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

June 22, 2016

Mr. Mike Stevens
City of Camas
616 NE 4th Ave.
Camas, WA 98607

Subject: Notification of Emergency Generator Engine Installation
Slow Sand Plant (SUN-117)

Dear Mr. Stevens:

The Southwest Clean Air Agency (SWCAA) received your Small Unit Notification (SUN) on April 28, 2016 for installation and operation of an emergency generator engine at the Slow Sand Plant in Camas, WA. For administrative and tracking purposes SWCAA has assigned tracking number SUN-117 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) 70 bhp propane-fired Cummins model QSJ2.4 engine to drive a 36 kW Cummins model C36 N6 generator set. The engine is EPA certified to the standards for stationary spark ignition 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(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-117
City of Camas Public Works
Slow Sand Water Treatment Plant Emergency Generator Engine

A 36 kW diesel-fired emergency generator set was installed at the Slow Sand Water Treatment Facility. The following equipment details were available:

Location:	Slow Sand Water Treatment Plant (SSWT) Outside of building at 32723 NE Lessard Road, Camas, WA
Engine Make / Model:	Cummins / QSJ2.4
Engine Serial Number:	I150868488
Fuel:	Propane
Fuel Consumption:	182.7 scf per hour at full standby load
Horsepower Rating:	70 bhp
Installation Date:	2016
Engine Built (Date):	September 8, 2015
Engine Certification:	EPA Spark Ignition (meets standards for stationary emergency)
Generator Set Make / Model:	Cummins / C36 N6
Generator Set Output:	36 kW
Stack Description:	Exhausts vertically through grate on top of the generator set enclosure, 48" above grade. 225.9 acfm @ 1,475°F
Applicable Federal Regulations:	40 CFR 60 Subpart JJJJ 40 CFR 63 Subpart ZZZZ

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

SSWT Plant Emergency Generator Engine

Hours of Operation =	200	hours
Power Output =	70	bhp
Fuel Consumption Rate =	5.02	gallons per hour (204.2 scfh)
Propane Heat Content =	91,500	Btu/gal for AP-42 emission factors
Propane Heat Content =	92,000	Btu/gal for 40 CFR 98 GHG emission factors
Propane Sulfur Content =	185	ppmw
Propane Density =	4.24	lbs/gallon
Fuel Consumption =	1,004	gallons per year

Pollutant	Emission Factor g/hp-hr	Emission Factor lb/MMBtu	Emissions lb/1,000 ga	lb/hr	tpy	Emission Factor Source
NO_X	4.04	1.36	124	0.62	0.06	Cummins
CO	42.43	14.26	1,305	6.55	0.65	Cummins
VOC	0.52	0.17	16	0.08	0.01	Cummins
SO_X as SO_2		0.01715	1.57	0.01	0.0008	AP-42 Sec 3.2 (7/00)
PM		0.0095	0.86925	4.4E-03	0.0004	AP-42 Sec 3.2 (7/00)
PM_{10}		0.0095	0.86925	4.4E-03	0.0004	AP-42 Sec 3.2 (7/00)
$PM_{2.5}$		0.0095	0.86925	4.4E-03	0.0004	AP-42 Sec 3.2 (7/00)
1,1,2,2-Tetrachloroethane		0.0000253	2.3E-03	1.2E-05	1.2E-06	AP-42 Sec 3.2 (7/00)
Acetaldehyde		0.00279	2.6E-01	1.3E-03	1.3E-04	AP-42 Sec 3.2 (7/00)
Acrolein		0.00263	2.4E-01	1.2E-03	1.2E-04	AP-42 Sec 3.2 (7/00)
Benzene		0.00158	1.4E-01	7.3E-04	7.3E-05	AP-42 Sec 3.2 (7/00)
Formaldehyde		0.0205000	1.9E+00	9.4E-03	9.4E-04	AP-42 Sec 3.2 (7/00)
Methylene Chloride		0.0000412	3.8E-03	1.9E-05	1.9E-06	AP-42 Sec 3.2 (7/00)
Toluene		0.000558	5.1E-02	2.6E-04	2.6E-05	AP-42 Sec 3.2 (7/00)
Xylene		0.000195	1.8E-02	9.0E-05	9.0E-06	AP-42 Sec 3.2 (7/00)

Greenhouse Gases	kg/MMBtu	GWP	CO_2e lb/MMBtu	CO_2e lb/gallon	tpy, CO_2e	Emission Factor Source
CO_2	61.71	1	136.05	13	6.3	40 CFR 98
CH_4	0.003	25	0.165	0.015	0.008	40 CFR 98
N_2O	0.0006	298	0.394	0.036	0.018	40 CFR 98
Total GHG - CO_2e			136.607	13	6.3	