TEST REPORT

SCOPE: EMISSIONS, EFFICIENCY AND OUTPUT

FUEL: PELLET

TEST STANDARD: EPA

MODEL: ECO-65 PELLET STOVE

Notice to reader: Our Eco-65 pellet stove was tested as part of our Series 65 engine. Therefore, the Series 65 is referenced throughout the attached test report.

TEST REPORT

REPORT NUMBER: 101628179MTL-001
REPORT DATE: June 27, 2014

EVALUATION CENTER
Intertek Testing Services NA Inc.
1829, 32nd Avenue
Lachine, Québec
H8T 3J1

RENDERED TO

Stove Builder International Inc
250 Rue de Copenhague
St-Augustin-de-Desmaures, QC
G3A 2H3

PRODUCT EVALUATED:
Series 65 Pellet Stove

Report of Series 65 Pellet stoves for compliance as an "Affected Facility" with the applicable requirements of the following criteria: EPA Method 28 "Certification and Auditing of Wood Heaters" and EPA Method 5G "Determination of Particulate Matter Emissions from Wood Heaters".

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I. INTRODUCTION

Intertek Testing Services NA (Intertek) has conducted testing for Stove Builder International Inc, on Series 65 Pellet Stove, to evaluate all applicable performance requirements included in EPA Method 28 “Certification and auditing of wood heaters” and Method 5G “Determination of particulate matter emissions from wood heaters.”

I.A PURPOSE OF TEST

The test was conducted to determine if the unit is in accordance with U.S EPA requirements under 40 CGR 60 SUBPART AAA, NSPS for Residential Wood Heaters. This evaluation was conducted from May 20, 2014 to May 22, 2014.

I.B LABORATORY

The test on the Series 65 Pellet Stove was conducted at the SBI Laboratory located at 250 Rue de Copenhague, St-Augustin-de-Desmaures QC. G3A 2H3. The laboratory’s elevation is 213 feet above sea level. The test was conducted by Claude Pelland, P.Eng.

I.C DESCRIPTION OF UNIT

The Series 65 is a freestanding and automatically fed Pellet Stove constructed of carbon HR and CR steel . The outer dimensions are 33 3/8-inches deep, 40 15/16-inches high, and 24 5/8-inches wide. The unit has a front door with a viewing glass and a hopper to store the pellet.
(See product drawings.). See also components description in Appendix H.

The Series 65 comprises Model “Eco-65”, “Euromax”, “Osburn 7000” which all suffer minor aesthetic differences.

Proprietary drawings and manufacturing methods are on file at Intertek in Lachine, Quebec.

Tests were conducted using the Euromax unit as a reference representative of the series 65.

I.D REPORT ORGANIZATION

This report includes summaries of all data necessary to determine compliance with the regulations. Raw data, calibration records, intermediate calculations, drawings, specifications and other supporting information are contained in appendices to this report.

II. SUMMARY

II.A PRETEST INFORMATION

A sample was submitted to Intertek directly from the client. The sample was not independently selected for testing. The test unit was handed to the Intertek representative at SBI laboratory located in St-Augustin-de-Desmaures, Quebec on May 20, 2014. The unit was inspected upon presentation on testing site and found to be in good condition. The unit was set up following the manufacturer's instructions without difficulty.

Following assembly, the unit was placed on the test stand and instrumented with thermocouples in the specified locations. Prior to beginning the emissions tests program, the unit was operated for a minimum of 10 hours at high-to-medium burn rates to break-in the stove. The unit was found to be operating satisfactory during this break-in. The 10 plus hours of pre-burning were conducted during several consecutive R & D runs performed by the manufacturer immediately preceding the dates of the testing reflected in this report. The fuel used for the break-in process was wood pellet of premium grade made by LG inc. Proofs of burning are reproduced in appendix C of this report.

Following the pre-burn break-in process the unit was allowed to cool. The unit's chimney system and laboratory dilution tunnels were cleaned using standard wire brush chimney cleaning equipment. On May 20th, 2014 the unit was set-up for testing.

II.B INFORMATION LOG

TEST STANDARD

From May 20th, 2014 through to May 21st, the unit was tested for EPA emissions.

Deviation from Standard Method

No deviations from the standards were performed, however, only the applicable sections from each standard were used during all testing.

II.C SUMMARY OF TEST RESULTS

RUN #1 (May 20th, 2014) Primary air ventilation system was powered at 0V, Exhaust fan at 55V Blower at 40V and control board was set at speed 1 of 6. Burn time was 120 minutes Rate was 0.60Kg/h. This test led to a 1.65 g/h Adjusted Emission Rate. System so set reached a category I

RUN #2 (May 20th, 2014) Primary air ventilation system was powered at 0V, Exhaust fan at 64V Blower at 55V and control board was set at speed 2 of 6. Burn time was 120 minutes Rate was 1.05Kg/h. This test led to a 2.96 g/h Adjusted Emission Rate. System so set reached a category II

RUN #3 (May 21st, 2014)) Primary air ventilation system was powered at 85V, Exhaust fan at 66V Blower at 90V and control board was set at speed 4 of 6. Burn time was 120 minutes Rate was 1.77Kg/h. This test led to a 2.28 g/h Adjusted Emission Rate. System so set reached a category III

RUN #4 (May 21st, 2014)) Primary air ventilation system was powered at 120V, Exhaust fan at 120V Blower at 120V and control board was set at speed 6 of 6. Burn time was 120 minutes Rate was 2.83Kg/h. This test led to a 2.65 g/h Adjusted Emission Rate. System so set reached a category IV

II.D SUMMARY OF OTHER DATA

Operation of the unit to achieve the various burn rates was performed as per the above testing protocol which was communicated by client prior to starting the test program. It was as follows:

Four runs were performed on this program. Program was planned to start on May 19, 2014 and beginning of it was delayed to May 20, 2014.

EMISSIONS:

Run Number	Test Date dd-mm-yyyy	Burn Rate (kg/hr)	Emission Rate (g/hr)	Adjusted Emission Rate (g/hr)	Heating Efficiency (% HHV)	Heating Efficiency (% LHV)
1	20-05-2014	0.596	0.890	1.653	73.9	79.9
2	20-05-2014	1.052	1.799	2.964	67.9	73.4
3	21-05-2014	1.771	1.310	2.277	66.4	71.8
4	21-05-2014	2.827	1.571	2.647	69.0	74.5

WEIGHTED AVERAGE CALCULATION

		(E)						
		Ave.		Heat		(K)		
	Burn	Emission		Output		Weighting		
Test No.	Rate	Rate g/hr	(OHE)	(BTU/HR)	Prob.	Factor	(KxE)	
1	0.596	1.653		7186.69	0.0989	0.4091	0.6763	0.00
2	1.052	2.964		12685.23	0.4091	0.7657	2.2695	0.00
3	1.771	2.277		21355.07	0.8646	0.5714	1.3011	0.00
4	2.827	2.647		34088.53	0.9805	0.1354	0.3585	0.00
4				0.00				
						1.88166	4.6054	0.00
	Weighted average emissions rate:						2.4475	
	Weighted Average OHE						0.00	

TEST FACILITY CONDITIONS

Run Number	Room Temperature		Barometric pressure		Relative humidity		Air Velocity	
	Before (F)	After (F)	Before (in.Hg)	After (in.Hg)	Before (%)	After (%)	Before (ft/min)	After (ft/min)
1	75	76	30.09	30.06	61	60	<50	<50
2	78	78	30.06	30.06	62	60	<50	<50
3	76	76	30.03	30.03	74	60	<50	<50
4	74	73	30.03	30.03	74	60	<50	<50

DILUTION TUNNEL FLOW RATE MEASUREMENTS AND SAMPLING DATA (5G-3)

Average dilution tunnel measurements					Sample Data			
Run Number	Burn Rate (Min)	Velocity (Ft/sec)	Volumetric Flow Rate (dscf/min)	Total Temperatures (^{o}R)	Volume sampled (DSCF)		Particulate catch (mg)	
					1	2	1	2
1	120	7.25	140.99	548	19.27	17.63	2.2	1.7
2	120	7.25	137.14	564	18.54	16.69	4.0	3.7
3	120	7.30	136.17	571	19.08	17.70	3.1	2.8
4	120	7.33	131.84	592	19.29	17.91	4.0	3.4

Filters and probe weight history can be found in appendix I

DILUTION TUNNEL DUAL TRAIN PRECISION

Run Number	Sample Ratio		Total Emission (g)			% Deviation or 7.5% of 7.5 grams*
	Train 1	Train 2	Train 1	Train 2	% Deviation	
1	878.22	959.73	1.932	1.632	7.01%	3.09%
2	887.60	985.81	3.550	3.648	1.12%	0.88%
3	856.30	923.36	2.655	2.585	1.09%	0.66%
4	820.03	883.29	3.280	3.003	3.66%	2.58%

*= As described in Method 5G-3 section 16.2.5

GENERAL SUMMARY OF RESULTS

Run Number	Burn Rate (kg/hr)	Average Surface Temperature (F)	Change in surface Temperature (F)	Initial Draft (in. H^2O)	average Draft (in. H^2O)	Run Time (min)
1	0.596	245	11.9	0.020	0.020	120
2	1.052	296	-11.3	0.018	0.018	120
3	1.771	317	1.7	0.020	0.020	120
4	2.827	426	13.0	0.023	0.023	120

III. PROCESS DESCRIPTION

III.A TEST SET-UP DESCRIPTON

A standard4" diameter pellet type L vent was installed to 15' above floor level. The unit controls were set in accordance with the manufacturer's instruction to achieve the targeted burn-rate during the test.

III.B AIR SUPPLY SYSTEM

Combustion air enters at the back of the stove through an opening at the middle bottom of the firebox. This air is automatically controlled by an electronic board and a blower which covers the inlet hole. All gases exit through the 4" dia. flue .

IV. SAMPLING SYSTEMS

IV.A. SAMPLING LOCATIONS

Particulate samples are collected from the dilution tunnel at a point 23 feet from the tunnel entrance. The tunnel has two elbows and two mixing baffles in the system ahead of the sampling section. The first 10 feet of the sampling section is a 10 inches diameter pipe and the remaining is made of an 8 inches diameter pipe. Tunnel velocity pressure is determined by a standard Pitot tube located 48 inches from the beginning of the sampling section. The dry bulb thermocouple is located six inches downstream from the Pitot tube. Tunnel samplers are located 48 inches downstream of the Pitot tube and 36 inches upstream from the end of this section.

Stack gas samples are collected from the chimney section 8 feet ± 6 inches above the scale platform. (See Figure 1)

IV.A.(1) DILUTION TUNNEL

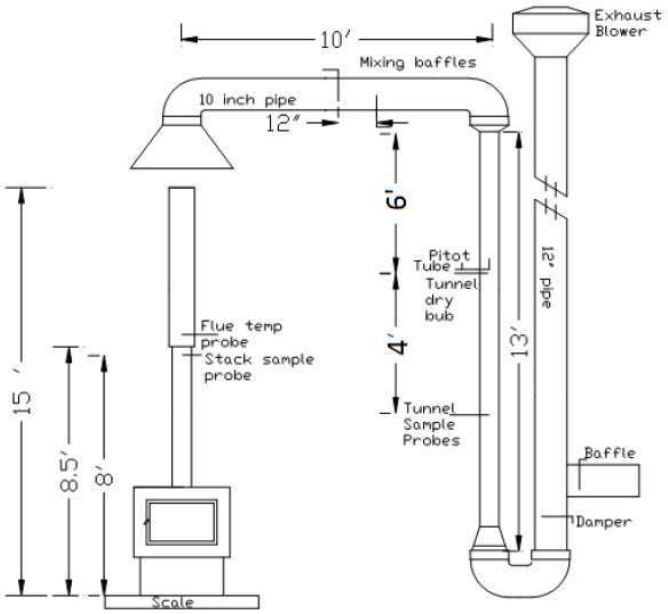

FIGURE 1

IV.B.(2). DILUTION TUNNEL SAMPLE SYSTEMS

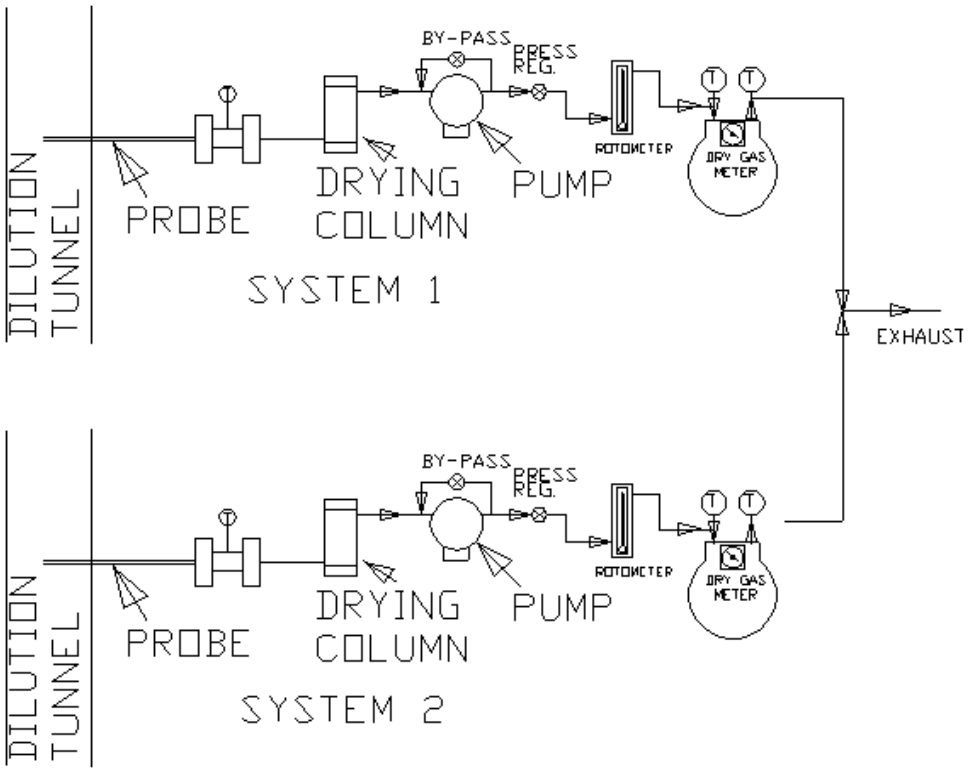

Figure 2

V. SAMPLING METHODS

V.A. PARTICULATE SAMPLING

Particulates were sampled in strict accordance with EPA Method 5G-3. This method uses two identical sampling systems with Gelman A/E 61631 binder free, 47-mm diameter filters. The dryers used in the sample systems are filled with “Drierite” before each test run.

VI. QUALITY ASSURANCE

VI.A. INSTRUMENT CALIBRATION

VI.A. (1). DRY GAS METERS

At the beginning and conclusion of the test program, the dry gas meters were checked against a calibrated and traceable standard reference dry gas meter. Three runs were made on each dry gas meter used during the test program. The average calibration factors obtained are then compared with the six-month calibration factor and, if within 5%, the six-month factor is used to calculate standard volumes. Results of this calibration are contained in Appendix D.

An integral part of the post test calibration procedure is a leak check of the pressure side by plugging the system exhaust and pressurizing the system to 10” W.C. The system is judged to be leak free if it retains the pressure for at least 10 minutes.

The standard dry gas meter is calibrated annually by an external recognized calibration agency

VI.A.(2). STACK SAMPLE ROTAMETER

The stack sample rotometer is checked by running three tests at each flow rate used during the test program. The flow rate is checked by running the rotometer in series with one of the dry gas meters for 10 minutes with the rotometer at a constant setting. The dry gas meter volume measured is then corrected to standard temperature and pressure conditions. The flow rate determined is then used to calculate actual sampled volumes.

VI.A.(3). GAS ANALYZERS

The continuous analyzers are zeroed and spanned before each test with appropriate gases. A mid-scale multi-component calibration gas is then analyzed (values are recorded). At the conclusion of a test, the instruments are checked again with zero, span and calibration gases (values are recorded only). The drift in each meter is then calculated and must not exceed 5% of the scale used for the test.

At the conclusion of each unit test program, a five-point calibration check is made. This calibration check must meet accuracy requirements of the applicable standards. Consistent deviations between analyzer readings and calibration gas concentrations are used to correct data before computer processing. Data is also corrected for interferences as prescribed by the instrument manufacturer's instructions.

VI.B. TEST METHOD PROCEDURES

VI.B.(1). LEAK CHECK PROCEDURES

Before and after each test, each sample train is tested for leaks. Leakage rates are measured and must not exceed 0.02 CFM or 4% of the sampling rate. Leak checks are performed checking the entire sampling train, not just the dry gas meters. Pre-test and post-test leak checks are conducted with a vacuum of 5 inches of mercury. Vacuum is monitored during each test and the highest vacuum reached is then used for the post test vacuum value. If leakage limits are not met, the test run is rejected. During these tests, there was typically no vacuum

VI.B.(2). TUNNEL VELOCITY/FLOW MEASUREMENT

The tunnel velocity is calculated from a center point Pitot tube signal multiplied by an adjustment factor. This factor is determined by a traverse of the tunnel as prescribed in EPA Method 1. Final tunnel velocities and flow rates are calculated from EPA Method 2, Equation 6.9 and 6.10. (Tunnel cross sectional area is the average from both lines of traverse.)

Pitot tubes are cleaned before each test and leak checks are conducted after each test.

VI.B.(3). PM SAMPLING PROPORTIONALITY (5G-3)

Proportionality was calculated in accordance with EPA Method 5G-3. The data and results are included in Appendix C.

VII. CONCLUSION

These tests demonstrate that this unit is an affected facility under the definition given in the regulation. The weighted average emission rate of 2.45 g/hr has been achieved.

VII.A RESULTS AND OBSERVATIONS

The Series 65 Pellet Stove has been found to be in compliance with the applicable performance and construction requirements of the following criteria: EPA Method 28 “Certification and auditing of wood heaters” and Method 5G Determination of particulate matter emissions from wood heaters.”

INTERTEK TESTING SERVICES NA

Reported by: _____

Claude Pelland, P.Eng.
Project Engineer

Reviewed by: _____

Bruce Davis
Associate Engineer

Appendix C:
Pre-Burn Documentation

Run 1 PreBurn

Temps	FLUE :	FIREBOX BACK :	FIREBOX RIGHT SIDE :	AMBIANT :	DILUTION TUNNEL :	FIREBOX TOP :	FIREBOX LEFT SIDE :
9.26	165.4	331	230.3	73.83	84.76	280.3	251
9.36	171.8	354.2	248.8	73.68	85.55	300.8	278.8
9.46	171.1	336	244.9	73.86	86.11	294.9	274.1
9.56	167.6	329.4	234.8	74.05	86.38	285.2	260.7
10.06	167.3	321	235.7	74.23	86.78	281.1	254.8
10.16	165.7	329.6	234.9	74.63	86.71	277.6	250.1
10.26	166.1	325.6	236.1	74.84	87.11	279	248.9
10.36	162	303.7	226.1	75.03	86.57	265.9	235.3

Temps	FIREBOX BOTTOM :	DMG INLET 1 :	DMG OUTLET 1 :	PROBE TEMPERATURE 1 :	DGM OUTLET 2 :	PROBE TEMPERATURE 2 :
9.26	100.7	4165.8	4165.8	4165.8	4165.8	4165.8
9.36	106.6	4166.3	4166.3	4166.3	4166.3	4166.3
9.46	111.6	72.09	4170.6	4170.6	72.08	4170.6
9.56	114.3	72.36	72.21	4176.3	72.23	4176.3
10.06	116.3	72.56	72.41	4181.8	72.35	4181.8
10.16	117	72.7	72.54	4186.1	72.61	4186.1
10.26	117.5	72.97	72.77	73.54	72.87	4189.7
10.36	117.2	73.17	73.04	73.89	73.19	73.64

Temps	DGM INLET 2 :	SPARE 1 :	SPARE 2 :	FLOW TOTAL	FLOW TOTAL 2	DRAFT :
9.26	4165.8	4165.8	4165.8	0	0	0.001
9.36	4166.3	4166.3	4166.3	0	0	0.001
9.46	71.9	4170.6	4170.6	0	0	0
9.56	72.11	4176.3	4176.3	0	0	0.003
10.06	72.27	4181.8	4181.8	0	0	0.002
10.16	72.47	4186.1	4186.1	0	0	0.004
10.26	72.69	4189.7	4189.7	0	0	0.004
10.36	72.87	4192.2	4192.2	0	0	0.001

Temps	PILOT :	PRESSURE TRANSMITTER SYSTEME 1 :	VACUUM TRANSMITTER SYSTEME 1 :	PRESSURE TRANSMITTER SYSTEME 2 :	VACUUM TRANSMITTER SYSTEME 2 :
9.26	0.001	-0.46	-0.29	-0.04	-0.01
9.36	0.001	-0.72	-0.31	-0.23	0.26
9.46	0.002	-0.91	-0.33	-0.02	0.11
9.56	0.003	-0.78	-0.35	-0.18	0.24
10.06	0.004	-0.52	-0.4	-0.21	0.07
10.16	0.003	-1.18	-0.43	-0.31	0.07
10.26	0.004	-0.97	-0.45	-0.44	0.03
10.36	0.004	-0.71	-0.47	-0.13	0.17

Run 2 Preburn

Temps	FLUE :	FIREBOX BACK :	FIREBOX RIGHT SIDE :	AMBIANT :	DILUTION TUNNEL :	FIREBOX TOP :	FIREBOX LEFT SIDE :	FIREBOX BOTTOM :
13.46	226.3	356.7	288.9	76.8	102	343.3	301.8	118.5
13.56	227.5	371.6	295.9	77.2	100.9	353	311.5	119.1
14.06	224.3	382.8	303.9	76.93	100.4	354.1	316.1	120.3
14.16	237.1	391.8	316.1	76.75	103.3	370	319.4	121.1
14.26	223.6	365.6	297.8	76.91	101.5	347.5	298.2	121.5
14.36	230	386	306.2	77.05	102.2	364.7	320.1	122.6
14.46	221.3	372.8	293.6	77.39	100.5	356	313.4	123.5

Temps	DMG INLET 1 :	DMG OUTLET 1 :	PROBE TEMPERATURE 1 :	DGM OUTLET 2 :	PROBE TEMPERATURE 2 :	DGM INLET 2 :	SPARE 1 :	SPARE 2 :
13.46	76.78	76.78	4181.8	76.97	4181.8	76.65	4181.8	4181.8
13.56	76.89	76.88	4181.2	76.87	4181.2	76.67	4181.2	4181.2
14.06	77.05	77.03	4183.7	76.98	4183.7	76.89	4183.7	4183.7
14.16	77.22	77.12	4187.5	77.15	4187.5	77.01	4187.5	4187.5
14.26	77.33	77.25	4191.2	77.12	4191.2	77.14	4191.2	4191.2
14.36	77.41	77.4	4194.3	77.42	4194.3	77.24	4194.3	4194.3
14.46	77.5	77.44	77.04	77.43	77.03	77.36	4196.7	4196.7

Temps	FLOW TOTAL	FLOW TOTAL 2	DRAFT :	PILOT :	PRESSURE TRANSMITTER SYSTEME 1 :	VACUUM TRANSMITTER SYSTEME 1 :	PRESSURE TRANSMITTER SYSTEME 2 :	VACUUM TRANSMITTER SYSTEME 2 :
13.46	0	0	0.001	0.003	-0.51	-0.37	-0.42	-0.07
13.56	0	0	-0.001	0.003	-0.88	-0.41	-0.29	0.06
14.06	0	0	0.003	0.004	-1.14	-0.44	-0.03	0.16
14.16	0	0	0.002	0.006	-0.93	-0.45	0	0.11
14.26	0	0	0.003	0.005	-1.18	-0.46	-0.27	0.14
14.36	0	0	0.003	0.005	-1.11	-0.49	-0.62	0.01
14.46	0	0	0.004	0.005	-1.03	-0.52	-0.4	0.12

Temps	MASS FLOW SYSTEM 1 :	VOLUME	MASS FLOW SYSTEM 2 :	VOLUME 2	Poids(Lbl)
13.46	0	0	0	0	7.21
13.56	4.72E-08	-2920	-1.02E-07	-2920	6.82
14.06	2.36E-08	-5920	-1.39E-07	-5920	6.41
14.16	-2.88E-08	-8920	-1.36E-07	-8920	5.98
14.26	1.05E-08	-11915	-1.47E-07	-11915	5.61
14.36	3.15E-08	-14915	-1.49E-07	-14915	5.19
14.46	5.25E-09	-17910	-1.57E-07	-17910	4.82

Run 3 Preburn

Temps	FLUE :	FIREBOX BACK :	FIREBOX RIGHT SIDE :	AMBIANT :	DILUTION TUNNEL :	FIREBOX TOP :	FIREBOX LEFT SIDE :	FIREBOX BOTTOM :	DMG INLET 1 :
9.27	264	416.4	359.2	84.24	105.8	446.8	418.3	135	73.97
9.37	287.8	427.5	337.9	77.14	116.7	417.4	395.1	146.6	74.2
9.47	271.6	383.9	316.7	72.35	109.6	395.2	374.3	151.4	74.38
9.57	274.6	388.8	321	74.95	110.4	395.4	366.6	150.3	74.61
10.07	270.9	376.1	321.7	74.51	108.3	402.6	356.2	148.6	74.85
10.17	281.7	395	342	74.11	111.5	414.7	387.9	147.9	75.02
10.27	272.3	383.1	324.7	75.27	109.8	398.3	373.4	145	75.18

Temps	DMG OUTLET 1 :	PROBE TEMPERATURE 1 :	DGM OUTLET 2 :	PROBE TEMPERATURE 2 :	DGM INLET 2 :	SPARE 1 :	SPARE 2 :	FLOW TOTAL	FLOW TOTAL 2
9.27	73.86	4169.4	74	4169.4	73.67	4169.4	4169.4	0	0
9.37	74.04	4169.9	74.13	4169.9	73.9	4169.9	4169.9	0	0
9.47	74.21	4174.1	74.3	4174.1	74.13	4174.1	4174.1	0	0
9.57	74.42	4179.9	74.55	4179.9	74.35	4179.9	4179.9	0	0
10.07	74.64	4185.2	74.73	4185.2	74.53	4185.2	4185.2	0	0
10.17	74.78	4189.4	74.89	4189.4	74.66	4189.4	4189.4	0	0
10.27	74.98	75.79	75.08	75.02	74.88	4192.6	4192.6	0	0

Temps	DRAFT :	PILOT :	PRESSURE TRANSMITTER SYSTEME 1 :	VACUUM TRANSMITTER SYSTEME 1 :	PRESSURE TRANSMITTER SYSTEME 2 :	VACUUM TRANSMITTER SYSTEME 2 :	MASS FLOW SYSTEM 1 :	VOLUME	MASS FLOW SYSTEM 2 :
9.27	0.001	0.002	-0.56	-0.32	-0.14	-0.04	3.15E-08	0	-1.21E-07
9.37	0	0.003	-0.61	-0.36	0.16	0.17	-1.31E-08	-2920	-1.26E-07
9.47	0.001	0.004	-0.7	-0.36	-0.29	0.16	3.93E-08	-5920	-1.21E-07
9.57	0.001	0.005	-0.93	-0.4	-0.56	0.16	1.05E-08	-8915	-1.39E-07
10.07	0.003	0.003	-0.78	-0.43	-0.14	0.22	6.29E-08	-11915	-9.18E-08
10.17	0.004	0.004	-0.62	-0.44	-0.07	0.18	-1.31E-08	-14910	-9.70E-08
10.27	0.003	0.005	-1.25	-0.47	-0.56	0.01	3.15E-08	-17910	-1.76E-07

Temps	VOLUME 2	Poids(Lbl)
9.27	0	12.16
9.37	-2920	11.51
9.47	-5920	10.94
9.57	-8915	10.23
10.07	-11915	9.55
10.17	-14910	8.74
10.27	-17910	8.12

rune 34 Preburn

Temps	FLUE :	FIREBOX BACK :	FIREBOX RIGHT SIDE :	AMBIANT :	DILUTION TUNNEL :	FIREBOX TOP :	FIREBOX LEFT SIDE :	FIREBOX BOTTOM :	DMG INLET 1 :
13.05	363	458.7	457.8	75.31	130.9	569	511.7	161.3	77.55
13.15	358.8	448.7	454.5	73.31	131.4	556.3	505.6	164.5	77.67
13.25	360.7	451.9	449.5	72.7	131.3	565.3	506	164.3	77.83
13.35	352.6	434.9	427.3	74.13	130.7	546	492.1	163.1	77.84
13.45	363.1	455.4	443.1	74.04	130.9	574.3	519.6	166	77.96
13.55	361.8	461.2	449.9	73.45	133.2	567.7	517.1	171.7	78
14.05	353.8	442.8	427	74.61	132.5	546.4	491	170.1	78.17

Temps	DMG OUTLET 1 :	PROBE TEMPERATURE 1 :	DGM OUTLET 2 :	PROBE TEMPERATURE 2 :	DGM INLET 2 :	SPARE 1 :	SPARE 2 :	FLOW TOTAL	FLOW TOTAL 2
13.05	77.5	4189.2	77.77	4189.2	77.48	4189.2	4189.2	0	0
13.15	77.59	4188.1	77.57	4188.1	77.43	4188.1	4188.1	0	0
13.25	77.7	4189.7	77.63	4189.7	77.62	4189.7	4189.7	0	0
13.35	77.79	4192.3	77.57	4192.3	77.66	4192.3	4192.3	0	0
13.45	77.91	4195.1	77.71	4195.1	77.83	4195.1	4195.1	0	0
13.55	77.89	4197.4	77.72	4197.4	77.84	4197.4	4197.4	0	0
14.05	78.03	77.93	77.87	76.51	77.92	4199.3	4199.3	0	0

Temps	DRAFT :	PILOT :	PRESSURE TRANSMITTER SYSTEME 1 :	VACUUM TRANSMITTER SYSTEME 1 :	PRESSURE TRANSMITTER SYSTEME 2 :	VACUUM TRANSMITTER SYSTEME 2 :	MASS FLOW SYSTEM 1 :	VOLUME	MASS FLOW SYSTEM 2 :
13.05	0.001	0.004	-0.67	-0.45	-0.63	-0.11	0	0	0
13.15	0	0.005	-0.9	-0.45	-0.83	0.09	6.82E-08	-2920	-1.31E-07
13.25	0	0.005	-1.22	-0.44	-0.77	0.03	-4.72E-08	-5915	-1.31E-07
13.35	0.002	0.005	-0.92	-0.48	-0.37	0.08	9.18E-08	-8915	-1.31E-07
13.45	0.004	0.005	-0.97	-0.51	-0.77	0.04	2.62E-09	-11915	-1.13E-07
13.55	0.002	0.006	-1.03	-0.52	-0.38	0.16	-5.25E-09	-14910	-1.23E-07
14.05	0	0.005	-1.35	-0.54	-0.38	0.13	3.93E-08	-17910	-1.08E-07

Temps	VOLUME 2	Poids(Lbl)
13.05	0	19.32
13.15	-2920	18.26
13.25	-5915	17.2
13.35	-8915	16.14
13.45	-11915	15.08
13.55	-14910	14.02
14.05	-17910	12.96

Report of Calibration

As Found / As Left

CALIBRATION
CERT #2260.01

Procedure: Low Pressure: CAL VER /Ruska 7250LP: Revision: 1.2.A

UUT

Made by:	Dwyer
Model:	2000-00
Serial No.:	W80111CF89
ID No.:	SBI-024
Description:	Pressure Gauge

Customer

STOVE BUILDER INTERNATIONAL INC.
250 RUE DE COPENHAGUE
ST-AUSTIN-DE-DESMAURES, QC
G3A 2H3

Calibration

Report No.:	AC14051066-W80111CF89
Adjusted:	No
Condition:	In Tolerance
Calibration Date:	9-May-2014
Calibration Due:	9-May-2015

Environment

Temperature:	25.1°C
Humidity:	42%RH

STATEMENT OF UNCERTAINTY: The reported expanded uncertainty of measurement is stated as the standard measurement uncertainty multiplied by the coverage factor K = 2, which for a normal distribution corresponds to a coverage probability of approximately 95 percent. Alpha Controls & Instrumentation Inc. certifies this instrument was calibrated on the date shown using standards traceable to NIST/NRC or accepted intrinsic standards and in compliance with ISO/IEC-17025:2005 and ANSI/NCSL Z540-1.

Any statement of compliance is made without taking measurement uncertainty into account and is based on UUT performance against required tolerance only. The customer must ensure equipment calibrated meets the intended use.

Tolerance is based on manufacturer specification if not stated otherwise. Calibration results relate to items calibrated only.

STANDARDS

Instrument	Model	ID No./Serial No.	Traceability No.	Recall Date
Low Pressure Calibrator	Ruska 7250LP	PRE-CAL-06	1500153193/1500153194	29-Aug-2014

REMARKS:

Calibrated in vertical position.

Performed by: Alex Radomishelsky

Reviewed by: Slava Peciurov

Report of Calibration

As Found / As Left

ACCREDITED
CALIBRATION
CERT #2260.01

UUT

Made by: Dwyer
Model: 2000-00
Serial No.: W80111CF89
ID No.: SBI-024
Description: Pressure Gauge

Calibration

Report No.: AC14051066-W80111CF89
Adjusted: No
Condition: In Tolerance
Calibration Date: 9-May-2014
Calibration Due: 9-May-2015

Test Description	STD	UUT	Error	Tolerance	Units	P/F	Uncertainty
LOW PRESSURE TEST							
0.000 inH2O	0.000	0.00	0.00000	±0.010	inH2O	Pass	5.78e-003
0.051 inH2O	0.051	0.05	-0.00100	±0.010	inH2O	Pass	5.78e-003
0.101 inH2O	0.101	0.10	-0.00100	±0.010	inH2O	Pass	5.78e-003
0.150 inH2O	0.150	0.15	0.00000	±0.010	inH2O	Pass	5.78e-003
0.201 inH2O	0.201	0.20	-0.00100	±0.010	inH2O	Pass	5.78e-003
0.254 inH2O	0.254	0.25	-0.00400	±0.010	inH2O	Pass	5.78e-003
0.200 inH2O	0.200	0.20	0.00000	±0.010	inH2O	Pass	5.78e-003
0.148 inH2O	0.148	0.15	0.00200	±0.010	inH2O	Pass	5.78e-003
0.098 inH2O	0.098	0.10	0.00200	±0.010	inH2O	Pass	5.78e-003
0.048 inH2O	0.048	0.05	0.00200	±0.010	inH2O	Pass	5.78e-003
-0.001 inH2O	-0.001	0.00	0.00100	±0.010	inH2O	Pass	5.78e-003

END OF REPORT

Thermal Metering System Calibration
Y factor for Method 5G sampling

Manufacturer:	American Meter Company
Model:	DTM-200A
Serial Number:	90R054300

Previous Calibration Comparision

Date	2013-10-04	Acceptable	
		Deviation (5%)	Deviation
y Factor	1.002	0.0501	0.003
Acceptance	Acceptable		

Average Gas Meter y Factor
0.999

Calibration Date:	05-05-14
Calibrated by:	Claude Paré
Calibration Frequency:	6-month
Next Calibration Due:	11-03-14
Instrument Range:	1.000 cfm
Standard Temp.:	68.1 oF
Standard Press.:	29.92 "Hg
Barometric Press.:	29.65 "Hg
Signature/Date:	2014-05-05

Current Calibration

Acceptable y Deviation	0.050
Maximum y Deviation	0.004
Acceptance	Acceptable

Reference Standard *			
Standard	Model	Standard Test Meter	
Calibrator	S/N	07J264834	
	Calib. Date	26-août-13	
	Calib. Value	0.9920	y factor (ref)

Calibration Parameters	Run 1	Run 2	Run 3
Vacuum ("Hg)	0.00	0.00	0.00
dH ("H2O)	0.00	0.00	0.00
Initial Reference Meter	75.300	81.400	89.700
Final Reference Meter	80.975	89.003	94.831
Initial DGM	705.716	711.799	720.134
Final DGM	711.331	719.372	725.248
Temp. Ref. Meter (°F), Tr	68.8	69.9	70.3
Temperature DGM (°F), Td	69.1	70.8	71.5
Time (Minutes)	93.0	48.0	58.8
Net Volume Ref. Meter, Vr	5.675	7.603	5.131
Net Volume DGM, Vd	5.615	7.573	5.114
Gas Meter y Factor =	**1.003**	**0.998**	**0.997**
Gas Meter y Factor Deviation (from avg.)	0.004	0.002	0.002
Orifice dH@	**0.00**	**0.00**	**0.00**
Orifice dH@ Deviation (from avg.)	0.000	0.000	0.000

where: 0.060376344

1. Deviation = |Average value for all runs - current run value|
2. y = [Vr x (y factor (ref)) x (Pb) x (Td + 460) / [Vd x (Pb + (dH / 13.6)) x (Tr + 460]
3. dH@ = 0.0317 x dH / (Pb (Td + 460)) x [(Tr + 460) x time) / Vr]^2

* Reference calibration is traceable to NIST through NIST Test # 40674, Kimble ASTM E1272

Thermal Metering System Calibration
Y factor for Method 5G sampling

Manufacturer:	American Meter Company
Model:	DTM-200A
Serial Number:	98Z332226

Previous Calibration Comparision

Date	2013-10-04	Acceptable	
		Deviation (5%)	Deviation
y Factor	0.994	0.0497	0.002
Acceptance	Acceptable		

Average Gas Meter y Factor
0.996

Calibration Date:	05-05-14
Calibrated by:	Claude Paré
Calibration Frequency:	6-month
Next Calibration Due:	11-03-14
Instrument Range:	1.000 cfm
Standard Temp.:	70.2 oF
Standard Press.:	29.92 "Hg
Barometric Press.:	29.65 "Hg
Signature/Date:	2014-05-05

Current Calibration

Acceptable y Deviation	0.050
Maximum y Deviation	0.001
Acceptance	Acceptable

Reference Standard *			
Standard	Model	Standard Test Meter	
Calibrator	S/N	07J264834	
	Calib. Date	26-août-13	
	Calib. Value	0.9920	y factor (ref)

Calibration Parameters	Run 1	Run 2	Run 3
Vacuum ("Hg)	0.00	0.00	0.00
dH ("H2O)	0.00	0.00	0.00
Initial Reference Meter	95.600	101.800	107.900
Final Reference Meter	101.364	107.303	113.050
Initial DGM	429.799	436.037	442.165
Final DGM	435.541	441.526	447.300
Temp. Ref. Meter (°F), Tr	71.1	72.1	72.3
Temperature DGM (°F), Td	71.3	72.6	73.3
Time (Minutes)	96.0	29.0	19.0
Net Volume Ref. Meter, Vr	5.764	5.503	5.150
Net Volume DGM, Vd	5.742	5.489	5.135
Gas Meter y Factor =	**0.996**	**0.995**	**0.997**
Gas Meter y Factor Deviation (from avg.)	0.000	0.001	0.001
Orifice dH@	**0.00**	**0.00**	**0.00**
Orifice dH@ Deviation (from avg.)	0.000	0.000	0.000

where: 0.0598125

1. Deviation = |Average value for all runs - current run value|
2. y = [Vr x (y factor (ref)) x (Pb) x (Td + 460) / [Vd x (Pb + (dH / 13.6)) x (Tr + 460]
3. dH@ = 0.0317 x dH / (Pb (Td + 460)) x [(Tr + 460) x time) / Vr]^2

* Reference calibration is traceable to NIST through NIST Test # 40674, Kimble ASTM E1272

Ulrich Métrologie inc.
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info@ulrich.ca
www.ulrich.ca

ACCREDITATION ISO 17025
SCC Scope Number 220

CALIBRATION CERTIFICATE

Certificate no.:	400776	**Calibration date:**	February 13, 2014
Identification:	SBI-096	**Certificate issued:**	February 13, 2014
Description:	CALIBRATOR, OMEGA CL23A	**Interval:**	12 months
Size:	TC K/J/T	**Due date:**	February 13, 2015
Manufacturer:	OMEGA	**Procedure no.:**	MET/CAL
Model no.:	CL23A	**Environment:**	CLAS Type 2 Laboratory
Serial no.:	T-256137	**Temperature:**	23 ± 2°C
		Humidity:	35 - 55% RH
		Metrologist:	NIN

Property of: SBI
250 RUE DE COPENHAGUE
ST-AUGUSTIN-DE-DESMAURES, QC G3A 2H3

Approved by: David Llorens, Quality Manager

This calibration certificate is issued in accordance with the applicable requirements of ISO/IEC 17025 and Ulrich Metrology's quality manual QM-09 Revision 9. Measurement results provided are traceable to either the National Research Council Canada (NRC), the National Institute of Standards and Technology (NIST), a national laboratory of another country signatory to the CIPM Mutual Recognition Arrangement (MRA), or a calibration laboratory accredited by an accrediting body with which Canada has an equivalence agreement.

CALIBRATION STANDARDS

See notes below.

MEASUREMENT UNCERTAINTY

The above listed instrument meets or exceeds all specifications as stated in the reference procedure, unless noted otherwise. For measurement results associated with the conformance to a tolerance, the uncertainty in the measurement system did not exceed 25% (4:1 test uncertainty ratio) of the acceptable tolerance for each characteristic calibrated, unless otherwise noted in the report.

CALIBRATION DATA

See next page for measurement results.

Notes:

9V battery replaced.

166727 P

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CALIBRATION DATA

Certificate no.: 400776
Identification: SBI-096
Description: CALIBRATOR THERMOMETER
Serial no.: T-256137
Procedure: Omega CL23A: 5520A-M

Result: PASS
Condition: FOUND-LEFT

CALIBRATION STANDARDS

Identification	Description	Manufacturer	Model no.	Cal. Date	Due Date
8608002	CALIBRATOR	FLUKE	5520A	2013/11/21	2014/11/30

MEASUREMENT RESULTS (Per MET/CAL)

PARAMETER	TRUE VALUE	TEST RESULT	ACCEPTANCE LIMITS LOW	HIGH	PASS/ FAIL	TUR
Temperature measurements are performed by electrical simulation.						
DISPLAY CALIBRATION						
Did all segments of the display illuminate?						
Result of Operator Evaluation					PASS	
THERMOMETER CALIBRATION						
K Type Thermocouple						
-200.0degF		-200.3	-201.0	-199.0	PASS	1.7
-60.0degF		-60.1	-61.0	-59.0	PASS	3.1
-40.0degF		-40.3	-40.5	-39.5	PASS	1.5
32.0degF		31.7	31.5	32.5	PASS	1.7
1240.0degF		1239.8	1239.5	1240.5	PASS	1.1
1260.0degF		1259.8	1259.5	1260.5	PASS	1.1
2500.0degF		2499.8	2499.0	2501.0	PASS	1.4
J Type Thermocouple						
-200.0degF		-199.9	-201.0	-199.0	PASS	2.1
-60.0degF		-59.8	-61.0	-59.0	PASS	3.5
-40.0degF		-40.0	-40.5	-39.5	PASS	1.7
32.0degF		32.0	31.5	32.5	PASS	2.0
1240.0degF		1239.9	1239.5	1240.5	PASS	1.6
1260.0degF		1259.9	1259.5	1260.5	PASS	1.6
1400.0degF		1399.9	1399.4	1400.6	PASS	1.8
T Type Thermocouple						
-200.0degF		-200.0	-201.0	-199.0	PASS	2.3
-60.0degF		-59.8	-61.0	-59.0	PASS	2.3
-40.0degF		-40.0	-40.5	-39.5	PASS	1.2
32.0degF		31.9	31.5	32.5	PASS	1.7
750.0degF		749.9	749.5	750.5	PASS	2.0
CALIBRATOR CALIBRATION						
K Type Thermocouple						
-200.0degF		-199.8	-201.0	-199.0	PASS	1.7

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PARAMETER	TRUE VALUE	TEST RESULT	ACCEPTANCE LIMITS LOW	HIGH	PASS/ FAIL	TUR
-60.0degF		-59.9	-61.0	-59.0	PASS	3.1
-40.0degF		-39.9	-40.5	-39.5	PASS	1.5
32.0degF		32.0	31.5	32.5	PASS	1.7
1240.0degF		1240.3	1239.5	1240.5	PASS	1.1
1260.0degF		1260.3	1259.5	1260.5	PASS	1.1
2500.0degF		2500.6	2499.0	2501.0	PASS	1.4
J Type Thermocouple						
-200.0degF		-200.0	-201.0	-199.0	PASS	2.1
-60.0degF		-60.2	-61.0	-59.0	PASS	3.5
-40.0degF		-40.0	-40.5	-39.5	PASS	1.7
32.0degF		31.9	31.5	32.5	PASS	2.0
1240.0degF		1240.3	1239.5	1240.5	PASS	1.6
1260.0degF		1260.2	1259.5	1260.5	PASS	1.6
1400.0degF		1400.0	1399.4	1400.6	PASS	1.8
T Type Thermocouple						
-200.0degF		-200.3	-201.0	-199.0	PASS	2.3
-60.0degF		-60.2	-61.0	-59.0	PASS	2.3
-40.0degF		-40.0	-40.5	-39.5	PASS	1.2
32.0degF		31.8	31.5	32.5	PASS	1.7
750.0degF		750.0	749.5	750.5	PASS	2.0

End of Test Data

Report of Calibration

As Found / As Left

ACCREDITED
CALIBRATION
CERT #2260.01

Procedure: Low Pressure: CAL VER /Ruska 7250LP: Revision: 1.2.A

UUT

Made by:	Dwyer
Model:	0-.25INH2O
Serial No.:	N/A
ID No.:	SBI-101
Description:	Magnehelic Gauge

Calibration

Report No.:	AC14021257-SBI-101
Adjusted:	No
Condition:	In Tolerance
Calibration Date:	14-Feb-2014
Calibration Due:	14-Feb-2015

Customer

STOVE BUILDER INTERNATIONAL INC.
250 RUE DE COPENHAGUE
ST-AUSTIN-DE-DESMAURES, QC
G3A 2H3

Environment

Temperature:	25.7°C
Humidity:	16%RH

STATEMENT OF UNCERTAINTY: The reported expanded uncertainty of measurement is stated as the standard measurement uncertainty multiplied by the coverage factor K = 2, which for a normal distribution corresponds to a coverage probability of approximately 95 percent. Alpha Controls & Instrumentation Inc. certifies this instrument was calibrated on the date shown using standards traceable to NIST/NRC or accepted intrinsic standards and in compliance with ISO/IEC-17025:2005 and ANSI/NCSL Z540-1.

Any statement of compliance is made without taking measurement uncertainty into account and is based on UUT performance against required tolerance only. The customer must ensure equipment calibrated meets the intended use.

Tolerance is based on manufacturer specification if not stated otherwise. Calibration results relate to items calibrated only.

STANDARDS

Instrument	Model	ID No./Serial No.	Traceability No.	Recall Date
Low Pressure Calibrator	Ruska 7250LP	PRE-CAL-06	1500153193/1500153194	29-Aug-2014

REMARKS:

Calibrated in vertical position.

Performed by: Alex Radomishelsky

Reviewed by: Slava Peciurov

Report of Calibration

As Found / As Left

ACCREDITED
CALIBRATION
CERT #2260.01

Procedure: Low Pressure: CAL VER /Ruska 7250LP: Revision: 1.2.A

UUT

Made by: Dwyer
Model: 0-.25INH2O
Serial No.: N/A
ID No.: SBI-101
Description: Magnehelic Gauge

Calibration

Report No.: AC14021257-SBI-101
Adjusted: No
Condition: In Tolerance
Calibration Date: 14-Feb-2014
Calibration Due: 14-Feb-2015

Test Description	STD	UUT	Error	Tolerance	Units	P/F	Uncertainty
LOW PRESSURE TEST							
0.0000 inH2O	0.0000	0.000	0.00000	±0.0100	inH2O	Pass	5.97e-004
0.0620 inH2O	0.0620	0.060	-0.00200	±0.0100	inH2O	Pass	5.97e-004
0.1260 inH2O	0.1260	0.125	-0.00100	±0.0100	inH2O	Pass	5.97e-004
0.1820 inH2O	0.1820	0.180	-0.00200	±0.0100	inH2O	Pass	5.97e-004
0.2480 inH2O	0.2480	0.250	0.00200	±0.0100	inH2O	Pass	5.97e-004
0.1780 inH2O	0.1780	0.180	0.00200	±0.0100	inH2O	Pass	5.97e-004
0.1220 inH2O	0.1220	0.125	0.00300	±0.0100	inH2O	Pass	5.97e-004
0.0600 inH2O	0.0600	0.060	0.00000	±0.0100	inH2O	Pass	5.97e-004
0.0000 inH2O	0.0000	0.000	0.00000	±0.0100	inH2O	Pass	5.97e-004

END OF REPORT

CERTIFICATE OF NIST TRACEABLE CALIBRATION

Calibration Certificate No: 37492

LABORATORY ACCREDITATION BUREAU ACCREDITED
Certificate # L2115-1 Calibration
ISO 17025-2005 ACCREDITED

Customer Information

Customer: SBI St-Augustin

Address : 250, De Copenhague
Doors 11-12
St-Augustin-de-Desmaures

Customer PO #: 36368

Calibration Procedure Information

Procedure ID: GTP FLOW_INDI Revision #: 7 Revision Date: 1/6/2013

Calibration Standards Information

Graftel ID	Manufacturer	Model #	Description	CAL Due
10074	Meriam	50MJ10-14	Laminar Flowmeter	3/1/2014
10075	Meriam	50MJ10-9	Laminar Flowmeter	6/25/2014
51202	Paroscientific	760-100A	Pressure, 100 Psia	2/22/2014
10062	Graftel	9202	5-Channel Temperature Sensor	8/24/2015
10128	Furness	FCO352	Diff Pressure	8/5/2014
60030	Paroscientific	760-100A	Pressure, 100 psia	2/22/2014
10159	HOBO	U12-011	Environment Monitor System	12/3/2013

Sensor Information

Manufacturer: American Meter
Description: Gas Meter
Method Used: Laminar
Model #: DTM-200A
Rated Accuracy: ± 1 % of Reading
Accuracy Specified By: AmericanMeter
Instrument ID#: SBI-103
Range: 0 to 250 cfh
Condition: Functional
Serial #: 07J264834
Comments: Calibration Date: 08-26-2013

The instruments(s) listed on this certificate have been calibrated against standards traceable to the National Institue of Standards and Technology (NIST) or compared to nationally or internationally recognized consensus standards. The reported calibration uncertainty has a confidence level of 95% (K=2). A calibration uncertainty ratio of 4:1 was maintained unless required uncertainty is supported by analysis. Graftel, LLC. Quality Assurance System complies with applicable requirements of ISO/IEC-17025-2005 and ISO 9001: 2008. All results contained within this certification relate only to item(s) calibrated. This certificate shall not be reproduced except in full and with the written consent of Graftel, LLC. Acceptance Criteria per Simple Acceptance Rule: Measurement Uncertainty is not applied to the measured value when in/out of tolerance statement is made.

Performed By: L. Chan Date: 08/26/2013

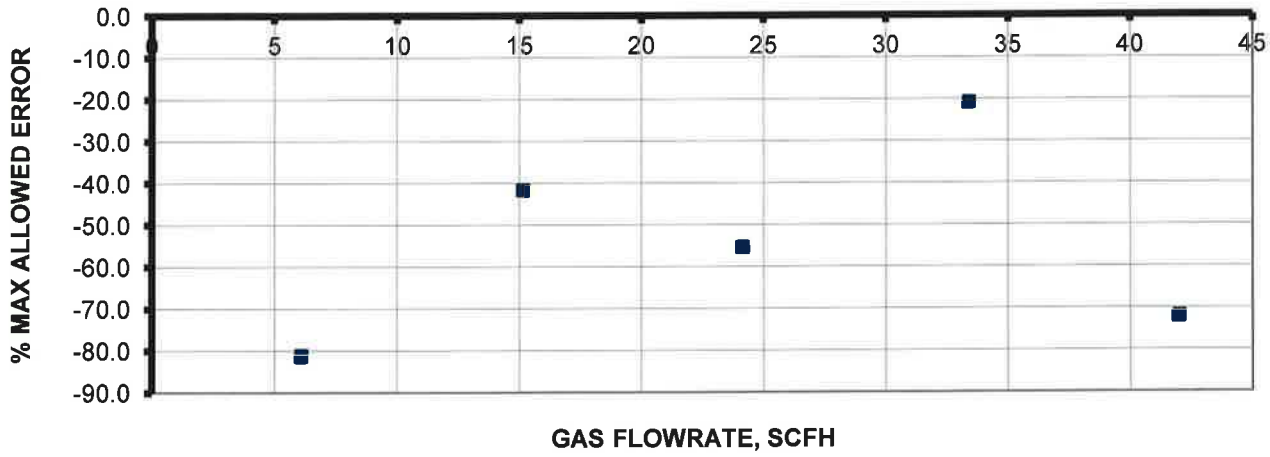
L. Chan
Calibration Technician

GRAFTEL, LLC. 870 Cambridge Drive, Elk Grove Village, IL 60007 847.364.2600
www.graftel.com

ATTACHMENT TO CALIBRATION CERTIFICATE 37492
AS FOUND DATA

Air Flow Rate From Standard, scfh	Air Vol From Standard, scf	Air Vol From Meter, cf	Air vol From Meter, scf	Diff Air Vol STD - METER scf	% Proof	Measurement Uncertainty, scf	STATUS
6.079	0.2866	0.30	0.289	0.00	99.195	0.002	Pass
15.146	0.9610	1.00	0.965	0.00	99.585	0.005	Pass
24.166	0.9620	1.00	0.967	-0.01	99.450	0.005	Pass
33.409	1.9363	2.00	1.940	0.00	99.791	0.010	Pass
42.018	1.9333	2.00	1.947	-0.01	99.285	0.010	Pass

ERROR CHART



INSTRUMENT SPECIFICATIONS		
Test Gas	Air	
Standard Pressure,Meter	14.73	psia
Standard Temperature,Meter	60	F
Rated Accuracy	1	% Rding
Full Scale Flow Rate	250	scfh Natural Gas @ 1/2 inch WC
LABORATORY AMBIENT CONDITIONS		
Pressure	14.42	psia
Humidity	49.63	% RH
Temperature	69.88	F

Flow - Humidity - Temperature - Pressure - Design - Consulting - Engineering

NIST Traceable Calibration Data Sheet

Graftel, LLC. 870 Cambridge Drive, Elk Grove Village, IL 60007
P. 847-364-2600 F. 847-364-2899

www.graftel.com

ERROR: undefined
OFFENDING COMMAND: eexec

STACK:

/quit
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-mark-

DIGITAL MEASUREMENT METROLOGY LABORATORY

A division of
DIGITAL MEASUREMENT METROLOGY INC.
26 Automatic Road, Unit 4
Brampton, ON, Canada L6S 5N7
TEL. (905) 790-9400 FAX. (905) 790-9266
Internet: *www.dmm.ca* E-mail: *service@dmm.ca*
L-A-B Accredited Cert# L1048-1 Calibration, Testing & Dim Insp

CALIBRATION CERTIFICATE

Description:	WEIGHT SET	**Calibration Date:**	10/17/2013 **Certificate:** 62610
Asset Number:	SBI-190/191	**Property of:**	SBI ST-AUGUSTIN
Serial/Model Number:	N / A	**Address:**	250, rue de Copenhague, Doors 10-12
Manufacturer:	TROEMNER	**City/Prov/PC:**	St-Augustin-de-Desmaures QC G3A 2H3
Instrument Capacity:	5 kg to 10 kg	**Country:**	Canada
Procedure:	CP34G	**Method Used:**	COMPARISON
Room Humidity:	43 % **Room Temp:** 20.2 °C	**Conformance Stds:**	ISO/IEC 17025: 2005

CALIBRATION DATA

Units: kg

Asset #	Std/Nominal	As Found	As Left	Min	Max	Tolerance In	Tolerance Out	Uncertainty
SBI-190	5	5.0004	5.0004	4.9995	5.0005	☑	☐	± 0.2 g
SBI-191	10	10.0006	10.0006	9.999	10.001	☑	☐	± 0.22 g

Remarks:

Inspected, cleaned and tested using the mfgr's specs and procedures, customer's, national or international standards, or new procedure design. Measurement uncertainty is not considered when deciding compliance to the tolerance or specs. It is up to the user to make a judgment of conformity to the limits shown.

CALIBRATION STANDARD(S) USED

Traceable No.	Asset Number	Calibration Date	Date Due
62370	DMML-2356075	01-Oct-13	01-Oct-14
W-023485-14924	DMML-21669	06-Dec-11	06-Dec-13
W-023485-14924	DMML-21701	06-Dec-11	06-Dec-13

Received Condition:
In tolerance.

Weights are accurate to class F tolerance.

Estimated measurement uncertainty is, at minimum, an accuracy ratio of 4:1, unless otherwise stated.

Reported uncertainties represent a 95 % confidence level assuming a normal distribution, with a coverage factor of k=2.

This calibration was performed in the lab and is traceable to the International System of Units (SI Units) through NIST or NRC. This report is covered by our accreditation.

Calibration of the instrument expires on October 17, 2014

TECHNICIAN Chris Ridda — Christopher Riddle

QUALITY APPROVAL Andrés Galeano — Andres Galeano

END OF REPORT

ERROR: undefined
OFFENDING COMMAND: eexec

STACK:

/quit
-dictionary-
-mark-

Ulrich Métrologie inc.
Ulrich Metrology Inc.
9912, Côte-de-Liesse
Montréal (Québec) H8T 1A1

Tél. (514) 631-6653
Fax (514) 631-6122
info@ulrich.ca
www.ulrich.ca

ACCREDITATION ISO 17025 ™

CALIBRATION CERTIFICATE

Certificate no.:	377318	**Calibration date:**	August 21, 2013
Identification:	SBI-213	**Certificate issued:**	August 21, 2013
Description:	THERMO-HYGROMETER, AMPROBE TH-3	**Interval:**	12 months
Manufacturer:	AMPROBE	**Due date:**	August 21, 2014
Model no.:	TH-3	**Procedure no.:**	MET/CAL
Serial no.:	101004044	**Environment:**	CLAS Type 2 Laboratory
		Temperature:	23 ± 2°C
		Humidity:	35 - 55% RH
		Metrologist:	NFS

Property of: SBI
250 RUE DE COPENHAGUE
ST-AUGUSTIN-DE-DESMAURES, QC G3A 2H3

Approved by: David Llorens, Quality Manager

This calibration certificate is issued in accordance with the applicable requirements of ISO/IEC 17025 and Ulrich Metrology's quality manual QM-09 Revision 9. Measurement results provided are traceable to either the National Research Council Canada (NRC), the National Institute of Standards and Technology (NIST), a national laboratory of another country signatory to the CIPM Mutual Recognition Arrangement (MRA), or a calibration laboratory accredited by an accrediting body with which Canada has an equivalence agreement.

CALIBRATION STANDARDS

See notes below.

MEASUREMENT UNCERTAINTY

The above listed instrument meets or exceeds all specifications as stated in the reference procedure, unless noted otherwise. For measurement results associated with the conformance to a tolerance, the uncertainty in the measurement system did not exceed 25% (4:1 test uncertainty ratio) of the acceptable tolerance for each characteristic calibrated, unless otherwise noted in the report.

CALIBRATION DATA

See next page for measurement results.

226673 P

Ulrich Métrologie inc.
Ulrich Metrology inc.
9912, Côte-de-Liesse
Montréal (Québec) H8T 1A1

Tél. (514) 631-6853
Fax (514) 631-6122
info@ulrich.ca
www.ulrich.ca

CALIBRATION DATA

Certificate no.: 377318
Identification: SBI-213
Description: THERMO-HYGROMETER
Serial no.: 101004044
Procedure: Amprobe TH-3: 2500ST-LT-M

Result: PASS
Condition: FOUND-LEFT

CALIBRATION STANDARDS

Identification	Description	Manufacturer	Model no.	Cal. Date	Due Date
1304953	HUMIDITY GENERATOR	THUNDER SCIENTIFIC	2500ST-LT	2013/04/19	2014/04/30

MEASUREMENT RESULTS (Per MET/CAL)

PARAMETER	TRUE VALUE	TEST RESULT	ACCEPTANCE LIMITS LOW	HIGH	PASS/ FAIL	TUR
TEMPERATURE CALIBRATION						
23°C						
23.00degC		23.30	22.20	23.80	PASS	
RELATIVE HUMIDITY CALIBRATION AT 23°C						
20% RH						
20.00%		19.50	17.00	23.00	PASS	
50% RH						
50.00%		48.50	47.00	53.00	PASS	
80% RH						
80.00%		77.50	77.00	83.00	PASS	

End of Test Data

ERROR: undefined
OFFENDING COMMAND: eexec

STACK:

/quit
-dictionary-
-mark-

Date: 2/8/2013

Equipment: SBI-232 Temperature: 72 F
Accuracy: 0.01 R.H.: 19%
Reference: Horloge parlante

S.D.	0.00	%	
R.M.U.	0.00	%	
O.M.U	**0.00**	**%**	
	Ave A.D.	0.00	%
Standard	Reading	A.D.	
84360.0	84360.0	0.00	

Technician: Claude Paré

Date: 2/8/2013

Equipment: SBI-234 Temperature: 72 F
Accuracy: 0.01 R.H.: 19%
Reference: Horloge parlante

S.D.	0.00	%	
R.M.U.	0.00	%	
O.M.U	**0.00**	**%**	
	Ave A.D.	0.00	%
Standard	Reading	A.D.	
84360.0	84360.0	0.00	

Technician: Claude Paré

Certificate No: MT0031229

METTLER-TOLEDO, LLC
1900 Polaris Pkwy
Columbus, OH 43240
1-800-METTLER

METTLER TOLEDO

ACCREDITED
Cert # 1788.01

Mass Calibration Certificate

Customer Information

Customer Name:	Sbi	*City:*	Saint-Augustin-De-Dema
Address:	250 Rue Copenhague	*State / Province:*	QC
Purchase Order:	34985	*Zip / Postal Code:*	G3A 2H3

Measurement and Test Equipment Identification

Serial Number:	B316239338	*Date Received:*	4/17/2013
Manufacturer:	Mettler-Toledo	*Condition:*	*Excellent*
Asset number:		*Tolerance Class:*	OIML E2

Environmental Conditions

Temperature:	20.430 °C	*Relative Humidity:*	47.680 *%RH*
Barometric Pressure:	988.9080 *hPa*	*Air Density:*	1.1688 kg/m^3

The standards used to perform this calibration are traceable to NIST through METTLER TOLEDO traceability number: MT5061

This certificate is issued in accordance with the conditions granted by A2LA under Certificate number 1788.01, which is based on ISO/IEC17025. A2LA has assessed the measurement capability of the laboratory and its traceability to recognized national standards. All uncertainties in this certificate are reported at a 95% (k=2) confidence factor.

Calibration Date: 04/17/2013

Next Calibration Due: 04/16/2014
2015 CP 2014-06-23

Calibration Technician: Kathy Weatherbie

Signature: Ann J Anderson 04/18/2013

Metrology Specialist Date

16280500A

Certificate No: MT0031229

As Found Data

Nominal Value&Suffix	Serial Number	True Mass (g)	Conv. Mass (g)	Uncertainty (mg, k = 2)	Tolerance (mg)	Density (g/cm³)
100 mg	(B316239338)	0.1000032436	0.1000031492	0.0017	0.016	7.95

Certificate No: MT0031229

As Left Data

Nominal Value&Suffix	Serial Number	True Mass (g)	Conv. Mass (g)	Uncertainty (mg, k = 2)	Tolerance (mg)	Density (g/cm³)
100 mg	(B316239338)	0.1000032436	0.1000031492	0.0017	0.016	7.95

Certificate No: MT0031229

Comparators Used

#	Equipment Used	Serial Number	Equipment Type	Calibration Due
#6 :	a5XL	B010016731	Automated Mass Comparator	08/31/2013

Comments

No Remarks

Definitions

Nominal Value - The value as labeled on the weight or defined by shape in accordance with OIML R111 for milligram weights. The number within the parentheses after the nominal value is the serial number of the set to which the weight belongs.

True Mass - The mass value of the weight if measured in a vacuum.

Conventional Mass - For a mass at 20 °C, "Conventional Mass" is the mass of a reference standard of density 8000 kg/m³ which it balances in air with a density of 1.2 kg/m³. This value should be referenced when testing the accuracy of a weighing device using any of the nominal values contained in this certificate. The As Found results will equal the As Left in cases where no adjustment or replacement was required.

Uncertainty - All Uncertainty values are reported at 95% confidence level (k=2) . The uncertainty value does not include a component for the affects due to magnetism.

Tolerance - The acceptable range of deviation (positive and negative) from the nominal value, including the uncertainty, as defined by ASTM and OIML for the respective classes.

Density - The assumed density of the material used by the manufacturer.

Calibration Process - The METTLER TOLEDO procedure used to obtain the measurement results. All procedures are based on SOPs as defined in NIST Handbook 145. The same process is used to obtain the As Found and As Left results.

OOT - The As Found measurement result combined with the uncertainty exceeded the tolerance for the specified weight class.

A - Weight was adjusted after As Found testing to within the appropriate tolerance class.

R - The received weight was replaced due to an out of tolerance condition and the weight was not adjustable or the weight for this nominal value was missing.

Certificate No: MT0031137

METTLER-TOLEDO, LLC
1900 Polaris Pkwy
Columbus, OH 43240
1-800-METTLER

METTLER TOLEDO

ACCREDITED
Cert # 1788.01

Mass Calibration Certificate

Customer Information

Customer Name:	Sbi	*City:*	Saint-Augustin-De-Dema
Address:	250 Rue Copenhague	*State / Province:*	QC
Purchase Order:	34985	*Zip / Postal Code:*	G3A 2H3

Measurement and Test Equipment Identification

Serial Number:	B316238717	*Date Received:*	4/16/2013
Manufacturer:	Mettler-Toledo	*Condition:*	*Excellent*
Asset number:		*Tolerance Class:*	OIML F1, F2

Environmental Conditions

Temperature:	20.365 °C	*Relative Humidity:*	47.865 *%RH*
Barometric Pressure:	981.2060 *hPa*	*Air Density:*	1.1599 kg/m^3

The standards used to perform this calibration are traceable to NIST through METTLER TOLEDO traceability number: MT5061

This certificate is issued in accordance with the conditions granted by A2LA under Certificate number 1788.01, which is based on ISO/IEC17025. A2LA has assessed the measurement capability of the laboratory and its traceability to recognized national standards. All uncertainties in this certificate are reported at a 95% (k=2) confidence factor.

Calibration Date: 04/09/2013

Next Calibration Due: 04/15/2014 ~~2014~~ 2015 CF 2014-06-23

Calibration Technician: Kathy Weatherbie

Signature: Ann J Anderson 04/16/2013

Metrology Specialist Date

16280500A

Certificate No: MT0031137

As Found Data

Nominal Value&Suffix	Serial Number	True Mass (g)	Conv. Mass (g)	Uncertainty (mg, k = 2)	Tolerance (mg)	Density (g/cm³)
200 g	(B316238717)	200.001163	200.000974	0.035	3.0	7.95
10 g	(B316238717)	10.0000725	10.0000630	0.0078	0.20	7.95

As Left Data

Nominal Value&Suffix	Serial Number	True Mass (g)	Conv. Mass (g)	Uncertainty (mg, k = 2)	Tolerance (mg)	Density (g/cm³)
200 g	(B316238717)	200.001163	200.000974	0.035	3.0	7.95
10 g	(B316238717)	10.0000725	10.0000630	0.0078	0.20	7.95

Comparators Used

#	Equipment Used	Serial Number	Equipment Type	Calibration Due
#11 :	a200XL	B010016733	Automated Mass Comparator	08/31/2013

Comments

No Remarks

Definitions

Nominal Value - The value as labeled on the weight or defined by shape in accordance with OIML R111 for milligram weights. The number within the parentheses after the nominal value is the serial number of the set to which the weight belongs.

True Mass - The mass value of the weight if measured in a vacuum.

Conventional Mass - For a mass at 20 °C, "Conventional Mass" is the mass of a reference standard of density 8000 kg/m³ which it balances in air with a density of 1.2 kg/m³. This value should be referenced when testing the accuracy of a weighing device using any of the nominal values contained in this certificate. The As Found results will equal the As Left in cases where no adjustment or replacement was required.

Uncertainty - All Uncertainty values are reported at 95% confidence level (k=2) . The uncertainty value does not include a component for the affects due to magnetism.

Tolerance - The acceptable range of deviation (positive and negative) from the nominal value, including the uncertainty, as defined by ASTM and OIML for the respective classes.

Density - The assumed density of the material used by the manufacturer.

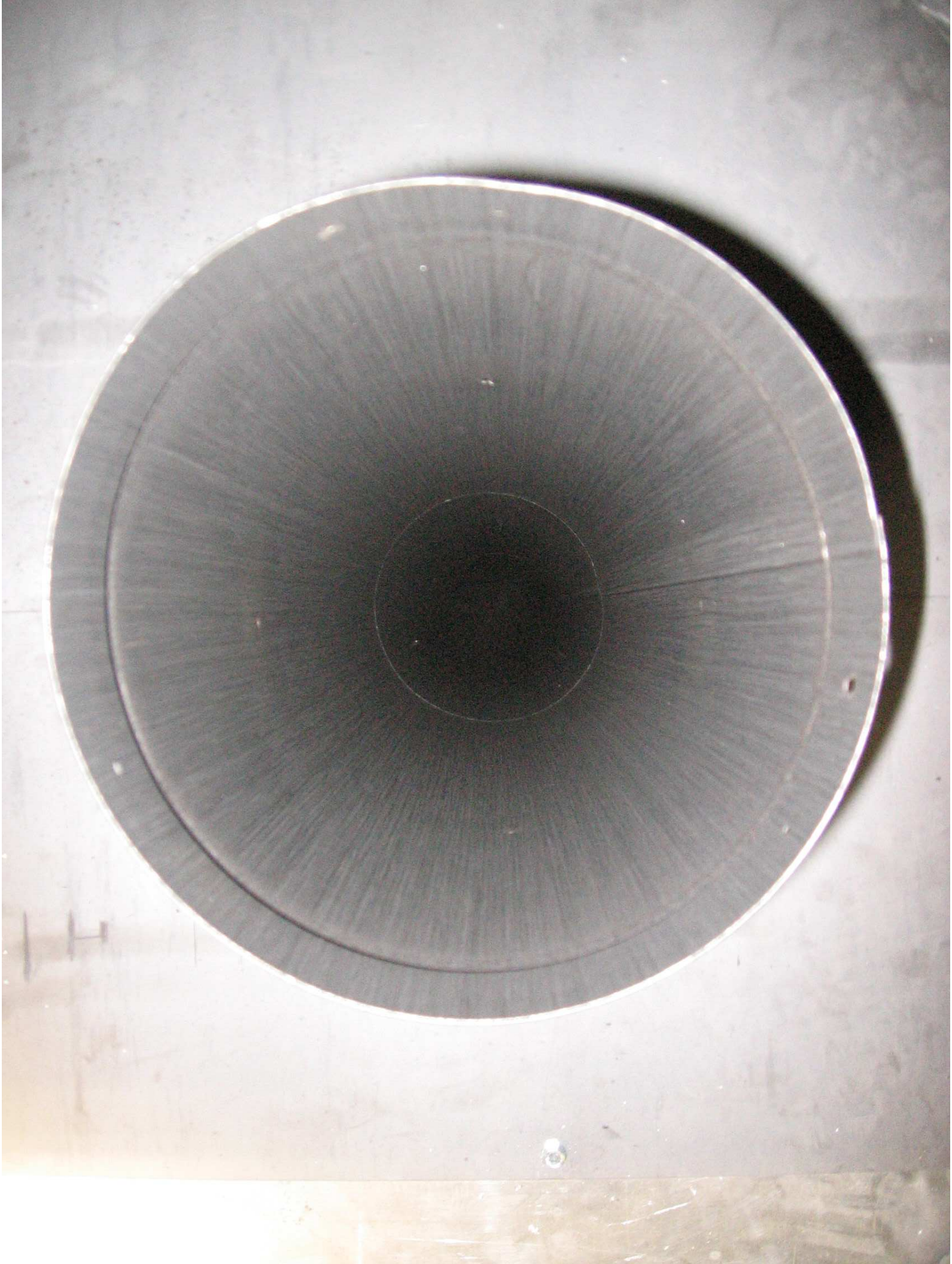
Calibration Process - The METTLER TOLEDO procedure used to obtain the measurement results. All procedures are based on SOPs as defined in NIST Handbook 145. The same process is used to obtain the As Found and As Left results.

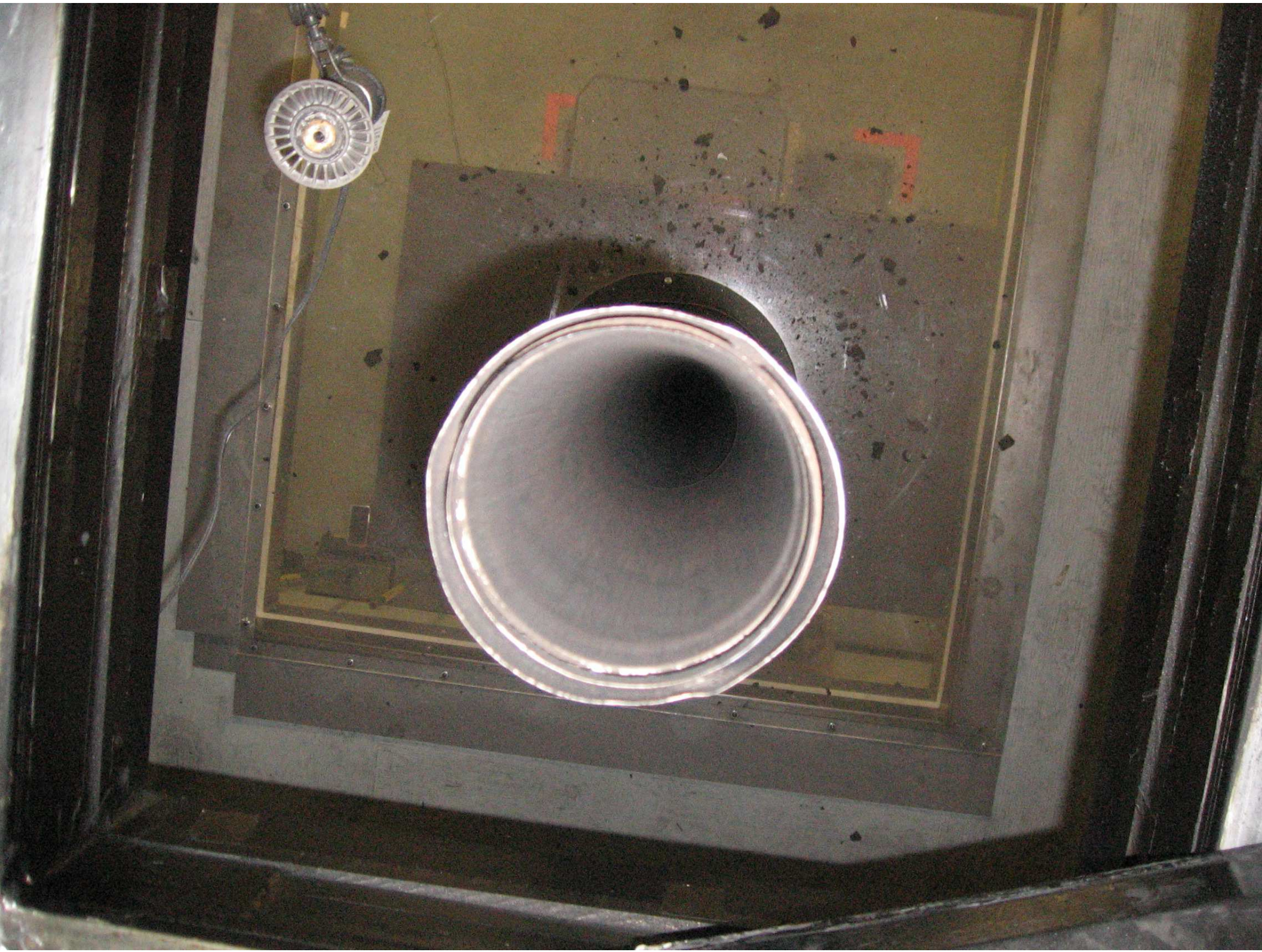
OOT - The As Found measurement result combined with the uncertainty exceeded the tolerance for the specified weight class.

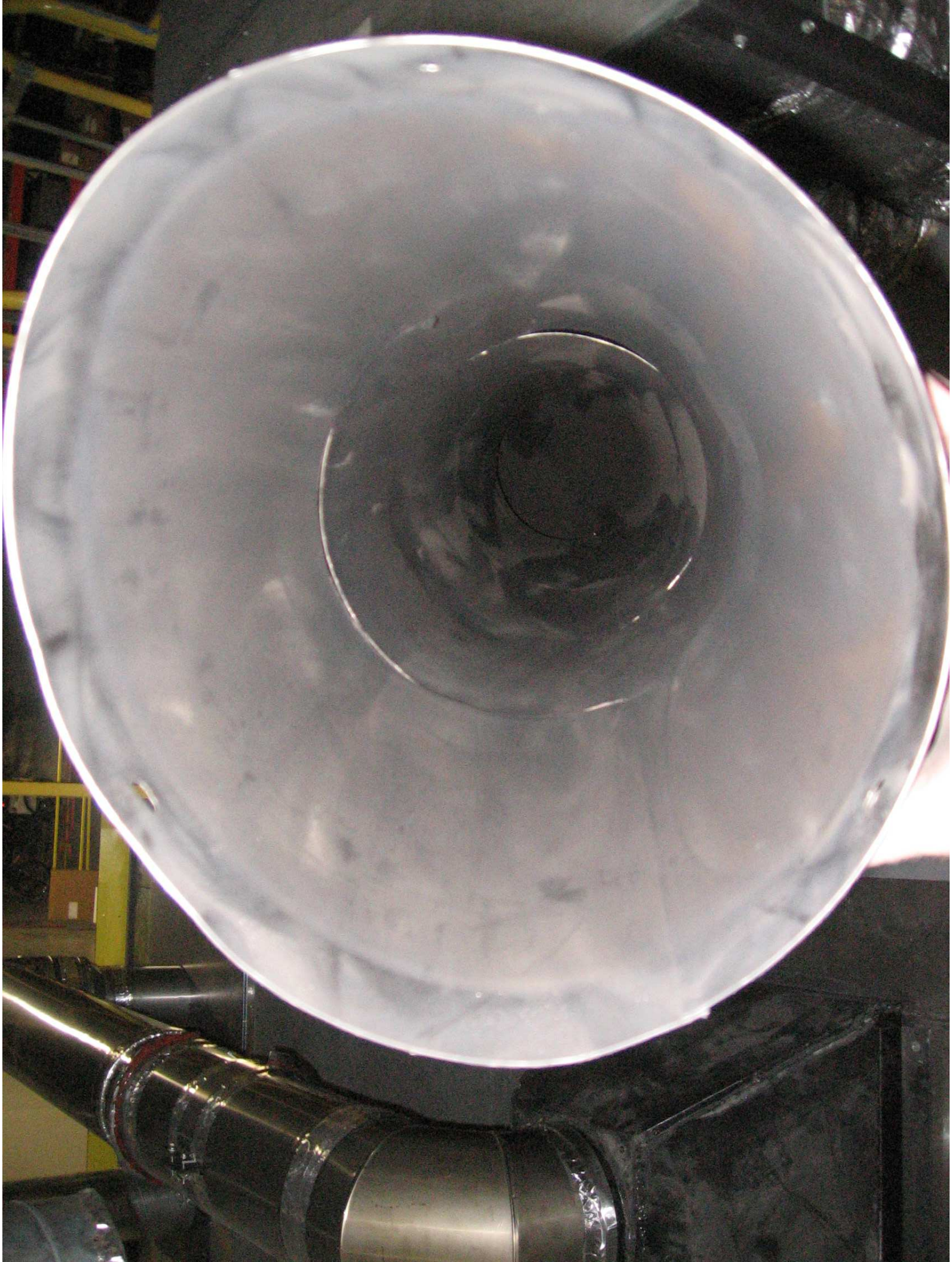
A - Weight was adjusted after As Found testing to within the appropriate tolerance class.

R - The received weight was replaced due to an out of tolerance condition and the weight was not adjustable or the weight for this nominal value was missing.

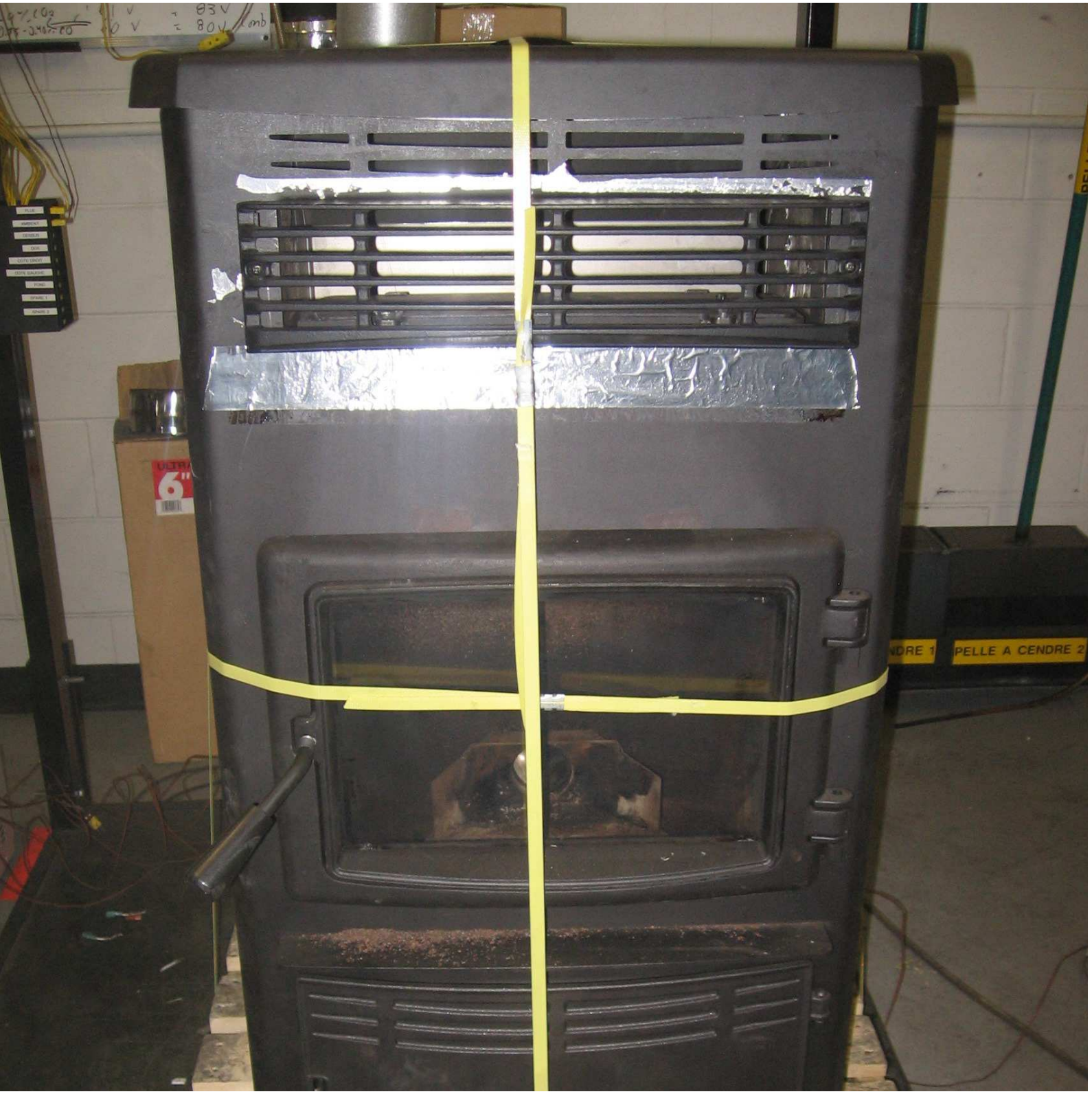
Appendix E:
Pictures








62 V ~ 87 V
61 V ~ 83 V
60 V ~ 80 V
Comb
PELLE A CENDR


PELLE A CENDRE 2

Appendix F:
Test data

Run 1 Gas analyser

20.05.2014	20.05.2014										
20.05.2014	10:44:32	C1: CO	0.19	%	C2: CO2	2.23	%	C3: CO	218	vpm	C4: O2	18.65	%
20.05.2014	10:54:32	C1: CO	0.2	%	C2: CO2	2.73	%	C3: CO	215	vpm	C4: O2	18.25	%
20.05.2014	11:04:32	C1: CO	0.19	%	C2: CO2	1.9	%	C3: CO	349.5	vpm	C4: O2	18.69	%
20.05.2014	11:14:32	C1: CO	0.21	%	C2: CO2	2.31	%	C3: CO	339.9	vpm	C4: O2	18.41	%
20.05.2014	11:24:32	C1: CO	0.22	%	C2: CO2	2.96	%	C3: CO	200.6	vpm	C4: O2	17.73	%
20.05.2014	11:34:32	C1: CO	0.2	%	C2: CO2	2.18	%	C3: CO	201.7	vpm	C4: O2	18.67	%
20.05.2014	11:44:32	C1: CO	0.22	%	C2: CO2	2.95	%	C3: CO	181.9	vpm	C4: O2	18	%
20.05.2014	11:54:32	C1: CO	0.2	%	C2: CO2	2.24	%	C3: CO	153.5	vpm	C4: O2	18.67	%
20.05.2014	12:04:32	C1: CO	0.21	%	C2: CO2	2.42	%	C3: CO	160.7	vpm	C4: O2	18.58	%
20.05.2014	12:14:32	C1: CO	0.23	%	C2: CO2	2.58	%	C3: CO	281.8	vpm	C4: O2	18.16	%
20.05.2014	12:24:32	C1: CO	0.23	%	C2: CO2	2.63	%	C3: CO	182.4	vpm	C4: O2	18.16	%
20.05.2014	12:34:32	C1: CO	0.21	%	C2: CO2	2.18	%	C3: CO	183.4	vpm	C4: O2	18.64	%
20.05.2014	12:44:32	C1: CO	0.21	%	C2: CO2	2.19	%	C3: CO	159.9	vpm	C4: O2	18.66	%

Run #1 Test Data

Temps	FLUE :	FIREBOX BACK :	FIREBOX RIGHT SIDE :	AMBIANT :	DILUTION TUNNEL :	FIREBOX TOP :	FIREBOX LEFT SIDE :	FIREBOX BOTTOM :	DMG INLET 1 :	DMG OUTLET 1 :	PROBE TEMPERATURE 1	DGM OUTLET 2 :	PROBE TEMPERATURE 2	DGM INLET 2 :	SPARE 1 :	SPARE 2 :
10.44	161.2	293.7	224.4	75.3	86.37	263	229.8	116.3	73.38	73.18	74.17	73.58	74.06	73.22	4191.9	4191.9
10.54	169.8	347.7	249.5	75.09	87.22	292.1	263	116	73.92	73.17	76.17	73.46	75.01	73.49	4191.8	4191.8
11.04	171.8	350.5	249.9	75.25	87.97	297.3	263.4	116.6	74.36	73.37	77.07	73.76	76.15	73.79	4192.9	4192.9
11.14	169.5	346.8	242.7	75.42	88.01	290	251	116.3	74.65	73.66	77.66	74.17	76.73	74.15	4194.3	4194.3
11.24	172.9	361.2	251.2	75.47	88.5	300.4	262.1	115.6	75.02	73.97	77.97	74.6	76.97	74.46	4195.5	4195.5
11.34	168.8	326.5	238.6	75.71	88.51	286.3	251.9	114.4	75.25	74.29	78.15	74.81	77.23	74.7	4196.4	4196.4
11.44	168.2	321.6	236.3	75.49	88.4	285.6	247.4	113.3	75.53	74.61	78.34	75.13	77.34	75	4197.2	4197.2
11.54	169.2	329.3	241.7	75.58	88.72	287.6	248.5	113.1	75.72	74.9	78.58	75.16	77.48	75.21	4197.9	4197.9
12.04	165.8	313.1	231.3	75.73	88.55	277.2	239.5	112.5	75.99	75.14	78.73	75.36	77.63	75.39	4198.4	4198.4
12.14	169.6	341.2	240.2	76.07	88.87	290.7	259.7	112.2	76.03	75.43	78.86	75.7	77.8	75.58	4198.7	4198.7
12.24	171.3	346.7	241.7	76.05	89.26	294.2	265.9	112.1	76.13	75.66	79.05	75.96	77.95	75.78	4199	4199
12.34	169.9	331.9	238.8	76.2	89.52	288.6	258.4	112.4	76.19	75.88	79.21	76.09	78.06	75.91	4199.3	4199.3
12.44	166.4	318.3	231	76.11	89.17	278.2	247.3	112.1	76.54	76.07	79.26	76.06	78.15	76.14	4199.7	4199.7

Temps	FLOW TOTAL	FLOW TOTAL 2	DRAFT :	PILOT :	PRESSURE TRANSMITTER SYSTEME 1	VACUUM TRANSMITTER SYSTEME 1	PRESSURE TRANSMITTER SYSTEME 2	VACUUM TRANSMITTER SYSTEME 2	MASS FLOW SYSTEM 1 :	VOLUME	MASS FLOW SYSTEM 2 :	VOLUME 2	Poids(Lbl)	Train A	Train B
10.44	0	0	0.002	0.004	-0.73	-0.44	-0.58	-0.1	0	0	0	0	2.73	73.28	73.4
10.54	0	0	0.001	0.004	-0.77	-0.46	0.02	0.14	4.20E-08	-2920	-1.52E-07	-2920	2.47	73.545	73.475
11.04	0	0	0.001	0.004	-0.79	-0.48	-0.13	0.05	1.31E-08	-5915	-1.18E-07	-5915	2.24	73.865	73.775
11.14	0	0	0.001	0.004	-1.1	-0.49	-0.85	0.05	3.67E-08	-8915	-1.42E-07	-8915	1.95	74.155	74.16
11.24	0	0	0.001	0.004	-1.03	-0.5	-0.51	0.02	2.36E-08	-11910	-8.39E-08	-11910	1.71	74.495	74.53
11.34	0	0	0.001	0.004	-1.19	-0.5	-0.43	0.05	4.20E-08	-14910	-1.34E-07	-14910	1.51	74.77	74.755
11.44	0	0	0.003	0.005	-0.94	-0.5	-0.47	0.15	6.56E-08	-17905	-1.34E-07	-17905	1.3	75.07	75.065
11.54	0	0	0.003	0.005	-1.16	-0.51	-0.21	0.1	1.31E-08	-20905	-6.29E-08	-20905	1.08	75.31	75.185
12.04	0	0	0.002	0.006	-1.04	-0.5	-0.63	0.1	-2.10E-08	-23905	-9.18E-08	-23905	0.88	75.565	75.375
12.14	0	0	0.003	0.004	-0.86	-0.52	-0.58	0.11	-5.25E-09	-26900	-1.39E-07	-26900	0.64	75.73	75.64
12.24	0	0	0.001	0.004	-1.05	-0.52	-0.21	0.11	5.25E-08	-29900	-1.94E-07	-29900	0.41	75.895	75.87
12.34	0	0	0.003	0.005	-0.8	-0.51	-0.43	0.14	1.84E-08	-32895	-1.15E-07	-32895	0.2	76.035	76
12.44	0	0	0	0.005	-0.71	-0.51	-0.44	0	2.88E-08	-35895	-1.89E-07	-35895	0	76.305	76.1

Run #2 Gas Analyser

Time									
14:47:17	C1: CO	0.3 %	C2: CO2	3.6 %	C3: CO	319.6 vpm	C4: O2	16.75 %
14:57:17	C1: CO	0.28 %	C2: CO2	2.69 %	C3: CO	386.6 vpm	C4: O2	18.1 %
15:07:17	C1: CO	0.28 %	C2: CO2	2.85 %	C3: CO	239.1 vpm	C4: O2	17.75 %
15:17:17	C1: CO	0.28 %	C2: CO2	2.83 %	C3: CO	292.9 vpm	C4: O2	17.58 %
15:27:17	C1: CO	0.29 %	C2: CO2	2.87 %	C3: CO	440 vpm	C4: O2	17.89 %
15:37:17	C1: CO	0.28 %	C2: CO2	2.87 %	C3: CO	227.4 vpm	C4: O2	17.57 %
15:47:17	C1: CO	0.28 %	C2: CO2	2.55 %	C3: CO	351.5 vpm	C4: O2	18.15 %
15:57:17	C1: CO	0.3 %	C2: CO2	3.25 %	C3: CO	320.8 vpm	C4: O2	16.98 %
16:07:17	C1: CO	0.3 %	C2: CO2	3.45 %	C3: CO	224.8 vpm	C4: O2	17.27 %
16:17:17	C1: CO	0.31 %	C2: CO2	3.04 %	C3: CO	315.3 vpm	C4: O2	16.86 %
16:27:17	C1: CO	0.3 %	C2: CO2	2.64 %	C3: CO	342.3 vpm	C4: O2	17.43 %
16:37:17	C1: CO	0.29 %	C2: CO2	2.91 %	C3: CO	339.9 vpm	C4: O2	17.63 %
16:47:17	C1: CO	0.29 %	C2: CO2	3.16 %	C3: CO	233.9 vpm	C4: O2	17.89 %

Run #2 Test Data

Temps	FLUE :	FIREBOX BACK :	FIREBOX RIGHT SIDE :	AMBIANT :	DILUTION TUNNEL :	FIREBOX TOP :	FIREBOX LEFT SIDE :	FIREBOX BOTTOM :	DMG INLET 1 :	DMG OUTLET 1 :	PROBE TEMPERATURE 1	DGM OUTLET 2 :	PROBE TEMPERATURE 2	DGM INLET 2 :	SPARE 1 :	SPARE 2 :
14.47	225.5	378.6	297.6	77.57	101.2	364.5	317.3	123.7	77.46	77.48	77.07	77.42	77.03	77.46	4196.9	4196.9
14.57	231.2	370.6	306.2	77.35	102.9	362.9	314.6	125.4	77.74	77.64	79.93	77.56	79.69	77.51	4198.1	4198.1
15.07	228.2	371.1	307.1	77.52	102.2	358.6	312.8	126.3	77.89	77.75	81.63	77.81	81.05	77.63	4199.3	4199.3
15.17	227.7	379	306.7	77.7	102.4	360.9	317.5	126.9	77.98	77.84	82.32	77.63	81.86	77.73	4200.3	4200.3
15.27	233.1	375.2	310.9	77.68	103.7	365.6	316.2	127.5	78.12	77.95	82.54	77.83	82.25	77.86	4201.1	4201.1
15.37	236.6	384.9	319	77.66	104.2	372.1	321.9	128.1	78.22	78.05	82.72	78.1	82.57	77.99	4201.6	4201.6
15.47	227.9	365.9	306	77.88	102.8	352.9	306.2	127.9	78.29	78.13	82.82	78	82.62	78.04	4202	4202
15.57	235.2	393.7	316.4	77.78	103.8	368.5	321.7	127.2	78.34	78.24	82.78	78.05	82.65	78.09	4202.4	4202.4
16.07	226.3	367.3	302.8	78	103.3	350.2	306.2	125.6	78.4	78.32	82.74	78.11	82.61	78.16	4202.8	4202.8
16.17	234.3	378.8	302.1	78	104.4	364.7	318.9	125	78.46	78.37	82.75	78.09	82.68	78.21	4202.9	4202.9
16.27	234.5	376	302.5	78.16	104.5	357.1	310.6	126.3	78.52	78.44	83	77.96	82.74	78.17	4203.1	4203.1
16.37	236.7	374.5	302	78.05	105.4	354.3	306.8	123.8	78.49	78.5	83.09	77.88	82.79	78.24	4203.1	4203.1
16.47	231.2	367.6	294.2	77.9	104.7	343.3	297.8	122.4	78.59	78.49	83.18	77.86	82.94	78.3	4203.2	4203.2

Temps	FLOW TOTAL	FLOW TOTAL 2	DRAFT :	PILOT :	PRESSURE TRANSMITTER SYSTEME 1	VACUUM TRANSMITTER SYSTEME 1 :	PRESSURE TRANSMITTER SYSTEME 2	VACUUM TRANSMITTER SYSTEME 2 :	MASS FLOW SYSTEM 1 :	VOLUME	MASS FLOW SYSTEM 2 :	VOLUME 2	Poids(Lbl)	Train A	Train B
14.47	0	0	0.002	0.005	-0.81	-0.49	-0.78	-0.15	0	0	0	0	4.82	77.47	77.44
14.57	0	0	0.002	0.005	-0.93	-0.52	-0.23	0.13	-1.84E-08	-2915	-1.60E-07	-2915	4.41	77.69	77.535
15.07	0	0	0	0.005	-1.22	-0.55	-0.29	0.02	-1.57E-08	-5915	-2.02E-07	-5915	4.02	77.82	77.72
15.17	0	0	0.002	0.005	-1.39	-0.54	-0.15	0.13	-2.62E-09	-8910	-9.97E-08	-8910	3.61	77.91	77.68
15.27	0	0	0.001	0.006	-1.36	-0.54	-0.66	-0.02	8.13E-08	-11910	-1.05E-07	-11910	3.2	78.035	77.845
15.37	0	0	0.004	0.006	-1.24	-0.55	-0.76	0.12	-5.25E-09	-14910	-7.08E-08	-14910	2.78	78.135	78.045
15.47	0	0	0.002	0.006	-1.31	-0.55	-0.98	0.04	3.93E-08	-17905	-1.15E-07	-17905	2.4	78.21	78.02
15.57	0	0	0.004	0.006	-1.31	-0.56	-0.84	0.04	-1.57E-08	-20905	-9.97E-08	-20905	1.98	78.29	78.07
16.07	0	0	0.001	0.005	-1.07	-0.56	-0.52	0.11	4.20E-08	-23900	-1.34E-07	-23900	1.62	78.36	78.135
16.17	0	0	0.001	0.006	-1.02	-0.56	-0.72	0	3.67E-08	-26900	-1.70E-07	-26900	1.2	78.415	78.15
16.27	0	0	0.002	0.006	-1.06	-0.56	-0.43	-0.01	-3.41E-08	-29895	-1.05E-07	-29895	0.76	78.48	78.065
16.37	0	0	0.004	0.005	-1.02	-0.58	-0.93	0.05	3.67E-08	-32895	-8.92E-08	-32895	0.37	78.495	78.06
16.47	0	0	0.002	0.006	-1.08	-0.58	-0.77	0.1	3.67E-08	-35890	-1.10E-07	-35890	0	78.54	78.08

Run #3 gas analyser

10:28:44	C1: CO	0.27 %	C2: CO2	4 %	C3: CO	523.1 vpm	C4: O2	17.44 %
10:38:44	C1: CO	0.27 %	C2: CO2	3.1 %	C3: CO	689.1 vpm	C4: O2	16.88 %
10:48:44	C1: CO	0.26 %	C2: CO2	3 %	C3: CO	598.7 vpm	C4: O2	17.37 %
10:58:44	C1: CO	0.28 %	C2: CO2	3.6 %	C3: CO	590.4 vpm	C4: O2	16.82 %
11:08:44	C1: CO	0.26 %	C2: CO2	2.67 %	C3: CO	567.2 vpm	C4: O2	17.09 %
11:18:44	C1: CO	0.26 %	C2: CO2	3.56 %	C3: CO	579.2 vpm	C4: O2	17.63 %
11:28:44	C1: CO	0.28 %	C2: CO2	4.07 %	C3: CO	533.1 vpm	C4: O2	16.6 %
11:38:44	C1: CO	0.27 %	C2: CO2	3.81 %	C3: CO	593.8 vpm	C4: O2	17.54 %
11:48:44	C1: CO	0.26 %	C2: CO2	3.36 %	C3: CO	476.9 vpm	C4: O2	16.53 %
11:58:44	C1: CO	0.27 %	C2: CO2	3.07 %	C3: CO	704.8 vpm	C4: O2	17.04 %
12:08:44	C1: CO	0.27 %	C2: CO2	3.68 %	C3: CO	583.1 vpm	C4: O2	17.33 %
12:18:44	C1: CO	0.27 %	C2: CO2	3.86 %	C3: CO	483.8 vpm	C4: O2	17.46 %
12:28:44	C1: CO	0.27 %	C2: CO2	3.13 %	C3: CO	612.4 vpm	C4: O2	17.52 %

run #3 test data

Temps	FLUE :	FIREBOX BACK :	FIREBOX RIGHT SIDE :	AMBIANT :	DILUTION TUNNEL :	FIREBOX TOP :	FIREBOX LEFT SIDE :	FIREBOX BOTTOM :	DMG INLET 1 :	DMG OUTLET 1 :	PROBE TEMPERATURE 1	DGM OUTLET 2 :	PROBE TEMPERATURE 2	DGM INLET 2 :	SPARE 1 :	SPARE 2 :
10.28	270.5	376.3	321.5	76.45	109.3	396.4	369.8	144.8	75.19	74.96	75.76	75.08	75.05	74.88	4192.9	4192.9
10.38	267.2	376.9	319.7	73.29	109	388.4	355.3	142.7	75.57	75.02	79.38	75.2	79.11	75.2	4194.8	4194.8
10.48	270.1	375.6	309.7	75.77	109.8	391.9	360.2	140.7	75.96	75.23	81.76	75.48	81.28	75.49	4196.3	4196.3
10.58	276.4	376.9	321.6	73.47	110.3	400.1	359.3	138.4	76.23	75.46	82.6	75.72	82.43	75.7	4197.5	4197.5
11.08	286.3	395.7	328.6	74.4	112.2	414.8	390	138	76.49	75.7	83.21	75.96	83.14	75.92	4198.4	4198.4
11.18	279.9	383.4	326.2	75.38	111.6	406.2	383.9	137.8	76.71	75.99	83.71	76.23	83.61	76.18	4199.1	4199.1
11.28	271.1	386.5	313.4	72.73	111	389.5	367.8	135.4	76.87	76.17	83.96	76.13	83.86	76.29	4199.6	4199.6
11.38	279.4	381.6	333	75.67	111.7	404.3	369.8	133.5	77.02	76.36	83.97	76.38	83.88	76.47	4200.1	4200.1
11.48	273.3	366.7	326.1	73.32	111.3	392.1	366.7	133.1	77.19	76.54	84.02	76.49	84.03	76.64	4200.4	4200.4
11.58	282.2	375.6	320	74.55	112.3	405.4	377.3	130.9	77.41	76.79	84.06	76.78	84.05	76.89	4200.6	4200.6
12.08	270	356.6	306.7	75.1	111.1	383.4	354.7	130.1	77.57	77	84.21	77	84.43	77.05	4200.8	4200.8
12.18	267.2	363.6	307.7	72.67	110.5	378.2	357.1	128	77.6	77.15	84.25	77.17	83.94	77.21	4201	4201
12.28	282.7	385.6	320.9	75.92	113.3	407.4	378.7	127.5	77.69	77.3	84.23	77.1	84.4	77.31	4201.2	4201.2

Temps	FLOW TOTAL	FLOW TOTAL 2	DRAFT :	PILOT :	PRESSURE TRANSMITTER SYSTEME 1	VACUUM TRANSMITTER SYSTEME 1	PRESSURE TRANSMITTER SYSTEME 2	VACUUM TRANSMITTER SYSTEME 2	MASS FLOW SYSTEM 1 :	VOLUME	MASS FLOW SYSTEM 2 :	VOLUME 2	Poids(Lbl)		Train A	Train B
10.28	0	0	0.002	0.005	-1.05	-0.47	-0.52	-0.11	0	0	0	0	26.9	8.12	75.075	74.98
10.38	0	0	0.001	0.004	-1.02	-0.49	-0.31	0.14	1.05E-08	-2920	-8.13E-08	-2920	26.27	7.49	75.295	75.2
10.48	0	0	0.004	0.006	-0.92	-0.49	-0.29	0.15	1.84E-08	-5915	-1.57E-07	-5915	25.56	6.78	75.595	75.485
10.58	0	0	0	0.005	-0.95	-0.5	-0.3	0.14	2.10E-08	-8915	-1.34E-07	-8915	24.92	6.14	75.845	75.71
11.08	0	0	0	0.005	-0.89	-0.51	-0.3	0.16	1.05E-08	-11910	-1.36E-07	-11910	24.15	5.37	76.095	75.94
11.18	0	0	0.002	0.006	-0.93	-0.53	-0.43	0.14	7.08E-08	-14910	-8.13E-08	-14910	23.52	4.74	76.35	76.205
11.28	0	0	0.001	0.005	-1	-0.53	-0.39	0.01	3.15E-08	-17905	-1.36E-07	-17905	22.84	4.06	76.52	76.21
11.38	0	0	0.002	0.004	-0.96	-0.54	-0.62	0.1	3.67E-08	-20905	-1.23E-07	-20905	22.13	3.35	76.69	76.425
11.48	0	0	-0.001	0.005	-1.12	-0.53	-0.2	0.14	7.61E-08	-23905	-1.42E-07	-23900	21.51	2.73	76.865	76.565
11.58	0	0	0.002	0.006	-1.12	-0.53	-0.35	0.02	1.10E-07	-26900	-4.98E-08	-26900	20.77	1.99	77.1	76.835
12.08	0	0	0.002	0.006	-1.19	-0.54	-0.77	0.01	5.25E-08	-29900	-7.61E-08	-29900	20.18	1.4	77.285	77.025
12.18	0	0	0.004	0.004	-1.16	-0.55	-0.4	-0.01	5.77E-08	-32895	-7.87E-09	-32895	19.54	0.76	77.375	77.19
12.28	0	0	0.001	0.005	-1.16	-0.54	-0.47	0.13	1.05E-08	-35895	-1.34E-07	-35895	18.78	0	77.495	77.205

Run #4 gas analyser

14:07:15	C1: CO	0.28 %	C2: CO2	4.81 %	C3: CO	375.2	vpm	C4: O2
14:17:15	C1: CO	0.28 %	C2: CO2	5.46 %	C3: CO	313	vpm	C4: O2
14:27:15	C1: CO	0.3 %	C2: CO2	5.2 %	C3: CO	393.6	vpm	C4: O2
14:37:15	C1: CO	0.3 %	C2: CO2	4.73 %	C3: CO	441.9	vpm	C4: O2
14:47:15	C1: CO	0.3 %	C2: CO2	5.06 %	C3: CO	412.2	vpm	C4: O2
14:57:15	C1: CO	0.29 %	C2: CO2	5.36 %	C3: CO	323.6	vpm	C4: O2
15:07:15	C1: CO	0.3 %	C2: CO2	5.93 %	C3: CO	394.5	vpm	C4: O2
15:17:15	C1: CO	0.29 %	C2: CO2	6.92 %	C3: CO	112	vpm	C4: O2
15:27:15	C1: CO	0.28 %	C2: CO2	4.39 %	C3: CO	400.9	vpm	C4: O2
15:37:15	C1: CO	0.29 %	C2: CO2	6.7 %	C3: CO	153.4	vpm	C4: O2
15:47:15	C1: CO	0.29 %	C2: CO2	5.74 %	C3: CO	208.6	vpm	C4: O2
15:57:15	C1: CO	0.28 %	C2: CO2	5.26 %	C3: CO	284.7	vpm	C4: O2
16:07:15	C1: CO	0.28 %	C2: CO2	5.43 %	C3: CO	358.8	vpm	C4: O2

15.46 %
15.3 %
15.4 %
16.13 %
15.77 %
14.55 %
14.77 %
14.11 %
15.63 %
14.16 %
15.03 %
15.52 %
15.2 %

Run #4 Test data

Temps	FLUE :	FIREBOX BACK :	FIREBOX RIGHT SIDE :	AMBIANT :	DILUTION TUNNEL :	FIREBOX TOP :	FIREBOX LEFT SIDE :	FIREBOX BOTTOM :	DMG INLET 1 :	DMG OUTLET 1 :	PROBE TEMPERATURE 1	DGM OUTLET 2 :	PROBE TEMPERATURE 2	DGM INLET 2 :	SPARE 1 :	SPARE 2 :
14.07	358.4	441.2	439.5	73.84	132.1	561.9	492.3	170.2	78.13	78.02	77.93	77.91	76.61	77.99	4199.5	4199.5
14.17	360	452.5	438.1	75.79	132.1	562.9	515.8	169.5	78.43	78.14	83.65	78	83.32	78.14	4200.4	4200.4
14.27	364.9	448.2	444.4	74.99	132.6	578.5	523.4	169.7	78.78	78.27	87.24	78.36	86.54	78.35	4201.4	4201.4
14.37	364.1	455.5	440.3	73.21	132.5	571.2	520.2	170	78.98	78.43	89.14	78.49	88.95	78.59	4202.3	4202.3
14.47	357.5	443.5	424	73.8	131.4	553.9	511.5	166.6	78.98	78.54	83.81	78.29	86.14	78.57	4203.1	4203.1
14.57	363.5	443.2	441.6	72.93	132	569.7	516.5	167	79.12	78.68	82.1	78.35	83.81	78.68	4203.7	4203.7
15.07	365.4	449.8	452.3	74.27	132.4	581.3	519.9	168.9	79.31	78.83	82.09	78.49	83.55	78.84	4204.3	4204.3
15.17	355.5	435.3	432.9	73.33	132.3	554	489.7	167.1	79.49	78.98	82.04	78.62	83.86	78.97	4204.8	4204.8
15.27	357.3	435.5	437	75.2	132.4	552.3	491	166.6	79.62	79.12	82.07	78.72	83.73	79.12	4205.1	4205.1
15.37	363.1	445.4	453.6	74.58	132.1	572.9	513.9	168.7	79.78	79.29	82.26	78.93	83.81	79.24	4205.5	4205.5
15.47	360.5	436.1	454.7	73.92	132.3	558.7	498.7	169.2	79.88	79.44	82.38	79.27	83.88	79.49	4205.8	4205.8
15.57	358.6	441.3	450.9	73.06	132.4	557.3	494.7	169	80.03	79.54	82.41	79.21	83.92	79.65	4205.9	4205.9
16.07	363.9	446	460.5	73.02	132.2	575.2	520.7	167.9	80.12	79.68	82.4	79.23	83.95	79.75	4206.1	4206.1

Temps	FLOW TOTAL	FLOW TOTAL 2	DRAFT :	PILOT :	PRESSURE TRANSMITTER SYSTEME 1	VACUUM TRANSMITTER SYSTEME 1	PRESSURE TRANSMITTER SYSTEME 2	VACUUM TRANSMITTER SYSTEME 2	MASS FLOW SYSTEM 1 :	VOLUME	MASS FLOW SYSTEM 2 :	VOLUME 2	Poids(Lbl)	Train A	Train B
14.07	0	0	0.003	0.006	-1.13	-0.56	-0.64	-0.14	0	0	0	0	12.96	78.075	77.95
14.17	0	0	0.003	0.006	-0.99	-0.55	-1.01	-0.03	-4.20E-08	-2915	-1.18E-07	-2915	11.88	78.285	78.07
14.27	0	0	0.001	0.006	-1.03	-0.55	-0.45	0.05	1.05E-08	-5915	-1.13E-07	-5915	10.73	78.525	78.355
14.37	0	0	0.003	0.006	-1.15	-0.56	-0.36	0.11	3.15E-08	-8915	-8.39E-08	-8915	9.67	78.705	78.54
14.47	0	0	0.002	0.005	-0.85	-0.56	-0.81	0.04	2.36E-08	-11910	-1.57E-07	-11910	8.66	78.76	78.43
14.57	0	0	0.001	0.007	-0.8	-0.58	-0.6	0.11	-1.84E-08	-14910	-9.18E-08	-14910	7.58	78.9	78.515
15.07	0	0	0.004	0.006	-0.96	-0.58	-0.63	-0.02	2.88E-08	-17905	-1.60E-07	-17905	6.48	79.07	78.665
15.17	0	0	0.001	0.005	-1	-0.58	-0.93	-0.04	1.02E-07	-20905	-1.31E-07	-20905	5.46	79.235	78.795
15.27	0	0	0.001	0.006	-1.06	-0.59	-1.03	-0.06	9.70E-08	-23905	-1.52E-07	-23905	4.37	79.37	78.92
15.37	0	0	0.004	0.006	-1.22	-0.6	-0.86	0.01	1.31E-08	-26900	-1.84E-07	-26900	3.27	79.535	79.085
15.47	0	0	0	0.006	-1.34	-0.59	-0.87	-0.06	5.25E-09	-29900	-5.51E-08	-29900	2.2	79.66	79.38
15.57	0	0	0.005	0.005	-1.36	-0.61	-1.28	-0.07	5.25E-09	-32895	-5.77E-08	-32895	1.17	79.785	79.43
16.07	0	0	0.004	0.006	-1.32	-0.6	-0.98	0.07	9.44E-08	-35895	-1.29E-07	-35895	0	79.9	79.49

Appendix I:
Filters and probes

Intertek

DILUTION TUNNEL WORKSHEET - METHOD 5G3

Client: SBI Model: Série 65

Project #: G101628179 Sample ID #: _____

Date: 20/05/2014 Engineer: Claude Pelland Run #: 1 Sample Train #: A

Balance Equipment #: SBI-206 Thermo/Hygrometer Equipment #: SBI-213

Front Filter #	61	Tare:	0,1198	Preliminary Wt:	0,1218
Rear Filter #	62	Tare:	0,1188	Preliminary Wt:	0,1189
Seal Set #		Tare:		Preliminary Wt:	
Date/Time in dessicator:		20/05/2014 12:55		Preliminary Wt:	0,2407

Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
23/05/2014	8:47	12.8	72.6	0,1219 0,1189	0,1 = 0,1000	
26/05/2014	11:43	4.9	74.4	0,1218 0,1189	0,1 = 0,0999	

Probe #:	17	Tare:	139,7462	Preliminary Wt:	139,7455
Date/Time in dessicator:		20/05/2014 13:01			

Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
23/05/2014	8:39	12.8	72.6	139,7462	200 = 199,9984	
26/05/2014	11:23	4.9	73.3	139,7463	200 = 199,9985	

Date: _____

Engineer Signature: _____

Intertek

DILUTION TUNNEL WORKSHEET - METHOD 5G3

Client: SBI Model: Série 65
Project #: G101628179 Sample ID #:
Date: 20/05/2014 Engineer: Claude Pelland Run #: 1 Sample Train #: B
Balance Equipment #: SBI-206 Thermo/Hygrometer Equipment #: SBI-213

Front Filter #	63	Tare:	0,1185	Preliminary Wt:	0,1205
Rear Filter #	64	Tare:	0,1209	Preliminary Wt:	0,1207
Seal Set #		Tare:		Preliminary Wt:	
Date/Time in dessicator:		20/05/2014 12:57		Preliminary Wt:	0,2412

Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
23/05/2014	8:48	12.8	72.6	0,1204 0,1207	0,1 = 0,1000	
26/05/2014	11:45	4.4	74.4	0,1204 0,1207	0,1 = 0,0999	

Probe #:	18	Tare:	147,8838	Preliminary Wt:	147,8831
Date/Time in dessicator:		20/05/2014 13:03			

Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
23/05/2014	8:40	12.8	72.6	147,8834	200 = 199,9984	
26/05/2014	11:24	4.9	73.3	147,8836	200 199,9985	

Date: _____

Engineer Signature: _____

Intertek

DILUTION TUNNEL WORKSHEET - METHOD 5G3

Client: SBI Model: Série 65
Project #: G101628179 Sample ID #:
Date: 20/05/2014 Engineer: Claude Pelland Run #: 2 Sample Train #: A
Balance Equipment #: SBI-206 Thermo/Hygrometer Equipment #: SBI-213

Front Filter #	65	Tare:	0,1189	Preliminary Wt:	0,1227
Rear Filter #	66	Tare:	0,1179	Preliminary Wt:	0,1180
Seal Set #		Tare:		Preliminary Wt:	
Date/Time in dessicator:		20/05/2014 16:59		Preliminary Wt:	0,2407

Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
23/05/2014	8:50	12.8	72.6	0,1227 0,1182	0,1 = 0,1000	
26/05/2014	11:46	4.9	74.4	0,1227 0,1181	0,1 = 0,0999	

Probe #:	19	Tare:	140,1067	Preliminary Wt:	140,1055
Date/Time in dessicator:		20/05/2014 17:02			

Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
23/05/2014	8:41	12.8	72.6	140,1065	200 = 199,9984	
26/05/2014	11:25	4.9	73.3	140,1065	200 = 199,9985	

Date: _____

Engineer Signature: _____

Intertek

DILUTION TUNNEL WORKSHEET - METHOD 5G3

Client: SBI Model: Série 65
Project #: G101628179 Sample ID #:
Date: 20/05/2014 Engineer: Claude Pelland Run #: 2 Sample Train #: B
Balance Equipment #: SBI-206 Thermo/Hygrometer Equipment #: SBI-213

Front Filter #	67	Tare:	0.1203	Preliminary Wt:	0.1237
Rear Filter #	68	Tare:	0.1191	Preliminary Wt:	0.1193
Seal Set #		Tare:		Preliminary Wt:	
Date/Time in dessicator:		20/05/2014 16:59		Preliminary Wt:	0.2430

Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
23/05/2014	8:52	12.8	72.6	0.1237 0.1193	0.1= 0.1000	
26/05/2014	11:48	4.9	74.4	0.1237 0.1193	0.1= 0.0999	

Probe #:	21	Tare:	136.0338	Preliminary Wt:	136.0325
Date/Time in dessicator:		20/05/2014 17:03			

Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
23/05/2014	8:43	12.8	72.6	136.0336	200= 199.9984	
26/05/2014	11:33	4.9	73.3	136.0339	200= 199.9985	

Date: _____

Engineer Signature: _____

Intertek

DILUTION TUNNEL WORKSHEET - METHOD 5G3

Client: SBI Model: Série 65
Project #: G101628179 Sample ID #: _____
Date: 21/05/2014 Engineer: Claude Pelland Run #: 3 Sample Train #: A
Balance Equipment #: SBI-206 Thermo/Hygrometer Equipment #: SBI-213

Front Filter #	69	Tare:	0.1182	Preliminary Wt:	0.1210
Rear Filter #	70	Tare:	0.1196	Preliminary Wt:	0.1199
Seal Set #		Tare:		Preliminary Wt:	
Date/Time in dessicator:		21/05/2014 12:37		Preliminary Wt:	0.2409

Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
23/05/2014	8:54	12.8	72.6	0.1210 0.1198	0.1= 0.1000	
26/05/2014	11:49	4.9	74.4	0.1209 0.1198	0.1= 0.0999	

Probe #:	20	Tare:	139.0589	Preliminary Wt:	139.0583
Date/Time in dessicator:		21/05/2014 12:43			

Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
23/05/2014	8:42	12.8	72.6	139.0590	200= 199.9984	
26/05/2014	11:31	4.9	73.3	139.0591	200= 199.9985	

Date: _____

Engineer Signature: _____

Intertek

DILUTION TUNNEL WORKSHEET - METHOD 5G3

Client: SBI Model: Série 65
Project #: G101628179 Sample ID #: _____
Date: 21/05/2014 Engineer: Claude Pelland Run #: 3 Sample Train #: B
Balance Equipment #: SBI-206 Thermo/Hygrometer Equipment #: SBI-213

Front Filter #	71	Tare:	0.1178	Preliminary Wt:	0.1203
Rear Filter #	72	Tare:	0.1182	Preliminary Wt:	0.1185
Seal Set #		Tare:		Preliminary Wt:	
Date/Time in dessicator:		21/05/2014 12:40		Preliminary Wt:	0.2388

Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
23/05/2014	8:55	12.8	72.6	0.1202 0.1183	0.1 = 0.1000	
26/05/2014	11:51	4.9	74.8	0.1202 0.1183	0.1 = 0.0999	

Probe #:	22	Tare:	139.5670	Preliminary Wt:	139.5664
Date/Time in dessicator:		21/05/2014 12:45			

Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
23/05/2014	8:44	12.8	72.6	139.5673	200 = 199.9984	
26/05/2014	11:36	4.9	73.3	139.5673	200 = 199.9985	

Date: _____

Engineer Signature: _____

Intertek

DILUTION TUNNEL WORKSHEET - METHOD 5G3

Client: SBI Model: Série 65

Project #: G101628179 Sample ID #: _____

Date: 21/05/2014 Engineer: Claude Pelland Run #: 4 Sample Train #: A

Balance Equipment #: SBI-206 Thermo/Hygrometer Equipment #: SBI-213

Front Filter #	73	Tare:	0.1196	Preliminary Wt:	0.1233
Rear Filter #	74	Tare:	0.1190	Preliminary Wt:	0.1190
Seal Set #		Tare:		Preliminary Wt:	
Date/Time in dessicator:		21/05/2014 16:54		Preliminary Wt:	0.2423

Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
23/05/2014	8:56	12.8	72.6	0.1230 0.1189	0.1 = 0.1000	
26/05/2014	11:52	4.9	74.8	0.1233 0.1189	0.1 = 0.0999	

Probe #:	25	Tare:	136.0852	Preliminary Wt:	136.8051
Date/Time in dessicator:					

Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
23/05/2014	8:44	12.8	72.6	136.8054	200 = 199.9984	
26/05/2014	11:39	4.9	73.3	136.8056	200 = 199.9985	

Date: _____

Engineer Signature: _____

Intertek

DILUTION TUNNEL WORKSHEET - METHOD 5G3

Client: SBI Model: Série 65
Project #: G101628179 Sample ID #: _____
Date: 21/05/2014 Engineer: Claude Pelland Run #: 4 Sample Train #: B
Balance Equipment #: SBI-206 Thermo/Hygrometer Equipment #: SBI-213

Front Filter #	75	Tare:	0.1192	Preliminary Wt:	0.1227
Rear Filter #	76	Tare:	0.1208	Preliminary Wt:	0.1208
Seal Set #		Tare:		Preliminary Wt:	
Date/Time in dessicator:		21/05/2014 16:55		Preliminary Wt:	0.2435

Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
23/05/2014	8:58	12.8	72.6	0.1224 0.1206	0.1 = 0.1000	
26/05/2014	11:55	4.9	74.8	0.1226 0.1205	0.1 = 0.0999	

Probe #:	26	Tare:	139.7942	Preliminary Wt:	139.7938
Date/Time in dessicator:		21/05/2014 16:58			

Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
23/05/2014	8:45	12.8	72.6	139.7944	200 = 199.9984	
26/05/2014	11:42	4.9	74.4	139.7945	200 = 199.9985	

Date: _____

Engineer Signature: _____

Appendix J:
Labels

Intertek

Control number: 4002461
STANDARDS / NORMES D'ESSAI:
Conforms to/Conforme à ASTM E1509
Certified to/Certifié selon ULC S627
Conforms to/Conforme à UL 1482

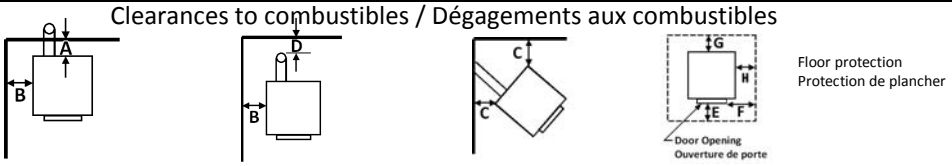
LISTED SOLID FUEL BURNING APPLIANCE

POÊLE À COMBUSTIBLE SOLIDE HOMOLOGUÉ

MODEL / MODÈLE :
ECO-65

Serial Number / No. de Série: **1**

Clearances to combustibles / Dégagements aux combustibles



Floor protection
Protection de plancher

A: 3 in./po. (76 mm) C: 3 in./po. (76 mm) E: 6 in./po. (152 mm) USA F: 6 in./po. (152 mm) USA H: 8 in./po.
B: 6 in./po. (152 mm) D: See Vent manufacturer 18 in./po. (457 mm) CANADA G: 8 in./po. (203 mm) CANADA (203 mm) CANADA

Electrical rating / Alimentation électrique: 115 V, 60 Hz, 2.9 amp.
Maximum input rating / Régime maximal: 7.6 lbs/hr

Minimum floor to ceiling distance: 72 in. (152 cm.)
Distance minimale plafond-plancher: 72 po. (152 cm.)

PREVENT HOUSE FIRES

- Install with a three (3) or four (4) inches diameter exhaust venting system listed to UL103/ULC-629M or UL641/ULC S609.
- In case of an exhaust system passing through a combustible wall, follow manufacturer's instructions and refer to local building codes.
- Operate only with doors closed including ash removal door.
- Room heater, pellet fuel-burning type, also for use in mobile homes.
- Install and use only in accordance with manufacturer's instructions.
- Contact local building or fire officials about restrictions and installation inspection in your area.
- For use with wood pellets, mix of wood and hay pellets, bark pellets and switchgrass pellets. Burning other types of pellets is not permitted. See owner's manual for more details.
- Do not connect to a chimney flue serving another appliance.
- Inspect and clean chimney frequently. Under certain conditions of use, creosote buildup may occur rapidly.
- Replace with ceramic glass only.
- A source of fresh air must be provided to the room. When installed in a mobile-home, air from outdoors must be provided.
- In the USA, the unit must be installed on a non-combustible floor pad extending at least 6 inches (152 mm) in front of the door opening and at least 6 inches (152 mm) on each side of the door opening. In Canada, the unit must be installed on a non-combustible floor pad extending at least 18 inches (457 mm) in front of the door opening and at least 8 inches (203 mm) at the back and on each side of the unit. The floor pad must have a thickness of at least 0.015'' (0.38mm). Consult owner's manual for more details.
- Do not obstruct combustion air opening.
- Keep viewing and ash removal doors tightly closed during operation.

PRÉVENEZ LES INCENDIES

- Installer avec un tuyau d'évacuation de trois (3) ou quatre (4) pouces homologué selon la norme UL 103/ULC-629M ou UL 641/ULC S609.
- Si le tuyau d'évacuation doit traverser un mur combustible, suivre les instructions du fabricant et se référer aux codes du bâtiment locaux.
- Maintenir les portes d'accès et de chargement fermées lors de l'utilisation.
- L'unité de chauffage aux granules peut aussi être installée dans une maison mobile.
- Observer les directives du fabricant pour l'installation et l'utilisation du poêle.
- Contacter les autorités locales pour les restrictions d'installation dans votre secteur.
- Pour utilisation avec granules de bois, granules de panic érigé, granules d'écorce, mix de granules de bois et de foin. Brûler d'autres types de granules n'est pas permis. Voir manuel d'instruction pour plus de détails.
- Ne pas raccorder à un conduit de fumée servant déjà pour un autre appareil.
- Inspecter et nettoyer la cheminée fréquemment. Sous certaines conditions, la formation de créosote peut être rapide.
- Remplacer par un verre céramique seulement.
- Il doit y avoir un apport d'air frais dans la pièce. Lorsqu'installé dans une maison mobile, un apport d'air extérieur doit être installé.
- Aux USA, l'appareil doit être installé sur une plaque incombustible qui excède le devant de l'ouverture de porte d'au moins 6 pouces (152 mm) ainsi que chaque côté de l'ouverture de porte d'au moins 6 pouces (152 mm). Au Canada, l'appareil doit être installé sur une plaque incombustible qui excède le devant de l'ouverture de porte d'au moins 18 pouces (457 mm) ainsi que l'arrière et chaque côté de l'appareil d'au moins 8 pouces (203 mm). La plaque incombustible doit posséder une épaisseur minimale de 0.015'' (0.38 mm). Consultez le manuel d'instructions pour plus de détails.
- Ne pas obstruer les ouvertures d'air de combustion.
- Garder la porte du poêle et celle du cendrier fermées lorsque en opération.

CAUTION

- **HOT WHILE IN OPERATION.**
- **DO NOT TOUCH. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY.**
- **CONTACT MAY CAUSE SKIN BURNS. SEE NAME-PLATE AND INSTRUCTIONS.**

- **OPERATE THIS UNIT ONLY WITH THE FUEL HOPPER LID CLOSED. FAILURE TO DO SO MAY RESULT IN EMISSION OF PRODUCTS OF COMBUSTION FROM THE HOPPER UNDER CERTAIN CONDITIONS.**
- **DO NOT OVERFILL THE HOPPER.**
- **MOVING PARTS MAY CAUSE INJURY.**
- **HOT PARTS. DO NOT OPERATE UNIT WITH THE SIDE OR REAR PANELS REMOVED.**
- **MAINTAIN HOPPER SEAL IN GOOD CONDITION.**

DANGER

- **DISCONNECT POWER BEFORE SERVICING UNIT.**
- **RISK OF ELECTRICAL SHOCK.**

Made in St-Augustin-de-Desmaures (Qc), Canada
23/06/2014 (# 666666)

ATTENTION

- **CHAUD EN FONCTIONNEMENT.**
- **NE PAS TOUCHER. GARDER LES ENFANTS, LES VÊTEMENTS ET LES MEUBLES ÉLOIGNÉS.**
- **UN CONTACT AVEC LA PEAU PEUT OCCASIONNER DES BRÛLURES. VOIR LES INSTRUCTIONS.**

- **OPÉRER CETTE UNITÉ SEULEMENT AVEC LE COUVERCLE DE LA TRÉMIE FERMÉ. DES ÉMISSIONS DE COMBUSTION PEUVENT SE PROPAGER PAR LA TRÉMIE SOUS CERTAINES CONDITIONS.**
- **NE PAS SURCHARGER LA TRÉMIE.**
- **DES PIÈCES EN MOUVEMENT PEUVENT CAUSER DES BLESSURES.**
- **PIÈCES CHAUDE.**
- **NE PAS UTILISER SI LES PANNEAUX DE CÔTÉS OU ARRIÈRE SONT ENLEVÉS.**
- **CONSERVER LE JOINT D'ÉTANCHÉITÉ DU TRÉMIE EN BONNES CONDITIONS.**

DANGER

- **DÉBRANCHER POUR L'ENTRETIEN.**
- **RISQUE DE CHOCS ÉLECTRIQUES.**

Fabriqué à St-Augustin-de-Desmaures (Qc), Canada
23/06/2014 (# 666666)

Intertek

Control number: 4002461
STANDARDS / NORMES D'ESSAI:
Conforms to/Conforme à ASTM E1509
Certified to/Certifié selon ULC S627
Conforms to/Conforme à UL 1482

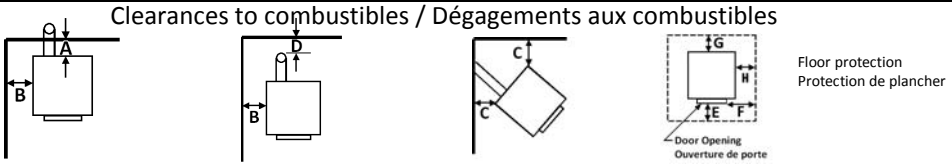
LISTED SOLID FUEL BURNING APPLIANCE

POÊLE À COMBUSTIBLE SOLIDE HOMOLOGUÉ

MODEL / MODÈLE :
EUROMAX

Serial Number / No. de Série: **1**

Clearances to combustibles / Dégagements aux combustibles



Floor protection
Protection de plancher

A: 3 in./po. (76 mm) C: 3 in./po. (76 mm) E: 6 in./po. (152 mm) USA F: 6 in./po. (152 mm) USA H: 8 in./po.
B: 6 in./po. (152 mm) D: See Vent manufacturer 18 in./po. (457 mm) CANADA G: 8 in./po. (203 mm) CANADA (203 mm) CANADA

Electrical rating / Alimentation électrique: 115 V, 60 Hz, 2.9 amp.
Maximum input rating / Régime maximal: 7.6 lbs/hr

Minimum floor to ceiling distance: 72 in. (152 cm.)
Distance minimale plafond-plancher: 72 po. (152 cm.)

PREVENT HOUSE FIRES

- Install with a three (3) or four (4) inches diameter exhaust venting system listed to UL103/ULC-629M or UL641/ULC S609.
- In case of an exhaust system passing through a combustible wall, follow manufacturer's instructions and refer to local building codes.
- Operate only with doors closed including ash removal door.
- Room heater, pellet fuel-burning type, also for use in mobile homes.
- Install and use only in accordance with manufacturer's instructions.
- Contact local building or fire officials about restrictions and installation inspection in your area.
- For use with wood pellets, mix of wood and hay pellets, bark pellets and switchgrass pellets. Burning other types of pellets is not permitted. See owner's manual for more details.
- Do not connect to a chimney flue serving another appliance.
- Inspect and clean chimney frequently. Under certain conditions of use, creosote buildup may occur rapidly.
- Replace with ceramic glass only.
- A source of fresh air must be provided to the room. When installed in a mobile-home, air from outdoors must be provided.
- In the USA, the unit must be installed on a non-combustible floor pad extending at least 6 inches (152 mm) in front of the door opening and at least 6 inches (152 mm) on each side of the door opening. In Canada, the unit must be installed on a non-combustible floor pad extending at least 18 inches (457 mm) in front of the door opening and at least 8 inches (203 mm) at the back and on each side of the unit. The floor pad must have a thickness of at least 0.015'' (0.38mm). Consult owner's manual for more details.
- Do not obstruct combustion air opening.
- Keep viewing and ash removal doors tightly closed during operation.

PRÉVENEZ LES INCENDIES

- Installer avec un tuyau d'évacuation de trois (3) ou quatre (4) pouces homologué selon la norme UL 103/ULC-629M ou UL 641/ULC S609.
- Si le tuyau d'évacuation doit traverser un mur combustible, suivre les instructions du fabricant et se référer aux codes du bâtiment locaux.
- Maintenir les portes d'accès et de chargement fermées lors de l'utilisation.
- L'unité de chauffage aux granules peut aussi être installée dans une maison mobile.
- Observer les directives du fabricant pour l'installation et l'utilisation du poêle.
- Contacter les autorités locales pour les restrictions d'installation dans votre secteur.
- Pour utilisation avec granules de bois, granules de panic érigé, granules d'écorce, mix de granules de bois et de foin. Brûler d'autres types de granules n'est pas permis. Voir manuel d'instruction pour plus de détails.
- Ne pas raccorder à un conduit de fumée servant déjà pour un autre appareil.
- Inspecter et nettoyer la cheminée fréquemment. Sous certaines conditions, la formation de créosote peut être rapide.
- Remplacer par un verre céramique seulement.
- Il doit y avoir un apport d'air frais dans la pièce. Lorsqu'installé dans une maison mobile, un apport d'air extérieur doit être installé.
- Aux USA, l'appareil doit être installé sur une plaque incombustible qui excède le devant de l'ouverture de porte d'au moins 6 pouces (152 mm) ainsi que chaque côté de l'ouverture de porte d'au moins 6 pouces (152 mm). Au Canada, l'appareil doit être installé sur une plaque incombustible qui excède le devant de l'ouverture de porte d'au moins 18 pouces (457 mm) ainsi que l'arrière et chaque côté de l'appareil d'au moins 8 pouces (203 mm). La plaque incombustible doit posséder une épaisseur minimale de 0.015'' (0.38 mm). Consultez le manuel d'instructions pour plus de détails.
- Ne pas obstruer les ouvertures d'air de combustion.
- Garder la porte du poêle et celle du cendrier fermées lorsque en opération.

CAUTION

- **HOT WHILE IN OPERATION.**
- **DO NOT TOUCH. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY.**
- **CONTACT MAY CAUSE SKIN BURNS. SEE NAME-PLATE AND INSTRUCTIONS.**

- **OPERATE THIS UNIT ONLY WITH THE FUEL HOPPER LID CLOSED. FAILURE TO DO SO MAY RESULT IN EMISSION OF PRODUCTS OF COMBUSTION FROM THE HOPPER UNDER CERTAIN CONDITIONS.**
- **DO NOT OVERFILL THE HOPPER.**
- **MOVING PARTS MAY CAUSE INJURY.**
- **HOT PARTS. DO NOT OPERATE UNIT WITH THE SIDE OR REAR PANELS REMOVED.**
- **MAINTAIN HOPPER SEAL IN GOOD CONDITION.**

DANGER

- **DISCONNECT POWER BEFORE SERVICING UNIT.**
- **RISK OF ELECTRICAL SHOCK.**

Made in St-Augustin-de-Desmaures (Qc), Canada
14/06/2023 (# 666666)

ATTENTION

- **CHAUD EN FONCTIONNEMENT.**
- **NE PAS TOUCHER. GARDER LES ENFANTS, LES VÊTEMENTS ET LES MEUBLES ÉLOIGNÉS.**
- **UN CONTACT AVEC LA PEAU PEUT OCCASIONNER DES BRÛLURES. VOIR LES INSTRUCTIONS.**

- **OPÉRER CETTE UNITÉ SEULEMENT AVEC LE COUVERCLE DE LA TRÉMIE FERMÉ. DES ÉMISSIONS DE COMBUSTION PEUVENT SE PROPAGER PAR LA TRÉMIE SOUS CERTAINES CONDITIONS.**
- **NE PAS SURCHARGER LA TRÉMIE.**
- **DES PIÈCES EN MOUVEMENT PEUVENT CAUSER DES BLESSURES.**
- **PIÈCES CHAUDE.**
- **NE PAS UTILISER SI LES PANNEAUX DE CÔTÉS OU ARRIÈRE SONT ENLEVÉS.**
- **CONSERVER LE JOINT D'ÉTANCHÉITÉ DU TRÉMIE EN BONNES CONDITIONS.**

DANGER

- **DÉBRANCHER POUR L'ENTRETIEN.**
- **RISQUE DE CHOCS ÉLECTRIQUES.**

Fabriqué à St-Augustin-de-Desmaures (Qc), Canada
14/06/2023 (# 666666)

Intertek

Control number: 4002461
STANDARDS / NORMES D'ESSAI:
Conforms to/Conforme à ASTM E1509
Certified to/Certifié selon ULC S627
Conforms to/Conforme à UL 1482

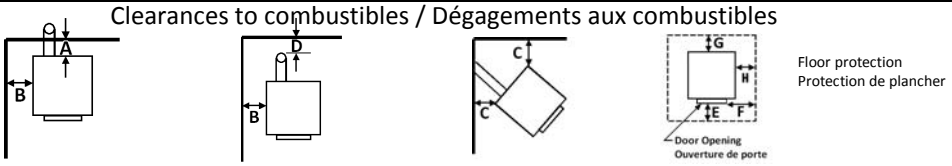
LISTED SOLID FUEL BURNING APPLIANCE

POÊLE À COMBUSTIBLE SOLIDE HOMOLOGUÉ

MODEL / MODÈLE :
OSBURN 7000

Serial Number / No. de Série: **1**

Clearances to combustibles / Dégagements aux combustibles



Floor protection
Protection de plancher

A: 3 in./po. (76 mm) C: 3 in./po. (76 mm) E: 6 in./po. (152 mm) USA F: 6 in./po. (152 mm) USA H: 8 in./po.
B: 6 in./po. (152 mm) D: See Vent manufacturer 18 in./po. (457 mm) CANADA G: 8 in./po. (203 mm) CANADA (203 mm) CANADA

Electrical rating / Alimentation électrique: 115 V, 60 Hz, 2.9 amp.
Maximum input rating / Régime maximal: 7.6 lbs/hr

Minimum floor to ceiling distance: 72 in. (152 cm.)
Distance minimale plafond-plancher: 72 po. (152 cm.)

PREVENT HOUSE FIRES

- Install with a three (3) or four (4) inches diameter exhaust venting system listed to UL103/ULC-629M or UL641/ULC S609.
- In case of an exhaust system passing through a combustible wall, follow manufacturer's instructions and refer to local building codes.
- Operate only with doors closed including ash removal door.
- Room heater, pellet fuel-burning type, also for use in mobile homes.
- Install and use only in accordance with manufacturer's instructions.
- Contact local building or fire officials about restrictions and installation inspection in your area.
- For use with wood pellets, mix of wood and hay pellets, bark pellets and switchgrass pellets. Burning other types of pellets is not permitted. See owner's manual for more details.
- Do not connect to a chimney flue serving another appliance.
- Inspect and clean chimney frequently. Under certain conditions of use, creosote buildup may occur rapidly.
- Replace with ceramic glass only.
- A source of fresh air must be provided to the room. When installed in a mobile-home, air from outdoors must be provided.
- In the USA, the unit must be installed on a non-combustible floor pad extending at least 6 inches (152 mm) in front of the door opening and at least 6 inches (152 mm) on each side of the door opening. In Canada, the unit must be installed on a non-combustible floor pad extending at least 18 inches (457 mm) in front of the door opening and at least 8 inches (203 mm) at the back and on each side of the unit. The floor pad must have a thickness of at least 0.015'' (0.38mm). Consult owner's manual for more details.
- Do not obstruct combustion air opening.
- Keep viewing and ash removal doors tightly closed during operation.

PRÉVENEZ LES INCENDIES

- Installer avec un tuyau d'évacuation de trois (3) ou quatre (4) pouces homologué selon la norme UL 103/ULC-629M ou UL 641/ULC S609.
- Si le tuyau d'évacuation doit traverser un mur combustible, suivre les instructions du fabricant et se référer aux codes du bâtiment locaux.
- Maintenir les portes d'accès et de chargement fermées lors de l'utilisation.
- L'unité de chauffage aux granules peut aussi être installée dans une maison mobile.
- Observer les directives du fabricant pour l'installation et l'utilisation du poêle.
- Contacter les autorités locales pour les restrictions d'installation dans votre secteur.
- Pour utilisation avec granules de bois, granules de panic érigé, granules d'écorce, mix de granules de bois et de foin. Brûler d'autres types de granules n'est pas permis. Voir manuel d'instruction pour plus de détails.
- Ne pas raccorder à un conduit de fumée servant déjà pour un autre appareil.
- Inspecter et nettoyer la cheminée fréquemment. Sous certaines conditions, la formation de créosote peut être rapide.
- Remplacer par un verre céramique seulement.
- Il doit y avoir un apport d'air frais dans la pièce. Lorsqu'installé dans une maison mobile, un apport d'air extérieur doit être installé.
- Aux USA, l'appareil doit être installé sur une plaque incombustible qui excède le devant de l'ouverture de porte d'au moins 6 pouces (152 mm) ainsi que chaque côté de l'ouverture de porte d'au moins 6 pouces (152 mm). Au Canada, l'appareil doit être installé sur une plaque incombustible qui excède le devant de l'ouverture de porte d'au moins 18 pouces (457 mm) ainsi que l'arrière et chaque côté de l'appareil d'au moins 8 pouces (203 mm). La plaque incombustible doit posséder une épaisseur minimale de 0.015'' (0.38 mm). Consultez le manuel d'instructions pour plus de détails.
- Ne pas obstruer les ouvertures d'air de combustion.
- Garder la porte du poêle et celle du cendrier fermées lorsque en opération.

CAUTION

- **HOT WHILE IN OPERATION.**
- **DO NOT TOUCH. KEEP CHILDREN, CLOTHING AND FURNITURE AWAY.**
- **CONTACT MAY CAUSE SKIN BURNS. SEE NAME-PLATE AND INSTRUCTIONS.**

- **OPERATE THIS UNIT ONLY WITH THE FUEL HOPPER LID CLOSED. FAILURE TO DO SO MAY RESULT IN EMISSION OF PRODUCTS OF COMBUSTION FROM THE HOPPER UNDER CERTAIN CONDITIONS.**
- **DO NOT OVERFILL THE HOPPER.**
- **MOVING PARTS MAY CAUSE INJURY.**
- **HOT PARTS. DO NOT OPERATE UNIT WITH THE SIDE OR REAR PANELS REMOVED.**
- **MAINTAIN HOPPER SEAL IN GOOD CONDITION.**

DANGER

- **DISCONNECT POWER BEFORE SERVICING UNIT.**
- **RISK OF ELECTRICAL SHOCK.**

Made in St-Augustin-de-Desmaures (Qc), Canada
14/06/2023 (# 666666)

ATTENTION

- **CHAUD EN FONCTIONNEMENT.**
- **NE PAS TOUCHER. GARDER LES ENFANTS, LES VÊTEMENTS ET LES MEUBLES ÉLOIGNÉS.**
- **UN CONTACT AVEC LA PEAU PEUT OCCASIONNER DES BRÛLURES. VOIR LES INSTRUCTIONS.**

- **OPÉRER CETTE UNITÉ SEULEMENT AVEC LE COUVERCLE DE LA TRÉMIE FERMÉ. DES ÉMISSIONS DE COMBUSTION PEUVENT SE PROPAGER PAR LA TRÉMIE SOUS CERTAINES CONDITIONS.**
- **NE PAS SURCHARGER LA TRÉMIE.**
- **DES PIÈCES EN MOUVEMENT PEUVENT CAUSER DES BLESSURES.**
- **PIÈCES CHAUDE.**
- **NE PAS UTILISER SI LES PANNEAUX DE CÔTÉS OU ARRIÈRE SONT ENLEVÉS.**
- **CONSERVER LE JOINT D'ÉTANCHÉITÉ DU TRÉMIE EN BONNES CONDITIONS.**

DANGER

- **DÉBRANCHER POUR L'ENTRETIEN.**
- **RISQUE DE CHOCS ÉLECTRIQUES.**

Fabriqué à St-Augustin-de-Desmaures (Qc), Canada
14/06/2023 (# 666666)

Appendix K:
Post-test calibration

Thermal Metering System Calibration
Y factor for Method 5G sampling

Manufacturer:	American Meter Company
Model:	DTM-200A
Serial Number:	98Z332226

Previous Calibration Comparision

Date	2014-05-05	Acceptable	
		Deviation (5%)	Deviation
y Factor	0.999	0.04995	0.002
Acceptance	Acceptable		

Average Gas Meter y Factor
0.997

Calibration Date:	05-23-14
Calibrated by:	Vincent Pelletier
Calibration Frequency:	6-months
Next Calibration Due:	05-11-2014
Instrument Range:	1.000 cfm
Standard Temp.:	77 oF
Standard Press.:	29.92 "Hg
Barometric Press.:	29.93 "Hg
Signature/Date:	Vincent Pelletier 2014-05-23

Current Calibration

Acceptable y Deviation	0.050
Maximum y Deviation	0.003
Acceptance	Acceptable

Reference Standard *			
Standard	Model	Standard Test Meter	
Calibrator	S/N	07J264834	
	Calib. Date	26-août-13	
	Calib. Value	0.9920	y factor (ref)

Calibration Parameters	Run 1	Run 2	Run 3
Vacuum ("Hg)	0.00	0.00	0.00
dH ("H2O)	0.00	0.00	0.00
Initial Reference Meter	113.610	118.610	124.910
Final Reference Meter	118.610	124.910	133.910
Initial DGM	581.010	586.006	592.261
Final DGM	586.006	592.261	601.211
Temp. Ref. Meter (°F), Tr	71.8	72.6	72.8
Temperature DGM (°F), Td	72.1	72.4	72.9
Time (Minutes)	35.7	37.8	54.9
Net Volume Ref. Meter, Vr	5.000	6.300	9.000
Net Volume DGM, Vd	4.996	6.255	8.95
Gas Meter y Factor =	**0.993**	**0.999**	**0.998**
Gas Meter y Factor Deviation (from avg.)	0.003	0.002	0.001
Orifice dH@	**0.00**	**0.00**	**0.00**
Orifice dH@ Deviation (from avg.)	0.000	0.000	0.000

where: 0.139943978

1. Deviation = |Average value for all runs - current run value|
2. y = [Vr x (y factor (ref)) x (Pb) x (Td + 460) / [Vd x (Pb + (dH / 13.6)) x (Tr + 460]
3. dH@ = 0.0317 x dH / (Pb (Td + 460)) x [(Tr + 460) x time) / Vr]^2

* Reference calibration is traceable to NIST through NIST Test # 40674, Kimble ASTM E1272

Thermal Metering System Calibration
Y factor for Method 5G sampling

Manufacturer:	American Meter Company
Model:	DTM-200A
Serial Number:	90R054300

Previous Calibration Comparision

Date	2014-05-05	Acceptable	
		Deviation (5%)	Deviation
y Factor	0.996	0.0498	0.016
Acceptance	Acceptable		

Average Gas Meter y Factor
0.980

Calibration Date:	05-23-14
Calibrated by:	Vincent Pelletier
Calibration Frequency:	6-months
Next Calibration Due:	05-11-2014
Instrument Range:	1.000 cfm
Standard Temp.:	76 oF
Standard Press.:	29.92 "Hg
Barometric Press.:	29.93 "Hg
Signature/Date:	Vincent Pelletier 2014-05-23

Current Calibration

Acceptable y Deviation	0.050
Maximum y Deviation	0.001
Acceptance	Acceptable

Reference Standard *			
Standard	Model	Standard Test Meter	
Calibrator	S/N	07J264834	
	Calib. Date	26-août-13	
	Calib. Value	0.9920	y factor (ref)

Calibration Parameters	Run 1	Run 2	Run 3
Vacuum ("Hg)	0.00	0.00	0.00
dH ("H2O)	0.00	0.00	0.00
Initial Reference Meter	118.610	124.910	133.910
Final Reference Meter	124.910	133.910	138.910
Initial DGM	869.985	876.369	885.485
Final DGM	876.369	885.485	890.542
Temp. Ref. Meter (°F), Tr	72.6	72.8	73.2
Temperature DGM (°F), Td	73.0	73.2	73.2
Time (Minutes)	37.8	54.9	30.7
Net Volume Ref. Meter, Vr	6.300	9.000	5.000
Net Volume DGM, Vd	6.384	9.116	5.057
Gas Meter y Factor =	**0.980**	**0.980**	**0.981**
Gas Meter y Factor Deviation (from avg.)	0.001	0.000	0.001
Orifice dH@	**0.00**	**0.00**	**0.00**
Orifice dH@ Deviation (from avg.)	0.000	0.000	0.000

where: 0.168754956

1. Deviation = |Average value for all runs - current run value|
2. y = [Vr x (y factor (ref)) x (Pb) x (Td + 460) / [Vd x (Pb + (dH / 13.6)) x (Tr + 460]
3. dH@ = 0.0317 x dH / (Pb (Td + 460)) x [(Tr + 460) x time) / Vr]^2

* Reference calibration is traceable to NIST through NIST Test # 40674, Kimble ASTM E1272

Appendix L:
Preliminary results

INTERTEK TESTING SERVICES NA Ltd.

SFBA EPA ADJUSTED EMISSION RESULTS

Manufacturer:	SBI
Model:	Euromax (Scric 65)
Date:	20-05-2014
Run:	1
Project #:	0
Test Duration: (minutes)	120

RESULTS

AVERAGE ADJUSTED EMISSION RATE: 1.653

Burn Rate (Dry kg/hr): 0.596

PRESSURE FACTOR:	1.00518

TEMPERATURE FACTORS

DGM #1:	0.98705
DGM #2:	0.98715

VOLUMES SAMPLED

DGM #1:	19.26549
DGM #2:	17.62926
TOTAL TUNNEL VOLUME (scf):	16919.294

SAMPLE RATIOS

Sample Train 1:	878.218
Sample Train 2:	959.728

TOTAL EMISSIONS

Sample Train 1 (g):	1.9321
Sample Train 2 (g):	1.6315

EMISSION RATES

Sample Train 1 (g/hr):	0.9660
Sample Train 2 (g/hr):	0.8158

ADJUSTED EMISSION RATES

Sample Train 1 (g/hr):	1.7685
Sample Train 2 (g/hr):	1.5370

DEVIATION: 7.01%

BAROMETRIC PRESSURE

Average:	30.075
Start:	30.09
End:	30.06

DRY GAS METER VALUES

DGM #1	Final:	812.122
	Initial:	792.685
DGM #2	Final:	527.675
	Initial:	509.837

TEMPERATURES (DEG. RANKIN)

DGM #1:	534.925
DGM #2:	534.872

CALIBRATION FACTORS

DGM #1:	0.9990
DGM #2:	0.9960

TUNNEL FLOW RATE: 140.994

PARTICULATE CATCH (mg)

Sample Train 1:	2.2000
Sample Train 2:	1.7000

SBI Laboratories, Inc.

Manufacturer:	SBI
Model:	Série 65
Date:	05/20/14
Run:	1
Control #:	
Test Duration:	120
Output Category:	1

Technicians: _____

Test Results in Accordance with CSA B415.1-10

	HHV Basis	LHV Basis
Overall Efficiency	73.9%	79.9%
Combustion Efficiency	95.1%	95.1%
Heat Transfer Efficiency	78%	84.0%

Output Rate (kJ/h)	8,725	8,277	**(Btu/h)**
Burn Rate (kg/h)	0.60	1.31	**(lb/h)**
Input (kJ/h)	11,801	11,195	**(Btu/h)**

Test Load Weight (dry kg)	1.19	2.63	**dry lb**
MC wet (%)	3.81		
MC dry (%)	3.96		
Particulate (g)	0		
CO (g)	113		
Test Duration (h)	2.00		

Emissions	**Particulate**	**CO**
g/MJ Output	0.00	6.45
g/kg Dry Fuel	0.00	94.54
g/h	0.00	56.32
lb/MM Btu Output	0.00	15.00

Air/Fuel Ratio (A/F)	35.54

VERSION: 2.4 4/15/2010

Run: 1

Control #:

Test Duration: 120 min

	HHV	LHV
Eff	73.93%	79.91%
Comb Eff	95.10%	95.10%
HT Eff	77.75%	84.03%
Output	8,725	kJ/h
Burn Rate	0.60	kg/h
Grams CO	113	g
Input	11,801	kJ/h
MC wet	3.81	

Note: In the "Input data", "Calc. % O_2", "Fuel Properties", and "Mass Balance" columns, [e], [d], [g], [a]. [b], [c], [h], [u], [w], [j], and [k] refer to their respective variables in Clauses 13.7.3 to 13.7.5.

Ultimate CO_2

$CO_{2\text{-ult}}$ 19.64

F_0

1.051

Combustion Efficiency:

Heat Transfer Efficiency:

Heat Output: 8,277

Heat Input: 11,195

Burn Duration: 2.00

Burn Rate: 1.31

Stack Temp: 169.4

Averages	0.21	2.42	6.57	20.77	18.24	76.00	24.25	95.3%	78.6%

INPUT DATA				Oxygen Calculation			Input Data			
Elapsed Time	Weight Remaining (kg)	% CO [e]	% CO_2 [d]	Excess Air EA	Total O_2	Calc. % O_2 [g]	Flue Gas (°C)	Room Temp (°C)	Combust Eff %	Heat Transfer %
0	1.24	0.19	2.23	711.7%	20.78	18.46	71.8	24.1	95.6%	78.8%
10	1.12	0.20	2.73	570.4%	20.75	17.92	76.6	23.9	96.0%	79.9%
20	1.02	0.19	1.90	839.9%	20.80	18.81	77.7	24.0	94.9%	74.8%
30	0.88	0.21	2.31	679.5%	20.77	18.36	76.4	24.1	95.1%	78.0%
40	0.78	0.22	2.96	517.7%	20.73	17.66	78.3	24.2	95.8%	80.5%
50	0.69	0.20	2.18	725.3%	20.78	18.50	76.0	24.3	95.1%	77.4%
60	0.59	0.22	2.95	519.7%	20.73	17.67	75.7	24.2	95.7%	81.0%
70	0.49	0.20	2.24	705.0%	20.78	18.44	76.2	24.2	95.3%	77.7%
80	0.40	0.21	2.42	646.9%	20.77	18.24	74.3	24.3	95.3%	79.2%
90	0.29	0.23	2.58	599.0%	20.75	18.06	76.4	24.5	94.9%	79.4%
100	0.19	0.23	2.63	586.8%	20.75	18.01	77.4	24.5	95.0%	79.4%
110	0.09	0.21	2.18	721.9%	20.78	18.50	76.6	24.6	94.8%	77.3%
120	0.00	0.21	2.19	718.5%	20.78	18.49	74.7	24.5	94.8%	77.9%

95.10%	Dry Moles Exhaust Gas (N_r):	1238.23	%HC	
77.75%	Air Fuel Ratio (A/F)	35.54	0.8	

Combustion Efficiency:	95.10%		
Total Input (kJ):	23,603	22,386	
Total Output (kJ):	17,451	16,551	
Efficiency:	73.93%		
Total CO (g):	112.64		

Btu/h 8,725 kJ/h

Btu/h 11,801 kJ/h

h

lb/h 0.596 kg/h

Deg. F 76.4 Deg. C

74.8%	45.40	0.60	51.76	0.57	51.76	24467	4.06	6.87	2.74	19810.00	3.81	79.13
Net Eff %	Air Fuel Ratio	Wet Wt Now Wt	% Wet Consumed x	Dry Wt. Now Wt_{dn}	% Dry Comsumed y	Total Input	Fuel Properties: Carbon /12= [a]	Hydrogen /1= [b]	Oxygen /16= [c]	Calorific Value	Mw Moisture Fuel Burnt	[h]
75.3%	48.7	1.24	0.00	1.19	0.00	0	4.06	6.87	2.74	19810.00	3.81	79.12
76.7%	40.2	1.12	9.52	1.08	9.52	3242	4.06	6.87	2.74	19810.00	3.81	79.15
71.0%	56.4	1.02	17.95	0.98	17.95	2248	4.06	6.87	2.74	19810.00	3.81	79.10
74.2%	46.7	0.88	28.57	0.85	28.57	2291	4.06	6.87	2.74	19810.00	3.81	79.12
77.1%	37.0	0.78	37.36	0.75	37.36	1902	4.06	6.87	2.74	19810.00	3.81	79.16
73.6%	49.5	0.69	44.69	0.66	44.69	1772	4.06	6.87	2.74	19810.00	3.81	79.12
77.6%	37.1	0.59	52.38	0.57	52.38	1859	4.06	6.87	2.74	19810.00	3.81	79.16
74.0%	48.3	0.49	60.44	0.47	60.44	1816	4.06	6.87	2.74	19810.00	3.81	79.12
75.4%	44.8	0.40	67.77	0.38	67.77	1902	4.06	6.87	2.74	19810.00	3.81	79.13
75.4%	41.9	0.29	76.56	0.28	76.56	2032	4.06	6.87	2.74	19810.00	3.81	79.13
75.5%	41.1	0.19	84.98	0.18	84.98	1902	4.06	6.87	2.74	19810.00	3.81	79.13
73.3%	49.3	0.09	92.67	0.09	92.67	2637	4.06	6.87	2.74	19810.00	3.81	79.11
73.9%	49.1	0.00	100.00	0.00	100.00	865	4.06	6.87	2.74	19810.00	3.81	79.11

	Moisture of Wood (wet basis):	3.81	Dry kg : 1.19
(Btu)	Initial Dry Weight Wt_{do} (kg):	1.19	CA: 48.73
(Btu)	Moisture Content Dry	3.96	HY: 6.87
			OX: 43.9

Load Weight (kg):	**1.24**					
Fuel Heating	**HHV**	**LHV**		**HHV**	**LHV**	
Value in kJ/kg - CV:	**19,810**	**18,329**	Btu/lb	**8522.5**	**7885.2**	

20.99	**0.65**	**2.23**	**0.00**	**0.06**	**37.52**	**287.44**	**3.27**	**0.01**	**1244.34**	**34.49**	**2.20**	**349.15**	**2013.85**
Mass Balance (moles/100 mole dry flue gas)				**kg Wood per 100 mole dfp**	**Moles per kg of Dry Wood**						**Moisture**	**Stack Temp**	**Heat**
[u]	**[w]**	**[j]**	**[k]**	**Nk**	**CO_2**	**O_2**	**CO**	**HC**	**N_2**	**H_2O**	**Present**	**K**	**CO_2**
20.99	0.60	2.05	0.00	0.06	37.64	311.50	3.21	-0.03	1335.51	34.59	2.20	344.93	1854.05
21.00	0.72	2.48	0.00	0.07	38.02	249.53	2.79	0.00	1102.42	34.51	2.20	349.71	2047.76
20.98	0.51	1.77	0.00	0.05	37.15	367.70	3.71	-0.05	1546.58	34.62	2.20	350.82	2088.48
20.99	0.62	2.13	0.00	0.06	37.40	297.20	3.40	0.02	1280.86	34.49	2.20	349.54	2034.15
21.00	0.78	2.69	0.00	0.08	37.95	226.39	2.82	0.05	1014.78	34.43	2.20	351.43	2108.09
20.99	0.59	2.01	0.00	0.06	37.39	317.37	3.43	-0.01	1357.06	34.54	2.20	349.15	2012.58
21.00	0.78	2.68	0.00	0.08	37.94	227.24	2.83	0.05	1017.97	34.43	2.20	348.82	2004.02
20.99	0.60	2.06	0.00	0.06	37.47	308.48	3.35	-0.01	1323.69	34.54	2.20	349.37	2024.15
20.99	0.65	2.22	0.00	0.06	37.54	282.93	3.26	0.02	1227.33	34.48	2.20	347.48	1946.09
20.99	0.69	2.37	0.00	0.07	37.41	261.88	3.34	0.06	1147.46	34.39	2.20	349.59	2022.58
20.99	0.71	2.41	0.00	0.07	37.47	256.54	3.28	0.06	1127.45	34.39	2.20	350.54	2060.49
20.98	0.59	2.02	0.00	0.06	37.21	315.75	3.58	0.01	1350.47	34.49	2.20	349.76	2026.43
20.99	0.59	2.03	0.00	0.06	37.23	314.25	3.57	0.01	1344.85	34.49	2.20	347.82	1951.23

						SUMS					
1536.52	1499.30	1481.60	1892.77	1795.79	297.40	982.40	5736.64	12106.94	23948.92	170.78	20521.43
t Content Change - Ambient to Stack Temperature					Room Temp	Energy Losses (kJ/kg of Dry Fuel)					
Flue Gas Constituent						Flue Gas Constituent					
O_2	CO	N_2	CH_4	H_2O	K	CO_2	O_2	CO	N_2	CH_4	H_2O Comb
1415.99	1382.03	1365.65	1739.51	1655.44	297.21	69.78	441.08	911.92	1823.84	-30.05	1578.15
1562.32	1524.46	1506.47	1924.78	1825.92	297.09	77.86	389.85	792.53	1660.76	4.08	1580.54
1592.97	1554.26	1535.94	1963.98	1861.58	297.18	77.58	585.74	1057.03	2375.45	-44.69	1586.78
1551.94	1514.33	1496.45	1912.00	1813.78	297.27	76.07	461.23	967.21	1916.74	15.52	1578.95
1607.66	1568.54	1550.06	1982.99	1878.66	297.30	79.99	363.96	802.54	1572.97	41.82	1578.48
1535.55	1498.36	1480.67	1891.55	1794.66	297.43	75.26	487.34	975.95	2009.35	-9.41	1580.85
1529.18	1492.18	1474.55	1883.18	1787.27	297.31	76.03	347.49	804.85	1501.06	41.75	1575.34
1544.33	1506.91	1489.12	1902.54	1804.90	297.36	75.85	476.40	951.93	1971.14	-7.64	1581.02
1485.36	1449.52	1432.38	1827.87	1736.20	297.44	73.05	420.26	926.49	1758.00	17.48	1576.07
1542.96	1505.53	1487.77	1901.43	1803.24	297.63	75.67	404.07	948.86	1707.17	57.84	1574.24
1571.56	1533.36	1515.28	1937.78	1836.54	297.62	77.21	403.17	932.36	1708.41	57.92	1575.38
1545.82	1508.30	1490.51	1905.24	1806.55	297.71	75.41	488.10	1019.87	2012.90	12.97	1578.96
1489.11	1453.13	1435.96	1833.10	1740.52	297.66	72.64	467.96	1015.41	1931.15	13.18	1576.66

	AVERAGE	SUMS						
1309.18	4982.79	6152.36	1157.65	4994.7	18315.1	1157.7	112.6	0.3
H_2O Fuel MC	Total Loss Rate	Total Loss	Chemical Loss 1	Sensible and Latent Loss	Total Output	Chem Loss 2	Grams Produced CO	Grams Produced HC
100.40	4895.12	0.00	0	0.00	0	0	0.00	0.00
100.77	4606.40	753.89	130	624.22	2488	130	12.76	0.01
100.85	5738.74	651.19	114	536.96	1597	114	11.80	-0.09
100.75	5116.46	591.74	113	478.69	1699	113	11.01	0.03
100.89	4540.65	435.97	81	355.33	1466	81	7.58	0.07
100.70	5220.03	467.03	86	381.01	1305	86	8.59	-0.02
100.69	4447.21	417.30	79	338.26	1442	79	7.43	0.07
100.73	5149.42	471.95	86	385.87	1344	86	8.59	-0.01
100.58	4871.93	467.78	90	377.60	1434	90	8.76	0.03
100.72	4868.57	499.33	103	396.61	1532	103	9.58	0.11
100.80	4855.24	466.18	95	371.59	1436	95	8.81	0.10
100.73	5288.93	704.02	137	567.26	1933	137	13.36	0.03
100.58	5177.59	225.97	45	181.30	639	45	4.36	0.01

VERSION: 2.4 4/15/2010

Manufacturer: SBI
Model: Série 65
Date: 5/20/2014
Run: 1
Control #:
Test Duration: 120
Output Category: 1

Appliance Type: Pellet (Cat, Non-Cat, Pellet)

Temp. Units f (F or C)
Weight Units lb (kg or lb)

Wood Moisture (% wet): 3.81
Load Weight (lb wet): 2.73
Burn Rate (dry kg/h): 0.60
Total Particulate Emissions: g

Fuel Data

	D.Fir	
HHV	19,810	kJ/kg
%C	48.73	
%H	6.87	
%O	43.9	
%Ash	0.5	

Default Fuel Values

	D. Fir	Oak
HHV (kJ/kg)	19,810	19,887
%C	48.73	50
%H	6.87	6.6
%O	43.9	42.9
%Ash	0.5	0.5

Note 1: For other fuels, use the heating value and fuel composition determined by analysis of fuel sample in accordance with Clause 9.2.

Note 2: In cases where the "Fuel Weight Remaining" is the same for three or more readings in a row, a "divide by zero error" will occur in the calculation sheet. In such cases, adjust the weight values by interpolation between the first occurence and the next reading showing a decrease in weight.

	Averages	0.21	2.42	18.41	168.80	75.65
					Temp. (°f)	
Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Flue Gas	Room Temp
0	2.73	0.19	2.23	18.65	161.2	75.3
10	2.47	0.20	2.73	18.25	169.8	75.1
20	2.24	0.19	1.90	18.69	171.8	75.3
30	1.95	0.21	2.31	18.41	169.5	75.4
40	1.71	0.22	2.96	17.73	172.9	75.5
50	1.51	0.20	2.18	18.67	168.8	75.7
60	1.30	0.22	2.95	18.00	168.2	75.5
70	1.08	0.20	2.24	18.67	169.2	75.6
80	0.88	0.21	2.42	18.58	165.8	75.7
90	0.64	0.23	2.58	18.16	169.6	76.1
100	0.41	0.23	2.63	18.16	171.3	76.1
110	0.20	0.21	2.18	18.64	169.9	76.2
120	0.00	0.21	2.19	18.66	166.4	76.1

Dillution Tunnel Velocity Traverse
EPA Method 5G-3

Project Number: G101628179
Manufacturer: Stove Builder International, inc
Model: Euromax (Serie 65)
Sample ID Number: 0
Test Date: May 20th, 2013
Test Run Number: 1

	Dilution Tunnel		
	Delta P In. H2O	Temp,°F	Square Root
A1	0.0075	87	0.0866
A2	0.0125	87	0.1118
A3	0.0125	87	0.1118
A4	0.0125	87	0.1118
A Center	0.0125	87	0.1118
B1	0.0100	87	0.1000
B2	0.0125	87	0.1118
B3	0.0125	87	0.1118
B4	0.0125	87	0.1118
B Center	0.0125	87	0.1118
Averages	0.01175	86.927	0.1072

Tunnel Diameter	8.000	inches
Tunnel Static	-0.098	in. H2O
Tunnel Area	0.34907	Ft2
Pitot Correction	0.9586	factor
Baro. Pressure	30.09	
Pitot Factor	0.99	(0.99 for standard, 0.84 or Cal. For S-Type)
Initial Velocity	7.237	Ft/ Sec
Initial Flow	**141.22**	Ft3/min

Test Engineer:_____

Date:_____

Intertek

TEST DATA
EPA METHOD 5G-3

Project Number:	G101628179
Manufacturer:	Stove Builder International
Model:	Euromax (Serie 65)
Sample ID No:	
Test Date:	May 20th, 2013
Test Run No:	1

Temperature Data

Firebox Temp Start	225.44
Firebox Temp End	237.38
Firebox Delta-T	11.9

Max Filter Temps	
Train A	Train B
79.26	78.15

Interval	10	Duration of Test, Min	120

Time		Temperature Data												
Interval	Duration	Room	Dillution Tunnel	Flue Gas	Firebox Top	Firebox Bottom	Firebox Back	Firebox Left	Firebox Right	Catalyst Outlet	Train A Filter	Train B Filter	Train A DGM	Train B DGM
0	0	75.3	86.37	161.2	263	116.3	293.7	229.8	224.4		74.17	74.06	73.28	73.4
1	10	75.09	87.22	169.8	292.1	116	347.7	263	249.5		76.17	75.01	73.545	73.475
2	20	75.25	87.97	171.8	297.3	116.6	350.5	263.4	249.9		77.07	76.15	73.865	73.775
3	30	75.42	88.01	169.5	290	116.3	346.8	251	242.7		77.66	76.73	74.155	74.16
4	40	75.47	88.5	172.9	300.4	115.6	361.2	262.1	251.2		77.97	76.97	74.495	74.53
5	50	75.71	88.51	168.8	286.3	114.4	326.5	251.9	238.6		78.15	77.23	74.77	74.755
6	60	75.49	88.4	168.2	285.6	113.3	321.6	247.4	236.3		78.34	77.34	75.07	75.065
7	70	75.58	88.72	169.2	287.6	113.1	329.3	248.5	241.7		78.58	77.48	75.31	75.185
8	80	75.73	88.55	165.8	277.2	112.5	313.1	239.5	231.3		78.73	77.63	75.565	75.375
9	90	76.07	88.87	169.6	290.7	112.2	341.2	259.7	240.2		78.86	77.8	75.73	75.64
10	100	76.05	89.26	171.3	294.2	112.1	346.7	265.9	241.7		79.05	77.95	75.895	75.87
11	110	76.2	89.52	169.9	288.6	112.4	331.9	258.4	238.8		79.21	78.06	76.035	76
12	120	76.11	89.17	166.4	278.2	112.1	318.3	247.3	231		79.26	78.15	76.305	76.1

Test Engineer:_____ Date:_____

Intertek

TEST DATA
EPA METHOD 5G-3

Gas Particulate Sampling Data

Project Number:	G101628179
Manufacturer:	Stove Builder International, i
Model:	Eurcmax (Serie 65)
Sample ID Number:	0
Test Date:	May 20th, 2013
Test Run Number:	1

Barometer, In. Hg		RH, %	Sample Box Correction (γ) Factors	
Start	30.09	61	Meter Box (A)	0.999
End	30.06	60	Meter Box (B)	0.996
Duration of Test, Min		120		

Leak Check, cfm @ in Hg	
Train A	Train B
0,003@5	0,002@5

Maximum Vacuum		Average Gases, %		
Train A	Train B	O2	CO2	CO
0.00	0.00	18.405	2.423	0.209

	Particulate Sampling Data												Combustion Gasses, %		
Time	Tunnel Delta-P	Train A Delta-H	Train B Delta-H	Flue Draft	Fuel Weight	Weight Loss	Train A Volume	Train B Volume	Train A Proportional Rate	Train B Proportional Rate	Train A Vacuum, In. Hg	Train B Vacuum, In. Hg	O2	CO2	CO
0	0.013	0.00	0.00	0.020	2.73	2.73	792.685	509.837	100.01	100.01	0.00	0.00	18.65	2.23	0.19
10	0.013	0.00	0.00	0.020	2.47	0.26	794.403	511.294	106.25	98.19	0.00	0.00	18.25	2.73	0.2
20	0.013	0.00	0.00	0.020	2.24	0.23	796.121	512.899	106.26	108.17	0.00	0.00	18.69	1.9	0.19
30	0.013	0.00	0.00	0.020	1.95	0.29	797.740	514.402	100.09	101.23	0.00	0.00	18.41	2.31	0.21
40	0.013	0.00	0.00	0.020	1.71	0.24	799.320	515.891	97.66	100.26	0.00	0.00	17.73	2.96	0.22
50	0.013	0.00	0.00	0.020	1.51	0.20	800.885	517.360	96.68	98.88	0.00	0.00	18.67	2.18	0.2
60	0.013	0.00	0.00	0.020	1.30	0.21	802.489	518.864	99.02	101.16	0.00	0.00	18	2.95	0.22
70	0.013	0.00	0.00	0.020	1.08	0.22	804.069	520.330	97.53	98.61	0.00	0.00	18.67	2.24	0.2
80	0.013	0.00	0.00	0.020	0.88	0.20	805.682	521.748	99.50	95.34	0.00	0.00	18.58	2.42	0.21
90	0.013	0.00	0.00	0.020	0.64	0.24	807.217	523.272	94.69	102.44	0.00	0.00	18.16	2.58	0.23
100	0.013	0.00	0.00	0.020	0.41	0.23	808.852	524.752	100.86	99.48	0.00	0.00	18.16	2.63	0.23
110	0.013	0.00	0.00	0.020	0.20	0.21	810.494	526.214	101.29	98.27	0.00	0.00	18.64	2.18	0.21
120	0.013	0.00	0.00	0.020	0.00	0.20	812.122	527.675	100.34	98.15	0.00	0.00	18.66	2.19	0.21

Test Engineer:_____ Date:_____

INTERTEK TESTING SERVICES NA Ltd.

SFBA EPA ADJUSTED EMISSION RESULTS

Manufacturer:	SBI
Model:	Euromax (Scric 65)
Date:	20-05-2014
Run:	2
Project #:	0
Test Duration: (minutes)	120

RESULTS

AVERAGE ADJUSTED EMISSION RATE: 2.964

Burn Rate (Dry kg/hr): 1.052

PRESSURE FACTOR: 1.00468

TEMPERATURE FACTORS

DGM #1:	0.98115
DGM #2:	0.98157

VOLUMES SAMPLED

DGM #1:	18.54103
DGM #2:	16.69386

TOTAL TUNNEL VOLUME (scf): 16456.968

SAMPLE RATIOS

Sample Train 1:	887.597
Sample Train 2:	985.809

TOTAL EMISSIONS

Sample Train 1 (g):	3.5504
Sample Train 2 (g):	3.6475

EMISSION RATES

Sample Train 1 (g/hr):	1.7752
Sample Train 2 (g/hr):	1.8237

ADJUSTED EMISSION RATES

Sample Train 1 (g/hr):	2.9305
Sample Train 2 (g/hr):	2.9969

DEVIATION: 1.12%

BAROMETRIC PRESSURE

Average:	30.06
Start:	30.06
End:	30.06

DRY GAS METER VALUES

DGM #1	Final:	830.972
	Initial:	812.144
DGM #2	Final:	544.691
	Initial:	527.695

TEMPERATURES (DEG. RANKIN)

DGM #1:	538.142
DGM #2:	537.911

CALIBRATION FACTORS

DGM #1:	0.9990
DGM #2:	0.9960

TUNNEL FLOW RATE: 137.141

PARTICULATE CATCH (mg)

Sample Train 1:	4.0000
Sample Train 2:	3.7000

SBI Laboratories, Inc.

Manufacturer: SBI
Model: érie 65 - Refonte
Date: 05/20/14
Run: 2
Control #:
Test Duration: 120
Output Category: 2

Technicians: Nicolas Gagnon
Guillaume Thibodeau-Fortin

Test Results in Accordance with CSA B415.1-10

	HHV Basis	LHV Basis
Overall Efficiency	67.9%	73.4%
Combustion Efficiency	93.7%	93.7%
Heat Transfer Efficiency	72%	78.3%

Output Rate (kJ/h)	14,151	13,423	(Btu/h)
Burn Rate (kg/h)	1.05	2.32	(lb/h)
Input (kJ/h)	20,836	19,765	(Btu/h)

Test Load Weight (dry kg)	2.10	4.64	dry lb
MC wet (%)	3.81		
MC dry (%)	3.96		
Particulate (g)	0		
CO (g)	226		
Test Duration (h)	2.00		

Emissions	Particulate	CO
g/MJ Output	0.00	8.00
g/kg Dry Fuel	0.00	107.65
g/h	0.00	113.22
lb/MM Btu Output	0.00	18.60

Air/Fuel Ratio (A/F)	29.97

VERSION: 2.4 4/15/2010

Manufacturer: SBI

Model: Série 65 - Refonte

Date: 05/20/14

Run: 2

Control #:

Test Duration: 120 min

	HHV	LHV
Eff	67.91%	73.40%
Comb Eff	93.69%	93.69%
HT Eff	72.49%	78.35%
Output	14,151	kJ/h
Burn Rate	1.05	kg/h
Grams CO	226	g
Input	20,836	kJ/h
MC wet	3.81	

Note: In the "Input data", "Calc. % O_2", "Fuel Properties", and "Mass Balance" columns, [e], [d], [g], [a]. [b], [c], [h], [u], [w], [j], and [k] refer to their respective variables in Clauses 13.7.3 to 13.7.5.

Ultimate CO_2

$CO_{2\text{-ult}}$ 19.64

F_0

1.054

Averages	0.29	2.98	5.06	20.72	17.60	110.79	25.44	
INPUT DATA				Oxygen Calculation			Input Data	
Elapsed Time	Weight Remaining (kg)	% CO [e]	% CO_2 [d]	Excess Air EA	Total O_2	Calc. % O_2 [g]	Flue Gas (°C)	Room Temp (°C)
0	2.19	0.30	3.60	403.7%	20.68	16.93	107.5	25.3
10	2.00	0.28	2.69	561.4%	20.74	17.91	110.7	25.2
20	1.82	0.28	2.85	527.6%	20.73	17.74	109.0	25.3
30	1.64	0.28	2.83	531.6%	20.73	17.76	108.7	25.4
40	1.45	0.29	2.87	521.6%	20.73	17.72	111.7	25.4
50	1.26	0.28	2.87	523.6%	20.73	17.72	113.7	25.4
60	1.09	0.28	2.55	594.1%	20.75	18.06	108.8	25.5
70	0.90	0.30	3.25	453.3%	20.71	17.31	112.9	25.4
80	0.74	0.30	3.45	423.8%	20.69	17.09	107.9	25.6
90	0.54	0.31	3.04	486.4%	20.72	17.52	112.4	25.6
100	0.34	0.30	2.64	568.1%	20.75	17.96	112.5	25.6
110	0.17	0.29	2.91	513.8%	20.73	17.67	113.7	25.6
120	0.00	0.29	3.16	469.4%	20.71	17.41	110.7	25.5

		Air Fuel Ratio (A/F)		
verall Heating Efficiency:	67.91%	Dry Molecular Weight (M_d)	29.18	
Combustion Efficiency:	93.69%	Dry Moles Exhaust Gas (N_r):	1044.62	%HC
Heat Transfer Efficiency:	72.49%	Air Fuel Ratio (A/F)	29.97	0.8

Heat Output:	13,423	Btu/h	14,151	kJ/h
Heat Input:	19,765	Btu/h	20,836	kJ/h
Burn Duration:	2.00	h		
Burn Rate:	2.32	lb/h	1.052	kg/h
Stack Temp:	231.9	Deg. F	111.1	Deg. C

94.0%	74.0%	69.6%	36.20	1.09	50.26	1.05	50.26	43272	4.06	6.87
Combust Eff %	Heat Transfer %	Net Eff %	Air Fuel Ratio	Wet Wt Now Wt	% Wet Consumed x	Dry Wt. Now Wt_{dn}	% Dry Comsumed y	Total Input	Carbon /12= [a]	Hydrogen /1= [b]
94.8%	77.6%	73.5%	30.1	2.19	0.00	2.10	0.00	0	4.06	6.87
93.8%	72.4%	67.9%	39.5	2.00	8.51	1.92	8.51	5231	4.06	6.87
94.1%	73.8%	69.4%	37.5	1.82	16.60	1.75	16.60	3458	4.06	6.87
94.1%	73.7%	69.4%	37.7	1.64	25.10	1.58	25.10	3545	4.06	6.87
93.9%	73.3%	68.9%	37.1	1.45	33.61	1.40	33.61	3588	4.06	6.87
94.1%	72.9%	68.6%	37.3	1.26	42.32	1.21	42.32	3458	4.06	6.87
93.5%	71.9%	67.2%	41.5	1.09	50.21	1.05	50.21	3458	4.06	6.87
94.3%	75.1%	70.8%	33.1	0.90	58.92	0.86	58.92	3372	4.06	6.87
94.6%	76.9%	72.8%	31.3	0.74	66.39	0.71	66.39	3372	4.06	6.87
93.7%	74.2%	69.5%	35.0	0.54	75.10	0.52	75.10	3718	4.06	6.87
93.2%	71.7%	66.8%	39.9	0.34	84.23	0.33	84.23	3588	4.06	6.87
93.9%	73.2%	68.8%	36.7	0.17	92.32	0.16	92.32	4885	4.06	6.87
94.4%	75.1%	70.9%	34.0	0.00	100.00	0.00	100.00	1599	4.06	6.87

Moi

Combustion Efficiency:	93.69%		Moisture of Wood (wet basis):	3.81
Total Input (kJ):	41,673	39,524 (Btu)	Initial Dry Weight Wt_{do} (kg):	2.10
Total Output (kJ):	28,301	26,842 (Btu)	Moisture Content Dry	3.96
Efficiency:	67.91%			
Total CO (g):	226.44			

Load Weight (kg):	**2.19**					
Fuel Heating	**HHV**	**LHV**		**HHV**	**LHV**
Value in kJ/kg - CV:	**19,810**	**18,329**	Btu/lb	**8522.5**	**7885.2**

2.74	**19810.00**	**3.81**	**79.13**	**20.99**	**0.81**	**2.75**	**0.01**	**0.08**	**37.00**	**221.04**	**3.64**
Properties		**Mw**	**Mass Balance**					**kg Wood per**			
Oxygen	**Calorific**	**Moisture**	**(moles/100 mole dry flue gas)**					**100 mole dfp**	**Moles per kg**		
/16= [c]	**Value**	**Fuel Burnt**	**[h]**	**[u]**	**[w]**	**[j]**	**[k]**	**Nk**	**CO_2**	**O_2**	**CO**
2.74	19810.00	3.81	79.17	21.00	0.96	3.28	0.02	0.10	37.51	176.45	3.13
2.74	19810.00	3.81	79.12	20.99	0.73	2.50	0.01	0.07	36.82	245.17	3.83
2.74	19810.00	3.81	79.13	20.99	0.77	2.63	0.01	0.08	37.02	230.45	3.64
2.74	19810.00	3.81	79.13	20.99	0.77	2.62	0.01	0.08	36.99	232.21	3.66
2.74	19810.00	3.81	79.12	20.99	0.78	2.66	0.01	0.08	36.91	227.82	3.73
2.74	19810.00	3.81	79.13	20.99	0.78	2.65	0.01	0.08	37.04	228.72	3.61
2.74	19810.00	3.81	79.11	20.98	0.70	2.38	0.01	0.07	36.62	259.42	4.02
2.74	19810.00	3.81	79.14	20.99	0.88	2.98	0.02	0.09	37.20	198.07	3.43
2.74	19810.00	3.81	79.16	21.00	0.93	3.15	0.02	0.09	37.39	185.22	3.25
2.74	19810.00	3.81	79.13	20.99	0.83	2.81	0.02	0.08	36.85	212.41	3.76
2.74	19810.00	3.81	79.10	20.98	0.73	2.47	0.01	0.07	36.46	248.01	4.14
2.74	19810.00	3.81	79.13	20.99	0.79	2.69	0.01	0.08	36.95	224.44	3.68
2.74	19810.00	3.81	79.14	20.99	0.85	2.90	0.01	0.08	37.23	205.07	3.42

isture Content M_{Cwb}: 3.81

Dry kg : 2.10
CA: 48.73
HY: 6.87
OX: 43.9

0.17	992.08	34.17	2.20	383.94	3365.91	2547.95	2481.35	2453.08	3207.66	2970.49	298.59
g of Dry Wood			Moisture	Stack Temp	Heat Content Change - Ambient to Stack Temperature Flue Gas Constituent						Room Temp
HC	N_2	H_2O	Present	K	CO_2	O_2	CO	N_2	CH_4	H_2O	K
0.17	824.98	34.18	2.20	380.65	3236.97	2452.19	2388.54	2361.23	3080.75	2859.53	298.47
0.16	1082.80	34.19	2.20	383.82	3370.28	2551.49	2484.85	2456.53	3211.32	2974.70	298.34
0.16	1027.71	34.20	2.20	382.15	3298.93	2498.33	2433.29	2405.51	3141.47	2913.04	298.44
0.16	1034.29	34.20	2.20	381.87	3283.83	2486.99	2422.26	2394.61	3126.88	2899.85	298.54
0.18	1017.47	34.17	2.20	384.87	3406.23	2578.01	2510.51	2481.93	3247.09	3005.36	298.53
0.16	1021.22	34.21	2.20	386.82	3485.85	2637.17	2567.85	2538.67	3325.41	3073.92	298.52
0.17	1136.11	34.18	2.20	381.98	3284.52	2487.40	2422.63	2394.98	3127.79	2900.28	298.64
0.18	905.83	34.16	2.20	386.04	3451.61	2611.67	2543.12	2514.20	3291.86	3044.34	298.58
0.18	857.78	34.17	2.20	381.09	3245.88	2458.58	2394.67	2367.31	3090.03	2866.84	298.71
0.21	959.11	34.11	2.20	385.54	3426.58	2592.94	2524.93	2496.21	3267.52	3022.59	298.71
0.20	1092.59	34.11	2.20	385.65	3427.71	2593.68	2525.62	2496.90	3268.85	3023.41	298.79
0.18	1004.82	34.17	2.20	386.87	3479.84	2632.46	2563.23	2534.11	3320.01	3068.38	298.73
0.17	932.38	34.19	2.20	383.82	3358.61	2542.49	2476.04	2447.83	3200.57	2964.14	298.65

SUMS							AVERAGE	
1618.84	7326.17	13504.10	31654.53	2030.12	20852.82	1342.79	6025.34	13371.30
Energy Losses (kJ/kg of Dry Fuel)								
Flue Gas Constituent							Total Loss Rate	Total Loss
CO_2	O_2	CO	N_2	CH_4	H_2O Comb	H_2O Fuel MC		
121.43	432.68	892.07	1947.96	153.48	1600.55	103.05	5251.23	0.00
124.08	625.56	1094.00	2659.94	146.65	1605.21	103.30	6358.74	1678.98
122.11	575.75	1038.01	2472.17	142.34	1603.55	103.17	6057.10	1057.41
121.48	577.51	1044.63	2476.72	142.85	1603.04	103.14	6069.36	1086.04
125.71	587.32	1064.70	2525.30	158.19	1605.04	103.37	6169.63	1117.44
129.12	603.17	1031.92	2592.54	141.87	1609.11	103.52	6211.23	1084.32
120.29	645.27	1147.73	2720.96	150.79	1602.23	103.14	6490.41	1133.05
128.39	517.28	980.41	2277.43	162.47	1605.93	103.45	5775.36	983.02
121.35	455.38	927.77	2030.64	157.11	1600.42	103.06	5395.73	918.40
126.27	550.77	1072.86	2394.15	184.04	1602.91	103.41	6034.41	1132.46
124.99	643.25	1183.08	2728.09	183.15	1603.03	103.41	6569.00	1189.78
128.59	590.82	1051.62	2546.33	157.01	1607.32	103.51	6185.21	1525.18
125.03	521.40	975.30	2282.30	150.15	1604.48	103.28	5761.94	465.22

SUMS					
2629.24	**10742.1**	**29900.7**	**2629.2**	**226.4**	**6.1**

Chemical Loss 1	Sensible and Latent Loss	Total Output	Chem Loss 2	Grams Produced	
				CO	HC
0	0.00	0	0	0.00	0.00
325	1354.05	3552	325	28.33	0.69
204	852.98	2401	204	17.78	0.45
211	875.23	2459	211	18.34	0.46
220	897.75	2471	220	18.91	0.51
203	881.12	2374	203	17.66	0.44
225	908.16	2325	225	19.66	0.47
193	790.08	2389	193	16.36	0.50
183	735.16	2453	183	15.49	0.48
234	898.48	2585	234	19.74	0.62
245	944.34	2398	245	21.01	0.59
296	1229.62	3360	296	25.43	0.69
90	375.08	1134	90	7.72	0.22

VERSION: 2.4 4/15/2010

Manufacturer: SBI
Model: Série 65 - Refonte
Date: 5/20/2014
Run: 2
Control #:
Test Duration: 120
Output Category: 2

Appliance Type: Pellet (Cat, Non-Cat, Pellet)

Temp. Units f (F or C)
Weight Units lb (kg or lb)

Wood Moisture (% wet): 3.81
Load Weight (lb wet): 4.82
Burn Rate (dry kg/h): 1.05
Total Particulate Emissions: g

Fuel Data

	D.Fir	
HHV	19,810	kJ/kg
%C	48.73	
%H	6.87	
%O	43.9	
%Ash	0.5	

Default Fuel Values

	D. Fir	Oak
HHV (kJ/kg)	19,810	19,887
%C	48.73	50
%H	6.87	6.6
%O	43.9	42.9
%Ash	0.5	0.5

Note 1: For other fuels, use the heating value and fuel composition determined by analysis of fuel sample in accordance with Clause 9.2.

Note 2: In cases where the "Fuel Weight Remaining" is the same for three or more readings in a row, a "divide by zero error" will occur in the calculation sheet. In such cases, adjust the weight values by interpolation between the first occurence and the next reading showing a decrease in weight.

	Averages	0.29	2.98	17.53	231.42	77.79
					Temp. (°f)	
Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Flue Gas	Room Temp
0	4.82	0.30	3.60	16.75	225.5	77.6
10	4.41	0.28	2.69	18.10	231.2	77.4
20	4.02	0.28	2.85	17.75	228.2	77.5
30	3.61	0.28	2.83	17.58	227.7	77.7
40	3.20	0.29	2.87	17.89	233.1	77.7
50	2.78	0.28	2.87	17.57	236.6	77.7
60	2.40	0.28	2.55	18.15	227.9	77.9
70	1.98	0.30	3.25	16.98	235.2	77.8
80	1.62	0.30	3.45	17.27	226.3	78.0
90	1.20	0.31	3.04	16.86	234.3	78.0
100	0.76	0.30	2.64	17.43	234.5	78.2
110	0.37	0.29	2.91	17.63	236.7	78.1
120	0.00	0.29	3.16	17.89	231.2	77.9

Dillution Tunnel Velocity Traverse
EPA Method 5G-3

Projec: Number: 0
Manufacturer: Stove Builder International, inc
Model: Euromax (Serie 65)
Sample ID Number: 0
Test Date: May 20th, 2013
Test Run Number: 2

	Dilution Tunnel		
	Delta P In. H2O	Temp,°F	Square Root
A1	0.0075	101	0.0866
A2	0.0125	101	0.1118
A3	0.0125	101	0.1118
A4	0.0100	101	0.1000
A Center	0.0125	101	0.1118
B1	0.0100	103	0.1000
B2	0.0125	103	0.1118
B3	0.0125	103	0.1118
B4	0.0125	103	0.1118
B Center	0.0125	104	0.1118
Averages	0.0115	101.98	0.1057

Tunnel Diameter	8.000	inches
Tunnel Static	-0.098	in. H2O
Tunnel Area	0.34907	Ft2
Pitot Correction	0.9454	factor
Baro. Pressure	30.06	
Pitot Factor	0.99	(0.99 for standard, 0.84 or Cal. For S-Type)
Initial Velocity	7.239	Ft/ Sec
Initial Flow	**137.33**	Ft3/min

Test Engineer:_____ Date:_____

TEST DATA
EPA METHOD 5G-3

Project Number:	G101628179
Manufacturer:	Stove Builder International
Model:	Euromax (Serie 65)
Sample ID No:	
Test Date:	May 20th, 2013
Test Run No:	2

Temperature Data

Firebox Temp Start	296.34
Firebox Temp End	285.06
Firebox Delta-T	**11.3**

Max Filter Temps	
Train A	Train B
83.18	**82.94**

Interval	10	Duration of Test, Min	120

Time		Temperature Data												
Interval	Duration	Room	Dillution Tunnel	Flue Gas	Firebox Top	Firebox Bottom	Firebox Back	Firebox Left	Firebox Right	Catalyst Outlet	Train A Filter	Train B Filter	Train A DGM	Train B DGM
0	0	77.57	101.2	225.5	364.5	123.7	378.6	317.3	297.6		77.07	77.03	77.47	77.44
1	10	77.35	102.9	231.2	362.9	125.4	370.6	314.6	306.2		79.93	79.69	77.69	77.535
2	20	77.52	102.2	228.2	358.6	126.3	371.1	312.8	307.1		81.63	81.05	77.82	77.72
3	30	77.7	102.4	227.7	360.9	126.9	379	317.5	306.7		82.32	81.86	77.91	77.68
4	40	77.68	103.7	233.1	365.6	127.5	375.2	316.2	310.9		82.54	82.25	78.035	77.845
5	50	77.66	104.2	236.6	372.1	128.1	384.9	321.9	319		82.72	82.57	78.135	78.045
6	60	77.88	102.8	227.9	352.9	127.9	365.9	306.2	306		82.82	82.62	78.21	78.02
7	70	77.78	103.8	235.2	368.5	127.2	393.7	321.7	316.4		82.78	82.65	78.29	78.07
8	80	78	103.3	226.3	350.2	125.6	367.3	306.2	302.8		82.74	82.61	78.36	78.135
9	90	78	104.4	234.3	364.7	125	378.8	318.9	302.1		82.75	82.68	78.415	78.15
10	100	78.16	104.5	234.5	357.1	126.3	376	310.6	302.5		83	82.74	78.48	78.065
11	110	78.05	105.4	236.7	354.3	123.8	374.5	306.8	302		83.09	82.79	78.495	78.06
12	120	77.9	104.7	231.2	343.3	122.4	367.6	297.8	294.2		83.18	82.94	78.54	78.08

Test Engineer:_____ Date:_____

Intertek

TEST DATA
EPA METHOD 5G-3

Gas Particulate Sampling Data

Project Number:	G101628179
Manufacturer:	Stove Builder International, i
Model:	Eurcmax (Serie 65)
Sample ID Number:	0
Test Date:	May 20th, 2013
Test Run Number:	2

Barometer, In. Hg		RH, %	Sample Box Correction (γ) Factors	
Start	30.06	62	Meter Box (A)	0.999
End	30.06	60	Meter Box (B)	0.996
Duration of Test, Min		120		

Leak Check, cfm @ in Hg	
Train A	Train B
0,0015@5	0,002@5

Maximum Vacuum		Average Gases, %		
Train A	Train B	O2	CO2	CO
0.00	0.00	17.527	2.978	0.291

	Particulate Sampling Data												Combustion Gasses, %		
Time	Tunnel Delta-P	Train A Delta-H	Train B Delta-H	Flue Draft	Fuel Weight	Weight Loss	Train A Volume	Train B Volume	Train A Proportional Rate	Train B Proportional Rate	Train A Vacuum, In. Hg	Train B Vacuum, In. Hg	O2	CO2	CO
0	0.013	0.00	0.00	0.018	4.82	4.82	812.144	527.695	100.02	100.02	0.00	0.00	16.75	3.6	0.3
10	0.013	0.00	0.00	0.018	4.41	0.41	813.774	529.146	103.93	102.47	0.00	0.00	18.1	2.69	0.28
20	0.013	0.00	0.00	0.018	4.02	0.39	815.352	530.540	100.53	98.35	0.00	0.00	17.75	2.85	0.28
30	0.013	0.00	0.00	0.018	3.61	0.41	816.946	532.003	101.55	103.25	0.00	0.00	17.58	2.83	0.28
40	0.013	0.00	0.00	0.018	3.20	0.41	818.501	533.438	99.15	101.36	0.00	0.00	17.89	2.87	0.29
50	0.013	0.00	0.00	0.018	2.78	0.42	820.065	534.885	99.75	102.21	0.00	0.00	17.57	2.87	0.28
60	0.013	0.00	0.00	0.018	2.40	0.38	821.599	536.288	97.71	98.98	0.00	0.00	18.15	2.55	0.28
70	0.013	0.00	0.00	0.018	1.98	0.42	823.155	537.720	99.18	101.11	0.00	0.00	16.98	3.25	0.3
80	0.013	0.00	0.00	0.018	1.62	0.36	824.704	539.132	98.68	99.64	0.00	0.00	17.27	3.45	0.3
90	0.013	0.00	0.00	0.018	1.20	0.42	826.197	540.608	95.19	104.26	0.00	0.00	16.86	3.04	0.31
100	0.013	0.00	0.00	0.018	0.76	0.44	827.791	542.020	101.63	99.76	0.00	0.00	17.43	2.64	0.3
110	0.013	0.00	0.00	0.018	0.37	0.39	829.407	543.364	103.11	95.03	0.00	0.00	17.63	2.91	0.29
120	0.013	0.00	0.00	0.018	0.00	0.37	830.972	544.691	99.79	93.77	0.00	0.00	17.89	3.16	0.29

Test Engineer:_____

Date:_____

INTERTEK TESTING SERVICES NA Ltd.

SFBA EPA ADJUSTED EMISSION RESULTS

Manufacturer:	SBI
Model:	Euromax (Scric 65)
Date:	21-05-2014
Run:	3
Project #:	0
Test Duration: (minutes)	120

RESULTS

AVERAGE ADJUSTED EMISSION RATE: 2.277

Burn Rate (Dry kg/hr): 1.771

PRESSURE FACTOR:	1.00368

TEMPERATURE FACTORS

DGM #1:	0.98429
DGM #2:	0.98465

VOLUMES SAMPLED

DGM #1:	19.08203
DGM #2:	17.69613
TOTAL TUNNEL VOLUME (scf):	16339.932

SAMPLE RATIOS

Sample Train 1:	856.299
Sample Train 2:	923.362

TOTAL EMISSIONS

Sample Train 1 (g):	2.6545
Sample Train 2 (g):	2.5854

EMISSION RATES

Sample Train 1 (g/hr):	1.3273
Sample Train 2 (g/hr):	1.2927

ADJUSTED EMISSION RATES

Sample Train 1 (g/hr):	2.3021
Sample Train 2 (g/hr):	2.2522

DEVIATION: 1.09%

BAROMETRIC PRESSURE

Average:	30.03
Start:	30.03
End:	30.03

DRY GAS METER VALUES

DGM #1	Final:	850.322
	Initial:	830.987
DGM #2	Final:	562.693
	Initial:	544.715

TEMPERATURES (DEG. RANKIN)

DGM #1:	536.430
DGM #2:	536.229

CALIBRATION FACTORS

DGM #1:	0.9990
DGM #2:	0.9960

TUNNEL FLOW RATE: 136.166

PARTICULATE CATCH (mg)

Sample Train 1:	3.1000
Sample Train 2:	2.8000

Manufacturer: SBI

Model: Série 65 - Refonte

Date: 05/21/14

Run: 3

Control #:

Test Duration: 120 min

	HHV	LHV
Eff	66.40%	71.77%
Comb Eff	94.93%	94.93%
HT Eff	69.95%	75.60%
Output	23,309	kJ/h
Burn Rate	1.77	kg/h
Grams CO	310	g
Input	35,102	kJ/h
MC wet	3.81	

Note: In the "Input data", "Calc. % O_2", "Fuel Properties", and "Mass Balance" columns, [e], [d], [g], [a]. [b], [c], [h], [u], [w], [j], and [k] refer to their respective variables in Clauses 13.7.3 to 13.7.5.

Ultimate CO_2

$CO_{2\text{-ult}}$ 19.64

F_0

1.055

Overall Heating Efficiency:

Combustion Efficiency:

Heat Transfer Efficiency:

Heat Output: 22,111

Heat Input: 33,298

Burn Duration: 2.00

Burn Rate: 3.91

Stack Temp: 275.5

Averages	0.27	3.45	4.35	20.69	17.11	135.06	23.62	95.2%	71.5%
INPUT DATA				Oxygen Calculation			Input Data		Combust	Heat
Elapsed Time	Weight Remaining (kg)	% CO [e]	% CO_2 [d]	Excess Air EA	Total O_2	Calc. % O_2 [g]	Flue Gas (°C)	Room Temp (°C)	Eff %	Transfer %
0	3.68	0.27	4.00	360.0%	20.66	16.52	132.5	24.7	95.8%	74.9%
10	3.40	0.27	3.10	482.9%	20.72	17.48	130.7	22.9	94.7%	70.4%
20	3.08	0.26	3.00	502.5%	20.72	17.59	132.3	24.3	94.8%	69.7%
30	2.79	0.28	3.60	406.3%	20.68	16.94	135.8	23.0	95.2%	72.3%
40	2.44	0.26	2.67	570.4%	20.75	17.95	141.3	23.6	94.3%	64.9%
50	2.15	0.26	3.56	414.2%	20.69	17.00	137.7	24.1	95.5%	71.9%
60	1.84	0.28	4.07	351.6%	20.65	16.44	132.8	22.6	95.7%	74.8%
70	1.52	0.27	3.81	381.4%	20.67	16.73	137.4	24.3	95.6%	73.2%
80	1.24	0.26	3.36	442.6%	20.70	17.21	134.1	23.0	95.3%	71.3%
90	0.90	0.27	3.07	488.1%	20.72	17.51	139.0	23.6	94.7%	68.7%
100	0.64	0.27	3.68	397.3%	20.68	16.86	132.2	23.9	95.5%	73.5%
110	0.34	0.27	3.86	375.6%	20.67	16.67	130.7	22.6	95.6%	74.3%
120	0.00	0.27	3.13	477.7%	20.72	17.45	139.3	24.4	94.8%	69.2%

	Air Fuel Ratio (A/F)		
66.40%	Dry Molecular Weight (M_d)	29.24	
94.93%	Dry Moles Exhaust Gas (N_r):	939.63	%HC
69.95%	Air Fuel Ratio (A/F)	26.96	0.8

Combustion Efficiency:	94.93%	
Total Input (kJ):	70,204	66,585
Total Output (kJ):	46,618	44,215
Efficiency:	66.40%	
Total CO (g):	310.48	

Btu/h 23,309 kJ/h
Btu/h 35,102 kJ/h

h

lb/h 1.772 kg/h

Deg. F 135.3 Deg. C

68.0%	31.99	1.85	49.86	1.78	49.86	73489	4.06	6.87	2.74	19810.00	3.81	79.17
Net Eff %	Air Fuel Ratio	Wet Wt Now Wt	% Wet Consumed x	Dry Wt. Now Wt_{dn}	% Dry Comsumed y	Total Input	Fuel Properties: Carbon /12= [a]	Hydrogen /1= [b]	Oxygen /16= [c]	Calorific Value	Mw Moisture Fuel Burnt	[h]
71.7%	27.5	3.68	0.00	3.54	0.00	0	4.06	6.87	2.74	19810.00	3.81	79.21
66.7%	34.9	3.40	7.76	3.27	7.76	8516	4.06	6.87	2.74	19810.00	3.81	79.15
66.1%	36.0	3.08	16.50	2.96	16.50	5836	4.06	6.87	2.74	19810.00	3.81	79.15
68.8%	30.3	2.79	24.38	2.68	24.38	6095	4.06	6.87	2.74	19810.00	3.81	79.18
61.2%	40.1	2.44	33.87	2.34	33.87	6052	4.06	6.87	2.74	19810.00	3.81	79.12
68.7%	30.8	2.15	41.63	2.07	41.63	5663	4.06	6.87	2.74	19810.00	3.81	79.18
71.5%	27.0	1.84	50.00	1.77	50.00	6009	4.06	6.87	2.74	19810.00	3.81	79.21
70.0%	28.8	1.52	58.74	1.46	58.74	5749	4.06	6.87	2.74	19810.00	3.81	79.19
68.0%	32.5	1.24	66.38	1.19	66.38	5879	4.06	6.87	2.74	19810.00	3.81	79.17
65.0%	35.2	0.90	75.49	0.87	75.49	5749	4.06	6.87	2.74	19810.00	3.81	79.15
70.1%	29.8	0.64	82.76	0.61	82.76	5317	4.06	6.87	2.74	19810.00	3.81	79.19
71.0%	28.5	0.34	90.64	0.33	90.64	9337	4.06	6.87	2.74	19810.00	3.81	79.20
65.6%	34.6	0.00	100.00	0.00	100.00	3285	4.06	6.87	2.74	19810.00	3.81	79.15

Moisture Content M_{Cwb}: 3.81

Moisture of Wood (wet basis): 3.81

(Btu) Initial Dry Weight Wt_{do} (kg): 3.54

(Btu) Moisture Content Dry 3.96

Dry kg : 3.54

CA: 48.73

HY: 6.87

OX: 43.9

Load Weight (kg): **3.68**

Fuel Heating	**HHV**	**LHV**		**HHV**	**LHV**
Value in kJ/kg - CV:	**19,810**	**18,329**	Btu/lb	**8522.5**	**7885.2**

21.00	**0.92**	**3.14**	**0.01**	**0.09**	**37.72**	**190.01**	**2.97**	**0.13**	**876.74**	**34.27**	**2.20**	**408.21**	**4431.06**
Mass Balance (moles/100 mole dry flue gas)				**kg Wood per 100 mole dfp**	**Moles per kg of Dry Wood**							**Stack Temp**	**Heat**
[u]	**[w]**	**[j]**	**[k]**	**Nk**	**CO_2**	**O_2**	**CO**	**HC**	**N_2**	**H_2O**	**Moisture Present**	**K**	**CO_2**
21.01	1.05	3.60	0.01	0.10	38.12	157.46	2.57	0.12	754.80	34.28	2.20	405.65	4284.26
20.99	0.83	2.84	0.01	0.08	37.42	211.02	3.26	0.14	955.33	34.25	2.20	403.82	4275.57
20.99	0.81	2.75	0.01	0.08	37.45	219.62	3.25	0.12	987.92	34.28	2.20	405.43	4289.51
21.00	0.96	3.27	0.01	0.10	37.74	177.61	2.93	0.14	829.93	34.24	2.20	408.93	4482.97
20.99	0.72	2.47	0.01	0.07	37.08	249.21	3.61	0.13	1098.74	34.27	2.20	414.43	4691.40
21.00	0.94	3.22	0.01	0.09	37.93	181.10	2.77	0.11	843.64	34.30	2.20	410.87	4523.05
21.01	1.07	3.66	0.01	0.11	38.06	153.76	2.62	0.13	740.69	34.25	2.20	405.98	4376.87
21.01	1.01	3.44	0.01	0.10	38.00	166.80	2.69	0.12	789.77	34.27	2.20	410.59	4505.38
21.00	0.89	3.05	0.01	0.09	37.77	193.49	2.92	0.11	890.05	34.29	2.20	407.21	4414.89
20.99	0.83	2.81	0.01	0.08	37.39	213.30	3.29	0.14	963.88	34.25	2.20	412.15	4593.63
21.00	0.98	3.33	0.01	0.10	37.91	173.71	2.78	0.13	815.64	34.27	2.20	405.37	4301.42
21.01	1.02	3.48	0.01	0.10	38.03	164.26	2.66	0.12	780.26	34.28	2.20	403.82	4288.70
20.99	0.84	2.86	0.01	0.08	37.45	208.78	3.23	0.13	946.94	34.25	2.20	412.43	4576.12

						SUMS					
3338.02	3246.80	3210.64	4258.28	3885.57	296.77	2172.37	8262.70	11045.11	36656.01	1476.35	21318.86
t Content Change - Ambient to Stack Temperature					Room Temp	Energy Losses (kJ/kg of Dry Fuel)					
Flue Gas Constituent						Flue Gas Constituent					
O_2	CO	N_2	CH_4	H_2O	K	CO_2	O_2	CO	N_2	CH_4	H_2O Comb
3228.53	3140.57	3105.54	4114.81	3758.53	297.84	163.31	508.35	736.12	2344.05	108.86	1636.06
3224.46	3137.22	3102.10	4101.02	3754.71	296.09	159.98	680.42	932.49	2963.53	121.22	1634.61
3232.90	3144.92	3109.82	4118.94	3763.77	297.47	160.63	710.02	928.64	3072.26	107.08	1636.43
3377.10	3284.80	3248.22	4308.23	3931.05	296.19	169.17	599.79	840.22	2695.79	127.09	1640.02
3529.56	3431.98	3393.99	4518.50	4106.83	296.71	173.94	879.61	1034.12	3729.11	112.14	1647.65
3405.09	3311.49	3274.73	4351.55	3962.82	297.25	171.56	616.67	793.11	2762.70	100.57	1643.95
3299.55	3209.95	3174.08	4201.07	3841.66	295.78	166.58	507.34	749.38	2351.01	120.11	1637.71
3391.88	3298.66	3262.04	4334.37	3947.47	297.41	171.19	565.76	770.87	2576.27	111.04	1642.31
3327.10	3236.48	3200.38	4239.99	3873.33	296.11	166.77	643.77	836.66	2848.50	102.66	1640.66
3457.63	3362.43	3325.14	4420.79	4023.74	296.79	171.75	737.51	941.59	3205.02	121.79	1643.77
3242.17	3154.01	3118.79	4129.72	3774.67	297.09	163.05	563.19	795.80	2543.82	112.61	1636.21
3234.60	3147.15	3111.90	4113.09	3766.61	295.74	163.09	531.30	761.15	2428.09	110.43	1636.17
3443.68	3348.68	3311.57	4405.61	4007.22	297.55	171.36	718.96	924.96	3135.86	120.75	1643.31

	AVERAGE	SUMS						
1368.97	6330.80	23585.52	3558.50	20027.0	49903.4	3558.5	310.5	7.6
H_2O Fuel MC	Total Loss Rate	Total Loss	Chemical Loss 1	Sensible and Latent Loss	Total Output	Chem Loss 2	Grams Produced CO	Grams Produced HC
105.03	5601.77	0.00	0	0.00	0	0	0.00	0.00
105.02	6597.28	2836.09	448	2387.74	5680	448	39.23	0.93
105.04	6720.10	1979.69	302	1677.73	3856	302	26.77	0.56
105.41	6177.48	1900.72	294	1606.25	4195	294	25.29	0.70
105.79	7682.36	2346.99	346	2000.76	3705	346	30.88	0.61
105.48	6194.03	1770.65	253	1517.94	3892	253	22.17	0.51
105.21	5637.34	1709.93	261	1448.91	4299	261	22.24	0.65
105.44	5942.88	1724.79	253	1471.57	4025	253	21.88	0.58
105.28	6344.30	1882.83	276	1607.02	3996	276	24.29	0.55
105.61	6927.04	2010.42	305	1705.18	3739	305	26.72	0.63
105.06	5919.75	1588.90	241	1347.57	3728	241	20.90	0.54
105.04	5735.27	2703.31	407	2296.68	6634	407	35.11	0.93
105.57	6820.78	1131.19	172	959.66	2154	172	15.00	0.36

Manufacturer: SBI

Model: Série 65 - Refonte

Date: 05/21/14

Run: 3

Control #:

Test Duration: 120 min

	HHV	LHV
Eff	66.40%	71.77%
Comb Eff	94.93%	94.93%
HT Eff	69.95%	75.60%
Output	23,309	kJ/h
Burn Rate	1.77	kg/h
Grams CO	310	g
Input	35,102	kJ/h
MC wet	3.81	

Note: In the "Input data", "Calc. % O_2", "Fuel Properties", and "Mass Balance" columns, [e], [d], [g], [a]. [b], [c], [h], [u], [w], [j], and [k] refer to their respective variables in Clauses 13.7.3 to 13.7.5.

Ultimate CO_2

$CO_{2\text{-ult}}$ 19.64

F_0

1.055

Overall Heating Efficiency:

Combustion Efficiency:

Heat Transfer Efficiency:

Heat Output: 22,111

Heat Input: 33,298

Burn Duration: 2.00

Burn Rate: 3.91

Stack Temp: 275.5

Averages	0.27	3.45	4.35	20.69	17.11	135.06	23.62	95.2%	71.5%
INPUT DATA				Oxygen Calculation			Input Data		Combust	Heat
Elapsed Time	Weight Remaining (kg)	% CO [e]	% CO_2 [d]	Excess Air EA	Total O_2	Calc. % O_2 [g]	Flue Gas (°C)	Room Temp (°C)	Eff %	Transfer %
0	3.68	0.27	4.00	360.0%	20.66	16.52	132.5	24.7	95.8%	74.9%
10	3.40	0.27	3.10	482.9%	20.72	17.48	130.7	22.9	94.7%	70.4%
20	3.08	0.26	3.00	502.5%	20.72	17.59	132.3	24.3	94.8%	69.7%
30	2.79	0.28	3.60	406.3%	20.68	16.94	135.8	23.0	95.2%	72.3%
40	2.44	0.26	2.67	570.4%	20.75	17.95	141.3	23.6	94.3%	64.9%
50	2.15	0.26	3.56	414.2%	20.69	17.00	137.7	24.1	95.5%	71.9%
60	1.84	0.28	4.07	351.6%	20.65	16.44	132.8	22.6	95.7%	74.8%
70	1.52	0.27	3.81	381.4%	20.67	16.73	137.4	24.3	95.6%	73.2%
80	1.24	0.26	3.36	442.6%	20.70	17.21	134.1	23.0	95.3%	71.3%
90	0.90	0.27	3.07	488.1%	20.72	17.51	139.0	23.6	94.7%	68.7%
100	0.64	0.27	3.68	397.3%	20.68	16.86	132.2	23.9	95.5%	73.5%
110	0.34	0.27	3.86	375.6%	20.67	16.67	130.7	22.6	95.6%	74.3%
120	0.00	0.27	3.13	477.7%	20.72	17.45	139.3	24.4	94.8%	69.2%

	Air Fuel Ratio (A/F)		
66.40%	Dry Molecular Weight (M_d)	29.24	
94.93%	Dry Moles Exhaust Gas (N_r):	939.63	%HC
69.95%	Air Fuel Ratio (A/F)	26.96	0.8

Combustion Efficiency:	94.93%	
Total Input (kJ):	70,204	66,585
Total Output (kJ):	46,618	44,215
Efficiency:	66.40%	
Total CO (g):	310.48	

Btu/h 23,309 kJ/h
Btu/h 35,102 kJ/h

h

lb/h 1.772 kg/h

Deg. F 135.3 Deg. C

68.0%	31.99	1.85	49.86	1.78	49.86	73489	4.06	6.87	2.74	19810.00	3.81	79.17
Net Eff %	Air Fuel Ratio	Wet Wt Now Wt	% Wet Consumed x	Dry Wt. Now Wt_{dn}	% Dry Comsumed y	Total Input	Fuel Properties: Carbon /12= [a]	Hydrogen /1= [b]	Oxygen /16= [c]	Calorific Value	Mw Moisture Fuel Burnt	[h]
71.7%	27.5	3.68	0.00	3.54	0.00	0	4.06	6.87	2.74	19810.00	3.81	79.21
66.7%	34.9	3.40	7.76	3.27	7.76	8516	4.06	6.87	2.74	19810.00	3.81	79.15
66.1%	36.0	3.08	16.50	2.96	16.50	5836	4.06	6.87	2.74	19810.00	3.81	79.15
68.8%	30.3	2.79	24.38	2.68	24.38	6095	4.06	6.87	2.74	19810.00	3.81	79.18
61.2%	40.1	2.44	33.87	2.34	33.87	6052	4.06	6.87	2.74	19810.00	3.81	79.12
68.7%	30.8	2.15	41.63	2.07	41.63	5663	4.06	6.87	2.74	19810.00	3.81	79.18
71.5%	27.0	1.84	50.00	1.77	50.00	6009	4.06	6.87	2.74	19810.00	3.81	79.21
70.0%	28.8	1.52	58.74	1.46	58.74	5749	4.06	6.87	2.74	19810.00	3.81	79.19
68.0%	32.5	1.24	66.38	1.19	66.38	5879	4.06	6.87	2.74	19810.00	3.81	79.17
65.0%	35.2	0.90	75.49	0.87	75.49	5749	4.06	6.87	2.74	19810.00	3.81	79.15
70.1%	29.8	0.64	82.76	0.61	82.76	5317	4.06	6.87	2.74	19810.00	3.81	79.19
71.0%	28.5	0.34	90.64	0.33	90.64	9337	4.06	6.87	2.74	19810.00	3.81	79.20
65.6%	34.6	0.00	100.00	0.00	100.00	3285	4.06	6.87	2.74	19810.00	3.81	79.15

Moisture Content M_{Cwb}: 3.81

Moisture of Wood (wet basis): 3.81

(Btu) Initial Dry Weight Wt_{do} (kg): 3.54

(Btu) Moisture Content Dry 3.96

Dry kg : 3.54

CA: 48.73

HY: 6.87

OX: 43.9

Load Weight (kg): **3.68**

Fuel Heating	**HHV**	**LHV**		**HHV**	**LHV**
Value in kJ/kg - CV:	**19,810**	**18,329**	Btu/lb	**8522.5**	**7885.2**

21.00	**0.92**	**3.14**	**0.01**	**0.09**	**37.72**	**190.01**	**2.97**	**0.13**	**876.74**	**34.27**	**2.20**	**408.21**	**4431.06**
Mass Balance (moles/100 mole dry flue gas)				**kg Wood per 100 mole dfp**	**Moles per kg of Dry Wood**							**Stack Temp**	**Heat**
[u]	**[w]**	**[j]**	**[k]**	**Nk**	**CO_2**	**O_2**	**CO**	**HC**	**N_2**	**H_2O**	**Moisture Present**	**K**	**CO_2**
21.01	1.05	3.60	0.01	0.10	38.12	157.46	2.57	0.12	754.80	34.28	2.20	405.65	4284.26
20.99	0.83	2.84	0.01	0.08	37.42	211.02	3.26	0.14	955.33	34.25	2.20	403.82	4275.57
20.99	0.81	2.75	0.01	0.08	37.45	219.62	3.25	0.12	987.92	34.28	2.20	405.43	4289.51
21.00	0.96	3.27	0.01	0.10	37.74	177.61	2.93	0.14	829.93	34.24	2.20	408.93	4482.97
20.99	0.72	2.47	0.01	0.07	37.08	249.21	3.61	0.13	1098.74	34.27	2.20	414.43	4691.40
21.00	0.94	3.22	0.01	0.09	37.93	181.10	2.77	0.11	843.64	34.30	2.20	410.87	4523.05
21.01	1.07	3.66	0.01	0.11	38.06	153.76	2.62	0.13	740.69	34.25	2.20	405.98	4376.87
21.01	1.01	3.44	0.01	0.10	38.00	166.80	2.69	0.12	789.77	34.27	2.20	410.59	4505.38
21.00	0.89	3.05	0.01	0.09	37.77	193.49	2.92	0.11	890.05	34.29	2.20	407.21	4414.89
20.99	0.83	2.81	0.01	0.08	37.39	213.30	3.29	0.14	963.88	34.25	2.20	412.15	4593.63
21.00	0.98	3.33	0.01	0.10	37.91	173.71	2.78	0.13	815.64	34.27	2.20	405.37	4301.42
21.01	1.02	3.48	0.01	0.10	38.03	164.26	2.66	0.12	780.26	34.28	2.20	403.82	4288.70
20.99	0.84	2.86	0.01	0.08	37.45	208.78	3.23	0.13	946.94	34.25	2.20	412.43	4576.12

						SUMS					
3338.02	3246.80	3210.64	4258.28	3885.57	296.77	2172.37	8262.70	11045.11	36656.01	1476.35	21318.86
t Content Change - Ambient to Stack Temperature					Room Temp	Energy Losses (kJ/kg of Dry Fuel)					
Flue Gas Constituent						Flue Gas Constituent					
O_2	CO	N_2	CH_4	H_2O	K	CO_2	O_2	CO	N_2	CH_4	H_2O Comb
3228.53	3140.57	3105.54	4114.81	3758.53	297.84	163.31	508.35	736.12	2344.05	108.86	1636.06
3224.46	3137.22	3102.10	4101.02	3754.71	296.09	159.98	680.42	932.49	2963.53	121.22	1634.61
3232.90	3144.92	3109.82	4118.94	3763.77	297.47	160.63	710.02	928.64	3072.26	107.08	1636.43
3377.10	3284.80	3248.22	4308.23	3931.05	296.19	169.17	599.79	840.22	2695.79	127.09	1640.02
3529.56	3431.98	3393.99	4518.50	4106.83	296.71	173.94	879.61	1034.12	3729.11	112.14	1647.65
3405.09	3311.49	3274.73	4351.55	3962.82	297.25	171.56	616.67	793.11	2762.70	100.57	1643.95
3299.55	3209.95	3174.08	4201.07	3841.66	295.78	166.58	507.34	749.38	2351.01	120.11	1637.71
3391.88	3298.66	3262.04	4334.37	3947.47	297.41	171.19	565.76	770.87	2576.27	111.04	1642.31
3327.10	3236.48	3200.38	4239.99	3873.33	296.11	166.77	643.77	836.66	2848.50	102.66	1640.66
3457.63	3362.43	3325.14	4420.79	4023.74	296.79	171.75	737.51	941.59	3205.02	121.79	1643.77
3242.17	3154.01	3118.79	4129.72	3774.67	297.09	163.05	563.19	795.80	2543.82	112.61	1636.21
3234.60	3147.15	3111.90	4113.09	3766.61	295.74	163.09	531.30	761.15	2428.09	110.43	1636.17
3443.68	3348.68	3311.57	4405.61	4007.22	297.55	171.36	718.96	924.96	3135.86	120.75	1643.31

	AVERAGE	SUMS						
1368.97	6330.80	23585.52	3558.50	20027.0	49903.4	3558.5	310.5	7.6
H_2O Fuel MC	Total Loss Rate	Total Loss	Chemical Loss 1	Sensible and Latent Loss	Total Output	Chem Loss 2	Grams Produced CO	Grams Produced HC
105.03	5601.77	0.00	0	0.00	0	0	0.00	0.00
105.02	6597.28	2836.09	448	2387.74	5680	448	39.23	0.93
105.04	6720.10	1979.69	302	1677.73	3856	302	26.77	0.56
105.41	6177.48	1900.72	294	1606.25	4195	294	25.29	0.70
105.79	7682.36	2346.99	346	2000.76	3705	346	30.88	0.61
105.48	6194.03	1770.65	253	1517.94	3892	253	22.17	0.51
105.21	5637.34	1709.93	261	1448.91	4299	261	22.24	0.65
105.44	5942.88	1724.79	253	1471.57	4025	253	21.88	0.58
105.28	6344.30	1882.83	276	1607.02	3996	276	24.29	0.55
105.61	6927.04	2010.42	305	1705.18	3739	305	26.72	0.63
105.06	5919.75	1588.90	241	1347.57	3728	241	20.90	0.54
105.04	5735.27	2703.31	407	2296.68	6634	407	35.11	0.93
105.57	6820.78	1131.19	172	959.66	2154	172	15.00	0.36

SBI Laboratories, Inc.

Manufacturer: SBI
Model: érie 65 - Refonte
Date: 05/21/14
Run: 3
Control #:
Test Duration: 120
Output Category: 3

Technicians: Vincent Pelletier

Test Results in Accordance with CSA B415.1-10

	HHV Basis	LHV Basis
Overall Efficiency	66.4%	71.8%
Combustion Efficiency	94.9%	94.9%
Heat Transfer Efficiency	70%	75.6%

Output Rate (kJ/h)	23,309	22,111	(Btu/h)
Burn Rate (kg/h)	1.77	3.91	(lb/h)
Input (kJ/h)	35,102	33,298	(Btu/h)

Test Load Weight (dry kg)	3.54	7.81	dry lb
MC wet (%)	3.81		
MC dry (%)	3.96		
Particulate (g)	0		
CO (g)	310		
Test Duration (h)	2.00		

Emissions	Particulate	CO
g/MJ Output	0.00	6.66
g/kg Dry Fuel	0.00	87.61
g/h	0.00	155.24
lb/MM Btu Output	0.00	15.48

Air/Fuel Ratio (A/F)	26.96

VERSION: 2.4 4/15/2010

Intertek

Dillution Tunnel Velocity Traverse
EPA Method 5G-3

Project Number: 0
Manufacturer: Stove Builder International, inc
Model: Euromax (Serie 65)
Sample ID Number: 0
Test Date: May 21th, 2013
Test Run Number: 3

	Dilution Tunnel		
	Delta P In. H2O	Temp,°F	Square Root
A1	0.0075	109	0.0866
A2	0.0125	109	0.1118
A3	0.0125	109	0.1118
A4	0.0100	108	0.1000
A Center	0.0125	109	0.1118
B1	0.0100	110	0.1000
B2	0.0125	111	0.1118
B3	0.0125	112	0.1118
B4	0.0125	112	0.1118
B Center	0.0125	111	0.1118
Averages	0.0115	109.95	0.1057

Tunnel Diameter	8.000	inches	
Tunnel Static	-0.098	in. H2O	
Tunnel Area	0.34907	Ft2	
Pitot Correction	0.9454	factor	
Baro. Pressure	30.03		
Pitot Factor	0.99	(0.99 for standard, 0.84 or Cal. For S-Type)	
Initial Velocity	7.294	Ft/ Sec	
Initial Flow	**136.30**	Ft3/min	

Test Engineer:_____ Date:_____

Intertek

TEST DATA
EPA METHOD 5G-3

Project Number:	G101628179
Manufacturer:	Stove Builder International
Model:	Euromax (Serie 65)
Sample ID No:	
Test Date:	May 21th, 2013
Test Run No:	3

Temperature Data

Firebox Temp Start	321.76
Firebox Temp End	324.02
Firebox Delta-T	2.3

Max Filter Temps	
Train A	Train B
84.25	84.43

Interval	10	Duration of Test, Min	120

Time		Temperature Data												
Interval	Duration	Room	Dillution Tunnel	Flue Gas	Firebox Top	Firebox Bottom	Firebox Back	Firebox Left	Firebox Right	Catalyst Outlet	Train A Filter	Train B Filter	Train A DGM	Train B DGM
0	0	76.45	109.3	270.5	396.4	144.8	376.3	369.8	321.5		75.76	75.05	75.075	74.98
1	10	73.29	109	267.2	388.4	142.7	376.9	355.3	319.7		79.38	79.11	75.295	75.2
2	20	75.77	109.8	270.1	391.9	140.7	375.6	360.2	309.7		81.76	81.28	75.595	75.485
3	30	73.47	110.3	276.4	400.1	138.4	376.9	359.3	321.6		82.6	82.43	75.845	75.71
4	40	74.4	112.2	286.3	414.8	138	395.7	390	328.6		83.21	83.14	76.095	75.94
5	50	75.38	111.6	279.9	406.2	137.8	383.4	383.9	326.2		83.71	83.61	76.35	76.205
6	60	72.73	111	271.1	389.5	135.4	386.5	367.8	313.4		83.96	83.86	76.52	76.21
7	70	75.67	111.7	279.4	404.3	133.5	381.6	369.8	333		83.97	83.88	76.69	76.425
8	80	73.32	111.3	273.3	392.1	133.1	366.7	366.7	326.1		84.02	84.03	76.865	76.565
9	90	74.55	112.3	282.2	405.4	130.9	375.6	377.3	320		84.06	84.05	77.1	76.835
10	100	75.1	111.1	270	383.4	130.1	356.6	354.7	306.7		84.21	84.43	77.285	77.025
11	110	72.67	110.5	267.2	378.2	128	363.6	357.1	307.7		84.25	83.94	77.375	77.19
12	120	75.92	113.3	282.7	407.4	127.5	385.6	378.7	320.9		84.23	84.4	77.495	77.205

Test Engineer:_____ Date:_____

Intertek

TEST DATA
EPA METHOD 5G-3

Gas Particulate Sampling Data

Project Number:	G101628179
Manufacturer:	Stove Builder International, i
Model:	Eurcmax (Serie 65)
Sample ID Number:	0
Test Date:	May 21th, 2013
Test Run Number:	3

Barometer, In. Hg		RH, %	Sample Box Correction (γ) Factors	
Start	30.03	74	Meter Box (A)	0.999
End	30.03	60	Meter Box (B)	0.996
Duration of Test, Min		120		

Leak Check, cfm @ in Hg	
Train A	Train B
0,004@5	0,003@5

Maximum Vacuum		Average Gases, %		
Train A	Train B	O2	CO2	CO
0.00	0.00	17.173	3.455	0.268

	Particulate Sampling Data												Combustion Gasses, %		
Time	Tunnel Delta-P	Train A Delta-H	Train B Delta-H	Flue Draft	Fuel Weight	Weight Loss	Train A Volume	Train B Volume	Train A Proportional Rate	Train B Proportional Rate	Train A Vacuum, In. Hg	Train B Vacuum, In. Hg	O2	CO2	CO
0	0.013	0.00	0.00	0.020	8.12	8.12	830.987	544.715	100.01	100.01	0.00	0.00	17.44	4	0.27
10	0.013	0.00	0.00	0.020	7.49	0.63	832.625	546.215	101.72	100.16	0.00	0.00	16.88	3.1	0.27
20	0.013	0.00	0.00	0.020	6.78	0.71	834.231	547.686	99.74	98.24	0.00	0.00	17.37	3	0.26
30	0.013	0.00	0.00	0.020	6.14	0.64	835.827	549.168	99.12	98.97	0.00	0.00	16.82	3.6	0.28
40	0.013	0.00	0.00	0.020	5.37	0.77	837.440	550.672	100.29	100.57	0.00	0.00	17.09	2.67	0.26
50	0.013	0.00	0.00	0.020	4.74	0.63	839.060	552.172	100.63	100.20	0.00	0.00	17.63	3.56	0.26
60	0.013	0.00	0.00	0.020	4.06	0.68	840.673	553.688	100.11	101.21	0.00	0.00	16.6	4.07	0.28
70	0.013	0.00	0.00	0.020	3.35	0.71	842.272	555.149	99.27	97.56	0.00	0.00	17.54	3.81	0.27
80	0.013	0.00	0.00	0.020	2.73	0.62	843.901	556.641	101.06	99.57	0.00	0.00	16.53	3.36	0.26
90	0.013	0.00	0.00	0.020	1.99	0.74	845.521	558.128	100.55	99.27	0.00	0.00	17.04	3.07	0.27
100	0.013	0.00	0.00	0.020	1.40	0.59	847.125	559.716	99.42	105.87	0.00	0.00	17.33	3.68	0.27
110	0.013	0.00	0.00	0.020	0.76	0.64	848.725	561.114	99.10	93.12	0.00	0.00	17.46	3.86	0.27
120	0.013	0.00	0.00	0.020	0.00	0.76	850.322	562.693	99.14	105.43	0.00	0.00	17.52	3.13	0.27

Test Engineer:_____

Date:_____

INTERTEK TESTING SERVICES NA Ltd.

SFBA EPA ADJUSTED EMISSION RESULTS

Manufacturer:	SBI
Model:	Euromax (Scric 65)
Date:	21-05-2014
Run:	4
Project #:	0
Test Duration: (minutes)	120

RESULTS

AVERAGE ADJUSTED EMISSION RATE: 2.647

Burn Rate (Dry kg/hr): 2.827

PRESSURE FACTOR: 1.00368

TEMPERATURE FACTORS

DGM #1:	0.97948
DGM #2:	0.98006

VOLUMES SAMPLED

DGM #1:	19.29330
DGM #2:	17.91147

TOTAL TUNNEL VOLUME (scf): 15820.998

SAMPLE RATIOS

Sample Train 1:	820.025
Sample Train 2:	883.289

TOTAL EMISSIONS

Sample Train 1 (g):	3.2801
Sample Train 2 (g):	3.0032

EMISSION RATES

Sample Train 1 (g/hr):	1.6401
Sample Train 2 (g/hr):	1.5016

ADJUSTED EMISSION RATES

Sample Train 1 (g/hr):	2.7441
Sample Train 2 (g/hr):	2.5504

DEVIATION: 3.66%

BAROMETRIC PRESSURE

Average:	30.03
Start:	30.03
End:	30.03

DRY GAS METER VALUES

DGM #1	Final:	869.980
	Initial:	850.335
DGM #2	Final:	580.986
	Initial:	562.704

TEMPERATURES (DEG. RANKIN)

DGM #1:	539.062
DGM #2:	538.740

CALIBRATION FACTORS

DGM #1:	0.9990
DGM #2:	0.9960

TUNNEL FLOW RATE: 131.842

PARTICULATE CATCH (mg)

Sample Train 1:	4.0000
Sample Train 2:	3.4000

SBI Laboratories, Inc.

Manufacturer: SBI
Model: iérie 65 - Refonte
Date: 05/21/14
Run: 4
Control #:
Test Duration: 120
Output Category: 4

Technicians: Vincent Pelletier

Test Results in Accordance with CSA B415.1-10

	HHV Basis	LHV Basis
Overall Efficiency	69.0%	74.5%
Combustion Efficiency	96.3%	96.3%
Heat Transfer Efficiency	72%	77.4%

Output Rate (kJ/h)	38,643	36,657	(Btu/h)
Burn Rate (kg/h)	2.83	6.23	(lb/h)
Input (kJ/h)	56,024	53,145	(Btu/h)

Test Load Weight (dry kg)	5.66	12.47	dry lb
MC wet (%)	3.81		
MC dry (%)	3.96		
Particulate (g)	0		
CO (g)	341		
Test Duration (h)	2.00		

Emissions	Particulate	CO
g/MJ Output	0.00	4.41
g/kg Dry Fuel	0.00	60.27
g/h	0.00	170.44
lb/MM Btu Output	0.00	10.25

Air/Fuel Ratio (A/F)	18.61

VERSION: 2.4 4/15/2010

Manufacturer: SBI

Model: Série 65 - Refonte

Date: 05/21/14

Run: 4

Control #:

Test Duration: 120 min

	HHV	LHV
Eff	68.97%	74.55%
Comb Eff	96.32%	96.32%
HT Eff	71.61%	77.40%
Output	38,643	kJ/h
Burn Rate	2.83	kg/h
Grams CO	341	g
Input	56,024	kJ/h
MC wet	3.81	

Note: In the "Input data", "Calc. % O_2", "Fuel Properties", and "Mass Balance" columns, [e], [d], [g], [a]. [b], [c], [h], [u], [w], [j], and [k] refer to their respective variables in Clauses 13.7.3 to 13.7.5.

Ultimate CO_2

$CO_{2\text{-ult}}$ 19.64

F_0

1.059

Averages	0.29	5.46	2.46	20.56	14.95	182.76	23.33	
INPUT DATA				Oxygen Calculation			Input Data	
Elapsed Time	Weight Remaining (kg)	% CO [e]	% CO_2 [d]	Excess Air EA	Total O_2	Calc. % O_2 [g]	Flue Gas (°C)	Room Temp (°C)
0	5.88	0.28	4.81	285.9%	20.60	15.65	181.3	23.2
10	5.39	0.28	5.46	242.2%	20.56	14.96	182.2	24.3
20	4.87	0.30	5.20	257.1%	20.58	15.23	184.9	23.9
30	4.39	0.30	4.73	290.5%	20.61	15.73	184.5	22.9
40	3.93	0.30	5.06	266.5%	20.59	15.38	180.8	23.2
50	3.44	0.29	5.36	247.7%	20.57	15.06	184.2	22.7
60	2.94	0.30	5.93	215.3%	20.53	14.45	185.2	23.5
70	2.48	0.29	6.92	172.4%	20.46	13.40	179.7	23.0
80	1.98	0.28	4.39	320.6%	20.63	16.10	180.7	24.0
90	1.48	0.29	6.70	181.0%	20.48	13.63	183.9	23.7
100	1.00	0.29	5.74	225.8%	20.54	14.66	182.5	23.3
110	0.53	0.28	5.26	254.6%	20.57	15.17	181.4	22.8
120	0.00	0.28	5.43	244.0%	20.56	14.99	184.4	22.8

		Air Fuel Ratio (A/F)		
verall Heating Efficiency:	68.97%	Dry Molecular Weight (M_d)	29.47	
Combustion Efficiency:	96.32%	Dry Moles Exhaust Gas (N_r):	648.85	%HC
Heat Transfer Efficiency:	71.61%	Air Fuel Ratio (A/F)	18.61	0.8

Heat Output:	36,657	Btu/h	38,643	kJ/h
Heat Input:	53,145	Btu/h	56,024	kJ/h
Burn Duration:	2.00	h		
Burn Rate:	6.23	lb/h	2.828	kg/h
Stack Temp:	361.2	Deg. F	182.9	Deg. C

96.5%	72.7%	70.2%	20.76	2.95	49.89	2.83	49.89	117107	4.06	6.87
Combust Eff %	Heat Transfer %	Net Eff %	Air Fuel Ratio	Wet Wt Now Wt	% Wet Consumed x	Dry Wt. Now Wt_{dn}	% Dry Comsumed y	Total Input	Carbon /12= [a]	Hydrogen /1= [b]
										Fuel I
96.2%	70.8%	68.2%	23.1	5.88	0.00	5.66	0.00	0	4.06	6.87
96.6%	73.2%	70.7%	20.5	5.39	8.33	5.18	8.33	14309	4.06	6.87
96.2%	71.9%	69.2%	21.4	4.87	17.21	4.68	17.21	9554	4.06	6.87
95.9%	70.0%	67.2%	23.4	4.39	25.39	4.22	25.39	8948	4.06	6.87
96.1%	71.9%	69.1%	21.9	3.93	33.18	3.78	33.18	9035	4.06	6.87
96.4%	72.4%	69.8%	20.8	3.44	41.51	3.31	41.51	9424	4.06	6.87
96.6%	74.1%	71.6%	18.9	2.94	50.00	2.83	50.00	9164	4.06	6.87
97.1%	76.9%	74.7%	16.4	2.48	57.87	2.38	57.87	9121	4.06	6.87
95.9%	69.2%	66.4%	25.2	1.98	66.28	1.91	66.28	9467	4.06	6.87
97.1%	76.1%	73.8%	16.9	1.48	74.77	1.43	74.77	9381	4.06	6.87
96.6%	73.8%	71.4%	19.5	1.00	83.02	0.96	83.02	9078	4.06	6.87
96.5%	72.4%	69.9%	21.2	0.53	90.97	0.51	90.97	14568	4.06	6.87
96.6%	72.6%	70.2%	20.6	0.00	100.00	0.00	100.00	5058	4.06	6.87

Moi

Combustion Efficiency:	96.32%		
Total Input (kJ):	112,049	106,273	(Btu)
Total Output (kJ):	77,285	73,301	(Btu)
Efficiency:	68.97%		
Total CO (g):	340.88		

Moisture of Wood (wet basis):	3.81
Initial Dry Weight Wt_{do} (kg):	5.66
Moisture Content Dry	3.96

Load Weight (kg): **5.88**

Fuel Heating Value in kJ/kg - CV:	**HHV**	**LHV**		**HHV**	**LHV**
	19,810	**18,329**	Btu/lb	**8522.5**	**7885.2**

2.74	**19810.00**	**3.81**	**79.30**	**21.03**	**1.42**	**4.84**	**0.02**	**0.14**	**38.61**	**107.91**	**2.07**
Properties		**Mw**	**Mass Balance**					**kg Wood per**			
Oxygen	**Calorific**	**Moisture**	**(moles/100 mole dry flue gas)**					**100 mole dfp**	**Moles per kg**		
/16= [c]	**Value**	**Fuel Burnt**	**[h]**	**[u]**	**[w]**	**[j]**	**[k]**	**Nk**	**CO_2**	**O_2**	**CO**
2.74	19810.00	3.81	79.26	21.02	1.26	4.29	0.02	0.13	38.45	125.13	2.24
2.74	19810.00	3.81	79.30	21.03	1.42	4.84	0.02	0.14	38.71	106.07	1.99
2.74	19810.00	3.81	79.27	21.03	1.36	4.63	0.02	0.14	38.45	112.60	2.22
2.74	19810.00	3.81	79.24	21.02	1.24	4.23	0.02	0.12	38.24	127.15	2.43
2.74	19810.00	3.81	79.26	21.02	1.32	4.51	0.02	0.13	38.39	116.66	2.28
2.74	19810.00	3.81	79.29	21.03	1.40	4.76	0.02	0.14	38.59	108.45	2.09
2.74	19810.00	3.81	79.32	21.04	1.54	5.25	0.02	0.15	38.72	94.34	1.96
2.74	19810.00	3.81	79.39	21.06	1.78	6.07	0.02	0.18	39.06	75.63	1.64
2.74	19810.00	3.81	79.23	21.02	1.15	3.93	0.01	0.11	38.24	140.27	2.44
2.74	19810.00	3.81	79.38	21.05	1.73	5.89	0.02	0.17	39.01	79.37	1.69
2.74	19810.00	3.81	79.31	21.04	1.49	5.08	0.02	0.15	38.73	98.89	1.96
2.74	19810.00	3.81	79.29	21.03	1.37	4.67	0.02	0.14	38.64	111.46	2.06
2.74	19810.00	3.81	79.30	21.03	1.41	4.81	0.02	0.14	38.70	106.85	2.00

isture Content M_{Cwb}: 3.81

Dry kg : 5.66
CA: 48.73
HY: 6.87
OX: 43.9

0.13	568.91	34.27	2.20	455.91	6449.11	4809.79	4666.44	4616.97	6303.80	5580.74	296.48
g of Dry Wood			Moisture	Stack Temp	Heat Content Change - Ambient to Stack Temperature Flue Gas Constituent						Room Temp
HC	N_2	H_2O	Present	K	CO_2	O_2	CO	N_2	CH_4	H_2O	K
0.12	633.54	34.27	2.20	454.48	6391.17	4768.11	4626.39	4577.26	6243.81	5532.95	296.39
0.12	562.19	34.29	2.20	455.37	6387.83	4763.65	4621.57	4572.60	6244.85	5527.04	297.48
0.14	586.19	34.24	2.20	458.09	6521.26	4860.84	4715.28	4665.44	6380.37	5638.93	297.03
0.15	640.61	34.22	2.20	457.65	6539.95	4876.23	4730.57	4680.49	6395.45	5657.33	296.04
0.14	601.40	34.23	2.20	453.98	6370.67	4753.33	4612.17	4563.17	6222.64	5516.00	296.37
0.13	570.91	34.26	2.20	457.32	6531.61	4870.51	4725.15	4675.10	6386.20	5650.88	295.89
0.13	517.93	34.26	2.20	458.37	6548.42	4881.20	4735.07	4685.01	6406.66	5662.60	296.63
0.12	448.11	34.29	2.20	452.87	6333.19	4726.73	4586.70	4537.90	6183.06	5485.64	296.11
0.13	690.19	34.26	2.20	453.87	6336.25	4726.99	4586.45	4537.76	6190.47	5485.19	297.15
0.12	462.11	34.29	2.20	457.09	6487.14	4836.65	4692.12	4642.46	6344.27	5611.33	296.81
0.13	535.15	34.27	2.20	455.65	6439.34	4802.83	4659.77	4610.35	6293.53	5572.78	296.44
0.12	582.36	34.28	2.20	454.59	6412.44	4784.30	4642.18	4592.87	6263.88	5551.86	295.96
0.12	565.13	34.28	2.20	457.54	6539.21	4875.90	4730.31	4680.22	6394.25	5657.04	295.94

SUMS							AVERAGE	
3236.96	6746.09	7756.13	34141.21	1500.11	22071.79	1417.46	5913.06	34763.75
Energy Losses (kJ/kg of Dry Fuel)								
Flue Gas Constituent							Total Loss Rate	Total Loss
CO_2	O_2	CO	N_2	CH_4	H_2O Comb	H_2O Fuel MC		
245.74	596.64	643.64	2899.89	112.00	1696.57	108.93	6303.40	0.00
247.26	505.26	570.93	2570.67	106.41	1696.98	108.92	5806.44	4193.98
250.75	547.31	638.24	2734.84	127.50	1698.49	109.16	6106.30	2944.82
250.08	620.00	697.80	2998.36	133.55	1698.45	109.20	6507.44	2939.47
244.58	554.54	654.65	2744.31	129.17	1694.09	108.89	6130.24	2795.84
252.08	528.22	600.79	2669.06	116.46	1700.12	109.19	5975.92	2842.82
253.55	460.50	563.61	2426.49	119.92	1700.14	109.22	5633.43	2606.14
247.37	357.47	470.72	2033.47	104.81	1695.74	108.83	5018.40	2310.66
242.32	663.05	701.47	3131.94	116.42	1694.44	108.83	6658.46	3182.05
253.04	383.89	485.70	2145.33	106.15	1699.90	109.10	5183.10	2454.36
249.39	474.97	562.86	2467.23	113.06	1697.82	109.02	5674.35	2600.30
247.75	533.24	591.56	2674.72	108.00	1697.66	108.97	5961.89	4384.32
253.05	520.99	574.14	2644.91	106.66	1701.41	109.20	5910.38	1509.00

SUMS					
4121.51	**30642.2**	**82343.0**	**4121.5**	**340.9**	**12.2**

Chemical Loss 1	Sensible and Latent Loss	Total Output	Chem Loss 2	Grams Produced	
				CO	HC
0	0.00	0	0	0.00	0.00
482	3711.89	10115	482	40.15	1.37
364	2581.01	6609	364	29.96	1.10
370	2569.55	6009	370	30.67	1.08
352	2443.56	6239	352	29.07	1.05
336	2506.70	6581	336	27.81	0.99
312	2294.61	6558	312	25.37	0.99
261	2049.45	6811	261	21.10	0.86
385	2796.91	6285	385	32.64	0.99
276	2178.21	6926	276	22.39	0.90
305	2295.10	6478	305	25.11	0.92
507	3877.45	10184	507	42.35	1.42
171	1337.79	3549	171	14.27	0.49

VERSION: 2.4 4/15/2010

Manufacturer: SBI
Model: Série 65 - Refonte
Date: 5/21/2014
Run: 4
Control #:
Test Duration: 120
Output Category: 4

Appliance Type: Pellet (Cat, Non-Cat, Pellet)

Temp. Units f (F or C)
Weight Units lb (kg or lb)

Wood Moisture (% wet): 3.81
Load Weight (lb wet): 12.96
Burn Rate (dry kg/h): 2.83
Total Particulate Emissions: g

Fuel Data

	D.Fir	
HHV	19,810	kJ/kg
%C	48.73	
%H	6.87	
%O	43.9	
%Ash	0.5	

Default Fuel Values

	D. Fir	Oak
HHV (kJ/kg)	19,810	19,887
%C	48.73	50
%H	6.87	6.6
%O	43.9	42.9
%Ash	0.5	0.5

Note 1: For other fuels, use the heating value and fuel composition determined by analysis of fuel sample in accordance with Clause 9.2.

Note 2: In cases where the "Fuel Weight Remaining" is the same for three or more readings in a row, a "divide by zero error" will occur in the calculation sheet. In such cases, adjust the weight values by interpolation between the first occurence and the next reading showing a decrease in weight.

	Averages	0.29	5.46	15.16	360.98	74.00
					Temp. (°f)	
Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Flue Gas	Room Temp
0	12.96	0.28	4.81	15.46	358.4	73.8
10	11.88	0.28	5.46	15.30	360.0	75.8
20	10.73	0.30	5.20	15.40	364.9	75.0
30	9.67	0.30	4.73	16.13	364.1	73.2
40	8.66	0.30	5.06	15.77	357.5	73.8
50	7.58	0.29	5.36	14.55	363.5	72.9
60	6.48	0.30	5.93	14.77	365.4	74.3
70	5.46	0.29	6.92	14.11	355.5	73.3
80	4.37	0.28	4.39	15.63	357.3	75.2
90	3.27	0.29	6.70	14.16	363.1	74.6
100	2.20	0.29	5.74	15.03	360.5	73.9
110	1.17	0.28	5.26	15.52	358.6	73.1
120	0.00	0.28	5.43	15.20	363.9	73.0

Dillution Tunnel Velocity Traverse
EPA Method 5G-3

Projec: Number: 0
Manufacturer: Stove Builder International, inc
Model: Euromax (Serie 65)
Sample ID Number: 0
Test Date: May 21th, 2013
Test Run Number: 4

	Dilution Tunnel		
	Delta P In. H2O	Temp,°F	Square Root
A1	0.0075	130	0.0866
A2	0.0125	130	0.1118
A3	0.0125	130	0.1118
A4	0.0100	130	0.1000
A Center	0.0125	132	0.1118
B1	0.0100	130	0.1000
B2	0.0125	130	0.1118
B3	0.0125	131	0.1118
B4	0.0100	130	0.1000
B Center	0.0125	131	0.1118
Averages	0.01125	130.38	0.1042

Tunnel Diameter	8.000	inches
Tunnel Static	-0.098	in. H2O
Tunnel Area	0.34907	Ft2
Pitot Correction	0.9322	factor
Baro. Pressure	30.03	
Pitot Factor	0.99	(0.99 for standard, 0.84 or Cal. For S-Type)
Initial Velocity	7.320	Ft/ Sec
Initial Flow	**132.05**	Ft3/min

Test Engineer:_____ Date:_____

Intertek

TEST DATA
EPA METHOD 5G-3

Project Number:	G101628179
Manufacturer:	Stove Builder International
Model:	Euromax (Serie 65)
Sample ID No:	
Test Date:	May 21th, 2013
Test Run No:	4

Temperature Data

Firebox Temp Start	421.02
Firebox Temp End	434.06
Firebox Delta-T	**13.0**

Max Filter Temps	
Train A	Train B
89.14	88.95

Interval	10	Duration of Test, Min	**120**

Time		Temperature Data												
Interval	Duration	Room	Dillution Tunnel	Flue Gas	Firebox Top	Firebox Bottom	Firebox Back	Firebox Left	Firebox Right	Catalyst Outlet	Train A Filter	Train B Filter	Train A DGM	Train B DGM
0	**0**	73.84	132.1	358.4	561.9	170.2	441.2	492.3	439.5		77.93	76.61	78.075	77.95
1	**10**	75.79	132.1	360	562.9	169.5	452.5	515.8	438.1		83.65	83.32	78.285	78.07
2	**20**	74.99	132.6	364.9	578.5	169.7	448.2	523.4	444.4		87.24	86.54	78.525	78.355
3	**30**	73.21	132.5	364.1	571.2	170	455.5	520.2	440.3		89.14	88.95	78.705	78.54
4	**40**	73.8	131.4	357.5	553.9	166.6	443.5	511.5	424		83.81	86.14	78.76	78.43
5	**50**	72.93	132	363.5	569.7	167	443.2	516.5	441.6		82.1	83.81	78.9	78.515
6	**60**	74.27	132.4	365.4	581.3	168.9	449.8	519.9	452.3		82.09	83.55	79.07	78.665
7	**70**	73.33	132.3	355.5	554	167.1	435.3	489.7	432.9		82.04	83.86	79.235	78.795
8	**80**	75.2	132.4	357.3	552.3	166.6	435.5	491	437		82.07	83.73	79.37	78.92
9	**90**	74.58	132.1	363.1	572.9	168.7	445.4	513.9	453.6		82.26	83.81	79.535	79.085
10	**100**	73.92	132.3	360.5	558.7	169.2	436.1	498.7	454.7		82.38	83.88	79.66	79.38
11	**110**	73.06	132.4	358.6	557.3	169	441.3	494.7	450.9		82.41	83.92	79.785	79.43
12	**120**	73.02	132.2	363.9	575.2	167.9	446	520.7	460.5		82.4	83.95	79.9	79.49

Test Engineer:_____ Date:_____

Intertek

TEST DATA
EPA METHOD 5G-3

Gas Particulate Sampling Data

Project Number:	G101628179
Manufacturer:	Stove Builder International, i
Model:	Eurcmax (Serie 65)
Sample ID Number:	0
Test Date:	May 21th, 2013
Test Run Number:	4

Barometer, In. Hg		RH, %	Sample Box Correction (γ) Factors	
Start	30.03	74	Meter Box (A)	0.999
End	30.03	60	Meter Box (B)	0.996
Duration of Test, Min		120		

Leak Check, cfm @ in Hg	
Train A	Train B
0,000@5	0,003@5

Maximum Vacuum		Average Gases, %		
Train A	Train B	O2	CO2	CO
0.00	0.00	15.156	5.461	0.289

	Particulate Sampling Data												Combustion Gasses, %		
Time	Tunnel Delta-P	Train A Delta-H	Train B Delta-H	Flue Draft	Fuel Weight	Weight Loss	Train A Volume	Train B Volume	Train A Proportional Rate	Train B Proportional Rate	Train A Vacuum, In. Hg	Train B Vacuum, In. Hg	O2	CO2	CO
0	0.013	0.00	0.00	0.023	12.96	12.96	850.335	562.704	100.00	100.00	0.00	0.00	15.46	4.81	0.28
10	0.013	0.00	0.00	0.023	11.88	1.08	851.965	564.136	99.72	94.11	0.00	0.00	15.3	5.46	0.28
20	0.013	0.00	0.00	0.023	10.73	1.15	853.547	565.602	96.78	96.34	0.00	0.00	15.4	5.2	0.3
30	0.013	0.00	0.00	0.023	9.67	1.06	855.223	567.197	102.48	104.77	0.00	0.00	16.13	4.73	0.3
40	0.013	0.00	0.00	0.023	8.66	1.01	856.896	568.732	102.20	100.76	0.00	0.00	15.77	5.06	0.3
50	0.013	0.00	0.00	0.023	7.58	1.08	858.564	570.263	101.92	100.53	0.00	0.00	14.55	5.36	0.29
60	0.013	0.00	0.00	0.023	6.48	1.10	860.221	571.803	101.25	101.13	0.00	0.00	14.77	5.93	0.3
70	0.013	0.00	0.00	0.023	5.46	1.02	861.866	573.367	100.47	102.67	0.00	0.00	14.11	6.92	0.29
80	0.013	0.00	0.00	0.023	4.37	1.09	863.508	574.913	100.27	101.47	0.00	0.00	15.63	4.39	0.28
90	0.013	0.00	0.00	0.023	3.27	1.10	865.140	576.450	99.61	100.82	0.00	0.00	14.16	6.7	0.29
100	0.013	0.00	0.00	0.023	2.20	1.07	866.757	577.970	98.69	99.67	0.00	0.00	15.03	5.74	0.29
110	0.013	0.00	0.00	0.023	1.17	1.03	868.374	579.479	98.67	98.95	0.00	0.00	15.52	5.26	0.28
120	0.013	0.00	0.00	0.023	0.00	1.17	869.980	580.986	97.96	98.79	0.00	0.00	15.2	5.43	0.28

Test Engineer:_____ Date:_____