SWCAA
Southwest Clean Air Agency

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Vancouver, WA 98682
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November 15, 2016

Mr. Jeromy Adams
Tacoma Power
3628 35th Street
Tacoma, WA 98409

Subject: Notification of Emergency Generator Engine Installation Cowlitz Falls Dam (SUN-126)

Dear Mr. Adams:

The Southwest Clean Air Agency (SWCAA) received your Small Unit Notification (SUN) on October 19, 2016 for installation and operation of an emergency generator engine at the Cowlitz Falls Dam at 1379 B Falls Road, Randle, WA. For administrative and tracking purposes SWCAA has assigned tracking number SUN-126 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) 779 bhp diesel-fired Caterpillar model C15 ATAAC engine to drive a 500 kW Caterpillar generator set. The engine will be EPA certified to Tier 2 standards for stationary emergency diesel 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

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]

(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 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-126
Tacoma Power – Cowlitz River Project
Cowlitz Falls Dam - Emergency Generator Engine

A 500 kW diesel-fired emergency generator set will be installed at the Cowlitz Fall Dam by January 2017 to provide emergency electrical power support new fish passage equipment. The following equipment details were provided:

Location:	Cowlitz Falls Dam 1379 B Falls Road, Randle, WA 98377
Engine Make / Model:	Caterpillar / C15 ATAAC
Engine Serial Number:	To be determined
Fuel:	Diesel
Fuel Consumption:	36.6 gallons per hour at full standby load
Horsepower Rating:	779 bhp at full standby load for this genset
Installation Date:	Estimated completion January 2017
Engine Built (Date):	To be determined
Engine Certification:	EPA Tier 2 for stationary emergency
Generator Set Make / Model:	Caterpillar / 500 kW
Generator Set Output:	500 kW (standby)
Stack Description:	Exhausted approximately 12' above grade through 8" diameter vertical stack on the west side of the Elecrical Controls building. 3,842 acfm @ 942°F.
Applicable Federal Regulations:	40 CFR 60 Subpart IIII 40 CFR 63 Subpart ZZZZ

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

Cowlitz Falls Dam Emergency Generator Engine

Hours of Operation =	200	hours
Power Output =	779	horsepower
Diesel Density =	7.206	pounds per gallon
Fuel Sulfur Content =	0.0015	% by weight
Fuel Consumption Rate =	36.6	gal/hr
Fuel Heat Content =	0.138	MMBtu/gal (for use with GHG factors from 40 CFR 98)

Pollutant	Emission Factor g/hp-hr	Emissions lb/hr	Emissions tpy	Emission Factor Source
NO_X	5.74	9.86	0.99	Caterpillar Data Sheet
CO	0.40	0.69	0.069	Caterpillar Data Sheet
VOC	0.01	0.017	0.002	Caterpillar Data Sheet
SO_X as SO_2		0.0079	0.0008	Mass Balance
PM	0.018	0.03	0.003	Caterpillar Data Sheet
PM_{10}	0.018	0.03	0.003	Caterpillar Data Sheet
$PM_{2.5}$	0.018	0.03	0.003	Caterpillar Data Sheet

Greenhouse Gases	kg/MMBtu	GWP	CO_2e lb/MMBtu	CO_2e lb/gallon	tpy, CO_2e	Emission Factor Source
CO_2	73.96	1	163.05	23	82	40 CFR 98
CH_4	0.003	25	0.165	0.023	0.08	40 CFR 98
N_2O	0.0006	298	0.394	0.054	0.20	40 CFR 98
Total GHG - CO_2e	73.9636		163.613	23	83	