

October 22, 2021

Mr. Tim Conklin
6014 NW Fruit Valley Road
Vancouver, WA 98660

Subject: Notification of Boiler Installation at Sarah J Anderson Elementary School
SUN – 272

Dear Mr. Conklin:

The Southwest Clean Air Agency (SWCAA) received your Small Unit Notification (SUN) on October 14, 2021, for installation and operation of a new boiler in the east end of the Sarah J Anderson Elementary campus. For administrative and tracking purposes SWCAA has assigned tracking number SUN-272 to this notification. This notification was filed in accordance with SWCAA 400-072 and applies to the installation of one boiler. The new boiler was identified as:


- (1) Cleaver Brooks model CFC-E-700-2000-125HW, natural gas fired condensing boiler with a rated heat input capacity of 2.0 MMBtu/hr. The boiler will be identified as "Boiler 1."

SWCAA has completed a review of your notification and the associated support information and has determined that the notification meets the requirements of SWCAA 400-072(2). Once installed, affected equipment must maintain compliance with the requirements of SWCAA 400-072(5)(b) "**Small gas fired boilers/heaters.**" A copy of the relevant SWCAA 400-072 section is attached for your information. SWCAA 400-072(5)(b)(v) requires that emissions from the unit be tested within 60 days of initial operation and annually thereafter. Because there is another boiler on the Sarah J Elementary School campus that require testing, SWCAA hereby approves the utilization of the currently approved testing schedule for the other boiler at the Sarah J Anderson Elementary campus for all subsequent testing of the new boiler. The currently approved testing schedule for the other boiler at the Sarah J Anderson Elementary campus requires that boiler testing be conducted by the end of February each year.

Be advised that emission units installed pursuant to SWCAA 400-072 are subject to source registration and periodic inspection. Registration fees for this equipment will be invoiced consistent with SWCAA 400-100.

If you need further assistance or have any questions regarding these matters, please contact me at (360) 574-3058 extension 131.

Sincerely,



Clinton Lamoreaux
Acting Chief Engineer



SWCAA 400-072 Emission Standards for Selected Small Source Categories

[Statutory Authority: Chapter 70A.15.2040 RCW. Original adoption 09-21-056 filed 10/15/09, effective 11/15/09, 16-19-009 filed 9/8/16, effective 10/9/16; 17-11-078 filed 5/18/17, effective 6/18/17; 20-06-003 filed 2/19/20, effective 3/21/20; 21-17-054 filed 8/10/21, effective 9/10/21]

(5) Source categories.

(b) Small gas fired boilers/heaters.

(i) **Applicability.** The provisions of this section apply to gas fired (natural gas/propane/LPG) boilers and heaters with individual rated heat inputs equal to or greater than 0.4 MMBtu/hr and equal to or less than 2.0 MMBtu/hr. For the purposes of this subsection, the term "boiler" means any combustion equipment designed to produce steam or to heat water that is not used exclusively to produce electricity for sale.

(ii) Emission limits and standards.

(A) Visible emissions from the boiler/heater exhaust stack shall not exceed zero percent opacity for more than 3 minutes in any one hour period as determined in accordance with SWCAA Method 9. (SWCAA 400, Appendix A).

(B) Each boiler/heater shall be equipped with combustion technology capable of maintaining NO_x and CO emissions at, or below, 30 ppmv and 50 ppmv, respectively (corrected to 3% O₂, dry, 1-hr avg).

(iii) General requirements.

(A) Each boiler/heater shall only be fired on natural gas, propane, or LPG.

(iv) **Monitoring and recordkeeping requirements.** The information listed below shall be recorded at the specified intervals and maintained in a readily accessible form for a minimum of 3 years. With the exception of data logged by a computerized data acquisition system, each required record shall include the date and the name of the person making the record entry.

(A) Quantity of fuel consumed by the boiler/heater shall be recorded for each calendar month;

(B) Maintenance activities for the boiler/heater shall be logged for each occurrence;

(C) Upset conditions that cause excess emissions shall be recorded for each occurrence; and

(D) All air quality related complaints received by the permittee and the results of any subsequent investigation or corrective action shall be recorded promptly after each occurrence.

(v) Testing requirements.

(A) Each boiler/heater shall undergo emission monitoring no later than 60 calendar days after commencing initial operation. Subsequent monitoring shall be conducted annually thereafter no later than the end of the month in which the original monitoring was conducted. All emission monitoring shall be conducted in accordance with the requirements of SWCAA 400-106(2) unless otherwise approved by the Agency.

(B) If emission monitoring results for a boiler/heater indicate that emission concentrations may exceed 30 ppmvd NO_x or 50 ppmvd CO, corrected to 3% O₂, the owner or operator shall either perform 60 minutes of additional monitoring to more accurately quantify CO and NO_x emissions, or initiate corrective action. Corrective action shall

be initiated as soon as practical but no later than 3 business days after the potential exceedance is identified. Corrective action includes burner tuning, maintenance by service personnel, limitation of unit load, or other action taken to lower emission concentrations. Corrective action shall be pursued until observed emission concentrations no longer exceed 30 ppmvd NO_x or 50 ppmvd CO, corrected to 3% O₂.

(vi) **Reporting requirements.**

- (A) The owner or operator of an affected "emission unit" shall provide written notification of initial operation to SWCAA within 10 days of occurrence.
- (B) All air quality related complaints received by the owner or operator shall be reported to the Agency within 3 business days of receipt.
- (C) Emission monitoring results for each boiler/heater shall be reported to the Agency within 15 calendar days of completion on forms provided by the Agency unless otherwise approved by the Agency.
- (D) The owner or operator of an affected boiler/heater shall report the following information to the Agency no later than March 15th for the preceding calendar year:
 - (I) Quantity of fuel consumed; and
 - (II) Air emissions of criteria air pollutants, VOCs, and toxic air pollutants (TAPs).

Summary Information (by SWCAA) for SUN-272
Vancouver School District No. 37 – Sarah J Anderson Elementary School
October 22, 2021

One Cleaver Brooks fire tube boiler, model CFC-E-700-2000-125HW, will be installed to replace one Aerco model BMK 2.0 GWB (serial number G-04-0011) for hydronic heating at the same location. The new boiler will be identified as "Boiler 1."

New Boiler Information

Boiler Identification: Boiler 1 (B1)
Replaces: Aerco 2.0 MMBtu/hr boiler, S/N G-04-0011
Boiler Make/Model: Cleaver Brooks / CFC-E-700-2000-125HW
Boiler Description: Down-fired, firetube, forced draft, condensing boiler with pre-mix surface combustion burner. This boiler meets SCAQMD Rule 1146.2 standards
Turndown Ratio: 5:1
Serial Number: 604297800791
Installed: Scheduled for November 2021
Built: 2021
Heat Input Rating: 2.0 MMBtu/hr
Fuel: Natural gas
Stack Description: Discharging vertically through the roof with 8" diameter stack, approximately 3' above the roof, and approximately 10' above ground level.

Potential Emissions

| Vancouver School District No 37 - Sarah J Anderson Elementary - Boiler 1 | | | | | | |
|--|------------------------------|-----------------|-------------------|-------------------|--|------------------------|
| 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 ₂ | Emission Factor | | lb/hr | tpy | Emission Factor Source |
| | | lb/MMBtu | lb/MMscf | | | |
| NO _x | 30 | 0.0364 | 37.1 | 0.073 | 0.32 | SWCAA 400-072 |
| CO | 50 | 0.0370 | 37.7 | 0.074 | 0.32 | SWCAA 400-072 |
| VOC | | 0.0054 | 5.5 | 0.0108 | 0.047 | AP-42 Sec. 1.4 (7/98) |
| SO _x as SO ₂ | | 0.00059 | 0.6 | 0.00118 | 0.0052 | AP-42 Sec. 1.4 (7/98) |
| PM | | 0.0075 | 7.6 | 0.0149 | 0.065 | AP-42 Sec. 1.4 (7/98) |
| PM ₁₀ | | 0.0075 | 7.6 | 0.0149 | 0.065 | AP-42 Sec. 1.4 (7/98) |
| PM _{2.5} | | 0.0075 | 7.6 | 0.0149 | 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 | | | CO ₂ e | CO ₂ e | | |
| Gases | kg/MMBtu | GWP | lb/MMBtu | lb/MMscf | tpy, CO ₂ e | Emission Factor Source |
| CO ₂ | 53.06 | 1 | 116.98 | 120,019 | 1,024.7 | 40 CFR 98 |
| CH ₄ | 0.001 | 25 | 0.055 | 56.55 | 0.5 | 40 CFR 98 |
| N ₂ O | 0.0001 | 298 | 0.066 | 67.41 | 0.6 | 40 CFR 98 |
| Total GHG - CO ₂ e | | | 117.098 | 120,143 | 1,025.8 | |