

December 2, 2008

Joe Benedetti  
Country Stoves, Inc  
1502 14<sup>th</sup> Street Northwest  
Auburn, WA 98071-0959

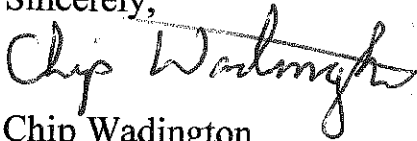
Joe:

Enclosed please find one copy of the woodheater certification report for the:

**Model: Bella**

If you have any further questions concerning this or any other related matter please feel free to call at anytime.

Sincerely,



Chip Wadington  
Owner



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF  
ENFORCEMENT AND  
COMPLIANCE ASSURANCE

Loren Sutfin  
Lennox Hearth Products  
14<sup>th</sup> ST NW  
Auburn, Washington 98071

Dear Mr. Sutfin:

I am pleased to inform you that the Bella pellet wood heater has been approved for certification under the New Source Performance Standard for Residential Wood Heaters at 40 CFR Part 60, Subpart AAA by the United States Environmental Protection Agency. The Wood Heater Certification for this model line, certificate number 734, is enclosed. Please refer to this certificate number in all future correspondence.

This model line is certified as meeting the emission limits in 40 C.F.R. Part 60, Section 60.532(b). Your certificate to manufacture this model line is valid for five years. The expiration date is located in the bottom right corner of your certificate. Please note, this date is based on the date of initial certification and not the recertification date. You may not manufacture this model line after the expiration date on the certificate unless this certificate is renewed.

Due to resource constraints, it is our policy to review only certificate renewal applications submitted to the EPA within ninety days of the certificate expiration date. Certificate renewal applications received more than ninety days before the expiration date will not be processed.

All wood heaters manufactured under this certification must comply with the labeling requirements found in 40 C.F.R. Part 60, Section 60.536. The following information must be displayed (by blunt arrow) on your temporary label:

Emission Rate:	1.01 g/hr
Overall Efficiency:	78%
Heat Output Range:	11,202-25,925 Btu/hr

Requirements for the permanent label are listed in 40 C.F.R. Part 60, Section 60.536.

2

In addition, you must comply with all applicable requirements of the regulation, including:

1. Applying for recertification (unless a waiver is granted by EPA) whenever any change is made to the design certified by EPA that is presumed to affect the particulate emission rate, including changes in components listed in 40 C.F.R. Part 60, Section 60.533(k).
2. Conducting a quality assurance program including parameter inspections and emission tests listed in 40 C.F.R. Part 60, Section 60.533(o). You must take remedial measures, as appropriate, when these inspections or tests indicate that units are not within applicable tolerances or when the emission tests reveal that the appliances exceed the applicable emission limits.
3. Providing an owner's manual and, if applicable, a catalyst warranty with each wood heater sold under this certification. The owner's manual must include the information listed in 40 C.F.R. Part 60, Section 60.536.
4. Retaining records and submitting reports as required in 40 C.F.R. Part 60, Section 60.537.
5. Submitting wood heaters for audit testing if selected by the Administrator under 40 C.F.R. Part 60, Section 60.533(p).

Failure to comply with these requirements could result in revocation of this certificate and/or enforcement action, including penalties, as specified under the Clean Air Act.

Please refer any questions concerning this letter to John DuPree of my staff at (202) 564-5950.

Sincerely,



Richard P. Duffy, Acting Director  
Wood Heater Program  
Compliance Assessment and Media Programs Division  
Office of Compliance

Enclosure

# WOOD HEATER CERTIFICATION

This certificate is issued in recognition that  
the following wood heater model line:

*Bella*  
Model Name

*N/A*  
Model Number

*Lennox Hearth Products*  
Manufacturer Name

has completed all requirements necessary for certification and is  
a certified model line pursuant to Environmental Protection  
Agency regulations.



*[Signature]*  
Director

Compliance Assessment and Media Programs Division

04-17-2009

Date

734

Certificate Number

04-17-2014

Expiration Date

United States  
Environmental Protection Agency  
Wood Heater Certification Test Report

Country Stoves, Inc.  
1502 14<sup>th</sup> Street Northwest  
Auburn, WA 98071-0959

**BELLA**

Volume 1

Report By:

Chip Wadington

**CONFIDENTIAL**

RELEASED ONLY BY  
AUTHORIZED PERSONNEL

**December 2, 2008**

## TABLE OF CONTENTS

<u>Page(s)</u>		<u>Section(s)</u>
<b>Introduction</b>		
Title Page		i
Table of Contents		ii
Test Report (Data) Page Number Index		iii-iv
Individual Test Run Page Number Index		v
Test Series Information and Discussion		vi
Stove Storage Information		vii
Stack Measurements and Sampling Port Locations		viii
Stove / Catalysts Aging Data		ix
Scheduling Information		varies
<b>Summary and Discussion of Results</b>		
Emission Test Summary	Data Summary	1
Emission Graph		1
Data Summary		2, 3
<b>Individual Test Runs (Raw Data)</b>		
See Introduction, Individual Test	<0.80 kg/hr	varies
Run Page Index for a complete,	0.8 - 1.25 kg/hr	varies
sequential list of data and data	1.25 - 1.90 kg/hr	varies
sequence in the individual test runs	>1.90 kg/hr	varies
	Fan Confirmation	varies
	(if necessary)	
	Insert Confirmation	varies
	(if necessary)	
<b>Calibration Data</b>		
See Test Report (data) Page Number	Cal Data	varies
Index, Item 14, for a complete, sequential		
listing of the data in this section.		
<b>Stove Q C</b>		
Stove Q C	Stove Q C	varies
Firebox Volume Dimensions		
Manufacturer's Drawings		
<b>Manual</b>		
Manufacturer's Written Test	Manual	varies
Instructions (if provided)		
Manufacturer's Operation Manual		
<b>Appendices:</b>		
A: - Example Calculations	Appendix A	varies
B: - Installation Description and Operating Instructions	Appendix B	varies
<b>Efficiencies</b>		
A. Data Summary	Efficiencies	varies
B. Individual Run Data		
<b>Photos</b>		
Photos of wood loads in and out	Photograph Pages	varies
of the test unit.		

**PAGE NUMBER INDEX**

	<b>SECTION</b>	<b>LOCATION</b>
1. Summary of Burn Rate and Emission Rate Results	Data Summary	Page 1
2. Summary Table of Other Data	Data Summary	Pages 2 & 3
3. Wood Heater Description	Stove QC	Page 1
4. Manufacturer's Testing Wood Heater Instructions	Operators Manual	Page 1
5. Test Chamber Installation Description	Introduction	Page 9
6. Wood Heater/Catalyst Aging Documentation	Introduction	Page 10
7. Wood Heater Dimensions and Usable Firebox Volume	Stove QC	
8. Pretest Burn Procedures	Individual Test Runs	Data Sheet # 9
9. Pretest Facility Measurements	Individual Test Runs	Data Sheets # 8, 16
10. Test Fuel Measurements		
A. Load Weight	Individual Test Runs	Data Sheet # 8
B. Load Moisture	Individual Test Runs	Data Sheet # 10
C. Wood Density	Individual Test Runs	Data Sheet # 11
11. Test Fuel Crib Description		
A. Photographs	Photograph Pages	
B. Wood Type	Individual Test Runs	Data Sheet # 9
12. Test Run Heater Operation and Air Supply Settings	Individual Test Runs	Data Sheets # 9 & 13
13. Detailed Description of Sampling Systems and Locations		
A. Method 5H	Appendix B	
B. Proportional Gas Flow Rate System	Appendix B	
C. Stack Gas Flow Rate Measurement System	Appendix B	
14. Calibrations		
A. Platform Scale		
1. Initial	Cal Data	Page 1
2. Semi-Annual	Cal Data	Pages 2-4
3. Pre and Post Test	Individual Test Runs	Data Sheet # 16
B. Analytical Balance		
1. Initial	Cal Data	Pages 5-8
2. Semi Annual	Cal Data	Pages 9 & 10
3. Pre and Post Weighing Check	Individual Test Runs	Data Sheet # 3
C. Temperature		
1. Thermocouples	Cal Data	Page 11
2. Thermocouple Readout		
a. Semi Annual	Cal Data	Page 12
b. Daily Check	Individual Test Runs	Data Sheet # 16
3. Dry Gas Meter	Cal Data	Page 13
4. Tracer Gas Meter	Cal Data	Page 13
D. Anemometer		
1. Initial	Cal Data	Page 14
2. Semi Annual	Cal Data	Page 14
E. Barometer	Cal Data	Page 14
F. Draft Gauge	Cal Data	Page 14
G. Humidity Gauge Calibration (Sling Psychrometer)	Cal Data	Page 13
H. Dry Gas Meter		
1. Semi Annual	Cal Data	Page 15

2. Post Certification Test	Cal Data	Pages 16 & 17
3. Transfer Standard Calibration	Cal Data	Pages 18-23
4. Wet Test Meter Calibration	Cal Data	Page 24
I. Tracer Gas Rotameter	Cal Data	Pages 25-26
J. Combustion Gas (CO <sub>2</sub> , O <sub>2</sub> , CO) Train Response Check	Cal Data	Page 27
K. Tracer Gas (SO <sub>2</sub> ) Train Response Check	Cal Data	Page 27
L. CO Analyzer		
1. Calibration	Cal Data	Pages 28 & 29
2. Zero/Span Control Chart	Cal Data	Page 30
3. Pre and Post Test Zero/Span	Individual Test Runs	Data Sheet # 15-3
M. CO <sub>2</sub> Analyzer		
1. Calibration	Cal Data	Pages 31 & 32
2. Zero/Span Control Chart	Cal Data	Page 33
3. Pre and Post Test Zero/Span	Individual Test Runs	Data Sheet # 15-1
N. O <sub>2</sub> Analyzer (Optional)		
1. Calibration	Cal Data	Pages 34 & 35
2. Zero/Span Control Chart	Cal Data	Page 36
3. Pre and Post Test Zero/Span	Individual Test Runs	Data Sheet # 15-2
O. SO <sub>2</sub> Analyzer		
1. Calibration	Cal Data	Pages 37 & 38
2. Zero/Span Control Chart	Cal Data	Page 39
3. Pre and Post Test Zero/Span	Individual Test Runs	Data Sheet # 15-4
P. Calibration Gas Certificates of Analysis		
1. Pre and Post Test Zero/Span Audits	Individual Test Runs	Data Sheets #15-1 - 15-4
2. Method 3 Verification of Analysis (CO <sub>2</sub> , O <sub>2</sub> , CO, N <sub>2</sub> )	Cal Data	Varies
3. Method 6 Verification of Analysis (SO <sub>2</sub> , N <sub>2</sub> )	Cal Data	Varies
<b>15. Quality Checks</b>		
A. Leak Checks		
1. Particulate Sampling Train	Individual Test Runs	Data Sheet #2
2. SO <sub>2</sub> Injection System	Individual Test Runs	Data Sheet #16
3. Combustion Gas (CO <sub>2</sub> , O <sub>2</sub> , CO) (CEM) Train	Individual Test Runs	Data Sheet #16
4. Tracer Gas (SO <sub>2</sub> ) Train	Individual Test Runs	Data Sheet #16
B. Proportional Checks	Individual Test Runs	Table 5-Computer Printout
<b>16. Sample Calculations</b>		
A. Weighted Average Emission Rate	Data Summary	Weighted Average Calc Sheet
B. Dry Burn Rate	Individual Test Runs	Data Sheet # 8
C. [Vm] - [Vm (std)]	Individual Test Runs	Data Sheet # 7 (Particulate Calc Sheet)
D. Total Gas Flow Rate (Qsd)	Individual Test Runs	Table 4-Computer Printout
E. Proportionality Rate (PR)	Individual Test Runs	Table 5-Computer Printout
F. Particulate Emission Rate	Individual Test Runs	Table 4-Computer Printout
<b>17. Raw Test Data</b>	Individual Test Runs	Data Sheets # 1-16
<b>18. Analytical Data</b>		
A. Filter and Beaker Tares	Individual Test Runs	Data Sheets # 4-1, 4-2
B. Solvent Blanks	Individual Test Runs	Data Sheet # 5
C. Particulate Catches		
1. Gross	Individual Test Runs	Data Sheet # 3
2. Blanks	Individual Test Runs	Data Sheets # 5 & 6
3. Net	Individual Test Runs	Data Sheet # 6
4. Gr/dscf	Individual Test Runs	Data Sheet # 7
D. Constant Weight Weighing	Individual Test Runs	Data Sheet # 4-3



## M-5H INDIVIDUAL TEST RUN PAGE INDEX

The data sheets in the individual test runs are organized in the following sequence:

### A. Computer Printouts

Table 1	Field Data
Table 2	Field Data
Table 3	Field Data Averages
Table 4	Calculations
Table 5	Proportional Rate Variation

### B. Raw Data Sheets

		No. of Pages
Data Sheet # 1	Computer Input Data	1
Data Sheet # 2	Meter box Data Sheets	variable
Data Sheet # 3	Particulate Catch/Moisture Data Sheet	1
Data Sheet # 4-1	Filter Tare Weights	variable
4-2	Beaker Tare Weights	variable
4-3	Constant Weights	variable
4-4	Scale QA Checks	variable
Data Sheet # 5	Blank Processing Data Sheet	1
Data Sheet # 6	Net Particulate Catch Calc Sheet	1
Data Sheet # 7	Particulate Calc Sheet	1
Data Sheet # 8	Miscellaneous Test Data	1
Data Sheet # 9	Stove Operating Data	1
Data Sheet # 10	Fuel Moisture	1
Data Sheet # 11	Wood Density	1
Data Sheet # 12	Burn Rate And Flue Gas Data	variable
Data Sheet # 13	Pre Burn Data	variable
Data Sheet # 14	Temperature Data	variable
Data Sheet # 15-1	CO <sub>2</sub> Pre/Post test Zero/Span Audits	1
# 15-2	O <sub>2</sub> Pre/Post test Zero/Span Audits	1
# 15-3	CO Pre/Post test Zero/Span Audits	1
# 15-4	SO <sub>2</sub> Pre/Post test Zero/Span Audits	1
Data Sheet # 16	Quality Checks	1

## TEST SERIES INFORMATION

**Unit name and model number:** BELLA

**Type of unit:** Wood Heater

**Manufacturer:** Country Stoves, Inc.  
**Address:** 1502 14<sup>th</sup> Street Northwest  
Auburn, WA 98071-0959

**Contact:** Loren Sutphin  
**Phone Number:** 206-735-1100  
**Fax Number:** 206-931-1271

**Observers:** None

**Date Received:** 10/7/2008      **Aged:** 10/7/08      **Tested:** 10/8-13/2008

**Tested by:** LoKee Testing Lab using EPA Methods 28, 28A and 5H where applicable.

**Test Location:** 13235 Prairie Circle East  
Bonney Lake, WA 98391-7250

**Test Site Elevation:** 631 feet above sea level

LoKee's Field Team

**Team Members:** Chip Wadington

The following pages contain (1) test unit storage information, (2) a diagram showing the height and location of the stack components and sampling ports, and (3) copies of the certification test notices and cancellations sent to the EPA.

## STOVE STORAGE INFORMATION

1. **Temporary Storage at LoKee Testing Laboratory**

A single, steel, banding strap is place around the unit, preventing opening of the loading door.

2. **Permanent Storage**

After certification is granted, additional banding is placed both horizontally and vertically around the unit to prevent access to the interior of the unit. An address label is then taped over the intersecting bands to act as a seal. Warning labels are affixed on the unit. The unit is then shipped via common carrier to the manufacturer's designated storage facility unless otherwise noted. A sample of the warning label follows.

>>WARNING<<    >>WARNING<<  
THIS IS A  
**SEALED E.P.A. TEST STOVE**  
DO NOT OPEN OR TAMPER WITH THE SEALS  
AND PACKAGING ON THIS STOVE  
**TO DO SO WILL VOID THE  
CERTIFICATION OF THIS STOVE**  
>>WARNING<<    >>WARNING<<

**COUNTRY STOVES, INC.  
BELLA**

**STORAGE OF TEST UNIT DOES NOT APPLY  
FOR QUALITY ASSURANCE TESTING**

October 8, 2008

Mr. John Dupree  
Federal Programs Section  
U.S. EPA  
Stationary Source Compliance Division  
Mail Code 2223A Room #7124  
1200 Pennsylvania Avenue NW  
Washington, DC 20460


Mr. Dupree:

This is a request to waive the 30 notification for testing in order run certification tests on the:

**Country Stoves:  
Model: BELLA**

If you have any questions please feel free to call.

Sincerely,



Chip Wadington  
Owner

October 8, 2008

Mr. John Dupree  
Federal Programs Section  
U.S. EPA  
Stationary Source Compliance Division  
Mail Code 2223A Room #7138  
1200 Pennsylvania Avenue NW  
Washington, DC 20460

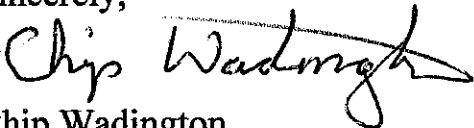
Mr. Dupree:

On October 8, 2008 at 09:30 am PST, Irvin Keefer waived the 30 day intent to certify notice at the request of LoKee Testing Laboratory in order to run certification tests on the:

**Country Stoves :**  
**Model: BELLA**

If you have any questions please feel free to call.

Sincerely,



Chip Wadington  
Owner

# AGING DATA SHEET

UNIT: Country Stove 3

DATE: 10-7-08

Hr #	DATE	TIME	TEMP Top1	TEMP Exhaust
1	10-7-08	1115	336	433
2	"	1215	290	478
3	"	1315	462	556
4	"	1415	257	317
5	"	1515	268	325
6	"	1615	456	524
7	"	1715	457	510
8	"	1815	465	516
9	10-8-08	1020	433	510
10	"	1120	472	532
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Hr #	DATE	TIME	TEMP 1	TEMP 2
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				

COMMENTS:

---



---



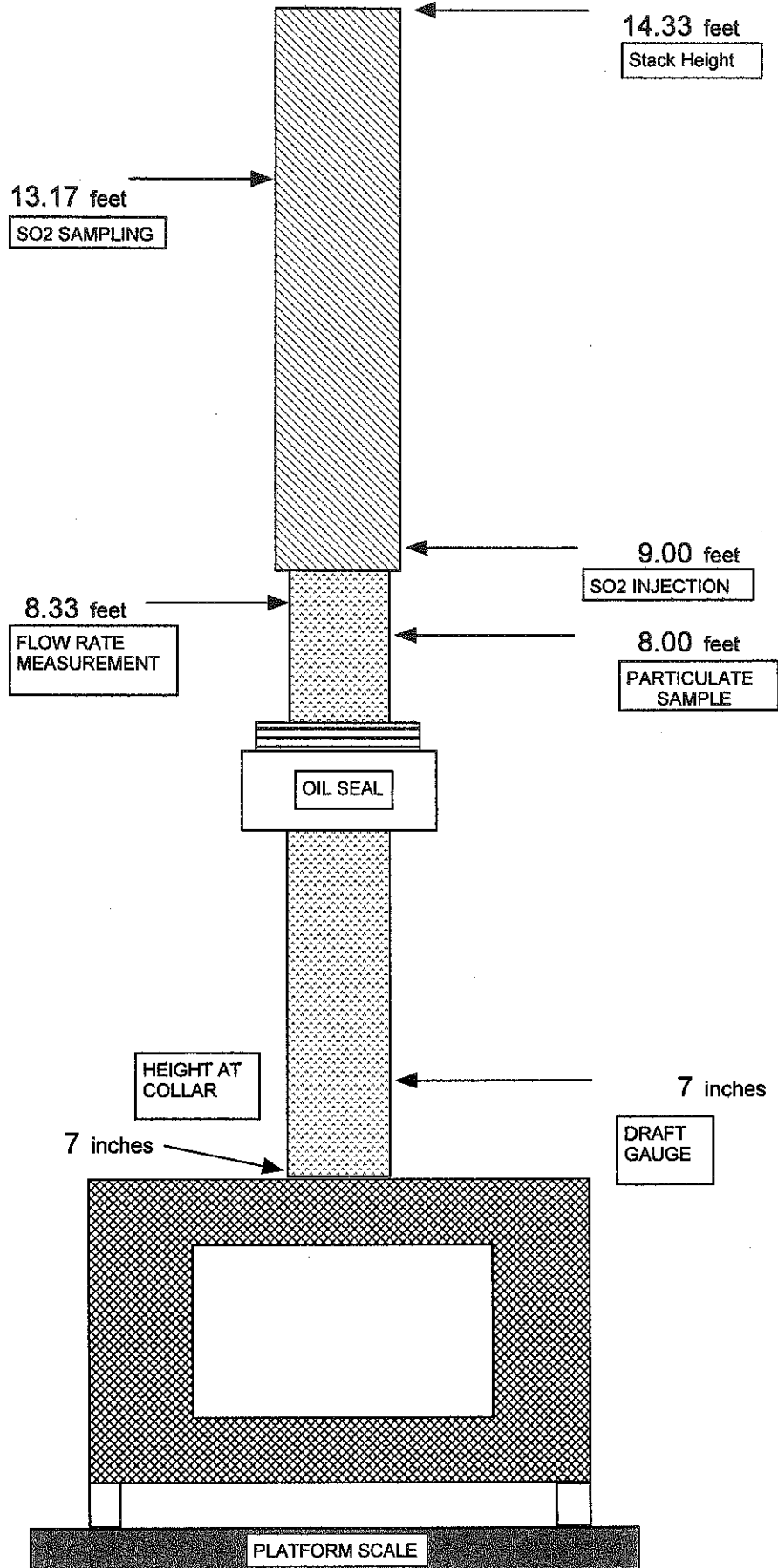
---



---

Model: Bella

Date: 10/08/08



# Wood Heater Emission Test Summary

## Laboratory/Wood Heater Information

Stove Manufacturer: Country Stoves  
Model Identification: Bella  
Stove Type> 1=cat,  
2=noncat, 3=pellet: 2

Laboratory Name: LoKee Testing Laboratory  
Laboratory Contact: Chip Wadington  
Telephone no.: 360-897-9685

Test Dates: 10/8-13/2008

Test Methods Used  
Method 28/Other: 28  
Sampling Method: 5H

Run no.	Burn Rate (kg/hr)	Emission Rate (g/hr)	Heat Output (Btu/hr)	Wtd Avg (g/hr)
1	0.93	0.63	11202	1.01
2	1.14	0.66	13746	
3	1.43	0.56	17243	
4	2.15	2.86	25925	
			NA	
			NA	
			NA	
			NA	

