



TECHNICAL SUPPORT DOCUMENT

**Nonroad Engine Permit 24-3634
Nonroad Engine Permit Application CO-1092**

Issued: February 28, 2024

Lakeside Industries - GenSet CAT 550

SWCAA ID - 2801

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ABBREVIATIONS

List of Acronyms

ADP	Air Discharge Permit	NOV	Notice of Violation/
AP-42	Compilation of Emission Factors, AP-42, 5th Edition, Volume 1, Stationary Point and Area Sources – published by EPA	NSPS	New Source Performance Standard
ASIL	Acceptable Source Impact Level	PSD	Prevention of Significant Deterioration
BACT	Best available control technology	RCW	Revised Code of Washington
CAM	Compliance Assurance Monitoring	SCC	Source Classification Code
CAS#	Chemical Abstracts Service registry number	SDS	Safety Data Sheet
CFR	Code of Federal Regulations	SQER	Small Quantity Emission Rate listed in WAC 173-460
EPA	U.S. Environmental Protection Agency	Standard	Standard conditions at a temperature of 68°F (20°C) and a pressure of 29.92 in Hg (760 mm Hg)
EU	Emission Unit	SWCAA	Southwest Clean Air Agency
mfr	Manufacturer	T-BACT	Best Available Control Technology for toxic air pollutants
NEP	Nonroad Engine Permit	WAC	Washington Administrative Code

List of Units and Measures

µg/m ³	Micrograms per cubic meter	MMBtu	Million British thermal unit
µm	Micrometer (10 ⁻⁶ meter)	ppm	Parts per million
acfm	Actual cubic foot per minute	ppmv	Parts per million by volume
bhp	Brake horsepower	ppmvd	Parts per million by volume, dry
gpm	Gallon per minute	ppmw	Parts per million by weight
gr/dscf	Grain per dry standard cubic foot	rpm	Revolution per minute
hp	Horsepower	scfm	Standard cubic foot per minute
hp-hr	Horsepower-hour	tph	Ton per hour
kW	Kilowatt	tpy	Tons per year

List of Chemical Symbols, Formulas, and Pollutants

CO	Carbon monoxide	PM	Particulate Matter with an aerodynamic diameter 100 µm or less
CO ₂	Carbon dioxide	PM ₁₀	PM with an aerodynamic diameter 10 µm or less
CO _{2e}	Carbon dioxide equivalent	PM _{2.5}	PM with an aerodynamic diameter 2.5 µm or less
HAP	Hazardous air pollutant listed pursuant to Section 112 of the Federal Clean Air Act	SO ₂	Sulfur dioxide
N ₂ O	Nitrous oxide	SO _x	Sulfur oxides
NO ₂	Nitrogen dioxide	TAP	Toxic air pollutant pursuant to Chapter 173-460 WAC
NO _x	Nitrogen oxides	VOC	Volatile organic compound
O ₂	Oxygen		
O ₃	Ozone		

Terms not otherwise defined have the meaning assigned to them in the referenced regulations or the dictionary definition, as appropriate.

1. FACILITY IDENTIFICATION

Applicant Name: Lakeside Industries, Inc.
Applicant Address: PO Box 7016, Issaquah, Washington 98027

Facility Name: Lakeside Industries – GenSet CAT 550
Facility Address: 500 Tennant Way, Longview, Washington 98632 (*initial location*)

SWCAA Identification: 2801

Contact Person: Amanda Neice, Environmental Engineer

Primary Process: Portable Electric Generation
SIC/NAICS Code: 4911 / Electric Power Generation
221112 / Electric Power Generation, Fossil Fuel

Facility Classification: Nonroad Engine

2. FACILITY DESCRIPTION

This facility consists of a stand-alone diesel engine powered electric generator operating in support of various pieces of equipment (rock crushers, screens, conveyors, asphalt plants) located at multiple Lakeside Industries (Lakeside) facilities. The generator is portable and use is intermittent.

3. CURRENT PERMITTING ACTION

This permitting action is in response to Nonroad Engine Permit application number CO-1092 (NEP Application CO-1092) dated January 30, 2024. Lakeside submitted NEP Application CO-1092 requesting approval of the following:

- One Caterpillar model LC6 diesel engine powered portable generator (550 kW).

The current permitting action provides approval for the new portable generator as proposed in NEP Application CO-1092. This is the initial permitting action for this facility.

4. PROCESS DESCRIPTION

- 4.a. Portable Power Generation (*new*). A diesel engine powered generator is used to provide electrical power to portable process equipment (rock crushers, aggregate screens, conveyors, asphalt plants) when utility power is not available.

5. EQUIPMENT/ACTIVITY IDENTIFICATION

- 5.a. Caterpillar 550 Generator Engine (*new*). One diesel engine used to power a dedicated portable electric generator. This unit is classified as a nonroad engine.

Generator Make / Model:	Caterpillar / LC6 (s/n G6B14162)
Generator Power Rating:	550 kW
Engine Make / Model:	Caterpillar / C18 (s/n EST00657)
Engine Power Rating:	861 bhp
Fuel Type:	Diesel
Fuel Consumption:	40.2 gal/hr
Model Year:	2008
EPA Certification:	EPA Tier 2
NSPS/MACT Applicable:	No (nonroad)
Exhaust:	10" diameter, vertical at 7'8" above ground level
Location:	Portable

- 5.b. Equipment/Activity Summary.

ID No.	Equipment/Activity	Control Equipment/Measure
1	Caterpillar 550 Generator Engine (Nonroad Engine)	Ultra-low Sulfur Diesel ($\leq 0.0015\%$ S) EPA Tier 2

6. EMISSIONS DETERMINATION

Emissions to the ambient atmosphere from the nonroad engine proposed in NEP Application CO-1092 consist of nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOC), particulate matter (PM), and sulfur dioxide (SO₂).

Unless otherwise specified by SWCAA, actual emissions must be determined using the specified input parameter listed for each emission unit and the following hierarchy of methodologies:

- Continuous emissions monitoring system (CEMS) data;
- Source emissions test data (EPA reference method). When source emissions test data conflicts with CEMS data for the time period of a source test, source test data must be used;
- Source emissions test data (other test method); and
- Emission factors or methodology provided in this TSD.

- 6.a. Caterpillar 550 Generator Engine (new). Estimated emissions from engine operation are calculated based on 1,840 hours of operation, use of ultra-low sulfur diesel (<0.0015% sulfur by weight), maximum engine power rating, and applicable emission factors. Annual emissions will be calculated from actual hours of operation using the same methodology.

Hours of Operation =	1,840	hours				
Power Output =	861	horsepower				
Fuel Sulfur Content =	0.0015	% by weight				
Fuel Consumption Rate =	40.20	gal/hr				
Fuel Heat Content =	0.138	MMBtu/gal (40 CFR 98)				
	EF	Emissions				
<u>Pollutant</u>	<u>lb/hr</u>	<u>tpy</u>	<u>EF Source</u>			
NO _x	8.07	7.42	EPA Certification Data			
CO	1.13	1.04	EPA Certification Data			
VOC	0.127	0.12	AP-42, Table 3.4-1			
SO _x as SO ₂	0.0087	0.0080	Mass Balance			
PM/PM ₁₀	0.1132	0.104	EPA Certification Data			
PM _{2.5}	0.1132	0.104	EPA Certification Data			
			CO ₂ e	CO ₂ e		
<u>Greenhouse Gases</u>	<u>kg/MMBtu</u>	<u>GWP</u>	<u>lb/MMBtu</u>	<u>lb/gallon</u>	<u>tpy, CO₂e</u>	
CO ₂	73.96	1	163.05	22.501	832	40 CFR 98
CH ₄	0.003	25	0.165	0.023	0.84	40 CFR 98
N ₂ O	0.0006	298	0.394	0.054	2.01	40 CFR 98
Total GHG - CO ₂ e	73.9636		163.61	22.58	835	

- 6.b. Emissions Summary/Facility-wide Potential to Emit. Facility-wide potential to emit as calculated in the sections above is summarized below.

<u>Pollutant</u>	<u>Potential Emissions (tpy)</u>	<u>Project Increase (tpy)</u>
NO _x	7.42	7.42
CO	1.04	1.04
VOC	0.12	0.12
SO ₂	0.0080	0.0080
Lead	0.00	0.00
PM	0.10	0.10
PM ₁₀	0.10	0.10
PM _{2.5}	0.10	0.10
TAP	0.00	0.00
HAP	0.00	0.00
CO ₂ e	835	835

7. REGULATIONS AND EMISSION STANDARDS

Regulations that have been used to evaluate the acceptability of the proposed facility and establish emission limits and control requirements include, but are not limited to, the regulations, codes, or requirements listed below.

- 7.a. Title 40 Code of Federal Regulations Part 60 (40 CFR 60) Subpart IIII "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines" requires that new diesel engines meet specific emission standards at the point of manufacture and during operation. In addition, maximum fuel sulfur contents are specified, and minimum maintenance standards are established. The engine affected by this action is not a stationary engine, so this regulation does not apply.
- 7.b. 40 CFR 63 Subpart ZZZZ "National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines" establishes national emission limitations and operating limitations for HAP emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. The engine affected by this action is not a stationary engine, so this regulation does not apply.
- 7.c. 40 CFR 1039 "Control of Emissions from New and In-use Nonroad Compression Ignition Engines" establishes standards for new non-road engines beginning with the 2008 model year for certain categories. The applicable year varies by engine category. In accordance with the relevant subpart, nonroad engines must meet the appropriate EPA Tier certification standards based on engine size and year of manufacture. Emission standards formerly codified in 40 CFR 89 have been moved to 40 CFR 1039 Appendix I. This subpart is applicable to the nonroad engine at this facility.

The definition of "nonroad engine" for this subpart is found in 40 CFR 1068.30 and includes any internal combustion engine that (1)(iii) "That, by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another..." "An internal combustion engine is not a nonroad engine if:... (iii) the engine otherwise included in Paragraph 1(iii) of this definition remains or will remain at a location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source...A location is any single site at a building, structure, facility or installation."

States are precluded from requiring retrofitting of nonroad engines except that states are permitted to adopt and enforce any such retrofitting requirements identical to California requirements which have been authorized by EPA under section 209 of the Clean Air Act. States may enforce limitations on hours of usage, daily mass emission limits, and sulfur limits on fuel as necessary.

- 7.d. Revised Code of Washington (RCW) 70A.15.2040 empowers any activated air pollution control authority to prepare and develop a comprehensive plan or plans for the prevention, abatement and control of air pollution within its jurisdiction. An air pollution control authority may issue such orders as may be necessary to effectuate the purposes of the Washington Clean Air Act and enforce the same by all appropriate administrative and judicial proceedings subject to the rights of appeal as provided in Chapter 62, Laws of 1970 ex. sess.
- 7.e. RCW 70A.15.2210 provides for the inclusion of conditions of operation as are reasonably necessary to assure the maintenance of compliance with the applicable ordinances, resolutions, rules and regulations when issuing an Air Discharge Permit for installation and establishment of an air contaminant source.
- 7.f. Washington Administrative Code (WAC) 173-476 "Ambient Air Quality Standards" establishes ambient air quality standards for PM₁₀, PM_{2.5}, lead, sulfur dioxide, nitrogen dioxide, ozone, and carbon monoxide in the ambient air, which shall not be exceeded.
- 7.g. SWCAA 400-045 "Permit Applications for Nonroad Engines" requires, with a few exceptions, submittal of a permit application for installation of nonroad engines. This regulation is applicable to the nonroad engine proposed for use by the permittee.

- 7.h. SWCAA 400-046 "Application Review Process for Nonroad Engines" requires that a nonroad engine permit be issued by the agency prior to the installation, replacement or alteration of any nonroad engine subject to the requirements of SWCAA 400-045. Each application must demonstrate that the installation will not cause an exceedance of any national or state ambient air quality standard.

8. RACT/BACT/BART/LAER/PSD/CAM DETERMINATIONS

The proposed equipment and control systems incorporate Best Available Control Technology (BACT) for the types and amounts of air contaminants emitted by the processes as described below:

- 8.a. Nonroad Engine Tier Certification. The nonroad engine proposed in this permitting action complies with applicable EPA certification requirements, but is not subject to BACT.

Other Determinations

- 8.b. Prevention of Significant Deterioration (PSD) Applicability Determination. The potential to emit of this facility is less than applicable PSD applicability thresholds. Likewise, this permitting action will not result in a potential increase in emissions equal to or greater than the PSD thresholds. Therefore, PSD review is not applicable to this action.
- 8.c. Compliance Assurance Monitoring (CAM) Applicability Determination. CAM is not applicable to any emission unit at this facility because it is not a major source and is not required to obtain a Part 70 permit.

9. AMBIENT IMPACT ANALYSIS

Conclusions

- 9.a. Operation of a portable diesel engine powered generator, as proposed in NEP Application CO-1092, will not cause the ambient air quality requirements of Title 40 Code of Federal Regulations (CFR) Part 50 "National Primary and Secondary Ambient Air Quality Standards" to be violated.
- 9.b. Operation of a portable diesel engine powered generator, as proposed in NEP Application CO-1092, will not cause the requirements of WAC 173-476 "Ambient Air Quality Standards" to be violated.

10. DISCUSSION OF APPROVAL CONDITIONS

SWCAA has made a determination to issue NEP 24-3634 in response to NEP Application CO-1092. NEP 24-3634 contains approval requirements deemed necessary to assure compliance with applicable regulations and emission standards as discussed below.

- 10.a. General Basis. Permit requirements for equipment affected by this permitting action incorporate the operating schemes proposed by the applicant in NEP Application CO-1092.
- 10.b. Monitoring and Recordkeeping Requirements. NEP 24-3634 establishes monitoring and recordkeeping requirements sufficient to document compliance with applicable emission limits, ensure proper operation of approved equipment and provide for compliance with generally applicable requirements. Specific requirements are established for fuel specification and hours of operation.
- 10.c. Reporting Requirements. NEP 24-3634 establishes general reporting requirements for air emissions, upset conditions and excess emissions. Specific reporting requirements are established for hours of engine operation. Reports must be submitted annually.

- 10.d. Nonroad Diesel Engine. Visible emissions from the nonroad diesel engine is limited to 10% opacity. Visible emissions should not exceed this level if the engine is operating properly. For the nonroad engine, SWCAA uses this as a surrogate indicator that the engine is in good repair. This restriction is appropriate because if the engine is not maintained in good repair, emissions are likely to greatly exceed the expected emission level and could cause an exceedance of a state or federal ambient air quality standard.

The nonroad engine is required to use ultra-low sulfur diesel ($\leq 0.0015\%$ S by weight). The use of ultra-low-sulfur diesel is a reasonable control measure that reduces SO_x and PM emissions relative to fuels with a higher sulfur content. The permit allows the use of "#2 diesel or better." In this case, "or better" includes road-grade diesel fuel with a lower sulfur content, biodiesel, and mixtures of biodiesel and road-grade diesel that meet the definition of "diesel" and contain no more than 0.0015% sulfur by weight.

11. START-UP AND SHUTDOWN/ALTERNATIVE OPERATING SCENARIOS/POLLUTION PREVENTION

- 11.a. Start-up and Shutdown Provisions. Pursuant to SWCAA 400-081 "Start-up and Shutdown", technology based emission standards and control technology determinations shall take into consideration the physical and operational ability of a source to comply with the applicable standards during start-up or shutdown. Where it is determined that a source is not capable of achieving continuous compliance with an emission standard during start-up or shutdown, SWCAA shall include appropriate emission limitations, operating parameters, or other criteria to regulate performance of the source during start-up or shutdown.

Diesel Engine. Diesel engines may exhibit higher than normal opacity during startup. Accordingly, the visual emissions limit for the diesel engine power unit is not applicable during the startup period defined in the permit. General opacity standards continue to apply.

- 11.b. Alternate Operating Scenarios. SWCAA conducted a review of alternate operating scenarios applicable to equipment affected by this permitting action. The permittee did not propose or identify any applicable alternate operating scenarios. Therefore, none were included in the permit requirements.
- 11.c. Pollution Prevention Measures. SWCAA conducted a review of possible pollution prevention measures for the facility. No pollution prevention measures were identified by either the permittee or SWCAA separate or in addition to those measures required under BACT considerations. Therefore, none were included in the permit requirements.

12. EMISSION MONITORING AND TESTING

There are no formal emission monitoring or testing requirements for this facility.

13. FACILITY HISTORY

- 13.a. Previous Permitting Actions. SWCAA has not previously issued any Permits for this facility.
- 13.b. Compliance History. A search of source records on file at SWCAA did not identify any outstanding compliance issues at this facility.

14. PUBLIC INVOLVEMENT OPPORTUNITY

- 14.a. Public Notice for NEP Application CO-1092. Public notice for NEP Application CO-1092 was published on the SWCAA internet website for a minimum of (15) days beginning on February 7, 2024.
- 14.b. Public/Applicant Comment for NEP Application CO-1092. SWCAA did not receive specific comments, a comment period request or any other inquiry from the public regarding this NEP application. Therefore no public comment period was provided for this permitting action.
- 14.c. State Environmental Policy Act. A complete SEPA checklist was submitted by Lakeside in conjunction with NEP Application CO-1092. After reviewing the checklist, SWCAA has made a Determination of Non Significance (DNS 24-010) concurrent with issuance of NEP 24-3634.