



Southwest Clean Air Agency

11815 NE 99th Street, Suite 1294 • Vancouver, WA 98682-2322

(360) 574-3058 • Fax: (360) 576-0925

www.swcleanair.org

April 15, 2015

Mr. Bart Stepp
City of Woodland
PO Box 9
Woodland, WA 98674

Subject: Notification of Emergency Generator Engine Installation – Bryant Pump House
(SUN-083)

Dear Mr. Stepp:

The Southwest Clean Air Agency (SWCAA) received your Small Unit Notification (SUN) on March 19, 2015 for installation and operation of an emergency generator engine at the Bryant Pump House at 1380 River Road in Woodland, WA. For administrative and tracking purposes SWCAA has assigned tracking number SUN-083 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) 364 bhp diesel-fired Cummins model QSL9-G2 NR3 engine to drive a 230 kW Kohler model 230DSHAD generator set. The engine is EPA Tier 3 certified.

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.]

(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 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. Total engine operation shall not exceed 200 hours per year.
 - (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) Fuel sulfur certifications shall be recorded for each shipment of liquid fuel;
 - (C) Maintenance activities shall be recorded for each occurrence consistent with the provisions of 40 CFR 60.4214;
 - (D) Upset conditions that cause excess emissions shall be recorded for each occurrence; and
 - (E) All air quality related complaints received by the permittee and the results of any subsequent investigation or corrective action shall be recorded for each occurrence.
- (v) **Testing requirements.** None.

- (vi) **Reporting requirements.**
- (A) All air quality related complaints received by the owner or operator shall be reported to SWCAA within three calendar days of receipt.
 - (B) 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-083
City of Woodland Public Works
Bryant Pump House Emergency Generator Engine**

A 230 kW diesel-fired emergency generator set is installed at the Bryant Pump House. The following equipment details were available:

Location:	Bryant Pump House 1380 Lewis River Road, Woodland, WA 98674 ~ 45°54'36.29"N, 122°44'24.79"W
Engine Make / Model:	Cummins / QSL9-G2, NR3
Engine Serial Number:	L140773867
Fuel:	Diesel
Fuel Consumption:	18.3 gallons per hour at full standby load
Horsepower Rating:	354 horsepower at full standby (364 hp nameplate)
Installation Date:	Completed February 2015
Engine Built (Date):	November 2014
Engine Certification:	EPA Tier 3 for stationary emergency
Generator Set Make / Model:	Cummins / 230DSHAD
Generator Set Output:	230 kW
Stack Description:	~5" inside diameter. ~7' above grade 1,178 acfm at 1,113°F
Applicable Federal Regulations:	40 CFR 60 Subpart IIII 40 CFR 63 Subpart ZZZZ



Bryant Pump House Emergency Generator – March 6, 2015

Bryant Pump House Emergency Generator Engine. Potential annual emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) were calculated with the assumption that the equipment will operate at full load for up to 200 hours per year.

Bryant Pump House Emergency Generator Engine						
Hours of Operation =		200 hours				
Power Output =		354 horsepower				
Diesel Density =		7.206 pounds per gallon				
Fuel Sulfur Content =		0.0015 % by weight				
Fuel Consumption Rate =		8.2 gal/hr				
Fuel Heat Content =		0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)				
Pollutant	Emission Factor g/(hp-hr)	Emissions lb/hr	Emissions tpy	Emission Factor Source		
NO _x	3.7	2.89	0.29	Cummins at full standby		
CO	0.30	0.23	0.023	Cummins at full standby		
VOC	0.07	0.05	0.005	Cummins at full standby		
SO _x as SO ₂		0.0018	0.0002	Mass Balance		
PM	0.06	0.05	0.0047	Cummins at full standby		
PM ₁₀	0.06	0.05	0.0047	Cummins at full standby		
PM _{2.5}	0.06	0.05	0.0047	Cummins at full standby		
Greenhouse Gases	kg/MMBtu	GWP	CO ₂ e lb/MMBtu	CO ₂ e lb/gallon	tpy, CO ₂ e	Emission Factor Source
CO ₂	73.96	1	163.05	23	18	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	74.0		163.6	23	19	