



Southwest Clean Air Agency

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October 8, 2015

Christopher Wrobel
Environmental, Health, Safety & Security Manager
Emerald Kalama Chemical, LLC
1296 Third Street NW
Kalama, WA 98625

Subject: Notification of Emergency Generator Engine Installation – Manufacturing (SUN-106)

Dear Mr. Wrobel:

The Southwest Clean Air Agency (SWCAA) received your Small Unit Notification (SUN) on September 25, 2015 for installation and operation of an emergency generator engine at the Emerald Kalama Chemical Facility at 1296 Third Street NW, Kalama, WA. For administrative and tracking purposes SWCAA has assigned tracking number SUN-106 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) 762 bhp diesel-fired Caterpillar model C15 ATAAC diesel engine to drive a 500 kW Caterpillar generator set. The engine is EPA Tier 2 certified for stationary emergency use.

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, fees, and periodic inspection. Fees for this equipment will be invoiced consistent with SWCAA 400-100 or SWCAA 400-103, as appropriate.

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-106
Emerald Kalama Chemical
Manufacturing Emergency Generator Engine**

A 500 kW diesel-fired emergency generator set will be installed to provide backup electricity to the manufacturing processes. The following equipment details were available:

Location:	Emerald Kalama Chemical ~ 46° 1'17.30"N, 122°51'28.82"W
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:	762 bhp at full standby load
Installation Date:	Scheduled for December 2015
Engine Built (Date):	To be determined
Engine Certification:	EPA Tier 2 for stationary emergency
Generator Set Make / Model:	Caterpillar / (Performance Number DM8155)
Generator Set Output:	500 kW
Stack Description:	6" diameter stack, 3,842.2 acfm at 942.1°F
Applicable Federal Regulations:	40 CFR 60 Subpart IIII 40 CFR 63 Subpart ZZZZ

Manufacturing 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.

Manufacturing Emergency Generator Engine						
Hours of Operation =	200 hours					
Power Output =	762 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	9.64	0.964	Caterpillar Data Sheet		
CO	0.4	0.67	0.0672	Caterpillar Data Sheet		
VOC	0.01	0.02	0.0017	Caterpillar Data Sheet		
SO _x as SO ₂		0.0079	0.0008	Mass Balance		
PM	0.018	0.03	0.0030	Caterpillar Data Sheet		
PM ₁₀	0.018	0.03	0.0030	Caterpillar Data Sheet		
PM _{2.5}	0.018	0.03	0.0030	Caterpillar Data Sheet		
Greenhouse Gases	kg/MMBtu	GWP	CO ₂ e lb/MMBtu	CO ₂ e lb/gallon	tpy, CO ₂ e	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 ₂ O	0.0006	298	0.394	0.054	0.20	40 CFR 98
Total GHG - CO ₂ e	74.0		163.6	23	83	