SWCAA
Southwest Clean Air Agency

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Vancouver, WA 98682
(360) 574-3058
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June 9, 2021

Ryan Hibbs
BNSF Railway Company
605 Puyallup Ave.
Tacoma, WA 98421

Subject: Notification of Emergency Generator Installation – Lift Station Emergency Generator Engine (SUN – 262)

Dear Mr. Hibbs:

The Southwest Clean Air Agency (SWCAA) received your Small Unit Notification (SUN) on June 2, 2021 for installation and operation of an emergency generator engine at BNSF's Vancouver Lift Station. For administrative and tracking purposes SWCAA has assigned tracking number SUN-262 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:

> 173 bhp (nameplate) diesel-fired Cummins model QSB5-G13 engine to drive an 80 kW Cummins 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

## 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; 20-06-003 filed 2/19/20, effective 3/21/20]

(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-262**
**BNSF Railway Company**
**Lift Station Emergency Generator Engine**

An 80 kW diesel-fired emergency generator set will be installed at the BNSF Lift Station in Vancouver, WA. The following equipment details were available:

| | |
|---|---|
| Location: | 1310 West 11th Street<br>Vancouver, WA 98660 |
| Engine Make / Model: | Cummins / QSB5-G13 |
| EPA Engine Family: | MCEXL0275AAK-045 |
| Engine Serial Number: | To be determined |
| Fuel: | Diesel |
| Fuel Consumption: | 7.3 gallons per hour at full standby load |
| Engine Power Rating: | 173 hp (nameplate), 140 bhp during full standby testing with this genset |
| Installation Date: | Estimated completion in August 2021 |
| Engine Built (Date): | Not provided |
| Engine Certification: | EPA Tier 3 |
| Generator Set Make / Model: | Cummins / C80D6C |
| Generator Set Output: | 80 kW |
| Stack Description: | 764 acfm at 769°F, exhausting approximately 81″ above grade through a 4″ diameter stack.<br>~ 45°38′39.43″N, 122°41′9.70″. |
| Applicable Federal Regulations: | 40 CFR 60 Subpart IIII<br>40 CFR 63 Subpart ZZZZ |


**Google Earth Image – August 13, 2020**

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.

**Emergency Generator Engine - Lift Station - Cummins QSB5-G13**

| | | |
|---|---|---|
| Hours of Operation = | 200 | hours |
| Power Output = | 140 | bhp |
| Diesel Density = | 7.206 | pounds per gallon |
| Fuel Sulfur Content = | 0.0015 | % by weight |
| Fuel Consumption Rate = | 7.30 | gal/hr |
| Fuel Heat Content = | 0.138 | MMBtu/gal (for use with GHG factors from 40 CFR 98) |

| Pollutant | Emission Factor g/(bhp-hr) | Emissions lb/hr | Emissions tpy | Emission Factor Source |
|---|---|---|---|---|
| $NO_X$ | 3.18 | 0.98 | 0.098 | Cummins Emission Data Sheet - Standby |
| CO | 0.30 | 0.093 | 0.0093 | Cummins Emission Data Sheet - Standby |
| VOC | 0.02 | 0.0062 | 0.00062 | Cummins Emission Data Sheet - Standby |
| $SO_X$ as $SO_2$ | | 0.0016 | 0.00016 | Mass Balance |
| PM | 0.04 | 0.012 | 0.0012 | Cummins Emission Data Sheet - Standby |
| $PM_{10}$ | 0.04 | 0.012 | 0.0012 | Cummins Emission Data Sheet - Standby |
| $PM_{2.5}$ | 0.04 | 0.012 | 0.0012 | Cummins Emission Data Sheet - Standby |

| Greenhouse Gases | kg/MMBtu | GWP | $CO_2e$ lb/MMBtu | $CO_2e$ lb/gallon | tpy, $CO_2e$ | Emission Factor Source |
|---|---|---|---|---|---|---|
| $CO_2$ | 73.96 | 1 | 163.054 | 22.501 | 16.426 | 40 CFR 98 |
| $CH_4$ | 0.003 | 25 | 0.165 | 0.023 | 0.017 | 40 CFR 98 |
| $N_2O$ | 0.0006 | 298 | 0.394 | 0.054 | 0.040 | 40 CFR 98 |
| Total GHG - $CO_2e$ | | | 163.613 | 22.579 | 16.482 | |