



**TECHNICAL SUPPORT DOCUMENT**

**Air Discharge Permit 23-3614  
Air Discharge Permit Application CL-3252**

**Issued: November 8, 2023**

**Mill Plain Elementary School**

**SWCAA ID – 418**

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## ABBREVIATIONS

### *List of Acronyms*

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

### *List of Units and Measures*

acfm .....	Actual cubic foot per minute	MMBtu .....	Million British thermal unit
bhp .....	Brake horsepower	MMcf .....	Million cubic feet
dscfm.....	Dry Standard cubic foot per minute	ppm .....	Parts per million
g/dscm.....	Grams per dry Standard cubic meter	ppmv .....	Parts per million by volume
gpm .....	Gallon per minute	ppmvd .....	Parts per million by volume, dry
gr/dscf .....	Grain per dry standard cubic foot	ppmw .....	Parts per million by weight
hp .....	Horsepower	psig .....	Pounds per square inch, gauge
hp-hr.....	Horsepower-hour	rpm.....	Revolution per minute
kW.....	Kilowatt	scfm .....	Standard cubic foot per minute
		tph .....	Ton per hour
		tpy .....	Tons per year

*List of Chemical Symbols, Formulas, and Pollutants*

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

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:	Evergreen School District
Applicant Address:	PO Box 8910, Vancouver, WA 98668
Facility Name:	Mill Plain Elementary School
Facility Address:	400 SE 164 <sup>th</sup> Avenue, Vancouver, WA 98684
SWCAA Identification:	418
Contact Person:	Martin Madarieta
Primary Process:	Elementary School
SIC/NAICS Code:	8211 Educational Services: 611110: Elementary and Secondary Schools
Facility Latitude and Longitude:	45° 37' 05.42" N 122° 30' 19.97" W
Facility Classification:	Natural Minor

## 2. FACILITY DESCRIPTION

Evergreen School District is a public primary education provider for Vancouver, Washington. The District operates multiple facilities which are registered with SWCAA under a single identification number. The facility addressed by this permitting action is the remodeled Mill Plain Elementary School, which serves over 300 students.

## 3. CURRENT PERMITTING ACTION

This permitting action is in response to Air Discharge Permit (ADP) application number CL-3252 dated September 19, 2023. Evergreen School District submitted ADP application CL-3252 requesting the following:

- Two 2.0 MMBtu/hr natural gas-fired ATH model KN-20+ boilers for hydronic heating
- Two 0.150 MMBtu/hr natural gas-fired AO Smith model BTH-150(A) water heaters for supplying domestic hot water
- One 180 kW MTU generator set, model 6R0113 DS180 driven by a John Deere model 6068HFG85 diesel engine

ADP 23-3614 will supersede SUN-161 and SUN-162 in their entirety.

#### 4. PROCESS DESCRIPTION

- 4.a. Boilers – Process Steam. Two Advanced Thermal hydronics natural gas-fired boilers provide steam for heating.
- 4.b. Water Heaters. Two AO Smith natural gas-fired water heaters are used to provide domestic hot water.
- 4.c. Emergency Power Generation. One Diesel driven generator is used to generate emergency electrical power at the school campus.

#### 5. EQUIPMENT/ACTIVITY IDENTIFICATION

- 5.a. Boilers (B-1 and B-2). Two natural gas fired boilers are used to provide heat on campus. Details are as follows:

Boiler Manufacturer:	Advanced Thermal Hydronics
Model Number:	KN 20+
Heat Rate:	2.0 MMBtu/hr
Turndown Ratio:	5:1
Stack Diameter:	6"
Stack Height:	18'
Stack Temperature:	145 °F
40 CFR 60 Subpart Dc:	No
40 CFR 63 Subpart JJJJJ:	No

- 5.b. Water heaters (WH-1 and WH-2). Two natural gas fired water heaters are used to provide domestic hot water on campus. Details are as follows:

Boiler Manufacturer:	AO Smith
Model Number:	BTH-150 (A)
Heat Rate:	0.150 MMBtu/hr

- 5.c. Emergency Generator Engine. One generator driven by a diesel engine is used to provide emergency power. Details are as follows:

Engine Make:	John Deere
Engine Model:	6068 HFG85
Engine Output Rating:	315 bhp
Certification:	EPA Tier 3
Fuel Consumption:	13.5 gal/hr at full standby load
Generator Rating:	180 kW
Generator Make:	MTU
Generator Model:	6R0120 DS180
Exhaust Flow Rate:	1,371 cfm
Stack Height:	6' from ground

Stack Diameter: 5"  
 Stack Temperature: 982°F  
 Regulations of Note: 40 CFR 60 Subpart III, 40 CFR 63 Subpart ZZZZ

5.d. Equipment/Activity Summary.

<b>ID No.</b>	<b>Equipment/Activity</b>	<b>Control Equipment/Measure</b>
1	Boiler 1 (ATH model KN-20+)	Low Emission Burner Low Sulfur Fuel (Natural Gas)
2	Boiler 2 (ATH model KN-20+)	Low Emission Burner Low Sulfur Fuel (Natural Gas)
3	Water Heater 1 (AO Smith model BTH-150A)	Low Emission Burner Low Sulfur Fuel (Natural Gas)
4	Water Heater 2 (AO Smith model BTH-150A)	Low Emission Burner Low Sulfur Fuel (Natural Gas)
5	Emergency Generator Engine (John Deere model 6068HFG85)	Ultra-low sulfur diesel, EPA Tier 3 engine

## 6. EMISSIONS DETERMINATION

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

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

Nothing precludes the use, including the exclusive use of any credible evidence or information relevant to identifying or quantifying emissions if methods identified above, in the ADP, or elsewhere in this TSD have not provided adequate quantification of actual emissions.

- 6.a. Boiler 1. Potential annual emissions (PTE) from the combustion of natural gas by this boiler were calculated with the assumption that the boiler could operate at full rated capacity for 8,760 hours per year.

<b>Boiler 1</b>						
Heat Rate =	2.000 MMBtu/hr					
Natural Gas Heat Value =	1,020 Btu/scf for AP-42 emission factors					
Natural Gas Heat Value =	1,026 Btu/scf for 40 CFR 98 GHG emission factors					
Fuel Consumption =	17.176 MMscf/yr					
Pollutant	ppmvd @ 3% O <sub>2</sub>	Emission Factor		lb/hr	tpy	Emission Factor Source
		lb/MMBtu	lb/MMscf			
NO <sub>x</sub>	30	0.0364	37.1	0.073	0.32	BACT
CO	50	0.0370	37.7	0.074	0.32	BACT
VOC		0.0054	5.5	0.011	0.047	AP-42 Sec. 1.4 (7/98)
SO <sub>x</sub> as SO <sub>2</sub>		0.00059	0.6	0.0012	0.0052	AP-42 Sec. 1.4 (7/98)
PM		0.0075	7.6	0.015	0.065	AP-42 Sec. 1.4 (7/98)
PM <sub>10</sub>		0.0075	7.6	0.015	0.065	AP-42 Sec. 1.4 (7/98)
PM <sub>2.5</sub>		0.0075	7.6	0.015	0.065	AP-42 Sec. 1.4 (7/98)
Benzene		2.06E-06	0.0021	4.1E-06	1.8E-05	AP-42 Sec. 1.4 (7/98)
Formaldehyde		7.35E-05	0.075	1.5E-04	6.4E-04	AP-42 Sec. 1.4 (7/98)
Greenhouse Gases	kg/MMBtu	GWP	CO <sub>2</sub> e lb/MMBtu	CO <sub>2</sub> e lb/MMscf	tpy, CO <sub>2</sub> e	Emission Factor Source
CO <sub>2</sub>	53.06	1	116.98	120,019	1,024.7	40 CFR 98
CH <sub>4</sub>	0.001	25	0.055	56.55	0.5	40 CFR 98
N <sub>2</sub> O	0.0001	298	0.066	67.41	0.6	40 CFR 98
Total GHG - CO <sub>2</sub> e			117.098	120,143	1,025.8	

Emissions must be calculated by multiplying the fuel usage by the emission factors above unless new emission factors are developed through source emissions testing, or an alternative methodology is specified or approved by SWCAA.



- 6.b. Boiler 2. Potential annual emissions (PTE) from the combustion of natural gas by this boiler were calculated with the assumption that the boiler could operate at full rated capacity for 8,760 hours per year.

<b>Boiler 2</b>						
Heat Rate =	2.000 MMBtu/hr					
Natural Gas Heat Value =	1,020 Btu/scf for AP-42 emission factors					
Natural Gas Heat Value =	1,026 Btu/scf for 40 CFR 98 GHG emission factors					
Fuel Consumption =	17.176 MMscf/yr					
Pollutant	ppmvd @ 3% O <sub>2</sub>	Emission Factor		lb/hr	tpy	Emission Factor Source
NO <sub>x</sub>	30	0.0364	37.1	0.073	0.32	BACT
CO	50	0.0370	37.7	0.074	0.32	BACT
VOC		0.0054	5.5	0.011	0.047	AP-42 Sec. 1.4 (7/98)
SO <sub>x</sub> as SO <sub>2</sub>		0.00059	0.6	0.0012	0.0052	AP-42 Sec. 1.4 (7/98)
PM		0.0075	7.6	0.015	0.065	AP-42 Sec. 1.4 (7/98)
PM <sub>10</sub>		0.0075	7.6	0.015	0.065	AP-42 Sec. 1.4 (7/98)
PM <sub>2.5</sub>		0.0075	7.6	0.015	0.065	AP-42 Sec. 1.4 (7/98)
Benzene		2.06E-06	0.0021	4.1E-06	1.8E-05	AP-42 Sec. 1.4 (7/98)
Formaldehyde		7.35E-05	0.075	1.5E-04	6.4E-04	AP-42 Sec. 1.4 (7/98)
Greenhouse Gases	kg/MMBtu	GWP	CO <sub>2</sub> e lb/MMBtu	CO <sub>2</sub> e lb/MMscf	tpy, CO <sub>2</sub> e	Emission Factor Source
CO <sub>2</sub>	53.06	1	116.98	120,019	1,024.7	40 CFR 98
CH <sub>4</sub>	0.001	25	0.055	56.55	0.5	40 CFR 98
N <sub>2</sub> O	0.0001	298	0.066	67.41	0.6	40 CFR 98
Total GHG - CO <sub>2</sub> e			117.098	120,143	1,025.8	

Emissions must be calculated by multiplying the fuel usage by the emission factors above unless new emission factors are developed through source emissions testing, or an alternative methodology is specified or approved by SWCAA.

- 6.c. Water Heater 1. Potential annual emissions (PTE) from the combustion of natural gas by this water heater were calculated with the assumption that the water heater could operate at full rated capacity for 8,760 hours per year.

<b>Water Heater 1</b>						
Heat Rate =	0.150 MMBtu/hr					
Natural Gas Heat Value =	1,020 Btu/scf for AP-42 emission factors					
Natural Gas Heat Value =	1,026 Btu/scf for 40 CFR 98 GHG emission factors					
Fuel Consumption =	1.288 MMscf/yr					
Pollutant	ppmvd @ 3% O <sub>2</sub>	Emission Factor		lb/hr	tpy	Emission Factor Source
		lb/MMBtu	lb/MMscf			
NO <sub>x</sub>	20	0.0243	24.8	0.004	0.016	SWCAA 400-070
CO	111.4	0.0823	84.0	0.012	0.05	AP-42 Sec. 1.4 (7/98)
VOC		0.0054	5.5	0.0008	0.0035	AP-42 Sec. 1.4 (7/98)
SO <sub>x</sub> as SO <sub>2</sub>		0.00059	0.6	0.00009	0.0004	AP-42 Sec. 1.4 (7/98)
PM		0.0075	7.6	0.0011	0.005	AP-42 Sec. 1.4 (7/98)
PM <sub>10</sub>		0.0075	7.6	0.0011	0.005	AP-42 Sec. 1.4 (7/98)
PM <sub>2.5</sub>		0.0075	7.6	0.0011	0.005	AP-42 Sec. 1.4 (7/98)
Benzene		2.06E-06	0.0021	3.1E-07	1.4E-06	AP-42 Sec. 1.4 (7/98)
Formaldehyde		7.35E-05	0.075	1.1E-05	4.8E-05	AP-42 Sec. 1.4 (7/98)
Greenhouse Gases	kg/MMBtu	GWP	CO <sub>2</sub> e lb/MMBtu	CO <sub>2</sub> e lb/MMscf	tpy, CO <sub>2</sub> e	Emission Factor Source
CO <sub>2</sub>	53.06	1	116.98	120,019	76.9	40 CFR 98
CH <sub>4</sub>	0.001	25	0.055	56.55	0.0	40 CFR 98
N <sub>2</sub> O	0.0001	298	0.066	67.41	0.0	40 CFR 98
Total GHG - CO <sub>2</sub> e			117.098	120,143	76.9	

Emissions must be calculated by multiplying the fuel usage by the emission factors above unless new emission factors are developed through source emissions testing, or an alternative methodology is specified or approved by SWCAA.

- 6.d. Water Heater 2. Potential annual emissions (PTE) from the combustion of natural gas by this water heater were calculated with the assumption that the water heater could operate at full rated capacity for 8,760 hours per year.

<b>Water Heater 2</b>						
Heat Rate =	0.150 MMBtu/hr					
Natural Gas Heat Value =	1,020 Btu/scf for AP-42 emission factors					
Natural Gas Heat Value =	1,026 Btu/scf for 40 CFR 98 GHG emission factors					
Fuel Consumption =	1.288 MMscf/yr					
Pollutant	ppmvd @ 3% O <sub>2</sub>	Emission Factor		lb/hr	tpy	Emission Factor Source
NO <sub>x</sub>	20	0.0243	24.8	0.004	0.02	BACT
CO	111.4	0.0823	84.0	0.012	0.05	BACT
VOC		0.0054	5.5	0.0008	0.004	AP-42 Sec. 1.4 (7/98)
SO <sub>x</sub> as SO <sub>2</sub>		0.00059	0.6	0.00009	0.0004	AP-42 Sec. 1.4 (7/98)
PM		0.0075	7.6	0.0011	0.005	AP-42 Sec. 1.4 (7/98)
PM <sub>10</sub>		0.0075	7.6	0.0011	0.005	AP-42 Sec. 1.4 (7/98)
PM <sub>2.5</sub>		0.0075	7.6	0.0011	0.005	AP-42 Sec. 1.4 (7/98)
Benzene		2.06E-06	0.0021	3.1E-07	1.4E-06	AP-42 Sec. 1.4 (7/98)
Formaldehyde		7.35E-05	0.075	1.1E-05	4.8E-05	AP-42 Sec. 1.4 (7/98)
Greenhouse Gases	kg/MMBtu	GWP	CO <sub>2</sub> e lb/MMBtu	CO <sub>2</sub> e lb/MMscf	tpy, CO <sub>2</sub> e	Emission Factor Source
CO <sub>2</sub>	53.06	1	116.98	120,019	76.9	40 CFR 98
CH <sub>4</sub>	0.001	25	0.055	56.55	0.0	40 CFR 98
N <sub>2</sub> O	0.0001	298	0.066	67.41	0.0	40 CFR 98
Total GHG - CO <sub>2</sub> e			117.098	120,143	76.9	

Emissions must be calculated by multiplying the fuel usage by the emission factors above unless new emission factors are developed through source emissions testing, or an alternative methodology is specified or approved by SWCAA.

- 6.e. Emergency Generator Diesel Engine. Potential annual emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) were calculated with the assumption that the equipment will operate at full load for up to 200 hours per year.

Emergency Generator Diesel Engine						
Hours of Operation =	200 hours					
Power Output =	315 horsepower					
Diesel Density =	7.206 pounds per gallon					
Fuel Sulfur Content =	0.0015 % by weight					
Fuel Consumption Rate =	13.5 gal/hr					
Fuel Heat Content =	0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)					
	Emission					
	Factor	Emissions	Emissions			
Pollutant	g/hp-hr	lb/hr	tpy	Emission Factor Source		
NO <sub>x</sub>	2.71	1.88	0.19	John Deere		
CO	0.43	0.30	0.030	John Deere		
VOC	0.050	0.035	0.0035	John Deere		
SO <sub>x</sub> as SO <sub>2</sub>		0.0029	0.00029	Mass Balance		
PM	0.06	0.042	0.0042	John Deere		
PM <sub>10</sub>	0.06	0.042	0.0042	John Deere		
PM <sub>2.5</sub>	0.06	0.042	0.0042	John Deere		
	CO <sub>2</sub> e					
Greenhouse Gases	kg/MMBtu	GWP	lb/MMBtu	CO <sub>2</sub> e	Emission Fac	
				lb/gallon	tpy, CO <sub>2</sub> e	Source
CO <sub>2</sub>	73.96	1	163.05	23	30	40 CFR 98
CH <sub>4</sub>	0.003	25	0.165	0.023	0.03	40 CFR 98
N <sub>2</sub> O	0.0006	298	0.394	0.054	0.07	40 CFR 98
Total GHG - CO <sub>2</sub> e			163.613	23	30	

Emissions must be calculated by multiplying the number of hours the engine operated by the hourly emission factors above unless new emission factors are developed through source emissions testing, or an alternative methodology is specified or approved by SWCAA.

6.f. Emissions Summary

<b>Air Pollutant</b>	<b>Potential to Emit (tpy)</b>
NO <sub>x</sub>	0.86
CO	0.79
VOC	0.11
SO <sub>2</sub>	0.01
PM	0.14
PM <sub>10</sub>	0.14
PM <sub>2.5</sub>	0.14
CO <sub>2</sub> /CO <sub>2e</sub>	2,236

**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 Code of Federal Regulations (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.

The emergency generator engine is a CI ICE configuration and was manufactured after April 1, 2006; therefore, this regulation is applicable to the emergency generator engine.

- 7.b. 40 CFR 63.9 "Notification Requirements" requires that the delegated authority be notified when any unit subject to 40 CFR 64 begins initial startup.

This facility is not subject to any NESHAP or to any Maximum Emission Control Technology (MACT); therefore, this regulation does not apply.

- 7.c. 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 located at major and area sources of HAP emissions. The existing Emergency Generator Engine is located at an area source of

HAP and used in emergency situations; therefore, this regulation applies to the existing engine.

For existing emergency engines at an area source, the owner or operator is required to:

- Change oil and filter every 500 hours of operation or annually, whichever comes first except as allowed by 40 CFR 63.6625(i) [Table 2d(4)(a)];
- Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first [Table 2d(4)(b)];
- Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary [Table 2d(4)(c)];
- Install a non-resettable hour meter if one is not already installed. [§ 63.6625(f)]
- Report each instance in which the owner did not meet each operating limitation [§ 63.6640(b)];
- Limit operation of the engine to emergency use and maintenance checks and readiness testing. Operation for maintenance checks and readiness testing may be conducted only to the extent that the tests are recommended by Federal, State, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Operation for maintenance checks and readiness testing is limited to 100 hours per year [§ 63.6640(f)(2)(i)];
- Record the occurrence and duration of each malfunction of operation (i.e., process equipment) [§ 63.6655(a)(2)];
- Record maintenance conducted on the engine in order to demonstrate that the engine was operated and maintained according to the applicable maintenance plan [§ 63.6655(e)]; and
- Record the hours of operation of the engine by use of a non-resettable hour meter. The owner or operator must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation [§ 63.6655(f)].

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.

For purposes of this Subpart, "diesel fuel" also includes any non-distillate fuel with comparable physical and chemical properties (e.g., biodiesel) that is suitable for use in compression ignition engines per §63.6675.

- 7.d. 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 all of the boilers are classified as gas boilers. 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 boilers.

- 7.e. 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.f. 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.g. 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.h. 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 does not emit TAPS; therefore, this regulation does not apply to the facility.

- 7.i. 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 must 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.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, SO<sub>2</sub>, concealment and masking, and fugitive dust. This regulation applies to the facility.
- 7.k. SWCAA 400-040(1) "Visible Emissions" requires that emissions of an air contaminant from any emissions unit must not 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.l. SWCAA 400-040(2) "Fallout" requires that emissions of PM from any source must not 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.m. 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.n. 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.o. SWCAA 400-040(6) "Sulfur Dioxide" requires that no person is allowed to 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.p. SWCAA 400-040(8) "Fugitive Dust Sources" requires that reasonable precautions be taken to prevent fugitive dust from becoming airborne and to minimize emissions. This regulation applies to the facility.
- 7.q. SWCAA 400-050 "Emission Standards for Combustion and Incineration Units" requires that all provisions of SWCAA 400-040 be met, and that no person is allowed to 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.r. SWCAA 400-070(13) "General Requirements for Certain Source Categories: Natural Gas-Fired Water Heaters."
- (a) Applicability. The requirements of this section apply to all natural gas-fired water heaters with a rated heat input less than 400,000 Btu/hr. For the purposes of this subsection, the term "water heater" means a closed vessel in which water is heated by combustion of gaseous fuel and is withdrawn for use external to the vessel at pressures not exceeding 160 psig, including the apparatus by which heat is generated and all controls and devices necessary to prevent water temperatures from exceeding 210°F.
- (b) Requirements.
- (i) On or after January 1, 2010, no person shall offer for sale, or install, a water heater that emits NO<sub>x</sub> at levels in excess of 55 ppmv at 3% O<sub>2</sub>, dry (0.067 lb per million Btu of heat input).



- (ii) On or after January 1, 2013, no person shall offer for sale, or install, a water heater that emits NO<sub>x</sub> at levels in excess of 20 ppmv at 3% O<sub>2</sub>, dry (0.024 lb per million Btu of heat input).
- 7.s. 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. This regulation applies to the facility.
- 7.t. SWCAA 400-110 "New Source Review" requires that SWCAA issue an ADP in response to an ADP application 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.u. SWCAA 400-111 "Requirements for Sources in a Maintenance Plan Area" requires that no approval to construct or alter an air contaminant source will be granted unless it is evidenced that:
  - (1) The equipment or technology is designed and will be installed to operate without causing a violation of the applicable emission standards;
  - (2) Emissions will be minimized to the extent that the new source will not exceed emission levels or other requirements provided in the maintenance plan;
  - (3) BACT will be employed for all air contaminants to be emitted by the proposed equipment;
  - (4) The proposed equipment will not cause any ambient air quality standard to be exceeded; and
  - (5) If the proposed equipment or facility will emit any toxic air pollutant regulated under WAC 173-460, the proposed equipment and control measures will meet all the requirements of that Chapter.

The facility is located in a maintenance plan area; therefore, this regulation applies to the facility.

## 8. BACT/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:

- 8.a. BACT Determination – Boilers. These units have received South Coast (California) Air Quality Management District certification for their ability to maintain NO<sub>x</sub> emissions at no more than 20 ppmvd @ 3% O<sub>2</sub>. SWCAA believes that achieving NO<sub>x</sub> and CO emissions of 30 and 50 ppmvd @ 3% O<sub>2</sub> respectively meets the requirements of BACT for hydronic heating units at this facility. A NO<sub>x</sub> limit of 30 ppmvd @ 3% O<sub>2</sub>, which is

slightly higher than the advertised capability of the units, will provide for greater flexibility to tune the unit for lower CO emissions.

- 8.b. BACT Determination – Water Heaters. The water heaters have heating values of 0.15 MMBtu/hr. These units meet the requirements of SWCAA 400-070 (13). The use of low sulfur fuel (natural gas) has been determined to meet the requirement of BACT at the Permittee's facilities for equipment with a heat input of less than 0.4 MMBtu/hr.
- 8.c. BACT Determination – Emergency Engine. Available control measures for new diesel engines include engine design, the use of ultra-low sulfur fuel and add-on control equipment such as selective catalytic reduction (SCR) units and oxidation catalysts. SWCAA believes that SCR is not feasible for this unit based on a combination of cost and practicality (most operation will be short-term and intermittent). SWCAA has found that an oxidation catalyst is not a cost-effective control for CO, VOC, and PM for relatively small emergency engines.

The use of modern diesel-fired engine design meeting the relevant EPA emission standard for the new engine as applicable, the use of ultra-low sulfur diesel fuel ( $\leq 0.0015\%$  sulfur by weight), limitation of visible emissions to 5% opacity or less, and limitation of engine operation has been determined to meet the requirements of BACT for the types and quantities of air contaminants emitted. The use of ultra-low sulfur fuel is also required by 40 CFR 60 Subpart IIII for "new" engines.

- 8.d. 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.e. 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 (Title V) 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. Potential emissions of toxic air pollutants will not exceed the applicable Small Quantity Emission Rates (SQER) listed in WAC 173-460 therefore, toxic impacts are presumed to be below regulatory significance.

### Conclusions

- 9.c. Construction and operation of the new boilers, water heater, and emergency generator, as proposed in ADP application CL-3252, will not cause the ambient air quality requirements of 40 CFR 50 "National Primary and Secondary Ambient Air Quality Standards" to be violated.

- 9.d. Construction and operation of the new boilers, water heater, and emergency generator, as proposed in ADP application CL-3252, will not cause the requirements of WAC 173-460 "Controls for New Sources of Toxic Air Pollutants" or WAC 173-476 "Ambient Air Quality Standards" to be violated.
- 9.e. Construction and operation of the new boilers, water heater, and emergency generator, as proposed in ADP application CL-3252, will not violate emission standards for sources as established under SWCAA General Regulations Sections 400-040 "General Standards for Maximum Emissions," 400-050 "Emission Standards for Combustion and Incineration Units," and 400-060 "Emission Standards for General Process Units."

## 10. DISCUSSION OF APPROVAL CONDITIONS

SWCAA has made a determination to issue ADP 23-3614 in response to ADP application CL-3252. ADP 23-3614 contains approval requirements deemed necessary to assure compliance with applicable regulations and emission standards as discussed below.

- 10.a. Supersession of Previous Permits. ADP 23-3614 supersedes SUN-161 and SUN-162 in their entirety.
- 10.b. Emission Limits. The short-term NO<sub>x</sub> and CO emission limits for Boilers 1 and 2 were established at levels identified in Section 8 as meeting the requirements of BACT. Annual emission limits were based on the boilers operating for 8,760 hours per year at full rated load using the emission factors supplied in Section 6.

All natural gas-fired equipment other than Boilers 1 and 2 are under 0.4 MMBtu/hr each, therefore individual emission limits were not established for these units. This is consistent with the way small boilers are regulated in SWCAA 400 (see SWCAA 400-070 and Small Unit Notification requirements of SWCAA 400-072).

- 10.c. Operational Limits and Requirements. Corrective action is required whenever performance monitoring of any boiler indicates that emission concentrations may exceed the permitted emission limits.
- 10.d. Monitoring and Recordkeeping Requirements. ADP 23-3614 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.

At a minimum, facility-wide natural gas consumption must be recorded to assure that an annual fuel consumption value will be available for emission inventory purposes. If boilers or heaters are not equipped with individual fuel meters, fuel use may be apportioned between individual units using operating records.

- 10.e. Reporting Requirements. ADP 23-3614 establishes general reporting requirements for annual air emissions, upset conditions and excess emissions. Specific reporting requirements are established for natural gas consumption, diesel fuel usage, and maintenance. 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 must 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 will 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.

- 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**

Performance monitoring of Boilers 1 and 2 with a combustion analyzer or equivalent is required at least annually. In SWCAA's experience, this monitoring is relatively inexpensive compared to the quantity of emissions that can be prevented by this procedure. It is unlikely that emissions will degrade rapidly enough that more frequent monitoring is necessary to maintain proper operation. SWCAA believes that this testing regime provides a reasonable assurance of ongoing compliance with the permitted emission limits.

## **13. FACILITY HISTORY**

- 13.a. General History. Mill Plain Elementary School has been remodeled and all emission generating equipment is being permitted for the first time.

- 13.b. Previous Permitting Actions. There are no previously issued ADPs for this facility. Equipment was permitted with a Small Unit Notification (SUN).
- 13.c. 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 for Mill Plain Elementary School.

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

- 14.a. Public Notice for ADP Application CL-3252. Public notice for ADP application CL-3252 was published on the SWCAA website for a minimum of fifteen (15) days beginning on October 17, 2023.
- 14.b. Public/Applicant Comment for ADP Application CL-3252. SWCAA did not receive specific comments, a comment period request, or any other inquiry from the public or the applicant regarding ADP application CL-3252. Therefore, no public comment period was provided for this permitting action.
- 14.c. State Environmental Policy Act. On October 29, 2021, the Evergreen School District issued a Determination of Nonsignificance for demolition of the existing Mill Plain Elementary School and construction of the new building.