28	1	11.70965	763.816667	45.589245	0.508
142	GEN29B	Generator 29 at 75% Load	591449.7	4138647.8	7.28	1	11.70965	732.316667	37.007324	0.508
143	GEN29C	Generator 29 at 50% Load	591449.7	4138647.8	7.28	1	11.70965	727.983333	28.903676	0.508
144	GEN29D	Generator 29 at 25% Load	591449.7	4138647.8	7.28	1	11.70965	717.094444	18.266155	0.508
145	GEN29E	Generator 29 at 10% Load	591449.7	4138647.8	7.28	1	11.70965	614.983333	11.177268	0.508
146	GEN30A	Generator 30 at 100% Load	591448.5	4138641.3	7.31	1	11.70965	763.816667	45.589245	0.508
147	GEN30B	Generator 30 at 75% Load	591448.5	4138641.3	7.31	1	11.70965	732.316667	37.007324	0.508
148	GEN30C	Generator 30 at 50% Load	591448.5	4138641.3	7.31	1	11.70965	727.983333	28.903676	0.508
149	GEN30D	Generator 30 at 25% Load	591448.5	4138641.3	7.31	1	11.70965	717.094444	18.266155	0.508
150	GEN30E	Generator 30 at 10% Load	591448.5	4138641.3	7.31	1	11.70965	614.983333	11.177268	0.508
151	GEN31A	Generator 31 at 100% Load	591449.3	4138641.3	7.3	1	11.70965	763.816667	45.589245	0.508
152	GEN31B	Generator 31 at 75% Load	591449.3	4138641.3	7.3	1	11.70965	732.316667	37.007324	0.508
153	GEN31C	Generator 31 at 50% Load	591449.3	4138641.3	7.3	1	11.70965	727.983333	28.903676	0.508
154	GEN31D	Generator 31 at 25% Load	591449.3	4138641.3	7.3	1	11.70965	717.094444	18.266155	0.508
155	GEN31E	Generator 31 at 10% Load	591449.3	4138641.3	7.3	1	11.70965	614.983333	11.177268	0.508
156	GEN32A	Generator 32 at 100% Load	591448.1	4138635.1	7.33	1	11.70965	763.816667	45.589245	0.508
157	GEN32B	Generator 32 at 75% Load	591448.1	4138635.1	7.33	1	11.70965	732.316667	37.007324	0.508
158	GEN32C	Generator 32 at 50% Load	591448.1	4138635.1	7.33	1	11.70965	727.983333	28.903676	0.508
159	GEN32D	Generator 32 at 25% Load	591448.1	4138635.1	7.33	1	11.70965	717.094444	18.266155	0.508
160	GEN32E	Generator 32 at 10% Load	591448.1	4138635.1	7.33	1	11.70965	614.983333	11.177268	0.508
161	GEN33A	Generator 33 at 100% Load	591448.9	4138635.1	7.33	1	11.70965	763.816667	45.589245	0.508
162	GEN33B	Generator 33 at 75% Load	591448.9	4138635.1	7.33	1	11.70965	732.316667	37.007324	0.508
163	GEN33C	Generator 33 at 50% Load	591448.9	4138635.1	7.33	1	11.70965	727.983333	28.903676	0.508
164	GEN33D	Generator 33 at 25% Load	591448.9	4138635.1	7.33	1	11.70965	717.094444	18.266155	0.508
165	GEN33E	Generator 33 at 10% Load	591448.9	4138635.1	7.33	1	11.70965	614.983333	11.177268	0.508
166	GEN34A	Generator 34 at 100% Load	591447.7	4138628.6	7.36	1	11.70965	763.816667	45.589245	0.508
167	GEN34B	Generator 34 at 75% Load	591447.7	4138628.6	7.36	1	11.70965	732.316667	37.007324	0.508
168	GEN34C	Generator 34 at 50% Load	591447.7	4138628.6	7.36	1	11.70965	727.983333	28.903676	0.508
169	GEN34D	Generator 34 at 25% Load	591447.7	4138628.6	7.36	1	11.70965	717.094444	18.266155	0.508
170	GEN34E	Generator 34 at 10% Load	591447.7	4138628.6	7.36	1	11.70965	614.983333	11.177268	0.508
171	GEN35A	Generator 35 at 100% Load	591448.5	4138628.5	7.36	1	11.70965	763.816667	45.589245	0.508
172	GEN35B	Generator 35 at 75% Load	591448.5	4138628.5	7.36	1	11.70965	732.316667	37.007324	0.508
173	GEN35C	Generator 35 at 50% Load	591448.5	4138628.5	7.36	1	11.70965	727.983333	28.903676	0.508
174	GEN35D	Generator 35 at 25% Load	591448.5	4138628.5	7.36	1	11.70965	717.094444	18.266155	0.508
175	GEN35E	Generator 35 at 10% Load	591448.5	4138628.5	7.36	1	11.70965	614.983333	11.177268	0.508
176	GEN36A	Generator 36 at 100% Load	591447.3	4138622.3	7.39	1	11.70965	763.816667	45.589245	0.508
177	GEN36B	Generator 36 at 75% Load	591447.3	4138622.3	7.39	1	11.70965	732.316667	37.007324	0.508
178	GEN36C	Generator 36 at 50% Load	591447.3	4138622.3	7.39	1	11.70965	727.983333	28.903676	0.508
179	GEN36D	Generator 36 at 25% Load	591447.3	4138622.3	7.39	1	11.70965	717.094444	18.266155	0.508
180	GEN36E	Generator 36 at 10% Load	591447.3	4138622.3	7.39	1	11.70965	614.983333	11.177268	0.508

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Load Screening Analysis AERMOD Point Source Data Inputs

Index	ID	Description	X coordinate	Y coordinate	Elevation	Emission rate	Stack height	Stack temp.	Stack velocity	Stack diameter
			m	m	meters	g/s	meters	K	m/s	meters
181	GEN37A	Generator 37 at 100% Load	591448.2	4138622.2	7.38	1	11.70965	763.816667	45.589245	0.508
182	GEN37B	Generator 37 at 75% Load	591448.2	4138622.2	7.38	1	11.70965	732.316667	37.007324	0.508
183	GEN37C	Generator 37 at 50% Load	591448.2	4138622.2	7.38	1	11.70965	727.983333	28.903676	0.508
184	GEN37D	Generator 37 at 25% Load	591448.2	4138622.2	7.38	1	11.70965	717.094444	18.266155	0.508
185	GEN37E	Generator 37 at 10% Load	591448.2	4138622.2	7.38	1	11.70965	614.983333	11.177268	0.508
186	GEN38A	Generator 38 at 100% Load	591446.9	4138616	7.41	1	11.70965	763.816667	45.589245	0.508
187	GEN38B	Generator 38 at 75% Load	591446.9	4138616	7.41	1	11.70965	732.316667	37.007324	0.508
188	GEN38C	Generator 38 at 50% Load	591446.9	4138616	7.41	1	11.70965	727.983333	28.903676	0.508
189	GEN38D	Generator 38 at 25% Load	591446.9	4138616	7.41	1	11.70965	717.094444	18.266155	0.508
190	GEN38E	Generator 38 at 10% Load	591446.9	4138616	7.41	1	11.70965	614.983333	11.177268	0.508
191	GEN39A	Generator 39 at 100% Load	591447.8	4138615.9	7.41	1	11.70965	763.816667	45.589245	0.508
192	GEN39B	Generator 39 at 75% Load	591447.8	4138615.9	7.41	1	11.70965	732.316667	37.007324	0.508
193	GEN39C	Generator 39 at 50% Load	591447.8	4138615.9	7.41	1	11.70965	727.983333	28.903676	0.508
194	GEN39D	Generator 39 at 25% Load	591447.8	4138615.9	7.41	1	11.70965	717.094444	18.266155	0.508
195	GEN39E	Generator 39 at 10% Load	591447.8	4138615.9	7.41	1	11.70965	614.983333	11.177268	0.508
196	GEN40A	Generator 40 at 100% Load	591446.5	4138609.6	7.44	1	11.70965	763.816667	45.589245	0.508
197	GEN40B	Generator 40 at 75% Load	591446.5	4138609.6	7.44	1	11.70965	732.316667	37.007324	0.508
198	GEN40C	Generator 40 at 50% Load	591446.5	4138609.6	7.44	1	11.70965	727.983333	28.903676	0.508
199	GEN40D	Generator 40 at 25% Load	591446.5	4138609.6	7.44	1	11.70965	717.094444	18.266155	0.508
200	GEN40E	Generator 40 at 10% Load	591446.5	4138609.6	7.44	1	11.70965	614.983333	11.177268	0.508
201	GEN41A	Generator 41 at 100% Load	591447.4	4138609.5	7.43	1	11.70965	763.816667	45.589245	0.508
202	GEN41B	Generator 41 at 75% Load	591447.4	4138609.5	7.43	1	11.70965	732.316667	37.007324	0.508
203	GEN41C	Generator 41 at 50% Load	591447.4	4138609.5	7.43	1	11.70965	727.983333	28.903676	0.508
204	GEN41D	Generator 41 at 25% Load	591447.4	4138609.5	7.43	1	11.70965	717.094444	18.266155	0.508
205	GEN41E	Generator 41 at 10% Load	591447.4	4138609.5	7.43	1	11.70965	614.983333	11.177268	0.508
206	GEN42A	Generator 42 at 100% Load	591446.2	4138603.0	7.46	1	11.70965	763.816667	45.589245	0.508
207	GEN42B	Generator 42 at 75% Load	591446.2	4138603.0	7.46	1	11.70965	732.316667	37.007324	0.508
208	GEN42C	Generator 42 at 50% Load	591446.2	4138603.0	7.46	1	11.70965	727.983333	28.903676	0.508
209	GEN42D	Generator 42 at 25% Load	591446.2	4138603.0	7.46	1	11.70965	717.094444	18.266155	0.508
210	GEN42E	Generator 42 at 10% Load	591446.2	4138603.0	7.46	1	11.70965	614.983333	11.177268	0.508
211	GEN43A	Generator 43 at 100% Load	591447.1	4138603.0	7.46	1	11.70965	763.816667	45.589245	0.508
212	GEN43B	Generator 43 at 75% Load	591447.1	4138603.0	7.46	1	11.70965	732.316667	37.007324	0.508
213	GEN43C	Generator 43 at 50% Load	591447.1	4138603.0	7.46	1	11.70965	727.983333	28.903676	0.508
214	GEN43D	Generator 43 at 25% Load	591447.1	4138603.0	7.46	1	11.70965	717.094444	18.266155	0.508
215	GEN43E	Generator 43 at 10% Load	591447.1	4138603.0	7.46	1	11.70965	614.983333	11.177268	0.508
216	LSGEN44F	Life Safety Generator 44 at 100% Load	591485.8	4138596.8	7.42	1	4.602526	807.761111	69.638173	0.2032
217	LSGEN45F	Life Safety Generator 45 at 100% Load	591445.9	4138667.2	7.38	1	4.602526	807.761111	69.638173	0.2032

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APPENDIX AQ-6: LOAD SCREENING ANALYSIS	MODEL TOTAL OUTPUT

Total Loud S	1-Hr Averaging Period							3-Hr Averaging Period			8-Hr Averaging Period				24-Hr Averaging Period					
			I-III Averag	ing remou					3-III Averag				0-111 Averag	ling reriou			24-III A	veraging reriou		
			Maximum						_	Maximum				Maximum				Maximum		21.6
	X coordinate	Y coordinate	Unitized	NO_2	CO	SO_2	PM	X coordinate	Y coordinate	Unitized	SO ₂	X coordinate	Y coordinate	Unitized	CO	X coordinate	Y coordinate	Unitized	SO_2	PM _{2.5/10}
			Concentration							Concentration				Concentration				Concentration		
ID	m	m	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	m	m	(μg/m ³)	$(\mu g/m^3)$	m	m	$(\mu g/m^3)$	$(\mu g/m^3)$	m	m	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$
GEN1A	591476	4138795.2	94.87	509.324	40.210	0.527	0.574	591476	4138795.2	81.11	0.451	591493.3	4138805.1	56.56	24.0	591625.5	4138597.8	43.10	0.239	0.261
GEN1B	591476	4138795.2	105.50	347.796	21.030	0.445	0.364	591476	4138795.2	91.63	0.387	591493.3	4138805.1	60.22	12.0	591625.5	4138597.8	47.07	0.199	0.162
GEN1C	591476	4138795.2	119.41	195.483	20.050	0.345	0.470	591476	4138795.2	101.32	0.293	591493.3	4138805.1	63.80	10.7	591625.5	4138597.8	51.56	0.149	0.203
GEN1D	591476	4138795.2	146.86	122.578		0.231	0.630	591493.3	4138805.1	127.96	0.201	591617.1	4138616	75.08	17.6	591617.1	4138616	63.71	0.100	0.273
GEN1E	591476	4138795.2	185.53	138.054	60.703	0.141	0.768	591493.3	4138805.1	174.27	0.132	591617.1	4138616	104.75	34.3	591617.1	4138616	83.30	0.063	0.345
GEN2A	591476	4138795.2	93.97	504.480		0.522	0.569	591476	4138795.2	80.57	0.448	591617.1	4138616	54.59	23.1	591625.5	4138597.8	42.77	0.238	0.259
GEN2B	591476	4138795.2	104.62	344.896		0.441	0.361	591493.3	4138805.1	90.42	0.382	591592.1	4138670.5	62.13	12.4	591625.5	4138597.8	47.37	0.200	0.163
GEN2C	591476	4138795.2	117.44	192.266	19.720	0.339	0.462	591493.3	4138805.1	103.35	0.299	591592.1	4138670.5	70.12	11.8	591625.5	4138597.8	52.09	0.150	0.205
GEN2D	591476	4138795.2	144.57	120.666		0.227	0.620	591493.3	4138805.1	132.81	0.209	591592.1	4138670.5	80.73	18.9	591625.5	4138597.8	61.94	0.097	0.266
GEN2E GEN3A	591476 591476	4138795.2	184.36 92.18	137.184 494.873	60.320 39.069	0.140 0.512	0.764 0.558	591493.3 591493.3	4138805.1 4138805.1	164.15 82.30	0.125 0.457	591617.1 591608.8	4138616 4138634.1	98.63 59.76	32.3 25.3	591625.5 591608.8	4138597.8	82.21 41.45	0.062 0.230	0.340 0.251
GEN3A GEN3B	591476	4138795.2 4138795.2	102.85	339.068		0.512	0.355	591493.3	4138805.1	92.71	0.457	591608.8	4138634.1	65.67	13.1	591608.8	4138634.1 4138634.1	45.86	0.230	0.251
GEN3D GEN3C	591476	4138795.2	115.41	188.947	19.379	0.434	0.333	591493.3	4138805.1	106.27	0.391	591608.8	4138634.1	71.85	12.1	591608.8	4138634.1	50.38		0.138
GEN3D	591476	4138795.2	141.78	118.337	33.232	0.223	0.608	591493.3	4138805.1	127.28	0.200	591608.8	4138634.1	91.95	21.6	591625.5	4138597.8	58.91	0.140	0.150
GEN3E	591476	4138795.2	183.61	136.628	60.076	0.140	0.760	591493.3	4138805.1	147.42	0.112	591608.8	4138634.1	122.38	40.0	591625.5	4138597.8	87.29	0.066	0.362
GEN4A	591592.1	4138670.5	79.57	427.215		0.442	0.482	591493.3	4138805.1	61.67	0.343	591339.9	4138671.5	48.00	20.3	591339.9	4138671.5	31.94	0.177	0.193
GEN4B	591608.8	4138634.1	90.67	298.923		0.383	0.313	591493.3	4138805.1	69.62	0.294	591339.9	4138671.5	53.09	10.6	591625.5	4138597.8	36.48		0.126
GEN4C	591608.8	4138634.1	94.97	155.480	15.947	0.274	0.374	591493.3	4138805.1	77.68	0.224	591339.9	4138671.5	57.53	9.7	591625.5	4138597.8	41.72	0.121	0.164
GEN4D	591335.7	4138611.7	122.27	102.048	28.657	0.192	0.524	591493.3	4138805.1	90.15	0.142	591493.3	4138805.1	65.66	15.4	591625.5	4138597.8	52.76	0.083	0.226
GEN4E	591336	4138621.4	159.04	118.344		0.121	0.659	591493.3	4138805.1	108.98	0.083	591625.5	4138597.8	87.23	28.5	591625.5	4138597.8	72.05		0.298
GEN5A	591608.8	4138634.1	79.64	427.584		0.442	0.482	591339.9	4138671.5	62.05	0.345	591339.9	4138671.5	53.14	22.5	591339.9	4138671.5	44.19	0.245	0.268
GEN5B	591608.8	4138634.1	88.79	292.720		0.375	0.306	591567	4138725	69.24	0.292	591339.9	4138671.5	58.44	11.6	591339.9	4138671.5	46.94	0.198	0.162
GEN5C	591336	4138621.4	99.35	162.647		0.287	0.391	591567	4138725	74.86	0.216	591339.9	4138671.5	63.48	10.7	591339.9	4138671.5	49.61	0.143	0.195
GEN5D GEN5E	591600.4 591336	4138652.3 4138621.4	121.19 160.60	101.148 119.504		0.191 0.122	0.520 0.665	591336 591625.5	4138621.4 4138597.8	84.88 110.47	0.134 0.084	591339.9 591625.5	4138671.5 4138597.8	68.88 84.04	16.1 27.5	591339.9 591625.5	4138671.5 4138597.8	53.13 69.36	0.084 0.053	0.228
GENSE GEN6A	591608.8	4138634.1	78.70	422.515	33.356	0.122	0.663	591341.3	4138691.5	67.43	0.084	591023.3		54.16	23.0	591339.9	4138671.5	47.80	0.033	0.287
GEN6B	591608.8	4138634.1	90.28	297.631	17.996	0.381	0.311	591341.3	4138691.5	73.55	0.310	591336		57.09	11.4	591339.9	4138671.5	52.36		0.181
GEN6C	591608.8	4138634.1	94.85	155.275		0.274	0.373	591341.3	4138691.5	80.29	0.232	591339.9	4138671.5	64.73	10.9	591339.9	4138671.5	55.83	0.161	0.220
GEN6D	591600.4	4138652.3	119.84	100.023	28.089	0.189	0.514	591341.3	4138691.5	91.41	0.144	591336	4138681.4	75.74	17.8	591339.9	4138671.5	61.10	0.096	0.262
GEN6E	591335.7	4138611.7	158.01	117.576	51.698	0.120	0.654	591354.2	4138726.1	119.80	0.091	591336	4138681.4	99.75	32.6	591339.9	4138671.5	67.28	0.051	0.279
GEN7A	591335.7	4138611.7	82.49	442.860	34.963	0.458	0.499	591341.3	4138691.5	68.55	0.381	591336	4138681.4	54.52	23.1	591339.9	4138671.5	49.14	0.273	0.298
GEN7B	591608.8	4138634.1	88.68	292.354	17.677	0.374	0.306	591341.3	4138691.5	74.27	0.313	591336	4138681.4	58.13	11.6	591339.9	4138671.5	52.59	0.222	0.181
GEN7C	591592.1	4138670.5	97.56		16.381	0.282	0.384	591341.3	4138691.5	81.04	0.234	591339.9	4138671.5	64.33	10.8	591339.9	4138671.5	56.33	0.163	0.222
GEN7D	591335.7	4138611.7					0.534	591341.3			0.146				17.9					0.264
GEN7E	591336	4138621.4		122.330		0.125	0.681	591354.2	4138726.1	120.62	0.092	591336		100.57	32.9			68.25		0.283
GEN8A GEN8B	591608.8 591608.8	4138634.1 4138634.1	80.60 90.00	432.748 296.696		0.448 0.380	0.488	591341.3 591341.3	4138691.5 4138691.5	69.55 75.93	0.386 0.320	591336 591336	+	56.51 61.44	24.0 12.2	591339.9 591339.9	4138671.5 4138671.5	51.66 55.83		0.313 0.193
GENOD GEN8C	591336	4138681.4	90.00	159.452		0.380	0.310	591341.3	4138691.5	82.54	0.320	591339.9			11.5	591339.9	4138671.5	59.88		0.193
GEN8D	591600.4	4138652.3		102.027		0.281	0.524	591341.3	4138691.5	93.89	0.238	591339.9			18.4	591339.9		66.05	0.173	0.283
GEN8E	591335.7	4138611.7	160.94		 	0.122	0.667	591341.3	4138691.5	116.39	0.088	591339.9		98.07	32.1	591339.9	4138671.5	74.28		0.308
GEN9A	591335.7	4138611.7				0.461	0.502	591341.3	4138691.5	70.03	0.389	591336	+	57.16	24.2	591339.9		52.34	0.291	0.317
GEN9B	591341.3	4138691.5	89.29			0.377	0.308	591341.3	4138691.5	76.22	0.322	591336		62.05	12.4	591339.9		56.54	0.239	0.195
GEN9C	591335.7	4138611.7	101.36	165.932		0.293	0.399	591341.3	4138691.5	83.28	0.241	591339.9		68.93	11.6	591339.9	4138671.5	60.48		0.238
GEN9D	591600.4	4138652.3	123.64	103.194		0.195	0.530	591341.3	4138691.5	94.93	0.149	591339.9	+		18.5	591339.9	4138671.5	66.65		0.286
GEN9E	591336	4138621.4		123.706		0.126	0.689	591341.3	4138691.5	117.26	0.089	591339.9			32.8	591339.9	4138671.5	75.45		0.312
GEN10A	591339.9	4138671.5	82.85	444.776		0.460	0.502	591371.6	4138735.9	66.74	0.371	591341.6	+	56.88	24.1	591339.9	4138671.5	51.26		0.310
GEN10B	591335.7	4138611.7	94.65	312.040		0.399	0.327	591341.3	4138691.5	72.73	0.307	591339.9		62.19	12.4	591339.9	4138671.5	56.33	0.238	0.194
GEN10C GEN10D	591592.1 591600.4	4138670.5 4138652.3	97.68 124.14	159.923 103.611		0.282 0.195	0.384 0.532	591341.3 591341.3	4138691.5 4138691.5	81.71 99.09	0.236 0.156	591339.9 591339.9		71.45 83.08	12.0 19.5	591339.9 591339.9		61.55 69.74	0.178 0.110	0.242 0.299
GEN10D GEN10E	591600.4	4138652.3	161.44	120.132		0.193	0.532	591341.3	4138691.5	122.71	0.156	591339.9		104.22	34.1	591339.9	4138671.5	79.91	0.110	0.299
GEN10E GEN11A	591339.9	4138671.5				0.123	0.669	591341.6	4138735.9	66.61	0.093	591339.9			24.4	591339.9		52.12		0.331
GEN11B	591339.9	4138671.5		314.765		0.403	0.329	591341.3	4138691.5	73.88	0.312	591339.9			12.5	591339.9	4138671.5	56.96	0.240	
GEN11C	591339.9	4138671.5		162.702		0.287	0.391	591341.3	4138691.5	83.29	0.241	591339.9		71.62	12.0	591339.9	4138671.5	62.08		0.244
GEN11D	591600.4	4138652.3		102.755	 	0.194	0.528	591341.3	4138691.5	99.15	0.156	591339.9		83.63	19.6	591339.9	4138671.5	70.28	0.111	0.301
GEN11E	591336	4138621.4	165.12			0.125	0.684	591341.6	4138695.6	124.15	0.094	591339.9			34.5	591339.9	4138671.5	80.46		0.333
GEN12A	591341.3	4138691.5	83.80	449.880		0.465	0.507	591336	4138681.4	63.85	0.355	591341.3		59.33	25.1	591341.3		53.23		0.322
GEN12B	591339.9	4138671.5	95.23	313.950	18.983	0.402	0.329	591339.9	4138671.5	74.47	0.314	591339.9	4138671.5	64.55	12.9	591339.9	4138671.5	59.08	0.249	0.204

	ad Screening Analysis AERMOD Output Concentration Results						2 Un Arranaging Davied				8-Hr Averaging Period				24 Hr Averaging Period					
	1-Hr Averaging Period				3-Hr Averaging Period				8-Hr Averag	Ing Period	24-Hr Averaging Period									
	X coordinate	Y coordinate	Maximum Unitized	NO ₂	СО	SO_2	PM	X coordinate	Y coordinate	Maximum Unitized	SO_2	X coordinate	Y coordinate	Maximum Unitized	СО	X coordinate	Y coordinate	Maximum Unitized	SO ₂	PM _{2.5/10}
			Concentration							Concentration				Concentration				Concentration		
ID	m	m	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$	m	m	$(\mu g/m^3)$	$(\mu g/m^3)$	m	m	(μg/m ³)	$(\mu g/m^3)$	m	m	$(\mu g/m^3)$	$(\mu g/m^3)$	$(\mu g/m^3)$
GEN12C	591339.9	4138671.5	100.43	164.418	16.863	0.290	0.395	591339.9	4138671.5	83.47	0.241	591339.9	4138671.5	73.14	12.3		4138671.5			
GEN12D	591600.4	4138652.3	124.28	103.730	29.130	0.196	0.533	591341.3	4138691.5	100.62	0.158	591339.9	4138671.5	86.30	20.2		4138671.5	72.77	0.114	0.312
GEN12E	591335.7	4138611.7	158.68	118.077	51.919	0.121	0.657	591341.3	4138691.5	128.09	0.097	591339.9	4138671.5	109.91	36.0		4138671.5	83.35	0.063	0.345
GEN13A	591339.9	4138671.5	86.07	462.091	36.481	0.478	0.521	591339.9	4138671.5	70.46	0.391	591336	4138681.4	59.71	25.3		4138691.5	54.83	0.305	
GEN13B GEN13C	591339.9 591339.9	4138671.5 4138671.5	99.90 98.06	329.330 160.541	19.913 16.466	0.422 0.283	0.345 0.386	591339.9 591339.9	4138671.5 4138671.5	75.17 82.83	0.317 0.239	591339.9 591339.9	4138671.5 4138671.5	64.94 74.04	12.9 12.4		4138671.5 4138671.5	59.71 64.76	0.252 0.187	0.206
GEN13C GEN13D	591600.4	4138652.3	122.29	102.064	28.662	0.263	0.524	591339.9	4138691.5	103.38	0.239	591339.9	4138671.5	86.58	20.3		4138671.5		0.167	
GEN13E	591335.7	4138611.7	160.44	119.385	52.494	0.122	0.664	591341.6	4138695.6	130.02	0.099	591339.9	4138671.5	110.57	36.2		4138671.5	83.89	0.064	+
GEN14A	591339.9	4138671.5	83.61	448.897	35.439	0.464	0.506	591336	4138681.4	66.13	0.367	591341.3	4138691.5	60.50	25.6		4138691.5	55.20	0.307	-
GEN14B	591336	4138681.4	97.50	321.422	19.435	0.411	0.336	591339.9	4138671.5	78.99	0.333	591339.9	4138671.5	65.50			4138671.5	60.05	0.253	
GEN14C	591341.3	4138691.5	100.93	165.243	16.948	0.292	0.397	591339.9	4138671.5	85.35	0.247	591339.9	4138671.5	73.10	12.3	591339.9	4138671.5	65.68	0.190	0.258
GEN14D	591336	4138681.4	123.31	102.920	28.902	0.194	0.529	591341.3	4138691.5	100.33	0.158	591339.9	4138671.5	87.54	20.5		4138671.5	74.70	0.118	
GEN14E	591339.9	4138671.5	157.98	117.557	51.690	0.120	0.654	591341.3	4138691.5	132.22	0.100	591339.9	4138671.5	109.47	35.8		4138691.5	85.87	0.065	
GEN15A	591339.9	4138671.5	83.21	446.758	35.270	0.462	0.504	591336	4138681.4	67.56	0.375	591341.3	4138691.5	61.02	25.9		4138691.5	55.79	0.310	
GEN15B GEN15C	591335.7 591339.9	4138611.7 4138671.5	94.32 107.09	310.956 175.324	18.802 17.982	0.398 0.309	0.325 0.421	591339.9 591339.9	4138671.5 4138671.5	78.21 87.08	0.330 0.252	591336 591339.9	4138681.4 4138671.5	66.43 74.00	13.2 12.4		4138671.5 4138671.5	60.98 66.21	0.257 0.191	0.210
GEN15C GEN15D	591339.9	4138671.5	107.09	175.324	29.309	0.309	0.421	591339.9	4138671.5	102.58	0.252	591339.9	4138671.5	88.39	20.7		4138671.5	75.20	0.191	+
GEN15D GEN15E	591339.9	4138671.5	160.59	119.495	52.542	0.137	0.550	591341.3	4138691.5	134.04	0.101	591339.9	4138671.5	111.30	36.4		4138691.5	86.87	0.116	-
GEN16A	591339.9	4138671.5	86.91	466.614	36.838	0.483	0.526	591341.3	4138691.5	66.87	0.371	591341.3	4138691.5	61.49	26.1		4138691.5	56.67	0.315	+
GEN16B	591339.9	4138671.5	95.81	315.848	19.098	0.404	0.331	591339.9	4138671.5	79.04	0.334	591341.3	4138691.5	67.72	13.5		4138691.5	61.20	0.258	
GEN16C	591339.9	4138671.5	107.69	176.309	18.083	0.311	0.424	591339.9	4138671.5	86.83	0.251	591341.3	4138691.5	73.08	12.3		4138671.5	65.91	0.190	
GEN16D	591336	4138661.4	125.75	104.959	29.475	0.198	0.539	591341.3	4138691.5	100.19	0.158	591339.9	4138671.5	88.18			4138671.5	75.34	0.119	
GEN16E	591339.9	4138671.5	159.46	118.657	52.174	0.121	0.660	591341.3	4138691.5	136.05	0.103	591339.9	4138671.5	110.86	36.3		4138691.5	87.55	0.067	0.363
GEN17A	591336	4138661.4	84.01		35.606	0.467	0.509	591341.3	4138691.5	68.27	0.379	591341.3	4138691.5	62.36			4138691.5	57.30	0.318	
GEN17B GEN17C	591336 591341.3	4138681.4 4138691.5	98.63 107.92	325.136 176.681	19.659 18.121	0.416 0.312	0.340 0.425	591339.9 591339.9	4138671.5 4138671.5	81.22 87.91	0.343 0.254	591341.3 591341.3	4138691.5 4138691.5	68.22 73.46	13.6 12.3		4138691.5 4138671.5	61.75 66.47	0.261 0.192	
GEN17C GEN17D	591341.5	4138681.4	126.26	105.378	29.593	0.312	0.423	591341.3	4138691.5	101.49	0.234	591339.9	4138671.5	88.79	20.8		4138671.5	75.78	0.192	
GEN17E	591339.9	4138671.5	161.51	120.179	52.843	0.123	0.669	591341.3	4138691.5	136.41	0.104	591339.9	4138671.5	113.03	37.0		4138691.5		0.067	0.367
GEN18A	591341.6	4138695.6	87.65	470.546	37.148	0.487	0.531	591341.6	4138695.6	68.03	0.378	591341.3	4138691.5	61.55	26.1		4138691.5	57.62	0.320	
GEN18B	591339.9	4138671.5	95.64	315.284	19.064	0.404	0.330	591339.9	4138671.5	76.88	0.324	591341.3	4138691.5	68.23	13.6	591341.3	4138691.5	62.15	0.262	0.214
GEN18C	591339.9	4138671.5	105.86	173.305	17.775	0.306	0.417	591339.9	4138671.5	87.92	0.254	591341.3	4138691.5	74.26			4138691.5	66.34	0.192	0.261
GEN18D	591339.9	4138671.5	125.31	104.587	29.370	0.197	0.537	591336	4138681.4	101.98	0.160	591339.9	4138671.5	87.44	20.5		4138671.5	75.29	0.118	
GEN18E	591341.6	4138695.6	158.72		51.932	0.121	0.657	591341.3	4138691.5	133.95	0.102	591339.9	4138671.5	112.18		1	4138691.5	88.05	0.067	_
GEN19A GEN19B	591339.9 591336	4138671.5 4138661.4	87.55 97.37		37.109 19.409	0.486	0.530 0.336	591341.3 591339.9	4138691.5 4138671.5	67.97 77.24	0.378 0.326	591341.3 591341.3	4138691.5 4138691.5						0.322 0.264	
GEN19B GEN19C	591339.9	4138671.5	108.80		18.269	0.411	0.330	591339.9	4138671.5	88.70	0.326	591341.3	4138691.5						0.204	
GEN19D	591336	4138681.4	126.40	105.499	29.626	0.199	0.542	591341.3	4138691.5	104.01	0.164	591339.9	4138671.5				4138671.5		0.119	
GEN19E	591339.9	4138671.5	162.09		53.033	0.123	0.671	591341.3	4138691.5	136.10	0.103	591339.9	4138671.5				4138691.5	88.63	0.067	
GEN20A	591339.9	4138671.5	89.77	481.976	38.051	0.499	0.544	591341.3	4138691.5	68.62	0.381	591341.3	4138691.5	63.46	26.9	591341.3	4138691.5	57.74	0.321	0.350
GEN20B	591339.9	4138671.5	98.23		19.581	0.415	0.339	591339.9	4138671.5	76.00	0.321	591341.6	4138695.6				4138691.5		0.263	-
GEN20C	591341.6	4138695.6	107.32	175.705	18.021	0.310	0.422	591341.6	4138695.6	85.19	0.246	591341.6	4138695.6		12.6		4138691.5	66.87	0.193	_
GEN20D	591336	4138681.4	123.66	103.208	28.983	0.195	0.530	591341.3	4138691.5	103.58	0.163	591341.6	4138695.6				4138671.5		0.118	
GEN20E	591336 591341.6	4138681.4	162.82	121.157	53.273	0.124 0.504	0.674 0.549	591341.3	4138691.5	132.03	0.100	591339.9	4138671.5		36.5 27.0		4138691.5		0.067	+
GEN21A GEN21B	591341.6 591339.9	4138695.6 4138671.5	90.66 98.27	486.756 323.964	38.428 19.589	0.504	0.549	591341.6 591339.9	4138695.6 4138671.5	69.18 76.76	0.384 0.324	591341.3 591341.6	4138691.5 4138695.6				4138691.5 4138691.5	58.22 62.75	0.323 0.265	+
GEN216 GEN21C	591339.9	4138671.5	104.84		17.604	0.303	0.339	591339.9	4138671.5	87.39	0.324	591341.6	4138695.6				4138691.5	67.28	0.203	
GEN21D	591336	4138681.4	124.78		29.246	0.196	0.535	591341.3	4138691.5	103.29	0.163	591341.6	4138695.6							
GEN21E	591336	4138681.4	163.88	121.944	53.619	0.125	0.679	591341.3	4138691.5	135.77	0.103	591339.9	4138671.5				4138691.5	88.50	0.067	+
GEN22A	591341.6	4138695.6	95.06	510.336	40.290	0.528	0.576	591339.9	4138671.5	85.20	0.473	591341.3	4138691.5	70.90	30.1	591341.3	4138691.5	65.98	0.366	0.399
GEN22B	591341.6	4138695.6	104.60		20.850	0.441	0.361	591341.3	4138691.5	91.74	0.387	591341.3	4138691.5				4138691.5		0.301	
GEN22C	591339.9	4138671.5	118.11		19.832	0.341	0.465	591341.3	4138691.5	97.38	0.281	591341.6	4138695.6				4138691.5		0.221	-
GEN22D	591336	4138661.4	138.98		32.575	0.219	0.596	591341.3	4138691.5	122.06	0.192	591341.6	4138695.6		23.4		4138671.5		0.134	
GEN22E	591336	4138681.4	176.79		57.843	0.134	0.732	591341.3	4138691.5	158.40	0.120	591339.9	4138671.5		45.9		4138691.5		0.081	
GEN23A GEN23B	591484.2 591484.2	4138529.8 4138529.8	100.58 111.32	539.974 366.976	42.630 22.189	0.559 0.470	0.609 0.384	591339.9 591341.6	4138671.5 4138695.6	82.83 92.57	0.460 0.391	591341.6 591341.6	4138695.6 4138695.6				4138691.5 4138691.5	65.77 70.94	0.365 0.299	
GEN23B GEN23C	591484.2	4138529.8	125.93		21.145	0.470	0.384	591341.6	4138695.6	92.57	0.391	591341.6	4138695.6		15.2		4138691.5		0.299	
GEN23C GEN23D	591484.2	4138529.8	155.18		36.372	0.304	0.490	591341.3	4138691.5	123.71	0.287	591341.6	4138695.6		23.5				0.220	

Total Boat S	creening Analy	SIS ALIGIDO O	Output Concenti 1-Hr Averag		1163				3-Hr Averagii	ng Period		8-Hr Averaging Period					24-Hr Averaging Period					
	Maximum				3 III Averagii	Maximum		O III Mveragi	Maximum		Maximum											
	X coordinate	Y coordinate	Unitized Concentration	NO ₂	CO	SO_2	PM	X coordinate	Y coordinate	Unitized Concentration	SO ₂	X coordinate	Y coordinate	Unitized Concentration	СО	X coordinate	Y coordinate	Unitized Concentration	SO ₂	PM _{2.5/10}		
ID	m	m	(μg/m ³)	(μg/m ³)	(μg/m ³)	(μg/m ³)	(μg/m ³)	m	m	(μg/m ³)	(μg/m ³)	m	m	(μg/m ³)	(μg/m ³)	m	m	(μg/m ³)	(μg/m ³)	(μg/m ³)		
GEN23E	591504.1	4138528.4	197.54	146.995	64.634	0.150	0.818	591341.6	4138695.6	158.01	0.120	591339.9	4138671.5	137.77	45.1	591341.3	4138691.5	106.44	0.081	0.441		
GEN24A	591338.5	4138651.6	94.44	507.011	40.027	0.525	0.572	591339.9	4138671.5	73.77	0.410	591339.9	4138671.5	67.15	28.5	591339.9	4138671.5	59.85	0.332	0.362		
GEN24B	591336	4138641.4	99.42	327.751	19.818	0.420	0.343	591339.9	4138671.5	80.69	0.341	591339.9	4138671.5	72.55			4138671.5	65.83	0.278	0.227		
GEN24C GEN24D	591339.9 591339.9	4138671.5	96.98 116.29	158.770 97.062	16.284 27.257	0.280 0.183	0.382 0.499	591339.9 591339.9	4138671.5 4138671.5	92.32 109.11	0.267 0.172	591339.9 591339.9	4138671.5	79.81 98.27	13.4 23.0	591339.9 591339.9	4138671.5 4138671.5	72.65 84.40	0.210	0.286		
GEN24D GEN24E	591339.9	4138671.5 4138641.4	116.29	134.982	59.352	0.183	0.499	591339.9	4138671.5	109.11	0.172	591339.9	4138671.5 4138671.5	118.79	38.9		4138671.5	95.47	0.133 0.073	0.362		
GEN25A	591338.5	4138651.6	95.67	513.607	40.548	0.531	0.579	591339.9	4138671.5	73.79	0.410	591339.9	4138671.5	67.05	28.4		4138671.5	59.78	0.332	0.362		
GEN25B	591336	4138641.4	98.99	326.335	19.732	0.418	0.342	591339.9	4138671.5	80.79	0.341	591339.9	4138671.5	72.58	14.5	+	4138671.5	65.80	0.278	0.227		
GEN25C	591336	4138641.4	113.04	185.056	18.980	0.326	0.445	591339.9	4138671.5	92.50	0.267	591339.9	4138671.5	79.98	13.4	591339.9	4138671.5	72.68	0.210	0.286		
GEN25D	591335.7	4138611.7	136.13	113.622	31.907	0.214	0.584	591339.9	4138671.5	108.80	0.171	591339.9	4138671.5	98.40	23.1		4138671.5	84.24	0.133	0.361		
GEN25E	591338.5	4138651.6	184.29	137.133	60.298	0.140	0.763	591336	4138621.4	145.55	0.111	591339.9	4138671.5	118.71	38.8		4138671.5	95.22	0.072	0.394		
GEN26A	591336	4138641.4	92.84 102.30	498.435	39.350	0.516	0.562	591336	4138681.4	75.08	0.417	591339.9	4138671.5	67.85	28.8	591336	4138681.4	61.51	0.342	0.372		
GEN26B GEN26C	591336 591336	4138641.4 4138641.4	102.30	337.253 203.370	20.392 20.858	0.432 0.359	0.353 0.489	591336 591339.9	4138681.4 4138671.5	82.54 94.24	0.348 0.272	591339.9 591339.9	4138671.5 4138671.5	74.13 81.55	14.8 13.7		4138671.5 4138671.5	67.44 74.41	0.285 0.215	0.233 0.293		
GEN26D	591339.9	4138671.5	119.17	99.466	27.932	0.339	0.409	591339.9	4138671.5	112.70	0.272	591339.9	4138671.5	100.09	23.5		4138671.5	86.07	0.213	0.369		
GEN26E	591335.7	4138611.7	168.03	125.032	54.977	0.128	0.696	591339.9	4138671.5	150.72	0.115	591339.9	4138671.5	120.43	39.4		4138671.5	97.06	0.074	0.402		
GEN27A	591338.5	4138651.6	96.84	519.899	41.045	0.538	0.586	591336	4138681.4	75.38	0.419	591339.9	4138671.5	67.87	28.8		4138681.4	61.41	0.341	0.372		
GEN27B	591339.9	4138671.5	89.71	295.733	17.882	0.379	0.309	591336	4138681.4	82.34	0.347	591339.9	4138671.5	74.16			4138671.5	67.48	0.285	0.233		
GEN27C	591336	4138641.4	114.48	187.422	19.223	0.331	0.451	591339.9	4138671.5	93.64	0.270	591339.9	4138671.5	81.60	13.7	+	4138671.5	74.38	0.215	0.293		
GEN27D	591338.5	4138651.6	142.56	118.989	33.415	0.224	0.611	591339.9	4138671.5	112.33	0.177	591339.9	4138671.5	100.00	23.4		4138671.5	86.02	0.135	0.369		
GEN27E GEN28A	591338.5 591337.1	4138651.6 4138631.6	191.71 82.61	142.657 443.494	62.727 35.013	0.146 0.459	0.794 0.500	591339.9 591336	4138671.5 4138681.4	150.60 76.45	0.114 0.425	591339.9 591341.3	4138671.5 4138691.5	120.45 69.70	39.4 29.5	591339.9 591341.3	4138671.5 4138691.5	96.93 63.04	0.074 0.350	0.401 0.382		
GEN28B	591336	4138641.4	99.51	328.054	19.836	0.439	0.343	591341.3	4138691.5	83.69	0.423	591341.3	4138691.5	75.42	15.0	591341.3	4138671.5	68.34	0.330	0.382		
GEN28C	591338.5	4138651.6	114.56	187.551	19.236	0.331	0.451	591339.9	4138671.5	94.08	0.272	591339.9	4138671.5	82.02	13.8		4138671.5	75.34	0.218	0.296		
GEN28D	591339.9	4138671.5	128.25	107.045	30.061	0.202	0.550	591339.9	4138671.5	118.26	0.186	591339.9	4138671.5	100.61	23.6		4138671.5	86.85	0.137	0.372		
GEN28E	591339.9	4138671.5	167.03	124.292	54.652	0.127	0.692	591339.9	4138671.5	154.29	0.117	591339.9	4138671.5	122.07	39.9	591339.9	4138671.5	98.00	0.074	0.406		
GEN29A	591338.5	4138651.6	97.92	525.689	41.502	0.544	0.593	591336	4138681.4	76.28	0.424	591341.3	4138691.5	69.67	29.5	591341.3	4138691.5	62.95	0.350	0.381		
GEN29B	591339.9	4138671.5	89.50 100.25	295.057	17.841 16.832	0.378 0.290	0.309 0.395	591341.3 591339.9	4138691.5 4138671.5	83.57 93.45	0.353 0.270	591341.3 591339.9	4138691.5	75.43 81.95	15.0 13.8		4138671.5	68.36 75.26	0.288 0.217	0.236 0.296		
GEN29C GEN29D	591336 591337.1	4138681.4 4138631.6	141.61	164.115 118.193	33.191	0.290	0.395	591339.9	4138671.5	118.47	0.270	591339.9	4138671.5 4138671.5	100.45	23.5		4138671.5 4138671.5	75.26 86.73	0.217	0.296		
GEN29E	591337.1	4138641.4	185.85	138.297	60.810	0.223	0.007	591339.9	4138671.5	153.73	0.100	591339.9	4138671.5	122.19	40.0		4138671.5	98.10	0.130	0.372		
GEN30A	591339.9	4138671.5	81.71	438.697	34.634	0.454	0.495	591336	4138681.4	77.02	0.428	591341.3	4138691.5	71.09	30.1		4138691.5	64.16	0.356	0.389		
GEN30B	591336	4138641.4	99.37	327.589	19.808	0.419	0.343	591341.3	4138691.5	84.77	0.358	591341.3	4138691.5	76.70	15.3	591341.3	4138691.5	70.65	0.298	0.244		
GEN30C	591336					0.300			4138691.5	94.30	0.272		4138695.6						0.219	0.298		
GEN30D	591339.9	4138671.5	131.48	109.735	30.816	0.207	0.564	591339.9	4138671.5	121.56	0.191	591339.9	4138671.5		23.6				0.137	0.374		
GEN30E GEN31A	591339.9 591336	4138671.5 4138641.4	171.88 94.53	127.896 507.490	56.236 40.065	0.131 0.525	0.712 0.572	591339.9 591336	4138671.5 4138681.4	156.41 76.84	0.119 0.427	591339.9 591341.3	4138671.5 4138691.5	125.23 71.07	41.0 30.1			98.80 64.06	0.075 0.356	0.409		
GEN31A GEN31B	591336	4138641.4	104.00	342.869	20.732	0.525		591341.3	4138691.5	84.56	0.427	591341.3	4138691.5	76.68			4138691.5	70.61	0.336	0.344		
GEN31C	591336	4138641.4	125.74	205.859	21.114	0.363		591341.3	4138691.5	93.92	0.337	591341.6	4138695.6	83.01	13.9			75.75	0.219	0.245		
GEN31D	591339.9	4138671.5	131.09	109.413	30.726	0.206	0.562	591339.9	4138671.5	121.32	0.191	591339.9	4138671.5	100.37	23.5			87.08	0.137	0.373		
GEN31E	591339.9	4138671.5	173.78	129.310	56.858	0.132	0.720	591339.9	4138671.5	156.01	0.119	591339.9	4138671.5	125.14	40.9	591339.9	4138671.5	98.88	0.075	0.410		
GEN32A	591336	4138681.4	81.49	437.493	34.539	0.453	0.493	591336	4138681.4	77.13	0.428	591341.3	4138691.5	71.88				66.14	0.367	0.401		
GEN32B	591341.6	4138695.6	89.77	295.942	17.894	0.379		591341.3	4138691.5	85.23	0.360	591341.3	4138691.5	77.34	15.4			71.33	0.301	0.246		
GEN32C GEN32D	591336 591336	4138681.4 4138661.4	106.47 134.89	174.308 112.582	17.878 31.615	0.308 0.212		591341.3 591339.9	4138691.5 4138671.5	94.28 123.14	0.272 0.194	591341.6 591339.9	4138695.6 4138671.5	84.70 100.24	14.2 23.5		4138691.5 4138671.5	76.34 87.17	0.220 0.137	0.300		
GEN32D GEN32E	591336	4138661.4	176.48	131.323	57.743	0.212		591339.9	4138671.5	157.52	0.194	591339.9	4138671.5	100.24				99.19	0.137	0.374		
GEN32E	591336	4138661.4	92.46		39.191	0.134		591336	4138681.4	76.76	0.120	591341.3	4138691.5	71.86				66.16	0.368	0.411		
GEN33B	591336	4138641.4	99.46	327.886	19.826	0.420	0.343	591341.3	4138691.5	84.54	0.357	591341.3	4138691.5	77.31	15.4		4138691.5	71.28	0.301	0.246		
GEN33C	591338.5	4138651.6	114.48	187.427	19.223	0.331		591341.3	4138691.5	94.31	0.272	591341.6	4138695.6	84.74	14.2	591341.3	4138691.5	76.32	0.220	0.300		
GEN33D	591336	4138661.4	134.97	112.646	31.634	0.212		591339.9	4138671.5	123.34	0.194	591339.9	4138671.5	100.22				87.09	0.137	0.373		
GEN33E	591339.9	4138671.5	175.14	130.325	57.304	0.133		591336	4138681.4	157.65	0.120	591339.9	4138671.5	128.54	42.1			99.15	0.075	0.411		
GEN34A	591336 591336	4138661.4 4138681.4	91.88 101.56	493.293	38.944 20.244	0.510		591341.6 591341.3	4138695.6 4138691.5	76.99	0.428	591341.3 591341.6	4138691.5	72.10 77.98	30.6		4138691.5	66.46	0.369	0.402		
GEN34B GEN34C	591336	4138681.4	101.56	334.806 195.834	20.244	0.429 0.345		591341.3	4138691.5	84.36 99.26	0.356 0.287	591341.6	4138695.6 4138695.6	77.98 86.29			4138691.5 4138691.5	71.72 76.76	0.303 0.222	0.247		
GEN34C GEN34D	591339.9	4138661.4	135.65	193.034	31.794	0.343		591339.9	4138671.5	122.48	0.287	591341.6	4138671.5	99.82	23.4		4138671.5	87.09	0.222	0.302		
GEN34E	591339.9	4138671.5	176.73	131.506	57.824	0.213	0.732	591336	4138681.4	158.01	0.120	591339.9	4138671.5	129.82	42.5				0.137	0.373		
GEN35A	591338.5	4138651.6	94.91		40.226	0.527		591341.6	4138695.6	76.90	0.427	591341.3	4138691.5	71.95				66.38	0.369	0.402		

Total Load Screening Analysis AERMOD Output Concentration Results

Total Load	1-Hr Averaging Period							3-Hr Averaging Period				8-Hr Averaging Period				24-Hr Averaging Period					
	X coordinate	Y coordinate	Maximum Unitized Concentration	NO ₂	СО	SO ₂	PM	X coordinate	Y coordinate	Maximum Unitized Concentration		X coordinate		Maximum Unitized Concentration	СО	X coordinate	Y coordinate	Maximum Unitized Concentration	SO ₂	PM _{2.5/10}	
ID	m	m	(μg/m³)	$(\mu g/m^3)$	(μg/m³)	$(\mu g/m^3)$	$(\mu g/m^3)$	m	m	(μg/m³)	$(\mu g/m^3)$	m	m	(μg/m³)	$(\mu g/m^3)$	m	m	(μg/m³)	(μg/m ³)	$(\mu g/m^3)$	
GEN35B	591336	4138681.4	102.19	336.874	20.369	0.431	0.353	591341.6	4138695.6	83.85	0.354	591341.6	4138695.6	78.08	15.6	591341.3	4138691.5	71.73	0.303	0.247	
GEN35C	591339.9	4138671.5	119.71	195.989	20.101	0.346	0.471	591339.9	4138671.5	98.99	0.286	591341.6	4138695.6	86.42	14.5	591341.3	4138691.5	76.70	0.222	0.302	
GEN35D	591336	4138681.4	135.76	113.307	31.819	0.214	0.582	591339.9	4138671.5	123.25	0.194	591339.9	4138671.5	99.59	23.3	591339.9	4138671.5	86.89	0.137	0.373	
GEN35E	591339.9	4138671.5	176.63	131.434	57.792	0.134	0.732	591336	4138681.4	159.33	0.121	591339.9	4138671.5	130.24	42.6	591341.6	4138695.6	100.78	0.077	0.417	
GEN36A	591338.5	4138651.6	94.00	504.673	39.843	0.522	0.569	591341.6	4138695.6	78.19	0.434	591341.3	4138691.5	71.81	30.4	591341.3	4138691.5	66.46	0.369	0.402	
GEN36B	591336	4138681.4	102.44	337.717	20.420	0.432	0.353	591341.6	4138695.6	84.90	0.358	591341.6	4138695.6	79.02	15.8	591341.3	4138691.5	71.76	0.303	0.248	
GEN36C	591339.9	4138671.5	119.47	195.589	20.060	0.345	0.470	591339.9	4138671.5	98.74	0.285	591341.6	4138695.6	87.49	14.7	591341.3	4138691.5	76.78	0.222	0.302	
GEN36D	591339.9	4138671.5	135.00	112.679	31.643	0.212	0.579	591339.9	4138671.5	122.05	0.192	591341.6	4138695.6	100.16	23.5	591339.9	4138671.5	86.71	0.136	0.372	
GEN36E	591339.9	4138671.5	184.16	137.038	60.256	0.140	0.763	591341.6	4138695.6	162.57	0.124		4138671.5	131.60	43.1	591341.6		102.36	0.078	0.424	
GEN37A	591336	4138681.4	96.93	520.404	41.085	0.538	0.587	591341.6	4138695.6	78.30	0.435	591341.3	4138691.5	71.66	30.4	591341.3	4138691.5	66.38	0.369	0.402	
GEN37B	591338.5	4138651.6	107.88	355.659	21.505	0.455	0.372	591341.6	4138695.6	84.84	0.358	591341.6	4138695.6	79.23	15.8	591341.3	4138691.5	71.53	0.302	0.247	
GEN37C	591339.9	4138671.5	120.14	196.688	20.173	0.347	0.473	591339.9	4138671.5	98.72	0.285	591341.6	4138695.6	87.54	14.7	591341.3	4138691.5	76.65	0.221	0.302	
GEN37D	591339.9	4138671.5	145.20	121.186	34.032	0.228	0.623	591339.9	4138671.5	121.42	0.191	591341.6	4138695.6	100.05	23.4	591339.9	4138671.5	86.39	0.136	0.370	
GEN37E	591339.9	4138671.5	184.80	137.517	60.466	0.140	0.765	591341.6	4138695.6	163.40	0.124	591339.9	4138671.5	131.12	42.9	591341.6		102.38	0.078	0.424	
GEN38A	591336	4138681.4	95.89	514.820	40.644	0.533	0.581	591341.6	4138695.6	78.10	0.434	591341.6	4138695.6	71.31	30.2	591341.3		66.25	0.368	0.401	
GEN38B	591338.5	4138651.6	104.45	344.325	20.820	0.441	0.360		4138695.6	84.82	0.358	591341.6	4138695.6	79.36	15.8			71.38	0.301	0.246	
GEN38C	591339.9	4138671.5	118.26	193.606	19.857	0.342	0.465	591339.9	4138671.5	97.00	0.280	591341.6	4138695.6	87.61	14.7	591341.3		76.45	0.221	0.301	
GEN38D	591339.9	4138671.5	142.67	119.077	33.440	0.224	0.612	591339.9	4138671.5	119.10	0.187	591341.6	4138695.6	100.48	23.6	591339.9	4138671.5	85.90	0.135	0.368	
GEN38E	591339.9	4138671.5	182.62	135.893	59.753	0.139	0.756		4138695.6	165.02	0.125	591339.9	4138671.5	131.62	43.1	591341.6	4138695.6	103.29	0.078	0.428	
GEN39A	591339.9	4138671.5	103.89	557.756	44.033	0.577	0.629	591341.6	4138695.6	77.70	0.432	591341.3	4138691.5	71.12	30.1	591341.3	4138691.5	66.08	0.367	0.400	
GEN39B	591339.9	4138671.5	137.92	454.665	27.491	0.582	0.476	591339.9	4138671.5	88.14	0.372	591341.6	4138695.6	79.32	15.8	591341.3		71.20	0.300	0.246	
GEN39C	591339.9	4138671.5	127.89	209.370	21.474	0.369	0.503	591339.9	4138671.5	96.63	0.279	591341.6	4138695.6	87.37	14.7	591341.3	4138691.5	76.18	0.220	0.300	
GEN39D	591339.9	4138671.5	143.14	119.468	33.549	0.225	0.614	591339.9	4138671.5	118.46	0.186		4138695.6	100.19	23.5	591339.9	4138671.5	85.54	0.135	0.367	
GEN39E	591339.9	4138671.5	190.99	142.120	62.491	0.145	0.791	591341.6	4138695.6	164.21	0.125	591339.9	4138671.5	131.11	42.9	591341.6		103.21	0.078	0.427	
GEN40A	591339.9	4138671.5	107.73	578.389	45.662	0.598	0.652	591341.6	4138695.6	76.26	0.424	591341.6	4138695.6	70.38	29.8	591341.3	4138691.5	65.60	0.364	0.397	
GEN40B	591339.9	4138671.5	114.88	378.736	22.900	0.485	0.396	591339.9	4138671.5	86.06	0.363		4138695.6	78.07	15.6	591341.3	4138691.5	70.60	0.298	0.244	
GEN40C	591339.9	4138671.5	134.51	220.217	22.586	0.389	0.529		4138671.5	94.42	0.273		4138695.6	86.22	14.5	591341.3	4138691.5	75.55	0.218	0.297	
GEN40D	591339.9	4138671.5	138.32	115.445	32.420	0.218	0.593	591339.9	4138671.5	114.52	0.180	591341.6	4138695.6	98.61	23.1	591339.9	4138671.5	84.73	0.133	0.363	
GEN40E	591339.9	4138671.5	185.69	138.173	60.755	0.141	0.769	591341.6	4138695.6	161.43	0.123	591339.9	4138671.5	129.37	42.3	591341.6	4138695.6	103.47	0.079	0.429	
GEN41A	591336	4138681.4	105.76	567.800	44.826	0.587	0.640		4138695.6	75.78	0.421		4138695.6	70.51	29.9	591341.3		65.35	0.363	0.396	
GEN41B	591336	4138681.4	111.96	369.111	22.318	0.472	0.386		4138671.5	86.06	0.363		4138695.6	77.99	15.5	591341.3		70.42	0.297	0.243	
GEN41C	591339.9	4138671.5	121.87	199.521	20.464	0.352	0.480	591339.9	4138671.5	94.66	0.273	591341.6	4138695.6	85.95	14.4	591341.3	4138691.5	75.27	0.217	0.296	
GEN41D	591339.9	4138671.5	149.79	125.018	35.108	0.236	0.642		4138671.5	114.12	0.180	591341.6	4138695.6	98.34	23.0	591339.9	4138671.5	84.39	0.133	0.362	
GEN41E	591339.9	4138671.5				0.150	0.816								42.3				0.079	0.428	
GEN42A	591341.3	4138691.5					0.674			84.32	0.468			68.98	29.2				0.357	0.389	
GEN42B	591341.6	4138695.6		402.929		0.516	0.422			83.84	0.354			76.00	15.1	591341.3		69.24	0.292	0.239	
GEN42C	591339.9	4138671.5			20.650	0.355	0.484			90.71	0.262			83.86	14.1	591341.3		73.93	0.214	0.291	
GEN42D	591341.3	4138691.5	139.75			0.220	0.599		4138671.5	108.63	0.171			96.25	22.6	•	+	82.55	0.130	0.354	
GEN42E	591339.9	4138671.5	193.60	144.065	63.346	0.147	0.802	591341.6	4138695.6	155.58	0.118	591341.6		126.84	41.5	591341.6		102.37	0.078	0.424	
GEN43A	591339.9	4138671.5	101.76	546.342		0.565	0.616		4138695.6		0.460			69.06	29.3	591341.3		64.22	0.357	0.389	
GEN43B	591341.3	4138691.5		382.339	23.118	0.489	0.400		4138681.4	86.49	0.365			75.92	15.1			68.99	0.291	0.238	
GEN43C	591339.9	4138671.5		205.486		0.363	0.494		4138695.6	91.60	0.265			83.42	14.0			73.73	0.213	0.290	
GEN43D	591339.9	4138671.5	141.40	118.014	33.141	0.222	0.606				0.171			96.10	22.5	591339.9		82.26	0.129	0.353	
GEN43E	591339.9	4138671.5	197.05			0.150	0.816	591341.6	4138695.6	155.06	0.118			127.22	41.6	591341.6	+	102.31	0.078	0.424	
LSGEN44F	591484.2	4138529.8				0.397	0.888		4138529.8		0.378			126.77	18.9			98.10	0.135	0.302	
LSGEN45F	591424.3	4138534	180.35	189.963	26.897	0.248	0.555	591464.2	4138531.2	151.43	0.208	591423.8	4138765.6	116.03	17.3	591339.9	4138671.5	93.61	0.129	0.288	

^{1.} All pollutant-specific emission concentrations are calculated are based on the ratio of the maximum hourly emission rate (converted to g/s) of the respective pollutant to the modeled emission rate (1 g/s) and the maximum unitized concentration.

 $^{2. \} All \ X \ and \ Y \ coordinates \ refer \ to \ the \ coordinates \ of \ the \ receptor \ which \ experiences \ the \ maximum \ unitized \ concentration.$

 APPENDIX AQ-7: 2018 DATA CENTER PROJECT AQIA

Appendix A Air Quality Assessment

ALIGNED DATA CENTER 2305 MISSION COLLEGE BOULEVARD SANTA CLARA, CALIFORNIA

AIR QUALITY ASSESSMENT

April 20, 2017 Revised May 22, 2017

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INTRODUCTION

This report provides the results of an assessment of potential air quality impacts from the proposed Aligned Data Center located at 2305 Mission College Boulevard in the City of Santa Clara. The primary source of emissions from the project would be from operation of generator engines during testing and maintenance of proposed project emergency generators. This report presents the results of an air quality assessment. This analysis was conducted in accordance with CEQA Air Quality Guidelines published by the Bay Area Air Quality Management District

Project Description

The 15.7-acre project site, located at 2305 Mission College Boulevard, is currently developed with a two-story 358,000 square foot (sf) office building and a paved parking lot. The project proposes to demolish the existing building and improvements on the site to construct a two-story 495,660 sf data center building and a new 90 megavolt amps (MVA) electrical substation. The locations of the new data center and substation are shown in Figure 1.

The new data center building would house computer servers and supporting equipment for private clients, as well as associated office uses, in a secure and environmentally controlled structure, and would be designed to provide 60 megawatts (MWe) of information technology (IT) power. Standby backup emergency electrical generators would be installed to provide for an uninterrupted power supply. A total of one hundred twenty (120) diesel-fueled engine generators would be located within a generator yard west of the data center building, adjacent to San Tomas Aquino Creek. The electric generating capacity of each generator would be 625-kilowatts (kWe). The generators would provide a total of 75 MWe of backup power generation capacity. Diesel fuel for the generators will be stored in twenty-four (24) 10,000-gallon above ground tanks located beneath each block of five generators. Electrical switchgear and backup battery equipment would be located in a separate equipment yard in the northern portion of the project site near Agnew Road, and all of the cooling equipment would be located on the data center roof.

Air Quality Analysis

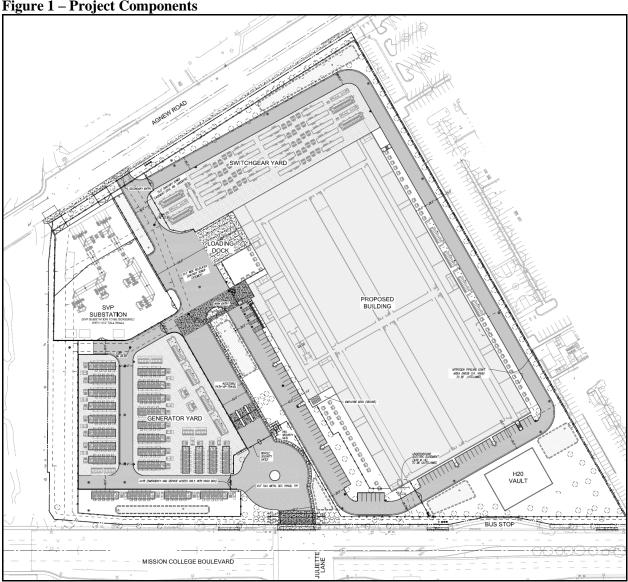
The project site is in a mixed-use residential/office/commercial area of the City of Santa Clara. The proposed project components, data center and new substation, would be located near existing residences (sensitive receptors) that could be affected by construction and operation of the proposed project.

The primary source of air pollutant emissions from the data centers would be from operation of the generator engines during testing and maintenance of emergency generators. During normal facility operation these engines will not be operated other than for periodic testing and maintenance requirements. The 625 kWe generators would use diesel-fueled engines that meet U.S. EPA Tier 4 emission standards, the most practical level of emission controls for this type of diesel generator engine. The engines would be fueled using ultra low sulfur diesel fuel with a maximum sulfur content of 15 parts per million (ppm), which minimizes both particulate matter and sulfur dioxide (SO₂) emissions.

This analysis evaluates the potential air quality impacts from construction and operation of the proposed project that includes construction of the data center building and substation, and installation and operation of the new backup emergency generators for the new data. The proposed project would establish new sources of particulate matter and gaseous emissions. The air quality impacts were evaluated in terms of construction and operational impacts to air quality with the primary focus on evaluating the effects of future project-related emissions on regional air quality and on local sensitive receptors. This analysis was

conducted following guidance provided by the Bay Area Air Quality Management District (BAAQMD).¹ Note that an Authority to Construct and Permit to Operate permit would be required from the BAAQMD prior to construction and operation of the proposed project diesel engines, which may require further analysis of air quality impacts.

Figure 1 – Project Components



¹ Bay Area Air Quality Management District, 2011. BAAQMD CEQA Air Quality Guidelines. May.

SETTING

The project is located in Santa Clara County, which is in the San Francisco Bay Area Air Basin. Ambient air quality standards have been established at both the State and federal level. The Bay Area meets all ambient air quality standards with the exception of ground-level ozone, respirable particulate matter (PM_{10}) and fine particulate matter $(PM_{2.5})$.

High ozone levels are caused by the cumulative emissions of reactive organic gases (ROG) and nitrogen oxides (NOx). These precursor pollutants react under certain meteorological conditions to form high ozone levels. Controlling the emissions of these precursor pollutants is the focus of the Bay Area's attempts to reduce ozone levels. The highest ozone levels in the Bay Area occur in the eastern and southern inland valleys that are downwind of air pollutant sources. High ozone levels aggravate respiratory and cardiovascular diseases, reduced lung function, and increase coughing and chest discomfort.

Particulate matter is another problematic air pollutant of the Bay Area. Particulate matter is assessed and measured in terms of respirable particulate matter or particles that have a diameter of 10 micrometers or less (PM_{10}) and fine particulate matter where particles have a diameter of 2.5 micrometers or less ($PM_{2.5}$). Elevated concentrations of PM_{10} and $PM_{2.5}$ are the result of both region-wide (or cumulative) emissions and localized emissions. High particulate matter levels aggravate respiratory and cardiovascular diseases, reduce lung function, increase mortality (e.g., lung cancer), and result in reduced lung function growth in children.

Toxic air contaminants (TAC) are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer) and include, but are not limited to, the criteria air pollutants listed above. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter near a freeway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, state, and Federal level.

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about three-quarters of the cancer risk from TACs (based on the Bay Area average). According to the California Air Resources Board (CARB), diesel exhaust is a complex mixture of gases, vapors and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the state's Proposition 65 or under the Federal Hazardous Air Pollutants programs.

CARB and the U.S. EPA have adopted and implemented a number of regulations and emission standards for stationary and mobile sources to reduce emissions of diesel particulate matter (DPM). These include emission standards for off-road diesel engines, including diesel generators, and regulatory programs that affect medium and heavy duty diesel trucks that represent the bulk of DPM emissions from California highways.

Sensitive Receptors

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: infants, children under 16, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, elementary schools, and parks. The closest sensitive receptors to the proposed data center project site are existing residences along

Agnew Road across from the site. Figure 2 shows the project setting, a 1,000-foot influence area, and the closest sensitive receptors.



Figure 1- Project Site, Influence Area and Nearby Air Pollutant Sources

BAAQMD

The Bay Area Air Quality Management District (BAAQMD) is the regional agency tasked with managing air quality in the region. At the State level, the California Air Resources Board (a part of the California Environmental Protection Agency) oversees regional air district activities and regulates air quality at the State level. The BAAQMD has published CEQA Air Quality Guidelines that are used in this assessment to evaluate air quality impacts of projects.²

SIGNIFICANCE THRESHOLDS

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA. These Thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA and were posted on BAAQMD's website and included in the Air District's updated CEQA Guidelines (updated May 2011). The significance thresholds identified by BAAQMD and used in this analysis are summarized in Table 1.

BAAQMD's adoption of significance thresholds contained in the 2011 CEQA Air Quality Guidelines was called into question by an order issued March 5, 2012, in California Building Industry Association

² Bay Area Air Quality Management District. 2011. BAAQMD CEQA Air Quality Guidelines. May.

(CBIA) v. BAAOMD (Alameda Superior Court Case No. RGI0548693). The order requires BAAOMD to set aside its approval of the thresholds until it has conducted environmental review under CEQA. The ruling made in the case concerned the environmental impacts of adopting the thresholds and how the thresholds would indirectly affect land use development patterns. In August 2013, the Appellate Court struck down the lower court's order to set aside the thresholds. However, the California Supreme Court accepted a portion of CBIA's petition to review the appellate court's decision to uphold BAAQMD's adoption of the thresholds. The specific portion of the argument considered was whether CEQA requires consideration of the effects of the environment on a project (as contrasted to the effects of a proposed project on the environment). On December 17, 2015, the California Supreme Court ruled that CEQA generally does not require an analysis of the effects of existing environmental conditions (e.g., air quality) on a project unless the project would exacerbate those conditions somehow through its construction and/or operation. The project does not include sensitive receptors.

Table 1. Air Quality Significance Thresholds

	Construction Thresholds	Operationa	l Thresholds
Pollutant	Average Daily Emissions (lbs./day)	Average Daily Emissions (lbs./day)	Annual Average Emissions (tons/year)
Criteria Air Pollutants		-	
ROG	54	54	10
NO _x	54	54	10
PM_{10}	82	82	15
PM _{2.5}	54	54	10
CO	Not Applicable	9.0 ppm (8-hr) o	or 20.0 ppm (1-hr)
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	Not A _I	pplicable
Single-Source Contribution	on - Health Risks and Hazards f	or Sensitive Receptor	·s
Excess Cancer Risk	> 10	0.0 per one million	
Hazard Index		> 1.0	
Annual Average PM _{2.5}		$> 0.3 \ \mu g/m^3$	
Cumulative Health Risks	and Hazards for Sensitive Rece	ptors	
Excess Cancer Risk	> 100	0.0 per one million	
Chronic Hazard Index		> 10.0	
Annual Average PM _{2.5}		$> 0.8 \ \mu g/m^3$	
an aerodynamic diameter of 10	gases, NOx = nitrogen oxides, PM_{10} o micrometers (μ m) or less, $PM_{2.5}$ = fi		ter or particulates with

or particulates with an aerodynamic diameter of 2.5µm or less.

IMPACTS AND MITIGATION

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

The Bay Area is considered a nonattainment area for ground-level ozone and PM_{2.5} under both the federal Clean Air Act and the California Clean Air Act. The area is also considered non-attainment for PM₁₀ under the California Clean Air Act, but not the federal Act. The area has attained both State and federal ambient air quality standards for carbon monoxide. As part of an effort to attain and maintain ambient air quality standards for ozone, PM₁₀ and PM_{2.5}, BAAQMD has established thresholds of significance for air pollutants. These thresholds are for ozone precursor pollutants (ROG and NOx), PM₁₀ and PM_{2.5} and apply to both construction period and operational period impacts.

Both construction and operational emissions were computed using the California Emissions Estimator Model, Version 2016.3.1 (CalEEMod). In addition, emissions from routine testing and maintenance of the standby emergency generators were computed using emissions data published by the manufacturer and assuming proposed testing plans and maximum allowable testing conditions.

Construction Period Emissions

The overall data center project construction site is 15 acres and would involve several construction phases: demolition, site preparation, grading/excavation, trenching, exterior building construction, interior building construction and paving. Construction information was provided that includes the schedule of various construction phases, equipment usage assumptions for each phase, and the volume of material to be imported or exported.

The California Emissions Estimator Model, Version 2013.2.2 (CalEEMod) was used to compute construction and operational (except generator testing) emissions for the project. The construction schedule and projected equipment usage were provided to input to the model. Inputs to the CalEEMod model are summarized as follows:

Land Uses

"General Light Industry" 400.0 thousand square feet on 15.00 acres

Demolition

A 100-day demolition phase was assumed that included the assumed off-haul of building materials for 370,000 square feet of buildings and 9,500 tons of asphalt. The modeling assumed 1,920 haul truck trips associated with this activity.

Site Preparation and Grading

The site preparation phase was anticipated to last 80 days and the Grading and Excavation phase would be 20 days. The modeling accounted for soil the export of 22,410 cubic yards and import of 46,000 cubic yards of soil.

Building Construction

Building construction was modeled as two phases: exterior building (using the Building Construction phase) and interior construction (using the Architectural Coating phase). Worker and vendor trips were based on model defaults. Although likely accounted in the model defaults for vendor trips, cement truck trips associated with an estimated 6,500 truck deliveries were added to the modeling. Cement truck trips were entered as haul truck trips set to the vendor trip distance.

Paving

The paving phase that included import of 2,400 cubic yards of paving material, modeled as haul truck trips using the model default vendor distance.

Based on a construction start date of September 2017 and an anticipated completion date of December 2018, CalEEMod computes 336 construction days. Total construction emissions from full build out of the project shown in Table 2. Average daily emissions are computed assuming that construction occurs over the 336 construction days. Construction period NOx emissions would be significant, as they would exceed the threshold of 54 pounds per average day. The emissions of other pollutants would not exceed the thresholds. *Mitigation Measure AQ-1* would reduce NOx emissions. *Attachment 1* is the CalEEMod output file that is the basis of these calculations, along with the construction activity assumptions.

Table 2. Construction Period Emissions – Aligned Data Center Project

Description	ROG Emissions (tons)	NOx Emissions (tons)	PM10 Exhaust Emissions (tons)	PM2.5 Exhaust Emissions (tons)
Substation and Feeders (2018-19)	3.23 tons	12.59 tons	0.49 tons	0.46 tons
Daily Project Emissions	19 lbs/day	75 lbs/day	3 lbs/day	3 lbs/day
BAAQMD Thresholds	54lbs/day	54lbs/day	82lbs/day	54lbs/day
Significant?	No	Yes	No	No

Note: Average daily emissions were computed by dividing total construction emissions by the number of workdays.

Construction Fugitive Dust

During grading and construction activities, dust would be generated. Most of the dust would result during grading activities. The amount of dust generated would be highly variable and is dependent on the size of the area disturbed at any given time, amount of activity, soil conditions and meteorological conditions. Nearby areas could be adversely affected by dust generated during construction activities. Nearby land uses are primarily commercial and office uses that are separated by roadways or open areas. The BAAQMD CEQA Air Quality Guidelines consider these impacts to be less than significant if best management practices are employed to reduce these emissions. This impact is considered less-than-significant with implementation of *Mitigation Measures AQ-1*.

Mitigation Measure AQ-1: Include construction equipment exhaust controls and measures to control dust and exhaust during construction.

During any construction period ground disturbance, the applicant shall ensure that the project contractor implement measures to control dust and exhaust. Implementation of the measures recommended by BAAQMD and listed below would reduce the air quality impacts associated with grading and new construction to a less than significant level. The contractor shall implement the following best management practices that are required of all projects:

Basic Measures

- 1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- 2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

- 3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- 4. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).
- 5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- 6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
- 7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- 8. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Applicable Enhanced Control Measures

- 9. All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe.
- 10. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph and visible dust extends beyond site boundaries.
- 11. Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction adjacent to sensitive receptors. Wind breaks should have at maximum 50 percent air porosity.
- 12. Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
- 13. The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.
- 14. Avoid tracking of visible soil material on to public roadways by employing the following measures if necessary: (1) Site accesses to a distance of 100 feet from public paved roads shall be treated with a 6 to 12 inch compacted layer of wood chips, mulch, or gravel and (2) washing truck tires and construction equipment of prior to leaving the site.
- 15. Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- 16. Minimizing the idling time of diesel powered construction equipment to two minutes.

Exhaust Control Measures

- 17. The project shall develop a plan demonstrating that the off-road equipment (more than 25 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 28 percent NOX reduction and 70 percent PM reduction compared to the CalEEMod modeled average used in this report. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available. The following are feasible methods:
 - i. All construction equipment larger than 25 horsepower used at the site for more than two continuous days or 20 hours total shall meet U.S. EPA emission standards for Tier 3 engines and include particulate matter emissions control equivalent to CARB Level 2 verifiable diesel emission control devices that altogether achieve a 85percent reduction in particulate matter exhaust; alternatively (or in combination)
 - ii. Use of diesel construction equipment that meets U.S. EPA Tier 4 interim emission standards.
- 18. Provide line power to the site during the early phases of construction to minimize the use of diesel powered stationary equipment, such as generators.

Effectiveness of Mitigation: The effects of Mitigation Measure AQ-1 were modeled using CalEEMod and found to reduce overall NOx emissions by 32 percent to 8.59 tons or 51 pounds per average day. Overall exhaust particulate matter emissions were reduced by 68 percent, which includes off-site truck emissions. Emissions from on-site off-road equipment operation and on-or near-site truck travel would be reduced by over 70 percent. Measures to control fugitive dust would exceed the basic control measures recommended by BAAQMD in their CEQA Air Quality Guidelines.

Aligned Data Center Operational Project Emissions

The primary emission sources associated with operation of the proposed project would include testing or maintenance of the 120 diesel-fueled 625-kWe emergency backup generators. There would be minor emissions from traffic and area sources associated with operation of the data center facilities. Additionally, there would be minor evaporative emission of ROG from the twenty-four 10,000 gallon aboveground diesel storage tanks situated beneath each block of five generators. Emissions from these sources are described below.

Note that emissions from the existing site were not evaluated to predict the net increase in emissions caused

Area and Mobile Source Emissions

The area and mobile emissions associated with the project were computed using the CalEEMod model. The project would generate about 55 daily trips, assumed to occur 7 days per week and 365 days per year. There would also be area source emissions associated with normal facility operation and maintenance. Project related mobile source and area source emissions were modeled using CalEEMod with default conditions for an industrial park type project along with project vehicle traffic. CalEEMod predicted annual emissions that were converted to daily emissions based on 365 days of operation. The CalEEMod output is included as *Attachment 1*.

Emergency Generator Emissions

The proposed project would install 120 diesel-fueled 625-kWe emergency generators equipped with Volvo Penta TWD1673GE diesel-fueled engines. These engines would not be operated other than for periodic testing and maintenance requirements during normal facility operation. The generator engines would be fueled using ultra low sulfur diesel fuel with a maximum sulfur content of 15 ppm. The diesel engines would meet U.S. EPA Tier 4 emission standards that apply to NOx and particulate matter emissions. These generators would be located within a generator yard west of the data center building, adjacent to San Tomas Aquino Creek. The generator equipment and operating specifications for the proposed generators are provided in Table 3. *Attachment 2* includes the generator information used to make these calculations.

Table 3. Engine Generator Systems Equipment and Operating Information

Description		Value					
625 kWe Volvo Penta Generat	or Sets	Volvo Penta TWD1673GE diesel engines					
Generator Output (at 100% load)		625 kWe					
Engine Output (Standby)	at 100% Load	685 kWm (932 hp)					
Diesel Fuel Consumption	at 100% Load	41 gallons/hour					
Diesel Fuel Sulfur Content		0.0015% (15 ppm)					
Exhaust Flow Rate	at 100% Load	4,866 cubic feet/minute					
Stack Height (above ground level)		17.5 feet					
Stack Inside Diameter		8 inches					
Exhaust gas Temperature	at 100% Load	903 °F					

The operation of these generators is limited to 50 hours per year of non-emergency use (i.e. testing and maintenance) by the State's Air Toxic Control Measure for Stationary Compression Ignition Engines.³ The proposed testing schedule for the project is that the 120 emergency generators would be tested simultaneously one day per month at full load to make sure that they are ready to come online when needed in the event of a power failure. The testing is would take place between the hours of 7:00 AM to 10:00 PM. Generator engine operation under normal conditions is expected to be about 12 hours per year, per engine. However, engine operation may occur more frequently due to increased testing or maintenance requirements. For purposes of estimating emissions and potential air quality impacts from the engines, it was assumed that each engine would be operated at full load (100% engine load) for 50 hours per year (maximum operation hours allowed by the State's Air Toxic Control Measure and BAAQMD for testing and maintenance). This analysis assumed a reasonable worst-case condition of all 120 generators being tested for one hour during a single day. These emissions are shown in Table 4.

Diesel Fuel Storage Emissions

Diesel fuel for each emergency generator would be stored in twenty-four 10,000 gallon sub-base tanks of the generator housing units (five generators per housing unit). Diesel fuel has a very low volatility and emissions of ROG from fuel storage are expected to be negligible.

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³ Section 93115, title 17, California Code of Regulations

Table 4. Data Center Engine Testing: 50 Hours per Year per Engine -

Daily and Annual Emissions from Emergency Generators

	Daily Emissions ^a All 120 Units	Total Annual Emissions ^b : 50 Hours Operation All 120 Units							
Pollutant	(lb/day)	(lb/year)	(ton/year)						
NOx	57.0	2,852	1.4						
ROG	0.6	27	0.0						
CO	16.6	828	0.4						
PM_{10}	3.3	166	0.08						
$PM_{2.5}$	2.5	124	0.06						
SO_2	1.0	52	0.03						

^a Assumes operation of all engines at 100% engine load in a single day.

Total Project Emissions

Total daily and annual emissions from the emergency generators, mobile and area sources are summarized in Table 5. Without any limitations on engine operation for maintenance and testing purposes, total increased daily emissions from operation of the project are estimated to be above the average daily emission significance thresholds established by the BAAQMD for NOx. This would be considered a *significant impact*

Table 5. Summary of Operational Average Daily Emissions in tons and (lb/day)

Emission Source	Nitrogen Oxides (NOx)	Reactive Organic Gases (ROG)	Respirable Particulates (PM ₁₀)	Fine Particulates (PM _{2.5})	
BAAQMD Threshold	10 (54)	10 (54)	15 (82)	10 (54)	
Maximum Emissions Scenario (50 h					
Emergency Generators	1.4 (57.0)	<0.1 (.6)	0.1 (3.3)	0.1 (2.5)	
Mobile & Area Sources	0.6 (3.3)	1.8 (10.1)	0.1 (0.6)	0.1 (0.3)	
Total	2.0 (60.3)	1.9 (10.7)	0.2 (3.9)	0.2 (2.8)	
Significant?	Yes	No	No	No	
Reduced Emissions Scenario					
Emergency Generators	1.4 (48.0)	< 0.1 (0.5)	<0.1 (2.8)	<0.1 (2.1)	
Mobile & Area Sources	0.6 (3.3)	1.8 (10.1)	0.1 (0.6)	0.1 (0.3)	
Total	2.0 (51.3)	1.8 (10.6)	0.1 (3.4)	0.1 (2.4)	
Significant?	No	No	No	No	

Mitigation Measure AQ-2: Include recommended conditions of approval that limit the number of hours generators can be operated for maintenance and testing purposes as follows:

- 1. Generator operation for maintenance and testing purposes shall be limited so that the combined operation of all engines does not exceed 100 hours per day in total; and
- 2. Any changes in equipment specifications that result in different engines or emission control devices or increase the number of diesel engines shall be evaluated by the City to ensure emissions do not increase.

^b Assumes operation at 100% engine load for 50 hours/year per engine.

<u>Effectiveness of Mitigation</u>: Without limitations on the number of hours, operation of the project could cause daily emissions of NOx to exceed significance thresholds for daily emissions. Limiting generator operations for maintenance and testing purposes for all engines to a total of 100 hours per day would result in average daily total project NOx emissions of 51 pounds per day, which would not exceed the significance threshold of 54 pounds per day.

Impact: Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Air Quality Standards for Regional Air Pollutants

Due to the limited number of hours that each emergency generator would be operated for testing and maintenance purposes emissions from these units are relatively low. Emissions of nonattainment pollutants and their precursors that affect air quality standards at the regional level were evaluated under Impact 2. Although the project could cause a cumulatively considerable net increase in ozone precursor emissions, they are no expected to cause or substantially contribute to a violation of an ozone ambient air quality standard.

Air Quality Standards for Local Air Pollutants (Carbon Monoxide from Project Traffic)

Increased intersection congestion can lead to increased localized CO concentrations (hot spots) in the vicinity of the intersection. Typically there needs to be a substantial increase in the number of vehicles accessing an intersection and a decrease in the intersection level of service (LOS) in order for there to be elevated CO concentrations of concern. Since the number of vehicles associated with the project would be minimal, the proposed project would not cause or contribute to a violation of an ambient air quality standard and the impact is considered *less than significant*

Impact: Expose sensitive receptors to substantial pollutant concentrations?

The proposed data center project would be a source of air pollutant emissions during project construction and then from operation of emergency generators for testing and maintenance purposes. These generators are diesel-fueled, so they emit DPM, which is a toxic air contaminant (TAC). The generators are also a source of PM_{2.5}, which has known adverse health effects. Construction of the proposed data center and Substation would be a source of TAC and PM_{2.5} emissions. As discussed above, operation of the substation would generate negligible emissions, including TACs and PM_{2.5}.

The BAAQMD CEQA Air Quality Guidelines considers exposure of sensitive receptors to air pollutant levels that result in an unacceptable cancer risk or hazard to be significant. For cancer risk the BAAQMD considers an increased risk of contracting cancer that is greater than 10.0 in one million to be significant for a single source. For cumulative exposure to TACs from existing sources affecting a sensitive receptor, in addition to a proposed new source, the BAAQMD considers an increased risk of contracting cancer that is greater than 100 in one million to be significant. The BAAQMD CEQA Guidelines also consider exposure to annual $PM_{2.5}$ concentrations that exceed 0.3 micrograms per cubic meter ($\mu g/m^3$) from a single source to be significant and an annual $PM_{2.5}$ concentration that exceed 0.8 $\mu g/m^3$ from cumulative sources to be significant.

The primary community risk impact issues associated with construction emissions and operation of the data center emergency generators are cancer risk and exposure to PM_{2.5}. Diesel exhaust from construction activities and operation of emergency generators pose both a potential health and nuisance impact to nearby receptors. Community health risk impacts to sensitive receptors from construction and

operational activities were evaluated by predicting potential DPM and PM_{2.5} exposures to off-site sensitive receptors and then calculating increased lifetime cancer risks and non-cancer health effects. DPM and PM_{2.5} emissions from construction and for operation of the data center emergency generators were calculated and dispersion modeling conducted to predict the off-site concentrations so that lifetime cancer risks and non-cancer health effects could be evaluated. *Attachment 3* includes a description of how community health impacts, including cancer risk are computed based on BAAQMD recommended methods. Health impacts from construction and operation of the proposed data center are detailed below.

Community Risk – Aligned Data Center Health Risk and Hazards

Construction Health Impacts

Construction of the data center would expose sensitive receptors in the project area to DPM from construction related activities. Sensitive receptors in the data center area are the existing nearby off-site residences. The closest existing residences to the data center site are located north of the site across Agnew Road. A health risk assessment of the data center construction activities was conducted that evaluated potential health effects at nearby sensitive receptors from construction DPM emissions. A dispersion model was used to predict the off-site concentrations resulting from project construction so that lifetime cancer risks could be predicted. Figure 3 shows the data center project site and sensitive receptor locations (residences) used in the air quality dispersion modeling analysis where potential health impacts were evaluated.

Construction period emissions were computed using CalEEMod along with projected construction activity, as previously described. The number and types of construction equipment and diesel vehicles, along with the anticipated length of their use for different phases of construction, were based on a site-specific construction schedule. Construction of the project is expected to occur over an approximate 14-month period starting in 2017. The CalEEMod model provided annual PM_{2.5} exhaust emissions (assumed to be DPM) for each year of construction for the off road construction equipment used and for the exhaust emissions from on-road vehicles (haul trucks, vendor trucks, and worker vehicles). The total DPM emissions over the entire construction period were calculated as 0.469 tons (937 pounds). A trip length of one-half mile was used to represent vehicle travel while at or near the construction site. For modeling purposes, it was assumed that these emissions from on-road vehicles would occur at the construction site. Fugitive dust PM_{2.5} emissions were also computed and included in this analysis. The model predicts total construction period fugitive PM_{2.5} emissions of 0.607 tons (1,214 pounds).

The U.S. EPA AERMOD dispersion model was used to predict concentrations of DPM and PM_{2.5} at existing off-site sensitive receptors in the vicinity of the data center construction site. The AERMOD modeling utilized two area sources to represent the on-site construction emissions, one for exhaust DPM emissions and one for fugitive dust emissions. To represent the construction equipment exhaust emissions, an emission release height of 6 meters (20 feet) was used for each area source. The elevated source height reflects the height of the equipment exhaust pipes and buoyancy of the exhaust plume. For modeling fugitive PM_{2.5} emissions, a near ground level release height of 2 meters (6.6 feet) was used for each area source. All of the emissions from the construction equipment and construction truck travel were included in the area sources. Emissions were modeled as occurring daily between 7 a.m. to 5 p.m. when the majority of the construction activity involving equipment usage would occur. The model used a 5-year data set (2006-2010) of hourly meteorological data from the San José International Airport prepared by the BAAQMD for use with the AERMOD model. The airport is located about 2 miles northwest of the project site.

Average annual DPM and PM_{2.5} concentrations from construction activities were calculated for the 2017-2018 construction period. Concentrations were calculated at off-site sensitive receptors at a height of 1.5 meters (4.9 feet). The locations of the maximum-modeled concentrations are identified on Figure 3.

Based on the maximum modeled DPM and PM_{2.5} concentrations, maximum increased cancer risks and non-cancer health impacts were calculated using BAAQMD recommended methods, as described in *Attachment 3*. Table 6 summarizes cancer risk, hazards and annual PM_{2.5} concentrations at the maximally affected off-site sensitive receptor (residence).

Table 6. Data Center Construction - Maximum Increased Cancer Risk, Hazards and PM_{2.5}

Sensitive Receptor	Cancer Risk (per million)	PM _{2.5} Concentration (μg/m³)	Hazard Index (HI)
Off-Site Residential Infant	28.9	0.54	< 0.1
Off-Site Residential Adult	0.6	0.54	< 0.1
BAAQMD Thresholds	10.0	0.3	1.0

The location of the receptor with the maximum off-site increased cancer risks and $PM_{2.5}$ concentration are identified on Figure 3. Results of this assessment indicate that the maximum off-site residential infant cancer risk would be 28.9 in one million and the residential adult cancer risk would be 0.6 in one million. The increased cancer risk for an infant would be above the BAAQMD's threshold used for evaluating cancer risk of 10 excess cancer cases per million and would be considered a *significant impact*.

The maximum-modeled annual $PM_{2.5}$ concentration, which is based on combined exhaust and fugitive dust emissions, was 0.54 $\mu g/m^3$. This annual $PM_{2.5}$ concentration would exceed the BAAQMD significance threshold of 0.3 $\mu g/m^3$ and would be considered a *significant impact*.

The maximum modeled annual residential DPM concentration (i.e., from construction exhaust) was 0.207 µg/m³. The maximum computed HI based on this DPM concentration is 0.04, which is much lower than the BAAQMD significance criterion of a HI greater than 1.0 and would be considered a *less-than-significant impact*. This impact is considered less-than-significant with implementation of *Mitigation Measures AQ-1*.

Attachment 4 includes the emission calculations used for the data center construction area source modeling and the cancer risk calculations, including the CalEEMod output.

Data Center Operation Health Impacts

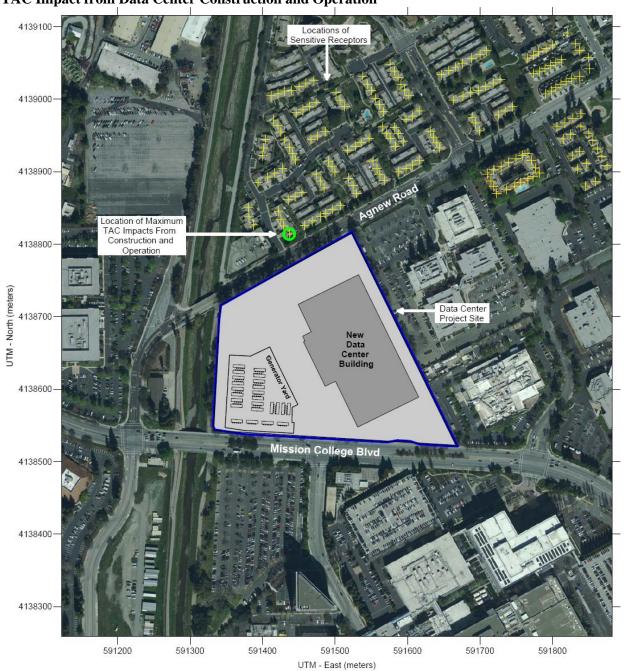
Since the proposed project would emit DPM from the generator engines, an analysis was performed to assess what ambient concentrations would result from their operation and to quantify potential health risks at nearby sensitive receptors.

Potential health impacts from operation of the project's generators for testing and maintenance purposes were evaluated using air quality dispersion modeling and applying BAAQMD recommended health impact calculation methods, as described in *Attachment 3*. DPM concentrations and potential cancer risks from operation of the generators were evaluated at existing residences in the nearby project vicinity of the proposed data center site. Figure 3 shows the proposed data center buildings, locations of project emergency generators, and the locations used to represent the off-site residential receptors. The closest receptors to the proposed generators are about 630 feet north of the closest emergency generators at the data center. The maximum average annual off-site DPM concentrations were used to calculate potential increased cancer risks from the project. Average annual DPM concentrations were used as being representative of long-term (30-year) exposures for calculation of cancer risks.

Air quality modeling of annual average DPM concentrations was conducted using the EPA's AERMOD dispersion model. The AERMOD model is a steady-state, multiple-source, dispersion model designed to

calculate pollutant concentrations from single or multiple sources. The model is recommended by BAAQMD for predicting air pollutant/contaminant concentrations associated with various emissions sources. The AERMOD model predicts pollutant concentrations at receptors located in areas of flat or complex terrain from a variety of emission source types including point, area, volume and line sources. Since there are minimal elevation differences in the topography in the vicinity of the project site, flat terrain was assumed. The land use classification of the area was assumed to be urban. The modeling used a five-year data set (2006 - 2010) of hourly meteorological data from the San Jose Airport that was prepared by BAAQMD for use with the AERMOD model.

Figure 3. Data Center Emission Sources, Sensitive Receptor Locations, and Locations of Maximum TAC Impact from Data Center Construction and Operation



Annual average DPM and $PM_{2.5}$ concentrations were modeled assuming that generator testing would occur between the hours of 7:00 AM and 10:00 PM and each generator is operated for 50 hours per year. The generator engine source parameters used in the modeling are listed in Table 3. DPM emissions for the proposed emergency generators were calculated based on manufacturer's (Volvo Penta) particulate matter emission factor data for the generator engines exhaust. As a worst-case analysis, each generator was assumed to operate at full load for 50 hours per year. The generator emission calculations and a copy of the manufacturer's engine performance and emissions data are included in *Attachment* 2.

DPM and PM_{2.5} concentrations were calculated at the locations of existing nearby residences, as shown in Figure 3. The same receptor locations used to evaluate construction impacts, discussed above, were used for evaluating impacts from the proposed emergency generators. Annual DPM and PM_{2.5} concentrations from project operation were calculated at receptor heights of 1.5 meters (4.9 feet).

The maximum modeled annual DPM and $PM_{2.5}$ concentrations from operation of the generators at the data center was 0.0031 $\mu g/m^3$ at a receptor north of the data center project site across Agnew Road. Concentrations at all other existing residential locations would be lower then the maximum DPM and $PM_{2.5}$ concentrations. The location of the maximum modeled DPM and $PM_{2.5}$ concentrations, and TAC impacts, are shown on Figure 3.

Based on the maximum modeled DPM and PM_{2.5} concentrations, maximum increased cancer risks and non-cancer health impacts were calculated using BAAQMD recommended methods, as described in *Attachment 3*. Table 7 shows the maximum predicted community risk levels from the operation of the proposed emergency generators at the data center.

Table 7. Data Center Operation - Maximum Increased Community Risk Levels

Sensitive Receptor	Cancer Risk (per million)	Maximum Annual PM _{2.5} (μg/m³)	Maximum Hazard Index
Off-Site Residence	2.3	< 0.01	< 0.01
BAAQMD Single Source Threshold	10.0	0.3	1.0
Significant?	No	No	No

The maximum increased cancer risk, maximum modeled annual PM_{2.5} concentration, and maximum hazard index from operation of the proposed emergency generators would be below the BAAQMD significance thresholds. Details of the modeling and cancer risk calculations are in *Attachment 5*.

Data Center Total Health Impacts From Construction and Operation

The total increased cancer risk and non-cancer health impacts from construction and operation of the proposed data center are summarized in Table 8. Total cancer risks and non-cancer health impacts from construction and operation of the proposed data center would be above BAAQMD significance thresholds for cancer risk and PM_{2.5} and would be considered a *significant impact*.

Cumulative TAC and PM_{2.5} Exposure

The project site is affected by several sources of TACs. The effect of cumulative sources plus the project were evaluated at the receptor most affected by the project using BAAQMD screening tools. All sources within 1,000 feet of the project site were considered, regardless of their distance from the receptor. Figure 2 shows the locations of stationary sources permitted by BAAQMD. In addition, two roadways were evaluated in this assessment: Mission College Boulevard and Agnew Road.

Table 8. Data Center Construction and Operation – Total Maximum Health Impacts

Impact Type	Cancer Risk (per million)	Maximum Annual PM _{2.5} (μg/m³)	Maximum Hazard Index
Total Unmitigated Construction and Operation Impacts	31.2	0.54	< 0.01
BAAQMD Single Source Threshold	10.0	0.3	1.0
Significant?	Yes	Yes	No

Stationary sources were identified using BAAQMD's Google Earth tool. The locations were refined by identifying the sources by their listed address and review of aerial maps to locate the sources. A stationary source information form that included these sources was submitted to BAAQMD to verify the existence of the sources and obtain emissions data. All but one source were diesel generators. The screening levels reported by BAAQMD were adjusted using the distance multiplier that BAAQMD recommends for diesel engines. One source, Plant 9848, had high screening PM2.5 levels that required modeling using the emissions data that BAAQMD provided. This source included boilers and a generator that are the source of PM2.5 emissions. Dispersion modeling using AERMOD was conducted for this source. The boilers were modeled using the emissions data and generic stack parameters recommended by the San Joaquin Valley Air Pollution Control District. The generator was modeled using the emissions data and stack parameters recommended by BAAQMD.

Roadway sources were evaluated using the BAAQMD Roadway Screening Calculator. The calculator uses the older EMFAC2011 emission rates for the year 2014. Overall, emission rates will decrease by the time the project is constructed and occupied. The project is not likely to be occupied prior to 2018. In addition, a new version of the emissions factor model, EMFAC2014 is available. This version predicts lower emission rates. An adjustment factor of 0.5 was developed by comparing emission rates of total organic gases (TOG) and PM_{2.5} for running exhaust and running losses developed using EMFAC2011 for year 2014 and those from EMFAC2014 for year 2018. A traffic volume of 35,000 average daily trips (ADT) was used for Mission College Road and a volume of 15,000 ADT was estimated for Agnew Road.

Table 9 shows the cancer risk, hazard index, and PM_{2.5} concentrations associated with each source affecting the project site. The sum of impacts from cumulative sources (i.e., sources within 1,000 feet of the project) would be below the cumulative thresholds used by BAAQMD. The Stationary Source Information Form and screening risk calculations used to assess these sources are provided in *Attachment* 5 as part of the operational risk modeling information. Note that the predicted cancer risk was then adjusted upward using a factor of 1.3744 to account for new OEHHA guidance (see *Attachment 3*). This factor was provided by BAAQMD for use with their CEQA screening tools that are used to predict cancer risk.

Summary of Impacts

As shown in Table 7, project construction activities alone would result in significant cancer risk (i.e., cancer risk greater than 10 chances per million) and significant annual $PM_{2.5}$ concentrations (i.e., greater than $0.3 \,\mu g/m^3$). The cancer risk from construction combined with operation would also be significant, based on the single-source thresholds (see Table 8). Annual $PM_{2.5}$ concentrations would exceed the single-source thresholds only during the years that construction occurs. During operation, the annual $PM_{2.5}$ concentrations would be less than significant. As shown in Table 9, the cumulative cancer risk, annual $PM_{2.5}$ concentration and Hazard Index would not exceed the significance thresholds. *Mitigation Measure AQ-1* would reduce construction emissions.

Effectiveness of Mitigation: Mitigation Measure AQ-1 would reduce diesel particulate matter emissions by over 70 percent and fugitive particulate matter emissions by more than 50 percent. With mitigation the maximum cancer risk, assuming infant exposure, would be 8.1 in one million and the maximum $PM_{2.5}$ concentration would be $0.18\mu g/m^3$. The combination of construction activities with Mitigation Measure AQ-1 and operation of the project would result in a 30-year cancer risk of 9.5 per million. Impacts with Mitigation Measure AQ-1 would be reduced to a less-than-significant level.

Table 9. Impacts from Cumulative Sources – Off-Site Receptors

Table 3. Impacts from Cumulative	012	2100 2100 pto 2	1	
Sources within 1,000 feet of Project Site ¹	Maximum Cancer Risk (per million) ²	Maximum Annual PM _{2.5} (μg/m³)	Hazard Index (HI)	Method of Analysis
Unmitigated Project Construction and Operation of Generators	31.2	0.54	<0.01	Refined modeling
Plant No. 9848 – Perkins Elmer, Inc (1,020 feet)	<3.4	<0.01	<0.01	Stationary source screening cancer risk and modeling PM _{2.5} using emissions data from BAAQMD
Plant No. 17245 – City of Santa Clara, Generator (1,120 feet)	<1.4	0.00	0.00	
Plant No. 17717 – 2350 Mission Inventories, Generator (1,480 feet)	<1.6	0.00	0.00	
Plant No. 18892 – Omni Vision, Generator (550 feet)	0.2	0.00	0.00	Stationary source screening levels from BAAQMD
Plant No. 20126 – Intermap Network Services, Generator (1,500 feet)	0.0	0.00	0.00	adjusted using distance multiplier
Plant No. 18360 – Brion Technologies, Generator (1,260 feet)	1.1	0.00	0.00	
Plant No. 17385 – Intermap Network Services, Generator (900 feet)	2.3	0.00	0.00	
Mission College Road - 850 feet south, 35,000ADT	2.1	0.05	0.00	BAAQMD Roadway Screening adjusted for
Agnew Road – 40 feet south, est. 15,000 ADT	5.0	0.15	0.00	EMFAC2014 and new 2015 OEHHA
	40.2	0.75	0.02	
Cumulative Sources	48.3	0.75	0.02	
BAAQMD Threshold – Cumulative Sources	100	10.0	0.8	
Significant?	No	No	No	

Note: ¹ See F

¹ See Figure 2 for location of sources

² Cumulative source cancer risk adjusted upward by factor of 1.3744 to account for new 2015 OEHHA guidance.

SUPPORTING INFORMATION

Attachment 1 includes the CalEEMod modeling output for project construction and operation. This output also includes the output for total construction emissions with Mitigation Measure AQ-1. Attachment 2 includes the emission calculations for the diesel generator engines. Attachment 3 is a description of the community risk methodology that includes parameters for computing cancer risk. The effect of mitigating on-site construction emissions is included in the CalEEMod Modeling output contained in Attachment 4. That output includes on- and near-site construction period emissions for both unmitigated and mitigated cases. Included in Attachment 4 is the construction dispersion modeling and cancer risk summaries. Attachment 5 is the operational risk assessment for the routine testing and maintenance of the diesel generators. The cumulative source screening calculations, including the stationary source information form (SSIF) received from BAAQMD and the roadway screening calculations are provided in Attachment 6.

Attachment 1: CalEEMod Construction and Ope	eration Emissions Output
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Aligned Data Center, Criteria Emissions - Santa Clara County, Annual

Aligned Data Center, Criteria Emissions Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	400.00	1000sqft	15.00	400,000.00	0

1.2 Other Project Characteristics

 Urbanization
 Urban
 Wind Speed (m/s)
 2.2
 Precipitation Freq (Days)
 58

 Climate Zone
 4
 Operational Year
 2019

Utility Company Pacific Gas & Electric Company

 CO2 Intensity
 547
 CH4 Intensity
 0.029
 N20 Intensity
 0.006

 (lb/MWhr)
 (lb/MWhr)
 (lb/MWhr)
 (lb/MWhr)

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SVP current rate

Land Use - 400,000 sf data center building

Construction Phase - Applicant provided construction schedule

Off-road Equipment - Applicant provided Equipment List-need to check?

Off-road Equipment - Applicant provided Equipment List

Trips and VMT - Demolition trips= 1683+(9500/20*2)

Demolition - 370000 buildung square feet

Grading - 46000 cy of soil imported during grading

Vehicle Trips - Based on 55 daily trips projected

Energy Use -

Construction Off-road Equipment Mitigation - Best Management Practices Tier 2/Level 2 DPF Mitigation

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
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tblConstEquipMitigation	DPF	No Change	Level 2
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tblConstEquipMitigation	DPF	No Change	Level 2
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tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2

tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	DPF	No Change	Level 2
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
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tblConstructionPhase	NumDays	20.00	140.00
tblConstructionPhase	NumDays	300.00	240.00
tblConstructionPhase	NumDays	20.00	100.00
tblConstructionPhase	NumDays	30.00	20.00
tblConstructionPhase	NumDays	20.00	10.00
tblConstructionPhase	NumDays	10.00	80.00
tblConstructionPhase	PhaseEndDate	2/27/2020	11/26/2018
tblConstructionPhase	PhaseEndDate	8/1/2019	11/15/2018
tblConstructionPhase	PhaseEndDate	6/7/2018	2/9/2018
tblConstructionPhase	PhaseEndDate	8/15/2019	7/24/2018
tblConstructionPhase	PhaseEndDate	5/10/2018	3/6/2018
tblConstructionPhase	PhaseEndDate	8/30/2018	3/8/2018
tblConstructionPhase	PhaseStartDate	8/16/2019	5/15/2018
tblConstructionPhase	PhaseStartDate	8/31/2018	12/15/2017
tblConstructionPhase	PhaseStartDate	5/11/2018	1/15/2018
tblConstructionPhase	PhaseStartDate	8/2/2019	7/11/2018
tblConstructionPhase	PhaseStartDate	1/19/2018	11/15/2017
tblConstructionPhase	PhaseStartDate	6/8/2018	12/15/2017
tblGrading	MaterialExported	0.00	22,410.00

tblGrading	MaterialImported	0.00	46,000.00
tblLandUse	LotAcreage	9.18	15.00
tblOffRoadEquipment	HorsePower	187.00	247.00
tblOffRoadEquipment	LoadFactor	0.41	0.40
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	UsageHours	7.00	4.20
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	4.80
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	547
tblProjectCharacteristics	OperationalYear	2018	2019
tblTripsAndVMT	HaulingTripLength	20.00	7.30
tblTripsAndVMT	HaulingTripLength	20.00	7.30
tblTripsAndVMT	HaulingTripNumber	1,683.00	2,633.00
tblTripsAndVMT	HaulingTripNumber	0.00	13,000.00
tblVehicleTrips	ST_TR	1.32	0.14
tblVehicleTrips	SU_TR	0.68	0.14
tblVehicleTrips	WD_TR	6.97	0.14

2.0 Emissions Summary

2.1 Overall Construction <u>Unmitigated Construction</u>

	ROG	NOx	СО	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		
2017	0.4007	4.2395	2.2566	5.2100e- 003	0.6392	0.2021	0.8413	0.2506	0.1908	0.4413	0.0000	480.3886	480.3886	0.0799	0.0000	482.3849
2018	2.8282	8.3514	4.6943	0.0146	0.7994	0.2859	1.0853	0.3058	0.2677	0.5736	0.0000	1,351.615 1	1,351.6151	0.1754	0.0000	1,356.001 0
Maximum	2.8282	8.3514	4.6943	0.0146	0.7994	0.2859	1.0853	0.3058	0.2677	0.5736	0.0000	1,351.615 1	1,351.6151	0.1754	0.0000	1,356.001 0

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	s/yr				MT/yr						
2017	0.1148	2.3409	2.3442	5.2100e- 003	0.6392	0.0513	0.6905	0.1382	0.0511	0.1892	0.0000	480.3882	480.3882	0.0799	0.0000	482.3845
2018	2.4286	6.2508	4.8321	0.0146	0.7994	0.0966	0.8959	0.2017	0.0958	0.2975	0.0000	1,351.614 5	1,351.6145	0.1754	0.0000	1,356.000 5
Maximum	2.4286	6.2508	4.8321	0.0146	0.7994	0.0966	0.8959	0.2017	0.0958	0.2975	0.0000	1,351.614 5	1,351.6145	0.1754	0.0000	1,356.000 5
	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	21.23	31.76	-3.24	0.00	0.00	69.71	17.66	38.91	67.98	52.04	0.00	0.00	0.00	0.00	0.00	0.00
Quarter	St	art Date	End	d Date	Maximu	m Unmitiga	ated ROG	NOX (tons	(quarter)	Maxin	num Mitigat	ed ROG + I	NOX (tons/q	uarter)		
1	9-	-1-2017	11-3	0-2017			2.8440					1.4648				
2	12	2-1-2017	2-28	8-2018			6.2342					4.0989				
3	3-	-1-2018	5-3′	1-2018			1.8089					1.3810				
4	6-	-1-2018	8-3	1-2018			2.6116					2.1969				
5	9-	-1-2018	9-30	0-2018			0.8219					0.6978				
			Hig	ghest			6.2342					4.0989				

2.2 Overall Operational Unmitigated Operational

	ROG	NOx	СО	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						MT/yr										
Area	1.7711	3.0000e- 005	3.7100e- 003	0.0000		1.0000e- 005	1.0000e- 005		1.0000e- 005	1.0000e- 005	0.0000	7.1500e- 003	7.1500e- 003	2.0000e- 005	0.0000	7.6300e- 003
Energy	0.0571	0.5192	0.4361	3.1200e- 003		0.0395	0.0395		0.0395	0.0395	0.0000	1,400.880 9	1,400.8809	0.0551	0.0195	1,408.078 9
Mobile	0.0182	0.0801	0.2324	7.1000e- 004	0.0608	8.1000e- 004	0.0616	0.0163	7.6000e- 004	0.0170	0.0000	64.8688	64.8688	2.3700e- 003	0.0000	64.9282
Waste						0.0000	0.0000		0.0000	0.0000	100.6835	0.0000	100.6835	5.9502	0.0000	249.4392
Water						0.0000	0.0000		0.0000	0.0000	29.3460	124.1859	153.5319	3.0207	0.0725	250.6639
Total	1.8465	0.5993	0.6723	3.8300e- 003	0.0608	0.0403	0.1011	0.0163	0.0402	0.0565	130.0295	1,589.942 7	1,719.9722	9.0285	0.0921	1,973.117 6

Mitigated Operational

	ROG	NOx	СО	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	1.7711	3.0000e- 005	3.7100e- 003	0.0000		1.0000e- 005	1.0000e- 005		1.0000e- 005	1.0000e- 005	0.0000	7.1500e- 003	7.1500e- 003	2.0000e- 005	0.0000	7.6300e- 003
Energy	0.0571	0.5192	0.4361	3.1200e- 003		0.0395	0.0395		0.0395	0.0395	0.0000	1,400.880 9	1,400.8809	0.0551	0.0195	1,408.078 9
Mobile	0.0182	0.0801	0.2324	7.1000e- 004	0.0608	8.1000e- 004	0.0616	0.0163	7.6000e- 004	0.0170	0.0000	64.8688	64.8688	2.3700e- 003	0.0000	64.9282
Waste						0.0000	0.0000		0.0000	0.0000	100.6835	0.0000	100.6835	5.9502	0.0000	249.4392
Water						0.0000	0.0000		0.0000	0.0000	29.3460	124.1859	153.5319	3.0207	0.0725	250.6639

Total	1.8465	0.5993	0.6723	3.8300e- 003	0.0608	0.0403	0.1011	0.016	63 0.0	402 0.0	0565 13	30.0295 1,5	89.942 1,71 7	19.9722	9.0285	0.0921 1	,973.117 6
	ROG	N	Ox C	co s				M10 otal	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.	00 0	.00 0	.00	0.00	0.00 0	.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2017	1/18/2018	5	100	
2	Site Preparation	Site Preparation	11/15/2017	3/6/2018	5	80	
3	Trenching	Trenching	12/15/2017	3/8/2018	5	60	
4	Building Construction	Building Construction	12/15/2017	11/15/2018	5	240	
5	Grading	Grading	1/15/2018	2/9/2018	5	20	
6	Interior - Architectural Coating	Architectural Coating	5/15/2018	11/26/2018	5	140	
7	Paving	Paving	7/11/2018	7/24/2018	5	10	

Acres of Grading (Site Preparation Phase): 40

Acres of Grading (Grading Phase): 50

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 600,000; Non-Residential Outdoor: 200,000; Striped Parking

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	4	8.00	81	0.73
Demolition	Crushing/Proc. Equipment	1	2.00	85	0.78
Demolition	Excavators	4	4.00	158	0.38
Demolition	Rubber Tired Dozers	4	4.80	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	4.80	97	0.37
Site Preparation	Graders	2	4.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	4.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	4.00	97	0.37
Trenching	Excavators	3	8.00	158	0.38
Trenching	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Cranes	3	4.20	231	0.29
Building Construction	Forklifts	2	10.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	4	5.00	46	0.45
Grading	Excavators	3	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Interior - Architectural Coating	Aerial Lifts	1	6.00	63	0.31
Interior - Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	15	38.00	0.00	2,633.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	9	23.00	0.00	2,801.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	10	168.00	66.00	13,000.00	10.80	7.30	7.30	LD_Mix	HDT_Mix	HHDT
Grading	10	25.00	0.00	5,750.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Interior - Architectural	2	34.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	7.30	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment
Use DPF for Construction Equipment
Replace Ground Cover
Reduce Vehicle Speed on Unpaved Roads
Clean Paved Roads

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	СО	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							МТ	/yr		
Fugitive Dust					0.1566	0.0000	0.1566	0.0237	0.0000	0.0237	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2818	2.6597	1.5805	2.6400e- 003		0.1528	0.1528		0.1451	0.1451	0.0000	236.8629	236.8629	0.0511	0.0000	238.1392
Total	0.2818	2.6597	1.5805	2.6400e- 003	0.1566	0.1528	0.3094	0.0237	0.1451	0.1688	0.0000	236.8629	236.8629	0.0511	0.0000	238.1392

Unmitigated Construction Off-Site

	ROG	NOx	со	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	MT/yr										
Hauling	0.0127	0.4025	0.0792	9.2000e- 004	0.0215	2.2800e- 003	0.0238	5.8500e- 003	2.1800e- 003	8.0300e- 003	0.0000	88.7963	88.7963	4.3200e- 003	0.0000	88.9042
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3900e- 003	5.8200e- 003	0.0589	1.3000e- 004	0.0130	9.0000e- 005	0.0131	3.4500e- 003	8.0000e- 005	3.5300e- 003	0.0000	12.1593	12.1593	4.1000e- 004	0.0000	12.1695
Total	0.0201	0.4083	0.1381	1.0500e- 003	0.0345	2.3700e- 003	0.0369	9.3000e- 003	2.2600e- 003	0.0116	0.0000	100.9556	100.9556	4.7300e- 003	0.0000	101.0737

Mitigated Construction On-Site

	ROG	NOx	СО	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	s/yr							MT/	yr		

Fugitive Dust					0.1566	0.0000	0.1566	0.0119	0.0000	0.0119	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0595	1.2439	1.6356	2.6400e- 003		0.0371	0.0371		0.0371	0.0371	0.0000	236.8626	236.8626	0.0511	0.0000	238.1389
Total	0.0595	1.2439	1.6356	2.6400e- 003	0.1566	0.0371	0.1937	0.0119	0.0371	0.0490	0.0000	236.8626	236.8626	0.0511	0.0000	238.1389

	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	s/yr							MT	/yr		
Hauling	0.0127	0.4025	0.0792	9.2000e- 004	0.0215	2.2800e- 003	0.0238	5.8500e- 003	2.1800e- 003	8.0300e- 003	0.0000	88.7963	88.7963	4.3200e- 003	0.0000	88.9042
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3900e- 003	5.8200e- 003	0.0589	1.3000e- 004	0.0130	9.0000e- 005	0.0131	3.4500e- 003	8.0000e- 005	3.5300e- 003	0.0000	12.1593	12.1593	4.1000e- 004	0.0000	12.1695
Total	0.0201	0.4083	0.1381	1.0500e- 003	0.0345	2.3700e- 003	0.0369	9.3000e- 003	2.2600e- 003	0.0116	0.0000	100.9556	100.9556	4.7300e- 003	0.0000	101.0737

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	СО	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					0.0255	0.0000	0.0255	3.8600e- 003	0.0000	3.8600e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0416	0.3940	0.2510	4.3000e- 004		0.0220	0.0220		0.0209	0.0209	0.0000	38.2015	38.2015	8.1400e- 003	0.0000	38.4050
Total	0.0416	0.3940	0.2510	4.3000e- 004	0.0255	0.0220	0.0475	3.8600e- 003	0.0209	0.0247	0.0000	38.2015	38.2015	8.1400e- 003	0.0000	38.4050

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	1.7600e- 003	0.0604	0.0118	1.5000e- 004	0.0175	2.4000e- 004	0.0177	4.3900e- 003	2.3000e- 004	4.6200e- 003	0.0000	14.3448	14.3448	6.8000e- 004	0.0000	14.3617
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0700e- 003	8.2000e- 004	8.3900e- 003	2.0000e- 005	2.1100e- 003	1.0000e- 005	2.1200e- 003	5.6000e- 004	1.0000e- 005	5.7000e- 004	0.0000	1.9248	1.9248	6.0000e- 005	0.0000	1.9262
Total	2.8300e- 003	0.0612	0.0201	1.7000e- 004	0.0196	2.5000e- 004	0.0199	4.9500e- 003	2.4000e- 004	5.1900e- 003	0.0000	16.2695	16.2695	7.4000e- 004	0.0000	16.2879

	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	s/yr							МТ	/yr		

Fugitive Dust					0.0255	0.0000	0.0255	1.9300e- 003	0.0000	1.9300e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.6800e- 003	0.2025	0.2663	4.3000e- 004		6.0400e- 003	6.0400e- 003		6.0400e- 003	6.0400e- 003	0.0000	38.2015	38.2015	8.1400e- 003	0.0000	38.4050
Total	9.6800e- 003	0.2025	0.2663	4.3000e- 004	0.0255	6.0400e- 003	0.0315	1.9300e- 003	6.0400e- 003	7.9700e- 003	0.0000	38.2015	38.2015	8.1400e- 003	0.0000	38.4050

	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							МТ	/yr		
Hauling	1.7600e- 003	0.0604	0.0118	1.5000e- 004	0.0175	2.4000e- 004	0.0177	4.3900e- 003	2.3000e- 004	4.6200e- 003	0.0000	14.3448	14.3448	6.8000e- 004	0.0000	14.3617
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0700e- 003	8.2000e- 004	8.3900e- 003	2.0000e- 005	2.1100e- 003	1.0000e- 005	2.1200e- 003	5.6000e- 004	1.0000e- 005	5.7000e- 004	0.0000	1.9248	1.9248	6.0000e- 005	0.0000	1.9262
Total	2.8300e- 003	0.0612	0.0201	1.7000e- 004	0.0196	2.5000e- 004	0.0199	4.9500e- 003	2.4000e- 004	5.1900e- 003	0.0000	16.2695	16.2695	7.4000e- 004	0.0000	16.2879

3.3 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	СО	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					0.3838	0.0000	0.3838	0.2011	0.0000	0.2011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0523	0.5901	0.2352	4.6000e- 004		0.0289	0.0289		0.0266	0.0266	0.0000	42.2917	42.2917	0.0130	0.0000	42.6156
Total	0.0523	0.5901	0.2352	4.6000e- 004	0.3838	0.0289	0.4127	0.2011	0.0266	0.2277	0.0000	42.2917	42.2917	0.0130	0.0000	42.6156

Unmitigated Construction Off-Site

	ROG	NOx	СО	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	6.5000e- 003	0.2054	0.0404	4.7000e- 004	0.0202	1.1600e- 003	0.0214	5.2600e- 003	1.1100e- 003	6.3700e- 003	0.0000	45.3088	45.3088	2.2000e- 003	0.0000	45.3639
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7200e- 003	1.3500e- 003	0.0137	3.0000e- 005	3.0100e- 003	2.0000e- 005	3.0300e- 003	8.0000e- 004	2.0000e- 005	8.2000e- 004	0.0000	2.8240	2.8240	9.0000e- 005	0.0000	2.8264
Total	8.2200e- 003	0.2067	0.0541	5.0000e- 004	0.0233	1.1800e- 003	0.0244	6.0600e- 003	1.1300e- 003	7.1900e- 003	0.0000	48.1328	48.1328	2.2900e- 003	0.0000	48.1903

	ROG	NOx	СО	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					0.3838	0.0000	0.3838	0.1006	0.0000	0.1006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0111	0.2240	0.2642	4.6000e- 004		5.1700e- 003	5.1700e- 003		5.1700e- 003	5.1700e- 003	0.0000	42.2916	42.2916	0.0130	0.0000	42.6156
Total	0.0111	0.2240	0.2642	4.6000e- 004	0.3838	5.1700e- 003	0.3890	0.1006	5.1700e- 003	0.1057	0.0000	42.2916	42.2916	0.0130	0.0000	42.6156

	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	s/yr							МТ	/yr		
Hauling	6.5000e- 003	0.2054	0.0404	4.7000e- 004	0.0202	1.1600e- 003	0.0214	5.2600e- 003	1.1100e- 003	6.3700e- 003	0.0000	45.3088	45.3088	2.2000e- 003	0.0000	45.3639
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7200e- 003	1.3500e- 003	0.0137	3.0000e- 005	3.0100e- 003	2.0000e- 005	3.0300e- 003	8.0000e- 004	2.0000e- 005	8.2000e- 004	0.0000	2.8240	2.8240	9.0000e- 005	0.0000	2.8264
Total	8.2200e- 003	0.2067	0.0541	5.0000e- 004	0.0233	1.1800e- 003	0.0244	6.0600e- 003	1.1300e- 003	7.1900e- 003	0.0000	48.1328	48.1328	2.2900e- 003	0.0000	48.1903

3.3 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	СО	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					0.3838	0.0000	0.3838	0.2011	0.0000	0.2011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0694	0.7822	0.3221	6.5000e- 004		0.0373	0.0373		0.0343	0.0343	0.0000	59.2476	59.2476	0.0184	0.0000	59.7087
Total	0.0694	0.7822	0.3221	6.5000e- 004	0.3838	0.0373	0.4211	0.2011	0.0343	0.2354	0.0000	59.2476	59.2476	0.0184	0.0000	59.7087

Unmitigated Construction Off-Site

	ROG	NOx	СО	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							МТ	/yr		
Hauling	7.8800e- 003	0.2697	0.0525	6.6000e- 004	0.0213	1.0800e- 003	0.0224	5.6300e- 003	1.0300e- 003	6.6700e- 003	0.0000	64.0376	64.0376	3.0200e- 003	0.0000	64.1131
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1800e- 003	1.6700e- 003	0.0171	4.0000e- 005	4.2900e- 003	3.0000e- 005	4.3200e- 003	1.1400e- 003	3.0000e- 005	1.1700e- 003	0.0000	3.9110	3.9110	1.2000e- 004	0.0000	3.9140
Total	0.0101	0.2714	0.0695	7.0000e- 004	0.0256	1.1100e- 003	0.0267	6.7700e- 003	1.0600e- 003	7.8400e- 003	0.0000	67.9486	67.9486	3.1400e- 003	0.0000	68.0271

	ROG	NOx	СО	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	s/yr							MT.	/yr		

Fugitive Dust					0.3838	0.0000	0.3838	0.1006	0.0000	0.1006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0159	0.3190	0.3763	6.5000e- 004		7.3600e- 003	7.3600e- 003		7.3600e- 003	7.3600e- 003	0.0000	59.2475	59.2475	0.0184	0.0000	59.7086
Total	0.0159	0.3190	0.3763	6.5000e- 004	0.3838	7.3600e- 003	0.3912	0.1006	7.3600e- 003	0.1079	0.0000	59.2475	59.2475	0.0184	0.0000	59.7086

	ROG	NOx	СО	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	s/yr							МТ	/yr		
Hauling	7.8800e- 003	0.2697	0.0525	6.6000e- 004	0.0213	1.0800e- 003	0.0224	5.6300e- 003	1.0300e- 003	6.6700e- 003	0.0000	64.0376	64.0376	3.0200e- 003	0.0000	64.1131
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1800e- 003	1.6700e- 003	0.0171	4.0000e- 005	4.2900e- 003	3.0000e- 005	4.3200e- 003	1.1400e- 003	3.0000e- 005	1.1700e- 003	0.0000	3.9110	3.9110	1.2000e- 004	0.0000	3.9140
Total	0.0101	0.2714	0.0695	7.0000e- 004	0.0256	1.1100e- 003	0.0267	6.7700e- 003	1.0600e- 003	7.8400e- 003	0.0000	67.9486	67.9486	3.1400e- 003	0.0000	68.0271

3.4 Trenching - 2017

Unmitigated Construction On-Site

	ROG	NOx	СО	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	0.0128	0.1316	0.1077	1.5000e- 004		8.2200e- 003	8.2200e- 003		7.5600e- 003	7.5600e- 003	0.0000	14.2538	14.2538	4.3700e- 003	0.0000	14.3630
Total	0.0128	0.1316	0.1077	1.5000e- 004		8.2200e- 003	8.2200e- 003		7.5600e- 003	7.5600e- 003	0.0000	14.2538	14.2538	4.3700e- 003	0.0000	14.3630

Unmitigated Construction Off-Site

	ROG	NOx	СО	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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5000e- 004	3.5000e- 004	3.5700e- 003	1.0000e- 005	7.9000e- 004	1.0000e- 005	7.9000e- 004	2.1000e- 004	1.0000e- 005	2.1000e- 004	0.0000	0.7367	0.7367	2.0000e- 005	0.0000	0.7373
Total	4.5000e- 004	3.5000e- 004	3.5700e- 003	1.0000e- 005	7.9000e- 004	1.0000e- 005	7.9000e- 004	2.1000e- 004	1.0000e- 005	2.1000e- 004	0.0000	0.7367	0.7367	2.0000e- 005	0.0000	0.7373

	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	s/yr							MT	/yr		

Ī	Off-Road	3.7700e- 003	0.0787	0.1162	1.5000e- 004	2.8000e- 003	2.8000e- 003	 2.8000e- 003	2.8000e- 003	0.0000	14.2538	14.2538	4.3700e- 003	0.0000	14.3630
ĺ	Total	3.7700e- 003	0.0787	0.1162	1.5000e- 004	2.8000e- 003	2.8000e- 003	2.8000e- 003	2.8000e- 003	0.0000	14.2538	14.2538	4.3700e- 003	0.0000	14.3630

	ROG	NOx	СО	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	s/yr							МТ	/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5000e- 004	3.5000e- 004	3.5700e- 003	1.0000e- 005	7.9000e- 004	1.0000e- 005	7.9000e- 004	2.1000e- 004	1.0000e- 005	2.1000e- 004	0.0000	0.7367	0.7367	2.0000e- 005	0.0000	0.7373
Total	4.5000e- 004	3.5000e- 004	3.5700e- 003	1.0000e- 005	7.9000e- 004	1.0000e- 005	7.9000e- 004	2.1000e- 004	1.0000e- 005	2.1000e- 004	0.0000	0.7367	0.7367	2.0000e- 005	0.0000	0.7373

3.4 Trenching - 2018

Unmitigated Construction On-Site

	ROG	NOx	СО	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	0.0473	0.4853	0.4698	6.8000e- 004		0.0293	0.0293		0.0270	0.0270	0.0000	62.4520	62.4520	0.0194	0.0000	62.9381
Total	0.0473	0.4853	0.4698	6.8000e- 004		0.0293	0.0293		0.0270	0.0270	0.0000	62.4520	62.4520	0.0194	0.0000	62.9381

Unmitigated Construction Off-Site

	ROG	NOx	СО	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							МТ	/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7800e- 003	1.3600e- 003	0.0139	4.0000e- 005	3.5000e- 003	2.0000e- 005	3.5200e- 003	9.3000e- 004	2.0000e- 005	9.5000e- 004	0.0000	3.1911	3.1911	1.0000e- 004	0.0000	3.1935
Total	1.7800e- 003	1.3600e- 003	0.0139	4.0000e- 005	3.5000e- 003	2.0000e- 005	3.5200e- 003	9.3000e- 004	2.0000e- 005	9.5000e- 004	0.0000	3.1911	3.1911	1.0000e- 004	0.0000	3.1935

	ROG	NOx	СО	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	0.0168	0.3505	0.5175	6.8000e- 004	0.0125	0.0125	0.0125	0.0125	0.0000	62.4519	62.4519	0.0194	0.0000	62.9380
Total	0.0168	0.3505	0.5175	6.8000e- 004	0.0125	0.0125	0.0125	0.0125	0.0000	62.4519	62.4519	0.0194	0.0000	62.9380

	ROG	NOx	СО	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	s/yr							МТ	/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7800e- 003	1.3600e- 003	0.0139	4.0000e- 005	3.5000e- 003	2.0000e- 005	3.5200e- 003	9.3000e- 004	2.0000e- 005	9.5000e- 004	0.0000	3.1911	3.1911	1.0000e- 004	0.0000	3.1935
Total	1.7800e- 003	1.3600e- 003	0.0139	4.0000e- 005	3.5000e- 003	2.0000e- 005	3.5200e- 003	9.3000e- 004	2.0000e- 005	9.5000e- 004	0.0000	3.1911	3.1911	1.0000e- 004	0.0000	3.1935

3.5 Building Construction - 2017 <u>Unmitigated Construction On-Site</u>

	ROG	NOx	СО	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	0.0168	0.1297	0.0778	1.2000e- 004		7.8100e- 003	7.8100e- 003		7.3300e- 003	7.3300e- 003	0.0000	10.3647	10.3647	2.9400e- 003	0.0000	10.4383
Total	0.0168	0.1297	0.0778	1.2000e- 004		7.8100e- 003	7.8100e- 003		7.3300e- 003	7.3300e- 003	0.0000	10.3647	10.3647	2.9400e- 003	0.0000	10.4383

Unmitigated Construction Off-Site

	ROG	NOx	СО	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							МТ	/yr		
Hauling	1.7000e- 003	0.0577	0.0112	1.1000e- 004	0.0306	2.4000e- 004	0.0308	7.5600e- 003	2.3000e- 004	7.7900e- 003	0.0000	10.2864	10.2864	7.2000e- 004	0.0000	10.3044
Vendor	2.2900e- 003	0.0520	0.0152	1.0000e- 004	2.3900e- 003	4.9000e- 004	2.8800e- 003	6.9000e- 004	4.7000e- 004	1.1600e- 003	0.0000	9.6281	9.6281	5.3000e- 004	0.0000	9.6415
Worker	4.1800e- 003	3.2900e- 003	0.0333	8.0000e- 005	7.3300e- 003	5.0000e- 005	7.3800e- 003	1.9500e- 003	5.0000e- 005	2.0000e- 003	0.0000	6.8759	6.8759	2.3000e- 004	0.0000	6.8816
Total	8.1700e- 003	0.1130	0.0597	2.9000e- 004	0.0403	7.8000e- 004	0.0411	0.0102	7.5000e- 004	0.0110	0.0000	26.7905	26.7905	1.4800e- 003	0.0000	26.8275

	ROG	NOx	СО	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		

I	Off-Road	3.5200e- 003	0.0660	0.0728	1.2000e- 004	1.8200e- 003	1.8200e- 003	1.8200e- 003	1.8200e- 003	0.0000	10.3647	10.3647	2.9400e- 003	0.0000	10.4383
I	Total	3.5200e- 003	0.0660	0.0728	1.2000e- 004	1.8200e- 003	1.8200e- 003	1.8200e- 003	1.8200e- 003	0.0000	10.3647	10.3647	2.9400e- 003	0.0000	10.4383

	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	s/yr							МТ	/yr		
Hauling	1.7000e- 003	0.0577	0.0112	1.1000e- 004	0.0306	2.4000e- 004	0.0308	7.5600e- 003	2.3000e- 004	7.7900e- 003	0.0000	10.2864	10.2864	7.2000e- 004	0.0000	10.3044
Vendor	2.2900e- 003	0.0520	0.0152	1.0000e- 004	2.3900e- 003	4.9000e- 004	2.8800e- 003	6.9000e- 004	4.7000e- 004	1.1600e- 003	0.0000	9.6281	9.6281	5.3000e- 004	0.0000	9.6415
Worker	4.1800e- 003	3.2900e- 003	0.0333	8.0000e- 005	7.3300e- 003	5.0000e- 005	7.3800e- 003	1.9500e- 003	5.0000e- 005	2.0000e- 003	0.0000	6.8759	6.8759	2.3000e- 004	0.0000	6.8816
Total	8.1700e- 003	0.1130	0.0597	2.9000e- 004	0.0403	7.8000e- 004	0.0411	0.0102	7.5000e- 004	0.0110	0.0000	26.7905	26.7905	1.4800e- 003	0.0000	26.8275

3.5 Building Construction - 2018 <u>Unmitigated Construction On-Site</u>

	ROG	NOx	СО	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	0.3032	2.3880	1.5343	2.4800e- 003		0.1377	0.1377		0.1293	0.1293	0.0000	213.1661	213.1661	0.0599	0.0000	214.6642
Total	0.3032	2.3880	1.5343	2.4800e- 003		0.1377	0.1377		0.1293	0.1293	0.0000	213.1661	213.1661	0.0599	0.0000	214.6642

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	s/yr							МТ	/yr		
Hauling	0.0306	1.1310	0.2119	2.2100e- 003	0.0398	3.3200e- 003	0.0432	0.0109	3.1800e- 003	0.0141	0.0000	213.7637	213.7637	0.0142	0.0000	214.1177
Vendor	0.0414	1.0129	0.2819	2.0900e- 003	0.0497	8.1300e- 003	0.0578	0.0144	7.7800e- 003	0.0222	0.0000	200.0201	200.0201	0.0104	0.0000	200.2795
Worker	0.0774	0.0595	0.6066	1.5400e- 003	0.1526	1.0300e- 003	0.1536	0.0406	9.5000e- 004	0.0415	0.0000	139.1908	139.1908	4.1800e- 003	0.0000	139.2953
Total	0.1494	2.2034	1.1004	5.8400e- 003	0.2421	0.0125	0.2546	0.0659	0.0119	0.0778	0.0000	552.9746	552.9746	0.0287	0.0000	553.6924

	ROG	NOx	СО	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	0.0732	1.3734	1.5161	2.4800e- 003	0.0379	0.0379	0.0379	0.0379	0.0000	213.1659	213.1659	0.0599	0.0000	214.6639
Total	0.0732	1.3734	1.5161	2.4800e- 003	0.0379	0.0379	0.0379	0.0379	0.0000	213.1659	213.1659	0.0599	0.0000	214.6639

	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	s/yr							MT	/yr		
Hauling	0.0306	1.1310	0.2119	2.2100e- 003	0.0398	3.3200e- 003	0.0432	0.0109	3.1800e- 003	0.0141	0.0000	213.7637	213.7637	0.0142	0.0000	214.1177
Vendor	0.0414	1.0129	0.2819	2.0900e- 003	0.0497	8.1300e- 003	0.0578	0.0144	7.7800e- 003	0.0222	0.0000	200.0201	200.0201	0.0104	0.0000	200.2795
Worker	0.0774	0.0595	0.6066	1.5400e- 003	0.1526	1.0300e- 003	0.1536	0.0406	9.5000e- 004	0.0415	0.0000	139.1908	139.1908	4.1800e- 003	0.0000	139.2953
Total	0.1494	2.2034	1.1004	5.8400e- 003	0.2421	0.0125	0.2546	0.0659	0.0119	0.0778	0.0000	552.9746	552.9746	0.0287	0.0000	553.6924

3.6 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	СО	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					0.0291	0.0000	0.0291	3.2600e- 003	0.0000	3.2600e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0475	0.5532	0.3866	6.5000e- 004		0.0255	0.0255		0.0234	0.0234	0.0000	59.2337	59.2337	0.0184	0.0000	59.6947
Total	0.0475	0.5532	0.3866	6.5000e- 004	0.0291	0.0255	0.0546	3.2600e- 003	0.0234	0.0267	0.0000	59.2337	59.2337	0.0184	0.0000	59.6947

Unmitigated Construction Off-Site

	ROG	NOx	СО	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							МТ	/yr		
Hauling	0.0275	0.9425	0.1833	2.3200e- 003	0.0487	3.7700e- 003	0.0525	0.0134	3.6000e- 003	0.0170	0.0000	223.7597	223.7597	0.0106	0.0000	224.0237
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0100e- 003	7.7000e- 004	7.8800e- 003	2.0000e- 005	1.9800e- 003	1.0000e- 005	2.0000e- 003	5.3000e- 004	1.0000e- 005	5.4000e- 004	0.0000	1.8090	1.8090	5.0000e- 005	0.0000	1.8104
Total	0.0285	0.9433	0.1912	2.3400e- 003	0.0507	3.7800e- 003	0.0545	0.0139	3.6100e- 003	0.0175	0.0000	225.5687	225.5687	0.0106	0.0000	225.8340

	ROG	NOx	СО	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					0.0291	0.0000	0.0291	1.6300e- 003	0.0000	1.6300e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0159	0.3186	0.4079	6.5000e- 004		8.4300e- 003	8.4300e- 003		8.4300e- 003	8.4300e- 003	0.0000	59.2336	59.2336	0.0184	0.0000	59.6946
Total	0.0159	0.3186	0.4079	6.5000e- 004	0.0291	8.4300e- 003	0.0375	1.6300e- 003	8.4300e- 003	0.0101	0.0000	59.2336	59.2336	0.0184	0.0000	59.6946

	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	s/yr							MT	/yr		
Hauling	0.0275	0.9425	0.1833	2.3200e- 003	0.0487	3.7700e- 003	0.0525	0.0134	3.6000e- 003	0.0170	0.0000	223.7597	223.7597	0.0106	0.0000	224.0237
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0100e- 003	7.7000e- 004	7.8800e- 003	2.0000e- 005	1.9800e- 003	1.0000e- 005	2.0000e- 003	5.3000e- 004	1.0000e- 005	5.4000e- 004	0.0000	1.8090	1.8090	5.0000e- 005	0.0000	1.8104
Total	0.0285	0.9433	0.1912	2.3400e- 003	0.0507	3.7800e- 003	0.0545	0.0139	3.6100e- 003	0.0175	0.0000	225.5687	225.5687	0.0106	0.0000	225.8340

3.7 Interior - Architectural Coating - 2018 <u>Unmitigated Construction On-Site</u>

	ROG	NOx	СО	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	s/yr							MT	/yr		
Archit. Coating	2.0858					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0231	0.1777	0.1871	3.0000e- 004		0.0116	0.0116		0.0115	0.0115	0.0000	25.9191	25.9191	4.2000e- 003	0.0000	26.0242
Total	2.1089	0.1777	0.1871	3.0000e- 004		0.0116	0.0116		0.0115	0.0115	0.0000	25.9191	25.9191	4.2000e- 003	0.0000	26.0242

Unmitigated Construction Off-Site

	ROG	NOx	СО	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	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.5800e- 003	7.3600e- 003	0.0751	1.9000e- 004	0.0189	1.3000e- 004	0.0190	5.0200e- 003	1.2000e- 004	5.1400e- 003	0.0000	17.2216	17.2216	5.2000e- 004	0.0000	17.2345
Total	9.5800e- 003	7.3600e- 003	0.0751	1.9000e- 004	0.0189	1.3000e- 004	0.0190	5.0200e- 003	1.2000e- 004	5.1400e- 003	0.0000	17.2216	17.2216	5.2000e- 004	0.0000	17.2345

	ROG	NOx	СО	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		

Archit. Coating	2.0858					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.3300e- 003	0.1445	0.1952	3.0000e- 004	!	5.0600e- 003	5.0600e- 003	5.0600e- 003	5.0600e- 003	0.0000	25.9191	25.9191	4.2000e- 003	0.0000	26.0242
Total	2.0921	0.1445	0.1952	3.0000e- 004		5.0600e- 003	5.0600e- 003	5.0600e- 003	5.0600e- 003	0.0000	25.9191	25.9191	4.2000e- 003	0.0000	26.0242

	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	s/yr							МТ	/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.5800e- 003	7.3600e- 003	0.0751	1.9000e- 004	0.0189	1.3000e- 004	0.0190	5.0200e- 003	1.2000e- 004	5.1400e- 003	0.0000	17.2216	17.2216	5.2000e- 004	0.0000	17.2345
Total	9.5800e- 003	7.3600e- 003	0.0751	1.9000e- 004	0.0189	1.3000e- 004	0.0190	5.0200e- 003	1.2000e- 004	5.1400e- 003	0.0000	17.2216	17.2216	5.2000e- 004	0.0000	17.2345

3.8 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	СО	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							МТ	-/yr		
Off-Road	7.9200e- 003	0.0827	0.0710	1.1000e- 004		4.8300e- 003	4.8300e- 003		4.4400e- 003	4.4400e- 003	0.0000	9.6784	9.6784	3.0100e- 003	0.0000	9.7538
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	7.9200e- 003	0.0827	0.0710	1.1000e- 004		4.8300e- 003	4.8300e- 003		4.4400e- 003	4.4400e- 003	0.0000	9.6784	9.6784	3.0100e- 003	0.0000	9.7538

Unmitigated Construction Off-Site

	ROG	NOx	СО	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							МТ	/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e- 004	2.3000e- 004	2.3700e- 003	1.0000e- 005	5.9000e- 004	0.0000	6.0000e- 004	1.6000e- 004	0.0000	1.6000e- 004	0.0000	0.5427	0.5427	2.0000e- 005	0.0000	0.5431
Total	3.0000e- 004	2.3000e- 004	2.3700e- 003	1.0000e- 005	5.9000e- 004	0.0000	6.0000e- 004	1.6000e- 004	0.0000	1.6000e- 004	0.0000	0.5427	0.5427	2.0000e- 005	0.0000	0.5431

	ROG	NOx	СО	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	s/yr							МТ	/yr		

Off-Road	2.6100e- 003	0.0540	0.0804	1.1000e- 004	1.5600e- 003	1.5600e- 003	1.5600e- 003	1.5600e- 003	0.0000	9.6784	9.6784	3.0100e- 003	0.0000	9.7538
Paving	0.0000				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	2.6100e- 003	0.0540	0.0804	1.1000e- 004	1.5600e- 003	1.5600e- 003	1.5600e- 003	1.5600e- 003	0.0000	9.6784	9.6784	3.0100e- 003	0.0000	9.7538

	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							МТ	/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e- 004	2.3000e- 004	2.3700e- 003	1.0000e- 005	5.9000e- 004	0.0000	6.0000e- 004	1.6000e- 004	0.0000	1.6000e- 004	0.0000	0.5427	0.5427	2.0000e- 005	0.0000	0.5431
Total	3.0000e- 004	2.3000e- 004	2.3700e- 003	1.0000e- 005	5.9000e- 004	0.0000	6.0000e- 004	1.6000e- 004	0.0000	1.6000e- 004	0.0000	0.5427	0.5427	2.0000e- 005	0.0000	0.5431

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	s/yr							МТ	/yr		
Mitigated	0.0182	0.0801	0.2324	7.1000e- 004	0.0608	8.1000e- 004	0.0616	0.0163	7.6000e- 004	0.0170	0.0000	64.8688	64.8688	2.3700e- 003	0.0000	64.9282
Unmitigated	0.0182	0.0801	0.2324	7.1000e- 004	0.0608	8.1000e- 004	0.0616	0.0163	7.6000e- 004	0.0170	0.0000	64.8688	64.8688	2.3700e- 003	0.0000	64.9282

4.2 Trip Summary Information

	Aver	age Daily Trip F	Rate	Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	56.00	56.00	56.00	163,493	163,493
Total	56.00	56.00	56.00	163,493	163,493

4.3 Trip Type Information

		Miles			Trip %			Trip Purpos	e %
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	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 Light Industry	0.601004	0.039123	0.186461	0.109772	0.016124	0.004965	0.012251	0.019838	0.002045	0.001602	0.005388	0.000616	0.000812
									:				:

5.0 Energy Detail

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					tons	/yr							MT	/yr		
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	835.6514	835.6514	0.0443	9.1700e- 003	839.4905
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	835.6514	835.6514	0.0443	9.1700e- 003	839.4905
NaturalGas Mitigated	0.0571	0.5192	0.4361	3.1200e- 003		0.0395	0.0395		0.0395	0.0395	0.0000	565.2295	565.2295	0.0108	0.0104	568.5883
NaturalGas Unmitigated	0.0571	0.5192	0.4361	3.1200e- 003		0.0395	0.0395		0.0395	0.0395	0.0000	565.2295	565.2295	0.0108	0.0104	568.5883

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGa s Use	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr					tons	s/yr							МТ	/yr		
General Light Industry	1.0592e+0 07	0.0571	0.5192	0.4361	3.1200e- 003		0.0395	0.0395		0.0395	0.0395	0.0000	565.2295	565.2295	0.0108	0.0104	568.5883
Total		0.0571	0.5192	0.4361	3.1200e- 003		0.0395	0.0395		0.0395	0.0395	0.0000	565.2295	565.2295	0.0108	0.0104	568.5883

Mitigated

	NaturalGa s Use	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr					tons	s/yr							MT	/yr		
General Light Industry	1.0592e+0 07	0.0571	0.5192	0.4361	3.1200e- 003		0.0395	0.0395		0.0395	0.0395	0.0000	565.2295	565.2295	0.0108	0.0104	568.5883
Total		0.0571	0.5192	0.4361	3.1200e- 003		0.0395	0.0395		0.0395	0.0395	0.0000	565.2295	565.2295	0.0108	0.0104	568.5883

5.3 Energy by Land Use - Electricity <u>Unmitigated</u>

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr		M ⁻	Г/уг	
General Light Industry	3.368e+00 6	835.6514	0.0443	9.1700e- 003	839.4905
Total		835.6514	0.0443	9.1700e- 003	839.4905

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr		M	Г/уг	
General Light Industry	3.368e+00 6	835.6514	0.0443	9.1700e- 003	839.4905
Total		835.6514	0.0443	9.1700e- 003	839.4905

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	СО	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	1.7711	3.0000e- 005	3.7100e- 003	0.0000		1.0000e- 005	1.0000e- 005		1.0000e- 005	1.0000e- 005	0.0000	7.1500e- 003	7.1500e- 003	2.0000e- 005	0.0000	7.6300e- 003
Unmitigated	1.7711	3.0000e- 005	3.7100e- 003	0.0000		1.0000e- 005	1.0000e- 005		1.0000e- 005	1.0000e- 005	0.0000	7.1500e- 003	7.1500e- 003	2.0000e- 005	0.0000	7.6300e- 003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	СО	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	0.2086					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.5622					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.5000e- 004	3.0000e- 005	3.7100e- 003	0.0000		1.0000e- 005	1.0000e- 005		1.0000e- 005	1.0000e- 005	0.0000	7.1500e- 003	7.1500e- 003	2.0000e- 005	0.0000	7.6300e- 003
Total	1.7711	3.0000e- 005	3.7100e- 003	0.0000		1.0000e- 005	1.0000e- 005		1.0000e- 005	1.0000e- 005	0.0000	7.1500e- 003	7.1500e- 003	2.0000e- 005	0.0000	7.6300e- 003

Mitigated

	ROG	NOx	СО	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	0.2086					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.5622					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.5000e- 004	3.0000e- 005	3.7100e- 003	0.0000		1.0000e- 005	1.0000e- 005		1.0000e- 005	1.0000e- 005	0.0000	7.1500e- 003	7.1500e- 003	2.0000e- 005	0.0000	7.6300e- 003

Total	1.7711	3.0000e-	3.7100e-	0.0000	1.0000e-	1.0000e-	1.0000e-	1.0000e-	0.0000	7.1500e-	7.1500e-	2.0000e-	0.0000	7.6300e-
		0.0000	0	0.0000					0.000				0.0000	
		005	003		005	005	005	005		003	003	005	i	003
		003	003		003	003	003	003		003	003	003	i	003
													1	

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category		MT	/yr	
g	153.5319	3.0207	0.0725	250.6639
ŭ	153.5319	3.0207	0.0725	250.6639

7.2 Water by Land Use

Unmitigated

	Indoor/Out door Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal		MT	Γ/yr	
General Light Industry		153.5319	3.0207	0.0725	250.6639
Total		153.5319	3.0207	0.0725	250.6639

Mitigated

	Indoor/Out door Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal		M	Г/уг	
General Light Industry		153.5319	3.0207	0.0725	250.6639
Total		153.5319	3.0207	0.0725	250.6639

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

Total CO2	CH4	N2O	CO2e
	MT	/yr	

Mitigated	100.6835	5.9502	0.0000	249.4392
Unmitigated	100.6835	5.9502	0.0000	249.4392

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons		MT	Г/уг	
General Light Industry	496	100.6835	5.9502	0.0000	249.4392
Total		100.6835	5.9502	0.0000	249.4392

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons		M	Γ/yr	
General Light Industry		100.6835	5.9502	0.0000	249.4392
Total		100.6835	5.9502	0.0000	249.4392

9.0 Operational Offroad

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

	Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type	l
!	<u>Boilers</u>							•

Equipment Type	Number	Heat Hiput/Day	rieat iriput/rear	Doller Rating	i dei Type
User Defined Equipment					

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

11.0 Vegetation

Attachment 2: Data Center Emergency Generators Emission Calculations and Engine Data



NO: 164044

EXHAUST EMISSION DECLARATION

The emission data in this declaration are measured according to the test procedures specified below and on one member engine of the engine type. Emission data may vary among production engines.

TECHNICAL SPECIFICATION

Engine type: TWD1673 GE

Specification:

Module No:

Rated crankshaft power *):

Rated speed:

685 kW 1800 rpm

*) Stand-by power without fan acc. to ISO 3046.

TEST INFORMATION

 Test conditions
 40 CFR part 1039

 Test identification
 29008623

 Test date
 September 10, 2014

 Test cycle
 D2 - 5-mode US constant speed test cycle

EXHAUST EMISSIONS (weighted cycle)

CO (g/kWh)	0,09
HC (g/kWh)	0,003
NOx (g/kWh)	0,31
PM (a/kWh)	0.018

EXHAUST EMISSIONS (per cycle mode)

Mode	#	1	2	3	4	5
Power	(kW)	699	526	351	176	70
NOx	(g/h)	204	147	148	28	46
HC	(g/h)	0	0	0	0	1
CO	(g/h)	141	106	74	60	123
CO ₂	(kg/h)	448	332	227	125	66
NOx	(ppm)	35	29	37	10	23
HC	(ppm)	0	0	0	0	1
CO	(ppm)	20	15	12	10	13
CO	(ppm)	42	37	31	36	105
engine out						
CO ₂	(%)	8,6	7,3	6,1	4,7	3,6

Gothenburg 2014-10-24

AB Volvo Penta

47 436, Engine Emission Certification

VOLVO PENTA	Document No	Issue Index
TWD1673GE	22412771	01

Performance			rpm	1500	1800
Prime Power		without fan	kW	NA	625
			hp	NA	850
		with fan	kW	NA	595
			hp	NA	809
Standby Power		without fan	kW	NA	685
			hp	NA	932
		with fan	kW	NA	655
			hp	NA	891
Torque at:	Prime Pow	er	Nm	NA	3316
			lbft	NA	2445
	Standby Po	ower	Nm	NA	3634
			lbft	NA	2680
Manu nistan annud				NIA	
Mean piston speed			m/s	NA	9,9
T#tive processes etc	Prime Pow		ft/sec MPa	NA NA	32,6
Effective mean pressure at:	Prime Pow	er		1	2,6
			psi	NA	375
Effective mean pressure at:	Standby Po	ower	MPa	NA	2,8
			psi MPa	NA NA	411 22
Max combustion pressure at:	Prime Pow	er			
	0		psi	NA	3191
Max combustion pressure at:	Standby Po	ower	MPa	NA	22,5
2			psi	NA	3263
Total mass moment of inertia, J (mR ²) with flywheel		kgm ²			,50
			lbft ²	59	9,3
Total mass moment of inertia, J (mR2) without flywhee	el		kgm ²	1,	92
			lbft ²	45	5,6
Friction Power			kW		51
			hp		69,36
Derating due to altitude - see Technical Diagrams					

Engine noise emission Test Standards: ISO 3744-1981 (E) sound power

Tolerance ± 0.75 dB(A)		rpm	1500	1800
Measured sound power Lw	No load	dB(A)	NA	118,1
	Prime Power	dB(A)	NA	119,1
	Standby Power	dB(A)	NA	118,9
Calculated sound pressure Lp at 1 m	No load	dB(A)	NA	101,1
	Prime Power	dB(A)	NA	102,1
	Standby Power	dB(A)	NA	101,9

Unsilenced exhaust noise Data calculated as sound pressure Lp.

Assumed microphone distance 1 m	rpm	1500	1800
Prime Power	dB(A)	NA	
Standby Power	dR(A)	NA	

TWD1672-1673GE

615 kW (836 hp) & 685 (932) at 1800 rpm, acc, to ISO 3046

US EPA & CARB Tier 4 Final

A powerful, reliable and economical generating set diesel engine range built on the proven Volvo Group in-line six concept.

Powerful package

High power density in a compact package with dual stage turbo charging. Excellent load step performance according to ISO 8528-5.

Low cost of ownership & operation

World class fuel efficiency in combination with a proven and reliable engine and exhaust aftertreatment system design. The exhaust aftertreatment system consists of only SCR, without EGR, DOC or DPF. Minimal of components are used and no downtime for regeneration or decreased service intervals. No EGR also results in less heat rejection, leading to excellent power density and improved fuel economy.

Compact & simple installation

SCR technology selected by Volvo Group does not increase the amount of cooling capacity needed. In combination with the compact engine design, installation is easy with minor impact on existing installation layout. Installation guidelines as well as drawings and CAD models are easy to access.

Durability & low noise

Volvo Group's long experience with SCR systems in combination with base engine development reduces risk of downtime. Well-balanced to produce smooth and vibration free operation with low noise.

Low exhaust emission

Efficient injection as well as robust engine design in combination with SCR technology contributes to excellent combustion and low fuel consumption.

Easy service & maintenance

Easily accessible service and maintenance points contribute to the ease of service.



- · Proven and straight-forward design built on Volvo Group technology
- · Low cost of ownership and operation
- · SCR only no EGR, DOC, DPF or regeneration
- · High efficient cooling system
- Excellent step load performance acc. to ISO 8528-5
- · Compact, simple installation and easy to service
- · Available as Genpac or Base engine configuration

60 Hz/1800 rpm							
Prime power				Stand	by pow	rer	Generator eff.
Engine	kWm	kWe	kVa	kWm	kWe	kVa	(%)
TWD1672GE	532	508	635	585	559	698	95,5
TWD1673GE	595	570	713	655	625	781	95,5



TWD1672-1673GE

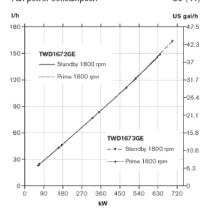
Technical Data

Engine designation	TWD1672-1673GE
Configuration and no. of cylinders	in-line 6
Displacement, I (in ³)	16.12 (983.9)
Method of operation	4-stroke
Bore, mm (in.)	
Stroke, mm (in.)	165 (6.50)
Compression ratio	16.8:1
Wet weight, engine only, kg (lb)	1810 (3390)
Wet weight, Genpac (engine, cooling system, air fil	tration system
and frame kg (lb)	2767(6100)

Performance (with fan, kW (hp))	1800 rpm
TWD1672GE	
Prime Power	532 (724)
Standby Power	585 (796)
Fan power consumption	30 (41)

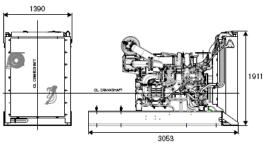
TWD1673GE

Prime Power	595 (809)
Standby Power	655 (891)
Fan power consumption	30 (41)



Dimensions

Not for installation. Dimensions in mm.



Technical description

Engine and block

- Cast iron cylinder block with optimum distribution of forces without the block being unnessarily heavy.
- Wet, replaceable cylinder liners Tapered connecting rods for increased piston lifetime
- Crankshaft induction hardened bearing surfaces and fillets with seven bearings for moderate load on main and high-end bearings
- Case hardened and Nitrocarburized transmission gears for heavy duty
- Viscous type crankshaft vibration dampers to withstand single bearing alternator torsional vibrations
- Replaceable valve guides and valve seats Over head camshaft and 4 valves per cylinder

Lubrication system

- Full flow oil cooler
- Full flow disposable spin-on oil filter, for extra high filtration The lubricating oil level can be measured at start-up

- Electronic high pressure unit injectors
- Fuel prefilter with water separator and water-in-fuel indicator / alarm Fine fuel filter with manual feed pump and fuel pressure switch

Cooling system

- Efficient cooling with accurate coolant control through a water distribution duct in the cylinder block.
- Belt driven coolant pumps with high degree of efficiency Water-cooled charge air coolers

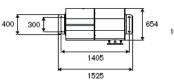
Turbo charger

- Efficient and reliable dual stage turbo chargers
- Intermediate charge air coolers for both turbo chargers Waste gate system for the high pressure turbo charger

Electrical system

- Engine Management System 2.3 (EMS 2.3), an electronically controlled processing system which optimizes engine performance. It also includes advanced facilities for diagnostics and fault tracing. The instruments and controls connect to the engine via the CAN SAE.
- J1939 interface. The DCU is a control panel with display, engine control, monitoring, alarm, parameter setting and diagnostic functions. It also presents error codes in clear text. The DCU makes it possible to install and combine several sets of analogue and digital instruments.
- Sensors for oil pressure, oil temp, boost pressure, boost temp, coolant temp, fuel temp, water in fuel, fuel pressure and two speed sensors.

Exhaust aftertreatment system
• SCR only. No EGR, DOC, DPF or regeneration. Wide range of installation options available.





Rating guidelines

PRIME POWER rating corresponds to ISO Standard Power for continuous operation. It is applicable for supplying electrical power at variable load for an unlimited number of hours instead of commercially purchased power. A10 % overload capability for govering purpose is available for this rating. STANDBY POWER rating corresponds to ISO Standard Fuel Stop Power. It is applicable for supplying standby electrical power at variable load in areas with well established electrical networks in the event of normal utility power failure. No overload capability is available for this rating.

1 kW = 1 hp x 1.36 1 hp = 1 kW x 0.7355

Power standards

The engine performance corresponds to ISO 3046, BS 5514 and DIN 6271. The technical data applies to an engine without cooling fan and operating on a fuel with calorific value of 42.7 MJ /kg (18360 BTU/lb) and a density of 0.84 kg/liter (7.01 lb/US gal), also where this involves a deviation from the standards. Power output guaranteed within 0 to +2% att rated ambient conditions at delivery. Ratings are based on ISO 8528. Engine speed governing in accordance with ISO 3046/IV, class A1 and ISO 8528-5 class G3

Additional information

For additional information, please contact your Volvo Penta representative or visit www.volvopenta.com



AB Volvo Penta SE-405 08 Göteborg, Sweden

Aligned Data Center, Santa Clara, CA - Emergency Backup Generators Emissions From Periodic Generator Operation - 120 Engines (50 Hours per Year per Engine)

Periodic Generator Load Testing

remodic Generator Load Testing		
Manufacturer/Model	Volvo Penta	TWD1673GE
Engine	18V2000	Tier 4 Engine
Engine Output (kWm) at Full Load	685	
Engine Output (hp) at Full Load	932	
Generator Output (kWe) at Full Load	625	
Total No. Units	120	
Engine Load During Testing	100%	
Engine Output (hp) at Testing Load	932	
Fuel Use (gal/hr) at Testing Load	41	
Fuel Sulfur Content (%)	0.0015	
Emission Testing Information		
	Max.	Maximum
	Daily	Annual
	Operation	Operation
No. Units Tested. =	120	120
Test Duration/Unit (min) =	60	60
Tests per Period/Unit =	1	50
Operation./Unit (hours) =	1	50
	120	6000

Total Operation (hours) =	120	6000							
				Operational			Operational - Total Emissions ²		
	Emission ¹	Emission	Emission	E	missions per Un	uit			
	Factor	Factor	Rate per Unit	Daily	Annual	Annual	Daily	An	nual
Pollutant	(g/kW-hr)	(g/hp-hr)	(lb/hr)	(lb/day)	(lb/yr)	(ton/yr)	(lb/day)	(lb/yr)	(ton/yr)
NOx	0.31	0.23	0.48	0.48	23.8	0.01	57.04	2,852.1	1.4
HC	0.003	0.00	0.00	0.00	0.2	0.00	0.55	27.6	0.0
CO	0.1	0.07	0.14	0.14	6.9	0.00	16.56	828.0	0.4
PM10	0.018	0.01	0.028	0.03	1.4	0.0007	3.31	165.6	0.1
PM2.5 ³	0.017	0.010	0.021	0.02	1.0	0.0005	2.47	123.6	0.1
SOx ^{1a}	-	-	0.009	0.009	0.4	0.0002	1.04	52.0	0.0
CO ₂ ^{1b}	-	22.38 lb/gal	918	918	45,881	22.9	110,115	5,505,740	2,753

Notes: 1) Based on Volvo Penta specification sheet for 685 kW diesel generator set at full engine load (Data Sheet No: 16044).

¹a) Calculated based on fuel sulfur content and EPA AP-42 Table 3.4-1 emission factor.

¹b) CO2 emission factor from California Climate Action Registry, General Reporting Protocol, Version 3.1, January 2009

²⁾ Based on the number of units operating for the specified time period

³⁾ Based on CARB CEIDERS PM profile for diesel IC engines, PM2.5 fraction of PM = 0.937

Attachment 3: Health Risk Calculation Methodology

A health risk assessment (HRA) for exposure to Toxic Air Contaminates (TACs) requires the application of a risk characterization model to the results from the air dispersion model to estimate potential health risk at each sensitive receptor location. The State of California Office of Environmental Health Hazard Assessment (OEHHA) and California Air Resources Board (CARB) develop recommended methods for conducting health risk assessments. The most recent OEHHA risk assessment guidelines were published in February of 2015. These guidelines incorporate substantial changes designed to provide for enhanced protection of children, as required by State law, compared to previous published risk assessment guidelines. CARB has provided additional guidance on implementing OEHHA's recommended methods. This HRA used the recent 2015 OEHHA risk assessment guidelines and CARB guidance. The BAAQMD has adopted recommended procedures for applying the newest OEHHA guidelines as part of Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants. Exposure parameters from the OEHHA guidelines and the recent BAAQMD HRA Guidelines were used in this evaluation.

Cancer Risk

Potential increased cancer risk from inhalation of TACs are calculated based on the TAC concentration over the period of exposure, inhalation dose, the TAC cancer potency factor, and an age sensitivity factor to reflect the greater sensitivity of infants and children to cancer causing TACs. The inhalation dose depends on a person's breathing rate, exposure time and frequency of exposure, and the exposure duration. These parameters vary depending on the age, or age range, of the persons being exposed and whether the exposure is considered to occur at a residential location or other sensitive receptor location.

The current OEHHA guidance recommends that cancer risk be calculated by age groups to account for different breathing rates and sensitivity to TACs. Specifically, they recommend evaluating risks for the third trimester of pregnancy to age zero, ages zero to less than two (infant exposure), ages two to less than 16 (child exposure), and ages 16 to 70 (adult exposure). Age sensitivity factors (ASFs) associated with the different types of exposure are an ASF of 10 for the third trimester and infant exposures, an ASF of 3 for a child exposure, and an ASF of 1 for an adult exposure. Also associated with each exposure type are different breathing rates, expressed as liters per kilogram of body weight per day (L/kg-day). As recommended by the BAAQMD, 95th percentile breathing rates are used for the third trimester and infant exposures, and 80th percentile breathing rates for child and adult exposures. Additionally, CARB and the BAAQMD recommend the use of a residential exposure duration of 30 years for sources with long-term emissions (e.g., roadways).

Under previous OEHHA and BAAQMD HRA guidance, residential receptors are assumed to be at their home 24 hours a day, or 100 percent of the time. In the 2015 Risk Assessment Guidance, OEHHA includes adjustments to exposure duration to account for the fraction of time at home (FAH), which can be less than 100 percent of the time, based on updated population and activity statistics. The FAH factors are age-specific and are: 0.85 for third trimester of pregnancy to less than 2 years old, 0.72 for ages 2 to less than 16 years, and 0.73 for ages 16 to 70 years. Use of the FAH factors is allowed by the BAAQMD if there are no schools in the project vicinity that would have a cancer risk of one in a million or greater assuming 100 percent exposure (FAH = 1.0).

¹ OEHHA, 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. Office of Environmental Health Hazard Assessment. February.

²CARB, 2015. Risk Management Guidance for Stationary Sources of Air Toxics. July 23.

³BAAQMD, 2016. BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines. January 2016.

Functionally, cancer risk is calculated using the following parameters and formulas:

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x $FAH x 10^6$ Where:

CPF = Cancer potency factor (mg/kg-day)⁻¹

ASF = Age sensitivity factor for specified age group

ED = Exposure duration (years)

AT = Averaging time for lifetime cancer risk (years)

FAH = Fraction of time spent at home (unitless)

Inhalation Dose = $C_{air} x DBR x A x (EF/365) x 10^{-6}$ Where:

 $C_{air} = concentration in air (\mu g/m^3)$

DBR = daily breathing rate (L/kg body weight-day)

A = Inhalation absorption factor

EF = Exposure frequency (days/year)

 10^{-6} = Conversion factor

The health risk parameters used in this evaluation are summarized as follows:

	Exposure Type 🗲	Infar	nt	Ch	ild	Adult
Parameter	Age Range 🗲	3 rd Trimester	0<2	2 < 9	2 < 16	16 - 30
DPM Cancer Potency Factor (mg/kg-day) ⁻¹		1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
Daily Breathing Rate (I	Daily Breathing Rate (L/kg-day)*			631	572	261
Inhalation Absorption F	Inhalation Absorption Factor			1	1	1
Averaging Time (years))	70	70	70	70	70
Exposure Duration (year	rs)	0.25	2	14	14	14
Exposure Frequency (da	350	350	350	350	350	
Age Sensitivity Factor		10	10	3	3	1
Fraction of Time at Hor	ne	0.85-1.0	0.85-1.0	0.72-1.0	0.72-1.0	0.73

^{* 95&}lt;sup>th</sup> percentile breathing rates for 3rd trimester and infants and 80th percentile for children and adults

Non-Cancer Hazards

Potential non-cancer health hazards from TAC exposure are expressed in terms of a hazard index (HI), which is the ratio of the TAC concentration to a reference exposure level (REL). OEHHA has defined acceptable concentration levels for contaminants that pose non-cancer health hazards. TAC concentrations below the REL are not expected to cause adverse health impacts, even for sensitive individuals. The total HI is calculated as the sum of the HIs for each TAC evaluated and the total HI is compared to the BAAQMD significance thresholds to determine whether a significant non-cancer health impact from a project would occur.

Typically, for residential projects located near roadways with substantial TAC emissions, the primary TAC of concern with non-cancer health effects is diesel particulate matter (DPM). For DPM, the chronic inhalation REL is 5 micrograms per cubic meter ($\mu g/m^3$).

Annual PM_{2.5} Concentrations

While not a TAC, fine particulate matter ($PM_{2.5}$) has been identified by the BAAQMD as a pollutant with potential non-cancer health effects that should be included when evaluating potential community health impacts under the California Environmental Quality Act (CEQA). The thresholds of significance for

 $PM_{2.5}$ (project level and cumulative) are in terms of an increase in the annual average concentration. When considering $PM_{2.5}$ impacts, the contribution from all sources of $PM_{2.5}$ emissions should be included. For projects with potential impacts from nearby local roadways, the $PM_{2.5}$ impacts should include those from vehicle exhaust emissions, $PM_{2.5}$ generated from vehicle tire and brake wear, and fugitive emissions from re-suspended dust on the roads.

Attachment 4: Construction Health Risk Assessment

- Dispersion Modeling and Emissions Rates
- Cancer Risk Calculations
- CalEEMod On- and Near Site Emissions Output

Aligned Data Center - Santa Clara, CA

DPM Emissions and Modeling Emission Rates

Construction		DPM	Area	D	PM Emiss	ions	Modeled Area	DPM Emission Rate
Year	Activity	(ton/year)	Source	(lb/yr)	(lb/hr)	(g/s)	(m ²)	$(g/s/m^2)$
2017-2018	Construction	0.4685	DPM	937.0	0.25671	3.23E-02	62,602	5.17E-07
Total		0.4685		937.0	0.2567	0.0323		

Operation Hours

hr/day = 10 (7am - 5pm)

days/yr = 365 hours/year = 3650

nours/year = 3030

DPM Construction Emissions and Modeling Emission Rates - With Mitigation

Construction		DPM	Area	D	PM Emiss	ions	Modeled Area	DPM Emission Rate
Year	Activity	(ton/year)	Source	(lb/yr)	(lb/hr)	(g/s)	(m ²)	$(g/s/m^2)$
2017-2018	Construction	0.0309	DPM	61.8	0.01694	2.13E-03	62,602	3.41E-08
Total		0.0309		62	0.0169	0.0021		

(7am - 5pm)

Construction Hours

hr/day = 10

days/yr = 365

hours/year = 3650

Aligned Data Center - Santa Clara, CA

PM2.5 Fugitive Dust Emissions for Modeling

Construction	ve Dust Emissi	Area		PM2.5 E	missions		Modeled Area	PM2.5 Emission Rate
Year	Activity	Source	(ton/year)	(lb/yr)	(lb/hr)	(g/s)	(m^2)	g/s/m ²
2017-2018	Construction	FUG	0.6070	1214.0	0.33260	4.19E-02	62,602	6.69E-07
Total			0.6070	1214.0	0.3326	0.0419		

Operation Hours

hr/day = 10 (7am - 5pm)

days/yr = 365

hours/year = 3650

PM2.5 Fugitive Dust Construction Emissions for Modeling - With Mitigation

Construction		Area		PM2.5 E	missions		Modeled Area	PM2.5 Emission Rate
Year	Activity	Source	(ton/year)	(lb/yr)	(lb/hr)	(g/s)	(m ²)	g/s/m ²
2017-2018	Construction	FUG	0.3064	612.8	0.16789	2.12E-02	62,602	3.38E-07
Total			0.3064	612.8	0.1679	0.0212		

Construction Hours

hr/day = 10 (7am - 5pm)

days/yr = 365

hours/year = 3650

Aligned Data Center - Santa Clara, CA - Construction Impacts - Unmitigated Emissions Maximum DPM Cancer Risk and PM2.5 Calculations From Construction Impacts at Off-Site MEI Location

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: $CPF = Cancer potency factor (mg/kg-day)^{-1}$

ASF = Age sensitivity factor for specified age group

ED = Exposure duration (years)

AT = Averaging time for lifetime cancer risk (years)

FAH = Fraction of time spent at home (unitless)

Inhalation Dose = $C_{air} \times DBR \times A \times (EF/365) \times 10^{-6}$

Where: $C_{air} = concentration in air (\mu g/m^3)$

 $DBR = daily \ breathing \ rate \ (L/kg \ body \ weight-day)$

A = Inhalation absorption factor

EF = Exposure frequency (days/year)

 10^{-6} = Conversion factor

Values

		Infant/Cl	hild		Adult
Age>	3rd Trimester	0 - 2	2 - 9	2 - 16	16 - 30
Parameter					
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	631	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
AT =	70	70	70	70	70
FAH =	0.85	0.85	0.72	0.72	0.73

^{* 95}th percentile breathing rates for infants and 80th percentile for children and adults

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child	- Exposure	Information	Infant/Child	Adult - E	xposure Info	rmation	Adult
	Exposure				Age	Cancer	Mod	eled	Age	Cancer
Exposure	Duration		DPM Con	c (ug/m3)	Sensitivity	Risk	DPM Con	c (ug/m3)	Sensitivity	Risk
Year	(years)	Age	Year	Annual	Factor	(per million)	Year	Annual	Factor	(per million)
0	0.25	-0.25 - 0*	-	-	10	-	-	-	-	-
1	1	0 - 1	2017-2018	0.2071	10	28.92	2017-2018	0.2071	1	0.59
2	1	1 - 2	2020	0.0000	10	0.00	2020	0.0000	1	0.00
3	1	2 - 3	2021	0.0000	3	0.00	2021	0.0000	1	0.00
4	1	3 - 4	2022	0.0000	3	0.00	2022	0.0000	1	0.00
5	1	4 - 5	2023	0.0000	3	0.00	2023	0.0000	1	0.00
6	1	5 - 6	2024	0.0000	3	0.00	2024	0.0000	1	0.00
7	1	6 - 7	2025	0.0000	3	0.00	2025	0.0000	1	0.00
8	1	7 - 8	2026	0.0000	3	0.00	2026	0.0000	1	0.00
9	1	8 - 9	2027	0.0000	3	0.00	2027	0.0000	1	0.00
10	1	9 - 10	2028	0.0000	3	0.00	2028	0.0000	1	0.00
11	1	10 - 11	2029	0.0000	3	0.00	2029	0.0000	1	0.00
12	1	11 - 12	2030	0.0000	3	0.00	2030	0.0000	1	0.00
13	1	12 - 13	2031	0.0000	3	0.00	2031	0.0000	1	0.00
14	1	13 - 14	2032	0.0000	3	0.00	2032	0.0000	1	0.00
15	1	14 - 15	2033	0.0000	3	0.00	2033	0.0000	1	0.00
16	1	15 - 16	2034	0.0000	3	0.00	2034	0.0000	1	0.00
17	1	16-17	2035	0.0000	1	0.00	2035	0.0000	1	0.00
18	1	17-18	2036	0.0000	1	0.00	2036	0.0000	1	0.00
19	1	18-19	2037	0.0000	1	0.00	2037	0.0000	1	0.00
20	1	19-20	2038	0.0000	1	0.00	2038	0.0000	1	0.00
21	1	20-21	2039	0.0000	1	0.00	2039	0.0000	1	0.00
22	1	21-22	2040	0.0000	1	0.00	2040	0.0000	1	0.00
23	1	22-23	2041	0.0000	1	0.00	2041	0.0000	1	0.00
24	1	23-24	2042	0.0000	1	0.00	2042	0.0000	1	0.00
25	1	24-25	2043	0.0000	1	0.00	2043	0.0000	1	0.00
26	1	25-26	2044	0.0000	1	0.00	2044	0.0000	1	0.00
27	1	26-27	2045	0.0000	1	0.00	2045	0.0000	1	0.00
28	1	27-28	2046	0.0000	1	0.00	2046	0.0000	1	0.00
29	1	28-29	2047	0.0000	1	0.00	2047	0.0000	1	0.00
30	1	29-30	2048	0.0000	1	0.00	2048	0.0000	1	0.00
Total Increase	d Cancer Ris	k				28.9				0.59

Fugitive Total PM2.5 PM2.5 0.3335 0.541

^{*} Third trimester of pregnancy

Aligned Data Center - Santa Clara, CA - Construction Impacts - Mitigated Emissions Maximum DPM Cancer Risk and PM2.5 Calculations From Construction Impacts at Off-Site MEI Location

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: $CPF = Cancer potency factor (mg/kg-day)^{-1}$

ASF = Age sensitivity factor for specified age group

ED = Exposure duration (years)

AT = Averaging time for lifetime cancer risk (years)

FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: $C_{air} = concentration in air (\mu g/m^3)$

DBR = daily breathing rate (L/kg body weight-day)

A = Inhalation absorption factor

 $EF = Exposure frequency (days/year) \\ 10^{-6} = Conversion factor$

Values

		Infant/C	hild		Adult
Age>	3rd Trimester	d Trimester 0 - 2 2 - 9 2 -		2 - 16	16 - 30
Parameter					
ASF =	10	10	3	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	631	572	261
A =	1	1	1	1	1
EF =	350	350	350	350	350
AT =	70	70	70	70	70
FAH =	0.85	0.85	0.72	0.72	0.73

^{* 95}th percentile breathing rates for infants and 80th percentile for children and adults

Construction Cancer Risk by Year - Maximum Impact Receptor Location

		sk by Year - Ma		_		Infant/Child	Adult - E	xposure Info	rmation	Adult
	Exposure				Age	Cancer	Mod		Age	Cancer
Exposure	Duration		DPM Con	c (ug/m3)	Sensitivity	Risk	DPM Con	c (ug/m3)	Sensitivity	Risk
Year	(years)	Age	Year	Annual	Factor	(per million)	Year	Annual	Factor	(per million)
0	0.25	-0.25 - 0*	-	-	10	-	-	-	-	-
1	1	0 - 1	2017-2018	0.0137	10	1.91	2017-2018	0.0137	1	0.04
2	1	1 - 2	2020	0.0000	10	0.00	2020	0.0000	1	0.00
3	1	2 - 3	2021	0.0000	3	0.00	2021	0.0000	1	0.00
4	1	3 - 4	2022	0.0000	3	0.00	2022	0.0000	1	0.00
5	1	4 - 5	2023	0.0000	3	0.00	2023	0.0000	1	0.00
6	1	5 - 6	2024	0.0000	3	0.00	2024	0.0000	1	0.00
7	1	6 - 7	2025	0.0000	3	0.00	2025	0.0000	1	0.00
8	1	7 - 8	2026	0.0000	3	0.00	2026	0.0000	1	0.00
9	1	8 - 9	2027	0.0000	3	0.00	2027	0.0000	1	0.00
10	1	9 - 10	2028	0.0000	3	0.00	2028	0.0000	1	0.00
11	1	10 - 11	2029	0.0000	3	0.00	2029	0.0000	1	0.00
12	1	11 - 12	2030	0.0000	3	0.00	2030	0.0000	1	0.00
13	1	12 - 13	2031	0.0000	3	0.00	2031	0.0000	1	0.00
14	1	13 - 14	2032	0.0000	3	0.00	2032	0.0000	1	0.00
15	1	14 - 15	2033	0.0000	3	0.00	2033	0.0000	1	0.00
16	1	15 - 16	2034	0.0000	3	0.00	2034	0.0000	1	0.00
17	1	16-17	2035	0.0000	1	0.00	2035	0.0000	1	0.00
18	1	17-18	2036	0.0000	1	0.00	2036	0.0000	1	0.00
19	1	18-19	2037	0.0000	1	0.00	2037	0.0000	1	0.00
20	1	19-20	2038	0.0000	1	0.00	2038	0.0000	1	0.00
21	1	20-21	2039	0.0000	1	0.00	2039	0.0000	1	0.00
22	1	21-22	2040	0.0000	1	0.00	2040	0.0000	1	0.00
23	1	22-23	2041	0.0000	1	0.00	2041	0.0000	1	0.00
24	1	23-24	2042	0.0000	1	0.00	2042	0.0000	1	0.00
25	1	24-25	2043	0.0000	1	0.00	2043	0.0000	1	0.00
26	1	25-26	2044	0.0000	1	0.00	2044	0.0000	1	0.00
27	1	26-27	2045	0.0000	1	0.00	2045	0.0000	1	0.00
28	1	27-28	2046	0.0000	1	0.00	2046	0.0000	1	0.00
29	1	28-29	2047	0.0000	1	0.00	2047	0.0000	1	0.00
30	1	29-30	2048	0.0000	1	0.00	2048	0.0000	1	0.00
Total Increase	d Cancer Ris	k				1.9				0.04

^{*} Third trimester of pregnancy

Fugitive	Total
PM2.5	PM2.5
0.1685	0.182

Aligned Data Center, TAC Emissions - Santa Clara County, Annual

Aligned Data Center, TAC Emissions Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	400.00	1000sqft	15.00	400,000.00	0

1.2 Other Project Characteristics

 Urbanization
 Urban
 Wind Speed (m/s)
 2.2
 Precipitation Freq (Days)
 58

 Climate Zone
 4
 Operational Year
 2019

Utility Company Pacific Gas & Electric Company

 CO2 Intensity
 641.35
 CH4 Intensity
 0.029
 N20 Intensity
 0.006

 (lb/MWhr)
 (lb/MWhr)
 (lb/MWhr)
 (lb/MWhr)

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 400,000 sf data center building

Construction Phase - Applicant provided construction schedule

Off-road Equipment - Applicant provided Equipment List-need to check?

Off-road Equipment - Applicant provided Equipment List

Trips and VMT - Demolition trips= 1683+(9500/20*2)

Demolition - 370000 buildung square feet

Grading - 46000 cy of soil imported during grading

Construction Off-road Equipment Mitigation - Best Management Practices Tier 2/Level 2 DPF Mitigation

Vehicle Trips -

Table Name	Column Name	Default Value	New Value	
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15	
tblConstEquipMitigation	DPF	No Change	Level 2	
tblConstEquipMitigation	DPF	No Change	Level 2	
tblConstEquipMitigation	DPF	No Change	Level 2	
tblConstEquipMitigation	DPF	No Change	Level 2	
tblConstEquipMitigation	DPF	No Change	Level 2	
tblConstEquipMitigation	DPF	No Change	Level 1	
tblConstEquipMitigation	DPF	No Change	Level 2	
tblConstEquipMitigation	DPF	No Change	Level 2	
tblConstEquipMitigation	DPF	No Change	Level 2	
tblConstEquipMitigation	DPF	No Change	Level 2	
tblConstEquipMitigation	DPF	No Change	Level 2	
tblConstEquipMitigation	DPF	No Change	Level 2	
tblConstEquipMitigation	DPF	No Change	Level 2	
tblConstEquipMitigation	DPF	No Change	Level 2	

tblConstEquipMitigation	DPF	No Change	Level 2
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
	NumberOfEquipmentMitigated	0.00	
tblConstEquipMitigation	<u> </u>		1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	16.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	20.00	140.00
tblConstructionPhase	NumDays	300.00	240.00
tblConstructionPhase	NumDays	20.00	100.00
tblConstructionPhase	NumDays	30.00	20.00
tblConstructionPhase	NumDays	20.00	10.00
tblConstructionPhase	NumDays	10.00	80.00
tblGrading	MaterialExported	0.00	22,410.00
tblGrading	MaterialImported	0.00	46,000.00
tblLandUse	LotAcreage	9.18	15.00
tblOffRoadEquipment	HorsePower	187.00	247.00
tblOffRoadEquipment	LoadFactor	0.41	0.40
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	UsageHours	7.00	4.20
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	4.80
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblProjectCharacteristics	OperationalYear	2018	2019
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripNumber	1,683.00	2,633.00
tblTripsAndVMT	HaulingTripNumber	0.00	13,000.00
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	WorkerTripLength	10.80	0.50
tblTripsAndVMT	WorkerTripLength	10.80	0.50
tblTripsAndVMT	WorkerTripLength	10.80	0.50
tblTripsAndVMT	WorkerTripLength	10.80	0.50
tblTripsAndVMT	WorkerTripLength	10.80	0.50
tblTripsAndVMT	WorkerTripLength	10.80	0.50
tblTripsAndVMT	WorkerTripLength	10.80	0.50

2.0 Emissions Summary

2.1 Overall Construction Unmitigated Construction

	ROG	NOx	СО	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	s/yr							MT	/yr		
2017	0.3744	3.7535	2.0753	3.6400e- 003	0.5449	0.1982	0.7431	0.2260	0.1870	0.4130	0.0000	329.9264	329.9264	0.0751	0.0000	331.8049
2018	2.6953	6.4421	3.7333	7.1200e- 003	0.4559	0.2706	0.7264	0.2130	0.2531	0.4661	0.0000	643.4237	643.4237	0.1546	0.0000	647.2895
Maximum	2.6953	6.4421	3.7333	7.1200e- 003	0.5449	0.2706	0.7431	0.2260	0.2531	0.4661	0.0000	643.4237	643.4237	0.1546	0.0000	647.2895

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	s/yr							МТ	-/yr		
2017	0.1254	3.0704	2.1629	3.6400e- 003	0.5449	0.0487	0.5936	0.1136	0.0486	0.1622	0.0000	329.9260	329.9260	0.0751	0.0000	331.804
2018	2.3449	6.0650	3.8710	7.1200e- 003	0.4559	0.0828	0.5387	0.1089	0.0827	0.1916	0.0000	643.4231	643.4231	0.1546	0.0000	647.288
Maximum	2.3449	6.0650	3.8710	7.1200e- 003	0.5449	0.0828	0.5936	0.1136	0.0827	0.1916	0.0000	643.4231	643.4231	0.1546	0.0000	647.288
	ROG	NOx	со	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	19.53	10.40	-3.88	0.00	0.00	71.95	22.95	49.32	70.16	59.75	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	9-1-2017	11-30-2017	2.5634	1.9859
2	12-1-2017	2-28-2018	4.9249	4.2214
3	3-1-2018	5-31-2018	1.4720	1.3090
4	6-1-2018	8-31-2018	2.2952	2.1761
5	9-1-2018	9-30-2018	0.7188	0.6769
		Highest	4.9249	4.2214

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2017	1/18/2018	5	100	
2	Site Preparation	Site Preparation	11/15/2017	3/6/2018	5	80	
3	Trenching	Trenching	12/15/2017	3/8/2018	5	60	
4	Building Construction	Building Construction	12/15/2017	11/15/2018	5	240	
5	Grading	Grading	1/15/2018	2/9/2018	5	20	
6	Architectural Coating	Architectural Coating	5/15/2018	11/26/2018	5	140	
7	Paving	Paving	7/11/2018	7/24/2018	5	10	

Acres of Grading (Site Preparation Phase): 40

Acres of Grading (Grading Phase): 50

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 600,000; Non-Residential Outdoor: 200,000; Striped Parking

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	4	8.00	81	0.73
Demolition	Crushing/Proc. Equipment	1	2.00	85	0.78
Demolition	Excavators	4	4.00	158	0.38
Demolition	Rubber Tired Dozers	4	4.80	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	4.80	97	0.37
Site Preparation	Graders	2	4.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	4.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	4.00	97	0.37
Trenching	Excavators	3	8.00	158	0.38
Trenching	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Building Construction	Cranes	3	4.20	231	0.29
Building Construction	Forklifts	2	10.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	4	5.00	46	0.45
Grading	Excavators	3	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Architectural Coating	Aerial Lifts	1	6.00	63	0.31
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	15	38.00	0.00	2,633.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Site Preparation	9	23.00	0.00	2,801.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Trenching	7	18.00	0.00	0.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Building Construction	10	168.00	66.00	13,000.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Grading	10	25.00	0.00	5,750.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Architectural Coating	2	34.00	0.00	0.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment
Use DPF for Construction Equipment
Replace Ground Cover
Reduce Vehicle Speed on Unpaved Roads
Clean Paved Roads

3.2 Demolition - 2017

	ROG	NOx	СО	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	s/yr							MT	/yr		
Fugitive Dust					0.1566	0.0000	0.1566	0.0237	0.0000	0.0237	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2818	2.6597	1.5805	2.6400e- 003		0.1528	0.1528		0.1451	0.1451	0.0000	236.8629	236.8629	0.0511	0.0000	238.1392
Total	0.2818	2.6597	1.5805	2.6400e- 003	0.1566	0.1528	0.3094	0.0237	0.1451	0.1688	0.0000	236.8629	236.8629	0.0511	0.0000	238.1392

	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							МТ	/yr		
Hauling	3.1200e- 003	0.1213	0.0230	1.3000e- 004	5.6000e- 004	1.9000e- 004	7.6000e- 004	1.5000e- 004	1.9000e- 004	3.4000e- 004	0.0000	12.4789	12.4789	1.8900e- 003	0.0000	12.5261
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2600e- 003	1.0300e- 003	0.0134	1.0000e- 005	6.2000e- 004	1.0000e- 005	6.3000e- 004	1.7000e- 004	1.0000e- 005	1.8000e- 004	0.0000	0.9042	0.9042	7.0000e- 005	0.0000	0.9060
Total	5.3800e- 003	0.1224	0.0364	1.4000e- 004	1.1800e- 003	2.0000e- 004	1.3900e- 003	3.2000e- 004	2.0000e- 004	5.2000e- 004	0.0000	13.3832	13.3832	1.9600e- 003	0.0000	13.4321

	ROG	NOx	СО	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	s/yr							MT	/yr		
Fugitive Dust					0.1566	0.0000	0.1566	0.0119	0.0000	0.0119	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0905	2.1929	1.6356	2.6400e- 003		0.0382	0.0382		0.0382	0.0382	0.0000	236.8626	236.8626	0.0511	0.0000	238.1389
Total	0.0905	2.1929	1.6356	2.6400e- 003	0.1566	0.0382	0.1948	0.0119	0.0382	0.0501	0.0000	236.8626	236.8626	0.0511	0.0000	238.1389

Mitigated Construction Off-Site

	ROG	NOx	СО	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							МТ	/yr		
Hauling	3.1200e- 003	0.1213	0.0230	1.3000e- 004	5.6000e- 004	1.9000e- 004	7.6000e- 004	1.5000e- 004	1.9000e- 004	3.4000e- 004	0.0000	12.4789	12.4789	1.8900e- 003	0.0000	12.5261
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2600e- 003	1.0300e- 003	0.0134	1.0000e- 005	6.2000e- 004	1.0000e- 005	6.3000e- 004	1.7000e- 004	1.0000e- 005	1.8000e- 004	0.0000	0.9042	0.9042	7.0000e- 005	0.0000	0.9060
Total	5.3800e- 003	0.1224	0.0364	1.4000e- 004	1.1800e- 003	2.0000e- 004	1.3900e- 003	3.2000e- 004	2.0000e- 004	5.2000e- 004	0.0000	13.3832	13.3832	1.9600e- 003	0.0000	13.4321

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	СО	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					0.0255	0.0000	0.0255	3.8600e- 003	0.0000	3.8600e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0416	0.3940	0.2510	4.3000e- 004		0.0220	0.0220		0.0209	0.0209	0.0000	38.2015	38.2015	8.1400e- 003	0.0000	38.4050
Total	0.0416	0.3940	0.2510	4.3000e- 004	0.0255	0.0220	0.0475	3.8600e- 003	0.0209	0.0247	0.0000	38.2015	38.2015	8.1400e- 003	0.0000	38.4050

Unmitigated Construction Off-Site

	ROG	NOx	СО	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							МТ	/yr		
Hauling	4.5000e- 004	0.0193	3.3800e- 003	2.0000e- 005	4.4000e- 004	2.0000e- 005	4.6000e- 004	1.1000e- 004	2.0000e- 005	1.3000e- 004	0.0000	2.0732	2.0732	2.8000e- 004	0.0000	2.0803
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e- 004	1.5000e- 004	1.9100e- 003	0.0000	1.0000e- 004	0.0000	1.0000e- 004	3.0000e- 005	0.0000	3.0000e- 005	0.0000	0.1433	0.1433	1.0000e- 005	0.0000	0.1436
Total	7.8000e- 004	0.0194	5.2900e- 003	2.0000e- 005	5.4000e- 004	2.0000e- 005	5.6000e- 004	1.4000e- 004	2.0000e- 005	1.6000e- 004	0.0000	2.2165	2.2165	2.9000e- 004	0.0000	2.2239

	ROG	NOx	СО	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	s/yr							МТ	/yr		
Fugitive Dust					0.0255	0.0000	0.0255	1.9300e- 003	0.0000	1.9300e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0147	0.3570	0.2663	4.3000e- 004		6.2200e- 003	6.2200e- 003		6.2200e- 003	6.2200e- 003	0.0000	38.2015	38.2015	8.1400e- 003	0.0000	38.4050
Total	0.0147	0.3570	0.2663	4.3000e- 004	0.0255	6.2200e- 003	0.0317	1.9300e- 003	6.2200e- 003	8.1500e- 003	0.0000	38.2015	38.2015	8.1400e- 003	0.0000	38.4050

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							МТ	/yr		
Hauling	4.5000e- 004	0.0193	3.3800e- 003	2.0000e- 005	4.4000e- 004	2.0000e- 005	4.6000e- 004	1.1000e- 004	2.0000e- 005	1.3000e- 004	0.0000	2.0732	2.0732	2.8000e- 004	0.0000	2.0803
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e- 004	1.5000e- 004	1.9100e- 003	0.0000	1.0000e- 004	0.0000	1.0000e- 004	3.0000e- 005	0.0000	3.0000e- 005	0.0000	0.1433	0.1433	1.0000e- 005	0.0000	0.1436
Total	7.8000e- 004	0.0194	5.2900e- 003	2.0000e- 005	5.4000e- 004	2.0000e- 005	5.6000e- 004	1.4000e- 004	2.0000e- 005	1.6000e- 004	0.0000	2.2165	2.2165	2.9000e- 004	0.0000	2.2239

3.3 Site Preparation - 2017 <u>Unmitigated Construction On-Site</u>

	ROG	NOx	СО	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					0.3838	0.0000	0.3838	0.2011	0.0000	0.2011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0523	0.5901	0.2352	4.6000e- 004		0.0289	0.0289		0.0266	0.0266	0.0000	42.2917	42.2917	0.0130	0.0000	42.6156
Total	0.0523	0.5901	0.2352	4.6000e- 004	0.3838	0.0289	0.4127	0.2011	0.0266	0.2277	0.0000	42.2917	42.2917	0.0130	0.0000	42.6156

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							МТ	/yr		
Hauling	1.5900e- 003	0.0619	0.0117	7.0000e- 005	5.2000e- 004	1.0000e- 004	6.2000e- 004	1.4000e- 004	9.0000e- 005	2.3000e- 004	0.0000	6.3674	6.3674	9.6000e- 004	0.0000	6.3915
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3000e- 004	2.4000e- 004	3.1000e- 003	0.0000	1.4000e- 004	0.0000	1.5000e- 004	4.0000e- 005	0.0000	4.0000e- 005	0.0000	0.2100	0.2100	2.0000e- 005	0.0000	0.2104
Total	2.1200e- 003	0.0621	0.0148	7.0000e- 005	6.6000e- 004	1.0000e- 004	7.7000e- 004	1.8000e- 004	9.0000e- 005	2.7000e- 004	0.0000	6.5775	6.5775	9.8000e- 004	0.0000	6.6019

	ROG	NOx	СО	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	s/yr							МТ	/yr		
Fugitive Dust					0.3838	0.0000	0.3838	0.1006	0.0000	0.1006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0134	0.3975	0.2642	4.6000e- 004		5.1700e- 003	5.1700e- 003		5.1700e- 003	5.1700e- 003	0.0000	42.2916	42.2916	0.0130	0.0000	42.6156
Total	0.0134	0.3975	0.2642	4.6000e- 004	0.3838	5.1700e- 003	0.3890	0.1006	5.1700e- 003	0.1057	0.0000	42.2916	42.2916	0.0130	0.0000	42.6156

Mitigated Construction Off-Site

	ROG	NOx	СО	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	1.5900e- 003	0.0619	0.0117	7.0000e- 005	5.2000e- 004	1.0000e- 004	6.2000e- 004	1.4000e- 004	9.0000e- 005	2.3000e- 004	0.0000	6.3674	6.3674	9.6000e- 004	0.0000	6.3915	
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Worker	5.3000e- 004	2.4000e- 004	3.1000e- 003	0.0000	1.4000e- 004	0.0000	1.5000e- 004	4.0000e- 005	0.0000	4.0000e- 005	0.0000	0.2100	0.2100	2.0000e- 005	0.0000	0.2104	
Total	2.1200e- 003	0.0621	0.0148	7.0000e- 005	6.6000e- 004	1.0000e- 004	7.7000e- 004	1.8000e- 004	9.0000e- 005	2.7000e- 004	0.0000	6.5775	6.5775	9.8000e- 004	0.0000	6.6019	

3.3 Site Preparation - 2018 <u>Unmitigated Construction On-Site</u>

	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					0.3838	0.0000	0.3838	0.2011	0.0000	0.2011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Off-Road	0.0694	0.7822	0.3221	6.5000e- 004		0.0373	0.0373		0.0343	0.0343	0.0000	59.2476	59.2476	0.0184	0.0000	59.7087	
Total	0.0694	0.7822	0.3221	6.5000e- 004	0.3838	0.0373	0.4211	0.2011	0.0343	0.2354	0.0000	59.2476	59.2476	0.0184	0.0000	59.7087	

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	s/yr							МТ	/yr		
Hauling	2.0100e- 003	0.0860	0.0151	1.0000e- 004	5.5000e- 004	1.0000e- 004	6.5000e- 004	1.5000e- 004	9.0000e- 005	2.4000e- 004	0.0000	9.2551	9.2551	1.2700e- 003	0.0000	9.2868
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.7000e- 004	2.9000e- 004	3.8800e- 003	0.0000	2.0000e- 004	0.0000	2.1000e- 004	5.0000e- 005	0.0000	6.0000e- 005	0.0000	0.2912	0.2912	2.0000e- 005	0.0000	0.2917
Total	2.6800e- 003	0.0863	0.0190	1.0000e- 004	7.5000e- 004	1.0000e- 004	8.6000e- 004	2.0000e- 004	9.0000e- 005	3.0000e- 004	0.0000	9.5464	9.5464	1.2900e- 003	0.0000	9.5785

	ROG	NOx	СО	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	s/yr							MT	/yr		
Fugitive Dust					0.3838	0.0000	0.3838	0.1006	0.0000	0.1006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0191	0.5662	0.3763	6.5000e- 004		7.3600e- 003	7.3600e- 003		7.3600e- 003	7.3600e- 003	0.0000	59.2475	59.2475	0.0184	0.0000	59.7086
Total	0.0191	0.5662	0.3763	6.5000e- 004	0.3838	7.3600e- 003	0.3912	0.1006	7.3600e- 003	0.1079	0.0000	59.2475	59.2475	0.0184	0.0000	59.7086

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	2.0100e- 003	0.0860	0.0151	1.0000e- 004	5.5000e- 004	1.0000e- 004	6.5000e- 004	1.5000e- 004	9.0000e- 005	2.4000e- 004	0.0000	9.2551	9.2551	1.2700e- 003	0.0000	9.2868
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.7000e- 004	2.9000e- 004	3.8800e- 003	0.0000	2.0000e- 004	0.0000	2.1000e- 004	5.0000e- 005	0.0000	6.0000e- 005	0.0000	0.2912	0.2912	2.0000e- 005	0.0000	0.2917
Total	2.6800e- 003	0.0863	0.0190	1.0000e- 004	7.5000e- 004	1.0000e- 004	8.6000e- 004	2.0000e- 004	9.0000e- 005	3.0000e- 004	0.0000	9.5464	9.5464	1.2900e- 003	0.0000	9.5785

3.4 Trenching - 2017

Unmitigated Construction On-Site

	ROG	NOx	СО	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	0.0128	0.1316	0.1077	1.5000e- 004		8.2200e- 003	8.2200e- 003		7.5600e- 003	7.5600e- 003	0.0000	14.2538	14.2538	4.3700e- 003	0.0000	14.3630
Total	0.0128	0.1316	0.1077	1.5000e- 004		8.2200e- 003	8.2200e- 003		7.5600e- 003	7.5600e- 003	0.0000	14.2538	14.2538	4.3700e- 003	0.0000	14.3630

	ROG	NOx	СО	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	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e- 004	6.0000e- 005	8.1000e- 004	0.0000	4.0000e- 005	0.0000	4.0000e- 005	1.0000e- 005	0.0000	1.0000e- 005	0.0000	0.0548	0.0548	0.0000	0.0000	0.0549
Total	1.4000e- 004	6.0000e- 005	8.1000e- 004	0.0000	4.0000e- 005	0.0000	4.0000e- 005	1.0000e- 005	0.0000	1.0000e- 005	0.0000	0.0548	0.0548	0.0000	0.0000	0.0549

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					tons	/yr							MT	/yr		
Off-Road	6.5200e- 003	0.1390	0.1162	1.5000e- 004		3.0100e- 003	3.0100e- 003		3.0100e- 003	3.0100e- 003	0.0000	14.2538	14.2538	4.3700e- 003	0.0000	14.3630
Total	6.5200e- 003	0.1390	0.1162	1.5000e- 004		3.0100e- 003	3.0100e- 003		3.0100e- 003	3.0100e- 003	0.0000	14.2538	14.2538	4.3700e- 003	0.0000	14.3630

Mitigated Construction Off-Site

	ROG	NOx	СО	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							МТ	/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e- 004	6.0000e- 005	8.1000e- 004	0.0000	4.0000e- 005	0.0000	4.0000e- 005	1.0000e- 005	0.0000	1.0000e- 005	0.0000	0.0548	0.0548	0.0000	0.0000	0.0549
Total	1.4000e- 004	6.0000e- 005	8.1000e- 004	0.0000	4.0000e- 005	0.0000	4.0000e- 005	1.0000e- 005	0.0000	1.0000e- 005	0.0000	0.0548	0.0548	0.0000	0.0000	0.0549

3.4 Trenching - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					tons	/yr							MT	/yr		
Off-Road	0.0473	0.4853	0.4698	6.8000e- 004		0.0293	0.0293		0.0270	0.0270	0.0000	62.4520	62.4520	0.0194	0.0000	62.9381
Total	0.0473	0.4853	0.4698	6.8000e- 004		0.0293	0.0293		0.0270	0.0270	0.0000	62.4520	62.4520	0.0194	0.0000	62.9381

	ROG	NOx	СО	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	s/yr							МТ	/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4000e- 004	2.4000e- 004	3.1700e- 003	0.0000	1.7000e- 004	0.0000	1.7000e- 004	4.0000e- 005	0.0000	5.0000e- 005	0.0000	0.2376	0.2376	2.0000e- 005	0.0000	0.2380
Total	5.4000e- 004	2.4000e- 004	3.1700e- 003	0.0000	1.7000e- 004	0.0000	1.7000e- 004	4.0000e- 005	0.0000	5.0000e- 005	0.0000	0.2376	0.2376	2.0000e- 005	0.0000	0.2380

	ROG	NOx	СО	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	0.0291	0.6192	0.5175	6.8000e- 004		0.0134	0.0134		0.0134	0.0134	0.0000	62.4519	62.4519	0.0194	0.0000	62.9380
Total	0.0291	0.6192	0.5175	6.8000e- 004		0.0134	0.0134		0.0134	0.0134	0.0000	62.4519	62.4519	0.0194	0.0000	62.9380

Mitigated Construction Off-Site

	ROG	NOx	СО	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							МТ	/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4000e- 004	2.4000e- 004	3.1700e- 003	0.0000	1.7000e- 004	0.0000	1.7000e- 004	4.0000e- 005	0.0000	5.0000e- 005	0.0000	0.2376	0.2376	2.0000e- 005	0.0000	0.2380
Total	5.4000e- 004	2.4000e- 004	3.1700e- 003	0.0000	1.7000e- 004	0.0000	1.7000e- 004	4.0000e- 005	0.0000	5.0000e- 005	0.0000	0.2376	0.2376	2.0000e- 005	0.0000	0.2380

3.5 Building Construction - 2017 <u>Unmitigated Construction On-Site</u>

	ROG	NOx	СО	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	0.0168	0.1297	0.0778	1.2000e- 004		7.8100e- 003	7.8100e- 003		7.3300e- 003	7.3300e- 003	0.0000	10.3647	10.3647	2.9400e- 003	0.0000	10.4383
Total	0.0168	0.1297	0.0778	1.2000e- 004		7.8100e- 003	7.8100e- 003		7.3300e- 003	7.3300e- 003	0.0000	10.3647	10.3647	2.9400e- 003	0.0000	10.4383

	ROG	NOx	СО	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	8.2000e- 004	0.0319	6.0500e- 003	3.0000e- 005	2.1000e- 003	5.0000e- 005	2.1500e- 003	5.2000e- 004	5.0000e- 005	5.7000e- 004	0.0000	3.2836	3.2836	5.0000e- 004	0.0000	3.2960
Vendor	8.9000e- 004	0.0253	8.5700e- 003	2.0000e- 005	1.7000e- 004	6.0000e- 005	2.3000e- 004	5.0000e- 005	6.0000e- 005	1.1000e- 004	0.0000	2.3429	2.3429	3.5000e- 004	0.0000	2.3516
Worker	1.2800e- 003	5.8000e- 004	7.5500e- 003	1.0000e- 005	3.5000e- 004	1.0000e- 005	3.6000e- 004	9.0000e- 005	1.0000e- 005	1.0000e- 004	0.0000	0.5113	0.5113	4.0000e- 005	0.0000	0.5124
Total	2.9900e- 003	0.0578	0.0222	6.0000e- 005	2.6200e- 003	1.2000e- 004	2.7400e- 003	6.6000e- 004	1.2000e- 004	7.8000e- 004	0.0000	6.1379	6.1379	8.9000e- 004	0.0000	6.1600

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					tons	/yr							MT	/yr		
Off-Road	4.2800e- 003	0.0986	0.0728	1.2000e- 004		1.8200e- 003	1.8200e- 003		1.8200e- 003	1.8200e- 003	0.0000	10.3647	10.3647	2.9400e- 003	0.0000	10.4383
Total	4.2800e- 003	0.0986	0.0728	1.2000e- 004		1.8200e- 003	1.8200e- 003		1.8200e- 003	1.8200e- 003	0.0000	10.3647	10.3647	2.9400e- 003	0.0000	10.4383

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	8.2000e- 004	0.0319	6.0500e- 003	3.0000e- 005	2.1000e- 003	5.0000e- 005	2.1500e- 003	5.2000e- 004	5.0000e- 005	5.7000e- 004	0.0000	3.2836	3.2836	5.0000e- 004	0.0000	3.2960
Vendor	8.9000e- 004	0.0253	8.5700e- 003	2.0000e- 005	1.7000e- 004	6.0000e- 005	2.3000e- 004	5.0000e- 005	6.0000e- 005	1.1000e- 004	0.0000	2.3429	2.3429	3.5000e- 004	0.0000	2.3516
Worker	1.2800e- 003	5.8000e- 004	7.5500e- 003	1.0000e- 005	3.5000e- 004	1.0000e- 005	3.6000e- 004	9.0000e- 005	1.0000e- 005	1.0000e- 004	0.0000	0.5113	0.5113	4.0000e- 005	0.0000	0.5124
Total	2.9900e- 003	0.0578	0.0222	6.0000e- 005	2.6200e- 003	1.2000e- 004	2.7400e- 003	6.6000e- 004	1.2000e- 004	7.8000e- 004	0.0000	6.1379	6.1379	8.9000e- 004	0.0000	6.1600

3.5 Building Construction - 2018 <u>Unmitigated Construction On-Site</u>

	ROG	NOx	СО	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	0.3032	2.3880	1.5343	2.4800e- 003		0.1377	0.1377		0.1293	0.1293	0.0000	213.1661	213.1661	0.0599	0.0000	214.6642
Total	0.3032	2.3880	1.5343	2.4800e- 003		0.1377	0.1377		0.1293	0.1293	0.0000	213.1661	213.1661	0.0599	0.0000	214.6642

	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	s/yr							МТ	/yr		
Hauling	0.0151	0.6480	0.1136	7.2000e- 004	2.8500e- 003	7.5000e- 004	3.6000e- 003	7.9000e- 004	7.1000e- 004	1.5100e- 003	0.0000	69.7638	69.7638	9.5400e- 003	0.0000	70.0023
Vendor	0.0164	0.5129	0.1602	5.2000e- 004	3.5900e- 003	1.0000e- 003	4.5900e- 003	1.0600e- 003	9.6000e- 004	2.0200e- 003	0.0000	49.6001	49.6001	6.6300e- 003	0.0000	49.7659
Worker	0.0237	0.0105	0.1381	1.2000e- 004	7.2400e- 003	1.6000e- 004	7.4100e- 003	1.9500e- 003	1.5000e- 004	2.1000e- 003	0.0000	10.3642	10.3642	7.3000e- 004	0.0000	10.3825
Total	0.0552	1.1713	0.4119	1.3600e- 003	0.0137	1.9100e- 003	0.0156	3.8000e- 003	1.8200e- 003	5.6300e- 003	0.0000	129.7281	129.7281	0.0169	0.0000	130.1507

	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	s/yr							MT	/yr		
Off-Road	0.0891	2.0532	1.5161	2.4800e- 003		0.0379	0.0379		0.0379	0.0379	0.0000	213.1659	213.1659	0.0599	0.0000	214.6639
Total	0.0891	2.0532	1.5161	2.4800e- 003		0.0379	0.0379		0.0379	0.0379	0.0000	213.1659	213.1659	0.0599	0.0000	214.6639

Mitigated Construction Off-Site

	ROG	NOx	СО	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							МТ	/yr		
Hauling	0.0151	0.6480	0.1136	7.2000e- 004	2.8500e- 003	7.5000e- 004	3.6000e- 003	7.9000e- 004	7.1000e- 004	1.5100e- 003	0.0000	69.7638	69.7638	9.5400e- 003	0.0000	70.0023
Vendor	0.0164	0.5129	0.1602	5.2000e- 004	3.5900e- 003	1.0000e- 003	4.5900e- 003	1.0600e- 003	9.6000e- 004	2.0200e- 003	0.0000	49.6001	49.6001	6.6300e- 003	0.0000	49.7659
Worker	0.0237	0.0105	0.1381	1.2000e- 004	7.2400e- 003	1.6000e- 004	7.4100e- 003	1.9500e- 003	1.5000e- 004	2.1000e- 003	0.0000	10.3642	10.3642	7.3000e- 004	0.0000	10.3825
Total	0.0552	1.1713	0.4119	1.3600e- 003	0.0137	1.9100e- 003	0.0156	3.8000e- 003	1.8200e- 003	5.6300e- 003	0.0000	129.7281	129.7281	0.0169	0.0000	130.1507

3.6 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	СО	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					0.0291	0.0000	0.0291	3.2600e- 003	0.0000	3.2600e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0475	0.5532	0.3866	6.5000e- 004		0.0255	0.0255		0.0234	0.0234	0.0000	59.2337	59.2337	0.0184	0.0000	59.6947
Total	0.0475	0.5532	0.3866	6.5000e- 004	0.0291	0.0255	0.0546	3.2600e- 003	0.0234	0.0267	0.0000	59.2337	59.2337	0.0184	0.0000	59.6947

	ROG	NOx	СО	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							МТ	/yr		
Hauling	7.0200e- 003	0.3004	0.0527	3.4000e- 004	1.2800e- 003	3.5000e- 004	1.6200e- 003	3.6000e- 004	3.3000e- 004	6.9000e- 004	0.0000	32.3393	32.3393	4.4200e- 003	0.0000	32.4499
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1000e- 004	1.4000e- 004	1.7900e- 003	0.0000	9.0000e- 005	0.0000	1.0000e- 004	3.0000e- 005	0.0000	3.0000e- 005	0.0000	0.1347	0.1347	1.0000e- 005	0.0000	0.1349
Total	7.3300e- 003	0.3005	0.0545	3.4000e- 004	1.3700e- 003	3.5000e- 004	1.7200e- 003	3.9000e- 004	3.3000e- 004	7.2000e- 004	0.0000	32.4740	32.4740	4.4300e- 003	0.0000	32.5848

	ROG	NOx	СО	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	s/yr							МТ	/yr		
Fugitive Dust					0.0291	0.0000	0.0291	1.6300e- 003	0.0000	1.6300e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0209	0.5444	0.4079	6.5000e- 004		8.8100e- 003	8.8100e- 003		8.8100e- 003	8.8100e- 003	0.0000	59.2336	59.2336	0.0184	0.0000	59.6946
Total	0.0209	0.5444	0.4079	6.5000e- 004	0.0291	8.8100e- 003	0.0379	1.6300e- 003	8.8100e- 003	0.0104	0.0000	59.2336	59.2336	0.0184	0.0000	59.6946

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	7.0200e- 003	0.3004	0.0527	3.4000e- 004	1.2800e- 003	3.5000e- 004	1.6200e- 003	3.6000e- 004	3.3000e- 004	6.9000e- 004	0.0000	32.3393	32.3393	4.4200e- 003	0.0000	32.4499
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1000e- 004	1.4000e- 004	1.7900e- 003	0.0000	9.0000e- 005	0.0000	1.0000e- 004	3.0000e- 005	0.0000	3.0000e- 005	0.0000	0.1347	0.1347	1.0000e- 005	0.0000	0.1349
Total	7.3300e- 003	0.3005	0.0545	3.4000e- 004	1.3700e- 003	3.5000e- 004	1.7200e- 003	3.9000e- 004	3.3000e- 004	7.2000e- 004	0.0000	32.4740	32.4740	4.4300e- 003	0.0000	32.5848

3.7 Architectural Coating - 2018 <u>Unmitigated Construction On-Site</u>

	ROG	NOx	СО	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		
Archit. Coating	2.0858					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0231	0.1777	0.1871	3.0000e- 004		0.0116	0.0116		0.0115	0.0115	0.0000	25.9191	25.9191	4.2000e- 003	0.0000	26.0242
Total	2.1089	0.1777	0.1871	3.0000e- 004		0.0116	0.0116		0.0115	0.0115	0.0000	25.9191	25.9191	4.2000e- 003	0.0000	26.0242

	ROG	NOx	СО	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	s/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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.9300e- 003	1.3000e- 003	0.0171	1.0000e- 005	9.0000e- 004	2.0000e- 005	9.2000e- 004	2.4000e- 004	2.0000e- 005	2.6000e- 004	0.0000	1.2823	1.2823	9.0000e- 005	0.0000	1.2846
Total	2.9300e- 003	1.3000e- 003	0.0171	1.0000e- 005	9.0000e- 004	2.0000e- 005	9.2000e- 004	2.4000e- 004	2.0000e- 005	2.6000e- 004	0.0000	1.2823	1.2823	9.0000e- 005	0.0000	1.2846

	ROG	NOx	СО	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	s/yr							МТ	/yr		
Archit. Coating	2.0858					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0121	0.2506	0.1952	3.0000e- 004		5.0600e- 003	5.0600e- 003		5.0600e- 003	5.0600e- 003	0.0000	25.9191	25.9191	4.2000e- 003	0.0000	26.0242
Total	2.0979	0.2506	0.1952	3.0000e- 004		5.0600e- 003	5.0600e- 003		5.0600e- 003	5.0600e- 003	0.0000	25.9191	25.9191	4.2000e- 003	0.0000	26.0242

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.9300e- 003	1.3000e- 003	0.0171	1.0000e- 005	9.0000e- 004	2.0000e- 005	9.2000e- 004	2.4000e- 004	2.0000e- 005	2.6000e- 004	0.0000	1.2823	1.2823	9.0000e- 005	0.0000	1.2846
Total	2.9300e- 003	1.3000e- 003	0.0171	1.0000e- 005	9.0000e- 004	2.0000e- 005	9.2000e- 004	2.4000e- 004	2.0000e- 005	2.6000e- 004	0.0000	1.2823	1.2823	9.0000e- 005	0.0000	1.2846

3.8 Paving - 2018 Unmitigated Construction On-Site

	ROG	NŌx	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							МТ	/yr		
Off-Road	7.9200e- 003	0.0827	0.0710	1.1000e- 004		4.8300e- 003	4.8300e- 003		4.4400e- 003	4.4400e- 003	0.0000	9.6784	9.6784	3.0100e- 003	0.0000	9.7538
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	7.9200e- 003	0.0827	0.0710	1.1000e- 004		4.8300e- 003	4.8300e- 003		4.4400e- 003	4.4400e- 003	0.0000	9.6784	9.6784	3.0100e- 003	0.0000	9.7538

	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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e- 005	4.0000e- 005	5.4000e- 004	0.0000	3.0000e- 005	0.0000	3.0000e- 005	1.0000e- 005	0.0000	1.0000e- 005	0.0000	0.0404	0.0404	0.0000	0.0000	0.0405
Total	9.0000e- 005	4.0000e- 005	5.4000e- 004	0.0000	3.0000e- 005	0.0000	3.0000e- 005	1.0000e- 005	0.0000	1.0000e- 005	0.0000	0.0404	0.0404	0.0000	0.0000	0.0405

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					tons	/yr							MT	/yr		
Off-Road	4.4700e- 003	0.0955	0.0804	1.1000e- 004		1.6600e- 003	1.6600e- 003		1.6600e- 003	1.6600e- 003	0.0000	9.6784	9.6784	3.0100e- 003	0.0000	9.7538
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.4700e- 003	0.0955	0.0804	1.1000e- 004		1.6600e- 003	1.6600e- 003		1.6600e- 003	1.6600e- 003	0.0000	9.6784	9.6784	3.0100e- 003	0.0000	9.7538

	ROG	NOx	СО	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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e- 005	4.0000e- 005	5.4000e- 004	0.0000	3.0000e- 005	0.0000	3.0000e- 005	1.0000e- 005	0.0000	1.0000e- 005	0.0000	0.0404	0.0404	0.0000	0.0000	0.0405
Total	9.0000e- 005	4.0000e- 005	5.4000e- 004	0.0000	3.0000e- 005	0.0000	3.0000e- 005	1.0000e- 005	0.0000	1.0000e- 005	0.0000	0.0404	0.0404	0.0000	0.0000	0.0405

Attachment 5: Data Center Emergency Generators Health Impacts and Modeling Information

Aligned Data Center - Emergency Generators Source Parameters for Emergency Diesel-Fueled Generators

	Stack height	Stack Diam	Temp	Volume Flow	Velocity	Velocity
Source	(ft)	(in)	(F)	(acfm)	(ft/min)	(ft/sec)
Generator Stacks	17.5	8	903	4,866	13940	232.3
	Stack	Stack				
	height	Diam	Temp			Velocity
Source	(m)	(m)	(K)			(m/sec)
Generator Stacks	5.33	0.203	757.0			70.82

Aligned Data Center, Santa Clara, CA - DPM Cancer Risks From 120 Emergency Generators 50 Hours Operation per Year per Unit at Full Load

Maximum DPM Cancer Risk at Off-Site Residential Receptors

1.5 Meter Receptor Heights

Cancer Risk Calculation Method

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor (mg/kg-day)⁻¹

ASF = Age sensitivity factor for specified age group

ED = Exposure duration (years)

AT = Averaging time for lifetime cancer risk (years)

FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: $C_{air} = concentration in air (\mu g/m^3)$

DBR = daily breathing rate (L/kg body weight-day)

A = Inhalation absorption factor EF = Exposure frequency (days/year)

 10^{-6} = Conversion factor

Values

Cancer Potency Factors (mg/kg-day)⁻¹

TAC		CPF
DPM		1.10E+00

		Infant/Child		Adult
Age>	3rd Trimester	0 - <2	2 - <16	16 - 30
Parameter				
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

^{* 95}th percentile breathing rates for infants and 80th percentile for children and adults

MEI Cancer Risk From Emergency Generator Operation

1.5 meter receptor height

Exposure Duration (years)	Age	Age Sensitivity Factor	DPM Annual Conc (ug/m3)	DPM Cancer Risk (per million)
0.25	-0.25 - 0*	10	0.0031	0.04
2	1 - 2	10	0.0031	1.01
14	3 - 16	3	0.0031	1.11
14	17 - 30	1	0.0031	0.12
Total Increase	d Cancer Risk			2.3

^{*} Third trimester of pregnancy

Attachment 6: Cumulative Source Screening Assessment and Emissions Modeling

- SSIF with Screening Calculations
- Plant 9848 (Perkins Elmer Inc.) PM_{2.5} Emissions and Dispersion Modeling Summary
- Roadway Screening Calculator for Mission College Blvd and Agnew Road

Bay Area Air Quality Management District

Risk & Hazard Stationary Source Inquiry Form

This form is required when users request stationary source data from BAAQMD. This form is to be used with the BAAQMD's Google Earth stationary source screening tables.

For guidance on conducting a risk & hazard screening, including for roadways & freeways, refer to the District's Risk & Hazard Analysis flow chart.

	estor Contact Information
Contact Name:	Tanushree Ganguly
Affiliation:	Illingworth & Rodkin, Inc.
Phone:	707-794-0400
mail:	tganguly@illingworthrodkin.com
Date of Request	4/12/2017
Project Name:	Aligned Data Center
Address:	
City:	Santa Clara
County:	Santa Clara
Type (residential,	Light Industrial
commercial, mixed use,	
ndustrial, etc.):	
Project size (# of units,	15 acres
or building square	
ieet):	
Comments:	

For Air District assistance, the following steps must be completed:

Complete all the contact and project information requested in Table A. Incomplete forms will not be processed. Please i Download and install the free program Google Earth, http://www.google.com/earth/download/ge/, and then download source application files from the District's website, http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-Gi The small points on the map represent stationary sources permitted by the District (Map A on right). These permitted sc gas stations, dry cleaners, boilers, printers, auto spray booths, etc. Click on a point to view the source's Information Tabl preliminary estimated cancer risk, hazard index, and PMZ-5 concentration.

Find the project site in Google Earth by inputting the site's address in the Google Earth search box.

Using the Google Earth ruler function, measure the distance in feet between the project's fenceline and the stationary s within 1,000 feet of the project's fenceline. Verify that the location of the source on the map matches with the source's the Google Earth address search box to confirm that the source is within 1,000 feet of the project. Please report any ma information in Step 9).

If the stationary source is within 1,000 feet of the project's fenceline and the stationary source's information table does PM2.5 concentration, and instead says to "Contact District Staff", list the stationary source information in Table B Sectio Note that a small percentage of the stationary sources have Health Risk Screening Assessment (HRSA) data INSTEAD of s noted by an asterisk next to the Plant Name (Map B on right). If HRSA values are presented, these values have already b further.

Email this completed form to District staff (Step 9). District staff will provide the most recent risk, hazard, and PM2.5 da information or data are not available, source emissions data will be provided. Staff will respond to inquiries within three Note that a public records request received for the same stationary source information will cancel the processing of y Submit forms, maps, and questions to Alison Kirk at 415-749-5169, or akirk@baaqmd.gov.



Table D Challenger Course wishing 1 000 feet of December Abel and Wanter District Challenger Course												
Table B Section 1: Req	uestor fills out the	ese columns based on	Google Earth data	Table B: Stationary Sources within 1,000 feet of Receptor that say "Contact District Staff" Table B Section 2: BAAQMD returns form with additional information in these columns as needed								
Distance from Receptor (feet)	Plant # or Gas Dispensary #	Facility Name	Street Address	2012 Screening Level Cancer Risk (1)	2012 Screening Level Hazard Index (1)	2012 Screening Level PM2.5 (1)	Туре	Basis of Refinement	Multiplier	AdjustedScreening Level Cancer Risk	Adjusted Screening Level Hazard Index	Adjusted Screening Level PM2.5
1120	17245	City of Santa Clara	3905 Freedom Circle	34.78	0.012	0.008	Generator		0.040	1.391	0.000	0.000
1480	17717	2350 Mission Inventories	2350 Mission College Boulevard	41.12	0.015	0.073	Generator		0.040	1.645	0.001	0.003
Project Site	17406	General Dynamics	2305 Mission College Boulevard	20.9	0.007	0.005		shut down				
900	9848	Perkin Elmer. Inc.	2175 Mission College Blvd	3.4	0.007	1.380	Generators, Boilers, Oxidizer, Wipe	see attached				0.00
550	18982	Omni Vision	4295 Burton Drive	0.17	0.001	0.000	Generator		0.100	0.017	0.000	0.000
1500	20126	Intermap Netwrok Services	2151 Mission College Boulevard	0	0.000	0.000	Generator		0.040	0.000	0.000	0.000
1260	18630	Brion technologies Inc,	4211 Burton Drive	27.56	0.010	0.049	Generator		0.040	1.102	0.000	0.002
1000	17493	SV Probe	4251 Burton Drive	0000	0.000	3.230		demolished				
900	17385	Broadcom Corp	2451 Mission	45.92	0.016	0.011	Generator		0.050	2.296	0.001	0.001

Applicable Footnotes:

- 1. These Cancer Risk, Hazard Index, and PM2.5 columns represent the rows in the Google Earth Plant Information Table that say "Contact District Staff" (Map A
- above). BAAQMD will return this form to you with this screening level information entered in these columns.
- 2. Each plant may have multiple permits and sources.
- $4.\ Permitted\ sources\ include\ diesel\ back-up\ generators,\ gas\ stations,\ dry\ cleaners,\ boilers,\ printers,\ auto\ spray\ booths,\ etc.$
- 5. If a Health Risk Screening Assessment (HRSA) was completed for the source, the application number will be listed here.
- 6. The date that the HRSA was completed.
- 7. Engineer who completed the HRSA. For District purposes only.
- 8. All HRSA completed before 1/5/2010 need to be multiplied by an age sensitivity factor of 1.7.
- 9. The HRSA "Chronic Health" number represents the Hazard Index.
- 10. Further information about common sources:
 - a. Sources that only include diesel internal combustion engines can be adjusted using the BAAQMD's Diesel Multiplier worksheet.
 - b. The risk from natural gas boilers used for space heating when <25 MM BTU/hr would have an estimated cancer risk of one in a million or less, and a chronic hazard index of 0.003 or less. To be conservative, requestor should assume the cancer risk is 1 in a million and the hazard index is 0.003 for these sources.
 - e. Gas stations can be adjusted using BAAQMD's Gas Station Distance Mulitplier worksheet.
 - f. Unless otherwise noted, exempt sources are considered insignificant. See BAAQMD Reg 2 Rule 1 for a list of exempt sources.

Date last updated:

3/12/12

Printed: APR 13, 2017

Perkin Elmer Medical Imaging, LLC (P# 9848)

```
S# SOURCE NAME
```

MATERIAL SOURCE CODE

THROUGHPUT DATE POLLUTANT CODE LBS/DAY

1 Standby Generator Set

C22AG098

Benzene 41 2.19E-05 Formaldehyde 124 1.81E-06 Organics (other, including 990 1.06E-03 Arsenic (all) 1030 1.91E-08 Beryllium (all) pollutant 1040 1.12E-08 1070 4.77E-08 Cadmium Chromium (hexavalent) 1095 9.86E-10 Lead (all) pollutant 1140 4.04E-08 Manganese 1160 6.35E-08 Nickel pollutant 1180 7.71E-07 Mercury (all) pollutant 1190 1.35E-08 Diesel Engine Exhaust Part 1350 2.10E-04 PAH's (non-speciated) 1840 1.01E-07 Nitrous Oxide (N2O) 2030 5.87E-06 Nitrogen Oxides (part not 2990 1.54E-02 Sulfur Dioxide (SO2) 3990 7.15E-06 Carbon Monoxide (CO) pollu 4990 3.35E-03

2 Boiler

C1350189

Methane (CH4)

Benzene 41 6.85E-05
Formaldehyde 124 2.45E-03
Toluene 293 1.11E-04
Organics (other, including 990 2.58E-01
Particulates (part not spe 1990 3.26E-01
Nitrous Oxide (N2O) 2030 7.53E-03
Nitrogen Oxides (part not 2990 3.26E+00
Sulfur Dioxide (SO2) 3990 1.85E-02
Carbon Monoxide (CO) pollu 4990 5.54E-01
Carbon Dioxide, non-biogen 6960 3.99E+03
Methane (CH4) 6970 6.20E-02

Carbon Dioxide, non-biogen 6960 7.33E-01

6970 2.93E-05

3 Boiler

C1350189

Benzene 41 6.85E-05
Formaldehyde 124 2.45E-03
Toluene 293 1.11E-04
Organics (other, including 990 2.58E-01
Particulates (part not spe 1990 3.26E-01
Nitrous Oxide (N2O) 2030 7.53E-03
Nitrogen Oxides (part not 2990 3.26E+00
Sulfur Dioxide (SO2) 3990 1.85E-02
Carbon Monoxide (CO) pollu 4990 5.54E-01
Carbon Dioxide, non-biogen 6960 3.99E+03
Methane (CH4) 6970 6.20E-02

4 Boiler

C1350189

Benzene 41 8.05E-06
Formaldehyde 124 2.88E-04
Toluene 293 1.30E-05
Organics (other, including 990 3.04E-02
Particulates (part not spe 1990 3.84E-02
Nitrous Oxide (N2O) 2030 8.86E-04
Nitrogen Oxides (part not 2990 3.84E-01
Sulfur Dioxide (SO2) 3990 2.18E-03
Carbon Monoxide (CO) pollu 4990 6.52E-02
Carbon Dioxide, non-biogen 6960 4.70E+02
Methane (CH4) 6970 7.29E-03

101 Amorphous Silicon Display Fab Area

FA000000

| Isopropyl alcohol | 157 | 1.10E-01 | Acetone | 455 | 1.01E-01 | Photoresist stripper | 667 | 4.66E+00 |

FB000000

Acetic acid 454 2.44E-01 Hydrochloric acid mist pol 1500 1.12E-02 Nitric acid mist pollutant 1510 1.98E-03 Sulfuric Acid mist polluta 1530 1.07E-03 Other Acid Mists 1590 7.68E-03 ** Unknown Pollutant ** 5001 1.17E-02

FFPD5619

0 0.00E+00

```
FFPM5616
                Propylene glycol monomethy 601 7.94E-01
           FFPM5620
                                0 0.00F+00
           FFPM6424
                Hexamethyldisilazane (HMDS 508 8.05E-02
           FFPM7938
                                0 0.00F+00
           FFPM8655
                               0 0.00E+00
           FFPM9352
                Propylene glycol monomethy 579 9.63E+00
                Propylene glycol monomethy 601 4.16E+00
           FFPM9518
                                0 0.00E+00
 102 Wipe Cleaning
           SF01A157
                Isopropyl alcohol
                                      157 5.18E-01
           SF01A455
               Acetone
                                  455 6.86E-01
 726 Emergency Fire Pump
           C24AG098
                               0 0.00E+00
-108 MEGTEC, Millennium 8000 Regen, Thermal Oxidizer
           C8350189
                                    41 7.03E-05
                Benzene
                Formaldehyde
                                     124 8.27F-04
                                  293 3.75E-05
                Toluene
                Organics (other, including 990 6.31E-02
                Particulates (part not spe 1990 3.31E-02
                Nitrous Oxide (N2O) 2030 2.55E-03
                Nitrogen Oxides (part not 2990 1.54E+00
                Sulfur Dioxide (SO2) 3990 6.27E-03
                Carbon Monoxide (CO) pollu 4990 3.86E-01
                Carbon Dioxide, non-biogen 6960 1.35E+03
                Methane (CH4)
                                      6970 2.09E-02
 PLANT TOTAL:
lbs/day Pollutant
1.17E-02 (5001)
2.44E-01 Acetic acid (454)
7.87E-01 Acetone (455)
1.91E-08 Arsenic (all) (1030)
2.37E-04 Benzene (41)
1.12E-08 Beryllium (all) pollutant (1040)
4.77E-08 Cadmium (1070)
9.81E+03 Carbon Dioxide, non-biogenic CO2 (6960)
1.56E+00 Carbon Monoxide (CO) pollutant (4990)
9.86E-10 Chromium (hexavalent) (1095)
2.10E-04 Diesel Engine Exhaust Particulate Matter (1350)
6.01E-03 Formaldehyde (124)
8.05E-02 Hexamethyldisilazane (HMDS) (508)
1.12E-02 Hydrochloric acid mist pollutant (1500)
6.28E-01 Isopropyl alcohol (157)
4.04E-08 Lead (all) pollutant (1140)
6.35E-08 Manganese (1160)
1.35E-08 Mercury (all) pollutant (1190)
1.52E-01 Methane (CH4) (6970)
7.71E-07 Nickel pollutant (1180)
1.98E-03 Nitric acid mist pollutant (1510)
8.47E+00 Nitrogen Oxides (part not spec elsewhere) (2990)
1.85E-02 Nitrous Oxide (N2O) (2030)
6.11E-01 Organics (other, including CH4) (990)
7.68E-03 Other Acid Mists (1590)
1.01E-07 PAH's (non-speciated) (1840)
7.24E-01 Particulates (part not spec elsewhere) (1990)
4.66E+00 Photoresist stripper (667)
9.63E+00 Propylene glycol monomethyl ether (579)
4.95E+00 Propylene glycol monomethyl ether acetate (601)
4.55E-02 Sulfur Dioxide (SO2) (3990)
1.07E-03 Sulfuric Acid mist pollutant (1530)
2.72E-04 Toluene (293)
```

Bay Area Air Quality Management District

Roadway Screening Analysis Calculator

County specific tables containing estimates of risk and hazard impacts from roadways in the Bay Area.

INSTRUCTIONS:

Input the site-specific characteristics of your project by using the drop down menu in the "Search Parameter" box. We recommend that this analysis be used for roadways with 10,000 AADT and above.

- . County: Select the County where the project is located. The calculator is only applicable for projects within the nine Bay Area counties.
- Roadway Direction: Select the orientation that best matches the roadway. If the roadway orientation is neither clearly north-south nor east-west, use the highest values predicted from either orientation.
- · Side of the Roadway: Identify on which side of the roadway the project is located.
- Distance from Roadway: Enter the distance in feet from the nearest edge of the roadway to the project site. The calculator estimates values for distances greater than 10 feet and less than 1000 feet. For distances greater than 1000 feet, the user can choose to extrapolate values using a distribution curve or apply 1000 feet values for greater distances.
- Annual Average Daily Traffic (ADT): Enter the annual average daily traffic on the roadway. These data may be collected from the city or the county (if the area is unincorporated).

When the user has completed the data entries, the screening level PM2.5 annual average concentration and the cancer risk results will appear in the Results Box on the right. Please note that the roadway tool is not applicable for California State Highways and the District refers the user to the Highway Screening Analysis Tool at: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.

Notes and References listed below the Search Boxes

Search Parameters			Results			
County	Santa Clara ▼ East-West ▼			Santa Clara County		
Roadway Direction				EAST-WEST DIRECTIONAL ROADWAY		
Side of the Roadway	North	•		PM2.5 annual average		
Distance from Roadway	850	feet		0.054 (μg/m³)	Adjusted for 2015 OEHHA and EMFAC2014 for 2018	
				Cancer Risk	and EMPAC2014 IOI 2018	
Annual Average Daily Traffic (ADT)	35,000			(per million)	2.05	
				Mission College	(per million)	
			-	Data for Santa Clara County based on meteorological data collected from San Jose Airport in 1997	Note that EMFAC2014 predicts DSL PM2.5 aggragate rates in 2018 that are 46% of EMFAC2011 for 2014. TOG gasoline rates are 56% of EMFAC2011 year 2014 rates. This is for light- and medium-duty vehciles traveling at 30 mph for Bay	

Notes and References

- 1. Emissions were developed using EMFAC2011 for fleet mix in 2014 assuming 10,000 AADT and includes impacts from diesel and gasoline vehicle exhaust, brake and tire wear, and resuspended dust.
- 2. Roadways were modeled using CALINE4 Cal3qhcr air dispersion model assuming a source length of one kilometer. Meteorological data used to estimate the screening values are noted at the bottom of the "Results" box.
- 3. Cancer risks were estimated for 70 year lifetime exposure starting in 2014 that includes sensitivity values for early life exposures and OEHHA toxicity values adopted in 2013.

Bay Area Air Quality Management District

Roadway Screening Analysis Calculator

County specific tables containing estimates of risk and hazard impacts from roadways in the Bay Area.

INSTRUCTIONS:

Input the site-specific characteristics of your project by using the drop down menu in the "Search Parameter" box. We recommend that this analysis be used for roadways with 10,000 AADT and above.

- . County: Select the County where the project is located. The calculator is only applicable for projects within the nine Bay Area counties.
- Roadway Direction: Select the orientation that best matches the roadway. If the roadway orientation is neither clearly north-south nor east-west, use the highest values predicted from either orientation.
- · Side of the Roadway: Identify on which side of the roadway the project is located.
- Distance from Roadway: Enter the distance in feet from the nearest edge of the roadway to the project site. The calculator estimates values for distances greater than 10 feet and less than 1000 feet. For distances greater than 1000 feet, the user can choose to extrapolate values using a distribution curve or apply 1000 feet values for greater distances.
- Annual Average Daily Traffic (ADT): Enter the annual average daily traffic on the roadway. These data may be collected from the city or the county (if the area is unincorporated).

When the user has completed the data entries, the screening level PM2.5 annual average concentration and the cancer risk results will appear in the Results Box on the right. Please note that the roadway tool is not applicable for California State Highways and the District refers the user to the Highway Screening Analysis Tool at: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.

Notes and References listed below the Search Boxes

Search Parameters			Results		
County Santa Clara			Santa Clara County		
Roadway Direction	East-West	▼		EAST-WEST DIRECTIONAL ROADWAY	
Side of the Roadway	North	~		PM2.5 annual average	
Distance from Roadway	40	feet		(F-3)	Adjusted for 2015 OEHHA and EMFAC2014 for 2018
				Cancer Risk	and Lim Ad2014 for 2010
Annual Average Daily Traffic (ADT)	15,000			7.24 (per million)	4.98
,	·			Agnou	(per million)
				Agnew Data for Santa Clara County based on meteorological data collected from San Jose Airport in 1997	Note that EMFAC2014 predicts DSL PM2.5 aggragate rates i 2018 that are 46% of EMFAC2011 for 2014. TOG gasoline rates are 56% of EMFAC2011 year 2014 rates. This is for light- and medium-duty vehciles traveling at 30 mph for Ba

Notes and References

- 1. Emissions were developed using EMFAC2011 for fleet mix in 2014 assuming 10,000 AADT and includes impacts from diesel and gasoline vehicle exhaust, brake and tire wear, and resuspended dust.
- 2. Roadways were modeled using CALINE4 Cal3qhcr air dispersion model assuming a source length of one kilometer. Meteorological data used to estimate the screening values are noted at the bottom of the "Results" box.
- 3. Cancer risks were estimated for 70 year lifetime exposure starting in 2014 that includes sensitivity values for early life exposures and OEHHA toxicity values adopted in 2013.