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RB INYOKERN DATA CENTER

Application for Small Power Plant Exemption (SPPE)

Inyokern, Kern County, California

Docket Number – 26-SPPE-01

Appendix F Supplement — Section F.1 Revision 1

AIR QUALITY IMPACT ANALYSIS

R & L CAPITAL, INC.
RB INYOKERN DATA CENTER PROJECT

FEBRUARY 2026

AIR QUALITY IMPACT ANALYSIS

RB INYOKERN DATA CENTER PROJECT

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LIST OF ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
°F	degrees Fahrenheit
AAQA	Ambient Air Quality Analysis
AB	Assembly Bill
AERMOD	Air Dispersion Modeling and Risk Assessment Tool
AQAP	Air Quality Attainment Plans
AQIA	Air Quality Impact Analysis
BACT	best available control technology
BAU	business as usual
BMCM	Bulk Material Control Measures
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CAT	Climate Action Team
CCAA	California Clean Air Act
CEQA	California Environmental Quality Act
CFCs	chlorofluorocarbons
CH_4	Methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalents
EGR	exhaust gas recirculation
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
GAMAQI	Guidance for Assessing and Mitigating Air Quality Impacts
GHG	greenhouse gas
GPA	General Plan Amendments
GWP	Global Warming Potential
H_2S	hydrogen sulfide
HAPs	hazardous air pollutants
HARP	Hotspots Analysis and Reporting Program
HI	hazard index
IPCC	Intergovernmental Panel on Climate Change
KernCOG	Kern Council of Governments
LOS	Level of Service
M-1	Light Manufacturing
M-2	General Manufacturing
M-3	Heavy Industrial
MMT CO_2e	million metric tons of CO_2 equivalent
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards

NO_2	nitrogen dioxide
NOx	nitrogen oxides
NSR	New Source Review
O_3	ozone
OEHHA	Office of Environmental Health Hazard Assessment
Pb	lead
PM	particulate matter
PM_{10}	particulate matter 10 micrometers
$PM_{2.5}$	particulate matter 2.5 micrometers
PMI	point of maximum impact
PSD	Prevention of Significant Deterioration
RACM	Reasonably Available Control Measures
ROG	reactive organic gases
RPS	Renewables Portfolio Standard
SB	Senate Bill
SIL	significant impact levels
SIPs	State Implementation Plans
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO_2	sulfur dioxide
SOx	sulfur oxides
USGCRP	United States Global Change Research Program
USGS	United States Geological Survey
VDE	visible dust emissions
VERA	Voluntary Emission Reduction Agreement

SECTION 1 - EXECUTIVE SUMMARY

Quad Knopf, Inc. (QK) has completed an Air Quality Impact Analysis (AQIA) for the RB Inyokern Data Center (Project) proposed by R&L Capital, Inc. The project is located in the eastern high desert region of Kern County in the unincorporated community of Inyokern. The Project proposes to develop an approximately 50-acre site with a 24/7 continuously operational 99 megawatts (MW) Tier III hyperscale data center and associated infrastructure, including a new substation that interconnects to Southern California Edison's Inyokern Substation to the east of the data center facility. The data center would be approximately 238,000 square feet, single-story, with a maximum 30 feet height and would contain six modular data suites. The project utilizes dual-sided electrical and mechanical systems for concurrent maintainability, high energy efficiency and redundancy.

The project is located in the eastern high desert region of Kern County in the unincorporated community of Inyokern. The proposed project is located between United States Highway 395 (US 395) to the east and North Brown Road to the west. The data center is located north of Inyokern Road (State Route 178 [SR 178]) while the Southern California Edison (SCE) substation and underground transmission lines are located south of Inyokern Road (State Route 178 [SR 178]). US 395 lies east of the project site. The project site consists of three separate parcels (APN 084-010-43, -44, and -45); a Lot Line Adjustment (LLA 28-25) has been requested to create a single parcel for the data center and readjust the acreage of APNs 084-010-43, -44 and -45. The new substation that interconnects to Southern California Edison's Inyokern Substation and an easement that would accommodate the gen-tie connection from the point of interconnection to the project to the east is proposed on APN 084-010-48.

The proposed Project's construction and operations would include the following criteria pollutant emissions: reactive organic gases (ROG), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and suspended particulate matter (PM_{10} and $PM_{2.5}$). Project operations would generate air pollutant emissions from mobile (vehicle activity from employees), energy sources (natural gas and electricity usage), area sources (incidental activities related to architectural coating, consumer products, and landscape maintenance), and stationary sources. Project construction and operational activities would also generate greenhouse gas (GHG) emissions. Criteria and GHG emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2022.1.1.37 (California Air Pollution Control Officers Association (CAPCOA), 2026), which is the most current version of the model approved for use by the Eastern Kern Air Pollution Control District (EKAPCD), AP-42 emission factors, manufacturer specifications, EPA's Tanks Version 5.2, and EKAPCD approved emission factors and methodology.

Table 4-3 presents the Project's construction emissions and provides substantial evidence to support a less-than-significant air quality impact on the Mojave Desert Air Basin (MDAB).

Table 4-4 presents the Project's operations emissions and provides substantial evidence to support a less-than-significant air quality impact on the MDAB.

EKAPCD uses a single threshold for the determination of significance for both project-specific and cumulative impacts. As such, a qualitative evaluation of the cumulative projects supports the finding that the Project's contribution would not be cumulatively considerable because the proposed Project's incremental emissions would be *less than significant*.

SECTION 2 - INTRODUCTION

2.1 - Purpose

This AQIA was prepared pursuant to the EKAPCD's Guidelines for Implementation of the California Environmental Quality Act of 1970 (EKACPD 1999), EKAPCD Policy, "Addendum to CEQA Guidelines Addressing GHG Emission Impacts for Stationary Source Projects When Serving As Lead CEQA Agency" (EKAPCD 2012), the California Environmental Quality Act (CEQA) (Public Resources Code 21000 to 21189) and the CEQA Guidelines (California Code of Regulations Title 14, Division 6, Chapter 3, Sections 15000 – 15387). The AQIA also meets the requirements and is consistent with California Energy Commission Appendix B (Application for Small Power Plant Exemption), Section (g)(8)(A-K),

2.2 - General Project Description

The Project proposes to develop an approximately 50-acre site with a 24/7 continuously operational 99 megawatts (MW) Tier III hyperscale data center and associated infrastructure, including a new substation that interconnects to Southern California Edison's Inyokern Substation to the east of the data center facility. The data center would be approximately 238,000 square feet, single-story, with a maximum 30 feet height and would contain six modular data suites. The project utilizes dual-sided electrical and mechanical systems for concurrent maintainability, high energy efficiency and redundancy.

GENERAL INFRASTRUCTURE

- 238,000 square feet, 30 feet in height, data center facility
- 17,325 square feet administration office with offices, employee facilities and loading docks
- Internal one-way circulation roadway network, including curb, gutter and sidewalks
- Adequate parking on-site [155 9 feet x 20 feet, 6 ADA (including 1 ADA Van), 25 EV spaces (including 18 installed with EV chargers)]
- External security lighting features
- Landscaping, including trees to meet kern county requirements
- An administration office that includes
- Water and sewer services provided by the Inyokern CSD and:
    - Industrial septic system and on-site ground water well and water treatment system for backup water source
- Stormwater drainage system, including approximately 1.5-acre retention basin

POWER SYSTEMS

- Emergency backup uninterruptible power system (UPS) that is supported by two area of 20 2.75MW diesel-fueled generators, with battery energy storage system (BESS) capacity.
- Six 100,000 gallon fuel storage tanks for renewable or low-sulfur diesel for generators with 72-hour capacity on-site storage
- Two switchgear yards
- New substation with 115 kV SCE feed, 2×60/80/100 MVA transformers (delta–wye)
- Rooftop and parking cover mounted solar panels

COOLING AND WATER SYSTEMS

- Primary water source is municipal
- Two 142,000 gallon and two 52,000 gallon water storage tanks for supplemental and fire suppression water supply
- Hybrid (high and low temperature) cooling towers and chillers that utilize recycled water
- Humidification system to manage data center and tower discharge
- Network of variable refrigerant flow (VRF) split-system air conditioners for office, loading zones, storage rooms and corridors

Initial Commissioning Phase Description

The Project's initial commissioning phase will begin upon first firing of the emergency diesel generators and will conclude upon achievement of commercial operations. Commissioning activities are intended to verify proper installation, system integration, reliability, and compliance with manufacturer specifications and applicable air quality permit conditions.

Duration

The commissioning period is expected to last approximately 4 to 12 weeks. Individual generator testing events are anticipated to occur intermittently during this period and will generally consist of short-duration operational runs.

Types of Equipment Tests

Commissioning activities may include:

- Initial startup and functional verification
- No-load operational testing
- Incremental load bank testing
- Integrated system testing with electrical distribution equipment

- Automatic transfer switch testing
- Reliability and redundancy testing
- Limited emergency simulation scenarios

Individual test runs are expected to range from approximately 30 minutes to 4 hours per event. Total commissioning hours per generator are anticipated to be consistent with manufacturer-recommended startup procedures and applicable air district limits for emergency engines.

Criteria Pollutant Emissions

During commissioning, emissions of criteria pollutants (NOx, CO, VOC, PM, and SOx) will occur as a result of diesel combustion in the emergency generators. Emissions will be temporary and intermittent in nature and are not expected to exceed permitted emission limits and have therefore not been calculated for the purposes of this analysis, which looks at the most conservative scenarios.

Fuel used during commissioning will be California Air Resources Board (CARB) compliant ultra-low sulfur diesel. Commissioning emissions will be included in the Project's overall permitted annual operating limits.

Monitoring and Recordkeeping

The following monitoring and documentation practices will be implemented during commissioning:

- Hour meter recording for each generator
- Fuel usage tracking
- Documentation of test dates and durations
- Verification of proper engine operating parameters (temperature, pressure, load)
- Compliance with all applicable permit conditions issued by the Eastern Kern Air Pollution Control District

The project is located in the eastern high desert region of Kern County in the unincorporated community of Inyokern. The proposed project is located between United States Highway 395 (US 395) to the east and North Brown Road to the west. The data center is located north of Inyokern Road (State Route 178 [SR 178]) while the Southern California Edison (SCE) substation and underground transmission lines are located south of Inyokern Road (State Route 178 [SR 178]). US 395 lies east of the project site. The project site consists of four separate parcels (APN 084-010-43, -44, -45, and -48); a Lot Line Adjustment (LLA 28-25) has been requested to create a single parcel for the data center from APNs 084-010-43, -44 and -45. The new substation that interconnects to Southern California Edison's Inyokern Substation and an easement that would accommodate the gen-tie connection from the point of interconnection to the project to the east is proposed on APN 084-010-48.

The proposed data center facility be found within Section 29, Township 26 South, Range 39 East, Mount Diablo Base and Meridian (MDB&M). A gas station and hardware store with outdoor storage are located south of the project site. Directly north of the project is undeveloped land and a solar facility. East of the project is undeveloped land. North Brown Road and Single-Family Residences are located west of the project site.

Figure 2-1 depicts the regional location and Figure 2-2 depicts an aerial view of the Project location.

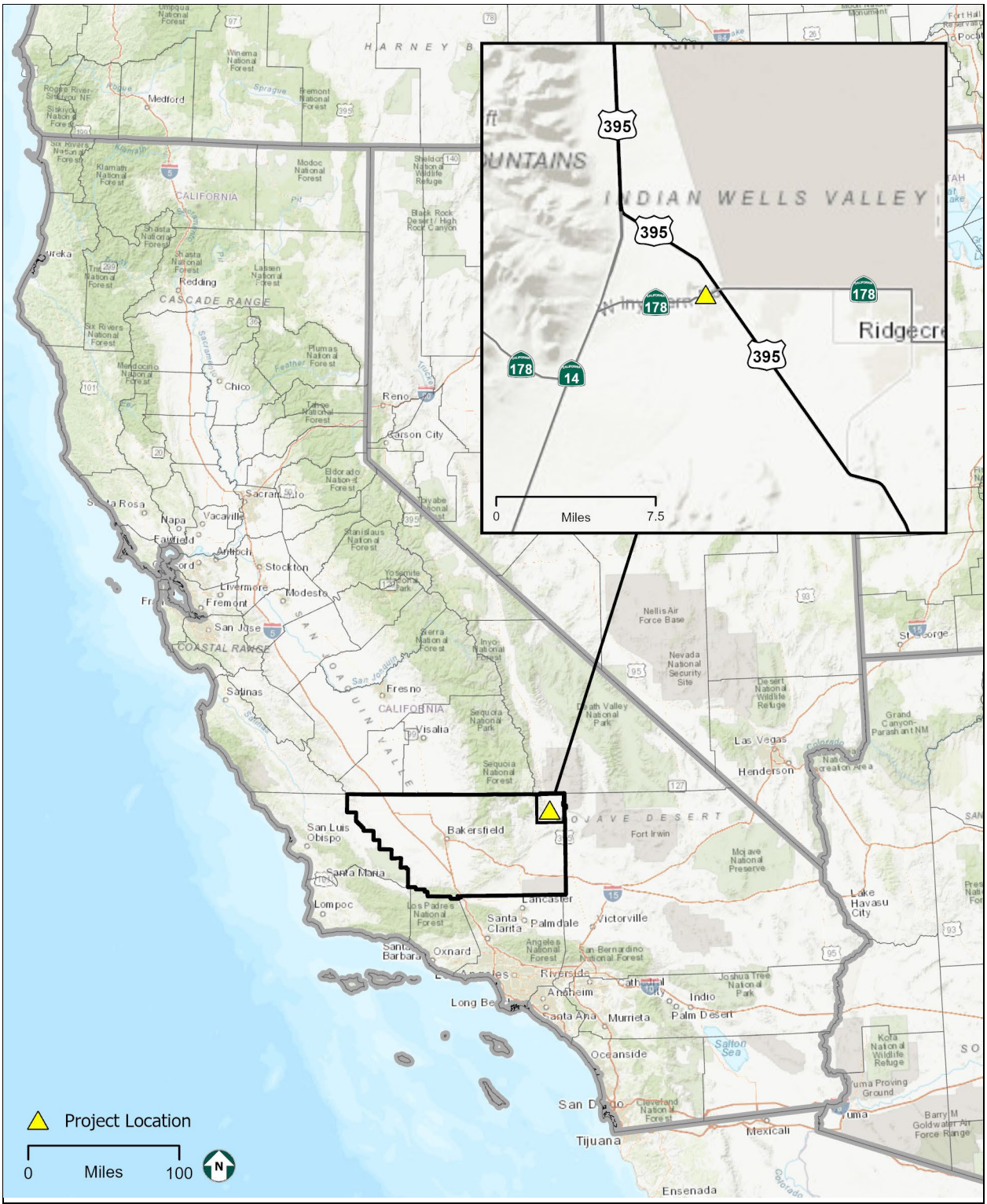

Figure 2-1
Regional Location

Figure 2-2
Project Location

SECTION 3 - SETTING

Protection of public health is maintained through the attainment and maintenance of ambient air quality standards for various atmospheric compounds and the enforcement of emissions limits for individual stationary sources. The Federal Clean Air Act requires that the U.S. Environmental Protection Agency (EPA) establish National Ambient Air Quality Standards (NAAQS) to protect the health, safety, and welfare of the public. NAAQS have been established for ozone (O_3), CO, NO_2, SO_2, PM_{10} and $PM_{2.5}$, and lead (Pb). California has also adopted ambient air quality standards (CAAQS) for these "criteria" air pollutants. CAAQS are more stringent than the corresponding NAAQS and include standards for hydrogen sulfide (H_2S), vinyl chloride (chloroethene), and visibility-reducing particles. The U.S. Clean Air Act Amendments of 1977 required each state to identify areas that were in non-attainment of the NAAQS and to develop State Implementation Plans (SIPs) containing strategies to bring these non-attainment areas into compliance. NAAQS and CAAQS designation/classification for Eastern Kern County are presented in Section 3.1 below.

Responsibility for the regulation of air quality in California lies with the California Air Resources Board (CARB) and the 35 local air districts, with oversight responsibility held by the EPA. CARB is responsible for regulating mobile source emissions, establishing CAAQS, conducting research, managing regulation development, and providing oversight and coordination of the activities of the 35 air districts. The air districts are primarily responsible for regulating stationary source emissions and monitoring ambient pollutant concentrations. CARB also determines whether air basins, or portions thereof, are “unclassified,” in “attainment,” or in “non-attainment” for the NAAQS and CAAQS relying on statewide air quality monitoring data.

3.1 - Air Quality Standards

The Project area is located within Kern County in the northeastern portion of the Mojave Desert Air Basin (MDAB or Basin) for which the EKAPCD has jurisdiction to regulate air pollutant emissions. Table 3-1 provides the NAAQS and CAAQS.

Table 3-1
Federal and California Standards

Pollutant	Averaging Time	NAAQS	CAAQS
		Concentration	
O_3	8-hour	0.070 ppm (137 µg/m³)[a]	0.070 ppm (137 µg/m³)
	1-hour		0.09 ppm (180 µg/m³)
CO	8-hour	9 ppm (10 µg/m³)	9 ppm (10 µg/m³)
	1-hour	35 ppm (40 µg/m³)	20 ppm (23 µg/m³)
NO_2	Annual Average	53 ppb (100 µg/m³)	0.030 ppm (57 µg/m³)
	1-Hour	100 ppb (188.68 µg/m³)	0.18 ppm (339 µg/m³)
SO_2	3-Hour	0.5 ppm (1,300 µg/m³)	
	24 Hour	0.14 ppm (365 µg/m³)	0.04 ppm (105 µg/m³)
	1-Hour	75 ppb (196 µg/m³)	0.25 ppm (655 µg/m³)
Particulate Matter (PM_{10})	Annual Arithmetic Mean		20 µg/m³
	24-Hour	150 µg/m³	50 µg/m³
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m³	12 µg/m³
	24-Hour	35 µg/m³	
Sulfates	24-Hour		25 µg/m³
Pb[d]	Rolling Three-Month Average	0.15 µg/m³	
	30 Day Average		1.5 µg/m³
H_2S	1-Hour		0.03 ppm (42 µg/m³)
Vinyl Chloride (chloroethene)	24-Hour		0.010 ppm (26 µg/m³)
Visibility Reducing particles	8 Hour (1000 to 1800 PST)		

ppm = parts per million
ppb = parts per billion
mg/m³ = milligrams per cubic meter
µg/m³ = micrograms per cubic meter

Source: CARB 2024b
a. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm
b. In 1989, CARB converted both the general statewide 10-mile visibility standards and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Under the provisions of the U.S. Clean Air Act, the Kern County portion of the SJVAB has been classified as non-attainment/extreme, non-attainment/severe, non-attainment, attainment/ unclassified, attainment, or unclassified under the established NAAQS and CAAQS for various criteria pollutants. Table 3-2 provides the MDAB's designation and classification based on the various criteria pollutants under both NAAQS and CAAQS.

Table 3-2
Federal and California Standards

Pollutant	Designation/Classification			
	National Ambient Air Quality Standards (NAAQS)			State Ambient Air Quality Standards
	EKAPCD	Kern River / Cummings Valley[1,2]	Indian Wells Valley[3,4,5]	
Ozone – 1 Hour	Attainment[6,7]	Part of EKAPCD Area	Part of EKAPCD Area	Nonattainment
Ozone – 8 Hour[8]	Serious Nonattainment	Part of EKAPCD Area	Unclassifiable/ Attainment	Nonattainment
PM_{10}	Unclassifiable/ Attainment	Serious Nonattainment	Attainment Maintenance	Nonattainment
$PM_{2.5}$	Unclassifiable/ Attainment	Part of EKAPCD Area	Part of EKAPCD Area	Unclassified
Carbon Monoxide	Unclassifiable/ Attainment	Part of EKAPCD Area	Part of EKAPCD Area	Unclassified
Nitrogen Dioxide	Unclassified	Part of EKAPCD Area	Part of EKAPCD Area	Attainment
Sulfur Dioxide	Unclassified	Part of EKAPCD Area	Part of EKAPCD Area	Attainment
Lead Particulates	Unclassifiable/ Attainment	Part of EKAPCD Area	Part of EKAPCD Area	Attainment

Source: EKAPCD 2018
Notes:
[1] Kern River Valley, Bear Valley, and Cummings Valley were previously included in the federally designated San Joaquin Valley PM10 Serious Nonattainment Area but were made a separate Nonattainment area in 2008.
[2] Kern River Valley, Bear Valley, and Cummings Valley are included in EKAPCD for all NAAQS other than PM10.
[3] Indian Wells Valley is a separate planning area from the rest of EKAPCD for PM10 NAAQS.
[4] Indian Wells Valley is a separate area for the 1997 and 2008 8-hour ozone NAAQS (0.08 & 0.075 ppm).
[5] Indian Wells Valley is included in EKAPCD for all NAAQS other than PM10 and 8-hour ozone.
[6] 1-hour ozone NAAQS was revoked effective June 15, 2004.
[7] EKAPCD was in attainment for 1-hour ozone NAAQS at time of revocation; the proposed Attainment Maintenance designation's effective date was June 21, 20004, therefore it did not become effective
[8] Attainment for 1997 8-hour Ozone NAAQS (0.08 ppm), Serious Nonattainment for 2008 NAAQS (0.075 ppm), and Nonattainment State 8-hour standard (0.070 ppm)

As noted above in **Table 3-2**, the EKAPCD has been designated as unclassifiable/attainment for the NAAQS for CO, PM_{10}, $PM_{2.5}$, and Lead, serious nonattainment for the O_3 eight-hour average standard, attainment for the O_3 one-hour average standard and unclassified for NO_X and SO_X. A federal designation for hydrogen sulfide (H_2S) has not been made.

The EKAPCD has been designated as nonattainment for the state one-hour and eight-hour standards for O_3, and PM10, unclassified $PM_{2.5}$ and CO, and attainment for NO_X, SO_X, and Lead. A state designation for hydrogen sulfide (H2S) has not been made.

The EKACPD along with CARB operates an air quality monitoring network that provides average concentrations of those pollutants for which state or federal agencies have established ambient air quality standards. Information from the various monitoring stations is available from the corresponding agency's websites.

3.2 - Existing Air Quality

For the purposes of background data and this air quality assessment, this analysis relied on data collected in the last three years for the CARB monitoring stations that are located in closest proximity to the Project site. Table 3-3 provides the background concentrations for O_3, particulate matter of 10 microns (PM_{10}), particulate matter of less than 2.5 microns ($PM_{2.5}$), CO, NO_2, Pb and H_2S as of 2024. Information is provided for the Ridgecrest-Ward, Trona-Anthol and Telegraph, Mojave – Pat Avenue, Mojave – CA 58 Business, Lancaster – Fairgrounds, and Barstow monitoring stations for 2022 through 2024. No data is available for CO, SO_2, Vinyl Chloride, or other toxic air contaminants in the MDAB.

Table 3-3
Existing Air Quality Monitoring Data in Project Area

Pollutant and Monitoring Station Location	Maximum Concentration			Days Exceeding Standard		
	2022	2023	2024	2022	2023	2024
O_3 – 1-hour CAAQS (0.09 ppm)						
Trona-Athol and Telegraph	0.099	0.075	0.101	1	0	1
Mojave – Pat Avenue	*	0.086	0.089	*	0	0
Mojave – CA 58 Business	0.091	0.050	*	0	0	*
O_3 – 8-hour NAAQS (0.070 ppm)						
Trona-Athol and Telegraph	0.084	0.070	0.079	1	0	10
Mojave – Pat Avenue	*	0.077	0.080	*	12	20
Mojave – CA 58 Business	0.075	0.046	*	8	0	*
O_3 – 8-hour CAAQS (0.070 ppm)						
Trona-Athol and Telegraph	0.085	0.071	0.080	2	1	13
Mojave – Pat Avenue	*	0.078	0.080	*	12	26
Mojave – CA 58 Business	0.076	0.046	*	9	0	*
PM_{10} – 24-hour CAAQS (50 µg/m³)						
Ridgecrest-Ward	381.7	167.8	106.9	11	4	4
Mojave – CA 58 Business	110.2	38.3	*	7	0	*
Mojave – Pat Avenue	*	65.0	91.0	*	2	9
PM_{10} – 24-hour NAAQS (150 µg/m³)						
Ridgecrest-Ward	416.8	176.5	112.2	2	1	0
Trona-Athol and Telegraph	357.6	97.6	205.0	2	0	2
Mojave – Pat Avenue	*	70.3	101.5	*	0	0
$PM_{2.5}$ - 24-hour NAAQS (35 µg/m³)						
Ridgecrest-Ward	32.3	13.3	38.9	0	0	1
Mojave – Pat Avenue	*	15.3	19.8	*	0	0
Mojave – CA 58 Business	10.9	7.4	*	0	0	*
CO - 8-Hour CAAQS & NAAQS (9.0 ppm)						
No data collected	*	*	*	*	*	*
NO_2 - 1-Hour CAAQS (0.18 ppm)						
Trona-Athol and Telegraph	0.041	0.043	0.044	0	0	0
Lancaster – Fairgrounds	*	0.034	0.042	*	0	0
Barstow	0.059	0.060	0.062	0	0	0
NO_2 - 1-Hour NAAQS (0.10 ppm)						
Trona-Athol and Telegraph	0.041	0.043	0.045	0	0	0
Lancaster – Fairgrounds	*	0.035	0.043	*	0	0
Barstow	0.060	0.060	0.062	0	0	0
SO_2 – 24-hour Concentration - CAAQS (0.04 ppm) & NAAQS (0.14 ppm)						
No data collected	*	*	*	*	*	*

Pb - Maximum 30-Day Concentration CAAQS (1500 ng/m³)						
Bakersfield – 5558 California Ave.	10.8	9.5	6.8	*	*	*
H2S – 1-Hour CAAQS (0.03 ppm)						
Trona-Athol and Telegraph	0.097	0.143	0.207	81	90	131

Source: CARB 2026
Notes: ppm= parts per million
* There was insufficient (or no) data available to determine the value.

The following describes criteria air pollutants, typical sources, health effects, and recently documented pollutant levels in the Project vicinity.

3.2.1 - OZONE (O_3)

High concentrations of O_3, are known to cause eye irritation and impair respiratory functions. High levels of O_3 can also affect plants and materials. Grapes, lettuce, spinach, and many types of garden flowers and shrubs are particularly vulnerable to O_3 damage. O_3 is not directly emitted into the atmosphere; it is a secondary pollutant produced from a photochemical interaction between hydrocarbons and nitrogen oxides (NOx). One to three hours of strong sunlight in a stable atmosphere creates O_3. The "O_3 season," therefore, typically spans from April through October. O_3 is a regional pollutant; wind transports and diffuses the precursors while activating the photochemical reaction process. The data presented in Table 3-3 shows that the Project area monitoring stations exceeded the 1-hour average ambient O_3 CAAQS and the 8-hour average ambient O_3 NAAQS and CAAQS.

3.2.2 - SUSPENDED PARTICULATE MATTER (PM_{10} AND $PM_{2.5}$)

Both NAAQS and CAAQS now apply to particulates under 10 microns (PM_{10}). Since the smaller diameter fraction of total suspended particulates is documented to represent the greatest health hazard, EPA has established NAAQS for particulates under 2.5 microns ($PM_{2.5}$). The Project area is classified as attainment for PM_{10} and non-attainment for $PM_{2.5}$ for NAAQS.

Dust and fumes from industrial and agricultural operations generate particulate matter. Natural activities, such as wind-raised dust, fires, and ocean spray, also increase the level of particulates in the atmosphere. The largest source of PM_{10} and $PM_{2.5}$ in Kern County is vehicle movement over paved and unpaved roads from demolition and construction activities and farming operations. PM_{10} and $PM_{2.5}$ are considered regional pollutants, with elevated levels typically occurring over a wide geographic area. Concentrations tend to be highest in the winter, during periods of high atmospheric stability and low wind speed. Very small particulates may contain absorbed gases that produce injury to the respiratory tract. Particulates of aerosol size suspended in the air can both scatter and absorb sunlight, producing haze and reducing visibility. They can also damage a wide range of materials. Table 3-3 shows that PM_{10} levels exceeded the CAAQS, and both PM_{10} and $PM_{2.5}$ exceeded the NAAQS. Similar levels can be expected to occur in the vicinity of the Project site.

3.2.3 - CARBON MONOXIDE (CO)

Ambient CO concentrations normally correspond closely to the spatial and temporal distributions of vehicular traffic. Relatively high concentrations of CO would be expected along heavily traveled roads and near busy intersections. Wind speed and atmospheric mixing also influence CO concentrations.

Internal combustion engines, principally in vehicles, produce CO due to incomplete fuel combustion. Various industrial processes also produce CO emissions through incomplete combustion. Gasoline-powered motor vehicles are typically the major source of this contaminant. CO does not irritate the respiratory tract but passes through the lungs directly into the bloodstream, and by interfering with the transfer of fresh oxygen to the blood, deprives sensitive tissues of oxygen, thereby aggravating cardiovascular disease, causing fatigue, headaches, and dizziness. CO is not known to have adverse effects on vegetation, visibility, or materials. Table 3-3 reports insufficient data for the CO monitoring at any monitoring stations during the three-year period from 2022 through 2024.

3.2.4 - NITROGEN DIOXIDE (NO_2) AND HYDROCARBONS

NO_2 is the "whiskey brown" colored gas readily visible during periods of heavy air pollution. Mobile sources account for nearly all the County's NOx emissions, most of which are emitted as NO_2. Combustion in motor vehicle engines, power plants, refineries, and other industrial operations are the primary sources in the air basin. Railroads and aircraft are other potentially significant sources of combustion air contaminants. Oxides of nitrogen are direct participants in photochemical smog reactions. The emitted compound, nitric oxide, combines with oxygen in the atmosphere in the presence of hydrocarbons and sunlight to form NO_2 and O_3. NO_2, the most significant of these pollutants, can color the atmosphere at concentrations as low as 0.5 ppm on days of 10-mile visibility. NOx is an important air pollutant in the region because it is a primary receptor of ultraviolet light, which initiates the reactions producing photochemical smog. It also reacts in the air to form nitrate particulates.

Motor vehicles are the major source of reactive hydrocarbons in the basin. Other sources include evaporation of organic solvents and petroleum production and refining operations. Certain hydrocarbons can damage plants by inhibiting growth and by causing flowers and leaves to fall. Levels of hydrocarbons currently measured in urban areas are not known to cause adverse effects in humans. However, certain members of this contaminant group are important components in the reactions which produce photochemical oxidants. Table 3-3 shows that the NO_2 NAAQS and CAAQS were not exceeded over the three-year period of 2022 through 2024. Hydrocarbons are not currently monitored.

3.2.5 - SULFUR DIOXIDE

SO_2 is the primary combustion product of sulfur or sulfur-containing fuels. Fuel combustion is the major source of this pollutant, while chemical plants, sulfur recovery plants, and metal processing facilities are minor contributors. Gaseous fuels (natural gas, propane, etc.) typically have lower percentages of sulfur-containing compounds than liquid fuels such as

diesel or crude oil. SO_2 levels are generally higher in the winter months. Decreasing levels of SO_2 in the atmosphere reflect the use of natural gas in power plants and boilers.

At high concentrations, SO_2 irritates the upper respiratory tract. At lower concentrations, when respirated in combination with particulates, SO_2 can result in greater harm by injuring lung tissues. Sulfur oxides (SOx), in combination with moisture and oxygen, result in the formation of sulfuric acid, which can yellow the leaves of plants, dissolve marble, and oxidize iron and steel. SOx can also react to produce sulfates that reduce visibility and sunlight. Table 3-3 shows no data has been reported over the three-year period.

3.2.6 - LEAD (PB) AND SUSPENDED SULFATE

Ambient Pb levels have dropped dramatically due to the increase in the percentage of motor vehicles that run exclusively on unleaded fuel. Ambient Pb levels in Bakersfield (the closest monitoring station to the Project) are well below the ambient standard and are expected to continue to decline; the data reported in Table 3-3 only shows the highest concentration as the number of days exceeding standards is not reported. Suspended sulfate levels have stabilized to the point where no excesses of the State standard are expected in any given year.

3.3 - Climate

Climate of the project area is a continentally modified Mediterranean type, characterized by cool, wet winters and hot, dry summers. Temperatures during the summer drop to the mid to lower 50s and rise to the upper 80s. In winter, the average high temperatures reach into the upper 50s, and the average low temperatures drop into the mid-30s. The mean annual precipitation in Fairmont, California is 15.76 inches, the bulk of which falls during the period November through March. Snowfall commonly occurs from December through March.

Meteorological data for various monitoring stations is maintained by the Western Regional Climate Center. Meteorological data for the Project site is expected to be similar to the data recorded at the Inyokern monitoring station. This data is provided in **Table 3-4**, which contains average precipitation data recorded at the Inyokern monitoring station. Over the 72-year period from November of 1940 through December of 2012 (the most recent data available), the average annual precipitation was 4.17 inches.

Table 3-4
Inyokern, California Weather Data

Period of Record Monthly Climate Summary for the Period 11/17/1940 to 12/27/2012	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	59.6	64.8	70.3	77.7	87.0	96.7	102.7	101.2	94.2	83.2	69.0	59.7	80.5
Average Min. Temperature (F)	30.8	34.6	38.7	44.3	52.9	60.5	66.2	64.6	58.1	48.2	37.3	30.2	47.2
Average Total Precipitation (in.)	0.74	0.95	0.55	0.17	0.07	0.02	0.16	0.22	0.20	0.10	0.38	0.59	4.17
Average Total SnowFall (in.)	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record:
Max. Temp.: 96% Min. Temp.: 95% Precipitation: 96.8% Snowfall: 96.6% Snow Depth: 96.3%
Source: Western Regional Climate Center, 2026.

3.4 - Climate Change and Greenhouse Gases

3.4.1 - Global Climate Change

"Global climate change" refers to changes 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 processes within the climate system (e.g., changes in ocean circulation).
- 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 degrees 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). Specific effects from climate change in

California may include a decline in the Sierra Nevada snowpack, erosion of California's coastline, and seawater intrusion in the Sacramento-San Joaquin River Delta.

Human activities, including fossil fuel combustion and land use changes, release carbon dioxide (CO_2) and other compounds cumulatively termed greenhouse gases. GHGs are effective at trapping radiation that would otherwise escape the atmosphere. This trapped radiation warms the atmosphere, the oceans, and the earth's surface (USGCRP, 2014). Many scientists believe most of the warming observed over the last 50 years is attributable to human activities" (IPCC, 2014). The increased amount of CO_2 and other GHGs in the atmosphere is the alleged primary result of human-induced warming.

GHGs are present in the atmosphere naturally, released by natural sources, or formed from secondary reactions taking place in the atmosphere. They include CO_2, methane (CH_4), nitrous oxide (N_2O), and O_3. In the last 200 years, substantial quantities of GHGs have been released into the atmosphere, primarily from fossil fuel combustion. These human-induced emissions are increasing GHG concentrations in the atmosphere, therefore enhancing the natural greenhouse effect. The GHGs resulting from human activity are believed to be causing global climate change. While human-made GHGs include CO_2, CH_4, and N_2O, some (like chlorofluorocarbons [CFCs]) are completely new to the atmosphere. GHGs vary considerably in terms of Global Warming Potential (GWP), the comparative ability of each GHG to trap heat in the atmosphere. The GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and the length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO_2, the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO_2 over a specified time period. GHG emissions are typically measured in terms of pounds or tons of "CO_2 equivalents" (CO_2e).

Natural sources of CO_2 include the respiration (breathing) of animals and plants and evaporation from the oceans. Together, these natural sources release approximately 150 billion metric tons of CO_2 each year, far outweighing the seven billion metric tons of GHG emissions from fossil fuel burning, waste incineration, deforestation, cement manufacturing, and other human activity. Nevertheless, natural GHG removal processes such as photosynthesis cannot keep pace with the additional output of CO_2 from human activities. Consequently, GHGs are building up in the atmosphere (Enviropedia, 2019).

Methane is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources of CH_4 production include wetlands, termites, and oceans. Human activity accounts for the majority of the approximately 500 million metric tons of CH_4 emitted annually. These anthropogenic sources include the mining and burning of fossil fuels, digestive processes in ruminant livestock such as cattle, rice cultivation, and the decomposition of waste in landfills. The major removal process for atmospheric CH_4, the chemical breakdown in the atmosphere, cannot keep pace with source emissions; therefore, CH_4 concentrations in the atmosphere are rising.

Worldwide emissions of GHGs in 2008 were 30.1 billion metric tons of CO_2e and have increased considerably since that time (United Nations, 2011). Emissions from the top five emitting countries (China, the United States, India, the Russian Federation, and Japan) and the European Union accounted for approximately 70 percent of total global GHG emissions in 2014. The United States was the number two producer of GHG emissions, behind China. The primary GHG emitted by human activities was CO_2, representing approximately 80 percent of total GHG emissions (U.S. EPA, 2024).

In 2022, the United States emitted approximately 6,343.2 million metric tons of CO_2e. Between 1990 and 2022, CO2 emissions from fossil fuel combustion decreased by 1.1 percent; emissions decreased by 18.2 percent (1,044.7 MMT CO2e) from 2005 levels; and from 2021 to 2022, these emissions increased by 1.0 percent (45.1 MMT CO2e). (U.S. EPA, 2024).

Worldwide, energy-related CO_2 emissions are expected to increase through 2050. Projections indicate that resources, demand, and technology costs will drive the shift from fossil to non-fossil energy sources, but current policies are not enough to decrease global energy-sector emissions. This outcome is largely due to population growth, regional economic shifts toward more manufacturing, and increased energy consumption as living standards improve. Globally, we project increases in energy consumption to outpace efficiency improvements. China remains the primary source of energy-related CO_2 emissions through 2050 across all cases, although its share of total global CO_2 emissions declines. Further, across all cases we project India to displace the United States and our Other Asia-Pacific modeling region to displace Western Europe as the second- and third-highest emitters of energy-related CO_2 emissions by 2050, respectively. (U.S. EIA, 2023).

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 California and supports the Assembly Bill (AB) 32 Climate Change Program. CARB's current GHG emission inventory covers the years 2000 through 2017 and is based on fuel use, equipment activity, industrial processes, and other relevant data (e.g., housing, landfill activity, and agricultural lands).

In 2022, emissions from statewide emitting activities were 371.1 million metric tons of CO_2 equivalent (MMT CO_2e), which is 9.3 MMT CO_2e lower than 2021 levels. 2022 emissions have decreased by 24 percent since peak levels in 2004 and are 59.9 MMT CO_2e below the 1990 emissions level and the State's 2020 GHG limit (CARB 2024a).

CARB estimates that transportation was the source of approximately 39 percent of California's GHG emissions in 2022, followed by industrial sources at 23 percent. Other sources of GHG emissions were electricity sources at 16 percent, residential plus commercial activities at 14 percent, and agriculture at 8 percent (CARB, 2024a).

3.4.2 - EFFECTS OF GLOBAL CLIMATE CHANGE

Changes in the global climate are assessed using historical records of temperature changes that have occurred in the past. Climate change scientists use this temperature data to extrapolate a level of statistical significance, specifically focusing on temperature records from the last 150 years (the Industrial Age) that differ from past climate changes in rate and magnitude.

The Intergovernmental Panel on Climate Change (IPCC) constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. In its Fifth Assessment Report, the IPCC predicted that the global mean temperature change from 1990 to 2100, could range from 1.1 degree Celsius (°C) to 6.4°C (8 to 10.4°Fahrenheit) (IPCC, 2013). Global average temperatures and sea levels are expected to rise under all scenarios (IPCC, 2014). The IPCC concluded that global climate change was largely the result of human activity, mainly the burning of fossil fuels. However, the scientific literature is not consistent regarding many aspects of climate change, the actual temperature changes during the 20th century, and contributions from human versus non-human activities.

Effects from global climate change may arise from temperature increases, climate-sensitive diseases, extreme weather events, and degradation of air quality. There may be direct temperature effects through increases in average temperature leading to more extreme heat waves and less extreme cold spells. Those living in warmer climates are likely to experience more stress and heat-related problems. Heat-related problems include heat rash and heat stroke, drought, etc. In addition, climate-sensitive diseases may increase, such as those spread by mosquitoes and other disease-carrying insects. Such diseases include malaria, dengue fever, yellow fever, and encephalitis. Extreme events such as flooding and hurricanes can displace people and agriculture. Global warming may also contribute to air quality problems from increased frequency of smog and particulate air pollution.

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 snowpack declining by 70 percent to 90 percent, 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. If emissions continue unabated and temperatures rise into the higher anticipated warming range, sea level is expected to rise an additional 22 to 35 inches by the end of the century. Sea level rises of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats. (Note: This condition would not affect the proposed Project area, as it is a significant distance away from coastal areas.)
- 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. More heat waves can exacerbate chronic disease or heat-related illness.

- 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 percent 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 percent more northern California fires by the end of the century by drying out and increasing the flammability of forest vegetation.
- Increasing temperatures from 8 to 10.4°F under the higher emission scenarios, leading to a 25 percent to 35 percent increase in the number of days that ozone pollution levels are exceeded in most urban areas (see below).
- Increased vulnerability of forests due to forest fires, pest infestation, and increased temperatures.
- 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.
- Exacerbation of air quality problems. If temperatures rise to the medium warming range, there could be 75 to 85 percent more days with weather conducive to ozone formation in Los Angeles and the San Joaquin Valley, relative to today's conditions. This is more than twice the increase expected if rising temperatures remain in the lower warming range. This increase in air quality problems could result in an increase in asthma and other health-related problems.
- A decrease in the health and productivity of California's forests. Climate change can cause an increase in wildfires, an enhanced insect population, and the establishment of non-native species.
- Increased electricity demand, particularly in the hot summer months.
- Increased ground-level ozone formation due to higher reaction rates of ozone precursors.

3.4.3 - GLOBAL CLIMATE CHANGE REGULATORY ISSUES

In 1988, the United Nations established the Intergovernmental Panel on Climate Change to evaluate the impacts of global warming and to develop strategies that nations could implement to curtail global climate change. In 1992, the United Nations Framework Convention on Climate Change established an agreement with the goal of controlling GHG emissions, including methane. As a result, the Climate Change Action Plan was developed to address the reduction of GHGs in the United States. The plan consists of more than 50 voluntary programs. Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. Pursuant to the Montreal Protocol, the production and consumption of compounds that deplete O_3 in the stratosphere (chlorofluorocarbons [CFCs], halons, carbon tetrachloride, and methyl chloroform) were phased out by 2000 (methyl chloroform was phased out by 2005).

On September 27, 2006, Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006 (the Act), was enacted by the State of California. The legislature stated, "Global

warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California." The Act caps California's GHG emissions at 1990 levels by 2020. The Act defines GHG emissions as all of the following gases: carbon dioxide (CO_2), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. This agreement represents the first enforceable statewide program in the U.S. to cap all GHG emissions from major industries that include penalties for non-compliance. While acknowledging that national and international actions will be necessary to fully address the issue of global warming, AB 32 lays out a program to inventory and reduce GHG emissions in California and from power generation facilities located outside the State that serve California residents and businesses. According to CARB, California has met its 2020 GHG emission reduction target (CARB, 2021).

Subsequent legislation by the California legislature has included Senate Bill (SB) 32, which expanded on AB 32 to reduce GHG emissions to 40 percent below the 1990 levels by 2030; AB 197, which increased the legislative oversight of the CARB by adding two legislatively appointed non-voting members to the CARB Board and provided additional protection to disadvantaged communities; SB 350, which increased California's renewable energy electricity procurement goal; and SB 100, which established a landmark policy requiring renewable energy and zero-carbon resources to supply 100 percent of electrical retail sales to end-use customers and 100 percent of electricity procured to serve State agencies by 2045.

Global warming and climate change have received substantial public attention for more than 20 years. For example, the United States Global Change Research Program was established by the Global Change Research Act of 1990 to enhance the understanding of natural and human-induced changes in the Earth's global environmental system, to monitor, understand, and predict global change, and to provide a sound scientific basis for national and international decision-making. Even so, the analytical tools have not been developed to determine the effect on global warming from a particular increase in GHG emissions, or the resulting effects on climate change in a particular locale. The scientific tools needed to evaluate the impacts that a specific project may have on the environment are even further in the future.

The California Supreme Court's most recent CEQA decision on the Newhall Ranch development case, Center for Biological v. California Department of Fish and Wildlife (November 30, 2015, Case No. 217763), determined that the project's Environmental Impact Report (EIR) did not substantiate the conclusion that the GHG cumulative impacts would be less than significant. The EIR determined that the Newhall Ranch development project would reduce GHG emissions by 31 percent from business as usual (BAU). This reduction was compared to California's target of reducing GHG emissions statewide by 29 percent from business as usual. The Court determined that "the EIR's deficiency stems from taking a quantitative comparison method developed by the Scoping Plan as a measure of the greenhouse gas reduction effort required by the State as a whole, and attempting to use that method, without adjustments, for a purpose very different from its original design." In the Court's final ruling, it offered suggestions that were deemed appropriate use of the BAU methodology:

1. Lead agencies can use the comparison to BAU methodology if they determine what reduction a particular project must achieve in order to comply with statewide goals.
2. Project design features that comply with regulations to reduce emissions may demonstrate that those components of emissions are less than significant.
3. Lead agencies could also demonstrate compliance with locally adopted climate plans or apply specific numerical thresholds developed by some local agencies.

As discussed in Section 4.1, Significance Criteria, the EKAPCD, the CEQA Commenting Agency for this Project, has developed a specific numerical threshold to determine significance of a proposed project. According to the Court's ruling, this numerical threshold can be used to demonstrate compliance. This threshold is applied to the subject Project in order to determine significance.

3.5 - Regulatory Setting

3.5.1 - FEDERAL

At the federal level, EPA is responsible for overseeing implementation of the federal Clean Air Act and its subsequent amendments (CAA). As required by the federal CAA, NAAQS have been established for the criteria pollutants described in Section 3.2.

New Source Performance Standards

The proposed Project will be subject to the applicable New Source Performance Standards (NSPS) standards that are identified below along with a description of the applicant's compliance plan to meet each standard.

40 CFR Part 60, Subpart IIII

Standards of Performance for Stationary Compression Ignition Internal Combustion Engines became effective July 11, 2006. The Project's emergency diesel engines are subject to Subpart IIII. The proposed engines are EPA Tier 2 rated and will be equipped with Best Available Control Technology (BACT) to meet Tier 4 emissions standards.

Compression Ignition (CI) Diesel Engines Emission Standards

According to 40 CFR 60.4202, emergency CI engines rated at greater than 560 kW are subject to the emissions standards in 40 CFR 89.112, Table 1, as follows:

- Tier 4 – NOx 0.5 g/bhp-hr
- Tier 4 – NMHC 0.14 g/bhp-hr
- Tier 4 – CO 2.6 g/bhp-hr
- Tier 4 – PM 0.02 g/bhp-hr

The proposed diesel-fired engines will be equipped with SCR catalyst systems and diesel particulate filters (DPF) which will result in the engines meeting the EPA/CARB Tier 4 emissions standards, as well as the BACT requirements of the EKAPCD.

40 CFR Part 60 Subpart ZZZZ

The proposed CI engines are exempt from the requirements of Subpart ZZZZ (63.6590 (c)(1)) if the engines comply with the emissions limitations specified in 40 CFR 60 Subpart IIII. See discussion above.

3.5.2 - LOCAL

EKAPCD Air Quality Standards and Regulations

The section briefly describes the regulations which would apply to the proposed Project as set forth in the EKAPCD's Rules and Regulations.

EKAPCD Regulation II, Rule 210.1 – New & Modified Stationary Source Review (NSR)

This rule 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 limits. The rule also specifies when BACT is required, when offsets are required and the offset ratios, as well as the requirements for the required impact analyses, etc.

EKAPCD BACT Requirements

Under Rule 210.1, BACT is determined on a case-by-case basis and is defined as the most stringent emission limitation or control technique that has been achieved in practice for the category of source, or is technologically feasible and cost-effective, considering energy, environmental, and economic impacts.

BACT determinations are conducted using a top-down evaluation of available control technologies. The most effective control option that is technically and economically feasible is selected as BACT.

The proposed 4,023 horsepower diesel-fired engines will operate as emergency standby generators. Available control technologies evaluated include SCR and DPF to meet EPA Tier 4 Final emission standards. For new stationary emergency compression-ignition engines of this size, EPA Tier 4 Final certification represents the most stringent emission standard currently achieved in practice.

NSR Offset Requirements

A new or modified stationary source of PM_{10} or SO_X shall provide offsets for the NSR balance when the NSR balance, calculated pursuant to Subsection IV.D. of Rule 210.1, equals or exceeds the following offset trigger levels; and a new or modified stationary source of NOx

and VOC shall provide offsets for the source's potential to emit when the source's potential to emit, calculated pursuant to Subsection IV.E. of Rule 210.1, equals or exceeds the following offset trigger levels:

- PM_{10}: 15 tons/yr
- SO_X (as SO_2): 27 tons/yr
- VOC: 25 tons/yr
- NO_X (as NO_2): 25 tons/yr

According to Rule 210.1, offsets shall not be required for emergency equipment not operated more than 200 hours per year (excluding routine maintenance/service startups), as approved by the Control Officer. To qualify for exemption, an emergency electrical generator cannot be operated as part of any utility voluntary reduction program. A source with equipment exempted by this provision shall log hours of operation monthly and submit yearly hours of operation demonstrating qualification for continued exemption prior to permit renewal.

SECTION 4 - IMPACT ASSESSMENT

4.1 - Significance Criteria

To determine whether a proposed Project could create a potential CEQA impact, local, State, and federal agencies have developed various means by which a project's impacts may be measured and evaluated. Such means can generally be categorized as follows:

- Thresholds of significance adopted by air quality agencies to guide lead agencies in their evaluation of air quality impacts under the CEQA.
- Regulations established by air districts, CARB, and EPA for the evaluation of stationary sources when applying for Authorities to Construct, Permits to Operate, and other permit program requirements (e.g., New Source Review).
- Thresholds utilized to determine if a project would cause or contribute significantly to violations of the ambient air quality standards or other concentration-based limits.
- Regulations applied in areas where severe air quality problems exist.

Below are summary tables of these emission-based and concentration-based thresholds of significance for each pollutant, along with a discussion of their applicability.

4.1.1 - THRESHOLDS ADOPTED FOR THE EVALUATION OF AIR QUALITY IMPACTS UNDER CEQA

In order to maintain consistency with CEQA, the EKACPD adopted guidelines to assist applicants in complying with the various requirements. According to the EKAPCD's Guidelines (EKAPCD 1999), a proposed project does not have significant air quality impacts on the environment, if operation of the project will:

- Emit (from all projects sources subject to EKAPCD Rule 201) less than offsets trigger levels set forth in Subsection III.B.3 of EKAPCD's Rule 210.1 (New and Modified Source Review Rule);
- Emit less than 137 pounds per day (25 tons per year) of NOx or Reactive Organic Compounds from motor vehicle trips (indirect sources only);
- Not cause or contribute to exceeding any California or National Ambient Air Quality Standard;
- Not exceed the District health risk public notification thresholds adopted by the EKAPCD Board; or
- Be consistent with adopted Federal and State Air Quality Attainment Plans.

The guideline thresholds are designed to implement the general criteria for air quality emissions as required in the State CEQA Guidelines, Appendix G, Paragraph III and CEQA (State of California CEQA Guidelines, §15064.7). As such, EKAPCD thresholds provide a means by which the general standards set forth by Appendix G may be used to quantitatively measure the air quality impacts of a specific project. According to the EKAPCD Guidelines and Thresholds of Significance, which apply to a project located within the proposed project

area would result in a significant impact if it exceeds any of the thresholds are presented in **Table 4-1**.

Table 4-1
EKAPCD CEQA Thresholds of Significance

Criteria Pollutant	Significance Level	
	Daily (Indirect Mobile Only)	Annual
NOx	137 lbs/day	25 tons/yr
ROG	137 lbs/day	25 tons/yr
SOx	-	27 tons/yr
PM_{10}	-	15 tons/yr
$PM_{2.5}$	-	15 tons/yr

Source: EKAPCD 1999 and EKAPCD 2000.

4.1.2 - THRESHOLD FOR AMBIENT AIR QUALITY IMPACTS

CEQA Guidelines – Appendix G (Environmental Checklist) states that a project that would "*violate any air quality standard or contribute substantially to an existing or projected air quality violation*" would be considered to create significant impacts on air quality. Therefore, an AQIA should determine whether the emissions from a project would cause or contribute significantly to violations of the NAAQS or CAAQS (presented above in Table 3-1) when added to existing ambient concentrations.

The EPA has established the federal Prevention of Significant Deterioration (PSD) program to determine what comprises "significant impact levels" (SIL) to NAAQS attainment areas. A project's impacts are considered less than significant if emissions are below PSD SIL for a particular pollutant. When a SIL is exceeded, an additional "increment analysis" is required. As the Project would not include modification to the stationary source under New Source Review (NSR), it would not be subject to either PSD or NSR review. The PSD SIL thresholds are used with ambient air quality modeling for a CEQA project to address whether the project would "*violate any air quality standard or contribute substantially to an existing or projected air quality violation*." Ambient air quality emissions estimates below the PSD SIL thresholds would result in less than significant ambient air quality impacts on both a project and cumulative CEQA impact analysis. The MDAB is classified as non-attainment/marginal for the 8-hour O_3 NAAQS and, as such, is subject to non-attainment NSR. PSD SILs and increments are more stringent than the CAAQS or NAAQS and represent the most stringent thresholds of significance.

4.1.3 - THRESHOLDS FOR HAZARDOUS AIR POLLUTANTS

T The EKAPCD's Guidelines state, that a project result in a significant impact if it exceeds that District's health risk notification thresholds presented in **Table 4-2**.

Table 4-2
Measures of Significance – Toxic Air Contaminants

Agency	Level	Description
Significance Thresholds Adopted for the Evaluation of Impacts Under CEQA		
SJVAPCD	Carcinogens	Maximally Exposed Individual risk **equals or exceeds** 10 in one million.
	Non-Carcinogens	**Acute**: Hazard Index **equals or exceeds** 1.0 for the Maximally Exposed Individual. **Chronic**: Hazard Index **equals or exceeds** 1.0 for the Maximally Exposed Individual.

Source: EKAPCD, 1996

4.1.4 - GLOBAL CLIMATE CHANGE THRESHOLDS OF SIGNIFICANCE

On March 8, 2012, the EKAPCD adopted the *Addendum to CEQA Guidelines Addressing GHG Emission Impacts for Stationary Source Projects When Serving as Lead CEQA Agency*; which outlined the EKAPCD's Project-Specific CEQA significance thresholds for GHG emissions (EKAPCD 2012):

- If project is exempt from CEQA due to either a statutory or categorical exemption, no further analysis under CEQA is required.
- Project-Specific GHG Emissions must be quantified if the project is not exempt from CEQA.
- Project is considered to have a less than significant impact or not have a cumulatively considerable impact on GHG emissions if it meets one of the following conditions:

    - Project-Specific GHG emissions are less than 25,000 tons per year (tpy);
    - Project demonstrates to EKAPCD that it is in compliance with state GHG reduction plan such as AB 32 or future federal GHG reduction plan if it is more stringent than state plan;
    - Project GHG emissions will be mitigated to a less than significant impact if GHGs can be reduced by at least 20% below Business-As-Usual (BAU) through implementation of one or more of the following strategies:

        - Compliance with a Best Performance Standard (BPS) as set forth in Section VI of this Policy;
        - Compliance with GHG Offset as detailed in Section VI of this Policy;
        - Compliance with an Alternative GHG Reduction Strategy as discussed in Section VII of this Policy.

- If none of the above is met the project will be deemed significant and an Environmental Impact Report (EIR) will be required.

4.2 - Project Related Emissions

This document was prepared pursuant to the EKAPCD's *Guidelines for Implementation of the California Environmental Quality Act, July 1, 1999 Revision*. The guidelines do not necessarily require a quantification of construction emissions for all projects. Construction emissions quantification is typically required only at the request of the lead agency. The EKAPCD generally assumes that implementation of any construction-related mitigation measures will result in construction emissions impacts that are *less than significant*.

Project emissions were estimated separately for each emission source. Emissions were estimated for both short-term, construction-related sources and long-term, operations-related sources.

Project emissions were estimated for the following development stages:

- Short-term (Construction and Demolition) – Construction emissions of the proposed Project were estimated in CalEEMod using the Project specific estimated construction schedule and construction equipment for the development. (See Appendix A.)
- Long-term (Operations) – Long-term emissions were also estimated in CalEEMod using model defaults and project specifics as well as AP-42 emission factors, manufacturer specifications, EPA's Tanks Version 5.2, and EKAPCD approved emission factors and methodology (See Appendix A).

4.2.1 - SHORT-TERM EMISSIONS

Short-term emissions from the construction phases of a project would have temporary impacts on air quality.

The construction emissions were based on the default CalEEMod load and emission factors for the Project specific equipment and applying model defaults as well as a conservative analysis approach. Construction emissions were estimated under the assumption that construction would begin in 2027 lasting 48 months. The dates entered into the CalEEMod program represent the earliest construction timeline, which would estimate the worst-case emissions as construction equipment technology and emissions improve over time; therefore, all estimated emission totals are conservative and reflect a reasonable and legally sufficient estimate of potential impacts.

Adjustments to the CalEEMod default values were as follows:

- Land use lot acreage was adjusted to match the Project description.
- Demolition construction phase was removed as the Project Location is open land.
- Length of construction schedule was adjusted to match anticipated 48-month schedule.
- Travel on paved roads for truck trips changed from 100% to 98.4%.
- Equipment type, amount and usages were adjusted to match anticipated Project specific values.

Even though unmitigated emissions would be less than the air quality thresholds, the Project also must comply with EKAPCD Rule 402 to limit fugitive dust emissions. To ensure compliance, the following mitigation measures were applied in CalEEMod resulting in Mitigated emissions shown in Table 4-3:

- Water exposed area three times per day.
- Reduce vehicle speed to less than 15 miles per hour on unpaved roads.

Table 4-3 presents the Project's short-term emissions based on the anticipated construction period.

As calculated with CalEEMod, the estimated short-term construction-related emissions would not exceed EKAPCD significance threshold levels during any given year and would, therefore, be *less than significant*.

Table 4-3
Short-Term Project Emissions

Emissions Source	Pollutant (tons/year)					
	ROG	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
2027	0.29	1.72	4.75	0.01	2.30	0.33
2028	15.7	1.89	6.62	0.01	3.57	0.47
2029	11.6	1.30	3.68	0.01	4.56	0.56
2030	2.00	1.09	2.44	0.01	4.20	0.52
Significance Threshold	25	25	NA	27	15	15
Is Threshold Exceeded for a Single Year After Mitigation?	No	No	No	No	No	No

Source: QK 2026

4.2.2 - LONG-TERM OPERATIONAL EMISSIONS

Long-term emissions are caused by operational mobile sources, area source emissions from the on-site building, and stationary sources.

Fugitive Dust Emissions

Operation of the Project site at full build-out is not expected to present a substantial source of fugitive dust (PM_{10}) emissions. The main source of PM_{10} emissions would be from vehicular traffic associated with the Project site.

PM_{10}, on its own as well as in combination with other pollutants, creates a health hazard. EKAPCD's Rule 402 and 419 implement required control measures to assist in minimizing these emissions.

- Rule 402 – Fugitive Dust – The purpose of this Rule is to prevent, reduce, and mitigate ambient concentrations of anthropogenic fugitive dust emissions to an amount

sufficient to attain and maintain the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS).

- Rule 419 - Nuisance – A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property.

The Project would comply with applicable EKAPCD Rules and Regulations, the local zoning codes, and additional emissions reduction measures recommended later in this analysis, in Section 7, Mitigation and Other Recommended Measures.

Employee Trip and Building Emissions

Project-related transportation activities from industry would generate mobile source ROG, NOx, SOx, CO, PM_{10}, and $PM_{2.5}$ exhaust emissions. Exhaust emissions would vary substantially from day to day but would average out over the course of an operational year. The variables factored into estimating total Project emissions include level of activity, site characteristics, weather conditions, and number of employees. Emissions were estimated with CalEEMod using average daily trip counts from the traffic study and default trips lengths and fleet mix. CalEEMod was also used to estimate area source emissions from the on-site buildings and facility uses.

Stationary Source Emissions

Project-related stationary sources will also generate criteria pollutants from 40 emergency generators (ROG, NOx, SOx, CO, PM_{10}, and $PM_{2.5}$), cooling towers (PM_{10} and $PM_{2.5}$), and fuel storage (VOC).

Emergency Generators

Backup power for the facility will be provided by 40 Caterpillar diesel-fired generators. All generators will be equipped with Selective Catalytic Reduction (SCR) systems, Diesel Exhaust Fluid (DEF) tanks, and Diesel Particulate Filters (DPF) to achieve compliance with EPA Tier 4 emissions standards. Under standard emergency operation, when all generators are active, each unit will operate at no more than 80 percent of its peak rated capacity to ensure reliability and longevity.

Each generator will be supplied as an integrated package system containing both the prime mover and alternator, controlled by a dedicated programmable logic controller (PLC) located within the 480-volt main switchboard of the corresponding data center facility. Each generator will operate autonomously, with its own independent PLC designed to automatically initiate generator startup upon loss of utility power. Once utility service is restored and verified as stable, the PLC will transfer the load back to utility power and shut down the generator in a controlled sequence.

Each generator package will incorporate its SCR system and DEF storage tank within a compact enclosure. Generators will be installed within two secured generator yards, positioned on opposite sides of the main building to ensure load distribution and operational redundancy. All generators will be installed within secondary containment basins to mitigate potential environmental impacts in the event of fuel or fluid leakage. All generators would be operated routinely, i.e., readiness and maintenance testing, to ensure that they would function normally during an emergency event.

During routine readiness testing, criteria pollutants would be emitted directly from the generators. Criteria pollutant emissions from generator testing were quantified using information provided by the manufacturer. SO_2 emissions were based on the maximum sulfur content allowed in California diesel (15 parts per million by weight), and an assumed 100 percent conversion of fuel sulfur to SO_2. For conservative evaluation purposes, it was assumed that testing would occur for no more than 50 hours per year. 50 hours per year per engine is the limit specified by the Airborne Toxic Control Measure for Stationary Toxic Compression Ignition Engines (Title 17, Section 93115, CCR). The Applicant is not proposing a test schedule, i.e., hours versus load points. Testing will be done based upon the Applicants' judgment, considering the manufacturers' recommendations, staff availability, and necessity. For purposes of this application, emissions were assumed to occur at 100% load, however, varying loads and warm-up conditions were considered for compliance with ambient air concentrations and health risk. Appendix A presents the engine emissions based upon the 100%, 75%, 50%, 25% and 10% load points. The engines were evaluated for criteria pollutants significance thresholds for the following emissions scenarios:

- Running for 50 hours per year for maintenance and readiness operations, at 100% load with a guaranteed Tier 4 emissions level.
- Running for 150 hours per year for emergency operations, at 100% load with a guaranteed Tier 4 emissions level.

Emergency generator emission calculations can be found in Appendix A and Manufacture Data can be found in Appendix D.

Cooling Towers

The chiller plant will include both high-temperature and low-temperature water-cooled chillers, supported by the hybrid cooling chillers. The high-temperature chillers and cooling chillers will supply cooling water for both direct liquid cooling of IT racks and air cooling of the data halls. Cooling water will be distributed to coolant distribution units, which will transfer heat to technical water that is then circulated to the IT racks for direct liquid cooling. The low-temperature chillers and cooling towers will provide chilled water for air cooling in critical electrical rooms and other technology spaces.

Recycled water will be used for cooling and irrigation. The Project will comply with Title 22 Water Recycling Criteria, prepare an Engineering Report for DDW, and operate under the Statewide General Order WQ 2016-0068-DDW. Cross-connection/backflow protections will

comply with Title 17 and recycled-water pipelines will be identified per Health & Safety Code §116815.

Both data halls and office areas will require minimal humidification. Although these systems consume less water than the cooling towers, they will still be connected to the same water treatment systems. The cooling chillers will generate some discharge, while the humidification system will produce a negligible amount. Discharge water from the cooling towers will be treated using reclaimed water, following a customized water treatment plan, with an expected range of 4–6 Cycles of Concentration.

Non-critical areas—such as administrative offices, loading zones, storage rooms, and corridors—will be conditioned using a network of variable refrigerant flow (VRF) split-system air conditioners. These systems will include roof-mounted condensing units and distributed fan coil units throughout the spaces.

Particulate matter (PM_{10} and $PM_{2.5}$) emissions from cooling towers occur primarily due to "drift," which is the release of tiny water droplets carried out of the tower with the exhaust air. As warm process water is cooled, air is drawn or forced through the tower, and a small fraction of fine droplets can escape despite the presence of drift eliminators. These droplets contain dissolved and suspended solids (such as minerals, treatment chemicals, and corrosion byproducts), which become particulate matter once the water evaporates in the atmosphere. The PM_{10} and $PM_{2.5}$ emissions were calculated using the AP-42 Section 13.4 methodology incorporating project specifications, control efficiencies and in practice assumptions and are presented in Appendix A.

Fuel Storage

The backup generators will primarily operate on renewable diesel when available. When renewable diesel is not readily accessible, ultra-low sulfur diesel will be used as an alternative. Each generator will have built-in fuel tanks and connections to additional on-site fuel storage.

The six 100,000 gallon diesel fuel storage tanks will be double-walled with integrated leak detection systems or installed within secondary containment structures. Kern County Code Section 18.80.030(T) requires the Kern County Fire Marshal to approve the storage of flammable and combustible liquids in excess of 12,000 gallons per tank and an aggregate maximum of 48,000 gallons, when accessory to a permitted use in the M-2 Zoning District. The project has requested written approval from the Kern County Fire Marshal to store the proposed six 100,000 gallons of storage tanks, with an aggregate total of 600,000 gallons.

Combined, the generator and secondary fuel tanks will provide sufficient diesel storage to sustain 24 to 72 hours of continuous emergency operation at the data center's full electrical load under worst-case conditions.

Fugitive emissions from diesel fuel storage occur primarily due to the volatilization of light hydrocarbons during routine storage and handling activities. Although diesel fuel has a relatively low vapor pressure compared to gasoline, small amounts of vapor are released through tank vents as a result of temperature changes (causing expansion and contraction of vapors), barometric pressure fluctuations, and liquid level changes during filling and withdrawal ("breathing" and working losses). Additional minor emissions can occur from equipment components such as valves, fittings, and transfer connections. These fugitive vapors consist mainly of volatile organic compounds (VOCs), with emission rates influenced by fuel composition, tank design (e.g., fixed-roof vs. pressure/vacuum vented), ambient temperature, and turnover rate. Emissions from routine losses were calculated using EPA's Storage Tank Emissions Calculation Application Version 5.2 (Tanks5.2) and the output is presented in Appendix A.

Projected Emissions

The proposed Project is expected to have long-term air quality impacts as shown in Table 4-4. Emission calculations are available in Appendix A.

Table 4-4
Post-Project Max (Emergency Operations) Emissions

Emissions Source	Pollutant (tons/year)					
	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
Generator Emissions	4.97	17.74	92.24	0.18	0.53	0.53
Cooling Tower Emissions	-	-	-	-	0.58	0.12
Fuel Storage Emissions	0.02	-	-	-	-	-
Mobile and Area Emissions	1.90	0.86	3.53	0.01	0.54	0.17
Total Emissions	**6.89**	**18.6**	**95.77**	**0.19**	**1.65**	**0.82**
SJVAPCD Threshold	25	25	NA	27	15	15
Is Threshold Exceeded After Mitigation?	No	No	No	No	No	No

Table 4-5
Post-Project Mobile Only Emissions

Emissions Source	Pollutant (lbs/day)	
	ROG	NOx
Mobile Emissions	1.34	1.68
SJVAPCD Threshold	137	137
Is Threshold Exceeded After Mitigation?	No	No

As shown in Tables 4-4 and 4-5, operations-related emissions, as calculated in Appendix A, would not exceed the EKAPCD significant threshold levels. Therefore, the Project is less-than-significant for operational emissions.

4.3 - Potential Impacts on Sensitive Receptors

Sensitive receptors are defined as locations where young children, chronically ill individuals, the elderly, or people who are more sensitive than the general population reside, such as schools, hospitals, nursing homes, and daycare centers. The nearest residential sensitive receptor to the proposed Project is located adjacent to portions of the Project's sites. Table 4-6 lists the known non-residential sensitive receptors within 2 miles of the Project site. Discussion of health risks and risks to sensitive receptors is addressed in detail below in Section 4.6.

Table 4-6
Sensitive Receptors Located <2 Miles to Project Site

Receptor	Type of Facility	Distance from Project (miles)	Direction from Project
Inyokern Elementary School	School	0.23	Southwest
Inyokern Senior Center	Assisted Living	0.24	Southwest

4.4 - Potential Impacts to Visibility to Nearby Class 1 Areas

Visibility impact analyses are intended for stationary sources of emissions which are subject to the PSD requirements in 40 CFR Part 60; they are not usually conducted for area sources. Under the PSD program, all international parks, national wilderness areas and national memorial parks that exceed 5,000 acres, and of national parks that exceed 6,000 acres are designated as mandatory federal Class I areas which are provided visibility protection under the Clean Air Act. Because the Project's PM10 emissions increases are predicted to be less than the PSD threshold levels, an impact at any Class 1 area or military/airspace operation within 100 kilometers of the Project is extremely unlikely. Therefore, based on the Project's predicted less-than significant PM10 emissions, the Project would be expected to have a *less than significant impact* to visibility at any Class 1 area or military/airspace operation.

4.5 - Potential Impacts from Carbon Monoxide

Ambient CO concentrations normally correspond closely to the spatial and temporal distributions of vehicular traffic. Relatively high concentrations of CO would be expected along heavily traveled roads and near busy intersections. CO concentrations are also influenced by wind speed and atmospheric mixing. CO concentrations may be more uniformly distributed when inversion conditions are prevalent in the valley. Under certain meteorological conditions, CO concentrations along a congested roadway or intersection may reach unhealthful levels for sensitive receptors, e.g., children, the elderly, hospital patients, etc. This localized impact can result in elevated levels of CO, or "hotspots," even though concentrations at the closest air quality monitoring station may be below NAAQS and CAAQS.

The localized project impacts depend on whether ambient CO levels in the Project vicinity would be above or below NAAQS. If ambient levels are below the standards, a project is considered to have significant impacts if a project's emissions would exceed one or more of these standards. If ambient levels already exceed a State standard, a project's emissions are considered significant if they would increase 1-hour CO concentrations by 10 ppm or more or 8-hour CO concentrations by 0.45 ppm or more.

A traffic study was completed for this Project (Ruettgers, 2026). According to the traffic study, impacted intersections and roadway segments are anticipated to operate at a LOS of C or better. Therefore, CO "hotspot" modeling was not conducted for this Project, and no concentrated excessive CO emissions are expected to be caused once the proposed Project is completed.

4.6 - Predicted Health Impacts

Projects are considered for potential health risks wherein a new or modified source of Hazardous Air Pollutants (HAPs) is proposed for a location near an existing residential area or other sensitive receptor when evaluating potential impacts related to HAPs.

The proposed Project would result in emissions of HAPs from construction and operational activities and would be located near existing residents; therefore, an assessment of the potential risk to the population attributable to emissions of hazardous air pollutants from the proposed Project is required.

To predict the potential health risk to the population attributable to emissions of HAPs from the proposed Project, ambient air concentrations were predicted with dispersion modeling to arrive at a conservative estimate of increased individual carcinogenic risk that might occur as a result of continuous exposure over a 70-year lifetime for operational emissions and over the construction period for construction emissions. Similarly, predicted concentrations were used to calculate non-cancer chronic and acute hazard indices, which are the ratio of expected exposure to acceptable exposure. The basis for evaluating potential health risks is the identification of sources with increased HAPs. HAP emissions from anticipated on-site construction activities, exhaust emissions and ammonia slip from emergency generators, dift emissions from the cooling towers, and fugitive emissions from the storage tanks were evaluated for normal operating conditions (emergency generators operating 50 hours per year).

The proposed emergency generators are based on operation at 100% load. The generator is limited to a maximum of 50 hours per year for maintenance and testing. Operation at 100% load represents the maximum fuel consumption rate and provides a conservative steady-state emission condition for purposes of estimating annual emissions.

Chronic non-cancer hazard indices and lifetime cancer risk are based on annual average concentrations derived from total annual emissions distributed over 8,760 hours per year. Cancer risk calculations further incorporate long-term exposure durations of 70 years for lifetime exposure. Because the generator's annual operating hours are limited and the risk

metrics are driven by total annual emissions, short-term operational variability, including elevated emissions during startup or warm-up, has a negligible effect on annual average concentrations and the resulting chronic hazard indices and lifetime cancer risk.

Diesel particulate matter (DPM) does not have an established acute reference exposure level (REL), so brief elevated emissions during startup or warm-up are not evaluated for acute health risk. Overall, the 100% load assumption provides a reasonable, conservative, and technically defensible basis for evaluating potential long-term health risks associated with operation of the emergency generator.

DPM emissions from diesel on-site construction equipment were modeled as an area source for on-site construction activity on the property. Construction DPM was calculated using CalEEMod for on-site construction. DPM emissions from diesel fired emergency generators were modeled as point sources and calculated for maintenance and testing operation using information provided by the manufacturer. DPM emissions were assumed to equal to PM_{10} emissions. Ammonia Slip emissions from the generators were also modeled as point sources and calculated with the assumption not to exceed 10 ppm. Cooling tower HAP emissions were modeled as area sources and were calculated utilizing a speciation spreadsheet from the San Joaquin Valley Air Pollution Control District (SJVAPCD) for Cooling Tower Water Treatment and references AP-42 Section 13.4 and water characteristics assumptions based on local water supply. Fugitive emissions from fuel storage was also modeled as area sources and calculated using a speciation spreadsheet from the SJVAPCD for Storage Tank Diesel Fugitives. All emission calculations can be found in Appendix A. A unit emission rate of one gram/second (g/sec) was input to AERMOD for each source. Source parameters such as stack heights and diameter and exhaust velocity and temperature used for the dispersion modeling can be found in the electronic modeling files for Appendix B.

Health risk is determined using the Hotspots Analysis and Reporting Program (HARP) software distributed by the CARB. HARP2 requires peak 1-hour emission rates and annual-averaged emission rates for all pollutants for each modeling source. The assumptions used to calculate the emission rates for the proposed Project are outlined below.

The most recent version of EPA's AMS/EPA Regulatory Model – AERMOD (recompiled for the Lakes ISC-AERMOD View) was used to predict the dispersion of emissions from the proposed Project. The analysis employed all of the regulatory default AERMOD model keyword parameters, including elevated terrain options.

Discrete receptors were placed on residents and businesses near the Project site and grid receptors were placed on more densely populated areas in order to evaluate residences and businesses within close proximity of the Project site. A total of 578 discrete off-site receptors were analyzed. Elevated terrain options were employed even though there is not complex terrain in the Project area. The 7.5-minute DEM terrain data for Inyokern, CA, was processed with AERMAP to identify elevations for the proposed Project.

CARB-provided AERMET processed meteorological datasets for the Edwards Air Force Base monitoring station, calendar years 2012, 2016, 2017, 2019 and 2020 were input to AERMOD

(CARB, 2025). This was the most recent available dataset available at the time the modeling was conducted. Rural dispersion parameters were used because the operation and the majority of the land surrounding the facility are considered "rural" under the Auer land use classification method (Auer, 1978).

Plot files generated by AERMOD were uploaded to the Air Dispersion Modeling and Risk Assessment Tool (ADMRT) program in the Hotspots Analysis and Reporting Program Version 2 (HARP2) (CARB, 2015). ADMRT post-processing was used to assess the potential for excess cancer risk and chronic and acute non-cancer effects using the most recent health effects data from the California EPA Office of Environmental Health Hazard Assessment (OEHHA) using the OEHHA Derived Method. HARP2 site parameters were set for the mandatory minimum pathways of inhalation, homegrown gardens, soil ingestion, dermal, and mother's milk. The non-inhalation pathways used a deposition rate of 0.02 m/s along with all other default parameters. Risk reports were generated using the derived OEHHA analysis method for carcinogenic risk and non-carcinogenic chronic and acute risk. Site parameters are included in the HARP2 output files. Total cancer risk was predicted for the inhalation pathway at each receptor. A hazard index was computed for chronic and acute non-cancer health effects for each applicable endpoint and each receptor.

EKAPCD has set the level of significance for carcinogenic risk at ten in one million, which is understood as the possibility of causing 10 additional cancer cases in a population of one million people. The level of significance for chronic non-cancer risk is a hazard index of 1.0. All receptors were modeled with a 4-year exposure for construction activities and 70-year exposure for operational emissions.

The carcinogenic risk and the health hazard index (HI) for chronic non-cancer risk at the point of maximum impact (PMI) do not exceed the significance levels of ten in one million (10 x 10-6) and 1.0, respectively for the proposed Project. The PMIs are identified by receptor location and risk and are provided in Table 4-7. The electronic AERMOD and HARP2 output files are provided in Appendix B. All receptors were modeled as residential receptors in order to be conservative.

Table 4-7
Potential Maximum Impacts Predicted by HARP

	Cancer Risk	Chronic Hazard Index	Acute Hazard Index
Construction	1.89E-06	1.09E-03	--
Operational	4.89E-06	1.00E-03	6.38E-02
Total	6.78E-06	2.10E-03	6.38E-02
EKAPCD Threshold	10.0E-06	1.0	1.0
Exceedance?	No	No	No
Receptor #	1	1	1
UTM Easting (m)	426690.41	426690.41	426690.41
UTM Northing (m)	3945203.01	3945203.01	3945203.01

Note: UTM = Universal Transverse Mercator

As shown above in Table 4-7, the maximum predicted cancer risk for the proposed Project is 6.78E-06. The maximum chronic non-cancer hazard index for the proposed Project is 2.10E-03. The maximum acute non-cancer hazard index for the proposed Project is 6.38E-03. Since the PMI remained below the significance threshold for cancer, chronic, and acute risk, this Project would not have an adverse effect to any of the surrounding communities.

The potential health risk attributable to the proposed Project is determined to be *less than significant* based on the following conclusions:

1. Potential carcinogenic risk from the proposed Project is below the significance level of twenty in a million at each of the modeled receptors.
2. The hazard index for the potential chronic non-cancer risk from the proposed Project is below the significance level of 1.0 at each of the modeled receptors.
3. The hazard index for the potential acute non-cancer risk from the proposed Project is below the significance level of 1.0 at each of the modeled receptors.

Therefore, potential risk to the population attributable to emissions of HAPs from the proposed Project would be less than significant.

4.7 - Potential Impacts from Valley Fever

The proposed project has the potential to generate fugitive dust and suspend Valley Fever spores with the dust that could then reach nearby sensitive receptors. It is possible that onsite workers could be exposed to Valley Fever spores as fugitive dust is generated during construction. In order to mitigate potential risk, the proposed Project would provide training and personal protective respiratory equipment to construction workers and provide information to all construction personnel and visitors about Valley Fever. Therefore, the exposure to Valley Fever would be minimized. With the implementation of the mitigation measures, dust from the construction of the proposed project would not add significantly to the existing exposure level of people to this fungus, including construction workers, and impacts would be reduced to less-than-significant levels.

4.8 - Potential Impacts from Asbestos

Naturally occurring asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released into the atmosphere due to vehicular traffic on unpaved roads, during the grading of development projects, and at mining operations.

Serpentinite and/or ultramafic rocks are known to be present in 44 of California's 58 counties. These rocks are particularly abundant in the counties associated with the Sierra Nevada foothills, the Klamath Mountains, and the Coast Ranges. However, according to information provided by the Department of Conservation Division of Mines and Geology, the

project site is not located in an area where naturally occurring asbestos is likely to be present (CDCDMG, 2025). Therefore, impacts associated with the exposure of construction workers and nearby sensitive receptors to asbestos would be less than significant.

4.9 - Odor Impacts and Mitigation

An evaluation is typically conducted for both of the following situations: 1) a potential source of objectionable odors is proposed for a location near existing sensitive receptors, and 2) sensitive receptors are proposed to be located near an existing source of objectionable odors. The criteria for this evaluation are based on the Lead Agency's determination of the proximity to one another of the proposed project and the sensitive receptors. A sensitive receptor is a location where human populations, especially children, senior citizens and sick persons, are present, and where there is a reasonable expectation of continuous human exposure to pollutants, according to the averaging period for ambient air quality standards, i.e. the 24-hour, 8-hour or 1-hour standards. Commercial and industrial sources are not considered sensitive receptors.

The proposed Project is not considered a source of objectionable odors or odorous compounds. Furthermore, there does not appear to be any significant source of objectionable odors in close proximity that may adversely impact the project site when it is in operation. As such, the proposed project will not be a source of any odorous compounds nor will it likely be impacted by any odorous source.

4.10 - Impacts to Ambient Air Quality

An ambient air quality analysis was performed to determine if the proposed Project has the potential to impact ambient air quality through a violation of the ambient air quality standards or a substantial contribution to an existing or projected air quality standard. The basis for the analysis is dispersion modeling and the Project's long-term air quality impacts shown in **Table 4-4**.

The maximum off-site ground level concentration of each pollutant for the 1-hour, 3-hour, 8-hour, 24-hour and annual periods was predicted using the most recent version of EPA's AMS/EPA Regulatory Model (AERMOD) dispersion software under the Lakes Environmental ISC-AERMOD View interface. CARB-provided AERMET processed meteorological datasets for the Edwards Air Force Base monitoring station, calendar years 2012, 2016, 2017, 2019 and 2020 were input to AERMOD (CARB, 2025). This was the most recent available dataset available at the time the modeling was conducted. All of the regulatory default AERMOD model keyword parameters were employed. Rural dispersion parameters were used for this project, which differs from the urban setting used in the CalEEMod model. The CalEEMod selection criteria is based on trip distances to the project site while the AERMOD selection criteria is based on the majority of the land use surrounding the facility. The majority of the land surrounding the project site is considered "rural" under the Auer land use classification method (Auer 1978).

Emissions were evaluated for each pollutant on a short-term (correlating to pollutant averaging period) and long-term (annual) basis, with the exception of CO that was evaluated only for short-term exposures since there are no long term significance thresholds for CO.

The majority of mobile emissions predicted by CalEEMod will occur beyond the project boundary because of vehicle trips. In order to determine the on-site vehicle emissions an estimated on-site one-way trip distance was determined to be 0.10 miles. The on-site estimated trip distance was then divided by the average trip length used in CalEEMod, 15.69 miles, in order to determine the on-site to off-site mobile emissions ratio, 0.6%. The total mobile emissions calculated by CalEEMod for the Project were then reduced by 99.4% to estimate the mobile on-site emissions used for ambient air quality modeling.

A fenceline discrete receptor grid was placed around the Project site in order to evaluate residences and businesses within close proximity of the Project site. A three-tier grid was used with 25-meter fenceline spacing. The first tier extended 100 meters with 25-meter tier spacing, the second tier extended an additional 200 meters with 50-meter tier spacing and the third tier extended another 400 meters with a tier spacing of 100 meters. A total of 2,259 discrete off-site receptors were analyzed. Elevated terrain options were employed even though there is not complex terrain in the Project area. The 7.5-minute DEM terrain data for Inyokern, CA, was processed with AERMAP to identify elevations for the proposed Project.

For each pollutant and averaging period modeled, a "total" concentration was estimated by adding the maximum measured background air concentration to the maximum predicted Project impacts. The maximum measured background air concentrations used in this analysis were calculated from measured concentrations at the nearest monitoring stations.

A screen model was run which included a worst-case scenario of the emergency generators operating at 200 hours per year and at the same time. This screen scenario will determine which pollutants need to have a refined model in order to determine compliance. Source parameters such as stack heights and diameter and exhaust velocity and temperature used for the dispersion modeling can be found in the electronic modeling files for Appendix B.

The results of the worst-case air dispersion modeling are presented in **Table 4-8.** The electronic AERMOD output files are provided in Appendix C.

Table 4-8
Predicted Ambient Air Quality Impacts Worst-Case

Pollutant	Averaging Period	Background ($\mu g/m^3$)	Project ($\mu g/m^3$)	Total ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	CAAQS ($\mu g/m^3$)
NO_2	1-Hour	84.3	1,528	1,612	188.68	338
NO_2	Annual	5.6	2.6	8.2	100	56
SO_2	1-Hour	2.10	15.5	17.6	196	655
SO_2	3-Hour	1.89	9.8	11.7	1,300	---
SO_2	24-Hour	1.31	4.1	5.4	365	105
CO	1-Hour	2,063	7,925	9,988	40,000	23,000
CO	8-Hour	1,031	3,578	4,609	10,000	10,000
PM_{10}	24-Hour	417	14.4	431	150	50
PM_{10}	Annual	20	3.8	23.8	---	20
$PM_{2.5}$	24-Hour	39	14.4	53.3	35	---
$PM_{2.5}$	Annual	4.5	1.4	5.9	12	12

Pre-Project concentrations of 24-hour PM_{10}, and 24-hour $PM_{2.5}$, and annual PM_{10} exceed their respective ambient air quality standards. PM_{10} and $PM_{2.5}$ are evaluated in accordance with the recommended SJVAPCD recommended significant impact level (SIL) for fugitive PM_{10} and $PM_{2.5}$ emissions. It is the SJVAPCD's policy to use significant impact levels to determine whether a proposed new or modified source will cause or contribute significantly to an AAQS violation. If a project's maximum impacts are below the District SIL, the project is judged to not cause or contribute significantly to an AAQS or PSD increment violation. A comparison of the proposed impact from the Project to the District SIL values is provided in **Table 4-9.**

Table 4-9
Comparison of Maximum Modeled Project Impact with Significant Thresholds Worst-Case

Pollutant	Averaging Period	Predicted Concentration ($\mu g/m^3$)	SIL ($\mu g/m^3$)
PM_{10}	24-Hour	14.4	10.4
PM_{10}	Annual	3.8	2.08
$PM_{2.5}$	24-Hour	14.4	2.5

Table 4-8 and 4-9 demonstrates that the maximum impacts attributable to the Project during worst case emergency scenario, when considered in addition to the existing background concentrations, are above the applicable ambient air standards for NO2 1-hour, annual PM_{10}, and 24-hour PM_{10} and $PM_{2.5}$. Therefore, refined models were run for realistic operating conditions.

Refined Analysis for NO2 (1-hr), PM_{10} and $PM_{2.5}$

The worst-case emergency scenario modeled the emergency engines operating at 200 hours per year and 24 hours per day. The refined analysis looks at a more realistic non-emergency

operation. Emissions for the engines are input based on lbs per hour. The engines were assumed to be tested anytime from 7 AM to 5 PM. Although the engines will typically only be tested individually for up to one hour at any one time, each engine was assumed to operate up to 8 hours/day (7AM-5PM) to conservatively represent 8 different engines operating one hour each in any one day for the 24-hour and annual averaging times. In addition to modeling engines operating at 100% load, various loads of 10%, 25%, 50%, and 75% were also modeled. These scenarios also included hourly emissions that considered the higher emissions factors during engine warm-up periods. During the engine warm-up period the engines were assumed to emit emissions equal to the emission ratings of the engine without SCRs and DPFs equipped. Thus, the worst-case stack condition and the worst-case engine location could be determined from the analysis. All 40 engines were assumed to be tested for annual averages, with emissions proportioned accordingly. The screening results are presented in Appendix C.

Based on the results of the screening analyses, all sources were modeled in the refined analyses for comparisons with CAAQS and NAAQS for pollutants and averaging times that were significant in the screening analysis (1-hour NO_2, 24-hour $PM_{2.5}$ and PM_{10}, and annual PM_{10}). Since the engines will each be tested for up to 50 hours/year, annual average emission rate was included in for annual PM_{10}. Daily emissions based on 8 hour of engine runtime was used for 24-hour $PM_{2.5}$ and PM_{10}.

For the 1-hour NO_2 modeling assessments, the Ambient Ratio Method Version 2 (ARM2) was used in the modeling analyses with an in-stack NO_2/NOx ratio of 0.5 (50%) based on EPA Guideline requirements. This is conservative as the NO_2/NOx ratios for these types of engines are on the order of 10%, as per the EPA's ISR database.

As the screen analysis showed all maximum impacted receptors within the first tier of the receptor grid, the refined analysis reduced the receptor grid to the first tier only. Table 4-10 summarizes the refined model run results.

Table 4-10
Predicted Ambient Air Quality Impacts Refined

Pollutant	Averaging Period	Background ($\mu g/m^3$)	Project ($\mu g/m^3$)	Total ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	CAAQS ($\mu g/m^3$)
NO_2	1-Hour	84.3	53.5	137.8	188.68	338
PM_{10}	24-Hour	417	5.95	423	150	50
PM_{10}	Annual	20	0.83	20.81	---	20
$PM_{2.5}$	24-Hour	39	1.94	40.4	35	---

Pre-Project concentrations of 24-hour PM_{10}, and 24-hour $PM_{2.5}$, and annual PM_{10} exceed their respective ambient air quality standards. PM_{10} and $PM_{2.5}$ are evaluated in accordance with the recommended SJVAPCD recommended significant impact level (SIL) for fugitive PM_{10} and $PM_{2.5}$ emissions. It is SJVAPCD's policy to use significant impact levels to determine whether a proposed new or modified source will cause or contribute significantly to an AAQS violation. If a project's maximum impacts are below the District SIL, the project is judged to

not cause or contribute significantly to an AAQS or PSD increment violation. A comparison of the proposed impact from the Project to the District SIL values is provided in **Table 4-11.**

Table 4-11
Comparison of Maximum Modeled Project Impact with Significant Thresholds Refined

Pollutant	Averaging Period	Predicted Concentration ($\mu g/m^3$)	SIL ($\mu g/m^3$)
PM_{10}	24-Hour	5.95	10.4
PM_{10}	Annual	0.83	2.08
$PM_{2.5}$	24-Hour	1.94	2.5

Table 4-10 demonstrates that the maximum impacts attributable to the Project's 1-hour NO_2 for the refined analysis, when considered in addition to the existing background concentrations, are below the applicable ambient air standards and would be *less-than-significant.*

Because the Project's refined modelled PM_{10} and $PM_{2.5}$ are below the SJVAPCD's significance levels for 24-hour and annual concentrations, the Project's contribution to potential violations of ambient air quality standards would be l*ess-than-significant*.

Additionally, a screening level analysis of construction related emissions was conducted even though they are short term in duration and considered less than significant if the meet the annual threshold set forth by EKAPCD. The results of the screening air dispersion modeling are presented in **Table 4-12.** The electronic AERMOD output files are provided in Appendix C.

Table 4-12
Predicted Ambient Air Quality Impacts Construction

Pollutant	Averaging Period	Background ($\mu g/m^3$)	Project ($\mu g/m^3$)	Total ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	CAAQS ($\mu g/m^3$)
NO_2	1-Hour	84.3	75.2	159.5	188.68	338
NO_2	Annual	5.6	0.6	6.2	100	56
SO_2	1-Hour	2.10	0.5	2.6	196	655
SO_2	3-Hour	1.89	0.17	2.06	1,300	---
SO_2	24-Hour	1.31	0.04	1.35	365	105
CO	1-Hour	2,063	218	2,281	40,000	23,000
CO	8-Hour	1,031	36.5	1,067	10,000	10,000
PM_{10}	24-Hour	417	2.05	419	150	50
PM_{10}	Annual	20	0.23	20.2	---	20
$PM_{2.5}$	24-Hour	39	0.57	39.6	35	---
$PM_{2.5}$	Annual	4.5	0.07	4.6	12	12

Pre-Project concentrations of 24-hour PM_{10}, and 24-hour $PM_{2.5}$, and annual PM_{10} exceed their respective ambient air quality standards. PM_{10} and $PM_{2.5}$ are evaluated in accordance

with the recommended SJVAPCD recommended significant impact level (SIL) for fugitive PM_{10} and $PM_{2.5}$ emissions. It is the SJVAPCD's policy to use significant impact levels to determine whether a proposed new or modified source will cause or contribute significantly to an AAQS violation. If a project's maximum impacts are below the District SIL, the project is judged to not cause or contribute significantly to an AAQS or PSD increment violation. A comparison of the proposed impact from the Project to the District SIL values is provided in **Table 4-13.**

Table 4-13
Comparison of Maximum Modeled Project Impact with Significant Thresholds Construction

Pollutant	Averaging Period	Predicted Concentration ($\mu g/m^3$)	SIL ($\mu g/m^3$)
PM_{10}	24-Hour	2.05	10.4
PM_{10}	Annual	0.23	2.08
$PM_{2.5}$	24-Hour	0.57	2.5

Table 4-12 and 4-13 demonstrates that the maximum impacts attributable to the Project's construction emissions, when considered in addition to the existing background concentrations, are below the applicable ambient air standards for all criteria pollutants and are therefore considered less than significant.

4.11 - Impacts to Greenhouse Gases and Climate Change

The proposed Project's construction and operational GHG emissions were estimated using the CalEEMod program, EMFAC2014, and the California Climate Action Registry General Reporting Protocol (Version 3.1). Table 4-14 presents the Project's annual GHG emissions.

Table 4-14
Estimated Annual GHG Emissions (MT/Year)

Source	CO_2e
Total Construction Emissions	5,239
Annualized Construction Emissions[1]	174.6
Miscellaneous Operations (Area, Mobile, waste, water)	637.6
Emergency Generators	1,317
Refrigerant Leakage	250.8
Energy Emissions (Off-site)[2]	210,262
Total On-site Operational Emissions	2,205
Total On-site Project Emissions	**2,379**
EKAPCD's Significance Threshold	**25,000**
Significance Threshold Exceeded?	**No**

1 Per South Coast AQMD's Methodology

2 Emissions from power generation across the SCE system, and as such they are reported by SCE on a specific generating facility basis. These emissions are not part of the project facility inventory.

Additionally, the proposed Project substations may feature circuit breakers that contain SF_6 gas, used as an insulator and an arc suppressor in the breakers. SF_6 is inert and non-toxic and is encapsulated in the breaker assembly. SF_6 is a GHG with substantial global warming potential because of its chemical nature and long residency time within the atmosphere. However, under normal conditions, it would be completely contained in the equipment and SF_6 would be released only in the unlikely event of a failure, leak, or crack in the circuit breaker housing. New circuit breaker designs have been developed to minimize the potential for leakage, compared to that of past designs, and the amount of SF_6 that could be released by facility equipment would be minimal. At this time SF6 circuit breakers are not proposed and even with the addition of SF6 circuit breaks the annual threshold for GHG emissions would not be exceeded.

The Project will not result in the emissions of hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), the other gases identified as GHG in AB32. The proposed Project will be subject to any regulations developed under AB32 as determined by CARB. As demonstrated in Table 4-14, the Project would emit less than EKAPCD's significance threshold of 25,000 MT per year. The proposed Project would therefore have a *less than significant* GHG impact.

4.11.1 - Feasible and Reasonable Mitigation Relative to Global Warming

CEQA requires that all feasible and reasonable mitigation be applied to the project to reduce the impacts from construction and operations on air quality. The SJVAPCD's "Non-Residential On-Site Mitigation Checklist" was applied in preparing the mitigation measures and evaluating the Project's features as a proxy for EKAPCD. These measures include using controls that limit the exhaust from construction equipment and using alternatives to diesel when possible. Additional reductions would be achieved through the air districts and CARB implementing regulations to reduce diesel engine emissions.

SECTION 5 - CUMULATIVE IMPACTS

By its very nature, air pollution has a cumulative impact. The District's nonattainment status is a result of past and present development within the MDAB. Furthermore, attainment of ambient air quality standards can be jeopardized by increasing emissions-generating activities in the region. No single project would be sufficient in size, by itself, to result in nonattainment of the regional air quality standards. Instead, a project's emissions may be individually limited, but cumulatively considerable when taken in combination with past, present, and future development within the Basin. When assessing whether there is a new significant cumulative effect, the Lead Agency shall consider whether the incremental effects of the project are cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects [CCR §15064(h)(1)]. Per CEQA Guidelines §15064(h)(3), a Lead Agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program, including, but not limited to an air quality attainment or maintenance plan that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located.

Attachment A of Kern County's *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* states "The following threshold are defined for purposes of determining cumulative effects as the baseline for "considerable". Projects in…Kern County Air Pollution Control District will be subject to the following significance thresholds". The thresholds outlined in the guidelines mirror the individual project significance thresholds of 15 tons per year for PM_{10} and 25 tons per year for NO_X and ROG. Therefore, owing to the inherently cumulative nature of air quality impacts, the threshold for whether a project would make a cumulatively considerable contribution to a significant cumulative impact is simply whether the project would exceed project-level thresholds. Additionally, the EKAPCD Guidelines for Implementation of CEQA also states that "*Unless otherwise specified in published/adopted thresholds of significance and guidelines, a project's potential contribution to cumulative impacts shall be assessed utilizing the same significance criteria as those for project specific impacts*"[1]. Based on the analysis conducted for this Project, it is individually *less than significant*. This AQIA, however, also considered impacts of the proposed Project in conjunction with the impacts of other projects previously proposed in the area. The following cumulative impacts were considered:

- Cumulative O_3 Impacts (ROG and NOx) from numerous sources within the region including transport from outside the region. O_3 is formed through chemical reactions of ROG and NOx in the presence of sunlight.
- Cumulative CO Impacts produced primarily by vehicular emissions.

[1] EKAPCD Guidelines for Implementation of CEQA, Page 22

- Cumulative PM_{10} Impacts from within the region and locally from the various projects. Such projects may cumulatively produce a significant amount of PM10 if several projects conduct grading or earthmoving activities at the same time; and
- Hazardous Air Pollutant (HAP) Impacts on sensitive receptors.

5.1 - Cumulative Regional Air Quality Impacts

The most recent, certified MDAB Emission Inventory data available from the EKAPCD is based on data gathered for the 2020 annual inventory. This data will be used to assist the EKAPCD in demonstrating attainment of Federal 1-hour O_3 Standards. **Table 5-1** provides a comparative look at the impacts proposed by the proposed Project to the MDAB Emissions Inventory.

Table 5-1
Comparative Analysis Based on MDAB 2026 Inventory

Emissions Inventory Source	Pollutant (tons/year)					
	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
Kern County – 2026[2]	3,421.51	7,044.87	17,699.2	727.81	4,821.29	1,903.11
MDAB – 2024[2]	163,609.4	33,663.2	59,495.4	1,630.82	40,452.2	9,621.4
Proposed Project	6.89	18.6	95.77	0.19	1.65	0.82
Proposed Project's % of Kern[1]	0.2014%	0.2640%	0.5411%	0.0261%	0.0342%	0.0431%
Proposed Project's % of MDVAB[1]	0.0042%	0.0553%	0.1610%	0.0117%	0.0041%	0.0085%

Source: CARB, 2025
Notes: 1) Percentages equaling 0.0000 could represent a percent <0.00005.
2) This is the latest inventory available as of February 2026, excluding Natural Sources.

As shown in Table 5-1 the proposed Project does not pose a substantial increase to basin emissions, as such basin emissions would be essentially the same if the Project is approved.

Table 5-2, Table 5-3, and Table 5-4 provide CARB Emissions Inventory projections for the year 2030 for both the SJVAB and the Kern County portion of the air basin. Looking at the SJVAB Emissions predicted by the CARB year 2030 emissions inventory, the Kern County portion of the air basin is a moderate source of the emissions. The proposed Project produces a small portion of the total emissions in both Kern County and the entire MDAB.

Table 5-2
Emission Inventory MDAB 2030 Projection – Tons per Year

	ROG	NO_X	CO	SOx	PM_{10}	$PM_{2.5}$
Total Emissions	17,155.73	33,021.19	5,5458.1	1,631.185	41,777.54	9,844.78
Percent Stationary Sources	34.51%	42.29%	19.66%	83.04%	26.84%	33.01%
Percent Area-Wide Sources	31.59%	1.86%	4.46%	0.90%	67.06%	47.89%
Percent Mobile Sources	33.90%	55.85%	75.87%	16.07%	6.09%	19.10%
Total Stationary Source Emissions	5,919.93	13,963.08	10,904.01	1,354.51	11,213.90	3,249.96
Total Area-Wide Source Emissions	5,419.15	615.02	2,475.79	14.6	2,8017.77	4,714.34
Total Mobile Source Emissions	5,816.27	18,443.45	42,078.30	262.07	2,545.51	1,880.48

Source: CARB, 2025
Note: Total may not add due to rounding.

Table 5-3
Emission Inventory Kern County 2030 Projection –
Tons per Year

	ROG	NO_X	CO	SOx	PM_{10}	$PM_{2.5}$
Total Emissions	3,374.79	6,929.16	17,155.00	726.35	5,163.29	1,938.15
Percent Stationary Sources	19.41%	64.47%	29.18%	82.61%	18.42%	15.84%
Percent Area-Wide Sources	19.20%	1.25%	5.23%	0.55%	58.89%	27.80%
Percent Mobile Sources	61.39%	34.28%	65.59%	16.83%	22.68%	56.37%
Total Stationary Source Emissions	655.17	4,467.23	5005.97	600.06	950.82	306.96
Total Area-Wide Source Emissions	647.87	86.50	896.44	4.01	3,040.81	538.74
Total Mobile Source Emissions	2,071.74	2,375.05	11252.59	122.27	1,171.28	1,092.44

Source: CARB, 2025
Note: Total may not add due to rounding.

Table 5-4
2030 Emissions Projections – Proposed Project, Kern County and SJVAB

	ROG	NO_X	PM_{10}
Proposed Project	6.89	18.6	1.65
Kern County	3,374.79	6,929.16	5,163.29
MDAB	17,155.73	33,021.19	41,777.54
Proposed Project Percent of Kern County	0.204%	0.268%	0.032%
Proposed Project Percent of MDAB	0.040%	0.056%	0.004%
Kern County Percent of MDAB	19.67%	20.98%	12.36%

As shown above, the proposed Project would pose an inconsequential impact on regional O_3 and PM_{10} formation. Therefore, this Project would not be considered cumulatively considerable in its contribution to regional O_3 and PM_{10} impacts.

5.2 - Cumulative Local Air Quality Impacts

EKAPCD uses a single threshold for the determination of significance for both project-specific and cumulative impacts. Air quality in EKAB has improved over the past decades, as shown in Section 3.3, which indicates that the single threshold is sufficient for assessing cumulative impacts. The proposed Project would generate less-than-significant impacts to criteria air pollutants; therefore, the Project's incremental contribution to cumulative air quality impacts would not be cumulatively considerable (CEQA Guidelines Section 15064(h)(3).

5.3 - Cumulative Hazardous Air Pollutants

Combined HAPs emission impacts from the project and other existing and planned projects are considered cumulatively significant when air quality standards are exceeded. Because the Project would not be a significant source of HAPs, the proposed Project would *also not make a cumulatively considerable contribution to significant cumulative HAPs impacts*.

5.4 - Cumulative Carbon Monoxide (CO) – Mobile Sources

Ambient CO concentrations normally correspond closely to the spatial and temporal distributions of vehicular traffic. Relatively high concentrations of CO would be expected along heavily traveled roads and near busy intersections. CO concentrations are also influenced by wind speed and atmospheric mixing. CO concentrations may be more uniformly distributed when inversion conditions are prevalent in the valley. Under certain meteorological conditions, CO concentrations along a congested roadway or intersection may reach unhealthful levels for sensitive receptors, e.g., children, the elderly, hospital patients, etc. This localized impact can result in elevated levels of CO, or "hotspots," even though concentrations at the closest air quality monitoring station may be below NAAQS and CAAQS.

The localized project impacts depend on whether ambient CO levels in the Project vicinity would be above or below NAAQS. If ambient levels are below the standards, a project is considered to have significant impacts if its emissions would exceed one or more of these standards. If ambient levels already exceed a State standard, a project's emissions are considered significant if they would increase 1-hour CO concentrations by 10 ppm or more or 8-hour CO concentrations by 0.45 ppm or more.

A traffic study was completed for this Project (Ruettgers, 2026). According to the traffic study, impacted intersections and roadway segments are anticipated to operate at a LOS of C or better. Therefore, CO "hotspot" modeling was not conducted for this Project, and no concentrated excessive CO emissions are expected to be caused once the proposed Project is completed.

SECTION 6 - CONSISTENCY WITH THE AIR QUALITY ATTAINMENT PLAN

Air quality impacts from proposed projects within the eastern Kern County are controlled through policies and provisions of the EKAPCD and the Kern County General Plan (Kern County 2004). In order to demonstrate that a proposed project would not cause further air quality degradation in either of the EKAPCD's plan to improve air quality within the air basin or federal requirements to meet certain air quality compliance goals, each project should also demonstrate consistency with the EKAPCD's adopted AQAP. The EKAPCD is required to submit a "Rate of Progress" document to the CARB that demonstrates past and planned progress toward reaching attainment for all criteria pollutants. The California Clean Air Act (CCAA) requires the local air districts with severe or extreme air quality problems to provide for a 5 percent reduction in non-attainment emissions per year. The Attainment Plans prepared for the Eastern Kern County by the EKAPCD complies with this requirement. CARB reviews, approves, or amends the document and forwards the plan to the U.S. Environmental Protection Agency (U.S. EPA) for final review and approval within the State Implementation Plan (SIP).

Air pollution sources associated with stationary sources are regulated through the EKAPCD permitting authority under the New and Modified Stationary Source Review Rule (EKAPCD Rule 210.1). Owners of any new or modified equipment that emits, reduces or controls air contaminants, except those specifically exempted by the EKAPCD, are required to apply for an Authority to Construct and Permit to Operate (EKAPCD Rule 201). Additionally, best available control technology (BACT) is required on specific types of stationary equipment and are required to offset both stationary source emission increases along with increases in cargo carrier emissions if the specified threshold levels are exceeded (EKAPCD Rule 210.1, III.B.). Through this mechanism, the EKAPCD would ensure that all stationary sources within a project area would be subject to the standards of the EKAPCD to ensure that new developments do not result in cumulatively considerable contributions in significant cumulative stationary sources of criteria air pollutants.

6.1 - Required Evaluation Guidelines

CEQA Guidelines and the Federal Clean Air Act (Sections 176 and 316) contain specific references on the need to evaluate consistency between a proposed project and the applicable AQAP for the Project site. To accomplish this, CARB has developed a three-step approach to determine project conformity with the applicable AQAP:

1. Determination that an AQAP is being implemented in the area where the project is being proposed. The EKAPCD has implemented the current, modified AQAP as approved by CARB.
2. The proposed project must be consistent with the growth assumptions of the applicable AQAP. The proposed Project is included in the employment increases projected in the Kern County General Plan.
3. The project must contain in its design all reasonably available and feasible air quality control measures. The proposed project incorporates various policy and rule-required implementation measures that will reduce related emissions.

The CCAA and AQAP identify transportation control measures as methods to further reduce emissions from mobile sources. Strategies identified to reduce vehicular emissions such as reductions in vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, and traffic congestion, in order to reduce vehicular emissions, can be implemented as control measures under the CCAA as well. Additional measures may also be implemented through the building process such as providing electrical outlets on exterior walls of structures to encourage use of electrical landscape maintenance equipment or measures such as electrical outlets for electrical systems on diesel trucks to reduce or eliminate idling time.

As the growth represented by the proposed Project was anticipated by the Kern County General Plan and incorporated into the AQAP, conclusions may be drawn from the following criteria:

1. The findings of the 1-mile radius analysis conducted using review of Traffic Analysis Zones (TAZ) data show that sufficient employment increases are planned for the project area as the TAZs in the project area calls for an increase in employment of 573 between the years of 2024 and 2049 which is enough to account for the 30 full time employees the Project proposes;
2. That, by definition, the proposed emissions from the Project are below the EKAPCD's established emissions impact thresholds; and
3. That the primary source of emissions from the Project would be motor vehicles which would be licensed through the State of California and whose emissions are already incorporated into the CARB's Eastern Kern County's Emissions Inventory.

Based on these factors, the Project *is consistent with the AQAP*.

6.2 - Consistency with the Kern Council of Government's Regional Conformity Analysis

The Kern Council of Governments (Kern COG) Regional Conformity Analysis Determination demonstrates that the regional transportation expenditure plans (Destination 2030 Regional Transportation Plan and Federal Transportation Improvement Program) in the Kern County portion of the Mojave Desert air quality attainment areas would not hinder the efforts set out in the CARB's SIP for each area's non-attainment pollutants (CO, O_3 and PM_{10}). The analysis uses an adopted regional growth forecast, governed by both the adopted Kern COG Policy and Procedure Manual and a Memorandum of Understanding between the County of Kern and Kern COG (representing itself and outlying municipal member agencies).

The Kern COG Regional Conformity Analysis considers General Plan Amendments (GPA) and zone changes that were enacted at the time of the analysis as projected growth within the area based on land use designations incorporated within the Kern County General Plan. Land use designations that are altered based on subsequent GPAs that were not included in the Regional Conformity Analysis were not incorporated into the Kern COG analysis. Consequently, if a proposed project is not included in the regional growth forecast using the latest planning assumptions, it may not be said to conform to the regional growth forecast.

Item 2 under Section 3 – Model Maintenance Procedure, of the Kern COG Regional Transportation Modeling Policy and Procedure Manual states "Land Use Data – General Plan land capacity data or "Build -out capacity" is used to distribute the forecasted County totals, and may be updated as new information becomes available, and is revised in regular consultation with local planning departments."

Under the current Kern County Zoning, the Project site is zoned M-2 PD (Medium Industrial, Precise Development Combining) and designated as 7.2/2.5 (Service Industrial/Flood Hazard) under the Inyokern Specific Plan (see Figure 6-1).

In addition, a review of Kern COG regional forecast was prepared to evaluate if the Project area growth forecast would be sufficient to account for the Project's projected employment increase. The adopted growth forecasts are assigned to TAZs; a review of the growth forecast one mile from a project presents a conservative assessment of the Project area. Given there are only 30 full time employees as a result of the Project the current growth forecast of 573 jobs from 2024 to 2049 accounts for the proposed employment increase, therefore, the Project is consistent with the regional growth forecast.

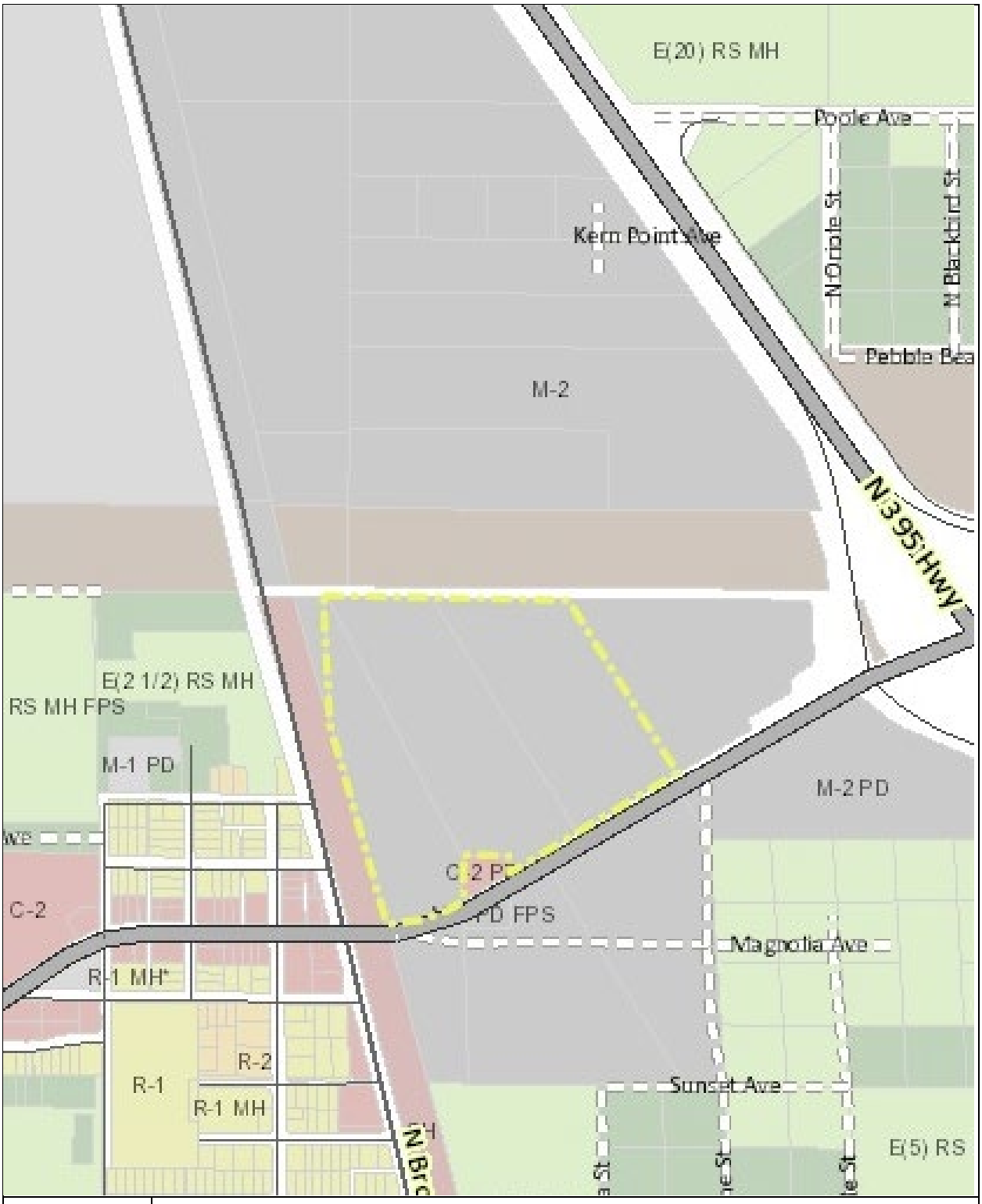

Figure 6-1
Kern County Zoning

SECTION 7 - MITIGATION AND OTHER RECOMMENDED MEASURES

As the estimated construction, operational, and decommissioning emissions from the proposed Project would be less than significant, no specific mitigation measures would be required. However, to ensure that Project is in compliance with all applicable EKAPCD rules and regulations and emissions are further reduced, the applicant would be required to implement and comply with a number of measures by regulation and would result in further emission reductions through their inclusion in Project construction and long-term design. The following measures have been applied to the Project as EKAPCD rules and regulations and conditions of approval and through the CalEEMod model analysis.

7.1 - Applicable PM_{10} Reduction Measures

As the Project must be completed in compliance with EKAPCD Rules and Regulations, dust control measures must be taken to ensure compliance specifically during grading and the construction phase.

7.1.1 - LAND PREPARATION, EXCAVATION, AND/OR DEMOLITION

The following dust control measures should be implemented:

- All soil excavated or graded should be sufficiently watered to prevent excessive dust. Watering should occur as needed with complete coverage of disturbed soil areas. Watering should be a minimum of three times daily on unpaved/untreated roads and on disturbed soil areas with active operations.[2]
- All clearing, grading, earth moving, and excavation activities should cease
  - during periods of winds greater than 20 mph (averaged over one hour), if disturbed material is easily windblown, or
  - when dust plumes of 20% or greater opacity impact public roads, occupied structures or neighboring property.
- All fine material transported offsite should be either sufficiently watered or securely covered to prevent excessive dust.
- If more than 5,000 cubic yards of fill material will be imported or exported from the site, then all haul trucks should be required to exit the site via an access point where a gravel pad or grizzly has been installed.
- Areas disturbed by clearing, earth moving, or excavation activities should be minimized at all times.
- Stockpiles of soil or other fine loose material shall be stabilized by watering or other appropriate method to prevent wind-blown fugitive dust.

[2] This mitigation measure has been implemented in the CalEEMod model as mentioned in Section 4.2.1, and the mitigated emissions in Table 4-3 reflect this mitigation.

- Where acceptable to the fire department, weed control should be accomplished by mowing instead of discing, thereby, leaving the ground undisturbed and with a mulch covering.

7.1.2 - BUILDING (STRUCTURE) CONSTRUCTION

After clearing, grading, earth moving and/or excavating, the following dust control practices should be implemented:

- Once initial leveling has ceased all inactive soil areas within the construction site should either be seeded and watered until plant growth is evident, treated with a dust palliative or similar, or watered three times daily until soil has sufficiently crusted to prevent fugitive dust emission.
- All active disturbed soil areas should be sufficiently watered to prevent excessive dust, but no less than three times per day.[2]

7.1.3 - VEHICULAR ACTIVITIES

During all phases of construction, the following vehicular control measures should be implemented:

Dust

- Onsite vehicle speed should be limited to 15 mph[2].
- All areas with vehicle traffic should be paved, treated with dust palliatives, or watered a minimum of three times daily.[2]
- Streets adjacent to the project site should be kept clean and accumulated silt removed.

Access to the site should be by means of an apron into the project from adjoining surfaced roadways. The apron should be surfaced or treated with dust palliatives. If operating on soils that cling to the wheels of the vehicles, a grizzly or other such device should be used on the road exiting the project, immediately prior to the pavement, in order to remove most of the soil material from the vehicle's tires.

Tailpipe Emissions

- Properly maintain and tune all internal combustion engine powered equipment.
- Require employees and subcontractors to comply with California's idling restrictions for compression ignition engines.
- Use low sulfur (CARB) diesel fuel.

7.2 - Recommended Measures to Reduce Equipment Exhaust

These measures are recommended to further reduce exhaust emissions:

- Maintain all construction equipment as recommended by manufacturer manuals.
- Shut down equipment when not in use for extended periods.
- Construction equipment shall operate no longer than eight (8) cumulative hours per day.
- Use electric equipment for construction whenever possible in lieu of diesel or gasoline powered equipment.
- Curtail use of high-emitting construction equipment during periods of high or excessive ambient pollutant concentrations.
- All construction vehicles shall be equipped with proper emissions control equipment and kept in good and proper running order to substantially reduce NO_x emissions.
- On-Road and Off-Road diesel equipment shall use diesel particulate filters if permitted under manufacturer's guidelines.
- On-Road and Off-Road diesel equipment shall use cooled exhaust gas recirculation (EGR) if permitted under manufacturer's guidelines.
- All construction workers shall be encouraged to shuttle (car-pool) to retail establishments or to remain on-site during lunch breaks.
- All construction activities within the Project area shall be discontinued during the first stage smog alerts.
- Construction and grading activities shall not be allowed during first stage O_3 alerts. First stage O_3 alerts are declared when the O_3 level exceeds 0.20 ppm (1-hour average).

SECTION 8 - LEVEL OF SIGNIFICANCE AFTER MITIGATION

The proposed Project would have short-term air quality impacts due to construction activities as well as vehicular emissions. Both of these impacts would be mitigated and *were found to be less than significant before and after mitigation*.

The proposed Project would result in long-term air quality impacts due to operational emissions. These impacts were found to *be less than significant*.

The proposed Project would result in impacts to greenhouse gases and climate change due to construction and operational emissions. These impacts *were found to be less than significant*.

The proposed Project, in conjunction with other past, present, and foreseeable future projects, would result in cumulative short-term and long-term impacts to air quality. The proposed Project's incremental contribution to these impacts would be below thresholds of significance and would not be considered cumulatively considerable. Therefore, the Project's contribution to cumulative impacts *was found to be less than significant*.

The proposed Project, in conjunction with other past, present, and foreseeable future projects, would result in cumulative long-term impacts to global climate change. The proposed Project's incremental contribution to these impacts will be mitigated to the extent feasible and are considered *less than significant*.

SECTION 9 - REFERENCES

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APPENDIX A

PROJECT EMISSION CALCULATIONS

Inyokern Data Center v2 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Inyokern Data Center v2
Construction Start Date	1/1/2027
Operational Year	2029
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.70000
Precipitation (days)	6.60000
Location	35.64948529864179, -117.80896794021115
County	Kern-Mojave Desert
City	Unincorporated
Air District	Kern County APCD
Air Basin	Mojave Desert
TAZ	2924
EDFZ	9
Electric Utility	Southern California Edison
Gas Utility	—

Data Field	Value
App Version	2022.1.1.45

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Office Building	287.858	1000sqft	41.2000	287,858	130,000	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	15.8418	15.6964	14.1386	45.2705	0.08908	0.38136	35.4220	35.5715	0.35667	4.19401	4.33765	—	12,624.2	12,624.2	0.30212	0.73571	18.4706	12,826.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	471.322	470.899	18.7444	88.0020	0.12178	0.44643	35.4220	35.8684	0.40764	4.19401	4.60165	—	15,381.1	15,381.1	0.38437	0.81449	0.50747	15,633.9

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	86.2164	86.0113	10.3528	36.2934	0.06702	0.25486	24.8891	25.0036	0.23691	2.95262	3.06098	—	9,069.31	9,069.31	0.22392	0.53034	5.39361	9,217.88
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	15.7345	15.6971	1.88939	6.62354	0.01223	0.04651	4.54226	4.56316	0.04324	0.53885	0.55863	—	1,501.53	1,501.53	0.03707	0.08780	0.89297	1,526.13

2.2. Construction Emissions by Year

2.2.1. Total Construction Emissions by Year, Unmitigated

Includes both onsite and offsite emissions.

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	2.90276	2.56962	14.1386	45.2705	0.08908	0.38136	24.7025	25.0839	0.35667	3.05100	3.40767	—	12,624.2	12,624.2	0.30212	0.59161	18.4706	12,826.5
2028	2.73195	2.49825	13.5211	43.9647	0.08907	0.35082	24.7025	25.0533	0.32858	3.05100	3.37957	—	12,479.9	12,479.9	0.29620	0.58571	16.6047	12,678.4
2029	15.8418	15.6964	9.30929	24.3860	0.07174	0.14954	35.4220	35.5715	0.14364	4.19401	4.33765	—	10,688.3	10,688.3	0.17348	0.73571	17.4955	10,929.4
2030	15.7771	15.5312	9.04421	23.1552	0.07174	0.14682	35.4220	35.5688	0.14113	4.19401	4.33514	—	10,503.3	10,503.3	0.16760	0.73571	15.5120	10,742.2
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	2.77671	2.43180	14.4391	39.6786	0.08908	0.38136	24.7025	25.0839	0.35667	3.05100	3.40767	—	12,249.6	12,249.6	0.30801	0.59161	0.47936	12,434.1

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
2028	471.322	470.899	18.7444	88.0020	0.12178	0.44643	35.4220	35.8684	0.40764	4.19401	4.60165	—	15,381.1	15,381.1	0.38437	0.81449	0.50747	15,633.9
2029	470.350	469.952	11.4829	65.5985	0.07778	0.21605	35.4220	35.6381	0.19360	4.19401	4.38760	—	10,970.4	10,970.4	0.20677	0.74707	0.45335	11,198.7
2030	15.6645	15.4218	9.29751	18.7042	0.07174	0.14682	35.4220	35.5688	0.14113	4.19401	4.33514	—	10,152.8	10,152.8	0.17937	0.73571	0.40159	10,377.0
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.82622	1.61140	9.41659	26.0278	0.05448	0.20761	12.3664	12.5741	0.19430	1.61608	1.81038	—	7,690.54	7,690.54	0.20682	0.32037	5.00815	7,796.19
2028	86.2164	86.0113	10.3528	36.2934	0.06702	0.25486	19.3102	19.5650	0.23691	2.35799	2.59489	—	9,069.31	9,069.31	0.22392	0.46178	5.36260	9,217.88
2029	63.7367	63.5410	7.12352	20.1684	0.05194	0.11449	24.8891	25.0036	0.10837	2.95262	3.06098	—	7,512.87	7,512.87	0.13128	0.53034	5.39361	7,679.59
2030	11.1011	10.9406	5.97508	13.3617	0.04660	0.08765	22.9930	23.0807	0.08462	2.75024	2.83486	—	6,798.79	6,798.79	0.11711	0.48791	4.59895	6,951.71
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.33329	0.29408	1.71853	4.75007	0.00994	0.03789	2.25688	2.29476	0.03546	0.29493	0.33039	—	1,273.26	1,273.26	0.03424	0.05304	0.82916	1,290.75
2028	15.7345	15.6971	1.88939	6.62354	0.01223	0.04651	3.52411	3.57062	0.04324	0.43033	0.47357	—	1,501.53	1,501.53	0.03707	0.07645	0.88784	1,526.13
2029	11.6319	11.5962	1.30004	3.68073	0.00948	0.02090	4.54226	4.56316	0.01978	0.53885	0.55863	—	1,243.84	1,243.84	0.02174	0.08780	0.89297	1,271.44
2030	2.02594	1.99665	1.09045	2.43850	0.00851	0.01600	4.19622	4.21222	0.01544	0.50192	0.51736	—	1,125.62	1,125.62	0.01939	0.08078	0.76141	1,150.94

2.2.2. Onsite Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.42877	1.22344	10.0222	25.5508	0.06495	0.33726	0.01723	0.33726	0.31257	0.00186	0.31257	—	6,235.72	6,235.72	0.25295	0.05059	0.00000	6,257.12
2028	1.40688	1.20505	9.61689	25.5809	0.06494	0.30672	0.00000	0.30672	0.28447	0.00000	0.28447	—	6,234.83	6,234.83	0.25291	0.05058	0.00000	6,256.23

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
2029	14.5241	14.4419	4.20171	6.76489	0.03554	0.08339	0.00000	0.08339	0.07748	0.00000	0.07748	—	3,183.99	3,183.99	0.12916	0.02583	0.00000	3,194.92
2030	14.5155	14.4346	4.09042	6.75467	0.03554	0.08067	0.00000	0.08067	0.07498	0.00000	0.07498	—	3,184.00	3,184.00	0.12916	0.02583	0.00000	3,194.93
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.42877	1.22344	10.0222	25.5508	0.06495	0.33726	0.01723	0.33726	0.31257	0.00186	0.31257	—	6,235.72	6,235.72	0.25295	0.05059	0.00000	6,257.12
2028	470.073	469.715	12.9750	74.3377	0.08559	0.38028	0.00000	0.38028	0.34149	0.00000	0.34149	—	8,056.87	8,056.87	0.32827	0.06565	0.00000	8,084.64
2029	469.148	468.918	6.01431	52.7945	0.04159	0.14990	0.00000	0.14990	0.12744	0.00000	0.12744	—	3,823.74	3,823.74	0.15656	0.03131	0.00000	3,836.98
2030	14.5155	14.4346	4.09042	6.75467	0.03554	0.08067	0.00000	0.08067	0.07498	0.00000	0.07498	—	3,184.00	3,184.00	0.12916	0.02583	0.00000	3,194.93
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.87735	0.75704	7.05430	15.1907	0.04298	0.18659	0.00817	0.19476	0.17328	0.00088	0.17416	—	4,037.57	4,037.57	0.16378	0.03276	0.00000	4,051.42
2028	85.3337	85.1683	7.08713	25.7899	0.04756	0.21930	0.00000	0.21930	0.20135	0.00000	0.20135	—	4,536.82	4,536.82	0.18429	0.03686	0.00000	4,552.41
2029	62.8652	62.7894	3.21050	10.1466	0.02608	0.06724	0.00000	0.06724	0.06111	0.00000	0.06111	—	2,348.14	2,348.14	0.09542	0.01908	0.00000	2,356.22
2030	10.2730	10.2298	2.44396	4.11689	0.02292	0.04437	0.00000	0.04437	0.04133	0.00000	0.04133	—	2,007.48	2,007.48	0.08143	0.01629	0.00000	2,014.36
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.16012	0.13816	1.28741	2.77231	0.00784	0.03405	0.00149	0.03554	0.03162	0.00016	0.03178	—	668.465	668.465	0.02712	0.00542	0.00000	670.759
2028	15.5734	15.5432	1.29340	4.70665	0.00868	0.04002	0.00000	0.04002	0.03675	0.00000	0.03675	—	751.123	751.123	0.03051	0.00610	0.00000	753.704
2029	11.4729	11.4591	0.58592	1.85176	0.00476	0.01227	0.00000	0.01227	0.01115	0.00000	0.01115	—	388.762	388.762	0.01580	0.00316	0.00000	390.099
2030	1.87482	1.86694	0.44602	0.75133	0.00418	0.00810	0.00000	0.00810	0.00754	0.00000	0.00754	—	332.360	332.360	0.01348	0.00270	0.00000	333.501

2.2.3. Offsite Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.47399	1.34617	4.11638	19.7197	0.02413	0.04410	24.7025	24.7466	0.04410	3.05100	3.09510	—	6,388.48	6,388.48	0.04917	0.54102	18.4706	6,569.40
2028	1.32506	1.29320	3.90417	18.3838	0.02413	0.04410	24.7025	24.7466	0.04410	3.05100	3.09510	—	6,245.04	6,245.04	0.04328	0.53513	16.6047	6,422.19
2029	1.31773	1.25451	5.10758	17.6211	0.03620	0.06615	35.4220	35.4882	0.06615	4.19401	4.26016	—	7,504.30	7,504.30	0.04432	0.70988	17.4955	7,734.45
2030	1.26163	1.09658	4.95379	16.4005	0.03620	0.06615	35.4220	35.4882	0.06615	4.19401	4.26016	—	7,319.27	7,319.27	0.03844	0.70988	15.5120	7,547.29
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.34794	1.20835	4.41685	14.1278	0.02413	0.04410	24.7025	24.7466	0.04410	3.05100	3.09510	—	6,013.92	6,013.92	0.05506	0.54102	0.47936	6,177.00
2028	1.24915	1.18317	5.76943	13.6643	0.03620	0.06615	35.4220	35.4882	0.06615	4.19401	4.26016	—	7,324.20	7,324.20	0.05610	0.74884	0.50747	7,549.26
2029	1.20206	1.03424	5.46860	12.8040	0.03620	0.06615	35.4220	35.4882	0.06615	4.19401	4.26016	—	7,146.70	7,146.70	0.05021	0.71576	0.45335	7,361.71
2030	1.14908	0.98715	5.20708	11.9495	0.03620	0.06615	35.4220	35.4882	0.06615	4.19401	4.26016	—	6,968.83	6,968.83	0.05021	0.70988	0.40159	7,182.03
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.94887	0.85436	2.36229	10.8371	0.01150	0.02102	12.3583	12.3793	0.02102	1.61520	1.63621	—	3,652.98	3,652.98	0.04304	0.28762	5.00815	3,744.77
2028	0.88270	0.84302	3.26568	10.5035	0.01946	0.03556	19.3102	19.3457	0.03556	2.35799	2.39354	—	4,532.49	4,532.49	0.03962	0.42492	5.36260	4,665.47
2029	0.87148	0.75161	3.91302	10.0217	0.02585	0.04725	24.8891	24.9364	0.04725	2.95262	2.99987	—	5,164.73	5,164.73	0.03587	0.51126	5.39361	5,323.37
2030	0.82807	0.71075	3.53112	9.24478	0.02368	0.04328	22.9930	23.0363	0.04328	2.75024	2.79352	—	4,791.31	4,791.31	0.03568	0.47162	4.59895	4,937.35
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.17317	0.15592	0.43112	1.97776	0.00210	0.00384	2.25539	2.25922	0.00384	0.29477	0.29861	—	604.792	604.792	0.00713	0.04762	0.82916	619.990
2028	0.16109	0.15385	0.59599	1.91689	0.00355	0.00649	3.52411	3.53060	0.00649	0.43033	0.43682	—	750.405	750.405	0.00656	0.07035	0.88784	772.421
2029	0.15905	0.13717	0.71413	1.82897	0.00472	0.00862	4.54226	4.55089	0.00862	0.53885	0.54748	—	855.080	855.080	0.00594	0.08464	0.89297	881.345

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
2030	0.15112	0.12971	0.64443	1.68717	0.00432	0.00790	4.19622	4.20412	0.00790	0.50192	0.50982	—	793.256	793.256	0.00591	0.07808	0.76141	817.434

2.3. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	11.9781	11.5379	4.62259	27.4857	0.04964	0.26983	2.70238	2.97221	0.26272	0.68725	0.94997	165.357	1,270,790	1,270,956	95.3928	9.72497	8.71612	1,276,247
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	9.62765	9.35902	4.65073	12.4745	0.04651	0.24760	2.70238	2.94999	0.24593	0.68725	0.93317	165.357	1,270,498	1,270,664	95.3949	9.72993	0.22601	1,275,948
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	10.7366	10.3823	4.72850	19.3637	0.04745	0.25856	2.69104	2.94960	0.25421	0.68441	0.93862	165.357	1,270,581	1,270,746	95.3967	9.73140	3.76356	1,276,035
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.95942	1.89477	0.86295	3.53387	0.00866	0.04719	0.49111	0.53830	0.04639	0.12490	0.17130	27.3767	210,359	210,387	15.7940	1.61115	0.62310	211,262

2.4. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.44839	1.33632	1.67581	12.5793	0.03184	0.03164	2.70238	2.73402	0.02996	0.68725	0.71721	—	3,249.33	3,249.33	0.09444	0.16198	8.71612	3,308.68
Area	10.2171	10.0453	0.10534	12.5196	0.00075	0.02224	—	0.02224	0.01681	—	0.01681	—	51.4824	51.4824	0.00216	0.00044	—	51.6681
Energy	0.31256	0.15628	2.84145	2.38682	0.01705	0.21595	—	0.21595	0.21595	—	0.21595	—	1,267,382	1,267,382	78.7080	9.51038	—	1,272,184
Water	—	—	—	—	—	—	—	—	—	—	—	21.0786	107.560	128.639	2.16804	0.05216	—	198.384
Waste	—	—	—	—	—	—	—	—	—	—	—	144.278	0.00000	144.278	14.4201	0.00000	—	504.780
Total	11.9781	11.5379	4.62259	27.4857	0.04964	0.26983	2.70238	2.97221	0.26272	0.68725	0.94997	165.357	1,270,790	1,270,956	95.3928	9.72497	8.71612	1,276,247
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.32670	1.21435	1.80928	10.0877	0.02946	0.03165	2.70238	2.73404	0.02998	0.68725	0.71722	—	3,008.71	3,008.71	0.09875	0.16738	0.22601	3,061.28
Area	7.98839	7.98839	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.31256	0.15628	2.84145	2.38682	0.01705	0.21595	—	0.21595	0.21595	—	0.21595	—	1,267,382	1,267,382	78.7080	9.51038	—	1,272,184
Water	—	—	—	—	—	—	—	—	—	—	—	21.0786	107.560	128.639	2.16804	0.05216	—	198.384
Waste	—	—	—	—	—	—	—	—	—	—	—	144.278	0.00000	144.278	14.4201	0.00000	—	504.780
Total	9.62765	9.35902	4.65073	12.4745	0.04651	0.24760	2.70238	2.94999	0.24593	0.68725	0.93317	165.357	1,270,498	1,270,664	95.3949	9.72993	0.22601	1,275,948
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.33653	1.22330	1.83511	10.8028	0.03003	0.03165	2.69104	2.72268	0.02997	0.68441	0.71438	—	3,066.20	3,066.20	0.09948	0.16864	3.76356	3,122.71
Area	9.08748	9.00275	0.05195	6.17405	0.00037	0.01097	—	0.01097	0.00829	—	0.00829	—	25.3886	25.3886	0.00107	0.00022	—	25.4801

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Energy	0.31256	0.15628	2.84145	2.38682	0.01705	0.21595	—	0.21595	0.21595	—	0.21595	—	1,267,382	1,267,382	78.7080	9.51038	—	1,272,184
Water	—	—	—	—	—	—	—	—	—	—	—	21.0786	107.560	128.639	2.16804	0.05216	—	198.384
Waste	—	—	—	—	—	—	—	—	—	—	—	144.278	0.00000	144.278	14.4201	0.00000	—	504.780
Total	10.7366	10.3823	4.72850	19.3637	0.04745	0.25856	2.69104	2.94960	0.25421	0.68441	0.93862	165.357	1,270,581	1,270,746	95.3967	9.73140	3.76356	1,276,035
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.24392	0.22325	0.33491	1.97151	0.00548	0.00578	0.49111	0.49689	0.00547	0.12490	0.13037	—	507.645	507.645	0.01647	0.02792	0.62310	517.000
Area	1.65847	1.64300	0.00948	1.12676	0.00007	0.00200	—	0.00200	0.00151	—	0.00151	—	4.20337	4.20337	0.00018	0.00004	—	4.21853
Energy	0.05704	0.02852	0.51856	0.43559	0.00311	0.03941	—	0.03941	0.03941	—	0.03941	—	209,830	209,830	13.0310	1.57455	—	210,625
Water	—	—	—	—	—	—	—	—	—	—	—	3.48980	17.8078	21.2976	0.35894	0.00864	—	32.8447
Waste	—	—	—	—	—	—	—	—	—	—	—	23.8869	0.00000	23.8869	2.38741	0.00000	—	83.5722
Total	1.95942	1.89477	0.86295	3.53387	0.00866	0.04719	0.49111	0.53830	0.04639	0.12490	0.17130	27.3767	210,359	210,387	15.7940	1.61115	0.62310	211,262

3. Construction Emissions Details

3.1. Site/Civil (2027)

3.1.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.13136	0.98095	9.83500	19.1795	0.05069	0.22380	—	0.22380	0.20815	—	0.20815	—	4,856.61	4,856.61	0.19701	0.03940	—	4,873.28
Dust From Material Movement	—	—	—	—	—	—	0.01723	0.01723	—	0.00186	0.00186	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.13136	0.98095	9.83500	19.1795	0.05069	0.22380	—	0.22380	0.20815	—	0.20815	—	4,856.61	4,856.61	0.19701	0.03940	—	4,873.28
Dust From Material Movement	—	—	—	—	—	—	0.01723	0.01723	—	0.00186	0.00186	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53623	0.46494	4.66152	9.09054	0.02403	0.10607	—	0.10607	0.09866	—	0.09866	—	2,301.90	2,301.90	0.09338	0.01868	—	2,309.80

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Dust From Material Movement	—	—	—	—	—	—	0.00817	0.00817	—	0.00088	0.00088	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09786	0.08485	0.85073	1.65902	0.00439	0.01936	—	0.01936	0.01800	—	0.01800	—	381.106	381.106	0.01546	0.00309	—	382.414
Dust From Material Movement	—	—	—	—	—	—	0.00149	0.00149	—	0.00016	0.00016	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.1.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.2. Structural/Building Shell (2027)

3.2.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	1.42877	1.22344	10.0222	25.5508	0.05770	0.33726	—	0.33726	0.31257	—	0.31257	—	5,716.52	5,716.52	0.23189	0.04638	—	5,736.13
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.42877	1.22344	10.0222	25.5508	0.05770	0.33726	—	0.33726	0.31257	—	0.31257	—	5,716.52	5,716.52	0.23189	0.04638	—	5,736.13
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.34112	0.29209	2.39278	6.10020	0.01378	0.08052	—	0.08052	0.07463	—	0.07463	—	1,364.80	1,364.80	0.05536	0.01107	—	1,369.49
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06225	0.05331	0.43668	1.11329	0.00251	0.01469	—	0.01469	0.01362	—	0.01362	—	225.959	225.959	0.00917	0.00183	—	226.734
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.2.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.05742	0.05326	1.55667	0.59974	0.01207	0.02205	10.7195	10.7415	0.02205	1.14301	1.16506	—	1,483.91	1,483.91	0.00104	0.20782	3.37402	1,549.24
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.05326	0.04909	1.64716	0.60952	0.01207	0.02205	10.7195	10.7415	0.02205	1.14301	1.16506	—	1,485.52	1,485.52	0.00104	0.20782	0.08750	1,547.57
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.01346	0.01222	0.39092	0.14354	0.00288	0.00526	2.51441	2.51968	0.00526	0.26836	0.27363	—	354.442	354.442	0.00025	0.04962	0.34781	369.581
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00246	0.00223	0.07134	0.02620	0.00053	0.00096	0.45888	0.45984	0.00096	0.04898	0.04994	—	58.6818	58.6818	0.00004	0.00821	0.05758	61.1884
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3. Structural/Building Shell (2028)

3.3.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.40688	1.20505	9.61689	25.5809	0.05770	0.30672	—	0.30672	0.28447	—	0.28447	—	5,715.64	5,715.64	0.23185	0.04637	—	5,735.25
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.40688	1.20505	9.61689	25.5809	0.05770	0.30672	—	0.30672	0.28447	—	0.28447	—	5,715.64	5,715.64	0.23185	0.04637	—	5,735.25
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.92232	0.79000	6.30462	16.7703	0.03782	0.20108	—	0.20108	0.18650	—	0.18650	—	3,747.04	3,747.04	0.15200	0.03040	—	3,759.90
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16832	0.14418	1.15059	3.06057	0.00690	0.03670	—	0.03670	0.03404	—	0.03404	—	620.366	620.366	0.02516	0.00503	—	622.495

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.05742	0.05326	1.50737	0.56251	0.01207	0.02205	10.7195	10.7415	0.02205	1.14301	1.16506	—	1,444.35	1,444.35	0.00104	0.20782	2.97986	1,509.29
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.05221	0.03807	1.58684	0.58227	0.01207	0.02205	10.7195	10.7415	0.02205	1.14301	1.16506	—	1,445.96	1,445.96	0.00104	0.20782	0.07741	1,508.00
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.03559	0.02632	1.03388	0.37627	0.00791	0.01446	6.90433	6.91878	0.01446	0.73690	0.75136	—	947.327	947.327	0.00068	0.13624	0.84446	988.789
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Vendor	0.00650	0.00480	0.18868	0.06867	0.00144	0.00264	1.26004	1.26268	0.00264	0.13448	0.13712	—	156.841	156.841	0.00011	0.02256	0.13981	163.705
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4. Access/Aerial Lifts (2028)

3.4.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.54595	0.46237	2.93290	3.98041	0.01368	0.08203	—	0.08203	0.07567	—	0.07567	—	1,481.42	1,481.42	0.06009	0.01202	—	1,486.51
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03312	0.02805	0.17793	0.24147	0.00083	0.00498	—	0.00498	0.00459	—	0.00459	—	89.8710	89.8710	0.00365	0.00073	—	90.1794
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	0.00604	0.00512	0.03247	0.04407	0.00015	0.00091	—	0.00091	0.00084	—	0.00084	—	14.8792	14.8792	0.00060	0.00012	—	14.9302
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.05221	0.03807	1.58684	0.58227	0.01207	0.02205	10.7195	10.7415	0.02205	1.14301	1.16506	—	1,445.96	1,445.96	0.00104	0.20782	0.07741	1,508.00
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00329	0.00244	0.09567	0.03482	0.00073	0.00134	0.63891	0.64025	0.00134	0.06819	0.06953	—	87.6631	87.6631	0.00006	0.01261	0.07814	91.4999
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00060	0.00044	0.01746	0.00635	0.00013	0.00024	0.11660	0.11684	0.00024	0.01244	0.01269	—	14.5136	14.5136	0.00001	0.00209	0.01294	15.1489

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.5. Access/Aerial Lifts (2029)

3.5.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53738	0.45517	2.76500	3.94200	0.01369	0.07630	—	0.07630	0.07040	—	0.07040	—	1,481.95	1,481.95	0.06011	0.01202	—	1,487.04
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53738	0.45517	2.76500	3.94200	0.01369	0.07630	—	0.07630	0.07040	—	0.07040	—	1,481.95	1,481.95	0.06011	0.01202	—	1,487.04
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.38384	0.32512	1.97500	2.81571	0.00978	0.05450	—	0.05450	0.05028	—	0.05028	—	1,058.54	1,058.54	0.04294	0.00859	—	1,062.17

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07005	0.05933	0.36044	0.51387	0.00178	0.00995	—	0.00995	0.00918	—	0.00918	—	175.253	175.253	0.00711	0.00142	—	175.854
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.5.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.05742	0.04223	1.44392	0.53734	0.01207	0.02205	10.7195	10.7415	0.02205	1.14301	1.16506	—	1,403.03	1,403.03	0.00104	0.19679	2.63299	1,464.34
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.05221	0.03807	1.52443	0.55606	0.01207	0.02205	10.7195	10.7415	0.02205	1.14301	1.16506	—	1,404.65	1,404.65	0.00104	0.19679	0.06811	1,463.39
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.03878	0.02868	1.08977	0.39124	0.00862	0.01575	7.52262	7.53837	0.01575	0.80289	0.81864	—	1,002.66	1,002.66	0.00074	0.14057	0.80972	1,045.37
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00708	0.00523	0.19888	0.07140	0.00157	0.00287	1.37288	1.37575	0.00287	0.14653	0.14940	—	166.001	166.001	0.00012	0.02327	0.13406	173.074
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.6. Access/Aerial Lifts (2030)

3.6.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52875	0.44791	2.65371	3.93178	0.01369	0.07358	—	0.07358	0.06790	—	0.06790	—	1,481.95	1,481.95	0.06011	0.01202	—	1,487.04
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	0.52875	0.44791	2.65371	3.93178	0.01369	0.07358	—	0.07358	0.06790	—	0.06790	—	1,481.95	1,481.95	0.06011	0.01202	—	1,487.04
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.28248	0.23929	1.41774	2.10054	0.00731	0.03931	—	0.03931	0.03627	—	0.03627	—	791.728	791.728	0.03212	0.00642	—	794.445
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05155	0.04367	0.25874	0.38335	0.00133	0.00717	—	0.00717	0.00662	—	0.00662	—	131.080	131.080	0.00532	0.00106	—	131.530
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.6.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.05638	0.04119	1.39462	0.51112	0.01207	0.02205	10.7195	10.7415	0.02205	1.14301	1.16506	—	1,360.80	1,360.80	0.00104	0.19679	2.30190	1,421.78
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.05221	0.03807	1.47513	0.52985	0.01207	0.02205	10.7195	10.7415	0.02205	1.14301	1.16506	—	1,362.43	1,362.43	0.00104	0.19679	0.05960	1,421.16
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.02901	0.02145	0.78819	0.27862	0.00645	0.01178	5.62651	5.63829	0.01178	0.60052	0.61230	—	727.371	727.371	0.00056	0.10514	0.52982	759.245
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00529	0.00391	0.14385	0.05085	0.00118	0.00215	1.02684	1.02899	0.00215	0.10959	0.11174	—	120.425	120.425	0.00009	0.01741	0.08772	125.702
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.7. Mechanical/HVAC/Plumbing (2028)

3.7.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	468.666	468.510	3.35811	48.7568	0.02064	0.07356	—	0.07356	0.05701	—	0.05701	—	1,822.04	1,822.04	0.07536	0.01507	—	1,828.41
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	84.3783	84.3502	0.60459	8.77813	0.00372	0.01324	—	0.01324	0.01026	—	0.01026	—	328.038	328.038	0.01357	0.00271	—	329.185
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	15.3990	15.3939	0.11034	1.60201	0.00068	0.00242	—	0.00242	0.00187	—	0.00187	—	54.3104	54.3104	0.00225	0.00045	—	54.5004
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.7.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.05221	0.03807	1.58684	0.58227	0.01207	0.02205	10.7195	10.7415	0.02205	1.14301	1.16506	—	1,445.96	1,445.96	0.00104	0.20782	0.07741	1,508.00
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00978	0.00723	0.28393	0.10333	0.00217	0.00397	1.89611	1.90008	0.00397	0.20237	0.20634	—	260.162	260.162	0.00019	0.03742	0.23191	271.548
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00178	0.00132	0.05182	0.01886	0.00040	0.00072	0.34604	0.34677	0.00072	0.03693	0.03766	—	43.0727	43.0727	0.00003	0.00619	0.03840	44.9579
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.8. Mechanical/HVAC/Plumbing (2029)

3.8.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	468.611	468.463	3.24932	48.8525	0.02065	0.07360	—	0.07360	0.05704	—	0.05704	—	1,822.57	1,822.57	0.07538	0.01508	—	1,828.95
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	54.1057	54.0887	0.37517	5.64051	0.00238	0.00850	—	0.00850	0.00659	—	0.00659	—	210.434	210.434	0.00870	0.00174	—	211.170
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	9.87430	9.87118	0.06847	1.02939	0.00044	0.00155	—	0.00155	0.00120	—	0.00120	—	34.8398	34.8398	0.00144	0.00029	—	34.9617
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.8.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.05221	0.03807	1.52443	0.55606	0.01207	0.02205	10.7195	10.7415	0.02205	1.14301	1.16506	—	1,404.65	1,404.65	0.00104	0.19679	0.06811	1,463.39
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00627	0.00464	0.17615	0.06324	0.00139	0.00255	1.21599	1.21853	0.00255	0.12978	0.13233	—	162.073	162.073	0.00012	0.02272	0.13089	168.978
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00114	0.00085	0.03215	0.01154	0.00025	0.00046	0.22192	0.22238	0.00046	0.02369	0.02415	—	26.8331	26.8331	0.00002	0.00376	0.02167	27.9763
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.9. Electrcial/Low Voltage (2029)

3.9.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	0.05555	0.05555	1.43671	2.82290	0.01460	0.00709	—	0.00709	0.00709	—	0.00709	—	1,182.83	1,182.83	0.04798	0.00960	—	1,186.89
Architectural Coatings	13.9312	13.9312	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05555	0.05555	1.43671	2.82290	0.01460	0.00709	—	0.00709	0.00709	—	0.00709	—	1,182.83	1,182.83	0.04798	0.00960	—	1,186.89
Architectural Coatings	13.9312	13.9312	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03326	0.03326	0.86034	1.69042	0.00874	0.00424	—	0.00424	0.00424	—	0.00424	—	708.307	708.307	0.02873	0.00575	—	710.738
Architectural Coatings	8.34234	8.34234	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	0.00607	0.00607	0.15701	0.30850	0.00160	0.00077	—	0.00077	0.00077	—	0.00077	—	117.268	117.268	0.00476	0.00095	—	117.671
Architectural Coatings	1.52248	1.52248	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.9.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.05742	0.04223	1.44392	0.53734	0.01207	0.02205	10.7195	10.7415	0.02205	1.14301	1.16506	—	1,403.03	1,403.03	0.00104	0.19679	2.63299	1,464.34
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.05221	0.03807	1.52443	0.55606	0.01207	0.02205	10.7195	10.7415	0.02205	1.14301	1.16506	—	1,404.65	1,404.65	0.00104	0.19679	0.06811	1,463.39
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Vendor	0.03251	0.02404	0.91361	0.32800	0.00723	0.01320	6.30664	6.31984	0.01320	0.67311	0.68631	—	840.583	840.583	0.00062	0.11785	0.67883	876.395
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00593	0.00439	0.16673	0.05986	0.00132	0.00241	1.15096	1.15337	0.00241	0.12284	0.12525	—	139.168	139.168	0.00010	0.01951	0.11239	145.097
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.10. Electrcial/Low Voltage (2030)

3.10.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05555	0.05555	1.43671	2.82290	0.01460	0.00709	—	0.00709	0.00709	—	0.00709	—	1,182.83	1,182.83	0.04798	0.00960	—	1,186.89
Architectural Coatings	13.9312	13.9312	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	0.05555	0.05555	1.43671	2.82290	0.01460	0.00709	—	0.00709	0.00709	—	0.00709	—	1,182.83	1,182.83	0.04798	0.00960	—	1,186.89
Architectural Coatings	13.9312	13.9312	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03968	0.03968	1.02622	2.01635	0.01043	0.00506	—	0.00506	0.00506	—	0.00506	—	844.879	844.879	0.03427	0.00685	—	847.779
Architectural Coatings	9.95083	9.95083	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00724	0.00724	0.18729	0.36798	0.00190	0.00092	—	0.00092	0.00092	—	0.00092	—	139.879	139.879	0.00567	0.00113	—	140.359
Architectural Coatings	1.81603	1.81603	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.10.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.05638	0.04119	1.39462	0.51112	0.01207	0.02205	10.7195	10.7415	0.02205	1.14301	1.16506	—	1,360.80	1,360.80	0.00104	0.19679	2.30190	1,421.78
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.05221	0.03807	1.47513	0.52985	0.01207	0.02205	10.7195	10.7415	0.02205	1.14301	1.16506	—	1,362.43	1,362.43	0.00104	0.19679	0.05960	1,421.16
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.03878	0.02868	1.05381	0.37252	0.00862	0.01575	7.52262	7.53837	0.01575	0.80289	0.81864	—	972.492	972.492	0.00074	0.14057	0.70836	1,015.11
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vendor	0.00708	0.00523	0.19232	0.06798	0.00157	0.00287	1.37288	1.37575	0.00287	0.14653	0.14940	—	161.007	161.007	0.00012	0.02327	0.11728	168.063
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.11. Temporary Faciities (2027)

3.11.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	—	—	—	—	0.00725	—	—	—	—	—	—	—	519.202	519.202	0.02106	0.00421	—	520.984
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	—	—	—	—	0.00725	—	—	—	—	—	—	—	519.202	519.202	0.02106	0.00421	—	520.984
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	—	—	—	—	0.00518	—	—	—	—	—	—	—	370.859	370.859	0.01504	0.00301	—	372.131
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	—	—	—	—	0.00094	—	—	—	—	—	—	—	61.3999	61.3999	0.00249	0.00050	—	61.6106

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.11.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.35916	1.23966	1.00303	18.5202	0.00000	0.00000	3.26357	3.26357	0.00000	0.76497	0.76497	—	3,420.65	3,420.65	0.04709	0.12538	11.7226	3,470.92
Vendor	0.05742	0.05326	1.55667	0.59974	0.01207	0.02205	10.7195	10.7415	0.02205	1.14301	1.16506	—	1,483.91	1,483.91	0.00104	0.20782	3.37402	1,549.24
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.24143	1.11016	1.12253	12.9087	0.00000	0.00000	3.26357	3.26357	0.00000	0.76497	0.76497	—	3,042.87	3,042.87	0.05298	0.12538	0.30435	3,081.86
Vendor	0.05326	0.04909	1.64716	0.60952	0.01207	0.02205	10.7195	10.7415	0.02205	1.14301	1.16506	—	1,485.52	1,485.52	0.00104	0.20782	0.08750	1,547.57
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.89514	0.80559	0.80180	10.2641	0.00000	0.00000	2.32124	2.32124	0.00000	0.54394	0.54394	—	2,238.12	2,238.12	0.04205	0.08956	3.61975	2,269.48
Vendor	0.04027	0.03655	1.16956	0.42943	0.00862	0.01575	7.52262	7.53837	0.01575	0.80289	0.81864	—	1,060.42	1,060.42	0.00074	0.14844	1.04058	1,105.71
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16336	0.14702	0.14633	1.87320	0.00000	0.00000	0.42363	0.42363	0.00000	0.09927	0.09927	—	370.546	370.546	0.00696	0.01483	0.59929	375.738

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Vendor	0.00735	0.00667	0.21345	0.07837	0.00157	0.00287	1.37288	1.37575	0.00287	0.14653	0.14940	—	175.565	175.565	0.00012	0.02458	0.17228	183.064
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.12. Temporary Faciities (2028)

3.12.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	—	—	—	—	0.00725	—	—	—	—	—	—	—	519.196	519.196	0.02106	0.00421	—	520.978
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	—	—	—	—	0.00725	—	—	—	—	—	—	—	519.196	519.196	0.02106	0.00421	—	520.978
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	—	—	—	—	0.00519	—	—	—	—	—	—	—	371.870	371.870	0.01508	0.00302	—	373.146
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	—	—	—	—	0.00095	—	—	—	—	—	—	—	61.5674	61.5674	0.00250	0.00050	—	61.7787
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.12.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.21023	1.18669	0.88943	17.2588	0.00000	0.00000	3.26357	3.26357	0.00000	0.76497	0.76497	—	3,356.33	3,356.33	0.04120	0.11949	10.6450	3,403.61
Vendor	0.05742	0.05326	1.50737	0.56251	0.01207	0.02205	10.7195	10.7415	0.02205	1.14301	1.16506	—	1,444.35	1,444.35	0.00104	0.20782	2.97986	1,509.29
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.09251	1.06896	1.00892	11.9175	0.00000	0.00000	3.26357	3.26357	0.00000	0.76497	0.76497	—	2,986.31	2,986.31	0.05298	0.12538	0.27523	3,025.27
Vendor	0.05221	0.03807	1.58684	0.58227	0.01207	0.02205	10.7195	10.7415	0.02205	1.14301	1.16506	—	1,445.96	1,445.96	0.00104	0.20782	0.07741	1,508.00
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.79515	0.77828	0.72263	9.57802	0.00000	0.00000	2.32760	2.32760	0.00000	0.54543	0.54543	—	2,202.35	2,202.35	0.03794	0.08980	3.28548	2,233.34
Vendor	0.03889	0.02876	1.12956	0.41109	0.00864	0.01579	7.54323	7.55903	0.01579	0.80509	0.82089	—	1,034.99	1,034.99	0.00074	0.14885	0.92260	1,080.29
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14511	0.14204	0.13188	1.74799	0.00000	0.00000	0.42479	0.42479	0.00000	0.09954	0.09954	—	364.624	364.624	0.00628	0.01487	0.54395	369.755
Vendor	0.00710	0.00525	0.20614	0.07502	0.00158	0.00288	1.37664	1.37952	0.00288	0.14693	0.14981	—	171.355	171.355	0.00012	0.02464	0.15275	178.854
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.13. Temporary Faciities (2029)

3.13.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	—	—	—	—	0.00725	—	—	—	—	—	—	—	519.212	519.212	0.02106	0.00421	—	520.994
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	—	—	—	—	0.00725	—	—	—	—	—	—	—	519.212	519.212	0.02106	0.00421	—	520.994
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	—	—	—	—	0.00518	—	—	—	—	—	—	—	370.866	370.866	0.01504	0.00301	—	372.138
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	—	—	—	—	0.00094	—	—	—	—	—	—	—	61.4010	61.4010	0.00249	0.00050	—	61.6117
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.13.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.14548	1.12782	0.77582	16.0091	0.00000	0.00000	3.26357	3.26357	0.00000	0.76497	0.76497	—	3,295.20	3,295.20	0.04120	0.11949	9.59650	3,341.44
Vendor	0.05742	0.04223	1.44392	0.53734	0.01207	0.02205	10.7195	10.7415	0.02205	1.14301	1.16506	—	1,403.03	1,403.03	0.00104	0.19679	2.63299	1,464.34
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.04541	0.92004	0.89531	11.1358	0.00000	0.00000	3.26357	3.26357	0.00000	0.76497	0.76497	—	2,932.74	2,932.74	0.04709	0.12538	0.24901	2,971.53
Vendor	0.05221	0.03807	1.52443	0.55606	0.01207	0.02205	10.7195	10.7415	0.02205	1.14301	1.16506	—	1,404.65	1,404.65	0.00104	0.19679	0.06811	1,463.39
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.75513	0.66558	0.64371	8.84801	0.00000	0.00000	2.32124	2.32124	0.00000	0.54394	0.54394	—	2,156.76	2,156.76	0.03364	0.08956	2.96445	2,187.25
Vendor	0.03878	0.02868	1.08977	0.39124	0.00862	0.01575	7.52262	7.53837	0.01575	0.80289	0.81864	—	1,002.66	1,002.66	0.00074	0.14057	0.80972	1,045.37
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13781	0.12147	0.11748	1.61476	0.00000	0.00000	0.42363	0.42363	0.00000	0.09927	0.09927	—	357.076	357.076	0.00557	0.01483	0.49080	362.125
Vendor	0.00708	0.00523	0.19888	0.07140	0.00157	0.00287	1.37288	1.37575	0.00287	0.14653	0.14940	—	166.001	166.001	0.00012	0.02327	0.13406	173.074
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.14. Temporary Faciities (2030)

3.14.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	—	—	—	—	0.00725	—	—	—	—	—	—	—	519.215	519.215	0.02106	0.00421	—	520.996
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	—	—	—	—	0.00725	—	—	—	—	—	—	—	519.215	519.215	0.02106	0.00421	—	520.996
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	—	—	—	—	0.00518	—	—	—	—	—	—	—	370.868	370.868	0.01504	0.00301	—	372.140
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	—	—	—	—	0.00094	—	—	—	—	—	—	—	61.4014	61.4014	0.00249	0.00050	—	61.6121
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.14.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.09251	0.97301	0.76993	14.8671	0.00000	0.00000	3.26357	3.26357	0.00000	0.76497	0.76497	—	3,236.86	3,236.86	0.03532	0.11949	8.60627	3,281.96
Vendor	0.05638	0.04119	1.39462	0.51112	0.01207	0.02205	10.7195	10.7415	0.02205	1.14301	1.16506	—	1,360.80	1,360.80	0.00104	0.19679	2.30190	1,421.78
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.99244	0.87294	0.78171	10.3600	0.00000	0.00000	3.26357	3.26357	0.00000	0.76497	0.76497	—	2,881.56	2,881.56	0.04709	0.11949	0.22280	2,918.57
Vendor	0.05221	0.03807	1.47513	0.52985	0.01207	0.02205	10.7195	10.7415	0.02205	1.14301	1.16506	—	1,362.43	1,362.43	0.00104	0.19679	0.05960	1,421.16
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.72150	0.63194	0.63530	8.22112	0.00000	0.00000	2.32124	2.32124	0.00000	0.54394	0.54394	—	2,118.96	2,118.96	0.03364	0.08535	2.65240	2,147.88
Vendor	0.03878	0.02868	1.05381	0.37252	0.00862	0.01575	7.52262	7.53837	0.01575	0.80289	0.81864	—	972.492	972.492	0.00074	0.14057	0.70836	1,015.11
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13167	0.11533	0.11594	1.50035	0.00000	0.00000	0.42363	0.42363	0.00000	0.09927	0.09927	—	350.817	350.817	0.00557	0.01413	0.43914	355.607
Vendor	0.00708	0.00523	0.19232	0.06798	0.00157	0.00287	1.37288	1.37575	0.00287	0.14653	0.14940	—	161.007	161.007	0.00012	0.02327	0.11728	168.063
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	1.44839	1.33632	1.67581	12.5793	0.03184	0.03164	2.70238	2.73402	0.02996	0.68725	0.71721	—	3,249.33	3,249.33	0.09444	0.16198	8.71612	3,308.68
Total	1.44839	1.33632	1.67581	12.5793	0.03184	0.03164	2.70238	2.73402	0.02996	0.68725	0.71721	—	3,249.33	3,249.33	0.09444	0.16198	8.71612	3,308.68
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	1.32670	1.21435	1.80928	10.0877	0.02946	0.03165	2.70238	2.73404	0.02998	0.68725	0.71722	—	3,008.71	3,008.71	0.09875	0.16738	0.22601	3,061.28
Total	1.32670	1.21435	1.80928	10.0877	0.02946	0.03165	2.70238	2.73404	0.02998	0.68725	0.71722	—	3,008.71	3,008.71	0.09875	0.16738	0.22601	3,061.28
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.24392	0.22325	0.33491	1.97151	0.00548	0.00578	0.49111	0.49689	0.00547	0.12490	0.13037	—	507.645	507.645	0.01647	0.02792	0.62310	517.000
Total	0.24392	0.22325	0.33491	1.97151	0.00548	0.00578	0.49111	0.49689	0.00547	0.12490	0.13037	—	507.645	507.645	0.01647	0.02792	0.62310	517.000

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	1,263,992	1,263,992	78.4080	9.50400	—	1,268,784
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,263,992	1,263,992	78.4080	9.50400	—	1,268,784
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	1,263,992	1,263,992	78.4080	9.50400	—	1,268,784
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,263,992	1,263,992	78.4080	9.50400	—	1,268,784
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	209,268	209,268	12.9813	1.57350	—	210,062
Total	—	—	—	—	—	—	—	—	—	—	—	—	209,268	209,268	12.9813	1.57350	—	210,062

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.31256	0.15628	2.84145	2.38682	0.01705	0.21595	—	0.21595	0.21595	—	0.21595	—	3,390.32	3,390.32	0.30004	0.00638	—	3,399.72
Total	0.31256	0.15628	2.84145	2.38682	0.01705	0.21595	—	0.21595	0.21595	—	0.21595	—	3,390.32	3,390.32	0.30004	0.00638	—	3,399.72
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.31256	0.15628	2.84145	2.38682	0.01705	0.21595	—	0.21595	0.21595	—	0.21595	—	3,390.32	3,390.32	0.30004	0.00638	—	3,399.72
Total	0.31256	0.15628	2.84145	2.38682	0.01705	0.21595	—	0.21595	0.21595	—	0.21595	—	3,390.32	3,390.32	0.30004	0.00638	—	3,399.72
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.05704	0.02852	0.51856	0.43559	0.00311	0.03941	—	0.03941	0.03941	—	0.03941	—	561.306	561.306	0.04968	0.00106	—	562.863
Total	0.05704	0.02852	0.51856	0.43559	0.00311	0.03941	—	0.03941	0.03941	—	0.03941	—	561.306	561.306	0.04968	0.00106	—	562.863

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	6.16016	6.16016	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	1.82823	1.82823	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	2.22872	2.05689	0.10534	12.5196	0.00075	0.02224	—	0.02224	0.01681	—	0.01681	—	51.4824	51.4824	0.00216	0.00044	—	51.6681
Total	10.2171	10.0453	0.10534	12.5196	0.00075	0.02224	—	0.02224	0.01681	—	0.01681	—	51.4824	51.4824	0.00216	0.00044	—	51.6681
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	6.16016	6.16016	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	1.82823	1.82823	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	7.98839	7.98839	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.12423	1.12423	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.33365	0.33365	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Landscape Equipment	0.20058	0.18512	0.00948	1.12676	0.00007	0.00200	—	0.00200	0.00151	—	0.00151	—	4.20337	4.20337	0.00018	0.00004	—	4.21853
Total	1.65847	1.64300	0.00948	1.12676	0.00007	0.00200	—	0.00200	0.00151	—	0.00151	—	4.20337	4.20337	0.00018	0.00004	—	4.21853

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	21.0786	107.560	128.639	2.16804	0.05216	—	198.384
Total	—	—	—	—	—	—	—	—	—	—	—	21.0786	107.560	128.639	2.16804	0.05216	—	198.384
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	21.0786	107.560	128.639	2.16804	0.05216	—	198.384
Total	—	—	—	—	—	—	—	—	—	—	—	21.0786	107.560	128.639	2.16804	0.05216	—	198.384
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
General Office Building	—	—	—	—	—	—	—	—	—	—	—	3.48980	17.8078	21.2976	0.35894	0.00864	—	32.8447
Total	—	—	—	—	—	—	—	—	—	—	—	3.48980	17.8078	21.2976	0.35894	0.00864	—	32.8447

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	144.278	0.00000	144.278	14.4201	0.00000	—	504.780
Total	—	—	—	—	—	—	—	—	—	—	—	144.278	0.00000	144.278	14.4201	0.00000	—	504.780
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	144.278	0.00000	144.278	14.4201	0.00000	—	504.780
Total	—	—	—	—	—	—	—	—	—	—	—	144.278	0.00000	144.278	14.4201	0.00000	—	504.780
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
General Office Building	—	—	—	—	—	—	—	—	—	—	—	23.8869	0.00000	23.8869	2.38741	0.00000	—	83.5722
Total	—	—	—	—	—	—	—	—	—	—	—	23.8869	0.00000	23.8869	2.38741	0.00000	—	83.5722

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site/Civil	Grading	1/1/2027	8/31/2027	5.00000	173.000	—
Structural/Building Shell	Building Construction	9/1/2027	11/30/2028	5.00000	327.000	—
Access/Aerial Lifts	Building Construction	12/1/2028	9/30/2030	5.00000	477.000	—
Mechanical/HVAC/ Plumbing	Building Construction	10/1/2028	2/28/2029	5.00000	108.000	—
Electrcial/Low Voltage	Building Construction	3/1/2029	12/31/2030	5.00000	479.000	—
Temporary Faciities	Building Construction	1/1/2027	12/31/2030	5.00000	1,043.00	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site/Civil	Tractors/Loaders/ Backhoes	Diesel	Tier 4 Final	1.000000	2.00000	84.0000	0.37000
Site/Civil	Graders	Diesel	Tier 4 Final	1.000000	1.000000	148.000	0.41000
Site/Civil	Excavators	Diesel	Tier 4 Final	2.00000	3.00000	36.0000	0.38000
Site/Civil	Skid Steer Loaders	Diesel	Tier 4 Final	1.000000	6.00000	71.0000	0.37000
Site/Civil	Rollers	Diesel	Tier 4 Final	1.000000	2.00000	36.0000	0.38000
Site/Civil	Plate Compactors	Diesel	Tier 4 Final	1.000000	4.00000	8.00000	0.43000
Site/Civil	Pavers	Diesel	Tier 4 Final	1.000000	1.000000	81.0000	0.42000
Site/Civil	Off-Highway Trucks	Diesel	Tier 4 Final	2.00000	2.00000	376.000	0.38000
Site/Civil	Off-Highway Trucks	Diesel	Average	1.000000	8.00000	376.000	0.38000
Site/Civil	Other Material Handling Equipment	Diesel	Average	3.00000	8.00000	93.0000	0.40000
Site/Civil	Generator Sets	Diesel	Tier 4 Final	9.00000	8.00000	14.0000	0.74000
Site/Civil	Air Compressors	Diesel	Tier 4 Final	2.00000	8.00000	37.0000	0.48000
Structural/Building Shell	Tractors/Loaders/ Backhoes	Diesel	Average	3.00000	7.00000	84.0000	0.37000
Structural/Building Shell	Generator Sets	Diesel	Tier 4 Final	10.00000	8.00000	14.0000	0.74000
Structural/Building Shell	Cranes	Diesel	Tier 4 Final	1.000000	2.00000	367.000	0.29000
Structural/Building Shell	Cranes	Diesel	Tier 4 Final	1.000000	1.000000	367.000	0.29000

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Structural/Building Shell	Other Construction Equipment	Diesel	Average	1.000000	4.00000	82.0000	0.42000
Structural/Building Shell	Rough Terrain Forklifts	Diesel	Tier 4 Final	1.000000	4.00000	96.0000	0.40000
Structural/Building Shell	Paving Equipment	Diesel	Average	1.000000	1.000000	89.0000	0.36000
Structural/Building Shell	Other Construction Equipment	Diesel	Tier 4 Final	3.00000	8.00000	82.0000	0.42000
Structural/Building Shell	Other Material Handling Equipment	Diesel	Average	3.00000	8.00000	93.0000	0.40000
Structural/Building Shell	Off-Highway Trucks	Diesel	Average	1.000000	7.00000	376.000	0.38000
Access/Aerial Lifts	Aerial Lifts	Diesel	Tier 4 Final	2.00000	3.00000	46.0000	0.31000
Access/Aerial Lifts	Aerial Lifts	Diesel	Tier 4 Final	1.000000	2.00000	46.0000	0.31000
Access/Aerial Lifts	Off-Highway Trucks	Diesel	Average	1.000000	8.00000	376.000	0.38000
Mechanical/HVAC/ Plumbing	Generator Sets	Diesel	Tier 4 Final	3.00000	8.00000	14.0000	0.74000
Mechanical/HVAC/ Plumbing	Welders	Diesel	Tier 4 Final	4.00000	2.00000	46.0000	0.45000
Mechanical/HVAC/ Plumbing	Bore/Drill Rigs	Diesel	Tier 4 Final	1.000000	2.00000	83.0000	0.50000
Mechanical/HVAC/ Plumbing	Air Compressors	Diesel	Tier 4 Final	1.000000	1.000000	37.0000	0.48000
Mechanical/HVAC/ Plumbing	Pumps	Diesel	Tier 4 Final	3.00000	7.00000	11.0000	0.74000
Mechanical/HVAC/ Plumbing	Cranes	Gasoline	Average	2.00000	8.00000	74.0000	0.47000

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Electrcial/Low Voltage	Generator Sets	Diesel	Tier 4 Final	7.00000	4.00000	14.0000	0.74000
Electrcial/Low Voltage	Tractors/Loaders/ Backhoes	Diesel	Tier 4 Final	1.000000	3.00000	84.0000	0.37000
Electrcial/Low Voltage	Generator Sets	Diesel	Tier 4 Final	4.00000	8.00000	14.0000	0.74000
Electrcial/Low Voltage	Aerial Lifts	Diesel	Tier 4 Final	2.00000	8.00000	46.0000	0.31000
Temporary Faciities	Generator Sets	Diesel	Tier 4 Final	5.00000	8.00000	14.0000	0.74000

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site/Civil	Worker	0.00000	17.3000	LDA,LDT1,LDT2
Site/Civil	Vendor	—	10.6000	HHDT,MHDT
Site/Civil	Hauling	0.00000	20.0000	HHDT
Site/Civil	Onsite truck	—	—	HHDT
Structural/Building Shell	Worker	0.00000	17.3000	LDA,LDT1,LDT2
Structural/Building Shell	Vendor	47.1799	10.6000	HHDT,MHDT
Structural/Building Shell	Hauling	0.00000	20.0000	HHDT
Structural/Building Shell	Onsite truck	—	—	HHDT
Access/Aerial Lifts	Worker	0.00000	17.3000	LDA,LDT1,LDT2
Access/Aerial Lifts	Vendor	47.1799	10.6000	HHDT,MHDT
Access/Aerial Lifts	Hauling	0.00000	20.0000	HHDT

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Access/Aerial Lifts	Onsite truck	—	—	HHDT
Mechanical/HVAC/Plumbing	Worker	0.00000	17.3000	LDA,LDT1,LDT2
Mechanical/HVAC/Plumbing	Vendor	47.1799	10.6000	HHDT,MHDT
Mechanical/HVAC/Plumbing	Hauling	0.00000	20.0000	HHDT
Mechanical/HVAC/Plumbing	Onsite truck	—	—	HHDT
Electrcial/Low Voltage	Worker	0.00000	17.3000	LDA,LDT1,LDT2
Electrcial/Low Voltage	Vendor	47.1799	10.6000	HHDT,MHDT
Electrcial/Low Voltage	Hauling	0.00000	20.0000	HHDT
Electrcial/Low Voltage	Onsite truck	—	—	HHDT
Temporary Faciities	Worker	267.000	17.3000	LDA,LDT1,LDT2
Temporary Faciities	Vendor	47.1799	10.6000	HHDT,MHDT
Temporary Faciities	Hauling	0.00000	20.0000	HHDT
Temporary Faciities	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Electrcial/Low Voltage	0.00000	0.00000	431,787	143,929	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site/Civil	—	—	10.8125	0.00000	0.00000
Mechanical/HVAC/Plumbing	0.00000	0.00000	0.00000	0.00000	0.00000

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%

5.7. Construction Paving

Phase Name	Land Use	Area Paved (acres)	% Asphalt
Mechanical/HVAC/Plumbing	General Office Building	0.00000	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2027	0.00000	531.983	0.03300	0.00400

Year	kWh per Year	CO2	CH4	N2O
2028	0.00000	531.983	0.03300	0.00400
2029	0.00000	531.983	0.03300	0.00400
2030	0.00000	531.983	0.03300	0.00400

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Office Building	241.801	241.801	241.801	88,257.3	3,789.41	3,789.41	3,789.41	1,383,134

5.10. Operational Area Sources

5.10.1. Hearths

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
General Office Building	Wood Fireplaces	0	0
General Office Building	Gas Fireplaces	0	0
General Office Building	Propane Fireplaces	0	0
General Office Building	Electric Fireplaces	0	0
General Office Building	No Fireplaces	0	0
General Office Building	Conventional Wood Stoves	0	0
General Office Building	Catalytic Wood Stoves	0	0

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
General Office Building	Non-Catalytic Wood Stoves	0	0
General Office Building	Pellet Wood Stoves	0	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0.00000	0.00000	431,787	143,929	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00000
Summer Days	day/yr	180.000

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Office Building	867,240,000	531.983	0.0330	0.0040	10,578,708

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Office Building	11,000,000	2,467,977

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Office Building	267.708	0.00000

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	29.3400	annual days of extreme heat

Climate Hazard	Result for Project Location	Unit
Extreme Precipitation	0.00000	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.54000	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	1	0	0	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	0	0	0	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	1	1	1	2
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	1	1	1	2
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	80.0871
AQ-PM	6.64592
AQ-DPM	5.38892
Drinking Water	77.4822
Lead Risk Housing	27.8639
Pesticides	44.3793
Toxic Releases	1.27532
Traffic	1.50000
Effect Indicators	—
CleanUp Sites	59.6305
Groundwater	47.4680
Haz Waste Facilities/Generators	92.5215
Impaired Water Bodies	0.00000
Solid Waste	92.0046
Sensitive Population	—
Asthma	79.1251
Cardio-vascular	96.3983
Low Birth Weights	77.0464
Socioeconomic Factor Indicators	—

Indicator	Result for Project Census Tract
Education	35.2189
Housing	26.6667
Linguistic	51.5090
Poverty	56.8467
Unemployment	78.9693

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	57.61580906
Employed	21.37815989
Median HI	60.81098422
Education	—
Bachelor's or higher	65.96945977
High school enrollment	20.23610933
Preschool enrollment	5.941229308
Transportation	—
Auto Access	42.10188631
Active commuting	13.71743873
Social	—

Indicator	Result for Project Census Tract
2-parent households	30.55306044
Voting	82.72808931
Neighborhood	—
Alcohol availability	87.97638907
Park access	21.50648017
Retail density	0.988066213
Supermarket access	13.38380598
Tree canopy	0.192480431
Housing	—
Homeownership	84.11394842
Housing habitability	74.6439112
Low-inc homeowner severe housing cost burden	63.71102271
Low-inc renter severe housing cost burden	77.98023868
Uncrowded housing	67.80443988
Health Outcomes	—
Insured adults	67.2783267
Arthritis	0.0
Asthma ER Admissions	26.6
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0

Indicator	Result for Project Census Tract
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	9.7
Cognitively Disabled	15.9
Physically Disabled	16.6
Heart Attack ER Admissions	0.1
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	65.0
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	87.9

Indicator	Result for Project Census Tract
Elderly	11.1
English Speaking	90.2
Foreign-born	1.5
Outdoor Workers	36.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	94.5
Traffic Density	1.9
Traffic Access	0.0
Other Indices	—
Hardship	37.8
Other Decision Support	—
2016 Voting	74.8

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	66.0000
Healthy Places Index Score for Project Location (b)	43.0000
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

8.1. Justifications

Screen	Justification
Land Use	Actual acreage
Construction: Construction Phases	Estimated Construction Schedule of 48 months
Construction: Off-Road Equipment	Anticipated Equipment list and schedule
Construction: Trips and VMT	All worker trips put in the Temporary Facilities Phase since it runs the entire 48 months
Construction: On-Road Fugitive Dust	Estimated 1.4% of travel will be on unpaved roads for trucks
Operations: Vehicle Data	241 ADTs per traffic study
Operations: Energy Use	Estimated based on 99MW
Operations: Water and Waste Water	Estimated 11 million gallons per year for cooling

Screen	Justification
Operations: Refrigerants	Refrigerates were calculated seperately

8.3. Land Use

Model Parameter	Units	Default Value	New Value
Lot Area	acre	6.60831	41.2000
Landscape Area	sq. ft	—	130,000

8.4. Construction

8.4.2. Off-Road Equipment

Phase Name	Equipment Type	Model Parameter	Default Value	New Value
Site/Civil	Tractors/Loaders/Backhoes	Engine Tier	Average	Tier 4 Final
Site/Civil	Tractors/Loaders/Backhoes	Number per Day	2.00000	1.000000
Site/Civil	Tractors/Loaders/Backhoes	Hours Per Day	8.00000	2.00000
Site/Civil	Graders	Engine Tier	Average	Tier 4 Final
Site/Civil	Graders	Hours Per Day	8.00000	1.000000
Site/Civil	Excavators	Engine Tier	Average	Tier 4 Final
Site/Civil	Excavators	Hours Per Day	8.00000	3.00000
Site/Civil	Off-Highway Trucks	Engine Tier	Average	Tier 4 Final
Site/Civil	Other Material Handling Equipment	Number per Day	1.000000	3.00000
Site/Civil	Generator Sets	Engine Tier	Average	Tier 4 Final

Phase Name	Equipment Type	Model Parameter	Default Value	New Value
Site/Civil	Generator Sets	Number per Day	3.00000	9.00000
Structural/Building Shell	Generator Sets	Engine Tier	Average	Tier 4 Final
Structural/Building Shell	Generator Sets	Number per Day	1.000000	10.00000
Structural/Building Shell	Cranes	Engine Tier	Average	Tier 4 Final
Structural/Building Shell	Cranes	Hours Per Day	7.00000	2.00000
Access/Aerial Lifts	Aerial Lifts	Number per Day	1.000000	2.00000
Mechanical/HVAC/Plumbing	Generator Sets	Engine Tier	Average	Tier 4 Final
Mechanical/HVAC/Plumbing	Generator Sets	Number per Day	1.000000	3.00000
Mechanical/HVAC/Plumbing	Welders	Engine Tier	Average	Tier 4 Final
Mechanical/HVAC/Plumbing	Welders	Number per Day	1.000000	4.00000
Mechanical/HVAC/Plumbing	Welders	Hours Per Day	8.00000	2.00000
Electrcial/Low Voltage	Generator Sets	Engine Tier	Average	Tier 4 Final
Electrcial/Low Voltage	Generator Sets	Number per Day	1.000000	7.00000
Electrcial/Low Voltage	Generator Sets	Hours Per Day	8.00000	4.00000
Electrcial/Low Voltage	Tractors/Loaders/Backhoes	Engine Tier	Average	Tier 4 Final
Electrcial/Low Voltage	Tractors/Loaders/Backhoes	Number per Day	3.00000	1.000000
Electrcial/Low Voltage	Tractors/Loaders/Backhoes	Hours Per Day	7.00000	3.00000
Temporary Faciities	Generator Sets	Engine Tier	Average	Tier 4 Final
Temporary Faciities	Generator Sets	Number per Day	1.000000	5.00000

8.4.6. Trips and VMT

Phase Name	Trip Type	Model Parameter	Default Value	New Value
Site/Civil	Worker	One-Way Trips per Day	62.5000	0.00000
Structural/Building Shell	Worker	One-Way Trips per Day	92.1146	0.00000
Access/Aerial Lifts	Worker	One-Way Trips per Day	92.1146	0.00000
Mechanical/HVAC/Plumbing	Worker	One-Way Trips per Day	92.1146	0.00000
Electrcial/Low Voltage	Worker	One-Way Trips per Day	92.1146	0.00000
Temporary Faciities	Worker	One-Way Trips per Day	92.1146	267.000

8.4.7. On-Road Fugitive Dust

Phase Name	Model Parameter	Units	Default Value	New Value
Site/Civil	Vendor Trip Paved	%	100.0000	98.6000
Structural/Building Shell	Vendor Trip Paved	%	100.0000	98.6000
Access/Aerial Lifts	Vendor Trip Paved	%	100.0000	98.6000
Mechanical/HVAC/Plumbing	Vendor Trip Paved	%	100.0000	98.6000
Electrcial/Low Voltage	Vendor Trip Paved	%	100.0000	98.6000
Temporary Faciities	Vendor Trip Paved	%	100.0000	98.6000

8.5. Operations

8.5.1. Mobile Sources

8.5.1.1. Vehicle Data

Land Use	Model Parameter	Units	Default Value	New Value
General Office Building	Weekday Trip Rate	size/day	9.74000	0.84000
General Office Building	Saturday Trip Rate	size/day	2.21000	0.84000
General Office Building	Sunday Trip Rate	size/day	0.70000	0.84000

8.5.3. Energy Usage

Land Use	Model Parameter	Units	Default Value	New Value
General Office Building	Electricity	kWh/yr	5,555,409	867,240,000
General Office Building	Electricity (Subject to Title 24)	kWh/yr	4,514,973	704,820,408
General Office Building	Electricity (Not Subject to Title 24)	kWh/yr	1,040,435	162,419,592

8.5.4. Water and Waste Water

Land Use	Model Parameter	Units	Default Value	New Value
General Office Building	Indoor Water	gal/year	51,162,081	11,000,000

Cooling Towers PM Emission Calculations

Project:	RB Inyokern DataCenter	
Water Source:	On-site Well	
# of Identical Towers:	2	
# of Cells per Tower:	4	
Operational Schedule:	24	Hrs/day
	365	days/yr
Total Tower Circulation Rate:	13,115	gpm
Total Dissolved Solids (TDS):	500	ppm (estimated average)
Control Efficiency of Drift eliminators:	0.002%	
PM2.5 fraction of PM10:	0.20	(Conservative estimate for estimated TDS and high-efficiency eliminators at a data center)
Methodology:	AP-42 Section 13.4	

	Per Tower	Per Cell	All Towers
PM10 Emissions (lbs/hr)	0.066	0.016	0.131
PM10 Emissions (lbs/day)	1.575	0.394	3.150
PM10 Emissions (tpy)	0.287	0.072	0.575
PM2.5 Emissions (lbs/hr)	0.013	0.003	0.026
PM2.5 Emissions (lbs/day)	0.315	0.079	0.630
PM2.5 Emissions (tpy)	0.057	0.014	0.115

Cooling Tower Water Treatment Emissions and Thresholds Per Tower

	gal/min	gal/yr	lb/yr	Formula
Water Circulation Rate	13,115	6.89E+09	5.75E+10	Provide water circulation rate in gallon per minute.
Using Manufacturer's Drift Rate?	Yes		lb/yr	
Aerosol Drift (Weight Fraction of WCR)	2.00E-05		**1.150E+06**	
Particulate Drift (Weight Fraction of WCR)	2.00E-05		**5.749E+02**	
Particulate Drift Rate Calc				
TDS ppm				
500	7.92E-07			
	gal	**lbs**		
Volume of Tower (Determines conc. of substance in soln.)	65,575	5.47E+05		A thumb rule for calculating tower volume is five times the water circulation rate.

Aerosols (liquids and gases)	**CAS #**	**lb/yr**	**Concentration Wt. Frac.**	**Drift lb/yr**
Ammonia	7664417	0.00	0.000E+00	**0.000E+00**
Ethylene Glycol	107211	0.00	0.000E+00	**0.000E+00**
Hydrochloric Acid	7647010	0.00	0.000E+00	**0.000E+00**
Hydrogen Fluoride	7664393	0.00	0.000E+00	**0.000E+00**
Hydrogen Sulfide	7783064	0.00	0.000E+00	**0.000E+00**
Nitric Acid	7697372	0.00	0.000E+00	**0.000E+00**
Phosphoric Acid	7664382	0.00	0.000E+00	**0.000E+00**
Sulfuric Acid	7664939	0.00	0.000E+00	**0.000E+00**
Particulates (solids)		**lb/yr**	**Concentration Wt. Frac.**	**Drift lb/yr**
Manganese	7439965	9.00E-05	1.646E-10	**9.46E-08**
Nickel	7440020	2.00E-05	3.657E-11	**2.10E-08**
Sodium Hydroxide	1310732	0.00	0.000E+00	**0.00E+00**
Zinc	7440666	0.00	0	**0.00E+00**

References:

1995 AP-42 Section 13.4 Wet Cooling Towers. A thumb rule for calculating tower volume is five times the water circulation rate.

https://www.coolingtowerchemicals.com/Calculate-Water-Volume-s/67.htm

Generators Emission Calculations

Engine Mfg:	CAT		
Model #:	3516E		
HP:	4,023		
EPA Tier:	2		
Control Systems:	SCR + DPF meet Tier 4 emissions		
Operating Hours:	50	hr/year	Maintenance and Testing
	1	hr/day	Maintenance and Testing
	150	hr/year	Emergency Use
	24	hr/day	Emergency Use

Maintenance and Testing

	NOX	CO	VOC	SO2	PM10	PM2.5	CO2e
Em. Factor (g/hp-hr)	0.5	2.6	0.14	0.0051	0.015	0.015	164
Single Engine (lb/hr)	4.43	23.06	1.24	0.05	0.13	0.13	1451
Single Engine (lb/day)	4.43	23.06	1.24	0.05	0.13	0.13	1451
Single Engine (tpy)	0.11	0.58	0.03	0.00	0.00	0.00	33
40 Engine (lb/hr)	177.38	922.38	49.67	1.81	5.32	5.32	58033
40 Engine (lb/day)	177.38	922.38	49.67	1.81	5.32	5.32	58033
40 Engine (tpy)	4.43	23.06	1.24	0.05	0.13	0.13	1317

Emergency Use

	NOX	CO	VOC	SO2	PM10	PM2.5	CO2e
Em. Factor (g/hp-hr)	0.5	2.6	0.14	0.0051	0.015	0.015	164
Single Engine (lb/hr)	4.43	23.06	1.24	0.05	0.13	0.13	1451
Single Engine (lb/day)	106.43	553.43	29.80	1.09	3.19	3.19	34820
Single Engine (tpy)	0.33	1.73	0.09	0.00	0.01	0.01	109
40 Engine (lb/hr)	177.38	922.38	49.67	1.81	5.32	5.32	58033
40 Engine (lb/day)	4257.14	22137.14	1192.00	43.42	127.71	127.71	1392784
40 Engine (tpy)	13.30	69.18	3.73	0.14	0.40	0.40	4352

Total Use

	NOX	CO	VOC	SO2	PM10	PM2.5	CO2e
Single Engine (tpy)	0.44	2.31	0.12	0.00	0.01	0.01	142
40 Engine (tpy)	17.74	92.24	4.97	0.18	0.53	0.53	5669

Generators Ammonia Slip Calculations

Engine Mfg:	CAT	
Model #:	3516E	
Stack ACFM:	23,971	
Stack Temp:	903	F
Stack H2O:	8%	
DSCFM:	8410	
ppm @ 15% O2:	10	(manufacturer)
ppm @ Stack % O2:	18.33	
MW (NH3):	17	
NH3 (lb/hr):	0.42	

Alternative Loads

Load %:	10%		CFM:	4,545.1				
HP:	402		Heat-Up:	21 mins				
Controlled		NOX	CO	VOC	SO2	PM10	PM2.5	CO2e
Em. Factor (g/hp-hr)		0.5	2.6	0.14	0.0051	0.015	0.015	163.58
Single Engine (lb/hr)		0.44	2.31	0.12	0.00	0.01	0.01	145.08
Uncontrolled								
Em. Factor (g/hp-hr)		5.63	0.66	0.04	0.0051	0.05	0.05	163.58
Single Engine (lb/hr)		4.99	0.59	0.04	0.00	0.04	0.04	145.08
Startup								
Em. Factor (g/hp-hr)		2.30	1.92	0.11	0.01	0.03	0.03	163.58
Single Engine (lb/hr)		2.04	1.70	0.09	0.00	0.02	0.02	145.08

Load %:	25%		CFM:	7,143.6				
HP:	1,006		Heat-Up:	14 mins				
Controlled		NOX	CO	VOC	SO2	PM10	PM2.5	CO2e
Em. Factor (g/hp-hr)		0.5	2.6	0.14	0.0051	0.015	0.015	164
Single Engine (lb/hr)		1.11	5.76	0.31	0.01	0.03	0.03	362.71
Uncontrolled								
Em. Factor (g/hp-hr)		5.63	0.66	0.04	0.0051	0.05	0.05	163.58
Single Engine (lb/hr)		12.48	1.46	0.09	0.01	0.11	0.11	362.71
Startup								
Em. Factor (g/hp-hr)		1.70	2.15	0.12	0.01	0.02	0.02	163.58
Single Engine (lb/hr)		3.76	4.76	0.26	0.01	0.05	0.05	362.71

Load %:	50%		CFM:	15,244.3				
HP:	2,012		Heat-Up:	9.8 mins				
Controlled		NOX	CO	VOC	SO2	PM10	PM2.5	CO2e
Em. Factor (g/hp-hr)		0.5	2.6	0.14	0.0051	0.015	0.015	164
Single Engine (lb/hr)		2.22	11.53	0.62	0.02	0.07	0.07	725.42
Uncontrolled								
Em. Factor (g/hp-hr)		5.63	0.66	0.04	0.0051	0.05	0.05	163.58
Single Engine (lb/hr)		24.97	2.93	0.18	0.02	0.22	0.22	725.42
Startup								
Em. Factor (g/hp-hr)		1.34	2.28	0.12	0.01	0.02	0.02	163.58
Single Engine (lb/hr)		5.93	10.12	0.55	0.02	0.09	0.09	725.42

Load %:	75%		CFM:	19,421.7				
HP:	3,017		Heat-Up:	9 mins				
Controlled		NOX	CO	VOC	SO2	PM10	PM2.5	CO2e
Em. Factor (g/hp-hr)		0.5	2.6	0.14	0.0051	0.015	0.015	164
Single Engine (lb/hr)		3.33	17.29	0.93	0.03	0.10	0.10	1088.13
Uncontrolled								
Em. Factor (g/hp-hr)		5.63	0.66	0.04	0.0051	0.05	0.05	163.58
Single Engine (lb/hr)		37.45	4.39	0.27	0.03	0.33	0.33	1088.13
Startup								
Em. Factor (g/hp-hr)		1.27	2.31	0.13	0.01	0.02	0.02	163.58
Single Engine (lb/hr)		8.44	15.36	0.83	0.03	0.13	0.13	1088.13

Load %:	100%		CFM:	23,970.8				
HP:	4,023		Heat-Up:	7 mins				
Controlled		NOX	CO	VOC	SO2	PM10	PM2.5	CO2e
Em. Factor (g/hp-hr)		0.5	2.6	0.14	0.0051	0.015	0.015	164
Single Engine (lb/hr)		4.43	23.06	1.24	0.05	0.13	0.13	1450.84
Uncontrolled								
Em. Factor (g/hp-hr)		5.63	0.66	0.04	0.0051	0.05	0.05	163.58
Single Engine (lb/hr)		49.93	5.85	0.35	0.05	0.44	0.44	1450.84
Startup								
Em. Factor (g/hp-hr)		1.10	2.37	0.13	0.01	0.02	0.02	163.58
Single Engine (lb/hr)		9.74	21.05	1.14	0.05	0.17	0.17	1450.84

Refrigerant Use Emissions Estimation

Manufacturer:	Carrier
Model #:	30XF500M
Refrigerant:	R-513A
Weight:	689 lbs
Estimated Leak Rate:	5%
GWP:	573

Maintenance and Testing

	R-513A	CO2e
Single Chiller (lb/yr)	34.45	19740
Single Chiller (MT/yr)	0.02	8.96
28 Chillers (lb/yr)	965	552716
29 Chillers (MT/yr)	0.44	250.78

Name	Storage Tank Diesel Fugitives Per Tank			
Applicability	Use this spreadsheet for VOC fugitive emission from Diesel Storge Tanks. Entries required in yellow areas, output in grey areas.			
Inputs	lb /hr	lb /yr	**Formula**	
VOC Rate	2.05E-04	1.80	Emissions are calculated by the multiplication of VOC Rates and Emission Factors.	

Substances	CAS#	lbs/ lb VOC	LB/HR	LB/YR
Benzene	**71432**	8.80E-04	1.80E-07	1.58E-03
Toluene	**108883**	4.82E-03	9.88E-07	8.66E-03
Xylenes	**1330207**	4.20E-03	8.61E-07	7.54E-03

References:

* The emission factors are from the 1993 District memo "Diesel Storage Weight Fractions", test data from source tests of 75 crude oil storage tanks in the southern region.

Routine Losses Report for TANKS 5.2

Storage Tank Emissions Calculation Application

Version 5.2

(released December 2025)

U.S. Environmental Protection Agency
Office of Clean Air Programs
Natural Resources Division
Emissions Data and Assessment Branch
Research Triangle Park, NC 27711

Report Contents

For each tank and all tanks combined:

- Standing Losses
- Rim Seal Losses
- Deck Seam Losses
- Deck Fitting Losses
- Working Losses
- Total Routine Losses

For each tank:

- Tank Characteristics and Meteorological Location by Tank
- Tank Contents by Tank
- Tank Calculations by Tank
  - Fixed Roof Tanks
- Routine Losses by Tank

Accumulated Annual Routine Losses for All Tanks

Tank ID	Standing Losses	Working Losses	Total Losses
Tank 1	24.6239	7.4020	32.0260
Total	**24.6239**	**7.4020**	**32.0260**

Tank Characteristics and Meteorological Location by Tank

Identification

Tank ID	Tank 1
Tank Type	Vertical Fixed Roof Tank
Tank Description	100K Gallon
City	Inyokern
State	California
Company	Inyokern Data Center
Meteorological Location	Daggett, CA

Tank Characteristics

Tank Shape	Cylinder
Shell Diameter (ft)	30
Maximum Liquid Height (ft)	19
Average Liquid Height (ft)	9.500
Tank Bottom Type	flat
Liquid Heel Type at Tank Minimum (ft)	full
Minimum Liquid Heel Height (ft)	1
Vapor Space Pressure at Normal Operating Conditions (psig)	0
Is Tank Insulated?	Not Insulated
Liquid Bulk Temperature Calculation Method	AP-42 Calculation

Shell Characteristics

Shell Color/Shade	White
Shell Condition	New

Roof Characteristics

Roof Color/Shade	White
Roof Condition	New
Roof Type	Flat

Breather Vent Settings

Vacuum Setting (psig)	-0.030
Pressure Setting (psig)	0.030

Control Device Settings

Is Tank Equipped with a Control Device?	No Control Device

Tank Contents by Tank

Tank Contents Input Summary

Tank ID	Tank 1
Input Type	Annual
Chemical Category of Liquid	Petroleum Liquids
Sum of Increases in Liquid Level Method	AP-42 Calculation
Working Loss Turnover Factor Method	AP-42 Calculation

Annual Contents

Chemical Name	Throughput (gal/yr)
No. 2 Fuel Oil (Diesel)	272400

Tank Calculations by Tank -- Fixed Roof

Tank ID: Tank 1

Annual Calculations

Chemical: No. 2 Fuel Oil (Diesel)

Annual Vapor Space Volume (cu ft)	7,422.0126
Annual Avg. Vented Vapor Saturation Factor	0.0765
Vapor Space Outage (ft)	10.5000
Avg. Liquid Height (ft)	9.5000
Roof Outage (ft)	0
Shell Radius (ft)	15
Annual Stock Vapor Density (lb/cu ft)	0.0000
Annual Avg. Vapor Molecular Weight (lb/lb-mole)	10
Annual Avg. Vapor Pressure at Avg. Liquid Surface Temp. (psia)	0.0007
Annual Avg. Liquid Surface Temp. (°R)	40.7341
Annual Avg. Ambient Temp. (°R)	40.5862
Annual Avg. Liquid Bulk Temp. (°R)	528.5411
Tank Paint Solar Absorptance (Shell)	0.1700
Tank Paint Solar Absorptance (Roof)	0.1700
Annual Avg. Vapor Space Expansion Factor	0.0034
Annual Vapor Temp. Range (°R)	1.9938
Annual Vapor Pressure Range (psia)	0.0003
Breather Vent Pressure Setting Range (psia)	0.0600
Annual Avg. Vapor Pressure at Min Liquid Surface Temp. (psia)	0.0006
Annual Avg. Vapor Pressure at Max Liquid Surface Temp. (psia)	0.0008
Annual Avg. Min. Liquid Surface Temp. (°R)	40.2356
Annual Avg. Max. Liquid Surface Temp. (°R)	41.2325
Annual Avg. Ambient Temp. Range (°R)	2.0692
Annual Throughput (gal)	272400
Annual Turnovers	2.8617
Annual Sum of Increases in Liquid Level (ft/yr)	51.5107
Working Loss Turnover Factor	1
Working Loss Product Factor	1

Routine Losses by Tank

Tank ID: Tank 1

Annual Routine Losses

Chemical	Standing Losses	Working Losses	Total Losses
No. 2 Fuel Oil (Diesel)	24.6239	7.4020	32.0260

APPENDIX B

HEALTH RISK ASSESSMENT MODELING FILES (ELECTRONIC)

APPENDIX C

AMBIENT AIR QUALITY ASSESSMENT MODELING FILES (ELECTRONIC)

APPENDIX D

MANUFACTURER'S DATA

Cat® 3516E

High Power Density (HPD) Diesel Generator Sets

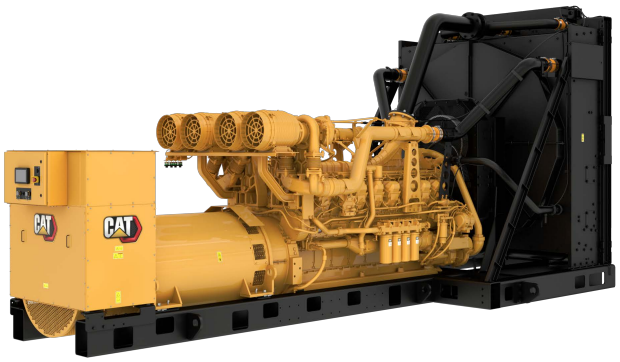


Image shown may not reflect actual configuration

Bore – mm (in)	170 (6.69)
Stroke – mm (in)	215 (8.46)
Displacement – L (in^3)	78.1 (4766)
Compression Ratio	13.9:1
Aspiration	TA
Fuel System	MEUI
Governor Type	ADEM™ A5

Standby 60 Hz ekW (kVA)	Mission Critical 60 Hz ekW (kVA)	Prime 60 Hz ekW (kVA)	Emissions Performance
3000 (3750)	3000 (3750)	2725 (3406)	U.S. EPA Certified for Emergency Stationary Applications (Tier 2)

Features

Cat® Diesel Engine

- Meets U.S. EPA Stationary Emergency Use Only (Tier 2) emissions standards
- Reliable performance proven in thousands of applications worldwide
- Certified alternative fuels including Hydrotreated Vegetable Oil (HVO), Renewable Diesel (RD) and Hydrotreated Renewable Diesel (HRD) which meet EN 15940 or ASTM D975 can be used or blended with EN 590 diesel

Generator Set Package

- Accepts 100% block load in one step
- Meets 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

Cat Energy Control System (ECS)

- 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
- Graphical touchscreen display
- Easily upgradeable

Warranty

- 24 months/1000-hour warranty for standby and mission critical 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

Standard and Optional Equipment

Engine

Air Cleaner
- ❑ Dual Element
- ❑ Service Indicator

Muffler
- ❑ Industrial grade (15 dB)
- ❑ Critical grade (25 dB)
- ❑ Hospital grade (35 dB)

Starting
- ❑ Standard batteries
- ❑ Oversized batteries
- ❑ Dual electric starting motors
- ❑ Air starter(s)
- ❑ Jacket water heater

Alternator

Output voltage
- ❑ 480V ❑ 12470V
- ❑ 600V ❑ 13200V
- ❑ 4160V ❑ 13800V

Temperature Rise (over 40°C ambient)
- ❑ 150°C
- ❑ 125°C/130°C

Winding type
- ❑ Random wound
- ❑ Form wound

Excitation
- ❑ Internal excitation (IE)
- ❑ Permanent magnet (PM)

Attachments
- ❑ Anti-condensation heater
- ❑ Stator and bearing temperature monitoring and protection

Power Termination

Type
- ❑ Bus bar
- ❑ Circuit breaker
- ❑ 5000A ❑ UL
- ❑ 3-pole ❑ 4-pole
- ❑ Manually operated
- ❑ Electrically operated

Trip Unit
- ❑ LSI ❑ LSI-G
- ❑ LSIG-P

Control System

Controller
- ❑ Cat ECS 100
- ❑ Cat ECS 200
- ❑ EMCP 4.4

Attachments
- ❑ Local annunciator module
- ❑ Remote annunciator module
- ❑ Expansion I/O module
- ❑ Remote monitoring software

Charging

- ❑ Battery charger – 10A
- ❑ Battery charger – 20A
- ❑ Battery charger – 35A

Vibration Isolators

- ❑ Spring
- ❑ Seismic rated

Cat Connect

Connectivity
- ❑ Ethernet
- ❑ Cellular

Extended Service Options

Terms
- ❑ 2 year (prime)
- ❑ 3 year
- ❑ 5 year
- ❑ 10 year

Coverage
- ❑ Silver
- ❑ Gold
- ❑ Platinum
- ❑ Platinum Plus

Ancillary Equipment

- ❑ Automatic transfer switch (ATS)
- ❑ Paralleling switchgear
- ❑ Paralleling controls

Certifications

- ❑ ULC 2200 Listed
- ❑ IBC seismic certification

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

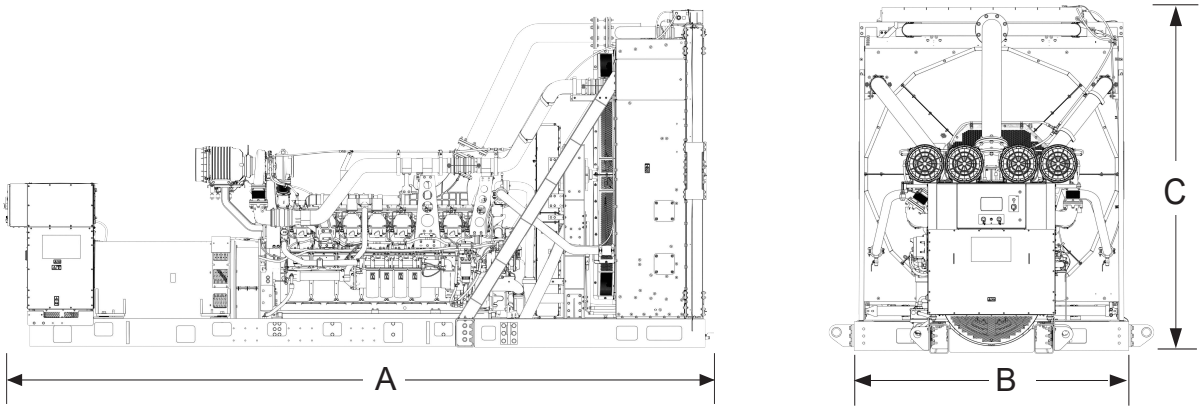
Package Performance

Performance	Standby		Mission Critical		Prime	
Engine Speed	1800 rpm		1800 rpm		1800 rpm	
Frequency	60 Hz		60 Hz		60 Hz	
Gen set power rating with fan	3000 ekW		3000 ekW		2725 ekW	
Gen set power rating with fan @ 0.8 power factor	3750 kVA		3750 kVA		3406 kVA	
Emissions	Tier 2 (EPA ESE)		Tier 2 (EPA ESE)		Tier 2 (EPA ESE)	
Performance number	EM4716-02		EM4718-02		EM4720-02	
Fuel Consumption						
100% load with fan – L/hr (gal/hr)	773.2	(204.3)	773.2	(204.3)	711.2	(187.9)
75% load with fan – L/hr (gal/hr)	624.2	(164.9)	624.2	(164.9)	581.6	(153.7)
50% load with fan – L/hr (gal/hr)	467.5	(123.5)	467.5	(123.5)	438.1	(115.7)
25% load with fan – L/hr (gal/hr)	246.4	(65.1)	246.4	(65.1)	229.2	(60.6)
Cooling System						
Radiator air flow restriction (system) – kPa (in. water)	0.12	(0.48)	0.12	(0.48)	0.12	(0.48)
Radiator air flow – m^3/min (cfm)	3476	(122753)	3476	(122753)	3476	(122753)
Engine coolant capacity – L (gal)	179.0	(47.3)	179.0	(47.3)	179.0	(47.3)
Radiator coolant capacity – L (gal)	255.0	(67.4)	255.0	(67.4)	255.0	(67.4)
Total coolant capacity – L (gal)	434.0	(114.7)	434.0	(114.7)	434.0	(114.7)
Inlet Air						
Combustion air inlet flow rate – m^3/min (cfm)	246.1	(8690.9)	246.1	(8690.9)	230.3	(8133.7)
Exhaust System						
Exhaust stack gas temperature – °C (°F)	483.3	(902.0)	483.3	(902.0)	484.5	(904.1)
Exhaust gas flow rate – m^3/min (cfm)	645.8	(22806.2)	645.8	(22806.2)	600.2	(21192.9)
Exhaust system backpressure (maximum allowable) – kPa (in. water)	7.0	(28.1)	7.0	(28.1)	7.0	(28.1)
Heat Rejection						
Heat rejection to jacket water – kW (Btu/min)	917	(52144)	917	(52144)	854	(48592)
Heat rejection to exhaust (total) – kW (Btu/min)	3091	(175769)	3091	(175769)	2875	(163492)
Heat rejection to aftercooler – kW (Btu/min)	944	(53683)	944	(53683)	827	(47047)
Heat rejection to atmosphere from engine – kW (Btu/min)	158	(8993)	158	(8993)	154	(8766)
Heat rejection from alternator – kW (Btu/min)	119	(6739)	119	(6739)	108	(6119)
Emissions* (Nominal) - Full Load						
NOx mg/Nm^3 (g/hp-h)	2610.4	(5.63)	2610.4	(5.63)	2311.6	(5.02)
CO mg/Nm^3 (g/hp-h)	305.9	(0.66)	305.9	(0.66)	404.8	(0.89)
HC mg/Nm^3 (g/hp-h)	17.4	(0.04)	17.4	(0.04)	15.0	(0.04)
PM mg/Nm^3 (g/hp-h)	17.6	(0.05)	17.6	(0.05)	22.6	(0.06)
Emissions* (Potential Site Variation) - Full Load						
NOx mg/Nm^3 (g/hp-h)	3132.5	(6.76)	3132.5	(6.76)	2773.9	(6.02)
CO mg/Nm^3 (g/hp-h)	550.6	(1.20)	550.6	(1.20)	728.7	(1.60)
HC mg/Nm^3 (g/hp-h)	23.1	(0.06)	23.1	(0.06)	19.9	(0.05)
PM mg/Nm^3 (g/hp-h)	24.6	(0.06)	24.6	(0.06)	31.6	(0.08)

**mg/Nm^3 levels are corrected to 5% O_2. Contact your local Cat dealer for further information*

3516E Diesel Generator Sets
High Power Density (HPD)
Electric Power

Weights and Dimensions



Rating ekW (kVA)	Dim "A" mm (in)	Dim "B" mm (in)	Dim "C" mm (in)	Dry Weight kg (lb)
3000 (3750)	7678 (302.3)	2874 (113.2)	3639 (143.3)	20 380 (44,930)

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 rated ekW. 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 rated ekW. Typical peak demand up to 100% of rated ekW 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 rated ekW. 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.

Applicable Codes and Standards
AS 1359, ULC 2200 3rd edition, UL 489, UL 869A, IBC, IEC 60034-1, ISO 3046, ISO 8528, NEMA MG1-22, NEMA MG1-33, 2014/35/EU, 2006/42/EC, 2014/30/EU and facilitates compliance to NFPA 37, NFPA 70, NFPA 99, NFPA 110.

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

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

Fuel Rates
Fuel consumption reported in accordance with ISO 3046-1, based on fuel oil of 35º API [16°C (60ºF)] gravity having an LHV of 42,780 kJ/kg (18,390 Btu/lb) when used at 15ºC (59ºF) and weighing 850 g/liter (7.0936 lbs/U.S. gal.) All fuel consumption values refer to rated engine power.

www.cat.com/electricpower

3516 PGJL
LEHE2570-05 (05/23)

Perf No: EM6283 **Change Level:** 00

General | Heat Rejection | Emissions | Regulatory | Altitude Derate | Cross Reference | Supplementary Data | Perf Param Ref

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SALES MODEL:	3516E	**COMBUSTION:**	DIRECT INJECTION
BRAND:	CAT	**ENGINE SPEED (RPM):**	1,800
MACHINE SALES MODEL:		**HERTZ:**	60
ENGINE POWER (BHP):	4,393	**FAN POWER (HP):**	154.2
GEN POWER WITH FAN (EKW):	3,000.0	**ASPIRATION:**	TA
COMPRESSION RATIO:	13.9	**AFTERCOOLER TYPE:**	ATAAC
RATING LEVEL:	STANDBY	**AFTERCOOLER CIRCUIT TYPE:**	JW+OC, ATAAC
PUMP QUANTITY:	1	**INLET MANIFOLD AIR TEMP (F):**	122
FUEL TYPE:	DIESEL	**JACKET WATER TEMP (F):**	219.2
MANIFOLD TYPE:	DRY	**TURBO CONFIGURATION:**	PARALLEL
GOVERNOR TYPE:	ADEM5	**TURBO QUANTITY:**	4
ELECTRONICS TYPE:	ADEM5	**TURBOCHARGER MODEL:**	TPX44-H32-CT70-CA50-TT70-TA80
IGNITION TYPE:	CI	**CERTIFICATION YEAR:**	2020
INJECTOR TYPE:	MEUI-C	**CRANKCASE BLOWBY RATE (FT3/HR):**	4,390.2
FUEL INJECTOR:	5816980	**FUEL RATE (RATED RPM) NO LOAD (GAL/HR):**	17.2
UNIT INJECTOR TIMING (IN):	0.88	**PISTON SPD @ RATED ENG SPD (FT/MIN):**	2,539.4
REF EXH STACK DIAMETER (IN):	12		
MAX OPERATING ALTITUDE (FT):	6,562		

INDUSTRY	SUB INDUSTRY	APPLICATION
ELECTRIC POWER	STANDARD	PACKAGED GENSET

General Performance Data Top

Note(s)

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

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)	ELEC SPEC FUEL CONSUMPTN (ESFC)	ISO ELEC SPEC FUEL CONSUMPTN (ESFC)
EKW	%	BHP	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR	LB/EKW-HR	LB/EKW-HR
3,000.0	100	4,393	406	0.337	0.331	209.0	205.0	0.494	0.485
2,700.0	90	3,976	367	0.340	0.333	190.3	186.7	0.500	0.491
2,400.0	80	3,557	328	0.349	0.343	175.1	171.7	0.517	0.508
2,250.0	75	3,347	309	0.356	0.349	168.1	164.9	0.530	0.520
2,100.0	70	3,137	290	0.362	0.355	160.2	157.1	0.541	0.531
1,800.0	60	2,716	251	0.370	0.363	141.7	139.0	0.559	0.548
1,500.0	50	2,294	212	0.389	0.382	125.9	123.5	0.595	0.584
1,200.0	40	1,872	173	0.406	0.398	107.2	105.2	0.634	0.622
900.0	30	1,449	134	0.401	0.393	81.8	80.3	0.645	0.633
750.0	25	1,236	114	0.381	0.374	66.4	65.1	0.628	0.616
600.0	20	1,022	94	0.392	0.384	56.4	55.4	0.667	0.655
300.0	10	590	55	0.441	0.433	36.7	36.0	0.869	0.852

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
EKW	%	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
3,000.0	100	4,393	96.6	118.3	1,235.5	64.4	903.0	104	449.1
2,700.0	90	3,976	82.2	119.3	1,247.9	54.4	904.4	90	423.5
2,400.0	80	3,557	74.9	118.9	1,242.3	48.9	913.3	82	403.8
2,250.0	75	3,347	72.1	119.0	1,240.1	46.9	917.3	79	395.9
2,100.0	70	3,137	67.8	119.3	1,240.0	43.8	925.8	74	384.0
1,800.0	60	2,716	56.0	120.2	1,245.9	35.5	953.4	62	348.0
1,500.0	50	2,294	47.1	118.6	1,248.2	29.9	973.6	52	318.8
1,200.0	40	1,872	33.9	114.2	1,255.9	21.9	1,002.7	38	269.7
900.0	30	1,449	16.7	112.4	1,203.6	12.3	984.1	20	191.4
750.0	25	1,236	8.9	110.5	1,091.8	8.1	915.3	11	150.2
600.0	20	1,022	5.8	108.3	1,004.5	6.6	847.7	8	133.3
300.0	10	590	0.9	104.2	780.2	4.2	671.9	3	108.0

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	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	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
3,000.0	100	4,393	9,133.9	23,970.8	39,606.0	41,088.7	8,648.8	7,910.2
2,700.0	90	3,976	8,100.8	21,092.6	34,770.1	36,119.8	7,602.8	6,941.1
2,400.0	80	3,557	7,618.2	19,872.8	32,572.6	33,813.7	7,116.5	6,503.0
2,250.0	75	3,347	7,434.9	19,421.7	31,724.7	32,917.4	6,934.8	6,343.9
2,100.0	70	3,137	7,140.4	18,713.3	30,413.9	31,551.3	6,641.0	6,078.0
1,800.0	60	2,716	6,316.6	16,737.0	26,667.4	27,671.7	5,823.4	5,324.6
1,500.0	50	2,294	5,698.5	15,244.3	23,951.1	24,844.2	5,229.6	4,787.6
1,200.0	40	1,872	4,748.1	12,895.5	19,832.8	20,593.5	4,335.7	3,959.7
900.0	30	1,449	3,421.3	9,198.1	14,210.7	14,791.0	3,132.4	2,847.7
750.0	25	1,236	2,813.2	7,143.6	11,655.6	12,126.4	2,554.4	2,323.7

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	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)
600.0	20	1,022	2,588.4	6,214.7	10,705.5	11,105.8	2,337.3	2,139.1
300.0	10	590	2,189.5	4,545.1	9,126.5	9,387.3	1,974.8	1,838.2

Heat Rejection Data Top

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	REJECTION TO JACKET WATER	REJECTION TO ATMOSPHERE	REJECTION TO EXH	EXHAUST RECOVERY TO 350F	FROM OIL COOLER	FROM AFTERCOOLER	WORK 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
3,000.0	100	4,393	52,144	8,993	175,769	96,459	23,854	53,683	186,315	447,861	477,084
2,700.0	90	3,976	48,348	8,755	162,671	85,128	21,755	46,560	168,590	408,442	435,094
2,400.0	80	3,557	45,188	8,663	152,310	80,972	19,852	39,923	150,835	372,717	397,037
2,250.0	75	3,347	43,721	8,625	147,003	79,360	18,929	37,161	141,942	355,388	378,578
2,100.0	70	3,137	42,430	8,593	141,837	77,229	18,002	34,024	133,031	337,986	360,040
1,800.0	60	2,716	40,153	8,591	130,286	71,150	16,087	27,442	115,184	302,034	321,742
1,500.0	50	2,294	37,137	8,662	118,761	66,069	14,137	20,821	97,288	265,422	282,742

Emissions Data Top

Units Filter All Units

Note(s)

PARTICULATE EMISSIONS WERE NOT MEASURED FOR THIS RATING. PUBLISHED PM DATA IS ESTIMATED FROM MEASURED SMOKE METER DATA.

DIESEL

RATED SPEED NOMINAL DATA: 1800 RPM

GENSET POWER WITH FAN ENGINE POWER		EKW BHP	3,000.0 4,393	2,250.0 3,347	1,500.0 2,294	750.0 1,236	300.0 590
PERCENT LOAD		**%**	**100**	**75**	**50**	**25**	**10**
TOTAL NOX (AS NO2)		G/HR	22,368	12,160	6,934	8,735	6,302
TOTAL CO		G/HR	2,399	2,470	1,673	2,077	1,535
TOTAL HC		G/HR	190	142	118	84	160
TOTAL CO2		KG/HR	2,129	1,691	1,268	673	371
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,404.9	1,597.8	1,214.4	2,955.6	3,548.5
TOTAL CO	(CORR 5% O2)	MG/NM3	257.5	319.2	290.7	686.3	917.4
TOTAL HC	(CORR 5% O2)	MG/NM3	17.6	16.0	17.7	24.0	84.5
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	892.4	592.9	450.6	1,096.7	1,316.7
TOTAL CO	(CORR 15% O2)	MG/NM3	95.6	118.5	107.9	254.7	340.4
TOTAL HC	(CORR 15% O2)	MG/NM3	6.5	5.9	6.6	8.9	31.4
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,171	778	592	1,440	1,728
TOTAL CO	(CORR 5% O2)	PPM	206	255	233	549	734
TOTAL HC	(CORR 5% O2)	PPM	33	30	33	45	158
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	435	289	219	534	641
TOTAL CO	(CORR 15% O2)	PPM	76	95	86	204	272
TOTAL HC	(CORR 15% O2)	PPM	12	11	12	17	59
TOTAL NOX (AS NO2)		G/HP-HR	5.13	3.65	3.03	7.07	10.68
TOTAL CO		G/HP-HR	0.55	0.74	0.73	1.68	2.60
TOTAL HC		G/HP-HR	0.04	0.04	0.05	0.07	0.27
TOTAL NOX (AS NO2)		G/KW-HR	6.87	4.89	4.06	9.48	14.33
TOTAL CO		G/KW-HR	0.74	0.99	0.98	2.25	3.49
TOTAL HC		G/KW-HR	0.06	0.06	0.07	0.09	0.36
TOTAL NOX (AS NO2)		LB/HR	49.31	26.81	15.29	19.26	13.89
TOTAL CO		LB/HR	5.29	5.44	3.69	4.58	3.38
TOTAL HC		LB/HR	0.42	0.31	0.26	0.18	0.35
TOTAL CO2		LB/HR	4,694	3,728	2,794	1,484	819
OXYGEN IN EXH		%	9.7	9.4	9.5	8.5	12.0
DRY SMOKE OPACITY		%	2.0	2.6	2.9	4.3	0.2
BOSCH SMOKE NUMBER			0.85	0.96	1.02	1.16	0.70

RATED SPEED POTENTIAL SITE VARIATION: 1800 RPM

GENSET POWER WITH FAN ENGINE POWER		EKW BHP	3,000.0 4,393	2,250.0 3,347	1,500.0 2,294	750.0 1,236	300.0 590
PERCENT LOAD		**%**	**100**	**75**	**50**	**25**	**10**
TOTAL NOX (AS NO2)		G/HR	26,841	14,592	8,321	10,482	7,562
TOTAL CO		G/HR	4,319	4,446	3,012	3,738	2,763
TOTAL HC		G/HR	252	188	157	111	213
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,885.9	1,917.4	1,457.3	3,546.7	4,258.2
TOTAL CO	(CORR 5% O2)	MG/NM3	463.5	574.6	523.3	1,235.4	1,651.3
TOTAL HC	(CORR 5% O2)	MG/NM3	23.4	21.3	23.6	31.9	112.4
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	1,070.9	711.5	540.8	1,316.1	1,580.1
TOTAL CO	(CORR 15% O2)	MG/NM3	172.0	213.2	194.2	458.4	612.8
TOTAL HC	(CORR 15% O2)	MG/NM3	8.7	7.9	8.8	11.8	41.7
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,406	934	710	1,728	2,074
TOTAL CO	(CORR 5% O2)	PPM	371	460	419	988	1,321
TOTAL HC	(CORR 5% O2)	PPM	44	40	44	60	210
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	522	347	263	641	770
TOTAL CO	(CORR 15% O2)	PPM	138	171	155	367	490
TOTAL HC	(CORR 15% O2)	PPM	16	15	16	22	78
TOTAL NOX (AS NO2)		G/HP-HR	6.15	4.38	3.64	8.49	12.82
TOTAL CO		G/HP-HR	0.99	1.33	1.32	3.03	4.68
TOTAL HC		G/HP-HR	0.06	0.06	0.07	0.09	0.36
TOTAL NOX (AS NO2)		G/KW-HR	8.25	5.87	4.88	11.38	17.19
TOTAL CO		G/KW-HR	1.33	1.79	1.76	4.06	6.28
TOTAL HC		G/KW-HR	0.08	0.08	0.09	0.12	0.48
TOTAL NOX (AS NO2)		LB/HR	59.17	32.17	18.34	23.11	16.67
TOTAL CO		LB/HR	9.52	9.80	6.64	8.24	6.09
TOTAL HC		LB/HR	0.56	0.42	0.35	0.25	0.47

Regulatory Information Top

EPA EMERGENCY STATIONARY **2011 - ----**

GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 60 SUBPART IIII AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE EMERGENCY STATIONARY REGULATIONS.

EPA EMERGENCY STATIONARY		2011 - ----		
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 Top

Note(s)

A BLANK IN THE ALTITUDE DERATE TABLE SIGNIFIES THAT NO RATING IS AVAILABLE AT THAT SPECIFIED ALTITUDE AND AMBIENT TEMPERATURE.

THE TEMPERATURES LISTED IN THE CHART ARE AMBIENT TEMPERATURES. THE FOLLOWING DERATE CHART WAS CALCULATED ASSUMING A 5 DEG C RISE IN AIR TEMPERATURE BETWEEN AMBIENT AND THE TURBOCHARGER INLET

STANDARD

ALTITUDE CORRECTED POWER CAPABILITY (BHP)

AMBIENT OPERATING TEMP (F)	30	40	50	60	70	80	90	100	110	120	130	140	NORMAL
ALTITUDE (FT)													
0	4,393	4,393	4,393	4,393	4,393	4,393	4,393	4,393	4,393	4,393	1,927		4,393
1,000	4,393	4,393	4,393	4,393	4,393	4,393	4,393	4,393	4,393	4,393	1,860		4,393
2,000	4,393	4,393	4,393	4,393	4,393	4,393	4,393	4,393	4,393	4,304			4,393
3,000	4,393	4,393	4,393	4,393	4,393	4,393	4,393	4,393	4,313	2,786			4,393
4,000	4,393	4,393	4,393	4,393	4,393	4,393	4,393	4,355	4,037	1,625			4,393
5,000	4,393	4,393	4,393	4,393	4,393	4,383	4,334	4,221	3,517				4,393
6,000	4,393	4,393	4,393	4,356	4,307	4,246	4,183	4,064	2,023				4,393
7,000	4,393	4,380	4,306	4,226	4,160	4,072	3,968	3,778					4,378
8,000	4,347	4,247	4,153	4,051	3,974	3,836	3,573	3,093					4,274
9,000	4,203	4,068	3,954	3,831	3,738	3,550	3,208	2,621					4,152
10,000	3,990	3,831	3,691	3,541	3,442	3,250	2,968	2,196					3,986
11,000	3,755	3,560	3,390	3,239	3,162	3,018	2,762	1,678					3,815
12,000	3,413	3,252	3,123	3,015	2,940	2,762	2,300	1,104					3,539
13,000	3,070	2,977	2,897	2,829	2,750	2,477	1,702						3,198
14,000	2,754	2,728	2,691	2,660	2,553	2,240							2,841
15,000	2,454	2,461	2,285	2,143	2,057	1,713							2,523

Cross Reference Top

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number
5958125	LL2384	6143182	PG296	-	ZNL00001	

Supplementary Data Top

Type	Classification	Performance Number
ALTITUDE DATA	HIGH RESOLUTION	EM5585

Performance Parameter Reference Top

Parameters Reference: DM9600 - 15

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 SAE J1995 standard reference conditions. Caterpillar 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% Specific fuel consumption (C7-C18) +/- 4% 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.
On 3500 and C175 engines, at speeds below Peak Torque 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 temp.
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 15 deg C (59 deg F), where the density is 850 G/Liter (7.0936 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.

EMISSION CYCLE LIMITS: Cycle emissions Max Limits apply to cycle-weighted averages only. Emissions at individual load points may exceed the cycle-weighted limit.

WET & DRY EXHAUST/EMISSIONS DESCRIPTION: Wet - Total exhaust flow or concentration of total exhaust flow Dry - Total exhaust flow minus water vapor or concentration of exhaust flow with water vapor excluded

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.
3. 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 : 03/12/24

PACKAGE DATA [516DRWC]

AUGUST 20, 2025

For Help Desk Phone Numbers Click here

Feature Code:	516DRWC	**Rating Type:**	STANDBY	**Sales model Package:**	
Engine Sales Model:		**Engine Arrangement Number:**	6143182	**Hertz:**	60
EKW W/F:	3000.0	**Noise Reduction:**	0 dBA	**Back Pressure:**	0.0 inH2O

Engine Package Information

Engine Package Data

Package Cooling Information

Data not available.

Package Sound Information

Sound Comments :

Open Exhaust Sound Data

Distance: 3.3 Feet

EKW W/F	% LOAD	OVERALL SOUND DB(A)	OBCF 125HZ DB	OBCF 250HZ DB	OBCF 500HZ DB	OBCF 1000HZ DB	OBCF 2000HZ DB	OBCF 4000HZ DB	OBCF 8000HZ DB
3000.0	100.0	120.1	125.5	119.5	117.8	114.3	108.6	109.4	106.5
2250.0	75.0	118.1	123.4	118.3	116.3	111.9	106.8	107.4	103.1
1500.0	50.0	116.3	122.1	116.6	115.0	109.9	104.8	104.3	99.9
750.0	25.0	112.0	116.8	112.2	110.4	104.8	102.9	100.4	95.6

Distance: 23.0 Feet

EKW W/F	% LOAD	OVERALL SOUND DB(A)	OBCF 125HZ DB	OBCF 250HZ DB	OBCF 500HZ DB	OBCF 1000HZ DB	OBCF 2000HZ DB	OBCF 4000HZ DB	OBCF 8000HZ DB
3000.0	100.0	110.9	108.6	102.6	100.9	97.4	91.7	92.5	89.6
2250.0	75.0	109.2	106.5	101.4	99.4	95.0	89.9	90.5	86.2
1500.0	50.0	107.7	105.2	99.7	98.1	93.0	87.9	87.4	83.0
750.0	25.0	102.6	99.9	95.3	93.5	87.9	86.0	83.5	78.7

Distance: 49.2 Feet

EKW W/F	% LOAD	OVERALL SOUND DB(A)	OBCF 125HZ DB	OBCF 250HZ DB	OBCF 500HZ DB	OBCF 1000HZ DB	OBCF 2000HZ DB	OBCF 4000HZ DB	OBCF 8000HZ DB
3000.0	100.0	104.3	102.0	96.0	94.3	90.7	85.1	85.9	83.0
2250.0	75.0	102.5	99.9	94.8	92.8	88.4	83.3	83.9	79.6
1500.0	50.0	101.0	98.6	93.1	91.5	86.4	81.3	80.8	76.4
750.0	25.0	96.0	93.3	88.7	86.9	81.3	79.4	76.8	72.1

Open Mechanical Sound Data

Distance: 3.3 Feet

EKW W/F	% LOAD	OVERALL SOUND DB(A)	OBCF 125HZ DB	OBCF 250HZ DB	OBCF 500HZ DB	OBCF 1000HZ DB	OBCF 2000HZ DB	OBCF 4000HZ DB	OBCF 8000HZ DB
3000.0	100.0	109.8	103.5	107.0	108.1	104.0	100.7	97.9	98.9
2250.0	75.0	109.0	102.8	106.5	107.4	103.6	100.1	96.5	97.5
1500.0	50.0	108.7	101.5	106.3	107.3	103.3	100.1	96.2	93.6
750.0	25.0	108.9	101.7	107.1	108.4	104.0	98.7	94.9	90.8

Distance: 23.0 Feet

EKW W/F	% LOAD	OVERALL SOUND DB(A)	OBCF 125HZ DB	OBCF 250HZ DB	OBCF 500HZ DB	OBCF 1000HZ DB	OBCF 2000HZ DB	OBCF 4000HZ DB	OBCF 8000HZ DB
3000.0	100.0	101.1	99.0	98.9	99.0	95.0	92.7	89.1	90.8
2250.0	75.0	100.8	98.3	98.5	99.3	94.8	92.2	88.3	89.5
1500.0	50.0	100.3	97.4	98.4	98.5	94.7	92.3	88.1	85.8
750.0	25.0	100.4	98.3	99.1	99.8	94.8	91.1	87.2	83.1

Distance: 49.2 Feet

EKW W/F	% LOAD	OVERALL SOUND DB(A)	OBCF 125HZ DB	OBCF 250HZ DB	OBCF 500HZ DB	OBCF 1000HZ DB	OBCF 2000HZ DB	OBCF 4000HZ DB	OBCF 8000HZ DB
3000.0	100.0	95.0	92.0	94.9	92.7	88.4	86.8	83.7	84.3
2250.0	75.0	95.0	91.3	95.3	93.9	88.5	86.2	82.8	82.7
1500.0	50.0	95.0	91.0	94.2	93.5	89.5	86.6	82.7	79.7
750.0	25.0	95.5	91.2	94.9	95.4	89.4	85.8	82.3	78.4

Print

Systems Data
Reference Number: EM6283

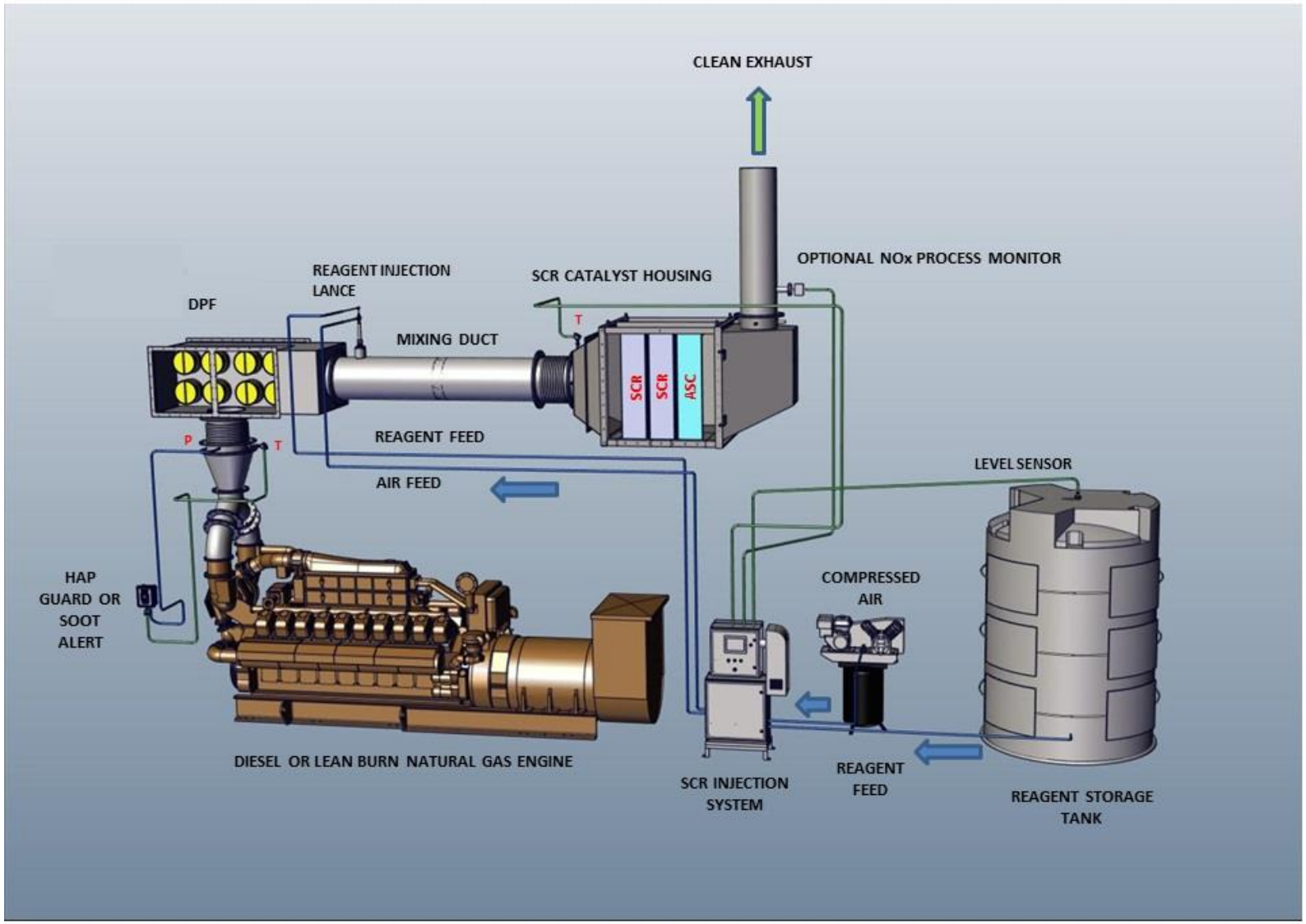
CATERPILLAR®

August 20, 2025
For Help Desk Phone Numbers Click Here

AIR INTAKE SYSTEM		
THE INSTALLED SYSTEM MUST COMPLY WITH THE SYSTEM LIMITS BELOW FOR ALL EMISSIONS CERTIFIED ENGINES TO ASSURE REGULATORY COMPLIANCE.		
MAXIMUM ALLOWABLE INTAKE RESTRICTION WITH CLEAN ELEMENT	15	IN-H20
MAXIMUM ALLOWABLE INTAKE RESTRICTION WITH DIRTY ELEMENT	25	IN-H20
COOLING SYSTEM		
MAXIMUM ALLOWABLE JACKET WATER OUTLET TEMPERATURE	219	DEG F
REGULATOR LOCATION FOR JW (HT) CIRCUIT	OUTLET	
MAXIMUM UNINTERRUPTED FILL RATE	5.0	G/MIN
ENGINE SPEC SYSTEM		
CYLINDER ARRANGEMENT	VEE	
NUMBER OF CYLINDERS	16	
CYLINDER BORE DIAMETER	6.7	IN
PISTON STROKE	8.5	IN
TOTAL CYLINDER DISPLACEMENT	4766	CU IN
STANDARD CRANKSHAFT ROTATION FROM FLYWHEEL END	CCW	
STANDARD CYLINDER FIRING ORDER	1-2-5-6-3-4-9-10-15-16-11-12-14-7-8	
NUMBER 1 CYLINDER LOCATION	RIGHT FRONT	
STROKES/COMBUSTION CYCLE	4	
EXHAUST SYSTEM		
THE INSTALLED SYSTEM MUST COMPLY WITH THE SYSTEM LIMITS BELOW FOR ALL EMISSIONS CERTIFIED ENGINES TO ASSURE REGULATORY COMPLIANCE.		
MAXIMUM ALLOWABLE SYSTEM BACK PRESSURE	27	IN-H20
FUEL SYSTEM		
MAXIMUM ALLOWABLE FUEL SUPPLY LINE RESTRICTION	8.9	IN-HG
MAXIMUM ALLOWABLE FUEL TEMPERATURE AT TRANSFER PUMP INLET	151	DEG F
MAXIMUM ALLOWABLE FUEL RETURN LINE RESTRICTION	8.0	IN-HG
NORMAL FUEL PRESSURE IN A CLEAN SYSTEM	60.2	PSI
FUEL SYSTEM TYPE	EUI	
MAXIMUM TRANSFER PUMP PRIMING LIFT WITHOUT PRIMING PUMP	12.1	FT
MAXIMUM HEAT REJECTION TO FUEL	722	BTU/MIN
LUBE SYSTEM		
CRANKCASE VENTILATION TYPE	TO ATM	
STARTING SYSTEM		
MINIMUM CRANKING SPEED REQUIRED FOR START	120	RPM
LOWEST AMBIENT START TEMPERATURE WITHOUT AIDS	32	DEG F

Cookie Settings

SCRT Arrangement Sketch



Tentative Interim Amendment

NFPA® 110

Standard for Emergency and Standby Power Systems

2022 Edition

Reference: 5.6.5.5.1(new)
TIA 22-1
(SC 24-4-14/ TIA Log #1759)

Pursuant to Section 5 of the NFPA *Regulations Governing the Development of NFPA Standards*, the National Fire Protection Association has issued the following Tentative Interim Amendment to NFPA 110, *Standard for Emergency and Standby Power Systems*, 2022 edition. The TIA was processed by the Technical Committee on Emergency Power Supplies, and the National Electrical Code® Correlating Committee, and was issued by the Standards Council on April 18, 2024, with an effective date of May 8, 2024.

1. Add a new paragraph 5.6.5.5.1 to read as follows:

5.6.5.5.1 Where used for permanent Level 1 applications, EPA-mandated inducement engine shutdowns due to emissions system controls that are required on Tier 4 certified engines with SCR shall be prohibited.

Issue Date: April 18, 2024

Effective Date: May 8, 2024

(Note: For further information on NFPA Codes and Standards, please see www.nfpa.org/docinfo**)**

kmohr@vwconstructionservices.com

From: Abner Enriquez <AEnriquez@quinnpower.com>
Sent: Tuesday, January 6, 2026 10:39 AM
To: kmohr@vwconstructionservices.com; John Castro; 'Robbie Barker'
Subject: 99MW - CATERPILLAR Generator System
Attachments: JOHNSON MATTHEY TIER 4 SYSTEM FOR 3516E 3MW GENSET_.pdf

Kyle,

Please see attached information of exhaust aftertreatment (Tier 4 system) for the 3MW units we supplied for the data center project in Los Angeles. The DPF/SCR unit will be installed on enclosure rooftop as shown and the rest of tier 4 accessories (e.g. Dosing Control panel, UREA tank, air compressor, etc.) contained inside genset sound attenuated enclosure.

Estimated operating sound level (full load, 7 m):

65 dBA (±5 dBA)

CAT 3516E 3.0 MW generator, the typical baseline sound level is:

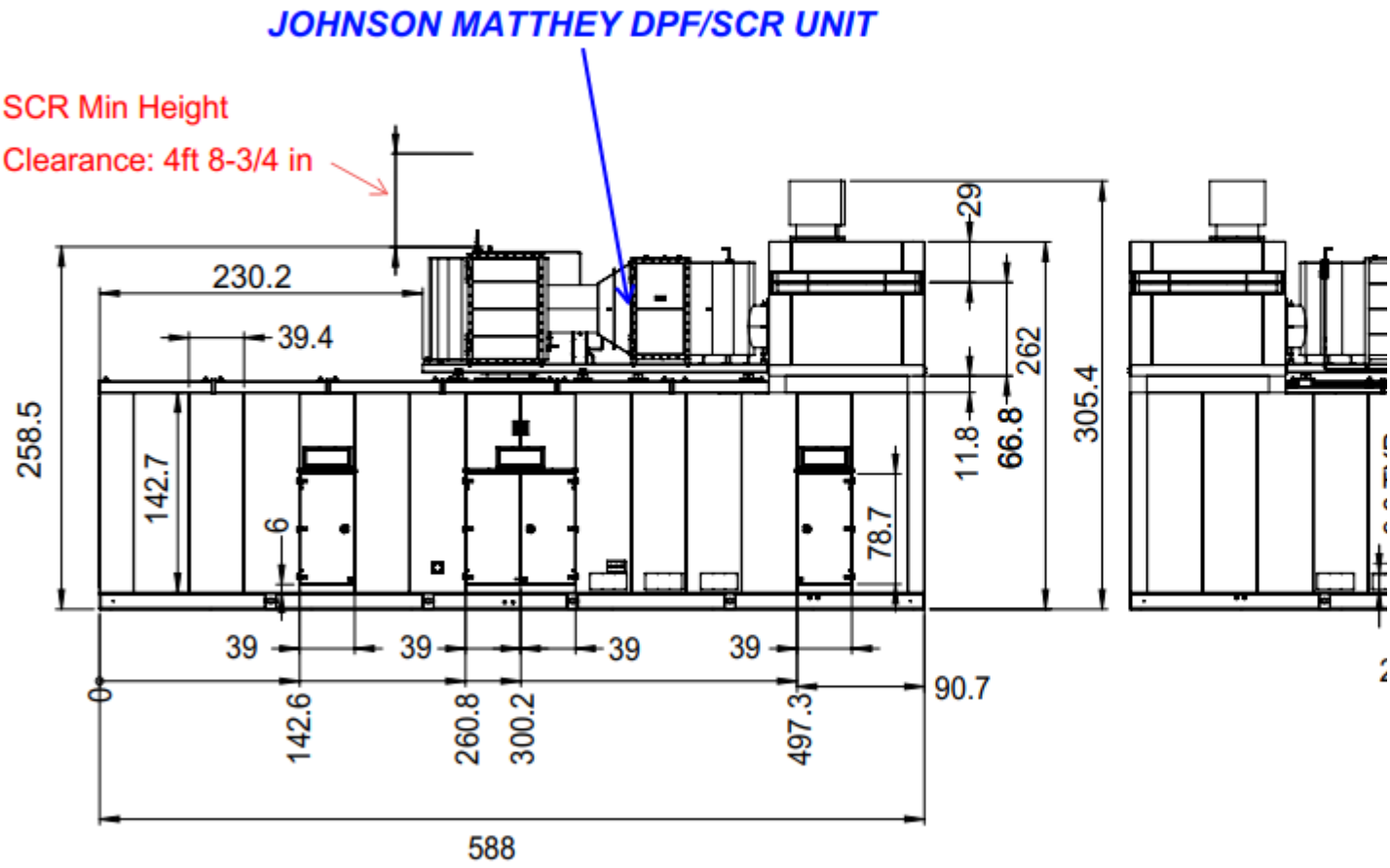
- 105–110 dBA @ 7 m (23 ft) for an unenclosed/open generator at full load
  (industry-standard range for engines of this size)

Applying the documented 40–45 dBA insertion loss:

Estimated operating sound level

- ≈60–70 dBA @ 7 m (23 ft)

PRELIM
DO NOT USE FO



Respectfully,

Abner Enriquez | Application Engineer
562-463-6035 Phone | 562-243-3909 Cell
aenriquez@quinnpower.com | www.quinnpower.com

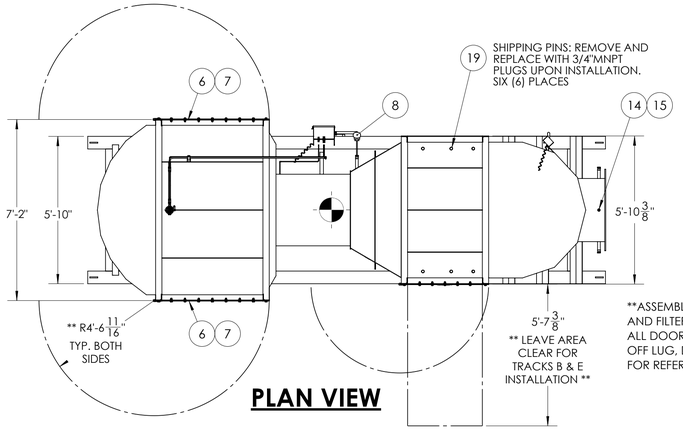
Full Load Design Parameters	
Engine	CAT 3516E
Engine kW Rating	3000
Application	Standby Power
Operating Hours per Year	~
Fuel	Ultra-Low Sulfur Diesel
Exhaust Gas Flow Rate	23,971 cfm (wet)
Full Load Exhaust Gas Temperature	903°F (1)
Design Exhaust Oxygen Concentration	10% (assumed)
Design Moisture Concentration	8% (assumed)

(1) THE UREA INJECTION PERMISSIVE IS 575° F. AND THE 100% LOAD TEMPERATURE IS 903°F

Full Load SCRT System Data	
Max. Ammonia Slip	10 ppmvd @ 15% O_2
Estimated 32.5% Urea Usage	14.6 USGPH
Estimated System Pressure Loss(2)	19.6" wc with clean filters and ~ 25.2" wc when filters are soot coated and need regeneration
Max. Allowable Engine Backpressure	27" wc
Est. Overall Sound Insertion Loss	40-45dBA

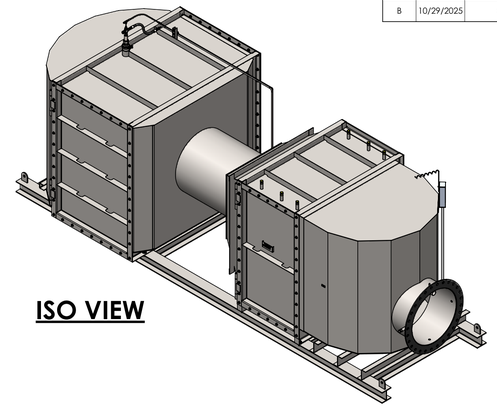
(2) Defined across JM components

Full Load Emissions Data				
Emission	Catalyst Inlet	Catalyst Outlet	Reduction %	Tier 4F Reference
NOx	6.76 g/bhp-hr	0.50 g/bhp-hr	92.6%	0.50 g/bhp-hr
CO	1.20 g/bhp-hr	0.24 g/bhp-hr	80%	2.60 g/bhp-hr
HC	0.06 g/bhp-hr	0.018 g/bhp-hr	70%	0.14 g/bhp-hr
PM	0.06 g/bhp-hr	0.009 g/bhp-hr	85%	0.02 g/bhp-hr



PLAN VIEW

**ASSEMBLY SUPPLIED WITH ALL CATALYST AND FILTER ELEMENTS PRE-INSTALLED. ALL DOORS REMOVABLE AND INCLUDE TIE OFF LUG, DOOR SWING DIMENSIONS SHOWN FOR REFERENCE.



ISO VIEW

REVISIONS					
REV.	DATE	DESCRIPTION	BY	ENG	APPROVED
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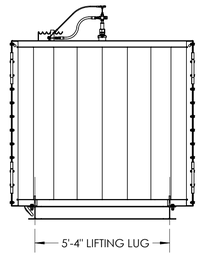
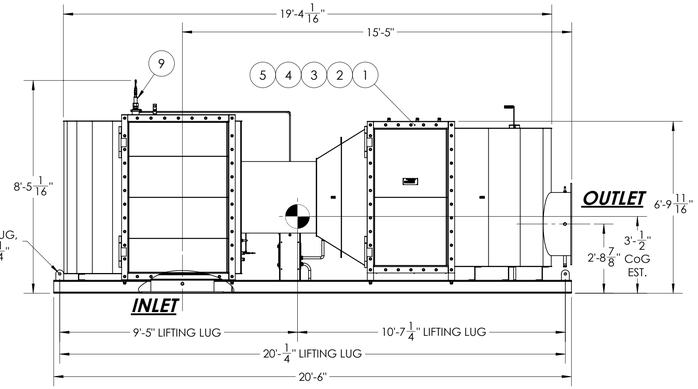
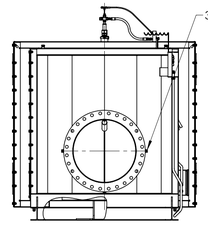
B	10/29/2025	CHANGED TO END OUT CONFIG.	DB	BW	



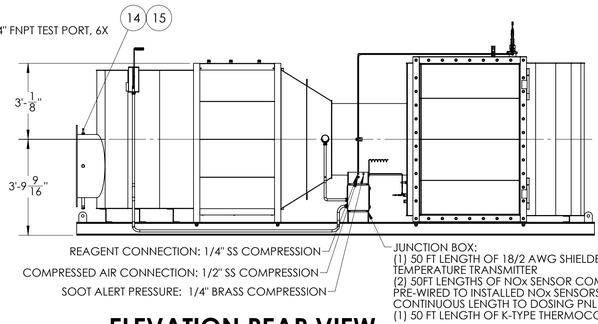
SIDE VIEW



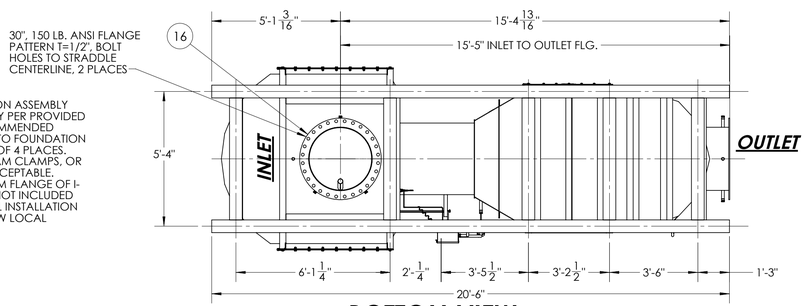
ELEVATION VIEW



SIDE VIEW



ELEVATION REAR VIEW



BOTTOM VIEW

W6X20 I-BEAM CONSTRUCTION ASSEMBLY BASE. SUPPORT OF ASSEMBLY PER PROVIDED WEIGHTS, BY OTHERS. RECOMMENDED ATTACHMENT OF ASSEMBLY TO FOUNDATION OR STRUCTURE IN MINIMUM OF 4 PLACES. USE OF STITCH WELDING, BEAM CLAMPS, OR 3/4" HARDWARE ARE ALL ACCEPTABLE. MOUNTING HOLES IN BOTTOM FLANGE OF I-BEAM BASE INTENTIONALLY NOT INCLUDED DUE TO VARIANCES OF FINAL INSTALLATION LOCATION. ALWAYS FOLLOW LOCAL CODES WHERE APPLICABLE.

ITEM NO.	DESCRIPTION	QTY.	JM PART NUMBER	MATERIAL	WEIGHT
1	cSCRT 24/22S10x10-2+1-30/30	1	202-C0039988	SS	13063
2	TRACK (B), UPPER FLOATING TRACK	2		409 SS	41.75
3	TRACK (E), HORIZONAL TRACK	8		409 SS	35.95
4	TRACK (F), SM DIVIDING TRACK	40		409 SS	3.55
5	SCR E-FRAME CATALYST	50	30007558		41.46
6	OXIDATION CATALYST	22	30006504		18.15
7	SOOT FILTER	22	30006815		31.98
8	TEMPERATURE SENSOR W/THERMOWELL & TRANSMITTER	1	10010063	316 SS	1.46
9	INJECTION LANCE WITH NOZZLE	1	202-C0039990	316 SS	
10	INJECTION CONTROL SYSTEM, 60L (STAINLESS STEEL)	1			
	DATA LOGGER				
	NOx SENSOR COMMUNICATIONS				
11	REAGENT FILTER ASSEMBLY	1	10010039		
12	SOOT ALERT WITH INSTALLATION KIT	1	10009768		
13	RECIPRICATING AIR COMPRESSOR W/60 GALLON TANK, AUTO START/STOP, 200-208VAC/3PH/60Hz	1	2340L5		435
	COMBINATION REGULATOR / FILTER, 3/4" NPT	1			
	OIL / WATER SEPARATOR	1			
14	NOx SENSOR, 24V	2	10009774		
15	NOx SENSOR CAN BUS CABLE, 50 FT. LG.	2	10010050		
16	BOLT AND GASKET KIT, 30" ANSI	2			
17	REAGENT STORAGE TANK, (330 gal.)	1			
	TANK FITTING, REDUCER AND CORD GRIP	1	SEC-ENG		
18	SUBMERSIBLE TANK LEVEL SENSOR	1	10010036		
19	SHIPPING PIN - 3/4"MNPT PLUG (shipping pin replacement)	4	SEC ENG	CS	
20	SCR O&M MANUAL (SEC-EN-M-029 SCR OM)	1	18007		
21	SOOT ALERT MANUAL	1	SEC-EN-M-004		

PRELIMINARY

ALL DIMENSIONS & WEIGHTS ARE FOR REFERENCE ONLY, CATALYST VOLUME, CONFIGURATION AND PERFORMANCE REQUIREMENTS MAY EFFECT FINAL DIMENSIONS.

NOTES:

1. REAGENT (UREA) INJECTION / EMISSIONS TREATMENT WILL NOT OCCUR AT SYSTEM TEMPERATURES BELOW 500°F. STATED ENGINE FULL LOAD TEMPERATURE IS 903°F AT FULL LOAD.
2. ALL PIPING AND WIRING UP TO JM SUPPLIED JUNCTION BOX AND BULKHEAD FITTINGS, BY OTHERS.
3. DOSING PANEL REQUIRES FLOODED INLET OF CLEAN 32.5% OR GREATER REAGENT. IF REAGENT FORWARDING IS REQUIRED SUPPLY PRESSURE NOT TO EXCEED 10psig
4. 120VAC / 1-PHASE / 60 Hz ELECTRICAL SERVICE REQUIRED TO SUPPLIED CONTROL / DOSING PANEL, BY OTHERS.
5. SOOT ALERT CONTROL MODULE IS TO BE PRE-MOUNTED TO THE SIDE OF THE DOSING CABINET AND POWERED FROM THE 24VDC POWER SUPPLY WITHIN THE DOSING PANEL.
6. AIR SUPPLY: ~8 cfm OF FILTERED (40-MICRON ELEMENT OR LESS) AND REGULATED AIR BETWEEN 80 to 110 psig REQUIRED.
7. SYSTEM CALL SIGNAL - DRY CONTACT INDICATING ENGINE RUN REQUIRED, BY OTHERS.
8. ENGINE LOAD SIGNAL - (4-20mA) SIGNAL RELATIVE TO ENGINE LOAD TO CONTROL / DOSING PANEL FOR EACH ENGINE REQUIRED, BY OTHERS.
9. UNIT MOUNTED TEST PORTS ARE FOR COMMISSIONING AND FIELD REQUIRED TESTING, AND ARE NOT TO BE USED FOR EPA STACK TEST.

**** ASSEMBLY LIFT WEIGHT IS 13,063 lbs. CENTER OF GRAVITY INDICATED WITHIN ELEVATION AND PLAN VIEWS. SUPPORTING STRUCTURE UNDER ASSEMBLY TO BE SIZED FOR MINIMUM OF 14,500 lbs. (CompactSCRT ASSEMBLY WITH SPARE FILTERS & CATALYST LAYER FILLED/UTILIZED)**

Shipping Dims		
Length	Width	Height
Material		
Finish		
Weight (lbs)	Model Rev.	
7926.50		

Johnson Matthey

Quinn Power Systems
Soto Data Center

cSCRT 24/22S10x10-2+1-30/30
GENERAL ARRANGEMENT

DRAWN BY	CHECKED	DATE	WHERE USED	DISCIP.	PROJECTION: THIRD ANGLE	SHEET NO.	SIZE
DB	BW	24 Oct 25				1 OF 2	D
ENGINEER	APPROVED	SCALE	EWR NO.	SO NO.	DRAWING NO.	SHT.	REV.
BW	BW	1:36	03711		202-C0039989 -1-		B

C:\JM\Environmental\SEC\Xmerica\Autoborn\Projects\EWR 03711 - Quinn Power Systems - Soto Data Center\Drawing\Models\(1P) 3000kW System\System Assembly\202-C0039989 (202-A0034778) Wednesday, October 29, 2025 3:32:10 PM

REVISIONS					
REV.	DATE	DESCRIPTION	BY	ENG	APPROVED
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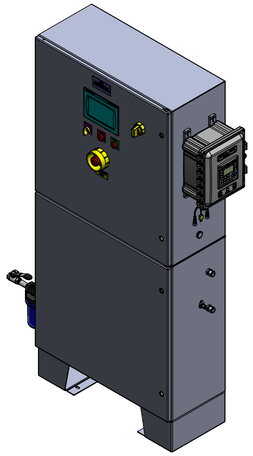
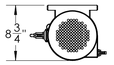
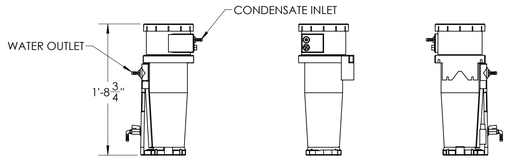
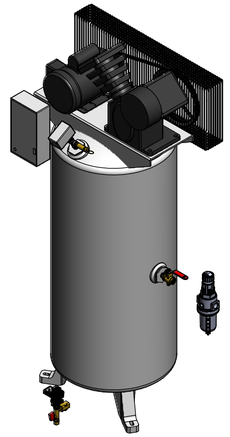
B	10/29/2025	CHANGED TO END OUT CONFIG.	DB	BW	

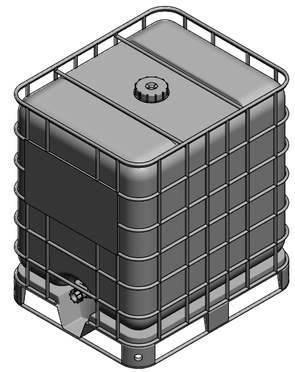


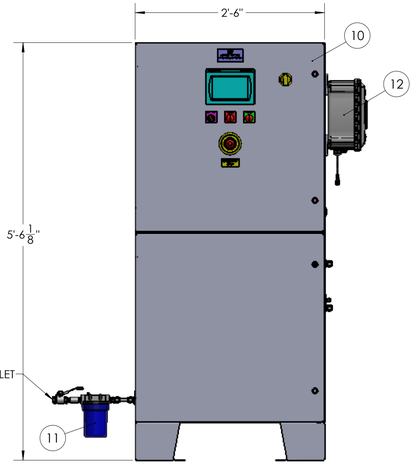


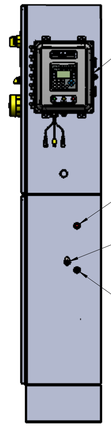


OIL / WATER SEPARATOR
(INCLUDED WITH AIR COMPRESSOR PACKAGE)









SOOT ALERT WILL BE SUPPLIED PRE-MOUNTED TO THE SIDE OF THE DOSING PANEL. INTERCONNECTING 24VDC AND RJ45(ETHERNET) CONNECTED. SOOT ALERT PRESSURE, TEMPERATURE, AND OPTIONAL ALARM CONTACT CONNECTION, BY OTHERS. SOOT ALERT INSTALLATION KIT INCLUDED.
SOOT ALERT CAN BE RELOCATED TO ALTERNATE LOCATION IF PREFERRED. PLEASE REFERENCE THE SOOT ALERT MANUAL FOR ADDITIONAL DETAIL.

COMPRESSED AIR SUPPLY
1/2" COMPRESSION FITTING

REAGENT OUTLET
1/4" COMPRESSION
FITTING

COMPRESSED AIR OUT
1/2" COMPRESSION FITTING

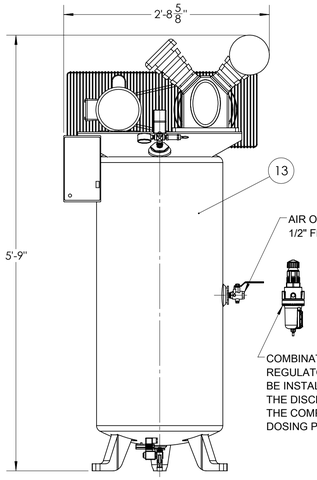
CONTROL & DOSING PANEL

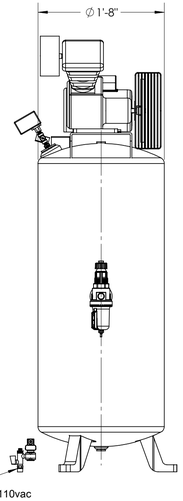
CONTROL AND DOSING PANEL ASSEMBLY TO BE PLACED IN A LOCATION WHICH ALLOWS FOR FEASIBLE FIELD WIRING CONNECTIONS, ACCESS TO UREA SUPPLY, AND REASONABLE TUBE LENGTHS BETWEEN THE DOSING ASSEMBLY AND THE REAGENT AND AIR BULKHEAD FITTINGS OF THE CompactSCRT ASSEMBLY.

OUTDOOR PLACEMENT OF CONTROL AND DOSING PANEL ASSEMBLY IS NOT RECOMMENDED. HEATING AND COOLING OF THE DOSING CABINET ARE NOT INCLUDED, BUT AVAILABLE UPON REQUEST.

POSITIVE DISPLACEMENT METERED DOSING PUMP, INTERNAL TO JM DOSING CONTROL ASSEMBLY, UTILIZED FOR PRECISE INJECTION OF REAGENT INTO THE SYSTEM FOR THE TREATMENT OF NOx EMISSIONS. FLOODED (GRAVITY FED) REAGENT SUPPLY FROM STORAGE TANK REQUIRED AT PUMP INLET. MAXIMUM PUMP LIFT CAPACITY DURING PRIMING 1.5m(4.9ft) AND 3m(9.8ft) DURING OPERATION.

REAGENT FORWARDING ONLY REQUIRED IF DOSING CONTROL PANEL IS TO BE LOCATED AT AN ELEVATION IN EXCESS OF 4.9ft GREATER THAN THE LIQUID LEVEL OF THE STORAGE TANK.

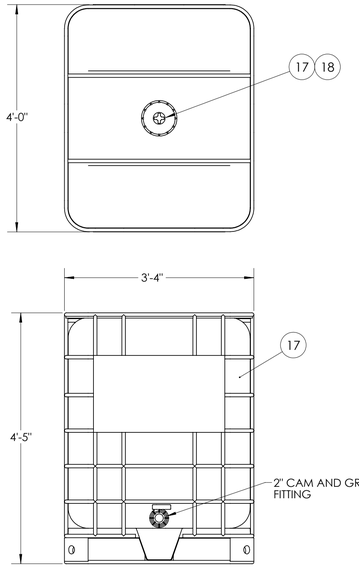




RECIPROCATING AIR COMPRESSOR PACKAGE WITH AUTOMATIC CONDENSATE DRAIN

NOTES:

1. ADEQUATE AIR CIRCULATION AROUND THE COMPRESSOR MUST BE MAINTAINED.
2. FOUNDATION OR FLOOR MUST BE LEVEL AND SUPPORT ALL FEET EQUALLY.
3. FOUNDATION BOLTS SHOULD PROJECT THRU NUTS AT LEAST 1/2" TO ALLOW FOR LEVELING.
4. ALLOW AT LEAST 12" CLEARANCE MIN. ON ALL SIDES FOR PROPER AIR CIRCULATION.



NOTES:

1. DIESEL EXHAUST FLUID (DEF) OR UREA SHOULD BE STORED IN COOL, DRY, AND VENTILATED PLACE OUT OF DIRECT SUNLIGHT
2. FOR OPTIMAL FLUID SHELF LIFE AMBIENT STORAGE TEMPERATURES SHOULD BE MAINTAINED BETWEEN 12°F AND 86°F
3. REFERENCE FLUID SUPPLIER SDS FOR ADDITIONAL DETAIL

REAGENT STORAGE TANK 330 GALLONS

Shipping Dims		
Length	Width	Height
Material		
Finish		
Weight (lbs)	Model Rev.	

Johnson Matthey

QUINN POWER SYSTEMS
SOTO DATA CENTER

cSCRT 24/22S10x10-2+1-30/30
GENERAL ARRANGEMENT

DRAWN BY	CHECKED	DATE	WHERE USED	DISCIP.	PROJECTION: THIRD ANGLE	SHEET NO.	SIZE
DB	BW	24 Oct 25				2 OF 2	D
ENGINEER	APPROVED	SCALE	EWR NO.	SO NO.	DRAWING NO.	SHT.	REV.
BW	BW	1:12	03711		202-C0039989 -2-		B

C:\JM\Environmental\SEC\America\Audubon\Projects\EWR13711 - Quinn Power Systems - Soto Data Center\Drawings\Models\19 300kW System\System Assembly\202-C0039989 (202-AUD14607) Wednesday, October 29, 2025 3:32:10 PM

PIPING SYMBOLS

- GATE VALVE
- GLOBE VALVE
- BALL VALVE
- PLUG VALVE
- NEEDLE VALVE
- BUTTERFLY VALVE, NO WITH SPRING RETURN
- BUTTERFLY VALVE
- CHECK VALVE
- 3-WAY VALVE
- ANGLE VALVE
- PIV — POST INDICATOR VALVE
- SLIDE VALVE
- PISTON SLIDE VALVE, NC WITH SPRING RETURN
- DIAPHRAGM ACTUATED CONTROL VALVE
- PISTON OPERATED VALVE
- S — SOLENOID VALVE NORMALLY OPEN (NO)
- S — SOLENOID VALVE NORMALLY CLOSED (NC)
- M — MOTOR OPERATED VALVE
- MANUALLY OPERATED VALVE
- SELF ACTIVATED VALVE
- PRESSURE OR VACUUM RELIEF VALVE
- PRESSURE/VACUUM RELIEF VALVE
- EJECTOR OR EDUCTOR
- UNION
- LINE BLIND
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- PIPE CAP
- PIPE CAP (SCREWED)
- BLIND FLANGE
- EXPANSION OR FLEX JOINT
- FLEXIBLE CONNECTION HOSE OR TUBING
- SC — SAMPLE CONNECTION
- GOOSE NECK VENT
- FE — ORIFICE TYPE FLOW ELEMENT
- FILTER

PIPING SYMBOLS

- TURBINE OR PROPELLER TYPE FLOW ELEMENT
- VENTURI TUBE OR FLOW NOZZLE
- PITOT TUBE
- ROTAMETER
- Y-STRAINER
- PI — PRESSURE RELIEF REGULATOR, SELF CONTAINED, WITH HANDWHEEL ADJ. SET POINT / PRESSURE INDICATOR

MISC PROCESS SYMBOLS

- EPU — METERING PUMP WITH DIAPHRAGM
- C — CENTRIFUGAL BLOWER
- VANE PUMP
- 3-WAY VALVE PILOT SUPPLY SPRING RETURN
- PULSATION DAMPENER
- PITOT TUBE
- NOx SENSOR

PIPING DATA

LINE NUMBER DESIGNATION

AA-BB-C-D-EE-WXZZZZ

- AA = NOMINAL LINE SIZE
- BB = PIPING BASE MATERIAL DESIGNATION
- C = PIPING TYPE
- D = INSULATION PURPOSE DESIGNATION
- EE = PIPE SERVICE
- WXXXXX = UNIQUE LINE NUMBER

PIPE MATERIAL CODES

BA	BLACK IRON PIPE
CA	CARBON STEEL
CB	GALVANIZED CARBON STEEL
LA	TEFLON LINED PIPE
LB	POLYPROPYLENE LINED PIPE
LC	GLASS LINED
MA	CEMENT LINED DUCTILE IRON
MB	CAST IRON
MC	DURRIRON
NA	HASTELLOY B2
NB	HASTELLOY C22
NC	HASTELLOY C276
ND	MONEL
NE	NICKEL
NG	INCONEL
NF	COPPER
PA	TEFLON
PB	POLYPROPYLENE
PC	POLYVINYL CHLORIDE(PVC)
PD	CHLORINATED POLYVINYL CHLORIDE(CPVC)
PE	FRP
PF	BONDED PFA COMPOSITE
PG	BONDED FEP COMPOSITE
SA	304 STAINLESS
SB	316 STAINLESS
SC	904 STAINLESS

PIPING TYPE CODES

T	TUBE
P	PIPE

INSULATION CODES

A	ANTI-SWEAT
C	COLD CONSERVATION
F	FIRE PROTECTION
H	HEAT CONSERVATION
N	NONE
P	PERSONAL PROTECTION
S	SOUND

PIPE SERVICE CODES

CA	COMPRESSED AIR
CW	COLD WATER
EX	EXHAUST
HW	HOT WATER
O	OXYGEN
NG	NATURAL GAS
NO	NOX
PW	PROCESS WATER
U	UREA

INSTRUMENT IDENTIFICATION LETTERS

	FIRST-LETTER (4)		SUCCEEDING-LETTERS (3)		
LETTER	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS (5,19)		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE (1)	USER'S CHOICE (1)	USER'S CHOICE (1)
C	USER'S CHOICE (1)			CONTROL (13)	
D	USER'S CHOICE (1)	DIFFERENTIALS (4)			
E	VOLTAGE		SENSOR (PRIM. ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)(4)			
G	USER'S CHOICE (1)		GLASS VIEWING DEVICE (9)		
H	HAND				HIGH (7,15,16)
I	CURRENT (ELECTRICAL)		INDICATE (10)		
J	POWER	SCAN (7)			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE (20)		CONTROL STATION (22)	
L	LEVEL		LIGHT (11)		LOW (7,15,16)
M	MOTOR	MOMENTARY (4)			MIDDLE INTERMEDIATE (7,15)
N	USER'S CHOICE (1)		USER'S CHOICE (1)	USER'S CHOICE (1)	USER'S CHOICE (1)
O	USER'S CHOICE (1)		ORIFICE, RESTRICTION		
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZER(4)			
R	RADIATION	RADIATION	RECORD (17)		
S	SPEED, FREQUENCY	SAFETY (8)		SWITCH (13)	
T	TEMPERATURE			TRANSMIT (18)	
U	MULTIVARIABLE (6)		MULTIFUNCTION (12)	MULTIFUNCTION (12)	
V	VIBRATION, MECHANICAL ANALYSIS (19)			VALVE, DAMPER, LOUVER (13)	
W	WEIGHT, FORCE		WELL		
X	UNCLASSIFIED (2)	X AXIS	UNCLASSIFIED (2)	UNCLASSIFIED (2)	UNCLASSIFIED (2)
Y	EVENT, STATE, OR PRESENCE (20)	Y AXIS		RELAY, COMPUTE, CONVERT (13,14,18)	
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

MISC PROCESS SYMBOLS

- DRIP SHIELD
- COMPRESSOR
- STORAGE TANK
- DRAIN

INSTRUMENTS

- LOCAL (FIELD) INSTRUMENT
- INSTRUMENT ON LOCAL PANEL
- INSTRUMENT ON MAIN PANEL CONSOLE
- PLC FUNCTION ON MAIN PANEL CONSOLE

OFF PLOT CONNECTOR

PRIMARY/SECONDARY LINES AND INSTRUMENT SIGNAL CONNECTOR

SERVICE DESCRIPTION

CONNECTOR NUMBER — XXXXX | P&ID NUMBER

ORIGIN/DESTINATION

UTILITY CONNECTOR

XXXXX
P&ID NUMBER

LINE SYMBOLS

- INSTRUMENT SUPPLY OR CONNECTION TO PROCESS
- PNEUMATIC SIGNAL
- ELECTRIC SIGNAL
- HEAT TRACED, INSULATED PROCESS LINE
- CUSTOMER SUPPLIED UNITS

REVISIONS			
REV.	DESCRIPTION	BY	APPRVD.
0	INITIAL RELEASE	B.E.W. 10-25-25	B.E.W. 10-25-25

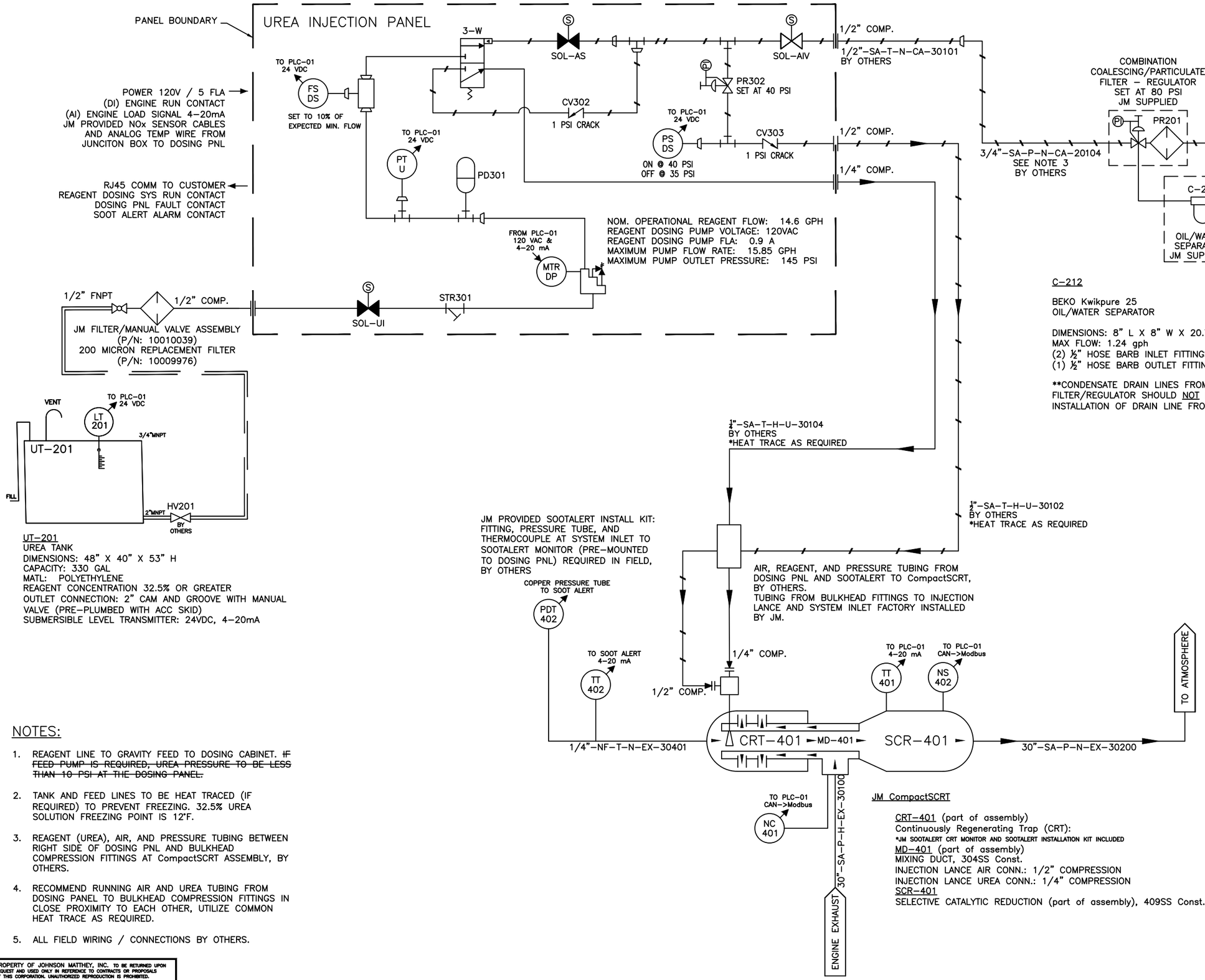
Quinn Power Systems
SOTO Data Center
3516E – 3000kw

Johnson Matthey
Inspiring science, enhancing life

DESIGN		ENGR.	PRO. ENGR.	ENGR. MGR.
DRAWN B.E.W.	CHECKED B.E.W.			
DATE: 10/24/25	SHEET NO. 1 OF 2	DRAWING NUMBER		REV.
SCALE: NONE		505997-3711		0

EWR-3711

REVISIONS			
REV.	DESCRIPTION	BY	APPRVD.
0	INITIAL RELEASE	B.E.W. 10-25-25	B.E.W. 10-25-25



NOTES:

1. REAGENT LINE TO GRAVITY FEED TO DOSING CABINET. ~~IF FEED PUMP IS REQUIRED, UREA PRESSURE TO BE LESS THAN 10 PSI AT THE DOSING PANEL.~~
2. TANK AND FEED LINES TO BE HEAT TRACED (IF REQUIRED) TO PREVENT FREEZING. 32.5% UREA SOLUTION FREEZING POINT IS 12°F.
3. REAGENT (UREA), AIR, AND PRESSURE TUBING BETWEEN RIGHT SIDE OF DOSING PNL AND BULKHEAD COMPRESSION FITTINGS AT CompactSCRT ASSEMBLY, BY OTHERS.
4. RECOMMEND RUNNING AIR AND UREA TUBING FROM DOSING PANEL TO BULKHEAD COMPRESSION FITTINGS IN CLOSE PROXIMITY TO EACH OTHER, UTILIZE COMMON HEAT TRACE AS REQUIRED.
5. ALL FIELD WIRING / CONNECTIONS BY OTHERS.

EWR-3711

Quinn Power Systems
SOTO Data Center
3516E – 3000kw

Johnson Matthey
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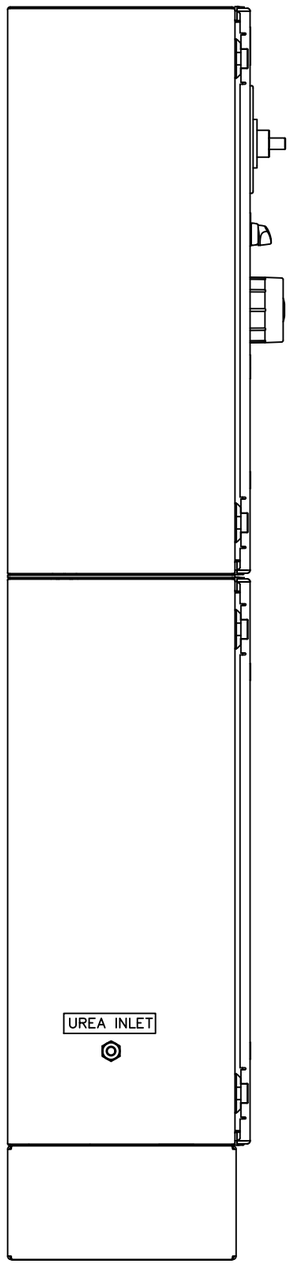
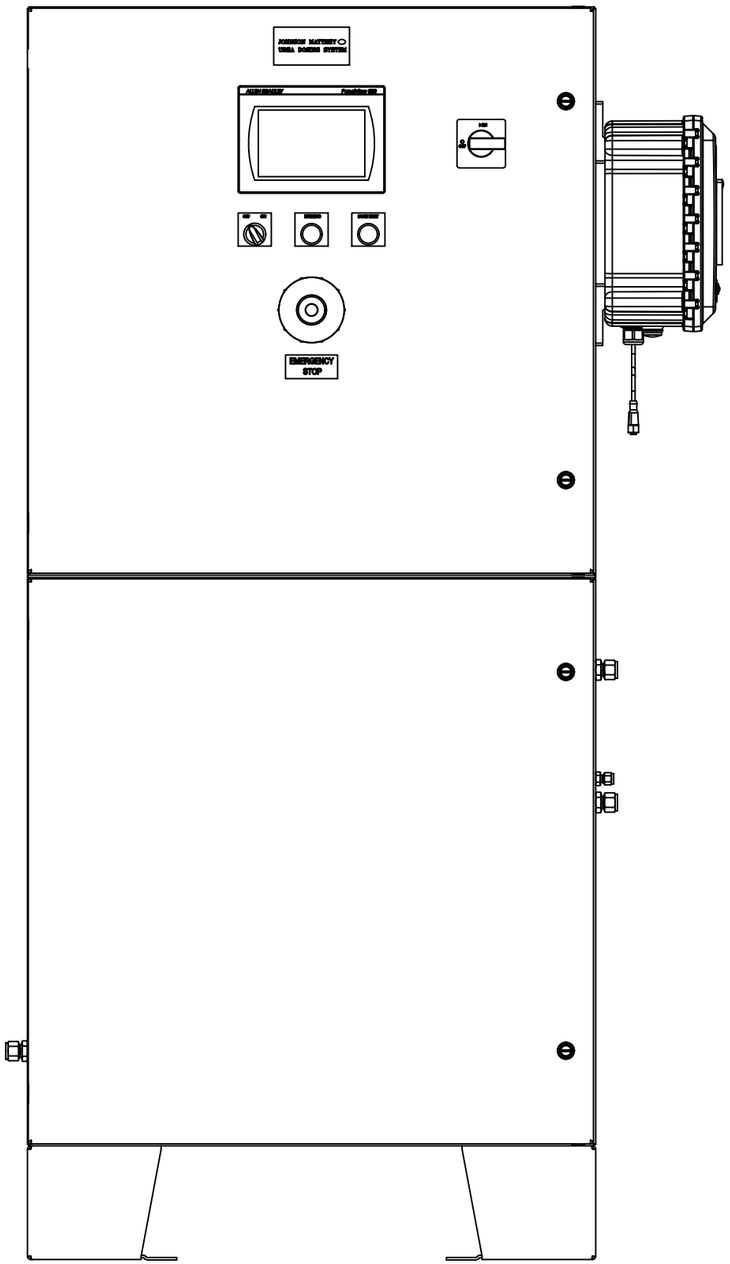
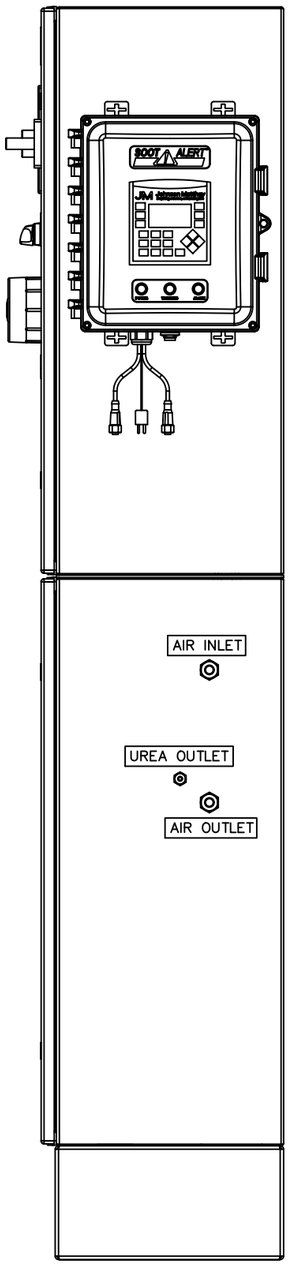
DESIGN		ENGR.	PRO. ENGR.	ENGR. MGR.
DRAWN B.E.W.	CHECKED B.E.W.			
DATE: 10/24/25	SHEET NO. 2 OF 2	DRAWING NUMBER		REV.
SCALE: NONE		505997-3711		0

REVISIONS			
REV.	DESCRIPTIONS	BY	APP'VD.
0	INITIAL RELEASE	B.E.W. 10-24-25	B.E.W. 10-24-25







TYPICAL JM CONTROL/DOSING CABINET ASSEMBLY FOR REFERENCE ONLY

EWR-3711

Quinn Power Systems
SOTO Data Center
3516E – 3000kw

Johnson Matthey
Inspiring science, enhancing life

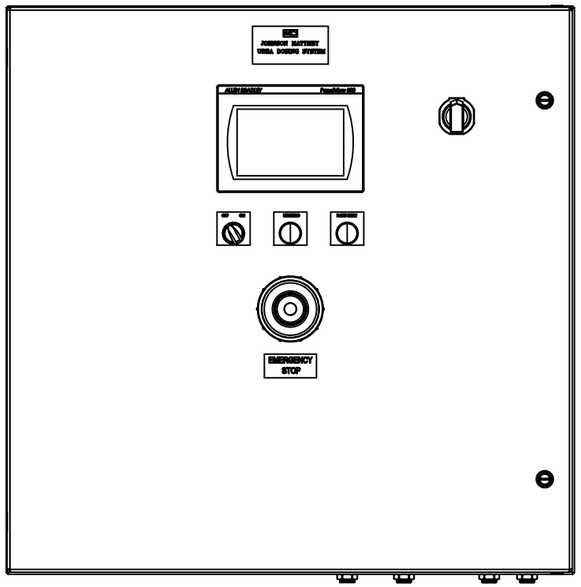
DESIGN		ENGR.	PRO. ENGR.	ENGR. MGR.
DRAWN B.E.W.	CHECKED B.E.W.			
DATE: 10/24/25	SHEET NO. 1 OF 13	DRAWING NUMBER		REV.
SCALE: NONE		505996-3711		0

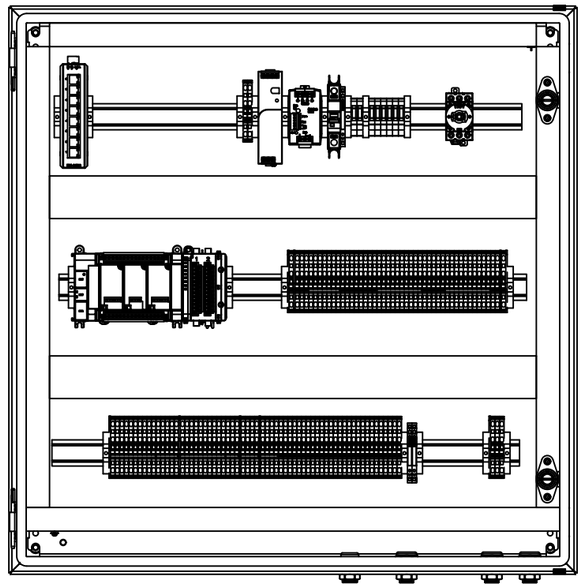
REVISIONS			
REV.	DESCRIPTIONS	BY	APPVD.
0	INITIAL RELEASE	B.E.W. 10-24-25	B.E.W. 10-24-25

TAG LEGEND

LP-LIGHTED PUSHBUTTON
P -PUSHBUTTON
S -SWITCH
L -LIGHT
T -TAG

NAME	LEGEND
L-GO	RUNNING
LP-ALM	FAULT
	RESET
PP-ES	EMERGENCY STOP
S-PWR	OFF/ON
TAG-JM	JOHNSON MATTHEY UREA DOSING SYSTEM
TAG-MD	MAIN DISCONNECT





PANEL TO BE UL LISTED (usUL, cUL)
INDUSTRIAL CONTROL PANEL UL508A

EWR-3711

Quinn Power Systems
SOTO Data Center
3516E – 3000kw

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DESIGN		ENGR.	PRO. ENGR.	ENGR. MGR.
DRAWN B.E.W.	CHECKED B.E.W.			
DATE: 10/24/25	SHEET NO. 2 OF 13	DRAWING NUMBER		REV.
SCALE: NONE		505996-3711		0

REVISIONS			
REV.	DESCRIPTIONS	BY	APPVD.
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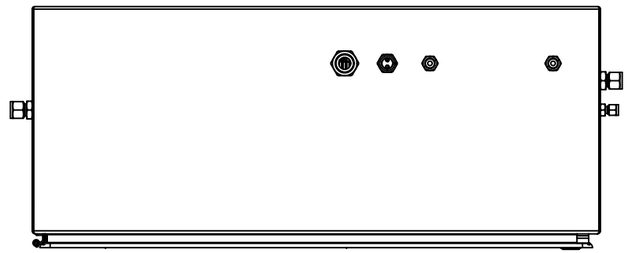
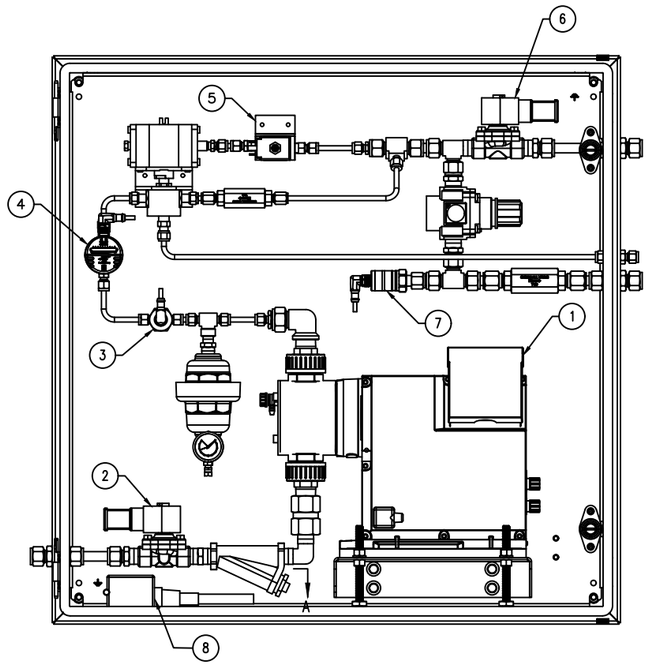
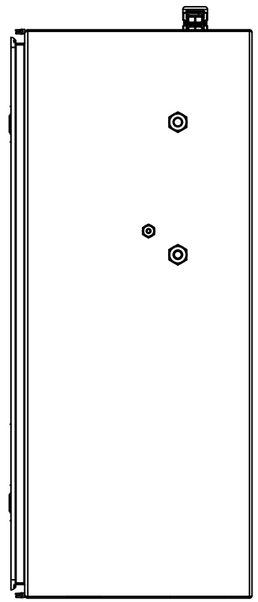






1	DOSING PUMP
2	N.C. UREA INLET SOLENOID
3	UREA PRESSURE TRANSMITTER
4	FLOW SWITCH
5	3-WAY VALVE SOLENOID
6	N.O. AIR INLET SOLENOID
7	PRESSURE SWITCH
8	LEAK DETECTOR SWITCH

TYPICAL JM DOSING CABINET ASSEMBLY
* FOR REFERENCE ONLY

EWR-3711

Quinn Power Systems
SOTO Data Center
3516E – 3000kw

Johnson Matthey
Inspiring science, enhancing life

DESIGN		ENGR.	PRO. ENGR.	ENGR. MGR.
DRAWN B.E.W.	CHECKED B.E.W.			
DATE: 10/24/25	SHEET NO. 3 OF 13	DRAWING NUMBER		REV.
SCALE: NONE		505996-3711		0

Submittal Data Package

Project:
99 MW Data Center Inyokern, CA

Customer:
ALL BIDDERS- US CURRENCY OFFICIAL

Representative:
Keith Jandora (NA - Northeast)
✉ keith@newton-metallo.com

Series 3000 Cooling Tower
S3E-1222-10P-4

Background Information			
BAC Quote Number:	145026	**Line:**	100
Revision:	0	**Revision Name**:	MASTER
Purchase Order No:			

Notes:

The submittal document is as configured by your Sales Representative as of the date 10/7/2025. Please note any future changes may require a revised submittal package and updated drawings.

Table of Contents

Model Information

Product line:	Series 3000 Cooling Tower
Model:	S3E-1222-10P-4
Quantity:	1

Equipment Summary

- Induced Draft, Crossflow Cooling Tower
- Quality Assurance - ISO 9001 Compliant
- CTI Certified Thermal Performance
- EVERTOUGH(TM) Construction
- Standard Fan Driven by BALTIDRIVE® Power Train
- Stainless Steel Fan Guard
- Fiberglass Reinforced Polyester (FRP) Casing Panels
- PVC Fill & Drift Eliminators
- Structure Designed in accordance with the IBC and ASCE/SEI 7
- Bottom Inlet EASY CONNECT® Piping Arrangement
- Bottom Outlet Pump Suction Connection
- Bottom Equalizer
- Less Flume Box
- Electric Water Level Control Package with High & Low Level Alarm for Independent Cell Operation
- Single Inlet Piping Drain Valve - Manual Valve
- PVC Basin Sweeper Piping System
- Mechanical Vibration Cutout Switch
- Extended Bearing Lubrication Lines
- Davit Arm & Support
- Combined Air Inlet Shields
- External Platform and Ladder with a Safety Cage and Gate Protected by a Thermosetting Hybrid Polymer Located on Both Louver Faces of Unit
- Access Door Platform with Aluminum Ladder Located on Both Ends of the Unit
- 6' Ladder and Cage (if provided) Extension(s) for each Ladder
- Stainless Steel Internal Walkway

Model Information

Product line	Series 3000 Cooling Tower
Model	S3E-1222-10P-4

Main Accessories

Intake option	Combined Inlet Shields (CIS) - Replace Air Inlet Louvers
Discharge option	None

Thermal Design Data (per unit)

Requested flow rate	13,115.00 gpm
Requested capacity	65,554.01 MBH
Inlet temperature of process fluid	95.00 °F
Outlet temperature of process fluid	85.00 °F
Entering wet bulb temperature	68.00 °F
Maximum Flow Rate	13,839.23 GPM
Maximum capacity	69,307.79 MBH
Reserve capacity	5.52 %

Physical Data (per unit)

Overall length (see note)	47' 11"
Overall width (see note)	21' 7"
Overall height (see note)	16' 5"
Shipping weight (see note)	61,324 lbs
Operating weight (see note)	134,041 lbs
Heaviest section (see note)	9,010 lbs

Note: These dimensions and weights do not include options and accessories. See the submittal drawings for final dimensions and weights.

Wet Deck Surface

Wet deck surface type	BACross® fill
Wet deck surface material	PVC

Electrical Data (per unit)

Fan motor	
Quantity	4
BHP (net mech output power at motor shaft)	159.9 HP
Fan motor power	(4) 40.0 = 160.0 HP/Unit
Fan Drive System	BALTIDRIVE® Power Train
Voltage	230/460 V
Phase	3 Phase
Frequency	60 Hz
Protection class	IP55
Efficiency class	Premium Efficiency
Fan synchrone speed	1,800 RPM
Frame size	NEMA Frame 324T
Type	1 Speed/1 Winding
Enclosure	TEAO : Totally Enclosed Air Over/Airtight Motor

Aerodynamic Data (per unit)

Airflow (100% RPM)	721,691 CFM
Airflow (100% RPM/100% RPM)	721,691 CFM
Number of fans	4
Fan type	Standard Fan
Minimum distance required for single unit (For multiple units, refer to Layout Guidelines)	
From solid wall with maximum air flow	6.5 ft.
From 50% open wall with maximum air flow	3.0 ft.
Fan synchrone speed	1,800 RPM

Energy Rating

USGPM/HP per ASHRAE 90.1 , ASHRAE 189 and CA Title 24	67.30 USGPM/HP

Hydraulic Data (per unit)

Total pressure drop	6.67 PSI
Static lift	6.67 PSI
IBC 2018 Code Compliance	Yes
Special Seismic Certification	No (Ip = 1.0)
Unit Structural Design	Standard

Special Requirement(s)

Notes:

- Thermal performance at design conditions and total standard fan motor power is CTI/ECC certified
- These unit dimensions do not include all options and any accessories. Exact unit dimensions and weights may be influenced by accessories/options combinations.
- Refer to unit print for detailed dimensions.
- The values presented in this document are estimates only and are subject to change by BAC.

Opportunity name: 99 MW Data Center Inyokern, CA
Project city: JESSUP
Project country: United States

Model Information

Product line: Series 3000 Cooling Tower
Model: S3E-1222-10P-4
Number of units: 1
Total pump motor power:
Total standard fan power: 100%, 159.9 HP/Unit
Fan type: Standard Fan
Fan motor: (4) 40.0 = 160.0 HP/Unit

Intake option: Combined Inlet Shields (CIS) - Replace Air Inlet Louvers
Discharge option: None

Octave band and A-weighted sound pressure levels (Lp) are expressed in decibels (dB) reference 0.0002 microbar. Sound power levels (Lw) are expressed in decibels (dB) reference one picowatt. Octave band 1 has a center frequency of 63 Hertz.

Top
Sound Pressure (dB)

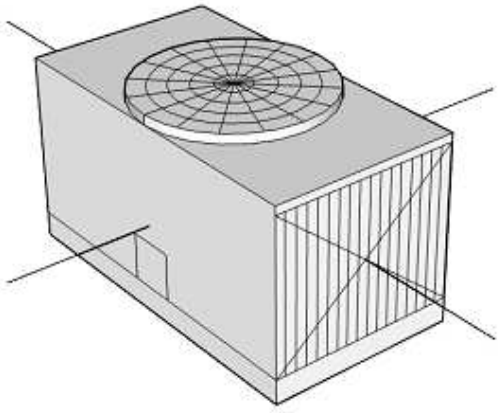
Octave Band	Distance	
	5 ft.	50 ft.
1	88	79
2	89	80
3	88	79
4	84	73
5	81	69
6	76	64
7	71	59
8	70	56
A-wgtd	**86**	**75**

Air Inlet
Sound Pressure (dB)

Octave Band	Distance	
	5 ft.	50 ft.
1	84	73
2	86	72
3	85	75
4	78	71
5	72	66
6	66	58
7	61	52
8	57	48
A-wgtd	**80**	**72**

End
Sound Pressure (dB)

Octave Band	Distance	
	5 ft.	50 ft.
1	80	76
2	81	71
3	78	72
4	71	66
5	67	62
6	59	53
7	52	48
8	50	43
A-wgtd	**74**	**68**



End
Sound Pressure (dB)

Octave Band	Distance	
	5 ft.	50 ft.
1	80	76
2	81	71
3	78	72
4	71	66
5	67	62
6	59	53
7	52	48
8	50	43
A-wgtd	**74**	**68**

Air Inlet
Sound Pressure (dB)

Octave Band	Distance	
	5 ft.	50 ft.
1	84	73
2	86	72
3	85	75
4	78	71
5	72	66
6	66	58
7	61	52
8	57	48
A-wgtd	**80**	**72**

Sound Power (dB)

Octave Band	Center Frequency (Hertz)	Lw
1	63	111
2	125	112
3	250	111
4	500	105
5	1000	101
6	2000	96
7	4000	91
8	8000	88
A-wgtd		**108**

Notes:
- The use of VFDs can increase sound levels.
- The values presented in this document are estimates only and are subject to change by BAC.
- Sound rating is for a single unit.
- Sound data provided by 'ATC 128 (2025)' sound test code.
- Sound data is free field data valid for unit installation without elevation, not taking into account any reflections. Octave band values are shown for indicative purposes only. Values are obtained according to CTI ATC-128 (Test Code for Measurement of Sound From Water-Cooling Towers) for small towers.

Background Information

Customer:	ALL BIDDERS- US CURRENCY OFFICIAL		
Project:	99 MW Data Center Inyokern, CA		
BAC Quote Number:	145026	**Line:**	100
Revision:	0	**Revision Name:**	MASTER
Purchase Order No:			
Engineer:			

Model Information

Product line:	Series 3000 Cooling Tower
Model:	S3E-1222-10P-4
Knockdown For Field Assembly?	No

Mechanical Specifications

Unit Type	Induced Draft, Crossflow Cooling Tower Factory fabricated, induced draft, crossflow cooling tower with vertical discharge.
Quality Assurance	Quality Assurance - ISO 9001 Compliant Each unit is manufactured under closely-controlled conditions using standardized parts to ensure each unit is built precisely to the same high-quality design and construction standards. The design, manufacture, and business processes of Baltimore Aircoil Company are ISO 9001 compliant.
CTI Certification	CTI Certified Thermal Performance The thermal performance of this BAC unit has been certified through performance tests conducted by the Cooling Technology Institute in accordance with their standard STD-201 RS. Your equipment may be selected for factory-testing to verify CTI certified performance. Such certification by an independent third party assures engineers and users that the published thermal capacities accurately reflect the actual unit performance. CTI certification eliminates the additional costs of on-site, individual unit testing, oversizing the equipment or operating cost penalties from deficient equipment.
Materials of Construction	EVERTOUGH(TM) Construction EVERTOUGH(TM) Construction combines the most cost effective and corrosion resistant materials available in the market to protect each component of a cooling tower which are described below. All structural steel components are constructed from G-235 (Z700 metric) hot-dip galvanized steel protected by a thermosetting hybrid polymer. Hot water distribution basins are gravity type constructed of pultruded fiberglass reinforced polyester. The unit is supplied with a weir dam in each hot water basin to accommodate water flow rates down to 50% of the design flow. Polypropylene metering orifices are provided to assure even distribution of water over the fill. The thermosetting hybrid polymer applied by Baltimore Aircoil Company consists of: 1) G-235 (Z700 metric) hot-dip galvanized steel components 2) parts prepared in a four-step (clean, pretreat, rinse, dry) process 3) electrostatically sprayed thermosetting hybrid polymer, fuse bonded to the hot-dip galvanized substrate during a thermally activated curing stage 4) quality assurance inspection program including 23 steps throughout polymer application and unit fabrication. The cold water basin includes a depressed section with drain/clean-out connection and the area under the fill sections is sloped toward the depressed section for easy cleaning. The cold water basin shall be protected with the TriArmor® Corrosion Protection System. This system consists of: 1) G-235 (Z700 metric) hot-dip galvanized steel components 2) Electrostatically sprayed thermosetting hybrid polymer, fuse bonded to the hot-dip galvanized substrate during a thermally activated curing stage 3) Polyurethane System creating an air and watertight armor.

Fan & Drive System	Standard Fan Driven by BALTIDRIVE® Power Train The fan is driven by a one-piece multi-groove, neoprene/polyester belt designed specifically for evaporative cooling equipment service. Motor is mounted on an adjustable motor base. Fan and motor sheaves are non-corrosive cast aluminum. The BALTIDRIVE® Power Train fan drive system, including fan motor, is warranted against defects in materials and workmanship for five (5) years from date of shipment. Fan and steel fan shaft are supported by heavy-duty, self-aligning, grease-packed, relubricatable ball bearings with special seals for protection against dust and moisture. All bearings are designed for minimum L10 life of 80,000 hours (280,000 hours average life).
Fan Guard	Stainless Steel Fan Guard A heavy gauge Type 304 stainless steel wire fan guard is provided over the fan cylinder.
Casing Panels	Fiberglass Reinforced Polyester (FRP) Casing Panels Casing panels are constructed of fiberglass-reinforced polyester (FRP), UV Protected panels. Hinged access doors are provided on both side walls of the tower for access to eliminators and fan plenum section for all cells. The doors are made of a steel frame matching the unit construction, with an exterior overlay of FRP.
Fill	PVC Fill & Drift Eliminators The BACross® Fill and integral drift eliminators are formed from self-extinguishing (per ASTM D-568) polyvinyl chloride (PVC), having a flame spread rating of 5 per ASTM Standard E84-77a, and are impervious to rot, decay, and fungus or biological attack. The fill is elevated above the cold water basin floor to facilitate cleaning. This fill is suitable for a maximum entering water temperature of 130°F (54.44°C). The eliminators are designed to effectively strip entrained moisture from the leaving airstream with a minimum of air resistance.
Equipment Structure	Structure Designed in accordance with the IBC and ASCE/SEI 7 The structure of this product has been designed and analyzed in accordance with the wind and seismic load requirements of the 2018 IBC and ASCE/SEI 7-16. Seismic qualification is based on analysis. For more information and specific wind and seismic load capacity ratings, please see the Certificate of Wind and Seismic Load Capacity.
Water Inlet(s)	Bottom Inlet EASY CONNECT® Piping Arrangement Inlet water enters the EASY CONNECT® Piping Arrangement through the customer supplied piping that penetrates the cold water basin through a factory supplied and installed pipe chase located in the base of the cold water basin. The EASY CONNECT® Piping Arrangement balances the flow to each side of the tower and includes a plugged blow-down connection to permit purging of dirt and debris. Polyvinyl chloride (PVC) piping connects the EASY CONNECT® Piping Arrangement to the hot water distribution basins.
Water Outlet(s)	Bottom Outlet Pump Suction Connection The unit is provided with a bolt hole pattern(s) for mating with an ASME Class 150 flat face flange. The bolt hole pattern is located in the depressed area of the cold water basin and appropriately sized for design flow. The flat face flange, full face gasket, and hardware are supplied and installed by others. Also included is a large area, lift out strainer which matches the cold water basin material of construction and has perforated openings sized smaller than the water distribution nozzle orifices. Strainer includes anti-vortexing baffle to prevent air entrainment. Please see the submittal package for the connection size.
Equalizer Connection	Bottom Equalizer The unit will be provided with a bottom equalizer connection. Please see the submittal drawing package for the size and location of the connection.
Flume Box Options	Less Flume Box The unit(s) are provided less flume box.
Basin Water Level Control	Electric Water Level Control Package with High & Low Level Alarm for Independent Cell Operation Each cell is provided with a probe-type electric water level control package including solid-state relay, electrode head, stainless steel electrodes, and a solenoid valve in the make-up water connection. The electrodes are make-up on, make-up off, high level alarm, low level alarm, and ground. Field wiring is by others.
Single Inlet Piping Drain Valve	Single Inlet Piping Drain Valve - Manual Valve A 1/2" manual valve is provided on the 1/2" drain connection of the EASY CONNECT® Piping Arrangement. The valve is manually opened for cold weather operation. The valve should be manually closed during the warm weather to achieve full thermal performance.

Basin Sweeper Piping	PVC Basin Sweeper Piping System Polyvinyl chloride (PVC) sump sweeper piping is included in the cold water basin. Supply and return connections are provided for connecting to a user supplied filtration system. 20 psig (135 kPa) pressure is required at the water inlet.
Vibration Cutout Switch	Mechanical Vibration Cutout Switch Fan system is provided with a vibration cutout switch to limit damage to the unit in the event of a high vibration condition. The vibration switch is mechanically tripped with a frequency range of 0 to 3,600 RPM and trip point of 0.2 to 2.0 g's. No input power is required. Switch rating is 10 amperes at a maximum 480 VAC, and 1/4 ampere at 250 Vdc.
Extended Lubrication Lines	Extended Bearing Lubrication Lines Bearing lubrication lines are extended to grease fittings located inside the unit and are accessible from the access door.
Motor Removal System	Davit Arm & Support Units are supplied with a Motor Removal System, which is designed to lift the fan motor. This system consists of a removable galvanized steel davit arm and mounting bracket for field installation by others.
Air Intake Option	Combined Air Inlet Shields The air intake face of the unit is protected by a corrosion and UV resistant PVC shield. This shield prevents airborne debris from entering the unit(s).
External Platform at Louver Face	External Platform and Ladder with a Safety Cage and Gate Protected by a Thermosetting Hybrid Polymer Located on Both Louver Faces of Unit External access platforms across the air inlet faces of the unit provide access to the hot water basins. An aluminum ladder, galvanized steel safety cage supplied with a Thermosetting Hybrid Polymer, and 1-1/4" (32 mm) galvanized steel pipe safety railing is included with each platform. Supports are compatible with the basic unit material of construction. Field assembly and installation is by others.
Access Door Platform	Access Door Platform with Aluminum Ladder Located on Both Ends of the Unit External service platforms with aluminum access ladder(s), galvanized safety gate and 1-1/4" (32 mm) galvanized steel pipe safety railing complying with OSHA standards and regulations provides safe and convenient access to the access doors when the equipment is installed above grade. Supports are compatible with the basic unit material of construction. Field installation is by others.
Ladder Extension(s)	6' Ladder and Cage (if provided) Extension(s) for each Ladder 6' Ladder and Cage (if provided) Extension(s) for each Ladder
Internal Access Option	Stainless Steel Internal Walkway A Type 304 stainless steel walkway complying with OSHA standards and regulations provides access to the plenum to facilitate servicing the unit.

Special Requirement(s)

Notes:

Background Information

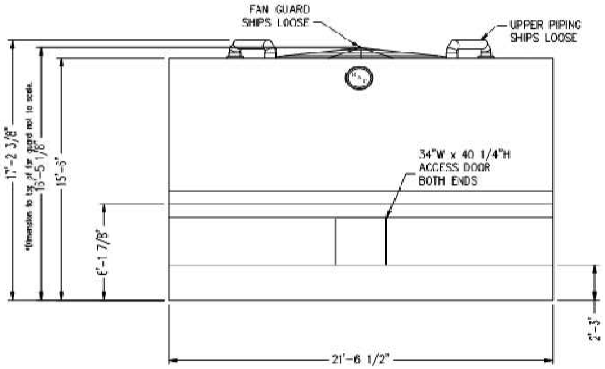
Customer:	ALL BIDDERS- US CURRENCY OFFICIAL		
Project:	99 MW Data Center Inyokern, CA		
BAC Quote Number:	145026	**Line:**	100
Revision:	0	**Revision Name:**	MASTER
Purchase Order No:			
Representative:	Keith Jandora (NA - Northeast) keith@newton-metallo.com		

Model Information

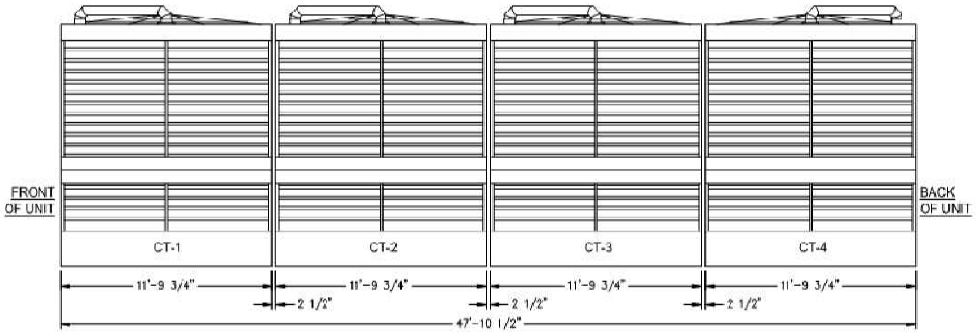
Product line:	Series 3000 Cooling Tower	
Model:	S3E-1222-10P-4	
Certified Capacity Per Unit:	Maximum capacity:	69,307.79 MBH
	Water Flow Rate per Unit (GPM):	13,115.00 gpm
	Entering Water Temp (°F):	95.00 °F
	Entering Wet Bulb Temp (°F):	68.00 °F
	Leaving Water Temperature (°F):	85.00 °F
Execution:	Fill Material:	PVC
Fan Motor(s):	Enclosure:	TEAO : Totally Enclosed Air Over/Airtight Motor
	Fan Drive System:	BALTIDRIVE® Power Train
	Total standard fan power:	100%, 159.9 HP/Unit
	Fan motor:	(4) 40.0 = 160.0 HP/Unit
	Voltage:	230/460 V
	Frequency:	60 Hz
	Phase:	3 Phase
	Type:	1 Speed/1 Winding
	Quantity:	1
	Horsepower Motor A:	40.0 HP
	fan motor options a:	Space Heater
	add shaft grounding ring?:	Yes

- **Notes:.**

Data Version 1.40
DWG Version 2.0

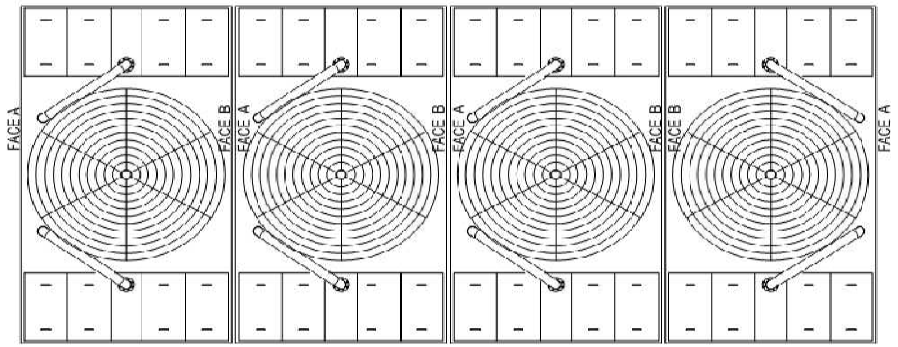


END ELEVATION (FACE A)



SIDE ELEVATION

Notes
1) Drawing is to scale unless noted otherwise. All dimensions are in feet and inches. Weights are in pounds and include options and accessories.
2) Unless otherwise indicated, connections 3" and smaller are MPT. Connections 4" and larger are grooved to suit a mechanical coupling and beveled for welding.
3) Field piping should be fabricated at time of installation. Pre-fabrication of pipe work is not recommended.
4) Do not support piping from unit connections. All necessary piping supports to be supplied by others.
5) For weight loadings and support requirements, refer to the suggested unit support drawing.
6) The area above the fan discharge must be unobstructed.
7) Due to height limitations on truck shipments, some items shown may ship loose for field installation.



PLAN VIEW

Model Number	Shipping Weight	Operating Weight	Heaviest Section
S3E-1222-10P-4	67800	140520	9490

COMBINED INLET SHIELDS

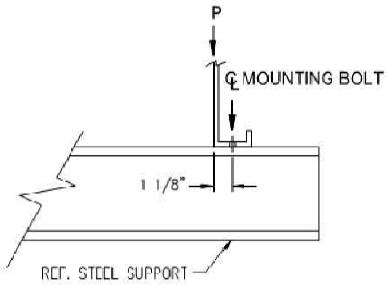
QUOTE NO: **145026-100** ORDER NO: **NO SALE ORDER**

DATE: **10/7/2025 12:50:42 PM Ver=0**

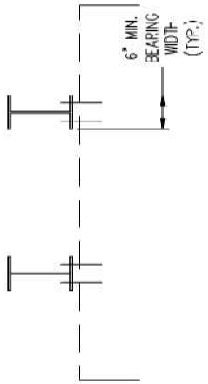
3000E Unit Print
Two Piece Units

DRAWING NUMBER:
UP-145026-100

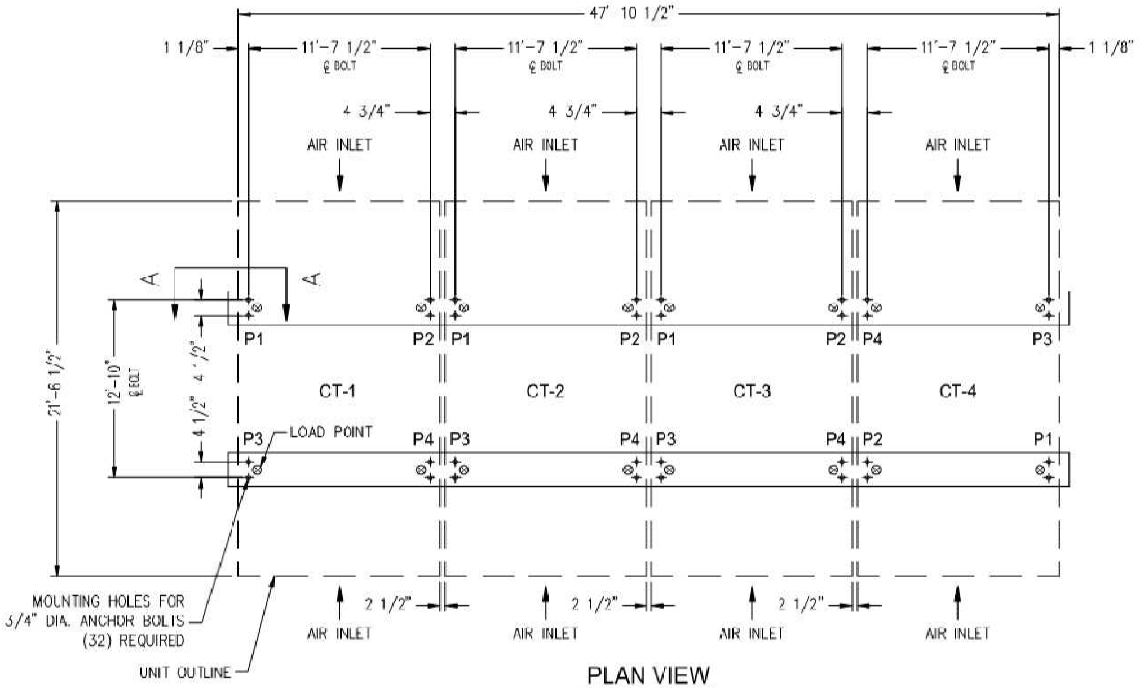
Data Version 1.10
DWG Version 1.3



SECTION "A-A"



END ELEVATION



PLAN VIEW

Notes
1) Drawings are not to scale. All dimensions are in feet and inches. Weights are in pounds and include options and accessories.
2) Operating weight and weight loading are for units with water level in basin at overflow.
3) Unit support beams and anchor bolts to be designed and furnished by others.
4) Support beams must be flush and level at top.
5) Steel frame members perpendicular to the support beams and under the air inlet edges of unit must be at least 2" below the top of the support beams.

Model Number	Shipping Weight	Operating Weight	Point "1"	Point "2"	Point "3"	Point "4"	Point "5"	Point "6"	Point "7"	Point "8"
S3E-1222-10P-4	67800	140520	8783	8783	8783	8783	0	0	0	0

PLAN "A" STEEL

QUOTE NO: **145026-100** ORDER NO: **NO SALE ORDER**

DATE: **10/7/2025 12:51:02 PM Ver=0**

3000E Unit Support
Standard Basins

DRAWING NUMBER:
SS-145026-100

Data Version 1.40
DWG Version 1.0

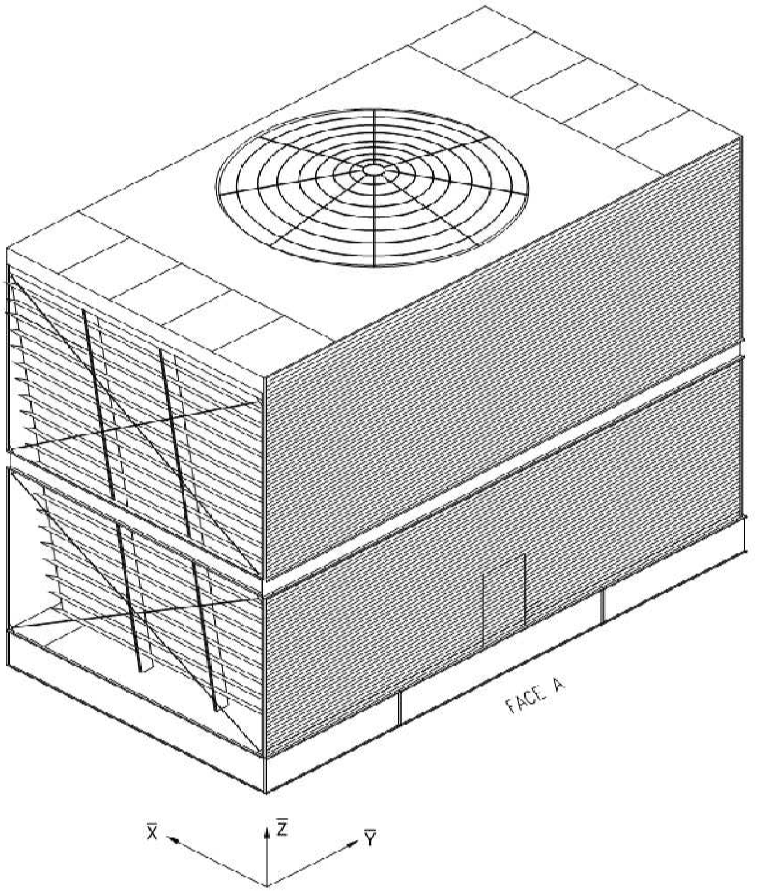
UNIT CENTER OF GRAVITY

$\bar{X}$		$\bar{Y}$		$\bar{Z}$	
DRY	OPERATING	DRY	OPERATING	DRY	OPERATING
6'-3 3/4"	6'-0 3/4"	10'-10 1/2"	10'-9 1/2"	8'-3"	6'-8"

WEIGHT BREAKDOWN FOR FIELD INSTALLED ACCESSORIES

VELOCITY RECOVERY STACK (EACH):	N/A
INTAKE ATTENUATION (EACH):	N/A
DISCHARGE ATTENUATION (PER CELL):	N/A
FAN COWL EXTENSIONS (EACH):	N/A
LOUVER FACE PLATFORMS (EACH):	350 LBS
ACCESS DOOR PLATFORMS (EACH):	240 LBS
EXTERNAL MOTOR PLATFORMS (EACH):	N/A
FAN DECK EXTENSION (EACH):	N/A
FAN DECK HANDRAILS (TOTAL):	N/A

Notes
1) Drawings are not to scale.
2) Accessory weights shown above are included in the total unit Operating, Shipping and Heaviest Section values located on the Unit Print and Unit Support drawings. Ladder and cage weights are not shown above but are included in the totals.
3) These accessories ship loose for field assembly and installation.



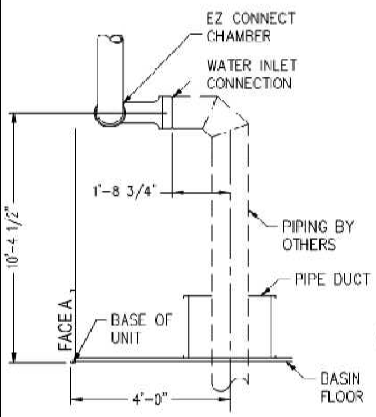
QUOTE NO: **145026-100** ORDER NO: **NO SALE ORDER**

DATE: **10/7/2025 12:51:44 PM Ver=0**

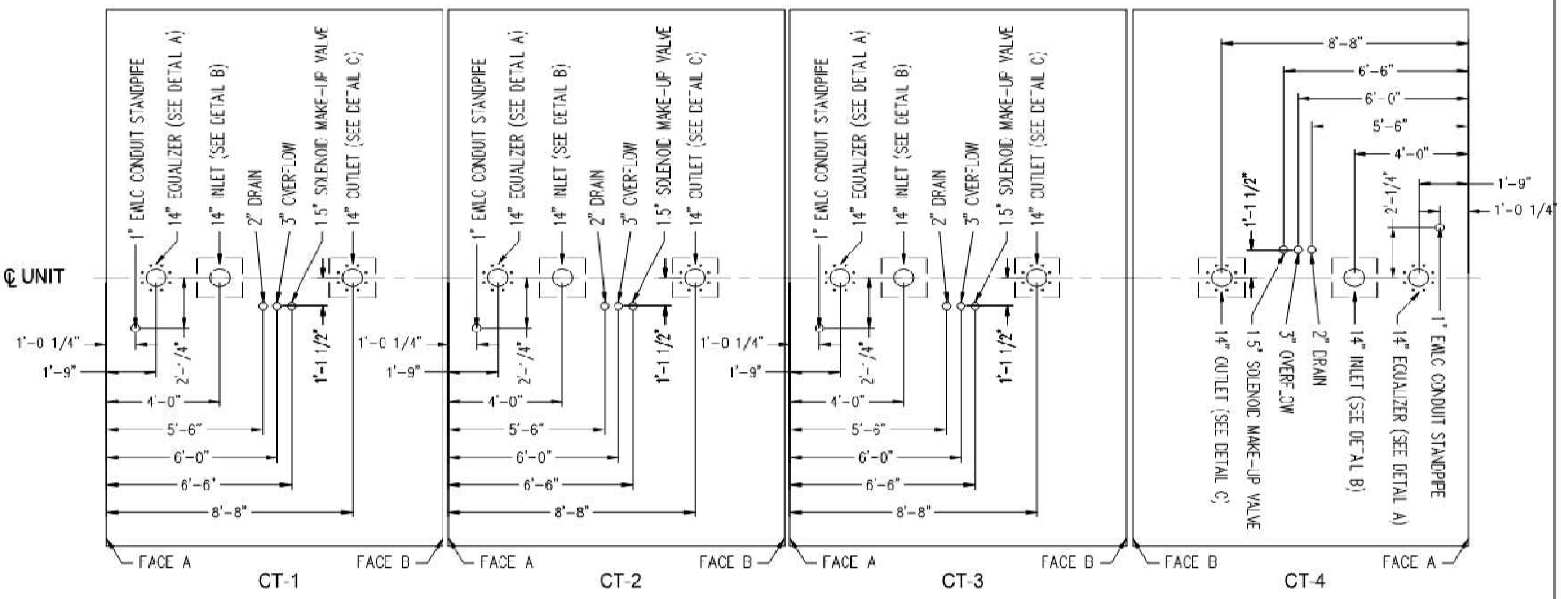
3000E Center of Gravity

DRAWING NUMBER:
CG-145026-100

Data Version 1.40
DWG Version 1.2

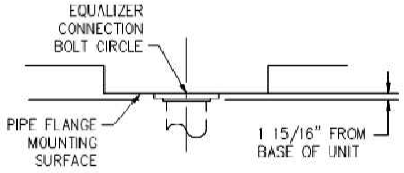


DETAIL B
ELEVATION VIEW
BOTTOM INLET

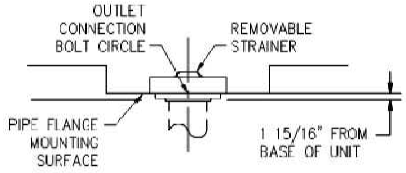


PLAN VIEW

Notes
1) Do not support piping from unit connections. All necessary piping supports to be supplied by others.
2) Field piping should be fabricated at time of installation. Pre-fabrication of pipe work is not recommended.
3) Connections 3" and smaller are MPT. Connections 4" and larger are grooved to suit a mechanical coupling and beveled for welding unless stated otherwise. For Knockdown and TriArmor units the Overflow and Make-Up will be a FPT connection.
4) Bolt hole patterns are drilled to mate with an ASME Class 150 flat face flange with holes straddling transverse and longitudinal centerlines. The flat face flange and full face gasket are to be furnished by others for mating with the unit.
5) Outlet connections are sized for pump suction application at the design flow rate. They are based on the maximum flow rate through the strainer with basin water at standard operating level.
6) Make-up solenoid valve ships loose for field installation (by others).



DETAIL A
ELEVATION VIEW
BOTTOM EQUALIZER



DETAIL C
ELEVATION VIEW
BOTTOM OUTLET

QUOTE NO. **145026-100** ORDER NO. **NO SALE ORDER**

DATE: **10/7/2025 12:51:27 PM Ver=0**

3000E Bottom Connections

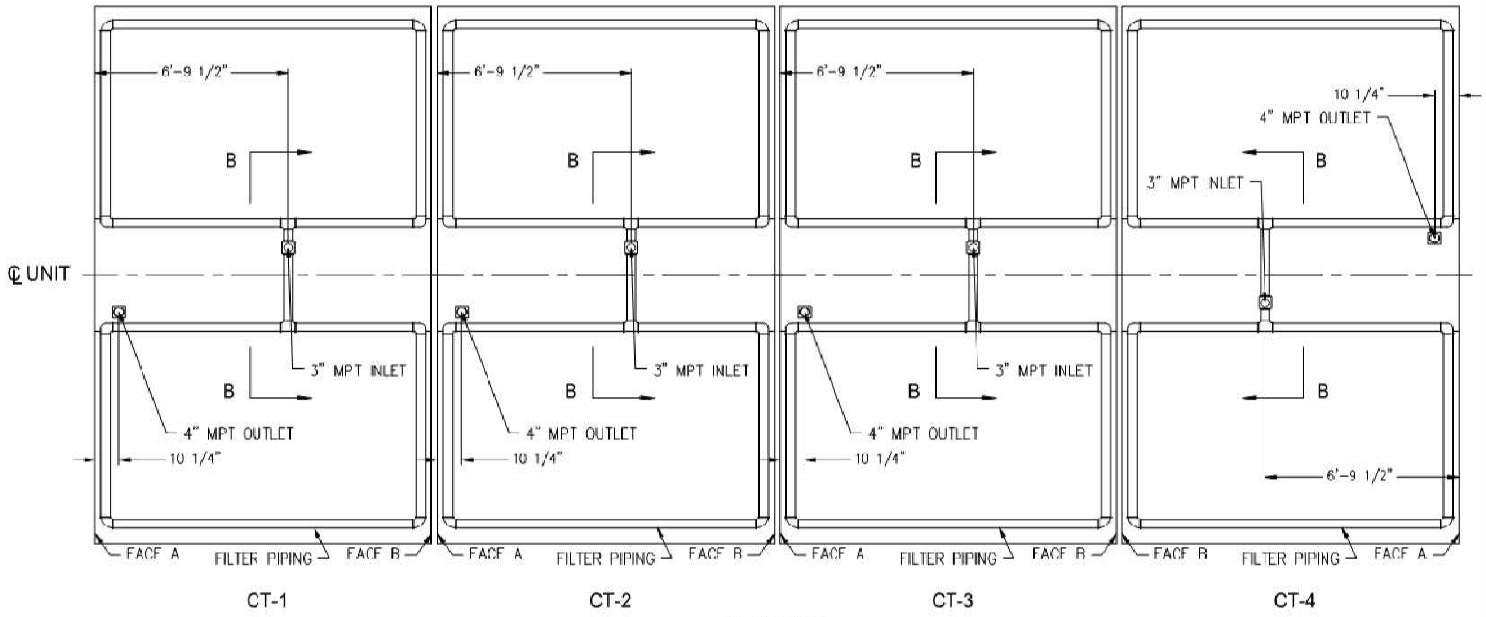
DRAWING NUMBER:
BC-145026-100

Data Version 1.40
DWG Version 1.0

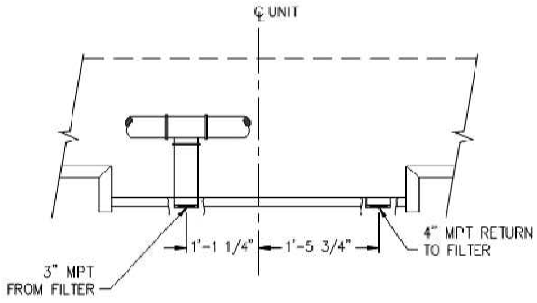
BASIN SWEEPER PIPING

DESIGN PRESSURE: 20 PSI
DESIGN FLOW RATE (PER CELL): 300 GPM

Notes
1) Do not support piping from unit connections. All necessary piping supports to be supplied by others.
2) Field piping should be fabricated at time of installation. Pre-fabrication of pipe work is not recommended.
3) Connections 3" and smaller are MPT. Connections 4" and larger are grooved to suit a mechanical coupling and beveled for welding unless stated otherwise. For Knockdown and TriArmor units the Overflow and Make-Up will be a FPT connection.

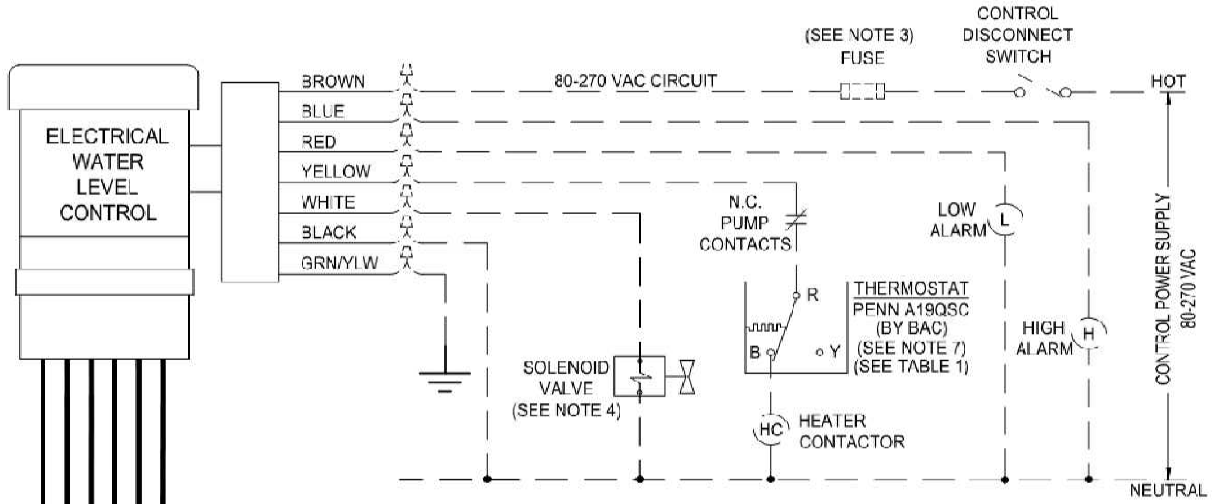


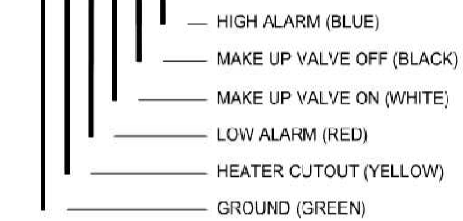
PLAN VIEW



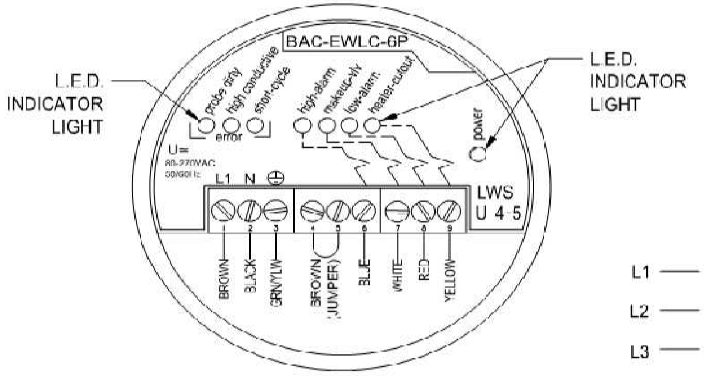
END ELEVATION DETAIL VIEW B-B

QUOTE NO: **145026-100**	ORDER NO: **NO SALE ORDER**		**3000E Basin Accessories**
DATE: **10/7/2025 12:54:15 PM Ver=0**			DRAWING NUMBER: **BA-145026-100**





CAUTION
ONLY AUTHORIZED PEOPLE CAN OPEN THE TOP COVER!



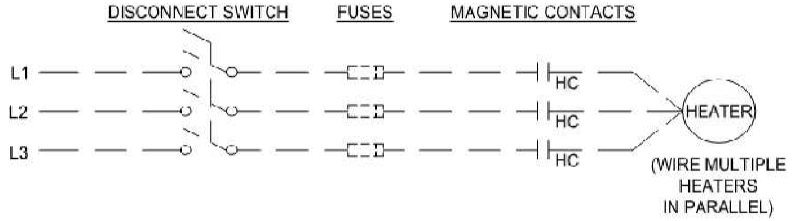
EWLC PANEL
TOP COVER HAS A WINDOW TO CHECK LED INDICATOR STATUS
(SEE NOTE 9)

TABLE 1

ELECTRICAL RATINGS FOR PENN A19QSC THERMOSTAT		
VOLTAGE, AC ONLY	–	120
FULL LOAD AMPS	–	15.0
LOCKED ROTOR AMPS	–	95.0
NON IND. AMPS	WHEN CONNECTED SPST –	22.0
	WHEN CONNECTED SPDT –	15.0
PILOT DUTY – 125 VA, 24/600 VAC		

NOTES:
1. WIRING AND COMPONENTS INDICATED BY DASHED LINES ARE TO BE SUPPLIED BY FIRMS OTHER THAN BAC. ALL WIRING MUST COMPLY WITH APPLICABLE CODES AND ORDINANCES.
2. THE WATER LEVEL CONTROL BOARD IS WIRED IN THE INVERSE MODE SO THAT THE SOLENOID MAKE-UP VALVE WILL CLOSE IF THERE IS A LOSS OF POWER TO THE CONTROL BOARD. WHEN THE WATER LEVEL RISES TO THE BOTTOM OF THE MAKE-UP VALVE OFF PROBE AND MAINTAINS CONTACT FOR AT LEAST 6 SECONDS, THE CONTROL DE-ENERGIZES THE VALVE. THE VALVE REMAINS DE-ENERGIZED UNTIL THE WATER LEVEL RECEDES BELOW THE BOTTOM OF THE MAKE-UP VALVE ON PROBE AND REMAINS AT THAT LEVEL FOR AT LEAST 6 SECONDS. THE CONTROL THEN ENERGIZES THE VALVE.
3. ANY INCOMING POWER SOURCE MUST HAVE A 3A FUSE FOR COMPONENT PROTECTION. USING A FUSE OVER 3A WILL VOID BAC WARRANTY.
4. THE SOLENOID ACTUATED MAKE-UP VALVE IS RATED AT 6.1 WATTS, 16 VA HOLDING, 30 VA INRUSH.
5. THE NORMALLY CLOSED SOLENOID VALVE HAS A SLOW CLOSING FEATURE WHICH MINIMIZES WATER HAMMER AND IS DESIGNED TO OPERATE AT MAKE-UP WATER LINE PRESSURES OF 10 TO 125 PSIG. TO FURTHER MINIMIZE THE POTENTIAL FOR WATER HAMMER, MAKE-UP WATER LINE PRESSURES AT THE HIGHER END OF THE RANGE SHOULD BE AVOIDED, AND MAKE-UP PIPING SHOULD BE WELL SUPPORTED.
6. INTERLOCK IMMERSION HEATERS WITH CIRCULATING PUMP TO DE-ENERGIZE HEATERS WHEN PUMP IS RUNNING.
7. CONTROL THERMOSTAT IS TO BE SET FOR 40°F. DO NOT SET THERMOSTAT LOWER THAN 40°F.
8. A STRAINER IS REQUIRED BEFORE THE SOLENOID MAKE-UP VALVE.
9. L.E.D. INDICATOR LIGHT IS ON WHEN A FUNCTION IS ACTIVE OR ERROR IS FOUND.
10. RELEVANT TERMINALS ON THE PROBE CAN REMAIN UNWIRED BASED ON PARTICULAR REQUIREMENTS.

RECOMMENDED WIRING OF OPTIONAL HEATER PACKAGE



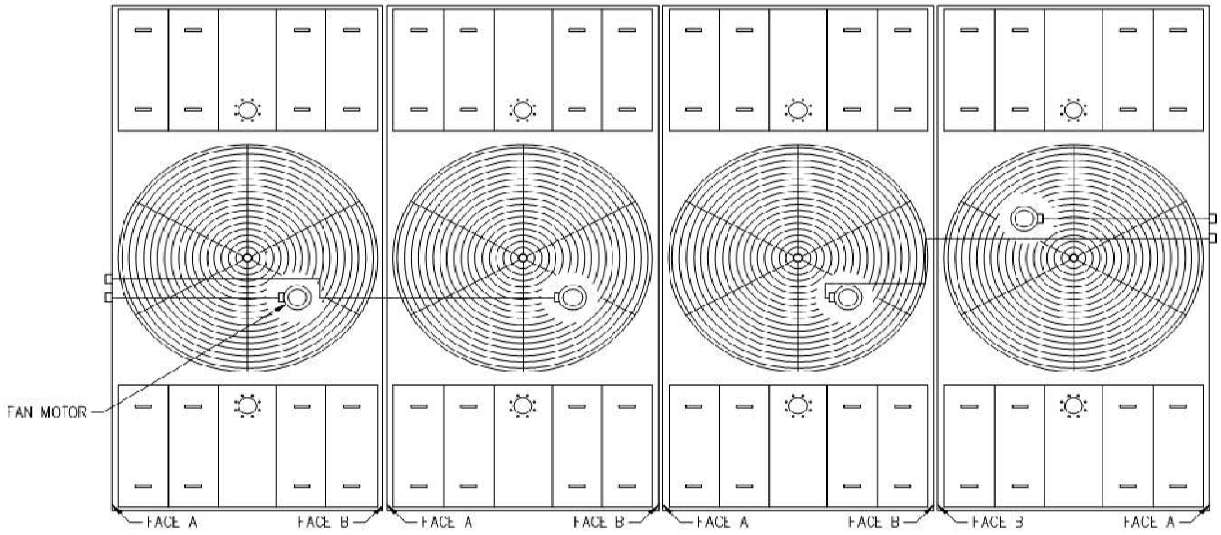
QUOTE NO: **145026-100** ORDER NO: **NO SALE ORDER**

DATE: **10/7/2025 12:53:38 PM Ver=0**

EWLC Wiring
Heater Cutout, High & Low Alarm

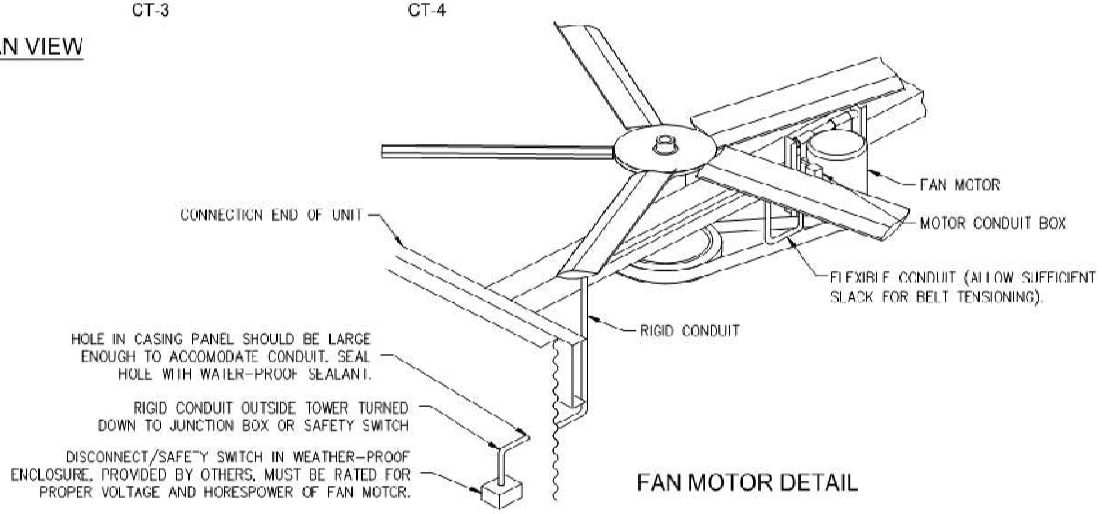
DRAWING NUMBER:
EW-145026-100

Data Version 1.40
DWG Version 1.1



PLAN VIEW

Notes
1) Drawings are not to scale.
2) Conduit must be water tight and pitched downward to allow condensation to drain away from fan motor conduit box. Therefore, do not run the conduit through fan deck.
3) All wiring must conform to local and national electrical codes. Junction box/safety switch and all conduit from fan motor conduit box to be sized, provided, and installed by others.
4) Rigid conduit outside casing panel must turn down to junction box.
5) For proper motor orientation see plan view.
6) On mult-cell units, use separate conduit lines for each fan motor. Run conduit through adjacent cell to junction box and or disconnect switch on front/rear cell.



FAN MOTOR DETAIL

QUOTE NO: **145026-100** ORDER NO: **NO SALE ORDER**

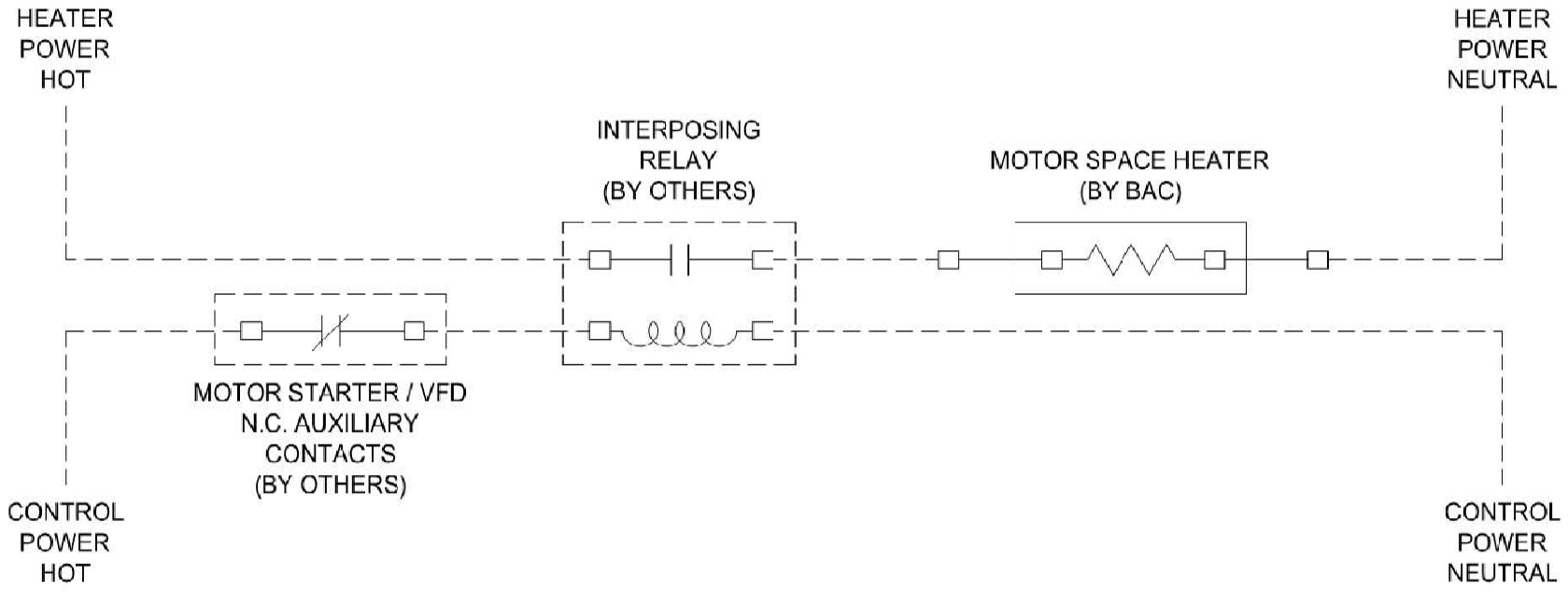
DATE: **10/7/2025 12:52:01 PM Ver=0**

3000E Motor Location

DRAWING NUMBER:
ML-145026-100

Data Version 1.40
DWG Version 1.2

Notes
1) Motor Heater should only be energized when the fan is stopped (0% fan speed).
2) Interposing relay must be sized per the heater power consumption.
3) Heater sizes shown below are maximum values. Refer to the motor nameplate for final power requirements.
4) General heater wiring details shown, see diagram on motor for specific details.
5) All wiring must comply with all codes and standards applicable for the installed jurisdiction, which may include requirements for additional disconnects, over current protection, and/or other safety devices.
6) Dashed lines represent field supplied wiring.
7) Space heater wiring leads may be located in either the main outlet box, or an auxiliary box if so equipped.



For units that ship from the US, heaters are 110-120 VAC/ 50 or 60 Hz based on motor configuration.
For units that ship from China, heaters are 200-240 VAC/ 50 or 60 Hz based on motor configuration.

QUOTE NO: **145026-100** ORDER NO: **NO SALE ORDER**		**Fan Motor Space Heater Wiring Schematic - General**	
DATE: **10/7/2025 12:52:43 PM Ver=0**		DRAWING NUMBER: **SW-145026-100**	

OPERATING INSTRUCTIONS

Follow the installation drawings and wiring diagram to ensure the proper operation of the vibration switch. Direct any questions to your local BAC Representative.

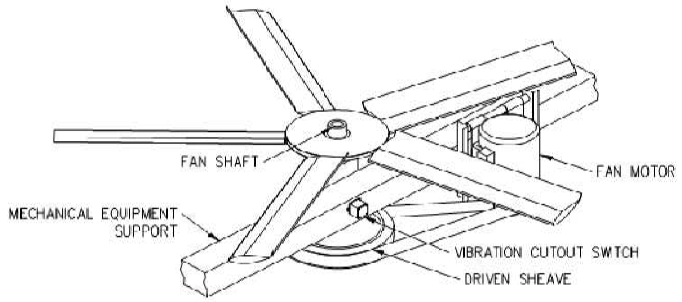
NOTE

Moisture inside the switch can lead to switch failure. Care must be taken when replacing the cover on the vibration switch to ensure that the proper watertight seal is obtained.

CAUTION

Before performing any maintenance, adjustment or inspection of the switch, make certain that all power has been disconnected and locked in the off position.

SWITCH LOCATION
Belt Drive Units



QUOTE NO: **145026-100** ORDER NO: **NO SALE ORDER**

DATE: **10/7/2025 12:54:31 PM Ver=0**

VCOS Location

DRAWING NUMBER:
VL-145026-100

NOTES:

1. LOCAL PUSH BUTTON RESET.

2. TO MAINTAIN HAZARDOUS DUTY RATINGS, THE FACTORY INSTALLED WATER TIGHT CONDUIT/CABLE CONNECTION FITTINGS MUST BE REMOVED AND THE FOUR CONDUCTOR CABLE MUST BE ROUTED INSIDE OF A SUITABLE EXPLOSION PROOF CONDUIT. NOTE: THE CONNECTORS CAN EASILY BE REMOVED WITHOUT HAVING TO UN-WIRE THE CONDUCTORS FROM INSIDE THE CUTOUT SWITCH.

3. THE MECHANICAL VIBRATION CUTOUT SWITCH COMES WITH TWO WATER TIGHT CONDUIT/CABLE CONNECTORS. ONE CONNECTOR IS USED TO PROVIDE A WATER TIGHT CONNECTION TO THE VIBRATION CUTOUT SWITCH AND THE OTHER IS PROVIDED FOR THE ELECTRICIAN TO CONNECT THE WIRE CABLE TO A JUNCTION BOX LOCATED IN THE VICINITY OF THE VIBRATION CUTOUT SWITCH.

4. THE SWITCH IN THE NORMALLY CLOSED CIRCUIT (BLACK WIRE) WILL OPEN WHEN THE DEVICE EXPERIENCES VIBRATION LEVELS ABOVE THE SETPOINT VALVE. IF REVERSE CONTROL LOGIC IS DESIRED, CUT OFF THE BUTT END CONNECTOR ON THE WHITE WIRE AND INSTALL A WIRE NUT OR BUTT CONNECTOR ON THE NORMALLY CLOSED WIRE (BLACK).

5. THIS MECHANICAL VIBRATION CUTOUT SWITCH COMES WITH ONE SINGLE POLE DOUBLE THROW SWITCH. THE SWITCH CONTACTS ARE "DRY CONTACTS" WHICH CAN BE SUCCESSFULLY USED DIRECTLY IN THE FAN STARTER CONTROL (TYPICALLY A/C VOLTAGE) CIRCUIT OR DIRECTLY IN A BUILDING MANAGEMENT SYSTEM (TYPICALLY D/C VOLTAGE).
CONTACT RATINGS: 3 AMPS@ 125 OR 480 VAC, 1/2 AMP@ 125 VDC, 1/4 AMP@ 250 VDC.

6. CAUTION: MOISTURE INSIDE THE SWITCH CAN LEAD TO SWITCH FAILURE. CARE MUST BE TAKEN WHEN REPLACING THE COVER ON THE VIBRATION SWITCH TO ENSURE THAT THE PROPER WATERTIGHT SEAL IS OBTAINED.

ADJUSTMENTS OF BAC MECHANICAL VIBRATION CUTOUT SWITCH

BAC RECOMMENDS THAT EACH VIBRATION CUTOFF SWITCH BE FIELD ADJUSTED AT START-UP TO OPTIMIZE THE TRIP POINT RELATIVE TO THE FINAL MOUNTING POSITION AND VIBRATION CHARACTERISTICS OF THE INSTALLED EQUIPMENT.

NOTE: INSTALLATION AND ADJUSTMENT MUST BE PERFORMED BY QUALIFIED, COMPETENT TECHNICIAN

1. FOR YOUR SAFETY, TURN OFF, THEN LOCK & TAG-OUT THE ELECTRICAL SUPPLY TO THE FAN MOTOR(S).
2. PUSH IN THE MANUAL RESET SWITCH TO ENSURE UNIT IS IN UNTRIP STATE (USING AN OHMMETER, VERIFY THE CIRCUIT BETWEEN "COMMON" AND "N.C." IS CLOSED. THE SWITCH COMES WITH PRE-WIRED CABLE SO OPENING THE SWITCH IS **NOT** NECESSARY TO PERFORM THIS TASK. IF CIRCUIT IS OPEN (TRIPPED STATE) SKIP STEP 3 AND GO TO STEP 4.
3. TURN ADJUSTMENT SCREW CONTERCLOCKWISE (CCW) 1/8 TURN AT A TIME UNTIL THE CIRCUIT BETWEEN "COMMON" AND "N.C." IS OPEN (TRIPPED STATE)
4. ONCE TRIPPED, ROTATE ADJUSTMENT SCREW ¼ TURN CLOCKWISE (CW) AND THEN PUSH IN MANUAL RESET BUTTON (THE CIRCUIT BETWEEN "COMMON" AND "N.C." IS CLOSED)
5. START UP FAN(S) TO DETERMINE IF THE START-UP WILL CAUSE THE CUT-OUT SWITCH TO TRIP.
   a. IF THE VIBRATION CUTOUT SWITCH DOES NOT TRIP:
   i. START AND STOP THE FAN TWO MORE TIMES AND IF THE CUTOUT SWITCH STILL DOES NOT TRIP, THEN CALIBRATION IS COMPLETE.
   b. IF THE VIBRATION CUTOUT SWITCH DID TRIP:
   i. TURN OFF, THEN LOCK & TAG-OUT THE ELECTRICAL SUPPLY TO THE FAN MOTOR(S).
   ii. ADJUST THE SET POINT SCREW AN ADDITIONAL ¼ TURN CW AND THEN PUSH IN THE RESET BUTTON.
   iii. RE-START THE FAN(S) TO DETERMINE IF THE START-UP WILL CAUSE THE SWITCH TO TRIP.

NOTE: REPEAT THIS ADJUSTMENT PROCESS (STEP 5.b.i-5.b iii) UNTIL THE UNIT DOES NOT TRIP.

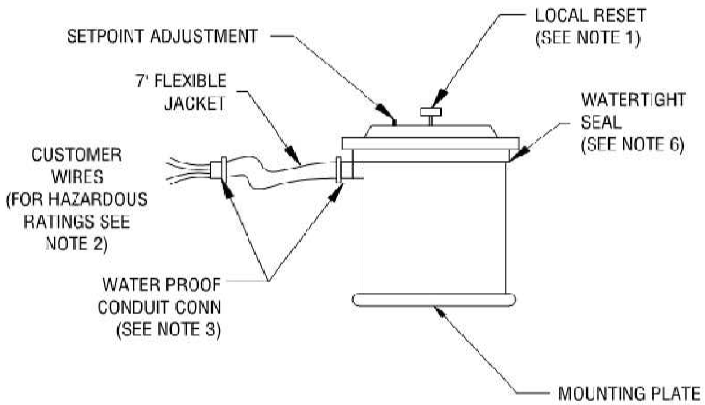
   iv. ONCE THE FINAL ADJUSTMENT HAS BEEN MADE, START AND STOP THE FAN TWO MORE TIMES AND IF THE CUOUT SWITCH STILL DOES NOT TRIP, THEN CALIBRATION IS COMPLETE.

WIRING OF VIBRATION CUTOUT SWITCHES ON UNITS WITH MULTIPLE MOTORS OR CUTOUT SWITCHES:

VIBRATION CUTOUT SWITCHES SHOULD BE WIRED TO SHUT OFF ALL MOTORS ON THE ASSOCIATED FAN DRIVE SYSTEM. THIS MAY REQUIRE WIRING MULTIPLE CUTOUT SWITCHES TO SHUT OFF A SINGLE MOTOR OR WIRING A SINGLE CUTOUT SWITCH TO SHUT OFF MULTIPLE MOTORS. CONTACT YOUR CONTROLS INTEGRATOR FOR DETAILS ON HOW TO WIRE MULTIPLE SWITCHES.

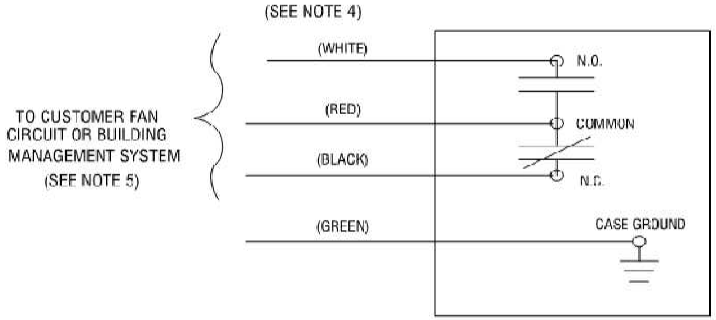
MECHANICAL VIBRATION CUT-OUT SWITCH

(ONE-SINGLE POLE DOUBLE THROW SWITCH)



WIRING DIAGRAM

(ONE-SINGLE POLE DOUBLE THROW SWITCH - SEE NOTE 5)



BEFORE PERFORMING ANY MAINTENANCE, ADJUSTMENT OR INSPECTION OF THE SWITCH, MAKE CERTAIN THAT ALL POWER HAS BEEN DISCONNECTED AND LOCKED IN THE OFF POSITION.

Data Version 1.12
DWG Version 1.10

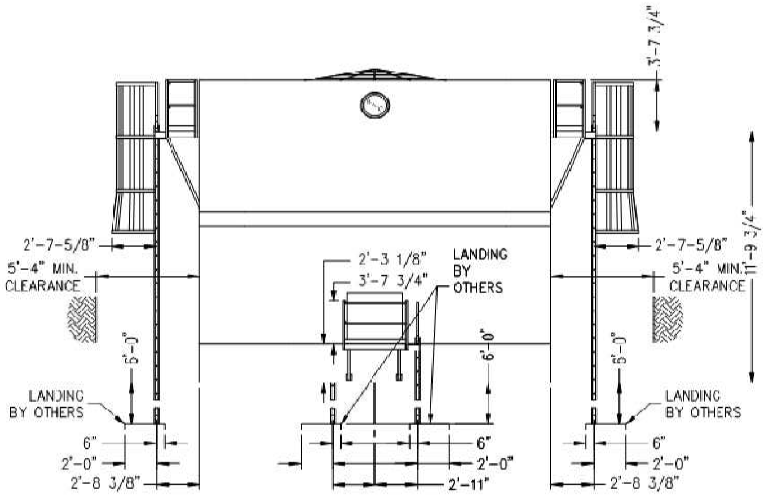
QUOTE NO: **145026-100** ORDER NO: **NO SALE ORDER**

DATE: **10/7/2025 12:54:48 PM Ver=0**

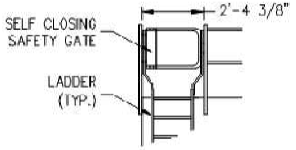
Mechanical VCOS Wiring
Shut Off with Local Reset

DRAWING NUMBER:
VW-145026-100

Data Version 1.40
DWG Version 1.1



END ELEVATION (FACE A)



GATE LOCATIONS

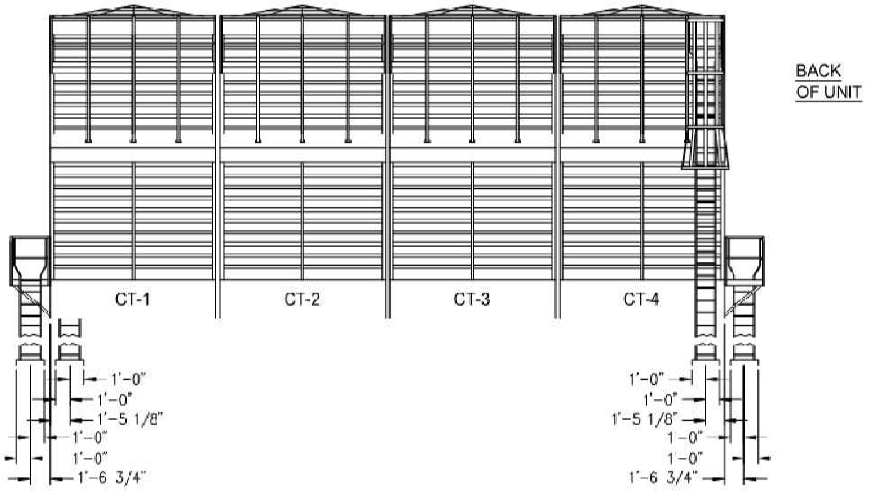
LOUVER PLATFORM LADDERS
ACCESS DOOR PLATFORM LADDERS

SAFETY GATE DETAIL

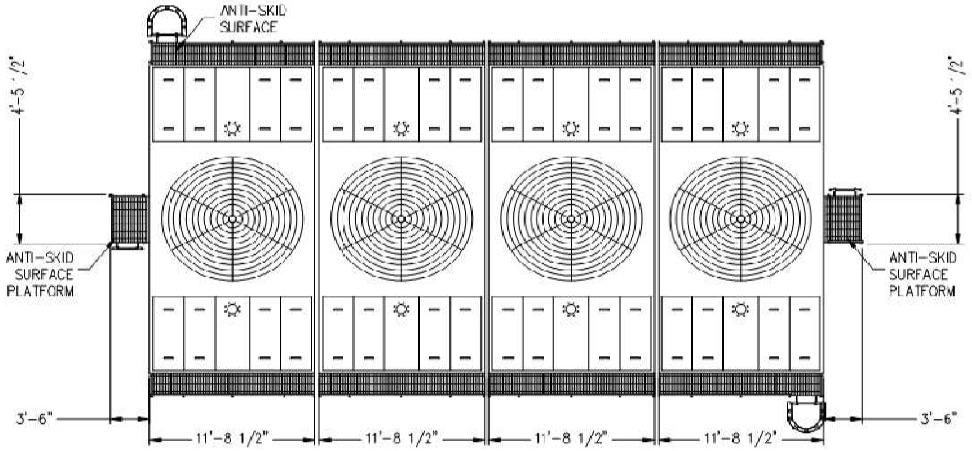
Notes
1) Drawings are not to scale.
2) External unit access accessories ship loose for field installation (by others).
3) Field piping must be kept clear and supported independently of all unit access accessories.
4) Refer to OSHA and local occupational safety regulations to determine if safety cages and/or self closing safety gates are required.
5) When ladder length exceeds 24' purchaser/owner is required to provide an OSHA compliant fall protection system.

FRONT OF UNIT

BACK OF UNIT



SIDE VIEW

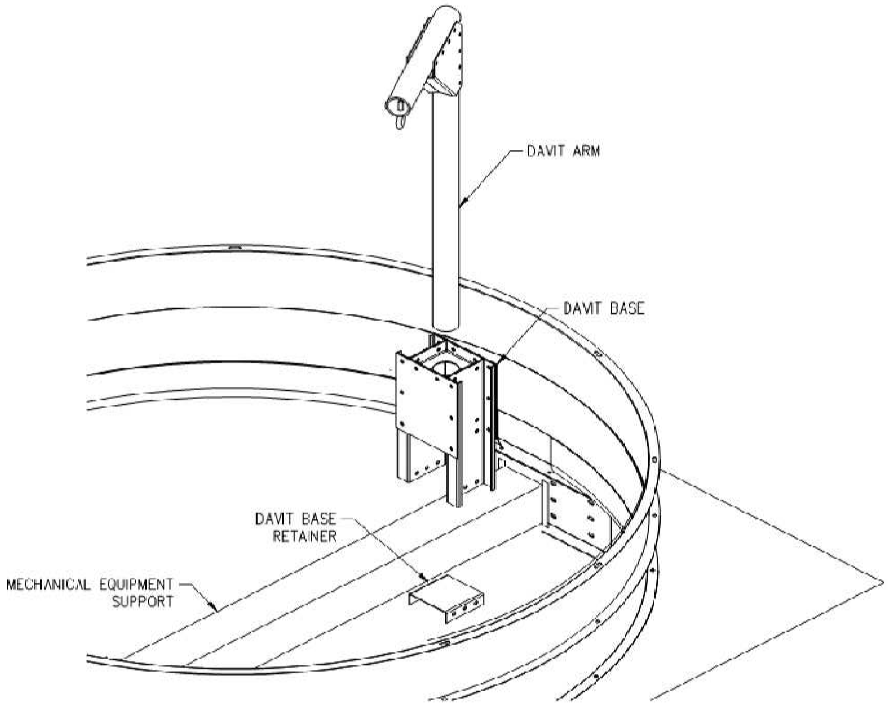


PLAN VIEW

QUOTE NO: **145026-100**	ORDER NO: **NO SALE ORDER**		**3000E External Access** **Two Piece Units**
DATE: **10/7/2025 12:52:27 PM Ver=0**			DRAWING NUMBER: **EA-145026-100**

Data Version 1.40
DWG Version 1.0

Notes
1) Drawings are not to scale.
2) Motor removal davit arm and support base must be removed from unit prior to operation.



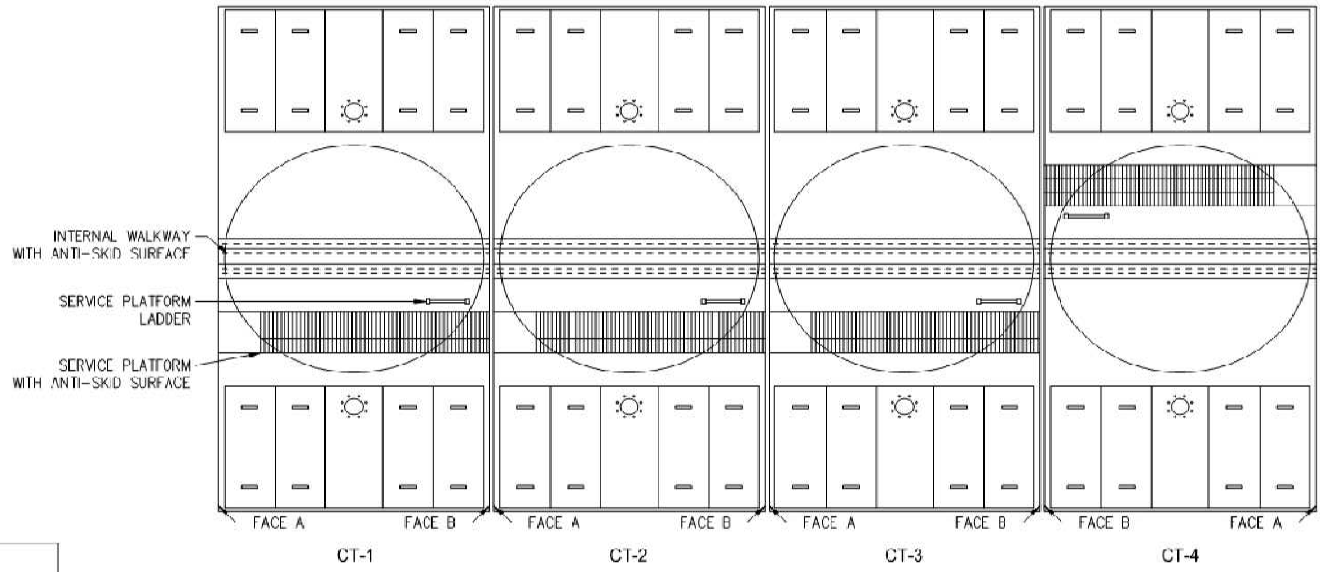
SMALL DAVIT
(FOR MOTOR WEIGHTS LESS THAN 900 LBS)

MOTOR WEIGHT: 530 LBS

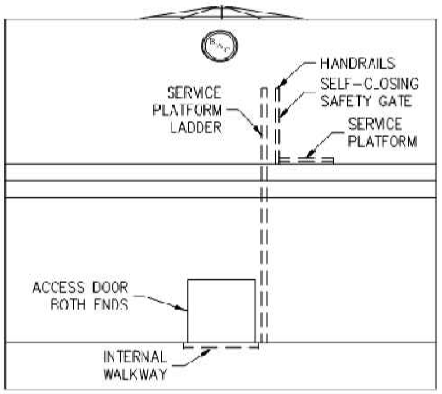
QUOTE NO: **145026-100**	ORDER NO: **NO SALE ORDER**		**3000E Motor Removal System**
DATE: **10/7/2025 12:53:55 PM Ver=0**			DRAWING NUMBER: **MR-145026-100**

Data Version 1.40
DWG Version 1.0

Notes
1) Drawings are not to scale.
2) Field piping must be kept clear and supported independently of all unit access accessories.
3) Service Platform Ladder ships loose for field installation (by others).
4) Refer to OSHA and local occupational safety regulations to determine if self closing safety gates are required.
5) For units with a bottom inlet connection, the internal walkway includes an extension (not shown) that allows unobstructed passage.



PLAN VIEW



END ELEVATION (FACE A)

QUOTE NO: **145026-100**	ORDER NO: **NO SALE ORDER**		**3000E Internal Access**
DATE: **10/7/2025 12:53:21 PM Ver=0**			DRAWING NUMBER: **IA-145026-100**

Certificate of Wind and Seismic Load Capacity

2018 International Building Code (IBC)

Product Line:	Series 3000 Open Cooling Tower
Model:	S3E-1222-10P-4

The Baltimore Aircoil Company evaporative cooling product referenced in this certificate has been designed and analyzed in accordance with the wind and seismic load requirements of the 2018 IBC, and ASCE/SEI 7-16. Seismic qualification is based on analysis.

Wind and seismic load capacities for the referenced unit are provided below. It is the responsibility of the purchaser to determine the suitability of this unit for the specific application. Field modifications to the unit may void this certificate.

Wind Load Rating		
Horizontal Pressure (psf):	p_h = 81.00	in accordance with ASCE/SEI 7-16
Vertical Uplift Pressure (psf):	p_v = 64.00	
Conditions:	The unit is supported and anchored as recommended. Anchor bolts are 3/4" diameter, SAE J429 Grade 5 or equivalent.	
Seismic Load Rating		
Design Spectral Acceleration (g) for Component Importance Factor, I_p = 1.0:	S_{DS} = 2.64	on grade (z/h = 0.0), rigid mount
	S_{DS} = 0.88	on rooftop (z/h = 1.0), rigid mount
	S_{DS} = 0.59	on rooftop (z/h = 1.0), spring-isolation mount
Conditions:	The unit is installed outside and not within an occupied space.	
	The unit is supported and anchored as recommended. Anchor bolts are 3/4" diameter, SAE J429 Grade 5 or equivalent.	
	All piping provided by others is supported and restrained independently of the unit.	

QUOTE NO: **145026-100** ORDER NO: **NO SALE ORDER**
DATE: **10/7/2025 12:53:02 PM Ver=0**

DRAWING NUMBER: **IC-145026-100**

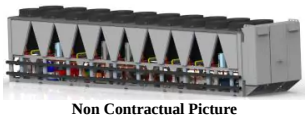
Performance Report

Project Name:
PTS - Art Anderson - 99MW Design

Tag Name:
30XF500M CA Conditions 50FLWT 64FEWT

Submitted by: Gregory Sifferlen

Tag Name: 30XF500M CA Conditions 50FLWT 64FEWT
30XF Air Cooled Screw Chiller



Non Contractual Picture

Unit Information

Model Number		30XFM5006MW216JRL
Unit Quantity		1
Condenser Type		Air Cooled
Compressor Type		Variable Speed Screw
Communication		CCN, BACnet IP & BACnet MS/TP, Remote Connectivity
Manufacturing Source		Monterrey, Mexico
Refrigerant Type		R-513A
Rigging Weight	lb	34833
Operating Weight	lb	39182
Refrigerant Weight	lb	689
Unit Dimensions (L x W x H)	in	581 x 96 x 99
Baserail Dimensions (L x W)	in	564 x 96

Unit Features

- Active Harmonic Filter
- BACnet IP & BACnet MS/TP
- Isolation Valve(s)
- Permanent Magnet Compressor Motor
- Remote Connectivity
- 65kA SCCR
- Suction Line Insulation
- Uninterruptible Power Supply (UPS)
- Variable Speed Screw Compressor
- Micro Channel Condenser Coil
- Greenspeed Intelligence: High-Efficiency Variable Condenser Fans
- Non-Fused Disconnect
- Flooded Evaporator, 2 pass for Brine Application, w/heater
- Single Point Power
- Low Sound Kit

Operating Conditions

Mode		**Cooling**
Evaporator		
Fluid Type		Propylene Glycol
Fluid Concentration	%	20.00
Fouling Factor	(hr-sqft-F)/BTU	0.000100
Leaving Fluid Temperature	°F	50.00
Entering Fluid Temperature	°F	64.00
Fluid Flow	gpm	900.7
Pressure Drop	ft wg	25
Condenser		
Entering Air Temperature	°F	98.0
Number of Fans		24
Total Fan Airflow	CFM	284177
Altitude	ft	0

Performance Information

Mode		**Cooling**
Cooling Capacity	Tons	508.4
Chiller Pressure Drop	ft wg	31.2
Total Compressor Power	kW	587.7
Total Fan Motor Power	kW	61.79
Total Unit Power (without pump)	kW	649.5
Minimum Capacity	%	12
Cooling Efficiency (EER)	BTU/(W-hr)	9.394
IPLV.IP	BTU/(W-hr)	18.42

Electrical Information

Unit Voltage		460-3-60
Electrical Connection		Single Point Power
SCCR		65kA SCCR
Minimum Voltage	V	414
Maximum Voltage	V	506
Nominal Voltage	V	460
MCA	A	887.1
MOCP	A	1200
RecFuse Size	A	1000

Outside the scope of AHRI Air-Cooled Water-Chilling Packages Certification Program or not optionally certified, but is rated in accordance with AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI).

Integrated Part Load Value (AHRI)

IPLV.IP	BTU/(W-hr)	18.42			
Unit Performance					
Percent Full Load Capacity	%	100.0	75.0	50.0	25.0
Percent Full Load Power	%	100.0	48.3	22.6	9.6
Cooling Capacity	Tons	477.4	358.0	238.7	119.3
Unit Power Input	kW	613.0	295.9	138.6	58.58
Cooling Efficiency (EER)	BTU/(W-hr)	9.345	14.52	20.66	24.45
Evaporator Data					
Fluid Entering Temperature	°F	54.00	51.50	49.00	46.50
Fluid Leaving Temperature	°F	44.00	44.00	44.00	44.00
Fluid Flow Rate	gpm	1142	1142	1142	1142
Fouling Factor	(hr-sqft-F)/BTU	0.000100	0.000100	0.000100	0.000100
Pressure Drop	ft wg	43.8	44	44.1	44.2
Condenser Data					
Entering Air Temperature	°F	95.0	80.0	65.0	55.0

Values given are interpolated and are not directly measurable under laboratory conditions

A-weighted Sound Power Levels

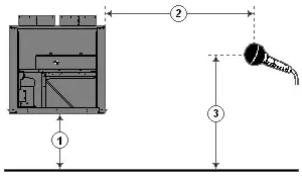
Octave Band Center Frequency	Hz	63	125	250	500	1000	2000	4000	8000	Total
Full Load	dBA	76.5	89.5	93.0	99.0	105.0	103.5	101.5	90.0	109.0
75% Load	dBA	70.0	80.5	90.0	99.5	97.5	97.0	90.5	86.0	103.5
50% Load	dBA	61.5	76.5	88.0	88.5	92.5	89.5	86.0	82.5	96.5
25% Load	dBA	58.0	72.0	84.5	84.5	88.5	85.0	82.5	79.0	92.5

A-weighted Sound Pressure Levels

Octave Band Center Frequency	Hz	63	125	250	500	1000	2000	4000	8000	Total
Full Load	dBA	55.0	68.5	71.5	78.0	84.0	82.5	80.5	68.5	88.0
75% Load	dBA	49.0	59.5	68.5	78.5	76.0	75.5	69.5	64.5	82.0
50% Load	dBA	40.5	55.5	66.5	67.0	71.5	68.0	65.0	61.0	75.5
25% Load	dBA	36.5	50.5	63.0	63.5	67.0	64.0	61.5	57.5	71.5

Acoustic Notes

1 - Height Above Ground: Chiller = 0.0 ft
2 - Horizontal Distance to Receiver: Chiller = 30.0 ft
3 - Vertical Height of Receiver: Chiller = 3.0 ft
Estimated Sound Power levels - dB re: 1 picowatt
Estimated Sound Pressure levels - dB re: 20 micropascal
Estimated sound levels given above are assumed to originate at the acoustic center of the unit.



Estimated average sound pressure Lp at a given distance on a reflective surface in a free field environment.

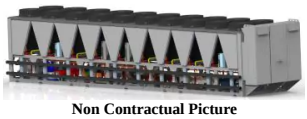
Target Load Report

Project Name:
PTS - Art Anderson - 99MW Design

Tag Name:
30XF500M CA Conditions 50FLWT 64FEWT

Submitted by: Gregory Sifferlen

Tag Name: 30XF500M CA Conditions 50FLWT 64FEWT
30XF Air Cooled Screw Chiller



Non Contractual Picture

Unit Information

Model Number		30XFM5006MW216JRL
Unit Quantity		1
Condenser Type		Air Cooled
Compressor Type		Variable Speed Screw
Communication		CCN, BACnet IP & BACnet MS/TP, Remote Connectivity
Manufacturing Source		Monterrey, Mexico
Refrigerant Type		R-513A
Rigging Weight	lb	34833
Operating Weight	lb	39182
Refrigerant Weight	lb	689
Unit Dimensions (L x W x H)	in	581 x 96 x 99
Baserail Dimensions (L x W)	in	564 x 96

Unit Features

- Active Harmonic Filter
- BACnet IP & BACnet MS/TP
- Isolation Valve(s)
- Permanent Magnet Compressor Motor
- Remote Connectivity
- 65kA SCCR
- Suction Line Insulation
- Uninterruptible Power Supply (UPS)
- Variable Speed Screw Compressor
- Micro Channel Condenser Coil
- Greenspeed Intelligence: High-Efficiency Variable Condenser Fans
- Non-Fused Disconnect
- Flooded Evaporator, 2 pass for Brine Application, w/heater
- Single Point Power
- Low Sound Kit

Operating Conditions

Mode		**Cooling**	**Free Cooling**
Evaporator			
Fluid Type		Propylene Glycol	Propylene Glycol
Fluid Concentration	%	20.00	20.00
Fouling Factor	(hr-sqft-F)/BTU	0.000100	0.000100
Leaving Fluid Temperature	°F	50.00	50.00
Entering Fluid Temperature	°F	64.00	64.00
Fluid Flow	gpm	900.0	900.0
Pressure Drop	ft wg	24.9	24.5
Condenser			
Entering Air Temperature	°F	98.0	24.6
Number of Fans		24	24
Total Fan Airflow	CFM	284043	306689
Altitude	ft	0	0

Performance Information

Mode		**Cooling**	**Free Cooling**
Cooling Capacity	Tons	508.0	-
Free Cooling Capacity	Tons	-	508.0
Free Cooling Capacity Ratio	%	-	100
Chiller Pressure Drop	ft wg	31.2	65
Total Compressor Power	kW	586.6	0
Total Fan Motor Power	kW	61.71	100.2
Total Unit Power (without pump)	kW	648.3	100.2
Minimum Capacity	%	12	12
Cooling Efficiency (EER)	BTU/(W-hr)	9.403	-
Free Cooling Efficiency (EER)	BTU/(W-hr)	-	60.84
IPLV.IP	BTU/(W-hr)	18.42	-

Electrical Information

Unit Voltage		460-3-60
Electrical Connection		Single Point Power
SCCR		65kA SCCR
Minimum Voltage	V	414
Maximum Voltage	V	506
Nominal Voltage	V	460
MCA	A	887.1
MOCP	A	1200
RecFuse Size	A	1000

Outside the scope of AHRI Air-Cooled Water-Chilling Packages Certification Program or not optionally certified, but is rated in accordance with AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI).

Performance Report

PTS - Inyokern - CH-19 MV

Carrier NAC Sales Office

Date: 10/06/2025 9:07 AM

Prepared By: Arthur Anderson

19MV-41L41N379N35

Chiller	
Starter / VFD	Unit Mounted VFD (Unit Mounted Harmonic Mitigation)
Refrigerant Type	R513A
Operation Type	Cooling
Manufacturing Source	Charlotte, USA
Bearing	Magnetic
Use Economizer or not	Not Installed
Economizer ByPass	Not Installed

Configuration	Evaporator	Condenser
Size	41L	41N
Waterbox Type	Nozzle-in-Head, 150 psi	Nozzle-in-Head, 150 psi
Passes	2	2
Nozzle Arrangement	D - 2 Pass, Inlet on 1st Stage End	S - 2 Pass, Inlet on 1st Stage End
Tubing	3/4" 0.025" Copper Rifled Evaporator Tubes	3/4" 0.025" Copper Rifled Condenser Tubes
Fluid Type	Propylene Glycol, 20%	Fresh Water
Fouling Factor	0.000100 (hr-sqft-F)/BTU	0.000250 (hr-sqft-F)/BTU
Tube Quantity	351	533

Compressor	
Size	379
Weights	
Total Rigging Weight (Refrigerant weight excluded and must be added if shipped in machine)	17092 lb
Total Operating Weight	20066 lb
Refrigerant Weight	1250 lb
Motor & Motor Controller	
Size	K3H
Line Voltage-Phase-Hertz	460(V)-3-60(Hz)
VFD Code	5
VFD Size	R7617
VFD Lug Size	500-750 (2)
Dimensions	
Length	159 in
Width	76 in
Height	110 in

Date: 10/06/2025 9:07 AM

Prepared By: Arthur Anderson

Full Load	
Full Load Performance	**Percent Load**
Chiller	
Percent Load	100.00
Chiller Capacity	508.0 Tons
Chiller Power	262.0 kW
Chiller Efficiency	0.5157 kW/TonR
Chiller COP_R	6.819 kW/kW
IPLV.IP	0.3644 kW/TonR
IPLV, COP_R	9.652
NPLV.IP	0.3093 kW/TonR
NPLV, COP_R	11.37
Evaporator	
Entering Temperature	64.00 °F
Leaving Temperature	50.00 °F
Flow Rate	899.9 gpm
Pressure Drop	14.3 ft H_2O
Fouling Temp Adj	0.44 F
Condenser	
Heat Rejection	6989 MBH
Leaving Temperature	95.00 °F
Entering Temperature	85.00 °F
Flow Rate	1405 gpm
Pressure Drop	14.8 ft H_2O
Fouling Temp Adj	0.69 F
Motor & Motor Controller	
Motor Rated Load KW	247 kW
Motor Rated Load Amps	369
Motor OLTA	399
Chiller Line Amps	350
Chiller Inrush Amps	350
Max Fuse/ CB Amps	700
Min Circuit Ampacity	439
Altitude	0.0 ft
Heat Exchangers	
Evaporator Tube Vel	4.92 ft/s
Cond Tube Vel	5.65 ft/s

Outside the scope of AHRI Water-Cooled Water-Chilling and Heat Pump Water-Heating Packages Certification Program or not optionally certified, but is rated in accordance with AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI).

http://www.ahrinet.org/WCCL.aspx

1 Point LEED EAC4 can be earned when selecting the 19MV AquaEdge

Date: 10/06/2025 9:07 AM

Prepared By: Arthur Anderson

IPLV.IP				
	Percent Load			
Chiller				
Percent Load	100.00	75.00	50.00	25.00
Chiller Capacity	508.0 Tons	381.0 Tons	254.0 Tons	127.0 Tons
Chiller Power	291.7 kW	165.3 kW	80.16 kW	45.75 kW
Chiller Efficiency	0.5743 kW/TonR	0.4338 kW/TonR	0.3156 kW/TonR	0.3603 kW/TonR
Chiller COP_R	6.124 kW/kW	8.108 kW/kW	11.14 kW/kW	9.762 kW/kW
IPLV.IP	0.3644 kW/TonR	NA	NA	NA
IPLV, COP_R	9.652	NA	NA	NA
NPLV.IP	0.3093 kW/TonR	NA	NA	NA
NPLV, COP_R	11.37	NA	NA	NA
Evaporator				
Entering Temperature	54.00 °F	51.50 °F	49.00 °F	46.50 °F
Leaving Temperature	44.00 °F	44.00 °F	44.00 °F	44.00 °F
Flow Rate	1215 gpm	1215 gpm	1215 gpm	1215 gpm
Pressure Drop	21.5 ft H_2O	21.6 ft H_2O	21.7 ft H_2O	21.8 ft H_2O
Fouling Temp Adj	0.45 F	0.34 F	0.24 F	0.13 F
Condenser				
Heat Rejection	7090 MBH	5135 MBH	3320 MBH	1679 MBH
Leaving Temperature	94.30 °F	81.72 °F	69.34 °F	67.19 °F
Entering Temperature	85.00 °F	75.00 °F	65.00 °F	65.00 °F
Flow Rate	1532 gpm	1532 gpm	1532 gpm	1532 gpm
Pressure Drop	17.4 ft H_2O	17.8 ft H_2O	18.3 ft H_2O	18.3 ft H_2O
Fouling Temp Adj	0.73 F	0.58 F	0.40 F	0.20 F
Motor & Motor Controller				
Motor Rated Load KW	277 kW	151 kW	70 kW	39 kW
Motor Rated Load Amps	416	246	145	103
Motor OLTA	449	NA	NA	NA
Chiller Line Amps	386	236	123	73
Chiller Inrush Amps	386	NA	NA	NA
Max Fuse/ CB Amps	800	NA	NA	NA
Min Circuit Ampacity	484	NA	NA	NA
Altitude	0.0 ft	0.0 ft	0.0 ft	0.0 ft
Heat Exchangers				
Evaporator Tube Vel	6.65 ft/s	6.66 ft/s	6.66 ft/s	6.66 ft/s
Cond Tube Vel	6.17 ft/s	6.17 ft/s	6.17 ft/s	6.17 ft/s

Outside the scope of AHRI Water-Cooled Water-Chilling and Heat Pump Water-Heating Packages Certification Program or not optionally certified, but is rated in accordance with AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI).

http://www.ahrinet.org/WCCL.aspx

1 Point LEED EAC4 can be earned when selecting the 19MV AquaEdge

Performance Report

PTS - Inyokern - CH-19 MV

Carrier NAC Sales Office

Date: 10/06/2025 9:07 AM

Prepared By: Arthur Anderson

NPLV.IP				
	Percent Load			
Chiller				
Percent Load	100.00	75.00	50.00	25.00
Chiller Capacity	508.0 Tons	381.0 Tons	254.0 Tons	127.0 Tons
Chiller Power	262.0 kW	145.1 kW	67.26 kW	37.02 kW
Chiller Efficiency	0.5157 kW/TonR	0.3808 kW/TonR	0.2648 kW/TonR	0.2915 kW/TonR
Chiller COPR	6.819 kW/kW	9.234 kW/kW	13.28 kW/kW	12.07 kW/kW
IPLV.IP	0.3644 kW/TonR	NA	NA	NA
IPLV, COPR	9.652	NA	NA	NA
NPLV.IP	0.3093 kW/TonR	NA	NA	NA
NPLV, COPR	11.37	NA	NA	NA
Evaporator				
Entering Temperature	64.00 °F	60.50 °F	57.00 °F	53.50 °F
Leaving Temperature	50.00 °F	50.00 °F	50.00 °F	50.00 °F
Flow Rate	899.9 gpm	899.9 gpm	899.9 gpm	899.9 gpm
Pressure Drop	14.3 ft H_2O	14.3 ft H_2O	14.2 ft H_2O	14.1 ft H_2O
Fouling Temp Adj	0.44 F	0.34 F	0.24 F	0.13 F
Condenser				
Heat Rejection	6989 MBH	5066 MBH	3276 MBH	1649 MBH
Leaving Temperature	95.00 °F	82.23 °F	69.67 °F	67.35 °F
Entering Temperature	85.00 °F	75.00 °F	65.00 °F	65.00 °F
Flow Rate	1405 gpm	1405 gpm	1405 gpm	1405 gpm
Pressure Drop	14.8 ft H_2O	15.2 ft H_2O	15.6 ft H_2O	15.6 ft H_2O
Fouling Temp Adj	0.69 F	0.55 F	0.39 F	0.20 F
Motor & Motor Controller				
Motor Rated Load KW	247 kW	131 kW	58 kW	31 kW
Motor Rated Load Amps	369	227	137	90
Motor OLTA	399	NA	NA	NA
Chiller Line Amps	350	210	104	59
Chiller Inrush Amps	350	NA	NA	NA
Max Fuse/ CB Amps	700	NA	NA	NA
Min Circuit Ampacity	439	NA	NA	NA
Altitude	0.0 ft	0.0 ft	0.0 ft	0.0 ft
Heat Exchangers				
Evaporator Tube Vel	4.92 ft/s	4.93 ft/s	4.93 ft/s	4.93 ft/s
Cond Tube Vel	5.65 ft/s	5.65 ft/s	5.65 ft/s	5.65 ft/s

Outside the scope of AHRI Water-Cooled Water-Chilling and Heat Pump Water-Heating Packages Certification Program or not optionally certified, but is rated in accordance with AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI).

http://www.ahrinet.org/WCCL.aspx

1 Point LEED EAC4 can be earned when selecting the 19MV AquaEdge

Performance Input Report

PTS - Inyokern - CH-19 MV

Carrier NAC Sales Office

Date: 10/06/2025 9:07 AM

Prepared By: Arthur Anderson

19MV-41L41N379N35

Chiller	
Starter / VFD	Unit Mounted VFD (Unit Mounted Harmonic Mitigation)
Envelope Stability Control	Installed
Operation Type	Cooling
Use Economizer or not	Not Installed
Economizer ByPass	Not Installed

Configuration	Evaporator	Condenser
Size	41L	41N
Waterbox Type	Nozzle-in-Head, 150 psi	Nozzle-in-Head, 150 psi
Passes	2	2
Nozzle Arrangement	D - 2 Pass, Inlet on 1st Stage End	S - 2 Pass, Inlet on 1st Stage End
Tubing	3/4" 0.025" Copper Rifled Evaporator Tubes	3/4" 0.025" Copper Rifled Condenser Tubes

Compressor	
Size	379
Motor & Motor Controller	
Size	K3H
Line Voltage-Phase-Hertz	460(V)-3-60(Hz)
VFD Code	5
VFD Size	R7617
VFD Lug Size	500-750 (2)
Flow Controls	
Condenser Float Valve	HQ
Economizer Float Valve	LQ

Chiller	
Chiller Capacity	508.0 Tons

	Evaporator	Condenser
Entering Temperature	64.00 °F	85.00 °F
Leaving Temperature	50.00 °F	95.00 °F
Flow Rate	899.9 gpm	1405 gpm
Max Fluid Pressure Drop	25.0 ft H_2O	25.0 ft H_2O
Fluid Type	Propylene Glycol, 20%	Fresh Water
Fouling Factor	0.000100 (hr-sqft-F)/BTU	0.000250 (hr-sqft-F)/BTU

1 Point LEED EAC4 can be earned when selecting the 19MV AquaEdge

AquaEdge Chiller Configuration

PTS - Inyokern - CH-19 MV

Carrier NAC Sales Office

Date: 10/06/2025 9:07 AM

Prepared By: Arthur Anderson

19MV-41L41N379N35

Chiller	
Starter / VFD	Unit Mounted VFD (Unit Mounted Harmonic Mitigation)
Refrigerant Type	R513A
Use Economizer or not	Not Installed
Evaporator	
Size	41L
Waterbox Type	Nozzle-in-Head, 150 psi
Passes	2
Nozzle Arrangement	D - 2 Pass, Inlet on 1st Stage End
Nozzle Options	Victaulic Evaporator Nozzles
Evaporator Hinges	None
Tubing	3/4" 0.025" Copper Rifled Evaporator Tubes
Fluid Type	Propylene Glycol, 20%
Weights	
Total Rigging Weight (Refrigerant weight excluded and must be added if shipped in machine)	17092 lb
Total Operating Weight	20066 lb
Refrigerant Weight	1250 lb
Condenser	
Size	41N
Waterbox Type	Nozzle-in-Head, 150 psi
Passes	2
Nozzle Arrangement	S - 2 Pass, Inlet on 1st Stage End
Nozzle Options	Victaulic Condenser Nozzles
Condenser Hinges	None
Tubing	3/4" 0.025" Copper Rifled Condenser Tubes
Fluid Type	Fresh Water
Motor & Motor Controller	
Motor Size	K3H
Line Voltage-Phase-Hertz	460(V)-3-60(Hz)
VFD Code	5
VFD Size	R7617
Interrupt	100k Amp Interrupt
SCCR Rating	100 kA
VFD Lug Size	500-750 (2)
Flow Controls	
Expansion Control System with Dual EXVs	Installed
Economizer Bypass	Not Installed
Dimensions	
Length	159 in
Width	76 in
Height	110 in

Shipment & Packaging	
Packaging Options	None

Miscellaneous Options	
Evaporator Insulation	STD.
Sensor Package	Not Selected
Soleplates	Not Selected
Spring Isolation Package	Not Selected
Controls & Power	
HMI Communication Protocol	BACNet Protocol with 10" PIC 6 HMI, BluEdge Included
Fourth IOB	Not Selected

Note: This list of specified chiller options does not include any of the separate-ship accessories (gasket kits, refrigerant cylinders, standalone pumpout units, or storage tank / pumpout units), nor any items specified on a Quote Control. These items are specified as part of a bid, and not in the chiller tag. The Pricing Report includes all of these items as specified in a bid.

1 Point LEED EAC4 can be earned when selecting the 19MV AquaEdge

AquaEdge Chiller Estimated Acoustic Data

PTS - Inyokern - CH-19 MV

Carrier NAC Sales Office

Date: 10/06/2025 9:07 AM

Prepared By: Arthur Anderson

19MV-41L41N379N35

Airborne Sound Pressure, dB

Full Load

		Octave Band Center Frequency, Hz								
Percent Load	DBA	31.5	63	125	250	500	1 k	2 k	4 k	8 k
100.00	78	27	39	50	69	76	67	69	61	49

IPLV

		Octave Band Center Frequency, Hz								
Percent Load	DBA	31.5	63	125	250	500	1 k	2 k	4 k	8 k
100.00	79	28	40	51	70	77	68	71	63	51
75.00	76	32	43	55	66	73	65	71	61	49
50.00	73	32	43	55	63	69	65	66	57	45
25.00	75	29	43	57	62	67	68	72	61	47

NPLV

		Octave Band Center Frequency, Hz								
Percent Load	DBA	31.5	63	125	250	500	1 k	2 k	4 k	8 k
100.00	78	27	39	50	69	76	67	69	61	49
75.00	75	32	43	54	64	70	65	71	60	47
50.00	71	28	39	53	60	66	63	66	56	44
25.00	73	23	37	53	60	64	64	71	59	46

Notes:

Estimated Sound Pressure Levels - dB re: 20 micropascal.

Sound pressure levels used to develop this program were measured per AHRI Standard 575.

The sound pressure levels were measured in an acoustical free-field, i.e. a non-reflective environment. Field sound measurements can vary significantly as a function of the reflectivity and proximity of nearby surfaces and the presence of other sound sources.

1 Point LEED EAC4 can be earned when selecting the 19MV AquaEdge

Electrical System Assumptions Report

PTS - Inyokern - CH-19 MV

Carrier NAC Sales Office

Date: 10/06/2025 9:07 AM

Prepared By: Arthur Anderson

19MV-41L41N379N35

Electrical System Assumption

The Carrier equipment offered was selected based on the following information provided with respect to the power supply at the job site.

Ref #	Assumption
1.1	The site is not expected to have voltage variations in excess of +/- 10% of nominal.
1.2	There are no power factor correction capacitors on the same circuit.
1.3	There are no large DC rectifiers or Arc furnaces on the same circuit.
1.4	The chiller is not required to operate through an open transition power transfer.
2.1	The power supply does have a low resistance ground.
2.2	The power transformer serving the chiller is a delta-wye style with solidly grounded neutral.
2.3	The VFD will be located in an indoor climate controlled area where relative humidity will not exceed 95% (non-condensing).
3.1	The application is not a data center
3.2	The specification does not require a harmonic filter.
3.3	The specification does not reference IEEE-519.
3.4	The specification does not require the installation to meet IEEE-519.
3.5	The specification does not require <5% THD.
3.6	VFD full load power factor is not required to be greater than 95%.
3.7	The specification does not require an "active front end" or require that the rectifiers be Insulated Gate Bipolar Transistors (IGBTs).
3.8	No additional isolation between the VFD and sensitive equipment is required.
3.9	The application does not have a history of power transients (quick temporary fluctuations in supply voltage).

1 Point LEED EAC4 can be earned when selecting the 19MV AquaEdge

Footprint Report

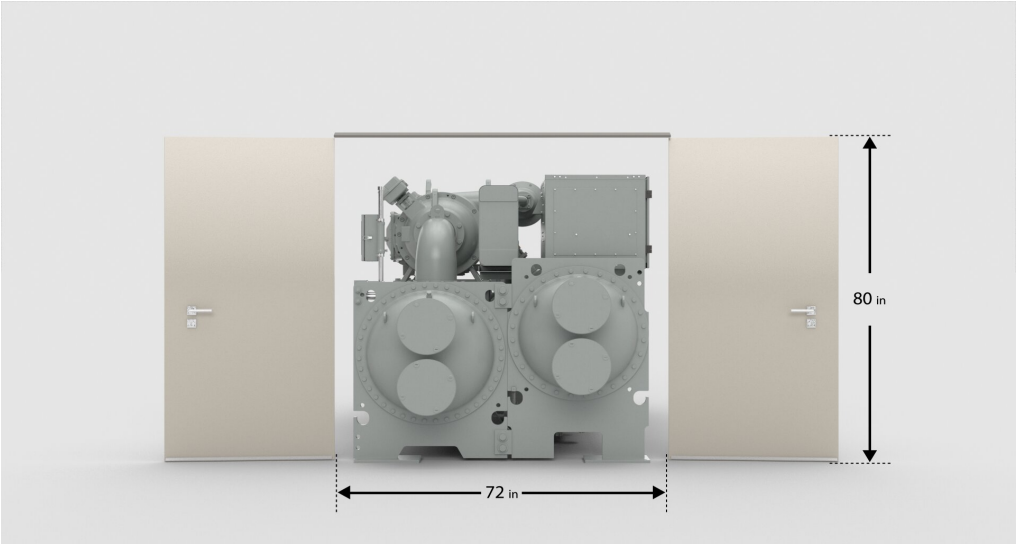
PTS - Inyokern - CH-19 MV

Carrier NAC Sales Office

Date: 10/06/2025 9:07 AM

Prepared By: Arthur Anderson

19MV-41L41N379N35



Width (in)	Height (in)	Length (in)	Rigging Weight (lb)	Operating Weight (lb)
76	110	159	17,092	20,066

Image shown NTS and for reference only. Consult with Carrier sales professional and product installation manual for complete details.