



Southwest Clean Air Agency

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

November 18, 2011

Mr. Jeff Steyaert
Knife River Corporation NW
32260 Old Highway 34
Tangent, OR 97389

Subject: Notification of Hot Water Heater Replacement for Knife River / Kelso Ready Mix (SWCAA ID 1391)

Dear Mr. Steyaert:

The Southwest Clean Air Agency (SWCAA) received your small unit notification (SUN) on November 14, 2011 for equipment to be installed at Knife River's Kelso Ready Mix Plant (SWCAA ID 1391). For administrative and tracking purposes SWCAA has assigned tracking number SUN-011 to this notification. This notification was filed in accordance with SWCAA 400-072 and applies to the installation of one water heater. The new water heater will not replace an existing Lochinvar model CWL 1796 water heater, serial number H10H00227983, for which SUN-003 was provided to SWCAA on September 28, 2010. The new water heater is being transferred from Knife River's Erie Strayer Concrete Plant (SWCAA ID 2336). The new water heater is identified as follows:

- (1) Lochinvar model CBL 1796 natural gas fired water heater with a rated heat input capacity of 1.795 MMBtu/hr, serial number F05H00177580, built in 2005.

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_x and CO emissions at, or below, 30 ppmv and 50 ppmv, respectively (corrected to 3% O₂, 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_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) 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 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).

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: \$ 250.00 (Fee is \$250 per piece of equipment – refer to SWCAA 400-072.)

COMPANY INFORMATION

NAME OF APPLICANT	STREET	CITY	STATE	ZIP	PHONE	FAX
Knife River Corporation NW	32260 Old Hwy 34	Tangent	OR	97389	541-928-6491	541-928-6494
LEGAL NAME OF BUSINESS FOR WHICH NOTIFICATION APPLIES					PHONE	FAX
Same as above						
STREET or PO BOX			CITY	STATE	ZIP	
Jeff.steyaert@kniferiver.com						
EMAIL ADDRESS			UBI No. SS#600-45-3751			

FACILITY INFORMATION

FACILITY NAME	EQUIPMENT ADDRESS / LOCATION	Street	City	State	Zip
Knife River Kelso Concrete	2224 Talley Way		Kelso	WA.	98626
MAILING ADDRESS	Street	City	State	Zip	EMAIL ADDRESS
32260 Old Hwy 34	Tangent	OR	97389		Jeff.steyaert@kniferiver.com
CONTACT PERSON AND TITLE				PHONE	FAX
Jeff Steyaert Environmental MGR				541-928-6491	541-928-6494
SIC/NAICS CODE				FACILITY OPERATING SCHEDULE	
3273 / 327320				hrs/day 24 days/wk 7 wks/yr 52	

EQUIPMENT INFORMATION

EQUIPMENT DESCRIPTION or ID	NUMBER OF UNITS
Lochinvar Model CBL 1796	
NOTIFICATION FOR	
<input type="checkbox"/> New Construction or Installation <input type="checkbox"/> Modification or Alteration of Equipment <input checked="" type="checkbox"/> Change of Location from one permitted plant to another	
<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
Current	Current

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

Signature: Jeff Steyaert

Title: Environmental MGR

Date: November 8, 2011

SWCAA USE ONLY

SWCAA ID #: 2336 ¹³⁹¹ Notification #: 3UN-011

Processing Fee: \$250.00 Date Rcvd: 11/14/11 Rcpt No. 24116

RECEIVED

SWCAA USE ONLY

NOV 14 2011

SOUTHWEST CLEAN AIR AGENCY

Date Stamp



Knife River Corporation - Northwest
32260 Old Hwy 34
Tangent, OR 97389-9770
Ph: (541) 928-6491

CCB# 2101

www.kniferiver.com

Corporate Office:	Fax (541) 928-6494
AR Dept.:	Fax (541) 791-2016
HR/Payroll Dept.:	Fax (541) 791-2015
Mid-Willamette Const.:	Fax (541) 928-6490

November 10, 2011

Clint Lamoreaux
Southwest Clean Air Agency
11815 NE 99th Street
Vancouver, WA 98682-2322



Re: SWCAA ID#1391

Mr. Lamoreaux,

Knife River is notifying the Southwest Clean Air Agency (SWCAA) that we have changed Lochinvar model # CWL1796 SN#H10H00227983 hot water heater with another Lochinvar CBL 1796 SN#F0500177580. This hot water heater was located on our portable Concrete plant covered by SWCAA ID#2336. I have attached Small Boilers Data Sheet, Manufactures Spec. sheet and a SWCAA processing check for \$250.

Please let me know if you should require any further information on this hot water heater.

Sincerely,

Jeff Steyaert

Environmental / Permitting & Property MGR.

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: **Knife River Corporation NW**

EQUIPMENT ID OR FACILITY NAME FOR EQUIPMENT

Lochinvar CBL 1796 Hot Water Heater for Concrete plant covered by SWCAA permit #1391

EQUIPMENT DATA: (Check all that apply)

Type:

☐ Boiler ☒ Heater (Hot water, air, etc.) ☐ Drying-/ Baking Oven ☐ Furnace
☐ Other _____

Information:

Manufacturer: **Lochinvar**

Model No: **CBL 1796**

Serial No: **F05H00177580**

Date Manufactured: **2005**

Boiler Configuration (fire tube, water tube, fluidized bed, etc.): **Fin Tube**

Primary Fuel:

Type: **Propane**

Burner Manufacturer: **Lochinvar**

Burner Model No: **CBL 1796**

Rated Heat Input Capacity: **1.8** MMBtu/hr

Fuel Consumption Rate: **9.43** ☐ gal/hr ☒ ft³/min

Turn-down Ratio: _____

Exhaust Flow Rate: **478.1** ☐ acfm ☒ dscfm

Stack:

Stack Height: Above ground level: **4.5** feet

Stack Diameter: **14" x 14"** inches

Use rain caps that do not interfere with vertical discharge.

Equipment Location:

Distance to:
Property Boundary: **150** ☒ feet ☐ meters

Nearest Building: **75** ☒ feet ☐ meters

Building Dimensions: **N/A** (Length by width by height in feet)

Secondary Fuel:

Type: _____

Burner Manufacturer: _____

Burner Model No: _____

Rated Heat Input Capacity: _____ MMBtu/hr

Fuel Consumption Rate: _____ ☐ gal/hr ☐ ft³/min

Bypass Capability: _____

Exhaust Flow Rate: _____ ☐ acfm ☐ dscfm

Above Roof Level: _____ feet

Stack Discharge Temperature: **320** °F

Closest Residential Dwelling: **1,320** 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 _____

Maximum Load Condition: **1.8 MMBtu/hr** Average Load Condition: _____ MMBtu/hr

Steam generation: _____ lb/hr @ _____ PSIG & _____ °F

Process Equipment Served by Boiler: **Water heater is used seasonal when outside temperatures require heated water to cure concrete. This is typically 4 months of the year.**

Hours of Operation: Maximum: **24 hr/day, 7 days/wk, 16 weeks/yr**

Average: **8-12 hr/day, 5-6 days/wk, 16 weeks/yr**

EMISSION CONTROL EQUIPMENT DATA:

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

EMISSION FACTORS / DATA: (attach copy of vendor data in lieu of data below)

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



Certificate of Product Performance

Commercial Boiler Heating Equipment

Certified Reference Number: 318084

Date Generated: 06/26/09

Status: Approved

This certificate serves as verification that the model cited below has been rated in accordance with applicable federal testing methods and verified by AHRI as capable of achieving the energy efficiency and performance ratings as tested within prescribed tolerances. This

certificate and these certified ratings ONLY apply to the specific model detailed below and are non-transferable to alternate models or configurations.

Manufacturer:

LOCHINVAR CORPORATION

Series:

Copper-Fin

Material:

Copper

Location:

Indoor

Model Number:

CBL1796

Fuel Type:

Propane Gas

Input:

1795.0 MBTUH

Heating Cap.:

1454 MBTUH

Combustion Eff.:

82.0

Thermal Eff.:

81.0

Water:

1264.00 MBTUH

CO2:

8.3 %

Ignition Type:

Intermittent/Electronic Ignition

Draft Type:

Forced Draft

Certified ratings for ARI, GAMA, and I-B=R certification programs are valid only for models and configurations listed in the AHRI Directory of Certified Product Performance located at www.ahridirectory.org and www.gamapower.org. The information for the model cited on this certificate can be located in the online directory by using the reference number on the certificate. AHRI

does not endorse the product(s) listed in this certificate and makes no representations, warranties or guarantees and assumes no responsibility for the product(s) listed in the certificate. AHRI expressly disclaims all liability for damages of any kind arising out of the use or performance of the product(s) or the unauthorized alteration of the data listed in this Certificate.



Air-Conditioning,
Heating, and
Refrigeration Institute

Southwest Clean Air Agency Combustion Equipment Monitoring Data Sheet

1 of 2

Company Name: Knife River - Kelso Date: 11-23-09Emission Unit Identification (Boiler B-1, etc): Hot Water BoilerMake of Emission Unit: LochinvarModel of Emission Unit: M-CBN1796Serial Number of Emission Unit: FOSH00177580Company Performing Test: Ponder Burner CompanyAnalyst: John MonahanMake of Instrument(s) Used: JMRModel of Instrument(s) Used: 1400Permitted NO_x Concentration 45 ppm @ 3.0 % O₂/CO₂ Permit Number: 09-2889Permitted CO Concentration 200 ppm @ 3.0 % O₂/CO₂ Permit Number: 09-2889Target/Permitted O₂/CO₂ concentration (%) _____ Permit Number: _____

Span Gas (as applicable) ⁽¹⁾	Span Gas Concentration	Pre-Test Span Gas Reading	Post-Test Span Gas Reading ⁽²⁾	Pre-Test Zero Reading	Post-Test Zero Reading ⁽²⁾
NO _x	30 PPM	30 PPM	30 PPM	0	0
NO ₂ ⁽⁴⁾	50 PPM	50 PPM	50 PPM	0	0
CO	50 PPM	49 PPM	50 PPM	0	0
O ₂	8.0 %	8.0 %	7.9 %	0	0

Time of Pre-Test Analyzer Response Check⁽³⁾: 11-23-09 8:00amTime of Post-Test Analyzer Response Check⁽³⁾: 11-23-09 3:30pm⁽¹⁾ The span gas concentration must not be less than 50% of the target/permited pollutant concentration nor more than 200% of the target/permited pollutant concentration.⁽²⁾ The results of the analyzer response shall not be valid if the pre and post response check results vary by more than 10% of the known span gas value.⁽³⁾ No more than 12 hours may elapse between the pre-test and post-test analyzer response checks.⁽⁴⁾ Calibration and use of an NO₂ cell is required if significant quantities of NO₂ are expected (i.e. after specific catalysts, afterburners, etc.) and if no NO_x→NO converter is integral or used in conjunction with the combustion analyzer.

Fuel Flow Rate/Unit Load During Monitoring: Start: _____ End: _____

Source Operation Notes: Please note the operating conditions of the source including unit load, fuel flow, damper position, oxygen set point, use of flue gas recirculation, steam pressure, afterburner temperature, etc. as applicable:

Southwest Clean Air Agency Combustion Equipment Monitoring Data Sheet

Emissions Data Summary

Test Start Time: 11:00 am

Test Stop Time: 11:05 am

(Record at least 5 minutes of data)

Time (min)	NO _x Reading (ppm)	NO ₂ Reading (if applicable) (ppm)	CO Reading (ppm)	O ₂ Reading (%)
00:00	9	0	34	6.0
00:30	11	0	32	5.9
01:00	12	0	31	5.9
01:30	14	0	30	5.8
02:00	14	0	30	5.7
02:30	14	0	31	5.7
03:00	14	0	31	5.7
03:30	14	0	31	5.7
04:00	14	0	31	5.7
04:30	15	0	31	5.7
05:00	14	0	31	5.7
05:30				
06:00				
06:30				
07:00				
07:30				
08:00				
08:30				
09:00				
09:30				
10:00				
Average	13.18	0	31.18	5.77
Corrected	15.59	0	36.89	

Please correct the average pollutant concentrations to the appropriate oxygen or carbon dioxide basis listed on page 1. Use the following equation to correct to a specific oxygen concentration:

$$\text{Corrected concentration} = (C - Co) \left(\frac{C_{ma}}{C_m - Co} \right) \left(\frac{20.9 - X\%O_2}{20.9 - Y\%O_2} \right) \quad \text{Where:}$$

C = Average analyzer gas response

Co = Average initial and final analyzer zero check response (note: Co=0 if analyzer is zeroed)

C_{ma} = Actual span gas known valueC_m = Average of initial and final analyzer span check response

X = Oxygen percentage for which concentration will be corrected to

Y = Average analyzer oxygen response

Notes:

Attach copy of analyzer data print out if available. Submit results to SWCAA within 15 days of tune-up.
Questions? Contact the Southwest Clean Air Agency at (360) 574-3058 - fax (360) 576-0925.