



TECHNICAL SUPPORT DOCUMENT

**Air Discharge Permit / Nonroad Engine Permit 23-3563
Air Discharge Permit Application CL-3064**

COLUMBIA NORTHWEST RECYCLING

SWCAA ID: 2155

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Prepared By: Vanessa McClelland
Air Quality Engineer
Southwest Clean Air Agency

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ABBREVIATIONS

List of Acronyms

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

List of Units and Measures

µg/m ³	Micrograms per cubic meter	lb/yr.....	pounds per year
µm.....	Micrometer (10 ⁻⁶ meter)	MMBtu	Million British thermal unit
acfm	Actual cubic foot per minute	MMcf.....	Million cubic feet
bhp	Brake horsepower	oz/yrd ²	ounce per square yard
dscfm.....	Dry Standard cubic foot per minute	ppm	Parts per million
g/dscm.....	Grams per dry Standard cubic meter	ppmv	Parts per million by volume
gpm	Gallon per minute	ppmvd.....	Parts per million by volume, dry
gr/dscf	Grain per dry standard cubic foot	ppmw	Parts per million by weight
hp	Horsepower	psig	Pounds per square inch, gauge
hp-hr.....	Horsepower-hour	rpm.....	Revolution per minute
kW.....	Kilowatt	scfm	Standard cubic foot per minute
		tph	Ton per hour
		tpy	Tons per year

List of Chemical Symbols, Formulas, and Pollutants

C ₃ H ₈	Propane	O ₃	Ozone
CH ₄	Methane	PM	Particulate Matter with an aerodynamic diameter 100 µm or less
CO	Carbon monoxide	PM ₁₀	PM with an aerodynamic diameter 10 µm or less
CO ₂	Carbon dioxide	PM _{2.5}	PM with an aerodynamic diameter 2.5 µm or less
CO _{2e}	Carbon dioxide equivalent	SO ₂	Sulfur dioxide
H ₂ S	Hydrogen sulfide	SO _x	Sulfur oxides
HAP	Hazardous air pollutant listed pursuant to Section 112 of the Federal Clean Air Act	TAP	Toxic air pollutant pursuant to Chapter 173-460 WAC
HCl	Hydrochloric acid	TGOC	Total Gaseous Organic Carbon
Hg	Mercury	TOC	Total Organic Carbon
N ₂ O	Nitrous oxide	TSP	Total Suspended Particulate
NH ₃	Ammonia	VOC	Volatile organic compound
NO ₂	Nitrogen dioxide		
NO _x	Nitrogen oxides		
O ₂	Oxygen		

List of Chemical Symbols, Formulas, and Pollutants

C ₃ H ₈	Propane	O ₃	Ozone
CH ₄	Methane	PM	Particulate Matter with an aerodynamic diameter 100 µm or less
CO	Carbon monoxide	PM ₁₀	PM with an aerodynamic diameter 10 µm or less
CO ₂	Carbon dioxide	PM _{2.5}	PM with an aerodynamic diameter 2.5 µm or less
CO _{2e}	Carbon dioxide equivalent	SO ₂	Sulfur dioxide
H ₂ S	Hydrogen sulfide	SO _x	Sulfur oxides
HAP	Hazardous air pollutant listed pursuant to Section 112 of the Federal Clean Air Act	TAP	Toxic air pollutant pursuant to Chapter 173-460 WAC
HCl	Hydrochloric acid	TGOC	Total Gaseous Organic Carbon
Hg	Mercury	TOC	Total Organic Carbon
N ₂ O	Nitrous oxide	TSP	Total Suspended Particulate
NH ₃	Ammonia	VOC	Volatile organic compound
NO ₂	Nitrogen dioxide		
NO _x	Nitrogen oxides		
O ₂	Oxygen		

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: Columbia Northwest Recycling
Applicant Address: PO Box 1060, Woodburn, OR 97071

Facility Name: Columbia Northwest Recycling
Facility Address: Portable (some currently located at 8705 NW 117th Ave., Vancouver, WA)
SWCAA Identification: 2155
Contact Person: Brent Kerr – Owner, Jeff Berhorst - Manager

Primary Process: Crushed and Broken Stone / Other Crushed and Broken Stone Mining and Quarrying
SIC/NAICS Code: 1429 / 212319
Facility Designation: Natural minor

2. FACILITY DESCRIPTION

Columbia Northwest Recycling, Inc. (Columbia Northwest Recycling) operates a portable construction debris crushing/recycling plant based in Tualatin, Oregon. The crushing plant utilizes a combination of crushers, screens, conveyors, and diesel-fired generator sets that can all operate independently.

3. CURRENT PERMITTING ACTION

Columbia Northwest Recycling submitted Air Discharge Permit application (ADP application) number CL-3064 on November 6, 2018, for approval of the following new rock crushing and screening equipment as well as their power generators:

- McCloskey S-190 Screen, with Caterpillar engine
- Terex Finlay I-140 Impact Crusher, with Scania engine
- Metso 106 Jaw Crusher, with Caterpillar engine
- McCloskey R-230 Screen, with Caterpillar engine
- McCloskey S-190 Screen, with Caterpillar engine
- McCloskey J50 V2 Jaw Crusher, with Volvo Penta engine
- McCloskey S-190 Screen, with Perkins/Caterpillar engine
- McCloskey I-54 Impact Crusher, with Caterpillar engine
- A John Deere stationary engine
- A Perkins Mondasa stationary engine

Not all of the equipment will be operating, nor will they all be in SWCAA's jurisdiction at the same time. The equipment is being permitted to allow Columbia Northwest Recycling to bring it in to SWCAA's jurisdiction for future jobs. Approval for the equipment will be included in a single Air Discharge Permit / Nonroad Engine Permit. The previous equipment permitted for use by Columbia Northwest Recycling will no longer enter SWCAA's jurisdiction.

ADP 10-2962 will be superseded by this ADP in its entirety.

4. PROCESS DESCRIPTION

The crushers are used to crush debris from construction and demolition projects (asphalt, concrete, etc.). Crushed material may be screened by a separate unit prior to stacking. Conveyors are powered by one of the generator sets driven by a diesel-fired engine. High pressure water spray is used to control fugitive dust at the crushers and screens.

5. EQUIPMENT/ACTIVITY IDENTIFICATION

New Equipment

5.a. McCloskey Screen. This unit is track mounted.

Equipment: McCloskey S-190 Screen
 Serial Number: SA9000S190 MO6670535
 Size/Capacity: 20' by 5'
 Manufactured: 2010
 NSPS Applicable: Subpart OOO

5.b. Engine Caterpillar. This engine is used to power the McCloskey Screen Plant.

Engine Make / Model: Caterpillar / C4.4 / arrangement number 313-1226
 Engine Serial Number: 44408059 /
 Fuel Type: Diesel
 Fuel Consumption: 6.25 gal/hr
 Horsepower Rating: 125 bhp
 Engine Built: unknown
 Engine Certification: unknown

5.c. Terex Finlay Impact Crusher (C-269). This unit is track mounted.

Equipment: Terex Finlay I-140 Impact Crusher
 Serial Number: PIN # TRX140ICEOMH13592
 Size/Capacity: 45.6" by 34"
 Manufactured: 2017
 NSPS Applicable: Subpart OOO

5.d. Engine Scania. This engine is used to power the Terex Finlay Impact Crusher.

Engine Make / Model: Scania DC 13
 Engine Serial Number: unknown
 Fuel Type: Diesel
 Fuel Consumption: 25.50 gal/hr
 Horsepower Rating: 510 bhp
 Engine Built: 2017
 Engine Certification: Tier 4

5.e. Metso Jaw Crusher. This unit is track mounted.

Equipment: Metso 106 Jaw Crusher, Model LT106
 Serial Number: SN 78332

Size/Capacity: 42" by 28"
 Manufactured: unknown
 NSPS Applicable: Subpart OOO

5.f. Engine Caterpillar. This engine is used to power the Metso Jaw Crusher.

Engine Make / Model: Caterpillar / C9.3 (D9N04489)
 Engine Serial Number: engine family DCPXL09.3HPA
 Fuel Type: Diesel
 Fuel Consumption: 15.0 gal/hr
 Horsepower Rating: 300 bhp
 Engine Built: Oct 2013
 Engine Certification: Interim Tier 4
 Stack Description: Exhausting ~6 feet above grade through a 5-inch diameter stack.

5.g. McCloskey Screen (C-257). This unit is track mounted.

Equipment: McCloskey R-230 Screen
 Serial Number: 81612
 Size/Capacity: 6' by 20'
 Manufactured: 2013
 NSPS Applicable: Subpart OOO

5.h. Engine Caterpillar. This engine is used to power the McCloskey R-230 Screen.

Engine Make / Model: Caterpillar / C6.6 / arrangement number 372-0847
 Engine Serial Number: 66623394
 Fuel Type: Diesel
 Fuel Consumption: 6.0 gal/hr
 Horsepower Rating: estimated 120 bhp
 Engine Built: unknown
 Engine Certification: Tier 3
 Stack Description: Exhausting ~6 feet above grade through a 5-inch diameter stack.

5.i. McCloskey Screen (C-270). This unit is track mounted.

Equipment: McCloskey S-190 Screen
 Serial Number: SA9000S190 8 MO66 447
 Size/Capacity: 20' by 5'
 Manufactured: 2008
 NSPS Applicable: Subpart OOO

5.j. Engine Caterpillar. This engine is used to power the McCloskey S-190 Screen.

Engine Make / Model: Caterpillar / C4.4 / arrangement number 313-1226
 Engine Serial Number: 44404904
 Fuel Type: Diesel

Fuel Consumption: 6.25 gal/hr
 Horsepower Rating: 125 bhp
 Engine Built: unknown
 Engine Certification: Tier 3
 Stack Description: Exhausting ~6 feet above grade through a 5-inch diameter stack.

5.k. McCloskey Jaw Crusher (RC-179). This unit is track mounted.

Equipment: McCloskey J50 V2 Jaw Crusher
 Serial Number: 86248
 Size/Capacity: 29" by 50"
 Manufactured: 2017
 NSPS Applicable: Subpart OOO

5.l. Engine Volvo. This engine is used to power the McCloskey Jaw Crusher.

Engine Make / Model: Volvo Penta, engine family GVPXL10-8CJA
 Engine Serial Number: TAD 1171VE, VP 262192, 7011378324
 Fuel Type: Diesel
 Fuel Consumption: 17.50 gal/hr
 Horsepower Rating: 350 bhp
 Engine Built: Jan 2016
 Engine Certification: Complies with 2016 EPA Regulations (EPA Tier 4)
 Stack Description: Exhausting ~6 feet above grade through a 5-inch diameter stack.

5.m. McCloskey Screen. This unit is track mounted.

Equipment: McCloskey S-190 Screen
 Serial Number: SA900S190 8 MO66 237
 Size/Capacity: 20' by 5'
 Manufactured: 2008
 NSPS Applicable: Subpart OOO

5.n. Engine Caterpillar. This engine is used to power the McCloskey S-190 Screen.

Engine Make / Model: Perkins/Caterpillar C4.4
 Engine Serial Number: RJ314-7349NT1817970 / engine family 6PKXL04.4RJI
 Fuel Type: Diesel
 Fuel Consumption: 6.25 gal/hr
 Horsepower Rating: 125 bhp
 Engine Built: August 2018 (Rebuild)
 Engine Certification: Tier 2

5.o. McCloskey Impact Crusher (RC-163). This unit is track mounted.

Equipment: McCloskey I-54 Impact Crusher
 Serial Number: 83148
 Size/Capacity: 48" by 53"

Manufactured: 2015
 NSPS Applicable: Subpart OOO

5.p. Engine Caterpillar. This engine is used to power the McCloskey Impact Crusher.

Engine Make / Model: Caterpillar C13
 Engine Serial Number: RRA08672
 Fuel Type: Diesel
 Fuel Consumption: 21.50 gal/hr
 Horsepower Rating: 430 bhp
 Engine Built: unknown
 Engine Certification: Tier 3

5.q. Engine John Deere. This stationary engine is used to drive an approximately 112 kW Generac generator to power conveyor belts.

Engine Make / Model: John Deere (Engine Number - 1232F)
 Engine Serial Number: 6466AF-00121192PG
 Fuel Type: Diesel
 Fuel Consumption: 7.50 gal/hr
 Horsepower Rating: 150 bhp
 Engine Built: 1986
 Engine Certification: None

5.r. Engine Perkins Mondasa MP-1501. This stationary engine is used to drive an approximately 165 kW Stamford US1274F1 generator (SN X20A041485) to power conveyor belts.

Engine Make / Model: Perkins / MP-1501
 Engine Serial Number: PW83844 (Engine Type – B580327F)
 Fuel Type: Diesel
 Fuel Consumption: 11.0 gal/hr
 Horsepower Rating: 220 bhp
 Engine Built: 2021
 Engine Certification: Tier 3
 Stack Description: Exhausting ~6 feet above grade through a 5-inch diameter stack.

5.s. Equipment/Activity Summary.

ID No.	Generating Equipment/Activity	Control Measure/Equipment
1	McCloskey S-190 Screen	High pressure wet suppression
2	Terex Finlay Impact Crusher	High pressure wet suppression
3	Metso Jaw Crusher	High pressure wet suppression
4	McCloskey R-230 Screen	High pressure wet suppression
5	McCloskey S-190 Screen	High pressure wet suppression
6	McCloskey Jaw Crusher	High pressure wet suppression

ID No.	Generating Equipment/Activity	Control Measure/Equipment
7	McCloskey S-190 Screen	High pressure wet suppression
8	McCloskey Impact Crusher	High pressure wet suppression
9	Caterpillar C4.4 Engine (nonroad engine, powers the McCloskey Screen)	Ultra-Low Sulfur Fuel (diesel)
10	Scania DC 13 Engine (nonroad engine, powers the Terex Finlay Impact Crusher)	Ultra-Low Sulfur Fuel (diesel), EPA Tier 4 Certification
11	Caterpillar C9.3 Engine (nonroad engine, powers the Metso Jaw Crusher)	Ultra-Low Sulfur Fuel (diesel), EPA Interim Tier 4 Certification
12	Caterpillar C6.6 Engine (nonroad engine, powers the McCloskey R-230 Screen)	Ultra-Low Sulfur Fuel (diesel), EPA Tier 3 Certification
13	Caterpillar C4.4 Engine (nonroad engine, powers the McCloskey S-190 Screen)	Ultra-Low Sulfur Fuel (diesel), EPA Tier 3 Certification
14	Volvo Penta Engine (nonroad engine, powers the McCloskey Jaw Crusher)	Ultra-Low Sulfur Fuel (diesel), EPA Tier 4 Certification
15	Perkins/Caterpillar C4.4 Engine (nonroad engine, powers the McCloskey S-190 Screen)	Ultra-Low Sulfur Fuel (diesel), EPA Tier 2 Certification
16	Caterpillar C13 Engine (nonroad engine, powers the McCloskey Impact Crusher)	Ultra-Low Sulfur Fuel (diesel), EPA Tier 3 Certification
17	John Deere Engine (stationary engine, powers Generac Generator)	Ultra-Low Sulfur Fuel (diesel)
18	Perkins Mondasa MP-1501 Engine (stationary engine, powers Stamford generator)	Ultra-Low Sulfur Fuel (diesel), EPA Tier 3 Certification
19	Haul Roads	Wet suppression

6. EMISSIONS DETERMINATION

Emissions to the ambient atmosphere from the equipment and activities proposed in ADP application CL-3064 consist of particulate matter (PM) from rock crushing and handling operations and NO_x, CO, VOC, SO₂, and PM from operation of the stationary and nonroad diesel-fired engines.

- 6.a. Crushing and Screening Operations. Potential emissions from crushing are calculated from an aggregate throughput of 200,000 tons per year and emission factors from EPA AP-42, Table 11.19.2-2 (8/04). Emission factors for all stages except primary crushing are 'controlled' factors from the 8/04 version of the table. Emission factors for primary crushing are taken from the 1/95 version of the table which only provided an 'uncontrolled' PM factor for primary crushing. An 'uncontrolled' factor for PM₁₀ was calculated using the 2.1:1 ratio of PM to PM₁₀ specified in the table footnotes. An 'uncontrolled' factor for PM_{2.5} was calculated using a PM to PM_{2.5} ratio of 12:1 which is based on the tested PM to PM_{2.5} ratio for tertiary crushing in the 8/04 version of the table. A control efficiency of 80% was applied to the primary crushing factors to account for the use of wet suppression.

Activity	Throughput (tpy)	Pollutant	Emission Factor - Controlled (lb/ton)	Turn Points	Emissions (lbs)
Primary crushing (3" - 12")	200,000	PM	0.00014		28
		PM ₁₀	0.000067		13
		PM _{2.5}	0.000012		2
Secondary crushing (1" - 4")	200,000	PM	0.0012		240
		PM ₁₀	0.00054		108
		PM _{2.5}	0.0001		20
Tertiary crushing (3/16" - 1")	200,000	PM	0.0012		240
		PM ₁₀	0.00054		108
		PM _{2.5}	0.0001		20
Screening	200,000	PM	0.0022		440
		PM ₁₀	0.00074		148
		PM _{2.5}	0.00005		10
Loading/conveying	200,000	PM	0.00014	7	196
		PM ₁₀	0.000046		64
		PM _{2.5}	0.000013		18
Blasting	0	PM	0.0015		0
		PM ₁₀	0.00079		0
		PM _{2.5}	0.000046		0

- 6.b. Haul Roads. Emissions from haul roads were calculated using default emission calculations from EPA AP-42, Section 13.2.2 (12/03), an average load weight of 20 tons, an average silt content of 4.8%, and an average round trip distance of 0.5 miles. The use of wet suppression is expected to provide an overall control efficiency of 80% for haul road emissions.

$$E = k \left(\frac{s}{12} \right)^a \left(\frac{w}{3} \right)^b$$

Where: w = average truck weight in tons;
s = road surface silt content (%); and

The constants k, a, and b are given in the table below:

Constant	PM _{2.5}	PM ₁₀	PM ₃₀ (assumed to represent PM)
k (lb/vehicle mile traveled)	0.23	1.5	4.9
a	0.9	0.9	0.7
b	0.45	0.45	0.45

Maximum haul road emissions are estimated in the table below.

Haul Road Emissions				
Average Truck Weight =	27	tons (assumes empty weight of 17 tons)		
Average Round Trip Distance =	0.50	miles		
Amount of Aggregate per Load =	20.0	tons		
Total # of Trips =	10,000	loads		
Total Miles Traveled =	5,000	miles		
Assumed Silt Content =	4.8	%		
Assumed Control (wet suppression) =	80%			
	Uncontrolled	Controlled		
	Emission	Emission		
	Factor	Factor	Emissions	Emission Factor
Pollutant	lb/mile	lb/mile	tpy	Source
PM	6.94	1.39	3.47	AP-42 13.2.2 (11/06)
PM ₁₀	1.77	0.35	0.88	AP-42 13.2.2 (11/06)
PM _{2.5}	0.27	0.054	0.14	AP-42 13.2.2 (11/06)

- 6.c. Caterpillar C4.4 Engine. Potential emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) by the engine were calculated with the assumption that the equipment will operate at full load for 1,000 hours per year.

Caterpillar C4.4 Engine					
Hours of Operation =	1,000 hours				
Power Output =	125 horsepower				
Diesel Density =	7.206 pounds per gallon				
Fuel Sulfur Content =	0.0015 % by weight				
Fuel Consumption Rate =	6.25 gallons per hour (estimated based on 7,000 Btu/hp-hr)				
Fuel Heat Content =	0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)				
Pollutant	Emission Factor lb/bhp*hr	Emissions lb/hr	Emissions tpy	Emission Factor Source	
NO _x	3.10E-02	3.88	1.94	AP-42 Table 3.3-1 (10/96)	
CO	6.68E-03	0.84	0.42	AP-42 Table 3.3-1 (10/96)	
VOC	2.51E-03	0.314	0.16	AP-42 Table 3.3-1 (10/96)	
SO _x as SO ₂	1.08E-05	0.0014	0.00068	Mass Balance	
PM/PM10/PM2.5	2.20E-03	0.28	0.14	AP-42 Table 3.3-1 (10/96)	
Greenhouse Gases	kg/MMBtu	GWP	CO ₂ e		tpy, CO ₂ e
			lb/MMBtu	lb/gallon	
CO ₂	73.96	1	163.05	22.501	70.317
CH ₄	0.003	25	0.165	0.023	0.071
N ₂ O	0.0006	298	0.394	0.054	0.170
Total GHG - CO ₂ e			163.6	22.579	70.56

Emissions shall be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing.

- 6.d. Scania DC 13 Engine. Potential emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) by the engine were calculated with the assumption that the equipment will operate at full load for 1,000 hours per year.

Scania DC 13 Engine					
Hours of Operation =	1,000 hours				
Power Output =	510 horsepower				
Diesel Density =	7.206 pounds per gallon				
Fuel Sulfur Content =	0.0015 % by weight				
Fuel Consumption Rate =	25.50 gallons per hour (estimated based on 7,000 Btu/hp-hr)				
Fuel Heat Content =	0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)				
Pollutant	Emission Factor lb/bhp*hr	Emissions lb/hr	Emissions tpy	Emission Factor Source	
NO _x	6.61E-04	0.34	0.17	EPA Tier 4	
CO	5.73E-03	2.92	1.46	EPA Tier 4	
VOC	3.09E-04	0.157	0.079	EPA Tier 4	
SO _x as SO ₂	1.08E-05	0.0055	0.0028	Mass Balance	
PM/PM10/PM2.5	2.20E-05	0.01	0.0056	EPA Tier 4	
Greenhouse Gases	kg/MMBtu	GWP	CO ₂ e		tpy, CO ₂ e
			lb/MMBtu	lb/gallon	
CO ₂	73.96	1	163.05	22.501	286.893
CH ₄	0.003	25	0.165	0.023	0.291
N ₂ O	0.0006	298	0.394	0.054	0.694
Total GHG - CO ₂ e			163.6	22.579	287.88

Emissions shall be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing.

- 6.e. Caterpillar C9.3 Engine. Potential emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) by the engine were calculated with the assumption that the equipment will operate at full load for 1,000 hours per year.

Caterpillar C9.3 Engine					
Hours of Operation =	1,000 hours				
Power Output =	300 horsepower				
Diesel Density =	7.206 pounds per gallon				
Fuel Sulfur Content =	0.0015 % by weight				
Fuel Consumption Rate =	15.00 gallons per hour (estimated based on 7,000 Btu/hp-hr)				
Fuel Heat Content =	0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)				
Pollutant	Emission Factor lb/bhp*hr	Emissions lb/hr	Emissions tpy	Emission Factor Source	
NO _x	3.31E-03	0.99	0.50	EPA Tier 4	
CO	5.73E-03	1.72	0.86	EPA Tier 4	
VOC	3.09E-04	0.093	0.046	EPA Tier 4	
SO _x as SO ₂	1.08E-05	0.0032	0.0016	Mass Balance	
PM/PM10/PM2.5	2.20E-05	0.01	0.0033	EPA Tier 4	
Greenhouse Gases	kg/MMBtu	GWP	CO ₂ e		tpy, CO ₂ e
			lb/MMBtu	lb/gallon	
CO ₂	73.96	1	163.05	22.501	168.761
CH ₄	0.003	25	0.165	0.023	0.171
N ₂ O	0.0006	298	0.394	0.054	0.408
Total GHG - CO ₂ e			163.6	22.579	169.34

Emissions shall be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing.

- 6.f. Caterpillar C6.6 Engine. Potential emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) by the engine were calculated with the assumption that the equipment will operate at full load for 1,000 hours per year.

Caterpillar C6.6 Engine					
Hours of Operation =	1,000 hours				
Power Output =	120 horsepower				
Diesel Density =	7.206 pounds per gallon				
Fuel Sulfur Content =	0.0015 % by weight				
Fuel Consumption Rate =	6.00 gallons per hour (estimated based on 7,000 Btu/hp-hr)				
Fuel Heat Content =	0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)				
Pollutant	Emission Factor lb/bhp*hr	Emissions lb/hr	Emissions tpy	Emission Factor Source	
NO _x	6.61E-03	0.79	0.40	EPA Tier 3	
CO	8.16E-03	0.98	0.49	EPA Tier 3	
VOC	2.50E-03	0.300	0.15	AP-42 Table 3.3-1 (10/96)	
SO _x as SO ₂	1.08E-05	0.0013	0.00065	Mass Balance	
PM/PM10/PM2.5	4.85E-04	0.06	0.029	EPA Tier 3	
Greenhouse Gases	kg/MMBtu	GWP	CO ₂ e		tpy, CO ₂ e
			lb/MMBtu	lb/gallon	
CO ₂	73.96	1	163.05	22.501	67.504
CH ₄	0.003	25	0.165	0.023	0.068
N ₂ O	0.0006	298	0.394	0.054	0.163
Total GHG - CO ₂ e			163.6	22.579	67.74

Emissions shall be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing.

- 6.g. Caterpillar C4.4 Engine. Potential emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) by the engine were calculated with the assumption that the equipment will operate at full load for 1,000 hours per year.

Caterpillar C4.4 Engine					
Hours of Operation =	1,000 hours				
Power Output =	125 horsepower				
Diesel Density =	7.206 pounds per gallon				
Fuel Sulfur Content =	0.0015 % by weight				
Fuel Consumption Rate =	6.25 gallons per hour (estimated based on 7,000 Btu/hp-hr)				
Fuel Heat Content =	0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)				
Pollutant	Emission Factor lb/bhp*hr	Emissions lb/hr	Emissions tpy	Emission Factor Source	
NO _x	6.61E-03	0.83	0.41	EPA Tier 3	
CO	8.16E-03	1.02	0.51	EPA Tier 3	
VOC	2.50E-03	0.313	0.16	AP-42 Table 3.3-1 (10/96)	
SO _x as SO ₂	1.08E-05	0.0014	0.00068	Mass Balance	
PM/PM10/PM2.5	4.85E-04	0.06	0.030	EPA Tier 3	
Greenhouse Gases	kg/MMBtu	GWP	CO ₂ e		tpy, CO ₂ e
			lb/MMBtu	lb/gallon	
CO ₂	73.96	1	163.05	22.501	70.317
CH ₄	0.003	25	0.165	0.023	0.071
N ₂ O	0.0006	298	0.394	0.054	0.170
Total GHG - CO ₂ e			163.6	22.579	70.56

Emissions shall be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing.

6.h. Volvo Penta Engine. Potential emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) by the engine were calculated with the assumption that the equipment will operate at full load for 1,000 hours per year.

Volvo Penta Engine					
Hours of Operation =	1,000 hours				
Power Output =	350 horsepower				
Diesel Density =	7.206 pounds per gallon				
Fuel Sulfur Content =	0.0015 % by weight				
Fuel Consumption Rate =	17.50 gallons per hour (estimated based on 7,000 Btu/hp-hr)				
Fuel Heat Content =	0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)				
Pollutant	Emission Factor lb/bhp*hr	Emissions lb/hr	Emissions tpy	Emission Factor Source	
NO _x	6.61E-04	0.23	0.12	EPA Tier 4	
CO	5.73E-03	2.01	1.00	EPA Tier 4	
VOC	3.09E-04	0.108	0.054	EPA Tier 4	
SO _x as SO ₂	1.08E-05	0.0038	0.0019	Mass Balance	
PM/PM10/PM2.5	2.20E-05	0.01	0.0039	EPA Tier 4	
Greenhouse Gases	kg/MMBtu	GWP	CO ₂ e		tpy, CO ₂ e
			lb/MMBtu	lb/gallon	
CO ₂	73.96	1	163.05	22.501	196.888
CH ₄	0.003	25	0.165	0.023	0.200
N ₂ O	0.0006	298	0.394	0.054	0.476
Total GHG - CO ₂ e			163.6	22.579	197.56

Emissions shall be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing.

- 6.i. Caterpillar C4.4 Engine. Potential emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) by the engine were calculated with the assumption that the equipment will operate at full load for 1,000 hours per year.

Caterpillar C4.4 Engine					
Hours of Operation =	1,000 hours				
Power Output =	125 horsepower				
Diesel Density =	7.206 pounds per gallon				
Fuel Sulfur Content =	0.0015 % by weight				
Fuel Consumption Rate =	6.25 gallons per hour (estimated based on 7,000 Btu/hp-hr)				
Fuel Heat Content =	0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)				
Pollutant	Emission Factor lb/bhp*hr	Emissions lb/hr	Emissions tpy	Emission Factor Source	
NO _x	1.08E-02	1.35	0.68	EPA Tier 2	
CO	8.16E-03	1.02	0.51	EPA Tier 2	
VOC	2.50E-03	0.313	0.16	AP-42 Table 3.3-1 (10/96)	
SO _x as SO ₂	1.08E-05	0.0014	0.00068	Mass Balance	
PM/PM10/PM2.5	4.85E-04	0.06	0.030	EPA Tier 2	
Greenhouse Gases	kg/MMBtu	GWP	CO ₂ e		tpy, CO ₂ e
			lb/MMBtu	lb/gallon	
CO ₂	73.96	1	163.05	22.501	70.317
CH ₄	0.003	25	0.165	0.023	0.071
N ₂ O	0.0006	298	0.394	0.054	0.170
Total GHG - CO ₂ e			163.6	22.579	70.56

Emissions shall be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing.

- 6.j. Caterpillar C13 Engine. Potential emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) by the engine were calculated with the assumption that the equipment will operate at full load for 1,000 hours per year.

Caterpillar C13 Engine					
Hours of Operation =	1,000 hours				
Power Output =	430 horsepower				
Diesel Density =	7.206 pounds per gallon				
Fuel Sulfur Content =	0.0015 % by weight				
Fuel Consumption Rate =	21.50 gallons per hour (estimated based on 7,000 Btu/hp-hr)				
Fuel Heat Content =	0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)				
Pollutant	Emission Factor lb/bhp*hr	Emissions lb/hr	Emissions tpy	Emission Factor Source	
NO _x	6.61E-03	2.84	1.42	EPA Tier 3	
CO	5.73E-03	2.46	1.23	EPA Tier 3	
VOC	2.50E-03	1.075	0.54	AP-42 Table 3.3-1 (10/96)	
SO _x as SO ₂	1.08E-05	0.0046	0.0023	Mass Balance	
PM/PM10/PM2.5	3.31E-04	0.14	0.071	EPA Tier 3	
Greenhouse Gases	kg/MMBtu	GWP	CO ₂ e		tpy, CO ₂ e
			lb/MMBtu	lb/gallon	
CO ₂	73.96	1	163.05	22.501	241.890
CH ₄	0.003	25	0.165	0.023	0.245
N ₂ O	0.0006	298	0.394	0.054	0.585
Total GHG - CO ₂ e			163.6	22.579	242.72

Emissions shall be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing.

6.k. John Deere Engine. Potential emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) by the engine were calculated with the assumption that the equipment will operate at full load for 1,000 hours per year.

John Deere Engine					
Hours of Operation =	1,000 hours				
Power Output =	150 horsepower				
Diesel Density =	7.206 pounds per gallon				
Fuel Sulfur Content =	0.0015 % by weight				
Fuel Consumption Rate =	7.50 gallons per hour (estimated based on 7,000 Btu/hp-hr)				
Fuel Heat Content =	0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)				
Pollutant	Emission Factor lb/bhp*hr	Emissions lb/hr	Emissions tpy	Emission Factor Source	
NO _x	3.10E-02	4.65	2.33	AP-42 Table 3.3-1 (10/96)	
CO	6.68E-03	1.00	0.50	AP-42 Table 3.3-1 (10/96)	
VOC	2.51E-03	0.377	0.19	AP-42 Table 3.3-1 (10/96)	
SO _x as SO ₂	1.08E-05	0.0016	0.00081	Mass Balance	
PM/PM10/PM2.5	2.20E-03	0.33	0.17	AP-42 Table 3.3-1 (10/96)	
Greenhouse Gases	kg/MMBtu	GWP	CO ₂ e		tpy, CO ₂ e
			lb/MMBtu	lb/gallon	
CO ₂	73.96	1	163.05	22.501	84.380
CH ₄	0.003	25	0.165	0.023	0.086
N ₂ O	0.0006	298	0.394	0.054	0.204
Total GHG - CO ₂ e			163.6	22.579	84.67

Emissions shall be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing.

- 6.l. Perkins Mondasa Engine. Potential emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) by the engine were calculated with the assumption that the equipment will operate at full load for 1,000 hours per year.

Perkins Mondasa Engine					
Hours of Operation =	1,000 hours				
Power Output =	220 horsepower				
Diesel Density =	7.206 pounds per gallon				
Fuel Sulfur Content =	0.0015 % by weight				
Fuel Consumption Rate =	11.00 gallons per hour (estimated based on 7,000 Btu/hp-hr)				
Fuel Heat Content =	0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)				
Pollutant	Emission Factor lb/bhp*hr	Emissions lb/hr	Emissions tpy	Emission Factor Source	
NO _x	6.61E-03	1.46	0.73	EPA Tier 3	
CO	5.73E-03	1.26	0.63	EPA Tier 3	
VOC	2.50E-03	0.550	0.28	AP-42 Table 3.3-1 (10/96)	
SO _x as SO ₂	1.08E-05	0.0024	0.0012	Mass Balance	
PM/PM10/PM2.5	3.31E-04	0.07	0.036	EPA Tier 3	
Greenhouse Gases	kg/MMBtu	GWP	CO ₂ e		tpy, CO ₂ e
			lb/MMBtu	lb/gallon	
CO ₂	73.96	1	163.05	22.501	123.758
CH ₄	0.003	25	0.165	0.023	0.125
N ₂ O	0.0006	298	0.394	0.054	0.299
Total GHG - CO ₂ e			163.6	22.579	124.18

Emissions shall be calculated using the emission factors identified above unless new emission factors are provided by the manufacturer or developed through source testing.

- 6.m. Emissions Summary.

The potential facility-wide annual emissions listed in the table below are the sum of the maximum anticipated emissions using the emission factors presented in this section.

Air Pollutant	Potential to Emit (tpy)
NO _x	8.68
CO	7.62
VOC	1.80
SO ₂	0.01
PM	4.55
PM ₁₀	1.62
PM _{2.5}	0.68
CO ₂ e	1386

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 (40 CFR) 60.7 "Notification and Record Keeping" requires that notification shall be submitted to SWCAA, the delegated authority, for date construction commenced, anticipated initial start-up, and initial start-up of equipment subject to New Source Performance Standards. This applies to specific rock crushing and screening equipment.
- 7.b. 40 CFR 60.8 "Performance Tests" requires that emission tests be conducted according to test methods approved in advance by the permitting authority and a copy of the results be submitted to the permitting authority. The initial visual emissions monitoring requirement may not have been satisfied for all rock crushers and screens as required by Subpart OOO. Performance tests for Subpart IIII are only required for engines with a displacement of ≥ 30 liters per cylinder or engines that are not EPA Tier certified. None of the proposed portable stationary engines defined as "new" for the purposes of Subpart IIII are uncertified. Therefore, they are not subject to Subpart IIII performance testing.
- 7.c. 40 CFR 60.670 et seq. (Subpart OOO) "Standards of Performance for Nonmetallic Mineral Processing Plants" establishes opacity and particulate matter emission limits for stationary (fixed) plants with capacities greater than 25 tons per hour and portable plants greater than 150 tons per hour that were constructed, reconstructed or modified after August 31, 1983. This subpart is applicable to rock crushers and aggregate screens identified in this ADP.
- 7.d. 40 CFR Part 60.4200 et seq. "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 Perkins MP-1501 engine is an affected source because it was manufactured after the relevant applicability date (April 1, 2006).
- 7.e. 40 CFR Part 63.6580 et seq. "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. Diesel engines installed at area sources before June 12, 2006, are "existing" for the purposes of this rule. Emergency stationary RICE for existing residential, commercial, or institutional locations with limited usage at area sources are not subject to this subpart. New diesel engines at residential, commercial, or institutional sources are subject to this subpart. A "new" stationary RICE at an area source must comply with Subpart ZZZZ by meeting the requirements of 40 CFR 60 Subpart IIII for compression ignition engines or 40 CFR 60 Subpart JJJJ for spark ignition engines. The John Deere engine is a portable unit and was manufactured in 1986. It is subject to this regulation. SWCAA currently has delegation for this regulation for major sources only and has chosen not to independently implement the associated requirements. This facility is not a major source.
- 7.f. 40 CFR 1039 includes requirements for nonroad engines. The definition of nonroad engines in 40 CFR 1068.30 includes any internal combustion engine described in (1)(i) "In or on a piece of equipment that is self-propelled or serves a dual purpose by both propelling itself and performing another function (such as garden tractors, off-highway mobile cranes and bulldozers)." With the exception of the generator

engines, all of the other engines drive track-mounted crushers and screens and therefore are nonroad engines. The engine must meet the appropriate EPA Tier certification standards based on engine size and year of manufacture. In accordance with Appendix A of Subpart 1074, 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 regulations such as hours of usage, daily mass emission limits, and sulfur limits on fuel.

The definition of nonroad engines in 40 CFR 1068.30 includes any internal combustion engine in (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." If the generator engines remain at no single site more than 12 months, they would be nonroad engines as defined in 40 CFR 1068.30. The generator engines are being treated as stationary sources so that they will be allowed to remain on-site for more than 12 months if necessary.

- 7.g. 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 [RCW 70A.15] 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.h. 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 ADP for installation and establishment of an air contaminant source.
- 7.i. Washington Administrative Code (WAC) 173-460 "Controls for New Sources of Toxic Air Pollutants" requires Best Available Control Technology for toxic air pollutants (T-BACT), identification and quantification of emissions of toxic air pollutants, and demonstration of protection of human health and safety.
- 7.j. 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.k. Southwest Clean Air Agency (SWCAA) 400-040 "General Standards for Maximum Emissions" requires all new and existing sources and emission units to meet certain performance standards with respect to Reasonably Available Control Technology (RACT), visible emissions, fallout, fugitive emissions, odors, emissions detrimental to persons or property, sulfur dioxide, concealment and masking, and fugitive dust.
- 7.l. SWCAA 400-040(1) "Visible Emissions" requires that no emission of an air contaminant from any emissions unit shall exceed twenty percent opacity for more than three minutes in any one hour at the emission point or within a reasonable distance of the emission point.

- 7.m. SWCAA 400-040(2) "Fallout" requires that no emission of particulate matter from any source shall be deposited beyond the property under direct control of the owner(s) or operator(s) of the source in sufficient quantity to interfere unreasonably with the use and enjoyment of the property upon which the material is deposited.
- 7.n. SWCAA 400-040(3) "Fugitive Emissions" requires that reasonable precautions be taken to prevent the fugitive release of air contaminants to the atmosphere.
- 7.o. SWCAA 400-040(4) "Odors" requires that any person who shall cause or allow the generation of any odor from any source, which may unreasonably interfere with any other property owner's use and enjoyment of their property use recognized good practices and procedures to reduce these odors to a reasonable minimum.
- 7.p. SWCAA 400-040(6) "Sulfur Dioxide" requires that no person shall emit a gas containing in excess of one thousand ppm of sulfur dioxide on a dry basis, corrected to 7% O₂ or 12% CO₂ as required by the applicable emission standard for combustion sources.
- 7.q. SWCAA 400-040(8) "Fugitive Dust Sources" requires that reasonable precautions be taken to prevent fugitive dust from becoming airborne and minimize emissions.
- 7.r. SWCAA 400-045 "Permit Applications for Nonroad Engines" requires, with a few exceptions, submittal of an ADP application for installation of nonroad engines as defined in 40 CFR 89.
- 7.s. 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.
- 7.t. SWCAA 400-050 "Emission Standards for Combustion and Incineration Units" requires that all provisions of SWCAA 400-040 be met and that no person shall cause or permit the emission of particulate matter from any combustion or incineration unit in excess of 0.23 grams per dry cubic meter (0.1 grains per dry standard cubic foot) of exhaust gas at standard conditions.
- 7.u. SWCAA 400-060 "Emission Standards for General Process Units" requires that all new and existing sources not emit particulate matter in excess of 0.1 grains per dry standard cubic foot of exhaust gas.
- 7.v. SWCAA 400-091 "Voluntary Limits on Emissions" allows sources to request voluntary limits on emissions and potential to emit by submittal of an ADP application as provided in SWCAA 400-109. Upon completing review of the application, SWCAA shall issue a Regulatory Order that reduces the source's potential to emit to an amount agreed upon between SWCAA and the permittee. The applicant has agreed to limit operation of the stationary engines to 1,000 hours per year to avoid the need to install a diesel oxidation catalyst as application of BACT.
- 7.w. SWCAA 400-109 "Air Discharge Permit Applications" requires that an ADP application be submitted for all new installations, modifications, changes, or alterations to process and emission control equipment consistent with the definition of "new source". Sources wishing to modify existing permit terms may submit an ADP application to request such changes. An ADP must be issued, or written confirmation of

exempt status must be received, before beginning any actual construction, or implementing any other modification, change, or alteration of existing equipment, processes, or permits.

- 7.x. SWCAA 400-110 "New Source Review" requires that an ADP be issued by SWCAA prior to establishment of the new source, emission unit, or modification.
- 7.y. SWCAA 400-111 "Requirements for Sources in a Maintenance Plan Area" requires that no approval to construct or alter an air contaminant source shall be granted unless it is evidenced that:
- (1) The equipment or technology is designed and will be installed to operate without causing a violation of the applicable emission standards;
 - (2) Emissions will be minimized to the extent that the new source will not exceed emission levels or other requirements provided in the maintenance plan;
 - (3) BACT will be employed for all air contaminants to be emitted by the proposed equipment;
 - (4) The proposed equipment will not cause any ambient air quality standard to be exceeded; and
 - (5) If the proposed equipment or facility will emit any toxic air pollutant regulated under WAC 173-460, the proposed equipment and control measures will meet all the requirements of that Chapter.
- 7.z. SWCAA 400-113 "Requirements for New Sources in Attainment or Nonclassifiable Areas" requires that no approval to construct or alter an air contaminant source shall be granted unless it is evidenced that:
- (1) The equipment or technology is designed and will be installed to operate without causing a violation of the applicable emission standards;
 - (2) BACT will be employed for all air contaminants to be emitted by the proposed equipment;
 - (3) The proposed equipment will not cause any ambient air quality standard to be exceeded; and
 - (4) If the proposed equipment or facility will emit any toxic air pollutant regulated under WAC 173-460, the proposed equipment and control measures will meet all the requirements of that Chapter.

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

The proposed equipment and control systems have been evaluated to determine if they meet the requirements of Best Available Control Technology (BACT) for the types and amounts of air contaminants emitted by the processes and equipment as described below:

- 8.a. BACT Determination – Rock Crushers and Aggregate Screens. The proposed use of high-pressure wet suppression systems, including spray or fog nozzles operating at a minimum pressure of 80 psig, has been determined to meet the requirements of BACT for the rock crushers and aggregate screens at this facility. Because there are other wet suppression systems (e.g., sonic fogging systems) that utilize a lower water pressure but provide equivalent or superior levels of emission control, the permit will allow for wet suppression systems reviewed and approved by SWCAA that provide equivalent or superior control of particulate matter emissions.
- 8.b. BACT Determination – Fugitive Dust. The use of wet suppression has been determined to meet the requirements of BACT for fugitive dust emissions from storage piles, material transfer points, and haul roads for this source.
- 8.c. BACT Determination - Generator Engines. SWCAA previously made the following BACT determination for this facility and has extended it to the two unpermitted existing generator engines.

For the generator engines, the use of modern diesel-fired engine design, the use of ultra-low sulfur diesel fuel ($\leq 0.0015\%$ sulfur by weight), limitation of visible emissions to 5% opacity or less, and limitation of engine operation to ≤ 1000 hours per year has been determined to meet the requirements of BACT for the types and quantities of air contaminants emitted from the generator engines.

- 8.d. Prevention of Significant Deterioration (PSD) Applicability Determination. This permitting action will not result in a potential emissions increase equal to or greater than the applicable PSD thresholds. Therefore, requirements of the PSD program are not applicable to this action.
- 8.e. Compliance Assurance Monitoring (CAM) Applicability. CAM is not applicable to any emission unit at this facility because this facility is not a major source that is required to obtain a Part 70 or 71 permit.

9. AMBIENT IMPACT ANALYSIS

This source is portable and will generally operate for short periods of time at multiple locations. This permitting action is associated with increased potential emissions of criteria air pollutants from operation of diesel engines. SWCAA ran EPA's Aerscreen dispersion model (version 11126) with the stack parameters from the John Deere Engine (the new stationary engine with the greatest emissions). The results of the model indicate that operation of the engine at a maximum of 1,000 hours will not result in an exceedance of any ambient air quality standard or WAC 173-460 TAP at a reasonable distance from the engine.

Conclusions

- 9.a. Operation of the crushing equipment as proposed in ADP application CL-3064 will not cause a violation of the ambient air quality standards established by 40 CFR 50 "National Primary and Secondary Ambient Air Quality Standards."
- 9.b. Operation of the crushing equipment as proposed in ADP application CL-3064 will not cause a violation of the requirements of WAC 173-460 "Controls for New Sources of Toxic Air Pollutants" or WAC 173-476 "Ambient Air Quality Standards."
- 9.c. The crushing equipment proposed in ADP application CL-3064, if properly installed and maintained, will not violate emission standards for sources as established under SWCAA General Regulations Sections 400-040 "General Standards for Maximum Emissions," 400-050 "Emission Standards for Combustion and Incineration Units," and 400-060 "Emission Standards for General Process Units."

10. DISCUSSION OF APPROVAL CONDITIONS

SWCAA has made a determination to issue ADP 23-3563 in response to ADP application CL-3064. ADP 23-3563 contains approval requirements deemed necessary to assure compliance with applicable regulations and emission standards as discussed below.

- 10.a. Supersession of Previous Permits. ADP 23-3563 supersedes ADP 10-2962 in its entirety. Compliance will be determined under this ADP, not previously superseded ADPs. Existing approval conditions for units not affected by this project have been carried forward unchanged.

- 10.b. General Basis: Approval conditions for equipment affected by this permitting action incorporate the operating schemes proposed by the permittee in the ADP application.
- 10.c. Emission Limits. Annual emission limitations for the equipment addressed in this permitting action were established equal to the potential to emit identified in Section 6. As discussed in Section 8, these emission limits meet the requirements of BACT. Based on information provided with the ADP application, it is SWCAA's understanding that the emission limits established in the permit will not constrain future operation.

Visible emissions from both the stationary and nonroad engines were limited to 5% opacity. Visible emissions should not exceed this level if the engines are operating properly. For the nonroad engines, SWCAA uses this as a surrogate indicator that the engines are in good repair (rather than a tailpipe emission standard otherwise precluded by 40 CFR 1074). For the nonroad engines, this restriction is appropriate because if the engines are not maintained in good repair, emissions are likely to greatly exceed the values used for air quality modeling and could result in an exceedance of a state or federal ambient air quality standard.

- 10.d. Operating Limits and Requirements. A visible emission limit (not to exceed 0% opacity for more than three minutes in any one hour) for the crushing and screening equipment has been established consistent with proper operation of the proposed wet suppression systems and the requirements of 40 CFR 60, Subpart OOO. High pressure spray systems (≥ 80 psig) or equivalent have been determined to be a minimum BACT requirement for individual pieces of rock crushing and aggregate screening equipment.

Annual operations will be monitored with an integral hour-meter and reported to SWCAA by the source. The engines have been permitted assuming a maximum operation of 1,000 hr/yr.

- 10.e. Monitoring and Recordkeeping. Sufficient monitoring and recordkeeping requirements were established to document compliance with the annual emission limits and provide for general requirements (e.g., excess emission reporting, annual emission inventory submission). In addition, upset conditions must be recorded for each occurrence. For the purposes of this requirement, an upset condition is a failure, breakdown, or malfunction of any piece of process equipment or pollution control equipment that causes, or has the potential to cause, excess emissions. This log can be useful to plant operators and SWCAA staff when evaluating whether equipment is being properly operated and maintained.

- 10.f. Emission Monitoring and Testing Requirements. See Section 12.

- 10.g. Reporting. The permit requires reporting of the annual air emissions inventory, and reporting of the data necessary to develop the inventory. Excess emissions must be reported immediately in order to qualify for relief from monetary penalty in accordance with SWCAA 400-107. In addition, prompt reporting was required because it allows for accurate investigation into the cause of the event and prevention of similar future incidents.

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.

The nonroad and stationary diesel engines may exhibit excess opacity upon start-up even if the units are in proper working order. Accordingly, the visual emissions limit for the stationary and nonroad diesel engines is not applicable during the start-up period defined in the permit.

- 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 approval conditions.
- 11.c. Pollution Prevention Measures. SWCAA conducted a review of possible pollution prevention measures for the facility. No pollution prevention measures other than the control measures identified in the permit were identified by either the permittee or SWCAA. Therefore, none were included in the approval conditions.

12. EMISSION MONITORING AND TESTING

Initial opacity observations are required by 40 CFR 60 Subpart OOO for affected crushing, associated screening equipment, and belt conveyors. Appendix A requires a source test of the affected equipment that has not already been tested in accordance with Subpart OOO.

13. FACILITY HISTORY

- 13.a. Regulatory History. SWCAA has previously issued the following ADPs for this facility:

ADP Number	Application #	Date Issued	Description
10-2962	CL-1928	December 17, 2010	Initial installation of portable crushing and screening equipment. This ADP is superseded by ADP 23-3563.
03-2448	CL-1569	February 12, 2003	Initial installation of portable crushing and screening operation consisting of a Hartl Crusher, a Powerscreen, and their drive engines. This ADP was superseded by ADP 10-2962.

- 13.b. Compliance History. A search of source records on file at SWCAA did not identify any previous or outstanding compliance issues.

14. PUBLIC INVOLVEMENT

- 14.a. Public Notice for Air Discharge Permit Application CL-3064. Public notice for ADP application CL-3064 was published on the SWCAA internet website for a minimum of fifteen (15) days beginning on November 27, 2018.

- 14.b. Public/Applicant Comment for Air Discharge Permit Application CL-3064. SWCAA did not receive specific comments, a comment period request, or any other inquiry from the public regarding this ADP application. Therefore, no public comment period was provided for this permitting action.
- 14.c. State Environmental Policy Act. A Determination of Non-Significance (SWCAA 23-005) was issued for this permitting action by SWCAA.