



TEST REPORT

SCOPE: EMISSIONS, EFFICIENCY AND OUTPUT

FUEL: EPA TEST FUEL (CRIBS)

TEST STANDARD: EPA

MODEL: SOLUTION 1.6 WOOD STOVE

Notice to reader: Our Solution 1.6 wood stove was tested as part of our 1.6 Series (XTD 1.1) firebox. Therefore, the 1.6 Series (XTD 1.1) is referenced throughout the attached test report.

TEST REPORT

Intertek

REPORT NUMBER: 100527551PRT-001

REPORT DATE: February 28, 2012

EVALUATION CENTER
Intertek Testing Services NA Inc.
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Fairview, OR 97024

RENDERED TO

Stove Builder International, Inc
250, rue de Copenhague
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Québec (Canada), G3A 2H3

PRODUCT EVALUATED:
Series 1.6 SOLID FUEL ROOM HEATERS

Report of Testing Model XTD 1.1 which represents the 1.6 Series Wood Fuel Room Heater 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's International (SBI) on model line Series 1.6 with the model XTD 1.1 Solid Fuel Room Heater, 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 testing was conducted to determine if the unit is in accordance with U.S EPA requirements under 40 CFR 60 SUBPART AAA, NSPS for Residential Wood Heaters. This evaluation was conducted from October 17-24, 2011.

I.B LABORATORY

The testing on the XTD 1.1 Solid Fuel Room Heater was conducted at the client's facility located in St-Augustine-de-Desmaures, Quebec under Intertek's mobile-testing accreditation by the U.S. EPA, Certificate Number 8. The elevation of SBI's laboratory is 190 feet above sea level. The testing was conducted by Intertek engineers Ken Morgan and Florin Anghel.

I.C DESCRIPTION OF UNIT

The model XTD 1.1 Solid Fuel Room Heater is constructed of carbon steel. The outer dimensions are 22.25 -inches deep, 27.50 -inches high and 23.50 -inches wide. The unit has a door located on the front with a viewing glass for loading the fuel. The XTD 1.1 represents the basic design features found in all of the 1.6 Series Wood Stoves.
(See product drawings.)

Proprietary drawings and manufacturing methods are on file at Intertek's Portland Oregon facility.

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. SUMMARIZATION

II.A PRETEST INFORMATION

A sample was submitted to Intertek directly from the client. The sample was not independently selected for testing. The unit was inspected on October 17, 2011 immediately prior to the commencement of testing and found to be in good condition. The unit was set up by the manufacturer.

The unit was placed on the test stand and instrumented with thermocouples in the specified locations. Prior to beginning the emissions tests 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 on 25 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 dimensional Douglas fir lumber.

Following the pre-burn break-in process, the unit's chimney system and laboratory dilution tunnels were cleaned using standard wire brush chimney cleaning equipment. Cleaning of the dilution tunnel and chimney were conducted by the manufacture on October 13, 2011 and documented with photographs. Visual inspection was performed by Intertek staff on October 17, 2011.

II.B INFORMATION LOG

TEST STANDARD

From October 17, 2011 to October 24, 2011, 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 October 18, 2011. Air control set at full closed position (fixed 0.469 in. diameter hole in shutter), burn time was 280 minutes with a category 2 burn rate of 0.90 kg/hr. The door open for 90 seconds, and then closed. The air control was open for 5 minutes, and then fully closed. The fan was off for the first 30 minutes, and then turned on low for the duration thereafter.

RUN #2 October 19, 2011. Air control set at 3/16" from full closed position. Burn time was 210 minutes with a category 2 burn rate of 1.19 kg/hr. The door open for 90 seconds, and then closed. The air control was open for 5 minutes, and then set with a 3/16 drill gauge from fully closed. The fan was off for the first 30 minutes, and then turned on low for the duration thereafter.

RUN #3 October 20, 2011. Air control set at 3/4" from full closed position. Burn time was 160 minutes with a category 3 burn rate of 1.56 kg/hr. The door open for 75 seconds, and then closed. The air control was open for 5 minutes, and then set with a 3/4" drill gauge from fully closed. The fan was off for the first 30 minutes, and then turned on low for the duration thereafter.

RUN #4 October 21, 2011. Air control set to fully open position. Burn time was 130 minutes with a category 4 burn rate of 1.93 kg/hr. The door open for 90 seconds, and then closed. The air control was fully open for the duration of the test. The fan was off for the first 30 minutes, and then turned on low for the duration thereafter.

RUN #5 October 24, 2011. Air control set at full closed position (fixed 0.469 in. diameter hole in shutter), burn time was 260 minutes with a category 2 burn rate of 0.95 kg/hr. The door open for 90 seconds, and then closed. The air control was open for 5 minutes, and then fully closed. The fan was off for the duration of the test (fan confirmation test).

II.D SUMMARY OF OTHER DATA

EMISSIONS

Run Number	Test Date	Burn Rate (kg/hr)	Emission Rate (g/hr)	Adjusted Emission Rate (g/hr)	Heating Efficiency (% HHV)	Heating Efficiency (% LHV)
1	10-18-11	0.90	3.37	4.99	**	**
2	10-19-11	1.19	2.91	4.42	67.2	72.7
3	10-20-11	1.56	1.00	1.82	66.4	71.7
4	10-21-11	1.93	2.88	4.38	69.7	75.3
*5	10-24-11	0.95	3.73	5.42	63.9	69.0

* Run 5 was conducted as a fan-confirmation test and is therefore not included in the weighted average.

** Flue gas concentrations were not recorded for Run 1

WEIGHTED AVERAGE CALCULATION

Test No.	Burn Rate	(E) Average Emission Rate g/hr	Heat Output (Btu/hr)	Probability	(K) Weighting Factor	(KxE)
1	0.90	4.99	10852.38	0.3000	0.5380	2.6846
2	1.19	4.42	14349.26	0.5380	0.4832	2.1357
3	1.56	1.82	18810.79	0.7832	0.3636	0.6618
4	1.93	4.38	23272.33	0.9016	0.2168	0.9496
Totals:					1.6016	6.4317
Weighted average emission rate:						4.0158

TEST FACILITY CONDITIONS

Run	Room Temp. °F before	Room Temp °F after	Baro. Pres. In. Hg before	Baro. Pres. In. Hg after	R.H. % before	R.H. % after	Air Vel. Ft/min before	Air Vel. Ft/min after
1	79	82	29.69	29.74	49.0	49.0	<50	<50
2	80	78	30.11	30.07	33.7	32.0	<50	<50
3	83	85	29.72	29.60	49.0	49.0	<50	<50
4	83	85	29.65	26.67	38.0	39.0	<50	<50
5	85	84	30.08	29.92	30.0	34.0	<50	<50

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

Run No.	Burn Time (min)	Velocity (ft/sec)	Volumetric Flow Rate (dscf/min)	Total Temp. (°R)	Volume Sample		Particulate Catch (mg)	
					1	2	1	2
1	280	7.36437	141.77	547.453	29.965	30.036	11.6	12.2
2	210	7.96986	153.24	555.060	22.456	23.326	7.2	7.3
3	160	7.32338	133.39	577.548	17.019	17.489	2.2	2.1
4	130	8.16901	142.39	603.529	13.238	13.447	4.6	4.4
5	260	7.43603	142.53	555.106	26.638	26.386	11.6	11.5

DILUTION TUNNEL DUAL TRAIN PRECISION

Run No.	Sample Ratios		Total Emissions (g)		% Deviation	% Deviation of 7.5% of 7.5 grams*
	Train 1	Train 2	Train 1	Train 2		
1	1324.8	1321.6	15.37	16.12	1.99	2.65
2	1433.0	1379.6	10.32	10.07	1.00	1.18
3	1254.0	1220.4	2.76	2.56	3.06	1.48
4	1398.3	1376.5	6.43	6.06	2.49	2.91
5	1391.2	1404.5	16.14	16.15	0.03	0.05

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

GENERAL SUMMARY OF RESULTS

Run No.	Burn Rate (kg/hr)	Change In Surface Temp (°F)	Initial Draft (in/H ₂ O)	Run Time (min)	Average Draft (in/H ₂ O)
1	0.90	-86.32	-.035	280	-.041
2	1.19	-42.44	-.045	210	-.048
3	1.56	-53.36	-.035	160	-.064
4	1.93	-79.50	-.035	130	-.068
5	0.95	-93.68	-.055	260	-.051

III. PROCESS DESCRIPTION

III.A TEST SET-UP DESCRIPTION

A standard 6" diameter single wall pipe and insulated chimney system was installed to 15' above floor level. The unit controls were set to the lowest setting during the test.

III.B AIR SUPPLY SYSTEM

Combustion air enters at front of the firebox through an opening at the bottom of the firebox. This air is controlled by a sliding damper, which covers the inlet hole. The lever is located under the ash lip. All gases exit through the 6" flue

IV. SAMPLING SYSTEMS

IV.A. SAMPLING LOCATIONS

Particulate samples are collected from the dilution tunnel at a point 20 feet from the tunnel entrance. The tunnel has two elbows and two mixing baffles in the system ahead of the sampling section. (See Figure 3.) The sampling section is a continuous 13 foot section of 6 inch diameter pipe straight over its entire length. Tunnel velocity pressure is determined by a standard Pitot tube located 60 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 60 inches downstream of the Pitot tube and 36 inches upstream from the end of this section. (See Figure 1.)

Stack gas samples are collected from the steel chimney section 8 feet \pm 6 inches above the scale platform. (See Figure 2.)

IV.A.(1) DILUTION TUNNEL

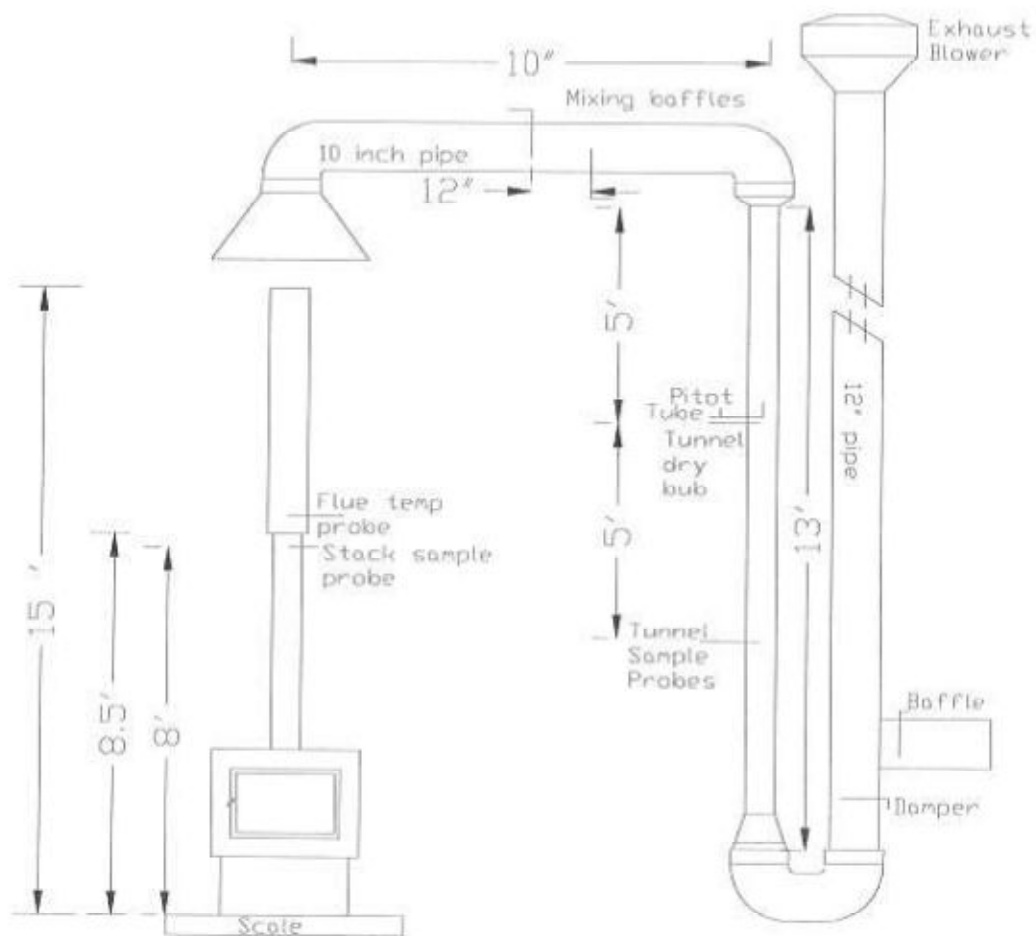
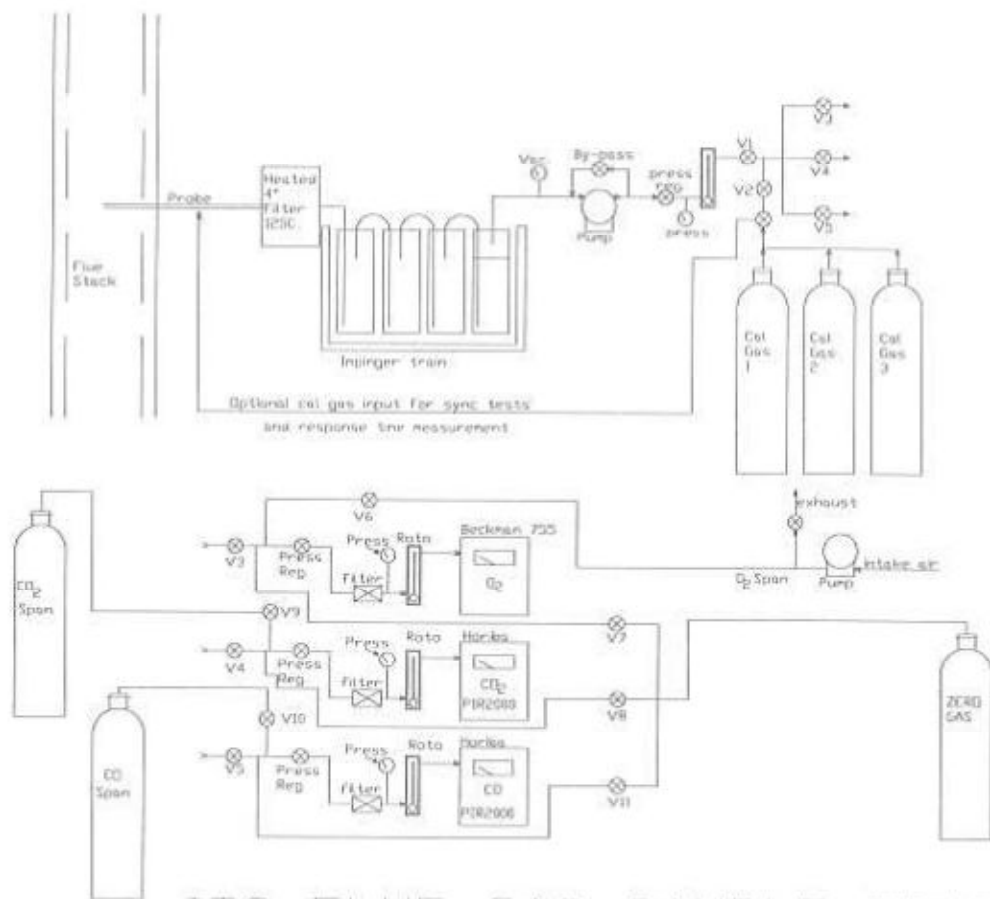


FIGURE 1

IV.B. OPERATIONAL DRAWINGS

IV.B.(1) STACK GAS SAMPLE TRAIN



ITS FLUE GAS SAMPLE TRAIN

FIGURE 2

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

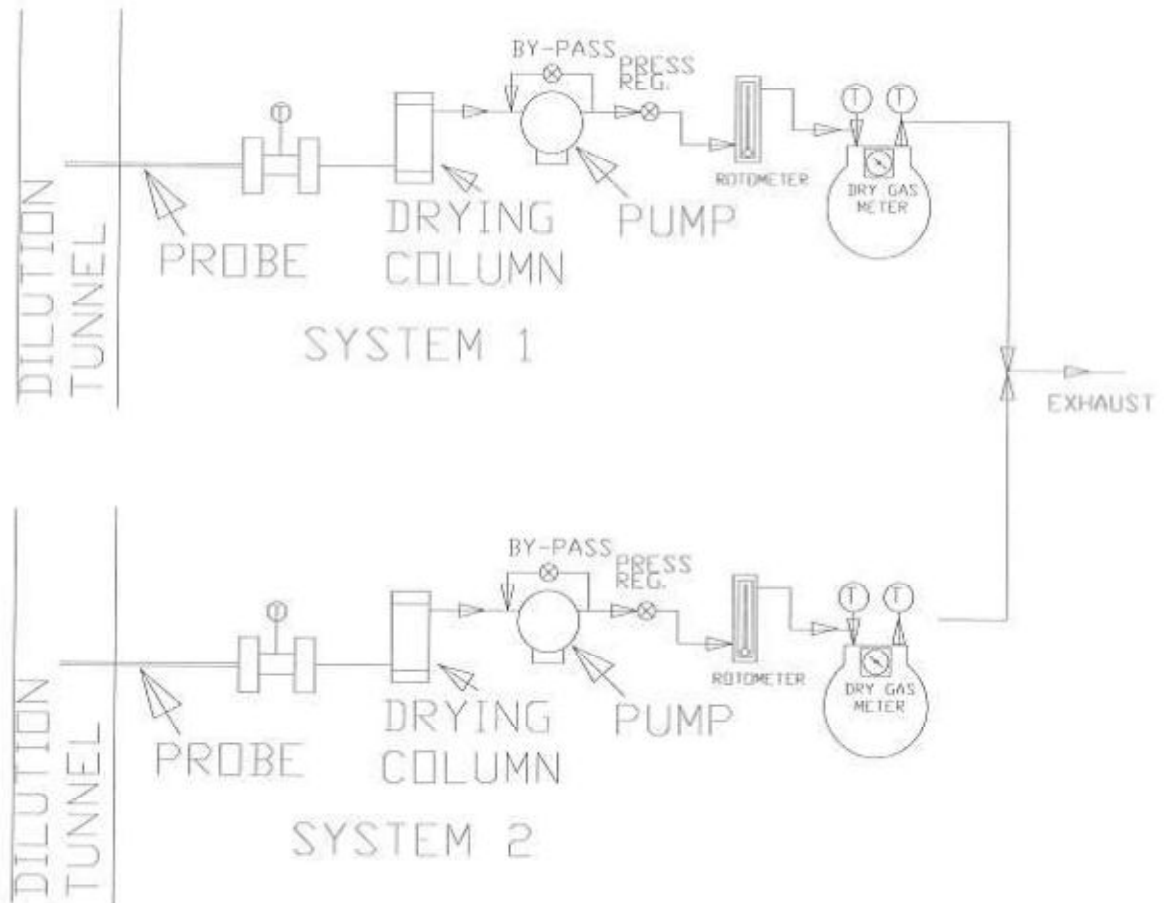


Figure 3

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 binder free 47-mm diameter glass 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 conclusion of each test program the dry gas meters are checked against a standard dry gas meter. Three runs are 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 every 6 months by a third-party accredited calibration laboratory. The process involves sampling the train operation for 1 cubic foot of volume. With readings made to .001 ft³, the resolution is .1%, giving accuracy higher than the $\pm 2\%$ required by the standard.

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. Rotometers were used to monitor the flow-rates during the tests in order to ensure proportionality, but the inline dry gas meters were used to determine the 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 10 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 the vacuum was typically less than 2 inches of mercury. Thus, leakage rates reported are expected to be much higher than actual leakage during the tests.

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 4.02 g/hr meets the current Federal requirements..

VII.A RESULTS AND OBSERVATIONS

The Model XTD 1.1 Solid Fuel Room Heater 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

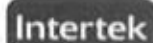
Reported by: 
Test Engineer

Reviewed by: 
Reviewer

Appendix C

Sample Analysis

**DILUTION TUNNEL PARTICULATE CALCULATIONS
METHOD 5G3**



CLIENT: SBI MODEL: XTD 1.1 PROJECT #: G100527551

DATE: 10/26/2011 RUN #: 1

SAMPLE ID #: PRT1110121353-001

INTERTEK EQUIPMENT #'s: SBI-206, SBI-121, 180-195, 180-110

Sample Train A					
SAMPLE COMPONENT	REAGENT	FILTER # OR PROBE #	FINAL WEIGHTS (Filters Combined)	TARE, mg	PARTICULATE, mg (Final Weight - Tare)
FRONT FILTER CATCH	FILTER	33	247.3	118.9	10.3
REAR FILTER CATCH	FILTER	35		118.1	
PROBE & FILTER HOLDER	PROBE	30	135904.2	135902.9	1.3
Total Particulate, mg					11.6

Sample Train A					
SAMPLE COMPONENT	REAGENT	FILTER # OR PROBE #	FINAL WEIGHTS (Filters Combined)	TARE, mg	PARTICULATE, mg (Final Weight - Tare)
FRONT FILTER CATCH	FILTER	31	249.7	119.0	10.9
REAR FILTER CATCH	FILTER	32		119.8	
PROBE & FILTER HOLDER	PROBE	32	136020.6	136019.3	1.3
Total Particulate, mg					12.2

ENGINEER: *L. J. Morgan*
DATE: 11-21-11

**DILUTION TUNNEL PARTICULATE CALCULATIONS
METHOD 5G3**

Intertek

CLIENT: SBI MODEL: XTD 1.1 PROJECT #: G100527551

DATE: 10/26/2011 RUN #: 2

SAMPLE ID #: PRT1110121353-001

INTERTEK EQUIPMENT #'s: SBI-206, SBI-121, 180-195, 180-110

Sample Train A					
SAMPLE COMPONENT	REAGENT	FILTER # OR PROBE #	FINAL WEIGHTS (Filters Combined)	TARE, mg	PARTICULATE, mg (Final Weight - Tare)
FRONT FILTER CATCH	FILTER	36	244.6	118.4	6.5
REAR FILTER CATCH	FILTER	37		119.7	
PROBE & FILTER HOLDER	PROBE	33	135995.4	135994.7	0.7
Total Particulate, mg					7.2

Sample Train A					
SAMPLE COMPONENT	REAGENT	FILTER # OR PROBE #	FINAL WEIGHTS (Filters Combined)	TARE, mg	PARTICULATE, mg (Final Weight - Tare)
FRONT FILTER CATCH	FILTER	38	245.8	118.5	7.2
REAR FILTER CATCH	FILTER	39		120.1	
PROBE & FILTER HOLDER	PROBE	34	108411.6	108411.5	0.1
Total Particulate, mg					7.3

ENGINEER: *H. J. Morgan*
DATE: 11-21-11

**DILUTION TUNNEL PARTICULATE CALCULATIONS
METHOD 5G3**

Intertek

CLIENT: SBI MODEL: XTD 1.1 PROJECT #: G100527551

DATE: 10/26/2011 RUN #: 3

SAMPLE ID #: PRT1110121353-001

INTERTEK EQUIPMENT #'s: SBI-206, SBI-121, 180-195, 180-110

Sample Train A					
SAMPLE COMPONENT	REAGENT	FILTER # OR PROBE #	FINAL WEIGHTS (Filters Combined)	TARE, mg	PARTICULATE, mg (Final Weight - Tare)
FRONT FILTER CATCH	FILTER	40	240.1	119.4	1.9
REAR FILTER CATCH	FILTER	41		118.8	
PROBE & FILTER HOLDER	PROBE	35	107838.3	107838.0	0.3
Total Particulate, mg					2.2

Sample Train A					
SAMPLE COMPONENT	REAGENT	FILTER # OR PROBE #	FINAL WEIGHTS (Filters Combined)	TARE, mg	PARTICULATE, mg (Final Weight - Tare)
FRONT FILTER CATCH	FILTER	42	242.8	121.0	2.0
REAR FILTER CATCH	FILTER	43		119.8	
PROBE & FILTER HOLDER	PROBE	36	108503.3	108503.2	0.1
Total Particulate, mg					2.1

ENGINEER: 

DATE: 11-21-11

**DILUTION TUNNEL PARTICULATE CALCULATIONS
METHOD 5G3**

Intertek

CLIENT: SBI MODEL: XTD 1.1 PROJECT #: G100527551

DATE: 10/26/2011 RUN #: 4

SAMPLE ID #: PRT1110121353-001

INTERTEK EQUIPMENT #'s: SBI-206, SBI-121, 180-195, 180-110

Sample Train A					
SAMPLE COMPONENT	REAGENT	FILTER # OR PROBE #	FINAL WEIGHTS (Filters Combined)	TARE, mg	PARTICULATE, mg (Final Weight - Tare)
FRONT FILTER CATCH	FILTER	44	243.1	118.8	3.8
REAR FILTER CATCH	FILTER	45		120.5	
PROBE & FILTER HOLDER	PROBE	37	108384.5	108383.7	0.8
Total Particulate, mg					4.6

Sample Train A					
SAMPLE COMPONENT	REAGENT	FILTER # OR PROBE #	FINAL WEIGHTS (Filters Combined)	TARE, mg	PARTICULATE, mg (Final Weight - Tare)
FRONT FILTER CATCH	FILTER	46	241.4	118.6	3.5
REAR FILTER CATCH	FILTER	47		119.3	
PROBE & FILTER HOLDER	PROBE	22	139580.3	139579.4	0.9
Total Particulate, mg					4.4

ENGINEER: *H. J. Morgan*
DATE: 11-21-11

**DILUTION TUNNEL PARTICULATE CALCULATIONS
METHOD 5G3**

Intertek

CLIENT: SBI MODEL: XTD 1.1 PROJECT #: G100527551


DATE: 10/26/2011 RUN #: 5

SAMPLE ID #: PRT1110121353-001

INTERTEK EQUIPMENT #'s: SBI-206, SBI-121, 180-195, 180-110

Sample Train A					
SAMPLE COMPONENT	REAGENT	FILTER # OR PROBE #	FINAL WEIGHTS (Filters Combined)	TARE, mg	PARTICULATE, mg (Final Weight - Tare)
FRONT FILTER CATCH	FILTER	1	254.4	122.5	9.5
REAR FILTER CATCH	FILTER	2		122.4	
PROBE & FILTER HOLDER	PROBE	17	139749.7	139747.6	2.1
Total Particulate, mg					11.6

Sample Train A					
SAMPLE COMPONENT	REAGENT	FILTER # OR PROBE #	FINAL WEIGHTS (Filters Combined)	TARE, mg	PARTICULATE, mg (Final Weight - Tare)
FRONT FILTER CATCH	FILTER	3	254.7	122.8	9.9
REAR FILTER CATCH	FILTER	4		122.0	
PROBE & FILTER HOLDER	PROBE	18	147892.0	147890.4	1.6
Total Particulate, mg					11.5

ENGINEER: 
DATE: 11-21-11

Projet:

Date:

Tech:

Standard:

V. Pelletier

Audit

0.2 g = 0.200 g

Audit

0.2 = 0.200 g

Audit 200mg = 0.199g

18:00h 10:30h 10:30 3:00h

Id. Filtres	Date	Date	Date	Date	Date	Date	Date	Date	Date
	2011-10-17	2011-10-18	10-19-11	10-25-11					
1	0.1226		0.1225	0.1225					
2	0.1224		0.1224	0.1224					
3	0.1228		0.1229	0.1228					
4	0.1219		0.1220	0.1220					
5	0.1223		0.1225	0.1224					
6	0.1234		0.1235	0.1234					
7	0.1218		0.1219	0.1218					
8	0.1228		0.1227	0.1227					
9	0.1231		0.1231	0.1231					
10	0.1219		0.1220	0.1220					
11	0.1229		0.1229	0.1230					
12	0.1235		0.1235	0.1236					
13	0.1218		0.1217	0.1218					
14	0.1230		0.1230	0.1230					
15	0.1234		0.1234	0.1234					
16	0.1228		0.1227	0.1229					
17									
18									
19									
20									
21	0.1226		0.1226	0.1226					
22	0.1229		0.1229	0.1230					
23	0.1186		0.1185	0.1186					
24	0.1231		0.1231	0.1231					

Date:

Date:

Tech:

Standard:

12/2/2004

$$\begin{aligned} 200\% &= 200.0013\% \quad \left\{ \begin{array}{l} 200.0016 \\ 100\% = 100.0012\% \end{array} \right. / 100.0011 \end{aligned}$$

18:00 R 10:30 R

Arbit

 $200 \text{ g} \cdot \text{L}^{-1} = 200,001 \text{ g} \cdot \text{L}^{-1}$

96.000

[illegible]

↑

Standard:

62

Projet:

Date:

Tech: V. Pelletier

Standard:

Audit
200mg = 0.2000g
SDi-206

Audit
0.200g = 0.1999g
200g = 200.0021g

Id. Filtrés	Date 14:40	Date 11:33	Date 11:00	Date	Date	Date	Date	Date	Date
25	2011-10-12	2011-10-13	2011-10-17	2011-10-18	2011-10-20				
26	0.1188	0.1187	0.1187	Run 1A					
27	0.1196	0.1194	0.1196	Run 1A					
28	0.1180	0.1180	0.1182	Run 1b					
29	0.1184	0.1185	0.1185	Run 1b					
30	0.1204	0.1203	0.1203	SCRAP	0.1202				
31	0.1201	0.1201	0.1200	SCRAP					
32	0.1184	0.1191	0.1190	Run 1b					
33	0.1144	0.1198	0.1198	Run 1b	0.1292				
34	0.1188	0.1189	0.1189	Run 1A	0.1206				
35	0.1191	0.1191	SCRAP		0.1287				
36	0.1181	0.1181	0.1181	Run 1A	0.1187				
37	0.1184	0.1184	0.1184	Run 2A					
38	0.1198	0.1197	0.1197	Run 2A					
39	0.1185	0.1185	0.1185	Run 2B					
40	0.1201	0.1201	0.1201	Run 2B					
41	0.1194	0.1193	0.1194						
42	0.1188	0.1188	0.1188						
43	0.1210	0.1210	0.1210						
44	0.1198	0.1198	0.1198						
45	0.1187	0.1187	0.1187						
46	0.1206	0.1206	0.1205						
47	0.1187	0.1185	0.1186						
48	0.1193	0.1192	0.1193						
	0.1196	0.1196	0.1197						

Standard:

$$\begin{aligned} 200g &= 200.001g \\ &\leq 281-206 \\ 3 \text{ 2011-10-17} \end{aligned}$$

Id. Probs	Date	Date	Date	Date	Date	Date	Date
17				2011-10-18		2011-10-20	
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29	135,1828	135,1831	135,1834	RUN 1 A			
30	135,4026	135,4027	135,5033	135,5029	RUN 1 A		
31	137,0992	137,0995	137,1000				
32	136,0189	136,0188	136,0196	136,0193	RUN 1 B		
33	135,9941	135,9944	135,9950	135,9947	RUN 2 A		
34	108,4110	108,4111		108,4115	RUN 2 B		
35	107,8376	107,8376		107,8380			
36	108,5026	108,5027		108,5032			
37	108,3833	108,3833		108,3839	RUN 4 A	108,3838 ✓	
38							

DILUTION TUNNEL WORKSHEET - METHOD 5G3

Client: S.B.I Model: XTD 1.1

Project #: G100527551 Sample ID #: PRT1110121353-001

Date: 10-18-11 Engineer: K. Morgan / F. Anghe

Run #: 1 Sample Train #: 1

Balance Equipment #: SB1-206 Thermo/Hygro meter Equipment #: SB1-212

Audit weight Equipment #: 180-195 (Balance audit mfr. std: 500 ± 0.72 mg)

Front Filter #	<u>33</u> 29 33	Tare:	<u>0.1185</u> 0.1203	Preliminary Wt:	<u>0.1288</u>	
Rear Filter #	<u>35</u> 30 35	Tare:	<u>0.1181</u> 0.1200	Preliminary Wt:	<u>0.1187</u>	
Seal Set #	N/A	Tare:	N/A	Preliminary Wt:	N/A	
Date/Time in dessicator:		<u>OCT. 18, 2011 / 16:20</u>		Preliminary Wt:		
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
<u>2011-10-20</u>	<u>9:20</u>	<u>29</u>	<u>74</u>	<u>0.2474</u>	<u>0.200 = 0.1995</u>	<u>FA</u>
<u>2011-10-21</u>	<u>9:10</u>	<u>28</u>	<u>74</u>	<u>0.2473</u>	<u>0.200 = 0.2000</u>	<u>FA</u>
					<u>0.2 = 0.2000</u>	
Probe #:	<u>30</u>	Tare:	<u>135,9029</u>	Preliminary Wt:	<u>135,9036</u>	
Date/Time in dessicator:		<u>OCT. 18, 2011 / 16:20</u>				
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
<u>2011-10-20</u>	<u>9:20</u>	<u>29</u>	<u>74</u>	<u>135,9040</u>	<u>200 = 200.0021</u>	<u>FA</u>
<u>2011-10-21</u>	<u>9:00</u>	<u>28</u>	<u>74</u>	<u>135,9042</u>	<u>200 = 200.0021</u>	<u>FA</u>
					<u>200 = 200.0048</u>	

Date: OCTOBER 25, 2011

Engineer signature: 

DILUTION TUNNEL WORKSHEET - METHOD 5G3

Client: S.B.I Model: XTD 1.1Project #: G100527551 Sample ID #: PRT1110121353-001Date: 10-18-11 Engineer: K. Morgan / F. AngheleRun #: 1 Sample Train #: 2Balance Equipment #: SBI-206 Thermo/Hygro meter Equipment #: SBI-212Audit weight Equipment #: 180-110 (Balance audit mfr. std: 500 ± 0.72 mg)

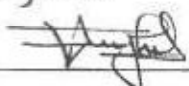
Front Filter #	<u>31</u>	Tare:	<u>0.1190</u>	Preliminary Wt:	<u>0.1293</u>	
Rear Filter #	<u>32</u>	Tare:	<u>0.1198</u>	Preliminary Wt:	<u>0.1206</u>	
Seal Set #	<u>N/A</u>	Tare:	<u>N/A</u>	Preliminary Wt:	<u>N/A</u>	
Date/Time in dessicator:		<u>Oct. 18, 2011 / 16:20</u>		Preliminary Wt:		
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
<u>2011-10-20</u>	<u>9:20</u>	<u>29</u>	<u>74</u>	<u>0.2498</u>	<u>0.200 = 0.1999</u>	<u>FA</u>
<u>2011-10-21</u>	<u>9:10</u>	<u>4%</u>	<u>74</u>	<u>0.1291</u> <u>0.1206</u> <u>8.2497</u>	<u>0.200 = 0.1999</u>	<u>FA</u>
Probe #:		<u>32</u>	Tare:	<u>136.0193</u>	Preliminary Wt:	<u>136.0199</u>
Date/Time in dessicator:		<u>Oct. 18, 2011 / 16:20</u>				
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
<u>2011-10-20</u>	<u>9:20</u>	<u>29</u>	<u>74</u>	<u>136.0203</u>	<u>200 = 200.0021</u>	<u>FA</u>
<u>2011-10-21</u>	<u>9:00</u>	<u>4%</u>	<u>74</u>	<u>136.0206</u>	<u>200 = 200.0021</u>	<u>FA</u>

Date: OCTOBER 25, 2011Engineer signature: F. Anghele

DILUTION TUNNEL WORKSHEET - METHOD 5G3

Client: S.B.I Model: XTD 1.1Project #: G100527551 Sample ID #: PKT1110121353-001Date: 10-19-11 Engineer: K. Morgan / F. AnghelRun #: 2 Sample Train #: ABalance Equipment #: SBI-206 Thermo/Hygro meter Equipment #: SBI-212Audit weight Equipment #: 180-110 (Balance audit mfr. std: 500 ± 0.72 mg)

Front Filter #	<u>36</u>	Tare:	<u>0.1184</u>	Preliminary Wt:	<u>0.1246</u>
Rear Filter #	<u>37</u>	Tare:	<u>0.1197</u>	Preliminary Wt:	<u>0.1203</u>
Seal Set #	<u>N/A</u>	Tare:	<u>N/A</u>	Preliminary Wt:	<u>N/A</u>
Date/Time in dessicator:	<u>10-19-11 15:40</u>			Preliminary Wt:	<u>.2449</u>
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)
✓ <u>2011-10-21</u>	<u>9:00</u>	<u>4%</u>	<u>74</u>	<u>0.2448</u>	<u>0.200 = 0.1999</u>
✓ <u>2011-10-25</u>	<u>8:50</u>	<u>4%</u>	<u>74</u>	<u>0.2446</u>	<u>0.2 = 0.200</u>
Probe #:	<u>33</u>	Tare:	<u>135.9947</u>	Preliminary Wt:	<u>135.9946</u>
Date/Time in dessicator:	<u>10-19-11 15:40</u>				
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)
<u>2011-10-21</u>	<u>9:00</u>	<u>4</u>	<u>74</u>	<u>135.9959</u>	<u>200 = 200.0021</u>
<u>2011-10-25</u>	<u>8:50</u>	<u>4</u>	<u>73</u>	<u>135.9954</u>	<u>200 = 200.0018</u>

Date: OCTOBER 25, 2011Engineer signature: 

DILUTION TUNNEL WORKSHEET - METHOD 5G3

Client: S.B.I Model: XTD 1.1Project #: G100527551 Sample ID #: PRT1110121353-001Date: 10-19-11 Engineer: K. Morgan / F. AnghelRun #: 2 Sample Train #: BBalance Equipment #: 381-206 Thermo/Hygro meter Equipment #: SBI-212Audit weight Equipment #: 180-195 (Balance audit mfr. std: 500 ± 0.72 mg)

Front Filter #	<u>38</u>	Tare:	<u>0.1185</u>	Preliminary Wt:	<u>0.1252</u>	
Rear Filter #	<u>39</u>	Tare:	<u>0.1201</u>	Preliminary Wt:	<u>0.1207</u>	
Seal Set #	<u>N/A</u>	Tare:	<u>N/A</u>	Preliminary Wt:	<u>N/A</u>	
Date/Time in dessicator:	<u>10-19-11</u>	<u>15:40</u>		Preliminary Wt:	<u>.2459</u>	
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
<u>2011-10-21</u>	<u>3:00</u>	<u>4%</u>	<u>74</u>	<u>0.2460</u>	<u>0.2000 = 0.1999</u>	<u>FA</u>
<u>2011-10-25</u>	<u>8:50</u>	<u>4%</u>	<u>73</u>	<u>0.2458</u>	<u>0.2000 = 0.1999</u>	<u>FA</u>
Probe #:	<u>34</u>	Tare:	<u>108.4115</u>	Preliminary Wt:	<u>108.4110</u>	
Date/Time in dessicator:	<u>10-19-11</u>	<u>15:40</u>				
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
<u>2011-10-21</u>	<u>3:00</u>	<u>4</u>	<u>74</u>	<u>108.4120</u>	<u>200 = 200.0021</u>	<u>FA</u>
<u>2011-10-25</u>	<u>8:50</u>	<u>4</u>	<u>73</u>	<u>108.4116</u>	<u>200 = 200.0018</u>	<u>FA</u>

Date: OCTOBER 25, 2011Engineer signature: F. Anghel

DILUTION TUNNEL WORKSHEET - METHOD 5G3

Client: S.B.I Model: XTD 1.1Project #: G100527551 Sample ID #: _____Date: 10-20-11 Engineer: K. Morgan / F. AnghelRun #: 3 Sample Train #: ABalance Equipment #: SE1-206 Thermo/Hygro meter Equipment #: SBI-212Audit weight Equipment #: 120-135
80-110 (Balance audit mfr. std: 500 ± 0.72 mg)

Front Filter #	<u>40</u>	Tare:	<u>.1194</u>	Preliminary Wt:	<u>0.1212</u>	
Rear Filter #	<u>41</u>	Tare:	<u>.1188</u>	Preliminary Wt:	<u>0.1191</u>	
Seal Set #	<u>N/A</u>	Tare:	<u>N/A</u>	Preliminary Wt:	<u>N/A</u>	
Date/Time in dessicator:		<u>20/20/11 ; 13:20</u>		Preliminary Wt:		
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
<u>2011-10-24</u>	<u>9:00</u>	<u>4</u>	<u>72</u>	<u>.1212</u> <u>0.2403</u>	<u>0.2 =</u> <u>0.2000</u>	<u>FA</u>
<u>2011-10-24</u>	<u>17:00</u>	<u>4</u>	<u>72</u>	<u>0.2401</u>	<u>0.2 =</u> <u>0.2000</u>	<u>FA</u>
Probe #:	<u>35</u>	Tare:	<u>107.8380</u>	Preliminary Wt:	<u>107.8383</u>	
Date/Time in dessicator:		<u>10/20/11 ; 13:20</u>				
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
<u>2011-10-24</u>	<u>8:50</u>	<u>4</u>	<u>72</u>	<u>200</u> <u>107.8380</u>	<u>200 =</u> <u>200.0018</u>	<u>FA</u>
<u>2011-10-24</u>	<u>17:00</u>	<u>4</u>	<u>72</u>	<u>107.8383</u>	<u>200 =</u> <u>200.0018</u>	<u>FA</u>

Date: OCTOBER 25, 2011

Engineer signature: _____

F. Anghel

DILUTION TUNNEL WORKSHEET - METHOD 5G3

Client: S.B.I Model: XTD 1.1Project #: G100527551 Sample ID #: _____Date: 10-20-11 Engineer: K. Morgan / F. AnghelRun #: 3 Sample Train #: BBalance Equipment #: S8i-206 Thermo/Hygro meter Equipment #: S8i-212Audit weight Equipment #: 180-135 (Balance audit mfr. std: 500 ± 0.72 mg)

Front Filter #	<u>42</u>	Tare:	<u>.1210</u>	Preliminary Wt:	<u>0.1226</u>	
Rear Filter #	<u>43</u>	Tare:	<u>.1198</u>	Preliminary Wt:	<u>0.1201</u>	
Seal Set #	<u>N/A</u>	Tare:	<u>N/A</u>	Preliminary Wt:	<u>N/A</u>	
Date/Time in dessicator:	<u>20/10/11 ; 13:20</u>			Preliminary Wt:		
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
<u>2011-10-24</u>	<u>9:00</u>	<u>3.5</u>	<u>69.8</u>	<u>0.2428</u>	<u>0.2 = 0.2000</u>	<u>FA</u>
<u>2011-10-24</u>	<u>17:00</u>	<u>3.5</u>	<u>69.8</u>	<u>0.2428</u>	<u>0.2 = 0.2000</u>	<u>FA</u>
Probe #:	<u>36</u>	Tare:	<u>108.5032</u>	Preliminary Wt:	<u>108.5038</u>	
Date/Time in dessicator:	<u>20/10/11 ; 13:20</u>					
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
<u>2011-10-24</u>	<u>8:50</u>	<u>4</u>	<u>69.8</u>	<u>108.5032</u>	<u>200 = 200.0018</u>	<u>FA</u>
<u>2011-10-24</u>	<u>17:00</u>	<u>4</u>	<u>70</u>	<u>108.5033</u>	<u>200 = 200.0018</u>	<u>FA</u>

Date: OCTOBER 25, 2011Engineer signature: F. Anghel

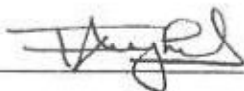
DILUTION TUNNEL WORKSHEET - METHOD 5G3

Client: S.B.I Model: XTD 1.1Project #: G100527551 Sample ID #: 9RT 1110121353-001Date: 09.21.20 Engineer: K. Morgan / F. AnghelRun #: 4 Sample Train #: ABalance Equipment #: SBI-206 Thermo/Hygro meter Equipment #: SBI-212Audit weight Equipment #: _____ (Balance audit mfr. std: 500 ± 0.72 mg)

Front Filter #	<u>44</u>	Tare:	<u>.1188</u> <u>.1205</u>	Preliminary Wt:	<u>0.1223</u>	
Rear Filter #	<u>45</u>	Tare:	<u>.1205</u>	Preliminary Wt:	<u>0.1210</u>	
Seal Set #	<u>N/A</u>	Tare:	<u>N/A</u>	Preliminary Wt:	<u>N/A</u>	
Date/Time in dessicator:		<u>12:30</u> ¹⁰⁻²¹⁻¹¹		Preliminary Wt:		
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
<u>2011-10-24</u>	<u>3:00</u>	<u>4.1</u>	<u>71.5</u>	<u>0.2433</u>	<u>0.2 =</u> <u>0.2000</u>	<u>FA</u>
<u>2011-10-24</u>	<u>17:00</u>	<u>4.2</u>	<u>72</u>	<u>0.2431</u>	<u>0.2 =</u> <u>0.2000</u>	<u>FA</u>
Probe #:	<u>37</u>	Tare:	<u>108,3837</u>	Preliminary Wt:	<u>108,3845</u>	
Date/Time in dessicator:		<u>10-21-11 / 12:30</u>				
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
<u>2011-10-24</u>	<u>8:50</u>	<u>4.1</u>	<u>71.5</u>	<u>108,3844</u>	<u>200 =</u> <u>200.0018</u>	<u>FA</u>
<u>2011-10-24</u>	<u>17:00</u>	<u>4.2</u>	<u>72</u>	<u>108,3845</u>	<u>200 =</u> <u>200.0018</u>	<u>FA</u>

Date: 10-25-11

Engineer signature: _____



DILUTION TUNNEL WORKSHEET - METHOD 5G3

Client: S.B.I Model: XTD 1.1

Project #: G100527551 Sample ID #: PRT1110121353-001

Date: 10-21-11 Engineer: K. Morgan / F. Anghel

Run #: 4 Sample Train #: B

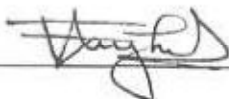
Balance Equipment #: SBI-206 Thermo/Hygro meter Equipment #: SBI-212

Audit weight Equipment #: _____ (Balance audit mfr. std: 500 ± 0.72 mg)

Front Filter #	<u>46</u>	Tare:	<u>. 1186</u>	Preliminary Wt:	<u>. 1218</u>	
Rear Filter #	<u>47</u>	Tare:	<u>. 1193</u>	Preliminary Wt:	<u>. 1197</u>	
Seal Set #	<u>N/A</u>	Tare:	<u>N/A</u>	Preliminary Wt:	<u>N/A</u>	
Date/Time in dessicator:	<u>10-21-11 / 12:30</u>			Preliminary Wt:		
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
<u>2011-10-24</u>	<u>9:00</u>	<u>4.1</u>	<u>69.8</u>	<u>0.2414</u>	<u>0.2 = 0.2000</u>	<u>FA</u>
<u>2011-10-24</u>	<u>17:00</u>	<u>4.2</u>	<u>72</u>	<u>0.2414</u>	<u>0.2 = 0.2000</u>	<u>FA</u>
Probe #:	<u>22</u>	Tare:	<u>139,5794</u>	Preliminary Wt:	<u>139,5809</u>	
Date/Time in dessicator:	<u>10-21-11 / 12:30</u>					
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
<u>2011-10-24</u>	<u>8:50</u>	<u>4.1</u>	<u>69.8</u>	<u>139,5806</u>	<u>200 = 200.0018</u>	<u>FA</u>
<u>2011-10-24</u>	<u>17:00</u>	<u>4.2</u>	<u>72</u>	<u>139,5803</u>	<u>200 = 200.0018</u>	<u>FA</u>

Date: 10-25-11

Engineer signature: _____



DILUTION TUNNEL WORKSHEET - METHOD 5G3

Client: S.B.I Model: XTD 1.1

Project #: G100527551 Sample ID #: PRT M10121353-001

Date: 10-28-11 Engineer: K. Morgan / F. Anghel

Run #: 5 Sample Train #: A

Balance Equipment #: SBI-26 Thermo/Hygro meter Equipment #: SBI-212

Audit weight Equipment #: 180-110 (Balance audit mfr. std: 500 ± 0.72 mg)

Front Filter #	<u>1</u>	Tare:	<u>0.1225</u>	Preliminary Wt:	<u>0.1315</u>	
Rear Filter #	<u>2</u>	Tare:	<u>0.1224</u>	Preliminary Wt:	<u>0.1234</u>	
Seal Set #	<u>N/A</u>	Tare:	<u>N/A</u>	Preliminary Wt:	<u>N/A</u>	
Date/Time in dessicator:			<u>Oct. 28, 2011 / 16:00</u>		Preliminary Wt:	
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
<u>10-25-11</u>	<u>16:15</u>	<u>4%</u>	<u>69.9</u>	<u>0.2530</u> <u>0.2535</u> <u>0.2530</u>	<u>0.2 =</u> <u>0.2000</u>	<u>FA</u>
<u>10-27-11</u>	<u>11:00</u>	<u>4%</u>	<u>70.0</u>	<u>0.2543</u>	<u>0.2 =</u> <u>0.2000</u>	<u>FA</u>
<u>10-28-11</u>	<u>11:00</u>	<u>4%</u>	<u>70.0</u>	<u>0.2544</u>	<u>0.2 =</u> <u>0.2000</u>	<u>FA</u>
<u>10-31-11</u>	<u>13:30</u>	<u>4%</u>	<u>70.0</u>	<u>0.2542</u>	<u>0.2 =</u> <u>0.2000</u>	<u>FA</u>
FINAL STABLE WEIGHT						
Probe #:	<u>17</u>	Tare:	<u>139,7476</u>	Preliminary Wt:	<u>139,7487</u>	
Date/Time in dessicator:			<u>OCT. 28, 2011 / 16:00</u>			
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
<u>10-25-11</u>	<u>16:15</u>	<u>4%</u>	<u>69.9</u>	<u>139.7497</u>	<u>200.0 =</u> <u>200.002</u>	<u>FA</u>
<u>10-27-11</u>	<u>11:00</u>	<u>4%</u>	<u>70.0</u>	<u>139.7497</u>	<u>200.0 =</u> <u>200.002</u>	<u>FA</u>
<u>10-28-11</u>	<u>11:00</u>	<u>4%</u>	<u>70.0</u>	<u>139.7504</u>	<u>200.0 =</u> <u>200.002</u>	<u>FA</u>
<u>10-31-11</u>	<u>13:30</u>	<u>4%</u>	<u>70.0</u>	<u>139.7507</u>	<u>200.0 =</u> <u>200.002</u>	<u>FA</u>
FINAL STABLE WEIGHT						

Date: OCTOBER 31, 2011

Engineer signature: _____

[Signature]

DILUTION TUNNEL WORKSHEET - METHOD 5G3

Client: S.B.I Model: XTD 1.1

Project #: G100527551 Sample ID #: PTA110121353-001

Date: 10/25/11 Engineer: K. Morgan / F. Anghel

Run #: 5 Sample Train #: B

Balance Equipment #: SBI-204 Thermo/Hygro meter Equipment #: SBI-212

Audit weight Equipment #: 180-110 (Balance audit mfr. std: 500 ± 0.72 mg)

Front Filter #	<u>3</u>	Tare:	<u>0.1228</u>	Preliminary Wt:	<u>0.1322</u>
Rear Filter #	<u>4</u>	Tare:	<u>0.1220</u>	Preliminary Wt:	<u>0.1229</u>
Seal Set #	<u>N/A</u>	Tare:	<u>N/A</u>	Preliminary Wt:	<u>N/A</u>
Date/Time in dessicator:		<u>Oct. 25, 2011 / 16:00</u>		Preliminary Wt:	
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)
<u>10-25-11</u>	<u>16:15</u>	<u>4%</u>	<u>69.9</u>	<u>0.2545</u>	<u>0.2 = 0.2000</u>
<u>10-27-11</u>	<u>11:00</u>	<u>4%</u>	<u>70.0</u>	<u>0.2547</u>	<u>0.2 = 0.2000</u>
<u>10-28-11</u>	<u>11:00</u>	<u>4%</u>	<u>70.0</u>	<u>0.2545</u>	<u>0.2 = 0.2000</u>
<u>10-31-11</u>	<u>13:30</u>	<u>4%</u>	<u>70.0</u>	<u>0.2546</u>	<u>0.2 = 0.2000</u>
Probe #:	<u>18</u>	Tare:	<u>147,8904</u>	Preliminary Wt:	<u>147,8911</u>
Date/Time in dessicator:		<u>Oct. 25, 2011 / 16:00</u>			
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)
<u>10-25-11</u>	<u>16:15</u>	<u>4%</u>	<u>69.9</u>	<u>1478919</u>	<u>200.0 = 200.002</u>
<u>10-27-11</u>	<u>11:00</u>	<u>4%</u>	<u>70.0</u>	<u>1478920</u>	<u>200.0 = 200.002</u>
<u>10-28-11</u>	<u>11:00</u>	<u>4%</u>	<u>70.0</u>	<u>1478928</u>	<u>200.0 = 200.002</u>
<u>10-31-11</u>	<u>13:30</u>	<u>4%</u>	<u>70.0</u>	<u>1478923</u>	<u>200.0 = 200.002</u>

FINAL STABILIZE WEIGHT

FINAL STABILIZE WEIGHT

Date: OCTOBER 31, 2011

Engineer signature: F. Anghel

Appendix D

Calibrations

Thermal Metering System Calibration

Y factor for Method 5G sampling

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

**Average Gas
Meter y Factor**
1,006

Calibration Date: 09-29-11
 Calibrated by: Claude Paré
 Calibration Frequency: 6-month
 Next Calibration Due: 03-29-12
 Instrument Range: 1,000 cfm
 Standard Temp.: 77,4 °F
 Standard Press.: 29,92 "Hg
 Barometric Press.: 29,63 "Hg
 Signature/Date: 2011-09-29

Previous Calibration Comparison

Date	2011-03-01	Acceptable	
		Deviation (5%)	Deviation
y Factor	1,003	0,05015	0,003
Acceptance	Acceptable		

Current Calibration

Acceptable y Deviation	0,020
Maximum y Deviation	0,001
Acceptance	Acceptable

Reference Standard *

Standard	Model	Standard Test Meter
Calibrator	S/N	07J264834
	Calib. Date	21-mars-11
	Calib. Value	0,9992 y factor (ref)

Calibration Parameters	Run 1	Run 2	Run 3
Vacuum ("Hg)	0,00	0,00	0,00
dH ("H ₂ O)	0,00	0,00	0,00
Initial Reference Meter	760,2	765,5	771,1
Final Reference Meter	765,2	770,6	776,9
Initial DGM	698,092	703,412	709,07
Final DGM	703,059	708,484	714,848
Temp. Ref. Meter (°F), Tr	76,9	77,2	77,2
Temperature DGM (°F), Td	77,5	78,2	78,6
Time (Minutes)	77,0	28,0	17,0
Net Volume Ref. Meter, Vr	5,000	5,100	5,800
Net Volume DGM, Vd	4,967	5,072	5,778
Gas Meter y Factor =	1,007	1,007	1,006
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: 0,064506494

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

* 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

Average Gas
 Meter y Factor
1,003

Calibration Date: 09-29-11
 Calibrated by: Claude Paré
 Calibration Frequency: 6-month
 Next Calibration Due: 03-29-12
 Instrument Range: 1,000 cfm
 Standard Temp.: 78,3 °F
 Standard Press.: 29,92 "Hg
 Barometric Press.: 29,59 "Hg
 Signature/Date: 2011-09-29

Previous Calibration Comparison

Date	2011-03-01	Acceptable	
		Deviation (5%)	Deviation
y Factor	0,996	0,0498	0,007
Acceptance	Acceptable		

Current Calibration

Acceptable y Deviation	0,020
Maximum y Deviation	0,001
Acceptance	Acceptable

Reference Standard *

Standard	Model	Standard Test Meter
Calibrator	S/N	07J264834
	Calib. Date	21-mars-11
	Calib. Value	0,9992 y factor (ref)

Calibration Parameters	Run 1	Run 2	Run 3
Vacuum ("Hg)	0,00	0,00	0,00
dH ("H ₂ O)	0,00	0,00	0,00
Initial Reference Meter	777,8	783,1	789,7
Final Reference Meter	782,8	789,2	799,6
Initial DGM	515,021	520,372	527,019
Final DGM	520,014	526,465	536,898
Temp. Ref. Meter (°F), Tr	77,6	78,0	78,1
Temperature DGM (°F), Td	78,6	79,1	79,5
Time (Minutes)	60,0	30,0	32,0
Net Volume Ref. Meter, Vr	5,000	6,100	9,900
Net Volume DGM, Vd	4,993	6,093	9,879
Gas Meter y Factor =	1,002	1,002	1,004
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: 0,083216667

1. Deviation = [Average value for all runs - current run value]
2. $y = [V_r \times (y \text{ factor (ref)}) \times (P_b) \times (T_d + 460)] / [V_d \times (P_b + (dH / 13.6)) \times (T_r + 460)]$
3. $dH@ = 0.0317 \times dH / (P_b (T_d + 460)) \times [(T_r + 460) \times \text{time}] / V_r]^2$

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

CERTIFICATE OF NIST TRACEABLE CALIBRATION

Calibration Certificate No: 24648

Customer Information

Customer: SBI St-Augustin

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

Customer PO #: 23966



**LABORATORY
ACCREDITATION
BUREAU**
ACCREDITED

Certificate # L2115-1 Calibration

ISO 17025-2005 ACCREDITED

Calibration Procedure Information

Procedure ID: GTP FLOW_INDI

Revision #: 3

Revision Date: 7/21/2008

Calibration Standards Information

<u>Graffel ID</u>	<u>Manufacturer</u>	<u>Model #</u>	<u>Description</u>	<u>CAL Due</u>
10159	HOBO	U12-011	Environment Monitor System	6/22/2011
60030	Paroscientific	760-100A	Pressure, 100 psia	8/24/2011
10128	Furness	FCO352	Diff Pressure	8/24/2011
10062	Graffel	9202	5-Channel Temperature Sensor	8/28/2012
10075	Meriam	50MJ10-9	Laminar Flowmeter	6/23/2011
51202	Paroscientific	760-100A	Pressure, 100 Psia	2/24/2012

Sensor Information

Manufacturer: American Meter

Description: Gas Meter

Method Used: Laminar

Model #: DTM-200A

Rated Accuracy: ± 1 % of Reading

Accuracy Specified By: American Met.

Instrument ID#: SBI-103

Range: 0 to 250 scfh

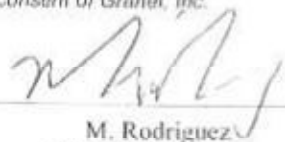
Condition: Functional

Serial #: 07J264834

Comments: Calibration Date: 03-21-2011

The instrument(s) listed on this certificate have been calibrated against standards traceable to the National Institute 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 support by analysis. Graffel, Inc. Quality Assurance System complies with applicable requirements of ISO/IEC-17025-2005, ANSI/NCSL Z540-1-1994 and ISO 9002:1994(E). 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 Graffel, Inc.

Performed By:


M. Rodriguez

Calibration Technician

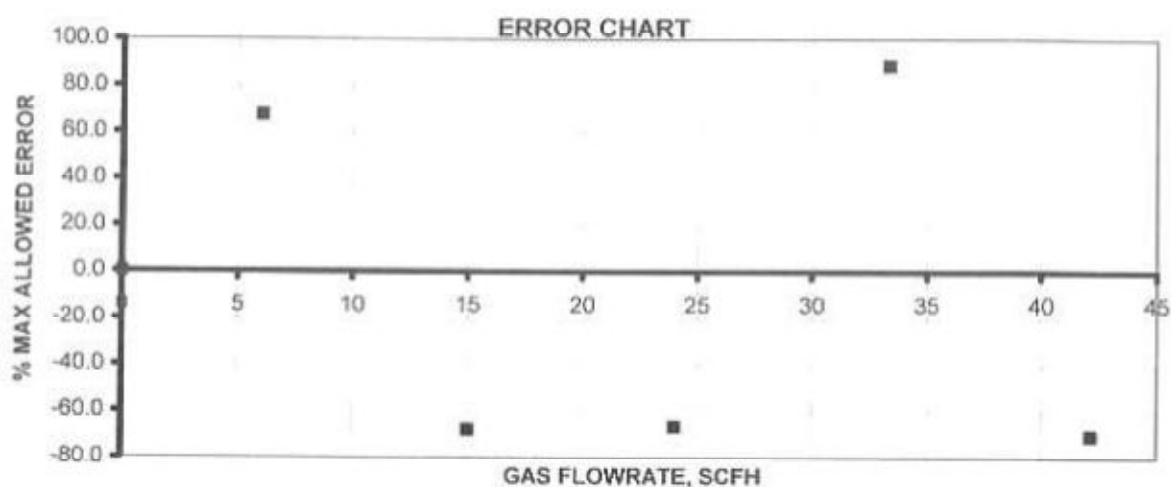
Date:

3/21/11

**ATTACHMENT TO CALIBRATION CERTIFICATE 24648
AS FOUND DATA**

Page 2 of 2

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
6.069	0.2962	0.300	0.294	0.00	100.679	0.002	Pass
15.044	0.9576	1.000	0.964	-0.01	99.327	0.005	Pass
24.043	0.9605	1.000	0.967	-0.01	99.338	0.005	Pass
33.346	1.9576	2.000	1.940	0.02	100.896	0.010	Pass
42.149	1.935	2.000	1.949	-0.01	99.301	0.010	Pass



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	14.40	psia
Humidity	30.8	% RH
Temperature	69.6	F



www.graftel.com

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

NIST Traceable Calibration Data Sheet

Graftel, LLC, 870 Cambridge Drive, Elk Grove Village, IL 60007
P. 847-364-2800 F. 847-364-2859

Intertek

Portland, Oregon

Dry Gas Meter Post Series Calibration Data

Manufacturer: Amer. Meter Co. Model: DTM-200A Equipment No. SBI-046 Date: 10/25/2011 Tech: F. Anghel
Barometric Press: 30.06 DGM#1: 1 Calibration Factors Std. Meter DGM#3: 0.9992
Std Meter No. SBI-103

Std Meter # 3					System # 1					DEV		
Trial No.	Press Drop	Initial Ft.3	Final Ft.3	Change f Temp °F	Std. Ft.3	Initial Ft.3	Final Ft.3	Change Ft.3	Temp °F	Std Ft.3	Cal Factor	
1	0	801.600	806.600	5.000	70.800	4.993	925.180	930.175	4.995	71.100	4.989	1.001
2	0	812.200	817.200	5.000	71.200	4.989	935.797	940.798	5.001	72.500	4.982	1.001
3	0	817.600	822.600	5.000	71.500	4.986	941.195	946.189	4.994	71.700	4.982	1.001
Average:										1.001		

Max Deviation 0.0449 %

F. Anghel

Intertek

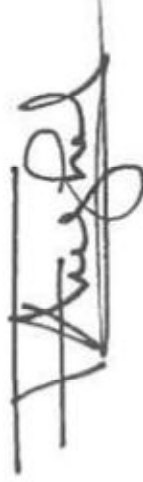
Portland, Oregon

Post Series Dry Gas Meter Calibration Data

Manufacturer: Amer. Meter Co. Model: DTM-200A Equipment No. SBI-047 Date: 10/25/2011 Tech: F Anghel
Barometric Press: 30.06 DGM#1: 1 Calibration Factors Sld Meter DGM#3: 0.9992
Sld Meter No. SBI-103

Std Meter # 3					System # 1					DEV
Trial No.	Press Drop	Initial Fl.3	Final Fl.3	Change l Temp °F	Std. Fl.3	Initial Fl.3	Final Fl.3	Change Fl.3	Temp °F	
1	0	825.900	830.900	5.000	71.500	864.473	869.458	4.985	72.000	1.003
2	0	831.400	836.400	5.000	71.500	869.946	874.933	4.987	72.500	1.004
3	0	836.500	841.500	5.000	71.800	875.035	880.020	4.985	72.300	1.003
Average:									1.003	0.000

Max Deviation 0.0359 %





TRANSCAT® CALIBRATION SERVICES



NVLAP LAB CODE
200886-0

CERTIFICATE OF CALIBRATION

Customer: INTERTEK
22887 NE TOWNSEND WAY
FAIRVIEW, OR 97024

Customer Nbr: 1-556813-000
PO Nbr: USA20-0000208799
Date Received: September 19, 2011

Cert/SO Nbr: 2-BK1C7-424-1
Manufacturer: Delmhorst Instrument Co.
Model Nbr: MCS-1

Date Completed: September 23, 2011
Due Date: September 23, 2012

Description: Moisture Content Standard
Serial Nbr: None
ID Nbr: 19701
Unit Barcode: 900B0011669

Calibrated To: Manufacturer Specification
Calibration Proc: 1-AC32637-0
Item Received: In Tolerance
Item Returned: In Tolerance

For calibration data, see Supplemental Report for SO Nbr 2-BK1C7-424-1

Transcat Calibration Laboratories have been audited and found in compliance with ISO/IEC 17025:2005. Accredited calibrations performed within the Lab Scope of Accreditation are indicated by the presence of the Accrediting Body's Logo and Certificate Number on this Certificate of Calibration. Any measurements on an accredited calibration not covered by that Lab Scope are listed in the notes section of the certificate. This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Transcat calibrations, as applicable, are performed in compliance with the requirements of ISO 9001:2008, ISO TS16949, ANSI/NCSL Z540-1994, and ISO 10012:1992. When specified contractually the requirements of 10CFR21, 10CFR30 App. B and NQA-1 are also covered.

Traceability includes no less than an unbroken chain of comparison realization of SI units, measurement uncertainty, documentation, competence, periodic recalibration, and measurement assurance. Transcat documents the traceability of measurements to the SI units through the National Institute of Standards and Technology (NIST) or the National Research Council of Canada (NRC), or other recognized national measurement institutes (NMIs) or international standard bodies, or to measurable conditions created in our laboratory, or accepted fundamental and/or natural physical constants, ratio type of calibration, or by comparison to consensus standards. The specific path of traceability for the reported measurement results is maintained at the Transcat facility and is available there for review.

Complete records of work performed are maintained by Transcat and are available for inspection. Laboratory standards used in the performance of this calibration are shown on the Supplemental Report.

The results in this report relate only to the item calibrated or tested and the determination of in or out of tolerance is specific to the material no. referenced above based on the tolerances shown on the supplemental report; these tolerances are either the original equipment manufacturer (OEM's) warranted specifications or the client's requested specifications.


The applied uncertainty is the uncertainty of the calibration process. The Test Uncertainty Ratio (TUR) is calculated as per NCSL International RP-9, section 8.2. All calibrations have been performed using processes having a TUR of 4:1 or better, unless otherwise noted on the Supplemental Report. Uncertainties have been estimated at a 95 percent confidence level (k=2). Calibration at a 4:1 TUR (or greater) provides reasonable confidence that the instrument is within the stated tolerances. For measuring instruments in order to consider the contribution to the uncertainty from reproducibility of the unit under test (UUT), add 0.6 of the UUT's least significant digit to the reported uncertainty. For mass calibrations conventional mass referenced to 8.0 g/cm³.

A number of factors can cause a unit to drift out of tolerance at any time following its calibration. Limitations on the uses of this instrument are detailed in the OEM's operating instructions.


Notes:

Calibrated At:
14058 SW Milton Ct
Portland, OR 97224
By: David Cordell

Facility Responsible:
14058 SW Milton Ct
Portland, OR 97224
503-598-8700

 Digitally Signed By Mare Jaso for
Date: September 23, 2011

Tony Kutch
Lab Manager

 Digitally Signed On September 23, 2011

Revision 0

This certificate may not be reproduced except in full without the written approval of Transcat. Additional information if applicable may be included on separate report(s).

FO013N22 8/12/2011
Certificate - Page 1 of 1



SUPPLEMENTAL REPORT FOR BK1C7-424-1

CALIBRATION LAB DATA AS FOUND / AS LEFT

Service Order Nbr: BK1C7-424-1	Mfg: Delmhorst Instrument Co.
Description: Moisture Content Standard	Model: MCS-1
Serial: None	
Customer: INTERTEK	
Calibrated: 9/23/2011	PO Nbr: USA20-0000208799
Date Due: 9/23/2012	ID Nbr: 19701
Service Type: R6	Calibration Proc: 1-AC32637-0

Description	Setpoints	Accuracy	Low Limit	High Limit	As Found / As Left	Uncertainty (k=2; ±)	TUR
Resistance 4 Wire Comp Source							
Resistance Source	1.100MΩm	±(10% Rdg)	0.990	1.210	1.095 MΩm		
	120.0MΩm	±(10% Rdg)	108.0	132.0	120.7 MΩm		

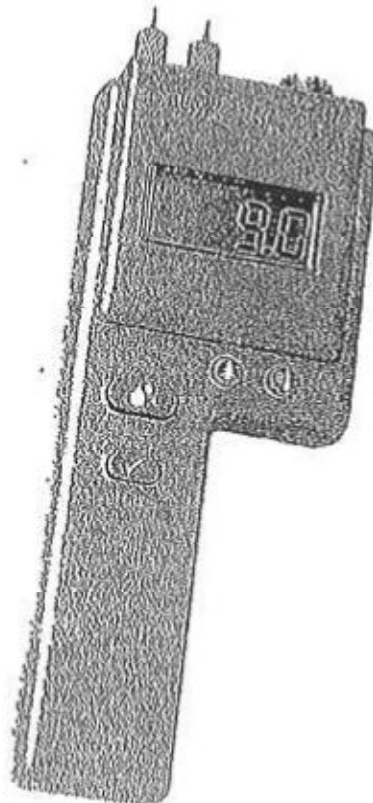
As Found and As Left Data recorded on 9/23/2011

Temperature: 69.7°F / 20.9°C Relative Humidity: 51% Temp/RH Asset: 1012W

Asset	Manufacturer	Model	Description	Cal Date	Due Date	Traceability Numbers
368W	HP	3458A Opt 002	Digital Multimeter, 8.5 Digit	1/31/2011	1/31/2012	5-BA380-2-1

J-2000

owners manual

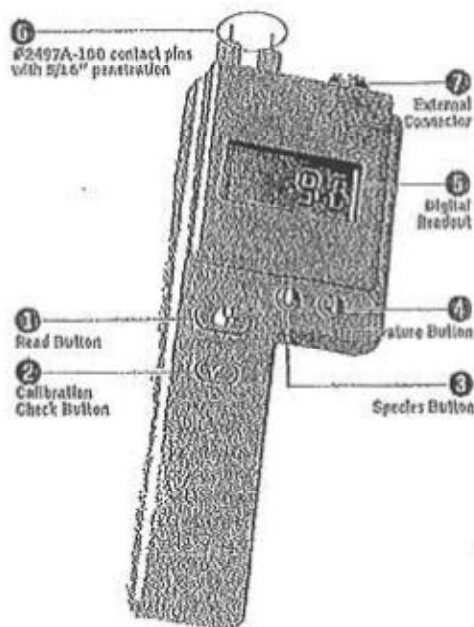


DELMHORST
INSTRUMENT CO.
WHEN ACCURACY IS THE POINT.™

TABLE OF CONTENTS

- 2 J-2000 Features
- 3 Before You Begin
- 3 Check Calibration
- 4 Set Species
- 5 Species Code Chart
- 6 Set Temperature
- 7 Set Pin Calibration
- 7 Taking a Reading
- 8 Information About Your Readings
 - 8 To Check Accumulated Readings
 - 8 To Reset Meter
- 9 Pin Talk
- 9 Care of Your Meter
- 10 Service For Your Meter
- 11 Warranty

DELMHORST J-2000



J-2000 FEATURES

- ▶ Resistance technology recognized worldwide as the most accurate method for measuring moisture
- ▶ 6% to 40% moisture range
- ▶ Digital readout
- ▶ Averages up to 100 accumulated readings
- ▶ Built-in correction for 48 different species
- ▶ Built-in temperature compensation both Fahrenheit and Celsius
- ▶ Proven microcontroller circuit for increased reliability and accuracy
- ▶ Easy one-hand operation
- ▶ Includes (1) 9-Volt Battery
- ▶ Includes sturdy carrying case
- ▶ One-year warranty
- ▶ Over fifty years of proven quality, accuracy and service

BEFORE YOU BEGIN

Button Functions

- ① **READ BUTTON** - Reads the Percent Moisture Content value (%MC), corrected for temperature and species.
- ② **CALIBRATION CHECK BUTTON** - Checks meter calibration. It also displays the average of up to 100 accumulated readings; displays the maximum stored reading; erases the readings.
- ③ **SPECIES BUTTON** - Sets the species code for the wood you are using. Species are numbered from 1 to 48 and are listed on the Species Code Chart. This button also acts as a scroll key, depending on the function.
- ④ **TEMPERATURE BUTTON** - Sets the wood temperature and changes the temperature mode (Fahrenheit or Celsius). This button also acts as a scroll key, depending on the function.

CHECK CALIBRATION

Press the calibration check button ② and read button ① simultaneously. Meter is in calibration if it displays 12% (-1 or -.2).

If you check the calibration and the meter does not display 12% it is likely an indication of a low battery. If this occurs, change the battery immediately. Continued use with a low battery may cause the meter to go out of calibration. If you have a fresh battery and the instrument still does not indicate a proper calibration, return it to DELMHORST for service. See Service for your Meter section.


When the battery is removed and then reconnected, the meter displays its software version for one second and then turns itself off. After replacing the battery, you must reset the meter as described in Resetting the Meter section.




Species Code Chart

CODE / SPECIES	CODE / SPECIES
1 Fir, Douglas	25 Magnolia
2 Pine, Southern	26 Mahogany, African (also Khaya)
3 SPF	27 Mahogany, Honduras
4 Alder	28 Mahogany, Philippine
5 Apitong	29 Maple, Hard/Soft
6 Aspen	30 Meranti, Dark Red
7 Ash, White	31 Oak, Red
8 Basswood	32 Oak, White
9 Birch	33 Pecan
10 Cedar, Eastern Red	34 Pine, Longleaf
11 Cedar, Incense	35 Pine, Pondarosa
12 Cherry	36 Pine, Shortleaf
13 Cottonwood	37 Pine, Sugar
14 Cypress	38 Pine, White
15 Elm, American	39 Poplar, Yellow
16 Fir, Red	40 Redwood
17 Fir, White	41 Radiata Pine
18 Gum, Black	42 Redwood
19 Gum, Red	43 Spruce, Sitka
20 Hemlock, Western	44 SPF, COFI*
21 Hackberry	45 Teak
22 Hickory	46 Viroa
23 Kauri	47 Walnut, Black
24 Larch	48 Western Hemlock - COFI*



*Species and temperature correction data for both Western Hemlock-COFI (code #48) and SPF-COFI (code #44) were developed by COFI. When comparing readings between the model RDM-2/COFI or the RDM-2S/COFI, used with type 26-E electrode with insulated pins, and the J-2000, be sure both meters are set to 2-pin electrode (insulated pins).





SET PIN CALIBRATION

The basic factory calibration of the J-2000 is for use with uninsulated pins -- either the integral pins  or with an optional external electrode, such as the #4-E. The difference in readings between insulated and uninsulated pins is small below 10% moisture content. The difference increases as moisture content increases above 10%. When using an electrode with insulated pins, such as the 26-ES, you can change the calibration to compensate for this difference.

- ▶ To change the pin setting, press and release the species button , then press the calibration check button  within one second.
- ▶ The meter will display the current pin calibration as either 222 for insulated or 444 for uninsulated pins.
- ▶ If you continue to hold the calibration check button , the meter will change pin calibration. The new calibration will remain in "memory" until you change it again, or you remove the battery.

TAKING A READING

The contact pins  provided are best for stock up to 6/4. On stock over 6/4 or for hardwoods over 4/4 we recommend using a remote probe such as the 26-ES ram-type electrode. Mount the 26-ES directly to the external connector . See additional information under the Pin Talk section.

- ▶ Remove the protective cover to expose the pins. Check that the contact pins  are firmly hand tightened.
- ▶ To take a reading, align the contact pins  parallel to the grain and push them to their full penetration into the wood, if possible. Insulated pins read only at the tip and can be driven to the desired depth.
- ▶ Press the read button  and read the moisture content on the meter scale. The meter displays the %MC for two seconds.
- ▶ To add a reading to the sum of all the previously stored readings, release the read button  within 2 seconds.

INFORMATION ABOUT YOUR READINGS

Readings below 6% will be displayed as a numeric value, (-#.#.#), and will not be added to accumulation. A reading below 6% which is due to temperature and species adjustments will be shown as a numeric value with no minus sign and this reading will be added to the accumulation.

Readings above 40% are always displayed as 999 and are not added to the accumulation.

The meter will accumulate up to 100 readings. After all 100 readings are stored it will not add new readings until the memory has been cleared. It will also continue to display the average of all 100 readings as a reminder that the memory is full.

When taking and storing readings for a specific wood species, be sure to "clear" the meter before moving on to the next species if you do not want to group all of the readings together.

TO CHECK ACCUMULATED READINGS

This feature allows you to view the total number of all accumulated readings, the average of those readings, and the highest stored reading.

► To view the readings press and release the calibration check button (2). First the meter displays the number of accumulated readings for one second, then the average of those readings for two seconds. Then it displays the highest stored reading for two seconds. The total "cycle" time is five seconds.

► To erase readings hold the calibration check button (2) down for 5 seconds. All accumulated readings will be erased and the meter will display "0".

TO RESET METER

► Press and release the calibration check button (2).

► Within one second press the species button (3).


► The meter will reset itself and display "170" to indicate Species #1 (Douglas Fir) at 70°F. All of the readings in memory will be cleared.

PIN TALK

There are two types of contact pins - uninsulated, which were provided with your meter, and insulated. When using uninsulated pins, push them in to the wood to their full length, if possible. This will give you the highest measured reading. Insulated pins read only at the tip and can be driven to a desired depth to gather shell and core (gradient) information. Additional types and lengths of both the insulated and uninsulated pins are available for specific applications.

CARE OF YOUR METER

To keep your meter in good working order:

- ▶ Store your meter in a clean, dry place. The protective carrying case provided is an ideal storage place when the meter is not in use.
- ▶ Change the 9-Volt battery as needed. Continued use with a low battery may cause the meter to go out of calibration.
- ▶ Change contact pins as needed. Keep contact pins hand tightened.
- ▶ Clean the meter and contact pins with any biodegradable cleaner. Use the cleaner sparingly and on external parts only. Keep cleaner out of the external connector .
- ▶ Remove the battery if the meter will not be used for one month or longer.

SERVICE FOR YOUR METER

- ▶ Before sending in your meter we recommend you give one of our trained technicians a call. Many times troubleshooting can be taken care of over the phone. Call us at 1-877-DELMHIRST.
- ▶ Pack your meter securely. Enclose a purchase order or letter with a brief description of the problem.
- ▶ There is no need to call us for a return authorization number if you are within the U.S. Customers outside the U.S. must contact us for more specific instructions prior to returning a meter.
- ▶ Include your name, address, daytime phone and fax numbers or e-mail address. If you believe the meter is under warranty, please provide the original sales slip or invoice.
- ▶ Ship via UPS, Express Mail, Priority Mail, or any overnight courier who provides prompt service. Do not use standard parcel post.
- ▶ Insure your instrument for its full value and ship prepaid. We are not responsible for damage in transit.
- ▶ We do not accept COD shipments or cover any incoming freight or duty charges on returned merchandise.
- ▶ Turnaround time on repairs is approximately two weeks.
- ▶ We will call you with an estimate if you specifically request one, or if we determine that the meter may be too costly to repair.
- ▶ Non-warranty repairs will be returned via UPS/COD unless you have already established other payment terms. There is no COD service outside the U.S. To pay by credit card, include the card number and expiration date with your repair. We accept Visa/MasterCard and American Express.
- ▶ Warranty repairs will be returned at no charge if shipped within the U.S. via UPS Ground Service. Freight charges for expedited services (i.e., Federal Express, UPS/2 Day, UPS/1 Day, etc.) are the customer's responsibility and will be charged as per the above terms.

WARRANTY

Deimhorst Instrument Co., referred to hereafter as Deimhorst, guarantees its J-2000 meter for one year from date of purchase and any optional electrodes against defects in material or workmanship for 90 days. If, within the warranty period, you find any defect in material or workmanship return the meter following the instructions in the Service for Your Meter section. This limited warranty does not cover abuse, alteration, misuse, damage during shipment, improper service, unauthorized or unreasonable use of the meter or electrodes. This warranty does not cover batteries or contact pins. If the meter or any optional electrodes have been tampered with, the warranty shall be void. At our option we may replace or repair the meter.

Deimhorst shall not be liable for incidental or consequential damages for the breach of any express or implied warranty with respect to this product or its calibration. With proper care and maintenance the meter should stay in calibration follow the instructions in the Care of Your Meter section.

Under no circumstances shall Deimhorst be liable for any incidental, indirect, special, or consequential damages of any type whatsoever, including, but not limited to, lost profits or downtime arising out of or related in any respect to its meters or electrodes and no other warranty, written, oral or implied applies. Deimhorst shall in no event be liable for any breach of warranty or defect in this product that exceeds the amount of purchase of this product.

The express warranty set forth above constitutes the entire warranty with respect to Deimhorst meters and electrodes and no other warranty, written, oral, or implied applies. This warranty is personal to the customer purchasing the product and is not transferable.

For more detailed information about using a wood moisture meter, call us toll-free at 1-877-DELMHORST. Ask for your free copy of "Measuring Wood Moisture Content: Straight Talk from Delmhorst". Or find it on our web site at www.delmhorst.com.

For over 60 years, Delmhorst has been the leading manufacturer of high-quality moisture meters and thermo-hygrometers. Today we offer the innovative KIL-MO-TROL® In-kiln monitoring system.

We also offer a wide range of meters for a variety of applications including woodworking/lumber, agriculture, construction, paper, restoration, IAQ and flooring.

DELMHORST
INSTRUMENT CO.

WHEN ACCURACY IS THE POINT,™

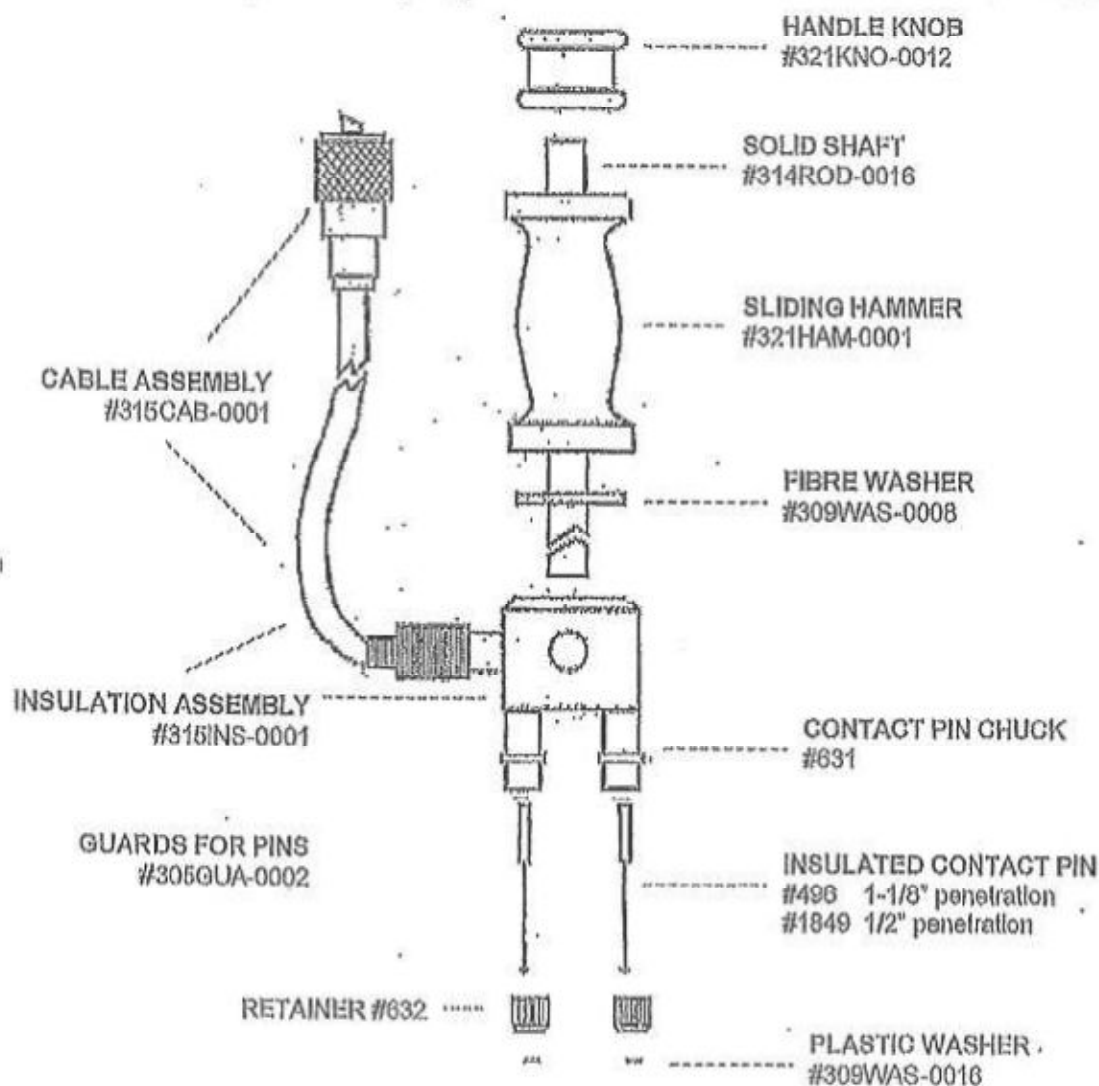
51 Indian Lane East
Towaco, NJ 07082

(877)-DELMHORST
www.delmhorst.com
e-mail - info@delmhorst.com



WHEN ACCURACY IS THE POINT.™

Parts List for 26-ES Electrode



Note: Type 26-ED electrode is fitted with hollow shaft assembly (with depth gauge) #315SHA-0002



CHEVRIER
INSTRUMENTS INC

4850, bd Gouin est
Montréal-Nord, Qc
Canada H1G 1A2

www.chevrierinstruments.com

Instruments de mesure et de régulation pour les procédés industriels et laboratoire d'étalonnage

Tél. (514) 328-2550

1 800 522-1226

Fax (514) 327-0604

info@chevrierinstruments.com

Certificat d'étalonnage

Numéro du certificat: CE1638

Étalonnage effectué par :

LA CIE J. CHEVRIER INSTRUMENTS INC.

4850 GOUIN EST

MONTREAL, QC, CANADA H1G 1A2

Pour :

3424

SBI INC

250, RUE DE COPENHAGUE

ST-AUGUSTIN-DE-DESMARES, QC G3A 2H3

Informations sur l'instrument

Description: MANOMETRE DIFFERENTIEL ANALOGIQUE

Manufacturier: DWYER

Modèle: 2000-00N

Plage: 0/0.20 POH2O

Précision: $\pm 4\%$ P.E.

Numéro de série :

I.D. SBI-025

Etat de l'instrument: BON

Commentaire :

Date d'étalonnage : 2011-02-10

Échéance : 2012-02-10

Résultat de l'étalonnage: Conforme

Conditions ambiantes 20.9 °C / 29.9%HR

Technicien : Pierre Junior Berlus

PJB



POINTS D'ÉTALONNAGE

	Valeur Appliquée	Tolérance -	Lectures	Tolérance +	Verdict
Ascendant	0.0000 poH2O	-0.0100	0	0.0100	OK
Ascendant	0.0500 poH2O	0.0400	0.045	0.0600	OK
Ascendant	0.1000 poH2O	0.0900	0.095	0.1100	OK
Ascendant	0.1500 poH2O	0.1400	0.1425	0.1600	OK
Ascendant	0.2000 poH2O	0.1900	0.1925	0.2100	OK
	Valeur Appliquée	Tolérance -	Lectures	Tolérance +	Verdict
Descendant	0.2000 poH2O	0.1900	0.1925	0.2100	OK
Descendant	0.1500 poH2O	0.1400	0.1425	0.1600	OK
Descendant	0.1000 poH2O	0.0900	0.095	0.1100	OK
Descendant	0.0500 poH2O	0.0400	0.045	0.0600	OK
Descendant	0.0000 poH2O	-0.0100	0	0.0100	OK

Étalons utilisés traçable au C.N.R.C / N.I.S.T

I.D.	Certificat No	Description	Étalonné le	Échéance
CHEV175	12688334994	CALIBRATEUR DE PRESSION DH PPC4	2010-03-17	2011-03-17

Certificat d'étalonnage

Numéro du certificat: CE1638

Procédures utilisées pour effectuer cet étalonnage

Procédure	Description
3PR500-01-CHE	ÉTALONNAGE DE MANOMÈTRE

Certificat d'étalonnage

Numéro du certificat: CE1640

Étalonnage effectué par :

LA CIE J. CHEVRIER INSTRUMENTS INC.
4850 GOUIN EST
MONTREAL, QC, CANADA H1G 1A2

Pour :

3424
SBI INC
250, RUE DE COPENHAGUE
ST-AUGUSTIN-DE-DESMARES, QC G3A 2H3

Informations sur l'instrument

Description: MANOMETRE DIFFERENTIEL ANALOGIQUE
Manufacturier: DWYER
Modèle: 2000-00
Plage: 0/0.25 POH2O
Précision: $\pm 4\%$ P.E.
Numéro de série:
I.D.: SBI-101
Etat de l'instrument: BON

Date d'étalonnage: 2011-02-10

Échéance: 2012-02-10

Résultat de l'étalonnage: Conforme

Conditions ambiantes: 20.9 °C / 29.9%HR

Technicien: Pierre Junior Berlus

PJB

Commentaire :



POINTS D'ÉTALONNAGE

	Valeur Appliquée	Tolérance -	Lectures	Tolérance +	Verdict
Ascendant	0.0000 poH2O	-0.0100	0	0.0100	OK
Ascendant	0.0500 poH2O	0.0400	0.045	0.0600	OK
Ascendant	0.1000 poH2O	0.0900	0.10	0.1100	OK
Ascendant	0.1500 poH2O	0.1400	0.15	0.1600	OK
Ascendant	0.2000 poH2O	0.1900	0.20	0.2100	OK
Ascendant	0.2500 poH2O	0.2400	0.25	0.2600	OK
	Valeur Appliquée	Tolérance -	Lectures	Tolérance +	Verdict
Descendant	0.2500 poH2O	0.2400	0.25	0.2600	OK
Descendant	0.2000 poH2O	0.1900	0.20	0.2100	OK
Descendant	0.1500 poH2O	0.1400	0.15	0.1600	OK
Descendant	0.1000 poH2O	0.0900	0.10	0.1100	OK
Descendant	0.0500 poH2O	0.0400	0.045	0.0600	OK
Descendant	0.0000 poH2O	-0.0100	0	0.0100	OK

Certificat d'étalonnage

Numéro du certificat: CE1640

Étalons utilisés traçable au C.N.R.C / N.I.S.T

ID	Certificat No	Description	Étalonné le	Échéance
CHEV175	12688334994	CALEBRATEUR DE PRESSION DH PPC4	2010-03-17	2011-03-17

Procédures utilisées pour effectuer cet étalonnage

Procédure	Description
3PR500-01-CHE	ÉTALONNAGE DE MANOMÈTRE



**TRANSCAT® CALIBRATION
SERVICES**



NVLAP LAB CODE
200886-0

CERTIFICATE OF CALIBRATION

Customer: INTERTEK
22887 NE TOWNSEND WAY
FAIRVIEW, OR 97024

Customer Nbr: 1-556813-000
PO Nbr: USA20-0000202108
Date Received: April 13, 2011

Cert/SO Nbr: 2-BD86Q-61-1
Manufacturer: Sportline
Model Nbr: 226

Date Completed: April 20, 2011
Due Date: April 20, 2012

Description: Stopwatch
Serial Nbr: NONE
ID Nbr: 19702
Unit Barcode: 900B0006050

Calibration Proc: 1-AC32646-1
Item Received: In Tolerance
Item Returned: In Tolerance

For calibration data, see Supplemental Report for SO Nbr 2-BD86Q-61-1

Transcat Calibration Laboratories have been audited and found in compliance with ISO/IEC 17025:2005. Accredited calibrations performed within the Lab Scope of Accreditation are indicated by the presence of the Accrediting Body's Logo and Certificate Number on this Certificate of Calibration. Any measurements on an accredited calibration not covered by that Lab Scope are listed in the notes section of the certificate. This report must not be used to claim product certification approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Transcat calibrations as applicable are performed in compliance with the requirements of ISO9001:2008, ISO TSI6919, ANSI/NCSL Z540-1994, and ISO 10012-1992. When specified contractually the requirements of 10CFR21, 10CFR50 App. B and NQA-1 are also covered.

Traceability includes no less than an unbroken chain of comparison realization of SI units, measurement uncertainty, documentation, competence, periodic recalibration and measurement assurance. Transcat documents the traceability of measurements to the SI units through the National Institute of Standards and Technology (NIST) or the National Research Council of Canada (NRC), or other recognized national measurement institutes (NMIs) or international standard bodies, or to measurable conditions created in our laboratory, or accepted fundamental and/or natural physical constants, ratio type of calibration, or by comparison to consensus standards. The specific path of traceability for the reported measurement results is maintained at the Transcat facility and is available there for review.

Complete records of work performed are maintained by Transcat and are available for inspection. Laboratory standards used in the performance of this calibration are shown on the Supplemental Report.


The results in this report relate only to the item calibrated or tested and the determination of in or out of tolerance is specific to the model/serial no. referenced above based on the tolerances shown on the supplemental report; these tolerances are either the original equipment manufacturer's (OEM's) warranted specifications or the client's requested specifications.

The applied uncertainty is the uncertainty of the calibration process. The Test Uncertainty Ratio (TUR) is calculated as per NCSL International RP9, section 8.2. All calibrations have been performed using processes having a test uncertainty that is four or more times greater than the tolerance of the unit calibrated, unless otherwise noted on the Supplemental Report. Uncertainties have been estimated at a 95 percent confidence level (k=2). Calibration at a 4:1 TUR (or greater) provides reasonable confidence that the instrument is within the stated tolerances. For measuring instruments in order to consider the contribution to the uncertainty from reproducibility of the unit under test (UUT), add 0.6 of the UUT's least significant digit to the reported uncertainty. For mass calibrations: Conventional mass referenced to 8.0 g/cm³.


Any number of factors can cause a unit to drift out of tolerance at any time following its calibration. Limitations on the uses of this instrument are detailed in the OEM's operating instructions.

Notes:

Calibrated At:
14058 SW Milton Ct
Portland, OR 97224
By: David Cordell

 Digitally Signed On 4/20/2011

Facility Responsible:
14058 SW Milton Ct
Portland, OR 97224
503-598-8700

 Digitally Signed By Mare Jaso for
Date: 4/21/2011

Tony Kutch
Lab Manager

Revision 0

This certificate may not be reproduced except in full without the written approval of Transcat. Additional information if applicable may be included on separate reports.

10013071 8/16/2009

Certificate - Page 1 of 1



SUPPLEMENTAL REPORT FOR BD86Q-61-1

CALIBRATION LAB DATA AS FOUND / AS LEFT

Service Order Nbr: BD86Q-61-1		Mfg: Sportline	
Description: Stopwatch		Model: 226	
Serial: NONE		PO Nbr: USA20-0000202108	
Customer: INTERTEK		ID Nbr: 19702	
Calibrated: 4/20/2011		Calibration Proc: 1-AC32646-1	
Date Due: 4/20/2012			
Service Type: R6			

Description	Setpoints	Accuracy	Low Limit	High Limit	As Found / As Left	Uncertainty (k=2; ±)	TUR
Time Measurement Error							
Seconds/day	0.00sec/day	±(1 sec/day)	-1.00	1.00	0.58 sec/day		
All Function Test							
All Function Test			P	P	P		

As Found and As Left Data recorded on 4/20/2011

Temperature: 71.8°F / 22.1°C Relative Humidity: 42% Temp/RH Asset: 1012W

Asset	Manufacturer	Model	Description	Cal Date	Due Date	Traceability Numbers
486W	Hewlett Packard	53131A	UNIVERSAL COUNTER	6/2/2010	6/30/2011	2-&1016W-10-1

The reported uncertainty is the uncertainty of the calibration process. For measuring instruments add 0.6 of the least significant digit to the reported uncertainty to obtain the measurement uncertainty of the unit under test at the specific test point.
Reported resolution of the UUT does not represent calibration uncertainty or accuracy of the UUT.

Field not applicable.

Calibration Lab Data Report - Page 1 of 1

Service Order Nbr: BD86Q-61-1



TRANSCAT[®] CALIBRATION SERVICES

Certificate of Compliance


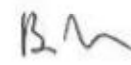
It is hereby certified that this article has been tested for functionality. If the article has no testable function it has been inspected and is certified to be the article as described.

Customer: INTERTEK
2595 SOUTHWEST 153RD DRIVE
BEAVERTON, OR 97006

Customer Nbr: 1-556813-000
PO Nbr: USA20-0000202108
Date Received: December 13, 2010

Cert/SO Nbr: 2-A94VT-88-1
Manufacturer: Troemner
Model Nbr: UNKNOWN (PM0104)

Date Completed: February 03, 2011
Due Date: January 21, 2012

Part Nbr: Unknown (PM0104)
Description: 10 Lb Weight, Single
Serial Nbr: NONE
ID Nbr: ~~NONE~~  20115 
Unit Barcode: 901B0008371

Transcat Calibration Laboratories have been audited and found in compliance with ISO/IEC 17025:2005. Accredited calibrations performed within the Lab Scope of Accreditation are indicated by the presence of the Accrediting Body's Logo and Certificate Number on this Certificate of Calibration. Any measurements on an accredited calibration not covered by that Lab Scope are noted below. This report must not be used to claim product certification, approval, or endorsement by NVLAP, A2LA, NIST, or any agency of the Federal Government.

Transcat calibrations, as applicable, are performed in compliance with the requirements of ISO9001:2000, ISO TS16949, ANSI/NCSL Z540-1994, QS-9000 and ISO 10012:1992. When specified contractually the requirements of 10CFR21, 10CFR50 App. B and NQA-1 are also covered.

Transcat will maintain and document the traceability of all its standards to the National Institute of Standards and Technology (NIST) or the National Research Council of Canada (NRC), or to other recognized national or international standard bodies (NIMs), or to measurable conditions created in our laboratory, or accepted fundamental and/or natural physical constants, ratio type of calibration, or by comparison to consensus standards. The specific path of traceability for the reported measurement results is maintained at the Transcat facility and is available there for review.

Complete records of work performed are maintained by Transcat and are available for inspection. Laboratory standards used in the performance of this calibration are shown below.

The results in this report relate only to the item calibrated or tested and the determination of in or out of tolerance is specific to the model and no referenced above based on the manufacturer's published specifications.

All calibrations have been performed using processes having a test uncertainty ratio of four or more times greater than the unit calibrated unless otherwise noted on the Supplemental Report. Uncertainties have been estimated at a 95 percent confidence level ($k=2$). Calibration at a 4:1 TUR provides reasonable confidence that the instrument is within the manufacturer's published specifications. Limitations on the uses of this instrument are detailed in the manufacturer's operating instructions. Any number of factors can cause a unit to drift out of tolerance at any time following its calibration. The reported uncertainty is the uncertainty of the calibration process. For measuring instruments add 0.6 of the least significant digit to the reported uncertainty to obtain the measurement uncertainty of the unit under test at the specific point. For mass calibrations: Conventional mass referenced to 8.0 g/cm³. For single sided tolerances no TUR will be provided.


Notes: This device was certified by Troemner on 21 Jan 2011, (see attached certificate 591491B), as reviewed by Transcat policy P0902R2.

Checked for compliance at:

14058 SW Milton Ct
Portland, OR 97224
By: Greg Guile

Facility Responsible:

14058 SW Milton Ct
Portland, OR 97224
503-598-8700

 Digitally Signed By Drake Dunning for
Date: 2/3/2011

Tony Kutch
Lab Manager

 Digitally Signed On 2/3/2011

Reprinted on 02/08/2011

Revision 0

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F0013R11 8/06/2009

Certificate - Page 1 of 1



SUPPLEMENTAL REPORT FOR A94VT-88-1

CALIBRATION LAB DATA AS FOUND / AS LEFT

Service Order Nbr: A94VT-88-1	Mfg: Troemner
Description: 10 Lb Weight, Single	Model: UNKNOWN (PM0104)
Serial: NONE	
Customer: INTERTEK	
Calibrated: 2/3/2011	PO Nbr: USA20-0000202108
Date Due: 1/21/2012	ID Nbr: NONE
Service Type: V9	Calibration Proc: 1-AC10001-1

Description	Setpoints	Accuracy	Low Limit	High Limit	As Found / As Left	Q	Uncertainty (k=2; ±)	TUR
Function Check								
Documentation Verification			P	P	P			

As Found and As Left Data recorded on 2/3/2011

Temperature: 67.5°F / 19.7°C Relative Humidity: 42% Temp/RH Asset: 1013W

Asset: Manufacturer: Model: Description: Cal Date: Due Date: Traceability Numbers:

None - 02 None - Only for Lab Use NONE Only for lab use 1/23/2009 1/23/2009 N/A

Remarks

This device was certified by Troemner on 21 Jan 2011, (see attached certificate 591491B), as reviewed by Transcat policy P090282

The reported uncertainty is the uncertainty of the calibration process. For measuring instruments, add 0.6 of the least significant digit to the reported uncertainty to obtain the measurement uncertainty of the unit under test at the specific test point.

Reported resolution of the UUT does not represent calibration uncertainty or accuracy of the UUT

Field not applicable.

Calibration Lab Data Report - Page 1 of 1

Service Order Nbr: A94VT-88-1

Calibration Certificate

201 Wolf Drive • P.O. Box 87 • Thorofare, NJ 08086-0087 • Phone: 856-686-1600 • Fax: 856-686-1601 • www.troemner.com • e-mail: troemner@troemner.com

Page 1 of 7 Pages
Weight

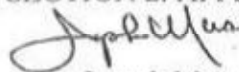
Certificate Number 591491B-1
Date of Calibration 21-JAN-2011

SECTION 1: NAME AND ADDRESS OF CUSTOMER

End user
Transcat Inc
14058 SW Milton Ct
Portland OR 97224-8025

Client
Transcat (Rochester)
35 Vantage Point Drive
Rochester NY 14624

SECTION 2: APPROVED SIGNATORY



Joseph Moran, Metrology Manager

SECTION 3: PERSON PERFORMING WORK

Daniel Foglio

SECTION 4: CERTIFICATE INFORMATION

Description of Masses: Cast Iron

Accuracy Class	: NIST 105-1 Class F	Date Received	: 11-JAN-2011
Order Number	: 304744	Date of Calibration	: 21-JAN-2011
Construction	: Two Piece	Date of Issue	: 21-JAN-2011
Material	: Cast Iron	Weight Range	: 10 lb

SECTION 5: ENVIRONMENTAL CONDITIONS DURING TEST

Temperature: 21.73°C Pressure: 752.79 mm Hg Relative Humidity: 45%

SECTION 6: PERTINENT INFORMATION

The Weights listed on this calibration report have been compared to reference mass standards that are directly traceable to the National Institute of Standards and Technology under Test No. 822/272103-05.

Reference standards and balances used to perform the calibration are listed in Section 10.

The weights calibrated for this report have been calibrated in accordance with Troemner's calibration process. The calibration performed meets Level III criteria as described in the NIST/NVLAP Technical Guide 150-2.

This calibration also meets specifications as outlined in ISO 9001, ISO/IEC 17025, ANSI/NCCL Z540-1-1994, NRC Document 10CFR50 Appendix B, and applicable documents.

Calibration Certificate

201 Wolf Drive • P.O. Box 87 • Thorofare, NJ 08086-0087 • Phone: 856-686-1600 • Fax: 856-686-1601 • www.troemner.com • e-mail: troemner@troemner.com

Page 2 of 7 Pages
Weight

Certificate Number 591491B-1
Date of Calibration 21-JAN-2011

NAME AND ADDRESS OF CUSTOMER

End user
Transcat Inc
14058 SW Milton Ct
Portland OR 97224-8025

Client
Transcat (Rochester)
35 Vantage Point Drive
Rochester NY 14624

SECTION 7: TRUE MASS (MASS IN VACUUM) CALIBRATION DATA

Nominal Mass Value	Serial Number	----- True Mass ----- As Found	----- As Left	Density ¹ of Weight	Uncertainty (+ or -)
10 1b		4536.2786 g	4536.2786 g	7.2000 g/cm ³	50.0 mg

Calibration Certificate

201 Wolf Drive • P.O. Box 87 • Thorofare, NJ 08086-0087 • Phone: 856-686-1600 • Fax: 856-686-1601 • www.troemner.com • e-mail: troemner@troemner.com

Page 3 of 7 Pages
 Weight

Certificate Number 591491B-1
 Date of Calibration 21-JAN-2011

NAME AND ADDRESS OF CUSTOMER

End user
 Transcat Inc
 14058 SW Milton Ct
 Portland OR 97224-8025

Client
 Transcat (Rochester)
 35 Vantage Point Drive
 Rochester NY 14624

SECTION 8: MASS IN AIR CALIBRATION VALUE VS. REFERENCE DENSITY 8000 kg m⁻³

Nominal Mass Value	Serial Number	---- Conventional Mass Value ----		Uncertainty (+ or -)	Tolerance (+ or -)
		As Found	As Left		
10 1b		4536.2030 g	4536.2030 g	50.0 mg	450.0000 mg

Calibration Certificate

201 Wolf Drive • P.O. Box 87 • Thorofare, NJ 08086-0087 • Phone: 856-686-1600 • Fax: 856-686-1601 • www.troemner.com • e-mail: troemner@troemner.com

Page 4 of 7 Pages
Weight

Certificate Number 591491B-1
Date of Calibration 21-JAN-2011

NAME AND ADDRESS OF CUSTOMER

End user
Transcat Inc
14058 SW Milton Ct
Portland OR 97224-8025

Client
Transcat (Rochester)
35 Vantage Point Drive
Rochester NY 14624

SECTION 9: MASS IN AIR CALIBRATION DATA VS. REFERENCE DENSITY 8000 kg m⁻³

Nominal Mass Value	Serial Number	-- Conventional Mass Correction --		Uncertainty (+ or -)	Tolerance (+ or -)
		As Found	As Left		
10 lb		279.3 mg	279.3 mg	50.0 mg	450.0000 mg

Calibration Certificate

201 Wolf Drive • P.O. Box 87 • Thorofare, NJ 08086-0087 • Phone: 856-686-1600 • Fax: 856-686-1601 • www.troemner.com • e-mail: troemner@troemner.com

Page 6 of 7 Pages

Weight

Certificate Number 591491B-1

Date Of Calibration 21-JAN-2011

NAME AND ADDRESS OF CUSTOMER

End user

Transcat Inc
14058 SW Milton Ct
Portland OR 97224-8025

Client

Transcat, (Rochester)
35 Vantage Point Drive
Rochester NY 14624

SECTION 11: GENERAL INFORMATION

This calibration was performed in Troemner's High Precision Level I Mass Metrology Laboratory at 201 Wolf Drive, Thorofare, New Jersey 08086 unless otherwise noted on page one. The internal procedures used are CAL-CLASSI, CAL-MMAP, and NIST HB145.

SECTION 12: DEFINITIONS AND TERMS

MASS IN A VACUUM - The mass of a weight as if it were measured in a vacuum. Also known as True Mass.

MASS IN AIR - The conventional value of the result of weighing in air, in accordance to International Recommendation OIML D 28. For a weight taken at 20° C, the conventional mass is the mass of a reference weight of a density of 8000 kg·m⁻³ which it balances in air of a density of 1.2 kg·m⁻³.

AS FOUND MASS IN A VACUUM - The measured value of the mass(es) as they were received by Troemner.

AS LEFT MASS IN A VACUUM - The measured value of the mass(es) after they were adjusted, repaired or replaced when necessary. The As Found Mass in a Vacuum will equal the As Left Mass in a Vacuum if the mass(es) did not require adjustment, repair or replacement.

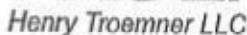
NOMINAL MASS - The mass value as marked on the weight.

CORRECTION - The difference between the mass value of a weight and its nominal value. A positive correction indicates that the mass value is greater than the nominal value by the amount of the correction.

AS FOUND CONVENTIONAL MASS CORRECTION - The conventional correction of the result, as it was received by Troemner, of weighing in air in accordance to International Recommendation D 28. For a weight taken at 20° C, the conventional mass is the mass of a reference weight of density 8000 kg·m⁻³ which it balances in air density of 1.2 kg·m⁻³. If the customer requires cleaning prior to calibration, the after cleaning correction would be reported.

AS LEFT CONVENTIONAL MASS CORRECTION - The conventional correction of the result, after adjustment, repair, or replacement of weighing in air in accordance to International Recommendation D 28. For a weight taken at 20° C, the conventional mass is the mass of a reference weight of density 8000 kg·m⁻³ which it balances in air density of 1.2 kg·m⁻³. The As Found will equal the As Left Conventional Mass Correction if the mass(es) did not require adjustment, repair or replacement.

(continued on next page)



Page 7 of 7 Pages

Weight

Certificate Number 591491B-1

Date of Calibration 21-JAN-2011

NAME AND ADDRESS OF CUSTOMER

End user

Transcat Inc
14058 SW Milton Ct
Portland OR 97224-8025

Client

Transcat (Rochester)
35 Vantage Point Drive
Rochester NY 14624

SECTION 12: DEFINITIONS AND TERMS (continued)

UNCERTAINTY - The standard deviation associated with the result of the measurement that characterizes the dispersion of the values that could reasonably be attributed to the measurand. The uncertainty is calculated in accordance with NIST TechNote 1297 / UKAS M3003 using a coverage factor of $k = 2$ ($k = 2$ defines an interval having a level of confidence of approximately 95 percent). The uncertainty does not include possible effects of magnetism.

TOLERANCE - Defines the limits in which the correction value and the uncertainty must fall to meet the tolerance specification for the given Class.

AS FOUND CONVENTIONAL MASS VALUE - The measured value of the mass(es) as they were received by Troemner, of weighing in air in accordance to International Recommendation OIML D 28. For a weight taken at 20° C, the conventional mass is the mass of a reference weight of density 8000 kg·m⁻³ which it balances in air density of 1.2 kg·m⁻³. If the customer requires cleaning prior to calibration, the after cleaning value would be reported. F denotes Out of Tolerance Weight.

AS LEFT CONVENTIONAL MASS VALUE - The measured value of the mass(es) after they were adjusted, repaired or replaced when necessary, of weighing in air in accordance to International Recommendation OIML D 28. For a weight taken at 20° C, the Conventional Mass is the mass of a reference weight of density 8000 kg·m⁻³ which it balances in air density of 1.2 kg·m⁻³. The As Found will equal the As Left Conventional Mass Value if the mass(es) did not require adjustment, repair or replacement.

ASTM E617-97 - Weights meet the tolerance specification for ASTM E617-97. Weights 2kg - 1g screened for magnetism using a Gaussmeter.

SECTION 13: ADDENDUM

Weight(s) Pass Visual Inspection

CERTIFICAT D'ÉTALONNAGE N° W-007466-6373

pour

Services d'essais Intertek Ltée

1829, 32^e avenue

Lachine, (Québec)

H8T 3J1

pour

JEU DE POIDS MÉTRIQUES No.180-110

Le Service d'évaluation des laboratoires d'étalonnage (CLAS) du Conseil national de recherches du Canada (CNRC) a évalué et certifié la capacité d'étalonnage du laboratoire et la traçabilité au Système international d'unités (SI) ou à des étalons acceptables selon le CLAS. Le présent certificat d'étalonnage est délivré conformément aux conditions de certification du CLAS et aux conditions ISO/IEC 17025 d'accréditation du Conseil canadien des normes (CCN). Le CLAS et le CCN ne garantissent pas l'exactitude des étalonnages individuels effectués par les laboratoires accrédités.

Numéro de Laboratoire Accrédité : 279

Certificat CLAS/NRC : 98-01

VERIFIÉ PAR:



Adrian Rosu, Technologue en Étalonnage

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Page 1 de 3

FISHER SCIENTIFIC

Part of Thermo Fisher Scientific / Une partie de Thermo Fisher Scientific

Metrology Laboratory / Laboratoire de métrologie

112 chemin Colonnade Road, Nepean, Ontario, K2E 7L6

Toll free: 1-877-MASS CAL, Local: (613) 228-6570, Fax: (613) 226-1460, metrology.canada@thermofisher.com

Client: Services d'essais Intertek Ltée
Contact: Eric Lafontaine
Client P.O. No.: SC-633594-MTL
Page 2 de 3

[illegible]

- Q

Toll free: 1-877-MASS CAL. Local: (613) 228-6570. Fax: (613) 226-1460. metrology.canada@thermofisher.com

No. de certificat: W-007466-6373
Date reçue: November 17, 2006
Date étalonnée: November 20, 2006
Date de réétalonnage: November 20, 2007

Client: Services d'essais Intertek Ltée
Contact: Eric Lafontaine
Client P.O. No.: SC-633594-MTL
Page 3 de 3

Fourchette d'utilisation: 500g - 100g

État à la réception: Bon

DESCRIPTION DES POIDS

Valeur nominale	Matériel	Manufacturier	Forme	Type	Classe
500g - 100g	Acier inoxydable	Ohaus Scale Corp.	Cyl. rainure/cavité	II	ANSI/ASTM 4

MÉTHODE D'ÉTALONNAGE

Méthode Employée	No. du Formulaire
Substitution double	F43 Manuel 145, manuel de NIST/NBS pour la garantie de la qualité des mesures métrologiques, Novembre 1986

DÉROGATION À LA PROCÉDURE: Aucun

BALANCE(S) UTILISÉE(S)

Les balances sont étalonnées avant leur utilisation initiale. Un rapport d'entretien et d'inspection (M&I) est effectué annuellement pour chaque balance. Si une déviation se produit, la balance est réétalonnée.

Balances	No. de certificat.	Numéro M & I	Date inspectée
AT1005 Mettler No. 1115341792	B-1024B	MIR801	September 13, 2006
AX106 Mettler No. 1122403024	B-1043-1	MIR828	November 02, 2006

RATTACHEMENT / ÉTALON(S) UTILISÉ(S): NRC

L'étalon de référence de Fisher Scientifique est comparé à des intervalles prédéterminés à des étalons nationaux. Les étalons de Fisher Scientifique utilisés pour l'obtention des résultats sont comparés à intervalles prédéterminés à l'étalon de référence de Fisher Scientifique.

Étalons	No. de certificat.	Étalonné par:	Date étalonnée:
SS-P-2	MS-2005-0001	NRC	January 25, 2005
95-4	W-007371-5962	FSML	August 23, 2006
M2US	W-006938-5962	FSML	August 23, 2006

CONDITIONS ENVIRONNEMENTALES

Température 19.2°C
Date étalonnée: 11/20/2006

Humidité: 40%

Pression Barométrique: 1011mBar
Étalonné par: Adrian Rosu



FISHER SCIENTIFIC

Part of Thermo Fisher Scientific / Une partie de Thermo Fisher Scientific
Metrology Laboratory / Laboratoire de métrologie

112 chemin Colonnade Road, Nepean, Ontario, K2E 7L6

Toll free: 1-877-MASS CAL, Local: (613) 228-6570, Fax: (613) 228-1460, metrology.canada@thermofisher.com

CERTIFICAT D'ÉTALONNAGE

Client :	Services d'essais Intertek AN ltée	N° du certificat :	1775
Adresse :	1829, 32 ^e Avenue	N° projet client :	IN061551-1061
	Lachine (Québec) H8T 3J1	Accréditation CCN n° :	24
		Certification CLAS n° :	2000-01
		Classe d'exactitude :	ASTM E-617, classe I
Masse :	500 mg à 10 mg	Date d'étalonnage :	1 ^{er} décembre 2006
Fabricant :	Rice Lake	Date du prochain étalonnage :	Décembre 2011
Condition d'essai : Temp. °C :	20,4	Pression kPa :	101,8
		Humidité % :	36

Valeur nominale	N° de série	N° d'inventaire	Masse conventionnelle telle que reçue Correction (mg)	✦ Masse conventionnelle correction après étalonnage (mg)	Tolérance (+ ou -) (mg)	Incertitudes (+ ou -) (mg)
* 500 mg	5864	180-195	0,0156	0,0026	0,0100	0,0033
* 200 mg	5864	180-195	0,0145	- 0,0003	0,0100	0,0033
* 200 mg •	5864	180-195	0,0191	0,0006	0,0100	0,0033
50 mg	5864	180-195	0,0048		0,0100	0,0033
20 mg	5864	180-195	0,0063		0,0100	0,0033
20 mg •	5864	180-195	0,0059		0,0100	0,0033
10 mg	5864	180-195	0,0054		0,0100	0,0033

✦ S'applique seulement pour les masses qui ont été ajustées * Ajusté ** Hors tolérance pour la classe spécifiée

Pour l'étalonnage des masses, nous utilisons la procédure « Comparaison individuelle » IES 902 et la procédure « Détermination des incertitudes » IES 903. Nos étalons de référence sont étalonnés chaque année par le CNRC. Ce certificat ne peut être reproduit sans la permission écrite de Technisol inc.

Remarques :

Effectué par : J. Adey Approuvé par :  S. Hamel, resp. SMM Date : 19 décembre 2006

No du rapport d'étalonnage CA0003-068-032111

Mettler Toledo
Service Business Unit Industrial
1900 Polaris Parkway
Columbus, Ohio 43240
1-800-METTLER

METTLER TOLEDO

ISO 9001 Registered

ANSI/NCSL Z540 Accrédité



Accrédité par l'American Association of
Laboratory Accreditation (A2LA)

CERT.CALIBRATION #1902.02

Certificat d'étalonnage

Client

Société : SBI Fabricant de poêles International Inc.
Adresse : 250, rue Copenhagen
Ville : St-Augustin État/Province : Québec
Code postal : G3A 2V1 Astrea Customer ID: C037589001001

Instrument

Constructeur : Rice Lake Modèle de terminal : IND560
Modèle : Roughdeck No de série du termin : 00927396KL
No de série : B00927396KL No. Série Impr. : N/A
Capacité : 625 kg Service/Pièce : Lab
Résolution : 0.02 kg Nbre de Divisions : 31250
Classe : III Procédure utilisée : Canadien
Numéro/ID d'actif du cli : SBI-013

Procédure: Le présent certificat est émis conformément aux conditions de certification accordées par l'A2LA, en vertu de la norme ISO/IEC 17025. A2LA a évalué la capacité de mesure du laboratoire et la traçabilité des normes nationales reconnues.

Date de calibrage : 21-mars-2011 Le prochain Cal Date : 31-mars-2012
Signataire autorisé (A2LA) : Dany Careau Signature: ELECTRONIC SIGNATURE
Signature du client :

Étalons de travail

Traçabilité Les poids de test utilisés se réfèrent au National Institute of Standards and Technology.

Jeu de poids no :	Traçabilité NIST No.:	Classe ASTM/OIML	Date d'étalonnage :	Date proch. étalonnage
42268	M10-0278	M1	5-août-2010	5-août-2011
MTP1	MT0015626	F1	17-sept.-2010	17-sept.-2011
Kit S	1356103	M1	5-oct.-2010	5-oct.-2011

Résultats de mesure

La température : 70 °F

Les conditions ambiantes ont été vérifiées afin d'assurer l'exactitude de l'étalonnage.

Test de variation

<input type="checkbox"/> 1	<input type="checkbox"/> 2
<input type="checkbox"/> 4	<input type="checkbox"/> 3

Les poids Appliqués	Position	Avant Réglage	Après Réglage
		Valeur lue	Valeur lue
1: 125 kg	Position 1	125.02 kg	124.96 kg
2: 125 kg	Position 2	125.16 kg	125.02 kg
3: 125 kg	Position 3	125.16 kg	125.02 kg
4: 125 kg	Position 4	125.26 kg	125.00 kg
Erreur maximum :		0.26 kg	0.04 kg
Max Erreur Admissible :		0.10 kg	0.1 kg

Linéarité

	Avant réglage					Dans la Tolérance
	Les poids Appliqués	Valeur lue	Erreur		Erreur admissible	
Zero 1	0.00 kg	0.00 kg	0.00 kg	0 d	1 d	OUI
2	20.00 kg	20.02 kg	0.02 kg	1 d	2 d	OUI
3	40.00 kg	40.04 kg	0.04 kg	2 d	2 d	OUI
4	100.00 kg	100.12 kg	0.12 kg	6 d	5 d	NON
Max 5	200.00 kg	200.24 kg	0.24 kg	12 d	5 d	NON
6	100.00 kg	100.12 kg	0.12 kg	6 d	5 d	NON
7	40.00 kg	40.04 kg	0.04 kg	2 d	2 d	OUI
8	20.00 kg	20.02 kg	0.02 kg	1 d	2 d	OUI
Zero 9	0.00 kg	0.00 kg	0.00 kg	0 d	1 d	OUI

☐ Méthode de substitution utilisée

	Après réglage					Dans la Tolérance
	Les poids Appliqués	Valeur lue	Erreur		Erreur admissible	
Zero 1	0.00 kg	0.00 kg	0.00 kg	0 d	1 d	OUI
2	20.00 kg	20.00 kg	0.00 kg	0 d	2 d	OUI
3	40.00 kg	40.00 kg	0.00 kg	0 d	2 d	OUI
4	100.00 kg	100.02 kg	0.02 kg	1 d	5 d	OUI
Max 5	200.00 kg	200.02 kg	0.02 kg	1 d	5 d	OUI
6	100.00 kg	100.02 kg	0.02 kg	1 d	5 d	OUI
7	40.00 kg	40.00 kg	0.00 kg	0 d	2 d	OUI
8	20.00 kg	20.00 kg	0.00 kg	0 d	2 d	OUI
Zero 9	0.00 kg	0.00 kg	0.00 kg	0 d	1 d	OUI

☐ Méthode de substitution utilisée

Un réglage de la balance a été requis

Si NON, les résultats relatifs à l'état du système avant la prestation de service correspondent à l'état de

☒ OUI

☐ NON

Répétabilité

Poids appliqués : 100.00 kg

	Chargé	Vide	Différence
1	100.00 kg	0.00 kg	100 kg
2	100.02 kg	0.00 kg	100.02 kg
3	100.02 kg	0.00 kg	100.02 kg
Erreur maximale :		0.02 kg	1.0 d
Tolérance :		0.10 kg	5 d

Incertitude

Mesure de l'incertitude = 0.022 kg

Les meilleures incertitudes représentent les incertitudes étendues selon un facteur de sécurité K=2 générant un niveau de confiance approximatif de 95 %. Des dispositions doivent être prises en matière d'environnement au lieu d'étalonnage, d'incertitude induite par l'article en étalonnage et d'effets indésirables causés par le transport du matériel d'étalonnage. Ces facteurs pourraient entraîner une incertitude plus grande que le BMC.

Remarques

Aucune.

No du rapport d'étalonnage CA0003-086-032111

Mettler Toledo
Service Business Unit Industrial
1900 Polaris Parkway
Columbus, Ohio 43240
1-800-METTLER



Accrédité par l'American Association of
Laboratory Accreditation (A2LA)
CERT.CALIBRATION #1902.02

METTLER TOLEDO

ISO 9001 Registered
ANSI/NCSL Z540 Accrédité

Certificat d'étalonnage

Client

Société : SBI Fabricant de poêles International Inc.
Adresse : 250, rue Copenhague
Ville : St-Augustin État/Province : Québec
Code postal : G3A 2V1 Astec Customer ID: C037589001001

Instrument

Constructeur : Weightronix Modèle de terminal : IND580
Modèle : DSL-6060 No de série du termin : 00927386KL
No de série : B00927386KL No. Série Impr. : N/A
Capacité : 500 kg Service/Pièce : LAB
Résolution : 0.02 kg Nbre de Divisions : 25000
Classe : III Procédure utilisée : Canadien
Numéro/ID d'actif du cli : SBI-014

Procédure: Le présent certificat est émis conformément aux conditions de certification accordées par l'A2LA, en vertu de la norme ISO/IEC 17025. A2LA a évalué la capacité de mesure du laboratoire et la traçabilité des normes nationales reconnues.

Date de calibrage : 21-mars-2011 Le prochain Cal Date : 31-mars-2012
Signataire autorisé (A2LA) : Dany Careau Signature: ELECTRONIC SIGNATURE
Signature du client :

Étalons de travail

Traçabilité Les poids de test utilisés se réfèrent au National Institute of Standards and Technology.

Jeu de poids no :	Traçabilité NIST No.:	Classe ASTM/OIML	Date d'étalonnage :	Date proch. étalonnage
42268	M10-0278	M1	5-août-2010	5-août-2011
MTP1	MT0015626	F1	17-sept.-2010	17-sept.-2011
Kit S	1356103	M1	5-oct.-2010	5-oct.-2011

Résultats de mesure

La température : 70 °F

Les conditions ambiantes ont été vérifiées afin d'assurer l'exactitude de l'étalonnage.

Test de variation

<input type="checkbox"/> 1	<input type="checkbox"/> 2
<input type="checkbox"/> 4	<input type="checkbox"/> 3

Les poids Appliqués	Position	Avant Réglage	Après Réglage
		Valeur lue	Valeur lue
1: 125.00 kg	Position 1	125.00 kg	125.00 kg
2: 125.00 kg	Position 2	125.04 kg	125.00 kg
3: 125.00 kg	Position 3	125.00 kg	125.00 kg
4: 125.00 kg	Position 4	124.98 kg	125.00 kg
Erreur maximum :		0.06 kg	0.00 kg
Max Erreur Admissible :		0.10 kg	0.1 kg

Linéarité

	Avant réglage					Dans la Tolérance
	Les poids Appliqués	Valeur lue	Erreur		Erreur admissible	
Zero 1	0.00 kg	0.00 kg	0.00 kg	0 d	1 d	OUI
2	20.00 kg	20.00 kg	0.00 kg	0 d	2 d	OUI
3	40.00 kg	40.00 kg	0.00 kg	0 d	2 d	OUI
4	100.00 kg	100.02 kg	0.02 kg	1 d	5 d	OUI
Max 5	200.00 kg	200.04 kg	0.04 kg	2 d	5 d	OUI
6	100.00 kg	100.02 kg	0.02 kg	1 d	5 d	OUI
7	40.00 kg	40.00 kg	0.00 kg	0 d	2 d	OUI
8	20.00 kg	20.00 kg	0.00 kg	0 d	2 d	OUI
Zero 9	0.00 kg	0.00 kg	0.00 kg	0 d	1 d	OUI

☐ Méthode de substitution utilisée

	Après réglage					Dans la Tolérance
	Les poids Appliqués	Valeur lue	Erreur		Erreur admissible	
Zero 1	0.00 kg	0.00 kg	0.00 kg	0 d	1 d	OUI
2	20.00 kg	20.00 kg	0.00 kg	0 d	2 d	OUI
3	40.00 kg	40.00 kg	0.00 kg	0 d	2 d	OUI
4	100.00 kg	100.00 kg	0.00 kg	0 d	5 d	OUI
Max 5	200.00 kg	200.00 kg	0.00 kg	0 d	5 d	OUI
6	100.00 kg	100.00 kg	0.00 kg	0 d	5 d	OUI
7	40.00 kg	40.00 kg	0.00 kg	0 d	2 d	OUI
8	20.00 kg	20.00 kg	0.00 kg	0 d	2 d	OUI
Zero 9	0.00 kg	0.00 kg	0.00 kg	0 d	1 d	OUI

☐ Méthode de substitution utilisée

Un réglage de la balance a été requis

SI NON, les résultats relatifs à l'état du système avant la prestation de service correspondent à l'état de

☒ OUI

☐ NON

Répétabilité

Poids appliqués : 100.00 kg

	Chargé	Vide	Différence
1	100.00 kg	0.00 kg	100 kg
2	100.02 kg	0.00 kg	100.02 kg
3	100.00 kg	0.00 kg	100 kg
Erreur maximale :		0.02 kg	1.0 d
Tolérance :		0.10 kg	5 d

Incertitude

Mesure de l'incertitude = 0.022 kg

Les meilleures incertitudes représentent les incertitudes étendues selon un facteur de sécurité K=2 générant un niveau de confiance approximatif de 95 %. Des dispositions doivent être prises en matière d'environnement au lieu d'étalonnage, d'incertitude induite par l'article en étalonnage et d'effets indésirables causés par le transport du matériel d'étalonnage. Ces facteurs pourraient entraîner une incertitude plus grande que le BMC.

Remarques

Aucune.



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

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

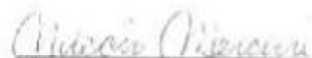
CALIBRATION CERTIFICATE

Certificate no.: 228051
Identification: SBI-096
Description: CALIBRATOR, OMEGA CL23A
Size: TC K/J/T
Manufacturer: OMEGA
Model no.: CL23A
Serial no.: T-256137

Calibration date: August 09, 2010
Certificate issued: August 09, 2010
Interval: 12 months
Due date: August 9, 2011
Procedure no.: MET/CAL
Environment: CLAS Type 2 Laboratory
Temperature: $23 \pm 2^{\circ}\text{C}$
Humidity: 35 - 55% RH
Metrologist: NFS

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

Approved by:


Nuccio Mercuri, Lab Manager

This calibration certificate is issued in accordance with the applicable requirements of ISO/IEC 17025 and QM-68. 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.



Ulrich Métrologie inc. • Ulrich Metrology Inc.
 9912, Côte-de-Liesse Tel. (514) 631-6653
 Lachine, QC H8T1A1 Fax (514) 631-6122
 www.ulrich.ca info@ulrich.ca

CALIBRATION DATA

Certificate No.228051

Instrument ID: SBI-096
 Type: CALIBRATOR THERMOMETER
 Serial no.: T-256137
 Procedure: Omega CL23A: 5520A-M

Result: PASS
 Condition: FOUND-LEFT

CALIBRATION STANDARDS

Standard ID	Type	Manufacturer	Model no.	Cal. Date	Due Date
7870009	CALIBRATOR	FLUKE	5520A	2010/04/23	2011/04/23

MEASUREMENT RESULTS (Per METICAL)

PARAMETER	TRUE VALUE	TEST RESULT	ACCEPTANCE LIMITS LOW	HIGH	PASS/ FAIL	TUR
DISPLAY CALIBRATION						
Did all segments of the display illuminate?						
Result of Operator Evaluation						
					PASS	
THERMOMETER CALIBRATION						
K Type Thermocouple						
-200.0degF		-200.8	-201.0	-199.0	PASS	1.7
-60.0degF		-60.6	-61.0	-59.0	PASS	3.1
-40.0degF		-40.5	-40.5	-39.5	PASS	1.5
32.0degF		31.6	31.5	32.5	PASS	1.7
1240.0degF		1239.6	1239.5	1240.5	PASS	1.1
1260.0degF		1259.6	1259.5	1260.5	PASS	1.1
2500.0degF		2499.5	2499.0	2501.0	PASS	1.4
J Type Thermocouple						
-200.0degF		-200.6	-201.0	-199.0	PASS	2.1
-60.0degF		-60.4	-61.0	-59.0	PASS	3.5
-40.0degF		-40.4	-40.5	-39.5	PASS	1.7
32.0degF		31.6	31.5	32.5	PASS	2.0
1240.0degF		1239.5	1239.5	1240.5	PASS	1.6
1260.0degF		1259.5	1259.5	1260.5	PASS	1.6
1400.0degF		1399.5	1399.4	1400.6	PASS	1.8
T Type Thermocouple						
-200.0degF		-200.3	-201.0	-199.0	PASS	2.3
-60.0degF		-60.0	-61.0	-59.0	PASS	2.3
-40.0degF		-40.1	-40.5	-39.5	PASS	1.2
32.0degF		31.6	31.5	32.5	PASS	1.7
750.0degF		749.8	749.5	750.5	PASS	2.0
CALIBRATOR CALIBRATION						
K Type Thermocouple						
-200.0degF		-199.3	-201.0	-199.0	PASS	1.7
-60.0degF		-59.7	-61.0	-59.0	PASS	3.1
-40.0degF		-39.7	-40.5	-39.5	PASS	1.5
32.0degF		32.2	31.5	32.5	PASS	1.7



Ulrich Métrologie Inc. • Ulrich Metrology Inc.
 9912, Côte-de-Lesse Tél (514) 631-6653
 Lachine, QC H8T1A1 Fax (514) 631-6122
 www.ulrich.ca info@ulrich.ca

PARAMETER	TRUE	TEST	ACCEPTANCE LIMITS		PASS/	TUR
	VALUE	RESULT	LOW	HIGH	FAIL	
1240.0degF		1239.6	1239.5	1240.5	PASS	1.1
1260.0degF		1259.6	1259.5	1260.5	PASS	1.1
2500.0degF		2499.3	2499.0	2501.0	PASS	1.4
J Type Thermocouple						
-200.0degF		-199.9	-201.0	-199.0	PASS	2.1
-60.0degF		-60.1	-61.0	-59.0	PASS	3.5
-40.0degF		-39.9	-40.5	-39.5	PASS	1.7
32.0degF		31.9	31.5	32.5	PASS	2.0
1240.0degF		1239.5	1239.5	1240.5	PASS	1.6
1260.0degF		1259.6	1259.5	1260.5	PASS	1.6
1400.0degF		1399.3	1399.4	1400.6	FAIL	1.8
1400.0degF		1399.5	1399.4	1400.6	PASS	1.8
T Type Thermocouple						
-200.0degF		-199.8	-201.0	-199.0	PASS	2.3
-60.0degF		-60.0	-61.0	-59.0	PASS	2.3
-40.0degF		-39.8	-40.5	-39.5	PASS	1.2
32.0degF		31.9	31.5	32.5	PASS	1.7
750.0degF		749.6	749.5	750.5	PASS	2.0

End of Test Data

Date: 12/8/2010

Equipment: SBI-135 (T1)

Accuracy: 0.1

Reference: SBI-096

Temperature: 69 F

R.H.: 41%

S.D.	0.02	%
R.M.U.	0.14	%
O.M.U	2.49	%
Ave A.D.	1.24	%
Standard Reading	A.D.	
70.0	69.1	1.29
70.0	69.1	1.29
70.0	69.2	1.14

S.D.	0.01	%
R.M.U.	0.05	%
O.M.U	0.81	%
Ave A.D.	0.40	%
Standard Reading	A.D.	
200.0	199.2	0.40
200.0	199.2	0.40
200.0	199.2	0.40

S.D.	0.00	%
R.M.U.	0.02	%
O.M.U	0.22	%
Ave A.D.	0.11	%
Standard Reading	A.D.	
600.0	599.3	0.12
600.0	599.4	0.10
600.0	599.3	0.12

S.D.	0.00	%
R.M.U.	0.01	%
O.M.U	0.02	%
Ave A.D.	0.00	%
Standard Reading	A.D.	
1000.0	999.9	0.01
1000.0	1000.0	0.00
1000.0	1000.0	0.00

S.D.	0.00	%
R.M.U.	0.01	%
O.M.U	0.09	%
Ave A.D.	0.05	%
Standard Reading	A.D.	
1400.0	1399.3	0.05
1400.0	1399.4	0.04
1400.0	1399.4	0.04

Technician: Claude Paré

Date: 12/8/2010

Equipment: SBI-135 (T2) Temperature: 69 F
Accuracy: 0.1 R.H.: 41%
Reference: SBI-096

S.D.		0.02	%	
R.M.U.		0.14	%	
O.M.U		2.21	%	
	Ave A.D.	1.10	%	
Standard	Reading	A.D.		
70.0	69.2	1.14		
70.0	69.2	1.14		
70.0	69.3	1.00		

S.D.		0.01	%	
R.M.U.		0.05	%	
O.M.U		0.71	%	
	Ave A.D.	0.35	%	
Standard	Reading	A.D.		
200.0	199.3	0.35		
200.0	199.2	0.40		
200.0	199.4	0.30		

S.D.		0.00	%	
R.M.U.		0.02	%	
O.M.U		0.16	%	
	Ave A.D.	0.08	%	
Standard	Reading	A.D.		
600.0	599.5	0.08		
600.0	599.5	0.08		
600.0	599.6	0.07		

S.D.		0.00	%	
R.M.U.		0.01	%	
O.M.U		0.02	%	
	Ave A.D.	0.01	%	
Standard	Reading	A.D.		
1000.0	1000.0	0.00		
1000.0	1000.1	0.01		
1000.0	1000.1	0.01		

S.D.		0.00	%	
R.M.U.		0.01	%	
O.M.U		0.07	%	
	Ave A.D.	0.04	%	
Standard	Reading	A.D.		
1400.0	1399.4	0.04		
1400.0	1399.6	0.03		
1400.0	1399.5	0.04		

S.D.		0.00	%	
R.M.U.		0.01	%	
O.M.U		0.07	%	
	Ave A.D.	0.04	%	
Standard	Reading	A.D.		
1400.0	1399.4	0.04		
1400.0	1399.6	0.03		
1400.0	1399.5	0.04		

Technician: Claude Paré



CHEVRIER
INSTRUMENTS INC.

4850, bd Gouin est
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Canada H1G 1A2
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Instrumente de mesure et de régulation pour les procédés industriels et laboratoire d'étalonnage

Tél. (514) 328-2550
1 800 522-1226
Fax (514) 327-0604

info@chevrierinstruments.com

Certificat d'Étalonnage

Numéro du certificat: CE509

Étalonnage effectué par :

LA CIE J. CHEVRIER INSTRUMENTS INC.

4850 GOUIN EST

MONTREAL, QC, CANADA H1G 1A2

Pour :

3424

SBI INC

250, RUE DE COPENHAGUE

ST-AUGUSTIN-DE-DESMAURES, QC G3A 2H3

Informations sur l'instrument

Description TUBE DE PITOT EN S

Manufacturier DWYER

Modèle: 160S-24

Numéro de série

I.D. SBI-203

État de l'instrument: BON

Date d'étalonnage : 2010-12-15

Échéance : 2011-12-15

Résultat de l'étalonnage: Conforme

Conditions ambiantes: 21.1 °C / 39 %hr

Technicien Abdennour Hocini *A.H*

Commentaire :



Points d'étalonnage

Valeur Appliquée pi/min	Pitot standard °Ce	Pitot Uut °Ce	ratio
298 pi-min	0.0055 poH2O	0.0074 poH2O	0.86
499 pi-min	0.0154 poH2O	0.0231 poH2O	0.82
802 pi-min	0.0398 poH2O	0.0577 poH2O	0.83
1002 pi-min	0.0622 poH2O	0.0920 poH2O	0.82
2004 pi-min	0.2485 poH2O	0.3614 poH2O	0.83
3008 pi-min	0.5592 poH2O	0.8208 poH2O	0.83
4014 pi-min	0.9940 poH2O	1.4596 poH2O	0.83
5022 pi-min	1.5535 poH2O	2.2827 poH2O	0.82



CHEVRIER
INSTRUMENTS INC.

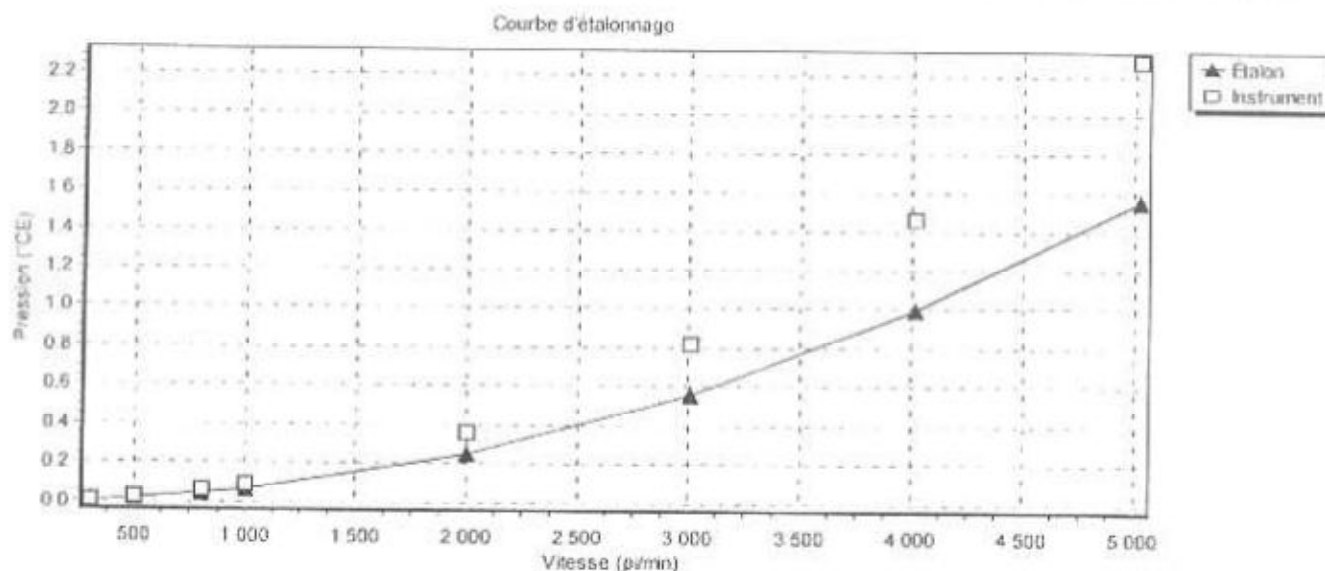
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info@chevrierinstruments.com

Instruments de mesure et de régulation pour les procédés industriels et laboratoire d'étalonnage

Certificat d'Étalonnage

Numéro du certificat: CE509



Fait conformément à l'Échelle International de Température EIT90.

Étalons utilisés traçable au C.N.R.C / N.I.S.T

ID.	Certificat No	Description
CHEV029	091210-960294	MANOMETRE NUMERIQUE FURNESS PPC500
CHEV031	CHEV121-100830	TUYÈRE AIRFLOW DEVELOPMENTS

Étalonné le	Échéance
2009-12-16	2010-12-16
2010-06-30	2011-02-28

Procédures utilisées dans cet étalonnage

Procédure	Description
3PR500-22-CHE	ÉTALONNAGE TUBE DE PITOT

Date de révision

Groupe de service des instruments 1-800-267-6633

724396

- 01

Client: SBI Stove Builder International

Local: Metrologie

St-Augustin de Desmaures

Modèle : TE214S

Balance

Série : 25851066

Liste des Vérification

codes

Câble d'alimentation OK

Sélecteurs, clavier, commandes OK

Circuits imprimés OK

Mécanisme de pesée OK

Poids d'étalonnage Interne N/A

Horizontalité OK

Plateau et support de plateau OK

Bottier et housse OK

Vitres OK

Fonction de tarage OK

Fonction Auto-Calibration OK

Hysteresis OK

Charges excentrées Tolérance : ± 0.5 mg

Commentaires :

Spécifications :

Fabricant: ☒

Client: ☐

Capacité : 210 g

Tolérance : 0.2 mg

Résolution : 0.1 mg

☐ Linéarité

☒ Charge Maximale

Relevées des vérifications

Référence

Tel que trouvé

Tel que laissé

☒ g ☐ mg

0.0500

0.0500

0.0500

☒ g ☐ mg

5.0000

5.0056

5.0000

☒ g ☐ mg

50.0000

50.0564

50.0001

☒ g ☐ mg

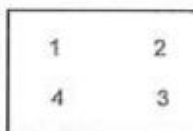
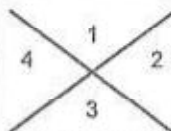
200.0000

200.2254

200.0000

Répond aux spécifications : Tel que trouvé : ☐ Oui ☒ Non

Répond aux spécifications : Tel que laissé : ☒ Oui ☐ Non



Charges excentrées

Poids d'essai: 100

☒ g ☐ kg

Tel que trouvé :

Tel que laissé :

Centre: 0.0000

Centre: 0.0000

1: 0.0000

1: 0.0000

2: 0.0000

2: 0.0000

3: 0.0000

3: 0.0000

4: 0.0000

4: 0.0000

Répond aux spécifications :

Tel que trouvé : ☒ Oui ☐ Non

Tel que laissé : ☒ Oui ☐ Non

Codes : OK = , vérifié , étalonné , nettoyé

N/A = non applicable

Cor = corrigé

Déf = défectueux

Remp = Remplacer

Étalons certifiés

Jeu de poids QUE014

Représentant de service :

Daniel Toulouse

Date d'étalonnage :

15 Novembre 2010

Prochaine date d'étalonnage :

30 Novembre 2011

Approbation du client :

Date:

Appendix E

Sample Calculations

Equations and Sample Calculations - Method 5G

Equations used to calculate the parameters listed below are described in this appendix. Sample calculations are provided for each equation. The raw data and printout results from a sample run are also provided for comparison to the sample calculations.

BR	Dry burn rate, kg/hr
m_a	Total particulate matter collected, mg
$V_{m(std)}$	Volume of gas sampled corrected to standard conditions, dscf
v_g	Average dilution tunnel gas velocity, ft/sec
C_g	Particulate concentration, g/dscf
Q_{td}	Average dilution tunnel gas flow rate, dscf/min
E	Particulate emission rate, lbs/hr
PR	Proportional rate variation, %

Dry Burn Rate

Using equation 28-3:

$$BR = \frac{60 \times W_{wd}}{\theta} \times \frac{100 - \%M_w}{100}$$

Where,

- BR = Dry burn rate, lb/hr
- W_{wd} = Mass of wood burned (wet basis) during test run, lb
- θ = Total time of test run, minutes
- $\%M_w$ = Average moisture content of test fuel charge, wet basis percent

Sample Calculation:

Dry basis moisture of fuel = 20.03%

Using the equation 28-2 for converting dry basis moisture to wet basis moisture,

$$\%M_w = \frac{20.03 \times 100}{20.03 + 100}$$

$$\%M_w = 16.69\%$$

The wet weight of the fuel charge was 7.8 pounds. Converting pounds to kilograms yields a weight of 3.538 kg. The run time for this run was 180 minutes. Therefore, the burn rate equation appears thus:

$$BR = \frac{60 \times 3.538 \times (100 - 16.69)}{180 \times 100}$$

$$BR = 0.98 \text{ kg/hr} = 2.17 \text{ lb/hr}$$

Volume of Gas Sampled Corrected to Dry Standard Conditions

Using equation 5-1:

$$V_{m(std)} = V_m \times Y \times \left(\frac{T_{std}}{P_{std}} \right) \times \frac{(P_b + \frac{\Delta H}{13.6})}{T_m}$$

Where:

K = 17.64 °R/in. Hg

T_{std} = 528 °R

P_{std} = 29.92 in. Hg

V_m = Volume of gas sample measured at the dry gas meter, dcf

Y = Dry gas meter calibration factor, dimensionless

P_b = Barometric pressure at the testing site, in. Hg

ΔH = Average pressure differential across the orifice meter, in. H₂O

T_m = Absolute average dry gas meter temperature, °R

Sample Calculation:

$$V_{m(std)} = 98.434 \times 1.01 \times \left(\frac{528}{29.92} \right) \times \frac{30.03 + \frac{0.7}{13.6}}{532.5}$$

$$V_{m(std)} = 99.116 \text{ ft}^3$$

Dilution Tunnel Gas Velocity

Using equations 2-7 and 2-6, calculated at each recorded interval:

$$v_s = k_p \times C_p \times \sqrt{\Delta P} \times \sqrt{\frac{T_{s(avg)}}{P_s \times M_s}}$$

$$M_s = M_d \times (1 - B_{ws}) + 18.0 \times B_{ws}$$

Where:

v_s = Average dilution tunnel gas velocity, ft/sec

k_p = Pitot tube constant: $85.49 \frac{ft}{sec} \left[\frac{(lb/lb-mole) \times (inches\ Hg)}{(^{\circ}R) \times (inches\ H_2O)} \right]^{\frac{1}{2}}$

C_p = Pitot tube coefficient (0.99 for standard pitot tube; 0.84 may be used for S-type pitot tubes constructed according to Method 2 procedures), unitless

ΔP = ΔP measured during the pre-test flow traverse of the dilution tunnel; the square root of the ΔP values are averaged for this calculation, in. H_2O

P_b = Barometric pressure at test site, in. Hg

P_s = Static Pressure of tunnel, in. Hg

P_t = Absolute tunnel pressure, $= P_b + P_s$

M_d = Molecular weight of tunnel gas; assume $M_d = 29$ lb/lb-mole (per method 5G)

B_{ws} = Moisture content of dilution tunnel gas, ratio; assume 4% (per method 5G)

T_s = Dilution tunnel temperature, $^{\circ}R$; ($^{\circ}R = ^{\circ}F + 460$)

Sample calculation:

$$M_s = 29 \times (1 - 0.04) + 18.0 \times 0.04 = 28.56$$

$$v_s = 85.49 \times 0.99 \times \sqrt{0.0351} \times \sqrt{\frac{(548)}{(30.03 + \frac{-0.45}{13.6}) \times (28.56)}}$$

$$v_s = 12.69 \frac{ft}{sec}$$

Particulate Concentration

Using equation 5G-2:

$$C_s = 0.001 \frac{g}{mg} \times \frac{m_p}{V_{m(std)}}$$

Where:

C_s = Concentration of particulate matter in stack gas, dry basis, corrected to standard conditions, g/dscf

m_p = Total mass of particulate matter collected in the sampling train, mg

$V_{m(std)}$ = Volume of gas sampled corrected to dry standard conditions, dscf

Sample calculation:

$$C_s = \frac{0.001 \times 16.2}{99.116}$$

$$C_s = 0.000163 \text{ g/dscf}$$

Average Dilution Tunnel Gas Flow Rate

Using equation 2-8, calculated at each recorded interval:

$$Q_{sd} = 3600 \times (1 - B_{wa}) \times v_s \times A \times \frac{T_{std}}{T_{s(avg)}} \times \frac{P_s}{P_{std}}$$

Where:

Q_{sd}	=	Gas flow rate corrected to dry, standard conditions, dscf/hr
3600	=	Conversion from seconds to hours
B_{wa}	=	Moisture content of dilution tunnel gas, ratio; assume 4% (per method 5G)
v_s	=	Average dilution tunnel gas velocity, ft/sec
A	=	Cross sectional area of dilution tunnel, ft ²
T_{std}	=	Standard absolute temperature, 538°R
$T_{s(avg)}$	=	Average absolute dilution tunnel temperature, °R, (°R = °F + 460)
P_b	=	Barometric pressure at test site, in. Hg
P_s	=	Dilution tunnel static pressure, in. Hg
P_a	=	Absolute dilution tunnel gas pressure, in Hg, (Hg = $P_b + P_s$)
P_{std}	=	Standard absolute pressure, 29.92 in Hg

Sample calculation:

$$Q_{sd} = 3600 \times (1 - 0.04) \times 12.69 \times \frac{(\pi \times 3^2)}{144} \times \frac{528}{548} \times \frac{30.03 + \frac{-0.45}{13.6}}{29.92}$$

$$Q_{sd} = 8313.36 \text{ dscf/hr} = 138.56 \text{ dscf/min}$$

Particulate Emission Rate

Using equation 5G-3 and 5G-4:

$$E = C_s \times Q_{sd}$$

$$E_{adj} = K_3 \times E^{0.83}$$

Where:

E = Particulate emission rate, g/hr

E_{adj} = Particulate emission rate, adjusted, g/hr

C_s = Concentration of particulate matter in the stack, corrected to dry, standard conditions, g/dscf

Q_{sd} = Average dilution tunnel gas flow rate, dscf/hr

K_3 = Constant, 1.82 for metric units, 0.643 for English units

Sample calculation:

$$E = 0.000163 \times 8313.36$$

$$E = 1.36 \text{ g/hr}$$

$$E_{adj} = 1.82 \times 1.36^{0.83}$$

$$E = 2.35 \text{ g/hr}$$

Proportional Rate Variation

Using equation 5H-9, calculated at each recorded interval:

$$PR = \frac{\theta \times (V_{mt} \times V_s \times T_m \times T_{st})}{10 \times (V_m \times V_{st} \times T_s \times T_{mt})} \times 100$$

Where:

PR	=	Percent proportional rate
θ	=	Time of test, min
S_i	=	Measured tracer gas concentration for the "i th " interval, in this case, the inverse of the calculated flow in the stack based on CO ₂ concentrations in the stack and in the dilution tunnel
$V_{m(i)}$	=	Volume of gas sample measured by the dry gas meter during the "i th " 10 minute interval, dscf
V_m	=	Volume of gas sample as measured by dry gas meter, dscf
V_{st}	=	Average gas velocity in the dilution tunnel during each 10 minute interval, i, of the test run, m/sec
V_s	=	Average gas velocity in the dilution tunnel, m/sec
T_{mt}	=	Absolute average dry gas meter temperature during each 10 minute interval, i, of the test run, °R
T_m	=	Absolute average dry gas meter temperature, °R
T_{st}	=	Absolute average gas temperature in the dilution tunnel during each 10 minute interval, i, of the test run, °R
T_s	=	Absolute average gas temperature in the dilution tunnel, °R

Sample calculation (for the reading at 50 minutes into test run 1):

$$PR = \frac{180 \times 5.6 \times 12.69 \times 533 \times 552}{10 \times 98.434 \times 12.63 \times 548 \times 532} \times 100$$

$$PR = 103.8\%$$

Appendix F

Test Data

4

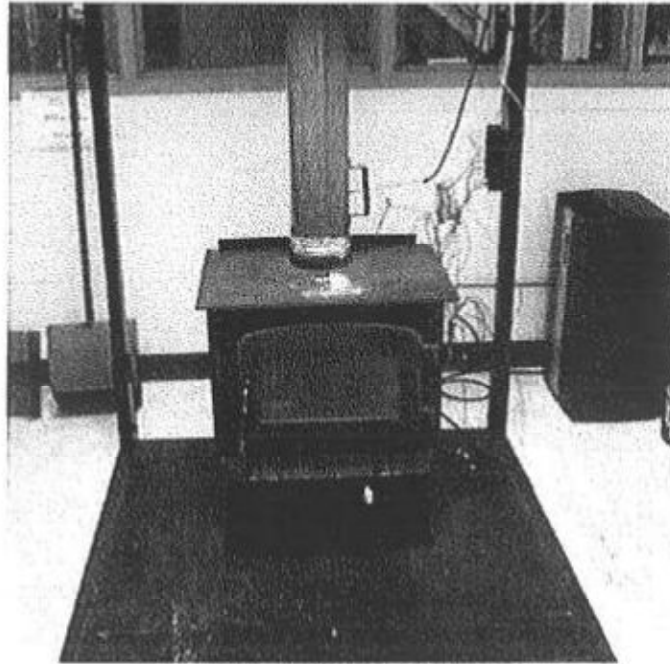


Figure 1 SBI model XTD 1.1 Front View

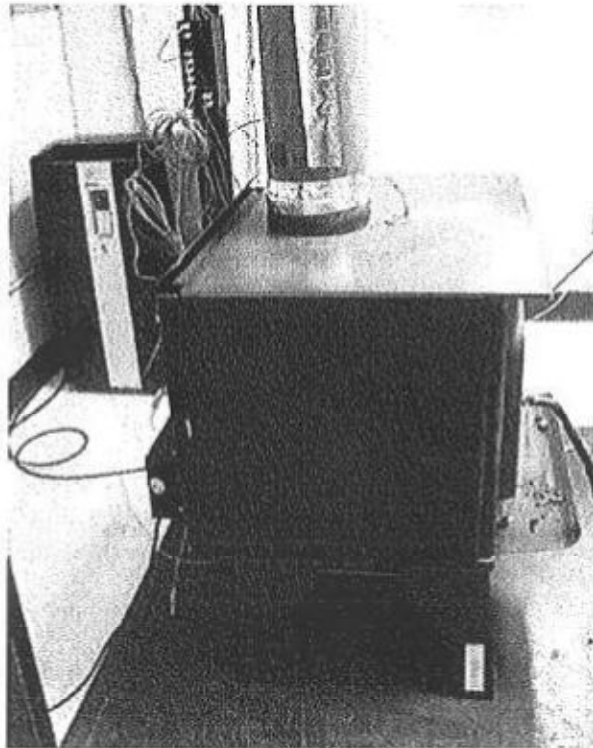


Figure 2 SBI model XTD 1.1 Side View

K. J. Morgan
11-10-11

EPA NSPS WEIGHTED AVERAGE CALCULATION

V 1.1

Sort data from lowest to highest
burn rate and enter below.

Weighted Average

Type of
Stove:
1=cat
2=noncat
3=pellet

2

		(E) Ave.	Heat		(K)			
Test	Burn	Emission		Output		Weighting		
No.	Rate	Rate g/hr	(OHE)	(BTU/HR)	Prob.	Factor	(KxE)	KxOHE
1	0.90	4.99		10852.38	0.3000	0.5380	2.6846	0.00
2	1.19	4.42		14349.26	0.5380	0.4832	2.1357	0.00
3	1.56	1.82		18810.79	0.7832	0.3636	0.6618	0.00
4	1.93	4.38		23272.33	0.9016	0.2168	0.9496	0.00
				0.00	1.0000	0.0000	0.0000	0.00
				0.00	1.0000	0.0000	0.0000	0.00
				0.00	1.0000	0.0000	0.0000	0.00
				0.00	1.0000	0.0000	0.0000	0.00
				0.00	1.0000	0.0000	0.0000	0.00
				0.00	1.0000	0.0000	0.0000	0.00
				0.00	1.0000	0.0000	0.0000	0.00

Totals: 1.6016 6.4317 0.00

Weighted average emissions rate:	4.0158
Weighted Average OHE:	0.00

L. J. Morgan
11-10-11

Intertek**Test Series Parameters
EPA Methods 28 and 5G**

Project Number G100527551
Manufacturer S.B.I.
Model XTD 1.1
Tracking Number PRT1110121353-001

ID# PRT1110121353-002
Client: Stove Builders International
ENG: Ken J Morgan
G100527551

Firebox Volume 1.55 ft³

Fuel Load Range 2.2 - 2.7 lbs.

Fan Optional (Standard, Optional, None)

Equipment Calibrations	
Method 28	
Thermometry	
Platform Scale	<u>SBI-014 (Book) & SBI-013</u>
Stop Watch	<u>180-592</u>
Audit Weight	<u>20115</u>
Moisture Meter	<u>SBI-214</u>
Method 5G	
Pitot tube	<u>SBI-203</u>
Pitot Manometer	<u>SBI-101</u>
Thermometry	<u>SBI-135</u>
Dry Gas Meter A	<u>Y=1.003</u>
Dry Gas Meter B	<u>Y=0.996</u>
Draft Manometer	<u>SBI-025</u>
Barometer	<u>WEATHER NETWORK</u>
Analytical	
Analytical Scale	<u>SBI-206</u>
Hygrometer	<u>SBI-212</u>
Thermometer	<u>SBI-212</u>
Audit Weight	<u>180-135; 180-110</u>

Pre-Series 10 lb. Audit 10.0 Eg. 20115
Post-Series 10 lb. Audit 10.0 Eg. 20115

Pre-Series Pitot Tube Leak 0
Post-Series Pitot Tube Leak 0

Post Series DGM A Cal Y= 0.995
Post Series DGM B Cal Y= 0.996

Appliance Photos YES

Appliance Sealed YES

Date: 10-25-11 Test Engineer: [Signature]

Prelim: 0.90 @ 4.56
 $\Delta T = 86$

Coal Bed Range #2.3-2.

PROJECT / TEST INFORMATION	
Project Number:	G100527551
Manufacturer:	S.B.I.
Model:	XTD 1.1
Sample ID Number:	PRT1110121353-001
Test Date:	10-18-11
Test Run Number:	1
Date tunnel cleaned:	10-13-11
Purpose of Test	CAT 1 (< 1.0 Kg/h)

Appliance Information		
Appliance Type:	2	1 - Catalytic 2 - Non-Catalytic 3 - Pellet 4 - Hydronic
Firebox Volume, ft ³ :	1.55	N/A for pellet type
Convection Blower	2	1 - No Fan 2 - Optional Accessory 3 - Standard Equipment

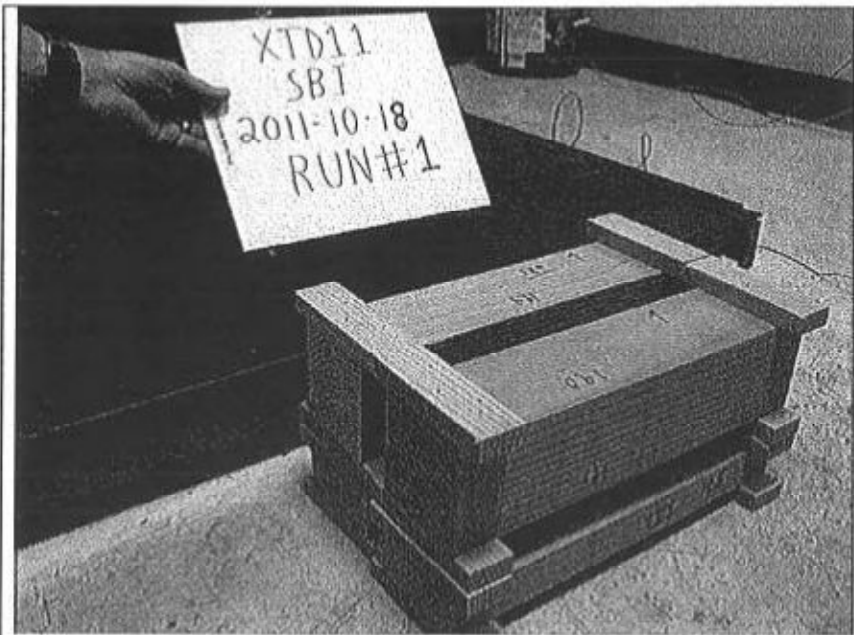
Verified
10-25-11

Test Settings	
Primary Air:	Fully Closed
Secondary Air:	Fixed
Control Board:	N/A
Blower/Fan:	ON - Low

Pre-Burn Activities	
Time	Activity
	COAL BED WAS STIRRED RIGHT BEFORE THE LOAD WAS INSERTED.
	40 SEC LOAD TIME
	1:30 DOOR WAS CLOSED

Start-Up Procedure	
Loading of fuel, sec. :	40 sec.
Fuel-loading door :	Closed at 1.5 minutes
Primary air:	Fully open for 5 minutes. Abruptly closed at 5 minutes
Secondary air:	Fixed
Control board:	N/A
Blower / fan:	OFF first 30 minutes, ON - Low for the remainder of test.

Other Notes	
None.	



Run 1 – Fuel Load



Run 1 – Newly loaded stove

H. J. Morgan
11-10-11

Intertek

TEST FUEL DATA EPA METHOD 5G-3

Project Number: G100527551
 Manufacturer: S.B.I.
 Model: XTD 1.1
 Sample ID Number: PRT 1110121353-001
 Test Date: OCTOBER 18, 2011
 Test Run Number: 1

PRE-BURN FUEL PROPERTIES					
Eq. ID No.:	SB1-214	Time:	9:20	Temp., °F:	74.2
Piece No.	Length, In.	Weight, Lb.	Moisture, %, Dry Basis		
1	10.25	1.10	22.1	21.0	19.5
2	10.00	1.15	21.3	21.6	20.1
3	10.00	1.15	19.7	21.2	19.1
4	10.00	1.15	19.4	18.8	18.9
5	15	1.65	21.1	22.4	21.4
6	15	1.50	21.2	21.1	17.8
7	15	1.50	22.0	22.2	18.9
8	15	1.55	22.3	22.1	19.1
9					
10					
11					
12					
Total Weight		10.95	Average, %db		

* Moisture Meter Block
 12.0% = 12.0%
 22.0% = 22.0%
 EQUIPMENT NO. 10701

TEST FUEL LOAD PROPERTIES						
Eq. ID No.:	SB1-214	Time:	10:00	Temp., °F:	74.2	
Piece No.	Length, In.	Weight, Lb.		Moisture, %, Dry Basis		
		2x4	4x4			
1	14.25		4.15	19.2	20.3	19.2
2	14.25		3.50	18.9	20.9	19.3
3	14.25	1.50		18.9	19.0	19.5
4	14.25	2.00		22.5	22.3	21.9
5						
6						
7						
8						
Totals		3.5	7.65			
% of Weight		31.4	68.6			
Total weight, wet, lb.		11.15		Average Moisture, dry		20.16
Total weight, dry, kg		5.04		Average Moisture, wet		16.78

10-25-11

[Signature]



Supplemental Data
EPA Methods 5G and 28

Project Number G100527551
Manufacturer S.B.I.
Model XTD 1.1
Sample ID Number PRT 111 0121353-001
Test Date OCTOBER 18, 2011
Test Run Number 1

Sampling Start Time 8:45 11:35 Sampling Stop Time 16:15

Air Velocity (ft/sec) Initial: 250 Final: 250

Barometric Pressure (in/Hg) Initial: 29.69 Final: 29.74

Post-leak Check (cfm @ in/Hg) Train A: 0.003 @ 5 Train B: 0.004 @ 5

Date: 10-25-11 Engineer Signature: [Signature]

Flue Gas	Room Temp	Tunnel Dry Bulb	Unit Top	Unit Bottom	Unit Back	Unit L.Side	Unit Right	Scale weight	Draft	Time
642	80	155	820	336	490	395	402	5.25		
615	85	153	801	440	588	491	512	3.16		
515	90	134	706	534	564	578	607	1.99		
441	85	125	589	576	588	609	645	1.59		
495	84	143	470	600	559	586	626	11.21		
730	88	175	879	564	633	569	599	8.36		
742	98	178	956	555	734	620	656	5.54		
406	105	115	825	571	707	675	717	4.01		
330	103	104	696	547	639	671	703	3.46		
284	95	98	595	526	619	641	670	3.08		

L. J. Morgan
11-10-4


DATA Logger was set to
RECORD AT 10-MINUTE INTERVALS,
and was unable to RECORD DATA
AT END OF PRE-BURN which
occurred between INTERVALS. Weight
was NOTED to BE 2.7~~0~~ lb. Temperatures
are represented on First Reading
OF Sampling data.

L. J. Morgan, ETL
2-28-12

Manufacturer: SBI		VERSION 1.2												2/5/2010	
Model: XTD 1.1															
Date: 10/18/2011															
Run: 1															
Project #: G100527651															
Test Duration: 280															
Barometer (in.Hg):		Start	End												
		29.69	29.74												
Dry Bulb (F):		79	82												
Humidity (%):		49	49												
Moisture content of wood (wet basis):		10.7765													
Average:		0.00	0.00	0.00	222.00	84.28	87.45	422.16	345.18	414.00	440.71	443.69	829.99		
Elapsed Time	Weight Remaining	CO	CO2	O2	Flue Gas	Room Temp	Tunnel Dry Bulb	Unit Top	Unit Back	Unit R.Side	Unit L.Side	Unit Bottom	DGM 1 Reading		
0	11.10				230.0	78.9	101.8	343.5	439.1	419.2	409.4	401.2	814.892		
10	10.25				230.2	79.7	89.6	396.9	416.1	392.0	437.4	445.4	815.980		
20	9.47				255.0	80.9	90.1	416.5	395.2	387.1	405.2	407.2	817.020		
30	8.32				200.2	83.3	83.3	537.5	373.3	392.4	398.6	394.7	818.092		
40	7.39				300.4	84.2	94.0	574.1	355.8	390.0	400.8	402.0	819.175		
50	6.33				312.2	84.4	93.5	601.0	341.6	407.7	419.7	411.1	820.252		
60	5.34				309.0	85.4	93.3	612.0	331.4	429.7	440.7	424.0	821.312		
70	4.56				291.5	85.9	92.4	593.2	324.2	450.1	455.7	439.3	822.406		
80	3.87				278.9	86.5	91.1	574.1	320.7	468.0	470.3	452.2	823.483		
90	3.26				270.2	86.3	90.2	559.7	319.2	497.7	480.1	463.0	824.558		
100	2.71				270.6	86.9	90.0	567.3	319.7	484.5	490.8	471.8	825.630		
110	2.33				247.4	86.6	88.3	534.2	322.1	499.7	498.4	480.0	826.749		
120	2.08				227.5	86.7	88.0	479.7	325.6	479.0	495.7	484.9	827.800		
130	1.82				214.5	85.5	85.7	438.0	330.1	472.9	491.6	483.1	828.910		
140	1.74				203.5	84.0	84.7	403.0	334.6	453.9	480.2	480.8	829.989		
150	1.58				197.4	85.0	84.8	381.0	339.3	438.0	477.9	478.4	831.070		
160	1.45				181.5	84.6	84.5	367.8	342.0	430.8	488.4	472.3	832.137		
170	1.28				190.1	85.4	84.0	362.1	345.1	415.4	459.2	468.0	833.210		
180	1.17				187.6	85.7	85.0	355.2	345.1	408.9	450.0	463.2	834.285		
190	1.03				184.5	84.7	84.2	345.0	344.5	401.6	440.7	450.3	835.362		
200	0.80				181.0	84.5	83.8	337.0	342.9	391.5	432.8	455.1	836.470		
210	0.77				178.1	84.4	83.5	329.4	341.5	385.3	425.2	449.9	837.547		
220	0.63				175.2	84.4	83.6	321.7	340.5	378.0	417.1	442.4	838.631		
230	0.49				173.7	83.9	83.7	316.4	339.8	368.4	409.8	432.7	839.720		
240	0.38				171.6	84.1	83.0	311.6	338.7	362.5	403.0	423.0	840.811		
250	0.21				169.7	83.2	82.6	307.3	338.2	358.3	398.0	413.6	841.915		
260	0.12				167.2	82.9	82.7	301.5	337.0	351.0	392.3	405.0	843.008		
270	0.01				164.1	83.4	82.7	292.5	336.0	342.6	385.7	385.5	844.105		
280	0.00				161.1	82.4	82.4	283.1	331.0	338.8	379.2	384.8	845.202		

L. J. Morgan
11-10-11

Manufacturer: SBI Model: XTD 1.1 Date: 10/18/11 Run: 1 Project #: G100527551												
73.62	73.59	75.11	767.14	73.00	73.01	75.73	0.02	-0.041	0.00	413.17		
DGM 1 Inlet T	DGM 1 Outlet T	Filter 1 Temp	DGM 2 Reading	DGM 2 Inlet T	DGM 2 Outlet T	Filter 2 Temp	Tunnel Velocity	Chimney Draft	Visual Smoke Observed	Average Stove Temp	Change In Surface Temp	
72.8	72.8	72.9	761.790	72.2	72.2	73.2	0.020	-0.035		429.9	0	
72.7	72.8	74.7	762.960	72.3	72.2	75.0	0.020	-0.040		418.0	-11.92	
72.9	72.7	75.1	764.124	72.4	72.3	75.6	0.020	-0.040		402.0	-27.84	
73.0	72.9	75.4	765.228	72.6	72.5	75.8	0.020	-0.045		419.3	-10.58	
73.3	73.1	75.6	766.345	72.7	72.8	76.3	0.020	-0.048		425.9	-4.02	
73.2	73.1	75.9	767.429	72.8	72.8	76.4	0.020	-0.055		436.2	6.34	
73.1	73.1	75.9	768.498	72.8	72.8	76.5	0.020	-0.055		447.7	17.84	
73.1	73.1	75.8	769.602	72.7	72.8	76.4	0.020	-0.055		452.5	22.62	
72.9	73.0	75.8	769.702	72.6	72.4	76.4	0.020	-0.055		457.2	27.34	
73.5	73.3	76.0	761.809	72.6	72.8	76.3	0.020	-0.055		463.9	34.06	
73.6	74.0	75.9	763.010	73.0	73.2	76.4	0.020	-0.050		468.8	38.94	
73.6	73.5	75.6	764.131	72.8	72.8	76.3	0.020	-0.050		467.0	37.12	
73.5	73.5	75.3	765.170	72.8	72.9	76.1	0.020	-0.048		453.0	23.14	
73.6	73.5	75.1	766.191	72.9	72.9	75.9	0.020	-0.048		442.8	12.9	
73.7	73.6	75.0	767.217	73.1	73.1	75.8	0.020	-0.045		431.8	1.94	
74.0	73.8	74.9	768.220	73.2	73.2	75.6	0.020	-0.038		422.6	-7.24	
73.8	73.8	74.8	769.270	73.1	73.1	75.7	0.020	-0.038		416.4	-13.44	
73.9	73.9	74.8	770.345	73.3	73.3	75.6	0.020	-0.035		409.6	-20.32	
74.1	74.0	75.2	771.415	73.4	73.4	75.6	0.020	-0.033		404.9	-25	
73.8	73.9	75.4	772.476	73.4	73.2	75.7	0.020	-0.035		398.4	-31.46	
74.2	74.1	75.3	773.587	73.4	73.4	75.7	0.020	-0.035		392.0	-37.88	
74.2	74.1	75.1	774.648	73.4	73.5	75.6	0.020	-0.033		386.3	-43.62	
74.2	74.2	74.9	775.719	73.4	73.5	75.6	0.020	-0.033		379.5	-50.34	
74.1	74.2	74.8	776.807	73.3	73.5	75.5	0.020	-0.033		373.4	-56.46	
74.1	74.0	74.7	777.881	73.0	73.2	75.4	0.020	-0.030		367.9	-62	
74.1	74.1	74.6	778.985	73.3	73.4	75.4	0.020	-0.030		363.1	-66.8	
74.1	74.1	74.6	780.080	73.4	73.5	75.3	0.020	-0.030		357.5	-72.34	
74.1	74.2	74.7	781.180	73.5	73.5	75.4	0.020	-0.030		350.5	-79.38	
74.2	74.2	74.7	782.229	73.6	73.6	75.4	0.020	-0.030		343.6	-86.32	-86.32


 11-10-11

		Manufacturer:		SBI					
		Model:		XTD 1.1					
		Date:		10/18/11					
		Run:		1					
		Project #:		G100527551					
		Test Duration:		280					
		Total Gas Volume (DGM 1):		29.951		Pitot Factor		0.82	
		Total Gas Volume (DGM 2):		30.023				(0.99 standard,	
		Average Barometric Pressure:		29.715				0.84 or Cal. Factor for S-Type)	
		Molecular Weight:		28.56					
		Pitot Correction:		0.924781526					
		Calibration Factor (DGM #1):		1.0060					
		Calibration Factor (DGM #2):		1.0030					
		(1) VS:		0.0269					
		(2) VS:		0.0269					
Elapsed	DGM 1	DGM 1	DGM 1	DGM 2	DGM 2	DGM 2	Tunnel	Filter	Filter
Time	Reading	Inlet T	Outlet T	Reading	Inlet T	Outlet T	Dry Bulb	Face	Face
0	814.892	72.6	72.6	751.790	72.22	72.16	101.8	Velocity	Velocity
10	815.960	72.7	72.6	752.960	72.29	72.24	88.96	DGM 1	DGM 2
20	817.020	72.9	72.7	754.124	72.41	72.32	90.08	9.11	9.96
30	818.092	73.0	72.9	755.226	72.58	72.51	93.28	9.04	9.91
40	819.175	73.3	73.1	756.345	72.72	72.79	94.02	9.14	9.38
50	820.252	73.2	73.1	757.429	72.78	72.75	93.53	9.23	9.52
60	821.312	73.1	73.1	758.498	72.75	72.62	93.32	9.18	9.22
70	822.406	73.1	73.1	759.602	72.74	72.62	92.36	9.04	9.10
80	823.483	72.9	73.0	760.702	72.64	72.4	91.07	9.33	9.39
90	824.558	73.5	73.3	761.806	72.63	72.75	90.2	9.19	9.36
100	825.630	73.6	74.0	763.010	73	73.22	90.03	9.16	9.39
110	826.749	73.6	73.5	764.131	72.78	72.83	88.31	9.13	10.24
120	827.860	73.5	73.5	765.170	72.82	72.86	86.88	9.53	9.54
130	828.910	73.6	73.5	766.191	72.9	72.92	85.71	9.47	8.84
140	829.989	73.7	73.6	767.217	73.05	73.07	84.71	8.95	8.68
150	831.070	74.0	73.8	768.220	73.18	73.24	84.83	9.19	8.72
160	832.137	73.8	73.8	769.270	73.13	73.13	84.5	9.20	8.53
170	833.210	73.9	73.9	770.345	73.28	73.25	84.55	9.09	8.93
180	834.285	74.1	74.0	771.415	73.41	73.37	84.95	9.14	9.14
190	835.362	73.8	73.9	772.476	73.35	73.21	84.24	9.15	9.09
200	836.470	74.2	74.1	773.587	73.44	73.44	83.76	9.17	9.02
210	837.547	74.2	74.1	774.648	73.39	73.49	83.5	9.43	9.44
220	838.631	74.2	74.2	775.719	73.38	73.51	83.64	9.17	9.01
230	839.726	74.1	74.2	776.807	73.26	73.48	83.7	9.22	9.10
240	840.811	74.1	74.0	777.881	72.98	73.24	83.59	9.32	9.25
250	841.915	74.1	74.1	778.985	73.3	73.41	82.8	9.24	9.13
260	843.008	74.1	74.1	780.066	73.42	73.48	82.73	9.40	9.38
270	844.105	74.1	74.2	781.160	73.45	73.45	82.7	9.30	9.18
280	845.202	74.2	74.2	782.229	73.63	73.61	82.39	9.34	9.29
								9.34	9.08

L. J. Morgan
11-10-11

Proportional Rate Calculations				(EPA Formulas from PR5G)				
Stack area (ft2):		0.34907		Manufacturer: SBI				
Wood moisture (% wet):		16.7765		Model: XTD 1.1				
Load Weight (lbs wet):		11.15		Date: 10/18/11				
Burn Rate (Dry kg/hr):		0.902		Run: 1				
				Project No.:		G100527551		
Final Temperature (DGM #1) Degrees Rankin:				533.603				
Final Temperature (DGM #2) Degrees Rankin:				533.005				
Final Tunnel Temperature Degrees Rankin:				547.453		2536.14		
Final Tunnel Velocity (feet per second):				7.36437		29		
Standardized Tunnel Flow (dscfm):				141.77				
		Average Inlet + Outlet Temp. Meter 1 Deg. R	Average Inlet + Outlet Temp. Meter 2 Deg. R	99.95 PR1	99.96 PR2	#1 dDGM Vol.Std. (ft3)	#2 dDGM Vol.Std. (ft3)	Time
Tunnel Velocity Delta-P	Tunnel Velocity Ft/Sec							
0.020	7.460	532.6	532.2					0
0.020	7.375	532.7	532.3	98.98	107.93	1.057	1.156	10
0.020	7.382	532.8	532.4	98.31	107.46	1.049	1.150	20
0.020	7.404	533.0	532.5	99.68	102.00	1.061	1.088	30
0.020	7.408	533.2	532.8	100.73	103.60	1.071	1.104	40
0.020	7.405	533.2	532.8	100.13	100.31	1.065	1.070	50
0.020	7.404	533.1	532.7	98.55	98.92	1.049	1.055	60
0.020	7.397	533.1	532.7	101.61	102.07	1.082	1.090	70
0.020	7.389	533.0	532.5	99.94	101.62	1.066	1.086	80
0.020	7.383	533.4	532.7	99.60	101.87	1.063	1.090	90
0.020	7.382	533.8	533.1	99.23	110.99	1.059	1.187	100
0.020	7.370	533.5	532.8	103.48	103.24	1.106	1.106	110
0.020	7.361	533.5	532.8	102.61	95.56	1.098	1.025	120
0.020	7.353	533.5	532.9	96.86	93.79	1.038	1.007	130
0.020	7.346	533.7	533.1	99.42	94.14	1.066	1.012	140
0.020	7.347	533.9	533.2	99.58	92.01	1.068	0.989	150
0.020	7.345	533.8	533.1	98.28	96.31	1.054	1.035	160
0.020	7.345	533.9	533.3	98.81	98.58	1.060	1.060	170
0.020	7.348	534.0	533.4	99.01	98.13	1.061	1.055	180
0.020	7.343	533.8	533.3	99.17	97.26	1.064	1.046	190
0.020	7.340	534.1	533.4	101.92	101.77	1.094	1.095	200
0.020	7.338	534.2	533.4	99.03	97.17	1.063	1.046	210
0.020	7.339	534.2	533.4	99.69	98.10	1.070	1.056	220
0.020	7.339	534.1	533.4	100.71	99.67	1.081	1.072	230
0.020	7.338	534.1	533.1	99.80	98.43	1.071	1.059	240
0.020	7.333	534.1	533.4	101.46	101.06	1.090	1.088	250
0.020	7.333	534.1	533.5	100.45	98.93	1.079	1.065	260
0.020	7.332	534.1	533.5	100.81	100.12	1.083	1.078	270
0.020	7.330	534.2	533.6	100.76	97.77	1.083	1.053	280

H. F. Morgan
11-10-11

Intertek Testing Services							
SFBA EPA ADJUSTED EMISSION RESULTS							
Manufacturer:	SBI			RESULTS			
Model:	XTD 1.1						
Date:	10/18/11						
Run:	1						
Project #:	G100527551						
Test Duration (Minutes):	280						
Test Duration (Hours):	4.67						

REPORT DATA								
Client:			SBI					
Run:			1					
Date:			10/18/11					
Project No.:			G100527551					
Model:			XTD 1.1					
Fuel Moisture (Dry):			20.15833333					
Stack Static (neg):			0.0925					
Barometer:			29.715					
Average Room Temp:			84.29					
Change in stove temp:			-86.32					
Burn Rate:			0.902					
Adjusted Emission Rate:			4.994					
System 1:			4.894					
System 2:			5.093					
Deviation:			1.99%					
Filter 1:			75.11					
Filter 2:			75.73					
Tunnel:			87.45					
DGM 1:			73.60					
DGM 2:			73.00					
Water Collected:								
Room Temp		Bar Pressure		Relative Humidity		Air Velocity		
Before	After	Before	After	Before	After	Before	After	
79	82	29.69	29.74	49	49	0	0	
Delta H Average								
DGM#1:	0							
DGM#2:	0							

V. J. Morgan
11-10-11

SBI-Stove Builder International
Project No. G100527551
October 18, 2011

Dilution Tunnel Traverse Data
Run 1

VERSION 1.2

2/5/2010

E&E Tunnel Traverse Worksheet

	TUNNEL VELOCITY	TUNNEL TEMP	SQUARE ROOT
A CENTER	0.020	93	0.1414
B CENTER	0.020	88	0.1414
A1	0.018	92	0.1323
A2	0.020	92	0.1414
A3	0.018	92	0.1323
A4	0.015	89	0.1225
B1	0.018	88	0.1323
B2	0.020	88	0.1414
B3	0.018	88	0.1323
B4	0.013	85	0.1118
AVERAGE	0.01775	89.35	0.1308

Static Pressure:

PITOT
CONSTANT= 0.9248

Tunnel Diameter (in):	8
Tunnel Area (ft ²)	0.349066
Tunnel Static Pressure	-0.0925

L. J. Morgan
11-18-11



Vos Prévisions locales: Québec, QC

Conditions actuelles Mar 18 oct 2011, 10:00 HAE Aéroport J.-Lesage de Québec



8°C

Faibles averses de pluie

T. ressentie : -
Vents : SO 15km/h
Rafales : 28km/h
Lever : 7:07
Coucher du soleil : 17:53

Humidité relative : 100%
Pression : 100.55 kPa
Visibilité : 16.0 km
Plafond : 1000 pi

Prévisions à court terme

 Émis le : Mar 18 oct 2011, 10:00 HAE

	Mardi après-midi	Mardi soir	Nuit de mardi à mercredi	Mercredi matin	Mercredi après-midi
	Nuageux avec éclaircies	Nuageux avec éclaircies et averses isolées	Passages nuageux	Ensoleillé avec passages nuageux	Ciel variable
Température	11°C	7°C	2°C	2°C	12°C
Vents	SO 20km/h	O 15km/h	SO 10km/h	NE 10km/h	E 20km/h
Humidité	81%	87%	87%	93%	71%
P.D.P.	40%	40%	20%	20%	30%
Pluie	-	moins de 1mm	-	-	-

Tendance à long terme

 Émis le : Mardi 18 octobre 2011, 10:00 HAE

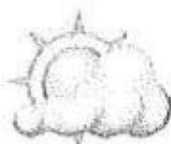
	Mercredi 19 oct	Jeudi 20 oct	Vendredi 21 oct	Samedi 22 oct	Dimanche 23 oct	Lundi 24 oct
Conditions de 6 h à 18 h						
	Ciel variable	Pluie	Nuageux avec averses	Nuageux avec averses	Ciel variable	Ciel variable
P.D.P.	30%	90%	80%	70%	30%	30%
T. Max	12°C	10°C	11°C	10°C	10°C	9°C
T. Min	1°C	6°C	7°C	6°C	2°C	0°C
Vents	NE 15 km/h	E 25 km/h	SO 10 km/h	S 10 km/h	O 10 km/h	O 5 km/h

L. J. Morin
11-10-11



Vos Prévisions locales: Québec, QC

Conditions actuelles Mar 18 oct 2011, 16:00 HAE Aéroport J-Lesage du Québec



11 °C

Nuageux avec éclaircies

T. ressentie : -
Vents : SO 30km/h
Rafales: 44km/h
Lever : 7:07
Coucher du soleil : 17:53

Humidité relative : 66%
Pression : 100.72 kPa ▲
Visibilité : 48.0 km
Plafond : 5500 pi

Prévisions à court terme Émis le : Mar 18 oct 2011, 16:10 HAE

	Mardi soir	Nuit de mardi à mercredi	Mercredi matin	Mercredi après-midi	Mercredi soir
	Nuageux avec averses	Bancs de brouillard	Ensoleillé avec passages nuageux	Ciel variable	Nuageux avec averses
Température	9°C	4°C	4°C	12°C	10°C
Vents	O 15km/h	O 5km/h	E 5km/h	NE 10km/h	NE 30km/h
Humidité	81%	93%	93%	66%	71%
P.D.P.	40%	30%	10%	30%	70%
Pluie	moins de 1mm	-	-	-	près de 1mm

Tendance à long terme Émis le : Mardi 18 octobre 2011, 16:11 HAE

Conditions de 6 h à 18 h	Mercredi 19 oct	Jeudi 20 oct	Vendredi 21 oct	Samedi 22 oct	Dimanche 23 oct	Lundi 24 oct
	Ensoleillé avec passages nuageux	Faible pluie	Nuageux avec averses	Nuageux avec averses	Ciel variable	Ciel variable
P.D.P.	30%	80%	80%	70%	30%	30%
T. Max	12°C	12°C	11°C	10°C	10°C	9°C
T. Min	3°C	8°C	7°C	6°C	2°C	0°C
Vents	E 10 km/h	E 35 km/h	SO 10 km/h	S 10 km/h	O 10 km/h	O 5 km/h

L. J. M. J.
11-10-11

Intertek

Run Notes EPA Methods 28 and 5G-3

Prelim: 1.19 @ 4.27
 $\Delta T = 42$

PROJECT / TEST INFORMATION		
Project Number:	G100527551	517521
Manufacturer:	S.B.I.	
Model:	XTD 1.1	
Sample ID Number:	PRT1110121353-001	
Test Date:	10-18-11	10-19-11
Test Run Number:	2	
Date tunnel cleaned:	10-13-11	
Purpose of Test	CAT II	

Coal bed Run = 22 - 2.7
PRE-Burn T = 4 @ 10:04

Appliance Information		
Appliance Type:	2	1 - Catalytic 2 - Non-Catalytic 3 - Pellet 4 - Hydronic
Firebox Volume, ft ³ :	1.55	N/A for pellet type
Convection Blower	2	1 - No Fan 2 - Optional Accessory 3 - Standard Equipment

Thy. W. King
10-19-11

Test Settings	
Primary Air:	3/16" Gauge
Secondary Air:	FIXED
Control Board:	N/A
Blower/Fan:	ON - Low

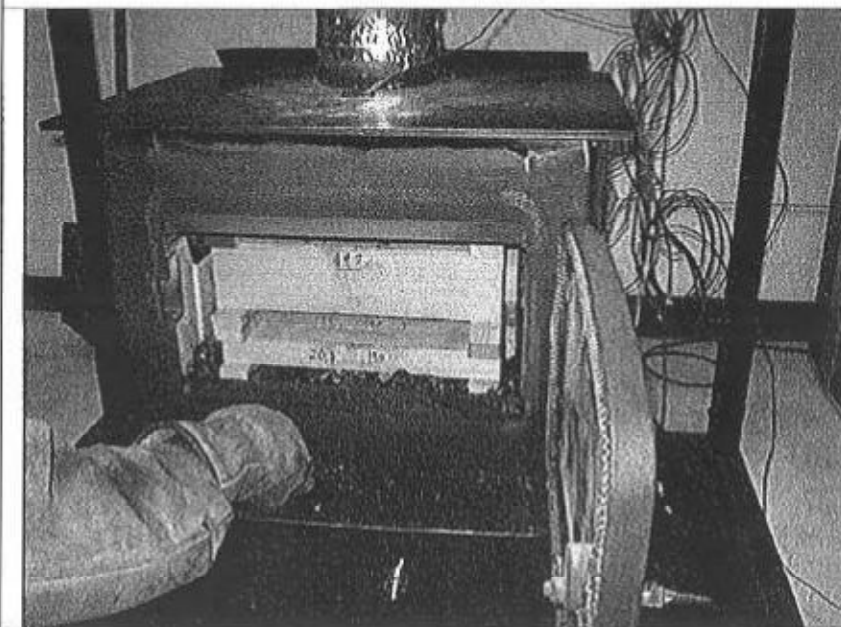
Pre- Burn Activities	
Time	Activity
0	TIME = 10:04 am
45	STIRRED Load
67	Remained 0.35 lb. Action occurred within 20 sec.
98	Levelled coal bed

Start-Up Procedure	
Loading of fuel, sec. :	Loaded by 30 sec.
Fuel-loading door :	Ajar until 90 sec.
Primary air:	Fully Open until 5.0 min. Abruptly Closed to test setting at 5 min.
Secondary air:	FIXED
Control board:	N/A
Blower / fan:	OFF 1 st 30 min, ON - Low Remained at test

Other Notes	
NONE	



Run 2 – Fuel Load



Run 2 – Newly loaded stove

Thy. May
11-10-11

Intertek

**TEST FUEL DATA
EPA METHOD 5G-3**

Project Number: G100527551
 Manufacturer: S.B.I.
 Model: XTD 1.1
 Sample ID Number: PRT1110121353-001
 Test Date: ~~10-18-11~~ 10-19-11
 Test Run Number: K₂ 2

12.0 = 12.0
 22.0 = 22.0

CALIBRATOR: 19701

PRE-BURN FUEL PROPERTIES						
Eq. ID No.:	513 214	Time:	08:15	Temp., °F:	75	
Piece No.	Length, In.	Weight, Lb.	Moisture, %, Dry Basis			
1	10	1.20	23.1	22.1	20.5	
2	10	1.10	22.0	22.1	21.1	
3	10	1.15	22.4	22.0	21.1	
4	10	1.15	23.1	21.7	21.1	
5	15	1.00	19.3	20.8	18.8	
6	15	1.00	19.4	20.5	18.7	
7	15	1.70	22.1	23.1	19.9	
8	15	1.75	22.1	23.1	18.9	
9						
10						
11						
12						
Total Weight		10.25	Average, %db		20.9	

TEST FUEL LOAD PROPERTIES							
Eq. ID No.:	SB1 214		Time:		9:10	Temp., °F:	75
Plece No.	Length, In.	Weight, Lb.		Moisture, %, Dry Basis			
		2x4	4x4				
1	14.25	1.50	X	18.9	19.2	19.0	
2	14.25	2.15	X	23.1	21.0	21.3	
3	14.25	X	3.70	21.0	19.0	18.6	
4	14.25	X	3.65	19.9	19.2	19.7	
5							
6							
7							
8							
Totals		3.65	7.35				
% of Weight		33.2	66.8				
Total weight, wet, lb.		11.0		Average Moisture, dry		20.0	
Total weight, dry, kg		4.16		Average Moisture, wet		16.66	

H. J. Monger

10-19-11

Intertek

**Supplemental Data
EPA Methods 5G and 28**

Project Number G100527551
Manufacturer S.B.I.
Model XTD 1.1
Sample ID Number PRT1110121353-001
Test Date 10-19-11
Test Run Number 2

Sampling Start Time 11:45 Sampling Stop Time 15:15

Air Velocity (ft/sec) Initial: <50 Final: <50

Barometric Pressure (in/Hg) Initial: 30.11 Final: 30.07

Post - leak Check (cfm @ in/Hg) Train A: .002 @ 5 Train B: .002 @ 5

Date: 10-19-11 Engineer Signature: [Signature]

Flue Gas	Room Temp	Tunnel Dry Bulb	Unit Top	Unit Bottom	Unit Back	Unit L.Side	Unit Right	Scale weight	Draft	Time
627.4	83.01	155.2	600.7	635.5	587.7	607	613	10.2		0
466.6	89.88	124.7	794.2	609.6	648.2	605.3	612.5	7.66		10
408.8	88.32	111.8	698.9	591.5	623.4	602.2	611.7	6.38		20
385	89.88	107.7	687	565.3	549.4	607.9	614.3	5.38		30
380.8	90.65	106.3	678.4	533.9	578.4	616.1	621.8	4.47		40
349	93.9	104.2	656.5	507.2	553.7	621.7	630.4	3.74		50
312.1	92.59	99.56	573.6	487.4	549.2	611.2	622.2	3.34		60
268.9	87.84	4183.1	488.7	464.8	502.6	577.4	590.7	3.26		70
246.3	84.57	4183.3	428.2	450.5	476.7	543.2	557.1	2.81		80
231.2	83.54	91.17	393.8	435	438.7	515.3	525.7	2.74		90

H. J. Morgan
11-10-11

DATA LOGGER WAS SET TO RECORD ON 10-MINUTE INTERVALS, AND WAS UNABLE TO RECORD FINAL PRE-BURN DATA WHICH OCCURED BETWEEN INTERVALS. FINAL SCALE WEIGHT WAS NOTED TO BE 2.75 lb. TEMPERATURES ARE REPRESENTED ON FIRST LINE OF SAMPLING DATA.

H. J. Morgan, ETL
2-28-12

Manufacturer: SBI		VERSION 1.2										2/3/2010			
Model: XTD 1.1															
Date: 10/19/2011															
Run: 2															
Project #: G100527551															
Test Duration: 210															
		Start	End												
Barometer (in.Hg):		30.11	30.07												
Dry Bulb (F):		80	78												
Humidity (%):		33.7	32												
Moisture content of wood (wet basis):		16.6844													
Average		0.84	4.53	15.30	276.53	83.48	95.06	457.10	361.49	457.38	484.36	493.36	856.42		
Elapsed Time	Weight Remaining	CO	CO2	O2	Flue Gas	Room Temp	Tunnel Dry Bulb	Unit Top	Unit Back	Unit R.Side	Unit L.Side	Unit Bottom	DGM 1 Reading		
0	11.00	0.51	0.94	17.83	260.7	78.8	95.0	355.2	414.8	416.0	482.2	483.8	845.246		
10	9.76	0.32	2.67	18.16	260.1	79.3	99.4	441.9	402.6	399.2	456.3	451.0	848.296		
20	8.87	0.69	5.65	16.60	313.2	80.0	98.8	445.9	385.8	387.3	428.8	423.9	847.348		
30	7.81	0.78	6.05	14.17	336.5	81.3	100.5	506.1	369.4	384.0	422.4	417.2	848.399		
40	6.67	0.62	7.16	13.34	348.8	84.6	101.0	554.5	358.6	416.0	435.0	426.3	849.458		
50	5.53	0.41	6.38	12.20	369.0	85.8	104.8	613.3	349.0	453.4	460.3	442.1	850.520		
60	4.48	0.41	7.87	12.51	359.9	86.8	101.0	618.4	342.9	484.7	489.2	468.9	851.575		
70	3.60	0.36	7.56	12.87	348.3	88.1	100.6	602.0	340.0	613.1	510.6	491.8	852.640		
80	2.88	0.30	7.54	13.03	338.1	89.0	99.8	594.3	339.8	643.0	523.6	513.9	853.700		
90	2.22	0.32	7.40	13.01	328.9	87.0	98.9	665.2	341.0	639.1	534.4	533.5	854.760		
100	1.84	0.54	5.16	14.64	290.8	84.2	95.3	531.7	345.3	655.2	540.0	548.5	855.845		
110	1.64	0.76	4.27	15.24	266.3	83.0	84.5	482.1	353.0	624.5	532.9	550.0	856.910		
120	1.43	0.93	3.82	15.02	251.5	85.0	92.8	442.6	360.1	602.7	523.2	541.6	857.990		
130	1.29	0.96	3.73	15.77	242.5	86.1	92.0	416.8	363.8	472.5	514.3	529.4	859.065		
140	1.09	1.09	3.49	15.87	237.1	88.4	91.5	400.3	364.8	453.8	508.2	518.0	860.150		
150	0.92	1.17	3.32	15.90	233.3	84.5	91.0	387.0	365.1	438.6	502.1	506.9	861.240		
160	0.74	1.22	3.14	16.21	227.7	82.7	90.4	375.0	363.8	439.2	494.3	494.8	862.325		
170	0.64	1.37	2.91	16.30	221.4	83.5	89.5	363.8	362.7	441.1	484.7	484.0	863.405		
180	0.41	1.41	2.56	16.58	216.0	81.8	89.1	353.8	360.7	439.0	474.3	472.2	864.482		
190	0.27	1.40	2.32	16.87	211.3	80.3	88.6	341.8	358.0	430.7	461.4	460.0	865.552		
200	0.14	1.49	1.88	17.20	204.4	79.5	88.0	328.2	356.0	419.8	447.2	445.9	866.663		
210	0.00	1.47	1.69	17.44	197.7	78.3	87.1	315.3	353.0	408.3	430.5	432.7	867.701		

L. J. Morgan
11-10-11

Manufacturer: SBI Model: XTD 1.1 Date: 10/10/11 Run: 2 Project #: G100527551											
74.20	74.12	76.42	793.98	73.86	73.68	77.82	0.02	-0.048	0.00	448.73	
DGM 1 Inlet T	DGM 1 Outlet T	Filter 1 Temp	DGM 2 Reading	DGM 2 Inlet T	DGM 2 Outlet T	Filter 2 Temp	Tunnel Velocity	Chimney Draft	Visual Smoke Observed	Average Stove Temp	Change In Surface Temp.
73.0	72.8	72.9	782.243	72.4	72.5	73.9	0.023	-0.045		430.4	0
73.1	73.0	75.4	783.400	72.6	72.6	76.7	0.023	0.058		430.2	-0.22
73.3	73.2	76.2	784.548	72.7	72.8	77.4	0.023	-0.060		413.9	-16.46
73.5	73.3	76.4	785.681	72.9	72.9	77.8	0.023	-0.063		419.8	-10.58
73.6	73.4	76.6	786.762	73.0	73.0	78.1	0.023	-0.063		438.1	7.66
73.7	73.6	76.7	787.842	73.1	73.1	78.3	0.023	-0.063		463.8	33.4
73.8	73.7	76.9	788.940	73.3	73.3	78.5	0.023	-0.068		480.4	50.02
73.9	73.8	76.9	790.053	73.4	73.4	78.8	0.023	-0.065		491.5	61.08
74.0	73.9	77.2	791.170	73.5	73.5	78.5	0.023	-0.063		503.0	72.64
74.1	74.0	77.1	792.287	73.6	73.6	78.5	0.023	-0.065		506.8	76.36
74.2	74.1	76.9	793.442	73.7	73.7	78.5	0.023	-0.063		504.1	73.74
74.4	74.2	76.6	794.545	73.8	73.9	78.4	0.023	-0.055		488.5	58.1
74.5	74.4	76.6	795.648	73.9	73.8	78.3	0.023	-0.053		474.0	43.64
74.5	74.5	76.9	796.755	74.0	74.0	78.2	0.023	-0.045		459.4	28.98
74.6	74.6	76.8	797.852	74.1	74.1	77.9	0.023	-0.045		449.0	18.64
74.7	74.6	76.7	798.955	74.2	74.2	77.8	0.023	-0.045		439.9	9.46
74.7	74.8	76.5	800.065	74.1	74.1	77.8	0.023	-0.045		433.4	3.02
74.8	74.8	76.2	801.175	74.3	74.3	77.9	0.023	-0.043		427.3	-3.14
74.8	74.8	76.4	802.288	74.4	74.3	77.8	0.023	-0.043		420.2	-10.24
75.0	75.0	76.4	803.398	74.4	74.4	77.8	0.023	-0.043		410.6	-19.84
75.3	75.2	76.5	804.510	74.0	74.7	77.9	0.023	-0.043		399.8	-30.64
75.2	75.2	76.5	805.618	74.7	74.7	77.8	0.023	-0.043		388.0	-42.44


 11-10-11

		Manufacturer: SBI							
		Model: XTD 1.1							
		Date: 10/19/11							
		Run: 2							
		Project #: G100527551							
		Test Duration:		210					
		Total Gas Volume (DGM 1):		22.444		Pitot Factor		0.82	
		Total Gas Volume (DGM 2):		23.314				(0.99 standard,	
		Average Barometric Pressure:		30.09				0.84 or Cal. Factor for S-Type)	
		Molecular Weight:		28.56					
		Pitot Correction:		0.942984935					
		Calibration Factor (DGM #1):		1.0060					
		Calibration Factor (DGM #2):		1.0030					
		(1) VS:		0.0384					
		(2) VS:		0.0370					
								Filter	Filter
								Face	Face
Elapsed	DGM 1	DGM 1	DGM 1	DGM 2	DGM 2	DGM 2	Tunnel	Velocity	Velocity
Time	Reading	Inlet T	Outlet T	Reading	Inlet T	Outlet T	Dry Bulb	DGM 1	DGM 2
0	845.246	73.0	72.8	782.243	72.41	72.49	94.96		
10	846.298	73.1	73.0	783.400	72.59	72.58	99.37	9.08	9.97
20	847.348	73.3	73.2	784.548	72.73	72.8	98.81	9.06	9.89
30	848.399	73.5	73.3	785.681	72.86	72.9	100.5	9.07	9.76
40	849.458	73.6	73.4	786.762	72.96	72.95	101.6	9.14	9.31
50	850.520	73.7	73.5	787.842	73.13	73.13	104.8	9.16	9.30
60	851.575	73.8	73.7	788.940	73.28	73.27	101.6	9.10	9.45
70	852.640	73.9	73.8	790.053	73.35	73.42	100.6	9.18	9.58
80	853.700	74.0	73.9	791.170	73.51	73.46	99.55	9.14	9.61
90	854.760	74.1	74.0	792.287	73.6	73.59	98.9	9.14	9.61
100	855.845	74.2	74.1	793.442	73.67	73.69	95.25	9.35	9.93
110	856.910	74.4	74.2	794.545	73.77	73.85	94.49	9.18	9.48
120	857.990	74.5	74.4	795.648	73.89	73.92	92.84	9.30	9.48
130	859.065	74.5	74.5	796.755	74.03	73.99	92.61	9.26	9.51
140	860.158	74.6	74.6	797.852	74.14	74.1	91.54	9.41	9.43
150	861.240	74.7	74.6	798.955	74.15	74.16	90.99	9.32	9.48
160	862.325	74.7	74.6	800.065	74.14	74.14	90.37	9.34	9.54
170	863.405	74.8	74.8	801.175	74.28	74.31	89.54	9.30	9.53
180	864.482	74.8	74.9	802.289	74.37	74.34	89.14	9.27	9.57
190	865.552	75.0	75.0	803.398	74.44	74.44	88.77	9.21	9.52
200	866.663	75.3	75.2	804.510	74.62	74.71	87.95	9.56	9.55
210	867.701	75.2	75.2	805.616	74.65	74.72	87.14	8.93	9.49

1h f. Morgan
11-10-11

Proportional Rate Calculations				(EPA Formulas from PR5G)			
Stack area (ft2):		0.34907		Manufacturer: SBI			
Wood moisture (% wet):		16.6644		Model: XTD 1.1			
Load Weight (lbs wet):		11		Date: 10/19/11			
Burn Rate (Dry kg/hr):		1.188		Run: 2			
				Project No.: G100527551			
Final Temperature (DGM #1) Degrees Rankin:				534.161			
Final Temperature (DGM #2) Degrees Rankin:				533.671			
Final Tunnel Temperature Degrees Rankin:				555.060			
Final Tunnel Velocity (feet per second):				7.969859		175.337	
Standardized Tunnel Flow (dscfm):				153.24			
		Average	Average				
		Inlet +	Inlet +				
		Outlet	Outlet	99.99	100.00	#1	#2
Tunnel	Tunnel	Temp.	Temp.			dDGM	dDGM
Velocity	Velocity	Meter 1	Meter 2			Vol.Std.	Vol.Std.
Delta-P	Ft/Sec	Deg. R	Deg. R	PR1	PR2	(ft3)	(ft3)
0.023	7.969	532.9	532.5				Time
0.023	8.001	533.1	532.6	98.98	104.58	1.054	1.157
0.023	7.997	533.3	532.8	98.70	103.68	1.051	1.147
0.023	8.009	533.4	532.9	98.93	102.46	1.052	1.132
0.023	8.017	533.5	533.0	99.76	97.84	1.060	1.080
0.023	8.040	533.6	533.1	100.31	97.99	1.063	1.078
0.023	8.017	533.7	533.3	99.34	99.31	1.055	1.096
0.023	8.010	533.9	533.4	100.16	100.56	1.065	1.111
0.023	8.002	533.9	533.5	99.58	100.81	1.060	1.115
0.023	7.997	534.0	533.6	99.51	100.73	1.060	1.114
0.023	7.971	534.2	533.7	101.50	103.80	1.085	1.152
0.023	7.966	534.3	533.8	99.53	99.03	1.064	1.100
0.023	7.954	534.4	533.9	100.76	98.87	1.079	1.100
0.023	7.952	534.5	534.0	100.26	99.19	1.074	1.104
0.023	7.945	534.6	534.1	101.83	98.18	1.092	1.093
0.023	7.941	534.7	534.2	100.74	98.66	1.081	1.099
0.023	7.936	534.7	534.1	100.96	99.23	1.084	1.106
0.023	7.930	534.8	534.3	100.39	99.13	1.078	1.106
0.023	7.927	534.9	534.4	100.06	99.44	1.075	1.110
0.023	7.925	535.0	534.4	99.36	98.94	1.068	1.105
0.023	7.919	535.2	534.7	103.04	99.09	1.108	1.107
0.023	7.913	535.2	534.7	96.20	98.48	1.036	1.101

L. J. Morgan
11-10-11

Intertek Testing Services					
SFBA EPA ADJUSTED EMISSION RESULTS					
Manufacturer:	SBI			RESULTS	
Model:	XTD 1.1				
Date:	10/19/11			Average Adjusted Emissions Rate:	4.42
Run:	2			Average Unadjusted Emission Rate	2.91
Project #:	G100527551			Burn Rate (Dry kg/hr):	1.19
Test Duration (Minutes):	210				
Test Duration (Hours):	3.50				
				BAROMETRIC PRESSURE	
				Average:	30.09
TEMPERATURE FACTORS				Start:	30.11
				End:	30.07
DGM #1:				0.9885	
DGM #2:				0.9894	
				DRY GAS METER VALUES	
VOLUMES SAMPLED				DGM #1	Final: 867.701
					Initial: 845.246
DGM #1:				22.456	
DGM #2:				23.326	
				DGM #2	Final: 805.616
TOTAL TUNNEL VOLUME (scf):				32180	Initial: 782.243
SAMPLE RATIOS				TEMPERATURES (DEG. RANKIN)	
Sample Train 1:				1433.0	DGM #1: 534.16
Sample Train 2:				1379.6	DGM #2: 533.67
TOTAL EMISSIONS				CALIBRATION FACTORS	
Sample Train 1 (g):				10.32	DGM #1: 1.006
Sample Train 2 (g):				10.07	DGM #2: 1.003
Ave:				10.19	
EMISSION RATES				TUNNEL FLOW RATE:	
Sample Train 1 (g/hr):				2.95	153.2
Sample Train 2 (g/hr):				2.88	PARTICULATE CATCH (mg)
Ave:				2.91	Sample Train 1:
ADJUSTED EMISSION RATES				Filters	
Sample Train 1 (g/hr):				4.46	Probe
Sample Train 2 (g/hr):				4.38	Total
Ave:				4.42	Sample Train 2:
DEVIATION:				1.00%	Filters
					Probe
					Total
If deviation is greater than 7.5% due to low particulate catch					
The two emission rates shall not differ by 7.5%					
of the weighted average emission rate limit (4.1 or 7.5) (5g-3)					
Use the following:					
Catalytic units					
7.5% of 4.1 g/hr					
Non catalytic units					
7.5% of 7.5 g/hr					

REPORT DATA									
Client:		SBI							
Run:		2							
Date:		10/19/11							
Project No.:		G100527551							
Model:		XTD 1.1							
Fuel Moisture (Dry):		19.99666667							
Stack Static (neg):		0.095							
Barometer:		30.09							
Average Room Temp:		83.48							
Change in stove temp:		-42.44							
Burn Rate:		1.188							
Adjusted Emission Rate:		4.420							
System 1:		4.464							
System 2:		4.376							
Deviation:		1.00%							
Filter 1:		76.42							
Filter 2:		77.82							
Tunnel:		95.06							
DGM 1:		74.16							
DGM 2:		73.67							
Water Collected:									
Room Temp		Bar Pressure		Relative Humidity		Air Velocity			
Before	After	Before	After	Before	After	Before	After	Before	After
80	78	30.11	30.07	33.7	32	0	0		
Delta H Average									
DGM#1:	0								
DGM#2:	0								

L. J. Morgan
11-10-11

SBI-Stove Builder International
Project No. 100527551
October 19, 2011

Dilution Tunnel Traverse Data
Run 2

VERSION 1.2

2/5/2010

E&E Tunnel Traverse Worksheet

	TUNNEL VELOCITY	TUNNEL TEMP	SQUARE ROOT
A CENTER	0.023	95	0.1500
B CENTER	0.023	97	0.1500
A1	0.018	94	0.1342
A2	0.020	94	0.1414
A3	0.023	94	0.1500
A4	0.018	88	0.1323
B1	0.020	96	0.1414
B2	0.023	96	0.1500
B3	0.023	96	0.1500
B4	0.018	93	0.1323
AVERAGE	0.02055	94.44	0.1414

Static Pressure:

PITOT
CONSTANT: 0.9430

Tunnel Diameter (in):	8
Tunnel Area (ft ²):	0.349066
Tunnel Static Pressure	-0.095

L. J. Morgan
11-10-11

PROJECT / TEST INFORMATION	
Project Number:	G100527551
Manufacturer:	S.B.I.
Model:	XTD 1.1
Sample ID Number:	TRT1110121353-001
Test Date:	OCTOBER 20, 2011
Test Run Number:	3
Date tunnel cleaned:	10-13-11
Purpose of Test	CAT. 3

Prelim: 1.56 @ 2.0
DT 53
DEV 0.73%

Appliance Information		
Appliance Type:	2	1 - Catalytic 2 - Non-Catalytic 3 - Pellet 4 - Hydronic
Firebox Volume, ft ³ :	1.55	N/A for pellet type
Convection Blower	2	1 - No Fan 2 - Optional Accessory 3 - Standard Equipment

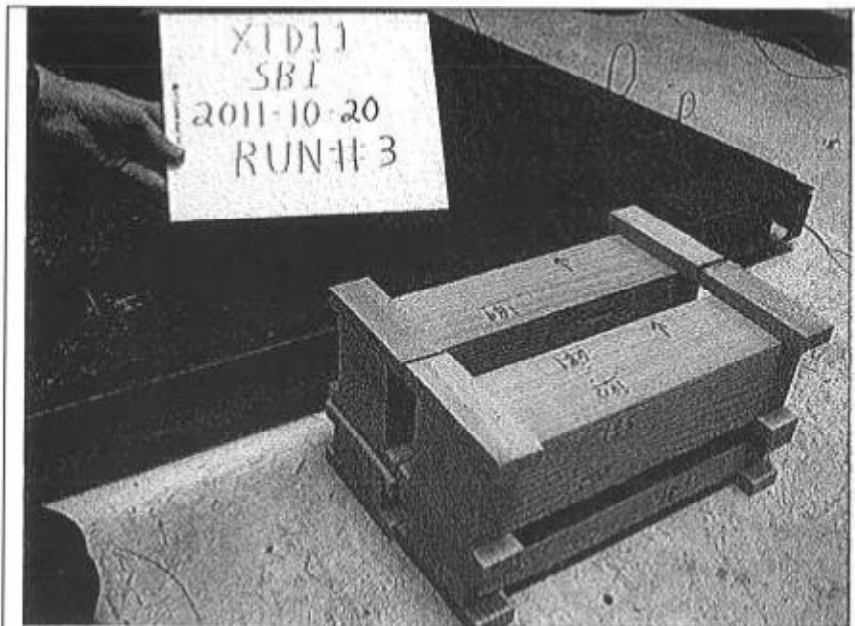
L.J. Morgan
11-10-11

Test Settings	
Primary Air:	3/4" Ø GAUGE
Secondary Air:	FIXED
Control Board:	N/A
Blower/Fan:	ON-LOW

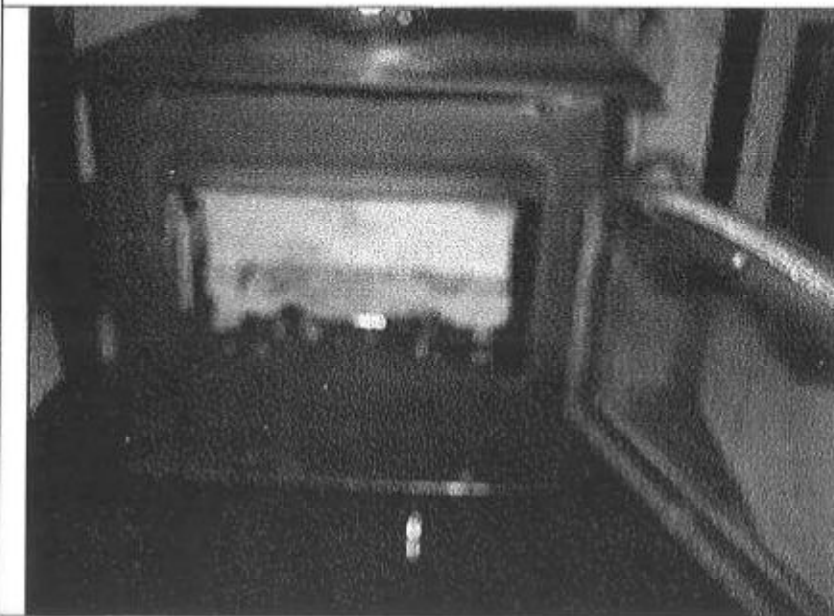
Pre- Burn Activities	
Time	Activity
0	TEST SETTING - FAN ON - LOW
45	STIRRED FUEL LOAD
72	COAL BED LEVELED

Start-Up Procedure	
Loading of fuel, sec. :	50 s
Fuel-loading door :	CLOSED AT 1:15
Primary air:	FULLY OPEN 5 MIN. ABRUPTLY CLOSED AT 3/4" at 5 min.
Secondary air:	NOT ADJUSTABLE
Control board:	N/A
Blower / fan:	

Other Notes	
CBR = 72 - 2.7 LB	



Run 3 -- Fuel Load



Run 3 -- Newly loaded stove

H. J. Mory
11-10-11

Intertek

**TEST FUEL DATA
EPA METHOD 5G-3**

Project Number: G100527551
 Manufacturer: S.B.I.
 Model: XTD 1.1
 Sample ID Number: PRE 111022-1353-001
 Test Date: OCTOBER 20, 2011
 Test Run Number: 3

12.0 = 12.0
 22.0 = 22.0
 CALIBRATOR = 19701

PRE-BURN FUEL PROPERTIES					
Eq. ID No.:	S81-214	Time:	8:30	Temp., °F:	73.7
Piece No.	Length, In.	Weight, Lb.	Moisture, %, Dry Basis		
1	10	1.25	20.4	21.5	19.5
2	10	1.20	21.7	22.5	19.5
3	10	1.15	23.4	21.5	19.7
4	10	1.15	21.5	22.4	19.5
5	15	1.70	21.0	22.2	19.4
6	15	1.70	21.2	19.9	20.0
7	15	1.70	22.1	21.9	19.9
8	15	1.70	21.5	23.1	19.8
9	15	1.75	21.2	21.7	20.1
10					
11					
12					
Total Weight		13.40	Average, %db		

19.3 15

TEST FUEL LOAD PROPERTIES					
Eq. ID No.:	S81-214	Time:	8:35	Temp., °F:	74
Piece No.	Length, In.	Weight, Lb.		Moisture, %, Dry Basis	
		2x4	4x4		
1	14.25	1.45		19.2	19.0
2	14.25	2.15		19.7	19.2
3	14.25		3.85	19.0	19.0
4	14.25		3.60	15.5	20
5					
6					
7					
8					
Totals		3.60	7.45		
% of Weight		32.6	67.4		
Total weight, wet, lb.		11.05	Average Moisture, dry		19.59
Total weight, dry, kg		4.19	Average Moisture, wet		16.38

19

[Signature]

10-25-11



Supplemental Data
EPA Methods 5G and 28

Project Number G100527551
Manufacturer S.B.I.
Model XTD 1.1
Sample ID Number PET 1110121353-001
Test Date OCTOBER 20, 2011
Test Run Number 3

Sampling Start Time 10:39 Sampling Stop Time 13:19

Air Velocity (ft/sec) Initial: <50 Final: <50

Barometric Pressure (in/Hg) Initial: 29.72 Final: 29.6

Post - leak Check (cfm @ in/Hg) Train A: 0.005 @ 5" Hg Train B: 0.002 @ 5

Date: 10-25-11 Engineer Signature: [Signature]

Flue Gas	Room Temp	Tunnel Dry Bulb	Unit Top	Unit Bottom	Unit Back	Unit L.Side	Unit Right	Scale weight	Draft	Time
583	72.77	151.2	595.5	171.4	289.7	210.5	246.1	11.85		0
537.5	77.08	135.2	651.8	256	349.4	289.6	317.8	9.83		10
524.9	79.68	136	712.1	322.4	389.9	367.8	386.6	7.99		20
494.7	80.97	128.6	675.3	372.2	455.9	425.1	447.8	6.61		30
505.5	81.68	130.9	674.2	418.8	497.4	468.7	511.9	5.25		40
502.6	84.74	4176.5	697.9	470.8	498.5	516.1	574.1	3.99		50
403.8	83.3	116.3	601.3	470.9	511.9	557.6	605.9	3.39		60
363.2	82.78	110.8	528.2	455.6	502	563.8	588.8	3.08		70

L. J. May
 11-10-11

DATA LOGGER WAS SET TO RECORD ON 10-MINUTE INTERVALS, AND WAS UNABLE TO RECORD FINAL PRE-BURN DATA WHICH OCCURED BETWEEN INTERVALS. FINAL SCALE WEIGHT WAS NOTED TO BE 2.70 lb. TEMPERATURES ARE REPRESENTED ON FIRST LINE OF SAMPLING DATA.

L. J. May, ETC
 2-28-12

Manufacturer: SBI		VERSION 1.2										2/5/2010			
Model: XTD 1.1															
Date: 10/20/2011															
Run: 3															
Project #: G100527551															
Test Duration: 160															
Barometer (in.Hg):		Start	End												
		29.72	29.6												
Dry Bulb (F):		83	85												
Humidity (%):		49	49												
Moisture content of wood (wet basis):		16.1836													
Average		0.60	6.60	14.01	407.62	85.70	117.55	557.95	366.21	652.41	578.64	688.32	878.33		
Elapsed Time	Weight Remaining	CO	CO2	O2	Flue Gas	Room Temp	Tunnel Dry Bulb	Unit Top	Unit Back	Unit R Side	Unit L Side	Unit Bottom	DQM 1 Reading		
0	10.65	0.35	11.71	8.85	350.7	83.4	135.6	433.4	437.1	404.0	639.6	645.2	667.722		
10	9.02	0.35	11.71	8.85	599.6	86.1	142.3	731.0	421.0	478.1	517.8	535.7	668.760		
20	8.97	0.26	12.44	7.87	623.3	87.0	145.0	847.3	409.4	553.0	635.3	571.8	669.668		
30	5.25	0.23	11.21	8.91	670.4	87.3	141.3	838.3	399.7	635.2	675.2	616.9	670.951		
40	3.96	0.23	8.07	11.26	618.6	90.5	132.7	752.4	355.7	603.3	623.1	652.7	672.034		
50	2.54	0.20	6.67	12.69	475.3	93.8	129.0	692.9	392.8	671.1	649.3	673.2	673.103		
60	2.48	0.30	5.18	15.10	427.3	84.0	121.5	614.3	364.3	610.4	648.3	667.4	674.162		
70	1.90	0.29	8.82	14.03	420.0	84.0	119.8	680.0	378.3	695.2	638.7	654.6	675.258		
80	1.57	0.30	4.77	14.75	388.6	84.9	111.6	654.5	376.3	580.0	635.0	645.9	676.330		
90	1.33	0.73	3.68	16.01	351.2	85.0	107.9	607.2	376.3	558.0	620.7	627.9	677.407		
100	1.12	0.83	3.63	16.07	347.8	86.2	107.2	476.4	377.6	646.9	602.0	606.7	678.479		
110	0.90	0.65	3.13	16.47	336.1	86.8	105.2	453.0	379.6	632.8	585.4	586.3	679.551		
120	0.67	0.98	2.80	16.64	326.2	86.3	103.4	433.7	379.0	618.1	570.7	565.1	680.630		
130	0.45	1.02	2.51	16.91	315.1	85.9	101.7	418.6	378.9	609.6	658.0	544.8	681.703		
140	0.28	1.09	1.92	17.31	301.7	85.6	100.4	401.8	374.9	602.8	639.6	523.9	682.774		
150	0.12	1.02	1.72	17.84	286.5	85.4	98.6	383.4	372.0	481.9	613.3	502.6	683.852		
160	0.00	1.06	1.01	17.91	275.2	84.7	93.0	367.4	367.3	451.6	485.4	480.7	684.926		

L. J. Morgan
11-10-11

Manufacturer: SBI Model: XTD 1.1 Date: 10/20/11 Run: 3 Project #: G100527551												
72.20	72.27	77.71	814.45	71.76	71.74	78.65	0.02	-0.064	0.00	533.11		
DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	DGM 2	Filter 2	Tunnel	Chimney	Visual	Average	Change in	
Inlet T	Outlet T	Temp	Reading	Inlet T	Outlet T	Temp	Velocity	Draft	Smoke	Stove	Surface	
71.3	71.3	72.4	805.831	70.9	70.9	72.6	0.020	-0.035	Observed	483.8	0	
71.4	71.2	78.6	806.720	70.9	70.9	70.7	0.018	-0.050		536.9	53.06	
71.7	71.6	79.9	807.848	71.1	71.1	80.2	0.018	-0.055		583.4	99.52	
72.3	71.9	79.7	808.975	71.3	71.5	80.9	0.018	-0.063		613.1	129.22	
72.5	72.2	80.2	810.081	71.8	71.8	81.5	0.018	-0.065		621.4	137.6	
72.4	72.4	80.4	811.182	71.0	71.8	81.5	0.018	-0.093		615.9	132.02	
72.6	72.4	79.8	812.275	71.8	71.9	80.9	0.018	-0.090		586.5	102.7	
72.6	72.6	79.0	813.381	71.9	71.9	80.0	0.018	-0.080		569.4	85.52	
72.7	72.6	78.0	814.428	72.0	72.0	79.4	0.018	-0.073		559.9	76.1	
72.6	72.6	77.4	816.490	72.0	71.9	78.7	0.018	-0.068		537.9	54.08	
72.5	72.6	77.0	816.581	72.1	72.0	78.3	0.018	-0.063		522.3	38.46	
72.4	72.6	76.8	817.708	72.0	71.9	77.8	0.018	-0.080		507.4	23.56	
72.4	72.6	76.8	818.831	72.1	72.0	77.7	0.018	-0.060		493.5	9.64	
72.5	72.7	76.6	819.951	72.2	72.1	77.6	0.018	-0.060		481.6	-2.28	
72.5	72.8	76.4	821.088	72.2	72.1	77.3	0.018	-0.058		468.6	-15.24	
72.3	72.5	76.4	822.216	72.1	71.9	77.1	0.018	-0.055		450.8	-33.02	
72.6	72.4	75.9	823.345	72.0	72.0	76.8	0.018	-0.053		430.5	-53.36	-53.36

L. J. Morgan
11-10-11

		Manufacturer:		SBI					
		Model:		XTD 1.1					
		Date:		10/20/11					
		Run:		3					
		Project #:		G100527551					
		Test Duration:		160					
		Total Gas Volume (DGM 1):		17.010		Pitot Factor		0.82	
		Total Gas Volume (DGM 2):		17.480				(0.99 standard,	
		Average Barometric Pressure:		29.66				0.84 or Cal. Factor for S-Type)	
		Molecular Weight:		28.56					
		Pitot Correction:		0.942286731					
		Calibration Factor (DGM #1):		1.0060					
		Calibration Factor (DGM #2):		1.0030					
		(1) VS:		0.0447					
		(2) VS:		0.0435					
								Filter Face	Filter Face
								Velocity	Velocity
Elapsed	DGM 1	DGM 1	DGM 1	DGM 2	DGM 2	DGM 2	Tunnel	DGM 1	DGM 2
Time	Reading	Inlet T	Outlet T	Reading	Inlet T	Outlet T	Dry Bulb		
0	867.722	71.3	71.3	805.631	70.87	70.86	135.6		
10	868.760	71.4	71.2	806.720	70.88	70.86	142.3	8.86	9.28
20	869.868	71.7	71.5	807.848	71.07	71.1	145	9.46	9.61
30	870.951	72.3	71.9	808.975	71.33	71.52	141.3	9.24	9.59
40	872.034	72.5	72.2	810.081	71.62	71.76	132.7	9.23	9.41
50	873.103	72.4	72.4	811.182	71.85	71.83	129.9	9.11	9.37
60	874.182	72.6	72.4	812.275	71.82	71.89	121.5	9.19	9.30
70	875.258	72.6	72.5	813.381	71.87	71.86	115.8	9.17	9.41
80	876.330	72.7	72.6	814.428	72	72	111.6	9.13	8.90
90	877.407	72.6	72.6	815.490	72.01	71.94	107.9	9.18	9.03
100	878.479	72.5	72.6	816.581	72.05	71.97	107.2	9.13	9.28
110	879.551	72.4	72.6	817.706	72.01	71.91	105.2	9.14	9.57
120	880.630	72.4	72.6	818.831	72.12	71.99	103.4	9.19	9.57
130	881.703	72.5	72.7	819.961	72.21	72.07	101.7	9.14	9.61
140	882.774	72.5	72.6	821.088	72.17	72.06	100.4	9.12	9.58
150	883.852	72.3	72.5	822.218	72.11	71.89	98.83	9.19	9.61
160	884.926	72.6	72.4	823.345	71.95	72	97.98	9.15	9.58

L.H. Morgan
11-10-11

Proportional Rate Calculations				(EPA Formulas from PR5G)				
Stack area (ft2):		0.34907		Manufacturer:		SBI		
Wood moisture (% wet):		16.1836		Model:		XTD 1.1		
Load Weight (lbs wet):		10.95		Date:		10/20/11		
Burn Rate (Dry kg/hr):		1.561		Run:		3		
				Project No.: G100527551				
Final Temperature (DGM #1) Degrees Rankin:				532.281				
Final Temperature (DGM #2) Degrees Rankin:				531.749				
Final Tunnel Temperature Degrees Rankin:				577.548				
Final Tunnel Velocity (feet per second):				7.323379				
Standardized Tunnel Flow (dscfm):				138.39				
		Average Inlet + Outlet Temp.	Average Inlet + Outlet Temp.	100.22	100.22	#1 dDGM Vol.Std. (ft3)	#2 dDGM Vol.Std. (ft3)	
Tunnel Velocity Delta-P	Tunnel Velocity Ft/Sec	Meter 1 Deg. R	Meter 2 Deg. R	PR1	PR2			Time
0.020	7.834	531.3	530.9					0
0.018	7.369	531.3	530.9	100.24	102.12	1.028	1.076	10
0.018	7.491	531.6	531.1	105.68	104.49	1.097	1.115	20
0.018	7.468	532.1	531.4	102.89	104.01	1.071	1.113	30
0.018	7.414	532.4	531.7	102.10	101.29	1.071	1.092	40
0.018	7.396	532.4	531.8	100.54	100.56	1.057	1.086	50
0.018	7.241	532.5	531.9	102.16	100.52	1.067	1.078	60
0.018	7.308	532.5	531.9	99.95	99.80	1.064	1.091	70
0.018	7.179	532.6	532.0	100.60	95.44	1.059	1.033	80
0.018	7.257	532.6	532.0	99.34	95.15	1.064	1.048	90
0.018	7.253	532.6	532.0	98.82	97.68	1.059	1.076	100
0.018	7.240	532.5	532.0	98.67	100.56	1.060	1.110	110
0.018	7.228	532.5	532.1	99.15	100.38	1.067	1.110	120
0.018	7.218	532.6	532.1	98.44	100.66	1.060	1.114	130
0.018	7.209	532.6	532.1	98.14	100.28	1.058	1.111	140
0.018	7.199	532.4	532.0	98.67	100.43	1.066	1.115	150
0.018	7.194	532.5	532.0	98.21	100.09	1.062	1.112	160

L. J. Morgan
11-10-11

Intertek Testing Services									
SFBA EPA ADJUSTED EMISSION RESULTS									
Manufacturer:		SBI			RESULTS				
Model:		XTD 1.1							
Date:		10/20/11			Average Adjusted Emissions Rate: 1.82				
Run:		3			Average Unadjusted Emission Rate: 1.00				
Project #:		G100527551			Burn Rate (Dry kg/hr): 1.86				
Test Duration (Minutes):		160							
Test Duration (Hours):		2.67							
BAROMETRIC PRESSURE									
					Average:		29.66		
					Start:		29.72		
					End:		29.6		
TEMPERATURE FACTORS									
DGM #1:		0.9920							
DGM #2:		0.9930							
VOLUMES SAMPLED					DRY GAS METER VALUES				
DGM #1:		17.019			DGM #1		Final:		884.926
DGM #2:		17.489					Initial:		867.722
TOTAL TUNNEL VOLUME (scf):		21342			DGM #2		Final:		823.345
							Initial:		805.631
SAMPLE RATIOS					TEMPERATURES (DEG. RANKIN)				
Sample Train 1:		1254.0			DGM #1:		532.28		
Sample Train 2:		1220.4			DGM #2:		531.75		
TOTAL EMISSIONS					CALIBRATION FACTORS				
Sample Train 1 (g):		2.76			DGM #1:		1.006		
Sample Train 2 (g):		2.56			DGM #2:		1.003		
Ave:		2.66							
EMISSION RATES					TUNNEL FLOW RATE: 133.4				
Sample Train 1 (g/hr):		1.03			PARTICULATE CATCH (mg)				
Sample Train 2 (g/hr):		0.96			Sample Train 1:				
Ave:		1.00			Filters 1.9				
ADJUSTED EMISSION RATES					Probe 0.3				
Sample Train 1 (g/hr):		1.87			Total 2.2				
Sample Train 2 (g/hr):		1.76			Sample Train 2:				
Ave:		1.82			Filters 2				
DEVIATION:		3.06%			Probe 0.1				
					Total 2.1				
If deviation is greater than 7.5% due to low particulate catch									
The two emission rates shall not differ by 7.5%									
of the weighted average emission rate limit (4.1 or 7.5) (5g-3)									
Use the following:									
Catalytic units		2.71%							
7.5% of 4.1 g/hr									
Non catalytic units		1.48%							
7.5% of 7.5 g/hr									

REPORT DATA									
Client:		SBI							
Run:		3							
Date:		10/20/11							
Project No.:		G100527551							
Model:		XTD 1.1							
Fuel Moisture (Dry):		19.30833333							
Stack Static (neg):		0.0975							
Barometer:		29.66							
Average Room Temp:		85.70							
Change in stove temp:		-53.36							
Burn Rate:		1.561							
Adjusted Emission Rate:		1.817							
System 1:		1.872							
System 2:		1.761							
Deviation:		3.06%							
Filter 1:		77.71							
Filter 2:		78.65							
Tunnel:		117.55							
DGM 1:		72.28							
DGM 2:		71.75							
Water Collected:									
Room Temp		Bar Pressure		Relative Humidity		Air Velocity			
Before	After	Before	After	Before	After	Before	After	Before	After
83	85	29.72	29.60	49	49	0	0		
Delta H Average									
DGM#1:	0								
DGM#2:	0								

H. J. Morgan
11-10-11

SBI-Stove Builder International
Project No. G100527551
October 20, 2011

Dilution Tunnel Traverse Data
Run 3

VERSION 1.2

2/5/2010

E&E Tunnel Traverse Worksheet

	TUNNEL VELOCITY	TUNNEL TEMP	SQUARE ROOT
A CENTER	0.020	134	0.1414
B CENTER	0.020	123	0.1414
A1	0.018	130	0.1323
A2	0.020	130	0.1414
A3	0.018	130	0.1323
A4	0.015	122	0.1225
B1	0.018	121	0.1323
B2	0.020	121	0.1414
B3	0.020	121	0.1414
B4	0.015	111	0.1225
AVERAGE	0.01825	124.26	0.1333

Static Pressure:

PITOT
CONSTANT: 0.9423

Tunnel Diameter (in):	8
Tunnel Area (ft ²)	0.349066
Tunnel Static Pressure	-0.0975

H. J. Morgan
11-10-11



Weather Forecast: Québec, QC

alerts

Wind warning for Québec area

Current Weather Thurs, Oct 20, 2011, 9:00 EDT Jean Lesage Intl Airport



8°C

Light rain showers

Feels Like : -
Wind : E 45km/h
Wind gusts : 70km/h
Sunrise : 7:10
Sunset : 17:50

Relative Humidity : 93%
Pressure : 100.63 kPa ▼
Visibility : 16.0 km
Ceiling : 1000 ft

Short Term Forecast Updated: Thurs, Oct 20, 2011, 8:00 EDT

	Thursday Afternoon	Thursday Evening	Thursday Overnight	Friday Morning	Friday Afternoon
	Light rain	Cloudy with showers	Light rain	Light rain	Cloudy with showers
Temp.	12°C	12°C	8°C	10°C	11°C
Wind	NE 35km/h	NE 15km/h	SW 15km/h	SW 15km/h	SW 15km/h
Relative Humidity	94%	94%	87%	82%	93%
P.O.P.	80%	80%	80%	70%	60%
Rain	1-3mm	2-4mm	2-4mm	1-3mm	less than 1mm

Long Term Forecast Updated: Thursday, October 20, 2011, 8:00 EDT

	Friday Oct 21	Saturday Oct 22	Sunday Oct 23	Monday Oct 24	Tuesday Oct 25	Wednesday Oct 26
Conditions 6am - 6pm						
	Light rain	Cloudy with showers	Variable cloudiness	Cloudy with showers	Cloudy with showers	Cloudy periods
P.O.P.	70%	40%	20%	40%	80%	20%
High	11°C	11°C	10°C	11°C	9°C	9°C
Low	8°C	7°C	5°C	5°C	6°C	6°C
Wind	SW 15 km/h	W 10 km/h	W 5 km/h	SE 5 km/h	NE 5 km/h	W 5 km/h

L. J. Morin
11-10-11



Weather Forecast: Québec, QC

alerts

Wind warning for Québec area

Current Weather Thurs. Oct 20, 2011, 12:00 EDT Jean-Lesage Intl Airport



9°C

Partly cloudy

Feels Like : -
Wind : E 59km/h
Wind gusts : 81km/h
Sunrise : 7:10
Sunset : 17:50

Relative Humidity : 81%
Pressure : 100.23 kPa ▼
Visibility : 40.0 km
Ceiling : 1200 ft

Short Term Forecast Updated: Thurs, Oct 20, 2011, 10:00 EDT

	Thursday Afternoon	Thursday Evening	Thursday Overnight	Friday Morning	Friday Afternoon
	Light rain	Cloudy with showers	Light rain	Light rain	Cloudy with showers
Temp.	12°C	12°C	8°C	10°C	11°C
Wind	NE 35km/h	NE 15km/h	SW 15km/h	SW 15km/h	SW 15km/h
Relative Humidity	94%	94%	87%	82%	93%
P.O.P.	80%	80%	80%	70%	60%
Rain	1-3mm	2-4mm	2-4mm	1-3mm	less than 1mm

Long Term Forecast Updated: Thursday, October 20, 2011, 10:00 EDT

	Friday Oct 21	Saturday Oct 22	Sunday Oct 23	Monday Oct 24	Tuesday Oct 25	Wednesday Oct 26
Conditions 6am - 6pm						
	Light rain	Cloudy with showers	Variable cloudiness	Cloudy with showers	Cloudy with showers	Cloudy periods
P.O.P.	70%	40%	20%	40%	80%	20%
High	11°C	11°C	10°C	11°C	9°C	9°C
Low	8°C	7°C	5°C	5°C	6°C	6°C
Wind	SW 15 km/h	W 10 km/h	W 5 km/h	SE 5 km/h	NE 5 km/h	W 5 km/h

L. J. Morin
11-10-11

PROJECT / TEST INFORMATION	
Project Number:	G100527551
Manufacturer:	S.B.I.
Model:	XTD 1.1
Sample ID Number:	PRTM0121353-001
Test Date:	OCTOBER 21, 2011
Test Run Number:	4
Date tunnel cleaned:	10-13-11
Purpose of Test	CAT. 4

1.33 @ 4.4

$\Delta T = 79$

DEV. 2.33%

Appliance Information		
Appliance Type:	2	1 - Catalytic 2 - Non-Catalytic 3 - Pellet 4 - Hydronic
Firebox Volume, ft ³ :	1.55	N/A for pellet type
Convection Blower	2	1 - No Fan 2 - Optional Accessory 3 - Standard Equipment

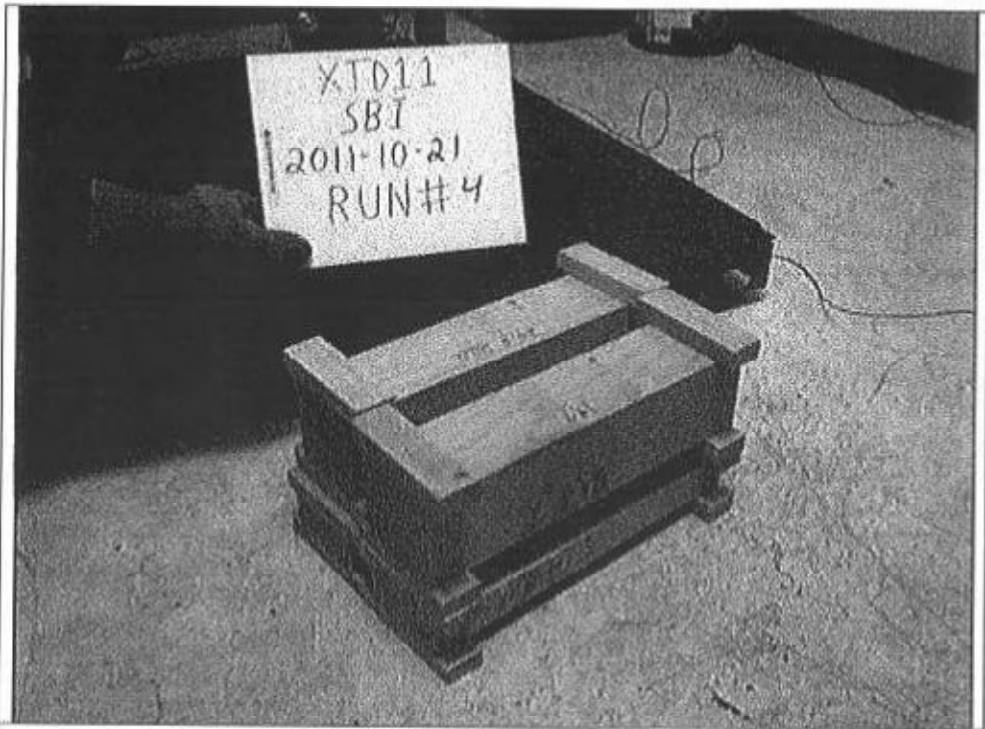
K. J. Morgan
11-10-11

Test Settings	
Primary Air:	FULLY OPEN
Secondary Air:	FIXED
Control Board:	N/A
Blower/Fan:	ON LOW AFTER 30 MIN

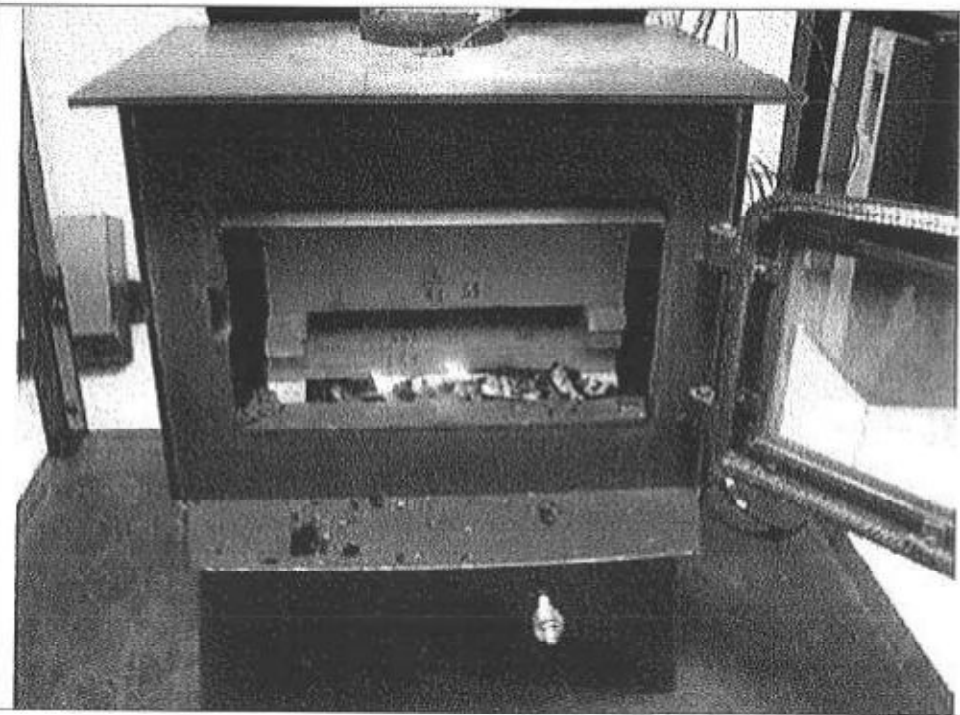
Pre-Burn Activities	
Time	Activity
0	TEST SETTING - FAN ON - LOW - 8:40 AM
44'	STIR THE COAL BED
65'	LEVEL THE COAL BED

Start-Up Procedure	
Loading of fuel, sec.:	30 SEC
Fuel-loading door:	CLOSED AT 1.5 min.
Primary air:	COMPLETELY OPEN
Secondary air:	
Control board:	HA
Blower / fan:	ON AT LOW POSITION AT 30' INTO THE TEST

Other Notes	
AT 40', AIR INLET OPENING OF TUNNEL WAS INCREASED.	
AT 70', MIXING BARRIER OPENING WAS DECREASED	



Run 4 – Fuel Load



Run 4 – Newly loaded stove

L. J. Morgan
11-10-11

Intertek

TEST FUEL DATA EPA METHOD 5G-3

Project Number: G100527551
 Manufacturer: S.B.I.
 Model: XTD 1.1
 Sample ID Number:
 Test Date: OCTOBER 21, 2011
 Test Run Number: 4

$$12.0\% = 12.0\%$$

$$22.0\% = 22.0\%$$

EQ. : 19701

PRE-BURN FUEL PROPERTIES					
Eq. ID No.:	SB1-214	Time:	8:10	Temp., °F:	73.7
Piece No.	Length, In.	Weight, Lb.	Moisture, %, Dry Basis		
1	10	1.20	23.4	24.2	22.5
2	10	1.25	23.4	21.1	20.2
3	10	1.20	21.2	21.7	19.5
4	10	1.15	20.0	20.9	20.0
5	15	1.75	23.1	23.6	22.4
6	15	1.75	23.7	24.3	23.4
7	15	1.85	23.8	23.1	23.1
8	15	1.85	23.5	23.8	23.4
9	15	1.85	22.0	22.2	19.3
10					
11					
12					
Total Weight		13.80	Average, %db		

TEST FUEL LOAD PROPERTIES						
Eq. ID No.:	SB1 -	Time:	8:30	Temp., °F:		
Piece No.	Length, In.	Weight, Lb.		Moisture, %, Dry Basis		
		2x4	4x4			
1	14.25	2.05		19.2	19.2	19.2
2	14.25	1.60		20.1	19.5	18.4
3	14.25		3.65	20.0	19.2	20.3
4	14.25		3.75	19.8	19.7	20.5
5						
6						
7						
8						
Totals		3.65	7.4			
% of Weight		33	67			
Total weight, wet, lb.		11.05		Average Moisture, dry		19.55
Total weight, dry, kg		4.19		Average Moisture, wet		16.38

10-25-11

[Signature]



Supplemental Data
EPA Methods 5G and 28

Project Number G100527551
Manufacturer S.B.I.
Model XTD 1.1
Sample ID Number PRT1110121353-001
Test Date OCTOBER 21, 2011
Test Run Number 4

Sampling Start Time 9:56 Sampling Stop Time 12:06

Air Velocity (ft/sec) Initial: <50 Final: <50

Barometric Pressure (in/Hg) Initial: 29.65 Final: 29.67

Post-leak Check (cfm @ in/Hg) Train A: 0.003 Train B: 0.002

Date: 10-25-11

Engineer Signature: _____

SBI-Stove Builder International
 October 21, 2011
 Project No. G100527551

Pre-Burn Data
 Run 4

Flue Gas	Room Temp	Tunnel Dry Bulb	Unit Top	Unit Bottom	Unit Back	Unit L.Side	Unit Right	Unit Scale weight	Draft	Time
68.63	66.17	70.04	69.39	70.91	71	70.54	70.9	2.45		
322.9	70.12	159	273	90.06	204.8	133.3	129.4	55.88		
580.7	73.22	147.8	569.6	173.1	260.9	208.8	208.4	12.35		
627.1	77.16	163	728.3	262.9	397	290.5	290.4	9.7		
666.6	82.44	168.5	860.4	358.6	530.5	372.4	385.4	7.14		
636.7	84.61	161.7	827.8	456.4	628.3	449	482.4	5.06		
593.6	86.45	155.6	828.1	556.1	683.7	537.9	583.3	3.22		
488	84.48	134.5	673.1	554.4	635.6	588	635.6	2.56		

H. J. May
 11-10-11

DATA LOGGER WAS SET TO RECORD ON 10-MINUTE INTERVALS, AND WAS UNABLE TO RECORD FINAL PRE-BURN DATA WHICH OCCURED BETWEEN INTERVALS. FINAL SCALE WEIGHT WAS NOTED TO BE 2.25 lb. TEMPERATURES ARE REPRESENTED ON FIRST LINE OF SAMPLING DATA.

H. J. May, ETL
 2-28-12

Manufacturer: SBI		VERSION 1.2 2/8/2010												
Model: XTD 1.1														
Date: 10/21/2011														
Run: 4														
Project #: G100527551														
Test Duration: 130														
		Start	End											
Barometer (In.Hg):		29.65	29.67											
Dry Bulb (F):		83	85											
Humidity (%):		38	39											
Moisture content of wood (wet basis):		16.3821												
Average:		0.40	10.13	10.04	602.60	84.34	143.53	658.51	404.45	043.41	032.98	665.49	891.64	
Elapsed Time	Weight Remaining	CO	CO2	O2	Flue Gas	Room Temp	Tunnel Dry Bulb	Unit Top	Unit Back	Unit R.Side	Unit L.Side	Unit Bottom	DGM 1 Reading	
0	11.1	0.26	12.50	8.01	435.4	82.8	138.1	664.7	637.1	605.6	600.5	630.3	884.946	
10	9.6	0.26	12.50	8.01	492.2	83.6	171.7	839.7	515.7	553.2	667.5	599.6	885.882	
20	8.5	0.23	13.47	8.00	733.6	86.4	184.4	883.5	491.0	620.8	688.3	633.0	887.010	
30	4.4	0.24	13.42	7.39	695.9	85.2	181.5	977.6	476.8	725.0	638.6	691.4	888.007	
40	3.1	0.25	13.31	7.65	695.5	85.1	168.4	838.9	464.9	774.0	691.4	739.7	889.012	
50	2.3	0.27	13.60	7.72	693.7	87.9	156.7	714.8	480.6	768.9	709.3	751.6	890.055	
60	1.7	0.27	13.61	7.73	603.7	85.8	150.2	657.5	457.0	747.8	765.8	741.3	891.104	
70	1.3	0.28	13.60	7.73	407.3	88.2	135.8	620.4	409.6	700.6	609.4	727.6	892.160	
80	1.0	0.27	13.69	7.68	435.2	84.8	129.5	565.8	449.5	618.2	674.9	690.5	893.207	
90	0.7	0.30	8.70	7.67	417.8	83.3	124.8	628.0	463.0	610.3	644.7	685.9	894.252	
100	0.5	0.66	4.38	13.01	408.3	82.7	123.4	609.6	440.0	608.4	670.6	643.3	895.298	
110	0.2	0.71	3.60	10.13	393.3	82.9	119.8	487.8	438.7	583.8	609.8	623.8	896.299	
120	0.0	0.80	3.00	16.79	376.9	84.7	118.3	465.3	437.8	582.7	578.2	599.6	897.320	
130	0.0	0.83	2.10	17.20	350.6	85.0	114.4	437.6	435.1	623.7	551.7	572.7	898.337	

L. J. Morgan
11-10-11

Manufacturer: SBI Model: XTD 1.1 Date: 10/21/11 Run: 4 Project #: G100527551												
72.74	72.62	80.33	830.10	72.25	72.24	82.07	0.02	-0.068	0.00	612.57		
DGM 1 Inlet T	DGM 1 Outlet T	Filter 1 Temp	DGM 2 Reading	DGM 2 Inlet T	DGM 2 Outlet T	Filter 2 Temp	Tunnel Velocity	Chimney Draft	Visual Smoke Observed	Average Stove Temp	Change In Surface Temp.	
71.0	71.6	72.3	823.385	71.3	71.3	73.1	0.020	-0.035		583.6	0	
71.8	71.6	79.6	824.371	71.4	71.3	80.8	0.023	-0.045		615.1	31.5	
72.0	71.7	83.6	825.408	71.5	71.5	84.0	0.021	-0.026		664.7	81.06	
72.5	72.0	83.6	826.480	71.8	71.8	84.0	0.023	-0.060		701.7	118.04	
72.7	72.3	82.0	827.533	72.0	72.0	84.4	0.020	-0.100		701.8	118.14	
72.7	72.4	82.7	828.536	72.2	72.2	85.4	0.020	-0.095		681.0	97.4	
73.0	72.7	82.8	829.580	72.4	72.5	84.0	0.020	-0.082		661.9	78.24	
73.0	72.8	81.8	830.592	72.6	72.6	84.4	0.023	-0.082		640.7	57.06	
73.2	73.0	80.8	831.617	72.7	72.7	83.0	0.020	-0.078		601.0	17.34	
73.0	72.9	79.6	832.598	72.6	72.5	82.0	0.020	-0.077		580.2	-3.46	
73.2	73.0	79.8	833.715	72.6	72.6	81.4	0.021	-0.074		564.6	-19.08	
73.4	73.2	79.3	834.825	72.9	72.9	80.9	0.021	-0.070		545.9	-36.74	
73.2	73.2	78.6	835.842	72.8	72.8	80.6	0.021	-0.063		528.7	-54.92	
73.2	73.2	78.4	836.998	72.8	72.8	80.3	0.021	-0.062		504.1	-79.5	-79.5


 11-10-11

		Manufacturer:		SBI					
		Model:		XTD 1.1					
		Date:		10/21/11					
		Run:		4					
		Project #:		G100527551					
		Test Duration:		130					
		Total Gas Volume (DGM 1):		13.231		Pitot Factor		0.82	
		Total Gas Volume (DGM 2):		13.440				(0.99 standard,	
		Average Barometric Pressure:		29.66				0.84 or Cal. Factor for S-Type)	
		Molecular Weight:		28.56					
		Pitot Correction:		0.954891641					
		Calibration Factor (DGM #1):		1.0060					
		Calibration Factor (DGM #2):		1.0030					
		(1) VS:		0.0614					
		(2) VS:		0.0604					
								Filter	Filter
								Face	Face
Elapsed	DGM 1	DGM 1	DGM 1	DGM 2	DGM 2	DGM 2	Tunnel	Velocity	Velocity
Time	Reading	Inlet T	Outlet T	Reading	Inlet T	Outlet T	Dry Bulb	DGM 1	DGM 2
0	884.946	71.6	71.5	823.365	71.33	71.32	130.1		
10	885.982	71.8	71.5	824.371	71.36	71.29	171.7	8.84	8.57
20	887.010	72.0	71.7	825.408	71.5	71.5	184.4	8.77	8.83
30	888.007	72.5	72.0	826.480	71.8	71.84	181.9	8.50	9.12
40	889.012	72.7	72.3	827.533	72.01	72.03	168.4	8.56	8.95
50	890.055	72.7	72.4	828.538	72.19	72.21	156.7	8.89	8.54
60	891.104	73.0	72.7	829.560	72.41	72.46	150.2	8.93	8.68
70	892.160	73.0	72.8	830.592	72.56	72.56	135.8	8.99	8.77
80	893.207	73.2	73.0	831.617	72.67	72.68	129.5	8.91	8.71
90	894.252	73.0	72.9	832.596	72.55	72.51	124.8	8.90	8.32
100	895.298	73.2	73.0	833.715	72.61	72.6	123.4	8.90	9.50
110	896.299	73.4	73.2	834.825	72.86	72.87	119.8	8.52	9.42
120	897.320	73.2	73.2	835.842	72.81	72.78	118.3	8.69	8.64
130	898.337	73.2	73.2	836.998	72.81	72.75	114.4	8.65	9.82

L. J. Morgan
11-10-11

Proportional Rate Calculations				(EPA Formulas from PR5G)				
Stack area (ft2):		0.34907		Manufacturer:		SBI		
Wood moisture (% wet):		16.3821		Model:		XTD 1.1		
Load Weight (lbs wet):		11.05		Date:		10/21/11		
Burn Rate (Dry kg/hr):		1.934		Run:		4		
				Project No.: G100527551				
Final Temperature (DGM #1) Degrees Rankin:				532.634				
Final Temperature (DGM #2) Degrees Rankin:				532.245				
Final Tunnel Temperature Degrees Rankin:				603.529				
Final Tunnel Velocity (feet per second):				8.169013				
Standardized Tunnel Flow (dscfm):				142.39				
		Average	Average					
		Inlet +	Inlet +					
		Outlet	Outlet	99.93	99.88	#1	#2	
Tunnel	Tunnel	Temp.	Temp.			dDGM	dDGM	
Velocity	Velocity	Meter 1	Meter 2			Vol.Std.	Vol.Std.	
Delta-P	Ft/Sec	Deg. R	Deg. R	PR1	PR2	(ft3)	(ft3)	Time
0.020	7.902	531.6	531.3					0
0.023	8.672	531.7	531.3	99.36	94.76	1.026	0.994	10
0.021	8.512	531.9	531.5	102.43	101.48	1.017	1.024	20
0.023	8.742	532.2	531.8	96.29	101.69	0.986	1.058	30
0.020	8.155	532.5	532.0	101.82	104.79	0.993	1.039	40
0.020	8.078	532.6	532.2	104.65	99.05	1.031	0.991	50
0.020	8.036	532.9	532.4	104.64	100.15	1.036	1.007	60
0.023	8.422	532.9	532.6	98.12	94.19	1.043	1.017	70
0.020	7.898	533.1	532.7	102.61	98.68	1.034	1.010	80
0.020	7.867	532.9	532.5	102.03	93.90	1.032	0.965	90
0.021	8.051	533.1	532.6	99.53	104.60	1.033	1.103	100
0.021	8.026	533.3	532.9	94.91	103.39	0.988	1.093	110
0.021	8.016	533.2	532.8	96.70	94.61	1.008	1.002	120
0.021	7.989	533.2	532.8	96.00	107.19	1.004	1.139	130

L. J. Morgan
11-10-11

Intertek Testing Services							
SFBA EPA ADJUSTED EMISSION RESULTS							
Manufacturer:	SBI			RESULTS			
Model:	XTD 1.1						
Date:	10/21/11						
Run:	4						
Project #:	G100527551						
Test Duration (Minutes):	130						
Test Duration (Hours):	2.17						

REPORT DATA								
		Client:		SBI				
		Run:		4				
		Date:		10/21/11				
		Project No.:		G100527551				
		Model:		XTD 1.1				
Fuel Moisture (Dry):		19.59166667						
Stack Static (neg):		0.1						
Barometer:		29.66						
Average Room Temp:		84.34						
Change in stove temp:		-79.5						
Burn Rate:		1.934						
Adjusted Emission Rate:		4.381						
System 1:		4.490						
System 2:		4.272						
Deviation:		2.49%						
Filter 1:		80.33						
Filter 2:		82.07						
Tunnel:		143.53						
DGM 1:		72.63						
DGM 2:		72.25						
Water Collected:								
Room Temp		Bar Pressure		Relative Humidity		Air Velocity		
Before	After	Before	After	Before	After	Before	After	
83	85	29.65	29.67	38	39	0	0	
Delta H Average								
DGM#1:	0							
DGM#2:	0							

John F. Morgan
11-10-11

SBI-Stove Builder International
Project No. G100527551
October 21, 2011

Dilution Tunnel Traverse Data
Run 4

VERSION 1.2

2/5/2010

E&E Tunnel Traverse Worksheet

	TUNNEL VELOCITY	TUNNEL TEMP	SQUARE ROOT
A CENTER	0.023	135	0.1500
B CENTER	0.020	157	0.1414
A1	0.020	132	0.1414
A2	0.020	133	0.1414
A3	0.020	134	0.1414
A4	0.018	128	0.1323
B1	0.020	155	0.1414
B2	0.020	156	0.1414
B3	0.020	156	0.1414
B4	0.018	151	0.1323
AVERAGE	0.01975	143.72	0.1391

Static Pressure:

PITOT
CONSTANT^a 0.9549

Tunnel Diameter (in):	8
Tunnel Area (ft ²):	0.349066
Tunnel Static Pressure	-0.1

L. J. Morgan
11-10-11

- Holiday Weather
- Marine Forecast
- Park Report
- School Day Forecast
- Ski Report
- Stargazing
- Health & Environment
 - Aches & Pains
 - Air Quality
 - Bug Report
 - Climate Change
 - Flu Report
 - Forest Fire Watch
 - Going Green
 - Pollen Report
 - Under the Weather
 - UV Report
- Site Search
- Location Search

Search content with key GO

Last 24 Hours: Québec, QC

Change »

Local Time: Friday, October 21, 2011, 1:32 pm EDT |





















Local TV: Vidéotron 21

Katy Morgan
11-10-11



Observations Updated: Friday October 21 2011, 13:00 EDT

	Sky	Temp (°C)	Dew Point	Feels Like	Wind (km/h)	Relative Humidity (%)	Pressure (kPa)	Visibility (km)	Ceiling (ft)
FRI 13:00		10	8	-	SW 24	87	100.49	48	2500
FRI 12:00		11	8	-	SW 22	82	100.48	40	1700
FRI 11:00		10	8	-	SW 19	87	100.48	40	1300
FRI 10:00		9	8	-	SW 22	93	100.45	40	1400

									
FRI 09:00		9	8	-	SW 20	93	100.41▲	40	5200
FRI 08:00		9	8	-	SW 17	93	100.34▲	40	10000
FRI 07:00		9	8	-	SW 15	93	100.26▲	32	7200
FRI 06:00		9	9	-	SW 13	100	100.12—	24	9000
FRI 05:00		9	8	-	SW 13	93	100.12▲	24	9000
FRI 04:00		9	7	-	SW 15	87	100.08▲	24	2100
FRI 03:00		9	8	-	W 4	93	100.06▲	16	1900
FRI 02:00		9	8	-	S 7	93	100.03▲	16	700
FRI 01:00		9	8	-	SW 6	93	99.95▲	16	2600
FRI 00:00		9	8	-	W 9	93	99.91▲	6.4	2500
THU 23:00		9	9	-	E 9	100	99.76▲	6.4	1500
THU 22:00		9	8	-	E 22	93	99.75—	16	2200
THU 21:00		9	8	-	E 19	93	99.75▼	16	2800
THU 20:00		9	8	-	E 19	93	99.79▼	16	2200
THU 19:00		8	8	-	E 28	100	99.85—	8.0	700
THU 18:00		8	8	-	E 37	100	99.85▼	6.4	800
THU 17:00		8	8	-	E 15	100	100.01▲	13	900
THU 16:00		9	7	-	E 46	87	99.83▼	13	900
THU 15:00		8	7	-	E 43	93	99.93▼	13	700

L. J. Moray
11-10-11



Run Notes
EPA Methods 28 and 5G-3

Prelim: 0.55 @ 5.27

$$\Delta T = 23$$

PROJECT / TEST INFORMATION	
Project Number:	G100527651
Manufacturer:	S.B.I.
Model:	XTD 1.1
Sample ID Number:	PRT 111 0121353-001
Test Date:	OCTOBER 24, 2011
Test Run Number:	5
Date tunnel cleaned:	10-13-11
Purpose of Test	FAH CONFIRMATION

Coal Bed Range = 2.2 - 2.7

Appliance Information		
Appliance Type:	2	1 - Catalytic 2 - Non-Catalytic 3 - Pellet 4 - Hydronic
Firebox Volume, ft ³ :	1.55	N/A for pellet type
Convection Blower	2	1 - No Fan 2 - Optional Accessory 3 - Standard Equipment

Th. f. Marg

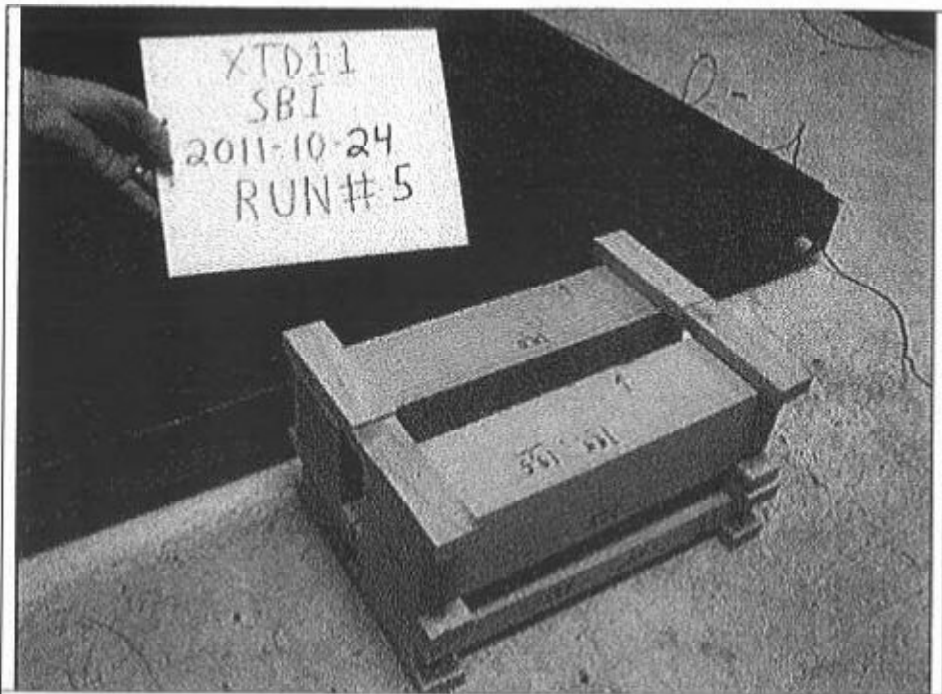
11-10-11

Test Settings	
Primary Air:	1/16"
Secondary Air:	Fixed
Control Board:	H/A
Blower/Fan:	OFF

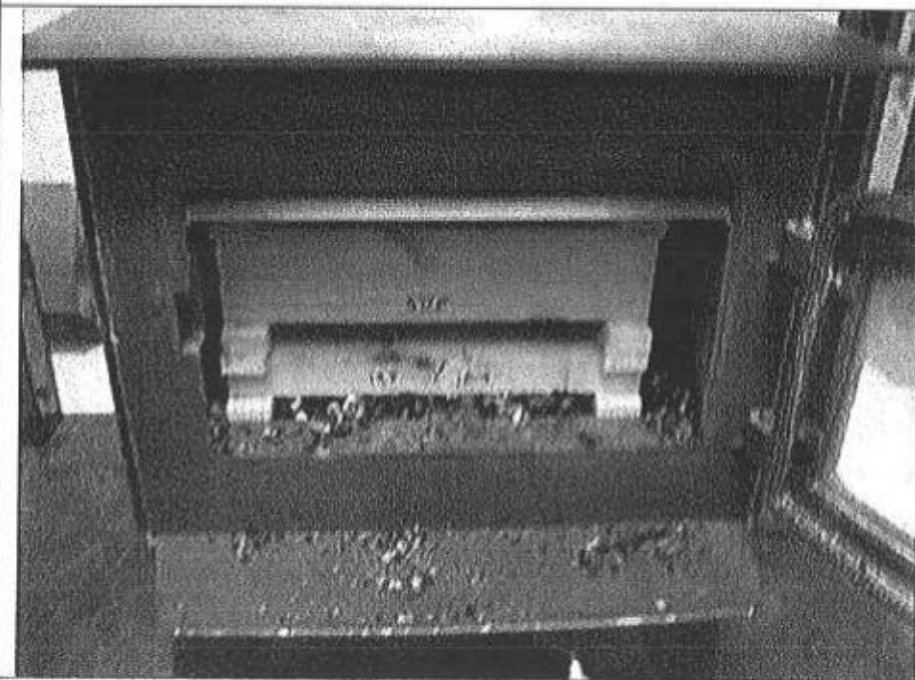
Pre-Burn Activities	
Time	Activity
0	3:45AM: The primary air was set at 3/16".
45'	COAL WAS STIRRED.
1:09R	0.1 LB REMOVED WITHIN 20 MC.
1:41R	COAL BED WAS LEVELLED FOR 30 MC.

Start-Up Procedure	
Loading of fuel, sec. :	55 sec.
Fuel-loading door :	Door closed at 55 sec. 30 records
Primary air:	fully open 5 min. Automatically closed at 3/16" at 5 min
Secondary air:	Hot adjustable
Control board:	N/A
Blower / fan:	OFF

Other Notes	



Run 5 – Fuel Load



Run 5 – Newly loaded stove

K. J. Wong
11-10-11

Intertek

TEST FUEL DATA EPA METHOD 5G-3

Project Number: G100527551
 Manufacturer: S.B.I.
 Model: XTD 1.1
 Sample ID Number:
 Test Date: Oct. 24, 2011
 Test Run Number: 5

Moisture Meter Block

12.0% = 12.0%

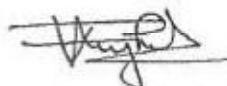
22.0% = 22.0%

EQ. NR. 19701

13.7 13.3 20.3
 20.8 13.7 20.2
 21.6 23.1 23.4
 20.3 21.5 20.3

PRE-BURN FUEL PROPERTIES					
Eq. ID No.:	SB1-214	Time:	8:20	Temp., °F:	74.1
Piece No.	Length, In.	Weight, Lb.	Moisture, %, Dry Basis		
1	15	1.25	13.0	13.0	13.2
2	15	1.25	13.1	13.7	13.8
3	15	1.35	21.3	20.6	22.0
4	15	1.70	20.4	13.7	
5	10	1.10	23.5	23.1	13.3
6	10	1.10	23.7	21.7	20.3
7	10	1.10	23.4	21.5	23.1
8	10	1.15	21.5	13.3	23.1
9					
10					
11					
12					
Total Weight		10.35	Average, %db		

TEST FUEL LOAD PROPERTIES					
Eq. ID No.:	SB1-214	Time:	9:55	Temp., °F:	74.1
Piece No.	Length, In.	Weight, Lb.		Moisture, %, Dry Basis	
		2x4	4x4		
1	14.25	1.55		20.0	13.7 13.4
2	14.25	1.35		22.1	21.6 21.1
3	14.25		3.65	13.5	13.0 13.3
4	14.25		3.95	13.3	13.7 13.3
5					
6					
7					
8					
Totals		3.5	7.4		
% of Weight		32.1	67.9		
Total weight, wet, lb.		10.9		Average Moisture, dry	20.02
Total weight, dry, kg		4.12		Average Moisture, wet	16.68



10-25-2011



Supplemental Data
EPA Methods 5G and 28

Project Number G100527651
Manufacturer S.B.I.
Model XTD 1.1
Sample ID Number
Test Date OCTOBER 24, 2010
Test Run Number 5 - FAN CONFIRMATION

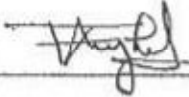
Sampling Start Time 11.33 Sampling Stop Time 15.53

Air Velocity (ft/sec) Initial: 450 Final: 450

Barometric Pressure (in/Hg) Initial: 30.08 Final: 29.92

Post - leak Check (cfm @ in/Hg) Train A: 0.004 @ 5 Train B: 0.005 @ 5

Date: 10-25-11

Engineer Signature: 

SBI-Stove Builder International
 October 24, 2011
 Project No. G100527551

Pre-Burn Data
 Run 5

Flue Gas	Room Temp	Tunnel Dry Bulb	Unit Top	Unit Bottom	Unit Back	Unit L.Side	Unit Right	Scale weight	Draft	Time
687	88	179	888	561	674	589	598	7.87		0
418	90	118	728	556	677	599	609	6.51		10
407	87	117	710	537	649	600	607	5.39		20
390	89	110	699	515	619	610	619	4.40		30
359	89	106	659	493	608	622	630	3.74		40
332	89	104	591	476	587	623	628	3.24		50
287	86	97	520	461	546	598	598	3.09		60
283	83	111	462	449	509	563	566	2.88		70
242	84	93	416	437	477	530	537	2.80		80
232	84	92	388	425	448	501	508	2.70		90
225	85	91	370	415	431	479	485	2.56		100

L. J. Mayo
 11-10-11

DATA LOGGER WAS SET TO RECORD ON 10-MINUTE INTERVALS, AND WAS UNABLE TO RECORD FINAL PRE-BURN DATA WHICH OCCURED BETWEEN INTERVALS. FINAL SCALE WEIGHT WAS NOTED TO BE 2.55 lb. TEMPERATURES ARE REPRESENTED ON FIRST LINE OF SAMPLING DATA.

L. J. Mayo, ETL
 2-28-12

Manufacturer: SBI		VERSION 1.2 2/5/2010													
Model: XTD 1.1															
Date: 10/26/2011															
Run: 5-Fan Confirmation															
Project #: G100527651															
Test Duration: 260															
Barometer (in.Hg):		Start	End												
		30.08	29.92												
Dry Bulb (F):		85	84												
Humidity (%):		30	34												
Moisture content of wood (wet basis):		16.6762													
Average		1.05	3.83	15.62	204.85	84.90	85.11	437.15	343.70	460.23	450.87	474.48	811.07		
Elapsed Time	Weight Remaining	CO	CO2	O2	Flue Gas	Room Temp	Tunnel Dry Bulb	Unit Top	Unit Back	Unit R Side	Unit L Side	Unit Bottom	DGM 1 Reading		
0	10.00	1.12	2.35	17.65	256.7	83.0	89.0	356.9	410.2	427.2	459.9	475.6	898.361		
10	10.05	0.58	2.08	13.07	270.0	83.9	97.2	436.0	397.3	412.0	449.1	450.6	899.359		
20	9.62	0.63	2.17	18.20	233.0	83.8	93.6	369.5	383.6	351.0	413.7	421.9	900.356		
30	8.28	0.52	0.09	10.71	382.9	84.8	103.7	560.1	368.1	368.3	403.4	417.4	901.371		
40	6.96	0.59	0.32	11.10	402.0	87.8	108.3	658.6	356.4	435.7	434.8	452.1	902.404		
50	5.76	0.60	6.82	11.27	389.5	87.0	105.7	671.4	349.0	405.0	409.5	490.8	903.422		
60	4.74	0.52	6.23	12.00	306.5	84.9	105.1	643.8	344.9	532.2	512.5	511.5	904.447		
70	3.87	0.47	7.81	12.38	351.3	84.8	102.1	625.0	342.0	587.1	548.4	626.6	905.483		
80	3.16	0.36	7.26	13.10	335.7	84.0	100.0	603.7	341.0	595.1	565.1	540.7	906.519		
90	2.63	0.39	7.01	13.72	327.5	83.9	99.8	581.7	343.7	601.8	572.2	553.2	907.551		
100	2.11	0.52	5.73	14.38	306.9	84.1	98.0	531.4	348.0	593.5	572.2	559.8	908.590		
110	1.84	0.93	4.07	16.37	282.0	82.3	95.8	493.3	348.1	585.6	562.8	553.9	909.625		
120	1.70	0.84	4.16	15.47	268.3	84.6	94.7	461.3	350.3	533.5	553.2	540.6	910.653		
130	1.48	1.19	3.37	15.97	250.0	83.8	93.6	434.0	352.0	502.0	537.6	529.4	911.684		
140	1.33	1.21	3.21	16.22	247.4	83.9	92.2	414.5	350.5	491.0	528.7	516.1	912.720		
150	1.21	1.37	2.85	16.76	240.0	84.8	91.4	399.6	348.0	479.7	505.2	509.1	913.733		
160	1.03	1.47	2.51	18.46	234.4	84.6	90.8	385.2	348.5	467.1	489.6	500.0	914.768		
170	0.90	1.77	1.48	17.19	223.5	86.3	91.5	367.1	343.7	430.0	472.3	466.9	915.803		
180	0.78	1.52	1.60	17.41	213.6	86.3	90.5	348.1	339.7	415.3	451.2	469.0	916.840		
190	0.70	1.42	1.60	17.28	208.8	85.2	89.6	333.8	335.8	414.8	431.8	452.8	917.872		
200	0.64	1.35	1.89	17.22	204.8	86.0	90.1	324.2	332.2	414.3	410.6	436.9	918.896		
210	0.54	1.40	1.78	17.37	200.8	88.2	90.4	316.1	329.3	408.7	404.1	427.8	919.880		
220	0.45	1.38	1.66	17.58	197.4	85.7	89.8	308.0	326.5	398.3	391.9	417.5	920.911		
230	0.22	1.53	1.57	17.69	193.3	85.6	88.5	300.6	323.5	386.2	380.1	407.8	921.945		
240	0.36	1.55	1.40	17.66	189.5	84.8	88.5	293.1	320.6	376.6	369.2	397.8	922.970		
250	0.45	1.56	1.22	18.12	186.0	84.5	86.2	285.1	318.5	370.4	359.0	386.2	923.992		
260	0.00	1.53	1.60	17.89	185.8	84.0	85.1	280.3	312.3	351.7	351.5	375.8	925.015		

L. P. Moray
11-10-11

		Manufacturer:		SBI					
		Model:		XTD 1.1					
		Date:		10/25/11					
		Run:		5-Fan Confirmation					
		Project #:		G100527551					
		Test Duration:		260					
		Total Gas Volume (DGM 1):		28.624		Pitot Factor		0.82	
		Total Gas Volume (DGM 2):		28.372				(0.99 standard,	
		Average Barometric Pressure:		30				0.84 or Cal. Factor for S-Type)	
		Molecular Weight:		28.56					
		Pitot Correction:		0.950960349					
		Calibration Factor (DGM #1):		1.0060					
		Calibration Factor (DGM #2):		1.0030					
				(1) VS:					
				(2) VS:					
								Filter Face	Filter Face
Elapsed Time	DGM 1 Reading	DGM 1 Inlet T	DGM 1 Outlet T	DGM 2 Reading	DGM 2 Inlet T	DGM 2 Outlet T	Tunnel Dry Bulb	Velocity DGM 1	Velocity DGM 2
0	898.361	71.2	71.2	836.904	70.76	70.75	99.04		
10	899.359	71.5	71.3	837.906	71.02	70.97	97.24	8.62	8.63
20	900.358	71.8	71.5	838.873	71.3	71.24	93.5	8.62	8.33
30	901.371	71.9	71.7	839.951	71.41	71.36	103.7	8.74	9.28
40	902.404	72.1	71.9	841.002	71.62	71.63	108.3	8.91	9.05
50	903.422	72.1	72.0	842.003	71.77	71.71	105.7	8.78	8.61
60	904.447	72.3	72.1	843.022	71.87	71.84	105.1	8.84	8.77
70	905.483	72.4	72.3	844.043	72.04	71.95	102.1	8.93	8.78
80	906.519	72.6	72.5	845.070	72.26	72.25	99.96	8.93	8.83
90	907.551	72.8	72.7	846.093	72.43	72.45	99.78	8.89	8.79
100	908.590	72.8	72.8	847.014	72.56	72.52	98.62	8.95	7.91
110	909.629	73.1	73.0	847.953	72.74	72.77	95.75	8.94	8.06
120	910.653	73.3	73.2	848.993	72.89	72.92	94.66	8.81	8.93
130	911.684	73.2	73.3	850.016	72.98	72.99	93.64	8.87	8.78
140	912.720	73.3	73.4	851.015	73.1	73.08	92.19	8.91	8.57
150	913.733	73.4	73.5	852.072	73.18	73.19	91.38	8.72	9.07
160	914.768	73.4	73.5	853.120	73.25	73.23	90.79	8.90	8.99
170	915.803	73.5	73.6	854.148	73.29	73.24	91.5	8.90	8.82
180	916.840	73.5	73.6	855.175	73.34	73.29	90.59	8.92	8.81
190	917.872	73.5	73.7	856.210	73.38	73.32	89.61	8.88	8.88
200	918.890	73.6	73.7	857.245	73.38	73.34	90.11	8.76	8.88
210	919.880	73.5	73.7	858.274	73.39	73.3	90.44	8.51	8.83
220	920.911	73.5	73.7	859.300	73.43	73.33	89.83	8.87	8.80
230	921.945	73.5	73.7	860.357	73.46	73.41	89.52	8.89	9.07
240	922.970	73.6	73.8	861.425	73.6	73.5	88.54	8.81	9.16
250	923.992	73.5	73.7	862.404	73.46	73.35	88.19	8.79	8.40
260	925.015	73.6	73.7	863.371	73.54	73.43	88.08	8.80	8.29

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Proportional Rate Calculations				(EPA Formulas from PR5G)				
Stack area (ft2):		0.34907		Manufacturer:		SBI		
Wood moisture (% wet):		16.6782		Model:		XTD 1.1		
Load Weight (lbs wet):		10.9		Date:		10/25/11		
Burn Rate (Dry kg/hr):		0.951		Run:		5-Fan Confirmation		
				Project No.:		G100527551		
Final Temperature (DGM #1) Degrees Rankin:				532.916				
Final Temperature (DGM #2) Degrees Rankin:				532.626				
Final Tunnel Temperature Degrees Rankin:				555.106				
Final Tunnel Velocity (feet per second):				7.436032				
Standardized Tunnel Flow (dscfm):				142.53				
		Average	Average					
		Inlet +	Inlet +					
		Outlet	Outlet	100.03	100.02	#1	#2	
Tunnel	Tunnel	Temp.	Temp.			dDGM	dDGM	
Velocity	Velocity	Meter 1	Meter 2			Vol.Std.	Vol.Std.	
Delta-P	Ft/Sec	Deg. R	Deg. R	PR1	PR2	(ft3)	(ft3)	Time
0.020	7.520	531.2	530.8					0
0.020	7.508	531.4	531.0	97.07	98.18	1.000	1.002	10
0.020	7.483	531.7	531.3	96.80	94.38	1.000	0.966	20
0.019	7.454	531.8	531.4	100.33	107.54	1.014	1.077	30
0.019	7.484	532.0	531.6	102.68	105.23	1.034	1.049	40
0.019	7.467	532.1	531.7	100.94	99.97	1.019	0.999	50
0.019	7.463	532.2	531.9	101.56	101.69	1.025	1.017	60
0.019	7.443	532.3	532.0	102.35	101.59	1.036	1.019	70
0.019	7.429	532.6	532.3	102.11	101.95	1.036	1.024	80
0.019	7.428	532.8	532.4	101.67	101.50	1.031	1.020	90
0.019	7.420	532.8	532.5	102.24	91.27	1.038	0.918	100
0.019	7.401	533.1	532.8	101.92	92.77	1.038	0.936	110
0.019	7.394	533.2	532.9	100.33	102.62	1.022	1.036	120
0.019	7.387	533.2	533.0	100.92	100.84	1.029	1.019	130
0.019	7.378	533.4	533.1	101.25	98.32	1.034	0.995	140
0.019	7.372	533.4	533.2	98.92	103.94	1.011	1.052	150
0.019	7.368	533.5	533.2	101.00	102.99	1.033	1.043	160
0.019	7.373	533.5	533.3	101.06	101.08	1.033	1.023	170
0.020	7.558	533.6	533.3	98.60	98.34	1.035	1.022	180
0.020	7.552	533.6	533.4	98.03	99.01	1.030	1.030	190
0.019	7.364	533.6	533.4	99.26	101.62	1.016	1.030	200
0.020	7.557	533.6	533.3	94.11	98.51	0.988	1.024	210
0.020	7.553	533.6	533.4	97.96	98.16	1.029	1.021	220
0.019	7.360	533.6	533.4	100.76	103.71	1.032	1.052	230
0.019	7.353	533.7	533.6	99.78	104.68	1.022	1.062	240
0.019	7.351	533.6	533.4	99.48	95.95	1.020	0.974	250
0.019	7.350	533.6	533.5	99.56	94.75	1.021	0.962	260

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Intertek Testing Services			
SFBA EPA ADJUSTED EMISSION RESULTS			
Manufacturer:	SBI	RESULTS	
Model:	XTD 1.1		
Date:	10/25/11	Average Adjusted Emission Rate:	5.42
Run:	5-Fan Confirmation	Average Unadjusted Emission Rate:	37.3
Project #:	G100527551	Burn Rate (Dry kg/hr):	0.95
Test Duration (Minutes):	260		
Test Duration (Hours):	4.33		
BAROMETRIC PRESSURE			
TEMPERATURE FACTORS		Average:	30
DGM #1:	0.9908	Start:	30.08
DGM #2:	0.9913	End:	29.92
VOLUMES SAMPLED		DRY GAS METER VALUES	
DGM #1:	26.638	DGM #1	Final: 925.015
DGM #2:	26.386		Initial: 898.361
		DGM #2	Final: 863.371
TOTAL TUNNEL VOLUME (scf):	37059		Initial: 836.904
SAMPLE RATIOS		TEMPERATURES (DEG. RANKIN)	
Sample Train 1:	1391.2	DGM #1:	532.92
Sample Train 2:	1404.5	DGM #2:	532.63
TOTAL EMISSIONS		CALIBRATION FACTORS	
Sample Train 1 (g):	16.14	DGM #1:	1.006
Sample Train 2 (g):	16.15	DGM #2:	1.003
Ave:	16.14		
EMISSION RATES		TUNNEL FLOW RATE: 142.5	
Sample Train 1 (g/hr):	3.72	PARTICULATE CATCH (mg)	
Sample Train 2 (g/hr):	3.73	Sample Train 1:	
Ave:	3.73	Filters	9.5
ADJUSTED EMISSION RATES		Probe	2.1
Sample Train 1 (g/hr):	5.42	Total	11.6
Sample Train 2 (g/hr):	5.42	Sample Train 2:	
Ave:	5.42	Filters	9.9
DEVIATION:	0.03%	Probe	1.6
		Total	11.5
If deviation is greater than 7.5% due to low particulate catch The two emission rates shall not differ by 7.5% of the weighted average emission rate limit (4.1 or 7.5) (5g-3)			
Use the following:			
Catalytic units	0.09%		
7.5% of 4.1 g/hr			
Non catalytic units	0.05%		
7.5% of 7.5 g/hr			

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REPORT DATA							
Client:		SBI					
Run:		5-Fan Confirmation					
Date:		10/25/11					
Project No.:		G100527551					
Model:		XTD 1.1					
Fuel Moisture (Dry):		20.01666667					
Stack Static (neg):		0.0775					
Barometer:		30					
Average Room Temp:		84.90					
Change in stove temp:		-93.68					
Burn Rate:		0.951					
Adjusted Emission Rate:		5.422					
System 1:		5.420					
System 2:		5.424					
Deviation:		0.03%					
Filter 1:		75.36					
Filter 2:		76.30					
Tunnel:		95.11					
DGM 1:		72.92					
DGM 2:		72.63					
Water Collected:							
Room Temp		Bar Pressure		Relative Humidity		Air Velocity	
Before	After	Before	After	Before	After	Before	After
85	84	30.08	29.92	30	34	0	0
Delta H Average							
DGM#1:	0						
DGM#2:	0						

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Weather Forecast: Québec, QC

Current Weather Mon. Oct 24, 2011, 16:00 EDT Jean-Lesage Intl Airport



12°C

A few clouds

Feels Like : -
Wind : E 24km/h
Sunrise : 7:15
Sunset : 17:43

Relative Humidity : 58%
Pressure : 101.34 kPa ▼
Visibility : 32.0 km
Ceiling : unlimited

Short Term Forecast Updated: Mon, Oct 24, 2011, 15:26 EDT

	Monday Evening	Monday Overnight	Tuesday Morning	Tuesday Afternoon	Tuesday Evening
	Isolated showers	Light rain	Cloudy with showers	Cloudy with showers	Variable cloudiness
Temp.	8°C	7°C	6°C	9°C	6°C
Wind	SE 15km/h	SW 20km/h	SW 25km/h	W 25km/h	W 25km/h
Relative Humidity	76%	93%	100%	81%	81%
P.O.P.	40%	90%	40%	40%	20%
Rain	close to 1mm	close to 5mm	less than 1mm	less than 1mm	-

Long Term Forecast Updated: Monday, October 24, 2011, 15:26 EDT

	Tuesday Oct 25	Wednesday Oct 26	Thursday Oct 27	Friday Oct 28	Saturday Oct 29	Sunday Oct 30
Conditions 6am - 6pm						
	Cloudy with showers	Cloudy periods	Variable cloudiness	Variable cloudiness	Isolated showers	Variable cloudiness
P.O.P.	40%	20%	20%	30%	40%	20%
High	9°C	8°C	5°C	5°C	5°C	5°C
Low	4°C	1°C	-1°C	-1°C	-2°C	0°C
Wind	SW 25 km/h	W 20 km/h	W 15 km/h	W 20 km/h	SW 10 km/h	W 15 km/h

1/2 - 1/3
11-10-11