



February 22, 2019

Kevin Drake
Washington State Patrol
8623 Armstrong Road SW
Olympia, WA 98504-2626

Subject: Notification of Emergency Generator Installation – Ridgefield Weigh Station
(SUN – 199)

Dear Mr. Drake:

The Southwest Clean Air Agency (SWCAA) received your Small Unit Notification (SUN) on February 21, 2019 for installation and operation of an emergency generator engine at the Ridgefield Weigh Station. For administrative and tracking purposes SWCAA has assigned tracking number SUN-199 to this notification. This notification was filed in accordance with SWCAA 400-072 and applies to the installation of one emergency generator engine. The new unit was identified as:

- (1) 342 brake horsepower diesel-fired Cummins model QSB7-G5 engine to drive a 175 kW Cummins generator set. The engine is EPA Tier 3 certified for stationary emergency use.

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(5)(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; 17-11-078 filed 5/18/17, effective 6/18/17]

(5) 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-199
Washington State Patrol
Ridgefield Weigh Station Emergency Generator Engine

A 175 kW diesel-fired emergency generator set will be installed at the Ridgefield Weigh Station. The following equipment details were available:

Location:	Ridgefield Weigh Station 29317 Interstate 5, Ridgefield, WA 98642 Generator to be located SE of new scalehouse
Engine Make / Model:	Cummins / QSB7-G5 NR3
Engine Serial Number:	To be determined
Fuel:	Diesel
Fuel Consumption:	12.8 gallons per hour at full standby load (Cummins exhaust emissions data sheet)
Horsepower Rating:	324 bhp (nameplate - standby – engine only), 266 bhp (standby when used with this generator set)
Installation Date:	~ May 2019
Engine Built (Date):	To be determined
Engine Certification:	EPA Tier 3 for stationary emergency engines
Generator Set Make / Model:	Cummins / 175 DSGAD
Generator Set Output:	175 kW
Stack Description:	4" diameter. Exhaust height not provided, however estimated between 99" and 114". Cummins specification sheets indicate a height of 99" with use of a 376 gallon fuel tank, and a maximum height of 114" for all configurations. Submittal documents indicate a 672 gallon fuel tank will be used. Stack flow 1,320 acfm at 897°F
Applicable Federal Regulations:	40 CFR 60 Subpart IIII 40 CFR 63 Subpart ZZZZ

Washington State Patrol Ridgefield 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.

Washington State Patrol - Ridgefield - Emergency Generator Engine						
Hours of Operation =	200 hours					
Power Output =	266.0 horsepower					
Diesel Density =	7.206 pounds per gallon					
Fuel Sulfur Content =	0.0015 % by weight					
Fuel Consumption Rate =	12.80 gal/hr					
Fuel Heat Content =	0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)					
	Emission					
	Factor		Emissions		Emissions	
Pollutant	g/(hp-hr)	lb/hr	tpy	Emission Factor Source		
NO _x	3.69	2.16	0.216	Cummins Emission Data Sheet		
CO	0.25	0.15	0.015	Cummins Emission Data Sheet		
VOC	0.03	0.018	0.0018	Cummins Emission Data Sheet		
SO _x as SO ₂		0.0028	0.00028	Mass Balance		
PM	0.03	0.018	0.0018	Cummins Emission Data Sheet		
PM ₁₀	0.03	0.018	0.0018	Cummins Emission Data Sheet		
PM _{2.5}	0.03	0.018	0.0018	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	29	40 CFR 98
CH ₄	0.003	25	0.165	0.023	0.03	40 CFR 98
N ₂ O	0.0006	298	0.394	0.054	0.07	40 CFR 98
Total GHG - CO ₂ e	74.0		163.6	23	29	