



TECHNICAL SUPPORT DOCUMENT

**Air Discharge Permit SWCAA 21-3456
Air Discharge Permit Application CL-3108**

**CITY OF VANCOUVER – PUBLIC WORKS WASTEWATER PUMP STATIONS
SWCAA ID: 2679**

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Abbreviations

ADP	Air Discharge Permit (a.k.a. Order of Approval)
AP-42	<u>Compilation of Emission Factors, AP-42, Fifth Edition, Volume 1, Stationary Point and Area Sources</u> – published by the US Environmental Protection Agency
ASIL	Acceptable Source Impact Level from WAC 173-460
BACT	Best Available Control Technology
BART	Best Available Retrofit Technology
CAM	Compliance Assurance Monitoring (40 CFR 64)
CFR	Code of Federal Regulations
CO	Carbon monoxide
EPA	U.S. Environmental Protection Agency
HAP	Hazardous Air Pollutant listed pursuant to Section 112 of the Federal Clean Air Act
LAER	Lowest Achievable Emission Rate
g/hp-hr	Grams per horsepower per hour
lb/hr	Pounds per hour
lb/MMscf	Pounds per million standard cubic feet
lb/yr	Pounds per year
MMBtu/hr	Millions of British thermal units per hour
NO _x	Nitrogen oxides
PM	Particulate matter with an aerodynamic diameter less than or equal to 100 micrometers (includes both filterable particulate matter measured by EPA Method 5 that is less than 100 micrometers and condensable particulate matter measured by EPA Method 202)
PM ₁₀	Particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (includes both filterable particulate matter measured by EPA Method 201 or 201A and condensable particulate matter measured by EPA Method 202)
PM _{2.5}	Particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers (includes both filterable particulate matter measured by EPA Method 201 or 201A and condensable particulate matter measured by EPA Method 202)
ppm	Parts per million
ppmvd @ X	Parts per million, dry volume basis correct to X
PSD	Prevention of Significant Deterioration
RACT	Reasonably Available Control Technology
RCW	Revised Code of Washington
SQER	Small Quantity Emission Rate listed in WAC 173-460
SO ₂	Sulfur dioxide
SO _x	Sulfur oxides
SWCAA	Southwest Clean Air Agency
TAP	Toxic Air Pollutant pursuant to Chapter 173-460 WAC
T-BACT	Best Available Control Technology for toxic air pollutants
tpy	Tons per year
VOC	Volatile Organic Compound
WAC	Washington Administrative Code

1. FACILITY IDENTIFICATION

Applicant Name: City of Vancouver
Applicant Address: 4500 SE Columbia Way, PO Box 1995, Vancouver, WA 98668

Facility Name: City of Vancouver – Public Works
Facility Address: Multiple
SWCAA Identification: 2679
Contact Person: Frank Dick – Wastewater Engineering Supervisor

Primary Process: Electric, gas, and sanitary services
SIC / NAICS: 4952/221320
Facility Classifications: BACT / Minor Source

2. FACILITY DESCRIPTION

City of Vancouver Public Works operates multiple diesel-powered emergency generators at sewage pump stations throughout the city.

3. CURRENT PERMITTING ACTION

City of Vancouver submitted Air Discharge Permit application (ADP application) number CL-3108 October 29, 2019, for approval of existing equipment at various locations throughout Vancouver. Some of the engines identified were below the registration threshold of 50 horsepower listed in SWCAA 400-101(4)(o) and are not EUs and not listed below. The existing equipment includes:

1. BBC Pump Station – emergency generator engine - (previously permitted under Marine Park Water Reclamation Facility)
2. Orchards Pump Station – emergency generator engine - (previously permitted under Marine Park Water Reclamation Facility)
3. Andresen Pump Station – emergency generator engine - (previously permitted under Marine Park Water Reclamation Facility)
4. 87th Avenue Pump Station – emergency generator engine
5. Centennial Pump Station – emergency generator engine
6. Columbia Palisades Pump Station – emergency generator engine
7. Columbia Shores Pump Station – emergency generator engine
8. Columbia Tech Pump Station – emergency generator engine
9. Edmunds Estates Pump Station – emergency generator engine
10. Fishers Grove Pump Station – emergency generator engine
11. Grand Central Pump Station – emergency generator engine
12. Lacamas Pump Station – emergency generator engine
13. Maple Crest Pump Station – emergency generator engine
14. Pheasant Run Pump Station – emergency generator engine
15. Pinebrook Pump Station – emergency generator engine
16. Rosewood Pump Station – emergency generator engine
17. Stein Estates Pump Station – emergency generator engine
18. Twin Peaks Pump Station – emergency generator engine
19. Waterfront Pump Station – emergency generator engine
20. West Ridge Pump Station – emergency generator engine

4. PROCESS DESCRIPTION

Emergency generator engines are used to power sewer pump stations at various city locations in the event of an electrical power interruption.

5. EQUIPMENT/ACTIVITY IDENTIFICATION

5.a BBC Emergency Generator Engine. Equipment details are provided below:

Generator Make/Model:	Kohler / 400R0ZD71
Generator Serial Number:	362965
Generator Rating:	400 kW
Engine Make/Model:	Detroit Diesel / 8083-7416
Engine Serial Number:	08VF166181
Engine Rating:	643 horsepower at 1,800 rpm
Year Built:	March 16, 1995
Fuel Type:	Diesel (33.0 gallons per hour at maximum load)
EPA Certification:	uncertified
Location:	1701 North Devine Rd

5.b Orchards Emergency Generator Engine. Equipment details are provided below:

Generator Make/Model:	Caterpillar / SR4B
Generator Serial Number:	9DR02345
Generator Rating:	400 kW
Engine Make/Model:	Caterpillar / 3406
Engine Serial Number:	4ZR04102
Engine Rating:	587 horsepower at 1,800 rpm
Year Built:	June 6, 1998
Fuel Type:	Diesel (30.0 gallons per hour at maximum load)
EPA Certification:	Tier 1
Location:	11820 Northeast 60 th Way

5.c Andresen Emergency Generator Engine. Equipment details are provided below:

Generator Make/Model:	Caterpillar / SR4B
Generator Serial Number:	4GM00679
Generator Rating:	1,000 kW
Engine Make/Model:	Caterpillar / 3508B
Engine Serial Number:	4GM00679
Engine Rating:	1,518 horsepower at 1,800 rpm
Year Built:	December 1, 2000
Fuel Type:	Diesel (71.0 gallons per hour at maximum load)
EPA Certification:	Tier 1
Location:	1650 Andresen Rd

5.d Centennial Emergency Generator Engine. Equipment details are provided below:

Generator Make/Model:	Kohler / 40REOZJC
Generator Serial Number:	SGM325PW4
Generator Rating:	40 kW
Engine Make/Model:	John Deere / 4024HF285B

Engine Serial Number: PE4024L122194
Engine Rating: 80 horsepower
Year Built: 2014
Fuel Type: Diesel (4.0 gallons per hour at maximum load)
EPA Certification: Tier 3
Location: 3300 NW 32ND Ave

5.e Columbia Palisades Emergency Generator Engine. Equipment details are provided below:

Generator Make/Model: Cummins / C80 D6C
Generator Serial Number: X18L50470
Generator Rating: 80 kW
Engine Make/Model: Cummins / QSB5-G13
Engine Serial Number: 74452125
Engine Rating: 173 horsepower standby
Year Built: 2019
Fuel Type: Diesel (7.6 gallons per hour at maximum load)
EPA Certification: Tier 4
Location: 19700 Brady Rd

5.f Columbia Tech Emergency Generator Engine. Equipment details are provided below:

Generator Make/Model: Katolight / D150FRJ4
Generator Serial Number: LM645309 75892
Generator Rating: 150 kW
Engine Make/Model: John Deere / 6081T
Engine Serial Number: RG6081T144924
Engine Rating: 200 horsepower
Year Built: Oct, 2001
Fuel Type: Diesel (10.1 gallons per hour at maximum load)
EPA Certification: Tier 1
Location: 17949 Mill Plain Blvd

5.g Fishers Grove Emergency Generator Engine. Equipment details are provided below:

Generator Make/Model: Cummins / DGG-5737293
Generator Serial Number: H050814677
Generator Rating: 87 kW
Engine Make/Model: Cummins / 4BTA3.9-G3
Engine Serial Number: 46513754
Engine Rating: 130 horsepower standby
Year Built: 2005
Fuel Type: Diesel (6.00 gallons per hour at maximum load)
EPA Certification: Tier 2
Location: 2415 NE 192nd Ave

5.h Grand Central Emergency Generator Engine. Equipment details are provided below:

Generator Make/Model: Cummins / C40-D6
Generator Serial Number: H170239267
Generator Rating: 40 kW
Engine Make/Model: Cummins / 4BT3.3-G5

Engine Serial Number: 72031696
Engine Rating: 69 horsepower
Year Built: 2017
Fuel Type: Diesel (3.5 gallons per hour at maximum load)
EPA Certification: Tier 4
Location: 200 Grand Blvd

5.i Lacamas Emergency Generator Engine. Equipment details are provided below:

Generator Make/Model: Cummins / DSGAA-1501211
Generator Serial Number: B150794933
Generator Rating: 100 kW
Engine Make/Model: Cummins / QSB7-G5 NR3
Engine Serial Number: 73798206
Engine Rating: 324 horsepower standby
Year Built: 2015
Fuel Type: Diesel (14.2 gallons per hour at maximum load)
EPA Certification: Tier 3
Location: 5411 NE 29th Dr

5.j Maple Crest Emergency Generator Engine. Equipment details are provided below:

Generator Make/Model: Cummins / DGGD-5856625
Generator Serial Number: D010045307
Generator Rating: 35 kW
Engine Make/Model: Cummins / 4BT3.3-G6 NR
Engine Serial Number: 68069877
Engine Rating: 81 horsepower
Year Built: 2007
Fuel Type: Diesel (4.0 gallons per hour at maximum load)
EPA Certification: Tier 2
Location: 3311 NE 172nd Ave

5.k Pinebrook Emergency Generator Engine. Equipment details are provided below:

Generator Make/Model: Cummins / C50-D6
Generator Serial Number: B180313926
Generator Rating: 50 kW
Engine Make/Model: Cummins / 4BTAA3.3-G7
Engine Serial Number: 72035740
Engine Rating: 99 horsepower
Year Built: 2017
Fuel Type: Diesel (5.0 gallons per hour at maximum load)
EPA Certification: Tier 4
Location: 720 NE 125th Ave

5.l Rosewood Emergency Generator Engine. Equipment details are provided below:

Generator Make/Model: Cummins / DSFAA-7447366
Generator Serial Number: K080221010
Generator Rating: 45 kW
Engine Make/Model: Cummins / QSB5-G3 NR3

Engine Serial Number: 46959441
Engine Rating: 145 horsepower standby
Year Built: 2008
Fuel Type: Diesel (6.7 gallons per hour at maximum load)
EPA Certification: Tier 3
Location: 18220 NE Garden Dr

5.m Stein Estates Emergency Generator Engine. Equipment details are provided below:

Generator Make/Model: Cummins / DGGD-5857421
Generator Serial Number: E070059303
Generator Rating: 35 kW
Engine Make/Model: Cummins / 4BT3.3-G6 NR
Engine Serial Number: 1094365
Engine Rating: 81 horsepower
Year Built: 2007
Fuel Type: Diesel (4.1 gallons per hour at maximum load)
EPA Certification: Tier 2
Location: 16601 NE 20th St

5.n Waterfront Emergency Generator Engine. Equipment details are provided below:

Generator Make/Model: Cummins / DSFAD 1709976
Generator Serial Number: B170152172
Generator Rating: 60 kW
Engine Make/Model: Cummins / QSB5-G3 NR3
Engine Serial Number: 74093575
Engine Rating: 145 horsepower standby
Year Built: 2017
Fuel Type: Diesel (6.3 gallons per hour at maximum load)
EPA Certification: Tier 4
Location: 201 Columbia St

5.o West Ridge Emergency Generator Engine. Equipment details are provided below:

Generator Make/Model: Kohler / 80R02J
Generator Serial Number: 396041
Generator Rating: 95 kW
Engine Make/Model: John Deere / 6059T
Engine Serial Number: CD6059T355572
Engine Rating: 120 horsepower
Year Built: 1998
Fuel Type: Diesel (6.0 gallons per hour at maximum load)
EPA Certification: Tier 1
Location: 917 SE 200th Ct

Insignificant Emission Units

The following engines are below the registration threshold of 50 horsepower listed in SWCAA 400-101(4)(o) and are not EUs. They are listed below for informational purposes.

5.p 87th Avenue Emergency Generator Engine. Equipment details are provided below:

Generator Make/Model: Cummins Onan / DKAF-7065578
Generator Serial Number: C080164986
Generator Rating: 25 kW
Engine Make/Model: Kubota / F2803-BG-ES02
Engine Serial Number: 7C0107
Engine Rating: 45 horsepower
Year Built: 2008
Fuel Type: Diesel (2.33 gallons per hour at maximum load)
EPA Certification: Tier 2
Location: 8606 NE 5th St

5.q Columbia Shores Emergency Generator Engine. Equipment details are provided below:

Generator Make/Model: Cummins Onan / DKAF-5856577
Generator Serial Number: D070045869
Generator Rating: 25 kW
Engine Make/Model: Kubota / F2803-BG-ES02
Engine Serial Number: 7A0195
Engine Rating: 45 horsepower
Year Built: 2006
Fuel Type: Diesel (2.33 gallons per hour at maximum load)
EPA Certification: Tier 2
Location: 505 SE Columbia Shores Dr

5.r Edmunds Estates Emergency Generator Engine. Equipment details are provided below:

Generator Make/Model: Cummins / C20-D6
Generator Serial Number: A190489446
Generator Rating: 20 kW
Engine Make/Model: Kubota / V2203-M-BG-ET02
Engine Serial Number: 7JK2943
Engine Rating: 36 horsepower
Year Built: 2019
Fuel Type: Diesel (1.8 gallons per hour at maximum load)
EPA Certification: Tier 4
Location: 18196 NE 38th St

5.s Pheasant Run Emergency Generator Engine. Equipment details are provided below:

Generator Make/Model: Cummins / DSKCA-7268320
Generator Serial Number: J080216847
Generator Rating: 27 kW
Engine Make/Model: Kubota / V3300-BG-ET01
Engine Serial Number: 8J2637
Engine Rating: 49 horsepower
Year Built: 2008
Fuel Type: Diesel (2.5 gallons per hour at maximum load)
EPA Certification: Tier 3
Location: 3701 NE 162nd Ave

5.t Twin Peaks Emergency Generator Engine. Equipment details are provided below:

Generator Make/Model: Cummins / DSKCA-7268323
 Generator Serial Number: J080216848
 Generator Rating: 27 kW
 Engine Make/Model: Kubota / V3300-BG-ET01
 Engine Serial Number: 8J2435
 Engine Rating: 49 horsepower
 Year Built: 2008
 Fuel Type: Diesel (2.5 gallons per hour at maximum load)
 EPA Certification: Tier 3
 Location: 612 NE 172nd Ave

5.u Equipment/Activity Summary.

ID No.	Equipment/Activity	Control Equipment / Measure
1	BBC – Emergency Generator Engine (Detroit Diesel 643 bhp)	Ultra-Low Sulfur Diesel ($\leq 0.0015\%$ S), Limited Operation
2	Orchards – Emergency Generator Engine (Caterpillar 587 bhp)	Ultra-Low Sulfur Diesel ($\leq 0.0015\%$ S), Limited Operation
3	Andresen – Emergency Generator Engine (Caterpillar 1,518 bhp)	Ultra-Low Sulfur Diesel ($\leq 0.0015\%$ S), Limited Operation
4	Centennial – Emergency Generator Engine (John Deere 80 bhp)	Ultra-Low Sulfur Diesel ($\leq 0.0015\%$ S), Limited Operation
5	Columbia Palisades – Emergency Generator Engine (Cummins 149 bhp)	Ultra-Low Sulfur Diesel ($\leq 0.0015\%$ S), Limited Operation
6	Columbia Tech – Emergency Generator Engine (John Deere 200 bhp)	Ultra-Low Sulfur Diesel ($\leq 0.0015\%$ S), Limited Operation
7	Fishers Grove – Emergency Generator Engine (Cummins 118 bhp)	Ultra-Low Sulfur Diesel ($\leq 0.0015\%$ S), Limited Operation
8	Grand Central – Emergency Generator Engine (Cummins 69 bhp)	Ultra-Low Sulfur Diesel ($\leq 0.0015\%$ S), Limited Operation
9	Lacamas – Emergency Generator Engine (Cummins 279 bhp)	Ultra-Low Sulfur Diesel ($\leq 0.0015\%$ S), Limited Operation
10	Maple Crest – Emergency Generator Engine (Cummins 81 bhp)	Ultra-Low Sulfur Diesel ($\leq 0.0015\%$ S), Limited Operation
11	Pinebrook – Emergency Generator Engine (Cummins 99 bhp)	Ultra-Low Sulfur Diesel ($\leq 0.0015\%$ S), Limited Operation
12	Rosewood – Emergency Generator Engine (Cummins 132 bhp)	Ultra-Low Sulfur Diesel ($\leq 0.0015\%$ S), Limited Operation
13	Stein Estates – Emergency Generator Engine (Cummins 81 bhp)	Ultra-Low Sulfur Diesel ($\leq 0.0015\%$ S), Limited Operation
14	Waterfront – Emergency Generator Engine (Cummins 125 bhp)	Ultra-Low Sulfur Diesel ($\leq 0.0015\%$ S), Limited Operation

ID No.	Equipment/Activity	Control Equipment / Measure
15	West Ridge – Emergency Generator Engine (John Deere 120 bhp)	Ultra-Low Sulfur Diesel ($\leq 0.0015\%$ S), Limited Operation

6. EMISSIONS DETERMINATION

Emissions to the ambient atmosphere from the equipment proposed in ADP application CL-3108 consist of carbon monoxide (CO), oxides of nitrogen (NO_x), volatile organic compounds (VOC), sulfur dioxide (SO₂), particulate matter (PM), toxic air pollutants (TAPs), and hazardous air pollutants (HAPs).

6.a BBC Emergency Generator Engine. Potential emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) by the emergency generator engine were calculated with the assumption that the equipment will operate at full rated capacity for 200 hours per year.

Emergency Generator Engine - Detroit Diesel / 8083-7416						
Hours of Operation =	200 hours					
Power Output =	643 horsepower					
Fuel Type =	Ultra-low Sulfur Diesel					
Diesel Density =	7.206 pounds per gallon					
Fuel Sulfur Content =	0.0015 % by weight					
Fuel Consumption Rate =	33.00 gallons per hour (estimate)					
Fuel Heat Content =	0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)					
Annual Fuel Consumption =	6,600 gallons					
Pollutant	Emission Factor lb/hp-hr	Emission Factor lb/hr	Emissions tpy	Emission Factor Source		
NO _x	0.0310	19.93	1.99	AP-42 Table 3.3-1 (10/96)		
CO	0.0067	4.30	0.43	AP-42 Table 3.3-1 (10/96)		
VOC	0.00247	1.59	0.159	AP-42 Table 3.3-1 (10/96)		
SO _x as SO ₂	0.000011	0.0071	0.00071	Mass Balance		
PM	0.00220	1.41	0.141	AP-42 Table 3.3-1 (10/96)		
PM ₁₀	0.00220	1.41	0.141	AP-42 Table 3.3-1 (10/96)		
PM _{2.5}	0.00220	1.41	0.141	AP-42 Table 3.3-1 (10/96)		
Greenhouse Gases	kg/MMBtu	GWP	CO ₂ e lb/MMBtu	CO ₂ e lb/gallon	tpy, CO ₂ e	
CO ₂	73.96	1	163.054	22.501	74.255	40 CFR 98
CH ₄	0.003	25	0.165	0.023	0.075	40 CFR 98
N ₂ O	0.0006	298	0.394	0.054	0.180	40 CFR 98
Total GHG - CO₂e			163.613	22.579	74.510	

6.d Centennial Emergency Generator Engine. Potential emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) by the emergency generator engine were calculated with the assumption that the equipment will operate at full rated capacity for 200 hours per year.

Emergency Generator Engine - John Deere / 4024HF285B						
Hours of Operation =	200 hours					
Power Output =	80 horsepower					
Fuel Type =	Ultra-low Sulfur Diesel					
Diesel Density =	7.206 pounds per gallon					
Fuel Sulfur Content =	0.0015 % by weight					
Fuel Consumption Rate =	4.06 gallons per hour (estimate)					
Fuel Heat Content =	0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)					
Annual Fuel Consumption =	812 gallons					
	Emission Factor	Emission Factor	Emissions	Emission Factor Source		
Pollutant	lb/hp-hr	lb/hr	tpy			
NO _x	0.0091	0.73	0.07	EPA Tier 3		
CO	0.0097	0.78	0.08	EPA Tier 3		
VOC	0.00060	0.05	0.005	EPA Tier 3		
SO _x as SO ₂	0.000011	0.0009	0.00009	Mass Balance		
PM	0.00050	0.04	0.004	EPA Tier 3		
PM ₁₀	0.00050	0.04	0.004	EPA Tier 3		
PM _{2.5}	0.00050	0.04	0.004	EPA Tier 3		
				CO ₂ e	CO ₂ e	
Greenhouse Gases	kg/MMBtu	GWP	lb/MMBtu	lb/gallon	tpy, CO ₂ e	
CO ₂	73.96	1	163.054	22.501	9.131	40 CFR 98
CH ₄	0.003	25	0.165	0.023	0.009	40 CFR 98
N ₂ O	0.0006	298	0.394	0.054	0.022	40 CFR 98
Total GHG - CO ₂ e			163.613	22.579	9.162	

6.e Columbia Palisades Emergency Generator Engine. Potential emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) by the emergency generator engine were calculated with the assumption that the equipment will operate at full rated capacity for 200 hours per year.

Emergency Generator Engine - Cummins / QSB5-G13						
Hours of Operation =	200 hours					
Power Output =	149 horsepower					
Fuel Type =	Ultra-low Sulfur Diesel					
Diesel Density =	7.206 pounds per gallon					
Fuel Sulfur Content =	0.0015 % by weight					
Fuel Consumption Rate =	7.56 gallons per hour (estimate)					
Fuel Heat Content =	0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)					
Annual Fuel Consumption =	1,512 gallons					
	Emission	Emission				
	Factor	Factor	Emissions			
Pollutant	lb/hp-hr	lb/hr	tpy	Emission Factor Source		
NO _x	0.0007	0.10	0.01	EPA Tier 4		
CO	0.0057	0.85	0.08	EPA Tier 4		
VOC	0.00031	0.05	0.005	EPA Tier 4		
SO _x as SO ₂	0.000011	0.0016	0.00016	Mass Balance		
PM	0.00002	0.00	0.000	EPA Tier 4		
PM ₁₀	0.00002	0.00	0.000	EPA Tier 4		
PM _{2.5}	0.00002	0.00	0.000	EPA Tier 4		
				CO ₂ e	CO ₂ e	
Greenhouse Gases	kg/MMBtu	GWP	lb/MMBtu	lb/gallon	tpy, CO ₂ e	
CO ₂	73.96	1	163.054	22.501	17.007	40 CFR 98
CH ₄	0.003	25	0.165	0.023	0.017	40 CFR 98
N ₂ O	0.0006	298	0.394	0.054	0.041	40 CFR 98
Total GHG - CO ₂ e			163.613	22.579	17.065	

- 6.g Fishers Grove Emergency Generator Engine. Potential emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) by the emergency generator engine were calculated with the assumption that the equipment will operate at full rated capacity for 200 hours per year.

Emergency Generator Engine - Cummins / 4BTA3.9-G3					
Hours of Operation =	200 hours				
Power Output =	118 horsepower				
Fuel Type =	Ultra-low Sulfur Diesel				
Diesel Density =	7.206 pounds per gallon				
Fuel Sulfur Content =	0.0015 % by weight				
Fuel Consumption Rate =	5.99 gallons per hour (estimate)				
Fuel Heat Content =	0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)				
Annual Fuel Consumption =	1,197 gallons				
	Emission	Emission			
	Factor	Factor	Emissions		
Pollutant	lb/hp-hr	lb/hr	tpy	Emission Factor Source	
NO _x	0.0108	1.27	0.13	EPA Tier 2	
CO	0.0081	0.96	0.10	EPA Tier 2	
VOC	0.00129	0.15	0.015	EPA Tier 2	
SO _x as SO ₂	0.000011	0.0013	0.00013	Mass Balance	
PM	0.00048	0.06	0.006	EPA Tier 2	
PM ₁₀	0.00048	0.06	0.006	EPA Tier 2	
PM _{2.5}	0.00048	0.06	0.006	EPA Tier 2	
			CO ₂ e	CO ₂ e	
Greenhouse Gases	kg/MMBtu	GWP	lb/MMBtu	lb/gallon	tpy, CO ₂ e
CO ₂	73.96	1	163.054	22.501	13.468 40 CFR 98
CH ₄	0.003	25	0.165	0.023	0.014 40 CFR 98
N ₂ O	0.0006	298	0.394	0.054	0.033 40 CFR 98
Total GHG - CO ₂ e			163.613	22.579	13.514

6.h Grand Central Emergency Generator Engine. Potential emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) by the emergency generator engine were calculated with the assumption that the equipment will operate at full rated capacity for 200 hours per year.

Emergency Generator Engine - Cummins / 4BT3.3-G5					
Hours of Operation =	200 hours				
Power Output =	69 horsepower				
Fuel Type =	Ultra-low Sulfur Diesel				
Diesel Density =	7.206 pounds per gallon				
Fuel Sulfur Content =	0.0015 % by weight				
Fuel Consumption Rate =	3.50 gallons per hour (estimate)				
Fuel Heat Content =	0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)				
Annual Fuel Consumption =	700 gallons				
	Emission Factor	Emission Factor	Emissions	Emission Factor Source	
Pollutant	lb/hp-hr	lb/hr	tpy		
NO _x	0.0082	0.57	0.06	Cummins	
CO	0.0044	0.30	0.03	Cummins	
VOC	0.00154	0.11	0.011	Cummins	
SO _x as SO ₂	0.000011	0.0008	0.00008	Mass Balance	
PM	0.00064	0.04	0.004	Cummins	
PM ₁₀	0.00064	0.04	0.004	Cummins	
PM _{2.5}	0.00064	0.04	0.004	Cummins	
			CO ₂ e	CO ₂ e	
Greenhouse Gases	kg/MMBtu	GWP	lb/MMBtu	lb/gallon	tpy, CO ₂ e
CO ₂	73.96	1	163.054	22.501	7.876 40 CFR 98
CH ₄	0.003	25	0.165	0.023	0.008 40 CFR 98
N ₂ O	0.0006	298	0.394	0.054	0.019 40 CFR 98
Total GHG - CO ₂ e			163.613	22.579	7.903

6.i Lacamas Emergency Generator Engine. Potential emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) by the emergency generator engine were calculated with the assumption that the equipment will operate at full rated capacity for 200 hours per year.

Emergency Generator Engine - Cummins / QSB7-G5 NR3						
Hours of Operation =	200 hours					
Power Output =	279 horsepower					
Fuel Type =	Ultra-low Sulfur Diesel					
Diesel Density =	7.206 pounds per gallon					
Fuel Sulfur Content =	0.0015 % by weight					
Fuel Consumption Rate =	14.15 gallons per hour (estimate)					
Fuel Heat Content =	0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)					
Annual Fuel Consumption =	2,830 gallons					
	Emission Factor	Emission Factor	Emissions	Emission Factor Source		
Pollutant	lb/hp-hr	lb/hr	tpy			
NO _x	0.0085	2.37	0.24	Cummins		
CO	0.0022	0.61	0.06	Cummins		
VOC	0.00033	0.09	0.009	Cummins		
SO _x as SO ₂	0.000011	0.0031	0.00031	Mass Balance		
PM	0.00024	0.07	0.007	Cummins		
PM ₁₀	0.00024	0.07	0.007	Cummins		
PM _{2.5}	0.00024	0.07	0.007	Cummins		
				CO ₂ e	CO ₂ e	
Greenhouse Gases	kg/MMBtu	GWP	lb/MMBtu	lb/gallon	tpy, CO ₂ e	
CO ₂	73.96	1	163.054	22.501	31.844	40 CFR 98
CH ₄	0.003	25	0.165	0.023	0.032	40 CFR 98
N ₂ O	0.0006	298	0.394	0.054	0.077	40 CFR 98
Total GHG - CO ₂ e			163.613	22.579	31.954	

- 6.j Maple Crest Emergency Generator Engine. Potential emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) by the emergency generator engine were calculated with the assumption that the equipment will operate at full rated capacity for 200 hours per year.

Emergency Generator Engine - Cummins / DGG-5737293						
Hours of Operation =	200 hours					
Power Output =	81 horsepower					
Fuel Type =	Ultra-low Sulfur Diesel					
Diesel Density =	7.206 pounds per gallon					
Fuel Sulfur Content =	0.0015 % by weight					
Fuel Consumption Rate =	4.00 gallons per hour (estimate)					
Fuel Heat Content =	0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)					
Annual Fuel Consumption =	800 gallons					
	Emission Factor	Emission Factor	Emissions			
Pollutant	lb/hp-hr	lb/hr	tpy	Emission Factor Source		
NO _x	0.0110	0.89	0.09	EPA Tier 2		
CO	0.0081	0.66	0.07	EPA Tier 2		
VOC	0.00130	0.11	0.011	EPA Tier 2		
SO _x as SO ₂	0.000011	0.0009	0.00009	Mass Balance		
PM	0.00048	0.04	0.004	EPA Tier 2		
PM ₁₀	0.00048	0.04	0.004	EPA Tier 2		
PM _{2.5}	0.00048	0.04	0.004	EPA Tier 2		
				CO ₂ e	CO ₂ e	
Greenhouse Gases	kg/MMBtu	GWP	lb/MMBtu	lb/gallon	tpy, CO ₂ e	
CO ₂	73.96	1	163.054	22.501	9.001	40 CFR 98
CH ₄	0.003	25	0.165	0.023	0.009	40 CFR 98
N ₂ O	0.0006	298	0.394	0.054	0.022	40 CFR 98
Total GHG - CO ₂ e			163.613	22.579	9.031	

6.k Pinebrook Emergency Generator Engine. Potential emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) by the emergency generator engine were calculated with the assumption that the equipment will operate at full rated capacity for 200 hours per year.

Emergency Generator Engine - Cummins / 4BTAA3.3G7						
Hours of Operation =	200 hours					
Power Output =	99 horsepower					
Fuel Type =	Ultra-low Sulfur Diesel					
Diesel Density =	7.206 pounds per gallon					
Fuel Sulfur Content =	0.0015 % by weight					
Fuel Consumption Rate =	5.02 gallons per hour (estimate)					
Fuel Heat Content =	0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)					
Annual Fuel Consumption =	1,004 gallons					
	Emission Factor	Emission Factor	Emissions	Emission Factor Source		
Pollutant	lb/hp-hr	lb/hr	tpy			
NO _x	0.0090	0.89	0.09	Cummins		
CO	0.0022	0.22	0.02	Cummins		
VOC	0.00396	0.39	0.039	Cummins		
SO _x as SO ₂	0.000011	0.0011	0.00011	Mass Balance		
PM	0.00086	0.08	0.008	Cummins		
PM ₁₀	0.00086	0.08	0.008	Cummins		
PM _{2.5}	0.00086	0.08	0.008	Cummins		
				CO ₂ e	CO ₂ e	
Greenhouse Gases	kg/MMBtu	GWP	lb/MMBtu	lb/gallon	tpy, CO ₂ e	
CO ₂	73.96	1	163.054	22.501	11.300	40 CFR 98
CH ₄	0.003	25	0.165	0.023	0.011	40 CFR 98
N ₂ O	0.0006	298	0.394	0.054	0.027	40 CFR 98
Total GHG - CO₂e			163.613	22.579	11.338	

6.1 Rosewood Emergency Generator Engine. Potential emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) by the emergency generator engine were calculated with the assumption that the equipment will operate at full rated capacity for 200 hours per year.

Emergency Generator Engine - Cummins / QSB5-G3 NR3						
Hours of Operation =	200 hours					
Power Output =	132 horsepower					
Fuel Type =	Ultra-low Sulfur Diesel					
Diesel Density =	7.206 pounds per gallon					
Fuel Sulfur Content =	0.0015 % by weight					
Fuel Consumption Rate =	6.70 gallons per hour (estimate)					
Fuel Heat Content =	0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)					
Annual Fuel Consumption =	1,339 gallons					
	Emission Factor	Emission Factor	Emissions	Emission Factor Source		
Pollutant	lb/hp-hr	lb/hr	tpy			
NO _x	0.0066	0.87	0.09	EPA Tier 3		
CO	0.0081	1.07	0.11	EPA Tier 3		
VOC	0.00176	0.23	0.023	EPA Tier 3		
SO _x as SO ₂	0.000011	0.0014	0.00014	Mass Balance		
PM	0.00048	0.06	0.006	EPA Tier 3		
PM ₁₀	0.00048	0.06	0.006	EPA Tier 3		
PM _{2.5}	0.00048	0.06	0.006	EPA Tier 3		
				CO ₂ e	CO ₂ e	
Greenhouse Gases	kg/MMBtu	GWP	lb/MMBtu	lb/gallon	tpy, CO ₂ e	
CO ₂	73.96	1	163.054	22.501	15.066	40 CFR 98
CH ₄	0.003	25	0.165	0.023	0.015	40 CFR 98
N ₂ O	0.0006	298	0.394	0.054	0.036	40 CFR 98
Total GHG - CO ₂ e			163.613	22.579	15.118	

6.m Stein Estates Emergency Generator Engine. Potential emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) by the emergency generator engine were calculated with the assumption that the equipment will operate at full rated capacity for 200 hours per year.

Emergency Generator Engine - Cummins / 4BT3.3-G6 NR						
Hours of Operation =	200 hours					
Power Output =	81 horsepower					
Fuel Type =	Ultra-low Sulfur Diesel					
Diesel Density =	7.206 pounds per gallon					
Fuel Sulfur Content =	0.0015 % by weight					
Fuel Consumption Rate =	4.11 gallons per hour (estimate)					
Fuel Heat Content =	0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)					
Annual Fuel Consumption =	822 gallons					
Pollutant	Emission Factor lb/hp-hr	Emission Factor lb/hr	Emissions tpy	Emission Factor Source		
NO _x	0.0106	0.86	0.09	EPA Tier 2		
CO	0.0081	0.66	0.07	EPA Tier 2		
VOC	0.00176	0.14	0.014	EPA Tier 2		
SO _x as SO ₂	0.000011	0.0009	0.00009	Mass Balance		
PM	0.00066	0.05	0.005	EPA Tier 2		
PM ₁₀	0.00066	0.05	0.005	EPA Tier 2		
PM _{2.5}	0.00066	0.05	0.005	EPA Tier 2		
Greenhouse Gases	kg/MMBtu	GWP	CO ₂ e lb/MMBtu	CO ₂ e lb/gallon	tpy, CO ₂ e	
CO ₂	73.96	1	163.054	22.501	9.245	40 CFR 98
CH ₄	0.003	25	0.165	0.023	0.009	40 CFR 98
N ₂ O	0.0006	298	0.394	0.054	0.022	40 CFR 98
Total GHG - CO₂e			163.613	22.579	9.277	

6.n Waterfront Emergency Generator Engine. Potential emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) by the emergency generator engine were calculated with the assumption that the equipment will operate at full rated capacity for 200 hours per year.

Emergency Generator Engine - Cummins / QSB5-G3 NR3						
Hours of Operation =	200 hours					
Power Output =	125 horsepower					
Fuel Type =	Ultra-low Sulfur Diesel					
Diesel Density =	7.206 pounds per gallon					
Fuel Sulfur Content =	0.0015 % by weight					
Fuel Consumption Rate =	6.34 gallons per hour (estimate)					
Fuel Heat Content =	0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)					
Annual Fuel Consumption =	1,268 gallons					
	Emission Factor	Emission Factor	Emissions	Emission Factor Source		
Pollutant	lb/hp-hr	lb/hr	tpy			
NO _x	0.0063	0.79	0.08	EPA Tier 4		
CO	0.0081	1.02	0.10	EPA Tier 4		
VOC	0.00031	0.04	0.004	EPA Tier 4		
SO _x as SO ₂	0.000011	0.0014	0.00014	Mass Balance		
PM	0.00002	0.00	0.000	EPA Tier 4		
PM ₁₀	0.00002	0.00	0.000	EPA Tier 4		
PM _{2.5}	0.00002	0.00	0.000	EPA Tier 4		
				CO ₂ e	CO ₂ e	
Greenhouse Gases	kg/MMBtu	GWP	lb/MMBtu	lb/gallon	tpy, CO ₂ e	
CO ₂	73.96	1	163.054	22.501	14.267	40 CFR 98
CH ₄	0.003	25	0.165	0.023	0.014	40 CFR 98
N ₂ O	0.0006	298	0.394	0.054	0.034	40 CFR 98
Total GHG - CO₂e			163.613	22.579	14.316	

6.o West Ridge Emergency Generator Engine. Potential emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) by the emergency generator engine were calculated with the assumption that the equipment will operate at full rated capacity for 200 hours per year.

Emergency Generator Engine - John Deere / 6059T						
Hours of Operation =	200 hours					
Power Output =	120 horsepower					
Fuel Type =	Ultra-low Sulfur Diesel					
Diesel Density =	7.206 pounds per gallon					
Fuel Sulfur Content =	0.0015 % by weight					
Fuel Consumption Rate =	6.09 gallons per hour (estimate)					
Fuel Heat Content =	0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)					
Annual Fuel Consumption =	1,217 gallons					
	Emission Factor	Emission Factor	Emissions	Emission Factor Source		
Pollutant	lb/hp-hr	lb/hr	tpy			
NO _x	0.0152	1.82	0.18	EPA Tier 1		
CO	0.0067	0.80	0.08	AP-42 Table 3.3-1 (10/96)		
VOC	0.00247	0.30	0.030	AP-42 Table 3.3-1 (10/96)		
SO _x as SO ₂	0.000011	0.0013	0.00013	Mass Balance		
PM	0.00220	0.26	0.026	AP-42 Table 3.3-1 (10/96)		
PM ₁₀	0.00220	0.26	0.026	AP-42 Table 3.3-1 (10/96)		
PM _{2.5}	0.00220	0.26	0.026	AP-42 Table 3.3-1 (10/96)		
				CO ₂ e	CO ₂ e	
Greenhouse Gases	kg/MMBtu	GWP	lb/MMBtu	lb/gallon	tpy, CO ₂ e	
CO ₂	73.96	1	163.054	22.501	13.697	40 CFR 98
CH ₄	0.003	25	0.165	0.023	0.014	40 CFR 98
N ₂ O	0.0006	298	0.394	0.054	0.033	40 CFR 98
Total GHG - CO ₂ e			163.613	22.579	13.744	

6.p Facility-wide Potential Emissions Summary:

Pollutant	Potential Annual Emissions (tpy)
Nitrogen oxides	10.66
Carbon monoxide	1.70
Volatile organic compounds	0.48
Sulfur oxides as sulfur dioxide	0.00
Particulate matter	0.31
PM ₁₀	0.31
PM _{2.5}	0.31
Toxic Air Pollutants	0.00
Hazardous Air Pollutants	0.00

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 Recordkeeping" requires that notification shall be submitted to SWCAA, the delegated authority, for date construction commenced, anticipated initial startup, and initial startup.
- 7.b 40 CFR Part 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.
- 7.c 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 Centennial, Columbia Palisades, Grand Central Lacamas, Maple Crest, Pinebrook, Rosewood, Stein Estates, and Waterfront emergency generator engines are affected sources because they were manufactured after the relevant applicability date (April 1, 2006).
- 7.d 40 CFR Part 63.7 "Performance Testing Requirements" 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.
- 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 HAPs 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. 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 BBC, Orchards, Andresen, Columbia Tech, Fishers Grove, and West Ridge emergency generator engines are affected sources. 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 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.g 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.h Washington Administrative Code (WAC) 173-460 "Controls for New Sources of Toxic Air Pollutants" (as in effect August 21, 1998) 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.i 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.j 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.k 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.l 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 the property, must use recognized good practices and procedures to reduce these odors to a reasonable minimum.
- 7.m SWCAA 400-040(6) "Sulfur Dioxide" requires that no person shall emit a gas containing in excess of 1,000 ppm of SO₂, corrected to 7% O₂ or 12% CO₂ as required by the applicable emission standard for combustion sources.
- 7.n 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.o 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.p 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.q 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.r 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.

This facility has equipment located in the Portland/Vancouver Maintenance Plan Area, therefore this regulation is applicable to this facility.

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) and Best Available Control Technology for toxics (T-BACT) for the types and amounts of air contaminants emitted by the processes and equipment as described below:

- 8.a BACT Determination – Diesel-fired Emergency Generator Engines. Available control measures for diesel engines include low sulfur fuel and add-on control equipment such as selective catalytic reduction units. The use of add-on control equipment is not economically or technically feasible because the engines will be operated only for short periods of time for testing, maintenance, and to provide emergency electricity. Because the engines will normally be operated only for short periods of time, the stable operating temperature required for operation of add-on control equipment will not be achieved.

The use of modern diesel-fired internal combustion engine design, ultra-low sulfur diesel fuel ($\leq 0.0015\%$ sulfur by weight), limitation of visible emissions to 10% opacity or less, and limitation of engine operation to maintenance checks, readiness testing, and emergency use (≤ 200 hours per year) has been determined to meet the requirements of BACT for the types and quantities of air contaminants emitted from these engines.

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

9. AMBIENT IMPACT ANALYSIS

- 9.a TAP Small Quantity Review. The TAP emissions associated with this facility are quantified in Section 6 of this Technical Support Document. All incremental increases in individual TAP emissions are less than the applicable small quantity emission rate (SQER) identified in WAC 173-460 [effective 8/21/98].

Conclusions

- 9.b Operation of the existing emergency generator engines, as proposed in ADP application CL-3108, 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.c The existing emergency generator engines, as proposed in ADP application CL-3108, will not cause a violation of the requirements of WAC 173-460 "Controls for New Sources of Toxic Air Pollutants" (in effect August 21, 1998) or WAC 173-476 "Ambient Air Quality Standards."
- 9.d Operation of the existing emergency generator engines, as proposed in ADP application CL-3108, will not cause 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 SWCAA 21-3456 in response to ADP application CL-3108. ADP 21-3456 contains approval requirements deemed necessary to assure compliance with applicable regulations and emission standards as discussed below.

10.a General Basis. Approval conditions for equipment affected by this permitting action incorporate the operating schemes proposed by the permittee in the ADP application and previous applications for the facility.

10.b Emission Limits. Emissions from the emergency generator engines were estimated at the quantity generated from operation of each engine for 200 hours per year for emergency use, maintenance checks, and readiness testing using the emission factors supplied in Section 6. The engines can operate for unlimited hours per year for actual emergency conditions. Visible emissions from the diesel-fired emergency generator engines were limited to 10% opacity.

10.c Operating Limits and Requirements. Only ultra-low sulfur (15 ppm or less) fuel may be used for the emergency generator engines. This is consistent with BACT and the requirements of 40 CFR 60 Subpart III.

Consistent with 40 CFR 60 Subpart III, except for emergency operation, the emergency generator engines may only operate 100 hours or less per year for maintenance and readiness testing. This limitation also assures that emissions from the engine will be below a threshold where additional control equipment would be necessary to meet the requirements of BACT.

10.d Monitoring and Recordkeeping. The hours of operation of the emergency generator engines must be recorded once per year to calculate annual emissions.

Fuel certificates for the emergency generator engine fuel purchases must be kept to demonstrate that ultra-low sulfur fuel is being purchased for the emergency generator engines.

The permittee is required to record each occurrence of maintenance and repairs to applicable equipment so that SWCAA and the permittee can assure that the equipment is being maintained properly and evaluate whether emission factors remain valid.

10.e Emission Monitoring and Testing Requirements. See Section 12.

10.f Reporting. Specific reporting deadlines were established for each reporting requirement. The submittal date refers to the earlier of the date the report is delivered to SWCAA or the postmarked date if sent through the US Post Office.

The permit requires reporting of the annual air emissions inventory. Upset conditions with the potential to cause excess emissions must be reported immediately in order to qualify for relief from penalty in accordance with SWCAA 400-107 for unavoidable exceedances. In addition, prompt reporting allows for prompt and accurate investigation into the cause of the event and the prevention of similar future incidents.

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

11.a Startup 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 startup or shutdown, SWCAA shall include appropriate emission limitations, operating parameters, or other criteria to regulate performance of the source during startup or shutdown.

The diesel-fired emergency generator engines may exhibit excess opacity upon startup. Accordingly, the opacity limit for these engines is not applicable during the startup 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 applicant did not propose or identify any applicable alternate operating scenarios. Because neither SWCAA nor the applicant identified any alternate operating scenarios, none were accommodated 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

Due to the nature and quantity of air pollutant emissions from the emergency generator engines and the fact that post-combustion controls are not utilized, performance monitoring and/or testing requirements were not established in the Permit for the emergency generator engines.

13. HISTORY

- 13.a Previous Approvals/Permits/Orders. There have been no previous ADPs issued for this facility.

14. PUBLIC INVOLVEMENT

- 14.a Public Notice for Air Discharge Permit Application CL-3108. Public notice for ADP application CL-3108 was published on the SWCAA internet website on December 16, 2020.
- 14.b Public/Applicant Comment for Air Discharge Permit Application CL-3108. SWCAA did not receive formal comments, a comment period request, or any other inquiry from the public or the applicant regarding this ADP application. Therefore no public comment period was provided for this permitting action.
- 14.c State Environmental Policy Act. The existing equipment permitted under this ADP are all located at facilities currently owned and/or operated by the City of Vancouver. SEPA was completed at the time of the original land development and pump station installation by individual parties at numerous locations throughout Vancouver. Individual SEPA determinations are not listed here. SWCAA considers the equipment exempt from SEPA under this permitting action. (Determination of SEPA Exempt - SWCAA 21-006).