Clark
Cowlitz
Lewis
Skamania
Wahkiakum

Southwest Clean Air Agency
11815 NE 99th Street, Suite 1294 • Vancouver, WA 98682-2322
(360) 574-3058 • Fax: (360) 576-0925
www.swcleanair.org

January 8, 2013

Ms. Mary Mattix
Port of Vancouver
3103 NW Lower River Road
Vancouver, WA 98660

Subject: Notification of Emergency Generator Engine Installation

Dear Ms. Mattix:

The Southwest Clean Air Agency (SWCAA) received your Small Unit Notification (SUN) on January 4, 2013 for installation and operation of an emergency generator engine at 3103 NW Lower River Road, Vancouver, WA. For administrative and tracking purposes SWCAA has assigned tracking number SUN-033 to this notification. This notification was filed in accordance with SWCAA 400-072 and applies to the installation of one emergency generator engine. The emergency generator engine was identified as:

(1) 119.8 bhp (standby) propane-fired Ford model WSG-1068 engine to drive a 75 kW (standby) generator set. The engine meets the emissions requirements of 40 CFR 60 Subpart JJJJ. The generator set is a Cummins model GGHF.

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

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-033
Port of Vancouver – Administration Offices Emergency Generator Engine

Emergency Generator Engine Information. The Emergency Generator Engine will drive a 75 kW electrical generator that is used to provide emergency power to the administrative building offices. The following equipment details were available:

Engine Make / Model:	Ford / WSG-1068
Engine Serial Number:	to be determined
Fuel:	Propane
Engine Type:	Rich burn engine utilizing air-fuel ratio controller
Fuel Consumption:	415 scf per hour at full standby load
Horsepower Rating:	119.**8** bhp at full standby load
Installed:	Scheduled for 2013
Engine Built:	to be determined
Generator Set Make / Model:	Cummins / GGHF
Generator Set Output:	75 kW (when the engine is fueled on propane)
Stack Description:	~3" inside diameter, exhausted vertically, 76.9" above grade at 535 acfm, 1,238°F
Location:	Immediately north of the Port of Vancouver administrative building, 45°38'36.55"N, 122°42'15.67"W

Table 1 of 40 CFR 60 Subpart JJJJ permit limit comparison for emergency engines between 25 and 130 horsepower.

Pollutant	**Limit (g/hp-hr)**	**Measured (g/hp-hr)**
NO_X	10	5.7
CO	387	62.9
VOC	N/A	1.0

For this engine 40 CFR 60 Subpart JJJJ requires:

1. If you are an owner or operator of an emergency stationary SI internal combustion engine that is less than 130 HP, was built on or after July 1, 2008, and does not meet the standards applicable to non-emergency engines, you must install a non-resettable hour meter upon startup of your emergency engine. [40 CFR 60.4237(c)] This regulation applies to this engine because CO emissions exceed that allowed for non-emergency engines.
2. Emergency stationary ICE may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. There is no time limit on the use of emergency stationary ICE in emergency situations. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency

ICE beyond 100 hours per year. Emergency stationary ICE may operate up to 50 hours per year in non-emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing. The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity. For owners and operators of emergency engines, any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as permitted in this section, is prohibited. [40 CFR 60.4243(d)]

3. For all stationary SI emergency ICE greater than 25 HP and less than 130 HP manufactured on or after July 1, 2008, that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The owner or operator must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation. [40 CFR 60.4245(b)]

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

Administration Building Emergency Generator Engine

Hours of Operation =	200	hours
Power Output =	119.8	horsepower
Propane Weight =	4.24	lbs/gallon
Fuel Sulfur Content =	185	ppmw
Fuel Consumption Rate =	11.40	gallons per hour (415 scfh from Cummins)
Propane Heat Content =	0.091	MMBtu/gal (40 CFR 98)

Pollutant	Emission Factor lb/hp-hr	Emissions lb/hr	Emissions tpy	Emission Factor Source
NO_X	0.0125664	1.51	0.15	Cummins
CO	0.1386715	16.61	1.66	Cummins
VOC	0.0022046	0.26	0.03	Cummins
SO_X as SO_2	0.0001724	0.02	0.0021	Mass Balance
PM	0.0001694	0.02	2.0E-03	AP-42 Sec 3.2 (7/00) for natural gas (4SRB)
PM_{10}	0.0001694	0.02	2.0E-03	AP-42 Sec 3.2 (7/00) for natural gas (4SRB)
$PM_{2.5}$	0.0001694	0.02	2.0E-03	AP-42 Sec 3.2 (7/00) for natural gas (4SRB)
1,1,2,2-Tetrachloroeth	2.209E-07	0.00	5.6E-08	AP-42 Sec 3.2 (7/00) for natural gas (4SRB)
Acetaldehyde	2.436E-05	2.9E-03	2.9E-04	AP-42 Sec 3.2 (7/00) for natural gas (4SRB)
Acrolein	2.296E-05	2.8E-03	2.8E-04	AP-42 Sec 3.2 (7/00) for natural gas (4SRB)
Benzene	1.379E-05	1.7E-03	1.7E-04	AP-42 Sec 3.2 (7/00) for natural gas (4SRB)
Formaldehyde	0.000179	2.1E-02	2.1E-03	AP-42 Sec 3.2 (7/00) for natural gas (4SRB)
Methylene Chloride	3.597E-07	4.3E-05	4.3E-06	AP-42 Sec 3.2 (7/00) for natural gas (4SRB)
Toluene	4.871E-06	5.8E-04	5.8E-05	AP-42 Sec 3.2 (7/00) for natural gas (4SRB)
Xylene	1.702E-06	2.0E-04	2.0E-05	AP-42 Sec 3.2 (7/00) for natural gas (4SRB)

Greenhouse Gases	kg/MMBtu	GWP	CO_2e lb/MMBtu	CO_2e lb/ 10^3 gallon	tpy, CO_2e	
CO_2	61.46	1	135.50	12,330	14	40 CFR 98
CH_4	0.001	21	0.046	4	0.00	40 CFR 98
N_2O	0.0001	310	0.068	6	0.01	40 CFR 98
Total GHG - CO_2e	61.4611		135.611	12,341	14	