

United States
Environmental Protection Agency
Wood Heater Quality Assurance Test Report

Country Stoves, Inc.
1502 14th Street Northwest
Auburn, WA 98071-0959

S260

Volume 1

Report By:

Chip Wadington
Kent Venton

CONFIDENTIAL

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AUTHORIZED PERSONNEL

November 5, 2005

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	Insert Confirmation	varies
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Data Sheet # 16	Quality Checks	1

TEST SERIES INFORMATION

Unit name and model number: S260

Type of unit: Wood Heater

Manufacturer: Country Stoves, Inc.
Address: 1502 14th Street Northwest
Auburn, WA 98071-0959

Contact: David Younce
Phone Number: 206-735-1100
Fax Number: 206-931-1271

Observers: None

Date Received: 10/12/2005 **Aged:** N/A **Tested:** 10/27/2005

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

Test Location: 13235 Prairie Circle East
Sumner, WA 98390-7250
Test Site Elevation: 500 feet above sea level

LoKee's Field Team

Team Members: Chip Wadington
Kent Venton

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.



13235 PRAIRIE CIRCLE EAST, SUMNER, WASHINGTON 98390
TELEPHONE: 360-897-9685

STOVE STORAGE INFORMATION

1. Temporary Storage at LoKee Testing Laboratory

A single, steel, banding strap is placed 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.
S260

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

AGING DATA SHEET

UNIT: Country Stores 240 DATE: 10-24-05

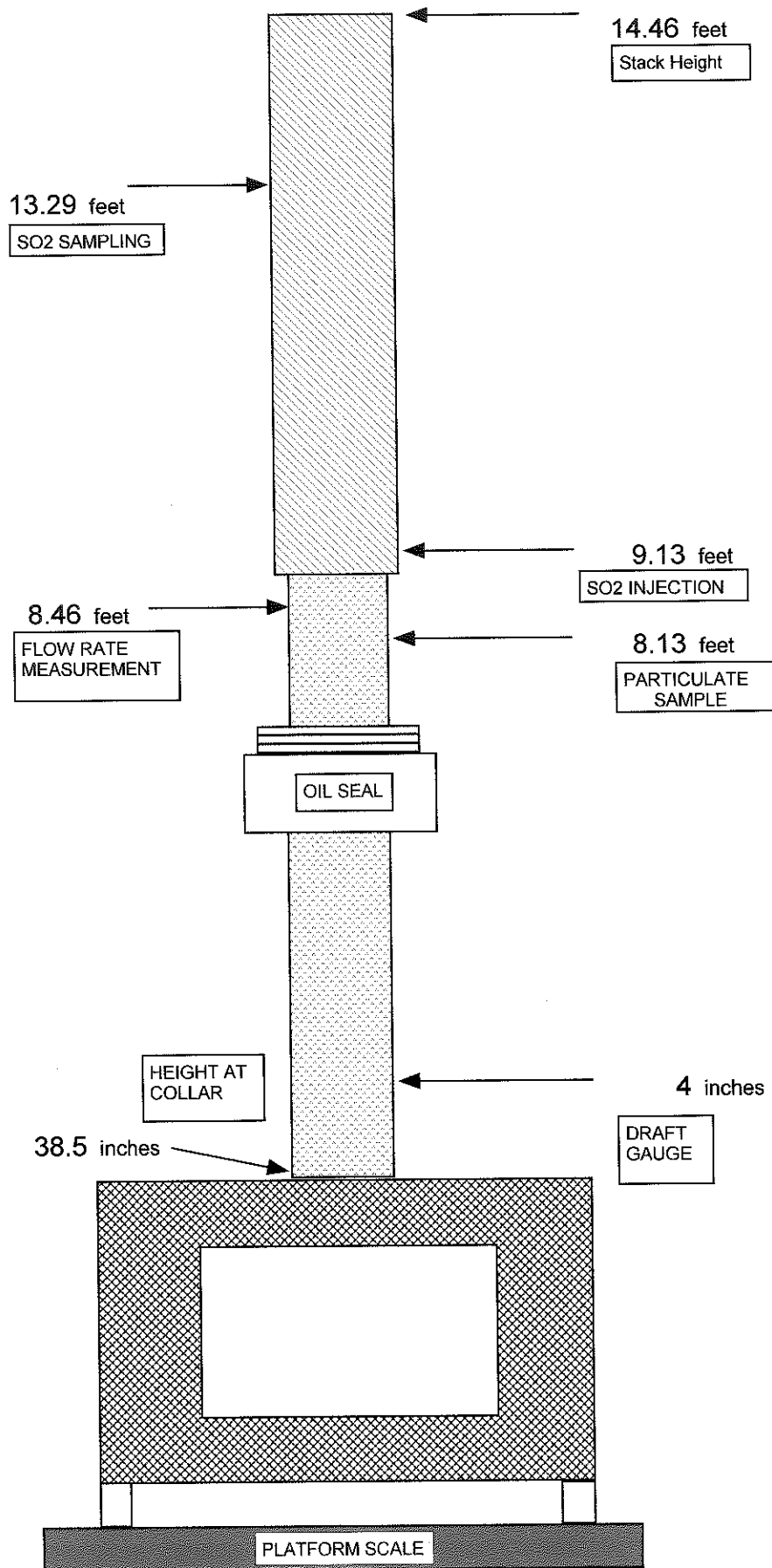
Hr #	DATE	TIME	TEMP <i>Jack</i> 1	TEMP Top 2
1	10-24-05	1400	386	341
2	"	1500	421	404
3	"	1600	242	247
4	"	1700	222	237
5	"	1800	209	206
6	"	1900	231	213
7	"	2000	338	302
8	"	2100	307	282
9	"	2200	247	246
10	"	2300	222	207
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
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: Country S260

Date: 10/27/05



Wood Heater Emission Test Summary

Laboratory/Wood Heater Information

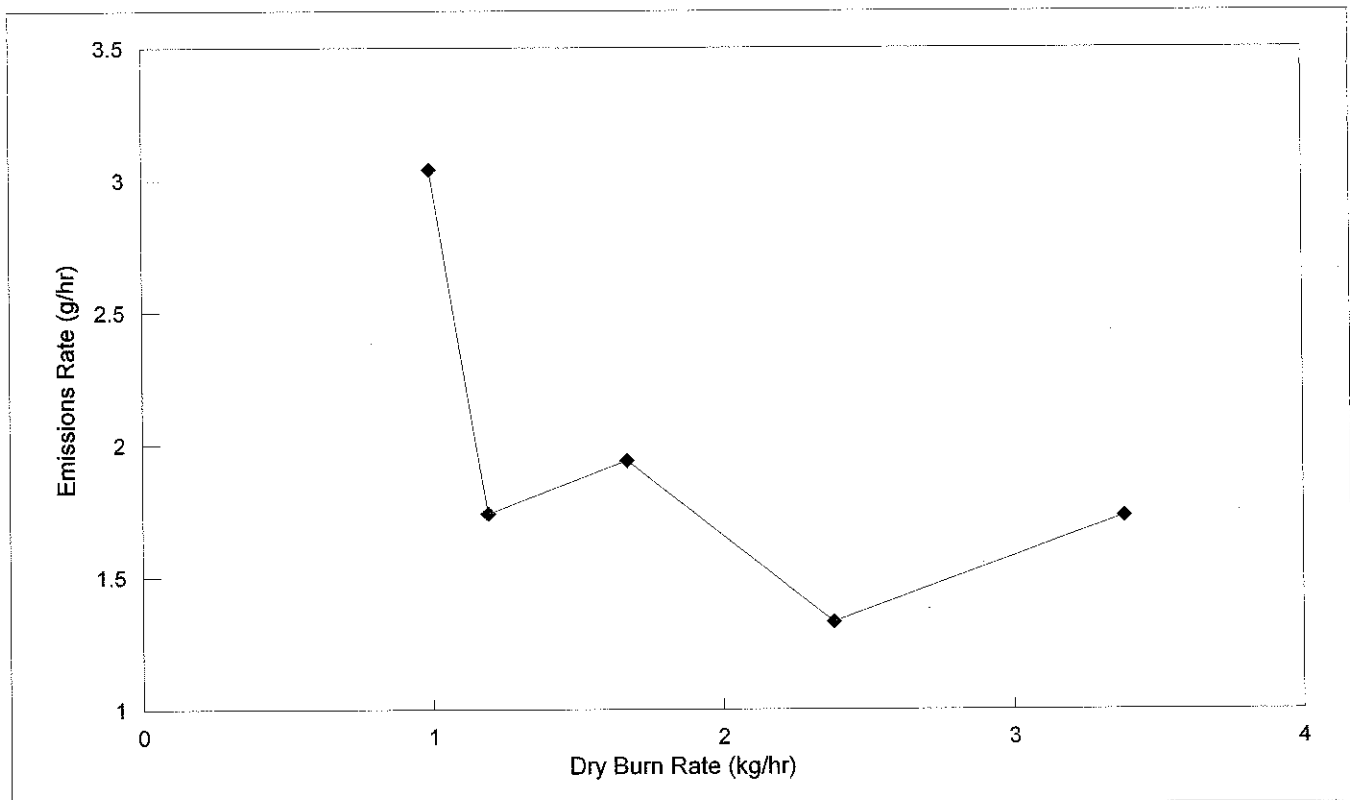
Stove Manufacturer: Country Stoves
Model Identification: S260
Stove Type> 1=cat,
2=noncat, 3=pellet: 2

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

Test Dates: 10/27-11/2/5

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) 2.18
2	0.99	3.04	11938	
1	1.19	1.74	14349	
4	1.67	1.94	20137	
3	2.38	1.33	28699	
5	3.38	1.73	40757	
			NA	



	RUN #	2	1	4	3	5		
Avg Stack Gas Flow Rate								
EPA CMB	dscfm	8.18	10.15	13.25	16.2	19.91		
Tracer Gas	dscfm	7.389	11.605	11.872	13.443	13.729		
Draft (static)	in H ₂ O	-0.33	-0.35	-0.41	-0.48	-0.59		
Proportionality Average	%	100	100	100	100	100	100	100
Average Temperatures								
Stack Gas	°F	225	266	338	423	539		
Firebox	°F	-	-	-	-	-		
Secondary	°F	-	-	-	-	-		
Catalytic Combustor	°F	-	-	-	-	-		
Top	°F	223	261	313	365	429		
Left Side	°F	297	329	380	418	507		
Back	°F	243	258	291	324	320		
Right Side	°F	238	263	309	325	404		
Bottom	°F	278	267	294	331	448		
Temperature Change	°F	-49.7	-7.0	-75.1	-1.9	-115.9		
Test Chamber Environment								
Average Barometer	in. Hg	29.87	29.66	29.76	30.10	29.84		
Average Temperature	°F	71	81	81	82	82		
Ambient Moisture	% H ₂ O	1.25	1.20	1.4	1.45	1.3		
Relative Humidity	%RH	46.0	33.5	34.0	45.5	38.0		
Air Velocity	m/sec	0	0	0	0	0	0	0
Fuel Weight and Burn Time								
Density (dry basis)	gm/cm ³	-	-	-	-	-		
Coal Bed Weight	lbs	3.9	4.1	4.0	4.2	4.0		
Pre Test Fuel (inc kindling)	lbs	43.5	63.1	46.5	46.8	43.9		
Test Fuel	lbs	16.9	16.5	16.6	17.1	17.4		
Burn Time	min	375	305	220	160	115		

	RUN #	2	1	4	3	5		
Avg Stack Gas Flow Rate								
EPA CMB	dscfm	8.18	10.15	13.25	16.2	19.91		
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Proportionality Average	%	100	100	100	100	100	100	100
Average Temperatures								
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Firebox	°F	-	-	-	-	-		
Secondary	°F	-	-	-	-	-		
Catalytic Combustor	°F	-	-	-	-	-		
Top	°F	223	261	313	365	429		
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Test Chamber Environment								
Average Barometer	in. Hg	29.87	29.66	29.76	30.10	29.84		
Average Temperature	°F	71	81	81	82	82		
Ambient Moisture	% H ₂ O	1.25	1.20	1.4	1.45	1.3		
Relative Humidity	%RH	46.0	33.5	34.0	45.5	38.0		
Air Velocity	m/sec	0	0	0	0	0	0	0
Fuel Weight and Burn Time								
Density (dry basis)	gm/cm ³	-	-	-	-	-		
Coal Bed Weight	lbs	3.9	4.1	4.0	4.2	4.0		
Pre Test Fuel (inc kindling)	lbs	43.5	63.1	46.5	46.8	43.9		
Test Fuel	lbs	16.9	16.5	16.6	17.1	17.4		
Burn Time	min	375	305	220	160	115		

TABLE 1 ---- RAW DATA

CLIENT : Country Stoves

TEST No. :

2

MODEL: S260

DATE: 28-Oct-05

TIME (MIN.)	METER READING (C F)	DELTA H (IN. H2O)	METER TEMP. (DEG. F)	PERCENT CO (%)	PERCENT CO2 (%)	SO2 COCENTR. PPM
=====	=====	=====	=====	=====	=====	=====
0	819.000	0.150	88	0.74	3.10	400
5	820.500	0.260	88	0.25	4.60	300
10	822.583	0.130	88	0.33	1.30	425
15	824.055	0.100	87	0.39	1.40	475
20	825.367	0.120	87	0.44	1.50	450
25	826.752	0.120	87	0.49	1.50	450
30	828.137	0.120	87	0.52	1.60	450
35	829.522	0.130	87	0.60	1.70	425
40	830.988	0.120	87	0.38	4.50	450
45	832.373	0.130	87	0.35	5.20	425
50	833.839	0.170	87	0.19	9.30	375
55	835.501	0.170	87	0.30	7.60	375
60	837.162	0.170	87	0.30	9.10	375
65	838.819	0.170	87	0.22	10.20	375
70	840.476	0.170	88	0.24	9.40	375
75	842.139	0.150	88	0.20	10.40	400
80	843.698	0.150	88	0.48	11.00	400
85	845.257	0.150	88	0.42	11.70	400
90	846.817	0.150	90	0.28	10.40	400
95	848.387	0.150	92	0.27	7.70	400
100	849.969	0.130	92	0.34	6.90	425
105	851.459	0.130	92	0.39	6.80	425
110	852.948	0.130	92	0.36	7.00	425
115	854.437	0.130	92	0.29	7.50	425
120	855.926	0.130	92	0.24	7.90	425
125	857.415	0.130	92	0.24	7.70	425
130	858.904	0.110	92	0.37	6.40	450
135	860.311	0.110	92	0.41	6.20	450
140	861.718	0.110	92	0.51	5.20	450
145	863.124	0.110	92	0.93	4.60	450
150	864.531	0.110	92	0.99	4.30	450
155	865.937	0.110	92	1.57	3.90	450
160	867.344	0.130	92	1.64	3.80	425
165	868.833	0.130	92	1.56	3.60	425
170	870.322	0.150	92	1.48	3.50	400
175	871.904	0.130	92	1.08	3.60	425

180	873.393	0.130	92	1.00	3.70	425
185	874.883	0.130	92	0.94	3.90	425
190	876.372	0.150	92	0.83	4.20	400
195	877.954	0.110	92	0.81	4.50	450
200	879.360	0.130	92	0.85	4.50	425
205	880.850	0.130	92	0.77	4.60	425
210	882.339	0.110	92	0.74	4.50	450
215	883.745	0.110	92	0.78	4.50	450
220	885.152	0.110	92	0.80	4.50	450
225	886.559	0.130	92	0.87	4.40	425
230	888.048	0.130	92	0.87	4.50	425
235	889.537	0.110	92	0.87	4.20	450
240	890.943	0.110	92	0.89	4.30	450
245	892.350	0.110	92	0.99	4.60	450
250	893.757	0.110	92	0.99	4.60	450
255	895.163	0.130	92	1.06	4.50	425
260	896.652	0.130	92	1.07	4.70	425
265	898.142	0.090	92	1.28	4.60	500
270	899.408	0.070	92	1.49	4.70	575
275	900.509	0.080	92	1.61	4.60	525
280	901.714	0.080	92	1.69	4.50	525
285	902.920	0.080	92	1.69	4.60	550
290	904.071	0.070	92	1.68	4.50	575
295	905.172	0.080	92	1.69	4.30	550
300	906.323	0.070	92	1.77	4.30	575
305	907.424	0.070	92	1.75	4.20	575
310	908.525	0.060	92	1.76	4.10	600
315	909.581	0.080	92	1.76	4.10	525
320	910.786	0.070	92	1.76	4.10	575
325	911.887	0.070	92	1.68	3.90	575
330	912.988	0.070	91	1.42	4.00	575
335	914.085	0.070	91	1.58	3.90	575
340	915.182	0.070	91	1.69	3.80	600
345	916.234	0.070	91	1.65	3.80	600
350	917.285	0.070	90	1.70	3.70	600
355	918.333	0.070	90	1.73	3.70	600
360	919.380	0.070	90	1.70	3.70	600
365	920.428	0.070	90	1.52	3.50	600
370	921.475	0.070	90	1.60	3.40	600
375	922.523	0.060	90	1.59	3.40	625

TABLE 2---RAW DATA

CLIENT : Country Stoves

TEST No. 2

MODEL: S260

DATE: 28-Oct-05

METER CAL. FACTOR (Y) -----	1.008	Wt. WOOD BURNED(LB) -----	16.9	Lbs
--------------------------------	-------	------------------------------	------	-----

BAROMETRIC PRESS.(Pb) -----	29.87 in Hg	WET,FUEL MOISTURE % -----	19.094	%
--------------------------------	-------------	------------------------------	--------	---

LEAK RATE POST (Lp) -----	0.002 cfm	Wt. PART. COLLECTED -----	0.6191	g
------------------------------	-----------	------------------------------	--------	---

WATER VOL. (V1c) -----	92.4 MI	METER VOLUME Vm -----	103.523	mcf
---------------------------	---------	--------------------------	---------	-----

TEST TIME (MIN) -----	375 min	HC MOLE FRACTION -----	0.0132	
--------------------------	---------	---------------------------	--------	--

TABLE 3 ----FIELD DATA AVERAGES

CLIENT : Country Stoves

TEST No. 2

MODEL: S260

DATE: 28-Oct-05

AVG DELTA H	-----	0.11 in H2O	AVG PRCNT CO	-----	0.96	%
AVG METER TEMP. Tm	-----	91 deg F	AVG PRCNT CO2	-----	5.00	%
AVG PPM SO2	-----	469 PPM	AVG BAL CO2/CO	-----	5.23	%

TABLE 4 ---- CALCULATIONS

CLIENT : Country Stoves

TEST No. 2

MODEL: S260

DATE: 28-Oct-05

STD SAMPLE		STACK GAS		
VOL. Vm(std) d) -----	99.93 dscf	FLOW Qsd -----	490.880	dscf/Hr
			8.18	& dscf/min
VOL. WATER		PARTICULATE		
VAPOR Vw(s td) -----	4.349 scf	CONCTRT. C s -----	0.0062	g/dscf
PRCNT		PARTC.EMISS.		
MSTR Bws -----	4.17 %	RATE E -----	3.04	g/Hr
BURN		MOLES OF GAS		
RATE BR -----	0.99 Kg/Hr	PER Lb WOOD Nt ----	0.58	Lb-mole/Lb
CO EMISSION		PART.EMISS.		
RATE -----	157.27 g/Hr	RATE -----	3.07	g/Kgdry
	&			fuel
	158.54 g/Kgdry			
	fuel			

TABLE 5 ---- PROPORTIONAL RATE VARIATION

CLIENT : Country Stoves

TEST No. : 2

MODEL: S260

DATE: 28-Oct-05

TIME INTERVAL Ti	PPM * Vm	PROPRTN. RATE VAR. PR	PROPRTN RATE VAR. AVERAGE
=====	=====	=====	=====
5	582.1	96	100
10	606.4	100	
15	607.4	100	
20	605.6	100	
25	605.7	100	
30	605.7	100	
35	605.7	100	
40	605.5	100	
45	605.7	100	
50	605.5	100	
55	605.8	100	
60	605.4	100	
65	603.9	99	
70	603.4	99	
75	605.0	100	
80	605.0	100	
85	605.0	100	
90	604.2	99	
95	605.9	100	
100	609.4	100	
105	609.8	100	
110	609.4	100	
115	609.4	100	
120	609.4	100	
125	609.4	100	
130	609.4	100	
135	609.7	100	
140	609.7	100	
145	609.3	100	
150	609.7	100	
155	609.3	100	
160	609.7	100	
165	609.4	100	
170	609.4	100	
175	609.4	100	
180	609.4	100	

185	609.8	100
190	609.4	100
195	609.4	100
200	609.3	100
205	609.8	100
210	609.4	100
215	609.3	100
220	609.7	100
225	609.7	100
230	609.4	100
235	609.4	100
240	609.3	100
245	609.7	100
250	609.7	100
255	609.3	100
260	609.4	100
265	609.8	100
270	609.5	100
275	609.6	100
280	609.2	100
285	609.7	100
290	609.6	100
295	609.6	100
300	609.6	100
305	609.6	100
310	609.6	100
315	610.1	100
320	609.2	100
325	609.6	100
330	610.1	100
335	608.5	100
340	608.5	100
345	608.9	100
350	608.9	100
355	607.7	100
360	607.1	100
365	607.7	100
370	607.1	100
375	607.7	100

COMPUTER INPUT DATA SHEET #1

Client: Country Stoves
 Address: 1502 14th Street Northwest
Auburn, WA 98071-0959
 Phone: 253-735-1100 Fax: 253-931-1271
 Run No.: 2 Date of Test: 10-28-2005 Burn Rate: _____
 Model No.: S260 ☒ min ☐ min-1.25 ☐ fan
 Stove Type: ☐ Cat ☒ Non Cat ☐ Pellet ☐ 1.25-1.9 ☐ max ☐ insert
 Dry Gas Meter Y Factor: 1.008 Post Leak Rate: 0.002 cfm Time: 375 min.
 (0.000) (Data Sheet #2) (0.000) (Data Sheet #2) (0.000) (Data Sheet #2)
 Dry Gas Meter Volume: 103.523 cf
 (00.000) (Data Sheet #2)
 Stack Flow: 7.389 dscfm Δ H: 114 in. H₂O
 (00.000) (Data Sheet #2) (0.000) (Data Sheet #2)
 Maximum Vac.: 2.0 Barometric Pressure: 29.87 in. Hg
 (0.0) (Data Sheet #2) (00.00) (Data Sheet #2)
 H₂O Captured: 92.4 g
 (00.0) (Data Sheet #3)
 Front Half Catch % Of Total: 35.6 % Total Particulate Catch: 1.6191 g
 (00.0) (Data Sheet #6) (0.0000) (Data Sheet #6)
 Flue Gas Moisture: 4.1754 %
 (00.000) (Data Sheet #7)
 Particulate Emission: 0.0957 gr/dscf
 (0.0000) (Data Sheet #7)
 Relative Humidity: 46.0 % RH Ambient Moisture: 1.25 % H₂O
 (00.0) (Data Sheet #8) (0.00) (Data Sheet #8)
 Preburn Fuel Wt.: 43.5 lbs. Coal Bed Wt.: 3.9 lbs. Test Fuel Wt.: 16.9 lbs.
 (00.0) (Data Sheet #8) (00.0) (Data sheet #8) (00.0) (Data sheet #8)
 Heat Output (EPA Default): 11,961.734 BTU/hr
 (00,000.0) (Data Sheet #8)
 Kindling Fuel % Moisture (wet): 14.554 % Pretest Fuel % Moisture (wet): 16.543 %
 (00.000) (Data Sheet #10) (00.000) (Data Sheet #10)
 Test Fuel % Moisture (dry): 23.600 % Test Fuel % Moisture (wet): 19.094 %
 (00.000) (Data Sheet #10 [wood stove] or #11 [pellet stove])
 Fuel Higher Heating Value (dry): _____ BTU/lb.
 (0000) (Data Sheet #11)
 Stack Static Pressure: -0.033 in. H₂O
 (+/- .000) (Data Sheet #12)
 Average Ambient Temperature: 71 °F Stove Temperature Change: -49.7 °F
 (00) (Data Sheet #14) (+/- 000.0) (Data Sheet #14)

Start - 1140
 End - 1255

Temp 551

375

METER BOX DATA SHEET PAGE # 2

Page: 1 of 4UNIT: Country Stores 5260 RUN: 2DATE: 10 - 28 - 2005Meter Box: 5H Y Factor: 1.008Leak checks: 15 " Hg @ .005 cfm _____ " Hg @ _____ cfm15 " Hg @ .002 cfm _____ " Hg @ _____ cfmInject SO₂ @ 100 cc/min.

Nozzle: Probe @ 3/8" od

Initial Volume: 1,500

ROTO: PRESS: <u>.17</u>			SAMPLING RATIO: <u>28</u>			: 1			BP: <u>29.80</u>	
MIN	TIME	METER READING	SAMPLE MDCF	STACK DSCFM	DELTA H	METER TEMP	SO2 PPM	ROTO TEMP	PUMP VACC	
0	1140	819.000	—	8.477	.15	88	400	88	1.0	
5	45	820.500	—	11.303	.26	88	300	88	2.0	
10	50	822.583	822.583	7.979	.13	88	425	88	1.0	
15	55	824.055	824.055	7.152	.10	87	475	87	1.0	
20	1200	825.367	825.367	7.549	.12	87	450	87	1.0	
25	05	826.752	826.752	7.549	.12	87	450	87	1.0	
30	10	828.137	828.137	7.549	.12	87	450	87	1.0	
35	15	829.522	829.522	7.993	.13	87	425	87	1.0	
40	20	830.988	830.988	7.549	.12	87	450	87	1.0	
45	25	832.373	832.373	7.993	.13	87	425	87	1.0	
50	30	833.839	833.839	9.059	.17	87	375	87	2.0	
55	35	835.501	835.501	9.059	.17	87	375	87	2.0	
ROTO PRESS: <u>.17</u>			TOTALS: 99.211			1.72	1047	BP: 29.88		
60	1240	837.162	837.162	9.083	.17	87	375	87	2.0	
65	45	838.819	838.819	9.083	.17	87	375	87	2.0	
70	50	840.476	840.476	9.067	.17	88	375	88	2.0	
75	55	842.139	842.139	8.500	.15	88	400	88	2.0	
80	1300	843.698	843.698	8.500	.15	88	400	88	2.0	
85	05	845.257	845.257	8.500	.15	88	400	88	2.0	
90	10	846.817	846.817	8.469	.15	90	400	90	2.0	
95	15	848.387	848.387	8.438	.15	92	400	92	2.0	
100	20	849.969	849.969	7.942	.13	92	425	92	2.0	
105	25	851.459	851.459	7.942	.13	92	425	92	2.0	
110	30	852.948	852.948	7.942	.13	92	425	92	2.0	
115	35	854.437	854.437	7.942	.13	92	425	92	2.0	
			TOTALS: 101.408			1.78	1076	MAX VACC =		
TOTAL Cu Ft.			TOTALS: 200.619			3.50	2123	AVG. BP:		

METER BOX DATA SHEET PAGE # 2

Page: 2 of 4

UNIT: Country Stoves S260 RUN: 2

DATE: 10-28-2005

Meter Box: 5H Y Factor: 1.008

Leak checks: 15 " Hg @ 1.005 cfm _____ " Hg @ _____ cfm

15 " Hg @ 1.002 cfm _____ " Hg @ _____ cfm

Inject SO₂ @ 100 cc/min.

Nozzle: Probe @ 3/8" od

Initial Volume: 1.500

ROTO PRESS: <u>.17</u>			SAMPLING RATIO: <u>28</u>			: 1			BP: <u>29.88</u>		
MIN	TIME	METER READING	SAMPLE MDCF	STACK DSCFM	DELTA H	METER TEMP	SO2 PPM	ROTO TEMP	PUMP VACC		
120	1340	855.926	855.926	7.942	.13	92	425	92	2.0		
125	45	857.415	857.415	7.942	.13	92	425	92	2.0		
130	50	858.904	858.904	7.501	.11	92	450	92	2.0		
135	53	860.311	860.311	7.501	.11	92	450	92	2.0		
140	1400	861.718	861.718	7.501	.11	92	450	92	2.0		
145	05	863.124	863.124	7.501	.11	92	450	92	2.0		
150	10	864.531	864.531	7.501	.11	92	450	92	2.0		
155	15	865.937	865.937	7.501	.11	92	450	92	2.0		
160	20	867.344	867.344	7.942	.13	92	425	92	2.0		
165	25	868.833	868.833	7.942	.13	92	425	92	2.0		
170	30	870.322	870.322	8.438	.15	92	400	92	2.0		
175	35	871.904	871.904	7.942	.13	92	425	92	2.0		
ROTO PRESS: <u>.17</u>			TOTALS: 93.154			1.46	1104	BP: 29.88			
180	1440	873.393	873.393	7.942	.13	92	425	92	2.0		
185	45	874.883	874.883	7.942	.13	92	425	92	2.0		
190	50	876.372	876.372	8.438	.15	92	400	92	2.0		
195	55	877.954	877.954	7.501	.11	92	450	92	2.0		
200	1500	879.360	879.360	7.942	.13	92	425	92	2.0		
205	05	880.850	880.850	7.942	.13	92	425	92	2.0		
210	10	882.339	882.339	7.501	.11	92	450	92	2.0		
215	15	883.745	883.745	7.501	.11	92	450	92	2.0		
220	20	885.152	885.152	7.501	.11	92	450	92	2.0		
225	25	886.559	886.559	7.942	.13	92	425	92	2.0		
230	30	888.048	888.048	7.942	.13	92	425	92	2.0		
235	35	889.537	889.537	7.501	.11	92	450	92	2.0		
			TOTALS: 93.545			1.48	1104	MAX VACC =			
TOTAL Cu Ft.			TOTALS: 186.749			2.94	2208	AVG. BP:			

METER BOX DATA SHEET PAGE # 2

Page: 3 of 4

UNIT: Country Store SZ60 RUN: 2

DATE: 10-28-2005

Meter Box: SH Y Factor: 1.008

Leak checks: 15 " Hg @ 1.005 cfm _____ " Hg @ _____ cfm

15 " Hg @ 1.002 cfm _____ " Hg @ _____ cfm

Inject SO₂ @ 100 cc/min.

Nozzle: Probe @ 3/8" od

Initial Volume: 1.500

ROTO PRESS: <u>.17</u>			SAMPLING RATIO: <u>28</u> : <u>1</u>			BP: <u>29.88</u>			
MIN	TIME	METER READING	SAMPLE MDCF	STACK DSCFM	DELTA H	METER TEMP	SO2 PPM	ROTO TEMP	PUMP VACC
240	1540	890.943	890.943	7.501	.11	92	450	92	2.0
245	45	892.350	892.350	7.501	.11	92	450	92	2.0
250	50	893.757	893.757	7.501	.11	92	450	92	2.0
255	55	895.163	895.163	7.942	.13	92	425	92	2.0
260	1600	896.652	896.652	7.942	.13	92	425	92	2.0
265	05	898.142	898.142	6.751	.09	92	500	92	2.0
270	10	899.408	899.408	5.870	.07	92	575	92	2.0
275	15	900.509	900.509	6.429	.08	92	525	92	2.0
280	20	901.714	901.714	6.429	.08	92	525	92	2.0
285	25	902.920	902.920	6.137	.08	92	550	92	2.0
290	30	904.071	904.071	5.870	.07	92	575	92	2.0
295	35	905.172	905.172	6.137	.08	92	550	92	2.0
ROTO PRESS: <u>.17</u>			TOTALS: <u>82.010</u>			<u>1.14</u>	<u>1104</u>	BP: <u>29.88</u>	
300	1640	906.323	906.323	5.870	.07	92	575	92	2.0
305	45	907.424	907.424	5.870	.07	92	575	92	2.0
310	50	908.525	908.525	5.626	.06	92	600	92	2.0
315	55	909.581	909.581	6.429	.08	92	525	92	2.0
320	1700	910.786	910.786	5.870	.07	92	575	92	2.0
325	05	911.887	911.887	5.870	.07	92	575	92	2.0
330	10	912.988	912.988	5.870	.07	91	575	91	2.0
335	15	914.085	914.085	5.870	.07	91	575	91	2.0
340	20	915.182	915.182	5.636	.07	91	600	91	2.0
345	25	916.234	916.234	5.636	.07	91	600	91	2.0
350	30	917.285	917.285	5.646	.07	90	600	90	2.0
355	35	918.333	918.333	5.646	.07	90	600	90	2.0
			TOTALS: <u>69.839</u>			<u>.840</u>	<u>1096</u>	MAX VACC =	
TOTAL Cu Ft.			TOTALS: <u>151.849</u>			<u>1.98</u>	<u>2200</u>	AVG. BP:	

Page: 4 of 4

UNIT: Country Stoves 5260 RUN: 2

DATE: 10-28-2005

Meter Box: 54 Y Factor: 1,008

Leak checks: 15 " Hg @ .005 cfm _____ " Hg @ _____ cfm

15 " Hg @ 1002 cfm _____ " Hg @ _____ cfm

Inject SO₂ @ 100 cc/min.

Nozzle: Probe @ 3/8" od

Initial Volume: 11500

[illegible]

PARTICULATE CATCH / MOISTURE DATA SHEET # 3

UNIT: 5260 RUN: 2 DATE: 10-28-05

SCALE CHECK	LEVEL	ZEROED
INITIAL:	✓	✓
FINAL:	✓	✓

SCALE	WEIGHT
295.0 g	295.0
590.0 g	590.0
885.0 g	885.0

IMPINGER	#1	#2	#3	#4
FINAL WT	665.6	580.7	486.1	904.2
INITIAL WT	596.8	577.3	483.5	886.6
NET WT GRAMS	68.8	3.4	2.6	17.6

TOTAL CATCH: 92.4 GRAMS H₂O

FRONT HALF

FILTER #	33F	
FINAL WT g	.8537	
INITIAL WT g	.6747	
NET WT g	.1790	

BEAKER #	1
DESC.	ACETONE
FINAL WT g	104.9575
INITIAL WT g	104.9157
NET WT g	.0418
VOL. DESC. ml	75

BACK HALF

FILTER #	33B	
FINAL WT g	.3865	
INITIAL WT g	.3391	
NET WT g	.0474	

BEAKER #	2	3	4	5	
DESC.	ACETONE	METHCHLOR	H ₂ O	H ₂ O	
FINAL WT g	106.4670	107.8190	108.8352	97.4772	
INITIAL WT g	106.2539	107.7775	108.7741	97.4360	
NET WT g	.2131	.0415	.0611	.0412	.1023
VOL. DESC ml	140	75	150	110	260

FILTER TARE WEIGHTS DATA SHEET #4-1

Into Dessicator : _____ Date : 9-2-05 Time : 1515 By : C. Winding
 Manufacturer S & S Grade : # 25 Glass Front Size : 11 cm Lot No. : 2B921
 Back Size : 8.2 cm Lot No. : B1044632

DATE: <u>9-19-05</u>		BY: <u>CP</u>	DATE: <u>9-20-05</u>		BY: <u>CW</u>	DATE: _____	BY: _____
FILTER #	FIRST WEIGHT	TIME	SECOND WEIGHT	TIME	THIRD WEIGHT	TIME	
31 F	.6696	0825	.6698 ✓	1820			
32 F	.6721	0826	.6723 ✓	1821			
33 F	.6745	0827	.6747 ✓	1823			
34 F	.6732	0828	.6730 ✓	1824			
35 F	.6584	0830	.6585 ✓	1825			
36 F	.6702	0831	.6704 ✓	1826			
37 F	.6667	0832	.6665 ✓	1828			
38 F	.6696	0833	.6695 ✓	1829			
39 F	.6648	0834	.6646 ✓	1830			
40 F	.6677	0835	.6677 ✓	1831			

31 B	.3401	0836	.3400 ✓	1833			
32 B	.3362	0837	.3364 ✓	1834			
33 B	.3388	0839	.3391 ✓	1835			
34 B	.3390	0840	.3392 ✓	1836			
35 B	.3362	0841	.3364 ✓	1837			
36 B	.3373	0842	.3373 ✓	1839			
37 B	.3408	0842	.3406 ✓	1840			
38 B	.3397	0844	.3398 ✓	1841			
39 B	.3403	0845	.3403 ✓	1842			
40 B	.3405	0846	.3406 ✓	1844			

Checked by: WJ Date: 10-2-05 Time: 13:00

BALANCE ROOM ENVIRONMENTAL CONDITIONS

DATE	TIME	BY	WB	DB	% RH
9-19	0810	CP	60	74	44
9-20	1810	CW	64	77	49

BEAKER TARE WEIGHTS DATA SHEET #4-2

Into Dessicator: _____ Date: 9-8-05 Time: 1040 By: C. Waddington

BEAKER #	FIRST WEIGHT	TIME	SECOND WEIGHT	TIME	THIRD WEIGHT	TIME
1	104.9161	1306	104.9157	0922	✓	
2	106.2544	1307	106.2539	0923	✓	
3	107.7780	1308	107.7775	0924	✓	
4	108.7746	1309	108.7741	0925	✓	
5	97.4364	1310	97.4360	0926	✓	
6	91.2072	1312	97.2068	0927	✓	
7	97.1381	1313	97.1385	0928	✓	
8	108.6359	1314	108.6360	0929	✓	
9	108.0948	1315	108.0951	0930	✓	
10	105.7286	1315	105.7282	0931	✓	
11	104.7888	1317	104.7886	0932	✓	
12	98.2302	1318	98.2303	0933	✓	
13	104.1750	1319	104.1751	0934	✓	
14	97.9819	1320	97.9823	0936	✓	
15	104.7647	1321	104.7642	0937	✓	
16	95.7433	1322	95.7437	0938	✓	
17	104.5952	1323	104.5947	0939	✓	
18	108.8614	1324	108.8609	0940	✓	
19	106.5451	1325	106.5450	0942	✓	
20	108.5931	1326	108.5932	0943	✓	
21	108.2347	1328	108.2343	0944	✓	
22	105.9324	1331	105.9320	0945	✓	
23	104.5885	1332	104.5882	0946	✓	
24	106.4073	1333	106.4078	0948	✓	
25	99.6727	1334	99.6731	0949	✓	

SCALE ROOM ENVIRONMENTAL CONDITIONS

DATE	TIME	BY	DB	% RH	
9-11	1300	CW	75	44	Checked by: <u>✓</u>
9-12	0920	CW	74	48	Date: <u>9-13-05</u>
					Time: <u>12:55 pm</u>

WOODSTOVE DATA SHEET # 4-3 : CONSTANT WEIGHTS

UNIT: S260

RUN: 2 DATE: 10-28-05

Page: 1 of

Beaker #	Date	Time	By	Weight	Date	Time	By	Weight	Date	Time	By	Weight	Date	Time	By
1	10-24	1900	CP	104.9594	10-31	0905	KU	104.9570	11-1	0900	KU	104.9575	11-2	0920	KU
2	10-24	1900	CP	106.4716	10-31	0906	KU	106.4667	11-1	0901	KU	106.4670	11-2	0921	KU
3	10-29	1900	CP	107.8258	10-31	0910	KU	107.8194	11-1	0902	KU	107.8190	11-2	0922	KU
4	10-29	1900	CP	108.8365	10-31	0911	KU	108.8352	11-1	0903	KU	108.8352	11-2	0923	KU
5	10-29	1900	CP	97.4788	10-31	0912	KU	97.4768	11-1	0904	KU	97.4772	11-2	0924	KU

Filter #	Date	Time	By	Weight	Date	Time	By	Weight	Date	Time	By	Weight	Date	Time	By
33F	10-28	1830	CP	18532	10-29	1905	CP	18537	10-30	1201	CP				
33B	10-28	1830	CP	3870	10-29	1906	CP	3865	10-30	1202	CP				

SCALE ROOM ENVIRONMENTAL CONDITIONS

Weighing Session	Date	Time	By	DB	%RH
1	10-29	1900	CP	75	44
2	10-30	1145	CP	72	42
3	10-31	0905	KU	78	44
4	11-1	0900	KU	75	42
5	11-2	0919	KU	72	49

Weighing Session	Date	Time	By	DB	%RH
6					
7					
8					
9					
10					

WOODSTOVE DATA SHEET #4-4

SCALE QA SHEET

Dates: From 07/15/05 Through 10-20-2005	Scale: Sartorius	Model: A 120 S	SN: 37010004
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100 g weight	10 g weight	1 g weight	100 mg weight	Tech	Date	Time	Dry Bulb	% RH
99.9998	9.9999	.9999	.09998	BL	07/15	2000	78	46
99.9997	9.9998	1.0000	.1000	BL	07/19	2250	78	46
100.0000	9.9999	.9999	.0999	BL	07/20	0740	78	46
100.0000	9.9999	1.0000	.1000	BL	07/21	2100	78	46
99.9998	9.9998	.9999	.1000	BL	07/24	2200	78	46
100.0001	10.0000	1.0000	.1000	BL	07/27	1515	78	49
99.9998	10.0000	.9998	.1000	BL	07/28	0600	78	49
99.9999	10.0001	1.0000	.1000	BL	07/29	1210	78	49
100.0000	10.0000	1.0001	.09998	CW	9-6	0930	74	48
100.0000	9.9998	.9998	.09996	CW	9-7	0955	72	47
99.9999	10.0000	1.0001	.1000	CW	9-8	1010	78	43
99.9999	10.0001	.9999	.0999	CW	9-9	0945	75	48
99.9996	9.9999	1.0000	.1000	CW	9-10	1630	75	48
99.9994	9.9999	1.0000	.0999	CW	9-11	1300	75	44
99.9997	10.0000	1.0000	.09998	CW	9-12	0920	74	48
99.9998	10.0001	.9999	.0999	CW	9-13	0945	74	47
99.9996	10.0001	.9999	.0999	CW	9-14	1400	77	46
99.9997	10.0001	1.0001	.0999	CW	9-15	0815	75	48
99.9996	10.0000	1.0000	.1000	CW	9-16	0955	76	49
99.9998	10.0001	.9999	.09998	CW	9-17	1200	76	45
99.9997	9.9998	.9999	.09998	CW	9-18	1430	73	47
100.0004	10.0002	1.0000	.09998	CW	9-19	0810	74	44
100.0000	10.0000	1.0000	.1000	CW	9-20	1910	77	49
100.0000	10.0000	1.0000	.09998	CW	9-21	1620	78	46
100.0000	10.0001	1.0000	.0999	CW	9-22	1420	76	49
100.0004	10.0003	1.0000	.09997	CW	9-23	1300	72	46
99.9998	10.0001	1.0000	.0999	CW	10-1	1830	74	47
100.0000	10.0000	1.0000	.0999	CW	10-2	1830	69	47
100.0001	10.0001	.9998	.0999	CW	10-5	0840	74	47
99.9998	10.0001	1.0000	.0999	CW	10-6	0930	77	47
99.9998	10.0002	.9999	.1000	CW	10-8	1340	75	45
100.0000	10.0002	.9999	.0999	CW	10-10	1330	76	48
99.9999	10.0000	1.0001	.1000	CW	10-11	1020	77	46
99.9998	10.0002	.9999	.1000	CW	10-12	1000	74	44
100.0001	10.0001	1.0000	.09997	CW	10-13	1020	70	48
99.9999	10.0000	1.0001	.0999	CW	10-14	1000	70	48
100.0000	10.0001	.9999	.0999	CW	10-15	1440	72	46
99.9997	9.9999	1.0000	.1000	CW	10-20	1000	77	49

BLANK PROCESSING DATA SHEET # 5

UNIT Country Stoves 5260 RUN: 2 DATE: 10-28-2005

BLANKS DONE: 10-11-2005

BEAKER	A	B	C
	200 ml ACETONE	75 ml DICHLOR	200 ml WATER
	FISHER OPTIMA LOT # 023283	FISHER OPTIMA LOT # 035941	DWNA, Inc Sparklettes Distilled
FINAL WEIGHT	108.9008	106.3077	106.9670
TARE WEIGHT	108.8995	106.3066	106.9645
NET WEIGHT	.0013	.0011	.0025

TARE BEAKERS INTO DESC: TIME: 1900 DATE: 10-2-2005

DATE: 10-5 BY: CP DATE: 10-6 BY: CP DATE: BY:

BEAKER	1 ST WT	TIME	2 ND WT	TIME	3 RD WT	TIME
A	108.8996	0912	108.8995	1001	✓	
B	106.3065	0913	106.3066	1002	✓	
C	106.9642	0914	106.9645	1003	✓	

FINAL BEAKERS INTO DESC: TIME: 1000 DATE: 10-8-05

DATE: 10-10 BY: CP DATE: 10-11 BY: CP DATE: BY:

BEAKER	1 ST WT	TIME	2 ND WT	TIME	3 RD WT	TIME
A	108.9010	1348	108.9008	1105	✓	
B	106.3076	1349	106.3077	1106	✓	
C	106.9675	1350	106.9670	1109	✓	

TARE QC

DATE	TIME	BY	WB	DB	%
10-5	0840	CP	5	74	44
10-6	0930	CP	5	77	47

FINAL QC

DATE	TIME	BY	WB	DB	%
10-10	1330	CP	5	76	48
10-11	1020	CP	5	77	46

NET PARTICULATE CATCH CALCULATION DATA SHEET #6

UNIT Country Stores S260 RUN: 2 DATE: 10-28-2005

Blank Audit by CWainwright 10-14-2005

BLANK CALCULATIONS

Acetone : .0013 g ÷ 200 ml = .000007 g/ml
 Dichloromethane : .0011 g ÷ 75 ml = .000015 g/ml
 Distilled Water : .0025 g ÷ 200 ml = .000013 g/ml

FRONT HALF CATCH

FILTERS : .1790 g - 1 (.0000 g) = .1790 g
Total Catch # of Filters Blank Value / Filter
 BEAKERS : .0418 g - 75 (.000007 g) = .0413 g
Total Catch ml Acetone Blank Value / ml Acetone
 TOTAL FRONT HALF CATCH : .2203 g

BACK HALF CATCH

FILTERS : .0474 g - 1 (.0000 g) = .0474 g
Total Catch # of Filters Blank Value / Filter
 BEAKERS :
 Acetone : .2131 g - 140 (.000007 g) = .2121 g
Total Catch ml Acetone Blank Value / ml Acetone
 Extract : .0415 g - 75 (.000015 g) = .0404 g
Total Catch ml Dichloromethane Blank Value / Dichloromethane
 Water : .1023 g - 260 (.000013 g) = .0989 g
Total Catch ml Water Blank Value / Water
 TOTAL BACK HALF CATCH : .3988 g

TOTAL CATCH : .6191 g

% FRONT HALF : 35.6 %

CALCULATIONS DATA SHEET # 7

UNIT: Country Stoves S260 RUN: Z DATE: 10-28-2005

$$1) Vm (std) = \frac{(103.523 Vm) (17.64) (1.008 mcf) \left(29.87'' Hg + \frac{.114'' H_2O}{13.6} \right)}{(551 TmA)} = \frac{99.8163}{000.0000} dscf$$

$$2) Vw (std) = (.04707) (92.4 ml H_2O) = \frac{4.3493}{00.0000} scf$$

$$3) Asw = \frac{(4.3493 scf + 99.8163 dscf)}{10418} = \frac{4.1754}{00.0000} \% H_2O$$

$$4) Cs = \frac{(.6191 g.)}{(99.8163 dscf)} (15.43) = \frac{.0957}{0.0000} gr / dscf$$

$$5) Estimated g / hr = \frac{(.6191 g.)}{(99.8163 dscf)} (7.3890 dscfm) (60) = \frac{2.7498}{00.0000} g / hr$$

Vm =	total cubic feet pulled on meter box during test	(p. 2)	(000.000 Vm)
mcf =	meter correction factor (Y factor) of meter box used for test	(p. 2)	(0.000 mcf)
" Hg =	average barometric pressure during test	(p. 2)	(00.00 " Hg)
" H ₂ O =	average delta H for test	(p. 2)	(.000 " H ₂ O)
TmA =	average meter temperature for test in degrees Absolute	(p. 2)	(000 TmA)
ml H ₂ O =	total water caught during test	(p. 3)	(000.0 ml H ₂ O)
g =	total particulate catch for test	(p. 6)	(00.0000 g.)
dscfm =	average stack flow during test	(p. 2)	(00.000 dscf)

TEST DATA SHEET # 8

UNIT Country Stoves SZ60 RUN: 2 DATE: 10-28-2005

Test Chamber Air Velocity Start: 0 Stop: 0 Avg.: 0

Wet Bulb / Dry Bulb

Pre: WB: 66 DB: 85 = 59 % RH 1.5 % H₂O

Post: WB: 57 DB: 74 = 33 % RH 1.0 % H₂O

Average: 46 % RH 1.25 % H₂O

Empty Stove Weight (lbs): — w/ stack & oil seal: Wet: — Dry: 513.6

Kindling Weight (lbs): Paper: .2 Wood: 3.2

Preburn Fuel Weight: 17.6 + 15.0 + 7.7 Total: 40.3

Kindling & Preburn Fuel Weight (wood only) (lbs): Total: 43.5

Coal Bed Wt Range (lbs): 4.2 - 3.4 Scale: 517.8 - 517.0

Upper: .25 x fuel weight: Always round DOWN to nearest tenth

Lower: .20 x fuel weight: Always round UP to nearest tenth

Actual Coal Bed Weight: 3.9

Maximum Coal Bed Removal (lbs): $((\frac{4.2}{\text{Upper}} + \frac{3.4}{\text{Lower}}) \div 2) \cdot .25 = \frac{0.9}{\text{round down to nearest tenth}}$

Test Fuel

(.75" x 1.5" x 5" spacers) = 20 pcs

Dimensions	Length in inches	No. Pcs	Weight in lbs	% of Load
2" x 4"	<u>16</u>	<u>4</u>	<u>9.1</u>	<u>54</u>
4" x 4"	<u>16</u>	<u>2</u>	<u>7.8</u>	<u>46</u>

Test Fuel Weight: 16.9 lbs

Estimated Dry Burn Rate:

$$\frac{16.9 - (16.9 \times .9094)}{2.2046} \times \frac{60}{375} = .992 \text{ kg/hr}$$

$$\text{Estimated BTU's/hr: } 19,140 \times \frac{63}{100} \times \frac{.992}{\text{DBR}} = 11,961.734 \text{ BTU's/hr}$$

EPA Default Efficiencies:

Non-cat: 63

Cat: 72

Pellet: 78

WOOD STOVE OPERATING DATA PAGE #9

Unit: Country Stoves SZ60 Run: 2 Date: 10-28-2005

FIRE STARTED: 0720

WARM UP AND PREBURN:

PRIMARY AIR: Set wide open for all warm-up / preburn fuel charges. Then set to CLOSED at start of preburn.

SECONDARY AIR: N/A CAT BYPASS: N/A

CHARCOAL BED PREPARATION:

Raked and leveled prior to each warm-up / preburn charge. At 1 1/2 min. prior to loading last fuel, raked and leveled. In stove 20 sec.

TEST:

DOOR wide open during loading 1 min. 0 sec.

PRIMARY AIR: Opened full for first 5 min., then set to run setting of CLOSED.

SECONDARY AIR: N/A CAT BYPASS: N/A

FAN:

~~ON~~ / OFF during warm-up

~~ON~~ / OFF during preburn

~~ON~~ / OFF first 30 minutes of test

~~ON~~ / OFF balance of test run

Fan speed set at LOW

WOOD DATA: KINDLING: A mix of the grades listed below:

	SIZE	MILL	GRADE	SPECIES
PREBURN:	2x4	Manke/Tacoma	Std. or better	s. grn D fir
TEST:	2x4	Packwood	# 2 or better	s. grn D fir
	4x4	Packwood	# 2 or better	s. grn D fir

PELLET FUEL MANUFACTURER: N/A BRAND: N/A

All Grades WCLB rules:

WARM UP INFORMATION:

All pre-burn / warm up fuel pieces were either 15 or — inches.

1st warm up / pre-burn fuel charge (17.6 lbs.) added at 0737

2nd warm up / pre-burn fuel charge (15.0 lbs.) added at 0835

3rd warm up / pre-burn fuel charge (7.7 lbs.) added at 0945

4th warm up / pre-burn fuel charge (lbs.) added at

5th warm up / pre-burn fuel charge (lbs.) added at

TEST DATA SHEET #10

Unit: Country Stoves 5260 Run: 2 Date: 10-28-2005

Room Temperature: 72 °F Correction Factor: 0

Uncorrected Values are corrected for room temperature: Yes No ✓

Time Test Fuel moisture reading taken: 1010

Calibration Checks: X ✓ Y ✓ 12.0 12.2 22.0 22.0

pc #	Dimen.	Use	TOP		BOTTOM		SIDE		Average Corrected
			Uncor.	Cor.	Uncor.	Cor.	Uncor.	Cor.	
1	2"x4"x8'	K	16.5	17.6	15.5	16.5	16.0	17.0	17.033
2									
3									
4	2"x4"x8'	P	18.5	19.8	18.5	19.8	18.0	19.2	19.600
5	2"x4"x8'	P	18.0	19.2	19.0	20.3	18.0	19.2	19.567
6	2"x4"x8'	P	19.0	20.3	19.0	20.3	19.0	20.3	20.300
7	2"x4"x8'	P							59.467
8	2"x4"x8'	P							
9									
10									
11	2x4x16	T	22.0	23.7	22.0	23.7	22.0	23.7	23.700
12	"	T	22.0	23.7	22.5	24.1	22.5	24.1	23.967
13	"	T	22.0	23.7	22.0	23.7	22.0	23.7	23.700
14	"	T	22.5	24.1	22.0	23.7	22.0	23.7	23.833
15	4x4x16	T	21.5	23.1	21.5	23.1	21.5	23.1	23.100
16	"	T	22.0	23.7	21.5	23.1	21.5	23.1	23.300
17									141.600
18									
19									
20	Spacers	T	23.0	24.7	23.5	25.2	23.5	25.2	25.033

Key for Use: K = Kindling P = Pretest Fuel T = Test Fuel

	KINDLING	PRETEST FUEL	TEST FUEL
Dry Moisture %:	17.033 %	19.822 %	23.600 %
Wet Moisture %:	14.554 %	16.543 %	19.094 %

To obtain Wet from Dry: $\frac{100 \times \% \text{ Dry Reading}}{100 + \% \text{ Dry Reading}} = \% \text{ Moisture, Wet Basis}$

Acceptable Ranges: 16 - 20 % wet: 19 - 25 % dry (17.5 - 22.5 on Meter Uncor. reading) at 70°

GAS DATA SHEET #12

WEIGHT: 517.5

DATE: 10-28-2005

UNIT: Country Stoves SZ60

RUN: 2

PAGE: 1 OF 3

UNIT: COUNTRY STOVES												SO ₂ PPM	
TIME	SCALE	FUEL	DROP	V.	CO ₂	V.	O ₂	V.	CO	STATIC	SO ₂ PPM		
0	1140	534.4	16.9	—	.124	3.1	.678	16.9	.075	.74	5.036	400	
5	45	534.0	16.5	0.4	.186	4.6	.637	15.9	.026	.25	5.041	300	
10	50	533.6	16.1	0.4	.051	1.3	.766	19.1	.034	.33	5.035	425	
15	55	533.4	15.9	0.2	.056	1.4	.760	19.0	.040	.39	5.032	475	
20	1200	533.3	15.8	0.1	.059	1.5	.754	18.9	.045	.44	5.031	450	
25	05	533.0	15.5	0.3	.062	1.5	.764	19.1	.050	.49	5.030	450	
30	10	532.9	15.4	0.1	.063	1.6	.746	18.7	.053	.52	5.030	450	
35	15	532.6	15.1	0.3	.068	1.7	.739	18.5	.061	.60	5.029	425	
40	20	532.2	14.7	0.4	.180	4.5	.636	15.9	.039	.38	5.031	450	
45	25	531.7	14.2	0.5	.208	5.2	.609	15.2	.036	.35	5.036	425	
50	30	531.0	13.5	0.7	.375	9.3	.452	11.3	.020	.19	5.050	375	
55	35	530.4	12.9	0.6	.306	7.6	.515	12.9	.031	.30	5.048	375	
SUBTOTAL	*****	*****	*****	*****	*****	*****	*****	*****	*****	5.429	*****		
60	1240	529.5	12.0	0.9	.367	9.1	.455	11.4	.031	.30	5.051	375	
65	45	528.8	11.3	0.7	.410	10.2	.414	10.4	.023	.22	5.054	375	
70	50	528.0	10.5	0.8	.375	9.4	.446	11.2	.025	.24	5.053	375	
75	55	527.1	9.6	0.9	.416	10.4	.407	10.2	.021	.20	5.055	400	
80	1300	526.4	8.9	0.7	.442	11.0	.372	9.3	.049	.48	5.055	400	
85	05	525.6	8.1	0.8	.469	11.7	.346	8.7	.043	.42	5.056	400	
90	10	525.0	7.5	0.6	.416	10.4	.404	10.1	.029	.28	5.055	400	
95	15	524.6	7.1	0.4	.310	7.7	.512	12.8	.028	.27	5.052	400	
100	20	524.2	6.7	0.4	.278	6.9	.542	13.6	.035	.34	5.049	425	
105	25	523.8	6.3	0.4	.273	6.8	.544	13.6	.040	.39	5.047	425	
110	30	523.4	5.9	0.4	.282	7.0	.537	13.4	.037	.36	5.046	425	
115	1335	523.0	5.5	0.4	.299	7.5	.520	13.0	.030	.29	5.046	425	
SUBTOTAL	*****	*****	*****	*****	*****	*****	*****	*****	*****	5.619	*****		
120	1340	522.6	5.1	0.4	.316	7.9	.506	12.7	.025	.24	5.045	425	
125	45	522.1	4.6	0.5	.310	7.7	.514	12.9	.025	.24	5.045	425	
130	50	521.9	4.4	0.2	.256	6.4	.560	14.0	.038	.37	5.043	450	
135	55	521.6	4.1	0.3	.250	6.2	.567	14.2	.042	.41	5.043	450	
140	1400	521.3	3.8	0.3	.208	5.2	.603	15.1	.052	.51	5.042	450	
145	05	521.0	3.5	0.3	.185	4.6	.610	15.3	.094	.93	5.040	450	
150	10	520.9	3.4	0.1	.171	4.3	.620	15.5	.100	.99	5.038	450	
155	15	520.7	3.2	0.2	.158	3.9	.612	15.3	.158	1.57	5.037	450	
160	20	520.5	3.0	0.2	.151	3.8	.614	15.4	.164	1.64	5.036	425	
165	25	520.4	2.9	0.1	.142	3.6	.625	15.6	.157	1.56	5.035	425	
170	30	520.3	2.8	0.1	.138	3.5	.632	15.8	.149	1.48	5.035	400	
175	1435	520.1	2.6	0.2	.145	3.6	.644	16.1	.109	1.08	5.033	425	
SUBTOTAL	*****	*****	*****	*****	*****	*****	*****	*****	*****	5.472	*****		
TOTAL	*****	*****	*****	*****	*****	*****	*****	*****	*****	11.520	*****		

GAS DATA SHEET #12

WEIGHT: 517.5

DATE: 10-28-2005

UNIT: COUNTRY STUDIES

5260

RUN: 2

PAGE: 2 OF 3

UNIT: COUNTRY STAGES			SZ			RUN: L			PAGE: 8			
TIME	SCALE	FUEL	DROP	V.	CO ₂	V.	O ₂	V.	CO	STATIC	SO ₂ PPM	
180	1440	520.0	2.5	0.1	.148	3.7	.643	16.1	.101	1.00	7.032	425
185	45	519.9	2.4	0.1	.156	3.9	.638	15.9	.095	.94	7.032	425
190	50	519.8	2.3	0.1	.170	4.2	.630	15.8	.084	.83	7.032	400
195	55	519.7	2.2	0.1	.180	4.5	.619	15.5	.082	.81	7.030	450
200	1500	519.6	2.1	0.1	.179	4.5	.617	15.5	.086	.85	7.030	425
205	05	519.5	2.0	0.1	.183	4.6	.616	15.4	.078	.77	7.030	425
210	10	519.4	1.9	0.1	.182	4.5	.622	15.6	.075	.74	7.030	450
215	15	519.3	1.8	0.1	.182	4.5	.620	15.5	.079	.78	7.030	450
220	20	519.3	1.8	0.0	.179	4.5	.619	15.5	.081	.80	7.030	450
225	25	519.1	1.6	0.2	.178	4.4	.620	15.5	.088	.87	7.028	425
230	30	519.1	1.6	0.0	.179	4.5	.616	15.4	.088	.87	7.028	425
235	35	519.0	1.5	0.1	.169	4.2	.628	15.7	.088	.87	7.027	450
SUBTOTAL		*****	*****	*****	*****	*****	*****	*****	*****	*****	7.359	*****
240	40	518.9	1.4	0.1	.173	4.3	.624	15.6	.090	.89	7.027	450
245	45	518.8	1.3	0.1	.186	4.6	.608	15.2	.100	.99	7.026	450
250	50	518.7	1.2	0.1	.185	4.6	.608	15.2	.100	.99	7.026	450
255	55	518.7	1.2	0.0	.182	4.5	.609	15.2	.107	1.06	7.025	425
260	1600	518.6	1.1	0.1	.187	4.7	.600	15.0	.108	1.07	7.025	425
265	05	518.5	1.0	0.1	.183	4.6	.596	14.9	.129	1.28	7.025	500
270	10	518.5	1.0	0.0	.189	4.7	.584	14.6	.150	1.49	7.024	575
275	15	518.5	1.0	0.0	.185	4.6	.583	14.6	.162	1.61	7.024	525
280	20	518.4	0.9	0.1	.182	4.5	.584	14.6	.170	1.69	7.023	525
285	25	518.3	0.8	0.1	.186	4.6	.580	14.5	.170	1.69	7.023	550
290	30	518.3	0.8	0.0	.181	4.5	.584	14.6	.169	1.68	7.023	575
295	35	518.2	0.7	0.1	.173	4.3	.592	14.8	.170	1.69	7.022	550
SUBTOTAL		*****	*****	*****	*****	*****	*****	*****	*****	*****	7.293	*****
300	40	518.1	0.6	0.1	.172	4.3	.588	14.7	.178	1.77	7.022	575
305	45	518.1	0.6	0.0	.170	4.2	.593	14.9	.176	1.75	7.022	575
310	50	518.1	0.6	0.0	.166	4.1	.597	14.9	.177	1.76	7.022	600
315	55	518.0	0.5	0.1	.167	4.1	.597	14.9	.177	1.76	7.021	525
320	1700	518.0	0.5	0.0	.164	4.1	.597	14.9	.177	1.76	7.021	575
325	05	518.0	0.5	0.0	.158	3.9	.608	15.2	.169	1.68	7.021	575
330	10	517.9	0.4	0.1	.161	4.0	.614	15.4	.143	1.42	7.020	575
335	15	517.9	0.4	0.0	.154	3.9	.612	15.3	.159	1.58	7.020	575
340	20	517.8	0.3	0.1	.152	3.8	.612	15.3	.170	1.69	7.020	600
345	25	517.7	0.2	0.1	.151	3.8	.613	15.3	.166	1.65	7.020	600
350	30	517.7	0.2	0.0	.147	3.7	.615	15.4	.171	1.70	7.020	600
355	35	517.7	0.2	0.0	.148	3.7	.614	15.4	.174	1.73	7.020	600
SUBTOTAL		*****	*****	*****	*****	*****	*****	*****	*****	*****	7.249	*****
TOTAL		*****	*****	*****	*****	*****	*****	*****	*****	*****	7.901	*****

GAS DATA SHEET #12

WEIGHT: 517.5

DATE: 10-28-2005

UNIT: COUNTRY STOVES

S260

RUN: 2

PAGE: 3 OF 3

[illegible]

1033

PREBURN DATA SHEET #13

UNIT: Country Stoves 5260

RUN: 2

DATE: 10-28-2005 PAGE:

for

[illegible]

5215

Temperature Data Sheet #14

Country S260

Time	Stack	Top	LT Side	Back	Rt Side	Bottom	Firebox	Sec/Cat	Ambient	Tube	Furn	Smpl Box	Smpl Out	C-Gas Box	C-Gas Out	SO2 Out
Chn 103	Chn 104	Chn 105	Chn 106	Chn 107	Chn 108	Chn 109	Chn 110	Chn 111	Chn 112	Chn 113	Chn 114	Chn 115	Chn 116	Chn 117	Chn 118	Chn 119
0	208	201	321	249	271	327	#####	#####	68	1369	224	58	232	30	36	36
5	311	200	316	266	261	320	#####	#####	69	1391	225	40	232	30	36	36
10	204	193	306	276	255	317	#####	#####	69	1415	226	39	233	30	36	36
15	192	187	295	276	247	314	#####	#####	69	1436	229	40	236	33	36	36
20	186	182	283	270	239	310	#####	#####	69	1453	231	40	238	34	36	36
25	183	178	271	263	231	303	#####	#####	69	1469	233	41	240	35	37	37
30	179	174	261	256	223	297	#####	#####	70	1478	235	41	243	36	37	37
35	177	172	250	224	218	289	#####	#####	71	1462	237	41	244	37	38	38
40	195	172	241	204	211	280	#####	#####	71	1445	239	41	245	37	39	39
45	226	179	236	191	206	271	#####	#####	71	1434	239	41	246	38	39	39
50	358	226	233	182	204	264	#####	#####	70	1427	238	42	247	37	38	38
55	321	241	235	176	204	258	#####	#####	70	1423	238	42	246	37	38	38
60	371	274	241	172	205	252	#####	#####	70	1418	239	42	245	37	38	38
65	392	299	248	171	211	247	#####	#####	70	1414	239	42	246	37	38	38
70	392	321	257	173	220	244	#####	#####	72	1411	240	43	246	36	38	38
75	408	339	270	177	226	242	#####	#####	75	1408	241	43	248	36	37	37
80	406	357	283	182	236	239	#####	#####	76	1406	240	43	247	36	37	37
85	422	382	294	186	245	238	#####	#####	77	1405	240	43	247	36	37	37
90	403	391	307	191	255	238	#####	#####	78	1404	240	43	247	35	37	37
95	356	377	319	196	261	237	#####	#####	74	1401	240	44	247	35	37	37
100	325	355	330	200	267	237	#####	#####	75	1397	240	44	248	35	37	37
105	308	337	338	205	272	238	#####	#####	74	1391	240	44	248	35	37	37
110	302	324	344	210	275	240	#####	#####	73	1385	239	44	247	34	37	37
115	304	316	349	214	276	241	#####	#####	73	1380	239	44	247	34	37	37
120	308	311	353	219	278	242	#####	#####	74	1376	239	45	247	34	36	36
125	310	308	359	223	279	244	#####	#####	73	1372	239	45	247	34	36	36
130	295	302	364	228	281	245	#####	#####	72	1370	239	45	247	33	36	36
135	288	294	367	233	282	247	#####	#####	72	1368	239	45	247	33	36	36
140	276	286	369	238	283	249	#####	#####	73	1366	239	45	247	33	36	36
145	263	276	370	242	283	252	#####	#####	73	1364	238	45	246	33	36	36
150	253	266	366	245	281	254	#####	#####	73	1362	238	46	246	33	36	36
155	248	259	362	244	281	257	#####	#####	76	1362	238	46	246	33	36	36
160	241	251	356	244	278	258	#####	#####	74	1365	239	46	245	33	36	36
165	234	245	350	243	275	260	#####	#####	74	1369	238	46	245	33	36	36
170	228	238	343	242	272	262	#####	#####	74	1372	239	46	245	33	36	36

Temperature Data Sheet #14

Country S260

175	221	231	337	241	268	263	#####	#####	72	1374	237	47	245	33	35
180	215	226	331	241	266	265	#####	#####	73	1375	238	48	244	33	35
185	212	222	326	242	262	266	#####	#####	72	1375	238	49	244	33	35
190	212	218	321	244	259	268	#####	#####	73	1372	238	49	244	33	35
195	206	215	317	247	256	270	#####	#####	72	1365	238	49	244	32	35
200	205	213	315	251	254	272	#####	#####	72	1357	238	49	244	32	35
205	202	210	313	255	253	275	#####	#####	71	1348	238	50	244	32	35
210	199	206	310	259	250	277	#####	#####	71	1339	238	50	246	32	35
215	196	204	308	263	249	280	#####	#####	71	1327	237	51	247	32	35
220	195	202	305	266	246	282	#####	#####	71	1318	237	51	247	32	35
225	194	200	303	268	245	285	#####	#####	71	1319	237	51	248	32	35
230	194	199	301	270	243	287	#####	#####	71	1329	237	51	248	32	35
235	193	198	299	273	241	289	#####	#####	70	1340	237	51	248	32	35
240	193	196	296	275	241	292	#####	#####	71	1344	237	52	248	31	35
245	186	194	295	276	239	294	#####	#####	71	1344	237	52	248	31	35
250	184	193	294	278	237	295	#####	#####	70	1343	236	52	248	31	35
255	182	192	293	280	235	297	#####	#####	71	1342	237	52	248	30	35
260	179	190	291	283	234	299	#####	#####	71	1341	237	51	248	30	35
265	172	187	287	283	231	300	#####	#####	70	1340	236	52	248	30	34
270	168	185	287	281	228	301	#####	#####	70	1341	236	52	248	30	34
275	166	183	286	280	226	302	#####	#####	69	1341	236	52	248	29	34
280	164	181	284	278	225	302	#####	#####	70	1341	235	53	247	29	33
285	162	179	282	276	224	303	#####	#####	70	1341	235	53	247	29	33
290	162	177	280	275	220	302	#####	#####	70	1341	235	53	247	28	33
295	159	175	279	273	219	303	#####	#####	70	1341	234	53	246	28	33
300	157	174	277	271	216	302	#####	#####	69	1341	234	53	246	28	32
305	156	172	276	269	215	303	#####	#####	71	1341	234	53	245	28	32
310	155	171	274	268	212	302	#####	#####	70	1342	234	53	245	27	32
315	153	169	272	266	210	301	#####	#####	70	1341	234	55	245	27	31
320	151	167	271	264	208	300	#####	#####	69	1341	234	56	244	27	31
325	148	165	269	262	205	299	#####	#####	69	1342	234	56	244	29	31
330	147	163	267	260	203	298	#####	#####	69	1341	234	56	244	31	31
335	145	161	266	258	201	297	#####	#####	69	1342	234	54	244	32	32
340	145	159	263	256	200	296	#####	#####	69	1343	234	54	243	33	32
345	143	157	261	255	197	296	#####	#####	70	1342	233	54	242	33	33
350	142	156	259	253	196	295	#####	#####	71	1342	233	54	242	34	33
355	142	155	257	252	194	294	#####	#####	71	1342	233	54	242	35	34

Run 2
10/28/05

Temperature Data Sheet #14

Country S260

360	141	153	255	250	193	293	#####	71	1341	233	54	242	35	34
365	140	153	253	249	191	292	#####	71	1340	232	54	241	30	34
370	140	151	250	248	188	291	#####	71	1339	231	53	241	29	34
375	140	151	249	245	186	289	#####	71	1338	231	53	241	32	34

TEMPERATURE DATA SHEET #14A

TEST TIME	375		
STACK AVG	225	TOP AVG	223
		LT SIDE AVG	297
BACK AVG	243	RT SIDE AVG	238
		BOTTOM AVG	278
FIREBOX AVG #####		SEC/CAT AVG #####	
		AMBIENT AVG	71

END	223.9
START	273.6
	-49.7

DELTA T

CIRCLE: LOSS / GAIN

ZERO / SPAN CHECK DATA SHEET #15-1

Date : 10-28-2005

Analyte : CO₂ (15-1)

Unit : Country Stoves 5260

Run # : 2

Zero Cyl. # : 168TAC 3-A

Conc. : 0.00 % CO₂

Cyl. Press. : 1800 PSI

Certified by : AIR LIQUIDE

Date : 04-19-04

Span Cyl. # : CC-3131

Conc. : 12.40 % CO₂

Cyl. Press. : 400 PSI

Certified by : AIR LIQUIDE

Date : 03-13-03

Analyzer : Make : HORIBA

Model : PIR-2000

SN : 407069

Range : 0 - 25.0 % CO₂

Analyzer Output : 0 - 1.0 v.

Flow : 1.5 SCFH

Measured by : Rotameter

EPA Span Value = 25.0 % CO₂

EPA Control Limits = $\pm 2.5\%$ of 25.0 % CO₂ = $\pm 0.625\%$ CO₂

Method 28 A = $\pm .2\%$ of 25.0 % CO₂ = $\pm .05\%$ CO₂

PRE RUN Audit : by C. Wadington Time : 0950 Temp : 80 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	0.0	-.002	-.037	-.037	-.150
SPAN	49.6	49.6	12.40	49.4	49.4	12.324	-.076	-.305

POST RUN Audit : by C. Wadington Time : 1815 Temp : 71 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	0.0	-.001	-.013	-.013	-.050
SPAN	49.6	49.6	12.40	49.4	49.4	12.324	-.076	-.305

± Conc. Difference = Act % - Exp (Std) %

Zero % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

Span % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

ZERO / SPAN CHECK DATA SHEET #15-2

Date : 10-28-2005

Analyte : O₂ (15-2)

Unit : Country Store 5260

Run # : 2

Zero Cyl. # : 168TAC 3A

Conc. : 0.00 % O₂

Cyl. Press. : 1800 PSI

Certified by : AIR LIQUIDE

Date : 04-19-04

Span Cyl. # : CC-3131

Conc. : 12.40 % O₂

Cyl. Press. : 400 PSI

Certified by : AIR LIQUIDE

Date : 03-13-03

Analyzer : Make : TELEDYNE

Model : 320 A

SN : 37400

Range : 0 - 25.0 % O₂

Analyzer Output : 0 - 1.0 v.

Flow : 1.5 SCFH

Measured by : Rotameter

EPA Span Value = 25.0 % O₂

EPA Control Limits = $\pm 2.5\%$ of 25.0 % O₂ = $\pm 0.625\%$ O₂

Method 28 A = $\pm .2\%$ of 25.0 % O₂ = $\pm .05\%$ O₂

PRE RUN Audit : by : GWadington Time : 0950 Temp : 80 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	00.0	.000	.015	.015	.060
SPAN	12.50	.500	12.50	12.5	.500	12.520	.020	.079

POST RUN Audit : by : GWadington Time : 1815 Temp : 77 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	0.00	.002	.065	.065	.260
SPAN	12.50	.500	12.50	12.6	.503	12.595	.095	.379

± Conc. Difference = Act % - Exp (Std) %

Zero % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

Span % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

ZERO / SPAN CHECK DATA SHEET #15-3

Date: 10-28-2005

Analyte: CO (15-3)

Unit: Country Stoves 5260 Run #: 2

Zero Cyl. #: 168TAC 3-A Conc.: 0.00 % CO Cyl. Press.: 1800 PSI

Certified by: AIR LIQUIDE Date: 04-19-04

Span Cyl. #: CC-3131 Conc.: 1240 % CO Cyl. Press.: 400 PSI

Certified by: AIR LIQUIDE Date: 03-13-03

Analyzer: Make: HORIBA

Model: PIR-2000

SN: 408005

Range: 0 - 10.0 % CO

Analyzer Output: 0 - 1.0 v.

Flow: 1.5 SCFH

Measured by: Rotameter

EPA Span Value = 10.0 % CO

EPA Control Limits = $\pm 2.5\%$ of 10.0 % CO = $\pm 0.25\%$ CO

Method 28 A = $\pm .2\%$ of 10.0 % CO = $\pm .02\%$ CO

PRE RUN Audit: by C. Wadlington Time: 0950 Temp: 80 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	0.0	.001	-.020	-.020	-.198
SPAN	50.2	.502	5.02	50.4	.504	5.049	.029	.294

POST RUN Audit: by C. Wadlington Time: 1815 Temp: 71 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	00.0	.000	-.010	-.010	-.098
SPAN	50.2	.502	5.02	50.2	.502	5.029	.009	.093

± Conc. Difference = Act % - Exp (Std) %

Zero % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

Span % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

ZERO / SPAN CHECK DATA SHEET #15-4

Date : 10-28-2005 Analyte : SO₂ (15-4)
 Unit : Country Stores 5260 Run # : 2
 Zero Cyl. # : 168TAC 3-A Conc. : 0.00 ppm SO₂ Cyl. Press. : 1800 PSI
 Certified by : AIR LIQUIDE Date : 04-19-04
 Span Cyl. # : CC62184 Conc. : 1290 ppm SO₂ Cyl. Press. : 690 PSI
 Certified by : AIR LIQUIDE Date : 01-29-01
 Analyzer : Make : HORIBA Model : PIR-2000 SN : 403019
 Range : 0 - 2500 ppm SO₂ Analyzer Output : 0 - 1.0 v.
 Flow : 1.5 SCFH Measured by : Rotameter

EPA Span Value = 2500 ppm SO₂
 EPA Control Limits = $\pm 2.5\%$ of 2500 ppm SO₂ = ± 62.5 ppm SO₂

PRE RUN Audit : by C. Wadlington Time : 0950 Temp : 80 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	PPM	Meter	DVM	%		
ZERO	00.0	.000	00.0	0.0	-.001	-2.474	-2.474	-.099
SPAN	51.6	.516	1290	51.7	.517	1292.3	2.3	.092

POST RUN Audit : by C. Wadlington Time : 1815 Temp : 71 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	PPM	Meter	DVM	%		
ZERO	00.0	.000	00.0	00.0	-.002	-4.974	-4.974	-.199
SPAN	51.6	.516	1290	51.8	.518	1294.8	4.800	.192

± Conc. Difference = Act % - Exp (Std) %
 Zero % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$
 Span % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

QUALITY CHECKS DATA SHEET # 16

UNIT: Country Stoves SZ60 RUN: 2 DATE: 10-28-2005

Thermocouple Check:

T/C # 1	<u>—</u>	°F	T/C # 13	<u>70.7</u>	°F
T/C # 2	<u>—</u>	°F	T/C # 14	<u>67.6</u>	°F
T/C # 3	<u>68.7</u>	°F	T/C # 15	<u>71.6</u>	°F
T/C # 4	<u>66.3</u>	°F	T/C # 16	<u>57.8</u>	°F
T/C # 5	<u>65.6</u>	°F	T/C # 17	<u>55.8</u>	°F
T/C # 6	<u>65.4</u>	°F	T/C # 18	<u>71.3</u>	°F
T/C # 7	<u>64.7</u>	°F	T/C # 19	<u>66.2</u>	°F
T/C # 8	<u>64.8</u>	°F	T/C # 20	<u>—</u>	°F
T/C # 9	<u>—</u>	°F	T/C # 21	<u>—</u>	°F
T/C # 10	<u>—</u>	°F	T/C # 22	<u>—</u>	°F
T/C # 11	<u>61.2</u>	°F	T/C # 23	<u>—</u>	°F
T/C # 12	<u>76.6</u>	°F	T/C # 24	<u>—</u>	°F

Thermocouple Readout:

Pretest zero and span check and calibration	post test zero and span	% difference
ZERO <u>-1.1</u> °F Adj. to <u>0.0</u> °F	ZERO <u>.7</u> °F	Difference <u>.035</u> %
SPAN <u>2003.2</u> °F Adj. to <u>2000.0</u> °F	SPAN <u>2000.2</u> °F	Difference <u>.010</u> %

Thermocouple Readout Pretest Linearity Check:

0	= <u>0.0</u> °F	200	= <u>200.3</u> °F	400	= <u>400.0</u> °F
600	= <u>600.0</u> °F	800	= <u>799.8</u> °F	1000	= <u>999.9</u> °F
1200	= <u>1199.8</u> °F	1400	= <u>1399.6</u> °F	1600	= <u>1599.7</u> °F
1800	= <u>1799.8</u> °F	2000	= <u>2000.0</u> °F		

Sample Train Leak Check

Pre x

Post x

C-gas Train Leak Check

Pre x

Post x

SO₂ Train Leak Check

Pre x

Post x

Static Gauge Zero Check

Pre X

Post x

Scale Check Pre : 527.6 - 517.6 = 10.0

Post : 527.4 - 517.4 = 10.0

Stack Cleaned Prior to Test Run : YES — NO X

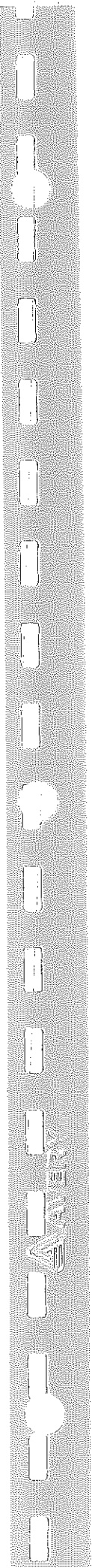


TABLE 1 ----- RAW DATA

CLIENT : Country Stoves

TEST No. : 1

MODEL: S260

DATE: 27-Oct-05

TIME (MIN.)	METER READING (C F)	DELTA H (IN. H2O)	METER TEMP. (DEG. F)	PERCENT CO (%)	PERCENT CO2 (%)	SO2 COCENTR. PPM
=====	=====	=====	=====	=====	=====	=====
0	697.000	0.150	87	0.79	2.60	350
5	698.500	0.200	87	0.33	4.50	300
10	700.320	0.200	87	0.29	1.40	300
15	702.139	0.170	88	0.33	1.30	325
20	703.825	0.150	88	0.37	1.80	350
25	705.391	0.150	88	0.33	4.10	350
30	706.957	0.150	88	0.48	5.20	350
35	708.523	0.170	89	0.32	5.20	325
40	710.215	0.200	89	0.42	8.10	300
45	712.048	0.240	89	0.22	6.70	275
50	714.047	0.230	91	0.34	5.20	275
55	716.061	0.230	93	0.31	7.40	275
60	718.089	0.230	93	0.55	10.80	275
65	720.123	0.280	95	0.11	8.60	250
70	722.375	0.280	95	0.14	8.80	250
75	724.627	0.280	95	0.17	9.20	250
80	726.879	0.280	95	0.20	8.90	250
85	729.132	0.280	96	0.24	8.60	250
90	731.392	0.280	96	0.16	8.00	250
95	733.652	0.280	96	0.14	7.60	250
100	735.913	0.340	97	0.13	8.10	225
105	738.433	0.340	97	0.09	7.90	225
110	740.952	0.340	97	0.13	7.60	225
115	743.472	0.340	97	0.25	6.70	225
120	745.992	0.330	99	0.27	6.30	225
125	748.537	0.270	99	0.52	5.60	250
130	750.828	0.270	99	0.55	5.40	250
135	753.119	0.270	99	0.53	5.40	250
140	755.410	0.270	99	0.59	5.30	250
145	757.702	0.270	100	0.55	5.20	250
150	760.001	0.270	100	0.52	4.70	250
155	762.300	0.270	100	0.50	4.80	250
160	764.600	0.270	100	0.59	4.70	250
165	766.899	0.270	100	0.73	4.70	250
170	769.198	0.270	100	0.81	4.00	250
175	771.498	0.270	100	0.82	4.00	250

180	773.797	0.220	100	0.85	4.10	275
185	775.892	0.220	100	0.83	4.00	275
190	777.987	0.220	100	0.87	4.00	275
195	780.082	0.220	100	0.89	3.90	275
200	782.177	0.220	100	0.95	4.00	275
205	784.272	0.220	100	0.97	3.90	275
210	786.367	0.220	101	0.97	3.90	275
215	788.470	0.220	101	0.91	3.90	275
220	790.572	0.180	101	0.99	3.90	300
225	792.500	0.180	101	1.00	3.90	300
230	794.428	0.160	101	1.00	3.80	325
235	796.207	0.160	101	1.10	3.50	325
240	797.987	0.160	101	1.10	3.30	325
245	799.768	0.160	101	1.10	3.10	325
250	801.548	0.160	101	1.20	3.20	325
255	803.329	0.160	101	1.20	3.00	325
260	805.110	0.160	101	1.00	3.30	325
265	806.891	0.160	101	0.98	3.50	325
270	808.672	0.160	101	0.97	3.50	325
275	810.452	0.100	101	1.10	4.30	400
280	811.900	0.070	101	1.10	4.50	500
285	813.058	0.070	101	1.10	4.60	475
290	814.277	0.090	101	1.10	4.50	425
295	815.639	0.100	101	1.10	4.50	400
300	817.086	0.120	101	1.10	4.20	375
305	818.630	0.120	101	1.10	4.10	375

TABLE 2---RAW DATA

CLIENT : Country Stoves

TEST No. 1

MODEL: S260

DATE: 27-Oct-05

METER CAL. FACTOR (Y) -----	1.008	Wt. WOOD BURNED(LB) -----	16.5	Lbs
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BAROMETRIC PRESS.(Pb) -----	29.66 in Hg	WET,FUEL MOISTURE % -----	19.054	%
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LEAK RATE POST (Lp) -----	0.017 cfm	Wt. PART. COLLECTED -----	0.3297	g
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WATER VOL. (V1c) -----	112.3 MI	METER VOLUME Vm -----	121.63	mcf
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TEST TIME (MIN) -----	305 min	HC MOLE FRACTION -----	0.0132	
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TABLE 3 ----FIELD DATA AVERAGES

CLIENT : Country Stoves

TEST No. 1

MODEL: S260

DATE: 27-Oct-05

AVG DELTA H	-----	0.21 in H2O	AVG PRCNT CO	-----	0.65	%
AVG METER TEMP. Tm	-----	97 deg F	AVG PRCNT CO2	-----	5.08	%
AVG PPM SO2	-----	296 PPM	AVG BAL CO2/CO	-----	7.79	%

TABLE 4 ---- CALCULATIONS

CLIENT : Country Stoves

TEST No. 1

MODEL: S260

DATE: 27-Oct-05

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*****
STD SAMPLE          STACK GAS
VOL. Vm(std) d) ---- 115.24 dscf   FLOW Qsd ---- 609.120 dscf/Hr
                                           &
                                           10.15 dscf/min

VOL. WATER          PARTICULATE
VAPOR Vw(s td) ---- 5.286 scf     CONCTRT. C s ---- 0.0029 g/dscf

  PRCNT             PARTC.EMISS.
MSTR Bws ----      4.39 %         RATE E ---- 1.74 g/Hr

  BURN              MOLES OF GAS
RATE BR ----       1.19 Kg/Hr    PER Lb WOOD Nt ---- 0.60 Lb-mole/Lb

CO EMISSION         PART.EMISS.
RATE ----          132.92 g/Hr    RATE ---- 1.46 g/Kgdry
                    &
                    111.51 g/Kgdry
                    fuel

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TABLE 5 ---- PROPORTIONAL RATE VARIATION

CLIENT : Country Stoves

TEST No. : 1

MODEL: S260

DATE: 27-Oct-05

TIME INTERVAL Ti	PPM * Vm	PROPRTN. RATE VAR. PR	PROPRTN RATE VAR. AVERAGE
=====	=====	=====	=====
5	506.7	94	100
10	527.0	98	
15	526.2	98	
20	527.9	98	
25	528.0	98	
30	528.0	98	
35	527.5	98	
40	528.8	98	
45	528.8	98	
50	527.7	98	
55	529.8	98	
60	532.5	99	
65	533.1	99	
70	535.7	99	
75	535.7	99	
80	535.7	99	
85	535.4	99	
90	536.6	100	
95	536.6	100	
100	536.4	100	
105	537.6	100	
110	537.4	100	
115	537.6	100	
120	536.7	100	
125	541.0	100	
130	541.0	100	
135	541.0	100	
140	541.0	100	
145	540.8	100	
150	541.9	101	
155	541.9	101	
160	542.2	101	
165	541.9	101	
170	541.9	101	
175	542.2	101	
180	541.9	101	

185	543.2	101
190	543.2	101
195	543.2	101
200	543.2	101
205	543.2	101
210	542.7	101
215	544.3	101
220	544.0	101
225	544.3	101
230	544.3	101
235	544.1	101
240	544.4	101
245	544.7	101
250	544.4	101
255	544.7	101
260	544.7	101
265	544.7	101
270	544.7	101
275	544.4	101
280	544.9	101
285	544.7	101
290	544.7	101
295	544.6	101
300	544.6	101
305	544.8	101
310		

COMPUTER INPUT DATA SHEET #1

Client: Country Stoves

Address: 1502 14th Street Northwest

Auburn, WA 98071-0959

Phone: 253-735-1100 Fax: 253-931-1271

Run No.: 1 Date of Test: 10-27-2005 Burn Rate: _____

Model No.: S260 ☐ min ☒ min-1.25 ☐ fan

Stove Type: ☐ Cat ☒ Non Cat ☐ Pellet ☐ 1.25-1.9 ☐ max ☐ insert

Dry Gas Meter Y Factor: 1.008 Post Leak Rate: .017 cfm Time: 305 min.
(0.000) (Data Sheet #2) (0.000) (Data Sheet #2) (000) (Data Sheet #2)

Dry Gas Meter Volume: 121.630 cf
(00.000) (Data Sheet #2)

Stack Flow: 11.605 dscfm Δ H: .215 in. H₂O
(00.000) (Data Sheet #2) (0.000) (Data Sheet #2)

Maximum Vac.: 3.0 Barometric Pressure: 29.66 in. Hg
(0.0) (Data Sheet #2) (00.00) (Data Sheet #2)

H₂O Captured: 112.3 g
(00.0) (Data Sheet #3)

Front Half Catch % Of Total: 33.5 % Total Particulate Catch: .3297 g
(00.0) (Data Sheet #6) (0.0000) (Data Sheet #8)

Flue Gas Moisture: 4.3863 %
(00.000) (Data Sheet #7)

Particulate Emission: .0442 gr/dscf
(0.0000) (Data Sheet #7)

Relative Humidity: 33.5 % RH Ambient Moisture: 1.20 % H₂O
(00.0) (Data Sheet #8) (0.00) (Data Sheet #8)

Preburn Fuel Wt.: 63.1 lbs. Coal Bed Wt.: 4.1 lbs. Test Fuel Wt.: 16.5 lbs.
(00.0) (Data Sheet #8) (00.0) (Data sheet #8) (00.0) (Data sheet #8)

Heat Output (EPA Default): 14371.0 BTU/hr
(00,000.0) (Data Sheet #8)

Kindling Fuel % Moisture (wet): 11.894 % Pretest Fuel % Moisture (wet): 17.596 %
(00.000) (Data Sheet #10) (00.000) (Data Sheet #10)

Test Fuel % Moisture (dry): 23.539 % Test Fuel % Moisture (wet): 19.054 %
(00.000) (Data Sheet #10 [wood stove] or #11 [pellet stove])

Fuel Higher Heating Value (dry): _____ BTU/lb.
(0000) (Data Sheet #11)

Stack Static Pressure: -.035 in. H₂O
(+/- .000) (Data Sheet #12)

Average Ambient Temperature: 81 °F Stove Temperature Change: -7.0 °F
(00) (Data Sheet #14) (+/- 000.0) (Data Sheet #14)

Start 1345
End 1850

Temp 557

375 300 200

METER BOX DATA SHEET PAGE # 2

Page: 1 of 3UNIT: Country Stores SZLO RUN: 1 DATE: 10-27-2005Meter Box: SH Y Factor: 1.008Leak checks: 15 " Hg @ 1010 cfm _____ " Hg @ _____ cfm13
@ 2615 " Hg @ 1017 cfm _____ " Hg @ _____ cfmInject SO₂ @ 100 cc/min.

Nozzle: Probe @ 3/8" od

Initial Volume: 1,500

ROTO PRESS: <u>.18</u>			SAMPLING RATIO: <u>32</u>			: 1			BP: <u>29.81</u>	
MIN	TIME	METER READING	SAMPLE MDCF	STACK DSCFM	DELTA H	METER TEMP	SO2 PPM	ROTO TEMP	PUMP VACC	
0	1345	697.000	—	9.700	.15	87	350	87	1.0	
5	50	698.500	—	11.328	.20	87	300	87	2.0	
10	55	700.320	700.320	11.328	.20	87	300	87	2.0	
15	1400	702.139	702.139	10.437	.17	88	325	88	2.0	
20	05	703.825	703.825	9.692	.15	88	350	88	2.0	
25	10	705.391	705.391	9.692	.15	88	350	88	2.0	
30	15	706.957	706.957	9.692	.15	88	350	88	2.0	
35	20	708.523	708.523	10.418	.17	89	325	89	2.0	
40	25	710.215	710.215	11.287	.20	89	300	89	2.0	
45	30	712.048	712.048	12.313	.24	89	275	89	2.0	
50	35	714.047	714.047	12.268	.23	91	275	91	2.0	
55	40	716.061	716.061	12.224	.23	93	275	93	2.0	
ROTO PRESS: <u>.17</u>			TOTALS:			1064	BP: <u>29.74</u>			
60	1445	718.089	718.089	12.195	.23	93	275	93	2.0	
65	50	720.123	720.123	13.366	.28	95	250	95	3.0	
70	55	722.375	722.375	13.366	.28	95	250	95	3.0	
75	1500	724.627	724.627	13.366	.28	95	250	95	3.0	
80	05	726.879	726.879	13.366	.28	95	250	95	3.0	
85	10	729.132	729.132	13.366	.28	96	250	96	3.0	
90	15	731.392	731.392	13.366	.28	96	250	96	3.0	
95	20	733.652	733.652	13.366	.28	96	250	96	3.0	
100	25	735.913	735.913	14.797	.34	97	225	97	3.0	
105	30	738.433	738.433	14.797	.34	97	225	97	3.0	
110	35	740.952	740.952	14.797	.34	97	225	97	3.0	
115	40	743.472	743.472	14.797	.34	97	225	97	3.0	
			TOTALS:			1149	MAX VACC =			
TOTAL Cu Ft.			TOTALS:			2213	AVG. BP:			

METER BOX DATA SHEET PAGE # 2

Page: 2 of 3

UNIT: Country Stoves S260 RUN: 1 DATE: 10-27-05

Meter Box: SH Y Factor: 1.008

Leak checks: 15 " Hg @ 1010 cfm _____ " Hg @ _____ cfm

15 " Hg @ 1017 cfm _____ " Hg @ _____ cfm

Inject SO₂ @ 100 cc/min.

Nozzle: Probe @ 3/8" od

Initial Volume: 1.500

ROTO PRESS: <u>17</u>			SAMPLING RATIO: <u>32</u> : <u>1</u>				BP: <u>29.66</u>		
MIN	TIME	METER READING	SAMPLE MDCF	STACK DSCFM	DELTA H	METER TEMP	SO2 PPM	ROTO TEMP	PUMP VACC
120	1545	745.992	745.992	14.705	.33	99	225	99	3.0
125	50	748.537	748.537	13.234	.27	99	250	99	3.0
130	55	750.828	750.828	13.234	.27	99	250	99	3.0
135	1600	753.119	753.119	13.234	.27	99	250	99	3.0
140	05	755.410	755.410	13.234	.27	99	250	99	3.0
145	10	757.702	757.702	13.211	.27	100	250	100	3.0
150	15	760.001	760.001	13.211	.27	100	250	100	3.0
155	20	762.300	762.300	13.211	.27	100	250	100	3.0
160	25	764.600	764.600	13.211	.27	100	250	100	3.0
165	30	766.899	766.899	13.211	.27	100	250	100	3.0
170	35	769.198	769.198	13.211	.27	100	250	100	3.0
175	40	771.498	771.498	13.211	.27	100	250	100	3.0
ROTO PRESS: <u>17</u>			TOTALS:	160.118	3.30	1195	BP: <u>29.60</u>		
180	1645	773.797	773.797	11.985	.22	100	275	100	3.0
185	50	775.892	775.892	11.985	.22	100	275	100	3.0
190	55	777.987	777.987	11.985	.22	100	275	100	3.0
195	1700	780.082	780.082	11.985	.22	100	275	100	3.0
200	05	782.177	782.177	11.985	.22	100	275	100	3.0
205	10	784.272	784.272	11.985	.22	100	275	100	3.0
210	15	786.367	786.367	11.964	.22	101	275	101	3.0
215	20	788.470	788.470	11.964	.22	101	275	101	3.0
220	25	790.572	790.572	10.967	.18	101	300	101	3.0
225	30	792.500	792.500	10.967	.18	101	300	101	3.0
230	35	794.428	794.428	10.123	.16	101	325	101	3.0
235	40	796.207	796.207	10.123	.16	101	325	101	3.0
			TOTALS:	138.018	2.44	1206	MAX VACC =		
TOTAL Cu Ft			TOTALS:	298.136	5.74	2401	AVG. BP:		

METER BOX DATA SHEET PAGE # 2

Page: 3 of 3

UNIT: Country Stoves 5260 RUN: 1 DATE: 10-27-05

Meter Box: 54 Y Factor: 1.008

Leak checks: 15 " Hg @ .010 cfm _____ " Hg @ _____ cfm

15 " Hg @ .017 cfm _____ " Hg @ _____ cfm

Inject SO₂ @ 100 cc/min. Nozzle: Probe @ 3/8" od Initial Volume: 1.500

ROTO: PRESS: <u>.17</u>			SAMPLING RATIO: <u>32</u> : <u>1</u>				BP: <u>29.58</u>		
MIN	TIME	METER READING	SAMPLE MDCF	STACK DSCFM	DELTA H	METER TEMP	SO2 PPM	ROTO TEMP	PUMP VACC
240	1745	797.987	797.987	10.117	.16	101	325	101	2.0
245	50	799.768	799.768	10.117	.16	101	325	101	2.0
250	55	801.548	801.548	10.117	.16	101	325	101	2.0
255	1800	803.329	803.329	10.117	.16	101	325	101	2.0
260	05	805.110	805.110	10.117	.16	101	325	101	2.0
265	10	806.891	806.891	10.117	.16	101	325	101	2.0
270	15	808.672	808.672	10.117	.16	101	325	101	2.0
275	20	810.452	810.452	8.220	.10	101	400	101	2.0
280	25	811.900	811.900	6.576	.07	101	500	101	2.0
285	30	813.058	813.058	6.922	.07	101	475	101	2.0
290	35	814.277	814.277	7.736	.09	101	425	101	2.0
295	40	815.639	815.639	8.720	.10	101	400	101	2.0
ROTO PRESS: <u>.17</u>			TOTALS:		108.443	1.55	1212	BP: <u>29.58</u>	
300	1845	817.086	817.086	8.768	.12	101	375	101	2.0
305	50	818.630	818.630	8.768	.12	101	375	101	2.0
310	55								
315	1900			17.536	.24	202			
320	05								
325	10			126.029	1.79	1414			
330									
335									
340									
345									
350									
355						6028			
			TOTALS:		719.499	13.32	MAX VACC = <u>3.0</u>		
TOTAL Cu Ft. <u>121.630</u>			TOTALS:		11.605	.215	97	AVG. BP: <u>29.66</u>	

(537)

PARTICULATE CATCH / MOISTURE DATA SHEET # 3

UNIT : S260 RUN : 1 DATE : 10-27-05

SCALE CHECK	LEVEL	ZEROED
INITIAL :	✓	✓
FINAL :	✓	✓

SCALE	WEIGHT
295.0 g	295.0
590.0 g	590.0
885.0 g	885.0

IMPINGER	# 1	# 2	# 3	# 4
FINAL WT	685.1	585.8	487.5	886.8
INITIAL WT	605.1	579.0	483.7	865.1
NET WT GRAMS	80.0	6.8	3.8	21.7

TOTAL CATCH : 112.3 GRAMS H₂O

FRONT HALF

FILTER #	32F	
FINAL WT g	.7576	
INITIAL WT g	.6723	
NET WT g	.0853	

BEAKER #	201
DESC.	ACETONE
FINAL WT g	104.2975
INITIAL WT g	104.2720
NET WT g	.0255
VOL. DESC. ml	60

BACK HALF

FILTER #	32B	
FINAL WT g	.3587	
INITIAL WT g	.3364	
NET WT g	.0223	

BEAKER #	202	203	204	205	
DESC.	ACETONE	METHCHLOR	H ₂ O	H ₂ O	
FINAL WT g	104.1774	104.9344	106.7126	104.7568	
INITIAL WT g	104.0750	104.9054	106.6740	104.7240	
NET WT g	.1024	.0290	.0386	.0328	(.0714)
VOL. DESC ml	150	75	150	125	(275)

FILTER TARE WEIGHTS DATA SHEET #4-1

Into Dessicator : _____ Date : 9-2-05 Time 1515 By : C. Winding to
 Manufacturer S & S Grade : # 25 Glass Front Size : 11 cm Lot No. : 2B921
 Back Size : 8.2 cm Lot No. : B1044632

	DATE: <u>9-19-05</u>	BY: <u>CP</u>	DATE: <u>9-20-05</u>	BY: <u>CW</u>	DATE: _____	BY: _____
FILTER #	FIRST WEIGHT	TIME	SECOND WEIGHT	TIME	THIRD WEIGHT	TIME
31 F	.6696	0825	.6698 ✓	1820		
32 F	.6721	0826	.6723 ✓	1821		
33 F	.6745	0827	.6747 ✓	1823		
34 F	.6732	0828	.6730 ✓	1824		
35 F	.6584	0830	.6585 ✓	1825		
36 F	.6702	0831	.6704 ✓	1826		
37 F	.6667	0832	.6665 ✓	1828		
38 F	.6696	0833	.6695 ✓	1829		
39 F	.6648	0834	.6646 ✓	1830		
40 F	.6677	0835	.6677 ✓	1831		

31 B	.3401	0836	.3400 ✓	1833		
32 B	.3362	0837	.3364 ✓	1834		
33 B	.3388	0839	.3391 ✓	1835		
34 B	.3390	0840	.3392 ✓	1836		
35 B	.3362	0841	.3364 ✓	1837		
36 B	.3373	0842	.3373 ✓	1839		
37 B	.3408	0842	.3406 ✓	1840		
38 B	.3397	0844	.3398 ✓	1841		
39 B	.3403	0845	.3403 ✓	1842		
40 B	.3405	0846	.3406 ✓	1844		

Checked by: WV Date: 10-2-05 Time: 13:00

BALANCE ROOM ENVIRONMENTAL CONDITIONS

DATE	TIME	BY	WB	DB	% RH
9-19	0810	CP	60	74	44
9-20	1810	CW	64	77	49

BEAKER TARE WEIGHTS DATA SHEET #4-2

Into Dessicator:

Date : 4-11-05

Time : 1338

By: Ch

DATE: 9-13

BY: AW

DATE: 9-14

BY: CW

DATE:

BY:

[illegible]

SCALE ROOM ENVIRONMENTAL CONDITIONS

DATE	TIME	BY	DB	% RH	
9-13	0945	CW	74	47	Checked by: <u>VW</u>
9-14	1400	CW	77	46	Date: 10-2-05
					Time: 13:00

WOODSTOVE DATA SHEET # 4-3 : CONSTANT WEIGHTS

UNIT: 5260

RUN: 1 DATE: 10-27-05

Page: 1 of

Beaker #	Date	Time	By	Weight	Date	Time	By	Weight	Date	Time	By
201	10-28	0740	Cp	104.2977	10-29	1915	Cp	104.2975	10-30	1150	Cp
202	10-28	0740	Cp	104.1779	10-29	1916	Cp	104.1774	10-30	1151	Cp
203	10-28	0740	Cp	104.9346	10-29	1917	Cp	104.9344	10-30	1152	Cp
204	10-28	0740	Cp	106.7128	10-29	1918	Cp	106.7126	10-30	1153	Cp
205	10-28	0740	Cp	104.7567	10-29	1919	Cp	104.7568	10-30	1154	Cp

Filter #	Date	Time	By	Weight	Date	Time	By	Weight	Date	Time	By
32F	10-27	1920	Cp	7576	10-28	10:51	VW	7576	10-29	1910	Cp
32B	10-27	1920	Cp	3591	10-28	10:50	VW	3587	10-29	1911	Cp

SCALE ROOM ENVIRONMENTAL CONDITIONS

Weighing Session	Date	Time	By	DB	%RH
1	10-28	10:50	VW	68	47
2	10-29	1900	Cp	75	44
3	10-30	1145	Cp	72	42
4					
5					

Weighing Session	Date	Time	By	DB	%RH
6					
7					
8					
9					
10					

WOODSTOVE DATA SHEET #4-4

SCALE QA SHEET

Dates: From 07/15/05 Through 10-20-2005	Scale: Sartorius	Model: A 120 S	SN: 37010004
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100 g weight	10 g weight	1 g weight	100 mg weight	Tech	Date	Time	Dry Bulb	% RH
99.9998	9.9999	.9999	.0998	BL	07/15	2000	78	46
99.9997	9.9998	1.0000	.1000	BL	07/19	2250	78	46
100.0000	9.9999	.9999	.0999	BL	07/20	0740	78	46
100.0000	9.9999	1.0000	.1000	BL	07/21	2100	78	46
99.9998	9.9998	.9999	.1000	BL	07/24	2200	78	46
100.0001	10.0000	1.0000	.1000	BL	07/27	1515	78	49
99.9998	10.0000	.9998	.1000	BL	07/28	0600	78	49
99.9999	10.0001	1.0000	.1000	BL	07/29	1210	78	49
100.0000	10.0000	1.0001	.0998	CW	9-6	0930	74	48
100.0000	9.9998	.9998	.0996	CW	9-7	0955	72	47
99.9999	10.0000	1.0001	.1000	CW	9-8	1010	78	43
99.9999	10.0001	.9999	.0999	CW	9-9	0945	75	48
99.9996	9.9999	1.0000	.1000	CW	9-10	1630	75	48
99.9994	9.9999	1.0000	.0999	CW	9-11	1300	75	44
99.9997	10.0000	1.0000	.0998	CW	9-12	0920	74	48
99.9998	10.0001	.9999	.0999	CW	9-13	0945	74	47
99.9996	10.0001	.9999	.0999	CW	9-14	1400	77	46
99.9997	10.0001	1.0001	.0999	CW	9-15	0815	75	48
99.9996	10.0000	1.0000	.1000	CW	9-16	0955	76	49
99.9998	10.0001	.9999	.0998	CW	9-17	1200	76	48
99.9997	9.9998	.9999	.0998	CW	9-18	1430	73	47
100.0004	10.0002	1.0000	.0998	CW	9-19	0810	74	44
100.0000	10.0000	1.0000	.1000	CW	9-20	1910	77	49
100.0000	10.0000	1.0000	.0998	CW	9-21	1620	78	46
100.0000	10.0001	1.0000	.0999	CW	9-22	1420	76	49
100.0004	10.0003	1.0000	.0997	CW	9-23	1300	72	46
99.9998	10.0001	1.0000	.0999	CW	10-1	1830	74	47
100.0000	10.0000	1.0000	.0999	CW	10-2	1830	69	47
100.0001	10.0001	.9998	.0999	CW	10-5	0840	74	47
99.9998	10.0001	1.0000	.0999	CW	10-6	0930	77	47
99.9998	10.0002	.9999	.1000	CW	10-8	1340	75	45
100.0000	10.0002	.9999	.0997	CW	10-10	1330	76	48
99.9999	10.0000	1.0001	.1000	CW	10-11	1020	77	46
99.9998	10.0002	.9999	.1000	CW	10-12	1000	74	44
100.0001	10.0001	1.0000	.0997	CW	10-13	1020	70	48
99.9999	10.0000	1.0001	.0999	CW	10-14	1000	70	48
100.0000	10.0001	.9999	.0999	CW	10-15	1440	72	46
99.9997	9.9999	1.0000	.1000	CW	10-20	1000	77	49

BLANK PROCESSING DATA SHEET # 5

UNIT Country Stoves SZ60 RUN: 1 DATE: 10-27-2005

BLANKS DONE: 10-11-2005

BEAKER	A	B	C
	200 ml ACETONE	75 ml DICHLOR	200 ml WATER
	FISHER OPTIMA LOT # 023283	FISHER OPTIMA LOT # 035941	DWNA, Inc Sparklettes Distilled
FINAL WEIGHT	108.9008	106.3077	106.9670
TARE WEIGHT	108.8995	106.3066	106.9645
NET WEIGHT	.0013	.0011	.0025

TARE BEAKERS INTO DESC: TIME: 1900 DATE: 10-2-2005

DATE: 10-5 BY: Op DATE: 10-6 BY: Op DATE: BY:

BEAKER	1 ST WT	TIME	2 ND WT	TIME	3 RD WT	TIME
A	108.8996	0912	108.8995	1001	✓	
B	106.3065	0913	106.3066	1002	✓	
C	106.9642	0914	106.9645	1003	✓	

FINAL BEAKERS INTO DESC: TIME: 1000 DATE: 10-8-05

DATE: 10-10 BY: Op DATE: 10-11 BY: Op DATE: BY:

BEAKER	1 ST WT	TIME	2 ND WT	TIME	3 RD WT	TIME
A	108.9010	1348	108.9008	1105	✓	
B	106.3076	1349	106.3077	1106	✓	
C	106.9675	1350	106.9670	1109	✓	

TARE QC

DATE	TIME	BY	WB	DB	%
10-5	0840	Op	5	74	44
10-6	0930	Op	5	77	47

FINAL QC

DATE	TIME	BY	WB	DB	%
10-10	1330	Op	5	76	48
10-11	1020	Op	5	77	46

NET PARTICULATE CATCH CALCULATION DATA SHEET #6

UNIT Country Stores S260 RUN: 1 DATE: 10-27-2005

Blank Audit by CWainwright 10-14-2005

BLANK CALCULATIONS

Acetone: $\frac{.0013}{g} \div \frac{200}{ml} = \frac{.000007}{g/ml}$
 Dichloromethane: $\frac{.0011}{g} \div \frac{75}{ml} = \frac{.000015}{g/ml}$
 Distilled Water: $\frac{.0025}{g} \div \frac{200}{ml} = \frac{.000013}{g/ml}$

FRONT HALF CATCH

FILTERS: $\frac{.0853}{\text{Total Catch}} g - \frac{1}{\# \text{ of Filters}} \left(\frac{.0000}{\text{Blank Value / Filter}} g \right) = \frac{.0853}{g}$
 BEAKERS: $\frac{.0255}{\text{Total Catch}} g - \frac{60}{ml \text{ Acetone}} \left(\frac{.000007}{\text{Blank Value / ml Acetone}} g \right) = \frac{.0251}{g}$

TOTAL FRONT HALF CATCH : .1104 g

BACK HALF CATCH

FILTERS: $\frac{.0223}{\text{Total Catch}} g - \frac{1}{\# \text{ of Filters}} \left(\frac{.0000}{\text{Blank Value / Filter}} g \right) = \frac{.0223}{g}$
 BEAKERS:
 Acetone: $\frac{.1024}{\text{Total Catch}} g - \frac{150}{ml \text{ Acetone}} \left(\frac{.000007}{\text{Blank Value / ml Acetone}} g \right) = \frac{.1013}{g}$
 Extract: $\frac{.0290}{\text{Total Catch}} g - \frac{75}{ml \text{ Dichloromethane}} \left(\frac{.000015}{\text{Blank Value / Dichloromethane}} g \right) = \frac{.0279}{g}$
 Water: $\frac{.0714}{\text{Total Catch}} g - \frac{275}{ml \text{ Water}} \left(\frac{.000013}{\text{Blank Value / Water}} g \right) = \frac{.0678}{g}$

TOTAL BACK HALF CATCH : .2193 g

TOTAL CATCH : .3297 g

% FRONT HALF : 33.5 %

CALCULATIONS DATA SHEET # 7

UNIT: Country Stoves 5260 RUN: 1 DATE: 10-27-2005

$$1) Vm (std) = \frac{(121.630 Vm) (17.64) (1.008 mcf) \left(29.66'' Hg + \frac{.215'' H_2O}{13.6} \right)}{(557 TmA)} = \frac{115,2251}{000.0000} dscf$$

$$2) Vw (std) = (.04707) (112.3 ml H_2O) = \frac{5.2860}{00.0000} scf$$

$$3) Asw = \frac{(5.2860 scf)}{(5.2860 scf + 115,2251 dscf)} = \frac{.0439}{.0000} Bws \times 100 = \frac{4.3863}{00.0000} \% H_2O$$

$$4) Cs = \frac{(.3297 g.)}{(115,2251 dscf)} (15.43) = \frac{.0442}{0.0000} gr / dscf$$

$$5) Estimated g / hr = \frac{(.3297 g.)}{(115,2251 dscf)} \left(\frac{11.605}{00.0000} dscfm \right) (60) = \frac{1.9924}{00.0000} g / hr$$

Vm =	total cubic feet pulled on meter box during test	(p. 2)	(000.000 Vm)
mcf =	meter correction factor (Y factor) of meter box used for test	(p. 2)	(0.000 mcf)
"Hg =	average barometric pressure during test	(p. 2)	(00.00 "Hg)
"H ₂ O =	average delta H for test	(p. 2)	(.000 "H ₂ O)
TmA =	average meter temperature for test in degrees Absolute	(p. 2)	(000 TmA)
ml H ₂ O =	total water caught during test	(p. 3)	(000.0 ml H ₂ O)
g =	total particulate catch for test	(p. 6)	(00.0000 g.)
dscfm =	average stack flow during test	(p. 2)	(00.000 dscf)

TEST DATA SHEET # 8

UNIT Country Stoves SZ60 RUN: 1 DATE: 10-27-2005

Test Chamber Air Velocity Start: 0 Stop: 0 Avg.: 0

Wet Bulb / Dry Bulb

Pre: WB: 63 DB: 84 = 29 % RH 1.2 % H₂O

Post: WB: 60 DB: 76 = 38 % RH 1.2 % H₂O

Average: 33.5 % RH 1.2 % H₂O

Empty Stove Weight (lbs): — w/ stack & oil seal: Wet: — Dry: 513.9

Kindling Weight (lbs): Paper: 2 Wood: 6.2

Preburn Fuel Weight: 21.3 + 21.0 + 14.6 Total: 56.9

Kindling & Preburn Fuel Weight (wood only) (lbs): Total: 63.1

Coal Bed Wt Range (lbs): 4.1 - 3.3 Scale: 518.0 - 517.2

Upper: .25 x fuel weight: Always round DOWN to nearest tenth

Lower: .20 x fuel weight: Always round UP to nearest tenth

Actual Coal Bed Weight: 4.1

Maximum Coal Bed Removal (lbs): ((4.1 Upper + 3.3 Lower) ÷ 2) .25 = .9 round down to nearest tenth

Test Fuel

(.75" x 1.5" x 5" spacers) = 20 pcs

Dimensions	Length in inches	No. Pcs	Weight in lbs	% of Load
2" x 4"	<u>16</u>	<u>4</u>	<u>8.9</u>	<u>53.9</u>
4" x 4"	<u>16</u>	<u>2</u>	<u>7.6</u>	<u>46.1</u>

Test Fuel Weight: 16.5 lbs

Estimated Dry Burn Rate:

$$\frac{16.5 - (16.5 \times .19054)}{2.2046} \times \frac{60}{305} = \frac{1.1918}{\text{TIME}} \text{ kg/hr}$$

$$\text{Estimated BTU's/hr: } 19,140 \times \frac{63}{100} \times \frac{1.1918}{\text{DBR}} = 14371.0 \text{ BTU's/hr}$$

EPA Default Efficiencies:

Non-cat: 63

Cat: 72

Pellet: 78

WOOD STOVE OPERATING DATA PAGE #9

Unit: Country Stoves SZ60 Run: 1 Date: 10-27-2005

FIRE STARTED: 0720

WARM UP AND PREBURN:

PRIMARY AIR: Set wide open for all warm-up / preburn fuel charges. Then set to closed at start of preburn.

SECONDARY AIR: N/A CAT BYPASS: N/A

CHARCOAL BED PREPARATION:

Raked and leveled prior to each warm-up / preburn charge. At 1 1/2 min. prior to loading last fuel, raked and leveled. In stove 15 sec.

TEST:

DOOR wide open during loading 0 min. 40 sec.

PRIMARY AIR: Opened full for first 5 min., then set to run setting of closed.

SECONDARY AIR: N/A CAT BYPASS: N/A

FAN:

ON / OFF during warm-up

ON / OFF first 30 minutes of test

Fan speed set at LOW

ON / OFF during preburn

ON / OFF balance of test run

WOOD DATA:

KINDLING: A mix of the grades listed below:

	SIZE	MILL	GRADE	SPECIES
PREBURN:	2x4	Manke/Tacoma	Std. or better	s. grn D fir
TEST:	2x4	Packwood	# 2 or better	s. grn D fir
	4x4	Packwood	# 2 or better	s. grn D fir

PELLET FUEL MANUFACTURER: N/A BRAND: N/A

All Grades WCLB rules:

WARM UP INFORMATION:

All pre-burn / warm up fuel pieces were either 15 or — inches.

1st warm up / pre-burn fuel charge (21.3 lbs.) added at 0745

2nd warm up / pre-burn fuel charge (21.0 lbs.) added at 0845

3rd warm up / pre-burn fuel charge (14.6 lbs.) added at 10:15

4th warm up / pre-burn fuel charge (— lbs.) added at —

5th warm up / pre-burn fuel charge (— lbs.) added at —

TEST DATA SHEET #10

Unit: Country Stoves S260 Run: 1 Date: 10-27-2005

Room Temperature: 71 °F Correction Factor: 0

Uncorrected Values are corrected for room temperature: Yes No ✓

Time Test Fuel moisture reading taken: 1015

Calibration Checks: X ✓ Y ✓ 12.0 12.1 22.0 22.1

pc #	Dimen.	Use	TOP		BOTTOM		SIDE		Average Corrected
			Uncor.	Cor.	Uncor.	Cor.	Uncor.	Cor.	
1	2"x4"x8'	K	12.0	12.8	12.0	12.8	14.0	14.9	13.500
2									
3									
4	2"x4"x8'	P	20.0	21.4	20.5	22.0	20.5	22.0	21.800
5	2"x4"x8'	P	18.0	19.2	18.0	19.2	18.0	19.2	19.200
6	2"x4"x8'	P	18.0	19.2	19.5	20.9	19.5	20.4	20.333
7	2"x4"x8'	P	20.5	22.0	21.0	22.5	21.0	22.5	22.333
8	2"x4"x8'	P	21.5	23.1	21.5	23.1	21.5	23.1	23.100
9									106.766
10									
11	2x4x16	T	21.5	23.1	21.5	23.1	21.0	22.5	22.900
12	"	T	23.0	24.7	23.0	24.7	23.0	24.7	24.700
13	"	T	22.5	24.1	22.5	24.1	22.5	24.1	24.100
14	"	T	23.0	24.7	23.0	24.7	23.0	24.7	24.700
15	4x4x16	T	21.0	22.5	21.0	22.5	20.5	22.0	22.333
16	"	T	21.0	22.5	21.0	22.5	21.0	22.5	22.500
17									141.233
18									
19									
20	Spacers	T	23.0	24.7	23.0	24.7	23.0	24.7	24.700

Key for Use: K = Kindling P = Pretest Fuel T = Test Fuel

	KINDLING	PRETEST FUEL	TEST FUEL
Dry Moisture %:	13.500 %	21.353 %	23.539 %
Wet Moisture %:	11.894 %	17.596 %	19.054 %

To obtain Wet from Dry: $\frac{100 \times \% \text{ Dry Reading}}{100 + \% \text{ Dry Reading}} = \% \text{ Moisture, Wet Basis}$

Acceptable Ranges: 16 - 20 % wet: 19 - 25 % dry (17.5 - 22.5 on Meter Uncor. reading) at 70°

GAS DATA SHEET #12

WEIGHT: _____

DATE: 10 - 27 - 2005

UNIT: Country Stoves SZ60

RUN: /

PAGE: 1 OF 2

TIME	SCALE	FUEL	DROP	V.	CO ₂	V.	O ₂	V.	CO	STATIC	SO:PPM
0 1345	534.5	16.5	—	.106	2.6	.708	17.7	.080	.79	7.026	350
5 50	534.1	16.1	0.4	.179	4.5	.638	15.9	.034	.33	7.036	300
10 55	533.9	15.9	0.2	.055	1.4	.764	19.1	.030	.29	7.027	300
15 1400	533.7	15.7	0.2	.053	1.3	.766	19.2	.034	.33	7.025	325
20 1405	533.5	15.5	0.2	.071	1.8	.744	18.6	.038	.37	7.025	350
25 10	533.1	15.1	0.4	.164	4.1	.654	16.4	.034	.33	7.030	350
30 15	532.6	14.6	0.5	.210	5.2	.604	15.1	.049	.48	7.035	350
35 20	532.1	14.1	0.5	.208	5.2	.610	15.3	.033	.32	7.038	325
40 25	531.3	13.3	0.8	.325	8.1	.490	12.3	.043	.42	7.046	300
45 30	530.6	12.6	0.7	.270	6.7	.554	13.9	.023	.22	7.047	275
50 35	530.0	12.0	.06	.208	5.2	.610	15.3	.035	.34	7.045	275
55 1440	529.4	11.4	0.6	.296	7.4	.523	13.1	.032	.31	7.047	275
SUBTOTAL	*****	*****	*****	*****	*****	*****	*****	*****	*****	7.427	*****
60 45	528.6	10.6	0.8	.432	10.8	.377	9.4	.056	.55	7.052	275
65 50	527.8	9.8	0.8	.346	8.6	.483	12.1	.012	.11	7.052	250
70 55	527.0	9.0	0.8	.355	8.8	.474	11.8	.015	.14	7.052	250
75 1500	526.3	8.3	0.7	.368	9.2	.456	11.4	.018	.17	7.054	250
80 05	525.6	7.6	0.7	.357	8.9	.467	11.7	.021	.20	7.053	250
85 10	524.9	6.9	0.7	.347	8.6	.478	11.9	.025	.24	7.052	250
90 15	524.2	6.3	0.6	.321	8.0	.505	12.6	.017	.16	7.051	250
95 20	523.8	5.8	0.5	.305	7.6	.522	13.0	.015	.14	7.050	250
100 25	523.3	5.3	0.5	.327	8.1	.502	12.6	.014	.13	7.050	225
105 30	522.7	4.7	0.6	.319	7.9	.512	12.8	.010	.09	7.049	225
110 35	522.3	4.3	0.4	.305	7.6	.522	13.1	.014	.13	7.048	225
115 40	521.9	3.9	0.4	.268	6.7	.553	13.8	.026	.25	7.045	225
SUBTOTAL	*****	*****	*****	*****	*****	*****	*****	*****	*****	7.608	*****
120 1545	521.6	3.6	0.3	.254	6.3	.568	14.2	.028	.27	7.043	225
125 50	521.3	3.3	0.3	.227	5.6	.586	14.7	.053	.52	7.042	250
130 55	521.1	3.1	0.2	.215	5.4	.591	14.8	.056	.55	7.040	250
135 1600	520.9	2.9	0.2	.216	5.4	.594	14.8	.054	.53	7.039	250
140 05	520.7	2.7	0.2	.211	5.3	.596	14.9	.060	.59	7.038	250
145 10	520.5	2.5	0.2	.210	5.2	.601	15.0	.056	.55	7.037	250
150 15	520.4	2.4	0.1	.188	4.7	.622	15.6	.053	.52	7.036	250
155 20	520.2	2.2	0.2	.192	4.8	.619	15.5	.051	.50	7.036	250
160 25	520.1	2.1	0.1	.190	4.7	.620	15.5	.060	.59	7.035	250
165 30	520.0	2.0	0.1	.189	4.7	.614	15.4	.074	.73	7.035	250
170 35	519.9	1.9	0.1	.161	4.0	.639	15.9	.082	.81	7.034	250
175 1640	519.8	1.8	0.1	.163	4.0	.638	15.9	.083	.82	7.033	250
SUBTOTAL	*****	*****	*****	*****	*****	*****	*****	*****	*****	7.448	*****
TOTAL	*****	*****	*****	*****	*****	*****	*****	*****	*****	7.483	*****

GAS DATA SHEET #12

WEIGHT: _____

DATE: 10-27-05

UNIT: COUNTRY STOVES

5260

RUN: /

PAGE: 2 OF 2

[illegible]

-6.035

PREBURN DATA SHEET #13

UNIT: Country Staves 5260

RUN:

Abstract

1

DATE: / /

DATE: 10 -27 -

PAGE .

40

40

[illegible]

Temperature Data Sheet #14

Country Stoves

Time	Stack Chn 103	Top Chn 104	LT Side Chn 105	Back Chn 106	Rt Side Chn 107	Bottom Chn 108	Firebox Chn 109	Sec/Cat Chn 110	Ambient Chn 111	Tube Furn Chn 112	Smpl Box Chn 113	Smpl Out Chn 114	C-Gas Box Chn 115	C-Gas Out Chn 116	SO2 Out Chn 117
0	184	186	295	235	263	273	#####	#####	76	1275	240	55	244	34	39
5	277	189	291	255	258	271	#####	#####	76	1274	239	50	244	33	39
10	197	184	284	261	250	270	#####	#####	75	1273	238	49	244	33	39
15	185	180	276	259	241	269	#####	#####	76	1274	238	49	244	33	39
20	183	176	267	254	232	268	#####	#####	75	1275	237	50	245	33	39
25	222	182	260	248	224	266	#####	#####	75	1277	236	51	245	33	39
30	251	190	256	242	217	263	#####	#####	74	1278	236	51	245	34	39
35	285	212	258	216	214	260	#####	#####	75	1279	236	52	246	34	39
40	358	268	263	201	208	257	#####	#####	76	1321	236	52	246	34	38
45	341	281	271	192	206	254	#####	#####	76	1357	236	52	246	34	38
50	325	280	280	187	206	251	#####	#####	76	1386	237	52	247	34	38
55	354	301	290	184	205	248	#####	#####	77	1402	237	52	247	35	38
60	425	344	303	182	204	246	#####	#####	77	1415	237	53	248	35	38
65	408	364	316	181	207	244	#####	#####	77	1419	238	53	247	35	38
70	408	381	328	183	214	242	#####	#####	77	1420	239	53	247	35	38
75	418	397	337	185	224	241	#####	#####	78	1422	239	54	247	35	38
80	409	402	345	188	234	240	#####	#####	78	1423	240	54	247	35	38
85	400	405	352	193	243	240	#####	#####	78	1425	239	55	247	35	38
90	383	403	358	199	251	240	#####	#####	80	1416	239	55	247	35	38
95	367	389	363	206	261	240	#####	#####	79	1402	238	56	247	35	38
100	368	382	370	214	270	241	#####	#####	81	1390	238	45	247	34	38
105	365	376	376	222	277	242	#####	#####	81	1379	238	44	247	34	38
110	355	367	383	232	284	244	#####	#####	81	1370	238	44	247	34	38
115	333	354	388	244	291	245	#####	#####	81	1364	238	44	247	34	38
120	322	342	390	256	296	247	#####	#####	82	1358	238	44	247	34	38
125	307	331	390	269	300	249	#####	#####	83	1354	238	44	247	34	38
130	294	320	388	279	304	252	#####	#####	83	1348	237	45	246	33	38
135	286	310	386	289	306	254	#####	#####	82	1344	237	45	246	33	39
140	280	301	384	299	305	256	#####	#####	84	1342	236	45	245	33	39
145	278	293	381	308	304	259	#####	#####	83	1340	235	45	244	32	39
150	270	286	378	316	303	262	#####	#####	83	1339	235	46	244	32	38
155	265	279	375	320	300	265	#####	#####	85	1336	235	46	243	31	38
160	262	272	372	321	299	267	#####	#####	85	1330	234	46	243	31	37
165	258	265	370	322	299	270	#####	#####	84	1320	234	46	243	31	37
170	249	258	367	322	300	274	#####	#####	85	1306	234	47	242	30	36

Temperature Data Sheet #14

Country Stoves

175	245	252	365	320	298	276	#####	#####	85	1289	234	47	241	30	36
180	242	247	362	317	296	279	#####	#####	86	1274	233	47	241	30	35
185	240	242	359	313	294	280	#####	#####	85	1272	232	48	243	30	35
190	237	238	355	309	294	282	#####	#####	83	1282	232	48	243	30	34
195	235	236	351	306	289	283	#####	#####	85	1302	232	48	244	34	35
200	233	232	347	302	287	283	#####	#####	85	1319	231	48	244	35	36
205	232	229	343	296	285	284	#####	#####	84	1330	230	48	244	37	37
210	231	226	340	291	284	285	#####	#####	86	1331	230	48	244	38	37
215	229	224	336	288	282	285	#####	#####	86	1334	230	48	244	38	37
220	226	221	333	285	280	285	#####	#####	85	1336	230	48	245	38	37
225	227	219	330	283	277	286	#####	#####	86	1337	230	49	245	38	38
230	226	218	327	282	276	287	#####	#####	85	1336	230	49	245	38	38
235	221	216	324	281	273	287	#####	#####	85	1335	230	49	245	38	38
240	214	212	322	279	271	288	#####	#####	85	1332	230	49	245	38	38
245	210	210	319	276	269	288	#####	#####	85	1327	232	49	245	35	38
250	211	207	316	272	271	288	#####	#####	83	1326	233	49	246	33	38
255	205	205	313	269	268	288	#####	#####	82	1324	235	50	247	31	37
260	203	202	309	265	267	287	#####	#####	82	1323	237	50	248	30	36
265	203	200	305	262	263	286	#####	#####	82	1323	238	50	248	30	35
270	202	198	301	259	260	285	#####	#####	82	1321	239	51	248	29	35
275	176	195	299	257	257	284	#####	#####	82	1320	240	51	248	29	34
280	170	192	299	256	254	284	#####	#####	81	1320	242	52	248	29	34
285	167	189	297	255	252	283	#####	#####	82	1320	243	53	248	28	33
290	163	186	295	252	249	283	#####	#####	81	1320	242	53	248	28	33
295	161	182	292	249	243	282	#####	#####	80	1322	243	55	248	28	32
300	159	178	287	246	240	281	#####	#####	77	1323	242	55	248	28	32
305	156	175	283	243	236	280	#####	#####	76	1324	242	57	247	27	32

TEMPERATURE DATA SHEET #14A

TEST TIME	305		
STACK AVG	266	TOP AVG	261
		LT SIDE AVG	329
BACK AVG	258	RT SIDE AVG	263
		BOTTOM AVG	267
FIREBOX AVG #####		SEC/CAT AVG #####	81
		AMBIENT AVG	

END	243.5
START	250.5
	-7.0

DELTA T

CIRCLE: LOSS / GAIN

ZERO / SPAN CHECK DATA SHEET #15-1

Date : 10-27-2005

Analyte : CO₂ (15-1)

Unit : COUNTRY STOVES 5260

Run # : 1

Zero Cyl. # : 168TAC 3-A

Conc. : 0.00 % CO₂

Cyl. Press. : 1800 PSI

Certified by : AIR LIQUIDE

Date : 04-19-04

Span Cyl. # : CC-3131

Conc. : 12.40 % CO₂

Cyl. Press. : 400 PSI

Certified by : AIR LIQUIDE

Date : 03-13-03

Analyzer : Make : HORIBA

Model : PIR-2000

SN : 407069

Range : 0 - 25.0 % CO₂

Analyzer Output : 0 - 1.0 v.

Flow : 1.5 SCFH

Measured by : Rotameter

EPA Span Value = 25.0 % CO₂

EPA Control Limits = $\pm 2.5\%$ of 25.0 % CO₂ = $\pm 0.625\%$ CO₂

Method 28 A = $\pm .2\%$ of 25.0 % CO₂ = $\pm .05\%$ CO₂

PRE RUN Audit : by C. Waddington Time : 1030 Temp : 89 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	0.0	.001	-.013	-.013	-.052
SPAN	49.6	.496	12.40	49.4	.494	12.324	-.076	-.304

POST RUN Audit : by C. Waddington Time : 1910 Temp : 75 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	0.0	.000	.012	.012	.050
SPAN	49.6	.496	12.40	49.6	.496	12.374	-.026	-.105

± Conc. Difference = Act % - Exp (Std) %

Zero % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

Span % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

ZERO / SPAN CHECK DATA SHEET #15-2

Date : 10-27-2005

Analyte : O₂ (15-2)

Unit : Country Store 5260

Run # : 1

Zero Cyl. # : 168TAC 3A

Conc. : 0.00 % O₂

Cyl. Press. : 1800 PSI

Certified by : AIR LIQUIDE

Date : 04-19-04

Span Cyl. # : CC-3131

Conc. : 12.40 % O₂

Cyl. Press. : 400 PSI

Certified by : AIR LIQUIDE

Date : 03-13-03

Analyzer : Make : TELEDYNE

Model : 320 A

SN : 37400

Range : 0 - 25.0 % O₂

Analyzer Output : 0 - 1.0 v.

Flow : 1.5 SCFH

Measured by : Rotameter

EPA Span Value = 25.0 % O₂

EPA Control Limits = $\pm 2.5\%$ of 25.0 % O₂ = ± 0.625 % O₂

Method 28 A = $\pm .2\%$ of 25.0 % O₂ = $\pm .05$ % O₂

PRE RUN Audit : by : G. Waddington Time : 1030 Temp : 89 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	00.0	.000	.015	.015	.060
SPAN	12.50	.500	12.50	12.5	.501	12.545	.045	.179

POST RUN Audit : by : G. Waddington Time : 1910 Temp : 75 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	0.0	.002	.065	.065	.260
SPAN	12.50	.500	12.50	12.6	.502	12.570	.070	.279

± Conc. Difference = Act % - Exp (Std) %

Zero % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

Span % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

ZERO / SPAN CHECK DATA SHEET #15-3

Date: 10-27-2005

Analyte: CO (15-3)

Unit: Country Stores 5260

Run #: 1

Zero Cyl. #: 468TAC 3-A

Conc.: 0.00 % CO

Cyl. Press.: 1800 PSI

Certified by: AIR LIQUIDE

Date: 04-19-04

Span Cyl. #: CC-3131

Conc.: 12.40 % CO

Cyl. Press.: 400 PSI

Certified by: AIR LIQUIDE

Date: 03-13-03

Analyzer: Make: HORIBA

Model: PIR-2000

SN: 408005

Range: 0 - 10.0 % CO

Analyzer Output: 0 - 1.0 v.

Flow: 1.5 SCFH

Measured by: Rotameter

EPA Span Value = 10.0 % CO

EPA Control Limits = $\pm 2.5\%$ of 10.0 % CO = ± 0.25 % CO

Method 28 A = $\pm .2\%$ of 10.0 % CO = $\pm .02$ % CO

PRE RUN Audit: by C. Wadlington Time: 1030 Temp: 89 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	0.0	.000	- .010	- .010	- .098
SPAN	50.2	.502	5.02	50.3	.503	5.039	.019	.190

POST RUN Audit: by C. Wadlington Time: 1910 Temp: 75 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	0.1	.001	0.0002	.0002	.002
SPAN	50.2	.502	5.02	50.4	.504	5.049	.029	.294

± Conc. Difference = Act % - Exp (Std) %

Zero % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

Span % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

ZERO / SPAN CHECK DATA SHEET #15-4

Date : 10-27-2005

Analyte : SO₂ (15-4)

Unit : Country Stoves 5260 Run # : 1

Zero Cyl. # : 168TAC 3-A Conc. : 0.00 ppm SO₂ Cyl. Press. : 1800 PSI

Certified by : AIR LIQUIDE Date : 04-19-04

Span Cyl. # : CC62184 Conc. : 1290 ppm SO₂ Cyl. Press. : 690 PSI

Certified by : AIR LIQUIDE Date : 01-29-01

Analyzer : Make : HORIBA Model : PIR-2000 SN : 403019

Range : 0 - 2500 ppm SO₂ Analyzer Output : 0 - 1.0 v.

Flow : 1.5 SCFH Measured by : Rotameter

EPA Span Value = 2500 ppm SO₂
EPA Control Limits = $\pm 2.5\%$ of 2500 ppm SO₂ = ± 62.5 ppm SO₂

PRE RUN Audit : by C. Wadington Time : 1030 Temp : 89 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	PPM	Meter	DVM	%		
ZERO	00.0	.000	00.0	0.2	.002	5.024	5.024	.201
SPAN	51.6	.516	1290	51.5	.515	1287.3	-2.700	-.108

POST RUN Audit : by C. Wadington Time : 1910 Temp : 75 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	PPM	Meter	DVM	%		
ZERO	00.0	.000	00.0	0.0	.000	.025	.025	.001
SPAN	51.6	.516	1290	51.8	.518	1294.8	4.807	.192

± Conc. Difference = Act % - Exp (Std) %

Zero % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

Span % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

QUALITY CHECKS DATA SHEET # 16

UNIT Country Stoves SZ60 RUN: 1 DATE: 10-27-2005

Thermocouple Check:

T/C # 1	<u> </u>	°F	T/C # 13	<u>59.8</u>	°F
T/C # 2	<u> </u>	°F	T/C # 14	<u>59.6</u>	°F
T/C # 3	<u>59.3</u>	°F	T/C # 15	<u>60.6</u>	°F
T/C # 4	<u>59.0</u>	°F	T/C # 16	<u>53.2</u>	°F
T/C # 5	<u>62.2</u>	°F	T/C # 17	<u>54.0</u>	°F
T/C # 6	<u>59.3</u>	°F	T/C # 18	<u>59.0</u>	°F
T/C # 7	<u>58.6</u>	°F	T/C # 19	<u>57.8</u>	°F
T/C # 8	<u>61.5</u>	°F	T/C # 20	<u> </u>	°F
T/C # 9	<u> </u>	°F	T/C # 21	<u> </u>	°F
T/C # 10	<u> </u>	°F	T/C # 22	<u> </u>	°F
T/C # 11	<u>52.4</u>	°F	T/C # 23	<u> </u>	°F
T/C # 12	<u>62.4</u>	°F	T/C # 24	<u> </u>	°F

Thermocouple Readout:

Pretest zero and span check and calibration

post test zero and span

% difference

ZERO .7 °F Adj. to 0.0 °F ZERO .2 °F Difference .010 %

SPAN 1997.4 °F Adj. to 2000.0 °F SPAN 2000.7 °F Difference .035 %

Thermocouple Readout Pretest Linearity Check:

0	=	<u>0.0</u>	°F	200	=	<u>200.0</u>	°F	400	=	<u>399.8</u>	°F
600	=	<u>599.7</u>	°F	800	=	<u>799.6</u>	°F	1000	=	<u>999.8</u>	°F
1200	=	<u>1199.8</u>	°F	1400	=	<u>1399.4</u>	°F	1600	=	<u>1599.5</u>	°F
1800	=	<u>1799.8</u>	°F	2000	=	<u>2000.0</u>	°F				

Sample Train Leak Check

Pre X

Post X

C-gas Train Leak Check

Pre X

Post X

SO₂ Train Leak Check

Pre X

Post X

Static Gauge Zero Check

Pre X

Post X

Scale Check Pre: 528.2 - 518.2 = 10.0

Post: 527.9 - 517.9 = 10.0

Stack Cleaned Prior to Test Run: YES X NO

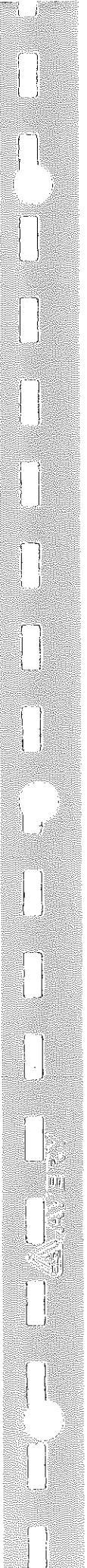


TABLE 1 ---- RAW DATA

CLIENT : Country

TEST No. : 4

MODEL: S260

DATE: 01-Nov-05

TIME (MIN.)	METER READING (C F)	DELTA H (IN. H2O)	METER TEMP. (DEG. F)	PERCENT CO (%)	PERCENT CO2 (%)	SO2 COCENTR. PPM
=====	=====	=====	=====	=====	=====	=====
0	0.000	0.150	98	0.55	2.90	300
5	1.500	0.210	98	0.35	3.60	250
10	3.416	0.150	98	0.31	2.30	300
15	5.014	0.180	98	0.17	9.70	275
20	6.756	0.210	98	0.15	8.70	250
25	8.672	0.260	98	0.15	8.60	225
30	10.801	0.260	98	0.11	9.40	225
35	12.929	0.180	98	0.09	10.50	275
40	14.671	0.180	98	0.13	10.80	275
45	16.414	0.150	98	0.17	11.20	300
50	18.011	0.180	98	0.11	11.00	275
55	19.753	0.150	98	0.20	11.00	300
60	21.351	0.180	98	0.08	9.40	275
65	23.092	0.180	98	0.06	9.10	275
70	24.833	0.180	98	0.07	8.40	275
75	26.574	0.180	98	0.10	7.90	275
80	28.315	0.180	98	0.29	6.50	275
85	30.056	0.180	98	0.47	5.80	275
90	31.797	0.180	98	0.47	5.80	275
95	33.538	0.180	98	0.46	5.70	275
100	35.279	0.150	98	0.74	4.60	300
105	36.876	0.150	98	0.66	4.60	300
110	38.472	0.150	98	0.62	5.00	300
115	40.068	0.180	98	0.54	4.90	275
120	41.809	0.180	99	0.59	4.80	275
125	43.553	0.150	99	0.81	4.10	300
130	45.152	0.150	99	0.81	4.00	300
135	46.750	0.150	99	0.80	4.10	300
140	48.349	0.150	99	0.74	4.00	300
145	49.948	0.150	99	0.74	4.10	300
150	51.547	0.150	99	0.69	3.90	300
155	53.145	0.150	99	0.71	3.80	300
160	54.744	0.150	99	0.73	3.80	300
165	56.343	0.180	99	0.69	4.00	275
170	58.087	0.180	99	0.67	4.00	275
175	59.830	0.180	99	0.65	4.10	275

180	61.574	0.180	99	0.69	4.00	275
185	63.316	0.180	99	0.69	3.90	275
190	65.057	0.180	99	0.64	3.70	275
195	66.799	0.180	99	0.67	3.80	275
200	68.540	0.150	99	0.69	3.80	300
205	70.137	0.150	99	0.65	3.70	300
210	71.733	0.180	99	0.73	3.70	275
215	73.475	0.180	99	0.73	3.50	275
220	75.216	0.180	99	0.76	3.40	275
225						

TABLE 2---RAW DATA

CLIENT : Country

TEST No.

4

MODEL: S260

DATE:

01-Nov-05

METER CAL. FACTOR (Y) -----	1.008	Wt. WOOD BURNED(LB) -----	16.6	Lbs
--------------------------------	-------	------------------------------	------	-----

BAROMETRIC PRESS.(Pb) -----	29.76 in Hg	WET,FUEL MOISTURE % -----	18.597	%
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LEAK RATE POST (Lp) -----	0.003 cfm	Wt. PART. COLLECTED -----	0.1743	g
------------------------------	-----------	------------------------------	--------	---

WATER VOL. (V1c) -----	74.5 MI	METER VOLUME Vm -----	75.216	mcf
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TEST TIME (MIN) -----	220 min	HC MOLE FRACTION -----	0.0132	
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TABLE 3 -----FIELD DATA AVERAGES

CLIENT : Country

TEST No. 4

MODEL: S260

DATE: 01-Nov-05

AVG DELTA H	-----	0.17 in H2O	AVG PRCNT CO	-----	0.49	%
AVG METER TEMP. Tm	-----	98 deg F	AVG PRCNT CO2	-----	5.77	%
AVG PPM SO2	-----	281 PPM	AVG BAL CO2/CO	-----	11.84	%

TABLE 4 ---- CALCULATIONS

CLIENT : Country

TEST No. 4

MODEL: S260

DATE: 01-Nov-05

STD SAMPLE			STACK GAS		
VOL. Vm(std) d) -----	71.34 dscf		FLOW Qsd -----	794.950	dscf/Hr
				13.25	& dscf/min
VOL. WATER			PARTICULATE		
VAPOR Vw(s td) -----	3.507 scf		CONCTRT. C s -----	0.0024	g/dscf
PRCNT			PARTC.EMISS.		
MSTR Bws -----	4.69 %		RATE E -----	1.94	g/Hr
BURN			MOLES OF GAS		
RATE BR -----	1.67 Kg/Hr		PER Lb WOOD Nt ----	0.56	Lb-mole/Lb
CO EMISSION			PART.EMISS.		
RATE -----	129.73 g/Hr		RATE -----	1.16	g/Kgdry
	&				fuel
	77.59 g/Kgdry				
	fuel				

TABLE 5 ---- PROPORTIONAL RATE VARIATION

CLIENT : Country

TEST No. : 4

MODEL: S260

DATE: 01-Nov-05

TIME INTEVAL Ti	PPM * Vm	PROPRTN. RATE VAR. PR	PROPRTN RATE VAR. AVERAGE
=====	=====	=====	=====
5	427.1	94	100
10	454.7	100	
15	455.1	100	
20	454.8	100	
25	454.7	100	
30	454.8	100	
35	454.6	100	
40	454.8	100	
45	455.0	100	
50	454.8	100	
55	454.8	100	
60	455.1	100	
65	454.5	100	
70	454.5	100	
75	454.5	100	
80	454.5	100	
85	454.5	100	
90	454.5	100	
95	454.5	100	
100	454.5	100	
105	454.8	100	
110	454.5	100	
115	454.5	100	
120	454.1	100	
125	454.5	100	
130	454.5	100	
135	454.2	100	
140	454.5	100	
145	454.5	100	
150	454.5	100	
155	454.2	100	
160	454.5	100	
165	454.5	100	
170	454.5	100	
175	454.2	100	
180	454.5	100	

185	453.9	100
190	453.7	100
195	453.9	100
200	453.7	100
205	454.0	100
210	453.7	100
215	453.9	100
220	453.7	100

COMPUTER INPUT DATA SHEET #1

Client: Country Stoves
 Address: 1502 14th Street Northwest
Auburn, WA 98071-0959
 Phone: 253-735-1100 Fax: 253-931-1271
 Run No.: 4 Date of Test: 11-1-2005 Burn Rate: 1.672
 Model No.: S260 ☐ min ☐ min-1.25 ☐ fan
 Stove Type: ☐ Cat ☒ Non Cat ☐ Pellet ☒ 1.25-1.9 ☐ max ☐ insert
 Dry Gas Meter Y Factor: 1.008 Post Leak Rate: .003 cfm Time: 220 min.
 (0.000) (Data Sheet #2) (0.000) (Data Sheet #2) (000) (Data Sheet #2)
 Dry Gas Meter Volume: 75.216 cf
 (00.000) (Data Sheet #2)
 Stack Flow: 11.872 dscfm Δ H: .174 in. H₂O
 (00.000) (Data Sheet #2) (0.000) (Data Sheet #2)
 Maximum Vac.: 2.0 Barometric Pressure: 29.76 in. Hg
 (0.0) (Data Sheet #2) (00.00) (Data Sheet #2)
 H₂O Captured: 74.5 g
 (00.0) (Data Sheet #3)
 Front Half Catch % Of Total: 41.1 % Total Particulate Catch: .1743 g
 (00.0) (Data Sheet #6) (0.0000) (Data Sheet #6)
 Flue Gas Moisture: 4.6839 %
 (00.000) (Data Sheet #7)
 Particulate Emission: .0377 gr/dscf
 (0.0000) (Data Sheet #7)
 Relative Humidity: 34 % RH Ambient Moisture: 1.4 % H₂O
 (00.0) (Data Sheet #8) (0.00) (Data Sheet #8)
 Preburn Fuel Wt.: 46.5 lbs. Coal Bed Wt.: 4.0 lbs. Test Fuel Wt.: 16.6 lbs.
 (00.0) (Data Sheet #8) (00.0) (Data sheet #8) (00.0) (Data sheet #8)
 Heat Output (EPA Default): 20161.31 BTU/hr
 (00,000.0) (Data Sheet #8)
 Kindling Fuel % Moisture (wet): 12.562 % Pretest Fuel % Moisture (wet): 17.668 %
 (00.000) (Data Sheet #10) (00.000) (Data Sheet #10)
 Test Fuel % Moisture (dry): 22.845 % Test Fuel % Moisture (wet): 18.597 %
 (00.000) (Data Sheet #10 [wood stove] or #11 [pellet stove])
 Fuel Higher Heating Value (dry): _____ BTU/lb.
 (0000) (Data Sheet #11)
 Stack Static Pressure: -0.041 in. H₂O
 (+/- .000) (Data Sheet #12)
 Average Ambient Temperature: 81 °F Stove Temperature Change: -75.1 °F
 (00) (Data Sheet #14) (+/- 000.0) (Data Sheet #14)

Start - 1220
 End - 1600

Temp (558) 6.129

METER BOX DATA SHEET PAGE # 2

Page: 1 of 2

UNIT: Country Stores SZLO RUN: 4

DATE: 11-1-2005

Meter Box: SH Y Factor: 1.008

Leak checks: 15 " Hg @ .001 cfm _____ " Hg @ _____ cfm

15 " Hg @ .003 cfm _____ " Hg @ _____ cfm

Inject SO₂ @ 100 cc/min.

Nozzle: Probe @ 3/8" od

Initial Volume: 1,500

ROTO: PRESS: <u>.17</u>			SAMPLING RATIO: <u>36</u> : <u>1</u>				BP: <u>29.70</u>		
MIN	TIME	METER READING	SAMPLE MDCF	STACK DSCFM	DELTA H	METER TEMP	SO2 PPM	ROTO TEMP	PUMP VACC
0	1220	00.000	—	11.063	.15	98	300	98	1.0
5	25	1.500	—	13.276	.21	98	250	98	2.0
10	30	3.416	3.416	11.063	.15	98	300	98	2.0
15	35	5.014	5.014	12.069	.18	98	275	98	2.0
20	40	6.756	6.756	13.276	.21	98	250	98	2.0
25	45	8.672	8.672	14.751	.26	98	225	98	2.0
30	50	10.801	10.801	14.751	.26	98	225	98	2.0
35	55	12.929	12.929	12.069	.18	98	275	98	2.0
40	1300	14.671	14.671	12.069	.18	98	275	98	2.0
45	05	16.414	16.414	11.063	.15	98	300	98	2.0
50	10	18.011	18.011	12.069	.18	98	275	98	2.0
55	15	19.753	19.753	11.063	.15	98	300	98	2.0
ROTO PRESS: <u>.17</u>			TOTALS:	148.582	2.26	1176	BP: <u>29.72</u>		
60	1320	21.351	21.351	12.077	.18	98	275	98	2.0
65	25	23.092	23.092	12.077	.18	98	275	98	2.0
70	30	24.833	24.833	12.077	.18	98	275	98	2.0
75	35	26.574	26.574	12.077	.18	98	275	98	2.0
80	40	28.315	28.315	12.077	.18	98	275	98	2.0
85	45	30.056	30.056	12.077	.18	98	275	98	2.0
90	50	31.797	31.797	12.077	.18	98	275	98	2.0
95	55	33.538	33.538	12.077	.18	98	275	98	2.0
100	1400	35.279	35.279	11.071	.15	98	300	98	2.0
105	05	36.876	36.876	11.071	.15	98	300	98	2.0
110	10	38.472	38.472	11.071	.15	98	300	98	2.0
115	15	40.068	40.068	12.077	.18	98	275	98	2.0
			TOTALS:	141.906	2.07	1176	MAX VACC =		
TOTAL Cu Ft.			TOTALS:	290.488	4.33	2352	AVG. BP:		

METER BOX DATA SHEET PAGE # 2

Page: 2 of 2

UNIT: Country Stores SZ60 RUN: 4 DATE: 11-1-2005

Meter Box: 5H Y Factor: 1.008

Leak checks: 15 " Hg @ .001 cfm _____ " Hg @ _____ cfm

15 " Hg @ .003 cfm _____ " Hg @ _____ cfm

Inject SO₂ @ 100 cc/min.

Nozzle: Probe @ 3/8" od

Initial Volume: 1.500

ROTO PRESS: <u>.17</u>			SAMPLING RATIO: <u>36</u>			: 1			BP: <u>29.78</u>		
MIN	TIME	METER READING	SAMPLE MDCF	STACK DSCFM	DELTA H	METER TEMP	SO ₂ PPM	ROTO TEMP	PUMP VACC		
120	1420	41.809	41.809	12.080	.18	99	275	99	2.0		
125	25	43.553	43.553	11.073	.15	99	300	99	2.0		
130	30	45.152	45.152	11.073	.15	99	300	99	2.0		
135	35	46.750	46.750	11.073	.15	99	300	99	2.0		
140	40	48.349	48.349	11.073	.15	99	300	99	2.0		
145	45	49.948	49.948	11.073	.15	99	300	99	2.0		
150	50	51.547	51.547	11.073	.15	99	300	99	2.0		
155	55	53.145	53.145	11.073	.15	99	300	99	2.0		
160	1500	54.744	54.744	11.073	.15	99	300	99	2.0		
165	05	56.343	56.343	12.080	.18	99	275	99	2.0		
170	10	58.087	58.087	12.080	.18	99	275	99	2.0		
175	15	59.830	59.830	12.080	.18	99	275	99	2.0		
ROTO PRESS: <u>.17</u>			TOTALS:			136.904	1.92	1188	BP: <u>29.82</u>		
180	1520	61.574	61.574	12.096	.18	99	275	99	2.0		
185	25	63.316	63.316	12.096	.18	99	275	99	2.0		
190	30	65.057	65.057	12.096	.18	99	275	99	2.0		
195	35	66.799	66.799	12.096	.18	99	275	99	2.0		
200	40	68.540	68.540	11.088	.15	99	300	99	2.0		
205	45	70.137	70.137	11.088	.15	99	300	99	2.0		
210	50	71.733	71.733	12.096	.18	99	275	99	2.0		
215	55	73.475	73.475	12.096	.18	99	275	99	2.0		
220	1600	75.216	75.216	12.096	.18	99	275	99	2.0		
225	05			106.848	1.54	891					
230	10			243.752	3.48	2079					
235						4431					
			TOTALS:			534.240	7.81	98	MAX VACC = <u>2.0</u>		
TOTAL Cu Fl. <u>75.216</u>			TOTALS:			11.872	6.174	558	AVG. BP: <u>29.76</u>		

295

÷45

PARTICULATE CATCH / MOISTURE DATA SHEET # 3

UNIT: 5260 RUN: 4 DATE: 11-1-05

SCALE CHECK	LEVEL	ZEROED
INITIAL :	✓	✓
FINAL :	✓	✓

SCALE	WEIGHT
295.0 g	295.0
590.0 g	590.0
885.0 g	885.0

IMPINGER	# 1	# 2	# 3	# 4
FINAL WT	665.8	576.3	486.8	918.0
INITIAL WT	604.1	574.3	484.0	910.0
NET WT GRAMS	61.7	2.0	2.8	8.0

TOTAL CATCH: 74.5 GRAMS H₂O

FRONT HALF

FILTER #	35F	
FINAL WT g	.7148	
INITIAL WT g	.6585	
NET WT g	.10563	

BEAKER #	11
DESC.	ACETONE
FINAL WT g	104.8046
INITIAL WT g	104.7886
NET WT g	.0160
VOL. DESC. ml	90

BACK HALF

FILTER #	35B	
FINAL WT g	.3464	
INITIAL WT g	.3364	
NET WT g	.0100	

BEAKER #	12	13	14	15	
DESC.	ACETONE	METHCHLOR	H ₂ O	H ₂ O	
FINAL WT g	98.2810	104.1888	97.9968	104.7833	
INITIAL WT g	98.2303	104.1751	97.9823	104.7642	
NET WT g	.0507	.0137	.0145	.0191	(.0336)
VOL. DESC ml	130	75	125	135	(260)

FILTER TARE WEIGHTS DATA SHEET #4-1

Into Dessicator : _____ Date: 9-2-05 Time: 1515 By: C. Winding
 Manufacturer S & S Grade: # 25 Glass Front Size: 11 cm Lot No.: 2B921
 Back Size: 8.2 cm Lot No.: B1044632

	DATE: <u>9-19-05</u>	BY: <u>CP</u>	DATE: <u>9-20-05</u>	BY: <u>CW</u>	DATE: _____	BY: _____
FILTER #	FIRST WEIGHT	TIME	SECOND WEIGHT	TIME	THIRD WEIGHT	TIME
31 F	.6696	0825	.6698 ✓	1820		
32 F	.6721	0826	.6723 ✓	1821		
33 F	.6745	0827	.6747 ✓	1823		
34 F	.6732	0828	.6730 ✓	1824		
35 F	.6584	0830	.6585 ✓	1825		
36 F	.6702	0831	.6704 ✓	1826		
37 F	.6667	0832	.6665 ✓	1828		
38 F	.6696	0833	.6695 ✓	1829		
39 F	.6648	0834	.6646 ✓	1830		
40 F	.6677	0835	.6677 ✓	1831		

31 B	.3401	0836	.3400 ✓	1833		
32 B	.3362	0837	.3364 ✓	1834		
33 B	.3388	0839	.3391 ✓	1835		
34 B	.3390	0840	.3392 ✓	1836		
35 B	.3362	0841	.3364 ✓	1837		
36 B	.3373	0842	.3373 ✓	1839		
37 B	.3408	0842	.3406 ✓	1840		
38 B	.3397	0844	.3398 ✓	1841		
39 B	.3403	0845	.3403 ✓	1842		
40 B	.3405	0846	.3406 ✓	1844		

Checked by: ky Date: 10-2-05 Time: 13:00

BALANCE ROOM ENVIRONMENTAL CONDITIONS

DATE	TIME	BY	WB	DB	% RH
9-19	0810	CP	60	74	44
9-20	1810	CW	64	77	49

BEAKER TARE WEIGHTS DATA SHEET #4-2

Into Dessicator: _____ Date: 9-8-05 Time: 1040 By: C. Waddington

BEAKER #	FIRST WEIGHT	TIME	SECOND WEIGHT	TIME	THIRD WEIGHT	TIME
1	104.9161	1306	104.9157	0922	✓	
2	106.2544	1307	106.2539	0923	✓	
3	107.7780	1308	107.7775	0924	✓	
4	108.7746	1309	108.7741	0925	✓	
5	97.4364	1310	97.4360	0926	✓	
6	41.2072	1312	97.2068	0927	✓	
7	97.1381	1313	97.1385	0928	✓	
8	108.6359	1314	108.6360	0929	✓	
9	108.0948	1315	108.0951	0930	✓	
10	105.7286	1315	105.7282	0931	✓	
11	104.7888	1317	104.7886	0932	✓	
12	98.2302	1318	98.2303	0933	✓	
13	104.1750	1319	104.1751	0934	✓	
14	97.9819	1320	97.9823	0936	✓	
15	104.7647	1321	104.7642	0937	✓	
16	95.7433	1322	95.7437	0938	✓	
17	104.5952	1323	104.5947	0939	✓	
18	108.8614	1324	108.8609	0940	✓	
19	106.5451	1325	106.5450	0942	✓	
20	108.5931	1326	108.5932	0943	✓	
21	108.2347	1328	108.2343	0944	✓	
22	105.9324	1330	105.9320	0945	✓	
23	104.5885	1332	104.5882	0946	✓	
24	106.4073	1333	106.4078	0948	✓	
25	99.6727	1334	99.6731	0949	✓	

SCALE ROOM ENVIRONMENTAL CONDITIONS

DATE	TIME	BY	DB	% RH	
9-11	1300	CLJ	75	44	Checked by: <u>KL</u>
9-12	0920	CLJ	74	48	Date: <u>9-13-05</u>
					Time: <u>12:55 pm</u>

WOODSTOVE DATA SHEET #4.3 : CONSTANT WEIGHTS

UNIT: 5260

RUN: 4

DATE: 11-1-05

Page: 1 of 1

Beaker #	Date	Time	By	Weight	Date	Time	By	Weight	Date	Time	By
11	11-2	0900	CP	104.8070	11-3	1443	KV	104.8051	11-4	1115	KV
12	11-2	0900	CP	98.2836	11-3	1444	KV	98.2815	11-4	1116	KV
13	11-2	0900	CP	104.1916	11-3	1445	KV	104.1891	11-4	1117	KV
14	11-2	0900	CP	97.9981	11-3	1446	KV	97.9973	11-4	1118	KV
15	11-2	0900	CP	104.7849	11-3	1448	KV	104.7832	11-4	1120	KV

Filter #	Date	Time	By	Weight	Date	Time	By	Weight	Date	Time	By
35F	11-1	1700	CP	.7150	11-2	0943	KV	.7148	11-3	1438	KV
35B	11-1	1700	CP	.3466	11-2	0942	KV	.3464	11-3	1440	KV

SCALE ROOM ENVIRONMENTAL CONDITIONS

Weighing Session	Date	Time	By	DB	%RH
1	11-2	0941	KV	76	47
2	11-3	1437	KV	73	47
3	11-4	1115	KV	73	47
4	11-5	1015	CP	69	44
5					

Weighing Session	Date	Time	By	DB	%RH
6					
7					
8					
9					
10					

WOODSTOVE DATA SHEET #4-4

SCALE QA SHEET

Dates: From 07/15/05 Through 10-20-2005	Scale: Sartorius	Model: A 120 S	SN: 37010004
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100 g weight	10 g weight	1 g weight	100 mg weight	Tech	Date	Time	Dry Bulb	% RH
99.9998	9.9999	.9999	.09998	BL	07/15	2000	78	46
99.9997	9.9998	1.0000	.1000	BL	07/19	2250	78	46
100.0000	9.9999	.9999	.0999	BL	07/20	0740	78	46
100.0000	9.9999	1.0000	.1000	BL	07/21	2100	78	46
99.9998	9.9998	.9999	.1000	BL	07/24	2200	78	46
100.0001	10.0000	1.0000	.1000	BL	07/27	1515	78	49
99.9998	10.0000	.9998	.1000	BL	07/28	0600	78	49
99.9999	10.0001	1.0000	.1000	BL	07/29	1210	78	49
100.0000	10.0000	1.0001	.09998	CW	9-6	0930	74	48
100.0000	9.9998	.9998	.09996	CW	9-7	0955	72	47
99.9999	10.0000	1.0001	.1000	CW	9-8	1010	78	43
99.9999	10.0001	.9999	.0999	CW	9-9	0945	75	48
99.9996	9.9999	1.0000	.1000	CW	9-10	1130	75	48
99.9998	9.9999	1.0000	.0999	CW	9-11	1300	75	44
99.9997	10.0000	1.0000	.09998	CW	9-12	0920	74	48
99.9998	10.0001	.9999	.0999	CW	9-13	0945	74	47
99.9996	10.0001	.9999	.0999	CW	9-14	1400	77	46
99.9997	10.0001	1.0001	.0999	CW	9-15	0815	75	48
99.9996	10.0000	1.0000	.1000	CW	9-16	0955	76	49
99.9998	10.0001	.9999	.09998	CW	9-17	1200	76	48
99.9997	9.9998	.9999	.09998	CW	9-18	1430	73	47
100.0004	10.0002	1.0000	.09998	CW	9-19	0810	74	44
100.0000	10.0000	1.0000	.1000	CW	9-20	1910	77	44
100.0000	10.0000	1.0000	.09998	CW	9-21	1620	78	46
100.0000	10.0001	1.0000	.0999	CW	9-22	1420	76	49
100.0004	10.0003	1.0000	.09997	CW	9-23	1300	72	46
99.9998	10.0001	1.0000	.0999	CW	10-1	1830	74	47
100.0006	10.0006	1.0000	.0999	CW	10-2	1830	69	47
100.0001	10.0001	.9998	.0999	CW	10-5	0840	74	47
99.9998	10.0001	1.0000	.0999	CW	10-6	0930	77	47
99.9998	10.0002	.9999	.1000	CW	10-8	1340	75	45
100.0006	10.0002	.9999	.09997	CW	10-10	1330	76	48
99.9999	10.0000	1.0001	.1000	CW	10-11	1020	77	46
99.9998	10.0002	.9999	.1000	CW	10-12	1000	74	44
100.0001	10.0001	1.0000	.09997	CW	10-13	1020	70	48
99.9999	10.0000	1.0001	.0999	CW	10-14	1000	70	48
100.0000	10.0001	.9999	.0999	CW	10-15	1440	72	46
99.9997	9.9999	1.0000	.1000	CW	10-20	1000	77	49

BLANK PROCESSING DATA SHEET # 5

UNIT Country Stoves 5260 RUN: 4 DATE: 11 - 1 - 2005

BLANKS DONE: 10-11-2005

BEAKER	A	B	C
	200 ml ACETONE	75 ml DICHLOR	200 ml WATER
	FISHER OPTIMA LOT # 023283	FISHER OPTIMA LOT # 035941	DWNA, Inc Sparklettes Distilled
FINAL WEIGHT	108.9008	106.3077	106.9670
TARE WEIGHT	108.8995	106.3066	106.9645
NET WEIGHT	.0013	.0011	.0025

TARE BEAKERS INTO DESC: TIME: 1900 DATE: 10-2-2005

DATE: 10-5 BY: CP DATE: 10-6 BY: CP DATE: BY:

BEAKER	1 ST WT	TIME	2 ND WT	TIME	3 RD WT	TIME
A	108.8996	0912	108.8995	1001	✓	
B	106.3065	0913	106.3066	1002	✓	
C	106.9642	0914	106.9645	1003	✓	

FINAL BEAKERS INTO DESC: TIME: 1000 DATE: 10-8-05

DATE: 10-10 BY: CP DATE: 10-11 BY: CP DATE: BY:

BEAKER	1 ST WT	TIME	2 ND WT	TIME	3 RD WT	TIME
A	108.9010	1348	108.9008	1105	✓	
B	106.3076	1349	106.3077	1106	✓	
C	106.9675	1350	106.9670	1109	✓	

TARE QC

DATE	TIME	BY	WB	DB	%
10-5	0840	CP	5	74	44
10-6	0930	CP	5	77	47

FINAL QC

DATE	TIME	BY	WB	DB	%
10-10	1330	CP	5	76	48
10-11	1020	CP	5	77	46

NET PARTICULATE CATCH CALCULATION DATA SHEET #6

UNIT Country Stores S260 RUN: 4 DATE: 11-1-2005

Blank Audit by CWentley 10-14-2005

BLANK CALCULATIONS

Acetone: $\frac{.0013}{.0011} \text{ g} \div \frac{200}{75} \text{ ml} = \frac{.000007}{.000015} \text{ g/ml}$
 Dichloromethane: $\frac{.0011}{.0025} \text{ g} \div \frac{200}{200} \text{ ml} = \frac{.000013}{.000013} \text{ g/ml}$
 Distilled Water: $\frac{.0025}{.000007} \text{ g} \div \frac{200}{200} \text{ ml} = \frac{.000013}{.000013} \text{ g/ml}$

FRONT HALF CATCH

FILTERS: $\frac{.0563}{.0160} \text{ g} - \frac{1}{90} \text{ (# of Filters)} \left(\frac{.0000 \text{ g}}{.0006} \right) = \frac{.0563}{.0154} \text{ g}$
 BEAKERS: $\frac{.0160}{.0007} \text{ g} - \frac{90}{.000007} \text{ ml Acetone} \left(\frac{.000007 \text{ g}}{.000007} \right) = \frac{.0154}{.000007} \text{ g}$

TOTAL FRONT HALF CATCH : .0717 g

BACK HALF CATCH

FILTERS: $\frac{.0100}{.0507} \text{ g} - \frac{1}{130} \text{ (# of Filters)} \left(\frac{.0000 \text{ g}}{.0009} \right) = \frac{.0100}{.0498} \text{ g}$
 BEAKERS: $\frac{.0507}{.0137} \text{ g} - \frac{130}{75} \text{ ml Acetone} \left(\frac{.000007 \text{ g}}{.000015} \right) = \frac{.0498}{.0126} \text{ g}$
 Extract: $\frac{.0137}{.0336} \text{ g} - \frac{75}{260} \text{ ml Dichloromethane} \left(\frac{.000015 \text{ g}}{.0034} \right) = \frac{.0126}{.0302} \text{ g}$
 Water: $\frac{.0336}{.000013} \text{ g} - \frac{260}{.000013} \text{ ml Water} \left(\frac{.000013 \text{ g}}{.000013} \right) = \frac{.0302}{.000013} \text{ g}$

TOTAL BACK HALF CATCH : .1026 g

TOTAL CATCH : .1743 g

% FRONT HALF : 41.1 %

CALCULATIONS DATA SHEET # 7

UNIT: Country Stoves 5260 RUN: 4 DATE: 11-1-2005

$$1) Vm (std) = \frac{(75.216 Vm) (17.64) (1.008 mcf) \left(29.76'' Hg + \frac{.174'' H_2O}{13.6} \right)}{(558 TmA)} = \frac{71.3600}{000.0000} dscf$$

$$2) Vw (std) = (.04707) (\underline{74.5} \text{ ml } H_2O) = \frac{3.5067}{00.0000} scf$$

$$3) Asw = \frac{(3.5067 scf)}{(\underline{3.5067} scf + \underline{71.3600} dscf)} = \frac{.0468}{.0000} Bws \times 100 = \frac{4.6839}{00.0000} \% H_2O$$

$$4) Cs = \frac{(\underline{.1743} g.)}{(\underline{71.3600} dscf)} (15.43) = \frac{.0377}{0.0000} gr / dscf$$

$$5) \text{ Estimated } g / hr = \frac{(\underline{.1743} g.)}{(\underline{71.3600} dscf)} (\underline{11.872} dscfm) (60) = \frac{1.7399}{00.0000} g / hr$$

Vm =	total cubic feet pulled on meter box during test	(p. 2)	(000.000 Vm)
mcf =	meter correction factor (Y factor) of meter box used for test	(p. 2)	(0.000 mcf)
" Hg =	average barometric pressure during test	(p. 2)	(00.00 " Hg)
" H ₂ O =	average delta H for test	(p. 2)	(.000 " H ₂ O)
TmA =	average meter temperature for test in degrees Absolute	(p. 2)	(000 TmA)
ml H ₂ O =	total water caught during test	(p. 3)	(000.0 ml H ₂ O)
g =	total particulate catch for test	(p. 6)	(00.0000 g.)
dscfm =	average stack flow during test	(p. 2)	(00.000 dscf)

TEST DATA SHEET # 8

UNIT Country Stoves 5260 RUN: 4 DATE: 11 - 1 - 2005

Test Chamber Air Velocity Start: 0 Stop: 0 Avg.: 0

Wet Bulb / Dry Bulb

Pre : WB : 68 DB : 91 = 29 % RH 1.5 % H₂O

Post : WB : 61 DB : 77 = 39 % RH 1.3 % H₂O

Average : 34 % RH 1.4 % H₂O

Empty Stove Weight (lbs) : — w/ stack & oil seal : Wet : — Dry : 514.2

Kindling Weight (lbs) : Paper : .1 Wood : 2.9

Preburn Fuel Weight : 14.7 + 16.7 + 12.2 Total : 43.6

Kindling & Preburn Fuel Weight (wood only) (lbs) : Total : 46.5

Coal Bed Wt Range (lbs) : 4.1 - 3.3 Scale : 518.3 - 517.5

Upper : .25 x fuel weight : Always round DOWN to nearest tenth

Lower : .20 x fuel weight : Always round UP to nearest tenth

Actual Coal Bed Weight : 4.0

Maximum Coal Bed Removal (lbs) : $((\frac{4.1}{\text{Upper}} + \frac{3.3}{\text{Lower}}) \div 2) \cdot 25 = \frac{0.9}{\text{round down to nearest tenth}}$

Test Fuel

(.75" x 1.5" x 5" spacers) = 20 pcs

Dimensions	Length in inches	No. Pcs	Weight in lbs	% of Load
2" x 4"	<u>16</u>	<u>4</u>	<u>8.9</u>	<u>53.6</u>
4" x 4"	<u>16</u>	<u>2</u>	<u>7.7</u>	<u>46.4</u>

Test Fuel Weight : 16.6 lbs

Estimated Dry Burn Rate :

$$\frac{16.6 - (16.6 \times .18597)}{2.2046} \times \frac{60}{220} = \frac{1.672}{\text{TIME}} \text{ kg / hr}$$

$$\text{Estimated BTU's/hr : } 19,140 \times \frac{63}{100} \times \frac{1.672}{\text{DBR}} = \frac{20,161.31}{\text{DBR}} \text{ BTU's/hr}$$

EPA Default Efficiencies :

Non-cat : 63

Cat : 72

Pellet : 78

WOOD STOVE OPERATING DATA PAGE #9

Unit: Country Stoves SZ60 Run: 4 Date: 11-1-2005

FIRE STARTED: 0820

WARM UP AND PREBURN:

PRIMARY AIR: Set wide open for all warm-up / preburn fuel charges. Then set to 1.25" at start of preburn.

SECONDARY AIR: N/A CAT BYPASS: N/A

CHARCOAL BED PREPARATION:

Raked and leveled prior to each warm-up / preburn charge. At 1 1/2 min. prior to loading last fuel, raked and leveled. In stove 20 sec.

TEST:

DOOR wide open during loading 0 min. 40 sec.

PRIMARY AIR: Opened full for first 5 min., then set to run setting of 1.25"

SECONDARY AIR: N/A CAT BYPASS: N/A

FAN:

☒ ON ☒ OFF during warm-up

☒ ON ☒ OFF first 30 minutes of test

Fan speed set at Low

☒ ON ☒ OFF during preburn

☒ ON ☒ OFF balance of test run

WOOD DATA:

KINDLING: A mix of the grades listed below:

	SIZE	MILL	GRADE	SPECIES
PREBURN:	2x4	Manke/Tacoma	Std. or better	s. grn D fir
TEST:	2x4	Packwood	# 2 or better	s. grn D fir
	4x4	Packwood	# 2 or better	s. grn D fir

PELLET FUEL MANUFACTURER: N/A BRAND: N/A

All Grades WCLB rules:

WARM UP INFORMATION:

All pre-burn / warm up fuel pieces were either 15 or — inches.

1st warm up / pre-burn fuel charge (14.7 lbs.) added at 0830

2nd warm up / pre-burn fuel charge (16.7 lbs.) added at 0950

3rd warm up / pre-burn fuel charge (12.2 lbs.) added at 1040

4th warm up / pre-burn fuel charge (____ lbs.) added at _____

5th warm up / pre-burn fuel charge (____ lbs.) added at _____

TEST DATA SHEET #10

Unit: Country Stoves 5260 Run: 4 Date: 11-1-2005

Room Temperature: 71 °F Correction Factor: 0

Uncorrected Values are corrected for room temperature: Yes No ✓

Time Test Fuel moisture reading taken: 1100

Calibration Checks: X ✓ Y ✓ 12.0 12.2 22.0 22.0

pc #	Dimen.	Use	TOP		BOTTOM		SIDE		Average Corrected
			Uncor.	Cor.	Uncor.	Cor.	Uncor.	Cor.	
1	2"x4"x8'	K	14.0	14.9	14.0	14.9	12.3	13.3	14.367
2									
3									
4	2"x4"x8'	P	18.5	19.8	19.0	20.3	18.5	19.8	19.967
5	2"x4"x8'	P	18.5	19.8	18.5	19.8	18.0	19.2	19.600
6	2"x4"x8'	P	20.0	21.4	20.0	21.4	20.3	22.0	21.600
7	2"x4"x8'	P	22.0	23.7	23.5	25.2	22.5	24.1	24.333
8	2"x4"x8'	P	20.0	21.4	20.5	22.0	20.5	22.0	21.800
9									107.300
10									
11	2x4x16	T	20.0	21.4	20.0	21.4	20.5	22.0	21.600
12	"	T	22.0	24.7	23.0	24.7	23.0	24.7	24.700
13	"	T	23.5	25.2	23.0	24.7	23.0	24.7	24.867
14	"	T	23.5	25.2	23.0	24.7	23.0	24.7	24.867
15	4x4x16	T	19.0	20.3	19.5	20.9	18.5	19.8	20.333
16	"	T	19.0	20.3	19.5	20.9	19.5	20.9	20.700
17									137.067
18									
19									
20	Spacers	T	23.0	24.7	23.0	24.7	23.5	25.2	24.867

Key for Use: K = Kindling P = Pretest Fuel T = Test Fuel

	KINDLING		PRETEST FUEL		TEST FUEL	
Dry Moisture %:	14.367	%	21.460	%	22.845	%
Wet Moisture %:	12.562	%	17.668	%	18.597	%

To obtain Wet from Dry: $\frac{100 \times \% \text{ Dry Reading}}{100 + \% \text{ Dry Reading}} = \% \text{ Moisture, Wet Basis}$

Acceptable Ranges: 16 - 20 % wet: 19 - 25 % dry (17.5 - 22.5 on Meter Uncor. reading) at 70°

GAS DATA SHEET #12

WEIGHT: 518.2

DATE: 11-1-2005

UNIT: Country Stoves SZ60

RUN: 4

PAGE: 1 OF 2

UNIT: COUNTRY STORES												
TIME	SCALE	FUEL	DROP	V.	CO ₂	V.	O ₂	V.	CO	STATIC	SO ₂ PPM	
0	1220	534.8	16.6	—	.115	2.9	.693	17.4	.056	.55	7034	300
5	25	534.1	15.9	.7	.142	3.6	.673	16.9	.036	.35	7041	250
10	30	533.8	15.6	.3	.091	2.3	.727	18.2	.632	.31	7035	300
15	35	533.1	14.9	.7	.387	9.7	.436	10.9	.018	.17	7048	275
20	40	532.2	14.0	.9	.348	8.7	.477	11.9	.016	.15	7052	250
25	45	531.3	13.1	.9	.343	8.6	.481	12.1	.016	.15	7053	225
30	50	530.4	12.2	.9	.376	9.4	.451	11.3	.012	.11	7055	225
35	55	529.5	11.3	.9	.420	10.5	.408	10.2	.010	.09	7058	275
40	1300	528.5	10.3	1.0	.434	10.8	.394	9.9	.014	.13	7058	275
45	05	527.5	9.3	1.0	.447	11.2	.376	9.4	.018	.17	7059	300
50	10	526.6	8.4	.9	.440	11.0	.387	9.7	.012	.11	7058	275
55	15	525.7	7.5	.9	.441	11.0	.383	9.6	.021	.20	7060	300
SUBTOTAL	*****	*****	*****	*****	*****	*****	*****	*****	*****	7.611	*****	
60	20	524.9	6.7	.8	.375	9.4	.452	11.3	.009	.08	7057	275
65	25	524.3	6.1	.6	.363	9.1	.465	11.6	.007	.06	7054	275
70	30	523.8	5.6	.5	.336	8.4	.492	12.3	.008	.07	7052	275
75	35	523.2	5.0	.6	.318	7.9	.511	12.8	.011	.10	7051	275
80	40	522.8	4.6	.4	.260	6.5	.560	14.0	.030	.29	7048	275
85	45	522.5	4.3	.3	.233	5.8	.580	14.5	.048	.47	7045	275
90	50	522.2	4.0	.3	.231	5.8	.580	14.5	.048	.47	7045	275
95	55	521.9	3.7	.3	.227	5.7	.585	14.6	.047	.46	7043	275
100	1400	521.6	3.4	.3	.184	4.6	.618	15.5	.075	.74	7042	300
105	05	521.4	3.2	.2	.186	4.6	.621	15.5	.067	.66	7040	300
110	10	521.1	2.9	.3	.200	5.0	.606	15.2	.063	.62	7040	300
115	15	520.9	2.7	.2	.197	4.9	.614	15.4	.055	.54	7040	275
SUBTOTAL	*****	*****	*****	*****	*****	*****	*****	*****	*****	7.557	*****	
120	20	520.7	2.5	.2	.191	4.8	.616	15.4	.060	.59	7038	275
125	25	520.6	2.4	.1	.164	4.1	.635	15.9	.082	.81	7037	300
130	30	520.4	2.2	.2	.161	4.0	.639	16.0	.082	.81	7036	300
135	35	520.3	2.1	.1	.162	4.1	.635	15.9	.081	.80	7035	300
140	40	520.1	1.9	.2	.161	4.0	.642	16.1	.075	.74	7035	300
145	45	520.0	1.8	.1	.162	4.1	.638	16.0	.075	.74	7035	300
150	50	519.9	1.7	.1	.154	3.9	.648	16.2	.070	.69	7034	300
155	55	519.8	1.6	.1	.151	3.8	.651	16.3	.072	.71	7033	300
160	1500	519.7	1.5	.1	.153	3.8	.650	16.3	.074	.73	7032	300
165	05	519.5	1.3	.2	.158	4.0	.644	16.1	.070	.69	7032	275
170	10	519.4	1.2	.1	.158	4.0	.644	16.1	.068	.67	7032	275
175	15	519.3	1.1	.1	.163	4.1	.641	16.1	.066	.65	7032	275
SUBTOTAL	*****	*****	*****	*****	*****	*****	*****	*****	*****	7.411	*****	
TOTAL	*****	*****	*****	*****	*****	*****	*****	*****	*****	7.1579	*****	

GAS DATA SHEET #12

WEIGHT: 518.2

DATE: 11-1-2005

UNIT: COUNTRY STOVES

5260

RUN: 4

PAGE: 2 OF 2

TIME	SCALE	FUEL	DROP	V.	CO ₂	V.	O ₂	V.	CO	STATIC	SO ₂ PPM
180 1520	519.1	.9	.2	.159	4.0	.644	16.1	.070	.69	7.032	275
185 25	519.0	.8	.1	.154	3.9	.648	16.2	.070	.69	7.032	275
190 30	518.9	.7	.1	.147	3.7	.658	16.5	.065	.64	7.032	275
195 35	518.8	.6	.1	.152	3.8	.652	16.3	.068	.67	7.032	275
200 40	518.7	.5	.1	.152	3.8	.652	16.3	.070	.69	7.032	300
205 45	518.6	.4	.1	.146	3.7	.657	16.5	.066	.65	7.032	300
210 50	518.4	.2	.2	.146	3.7	.654	16.4	.074	.73	7.032	275
215 55	518.3	.1	.1	.140	3.5	.662	16.6	.074	.73	7.031	275
220 1600	518.2	0.0	.1	.138	3.4	.665	16.6	.077	.76	7.031	275
225 05											
230 10											
235 15											
SUBTOTAL	*****	*****	*****	*****	*****	*****	*****	*****	*****	7.286	*****
240 											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											
											

10

[illegible]

Temperature Data Sheet #14

Country Stoves-S260

Time	Stack Chn 103	Top Chn 104	LT Side Chn 105	Back Chn 106	Rt Side Chn 107	Bottom Chn 108	Firebox Chn 109	Sec/Cat Chn 110	Ambient Chn 111	Tube Furn Chn 112	Smpl Box Chn 113	Smpl Out Chn 114	C-Gas Box Chn 115	C-Gas Out Chn 116	SO2 Out Chn 117
0	264	269	433	335	359	377	#####	#####	87	1302	227	53	236	38	36
5	381	276	421	361	349	368	#####	#####	85	1338	232	41	243	38	36
10	269	262	404	367	334	366	#####	#####	82	1358	234	41	243	38	36
15	375	275	387	361	320	359	#####	#####	82	1356	235	42	245	38	36
20	434	325	374	351	308	350	#####	#####	82	1359	237	42	245	38	37
25	444	352	367	341	299	342	#####	#####	83	1354	238	42	248	38	37
30	471	386	364	333	295	334	#####	#####	84	1348	239	43	250	38	37
35	496	427	365	295	295	326	#####	#####	87	1319	240	43	250	38	37
40	503	446	370	271	296	319	#####	#####	88	1312	237	43	248	38	37
45	511	460	378	258	300	312	#####	#####	88	1321	237	44	248	38	37
50	504	473	388	249	306	307	#####	#####	87	1328	238	44	247	37	37
55	516	491	399	246	312	302	#####	#####	87	1331	238	45	246	37	37
60	484	489	408	246	320	298	#####	#####	88	1330	238	45	245	37	37
65	453	471	415	246	330	294	#####	#####	87	1329	238	46	246	37	37
70	433	454	421	248	338	291	#####	#####	88	1328	239	46	247	37	38
75	420	441	425	250	345	288	#####	#####	87	1328	240	47	248	37	38
80	381	412	428	253	350	287	#####	#####	85	1329	240	47	248	37	38
85	359	387	429	256	352	286	#####	#####	85	1331	240	47	248	37	38
90	347	365	426	258	350	283	#####	#####	84	1331	239	48	246	37	38
95	340	350	423	261	347	282	#####	#####	83	1330	238	48	245	37	38
100	324	333	418	262	343	281	#####	#####	83	1333	237	48	245	37	37
105	314	319	412	263	339	280	#####	#####	82	1329	236	49	244	37	37
110	312	308	406	265	334	279	#####	#####	80	1325	236	49	244	37	37
115	311	301	400	270	329	278	#####	#####	81	1322	235	50	242	36	37
120	307	293	395	273	325	277	#####	#####	81	1324	234	51	242	36	36
125	294	284	390	276	321	276	#####	#####	80	1328	234	51	242	36	36
130	284	275	386	277	318	274	#####	#####	79	1332	233	50	242	36	36
135	279	266	381	277	314	273	#####	#####	79	1333	233	50	241	36	36
140	273	259	376	279	310	272	#####	#####	79	1331	233	50	241	36	36
145	269	252	370	281	306	271	#####	#####	78	1326	233	50	241	36	35
150	266	246	365	284	302	272	#####	#####	77	1323	233	50	241	36	35
155	262	242	360	286	297	272	#####	#####	76	1322	233	50	241	36	35
160	259	237	356	290	294	272	#####	#####	76	1325	233	50	241	36	35
165	259	233	351	293	290	272	#####	#####	76	1327	233	50	241	36	35
170	258	230	347	296	287	273	#####	#####	76	1326	233	52	240	36	35

Run 4
11/1/05

Temperature Data Sheet #14

Country Stoves-S260

175	259	228	344	299	283	274	#####	#####	76	1327	234	52	241	35	35
180	258	226	342	302	280	274	#####	#####	75	1328	234	52	241	35	35
185	256	224	341	305	276	275	#####	#####	75	1328	234	53	242	35	35
190	255	222	339	308	273	275	#####	#####	75	1328	234	52	242	34	34
195	255	220	337	311	271	275	#####	#####	75	1328	234	52	242	34	34
200	253	218	335	314	268	275	#####	#####	74	1328	234	53	242	34	34
205	251	217	333	318	266	276	#####	#####	74	1327	233	53	242	34	34
210	249	214	331	321	262	276	#####	#####	73	1327	233	53	242	34	34
215	247	213	330	322	262	277	#####	#####	75	1326	232	53	241	34	34
220	246	212	328	322	258	277	#####	#####	76	1324	231	54	240	34	34

TEMPERATURE DATA SHEET #14A

TEST TIME	220		
STACK AVG	338	TOP AVG	313
		LT SIDE AVG	380
BACK AVG	291	RT SIDE AVG	309
		BOTTOM AVG	294
FIREBOX AVG #####		SEC/CAT AVG #####	AMBIENT AVG
			81

END	279.5
START	354.6
	<u>-75.1</u>
	DELTA T

CIRCLE: LOSS / GAIN

ZERO / SPAN CHECK DATA SHEET #15-1

Date : 11 - 1 - 2005 Analyte : CO₂ (15-1)
 Unit : Country Stoves SZ60 Run # : 4
 Zero Cyl. # : 168TAC 3-A Conc. : 0.00 % CO₂ Cyl. Press. : 1800 PSI
 Certified by : AIR LIQUIDE Date : 04-19-04
 Span Cyl. # : CC-3131 Conc. : 12.40 % CO₂ Cyl. Press. : 400 PSI
 Certified by : AIR LIQUIDE Date : 03-13-03
 Analyzer : Make : HORIBA Model : PIR-2000 SN : 407069
 Range : 0 - 25.0 % CO₂ Analyzer Output : 0 - 1.0 v.
 Flow : 1.5 SCFH Measured by : Rotameter

EPA Span Value = 25.0 % CO₂
 EPA Control Limits = $\pm 2.5\%$ of 25.0 % CO₂ = ± 0.625 % CO₂
 Method 28 A = $\pm .2$ % of 25.0 % CO₂ = $\pm .05$ % CO₂

PRE RUN Audit : by C. Waddington Time : 1045 Temp : 84 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	0.00	.001	.037	.037	.148
SPAN	49.6	.496	12.40	49.4	.494	12.324	-.076	-.305

POST RUN Audit : by C. Waddington Time : 1620 Temp : 75 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	0.00	.000	.012	.012	.050
SPAN	49.6	.496	12.40	49.5	.493	12.349	-.051	-.205

$\pm \text{Conc. Difference} = \text{Act \%} - \text{Exp (Std) \%}$
 $\text{Zero \% Difference} = \frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$
 $\text{Span \% Difference} = \frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

ZERO / SPAN CHECK DATA SHEET #15-2

Date: 11-1-2005

Analyte: O₂ (15-2)

Unit: Country Store 5260

Run #: 4

Zero Cyl. #: 168TAC 3A Conc.: 0.00 % O₂

Cyl. Press.: 1800 PSI

Certified by: AIR LIQUIDE

Date: 04-19-04

Span Cyl. #: CC-3131 Conc.: 12.40 % O₂

Cyl. Press.: 400 PSI

Certified by: AIR LIQUIDE

Date: 03-13-03

Analyzer: Make: TELEDYNE Model: 320 A

SN: 37400

Range: 0 - 25.0 % O₂

Analyzer Output: 0 - 1.0 v.

Flow: 1.5 SCFH

Measured by: Rotameter

EPA Span Value = 25.0 % O₂

EPA Control Limits = $\pm 2.5\%$ of 25.0 % O₂ = ± 0.625 % O₂

Method 28 A = $\pm .2$ % of 25.0 % O₂ = $\pm .05$ % O₂

PRE RUN Audit: by: G Wadlington Time: 1045 Temp: 84 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	0.00	.001	.040	.040	.160
SPAN	12.50	.500	12.50	12.5	.500	12.52	.020	.079

POST RUN Audit: by: G Wadlington Time: 1620 Temp: 75 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	00.0	.002	.065	.065	.260
SPAN	12.50	.500	12.50	12.6	.503	12.595	.095	.379

± Conc. Difference = Act % - Exp (Std) %

Zero % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

Span % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

ZERO / SPAN CHECK DATA SHEET #15-3

Date: 11 - 1 - 2005

Analyte: CO (15-3)

Unit: Country Stoves 5260

Run #: 4

Zero Cyl. #: 168TAC 3-A Conc.: 0.00 % CO

Cyl. Press.: 1800 PSI

Certified by: AIR LIQUIDE

Date: 04-19-04

Span Cyl. #: CC-3131 Conc.: 12.40 % CO

Cyl. Press.: 400 PSI

Certified by: AIR LIQUIDE

Date: 03-13-03

Analyzer: Make: HORIBA

Model: PIR-2000

SN: 408005

Range: 0 - 10.0 % CO

Analyzer Output: 0 - 1.0 v.

Flow: 1.5 SCFH

Measured by: Rotameter

EPA Span Value = 10.0 % CO

EPA Control Limits = $\pm 2.5\%$ of 10.0 % CO = $\pm 0.25\%$ CO

Method 28 A = $\pm .2\%$ of 10.0 % CO = $\pm .02\%$ CO

PRE RUN Audit: by C. Wadlington Time: 1045 Temp: 84 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	0.00	.001	.020	.020	.198
SPAN	50.2	.502	5.02	50.3	.503	5.039	.019	.193

POST RUN Audit: by C. Wadlington Time: 1620 Temp: 75 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	00.0	.001	0.0	0.0	0.0
SPAN	50.2	.502	5.02	50.2	.502	5.029	.009	.093

± Conc. Difference = Act % - Exp (Std) %

Zero % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

Span % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

ZERO / SPAN CHECK DATA SHEET #15-4

Date : 11-1-2005

Analyte : SO₂ (15-4)

Unit : Country Stoves SZ60

Run # : 4

Zero Cyl. # : 168TAC 3-A

Conc. : 0.00 ppm SO₂

Cyl. Press. : 1800 PSI

Certified by : AIR LIQUIDE

Date : 04-19-04

Span Cyl. # : CC62184

Conc. : 1290 ppm SO₂

Cyl. Press. : 690 PSI

Certified by : AIR LIQUIDE

Date : 01-29-01

Analyzer : Make : HORIBA

Model : PIR-2000

SN : 403019

Range : 0 - 2500 ppm SO₂

Analyzer Output : 0 - 1.0 v.

Flow : 1.5 SCFH

Measured by : Rotameter

EPA Span Value = 2500 ppm SO₂

EPA Control Limits = $\pm 2.5\%$ of 2500 ppm SO₂ = ± 62.5 ppm SO₂

PRE RUN Audit : by C. Wadington Time : 1045 Temp : 84 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	PPM	Meter	DVM	%		
ZERO	00.0	.000	00.0	0.00	.003	-7.474	-7.474	-.299
SPAN	51.6	.516	1290	51.4	.514	1284.8	-5.191	-.208

POST RUN Audit : by C. Wadington Time : 1620 Temp : 75 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	PPM	Meter	DVM	%		
ZERO	00.0	.000	00.0	0.00	.001	-2.474	-2.474	-.099
SPAN	51.6	.516	1290	51.7	.517	1292.3	2.308	.092

± Conc. Difference = Act % - Exp (Std) %

Zero % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

Span % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

QUALITY CHECKS DATA SHEET # 16

UNIT Country Stoves SZ60 RUN: 4 DATE: 11-1-2005

Thermocouple Check:

T/C # 1	<u> </u>	°F	T/C # 13	<u>65.8</u>	°F
T/C # 2	<u> </u>	°F	T/C # 14	<u>64.4</u>	°F
T/C # 3	<u>63.6</u>	°F	T/C # 15	<u>65.9</u>	°F
T/C # 4	<u>63.0</u>	°F	T/C # 16	<u>64.3</u>	°F
T/C # 5	<u>63.1</u>	°F	T/C # 17	<u>61.6</u>	°F
T/C # 6	<u>62.3</u>	°F	T/C # 18	<u>71.9</u>	°F
T/C # 7	<u>61.8</u>	°F	T/C # 19	<u>63.6</u>	°F
T/C # 8	<u>60.8</u>	°F	T/C # 20	<u> </u>	°F
T/C # 9	<u> </u>	°F	T/C # 21	<u> </u>	°F
T/C # 10	<u> </u>	°F	T/C # 22	<u> </u>	°F
T/C # 11	<u>59.4</u>	°F	T/C # 23	<u> </u>	°F
T/C # 12	<u>70.1</u>	°F	T/C # 24	<u> </u>	°F

Thermocouple Readout:

Pretest zero and span check and calibration

post test zero and span

% difference

ZERO -1.6 °F Adj. to 0.0 °F

ZERO .6 °F Difference .05 %

SPAN 2001.4 °F Adj. to 2000.0 °F

SPAN 2000.4 °F Difference .05 %

Thermocouple Readout Pretest Linearity Check:

0	=	<u>0.0</u>	°F	200	=	<u>200.1</u>	°F	400	=	<u>399.9</u>	°F
600	=	<u>599.8</u>	°F	800	=	<u>799.7</u>	°F	1000	=	<u>999.8</u>	°F
1200	=	<u>1199.7</u>	°F	1400	=	<u>1399.5</u>	°F	1600	=	<u>1599.5</u>	°F
1800	=	<u>1799.8</u>	°F	2000	=	<u>2000.0</u>	°F				

Sample Train Leak Check

Pre X

Post X

C-gas Train Leak Check

Pre ✓

Post X

SO₂ Train Leak Check

Pre ✓

Post X

Static Gauge Zero Check

Pre X

Post X

Scale Check Pre: 528.7 - 518.7 = 10.0

Post: 528.1 → 518.1 = 10.0

Stack Cleaned Prior to Test Run: YES NO X

TABLE 1 ---- RAW DATA

CLIENT : Country

TEST No. : 3

MODEL: S260

DATE: 31-Oct-05

TIME (MIN.)	METER READING (C F)	DELTA H (IN. H2O)	METER TEMP. (DEG. F)	PERCENT CO (%)	PERCENT CO2 (%)	SO2 COCENTR. PPM
=====	=====	=====	=====	=====	=====	=====
0	923.000	0.150	92	0.45	2.30	275
5	924.500	0.180	92	0.27	8.10	250
10	926.214	0.120	91	0.25	7.30	300
15	927.637	0.120	91	0.19	11.40	300
20	929.060	0.150	91	0.15	14.00	275
25	930.613	0.120	91	0.36	15.90	300
30	932.036	0.090	91	0.65	16.40	350
35	933.256	0.120	93	0.20	14.40	300
40	934.690	0.140	95	0.06	11.20	275
45	936.265	0.140	96	0.05	9.50	275
50	937.846	0.170	96	0.07	8.30	250
55	939.585	0.140	97	0.16	7.60	275
60	941.171	0.170	98	0.17	7.40	250
65	942.922	0.170	98	0.13	8.50	250
70	944.674	0.170	99	0.13	8.00	250
75	946.431	0.170	99	0.17	7.20	250
80	948.189	0.170	99	0.18	6.90	250
85	949.946	0.210	99	0.19	6.60	225
90	951.898	0.170	99	0.16	6.50	250
95	953.656	0.210	99	0.19	6.40	225
100	955.608	0.210	99	0.20	5.30	225
105	957.561	0.210	99	0.31	4.90	225
110	959.513	0.170	99	0.59	4.20	250
115	961.271	0.170	99	0.66	4.00	250
120	963.028	0.170	100	0.60	3.90	250
125	964.795	0.210	100	0.63	3.90	225
130	966.758	0.210	100	0.62	4.10	225
135	968.720	0.210	100	0.64	3.90	225
140	970.683	0.210	100	0.69	3.90	225
145	972.645	0.210	110	0.63	3.70	225
150	974.608	0.210	110	0.65	3.60	225
155	976.571	0.210	110	0.70	3.20	225
160	978.533	0.210	110	0.71	3.20	225
165						

TABLE 2---RAW DATA

CLIENT :	Country	TEST No.	3
MODEL:	S260	DATE:	31-Oct-05

METER CAL. FACTOR (Y) -----	1.008	Wt. WOOD BURNED(LB) -----	17.1 Lbs
BAROMETRIC PRESS.(Pb) -----	30.1 in Hg	WET,FUEL MOISTURE % -----	18.182 %
LEAK RATE POST (Lp) -----	0.002 cfm	Wt. PART. COLLECTED -----	0.0731 g
WATER VOL. (V1c) -----	63.2 MI	METER VOLUME Vm -----	55.533 mcf
TEST TIME (MIN) -----	160 min	HC MOLE FRACTION -----	0.0132

TABLE 3 ----FIELD DATA AVERAGES

CLIENT : Country TEST No. 3

MODEL: S260 DATE: 31-Oct-05

AVG DELTA			AVG PRCNT			
H	-----	0.17 in H2O	CO	-----	0.36	%

AVG METER			AVG PRCNT			
TEMP. Tm	-----	98 deg F	CO2	-----	7.14	%

AVG PPM			AVG BAL			
SO2	-----	254 PPM	CO2/CO	-----	19.96	%

TABLE 4 ---- CALCULATIONS

CLIENT : Country

TEST No.

3

MODEL: S260

DATE:

31-Oct-05

STD SAMPLE
VOL. Vm(std) d) -----

53.30 dscf

STACK GAS
FLOW Qsd -----

971.963

dscf/Hr
&
dscf/min

16.20

VOL. WATER
VAPOR Vw(s td) -----

2.975 scf

PARTICULATE
CONCRT. C s -----

0.0014

g/dscf

PRCNT
MSTR Bws -----

5.29 %

PARTC. EMISS.
RATE E -----

1.33

g/Hr

BURN
RATE BR -----

2.38 Kg/Hr

MOLES OF GAS
PER Lb WOOD Nt ----

0.48

Lb-mole/Lb

CO EMISSION
RATE -----116.49 g/Hr
&
48.94 g/Kgdry
fuelPART. EMISS.
RATE -----

0.56

g/Kgdry
fuel

TABLE 5 ---- PROPORTIONAL RATE VARIATION

CLIENT : Country

TEST No. : 3

MODEL: S260

DATE: 31-Oct-05

=====	TIME INTERVAL Ti	PPM * Vm	PROPRTN. RATE VAR. PR	=====	PROPRTN RATE VAR. AVERAGE	=====
	5	400.3	96		100	
	10	416.3	100			
	15	415.0	99			
	20	415.0	99			
	25	415.2	99			
	30	415.0	99			
	35	414.3	99			
	40	416.0	99			
	45	417.7	100			
	50	418.9	100			
	55	418.5	100			
	60	419.1	100			
	65	420.3	100			
	70	420.1	100			
	75	421.0	101			
	80	421.2	101			
	85	421.0	101			
	90	421.0	101			
	95	421.2	101			
	100	421.0	101			
	105	421.2	101			
	110	421.0	101			
	115	421.2	101			
	120	420.6	101			
	125	422.6	101			
	130	422.6	101			
	135	422.4	101			
	140	422.6	101			
	145	418.6	100			
	150	415.2	99			
	155	415.2	99			
	160	415.0	99			
	165					

COMPUTER INPUT DATA SHEET #1

Client: Country Stoves
 Address: 1502 14th Street Northwest
Auburn, WA 98071-0959
 Phone: 253-735-1100 Fax: 253-931-1271
 Run No.: 3 Date of Test: 10-31-2005 Burn Rate: 2.380 L33
 Model No.: S260 ☐ min ☐ min-1.25 ☐ fan
 Stove Type: ☐ Cat ☒ Non Cat ☐ Pellet ☐ 1.25-1.9 ☒ max ☐ insert
 Dry Gas Meter Y Factor: 1.008 Post Leak Rate: 1.002 cfm Time: 160 min.
 (0.000) (Data Sheet #2) (0.000) (Data Sheet #2) (000) (Data Sheet #2)
 Dry Gas Meter Volume: 55.533 cf
 (00.000) (Data Sheet #2)
 Stack Flow: 13.443 dscfm Δ H: 172 in. H₂O
 (00.000) (Data Sheet #2) (0.000) (Data Sheet #2)
 Maximum Vac.: 2.0 Barometric Pressure: 30.10 in. Hg
 (0.0) (Data Sheet #2) (00.00) (Data Sheet #2)
 H₂O Captured: 63.20 g
 (00.0) (Data Sheet #3)
 Front Half Catch % Of Total: 60.2 % Total Particulate Catch: .0731 g
 (00.0) (Data Sheet #6) (0.0000) (Data Sheet #6)
 Flue Gas Moisture: 5.2784 %
 (00.000) (Data Sheet #7)
 Particulate Emission: .0211 gr/dscf
 (0.0000) (Data Sheet #7)
 Relative Humidity: 45.5 % RH Ambient Moisture: 1.45 % H₂O
 (00.0) (Data Sheet #8) (0.00) (Data Sheet #8)
 Preburn Fuel Wt.: 46.8 lbs. Coal Bed Wt.: 4.2 lbs. Test Fuel Wt.: 17.1 lbs.
 (00.0) (Data Sheet #8) (00.0) (Data sheet #8) (00.0) (Data sheet #8)
 Heat Output (EPA Default): 28698.5 BTU/hr
 (00,000.0) (Data Sheet #8)
 Kindling Fuel % Moisture (wet): 11.997 % Pretest Fuel % Moisture (wet): 17.808 %
 (00.000) (Data Sheet #10) (00.000) (Data Sheet #10)
 Test Fuel % Moisture (dry): 22.222 % Test Fuel % Moisture (wet): 18.182 %
 (00.000) (Data Sheet #10 [wood stove] or #11 [pellet stove])
 Fuel Higher Heating Value (dry): BTU/lb.
 (0000) (Data Sheet #11)
 Stack Static Pressure: -.048 in. H₂O
 (+/- .000) (Data Sheet #12)
 Average Ambient Temperature: 82 °F Stove Temperature Change: -1.9 °F
 (00) (Data Sheet #14) (+/- 000.0) (Data Sheet #14)

start - 1150
end - 1430

Temp 557°

METER BOX DATA SHEET PAGE # 2

Page: 1 of 2UNIT: Country Stores SZLO RUN: 3 DATE: 10-31-2005Meter Box: SH Y Factor: 1.008Leak checks: 15 " Hg @ 1.006 cfm _____ " Hg @ _____ cfm15 " Hg @ 1.002 cfm _____ " Hg @ _____ cfmInject SO₂ @ 100 cc/min.

Nozzle: Probe @ 3/8" od

Initial Volume: 1,500

ROTO: PRESS: <u>.17</u>			SAMPLING RATIO: <u>4/1</u> : 1				BP: <u>30.12</u>		
MIN	TIME	METER READING	SAMPLE MDCF	STACK DSCFM	DELTA H	METER TEMP	SO2 PPM	ROTO TEMP	PUMP VACC
0	1150	923.000	—	12.373	.15	92	275	92	1.0
5	55	924.500	—	13.610	.18	92	250	92	2.0
10	1200	926.214	926.214	11.362	.12	91	300	91	1.0
15	05	927.637	927.637	11.362	.12	91	300	91	1.0
20	10	929.060	929.060	12.395	.15	91	275	91	1.0
25	15	930.613	930.613	11.362	.12	91	300	91	1.0
30	20	932.036	932.036	9.739	.09	91	350	91	1.0
35	25	933.256	933.256	11.321	.12	93	300	93	2.0
40	30	934.690	934.690	12.306	.14	95	275	95	2.0
45	35	936.265	936.265	12.284	.14	96	275	96	2.0
50	40	937.846	937.846	13.512	.17	96	250	96	2.0
55	45	939.585	939.585	12.262	.14	97	275	97	2.0
ROTO PRESS: <u>.17</u>			TOTALS: <u>143.888</u> <u>1.64</u> <u>1116</u>				BP: <u>30.12</u>		
60	1250	941.171	941.171	13.464	.17	98	250	98	2.0
65	55	942.922	942.922	13.464	.17	98	250	98	2.0
70	1300	944.674	944.674	13.440	.17	99	250	99	2.0
75	05	946.431	946.431	13.440	.17	99	250	99	2.0
80	10	948.189	948.189	13.440	.17	99	250	99	2.0
85	15	949.946	949.946	14.933	.21	99	225	99	2.0
90	20	951.898	951.898	13.440	.17	99	250	99	2.0
95	25	953.656	953.656	14.933	.21	99	225	99	2.0
100	30	955.608	955.608	14.933	.21	99	225	99	2.0
105	35	957.561	957.561	14.933	.21	99	225	99	2.0
110	40	959.513	959.513	13.440	.17	99	250	99	2.0
115	45	961.271	961.271	13.440	.17	99	250	99	2.0
			TOTALS: <u>167.300</u> <u>2.20</u> <u>1186</u>				MAX VACC =		
TOTAL Cu Ft.			TOTALS: <u>311.188</u> <u>3.84</u> <u>2302</u>				AVG. BP:		

METER BOX DATA SHEET PAGE # 2

Page: 2 of 2

UNIT: Country Stoves S260 RUN: 3 DATE: 10-31-05

Meter Box: SH Y Factor: 1.008

Leak checks: 15 " Hg @ .006 cfm _____ " Hg @ _____ cfm

15 " Hg @ .002 cfm _____ " Hg @ _____ cfm

Inject SO₂ @ 100 cc/min. Nozzle: Probe @ 3/8" od Initial Volume: 1.500

ROTO: PRESS: <u>.17</u>			SAMPLING RATIO: <u>4)</u> : 1			BP: <u>30.07</u>			
MIN	TIME	METER READING	SAMPLE MDCF	STACK DSCFM	DELTA H	METER TEMP	SO2 PPM	ROTO TEMP	PUMP VACC
120	1350	963.028	963.028	13.393	.17	100	250	100	2.0
125	53	964.795	964.795	14.881	.21	100	225	100	2.0
130	1400	966.758	966.758	14.881	.21	100	225	100	2.0
135	05	968.720	968.720	14.881	.21	100	225	100	2.0
140	10	970.683	970.683	14.881	.21	100	225	100	2.0
145	15	972.645	972.645	14.881	.21	100	225	100	2.0
150	20	974.608	974.608	14.881	.21	100	225	100	2.0
155	25	976.571	976.571	14.881	.21	100	225	100	2.0
160	30	978.533	978.533	14.881	.21	100	225	100	2.0
165	35								
170	40								
175	45								
ROTO PRESS:			TOTALS:	132.441	1.85	900	BP: _____		
180	1450								
185	55								
190	1500								
195	05								
200									
205									
210									
215									
220									
225									
230						3202			
235				443.629	5.69	97			
			TOTALS:			440	MAX VACC =		2.0
TOTAL Cu Ft.		55.533	TOTALS:	13.443	.172	557	AVG. BP: 30.10		

33

PARTICULATE CATCH / MOISTURE DATA SHEET # 3

UNIT: 15260 RUN: 3 DATE: 10-31-05

SCALE CHECK	LEVEL	ZEROED
INITIAL:	✓	✓
FINAL:	✓	✓

SCALE	WEIGHT
295.0 g	295.0
590.0 g	590.0
885.0 g	885.0

IMPINGER	#1	#2	#3	#4
FINAL WT	660.6	584.0	485.0	810.0
INITIAL WT	608.0	581.5	483.7	803.2
NET WT GRAMS	52.6	2.5	1.3	6.8

TOTAL CATCH: 63.20 GRAMS H₂O

FRONT HALF

FILTER #	34F	
FINAL WT g	.7067	
INITIAL WT g	.6730	
NET WT g	.0337	

BEAKER #	6
DESC.	ACETONE
FINAL WT g	91.2177
INITIAL WT g	91.2068
NET WT g	.0109
VOL. DESC. ml	90

BACK HALF

FILTER #	34B	
FINAL WT g	.3424	
INITIAL WT g	.3392	
NET WT g	.0032	

BEAKER #	7	8	9	10	
DESC.	ACETONE	METHCHLOR	H ₂ O	H ₂ O	
FINAL WT g	97.1557	108.6414	108.1007	105.7311	
INITIAL WT g	97.1385	108.6360	108.0951	105.7282	
NET WT g	.0172	.0054	.0056	.0029	.0085
VOL. DESC ml	120	75	150	100	250

FILTER TARE WEIGHTS DATA SHEET #4-1

Into Dessicator : _____ Date : 9-2-05 Time : 1515 By : C. Winding to
 Manufacturer S & S Grade : # 25 Glass Front Size : 11 cm Lot No. : 2B921
 Back Size : 8.2 cm Lot No. : B1044632

DATE: <u>9-19-05</u>		BY: <u>CP</u>	DATE: <u>9-20-05</u>		BY: <u>CW</u>	DATE: _____	BY: _____
FILTER #	FIRST WEIGHT	TIME	SECOND WEIGHT	TIME	THIRD WEIGHT	TIME	
31 F	.6696	0825	.6698 ✓	1820			
32 F	.6721	0826	.6723 ✓	1821			
33 F	.6745	0827	.6747 ✓	1823			
34 F	.6732	0828	.6730 ✓	1824			
35 F	.6584	0830	.6585 ✓	1825			
36 F	.6702	0831	.6704 ✓	1826			
37 F	.6667	0832	.6665 ✓	1828			
38 F	.6696	0833	.6695 ✓	1829			
39 F	.6648	0834	.6646 ✓	1830			
40 F	.6677	0835	.6677 ✓	1831			

31 B	.3401	0836	.3400 ✓	1833			
32 B	.3362	0837	.3364 ✓	1834			
33 B	.3388	0839	.3391 ✓	1835			
34 B	.3390	0840	.3392 ✓	1836			
35 B	.3362	0841	.3364 ✓	1837			
36 B	.3373	0842	.3373 ✓	1839			
37 B	.3408	0842	.3406 ✓	1840			
38 B	.3397	0844	.3398 ✓	1841			
39 B	.3403	0845	.3403 ✓	1842			
40 B	.3405	0846	.3406 ✓	1844			

Checked by: h Date: 10-2-05 Time: 13:00

BALANCE ROOM ENVIRONMENTAL CONDITIONS

DATE	TIME	BY	WB	DB	% RH
9-19	0810	CP	60	74	44
9-20	1810	CW	64	77	49

BEAKER TARE WEIGHTS DATA SHEET #4-2

Into Dessicator: _____ Date: 9-8-05 Time: 1040 By: C. Waddington

BEAKER #	FIRST WEIGHT	TIME	SECOND WEIGHT	TIME	THIRD WEIGHT	TIME
1	104.9161	1306	104.9157	0922	✓	
2	106.2544	1307	106.2539	0923	✓	
3	107.7780	1308	107.7775	0924	✓	
4	108.7746	1309	108.7741	0925	✓	
5	97.4364	1310	97.4360	0926	✓	
6	41.2072	1312	91.2068	0927	✓	
7	97.1381	1313	97.1385	0928	✓	
8	108.6359	1314	108.6360	0929	✓	
9	108.0948	1315	108.0951	0930	✓	
10	105.7286	1315	105.7282	0931	✓	
11	104.7888	1317	104.7886	0932	✓	
12	98.2302	1318	98.2303	0933	✓	
13	104.1750	1319	104.1751	0934	✓	
14	97.9819	1320	97.9823	0936	✓	
15	104.7647	1321	104.7642	0937	✓	
16	95.7433	1322	95.7437	0938	✓	
17	104.5952	1323	104.5947	0939	✓	
18	108.8614	1324	108.8609	0940	✓	
19	106.5451	1325	106.5450	0942	✓	
20	108.5931	1326	108.5932	0943	✓	
21	108.2347	1328	108.2343	0944	✓	
22	105.9324	1331	105.9320	0945	✓	
23	104.5885	1332	104.5882	0946	✓	
24	106.4073	1333	106.4078	0948	✓	
25	99.6727	1334	99.6731	0949	✓	

SCALE ROOM ENVIRONMENTAL CONDITIONS

DATE	TIME	BY	DB	% RH	Checked by: <u>LY</u>
9-11	1300	CLW	75	44	
9-12	0920	CLW	74	48	Date: 9-13-05
					Time: 12:55 pm

WOODSTOVE DATA SHEET # 4-3 : CONSTANT WEIGHTS

UNIT: **S260** RUN: **3** DATE: **10-31-05** Page: **1** of **1**

Beaker #	Date	Time	By	Weight	Date	Time	By	Weight	Date	Time	By
6	11-1	1000	CP	91.2194	11-2	0932	KV	91.2182	11-3	1433	KV
7	11-1	1000	CP	97.1574	11-2	0933	KV	97.1562	11-3	1434	KV
8	11-1	1000	CP	108.6435	11-2	0935	KV	108.6413	11-3	1435	KV
9	11-1	1000	CP	108.1036	11-2	0937	KV	108.1012	11-3	1436	KV
10	11-1	1000	CP	105.7332	11-2	0938	KV	105.7315	11-3	1437	KV

Filter #	Date	Time	By	Weight	Date	Time	By	Weight	Date	Time	By
34F	10-31	1700	CP	.7065	11-1	0905	KV	.7067	11-2	0930	KV
34B	10-31	1700	CP	.3424	11-1	0905	KV	.3424	11-2	0930	KV

SCALE ROOM ENVIRONMENTAL CONDITIONS

Weighing Session	Date	Time	By	DB	%RH
1	11-1	0905	KV	77	45
2	11-2	0930	KV	74	48
3	11-3	1432	KV	73	47
4	11-4	1106	KV	72	46
5					

Weighing Session	Date	Time	By	DB	%RH
6					
7					
8					
9					
10					

WOODSTOVE DATA SHEET #4-4

SCALE QA SHEET

Dates: From 07/15/05 Through 10-20-2005	Scale: Sartorius	Model: A 120 S	SN: 37010004
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100 g weight	10 g weight	1 g weight	100 mg weight	Tech	Date	Time	Dry Bulb	% RH
99.9998	9.9999	.9999	.09998	BL	07/15	2000	78	46
99.9997	9.9998	1.0000	.1000	BL	07/19	2250	78	46
100.0000	9.9999	.9999	.0999	BL	07/20	0740	78	46
100.0000	9.9999	1.0000	.1000	BL	07/21	2100	78	46
99.9998	9.9998	.9999	.1000	BL	07/24	2200	78	46
100.0001	10.0000	1.0000	.1000	BL	07/27	1515	78	49
99.9998	10.0000	.9998	.1000	BL	07/28	0600	78	49
99.9999	10.0001	1.0000	.1000	BL	07/29	1210	78	49
100.0000	10.0000	1.0001	.09998	CW	9-6	0930	74	48
100.0000	9.9998	.9998	.09996	CW	9-7	0955	72	47
99.9999	10.0000	1.0001	.1000	CW	9-8	1010	78	43
99.9999	10.0001	.9999	.0999	CW	9-9	0945	75	48
99.9996	9.9999	1.0000	.1000	CW	9-10	1630	75	48
99.9999	9.9999	1.0000	.0999	CW	9-11	1300	75	44
99.9997	10.0000	1.0000	.09998	CW	9-12	0920	74	48
99.9998	10.0001	.9999	.0999	CW	9-13	0945	74	47
99.9996	10.0001	.9999	.0999	CW	9-14	1400	77	46
99.9997	10.0001	1.0001	.0999	CW	9-15	0815	75	48
99.9996	10.0000	1.0000	.1000	CW	9-16	0955	76	49
99.9998	10.0001	.9999	.09998	CW	9-17	1200	76	45
99.9997	9.9998	.9999	.09998	CW	9-18	1430	73	47
100.0004	10.0002	1.0000	.09998	CW	9-19	0810	74	44
100.0000	10.0000	1.0000	.1000	CW	9-20	1910	77	44
100.0000	10.0000	1.0000	.09998	CW	9-21	1620	78	46
100.0000	10.0001	1.0000	.0999	CW	9-22	1420	76	49
100.0004	10.0003	1.0000	.09997	CW	9-23	1300	72	46
99.9998	10.0001	1.0000	.0999	CW	10-1	1830	74	47
100.0006	10.0006	1.0000	.0999	CW	10-2	1830	69	47
100.0001	10.0001	.9998	.0999	CW	10-5	0840	74	47
99.9998	10.0001	1.0000	.0999	CW	10-6	0930	77	47
99.9998	10.0002	.9999	.1000	CW	10-8	1340	75	45
100.0006	10.0002	.9999	.09997	CW	10-10	1330	76	48
99.9999	10.0000	1.0001	.1000	CW	10-11	1020	77	46
99.9998	10.0002	.9999	.1000	CW	10-12	1000	74	44
100.0001	10.0001	1.0000	.09997	CW	10-13	1020	70	48
99.9999	10.0000	1.0001	.0999	CW	10-14	1000	70	48
100.0000	10.0001	.9999	.0999	CW	10-15	1440	72	46
99.9997	9.9999	1.0000	.1000	CW	10-20	1000	77	49

BLANK PROCESSING DATA SHEET # 5

UNIT Country Stoves 5260 RUN: 3 DATE: 10-31-2005

BLANKS DONE: 10-11-2005

BEAKER	A	B	C
	200 ml ACETONE	75 ml DICHLOR	200 ml WATER
	FISHER OPTIMA LOT # 023283	FISHER OPTIMA LOT # 035941	DWNA, Inc SparkleHes Distilled
FINAL WEIGHT	108.9008	106.3077	106.9670
TARE WEIGHT	108.8995	106.3066	106.9645
NET WEIGHT	.0013	.0011	.0025

TARE BEAKERS INTO DESC: TIME: 1900 DATE: 10-2-2005

DATE: 10-5 BY: CP DATE: 10-6 BY: CP DATE: BY:

BEAKER	1 ST WT	TIME	2 ND WT	TIME	3 RD WT	TIME
A	108.8996	0912	108.8995	1001	✓	
B	106.3065	0913	106.3066	1002	✓	
C	106.9642	0914	106.9645	1003	✓	

FINAL BEAKERS INTO DESC: TIME: 1000 DATE: 10-8-05

DATE: 10-10 BY: CP DATE: 10-11 BY: CP DATE: BY:

BEAKER	1 ST WT	TIME	2 ND WT	TIME	3 RD WT	TIME
A	108.9010	1348	108.9008	1105	✓	
B	106.3076	1349	106.3077	1106	✓	
C	106.9675	1350	106.9670	1109	✓	

TARE QC

DATE	TIME	BY	WB	DB	%
10-5	0840	CP	✓	74	44
10-6	0930	CP	✓	77	47

FINAL QC

DATE	TIME	BY	WB	DB	%
10-10	1330	CP	✓	76	48
10-11	1020	CP	✓	77	46

NET PARTICULATE CATCH CALCULATION DATA SHEET #6

UNIT Country Stores S260 RUN: 3 DATE: 10-31-2005

Blank Audit by CLW 10-14-2005

BLANK CALCULATIONS

Acetone : .0013 g ÷ 200 ml = .000007 g/ml
 Dichloromethane : .0011 g ÷ 75 ml = .000015 g/ml
 Distilled Water : .0025 g ÷ 200 ml = .000013 g/ml

FRONT HALF CATCH

FILTERS : .0337 g - 1 (# of Filters) .0000 g) = .0337 g
Total Catch
 BEAKERS : .0109 g - 90 ml Acetone .000007 g) = .0103 g
Total Catch Blank Value / ml Acetone

TOTAL FRONT HALF CATCH : .0440 g

BACK HALF CATCH

FILTERS : .0032 g - 1 (# of Filters) .0000 g) = .0032 g
Total Catch
 BEAKERS :
 Acetone : .0172 g - 120 ml Acetone .000007 g) = .0164 g
Total Catch Blank Value / ml Acetone
 Extract : .0054 g - 75 ml Dichloromethane .000015 g) = .0043 g
Total Catch Blank Value / Dichloromethane
 Water : .0085 g - 250 ml Water .000013 g) = .0052 g
Total Catch Blank Value / Water

TOTAL BACK HALF CATCH : .0291 g

TOTAL CATCH : .0731 g

% FRONT HALF : 60.2 %

CALCULATIONS DATA SHEET # 7

UNIT: Country Stoves 5260 RUN: 3 DATE: 10-31-2005

$$1) Vm (std) = \frac{(55.533 Vm) (17.64) (1.008 mcf) \left(30.10 \text{ " Hg} + \frac{.172 \text{ " H}_2\text{O}}{13.6} \right)}{(557 TmA)} = \frac{53.3831}{000.0000} \text{ dscf}$$

$$2) Vw (std) = (.04707) \left(\frac{6320}{00.0000} \text{ ml H}_2\text{O} \right) = \frac{2.9748}{00.0000} \text{ scf}$$

$$3) Asw = \frac{\left(\frac{2.9748}{2.9748 \text{ scf} + 53.3831 \text{ dscf}} \right) = \frac{.0528}{.0000} \text{ Bws} \times 100 = \frac{5.2784}{00.0000} \% \text{ H}_2\text{O}$$

$$4) Cs = \frac{\left(\frac{.0731 \text{ g.}}{53.3831 \text{ dscf}} \right) (15.43) = \frac{.0211}{0.0000} \text{ gr / dscf}$$

$$5) \text{ Estimated g / hr} = \frac{\left(\frac{.0731 \text{ g.}}{53.3831 \text{ dscf}} \right) \left(\frac{13.4430}{00.0000} \text{ dscfm} \right) (60) = \frac{1.1045}{00.0000} \text{ g / hr}$$

Vm =	total cubic feet pulled on meter box during test	(p. 2)	(000.000 Vm)
mcf =	meter correction factor (Y factor) of meter box used for test	(p. 2)	(0.000 mcf)
" Hg =	average barometric pressure during test	(p. 2)	(00.00 " Hg)
" H ₂ O =	average delta H for test	(p. 2)	(.000 " H ₂ O)
TmA =	average meter temperature for test in degrees Absolute	(p. 2)	(000 TmA)
ml H ₂ O =	total water caught during test	(p. 3)	(000.0 ml H ₂ O)
g =	total particulate catch for test	(p. 6)	(00.0000 g.)
dscfm =	average stack flow during test	(p. 2)	(00.000 dscf)

56.3579

TEST DATA SHEET # 8

UNIT: Country Stoves SZ60 RUN: 3 DATE: 10-31-2005

Test Chamber Air Velocity Start: 0 Stop: 0 Avg.: 0

Wet Bulb / Dry Bulb

Pre: WB: 63 DB: 76 = 48 % RH 1.5 % H₂O

Post: WB: 63 DB: 78 = 43 % RH 1.4 % H₂O

Average: 45.5 % RH 1.45 % H₂O

Empty Stove Weight (lbs): — w/ stack & oil seal: Wet: — Dry: 53.9

Kindling Weight (lbs): Paper: .2 Wood: 3.8

Preburn Fuel Weight: 12.8 + 14.9 + 15.3 Total: 43.0

Kindling & Preburn Fuel Weight (wood only) (lbs): Total: 46.8

Coal Bed Wt Range (lbs): 4.2 - 3.5 Scale: 518.1 - 517.4

Upper: .25 x fuel weight: Always round DOWN to nearest tenth

Lower: .20 x fuel weight: Always round UP to nearest tenth Actual Coal Bed Weight: 4.2

Maximum Coal Bed Removal (lbs): $((\frac{4.2}{\text{Upper}} + \frac{3.5}{\text{Lower}}) \div 2) \cdot .25 = \underline{.9}$ round down to nearest tenth

Test Fuel (.75" x 1.5" x 5" spacers) = 20 pcs

Dimensions	Length in inches	No. Pcs	Weight in lbs	% of Load
2" x 4"	<u>16</u>	<u>4</u>	<u>8.9</u>	<u>52.0</u>
4" x 4"	<u>16</u>	<u>2</u>	<u>8.2</u>	<u>48.0</u>

Test Fuel Weight: 17.1 lbs

Estimated Dry Burn Rate:

$$\frac{17.1 - (17.1 \times .18182)}{2.2046} \times \frac{60}{160} = \underline{2.380} \text{ kg/hr}$$

$$\text{Estimated BTU's/hr: } 19,140 \times \frac{63}{100} \times \frac{2.380}{\text{DBR}} = \underline{28698.5} \text{ BTU's/hr}$$

EPA Default Efficiencies:

Non-cat: 63

Cat: 72

Pellet: 78

WOOD STOVE OPERATING DATA PAGE #9

Unit: Country Stoves SZ60 Run: 3 Date: 10-31-2005

FIRE STARTED: 0800

WARM UP AND PREBURN:

PRIMARY AIR: Set wide open for all warm-up / preburn fuel charges. Then set to 2" at start of preburn.

SECONDARY AIR: N/A CAT BYPASS: N/A

CHARCOAL BED PREPARATION:

Raked and leveled prior to each warm-up / preburn charge. At 1 1/2 min. prior to loading last fuel, raked and leveled. In stove 20 sec.

TEST:

DOOR wide open during loading - min. 50 sec.

PRIMARY AIR: Opened full for first 5 min., then set to run setting of 2"

SECONDARY AIR: N/A CAT BYPASS: N/A

FAN:

~~ON~~ / ~~OFF~~ during warm-up

~~ON~~ / ~~OFF~~ first 30 minutes of test

Fan speed set at Low

~~ON~~ / ~~OFF~~ during preburn

~~ON~~ / ~~OFF~~ balance of test run

WOOD DATA: KINDLING: A mix of the grades listed below:

	SIZE	MILL	GRADE	SPECIES
PREBURN:	2x4	Manke/Tacoma	Std. or better	s. grn D fir
TEST:	2x4	Packwood	# 2 or better	s. grn D fir
	4x4	Packwood	# 2 or better	s. grn D fir

PELLET FUEL MANUFACTURER: N/A BRAND: N/A

All Grades WCLB rules:

WARM UP INFORMATION:

All pre-burn / warm up fuel pieces were either 15 or - inches.

1st warm up / pre-burn fuel charge (12.8 lbs.) added at 0808

2nd warm up / pre-burn fuel charge (14.9 lbs.) added at 0900

3rd warm up / pre-burn fuel charge (15.3 lbs.) added at 0957

4th warm up / pre-burn fuel charge (lbs.) added at

5th warm up / pre-burn fuel charge (lbs.) added at

TEST DATA SHEET #10

Unit: Country Stoves 5260 Run: 3 Date: 10-31-2005

Room Temperature: 68 °F Correction Factor: 0

Uncorrected Values are corrected for room temperature: Yes No ✓

Time Test Fuel moisture reading taken: 1015

Calibration Checks: X ✓ Y ✓ 12.0 12.1 22.0 22.1

pc #	Dimen.	Use	TOP		BOTTOM		SIDE		Average Corrected
			Uncor.	Cor.	Uncor.	Cor.	Uncor.	Cor.	
1	2"x4"x8'	K	12.5	13.3	13.0	13.8	13.0	13.8	13.633
2									
3									
4	2"x4"x8'	P	19.0	20.3	19.0	20.3	18.5	19.8	20.133
5	2"x4"x8'	P	18.0	19.2	18.0	19.2	18.0	19.2	19.200
6	2"x4"x8'	P	21.5	23.1	23.0	24.7	23.0	24.7	24.167
7	2"x4"x8'	P	21.0	22.5	21.0	22.5	21.5	23.1	22.700
8	2"x4"x8'	P	20.0	21.4	21.0	22.5	21.0	22.5	22.133
9									108.333
10									
11	2x4x16	T	18.5	19.8	18.5	19.8	18.5	19.8	19.800
12	"	T	19.0	20.3	19.0	20.3	19.0	20.3	20.300
13	"	T	23.0	24.7	23.5	25.2	23.5	25.2	25.033
14	"	T	23.5	25.2	23.5	25.2	23.5	25.2	25.200
15	4x4x16	T	20.0	21.4	20.0	21.4	20.5	22.0	21.600
16	"	T	20.0	21.4	20.0	21.4	20.0	21.4	21.400
17									133.333
18									
19									
20	Spacers	T	23.0	24.7	23.0	24.7	22.5	24.1	24.500

Key for Use: K = Kindling P = Pretest Fuel T = Test Fuel

	KINDLING	PRETEST FUEL	TEST FUEL
Dry Moisture %:	13.633 %	21.667 %	22.222 %
Wet Moisture %:	11.997 %	17.808 %	18.182 %

To obtain Wet from Dry: $\frac{100 \times \% \text{ Dry Reading}}{100 + \% \text{ Dry Reading}} = \% \text{ Moisture, Wet Basis}$

Acceptable Ranges: 16 - 20 % wet: 19 - 25 % dry (17.5 - 22.5 on Meter Uncor. reading) at 70°

GAS DATA SHEET #12

WEIGHT: 518.1

DATE: 10 - 31 - 2005

UNIT: Country Stores S260

RUN: 3

PAGE: 1 OF

TIME	SCALE	FUEL	DROP	V.	CO ₂	V.	O ₂	V.	CO	STATIC	SO ₂ PPM
0	1150	535.2	17.1	—	.090	2.3	.721	18.1	.046	.45	275
5	1155	534.4	16.3	0.8	.325	8.1	.496	12.4	.028	.27	250
10	1200	533.6	15.5	0.8	.291	7.3	.529	13.3	.026	.25	300
15	05	532.3	14.2	1.3	.457	11.4	.368	9.2	.020	.19	300
20	10	530.9	12.8	1.4	.562	14.0	.265	6.7	.016	.15	275
25	15	529.5	11.4	1.4	.636	15.9	.181	4.5	.037	.36	300
30	20	528.0	9.9	1.5	.656	16.4	.149	3.8	.066	.65	350
35	25	526.7	8.6	1.3	.577	14.4	.247	6.2	.021	.20	300
40	30	525.7	7.6	1.0	.450	11.2	.381	9.5	.007	.06	275
45	35	524.8	6.7	0.9	.379	9.5	.449	11.3	.006	.05	275
50	40	524.1	6.0	0.7	.333	8.3	.496	12.4	.008	.07	250
55	45	523.5	5.4	0.6	.303	7.6	.521	13.0	.017	.16	275
SUBTOTAL	*****	*****	*****	*****	*****	*****	*****	*****	*****	-.666	*****
60	1250	523.0	4.9	0.5	.297	7.4	.528	13.2	.018	.17	250
65	55	522.4	4.3	0.6	.341	8.5	.486	12.2	.014	.13	250
70	1300	521.9	3.8	0.5	.319	8.0	.506	12.7	.014	.13	250
75	05	521.4	3.3	0.5	.288	7.2	.536	13.4	.018	.17	250
80	10	521.0	2.9	0.4	.275	6.9	.548	13.7	.019	.18	250
85	15	520.6	2.5	0.4	.264	6.6	.560	14.0	.020	.19	225
90	20	520.3	2.2	0.3	.260	6.5	.565	14.1	.017	.16	250
95	25	520.0	1.9	0.3	.257	6.4	.568	14.2	.020	.19	225
100	30	519.8	1.7	0.2	.211	5.3	.611	15.3	.021	.20	225
105	35	519.6	1.5	0.2	.197	4.9	.623	15.6	.032	.31	225
110	40	519.4	1.3	0.2	.167	4.2	.640	16.0	.060	.59	250
115	1345	519.3	1.2	0.1	.161	4.0	.645	16.1	.067	.66	250
SUBTOTAL	*****	*****	*****	*****	*****	*****	*****	*****	*****	-.572	*****
120	50	519.1	1.0	0.2	.155	3.9	.651	16.3	.061	.60	250
125	55	519.0	0.9	0.1	.155	3.9	.650	16.3	.064	.63	225
130	1400	518.8	0.7	0.2	.162	4.1	.642	16.1	.063	.62	225
135	05	518.7	0.6	0.1	.157	3.9	.650	16.3	.065	.64	225
140	10	518.6	0.5	0.1	.155	3.9	.648	16.2	.070	.69	225
145	15	518.5	0.4	0.1	.148	3.7	.658	16.5	.064	.63	225
150	20	518.4	0.3	0.1	.144	3.6	.661	16.6	.066	.65	225
155	25	518.2	0.1	0.2	.129	3.2	.675	16.9	.071	.70	225
160	30	518.1	0.0	0.1	.129	3.2	.675	16.9	.072	.71	225
165	35										
170	40										
175	1445										
SUBTOTAL	*****	*****	*****	*****	*****	*****	*****	*****	*****	-.346	*****
TOTAL	*****	*****	*****	*****	*****	*****	*****	*****	*****	-1.584	*****

33

-.048

40

PAGE:

PAGE:

[illegible]

Temperature Data Sheet #14

Country S360

Time	Stack Chn 103	Top Chn 104	LT Side Chn 105	Back Chn 106	Rt Side Chn 107	Bottom Chn 108	Firebox Chn 109	Sec/Cat Chn 110	Ambient Chn 111	Tube Furn Chn 112	Smpl Box Chn 113	Smpl Out Chn 114	C-Gas Box Chn 115	C-Gas Out Chn 116	SO2 Out Chn 117

0	262	241	373	302	314	377	#####	#####	76	1338	246	55	245	37	38
5	434	253	365	324	303	370	#####	#####	77	1338	243	49	245	37	38
10	443	297	356	329	292	364	#####	#####	76	1354	243	47	246	37	38
15	561	368	351	325	283	357	#####	#####	77	1351	242	49	246	37	38
20	619	435	352	319	279	350	#####	#####	78	1347	242	49	246	37	38
25	667	490	362	314	279	344	#####	#####	77	1346	243	49	246	37	38
30	675	537	379	311	284	339	#####	#####	78	1343	244	49	247	37	39
35	634	559	401	287	297	334	#####	#####	82	1340	243	52	247	37	39
40	566	546	424	275	309	332	#####	#####	83	1337	241	52	247	37	38
45	520	513	442	271	322	330	#####	#####	84	1337	240	52	247	37	38
50	486	482	456	270	334	329	#####	#####	84	1336	239	53	247	38	38
55	463	453	465	273	342	328	#####	#####	84	1334	239	54	247	38	38
60	446	433	470	277	347	326	#####	#####	85	1332	238	54	247	38	38
65	447	419	470	282	352	325	#####	#####	85	1331	237	54	247	38	38
70	440	408	468	288	354	323	#####	#####	85	1330	237	55	246	38	38
75	429	397	466	296	356	321	#####	#####	85	1333	236	55	248	38	38
80	420	384	464	304	357	321	#####	#####	85	1338	237	55	248	38	37
85	413	374	461	313	357	320	#####	#####	83	1335	236	55	248	38	37
90	407	364	457	323	356	319	#####	#####	84	1330	236	54	248	38	37
95	403	356	454	336	355	319	#####	#####	84	1329	236	55	248	38	37
100	375	343	451	350	355	320	#####	#####	84	1327	236	54	248	38	37
105	365	331	448	360	352	321	#####	#####	84	1326	235	54	248	38	36
110	348	318	442	363	350	322	#####	#####	84	1325	235	54	247	37	36
115	340	306	435	361	346	323	#####	#####	82	1325	236	56	246	37	36
120	332	297	428	359	340	324	#####	#####	83	1325	236	56	246	37	36
125	326	288	419	358	333	324	#####	#####	83	1325	236	56	246	37	36
130	320	281	411	358	327	324	#####	#####	82	1325	236	57	246	37	36
135	317	274	404	359	322	324	#####	#####	82	1325	236	57	245	36	36
140	314	268	397	360	316	324	#####	#####	81	1325	236	57	244	36	36
145	308	262	390	361	310	324	#####	#####	81	1325	237	52	244	36	36
150	304	257	384	361	307	324	#####	#####	80	1327	237	52	244	36	36
155	297	252	378	360	302	325	#####	#####	80	1328	237	52	244	36	36
160	291	246	371	358	298	325	#####	#####	80	1328	236	51	243	36	36

TEMPERATURE DATA SHEET #14A

TEST TIME	160		
STACK AVG	423	TOP AVG	365
		LT SIDE AVG	418
BACK AVG	324	RT SIDE AVG	325
		BOTTOM AVG	331
FIREBOX AVG #####		SEC/CAT AVG #####	AMBIENT AVG
			82

END	319.6
START	321.5
	<u>-1.9</u>
	DELTA T

CIRCLE: LOSS / GAIN

ZERO / SPAN CHECK DATA SHEET #15-1

Date : 10-31-2005

Analyte : CO₂ (15-1)

Unit : COUNTRY STOVES 5260

Run # : 3

Zero Cyl. # : 168TAC 3-A

Conc. : 0.00 % CO₂

Cyl. Press. : 1800 PSI

Certified by : AIR LIQUIDE

Date : 04-19-04

Span Cyl. # : CC-3131

Conc. : 12.40 % CO₂

Cyl. Press. : 400 PSI

Certified by : AIR LIQUIDE

Date : 03-13-03

Analyzer : Make : HORIBA

Model : PIR-2000

SN : 407069

Range : 0 - 25.0 % CO₂

Analyzer Output : 0 - 1.0 v.

Flow : 1.5 SCFH

Measured by : Rotameter

EPA Span Value = 25.0 % CO₂

EPA Control Limits = $\pm 2.5\%$ of 25.0 % CO₂ = $\pm 0.625\%$ CO₂

Method 28 A = $\pm .2\%$ of 25.0 % CO₂ = $\pm .05\%$ CO₂

PRE RUN Audit : by C. Waddington Time : 1015 Temp : 80 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	00.0	.000	.012	.012	.050
SPAN	49.6	.496	12.40	49.4	.494	12.324	-.076	-.305

POST RUN Audit : by C. Waddington Time : 1445 Temp : 79 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	00.0	-.001	-.013	-.013	-.050
SPAN	49.6	.496	12.40	49.7	.497	12.399	-.001	-.006

± Conc. Difference = Act % - Exp (Std) %

Zero % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

Span % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

ZERO / SPAN CHECK DATA SHEET #15-2

Date: 10-31-2005 Analyte: O₂ (15-2)
 Unit: Country Store 5260 Run #: 3
 Zero Cyl. #: 168TAC 3A Conc.: 0.00 % O₂ Cyl. Press.: 1800 PSI
 Certified by: AIR LIQUIDE Date: 04-19-04
 Span Cyl. #: CC-3131 Conc.: 12.40 % O₂ Cyl. Press.: 400 PSI
 Certified by: AIR LIQUIDE Date: 03-13-03
 Analyzer: Make: TELEDYNE Model: 320 A SN: 37400
 Range: 0 - 25.0 % O₂ Analyzer Output: 0 - 1.0 v.
 Flow: 1.5 SCFH Measured by: Rotameter

EPA Span Value = 25.0 % O₂
 EPA Control Limits = $\pm 2.5\%$ of 25.0 % O₂ = ± 0.625 % O₂
 Method 28 A = $\pm .2\%$ of 25.0 % O₂ = $\pm .05$ % O₂

PRE RUN Audit : by: GWadington Time: 1015 Temp: 80 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	00.0	.000	.015	.015	.060
SPAN	12.50	.500	12.50	12.5	.501	12.545	.045	.179

POST RUN Audit : by: GWadington Time: 1445 Temp: 79 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	00.0	.000	.015	.015	.060
SPAN	12.50	.500	12.50	12.5	.499	12.495	-.005	-.021

$\pm \text{Conc. Difference} = \text{Act \%} - \text{Exp (Std) \%}$
 $\text{Zero \% Difference} = \frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$
 $\text{Span \% Difference} = \frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

ZERO / SPAN CHECK DATA SHEET #15-3

Date : 10 - 31 - 2005

Analyte : CO (15-3)

Unit : Country Stoves 5260 Run # : 3

Zero Cyl. # : 168TAC 3-A Conc. : 0.00 % CO

Cyl. Press. : 1800 PSI

Certified by : AIR LIQUIDE

Date : 04-19-04

Span Cyl. # : CC-3131 Conc. : 12.40 % CO

Cyl. Press. : 400 PSI

Certified by : AIR LIQUIDE

Date : 03-13-03

Analyzer : Make : HORIBA

Model : PIR-2000

SN : 408005

Range : 0 - 10.0 % CO

Analyzer Output : 0 - 1.0 v.

Flow : 1.5 SCFH

Measured by : Rotameter

EPA Span Value = 10.0 % CO

EPA Control Limits = $\pm 2.5\%$ of 10.0 % CO = $\pm 0.25\%$ CO

Method 28 A = $\pm .2\%$ of 10.0 % CO = $\pm .02\%$ CO

PRE RUN Audit : by C. Wadlington Time : 10:15 Temp : 80 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	00.0	.001	-.020	-.020	-.198
SPAN	50.2	.502	5.02	50.3	.503	5.039	.019	.193

POST RUN Audit : by C. Wadlington Time : 14:45 Temp : 79 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	00.0	.000	-.010	-.010	-.098
SPAN	50.2	.502	5.02	50.2	.502	5.029	.009	.093

± Conc. Difference = Act % - Exp (Std) %

Zero % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

Span % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

ZERO / SPAN CHECK DATA SHEET #15-4

Date: 10-31-2005

Analyte: SO₂ (15-4)

Unit: Country Stoves 5260 Run #: 3

Zero Cyl. #: 168TAC 3-A Conc.: 0.00 ppm SO₂ Cyl. Press.: 1800 PSI

Certified by: AIR LIQUIDE Date: 04-19-04

Span Cyl. #: CC62184 Conc.: 1290 ppm SO₂ Cyl. Press.: 690 PSI

Certified by: AIR LIQUIDE Date: 01-29-01

Analyzer: Make: HORIBA Model: PIR-2000 SN: 403019

Range: 0 - 2500 ppm SO₂ Analyzer Output: 0 - 1.0 v.

Flow: 1.5 SCFH

Measured by: Rotameter

EPA Span Value = 2500 ppm SO₂

EPA Control Limits = $\pm 2.5\%$ of 2500 ppm SO₂ = ± 62.5 ppm SO₂

PRE RUN Audit: by C. Wadington Time: 1015 Temp: 80 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	PPM	Meter	DVM	%		
ZERO	00.0	.000	00.0	00.0	-.002	-4.974	-4.974	-.199
SPAN	51.6	.516	1290	51.8	.518	1294.8	4.807	.192

POST RUN Audit: by C. Wadington Time: 1445 Temp: 79 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	PPM	Meter	DVM	%		
ZERO	00.0	.000	00.0	00.0	-.001	-2.474	-2.474	-.099
SPAN	51.6	.516	1290	51.6	.516	1289.8	-.192	-.008

± Conc. Difference = Act % - Exp (Std) %

Zero % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

Span % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

QUALITY CHECKS DATA SHEET # 16

UNIT: Country Stoves SZ40 RUN: 3 DATE: 10-31-2005

Thermocouple Check:

T/C # 1	<u> </u>	°F	T/C # 13	<u>60.0</u>	°F
T/C # 2	<u> </u>	°F	T/C # 14	<u>60.0</u>	°F
T/C # 3	<u>60.4</u>	°F	T/C # 15	<u>60.0</u>	°F
T/C # 4	<u>56.7</u>	°F	T/C # 16	<u>62.8</u>	°F
T/C # 5	<u>55.1</u>	°F	T/C # 17	<u>60.6</u>	°F
T/C # 6	<u>54.6</u>	°F	T/C # 18	<u>63.0</u>	°F
T/C # 7	<u>55.0</u>	°F	T/C # 19	<u>58.2</u>	°F
T/C # 8	<u>54.5</u>	°F	T/C # 20	<u> </u>	°F
T/C # 9	<u> </u>	°F	T/C # 21	<u> </u>	°F
T/C # 10	<u> </u>	°F	T/C # 22	<u> </u>	°F
T/C # 11	<u>55.6</u>	°F	T/C # 23	<u> </u>	°F
T/C # 12	<u>61.4</u>	°F	T/C # 24	<u> </u>	°F

Thermocouple Readout:

Pretest zero and span check and calibration

post test zero and span

% difference

ZERO 2.4 °F Adj. to 0.0 °F

ZERO 1.0 °F Difference -.050 %

SPAN 1994.5 °F Adj. to 2000.0 °F

SPAN 2003.1 °F Difference .155 %

Thermocouple Readout Pretest Linearity Check:

0	= <u>0.0</u>	°F	200	= <u>200.0</u>	°F	400	= <u>399.9</u>	°F
600	= <u>600.1</u>	°F	800	= <u>799.7</u>	°F	1000	= <u>999.8</u>	°F
1200	= <u>1199.7</u>	°F	1400	= <u>1399.5</u>	°F	1600	= <u>1599.5</u>	°F
1800	= <u>1800.3</u>	°F	2000	= <u>2000.0</u>	°F			

Sample Train Leak Check

Pre X

Post X

C-gas Train Leak Check

Pre X

Post X

SO₂ Train Leak Check

Pre X

Post X

Static Gauge Zero Check

Pre X

Post X

Scale Check Pre : 532.5 - 522.5 = 10.0

Post : 527.9 - 517.9 = 10.0

Stack Cleaned Prior to Test Run : YES NO X

TABLE 1 ---- RAW DATA

CLIENT : Country

TEST No. : 5

MODEL: S260

DATE: 02-Nov-05

TIME (MIN.)	METER READING (C F)	DELTA H (IN. H2O)	METER TEMP. (DEG. F)	PERCENT CO (%)	PERCENT CO2 (%)	SO2 COCENTR. PPM
0	76.000	0.150	95	0.27	3.90	225
5	77.500	0.120	96	0.17	14.80	250
10	78.924	0.100	98	0.42	16.60	275
15	80.227	0.100	100	0.32	16.80	275
20	81.541	0.100	100	0.30	17.30	275
25	82.854	0.100	102	0.13	16.40	275
30	84.176	0.100	102	0.06	13.80	275
35	85.499	0.120	102	0.00	10.60	250
40	86.954	0.120	102	0.03	9.80	250
45	88.408	0.120	102	0.05	8.90	250
50	89.863	0.120	103	0.11	7.50	250
55	91.322	0.120	103	0.07	8.40	250
60	92.782	0.110	103	0.11	7.00	250
65	94.252	0.140	103	0.13	6.80	225
70	95.886	0.140	103	0.14	6.60	225
75	97.519	0.140	103	0.16	6.10	225
80	99.152	0.140	103	0.21	5.30	225
85	100.786	0.140	103	0.33	4.80	225
90	102.419	0.140	103	0.35	4.70	225
95	104.052	0.140	103	0.34	4.60	225
100	105.685	0.140	103	0.41	4.30	225
105	107.319	0.140	103	0.45	4.20	225
110	108.952	0.140	103	0.43	4.20	225
115	110.585	0.140	103	0.48	3.90	225
120						

TABLE 2---RAW DATA

CLIENT : Country TEST No. 5
MODEL: S260 DATE: 02-Nov-05

METER CAL. FACTOR (Y) -----	1.008	Wt. WOOD BURNED(LB) -----	17.4	Lbs
BAROMETRIC PRESS.(Pb) -----	29.84 in Hg	WET,FUEL MOISTURE % -----	17.97	%
LEAK RATE POST (Lp) -----	0.016 cfm	Wt. PART. COLLECTED -----	0.0473	g
WATER VOL. (V1c) -----	52.8 MI	METER VOLUME Vm -----	34.585	mcf
TEST TIME (MIN) -----	115 min	HC MOLE FRACTION -----	0.0132	

TABLE 3 ----FIELD DATA AVERAGES

CLIENT : Country

TEST No. 5

MODEL: S260

DATE: 02-Nov-05

AVG DELTA H	-----	0.13 in H2O	AVG PRCNT CO	-----	0.23	%
AVG METER TEMP. Tm	-----	102 deg F	AVG PRCNT CO2	-----	8.64	%
AVG PPM SO2	-----	243 PPM	AVG BAL CO2/CO	-----	37.90	%

TABLE 4 ---- CALCULATIONS

CLIENT :	Country	TEST No.	5
MODEL:	S260	DATE:	02-Nov-05

STD SAMPLE VOL. Vm(std) d) -----	32.70 dscf	STACK GAS FLOW Qsd -----	1194.640 dscf/Hr & 19.91 dscf/min
VOL. WATER VAPOR Vw(s td) -----	2.485 scf	PARTICULATE CONCTRT. C s -----	0.0014 g/dscf
PRCNT MSTR Bws -----	7.06 %	PARTC.EMISS. RATE E -----	1.73 g/Hr
BURN RATE BR -----	3.38 Kg/Hr	MOLES OF GAS PER Lb WOOD Nt ----	0.42 Lb-mole/Lb
CO EMISSION RATE -----	91.18 g/Hr & 26.99 g/Kgdry fuel	PART.EMISS. RATE -----	0.51 g/Kgdry fuel

TABLE 5 ---- PROPORTIONAL RATE VARIATION

CLIENT : Country TEST No. : 5

MODEL: S260 DATE: 02-Nov-05

TIME INTEVAL Ti	PPM * Vm	PROPRTN. RATE VAR. PR	PROPRTN RATE VAR. AVERAGE
=====	=====	=====	=====
5	322.7	94	100
10	339.4	99	
15	340.4	99	
20	342.7	100	
25	341.8	99	
30	343.5	100	
35	343.8	100	
40	343.7	100	
45	343.5	100	
50	343.4	100	
55	344.0	100	
60	344.3	100	
65	346.6	101	
70	346.8	101	
75	346.6	101	
80	346.6	101	
85	346.8	101	
90	346.6	101	
95	346.6	101	
100	346.6	101	
105	346.8	101	
110	346.6	101	
115	346.6	101	

COMPUTER INPUT DATA SHEET #1

Client: Country Stoves
 Address: 1502 14th Street Northwest
Auburn, WA 98071-0959
 Phone: 253-735-1100 Fax: 253-931-1271
 Run No.: 5 Date of Test: 11 - 2 - 2005 Burn Rate: 3.378
 Model No.: S260 ☐ min ☐ min-1.25 ☐ fan
 Stove Type: ☐ Cat ☒ Non Cat ☐ Pellet ☐ 1.25-1.9 ☒ max ☐ insert
 Dry Gas Meter Y Factor: 1.008 Post Leak Rate: .016 cfm Time: 115 min.
 (0.000) (Data Sheet #2) (0.000) (Data Sheet #2) (0.000) (Data Sheet #2)
 Dry Gas Meter Volume: 34.585 cfm
 (00.000) (Data Sheet #2)
 Stack Flow: 13.729 dscfm Δ H: .126 in. H₂O
 (00.000) (Data Sheet #2) (0.000) (Data Sheet #2)
 Maximum Vac.: 1.0 Barometric Pressure: 29.84 in. Hg
 (0.0) (Data Sheet #2) (00.00) (Data Sheet #2)
 H₂O Captured: 52.8 g
 (00.0) (Data Sheet #3)
 Front Half Catch % Of Total: 78.0 % Total Particulate Catch: .0473 g
 (00.0) (Data Sheet #6) (0.0000) (Data Sheet #6)
 Flue Gas Moisture: 7.0711 %
 (00.000) (Data Sheet #7)
 Particulate Emission: .0223 gr/dscf
 (0.0000) (Data Sheet #7)
 Relative Humidity: 38 % RH Ambient Moisture: 1.3 % H₂O
 (00.0) (Data Sheet #8) (0.00) (Data Sheet #8)
 Preburn Fuel Wt.: 43.9 lbs. Coal Bed Wt.: 4.0 lbs. Test Fuel Wt.: 17.4 lbs.
 (00.0) (Data Sheet #8) (00.0) (Data sheet #8) (00.0) (Data sheet #8)
 Heat Output (EPA Default): 40,732.6 BTU/hr
 (00,000.0) (Data Sheet #8)
 Kindling Fuel % Moisture (wet): 13.420 % Pretest Fuel % Moisture (wet): 17.316 %
 (00.000) (Data Sheet #10) (00.000) (Data Sheet #10)
 Test Fuel % Moisture (dry): 21.906 % Test Fuel % Moisture (wet): 17.970 %
 (00.000) (Data Sheet #10 [wood stove] or #11 [pellet stove])
 Fuel Higher Heating Value (dry): — BTU/lb.
 (0000) (Data Sheet #11)
 Stack Static Pressure: -.059 in. H₂O
 (+/- .000) (Data Sheet #12)
 Average Ambient Temperature: 82 °F Stove Temperature Change: -115.9 °F
 (00) (Data Sheet #14) (+/- 000.0) (Data Sheet #14)

Start = 1125
 End = 1320

Temp
 562

METER BOX DATA SHEET PAGE # 2

Page: 1 of 1

UNIT: Country Stores SZLO RUN: 5

DATE: 11 - 2 - 2005

Meter Box: 5H Y Factor: 1.008

Leak checks: 15 " Hg @ .009 cfm _____ " Hg @ _____ cfm

15 " Hg @ .016 cfm _____ " Hg @ _____ cfm

Inject SO₂ @ 100 cc/min. Nozzle: Probe @ 3/8" od Initial Volume: 1,500

ROTO: PRESS: <u>.17</u>			SAMPLING RATIO: <u>49</u> : 1				BP: <u>29.94</u>		
MIN	TIME	METER READING	SAMPLE MDCF	STACK DSCFM	DELTA H	METER TEMP	SO2 PPM	ROTO TEMP	PUMP VACC
0	1125	76.000	—	14.951	.15	95	225	95	1.0
5	30	77.500	—	13.431	.12	96	250	96	1.0
10	35	78.924	78.924	12.167	.10	98	275	98	1.0
15	40	80.227	80.227	12.123	.10	100	275	100	1.0
20	45	81.541	81.541	12.123	.10	100	275	100	1.0
25	50	82.854	82.854	12.080	.10	102	275	102	1.0
30	55	84.176	84.176	12.080	.10	102	275	102	1.0
35	1200	85.499	85.499	13.288	.12	102	250	102	1.0
40	05	86.954	86.954	13.288	.12	102	250	102	1.0
45	10	88.408	88.408	13.288	.12	102	250	102	1.0
50	15	89.863	89.863	13.264	.12	103	250	103	1.0
55	20	91.322	91.322	13.264	.12	103	250	103	1.0
ROTO PRESS: <u>.17</u>			TOTALS: 155.347 1.37 1205				BP: <u>29.73</u>		
60	1225	92.782	92.782	13.171	.11	103	250	103	1.0
65	30	94.252	94.252	14.635	.14	103	225	103	1.0
70	35	95.884	95.886	14.635	.14	103	225	103	1.0
75	40	97.519	97.519	14.635	.14	103	225	103	1.0
80	45	99.152	99.152	14.635	.14	103	225	103	1.0
85	50	100.786	100.786	14.635	.14	103	225	103	1.0
90	55	102.419	102.419	14.635	.14	103	225	103	1.0
95	1300	104.052	104.052	14.635	.14	103	225	103	1.0
100	05	105.685	105.685	14.635	.14	103	225	103	1.0
105	10	107.319	107.319	14.635	.14	103	225	103	1.0
110	15	108.952	108.952	14.635	.14	103	225	103	1.0
115	20	110.585	110.585	14.635	.14	103	225	103	1.0
			TOTALS: 174.156 1.65 1236				MAX VACC = <u>1.0</u>		
TOTAL Cu/Ft. <u>34.585</u>			TOTALS: 329.503 3.02 2441				AVG. BP: <u>29.84</u>		

÷24

13.729

.126

102

+ 460

562

PARTICULATE CATCH / MOISTURE DATA SHEET # 3

UNIT: S260 RUN: 5 DATE: 11-2-05

SCALE CHECK	LEVEL	ZEROED
INITIAL:	✓	✓
FINAL:	✓	✓

SCALE	WEIGHT
295.0 g	295.0
590.0 g	590.0
885.0 g	885.0

IMPINGER	#1	#2	#3	#4
FINAL WT	650.1	577.5	486.6	921.4
INITIAL WT	603.7	575.8	485.7	917.6
NET WT GRAMS	46.4	1.7	.9	3.8

TOTAL CATCH: 52.8 GRAMS H₂O

FRONT HALF

FILTER #	36F	
FINAL WT g	.7017	
INITIAL WT g	6.704	
NET WT g	.0313	

BEAKER #	16
DESC.	ACETONE
FINAL WT g	95.7498
INITIAL WT g	95.7437
NET WT g	.0061
VOL. DESC. ml	75

BACK HALF

FILTER #	36B	
FINAL WT g	.3388	
INITIAL WT g	.3373	
NET WT g	.0015	

BEAKER #	17	18	19	20	
DESC.	ACETONE	METHCHLOR	H ₂ O	H ₂ O	
FINAL WT g	104.6028	108.8633	106.5466	108.5933	
INITIAL WT g	104.5947	108.8609	106.5450	108.5932	
NET WT g	.0081	.0024	.0016	.0001	(.0017)
VOL. DESC ml	75	75	125	125	(250)

FILTER TARE WEIGHTS DATA SHEET #4-1

Into Dessicator : _____ Date: 9-2-05 Time: 1515 By: C. Winding

Manufacturer S & S Grade: # 25 Glass Front Size: 11 cm Lot No.: 2B921

Back Size: 8.2 cm Lot No.: B1044632

DATE: <u>9-19-05</u>		BY: <u>CP</u>	DATE: <u>9-20-05</u>		BY: <u>CW</u>	DATE: _____	BY: _____
FILTER #	FIRST WEIGHT	TIME	SECOND WEIGHT	TIME	THIRD WEIGHT	TIME	
31 F	.6696	0825	.6698 ✓	1820			
32 F	.6721	0826	.6723 ✓	1821			
33 F	.6745	0827	.6747 ✓	1823			
34 F	.6732	0828	.6730 ✓	1824			
35 F	.6584	0830	.6585 ✓	1825			
36 F	.6702	0831	.6704 ✓	1826			
37 F	.6667	0832	.6665 ✓	1828			
38 F	.6696	0833	.6695 ✓	1829			
39 F	.6648	0834	.6646 ✓	1830			
40 F	.6677	0835	.6677 ✓	1831			

31 B	.3401	0836	.3400 ✓	1833			
32 B	.3362	0837	.3364 ✓	1834			
33 B	.3388	0839	.3391 ✓	1835			
34 B	.3390	0840	.3392 ✓	1836			
35 B	.3362	0841	.3364 ✓	1837			
36 B	.3373	0842	.3373 ✓	1839			
37 B	.3408	0842	.3406 ✓	1840			
38 B	.3397	0844	.3398 ✓	1841			
39 B	.3403	0845	.3403 ✓	1842			
40 B	.3405	0846	.3406 ✓	1844			

Checked by: h Date: 10-2-05 Time: 13:00

BALANCE ROOM ENVIRONMENTAL CONDITIONS

DATE	TIME	BY	WB	DB	% RH
9-19	0810	CP	60	74	44
9-20	1810	CW	64	77	49

BEAKER TARE WEIGHTS DATA SHEET #4-2

Into Dessicator:

Date: 9-8-05

Time: 1040

By: C. Waddington

BEAKER #	FIRST WEIGHT	TIME	SECOND WEIGHT	TIME	THIRD WEIGHT	TIME
1	104.9161	1306	104.9157	0922	✓	
2	106.2544	1307	106.2539	0923	✓	
3	107.7780	1308	107.7775	0924	✓	
4	108.7746	1309	108.7741	0925	✓	
5	97.4364	1310	97.4360	0926	✓	
6	97.2072	1312	97.2068	0927	✓	
7	97.1381	1313	97.1385	0928	✓	
8	108.6359	1314	108.6360	0929	✓	
9	108.0948	1315	108.0951	0930	✓	
10	105.7286	1315	105.7282	0931	✓	
11	104.7888	1317	104.7886	0932	✓	
12	98.2302	1318	98.2303	0933	✓	
13	104.1750	1319	104.1751	0934	✓	
14	97.9819	1320	97.9823	0936	✓	
15	104.7647	1321	104.7642	0937	✓	
16	95.7433	1322	95.7437	0938	✓	
17	104.5952	1323	104.5947	0939	✓	
18	108.8614	1324	108.8609	0940	✓	
19	106.5451	1325	106.5450	0942	✓	
20	108.5931	1326	108.5932	0943	✓	
21	108.2347	1328	108.2343	0944	✓	
22	105.9324	1331	105.9320	0945	✓	
23	104.5885	1332	104.5882	0946	✓	
24	106.4073	1333	106.4078	0948	✓	
25	99.6727	1334	99.6731	0949	✓	

SCALE ROOM ENVIRONMENTAL CONDITIONS

DATE	TIME	BY	DB	% RH	Checked by: KJ
9-11	1300	CW	75	44	Date: 9-13-05
9-12	0920	CW	74	48	Time: 12:55 pm

WOODSTOVE DATA SHEET # 4-3 : CONSTANT WEIGHTS

Page: 1 of

DATE: 11-2-05

5

RUN:

5260

UNIT:

Beaker #	Date	Time	By	Weight	Date	Time	By	Weight	Date	Time	By
16	11-3	1500	KV	95.7496	11-4	17:15	KV	95.7498	11-5	1031	Op
17	11-3	1500	KV	104.6023	11-4	1716	KV	104.6028	11-5	1032	Op
18	11-3	1500	KV	108.8629	11-4	1717	KV	108.8633	11-5	1033	Op
19	11-3	1500	KV	106.5463	11-4	1718	KV	106.5466	11-5	1034	Op
20	11-3	1500	KV	108.5933	11-4	1719	KV	108.5433	11-5	1035	Op

Filter #	Date	Time	By	Weight	Date	Time	By	Weight	Date	Time	By
36F	11-2	1400	Op	.7013	11-3	1452	KV	.7017	11-4	1122	KV
36B	11-2	1400	Op	.3386	11-3	1451	KV	.3388	11-4	1123	KV

SCALE ROOM ENVIRONMENTAL CONDITIONS

Weighing Session	Date	Time	By	DB	%RH
1	11-3	1450	KV	74	48
2	11-4	1121	KV	74	47
3	11-4	1715	KV	77	46
4					
5					

Weighing Session	Date	Time	By	DB	%RH
6					
7					
8					
9					
10					

WOODSTOVE DATA SHEET #4-4

SCALE QA SHEET

Dates: From 07/15/05 Through 10-20-2005	Scale: Sartorius	Model: A 120 S	SN: 37010004
--	---------------------	-------------------	-----------------

100 g weight	10 g weight	1 g weight	100 mg weight	Tech	Date	Time	Dry Bulb	% RH
99.9998	9.9999	.9999	.09998	RM	07/15	2000	78	46
99.9997	9.9998	1.0000	.1000	RM	07/19	2250	78	46
100.0000	9.9999	.9999	.0999	RM	07/20	0740	78	46
100.0000	9.9999	1.0000	.1000	RM	07/21	2100	78	46
99.9998	9.9998	.9999	.1000	RM	07/24	2200	78	46
100.0001	10.0000	1.0000	.1000	RM	07/27	1515	78	49
99.9998	10.0000	.9998	.1000	RM	07/28	0600	78	49
99.9999	10.0001	1.0000	.1000	RM	07/29	1210	78	49
100.0000	10.0000	1.0001	.09998	CW	9-6	0930	74	48
100.0000	9.9998	.9998	.09996	CW	9-7	0955	72	47
99.9999	10.0000	1.0001	.1000	CW	9-8	1010	78	43
99.9999	10.0001	.9999	.0999	CW	9-9	0945	75	48
99.9996	9.9999	1.0000	.1000	CW	9-10	1130	75	48
99.9998	9.9999	1.0000	.0999	CW	9-11	1300	75	44
99.9997	10.0000	1.0000	.09998	CW	9-12	0920	74	48
99.9998	10.0001	.9999	.0999	CW	9-13	0945	74	47
99.9996	10.0001	.9999	.0999	CW	9-14	1400	77	46
99.9997	10.0001	1.0001	.0999	CW	9-15	0815	75	48
99.9996	10.0000	1.0000	.1000	CW	9-16	0955	76	49
99.9998	10.0001	.9999	.09998	CW	9-17	1200	76	45
99.9997	9.9998	.9999	.09998	CW	9-18	1430	73	47
100.0004	10.0002	1.0000	.09998	CW	9-19	0810	74	44
100.0000	10.0000	1.0000	.1000	CW	9-20	1910	77	44
100.0000	10.0000	1.0000	.09998	CW	9-21	1620	78	46
100.0000	10.0001	1.0000	.0999	CW	9-22	1420	76	49
100.0004	10.0003	1.0000	.09997	CW	9-23	1300	72	46
99.9998	10.0001	1.0000	.0999	CW	10-1	1830	74	47
100.0000	10.0000	1.0000	.0999	CW	10-2	1830	69	47
100.0001	10.0001	.9998	.0999	CW	10-5	0840	74	47
99.9998	10.0001	1.0000	.0999	CW	10-6	0930	77	47
99.9998	10.0002	.9999	.1000	CW	10-8	1340	75	45
100.0000	10.0002	.9999	.0999	CW	10-10	1330	76	48
99.9999	10.0000	1.0001	.1000	CW	10-11	1020	77	46
99.9998	10.0002	.9999	.1000	CW	10-12	1000	74	44
100.0001	10.0001	1.0000	.09997	CW	10-13	1020	70	48
99.9999	10.0000	1.0001	.0999	CW	10-14	1000	70	48
100.0000	10.0001	.9999	.0999	CW	10-15	1440	72	46
99.9997	9.9999	1.0000	.1000	CW	10-20	1000	77	49

BLANK PROCESSING DATA SHEET # 5

UNIT Country Stoves 5260 RUN: 5 DATE: 11-2-2005

BLANKS DONE: 10-11-2005

BEAKER	A	B	C
	200 ml ACETONE	75 ml DICHLOR	200 ml WATER
	FISHER OPTIMA LOT # 023283	FISHER OPTIMA LOT # 035941	DWNA, Inc Sparklettes Distilled
FINAL WEIGHT	108.9008	106.3077	106.9670
TARE WEIGHT	108.8995	106.3066	106.9645
NET WEIGHT	.0013	.0011	.0025

TARE BEAKERS INTO DESC: TIME: 1900 DATE: 10-2-2005

DATE: 10-5 BY: Op DATE: 10-6 BY: Op DATE: BY:

BEAKER	1 ST WT	TIME	2 ND WT	TIME	3 RD WT	TIME
A	108.8996	0912	108.8995	1001	✓	
B	106.3065	0913	106.3066	1002	✓	
C	106.9642	0914	106.9645	1003	✓	

FINAL BEAKERS INTO DESC: TIME: 1000 DATE: 10-8-05

DATE: 10-10 BY: Op DATE: 10-11 BY: Op DATE: BY:

BEAKER	1 ST WT	TIME	2 ND WT	TIME	3 RD WT	TIME
A	108.9010	1348	108.9008	1105	✓	
B	106.3076	1349	106.3077	1106	✓	
C	106.9675	1350	106.9670	1109	✓	

TARE QC

DATE	TIME	BY	WB	DB	%
10-5	0840	Op	5	74	44
10-6	0930	Op	5	77	47

FINAL QC

DATE	TIME	BY	WB	DB	%
10-10	1330	Op	5	76	48
10-11	1020	Op	5	77	46

NET PARTICULATE CATCH CALCULATION DATA SHEET #6

UNIT Country Stores S260 RUN: 5 DATE: 11-2-2005

Blank Audit by CLW 10-14-2005

BLANK CALCULATIONS

Acetone : $\frac{.0013}{g} \div \frac{200}{ml} = \frac{.000007}{g/ml}$
 Dichloromethane : $\frac{.0011}{g} \div \frac{75}{ml} = \frac{.000015}{g/ml}$
 Distilled Water : $\frac{.0025}{g} \div \frac{200}{ml} = \frac{.000013}{g/ml}$

FRONT HALF CATCH

FILTERS : $\frac{.0313}{\text{Total Catch}} g - \frac{1}{\text{\# of Filters}} \frac{(.0000 g)}{\text{Blank Value / Filter}} = \frac{.0313}{g}$
 BEAKERS : $\frac{.0061}{\text{Total Catch}} g - \frac{75}{ml \text{ Acetone}} \frac{(.000007 g)}{\text{Blank Value / ml Acetone}} = \frac{.0056}{g}$

TOTAL FRONT HALF CATCH : .0369 g

BACK HALF CATCH

FILTERS : $\frac{.0015}{\text{Total Catch}} g - \frac{1}{\text{\# of Filters}} \frac{(.0000 g)}{\text{Blank Value / Filter}} = \frac{.0015}{g}$
 BEAKERS :
 Acetone : $\frac{.0081}{\text{Total Catch}} g - \frac{75}{ml \text{ Acetone}} \frac{(.000007 g)}{\text{Blank Value / ml Acetone}} = \frac{.0076}{g}$
 Extract : $\frac{.0024}{\text{Total Catch}} g - \frac{75}{ml \text{ Dichloromethane}} \frac{(.000015 g)}{\text{Blank Value / Dichloromethane}} = \frac{.0013}{g}$
 Water : $\frac{.0017}{\text{Total Catch}} g - \frac{250}{ml \text{ Water}} \frac{(.000013 g)}{\text{Blank Value / Water}} = \frac{\phi}{g}$

TOTAL BACK HALF CATCH : .0104 g

TOTAL CATCH : .0473 g

% FRONT HALF : 78.0 %

CALCULATIONS DATA SHEET # 7

UNIT: Country Stoves 5260 RUN: 5 DATE: 11-2-2005

$$1) Vm (std) = \frac{(34.585 Vm) (17.64) (1.008 mcf) \left(29.84" Hg + \frac{1.126" H_2O}{13.6} \right)}{(562 TmA)} = \frac{32.6621}{000.0000} dscf$$

$$2) Vw (std) = (.04707) (52.8 ml H_2O) = \frac{2.4853}{00.0000} scf$$

$$3) Asw = \frac{(2.4853 scf + 32.6621 dscf)}{(2.4853 scf)} = \frac{.0707}{.0000} Bws \times 100 = \frac{7.0711}{00.0000} \% H_2O$$

$$4) Cs = \frac{(.0473 g.)}{(32.6621 dscf)} (15.43) = \frac{.6223}{0.0000} gr / dscf$$

$$5) Estimated g / hr = \frac{(.0473 g.)}{(32.6621 dscf)} (13.729 dscfm) (60) = \frac{1.1929}{00.0000} g / hr$$

Vm =	total cubic feet pulled on meter box during test	(p. 2)	(000.000 Vm)
mcf =	meter correction factor (Y factor) of meter box used for test	(p. 2)	(0.000 mcf)
"Hg =	average barometric pressure during test	(p. 2)	(00.00" Hg)
"H ₂ O =	average delta H for test	(p. 2)	(.000" H ₂ O)
TmA =	average meter temperature for test in degrees Absolute	(p. 2)	(000 TmA)
ml H ₂ O =	total water caught during test	(p. 3)	(000.0 ml H ₂ O)
g =	total particulate catch for test	(p. 6)	(00.0000 g.)
dscfm =	average stack flow during test	(p. 2)	(00.000 dscf)

TEST DATA SHEET # 8

UNIT Country Stoves SZ60 RUN: 5 DATE: 11 - 2 - 2005

Test Chamber Air Velocity Start: 0 Stop: 0 Avg.: 0

Wet Bulb / Dry Bulb

Pre: WB: 63 DB: 80 = 38 % RH 1.4 % H₂O

Post: WB: 60 DB: 76 = 38 % RH 1.2 % H₂O

Average: 38 % RH 1.3 % H₂O

Empty Stove Weight (lbs): — w/ stack & oil seal: Wet: — Dry: 514.0

Kindling Weight (lbs): Paper: .2 Wood: 3.0

Preburn Fuel Weight: 16.2 + 24.7 Total: 40.9

Kindling & Preburn Fuel Weight (wood only) (lbs): Total: 43.9

Coal Bed Wt Range (lbs): 4.3 - 3.5 Scale: 518.3 - 517.5

Upper: .25 x fuel weight: Always round DOWN to nearest tenth

Lower: .20 x fuel weight: Always round UP to nearest tenth Actual Coal Bed Weight: 4.0

Maximum Coal Bed Removal (lbs): $((\frac{4.3}{\text{Upper}} + \frac{3.5}{\text{Lower}}) \div 2) \cdot .25 = \underline{.9}$ round down to nearest tenth

Test Fuel (.75" x 1.5" x 5" spacers) = 20 pcs

Dimensions	Length in inches	No. Pcs	Weight in lbs	% of Load
2" x 4"	<u>16</u>	<u>4</u>	<u>9.0</u>	<u>51.7</u>
4" x 4"	<u>16</u>	<u>2</u>	<u>8.4</u>	<u>48.3</u>

Test Fuel Weight: 17.4 lbs

Estimated Dry Burn Rate:

$$\frac{17.4 - (17.4 \times .17970)}{2.2046} \times \frac{60}{115} = \underline{3.378} \text{ kg/hr}$$

$$\text{Estimated BTU's/hr: } 19,140 \times \frac{63}{100} \times \frac{3.378}{\text{DBR}} = \underline{40,732.6} \text{ BTU's/hr}$$

EPA Default Efficiencies:

Non-cat: 63

Cat: 72

Pellet: 78

WOOD STOVE OPERATING DATA PAGE #9

Unit: Country Stoves SZ60 Run: 5 Date: 11-2-2005

FIRE STARTED: 0900

WARM UP AND PREBURN:

PRIMARY AIR: Set wide open for all warm-up / preburn fuel charges. Then set to wide open at start of preburn.

SECONDARY AIR: N/A CAT BYPASS: N/A

CHARCOAL BED PREPARATION:

Raked and leveled prior to each warm-up / preburn charge. At 1 1/2 min. prior to loading last fuel, raked and leveled. In stove 20 sec.

TEST:

DOOR wide open during loading 0 min. 45 sec.

PRIMARY AIR: Opened full for first 5 min., then set to run setting of wide open.

SECONDARY AIR: N/A CAT BYPASS: N/A

FAN:

ON / OFF during warm-up
ON / OFF first ALL minutes of test
Fan speed set at High

ON / OFF during preburn
ON / OFF balance of test run

WOOD DATA: KINDLING: A mix of the grades listed below:

	SIZE	MILL	GRADE	SPECIES
PREBURN:	2x4	Manke/Tacoma	Std. or better	s. grn D fir
TEST:	2x4	Packwood	# 2 or better	s. grn D fir
	4x4	Packwood	# 2 or better	s. grn D fir

PELLET FUEL MANUFACTURER: N/A BRAND: N/A

All Grades WCLB rules:

WARM UP INFORMATION:

All pre-burn / warm up fuel pieces were either 15 or — inches.

1st warm up / pre-burn fuel charge (16.2 lbs.) added at 0915

2nd warm up / pre-burn fuel charge (24.7 lbs.) added at 1010

3rd warm up / pre-burn fuel charge (____ lbs.) added at _____

4th warm up / pre-burn fuel charge (____ lbs.) added at _____

5th warm up / pre-burn fuel charge (____ lbs.) added at _____

TEST DATA SHEET #10

Unit: Country Stoves S260 Run: 5 Date: 11-2-2005

Room Temperature: 69 °F Correction Factor: 0

Uncorrected Values are corrected for room temperature: Yes No ✓

Time Test Fuel moisture reading taken: 1025

Calibration Checks: X ✓ Y ✓ 12.0 12.2 22.0 22.0

pc #	Dimen.	Use	TOP		BOTTOM		SIDE		Average Corrected
			Uncor.	Cor.	Uncor.	Cor.	Uncor.	Cor.	
1	2"x4"x8'	K	14.5	15.5	14.5	15.5	14.5	15.5	15.500
2									
3									
4	2"x4"x8'	P	20.0	21.4	20.5	22.0	20.5	22.0	21.800
5	2"x4"x8'	P	22.0	23.7	22.0	23.7	21.5	23.1	23.500
6	2"x4"x8'	P	18.5	19.8	18.0	19.2	18.0	19.2	19.400
7	2"x4"x8'	P	17.5	18.7	17.5	18.7	18.5	19.8	19.067
8	2"x4"x8'	P							83.767
9									
10									
11	2x4x16	T	19.0	20.3	19.0	20.3	19.5	20.9	20.500
12	"	T	18.5	19.8	18.5	19.8	18.5	19.8	19.800
13	"	T	22.0	24.7	23.5	25.2	23.5	25.2	25.033
14	"	T	23.0	24.7	23.0	24.7	23.0	24.7	24.700
15	4x4x16	T	19.5	20.9	19.5	20.9	19.5	20.9	20.400
16	"	T	19.0	20.3	19.5	20.9	19.0	20.3	20.500
17									131.433
18									
19									
20	Spacers	T	22.0	23.7	22.0	23.7	21.5	23.1	23.500

Key for Use: K = Kindling P = Pretest Fuel T = Test Fuel

	KINDLING		PRETEST FUEL		TEST FUEL	
Dry Moisture %:	15.500	%	20.942	%	21.906	%
Wet Moisture %:	13.420	%	17.316	%	17.970	%

To obtain Wet from Dry: $\frac{100 \times \% \text{ Dry Reading}}{100 + \% \text{ Dry Reading}} = \% \text{ Moisture, Wet Basis}$

Acceptable Ranges: 16 - 20 % wet: 19 - 25 % dry (17.5 - 22.5 on Meter Uncor. reading) at 70°

GAS DATA SHEET #12

WEIGHT: 518.0

DATE: 11-2-2005

UNIT: Country Stoves S260

RUN: 5

PAGE: 1 OF

UNIT: Country Stoves				S 200		RUN.		PAGE.			
TIME	SCALE	FUEL	DROP	V.	CO ₂	V.	O ₂	V.	CO	STATIC	SO:PPM
0	1225	535.4	17.4	—	.155	3.9	.664	16.6	.028	.27	7.053 225
5	30	534.1	16.1	1.3	.592	14.8	.233	5.8	.018	.17	7.067 250
10	35	532.2	14.2	1.9	.666	16.6	.151	3.8	.043	.42	7.071 275
15	40	530.2	12.2	2.0	.673	16.8	.147	3.7	.033	.32	7.071 275
20	45	528.2	10.2	2.0	.693	17.3	.127	3.2	.031	.30	7.072 275
25	50	526.2	8.2	2.0	.658	16.4	.170	4.3	.014	.13	7.070 275
30	55	525.0	7.0	1.2	.554	13.8	.277	6.9	.007	.06	7.067 275
35	1300	524.0	6.0	1.0	.426	10.6	.407	10.2	.001	.00	7.066 250
40	05	523.2	5.2	.8	.394	9.8	.438	11.0	.004	.03	7.063 250
45	10	522.5	4.5	.7	.356	8.9	.473	11.9	.006	.05	7.061 250
50	15	521.8	3.8	.7	.301	7.5	.527	13.2	.012	.11	7.058 250
55	1320	521.3	3.3	.5	.335	8.4	.492	12.3	.008	.07	7.060 250
SUBTOTAL	*****	*****	*****	*****	*****	*****	*****	*****	*****	7.779	*****
60	1325	520.7	2.7	.6	.282	7.0	.547	13.7	.012	.11	7.058 250
65	30	520.3	2.3	.4	.272	6.8	.554	13.9	.014	.13	7.056 225
70	35	519.9	1.9	.4	.264	6.6	.562	14.1	.015	.14	7.056 225
75	40	519.6	1.6	.3	.246	6.1	.581	14.5	.017	.16	7.055 225
80	45	519.3	1.3	.3	.213	5.3	.611	15.3	.022	.21	7.054 225
85	50	519.1	1.1	.2	.193	4.8	.626	15.7	.034	.33	7.053 225
90		518.9	.9	.2	.190	4.7	.629	15.8	.036	.35	7.052 225
95		518.7	.7	.2	.185	4.6	.634	15.9	.035	.34	7.051 225
100		518.5	.5	.2	.171	4.3	.643	16.1	.042	.41	7.050 225
105		518.4	.4	.1	.167	4.2	.645	16.2	.046	.45	7.050 225
110		518.1	.1	.3	.170	4.2	.646	16.2	.044	.43	7.049 225
115		518.0	0.0	.1	.157	3.9	.656	16.4	.049	.48	7.048 225
SUBTOTAL	*****	*****	*****	*****	*****	*****	*****	*****	*****	7.632	*****
120											
125											
130											
135											
140											
145											
150											
155											
160											
165											
170											
175											
SUBTOTAL	*****	*****	*****	*****	*****	*****	*****	*****	*****		*****
TOTAL	*****	*****	*****	*****	*****	*****	*****	*****	*****	7.411	*****

- .059

10

[illegible]

Temperature Data Sheet #14

Country Stoves-S260

Time	Stack Chn 103	Top Chn 104	LT Side Chn 105	Back Chn 106	Rt Side Chn 107	Bottom Chn 108	Firebox Chn 109	Sec/Cat Chn 110	Ambient Chn 111	Tube Furn Chn 112	Smpl Box Chn 113	Smpl Out Chn 114	C-Gas Box Chn 115	C-Gas Out Chn 116	SO2 Out Chn 117
0	432	387	560	390	447	521	#####	#####	83	1320	236	55	236	36	34
5	736	436	545	385	448	525	#####	#####	87	1325	238	42	243	36	34
10	828	525	528	362	436	521	#####	#####	86	1331	242	43	245	37	34
15	816	583	518	338	425	515	#####	#####	89	1326	242	44	246	37	35
20	796	625	519	316	419	504	#####	#####	86	1328	239	44	248	37	35
25	749	624	528	299	421	491	#####	#####	87	1329	238	45	248	38	35
30	688	609	538	291	425	480	#####	#####	88	1332	238	46	248	38	35
35	641	576	549	286	429	469	#####	#####	88	1332	238	47	248	38	36
40	585	538	552	282	431	459	#####	#####	87	1332	238	47	247	38	36
45	561	504	549	280	430	451	#####	#####	86	1330	238	48	246	38	36
50	512	464	547	279	427	447	#####	#####	85	1328	237	48	245	38	37
55	528	444	540	281	420	438	#####	#####	85	1331	238	48	245	38	37
60	494	420	531	290	414	432	#####	#####	84	1332	238	48	244	38	37
65	476	400	520	304	408	425	#####	#####	81	1330	237	48	243	38	37
70	473	382	510	320	401	420	#####	#####	80	1327	236	47	243	38	37
75	456	368	500	334	395	416	#####	#####	80	1325	235	47	242	38	37
80	438	349	490	345	389	413	#####	#####	79	1324	236	47	243	37	37
85	423	331	482	346	384	409	#####	#####	78	1324	235	47	243	37	37
90	409	315	471	341	376	408	#####	#####	77	1327	235	47	242	37	38
95	400	303	459	334	371	405	#####	#####	76	1330	234	47	241	37	38
100	388	292	447	327	362	402	#####	#####	74	1329	234	47	241	37	38
105	377	282	436	322	356	400	#####	#####	74	1329	234	47	240	37	38
110	374	274	425	318	350	395	#####	#####	73	1328	233	48	240	36	38
115	364	264	413	312	343	394	#####	#####	72	1326	232	48	239	36	38

TEMPERATURE DATA SHEET #14A

TEST TIME	115		
STACK AVG	539	TOP AVG	429
		LT SIDE AVG	507
BACK AVG	320	RT SIDE AVG	404
		BOTTOM AVG	448
FIREBOX AVG #####		SEC/CAT AVG #####	82
		AMBIENT AVG	

END	345.1
START	461.0
	-115.9

DELTA T

CIRCLE: LOSS / GAIN

ZERO / SPAN CHECK DATA SHEET #15-1

Date : 11-2-2005 Analyte : CO₂ (15-1)
 Unit : Country Stoves 5260 Run # : 5
 Zero Cyl. # : 168TAC 3-A Conc. : 0.00 % CO₂ Cyl. Press. : 1800 PSI
 Certified by : AIR LIQUIDE Date : 04-19-04
 Span Cyl. # : CC-3131 Conc. : 12.40 % CO₂ Cyl. Press. : 400 PSI
 Certified by : AIR LIQUIDE Date : 03-13-03
 Analyzer : Make : HORIBA Model : PIR-2000 SN : 407069
 Range : 0 - 25.0 % CO₂ Analyzer Output : 0 - 1.0 v.
 Flow : 1.5 SCFH Measured by : Rotameter

EPA Span Value = 25.0 % CO₂
 EPA Control Limits = $\pm 2.5\%$ of 25.0 % CO₂ = ± 0.625 % CO₂
 Method 28 A = $\pm .2\%$ of 25.0 % CO₂ = $\pm .05$ % CO₂

PRE RUN Audit : by C. Waddington Time : 1015 Temp : 68 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	00.0	.001	.013	.013	.050
SPAN	49.6	496	12.40	49.4	.494	12.324	.080	.320

POST RUN Audit : by C. Waddington Time : 1335 Temp : 69 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	00.0	.000	.012	.012	.050
SPAN	49.6	496	12.40	49.3	.493	12.30	.100	.460

$\pm \text{Conc. Difference} = \text{Act \%} - \text{Exp (Std) \%}$
 $\text{Zero \% Difference} = \frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$
 $\text{Span \% Difference} = \frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

ZERO / SPAN CHECK DATA SHEET #15-2

Date: 11-2-2005

Analyte: O₂ (15-2)

Unit: Country Stone 5260 Run #: 5

Zero Cyl. #: 168TAC 3A Conc.: 0.00 % O₂ Cyl. Press.: 1800 PSI

Certified by: AIR LIQUIDE

Date: 04-19-04

Span Cyl. #: CC-3131 Conc.: 12.40 % O₂ Cyl. Press.: 400 PSI

Certified by: AIR LIQUIDE

Date: 03-13-03

Analyzer: Make: TELEDYNE Model: 320 A

SN: 37400

Range: 0 - 25.0 % O₂

Analyzer Output: 0 - 1.0 v.

Flow: 1.5 SCFH

Measured by: Rotameter

EPA Span Value = 25.0 % O₂

EPA Control Limits = $\pm 2.5\%$ of 25.0 % O₂ = ± 0.625 % O₂

Method 28 A = $\pm .2$ % of 25.0 % O₂ = $\pm .05$ % O₂

PRE RUN Audit: by: GWadlington Time: 1015 Temp: 68 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	00.0	.001	.040	.040	.160
SPAN	12.50	.500	12.50	12.5	.500	12.52	.020	.079

POST RUN Audit: by: GWadlington Time: 1335 Temp: 69 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	00.0	.002	.065	.065	.260
SPAN	12.50	.500	12.50	12.6	.503	12.60	.100	.400

± Conc. Difference = Act % - Exp (Std) %

Zero % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

Span % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

ZERO / SPAN CHECK DATA SHEET #15-3

Date : 11 - 2 - 2005

Analyte : CO (15-3)

Unit : Country Stoves 5260

Run # : 5

Zero Cyl. # : 168TAC 3-A Conc. : 0.00 % CO

Cyl. Press. : 1800 PSI

Certified by : AIR LIQUIDE

Date : 04-19-04

Span Cyl. # : CC-3131 Conc. : 12.40 % CO

Cyl. Press. : 400 PSI

Certified by : AIR LIQUIDE

Date : 03-13-03

Analyzer : Make : HORIBA

Model : PIR-2000

SN : 408005

Range : 0 - 10.0 % CO

Analyzer Output : 0 - 1.0 v.

Flow : 1.5 SCFH

Measured by : Rotameter

EPA Span Value = 10.0 % CO

EPA Control Limits = $\pm 2.5\%$ of 10.0 % CO = $\pm 0.25\%$ CO

Method 28 A = $\pm .2\%$ of 10.0 % CO = $\pm .02\%$ CO

PRE RUN Audit : by C. Wadlington Time : 1015 Temp : 68 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	00.0	-.001	-.020	-.020	-.198
SPAN	50.2	.502	5.02	50.4	.504	5.050	.030	.300

POST RUN Audit : by C. Wadlington Time : 1335 Temp : 69 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	%	Meter	DVM	%		
ZERO	00.0	.000	00.0	00.0	.000	0.0	0.0	0.0
SPAN	50.2	.502	5.02	50.3	.503	5.04	.02	.200

± Conc. Difference = Act % - Exp (Std) %

Zero % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

Span % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

ZERO / SPAN CHECK DATA SHEET #15-4

Date : 11-2-2005

Analyte : SO₂ (15-4)

Unit : Country Stoves 5260

Run # : 5

Zero Cyl. # : 168TAC 3-A

Conc. : 0.00 ppm SO₂

Cyl. Press. : 1800 PSI

Certified by : AIR LIQUIDE

Date : 04-19-04

Span Cyl. # : CC62184

Conc. : 1290 ppm SO₂

Cyl. Press. : 690 PSI

Certified by : AIR LIQUIDE

Date : 01-29-01

Analyzer : Make : HORIBA

Model : PIR-2000

SN : 403019

Range : 0 - 2500 ppm SO₂

Analyzer Output : 0 - 1.0 v.

Flow : 1.5 SCFH

Measured by : Rotameter

EPA Span Value = 2500 ppm SO₂

EPA Control Limits = $\pm 2.5\%$ of 2500 ppm SO₂ = ± 62.5 ppm SO₂

PRE RUN Audit : by C. Wadington Time : 1015 Temp : 68 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	PPM	Meter	DVM	%		
ZERO	00.0	.000	00.0	00.0	.002	-4.974	-4.974	-0.199
SPAN	51.6	.516	1290	51.6	.516	1289.8	-.200	-.008

POST RUN Audit : by C. Wadington Time : 1335 Temp : 69 °F

AUDIT RESULTS

Point #	Expected Response			Actual Response			± Conc. Difference	Δ %
	Meter	DVM	PPM	Meter	DVM	%		
ZERO	00.0	.000	00.0	00.0	.000	.025	.025	.001
SPAN	51.6	.516	1290	51.7	.517	1292.3	2.3	.092

± Conc. Difference = Act % - Exp (Std) %

Zero % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

Span % Difference = $\frac{\text{Act \% (ppm)} - \text{Exp \% (ppm)}}{\text{Full Scale Value}} \times 100$

QUALITY CHECKS DATA SHEET # 16

UNIT Country Stoves SZ40 RUN: 5 DATE: 11-2-2005

Thermocouple Check:

T/C # 1	<u> </u>	°F	T/C # 13	<u>58.0</u>	°F
T/C # 2	<u> </u>	°F	T/C # 14	<u>57.8</u>	°F
T/C # 3	<u>57.0</u>	°F	T/C # 15	<u>57.5</u>	°F
T/C # 4	<u>57.7</u>	°F	T/C # 16	<u>61.3</u>	°F
T/C # 5	<u>57.2</u>	°F	T/C # 17	<u>59.5</u>	°F
T/C # 6	<u>57.0</u>	°F	T/C # 18	<u>58.8</u>	°F
T/C # 7	<u>56.7</u>	°F	T/C # 19	<u>57.8</u>	°F
T/C # 8	<u>56.7</u>	°F	T/C # 20	<u> </u>	°F
T/C # 9	<u> </u>	°F	T/C # 21	<u> </u>	°F
T/C # 10	<u> </u>	°F	T/C # 22	<u> </u>	°F
T/C # 11	<u>55.2</u>	°F	T/C # 23	<u> </u>	°F
T/C # 12	<u>61.4</u>	°F	T/C # 24	<u> </u>	°F

Thermocouple Readout:

Pretest zero and span check and calibration		post test zero and span		% difference
ZERO <u>-1.2</u> °F	Adj. to <u>0.0</u> °F	ZERO <u>1.6</u> °F	Difference <u>.09</u> %	
SPAN <u>1999.5</u> °F	Adj. to <u>2000.0</u> °F	SPAN <u>2002.6</u> °F	Difference <u>.155</u> %	

Thermocouple Readout Pretest Linearity Check:

0	= <u>0.0</u> °F	200	= <u>200.2</u> °F	400	= <u>400.0</u> °F
600	= <u>600.0</u> °F	800	= <u>799.9</u> °F	1000	= <u>999.9</u> °F
1200	= <u>1199.9</u> °F	1400	= <u>1399.8</u> °F	1600	= <u>1599.8</u> °F
1800	= <u>1800.1</u> °F	2000	= <u>2000.0</u> °F		

Sample Train Leak Check

Pre X

Post X

C-gas Train Leak Check

Pre X

Post X

SO₂ Train Leak Check

Pre ✓

Post X

Static Gauge Zero Check

Pre X

Post X

Scale Check Pre: 526.3 - 516.3 = 10.0

Post: 524.9 - 514.9 = 10.0

Stack Cleaned Prior to Test Run: YES NO X