Response to "Incomplete App Email for Permit App R13-2334A" (Originally No. R13-3690)

Dated 09/16/2024

ADDITIONAL DATA NEEDS REQUEST FROM DEP:

1. **Missing supporting documentation of the vendor provided emission data for the combustion turbine, duct burner, and emergency generator. This includes information used to determine startup and shutdown emissions from the combustion turbine.**

    a. For the turbine:
        i. Startup/Shutdown events – See "PIL 170" Table 3 based on Titan 130 model
        ii. Normal Operation – See "PIL 168" and "PIL 171". Also see "Ergon Newell 1 x PGM130 - 23001S - Nominal Performance.pdf".
    b. For the Duct Burner – see "69264-2035 Burner Data Sheet R3"
    c. For the Emergency Generator – See "Submittal-Package-Ergon-Black-Start-1250-Diesel-3.20.24" page 54 of 57

2. **Missing the latest version Product Information Letter (PIL) 220 - Control of SOLONox Low Emissions Combustion Systems Operating on Gas Fuel.**

    a. See attached PIL 220

3. **The approach used in Attached N to determine the annual NOx rate for the combustion turbine and duct burner implies that the hourly NOx rate multiplied by the maximum operating schedule possible was used. Please explain how the annual NOx rate for these two emission units were formulated.**

    a. Annual NOx rates were calculated by utilizing the turbine at full output for the year (less down times for maintenance) and the duct burner having limited usage to stay below the 40 TPY limit. Non-NOx pollutants were based directly on max capacity of equipment and 8760 hrs/yr, without limited usage**.**

4. **Missing the historical hydrogen sulfide loading of the RFG data used to develop the sulfur dioxide emissions for the duct burner(s). Further, the DAQ would like you to consider using a different approach in developing/determining the sulfur dioxide potential for the duct burner(s), which is 95% (average + 2 * standard deviation) or a different percentile instead of the average hydrogen sulfide concentration w/ 50% contingency factor.**

    a. In response to the request above, EWVI has updated the SO_2 emission calculations for the duct burner to be based on NSPS Subpart Ja requirements which states: The permittee shall not burn in any fuel gas combustion device any fuel gas that contains H_2S in excess of 162 ppmv determined hourly on a 3-hour rolling average basis and H_2S in excess of 60 ppmv determined daily on a 365 successive calendar day rolling average basis.

The facility's fuel gas is already subject to this requirement (Title V Permit Requirement 4.1.26) and submits quarterly reports to demonstrate compliance. Using the calculation methodology found in PIL 168 (depicted below), the SO_2 emission factor has been updated from to 0.01 lbs/MMBtu.

Emission Factor Calculation (lb SO_2/MMBtu) =
(60 ppm H_2S RFG/106)(1 mol SO_2/1 mol H2S)(64 lb SO_2/mol SO2)(1 mol RFG Gas/379 SCF)(1 SCF RFG Gas/1019 Btu)(106 Btu/MMBtu)
=0.01 lb SO_2/MMBtu of Fuel Gas burned

An updated permit application has been included with this submittal to incorporate the emission factor change. (See "2024-0730 EWVI R13 Application COGEN Report v.1.0b.pdf".) The following pages of the original application were modified:

- Pg 16, Step 1b emissions table (does not change conclusion regarding "Above SER?")
- Pgs 58 and 61, Tables N-1 and N-2C
- Pg 75 TV revision (Attachment S)

5. **Missing the Certificate of Conformity for the emergency generator.**
    a. See "Submittal-Package-Ergon-Black-Start-1250-Diesel-3.20.24"

Questions for the DEP:

1. **Will the combustion turbine utilize the emergency generator to spin up the turbine for every startup or only when local electricity service is unavailable?**
    a. Only when local electricity service is unavailable.
2. **Please provide additional explanation/details or monitoring of additional parameters with the NOx CEMs will be used to determine mass NOx rate from the combustion turbine with duct burners. Specifically, how will the exhaust flow rate be determined?**
    a. Current plans include a velocity probe along with a CEMS to calculate stack flow, as well as a wet 0_2 measurement for converting everything to the same basis.
3. **Which option will you use to demonstrate compliance with the sulfur dioxide limit of Subpart KKKK of 40 CFR 60?**

    Ergon will be requesting the exemption approach (§ 60.4365) as follows:

    1. For the natural gas: The fuel tariff is attached which states on Page 3 of 6 "shall not contain more than two (2) grains of total sulfur per one hundred (100) Cubic Feet."
    2. For the refinery fuel gas: As stated above, the refinery is subject to NSPS Subpart Ja; thus, the H_2S content is measured

continuously in the refinery fuel gas drum. Based on the federal limit of 60 ppm (365 successive calendar day rolling average basis) and the calculated emission factor of 0.01 lb SO2/MMBtu of fuel gas, the turbine does not have the potential sulfur emissions greater than 26 ng SO2/J (0.060 lb SO2/MMBtu) heat input.

Customer	**Z&F Construction Inc**
Job ID	**PG-DC23-73479**
Inquiry Number	
Run By	**Marco Sanchez-Lisboa**
Date Run	**20-Jul-23**

Engine Model	**TITAN 130-23001S Axial GSC STANDARD Without TAI Chilling**
Fuel Type	**SD NATURAL GAS**
Water Injection	**NO**
Engine Emissions Data	**REV. 0.1**

	NOx EMISSIONS	CO EMISSIONS	UHC EMISSIONS
1 — 17868 kW — 100.0% Load — Elev. 755 ft — Rel. Humidity 60.0% — Temperature 0 Deg. F			
PPMvd at 15% O2	9.00	15.00	15.00
ton/yr	27.23	27.63	15.82
lbm/MMBtu (Fuel LHV)	0.036	0.037	0.021
lbm/(MW-hr)	0.34	0.34	0.20
(gas turbine shaft pwr) lbm/hr	6.22	6.31	3.61
2 — 17116 kW — 100.0% Load — Elev. 755 ft — Rel. Humidity 60.0% — Temperature 20.0 Deg. F			
PPMvd at 15% O2	9.00	15.00	15.00
ton/yr	26.20	26.58	15.23
lbm/MMBtu (Fuel LHV)	0.036	0.037	0.021
lbm/(MW-hr)	0.34	0.34	0.20
(gas turbine shaft pwr) lbm/hr	5.98	6.07	3.48
3 — 16338 kW — 100.0% Load — Elev. 755 ft — Rel. Humidity 60.0% — Temperature 40.0 Deg. F			
PPMvd at 15% O2	9.00	15.00	15.00
ton/yr	25.12	25.49	14.60
lbm/MMBtu (Fuel LHV)	0.036	0.037	0.021
lbm/(MW-hr)	0.34	0.34	0.20
(gas turbine shaft pwr) lbm/hr	5.73	5.82	3.33

Notes

1. For short-term emission limits such as lbs/hr., Solar recommends using "worst case" anticipated operating conditions specific to the application and the site conditions. Worst case for one pollutant is not necessarily the same for another.
2. Solar's typical SoLoNOx warranty, for ppm values, is available for greater than 0 deg F or -20 deg F, and between 50% and 100% load for gas fuel, and between 65% and 100% load for liquid fuel (except for the Centaur 40). An emission warranty for non-SoLoNOx equipment is available for greater than 0 deg F or -20 deg F and between 80% and 100% load.
3. Fuel must meet Solar standard fuel specification ES 9-98. Emissions are based on the attached fuel composition, or, San Diego natural gas or equivalent.
4. If needed, Solar can provide Product Information Letters to address turbine operation outside typical warranty ranges, as well as non-warranted emissions of SO2, PM10/2.5, VOC, and formaldehyde.
5. Solar can provide factory testing in San Diego to ensure the actual unit(s) meet the above values within the tolerances quoted. Pricing and schedule impact will be provided upon request.
6. Any emissions warranty is applicable only for steady-state conditions and does not apply during start-up, shut-down, malfunction, or transient event.

Customer **Z&F Construction Inc**	Engine Model **TITAN 130-23001S Axial** **GSC STANDARD**
Job ID **PG-DC23-73479**	
Inquiry Number	Fuel Type: **SD NATURAL GAS** — Water Injection: **NO**
Run By: **Marco Sanchez-Lisboa** — Date Run: **20-Jul-23**	Engine Emissions Data **REV. 0.1**

	NOx EMISSIONS	CO EMISSIONS	UHC EMISSIONS
4 — 15766 kW 100.0% Load — Elev. 755 ft — Rel. Humidity 60.0% — Temperature 55.0 Deg. F			
PPMvd at 15% O2	9.00	15.00	15.00
ton/yr	24.33	24.69	14.14
lbm/MMBtu (Fuel LHV)	0.036	0.036	0.021
lbm/(MW-hr)	0.34	0.35	0.20
(gas turbine shaft pwr) lbm/hr	5.56	5.64	3.23
5 — 14447 kW 100.0% Load — Elev. 755 ft — Rel. Humidity 60.0% — Temperature 80.0 Deg. F			
PPMvd at 15% O2	9.00	15.00	15.00
ton/yr	22.66	22.99	13.17
lbm/MMBtu (Fuel LHV)	0.036	0.036	0.021
lbm/(MW-hr)	0.35	0.35	0.20
(gas turbine shaft pwr) lbm/hr	5.17	5.25	3.01
6 — 13862 kW 100.0% Load — Elev. 755 ft — Rel. Humidity 60.0% — Temperature 90.0 Deg. F			
PPMvd at 15% O2	9.00	15.00	15.00
ton/yr	21.91	22.23	12.73
lbm/MMBtu (Fuel LHV)	0.035	0.036	0.021
lbm/(MW-hr)	0.35	0.35	0.20
(gas turbine shaft pwr) lbm/hr	5.00	5.08	2.91

Notes

1. For short-term emission limits such as lbs/hr., Solar recommends using "worst case" anticipated operating conditions specific to the application and the site conditions. Worst case for one pollutant is not necessarily the same for another.
2. Solar's typical SoLoNOx warranty, for ppm values, is available for greater than 0 deg F or -20 deg F, and between 50% and 100% load for gas fuel, and between 65% and 100% load for liquid fuel (except for the Centaur 40). An emission warranty for non-SoLoNOx equipment is available for greater than 0 deg F or -20 deg F and between 80% and 100% load.
3. Fuel must meet Solar standard fuel specification ES 9-98. Emissions are based on the attached fuel composition, or, San Diego natural gas or equivalent.
4. If needed, Solar can provide Product Information Letters to address turbine operation outside typical warranty ranges, as well as non-warranted emissions of SO2, PM10/2.5, VOC, and formaldehyde.
5. Solar can provide factory testing in San Diego to ensure the actual unit(s) meet the above values within the tolerances quoted. Pricing and schedule impact will be provided upon request.
6. Any emissions warranty is applicable only for steady-state conditions and does not apply during start-up, shut-down, malfunction, or transient event.

Customer		Model
Z&F Construction Inc		**TITAN 130-23001S Axial**
		Package Type **GSC**
Job ID **PG-DC23-73479**		Match **STANDARD**
Run By **Marco Sanchez-Lisboa**	Date Run **20-Jul-23**	Fuel System **GAS**
Engine Performance Code **REV. 4.20.2.27.13**	Engine Performance Data **REV. 1.0**	Fuel Type **SD NATURAL GAS**

DATA FOR NOMINAL PERFORMANCE - Without TAI Chilling

Elevation	**feet**	**755**
Inlet Loss	**in H2O**	**4.0**
Exhaust Loss	**in H2O**	**10.0**

		1	2	3	4	5	6
Engine Inlet Temperature	**deg F**	**0**	**20.0**	**40.0**	**55.0**	**80.0**	**90.0**
Relative Humidity	**%**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**
Gearbox Efficiency		**0.9850**	**0.9850**	**0.9850**	**0.9850**	**0.9850**	**0.9850**
Generator Efficiency		**0.9800**	**0.9800**	**0.9800**	**0.9800**	**0.9800**	**0.9800**
Based On 1.0 Power Factor							
Specified Load*	**kW**	**FULL**	**FULL**	**FULL**	**FULL**	**FULL**	**FULL**
Net Output Power*	**kW**	**17868**	**17116**	**16338**	**15766**	**14447**	**13862**
Fuel Flow	**mmBtu/hr**	**172.00**	**165.67**	**159.14**	**154.55**	**145.06**	**140.99**
Heat Rate*	**Btu/kW-hr**	**9626**	**9679**	**9741**	**9803**	**10041**	**10170**
Therm Eff*	**%**	**35.447**	**35.251**	**35.030**	**34.806**	**33.981**	**33.549**
Engine Exhaust Flow	**lbm/hr**	**459303**	**450498**	**439825**	**432088**	**410134**	**399116**
PT Exit Temperature	**deg F**	**904**	**908**	**914**	**920**	**940**	**950**
Exhaust Temperature	**deg F**	**904**	**908**	**914**	**920**	**940**	**950**

Fuel Gas Composition (Volume Percent)

Methane (CH4)	**92.79**
Ethane (C2H6)	**4.16**
Propane (C3H8)	**0.84**
N-Butane (C4H10)	**0.18**
N-Pentane (C5H12)	**0.04**
Hexane (C6H14)	**0.04**
Carbon Dioxide (CO2)	**0.44**
Hydrogen Sulfide (H2S)	**0.0001**
Nitrogen (N2)	**1.51**

Fuel Gas Properties

LHV (Btu/Scf)	**939.2**	**Specific Gravity**	**0.5970**	**Wobbe Index at 60F**	**1215.6**

**Electric power measured at the generator terminals.*

This performance was calculated with a basic inlet and exhaust system. Special equipment such as low noise silencers, special filters, heat recovery systems or cooling devices will affect engine performance. Performance shown is "Expected" performance at the pressure drops stated, not guaranteed.

Customer **Z&F Construction Inc**	Engine Model **TITAN 130-23001S Axial** **GSC STANDARD** **TAI Chilling ON**
Job ID **PG-DC23-73479**	
Inquiry Number	Fuel Type: **SD NATURAL GAS** — Water Injection: **NO**
Run By: **Marco Sanchez-Lisboa** — Date Run: **20-Jul-23**	Engine Emissions Data **REV. 0.1**

	NOx EMISSIONS	CO EMISSIONS	UHC EMISSIONS
1 — **15703 kW 100.0% Load — Elev. 755 ft — Rel. Humidity 60.0% — Temperature 55.0 Deg. F**			
PPMvd at 15% O2	**9.00**	**15.00**	**15.00**
ton/yr	**24.27**	**24.63**	**14.11**
lbm/MMBtu (Fuel LHV)	**0.036**	**0.036**	**0.021**
lbm/(MW-hr)	**0.34**	**0.35**	**0.20**
(gas turbine shaft pwr) lbm/hr	**5.54**	**5.62**	**3.22**
2 — **15703 kW 100.0% Load — Elev. 755 ft — Rel. Humidity 60.0% — Temperature 55.0 Deg. F**			
PPMvd at 15% O2	**9.00**	**15.00**	**15.00**
ton/yr	**24.27**	**24.63**	**14.11**
lbm/MMBtu (Fuel LHV)	**0.036**	**0.036**	**0.021**
lbm/(MW-hr)	**0.34**	**0.35**	**0.20**
(gas turbine shaft pwr) lbm/hr	**5.54**	**5.62**	**3.22**

Notes

1. For short-term emission limits such as lbs/hr., Solar recommends using "worst case" anticipated operating conditions specific to the application and the site conditions. Worst case for one pollutant is not necessarily the same for another.
2. Solar's typical SoLoNOx warranty, for ppm values, is available for greater than 0 deg F or -20 deg F, and between 50% and 100% load for gas fuel, and between 65% and 100% load for liquid fuel (except for the Centaur 40). An emission warranty for non-SoLoNOx equipment is available for greater than 0 deg F or -20 deg F and between 80% and 100% load.
3. Fuel must meet Solar standard fuel specification ES 9-98. Emissions are based on the attached fuel composition, or, San Diego natural gas or equivalent.
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6. Any emissions warranty is applicable only for steady-state conditions and does not apply during start-up, shut-down, malfunction, or transient event.

Customer		Model
Z&F Construction Inc		**TITAN 130-23001S Axial**
		Package Type **GSC**
Job ID **PG-DC23-73479**		Match **STANDARD**
Run By **Marco Sanchez-Lisboa**	Date Run **20-Jul-23**	Fuel System **GAS**
Engine Performance Code **REV. 4.20.2.27.13**	Engine Performance Data **REV. 1.0**	Fuel Type **SD NATURAL GAS**

DATA FOR NOMINAL PERFORMANCE - TAI Chilling ON

Elevation	**feet**	**755**	
Inlet Loss	**in H2O**	**5.0**	
Exhaust Loss	**in H2O**	**10.0**	
Ambient Air Temperature	deg F	**80F**	**90F**
Engine Inlet Temperature	**deg F**	**55.0**	**55.0**
Relative Humidity	**%**	**60.0**	**60.0**
Gearbox Efficiency		**0.9850**	**0.9850**
Generator Efficiency		**0.9800**	**0.9800**
Based On 1.0 Power Factor			
Specified Load*	**kW**	**FULL**	**FULL**
Net Output Power*	**kW**	**15703**	**15703**
Fuel Flow	**mmBtu/hr**	**154.17**	**154.17**
Heat Rate*	**Btu/kW-hr**	**9818**	**9818**
Therm Eff*	**%**	**34.754**	**34.754**
Engine Exhaust Flow	**lbm/hr**	**430987**	**430987**
PT Exit Temperature	**deg F**	**921**	**921**
Exhaust Temperature	**deg F**	**921**	**921**

Fuel Gas Composition (Volume Percent)

Methane (CH4)	**92.79**
Ethane (C2H6)	**4.16**
Propane (C3H8)	**0.84**
N-Butane (C4H10)	**0.18**
N-Pentane (C5H12)	**0.04**
Hexane (C6H14)	**0.04**
Carbon Dioxide (CO2)	**0.44**
Hydrogen Sulfide (H2S)	**0.0001**
Nitrogen (N2)	**1.51**

Fuel Gas Properties

LHV (Btu/Scf)	**939.2**	**Specific Gravity**	**0.5970**	**Wobbe Index at 60F**	**1215.6**

**Electric power measured at the generator terminals.*

This performance was calculated with a basic inlet and exhaust system. Special equipment such as low noise silencers, special filters, heat recovery systems or cooling devices will affect engine performance. Performance shown is "Expected" performance at the pressure drops stated, not guaranteed.

ZEECO, INC
22151 East 91st Street
Broken Arrow, Oklahoma 74014
+1-918-258-8551

Zeeco Document No.: **69264-2035**

Total Pages: **3**

ZEECO DUCT BURNER DATA SHEETS

DUCT BURNER PACKAGE FOR
CLIENT
SUPERIOR BOILER
FOR
ERGON

ZEECO SALES ORDER NUMBER: **69264**
CLIENT PURCHASE ORDER NUMBER: **2002236**
CLIENT WORK ORDER NUMBER: **44784**

REV	BY	CHECKED	APPROVED	DATE	DESCRIPTION
0	JMC	DEI	JMC	9-Apr-24	ISSUED FOR APPROVAL
1	JMC	DEI	JMC	15-Apr-24	Updated Operating Case Details & Fuel Gas Data
2	JMC	DEI	JMC	22-Jul-24	Updated per Customer Comments
3	JMC	DEI	JMC	2-Aug-24	Corrected Emmissions Data

DUCT BURNER DATA SHEET

2151 East 91st Street
roken Arrow
klahoma 74014 USA
hone: (918) 258-8551

PURCHASER ORDER: **2002236**		DOCUMENT NO.:
SALES ORDER: **69264**		**69264-2035**
REVISION:	DATE:	SHEET
3	**2-Aug-24**	**1 of 2**

PURCHASER: **SUPERIOR BOILER** NUMBER OF UNITS: **1**

OWNER: **ERGON** LOCATION: **NEWELL, WV**

GENERAL INFORMATION

		REV
CUSTOMER NAME:	SUPERIOR BOILER	0
ADDRESS:	714 COREY ROAD	0
	HUTCHINSON, KS 67501	0
PURCHASE ORDER NUMBER:	PO# 2002236	0
		0
OWNER NAME:	ERGON	0
LOCATION JOBSITE:	NEWELL, WV	0
APPLICATION:	HRSG DUCT BURNER, FUEL METERING SPOOL, FUEL GAS CONTROL SKID, COOLING AIR SKID AND HEADERS	0

GENERAL DATA

		REV
SYSTEM OEM	SUPERIOR BOILER	0
QUANTITY OF DUCT BURNER ELEMENTS PER UNIT	FOUR (4) BURNERS	0
DUCT DIMENSIONS, Clear Inside; WIDTH / HEIGHT	9'-8" WIDE BY 7'-11' TALL	0
DUCT DIMENSIONS, Inside Steel; WIDTH / HEIGHT / DEPTH	10'-8" WIDE BY 8'-11" TALL (CONFIRMED)	2
INSULATION TYPE	6.0" THICK, INSULATION, TYPE 310 SS LINER	0
BURNER FIRING ORIENTATION	HORIZONTAL	0
PLANT ELEVATION	750' ABOVE MEAN SEA LEVEL	0
MIN / MAX AMBIENT AIR TEMPERATURES	-10° F MINIMUM, 100° F MAXIMUM (FOR OUTDOOR INSTALLATION)	2
BURNER MODEL	ZEECO NATURAL GAS DUCT BURNER	0
FLAME SCANNERS	ZEECO ZPF-120	0
QUANTITY OF FLAME SCANNERS	ONE (1) PER BURNER ELEMENT PER UNIT, FOR A TOTAL OF FOUR (4) PER UNIT	0
QUANTITY OF SIGHT PORTS	ONE (1) PER ELEMENT PER UNIT, FOR A TOTAL OF FOUR (4) PER UNIT -- ZEECO CA-297	0
ELECTRICAL CLASSIFICATION: DUCT BURNER FRONT:	OUTDOORS -- CLASS 1, DIV 2, GR D	2
Fuel Skid Assembly:	CLASS 1, DIV 2, GR D	0
Burner Management System (BMS):	NOT BY ZEECO	0
Cooling Air Blower Assembly:	CLASS 1, DIV 2, GR D (TO BE INSTALLED IN NON-HAZARDOUS AREA)	3
HIGH ENERGY IGNITER	ZEECO -- 7J -- 24vDC -- Powered by 120VAC	0
	DB-EIP-EXTERNAL IGNITION PILOT	0
BURNER MANAGEMENT SYSTEM	BY OTHERS, NOT ZEECO	0
ELECTRICAL SUPPLY	480VAC 3PH 60HZ	0
CONTROL POWER	120VAC	
INSTRUMENT AIR PRESSURE AVAILABLE	80 TO 105 PSIG AVAILABLE	0

BURNER OPERATING DATA

OPERATING CASE		GT 75% - 60 F	GT 100% - 60 F	GT 50% - 60 F		REV
EXHAUST GAS MASS FLOW	LB/HR	356,180	426,170	276,638		1
EXHAUST GAS INLET TEMPERATURE	DEGREES °F	943	930	1,038		1
						0
EXHAUST GAS INLET COMPOSITION, VOLUME %	OXYGEN (O2)	14.48%	14.29%	14.20%		1
	NITROGEN (N2)	75.09%	75.02%	74.98%		1
	CARBON DIOXIDE (CO2)	2.91%	3.00%	3.05%		1
	WATER VAPOR (H2O)	6.62%	6.79%	6.87%		1
	ARGON (Ar)	0.90%	0.90%	0.90%		1
	TOTAL:	100.00%	100.00%	100.00%		1
DUCT PRESSURE (DESIGN)	Inch H2O	10.00	10.00	10.00		1
DUCT BURNER FIRING RATE	MMBTU/HR (NET LHV)	70.00	70.00	48.00		1
	MILLION BTU/HR [GROSS HHV]	77.48	77.48	53.13		1

DUCT BURNER DATA SHEET

2151 East 91st Street
Broken Arrow
Oklahoma 74014 USA
Phone: (918) 258-8551

PURCHASER ORDER: **2002236**		DOCUMENT NO.:
SALES ORDER: **69264**		**69264-2035**
REVISION:	DATE:	SHEET
3	**2-Aug-24**	**2 of 2**

EMISSION REQUIREMENTS (100% MCR) - (50-100% TURBINE LOAD)

OPERATING CASE		GT 75% - 60 F	GT 100% - 60 F	GT 50% - 60 F		REV
DUCT BURNER EMISSIONS RATES, LB PER MILLION BTU (HHV)	(NG / FGMax /FGMin) NOx	0.083 / 0.092 / 0.089	0.080 / 0.092 / 0.083	0.096 / 0.092 / 0.092		3
DUCT BURNER EMISSIONS RATES, LB PER MILLION BTU (HHV)	(NG / FGMax /FGMin) CO	0.059 / 0.054 / 0.054	0.066 / 0.060 / 0.060	0.059 / 0.054 / 0.055		3
DUCT BURNER EMISSIONS RATES, LB PER MILLION BTU (HHV)	(NG / FGMax /FGMin) VOC	0.001 / 0.001 / 0.001	0.001 / 0.001 / 0.001	0.001 / 0.001 / 0.001		3
DUCT BURNER EMISSIONS RATES, LB PER MILLION BTU (HHV)	(NG / FGMax /FGMin) PM-10	0.004 / 0.004 / 0.004	0.004 / 0.004 / 0.004	0.004 / 0.003 / 0.003		3

FUEL GAS CHARACTERISTICS (NOTE 26)

FUEL GAS DESIGNATION		NATURAL GAS	(80% NG/20% FG MAX)	(80% NG/20% FG MIN)		REV
HEATING VALUE, BY VOLUME	BTU/SCF [LHV]	941	929	990		1
HEATING VALUE, BY VOLUME	BTU/SCF [HHV]	1,043	1,030	1,096		1
SPECIFIC GRAVITY [AIR = 1.0]		0.60	0.58	0.62		1
FUEL TEMPERATURE at BURNER	DEGREES °F	60	100	100		1
FUEL PRESSURE AVAILABLE @ HEADER INLET	PSIG	20	20	20		1
REGULATED BY ZEECO		NOTE 24	NOTE 25	NOTE 25		1

FUEL GAS & AIR PARAMETERS -- FLOW -- PRESSURE -- REGULATING RESPONSIBILITY

						REV
MAIN FUEL GAS (LHV)-- NATURAL GAS -MODULATED BY OTHERS	(SCFH)	74,054		PSIG	20	0
MAIN FUEL GAS (LHV)-- NATURAL GAS - FLOW @ EACH BURNER	(SCFH)	18,514		PSIG	20 at burner	0
IGNITER FUEL GAS (LHV) - NATURAL GAS - REGULATED BY ZEECO @ IGNITORS (NOTE: 23)	FLOW	SCFH	712	PSIG	10	0
INSTRUMENT AIR FOR IGNITORS --REGULATED BY ZEECO @ IGNITORS (NOTE: 15)	FLOW	SCFH	6,436	PSIG	10	0

NOTES & CLARIFICATIONS

		REV
1	BMS (not supplied by Zeeco)	0
2	Class III (DB-EIP-EXTERNAL IGNITION) Pilot required, Supplied By ZEECO.	0
3	HIGH ENERGY IGNITION Spark Generation required, Supplied By ZEECO.	0
4	IGN junction boxes (NEMA 7 UNISPARK) to be Loose, Mounted To Burner Front By Others (Not - Zeeco), To be wired by installation contractor- Not Zeeco. Cables from IGN junction box to igniter are supplied by Zeeco - Installed in Field By Installation Contractor, . Wiring from Ignition junction box to BMS/DCS is supplied and installed by installation contractor.	0
5	Burner front junction Box (NEMA 4) to be shipped Mounted To Burner Front By Others (Not-Zeeco, Wiring for Burner Front junction boxes To Devices & DCS/BMS supplied and installed by installation contractor. NOTE: Zeeco will provide terminal block with all Zeeco supplied devices wired to it. Mechanical Contractor will wite from terminal block to DCS.	2
6	Scanners (one per element) are shipped loose to be installed, wired, by installation contractor.	0
7	Scanner cables (one per scanner) from scanner device to burner front junction box, cable supplied by Zeeco and shipped loose. Wiring from scanner to burner front junction box installed by installation contractor.	0
8	Zeeco to supply Four (4) burner elements made from 4" schedule 40 ERW 304L SS pipe using 10 gauge 310 SS Stabilizers. (7 Stabilizers per Element)	0
9	Pressure reducing and flow metering spool to be shipped loose for installation by the installation contractor in upstream customer piping.	0
10	Fuel Control Skid will provide control valves and piping for main gas, igniter gas, and instrument air wired to local control panel. Skid will be fully assembled and shipped for installation by installation contractor.	0
11	Cooling Air Blower Skid with galvanized steel frame, wired to Local Junction Box for (instruments only) to be shipped in as complete an assembly as possible.	2
12	Zeeco supplied stainless steel shall remain unpainted.	0
13	IGN junction box to be NEMA 7 (UNISPARK)	0
14	Full penetration welds will be tested via RT, not UT.	0
15	The ignitor flow rates are only during the 15 second trial for ignition period, they are not a constant flow rate durring normal burner operation. (5 seconds for igniter start, 10 seconds for burner ignition)	0
16	Vent piping from fuel skid vent valves to be supplied, routed, and installed by installation contractor. Vent to safe area(s).	0
17	Zeeco carbon steel piping will be painted in accordance to paint notes on drawing 69264-G013A-500.	0
18	Zeeco supplied stainless steel piping shall remain unpainted.	0
19	External vertical piping (distribution headers to the duct burners) are supplied by Zeeco, shipped loose, installed and wired by installation contractor at the project site.	0
20	Gaskets, stud bolting, washers, and nuts (For Zeeco Scope of Supply Connections) are supplied by Zeeco, shipped loose in bulk, but installed by installation contractor at the project site.	0
21	Flexible hose connections (igniter gas 1/2", igniter air 3/4", cooling air 3/4") are supplied by Zeeco as shipped loose but installed by installation contractor at the project site.	0
22	Interconnecting piping from the Zeeco fuel skid to the duct burner external vertical piping is provided By Others, and installed by installation contractor - Not Zeeco.	0
23	Igniter maximum heat release is 178,000 BTU/hr (each) based on 1,000 BTU/SCFH only during the 15 second trial for ignition period.	0
24	Fuel characteristincs for Natural Gas taken from Solar Turbine data sheet supplied during quote phase.	1
25	Fuel characteristics for mixed gas (80% natural gas, 20% blended fuel gas) were derived from values provided by Z&F Engineers.	1
26	Fuel gas for igniter must be 100% natural gas only.	1
27		
28		

Modern Power Systems
2501 Durham Road,
Bristol, PA 19007
Sales: ☎ 1-800-404-7258
Service & Rentals: ☎ 1-800-404-7291
💻 moderngroup.com/power

Submittal Package

Project Name: ERGON BLACK START 1250 DIESEL

Date: 3.20.24

Contractor: Ergon

Project Manager: Matthew Greenough

Email: matt.greenough@ergon.com

Phone: 228-990-3394

Sales Rep: Rick DiIoia

Email: diioiar@moderngroup.com

Phone: 215-347-4982

Job #: 331349

Please send any correspondence to the Sales Rep listed above.

Date: March 12, 2024, with updated testing request

To: ZF Consulting

Quote # 20840585

Attn: Andrew Ellender

Reference: Generac SD1250 Black Start Generator Set for Cogen

We are pleased to offer the following quote for the above project:

Quantity 1 - Generac Industrial diesel engine-driven generator set with turbocharged/aftercooled 12-cylinder 49.0L engine, consisting of the following features and accessories:

- **1250kW Rating, wired for 277/480VAC three phase, 60 Hz**
- Stationary Emergency-Standby rated
- Upsized Alternator
- Permanent Magnet Excitation
- UL2200
- EPA Certified
- **Standard Weather Protective Enclosure, Steel**
  - **Industrial Grey Baked-On Powder Coat Finish**
  - **Installed 100 AMP Load Center – 20 Positon – 1PH- 2 Position DC Lights, 1 duplex 120V GFCI and (2) 3 way stiches**
  - **Supply and installation of 5000 Watt 240V Space Heater inside of the enclosure**
- Spring Vibration Isolators, Seismic
- **1205 Usable Gallon Double-Wall UL142 Basetank**
- **InteliGen NT Control Panel**
  - Meets NFPA 99 and 110 requirements
  - Temp Range -30 to 70 degrees C
  - Digital Microprocessor
  - Graphic 128 X 64 LCD display
  - LED status info display
  - Password protected settings
  - Alarm and Event log
  - Integrated PLC programmable functions
  - Synchronising and paralleling control (optional)
  - Ground Fault Indication/protection
  - Engine and alternator protection features
  - Real time clock with battery backup
  - RS-232 / RS-485, MOD Bus, CAN interfaces
  - Multiple language capability
- **Primary Circuit Breaker, 100% Rated LSI Electronic Trip**
  - **2000 Amp**
  - **LSIG Trip**
  - **Alarm Contacts, Shunt Trip**

    - **Auxiliary Contacts, 2 Sets**
- **Arc Flash Energy Reduction**
- **Secondary Circuit Breaker, 100% Rated LSI Electronic Trip**
    - **250 Amp**
    - Alarm Contacts, Shunt Trip
    - Auxiliary Contacts, 1 Set
- 8-Function Alarm Relay Panel
- 1400 CCA Group 8D Batteries, with rack, installed
- Battery Warmer Pads, 120V
- Battery Charger, 20 Amp, NFPA 110 compliant, installed
- Coolant Heaters, forced-circulation
    - (1) 9000W 480VAC three-phase heater in engine jacket water circuit
    - (1) 9000W 480VAC three-phase heater in aftercooler circuit
- Air Filter Restriction Indicator
- 90% Alarm High Fuel Program
- Remote Emergency Stop Switch, Surface Mount
- Engine Drain Kit
- Low Coolant Level Indicator
- Engine Run Relay, 10A
- Relay Shunt Trip
- Silencer, Critical Grade, External
- 3 Owner's Manuals
- 5-Year Comprehensive Warranty 5C 5 YR P/L/T
- SD1250KG02490D18APYY2

- **Start Up, 4 Hr NFPA Load Bank Testing with Transient Stabiliy Recording at 50% and 100% Load Levels**
- Delivery via Common Carrier - Offloading by Others

FREIGHT IS BASED ON CURRENT MARKET RATE AND IS SUBJECT TO CHANGE.

Notes

1. This quotation is based on information provided by the client. No plans or specs were available.
2. Current Estimated Lead Time: 54-60 weeks ARO - (subject to change based on lead time upon release from engineering approval) - LTL Transit time not included and subject to driver and truck availability.
3. Prices valid for 30 days from above date
4. FOB: Factory
5. Exclusions: Engineering, Installation, Permits, Infrared Scanning, NETA Testing, Offloading, Fuel Oil and addition of such, Additional Fuel Piping, LUGS for contractor connections if different from factory standard issued & Exhaust Piping.

CANCELLATION POLICY

For Orders ≤ $100,000 in Total Price:	
20 weeks prior to ship date	10% of Selling Price
18 weeks prior to ship date	20% of Selling Price
16 weeks prior to ship date	30% of Selling Price
15 weeks prior to the ship date or less	40% of Selling Price
Discontinued Product (Engine)	No Cancellations Accepted
Non-Standard Tanks	
Special Engineering (Upon Generac SEQ Approval)	Incremental 10% of Selling Price
For Orders > $100,000 in Total Price:	
20 Weeks Prior to Ship Date	10% of Selling Price
18 Weeks Prior to Ship Date	15% of Selling Price
16 Weeks Prior to Ship Date	20% of Selling Price
14 Weeks Prior to Ship Date	30% of Selling Price
13 Weeks Prior to Ship Date	40% of Selling Price
12 Weeks Prior to Ship Date	50% of Selling Price
10 weeks prior to the ship date or less	60% of Selling Price
Discontinued Product (Engine)	No Cancellations Accepted
Special Engineering (Upon Generac SEQ Approval)	10% of Selling Price

Cancellation For PSTS Transfer Switch Orders:	
PSTS Products ≤ 1000 Amps:	
> 18 Weeks Prior to Ship Date	0% of Selling Price
14-18 Weeks Prior to Ship Date	25% of Selling Price
Less than 14 Weeks Prior to Ship Date	100% of Selling Price
PSTS Products > 1000 Amps:	
> 13 Weeks Prior to Ship Date.	0% of Selling Price
12-13 Weeks Prior to Ship Date	25% of Selling Price
Less than 12 Weeks Prior to Ship Date	100% of Selling Price
Residential Products:	
Cancellation of stock item products is permitted provided the cancellation request is executed by Generac sales and order entry prior to shipment. Cancellations are subject to the following fees:	
2 – 4 Weeks Prior to Ship Date	2% of Selling Price
1 Day – 2 Weeks Prior to Ship Date	5% of Selling Price

Acknowledgement of Cancellation Policy

Name _____ **Date** _____

Signature _____

Table of Contents

Engineering Submittal Package

Black Start Generator Set for Cogen

Table of Contents

SD1250 | 49.0L | 1,250 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

Standby Power Rating
1,250 kW, 1,563 kVA, 60 Hz

Prime Power Rating*
1,125 kW, 1,406 kVA, 60 Hz

USA ENGINEERED & BUILT*
*Assembled in the USA using domestic and foreign parts

*EPA Certified Prime ratings are not available in the US or its Territories

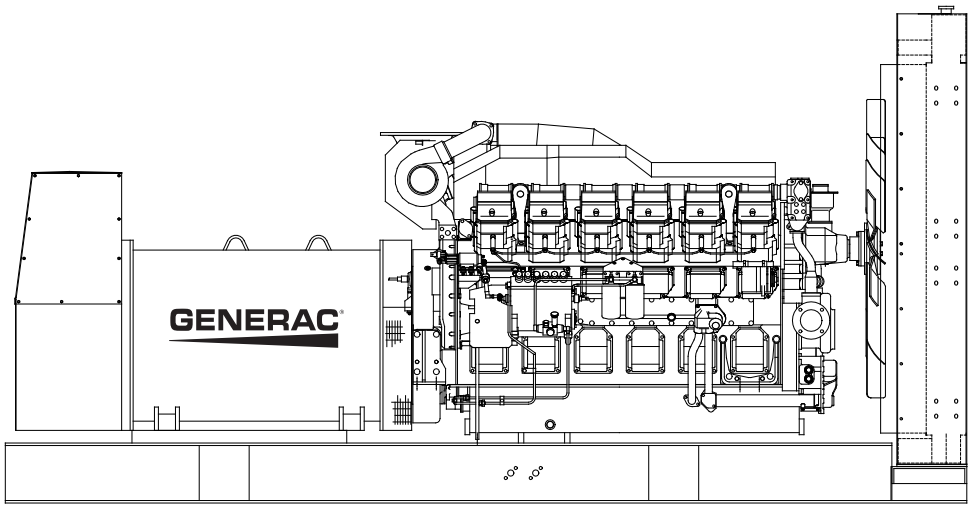


Image used for illustration purposes only

Codes and Standards

Not all codes and standards apply to all configurations. Contact factory for details.

UL2200, UL6200, UL1236, UL489, UL142

CSA C22.2

BS5514 and DIN 6271

SAE J1349

NFPA 37, 70, 99, 110

NEC700, 701, 702, 708

NEMA ICS10, MG1, 250, ICS6, AB1

ANSI C62.41

IBC 2009, IBC 2012, ASCE 7-05, ASCE 7-10, ICC-ES AC-156 (2012)

Powering Ahead

For over 60 years, Generac has provided innovative design and superior manufacturing.

Generac ensures superior quality by designing and manufacturing most of its generator components, including alternators, enclosures and base tanks, control systems and communications software.

Generac gensets utilize a wide variety of options, configurations and arrangements, allowing us to meet the standby power needs of practically every application.

Generac searched globally to ensure the most reliable engines power our generators. We choose only engines that have already been proven in heavy-duty industrial applications under adverse conditions.

Generac is committed to ensuring our customers' service support continues after their generator purchase.

SD1250 | 49.0L | 1,250 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

STANDARD FEATURES

ENGINE SYSTEM

- Oil Drain Extension
- Air Cleaner
- Fan Guard
- Stainless Steel Flexible Exhaust Connection
- Factory Filled Oil and Coolant
- Radiator Duct Adapter (Open Set Only)
- Engine Coolant Heater
- Critical Grade Silencer (Enclosed Units Only)

Fuel System

- Flexible Fuel Lines (When Tank is Selected)
- Primary Fuel Filter

Cooling System

- Closed Coolant Recovery System
- UV/Ozone Resistant Hoses
- Factory-Installed Radiator
- Radiator Drain Extension
- 50/50 Ethylene Glycol Antifreeze

Electrical System

- Battery Charging Alternator
- Battery Cables
- Battery Tray
- Rubber-Booted Engine Electrical Connections
- Solenoid Activated Starter Motor

ALTERNATOR SYSTEM

- Class H Insulation Material
- 2/3 Pitch
- Skewed Stator
- Permanent Magnet Excitation
- Sealed Bearing
- Full Load Capacity Alternator

GENERATOR SET

- Separation of Circuits - High/Low Voltage
- Separation of Circuits - Dual Breakers
- Standard Factory Testing
- 2 Year Limited Warranty (Standby Rated Units)
- 1 Year Limited Warranty (Prime Rated Units)

ENCLOSURE (If Selected)

- Structural Steel Sub-Base
- Sub-Base Lifting Eyes
- Enamel Finish
- Zinc Plated Fasteners
- Zinc Plated Cast Aluminum Keylock Door Handles
- Heavy Duty Stainless Steel Hinges with Removable Brass Pins
- Modular Construction

FUEL TANKS (If Selected)

- UL 142
- Double Wall
- Vents
- Factory Pressure Tested (2 psi)
- Rupture Basin Alarm
- Fuel Level
- Check Valve in Supply and Return Lines
- Stainless Steel Hardware
- Fuel Line Hose
- Fuel Line Hose and Separator
- Electronic Fuel Level
- Secondary Fuel Filter

CONTROL SYSTEM

InteliGen NT Display

Program Functions

- Programmable Crank Limiter
- 7-Day Programmable Exerciser
- Special Applications Programmable Logic Controller
- RS-232/485 Communications
- 2-Wire Start Capability
- Date/Time Fault History (Event Log)
- Isochronous Governor Control
- Waterproof/Sealed Connectors
- Audible Alarms and Shutdowns
- Not in Auto (Flashing Light)
- Auto/Off/Manual Switch
- Customizable Alarms, Warnings, and Events
- Modbus® Protocol
- Predictive Maintenance Algorithm
- Sealed Boards
- Password Parameter Adjustment Protection
- Single Point Ground
- 16 Channel Remote Trending
- 0.2 msec High Speed Remote Trending
- Alarm Information Automatically Annunciated on the Display

Full System Status Display

- Power Output (kW)
- Power Factor
- kW Hours, Total, and Last Run
- Real/Reactive/Apparent Power
- All Phase AC Voltage
- All Phase Currents
- Oil Pressure
- Coolant Temperature
- Coolant Level
- Engine Speed
- Battery Voltage
- Frequency

Alarms and Warnings

- Oil Pressure
- Coolant Temperature
- Coolant Level
- Engine Overspeed
- Battery Voltage
- Alarms and Warnings Time and Date Stamped
- Snap Shots of Key Operation Parameters During Alarms and Warnings
- Alarms and Warnings Spelled Out (No Alarm Codes)

SD1250 | 49.0L | 1,250 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

CONFIGURABLE OPTIONS

ENGINE SYSTEM

- 50° Ambient Cooling System
- Critical and Hospital Grade Silencers
- Critical Grade Exhaust (Open Set Only)
- CCV (Closed Crankcase Ventilation)
- Engine Drain Kit
- Air Cleaner with Indicator

ELECTRICAL SYSTEM

- 10A UL Battery Charger
- 20A UL Battery Charger
- Battery Warmer

ALTERNATOR SYSTEM

- Alternator Upsizing
- Anti-Condensation Heater

CIRCUIT BREAKER OPTIONS

- Main Line Circuit Breaker
- 2nd Main Line Circuit Breaker
- Shunt Trip and Auxiliary Contact
- Electronic Trip Breakers

GENERATOR SET

- Spring Isolators (Standard/Seismic)

ENCLOSURE

- Weather Protected Enclosure
- Level 1 Sound Attenuated with Motorized Dampers
- Level 2 Sound Attenuated with Motorized Dampers
- Steel Enclosure
- Aluminum Enclosure
- Up to 200 MPH Wind Load Rating (Contact Factory for Availability)
- Louvers with Gravity Dampers
- Enclosure Heaters (Motorized Dampers Only)
- AC Electrical Lighting Package (ELP) Enclosure Heater

WARRANTY (Standby Gensets Only)

- 2 Year Extended Limited Warranty
- 5 Year Limited Warranty
- 5 Year Extended Limited Warranty
- 7 Year Extended Limited Warranty
- 10 Year Extended Limited Warranty

CONTROL SYSTEM

- NFPA110 Level I and II (Programmable) 15- LED Remote Annunciator
- Remote Relay Assembly (8 or 16)
- Shipped Loose Remote E-Stop - Surface Mount
- Generator Control Panel Mounted E-Stop
- Remote Communication - InternetBridge NT
- 10A Engine Run Relay
- Low Coolant Level Indication
- 90% High Fuel Alarm

FUEL TANKS (Size on Last Page)

- Mechanical Fuel Level
- 12 Hour Run Time
- 24 Hour Run Time

ENGINEERED OPTIONS

ENGINE SYSTEM

- Coolant Heater Ball Valves
- Oil Heater
- Fuel Cooler
- High Lift Pumps
- Heavy Duty Air Filters (Open Set Only)

ALTERNATOR SYSTEM

- 3rd Breaker System
- 4th Breaker Options
- Unit Mounted Load Banks
- Medium Voltage Alternators
- Digital Voltage Regulator

CONTROL SYSTEM

- Spare Inputs (x4) / Outputs (x4)
- Battery Disconnect Switch
- PM-SCi

GENERATOR SET

- Special Testing
- 12 VDC Enclosure Lighting Kit
- 24 VDC/120 VAC Enclosure Lighting Kit

ENCLOSURE

- Door Open Alarm Switch
- Level 3 Sound Attenuated Enclosure
- Custom Enclosure

TANKS

- Overfill Protection Valve
- UL2085 Tank
- ULC S601 Tank
- Special Fuel Tanks
- External Vent Extensions
- Transfer Pumps and Controllers
- Fuel Tank Heaters

SD1250 | 49.0L | 1,250 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

APPLICATION AND ENGINEERING DATA

ENGINE SPECIFICATIONS

General

Make	Mitsubishi
Model	S12R-Y2PTAW-1
EPA Emissions Compliance	Tier 2
EPA Emissions Reference	See Emission Data Sheet
Cylinder #	12
Type	4 Cycle - V12
Displacement - in^3 (L)	2,992 (49.0)
Bore - in (mm)	6.69 (170)
Stroke - in (mm)	7.09 (180)
Compression Ratio	14.5:1
Intake Air Method	Turbocharged/Intercooled
Cylinder Head	4-Valve
Piston Type	Aluminum
Crankshaft Type	Dropped Forged Steel

Engine Governing

Governor	Electronic
Frequency Regulation (Steady State)	±0.25%

Lubrication System

Oil Pump Type	Gear
Oil Filter Type	Cartridge
Crankcase Capacity - qt (L)	158.5 (150)

Cooling System

Cooling System Type	Unit Mounted Radiator
Water Pump Type	Centrifugal
Fan Type	Pusher
Fan Speed - RPM	710
Fan Diameter - in (mm)	88 (2,235)

Fuel System

Fuel Type	Ultra Low Sulfur Diesel #2
Fuel Specifications	ASTM
Fuel Filtering (Microns)	10 (Final Filters)
Fuel Inject Pump Make	Mechanical
Fuel Pump Type	Engine Driven Gear
Injector Type	Mitsubishi PS8 Type x 2
Fuel Supply Line - in (mm)	0.75” NPT (19.0)
Fuel Return Line - in (mm)	0.75” NPT (19.0)

Engine Electrical System

System Voltage	24 VDC
Battery Charger Alternator	Standard
Battery Size	See Battery Index 0161970SBY
Battery Voltage	(4) - 12 VDC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	K2112064N22
Poles	4
Field Type	Rotating
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<5%
Telephone Interference Factor (TIF)	< 50
Standard Excitation	Permanent Magnet
Bearings	Single Sealed Cartridge
Coupling	Direct via Flexible Disc
Load Capacity- Standby	100%
Prototype Short Circuit Test	Yes
Voltage Regulator Type	Analog
Regulation Accuracy (Steady State)	±0.5%

SD1250 | 49.0L | 1,250 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

OPERATING DATA

POWER RATINGS

		Standby
Three-Phase 277/480 VAC @0.8pf	1,250 kW	Amps: 1,882
Three-Phase 346/600 VAC @0.8pf	1,250 kW	Amps: 1,505

MOTOR STARTING CAPABILITIES (skVA)

skVA vs. Voltage Dip

277/480 VAC	30%
K2112064N22	7,709
K2268064N22	9,417

FUEL CONSUMPTION RATES*

Fuel Pump Lift- ft (m)
3 (1)

Total Fuel Pump Flow (Combustion + Return) - gph (Lph)
127 (479)

Diesel - gph (Lph)

Percent Load	Standby
25%	30.0 (113.6)
50%	50.3 (190.4)
75%	72.9 (275.9)
100%	97.7 (369.8)

* Fuel supply installation must accommodate fuel consumption rates at 100% load.

COOLING

Cooling Rating - Jacket Water		Standby
Coolant Flow	gpm (Lpm)	489 (1,851)
Coolant System Capacity	gal (L)	95 (360)
Heat Rejection to Coolant	BTU/hr (kW)	1,829,820 (536)
Inlet Air- 40°C Cooling Package	scfm (m^3/min)	66,100 (1,872)
Inlet Air- 50°C Cooling Package	scfm (m^3/min)	70,800 (2,005)
Max. Operating Ambient Temp	°F (°C)	104 (40)
Max Operating Ambient Temperature (Before Derate)	see Bulletin No. 0199270SSD	
Maximum Additional Radiator Backpressure	in H_2O (kPa)	0.5 (0.12)

Cooling Rating - Aftercooler		Standby
Coolant Flow	gpm (Lpm)	90 (341)
Coolant System Capacity	gal (L)	50 (189)

Cooling Rating- Fuel Pump		Standby
Heat Rejected to Fuel	BTU/hr (kW)	10,098 (3.0)

COMBUSTION AIR REQUIREMENTS

	Standby
Flow at Rated Power - scfm (m^3/min)	4,767 (135)

ENGINE

		Standby
Rated Engine Speed	RPM	1,800
Horsepower at Rated kW**	hp	1,881
Piston Speed	ft/min (m/min)	2,126 (648)
BMEP	psi (kPa)	276 (1,903)

EXHAUST

		Standby
Exhaust Flow (Rated Output)	scfm (m^3/min)	12,570 (356)
Max. Allowable Backpressure (Post Turbo)	inHg (kPa)	1.7 (5.87)
Exhaust Temp (Rated Output - Post Silencer)	°F (°C)	932 (500)

** Refer to "Emissions Data Sheet" for maximum bHP for EPA and SCAQMD permitting purposes.

Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions.
Please contact a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with BS5514 and DIN6271 standards.
Standby - See Bulletin 10000018933
Prime - See Bulletin 10000018926

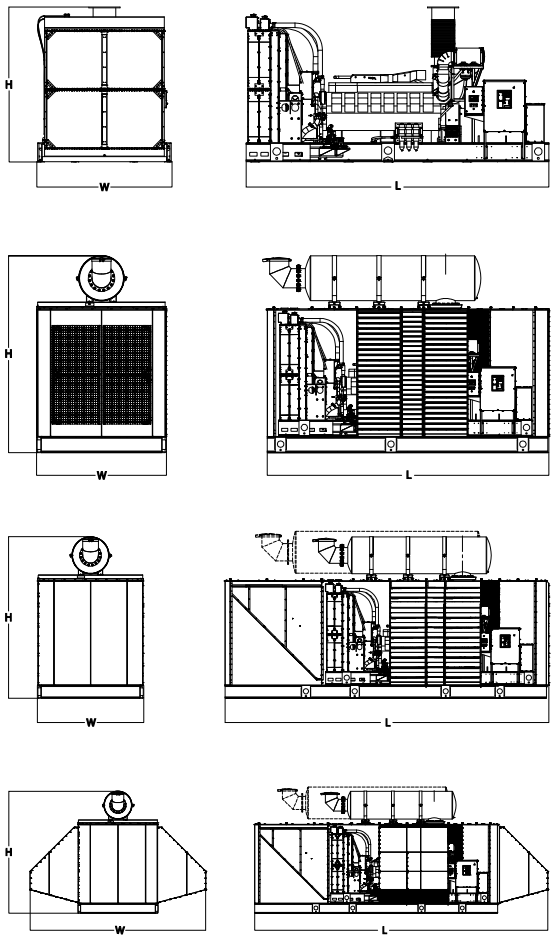
SD1250 | 49.0L | 1,250 kW

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

DIMENSIONS AND WEIGHTS*



OPEN SET (Includes Exhaust Flex)

Run Time - Hours	Usable Capacity - Gal (L)	L x W x H - in (mm)	Weight - lbs (kg) (Enclosure Only)
No Tank	-	215.7 (5,478) x 93.0 (2,362) x 115.1 (2,924)	26,045 (11,814)
12	1,250 (4,732)	243.0 (6,172) x 116.0 (2,945) x 132.1 (3,356)	Contact Factory
24	2,500 (9,464)	243.0 (6,172) x 116.0 (2,945) x 148.0 (3,759)	Contact Factory

WEATHER PROTECTED ENCLOSURE

Run Time - Hours	Usable Capacity - Gal (L)	L x W x H - in (mm)	Weight - lbs (kg) (Enclosure Only)	
			Steel	Aluminum
No Tank	-	244.0 (6,198) x 110.0 (2,791) x 184.0 (4,661)	Contact Factory	Contact Factory
12	1,250 (4,732)	264.0 (6,698) x 110.0 (2,791) x 201.0 (5,093)		
24	2,500 (9,464)	264.0 (6,698) x 110.0 (2,791) x 217.0 (5,499)		

LEVEL 1 SOUND ATTENUATED ENCLOSURE

Run Time - Hours	Usable Capacity - Gal (L)	L x W x H - in (mm)	Weight - lbs (kg) (Enclosure Only)	
			Steel	Aluminum
No Tank	-	327.0 (8,306) x 119.0 (3,021) x 184.0 (4,674)	Contact Factory	Contact Factory
12	1,250 (4,732)	330.0 (8,382) x 119.0 (3,021) x 206.3 (5,239)		
24	2,500 (9,464)	330.0 (8,382) x 119.0 (3,021) x 208.0 (5,284)		

LEVEL 2 SOUND ATTENUATED ENCLOSURE

Run Time - Hours	Usable Capacity - Gal (L)	L x W x H - in (mm)	Weight - lbs (kg) (Enclosure Only)	
			Steel	Aluminum
No Tank	-	404.0 (10,268) x 262.0 (6,666) x 126.0 (3,209)	Contact Factory	Contact Factory
12	1,250 (4,732)	404.0 (10,268) x 262.0 (6,666) x 140.0 (3,565)		
24	2,500 (9,464)	404.0 (10,268) x 262.0 (6,666) x 150.0 (3,819)		

* All measurements and weights are approximate and for estimation purposes only.

YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER

Specification characteristics may change without notice. Please contact a Generac Power Systems Industrial Dealer for detailed installation drawings.

SPEC SHEET

Generac Power Systems, Inc. | P.O. Box 8 | Waukesha, WI 53189
P: (262) 544-4811

Part No. A0004067537
Rev. B 11/09/2023

RELAY BOARDS
I-RB8/I-RB16

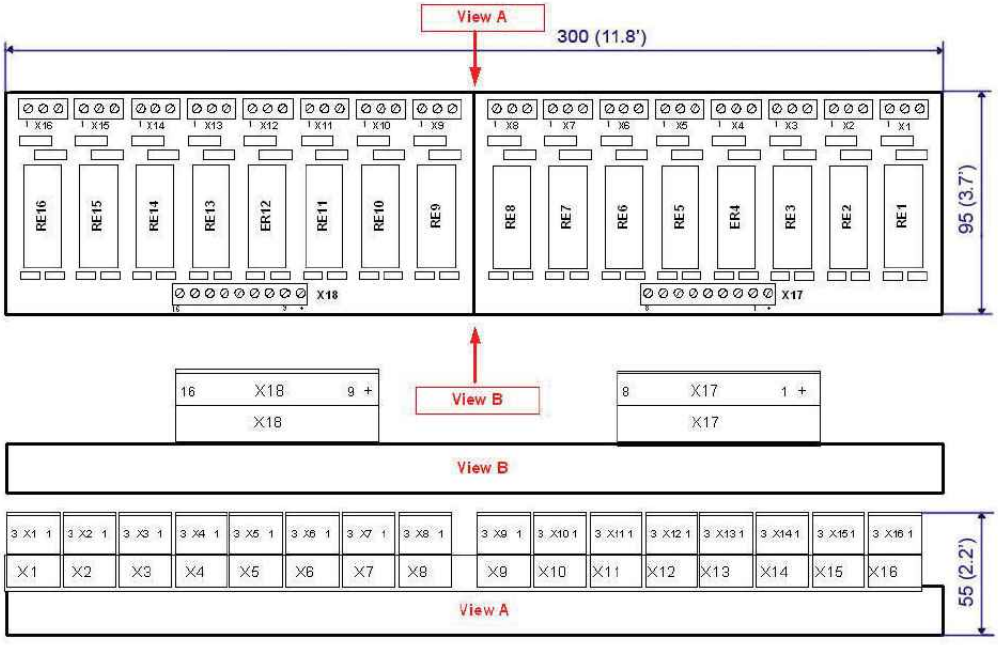
I-RB16

Features

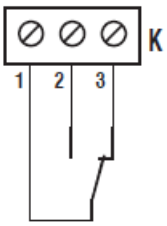
The I-RB8 and I-RB16 Relay Boards contain 8 and 16 relays for binary (open collector) output separation. All relays are placed in sockets.
LED Indication
Each relay has an LED which lights when the relay's normally open (N.O.) contacts close.

Specifications

Dimensions (W x H x D).....300 x 95 x 55 mm (11.8 x 3.7 x 2.2 in)
Outputs
Max Switched Current .....16A DC, 4A AC
Max Switched Voltage .....24 VDC
Voltage Range.....16.8 - 36 VDC
Relay Opens .....At 10% of Nominal Voltage
Electrical/Mechanical Cycles .....100,000 (Switching 16A) / 10,000,000
Contacts Protection .....Varistor 14DK390
Storage Temperature .....-40° to +80°C
Operating Temperature.....-30° to +70°C



Relay-connector Connection



1 - 2 N.O.
1 - 3 N.C.

Unit is 35 mm DIN Rail Mounted

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Part No. 0L0249
Rev. D 09/26/22

GENERATOR CONTROLLER
InteliGen NT

Features

The InteliGen NT controller provides complete monitoring and protection for both single and multiple gensets operating in standby or parallel modes. Allows for remote control user configuration, protection, and various hardware additions for complete customization.

A built-in synchronizer and digital isochronous load share allow a total integrated solution for standby island parallel or mains parallel application. Integration of up to 32 gensets is a standard feature.

- Controller is UL and CUL Recognized
- Controller is NFPA110 Compliant
- Large Easy to Read Graphic LCD Display
- LEDs Provide Visual Status Information
- History Log for Rapid Fault Isolation
- Complete Engine, Alternator, Utility Line Monitoring
- Ground Fault Indication
- Integrated PLC Programmable Functions
- Automatic Synchronizing and Power Control
- Microprocessor Based
- Password Protected Settings
- Engine and Generator Protection Features
- Real Time Clock with Battery Backup
- Event and Performance Log
  - Event Based History with 500 Events
  - Reason, Date and Time + All Important Values
  - Test Run Scheduler
- User Interface
  - Graphic 128 x 64 Pixels LCD Display
  - Multiple Language Capability
  - Set Point Adjustable at Keypad or PC
  - Keypad Provides Tactile Feedback
- Inputs and Outputs
  - 3 Configurable Analog Inputs
  - Magnetic RPM Pick-up Input
  - D+ Pre Excitation Terminal
- EFI Engine Support
  - Engine Specific CAN J1939 EFI Engine Support
  - Diagnostic Messages in Plain Text
- RS-232 / RS-485, Modbus, CAN Interfaces

LED Indications

Utility Voltage Present ..... Green LED - Indicates Utility Available
Utility Failure ..... Red LED - Flashes When Utility Failure Occurs
Generator Voltage Present ..... Green LED - Indicates Generator Voltage is Present and Within LImits
Genset Failure ..... Red LED - Flashes When Any Failure Occurs
Generator Circuit Breaker On ..... Green LED - (if Activated) Flashes During Synchronization
Main Circuit Breaker On ..... Green LED - Indicates When Voltage is Present and Within Limits
BUS ..... Green LED - (if Activated) Flashes During Synchronization

Part No. FM24126
Rev. E 09/27/22

GENERATOR CONTROLLER
InteliGen NT

Engine Application Data

Alarm List (Wrn = Warning; Sd = Shutdown)	
Events	**Description**
Oil Press Wrn	Oil Pressure is Less Than Setpoint
Oil Press Sd	Oil Pressure is Less Than Setpoint
Eng Temp Wrn	Water Temperature Exceeds Setpoint
Eng Temp Sd	Water Temperature Exceeds Setpoint
Fuel Level Wrn	Fuel Level is Less Than Setpoint
Fuel Level Sd	Fuel Level is Less Than Setpoint
Vbat Wrn	Battery Volts is Out of Limits
AnINIOM Wrn	AnIncondition for IG-IOM/IGS-PT M
AnINIOM Sd	AnIncondition for IG-IOM/IGS-PT M
Digital IN Wrn	Digital Input Condition Wrn/Sd
Battery Fail	Battery Failed During Start Sequence
Start Fail Sd	Genset Start Failed
ParamFail	Wrong Memory Checksum
Vgen <, > Sd	Output Volts is Out of Limits
Vgen Unbl Sd	Output Current is Unbalanced
Fgen <, > Sd	Output Frequency is Out of Limits
Igen Unbl Sd	Output Current is Unbalanced
Overload Sd	Output Current Exceeds Setpoint
Overspeed Sd	RPM Exceeds Setpoint
Underspeed Sd	After Start, RPM is Less Than Setpoint
EmergStop Sd	Emergency Stop is Open
GCB Fail Sd	Generator Circuit Breaker Failed
Pickup Fault	Sd Speed Sensor Failed
Stop Fail Sd	Genset Stop Failed
NextService Wrn	The NextServTimer Expired
ChrgFail Wrn	Alternator Failed to Charge Battery
SprinklActive Wrn	Active if Sprinkler Output is Closed
RA15 Fail Wrn	Lost Connection to IGL-RA15 Module
IOM Fail Sd	Lost Connection to IG-IOM/IGS-PTM
ECU Alarm Wrn	ECU Alarm List is Not Empty
LowRTC Batt Wrn	RTC

Integrated PLC Functions	
Standard Features	**Description**
Log Function I	AND, OR 2 to 8 Inputs, Binary Output
Log Function II	XOR, RS (Flip-flop) 2 Inputs, Binary Output
Comp Hyst	Analog Input One Limit + Delay, Binary Output
Comp Win	Window Comparator Analog Input, Two Limits Analog Output, Binary Output is Active When Input is Within Limits
Delay	Adjustable Rising and Falling Edge Delay

Monitored Parameters

Generator Protection
- Over/Under Frequency
- Over/Under Voltage
- Current/Voltage Asymmetry
- Over Current/Overload
- Short Circuit Current Detection
- True RMS Voltage Measurement
  - Phase to Phase
  - Phase to Neutral
  - PT Ratio Range 0.1 - 500
- True RMS Current Measurements
  - Current Range 5A
  - Maximum Measured Current 10A
  - CT Ratio Range 1 - 5,000
- Power Measurements
  - Active/Reactive Power
  - Power Factor per Phase
  - Active and Reactive Energy Counter

Engine Protection
- Oil Pressure
- Coolant Temperature
- Fuel Level
- Engine RPM
- Battery Condition
- Time to Next Service
- Total Operating Hours
- J1939 Communications with ECU

Timers
- Pre Start Delay
- Maximum Crank Time
- Pause Time Between Crank Attempts
- Idle Time
- Stable Time, Generator Voltage Output Stable Time
- Generator Circuit Breaker (GCB) Close Delay
- Cooling Time, Unloaded Genset Cool Time
- After Cool Time, Run Cooling Pump After Stop
- Stop Time

CANBus Wiring Interface

For use with IGL-RA15 Remote Alarm Annunciator
Electrical Isolation ..... Galvanic Isolation
Maximum CANBus Length 200m
Maximum Transmission Rate ..... 250 Kilobaud
Nominal Impedence 0
Connection Cable Type ..... Shielded Twisted Pairs

Part No. FM24126
Rev. E 09/27/22

GENERATOR CONTROLLER
InteliGen NT

Specifications

Power Supply
Voltage....8 - 36VDC
Current.... 40 - 430mA Depends Voltage and Temp
Volts Tolerance....2% at 24V

Ambient
Operating Temp.... - 30° to +70°C
Storage Temp....-40° to +80°C
Protection Type....IP65
Humidity.... 95% Non-Condensing
Low Voltage Directive .... EN 61010-1:95 + A1:97
Electromagnetic Compatibility.....EN 50081-1:94, EN 50081-2:96
EN 50082-1:99, EN 50082-2:97
Vibration .... 5 - 25Hz, ±1, 6mm
25 - 100Hz, a = 4g
Shock ....a = 200 m/s^2

Generator
Frequency.... 50 - 60Hz
Frequency Tolerance 0.1Hz

Current Monitor
IC Nominal (from CT)....5A
Load (CT Z Out) .... <0.1Ω
CT Input Burden....<0.2 VA per Phase (In=5A)
Measurement Tolerance ....2% of Nominal
Imax from CT 10A
Ipeak from CT ....150A / 1s
Imax Continuous.... 12A

Voltage Monitor
Voltage Range.... 0 - 277VAC Phase to Neutral
Vmax....346VAC Phase to Neutral
600VAC Phase to Phase
Input Resistance ....0.6 MΩ Phase to Phase
0.3 MΩ Phase to Neutral
Measurement Tolerance ....2% of Nominal
Overvoltage Class .... III / 2 (EN 61010)

Digital Inputs/Outputs
Number of Inputs....12
Number of Outputs....12
Voltage Range ....0 - 36VDC
Input Resistance .... 4.7 kΩ
Volts for Closed Indication .... 0 - 2VDC
Volts for Open Indication....8 - 36VDC
Max Output Current 0.5A

Analog Inputs
Number of Inputs 3
Resolution....10 bits
Range (Jumper).... V, Ohm (Default), mA
Volts Range....0 - 5V
Ohms Range ....0 - 2,500Ω
mA Range....0 - 20mA
Input Impedance .... >100 kΩ for V Measuring, 180Ω for mA Measuring
Ω Tolerance....±2% ±2Ω of Measured Value
V Tolerance ....±1% ±1mV of Measured Value

Speed Pick Up
Sensor Type .... Magnetic Pick-up (Shielded Cable)
Vin Minimum....2 Vpk-pk (from 4Hz to 4kHz)
Vin Maximum.... 50 Veff
Frequency Minimum.... 4Hz
Frequency Maximum.....10kHz (Minimum Input Voltage 6Vpk-pk)
Frequency Tolerance 0.2%

D+ Function
Imax Output....300mA
Guaranteed Level for Signal Charging OK...80% of Supply Voltage

Horn Output
Volts ....0 - 36VDC
Current....1A Maximum

ANSI Protective Devices

ANSI	Code Protection	ANSI	Code Protection
59	Overvoltage	5N & 64	Earth
27	Undervoltage	32R	Reverse Power
47	Voltage Assemtry	25	Synchronize Check
81H	Overfrequency	47	Phase Rotation
81L	Underfrequency	37	Undercurrent*
50 & 51	Overcurrent	55	Power Factor*
46	Current Unbalance	71	Fuel Level
32	Overload		

*Can Be Created Using Universal Protections

Part No. FM24126
Rev. E 09/27/22

GENERATOR CONTROLLER
InteliGen NT

Optional Expansion Modules and Accessories

IGL-RA15
- Remote Annunciator
- Customizable Label
- 15 LEDs - Can Be Programmed Red, Green or Yellow
- Lamp Test
- Local Horn Button
- Connect via CANBus
- Can Be Used Stand Alone or with an IGS-PTM and I-AOUT8

I-AOUT8
- 8 Configurable Analog Outputs
- Outputs: 0 - 10VDC
- Connects via CANBus
- Can Be Used with IGS-PTM and IGL-RA15

IGS-PTM
- I/O Extension Module
- 8 Binary Inputs, 8 Binary Outputs, 4 Analog Inputs, 1 Analog Output
- Measures PT 100 and N 100 Sensors
- Analog Inputs: 0 - 250 Ohms, 0 - 100mV, 0 - 20mA
- Analog Outputs: 0 - 20mA
- Connect via CANBus
- Can Be Used with a IGL-RA15 and I-AOUT8 I-LB+
- Communication Bridge for Multiple Controllers for Local and Remote Monitoring
- Connect via Modem, Modbus, USB or Direct to RS-232

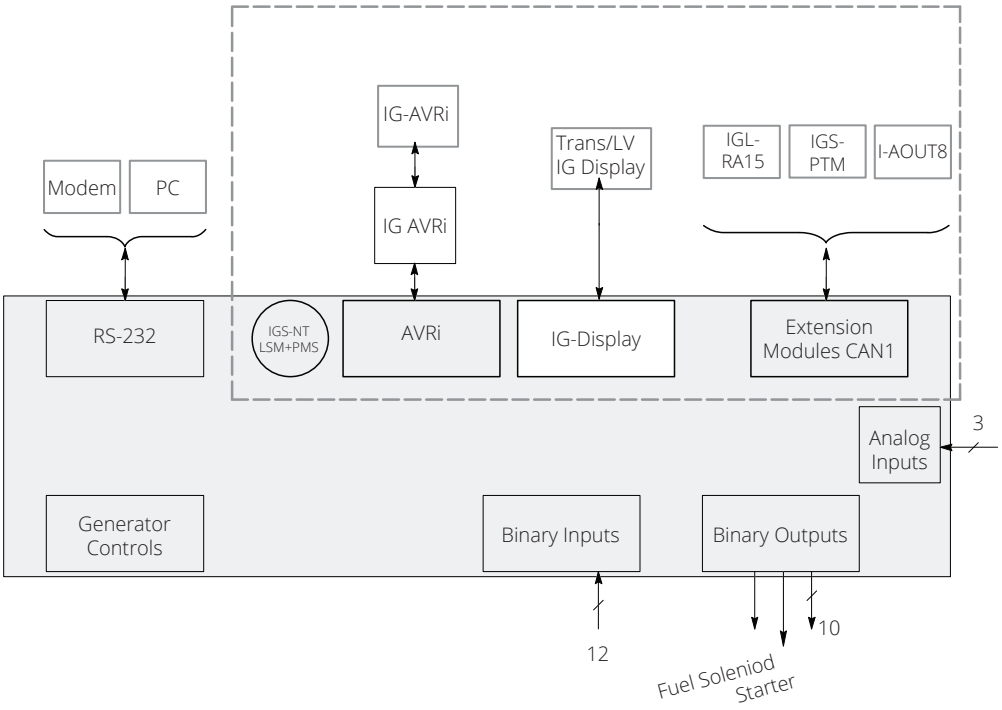
Paralleling Accessories

IGS-NT-LSM+PMS
- Hardware Key for Load Sharing and Power Management
- Digital Load Sharing
- Digital VAr Sharing
- Optimize Number of Running Engines
  - Power Management; kW, kVA or % Load Based

IG-Display LT GC
- Remote Display
- Mimics the Standard Onboard Display

IG-AVRi
- AVR Interface
- Interface Between InteliGen NT Controller and Generator AVR

IG-AVRi-TRANS/LV
- Power Supply Transformers for IG-AVRi Module



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Part No. FM24126
Rev. E 09/27/22

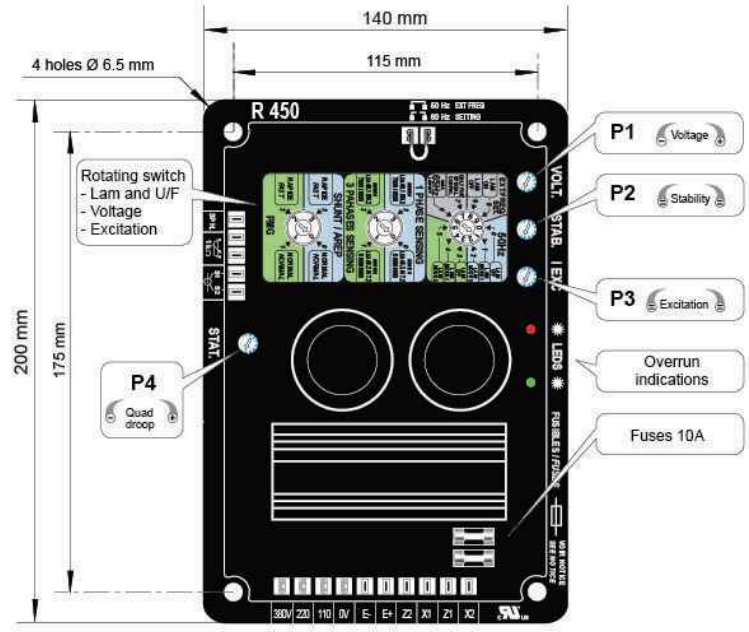
AUTOMATIC VOLTAGE REGULATOR (R450)

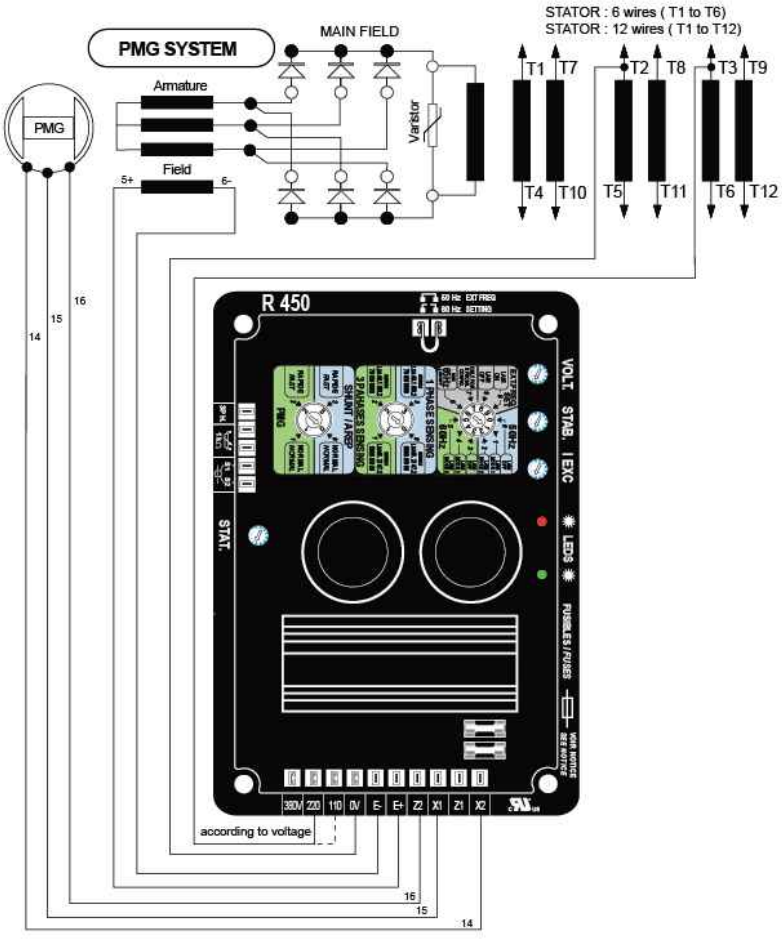
A permanent magnet generator (PMG) supplies the automatic voltage regulator (AVR) with voltage which is independent of the main alternator winding. The AVR monitors the alternator output voltage by adjusting the excitation current. This system provides the machine with a short-circuit current capacity of three times the nominal current for ten seconds.

Specifications

Operating Temperature	-30 to +65°C
Storage Temperature	-55° to +85°C
Shocks on the Base	9g Depending on the 3 Axes
Vibrations	
Less than 10 Hz	2 mm Half-peak Amplitude
10 Hz - 100 Hz	100mm/s
Above 100 Hz	8g
Maximum Power Supply	150V - 50/60 Hz
Rated Overload Current (Short Circuit)	10 A - 10 Seconds
Electronic Protection	
In the Case of a Short-Circuit	Excitation Current is Reduced to a Value Less than 1A after 10 Seconds
In the Event of Loss of Voltage Reference	Excitation Current is Reduced to a Value Less than 1A after 10 Seconds
Voltage Sensing, Voltage Range	
Terminals 0 - 110 V	95 to 140 V
Terminals 0 - 220 V	170 to 260 V
Terminals 0 - 380 V	340 to 528 V
	For Other Voltages a Transformer Should Be Used
Voltage Regulation	±0.5%
Current Sensing	Parallel Operation, Input S1, S2 Intended for 1 C.T. > 2.5 VA cl1, Secondary 1 A or 5 A

AUTOMATIC VOLTAGE REGULATOR (R450)





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Part No. 0L1673A
Rev. E 09/27/22

ALTERNATOR DATA SHEET
K1440124Y22

General Characteristics

Voltages (V)	480	Number of Leads	12
Frequency (Hz)	60	Winding Type	Reconnectable
Phases	3	Air Flow (CFM)	Consult Factory
Speed (RPM)	1,800	Total Harmonic Distortion (%)	<5
Excitation System	Permanent Magnet	Largest Single Harmonic Value (%)	Consult Factory
Insulation Class	H	Telephone Interference Factor (TIF)	<50
Winding Pitch	2/3	Reference Part Number	LSA 50.2 L8

Ratings @ 0.8 pf Based on 40˚C Ambient

Voltage (V)	80˚C Rise		105˚C Rise		125˚C Rise		150˚C Rise	
	kW	kVA	kW	kVA	kW	kVA	kW	kVA
480	1,152	1,440	1,296	1,620	1,440	1,800	1,440	1,800

Base Data at 480V, 1,800 kVA, 1,800 RPM, 60 Hz, 3Ø

Description	Value
Stator Resistance, Line to Neutral, High Wye Connection (Ω)	Consult Factory
Rotor Resistance (Ω)	Consult Factory
Exciter Stator Resistance - PMG (Ω)	Consult Factory
Exciter Rotor Resistance - PMG (Ω)	Consult Factory
Excitation Winding Resistance -PMG (Ω)	Consult Factory
Xd, Direct Axis Synchronous Reactance (p.u.)	3.79
X2, Negative Sequence Reactance (p.u.)	0.146
X0, Zero Sequence Reactance (p.u.)	0.006
X'd, Direct Axis Transient Reactance (p.u.)	0.160
X"d, Direct Axis Subtransient Reactance (p.u.)	0.137
Xq, Quadrature Axis Synchronous Reactance (p.u.)	1.93
T'd, Direct Axis Transient Short Circuit Time Constant (s)	0.211

Description	Value
T"d, Direct Axis Subtransient Short Circuit Time Constant (s)	0.018
T'do, Direct Axis Transient Open Circuit Time Constant (s)	4,.25
Ta, Short Circuit Time Constant of Armature Winding (s)	0.027
Phase Sequence CCW-NDE	T1, T2, T3
Voltage Balance, L-L or L-N (%)	Consult Factory
Deviation Factor (%)	Consult Factory
High Wye Connection, Sustained 3Ø Short Circuit Current (%) - PMG Only	Consult Factory
X/R	Consult Factory
Short Circuit Ratio	0.32
Heat Rejection (BTU/hr) - 100% Rated Load, 480V, 0.8pf, 125˚C Temperature Rise	Consult Factory

Reference: Mil-STD-705B
All Ratings are Nominal

ALTERNATOR DATA SHEET
K1440124Y22

skVA

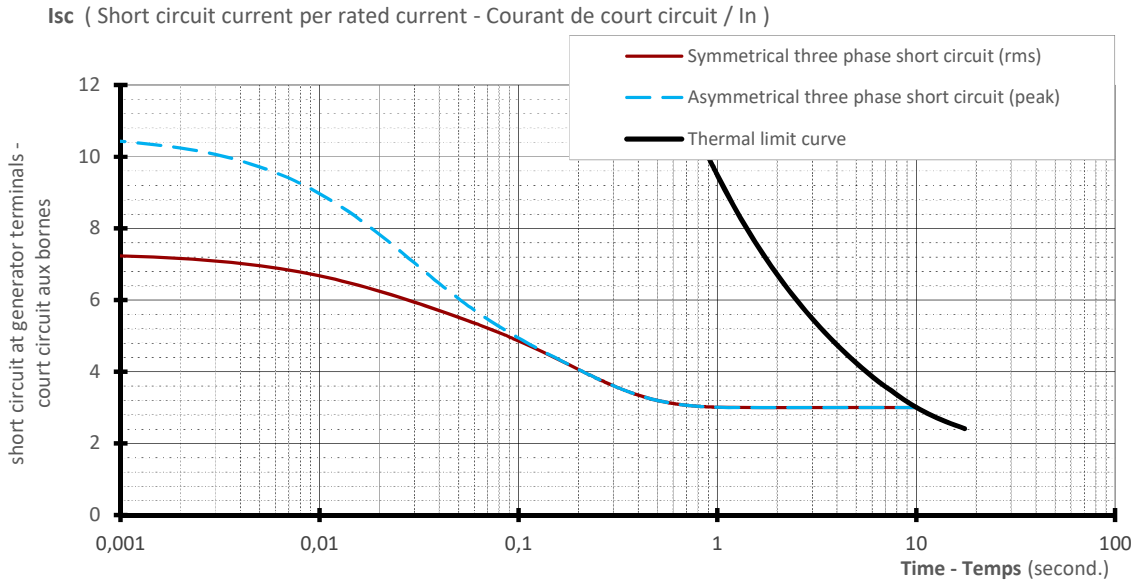
	10%	15%	20%	25%	30%
480V @ 0.3PF	1,010	1,800	2,400	3,100	4,000
480V @ 0.6PF	1,200	2,000	2,900	3,800	4,900

Efficiencies

Rated Power*	480V @ 0.8 PF	480V @ 1.0 PF
25%	93.1	93.5
50%	95.2	96.0
75%	95.5	96.5
100%	95.3	96.6

*Rated Power Value is Rated kW at 125°C Winding Temperature Rise and 0.8 PF

LOG LOG Decrement Curve
Base Data at 480V, 1,800 kVA, 1,800 RPM, 60 Hz, 3Ø
Rated Current is 2,165 Amps



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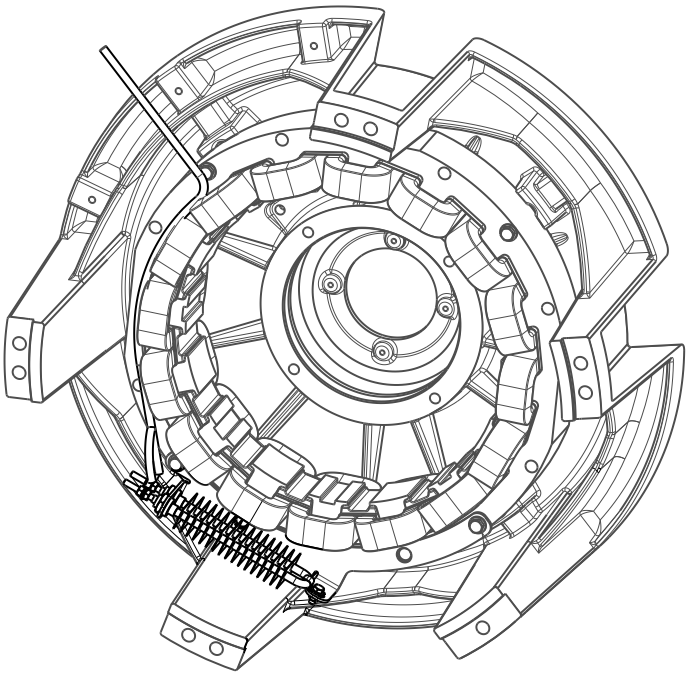
P: (262) 544-4811
Part No. 10000028238
Rev. A 11/21/19

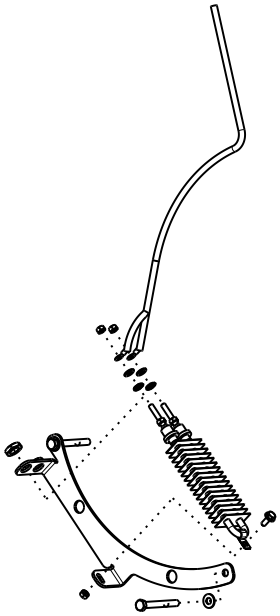
ALTERNATOR HEATER, LSA50.2
500W, 120VAC

DESCRIPTION
The optional alternator space heater helps prevent condensation in high-humidity conditions.

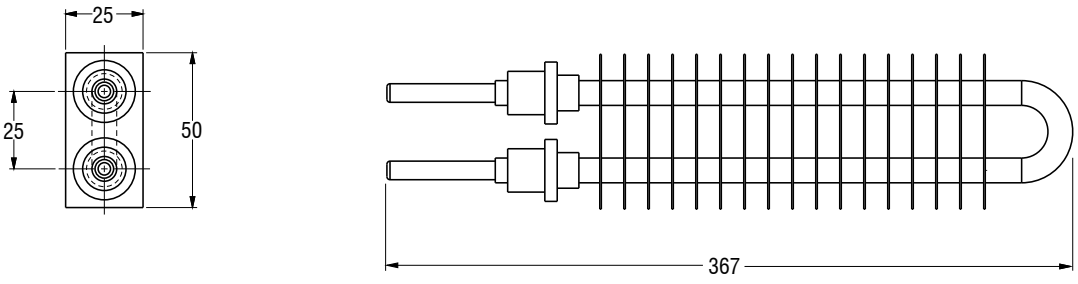
FEATURES
- Factory installed and wired
- Mounted on alternator exciter field
- 500 watts
- 120VAC operation



MOUNTING LOCATION



EXPLODED VIEW



DIMENSIONS: mm

INDUSTRIAL GENSET - BATTERY INDEX

• Warranty by Exide Corp. • Exide e-mail: tbgna@exide.com • 800-782-7848 National Hot line

INDUSTRIAL SPARK-IGNITED GENSETS - AVAILABLE BATTERIES

			GENERAC PART #					
Engine	System Voltage	Battery Quantity	058208 (Group 24F)	077483 (Group 26)	058665 (Group 27F)	061119 (Group 31)	061104 (Group 8D)	BT0015A02 (Group 8D)
G2.4	12	1		X				
G4.5	12	1			X	X		
G9.0	12	1			X	X		
G14.2	24	2					X	
G21.9	24	2					X	
G25.8	24	2					X	
G33.9	24	4					X	
G49.0	24	4					X	X

INDUSTRIAL DIESEL GENSETS - AVAILABLE BATTERIES

			GENERAC PART #			
Engine	System Voltage	Battery Quantity	058665 (Group 27F)	061119 (Group 31)	061104/ BT0015A00 (Group 8D)	BT0015A02 (Group 8D)
D2.2 Perkins	12	1	X	X		
D3.3 Perkins	12	1		X		
D4.5 FPT	12	1		X		
D6.7 FPT 100, 130kW	12	1		X		
D6.7 FPT 150, 175kW	12	2		X		
D8.7 FPT	24	2		X		
D10.3 FPT	24	2		X	X	
D12.9 FPT	24	2		X	X	
D12.5 Perkins	24	2			X	
D15.2 Perkins	24	2			X	
D16.0 Volvo	24	2		X	X	
D18.1 Perkins	24	2			X	
D30.6 Perkins	24	2			X	X
D33.9 MHI	24	2			X	X
D37.1 MHI	24	4			X	X
D49.0 MHI	24	4			X	X
D65.4 MHI	24	4			X	X

			DIMENSIONS (in) NOMINAL		
Part Number	Group Number*	Nominal CCA @ 0° F	L	W	H
058208	24F	525	6.75	10.63	9.00
077483	26	525	6.75	8.25	7.75
058665	27F	700	6.75	12.50	9.00
061119	31	925	6.75	13.00	9.40
061104/ BT0015A00	8D	1,200	11.00	20.80	10.00
BT0015A02	8D	1,400	11.00	20.80	10.00

All batteries are 12V, 6 cell construction, lead calcium type.
For 24V systems, batteries are wired in series.

X Battery available with electrolyte and installed in genset.
* BCI Group Size reference.

Part No. 0161970SBY
Rev. P 3/12/24

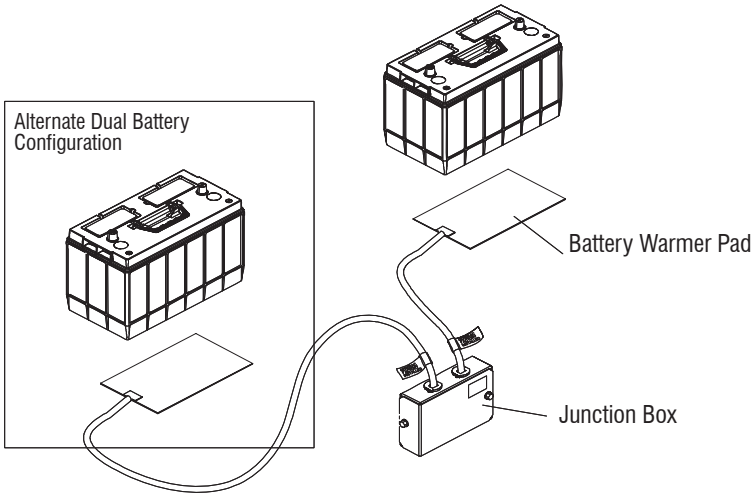
BATTERY PAD WARMER

DESCRIPTION

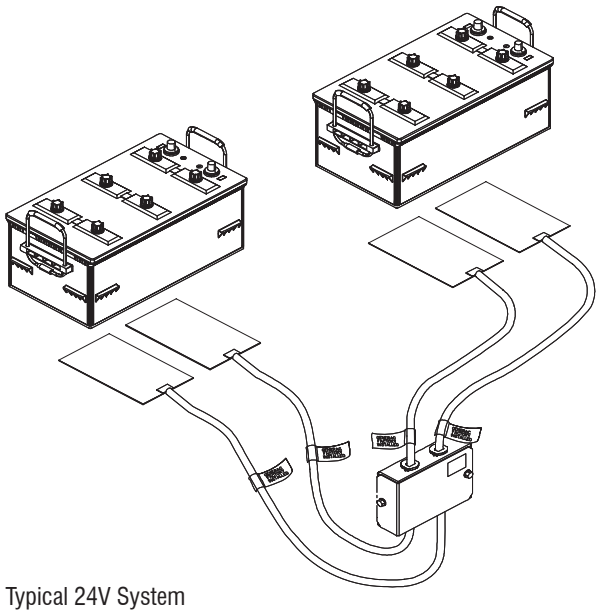
Battery warmers are designed to keep batteries warm and ensure maximum engine cranking speed in cold climate installations. Warming pads are thermostatically controlled, UL listed and factory-wired. 120 VAC is supplied to the warming pad junction box via power cord plugged into a GFCI receptacle or hard-wired to a circuit breaker in a genset-mounted load panel (if equipped).

SPECIFICATIONS

- Power: 75W @ 120 VAC
- Current: 0.625A @ 120 VAC
- Heating Element Type: Wire-Wound
- Pad Material: Silicone Rubber/Fiberglass
- Thermostatic Control
- Open: 40°F, Close: 20°F
- Factory Installed and Wired
- UL Listed
- All Dimensions and Specification are Nominal
- Battery Warmer
- Dimensions: 254 X 152 MM (10 X 6 IN)



Typical 12V System



Typical 24V System

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P: (262) 544-4811

Part No. 0197620SSD
Rev. E 5/11/2020

ENGINE DATA
1,250kWe, 60Hz

GENERAL ENGINE DATA

Manufacturer	Mitsubishi
Standard Model	Standard Model S12R-Y2PTAW-1
Exhaust Emissions Certification	EPA - Tier 2
Type	4-Cycle, Water Cooled
Aspiration	Turbo-Charged, Aftercooled
Cylinder Arrangement	60° V
Number of Cylinders	12
Bore mm (in)	170 (6.69)
Stroke mm (in)	180 (7.09)
Displacement Liter (in^3)	49.03 (2,992)
Compression Ratio	14.5:1
Dry Weight - Engine only - kg (lb)	5,270 (11,620)
Wet Weight - Engine only - kg (lb)	5,555 (12,249)

PERFORMANCE DATA

Steady State Speed Stability Band at Any Constant Load Electronic Governor - %	±0.25 or Better
Maximum Overspeed Capacity - RPM	2,100
Moment of Inertia of Rotating Components - $kgf\text{-}m^2$ ($lbf\text{-}ft^2$)	75.3 (1,787.2)
(Includes Standard Flywheel) Cyclic Speed Variation with Flywheel at 1,800 RPM	1/576

ENGINE MOUNTING

Maximum Bending Moment at Rear Face of Flywheel Housing - kgf-m (lbf-ft)	450 (3,255.6)

AIR INLET SYSTEM

Maximum Intake Air Restriction (Includes Piping) with Clean Filter Element - mm H_2O (in H_2O)	400 (15.7)
With Dirty Filter Element - mm H_2O (in H_2O)	635 (25.0)

EXHAUST SYSTEM

Maximum Allowable Backpressure - mm H_2O (in H_2O)	600 (23.6)

LUBRICATION SYSTEM

Oil Pressure at Idle - kgf/cm^2 (psi)		2~3 (29~43)
Oil Pressure at Rated Speed - kgf/cm^2 (psi)		5~6.5 (71~93)
Maximum Oil Temperature - °C (°F)		110 (230)
Oil Capacity of Standard Pan	High - Liter (Gallon)	150 (40)
	Low - Liter (Gallon)	108 (28.5)
Total System Capacity (Including Oil Filter) - Liter (Gallon)		180 (47.6)
Maximum Angle of Installation	Front Down	6.5°
(Engine Only)	Front Up	6.5°
	Side to Side	22.5°

Part No. 0K9346B
Rev. D 11/19/19

ENGINE DATA
1,250kWE, 60HZ

COOLING SYSTEM

Coolant Capacity of Jacket (Engine Only) - Liter (Gallon)	116 (30.6)
Coolant Capacity of Air Cooler (Engine Only) - Liter (Gallon)	14 (3.7)
Maximum External Friction Head at Engine Outlet - kgf/cm^2 (psi) (For Jacket and Air Cooler)	0.35 (5.0)
Maximum Static Head of Coolant Above Crankshaft Center - m (ft)	10 (32.8)
Standard Thermostat (Modulating) Range of Jacket - °C (°F)	71~85 (160~185)
Standard Thermostat (Modulating) Range of Air Cooler - °C (°F)	42~55 (108~131)
Maximum Coolant Temperature at Engine Outlet - °C (°F)	98 (208)
Minimum Coolant Expansion Space - % of System Capacity (For Jacket and Air Cooler)	10
Maximum Coolant Temperature at Intercooler Inlet, PTAW type - °C (°F)	45 (113)
Maximum Air Restriction on Discharge Side or Radiator and Fan - mm H_2O (in H_2O)	10 (0.4)

FUEL SYSTEM

Fuel Injectors	Mitsubishi Electrical Controlled Unit Injector x 12
Maximum Suction Head of Feed Pump - mmHg (inHg)	75 (3.0)
Maximum Static Head of Return and Leak Pipe - mmHg (inHg)	150 (5.9)

STARTING SYSTEM

Battery Charging Alternator - V - Ah 24 - 25	24 - 30
Starting Motor Capacity - V - kW	24 - 7.5 x 2
Maximum Allowable Resistance of Cranking Circuit - mΩ	1.5
Recommended Minimum Battery Capacity at 5 °C (41 °F) and Above - Ah	300
Below 5 °C (41°F) Through -5 °C (23 °F) - Ah	600

COOLING SYSTEM	STANDBY	PRIME
Brake Horsepower Without Fan - HP (kW)	1,881 (1,403)	1,709 (1,275)
Brake Mean Effective Pressure Without Fan - kgf/cm^2 (psi)	19.4 (276)	17.7 (252)
Mean Piston Speed - m/s (ft/min)	10.8 (2,126)	10.8 (2,126)
Maximum Regenerative Power Absorption Capacity Without Fan - HP (kW)	193 (144)	193 (144)
Intake Airflow - m^3/min (CFM)	135 (4,767)	121 (4,273)
Exhaust Gas Flow - m^3/min (CFM)	356 (12,570)	320 (11,299)
Coolant Flow - Liter/min (GPM)	1,850 (489)	1,850 (489)
Coolant Flow to Intercooler (PTAW Only) - Liter/min (GPM)	340 (90)	340 (90)
Cooling Air Flow (Standard Fan) - m^3/min (CFM)	1,761 (62,160)	1,761 (62,160)
Allowable Fan Loss Horsepower - HP (kW)	67 (50)	67 (50)
Radiated Heat to Ambient - kcal/hr (BTU/min)	101,344 (6,703)	91,105 (6,026)
Heat Rejection to Coolant - kcal/hr (BTU/min)	439,159 (29,045)	394,787 (26,111)
Heat Rejection to Air Cooler (PTAW Version) - kcal/hr (BTU/min)	439,159 (29,045)	394,787 (26,111)
Heat Rejection to Exhaust - kcal/hr (BTU/min)	1,192,141 (78,847)	1,059,861 (70,098)
Noise Level at 1m Height and Distance (Excludes Intake, Exhaust and Fan) - dB(A)	110	108

All data represent net performance with standard accessories such as air cleaner, inlet/exhaust manifolds, fuel oil system, L.O. pump, etc. under the conditions of 100 kPa (29.6 inHg)barometric pressure, 77 °F (25 °C) ambient temperature and 30% relative humidity.

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P: (262) 544-4811

Part No. 0K9346B
Rev. D 11/19/19

18kW COOLANT HEATER OPTION
2 X 9,000 WATT, 480 VAC, Three Phase

DESCRIPTION

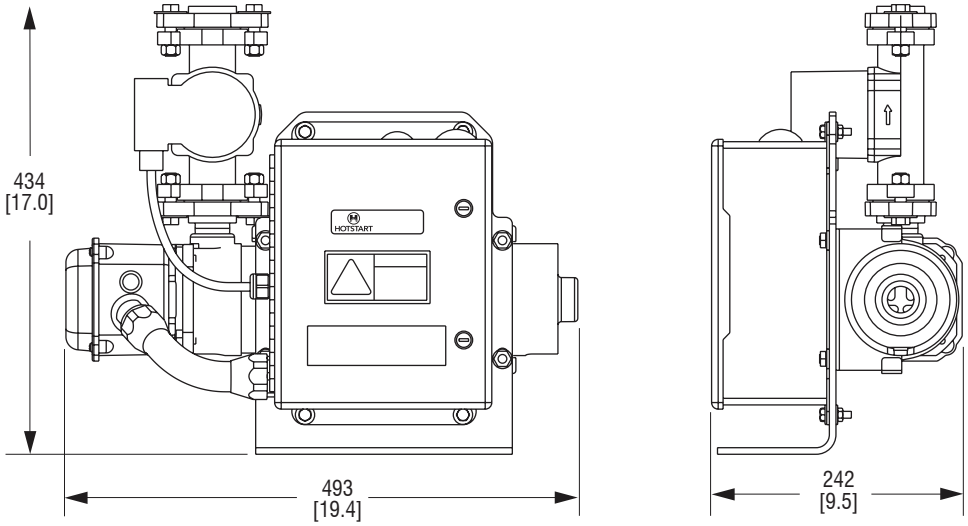
The 18kW coolant heater option consists of two factory-installed 9,000 WATT forced-circulation heaters. One heater is installed in the engine jacket water circuit, one heater is installed in the aftercooler circuit.

SPECIFICATIONS

- HOTSTART® HOTflow™ CSM30904-000
- Heat Power: 9,000 WATTS (Per Heater)
- Voltage: 480 VAC 3Ø
- On/Off Temperature: 100/120°F
- Flow: 10 GPM (2.2 m^3/hr)
- Inlet and Outlet Plumbing: 1.0" NPT
- Maximum Pressure: 125 PSI
- Ingress Protection

  Main Control Box: NEMA 4

  Motor: NEMA 2
- UL-C/US Listed, CE Compliant



DIMENSIONS: mm [INCHES]

c UL us LISTED

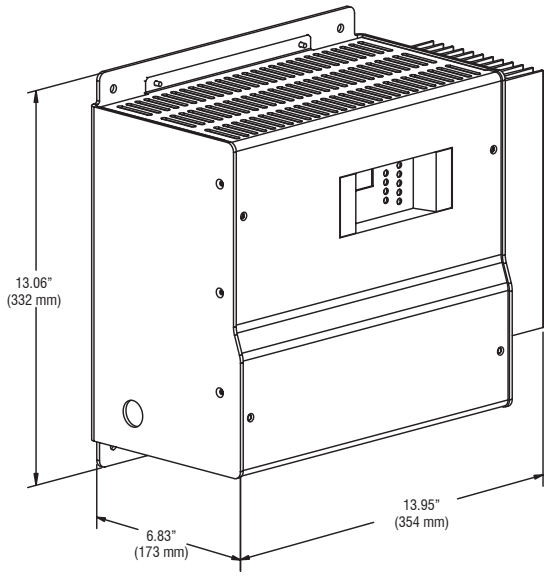
CE

Part No. 0L0121D
Rev. D 11/07/19

20A BATTERY CHARGER

Description

- All-electronic Operation with Generous Component De-rating
- Disconnected, Reversed, and Incorrect Voltage Battery Alarm and Protection
- Protection of Connected Equipment Against Load Dump Transients
- Widest Temperature Rating and Overtemperature Protection
- Superior Lightning and Voltage Transient Protection
- Demonstrated Field MTBF > 1 Million Hours
- C-UL Listed to UL 1236
- CSA Standard 22.2 No. 107.2-M89

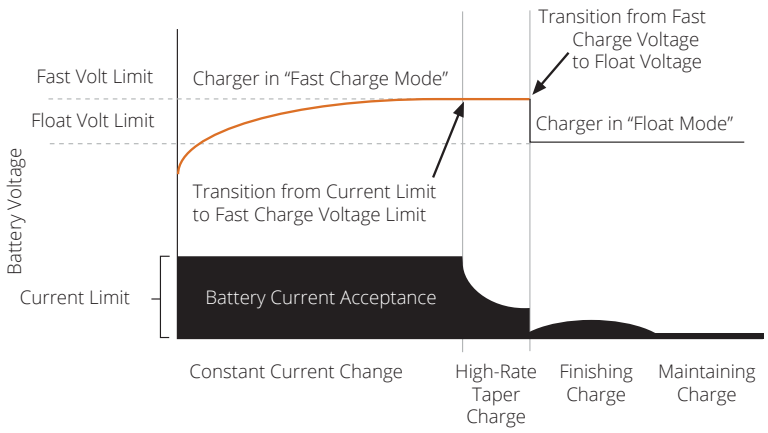


AC Input	
Voltage	110-120/208-240 VAC, ±10%, Single Phase, Field Selectable
Input Current	12.6/6.3 Amps Maximum
Frequency	60 Hz ±5% Standard; 50/60 Hz ±5% Optional
Input Protection	1-pole Fuse, Soft-start, Transient Suppression

Charger Output	
Nominal Voltage Ratings	12 or 24 Volt Nominal
Optional Voltage Rating	12/24 Volt, Field Selectable
Battery Settings	Six Discrete Battery Voltage Programs
	Low or High S.G. Flooded
	Low or High S.G. VRLA
	Nickel Cadmium 9,10,18,19 or 20 Cells
Regulation	±0.5% Line and Load Regulation
Current	Nominal
Electronic Current Limit	105% Rated Output Typical, No Crank Disconnect Required
Charge Characteristic	Constant Voltage, Current Limited, 4-rate Automatic Equalization
Temperature Compensation	Enable or Disable Anytime, Remote Sensor Optional
Output Protection	Current Limit, 1-pole Fuse, Transient Suppression

Alarm System Functions	Alarm Code "C" Meets Requirements of NFPA 110)
AC Good	LED
Float Mode	LED
Fast Charge	LED
Temp Comp Active	LED
AC Fail	LED and Form C Contact*
Low Battery Volts	LED and Form C Contact*
High Battery Volts	LED and Form C Contact*
Charger Fail	LED and Form C Contact*
Battery Fault	LED and Form C Contact*

Standard 4-Rate Charging



*Contacts rated 2A @ 30 VDC Resistive

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Part No. 0L0283B
Rev. D 09/27/22

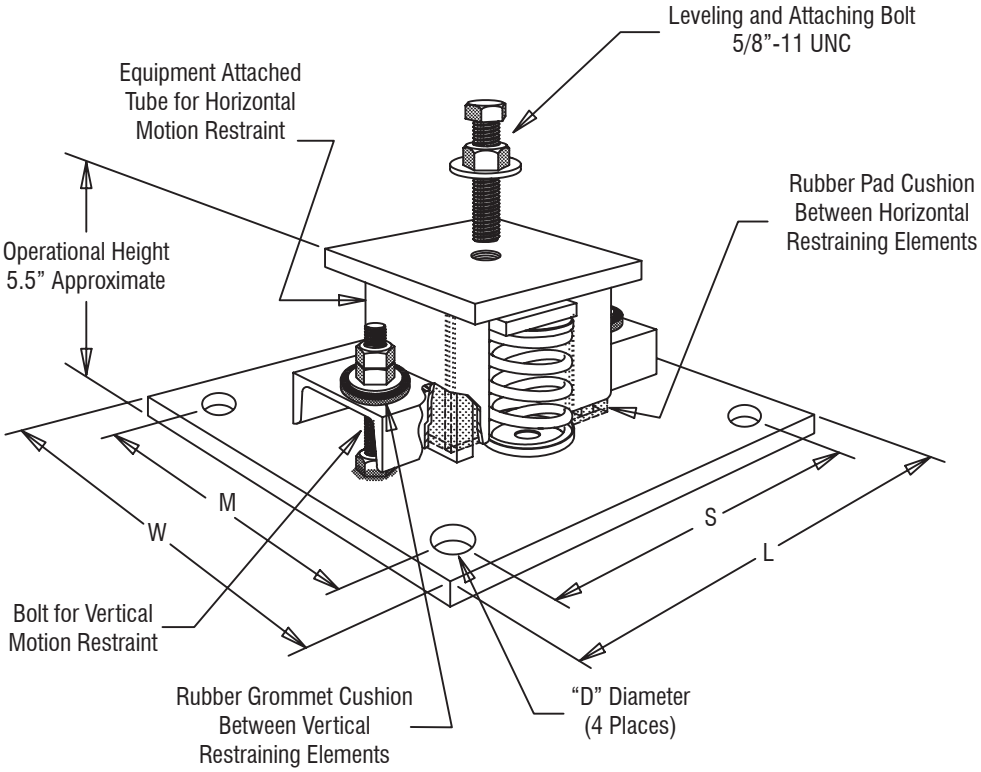
SPRING VIBRATION ISOLATOR (SEISMIC)

Type	Maximum Load (lbs)	Maximum Deflection (In)	Spring Rate (lbs/In)
RJSD	3,040	0.78	3,900

EARTHQUAKE RESTRAINTS
Equipment Motion Is Limited in All Horizontal and Vertical Directions.

PROTECTION FOR :

- Earthquakes : Seismic Zone 4
- Windloads
- Equipment Weight Change Due to Drainage
- Unstable Installations Due to High Equipment Center of Gravity



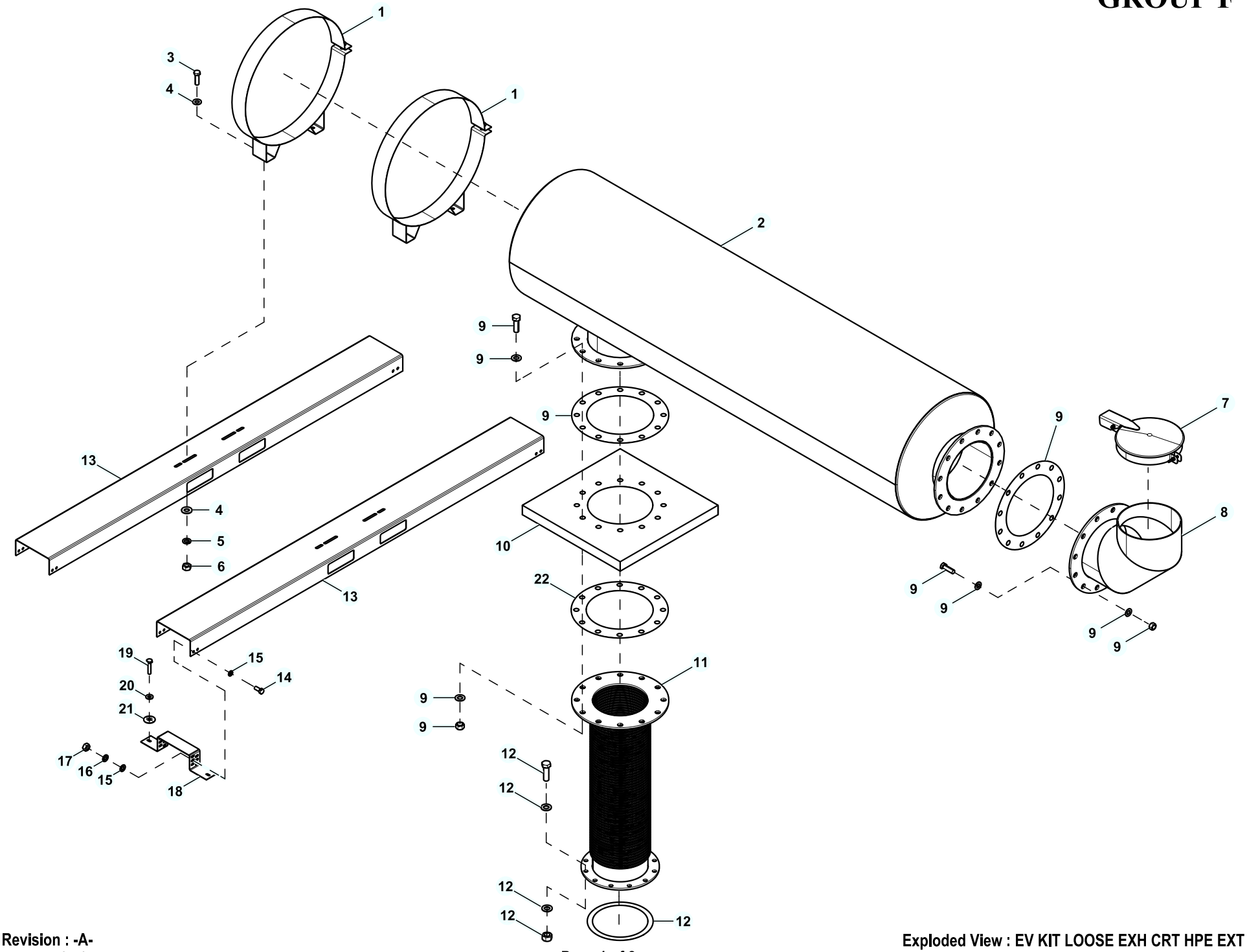
Dimension (Inches)

Base Plate Designation	L	S	W	M	D
7,855	10	8.5	7.5	6	0.625

Manufacturer	Manufacture Part Number	Quantity				
		750kW/800kW	900kW/1,000kW	1,250kW	1,500kW	2,000kW
CALDYN	RJSD-3040K-7855	10	10	10	12	14

Part No. 0L1835A
Rev. E 11/03/19

GROUP F



Revision : -A-
Date : 12/20/16

Exploded View : EV KIT LOOSE EXH CRT HPE EXT 1250KW
Drawing No. : 10000010220

EXPLODED VIEW: EV KIT LOOSE EXH CRT HPE EXT 1250KW

DRAWING #: 10000010220

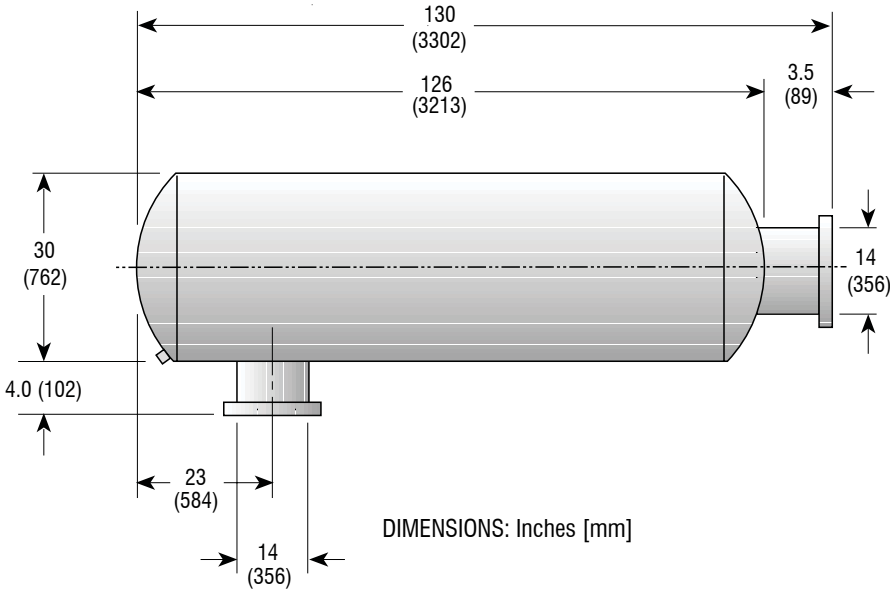
GROUP F

ITEM	PART#	QTY.	DESCRIPTION
1	EA0008B15	2	BAND SILENCER EXH 30"
2	EA0008A89	1	SILCR CRT SIEO 14 FLNG 14 FLNG 30.3DIA
3	G075672	4	SCREW HHC M12-1.25 X 40 C8.8
4	G022304	8	WASHER FLAT 1/2 ZINC
5	G051769	4	WASHER LOCK M12
6	G069918	4	NUT HEX M12-1.25 G8 YEL CHR
7	EA0026A32	1	RAINCAP SLNCR 14.00"
8	EA0005A06	1	ELBOW EXHAUST 14.0"ASA
9	GS0089A85	2	KIT GASKET EXH 16"ASA
10	EN6000G75	1	RAIN SHIELD 30 INCH SQ 14 INCH ASA FLANGE
11	EA0024B129	1	FLEX EXH 12 ASA X 430MM JIS 5 X 44 IN
12	GS0089A86	1	KIT GASKET EXH JIS 5K 362MM
13	10000007429	2	ST03 MNT SLNC 108 INCH 900-1000KW L0-L1-L2
14	G052212	8	SCREW HHC M10-1.25 X 25 C8.8
15	G070264	16	WASHER FLAT M10
16	G046526	8	WASHER LOCK M10
17	G046525	8	NUT HEX M10-1.25 G8 YEL CHR
18	EN6003S01L2B	4	MNT SLNC HAT HEAVY BLACK
19	10XN2520K20	8	1/4-20 X 1.25" HX HD SCRWGRADE 5 ZI
20	HW1000A24	8	WASHER FLAT .28 X .74 X.06 (CRS)
21	HW1053A00	8	WASHER BONDED SEALING GALV
22	GS0089A90	1	GASKET,EXH,14"ASA

CRITICAL GRADE SILENCER
14” Inlet/Outlet

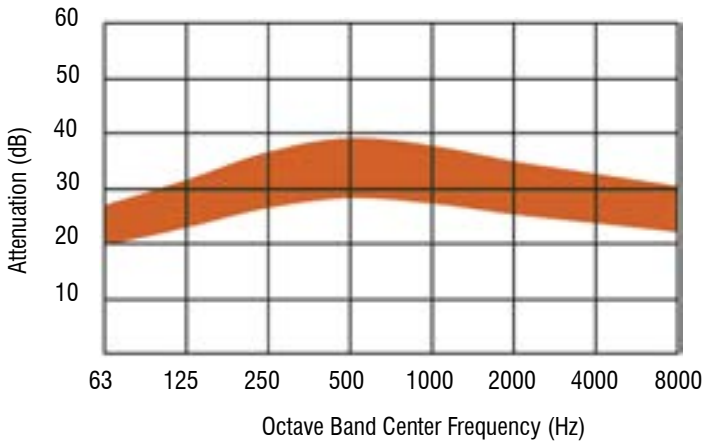
Specifications

- 14” Inlet/Outlet
- Construction:
  - Body: Carbon Steel, Double Wrapped
  - Fittings: Mild Steel
- Approximate Weight: 854 Lbs.
- Finish: Satin Black Paint Rated TO 1,200 °F
- Inlet/Outlet Fittings: 125/150# ASA Standard
- Drain Fitting and Plug Standard

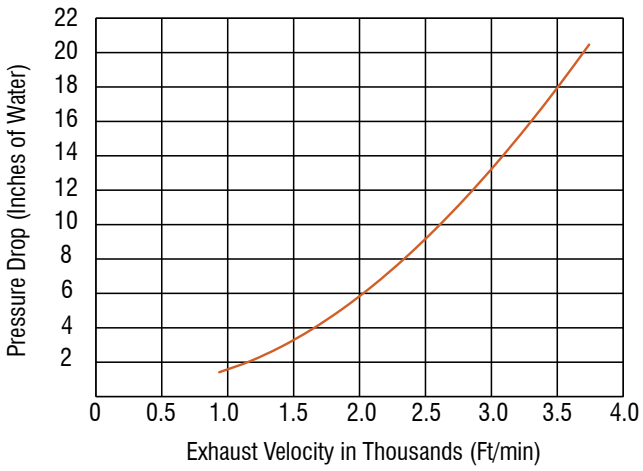


DIMENSIONS: Inches [mm]

Typical Attenuation Curve



Pressure Drop



Note: Images Not to Scale

Part No. 10000018659
Rev. B 11/15/19

EATON POWER DEFENSE™ CIRCUIT BREAKER DATA
PD3 FRAME

DESCRIPTION

- Globally accepted molded case circuit breakers
- Covers a range of 100A through 600A
- Available in standard 80% rating or optional 100% UL rating (1)

AVAILABLE FEATURES AND ACCESSORIES

- Thermal/Magnetic trip units (fixed thermal, adjustable magnetic)
- PXR 10 Electronic Trip Units (LSI)
  - — Shunt Trip
  - — Auxiliary Contacts
  - — Alarm Contacts

STANDARDS AND CERTIFICATIONS

- UL
- CSA
- IEC (CE)
- CB (CCC)

PD G 3 3 M 0400 TFA

Product Series	Certifications/ Standards	Frame Size	Pole Size	Interrupting Ratings	Continuous Current Ratings	Trip Unit Type Options
PD= Power Defense	**G** = 80% Rated	**3** = 3	**3** = 3-pole	**F** = 25 kA at 480V	**0125** = 125A	**B2N** = PXR 10 LSI
	F = 100% Rated			**G** = 35 kA at 480V	**0250** = 250A	**TFA** = Thermal/ Magnetic
				K = 50 kA at 480V	**0400** = 400A	**KNS** = Molded Case Switch (2)
				M = 65 kA at 480V	**0600** = 600A	
				F = 14 kA at 600V		
				G = 18 kA at 600V		
				K = 25 kA at 600V		
				M = 35 kA at 600V		

(1) 100% rating available on LSI trip only
(2) Magnetic-only Molded Case Switch available at 400A and 600A

All breakers are rated 600V
All breakers are 3-Pole

Part No.A0004549668
Rev. A 6/20/23

EATON POWER DEFENSE™ CIRCUIT BREAKER DATA
PD3 FRAME

THERMAL/MAGNETIC TRIP UNITS, PD3 FRAME
*Fixed Thermal, Adjustable Magnetic
*Modular, field-installable

EATON#	Continuous Current Rating
PDG3XTFA30100	0100
PDG3XTFA30125	0125
PDG3XTFA30150	0150
PDG3XTFA30175	0175
PDG3XTFA30200	0200
PDG3XTFA30225	0225
PDG3XTFA30250	0250
PDG3XTFA30300	0300
PDG3XTFA30350	0350
PDG3XTFA30400	0400
PDG3XTFA30500	0500
PDG3XTFA30600	0600

All breakers are rated 600V
All breakers are 3-Pole

EATON POWER DEFENSE™ CIRCUIT BREAKER DATA
PD3 FRAME

ELECTRONIC TRIP UNITS, PD3 FRAME
*PXR 10 - LSI Trip
*Modular, field-installable

EATON#	Continuous Current Rating	
PDG3XPXR30125B2N	0125	LSI
PDG3XPXR30250B2N	0250	LSI
PDG3XPXR30400B2N	0400	LSI
PDG3XPXR30600B2N	0600	LSI

Available Continuous Current (Ir) Settings on PXR Electronic Trip Units

Catalog Number Selection and Maximum Setting (In)

Option	Setting	0125 125 A	0250 250 A	0400 400 A	0600 600 A
PXR 10	1	45 A	90 A	160 A	250 A
	2	50 A	100 A	175 A	275 A
	3	60 A	110 A	200 A	300 A
	4	63 A	125 A	225 A	320 A
	5	70 A	150 A	250 A	350 A
	6	80 A	160 A	275 A	400 A
	7	90 A	175 A	300 A	450 A
	8	100 A	200 A	320 A	500 A
	9	110 A	225 A	350 A	550 A
	10 = In	125 A	250 A	400 A	600 A

All breakers are rated 600V
All breakers are 3-Pole

LOAD-SIDE LUGS - PD3 FRAME

BREAKER-FRAME	CIRCUIT BREAKER RANGE (A)	WIRE TEMPERATURE RATING	CIRCUIT BREAKER LUGAWGWIRE RANGE/(NUMBER OF CONDUCTORS)	TORQUETO WIRE	GENERAC #	EATON#
Power Defense - 3	100-225	194°F (90°C)	3-350 (1)	275 in-lb (31 Nm)	A0002200434	PDG3X3TA300
Power Defense - 3	250-350	194°F (90°C)	250-500 (1)	375 in-lb (42.37 Nm)	A0002200435	PDG3X3TA350
Power Defense - 3	400	194°F (90°C)	3/0-250 (2)	275 in-lb (31 Nm)	A0002200436	PDG3X3TA400
Power Defense - 3	450-600	194°F (90°C)	2-500 (2)	375 in-lb (42.37 Nm)	A0002200437	PDG3X3TA630

All breakers are rated 600V
All breakers are 3-Pole

Part No.A0004549668
Rev. A 6/20/23

EATON POWER DEFENSE™ CIRCUIT BREAKER DATA
PD6 FRAME

DESCRIPTION

- Globally accepted molded case circuit breakers
- Covers a range of 700A through 2500A
- Available in standard 80% rating or optional 100% UL rating

AVAILABLE FEATURES AND ACCESSORIES
PXR 20 Electronic Trip Units

— LSI Trip
— LSIG Trip
— LSIA Trip
— LSIGA

Modular field-installable accessories

— Shunt Trip
— Auxilary Contacts
— Alarm Contacts

STANDARDS AND CERTIFICATIONS

- UL
- CSA
- IEC (CE)
- CB (CCC)

PD G 6 3 M 2500 P2M

Product Series	Certifications/ Standards	Frame Size	Pole Options	Interrupting Ratings	Continuous Current Ratings	Trip Unit Type Options
PD= Power Defense	**F** = 100% Rated	**6** = 6	**3** = 3-pole	**M** = 65 kA at 480V	**1600** = 1600 A	**E2N** = PXR20 LSI
	G = 80% Rated			**N** = 85 kA at 480V	**2000** = 2000 A	**E3RN** = PXR20 LSIG
				P = 100 kA at 480V	**2500** = 2500 A	**E4RN** =PXR20 LSIA
				M = 35 kA at 600 V		**E5RN** = PXR20 LSIGA
				N = 50 kA at 600 V		**KSN** = Molded Case Switch (1)
				P = 65 kA at 600 V		

(1) Magnetic-only Molded Case Switches available at 1600A and 2000A

All breakers are rated 600V
All breakers are 3-Pole

Part No.A0004549671
Rev. A 6/20/23

EATON POWER DEFENSE™ CIRCUIT BREAKER DATA
PD6 FRAME

ELECTRONIC TRIP UNITS, PD6 FRAME

PXR20 Electronic Trip Units
- -LSI
- -LSIG
- -LSIA
- -LSIGA

PXR20

EATON #	Continuous Current Rating	
PDG6XPXR31600E2N	1600	LSI
PDG6XPXR31600E3RN	1600	LSIG
PDG6XPXR31600E4RN	1600	LSIA
PDG6XPXR31600E5RN	1600	LSIGA
PDG6XPXR32000E2N	2000	LSI
PDG6XPXR32000E3RN	2000	LSIG
PDG6XPXR32000E4RN	2000	LSIA
PDG6XPXR32000E5RN	2000	LSIGA
PDG6XPXR32500E2N	2500	LSI
PDG6XPXR32500E3RN	2500	LSIG
PDG6XPXR32500E4RN	2500	LSIA
PDG6XPXR32500E5RN	2500	LSIGA

Available Continuous Current (Ir) Settings on PXR Electronic Trip Units

Maximum Setting (In)

Option	Setting	1600 1600 A	2000 2000 A	2500 250 A
PXR 20	1	700 A	1000 A	1600 A
	2	800 A	1100 A	1700 A
	3	900 A	1200 A	1800 A
	4	1000 A	1250 A	1900 A
	5	1100 A	1400 A	2000 A
	6	1200 A	1600 A	2100 A
	7	1250 A	1700 A	2200 A
	8	1400 A	1800 A	2300 A
	9	1500 A	1900 A	2400 A
	10 = In	1600 A	2000 A	2500 A

All breakers are rated 600V
All breakers are 3-Pole

Part No.A0004549671
Rev. A 6/20/23

EATON POWER DEFENSE™ CIRCUIT BREAKER DATA
PD6 FRAME

LOAD-SIDE LUGS - PD6 FRAME

BREAKER-FRAME	CIRCUIT BREAKER RANGE (A)	WIRE TEMPERATURE RATING	CIRCUIT BREAKER LUGAWGWIRE RANGE/(NUMBER OF CONDUCTORS)	TORQUE TO WIRE	GENERAC #	EATON#
Power Defense - 6	1600	167°F (75°C)	500-1000 (4)	550 in-lb (62.14 Nm)	A0002200444	PDG6X1TA1600
Power Defense - 6	2000	194°F (90°C)	2-600 (6)	375 in-lb (42.37 Nm)	A0002200445	PDG6X3TA2000

All breakers are rated 600V
All breakers are 3-Pole

Part No.A0004549671
Rev. A 6/20/23

HIGH PERFORMANCE ENCLOSURE (HPE)

High Performance Enclosure

HPE Weather resistant enclosures with sound attenuating material are highly engineered and are the result of many years of experience in the standby generation markets.

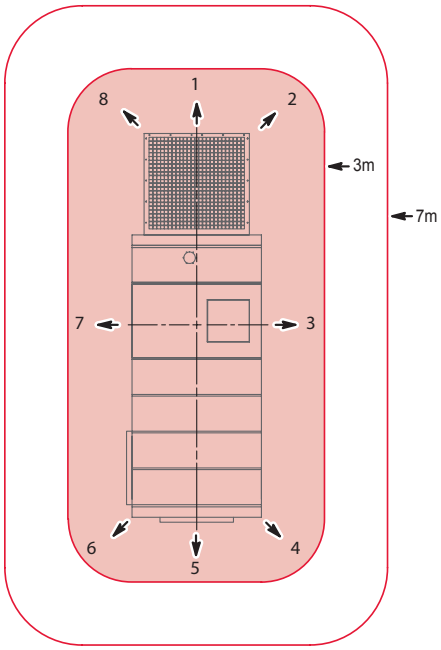
HPE Type	Noise Reduction		Silencer Grade
	@3m	@7m	
Level 0	3 dbA	5 dbA	Industrial
Level 1	15 dbA	25 dbA	Critical
Level 2	25 dbA	32 dbA	Hospital

Protective Coating

The walls and roof are finished with DuPont Powder Coating No. P20142APC, Industrial Gray, TGIC-Polyester, electrostatically applied enamel-based powder paint 1.5 to 2.5 mil. thickness that is baked at 400°F for 15 minutes. This provides a durable weather resistant finish that will protect your investment for many years to come.

Noise Measurements

Noise measurements are taken at 3 meters (and 7m) from the enclosure as indicated in this figure. The genset exhaust hood is position #1.



Standard Features (All Levels)

- Roof and wall sections ar 14 gauge ASTM A569 hot rolled steel with #4 finish.
- Modular construction allows flexibility to meet various field conditions including reversing door swing, adding or moving doors, or adding sound attenuating hoods.
- Wall sections use overlapping flanges that are bolted together and to the base rail with SAE grade 5 bolts with Nylock™ or Rivnut™ fasteners or equivalent.
- Roof, wall and door sections are no more than 42 inch wide with folded flanges of no less than 2-¼ inch to prevent moisture from entering the genset area and can withstand up to 120 MPH wind load.
- Weather resistant drip proof construction include a roof section load rating of 25 lb/ft^2 with 1 inch overhung drip edge and rain gutters over all doors and opening to maintain less than 0.01 ounces of moisture penetration per square foot of louver free area during a 4 inch per hour rainfall.
- Grade 2 hardware kit includes zinc plated fasteners, zinc plated cast aluminum keylock door handles, and heavy duty stainless steel hinges with removable brass pins.
- Heavy duty door gaskets are made from non-hygroscopic rubber to prevent doors from freezing shut during inclement weather.
- Structural steel frame includes spring vibration isolators between genset and base to decouple genset from enclosure mounting points. Frame includes integral lifting points capable of lifting the genset with the enclosure without damage.
- Internal stub up area is provided for easy access to power cabling and fuel supply connections.

Construction

The bolt together modular design is superior to a welded box. Sections may be removed for service of major components.

Hinges

Stainless steel butt hinges with removable brass pins are long lasting and easy to open or close for routine maintenance.

Latch

Heavy duty, single-point latches are durable and easy to use.

Handle

Lockable L-type door handles are keyed alike, easy to use and provide security.

HIGH PERFORMANCE ENCLOSURE (HPE)

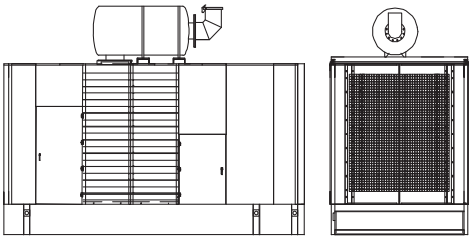
Standard Features, HPE Level 0

In addition to the "Standard Features (All Levels)" the following additional features are also included for the Level 0 Enclosure:

- Weather Resistant Enclosure
- Noise reduction 3 dBA at 3 Meters
- Unit Mounted Radiator suitable for 40°C Ambient

- External mount Critical Grade silencer. Silencer is mounted above the enclosure roof using heavy duty powder coated brackets. Integral rain shield is included on exhaust pipe to enclosure opening to divert rain and debris away from the genset area.

- Fixed louvers for Cooling Air Intake are made of mil finished aluminum. Louvers divert rain and debris away from the genset area and include a bird and debris screen.• Punched screen Air Discharge barrier is mounted in front of the unit mounted radiatior to protect from birds and debris. Air discharge barrier is made of the same enclosure material to complement the genset exterior.



See Data Sheet for dimension information.

Standard Features, HPE Level 1

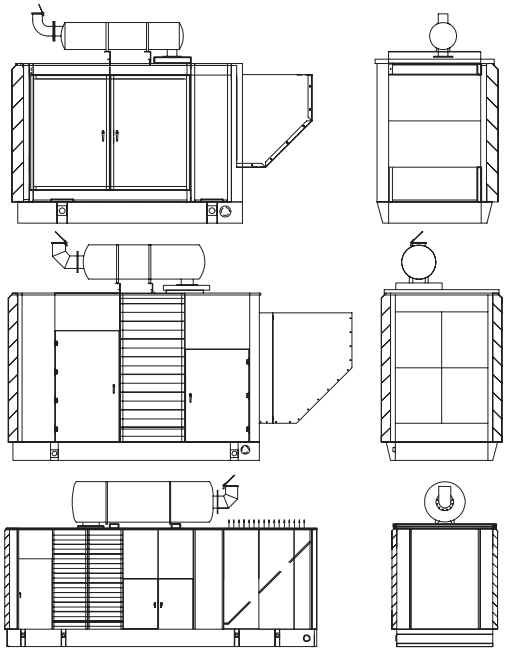
- Sound Attenuated Enclosure
- Noise reduction 15 dBA at 3 Meters
- Unit Mounted Radiator suitable for 40°C Ambient

- External mount Critical Grade silencer. Silencer is mounted above the enclosure roof using heavy duty powder coated brackets. Integral rain shield is included on exhaust pipe to enclosure opening to divert rain and debris away from the genset area.

- Fixed Acoustic Louvers for Cooling Air Intake are made of mil finished aluminum exterior with fiberglass insulation and perforated aluminum on interior facing surface. Louvers divert rain and debris away from the genset area and include a bird and debris screen.

- Air Discharge hood is mounted in front of the unit mounted radiatior and includes an integral Punched Screen Barrier to protect from birds and falling debris. Discharge Hood is lined with acoustic foam insulation and includes a rain gutter to channel water away from the genset interior. Discharge hood and barrier are made of the same enclosure material to complement the genset exterior.

- Sound Deadening Interior Surface is designed with 3 inches of thermoset fiber material set between the exterior wall and a perforated mil finished aluminum interior wall.

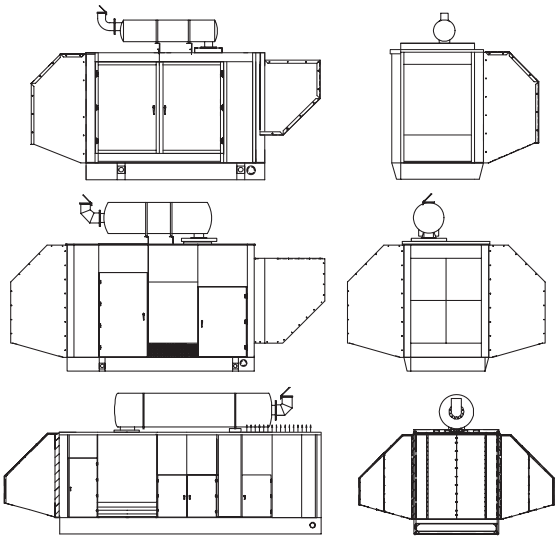


See Data Sheet for dimension information.

EXTREME PERFORMANCE ENCLOSURE (EPE)

Standard Features, HPE Level 2

- Sound Attenuated Enclosure
- Noise reduction 25 dBA at 3 Meters
- Unit Mounted Radiator suitable for 40°C Ambient
- External mount Hospital Grade silencer. Silencer is mounted above the enclosure roof using heavy duty powder coated brackets. Integral rain shield is included on exhaust pipe to enclosure opening to divert rain and debris away from the genset area.
- Air Intake Hoods lined with acoustic foam are mounted over Fixed Acoustic Louvers for Cooling Air Intake. Hoods are manufactured of aluminum and the louvers are made of mil finished aluminum exterior with fiberglass insulation and perforated aluminum on interior facing surface. Louvers divert rain and debris away from the genset area and include a bird and debris screen.
- Air Discharge hood is mounted in front of the unit mounted radiatior and includes an integral Punched Screen Barrier to protect from birds and falling debris. Discharge Hood is lined with acoustic foam insulation and includes a rain gutter to channel water away from the genset interior. Discharge hood and barrier are made of the same enclosure material to complement the genset exterior.
- Sound Deadening Interior Surface is designed with a barium sulfate reflector sandwiched between two sections of 1-½ inches of thermoset fiber material. The 3+ inches of acoustic insulation is set between the exterior wall and a perforated mil finished aluminum interior wall.



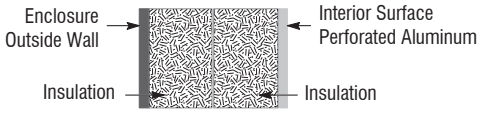
See Data Sheet for dimension information.

Noise Attenuation Methods

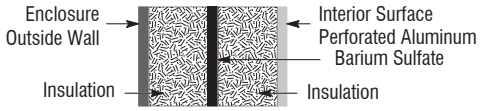
Sound Attenuation Material Specifications

- Inorganic glass fiber bonded with thermosetting resin into pre-formed 1-½ inch thick boards. Minimum density is 3.0 lb/ft³ (48kg/m³).
- Surface burning meet NFPA 90A and 90B
- Corrosive resistance meet ASTM C665 and exceeds Mil-I-24244B for stress corrosion
- Moisture absorption is less than 5% by weight when exposed to air at 120°F (49°C) and 95% humidity for 96 hours per ASTM C553
- Shrinkage is less than 0.3% linear per ASTM C356
- Interior wall is made of 0.032 inch thick perforated mil finish aluminum with a minimum of 40% open area for maximum sound absorption
- Level 2 enclosures include a Barium Sulfate Loaded Vinyl Sheet Reflector sandwiched between two layers of 1-½ inch glass fiber boards. Reflector is 1 lb/ft² surface mass and meets ASTM E90-90.

Level 1 Noise Attenuation



Level 2 Noise Attenuation



HIGH PERFORMANCE ENCLOSURE (HPE)

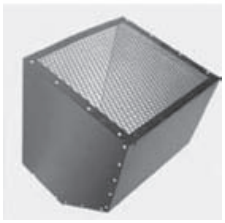
Optional Features

- Aluminum Exterior Construction: Roof and wall sections are manufatcured with pre-painted 0.08 inch 5052-H32 aluminum formed into 3 inch thick panels with #4 finish. An aluminum exterior has superior corrosion resistance in salt spray or alkaline environment and provides a durable weather resistant finish to protect your genset investment for years to come.
- Grade 3 Hardware Kit: Enclosure includes stainless steel fasteners for all exterior surafeces, zinc plated cast aluminum keylock door handles, and heavy duty stainless steel hinges with removable brass pins. Recommended when an Aluminim Enclosure is requested.
- Seismic Vibration Isolators: Structural steel base includes Zone 4 Seismic Type spring vibration isolators between genset and base to decouple genset from enclosure mounting points. With proper mounting of the genset to foundation the increased vibration capability will better prepare the genset for a seismic event.
- High Temperature Radiator: Unit mounted radiator and engine cooling system can be upgraded for high ambient temperature operation. Ambient temperatures of 45°C or 50°C can be requested depending on engine manufacturers recommendations and specifications. Please review genset data sheets for maximum ambient temperature capability.
- UL2200 Enclosure Construction: The genset and enclosure can be designed and manufactured to the requirements of UL2200. The UL2200 Listed genset will be constructed with materials, guards, and components as necessary to carry the UL Listed markings.
- Sub Base Fuel Tank: For diesel powered gensets the genset and enclosure can be mounted to a sub base fuel tank. Double wall UL142 Listed tanks are recommended for all applications and are required if UL2200 Listing is requested. When specified with High Performance Enclosures the genset will mount to the sub base tank through vibration isolators while the enclosure will mount directly to the sub base flange area.
- Intake Louver: Intake louvers can be supplied with fixed or motorized units using acoustic or non-acoustic blades. Louvers will be designed so that water cannot be trapped and will include a bird and debris screen.
- Discharge Louver: Radiator cooling discharge air outlet will be protected with an extruded aluminum gravity closing damper. The damper will be constructed with lip seals to protect the genset from foreign objects and will open when the engine air flow starts and close when the air flow stops.

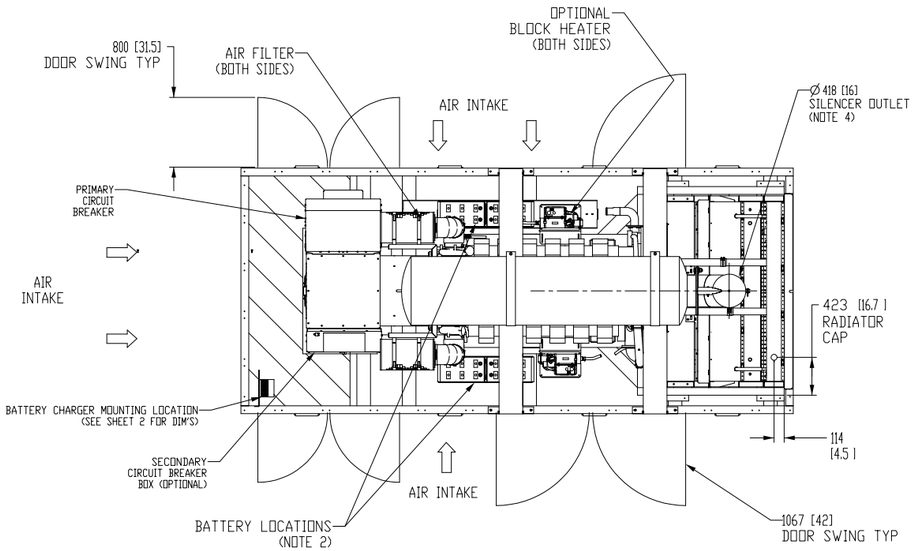
Sound Deadening Lining
Sound absorbing acoustic alinsulation held in place by perforated aluminum sheets, with 1/8" holes providing about 40% open area for maximum sound dampening.

Acoustic Intake
Exterior view.
Constructed of mill finish aluminum.

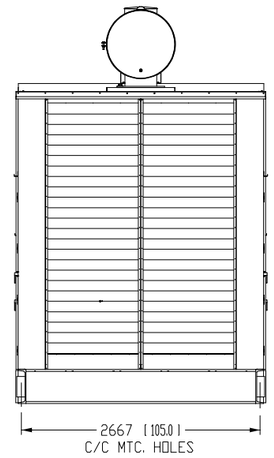
Acoustic Intake
Interior view.
Includes bird screen, acoustic insulation and perforated aluminum.



Acoustic Exhaust Hood
Constructed of 14 gauge steel or aluminum lined with sound deadening insulation and perforated aluminum.



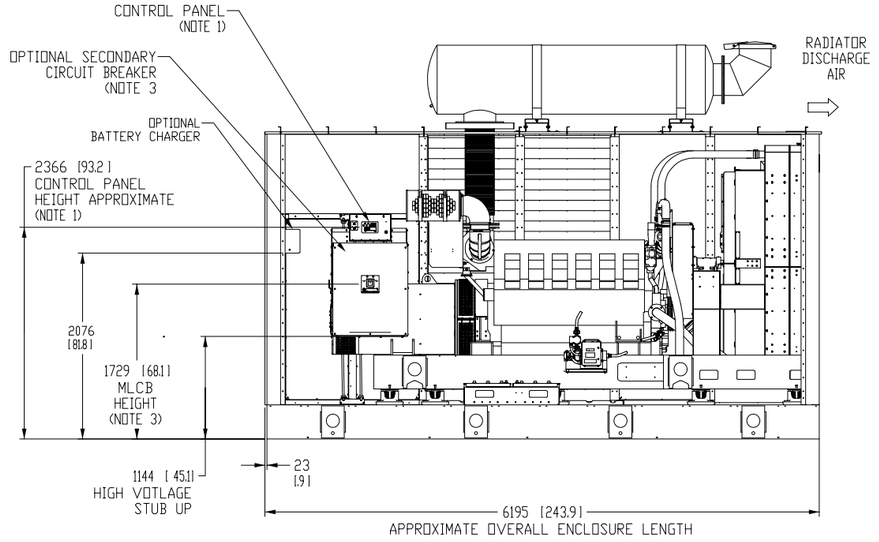
PLAN VIEW



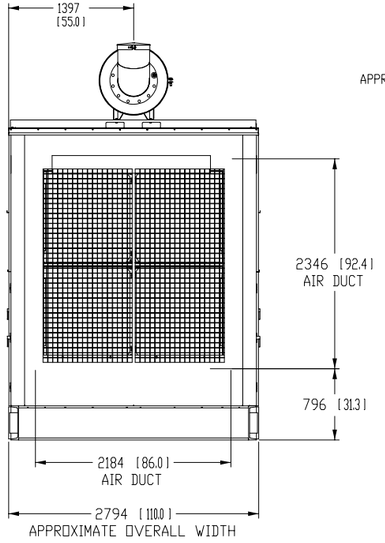
REAR VIEW

NOTES:
1. CONTROL PANEL (INTELIGEN NT)
2. BATTERY (24 VOLT NEGATIVE GROUND SYSTEM)
3. MAIN LINE CIRCUIT BREAKER (MLCB), AC LOAD LEADS
   (DIMENSIONS MAY VARY DUE TO UNIT CONFIGURATION)
4. ENGINE SERVICE CONNECTIONS:
   INLET NATURAL GAS = N/A
   INLET DIESEL = 3/4" NPT
   RETURN DIESEL = 3/4" NPT
   OIL DRAIN = 3/4" NPT COUPLING (INSIDE ENCLOSURE)
   RADIATOR DRAIN = 1/2" NPT (INSIDE ENCLOSURE)
   SILENCER OUTLET = 16" DIAMETER
*****SEE GENERATOR SIZING GUIDE FOR FUEL PIPE SIZING TO SUIT APPLICATION****
5. OPTIONAL EQUIPMENT: DISTRIBUTION PANELS, ETC. ORDER THRU APPLICATION ENGINEERING
6. GENERATOR SET MUST BE INSTALLED SUCH THAT FRESH COOLING AIR IS AVAILABLE AND DISCHARGE AIR FROM THE RADIATOR IS NOT RECIRCULATED
7. BOTTOM OF GENERATOR SET MUST BE ENCLOSED TO PREVENT PEST INTRUSION
8. EXHAUST SYSTEM MAXIMUM BACK PRESSURE = 23" H20
9. ALL DIMENSIONS ARE IN MM [INCHES]
10. STUB-UP AREAS DIFFER PER CONFIGURED/SELECTED EATON SBS OR POWER DEFENSE CIRCUIT BREAKERS
11. CUSTOMER IS RESPONSIBLE FOR DETERMINING THAT GENERACS PRODUCT WILL PERFORM SUITABLY IN THE INTENDED APPLICATION

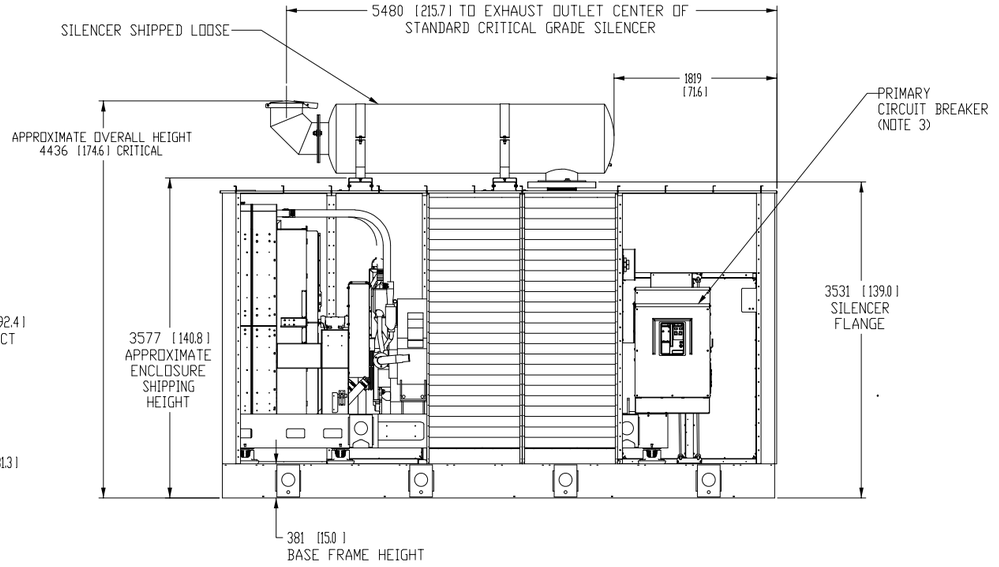
UNIT SIZE	ESTIMATED TOTAL UNIT WEIGHT
SD1250	36,136 Lbs.



RIGHT SIDE VIEW



FRONT VIEW



LEFT SIDE VIEW

DRAWING CREATED FROM PRO/ENGINEER
3D FILE. ECO MODIFICATION TO BE
APPLIED TO SOLID MODEL ONLY.

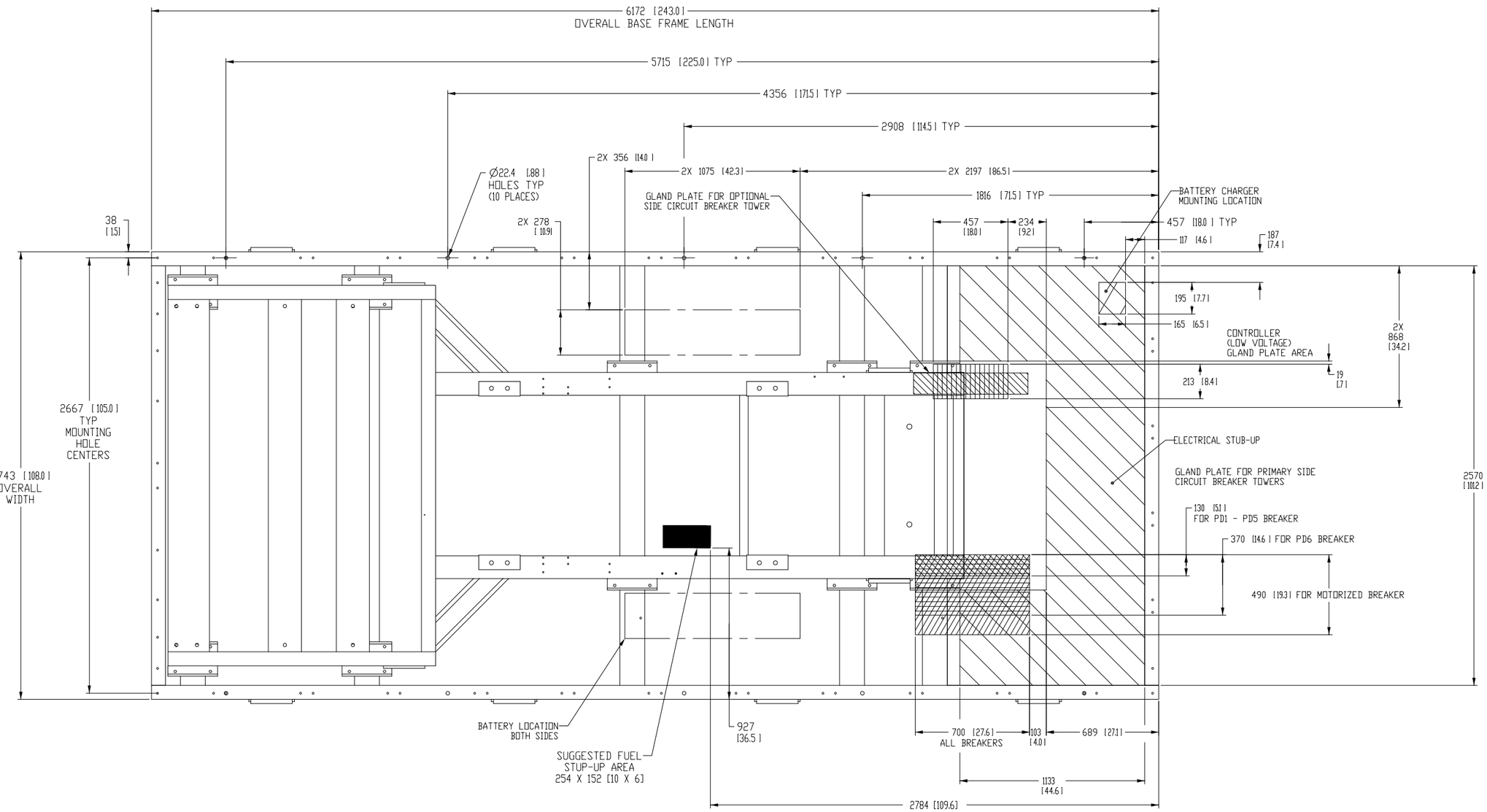
INSTALLATION DRAWING

ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

TITLE
INSTALL D49.0 1250KW LO ENCLOSURE

ISSUE DATE: 10/30/22			
SIZE D	CAGE NO N/A	DWG NO A0003236616	REV D
SCALE 0.016	WT-KG	SHEET 1 of 2	



ELECTRICAL STUB-UP	PD1 - PD5 BREAKER GLAND PLATE	PD6 BREAKER GLAND PLATE	SBS MOTORIZED BREAKER GLAND PLATE	CONTROLLER GLAND PLATE	BATTERY CHARGER LOCATION

DRAWING CREATED FROM PRO/ENGINEER
3D FILE. ECO MODIFICATION TO BE
APPLIED TO SOLID MODEL ONLY.

INSTALLATION DRAWING

ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

TITLE
STUB-UP
INSTALL D49.0 1250KW L0 ENCLOSURE

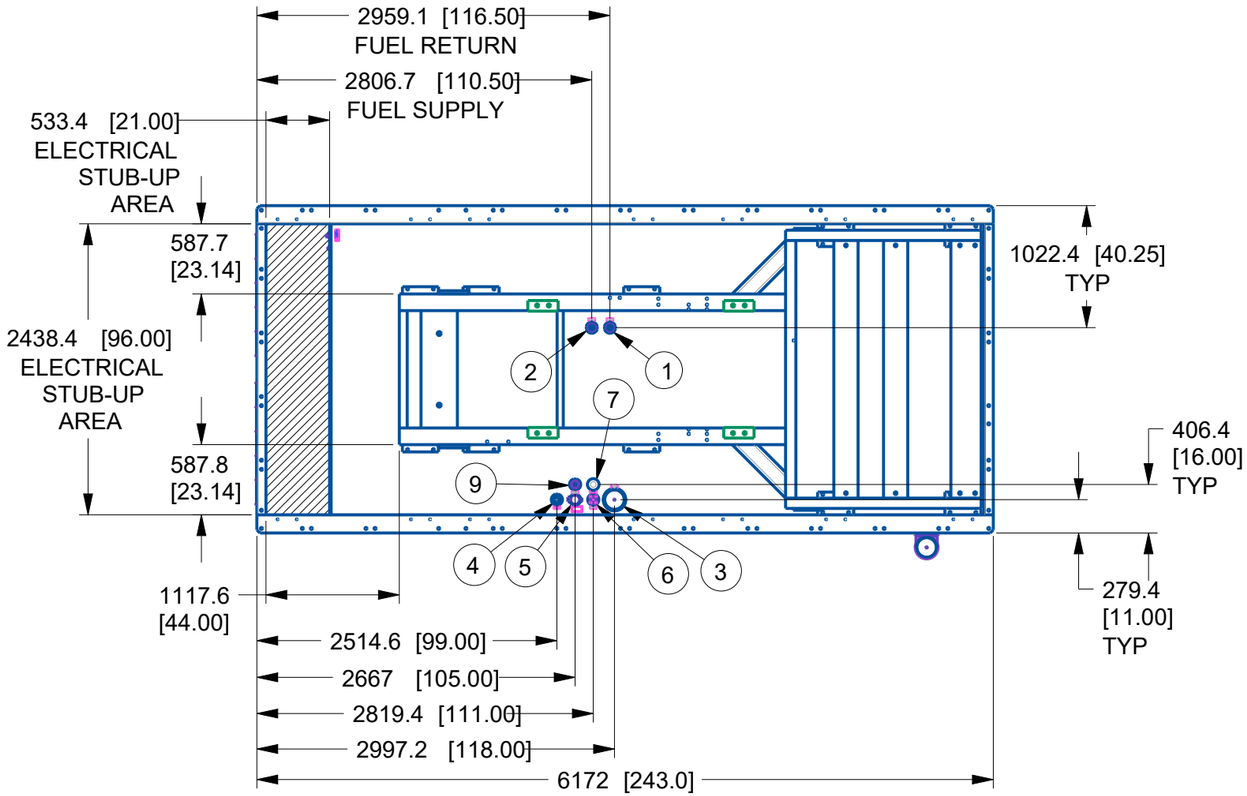
ISSUE DATE: 10/30/22

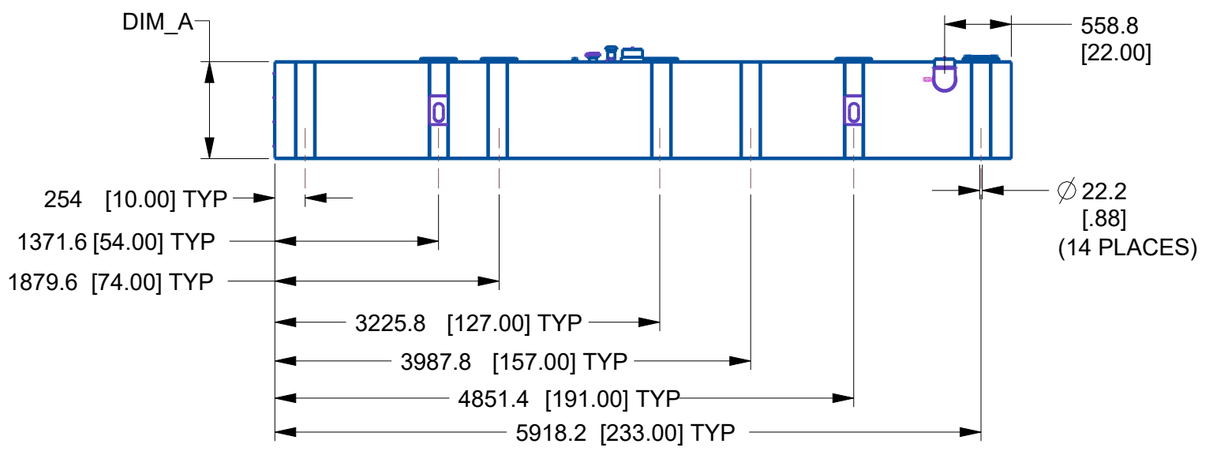
SIZE	CAGE NO	DWG NO	REV
D	N/A	A0003236616	D

SCALE 0.040 | WT-KG | SHEET 2 OF 2

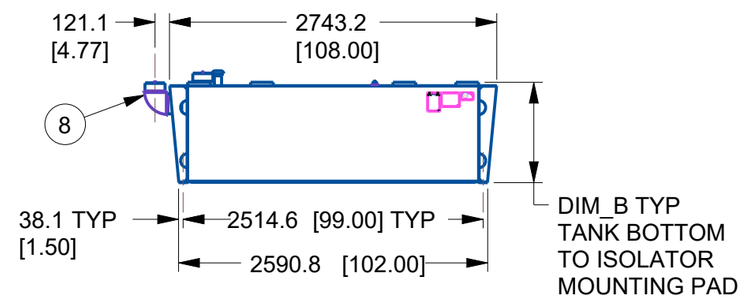
SH	REV	WINDCHILL VERSION	
1/1	B	B.1	

I/N	DESCRIPTION
1	FUEL RETURN 2" NPT
2	FUEL SUPPLY 2" NPT
3	EMERGENCY VENT 6" NPT
4	SPARE PORT 2" NPT
5	FUEL FILL TUBE AND CAP 2" NPT
6	FUEL LEVEL GAUGE
7	VENT 2" NPT
8	ELBOW AND E-VENT 6" NPT
9	RUPTURE BASIN SWITCH





TANK P/N	TA1000A46 12HR	TA1000A52 24HR
DIM_A	431.8 [17]	812.8 [32]
DIM_B	464.8 [18.3]	841.4 [33.1]
TOTAL TANK CAPACITY	1250 GAL [4732 L]	2500 GAL [9464 L]
USABLE TANK CAPACITY	N/A	N/A
DRY WEIGHT [EST]	2268 [5000 lbs]	3107.1 [6850 lbs]



NOTES:
1. AFFIX UL 142, UPP, AND WARNING LABELS.
2. ALL DIMENSIONS ARE IN MM [INCHES]
   CAPACITY SHOWN: LITER [GALLONS]
   WEIGHT SHOWN: KILOGRAMS [POUNDS]

DRAWING CREATED FROM PRO/ENGINEER 3D FILE. ECO MODIFICATION TO BE APPLIED TO SOLID MODEL ONLY.

INSTALLATION DRAWING

ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

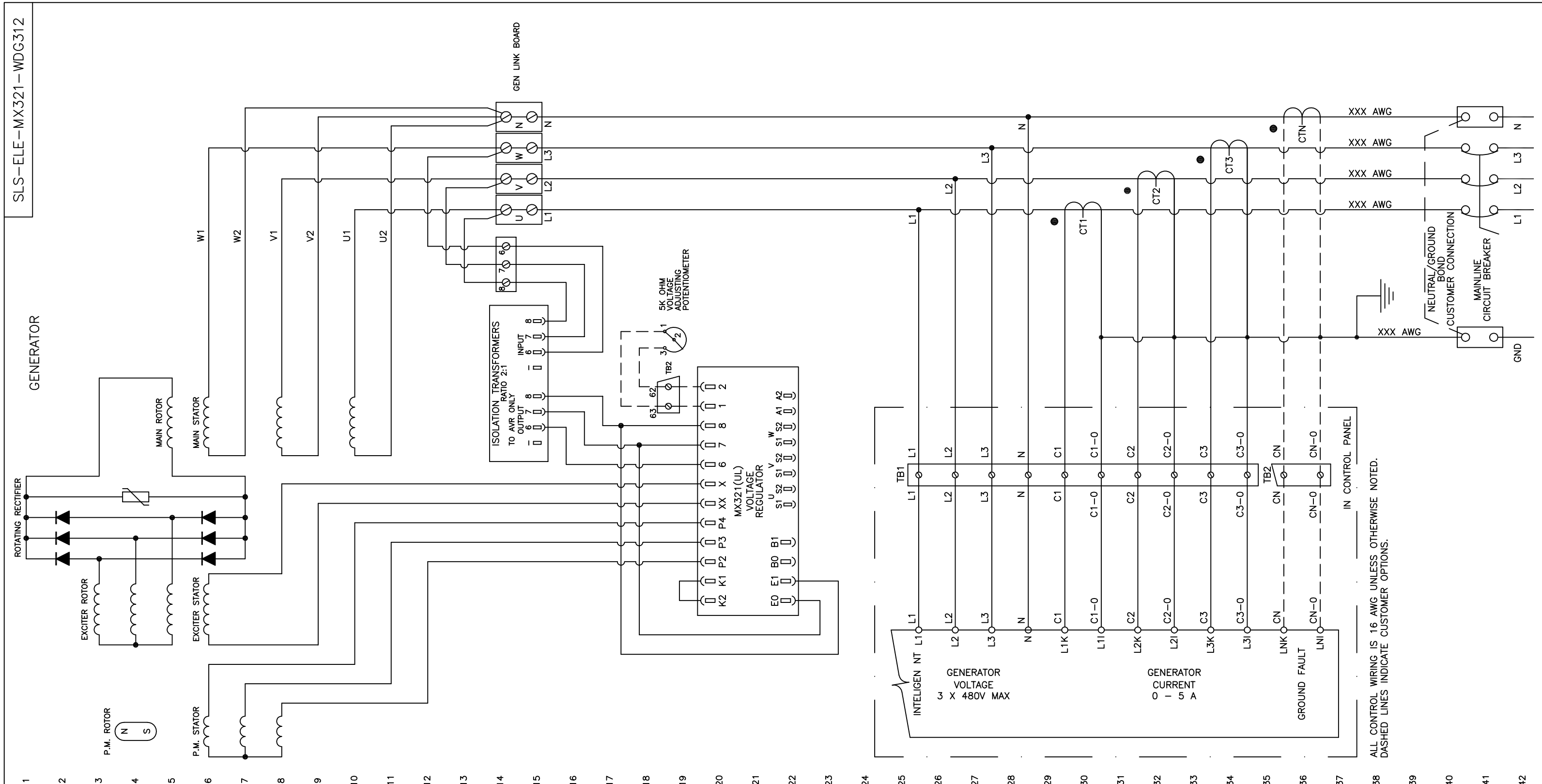
TITLE
INSTALL D49.0 1250-2500 GAL
O/S/ L0 ENCL

ISSUE DATE:

SIZE	CAGE NO	DWG NO	REV
B	N/A	A0003243425	B

SCALE	WT-KG	SHEET
0.020		1 of 1

SLS-ELE-MX321-WDG312



AC CONTROL/GENERATOR

MUST USE UL APPROVED WIRE

GENERAL TOLERANCES UNLESS NOTED			
INTERPRET DIM AND TOL PER ASME Y14.5M–1994	THIRD ANGLE PROJECTION		
APPROVAL	–	DATE	
DRAWN BY:	DMASDP	10:48:42 04/15/2014	
REV. DESC:	NEW		
FILE:	\PGA\00028\000		
REF:	SH 1 of 2	TDR: 000000846796	

GENERAC

TITLE: MX321 REGULATOR, WDG312, SALES DRAWING

MATERIAL	GENERAC MATL SPECIFICATION	PAINT SURFACE FINISH
–	–	–

SIZE	CAGE NO.	DWG NO.	REV/VER
B		SLS-ELE-MX321-WDG312	– / 00

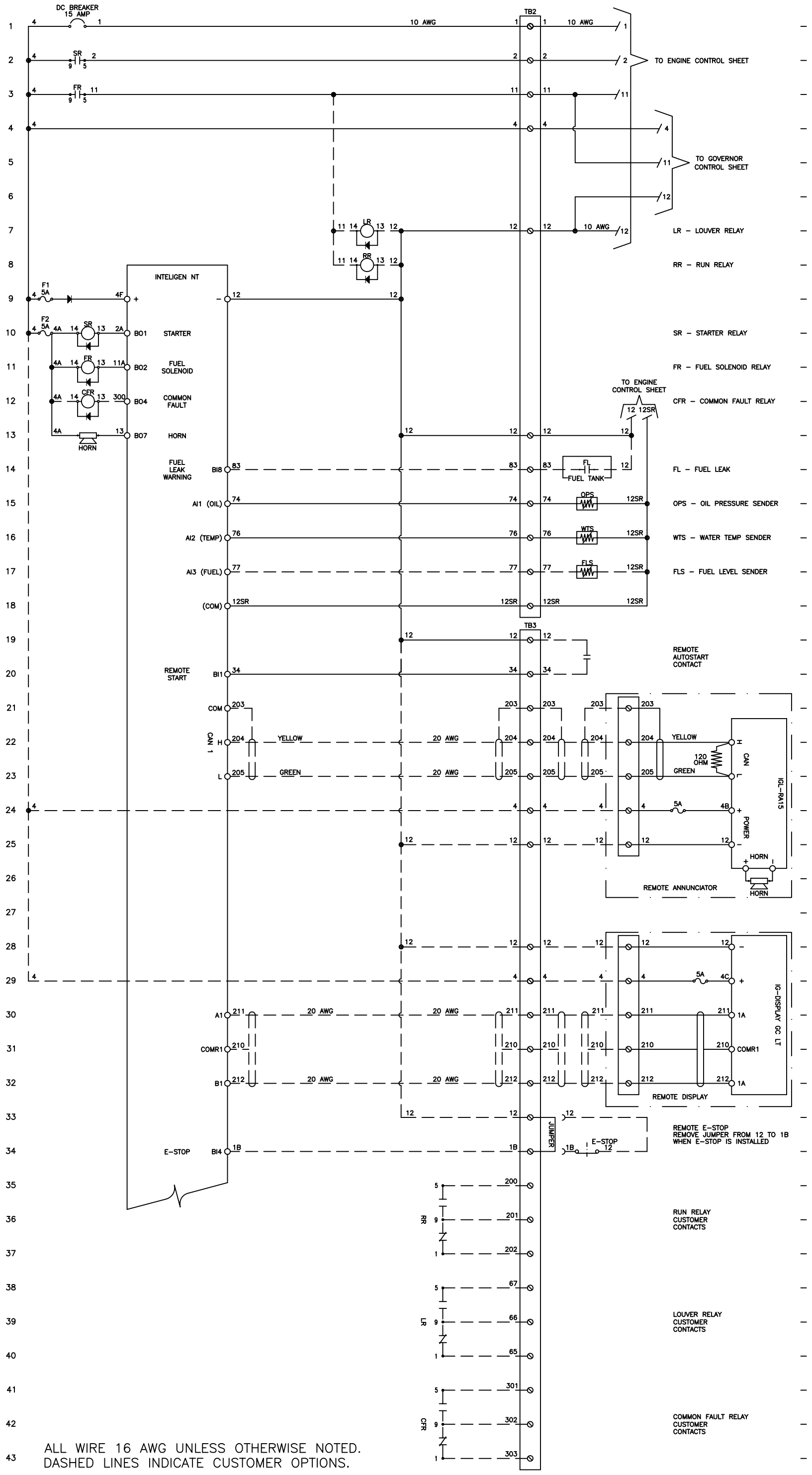
SCALE:	–	WT-KG	–	SHEET	SH 1 of 2

DC CONTROL – IDLC1250–2000–UL

MUST USE UL APPROVED WIRE

CONTROL BOX WIRING

ENGINE/OPTIONAL ACCESSORY WIRING



ALL WIRE 16 AWG UNLESS OTHERWISE NOTED.
DASHED LINES INDICATE CUSTOMER OPTIONS.

GENERAL TOLERANCES UNLESS NOTED

THIRD ANGLE PROJECTION

INTERPRET DIM AND TOL PER ASME Y14.5M–1994

TITLE

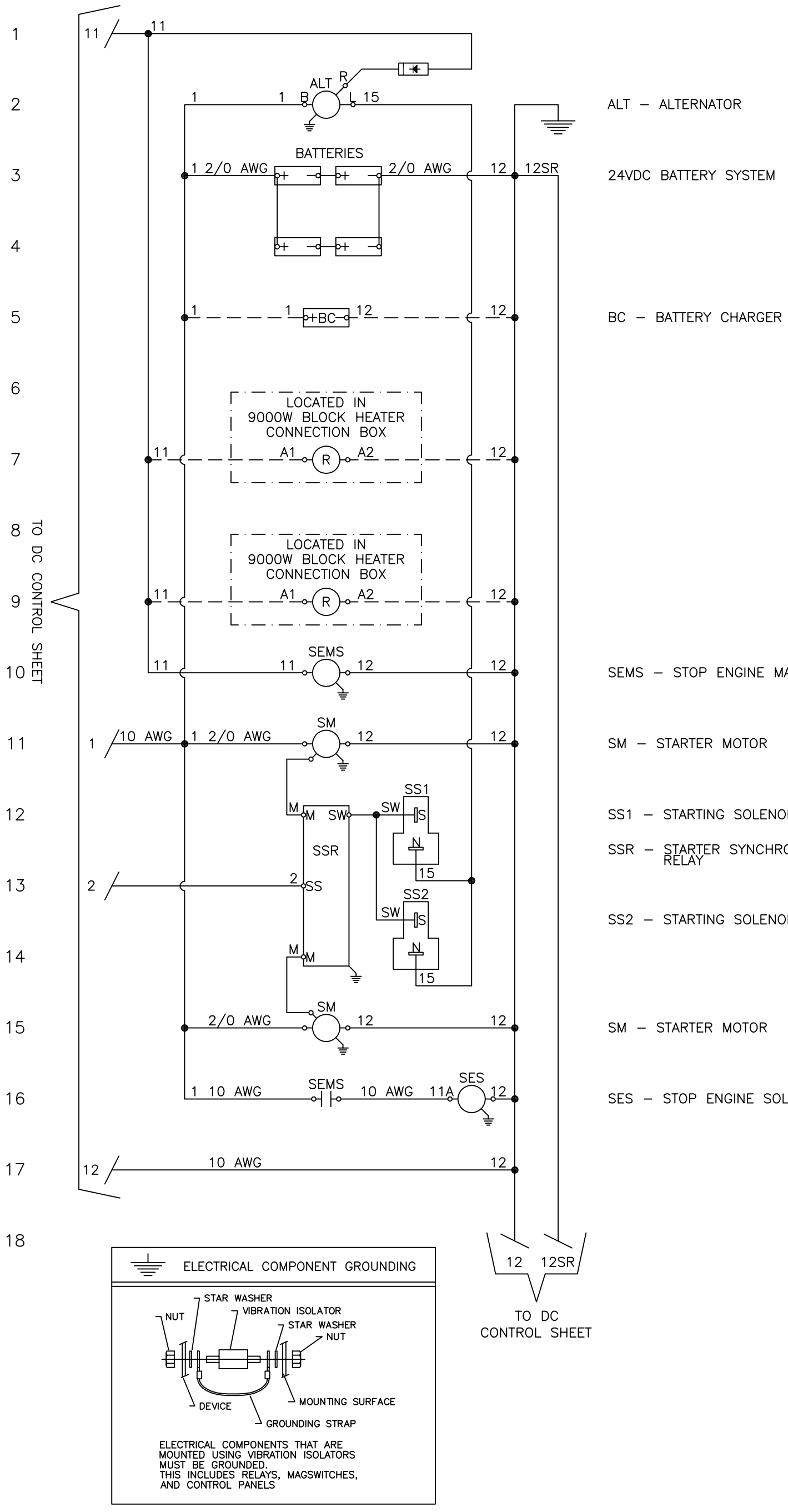
MITSUBISHI IDLC1250–2000–UL,IGNT,SALES DRAWING

APPROVAL	–
DRAWN BY:	DMASDP
DATE	08: 42: 36 04/15/2014
REV. DESC:	NEW
FILE:	\PGA\00028\017
REF:	SH 1 of 5
TDR:	0000000846796

MATERIAL	–	GENERAC MATL SPECIFICATION	–
SIZE	B
CAGE NO.	–
DWG NO.	SLS–ELE–1250–2000–UL
SCALE:	–
WT–KG	–
PAINT SURFACE FINISH	–
REV/VER	– / 00
SHEET	SH 1 of 5

ENGINE CONTROL – IDLC1250–2000–UL

MUST USE UL APPROVED WIRE



ALT – ALTERNATOR

24VDC BATTERY SYSTEM

BC – BATTERY CHARGER

SEMS – STOP ENGINE MAG–SWITCH

SM – STARTER MOTOR

SS1 – STARTING SOLENOID 1

SSR – STARTER SYNCHRONIZING RELAY

SS2 – STARTING SOLENOID 2

SM – STARTER MOTOR

SES – STOP ENGINE SOLENOID

ELECTRICAL COMPONENT GROUNDING

ELECTRICAL COMPONENTS THAT ARE MOUNTED USING VIBRATION ISOLATORS MUST BE GROUNDED. THIS INCLUDES RELAYS, MAGSWITCHES, AND CONTROL PANELS

ALL WIRE 16 AWG UNLESS OTHERWISE NOTED.
DASHED LINES INDICATE CUSTOMER OPTIONS.

GENERAC POWER SYSTEMS OWNS THE COPYRIGHT OF THIS DRAWING WHICH IS SUPPLIED IN CONFIDENCE AND MUST NOT BE USED FOR ANY PURPOSE OTHER THAN FOR WHICH IT IS SUPPLIED WITHOUT THE EXPRESS WRITTEN CONSENT OF GENERAC POWER SYSTEMS.

INTERPRET DIM AND TOL PER ASME Y14.5M–1994

GENERAL TOLERANCES UNLESS NOTED

THIRD ANGLE PROJECTION

APPROVAL	–	
DRAWN BY:	DMASDP	08: 42: 37 04/15/2014
REV. DESC: NEW		DATE
FILE: \PGA\00028\017		
REF: SH 2 of 5		
TDR: 000000846796		

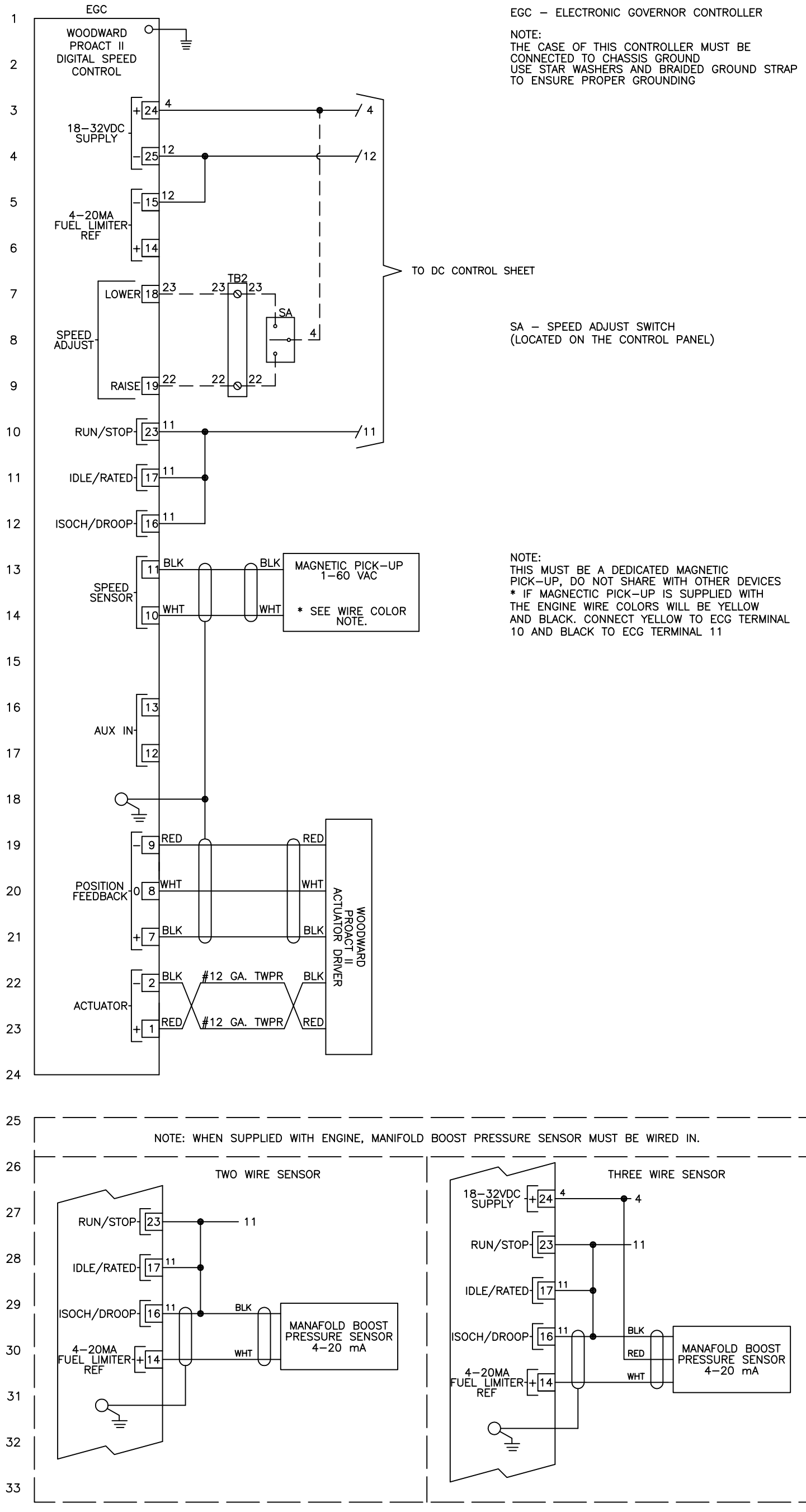
TITLE: MITSUBISHI IDLC1250–2000–UL,IGNT,SALES DRAWING

GENERAC

SCALE: –	SIZE B	MATERIAL –	GENERAC MATL SPECIFICATION –
WT–KG –	CAGE NO. –		PAINT SURFACE FINISH –
SHEET SH 2 of 5	DWG NO. SLS–ELE–1250–2000–UL		REV/VER – / 00

GOVERNOR CONTROL – IDLC1250–2000–UL

MUST USE UL APPROVED WIRE



EGC – ELECTRONIC GOVERNOR CONTROLLER

NOTE:
THE CASE OF THIS CONTROLLER MUST BE CONNECTED TO CHASSIS GROUND
USE STAR WASHERS AND BRAIDED GROUND STRAP TO ENSURE PROPER GROUNDING

SA – SPEED ADJUST SWITCH
(LOCATED ON THE CONTROL PANEL)

NOTE:
THIS MUST BE A DEDICATED MAGNETIC PICK–UP, DO NOT SHARE WITH OTHER DEVICES
* IF MAGNECTIC PICK–UP IS SUPPLIED WITH THE ENGINE WIRE COLORS WILL BE YELLOW AND BLACK. CONNECT YELLOW TO ECG TERMINAL 10 AND BLACK TO ECG TERMINAL 11

ALL WIRE 16 AWG UNLESS OTHERWISE NOTED.
DASHED LINES INDICATE CUSTOMER OPTIONS.

GENERAL TOLERANCES UNLESS NOTED

INTERPRET DIM AND TOL PER ASME Y14.5M–1994

THIRD ANGLE PROJECTION

APPROVAL	–	
DRAWN BY:	DMASDP	
DATE	08: 42: 37 04/15/2014	

REV. DESC: NEW

FILE: \PGA\00028\017

REF: SH 3 of 5

TDR: 000000846796

GENERAC

TITLE: MITSUBISHI IDLC1250–2000–UL,IGNT,SALES DRAWING

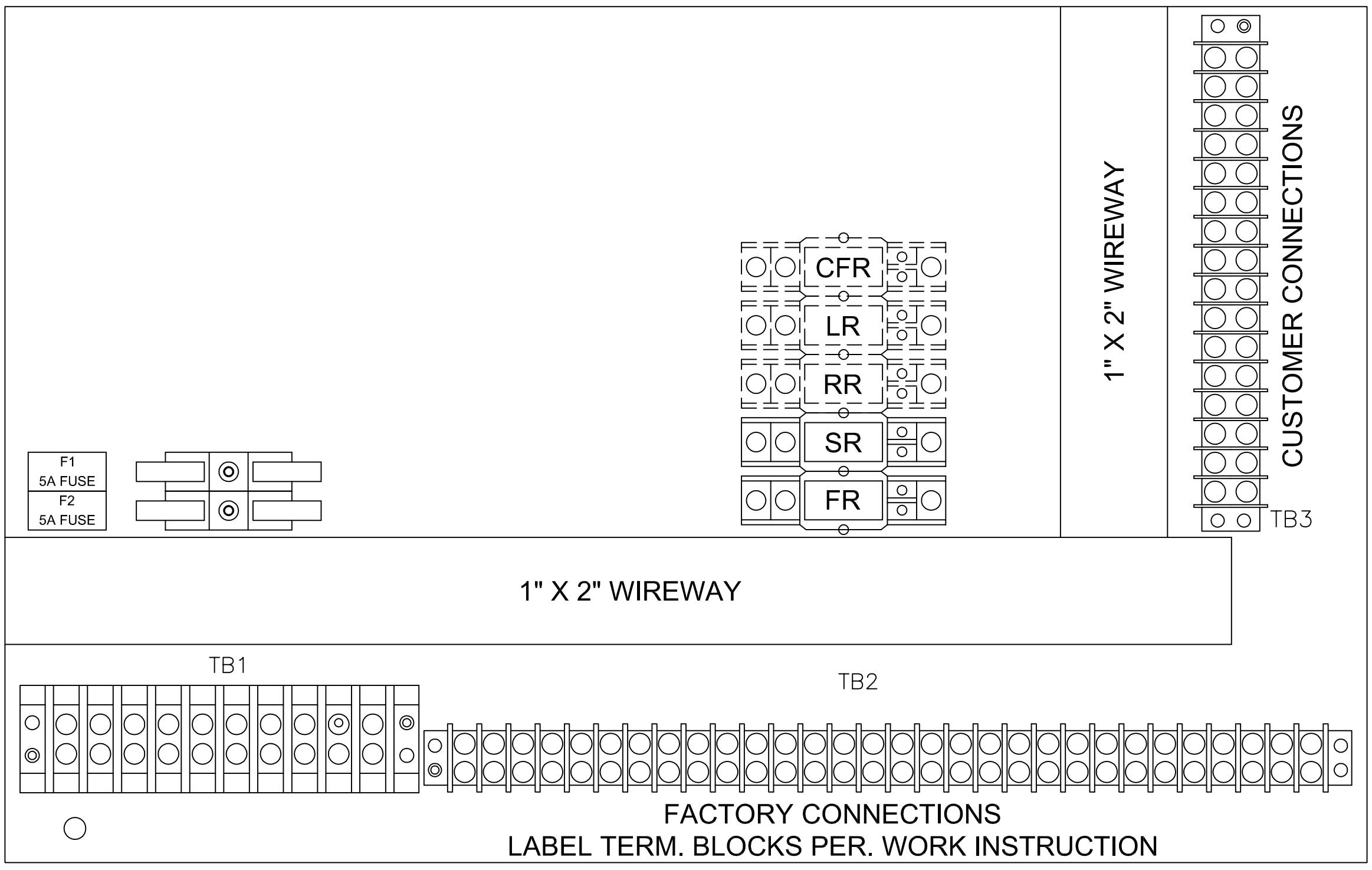
MATERIAL	GENERAC MATL SPECIFICATION	PAINT SURFACE FINISH
–	–	–

SIZE	CAGE NO.	DWG NO.	REV/VER
B	–	SLS–ELE–1250–2000–UL	– / 00

SCALE:	WT–KG	SHEET
–	–	SH 3 of 5

SLS-ELE-1250-2000-UL

WARNING	5 Amp
TO REDUCE THE RISK OF FIRE, REPLACE ONLY WITH SAME TYPE AND RATING OF FUSE	5 Amp



DASHED LINES INDICATE CUSTOMER OPTIONS.

CONTROL PANEL LAYOUT – IDLC1250-2000-UL

MUST USE UL APPROVED WIRE

GENERAL TOLERANCES UNLESS NOTED			
INTERPRET DIM AND TOL PER ASME Y14.5M-1994	THIRD ANGLE PROJECTION		
APPROVAL	–	DATE	
DRAWN BY:	DMASDP	08:42:38 04/15/2014	
REV. DESC:	NEW		
FILE:	\PGA\00028\017		
REF:	SH 4 of 5	TDR: 000000846796	

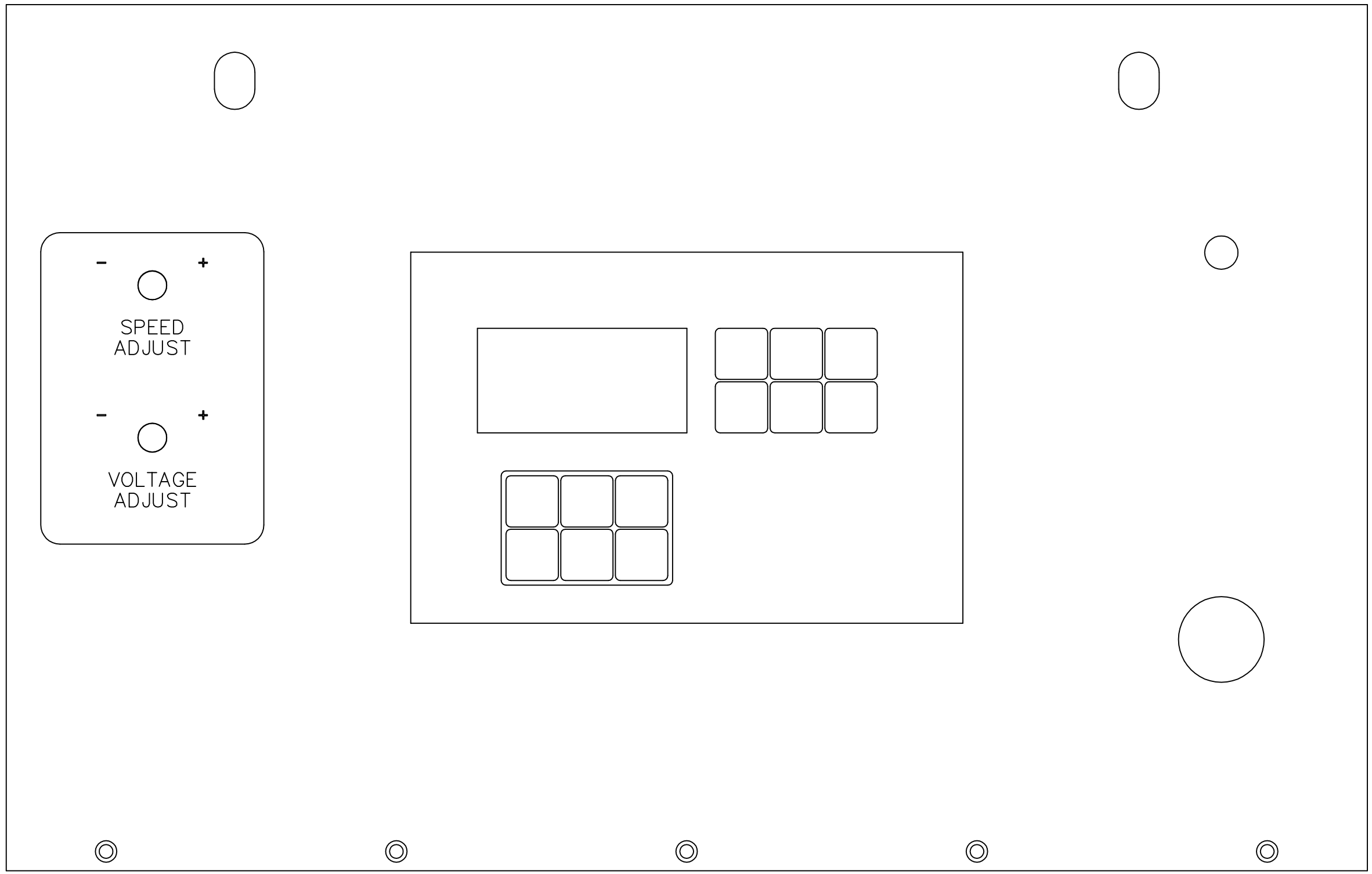
GENERAC

TITLE			
MITSUBISHI IDLC1250-2000-UL,IGNT,SALES DRAWING			
MATERIAL	GENERAC MATL SPECIFICATION	PAINT SURFACE FINISH	
–	–	–	
SIZE	CAGE NO.	DWG NO.	REV/VER
B		SLS-ELE-1250-2000-UL	– / 00
SCALE: –	WT-KG –	SHEET SH 4 of 5	

SLS-ELE-1250-2000-UL

☒OPTION REQUIRED
☒PLUG HOLE

☒OPTION REQUIRED
☒PLUG HOLE



DASHED LINES INDICATE CUSTOMER OPTIONS.

CONTROL FACEPLATE

MUST USE UL APPROVED WIRE

GENERAL TOLERANCES UNLESS NOTED			
INTERPRET DIM AND TOL PER ASME Y14.5M–1994		THIRD ANGLE PROJECTION	
APPROVAL	–	DATE	
DRAWN BY:	DMASDP	08:42:38 04/15/2014	
REV. DESC: NEW			
FILE: \PGA\00028\017			
REF: SH 5 of 5		TDR: 000000846796	

GENERAC

TITLE
MITSUBISHI IDLC1250-2000-UL,IGNT,SALES DRAWING

MATERIAL	GENERAC MATL SPECIFICATION	PAINT SURFACE FINISH
–	–	–

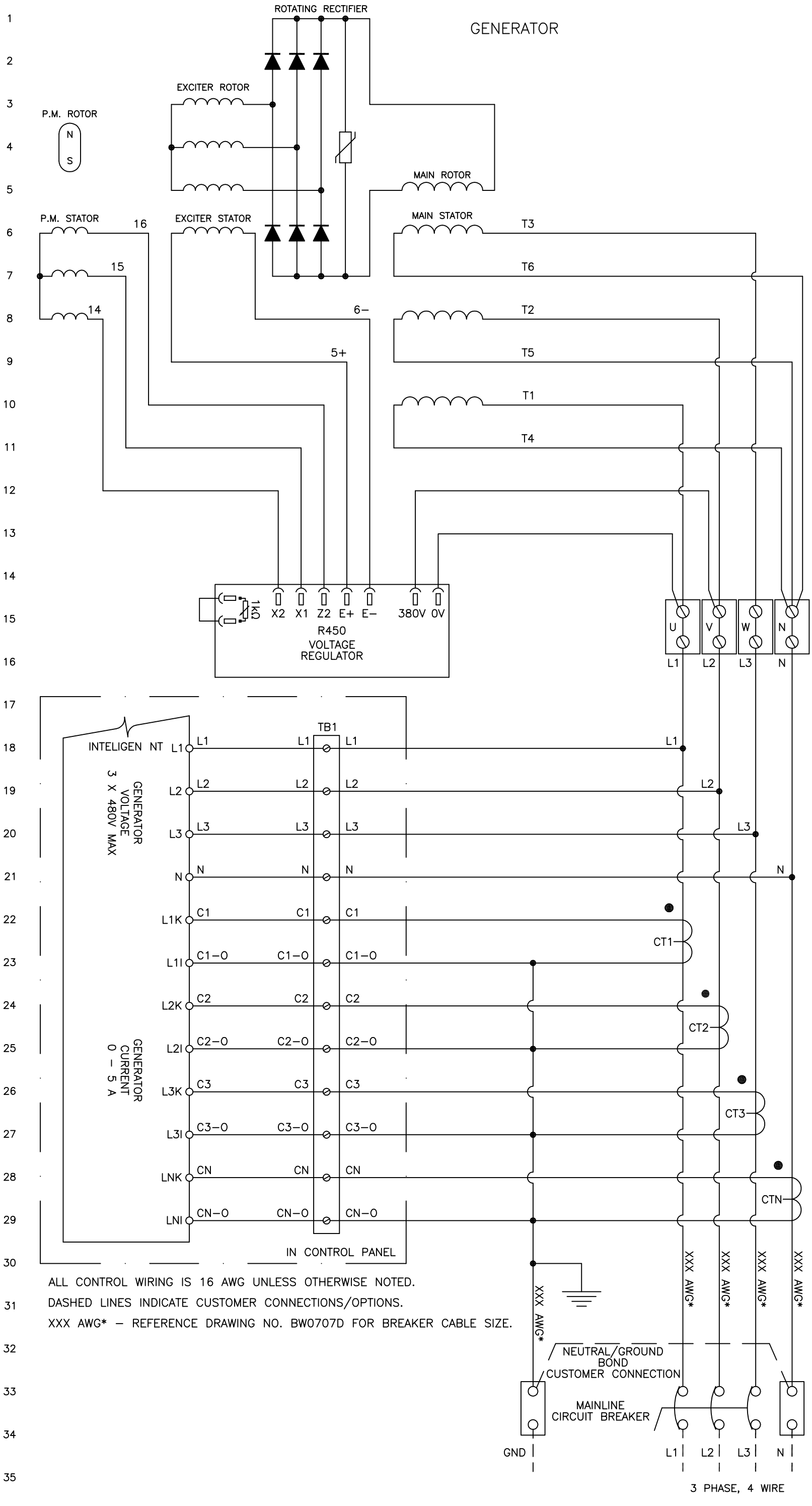
SIZE	CAGE NO.	DWG NO.	REV/VER
B		SLS-ELE-1250-2000-UL	– / 00

SCALE: –	WT-KG –	SHEET SH 5 of 5

R450-WDG6-6W-UL

AC CONTROL/GENERATOR

MUST USE UL APPROVED WIRE



ALL CONTROL WIRING IS 16 AWG UNLESS OTHERWISE NOTED.

DASHED LINES INDICATE CUSTOMER CONNECTIONS/OPTIONS.

XXX AWG* – REFERENCE DRAWING NO. BW0707D FOR BREAKER CABLE SIZE.

GENERAL TOLERANCES UNLESS NOTED

INTERPRET DIM AND TOL PER ASME Y14.5M–1994

THIRD ANGLE PROJECTION

APPROVAL	–	
DRAWN BY:	PGAARWO	01:17:43 11/07/2014
		DATE

REV. DESC: NEW

FILE: \PGA\00028\702

REF: SH 1 of 1

TDR: 000000879250

GENERAC

TITLE: R450 REGULATOR,WDG6,6 WIRE,UL,SALES DRAWING

MATERIAL	GENERAC MATL SPECIFICATION	PAINT SURFACE FINISH
–	–	–

SIZE	CAGE NO.	DWG NO.	REV/VER
B		R450-WDG6-6W-UL	– / 00

SCALE:	WT-KG	SHEET
–	–	SH 1 of 1

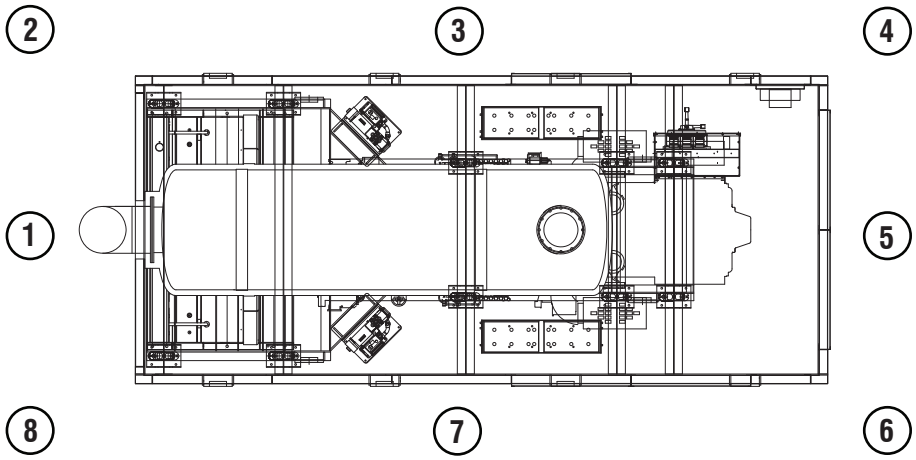
SOUND DATA
1250kW 49.0L, STANDARD ENCLOSURE

Overall Levels (Sound Level dB(A))

Microphone Position	1	2	3	4	5	6	7	8	Average
No Load	86.8	88.3	90.4	89.1	88.5	90.4	92.8	89.6	89.5
Full Load	89.8	90.9	92.9	91.6	91.2	92.6	94.5	91.9	91.9

1/1 Octave Band Data (Sound Level dB(A))

Octave Band Center Frequencies, Hz	31.5	63.0	125.0	250.0	500.0	1000.0	2000.0	4000.0	8000.0
No Load	41.2	63.9	75.8	75.8	84.6	84.1	81.9	78.2	72.3
Full Load	47.6	73.4	84.7	79.5	85.7	85.3	83.7	80.0	75.4



Notes:

1. Position 1 faces the radiator 7m from the exterior of the test unit.
2. Data measured using standard radiator package.
3. Sound pressure levels are subject to instrumentation, installation, product variability, and testing conditions.
4. Some data points may be estimated values based on generator sets of similar construction and design.

STATEMENT OF EXHAUST EMISSIONS
2023 MHI Diesel Fueled Generator

The measured emissions values provided here are proprietary to Generac and it's authorized dealers. This information may only be disseminated upon request to regulatory governmental bodies for emissions permitting purposes or to specifying organizations as submittal data when expressly required by project specifications, and shall remain confidential and not open to public viewing. This information is not intended for compilation or sales purposes and may not be used as such, nor may it be reproduced without the expressed written permission of Generac Power Systems, Inc.. The data provided shall not be meant to include information made public by Generac.

Generator Model:	**SD/MD1250**	EPA Certificate Number:	**PMVXL49.0BBA-007**
kW_e Rating:	**1,250**	CARB Certificate Number:	**Not Applicable**
Engine Family:	**PMVXL49.0BBA**	SCAQMD CEP Number:	**476463**
Engine Model:	**S12R-Y2PTAW-1**	Emission Standard Category:	**Tier 2**
Rated Engine Power (BHP)*:	**1,881**	Certification Type:	**Stationary Emergency CI (40 CFR Part 60 Subpart IIII)**
Fuel Consumption (gal/hr)*:	**103.3**		
Aspiration:	**Turbocharged/Aftercooled**		
Rated RPM:	**1,800**		

*Engine power are declared by the engine manufacturer of record and the U.S EPA.

Emissions Based on Engine Power of Specific Engine Model

These Values are Actual Composite Weighted Exhaust Emissions Results Over the EPA 5-Mode Test Cycle

CO	NOx + NMHC	PM	
0.7	**5.98**	**0.14**	Grams/kW-hr
0.5	**4.4**	**0.1**	Grams/bhp-hr

These Values are 100% Load Data Exhaust Emissions Results.

CO	NOx + NMHC	PM	
0.604	**5.04**	**0.082**	Grams/kW-hr
0.44	**3.71**	**0.06**	Grams/bhp-hr

- The stated values are actual exhaust emission test measurements obtained from an engine representative of the type described above.
- Values based on 5-Mode testing are official data of record as submitted to regulatory agencies for certification purposes. Testing was conducted in accordance with prevailing EPA protocol, which is typically accepted by SCAQMD and other regional authorities.
- No emissions values provided above are to be construed as guarantees of emission levels for any given Generac generator unit.
- Generac Power Systems, Inc. reserves the right to revise this information without prior notice.
- Consult state and local regulatory agencies for specific permitting requirements.
- The emission performance data supplied by the equipment manufacturer is only one element required toward completion of the permitting and installation process. State and local regulations may vary on a case-by-case basis and local agencies must be consulted by the permit application/equipment owner prior to equipment purchase or installation. The data supplied herein by Generac Power Systems Inc. cannot be construed as a guarantee of installability of the generating set.

Certification of Quality

Generac Power Systems certifies that the products we manufacture have been built and tested in accordance with strict internal and external standards for quality. Our quality management system has been registered with the internationally recognized ISO 9001:2008 standard and our products comply with external standards that include, but are not limited to, CSA, NEMA, EGSA, ISO, and UL.

The Generac Quality Management System (GQMS) ensures the highest standards of quality at every level of production, from raw materials to the finished product. This includes receiving inspection, in-process checks, product and process audits, testing, final inspections, and shipping standards.

Tests of our products are performed in accordance with our internal procedures and controlled through the GQMS to ensure accuracy and effectiveness. The testing process and product designs comply with external standards which may include, but are not limited to: ISO 8528-5, ISO 3046, NFPA 99, NFPA 110, BS 5514, SAE J1349, and DIN 6271.

Generac Power Systems has over one million square feet of manufacturing space and over 2000 employees dedicated to designing and manufacturing power generation equipment in our multiple State of Wisconsin, USA factories. All of our installed and mobile generators are built with pride by our skilled American workforce to ensure our customers receive the quality that they expect from Generac.

We are committed to producing quality products for both our internal and external customers. We will continuously improve our processes and diligently measure all aspects of our business.

Daniel Waschow

Vice President of Quality
Generac Power Systems, Inc.
Waukesha, Wisconsin USA

Part No. 0184520SSD
Rev. B 03/01/12

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
2023 MODEL YEAR
CERTIFICATE OF CONFORMITY
WITH THE CLEAN AIR ACT

OFFICE OF TRANSPORTATION AND AIR QUALITY
ANN ARBOR, MICHIGAN 48105

Certificate Issued To: **Mitsubishi Heavy Industries Engine & Turbocharger, Ltd.**
(U.S. Manufacturer or Importer)

Certificate Number: PMVXL49.0BBA-007

Effective Date: 05/24/2022

Expiration Date: 12/31/2023

Byron J. Bunker, Division Director
Compliance Division

Issue Date: 05/24/2022

Revision Date: N/A

Model Year: 2023
Manufacturer Type: Original Engine Manufacturer
Engine Family: PMVXL49.0BBA

Mobile/Stationary Indicator: Stationary
Emissions Power Category: 560<kW<=2237
Fuel Type: Diesel
After Treatment Devices: No After Treatment Devices Installed
Non-after Treatment Devices: Engine Design Modification

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

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

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

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

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
2024 MODEL YEAR
CERTIFICATE OF CONFORMITY
WITH THE CLEAN AIR ACT

OFFICE OF TRANSPORTATION AND AIR QUALITY
ANN ARBOR, MICHIGAN 48105

Certificate Issued To: **Mitsubishi Heavy Industries Engine & Turbocharger, Ltd.**
(U.S. Manufacturer or Importer)

Certificate Number: RMVXL49.0BBA-005

Effective Date: 07/10/2023

Expiration Date: 12/31/2024

Byron J. Bunker, Division Director
Compliance Division

Issue Date: 07/10/2023

Revision Date: N/A

Model Year: 2024
Manufacturer Type: Original Engine Manufacturer
Engine Family: RMVXL49.0BBA

Mobile/Stationary Indicator: Stationary
Emissions Power Category: 560<kW<=2237
Fuel Type: Diesel
After Treatment Devices: No After Treatment Devices Installed
Non-after Treatment Devices: Engine Design Modification

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

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Control of SoLoNOx™ Low Emissions Combustion Systems Operation on Gas Fuel

Ivan Carlos & Luke Cowell

PURPOSE

Solar® gas turbines with SoLoNOx™ combustion systems typically operate with low emissions on gas fuel from 50 to 100% load (from 40% load for Titan™ 250S). In many instances, remaining in SoLoNOx mode is the governing parameter used to control the operation of the gas turbine. This Product Information Letter (PIL) describes the production standard emissions controls for SoLoNOx combustion known as Enhanced Emissions Control which eliminated the abrupt transition into and out of SoLoNOx mode used with the legacy control scheme. Enhanced Emissions Control significantly reduces CO and UHC emissions below the SoLoNOx emissions warranty load range with moderate NOx improvements as well. Customers may benefit with the CO and UHC reductions as it pertains to emissions permitting and CO oxidation catalyst requirements. Power generation applications may also benefit with more gradual temperature control experienced by the HRSG when coming in and out of the emissions warranty range.

INTRODUCTION

SoLoNOx employs lean-premixed combustion to reduce NOx emissions by tightly controlling the combustion flame temperature over the low emissions operating load range. Using Enhanced Emissions Control, the controls for SoLoNOx are configured to balance NOx and CO emissions at very low levels, maintaining stable combustion at all operating points with flexibility to accommodate load transients. Enhanced Emissions Control uses two unique control features for emissions: (1) regulating the combustion flame temperature by controlling the combustor air flow and (2) controlling the pilot-to-main fuel flow ratio. These two SoLoNOx control features (Temperature Control and Pilot Control) will be discussed in detail next.

TEMPERATURE CONTROL

The combustion flame temperature is regulated by controlling the amount of air entering the combustor. As depicted in Figure 1, the combustor air flow is controlled by modulating either the bleed valve on 2-shaft gas turbines or the compressor variable guide vanes on 1-shaft turbines. The bleed valve or variable guide vanes are modulated so that the measured T5 temperature matches the SoLoNOx T5 schedule, which is determined as a function of gas producer speed (%NGP) or % engine load on 2-shaft and 1-shaft engines, respectively. T5 is measured within the turbine section between the gas producer and power turbine stages. The SoLoNOx T5 schedule is developed in the factory for all turbine ratings and validated during acceptance testing for each SoLoNOx gas turbine. The T5 schedule is determined at multiple load points optimizing NOx, CO, and combustion stability. The relationship between NOx, CO, and T5 vs. engine load and gas producer speed is shown in Figure 2.

Figure 2 highlights T5 temperature control as active throughout the entire operating range while SoLoNOx mode begins above 50% load (40% load on the Titan 250). Remaining in SoLoNOx mode ensures the lowest emissions performance. Therefore, to stay in SoLoNOx mode, gas turbine operators need to maintain enough load on 1-shaft engines or sufficient speed (%NGP) on 2-shaft engines. Note that temperature control can become inactive temporarily with large load swings (1-shaft applications).

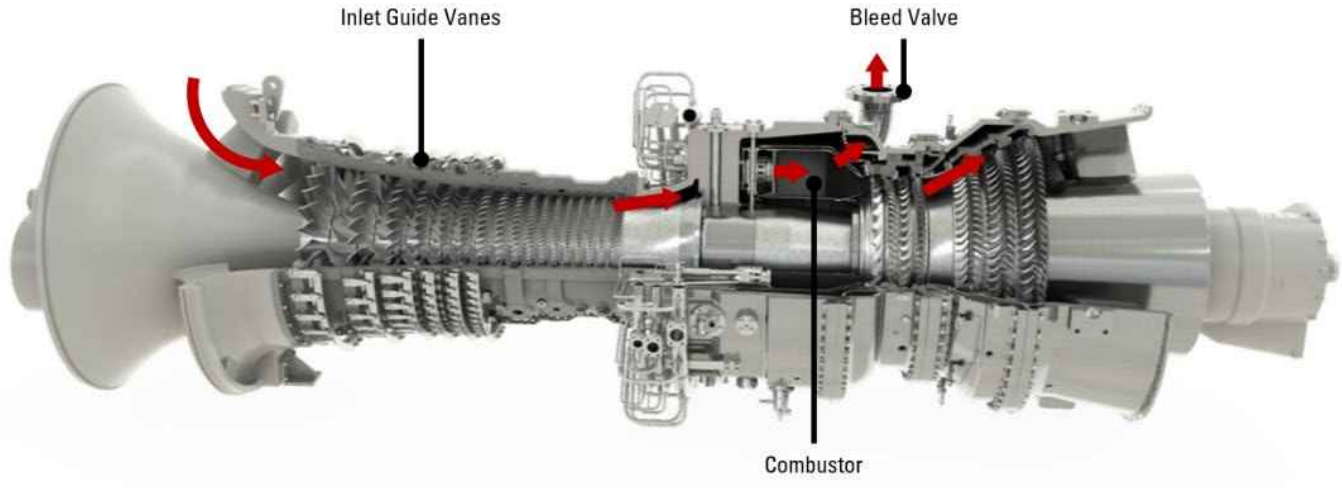

Figure 1: Temperature Control for SoLoNOx Combustion

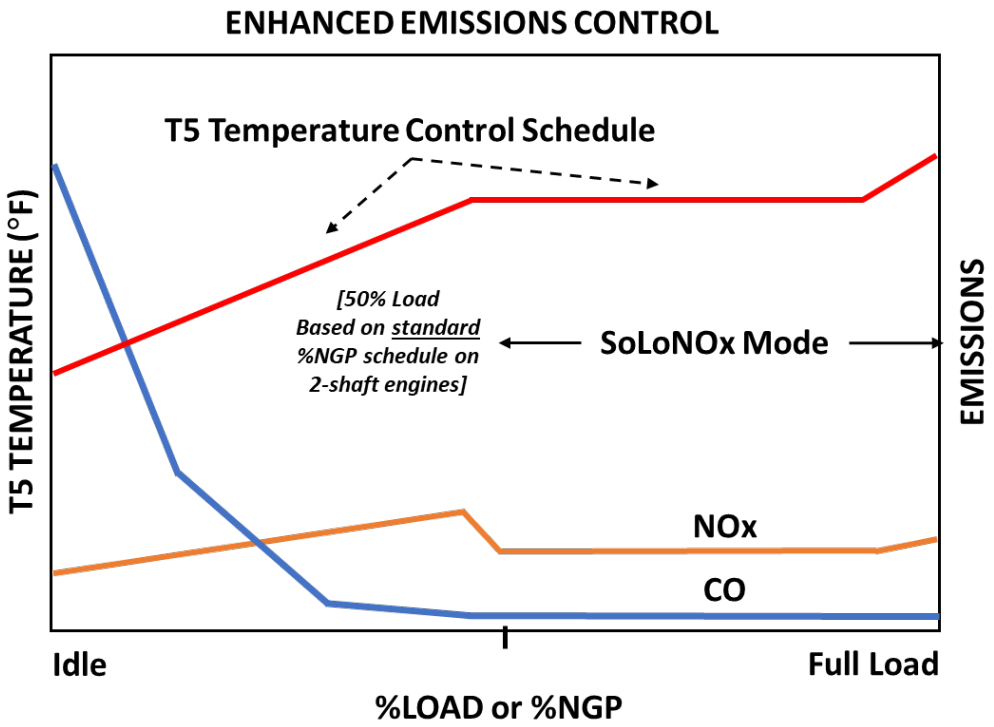

Figure 2: Temperature Control for SoLoNOx Combustion (Gas Fuel)

PILOT CONTROL

The other primary Enhanced Emissions Control parameter is the fuel flow ratio between the pilot and main fuel circuits, or simply the percent pilot. Main fuel is thoroughly premixed with combustion air prior to combustion resulting in a uniform lean burning flame with a clean emissions signature. The balance of the fuel is delivered as pilot fuel that burns richer and hotter providing flame stability. Normal engine operation follows the minimum pilot schedule, while the high pilot schedule is reserved for the conditions described below. Depending on the product, minimum pilot is typically in the range of 2 to 6% of the total fuel flow, whereas high pilot flow is typically in the range of 8 to 30%. The engine will changeover to high pilot schedule to help stabilize the flame during significant load transients, fuel transfers, instrument failure or upon detection of a high peak amplitude by the Burner Acoustic Monitor (BAM) with Active Control. For additional details on BAM with Active Control, please reference PIL 200. As shown in Figure 3, the pilot fuel level has a significant effect on the NOx and CO emissions.

The above description assumes operation at ambient temperatures above -4°F (-20°C). Below -4°F the gas turbine generally operates on the high pilot schedule (below -20°F (-28.9°C) for the Titan 250S).

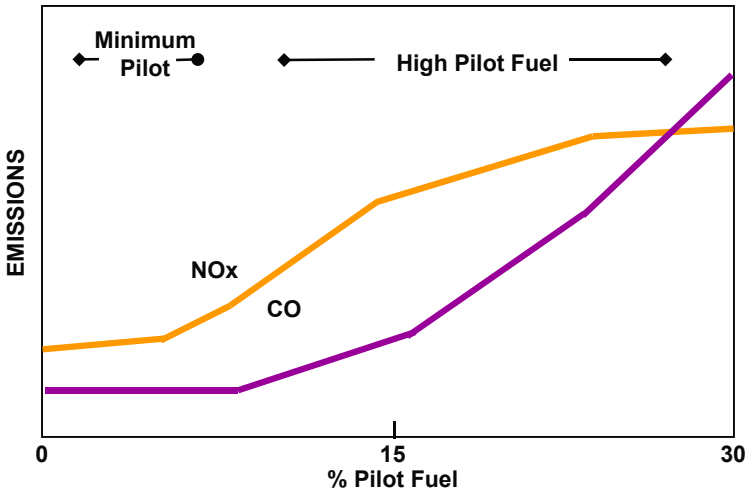

Figure 3: Main and Pilot Fuel Control for SoLoNOx Combustion

INDICATION OF SOLONOX MODE

As described above, Enhanced Emissions Control maintains T5 temperature control active and follows the minimum pilot schedule throughout the entire engine operating range. Therefore, SoLoNOx mode acts solely as an indication that the engine is within the low emissions operating range.

As the engine is loaded, the engine reaches the SoLoNOx enable point, defined by gas producer speed (%NGP) on 2-shaft engines and %load on 1-shaft engines. Once above the SoLoNOx enable point, SoLoNOx mode will be annunciated. SoLoNOx mode can be temporarily lost due to an increase to the high pilot schedule as described next.

Pilot fuel flow will revert to the high pilot schedule if:

- The difference between the T5 set-point and the measured T5 is greater than 30°F (17°C)
- The fuel demand rate of change is greater than a critical threshold (load swing)
- Ambient temperature drops below -4°F (-20°C), or drops below -20°F (-28.9°C) for Titan 250S
- An instrument failure occurs
- BAM with Active Control detects a high peak amplitude (PIL 200)

Following a significant load swing, the turbine will remain in transient mode for approximately 10 seconds to allow for stable operation and then transition back to minimum pilot schedule.

One-Shaft Engines

One-shaft engines, used in generator set applications, recognize SoLoNOx mode based on power measured at the generator terminals. Percent load is defined as: Operating Power / Power at Full Load Control Limits.

The percent load calculation is normalized for ambient temperature and site elevation. SoLoNOx enable occurs at 50% load for gas fuel. The SoLoNOx mode indication is disabled at 45% load to avoid toggling the indication near 50% load. Since gas turbine full load output power varies with inlet air temperature, the actual load in kW that corresponds to 50% load also varies with inlet air temperature. Monitoring the displayed percent load is an excellent way to ensure the unit is operating in SoLoNOx mode. The Mars® and Titan 250 generator sets are only available as 2-shaft engines and follow the description in the next section.

Two-Shaft Engines

For compressor set and mechanical drive applications, percent load is also defined as: Operating Power / Power at Full Load Control Limits.

In Solar's test cells, operating power on a 2-shaft engine is measured at the turbine output shaft. During engine acceptance testing, full load power is determined at optimum power turbine speed and at the prevailing ambient temperature. Ideally, 2-shaft engines would also indicate SoLoNOx mode based on measured engine load. However, since 2-shaft engines are generally used in compressor set and mechanical drive applications, the engine power output is not typically measured on the fielded package. And even when measured or calculated, the uncertainties can be large as compared to a test cell. Therefore, the gas producer speed (%NGP) is used as a surrogate for engine load and hence as the control variable for recognizing SoLoNOx mode. The SoLoNOx enable set point (%NGP) varies as a function of ambient temperature, which allows the algorithm to better track 50% load. The %NGP schedule is standard by product rating and is not customized for each unique engine.

The SoLoNOx enable set points for SoLoNOx mode are listed in Appendix A which reflect the current standard.

Operators of 2-shaft engines should closely monitor %NGP when operating at lower loads in SoLoNOx mode. By doing so, operators can ensure that %NGP stays above the T1 variable %NGP set point such that the unit preserves the SoLoNOx mode annunciation.

APPENDIX A[1]

New bookings %NGP SoLoNOx Mode indication for 2-shaft turbines

T1 (°F)	Centaur 40 [2]	Centaur 50 [2, 3]	Taurus 60	Taurus 70	Mars 90	Mars 100	Titan 130	Titan 250 [4]
-4	87.0	87.5	86.5	97.9	90.0	90.0	88.7	87.7
15	87.5	88.0	86.5	97.9	90.5	90.5	89.3	89.3
30	88.0	88.5	87.0	97.9	91.0	91.0	89.8	90.6
45	88.5	89.0	87.5	97.9	91.5	91.5	90.3	91.9
60	89.0	89.5	88.0	97.9	92.0	92.0	90.8	93.1
75	89.5	90.0	88.5	97.9	92.5	92.5	91.3	94.4
90	90.0	90.5	89.0	97.9	93.0	93.0	91.8	95.5
105	90.5	91.0	89.5	97.9	93.5	93.5	92.3	96.9
120	91.0	91.5	90.0	97.9	94.0	94.0	92.8	98.2

[1] Set points will be adjusted on participating 2-shaft products where emissions warranties have been sold with an extension down to 40% load. Contact Solar for product availability.

[2] The Centaur 40 and Centaur 50 do not yet use Enhanced Emissions Control

[3] Centaur 50-6202S rating matches the Taurus 60S values.

[4] Titan 250S SoLoNOx Mode indication is standard at 40% load.

R13 PERMIT APPLICATION FOR COGENERATION PROJECT

Ergon West Virginia, Inc.

Prepared By:

TRINITY CONSULTANTS
4500 Brooktree Road
Suite 310
Wexford, PA 15090

July 2024

WEST VIRGINIA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
DIVISION OF AIR QUALITY
601 57th Street, SE
Charleston, WV 25304
(304) 926-0475
www.dep.wv.gov/daq

APPLICATION FOR NSR PERMIT AND TITLE V PERMIT REVISION (OPTIONAL)

PLEASE CHECK ALL THAT APPLY TO **NSR (45CSR13)** (IF KNOWN):

☒ **CONSTRUCTION** ☒ **MODIFICATION** ☐ **RELOCATION**
☐ **CLASS I ADMINISTRATIVE UPDATE** ☐ **TEMPORARY**
☐ **CLASS II ADMINISTRATIVE UPDATE** ☐ **AFTER-THE-FACT**

PLEASE CHECK TYPE OF **45CSR30 (TITLE V)** REVISION (IF ANY):

☐ **ADMINISTRATIVE AMENDMENT** ☐ **MINOR MODIFICATION**
☒ **SIGNIFICANT MODIFICATION**

IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS **ATTACHMENT S** TO THIS APPLICATION

FOR TITLE V FACILITIES ONLY: Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.

Section I. General

1. Name of applicant *(as registered with the WV Secretary of State's Office):*
Ergon-West Virginia, Inc. (EWVI)

2. Federal Employer ID No. ***(FEIN):***
721375114

3. Name of facility *(if different from above):*
Newell Refinery

4. The applicant is the:
☐ **OWNER** ☐ **OPERATOR** ☒ **BOTH**

5A. Applicant's mailing address:
9995 Ohio River Blvd, Route 2 South
Newell, WV 26050

5B. Facility's present physical address:
9995 Ohio River Blvd, Route 2 South
Newell, WV 26050

6. **West Virginia Business Registration.** Is the applicant a resident of the State of West Virginia? ☐ **YES** ☒ **NO**
- If **YES,** provide a copy of the **Certificate of Incorporation/Organization/Limited Partnership** (one page) including any name change amendments or other Business Registration Certificate as **Attachment A.**
- If **NO,** provide a copy of the **Certificate of Authority/Authority of L.L.C./Registration** (one page) including any name change amendments or other Business Certificate as **Attachment A.**

7. If applicant is a subsidiary corporation, please provide the name of parent corporation:

8. Does the applicant own, lease, have an option to buy or otherwise have control of the *proposed site?* ☒ **YES** ☐ **NO**
- If **YES,** please explain: This is an existing site owned by Ergon – West Virginia, Inc.
- If **NO,** you are not eligible for a permit for this source.

9. Type of plant or facility (stationary source) to be **constructed, modified, relocated, administratively updated** or **temporarily permitted** (e.g., coal preparation plant, primary crusher, etc.): The facility is a petroleum refinery that is proposing to construct a Cogeneration facility consisting of a gas turbine/duct burner, cooling tower, & emergency power generator.

10. North American Industry Classification System **(NAICS)** code for the facility:
324110

11A. DAQ Plant ID No. (for existing facilities only):
029 – 00008

11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):
R13-2334AB, R132334AC, R132334AE, R132334AF, R132334AH, and R30-02900008-2021 MM02

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

12A.

- For **Modifications, Administrative Updates** or **Temporary permits** at an existing facility, please provide directions to the *present location* of the facility from the nearest state road;
- For **Construction** or **Relocation permits,** please provide directions to the *proposed new site location* from the nearest state road. Include a **MAP** as **Attachment B**.

Two (2) miles south of Newel, WV on State Route 2.

12.B. New site address (if applicable):	12C. Nearest city or town:	12D. County:
N/A	Newell	Hancock
12.E. UTM Northing (KM): 4495.1	12F. UTM Easting (KM): 531.0	12G. UTM Zone: 17

13. Briefly describe the proposed change(s) at the facility:
EWVI is proposing to install a Cogeneration facility to improve utility reliability, availability, and consistency.

14A. Provide the date of anticipated installation or change: 11/01/2024 – If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen: / /	14B. Date of anticipated Start-Up if a permit is granted: 08/01/025

14C. Provide a **Schedule** of the planned **Installation** of/**Change** to and **Start-Up** of each of the units proposed in this permit application as **Attachment C** (if more than one unit is involved).

15. Provide maximum projected **Operating Schedule** of activity/activities outlined in this application:
Hours Per Day 24 Days Per Week 7 Weeks Per Year 52

16. Is demolition or physical renovation at an existing facility involved? ☒ **YES** ☐ **NO**

17**. Risk Management Plans.** If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see www.epa.gov/ceppo), submit your **Risk Management Plan (RMP)** to U. S. EPA Region III.

18**. Regulatory Discussion.** List all Federal and State air pollution control regulations that you believe are applicable to the proposed process *(if known).* A list of possible applicable requirements is also included in Attachment S of this application (Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance *(if known).* Provide this information as **Attachment D.**

Section II. Additional attachments and supporting documents.

19. Include a check payable to WVDEP – Division of Air Quality with the appropriate **application fee** (per 45CSR22 and 45CSR13).

20. Include a **Table of Contents** as the first page of your application package.

21. Provide a **Plot Plan,** e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as **Attachment E** (Refer to ***Plot Plan Guidance***) **.**

– Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).

22. Provide a **Detailed Process Flow Diagram(s)** showing each proposed or modified emissions unit, emission point and control device as **Attachment F.**

23. Provide a **Process Description** as **Attachment G.**

– Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

24. Provide **Material Safety Data Sheets (MSDS)** for all materials processed, used or produced as **Attachment H.**

– For chemical processes, provide a MSDS for each compound emitted to the air.

25. Fill out the **Emission Units Table** and provide it as **Attachment I.**

26. Fill out the **Emission Points Data Summary Sheet (Table 1 and Table 2)** and provide it as **Attachment J.**

27. Fill out the **Fugitive Emissions Data Summary Sheet** and provide it as **Attachment K.**

28. Check all applicable **Emissions Unit Data Sheets** listed below:

☐ Bulk Liquid Transfer Operations	☐ Haul Road Emissions	☐ Quarry
☐ Chemical Processes	☐ Hot Mix Asphalt Plant	☐ Solid Materials Sizing, Handling and Storage Facilities
☐ Concrete Batch Plant	☐ Incinerator	☐ Storage Tanks
☐ Grey Iron and Steel Foundry	☒ Indirect Heat Exchanger	

☒ General Emission Unit, specify Cooling Tower and Emergency Generator

Fill out and provide the **Emissions Unit Data Sheet(s)** as **Attachment L.**

29. Check all applicable **Air Pollution Control Device Sheets** listed below:

☐ Absorption Systems	☐ Baghouse	☐ Flare
☐ Adsorption Systems	☐ Condenser	☐ Mechanical Collector
☐ Afterburner	☐ Electrostatic Precipitator	☐ Wet Collecting System

☐ Other Collectors, specify

Fill out and provide the **Air Pollution Control Device Sheet(s)** as **Attachment M.**

30. Provide all **Supporting Emissions Calculations** as **Attachment N,** or attach the calculations directly to the forms listed in Items 28 through 31.

31. **Monitoring, Recordkeeping, Reporting and Testing Plans.** Attach proposed monitoring, recordkeeping, reporting and testing plans in order to demonstrate compliance with the proposed emissions limits and operating parameters in this permit application. Provide this information as **Attachment O.**

- Please be aware that all permits must be practically enforceable whether or not the applicant chooses to propose such measures. Additionally, the DAQ may not be able to accept all measures proposed by the applicant. If none of these plans are proposed by the applicant, DAQ will develop such plans and include them in the permit.

32. **Public Notice.** At the time that the application is submitted, place a **Class I Legal Advertisement** in a newspaper of general circulation in the area where the source is or will be located (See 45CSR§13-8.3 through 45CSR§13-8.5 and ***Example Legal Advertisement*** for details). Please submit the **Affidavit of Publication** as **Attachment P** immediately upon receipt.

33. **Business Confidentiality Claims.** Does this application include confidential information (per 45CSR31)?

☐ **YES** ☒ **NO**

- If **YES,** identify each segment of information on each page that is submitted as confidential and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's ***"Precautionary Notice – Claims of Confidentiality"*** guidance found in the ***General Instructions*** as **Attachment Q.**

Section III. Certification of Information

34. **Authority/Delegation of Authority.** Only required when someone other than the responsible official signs the application. Check applicable **Authority Form** below:

☐ Authority of Corporation or Other Business Entity	☐ Authority of Partnership
☐ Authority of Governmental Agency	☐ Authority of Limited Partnership

Submit completed and signed **Authority Form** as **Attachment R.**

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

35A. **Certification of Information.** To certify this permit application, a Responsible Official (per 45CSR§13-2.22 and 45CSR§30-2.28) or Authorized Representative shall check the appropriate box and sign below.

Certification of Truth, Accuracy, and Completeness

I, the undersigned ☒ **Responsible Official** / ☐ **Authorized Representative,** hereby certify that all information contained in this application and any supporting documents appended hereto, is true, accurate, and complete based on information and belief after reasonable inquiry I further agree to assume responsibility for the construction, modification and/or relocation and operation of the stationary source described herein in accordance with this application and any amendments thereto, as well as the Department of Environmental Protection, Division of Air Quality permit issued in accordance with this application, along with all applicable rules and regulations of the West Virginia Division of Air Quality and W.Va. Code § 22-5-1 et seq. (State Air Pollution Control Act). If the business or agency changes its Responsible Official or Authorized Representative, the Director of the Division of Air Quality will be notified in writing within 30 days of the official change.

Compliance Certification

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

SIGNATURE _____ DATE: _____

(Please use blue ink) *(Please use blue ink)*

35B. Printed name of signee: Dylan Beech		35C. Title: Vice President - Refining
35D. E-mail: Dylan.Beech@ergon.com	36E. Phone: 304-387-7030	36F. FAX: N/A
36A. Printed name of contact person (if different from above): Greir Merchant		36B. Title: Senior Environmental Coordinator
36C. E-mail: Greir.Merchant@ergon.com	36D. Phone: 304-387-7012	36E. FAX: N/A

PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:

☒ **Attachment A: Business Certificate**
☒ **Attachment B: Map(s)**
☒ **Attachment C: Installation and Start Up Schedule**
☒ **Attachment D: Regulatory Discussion**
☒ **Attachment E: Plot Plan**
☒ **Attachment F: Detailed Process Flow Diagram(s)**
☒ **Attachment G: Process Description**
☒ **Attachment H: Material Safety Data Sheets (MSDS)**
☒ **Attachment I: Emission Units Table**
☒ **Attachment J: Emission Points Data Summary Sheet**
☒ **Attachment K: Fugitive Emissions Data Summary Sheet**
☒ **Attachment L: Emissions Unit Data Sheet(s)**
☐ **Attachment M: Air Pollution Control Device Sheet(s)**
☒ **Attachment N: Supporting Emissions Calculations**
☒ **Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans**
☒ **Attachment P: Public Notice**
☐ **Attachment Q: Business Confidential Claims**
☐ **Attachment R: Authority Forms**
☒ **Attachment S: Title V Permit Revision Information**
☒ **Application Fee**

Please mail an original and three (3) copies of the complete permit application with the signature(s) to the DAQ, Permitting Section, at the address listed on the first page of this application. Please DO NOT fax permit applications.

FOR AGENCY USE ONLY – IF THIS IS A TITLE V SOURCE:

☐ ***Forward 1 copy of the application to the Title V Permitting Group and:***
☐ ***For Title V Administrative Amendments:***
  ☐ ***NSR permit writer should notify Title V permit writer of draft permit,***
☐ ***For Title V Minor Modifications:***
  ☐ ***Title V permit writer should send appropriate notification to EPA and affected states within 5 days of receipt,***
  ☐ ***NSR permit writer should notify Title V permit writer of draft permit.***
☐ ***For Title V Significant Modifications processed in parallel with NSR Permit revision:***
  ☐ ***NSR permit writer should notify a Title V permit writer of draft permit,***
  ☐ ***Public notice should reference both 45CSR13 and Title V permits,***
  ☐ ***EPA has 45 day review period of a draft permit.***

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

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1. ATTACHMENT A – BUSINESS CERTIFICATE

WEST VIRGINIA
STATE TAX DEPARTMENT
BUSINESS REGISTRATION CERTIFICATE

ISSUED TO:
ERGON-WEST VIRGINIA INC
9995 OHIO RIVER BLVD
NEWELL, WV 26050-1195

BUSINESS REGISTRATION ACCOUNT NUMBER: **1050-8935**

This certificate is issued on: **06/11/2010**

This certificate is issued by
the West Virginia State Tax Commissioner
in accordance with W.Va. Code § 11-12.

The person or organization identified on this certificate is registered to conduct business in the State of West Virginia at the location above.

This certificate is not transferrable and must be displayed at the location for which issued.

This certificate shall be permanent until cessation of the business for which the certificate of registration was granted or until it is suspended, revoked or cancelled by the Tax Commissioner.

Change in name or change of location shall be considered a cessation of the business and a new certificate shall be required.

TRAVELING/STREET VENDORS: Must carry a copy of this certificate in every vehicle operated by them. CONTRACTORS, DRILLING OPERATORS, TIMBER/LOGGING OPERATIONS: Must have a copy of this certificate displayed at every job site within West Virginia.

atL006 v.1
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2. ATTACHMENT B – MAPS

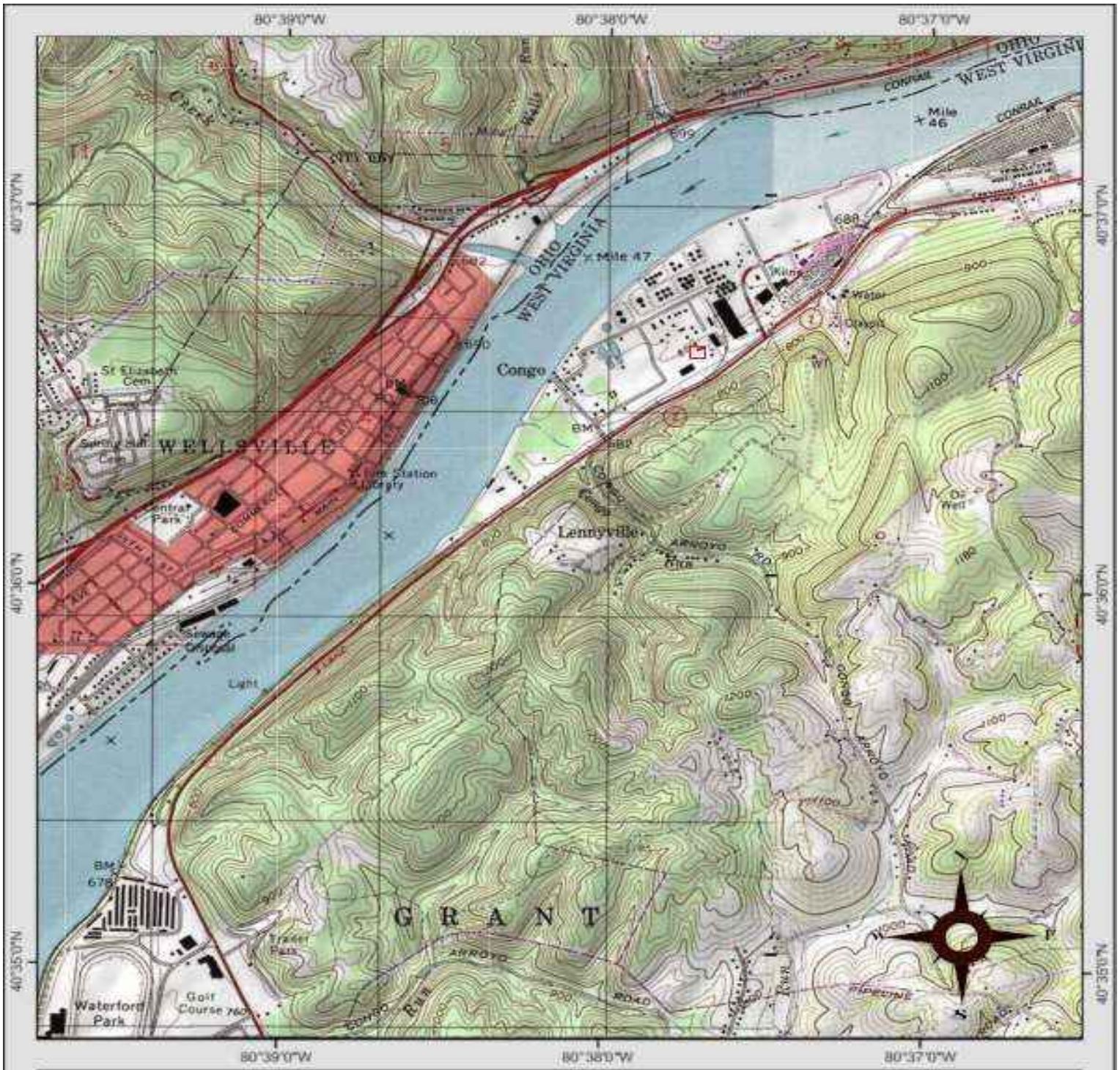


EXHIBIT 1 - PROJECT LOCATION MAP

Ergon COGEN Project

Grant District
Hancock County, WV
Latitude: 40.605328
Longitude: -80.635180

prepared for

Ergon-West Virginia, Inc.

9995 Ohio River Boulevard
Newell, WV 26050

3. ATTACHMENT C – PROJECT SCHEDULE

ATTACHMENT C - SCHEDULE OF PLANNED INSTALLATION AND START-UP

Unit	Construction/Modification Schedule	Startup Schedule
COGEN SYSTEM	November 1, 2024	August 1, 2025

4. ATTACHMENT D – REGULATORY DISCUSSION

ATTACHMENT D
AIR QUALITY APPLICABLE REQUIREMENTS

Federal and State (WV) Rules Review

A proposed new COGEN unit at Newell will consist of a natural gas-fired stationary gas combustion turbine with associated refinery fuel gas (RFG) duct firing. The project will also include the installation of a new diesel-fired "black-start" emergency generator, and a non-contact cooling tower. The project will be subject to or potentially subject to certain federal and state air quality regulations that may include emissions limits, monitoring, reporting, and recordkeeping requirements.

This regulatory analysis is intended to identify and summarize state and federal air quality regulations relative to the installation of a nominal capacity of approximately 15 MW per hour (HHV) (approximately 64 gigajoules (GJ)/hr) with a duct burner(s) rated at 78 MMBtu/hr (HHV).

This evaluation includes an explanation of the non-applicability of certain rules that could be construed to apply to the project but do not.

Federal Rules

40 CRF Part 52 (as per 45 CSR 14)

New Source Review Applicability Analysis

This analysis provides an accounting of emissions from EWVI with respect to determining applicability of New Source Review (NSR) permitting requirements for Prevention of Significant Deterioration (PSD) for the proposed Cogen project. In summary, EWVI's Newell facility is located in an attainment area for all pollutants and is considered an existing major source under the PSD permitting program. An assessment consistent with the U.S. EPA's NSR Workshop Manual dated October 1990, as well as West Virginia State Code of Regulations under Title 45 Series 14 (45 CSR 14), is included herein to support the applicability determination made by EWVI for this proposed project.

Major Source Status

Section 52.21(b)(1)(i)(a) of 40 CFR, and 45 CSR 14-2.43a, lists the NSR source categories with a 100 ton per year (tpy) "major" source threshold. Petroleum refineries are one of the 28 source categories identified. Sources on this list are also required to include fugitive emissions in determining whether the source is a "major stationary source" and therefore subject to the PSD permitting program. Thus, EWVI is subject to a 100 tpy threshold for classification as a major source for all criteria pollutants. EWVI has potential emissions in excess of the major source thresholds for one or more NSR-regulated pollutants, and is therefore considered an existing major source with respect to the NSR program.

The proposed project involved the installation of new sources and will include physical modifications to existing sources (removal of the Portable Boiler as described in the Title V permit).

Summary of Potentially Applicable Requirements for Proposed EWVI Cogen (cont'd)

July 2024

EWVI may consider certain projects at the Newell facility that could occur within the contemporaneous period of the proposed project. However, the project to be permitted in this action and any future potential projects are not anticipated to be dependent on each other to be economically or technically viable, and therefore would not be considered a single aggregated project for the purposes of this NSR analysis. Any potential future projects at EWVI would be fully justified independently based on their own merits.

Technical Approach

To determine PSD applicability for the proposed project, the steps outlined in the U.S. EPA's NSR Workshop Manual, pages A.46-49 were generally followed. The lone exception pertains to the "project" definition specified in Step 1 below. These steps are discussed in detail in the following sections.

Step 1a – Determine Emissions Increases from the Proposed Project

In this first step, the emissions increases of each NSR regulated pollutant as a result of the project were determined. This project is defined by the installation of new sources (combustion turbine with duct firing, cooling tower and black start generator) as well as the removal of one existing boiler (Portable boiler). No other physical changes or operational modifications are expected for any existing sources. As outlined in 40 CFR 52.21(a)(2)(iv)(g), the project emissions increase calculation is based on the sum of the difference, which includes both increases and decreases in emissions.

An emissions increase is defined as the amount by which the new level of emissions associated with the proposed project exceeds the old level. The old level of "baseline actual emissions" (BAE) is that which was emitted prior to the proposed project. As part of the NSR provisions, the BAE for an existing unit can be based on the highest consecutive 24-month period within the immediately preceding 10 years (prior to submittal of an application for the project). Note that this 24-month period can vary for each pollutant, but the same 24-month period must be used for that pollutant for all sources affected by the project. The new level is that which is emitted after the change. For new emission units, the baseline emissions are zero, and the new level is the future potential to emit. Potential to emit calculations, considering operational restrictions, are included as part of Attachment N.

For existing emissions units, an emissions increase of a regulated NSR pollutant is the difference between the projected actual emissions (PAE) and the BAE for each unit.[1]

The project emissions increase (PEI) in the format of a formula is then:

PEI = PAE – BAE

Where:

PEI = Project Emission Increase

PAE = Projected Actual Emissions

[1] Alternatively, the applicant may compute existing emission unit increases by calculating the difference between baseline actual emissions and a unit's future potential to emit.

BAE = Baseline Actual Emission Rates

In this applicability analysis, the only existing emission unit is the Portable boiler that is being shutdown as part of the project. The future emissions for the Portable boiler are set at 0 tpy. The BAE was established based on historical fuel (i.e., natural gas) flow rate data and the high heating value (HHV). A baseline period of calendar years 2022 and 2023 was used.

Step 1b – Compare PEI to Significant Emission Rates (SERs) to determine if a significant emissions increase will occur.

The table below summarizes the project emissions increase as compared to the significant emission rate (SERs) for each pollutant. If the project emissions are below the corresponding SER, the project is not considered a major modification under PSD. It should be noted that one key clarification in the applicability determination process included in the federal NSR regulations is that the project must result in both a significant emissions increase (itself) AND a significant net emissions increase for major NSR to apply to a given regulated pollutant. Therefore, if a project does not result in a SER increase of a regulated pollutant, the project is not subject to PSD permitting for the given pollutants, and there is no specific requirement to conduct emissions netting.

Pollutant	Project Emissions Increase (tpy)	PSD SER (tpy)	Above SER?
PM (filt.)	6.2	25	No
PM_{10} (total)	7.8	15	No
$PM_{2.5}$ (total)	7.8	10	No
Lead	<0.01	0.6	No
NO_2^*	<40	40	No
CO	54.8	100	No
VOC	10.0	40	No
SO_2	5.9 ~~12.9~~	40	No

*EWVI proposes within this modification application to take a voluntary NO_x limit on the combined emissions from the Cogen Turbine and Duct Burner to remain below the SER for NO_x. The above table reflects this voluntary limit. EWVI will use a combination of a NO_x Continuous Emissions Monitoring system (CEMs), gas flow measurements, and fuel gas heat content measurements to ensure compliance with a 12-month rolling limit of 39.96 tpy of NO_x. A discussion of these monitoring parameters can be found in the remainder of this application.

Summary of Potentially Applicable Requirements for Proposed EWVI Cogen (cont'd)

July 2024

It is concluded that the proposed project will not result in a project emissions increase that is greater than the corresponding SER for any NSR-regulated pollutant, and therefore further analysis (i.e., netting using Steps 2 - 6) is not required.

40 CFR Part 60, New Source Performance Standards

New Source Performance Standards for Electric Utility Steam Generating Units - 40 CFR 60, Subpart D and Da.

Subpart D applies to electric steam generating units capable of combusting more than 250 MMBtu/hr heat input of fossil fuel for which construction, modification, or reconstruction commenced after August 17, 1971. Subpart Da applies to electric utility steam generating units which are capable of combusting greater than 250 MMBtu/hr heat input of fossil fuel which commenced construction after September 18, 1978. The duct burner for the turbine is designed with a heat rating less than 250 MMBTU/hr and thus is not subject to the rules and regulations outlined in Subpart D or Da. Additionally, duct burners associated with a combustion turbine subject to KKKK are excluded as an affected source in Subpart Da.

New Source Performance Standards for Industrial-Commercial-Institutional Steam Generating Units - 40 CFR 60, Subpart Db and Dc.

The affected facility to which subpart Db applies is each steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating unit of greater than 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/hr)). Since the duct burners' heat input is below the applicability threshold, they are not subject to this regulation.

The affected facility to which subpart Dc applies is each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 100 MMBtu/hr or less, but greater than or equal to 10 MMBtu/hr. The proposed new duct burner will have a maximum heat input of 78 MMBtu/hr and thus may be subject to 40 CFR 60, Subpart Dc. However, duct burners associated with stationary combustion turbines that meet applicability requirements of subpart KKKK are not subject to this subpart.

New Source Performance Standards for Stationary Gas Turbines - 40 CFR 60, Subpart GG

This subpart promulgates emission standards for all stationary gas turbines with a heat input at peak load equal to or greater than 10.7 GJ (10 MMBtu/hr) which commenced construction, modification, or reconstruction after October 3, 1977, and on or before February 18, 2005. Since the turbines and duct burner will be subject to 40 CFR Part 60, Subpart KKKK and will be constructed after the applicability date cut-off, the project is not subject to NSPS Subpart GG.

Summary of Potentially Applicable Requirements for Proposed EWVI Cogen (cont'd)

July 2024

GGGa—Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006

Applicability to 40 CFR Part 60, Subpart GGGa

40 CFR 60 Subpart GGGa applies to affected facilities in petroleum refineries. 60.590a Applicability and designation of affected facility. (a) (1) The provisions of this subpart apply to affected facilities in petroleum refineries. (2) A compressor is an affected facility. (3) The group of all the equipment (defined in § 60.591a) within a process unit is an affected facility.

Section (e) of the rule establishes a Stay of standards. Owners or operators are not required to comply with the definition of "process unit" in § 60.590 of this subpart until the EPA takes final action to require compliance and publishes a document in the Federal Register. While the definition of "process unit" is stayed, owners or operators should use the following definition:

Process unit means components assembled to produce intermediate or final products from petroleum, unfinished petroleum derivatives, or other intermediates; a process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product.

Since the Cogeneration duct burner does not produce intermediates or final products from petroleum (or from unfinished petroleum derivatives, or other intermediates, the duct burner and associated RFG supply line is not subject to Subpart GGGa.

Applicability to 40 CFR Part 60, Subpart J

40 CFR 60 Subpart J applies to affected facilities in petroleum refineries, including but not limited to fuel gas combustion devices that commenced construction, reconstruction, or modification after June 11, 1973 and on or before May 14, 2007. Fuel gas combustion devices that are flares for which construction, reconstruction, or modification commenced after June 11, 1973 and on or before June 24, 2008 are subject to NSPS J. The proposed gas turbine system will be installed after June 24, 2008 and therefore, will not be subject to Subpart J.

Applicability to 40 CFR Part 60, Subpart Ja

Similar to 40 CFR 60 Subpart J, Subpart Ja applies to affected facilities in petroleum refineries including but not limited to fuel gas combustion devices and flares. Fuel gas combustion devices are subject to this subpart for units which construction, reconstruction, or modification commenced *after May 2007* or if compliance with this subpart was elected in lieu of complying with the provisions in subpart J. Flares for which construction, modification, or reconstruction commenced after June 24, 2008 are subject to this subpart.

Under NSPS Ja, fuel gas combustion devices (excluding flares) are subject to SO_2 or H_2S limitations of 40 CFR §60.102a(g)(1) and to NO_x limitations for process heaters under 40 CFR §60.102a(g)(2).

As the combustion turbine only fires natural gas, Subpart Ja does not apply to the turbine. However, since the duct burner fires RFG, it is subject to Subpart Ja as a fuel gas combustion device.

Since the proposed duct burner will fire RFG, it will be subject to 40 CFR §60.102a(g)(1) for SO_2 or H_2S. Since the duct burner does not meet the definition of a process heater or other defined fuel gas combustion device (e.g., FCCF/FCU, sulfur recovery plant, or process heater) it is not subject to NO_x limits under Subpart Ja.

The proposed duct burner has a maximum heat input rating of approximately 78 MMBtu/hr. Therefore key requirements for the duct burner as a fuel gas combustion device per NSPS Ja are as follows:

- Limit emissions to not exceed 20 parts per million by volume (ppmv) SO_2 (3-hr avg. dry basis @0% excess air) & 8 ppmv 365-day avg. dry basis @0% excess air) [§60.102a(g)(1)(i)] OR
- Fuel gas must contain less than 162 ppmv H_2S on a 3-hr avg. and less than 60 ppmv (365-day avg.) determined daily [§60.102a(g)(1)(ii)]
- If complying with SO_2 limit of §60.102a(g)(1)(i) install, operate, and maintain SO_2 monitor [CEMS] according to PS 2 (and PS 3 for O2) of appendix B.
- If complying with H_2S limit of §60.102a(g)(1)(ii) shall install, operate and maintain each H_2S monitor according to PS 7 of appendix B.
- Performance test as per §60.104a(i).
- Other: excess emissions reports. [§60.107a(i) and §60.108a(d)]

Other key requirements for SO_2 and H_2S under NSPS Ja for fuel gas combustion devices are as follows:

- Monitor the fuel gas H_2S composition. [§60.107a(a)(2)]
- Maintain fuel gas H_2S records. [§60.108a(c)]
- Submit excess emissions reports. [§60.107a(i) and §60.108a(d)]

Note that EWVI currently complies with the H_2S fuel gas concentration limit (162 ppmv 3-hour rolling average basis and 60 ppmv 365-successive calendar day rolling average basis) for certain boilers and heaters.

New Source Performance Standards for Stationary Compression Ignition Internal Combustion Engines - 40 CFR 60, Subpart IIII

In accordance with 40 CFR Part 60, Subpart IIII — Standards of Performance for Stationary Compression under §60.4200 "Am I subject to this subpart?", the provisions of this subpart apply if you are the owner or operator of a stationary compression ignition (CI) internal combustion engine. Owners and operators of stationary CI ICEs that commence construction after July 11, 2005, and where the stationary CI ICE are manufactured after April 1, 2006, and are not fire pump engines. ,

Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later emergency stationary CI ICE with a maximum engine power less than or equal to 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder that are not fire pump engines to the emission standards specified in Subpart IIII. For engines with a rated power greater than or equal to 37 KW (50 HP), the Tier 2 or Tier 3 emission standards for new nonroad CI engines for the same rated power as described in 40 CFR part 1039, appendix I, for all pollutants and the smoke

standards as specified in 40 CFR 1039.105 beginning in model year 2007. Based on the fuel, the type and size engine, EWVI must purchase a certified engine per Subpart IIII.

The Black-start emergency engine will operate in accordance with 40 CFR Part 60, Subpart IIII as an "emergency stationary ICE" §60.4211(f)(1), (2), and (3).

New Source Performance Standards for Stationary Gas Turbines - 40 CFR 60, Subpart KKKK

In accordance with 40 CFR Part 60, Subpart KKKK — Standards of Performance for Stationary Combustion Turbines, under §60.4305 "Does this subpart apply to my stationary combustion turbine?", the provisions of this subpart apply if you are the owner or operator of a stationary combustion turbine with a heat input at peak load equal to or greater than 10.7 gigajoules (10 MMBtu) per hour, based on the higher heating value of the fuel, which commenced construction, modification, or reconstruction after February 18, 2005, your turbine is subject to this subpart. Only heat input to the combustion turbine should be included when determining whether or not this subpart is applicable to your turbine. Any additional heat input to associated heat recovery steam generator, HRSG, or duct burners should not be included when determining the peak heat input. *This subpart also applies to emissions from any associated HRSG and duct burners.*

Note that stationary combustion turbines regulated under this subpart are exempt from the requirements of Subpart GG of this part. Similarly, HRSGs and duct burners regulated under this subpart are exempted from the requirements of subparts Da, Db, and Dc of this part (Part 60).

The proposed stationary combustion turbine (Solar Titan 130 Axial with HRSG) has a heat input above the 10 MMBTU/hr applicability threshold, and thus is subject to Subpart KKKK. Furthermore, the proposed duct burner is also subject to Subpart KKKK.

Under NSPS KKKK, stationary combustion turbines are subject to NO_x limitations contained in 40 CFR §60.4320 and Table 1 of the rule. Key NO_x requirements under NSPS KKKK for natural gas combustion turbines are as follows:

- 25 ppm OR 1.2 lbs/MWh. [§60.4320, Table 1]
- Since no water or steam injection is planned, compliance with the NO_x limits can be: i) Annual Performance Testing; ii) Continuous Emissions Monitoring Systems (CEMS); OR iii) Continuous Parametric Monitoring Systems (CPMS). [§60.4340]
- Depending on which compliance path chosen, there are additional requirements under each pathway [refer to §60.4345 through §60.4355]

Similarly, the key SO_2 requirements under Subpart KKKK are:

- 0.9 lbs SO_2/MWh (gross output) [§60.4330(a)(1)], OR
- Burn fuel with no more than 0.060 lbs SO_2/MMBtu. [§60.4330(a)(2)]
- Sulfur in fuel content determination [via §60.4360] OR exemption from sulfur content monitoring [via §60.4365] if the fuel is demonstrated not to exceed potential sulfur emissions of 0.060 lb SO_2/MMBtu.

Summary of Potentially Applicable Requirements for Proposed EWVI Cogen (cont'd)

July 2024

New Source Performance Standards for Performance for Greenhouse Gas Emissions for Electric Utility Steam Generating Units - 40 CFR 60, Subpart TTTT.

This subpart outlines emissions standards for any steam generating unit or stationary turbine that commenced construction or reconstruction after January 8, 2014 that has a based load rating of greater than 250 MMBTU/hr or serves a generator(s) capable of selling greater than 25 MW of electricity. Since the proposed turbine is rated at less than 250 MMBTU/hr and being utilized for in-house power, the project is not subject to the rules and regulations of Subpart TTTT.

40 CFR Part 63, National Emissions Standards for Hazardous Air Pollutants (NESHAP)

Subpart Q—National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers

The provisions of Subpart Q apply to all new and existing industrial process cooling towers that are operated with chromium-based water treatment chemicals and are either major sources or are integral parts of facilities that are major sources as defined in § 63.401. Subpart Q does not apply to EWVI proposed Fluid Cooler since it is not anticipated to operate with chromium-based water treatment chemicals, and the site is an Area Source of HAPs as discussed elsewhere in this application.

NESHAP for Stationary Combustion Turbines - 40 CFR 63, Subpart YYYY

Under 40 CFR Part 63, Subpart YYYY regulates HAP emissions from stationary combustion turbines at major HAP source facilities. EWVI Newell is an area source of HAPs, and therefore is not subject to this subpart.

NESHAP for Stationary Reciprocating Internal Combustion Engines, Subpart ZZZZ

As per §63.6590(c) stationary RICE subject to regulations under 40 CFR Part 60, an affected source that meets any of the criteria in paragraphs (c)(1) through (7) of this section must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart IIII, for compression ignition engines. No further requirements apply for such engines under this part.

(1) A new or reconstructed stationary RICE located at an area source.

Since the Black-start emergency engine proposed for the Cogeneration project is subject to 40 CFR Part 60, Subpart IIII, and since EWVI is an Area Source of HAPs, compliance with Subpart ZZZZ is demonstrated by showing compliance with 40 CFR Part 60, Subpart IIII.

NESHAP for Industrial, Commercial, and Institutional Boilers at Area Sources of HAPs - 40 CFR 63, Subpart DDDDD

Subpart DDDDD regulates HAP emissions from industrial boilers and process heaters at major HAP source facilities. EWVI at Newell is considered an area source of HAPs, and is therefore not subject to this subpart. Duct burners associated with stationary combustion turbines that meet applicability requirements of subpart KKKK are not subject to this subpart.

Summary of Potentially Applicable Requirements for Proposed EWVI Cogen (cont'd)

July 2024

NESHAP for Industrial, Commercial, and Institutional Boilers at Area Sources of HAPs - 40 CFR 63, Subpart JJJJJJ

The proposed turbine and duct burner at this facility burn natural gas and refinery gas and do not meet the definition for a boiler; therefore, they are not subject to this subpart. Additionally, since the duct burners are considered waste heat boilers and thus are not subject to Subpart JJJJJJ or any of its requirements per § 63.11195.

State Rules (WV DEP/DAQ)

The Cogen facility is potentially subject to regulations contained in the West Virginia Code of State Regulations, Chapter 45 (Code of State Regulations). The Code of State Regulations (CSR) fall under two main categories: those regulations that are generally applicable (e.g., permitting requirements), and those that have specific applicability (e.g., PM standards for manufacturing equipment).

45 CSR 2: To Prevent and Control Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers

45 CSR 2 applies to fuel burning units, defined as equipment burning fuel "for the primary purpose of producing heat or power by indirect heat transfer". The duct burner(s) are fuel burning units, characterized as "Type 'a'", and therefore must comply with this regulation. Per 45 CSR 2-3, opacity of duct burner emissions from units shall not exceed 10 percent. Additionally, the duct burner(s) are subject to the 0.05 lb/MMBTU PM standard listed in 45 CSR 2-4.1.a.

45 CSR 7: TO PREVENT AND CONTROL PARTICULATE MATTER AIR POLLUTION FROM MANUFACTURING PROCESSES AND ASSOCIATED OPERATIONS

§45-7-5 applies at subsect 5.1, where no person shall cause, suffer, allow or permit any manufacturing process or storage structure generating fugitive particulate matter to operate that is not equipped with a system, which may include, but not be limited to, process equipment design, control equipment design or operation and maintenance procedures, to minimize the emissions of fugitive particulate matter. To minimize means such system shall be installed, maintained, and operated to ensure the lowest fugitive particulate matter emissions reasonably achievable. The proposed Cogeneration Fluid Cooler is a non-contact cooling system that will emit fugitive PM_{10} in amounts below station source levels as defined in §45-13-2. Although the Fluid Cooler does not meet the definition of a stationary source as defined in §45-13-2, EWVI is still subject to appliable manufacturing processes and associated operations, including the Cogeneration Fluid Cooler. EWVI has quantified the emissions from the Fluid Cooler in Section N of this application; and the Fluid Cooler will comply with this rule as it is equipped with a mist eliminator system to minimize PM_{10} entrained in any fugitive mist escaping the Fluid Cooler system.

45 CSR 10: To Prevent and Control Air Pollution from the Emissions of Sulfur Oxides

45 CSR 10 applies to fuel burning units, which is defined as equipment burning fuel "for the primary purpose of producing heat or power by indirect heat transfer". The proposed turbines do not meet the definition of a fuel burning unit under 45 CSR 10. Additionally, 45 CSR does not establish an SO_2

standard for fuel burning units whose primary purpose is the generation of steam or other vapor to produce electric power for sale. As such the duct burners are not subject to Rule 10.

45 CSR 13: Permits for Construction, Modification, Relocation and Operations of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, Permission to Commend Constructions, and Procedures for Evaluation.

The proposed combustion turbine is classified as a "stationary source" per 45 CSR 12-2.24 and thus is subject to substantive federal requirements per 45 CSR 13-2.24.a. Per 45 CSR 13-5.1 owners / operators must also obtain a permit pursuit to this rule prior to installing the emissions unit. This includes the submission of a completed application, publication of a legal ad, and payment of Rule 13 permit application filing fee, which includes consideration of New Source Performance Standard (NSPS) and National Emissions Standards for Hazardous Air Pollutants (NESHAPs).

- As per 45 CSR 13-5, no person shall cause, suffer, allow or permit the construction or modification or relocation and operation of any stationary source to be commenced without notifying the Secretary of such intent and obtaining a permit to construct, modify, relocate and operate the stationary source as required in this rule or any other applicable rule promulgated by the Secretary. In addition, 45 CSR 13-5.4 goes on to say any person proposing to construct, modify, relocate and operate a stationary source after the effective date of this rule shall file a complete permit application with the Secretary and shall not construct, modify, relocate and operate the stationary source until the Secretary issues a permit approving of the construction, modification, relocation and operation.

  EWVI views the proposed Cogen project as a modification as per 45 CSR 13-2.17.

- The proposed project is a Title I Modification under 45 CSR 30 since, as noted in this application, it meets the following criteria in WV DEP DAQ's guidance "TITLE V OPERATING PERMIT REVISIONS GUIDANCE PROCEDURES AND INSTRUCTIONS," dated July 18, 2007:

  1. Any construction/modification of a source that would be defined as such under 40 CFR Part 60, the New Source Performance Standards (NSPS).

     As outlined above, the proposed Cogen will be subject to certain 40 CFR 60 standards and will be constructed or modified as per the applicable rules.

The proposed project will be subject to Part 60 NSPS Subparts IIII, Ja and KKKK as outlined above. Since the project meets Title I modification criteria identified above, EWVI's Title V permit requires a significant modification for this action. As part of this application, EWVI is requesting this revision to the Title V permit conditions for the proposed Cogen project.

45 CSR 14: Permits for Construction and Major Modification of Major Stationary Sources for the Prevention Of Significant Deterioration Of Air Quality

Summary of Potentially Applicable Requirements for Proposed EWVI Cogen (cont'd)

July 2024

45 CSR 14 is the state rule addressing major source permits under the PSD program. This rule requires the installation of best available control technology (BACT) for equipment subject to the rule. In addition to BACT, an air quality (modeling) demonstration that the proposed project will not cause or contribute to a projected exceedance of the National Ambient Air Quality Standard or the Class I or II Area Increment Levels for the NSR pollutants that the project is significant and for incremental levels that have been established by the Clean Air Act. Other requirements under the PSD program may be applicable. Potential emissions from the proposed Cogen project will be below major source thresholds and therefore, this permitting rule will not apply.

45 CSR 16 – STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

This rule adopts by reference the standards of performance for new stationary sources promulgated by the United States Environmental Protection Agency pursuant to section 111(b) of the federal Clean Air Act (i.e., NSPS). The applicability of specific NSPS standards is addressed in the federal regulations section above.

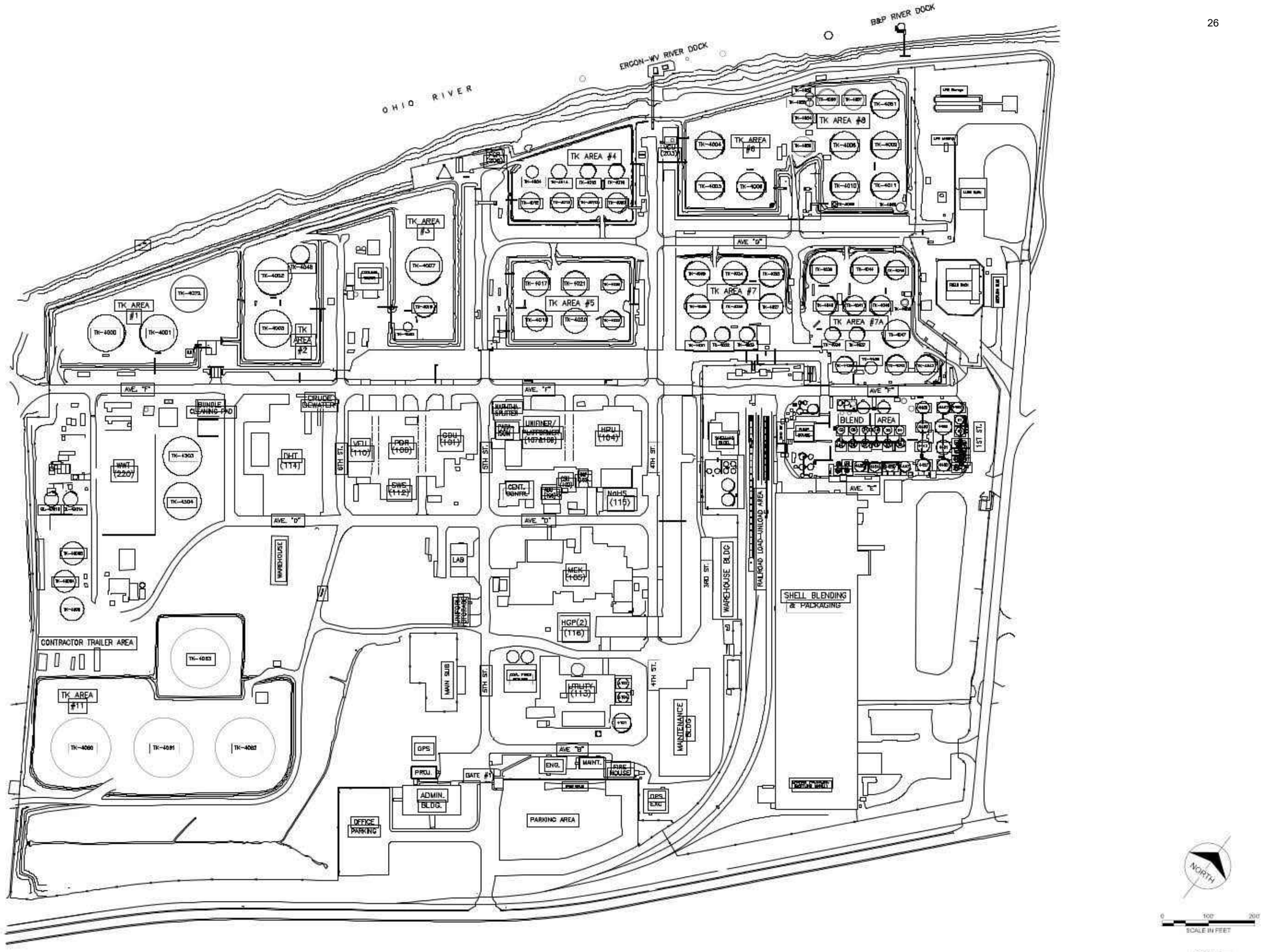
45 CSR 34: Emissions Standards for Hazardous Air Pollutants

45 CSR 34-1 incorporates the federal Clean Air Act (CAA) national emissions standards for hazardous air pollutants (NESHAPs) as set forth in 40 CPR Parts 61 and 63 by reference. The applicability of these rules is discussed above.

2.9.6. Non-Applicability of Other SIP Rules

Many SIP regulations do not apply or do not impose additional requirements on operations at the proposed Cogen project. Certain SIP rules that have specific applicability to the project will be called out elsewhere as appropriate, in the application. It was deemed unnecessary to demonstrate non-applicability of other SIP rules.

5. ATTACHMENT E – PLOT PLAN



SCALE :

NOTICE	NOTES	REFERENCE DRAWINGS	REVISIONS							
THIS DRAWING IS THE PROPERTY OF ERCON WEST VIRGINIA, INC. AND IS LENT TO RECIPIENT FOR HIS CONFIDENTIAL USE ONLY WITH THE UNDERSTANDING THAT COPIES OR REPRODUCTION OF THE DRAWINGS IN ANY MANNER, IN WHOLE OR IN PART, SHALL NOT BE MADE NOR INFORMATION THEREON PUBLISHED OR USED DIRECTLY OR INDIRECTLY FOR ANY PURPOSE OTHER THAN AS SPECIFICALLY DIRECTED BY ERCON WITHOUT THE PRIOR WRITTEN PERMISSION OF ERCON. ALL COPIES ARE TO BE RETURNED ON REQUEST OF ERCON WEST VIRGINIA, INC.			NO.	DESCRIPTION	BY	DATE	CHK	DATE	APPR	DATE

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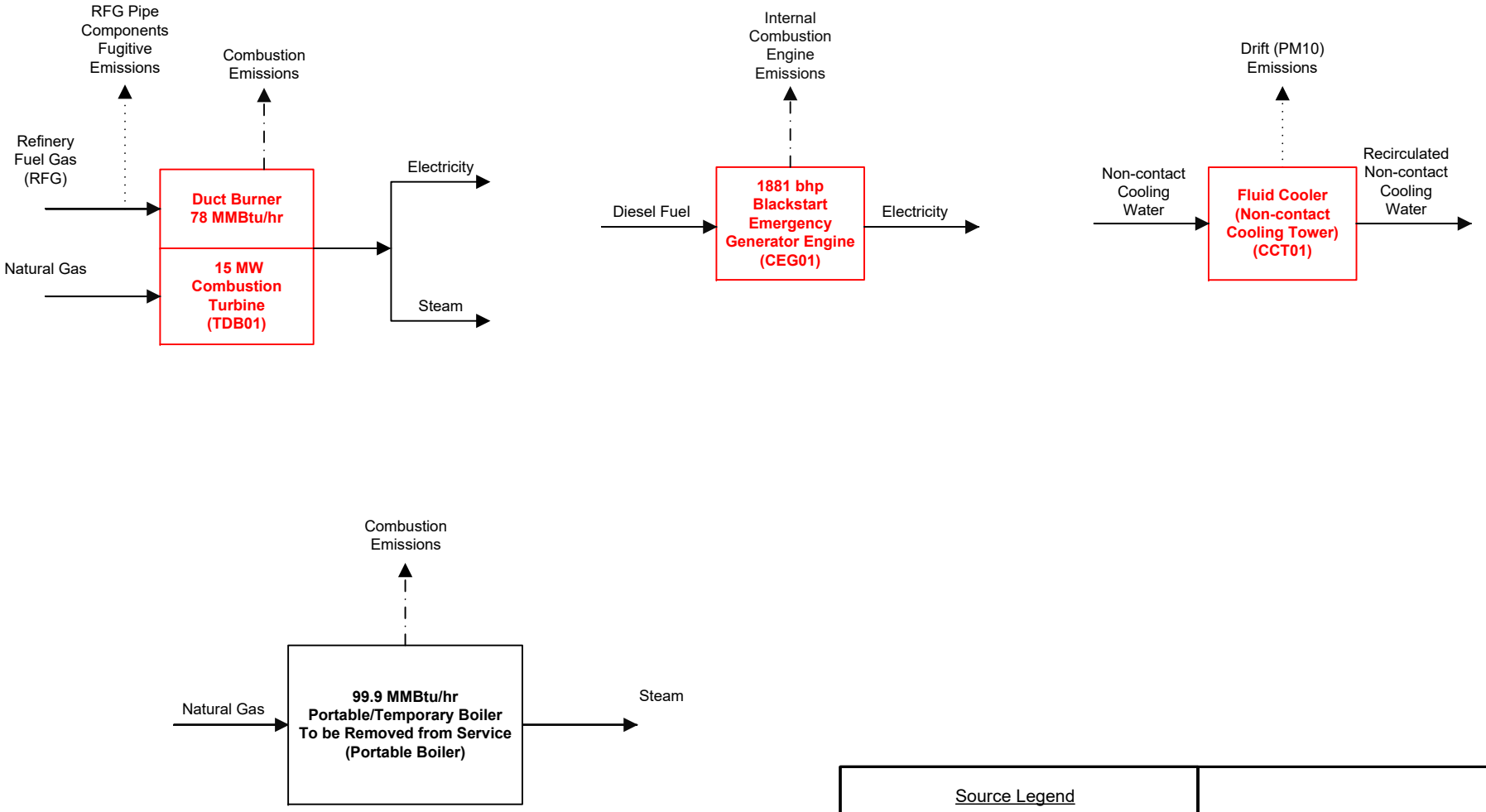
Newell, WV

COMPANY			PROJECT	
ERCON WEST VIRGINIA, INC.			Ergon COGEN Project	
LOCATION			DRAWING TITLE	
NEWELL, WEST VIRGINIA			Attachment E: Plot Plan	
DRAWN BY	DATE DRAWN	CAD FILE	DRAWING NO.	REV
				A

6. ATTACHMENT F – PROCESS FLOW DIAGRAM

*** Note that this is a simplified diagram for the purposes of explaining basic facility flow and emission points. The actual design is more complex and may vary.**



7. ATTACHMENT G – PROCESS DESCRIPTION

ATTACHMENT G
PROCESS DESCRIPTION

The EWVI Newell Refinery processes crude oil into fuels and other industrial chemical feedstocks through the use of distillation and chemical reaction processes. The site utilizes public electricity, pipeline quality natural gas, onsite generated refinery fuel gas and steam to meet electric power and heat demands. Electricity is provided by MonPower and quality natural gas is provided by Interconn Resources, LLC; Mountaineer Gas Company (RFG services); and/or ConocoPhillips/BP Energy/Constellation Energy for various natural gas supply services. Steam and heat are generated by four onsite boilers including Boiler A, Boiler B, Boiler C, and a Portable (Temporary) Boiler.

EWVI is proposing to install a Cogeneration plant at the Newell Refinery to increase the electrical reliability of supply to the refinery. The loss of public-supplied electric power at the site can cause abrupt stoppage or inconsistent and unreliable readings from site equipment, instrumentation, and controls. The proposed cogeneration project is designed to minimize loss of electric power that is important to operations and safety at the plant.

The project will have the ability to produce high pressure, superheated steam to the refinery through the Heat Recovery Steam Generator (HRSG) and duct burner.

The Cogeneration project consists of a natural gas-fired combustion turbine and duct burner. The duct burner will fire Refinery Fuel Gas (RFG) which is a blend of refinery plant gas and natural gas. [Note that RFG is on average a 80:20 mixture of natural gas and plant gas.] Planned ancillary operations include a diesel-fired black-start emergency power generator and fluid cooler (i.e., closed circuit cooler tower). The primary unit is a Solar Titan 130 turbine with a nominal net output of approximately 15 MW (and 172 MMBtu/hr fuel flow) with a RFG-fired duct burner with a heat input capacity of 78 MMBtu/hr on an HHV basis.

The plant will continue to utilize steam and heat generated by existing Boilers A, B, and C; however the portable boiler, identified as the “Portable Boiler” in the site’s Title V operating permit will be taken out of service permanently. The Portable Boiler currently has little run time, and Boilers A, B, and C produce the majority of steam and heat needed at the plant. Boilers A, B, and C are not part of the Cogeneration project (i.e., there will be no impact to the operation of these three boilers), and will continue to run in accordance with the conditions contained in the Title V operating permit.

Due to the size and expected emissions associated with the Cogeneration unit and duct burner, unrestricted operations of the unit(s) would result in emissions of NO_x and CO_2e above the Prevention of Significant Deterioration (PSD) significant emissions rate (SER) . However, given the energy and heat balance at the site, EWVI is taking voluntary restrictions that result in project potential emissions below SERs as described in Attachment D. Operational restrictions were also taken into account for the black-start emergency generator relative to conservatively predicted startups and shutdowns of the turbine.

8. ATTACHMENT H – SAFETY DATA SHEETS (SDS)

NOT APPLICABLE

9. ATTACHMENT I –EMISSIONS UNIT TABLE

Attachment I

Emission Units Table

(includes all emission units and air pollution control devices that will be part of this permit application review, regardless of permitting status)

Emission Unit ID[1]	Emission Point ID[2]	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type[3] and Date of Change	Control Device[4]
TDB01	TDB01	Gas Turbine with Duct Burner and HRSG (including startup & shutdown emissions)	2024	15 MW/78 MMBtu/hr	New	None
CCT01	CCT01	COGEN Fluid Cooler (closed circuit cooling unit)	2024	2,016 GPM	New	None
CEG01	CEG01	COGEN Black-start Diesel Emergency Generator (1250 kW)	2024	1881 HP	New	None

[1] For Emission Units (or Sources) use the following numbering system:1S, 2S, 3S,... or other appropriate designation.
[2] For Emission Points use the following numbering system:1E, 2E, 3E, ... or other appropriate designation.
[3] New, modification, removal
[4] For Control Devices use the following numbering system: 1C, 2C, 3C,... or other appropriate designation.

10. ATTACHMENT J – EMISSION POINTS DATA SUMMARY

Attachment J
EMISSION POINTS DATA SUMMARY SHEET

Table 1: Emissions Data

Emission Point ID No. *(Must match Emission Units Table & Plot Plan)*	Emission Point Type[1]	Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)*		Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)*		Vent Time for Emission Unit *(chemical processes only)*		All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)*	Maximum Potential Uncontrolled Emissions [4]		Maximum Potential Controlled Emissions [5]		Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)*	Est. Method Used [6]	Emission Concentration [7] (ppmv or mg/m^4)
		ID No.	Source	ID No.	Device Type	Short Term[2]	Max (hr/yr)		lb/hr	ton/yr*	lb/hr	ton/yr*			
TDB01	Upward vertical stack	TDB01	Comb Turbine & Duct Burner	N/A	N/A	N/A	N/A	NOx CO SO_2 $PM_{10}/PM_{2.5}$ VOC Lead CO2e Total HAPs	REFER TO TABLES N-2A, N-2B, and N-2C				Gas/Vapor	NOx, CO VOC, and PM - Other (vendor); SO_2 and HAPs from AP-42	REFER TO TABLES N-2A, N-2B, and N-2C

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

[1] Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

[2] Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

[3] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, CS_2, VOCs, H_2S, Inorganics, Lead, Organics, O_3, NO, NO_2, SO_2, SO_3, all applicable Greenhouse Gases (including CO_2 and methane), etc. **DO NOT LIST** H_2, H_2O, N_2, O_2, and Noble Gases.

[4] Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[5] Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[6] Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

[7] Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m^3) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO_2, use units of ppmv (See 45CSR10).

Table 1: Emissions Data

Emission Point ID No. *(Must match Emission Units Table & Plot Plan)*	Emission Point Type[1]	Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)*		Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)*		Vent Time for Emission Unit *(chemical processes only)*		All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)*	Maximum Potential Uncontrolled Emissions [4]		Maximum Potential Controlled Emissions [5]		Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)*	Est. Method Used [6]	Emission Concentration [7] (ppmv or mg/m^4)
		ID No.	Source	ID No.	Device Type	Short Term[2]	Max (hr/yr)		lb/hr	ton/yr*	lb/hr	ton/yr*			
CCT01	Fugitive	CCT01	Fluid Cooler	N/A	N/A	N/A	N/A	$PM_{10}/PM_{2.5}$	REFER TO TABLE N-3				Mist, Gas/Vapor	AP-42 and EE (for particle size)	REFER TO TABLE N-3

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

[1] Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

[2] Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

[3] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, CS_2, VOCs, H_2S, Inorganics, Lead, Organics, O_3, NO, NO_2, SO_2, SO_3, all applicable Greenhouse Gases (including CO_2 and methane), etc. **DO NOT LIST** H_2, H_2O, N_2, O_2, and Noble Gases.

[4] Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[5] Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[6] Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

[7] Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m^3) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO_2, use units of ppmv (See 45CSR10).

Table 1: Emissions Data

Emission Point ID No. *(Must match Emission Units Table & Plot Plan)*	Emission Point Type[1]	Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)*		Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)*		Vent Time for Emission Unit *(chemical processes only)*		All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)*	Maximum Potential Uncontrolled Emissions [4]		Maximum Potential Controlled Emissions [5]		Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)*	Est. Method Used [6]	Emission Concentration [7] (ppmv or mg/m^4)
		ID No.	Source	ID No.	Device Type	Short Term[2]	Max (hr/yr)		lb/hr	ton/yr*	lb/hr	ton/yr*			
CEG01	Upward vertical stack	CEG01	Emergency Generator Engine	N/A	N/A	N/A	N/A	NOx CO SO_2 $PM_{10}/PM_{2.5}$ VOC Lead CO2e Total HAPs	REFER TO TABLE N-4				Gas/Vapor	AP-42	REFER TO TABLE N-4

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

[1] Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

[2] Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

[3] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, CS_2, VOCs, H_2S, Inorganics, Lead, Organics, O_3, NO, NO_2, SO_2, SO_3, all applicable Greenhouse Gases (including CO_2 and methane), etc. **DO NOT LIST** H_2, H_2O, N_2, O_2, and Noble Gases.

[4] Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[5] Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[6] Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

[7] Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m^3) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO_2, use units of ppmv (See 45CSR10).

Attachment J
EMISSION POINTS DATA SUMMARY SHEET

Table 2: Release Parameter Data								
Emission Point ID No. *(Must match Emission Units Table)*	Inner Diameter (ft.)	Exit Gas			Emission Point Elevation (ft)		UTM Coordinates (km) *	
		Temp. (°F)	Volumetric Flow [1] (acfm) *at operating conditions*	Velocity (fps)	Ground Level *(Height above mean sea level)*	Stack Height [2] *(Release height of emissions above ground level)*	Northing	Easting
TDB01	TBD	314	428,8800 LBS/MMBtu	TBD	TBD	TBD	TBD	TBD
CCT01	NA	Ambient, variable	145,200	NA (fug.)	TBD	10+ (ft)	TBD	TBD
CEG01	14" (silencer)	932	4,767 SCFM (standby);12,570 SCFM (rated output)	0.042	TBD	TBD	TBD	TBD

* Coordinates shown are for the facility.

[1] Give at operating conditions. Include inerts.
[2] Release height of emissions above ground level.

11. ATTACHMENT K – FUGITIVE DATA SHEET

Attachment K

FUGITIVE EMISSIONS DATA SUMMARY SHEET

The FUGITIVE EMISSIONS SUMMARY SHEET provides a summation of fugitive emissions. Fugitive emissions are those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening. Note that uncaptured process emissions are not typically considered to be fugitive, and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET.

Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions).

APPLICATION FORMS CHECKLIST - FUGITIVE EMISSIONS
1.) Will there be haul road activities? ☐ Yes ☒ No ☐ If YES, then complete the HAUL ROAD EMISSIONS UNIT DATA SHEET.
2.) Will there be Storage Piles? ☐ Yes ☒ No ☐ If YES, complete Table 1 of the NONMETALLIC MINERALS PROCESSING EMISSIONS UNIT DATA SHEET.
3.) Will there be Liquid Loading/Unloading Operations? ☐ Yes ☒ No ☐ If YES, complete the BULK LIQUID TRANSFER OPERATIONS EMISSIONS UNIT DATA SHEET.
4.) Will there be emissions of air pollutants from Wastewater Treatment Evaporation? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
5.) Will there be Equipment Leaks (e.g. leaks from pumps, compressors, in-line process valves, pressure relief devices, open-ended valves, sampling connections, flanges, agitators, cooling towers, etc.)? ☒ Yes ☐ No ☐ If YES, complete the LEAK SOURCE DATA SHEET section of the CHEMICAL PROCESSES EMISSIONS UNIT DATA SHEET.
6.) Will there be General Clean-up VOC Operations? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
7.) Will there be any other activities that generate fugitive emissions? ☒ Yes ☐ No ☒ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET or the most appropriate form.
If you answered “NO” to all of the items above, it is not necessary to complete the following table, “Fugitive Emissions Summary.”

FUGITIVE EMISSIONS SUMMARY	All Regulated Pollutants - Chemical Name/CAS [1]	Maximum Potential Uncontrolled Emissions [2]		Maximum Potential Controlled Emissions [3]		Est. Method Used [4]
		lb/hr	ton/yr	lb/hr	ton/yr	
Haul Road/Road Dust Emissions Paved Haul Roads	---	---	---	---	---	---
Unpaved Haul Roads	---	---	---	---	---	---
Storage Pile Emissions	---	---	---	---	---	---
Loading/Unloading Operations	---	---	---	---	---	---
Wastewater Treatment Evaporation & Operations	---	---	---	---	---	---
Equipment Leaks (Duct burner, RFG piping system)	VOC	0.71	3.1	0.71	3.1	EPA/ EE
General Clean-up VOC Emissions	---	---	---	---	---	---
Other, Fluid Cooler (non-contact cooling tower mist)	PM_{10}	0.003	0.014	0.003	0.014	AP-42, EE

[1] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS_2, VOCs, H_2S, Inorganics, Lead, Organics, O_3, NO, NO_2, SO_2, SO_3, all applicable Greenhouse Gases (including CO_2 and methane), etc. DO NOT LIST H_2, H_2O, N_2, O_2, and Noble Gases.

[2] Give rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[3] Give rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[4] Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

12. ATTACHMENT L – EMISSIONS UNITS DATA SHEETS

Attachment L
Emission Unit Data Sheet
(INDIRECT HEAT EXCHANGER)

Control Device ID No. (must match List Form): TDB01

Equipment Information

1. Manufacturer: Solar	2. Model No. Titan 130-23001S Axial with HRSG Serial No. TBD
3. Number of units: 1	4. Use Utility Generation
5. Rated Boiler Horsepower: N/A hp	6. Boiler Serial No.: N/A
7. Date constructed: November 1, 2024	8. Date of last modification and explain: N/A
9. Maximum design heat input per unit: 172 (turbine); 77.64 (duct burner) $\times 10^6$ BTU/hr	10. Peak heat input per unit: 172 (turbine); 77.64 (duct burner) $\times 10^6$ BTU/hr
11. Steam produced at maximum design output: ~120,000 LB/hr TBD psig	12. Projected Operating Schedule: Hours/Day 24 Days/Week 7 Weeks/Year 52
13. Type of firing equipment to be used: ☐ Pulverized coal ☐ Spreader stoker ☐ Oil burners ☒ Natural Gas Burner ☒ Others, specify RFG Duct Burner	14. Proposed type of burners and orientation: ☐ Vertical ☐ Front Wall ☐ Opposed ☐ Tangential ☒ Others, specify NG Turbine; RFG Duct Burner
15. Type of draft: ☒ Forced ☐ Induced	16. Percent of ash retained in furnace: N/A %
17. Will flyash be reinjected? ☐ Yes ☒ No	18. Percent of carbon in flyash: N/A %

Stack or Vent Data

19. Inside diameter or dimensions: 6.3 ft.	20. Gas exit temperature: 325 °F
21. Height: 75 ft.	22. Stack serves: ☒ This equipment only ☐ Other equipment also (submit type and rating of all other equipment exhausted through this stack or vent)
23. Gas flow rate: 100,000 (@60 F) ft^3/min	
24. Estimated percent of moisture: 9.3 %	

Fuel Requirements

25.	Type	Fuel Oil No.	Natural Gas	Gas (other, specify)	Coal, Type:	Other:
	Quantity (at Design Output)	N/A gph@60°F	168,627 (turbine) ft^3/hr	63,692 (RFG, duct burner) ft^3/hr	N/A TPH	
	Annually	N/A $\times 10^3$ gal	0.169 $\times 10^6$ ft^3/hr	0.072 $\times 10^6$ ft^3/hr	N/A tons	
	Sulfur	Maximum: N/A wt. % Average: N/A wt. %	See Other gr/100 ft^3	10 gr/100 ft^3	Maximum: N/A wt. %	0.0034 lbs SO2 per MMBtu
	Ash (%)	N/A	N/A	N/A	Maximum	
	BTU Content	BTU/Gal. Lbs/Gal.@60°F	BTU/ft^3	BTU/ft^3	BTU/lb	
	Source	N/A	Pipeline Quality NG	Site Operations	N/A	
	Supplier	N/A	Public Utility	Site Operations	N/A	
	Halogens (Yes/No)	N/A	No	No	N/A	
	List and Identify Metals	N/A	Negligible	Negligible	N/A	

26. Gas burner mode of control:
☐ Manual ☐ Automatic hi-low
☒ Automatic full modulation ☐ Automatic on-off

27. Gas burner manufacture: Solar (turbine); Duct Burner by Zeeco/Superior

28. Oil burner manufacture: N/A

29. If fuel oil is used, how is it atomized? ☐ Oil Pressure ☐ Steam Pressure ☐ Compressed Air ☐ Rotary Cup ☐ Other, specify

30. Fuel oil preheated: ☐ Yes ☐ No

31. If yes, indicate temperature: N/A °F

32. Specify the calculated theoretical air requirements for combustion of the fuel or mixture of fuels described above actual cubic feet (ACF) per unit of fuel:
15% O2 @ 60 °F, TBD PSIA, 6.8 % moisture

33. Emission rate at rated capacity: See Att. N Calcs lb/hr

34. Percent excess air actually required for combustion of the fuel described: 15 %

Coal Characteristics

35. Seams: N/A

36. Proximate analysis (dry basis): % of Fixed Carbon: % of Sulfur:
% of Moisture: % of Volatile Matter:
% of Ash:

Emissions Stream

37. What quantities of pollutants will be emitted from the boiler before controls?

Pollutant	Pounds per Hour lb/hr	grain/ACF	@ °F	PSIA
CO	Refer to Att. N Calcs			
Hydrocarbons				
NO_x				
Pb				
PM_{10}				
SO_2				
VOCs				
Other (specify)				

38. What quantities of pollutants will be emitted from the boiler after controls?

Pollutant	Pounds per Hour lb/hr	grain/ACF	@ °F	PSIA
CO	N/A (No Controls)			
Hydrocarbons				
NO_x				
Pb				
PM_{10}				
SO_2				
VOCs				
Other (specify)				

39. How will waste material from the process and control equipment be disposed of?
N/A

40. Have you completed an *Air Pollution Control Device Sheet(s)* for the control(s) used on this Emission Unit.

41. Have you included the ***air pollution rates*** on the Emissions Points Data Summary Sheet?

42. **Proposed Monitoring, Recordkeeping, Reporting, and Testing**
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING PLAN: Please list (1) describe the process parameters and how they were chosen (2) the ranges and how they were established for monitoring to demonstrate compliance with the operation of this process equipment operation or air pollution control device.

Natural Gas & Refinery Gas throughputs were selected as monitoring parameters to meet site energy requirements and, in combination with NOx CEMS, to maintain emissions below NSR significant emission rate. Refer to Attachment O for further information.

TESTING PLAN: Please describe any proposed emissions testing for this process equipment or air pollution control device.

Use NO_x CEMS and/or conduct initial performance testing of NOx and, depending on emission limitation selection, H2S/SO2 in accordance with 40 CFR Part 60 Subpart KKKK and 40 CFR Part 60 Subpart Ja (for Duct Burner).

RECORDKEEPING: Please describe the proposed recordkeeping that will accompany the monitoring.

EWVI will record - daily, monthly, and 12-month rolling:
i) Monthly and 12-month rolling NOx emissions
ii) Turbine natural gas throughput (MMSCF);
iii) Duct Burner RFG throughput (MMSCF);
iv) Continuously monitor and record concentration (dry basis) of H2S in RFG gases before being burned in any fuel gas combustion device.
v) Record performance of operations, maintenance, and work practices daily.
vi) Maintain records of NOx CEMS in accordance with 40 CFR Part 60 Subpart KKKK.

REPORTING: Please describe the proposed frequency of reporting of the recordkeeping.

EWVI will report actual emissions from combustion at the Turbine and Duct Burner in the annual emissions inventory.

EWVI will submit semiannual reports of excess emissions; monitoring downtime; startups, shutdowns & malfunctions; and NOx CEMS data and performance testing as applicable under 40 CFR Part 60 Subparts KKKK & Ja.

43. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.

The turbine and HRSG/Duct burner will operate from -10F to 104F and will vary the electrical output to match the demand on site, maintaining a minimum of 50% load on the turbine to remain in SoLoNox mode. EWVI will contract with Solar Turbines for a long term service agreement for Solar to provide twice a year routine maintenance as well as continuous remote monitoring of the turbine performance to provide early detection of issues. The twice a year planned maintenance will review overall condition of the turbine as well as provide a cleaning of the turbine to maintain the power output.

Attachment L
EMISSIONS UNIT DATA SHEET
GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): CEG01

1. Name or type and model of proposed affected source:

   Generac SD/MD1250 (Black-start diesel engine)

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

   N/A

4. Name(s) and maximum amount of proposed material(s) produced per hour:

   Electricity 1,250 kW

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

   N/A

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

Diesel Fuel: 13.17 MMBtu/hr; 97.7 gallons/hour (at 100% load)

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

Diesel Fuel
% Sulfur: 0.0015
Ash: N/A

(c) Theoretical combustion air requirement (ACF/unit of fuel):

N/A @ °F and psia.

(d) Percent excess air: N/A

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

13.17 MMBtu/hr; 1,881 brake horsepower

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

N/A

(g) Proposed maximum design heat input: N/A × 10^6 BTU/hr.

7. Projected operating schedule:

Hours/Day	0.5 - 1.0	Days/Week	1	Weeks/Year	52

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@ N/A °F and psia

a.	NO_X	See Attachment N Calcs	lb/hr	grains/ACF
b.	SO_2		lb/hr	grains/ACF
c.	CO		lb/hr	grains/ACF
d.	PM_{10}		lb/hr	grains/ACF
e.	Hydrocarbons		lb/hr	grains/ACF
f.	VOCs		lb/hr	grains/ACF
g.	Pb		lb/hr	grains/ACF
h.	Specify other(s)			
			lb/hr	grains/ACF
			lb/hr	grains/ACF
			lb/hr	grains/ACF
			lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING	RECORDKEEPING
See Attachment O	See Attachment O
REPORTING	**TESTING**
See Attachment O	See Attachment O

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

Emergency unit to be used when turbine is not functioning

Attachment L
EMISSIONS UNIT DATA SHEET
GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): CCT01

1. Name or type and model of proposed affected source:

   Fluid Cooler, Evapco ESW4 12-44N18-LF (2 units)

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

   Non-contact cooling water
   120,960 gallons per hour

4. Name(s) and maximum amount of proposed material(s) produced per hour:

   Recirculated non-contact cooling water
   120,960 gallons per hour

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

   N/A

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

N/A

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

N/A

(c) Theoretical combustion air requirement (ACF/unit of fuel):

N/A @ °F and psia.

(d) Percent excess air: N/A

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

N/A

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

N/A

(g) Proposed maximum design heat input: N/A × 10^6 BTU/hr.

7. Projected operating schedule:

Hours/Day	24	Days/Week	7	Weeks/Year	52

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@ N/A °F and psia

a.	NO_X	See Attachment N Calcs	lb/hr	grains/ACF
b.	SO_2		lb/hr	grains/ACF
c.	CO		lb/hr	grains/ACF
d.	PM_{10}		lb/hr	grains/ACF
e.	Hydrocarbons		lb/hr	grains/ACF
f.	VOCs		lb/hr	grains/ACF
g.	Pb		lb/hr	grains/ACF
h.	Specify other(s)			
			lb/hr	grains/ACF
			lb/hr	grains/ACF
			lb/hr	grains/ACF
			lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING	RECORDKEEPING
See Attachment O	See Attachment O
REPORTING	**TESTING**
See Attachment O	See Attachment O

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

TBD (Z&F to address)

13. ATTACHMENT M – AIR POLLUTION CONTROL SHEETS

NOT APPLICABLE

14. ATTACHMENT N – CALCULATIONS

July 2024 (rev. Sept. 2024)

Company Name: Ergon West Virginia
Facility Name: Newell
Project Description: Cogen Project

Table N-1. Cogen Project Emissions Summary (Step 1)

Emission Unit/Pollutant[1,4]	Step 1 - Future Emissions (tpy)[2]								
	PM (filt.)	PM_{10} (filt. + cond.)	$PM_{2.5}$ (filt. + cond.)	Lead	NO_2	CO	VOC	SO_2	CO_2e
Cogen Turbine	4.52	4.52	4.52	0.00	23.66	27.64	3.16	2.56	88,216
Cogen Turbine SUSD Emissions	--	--	--	--	0.06	1.50	0.36	--	1,863
Duct Burner	0.85	3.40	3.40	0.00	16.23	27.21	3.40	3.38	28,828
Fugitive Losses	--	--	--	--	--	--	3.1	--	0[6]
Fluid Cooler	0.82	0.01	0.00	--	--	--	--	--	--
Black start ICE	0.02	0.02	0.02	0.00	0.89	0.10	0.02	0.001	108
Total New Equipment	**6.21**	**7.96**	**7.94**	**0.00**	**40.84**	**56.45**	**10.06**	**5.94**	**119,014**
Portable Boiler Removal[5]	0.04	0.15	0.15	0.00	0.99	1.66	0.11	0.01	2,356
Total Equipment Removed	**0.04**	**0.15**	**0.15**	**0.00**	**0.99**	**1.66**	**0.11**	**0.01**	**2,356**
Total Project Emissions Increase	**6.17**	**7.81**	**7.79**	**0.00**	**39.86**	**54.79**	**10.0**	**5.9**	**116,658**
PSD SER	25	15	10	0.6	40	100	40	40	75,000
Increase > SER?[3]	NO	NO	NO	NO	NO	NO	NO	NO	YES

1. PSD also has established SERs for hydrogen sulfide, total reduced sulfur, and sulfuric acid mist, which could be emitted from the sources being permitted in this action. If present at all, these compounds are expected to be at concentrations below method detection limits. The proposed project is not expected to increase emissions of any other NSR regulated pollutants (e.g., CFCs).
2. Future emissions from new units is potential to emit.
3. Per 40 CFR §52.21(b)(49)(iv), as an existing major stationary source, GHGs (CO_2e) is only subject to PSD if there is an emissions increase of another regulated NSR pollutant AND an emissions increase of 75,000 tpy CO_2e or more. Since there is no net emissions increase of a regulated NSR pollutant, PSD is not triggered for CO_2e.
4. There are no other project emissions that must be aggregated with this project. Additional infrastructure that does not have air emissions may be impacted by this project (e.g., fuel metering systems and associated piping).
5. Emissions reductions for portable boiler removal are based on 2-year average of actual emissions (2021 and 2022).
6. "0" incidates a negligible amount (<1 tpy) of CO_2e.

Company Name: **Ergon West Virginia** **July 2024**
Facility Name: **Newell**
Project Description: **Cogen Project**

Table N-2a. Summary of Emissions from Proposed Turbine during Normal Operations

New Unit Information :

Fuel Type:	Natural Gas	
Higher Heating Value (HHV) (Btu/scf):	1,020	
Turbine Capacity (Fuel Input):	172	MMBtu/hr
Potential Annual Hours of Operation:	8,760	
Potential Fuel Consumption (MMBtu/yr):	1,506,720	
Max. Fuel Consumption at 100% (scf/hr):	168,627	
Potential Fuel Consumption (MMscf/yr):	1,477.2	

Criteria Pollutant Emission Rates

Pollutant	Emission Factor	Potential Emissions		Emission Factor Source
	lb/MMBtu	(lb/hr)	(tpy)	
NO_x [3]	0.0360	6.22	23.66	Vendor Data; Annual based on data for ambient temps. between 40 and 90 F);
CO	--	6.31	27.64	Vendor Data
SO_2	3.40E-03	0.58	2.56	AP-42 Table 3.1-2a, footnote h; 4/00
VOC	--	0.72	3.16	UHC Vendor Data with applied with 20% VOC/UHC ratio per PIL 168
PM (filt)	0.006	1.03	4.52	Conservatively assumed equal to $PM_{10}/PM_{2.5}$
$PM_{10}/PM_{2.5}$	0.006	1.03	4.52	Vendor Data (PIL 171)

GHG Pollutant Emission Rates

Pollutant	Emission Factor	Potential Emissions	
	(lb/MMBtu)[1]	(lb/hr)	(ton/yr)
CO_2	116.98	20,119.89	88,125
CH_4	2.2E-03	0.38	1.7E+00
N_2O	2.2E-04	3.79E-02	1.7E-01
CO_2e [2]		20,140.66	88,216

Global Warming Potential (GWP) 25 CH_4
298 N_2O

1. GHG Emission factors from Tables C-1 and C-2, 40 CFR 98, Subpart C.
2. GWP from Table A-1, 40 CFR 98, Subpart A.
3. Reflective of voluntary NOx emissions restriction for turbine/duct burner (<40 tpy).

Pollutant	Emission Factor	Potential Emissions	Potential Emissions	Emission Factor Source
	(lb/MMBtu)	(lb/hr)	(ton/yr)	
Acetaldehyde	4.0E-05	6.9E-03	3.0E-02	AP-42 Table 3.1-3, April 2000
Acrolein	6.4E-06	1.1E-03	4.8E-03	AP-42 Table 3.1-3, April 2000
Benzene	1.2E-05	2.1E-03	9.0E-03	AP-42 Table 3.1-3, April 2000
1,3-Butadiene	4.3E-07	7.4E-05	3.2E-04	AP-42 Table 3.1-3, April 2000
Ethylbenzene	3.2E-05	5.5E-03	2.4E-02	AP-42 Table 3.1-3, April 2000
Formaldehyde	7.1E-04	1.2E-01	5.3E-01	AP-42 Table 3.1-3, April 2000
Propylene Oxide	2.9E-05	5.0E-03	2.2E-02	AP-42 Table 3.1-3, April 2000
Toluene	1.3E-04	2.2E-02	9.8E-02	AP-42 Table 3.1-3, April 2000
Xylene	6.4E-05	1.1E-02	4.8E-02	AP-42 Table 3.1-3, April 2000
Naphthalene	1.3E-06	2.2E-04	9.8E-04	AP-42 Table 3.1-3, April 2000
PAH	2.2E-06	3.8E-04	1.7E-03	AP-42 Table 3.1-3, April 2000
Total HAP		**0.18**	**0.77**	

Company Name: **Ergon West Virginia** **July 2024**
Facility Name: **Newell**
Project Description: **Cogen Project**

Table N-2b. Summary of Planned Turbine Startup Shutdown Emissions

Event	NO_x	CO	UHC	VOC	CH_4 (UHC-VOC)[1]	CO_2
	lb/event	*lb/event*	*lb/event*	*lb/event*	*lb/event*	*lb/event*
Startup	1.0	24	28	6	22	943
Shutdown	1.0	26	30	6	24	885
Event	*tpy*	*tpy*	*tpy*	*tpy*	*tpy*	*tpy*
Startup	0.0	0.7	0.8	0.2	0.7	28.3
Shutdown	0.0	0.8	0.9	0.2	0.7	26.6

# of Planned Startup Events per Year: 60
# of Planned Shutdown Events per Year: 60

1. CH_4 is computed as the difference between UHC and VOC.

Company Name: Ergon West Virginia
Facility Name: Newell
Project Description: Cogen Project

July 2024 (rev. Sept. 2024)

Table N-2c. Summary of Emissions from Proposed Duct Burner

New Unit Information :

Fuel Type:	RFG	
Higher Heating Value (HHV) (Btu/scf):	1,076	(Based on EWVI most recent 12 month daily HHV avg.)
Heat Input per Unit (MMBtu/hr):	78	HHV
Potential Annual Hours of Operation:	8,760	
Potential Fuel Consumption (MMBtu/yr):	680,126	
Max. Fuel Consumption at 100% (scf/hr):	72,156	
Potential Fuel Consumption (MMscf/yr):	632.09	

Criteria Pollutant Emission Rates (for natural gas: FG mix)

Pollutant	Emission Factor	Potential Emissions		Emission Factor Source
	lb/MMBtu	(lb/hr)	(ton/yr)	
NO_x [3]	0.092	7.14	16.23	Vendor Data
CO	0.08	6.21	27.21	Vendor Data
VOC	0.01	0.78	3.40	Vendor Data
SO_2	0.010	0.77	3.38	Based on 60 ppmv H2S daily rolling ann avg.
$PM_{filt.}$	0.0025	0.19	0.85	AP-42 Table 1.4-2, July 1998, ratio filt/tot
PM_{10} /$PM_{2.5}$ (Total)	0.01	0.78	3.40	Vendor Data

GHG Pollutant Emission Rates

Pollutant	Emission Factor	Potential Emissions	
	(lb/MMBtu)[1]	(lb/hr)	(ton/yr)
CO_2	84.21	6,538.06	28,637
CH_4	1.0E-03	0.08	3.4E-01
N_2O	1.8E-03	1.40E-01	6.1E-01
CO_2e[2]		6,581.65	28,828

Global Warming Potential (GWP) 25 CH_4
298 N_2O

1. GHG Emission factors from Tables C-1 and C-2, 40 CFR 98, Subpart C.
2. GWP from Table A-1, 40 CFR 98, Subpart A.
3. Reflective of voluntary NOx emissions restriction for turbine/duct burner (40 tpy)

Company Name: Ergon West Virginia
Facility Name: Newell
Project Description: Cogen Project

July 2024 (rev. Sept. 2024)

Table N-2c. Summary of Emissions from Proposed Duct Burner

Hazardous Air Pollutant (HAP) Potential Emissions

Pollutant	Emission Factor	Potential Emissions	Potential Emissions	Emission Factor Source
	(lb/MMscf)	(lb/hr)	(ton/yr)	
2-Methylnaphthalene	2.4E-05	1.7E-06	7.6E-06	AP-42 Table 1.4-3, July 1998
3-Methylchloranthrene	1.8E-06	1.3E-07	5.7E-07	AP-42 Table 1.4-3, July 1998
7,12-Dimethylbenz(a)anthracene	1.6E-05	1.2E-06	5.1E-06	AP-42 Table 1.4-3, July 1998
Acenaphthene	1.8E-06	1.3E-07	5.7E-07	AP-42 Table 1.4-3, July 1998
Acenaphthylene	1.8E-06	1.3E-07	5.7E-07	AP-42 Table 1.4-3, July 1998
Anthracene	2.4E-06	1.7E-07	7.6E-07	AP-42 Table 1.4-3, July 1998
Benz(a)anthracene	1.8E-06	1.3E-07	5.7E-07	AP-42 Table 1.4-3, July 1998
Benzene	2.1E-03	1.5E-04	6.6E-04	AP-42 Table 1.4-3, July 1998
Benzo(a)pyrene	1.2E-06	8.7E-08	3.8E-07	AP-42 Table 1.4-3, July 1998
Benzo(b)fluoranthene	1.8E-06	1.3E-07	5.7E-07	AP-42 Table 1.4-3, July 1998
Benzo(g,h,i)perylene	1.2E-06	8.7E-08	3.8E-07	AP-42 Table 1.4-3, July 1998
Benzo(k)fluoranthene	1.8E-06	1.3E-07	5.7E-07	AP-42 Table 1.4-3, July 1998
Chrysene	1.8E-06	1.3E-07	5.7E-07	AP-42 Table 1.4-3, July 1998
Dibenzo(a,h) anthracene	1.2E-06	8.7E-08	3.8E-07	AP-42 Table 1.4-3, July 1998
Dichlorobenzene	1.2E-03	8.7E-05	3.8E-04	AP-42 Table 1.4-3, July 1998
Fluoranthene	3.0E-06	2.2E-07	9.5E-07	AP-42 Table 1.4-3, July 1998
Fluorene	2.8E-06	2.0E-07	8.8E-07	AP-42 Table 1.4-3, July 1998
Formaldehyde	7.5E-02	5.4E-03	2.4E-02	AP-42 Table 1.4-3, July 1998
Hexane	1.8E+00	1.3E-01	5.7E-01	AP-42 Table 1.4-3, July 1998
Indo(1,2,3-cd)pyrene	1.8E-06	1.3E-07	5.7E-07	AP-42 Table 1.4-3, July 1998
Naphthalene	6.1E-04	4.4E-05	1.9E-04	AP-42 Table 1.4-3, July 1998
Phenanthrene	1.7E-05	1.2E-06	5.4E-06	AP-42 Table 1.4-3, July 1998
Pyrene	5.0E-06	3.6E-07	1.6E-06	AP-42 Table 1.4-3, July 1998
Toluene	3.4E-03	2.5E-04	1.1E-03	AP-42 Table 1.4-3, July 1998
Arsenic	2.0E-04	1.4E-05	6.3E-05	AP-42 Table 1.4-4, July 1998
Beryllium	1.2E-05	8.7E-07	3.8E-06	AP-42 Table 1.4-4, July 1998
Cadmium	1.1E-03	7.9E-05	3.5E-04	AP-42 Table 1.4-4, July 1998
Chromium	1.4E-03	1.0E-04	4.4E-04	AP-42 Table 1.4-4, July 1998
Cobalt	8.4E-05	6.1E-06	2.7E-05	AP-42 Table 1.4-4, July 1998
Lead	5.0E-04	3.6E-05	1.6E-04	AP-42 Table 1.4-2, July 1998
Manganese	3.8E-04	2.7E-05	1.2E-04	AP-42 Table 1.4-4, July 1998
Mercury	2.6E-04	1.9E-05	8.2E-05	AP-42 Table 1.4-4, July 1998
Nickel	2.1E-03	1.5E-04	6.6E-04	AP-42 Table 1.4-4, July 1998
Selenium	2.8E-05	2.0E-06	8.7E-06	AP-42 Table 1.4-4, July 1998
Ethylbenzene	1.7E-02	1.2E-03	5.4E-03	Historical EWVI factor
Phenol	4.3E-03	3.1E-04	1.4E-03	Historical EWVI factor
Xylene	2.7E-02	1.9E-03	8.5E-03	Historical EWVI factor
Total HAP (including Lead)		**0.14**	**0.61**	

Company Name: **Ergon West Virginia** **July 2024**
Facility Name: **Newell**
Project Description: **Cogen Project**

Table N-3. Summary of Emissions from Black Start Engine Operations

Black Start Diesel Engine (Generac SD1250)

Generator Emissions - Diesel > 600 hp

Annual Fuel Usage:	100	hrs/yr	
Generator Capacity (Electrical Output):	1250	kW	
Maximum Engine Rating:	1881	hp	
Average Brake Specific Fuel Consumption:	7000	Btu/hp-hr	(AP-42 value)
Generator (Average Fuel Input):	13.17	MMBtu/hr	
Generator (Annual Fuel Input):	1317	MMBtu/yr	
Displacement:	4.08	L/cylinder	
Diesel Fuel Sulfur Content:	0.0015	%	Based on use of ultra low sulfur diesel

Criteria Pollutant Emissions

Pollutant	Diesel Emission Factor (lb/MMBtu)	Estimated Emissions (lb/hr)	Estimated Emissions (tpy)	Emission Factor Source
NO_X	4.28	17.75	0.89	Vendor data (g/bhp-hr)
CO	0.50	2.07	0.10	Vendor data (g/bhp-hr)
$PM_{10\,/\,2.5}$	0.10	0.41	0.02	Vendor data (g/bhp-hr)
SO_2	1.52E-03	0.02	0.001	AP-42, Table 3.4-1 (10/96)
VOC	0.12	0.50	0.02	Vendor data (g/bhp-hr)

HAP Emissions

Pollutant	Diesel Emission Factor (lb/MMBtu)	Estimated Emissions (lb/hr)	Estimated Emissions (tpy)	Emission Factor Source
Benzene	7.76E-04	0.01	0.0005	AP-42, Table 3.4-3 (10/96)
Toluene	2.81E-04	0.00	0.0002	AP-42, Table 3.4-3 (10/96)
Xylenes	1.93E-04	0.003	0.0001	AP-42, Table 3.4-3 (10/96)
Formaldehyde	7.89E-05	0.001	0.0001	AP-42, Table 3.4-3 (10/96)
Fluoranthene	1.10E-06	0.000	0.0000	AP-42, Table 3.4-4 (10/96)
Acetaldehyde	2.52E-05	0.000	0.0000	AP-42, Table 3.4-3 (10/96)
Acrolein	7.88E-06	0.000	0.0000	AP-42, Table 3.4-3 (10/96)
Total PAH	2.12E-04	0.003	0.0001	AP-42, Table 3.4-4 (10/96)
Total HAP	1.0E-03			

GHG Emissions

Pollutant	Diesel Emission Factor (lb/MMBtu)	Estimated Emissions (lb/hr)	Estimated Emissions (tpy)	Emission Factor Source
CO_2	163.05	2146.93	107.3465	40 CFR 98, Subpart C
CH_4	6.61E-03	0.09	0.0044	40 CFR 98, Subpart C
N_2O	1.32E-03	0.017	0.0009	40 CFR 98, Subpart C
CO_2e		2154.30	107.71	

Generator Fuel Consumption

Item	Value	Unit	Note
Diesel Heating Value	19,300	Btu/lb	Source: AP-42, Table 3.4-1 (10/96), Note (e)
Diesel Heating Value	0.02	MMBtu/lb	
Diesel Heating Value	138,000	Btu/gal	Source; 40 CFR 98 Subpart C
Diesel Density	7.10	lb/gal	Source: AP-42, Table 3.4-1 (10/96), Note (a)
Fuel Consumption	9,541	gal/yr	

Company Name: Ergon West Virginia
Facility Name: Newell
Project Description: Cogen Project

July 2024

Table N-4. Fluid Cooler (NCCT) Emissions

Unit	Water Circulation Rate		Annual	Drift [1]	TDS [2]	TDS Specific
	gal/min	lb/hr	Operating Hrs	(%)	(ppmw)	Gravity [3]
Fluid Coolers	2,016	1,009,411	8,760	0.001%	18,500	2.2

1. Drift rate provided by client.
2. TDS, Total Dissolved Solids concentration based on AP-42 Table 13.4-2 for Counter Flow systems (Geometric Mean TDS).
3. TDS specific gravity corresponding to NaCl.

Calculations

Cooling Tower Particulate Em
(based on paper by Reisman

Volume of drift droplet = $(4/3)\pi(D_d/2)^3$ [Eq. 1]

Mass of solids in drift droplet = $(TDS)(\rho_w)$(Volume of drift droplet) [Eq. 2]

Solid particle volume = (Particle mass of solids) / (ρ_{TDS}) [Eq. 3]

$D_p = D_d\,[(TDS)(\rho_w/\rho_{TDS})]^{1/3}$ [Eq. 4]

where:

D_p = diameter of solid particle (µm)
D_d = diameter of drift droplet (µm)
TDS = total dissolved solids content (ppmw)
ρ_w = density of water = 1E-6 µg/µm^3
ρ_{TDS} = density of solid particles (assume NaCl)

Size Distribution for Cooling Tower Particulate Emissions

EPRI Droplet Diameter [4] (µm)	Droplet Volume [5] (µm^3)	Particle Mass (Solids) [6] (µg)	Solid Particle Volume [7] (µm^3)	Solid Particle Diameter [8] (µm)	EPRI % Mass Smaller [4]
10	523.6	9.69E-06	4.4	2.03	0
20	4188.8	7.75E-05	35.2	4.07	0.2
30	14137.2	2.62E-04	118.9	6.10	0.23
40	33510.3	6.20E-04	281.8	8.13	0.51
50	65449.8	1.21E-03	550.4	10.17	1.82
60	113097.3	2.09E-03	951.0	12.20	5.7
70	179594.4	3.32E-03	1510.2	14.23	21.35
90	381703.5	7.06E-03	3209.8	18.30	49.81
110	696910.0	1.29E-02	5860.4	22.37	70.51
130	1150346.5	2.13E-02	9673.4	26.44	82.02
150	1767145.9	3.27E-02	14860.1	30.50	88.01
180	3053628.1	5.65E-02	25678.2	36.60	91.03
210	4849048.3	8.97E-02	40776.1	42.70	92.47
240	7238229.5	1.34E-01	60866.9	48.80	94.09
270	10305994.7	1.91E-01	86664.0	54.91	94.69
300	14137166.9	2.62E-01	118880.7	61.01	96.29
350	22449297.5	4.15E-01	188778.2	71.17	97.01
400	33510321.6	6.20E-01	281791.3	81.34	98.34
450	47712938.4	8.83E-01	401222.4	91.51	99.07
500	65449846.9	1.21E+00	550373.7	101.68	99.07
600	113097335.5	2.09E+00	951045.8	122.01	100

[4] Based on particle size distribution test data in Reisman, J. and Frisbie, G., "Calculating Realistic PM10 Emissions from Cooling Towers".
[5] Calculated using Equation 1.
[6] Calculated using Equation 2.
[7] Calculated using Equation 3.
[8] Calculated using Equation 4.

PM_{10} and $PM_{2.5}$ Fractions Interpolated from Size Distribution

$PM_{2.5}$ Fraction of Total PM (%)	PM_{10} Fraction of Total PM (%)
0.05	1.71

Particulate Emission Rates

PM Emission Rate (lb/hr) = Water Circulation Rate (lb/hr) x Drift x TDS / 1,000,000
PM_{10} Emission Rate (lb/hr) = PM Emission Rate x PM_{10} Fraction
$PM_{2.5}$ Emission Rate (lb/hr) = PM Emission Rate x $PM_{2.5}$ Fraction
Annual Emission Rates (tons/yr) = Short-term Emission Rates (lbs/hr) x Actual hours/year / 2,000 lbs per ton

Unit	PM		PM_{10}		$PM_{2.5}$	
	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
Fluid Coolers	0.187	0.818	0.003	0.014	0.00009	0.0004

Company Name: **Ergon West Virginia** **July 2024**
Facility Name: **Newell**
Project Description: **Cogen Project**

Table N-5a. Summary of Past Actual Emissions from Portable Boiler (2021)

Unit Information :

Fuel Type:	Natural Gas	
Higher Heating Value (HHV) (Btu/scf):	1,020	
Turbine Capacity (Fuel Input):	99.9	MMBtu/hr
Potential Fuel Consumption (MMBtu/yr):	37,177	
Max. Fuel Consumption at 100% (scf/hr):	97,941	
Max. Fuel Consumption (MMscf/yr):	36.4	

Criteria Pollutant Emission Rates

Pollutant	Emission Factor	Potential Emissions		Emission Factor Source
	lb/MMscf	(lb/hr)	(tpy)	
NO_x	50.0	4.90	0.91	AP-42 Table 1.4-1
CO	84.0	8.23	1.53	AP-42 Table 1.4-1
SO_2	0.6	0.06	0.01	AP-42 Table 1.4-2
VOC	5.5	0.54	0.10	AP-42 Table 1.4-2
Lead	0.0	0.00	0.00	AP-42 Table 1.4-2
PM (filt)	1.9	0.19	0.03	AP-42 Table 1.4-2
$PM_{10}/PM_{2.5}$	7.6	0.74	0.14	AP-42 Table 1.4-2

GHG Pollutant Emission Rates

Pollutant	Emission Factor	Potential Emissions	
	(lb/MMBtu)[1]	(lb/hr)	(ton/yr)
CO_2	116.98	11,685.91	2,174
CH_4	2.2E-03	0.22	4.1E-02
N_2O	2.2E-04	2.20E-02	4.1E-03
CO_2e^2		11,697.98	2,177

Global Warming Potential (GWP) 25 CH_4
298 N_2O

1. GHG Emission factors from Tables C-1 and C-2, 40 CFR 98, Subpart C.
2. GWP from Table A-1, 40 CFR 98, Subpart A.

Company Name: **Ergon West Virginia** **July 2024**
Facility Name: **Newell**
Project Description: **Cogen Project**

Table N-5b. Summary of Past Actual Emissions from Portable Boiler (2022)

Unit Information :

Fuel Type:	Natural Gas	
Higher Heating Value (HHV) (Btu/scf):	1,020	
Turbine Capacity (Fuel Input):	99.9	MMBtu/hr
Potential Fuel Consumption (MMBtu/yr):	43,297	
Max. Fuel Consumption at 100% (scf/hr):	97,941	
Max. Fuel Consumption (MMscf/yr):	42.4	

Criteria Pollutant Emission Rates

Pollutant	Emission Factor	Potential Emissions		Emission Factor Source
	lb/MMscf	(lb/hr)	(tpy)	
NO_x	50.0	4.90	1.06	AP-42 Table 1.4-1
CO	84.0	8.23	1.78	AP-42 Table 1.4-1
SO_2	0.6	0.06	0.01	AP-42 Table 1.4-2
VOC	5.5	0.54	0.12	AP-42 Table 1.4-2
Lead	0.0	0.00	0.00	AP-42 Table 1.4-2
PM (filt)	1.9	0.19	0.04	AP-42 Table 1.4-2
$PM_{10}/PM_{2.5}$	7.6	0.74	0.16	AP-42 Table 1.4-2

GHG Pollutant Emission Rates

Pollutant	Emission Factor	Potential Emissions	
	(lb/MMBtu)[1]	(lb/hr)	(ton/yr)
CO_2	116.98	11,685.91	2,532
CH_4	2.2E-03	0.22	4.8E-02
N_2O	2.2E-04	2.20E-02	4.8E-03
CO_2e^2		11,697.98	2,535

Global Warming Potential (GWP) 25 CH_4
298 N_2O

1. GHG Emission factors from Tables C-1 and C-2, 40 CFR 98, Subpart C.
2. GWP from Table A-1, 40 CFR 98, Subpart A.

Company Name: Ergon West Virginia
Facility Name: Newell
Project Description: Cogen Project

July 2024

Table N-6. Summary of Emissions from Fugitive Losses

New Component Count Estimates

Gas Valves	9
Pump Seals	0
PRVs	3
Compressors	2
Connectors	66
Flanges	0
Open-ended lines	0

VOC Emission Rates

Component Type	Emission Factor	Potential Emissions		Emission Factor Source
	kg/hr/unit	(lb/hr)	(tpy)	
Gas Valves	0.0006	0.01	0.05	Table 2-6, EPA "Protocol for Equipment Leak Emission Estimates"
Pump Seals	0.012	0.00	0.00	
PRVs	0.0447	0.30	1.29	
Compressors	0.0894	0.39	1.73	
Connectors	6.00E-05	0.01	0.04	
Flanges	6.00E-05	0.00	0.00	
Open-ended lines	0.0015	0.00	0.00	
	Total	0.71	3.11	

15. ATTACHMENT O – MONITORING RECORDKEEPING REPORTING

Attachment O - Monitoring, Recordkeeping, Reporting, and Testing

EWVI COGNERATION PROJECT - JULY 2024

Source	Monitoring	Recordkeeping	Reporting	Testing
Gas Turbine (15 MW) with Duct Burner (78 MMBtu/hr) and HRSG	EWVI will Annually limit: i) Annual NOx emissions from the turbine/duct burner to 39.96 tpy iii) Continuously monitor(2) and record concentration (dry basis) of H2S in RFG gases before being burned in any fuel gas combustion device. iv) Perform operations, maintenance, and work practices in accordance with manufacturers specifications and best practices to minimize emissions. v) Install, operate, calibrate, and maintain Continuous [NOx] Emissions Monitoring System (CEMS) at outlet of HRSG (including Turbine and Duct Burner exhaust) in accordance with 40 CFR Part 60 Subpart KKKK.	12-month rolling basis, rolling by calendar month. EWVI will record -monthly, and 12-month rolling: i) Turbine natural gas throughput (MMSCF); ii) Duct Burner RFG(1) throughput (MMSCF); iii) Continuously monitor(2) and record concentration (dry basis) of H2S in RFG gases before being burned in any fuel gas combustion device. iv) Record performance of operations, maintenance, and work practices daily. v) Maintain records of NOx CEMS for outlet of HRSG in accordance with 40 CFR Part 60 Subpart KKKK.	EWVI will report actual emissions from NG and RFG combustion at the Turbine and Duct Burner in the annual emissions inventory. EWVI will submit semiannual reports of excess emissions; monitoring downtime; startups, shutdowns & malfunctions; and performance testing for NOx and SO2/H2S as applicable under 40 CFR Part 60 Subparts KKKK & Ja.	Conduct initial performance testing of NOx and, depending on emission limitation selection, SO2/H2S in accordance with 40 CFR Part 60 Subpart KKKK and 40 CFR Part 60 Subpart Ja (for Duct Burner). Relative to H2S/SO2, the plant will continue to follow continuous fuel monitoring as outlined in the Title V permit [e.g., to satisfy 40 CFR 60.102a(g)(1)].
COGEN Black-start Diesel Emergency Generator (1250 kW) [1,880 bhp]	EWVI will track: i) Number and duration of Turbine Shutdowns and Startups monthly. Ii) Combust only low-sulfur fuel; iii) Non-emergency operating hours <100 hrs/year.	EWVI will record: i) Number and duration of Turbine Shutdowns and Startups monthly. Ii) Sulfur content in low-sulfur fuels used in emergency generator; iii) Non-emergency operating hours.	EWVI will include actual emissions from SU/SDs in the annual emissions inventory.	NA

Footnotes:

(1) RFG is, on average, a 80%:20% mixture of natural gas and Newell Plant refinery gas.
(2) RFG combustion devices at Newell have a common source of fuel gas that is monitored at only one location, and this location accurately represents the concentration of H2S in the fuel gas being burned throughout the plant.

16. ATTACHMENT P – PUBLIC NOTICE

AIR QUALITY PERMIT NOTICE
Notice of Application

Notice is given that Ergon West Virginia Inc. (EWVI) has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Construction and Modification Permit at the petroleum refinery located on 9995 Ohio River Blvd. in Newell, Hancock County, West Virginia. The application is for the installation of a utility cogeneration facility. The latitude and longitude coordinates are: 40.609911, -80.629352.
.

The applicant estimates the increased potential to discharge for the following Regulated Air Pollutants will be:

Pollutant	Emissions in tpy (tons per year)
CO	54.8
NOX	39.9
PM	6.2
PM10	7.8
PM2.5	7.8
SO_2	12.8
VOC	10.0
CO_2e	116,658

Startup of operation is planned to begin on or about the day of August, 1, 2025 Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice. Written comments will also be received via email at DEPAirQualityPermitting@WV.gov.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 41281, during normal business hours.

Dated this the **(Day)** day of **(Month)**, **(Year)**.

By: Ergon-West Virginia Inc. (EWVI)
Dylan Beech
Vice-President, Refining
9995 Ohio River Blvd.
Newell, West Virginia 26050

17. ATTACHMENT S – TITLE V REVISION INFORMATION FORM

Attachment S

Title V Permit Revision Information

1. New Applicable Requirements Summary	
Mark all applicable requirements associated with the changes involved with this permit revision:	
☐ SIP	☐ FIP
☒ Minor source NSR (45CSR13)	☐ PSD (45CSR14)
☐ NESHAP (45CSR15)	☐ Nonattainment NSR (45CSR19)
☒ Section 111 NSPS (Subpart 40 CFR 60 Subparts KKKK (Cogen) and Ja [Duct Burner]; 40 CFR Part 60 Subpart IIII [Black-start emergency engine])	☐ Section 112(d) MACT standards (Subpart(s)_____)
☐ Section 112(g) Case-by-case MACT	☐ 112(r) RMP
☐ Section 112(i) Early reduction of HAP	☐ Consumer/commercial prod. reqts., section 183(e)
☐ Section 129 Standards/Reqts.	☐ Stratospheric ozone (Title VI)
☐ Tank vessel reqt., section 183(f)	☐ Emissions cap 45CSR§30-2.6.1
☐ NAAQS, increments or visibility (temp. sources)	☐ 45CSR27 State enforceable only rule
☐ 45CSR4 State enforceable only rule	☐ Acid Rain (Title IV, 45CSR33)
☐ Emissions Trading and Banking (45CSR28)	☐ Compliance Assurance Monitoring (40CFR64) (1)
☐ NO_x Budget Trading Program Non-EGUs (45CSR1)	☐ NO_x Budget Trading Program EGUs (45CSR26)

(1) If this box is checked, please include **Compliance Assurance Monitoring (CAM) Form(s)** for each Pollutants Specific Emission Unit (PSEU) (See Attachment H to Title V Application). If this box is not checked, please explain why **Compliance Assurance Monitoring** is not applicable:

CAM is not applicable since the project equipment emissions are less than major source levels.

2. Non Applicability Determinations

List all requirements, which the source has determined not applicable to this permit revision and for which a permit shield is requested. The listing shall also include the rule citation and a rationale for the determination.

40 CFR 63 Subpart YYYY. This NESHAP standard applies to major HAP source facilities. The Newell Refinery is an area HAP source; as such, these NESHAP standards do not apply.

☐ **Permit Shield Requested** *(not applicable to Minor Modifications)*

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

3. Suggested Title V Draft Permit Language

Are there any changes involved with this Title V Permit revision outside of the scope of the NSR Permit revision? ☒ Yes ☐ No If Yes, describe the changes below.

Also, please provide **Suggested Title V Draft Permit language** for the proposed Title V Permit revision (including all applicable requirements associated with the permit revision and any associated monitoring /recordkeeping/ reporting requirements), OR attach a marked up pages of current Title V Permit. Please include appropriate citations (Permit or Consent Order number, condition number and/or rule citation (e.g. 45CSR§7-4.1)) for those requirements being added / revised.

It will be necessary to add the following emissions units: Gas Turbine with Duct Burner and Heat Recovery Steam Generator (HRSG), Black-start emergency generator (diesel-fired), and Fluid Cooler (non-contact cooling).

The Portable Boiler, 99.9 MMBtu/hr, noted in Title V permit Section 4 "Fuel Burning Units…" will be permanently removed from service and all associated conditions should be removed:

Emission Unit	Applicable Rule	Limits Section 4.1.	Monitoring Section 4.2.	Testing Section 4.3.	Recordkeeping Section 4.4.	Reporting Section 4.5
Portable Boiler	45CSR2	1, 2, 3, 4, 7, 8, 9			2, 3	1
	45CSR10	5, 10, 11				
	45CSR13	1, 3, 4, 6, 7, 8, 9, 11, 13, 28, 29, 30, 31, 32	1, 15		2, 3, 19,20	1

4. Active NSR Permits/Permit Determinations/Consent Orders Associated With This Permit Revision

Permit or Consent Order Number	Date of Issuance	Permit/Consent Order Condition Number
	/ /	
	/ /	

5. Inactive NSR Permits/Obsolete Permit or Consent Orders Conditions Associated With This Revision

Permit or Consent Order Number	Date of Issuance	Permit/Consent Order Condition Number
	/ /	
	/ /	
	/ /	

6. Change in Potential Emissions	
Pollutant	Change in Potential Emissions (+ or -), TPY
CO	+ 54.8
NOx	+ 39.9
PM/PM10/PM2.5	+ 6.2 / 7.8 / 7.8
SO2	+ 5.93 ~~12.8~~
VOC	+ 10.0
Total HAPs	+ <2.0
All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.	

7. Certification For Use Of Minor Modification Procedures *(Required Only for Minor Modification Requests)*

Note:	*This certification must be signed by a responsible official. Applications without a signed certification will be returned as incomplete. The criteria for allowing the use of Minor Modification Procedures are as follows:*

i. Proposed changes do not violate any applicable requirement;

ii. Proposed changes do not involve significant changes to existing monitoring, reporting, or recordkeeping requirements in the permit;

iii. Proposed changes do not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination for temporary sources of ambient air quality impacts, or a visibility increment analysis;

iv. Proposed changes do not seek to establish or change a permit term or condition for which there is no underlying applicable requirement and which permit or condition has been used to avoid an applicable requirement to which the source would otherwise be subject (synthetic minor). Such terms and conditions include, but are not limited to a federally enforceable emissions cap used to avoid classification as a modification under any provision of Title I or any alternative emissions limit approved pursuant to regulations promulgated under § 112(j)(5) of the Clean Air Act;

v. Proposed changes do not involve preconstruction review under Title I of the Clean Air Act or 45CSR14 and 45CSR19;

vi. Proposed changes are not required under any rule of the Director to be processed as a significant modification;

Notwithstanding subparagraph 45CSR§30-6.5.a.1.A. (items i through vi above), minor permit modification procedures may be used for permit modifications involving the use of economic incentives, marketable permits, emissions trading, and other similar approaches, to the extent that such minor permit modification procedures are explicitly provided for in rules of the Director which are approved by the U.S. EPA as a part of the State Implementation Plan under the Clean Air Act, or which may be otherwise provided for in the Title V operating permit issued under 45CSR30.

Pursuant to 45CSR§30-6.5.a.2.C., the proposed modification contained herein meets the criteria for use of Minor permit modification procedures as set forth in Section 45CSR§30-6.5.a.1.A. The use of Minor permit modification procedures are hereby requested for processing of this application.

(Signed):	*(Please use blue ink)*	Date:	/ / *(Please use blue ink)*
Named (typed):	*Dylan Beech*	Title:	*Vice President - Refining*

Note: Please check if the following included (if applicable):

☐	Compliance Assurance Monitoring Form(s)
☐	Suggested Title V Draft Permit Language

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

18. ATTACHMENT T – APPLICATION FEE

Checks must be mailed separately to:

WVDEP - DAQ - Permitting
Attn: NSR Permitting Secretary
601 57th Street SE
Charleston, WV 25304

The Division of Air Quality requests that all Permit Applications and Permit Determinations be submitted by email to DEPAirQualityPermitting@wv.gov.

Permit Levels for 45CSR13

Minor Source Construction, Modification, Relocation, Temporary, General and Administrative Update Permits, and Permission to Commence Construction

	Public Notice	Review Period as per Rule	Application Fee	Criteria	Application Type
Permit Determination	None	30 working days	None	No permit required if Less than Modification AND change does not result in an increase above a numerical limit in permit	Written Request OR Permit Determination Form
Administrative Update (Class I)	None	60 days	None	Decrease in emissions OR Permanent removal of equipment OR More stringent requirements OR Change in MRR that is equivalent or superior	Written Request OR Permit Determination Form OR Application for Permit
Administrative Update (Class II)	30 days (applicant)	60 days	$300 + 45CSR22 fees	Less than Modification	Permit Determination Form OR Application for Permit
Construction Permit	30 days (applicant) + 30 days (DAQ) *	90 days	$1000 + 45CSR22 fees	6pph AND 10tpy of any regulated air pollutant OR 144ppd of any regulated air pollutant OR 2pph OR 5tpy of aggregated HAP OR 45CSR27 TAP (10% increase if above BAT triggers or increase to BAT triggers) OR Subject to applicable Standard or Rule	Application for Permit
Modification Permit	30 days (applicant) + 30 days (DAQ) *	90 days	$1000 + 45CSR22 fees	Same as construction	Application for Permit
Permission to Commence Construction	30 days (applicant) + 2' sign at entrance to source	30 days	$200	Existing sources who hold an active Rule 13 permit. Cannot be subject to 112(g) or 112(j); synthetic minors for Title V, MACT or PSD/NSR; sources netting out of PSD (Rule 14); or, sources requiring a specific case-by-case emission limitation or standard under 45CSR21 or 45CSR27.	Application for Permission to Commence Construction
Relocation Permit	30 days (applicant)	45 days	$1000 + 45CSR22 fees	No emissions increase or change in facility design or equipment	Application for Permit
Temporary Permit	30 days (applicant)	45 days	$1000 + 45CSR22 fees	Same as construction, but for limited period of time (6 month initially, but can be extended up to 12 additional months by written request)	Application for Permit
General Permit (Class I)	None	45 days (Class I)	$250	Same as construction, but subject to specific eligibility requirements.	Registration Application
General Permit (Class II)	30 days (applicant)	45 days (Class II)	$500 + 45CSR22 fees	Same as construction, but subject to specific eligibility requirements.	Registration Application

* Additional provisions may apply (such as requiring a commercial display advertisement and/or posting of sign).

Rev. 6/2009

Fees for Cogen R13: $1,000 (construction) + $1,000 (modification) + $1,000 (NSPS)

25. GAS QUALITY

25.1 General Requirement. Natural gas delivered to Transporter and redelivered to Shipper hereunder shall at all times conform to the quality provisions set forth in this Section. Transporter shall not be required to receive gas from Shipper or for Shipper's account that does not conform to the requirements of this Section. Shipper shall indemnify Transporter and save it harmless from all suits, actions, regulatory proceedings, damages, costs, losses and expenses (including reasonable attorney fees) arising out of the failure of said gas to conform to such quality provisions.

25.2 Gas. The gas delivered to Transporter and redelivered to Shipper hereunder shall be a combustible gas consisting wholly of, or a mixture of:

(a) natural gas of the quality and composition produced in its natural state except as provided for in Section 25.3(a) herein;

(b) gas generated by vaporization of Liquefied Natural Gas (LNG); or

(c) manufactured, reformed, or mixed gas consisting essentially of hydrocarbons of the quality and character produced by nature in the petroleum, oil, and gas fields with physical properties such that when the gases are commingled they become indistinguishable with respect to the physical properties of the mixture.

25.3 Processing.

(a) The gas received and delivered hereunder shall be natural gas as defined in Section 25.2 above; provided, however, that:

(1) Transporter may extract or permit the extraction of moisture, helium, natural gasoline, butane, propane, and/or other hydrocarbons (except methane) from said natural gas, or may return thereto any substance extracted from it. Transporter, in order to conserve and utilize other available gases, may blend such gases with said natural gas; provided, however, that such blending shall not extend to a degree which, in Shipper's judgment reasonably exercised, would materially affect the utilization of the gas delivered hereunder, and

(2) Transporter may subject or permit the subjection of said natural gas to compression, cooling, cleaning or other processes to such an extent as may be required in its transmission from the source thereof to the point or points of delivery.

(b) Processing, as used in this Section 25, shall include processing, treatment, conditioning and extraction of the gas stream.

(c) If Shipper's gas is transported through a processing plant on Transporter's system and the Heating Value of the gas at the point it enters Transporter's system is higher than 1130 Btu ("Gas Requiring Processing"), then the Producer of that gas shall enter into a processing agreement with the owner/operator of the applicable processing plant on Transporter's system. If requested by Transporter, Producer shall provide proof to Transporter that it has entered into such a processing agreement. Transporter may decline to receive Gas Requiring Processing into Transporter's system if Producer has not entered into such a gas processing agreement.

(d) If Gas Requiring is produced by multiple Producers and commingled before it enters Transporter's system, then the operator of the meter at the point the comingled Gas Requiring Processing enters Transporter's system (referred to in this Section as "Meter Operator") shall be responsible for either entering into a processing agreement covering all of the volumes flowing through the meter or providing to Transporter or its designee the proper allocation of all quantities and Btu values among all Producers delivering Gas Requiring Processing into Transporter's system at that point.

(e) Transporter reserves the right to use gas upstream of the point of processing as required for the reasonable and prudent operation of Transporter's facilities and to make deliveries of gas to others under the provisions of Transporter's Tariff.

(f) Transporter shall collect from Producers of Gas Requiring Processing the applicable processing retainage on behalf of and as determined by the owner/operator of the applicable processing plants. Alternatively, Transporter may collect the applicable processing retainage from the Meter Operator when a commingled stream of Gas Requiring Processing enters Transporter's system through a meter controlled by Meter Operator.

(g) Notwithstanding any other provision of this Section 25.3, Transporter shall not be obligated to process gas or to permit gas to be processed on its system and may interrupt or terminate any processing activity at any time, and from time to time, without prior notice to any Producer of Gas Requiring Processing, Meter Operator, Shipper, or other affected party. Transporter reserves the right to sell or abandon its processing facilities at any time upon 30 days notice to Producers of Gas Requiring Processing, Meter Operators, or other affected parties.

(h) Nothing in this Section 25 shall be construed to preclude a Producer of Gas Requiring Processing from processing gas or having gas processed prior to delivery of such gas to Transporter.

25.4 Heating Value. Neither Shipper nor Transporter shall be required to accept natural gas having a Heating Value of less than 967.

25.5 Objectionable Properties. The gas received and delivered by Transporter:

(a) shall be commercially free from dust, gum, gum-forming constituents, paraffin, and other particulates or other solid or liquid matter which might interfere with its

merchantability or cause injury to or interference with proper operation of the lines, regulators, meters and other equipment through which it flows at the delivery point;

(b) shall not contain more than twenty-five hundredths (0.25) grains of hydrogen sulfide per one hundred (100) Cubic Feet of gas;

(c) shall not contain more than two (2) grains of total sulfur per one hundred (100) Cubic Feet.

25.6 Objectionable Properties. The gas received by Transporter:

(a) shall not contain more than seven (7) pounds of water vapor per million cubic feet of gas at the base pressure and temperature of fourteen and seventy-three hundredth (14.73) pounds per square inch absolute (psia) and sixty degrees Fahrenheit (60ºF). The water vapor content will be determined in accordance with the latest methods in use in the gas industry, using apparatus approved by Transporter;

(b) shall not contain more than four percent (4%) by volume of a combined total of carbon dioxide, nitrogen, and inert components, e.g., helium, argon, neon;

(c) shall not contain more than one and twenty-five hundredths percent (1.25%) by volume of carbon dioxide;

(d) shall not contain more than two hundredths percent (0.02%) by volume of oxygen;

(e) shall not have a cricondentherm hydrocarbon dewpoint of greater than twenty-five degrees Fahrenheit (25ºF). The hydrocarbon dewpoint will be determined in accordance with approved methods in use in the gas industry, using apparatus approved by Transporter;

(f) shall have a flowing temperature of no greater than one hundred and twenty degrees Fahrenheit (120ºF);

(g) The gas, including any associated liquids, shall not contain any microbiological organism, active bacteria, including, but not limited to sulfate reducing bacteria (SRB) and acid producing bacteria (APB), or bacterial agent capable of causing or contributing to: (i) injury to Transporter's pipelines, meters, regulators, or other facilities and appliances through which Transporter's gas flows or (ii) interference with the proper operation of the Transporter's facilities;

(h) (1) shall have a Wobbe Index of one thousand three hundred and fifty (1,350) plus or minus four percent (4%), subject to a maximum Wobbe Index of one thousand four hundred (1,400) and a maximum heating value of one thousand one hundred and ten (1,110) btu/scf. The

Wobbe Index is defined as that number obtained by dividing the dry, real basis heating value of the gas by the square root of its specific gravity.

(h) (2) Exception: Appalachian Basin Gas may fall outside of the Wobbe Index and heating value limits set forth above as long as it does not unduly contribute to safety and utilization problems. For purposes of this subsection, "Appalachian Basin Gas" refers to natural gas received into Transporter's system directly or upstream of the following pipeline locations (listed by Line and Counties): Line KA-1 South in Estill, Lee, Owsley and Clay Counties, Kentucky; Line KZ in Menifee and Morgan Counties, Kentucky; Line B in Boyd, Martin and Lawrence Counties, Kentucky and Wayne County, West Virginia; Line P in Lawrence, Johnson, Floyd, Pike, and Martin Counties, Kentucky and in Wayne County, West Virginia; Line 8000 in Allegheny and Garrett Counties, Maryland and Mineral County, West Virginia; Line A-5 in Allegany, Steuben, Chemung and Tioga Counties, New York; Line C-106 in Fairfield, Hocking, Athens, Morgan and Washington Counties, Ohio; Line E in Hocking, Athens, Fairfield, and Meigs Counties, Ohio; Line G in Fairfield, Perry and Licking Counties, Ohio; Line H in Fairfield, Perry and Muskingum Counties, Ohio; Line L in Knox, Richland, Ashland, Wayne, and Medina Counties, Ohio; Line L-3265 in Ashland County, Ohio; Line L-1237 in Ashland County, Ohio; Line L-723 in Ashland County, Ohio; Line L-916 in Ashland County, Ohio; Line L-526 in Medina County, Ohio; Line L-530 in Medina County, Ohio; Line L-545 in Wayne County, Ohio; Line L-609 in Cuyahoga County, Ohio; Line L-920 in Cuyahoga, Lorain and Medina Counties, Ohio; Line O in Muskingum, Guernsey and Noble Counties, Ohio; Line O-1463 in Guernsey and Belmont Counties, Ohio; Line O-400 in Licking, Muskingum, and Guernsey Counties, Ohio; Line O-415 in Guernsey and Tuscarawas Counties, Ohio; Line O-1460 in Tuscarawas County, Ohio; Line V in Holmes, Wayne, Stark, Carroll and Columbiana Counties , Ohio; Line V-100 in Belmont, Harrison, Carroll, and Columbiana, Counties Ohio; Line 35 in Greene and Washington Counties, Pennsylvania; Line 65 in Lawrence, Beaver, Allegheny and Washington Counties, Pennsylvania; Line 134 in Lawrence, Butler, Armstrong, Clarion and Jefferson Counties, Pennsylvania; Line 138 in Greene, Fayette and Somerset Counties, Pennsylvania; Line 1360 in Greene, Washington and Allegheny Counties, Pennsylvania and Marshall, Wetzel, Doddridge and Gilmer Counties, West Virginia; Line 1711 in Allegheny, Washington, Westmoreland, Indiana, Clearfield, Centre and Clinton Counties, Pennsylvania; Line 7215 in Greene County, Pennsylvania; Line 1740 in Marshall and Wetzel Counties, West Virginia; Line BM74 in Wayne, Cabell, Putnam and Lincoln Counties, West Virginia; Line E in Jackson and Roane Counties, West Virginia; Line H in Kanawha and Roane Counties, West Virginia; Line KA (Suction of Flat Top) in Mingo, Summers, Mercer, Raleigh and Wyoming Counties, West Virginia and Pike County, Kentucky; Line N in Kanawha County, West Virginia; Line R in Boone, Lincoln and Putnam Counties, West Virginia; Line S in Cabell, Putnam, Lincoln and Kanawha Counties, West Virginia; Line SM-116 in Mingo, Logan and Lincoln Counties, West Virginia; Line T in Kanawha, Roane and Calhoun Counties, West Virginia; Line T-Loop in Gilmer, Calhoun, Roane and Kanawha, Counties, West Virginia.

25.7 Odorization. Transporter and Shipper may agree, or governmental authorities may require, that the gas be odorized by use of a malodorant agent of such character as to indicate by a distinctive odor the presence of gas. Whenever odorized gas is delivered, the quality

and specifications of such gas, as set forth in this Section 25, shall be determined prior to the addition of malodorant and with proper allowance for changes or additions to the gas due to such malodorant. Such odorization of the gas by the Transporter, unless otherwise mutually agreed by Shipper and Transporter, shall be for the purpose of detection of the gas only during the time it is in possession of the Transporter, prior to delivery to the Shipper.

25.8 Acceptance of Non-Conforming Gas. If gas received by Transporter ever fails to meet the specifications in this Section 25, then Transporter may elect to either continue to receive such gas pursuant to the waiver procedures of Section 25.9 or refuse to take all or any portion of such gas until that gas is brought into conformity with the specifications in Section 25. None of the specifications and restrictions set forth in this Section 25 shall be deemed to negate, reduce or limit Transporter's authority to issue Operational Flow Orders consistent with Section 17 of the General Terms and Conditions of this Tariff to provide for the safe and reliable operation of its system.

25.9 Waiver.

(a) Transporter, in its reasonable discretion and judgment, exercised on a not unduly discriminatory basis, may accept gas that does not conform to the quality specifications in Section 25, provided that Transporter determines that such acceptance will not interfere with its ability to: (1) maintain an acceptable gas quality in its pipeline through prudent and safe operation of Transporter's pipeline system and any related storage facility; (2) ensure that such gas does not affect Transporter's ability to provide service to its customers consistent with the applicable Rate Schedule and these General Terms and Conditions; and (3) ensure that such gas does not adversely affect Transporter's ability to deliver gas at its delivery points. All requests for waiver subsequent to the effective date of this Section 25.9 shall be submitted to Transporter in writing. Transporter will post any waivers granted pursuant to this section on its EBB.

(b) All waivers granted pursuant to this Section shall be subject to suspension, to the extent necessary to (i) ensure the operational integrity of Transporter's system, (ii) enable Transporter to meet its firm service obligations, (iii) facilitate the flow of natural gas during times of emergency and/or periods of force majeure, or (iv) for failure to comply with specifications for which the waiver was granted, such as a deviation from the historical composition or volume. The duration of suspension shall vary depending on the specific circumstances and conditions presented. Notice of suspension shall be posted on Transporter's EBB and shall be immediately effective. The notice shall provide the ground(s) for such suspension.

(c) All waivers granted pursuant to this Section shall be subject to revocation to the extent required to reflect significant changes in historic operating conditions on Transporter's system. To the extent possible, Transporter will provide Shipper with thirty (30) days prior written notice of revocation, and will post the notice of such revocation on Transporter's EBB. The notice shall provide the ground(s) for such revocation.

(d) All disputes concerning the grant, denial, suspension or revocation of waivers pursuant to this Section shall initially be presented to Transporter in accordance with the Complaint Resolution Procedure set forth in Section 30 of the General Terms and Conditions of this Tariff.

Division of Air Quality Permit Application Submittal

Please find attached a permit application for : Ergon-West Virginia Inc. Newell Refinery
[Company Name; Facility Location]

- DAQ Facility ID (for existing facilities only):
- Current 45CSR13 and 45CSR30 (Title V) permits associated with this process (for existing facilities only): R30-02900008-2021

- Type of NSR Application (check all that apply):
  - ☑ Construction
  - ☐ Modification
  - ☐ Class I Administrative Update
  - ☐ Class II Administrative Update
  - ☐ Relocation
  - ☐ Temporary
  - ☐ Permit Determination

- Type of 45CSR30 (TITLE V) Revision (if any)**:
  - ☐ Title V Initial
  - ☐ Title V Renewal
  - ☐ Administrative Update
  - ☐ Minor Modification
  - ☑ Significant Modification
  - ☐ Off Permit Change

If any box above is checked, include the Title V revision information as ATTACHMENT S to this application.

- Payment Type:
  - ☐ Credit Card (Instructions to pay by credit card will be sent in the Application Status email.)
  - ☐ Check (Make checks payable to: WVDEP – Division of Air Quality)
    Mail checks to:
    WVDEP – DAQ – Permitting
    Attn: NSR Permitting Secretary
    601 57th Street, SE
    Charleston, WV 25304

Please wait until DAQ emails you the Facility ID Number and Permit Application Number. Please add these identifiers to your check or cover letter with your check.

- If the permit writer has any questions, please contact (all that apply):
  - ☐ Responsible Official/Authorized Representative
    - Name: Dylan Beech
    - Email: dylan.beech@ergon.com
    - Phone Number: 304-387-7030
  - ☑ Company Contact
    - Name: Greir Merchant
    - Email: Greir.Merchant@ergon.com
    - Phone Number: 304-387-7012
  - ☐ Consultant
    - Name:
    - Email:
    - Phone Number:

Received
August 13, 2024
WV DEP/Div of Air Quality

R13 PERMIT APPLICATION FOR COGENERATION PROJECT

Ergon West Virginia, Inc.

Prepared By:

TRINITY CONSULTANTS
4500 Brooktree Road
Suite 310
Wexford, PA 15090

July 2024

Trinity Consultants

WEST VIRGINIA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
DIVISION OF AIR QUALITY
601 57th Street, SE
Charleston, WV 25304
(304) 926-0475
www.dep.wv.gov/daq

APPLICATION FOR NSR PERMIT AND TITLE V PERMIT REVISION (OPTIONAL)

PLEASE CHECK ALL THAT APPLY TO **NSR (45CSR13)** (IF KNOWN):

☒ **CONSTRUCTION** ☒ **MODIFICATION** ☐ **RELOCATION**
☐ **CLASS I ADMINISTRATIVE UPDATE** ☐ **TEMPORARY**
☐ **CLASS II ADMINISTRATIVE UPDATE** ☐ **AFTER-THE-FACT**

PLEASE CHECK TYPE OF **45CSR30 (TITLE V)** REVISION (IF ANY):

☐ **ADMINISTRATIVE AMENDMENT** ☐ **MINOR MODIFICATION**
☒ **SIGNIFICANT MODIFICATION**

IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS **ATTACHMENT S** TO THIS APPLICATION

FOR TITLE V FACILITIES ONLY: Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.

Section I. General

1. Name of applicant *(as registered with the WV Secretary of State's Office):*
Ergon-West Virginia, Inc. (EWVI)

2. Federal Employer ID No. ***(FEIN):***
721375114

3. Name of facility *(if different from above):*
Newell Refinery

4. The applicant is the:
☐ **OWNER** ☐ **OPERATOR** ☒ **BOTH**

5A. Applicant's mailing address:
9995 Ohio River Blvd, Route 2 South
Newell, WV 26050

5B. Facility's present physical address:
9995 Ohio River Blvd, Route 2 South
Newell, WV 26050

6. **West Virginia Business Registration.** Is the applicant a resident of the State of West Virginia? ☐ **YES** ☒ **NO**
- If **YES,** provide a copy of the **Certificate of Incorporation/Organization/Limited Partnership** (one page) including any name change amendments or other Business Registration Certificate as **Attachment A.**
- If **NO,** provide a copy of the **Certificate of Authority/Authority of L.L.C./Registration** (one page) including any name change amendments or other Business Certificate as **Attachment A.**

7. If applicant is a subsidiary corporation, please provide the name of parent corporation:

8. Does the applicant own, lease, have an option to buy or otherwise have control of the *proposed site?* ☒ **YES** ☐ **NO**
- If **YES,** please explain: This is an existing site owned by Ergon – West Virginia, Inc.
- If **NO,** you are not eligible for a permit for this source.

9. Type of plant or facility (stationary source) to be **constructed, modified, relocated, administratively updated** or **temporarily permitted** (e.g., coal preparation plant, primary crusher, etc.): The facility is a petroleum refinery that is proposing to construct a Cogeneration facility consisting of a gas turbine/duct burner, cooling tower, & emergency power generator.

10. North American Industry Classification System **(NAICS)** code for the facility:
324110

11A. DAQ Plant ID No. (for existing facilities only):
029 – 00008

11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):
R13-2334AB, R132334AC, R132334AE, R132334AF, R132334AH, and R30-02900008-2021 MM02

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

12A.

- For **Modifications, Administrative Updates** or **Temporary permits** at an existing facility, please provide directions to the *present location* of the facility from the nearest state road;
- For **Construction** or **Relocation permits,** please provide directions to the *proposed new site location* from the nearest state road. Include a **MAP** as **Attachment B**.

Two (2) miles south of Newel, WV on State Route 2.

12.B. New site address (if applicable):	12C. Nearest city or town:	12D. County:
N/A	Newell	Hancock
12.E. UTM Northing (KM): 4495.1	12F. UTM Easting (KM): 531.0	12G. UTM Zone: 17

13. Briefly describe the proposed change(s) at the facility:
EWVI is proposing to install a Cogeneration facility to improve utility reliability, availability, and consistency.

14A. Provide the date of anticipated installation or change: 11/01/2024 – If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen: / /	14B. Date of anticipated Start-Up if a permit is granted: 08/01/025

14C. Provide a **Schedule** of the planned **Installation** of/**Change** to and **Start-Up** of each of the units proposed in this permit application as **Attachment C** (if more than one unit is involved).

15. Provide maximum projected **Operating Schedule** of activity/activities outlined in this application:
Hours Per Day 24 Days Per Week 7 Weeks Per Year 52

16. Is demolition or physical renovation at an existing facility involved? ☒ **YES** ☐ **NO**

17**. Risk Management Plans.** If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see www.epa.gov/ceppo), submit your **Risk Management Plan (RMP)** to U. S. EPA Region III.

18**. Regulatory Discussion.** List all Federal and State air pollution control regulations that you believe are applicable to the proposed process *(if known).* A list of possible applicable requirements is also included in Attachment S of this application (Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance *(if known).* Provide this information as **Attachment D.**

Section II. Additional attachments and supporting documents.

19. Include a check payable to WVDEP – Division of Air Quality with the appropriate **application fee** (per 45CSR22 and 45CSR13).

20. Include a **Table of Contents** as the first page of your application package.

21. Provide a **Plot Plan,** e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as **Attachment E** (Refer to ***Plot Plan Guidance***) **.**

– Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).

22. Provide a **Detailed Process Flow Diagram(s)** showing each proposed or modified emissions unit, emission point and control device as **Attachment F.**

23. Provide a **Process Description** as **Attachment G.**

– Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

24. Provide **Material Safety Data Sheets (MSDS)** for all materials processed, used or produced as **Attachment H.**

– For chemical processes, provide a MSDS for each compound emitted to the air.

25. Fill out the **Emission Units Table** and provide it as **Attachment I.**

26. Fill out the **Emission Points Data Summary Sheet (Table 1 and Table 2)** and provide it as **Attachment J.**

27. Fill out the **Fugitive Emissions Data Summary Sheet** and provide it as **Attachment K.**

28. Check all applicable **Emissions Unit Data Sheets** listed below:

☐ Bulk Liquid Transfer Operations	☐ Haul Road Emissions	☐ Quarry
☐ Chemical Processes	☐ Hot Mix Asphalt Plant	☐ Solid Materials Sizing, Handling and Storage Facilities
☐ Concrete Batch Plant	☐ Incinerator	☐ Storage Tanks
☐ Grey Iron and Steel Foundry	☒ Indirect Heat Exchanger	

☒ General Emission Unit, specify Cooling Tower and Emergency Generator

Fill out and provide the **Emissions Unit Data Sheet(s)** as **Attachment L.**

29. Check all applicable **Air Pollution Control Device Sheets** listed below:

☐ Absorption Systems	☐ Baghouse	☐ Flare
☐ Adsorption Systems	☐ Condenser	☐ Mechanical Collector
☐ Afterburner	☐ Electrostatic Precipitator	☐ Wet Collecting System

☐ Other Collectors, specify

Fill out and provide the **Air Pollution Control Device Sheet(s)** as **Attachment M.**

30. Provide all **Supporting Emissions Calculations** as **Attachment N,** or attach the calculations directly to the forms listed in Items 28 through 31.

31. **Monitoring, Recordkeeping, Reporting and Testing Plans.** Attach proposed monitoring, recordkeeping, reporting and testing plans in order to demonstrate compliance with the proposed emissions limits and operating parameters in this permit application. Provide this information as **Attachment O.**

- Please be aware that all permits must be practically enforceable whether or not the applicant chooses to propose such measures. Additionally, the DAQ may not be able to accept all measures proposed by the applicant. If none of these plans are proposed by the applicant, DAQ will develop such plans and include them in the permit.

32. **Public Notice.** At the time that the application is submitted, place a **Class I Legal Advertisement** in a newspaper of general circulation in the area where the source is or will be located (See 45CSR§13-8.3 through 45CSR§13-8.5 and ***Example Legal Advertisement*** for details). Please submit the **Affidavit of Publication** as **Attachment P** immediately upon receipt.

33. **Business Confidentiality Claims.** Does this application include confidential information (per 45CSR31)?

☐ **YES** ☒ **NO**

- If **YES,** identify each segment of information on each page that is submitted as confidential and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's ***"Precautionary Notice – Claims of Confidentiality"*** guidance found in the ***General Instructions*** as **Attachment Q.**

Section III. Certification of Information

34. **Authority/Delegation of Authority.** Only required when someone other than the responsible official signs the application. Check applicable **Authority Form** below:

☐ Authority of Corporation or Other Business Entity	☐ Authority of Partnership
☐ Authority of Governmental Agency	☐ Authority of Limited Partnership

Submit completed and signed **Authority Form** as **Attachment R.**

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

35A. **Certification of Information.** To certify this permit application, a Responsible Official (per 45CSR§13-2.22 and 45CSR§30-2.28) or Authorized Representative shall check the appropriate box and sign below.

Certification of Truth, Accuracy, and Completeness

I, the undersigned ☒ **Responsible Official** / ☐ **Authorized Representative,** hereby certify that all information contained in this application and any supporting documents appended hereto, is true, accurate, and complete based on information and belief after reasonable inquiry I further agree to assume responsibility for the construction, modification and/or relocation and operation of the stationary source described herein in accordance with this application and any amendments thereto, as well as the Department of Environmental Protection, Division of Air Quality permit issued in accordance with this application, along with all applicable rules and regulations of the West Virginia Division of Air Quality and W.Va. Code § 22-5-1 et seq. (State Air Pollution Control Act). If the business or agency changes its Responsible Official or Authorized Representative, the Director of the Division of Air Quality will be notified in writing within 30 days of the official change.

Compliance Certification

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

SIGNATURE Dylan Beech *(Please use blue ink)* DATE: 8/8/2024 *(Please use blue ink)*

35B. Printed name of signee: Dylan Beech		35C. Title: Vice President - Refining
35D. E-mail: Dylan.Beech@ergon.com	36E. Phone: 304-387-7030	36F. FAX: N/A
36A. Printed name of contact person (if different from above): Greir Merchant		36B. Title: Senior Environmental Coordinator
36C. E-mail: Greir.Merchant@ergon.com	36D. Phone: 304-387-7012	36E. FAX: N/A

PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:

- ☒ **Attachment A: Business Certificate**
- ☒ **Attachment B: Map(s)**
- ☒ **Attachment C: Installation and Start Up Schedule**
- ☒ **Attachment D: Regulatory Discussion**
- ☒ **Attachment E: Plot Plan**
- ☒ **Attachment F: Detailed Process Flow Diagram(s)**
- ☒ **Attachment G: Process Description**
- ☒ **Attachment H: Material Safety Data Sheets (MSDS)**
- ☒ **Attachment I: Emission Units Table**
- ☒ **Attachment J: Emission Points Data Summary Sheet**
- ☒ **Attachment K: Fugitive Emissions Data Summary Sheet**
- ☒ **Attachment L: Emissions Unit Data Sheet(s)**
- ☐ **Attachment M: Air Pollution Control Device Sheet(s)**
- ☒ **Attachment N: Supporting Emissions Calculations**
- ☒ **Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans**
- ☒ **Attachment P: Public Notice**
- ☐ **Attachment Q: Business Confidential Claims**
- ☐ **Attachment R: Authority Forms**
- ☒ **Attachment S: Title V Permit Revision Information**
- ☒ **Application Fee**

Please mail an original and three (3) copies of the complete permit application with the signature(s) to the DAQ, Permitting Section, at the address listed on the first page of this application. Please DO NOT fax permit applications.

FOR AGENCY USE ONLY – IF THIS IS A TITLE V SOURCE:

- ☐ ***Forward 1 copy of the application to the Title V Permitting Group and:***
- ☐ ***For Title V Administrative Amendments:***
  - ☐ ***NSR permit writer should notify Title V permit writer of draft permit,***
- ☐ ***For Title V Minor Modifications:***
  - ☐ ***Title V permit writer should send appropriate notification to EPA and affected states within 5 days of receipt,***
  - ☐ ***NSR permit writer should notify Title V permit writer of draft permit.***
- ☐ ***For Title V Significant Modifications processed in parallel with NSR Permit revision:***
  - ☐ ***NSR permit writer should notify a Title V permit writer of draft permit,***
  - ☐ ***Public notice should reference both 45CSR13 and Title V permits,***
  - ☐ ***EPA has 45 day review period of a draft permit.***

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

TABLE OF CONTENTS

1. ATTACHMENT A – BUSINESS CERTIFICATE

WEST VIRGINIA
STATE TAX DEPARTMENT
BUSINESS REGISTRATION CERTIFICATE

ISSUED TO:
ERGON-WEST VIRGINIA INC
9995 OHIO RIVER BLVD
NEWELL, WV 26050-1195

BUSINESS REGISTRATION ACCOUNT NUMBER: **1050-8935**

This certificate is issued on: **06/11/2010**

This certificate is issued by
the West Virginia State Tax Commissioner
in accordance with W.Va. Code § 11-12.

The person or organization identified on this certificate is registered to conduct business in the State of West Virginia at the location above.

This certificate is not transferrable and must be displayed at the location for which issued.

This certificate shall be permanent until cessation of the business for which the certificate of registration was granted or until it is suspended, revoked or cancelled by the Tax Commissioner.

Change in name or change of location shall be considered a cessation of the business and a new certificate shall be required.

TRAVELING/STREET VENDORS: Must carry a copy of this certificate in every vehicle operated by them. CONTRACTORS, DRILLING OPERATORS, TIMBER/LOGGING OPERATIONS: Must have a copy of this certificate displayed at every job site within West Virginia.

atL006 v.1
L0415898368

2. ATTACHMENT B – MAPS

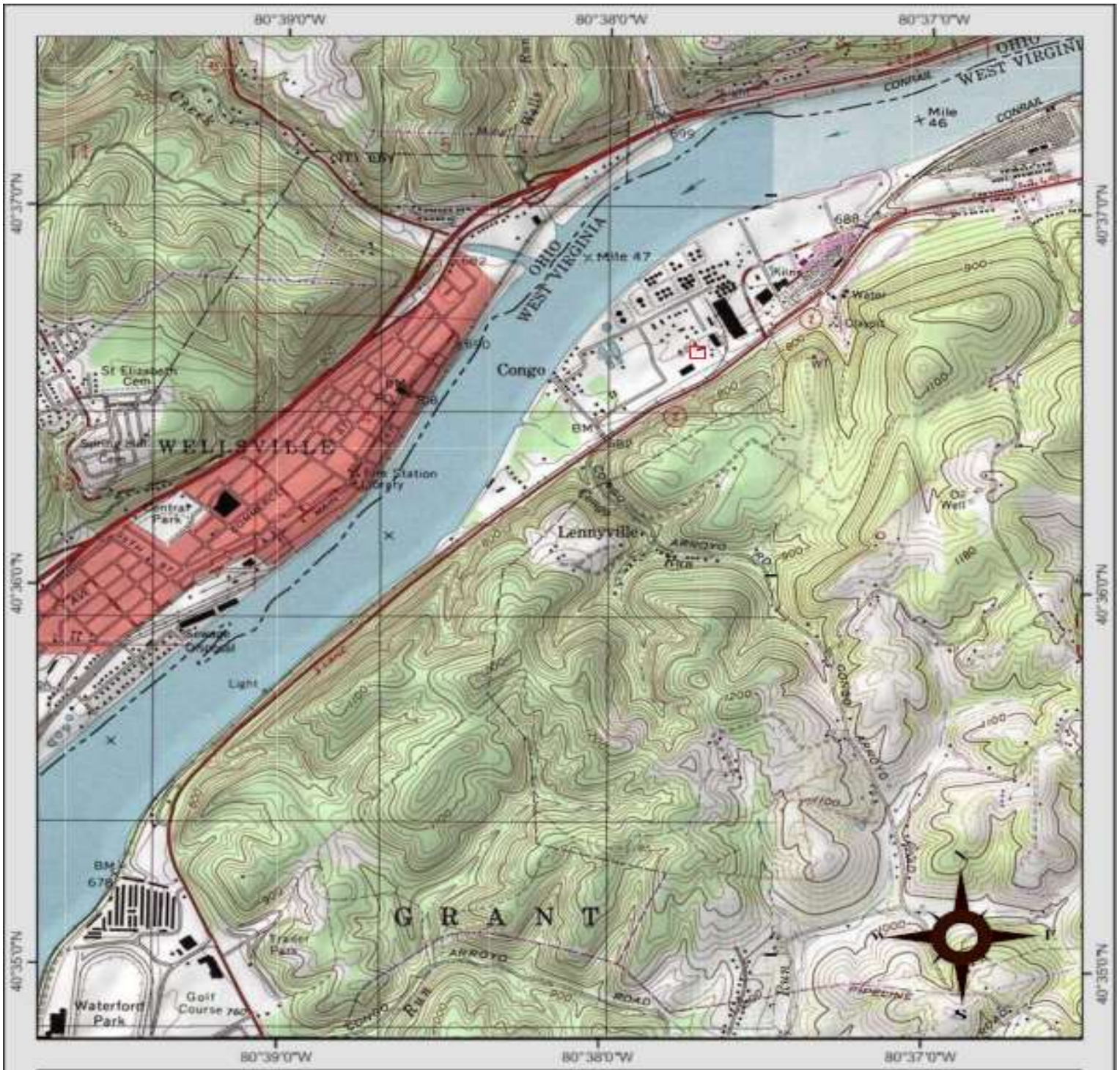


EXHIBIT 1 - PROJECT LOCATION MAP

Legend

Project Area

0 1,000 2,000 4,000 Feet

Ergon COGEN Project

Grant District
Hancock County, WV
Latitude: 40.605328
Longitude: -80.635180

prepared for

Ergon-West Virginia, Inc.

9995 Ohio River Boulevard
Newell, WV 26050

3. ATTACHMENT C – PROJECT SCHEDULE

ATTACHMENT C - SCHEDULE OF PLANNED INSTALLATION AND START-UP

Unit	Construction/Modification Schedule	Startup Schedule
COGEN SYSTEM	November 1, 2024	August 1, 2025

4. ATTACHMENT D – REGULATORY DISCUSSION

ATTACHMENT D
AIR QUALITY APPLICABLE REQUIREMENTS

Federal and State (WV) Rules Review

A proposed new COGEN unit at Newell will consist of a natural gas-fired stationary gas combustion turbine with associated refinery fuel gas (RFG) duct firing. The project will also include the installation of a new diesel-fired "black-start" emergency generator, and a non-contact cooling tower. The project will be subject to or potentially subject to certain federal and state air quality regulations that may include emissions limits, monitoring, reporting, and recordkeeping requirements.

This regulatory analysis is intended to identify and summarize state and federal air quality regulations relative to the installation of a nominal capacity of approximately 15 MW per hour (HHV) (approximately 64 gigajoules (GJ)/hr) with a duct burner(s) rated at 78 MMBtu/hr (HHV).

This evaluation includes an explanation of the non-applicability of certain rules that could be construed to apply to the project but do not.

Federal Rules

40 CRF Part 52 (as per 45 CSR 14)

New Source Review Applicability Analysis

This analysis provides an accounting of emissions from EWVI with respect to determining applicability of New Source Review (NSR) permitting requirements for Prevention of Significant Deterioration (PSD) for the proposed Cogen project. In summary, EWVI's Newell facility is located in an attainment area for all pollutants and is considered an existing major source under the PSD permitting program. An assessment consistent with the U.S. EPA's NSR Workshop Manual dated October 1990, as well as West Virginia State Code of Regulations under Title 45 Series 14 (45 CSR 14), is included herein to support the applicability determination made by EWVI for this proposed project.

Major Source Status

Section 52.21(b)(1)(i)(a) of 40 CFR, and 45 CSR 14-2.43a, lists the NSR source categories with a 100 ton per year (tpy) "major" source threshold. Petroleum refineries are one of the 28 source categories identified. Sources on this list are also required to include fugitive emissions in determining whether the source is a "major stationary source" and therefore subject to the PSD permitting program. Thus, EWVI is subject to a 100 tpy threshold for classification as a major source for all criteria pollutants. EWVI has potential emissions in excess of the major source thresholds for one or more NSR-regulated pollutants, and is therefore considered an existing major source with respect to the NSR program.

The proposed project involved the installation of new sources and will include physical modifications to existing sources (removal of the Portable Boiler as described in the Title V permit).

Summary of Potentially Applicable Requirements for Proposed EWVI Cogen (cont'd)

July 2024

EWVI may consider certain projects at the Newell facility that could occur within the contemporaneous period of the proposed project. However, the project to be permitted in this action and any future potential projects are not anticipated to be dependent on each other to be economically or technically viable, and therefore would not be considered a single aggregated project for the purposes of this NSR analysis. Any potential future projects at EWVI would be fully justified independently based on their own merits.

Technical Approach

To determine PSD applicability for the proposed project, the steps outlined in the U.S. EPA's NSR Workshop Manual, pages A.46-49 were generally followed. The lone exception pertains to the "project" definition specified in Step 1 below. These steps are discussed in detail in the following sections.

Step 1a – Determine Emissions Increases from the Proposed Project

In this first step, the emissions increases of each NSR regulated pollutant as a result of the project were determined. This project is defined by the installation of new sources (combustion turbine with duct firing, cooling tower and black start generator) as well as the removal of one existing boiler (Portable boiler). No other physical changes or operational modifications are expected for any existing sources. As outlined in 40 CFR 52.21(a)(2)(iv)(g), the project emissions increase calculation is based on the sum of the difference, which includes both increases and decreases in emissions.

An emissions increase is defined as the amount by which the new level of emissions associated with the proposed project exceeds the old level. The old level of "baseline actual emissions" (BAE) is that which was emitted prior to the proposed project. As part of the NSR provisions, the BAE for an existing unit can be based on the highest consecutive 24-month period within the immediately preceding 10 years (prior to submittal of an application for the project). Note that this 24-month period can vary for each pollutant, but the same 24-month period must be used for that pollutant for all sources affected by the project. The new level is that which is emitted after the change. For new emission units, the baseline emissions are zero, and the new level is the future potential to emit. Potential to emit calculations, considering operational restrictions, are included as part of Attachment N.

For existing emissions units, an emissions increase of a regulated NSR pollutant is the difference between the projected actual emissions (PAE) and the BAE for each unit.[1]

The project emissions increase (PEI) in the format of a formula is then:

PEI = PAE – BAE

Where:

PEI = Project Emission Increase

PAE = Projected Actual Emissions

[1] Alternatively, the applicant may compute existing emission unit increases by calculating the difference between baseline actual emissions and a unit's future potential to emit.

Summary of Potentially Applicable Requirements for Proposed EWVI Cogen (cont'd)

July 2024

BAE = Baseline Actual Emission Rates

In this applicability analysis, the only existing emission unit is the Portable boiler that is being shutdown as part of the project. The future emissions for the Portable boiler are set at 0 tpy. The BAE was established based on historical fuel (i.e., natural gas) flow rate data and the high heating value (HHV). A baseline period of calendar years 2022 and 2023 was used.

Step 1b – Compare PEI to Significant Emission Rates (SERs) to determine if a significant emissions increase will occur.

The table below summarizes the project emissions increase as compared to the significant emission rate (SERs) for each pollutant. If the project emissions are below the corresponding SER, the project is not considered a major modification under PSD. It should be noted that one key clarification in the applicability determination process included in the federal NSR regulations is that the project must result in both a significant emissions increase (itself) AND a significant net emissions increase for major NSR to apply to a given regulated pollutant. Therefore, if a project does not result in a SER increase of a regulated pollutant, the project is not subject to PSD permitting for the given pollutants, and there is no specific requirement to conduct emissions netting.

Pollutant	Project Emissions Increase (tpy)	PSD SER (tpy)	Above SER?
PM (filt.)	6.2	25	No
PM_{10} (total)	7.8	15	No
$PM_{2.5}$ (total)	7.8	10	No
Lead	<0.01	0.6	No
NO_2*	<40	40	No
CO	54.8	100	No
VOC	10.0	40	No
SO_2	12.9	40	No

*EWVI proposes within this modification application to take a voluntary NO_x limit on the combined emissions from the Cogen Turbine and Duct Burner to remain below the SER for NO_x. The above table reflects this voluntary limit. EWVI will use a combination of a NO_x Continuous Emissions Monitoring system (CEMs), gas flow measurements, and fuel gas heat content measurements to ensure compliance with a 12-month rolling limit of 39.96 tpy of NO_x. A discussion of these monitoring parameters can be found in the remainder of this application.

Summary of Potentially Applicable Requirements for Proposed EWVI Cogen (cont'd)

July 2024

It is concluded that the proposed project will not result in a project emissions increase that is greater than the corresponding SER for any NSR-regulated pollutant, and therefore further analysis (i.e., netting using Steps 2 - 6) is not required.

40 CFR Part 60, New Source Performance Standards

New Source Performance Standards for Electric Utility Steam Generating Units - 40 CFR 60, Subpart D and Da.

Subpart D applies to electric steam generating units capable of combusting more than 250 MMBtu/hr heat input of fossil fuel for which construction, modification, or reconstruction commenced after August 17, 1971. Subpart Da applies to electric utility steam generating units which are capable of combusting greater than 250 MMBtu/hr heat input of fossil fuel which commenced construction after September 18, 1978. The duct burner for the turbine is designed with a heat rating less than 250 MMBTU/hr and thus is not subject to the rules and regulations outlined in Subpart D or Da. Additionally, duct burners associated with a combustion turbine subject to KKKK are excluded as an affected source in Subpart Da.

New Source Performance Standards for Industrial-Commercial-Institutional Steam Generating Units - 40 CFR 60, Subpart Db and Dc.

The affected facility to which subpart Db applies is each steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating unit of greater than 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/hr)). Since the duct burners' heat input is below the applicability threshold, they are not subject to this regulation.

The affected facility to which subpart Dc applies is each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 100 MMBtu/hr or less, but greater than or equal to 10 MMBtu/hr. The proposed new duct burner will have a maximum heat input of 78 MMBtu/hr and thus may be subject to 40 CFR 60, Subpart Dc. However, duct burners associated with stationary combustion turbines that meet applicability requirements of subpart KKKK are not subject to this subpart.

New Source Performance Standards for Stationary Gas Turbines - 40 CFR 60, Subpart GG

This subpart promulgates emission standards for all stationary gas turbines with a heat input at peak load equal to or greater than 10.7 GJ (10 MMBtu/hr) which commenced construction, modification, or reconstruction after October 3, 1977, and on or before February 18, 2005. Since the turbines and duct burner will be subject to 40 CFR Part 60, Subpart KKKK and will be constructed after the applicability date cut-off, the project is not subject to NSPS Subpart GG.

Summary of Potentially Applicable Requirements for Proposed EWVI Cogen (cont'd)

July 2024

GGGa—Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006

Applicability to 40 CFR Part 60, Subpart GGGa

40 CFR 60 Subpart GGGa applies to affected facilities in petroleum refineries. 60.590a Applicability and designation of affected facility. (a) (1) The provisions of this subpart apply to affected facilities in petroleum refineries. (2) A compressor is an affected facility. (3) The group of all the equipment (defined in § 60.591a) within a process unit is an affected facility.

Section (e) of the rule establishes a Stay of standards. Owners or operators are not required to comply with the definition of "process unit" in § 60.590 of this subpart until the EPA takes final action to require compliance and publishes a document in the Federal Register. While the definition of "process unit" is stayed, owners or operators should use the following definition:

Process unit means components assembled to produce intermediate or final products from petroleum, unfinished petroleum derivatives, or other intermediates; a process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product.

Since the Cogeneration duct burner does not produce intermediates or final products from petroleum (or from unfinished petroleum derivatives, or other intermediates, the duct burner and associated RFG supply line is not subject to Subpart GGGa.

Applicability to 40 CFR Part 60, Subpart J

40 CFR 60 Subpart J applies to affected facilities in petroleum refineries, including but not limited to fuel gas combustion devices that commenced construction, reconstruction, or modification after June 11, 1973 and on or before May 14, 2007. Fuel gas combustion devices that are flares for which construction, reconstruction, or modification commenced after June 11, 1973 and on or before June 24, 2008 are subject to NSPS J. The proposed gas turbine system will be installed after June 24, 2008 and therefore, will not be subject to Subpart J.

Applicability to 40 CFR Part 60, Subpart Ja

Similar to 40 CFR 60 Subpart J, Subpart Ja applies to affected facilities in petroleum refineries including but not limited to fuel gas combustion devices and flares. Fuel gas combustion devices are subject to this subpart for units which construction, reconstruction, or modification commenced *after May 2007* or if compliance with this subpart was elected in lieu of complying with the provisions in subpart J. Flares for which construction, modification, or reconstruction commenced after June 24, 2008 are subject to this subpart.

Under NSPS Ja, fuel gas combustion devices (excluding flares) are subject to SO_2 or H_2S limitations of 40 CFR §60.102a(g)(1) and to NO_x limitations for process heaters under 40 CFR §60.102a(g)(2).

As the combustion turbine only fires natural gas, Subpart Ja does not apply to the turbine. However, since the duct burner fires RFG, it is subject to Subpart Ja as a fuel gas combustion device.

Since the proposed duct burner will fire RFG, it will be subject to 40 CFR §60.102a(g)(1) for SO_2 or H_2S. Since the duct burner does not meet the definition of a process heater or other defined fuel gas combustion device (e.g., FCCF/FCU, sulfur recovery plant, or process heater) it is not subject to NO_x limits under Subpart Ja.

The proposed duct burner has a maximum heat input rating of approximately 78 MMBtu/hr. Therefore key requirements for the duct burner as a fuel gas combustion device per NSPS Ja are as follows:

- Limit emissions to not exceed 20 parts per million by volume (ppmv) SO_2 (3-hr avg. dry basis @0% excess air) & 8 ppmv 365-day avg. dry basis @0% excess air) [§60.102a(g)(1)(i)] OR
- Fuel gas must contain less than 162 ppmv H_2S on a 3-hr avg. and less than 60 ppmv (365-day avg.) determined daily [§60.102a(g)(1)(ii)]
- If complying with SO_2 limit of §60.102a(g)(1)(i) install, operate, and maintain SO_2 monitor [CEMS] according to PS 2 (and PS 3 for O2) of appendix B.
- If complying with H_2S limit of §60.102a(g)(1)(ii) shall install, operate and maintain each H_2S monitor according to PS 7 of appendix B.
- Performance test as per §60.104a(i).
- Other: excess emissions reports. [§60.107a(i) and §60.108a(d)]

Other key requirements for SO_2 and H_2S under NSPS Ja for fuel gas combustion devices are as follows:

- Monitor the fuel gas H_2S composition. [§60.107a(a)(2)]
- Maintain fuel gas H_2S records. [§60.108a(c)]
- Submit excess emissions reports. [§60.107a(i) and §60.108a(d)]

Note that EWVI currently complies with the H_2S fuel gas concentration limit (162 ppmv 3-hour rolling average basis and 60 ppmv 365-successive calendar day rolling average basis) for certain boilers and heaters.

New Source Performance Standards for Stationary Compression Ignition Internal Combustion Engines - 40 CFR 60, Subpart IIII

In accordance with 40 CFR Part 60, Subpart IIII — Standards of Performance for Stationary Compression under §60.4200 "Am I subject to this subpart?", the provisions of this subpart apply if you are the owner or operator of a stationary compression ignition (CI) internal combustion engine. Owners and operators of stationary CI ICEs that commence construction after July 11, 2005, and where the stationary CI ICE are manufactured after April 1, 2006, and are not fire pump engines. ,

Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later emergency stationary CI ICE with a maximum engine power less than or equal to 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder that are not fire pump engines to the emission standards specified in Subpart IIII. For engines with a rated power greater than or equal to 37 KW (50 HP), the Tier 2 or Tier 3 emission standards for new nonroad CI engines for the same rated power as described in 40 CFR part 1039, appendix I, for all pollutants and the smoke

standards as specified in 40 CFR 1039.105 beginning in model year 2007. Based on the fuel, the type and size engine, EWVI must purchase a certified engine per Subpart IIII.

The Black-start emergency engine will operate in accordance with 40 CFR Part 60, Subpart IIII as an "emergency stationary ICE" §60.4211(f)(1), (2), and (3).

New Source Performance Standards for Stationary Gas Turbines - 40 CFR 60, Subpart KKKK

In accordance with 40 CFR Part 60, Subpart KKKK — Standards of Performance for Stationary Combustion Turbines, under §60.4305 "Does this subpart apply to my stationary combustion turbine?", the provisions of this subpart apply if you are the owner or operator of a stationary combustion turbine with a heat input at peak load equal to or greater than 10.7 gigajoules (10 MMBtu) per hour, based on the higher heating value of the fuel, which commenced construction, modification, or reconstruction after February 18, 2005, your turbine is subject to this subpart. Only heat input to the combustion turbine should be included when determining whether or not this subpart is applicable to your turbine. Any additional heat input to associated heat recovery steam generator, HRSG, or duct burners should not be included when determining the peak heat input. *This subpart also applies to emissions from any associated HRSG and duct burners.*

Note that stationary combustion turbines regulated under this subpart are exempt from the requirements of Subpart GG of this part. Similarly, HRSGs and duct burners regulated under this subpart are exempted from the requirements of subparts Da, Db, and Dc of this part (Part 60).

The proposed stationary combustion turbine (Solar Titan 130 Axial with HRSG) has a heat input above the 10 MMBTU/hr applicability threshold, and thus is subject to Subpart KKKK. Furthermore, the proposed duct burner is also subject to Subpart KKKK.

Under NSPS KKKK, stationary combustion turbines are subject to NO_x limitations contained in 40 CFR §60.4320 and Table 1 of the rule. Key NO_x requirements under NSPS KKKK for natural gas combustion turbines are as follows:

- 25 ppm OR 1.2 lbs/MWh. [§60.4320, Table 1]
- Since no water or steam injection is planned, compliance with the NO_x limits can be: i) Annual Performance Testing; ii) Continuous Emissions Monitoring Systems (CEMS); OR iii) Continuous Parametric Monitoring Systems (CPMS). [§60.4340]
- Depending on which compliance path chosen, there are additional requirements under each pathway [refer to §60.4345 through §60.4355]

Similarly, the key SO_2 requirements under Subpart KKKK are:

- 0.9 lbs SO_2/MWh (gross output) [§60.4330(a)(1)], OR
- Burn fuel with no more than 0.060 lbs SO_2/MMBtu. [§60.4330(a)(2)]
- Sulfur in fuel content determination [via §60.4360] OR exemption from sulfur content monitoring [via §60.4365] if the fuel is demonstrated not to exceed potential sulfur emissions of 0.060 lb SO_2/MMBtu.

Summary of Potentially Applicable Requirements for Proposed EWVI Cogen (cont'd)

July 2024

New Source Performance Standards for Performance for Greenhouse Gas Emissions for Electric Utility Steam Generating Units - 40 CFR 60, Subpart TTTT.

This subpart outlines emissions standards for any steam generating unit or stationary turbine that commenced construction or reconstruction after January 8, 2014 that has a based load rating of greater than 250 MMBTU/hr or serves a generator(s) capable of selling greater than 25 MW of electricity. Since the proposed turbine is rated at less than 250 MMBTU/hr and being utilized for in-house power, the project is not subject to the rules and regulations of Subpart TTTT.

40 CFR Part 63, National Emissions Standards for Hazardous Air Pollutants (NESHAP)

Subpart Q—National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers

The provisions of Subpart Q apply to all new and existing industrial process cooling towers that are operated with chromium-based water treatment chemicals and are either major sources or are integral parts of facilities that are major sources as defined in § 63.401. Subpart Q does not apply to EWVI proposed Fluid Cooler since it is not anticipated to operate with chromium-based water treatment chemicals, and the site is an Area Source of HAPs as discussed elsewhere in this application.

NESHAP for Stationary Combustion Turbines - 40 CFR 63, Subpart YYYY

Under 40 CFR Part 63, Subpart YYYY regulates HAP emissions from stationary combustion turbines at major HAP source facilities. EWVI Newell is an area source of HAPs, and therefore is not subject to this subpart.

NESHAP for Stationary Reciprocating Internal Combustion Engines, Subpart ZZZZ

As per §63.6590(c) stationary RICE subject to regulations under 40 CFR Part 60, an affected source that meets any of the criteria in paragraphs (c)(1) through (7) of this section must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart IIII, for compression ignition engines. No further requirements apply for such engines under this part.

(1) A new or reconstructed stationary RICE located at an area source.

Since the Black-start emergency engine proposed for the Cogeneration project is subject to 40 CFR Part 60, Subpart IIII, and since EWVI is an Area Source of HAPs, compliance with Subpart ZZZZ is demonstrated by showing compliance with 40 CFR Part 60, Subpart IIII.

NESHAP for Industrial, Commercial, and Institutional Boilers at Area Sources of HAPs - 40 CFR 63, Subpart DDDDD

Subpart DDDDD regulates HAP emissions from industrial boilers and process heaters at major HAP source facilities. EWVI at Newell is considered an area source of HAPs, and is therefore not subject to this subpart. Duct burners associated with stationary combustion turbines that meet applicability requirements of subpart KKKK are not subject to this subpart.

Summary of Potentially Applicable Requirements for Proposed EWVI Cogen (cont'd)

July 2024

NESHAP for Industrial, Commercial, and Institutional Boilers at Area Sources of HAPs - 40 CFR 63, Subpart JJJJJJ

The proposed turbine and duct burner at this facility burn natural gas and refinery gas and do not meet the definition for a boiler; therefore, they are not subject to this subpart. Additionally, since the duct burners are considered waste heat boilers and thus are not subject to Subpart JJJJJJ or any of its requirements per § 63.11195.

State Rules (WV DEP/DAQ)

The Cogen facility is potentially subject to regulations contained in the West Virginia Code of State Regulations, Chapter 45 (Code of State Regulations). The Code of State Regulations (CSR) fall under two main categories: those regulations that are generally applicable (e.g., permitting requirements), and those that have specific applicability (e.g., PM standards for manufacturing equipment).

45 CSR 2: To Prevent and Control Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers

45 CSR 2 applies to fuel burning units, defined as equipment burning fuel "for the primary purpose of producing heat or power by indirect heat transfer". The duct burner(s) are fuel burning units, characterized as "Type 'a'", and therefore must comply with this regulation. Per 45 CSR 2-3, opacity of duct burner emissions from units shall not exceed 10 percent. Additionally, the duct burner(s) are subject to the 0.05 lb/MMBTU PM standard listed in 45 CSR 2-4.1.a.

45 CSR 7: TO PREVENT AND CONTROL PARTICULATE MATTER AIR POLLUTION FROM MANUFACTURING PROCESSES AND ASSOCIATED OPERATIONS

§45-7-5 applies at subsect 5.1, where no person shall cause, suffer, allow or permit any manufacturing process or storage structure generating fugitive particulate matter to operate that is not equipped with a system, which may include, but not be limited to, process equipment design, control equipment design or operation and maintenance procedures, to minimize the emissions of fugitive particulate matter. To minimize means such system shall be installed, maintained, and operated to ensure the lowest fugitive particulate matter emissions reasonably achievable. The proposed Cogeneration Fluid Cooler is a non-contact cooling system that will emit fugitive PM_{10} in amounts below station source levels as defined in §45-13-2. Although the Fluid Cooler does not meet the definition of a stationary source as defined in §45-13-2, EWVI is still subject to appliable manufacturing processes and associated operations, including the Cogeneration Fluid Cooler. EWVI has quantified the emissions from the Fluid Cooler in Section N of this application; and the Fluid Cooler will comply with this rule as it is equipped with a mist eliminator system to minimize PM_{10} entrained in any fugitive mist escaping the Fluid Cooler system.

45 CSR 10: To Prevent and Control Air Pollution from the Emissions of Sulfur Oxides

45 CSR 10 applies to fuel burning units, which is defined as equipment burning fuel "for the primary purpose of producing heat or power by indirect heat transfer". The proposed turbines do not meet the definition of a fuel burning unit under 45 CSR 10. Additionally, 45 CSR does not establish an SO_2

standard for fuel burning units whose primary purpose is the generation of steam or other vapor to produce electric power for sale. As such the duct burners are not subject to Rule 10.

45 CSR 13: Permits for Construction, Modification, Relocation and Operations of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, Permission to Commend Constructions, and Procedures for Evaluation.

The proposed combustion turbine is classified as a "stationary source" per 45 CSR 12-2.24 and thus is subject to substantive federal requirements per 45 CSR 13-2.24.a. Per 45 CSR 13-5.1 owners / operators must also obtain a permit pursuit to this rule prior to installing the emissions unit. This includes the submission of a completed application, publication of a legal ad, and payment of Rule 13 permit application filing fee, which includes consideration of New Source Performance Standard (NSPS) and National Emissions Standards for Hazardous Air Pollutants (NESHAPs).

- As per 45 CSR 13-5, no person shall cause, suffer, allow or permit the construction or modification or relocation and operation of any stationary source to be commenced without notifying the Secretary of such intent and obtaining a permit to construct, modify, relocate and operate the stationary source as required in this rule or any other applicable rule promulgated by the Secretary. In addition, 45 CSR 13-5.4 goes on to say any person proposing to construct, modify, relocate and operate a stationary source after the effective date of this rule shall file a complete permit application with the Secretary and shall not construct, modify, relocate and operate the stationary source until the Secretary issues a permit approving of the construction, modification, relocation and operation.

  EWVI views the proposed Cogen project as a modification as per 45 CSR 13-2.17.

- The proposed project is a Title I Modification under 45 CSR 30 since, as noted in this application, it meets the following criteria in WV DEP DAQ's guidance "TITLE V OPERATING PERMIT REVISIONS GUIDANCE PROCEDURES AND INSTRUCTIONS," dated July 18, 2007:

  1. Any construction/modification of a source that would be defined as such under 40 CFR Part 60, the New Source Performance Standards (NSPS).

     As outlined above, the proposed Cogen will be subject to certain 40 CFR 60 standards and will be constructed or modified as per the applicable rules.

The proposed project will be subject to Part 60 NSPS Subparts IIII, Ja and KKKK as outlined above. Since the project meets Title I modification criteria identified above, EWVI's Title V permit requires a significant modification for this action. As part of this application, EWVI is requesting this revision to the Title V permit conditions for the proposed Cogen project.

45 CSR 14: Permits for Construction and Major Modification of Major Stationary Sources for the Prevention Of Significant Deterioration Of Air Quality

Summary of Potentially Applicable Requirements for Proposed EWVI Cogen (cont'd)

July 2024

45 CSR 14 is the state rule addressing major source permits under the PSD program. This rule requires the installation of best available control technology (BACT) for equipment subject to the rule. In addition to BACT, an air quality (modeling) demonstration that the proposed project will not cause or contribute to a projected exceedance of the National Ambient Air Quality Standard or the Class I or II Area Increment Levels for the NSR pollutants that the project is significant and for incremental levels that have been established by the Clean Air Act. Other requirements under the PSD program may be applicable. Potential emissions from the proposed Cogen project will be below major source thresholds and therefore, this permitting rule will not apply.

45 CSR 16 – STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

This rule adopts by reference the standards of performance for new stationary sources promulgated by the United States Environmental Protection Agency pursuant to section 111(b) of the federal Clean Air Act (i.e., NSPS). The applicability of specific NSPS standards is addressed in the federal regulations section above.

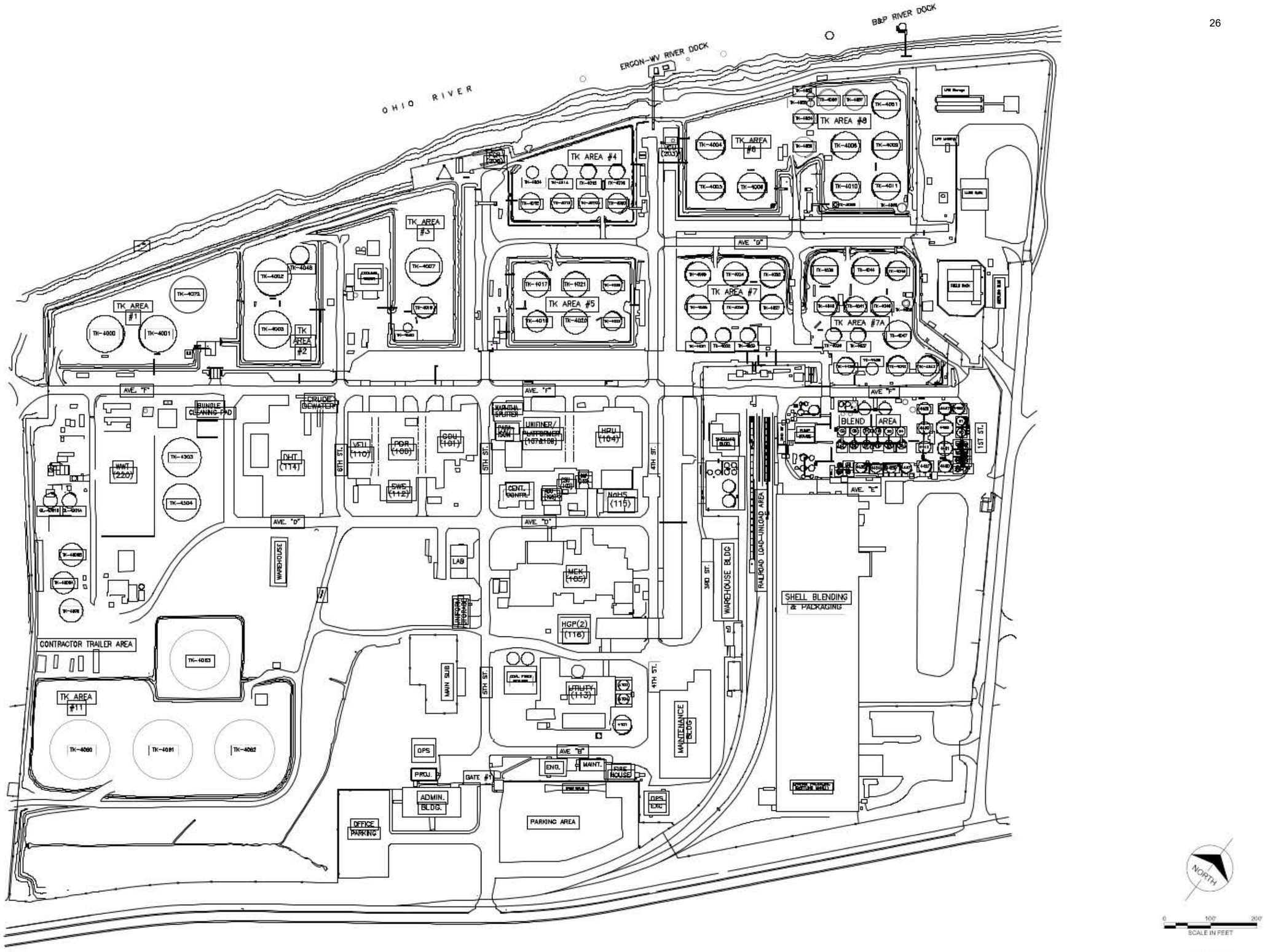
45 CSR 34: Emissions Standards for Hazardous Air Pollutants

45 CSR 34-1 incorporates the federal Clean Air Act (CAA) national emissions standards for hazardous air pollutants (NESHAPs) as set forth in 40 CPR Parts 61 and 63 by reference. The applicability of these rules is discussed above.

2.9.6. Non-Applicability of Other SIP Rules

Many SIP regulations do not apply or do not impose additional requirements on operations at the proposed Cogen project. Certain SIP rules that have specific applicability to the project will be called out elsewhere as appropriate, in the application. It was deemed unnecessary to demonstrate non-applicability of other SIP rules.

5. ATTACHMENT E – PLOT PLAN



SCALE :

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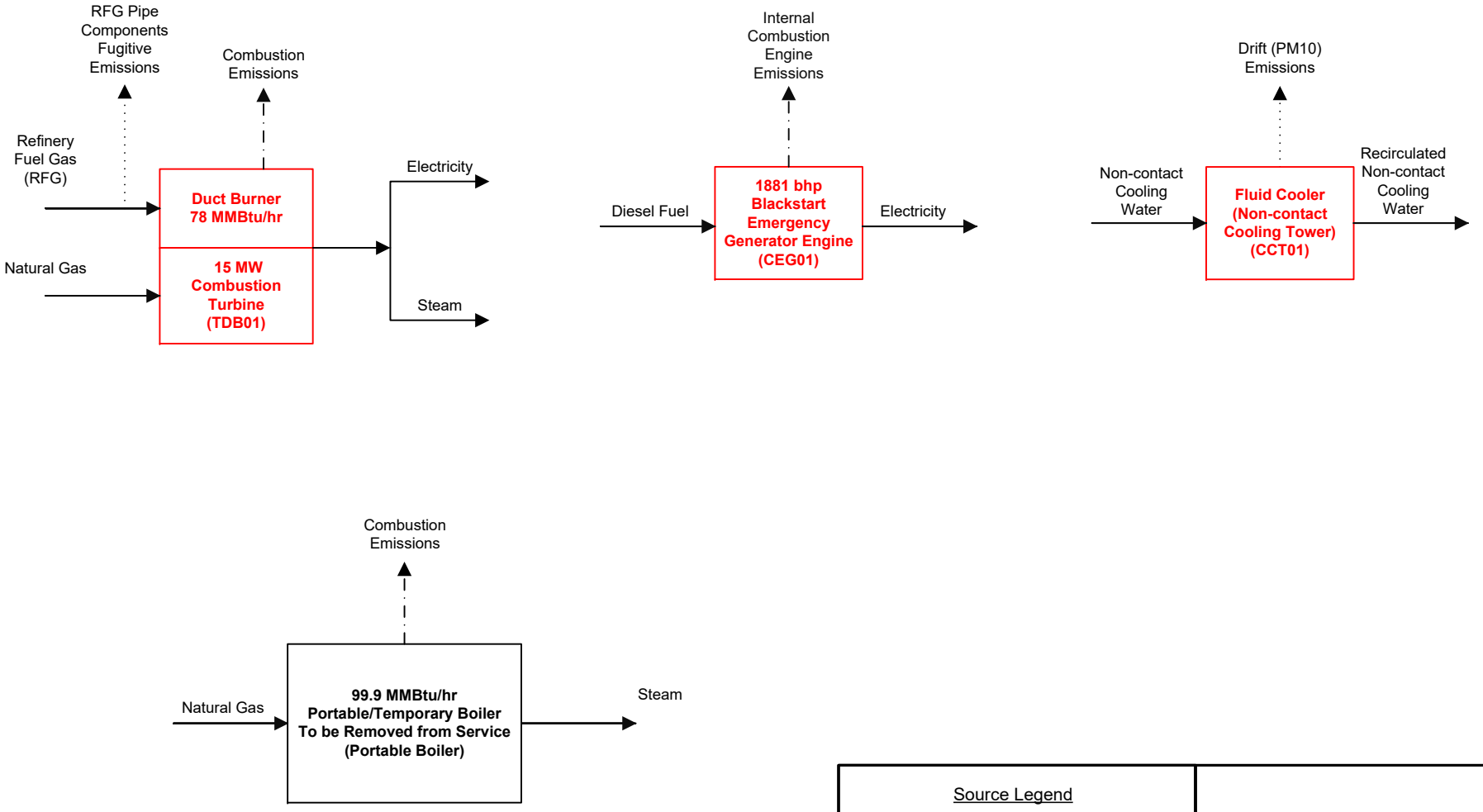
ERGON WEST VIRGINIA, Inc.
Newell, WV

COMPANY	PROJECT
ERGON WEST VIRGINIA, INC.	Ergon COGEN Project
LOCATION	DRAWING TITLE
NEWELL, WEST VIRGINIA	Attachment E: Plot Plan
DRAWN BY / DATE DRAWN / CAD FILE	DRAWING NO. / REV.
	A

6. ATTACHMENT F – PROCESS FLOW DIAGRAM

*** Note that this is a simplified diagram for the purposes of explaining basic facility flow and emission points. The actual design is more complex and may vary.**



7. ATTACHMENT G – PROCESS DESCRIPTION

ATTACHMENT G
PROCESS DESCRIPTION

The EWVI Newell Refinery processes crude oil into fuels and other industrial chemical feedstocks through the use of distillation and chemical reaction processes. The site utilizes public electricity, pipeline quality natural gas, onsite generated refinery fuel gas and steam to meet electric power and heat demands. Electricity is provided by MonPower and quality natural gas is provided by Interconn Resources, LLC; Mountaineer Gas Company (RFG services); and/or ConocoPhillips/BP Energy/Constellation Energy for various natural gas supply services. Steam and heat are generated by four onsite boilers including Boiler A, Boiler B, Boiler C, and a Portable (Temporary) Boiler.

EWVI is proposing to install a Cogeneration plant at the Newell Refinery to increase the electrical reliability of supply to the refinery. The loss of public-supplied electric power at the site can cause abrupt stoppage or inconsistent and unreliable readings from site equipment, instrumentation, and controls. The proposed cogeneration project is designed to minimize loss of electric power that is important to operations and safety at the plant.

The project will have the ability to produce high pressure, superheated steam to the refinery through the Heat Recovery Steam Generator (HRSG) and duct burner.

The Cogeneration project consists of a natural gas-fired combustion turbine and duct burner. The duct burner will fire Refinery Fuel Gas (RFG) which is a blend of refinery plant gas and natural gas. [Note that RFG is on average a 80:20 mixture of natural gas and plant gas.] Planned ancillary operations include a diesel-fired black-start emergency power generator and fluid cooler (i.e., closed circuit cooler tower). The primary unit is a Solar Titan 130 turbine with a nominal net output of approximately 15 MW (and 172 MMBtu/hr fuel flow) with a RFG-fired duct burner with a heat input capacity of 78 MMBtu/hr on an HHV basis.

The plant will continue to utilize steam and heat generated by existing Boilers A, B, and C; however the portable boiler, identified as the “Portable Boiler” in the site’s Title V operating permit will be taken out of service permanently. The Portable Boiler currently has little run time, and Boilers A, B, and C produce the majority of steam and heat needed at the plant. Boilers A, B, and C are not part of the Cogeneration project (i.e., there will be no impact to the operation of these three boilers), and will continue to run in accordance with the conditions contained in the Title V operating permit.

Due to the size and expected emissions associated with the Cogeneration unit and duct burner, unrestricted operations of the unit(s) would result in emissions of NO_x and CO_2e above the Prevention of Significant Deterioration (PSD) significant emissions rate (SER) . However, given the energy and heat balance at the site, EWVI is taking voluntary restrictions that result in project potential emissions below SERs as described in Attachment D. Operational restrictions were also taken into account for the black-start emergency generator relative to conservatively predicted startups and shutdowns of the turbine.

8. ATTACHMENT H – SAFETY DATA SHEETS (SDS)

NOT APPLICABLE

9. ATTACHMENT I –EMISSIONS UNIT TABLE

Attachment I

Emission Units Table

(includes all emission units and air pollution control devices that will be part of this permit application review, regardless of permitting status)

Emission Unit ID[1]	Emission Point ID[2]	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type[3] and Date of Change	Control Device[4]
TDB01	TDB01	Gas Turbine with Duct Burner and HRSG (including startup & shutdown emissions)	2024	15 MW/78 MMBtu/hr	New	None
CCT01	CCT01	COGEN Fluid Cooler (closed circuit cooling unit)	2024	2,016 GPM	New	None
CEG01	CEG01	COGEN Black-start Diesel Emergency Generator (1250 kW)	2024	1881 HP	New	None

[1] For Emission Units (or Sources) use the following numbering system:1S, 2S, 3S,... or other appropriate designation.
[2] For Emission Points use the following numbering system:1E, 2E, 3E, ... or other appropriate designation.
[3] New, modification, removal
[4] For Control Devices use the following numbering system: 1C, 2C, 3C,... or other appropriate designation.

10. ATTACHMENT J – EMISSION POINTS DATA SUMMARY

Attachment J
EMISSION POINTS DATA SUMMARY SHEET

Table 1: Emissions Data

Emission Point ID No. *(Must match Emission Units Table & Plot Plan)*	Emission Point Type[1]	Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)*		Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)*		Vent Time for Emission Unit *(chemical processes only)*		All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)*	Maximum Potential Uncontrolled Emissions [4]		Maximum Potential Controlled Emissions [5]		Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)*	Est. Method Used [6]	Emission Concentration [7] (ppmv or mg/m^4)
		ID No.	Source	ID No.	Device Type	Short Term[2]	Max (hr/yr)		lb/hr	ton/yr*	lb/hr	ton/yr*			
TDB01	Upward vertical stack	TDB01	Comb Turbine & Duct Burner	N/A	N/A	N/A	N/A	NOx CO SO_2 $PM_{10}/PM_{2.5}$ VOC Lead CO2e Total HAPs	REFER TO TABLES N-2A, N-2B, and N-2C				Gas/Vapor	NOx, CO VOC, and PM - Other (vendor); SO_2 and HAPs from AP-42	REFER TO TABLES N-2A, N-2B, and N-2C

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

[1] Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

[2] Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

[3] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, CS_2, VOCs, H_2S, Inorganics, Lead, Organics, O_3, NO, NO_2, SO_2, SO_3, all applicable Greenhouse Gases (including CO_2 and methane), etc. **DO NOT LIST** H_2, H_2O, N_2, O_2, and Noble Gases.

[4] Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[5] Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[6] Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

[7] Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m^3) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO_2, use units of ppmv (See 45CSR10).

Table 1: Emissions Data

Emission Point ID No. *(Must match Emission Units Table & Plot Plan)*	Emission Point Type[1]	Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)*		Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)*		Vent Time for Emission Unit *(chemical processes only)*		All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)*	Maximum Potential Uncontrolled Emissions [4]		Maximum Potential Controlled Emissions [5]		Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)*	Est. Method Used [6]	Emission Concentration [7] (ppmv or mg/m^4)
		ID No.	Source	ID No.	Device Type	Short Term[2]	Max (hr/yr)		lb/hr	ton/yr*	lb/hr	ton/yr*			
CCT01	Fugitive	CCT01	Fluid Cooler	N/A	N/A	N/A	N/A	$PM_{10}/PM_{2.5}$	REFER TO TABLE N-3				Mist, Gas/Vapor	AP-42 and EE (for particle size)	REFER TO TABLE N-3

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

[1] Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

[2] Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

[3] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, CS_2, VOCs, H_2S, Inorganics, Lead, Organics, O_3, NO, NO_2, SO_2, SO_3, all applicable Greenhouse Gases (including CO_2 and methane), etc. **DO NOT LIST** H_2, H_2O, N_2, O_2, and Noble Gases.

[4] Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[5] Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[6] Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

[7] Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m^3) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO_2, use units of ppmv (See 45CSR10).

Table 1: Emissions Data

Emission Point ID No. *(Must match Emission Units Table & Plot Plan)*	Emission Point Type[1]	Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)*		Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)*		Vent Time for Emission Unit *(chemical processes only)*		All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)*	Maximum Potential Uncontrolled Emissions [4]		Maximum Potential Controlled Emissions [5]		Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)*	Est. Method Used [6]	Emission Concentration [7] (ppmv or mg/m^4)
		ID No.	Source	ID No.	Device Type	Short Term[2]	Max (hr/yr)		lb/hr	ton/yr*	lb/hr	ton/yr*			
CEG01	Upward vertical stack	CEG01	Emergency Generator Engine	N/A	N/A	N/A	N/A	NOx CO SO_2 $PM_{10}/PM_{2.5}$ VOC Lead CO2e Total HAPs	REFER TO TABLE N-4				Gas/Vapor	AP-42	REFER TO TABLE N-4

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

[1] Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

[2] Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

[3] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, CS_2, VOCs, H_2S, Inorganics, Lead, Organics, O_3, NO, NO_2, SO_2, SO_3, all applicable Greenhouse Gases (including CO_2 and methane), etc. **DO NOT LIST** H_2, H_2O, N_2, O_2, and Noble Gases.

[4] Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[5] Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[6] Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

[7] Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m^3) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO_2, use units of ppmv (See 45CSR10).

Attachment J
EMISSION POINTS DATA SUMMARY SHEET

Table 2: Release Parameter Data								
Emission Point ID No. *(Must match Emission Units Table)*	Inner Diameter (ft.)	Exit Gas			Emission Point Elevation (ft)		UTM Coordinates (km) *	
		Temp. (°F)	Volumetric Flow [1] (acfm) *at operating conditions*	Velocity (fps)	Ground Level *(Height above mean sea level)*	Stack Height [2] *(Release height of emissions above ground level)*	Northing	Easting
TDB01	TBD	314	428,8800 LBS/MMBtu	TBD	TBD	TBD	TBD	TBD
CCT01	NA	Ambient, variable	145,200	NA (fug.)	TBD	10+ (ft)	TBD	TBD
CEG01	14" (silencer)	932	4,767 SCFM (standby);12,570 SCFM (rated output)	0.042	TBD	TBD	TBD	TBD

* Coordinates shown are for the facility.

[1] Give at operating conditions. Include inerts.
[2] Release height of emissions above ground level.

11. ATTACHMENT K – FUGITIVE DATA SHEET

Attachment K

FUGITIVE EMISSIONS DATA SUMMARY SHEET

The FUGITIVE EMISSIONS SUMMARY SHEET provides a summation of fugitive emissions. Fugitive emissions are those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening. Note that uncaptured process emissions are not typically considered to be fugitive, and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET.

Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions).

APPLICATION FORMS CHECKLIST - FUGITIVE EMISSIONS
1.) Will there be haul road activities? ☐ Yes ☒ No ☐ If YES, then complete the HAUL ROAD EMISSIONS UNIT DATA SHEET.
2.) Will there be Storage Piles? ☐ Yes ☒ No ☐ If YES, complete Table 1 of the NONMETALLIC MINERALS PROCESSING EMISSIONS UNIT DATA SHEET.
3.) Will there be Liquid Loading/Unloading Operations? ☐ Yes ☒ No ☐ If YES, complete the BULK LIQUID TRANSFER OPERATIONS EMISSIONS UNIT DATA SHEET.
4.) Will there be emissions of air pollutants from Wastewater Treatment Evaporation? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
5.) Will there be Equipment Leaks (e.g. leaks from pumps, compressors, in-line process valves, pressure relief devices, open-ended valves, sampling connections, flanges, agitators, cooling towers, etc.)? ☒ Yes ☐ No ☐ If YES, complete the LEAK SOURCE DATA SHEET section of the CHEMICAL PROCESSES EMISSIONS UNIT DATA SHEET.
6.) Will there be General Clean-up VOC Operations? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
7.) Will there be any other activities that generate fugitive emissions? ☒ Yes ☐ No ☒ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET or the most appropriate form.
If you answered “NO” to all of the items above, it is not necessary to complete the following table, “Fugitive Emissions Summary.”

FUGITIVE EMISSIONS SUMMARY	All Regulated Pollutants - Chemical Name/CAS [1]	Maximum Potential Uncontrolled Emissions [2]		Maximum Potential Controlled Emissions [3]		Est. Method Used [4]
		lb/hr	ton/yr	lb/hr	ton/yr	
Haul Road/Road Dust Emissions Paved Haul Roads	---	---	---	---	---	---
Unpaved Haul Roads	---	---	---	---	---	---
Storage Pile Emissions	---	---	---	---	---	---
Loading/Unloading Operations	---	---	---	---	---	---
Wastewater Treatment Evaporation & Operations	---	---	---	---	---	---
Equipment Leaks (Duct burner, RFG piping system)	VOC	0.71	3.1	0.71	3.1	EPA/ EE
General Clean-up VOC Emissions	---	---	---	---	---	---
Other, Fluid Cooler (non-contact cooling tower mist)	PM_{10}	0.003	0.014	0.003	0.014	AP-42, EE

[1] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS_2, VOCs, H_2S, Inorganics, Lead, Organics, O_3, NO, NO_2, SO_2, SO_3, all applicable Greenhouse Gases (including CO_2 and methane), etc. DO NOT LIST H_2, H_2O, N_2, O_2, and Noble Gases.

[2] Give rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[3] Give rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[4] Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

12. ATTACHMENT L – EMISSIONS UNITS DATA SHEETS

Attachment L
Emission Unit Data Sheet
(INDIRECT HEAT EXCHANGER)

Control Device ID No. (must match List Form): TDB01

Equipment Information

1. Manufacturer: Solar	2. Model No. Titan 130-23001S Axial with HRSG Serial No. TBD
3. Number of units: 1	4. Use Utility Generation
5. Rated Boiler Horsepower: N/A hp	6. Boiler Serial No.: N/A
7. Date constructed: November 1, 2024	8. Date of last modification and explain: N/A
9. Maximum design heat input per unit: 172 (turbine); 77.64 (duct burner) $\times 10^6$ BTU/hr	10. Peak heat input per unit: 172 (turbine); 77.64 (duct burner) $\times 10^6$ BTU/hr
11. Steam produced at maximum design output: ~120,000 LB/hr TBD psig	12. Projected Operating Schedule: Hours/Day 24 Days/Week 7 Weeks/Year 52
13. Type of firing equipment to be used: ☐ Pulverized coal ☐ Spreader stoker ☐ Oil burners ☒ Natural Gas Burner ☒ Others, specify RFG Duct Burner	14. Proposed type of burners and orientation: ☐ Vertical ☐ Front Wall ☐ Opposed ☐ Tangential ☒ Others, specify NG Turbine; RFG Duct Burner
15. Type of draft: ☒ Forced ☐ Induced	16. Percent of ash retained in furnace: N/A %
17. Will flyash be reinjected? ☐ Yes ☒ No	18. Percent of carbon in flyash: N/A %

Stack or Vent Data

19. Inside diameter or dimensions: 6.3 ft.	20. Gas exit temperature: 325 °F
21. Height: 75 ft.	22. Stack serves: ☒ This equipment only ☐ Other equipment also (submit type and rating of all other equipment exhausted through this stack or vent)
23. Gas flow rate: 100,000 (@60 F) ft^3/min	
24. Estimated percent of moisture: 9.3 %	

Fuel Requirements

25.	Type	Fuel Oil No.	Natural Gas	Gas (other, specify)	Coal, Type:	Other:
	Quantity (at Design Output)	N/A gph@60°F	168,627 (turbine) ft^3/hr	63,692 (RFG, duct burner) ft^3/hr	N/A TPH	
	Annually	N/A $\times 10^3$ gal	0.169 $\times 10^6$ ft^3/hr	0.072 $\times 10^6$ ft^3/hr	N/A tons	
	Sulfur	Maximum: N/A wt. % Average: N/A wt. %	See Other gr/100 ft^3	10 gr/100 ft^3	Maximum: N/A wt. %	0.0034 lbs SO2 per MMBtu
	Ash (%)	N/A	N/A	N/A	Maximum	
	BTU Content	BTU/Gal. Lbs/Gal.@60°F	BTU/ft^3	BTU/ft^3	BTU/lb	
	Source	N/A	Pipeline Quality NG	Site Operations	N/A	
	Supplier	N/A	Public Utility	Site Operations	N/A	
	Halogens (Yes/No)	N/A	No	No	N/A	
	List and Identify Metals	N/A	Negligible	Negligible	N/A	

26. Gas burner mode of control:
☐ Manual ☐ Automatic hi-low
☒ Automatic full modulation ☐ Automatic on-off

27. Gas burner manufacture: Solar (turbine); Duct Burner by Zeeco/Superior

28. Oil burner manufacture: N/A

29. If fuel oil is used, how is it atomized? ☐ Oil Pressure ☐ Steam Pressure ☐ Compressed Air ☐ Rotary Cup ☐ Other, specify

30. Fuel oil preheated: ☐ Yes ☐ No

31. If yes, indicate temperature: N/A °F

32. Specify the calculated theoretical air requirements for combustion of the fuel or mixture of fuels described above actual cubic feet (ACF) per unit of fuel:
15% O2 @ 60 °F, TBD PSIA, 6.8 % moisture

33. Emission rate at rated capacity: See Att. N Calcs lb/hr

34. Percent excess air actually required for combustion of the fuel described: 15 %

Coal Characteristics

35. Seams: N/A

36. Proximate analysis (dry basis): % of Fixed Carbon: % of Sulfur:
% of Moisture: % of Volatile Matter:
% of Ash:

Emissions Stream

37. What quantities of pollutants will be emitted from the boiler before controls?

Pollutant	Pounds per Hour lb/hr	grain/ACF	@ °F	PSIA
CO	Refer to Att. N Calcs			
Hydrocarbons				
NO_x				
Pb				
PM_{10}				
SO_2				
VOCs				
Other (specify)				

38. What quantities of pollutants will be emitted from the boiler after controls?

Pollutant	Pounds per Hour lb/hr	grain/ACF	@ °F	PSIA
CO	N/A (No Controls)			
Hydrocarbons				
NO_x				
Pb				
PM_{10}				
SO_2				
VOCs				
Other (specify)				

39. How will waste material from the process and control equipment be disposed of?
N/A

40. Have you completed an *Air Pollution Control Device Sheet(s)* for the control(s) used on this Emission Unit.

41. Have you included the ***air pollution rates*** on the Emissions Points Data Summary Sheet?

42. **Proposed Monitoring, Recordkeeping, Reporting, and Testing**
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING PLAN: Please list (1) describe the process parameters and how they were chosen (2) the ranges and how they were established for monitoring to demonstrate compliance with the operation of this process equipment operation or air pollution control device.

Natural Gas & Refinery Gas throughputs were selected as monitoring parameters to meet site energy requirements and, in combination with NOx CEMS, to maintain emissions below NSR significant emission rate. Refer to Attachment O for further information.

TESTING PLAN: Please describe any proposed emissions testing for this process equipment or air pollution control device.

Use NO_x CEMS and/or conduct initial performance testing of NOx and, depending on emission limitation selection, H2S/SO2 in accordance with 40 CFR Part 60 Subpart KKKK and 40 CFR Part 60 Subpart Ja (for Duct Burner).

RECORDKEEPING: Please describe the proposed recordkeeping that will accompany the monitoring.

EWVI will record - daily, monthly, and 12-month rolling:
i) Monthly and 12-month rolling NOx emissions
ii) Turbine natural gas throughput (MMSCF);
iii) Duct Burner RFG throughput (MMSCF);
iv) Continuously monitor and record concentration (dry basis) of H2S in RFG gases before being burned in any fuel gas combustion device.
v) Record performance of operations, maintenance, and work practices daily.
vi) Maintain records of NOx CEMS in accordance with 40 CFR Part 60 Subpart KKKK.

REPORTING: Please describe the proposed frequency of reporting of the recordkeeping.

EWVI will report actual emissions from combustion at the Turbine and Duct Burner in the annual emissions inventory.

EWVI will submit semiannual reports of excess emissions; monitoring downtime; startups, shutdowns & malfunctions; and NOx CEMS data and performance testing as applicable under 40 CFR Part 60 Subparts KKKK & Ja.

43. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.

The turbine and HRSG/Duct burner will operate from -10F to 104F and will vary the electrical output to match the demand on site, maintaining a minimum of 50% load on the turbine to remain in SoLoNox mode. EWVI will contract with Solar Turbines for a long term service agreement for Solar to provide twice a year routine maintenance as well as continuous remote monitoring of the turbine performance to provide early detection of issues. The twice a year planned maintenance will review overall condition of the turbine as well as provide a cleaning of the turbine to maintain the power output.

Attachment L
EMISSIONS UNIT DATA SHEET
GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): CEG01

1. Name or type and model of proposed affected source:

   Generac SD/MD1250 (Black-start diesel engine)

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

   N/A

4. Name(s) and maximum amount of proposed material(s) produced per hour:

   Electricity 1,250 kW

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

   N/A

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

Diesel Fuel: 13.17 MMBtu/hr; 97.7 gallons/hour (at 100% load)

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

Diesel Fuel
% Sulfur: 0.0015
Ash: N/A

(c) Theoretical combustion air requirement (ACF/unit of fuel):

N/A @ °F and psia.

(d) Percent excess air: N/A

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

13.17 MMBtu/hr; 1,881 brake horsepower

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

N/A

(g) Proposed maximum design heat input: N/A × 10^6 BTU/hr.

7. Projected operating schedule:

Hours/Day	0.5 - 1.0	Days/Week	1	Weeks/Year	52

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@ N/A °F and psia

a.	NO_X	See Attachment N Calcs	lb/hr	grains/ACF
b.	SO_2		lb/hr	grains/ACF
c.	CO		lb/hr	grains/ACF
d.	PM_{10}		lb/hr	grains/ACF
e.	Hydrocarbons		lb/hr	grains/ACF
f.	VOCs		lb/hr	grains/ACF
g.	Pb		lb/hr	grains/ACF
h.	Specify other(s)			
			lb/hr	grains/ACF
			lb/hr	grains/ACF
			lb/hr	grains/ACF
			lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING	RECORDKEEPING
See Attachment O	See Attachment O
REPORTING	**TESTING**
See Attachment O	See Attachment O

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

Emergency unit to be used when turbine is not functioning

Attachment L
EMISSIONS UNIT DATA SHEET
GENERAL

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*): CCT01

1. Name or type and model of proposed affected source:

   Fluid Cooler, Evapco ESW4 12-44N18-LF (2 units)

2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.

3. Name(s) and maximum amount of proposed process material(s) charged per hour:

   Non-contact cooling water
   120,960 gallons per hour

4. Name(s) and maximum amount of proposed material(s) produced per hour:

   Recirculated non-contact cooling water
   120,960 gallons per hour

5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:

   N/A

* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

N/A

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

N/A

(c) Theoretical combustion air requirement (ACF/unit of fuel):

N/A @ °F and psia.

(d) Percent excess air: N/A

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

N/A

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

N/A

(g) Proposed maximum design heat input: N/A × 10^6 BTU/hr.

7. Projected operating schedule:

Hours/Day	24	Days/Week	7	Weeks/Year	52

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@ N/A °F and psia

a.	NO_X	See Attachment N Calcs	lb/hr	grains/ACF
b.	SO_2		lb/hr	grains/ACF
c.	CO		lb/hr	grains/ACF
d.	PM_{10}		lb/hr	grains/ACF
e.	Hydrocarbons		lb/hr	grains/ACF
f.	VOCs		lb/hr	grains/ACF
g.	Pb		lb/hr	grains/ACF
h.	Specify other(s)			
			lb/hr	grains/ACF
			lb/hr	grains/ACF
			lb/hr	grains/ACF
			lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING	RECORDKEEPING
See Attachment O	See Attachment O
REPORTING	**TESTING**
See Attachment O	See Attachment O

MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

TBD (Z&F to address)

13. ATTACHMENT M – AIR POLLUTION CONTROL SHEETS

NOT APPLICABLE

14. ATTACHMENT N – CALCULATIONS

July 2024

Company Name: **Ergon West Virginia**
Facility Name: **Newell**
Project Description: **Cogen Project**

Table N-1. Cogen Project Emissions Summary (Step 1)

Emission Unit/Pollutant[1,4]	Step 1 - Future Emissions (tpy)[2]								
	PM (filt.)	PM_{10} (filt. + cond.)	$PM_{2.5}$ (filt. + cond.)	Lead	NO_2	CO	VOC	SO_2	CO_2e
Cogen Turbine	4.52	4.52	4.52	0.00	23.66	27.64	3.16	2.56	88,216
Cogen Turbine SUSD Emissions	--	--	--	--	0.06	1.50	0.36	--	1,863
Duct Burner	0.85	3.40	3.40	0.00	16.23	27.21	3.40	10.20	28,828
Fugitive Losses	--	--	--	--	--	--	3.1	--	0[6]
Fluid Cooler	0.82	0.01	0.00	--	--	--	--	--	--
Black start ICE	0.02	0.02	0.02	0.00	0.89	0.10	0.02	0.001	108
Total New Equipment	**6.21**	**7.96**	**7.94**	**0.00**	**40.84**	**56.45**	**10.06**	**12.76**	**119,014**
Portable Boiler Removal[5]	0.04	0.15	0.15	0.00	0.99	1.66	0.11	0.01	2,356
Total Equipment Removed	**0.04**	**0.15**	**0.15**	**0.00**	**0.99**	**1.66**	**0.11**	**0.01**	**2,356**
Total Project Emissions Increase	**6.17**	**7.81**	**7.79**	**0.00**	**39.86**	**54.79**	**10.0**	**12.8**	**116,658**
PSD SER	25	15	10	0.6	40	100	40	40	75,000
Increase > SER?[3]	NO	NO	NO	NO	NO	NO	NO	NO	YES

1. PSD also has established SERs for hydrogen sulfide, total reduced sulfur, and sulfuric acid mist, which could be emitted from the sources being permitted in this action. If present at all, these compounds are expected to be at concentrations below method detection limits. The proposed project is not expected to increase emissions of any other NSR regulated pollutants (e.g., CFCs).
2. Future emissions from new units is potential to emit.
3. Per 40 CFR §52.21(b)(49)(iv), as an existing major stationary source, GHGs (CO_2e) is only subject to PSD if there is an emissions increase of another regulated NSR pollutant AND an emissions increase of 75,000 tpy CO_2e or more. Since there is no net emissions increase of a regulated NSR pollutant, PSD is not triggered for CO_2e.
4. There are no other project emissions that must be aggregated with this project. Additional infrastructure that does not have air emissions may be impacted by this project (e.g., fuel metering systems and associated piping).
5. Emissions reductions for portable boiler removal are based on 2-year average of actual emissions (2021 and 2022).
6. "0" incidates a negligible amount (<1 tpy) of CO_2e.

Company Name: **Ergon West Virginia** **July 2024**
Facility Name: **Newell**
Project Description: **Cogen Project**

Table N-2a. Summary of Emissions from Proposed Turbine during Normal Operations

New Unit Information :

Fuel Type:	Natural Gas	
Higher Heating Value (HHV) (Btu/scf):	1,020	
Turbine Capacity (Fuel Input):	172	MMBtu/hr
Potential Annual Hours of Operation:	8,760	
Potential Fuel Consumption (MMBtu/yr):	1,506,720	
Max. Fuel Consumption at 100% (scf/hr):	168,627	
Potential Fuel Consumption (MMscf/yr):	1,477.2	

Criteria Pollutant Emission Rates

Pollutant	Emission Factor	Potential Emissions		Emission Factor Source
	lb/MMBtu	(lb/hr)	(tpy)	
NO_x [3]	0.0360	6.22	23.66	Vendor Data; Annual based on data for ambient temps. between 40 and 90 F);
CO	--	6.31	27.64	Vendor Data
SO_2	3.40E-03	0.58	2.56	AP-42 Table 3.1-2a, footnote h; 4/00
VOC	--	0.72	3.16	UHC Vendor Data with applied with 20% VOC/UHC ratio per PIL 168
PM (filt)	0.006	1.03	4.52	Conservatively assumed equal to $PM_{10}/PM_{2.5}$
$PM_{10}/PM_{2.5}$	0.006	1.03	4.52	Vendor Data (PIL 171)

GHG Pollutant Emission Rates

Pollutant	Emission Factor	Potential Emissions	
	(lb/MMBtu)[1]	(lb/hr)	(ton/yr)
CO_2	116.98	20,119.89	88,125
CH_4	2.2E-03	0.38	1.7E+00
N_2O	2.2E-04	3.79E-02	1.7E-01
CO_2e [2]		20,140.66	88,216

Global Warming Potential (GWP) 25 CH_4
298 N_2O

1. GHG Emission factors from Tables C-1 and C-2, 40 CFR 98, Subpart C.
2. GWP from Table A-1, 40 CFR 98, Subpart A.
3. Reflective of voluntary NOx emissions restriction for turbine/duct burner (<40 tpy).

Pollutant	Emission Factor	Potential Emissions	Potential Emissions	Emission Factor Source
	(lb/MMBtu)	(lb/hr)	(ton/yr)	
Acetaldehyde	4.0E-05	6.9E-03	3.0E-02	AP-42 Table 3.1-3, April 2000
Acrolein	6.4E-06	1.1E-03	4.8E-03	AP-42 Table 3.1-3, April 2000
Benzene	1.2E-05	2.1E-03	9.0E-03	AP-42 Table 3.1-3, April 2000
1,3-Butadiene	4.3E-07	7.4E-05	3.2E-04	AP-42 Table 3.1-3, April 2000
Ethylbenzene	3.2E-05	5.5E-03	2.4E-02	AP-42 Table 3.1-3, April 2000
Formaldehyde	7.1E-04	1.2E-01	5.3E-01	AP-42 Table 3.1-3, April 2000
Propylene Oxide	2.9E-05	5.0E-03	2.2E-02	AP-42 Table 3.1-3, April 2000
Toluene	1.3E-04	2.2E-02	9.8E-02	AP-42 Table 3.1-3, April 2000
Xylene	6.4E-05	1.1E-02	4.8E-02	AP-42 Table 3.1-3, April 2000
Naphthalene	1.3E-06	2.2E-04	9.8E-04	AP-42 Table 3.1-3, April 2000
PAH	2.2E-06	3.8E-04	1.7E-03	AP-42 Table 3.1-3, April 2000
Total HAP		**0.18**	**0.77**	

Company Name: **Ergon West Virginia** **July 2024**
Facility Name: **Newell**
Project Description: **Cogen Project**

Table N-2b. Summary of Planned Turbine Startup Shutdown Emissions

Event	NO_x	CO	UHC	VOC	CH_4 (UHC-VOC)[1]	CO_2
	lb/event	*lb/event*	*lb/event*	*lb/event*	*lb/event*	*lb/event*
Startup	1.0	24	28	6	22	943
Shutdown	1.0	26	30	6	24	885
Event	*tpy*	*tpy*	*tpy*	*tpy*	*tpy*	*tpy*
Startup	0.0	0.7	0.8	0.2	0.7	28.3
Shutdown	0.0	0.8	0.9	0.2	0.7	26.6

# of Planned Startup Events per Year: 60
# of Planned Shutdown Events per Year: 60

1. CH_4 is computed as the difference between UHC and VOC.

Company Name: Ergon West Virginia **July 2024**
Facility Name: Newell
Project Description: Cogen Project

Table N-2c. Summary of Emissions from Proposed Duct Burner

New Unit Information :

Fuel Type:	RFG	
Higher Heating Value (HHV) (Btu/scf):	1,076	(Based on EWVI most recent 12 month daily HHV avg.)
Heat Input per Unit (MMBtu/hr):	78	HHV
Potential Annual Hours of Operation:	8,760	
Potential Fuel Consumption (MMBtu/yr):	680,126	
Max. Fuel Consumption at 100% (scf/hr):	72,156	
Potential Fuel Consumption (MMscf/yr):	632.09	

Criteria Pollutant Emission Rates (for natural gas: FG mix)

Pollutant	Emission Factor	Potential Emissions		Emission Factor Source
	lb/MMBtu	(lb/hr)	(ton/yr)	
NO_x [3]	0.092	7.14	16.23	Vendor Data
CO	0.08	6.21	27.21	Vendor Data
VOC	0.01	0.78	3.40	Vendor Data
SO_2	0.030	2.33	10.20	Ergon H2S average (w/ 50% contingency)
$PM_{filt.}$	0.0025	0.19	0.85	AP-42 Table 1.4-2, July 1998, ratio filt/tot
PM_{10} /$PM_{2.5}$ (Total)	0.01	0.78	3.40	Vendor Data

GHG Pollutant Emission Rates

Pollutant	Emission Factor	Potential Emissions	
	(lb/MMBtu)[1]	(lb/hr)	(ton/yr)
CO_2	84.21	6,538.06	28,637
CH_4	1.0E-03	0.08	3.4E-01
N_2O	1.8E-03	1.40E-01	6.1E-01
CO_2e[2]		6,581.65	28,828

Global Warming Potential (GWP) 25 CH_4
298 N_2O

1. GHG Emission factors from Tables C-1 and C-2, 40 CFR 98, Subpart C.
2. GWP from Table A-1, 40 CFR 98, Subpart A.
3. Reflective of voluntary NOx emissions restriction for turbine/duct burner (40 tpy)

Company Name: Ergon West Virginia
Facility Name: Newell
Project Description: Cogen Project

July 2024

Table N-2c. Summary of Emissions from Proposed Duct Burner

Hazardous Air Pollutant (HAP) Potential Emissions

Pollutant	Emission Factor (lb/MMscf)	Potential Emissions (lb/hr)	Potential Emissions (ton/yr)	Emission Factor Source
2-Methylnaphthalene	2.4E-05	1.7E-06	7.6E-06	AP-42 Table 1.4-3, July 1998
3-Methylchloranthrene	1.8E-06	1.3E-07	5.7E-07	AP-42 Table 1.4-3, July 1998
7,12-Dimethylbenz(a)anthracene	1.6E-05	1.2E-06	5.1E-06	AP-42 Table 1.4-3, July 1998
Acenaphthene	1.8E-06	1.3E-07	5.7E-07	AP-42 Table 1.4-3, July 1998
Acenaphthylene	1.8E-06	1.3E-07	5.7E-07	AP-42 Table 1.4-3, July 1998
Anthracene	2.4E-06	1.7E-07	7.6E-07	AP-42 Table 1.4-3, July 1998
Benz(a)anthracene	1.8E-06	1.3E-07	5.7E-07	AP-42 Table 1.4-3, July 1998
Benzene	2.1E-03	1.5E-04	6.6E-04	AP-42 Table 1.4-3, July 1998
Benzo(a)pyrene	1.2E-06	8.7E-08	3.8E-07	AP-42 Table 1.4-3, July 1998
Benzo(b)fluoranthene	1.8E-06	1.3E-07	5.7E-07	AP-42 Table 1.4-3, July 1998
Benzo(g,h,i)perylene	1.2E-06	8.7E-08	3.8E-07	AP-42 Table 1.4-3, July 1998
Benzo(k)fluoranthene	1.8E-06	1.3E-07	5.7E-07	AP-42 Table 1.4-3, July 1998
Chrysene	1.8E-06	1.3E-07	5.7E-07	AP-42 Table 1.4-3, July 1998
Dibenzo(a,h) anthracene	1.2E-06	8.7E-08	3.8E-07	AP-42 Table 1.4-3, July 1998
Dichlorobenzene	1.2E-03	8.7E-05	3.8E-04	AP-42 Table 1.4-3, July 1998
Fluoranthene	3.0E-06	2.2E-07	9.5E-07	AP-42 Table 1.4-3, July 1998
Fluorene	2.8E-06	2.0E-07	8.8E-07	AP-42 Table 1.4-3, July 1998
Formaldehyde	7.5E-02	5.4E-03	2.4E-02	AP-42 Table 1.4-3, July 1998
Hexane	1.8E+00	1.3E-01	5.7E-01	AP-42 Table 1.4-3, July 1998
Indo(1,2,3-cd)pyrene	1.8E-06	1.3E-07	5.7E-07	AP-42 Table 1.4-3, July 1998
Naphthalene	6.1E-04	4.4E-05	1.9E-04	AP-42 Table 1.4-3, July 1998
Phenanthrene	1.7E-05	1.2E-06	5.4E-06	AP-42 Table 1.4-3, July 1998
Pyrene	5.0E-06	3.6E-07	1.6E-06	AP-42 Table 1.4-3, July 1998
Toluene	3.4E-03	2.5E-04	1.1E-03	AP-42 Table 1.4-3, July 1998
Arsenic	2.0E-04	1.4E-05	6.3E-05	AP-42 Table 1.4-4, July 1998
Beryllium	1.2E-05	8.7E-07	3.8E-06	AP-42 Table 1.4-4, July 1998
Cadmium	1.1E-03	7.9E-05	3.5E-04	AP-42 Table 1.4-4, July 1998
Chromium	1.4E-03	1.0E-04	4.4E-04	AP-42 Table 1.4-4, July 1998
Cobalt	8.4E-05	6.1E-06	2.7E-05	AP-42 Table 1.4-4, July 1998
Lead	5.0E-04	3.6E-05	1.6E-04	AP-42 Table 1.4-2, July 1998
Manganese	3.8E-04	2.7E-05	1.2E-04	AP-42 Table 1.4-4, July 1998
Mercury	2.6E-04	1.9E-05	8.2E-05	AP-42 Table 1.4-4, July 1998
Nickel	2.1E-03	1.5E-04	6.6E-04	AP-42 Table 1.4-4, July 1998
Selenium	2.8E-05	2.0E-06	8.7E-06	AP-42 Table 1.4-4, July 1998
Ethylbenzene	1.7E-02	1.2E-03	5.4E-03	Historical EWVI factor
Phenol	4.3E-03	3.1E-04	1.4E-03	Historical EWVI factor
Xylene	2.7E-02	1.9E-03	8.5E-03	Historical EWVI factor
Total HAP (including Lead)		**0.14**	**0.61**	

Company Name: **Ergon West Virginia** **July 2024**
Facility Name: **Newell**
Project Description: **Cogen Project**

Table N-3. Summary of Emissions from Black Start Engine Operations

Black Start Diesel Engine (Generac SD1250)

Generator Emissions - Diesel > 600 hp

Annual Fuel Usage:	100	hrs/yr	
Generator Capacity (Electrical Output):	1250	kW	
Maximum Engine Rating:	1881	hp	
Average Brake Specific Fuel Consumption:	7000	Btu/hp-hr	(AP-42 value)
Generator (Average Fuel Input):	13.17	MMBtu/hr	
Generator (Annual Fuel Input):	1317	MMBtu/yr	
Displacement:	4.08	L/cylinder	
Diesel Fuel Sulfur Content:	0.0015	%	Based on use of ultra low sulfur diesel

Criteria Pollutant Emissions

Pollutant	Diesel Emission Factor (lb/MMBtu)	Estimated Emissions (lb/hr)	Estimated Emissions (tpy)	Emission Factor Source
NO_X	4.28	17.75	0.89	Vendor data (g/bhp-hr)
CO	0.50	2.07	0.10	Vendor data (g/bhp-hr)
$PM_{10\,/\,2.5}$	0.10	0.41	0.02	Vendor data (g/bhp-hr)
SO_2	1.52E-03	0.02	0.001	AP-42, Table 3.4-1 (10/96)
VOC	0.12	0.50	0.02	Vendor data (g/bhp-hr)

HAP Emissions

Pollutant	Diesel Emission Factor (lb/MMBtu)	Estimated Emissions (lb/hr)	Estimated Emissions (tpy)	Emission Factor Source
Benzene	7.76E-04	0.01	0.0005	AP-42, Table 3.4-3 (10/96)
Toluene	2.81E-04	0.00	0.0002	AP-42, Table 3.4-3 (10/96)
Xylenes	1.93E-04	0.003	0.0001	AP-42, Table 3.4-3 (10/96)
Formaldehyde	7.89E-05	0.001	0.0001	AP-42, Table 3.4-3 (10/96)
Fluoranthene	1.10E-06	0.000	0.0000	AP-42, Table 3.4-4 (10/96)
Acetaldehyde	2.52E-05	0.000	0.0000	AP-42, Table 3.4-3 (10/96)
Acrolein	7.88E-06	0.000	0.0000	AP-42, Table 3.4-3 (10/96)
Total PAH	2.12E-04	0.003	0.0001	AP-42, Table 3.4-4 (10/96)
Total HAP	1.0E-03			

GHG Emissions

Pollutant	Diesel Emission Factor (lb/MMBtu)	Estimated Emissions (lb/hr)	Estimated Emissions (tpy)	Emission Factor Source
CO_2	163.05	2146.93	107.3465	40 CFR 98, Subpart C
CH_4	6.61E-03	0.09	0.0044	40 CFR 98, Subpart C
N_2O	1.32E-03	0.017	0.0009	40 CFR 98, Subpart C
CO_2e		2154.30	107.71	

Generator Fuel Consumption

Item	Value	Unit	Note
Diesel Heating Value	19,300	Btu/lb	Source: AP-42, Table 3.4-1 (10/96), Note (e)
Diesel Heating Value	0.02	MMBtu/lb	
Diesel Heating Value	138,000	Btu/gal	Source; 40 CFR 98 Subpart C
Diesel Density	7.10	lb/gal	Source: AP-42, Table 3.4-1 (10/96), Note (a)
Fuel Consumption	9,541	gal/yr	

Company Name: Ergon West Virginia
Facility Name: Newell
Project Description: Cogen Project

July 2024

Table N-4. Fluid Cooler (NCCT) Emissions

Unit	Water Circulation Rate		Annual	Drift [1]	TDS [2]	TDS Specific
	gal/min	lb/hr	Operating Hrs	(%)	(ppmw)	Gravity [3]
Fluid Coolers	2,016	1,009,411	8,760	0.001%	18,500	2.2

1. Drift rate provided by client.
2. TDS, Total Dissolved Solids concentration based on AP-42 Table 13.4-2 for Counter Flow systems (Geometric Mean TDS).
3. TDS specific gravity corresponding to NaCl.

Calculations

Cooling Tower Particulate Em
(based on paper by Reisman

Volume of drift droplet = $(4/3)\pi(D_d/2)^3$ [Eq. 1]

Mass of solids in drift droplet = $(TDS)(\rho_w)$(Volume of drift droplet) [Eq. 2]

Solid particle volume = (Particle mass of solids) / (ρ_{TDS}) [Eq. 3]

$D_p = D_d\,[(TDS)(\rho_w/\rho_{TDS})]^{1/3}$ [Eq. 4]

where:

D_p = diameter of solid particle (µm)
D_d = diameter of drift droplet (µm)
TDS = total dissolved solids content (ppmw)
ρ_w = density of water = 1E-6 µg/µm^3
ρ_{TDS} = density of solid particles (assume NaCl)

Size Distribution for Cooling Tower Particulate Emissions

EPRI Droplet Diameter [4] (µm)	Droplet Volume [5] (µm^3)	Particle Mass (Solids) [6] (µg)	Solid Particle Volume [7] (µm^3)	Solid Particle Diameter [8] (µm)	EPRI % Mass Smaller [4]
10	523.6	9.69E-06	4.4	2.03	0
20	4188.8	7.75E-05	35.2	4.07	0.2
30	14137.2	2.62E-04	118.9	6.10	0.23
40	33510.3	6.20E-04	281.8	8.13	0.51
50	65449.8	1.21E-03	550.4	10.17	1.82
60	113097.3	2.09E-03	951.0	12.20	5.7
70	179594.4	3.32E-03	1510.2	14.23	21.35
90	381703.5	7.06E-03	3209.8	18.30	49.81
110	696910.0	1.29E-02	5860.4	22.37	70.51
130	1150346.5	2.13E-02	9673.4	26.44	82.02
150	1767145.9	3.27E-02	14860.1	30.50	88.01
180	3053628.1	5.65E-02	25678.2	36.60	91.03
210	4849048.3	8.97E-02	40776.1	42.70	92.47
240	7238229.5	1.34E-01	60866.9	48.80	94.09
270	10305994.7	1.91E-01	86664.0	54.91	94.69
300	14137166.9	2.62E-01	118880.7	61.01	96.29
350	22449297.5	4.15E-01	188778.2	71.17	97.01
400	33510321.6	6.20E-01	281791.3	81.34	98.34
450	47712938.4	8.83E-01	401222.4	91.51	99.07
500	65449846.9	1.21E+00	550373.7	101.68	99.07
600	113097335.5	2.09E+00	951045.8	122.01	100

[4] Based on particle size distribution test data in Reisman, J. and Frisbie, G., "Calculating Realistic PM10 Emissions from Cooling Towers".
[5] Calculated using Equation 1.
[6] Calculated using Equation 2.
[7] Calculated using Equation 3.
[8] Calculated using Equation 4.

PM_{10} and $PM_{2.5}$ Fractions Interpolated from Size Distribution

$PM_{2.5}$ Fraction of Total PM (%)	PM_{10} Fraction of Total PM (%)
0.05	1.71

Particulate Emission Rates

PM Emission Rate (lb/hr) = Water Circulation Rate (lb/hr) x Drift x TDS / 1,000,000
PM_{10} Emission Rate (lb/hr) = PM Emission Rate x PM_{10} Fraction
$PM_{2.5}$ Emission Rate (lb/hr) = PM Emission Rate x $PM_{2.5}$ Fraction
Annual Emission Rates (tons/yr) = Short-term Emission Rates (lbs/hr) x Actual hours/year / 2,000 lbs per ton

Unit	PM		PM_{10}		$PM_{2.5}$	
	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
Fluid Coolers	0.187	0.818	0.003	0.014	0.00009	0.0004

Company Name: **Ergon West Virginia** **July 2024**
Facility Name: **Newell**
Project Description: **Cogen Project**

Table N-5a. Summary of Past Actual Emissions from Portable Boiler (2021)

Unit Information :

Fuel Type:	Natural Gas	
Higher Heating Value (HHV) (Btu/scf):	1,020	
Turbine Capacity (Fuel Input):	99.9	MMBtu/hr
Potential Fuel Consumption (MMBtu/yr):	37,177	
Max. Fuel Consumption at 100% (scf/hr):	97,941	
Max. Fuel Consumption (MMscf/yr):	36.4	

Criteria Pollutant Emission Rates

Pollutant	Emission Factor	Potential Emissions		Emission Factor Source
	lb/MMscf	(lb/hr)	(tpy)	
NO_x	50.0	4.90	0.91	AP-42 Table 1.4-1
CO	84.0	8.23	1.53	AP-42 Table 1.4-1
SO_2	0.6	0.06	0.01	AP-42 Table 1.4-2
VOC	5.5	0.54	0.10	AP-42 Table 1.4-2
Lead	0.0	0.00	0.00	AP-42 Table 1.4-2
PM (filt)	1.9	0.19	0.03	AP-42 Table 1.4-2
$PM_{10}/PM_{2.5}$	7.6	0.74	0.14	AP-42 Table 1.4-2

GHG Pollutant Emission Rates

Pollutant	Emission Factor	Potential Emissions	
	(lb/MMBtu)[1]	(lb/hr)	(ton/yr)
CO_2	116.98	11,685.91	2,174
CH_4	2.2E-03	0.22	4.1E-02
N_2O	2.2E-04	2.20E-02	4.1E-03
CO_2e^2		11,697.98	2,177

Global Warming Potential (GWP) 25 CH_4
298 N_2O

1. GHG Emission factors from Tables C-1 and C-2, 40 CFR 98, Subpart C.
2. GWP from Table A-1, 40 CFR 98, Subpart A.

Company Name: **Ergon West Virginia** **July 2024**
Facility Name: **Newell**
Project Description: **Cogen Project**

Table N-5b. Summary of Past Actual Emissions from Portable Boiler (2022)

Unit Information :

Fuel Type:	Natural Gas	
Higher Heating Value (HHV) (Btu/scf):	1,020	
Turbine Capacity (Fuel Input):	99.9	MMBtu/hr
Potential Fuel Consumption (MMBtu/yr):	43,297	
Max. Fuel Consumption at 100% (scf/hr):	97,941	
Max. Fuel Consumption (MMscf/yr):	42.4	

Criteria Pollutant Emission Rates

Pollutant	Emission Factor	Potential Emissions		Emission Factor Source
	lb/MMscf	(lb/hr)	(tpy)	
NO_x	50.0	4.90	1.06	AP-42 Table 1.4-1
CO	84.0	8.23	1.78	AP-42 Table 1.4-1
SO_2	0.6	0.06	0.01	AP-42 Table 1.4-2
VOC	5.5	0.54	0.12	AP-42 Table 1.4-2
Lead	0.0	0.00	0.00	AP-42 Table 1.4-2
PM (filt)	1.9	0.19	0.04	AP-42 Table 1.4-2
$PM_{10}/PM_{2.5}$	7.6	0.74	0.16	AP-42 Table 1.4-2

GHG Pollutant Emission Rates

Pollutant	Emission Factor	Potential Emissions	
	(lb/MMBtu)[1]	(lb/hr)	(ton/yr)
CO_2	116.98	11,685.91	2,532
CH_4	2.2E-03	0.22	4.8E-02
N_2O	2.2E-04	2.20E-02	4.8E-03
CO_2e^2		11,697.98	2,535

Global Warming Potential (GWP) 25 CH_4
298 N_2O

1. GHG Emission factors from Tables C-1 and C-2, 40 CFR 98, Subpart C.
2. GWP from Table A-1, 40 CFR 98, Subpart A.

Company Name: Ergon West Virginia
Facility Name: Newell
Project Description: Cogen Project

July 2024

Table N-6. Summary of Emissions from Fugitive Losses

New Component Count Estimates

Gas Valves	9
Pump Seals	0
PRVs	3
Compressors	2
Connectors	66
Flanges	0
Open-ended lines	0

VOC Emission Rates

Component Type	Emission Factor	Potential Emissions		Emission Factor Source
	kg/hr/unit	(lb/hr)	(tpy)	
Gas Valves	0.0006	0.01	0.05	Table 2-6, EPA "Protocol for Equipment Leak Emission Estimates"
Pump Seals	0.012	0.00	0.00	
PRVs	0.0447	0.30	1.29	
Compressors	0.0894	0.39	1.73	
Connectors	6.00E-05	0.01	0.04	
Flanges	6.00E-05	0.00	0.00	
Open-ended lines	0.0015	0.00	0.00	
	Total	0.71	3.11	

15. ATTACHMENT O – MONITORING RECORDKEEPING REPORTING

Attachment O - Monitoring, Recordkeeping, Reporting, and Testing

EWVI COGNERATION PROJECT - JULY 2024

Source	Monitoring	Recordkeeping	Reporting	Testing
Gas Turbine (15 MW) with Duct Burner (78 MMBtu/hr) and HRSG	EWVI will Annually limit: i) Annual NOx emissions from the turbine/duct burner to 39.96 tpy iii) Continuously monitor(2) and record concentration (dry basis) of H2S in RFG gases before being burned in any fuel gas combustion device. iv) Perform operations, maintenance, and work practices in accordance with manufacturers specifications and best practices to minimize emissions. v) Install, operate, calibrate, and maintain Continuous [NOx] Emissions Monitoring System (CEMS) at outlet of HRSG (including Turbine and Duct Burner exhaust) in accordance with 40 CFR Part 60 Subpart KKKK.	12-month rolling basis, rolling by calendar month. EWVI will record -monthly, and 12-month rolling: i) Turbine natural gas throughput (MMSCF); ii) Duct Burner RFG(1) throughput (MMSCF); iii) Continuously monitor(2) and record concentration (dry basis) of H2S in RFG gases before being burned in any fuel gas combustion device. iv) Record performance of operations, maintenance, and work practices daily. v) Maintain records of NOx CEMS for outlet of HRSG in accordance with 40 CFR Part 60 Subpart KKKK.	EWVI will report actual emissions from NG and RFG combustion at the Turbine and Duct Burner in the annual emissions inventory. EWVI will submit semiannual reports of excess emissions; monitoring downtime; startups, shutdowns & malfunctions; and performance testing for NOx and SO2/H2S as applicable under 40 CFR Part 60 Subparts KKKK & Ja.	Conduct initial performance testing of NOx and, depending on emission limitation selection, SO2/H2S in accordance with 40 CFR Part 60 Subpart KKKK and 40 CFR Part 60 Subpart Ja (for Duct Burner). Relative to H2S/SO2, the plant will continue to follow continuous fuel monitoring as outlined in the Title V permit [e.g., to satisfy 40 CFR 60.102a(g)(1)].
COGEN Black-start Diesel Emergency Generator (1250 kW) [1,880 bhp]	EWVI will track: i) Number and duration of Turbine Shutdowns and Startups monthly. Ii) Combust only low-sulfur fuel; iii) Non-emergency operating hours <100 hrs/year.	EWVI will record: i) Number and duration of Turbine Shutdowns and Startups monthly. Ii) Sulfur content in low-sulfur fuels used in emergency generator; iii) Non-emergency operating hours.	EWVI will include actual emissions from SU/SDs in the annual emissions inventory.	NA

Footnotes:

(1) RFG is, on average, a 80%:20% mixture of natural gas and Newell Plant refinery gas.
(2) RFG combustion devices at Newell have a common source of fuel gas that is monitored at only one location, and this location accurately represents the concentration of H2S in the fuel gas being burned throughout the plant.

16. ATTACHMENT P – PUBLIC NOTICE

AIR QUALITY PERMIT NOTICE
Notice of Application

Notice is given that Ergon West Virginia Inc. (EWVI) has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Construction and Modification Permit at the petroleum refinery located on 9995 Ohio River Blvd. in Newell, Hancock County, West Virginia. The application is for the installation of a utility cogeneration facility. The latitude and longitude coordinates are: 40.609911, -80.629352.
.

The applicant estimates the increased potential to discharge for the following Regulated Air Pollutants will be:

Pollutant	Emissions in tpy (tons per year)
CO	54.8
NOX	39.9
PM	6.2
PM10	7.8
PM2.5	7.8
SO_2	12.8
VOC	10.0
CO_2e	116,658

Startup of operation is planned to begin on or about the day of August, 1, 2025 Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice. Written comments will also be received via email at DEPAirQualityPermitting@WV.gov.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 41281, during normal business hours.

Dated this the **(Day)** day of **(Month)**, **(Year)**.

By: Ergon-West Virginia Inc. (EWVI)
Dylan Beech
Vice-President, Refining
9995 Ohio River Blvd.
Newell, West Virginia 26050

17. ATTACHMENT S – TITLE V REVISION INFORMATION FORM

Attachment S

Title V Permit Revision Information

1. New Applicable Requirements Summary	
Mark all applicable requirements associated with the changes involved with this permit revision:	
☐ SIP	☐ FIP
☒ Minor source NSR (45CSR13)	☐ PSD (45CSR14)
☐ NESHAP (45CSR15)	☐ Nonattainment NSR (45CSR19)
☒ Section 111 NSPS (Subpart 40 CFR 60 Subparts KKKK (Cogen) and Ja [Duct Burner]; 40 CFR Part 60 Subpart IIII [Black-start emergency engine])	☐ Section 112(d) MACT standards (Subpart(s)_____)
☐ Section 112(g) Case-by-case MACT	☐ 112(r) RMP
☐ Section 112(i) Early reduction of HAP	☐ Consumer/commercial prod. reqts., section 183(e)
☐ Section 129 Standards/Reqts.	☐ Stratospheric ozone (Title VI)
☐ Tank vessel reqt., section 183(f)	☐ Emissions cap 45CSR§30-2.6.1
☐ NAAQS, increments or visibility (temp. sources)	☐ 45CSR27 State enforceable only rule
☐ 45CSR4 State enforceable only rule	☐ Acid Rain (Title IV, 45CSR33)
☐ Emissions Trading and Banking (45CSR28)	☐ Compliance Assurance Monitoring (40CFR64) (1)
☐ NO_x Budget Trading Program Non-EGUs (45CSR1)	☐ NO_x Budget Trading Program EGUs (45CSR26)

(1) If this box is checked, please include **Compliance Assurance Monitoring (CAM) Form(s)** for each Pollutants Specific Emission Unit (PSEU) (See Attachment H to Title V Application). If this box is not checked, please explain why **Compliance Assurance Monitoring** is not applicable:

CAM is not applicable since the project equipment emissions are less than major source levels.

2. Non Applicability Determinations

List all requirements, which the source has determined not applicable to this permit revision and for which a permit shield is requested. The listing shall also include the rule citation and a rationale for the determination.

40 CFR 63 Subpart YYYY. This NESHAP standard applies to major HAP source facilities. The Newell Refinery is an area HAP source; as such, these NESHAP standards do not apply.

☐ **Permit Shield Requested** *(not applicable to Minor Modifications)*

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

3. Suggested Title V Draft Permit Language

Are there any changes involved with this Title V Permit revision outside of the scope of the NSR Permit revision? ☒ Yes ☐ No If Yes, describe the changes below.

Also, please provide **Suggested Title V Draft Permit language** for the proposed Title V Permit revision (including all applicable requirements associated with the permit revision and any associated monitoring /recordkeeping/ reporting requirements), OR attach a marked up pages of current Title V Permit. Please include appropriate citations (Permit or Consent Order number, condition number and/or rule citation (e.g. 45CSR§7-4.1)) for those requirements being added / revised.

It will be necessary to add the following emissions units: Gas Turbine with Duct Burner and Heat Recovery Steam Generator (HRSG), Black-start emergency generator (diesel-fired), and Fluid Cooler (non-contact cooling).

The Portable Boiler, 99.9 MMBtu/hr, noted in Title V permit Section 4 "Fuel Burning Units…" will be permanently removed from service and all associated conditions should be removed:

Emission Unit	Applicable Rule	Limits Section 4.1.	Monitoring Section 4.2.	Testing Section 4.3.	Recordkeeping Section 4.4.	Reporting Section 4.5
Portable Boiler	45CSR2	1, 2, 3, 4, 7, 8, 9			2, 3	1
	45CSR10	5, 10, 11				
	45CSR13	1, 3, 4, 6, 7, 8, 9, 11, 13, 28, 29, 30, 31, 32	1, 15		2, 3, 19,20	1

4. Active NSR Permits/Permit Determinations/Consent Orders Associated With This Permit Revision

Permit or Consent Order Number	Date of Issuance	Permit/Consent Order Condition Number
	/ /	
	/ /	

5. Inactive NSR Permits/Obsolete Permit or Consent Orders Conditions Associated With This Revision

Permit or Consent Order Number	Date of Issuance	Permit/Consent Order Condition Number
	/ /	
	/ /	
	/ /	

6. Change in Potential Emissions	
Pollutant	Change in Potential Emissions (+ or -), TPY
CO	+ 54.8
NOx	+ 39.9
PM/PM10/PM2.5	+ 6.2 / 7.8 / 7.8
SO2	+ 12.8
VOC	+ 10.0
Total HAPs	+ <2.0
All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.	

7. Certification For Use Of Minor Modification Procedures *(Required Only for Minor Modification Requests)*

Note:	*This certification must be signed by a responsible official. Applications without a signed certification will be returned as incomplete. The criteria for allowing the use of Minor Modification Procedures are as follows:*

i. Proposed changes do not violate any applicable requirement;

ii. Proposed changes do not involve significant changes to existing monitoring, reporting, or recordkeeping requirements in the permit;

iii. Proposed changes do not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination for temporary sources of ambient air quality impacts, or a visibility increment analysis;

iv. Proposed changes do not seek to establish or change a permit term or condition for which there is no underlying applicable requirement and which permit or condition has been used to avoid an applicable requirement to which the source would otherwise be subject (synthetic minor). Such terms and conditions include, but are not limited to a federally enforceable emissions cap used to avoid classification as a modification under any provision of Title I or any alternative emissions limit approved pursuant to regulations promulgated under § 112(j)(5) of the Clean Air Act;

v. Proposed changes do not involve preconstruction review under Title I of the Clean Air Act or 45CSR14 and 45CSR19;

vi. Proposed changes are not required under any rule of the Director to be processed as a significant modification;

Notwithstanding subparagraph 45CSR§30-6.5.a.1.A. (items i through vi above), minor permit modification procedures may be used for permit modifications involving the use of economic incentives, marketable permits, emissions trading, and other similar approaches, to the extent that such minor permit modification procedures are explicitly provided for in rules of the Director which are approved by the U.S. EPA as a part of the State Implementation Plan under the Clean Air Act, or which may be otherwise provided for in the Title V operating permit issued under 45CSR30.

Pursuant to 45CSR§30-6.5.a.2.C., the proposed modification contained herein meets the criteria for use of Minor permit modification procedures as set forth in Section 45CSR§30-6.5.a.1.A. The use of Minor permit modification procedures are hereby requested for processing of this application.

(Signed):	*(Please use blue ink)*	Date:	/ / *(Please use blue ink)*
Named (typed):	*Dylan Beech*	Title:	*Vice President - Refining*

Note: Please check if the following included (if applicable):

☐	Compliance Assurance Monitoring Form(s)
☐	Suggested Title V Draft Permit Language

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

18. ATTACHMENT T – APPLICATION FEE

Checks must be mailed separately to:

WVDEP - DAQ - Permitting
Attn: NSR Permitting Secretary
601 57th Street SE
Charleston, WV 25304

The Division of Air Quality requests that all Permit Applications and Permit Determinations be submitted by email to DEPAirQualityPermitting@wv.gov.

Permit Levels for 45CSR13

Minor Source Construction, Modification, Relocation, Temporary, General and Administrative Update Permits, and Permission to Commence Construction

	Public Notice	Review Period as per Rule	Application Fee	Criteria	Application Type
Permit Determination	None	30 working days	None	No permit required if Less than Modification AND change does not result in an increase above a numerical limit in permit	Written Request OR Permit Determination Form
Administrative Update (Class I)	None	60 days	None	Decrease in emissions OR Permanent removal of equipment OR More stringent requirements OR Change in MRR that is equivalent or superior	Written Request OR Permit Determination Form OR Application for Permit
Administrative Update (Class II)	30 days (applicant)	60 days	$300 + 45CSR22 fees	Less than Modification	Permit Determination Form OR Application for Permit
Construction Permit	30 days (applicant) + 30 days (DAQ) *	90 days	$1000 + 45CSR22 fees	6pph AND 10tpy of any regulated air pollutant OR 144ppd of any regulated air pollutant OR 2pph OR 5tpy of aggregated HAP OR 45CSR27 TAP (10% increase if above BAT triggers or increase to BAT triggers) OR Subject to applicable Standard or Rule	Application for Permit
Modification Permit	30 days (applicant) + 30 days (DAQ) *	90 days	$1000 + 45CSR22 fees	Same as construction	Application for Permit
Permission to Commence Construction	30 days (applicant) + 2' sign at entrance to source	30 days	$200	Existing sources who hold an active Rule 13 permit. Cannot be subject to 112(g) or 112(j); synthetic minors for Title V, MACT or PSD/NSR; sources netting out of PSD (Rule 14); or, sources requiring a specific case-by-case emission limitation or standard under 45CSR21 or 45CSR27.	Application for Permission to Commence Construction
Relocation Permit	30 days (applicant)	45 days	$1000 + 45CSR22 fees	No emissions increase or change in facility design or equipment	Application for Permit
Temporary Permit	30 days (applicant)	45 days	$1000 + 45CSR22 fees	Same as construction, but for limited period of time (6 month initially, but can be extended up to 12 additional months by written request)	Application for Permit
General Permit (Class I)	None	45 days (Class I)	$250	Same as construction, but subject to specific eligibility requirements.	Registration Application
General Permit (Class II)	30 days (applicant)	45 days (Class II)	$500 + 45CSR22 fees	Same as construction, but subject to specific eligibility requirements.	Registration Application

* Additional provisions may apply (such as requiring a commercial display advertisement and/or posting of sign).

Rev. 6/2009

Fees for Cogen R13: $1,000 (construction) + $1,000 (modification) + $1,000 (NSPS)