



December 20, 2017
Steve Marshall
Camas School District No. 117
841 NE 22nd Ave.
Camas, WA 98607

Subject: Notification of Emergency Generator Installation at Discovery High School
(SUN – 152)

Dear Mr. Marshall:

The Southwest Clean Air Agency (SWCAA) received your Small Unit Notification (SUN) on October 25, 2017 for installation and operation of an emergency generator engine at the new Discovery High School. For administrative and tracking purposes SWCAA has assigned tracking number SUN-152 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) 133 bhp diesel-fired John Deere model 4045HF285H engine to drive an 80 kW Kohler generator set. The engine is EPA Tier 3 certified and meets the standards for stationary emergency 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(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

cc: Chuck Stiller
Camas School District No. 117
841 NE 22nd Ave.
Camas, WA 98607



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-150, SUN-151, SUN-152

Camas School District – Discovery High School

This will be a new 91,000 square foot project based learning high school. The school is scheduled to open in the fall of 2018. The primary emission units will be two boilers used solely for hydronic heating and one emergency generator. In addition, domestic hot water heaters will be installed to provide potable hot water.

New Emergency Generator Information – SUN-152

Location:	Discovery High School 5780 NW Pacific Rim Blvd., Camas, WA 98607 ¹ In Outdoor Receiving, Trash/Recycling Yard
Generator Set Make / Model:	Kohler / 80REOZJF
Engine Make / Model:	John Deere / 4045HF285H
Engine Serial Number:	to be determined
Fuel:	Diesel
Fuel Consumption:	6.9 gallons per hour at full standby load (Emissions Data Sheet – Full Standby Load)
Horsepower Rating:	133 bhp (99 bkw) (Generator Set Data Sheet)
Installation Date:	scheduled for 2018
Engine Built (Date):	to be determined
Engine Certification:	EPA Tier 3 for stationary emergency engines
Generator Set Output:	80 kW
Stack Description:	~4" diameter stack, exhausting vertically ~5' above grade at 679 acfm, 1,074°F
Applicable Federal Regulations:	40 CFR 60 Subpart IIII 40 CFR 63 Subpart ZZZZ

¹ Note this address is temporary. A new address will be assigned after construction is complete.

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.

Discovery High School Emergency Generator Engine						
Hours of Operation =	200 hours					
Power Output =	99 kW (133 bhp)					
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			
Pollutant	g/(kWh)	lb/hr	tpy	Emission Factor Source		
NO _x	3.40	0.74	0.07	Kohler Data Sheet (Full Standby)		
CO	1.30	0.28	0.028	Kohler Data Sheet (Full Standby)		
VOC	0.15	0.033	0.0033	Kohler Data Sheet (Full Standby)		
SO _x as SO ₂		0.0015	0.00015	Mass Balance		
PM	0.17	0.04	0.0037	Kohler Data Sheet (Full Standby)		
PM ₁₀	0.17	0.04	0.0037	Kohler Data Sheet (Full Standby)		
PM _{2.5}	0.17	0.04	0.0037	Kohler Data Sheet (Full Standby)		
			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	74.0		163.6	23	16	