



## Southwest Clean Air Agency

11815 NE 99th Street, Suite 1294 • Vancouver, WA 98682-2322  
(360) 574-3058 • Fax: (360) 576-0925  
[www.swcleanair.org](http://www.swcleanair.org)

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October 6, 2011

Susan Steinbrenner – Director of Facilities  
Evergreen School District  
13501 NE 28<sup>th</sup> Street  
Vancouver, WA 98668

Subject: Notification of Boiler B-3 Installation at Heritage High School

Dear Ms. Steinbrenner:

The Southwest Clean Air Agency (SWCAA) received your small unit notification (SUN) on September 29, 2011 for equipment to be installed in Heritage High School at 7825 NE 130<sup>th</sup> Avenue, Vancouver, Washington. For administrative and tracking purposes SWCAA has assigned tracking number SUN-010 to this notification. This notification was filed in accordance with SWCAA 400-072 and applies to the installation of one heating boiler. The new heating boiler is identified as follows:

- (1) Hydrotherm KN-20 natural gas fired condensing package boiler with a rated heat input capacity of 1.999 MMBtu/hr. This boiler will be identified as "B-3".

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(4)(b) "**Small gas fired boilers/heaters**". A copy of the relevant SWCAA 400-072 section is attached for your information.

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 130.

Sincerely,

Paul T. Mairose  
Chief Engineer



## SWCAA 400-072 Emission Standards for Selected Small Source Categories

[Statutory Authority: Chapter 70.94.141 RCW. Original adoption 09-21-056 filed 10/15/09, effective 11/15/09.]

### (4) 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 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<sub>x</sub> and CO emissions at, or below, 30 ppmv and 50 ppmv, respectively (corrected to 3% O<sub>2</sub>, dry).
- (iii) **General requirements.**
  - (A) Each boiler/heater shall only be fired on natural gas, propane, or LPG.
  - (B) Boiler/heater exhaust shall be discharged vertically above the roof peak of the building in which the emission unit is housed, and at a point higher than surrounding buildings. Any device that obstructs or prevents vertical discharge is prohibited.
- (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 for 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 the end of the month in which the original monitoring was conducted. An alternate monitoring schedule may be implemented, but must be approved by the Agency prior to use. All emission monitoring shall

be conducted in accordance with the requirements of SWCAA 400-106(2).

- (B) If emission monitoring results for a boiler/heater indicate that emission concentrations may exceed 30 ppmvd NO<sub>x</sub> or 50 ppmvd CO, corrected to 3% O<sub>2</sub>, the owner or operator shall either perform 60 minutes of additional monitoring to more accurately quantify CO and NO<sub>x</sub> 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<sub>x</sub> or 50 ppmvd CO, corrected to 3% O<sub>2</sub>.

(vi) **Reporting requirements.**

- (A) All air quality related complaints received by the owner or operator shall be reported to the Agency within 3 business days of receipt.
- (B) 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.
- (C) The owner or operator of an affected boiler/heater shall report the following information to the Agency no later than March 15<sup>th</sup> for the preceding calendar year:
  - (I) Quantity of fuel consumed; and
  - (II) Air emissions of criteria air pollutants, VOCs, and toxic air pollutants (TAPs).

# Southwest Clean Air Agency

11815 NE 99th Street, Suite 1294, Vancouver, WA 98682-2322 Voice: (360) 574-3058 Fax: (360) 576-0925

## SMALL UNIT NOTIFICATION (SUN)

TOTAL ENCLOSED FEE: \$ 750 (Fee is \$250 per piece of equipment – refer to SWCAA 400-072.)

### COMPANY INFORMATION

NAME OF APPLICANT	STREET	CITY	STATE	ZIP	PHONE	FAX
Evergreen School District	13501 NE 28th St.	Vancouver	WA	98668	360-604-4041	
LEGAL NAME OF BUSINESS FOR WHICH NOTIFICATION APPLIES					PHONE	FAX
(same as applicant)						
STREET or PO BOX			CITY	STATE	ZIP	
EMAIL ADDRESS				UBI No. _____		

### FACILITY INFORMATION

FACILITY NAME	EQUIPMENT ADDRESS / LOCATION	Street	City	State	Zip
Heritage High School	7825 NE 130th Ave.		Vancouver	WA	98682
MAILING ADDRESS	Street	City	State	Zip	EMAIL ADDRESS
(same as mailing address)					
CONTACT PERSON AND TITLE			PHONE	FAX	
Susan Steinbrenner, Director of Facilities			360-604-4081	360-604-4112	
SIC/NAICS CODE			FACILITY OPERATING SCHEDULE		
			hrs/day	days/wk	wks/yr
			8	5	36

### EQUIPMENT INFORMATION

EQUIPMENT DESCRIPTION or ID	NUMBER OF UNITS
2.0 MMBtu/hr high efficiency condensing heating water boilers	<u>8-3</u> 3
NOTIFICATION FOR	
<input checked="" type="checkbox"/> New Construction or Installation <input type="checkbox"/> Modification or Alteration of Equipment <input type="checkbox"/> Change of Location <input type="checkbox"/> Existing Equipment Operating Without Approval <input type="checkbox"/> Existing Equipment With Expired or Lapsed Approval or Registration	
Has a Notice of Violation been Issued? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    If Yes, Number: _____	
ESTIMATED INSTALLATION START DATE	ESTIMATED COMPLETION DATE
August 2011	October 2011

I do hereby certify that the information contained in this NOTIFICATION is, to the best of my knowledge, accurate and complete.

Signature: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_

### SWCAA USE ONLY

SWCAA ID #: <u>418</u>	Notification #: <u>SUN-010</u>
Processing Fee: <u>250<sup>00</sup></u>	Date Rcvd: <u>9/29/11</u> Rcpt No. <u>23982</u>

RECEIVED
SEP 29 2011
SOUTHWEST CLEAN AIR AGENCY
Date Stamp

# Southwest Clean Air Agency

SMALL BOILERS, HEATERS, FURNACES, and OVENS  
SMALL UNIT NOTIFICATION (SUN) DATA SHEET

Page 1 of 2

Notification No: \_\_\_\_\_

## APPLICANT INFORMATION:

Applicant Name: Evergreen School District

## EQUIPMENT ID OR FACILITY NAME FOR EQUIPMENT

Heating water boilers B-1, B-2 and B-3 at Heritage High School

## EQUIPMENT DATA: (Check all that apply)

### Type:

Boiler       Heater (Hot water, air, etc.)       Drying-/ Baking Oven       Furnace  
 Other \_\_\_\_\_

### Information:

Manufacturer: Hydrotherm

Model No: KN-20

Serial No: \_\_\_\_\_

Date Manufactured: \_\_\_\_\_

Boiler Configuration (fire tube, water tube, fluidized bed, etc.): Condensing cast iron

### Primary Fuel:

Type: Natural gas

Burner Manufacturer: Hydrotherm (packaged unit)

Burner Model No: KN-20 (packaged unit)

Rated Heat Input Capacity: 2.0 MMBtu/hr

Fuel Consumption Rate: 2,000  gal/hr  ft<sup>3</sup>/min

Turn-down Ratio: 5:1 per boiler (15:1 for system)

Exhaust Flow Rate: 600  acfm  dscfm

### Stack:

Stack Height: Above ground level: 35 feet

Stack Diameter: 9 in. inches

Use rain caps that do not interfere with vertical discharge. No rain caps are provided.

### Equipment Location:

Distance to:  
Property Boundary: 400  feet  meters

Closest Residential Dwelling: 450 feet

Nearest Building: 450  feet  meters

Building Dimensions: 350 x 350 x 28 (Length by width by height in feet)

# Southwest Clean Air Agency

## SMALL BOILERS, HEATERS, FURNACES, and OVENS SMALL UNIT NOTIFICATION (SUN) DATA SHEET

Page 2 of 2

Notification No: \_\_\_\_\_

### OPERATIONAL DATA:

Use:     Power Generation                       Space heat                       Hot water/air  
           Steam Generation                       Drying-/ Baking Oven                       Other Heating water

Maximum Load Condition: 6.0 MMBtu/hr      Average Load Condition: 3.0 MMBtu/hr

Steam generation: \_\_\_\_\_ / \_\_\_\_\_ lb/hr @ \_\_\_\_\_ PSIG & \_\_\_\_\_ / \_\_\_\_\_ °F

Process Equipment Served by Boiler: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Hours of Operation: Maximum: 8 hr/day, 5 days/wk, 25 weeks/yr  
 Average: 4 hr/day, 5 days/wk, 20 weeks/yr

### EMISSION CONTROL EQUIPMENT DATA: No emission control equipment.

<u>Equipment Description</u>	<u>Controlled Pollutant</u>	<u>Performance Guarantee</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

### EMISSION FACTORS / DATA: (attach copy of vendor data in lieu of data below) See attached letter from manufacturer.

<u>Pollutant</u>	<u>Emission Factor</u>	<u>Emission Factor Units</u>	<u>Emission Factor Source</u>
Nitrogen Oxides (NO <sub>x</sub> )	_____	_____	_____
Carbon Monoxide (CO)	_____	_____	_____
Volatile Organic Compounds (VOC)	_____	_____	_____
Particulate Matter (PM)	_____	_____	_____
Sulfur Dioxide (SO <sub>2</sub> )	_____	_____	_____
List toxics as applicable:	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____



BR  
Laboratories  
Inc.  
March 15, 2006

Mr. John P. Chicoine  
Engineering Manager  
ADVANCED THERMAL HYDRONICS  
260 North Elm Street  
Westfield, MA 01085

Subject: SCAQMD Rule 1146.2 Compliance Testing of HYDROTHERM Cast Iron  
Hot Water Boiler Model: KN-20

Dear Mr. Chicoine:

We have completed SCAQMD Rule 1146.2 Compliance testing of the following  
HYDROTHERM Cast Iron Hot Water Boiler:

<u>Boiler</u>	<u>Model</u>	<u>S/N</u>	<u>Input, Btu/hr.</u>	<u>3% O<sub>2</sub> Corrected, PPM</u>	
				<u>NO<sub>x</sub></u>	<u>CO</u>
Hot Water Boiler (Condensing Type)	KN-20	KN-2006-1118	2,000,000 (max.) 400,000 (min.)	11 8	19 3

Comments: HYDROTHERM Cast Iron Hot Water Boiler Model KN-20 complied  
with the following requirements of SCAQMD Rule 1146.2:

3% O<sub>2</sub> Corrected NO<sub>x</sub> ≤ 30 PPM  
3% O<sub>2</sub> Corrected CO ≤ 400 PPM

Best Regards.

Sincerely,

Bodh R. Subherwal, P.E.  
President

BRS/sz

P.O. Box 1249  
Huntington Beach, CA  
92647

15161 Triton Lane  
Huntington Beach, CA  
92649

Phone : (714) 891-0206  
Fax : (714) 893-0818

E-mail : bbrli@aol.com

## KN family of boilers: KN-20

Innovation sized to meet the low fuel use, low installed cost, small footprint demands of today's condensing commercial boiler market.

The KN-Series boiler from HydroTherm is the first commercial boiler to realize condensing efficiencies using a cast iron heat exchanger. The result is a boiler family that combines the condition-tolerant and heat-retaining characteristics of cast iron with the fuel savings of full modulation condensing performance.

Click on the links below to learn more

**1. Low Installation Costs**

**2. Low Operation Costs**

**3. Low Fuel Usage/Emissions**

**4. High Performance Engineering**



### KN-20 Quick Specs

2,000,000 BTUH

	Nominal	Min	Max
Gas pressure, inches W.C.	7	2	14
Voltage 208/230v 1ph 60hz	208/230	208	230
Flow, GPM		30	300
Temperature rise, F		20	100
Flue length, equiv. Ft.		6	80
Air inlet length, equiv. Ft.		0	80
Water volume, gals	26		
Flue diameter, in	8"		
Shipping weight, #	2450		
Current, amps	11		
Cv, GPM @ 1psid	190		
Boiler HP	53		
Input MBH	1999		
Output MBH	1853		
Fuel Type	Nat. Gas		
ASME Design Data Max	100PSI +250°F		
Negative Flue Pressure	-0.2" W.C.		
Positive Flue Pressure	0.25" W.C.		
Height	57 5/8"		
Length	66"		
Width	28 7/8"		
LBS.	2450 lbs		

### Real World Advantages

- ▶ Architects/Engineers
- ▶ Building Owners
- ▶ Contractors

