



Southwest Clean Air Agency

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October 13, 2016

Mr. Greg Boone
City of Centralia
1100 N. Tower Avenue
Centralia, WA 98531

Subject: Notification of Emergency Generator Engine Installation – Borst Park Pump Station (SUN-125)

Dear Mr. Boone:

The Southwest Clean Air Agency (SWCAA) received your Small Unit Notification (SUN) on September 29, 2016 for installation and operation of an emergency generator engine at the Borst Park Pump Station in Centralia, WA. For administrative and tracking purposes SWCAA has assigned tracking number SUN-125 to this notification. This notification was filed in accordance with SWCAA 400-072 and applies to the installation of one emergency generator engine. The unit was identified as:

- (1) 145 bhp diesel-fired Cummins model GSB5-G3 NR3 engine to drive a 80 kW Cummins model DSFAE generator set. The engine is EPA certified to 2015 standards for stationary emergency diesel engines.

SWCAA has completed a review of your notification and the associated support information and has determined that the notification meets the requirements of SWCAA 400-072(2). Once installed, affected equipment must maintain compliance with the requirements of SWCAA 400-072(4)(c) **"Emergency service internal combustion engines"**. A copy of the relevant SWCAA 400-072 section is attached for your information.

Be advised that emission units installed pursuant to SWCAA 400-072 are subject to source registration and periodic inspection. Registration fees for this equipment will be invoiced consistent with SWCAA 400-100.

If you need further assistance or have any questions regarding these matters, please contact me at (360) 574-3058 extension 130.

Sincerely,

Paul T. Mairose
Chief Engineer



SWCAA 400-072 Emission Standards for Selected Small Source Categories

[Statutory Authority: Chapter 70.94.141 RCW. Original adoption 09-21-056 filed 10/15/09, effective 11/15/09, 16-19-009 filed 9/8/16, effective 10/9/16]

(4) Source categories.

(c) Emergency service internal combustion engines.

(i) **Applicability.** The provisions of this section apply to emergency service internal combustion engines with a rating of 50 or more, but less than 1,000 horsepower (e.g., emergency generators, fire pumps, sewer lift stations, etc.).

(ii) Emission limits and standards.

(A) Visible emissions from diesel fired engine exhaust stacks shall not exceed ten percent opacity for more than 3 minutes in any one hour period as determined in accordance with SWCAA Method 9 (See SWCAA 400, Appendix A). This limitation shall not apply during periods of cold start-up.

(iii) General requirements.

(A) Liquid fueled engines shall only be fired on #2 diesel or biodiesel. Fuel sulfur content of liquid fuels shall not exceed 0.0015% by weight (15 ppmw). A fuel certification from the fuel supplier may be used to demonstrate compliance with this requirement.

(B) Gaseous fueled engines shall only be fired on natural gas or propane.

(C) Each compression ignition engine shall be EPA Tier certified and manufactured no earlier than January 1, 2008.

(D) Engine operation shall be limited to maintenance checks, readiness testing, and actual emergency use.

(E) Engine operation for maintenance checks and readiness testing shall not exceed 100 hours per year. Actual emergency use is unrestricted.

(F) Each engine shall be equipped with a nonresettable hourmeter for the purpose of documenting hours of operation.

(G) Engine exhaust shall be discharged vertically. Any device that obstructs or prevents vertical discharge is prohibited.

(iv) **Monitoring and recordkeeping requirements.** The information listed below shall be recorded at the specified intervals, and maintained in a readily accessible form for a minimum of 3 years. With the exception of data logged by a computerized data acquisition system, each required record shall include the date and the name of the person making the record entry.

(A) Total hours of operation for each engine shall be recorded annually;

(B) Hours of emergency use for each engine shall be recorded annually;

(C) Fuel sulfur certifications shall be recorded for each shipment of liquid fuel;

(D) Maintenance activities shall be recorded for each occurrence consistent with the provisions of 40 CFR 60.4214;

(E) Upset conditions that cause excess emissions shall be recorded for each occurrence; and

(F) All air quality related complaints received by the permittee and the results of any subsequent investigation or corrective action shall be recorded promptly after each occurrence.

(v) **Testing requirements.** None.

- (vi) **Reporting requirements.**
- (A) The owner or operator of an affected emission unit shall provide written notification of initial operation to SWCAA within 10 days of occurrence.
 - (B) All air quality related complaints received by the owner or operator shall be reported to SWCAA within three calendar days of receipt.
 - (C) The owner or operator of an affected emergency engine shall report the following information to the Agency no later than March 15th for the preceding calendar year:
 - (I) Hours of engine operation; and
 - (II) Air emissions of criteria air pollutants, VOCs, and toxic air pollutants (TAPs).

Summary Information (by SWCAA) for SUN-125
City of Centralia - Wastewater
Borst Park Pump Station Emergency Generator Engine

An 80 kW diesel-fired emergency generator set was installed at the Borst Park Pump Station in 2015 to provide emergency electrical power to the pump station. This emergency generator engine replaced the 80 kW Kohler model 80R0ZJ01 generator previously installed at this pump station. The following equipment details were available:

Location:	Borst Park Pump Station in covered area 700-A Johnson Road, Centralia, WA
Engine Make / Model:	Cummins / GSB5-G3 NR3
Engine Serial Number:	73811481
Fuel:	Diesel
Fuel Consumption:	6.9 gallons per hour at full standby load
Horsepower Rating:	130 bhp at full standby load for this genset
Installation Date:	March 2015
Engine Built (Date):	February 27, 2015
Engine Certification:	EPA Tier 3 for stationary emergency
Generator Set Make / Model:	Cummins / 80DSFAE
Generator Set Output:	80 kW
Stack Description:	Exhausted approximately 10' above grade below the generator enclosure cover. 736 acfm @ 844°F.
Applicable Federal Regulations:	40 CFR 60 Subpart IIII 40 CFR 63 Subpart ZZZZ

Borst Park Pump Station Emergency Generator Engine. Potential annual emissions from the combustion of propane were calculated with the assumption that the equipment will operate at full load for up to 200 hours per year.

Borst Park Pump Station Emergency Generator Engine						
Hours of Operation =	200	hours				
Power Output =	130	horsepower				
Diesel Density =	7.206	pounds per gallon				
Fuel Sulfur Content =	0.0015	% by weight				
Fuel Consumption Rate =	6.9	gal/hr				
Fuel Heat Content =	0.138	MMBtu/gal (for use with GHG factors from 40 CFR 98)				
	Emission					
	Factor	Emissions	Emissions	Emission Factor		
Pollutant	g/hp-hr	lb/hr	tpy	Source		
NO _x	2.84	0.81	0.081	Cummins Emission Data Sheet		
CO	0.37	0.11	0.011	Cummins Emission Data Sheet		
VOC	0.02	0.006	0.001	Cummins Emission Data Sheet		
SO _x as SO ₂		0.0015	0.0001	Mass Balance		
PM	0.04	0.01	0.001	Cummins Emission Data Sheet		
PM ₁₀	0.04	0.01	0.001	Cummins Emission Data Sheet		
PM _{2.5}	0.04	0.01	0.001	Cummins Emission Data Sheet		
			CO ₂ e	CO ₂ e		Emission Factor
Greenhouse Gases	kg/MMBtu	GWP	lb/MMBtu	lb/gallon	tpy, CO ₂ e	Source
CO ₂	73.96	1	163.05	23	16	40 CFR 98
CH ₄	0.003	25	0.165	0.023	0.02	40 CFR 98
N ₂ O	0.0006	298	0.394	0.054	0.04	40 CFR 98
Total GHG - CO ₂ e	73.9636		163.613	23	16	



**Power
Generation**

Exhaust Emission Data Sheet

80DSFAE

60 Hz Diesel Generator Set

EPA Emission: Tier 3

Engine Information:

Model:	Cummins Inc. QSB5-G3 NR3	Bore:	4.21 in. (107 mm)
Type:	4 Cycle, In-line, 4 Cylinder Diesel	Stroke:	4.88 in. (124 mm)
Aspiration:	Turbocharged and CAC	Displacement:	275 cu. in. (4.5 liters)
Compression Ratio:	17.2:1		
Emission Control Device:	Turbocharged with Charge Air Cooled		

	1/4	1/2	3/4	Full	Full
PERFORMANCE DATA	Standby	Standby	Standby	Standby	Prime
BHP @ 1800 RPM (60 Hz)	33	65	98	130	117
Fuel Consumption (gal/Hr)	2.1	3.8	5.5	6.9	6.3
Exhaust Gas Flow (CFM)	342	511	659	736	698
Exhaust Gas Temperature (°F)	552	678	774	844	803
EXHAUST EMISSION DATA					
HC (Total Unburned Hydrocarbons)	0.15	0.08	0.04	0.02	0.03
NOx (Oxides of Nitrogen as NO ₂)	2.41	2.13	2.27	2.84	2.70
CO (carbon Monoxide)	1.69	0.82	0.53	0.37	0.39
PM (Particular Matter)	0.22	0.08	0.06	0.04	0.05
SO ₂ (Sulfur Dioxide)	0.17	0.15	0.14	0.13	0.13
Smoke (Bosch)	0.78	0.41	0.38	0.35	0.36

All values are Grams per HP-Hour

TEST CONDITIONS

Data is representative of steady-state engine speed (± 25 RPM) at designated genset loads. Pressures, temperatures, and emission rates were stabilized.

Fuel Specification:	ASTM D975 No. 2-D diesel fuel with 0.03-0.05% sulfur content (by weight), and 40-48 cetane number.
Fuel Temperature:	99 \pm 9 °F (at fuel pump inlet)
Intake Air Temperature:	77 \pm 9 °F
Barometric Pressure:	29.6 \pm 1 in. Hg
Humidity:	NOx measurement corrected to 75 grains H ₂ O/lb dry air
Reference Standard:	ISO 8178

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