DOCKETED	
Docket Number:	25-SPPE-01
Project Title:	Vernon Backup Generating Facility
TN #:	262032
Document Title:	GIC Vernon LLC VBGF SPPE Application - Appendices B through D
Description:	N/A
Filer:	Scott Galati
Organization:	DayZenLLC
Submitter Role:	Applicant Representative
Submission Date:	2/28/2025 9:49:54 AM
Docketed Date:	2/28/2025

APPENDIX B

Air Quality, Public Health and GHG Technical Report

Appendix AQ1

Emissions Calculations

Criteria and Toxic Pollutants

Table AQ1-1 Emissions Estimates for Emergency Standby Generators

Engine Mfg:	**Cummins**	# of Units:	38	Max # of Engines Tested per Day:	8	# Redundant Engines:	6
Model #:	**QSK78-G37**			*(engines are not tested concurrently)*		Emer Ops Engines:	32
Fuel:	ULSD	**Engine Data**					

												METRIC UNITs				
Fuel S, %wt:	0.0015	**BHP**	**kWe**	**Load %**	**RPM**	**Fuel, gph**	**Stk Ht, ft**	**Stk Diam, in**	**Stk Temp, F**	**mmbtu/hr**	**Stk Flow, ACFM**	**Stack Vel, f/s**	**Stk Diam, m**	**Stk Temp, Kelvins**	**Stk Vel, m/s**	**NOX,lb/hr**
Fuel wt, lb/gal:	7.05	4441	3000	100	1800	204	32	28	863	28.36	22293	86.8908	0.7112	734.82	26.4843	4.895
Btu/gal:	139000	3331	2250	75	1800	160	32	28	807	22.24	18987	74.0051	0.7112	703.71	22.5568	3.672
Lbs S/1000 gal:	0.10575	2221	1500	50	1800	111	32	28	816	15.43	14252	55.5496	0.7112	708.71	16.9315	2.448
Lbs SO2/1000 gal:	0.2115	1110	750	25	1800	61	32	28	762	8.48	8524	33.2238	0.7112	678.71	10.1266	1.224
EPA Tier:	4															
Control System:	SCR + DPF to Meet T4															
Turbocharged:	Yes					Stack Exit Area (sq.ft) =		4.276								
Aftercooled:	Yes															

	Emissions Factor Scenarios (all values in g/bhp-hr)						**CO2e**
Scenarios	**NOx**	**CO**	**VOC**	**SO2**	**PM10**	**PM2.5**	**lb/mmbtu**
Emergency Ops, 150 hrs/yr, Tier 4 Controlled EFs, 100% Load	0.50	2.6	0.14	0.005	0.02	0.02	163.052
Maint/Readiness Testing, 50 hrs/yr, Weighted EFs, 100% Load	1.18	2.60	0.17	0.005	0.02	0.02	163.052
Weighted EF Input and Calculation Data							
0.17 hr Uncontrolled , using EPA T2 EFs, 100% Load, w/DPF	4.50	2.60	0.30				
0.75 hr Controlled, using Tier 4 EFs, 100% Load, w/DPF	0.50	2.60	0.14				

(Engine warmup time is 10 minutes, 0.17 hr.)

	Controlled Emissions Factor Scenarios (all values in g/bhp-hr)						**CO2e**
	NOx	**CO**	**VOC**	**SO2**	**PM10**	**PM2.5**	**lb/mmbtu**
Emergency Ops, 150 hrs/yr, Tier 4 Controlled EFs, 100% Load	0.50	2.60	0.14	0.005	0.02	0.02	163.052
Maint/Readiness Testing, 50 hrs/yr, Weighted EFs, 100% Load	1.18	2.60	0.17	0.005	0.02	0.02	163.052

Scenario 1: **Emergency Ops, 150 hrs/yr, Tier 4 Controlled EFs, 100% Load**

Redundant engines do NOT operate during emergency operations.

Max Hourly Runtime: 1
Max Daily Runtime: 24
Max Annual Runtime: 150

Single Engine

	NOx	**CO**	**VOC**	**SO2**	**PM10**	**PM2.5**	**CO2e**
lbs/hr	4.895	25.456	1.371	0.049	0.196	0.196	na
lbs/day	117.489	610.945	32.897	1.175	4.700	4.700	na
TPY	0.367	1.909	0.103	0.004	0.015	0.015	346.8

All Engines

	NOx	**CO**	**VOC**	**SO2**	**PM10**	**PM2.5**	**CO2e**
lbs/hr	156.65	814.59	43.86	1.57	6.27	6.27	na
lbs/day	3759.66	19550.23	1052.70	37.60	150.39	150.39	na
TPY	11.75	61.09	3.29	0.117	0.470	0.470	11096.41

Scenario 2: **Maint/Readiness Testing, 50 hrs/yr, Weighted EFs, 100% Load**

Max Hourly Runtime: 1
Max Daily Runtime: 1
Max Annual Runtime: 50

Single Engine

	NOx	**CO**	**VOC**	**SO2**	**PM10**	**PM2.5**	**CO2e**
lbs/hr	11.553	25.456	1.637	0.049	0.196	0.196	na
lbs/day	11.553	25.456	1.637	0.049	0.196	0.196	na
TPY	0.289	0.636	0.041	0.001	0.005	0.005	115.6

8 Engines

	NOx	**CO**	**VOC**	**SO2**	**PM10**	**PM2.5**	**CO2e**
lbs/hr	11.553	25.456	1.637	0.049	0.196	0.196	na
lbs/day	92.425	203.648	13.096	0.392	1.567	1.567	na

All Engines

	NOx	**CO**	**VOC**	**SO2**	**PM10**	**PM2.5**	**CO2e**
TPY	10.98	24.18	1.56	0.047	0.186	0.186	4392.33

SCAQMD 200 Hrs/Yr Emissions Totals, TPY:	**NOx**	**CO**	**VOC**	**SO2**	**PM10**	**PM2.5**	**CO2e**
	22.724	85.278	4.845	0.164	0.656	0.656	15488.7

Table AQ1-2 Emissions Estimates for Emergency Standby Generators

Engine Mfg:	**Cummins**	# of Units:	2		Max # of Engines Tested per Day:		2		# Redundant Engines:		0					
Model #:	**QST30-G5**		Admin Units		*(engines are not tested concurrently)*				Emer Ops Engines:		2					
Fuel:	ULSD	**Engine Data**												***METRIC UNITs***		
											Stk Flow,	**Stack Vel,**		**Stk Temp,**		
Fuel S, %wt:	0.0015	**BHP**	**kWe**	**Load %**	**RPM**	**Fuel, gph**	**Stk Ht, ft**	**Stk Diam, in**	**Stk Temp, F**	**mmbtu/hr**	**ACFM**	**f/s**	**Stk Diam, m**	**Kelvins**	**Stk Vel, m/s**	**Nox, lb/hr**
Fuel wt, lb/gal:	7.05	1482	1112	100	1800	72.2	26	18	890	10.04	7540	71.1128	0.4572	749.82	21.6752	1.634
Btu/gal:	139000	1112	834	75	1800	54.1	26	18	814	7.52	6370	60.0780	0.4572	707.59	18.3118	1.226
Lbs S/1000 gal:	0.10575	741	556	50	1800	35.8	26	18	760	4.98	4500	42.4413	0.4572	677.59	12.9361	0.817
Lbs SO2/1000 gal:	0.2115	371	278	25	1800	19.1	26	18	620	2.65	2780	26.2193	0.4572	599.82	7.9916	0.409
EPA Tier:	4															
Control System:	SCR and Oxidation Catalyst + DPF to Meet T4															
Turbocharged:	Yes					Stack Exit Area (sq.ft) =		1.767								
Aftercooled:	Yes															

	Emissions Factor Scenarios (all values in g/bhp-hr)						**CO2e**
Scenarios	**NOx**	**CO**	**VOC**	**SO2**	**PM10**	**PM2.5**	**lb/mmbtu**
Emergency Ops, 150 hrs/yr, Tier 4 Controlled EFs, 100% Load	0.5	2.6	0.14	0.005	0.02	0.02	163.052
Maint/Readiness Testing, 50 hrs/yr, Weighted EFs, 100% Load	1.18	2.60	0.17	0.005	0.02	0.02	163.052
Weighted EF Input and Calculation Data							
0.17 hr Uncontrolled , using EPA T2 EFs, 100% Load, w/DPF	4.5	2.6	0.3				163.052
0.75 hr Controlled, using Tier 4 EFs, 100% Load, w/DPF	0.5	2.6	0.14				163.052

(Engine warmup time is 10 minutes, 0.17 hr.)

	Controlled Emissions Factor Scenarios (all values in g/bhp-hr)						**CO2e**
	NOx	**CO**	**VOC**	**SO2**	**PM10**	**PM2.5**	**lb/mmbtu**
Emergency Ops, 150 hrs/yr, Tier 4 Controlled EFs, 100% Load	0.500	2.600	0.140	0.005	0.020	0.020	163.052
Maint/Readiness Testing, 50 hrs/yr, Weighted EFs, 100% Load	1.18	2.60	0.17	0.005	0.020	0.020	163.052

Scenario 1: **Emergency Ops, 150 hrs/yr, Tier 4 Controlled EFs, 100% Load**

Max Hourly Runtime: 1
Max Daily Runtime: 24
Max Annual Runtime: 150

Single Engine

	NOx	**CO**	**VOC**	**SO2**	**PM10**	**PM2.5**	**CO2e**
lbs/hr	1.634	8.495	0.457	0.016	0.065	0.065	na
lbs/day	39.207	203.878	10.978	0.392	1.568	1.568	na
TPY	0.123	0.637	0.034	0.001	0.005	0.005	122.7

All Engines

	NOx	**CO**	**VOC**	**SO2**	**PM10**	**PM2.5**	**CO2e**
lbs/hr	3.27	16.99	0.91	0.03	0.13	0.13	na
lbs/day	78.41	407.76	21.96	0.78	3.14	3.14	na
TPY	0.25	1.27	0.07	0.002	0.010	0.010	245.45

Scenario 2: **Maint/Readiness Testing, 50 hrs/yr, Weighted EFs, 100% Load**

Max Hourly Runtime: 1
Max Daily Runtime: 1
Max Annual Runtime: 50

Single Engine

	NOx	**CO**	**VOC**	**SO2**	**PM10**	**PM2.5**	**CO2e**
lbs/hr	3.855	8.495	0.546	0.016	0.065	0.065	na
lbs/day	3.855	8.495	0.546	0.016	0.065	0.065	na
TPY	0.096	0.212	0.014	0.0004	0.002	0.002	40.9

2 Engines

	NOx	**CO**	**VOC**	**SO2**	**PM10**	**PM2.5**	**CO2e**
lbs/hr	3.855	8.495	0.546	0.016	0.065	0.065	na
lbs/day	7.711	16.990	1.093	0.033	0.131	0.131	na

All Engines

	NOx	**CO**	**VOC**	**SO2**	**PM10**	**PM2.5**	**CO2e**
TPY	0.19	0.42	0.03	0.001	0.003	0.003	81.82

SCAQMD 200 Hrs/Yr Emissions Totals, TPY:	**NOx**	**CO**	**VOC**	**SO2**	**PM10**	**PM2.5**	**CO2e**
	0.438	1.699	0.096	0.0033	0.013	0.013	327.3

Table AQ1-3 Fixed Roof Tank Emissions Estimates (Large Tanks)

Ref: AP-42, Section 7.1, 11/2006

indicates input

Standing Storage Losses			***Comments***	**Note**
Type of organic liquid:	#2 ULS Diesel		19 tanks (1 tank per engine pair)	
Vapor molecular weight:	Mw	130	AP-42	
Vapor density, lbs/ft3:	Vd	0.0001503		
Liquid density, lbs/gal	Dl	7.05	AP-42	
TVP, psia @ 60F	Vp	0.0065	AP-42 (consistent with Ta below)	
~ Tank diameter, ft.	D	11	equivalent tank dimensions	
~ Tank height or length, ft.	H	17	equivalent tank dimensions	
~ Tank capacity, gals	Tc	12000		
Avg vapor space height, ft.	Hv	6	annual avg value based on use versus tank refills	
Vapor space volume, ft3	Vv	570.20		
~Total tank volume, ft3	Tv	1604	Based on equivalent tank dimensions	
Avg Annual Temp, F	Ta	63.9	API Bulletin 2517, for LA area	
Avg diurnal temp change, F	Tc	17.5	Avg max minus avg min.	
Paint factor	Pf	0.17	AP-42, Table 7.1-6, solar absorbance value	1
Product factor	Pd	1	Crude = 0.75, all others = 1	
Turnover factor	Kn	1	If turnover <36/year, the factor = 1. If >36 then calculate Kn. Per AP-42.	
Annual throughput, gals/yr	At	20400		
Vapor space expansion factor	Ke	0.04	AP-42, default value	
Vapor saturation factor	Ks	0.9979		
# of similar tanks		19	1 tank per engine pair	2
Standing Loss	**Ls**	**1.25**	**lbs/yr (breathing and standing losses)**	

Working Losses				
Vapor molecular weight:	Mw	130		
Vapor pressure, psia @ 70F	Vp	0.0065		
Throughput, bbl/yr	Q	485.7		
Turnover factor	Kn	1		
Working loss product factor	Kp	1		
Working Loss	**Lw**	**0.41**	**lbs/yr (tank filling and withdrawal losses)**	
	Ls+Lw	**1.66**		
Engineering Uncertainty Factor		1.2		
Uncontrolled Total Tank Losses		**1.99**	**lbs/yr each tank**	
		37.83	**lbs/yr all tanks**	
Control System ?	No	0	control fraction	
System type, etc.	NA, no controls are required on #2 fuel oil storage tanks or delivery systems			3
Controlled Total Tank Losses		**1.99**	**lbs/yr each tank**	
		37.83	**lbs/yr all tanks**	
		0.019	**TPY all tanks**	

Note 1 - paint factor for new tanks located above ground.
Note 2 - thruput based on max hourly fuel consumption for M&R Testing only.
Note 3 - these tanks are exempt from SCAQMD permits.

Air Toxics Emissions - Source: SJVUAPCD AB2588 Air Toxics Profiles (Profile 23 Diesel Fuel Storage)

Toxic Pollutant	EF, lb/lb VOC	Emissions, lbs/yr (all tanks)	lbs/hr
Benzene	0.00088	0.0333	3.80004E-06
Toluene	0.00482	0.1823	2.08138E-05
Xylenes	0.0042	0.1589	1.81365E-05

Table AQ1-4 Fixed Roof Tank Emissions Estimates (Small Tanks)

Ref: AP-42, Section 7.1, 11/2006 and 6/2020.

indicates input

Standing Storage Losses			*Comments*	Note
Type of organic liquid:	#2 ULS Diesel		2-3000 gal Admin Tanks	
Vapor molecular weight:	Mw	130	AP-42	
Vapor density, lbs/ft3:	Vd	0.00013874		
Liquid density, lbs/gal	Dl	7.05	AP-42	
TVP, psia @ 60F	Vp	0.006	AP-42 (consistent with Ta below)	
~ Tank diameter, ft.	D	8	equivalent dimension for 3000 gals	
~ Tank height or length, ft.	H	8	equivalent dimension for 3000 gals	
~ Tank capacity, gals	Tc	3000		
Avg vapor space height, ft.	Hv	4	annual avg value based on use versus tank refills	
Vapor space volume, ft3	Vv	201.06		
Total tank volume, ft3	Tv	401	Based on equivalent tank dimensions	
Avg Annual Temp, F	Ta	63.9	API Bulletin 2517 for LA area	
Avg diurnal temp change, F	Tc	17.5	Avg max minus avg min.	
Paint factor	Pf	0.17	AP-42, Table 7.1-6, solar absorbance value	1
Product factor	Pd	1	Crude = 0.75, all others = 1	
Turnover factor	Kn	1	If turnover <36/year, the factor = 1. If >36 then calculate Kn. Per AP-42.	
Annual throughput, gals/yr	At	3610		
Vapor space expansion factor	Ke	0.04	AP-42, default value	
Vapor saturation factor	Ks	0.9987		
# of similar tanks		2	1 tank per Admin engine	2
Standing Loss	**Ls**	**0.41**	**lbs/yr (breathing and standing losses)**	

Working Losses			
Vapor molecular weight:	Mw	130	
Vapor pressure, psia @ 70F	Vp	0.006	
Throughput, bbl/yr	Q	86.0	
Turnover factor	Kn	1	
Working loss product factor	Kp	1	
Working Loss	**Lw**	**0.07**	**lbs/yr (tank filling and withdrawal losses)**
	Ls+Lw	**0.47**	
Engineering Uncertainty Factor		1.2	
Uncontrolled Total Tank Losses		**0.57**	**lbs/yr each tank**
		1.14	**lbs/yr all tanks**
Control System ?	No	0	control fraction
System type, etc.	NA, no controls are required on #2 fuel oil storage tanks or delivery systems		3
Controlled Total Tank Losses		**0.57**	**lbs/yr each tank**
		1.14	**lbs/yr all tanks**
		5.686E-04	**TPY all tanks**

Note 1 - paint factor for new tanks located above ground
Note 2 - thruput based on max hourly fuel consumption for M&R Testing only.
Note 3 - these tanks are exempt from SCAQMD permits.

Air Toxics Emissions - Source: SJVUAPCD AB2588 Air Toxics Profiles (Profile 23 Diesel Fuel Storage)

Toxic Pollutant	EF, lb/lb VOC	Emissions, lbs/yr (all tanks)	Emissions, TPY	lbs/hr
Benzene	0.00088	0.0010	5.00334E-06	1.14E-07
Toluene	0.00482	0.0055	2.74047E-05	6.26E-07
Xylenes	0.0042	0.0048	2.38796E-05	5.45E-07

Table AQ1-5 GEP Vernon Cooling Systems

Equipment Type	Building 1 Qty	Building 2 Qty	Total Qty	Refrigerant Type	GWP	Charge per System, lbs	Total Charge, lbs	~Leak rate, %wt/year
Air Cooled Chillers	38	38	76	R-513A	573	540	41040	7
Make Up Air Unit (MAU)	2	2	4	R-454B	466	281.63	1126.5	7
Direct Outside Air System (DOAS)	1	1	2	R-454B	466	227.75	455.5	7
Split Unit (ODU)	57	57	114	R-32	675	6	684	10

See Table AQ1-6 for the emissions calculations for each of the refrigerants listed above.

Leak Rate Reference: CARB-California's High GWP Gases Emissions Inventory, EIM and TSD, AQPSD, April 2016.

Table AQ1-6 Refrigerant Use Emissions Estimation

Parameter	***Value***	***Comments***
Site ID:	GEP Vernon	
System ID:	AC Chillers	R-513A aggregated system data
Data Sources:	Mfg	
Refrigerant ID:	R-513A	
System Charge, lbs:	540	
# of Similar Systems:	76	
Total Charge, lbs:	41040	
Est/Known Leak Rate:	7	% wt/year
	0.07	leak rate fraction
Annual Emissions, Lbs:	2872.8	Based on Leak Rate
Annual Emissions, tons:	1.43640	Based on Leak Rate
GWP Value:	573	
CO2e, tons/yr:	823.057	
CO2e Mtons/yr:	802.983	

Parameter	***Value***	***Comments***
Site ID:	GEP Vernon	
System ID:	MUA Units	R-454B aggregated system data
Data Sources:	Mfg	
Refrigerant ID:	R-454B	
System Charge, lbs:	281.63	
# of Similar Systems:	4	
Total Charge, lbs:	1126.52	
Est/Known Leak Rate:	7	% wt/year
	0.07	leak rate fraction
Annual Emissions, Lbs:	78.8564	Based on Leak Rate
Annual Emissions, tons:	0.03943	Based on Leak Rate
GWP Value:	466	
CO2e, tons/yr:	18.374	
CO2e Mtons/yr:	17.925	

Parameter	*Value*	*Comments*
Site ID:	GEP Vernon	
System ID:	DOAS Units	R-454B aggregated system data
Data Sources:	Mfg	
Refrigerant ID:	R-454B	
System Charge, lbs:	227.75	
# of Similar Systems:	2	
Total Charge, lbs:	455.5	
Est/Known Leak Rate:	7	% wt/year
	0.07	leak rate fraction
Annual Emissions, Lbs:	31.885	Based on Leak Rate
Annual Emissions, tons:	0.01594	Based on Leak Rate
GWP Value:	466	
CO2e, tons/yr:	7.429	
CO2e Mtons/yr:	7.248	

Parameter	*Value*	*Comments*
Site ID:	GEP Vernon	
System ID:	Split Units	R-32 aggregated system data
Data Sources:	Mfg	
Refrigerant ID:	R-32	
System Charge, lbs:	6	
# of Similar Systems:	114	
Total Charge, lbs:	684	
Est/Known Leak Rate:	10	% wt/year
	0.1	leak rate fraction
Annual Emissions, Lbs:	68.4	Based on Leak Rate
Annual Emissions, tons:	0.03420	Based on Leak Rate
GWP Value:	0	
CO2e, tons/yr:	0.000	
CO2e Mtons/yr:	0.000	
Total CO2e Emissions (all systems)	**828.156**	**Mtons/Yr**

Appendix AQ2

Engine and Control System Specifications

Building Cooling Systems Specifications

Engine Parameters

Engine Manufacturer	Cummins	
Engine Model	QST30-G5 NR2	
Engine Power	1482	bhp
Exhaust Flowrate	7540	acfm
Exhaust Temperature	890	° F
Load	100%	
Fuel	Diesel	
Engine Data Sheet	EDS-1063b	

Raw Emissions		
NOx	3.95	g/bhp-hr
CO	0.66	g/bhp-hr
THC	0.07	g/bhp-hr
PM	0.11	g/bhp-hr
Oxygen	10.0	%

System Performance

Guaranteed Emissions for EPA Tier IV Compliance [6]		
NOx	0.5	g/bhp-hr
CO	2.6	g/bhp-hr
THC	0.14	g/bhp-hr
PM	0.022	g/bhp-hr
Attenuation	35 - 45	dBA

Warranty = 24 months or 27 months after delivery, whichever is sooner

Expected Backpressure		
Fresh	17.40	inches of water
DPF Fully Loaded	24.50	inches of water

Required Utilities		
Urea Flow Rate	2.76	gal/hr
SCR Controls	120/12.5	Vac/amps
Air Compressor	208/13	Vac/amps

SCR Housing Description and Dimensions

SCR Housing Dimensions		
Height	44	inches
Width	81	inches
Length	164	inches
Inlet Flange Dia	14	inches
Outlet Flange Dia	18	inches
Weight (loaded)	7000	lbs

SCR System Included Components:

- 304 Stainless Steel Reactor Housing
- Oxidation, DPF, and SCR catalysts
- Urea Injection
- Mixing Duct
- Insulation Blanket
- Short Exhaust Stub Stack and Rain Cap

Pricing and Commercial Terms

P/N	Quantity	Description
Ox + DPF + SCR + SIL, EPA Tier IV Compliant	1	SCR System Package - 304 Stainless Steel Reactor Housing, Oxidation, DPF, SCR Catalysts, Urea Injection, Mixing Duct, Insulation Blanket, Short Exhaust Stub Stack, and Rain Cap - Factory installed pressure, temperature, NOx sensor(s), junction panel(s), and dosing manifold(s). - System(s) protected via shrink wrap prior to shipping. - Heavy-duty weather resistant connectors are used to reduce field wiring.
	1	Air/DEF/Control Skid which Includes: - Air compressor - Urea day tank; 100 gallon (poly) - Sensors/Dosing Control Panel
Option	1	Weather Enclosure for Air/DEF/Control Skid - Painted, Carbon Steel Skid Enclosure
Required Service	1	Commissioning & start-up trips for SCR system(s). *See attached 2024 Field Service Rate Sheet for Reference*
Logistics	TBD	Estimated trucking freight from Bloomer, WI to TBD for SCR system(s) and auxiliaries.

Engine Parameters

Engine Manufacturer	Cummins	
Engine Model	QSK78-G37	
Engine Power	4441	bhp
Exhaust Flowrate	22293	acfm
Exhaust Temperature	863	° F
Load	100%	
Fuel	Diesel	
Engine Data Sheet	EDS-3158b (6/24)	

Raw Emissions		
NOx	6.12	g/bhp-hr
CO	0.06	g/bhp-hr
THC	0.07	g/bhp-hr
PM	0.01	g/bhp-hr
Oxygen	10.0	%

System Performance

Guaranteed Emissions for EPA Tier IV Compliance [6]		
NOx	0.5	g/bhp-hr
CO	2.6	g/bhp-hr
THC	0.14	g/bhp-hr
PM	0.022	g/bhp-hr
Attenuation	35 - 45	dBA

Warranty = 24 months or 27 months after delivery, whichever is sooner

Expected Backpressure		
Fresh	19.68	inches of water
DPF Fully Loaded	26.92	inches of water

Required Utilities		
Urea Flow Rate	13.44	gal/hr
SCR Controls	120/12.5	Vac/amps
Air Compressor	208/13	Vac/amps

SCR Housing Description and Dimensions

SCR Housing Dimensions		
Height	64	inches
Width	111	inches
Length	208	inches
Inlet Flange Dia	26	inches
Outlet Flange Dia	30	inches
Weight (loaded)	13000	lbs

SCR System Included Components:

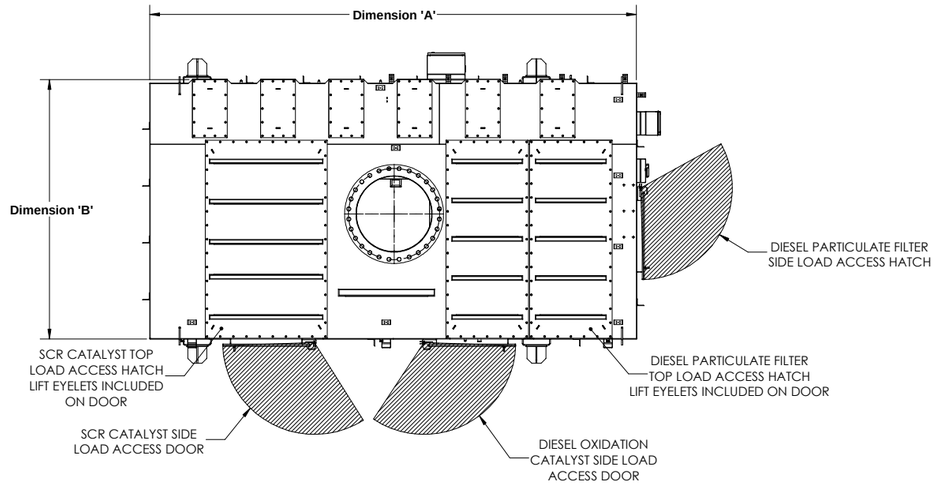
- 304 Stainless Steel Reactor Housing
- Oxidation, DPF, and SCR catalysts
- Urea Injection
- Mixing Duct
- Insulation Blanket
- Short Exhaust Stub Stack and Rain Cap

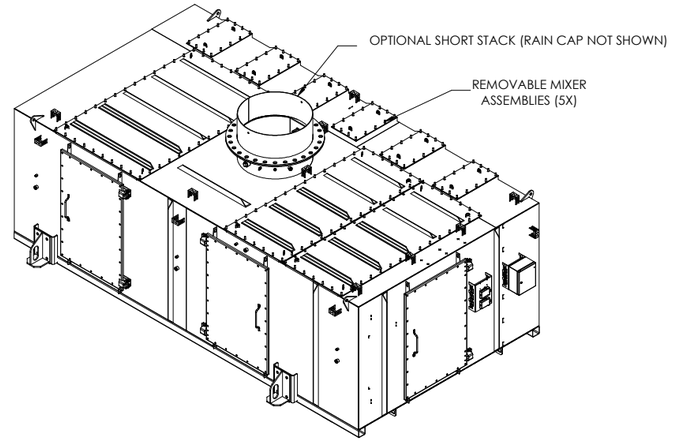
Pricing and Commercial Terms

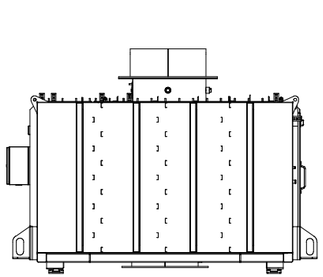
P/N	Quantity	Description
Ox + DPF + SCR + SIL, EPA Tier IV Compliant	19	SCR System Package - 304 Stainless Steel Reactor Housing, Oxidation, DPF, SCR Catalysts, Urea Injection, Mixing Duct, Insulation Blanket, Short Exhaust Stub Stack, and Rain Cap - Factory installed pressure, temperature, NOx sensor(s), junction panel(s), and dosing manifold(s). - System(s) protected via shrink wrap prior to shipping. - Heavy-duty weather resistant connectors are used to reduce field wiring.
	19	Air/DEF/Control Skid which Includes: - Air compressor - Urea day tank; 500 gallon (poly) - Sensors/Dosing Control Panel
Option	19	Weather Enclosure for Air/DEF/Control Skid - Painted, Carbon Steel Skid Enclosure
Required Service	19	Commissioning & start-up trips for SCR system(s). *See attached 2024 Field Service Rate Sheet for Reference*
Logistics	TBD	Estimated trucking freight from Bloomer, WI to TBD for SCR system(s) and auxiliaries.

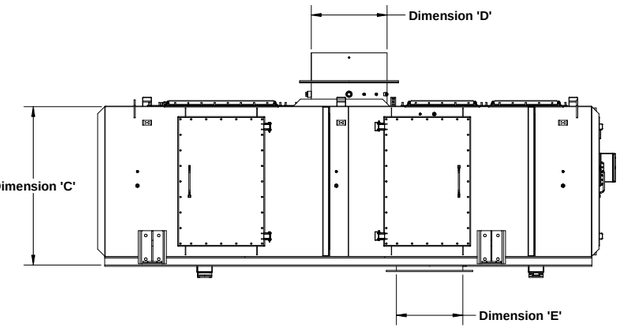
Dimension 'A' (in) Length	Dimension 'B' (in) Width	Dimension 'C' (in) Height	Dimension 'D' (in) Outlet Flange	Dimension 'E' (in) Inlet Flange	Estimated Weight (lbs)	Material
See Above	See Above	See Above	See Above	See Above	See Above	See Above

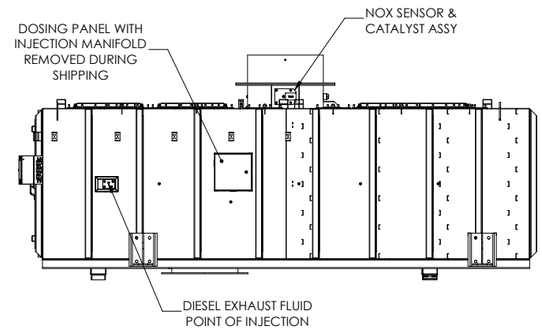
Drawing dimensions, weight, and construction for reference only

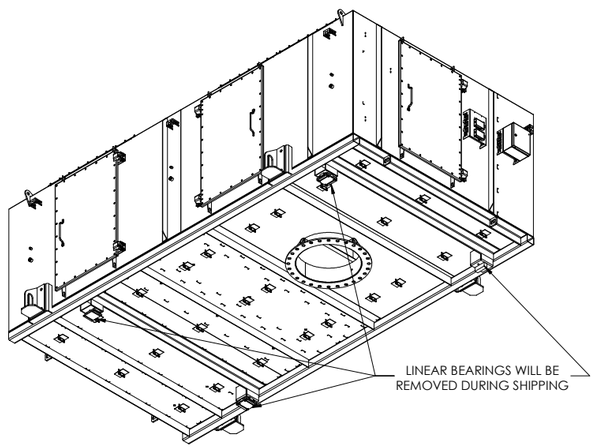












NOTES:

CONSTRUCTION OF MAIN BODY: STAINLESS STEEL

FINISH: GRAY INSULATION BLANKET AND/OR PEARL GRAY URETHANE COATING

NOT YET SHOWN: EXTERIOR INSULATION AND EXTERNAL WALL STIFFENERS. EXPECT 2" THICKNESS ADDED ONTO THE REACTOR DIMENSIONS SHOWN BELOW ON ALL SIDES.

NOTE: WELD STUDS CANNOT BE TORQUED BEYOND 50FT-LBS

UNLESS OTHERWISE SPECIFIED:

REMOVE ALL BURRS AND BREAK SHARP EDGES

	NAME	DATE
DRAWN		
MATERIAL:		

THIRD ANGLE PROJECTION

VISUAL PART NO.
SALES

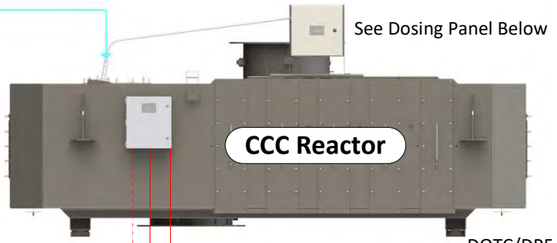
DO NOT SCALE DRAWING

CATALYTIC COMBUSTION
311 RIGGS ST
ROTHSCHILD, WI 54474
TEL 715-546-3882
FAX 715-546-3884

DESCRIPTION:
SCR Tier IV Sales

SIZE | DRAWING NO. 702484_SALES | REV

Air & Urea/DEF
Whip
Custom made & supplied by CCC.
It cannot be cut, thus whip length
dictates location of the DEF Dosing box.

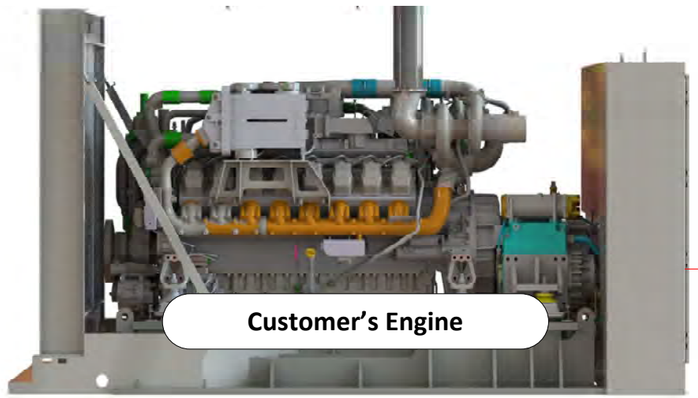


See Dosing Panel Below

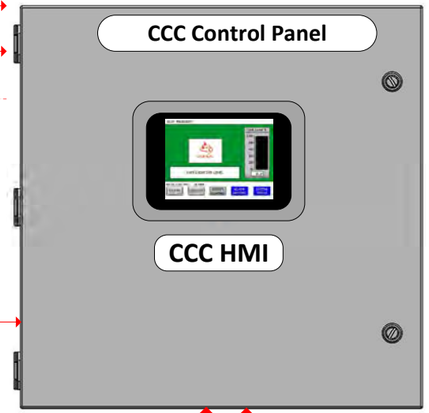
DOTC/DPF & SCR Differential Pressure: mA Signal

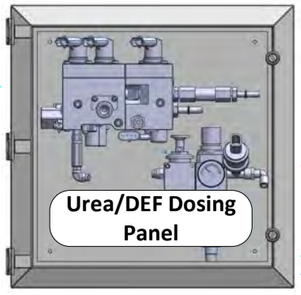
Thermocouple #1, #2, #3, #4: Type k, mV Signal

NH3 / NOX Sensor Can Bus



Engine On/Off & Engine Load
(J1939 on Can Bus Or Analog/Digital Signal)





Urea/DEF Dosing Can Bus

Power Supply
(460VAC/3/60 Or 208VAC/3/60)

Compressed Air, 90psig 6-8 scfm

Urea/DEF Supply/Return
Stainless Steel Tubing

Urea/DEF Pump
Can Bus

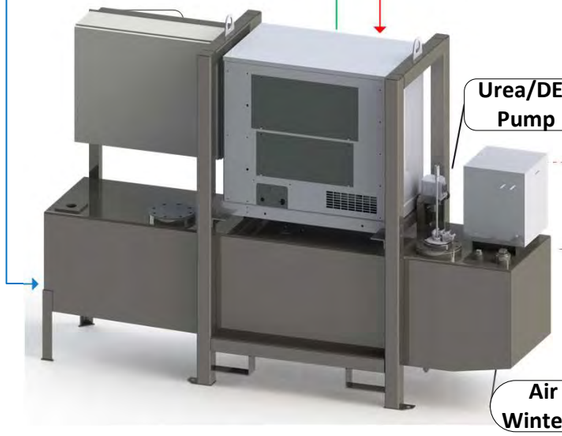
120VAC Single Phase, 60Hz

Urea/DEF Level, Qual. Sensor
Can Bus

24VDC Engine Battery Power
(For evacuation after power losss)

Remote Connectivity

See Control Panel / HMI Above



Tubing SST Tube

Air & Urea/DEF Whip

Compressed Air Supply

Urea SST Tube

Engine Feedback Signals

Component Signal / Control Harness

24 VDC Battery Power

120 VAC Power

REV.	ECN	TIER	DESCRIPTION	DATE	APPROVED BY

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
ANGULAR: FABRICATED ±1.0°
MACHINED ±0.5°
ONE PLACE DECIMAL ±0.1
TWO PLACE DECIMAL ±0.06
THREE PLACE DECIMAL ±0.030
DUAL DIMENSIONS IN. (MM)

REMOVE ALL BURRS AND
BREAK SHARP EDGES

	NAME	DATE
DRAWN		

MATERIAL:

THIRD ANGLE PROJECTION

DO NOT SCALE DRAWING

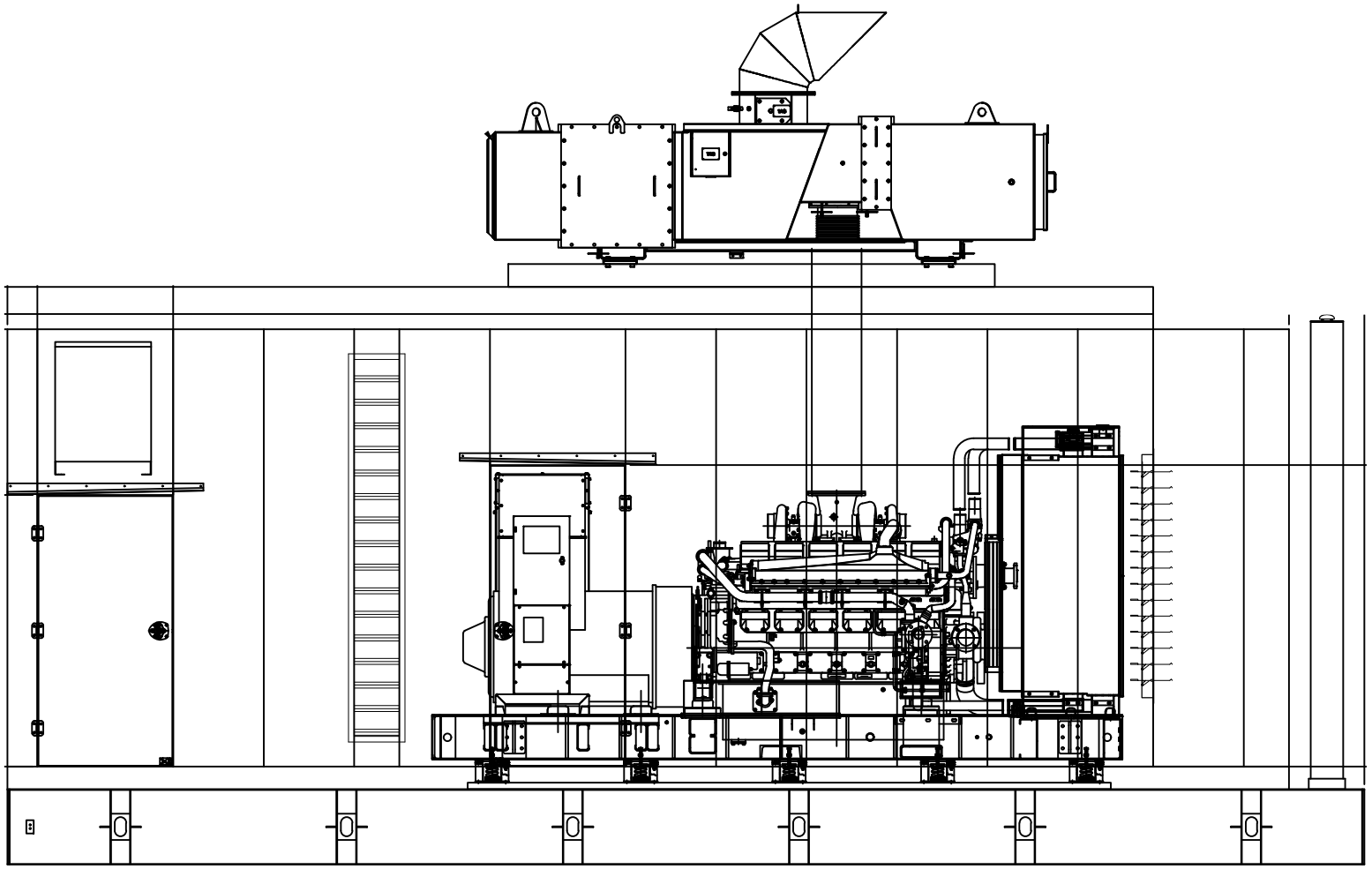
CATALYTIC COMBUSTION
EMISSION TECHNOLOGIES
311 RIGGS ST.
BLOOMER, WI 54724
TEL 715-568-2882
FAX 715-568-2884

DESCRIPTION:
SCR P&ID – Typical Installation
Document # 51817

VISUAL PART NO.	SIZE	DRAWING NO.	REV
NA	B	SALES	02

SCALE: NTS | WT: NA | SHEET 1 OF 1

Concept Only



Power-Emissions Group	CATALYTIC COMBUSTION EMISSION TECHNOLOGIES	DESCRIPTION	JOB NAME -	JOB #	
		GENERATOR	CUSTOMER	QUOTE #	
		CUSTOMER APPROVAL:	DRAWN BY	DATE:	
		NAME: DATE:	SHEET	SCALE: NTS	REV C

Exhaust Emission Data Sheet
1000DQFAD
60 Hz Diesel Generator Set

Engine Information:

Model:	Cummins Inc. QST30-G5 NR2	Bore:	5.51 in. (139 mm)
Type:	4 Cycle, 50°V, 12 Cylinder Diesel	Stroke:	6.5 in. (165 mm)
Aspiration:	Turbocharged and Low Temperature aftercooled	Displacement:	1860 cu. in. (30.4 liters)
Compression Ratio:	14.7:1		
Emission Control Device:	Aftercooled (Air-to-Air) or Low Temperature Aftercooled		

	1/4	1/2	3/4	Full	Full	
PERFORMANCE DATA	**Standby**	**Standby**	**Standby**	**Standby**	**Prime**	
BHP @ 1800 RPM (60 Hz)	371	741	1112	1482	1322	
Fuel Consumption (gal/Hr)	19.1	35.8	54.1	72.2	63.9	
Exhaust Gas Flow (CFM)	2780	4500	6370	7540	6950	
Exhaust Gas Temperature (°F)	620	760	814	890	873	
EXHAUST EMISSION DATA						
HC (Total Unburned Hydrocarbons)	0.12	0.10	0.08	0.07	0.08	
NOx (Oxides of Nitrogen as NO2)	4.17	5.20	3.87	3.95	4.00	
CO (carbon Monoxide)	0.66	0.36	0.48	0.66	0.58	
PM (Particular Matter)	0.19	0.15	0.12	0.11	0.11	
SO2 (Sulfur Dioxide)	0.11	0.10	0.10	0.11	0.10	
Smoke (Bosch)	0.88	0.80	0.79	0.73	0.75	
All Values are Grams/HP-Hour, Smoke is Bosch #						

TEST CONDITIONS

Data was recorded during steady-state rated engine speed (± 25 RPM) with full load (±2%). Pressures, temperatures, and emission rates were stabilized.

Fuel Specification:	46.5 Cetane Number, 0.035 Wt.% Sulfur; Reference ISO8178-5, 40CFR86.1313-98 Type 2-D and ASTM D975 No. 2-D.
Fuel Temperature:	99 ± 9 °F (at fuel pump inlet)
Intake Air Temperature:	77 ± 9 °F
Barometric Pressure:	29.6 ± 1 in. Hg
Humidity:	NOx measurement corrected to 75 grains H2O/lb dry air
Reference Standard:	ISO 8178

The NOx, HC, CO and PM emission data tabulated here were taken from a single engine under the test conditions shown above. Data for the other components are estimated. These data are subjected to instrumentation and engine-to-engine variability. Field emission test data are not guaranteed to these levels. Actual field test results may vary due to test site conditions, installation, fuel specification, test procedures and instrumentation. Engine operation with excessive air intake or exhaust restriction beyond published maximum limits, or with improper maintenance, may results in elevated emission levels.

Exhaust Emission Data Sheet
C3000D6EB
60 Hz Diesel Generator Set

Engine Information:

Model:	Cummins Inc. QSK78-G37	Bore:	6.69 in. (170 mm)
Type:	4 Cycle, V, 18 Cylinder Diesel	Stroke:	7.48 in. (190mm)
Aspiration:	Turbocharged and Charge Air Cooled	Displacement:	4737 cu. in. (78 liters)
Compression Ratio:	15.3:1		

Performance Data	1/4 Standby	1/2 Standby	3/4 Standby	Full Standby
Engine BHP @ 1800 RPM (60 Hz)	1110	2221	3331	4441
Fuel Consumption (US Gal/Hr)	61	111	160	204
Exhaust Gas Flow (CFM)	8424	14252	18987	22293
Exhaust Gas Temperature (°F)	762	816	807	863
Exhaust Emission Data				
HC (Total Unburned Hydrocarbons)	0.22	0.10	0.08	0.07
NOx (Oxides of Nitrogen as NO_2)	3.81	3.75	4.15	6.12
CO (Carbon Monoxide)	0.54	0.19	0.09	0.06
PM (Particulate Matter)	0.06	0.02	0.01	0.01
SO_2 (Sulfur Dioxide)	0.005	0.005	0.005	0.005
Smoke (FSN)	0.71	0.30	0.16	0.08

(All values are cited: g/HP-hr)

Test Conditions

Steady-state emissions recorded per ISO8178-1 during operation at rated engine speed (+/-2%) and stated constant load (+/-2%) with engine temperatures, pressures and emission rates stabilized.

Fuel Specification:	ASTM D975 No. 2-D S15 diesel fuel with 0.0015 Wt.% Sulfur content, 42-48 Cetane Number
Air Inlet Temperature	25 °C (77 °F)
Fuel Inlet Temperature:	40 °C (104 °F)
Barometric Pressure:	100 kPa (29.53 in Hg)
Humidity:	NOx measurement corrected to 10.7 g/kg (75 grains H_2O/lb) of dry air
Intake Restriction:	Set to 18 in of H_2O as measured from compressor inlet
Exhaust Back Pressure:	Set to 1.5 in Hg
Note:	mg/m^3 values are measured dry, corrected to 5% O_2 and normalized to standard temperature and pressure (0°C, 101.325 kPa)

The NOx, HC, CO and PM emission data tabulated here are representative of test data taken from a single engine under the test conditions shown above. Data for the other components are estimated. These data are subjected to instrumentation and engine-to-engine variability. Field emission test data are not guaranteed to these levels. Actual field test results may vary due to test site conditions, installation, fuel specification, test procedures and instrumentation. Engine operation with excessive air intake or exhaust restriction beyond published maximum limits, or with improper maintenance, may results in elevated emission levels.

C3000D6EB
C2750D6E

DIESEL GENERATOR SET SPECIFICATION SHEET

QSK78 SERIES ENGINE, 2500-3000 kWe, 60 Hz, EPA TIER 2 NSPS CERT. (STATIONARY EMERGENCY)

DESCRIPTION

Cummins commercial generator sets are fully integrated power generation systems for stationary standby power and data center applications.

The Centum™ Series meets the demand for efficient and sustainable power with performance, flexibility and commitment – for the next generation of power.

FEATURES

Cummins Heavy-Duty Engine: Rugged, four-cycle industrial diesel delivers reliable power, low emissions and fast response to load changes.

Alternator: Several alternator sizes offer selectable motor starting capability with low reactance 2/3 pitch windings, low waveform distortion with non-linear loads, fault clearing short-circuit capability and class H insulation.

ISO 8528-5: Consult factory for site and configuration specific transient performance information.

Low NOx: Enables compliance with 6 g/bhp-hr NOx site requirements.

HVO Fuel Compatible: Approved for use with paraffinic fuels (EN15940), including Hydrotreated Vegetable Oil (HVO), which has a very low life cycle carbon emission.

Data Center Continuous: Applicable for supplying power continuously to a constant or varying electrical load for unlimited hours in a data center application.

Uptime Compliant: Meets the requirement of a Tier III and IV data center site by being rated to run for unlimited hours of operation when loaded to 'N' demand for the engine generator set.

Permanent Magnet Generator (PMG): Offers enhanced motor starting and fault clearing short circuit capability.

Control System: The PowerCommand® digital control is standard equipment and provides total genset system integration including automatic remote starting/stopping, precise frequency and voltage regulation, alarm and status message display, AmpSentry™ protective relay, output metering, auto-shutdown at fault detection and NFPA 110 Level 1 compliance.

Cooling System: High ambient and enhanced high ambient, integral, set-mounted radiator systems, designed and tested for rated ambient temperatures, simplify facility design requirements for rejected heat.

Compliance: The genset accepts full rated load in a single step in accordance with NFPA 110 for Level 1 systems. The genset is UL listed, CSA certified and is available certified for seismic application in accordance with IBC.

Warranty and Service: Backed by a standard three-year warranty and worldwide distributor network.

MODELS

	Emergency Standby Power (ESP) Rating[1] kWe (kVA)	Prime Power (PRP) Rating[1,2] kWe (kVA)	Data Center Continuous (DCC) Rating[1,2] kWe (kVA)	Emissions Certification and Compliance	Data Sheet[2]
C2750D6E	2750 (3438)	2500 (3125)	2500 (3125)	EPA T2 NSPS (Low NOx)[3]	D-6764
C3000D6EB	3000 (3750)	2750 (3438)	2750 (3438)	EPA T2 NSPS	D-6765
	3000 (3750)	2750 (3438)	2750 (3438)	EPA T2 NSPS (Low NOx)[3]	D-6766

[1] All ratings include radiator fan losses
[2] Prime rating and DCC at standby power rating available subject to Cummins' site-specific assessment; contact your Cummins distributor
[3] Designed to comply with 6 g/bhp-hr NOx site requirement. Certain conditions apply; refer to emissions data sheet for more information

Bulletin S-6763 PD00002097 Produced in U.S.A. (Rev. 04/24)

Centum SERIES GENERATORS

GENERATOR SET SPECIFICATIONS

Performance class	Genset models have been tested in accordance with ISO 8528-5. Consult factory for transient performance information
Voltage regulation, no load to full load	± 1.0%
Random voltage variation	± 1.0%
Frequency regulation	Isochronous
Random frequency variation	± 0.5%
Electromagnetic compatibility performance	Emissions to EN 61000-6-2:2005 Immunity to EN 61000-6-4:2007+A1:2011 Complies with FCC PART 15 subpart B and ICES-002

ENGINE SPECIFICATIONS

Bore	170 mm (6.69 in)
Stroke	190 mm (7.48 in)
Displacement	77.6 L (4735 in^3)
Configuration	Four-cycle; vee; 18-cylinder
Battery capacity	2200 A minimum at ambient temperature of -18 °C (0 °F) to 0 °C (32 °F)
Battery charging alternator	55 A
Starting voltage	24 V, negative ground
Fuel system	Modular Common Rail System (MCRS)
Fuel filter	Two-stage, spin-on fuel filter and water separator system. Stage 1: remote mounted, 5 µm duplex filter with two priming pumps. Stage 2: engine mounted, 3 µm triple element filter
Air cleaner	Four unhoused, dry replaceable elements standard
Lube oil filter	Four spin-on, combination full flow filter and bypass filters
Cooling system	Charge-air cooled and jacket water cooled

ALTERNATOR SPECIFICATIONS

Design	Brushless, 4-pole, drip proof, revolving field
Stator	2/3 pitch
Rotor	Two bearing, flexible coupling
Insulation system	Class H
Standard temperature rise	125ºC standby at 40 ºC ambient
Exciter type	Permanent Magnet Generator (PMG)
Phase rotation	A (U), B (V), C (W)

AVAILABLE VOLTAGES (60 Hz LINE-TO-NEUTRAL / LINE-TO-LINE)[4]

240 / 416	277 / 480	347 / 600	2400 / 4160
3810 / 6600	7200 / 12470	7620 / 13200	7976 / 13800

[4] Additional voltages may be available; contact your Cummins distributor

GENERATOR SET OPTIONS AND ACCESSORIES[5]

Engine
- 208 V and 480 V, 3 Phase, 12 kW forced-type coolant heater
- Oil sampling valve
- Redundant starting
- Closed crankcase ventilation
- Automatic oil make-up system

Cooling System (ship loose)
- High ambient standard
- Enhanced high ambient

Control Panel
- Masterless load demand
- Multiple language support
- Low coolant level warning and shutdown

Control Panel (cont.)
- Left facing mounting
- Warning high bearing temperature
- Alternator temp. monitoring
- Exhaust gas temp. monitoring
- 6x user-configurable relays
- 120 / 240 V heater control cabinet
- Mechanical hour meter
- 2x digital input/output

Alternator
- 80 °C / 105 °C / 125 °C / 150 °C rise
- 120 / 240 V, 300 W anti-condensation heater
- Top and bottom entrance boxes

Alternator (cont.)
- Temp. sensor - RTDs, 2 / phase
- Temp. sensor - alternator bearing RTD
- Differential current transformers for various voltages

Generator Set
- Battery
- Floor-mount battery tray, hold-down
- PowerCommand® network
- Remote annunciator panel
- Vibration isolators
- Standby 3yr/1000hr standard, 5yr/2500hr and 10yr/5000hr warranties
- DCC 3-, 5- and 10-year unlimited hour warranties

[5] Some options may not be available on all models; contact your Cummins distributor

Bulletin S-6763 PD00002097 Produced in U.S.A. (Rev. 04/24)

Centum SERIES GENERATORS

PowerCommand® 3.3

CONTROL SYSTEM DESCRIPTION

The PowerCommand® 3.3 is an integrated, microprocessor-based, generator set control system providing voltage regulation, engine protection, alternator protection, operator interface and isochronous governing. Refer to document S-1570 for more detailed information on the control.

AmpSentry™: Includes integral AmpSentry™ protection, which provides a full range of alternator protection functions that are matched to the alternator provided.

Power Management: Control function provides battery monitoring and testing features and smart starting control system.

Advanced Control Methodology: Three-phase sensing, full wave rectified voltage regulation, with a PWM output for stable operation with all load types.

Communications Interface: Control comes standard with PCCNet and Modbus interface.

Service: InPower™ PC-based service tool available for detailed diagnostics, setup, data logging and fault simulation.

Easily Upgradeable: PowerCommand® controls are designed with common control interfaces.

Reliable Design: The control system is designed for reliable operation in harsh environment.

Multi-Language Support

OPERATOR PANEL FEATURES

Operating/Display Functions

- Displays paralleling breaker status
- Provides direct control of the paralleling breaker
- 320 x 240 pixels graphic LED backlight LCD
- Auto, manual, start, stop, fault reset and lamp test/panel lamp switches
- Alpha-numeric display with pushbuttons
- LED lamps indicating genset running, remote start, not in auto, common shutdown, common warning, manual run mode, auto mode and stop

Paralleling Control Functions

- First Start Sensor™ system selects first genset to close to bus
- Phase lock loop synchronizer with voltage matching
- Sync check relay
- Isochronous kW and kVAR load sharing
- Load govern control for utility paralleling
- Extended paralleling (base load/peak shave) mode
- Digital power transfer control, for use with a breaker pair to provide open transition, closed transition, ramping closed transition, peaking and base load functions

Alternator Data

- Line-to-neutral and line-to-line AC volts
- Three-phase AC current
- Frequency
- kW, kVAR, power factor kVA (three-phase and total)

Engine Data

- DC voltage
- Engine speed
- Lube oil pressure and temperature
- Coolant temperature
- Comprehensive FAE data (where applicable)

OPERATOR PANEL FEATURES (CONT.)

Other Data

- Genset model data
- Start attempts, starts, running hours, kWh
- Load profile (operating hours at %load in 5% increments)
- Fault history
- Data logging and fault simulation (requires InPower™)

STANDARD CONTROL FEATURES

Digital Governing

- Integrated digital electronic isochronous governor
- Temperature dynamic governing

Digital Voltage Regulation

- Integrated digital electronic voltage regulator
- Three-phase, four-wire line-to-line sensing
- Configurable torque matching

AmpSentry™ AC Protection

- AmpSentry™ protective relay
- Over current and short circuit shutdown
- Over current warning
- Single-phase and three-phase fault regulation
- Over and under voltage shutdown
- Over and under frequency shutdown
- Overload warning with alarm contact
- Reverse power and reverse VAR shutdown
- Field overload shutdown

Engine Protection

- Battery voltage monitoring, protection, and testing
- Overspeed shutdown
- Low oil pressure warning and shutdown
- High coolant temperature warning and shutdown
- Low coolant level warning or shutdown
- Fail to start (overcrank) shutdown
- Fail to crank shutdown
- Cranking lockout
- Sensor failure indication
- Full authority electronic engine protection

Control Functions

- Time delay start and cool down
- Real time clock for fault and event time stamping
- Exerciser clock and time of day start/stop
- Data logging
- Cycle cranking
- Load shed
- Configurable inputs and outputs (4)
- Remote emergency stop

Options

- Auxiliary output relays (2)

cummins.com

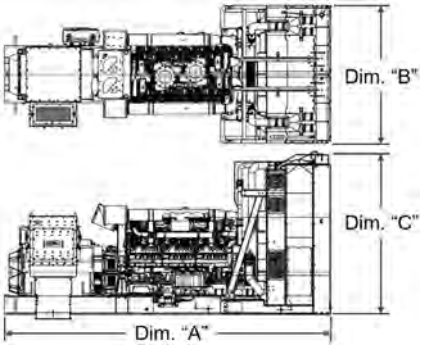
Bulletin S-6763 PD00002097 Produced in U.S.A. (Rev. 04/24)

Centum SERIES GENERATORS

RATING DEFINITIONS

Emergency Standby Power (ESP)	Prime Power (PRP)	Data Center Continuous (DCC)
Applicable for supplying power to varying electrical loads for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Data shown above represents gross engine performance and capabilities as per ISO 3046-1, obtained and corrected in accordance with ISO 15550.	Prime Power for Stationary Emergency ratings apply to installations served by a reliable utility source. Applicable for supplying power to varying electrical loads for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046-1. Data shown above represents gross engine performance and capabilities as per ISO 3046-1, obtained and corrected in accordance with ISO 15550.	Applicable for supplying power continuously to a constant or varying electrical load for unlimited hours in a data center application. Designed to comply with Uptime Institute® Tier III and IV data center site requirements by being rated to run for unlimited hours of operation when loaded to 'N' demand for the engine generator set.

GENERATOR SET DIMENSIONS AND WEIGHTS[6]



Model Name	Dim. "A" mm (in)	Dim. "B" mm (in)	Dim. "C" mm (in)
C2750D6E C3000D6EB	7328 (288.5)	3064 (120.6)	3614 (142.3)

Model Name	As Shipped Set Weight (No Cooling System) kg (lb)	As Shipped Cooling System Weight (Dry) kg (lb)	Installed Set Weight (Wet) kg (lb)
C2750D6E C3000D6EB	21527 (47459)	3532 (7787)	25361 (55911)

[6] Do not use for installation design. Longest alternator (G-core) used for dimension "A". All weights are approximate and represent a generator set with standard features and heaviest alternator (low voltage G-core). "As Shipped Set Weight (No Cooling System)" includes weight from engine oil. "Installed Set Weight (Wet)" includes weight from engine oil and coolant. See respective model data sheet for specific model outline drawing number that contains weights of other configurations.

CODES AND STANDARDS[7]

ISO 9001 ISO 14001 ISO 45001	This product was manufactured in a facility whose quality management system is certified to ISO 9001 and its Health Safety Environmental Management Systems certified to ISO 14001 and ISO 45001.	UL LISTED	This product is listed to UL 2200, Stationary Engine Generator Assemblies.
PTS	The Prototype Test Support (PTS) program verifies the performance integrity of the generator set design. Cummins products bearing the PTS symbol meet the prototype test requirements of NFPA 110 for Level 1 systems.	EPA	Engine certified to Stationary Emergency U.S. EPA New Source Performance Standards (NSPS), 40 CFR 60 subpart IIII Tier 2 exhaust emission levels. U.S. applications must be applied per this EPA regulation.
CSA	All genset models are available as CSA certified to CSA C22.2 No. 100.	IBC	The generator set package is available certified for seismic application in accordance with International Building Code.

[7] Codes or standards compliance may not be available with all model configurations; contact your Cummins distributor

Bulletin S-6763 PD00002097 Produced in U.S.A. (Rev. 04/24)

Centum SERIES GENERATORS

C3000D6EB

DIESEL GENERATOR SET DATA SHEET

MODEL:	**C3000D6EB**
FREQUENCY:	**60 Hz**
FUEL TYPE:	**DIESEL**
RATING:	**3000 kWe (3750 kVA) EMERGENCY STANDBY POWER (ESP)[1]**
	2750 kWe (3438 kVA) DATA CENTER CONTINUOUS (DCC)[1,2]
EMISSIONS CERTIFICATION:	**EPA TIER 2 NSPS (STATIONARY EMERGENCY)**

GENERATOR SET PUBLICATIONS

Exhaust emission data sheet	EDS-3158
Exhaust emission compliance statement	EPA-2106
Sound data sheet	MSP-4190
Cooling system data sheet	MCP-2284
Seismic certificate of compliance	To Be Completed (TBC)
Prototype test support data sheet	PTS-797
Alternator data sheet	See “Alternator Data” section for complete list of ADS-###
Genset outline drawing	A073W614
Genset wiring schematic diagram	A067W397

ENGINE SPECIFICATIONS

		Emergency Standby Power (ESP)	Data Center Continuous (DCC)
Manufacturer		Cummins Inc.	
Model		QSK78-G37	
Configuration		Four-cycle; vee; 18-cylinder	
Aspiration		Turbocharged and charge-air cooled	
Gross engine power output	kWm (bhp)	3312 (4441)	3019 (4049)
Brake mean effective pressure at set rated load	kPa (psi)	2841 (412)	2592 (376)
Bore	mm (in)	170 (6.69)	
Stroke	mm (in)	190 (7.48)	
Displacement	L (in^3)	77.6 (4737)	
Rated speed	rpm	1800	
Piston speed at rated speed	m/s (ft/min)	11.4 (2244)	
Compression ratio		15.3:1	
Lube oil capacity	L (US gal)	405 (107)	
Overspeed limit	rpm	1980	
Regenerative power	kWm (hp)	256 (343)	

FUEL CONSUMPTION

Rating	kWe (kVA)	3000 (3750)				2750 (3438)			
Load		25%	50%	75%	100%	25%	50%	75%	100%
Fuel Consumption	US gph	61	111	160	204	56	101	147	186
Fuel Consumption	L/h	229	419	604	773	213	384	557	706

[1] Generator set ratings include radiator fan losses
[2] DCC at standby power available subject to Cummins’ site-specific assessment; contact your Cummins distributor

Centum SERIES GENERATORS

FUEL SYSTEM

		Emergency Standby Power (ESP)	Data Center Continuous (DCC)
Maximum fuel flow	L/h (US gph)	1080 (285)	
Maximum fuel inlet restriction (clean filter)	kPa (inHg)	20 (6)	
Maximum fuel inlet restriction (dirty filter)	kPa (inHg)	34 (10)	
Maximum fuel return line restriction	kPa (inHg)	34 (10)	
Maximum fuel inlet temperature	°C (°F)	70 (158)	

AIR SYSTEM

Combustion air flow (at set rated load)	m^3/min (scfm)	262 (9236)	249 (8800)
Maximum air cleaner restriction (dirty filter)	kPa (inH2O)	6 (25)	
Alternator cooling air flow	m^3/min (scfm)	3.3 (118)	

EXHAUST SYSTEM

Exhaust flow (at set rated load)	m^3/min (scfm)	631 (22293)	589 (20793)
Exhaust temperature (at set rated load)	°C (°F)	462 (863)	444 (831)
Maximum back pressure	kPa (inH_2O)	6.8 (27.3)	

COOLING SYSTEM (SET MOUNTED) – HIGH AMBIENT

Ambient design (limiting ambient temp.)	°C (°F)	44.3 (111.7)	47.1 (116.8)
Maximum air flow static restriction	kPa (inH_2O)	0.25 (1.0)	
Cooling system air flow (at max. restriction)	m^3/min (acfm)	2751 (97140)	
Fan load	kWm (hp)	78 (105)	
Coolant capacity (engine + radiator)	L (US gal)	455 (120.2)	

COOLING SYSTEM (SET MOUNTED) – ENHANCED HIGH AMBIENT

Ambient design (limiting ambient temp.)	°C (°F)	50.0 (122.0)	52.9 (127.2)
Maximum air flow static restriction	kPa (inH_2O)	0.25 (1.0)	
Cooling system air flow (at max. restriction)	m^3/min (acfm)	3294 (116320)	
Fan load	kWm (hp)	112 (150)	
Coolant capacity (engine + radiator)	L (US gal)	455 (120.2)	

COOLING SYSTEM (REMOTE MOUNTED)[3] – JACKET WATER CIRCUIT

Maximum static head above engine crank centerline	m (ft)	Not applicable	
Maximum friction head external to engine (at set rated speed)	kPa (psi)	Not applicable	
Maximum flow rate (at max. friction head)	L/min (US gal/min)	Not applicable	
Engine jacket water circuit coolant capacity	L (US gal)	Not applicable	
Maximum outlet temperature	°C (°F)	Not applicable	Not applicable
Heat rejected, jacket water coolant circuit	MJ/min (Btu/min)	Not applicable	Not applicable
Heat rejected, fuel circuit	MJ/min (Btu/min)	Not applicable	Not applicable
Total heat radiated to room	MJ/min (Btu/min)	Not applicable	Not applicable

[3] For non-standard remote installations contact your Cummins distributor

Centum SERIES GENERATORS

COOLING SYSTEM (REMOTE MOUNTED)[4] – AFTERCOOLER CIRCUIT

		Emergency Standby Power (ESP)	Data Center Continuous (DCC)
Maximum static head above engine crank centerline	m (ft)	Not applicable	
Maximum friction head external to engine (at set rated speed)	kPa (psi)	Not applicable	
Maximum flow rate (at max. friction head)	L/min (US gal/min)	Not applicable	
Engine aftercooler circuit coolant capacity	L (US gal)	Not applicable	
Maximum aftercooler inlet temperature (at limiting ambient temperature)	°C (°F)	Not applicable	Not applicable
Maximum aftercooler inlet temperature (at 25 °C (77 °F) ambient air temperature)	C (°F)	Not applicable	Not applicable
Heat rejected, aftercooler coolant circuit	MJ/min (Btu/min)	Not applicable	Not applicable
Heat rejected, fuel circuit	MJ/min (Btu/min)	Not applicable	Not applicable
Total heat radiated to room	MJ/min (Btu/min)	Not applicable	Not applicable

[4] For non-standard remote installations contact your Cummins distributor

GENERATOR SET WEIGHTS[5]

		As Shipped Set Weight (No Cooling System)	As Shipped Cooling System Weight (Dry)	Installed Set Weight (Wet)
C2750D6E	kg (lb)	21527 (47459)	3532 (7787)	25361 (55911)

[5] All weights are approximate and represent a generator set with standard features and heaviest alternator (low voltage G-core). “As Shipped Set Weight (No Cooling System)” includes weight from engine oil. “Installed Set Weight (Wet)” includes weight from engine oil and coolant. See respective model data sheet for specific model outline drawing number that contains weights of other configurations.

GENERATOR SET DERATING FACTORS[6]

Emergency Standby Power (ESP)	**High Ambient Cooling System:** Full genset power available up to 524 m (1719 ft) at ambient temperatures up to 40 °C (104 °F). Above these conditions, derate at 5.8% per 305 m (1000 ft) and 33% per 10 °C (18 °F). **Enhanced High Ambient Cooling System:** Full genset power available up to 1022 m (3353 ft) at ambient temperatures up to 40 °C (104 °F) and 409 m (1342 ft) at ambient temperatures up to 50 °C (122 °F). Above these conditions, derate at 5.5% per 305 m (1000 ft) and 27% per 10 °C (18 °F).
Data Center Continuous (DCC)	**High Ambient Cooling System:** Full genset power available up to 1013 m (3323 ft) at ambient temperatures up to 40 °C (104 °F). Above these conditions, derate at 6.4% per 305 m (1000 ft) and 26% per 10 °C (18 °F). **Enhanced High Ambient Cooling System:** Full genset power available up to 1819 m (5968 ft) at ambient temperatures up to 40 °C (104 °F) and 911 m (2989 ft) at ambient temperatures up to 50 °C (122 °F). Above these conditions, derate at 5.8% per 305 m (1000 ft) and 31% per 10 °C (18 °F).

[6] Ambient operating temperature is defined as the air temperature measured at the turbocharger compressor inlet. Derate statements assume a cooling system with 0.25 kPa (1.0 inH_2O) backpressure and 50% relative humidity. Please contact Sales Application Engineering for operation above 3000 m (9843 ft) of altitude or outside of the temperature range in the derate statement.

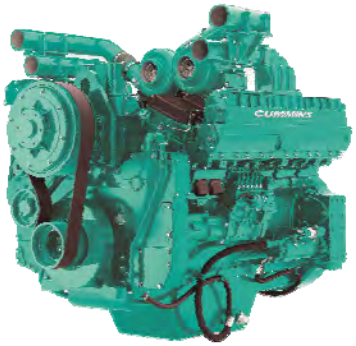
RATING DEFINITIONS

Emergency Standby Power (ESP):	Data Center Continuous (DCC)
Applicable for supplying power to varying electrical loads for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Data shown above represents gross engine performance and capabilities as per ISO 3046-1, obtained and corrected in accordance with ISO 15550.	Applicable for supplying power continuously to a constant or varying electrical load for unlimited hours in a data center application. Designed to comply with Tier III and IV data center site requirements by being rated to run for unlimited hours of operation when loaded to ‘N’ demand for the engine generator set.

Centum SERIES GENERATORS

QST30-G5

Emissions Compliance:
EPA NSPS Stationary Emergency Tier 2



> Specification sheet

Our energy working for you.™

Description

The QST30 Quantum series utilises sophisticated electronics and premium engineering to provide outstanding performance levels from its compact 30 litre, V12 configuration. In fact, the QST30-Series delivers more power and torque in a smaller package than any other diesel engine on the market.

CE	This engine has been built to comply with CE certification.
ISO 9001	This engine has been designed in facilities certified to ISO9001 and manufactured in facilities certified to ISO9001 or ISO9002.

Features

Quantum electronic fuel systems and controls provide superior performance, efficiency and diagnostics. The electronic fuel pumps deliver up to 1100 bar injection pressure and eliminate mechanical linkage adjustments.

CTT (Cummins Turbo Technologies) HX82 turbocharging utilises exhaust energy with greater efficiency for improved emissions and fuel consumption.

Charge Air Cooling – Utilizing an Air-to-Air heat exchanger or Charge-Air-Cooler (CAC) to reduce intake manifold temperature and to meet the lower emissions requirements.

Cast Iron Pistons – High strength design delivers superior durability.

Coolpac Integrated Design - Products are supplied complete with cooling package and air cleaner kit for a complete power package. Each component has been specifically developed and rigorously tested for G-Drive products, ensuring high performance, durability and reliability.

Service and Support - G-Drive products are backed by an uncompromising level of technical support and after sales service, delivered through a world class service network.

1800 rpm (60 Hz Ratings)

Gross Engine Output			Net Engine Output			Typical Generator Set Output					
Standby	Prime	Base	Standby	Prime	Base	Standby (ESP)		Prime (PRP)		Base (COP)	
kWm/BHP			kWm/BHP			kWe	kVA	kWe	kVA	kWe	kVA
1112/1490	1007/1350	832/1115	1069/1434	975/1308	800/1073	1000	1250	910	1138	752	940

Our energy working for you.™

www.cumminsgdrive.com

(01/08) (GDSS137-RevA)

General Engine Data

Type	4 cycle, Turbocharged and After cooled
Bore mm	140
Stroke mm	165
Displacement Litre	30.5
Cylinder Block	Cast iron, 50°V 12 cylinder
Battery Charging Alternator	35A
Starting Voltage	24V
Fuel System	Direct injection
Fuel Filter	Spin on fuel filters with water separator
Lube Oil Filter Type(s)	Spin on full flow filter
Lube Oil Capacity (l)	40.7
Flywheel Dimensions	SAE 0

Coolpac Performance Data

Cooling System Design	Air-air charge cooled
Coolant Ratio	50% ethylene glycol; 50% water
Coolant Capacity (l)	202
Limiting Ambient Temp. (°C)**	50.0
Fan Power (kWm)	42.4
Cooling System Air Flow (m^3/s)**	16.0
Air Cleaner Type	Dry replaceable element with restriction indicator

**** @ 13 mm H^20**

Ratings Definitions

Emergency Standby Power (ESP):
Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel Stop power in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

Limited-Time Running Power (LTP):
Applicable for supplying power to a constant electrical load for limited hours. Limited-Time Running Power (LTP) is in accordance with ISO 8528.

Prime Power (PRP):
Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

Base Load (Continuous) Power (COP):
Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) in accordance with ISO 8528, ISO 3046, AS 2789, DIN6271 and BS 5514.

Weight & Dimensions

Length	Width	Height	Weight (dry)
mm	mm	mm	kg
2772	1752	2226	3822

Fuel Consumption 1800 rpm (60 Hz)

%	kWm	BHP	L/ph	US gal/ph
Standby Power				
100	1112	1490	275	72.7
Prime Power				
100	1007	1350	248	65.4
75	755	1013	185	48.8
50	504	675	126	33.1
25	252	338	69	18.2
Continuous Power				
100	832	1115	246	64.9

Cummins G-Drive Engines

Asia Pacific
10 Toh Guan Road
#07-01
TT International Tradepark
Singapore 608838
Phone 65 6417 2388
Fax 65 6417 2399

Europe, CIS, Middle East and Africa
Manston Park Columbus Ave
Manston Ramsgate
Kent CT12 5BF. UK
Phone 44 1843 255000
Fax 44 1843 255902

Latin America
Rua Jati, 310, Cumbica
Guarulhos, SP 07180-900
Brazil
Phone 55 11 2186 4552
Fax 55 11 2186 4729

Mexico
Cummins S. de R.L. de C.V.
Eje 122 No. 200 Zona Industrial
San Luis Potosí, S.L.P. 78090
Mexico
Phone 52 444 870 6700
Fax 52 444 870 6811

North America
1400 73rd Avenue N.E.
Minneapolis, MN 55432
USA
Phone 1 763 574 5000
USA Toll-free 1 877 769 7669
Fax 1 763 574 5298

Our energy working for you.™

www.cumminsgdrive.com

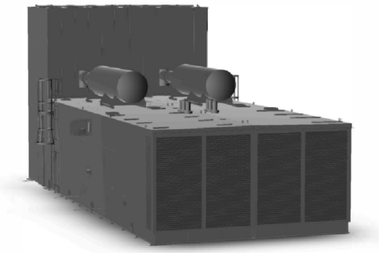
(01/08) (GDSS137-RevA)

GENERAL DESCRIPTION:	
GENERATOR SET DATA*:	
1	GENSET MODEL: ~~2750DQLF {C2750D6E)~~ 3000DQLF (C3000D6EB)
2	ENGINE: CUMMINS QSK78-G12 {QSK78-G36)
3	ALTERNATOR MODEL: LVSl80T {S9H1D-E4)
4	RADIATOR: P/N A060B170 (A042A401)
5	DIMENSIONS: 281" X 108.3"W X 133.4"H
	{285" X 120.6"W X 142.3H)
6	WET WEIGHT {LBS): 53,113 {53,814)
7	FUEL CONSUMPTION GPH@ 100% LOAD: 189 {195)
8	COMBUSTION AND COOLING CFM: 116,736 {92,626)
9	EXHAUST FLOW ~~(ACFM): 20,233 {22,676)~~ 22,293 SCFM
10	EXHAUST TEMP {DEG F): ~~902 {860)~~ 863
11	OUTLINE DRAWING: A050R319 (A073W614)
12	WIRING DIAGRAM: A051E969 {A067W397)
13	DATA SHEET: D-3518 {D6764)
14	EMISSIONS DATA SHEET: EDS-1125 {D6764)
15	MEASURED SOUND PERFORMANCE: MSP-1103 {MSP-4188)
16	MEASURED COOLING PERFORMANCE: MCP-211 {MCP-2282)
	DATA IN PARENTHESIS IS FOR OPTIONAL LOW EMISSION MODEL
BASIC DESIGN CRITERIA	
1	PROJECT LOCATION: NORTH AMERICA
2	INTERNATIONAL BUILDING CODE: 2018
3	NATIONAL ELECTRICAL CODE: 2017
4	UL2200 LISTED AND LABELED, FTPP ENGINE GENERATOR ENCLOSURES
5	AREA CLASSIFICATION: GENERAL PURPOSE NON-HAZARDOUS BUILDING USE GROUP: U
6	CONSTRUCTION TYPE: II-B
7	RISK CATEGORY: Ⅱ
8	SEISMIC DESIGN: SOS= 1.193, SD1 = 0.687, SOC= D
9	SEISMIC IMPORTANCE FACTOR: 1.0
10	SITE CLASS: D
11	SNOW LOADS: GROUND- 30 PSF, ROOF EXPOSURE - PARTIAL, EXPOSURE FACTOR - 1.0
12	WIND SPEED: Vult - 150 MPH, EXPOSURE C, Kd - 0.85, Gcpi - 0.18, GUST FACTOR - 0.85
13	ENVIRONMENTAL CONDTIONS:
A	A. TEMPERATURE {DEG F): MIN. 15, EXTREMEME MIN --20, MAX 104
15	ALTITUDE: 3,281 FT
16	AIRFLOW DESIGN: 119,407 CFM@ 1.0" STATIC RESTRICTION
17	SOUND DESIGN: 70 DBA@ 7 METERS IN A FREE FIELD ENVIRONMENT
WALK-IN SOUND ATTENUATED ENCLOSURE - GENERAL INFORMATION	
1	ENCLOSURE MANUFACTURER: Ek MACHINE, FALL RIVER, WI
2	ENCLOSURE DIMENSIONS AND WEIGHTS PER SECTION
	A. LENGTH: NOMINAL 608"/SHIPPING 610"
	B. WIDTH: NOMINAL 160" SHIPPING 164"
	C. HEIGHT: NOMINAL 191" SHIPPING 193"
4	BUILDING AREA IN SQUARE FEET: 659 SQ. FT
5	INTERIOR ENCLOSURE SPACE: 538 SQ. FT
6	BUILDING NOT HABITABLE
7	ENCLOSURE WEIGHT: 30,650 LBS
8	GENSET WEIGHT: 53,814 LBS
9	TANK WEIGHT: 22,400 LBS
10	TOTAL WEIGHT (PER SECTION): 108,864 LBS (LESS PLENUM)

MATERIAL SPECIFICATION	
1	12GA GALVAN EAL CONSTRUCTION
2	FIXED INTAKE LOUVERS {MIAMI DADE APPROVED)
3	FIXED VANE SOUND BAFFLES
4	MOTORIZED DAMPERS ON INLET (OPEN ON GEN RUN OR DE-ENERGIZE)
5	GRAVITY EXHAUST DAMPERS IN A SOUND DIRECTIONAL PLENUM
6	ACCESS DOOR OPENINGS:
7	78" X 36" TYP. ENCLOSURE ACCESS DOOR (ONE PER SIDE)
8	72" X 36" TYP. PLENUM ACCESS DOOR {ONE PER SIDE)
9	FINISH: POWDER COAT: COLOR RAL 7000 SQUIRREL GRAY
10	S.S. DOOR HARDWARE & HINGES.
11	ENCLOSURE DOORS W/ PUSH BAR RELEASE
12	MINERAL WOOL INSULATION:- ROXUL PROROX SL930 IN ACCORDANCE WITH ASTM C612
ELECTRICAL PACKAGE (PER EACH HALF OF DOUBLEWIDE ENCLOSURE}	
1	3(Z) 480 V 100A MAIN FUSED DISCONNECT
2	45 KVA TRANSFORMER 3(Z)
3	120/208 100A MAIN BREAKER LOAD CENTER
4	GFCI DUPLEX OUTLETS (4)
5	INTERIOR LED LIGHTS WITH BATTERY BACKUP (5)
6	STEEL EMT CONDUIT WITH TYPE XHHW WIRE
7	SENS 8Z BATTERIES & BATTERY BOXES AND INTEGRAL CHARGERS {2)
8	BATTERY DISCONNECT SWITCHES
9	5 KW SPACE HEATERS WITH THERMOSTAT {2)
10	EXTERIOR LIGHT FIXTURE (1) {SHIPPED LOOSE - INSTALLED BY OTHERS)
11	WIRE POWER AND CONTROL TO BTLCP
12	WIRE VENTILATION FAN AND THERMOSTAT
13	WIRE FROM GENSET CONTROL TO COMMUNICATION BOX
14	CABLE TRAY FOR MV CABLE OUTPUT TO LOAD {CABLE BY OTHERS ON SITE)
15	CONDUIT ONLY FOR N-G CIRCUIT TO NGR. CABLE/TERMS SUPPLIED BY OTHERS
16	E-STOP SWITCHES {SHIPPED LOOSE - INSTALLED BY OTHERS ON SITE)
SUB BASE FUEL SUPPLY TANK DATA	
1	UL 142 LISTED DOUBLE WALL
2	CAPACITY (GAL): 4,536 (USABLE)
3	RUN TIME @FULL LOAD HRS: 24
4	EMERGENCY VENT SIZING BASED ON UL142 TABLE 8.1
5	PORTS PER UL 142 SECTION 10
6	NORMAL VENTING PER UL 142 SECTION 8.11, TABLE 8.2
7	WELDS & JOINTS PER UL SECTION 6 FIGURE 6.1, 6.2
8	PRIME AND PAINT BLACK
9	STUB-UPS COVERED FOR SHIPPING OR IF NOT USED
10	CLEAN FUEL SUPPORT GUSSETS- NO BAFFLES
11	FINISH: COLOR TO MATCH GENERATOR ENCLOSURE
12	NORMAL VENT EXTENDED 12' ABOVE GRADE
13	EMERGENCY VENTS {PRIMARY AND SECONDARY) EXTENDED 12' ABOVE GRADE
14	LOW LEVEL, HIGH LEVEL, CRITICAL HIGH LEVEL & LEAK DETECTION FLOAT SWITCHES
15	FUEL LEVEL GAUGE
16	BTLCP REMOTE FUEL FILL CONTROL WITH AUTOMATIC SHUTOFF VALVE

ACCESSORIES	
1	SEISMIC SPRING ISOLATORS
2	EXHAUST SYSTEM
3	REMOTE FUEL FILL AND MONITORING SYSTEM
4	151 MPH WIND LOAD.
5	SHIPPING COVERS FOR FIXED INTAKE LOUVERS.
6	WRAP BOTTOM OF ENCLOSURE FOR SHIPPING.
7	REMOVABLE SHIPPING BEAMS FOR TRANSPORT.
8	ROOF MOUNTED EQUIPMENT TO SHIP LOOSE.
9	ENCLOSURE LIFTING LUGS SHIPPED WITH UNIT

STANDARDIZED FUNGIBLE ENCLOSURE (SFE) DOUBLEWIDE, LOW VOLTAGE



Page	DRAWING LIST	Rev	Rev Date
1	Construction Spec/Drawing List	0	9/8/2024
2	Right Side Elevation	0	9/8/2024
3	Left Side Elevation	0	9/8/2024
4	Intake End Elevations	0	9/8/2024
5	Exhaust End Elevations	0	9/8/2024
6	Interior Plan View	0	9/8/2024
7	Roof Plan View	0	9/8/2024
8	Tank Plan View	0	9/8/2024
9	Tank Elevation	0	9/8/2024
10	Suggested Pad Layout	0	9/8/2024
11	Lifting Plan	0	9/8/2024
12	Mechanical & Fuel Plumbing Details	0	9/8/2024
13	AC Wiring Diagram	0	9/8/2024
14	DC Wiring Diagram	0	9/8/2024

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DATE	REV.	DATE	REV.	DATE	REV.
A	9.9.24	PO	INIIIAL RELEASE										

SCALE:	NONE	DATE
DRWN	PNO	IS.2.24
CHK'D	·	·
ENG'R	PNO	IS.2.24
APP'D	·	·

C Sales & Service

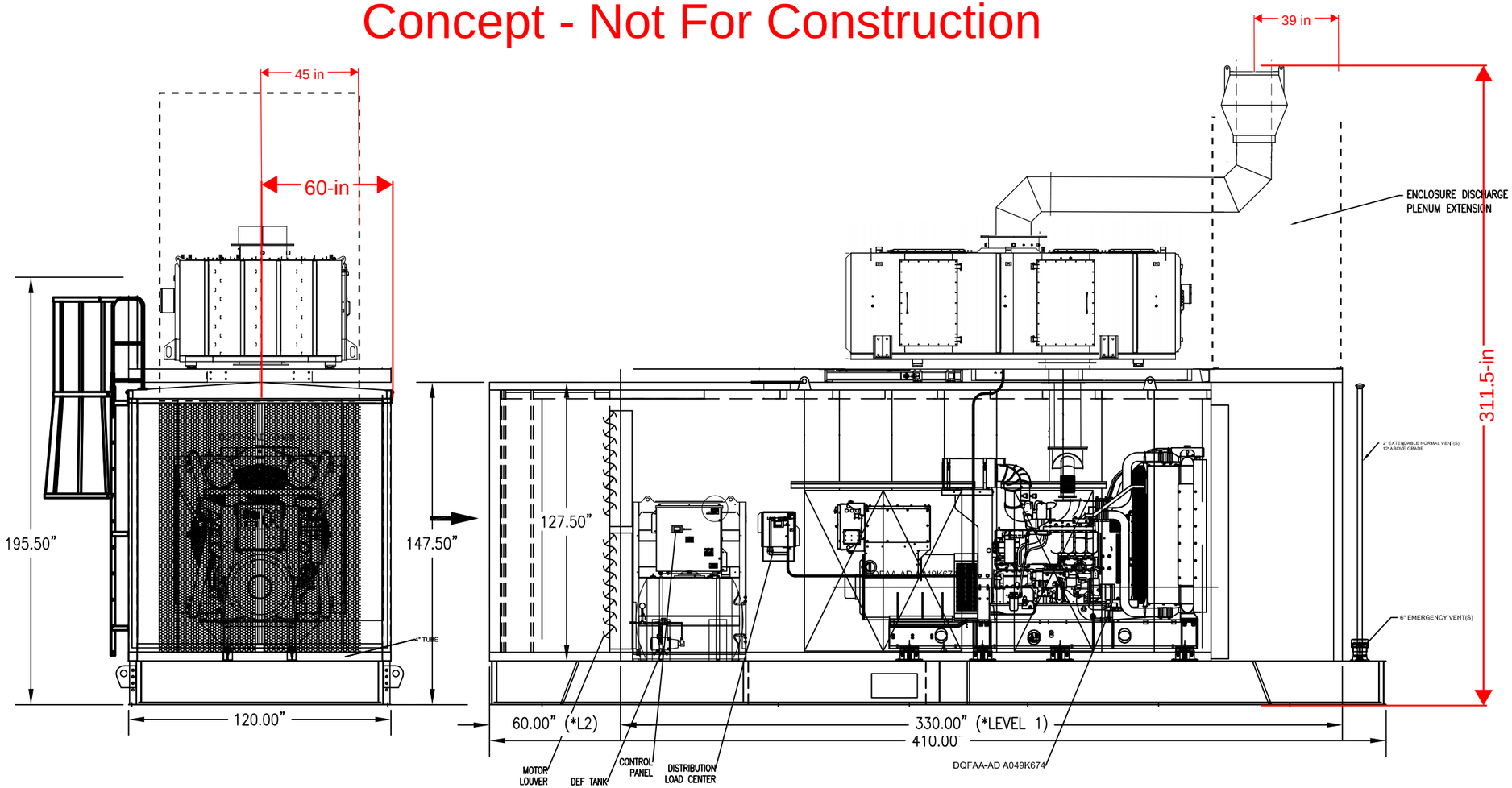
The Program Generators
Standby Power Generation System

RIGHT SIDE ELEVATION

PROGRAM | LY DW SFE | 1 OF14

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

Concept - Not For Construction



CUSTOMER:

CUSTOMER PROJECT NO:

ENGINE FAMILY: DQFAH TIER IV

Sales & Service

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES

TOLERANCES:
FRACTIONAL: 1/16
.X: .06
.XX: .03
.XXX: .01
ANGLES: .5°

REFERENCES
–
–
–

PREP. BY:		12/13/19
CHKD BY:	-	-
MODIFIED BY:	-	-
N/A		

TITLE —
—

SIZE C | DWG NO. | REV A

SCALE NONE | DO NOT SCALE PRINT | SHEET 1 OF 1

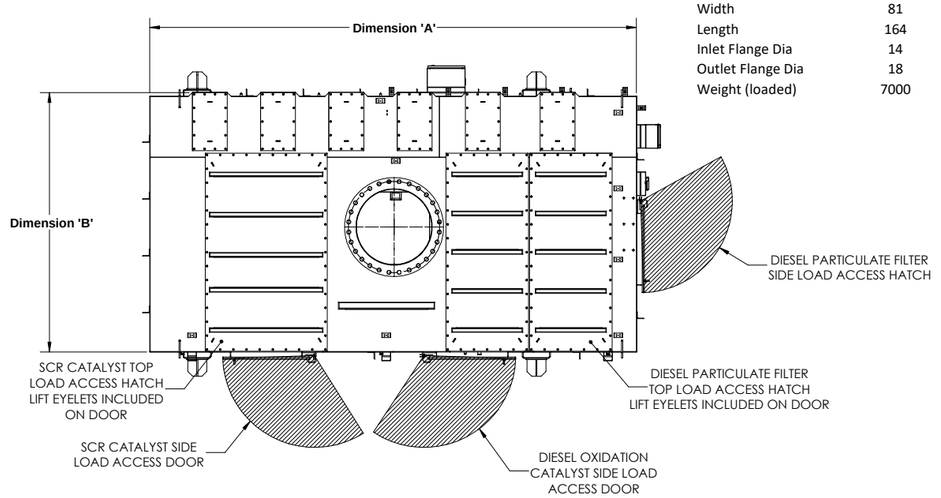
TB–C–07 REVB

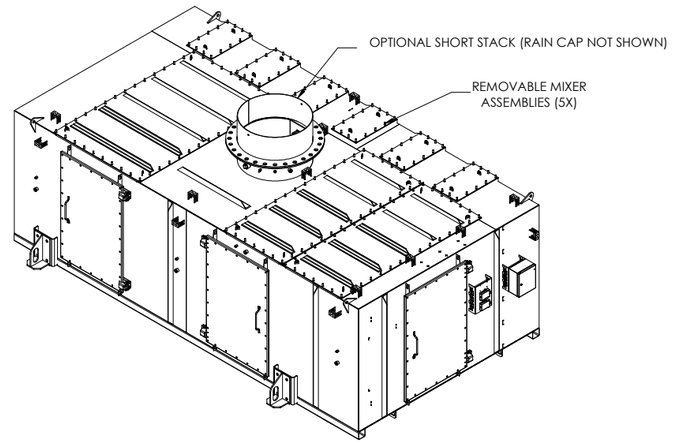
Dimension 'A' (in) Length	Dimension 'B' (in) Width	Dimension 'C' (in) Height	Dimension 'D' (in) Outlet Flange	Dimension 'E' (in) Inlet Flange	Estimated Weight (lbs)	Material
See Above	See Above	See Above	See Above	See Above	See Above	See Above

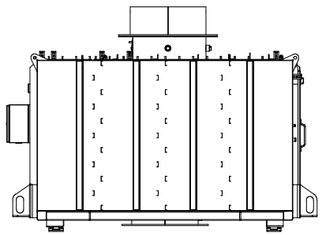
Drawing dimensions, weight, and construction for reference only

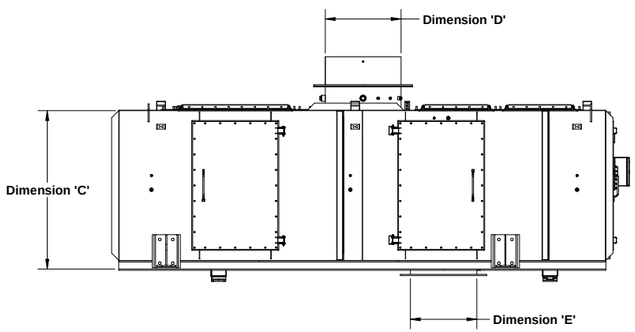
SCR Housing Dimensions

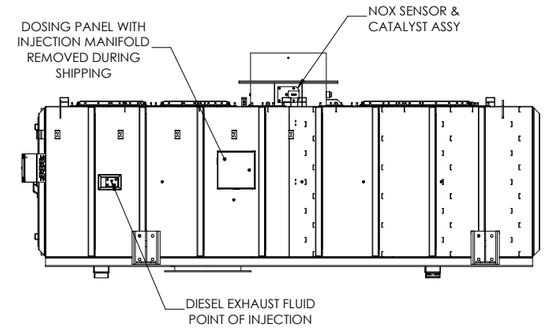
Height	44	inches
Width	81	inches
Length	164	inches
Inlet Flange Dia	14	inches
Outlet Flange Dia	18	inches
Weight (loaded)	7000	lbs

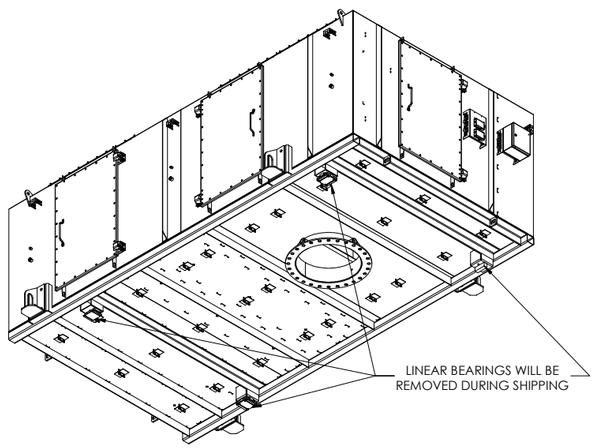












NOTES:

CONSTRUCTION OF MAIN BODY: STAINLESS STEEL

FINISH: GRAY INSULATION BLANKET AND/OR PEARL GRAY URETHANE COATING

NOT YET SHOWN: EXTERIOR INSULATION AND EXTERNAL WALL STIFFENERS. EXPECT 2" THICKNESS ADDED ONTO THE REACTOR DIMENSIONS SHOWN BELOW ON ALL SIDES.

NOTE: WELD STUDS CANNOT BE TORQUED BEYOND 50FT-LBS

UNLESS OTHERWISE SPECIFIED:

REMOVE ALL BURRS AND BREAK SHARP EDGES

	NAME	DATE
DRAWN		
MATERIAL:		

THIRD ANGLE PROJECTION

VISUAL PART NO.
SALES

DO NOT SCALE DRAWING

CATALYTIC COMBUSTION
311 RIGGS ST
RUSSELL, KS 67665
TEL 715-568-2852
FAX 715-568-2894

DESCRIPTION:
SCR Tier IV Sales

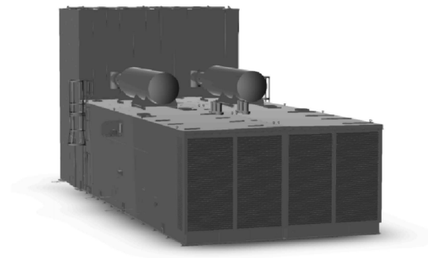
SIZE | DRAWING NO. 702484_SALES | REV

GENERAL DESCRIPTION:	
GENERATOR SET DATA*:	
1	GENSET MODEL: 2750DQLF (C2750D6E)
2	ENGINE: CUMMINS QSK78-G12 (QSK78-G36)
3	ALTERNATOR MODEL: LVSI80T (S9H1D-E4)
4	RADIATOR: P/N A060B170 (A042A401)
5	DIMENSIONS: 281" X 108.3"W X 133.4"H
	(285" X 120.6"W X 142.3H)
6	WET WEIGHT (LBS): 53,113 (53,814)
7	FUEL CONSUMPTION GPH @ 100% LOAD: 189 (195)
8	COMBUSTION AND COOLING CFM: 116,736 (92,626)
9	EXHAUST FLOW (ACFM): 20,233 (22,676)
10	EXHAUST TEMP (DEG F): 902 (860)
11	OUTLINE DRAWING: A050R319 (A073W614)
12	WIRING DIAGRAM: A051E969 (A067W397)
13	DATA SHEET: D-3518 (D6764)
14	EMISSIONS DATA SHEET: EDS-1125 (D6764)
15	MEASURED SOUND PERFORMANCE: MSP-1103 (MSP-4188)
16	MEASURED COOLING PERFORMANCE: MCP-211 (MCP-2282)
	**DATA IN PARENTHESIS IS FOR OPTIONAL LOW EMISSION MODEL*
BASIC DESIGN CRITERIA	
1	PROJECT LOCATION: NORTH AMERICA
2	INTERNATIONAL BUILDING CODE: 2018
3	NATIONAL ELECTRICAL CODE: 2017
4	UL2200 LISTED AND LABELED, FTPP ENGINE GENERATOR ENCLOSURES
5	AREA CLASSIFICATION: GENERAL PURPOSE NON-HAZARDOUS BUILDING USE GROUP: U
6	CONSTRUCTION TYPE: II-B
7	RISK CATEGORY: II
8	SEISMIC DESIGN: SDS = 1.193, SD1 = 0.687, SDC = D
9	SEISMIC IMPORTANCE FACTOR: 1.0
10	SITE CLASS: D
11	SNOW LOADS: GROUND - 30 PSF, ROOF EXPOSURE - PARTIAL, EXPOSURE FACTOR - 1.0
12	WIND SPEED: Vult - 150 MPH, EXPOSURE C, Kd - 0.85, Gcpi - 0.18, GUST FACTOR - 0.85
13	ENVIRONMENTAL CONDTIONS:
A	A. TEMPERATURE (DEG F): MIN. 15, EXTREMEME MIN --20, MAX 104
15	ALTITUDE: 3,281 FT
16	AIRFLOW DESIGN: 119,407 CFM @ 1.0" STATIC RESTRICTION
17	SOUND DESIGN: 84 DBA @ 1 METER IN A FREE FIELD ENVIRONMENT
WALK-IN SOUND ATTENUATED ENCLOSURE - GENERAL INFORMATION	
1	ENCLOSURE MANUFACTURER: EK MACHINE, FALL RIVER, WI
2	ENCLOSURE DIMENSIONS AND WEIGHTS PER SECTION
	A. LENGTH: NOMINAL 608"/SHIPPING 610"
	B. WIDTH: NOMINAL 160" SHIPPING 164"
	C. HEIGHT: NOMINAL 191" SHIPPING 193"
4	BUILDING AREA IN SQUARE FEET: 659 SQ. FT
5	INTERIOR ENCLOSURE SPACE: 538 SQ. FT
6	BUILDING NOT HABITABLE
7	ENCLOSURE WEIGHT: 30,650 LBS
8	GENSET WEIGHT: 53,814 LBS
9	TANK WEIGHT: 22,400 LBS
10	TOTAL WEIGHT (PER SECTION): 108,864 LBS (LESS PLENUM)

MATERIAL SPECIFICATION	
1	12GA GALVANEAL CONSTRUCTION
2	FIXED INTAKE LOUVERS (MIAMI DADE APPROVED)
3	FIXED VANE SOUND BAFFLES
4	MOTORIZED DAMPERS ON INLET (OPEN ON GEN RUN OR DE-ENERGIZE)
5	GRAVITY EXHAUST DAMPERS IN A SOUND DIRECTIONAL PLENUM
6	ACCESS DOOR OPENINGS:
7	78" X 36" TYP. ENCLOSURE ACCESS DOOR (ONE PER SIDE)
8	72" X 36" TYP. PLENUM ACCESS DOOR (ONE PER SIDE)
9	FINISH: POWDER COAT: COLOR RAL 7000 SQUIRREL GRAY
10	S.S. DOOR HARDWARE & HINGES.
11	ENCLOSURE DOORS W/ PUSH BAR RELEASE
12	MINERAL WOOL INSULATION:- ROXUL PROROX SL930 IN ACCORDANCE WITH ASTM C612
ELECTRICAL PACKAGE (PER EACH HALF OF DOUBLEWIDE ENCLOSURE)	
1	3Ø 480 V 100A MAIN FUSED DISCONNECT
2	45 KVA TRANSFORMER 3Ø
3	120/208 100A MAIN BREAKER LOAD CENTER
4	GFCI DUPLEX OUTLETS (4)
5	INTERIOR LED LIGHTS WITH BATTERY BACKUP (5)
6	STEEL EMT CONDUIT WITH TYPE XHHW WIRE
7	SENS 8Z BATTERIES & BATTERY BOXES AND INTEGRAL CHARGERS (2)
8	BATTERY DISCONNECT SWITCHES
9	5 KW SPACE HEATERS WITH THERMOSTAT (2)
10	EXTERIOR LIGHT FIXTURE (1) (SHIPPED LOOSE - INSTALLED BY OTHERS)
11	WIRE POWER AND CONTROL TO BTLCP
12	WIRE VENTILATION FAN AND THERMOSTAT
13	WIRE FROM GENSET CONTROL TO COMMUNICATION BOX
14	CABLE TRAY FOR MV CABLE OUTPUT TO LOAD (CABLE BY OTHERS ON SITE)
15	CONDUIT ONLY FOR N-G CIRCUIT TO NGR. CABLE/TERMS SUPPLIED BY OTHERS
16	E-STOP SWITCHES (SHIPPED LOOSE - INSTALLED BY OTHERS ON SITE)
SUB BASE FUEL SUPPLY TANK DATA	
1	UL 142 LISTED DOUBLE WALL
2	CAPACITY (GAL): 4,536 (USABLE)
3	RUN TIME @FULL LOAD HRS: 24
4	EMERGENCY VENT SIZING BASED ON UL142 TABLE 8.1
5	PORTS PER UL 142 SECTION 10
6	NORMAL VENTING PER UL 142 SECTION 8.11, TABLE 8.2
7	WELDS & JOINTS PER UL SECTION 6 FIGURE 6.1, 6.2
8	PRIME AND PAINT BLACK
9	STUB-UPS COVERED FOR SHIPPING OR IF NOT USED
10	CLEAN FUEL SUPPORT GUSSETS - NO BAFFLES
11	FINISH: COLOR TO MATCH GENERATOR ENCLOSURE
12	NORMAL VENT EXTENDED 12' ABOVE GRADE
13	EMERGENCY VENTS (PRIMARY AND SECONDARY) EXTENDED 12' ABOVE GRADE
14	LOW LEVEL, HIGH LEVEL, CRITICAL HIGH LEVEL & LEAK DETECTION FLOAT SWITCHES
15	FUEL LEVEL GAUGE
16	BTLCP REMOTE FUEL FILL CONTROL WITH AUTOMATIC SHUTOFF VALVE

ACCESSORIES	
1	SEISMIC SPRING ISOLATORS
2	EXHAUST SYSTEM
3	REMOTE FUEL FILL AND MONITORING SYSTEM
4	151 MPH WIND LOAD.
5	SHIPPING COVERS FOR FIXED INTAKE LOUVERS.
6	WRAP BOTTOM OF ENCLOSURE FOR SHIPPING.
7	REMOVABLE SHIPPING BEAMS FOR TRANSPORT.
8	ROOF MOUNTED EQUIPMENT TO SHIP LOOSE.
9	ENCLOSURE LIFTING LUGS SHIPPED WITH UNIT

STANDARDIZED FUNGIBLE ENCLOSURE (SFE) DOUBLEWIDE, LOW VOLTAGE



Page	DRAWING LIST	Rev	Rev Date
1	Construction Spec/Drawing List	0	9/8/2024
2	Right Side Elevation	0	9/8/2024
3	Left Side Elevation	0	9/8/2024
4	Intake End Elevations	0	9/8/2024
5	Exhaust End Elevations	0	9/8/2024
6	Interior Plan View	0	9/8/2024
7	Roof Plan View	0	9/8/2024
8	Tank Plan View	0	9/8/2024
9	Tank Elevation	0	9/8/2024
10	Suggested Pad Layout	0	9/8/2024
11	Lifting Plan	0	9/8/2024
12	Mechanical & Fuel Plumbing Details	0	9/8/2024
13	AC Wiring Diagram	0	9/8/2024
14	DC Wiring Diagram	0	9/8/2024

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DATE	REV.	ISSUED TO: SHOP	FIELD	PURCH	CUST.	CUST.	DATE	REV.	ISSUED TO: SHOP	FIELD	PURCH	CUST.	CUST.
A	9.9.24	PO	INITIAL RELEASE					·	·	·	·	·	·	·							

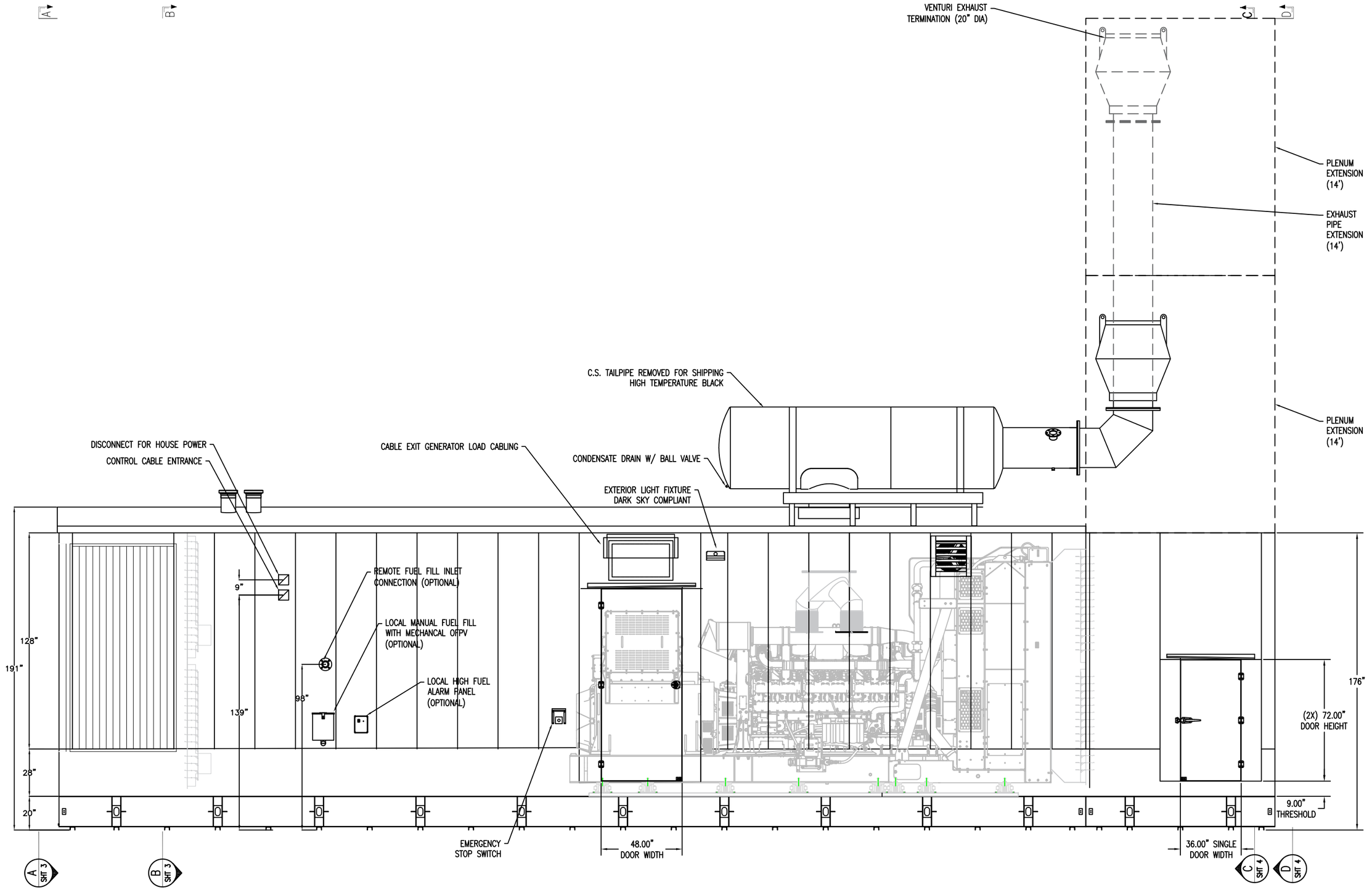
SCALE:	NONE	DATE
DRWN	PNO	8.2.24
CHK'D	·	·
ENG'R	PNO	8.2.24
APP'D	·	·

Cummins Sales & Service

The Program Generators
Standby Power Generation System

RIGHT SIDE ELEVATION

JOB NO.	DWG NO.	SHT.
PROGRAM	LV DW SFE	1 OF 14



NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DATE	REV.	ISSUED TO: SHOP	FIELD	PURCH	CUST.	CUST.	DATE	REV.	ISSUED TO: SHOP	FIELD	PURCH	CUST.	CUST.
A	8.24.24	PO	INITIAL RELEASE					.	.	.	.	.	.	.							

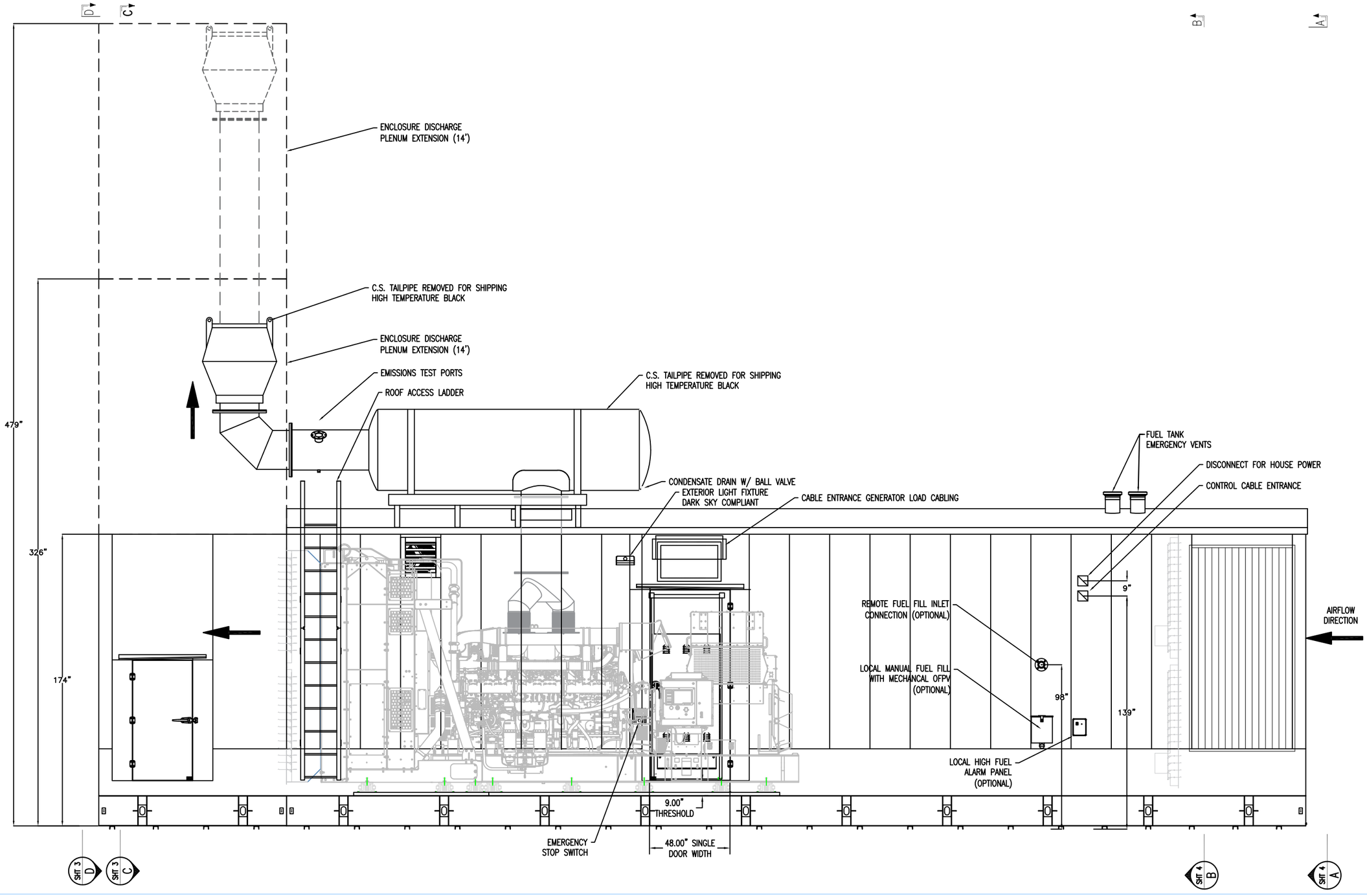
SCALE:	NONE	DATE
DRWN	PNO	6.2.24
CHK'D	.	.
ENG'R	PNO	6.2.24
APP'D	.	.

Cummins Sales & Service

The Program Generators
Standby Power Generation System

RIGHT SIDE ELEVATION

JOB NO.	DWG NO.	SHT.
PROGRAM	LV DW SFE	2 OF 14



NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DATE	REV.	ISSUED TO: SHOP	FIELD	PURCH	CUST.	CUST.	DATE	REV.	ISSUED TO: SHOP	FIELD	PURCH	CUST.	CUST.
A	8.24.24	PO	INITIAL RELEASE					·	·	·	·	·	·	·							

SCALE:	NONE	DATE
DRWN	PNO	6.2.24
CHK'D	·	·
ENG'R	PNO	6.2.24
APP'D	·	·

Cummins Sales & Service

The Program Generators
Standby Power Generation System

LEFT SIDE ELEVATION

JOB NO.	DWG NO.	SHT.
PROGRAM	LV DW SFE	3 OF 14

ACR Product Report

General

Model	Air-Cooled Screw Chiller
Elevation	0.00 ft
Nominal Capacity	330 Nominal Tons
Capacity	350.00 tons
Cooling Efficiency	12.319 EER (Btu/W-h)
IPLV	19.363 EER (Btu/W-h)
Unit Voltage	460 Volt/60Hz/3Phase
Factory Charge	Refrigerant Charge R513A
Number of Refrigerant Circuits	2
Agency Listing	UL Listed to US/Canadian Safety Std
Model Series	Series "C" Model

Evaporator Information

Evaporator Application	Standard Cooling
Evap Fouling Factor	0.000100 hr-sq ft-deg F/ Btu
Evaporator Pass	Chil 3-pass
Flow Switch Set Point	Flow Switch Set Point 15cm/sec
Design Flow	537.15 gpm
Evap Head Loss	21.60 ft H2O
VPF Min Flow	295.75 gpm

Fluid Properties	
Fluid Type	Evaporator Standard Tube
Fluid Concentration	15.00 %
Fluid Freeze Point	22.87 F
Entering Fluid Temperature	83.97 F
Leaving Fluid Temperature	68.00 F

Condenser

Unit Application	Long Life Alloy Aluminum Coil	**Ambient Air Temp**	108.00 F
Fan Type	EC Condenser Fan Motors	**Number of Fans - Total Installed**	18.00 Each
		Condenser Length	9V Condenser Coil Modules

Direct Free Cooling

Free-Cooling	Total Direct Free-Cooling

Pumps - System Fluid Pump Information

Pump Option	No Pump Included

Electrical Information

Single Point Power		Dual Point Power	
Voltage	460 Volt/60Hz/3Phase	**Unit Voltage**	460 Volt/60Hz/3Phase
Unit Power	340.94 kW	**Unit Power**	340.94 kW
Compressor Starter	Variable Frequency Drive (1 Compr/CKT)	**Compressor Starter**	Variable Frequency Drive (1 Compr/CKT)
Incoming Unit Power Line Connection	Single Point Unit Power Connection	**Incoming Unit Power Line Connection**	Single Point Unit Power Connection
Short Circuit Current Rating	High Short Circuit Rating	**Short Circuit Current Rating**	High Short Circuit Rating
Harmonic Filter	Reactor (>30% TDD)	**Harmonic Filter**	249.70 A
FLA - Condenser Fans (each)	2.70 A	**FLA - Condenser Fans (each)**	2.70 A
RLA/MRC		**RLA/MRC**	
Compressor 1A - VFD Input	151.01 kW	**Compressor 1A - VFD Input**	151.01 kW
Compressor 2A - VFD Input	151.03 kW	**Compressor 2A - VFD Input**	151.03 kW
MCA		**MCA**	
Single Point Power	800.00 A	**Dual Point Power - Circuit #1**	619.98 A
MOP			
Single Point Power	619.98 A		

Full Load Sound

Unit Sound Level	InvisiSound Standard w/ Noise Reduction	**A-Weighted Sound Power at Full Load**	110 dBA
A-Weighted Sound Pressure at Full Load	79 dBA		

Physical Information

Dimensions		Weight	
Length	497.800 in	**Operating weight**	27900 lb
Width	87.810 in	**Shipping weight**	25500 lb
Height	98.380 in		

Circuits	Refrigerant Charge	Oil Charge
Circuit 1	270 lb	3.50 gal
Circuit 2	270 lb	3.50 gal

Standard Rating Performance and Information for LEED Rating

Refrigerant Charge - ckt 1	270 lb
Refrigerant Charge - ckt 2	270 lb
Rated Refrigerating Capacity	311.29 tons
Rated Cooling Efficiency	10.403 EER (Btu/W-h)
Rated IPLV	19.363 EER (Btu/W-h)
Refrigerating Capacity	350.00 tons
Cooling Efficiency	12.319 EER (Btu/W-h)
Compressor Power	302.05 kW

ASHRAE 90.1 - 2019

This product meets the minimum efficiency requirements of ASHRAE Standard 90.1 (which are based on AHRI standard rating conditions with water) and, therefore, also meets the LEED "Minimum Energy Performance" prerequisite in the Energy and Atmohphere section.

The LEED Green Building Rating System™, developed by the U.S. Green Building Council, provides indepenent, third-party verification that a building project meets green building and performance measures.

Regulatory Compliance

AHRI Certified

“Certified in accordance with the AHRI Air-Cooled Water-Chilling Packages Certification Program, which is based on AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI). Certified units may be found in the AHRI Directory at www.ahridirectory.org”

Summary

Data Generation Date	7/16/2024
Trane Select Assist Version Number	285

Foundation
Provide rigid, non-warping mounting pads or a concrete foundation of sufficient strength and mass to support the applicable operating weight (i.e. including completed piping, and full operating charges of refrigerant, oil and water). The expectation of Trane equipment is that piping is fully supported by an independent structure/system, without being connected to the waterbox. Once in place, the unit must be level within 1/2" across the length and width of the unit. The Trane Company is not responsible for equipment problems resulting from an improperly designed or constructed foundation.

General
Units are leak and pressure tested at 385.00 psi high side, 220.00 psi low side, then evacuated and charged.

Standard power connections include main three phase power to the compressors, condenser fans and control power transformer.

Note: A separate field supplied low voltage power source is required to power the evaporator freeze protection.

Unit panels, structural elements and control boxes are constructed of galvanized steel and mounted on a bolted galvanized steel base. Unit panels, control boxes and the structural base may be finished with a baked on powder paint.

Anytime water only is present in the evaporator, the Trane Symbio(TM) 800 controller must have flow control of the chilled water system. Flow control can be done either directly or through an input to a building automation system to conduct an action resulting in minimum flow through the chiller evaporator barrel to avoid potentially catastrophic damage to the evaporator due to freezing. If the system has sufficient glycol to protect down to the lowest expected ambient, flow control is optional.

Factory Refrigeration Charge
Packaged units ship with a full operating charge of oil and HFO-513A refrigerant.

Evaporator Temperature
Unit is designed for operation in standard leaving evaporator temperature (equal to or greater than 40.0 F.

ASME/Canadian Pressure Vessel Code
Chiller complies with ASME Pressure Vessel Code Section VIII. ASME nameplates are attached to applicable pressure vessels including oil separators.

Condenser
Air-cooled condenser coils use all Long Life Alloy aluminum brazed fin construction. The condenser will have an integral subcooling circuit. The maximum allowable working pressure of the condenser is 350 psig (2412 kPa).

Condenser Fans
Condenser fans are direct-drive vertical discharge. The condenser fan motors are permanent magnet motors with integrated drive to provide variable speed fan control for all fans. They are designed with permanently lubricated ball bearings, internal temperature and current overload protection, and customer fault feedback as a standard product offering. The fan impeller is a bladed-shrouded fan made from heavy-duty molded plastic.

Condenser Wide Ambient
Wide ambient units will start and operate between 0.0 F to 125.0 F ambient.

Sound - Invisi Sound Standard with Noise Reduction
Each variable speed rotary screw compressor will have a muffler as standard and each condenser fan will be low noise as standard.

Unit Rating

2425 South Yukon Ave • Tulsa, OK 74107 • Ph: (918) 583-2266
Ecat Version: 353.1

A1 A2 A3 A4 A5 B1 B2 B3 B4 B5 1 2 3A 3B 3C 3D 3E 4A 4B 4C 5A 5B 5C 5D 5E 6A 6B 6C 6D 6E 7 8 9A 9B 9C

RNA-031-D-A-3-GJB0C-00000:00-0AFAL-QDK-00000-ABNBK-DC-CB0
K-00-E0-C-BP0-E0-DA0A-00-000-G00A00-C00FAG-0000A0B

9D 10A 10B 11A 11B 12 13A 13B 13C 14 15 16A 16B 16C 16D 17A 17B 18A 18B 18C 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37

Tag: DOAS

Job Information

Job Name:	*GEP - Venron*
Job Number:	*20241111SAN*
Site Altitude:	*179 ft*
Refrigerant:	*R-454B*
Design System Charge (oz):	*1822 / 1822*

C1 C2

Total Charge:
C1+C2 = 3644 oz

Unit Information

Approx. Op./Ship Weights:	*7695 lbs / 7695 lbs (±5%)*
Ambient Temperature (DB/WB):	*92.0 °F / 66.0 °F*
Coil Filter FV / Qty:	*256.3 fpm / 8*
Min. Room Area/Height/Airflow**:	*1708 ft² / 7 ft / 3082 SCFM*
Exhaust Airflow/ESP/TSP:	*8200 SCFM / 1.50 in. w.g. / 2.56 in. w.g.*
Outside Air Prefilter FV / Qty:	*524.2 fpm / 6*
Supply Airflow/ESP:	*8200 SCFM / 2.00 in. w.g.*
Outside Airflow:	*8200 SCFM*
Return Temperature (DB/WB):	*75.0 °F / 62.5 °F*

Static Pressure

External:	*2.00 in. w.g.*
Cooling Coil:	*0.17 in. w.g.*
Filters Clean:	*0.28 in. w.g.*
Dirt Allowance:	*0.70 in. w.g.*
Reheat Coil:	*0.03 in. w.g.*
Economizer:	*0.19 in. w.g.*
Cabinet:	*0.02 in. w.g.*
Energy Recovery:	*0.78 in. w.g.*
Total:	*4.24 in. w.g.*

Cooling Section

	Gross	Net
Equivalent Total Capacity:	*394.5 MBH*	*369.1 MBH*
Total Capacity:	*324.9 MBH*	*299.5 MBH*
Sensible Capacity:	*269.0 MBH*	*243.6 MBH*
Latent Capacity:	*55.8 MBH*	
HW Total Cooling Capacity:	*69.6 MBH*	
Mixed Air Temp (DB/WB):	*79.6 °F / 63.3 °F*	
Entering Air Temp (DB/WB):	*79.6 °F / 63.3 °F*	
Lv Air Temp (Coil) (DB/WB):	*48.7 °F / 48.6 °F*	
Lv Air Temp (Unit) (DB/WB):	*51.4 °F / 49.9 °F*	

Supply Air Fan:	*1 x 245D @ 9.29 BHP Ea.*
SA Fan RPM / Width:	*1709 RPM / 5.560 in*
SA Fan FEI:	*1.04*
Exhaust Air Fan:	*1 x RM270-RN @ 5.65 BHP Ea.*
EA Fan RPM / Width:	*1204 RPM / 6.130 in*
EA Fan FEI:	*1.04*
Evaporator Coil:	*34.4 ft² / 6 Rows / 12 FPI*
Evaporator Face Velocity:	*238.5 fpm*
Energy Recovery:	*2 x ERC-5255C-4M*

Heating Section

Preheat Type:	*Std (No Preheat)*
Integrated Heat Capacity:	*296.0 MBH*
Primary Heat Type:	*Heat Pump*
Total Capacity:	*296.0 MBH*
OA Temp (DB/WB):	*43.1 °F / 34.7 °F*
RA Temp (DB/WB):	*70.0 °F / 54.0 °F*
Entering Air Temp (DB/WB):	*62.5 °F / 48.7 °F*
Leaving Air Temp (DB/WB):	*95.6 °F / 61.8 °F*
Fan Temp Rise:	*2.8 Δ°F*
Auxiliary Heating Type:	*No Heat*

Re-heat Coil:

Capacity:	*185.5 MBH*
Leaving Air Temp (DB/WB):	*70.0 °F / 57.5 °F*
Relative Humidity:	*46.5%*

Rating Information

Cooling Capacity:	*332.0 MBH*	*Heating High Temp Capacity:*	*325.0 MBH*
Cooling EER:	*10.09 BTU/h·W*	*Heating High Temp COP:*	*3.3 W/W*
Cooling IEER:	*13.52 BTU/h·W*	*Heating Low Temp Capacity:*	*192.0 MBH*
		Heating Low Temp COP:	*2.23 W/W*

Outside the scope of AHRI Standard 340/360 (I-P). Rated using procedure described in AHRI 340/360 (I-P).

Application EER @ Op. Conditions:	***10.0 BTU/h·W***
Application COP @ Op. Conditions:	***4.15 W/W***
Application COPH @ Op. Conditions:	***3.3 W/W***

Electrical Data

2425 South Yukon Ave • Tulsa, OK 74107 • Ph: (918) 583-2266
Ecat Version: 353.1

Circuit 1

Rating:	*460V/3Ø/60Hz*	*Minimum Circuit Amp:*	*94*
Unit FLA:	*89*	*Maximum Overcurrent:*	*110*
SCCR:	*35 KAIC*		

	Qty	HP	VAC	Phase	RPM	FLA	RLA
Compressor 1:	*1*		*460*	*3*	*3500*		*19.9*
Compressor 2:	*1*		*460*	*3*	*3500*		*21.2*
Condenser Fan:	*4*	*1.00*	*460*	*1*	*1100*	*3.6*	
Supply Fan:	*1*	*15.00*	*460*	*3*	*1760*	*21.0*	
Exhaust Fan:	*1*	*7.50*	*460*	*3*	*1760*	*11.0*	
Energy Recovery:	*2*	*0.17*	*460*	*1*	*1075*	*0.6*	

Cabinet Sound Power Levels*

Octave Bands:	**63**	**125**	**250**	**500**	**1000**	**2000**	**4000**	**8000**
Discharge LW (dB):	*94*	*92*	*93*	*100*	*98*	*94*	*90*	*85*
Return LW (dB):	*90*	*87*	*86*	*85*	*85*	*83*	*81*	*77*

**Sound power levels are given for informational purposes only. The sound levels are not guaranteed.*

*****The minimum floor area for the Lower Flammability Limit (LFL) is calculated in accordance with UL60335-2-40 4th ed. (operating or storage).***

Performance Data Table

Outside Air		Mixed Air		Leaving Air		Heat Pump Capacity	Heat Pump Integrated Capacity	Heat Wheel Heating Capacity	Heating COP
DB °F	WB °F	DB °F	WB °F	DB °F	WB °F	MBH	MBH	MBH	W/W
62.0	56.2	67.8	55.2	110.7	69.9	381.7	381.7	-24.3	3.43
57.0	51.6	66.4	53.7	107.0	68.1	361.1	361.1	42.0	3.62
52.0	47.1	65.1	52.3	103.2	66.3	340.2	340.2	101.7	3.81
47.0	42.6	63.6	51.0	99.4	64.5	319.7	319.7	157.0	4.02
42.0	38.0	62.2	49.7	95.7	62.8	300.2	300.2	209.5	4.24
37.0	33.5	60.8	48.6	87.7	59.6	281.8	242.0	257.6	4.12
32.0	28.8	59.4	47.4	84.9	58.1	263.4	230.2	306.0	4.41
27.0	24.3	57.9	46.3	82.0	56.6	245.3	217.6	350.0	4.70
22.0	19.7	56.4	45.2	79.1	55.1	228.1	205.0	392.2	5.00
17.0	15.0	55.0	44.2	76.1	53.7	211.4	192.4	432.8	5.32
12.0	10.4	53.5	43.2	73.2	52.3	195.9	179.6	470.9	5.63
7.0	5.7	51.9	42.2	70.2	50.8	181.0	166.5	508.0	5.95
2.0	0.1	50.4	41.1	67.2	49.1	166.6	153.3	549.5	6.29

**Invalid operation point - Compressor operating outside of operating envelope*
***Electric preheat is used to maintain the entering air temperature when applicable.*

Unit Rating

2425 South Yukon Ave • Tulsa, OK 74107 • Ph: (918) 583-2266
Ecat Version: 353.1

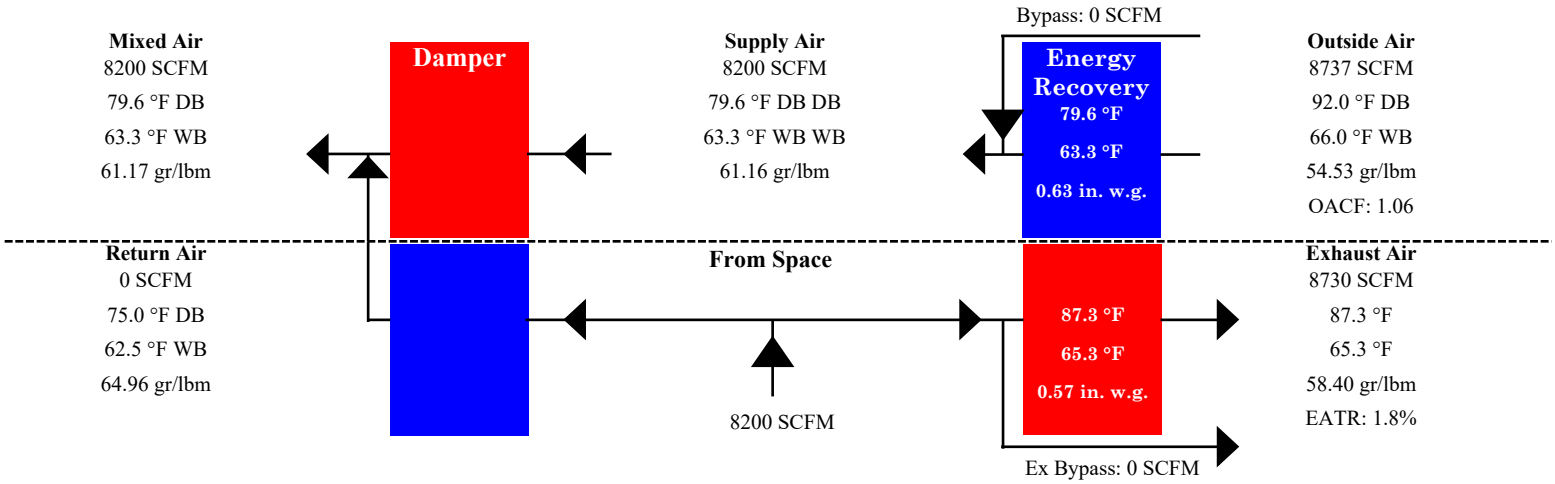
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	1	2	3A	3B	3C	3D	3E	4A	4B	4C	5A	5B	5C	5D	5E	6A	6B	6C	6D	6E	7	8	9A	9B	9C
R	N	A	-	0	3	1	-	D	-	A	-	3	-	G	J	B	0	C	-	0	0	0	0	0	:	0	0	-	0	A	F	A	L	-
Q	D	K	-	0	0	0	0	0	-	A	B	N	B	K	-	D	C	-	C	B	0													
K	-	0	0	-	E	0	-	C	-	B	P	0	-	E	0	-	D	A	0	A	-	0	0	-	0	0	0	-	G	0	0	A	0	0
-	C	0	0	F	A	G	-	0	0	0	0	A	0	B																				

9D	10A	10B	11A	11B	12	13A	13B	13C	14	15	16A	16B	16C	16D	17A	17B	18A	18B	18C	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
-	N	-	E	-	C	-	B	P	-	E	-	D	A	-	0	-	0	0	0	-	G	0	0	A	0	0	-	C	0	0	F	A	G	-	0	0	0	0	A	0	B

Tag: DOAS

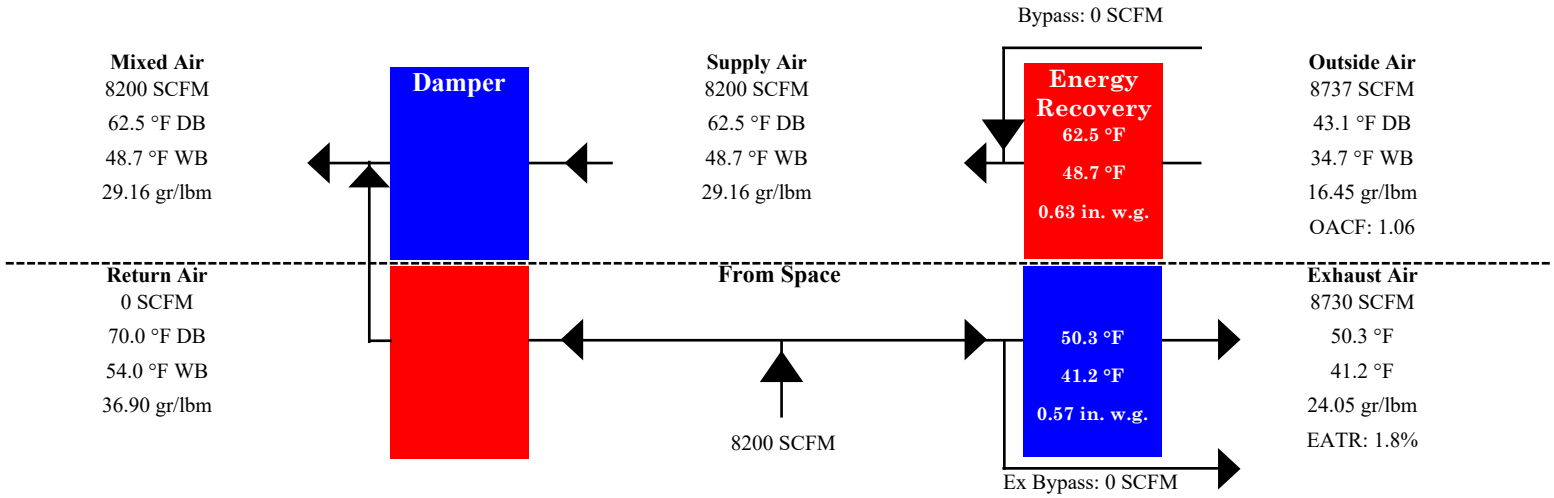
Job Name:	**GEP - Venron**	Energy Recovery Type:	**Total**
Job Number:	**20241111SAN**	Energy Recovery Model:	**ERC-5255C-4M**
Site Altitude:	**179 ft**	Energy Recovery Qty:	**2**
Net Supply Airflow Sum/Win:	**8053 SCFM / 8053 SCFM**	Energy Recovery Software Ver:	**1.1.0.0**
Purge Angle:	**10.0°**		

Summer Conditions



	Cooling/Dehumidification	Heating/Dehumidification	Effectiveness
Total Capacity:	**69.6 MBH**	**0.0 MBH**	**79.0%**
Sensible Capacity:	**104.2 MBH**	**0.0 MBH**	**72.7%**
Latent Capacity:	**0.0 MBH**	**34.6 MBH**	**63.0%**

Winter Conditions



	Cooling/Dehumidification	Heating/Dehumidification	Effectiveness
Total Capacity:	**0.0 MBH**	**240.5 MBH**	**69.3%**
Sensible Capacity:	**0.0 MBH**	**168.6 MBH**	**72.9%**
Latent Capacity:	**0.0 MBH**	**71.9 MBH**	**62.4%**

24.5" STAR Plenum

2425 South Yukon Ave • Tulsa, OK 74107 • Ph: (918) 583-2266
Ecat Version: 353.1

JOB INFORMATION:

Job Name:	*GEP - Venron*
Job Tag:	*DOAS*
Date:	*11/20/2024 12:00:00 AM*

WHEEL SPECIFICATION:

Max RPM:	*2000*
Diameter x Qty:	*24.5 in. x 1*
CFM:	*8200*
Inertia:	*10WR²*

OPERATING CONDITIONS

Air Flow:	*8200*
Fan Energy Index (FEI):	*1.04*
Static Pressure:	*4.24 in. Wg*
Relief Dampers DP:	*0 in. Wg*
TSP:	*4.27 in. Wg*
Site Altitude	*179 ft*
TSP @ Sea Level:	*4.27 in. Wg*

MOTOR SELECTION

Rated HP / Bypass:	*15 x 1 / No*
Frame Size:	*254T*
Nominal RPM:	*1760*
VAC/PH/HZ:	*460V/3Ø/60Hz*
Enclosure Type:	*ODP*
Max Inertial Load:	*0 WR²*

FAN PERFORMANCE:

RPM:	*1709*
BHP:	*9.29*
Efficiency:	*59.00%*
Max Duct SP with Blocked Airway:	*0 in. Wg @1709 RPM*

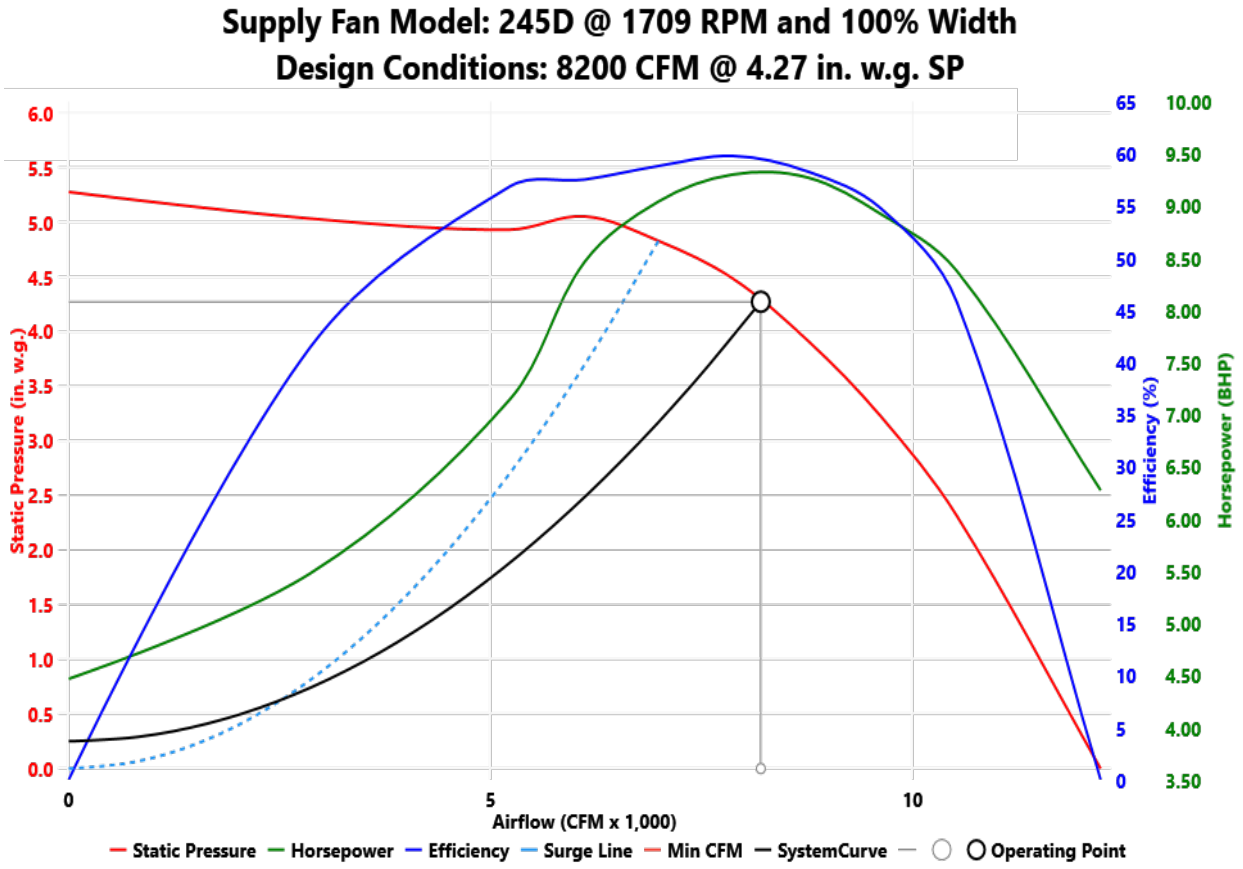
Max Duct SP with Blocked Airway:

FAN SOUND POWER (Inlet/Outlet)

Octave Band: **(Re 10^-12 watts)**

1	2	3	4	5	6	7	8
93	92	91	91	89	88	86	83
94	92	92	100	99	96	92	87

SOUND POWER A-Weighted: 87 dB



27.4" STAR Plenum

2425 South Yukon Ave • Tulsa, OK 74107 • Ph: (918) 583-2266
Ecat Version: 353.1

JOB INFORMATION:

Job Name:	*GEP - Venron*
Job Tag:	*DOAS*
Date:	*11/20/2024 12:00:00 AM*

WHEEL SPECIFICATION:

Max RPM:	*1800*
Diameter x Qty:	*27.4 in. x 1*
CFM:	*8200*
Inertia:	*14WR²*

OPERATING CONDITIONS

Air Flow:	*8200*
Fan Energy Index (FEI):	*1.04*
Static Pressure:	*2.56 in. Wg*
Relief Dampers DP:	*0 in. Wg*
TSP:	*2.58 in. Wg*
Site Altitude	*179 ft*
TSP @ Sea Level:	*2.58 in. Wg*

MOTOR SELECTION

Rated HP / Bypass:	*7.5 x 1 / No*
Frame Size:	*213T*
Nominal RPM:	*1760*
VAC/PH/HZ:	*460V/3Ø/60Hz*
Enclosure Type:	*ODP*
Max Inertial Load:	*0 WR²*

FAN PERFORMANCE

RPM:	*1204*
BHP:	*5.65*
Efficiency:	*58.57%*
Max Duct SP with Blocked Airway:	*0 in. Wg @1204 RPM*

Max Duct SP with Blocked Airway:

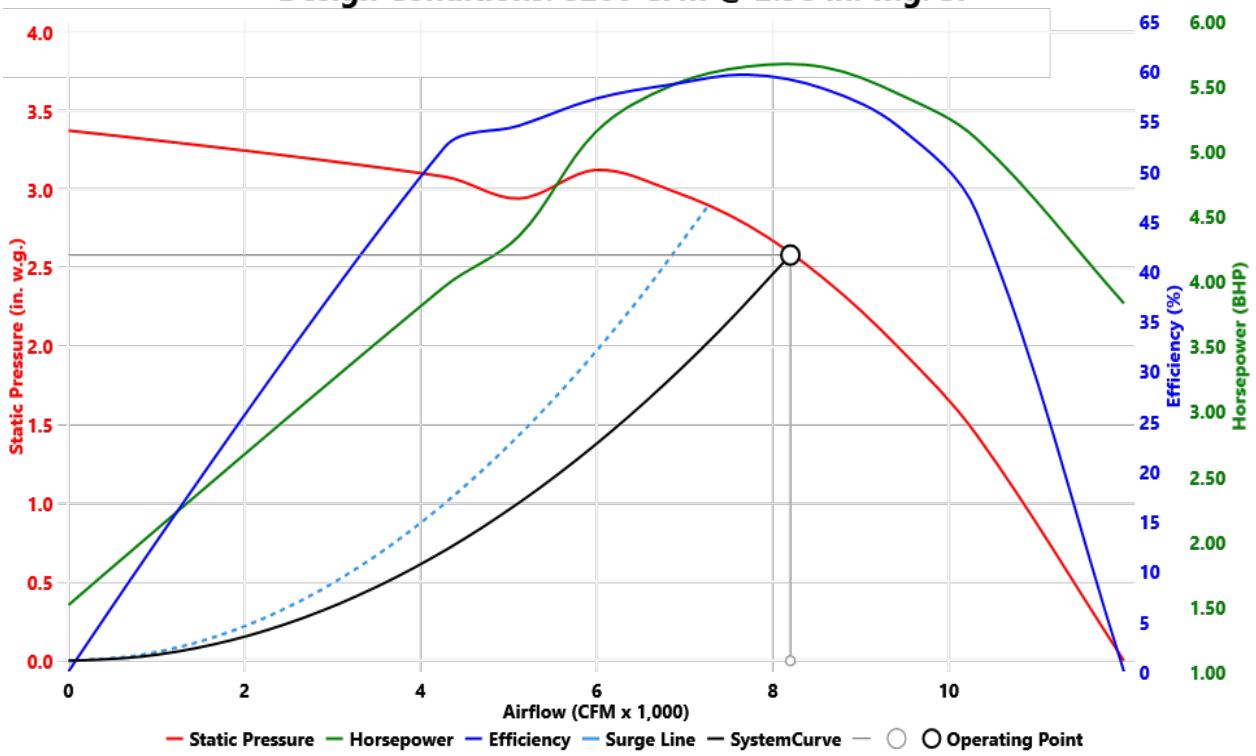
FAN SOUND POWER (Inlet/Outlet)

Octave Band: **(Re 10^-12 watts)**

1	2	3	4	5	6	7	8
1	2	3	4	5	6	7	8
86	84	83	82	82	81	80	80

SOUND POWER A-Weighted: dB

Exhaust Fan Model: RM270 @ 1204 RPM and 100% Width
Design Conditions: 8200 CFM @ 2.58 in. w.g. SP



Unit Rating

2425 South Yukon Ave • Tulsa, OK 74107 • Ph: (918) 583-2266
Ecat Version: 353.1

A1 A2 A3 A4 A5 B1 B2 B3 B4 B5 1 2 3A 3B 3C 3D 3E 4A 4B 4C 5A 5B 5C 5D 5E 6A 6B 6C 6D 6E 7 8 9A 9B 9C

RNA-050-D-B-3-GJB0B-00000:0A-0AF0H-A00-00000-00000-U0-UB0
J-00-F0-C-BQ0-E0-JA0A-00-000-B00A00-C000AG-0000A0B

9D 10A 10B 11A 11B 12 13A 13B 13C 14 15 16A 16B 16C 16D 17A 17B 18A 18B 18C 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37

Tag: MAU

Job Information

Job Name:	*GEP - Venron*
Job Number:	*20241111SAN*
Site Altitude:	*179 ft*
Refrigerant:	*R-454B*
Design System Charge (oz):	*1109 / 1109 / 1144 / 1144*

Circuit 1: 2253 oz Circuit 2: 2253 oz

Static Pressure

External:	*1.00 in. w.g.*
Cooling Coil:	*0.09 in. w.g.*
Filters Clean:	*0.14 in. w.g.*
Dirt Allowance:	*0.70 in. w.g.*
Reheat Coil:	*0.02 in. w.g.*

Total Charge: 4506 oz

Unit Information

Approx. Op./Ship Weights:	*7239 lbs / 7239 lbs (±5%)*
Ambient Temperature (DB/WB):	*108.0 °F / 77.0 °F*
Coil Filter FV / Qty:	*139.6 fpm / 24*
Min. Room Area/Height/Airflow**:	*1073 ft² / 7 ft / 1935 SCFM*
Outside Air Prefilter FV / Qty:	*402.0 fpm / 6*
Supply Airflow/ESP:	*6700 SCFM / 1.00 in. w.g.*
Outside Airflow:	*6700 SCFM*
Return Temperature (DB/WB):	*75.0 °F / 62.0 °F*
Cabinet:	*0.01 in. w.g.*
Total:	*2.01 in. w.g.*

Cooling Section

	Gross	Net
Total Capacity:	*527.5 MBH*	*516.9 MBH*
Sensible Capacity:	*382.8 MBH*	*372.2 MBH*
Latent Capacity:	*144.8 MBH*	
Mixed Air Temp (DB/WB):	*108.0 °F / 77.0 °F*	
Entering Air Temp (DB/WB):	*108.0 °F / 77.0 °F*	
Lv Air Temp (Coil) (DB/WB):	*51.5 °F / 51.5 °F*	
Lv Air Temp (Unit) (DB/WB):	*52.9 °F / 52.1 °F*	

Supply Air Fan:	*1 x 245D @ 3.73 BHP Ea.*
SA Fan RPM / Width:	*1267 RPM / 5.560 in*
SA Fan FEI:	*1.15*
Evaporator Coil:	*43.8 ft² / 6 Rows / 12 FPI*
Evaporator Face Velocity:	*153.1 fpm*

Heating Section

Preheat Type:	*Std (No Preheat)*
Integrated Heat Capacity:	*383.4 MBH*
Primary Heat Type:	*Heat Pump*
Total Capacity:	*443.2 MBH*
OA Temp (DB/WB):	*35.0 °F / 28.3 °F*
RA Temp (DB/WB):	*75.0 °F / 62.0 °F*
Entering Air Temp (DB/WB):	*35.0 °F / 28.3 °F*
Leaving Air Temp (DB/WB):	*84.8 °F / 53.9 °F*
Fan Temp Rise:	*1.4 Δ°F*
Auxiliary Heating Type:	*No Heat*

Re-heat Coil:

Capacity:	*124.7 MBH*
Leaving Air Temp (DB/WB):	*70.0 °F / 58.9 °F*
Relative Humidity:	*51.7%*

Rating Information

Outside the scope of AHRI Standard 340/360 (I-P). Rated using procedure described in AHRI 340/360 (I-P).

Application EER @ Op. Conditions:	***9.1 BTU/h·W***
Application COP @ Op. Conditions:	***2.78 W/W***

Electrical Data

Circuit 1

Rating:	*460V/3Ø/60Hz*	*Minimum Circuit Amp:*	*113*
Unit FLA:	*108*	*Maximum Overcurrent:*	*125*
SCCR:	*35 KAIC*		

	Qty	*HP*	*VAC*	*Phase*	*RPM*	*FLA*	*RLA*
Compressor 1:	*2*		*460*	*3*	*3500*		*19.9*
Compressor 2:	*2*		*460*	*3*	*3500*		*19.7*
Condenser Fan:	*6*	*1.00*	*460*	*1*	*1100*	*3.6*	
Supply Fan:	*1*	*5.00*	*460*	*3*	*1170*	*7.6*	

2425 South Yukon Ave • Tulsa, OK 74107 • Ph: (918) 583-2266
Ecat Version: 353.1

*Cabinet Sound Power Levels**

Octave Bands:	**63**	**125**	**250**	**500**	**1000**	**2000**	**4000**	**8000**
Discharge LW (dB):	*87*	*85*	*89*	*92*	*88*	*84*	*80*	*75*

**Sound power levels are given for informational purposes only. The sound levels are not guaranteed.*

*****The minimum floor area for the Lower Flammability Limit (LFL) is calculated in accordance with UL60335-2-40 4th ed. (operating or storage).***

Performance Data Table

Outside Air		Mixed Air		Leaving Air		Heat Pump Capacity	Heat Pump Integrated Capacity	Heat Wheel Heating Capacity	Heating COP
DB °F	WB °F	DB °F	WB °F	DB °F	WB °F	MBH	MBH	MBH	W/W
62.0	56.2	62.0	56.2	*	*	*	*		*
57.0	51.6	57.0	51.6	*	*	*	*		*
52.0	47.1	52.0	47.1	122.0	72.3	524.3	524.3		2.65
47.0	42.6	47.0	42.6	113.9	68.7	504.8	504.8		2.83
42.0	38.0	42.0	38.0	105.7	64.9	484.9	484.9		3.00
37.0	33.5	37.0	33.5	88.9	57.9	464.7	399.2		2.73
32.0	28.8	32.0	28.8	81.9	54.1	443.3	387.4		2.90
27.0	24.3	27.0	24.3	74.7	50.0	420.9	373.3		3.06
22.0	19.7	22.0	19.7	67.2	45.7	398.1	357.6		3.20
17.0	15.0	17.0	15.0	59.7	41.1	374.9	341.1		3.33
12.0	10.4	12.0	10.4	52.0	36.4	352.2	323.0		3.43
7.0	5.7	7.0	5.7	*	*	*	*		*
2.0	0.1	2.0	0.1	*	*	*	*		*

**Invalid operation point - Compressor operating outside of operating envelope*
***Electric preheat is used to maintain the entering air temperature when applicable.*

24.5" STAR Plenum

2425 South Yukon Ave • Tulsa, OK 74107 • Ph: (918) 583-2266
Ecat Version: 353.1

JOB INFORMATION:

Job Name:	*GEP - Venron*
Job Tag:	*MAU*
Date:	*11/20/2024 12:00:00 AM*

WHEEL SPECIFICATION:

Max RPM:	*2000*
Diameter x Qty:	*24.5 in. x 1*
CFM:	*6700*
Inertia:	*10WR²*

OPERATING CONDITIONS

Air Flow:	*6700*
Fan Energy Index (FEI):	*1.15*
Static Pressure:	*2.01 in. Wg*
Relief Dampers DP:	*0 in. Wg*
TSP:	*2.03 in. Wg*
Site Altitude	*179 ft*
TSP @ Sea Level:	*2.03 in. Wg*

MOTOR SELECTION

Rated HP / Bypass:	*5 x 1 / No*
Frame Size:	*215T*
Nominal RPM:	*1170*
VAC/PH/HZ:	*460V/3Ø/60Hz*
Enclosure Type:	*ODP*
Max Inertial Load:	*0 WR²*

FAN PERFORMANCE:

RPM:	*1267*
BHP:	*3.73*
Efficiency:	*56.92%*
Max Duct SP with Blocked Airway:	*0 in. Wg @1267 RPM*

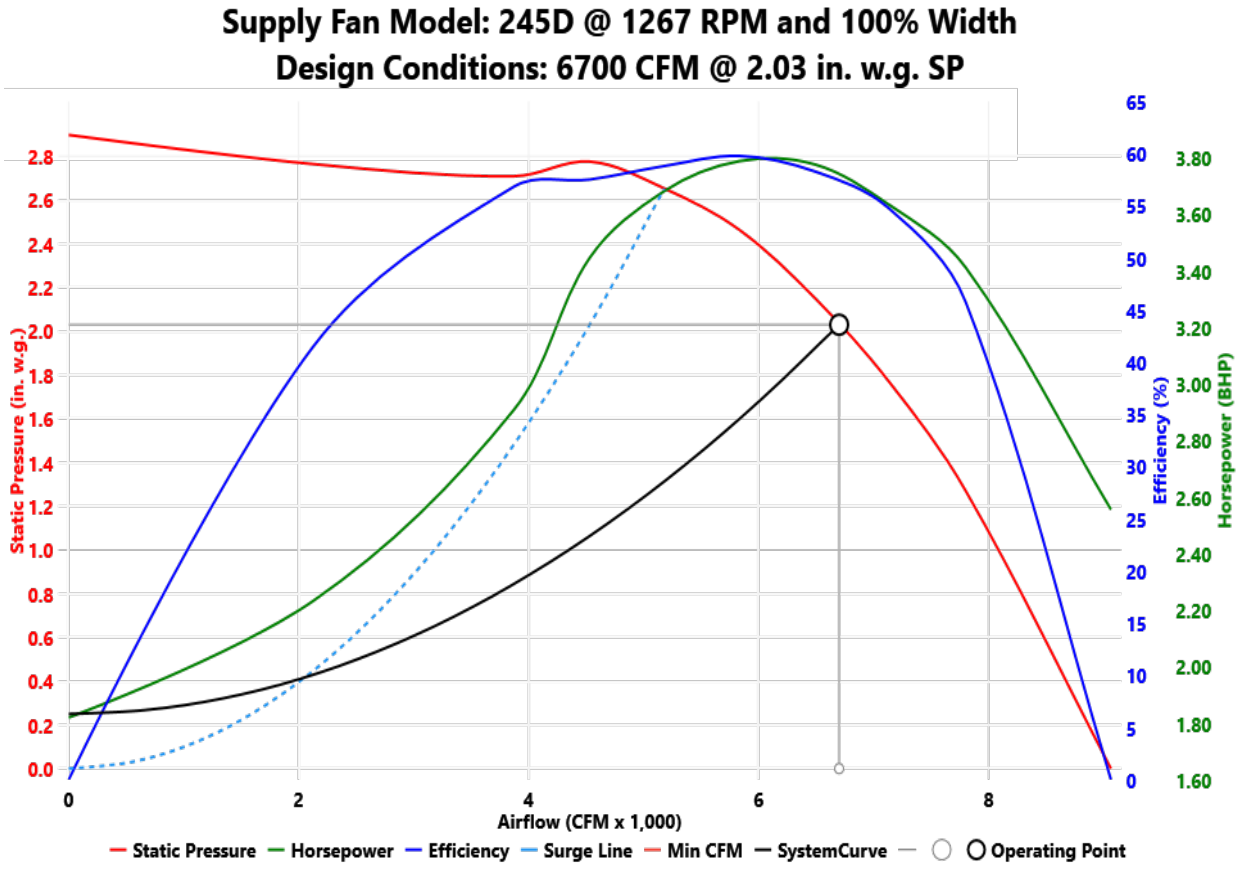
Max Duct SP with Blocked Airway:

FAN SOUND POWER (Inlet/Outlet)

Octave Band: **(Re 10^-12 watts)**

1	2	3	4	5	6	7	8
85	84	83	83	82	80	78	76
87	85	89	92	90	86	82	77

SOUND POWER A-Weighted: 77 dB



RN UNITS 40-70 TON

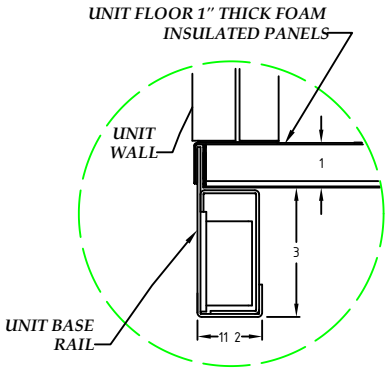
AIR COOLED, MOTORIZED OUTSIDE AIR. RNA-D

AAON®

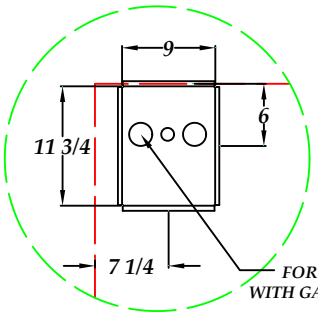
CLEARANCES

LOCATION	UNIT SIZE 40-70 TON
OUTSIDE AIR (BACK)	48
CONTROLS SIDE	48
LEFT SIDE	48
RIGHT SIDE	70
TOP	UNOBSTRUCTED

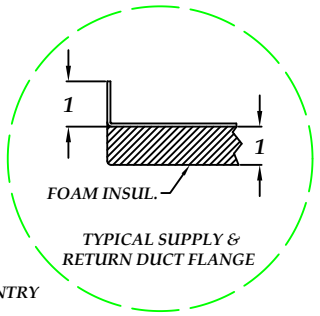
NOTE: RIGHT AND LEFT SIDE UNIT CLEARANCES ARE INTERCHANGEABLE ON UNITS THAT DO NOT HAVE THE HYDRONIC HEATING OPTION. (UNITS WITH HYDRONIC HEAT MUST HAVE 70" RIGHT SIDE ACCESS FOR SERVICE.)



BASE RAIL CLEARANCE

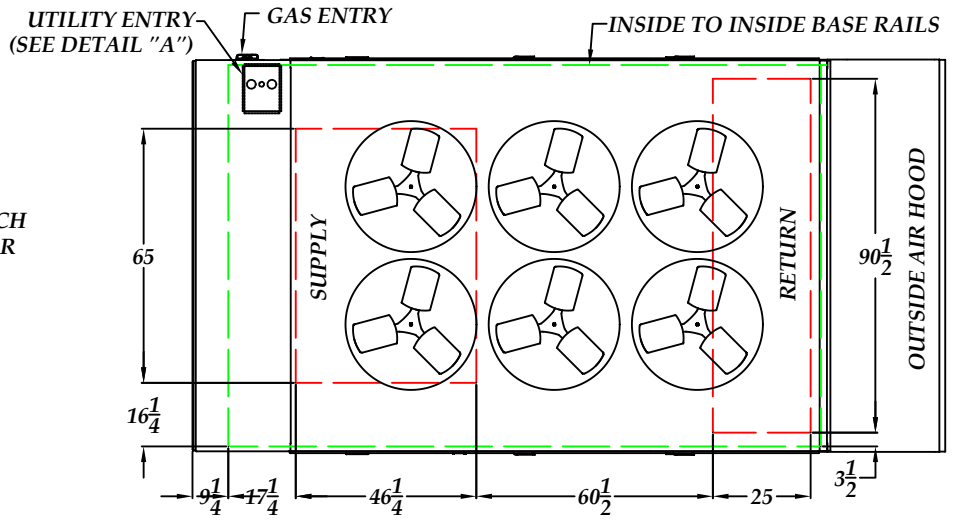


DETAIL A
UTILITY ENTRY

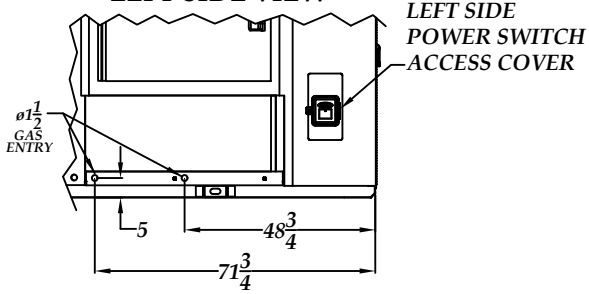


DETAIL B

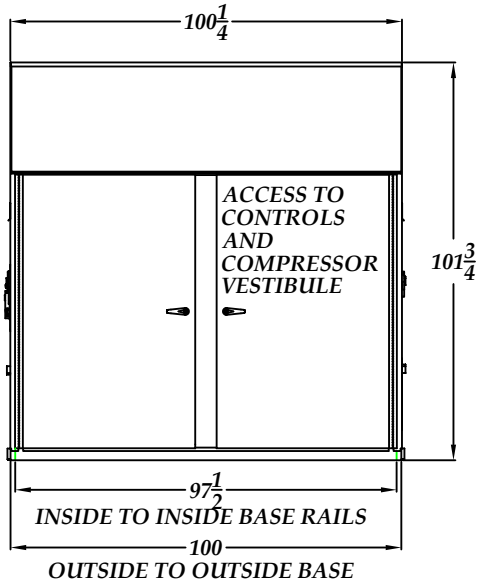
TOP VIEW



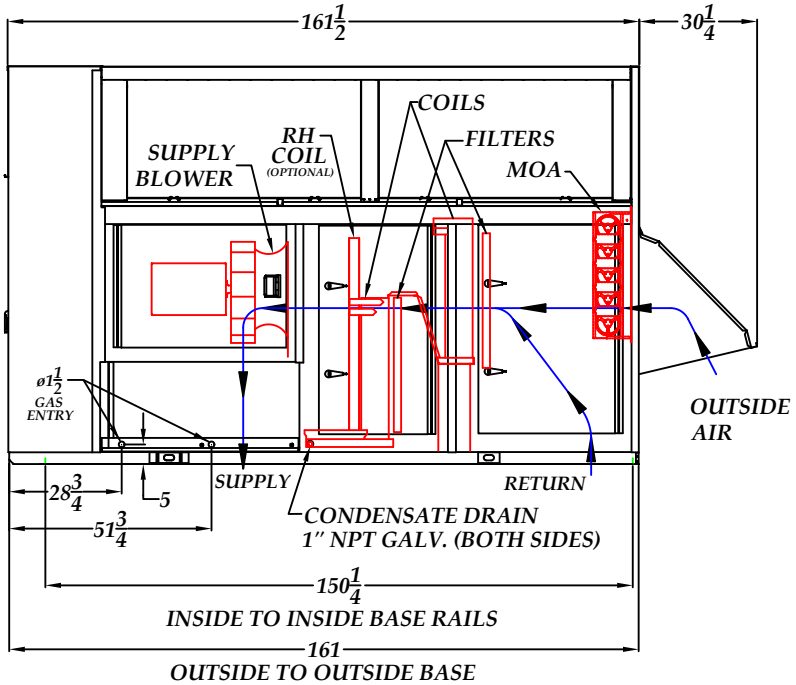
LEFT SIDE VIEW



FRONT VIEW



RIGHT SIDE VIEW



CAT000546 RNA-D REV: A 06/26/24 JWC
ALL DIMENSIONS ARE IN INCHES

Appendix AQ3

Air Quality Impact Analysis

Support Data

Table AQ3-1

South Coast AQMD Air Quality Data Summary for Station 060371103

Monitoring Years 2021-2022-2023

Central LA (Los Angeles-North Main Street; 060371103)					
Metric	**2021**	**2022**	**2023**	**Avg (Design Value)**	**Max**
CO Max 1hr, ppm	2	1.7	1.4		2
CO Max 8hr, ppm	1.6	1.5	1.2		1.6
O_3 Max 1hr, ppm	0.099	0.138	0.097		0.14
O_3 Max 8hr, ppm	0.085	0.09	0.082		0.09
O_3 4Hi 8hr, ppm	0.068	0.073	0.075	0.07	0.07
NO_2 Max 1hr, ppb	77.8	75.1	64.3		77.8
NO_2 98%ile 1hr, ppb	57.3	56.9	51.8	55.33	57.3
NO_2 Annual Avg, ppb	17.7	18.5	16.2	17.47	18.5
SO_2 Max 1hr, ppb	2.2	6.5	7.7		7.7
SO_2 99%ile 1hr, ppb	2	2.3	2	2.1	2.3
PM_{10} Max 24hr, µg/m³	64	60	57		64
PM_{10} Annual Avg, µg/m³	25.5	28.9	24.3	26.23	28.9
$PM_{2.5}$ Max 24hr, µg/m³	61	33.7	30.6		61
$PM_{2.5}$ 98%ile 24hr, µg/m³	44.8	21.9	23.4	30.03	44.8
$PM_{2.5}$ Annual Avg, µg/m³	12.77	10.94	10.25	11.32	12.77
Pb Max Monthly Avg, µg/m³	0.012	0.008	0.007		0.01
Pb Max 3Month Rolling Avg, µg/m³	0.012	0.007	0.007		0.01
PM_{10} Sulfate Max 24hr, µg/m³	4.4	5.8	6.5		6.5

Source: https://www.aqmd.gov/assets/aermet/AERMET_files_And_HRA_Tool.html

Figure AQ3-1
Regional Project Area

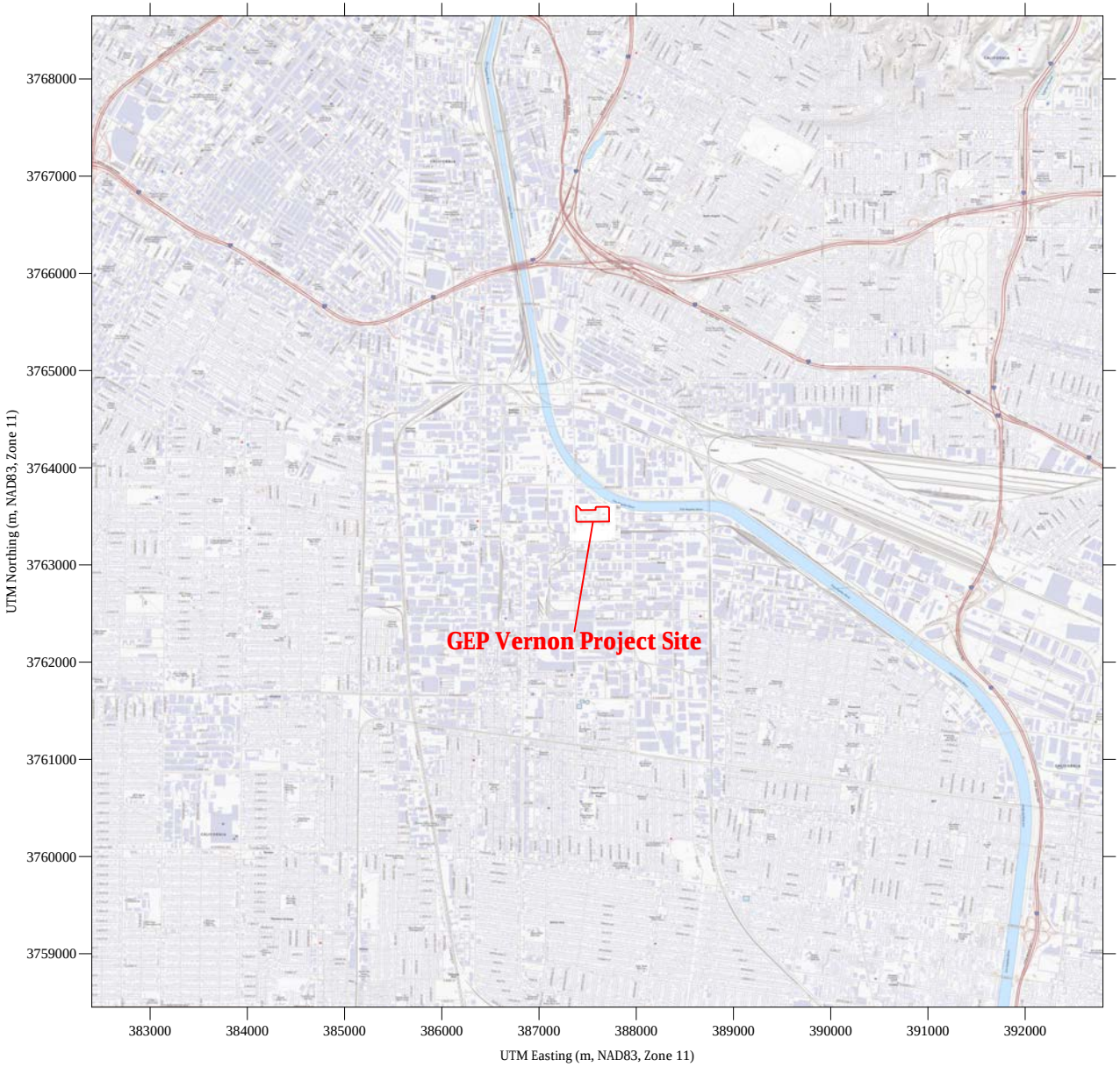


Figure AQ3-2
Project Area

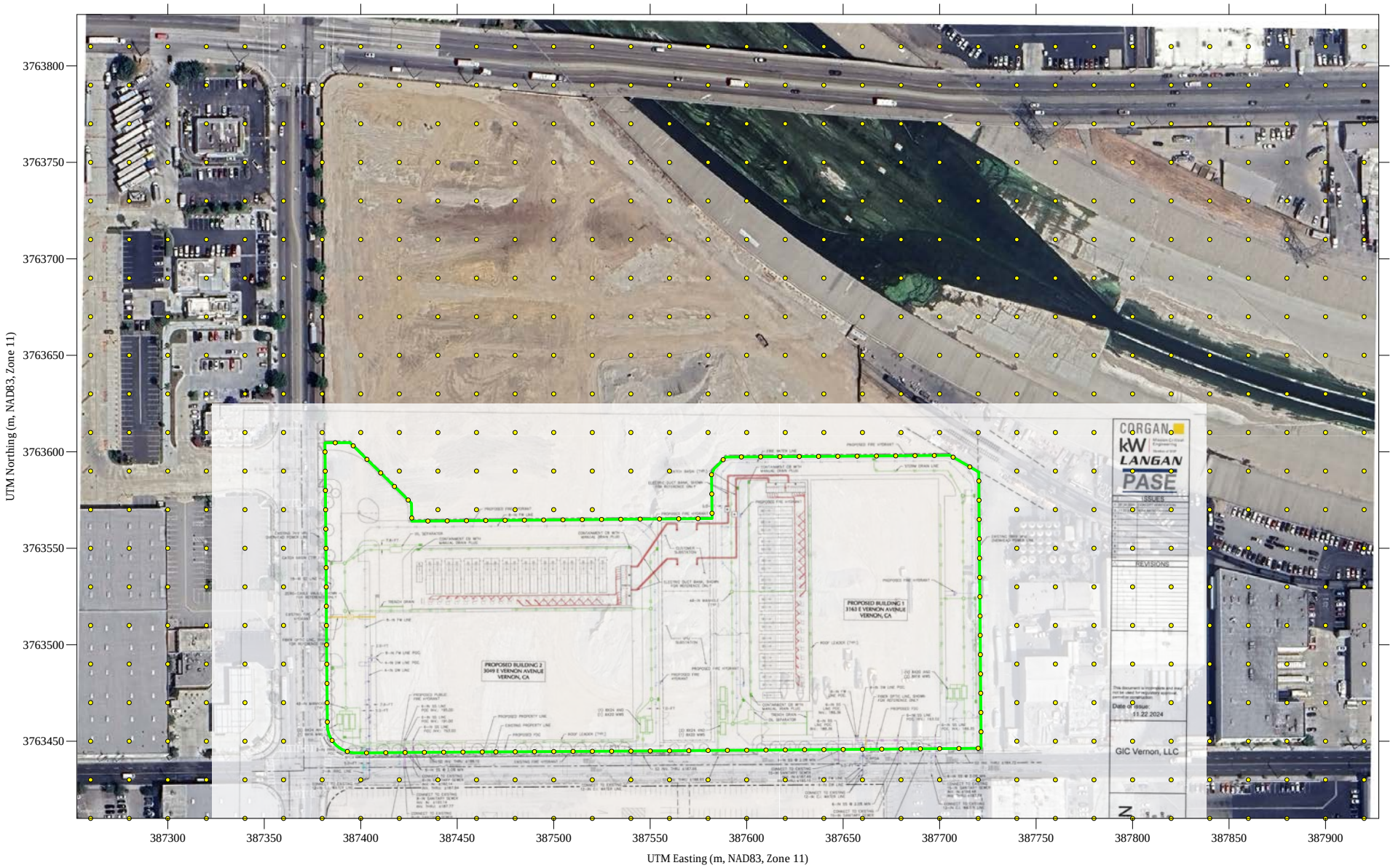
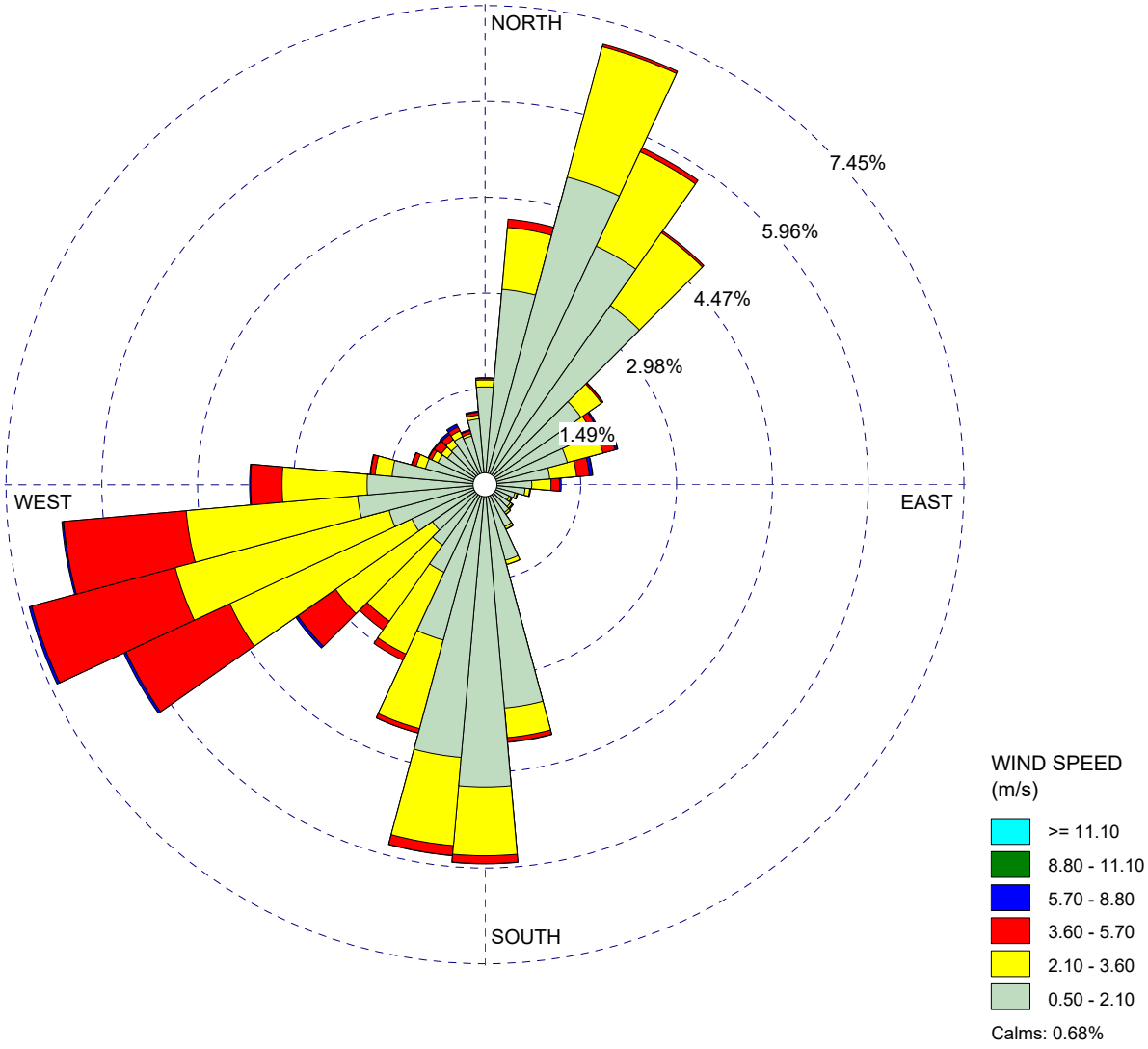


Figure AQ3-3
Annual Wind Rose

WIND ROSE PLOT:
SCAQMD CELA

DISPLAY:
Wind Speed
Direction (blowing from)



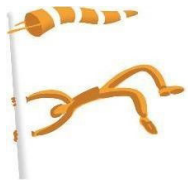
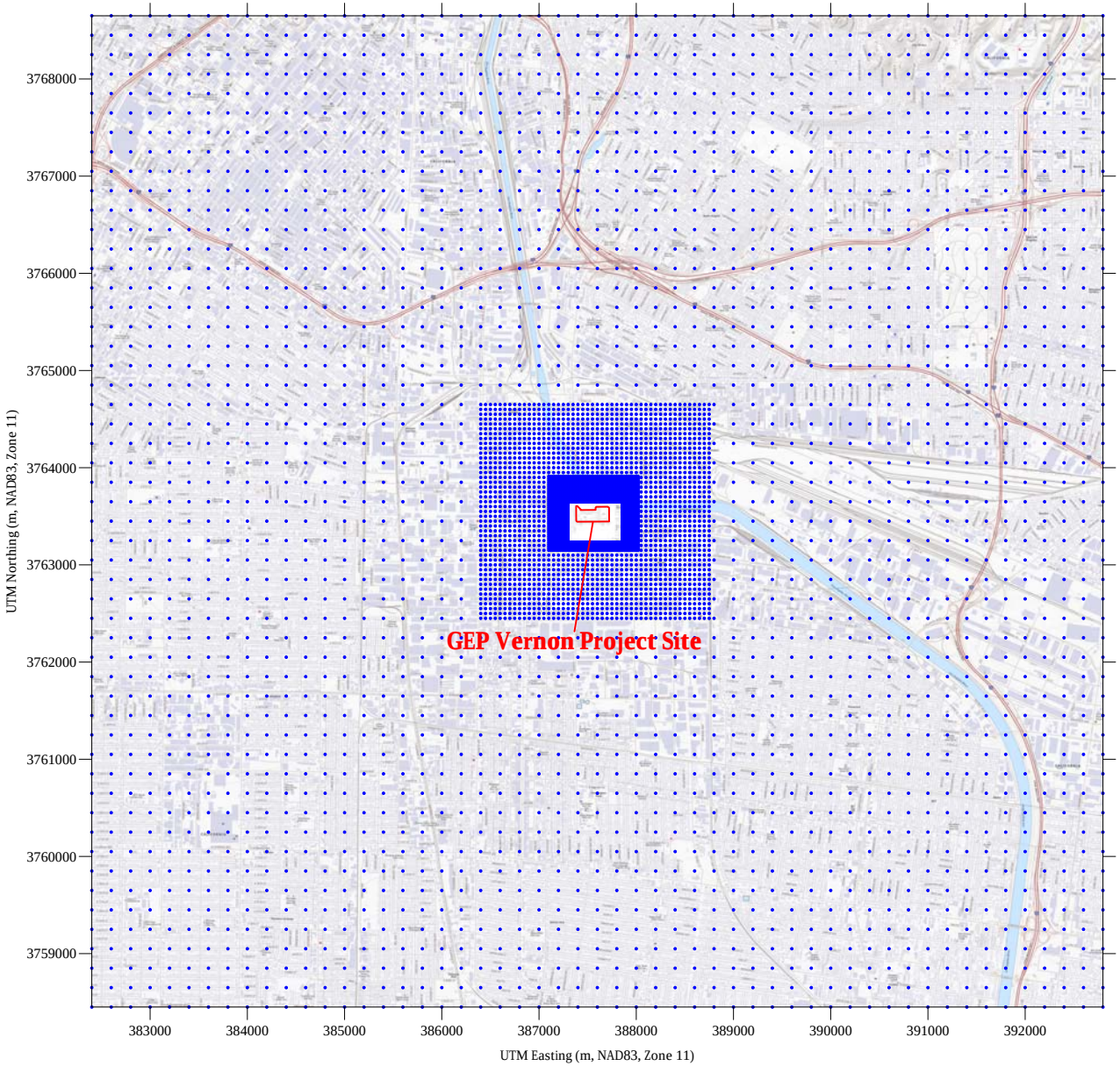
COMMENTS:	DATA PERIOD: **Start Date: 1/1/2018 - 00:00** **End Date: 12/31/2023 - 23:59**	COMPANY NAME: **Atmospheric Dynamics, Inc.**	
		MODELER: **Alfred E. Neuman**	
	CALM WINDS: **0.68%**	TOTAL COUNT: **43807 hrs.**	
	AVG. WIND SPEED: **2.03 m/s**	DATE: **2/17/2025**	PROJECT NO.:

Figure AQ3-4
BPIP Input Data

Figure AQ3-5
Nested Receptor Grid



Appendix AQ4

Construction Emissions and Support Data

GEP Vernon - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

GEP Vernon

Los Angeles-South Coast County, Annual

Table AQ4-1

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	567.67	1000sqft	11.55	567,672.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	3			**Operational Year**	2028
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	498.96	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Applicant proposed schdeule and default data.
Service area is LADWP. 2023 Carbon Intensity factor for LADWP is 499 lbs CO2e/MWh.

Land Use - Bldg floor area is 567,672 sq.ft. Site acreage is 11.55.

Construction Phase - Phases and time frames supplied by the Applicant

Off-road Equipment - Applicant data.
Use rates calculated by Consultant.

Off-road Equipment - Applicant data.
Use rates calcuated by Consultant.

Off-road Equipment - Applicant data.
Use rates calculated by Consultant.

Off-road Equipment - No demolition phase per Applicant.

Off-road Equipment - Grading included in Site Prep phase.

Off-road Equipment - Applicant data.
Use rates calculated by Consultant.

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - Applicant data.
Use rates calculated by Consultant.

Off-road Equipment - All data supplied by the Applicant.
Daily use rates per Consultant calcs.

Off-road Equipment - Applicant data.
Use rates calculated by Consultant.

Off-road Equipment - Applicant data.
Use rates calculated by Consultant.

Trips and VMT - No offsite hauling per Applicant.
Vendor trip length increased to 10 miles.

On-road Fugitive Dust - Defaults assumed.

Demolition - No demolition required.

Grading - Best estimate.

Architectural Coating - Defaults assumed.

Vehicle Trips - # employees divided by the bldg sq.ft.
All other data is assumed defaults.

Road Dust - No unpaved roads will be used to service the site during construction or operations.
Defaults assumed.

Woodstoves - N/A

Area Coating - Defaults assumed.

Landscape Equipment - Defaults assumed.

Energy Use - Defaults assumed.

Water And Wastewater - Bldg and landscapign water use values supplied by Applicant.
Example: Size metric is 1000 sq.ft therefore 391200 gal/yr divided by 567.67 = 689.1 gals/1000 sq.ft.-year
Defaults assumed for sewer waste water processing.

Solid Waste - 46 tons/yr divided by 567.67 (1000 sq.ft) = 0.081 tpy/1000 sq.ft.

Land Use Change - N/A

Construction Off-road Equipment Mitigation - All equipment is Tier 4 except for the drum rollers and signal boards which remain Tier 3 (due to low rated HP values, i.e., < 50 hp).

Area Mitigation - Defaults assumed.

Energy Mitigation - N/A

Water Mitigation - City/County bldg codes will apply to these requirements.

Waste Mitigation - N/A

Operational Off-Road Equipment - N/A

GEP Vernon - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Fleet Mix - Defaults assumed.
Stationary Sources - Emergency Generators and Fire Pumps - N/A

Stationary Sources - Process Boilers - N/A

Stationary Sources - User Defined - N/A

Stationary Sources - Emergency Generators and Fire Pumps EF - N/A

Stationary Sources - Process Boilers EF - N/A

Consumer Products - Defaults assumed.

Mobile Land Use Mitigation - N/A

Mobile Commute Mitigation - N/A

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	20.00	100.00
tblConstructionPhase	NumDays	300.00	30.00
tblConstructionPhase	NumDays	300.00	37.00

GEP Vernon - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstructionPhase	NumDays	300.00	40.00
tblConstructionPhase	NumDays	300.00	150.00
tblConstructionPhase	NumDays	300.00	30.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	30.00	0.00
tblConstructionPhase	NumDays	20.00	30.00
tblConstructionPhase	NumDays	10.00	58.00
tblGrading	AcresOfGrading	0.00	11.55
tblGrading	AcresOfGrading	79.39	11.55
tblGrading	MaterialExported	0.00	1,000.00
tblGrading	MaterialImported	0.00	1,000.00
tblGrading	MeanVehicleSpeed	7.10	5.00
tblGrading	MeanVehicleSpeed	7.10	5.00
tblLandUse	LandUseSquareFeet	567,670.00	567,672.00
tblLandUse	LotAcreage	13.03	11.55
tblOffRoadEquipment	HorsePower	231.00	215.00
tblOffRoadEquipment	HorsePower	231.00	400.00
tblOffRoadEquipment	HorsePower	231.00	522.00
tblOffRoadEquipment	HorsePower	89.00	110.00
tblOffRoadEquipment	HorsePower	89.00	100.00
tblOffRoadEquipment	HorsePower	89.00	164.00
tblOffRoadEquipment	HorsePower	89.00	164.00
tblOffRoadEquipment	HorsePower	84.00	300.00
tblOffRoadEquipment	HorsePower	130.00	148.00
tblOffRoadEquipment	HorsePower	80.00	34.00
tblOffRoadEquipment	HorsePower	97.00	65.00
tblOffRoadEquipment	HorsePower	97.00	210.00
tblOffRoadEquipment	HorsePower	46.00	50.00
tblOffRoadEquipment	HorsePower	63.00	65.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblOffRoadEquipment	HorsePower	63.00	84.00
tblOffRoadEquipment	HorsePower	78.00	57.00
tblOffRoadEquipment	HorsePower	221.00	475.00
tblOffRoadEquipment	HorsePower	16.00	335.00
tblOffRoadEquipment	HorsePower	158.00	138.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	70.00
tblOffRoadEquipment	HorsePower	187.00	173.00
tblOffRoadEquipment	HorsePower	187.00	173.00
tblOffRoadEquipment	HorsePower	130.00	148.00
tblOffRoadEquipment	HorsePower	8.00	57.00
tblOffRoadEquipment	HorsePower	84.00	75.00
tblOffRoadEquipment	HorsePower	84.00	200.00
tblOffRoadEquipment	HorsePower	80.00	33.50
tblOffRoadEquipment	HorsePower	100.00	218.00
tblOffRoadEquipment	HorsePower	203.00	166.00
tblOffRoadEquipment	HorsePower	367.00	359.00
tblOffRoadEquipment	HorsePower	65.00	172.00
tblOffRoadEquipment	HorsePower	65.00	80.00
tblOffRoadEquipment	HorsePower	65.00	74.00
tblOffRoadEquipment	HorsePower	65.00	80.00
tblOffRoadEquipment	HorsePower	65.00	172.00
tblOffRoadEquipment	HorsePower	78.00	75.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	5.20

GEP Vernon - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblOffRoadEquipment	UsageHours	7.00	5.30
tblOffRoadEquipment	UsageHours	7.00	3.30
tblOffRoadEquipment	UsageHours	7.00	6.40
tblOffRoadEquipment	UsageHours	7.00	7.50
tblOffRoadEquipment	UsageHours	8.00	5.30
tblOffRoadEquipment	UsageHours	8.00	4.40
tblOffRoadEquipment	UsageHours	8.00	4.30
tblOffRoadEquipment	UsageHours	8.00	6.70
tblOffRoadEquipment	UsageHours	8.00	7.20
tblOffRoadEquipment	UsageHours	8.00	7.50
tblOffRoadEquipment	UsageHours	8.00	7.50
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	6.70
tblOffRoadEquipment	UsageHours	8.00	4.10
tblOffRoadEquipment	UsageHours	8.00	7.70
tblProjectCharacteristics	CO2IntensityFactor	691.98	498.96
tblSolidWaste	SolidWasteGenerationRate	527.93	0.08
tblTripsAndVMT	HaulingTripNumber	125.00	0.00
tblTripsAndVMT	VendorTripLength	6.90	10.00
tblTripsAndVMT	VendorTripLength	6.90	10.00
tblTripsAndVMT	VendorTripLength	6.90	10.00
tblTripsAndVMT	VendorTripLength	6.90	10.00
tblTripsAndVMT	VendorTripLength	6.90	10.00
tblTripsAndVMT	VendorTripLength	6.90	10.00
tblTripsAndVMT	VendorTripLength	6.90	10.00
tblTripsAndVMT	VendorTripLength	6.90	10.00
tblTripsAndVMT	VendorTripNumber	0.00	3.40
tblTripsAndVMT	VendorTripNumber	93.00	15.20
tblTripsAndVMT	VendorTripNumber	93.00	15.20

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblTripsAndVMT	VendorTripNumber	93.00	7.00
tblTripsAndVMT	VendorTripNumber	93.00	1.00
tblTripsAndVMT	VendorTripNumber	93.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	WorkerTripNumber	8.00	25.00
tblTripsAndVMT	WorkerTripNumber	28.00	25.00
tblTripsAndVMT	WorkerTripNumber	182.00	75.00
tblTripsAndVMT	WorkerTripNumber	182.00	150.00
tblTripsAndVMT	WorkerTripNumber	182.00	125.00
tblTripsAndVMT	WorkerTripNumber	182.00	125.00
tblTripsAndVMT	WorkerTripNumber	182.00	100.00
tblTripsAndVMT	WorkerTripNumber	36.00	40.00
tblVehicleTrips	ST_TR	2.21	0.15
tblVehicleTrips	SU_TR	0.70	0.15
tblVehicleTrips	WD_TR	9.74	0.15
tblWater	IndoorWaterUseRate	100,894,116.72	689.10
tblWater	OutdoorWaterUseRate	61,838,329.60	746.60

2.0 Emissions Summary

GEP Vernon - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2025	0.1120	0.8860	1.2240	3.0000e-003	0.0575	0.0377	0.0952	0.0148	0.0350	0.0499	0.0000					267.0258
2026	2.2890	1.7916	2.6249	7.2700e-003	0.1681	0.0628	0.2309	0.0447	0.0601	0.1048	0.0000					680.9893
2027	0.6209	0.1147	0.2013	3.6000e-004	8.6500e-003	4.5300e-003	0.0132	2.3100e-003	4.3300e-003	6.6400e-003	0.0000					31.8733
Maximum	**2.2890**	**1.7916**	**2.6249**	**7.2700e-003**	**0.1681**	**0.0628**	**0.2309**	**0.0447**	**0.0601**	**0.1048**	**0.0000**					**680.9893**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2025	0.0440	0.2175	1.5491	3.0000e-003	0.0557	4.9000e-003	0.0606	0.0147	4.8700e-003	0.0195	0.0000					267.0255
2026	2.1417	0.6477	3.5091	7.2700e-003	0.1681	0.0105	0.1786	0.0447	0.0104	0.0552	0.0000					680.9886
2027	0.6115	0.0425	0.2184	3.6000e-004	8.6500e-003	1.8200e-003	0.0105	2.3100e-003	1.8100e-003	4.1200e-003	0.0000					31.8732
Maximum	**2.1417**	**0.6477**	**3.5091**	**7.2700e-003**	**0.1681**	**0.0105**	**0.1786**	**0.0447**	**0.0104**	**0.0552**	**0.0000**					**680.9886**

GEP Vernon - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**7.44**	**67.49**	**-30.28**	**0.00**	**0.74**	**83.59**	**26.38**	**0.27**	**82.80**	**51.16**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**10-1-2025**	**12-31-2025**	0.9873	0.2593
2	**1-1-2026**	**3-31-2026**	0.7403	0.2825
3	**4-1-2026**	**6-30-2026**	0.5743	0.2481
4	**7-1-2026**	**9-30-2026**	0.7676	0.4549
5	**10-1-2026**	**12-31-2026**	1.9844	1.7886
6	**1-1-2027**	**3-31-2027**	0.7540	0.6703
		Highest	1.9844	1.7886

GEP Vernon - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.3151	7.0000e-005	7.2300e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000					0.0150
Energy	0.0396	0.3595	0.3020	2.1600e-003		0.0273	0.0273		0.0273	0.0273	0.0000					1,534.0503
Mobile	0.0394	0.0415	0.3939	8.7000e-004	0.1031	6.0000e-004	0.1037	0.0275	5.6000e-004	0.0281	0.0000					81.8597
Waste						0.0000	0.0000		0.0000	0.0000	0.0162					0.0402
Water						0.0000	0.0000		0.0000	0.0000	2.2000e-004					4.8600e-003
Total	**2.3940**	**0.4011**	**0.7031**	**3.0300e-003**	**0.1031**	**0.0280**	**0.1310**	**0.0275**	**0.0279**	**0.0554**	**0.0165**					**1,615.9701**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.3151	7.0000e-005	7.2300e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000					0.0150
Energy	0.0396	0.3595	0.3020	2.1600e-003		0.0273	0.0273		0.0273	0.0273	0.0000					1,534.0503
Mobile	0.0394	0.0415	0.3939	8.7000e-004	0.1031	6.0000e-004	0.1037	0.0275	5.6000e-004	0.0281	0.0000					81.8597
Waste						0.0000	0.0000		0.0000	0.0000	0.0162					0.0402
Water						0.0000	0.0000		0.0000	0.0000	2.2000e-004					4.8600e-003
Total	**2.3940**	**0.4011**	**0.7031**	**3.0300e-003**	**0.1031**	**0.0280**	**0.1310**	**0.0275**	**0.0279**	**0.0554**	**0.0165**					**1,615.9701**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/1/2025	9/30/2025	5	0	No Demo Phase
2	Site Preparation	Site Preparation	10/1/2025	12/20/2025	5	58	Site Prep and Grading
3	Grading	Grading	10/1/2025	9/30/2025	5	0	Included in Site Prep

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4	Auger Casting	Building Construction	10/29/2025	12/9/2025	5	30	
5	Concrete Foundations	Building Construction	12/1/2025	1/20/2026	5	37	
6	Utilities	Building Construction	12/10/2025	2/3/2026	5	40	
7	Steel	Building Construction	1/21/2026	8/18/2026	5	150	
8	Roof and Skin	Building Construction	8/19/2026	9/29/2026	5	30	
9	Architectural Coating/Landscaping	Architectural Coating	9/16/2026	2/2/2027	5	100	
10	Paving	Paving	12/23/2026	2/2/2027	5	30	

Acres of Grading (Site Preparation Phase): 11.55

Acres of Grading (Grading Phase): 11.55

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 851,508; Non-Residential Outdoor: 283,836; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Excavators	2	4.10	138	0.38
Site Preparation	Graders	1	5.50	173	0.41
Site Preparation	Other Construction Equipment	1	7.60	172	0.42
Site Preparation	Pavers	1	1.40	148	0.42
Site Preparation	Rollers	2	1.40	33.5	0.38
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Scrapers	2	4.10	359	0.48
Site Preparation	Skid Steer Loaders	1	5.50	172	0.37
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	4.10	210	0.37

GEP Vernon - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Grading	Excavators	0	8.00	158	0.38
Grading	Graders	0	8.00	187	0.41
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Scrapers	0	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Auger Casting	Air Compressors	1	8.00	57	0.48
Auger Casting	Bore/Drill Rigs	1	8.00	475	0.50
Auger Casting	Cranes	1	5.30	215	0.29
Auger Casting	Forklifts	1	5.30	110	0.20
Auger Casting	Generator Sets	0	8.00	84	0.74
Auger Casting	Other Construction Equipment	1	7.20	172	0.42
Auger Casting	Pumps	1	4.00	75	0.74
Auger Casting	Tractors/Loaders/Backhoes	1	8.00	65	0.37
Auger Casting	Welders	0	8.00	46	0.45
Concrete Foundations	Cranes	1	3.30	231	0.29
Concrete Foundations	Forklifts	1	4.40	100	0.20
Concrete Foundations	Generator Sets	1	8.00	84	0.74
Concrete Foundations	Other Construction Equipment	1	6.70	172	0.42
Concrete Foundations	Pavers	0	8.00	130	0.42
Concrete Foundations	Paving Equipment	0	8.00	132	0.36
Concrete Foundations	Plate Compactors	2	8.00	57	0.43
Concrete Foundations	Pumps	2	8.00	200	0.74
Concrete Foundations	Rollers	0	8.00	80	0.38
Concrete Foundations	Rubber Tired Loaders	1	4.40	203	0.36
Concrete Foundations	Signal Boards	2	6.70	6	0.82
Concrete Foundations	Skid Steer Loaders	1	4.40	80	0.37
Concrete Foundations	Tractors/Loaders/Backhoes	2	6.70	97	0.37
Concrete Foundations	Welders	0	8.00	46	0.45
Utilities	Air Compressors	0	6.00	78	0.48

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Utilities	Cranes	0	7.00	231	0.29
Utilities	Dumpers/Tenders	1	7.00	335	0.38
Utilities	Excavators	3	7.00	150	0.38
Utilities	Forklifts	0	8.00	89	0.20
Utilities	Generator Sets	0	8.00	84	0.74
Utilities	Other Construction Equipment	1	7.20	172	0.42
Utilities	Rubber Tired Loaders	1	5.00	166	0.36
Utilities	Skid Steer Loaders	2	6.00	74	0.37
Utilities	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Utilities	Trenchers	1	7.60	75	0.50
Utilities	Welders	0	8.00	46	0.45
Steel	Aerial Lifts	2	7.50	65	0.31
Steel	Cranes	1	6.40	400	0.29
Steel	Forklifts	1	4.30	164	0.20
Steel	Generator Sets	2	7.20	300	0.74
Steel	Other Construction Equipment	1	1.60	172	0.42
Steel	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Steel	Welders	2	7.70	50	0.45
Roof and Skin	Cranes	1	7.50	522	0.29
Roof and Skin	Forklifts	1	6.70	164	0.20
Roof and Skin	Generator Sets	0	8.00	84	0.74
Roof and Skin	Rough Terrain Forklifts	1	8.00	218	0.40
Roof and Skin	Skid Steer Loaders	1	5.30	80	0.37
Roof and Skin	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Roof and Skin	Welders	0	8.00	46	0.45
Paving	Pavers	1	7.50	148	0.42
Paving	Paving Equipment	0	8.00	132	0.36
Paving	Rollers	2	7.50	34	0.38
Architectural Coating/Landscaping	Aerial Lifts	4	5.20	84	0.31

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Architectural Coating/Landscaping	Air Compressors	4	5.20	78	0.48
Architectural Coating/Landscaping	Excavators	1	2.00	70	0.38
Architectural Coating/Landscaping	Graders	1	0.80	173	0.41
Architectural Coating/Landscaping	Skid Steer Loaders	1	2.00	172	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	11	25.00	0.00	0.00	14.70	10.00	20.00	LD_Mix	HDT_Mix	HHDT
Grading	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Auger Casting	7	75.00	15.20	0.00	14.70	10.00	20.00	LD_Mix	HDT_Mix	HHDT
Concrete Foundations	14	150.00	15.20	0.00	14.70	10.00	20.00	LD_Mix	HDT_Mix	HHDT
Utilities	9	125.00	7.00	0.00	14.70	10.00	20.00	LD_Mix	HDT_Mix	HHDT
Steel	9	125.00	1.00	0.00	14.70	10.00	20.00	LD_Mix	HDT_Mix	HHDT
Roof and Skin	4	100.00	2.00	0.00	14.70	10.00	20.00	LD_Mix	HDT_Mix	HHDT
Paving	3	25.00	3.40	0.00	14.70	10.00	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating/Landscaping	11	40.00	1.00	0.00	14.70	10.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

GEP Vernon - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2025

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

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

GEP Vernon - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - 2025

Mitigated Construction On-Site

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

Mitigated Construction Off-Site

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

GEP Vernon - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.1500e-003	0.0000	3.1500e-003	2.9000e-004	0.0000	2.9000e-004	0.0000					0.0000
Off-Road	0.0457	0.4048	0.4857	1.0100e-003		0.0183	0.0183		0.0169	0.0169	0.0000					89.1666
Total	**0.0457**	**0.4048**	**0.4857**	**1.0100e-003**	**3.1500e-003**	**0.0183**	**0.0215**	**2.9000e-004**	**0.0169**	**0.0172**	**0.0000**					**89.1666**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					0.0000
Worker	2.0100e-003	1.4600e-003	0.0214	6.0000e-005	7.9400e-003	4.0000e-005	7.9900e-003	2.1100e-003	4.0000e-005	2.1500e-003	0.0000					5.9822
Total	**2.0100e-003**	**1.4600e-003**	**0.0214**	**6.0000e-005**	**7.9400e-003**	**4.0000e-005**	**7.9900e-003**	**2.1100e-003**	**4.0000e-005**	**2.1500e-003**	**0.0000**					**5.9822**

GEP Vernon - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.4200e-003	0.0000	1.4200e-003	1.3000e-004	0.0000	1.3000e-004	0.0000					0.0000
Off-Road	0.0129	0.0634	0.5972	1.0100e-003		2.2600e-003	2.2600e-003		2.2600e-003	2.2600e-003	0.0000					89.1665
Total	**0.0129**	**0.0634**	**0.5972**	**1.0100e-003**	**1.4200e-003**	**2.2600e-003**	**3.6800e-003**	**1.3000e-004**	**2.2600e-003**	**2.3900e-003**	**0.0000**					**89.1665**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					0.0000
Worker	2.0100e-003	1.4600e-003	0.0214	6.0000e-005	7.9400e-003	4.0000e-005	7.9900e-003	2.1100e-003	4.0000e-005	2.1500e-003	0.0000					5.9822
Total	**2.0100e-003**	**1.4600e-003**	**0.0214**	**6.0000e-005**	**7.9400e-003**	**4.0000e-005**	**7.9900e-003**	**2.1100e-003**	**4.0000e-005**	**2.1500e-003**	**0.0000**					**5.9822**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2025

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

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

GEP Vernon - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - 2025

Mitigated Construction On-Site

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

Mitigated Construction Off-Site

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Auger Casting - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0201	0.1748	0.2203	5.8000e-004		7.4500e-003	7.4500e-003		6.9700e-003	6.9700e-003	0.0000					50.9332
Total	**0.0201**	**0.1748**	**0.2203**	**5.8000e-004**		**7.4500e-003**	**7.4500e-003**		**6.9700e-003**	**6.9700e-003**	**0.0000**					**50.9332**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					0.0000
Vendor	2.9000e-004	0.0121	3.8400e-003	6.0000e-005	2.0800e-003	6.0000e-005	2.1400e-003	6.0000e-004	6.0000e-005	6.6000e-004	0.0000					5.9145
Worker	3.1200e-003	2.2700e-003	0.0332	1.0000e-004	0.0123	7.0000e-005	0.0124	3.2700e-003	6.0000e-005	3.3400e-003	0.0000					9.2827
Total	**3.4100e-003**	**0.0144**	**0.0370**	**1.6000e-004**	**0.0144**	**1.3000e-004**	**0.0145**	**3.8700e-003**	**1.2000e-004**	**4.0000e-003**	**0.0000**					**15.1971**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Auger Casting - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.7600e-003	0.0638	0.3177	5.8000e-004		9.3000e-004	9.3000e-004		9.3000e-004	9.3000e-004	0.0000					50.9331
Total	**7.7600e-003**	**0.0638**	**0.3177**	**5.8000e-004**		**9.3000e-004**	**9.3000e-004**		**9.3000e-004**	**9.3000e-004**	**0.0000**					**50.9331**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					0.0000
Vendor	2.9000e-004	0.0121	3.8400e-003	6.0000e-005	2.0800e-003	6.0000e-005	2.1400e-003	6.0000e-004	6.0000e-005	6.6000e-004	0.0000					5.9145
Worker	3.1200e-003	2.2700e-003	0.0332	1.0000e-004	0.0123	7.0000e-005	0.0124	3.2700e-003	6.0000e-005	3.3400e-003	0.0000					9.2827
Total	**3.4100e-003**	**0.0144**	**0.0370**	**1.6000e-004**	**0.0144**	**1.3000e-004**	**0.0145**	**3.8700e-003**	**1.2000e-004**	**4.0000e-003**	**0.0000**					**15.1971**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Concrete Foundations - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0232	0.1879	0.2267	6.6000e-004		7.0600e-003	7.0600e-003		6.7400e-003	6.7400e-003	0.0000					57.2512
Total	**0.0232**	**0.1879**	**0.2267**	**6.6000e-004**		**7.0600e-003**	**7.0600e-003**		**6.7400e-003**	**6.7400e-003**	**0.0000**					**57.2512**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					0.0000
Vendor	2.2000e-004	9.2800e-003	2.9400e-003	4.0000e-005	1.5900e-003	5.0000e-005	1.6400e-003	4.6000e-004	5.0000e-005	5.1000e-004	0.0000					4.5344
Worker	4.7800e-003	3.4800e-003	0.0509	1.5000e-004	0.0189	1.1000e-004	0.0190	5.0200e-003	1.0000e-004	5.1200e-003	0.0000					14.2334
Total	**5.0000e-003**	**0.0128**	**0.0538**	**1.9000e-004**	**0.0205**	**1.6000e-004**	**0.0207**	**5.4800e-003**	**1.5000e-004**	**5.6300e-003**	**0.0000**					**18.7678**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Concrete Foundations - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.9800e-003	0.0303	0.3200	6.6000e-004		9.3000e-004	9.3000e-004		9.3000e-004	9.3000e-004	0.0000					57.2511
Total	**6.9800e-003**	**0.0303**	**0.3200**	**6.6000e-004**		**9.3000e-004**	**9.3000e-004**		**9.3000e-004**	**9.3000e-004**	**0.0000**					**57.2511**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					0.0000
Vendor	2.2000e-004	9.2800e-003	2.9400e-003	4.0000e-005	1.5900e-003	5.0000e-005	1.6400e-003	4.6000e-004	5.0000e-005	5.1000e-004	0.0000					4.5344
Worker	4.7800e-003	3.4800e-003	0.0509	1.5000e-004	0.0189	1.1000e-004	0.0190	5.0200e-003	1.0000e-004	5.1200e-003	0.0000					14.2334
Total	**5.0000e-003**	**0.0128**	**0.0538**	**1.9000e-004**	**0.0205**	**1.6000e-004**	**0.0207**	**5.4800e-003**	**1.5000e-004**	**5.6300e-003**	**0.0000**					**18.7678**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Concrete Foundations - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0141	0.1144	0.1380	4.0000e-004		4.3000e-003	4.3000e-003		4.1000e-003	4.1000e-003	0.0000					34.8486
Total	**0.0141**	**0.1144**	**0.1380**	**4.0000e-004**		**4.3000e-003**	**4.3000e-003**		**4.1000e-003**	**4.1000e-003**	**0.0000**					**34.8486**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					0.0000
Vendor	1.3000e-004	5.6100e-003	1.7600e-003	3.0000e-005	9.7000e-004	3.0000e-005	1.0000e-003	2.8000e-004	3.0000e-005	3.1000e-004	0.0000					2.7090
Worker	2.7400e-003	1.9200e-003	0.0290	9.0000e-005	0.0115	6.0000e-005	0.0116	3.0600e-003	6.0000e-005	3.1100e-003	0.0000					8.3985
Total	**2.8700e-003**	**7.5300e-003**	**0.0308**	**1.2000e-004**	**0.0125**	**9.0000e-005**	**0.0126**	**3.3400e-003**	**9.0000e-005**	**3.4200e-003**	**0.0000**					**11.1075**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Concrete Foundations - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.2500e-003	0.0184	0.1948	4.0000e-004		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004	0.0000					34.8485
Total	**4.2500e-003**	**0.0184**	**0.1948**	**4.0000e-004**		**5.7000e-004**	**5.7000e-004**		**5.7000e-004**	**5.7000e-004**	**0.0000**					**34.8485**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					0.0000
Vendor	1.3000e-004	5.6100e-003	1.7600e-003	3.0000e-005	9.7000e-004	3.0000e-005	1.0000e-003	2.8000e-004	3.0000e-005	3.1000e-004	0.0000					2.7090
Worker	2.7400e-003	1.9200e-003	0.0290	9.0000e-005	0.0115	6.0000e-005	0.0116	3.0600e-003	6.0000e-005	3.1100e-003	0.0000					8.3985
Total	**2.8700e-003**	**7.5300e-003**	**0.0308**	**1.2000e-004**	**0.0125**	**9.0000e-005**	**0.0126**	**3.3400e-003**	**9.0000e-005**	**3.4200e-003**	**0.0000**					**11.1075**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Utilities - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.7700e-003	0.0850	0.1487	2.3000e-004		4.4300e-003	4.4300e-003		4.0700e-003	4.0700e-003	0.0000					20.0238
Total	**9.7700e-003**	**0.0850**	**0.1487**	**2.3000e-004**		**4.4300e-003**	**4.4300e-003**		**4.0700e-003**	**4.0700e-003**	**0.0000**					**20.0238**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					0.0000
Vendor	7.0000e-005	2.9700e-003	9.4000e-004	1.0000e-005	5.1000e-004	2.0000e-005	5.3000e-004	1.5000e-004	2.0000e-005	1.6000e-004	0.0000					1.4527
Worker	2.7700e-003	2.0200e-003	0.0295	9.0000e-005	0.0110	6.0000e-005	0.0110	2.9100e-003	6.0000e-005	2.9700e-003	0.0000					8.2513
Total	**2.8400e-003**	**4.9900e-003**	**0.0304**	**1.0000e-004**	**0.0115**	**8.0000e-005**	**0.0116**	**3.0600e-003**	**8.0000e-005**	**3.1300e-003**	**0.0000**					**9.7039**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Utilities - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.1300e-003	0.0264	0.1716	2.3000e-004		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000					20.0238
Total	**3.1300e-003**	**0.0264**	**0.1716**	**2.3000e-004**		**3.7000e-004**	**3.7000e-004**		**3.7000e-004**	**3.7000e-004**	**0.0000**					**20.0238**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					0.0000
Vendor	7.0000e-005	2.9700e-003	9.4000e-004	1.0000e-005	5.1000e-004	2.0000e-005	5.3000e-004	1.5000e-004	2.0000e-005	1.6000e-004	0.0000					1.4527
Worker	2.7700e-003	2.0200e-003	0.0295	9.0000e-005	0.0110	6.0000e-005	0.0110	2.9100e-003	6.0000e-005	2.9700e-003	0.0000					8.2513
Total	**2.8400e-003**	**4.9900e-003**	**0.0304**	**1.0000e-004**	**0.0115**	**8.0000e-005**	**0.0116**	**3.0600e-003**	**8.0000e-005**	**3.1300e-003**	**0.0000**					**9.7039**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Utilities - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0147	0.1274	0.2230	3.4000e-004		6.6400e-003	6.6400e-003		6.1100e-003	6.1100e-003	0.0000					30.0357
Total	**0.0147**	**0.1274**	**0.2230**	**3.4000e-004**		**6.6400e-003**	**6.6400e-003**		**6.1100e-003**	**6.1100e-003**	**0.0000**					**30.0357**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					0.0000
Vendor	1.0000e-004	4.4300e-003	1.3900e-003	2.0000e-005	7.7000e-004	2.0000e-005	7.9000e-004	2.2000e-004	2.0000e-005	2.4000e-004	0.0000					2.1387
Worker	3.9100e-003	2.7400e-003	0.0415	1.3000e-004	0.0164	9.0000e-005	0.0165	4.3700e-003	8.0000e-005	4.4500e-003	0.0000					11.9978
Total	**4.0100e-003**	**7.1700e-003**	**0.0429**	**1.5000e-004**	**0.0172**	**1.1000e-004**	**0.0173**	**4.5900e-003**	**1.0000e-004**	**4.6900e-003**	**0.0000**					**14.1365**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.7 Utilities - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.7000e-003	0.0396	0.2574	3.4000e-004		5.6000e-004	5.6000e-004		5.6000e-004	5.6000e-004	0.0000					30.0357
Total	**4.7000e-003**	**0.0396**	**0.2574**	**3.4000e-004**		**5.6000e-004**	**5.6000e-004**		**5.6000e-004**	**5.6000e-004**	**0.0000**					**30.0357**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					0.0000
Vendor	1.0000e-004	4.4300e-003	1.3900e-003	2.0000e-005	7.7000e-004	2.0000e-005	7.9000e-004	2.2000e-004	2.0000e-005	2.4000e-004	0.0000					2.1387
Worker	3.9100e-003	2.7400e-003	0.0415	1.3000e-004	0.0164	9.0000e-005	0.0165	4.3700e-003	8.0000e-005	4.4500e-003	0.0000					11.9978
Total	**4.0100e-003**	**7.1700e-003**	**0.0429**	**1.5000e-004**	**0.0172**	**1.1000e-004**	**0.0173**	**4.5900e-003**	**1.0000e-004**	**4.6900e-003**	**0.0000**					**14.1365**

GEP Vernon - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.8 Steel - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1517	1.1300	1.2950	4.0900e-003		0.0369	0.0369		0.0356	0.0356	0.0000					395.1158
Total	**0.1517**	**1.1300**	**1.2950**	**4.0900e-003**		**0.0369**	**0.0369**		**0.0356**	**0.0356**	**0.0000**					**395.1158**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					0.0000
Vendor	9.0000e-005	3.9500e-003	1.2400e-003	2.0000e-005	6.8000e-004	2.0000e-005	7.1000e-004	2.0000e-004	2.0000e-005	2.2000e-004	0.0000					1.9095
Worker	0.0245	0.0172	0.2593	8.1000e-004	0.1027	5.4000e-004	0.1033	0.0273	5.0000e-004	0.0278	0.0000					74.9865
Total	**0.0245**	**0.0211**	**0.2606**	**8.3000e-004**	**0.1034**	**5.6000e-004**	**0.1040**	**0.0275**	**5.2000e-004**	**0.0280**	**0.0000**					**76.8961**

GEP Vernon - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.8 Steel - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0545	0.4743	1.9868	4.0900e-003		6.4100e-003	6.4100e-003		6.4100e-003	6.4100e-003	0.0000					395.1153
Total	**0.0545**	**0.4743**	**1.9868**	**4.0900e-003**		**6.4100e-003**	**6.4100e-003**		**6.4100e-003**	**6.4100e-003**	**0.0000**					**395.1153**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					0.0000
Vendor	9.0000e-005	3.9500e-003	1.2400e-003	2.0000e-005	6.8000e-004	2.0000e-005	7.1000e-004	2.0000e-004	2.0000e-005	2.2000e-004	0.0000					1.9095
Worker	0.0245	0.0172	0.2593	8.1000e-004	0.1027	5.4000e-004	0.1033	0.0273	5.0000e-004	0.0278	0.0000					74.9865
Total	**0.0245**	**0.0211**	**0.2606**	**8.3000e-004**	**0.1034**	**5.6000e-004**	**0.1040**	**0.0275**	**5.2000e-004**	**0.0280**	**0.0000**					**76.8961**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.9 Roof and Skin - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0115	0.1175	0.1108	3.6000e-004		4.2700e-003	4.2700e-003		3.9300e-003	3.9300e-003	0.0000					31.5048
Total	**0.0115**	**0.1175**	**0.1108**	**3.6000e-004**		**4.2700e-003**	**4.2700e-003**		**3.9300e-003**	**3.9300e-003**	**0.0000**					**31.5048**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					0.0000
Vendor	4.0000e-005	1.5800e-003	5.0000e-004	1.0000e-005	2.7000e-004	1.0000e-005	2.8000e-004	8.0000e-005	1.0000e-005	9.0000e-005	0.0000					0.7638
Worker	3.9100e-003	2.7400e-003	0.0415	1.3000e-004	0.0164	9.0000e-005	0.0165	4.3700e-003	8.0000e-005	4.4500e-003	0.0000					11.9978
Total	**3.9500e-003**	**4.3200e-003**	**0.0420**	**1.4000e-004**	**0.0167**	**1.0000e-004**	**0.0168**	**4.4500e-003**	**9.0000e-005**	**4.5400e-003**	**0.0000**					**12.7617**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.9 Roof and Skin - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.3800e-003	0.0190	0.1794	3.6000e-004		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000					31.5048
Total	**4.3800e-003**	**0.0190**	**0.1794**	**3.6000e-004**		**5.8000e-004**	**5.8000e-004**		**5.8000e-004**	**5.8000e-004**	**0.0000**					**31.5048**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					0.0000
Vendor	4.0000e-005	1.5800e-003	5.0000e-004	1.0000e-005	2.7000e-004	1.0000e-005	2.8000e-004	8.0000e-005	1.0000e-005	9.0000e-005	0.0000					0.7638
Worker	3.9100e-003	2.7400e-003	0.0415	1.3000e-004	0.0164	9.0000e-005	0.0165	4.3700e-003	8.0000e-005	4.4500e-003	0.0000					11.9978
Total	**3.9500e-003**	**4.3200e-003**	**0.0420**	**1.4000e-004**	**0.0167**	**1.0000e-004**	**0.0168**	**4.4500e-003**	**9.0000e-005**	**4.5400e-003**	**0.0000**					**12.7617**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.10 Architectural Coating/Landscaping - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.0260					0.0000	0.0000		0.0000	0.0000	0.0000					0.0000
Off-Road	0.0298	0.2451	0.4191	6.7000e-004		9.1800e-003	9.1800e-003		9.0000e-003	9.0000e-003	0.0000					58.0080
Total	**2.0558**	**0.2451**	**0.4191**	**6.7000e-004**		**9.1800e-003**	**9.1800e-003**		**9.0000e-003**	**9.0000e-003**	**0.0000**					**58.0080**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					0.0000
Vendor	5.0000e-005	2.0300e-003	6.4000e-004	1.0000e-005	3.5000e-004	1.0000e-005	3.6000e-004	1.0000e-004	1.0000e-005	1.1000e-004	0.0000					0.9802
Worker	4.0200e-003	2.8200e-003	0.0426	1.3000e-004	0.0169	9.0000e-005	0.0170	4.4800e-003	8.0000e-005	4.5600e-003	0.0000					12.3178
Total	**4.0700e-003**	**4.8500e-003**	**0.0432**	**1.4000e-004**	**0.0172**	**1.0000e-004**	**0.0173**	**4.5800e-003**	**9.0000e-005**	**4.6700e-003**	**0.0000**					**13.2980**

GEP Vernon - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.10 Architectural Coating/Landscaping - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.0260					0.0000	0.0000		0.0000	0.0000	0.0000					0.0000
Off-Road	7.5600e-003	0.0428	0.4492	6.7000e-004		9.7000e-004	9.7000e-004		9.7000e-004	9.7000e-004	0.0000					58.0079
Total	**2.0336**	**0.0428**	**0.4492**	**6.7000e-004**		**9.7000e-004**	**9.7000e-004**		**9.7000e-004**	**9.7000e-004**	**0.0000**					**58.0079**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					0.0000
Vendor	5.0000e-005	2.0300e-003	6.4000e-004	1.0000e-005	3.5000e-004	1.0000e-005	3.6000e-004	1.0000e-004	1.0000e-005	1.1000e-004	0.0000					0.9802
Worker	4.0200e-003	2.8200e-003	0.0426	1.3000e-004	0.0169	9.0000e-005	0.0170	4.4800e-003	8.0000e-005	4.5600e-003	0.0000					12.3178
Total	**4.0700e-003**	**4.8500e-003**	**0.0432**	**1.4000e-004**	**0.0172**	**1.0000e-004**	**0.0173**	**4.5800e-003**	**9.0000e-005**	**4.6700e-003**	**0.0000**					**13.2980**

GEP Vernon - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.10 Architectural Coating/Landscaping - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6052					0.0000	0.0000		0.0000	0.0000	0.0000					0.0000
Off-Road	8.9100e-003	0.0732	0.1252	2.0000e-004		2.7400e-003	2.7400e-003		2.6900e-003	2.6900e-003	0.0000					17.3271
Total	**0.6141**	**0.0732**	**0.1252**	**2.0000e-004**		**2.7400e-003**	**2.7400e-003**		**2.6900e-003**	**2.6900e-003**	**0.0000**					**17.3271**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					0.0000
Vendor	1.0000e-005	6.0000e-004	1.9000e-004	0.0000	1.0000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000					0.2870
Worker	1.1300e-003	7.7000e-004	0.0120	4.0000e-005	5.0400e-003	3.0000e-005	5.0700e-003	1.3400e-003	2.0000e-005	1.3600e-003	0.0000					3.5765
Total	**1.1400e-003**	**1.3700e-003**	**0.0122**	**4.0000e-005**	**5.1400e-003**	**3.0000e-005**	**5.1800e-003**	**1.3700e-003**	**2.0000e-005**	**1.3900e-003**	**0.0000**					**3.8635**

GEP Vernon - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.10 Architectural Coating/Landscaping - 2027

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6052					0.0000	0.0000		0.0000	0.0000	0.0000					0.0000
Off-Road	2.2600e-003	0.0128	0.1342	2.0000e-004		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000					17.3270
Total	**0.6074**	**0.0128**	**0.1342**	**2.0000e-004**		**2.9000e-004**	**2.9000e-004**		**2.9000e-004**	**2.9000e-004**	**0.0000**					**17.3270**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					0.0000
Vendor	1.0000e-005	6.0000e-004	1.9000e-004	0.0000	1.0000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000					0.2870
Worker	1.1300e-003	7.7000e-004	0.0120	4.0000e-005	5.0400e-003	3.0000e-005	5.0700e-003	1.3400e-003	2.0000e-005	1.3600e-003	0.0000					3.5765
Total	**1.1400e-003**	**1.3700e-003**	**0.0122**	**4.0000e-005**	**5.1400e-003**	**3.0000e-005**	**5.1800e-003**	**1.3700e-003**	**2.0000e-005**	**1.3900e-003**	**0.0000**					**3.8635**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.11 Paving - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.5000e-003	0.0114	0.0170	3.0000e-005		5.3000e-004	5.3000e-004		4.8000e-004	4.8000e-004	0.0000					2.2739
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000					0.0000
Total	**1.5000e-003**	**0.0114**	**0.0170**	**3.0000e-005**		**5.3000e-004**	**5.3000e-004**		**4.8000e-004**	**4.8000e-004**	**0.0000**					**2.2739**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					0.0000
Vendor	1.0000e-005	6.3000e-004	2.0000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000					0.3030
Worker	2.3000e-004	1.6000e-004	2.4200e-003	1.0000e-005	9.6000e-004	1.0000e-005	9.6000e-004	2.5000e-004	0.0000	2.6000e-004	0.0000					0.6999
Total	**2.4000e-004**	**7.9000e-004**	**2.6200e-003**	**1.0000e-005**	**1.0700e-003**	**1.0000e-005**	**1.0700e-003**	**2.8000e-004**	**0.0000**	**2.9000e-004**	**0.0000**					**1.0029**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.11 Paving - 2026

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.5000e-004	7.8600e-003	0.0194	3.0000e-005		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004	0.0000					2.2739
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000					0.0000
Total	**6.5000e-004**	**7.8600e-003**	**0.0194**	**3.0000e-005**		**4.5000e-004**	**4.5000e-004**		**4.5000e-004**	**4.5000e-004**	**0.0000**					**2.2739**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					0.0000
Vendor	1.0000e-005	6.3000e-004	2.0000e-004	0.0000	1.1000e-004	0.0000	1.1000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000					0.3030
Worker	2.3000e-004	1.6000e-004	2.4200e-003	1.0000e-005	9.6000e-004	1.0000e-005	9.6000e-004	2.5000e-004	0.0000	2.6000e-004	0.0000					0.6999
Total	**2.4000e-004**	**7.9000e-004**	**2.6200e-003**	**1.0000e-005**	**1.0700e-003**	**1.0000e-005**	**1.0700e-003**	**2.8000e-004**	**0.0000**	**2.9000e-004**	**0.0000**					**1.0029**

GEP Vernon - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.11 Paving - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.9300e-003	0.0376	0.0558	8.0000e-005		1.7300e-003	1.7300e-003		1.5900e-003	1.5900e-003	0.0000					7.4714
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000					0.0000
Total	**4.9300e-003**	**0.0376**	**0.0558**	**8.0000e-005**		**1.7300e-003**	**1.7300e-003**		**1.5900e-003**	**1.5900e-003**	**0.0000**					**7.4714**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					0.0000
Vendor	5.0000e-005	2.0400e-003	6.4000e-004	1.0000e-005	3.6000e-004	1.0000e-005	3.7000e-004	1.0000e-004	1.0000e-005	1.1000e-004	0.0000					0.9760
Worker	7.1000e-004	4.8000e-004	7.5100e-003	2.0000e-005	3.1500e-003	2.0000e-005	3.1700e-003	8.4000e-004	1.0000e-005	8.5000e-004	0.0000					2.2353
Total	**7.6000e-004**	**2.5200e-003**	**8.1500e-003**	**3.0000e-005**	**3.5100e-003**	**3.0000e-005**	**3.5400e-003**	**9.4000e-004**	**2.0000e-005**	**9.6000e-004**	**0.0000**					**3.2113**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.11 Paving - 2027

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.1300e-003	0.0258	0.0639	8.0000e-005		1.4700e-003	1.4700e-003		1.4700e-003	1.4700e-003	0.0000					7.4714
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000					0.0000
Total	**2.1300e-003**	**0.0258**	**0.0639**	**8.0000e-005**		**1.4700e-003**	**1.4700e-003**		**1.4700e-003**	**1.4700e-003**	**0.0000**					**7.4714**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					0.0000
Vendor	5.0000e-005	2.0400e-003	6.4000e-004	1.0000e-005	3.6000e-004	1.0000e-005	3.7000e-004	1.0000e-004	1.0000e-005	1.1000e-004	0.0000					0.9760
Worker	7.1000e-004	4.8000e-004	7.5100e-003	2.0000e-005	3.1500e-003	2.0000e-005	3.1700e-003	8.4000e-004	1.0000e-005	8.5000e-004	0.0000					2.2353
Total	**7.6000e-004**	**2.5200e-003**	**8.1500e-003**	**3.0000e-005**	**3.5100e-003**	**3.0000e-005**	**3.5400e-003**	**9.4000e-004**	**2.0000e-005**	**9.6000e-004**	**0.0000**					**3.2113**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0394	0.0415	0.3939	8.7000e-004	0.1031	6.0000e-004	0.1037	0.0275	5.6000e-004	0.0281	0.0000					81.8597
Unmitigated	0.0394	0.0415	0.3939	8.7000e-004	0.1031	6.0000e-004	0.1037	0.0275	5.6000e-004	0.0281	0.0000					81.8597

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	85.15	85.15	85.15	274,309	274,309
Total	85.15	85.15	85.15	274,309	274,309

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.533522	0.066597	0.191847	0.126396	0.023913	0.006761	0.011443	0.007995	0.000939	0.000579	0.025999	0.000713	0.003295

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000					1,140.3371
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000					1,140.3371
NaturalGas Mitigated	0.0396	0.3595	0.3020	2.1600e-003		0.0273	0.0273		0.0273	0.0273	0.0000					393.7132
NaturalGas Unmitigated	0.0396	0.3595	0.3020	2.1600e-003		0.0273	0.0273		0.0273	0.0273	0.0000					393.7132

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	7.33432e+006	0.0396	0.3595	0.3020	2.1600e-003		0.0273	0.0273		0.0273	0.0273	0.0000					393.7132
Total		**0.0396**	**0.3595**	**0.3020**	**2.1600e-003**		**0.0273**	**0.0273**		**0.0273**	**0.0273**	**0.0000**					**393.7132**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	7.33432e+006	0.0396	0.3595	0.3020	2.1600e-003		0.0273	0.0273		0.0273	0.0273	0.0000					393.7132
Total		**0.0396**	**0.3595**	**0.3020**	**2.1600e-003**		**0.0273**	**0.0273**		**0.0273**	**0.0273**	**0.0000**					**393.7132**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	5.01822e+006				1,140.3371
Total					**1,140.3371**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	5.01822e+006				1,140.3371
Total					**1,140.3371**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Non-Residential Interior

GEP Vernon - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Use Low VOC Paint - Non-Residential Exterior

No Hearths Installed

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.3151	7.0000e-005	7.2300e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000					0.0150
Unmitigated	2.3151	7.0000e-005	7.2300e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000					0.0150

GEP Vernon - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2631					0.0000	0.0000		0.0000	0.0000	0.0000					0.0000
Consumer Products	2.0513					0.0000	0.0000		0.0000	0.0000	0.0000					0.0000
Landscaping	6.7000e-004	7.0000e-005	7.2300e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000					0.0150
Total	**2.3151**	**7.0000e-005**	**7.2300e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**					**0.0150**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2631					0.0000	0.0000		0.0000	0.0000	0.0000					0.0000
Consumer Products	2.0513					0.0000	0.0000		0.0000	0.0000	0.0000					0.0000
Landscaping	6.7000e-004	7.0000e-005	7.2300e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000					0.0150
Total	**2.3151**	**7.0000e-005**	**7.2300e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**					**0.0150**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated				4.8600e-003
Unmitigated				4.8600e-003

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	0.0006891 / 0.0007466				4.8600e-003
Total					**4.8600e-003**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	0.0006891 / 0.0007466				4.8600e-003
Total					**4.8600e-003**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated				0.0402
Unmitigated				0.0402

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	0.08				0.0402
Total					**0.0402**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	0.08				0.0402
Total					**0.0402**

9.0 Operational Offroad

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Table AQ4-2a Air Quality Construction Support Data

Project Name: GEP Vernon Data Center

See Equipment Type TAB for type, horsepower and load factor — Non-Phased Construction

Substation (Customer + VPU)	30122	~ sq.ft.	See site plan	
Water Storage Area	0	~ sq.ft.		
Tank Support Bldg Space	0	~ sq.ft.		
Bldg 1 Data Center Space	283,836	~ sq.ft.	3 story design	
Bldg 2 Data Center Space	283,836	~ sq.ft.	3 story design	
Parking lot	0	~ sq.ft.	Ground level	
Parking Lot	88	Spaces per Applicant		
Construction Days and Hours (Monday-Friday)	7:00	am to	5:00	pm

All construction start dates and phase dates are tentative and are the Applicants best estimates.

11.55 Project Site area (acres) or approx. 503,118 sq.ft.

Employees and Operational Year

- Bldg 1/2 = 40 (total all shifts) Ops Yr: 2028 MW req'd: 99
- Construction Schedule: 16 months (avg 22 days/month) (See notes 9 and 10 below)
- Bldg Floor Area (1000 sq.ft.) = 567.67
- Ops Visitors/day: Bldg 1/2 = 30
- Ops site deliveries per day: Bldg 1/2 = 6
- Total OPs round trips/day: Employees = 40, Visitors = 30, Deliveries = 6 (see Ops note 5 below)

Quantity	Phase Descriptions	HP	Load Factor	Use Rates Hours/day (2)	EQ Use Days	Est. Use Hrs/day	Phase Hours	Comments
								Overall Import/Export Volumes
	Site Prep and Grading	**Start Date:**	**10/1/2025**	**Total phase days:**	**58**	**Each**		**No Demolition Phase for this Project**
		End Date:	**12/20/2025**			**Piece**		
2	Scraper	359	0.48	8	30	4.1	248	**Soil Hauling Volume (Site Prep/Grading phase)**
1	Track Loader	210	0.36	8	30	4.1	124	Cut volume = 0 cubic yards?
2	Excavator	138	0.38	8	30	4.1	248	Fill volume = 0 cubic yards?
1	Skid Steer Loader	172	0.36	8	40	5.5	221	Export/Import volume = 0 cubic yards?
1	Gradall	173	0.41	8	40	5.5	221	Cut and Fill will be balanced on site.
1	Paver	148	0.42	8	10	1.4	14	At 20 yd3 per load = 0 haul loads offsite
2	Dual Drum Roller	33.5	0.38	8	10	1.4	28	
1	Water truck	172	0.38	8	55	7.6	417	Applicant supplied data.
11								
	Auger Cast Piles	**Start Date:**	**10/29/2025**	**Total phase days:**	**30**			
		End Date:	**12/9/2025**					
1	Drill Rig	475	0.5	8	30	8.0	240	
1	Linkbelt Crane	215	0.29	8	20	5.3	107	**Soil Hauling (Auger Piles, Foundation, and Utility Phases)**
1	Grout Pump	75	0.74	8	15	4.0	60	Cut volume = 1000 cubic yards?
1	Loader	65	0.36	8	30	8.0	240	Fill volume = 1000 cubic yards?
1	Tele-Handler (Forklift)	110	0.4	8	20	5.3	107	Export/Import volume = 0 cubic yards?
1	Compressor	57	0.48	8	30	8.0	240	Cut and Fill will be balanced on site.
1	Water truck	172	0.38	8	27	7.2	194	Applicant supplied data.(see Project Text)
7								
	Concrete Foundations	**Start Date:**	**12/1/2025**	**Total phase days:**	**36**			
		End Date:	**1/20/2026**					
1	Forklift	100	0.2	8	20	4.4	89	**Cement Trucks? 1000 deliveries or 10000 yd**
2	Backhoe	97	0.37	8	30	6.7	400	(assumes 10 yd3 per load)
1	Front Loader	203	0.36	8	20	4.4	89	Applicant supplied data.
1	Skip Loader	80	0.37	8	20	4.4	89	1000 deliveries over 66 days = 15.15 deliveries per day Use 15.2
2	Concrete Pump	200	0.74	8	36	8.0	576	66 day period is Auger Cast + Foundations
2	Riding Trowels	57	0.42	8	36	8.0	576	
1	Crane	231	0.29	8	15	3.3	50	
2	Light tower	6	0.82	8	30	6.7	400	
1	Water Truck	172	0.38	8	30	6.7	200	
13								
	Utilities	**Start Date:**	**12/10/2025**	**Total phase days:**	**40**			
		End Date:	**2/3/2026**					
1	Dump truck	335	0.38	8	35	7.0	245	See Cut and Fill notes above.
3	Excavator	150	0.38	8	35	7.0	735	
2	Skid Steer Loader	74	0.37	8	30	6.0	360	
1	Front End Loader	166	0.36	8	25	5.0	125	
1	Trencher	75	0.5	8	38	7.6	289	
1	Water Truck	172	0.38	8	36	7.2	259	
9								

	Steel	**Start Date:**	**1/21/2026**	**Total phase days:**	**150**			
		End Date:	**8/18/2026**					
1	Crawler Crane	400	0.29	8	120	6.4	768	Avg 1 steel material delivery per day
1	ForlLift	164	0.2	8	80	4.3	341	
2	Boom Lift	65	0.31	8	140	7.5	2091	
2	300 kva Generator	300	0.74	8	135	7.2	1944	
2	Diesel Welders	50	0.45	8	145	7.7	2243	
1	Water truck	172	0.38	8	30	1.6	48	
9								
	Roof and Skin	**Start Date:**	**8/19/2026**	**Total phase days:**	**30**			
		End Date:	**9/29/2026**					Avg 1 roof/skin materials delivery per day
1	Boom Crane	522	0.29	8	28	7.5	209	
1	Forklift	164	0.2	8	25	6.7	167	
1	Telescopic Handler (RT Forklift)	218	0.4	8	30	8.0	240	
1	Skid Steer Loader	80	0.37	8	20	5.3	107	
4								
	Paving	**Start Date:**	**12/23/2026**	**Total phase days:**	**30**			**Asphalt? __100_ deliveries or _1400_ yd3**
		Start Date:	**2/2/2027**					(assumption: 14 yd3/delivery)
1	Paver	148	0.42	8	28	7.5	209	Applicant supplied data.
2	Dual Drum Roller	34	0.38	8	28	7.5	418	100 deliveries over 30 day period = 3.33 per day Use 3.4/day
3								
	Architectural Coating, Landscaping, etc.	**Start Date:**	**9/16/2026**	**Total phase days:**	**100**			
		End Date:	**2/2/2027**					
4	Boom Lift	84	0.31	8	65	5.2	1352	
1	Gradall	173	0.41	8	10	0.8	8	
1	Excavator	70	0.38	8	25	2.0	50	
1	Skid Steer Loader	172	0.37	8	25	2.0	50	
4	Air Compressors	78	0.48	8	65	5.2	1352	
8								

See equipment HP and Load Factors in "Equipment Types" worksheet tab.

Notes:

1. Equipment types by phase derived from CalEEMod or Applicant supplied data.
2. Equipment run hours per day calculated above based upon data supplied by the Applicant.
3. Watering for fugitive dust control at a minimum of 2 times per day
4. Onsite speed will be limited to <=15 mph
5. Const phase will be serviced by only offsite paved roads
6. Trench construction times per: Southern Regional Water Pipeline Alliance, 3/08.
   Optimum trench construction progress rate is 80m (260ft) per day.
   Non-optimum trench construction progress rate is 30m (100 ft) per day.
   An average progress of 180 ft/day is used where applicable, or the applicant supplied timeframe.
7. Phase start and end months/yrs supplied by the Applicant.
8. CalEEMod defaults not used for worker estimates, etc. Applicant data indicates 100 workers per avg day.
9. 16 months at 22 days/month = 352 anticipated work days
10. Work schedule best estimates above results in 352 work days (accounting for overlaps of schedules).
11. Peak daily work force ~= 150 max month. Avg daily workforce ~= 100 (per Applicant)
12. Cut and fill will be balanced onsite per Applicant (per Project text).

Other Misc Ops Data for CalEEMod Input (Final Buildout Ops)

1. Power needs ~99 MW LADWP Carbon Intensity Factor= 499 lbs CO2/Mwh
2. Reclaimed water use for bldg cooling ~ 0 acre-feet/yr
3. Potable water use for bldg employees =~ 1.2 acre-feet/yr
   CBECS (2012), Table W1, EIA.gov
4. Waste generation rates ~ 1.15 ton/yr/employee ~= 46 tons/yr
5. OPs round trips/day: Employees = 40, Visitors = 30, Deliveries = 6
   Estimated OPs total round trips/day = (40x 1.25)+30+6 = 86
6. Landscaping water use is estimated to be ~1.3 acre-feet/yr.
   Univ. of CA., Division of Agriculture and Natural Resources (Landscape Calculator)
   Construction water use (estimated by Applicant) = 1.75 acre-ft (16 month period)
   https://ucanr.edu/sites/UrbanHort/Water_Use_of_Turfgrass_and_Landscape_Plant_Materials/
7. Ops phase will be serviced by only offsite paved roads
8. ~Total DC floor space = 567,672 sq.ft. or 567.67 x10^3
   86 avg daily round trips
   =~ 0.152 RT/day/1000 sq.ft.

Table AQ4-2b Construction Equipment Data

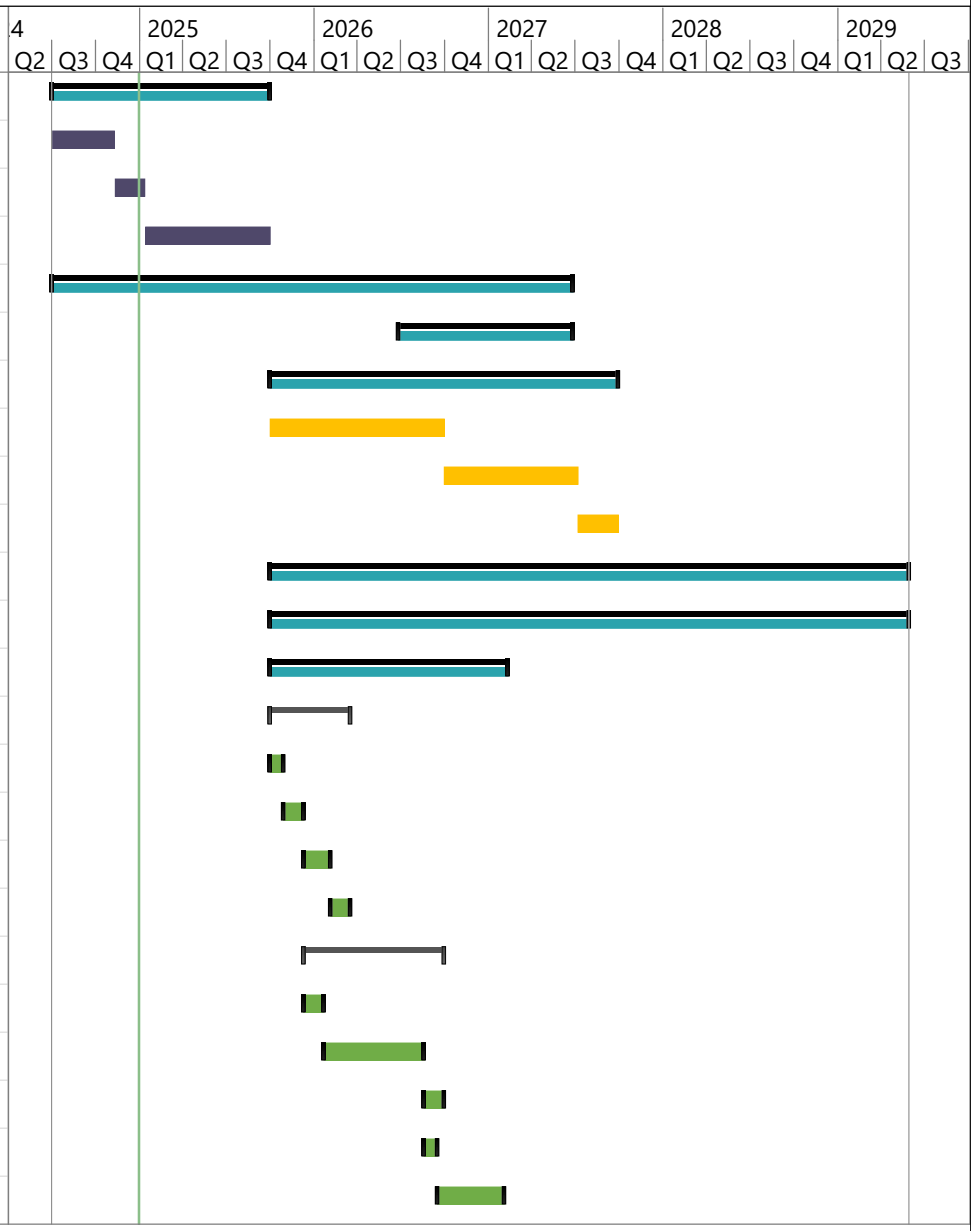
Typical Equipment Type & Load Factors		
OFFROAD Equipment Type	**Horsepower**	**Load Factor**
Aerial Lifts	63	0.31
Air Compressors	78	0.48
Bore/Drill Rigs	221	0.5
Cement and Mortar Mixers	9	0.56
Concrete/Industrial Saws	81	0.73
Cranes	231	0.29
Crawler Tractors	212	0.43
Crushing/Proc. Equipment	85	0.78
Dumpers/Tenders	16	0.38
Excavators	158	0.38
Forklifts	89	0.2
Generator Sets	84	0.74
Graders	187	0.41
Off-Highway Tractors	124	0.44
Off-Highway Trucks	402	0.38
Other Construction Equipment	172	0.42
Other General Industrial Equipment	88	0.34
Other Material Handling Equipment	168	0.4
Pavers	132	0.42
Paving Equipment	130	0.36
Plate Compactors	8	0.43
Pressure Washers	13	0.3
Pumps	84	0.74
Rollers	80	0.38
Rough Terrain Forklifts	100	0.4
Rubber Tired Dozers	247	0.4
Rubber Tired Loaders	203	0.36
Scrapers	367	0.48
Signal Boards	6	0.82
Skid Steer Loaders	65	0.37
Surfacing Equipment	263	0.3
Sweepers/Scrubbers	64	0.46
Tractors/Loaders/Backhoes	97	0.37
Trenchers	78	0.5
Welders	46	0.45

GEP Vernon
Development Schedule

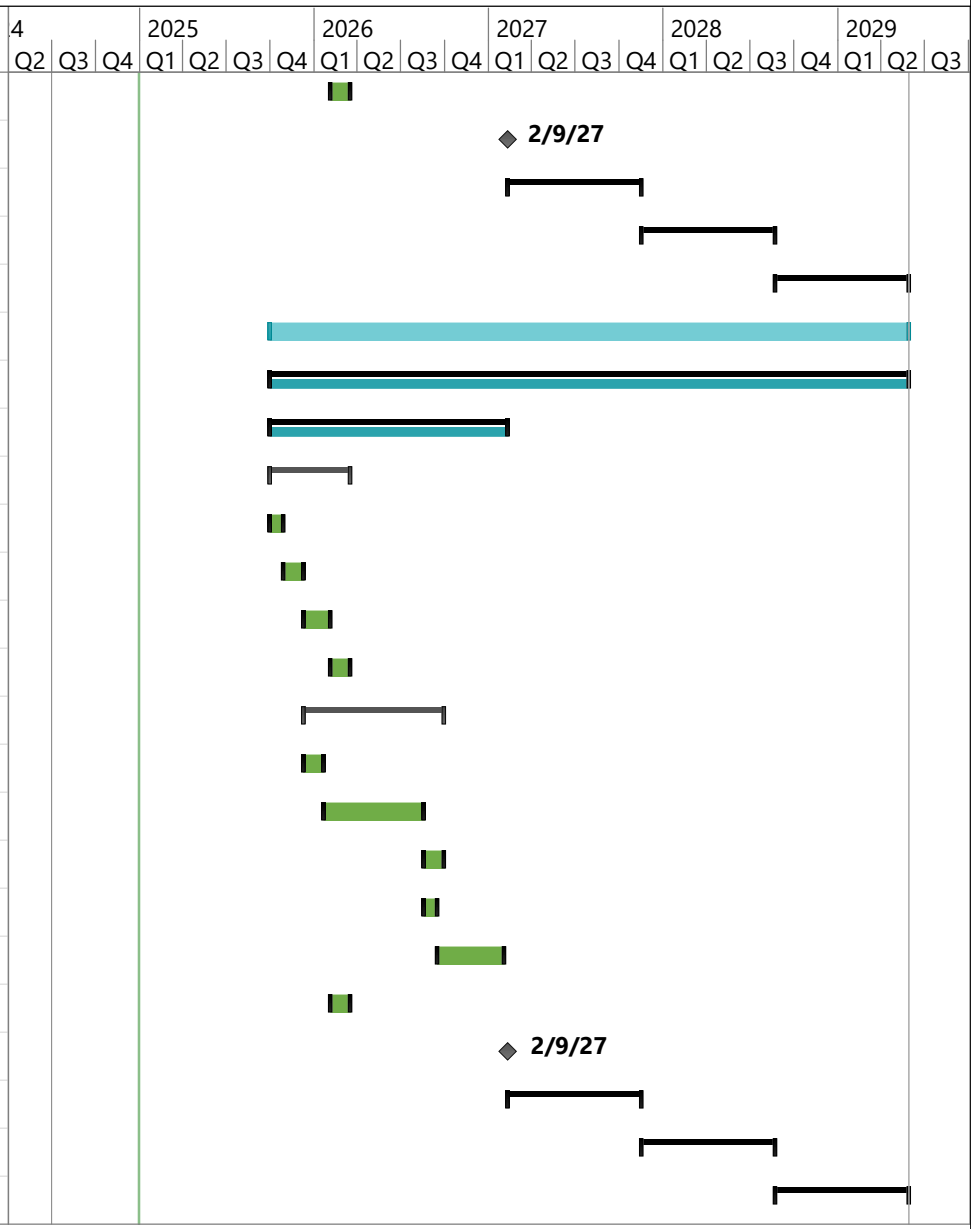
Table AQ4-3

Tue 12/31/24

ID	Task Name	Duration	Start	Finish
1	**SMALL POWER PLANT EXEMPTION**	**65.4 wks**	**Mon 7/1/24**	**Tue 9/30/25**
2	Finalize Site Plan	95 days	Mon 7/1/24	Fri 11/8/24
3	Technical Studies	45 days	Mon 11/11/24	Fri 1/10/25
4	SPPE Review Period	187 days	Mon 1/13/25	Tue 9/30/25
5	**SCE SYSTEMWIDE IMPROVEMENTS**	**156 wks**	**Mon 7/1/24**	**Fri 6/25/27**
8	**VPU OFFSITE IMPROVMENTS**	**52.2 wks**	**Fri 6/26/26**	**Fri 6/25/27**
10	**SUBSTATION**	**104 wks**	**Wed 10/1/25**	**Tue 9/28/27**
11	Long Lead Equipment	260 days	Wed 10/1/25	Tue 9/29/26
12	Installation	200 days	Wed 9/30/26	Tue 7/6/27
13	Commissioning	60 days	Wed 7/7/27	Tue 9/28/27
14	**BUILDING 1**	**191 wks**	**Wed 10/1/25**	**Tue 5/29/29**
15	**Construction**	**191 wks**	**Wed 10/1/25**	**Tue 5/29/29**
16	**Core + Shell & Site**	**355 days**	**Wed 10/1/25**	**Tue 2/9/27**
17	Site Work	120 days	Wed 10/1/25	Tue 3/17/26
18	Rough Grade	20 days	Wed 10/1/25	Tue 10/28/25
19	Deep Foundations	30 days	Wed 10/29/25	Tue 12/9/25
20	Utilities	40 days	Wed 12/10/25	Tue 2/3/26
21	Precise Grade	30 days	Wed 2/4/26	Tue 3/17/26
22	Structure	210 days	Wed 12/10/25	Tue 9/29/26
23	Shallow Foundations	30 days	Wed 12/10/25	Tue 1/20/26
24	Steel Erection	150 days	Wed 1/21/26	Tue 8/18/26
25	Building Exterior	30 days	Wed 8/19/26	Tue 9/29/26
26	Roof	20 days	Wed 8/19/26	Tue 9/15/26
27	Core & Shell Finishes	100 days	Wed 9/16/26	Tue 2/2/27



ID	Task Name	Duration	Start	Finish
28	Paving	30 days	Wed 2/4/26	Tue 3/17/26
29	Core & Shell Substantial Complet	5 days	Wed 2/3/27	Tue 2/9/27
30	**Level 3 Fit Out (12 MW)**	**40 wks**	**Wed 2/10/27**	**Tue 11/16/27**
31	**Level 2 Fit Out (10 MW)**	**40 wks**	**Wed 11/17/27**	**Tue 8/22/28**
32	**Level 1 Fit Out (10 MW)**	**40 wks**	**Wed 8/23/28**	**Tue 5/29/29**
33	BUILDING 2	191 wks	Wed 10/1/25	Tue 5/29/29
34	**Construction**	**191 wks**	**Wed 10/1/25**	**Tue 5/29/29**
35	**Core + Shell & Site**	**355 days**	**Wed 10/1/25**	**Tue 2/9/27**
36	Site Work	120 days	Wed 10/1/25	Tue 3/17/26
37	Rough Grade	20 days	Wed 10/1/25	Tue 10/28/25
38	Deep Foundations	30 days	Wed 10/29/25	Tue 12/9/25
39	Utilities	40 days	Wed 12/10/25	Tue 2/3/26
40	Precise Grade	30 days	Wed 2/4/26	Tue 3/17/26
41	Structure	210 days	Wed 12/10/25	Tue 9/29/26
42	Shallow Foundations	30 days	Wed 12/10/25	Tue 1/20/26
43	Steel Erection	150 days	Wed 1/21/26	Tue 8/18/26
44	Building Exterior	30 days	Wed 8/19/26	Tue 9/29/26
45	Roof	20 days	Wed 8/19/26	Tue 9/15/26
46	Core & Shell Finishes	100 days	Wed 9/16/26	Tue 2/2/27
47	Paving	30 days	Wed 2/4/26	Tue 3/17/26
48	Core & Shell Substantial Completion	5 days	Wed 2/3/27	Tue 2/9/27
49	**Level 3 Fit Out (12 MW)**	**40 wks**	**Wed 2/10/27**	**Tue 11/16/27**
50	**Level 2 Fit Out (10 MW)**	**40 wks**	**Wed 11/17/27**	**Tue 8/22/28**
51	**Level 1 Fit Out (10 MW)**	**40 wks**	**Wed 8/23/28**	**Tue 5/29/29**



Appendix AQ5

Risk Assessment Support Data

Table AQ5-1 Sensitive Receptors and Distances from Site

(all sites and coordinates from Google Earth unless otherwise noted) Image Date: Feb 2024

GEP Vernon Data Center

Receptor ID	UTM Em	UTM Nm	Distance from Site Mid-Point meters	feet	miles
Site (approx. mid-point)	**387542.00**	**3763515.00**	na	na	
Near Residence SW	386981.00	3762291.00	1346.4	4417.4	0.84
Near Residence SE	388868.00	3762312.00	1790.4	5874.0	1.11
Near Residence NNE	388584.00	3764930.00	1757.3	5765.3	1.09
Hospital	390460.00	3764931.00	3243.4	10641.1	2.02
Hospital	390666.00	3765381.00	3638.9	11938.5	2.26
High School	387587.00	3761530.00	1985.5	6514.1	1.23
Middle School	389338.00	3761255.00	2886.7	9470.9	1.79
Elementary School	389209.00	3761703.00	2462.2	8078.0	1.53
Elementary School	388176.00	3765145.00	1749.0	5738.1	1.09
Elementary School	387515.00	3765553.00	2038.2	6686.9	1.27
Academy	384710.00	3764510.00	3001.7	9848.1	1.87
College	384499.00	3764090.00	3096.8	10160.3	1.92
High School	384672.00	3763934.00	2900.4	9515.8	1.80
HeadStart	385017.00	3762165.00	2863.2	9393.8	1.78

There were no identified hospitals, convalescent care facilities, daycare centers, etc., within 1000 ft. of the facility boundary.

This list represents identified sensitive receptors that are located close to the site. It should not be assumed that the PMI, MEIR or MEIW will be a receptor on this list. These important HRA locations will be determined from the modeling grid and HRA output. With respect to the MEIS, this location will most likely be one of the receptors on the above list, since the list contains the identified nearfield sensitive receptors.

Table AQ5-2
Cancer Burden Estimation

Basis:	1 x 10^-6	Extent of area isopleth
Receptor #:	2.25	Isopleth sq.mile area (see Figure AQ5-1)
UTM coors:	N/A	mE
	N/A	mN
Distance, m:	N/A	N/A

Census Tracts Affected	Tract Map ID	Tract Population	Est % of Tract Area Affected	Adjusted Affected Population
9800.16	Note 2	750	15	113
0	0	0	0	0
0	0	0	0	0
			Total	113

Cancer burden estimate: 0.000113

Cancer burden is less than District threshold value of 0.5, and will be reported as <0.5 in all text tables.

(1) Assumes population is equally distributed across the tract area.
(2) Project lies in census tract 9800.16 (06037980016)
Census Tract map ID: DC20CT-C06037
(3) 2020 census data indicates the population density in this tract is < 50 individuals per sq.mi.
(4) Tract area per Google Earth polygon mapping is ~15 sq.mi.
(5) $1x10^{-6}$ isopleth area is ~15% or 2.25 sq.mi.

Figure AQ5-1 Operational Risk Isopleth

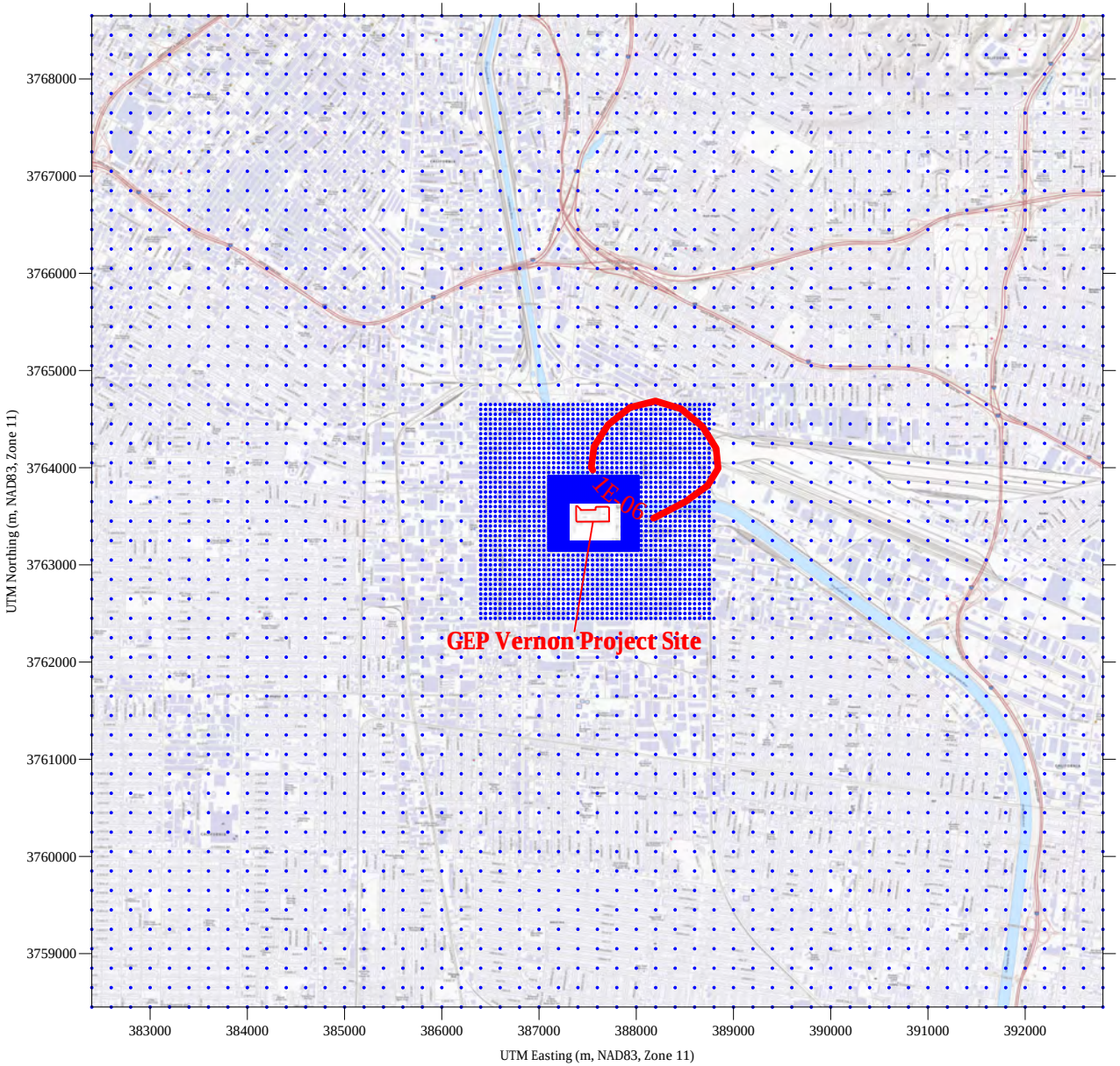
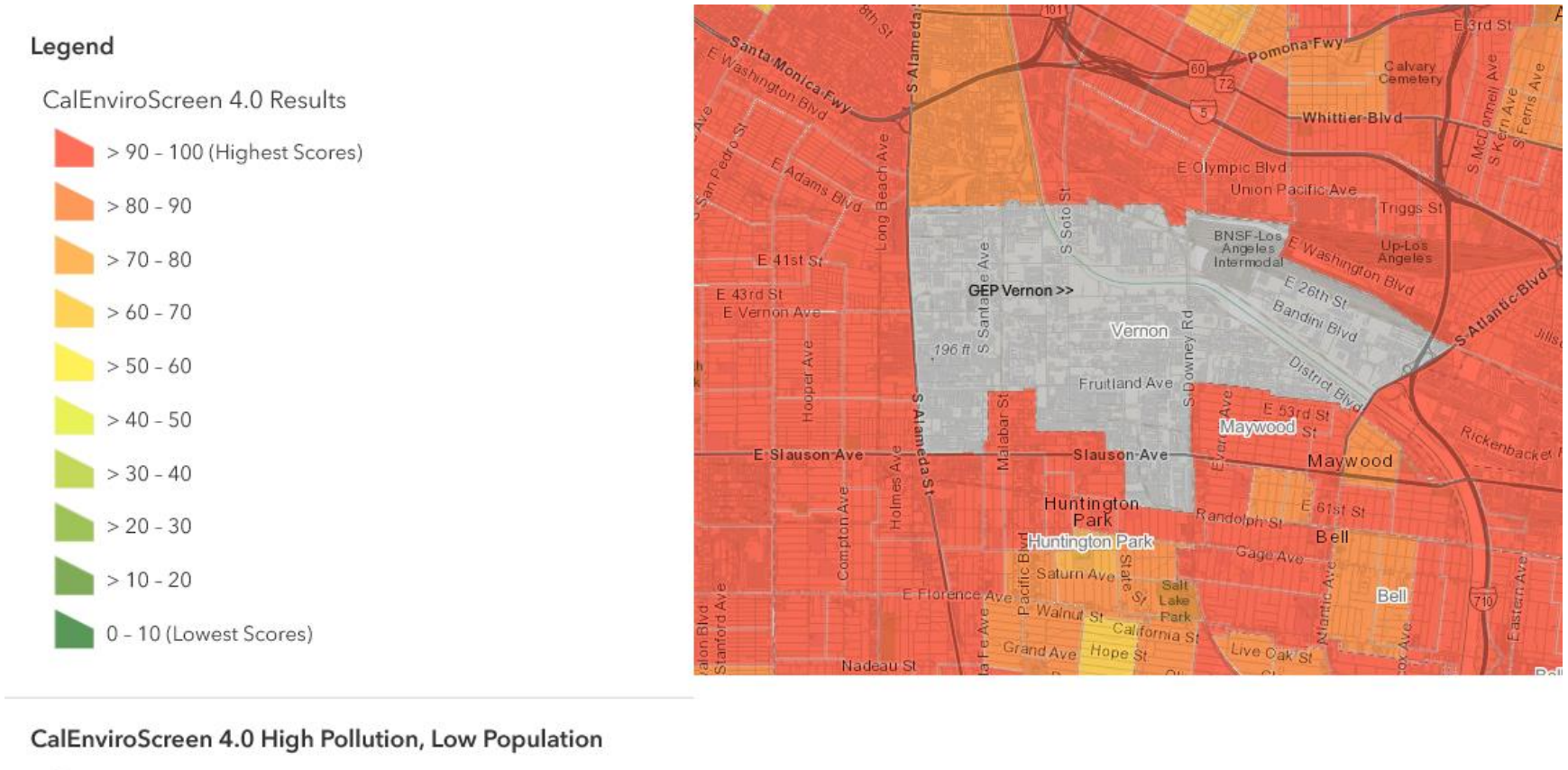


Figure AQ5-2

CalEnviroScreen Map



APPENDIX C

Biological Evaluation Technical Report

APPENDIX D

Cultural Resources Report

Filed Under Request For Confidentiality