



**TECHNICAL SUPPORT DOCUMENT**

**Air Discharge Permit 21-3471  
Air Discharge Permit Application CL-3167**

**BNSF Railway Company  
SWCAA ID – 228**

**Final Date: July 20, 2021**

Prepared By: Danny Phipps  
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	NWN .....	Northwest Pipeline, North
BART .....	Best Available Retrofit Technology	PSD .....	Prevention of Significant Deterioration
BNSF .....	Burlington Northern Santa Fe Railway Company	PTE.....	Potential to Emit
CAM.....	Compliance Assurance Monitoring	RACT .....	Reasonably Available Control Technology
CAS#.....	Chemical Abstracts Service registry number	RCW.....	Revised Code of Washington
CFR .....	Code of Federal Regulations	RICE.....	Reciprocating Internal Combustion Engine
CI.....	Compression Ignition	SCC .....	Source Classification Code
EPA .....	U.S. Environmental Protection Agency	SDS .....	Safety Data Sheet
EU .....	Emission Unit	SQER .....	Small Quantity Emission Rate listed in WAC 173-460
GWP.....	Global Warming Potential	Standard.....	Standard conditions at a temperature of 68°F (20°C) and a pressure of 29.92 in Hg (760 mm Hg)
ICE .....	Internal Combustion Engine	SWCAA .....	Southwest Clean Air Agency
LAER .....	Lowest achievable emission rate	T-BACT .....	Best Available Control Technology for toxic air pollutants
MACT .....	Maximum Achievable Control Technologies	WAC .....	Washington Administrative Code
mfr .....	Manufacturer		

### *List of Units and Measures*

$\mu\text{g}/\text{m}^3$ .....	Micrograms per cubic meter	MMBtu.....	Million British thermal unit
$\mu\text{m}$ .....	Micrometer ( $10^{-6}$ meter)	MMcf .....	Million cubic feet
acfm.....	Actual cubic foot per minute	ppm .....	Parts per million
bhp.....	Brake horsepower	ppmv .....	Parts per million by volume
dscfm .....	Dry Standard cubic foot per minute	ppmvd .....	Parts per million by volume, dry
$\text{g}/\text{Nm}^3_{\text{dry}}$ .....	Grams per Normal (i.e. Standard) cubic meter, dry	ppmw.....	Parts per million by weight
gr/dscf.....	Grain per dry standard cubic foot	psig.....	Pounds per square inch, gauge
hp.....	Horsepower	rpm .....	Revolution per minute
hp-hr .....	Horsepower-hour	scf.....	Standard cubic foot
kW .....	Kilowatt	scfm.....	Standard cubic foot per minute
		tpy .....	Tons per year

*List of Chemical Symbols, Formulas, and Pollutants*

C <sub>3</sub> H <sub>8</sub> .....	Propane	O <sub>3</sub> .....	Ozone
CH <sub>4</sub> .....	Methane	PM .....	Particulate Matter with an aerodynamic diameter 100 µm or less
CO .....	Carbon monoxide	PM <sub>10</sub> .....	PM with an aerodynamic diameter 10 µm or less
CO <sub>2</sub> .....	Carbon dioxide	PM <sub>2.5</sub> .....	PM with an aerodynamic diameter 2.5 µm or less
CO <sub>2</sub> e .....	Carbon dioxide equivalent	SO <sub>2</sub> .....	Sulfur dioxide
H <sub>2</sub> S .....	Hydrogen sulfide	SO <sub>x</sub> .....	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 <sub>2</sub> O.....	Nitrous oxide	TSP.....	Total Suspended Particulate
NH <sub>3</sub> .....	Ammonia	VOC .....	Volatile organic compound
NO <sub>2</sub> .....	Nitrogen dioxide		
NO <sub>x</sub> .....	Nitrogen oxides		
O <sub>2</sub> .....	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: BNSF Railway Company  
Applicant Address: 605 Puyallup Avenue, Tacoma, WA 98421

Facility Name: BNSF Railway Company  
Facility Address: 1310 W 11<sup>th</sup> St, Vancouver, WA 98660

Contact Person: Ryan Hibbs, Senior Manager Environmental Operations

SWCAA Identification: 0228

Primary Process: BNSF is a railroad transportation company  
SIC/NAICS Code: 4011: Line-haul Operating Railroads  
482111: Line haul railroads

Facility Classification: Natural Minor

## 2. FACILITY DESCRIPTION

BNSF Railway Company (BSNF) operates two linked railyards near downtown Vancouver, WA. For purposes of permitting, the two locations are considered continuous and adjacent as one facility.

## 3. CURRENT PERMITTING ACTION

This permitting action is in response to Air Discharge Permit (ADP) Application number CL-3167 dated June 15, 2021. BSNF submitted ADP Application CL-3167 requesting the following:

- Approval to install a 1220 brake horsepower generator that will be used to provide emergency backup power to the wastewater treatment plant to allow it to continue operating in the case of an outage. The requirements of SUN-262 and SUN-263 will be incorporated as well, which cover the installation of two emergency generator engines. Additionally, four air heaters and a water heater will be removed as they were removed during the demolition of the car shop in 2020.

ADP 21-3471 will supersede Air Discharge Permit 20-3426 and Small Unit Notifications 262 and 263 in their entirety by this permitting action.

## 4. PROCESS DESCRIPTION

4.a. Lochinvar Boiler. The natural gas-fired boiler is used for hot water production and heat.

- 4.b. Space Heating and Hot Water Heaters. The facility operates 24 natural gas-fired heaters from various manufacturers, including Trane, Carrier, Reznor, Modine, Cambridge Engineering, Dayton, and Rheem. The units will typically operate primarily during the winter months. There are also three hot water heaters, one each from Intellihot, Rheem, and Noritz.
- 4.c. Emergency Power Generation. Three diesel fired engine driven generators are used to generate emergency electrical power.

## 5. EQUIPMENT/ACTIVITY IDENTIFICATION

- 5.a. Boiler. The boiler is used for hot water production and heat. Actual operation of the boiler is estimated to be approximately 500 hr/yr.

Boiler Manufacturer:	Lochinvar
Model Number:	FTX0725
Serial Number:	30840
Heat Rate:	0.725 MMBtu/hr
Stack Diameter:	6 in
Stack Height:	30 ft
Stack Flow:	123 scfm @ 3%O <sub>2</sub> (est. with EPA Method 19)
Turndown ratio:	7:1
40 CFR 60 Subpart Dc:	No; Less than 10 MMBtu/hr
40 CFR 63 Subpart JJJJJ:	No; Natural gas only

- 5.b. Space Heating and Hot Water Heaters. These units provide space heat in the winter and domestic hot water and are only fired on natural gas. Units one through eight are no longer listed as they are electric, and therefore do not have emissions. Units 25, 26, and 28 through 30 are no longer listed as they have been removed from the site during a 2020 demolition. Additionally, a water heater was removed, as it was removed from site during the same demolition.

### Space Heater Information

Unit	Location	Stack Height (ft)	Rating (MMBtu/hr)
Heat 09 (Trane, m/n YCD036C310BE)	Office	17	0.08
Heat 10 (Trane, m/n YCD036C310BE)	Office	17	0.08
Heat 11 (Carrier)	Office	17	0.08
Heat 12 (Trane, m/n GPNC003MC10000)	Old Section Building	18	0.03
Heat 13 (Trane, m/n GPNC003MC10000)	Old Section Building	18	0.03
Heat 14 (Reznor, m/n X1-105)	Old Section Building	N/A	0.11
Heat 15 (Cambridge Engineering, m/n M112)	Wastewater Treatment Plant	20	0.36
Heat 16 (Modine, m/n HD75)	Wastewater Treatment Plant	26	0.08

**Space Heater Information**

Unit	Location	Stack Height (ft)	Rating (MMBtu/hr)
Heat 17 (Trane)	Roundhouse	25	0.10
Heat 18 (Trane)	Roundhouse	25	0.10
Heat 19 (Dayton, m/n 3E369)	Electrical	28	0.10
Heat 20 (Reznor)	Work Equipment	32	0.40
Heat 21 (Reznor)	Work Equipment	32	0.40
Heat 22 (Reznor)	Work Equipment	32	0.40
Heat 23 (Reznor)	Work Equipment	32	0.40
Heat 24 (Reznor)	Work Equipment	32	0.40
Heat 27 (Dayton, m/n 3E370)	Rip Track Mechanical	19	0.13
Heat 31 (Reznor)	Building D	21	0.13
Heat 32 (Reznor, m/n UDAP45)	Building D	21	0.05
Heat 33 (Reznor, m/n UDAP45)	Building D	21	0.05
Heat 34 (Reznor, m/n UDAP45)	Building D	21	0.05

**Hot Water Heaters**

Unit	Location	Rating (MMBtu/hr)
Water 01 (Intellihot, m/n 1200P)	Roundhouse	0.20
Water 03 (Noritz, m/n NCC199-SV)	Building D	0.20
Water 04 (Rheem m/n NCC 199-SV)	Rip Track Lunch	0.038

- 5.c. Emergency Generator Diesel Engine (removed). The Emergency Generator Diesel Engine is used to provide power in the event of loss of line power. Details are as follow:

Engine Make: Allis Chalmers  
 Engine Model: 670T  
 Engine Serial Number: 70-24612  
 Date Manufactured: Approx 1982 based on Onan genset manufactured date  
 Engine Output Rating: 173 bhp at 1800 rpm  
 Certification: Not Tier Certified  
 Fuel Consumption: 3.21 gal/hr at full standby load  
 Generator Rating: 100 kW  
 Generator Make: Onan  
 Generator Model: Gen Set 100  
 Generator Serial Number: E820622031  
 Exhaust Flow Rate: 300 dscfm @ 8% O<sub>2</sub> (est. using EPA Method 19)  
 Stack Height: 10 ft from ground  
 Stack Diameter: 6 in  
 Stack Temperature: 750°F  
 Subpart ZZZZ Applicable: Yes

- 5.d. Emergency Generator Diesel Engine – Lift Station (incorporated from SUN-262). The Emergency Generator Diesel Engine is used to provide power in the event of loss of line power. Details are as follow:

Engine Make: Cummins  
 Engine Model: QSB-G13

Date Manufactured: approximately August 2021  
 Engine Output Rating: 140 bhp  
 Certification: EPA Tier 3  
 Fuel Consumption: 7.30 gal/hr at full standby load  
 Generator Rating: 80 kW  
 Generator Make: Cummins  
 Generator Model: C80D36  
 Stack Height: 81 in from ground  
 Stack Diameter: 4 in  
 Stack Temperature: 769°F  
 Subpart ZZZZ Applicable: Yes

- 5.e. Emergency Generator Diesel Engine – Building A(incorporated from SUN-263). The Emergency Generator Diesel Engine is used to provide power in the event of loss of line power. Details are as follow:

Engine Make: Cummins  
 Engine Model: QSB5-G13  
 Date Manufactured: approximately August 2021  
 Engine Output Rating: 176 bhp  
 Certification: EPA Tier 3  
 Fuel Consumption: 8.9 gal/hr at full standby load  
 Generator Rating: 100 kW  
 Generator Make: Cummins  
 Generator Model: C100D6C  
 Stack Height: 81 in from ground  
 Stack Diameter: 4 in  
 Stack Temperature: 913°F  
 Subpart ZZZZ Applicable: Yes

- 5.f. Emergency Generator Diesel Engine – Wastewater Treatment Plant(new). The Emergency Generator Diesel Engine is used to provide power in the event of loss of line power. Details are as follow:

Engine Make: Cummins  
 Engine Model: QSK23-G7 NR2  
 Date Manufactured: approximately August 2021  
 Engine Output Rating: 1220  
 Certification: NSPS Emergency Tier 2  
 Fuel Consumption: 50.5 gal/hr at full standby load  
 Generator Rating: 750 kW  
 Generator Make: Cummins  
 Generator Model: DQCB  
 Stack Height: 10 ft from ground  
 Stack Diameter: 10 in  
 Stack Temperature: 840°F  
 Subpart ZZZZ Applicable: Yes



5.g. Spray Booth. The Global Finishing Solutions spray booth (m/n IDBG-121220-S-CR-S) is a cross flow booth, measuring 12 ft wide by 12 ft high by 20 ft deep (interior), and equipped with one 5-hp, 34 in diameter exhaust fan (GFA). Face velocity is approximately 100 ft/min across the door intakes. The booth contains thirty-six 20 in by 20 in by 1 in intake filters and forty-nine 20 in by 20 in by 2 in exhaust filters.

Exhaust Flow: 15,400 acfm  
 Stack Diameter: 34 in  
 Stack Height: 37 ft 1 in above ground level

5.h. Tanks 2 and 3. Diesel storage tanks with a throughput 20,000,000 gallons per year are used for diesel fuel dispensing.

Orientation: Horizontal  
 Diameter: 11 ft  
 Length: 36 in  
 Description: White tank with a domed roof

5.i. Insignificant Emission Units. The following pieces of facility equipment have been determined to have insignificant emissions and are not registered as emission units:

- *VS10-20 Sand Silo*. Emissions from the silo are controlled by a pulsejet dust collector using four 8" diameter by 32" length pleated Ultraweb cartridges. The maximum capacity is 30 tons with an estimated throughput of 1,420 tpy. The air-to-cloth ratio is 4.2:1 with a filter area of 32 ft<sup>2</sup>/cartridge and an estimated airflow of 650 acfm. Assuming a maximum emission rate of 0.005 gr/dscf and 8,760 hr/yr operation, emissions are expected to be 2.7 lb/yr of PM. The stack is 50' above ground level and 6" in diameter.
- *Stationary Tanks*. BNSF operates several horizontal, above-ground, storage tanks at the facility as specified below:

Tank No.	Size (gal)	Contents	Est. Annual Through-put (gal)	Diam. (ft)	Length (ft)	Tank Color	Roof Shape
Tank 4*	8,000	Lube Oil	50,000	10	15	White	Dome
Tank 5*	500	Lube Oil		4	7	White	Flat
Tank 6	25,000	Used Oil	15,000	11	36	White	Dome
Tank 8	1,100	Diesel	3,000	4	12	White	Dome
Tank 11 <sup>†</sup>	292	Diesel	0	3.3	6	White	Dome
Tank 12	270	Rail Lube	600	3.5	4	Black	Flat
Tank 13	300	Diesel	300	4.3	6	White	Dome

\* Tanks 4 and 5 are connected and have the same throughput.

<sup>†</sup> Tank is portable and rarely used.

BNSF provided estimated emissions using the EPA TANKS (v. 4.09d) software. The contents of these tanks have very low vapor pressures or are very small capacities/throughputs and are therefore not expected to emit appreciable quantities of VOC.

- *Parts Washers.* BNSF operates three ZEP electric parts washers (m/n 906201): Roundhouse washer (s/n 3089618), Fueling Platform Washer (s/n 8053978), and Car Shop Tool Room Washer. The solvent used in the washers is Zep Dyna 143, which according to the 6/24/2012 Safety Data Sheet (SDS), is 90–100% hydrotreated light distillates [64742-47-8], a VOC, with no TAPs or HAPs. Because the usage is estimated at less than 20 gal/yr, SWCAA considers the VOC emissions to be negligible. If the solvent usage increases above 75 gal, the SDS is updated, or BNSF changes the solvent, the Permittee must contact SWCAA for reevaluation.
- *Abrasive Blasting.* BNSF operates an abrasive blasting booth for cleaning metal parts for railcar maintenance. Emissions are controlled by a small baghouse. SWCAA considers PM emissions from the baghouse to be negligible.

5.f. Other Equipment.

- BNSF has an existing (and unpermitted) small paint booth and has stated to SWCAA that it is not used. No additional information was submitted to SWCAA to allow the operation of the paint booth; therefore, the paint booth is not approved for operation and any operation of the booth constitutes a violation of SWCAA 400-110. An ADP application must be submitted to SWCAA and an ADP issued prior to any future operation of the booth.
- There is an oil-water separator that processes oil from draining and maintaining locomotives. Approximately 9,000 gallons of used oil is collected from the separator annually. SWCAA considers VOC emissions from the separator to be negligible.
- There is also a wastewater treatment plant that consists of a grit chamber, oil-water separator and a Dissolved Air Floatation system. The treatment plant receives contact stormwater and wash water and is rated at 200 gal/min. SWCAA considers VOC emissions from the treatment plant to be negligible.

5.g. Equipment/Activity Summary.

ID No.	Generating Equipment/Activity	# of Units	Control Equipment	# of Units
1	Lochinvar Boiler (m/n FTX07225)	1	Low sulfur fuel (natural gas)	N/A
2	Space Heaters (24 units) and Hot Water Heaters (3 units)	27	Low sulfur fuel (natural gas)	N/A
3	Emergency Generator Diesel Engine – Lift Station, Cummins (QSB5-G13)	1	Ultra low sulfur diesel fuel (15 ppm)	N/A



ID No.	Generating Equipment/Activity	# of Units	Control Equipment	# of Units
4	Emergency Generator Diesel Engine – Building A, Cummins (QSB5-G13)	1	Ultra low sulfur diesel fuel (15 ppm)	N/A
5	Emergency Generator Diesel Engine – Wastewater Treatment Plant, Cummins (QSK23-G7 NR2)	1	Ultra low sulfur diesel fuel (15 ppm)	N/A
6	Gasoline Fuel Dispensing and Storage (Tank 7)	1	None	N/A
7	Diesel Dispensing and Storage (Tank 2 and Tank 3)	2	Pressure Valve, Emergency Valve, and Safety Valve	6

## 6. EMISSIONS DETERMINATION

Emissions to the ambient atmosphere from the facility, as proposed in ADP Application CL-3167, consist of nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), volatile organic compounds (VOC), particulate matter (PM) sulfur dioxide (SO<sub>2</sub>), toxic air pollutants (TAPs), and hazardous air pollutants (HAPs).

- 6.a. Lochinvar Boiler. The Lochinvar Boiler (m/n FTX07225) is rated at 0.725 MMBtu/hr and can only be fired on natural gas. The following emission factors are used to calculate emissions:

Pollutant	lb/MMscf	lb/hr**	tpy	Source
NO <sub>x</sub>	37.1	0.026	0.12	SWCAA 400-072 (30 ppm)*
CO	37.7	0.027	0.12	SWCAA 400-072 (50 ppm)*
VOC (as C <sub>3</sub> H <sub>8</sub> )	5.5	0.0039	0.017	AP-42 § 1.4 (7/1998)
PM	7.6	0.0043	0.024	AP-42 § 1.4 (7/1998)
PM <sub>10</sub>	7.6	0.0054	0.024	AP-42 § 1.4 (7/1998)
PM <sub>2.5</sub>	7.6	0.0054	0.024	AP-42 § 1.4 (7/1998)
SO <sub>2</sub>	0.6	0.00043	0.0019	AP-42 § 1.4 (7/1998)
CO <sub>2e</sub>	120143	85	371.8	40 CFR 98
Benzene [71-43-2]	0.0021	0.013	6.5×10 <sup>-6</sup>	AP-42 § 1.4 (7/1998)
Formaldehyde [50-00-0]	0.075	0.467	2.3×10 <sup>-4</sup>	AP-42 § 1.4 (7/1998)
* Emission factor calculated using EPA Method 19 and assuming an ideal gas.				
**Emission rate calculated using emission factors, firing rate and 1020 btu/dscf for AP-42 emissions factors, 1026 btu/dscf was used for 40 CFR 98 emission calculations.				

Annual emissions shall be determined by the fuel usage or total number of hours of operation multiplied by the emission factors above, unless otherwise specified by SWCAA.

- 6.b. Space Heaters and Hot Water Heaters. All of the individual units can only be fired on natural gas. For PTE purposes, the units are assumed to operate 8,760 hr/yr, each. The following emission factors are used to calculate emissions.

Pollutant	Emission Factors		PTE at 8760 hr/yr tpy	Source
	lb/MMscf	lb/hr*		
NO <sub>x</sub>	100	0.445	1.992	AP-42 § 1.4 (7/1998)
CO	84	0.382	1.673	AP-42 § 1.4 (7/1998)
VOC (as C <sub>3</sub> H <sub>8</sub> )	5.5	0.025	0.110	AP-42 § 1.4 (7/1998)
PM	7.6	0.0346	0.151	AP-42 § 1.4 (7/1998)
PM <sub>10</sub>	7.6	0.0346	0.151	Assumed equal to PM
PM <sub>2.5</sub>	7.6	0.0346	0.151	Assumed equal to PM
SO <sub>2</sub>	0.708	0.00322	0.0141	Mass Balance <sup>†</sup>
CO <sub>2e</sub>	119,500	534.4	2,380.	40 CFR 98 <sup>‡</sup>
Benzene [71-43-2]	0.0021	9.55×10 <sup>-6</sup>	4.18×10 <sup>-5</sup>	AP-42 § 1.4 (7/1998)
Formaldehyde [50-00-0]	0.075	3.41×10 <sup>-4</sup>	0.00149	AP-42 § 1.4 (7/1998)

\* The calculation assumes maximum combined fuel rate for all units of 4.64 MMBtu/hr.  
<sup>†</sup> The calculation assumes that the natural gas fuel properties are 7 ppmv SO<sub>2</sub> (NWN South), 0.051 lb/scf density, and 1,020 Btu/scf.  
<sup>‡</sup> The CO<sub>2e</sub> emission factor for natural gas is derived from 40 CFR 98 Subpart C (11/29/2013) with base factors of 117.0 lb/MMBtu CO<sub>2</sub>, 0.05512 lb/MMBtu CH<sub>4</sub>, and 0.0657 lb/MMBtu N<sub>2</sub>O, including by the greenhouse warming potential (GWP) multipliers of CO<sub>2</sub>=1, CH<sub>4</sub>=25, and N<sub>2</sub>O=298.

Annual emissions shall be determined by the fuel usage or total number of hours of operation multiplied by the emission factors above, unless otherwise specified by SWCAA.

- 6.c. Emergency Generator Engine- Lift Station, Cummins. The emergency generator engine is used to provide emergency power and can only be fired on diesel. For PTE purposes, the engine is assumed to operate no more than 200 hr/yr. Unless otherwise specified, SWCAA assumed that diesel and biodiesel have the same emission characteristics. The following emission factors are used to calculate emissions.

Pollutant	Emission Factors		PTE at 200 hr/yr tpy	Source**
	g/bhp-hr	lb/hr *		
NO <sub>x</sub>	3.18	0.98	0.098	Cummins
CO	0.30	0.093	0.0093	Cummins
VOC (as C <sub>3</sub> H <sub>8</sub> )	0.02	0.0062	0.00062	Cummins
PM	0.04	0.012	0.0012	Cummins

Pollutant	Emission Factors		PTE at 200 hr/yr tpy	Source**
	g/bhp-hr	lb/hr *		
PM <sub>10</sub>	0.04	0.012	0.0012	Assumed equal to PM
PM <sub>2.5</sub>	0.04	0.012	0.0012	Assumed equal to PM
SO <sub>2</sub>	N/A	0.0016	0.00016	Mass Balance ‡
CO <sub>2e</sub>	N/A	164.82	16.482	40 CFR 98 #
<p>* The calculation assumes maximum fuel rate of 7.3 gal/hr.</p> <p>**Cummins emission factors calculated using Emission Data Sheet standby values at full load and 140 BHP.</p> <p>‡ The calculation assumes that the liquid fuel (No. 2 fuel oil or biodiesel) properties are 15 ppmw S, 7.206 lb/gal density, and 0.138 MMBtu/gal.</p> <p># The CO<sub>2e</sub> emission factor for fuel oil is derived from 40 CFR 98 Subpart C (November 29, 2013) with base factors of 163.1 lb/MMBtu CO<sub>2</sub>, 0.1653 lb/MMBtu CH<sub>4</sub>, and 0.3942 lb/MMBtu N<sub>2</sub>O, including the GWP multipliers of CO<sub>2</sub>=1, CH<sub>4</sub>=25, and N<sub>2</sub>O=298 and scaled from 0.138 MMBtu/gal to 0.140 MMBtu/gal.</p>				

Annual emissions shall be determined by the fuel usage or total number of hours of operation multiplied by the emission factors above, unless otherwise specified by SWCAA.

- 6.d. Emergency Generator Engine- Building A, Cummins. The emergency generator engine is used to provide emergency power and can only be fired on diesel. For PTE purposes, the engine is assumed to operate no more than 200 hr/yr. Unless otherwise specified, SWCAA assumed that diesel and biodiesel have the same emission characteristics. The following emission factors are used to calculate emissions.

Pollutant	Emission Factors		PTE at 200 hr/yr tpy	Source**
	g/bhp-hr	lb/hr *		
NO <sub>x</sub>	3.18	1.23	0.123	Cummins
CO	0.30	0.12	0.012	Cummins
VOC (as C <sub>3</sub> H <sub>8</sub> )	0.02	0.0078	0.00078	Cummins
PM	0.04	0.016	0.0016	Cummins
PM <sub>10</sub>	0.04	0.016	0.0016	Assumed equal to PM
PM <sub>2.5</sub>	0.04	0.016	0.0016	Assumed equal to PM
SO <sub>2</sub>	N/A	0.0019	0.00019	Mass Balance ‡
CO <sub>2e</sub>	N/A	200.95	20.095	40 CFR 98 #
<p>* The calculation assumes maximum fuel rate of 8.9 gal/hr.</p> <p>**Cummins emission factors calculated using Emission Data Sheet standby values at full load and 176 BHP.</p> <p>‡ The calculation assumes that the liquid fuel (No. 2 fuel oil or biodiesel) properties are 15 ppmw S, 7.206 lb/gal density, and 0.138 MMBtu/gal.</p>				

Pollutant	Emission Factors		PTE at 200 hr/yr tpy	Source**
	g/bhp-hr	lb/hr *		
# The CO <sub>2</sub> e emission factor for fuel oil is derived from 40 CFR 98 Subpart C (November 29, 2013) with base factors of 163.1 lb/MMBtu CO <sub>2</sub> , 0.1653 lb/MMBtu CH <sub>4</sub> , and 0.3942 lb/MMBtu N <sub>2</sub> O, including the GWP multipliers of CO <sub>2</sub> =1, CH <sub>4</sub> =25, and N <sub>2</sub> O=298 and scaled from 0.138 MMBtu/gal to 0.140 MMBtu/gal.				

Annual emissions shall be determined by the fuel usage or total number of hours of operation multiplied by the emission factors above, unless otherwise specified by SWCAA.

- 6.e. Emergency Generator Engine- Wastewater Treatment Plant, Cummins. The emergency generator engine is used to provide emergency power and can only be fired on diesel. For PTE purposes, the engine is assumed to operate no more than 200 hr/yr. Unless otherwise specified, SWCAA assumed that diesel and biodiesel have the same emission characteristics. The following emission factors are used to calculate emissions.

Pollutant	Emission Factors		PTE at 200 hr/yr tpy	Source**
	g/bhp-hr	lb/hr *		
NO <sub>x</sub>	5.87	15.79	1.58	Cummins
CO	0.28	0.75	0.075	Cummins
VOC (as C <sub>3</sub> H <sub>8</sub> )	0.12	0.32	0.032	Cummins
PM	0.05	0.13	0.013	Cummins
PM <sub>10</sub>	0.05	0.13	0.013	Assumed equal to PM
PM <sub>2.5</sub>	0.05	0.13	0.013	Assumed equal to PM
SO <sub>2</sub>	N/A	0.011	0.0011	Mass Balance ‡
CO <sub>2</sub> e	N/A	1140	114	40 CFR 98 #
* The calculation assumes maximum fuel rate of 50.5 gal/hr. **Cummins emission factors calculated using Emission Data Sheets standby values at full load and 1220 BHP. ‡ The calculation assumes that the liquid fuel (No. 2 fuel oil or biodiesel) properties are 15 ppmw S, 7.206 lb/gal density, and 0.138 MMBtu/gal. # The CO <sub>2</sub> e emission factor for fuel oil is derived from 40 CFR 98 Subpart C (November 29, 2013) with base factors of 163.1 lb/MMBtu CO <sub>2</sub> , 0.1653 lb/MMBtu CH <sub>4</sub> , and 0.3942 lb/MMBtu N <sub>2</sub> O, including the GWP multipliers of CO <sub>2</sub> =1, CH <sub>4</sub> =25, and N <sub>2</sub> O=298 and scaled from 0.138 MMBtu/gal to 0.140 MMBtu/gal.				

Annual emissions shall be determined by the fuel usage or total number of hours of operation multiplied by the emission factors above, unless otherwise specified by SWCAA.

- 6.f. Gasoline Dispensing and Storage. Total VOC emissions from gasoline transfer were estimated using the following emission factors from AP-42 Section 5.2 (June 2008) and

from gasoline storage by using EPA TANKS software (ver. 4.09d) for Tank 7 breathing and emptying losses:

<b>Emission Source</b>	<b>Emission Factor at (lb/10<sup>3</sup> gallons)</b>	<b>PTE at 20,000 gal/yr (tpy)</b>
<i>Splash Filling</i>		
VOC	11.5	0.115
TAPs	5.85	0.058
HAPs	1.47	0.015
<i>Aboveground Tank Breathing and Emptying*</i>		
VOC	8.586	0.086
TAPs	4.37	0.044
HAPs	1.10	0.011
<i>Vehicle Refueling – Displacement, Uncontrolled</i>		
VOC	11.0	0.110
TAPs	5.59	0.056
HAPs	1.41	0.014
<i>Vehicle Refueling – Spillage</i>		
VOC	0.70	0.0070
TAPs	0.36	0.0036
HAPs	0.089	0.00089
* Tank emissions determined using EPA TANKS software (ver. 4.09d). Tank 7 is a white, domed, horizontal tank is 3.5 ft in diameter, 5.0 ft long, has a capacity of 250 gal, and was evaluated assuming a maximum annual throughput of 20,000 gal/yr. Meteorological conditions used were for Portland, OR.		

Based on EPA Speciate 3.2 profile number 2455, 50.85% of the total VOC emissions are toxic air pollutants (TAPs) as defined by WAC 173-460 (as in effect August 21, 1998), and 12.78% of the total VOC emissions are federally listed hazardous air pollutants (HAPs).

<b>Gasoline, TAPs/HAPs</b>	<b>Emission Factor (% of VOC)</b>	<b>PTE at 20,000 gal/yr (lb/yr)</b>
benzene [71-43-2]	1.4	9.0
n-butane [106-97-8]	23.43	150.0
cumene [98-82-8]	0.04	0.30
cyclohexane [110-82-7]	0.25	1.6
cyclopentane [287-92-3]	0.77	4.9
ethylbenzene [100-41-4]	0.66	4.2
n-heptane [142-82-5]	0.46	2.9
n-hexane [110-54-3]	2.14	13.70
methylcyclohexane [108-87-2]	0.09	0.6



<b>Gasoline, TAPs/HAPs</b>	<b>Emission Factor (% of VOC)</b>	<b>PTE at 20,000 gal/yr (lb/yr)</b>
n-nonane [111-84-2]	0.05	0.3
n-octane [111-65-9]	0.13	0.8
n-pentane [109-66-0]	12.05	77.1
toluene [108-88-3]	4.36	27.9
trimethylbenzenes [25551-13-7]	0.84	5.4
2,2,4-trimethylpentane [540-84-1]	0.89	5.7
xylene (m-, o-, p- isomers) [1330-20-7]	3.29	21.1
	<b>TOTAL HAPs:</b>	<b>81.2</b>
	<b>TOTAL TAPs:</b>	<b>323.2</b>

Annual emissions shall be determined by the total number of gallons of fuel dispensed multiplied by the emission factors above, unless otherwise specified by SWCAA.

- 6.g. Diesel Dispensing and Storage. BNSF operates several diesel storage tanks, many of which have been determined to have insignificant emissions by SWCAA. Two tanks, Tanks 2 and 3, however, do have notable emissions. Total VOC emissions were estimated using EPA TANKS (v. 4.09d) software. Unless otherwise specified, SWCAA assumed that diesel and biodiesel have the same emission characteristics.

<b>Tank No.</b>	<b>Size (gal)</b>	<b>Contents</b>	<b>Est. Annual Throughput (gal)</b>	<b>Diam. (ft)</b>	<b>Length (ft)</b>	<b>Tank Color</b>	<b>Roof Shape</b>
Tank 2	25,000	Diesel	10,000,000	11	36	White	Dome
Tank 3	25,000	Diesel	10,000,000	11	36	White	Dome

<b>Emission Source</b>	<b>Emission Factor (lb/10<sup>3</sup> gallons)</b>	<b>PTE (tpy) at 10.01 MMgal/yr</b>
<b>Splash Filling</b>		
VOC	0.0399	0.200
<b>Aboveground Tank Breathing and Emptying*</b>		
VOC	0.01771	0.089
<b>Vehicle Refueling – Displacement, Uncontrolled</b>		
VOC	0.0399	0.200
<b>Vehicle Refueling – Spillage</b>		
VOC	0.0013	0.0065
* Tank emissions determined using EPA TANKS (v. 4.09d) software. The white, domed, horizontal tank is 36 ft long, and 11 ft in diameter, has a capacity of 25,000 gal, and was evaluated assuming a maximum annual throughput of 10,010,000 gal/yr and have been scaled up based on an increased throughput of 20,000,000 gallons per year. Meteorological conditions used were for Portland, OR.		

Annual emissions shall be determined by the throughput multiplied by the emission factors above, unless otherwise specified by SWCAA.

- 6.h. Emissions Summary. The following tables represent the maximum facilitywide PTE as established by permit limits, which may or may not equal the sums of emissions calculated using the emission factors listed elsewhere in Section 6.

<b>Criteria Air Pollutant</b>	<b>Facilitywide PTE (tpy)</b>
NO <sub>x</sub>	3.51
CO	1.54
VOC	1.43
SO <sub>2</sub>	0.014
Lead	Not Applicable
PM	0.147
PM <sub>10</sub>	0.147
PM <sub>2.5</sub>	0.147
CO <sub>2</sub> /CO <sub>2</sub> e	2,203
NH <sub>3</sub>	Not Applicable
H <sub>2</sub> S	Not Applicable
O <sub>3</sub>	Not Applicable

<b>Toxic/Hazardous Air Pollutant</b>	<b>Facilitywide PTE (tpy)</b>
benzene [71-43-2]	$4.5 \times 10^{-3}$
n-butane [106-97-8]	0.075
cumene [98-82-8]	$1.3 \times 10^{-4}$
cyclohexane [110-82-7]	$8.0 \times 10^{-4}$
cyclopentane [287-92-3]	$2.5 \times 10^{-3}$
ethylbenzene [100-41-4]	$2.1 \times 10^{-3}$
formaldehyde [50-00-0]	$2.1 \times 10^{-3}$
n-heptane [142-82-5]	$1.5 \times 10^{-3}$
n-hexane [110-54-3]	$6.8 \times 10^{-3}$
methylcyclohexane [108-87-2]	$2.9 \times 10^{-4}$
n-nonane [111-84-2]	$1.6 \times 10^{-4}$
n-octane [111-65-9]	$4.2 \times 10^{-4}$
n-pentane [109-66-0]	0.039
toluene [108-88-3]	0.014
trimethylbenzenes [25551-13-7]	$2.69 \times 10^{-3}$

Toxic/Hazardous Air Pollutant	Facilitywide PTE (tpy)
2,2,4-trimethylpentane [540-84-1]	$2.85 \times 10^{-3}$
xylenes (all isomers) [1330-20-7]	0.011
<b>TOTAL TAPs</b>	<b>0.161</b>
<b>TOTAL HAPs</b>	<b>0.041</b>

## 7. REGULATIONS AND EMISSION STANDARDS

Regulations have been established for the control of emissions of air pollutants to the ambient air. Regulations applicable to the proposed facility 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 following regulations, codes, or requirements. These items establish maximum emissions limits that could be allowed and are not to be exceeded for new or existing facilities. More stringent limits are established in this Permit consistent with implementation of Best Available Control Technology (BACT):

- 7.a. 40 CFR 60 Subpart Dc "Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units" applies to any steam generating unit with a heat input greater than or equal to 10 MMBtu/hr, but less than or equal to 100 MMBtu/hr constructed, modified, or reconstructed after June 9, 1989. The Lochinvar boiler is less than 10 MMBtu/hr; therefore, this regulation does not apply to the boiler.
- 7.b. 40 CFR 60 Subpart IIII [§60.4200 *et seq.*] "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines" applies to each compression ignition (CI) internal combustion engine (ICE) that commences construction after July 11, 2005 and is manufactured after April 1, 2006, or that is modified or reconstructed after July 11, 2005. All three new Cummins Emergency Generator Diesel Engines are CI ICE configuration used in emergency situations; therefore, this regulation applies to the new engines.
- SWCAA has not yet taken delegation of this regulation; therefore, at this time, EPA is the Administrator of this regulation and the facility must communicate directly with EPA regarding compliance demonstrations and/or reporting required by this rule.
- 7.c. 40 CFR 63.9 "Notification Requirements" requires that notification of the initial startup of the affected units subject to 40 CFR 63 be submitted to the delegated authority. The Emergency Generator Diesel Engines are subject to 40 CFR 63 Subpart ZZZZ, but are not subject to any of the requirements under Subpart A per §63.6590(b)(3); therefore §63.9 does not apply to the emergency generator engines.
- 7.d. 40 CFR 63 Subpart VV [§63.1040 *et seq.*] "National Emission Standards for Oil-Water Separators and Organic-Water Separators" applies to the control of air emissions from oil-water separators and organic-water separators, if referenced by another subpart of 40 CFR

60, 61, or 63. This facility is not subject to a subpart of 40 CFR 60, 61, or 63 that references the oil-water separator; therefore, this subpart does not apply.

- 7.e. 40 CFR 63 Subpart ZZZZ [§63.6580 et seq.] "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 new Cummins Emergency Generator Diesel Engines are a CI ICE configuration used in emergency situations located at an area source; therefore, this regulation applies to the new engines. However, per §63.6590(c)(1) because the engines are located at an area source and comply with requirements of 40 CFR 60 Subpart IIII no further requirements apply under this subpart.

There may be other requirements under the Subpart that apply to the facility that are not specified above. SWCAA has not yet taken delegation of this regulation; therefore, at this time, EPA is the Administrator of this regulation and the facility must communicate directly with EPA regarding compliance demonstrations and/or reporting required by this rule.

- 7.f. 40 CFR 63 Subpart JJJJJ [§63.11193 et seq.] "National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources" establishes national emission limitations and operating limitations for HAP emitted from boilers fired on specific fuels at area sources. The facility is an area source of HAP and the boiler is classified as a gas boiler. Gas-fired boilers, which burn gaseous fuel and only burn liquid fuel during periods of gas curtailment, gas supply interruption, and periodic testing up to 48 hr/yr, are not covered under the regulation; therefore, this regulation does not apply to the boiler.
- 7.g. 40 CFR 63 Subpart CCCCC [§ 63.11110 et seq.] "National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities" applies to gasoline dispensing facilities. BNSF dispenses gasoline into vehicles at less than 10,000 gal/mo and is an area source of HAP; therefore, this regulation applies to the gasoline dispensing operation.
- 7.h. 40 CFR 70 "State Operating Permit Programs" requires facilities with site emissions of any regulated air pollutant greater than 100 tpy, any single HAP greater than 10 tpy or any aggregate combination of HAPs greater than 25 tpy. The facility does not emit any criteria pollutants or HAP above major thresholds; therefore, this regulation does not apply to the facility.
- 7.i. 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. This law applies to the facility.

- 7.j. 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. This law applies to the facility.
- 7.k. WAC 173-401 "Operating Permit Regulation" requires all major sources and other sources as defined in WAC 173-401-300 to obtain an operating permit. This regulation is not applicable because this source is not a potential major source and does not meet the applicability criteria set forth in WAC 173-401-300. The facility does not emit any criteria pollutants or HAP above major thresholds; therefore, this regulation does not apply to the facility.
- 7.l. WAC 173-460 "Controls for New Sources of Toxic Air Pollutants" requires BACT for toxic air pollutants (T-BACT), identification and quantification of emissions of toxic air pollutants and demonstration of protection of human health and safety. The facility emits TAPs; therefore, this regulation (effective date 7/21/1998) applies to the facility.
- 7.m. WAC 173-476 "Ambient Air Quality Standards" establishes ambient air quality standards for PM<sub>10</sub>, PM<sub>2.5</sub>, lead, SO<sub>2</sub>, NO<sub>x</sub>, ozone, and CO in the ambient air, which shall not be exceeded. The facility emits PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>x</sub>, NO<sub>x</sub>, and CO; therefore, certain sections of this regulation apply. The facility does not emit lead; therefore, the lead regulation section does not apply.
- 7.n. 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, SO<sub>2</sub>, concealment and masking, and fugitive dust. This regulation applies to the facility.
- 7.o. 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. This regulation applies to the facility.
- 7.p. SWCAA 400-040(2) "Fallout" requires that no emission of PM 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. This regulation applies to the facility.
- 7.q. SWCAA 400-040(3) "Fugitive Emissions" requires that reasonable precautions be taken to prevent the fugitive release of air contaminants to the atmosphere. This regulation applies to the facility.

- 7.r. SWCAA 400-040(4) "Odors" requires any source which generates odors that may unreasonably interfere with any other property owner's use and enjoyment of their property to use recognized good practice and procedures to reduce these odors to a reasonable minimum. This source must be managed properly to maintain compliance with this regulation. This regulation applies to the facility.
- 7.s. SWCAA 400-040(6) "Sulfur Dioxide" requires that no person shall emit a gas containing in excess of 1,000 ppm of SO<sub>2</sub>, corrected to 7% O<sub>2</sub> or 12% CO<sub>2</sub> as required by the applicable emission standard for combustion sources. The facility emits SO<sub>2</sub>; therefore, this regulation applies to the facility.
- 7.t. SWCAA 400-040(8) "Fugitive Dust Sources" requires that reasonable precautions be taken to prevent fugitive dust from becoming airborne, and minimize emissions. This regulation applies to the facility.
- 7.u. 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 PM from any combustion or incineration unit in excess of 0.23 g/Nm<sup>3</sup><sub>dry</sub> (0.1 gr/dscf) of exhaust gas at standard conditions. The facility has combustion units; therefore, this regulation applies to the facility.
- 7.v. SWCAA 400-060 "Emission Standards for General Process Units" requires that all new and existing general process units not emit PM in excess of 0.23 g/Nm<sup>3</sup><sub>dry</sub> (0.1 gr/dscf) of exhaust gas. The facility has general process units; therefore, this regulation applies to the facility.
- 7.w. SWCAA 400-110 "New Source Review" requires that an ADP Application be filed with SWCAA, and an ADP be issued by SWCAA, prior to establishment of the new source, emission unit, or modification. The new units meet the definition of a new source; therefore, this regulation applies to the facility.
- 7.x. 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) Best Available Control Technology 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.

The facility is located in an area that is a maintenance area for CO and ozone ; therefore, this regulation applies to the facility.

- 7.y. 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.

The facility is located in an area that is in attainment for PM, NO<sub>x</sub>, and SO<sub>2</sub>; therefore, this regulation applies to the facility.

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

The proposed equipment and control systems incorporate BACT for the types and amounts of air contaminants emitted by the processes as described below:

### *BACT Determinations*

- 8.a. Boiler. The proposed use of low-sulfur fuel (natural gas) and proper combustion controls has been determined to meet the requirements of BACT for the types and quantities of emissions from the boiler.
- 8.b. Emergency Generator Diesel Engines. The use of ultra-low sulfur diesel fuel ( $\leq 15$  ppmw), limitation of visible emissions to 15% opacity or less, and limitation of engine operation to less than 100 hr/yr for maintenance checks and readiness testing has been determined to meet the requirements of BACT for the types and quantities of air contaminants emitted from all engines.
- 8.c. Space Heaters and Hot Water Heaters. The proposed use of low-sulfur fuel (natural gas) and proper combustion controls has been determined to meet the requirements of BACT for the types and quantities of emissions from the space heaters and hot water heaters.
- 8.d. Gasoline Transfer and Storage. The gasoline storage tank is assumed to be splash-filled as there is no documentation that there is either a top fill tube or that the tank is bottom filled. The size and throughput of the tank is relatively small, as are the emissions. It is potentially cost prohibitive to retrofit the existing tank to comply with more current emissions control. The tank is equipped with emergency and safety vents. The use of these vents as been determined to meet the requirements of BACT for the types and quantities of emissions.

- 8.e. Diesel Fuel Storage. The storage tanks are equipped with emergency and safety vents. There are no other controls that would be cost effective for the control of emissions from this source. The use of these vents as been determined to meet the requirements of BACT for the types and quantities of emissions.
- 8.f. Prevention of Significant Deterioration (PSD) Applicability Determination. 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.g. 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

- 9.a. Criteria Air Pollutant Review. Emissions of NO<sub>x</sub>, CO, PM, VOC (as a precursor to O<sub>3</sub>), and SO<sub>2</sub> are emitted at levels where no adverse ambient air quality impact is anticipated.
- 9.b. Toxic Air Pollutant Review. The new equipment and modifications proposed in ADP Application CL-3167 will result in a small increase in the quantity of TAP emissions from the facility. BACT measures at the facility will limit emissions of Class A and B toxic air pollutants to below the applicable Small Quantity Emission Rates (SQER) or Acceptable Source Impact Level (ASILs) specified in WAC 173-460 (effective 7/21/1998).
- 9.c. Emergency Generator Diesel Engines: The emergency generator diesel engines will operate no more than 100 hr/yr for testing, maintenance, and as necessary to supply power during an emergency, therefore the ambient impact of this source is not likely to be significant.

### Conclusions

- 9.d. Operation of the existing emission units at this facility, as proposed in ADP Application CL-3167, will not cause the ambient air quality requirements of 40 CFR 50 "National Primary and Secondary Ambient Air Quality Standards" to be violated.
- 9.e. Operation of the existing emission units at this facility, as proposed in ADP Application CL-3167, will not cause the requirements of WAC 173-460 "Controls for New Sources of Toxic Air Pollutants," WAC 173-470 "Ambient Air Quality Standards for Particulate Matter," WAC 173-474 "Ambient Air Quality Standards for Sulfur Oxides," and WAC 173-475 "Ambient Air Quality Standards for Carbon Monoxide, Ozone, and Nitrogen Dioxide" to be violated.
- 9.f. The existing emission units at this facility, as proposed in ADP Application CL-3167, can be operated without causing a violation of 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 21-3471 in response to ADP Application CL-3167. ADP 21-3471 contains approval requirements deemed necessary to assure compliance with applicable regulations and emission standards as discussed below.

10.a. Supersession of Previous Permits. ADP 21-3471 supersedes Air Discharge Permit 20-3426 and Small Unit Notifications 262 and 263 in their entirety.

10.b. Emission Limits. Facilitywide emission limits are based on the sum of the emission limits for approved equipment calculated in Section 6 of this Technical Support Document.

The Lochinvar Boiler has been limited to 30 ppmvd for NO<sub>x</sub> and 50 ppmvd for CO based on the manufacturer's estimated maximum emission rate.

Visible emissions from the boiler, space heaters, and hot water heaters burning natural gas have been limited to 0% opacity, consistent with proper operation.

The Emergency Generator Diesel Engines have been limited to 5% opacity, based on the expectation due to EPA certification of the units that this limit is achievable in practice.

Emission limits for diesel fuel dispensing have been calculated based on an annual throughput of 20,000,000 gallons per year.

10.c. Operational Limits and Requirements. General operational requirements with respect to emission operation were included.

Vertical discharge is required for all emission units to improve dispersion. It is assumed at the time of the application that all units meet this requirement.

The boiler, space heaters, and hot water heaters are restricted to burning natural gas and the emergency engines are restricted to burning ultralow sulfur (<15 ppm) fuel oil.

10.d. Monitoring and Recordkeeping Requirements. ADP 21-3471 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.

10.e. Emission Monitoring and Testing Requirements. The Lochinvar Boiler is required to be emission monitored (tuned) at least annually to verify that the unit is meeting the established emission limits.

10.f. Reporting Requirements. ADP 21-3471 establishes general reporting requirements for annual air emissions, upset conditions and excess emissions. Specific reporting requirements are established for fuel consumption, operational hours, and material throughput. Reports are to be submitted on an annual basis.

## 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.

To SWCAA's knowledge, this facility can comply with all applicable standards during startup and shutdown.

Emergency Generator Diesel Engines. Visible emissions from the diesel engine driven generators are limited to 5% opacity or less during normal operation. However, the engine is not capable of reliably limiting visible emissions to less than 5% opacity until the engine achieves normal operating temperature. Therefore, the 5% opacity limit shall not apply to the generator exhaust during start-up periods.

- 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 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 approval conditions.

## 12. EMISSION MONITORING AND TESTING

- 12.a. Emission Monitoring Requirements – Lochinvar Boiler. The Lochinvar Boiler is required to be tuned annually to verify compliance with the emission limits specified in the ADP. Corrective action is required to be taken if the boiler is found to not be meeting the emission limit.

## 13. FACILITY HISTORY

- 13.a. Previous Permitting Actions. SWCAA has previously issued the following permits for BNSF in Vancouver WA.

<u>Date</u>	<u>Application Number</u>	<u>Permit Number</u>	<u>Purpose</u>
03/29/18	CL-2096	18-3276	Authorize existing equipment including boiler engine, heater, material transfer, welding, and abrasive blasting operations.
08/01/19	N/A	N/A	A small unit notification was submitted due to the fact that the Parker boiler was being replaced with the Lochinvar Boiler.
08/06/20	CL-3126	20-3426	The annual throughput for the two diesel tanks was increased from 10,010,000 to 20,000,000 gallons per year.
06/09/21	N/A	N/A	Two small unit notifications were submitted to authorize the installation of two Emergency Generator Diesel Engines.

- 13.b. Compliance History. A search of source records on file at SWCAA did not identify any previous or outstanding compliance issues over the past five (5) years.

#### **14. PUBLIC INVOLVEMENT OPPORTUNITY**

- 14.a. Public Notice for ADP Application CL-3167. Public notice for ADP Application CL-3167 was published on the SWCAA internet website for a minimum of fifteen (15) days beginning on June 17, 2021.
- 14.b. Public/Applicant Comment for ADP Application CL-3167. SWCAA did not receive specific comments, a comment period request, or any other inquiry from the public or the applicant regarding ADP Application CL-3167. Therefore, no public comment period was provided for this permitting action.
- 14.a. State Environmental Policy Act. After review of the SEPA Checklist for this project, SWCAA has determined that the project does not have a probable significant impact on the environment and has issued Determination of Non-Significance 21-020. An Environmental Impact Statement is not required under RCW 43.21C.030(2)(c).