

# **TEST REPORT**

**SCOPE:** EMISSIONS, EFFICIENCY AND OUTPUT

**FUEL: PELLET** 

**TEST STANDARD: EPA** 

**MODEL: OSBURN 5000 PELLET STOVE** 

Notice to reader: Our Osburn 5000 pellet stove was tested as part of our Series 50 engine. Therefore, the Series 50 is referenced throughout the attached test report.



### REPORT NUMBER: 100903464MTL-002 ORIGINAL ISSUE DATE: 11/20/12

# **TEST REPORT**

# EVALUATION CENTER Intertek Testing Services NA Inc. Intertek (Lachine) 1829 32<sup>nd</sup> Ave Lachine, Qc

### **RENDERED TO**

S.B.I.-Stove Builders International 250 Copenhague Street St-Augustin-de-Desmaures, QC G3A 2H3

### PRODUCT EVALUATED:

Series 50: Eurostar & Osburn 5000

Report of Testing Pellet Stove Model Series 50: Eurostar & Osburn 5000 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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### **Appendices**

**Appendix A:** K List Drawings

**Appendix B:** Operation Manual

Appendix C: Sample Analysis

**Appendix D:** Calibrations

**Appendix E:** Sample Calculations

**Appendix F:** Test Data



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### I. Introduction

Intertek has conducted site-testing for S.B.I - Stove Builders International, on model Series 50: Eurostar & Osburn 5000 Pellet Stove, to evaluate all applicable performance requirements included in EPA Method 28 " Certification and auditing of wood heaters" and Method 5G " Determination of particulate matter emissions from wood heaters". The test was conducted at SBI facility situated at 250 Copenhague Street St-Augustin-de-Desmaures, QC G3A 2H3

### I.A Purpose of Test

The test 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 on September 17, 18, 19 and 20, 2012.

### **I.B Laboratory**

The test on the model Series 50: Eurostar & Osburn 5000 Pellet Stove was conducted at SBI testing facility situated at 250 Copenhague Street St-Augustin-de-Desmaures, QC G3A 2H3 The laboratory elevation is 171 feet above sea level.

### I.C Description of Unit

The model Series 50: Eurostar & Osburn 5000 Pellet Stove is constructed of carbon steel. The outer dimensions are 24 3/16" Wide x 33 3/4" Deep x 36" High and weights 420 lb. The unit has a door located on the front with a viewing glass.

Proprietary drawings and manufacturing methods are on file at Intertek in Montreal office.

### I.D Report Organization

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





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### II. Summarization

### **II.A Pretest Information**

The unit was already installed when Intertek's representative arrived at SBI's facility. The unit was inspected and found to be in good condition. Prior to beginning the emissions tests the unit's chimney system and laboratory dilution tunnels were cleaned using standard wire brush chimney cleaning equipment. On September 14, 2012 the unit was set-up for testing.

### **II.B Information Log**

### **Test Standard**

September 17,18,19 and 20, 2012 the unit was tested for EPA emissions using method 28 and 5G3.

### **Deviations 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 9/17/2012 Air control is set to maximum burn time was 120 minutes with a burn rate of 1.95 Kg/hr. Pre burn Test Data failed to be acquired.

Run #2 9/18/2012 Air control is set to maximum burn time was 120 minutes with a burn rate of 1.34 Kg/hr. Pre burn Test Data failed to be acquired.

Run #3 9/18/2012 Air control is set to maximum, LED read out slide bar set at 25% of maximum, burn time was 120 minutes with a burn rate of 1.01 Kg/hr.

Run #4 9/18/2012 Air control is set to maximum, LED read out slide bar set at minimum, burn time was 120 minutes with a burn rate of 0.69 Kg/hr.

Run #5 9/19/2012 Air control is set to maximum, LED read out slide bar set at 75% of maximum, burn time was 120 minutes with a burn rate of 1.91 Kg/hr.

Run #6 9/19/2012 Air control is set to maximum, LED read out slide bar set at maximum, burn time was 120 minutes with a burn rate of 2.04 Kg/hr.





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### **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 (% LHV)
1	9/17/2012	1.95	1.38	2.38	69.88
2	9/18/2012	1.34	2.13	3.41	63.42
3	9/18/2012	1.01	1.41	2.42	56.71
4	9/18/2012	0.69	0.64	1.26	56.86
5	9/19/2012	1.91	1.46	2.49	66.98
6	9/19/2012	2.04	1.26	2.20	68.86

### **WEIGHTED AVERAGE CALCULATION**

		WIGE OFTE				
Test No.	Burn Rate	(E) Average Emission Rate g/hr	Heat Output (Btu/hr)	Probability	(K) Weighting Factor	(KxE)
4	.69	1.26	10,301	0.1442	0.3854	0.4856
3	1.01	2.42	15,078	0.3854	0.7530	1.8223
5	1.91	2.49	28,514	0.8972	0.5330	1.3272
6	2.04	2.20	30,456	0.9184	0.1028	0.2262
				Totals:	1.7742	3.8612
			Weighted	average em	ission rate:	2.18*

<sup>\*</sup>Since for the first two runs pre burn data failed to be acquired, only runs 3, 4, 5 and 6 were taken into consideration when calculating the Weighed Average Emission Rate

### TEST FACILITY CONDITIONS

ILUI	IACILII	I COMP	1110113					
	Room	Room	Baro.	Baro.	ВП	DII	Air	Air
Run	Temp.	Temp	Pres.	Pres.	R.H. %	R.H.	Vel.	Vel.
IXuii	°F	°F	In. Hg	In. Hg	before	% after	Ft/min	Ft/min
	before	after	before	after	belore	aner	before	after
1	78.63	80.36	30.03	29.97	37	32	0	0
2	78.7	80.67	29.88	29.85	41	39	0	0
3	79.54	79.03	29.79	29.71	32	33	0	0
4	78.5	78.1	29.68	29.56	35	40	0	0
5	79.28	79.25	29.85	29.94	36	29	0	0
6	80.4	81.4	29.97	30.06	27	22	0	0



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

	, , ,		×					
Run	Burn Time	Velocity	Volumetric Flow Rate	Total Temp.	I.	ume nple		culate n (mg)
No.	(min)	(ft/sec)	(dscf/min)	(°R)	1	2	1	2
1	120	7.218	129.47	593.185	18.277	14.571	3.5	2.4
2	120	6.99	128.04	578.008	18.480	15.387	5.2	4.2
3	120	7.503	138.42	571.946	18.500	14.830	2.9	2.7
4	120	7.772	144.57	564.777	18.216	17.151	1.2	1.4
5	120	7.576	137.09	585.938	18.338	16.514	3.3	2.9
6	120	7.836	141.11	591.169	17.951	17.017	28	24

### **DILUTION TUNNEL DUAL TRAIN PRECISION**

	Sample	Sample Ratios		ssions (g)	%	% Deviation
Run No.	Train 1	Train 2	Train 1	Train 2	Deviation	of 7.5% of 7.5 grams*
1	850.0	1066.2	2.98	2.56	6.25	3.97
2	831.4	998.5	4.32	4.19	1.26	1.15
3	897.9	1120.0	2.60	3.02	6.20	3.99
4	952.4	1011.5	1.14	1.42	8.87	2.97
5	897.1	996.2	2.96	2.89	1.01	0.68
6	943.3	995.1	2.64	2.39	4.18	2.45

<sup>\*=</sup> As described in Method 5G-3 section 16.2.5

### **GENERAL SUMMARY OF RESULTS**

GLINLINAL	- SUMMAR I	OF KESULI	3		
Run No.	Burn Rate (kg/hr)	Change In Surface Temp (°F)	Initial Draft (in/H <sub>2</sub> O)	Run Time (min)	Average Draft (in/H <sub>2</sub> O)
1	1.95	-3.72	Not recorded	120	Not recorded
2	1.34	-19.36	-0.0225	120	-0.025
3	1.01	-16.46	-0.0175	120	-0.017
4	0.69	-22.26	-0.01	120	-0.013
5	1.91	-4.84	-0.0375	120	-0.037
6	2.04	-9.4	-0.0375	120	-0.038



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### III. Process description

### **III.A Test Set-up Description**

A standard 4" diameter single wall pipe and insulated chimney system was installed to 15' above the scale level.

### **III.B Air Supply System**

Combustion air enters the firebox through an opening at the rear of the firebox. This air is controlled by a LCD screen located close to the rear, on the Right Hand Side of the appliance.

### 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 prior to the spark arrestor mounted on the rear of the appliance.





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### IV.A.(1) DILUTION TUNNEL

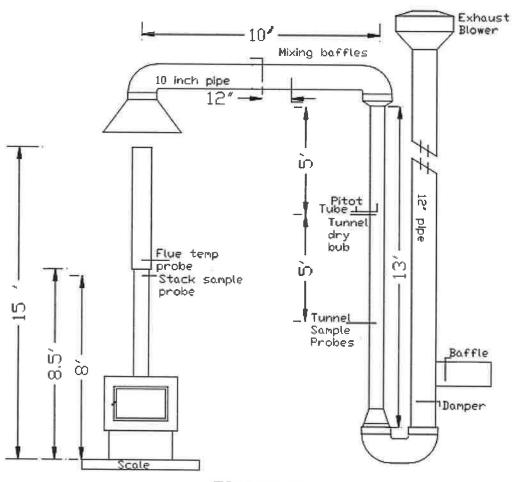


FIGURE 1

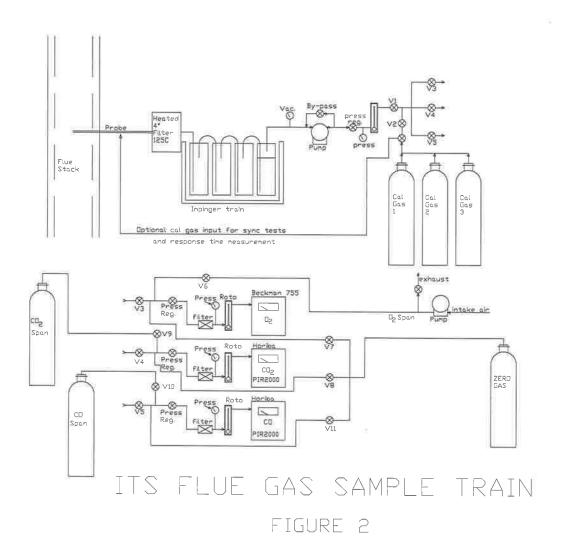


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### **IV.B.OPERATIONAL DRAWINGS**

### IV.B.(1) STACK GAS SAMPLE TRAIN





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

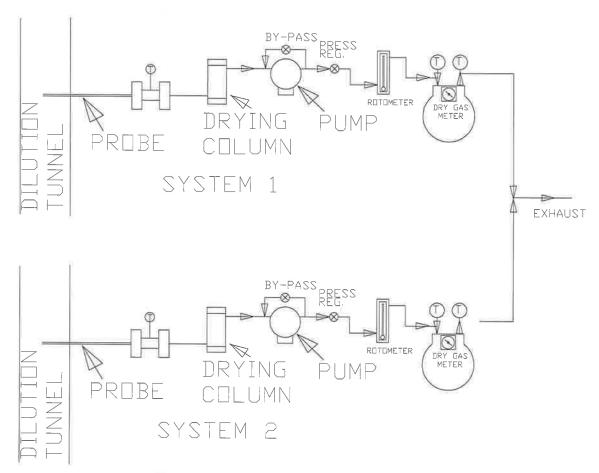


Figure 3



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### 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 47-mm diameter filters. The dryers used in the sample systems are filled with "Drierite" before each test run.

### VI. QUALITY ASSURANCE

### VI.A. INSTRUMENT CALIBRATION

### VI.A. (1). DRY GAS METERS

At the conclusion of each test program the dry gas meters are checked against our 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 annually by an accredited laboratory certified ISO 17025. The process involves sampling the train operation for 1 cubic foot of volume. With readings made to .001 ft<sup>3</sup>, the resolution is .1%, giving an accuracy higher than the ±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. The flow rate determined is then used to calculate actual sampled volumes.





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### VI.A.(3). GAS ANALYZERS

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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.





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### VII. CONCLUSION

These tests demonstrate that this unit is an affected facility under the definition given in the regulation. The weighted average emission rate of 2.18 g/hr meets these requirements.

### **VII.A RESULTS AND OBSERVATIONS**

The model Series 50: Eurostar & Osburn 5000 Pellet Stove has been found to be in compliance with the applicable performance and construction requirements of the following criteria: EPA Method 28 "Certification and auditing of wood heaters" and Method 5G-3 Determination of particulate matter emissions for pellet stoves."

### INTERTEK TESTING SERVICES NA

Reported by:

Florin Anghel

**Testing and Certification** 

Reported by:

John Voorhees

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Reviewed by:

Bruce S. Davis Project Engineer



# Appendix C Sample Analysis



CLIENT: SBI	MODEL: Seri	es 50/Eurostar/Osbu	PROJECT #: G100903464
<b>DATE</b> : 9/17/2012	RUN #:	1	
SAMPLE TRAIN: A	SAMPLE ID #:	MTL 1	209141624-001
INTERTEK EQUIPMENT #'s:		SBI-206	

		FILTER # OR		WEIGHTS		
SAMPLE COMPONENT	REAGENT	PROBE #	FINAL, mg	TARE, mg	PARTIULATE, mg	
FRONT FILTER CATCH	FILTER	1	118.7	115.6		
REAR FILTER CATCH	FILTER	2	118.4	118.2		
TOTAL TARE			237.10	233.80	3.30	
PROBE & FILTER HOLDER	PROBE	17	139750.2	139750	0.20	
				TOTAL:	3.50	

ENGINEER:



CLIENT: SBI	MODEL: Series	50/Eurostar/Osbı	PROJECT #: G100903464
<b>DATE</b> : 9/17/2012	RUN #:	1	
SAMPLE TRAIN: B	SAMPLE ID #:	MTL	1209141624-001
INTERTEK EQUIPMENT #'s:		SBI-206	

		FILTER # OR	WEIGH		ITS	
SAMPLE COMPONENT	REAGENT	PROBE #	FINAL, mg	TARE, mg	PARTIULATE, mg	
FRONT FILTER CATCH	FILTER	3	119.5	117.3		
REAR FILTER CATCH	FILTER	4	114.9	114.7		
TOTAL TARE			234.40	232.00	2.40	
PROBE & FILTER HOLDER	PROBE	19	140116.2	140116.6	0.00	
				TOTAL:	2.40	

ENGINEER:



CLIENT: SBI MO			Series 50/Eu	urostar/Osbi	PROJECT #:	PROJECT #: G100903	
<b>DATE</b> : 9/18/2012		RUN #:	2				
SAMPLE TRAIN: A	•	SAMPLE ID #:	•	MTL 126	09141624-001		
INTERTEK EQUIPMENT #'s:			SB	I-206			
		FILTER # OR		WEIGH	ITS		
SAMPLE COMPONENT	REAGENT	PROBE #	FINAL, mg	TARE, mg	PARTIULATE, mg		
ERONT EILTER CATCH	EII TED	5	122	117.0			

FRONT FILTER CATCH	FILTER	5	122	117.2	
REAR FILTER CATCH	FILTER	6	118.3	117.9	
TOTAL TARE			240.30	235.10	5.20
PROBE & FILTER HOLDE	R PROBE	18	147881.6	147881.7	0.00
				TOTAL:	5.20

ENGINEER:



CLIENT: SBI	MODEL: Serie	s 50/Eurostar/Osbı	PROJECT #: G100903464
<b>DATE</b> : 9/18/2012	RUN #:	2	
SAMPLE TRAIN: B	SAMPLE ID #:	MTL 120	09141624-001
NTERTEK EQUIPMENT #'s:		SBI-206	

		FILTER # OR	OR WEIGH		ITS
SAMPLE COMPONENT	REAGENT	PROBE #	FINAL, mg	TARE, mg	PARTIULATE, mg
FRONT FILTER CATCH	FILTER	7	119.5	115.7	
REAR FILTER CATCH	FILTER	8	117.5	117.1	f
TOTAL TARE			237.00	232.80	4.20
PROBE & FILTER HOLDER	PROBE	20	139065.2	139065.3	0.00
				TOTAL:	4.20

ENGINEER:



CLIENT: SBI	MODEL:	Series 50/Eurostar/Osbu	PROJECT #: G100903464
<b>DATE:</b> 9/18/2012	RUN #:	3	
SAMPLE TRAIN: A	SAMPLE ID #:	MTL 12	09141624-001
INTERTEK EQUIPMENT #'s:		SBI-206	

	FILTER # OR		WEIGHTS			
SAMPLE COMPONENT	REAGENT	PROBE #	FINAL, mg	TARE, mg	PARTIULATE, mg	
FRONT FILTER CATCH	FILTER	13	119.6	116.8		
REAR FILTER CATCH	FILTER	14	116.1	116		
TOTAL TARE			235.70	232.80	2.90	
PROBE & FILTER HOLDER	PROBE	22	139576.3	139576.3	0.00	
				TOTAL:	2.90	

ENGINEER:



CLIENT: SBI	MODEL:	Series 50/Eurostar/Osbu	PROJECT #: G100903464
<b>DATE</b> : 9/18/2012	RUN #:	3	
SAMPLE TRAIN: B	SAMPLE ID #:	MTL 12	209141624-001
INTERTEK EQUIPMENT #'s:		SBI-206	

		FILTER # OR	WEIGHTS			
SAMPLE COMPONENT	REAGENT	PROBE #	FINAL, mg	TARE, mg	PARTIULATE, mg	
FRONT FILTER CATCH	FILTER	15	118.6	116.2		
REAR FILTER CATCH	FILTER	16	113.8	113.6		
TOTAL TARE			232.40	229.80	2.60	
PROBE & FILTER HOLDER	PROBE	25	136821	136820.9	0.10	
				TOTAL:	2.70	

ENGINEER:



CLIENT: SBI	MODEL: Serie	es 50/Eurostar/Osbı	PROJECT #: G100903464
<b>DATE:</b> 9/18/2012	RUN #:	4	
SAMPLE TRAIN: A	SAMPLE ID #:	MTL 120	9141624-001
INTERTEK EQUIPMENT #'s:		SBI-206	

		FILTER # OR		WEIGHTS			
SAMPLE COMPONENT	REAGENT	PROBE #	F	INAL, mg	TARE, mg	PARTIULATE, mg	
FRONT FILTER CATCH	FILTER	17		115.8	114.7		
REAR FILTER CATCH	FILTER	18		115.6	115.5		
TOTAL TARE				231.40	230.20	1.20	
PROBE & FILTER HOLDER	PROBE	26	3	139814.4	139815	0.00	
					TOTAL:	1.20	

ENGINEER:

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CLIENT: SBI		MODEL:	Series 50/E	urostar/Osbi	PROJECT #:	G100903464
<b>DATE</b> : 9/19/2012		RUN #:	5	6		
SAMPLE TRAIN: A		SAMPLE ID #:		MTL	1209141624-001	
INTERTEK EQUIPMENT #'s:				SBI-206		
		FILTER # OR		WEIGH	ITS	
SAMPLE COMPONENT	REAGENT	PROBE #	FINAL, mg	TARE, mg	PARTIULATE, mg	
FRONT FILTER CATCH	FILTER	25	118.4	115.8		=

32

 115.2
 115.2

 233.60
 231.00
 2.60

 136010.8
 136010.1
 0.70

 TOTAL:
 3.30

ENGINEER:

FILTER

PROBE

**DATE:** 10/23/2012

REAR FILTER CATCH

PROBE & FILTER HOLDER

TOTAL TARE



CLIENT: SBI	MODEL: Serie	PROJECT #: G100903464	
<b>DATE</b> : 9/19/2012	RUN #:	5	
SAMPLE TRAIN: B	SAMPLE ID #:	MTL 120	09141624-001
NTERTEK EQUIPMENT #'s:		SBI-206	

		FILTER # OR	WEIGHTS			
SAMPLE COMPONENT	REAGENT	PROBE #	FINAL, mg	TARE, mg	PARTIULATE, mg	
FRONT FILTER CATCH	FILTER	27	118.2	115.9		
REAR FILTER CATCH	FILTER	28	116.1	116.3		
TOTAL TARE			234.30	232.20	2.10	
PROBE & FILTER HOLDER	PROBE	33	135992.2	135991.4	0.80	
				TOTAL:	2.90	

ENGINEER:



CLIENT: SBI	MODEL: Series 5	0/Eurostar/Osbเ	PROJECT #: G100903464	-
<b>DATE</b> : 9/19/2012	RUN #:	6		
SAMPLE TRAIN: A	<b>SAMPLE</b> ID #:	MTL 120	9141624-001	_
INTERTEK EQUIPMENT #'s:		SBI-206		_
	EU TED # OD	WEIGHTS		

		FILTER # OR	WEIGHTS		
SAMPLE COMPONENT	REAGENT	PROBE #	FINAL, mg	TARE, mg	PARTIULATE, mg
FRONT FILTER CATCH	FILTER	29	117.4	114.8	100000
REAR FILTER CATCH	FILTER	30	116.5	116.5	
TOTAL TARE			233.90	231.30	2.60
PROBE & FILTER HOLDER	PROBE	35	107840.3	107840.1	0.20
				TOTAL:	2.80

ENGINEER:



CLIENT: SBI	MODEL: Serie	es 50/Eurostar/Osbu	PROJECT #: G100903464
<b>DATE</b> : 9/19/2012	RUN #:	6	
SAMPLE TRAIN: B	SAMPLE ID #:	MTL 120	9141624-001
INTERTEK EQUIPMENT #'s:		SBI-206	

		FILTER # OR	WEIGHTS		
SAMPLE COMPONENT	REAGENT	PROBE #	FINAL, mg	TARE, mg	PARTIULATE, mg
FRONT FILTER CATCH	FILTER	31	117.9	115.5	
REAR FILTER CATCH	FILTER	32	114.9	114.9	
TOTAL TARE			232.80	230.40	2.40
PROBE & FILTER HOLDER	PROBE	36	108505.9	108506.4	0.00
				TOTAL:	2.40

ENGINEER:



Client: SBI

Model: Eurostar/Osburn 5000

Project #: G100903464 Sample ID #: MTL 1209141624-001

Date: 9/17/2012

Engineer: Florin Anghel

Run #: 1

Sample Train #: A

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

	oment #: 180-19	95 (Balance auc	dit mfr. std: 500 ±	0.72 mg)			
Front Filter #	7	Tare:	0.1156	Preliminary	Wt:	Vt: 0.1185	
Rear Filter #	2	Tare:	0.1182	Preliminary Wt:		Vt: 0.1182	
Seal Set #		Tare:		Preliminary '	Wt:		
Date/Time in de	essicator:	9/17/20	12/16:00 PM	Preliminary	Wt:		
Date	Time	R/H %	Temp. (F)	Weight (grams)	Aud (gran		Initials
9/19/2012	16:10	3.3	63.3	0.4185	0.2	2=	TA
9/19/2012	9:45	3	8.e3	0.1187 	0.2 0.7	2=	<del>AF</del>
	v.						
Probe #:	17	Tare:	139,7500	Preliminary V	Nt:	139	7t-95
Date/Time in de	ssicator:	9/17/20	12/16:007H				
Date	Time	R/H %	Temp. (F)	Weight (grams)	Aud (gran		Initials
9/19/2012	16:10	3,3	69.9	139,7503	100	=	<del>X</del>
3/20/2012	9:45	3	69.8	139,7502	100.00		TA
	1 1				-		

Date: _3/25/2012	
Engineer signature:	- Mytel



Client: SBI

Model: Eurostar/Osburn 5000

Project #: <u>G100903464</u> Sample ID #: <u>MTL 1209141624-001</u> Date: <u>9/17/2012</u>

Engineer: Florin Anghel

Run #: 1

Sample Train #: B

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

Front Filter #	oment #: 180-19						
	3	Tare:	0.1173	Preliminary	Wt:		D. 11.06
Rear Filter #	4	Tare:	C.1147	Preliminary	Wt:	C+111.0	
Seal Set #		Tare:		Preliminary Wt:			
Date/Time in de	essicator:	9/17/2017	2/16:00	Preliminary	Wt:		
Date	Time	R/H %	Temp. (F)	Weight (grams)		udit ams)	Initials
9/19/2012	16:10	3.3	69.9	0.1196		2=	TA
9/20/2012	2:45	3	69.8	0,1195	0.19 Q	= S EEC	1
Probe #:	13	Tare:	140, 1166	Preliminary \	Nt:	140	,1154
Date/Time in de	ssicator:	3/17/20	12/16:00				
Date	Time	R/H %	Temp. (F)	Weight (grams)		dit ms)	Initials
9/19/2012	16:10	33	65.3	140,1164	2.00k	=00 EF00	A
9/20/2012	9:45	3	වෙ.8	140,1162	100.	= 00 CF00	<del>AF</del>

Date: 3/25/2012	-ch
Engineer signature:	atel



Client: SBI

Model: Eurostar/Osburn 5000

Date: <u>9/18/2012</u>

Project #: G100903464 Sample ID #: MTL 1209141624-001

Engineer: Florin Anghel

Run #: 2

Sample Train #: A

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

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

ludit weight Equip	ment #: 180-19	5 (Balance audit	mfr. std: 500 ±	0.72 mg)		
Front Filter #	5	Tare:	0.1172	Preliminary \	Wt:	0.1222
Rear Filter #	E 6	Tare:	CF11.0	Preliminary Wt:		0.1183
Seal Set #		Tare:		Preliminary \	Wt:	
Date/Time in de	essicator:	9/18/2012	-/M:47	Preliminary \	Wt:	
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audi (gram	I Initiale
9/19/2012	16:10	3.3	69.9	0. 1221 0. 1183 0. 2404	0.2	= -
9/20/2012	9:45	3	8.63	0.1183	0.2	= -
Probe #:	18	Tare: A	147,8817	Preliminary V	Vt: 1	47,8812
Date/Time in de	ssicator:	3/18/2012				
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams	
9/20/2012	16:10	3.3	උප.ප	147,8818	100.00	=
9/20/2012	D:45	3	8.63	147,8816	= 00) FOQ. 00/	· - \ \

Date: 5/25/2	2012	
Engineer signature:	Hughel	



Client: SBI

Model: Eurostar/Osburn 5000

Date: 9/18/2012

Project #: G100903464 Sample ID #: MTL 1209141624-001 Engineer: Florin Anghel

Run #: 2

Sample Train #: B

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

Audit weight Equipment #: 180-195 (Balance audit mfr. std: 500 ± 0.72 mg) Front Filter # 7-Tare: O. 1157 **Preliminary Wt:** FC11.0 8 Rear Filter # Tare: MAN.O Preliminary Wt: 0. M76 Seal Set # Tare: Preliminary Wt: 9/18/2012/11:47 Date/Time in dessicator: Preliminary Wt: Weight Date Time **Audit R/H%** Temp. (F) Initials (grams) (grams) 0.1135 3F11.0 0,2= 16:10 69.3 3.3 CECI.O 0.2370 3211.8 0,2= 2:45 3 63.8 CECN.0 Probe #: 20 Tare: Preliminary Wt: 139,0053 139,0652 Date/Time in dessicator: Weight **Audit** Date Time R/H % Temp. (F) Initials (grams) (grams) (00 = 16:10 3,3 63.5 139,0654 **EF00.00** 100 = 3:45 3 8,00 139,0652 TA CF00.001

Date:	2	
Engineer signature:	Hughel	



Client: SBI

Model: Eurostar/Osburn 5000

Project #: G100903464 Sample ID #: MTL 1209141624-001 Date: <u>9/18/2012</u>

Engineer: Florin Anghel

Run #: 3

Sample Train #: A

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

12						
13	Tare:	O'WES	Preliminary \	Wt:	t: 0.1195	
14	Tare:	0.1160	Preliminary Wt:		t: 0.1161	
	Tare:		Preliminary \	Vt:		
ssicator:	9/18/12/	16:30	Preliminary \	Nt:		
Time	R/H %	Temp. (F)	Weight			Initials
16:10	3.3	63.9	0.1195	0.2	2=	TA
9:45	3	8.82	0.1196 0.1161 0.2357	0.1	2=	TA
22	Tare:	139,5763	Preliminary V	۷t: ۱	25	,57-56
sicator:	3/18/12/	16:30				
Time	R/H %	Temp. (F)	Weight (grams)			Initials
16:10	3.3	63.3		-		#
9:45	3	8.63				¥
	Sicator:  Time  16:10  3:45  22  sicator:  Time  16:10	Tare:  ssicator: 9/18/12/  Time R/H %  16:10 3.3  9:45 3  Tare:  22 Tare:  sicator: 9/18/12/  Time R/H %  16:10 3.3	Tare:    Sicator:   9/18/12/16:30     Time   R/H %   Temp. (F)     16:10   3.3   69.9     9:45   3   69.8     22   Tare:   139,5763     sicator:   9/18/12/16:30     Time   R/H %   Temp. (F)     16:10   3.3   69.9	Tare: Preliminary (Sisicator: 3/18/12/16:30 Preliminary (Meight (grams))  Time R/H % Temp. (F) Weight (grams)  16:10 3.3 69.9 0.1135 0.1161  9:45 3 69.8 0.1161  22 Tare: \(139,5763\) Preliminary (Meight (grams))  Time R/H % Temp. (F) Weight (grams)  16:10 3.3 69.9 (39,576)	Tare: Preliminary Wt:    Sisicator:   3/18/12/16:30   Preliminary Wt:     Time   R/H %   Temp. (F)   Weight (grams)   O.1355   O.	Tare: Preliminary Wt:    Sesicator:   3/18/12/16:30   Preliminary Wt:     Time   R/H %   Temp. (F)   Weight (grams) (grams)     16:10   3.3   63.9   0.1135   0.2 = 0.1939     3:45   3   63.8   0.1161   0.2357   0.1939     3:45   3   63.8   0.1161   0.2357   0.1939     3:45   3   63.8   0.1161   0.25     5/18/12/16:30   Preliminary Wt:   13.9     139,576   Sicator:   3/18/12/16:30   Weight (grams)     16:10   3.3   63.9   139,576   100,0079

Date:9/25/2012	
Engineer signature:	- 111



Client: SBI

Model: Eurostar/Osburn 5000

Project #: G100903464 Sample ID #: MTL 1209141624-001

Date: 9/18/2012

Engineer: Florin Anghel

Run #: 3

Sample Train #: B

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

udit weight Equip	ment #: 180-195	(Balance audit	mfr. std: 500 ±	0.72 mg)				
Front Filter #	15	Tare:	0.1162	Preliminary \	Wt:	0	. 1186	
Rear Filter #	1C	Tare:	0.1136	Preliminary \	Vt:	0	. N38	
Seal Set #		Tare:		Preliminary \	Vt:		-	
Date/Time in de	ssicator:	3/18/12/	16:30	Preliminary \	Nt:			
Date	Time	R/H %	Temp. (F)	Weight (grams)		idit ims)	Initials	7
9/19/2012	16:10	3.3	63.5	0.1187		. 2=	<del>A</del>	7
3/20/2012	<b>ე</b> : 45	3	65.8	0.1138	0.13	. 2	A	],
Probe #:	25	Tare:	136,8209	Preliminary V	Vt:	136	8028	
Date/Time in des	ssicator:	5/18/12	/16:30					
Date	Time	R/H %	Temp. (F)	Weight (grams)	Au (gra		Initials	1
9/19/2012	16:10	3.3	69.9	12 ( 901)		0=	AF	
9/20/2012	9:45	3	8.62	136,8210		0=	<del></del>	7

9/25/2012

Engineer signature:



Client: SBI

Engineer signature:

Model: Eurostar/Osburn 5000

Project #: G100903464 Sample ID #: MTL 1209141624-001

Date: 9/18/2012

Engineer: Florin Anghel

Run #: 4

Sample Train #: A

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

udit weight Equip	ment #: 180-19	5 (Balance au	dit mfr. std: 500 ±	£ 0.72 mg)		
Front Filter#	17-	Tare:	0.1147	Preliminary	Wt:	O. W 58
Rear Filter#	18	Tare:	0.1155	Preliminary	Wt:	O. 1156
Seal Set #		Tare:	7.	Preliminary	Wt:	
Date/Time in de	essicator:	3/18/20	12/19:47	Preliminary '	Wt:	
Date	Time	R/H %	Temp. (F)	Weight (grams)	Auc (gran	
9/20/2012	2:45	3	65.8	0.1158	0.13	2=
9/25/2012	10:00	3	63.3	0.4456 0.4456 0.2344	0.3	2=
Probe #:	26	Tare:	139,8150	Preliminary V	vt: الم	39,8146
Date/Time in de	ssicator:	9/18/201	12/19:47			
Date	Time	R/H %	Temp. (F)	Weight (grams)	Aud (gram	I Initiala
3/20/2012	9:45	3	69.8	139,8143	700.0E	= -
3/24/2012	11:00	3,3	1.0F	139,8151	100.00	= -
1/25/2012	10,00	3	69.9	120 8292	100,00	=
3/28/2012	11:00	3	70.0	139,8153	100	
0/3/2012	10:55	3.4	70.1	129 911	00A	= -
0/4/2012 Date: 10	14:00	2.3	69.8	139,8144	100=	80 <del>→</del> ►



Client: SBI

Model: Eurostar/Osburn 5000

Project #: <u>G100903464</u> Sample ID #: <u>MTL 1209141624-001</u>

Date: 9/18/2012

Engineer: Florin Anghel

Run #: 4

Sample Train #: B

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

Audit weight Equip	oment #: 180-19	5 (Balance aud	it mfr. std: 500 ±	0.72 mg)			
Front Filter #	19	Tare:	0.1142	Preliminary	Wt:	O. N.56	
Rear Filter#	20	Tare:	O.1153	Preliminary	Wt:	O. MG2	7
Seal Set #		Tare:		Preliminary			7
Date/Time in de	essicator:			Preliminary	Wt:		_
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials	7
9/20/2012	9:45	3	8.69	0.1154	0.1999		7
9/24/2012	11:00	3.3	1.05	0.M5H 0.M61 0.23/5	0,2= 0,1399		7
							7
Probe #:	27	Tare:	136,8932	Preliminary \	۷t: \\	6, 8930	1
Date/Time in de	ssicator:	3/18/201	2/19:47		I		
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials	
9/20/2012	3:45	3	€ 5.8	136,8930		AF &	
3/24/2012	11:00	3,3	70.1	136,8535			
9/25/2012	10:00	3	69.9	136,3078	100-		
3/28/2012	11:00	3	70.0	136,8929			
10/3/2012	10:22	3.4		136,8725			١,

Date: 10/23/2012

Engineer signature:



Client: SBI

Model: Eurostar/Osburn 5000

Project #: <u>G100903464</u> Sample ID #: <u>MTL 1209141624-001</u>

Date: <u>9/19/2012</u>

Engineer: Florin Anghel

Run #: 5

Sample Train #: A

Balance Equipment #: <u>SBI-206</u> Thermo/Hygro meter Equipment #: <u>SBI-212</u> Audit weight Equipment #: 180-195 (Balance audit mfr. std: 500 ± 0.72 mg)

Front Filter #	25	Tare:	O.1158	Preliminary	Wt:	O.1183
Rear Filter #	26	Tare:	0.1152	Preliminary Wt:		0.1151
Seal Set #		Tare:		Preliminary Wt:		
Date/Time in de	essicator:	3/19/201	2/12:05	Preliminary \	Wt:	
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audi (gram	
9/20/2012	14:05	3	63.3	0.1182	0.2	=
9/20/2012	11:00	3,3	70.1	0.1184 0.1152 0.2336	0, 2 0, 133	=
Probe #:	32	Tare:	136,0101	Preliminary V	۷t: ۱۸-	36,0098
Date/Time in de	ssicator:					
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit	Initiale
9/20/2012	14:05	3	69.5	136,0107	100	= -
9/24/2012	11:00	3.3	70.1	136,0108	100,001	= -

Date: 9/25/2012

Engineer signature:



## **DILUTION TUNNEL WORKSHEET - METHOD 5G3**

Client: SBI

Model: Eurostar/Osburn 5000

Project #: G100903464 Sample ID #: MTL 1209141624-001

Date: 9/19/2012

Engineer: Florin Anghel

Run #: 5

Sample Train #: B

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

udit weight Equip	ment #: 180-19	5 (Balance aud	lit mfr. std: 500 ±	0.72 mg)			
Front Filter #	27	Tare:	0.1153	Preliminary V	Vt:	0.1182	
Rear Filter #	28	Tare:	0.1163	Preliminary V	Vt:	0.1161	
Seal Set #		Tare:		Preliminary V	Vt:		٦
Date/Time in de	essicator:	3/19/20	12/12:05	Preliminary V	Vt:		7
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams	I Initiale	
9/20/2012	14:05	3	69.9	0.1183	0.2.0		7
9/24/2012	11:00	3.3	70.1	0.482 0.4162 0.2343			7
							1
Probe #:	33	Tare:	135,9914	Preliminary W	/t: \\ <u>^</u>	Z, 3314	
Date/Time in de	ssicator:	3/19/20	12/12:05				
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials	1
3/20/2012	14:05	3	6.53	135,5519	= 00 h F00,00	7	1
9/24/2012	11:00	3.3	70.1	1259922	=00) 800.00)		, r
							7
							1

Date: 10/23/2012	
Engineer signature:	



## **DILUTION TUNNEL WORKSHEET - METHOD 5G3**

Client: SBI

Model: Eurostar/Osburn 5000

Project #: <u>G100903464</u> Sample ID #: <u>MTL 1209141624-001</u>

Date: 9/19/2012

Engineer: Florin Anghel

Run #: 6

Sample Train #: A

Balance Equipment #: SBI-206 Thermo/Hygro meter Equipment #: SBI-212 Audit weight Equipment #: 180-195 (Balance audit mfr. std: 500 ± 0.72)

	ment #: 180-19	5 (Balance audit	t mfr. std: 500 ±	0.72 mg)		
Front Filter #	29	Tare:	0.1148	Preliminary	Wt:	0.1175
Rear Filter #	30	Tare:	0.1165	Preliminary	Wt: <	0.1164
Seal Set #		Tare:		Preliminary '	Wt:	
Date/Time in de	ssicator:	3/19/20	12/16:10	Preliminary '	Wt:	
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams	) Initials
9/24/2012	11:00	3.3	70.1	0.1165	0.2=	
9/25/2012	10:00	3	69.9	0.1174 0.1165 0.2335	0.2=	77
Probe #:	35	Tare:	107,8401	Preliminary \	Nt: 10	7,8400
Date/Time in des	ssicator:	3/19/201	2/16:10			
Date	Time	R/H %	Temp. (F)	Weight (grams)	Audit (grams)	Initials
9/24/2012	11:00	3.3	70.1	407,8404	= 001 \$00,001	A .
9/25/2012	10:00	3	65.5	107,8513		
9/28/2012	11:00	3	0.0F	107,8402	= 001 100,001	-
10/03/2012	Y0:22	3.4	70.1	107,8403	= 001 F00.001	

Date: 10/23/2012

Engineer signature:



### **DILUTION TUNNEL WORKSHEET - METHOD 5G3**

Client: SBI

Model: Eurostar/Osburn 5000

Project #: G100903464 Sample ID #: MTL 1209141624-001

Date: 9/19/2012

Engineer: Florin Anghel

Run #: 6

Sample Train #: B

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

udit weight Equip	ment #: 180-19	(Bala	ance audi	t mfr. std: 500 ±	0.72 mg)			
Front Filter #	31		Tare:	0.1155	Preliminary '	Wt:	0	8F11, i
Rear Filter #	32		Tare:	0.1149	Preliminary 1	Wt:	0	. 1147
Seal Set #			Tare:		Preliminary 1	Wt:		
Date/Time in de	essicator:	9/	19/201	2/16:10	Preliminary \	Wt:		
Date	Time	1	R/H %	Temp. (F)	Weight (grams)		udit ams)	Initials
9/24/2012	11.00	,	3.3	70.1	0.1180 0.1148 0.2328		.2=	<del>X</del>
9/25/2012	10:00		3	69.5	0,4479	٥,١٠	0.2= 399	
Probe #:	36		Таге:	108,5064	Preliminary \	Nt:	108,	5063
Date/Time in de	ssicator:	3/	49/20	12/16:10				
Date	Time	F	₹/Н %	Temp. (F)	Weight (grams)		udit ams)	Initials
9/24/2012	M;∞	3	3,3	70.1	108,5070	100,0	1	A
3/25/2012	10:00		3	63.3	108,5174		= 0 8F0C	TA
9/28/2012	M:00		3	70	108,5062	i	σο βο ο ==	<del></del>
10/03/2012	10:55	-	3.4	70.1	108,5053	10	xo = 0073	77

Date: 10/23/2012

Engineer signature:

Projet: Date: Tech: Standard:

Série 50 2012-09-14 V. Pelletier

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Date	2012-09-17	85116	0,11534	0,1159	5,4463	0,4448	0,4165	0,4155	0,4449	0,4468	0,4170	0,4450	0,4170	0,1177	0,1159	0,41,70	581160	0,1232	0,1238	0,1230	0,1216	0,1230	0,1232	0,1226	D, 1234
Date		0.1158	0.1151	11.1160	h211 9	0 1148	0,1164	0 1155	0,1150	99110	6 11 69	0,115	0 1171	611177	0, 1161	0.1171	0.1183	0.1232	0, 13.38	01230	PIELO	0 1230	0.1232	0,1226	4500
ld. Filtres		RUHS 25	RUM5 26	RUHS 27	RUNIS 28	PLING 29	RUM G 30	RUH 6 31	RUM G 32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48

Série 50 2012-09-14 V. Pelletier Projet: Date: Tech: Standard:

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8:30 AM	Date	2012-09-18		447,8817		139,0653	139,2380	139,5763	136,1374																
10:00AH	Date	-7102 t1-00-2102	139,7500	8800 ILA, 8815	140, AAGG	139,0649	139,2376	139,5458	6 136,1372		136,8209	139,8150	3437 A36,8932	20/3C,2201			137,1015	0101 136,0101	35,3314	108,412G	107,840A	4905,801 1305	13 108,3734		
10/2	Date	7012-09-14	139 9447	142 880VI	140 11 65		139 2364	139 6753	36 1466	130	36 9210	134, 8147 1	36. 3432	36. 2200M			37 1009 1	36,01011	36 9912 N35,3914	08 4129 1	107,8397 1	108 5061 A	OB 37331		
	Id. Probes		RUH1 17	RUH 2 18	RUHA 19	RUM2 20	유나보금 21	RUH 3 22	स्टामक 23	24	RUL 3 25	RUNH 26	RUHH 27 1	28	29	30	31	32	RUH5 33	34	RUM G 35	RUF1 6 36/1	37	38	

Série 50 Projet: Date: Tech: Standard:

2012-09-14 Med 3-000 3 = 200.015-73 O. 1998 4

G. Filtres   Date   Date   Grand   Date   Sond   Date   Date   Sond   Date   Date	-1-0 D - 1 - 0							
	Date 1: 50 Ary Date							
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	81-60-7							
1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2								Ι
17-1-0000000000000000000000000000000000								
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00000000000000000000000000000000000000								
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0000000 272 200000000000000000000000000								
000000 177 177 177 177 177 177 177 177 1								Г
20000 20000 20000 20000								Г
0000								T
00 1176								Г
0,1173								Г
3 13 0, 1/6 9 14 0 1/5 9								Г
14 / // [ ]								Г
2 / 1 / 2								Г
3 15 6 1/63 03162								
RUM 3 16 0 1135 0,1136								Г
RUMH 17 0 1147 0,1447								Г
4 18 0 1195 O, NSS								П
4 19 0 11 43 0, M 4-2								
4 20 0 1161 0,1453								
21 0 1224 0,1228								Г
22 0, 12 3 2 0,12 33						3		Г
23 C 11 P4 D, 11 85								
24 0 1235 0,1233								

# **Appendix D Calibrations**

No du rapport d'étalonnag CA0003-088-032111

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 l	nternational inc.					
Adresse :	250, rue Copenhague						
Ville :	St-Augustin	État/Pro	ovince :	Québec			
Code postal :	G3A 2V1	Astea C	ustomer ID:	C037589	001001		
Instrument							
Constructeur :	Rice Lake	Modèle	de terminal :	IND560			
Modèle :	Roughdeck	No de s	érie du termin	00927396	6KL		
No de série :	B00927396KL	No. Sér	ie Impr.	N/A			
Capacité :	625 kg	Service	/Pièce :	N/A Lab 31250			
Résolution :	0.02 kg	Nbre de	Divisions	31250			
Classe:	200	Procédu	ıre utilisée :	Canadier			
Numéro/ID d'actif du clie	SBI-013						
Procédure:	Le présent certificat est é l'A2LA, en vertu de la non laboratoire et la traçabilité	me ISO/IEC 17025. A2	LA a évalué la	certification capacité de	accordées par mesure du		
Date de calibrage	21-mars-2011	Le proci	hain Cal Date	31-mars-	2012		
Signataire autorisé (A2LA) :	Dany Careau	Signatui	re:	ELECTRO	ONIC SIGNATURE		
Signature du client							
Étalons de travail							
Traçabilité	Les poids de test utilisés s	se réfèrent au National	Institute of Sta	ndards and	Technology.		
Jeu de poids no :	Traçabilité NIST No.:	Classe ASTM/OIML	Date d'étale	onnage :	Date proch, étalonnage		
42268	M10-0278	M1	5-août-2	2010	5-août-2011		
MTP1	MT0015626	F1	17-sept.	2010	17-sept2011		
Kit S	1356103	M1	5-oct2	010	5-oct2011		

Version Logiciel:

4.3.0.7

### Résultats de mesure

La	tem	péra	ture	

70 °F

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

### Test de variation

	2
□ <sup>4</sup>	3

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

Après Réglage
Valeur lue
124.98 kg
125.02 kg
125.02 kg
125.00 kg
0.04 kg
0.1 kg

### Linéarité

	Avant réglage						
	Les poids Appliqués	Valeur lue	Erre	eur	Erreur admissible	Dans la Tolérance	
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

No du rapport d'étalonnag CA0003-088-032111

## **METTLER TOLEDO**

	Après réglage							
Zero 1	Les poids Appliqués	Valeur lue	Erre	Erreur		Dans la Tolérance		
	0.00 kg	0.00 kg	0.00 kg 0 d		1 d			
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 substituti	ion utilisée	
Un réglage de la balance a ét Si NON, les résultats relatifs à	é requis à l'état du système avant la prestation de service correspondent à l'é	tat de
<b>☑</b> 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.

Remarqu	es
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Aucune.
, lacaric.

Version Logiciel:

4.3.0.7

Page 3 sur 3

No du rapport d'étalonnag CA0003-086-032111

**Mettler Toledo** 

Service Business Unit Industrial

1900 Polaris Parkway Columbus, Ohio 43240

1-800-METTLER

**METTLER TOLEDO** 

ISO 9001 Registered

ANSI/NCSL Z540 Accrédité



Client

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

CERT.CALIBRATION #1902.02

### Certificat d'étalonnage

Société :	SBI Fabricant de poêles le	ntemational inc.					
Adresse:	250, rue Copenhague						
Ville :	St-Augustin	État/Pro	vince :	Québec	H		
Code postal :	G3A 2V1	Astea C	ustomer ID:	C037589	001001		
Instrument							
Constructeur :	Weightronix	Modèle	de terminal :	IND560			
Modèle :	DSL-6060	No de se	érie du termin	00927386	6KL		
No de série :	B00927386KL	No. Séri	e Impr.	N/A LAB 25000			
Capacité :	500 kg	Service/	Pièce :				
Résolution :	0.02 kg	Nbre de	Nbre de Divisions				
Classe :	Classe:		re utilisée :	tilisée : Canadien			
Numéro/ID d'actif du clie	SBI-014						
Procédure:	Le présent certificat est ér l'A2LA, en vertu de la non laboratoire et la traçabilité	me ISO/IEC 17025. A2	LA a évalué la	certification capacité de	accordées par e mesure du		
Date de calibrage :	21-mars-2011	Le proch	nain Cal Date	31-mars-	2012		
Signataire autorisé (A2LA) :	Dany Careau	Signatur	Signature:		ELECTRONIC SIGNATURE		
Signature du client :							
Étalons de travail							
Traçabilité	Les poids de test utilisés s	se réfèrent au National	Institute of Sta	ndards and	Technology.		
Jeu de <b>poids</b> no :	Traçabilité NIST No.:	Classe ASTM/OIML	Date d'étal	onnage :	Date proch. étalonnage		
42268	M10-0278	M1	5-août-2010		5-août-2011		
MTP1	MT0015626	F1	17-sept2010		17-sept2011		
Kit S	U						

Version Logiciel:

4.3.0.7

Page 1 sur 3

### Résultats de mesure

La température :

70 °F

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

### Test de variation

0	2
□ 4	3

		Avant Réglage			
Les poids Appliqués	Position	Valeur lue			
1: 125.00 kg	Position 1	125.00 kg			
2: 125.00 kg	Position 2	125.04 kg			
3: 125.00 kg	Position 3	125.00 kg			
4: 125.00 kg	Position 4	124.96 kg			
Erreur maximum :	0.08 kg				
Max Erreur Admissible	Max Erreur Admissible				

1
Après Réglage
Valeur lue
125.00 kg
125.00 kg
125.00 kg
125.00 kg
0.00 kg
0.1 kg

### Linéarité

	Avant réglage						
	Les poids Appliqués	Valeur lue	Erre	eur	Erreur admissible	Dans la Tolérance	
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

No du rapport d'étalonnag CA0003-086-032111

## **METTLER TOLEDO**

	Après réglage						
	Les poids Appliqués	Valeur lue Erre		eur	Erreur admissible	Dans la Tolérance	
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 ser	rvice corresp	ondent à l'état de	

### Répétabilité

✓ OUI

Poids appliqués :

100.00 kg

	i E		
	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

☐ NON

### 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

Version Logiciel:

4.3.0.7

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No du rapport d'étalonnag CA0003-093-032111

Mettler Toledo

Service Business Unit Industrial
1900 Polaris Parkway

Columbus, Ohio 43240

## **METTLER TOLEDO**

ISO 9001 Registered

ANSI/NCSL Z540 Accrédité



1-800-METTLER

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

CERT.CALIBRATION #1902.02

### Certificat d'étalonnage

Client						
Société :	SBI Fabricant de poêles li	nternational inc.				
Adresse:	250, rue Copenhague					
Ville:	St-Augustin	État/Pro	ovince :	Québec		
Code postal :	G3A 2V1	Astea (	Customer ID:	C037589	001001	
Instrument						
Constructeur :	Sartorius	Modèle	de terminal :	N/A		
Modèle :	TE214S	No de s	série du termin	N/A		
No de série :	25851066	No. Séi	rie Impr.	N/A		
Capacité :	210 g	Service	/Pièce :	ce: Lab		
Résolution :	0.0001 g	Nbre de	Nbre de Divisions		2100000	
Classe :	1	Procéd	ure utilisée :	Canadien		
Numéro/ID d'actif du clie	SBI-206					
Procédure:	Le présent certificat est ér l'A2LA, en vertu de la norr laboratoire et la traçabilité	me ISO/IEC 17025. A2	LA a évalué la	certification capacité de	accordées par mesure du	
Date de calibrage :	21-mars-2011	Le prod	hain Cal Date	31-mars-2	2012	
Signataire autorisé (A2LA) :	Dany Careau	Signatu	re:	ELECTRO	ONIC SIGNATURE	
Signature du client :						
Étalons de travail						
Traçabilité	Les poids de test utilisés s	se réfèrent au Nationa	Institute of Sta	ndards and	Technology.	
Jeu de poids no :	Traçabilité NIST No.:	Classe ASTM/OIML	Date d'étal	onnage :	Date proch. étalonnage	
MTP1	MT0015626	F1	17-sept.	-2010	17-sept2011	

Version Logiciel:

4.3.0.7

### Résultats de mesure

La température :

70 °F

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

### Test de variation



		Avant Réglage
Les poids Appliqués	Position	Valeur lue
1: 50 g	Position 1	49.9999 g
2: 50 g	Position 2	49.9999 g
3: 50 g	Position 3	49.9999 g
4: 50 g	Position 4	49.9999 g
Erreur maximum :		0.0001 g
Max Επeur Admissible	9.7	0.0003 g

Après Réglage	Î
Valeur lue	
50.0000 g	
0.0000 g	
0.0003 g	

### Linéarité

			Avant régla	ge		
	Les poids Appliqués	Valeur lue	Erro	eur	Erreur admissible	Dans la Tolérance
Zero 1	0.0000 g	0.0000 g	0.0000 g	0 d	1 d	OUI
2	0.0100 g	0.0100 g	0.0000 g	0 d	1 d	OUI
3	0.1000 g	0.1000 g	0.0000 g	0 d	1 d	OUI
4	1.0000 g	1.0000 g	0.0000 g	0 d	1 d	OUI
5	10.0000 g	9.9999 g	-0.0001 g	1 d	2 d	OUI
6	20.0000 g	20.0000 g	0.0000 g	0 d	2 d	OUI
7	50.0000 g	49.9998 g	-0.0002 g	2 d	3 d	OUI
8	100.0000 g	99.9995 g	-0.0005 g	5 d	3 d	NON
9	150.0000 g	149.9989 g	-0.0011 g	11 d	3 d	NON
Max 10	200.0000 g	199.9982 g	-0.0018 g	18 d	3 d	NON
11	150.0000 g	149.9989 g	-0.0011 g	11 d	3 d	NON
12	100.0000 g	99.9995 g	-0.0005 g	5 d	3 d	NON
13	50.0000 g	49.9998 g	-0.0002 g	2 d	3 d	OUI
14	20.0000 g	20.0000 g	0.0000 g	0 d	2 d	OUI
15	10.0000 g	9.9999 g	-0.0001 g	1 d	2 d	OUI
16	1.0000 g	1.0000 g	0.0000 g	0 d	1 d	OUI
17	0.1000 g	0.1000 g	0.0000 g	0 d	1 d	OUI
18	0.0100 g	0.0100 g	0.0000 g	0 d	1 d	OUI
Zero 19	0.0000 g	0.0000 g	0.0000 g	0 d	1 d	OUI

Méthode de substitution utilisée

			Après régla	ge		
	Les poids Appliqués	Valeur lue	Em	Ептеиr Е adr		Dans la Tolérance
Zero 1	0.0000 g	0.0000 g	0.0000 g	0 d	1 d	OUI
2	0.0100 g	0.0100 g	0.0000 g	0 d	1 d	OUI
3	0.1000 g	0.1000 g	0.0000 g	0 d	1 d	OUI
4	1.0000 g	1.0000 g	0.0000 g	0 d	1 d	OUI
5	10.0000 g	10.0000 g	0.0000 g	0 d	2 d	OUI
6	20.0000 g	20.0000 g	0.0000 g	0 d	2 d	oui
7	50.0000 g	50.0000 g	0.0000 g	0 d	3 d	OUI
8	100.0000 g	100.0000 g	0.0000 g	0 d	3 d	OUI
9	150.0000 g	150.0001 g	0.0001 g	1 d	3 d	OUI
Max 10	200.0000 g	200.0002 g	0.0002 g	2 d	3 d	OUI
11	150,0000 g	150.0001 g	0.0001 g	1 d	3 d	OUI
12	100.0000 g	100.0000 g	0.0000 g	0 d	3 d	OUI
13	50.0000 g	50.0000 g	0.0000 g	0 d	3 d	OUI
14	20.0000 g	20.0000 g	0.0000 g	0 d	2 d	OUI
15	10.0000 g	10.0000 g	0.0000 g	0 d	2 d	OUI
16	1.0000 g	1.0000 g	0.0000 g	0 d	1 d	OUI
17	0.1000 g	0.1000 g	0.0000 g	0 d	1 d	OUI
18	0.0100 g	0,0100 g	0.0000 g	0 d	1 d	OUI
Zero 19	0.0000 g	0.0000 g	0.0000 g	0 d	1 d	OUI

П	Methode	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 : 20.0

20.0000 g

	Chargé	Vide	Différence
1	20.0001 g	0.0000 g	20.0001 g
2	20.0002 g	0.0000 g	20.0002 g
3	20.0001 g	0.0000 g	20.0001 g
	Erreur maximale:	0.0002 g	2.0 d
	Tolérance :	0.0002 g	2 d

### Incertitude

Mesure de l'incertitude =	0.00020 g	

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.			

4.3.0.7

Signature/Date:

## 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 1,014

2011-09-29

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 oF Standard Press.: 29,92 "Hg Barometric Press.: 29,63 "Hg

P	revious Calibrat	tion Comparisio	n
Date	2011-03-01	Acceptable	
		Deviation (5%)	Deviation
y Factor	1,003	0,05015	0,011
Acceptance	Acce	ptable	

### 

	Reference	Standard *	
Standard	Model	Standard Test	Meter
Calibrator	S/N	07J264834	
	Calib. Date	21-mars-11	
	Calib. Value	1,0070	y factor (ref)

Calibration Parameters	Run 1	Run 2	Run 3
Vacuum ("Hg)	0,00	0,00	0,00
dH ("H2O)	0,00	0,00	0,00
Initial Reference Meter	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 =	1,015	1,014	1,013
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.  $dH@=0.0317 \times dH / (Pb (Td + 460)) \times [(Tr + 460) \times time) / Vr]^2$

<sup>\*</sup> Reference calibration is traceable to NIST through NIST Test # 40674, Kimble ASTM E1272

Signature/Date:

## 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 1,011

2011-09-29

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 oF Standard Press.: 29,92 "Hg 29,59 "Hg Barometric Press.:

Pı	evious Calibrat	ion Comparision	n
Date	2011-03-01	Acceptable	
		Deviation (5%)	Deviation
y Factor	0,996	0,0498	0,015
Acceptance	Acce	ptable	

Acceptance Current Calibration

Acceptable y Deviation 0,020

Maximum y Deviation 0,001

Acceptance Acceptable

	Reference	Standard *	
Standard	Model	Standard Test 1	Meter
Calibrator	S/N	07J264834	
	Calib. Date	21-mars-11	
	Calib. Value	1,0070	y factor (ref)

Calibration Parameters	Run 1	Run 2	Run 3
Vacuum ("Hg)	0,00	0,00	0,00
dH ("H2O)	0,00	0,00	0,00
Initial Reference Meter	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 =	1,010	1,010	1,012
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 = [Vr x (y factor (ref)) x (Pb) x (Td + 460) / [Vd x (Pb + (dH / 13.6)) x (Tr + 460]]
- 3.  $dH@=0.0317 \times dH / (Pb (Td + 460)) \times [(Tr + 460) \times time) / Vr]^2$

<sup>\*</sup> 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

Customer PO#: 23966

St-Augustin-de-Desmaures

Contribute # 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

Graftel ID 10159	Manufacturer HOBO	Model # U12-011	<u>Description</u> Environment Monitor System	CAL Due 6/22/2011
60030	Paroscientific	760-100A	Pressure, 100 psia	8/24/2011
10128	Furness	FCO352	Diff Pressure	8/24/2011
10062	Graftel	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

Model #: DTM-200A

Instrument ID#: SBI-103

Serial #: 07J264834

Description: Gas Meter

Rated Accuracy: ± 1 % of Reading

Range:

sofh

0 to 250

Accuracy Specified By: American Met.

Condition: Functional

Method Used: Laminar

The instruments(s) listed on this certificate have been calibrated against standards traceable to the National Institue of Standards and Technology (NIST) or compared to nationally or internationally recognized consensus standards. The reported calibration uncertainty has a confidence level of 95% (K=2). A calibration uncertainty ratio of 4.1 was maintained unless required uncertainty support by analysis. Graftel,

Inc. Quality Assurance System complies with applicable requirements of ISO/IEC-17025-2005, ANSI/NCSL Z540-I-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 Graftel, Inc.

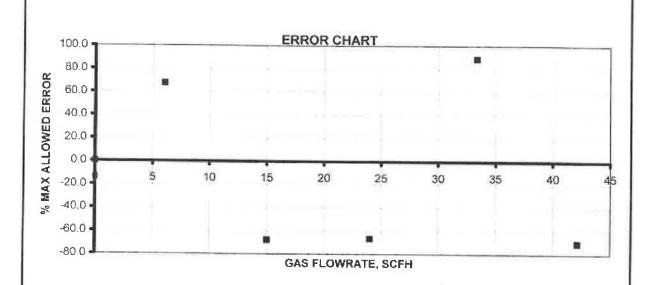
M. Rodriguez Calibration Technician

Comments: Calibration Date: 03-21-2011

## ATTACHMENT TO CALIBRATION CERTIFICATE 24648 AS FOUND DATA

Page 2 of 2

Air Flow Rate From Standard, sofh	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



		NSTRUMENT SPECIFICATIONS
Test Gas	Air	Marie
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
	LAB	ORATORY AMBIENT CONDITIONS
Pressure	14.40	psia
Humidity	30.8	% RH
Temperature	69.6	<u>I</u> F



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

NIST Traceable Calibration Data Sheet

www.graftel.com

Graftel, LLC. 870 Cambridge Drive, Elk Grave Village, IL. 50007 P. 847-384-2800 F. 847-384-2899

12/1/2010 Date:

72 F 25%

Temperature: R.H.:				%				
	%	%	%	0.57	A.D.	0.57	0.57	0.57
SBI-134 (T1) 0.2 SBI-096	0.01	0.29	1.28	Ave A.D.	Reading	9.69	9.69	9.69
Equipment: Accuracy: Reference:	S.D.	R.M.U.	O.M.U		Standard	70.0	70.0	70.0

S.D.	0.01	%	
R.M.U.	0.10	%	
O.M.O	1.02	%	
	Ave A.D.	0:20	%
Standard	Reading	A.D.	
200.0	199.2	0.40	
200.0	199.2	0.40	
200.0	198.6	0.70	

%	% % % % % % % % % % % % % % % % % % %	0.00 0.01 0.13 Ave A.D. Reading 1399.0	S.D. R.M.U. O.M.U Standard 1400.0
		1399.0 1399.2	1400.0
	A.D.	Reading	ndard
%	90.0	Ave A.D.	
	%	0.13	И.U
	%	0.01	1.U.
	%	0.00	

%

A.D.

Standard

% % % 80.0

0.00 0.02 **0.16** Ave A.D. Reading

S.D. R.M.U. O.M.O 0.08 Technician: Vincent Pelletier 999.2 999.2 999.2 1000.0 1000.0 1000.0

S.D.	00:0	%	
R.M.U.	0.03	%	
O.M.U	0:30	%	
	Ave A.D.	0.14	%
Standard	Reading	A.D.	
600.0	599.2	0.13	
0.009	599.0	0.17	
600.0	599.7	0.13	

12/1/2011 Date:

Equipment: SBI-134 (T2)
Accuracy: 0.2
Reference: SBI-096

72 F 25%

Température: R.H.:

S.D.	0.01	%	
R.M.U.	0.29	%	
O.M.U	0.95	%	
	Ave A.D.	0.38	%
Standard	Reading	A.D.	
70.0	70.2	0.29	
70.0	70.2	0.29	
70.0	70.4	0.57	

%	%	%	0.13	A.D.	0.10	0.20	0.10
0.00	0.10	0.33	Ave A.D.	Reading	200.2	200.4	200.2
S.D.	R.M.U.	0.М.О		Standard	200.0	200.0	200.0

d Rea	0.00 0.01 0.05 Ave A.D. Reading A.D. 1399.6	
-------	------------------------------------------------------------	--

-	0.00	%	
	0.02	%	
	0.04	%	
	Ave A.D.	0.01	%
Standard	Reading	A.D.	
o.	8.666	0.05	
1000.0	1000.0	00:0	
1000.0	1000.0	00:0	

Technician: Vincent Pelletier

S.D.	0:00	%		
R.M.U.	0.03	%		
0.M.U	80.0	%		
	Ave A.D.	0.02	%	
Standard	Reading	A.D.		
600.0	0.009	00:00		
0.009	599.6	0.07		
0.009	600.0	0.00		



Ulrich Métrologie inc. Ulrich Metrology Inc. 9912, Côle-de-Liesse Montréal (Québec) H8T 1A1 Tel. (514) 631-6653 Fax (514) 631-6122 info@ulrich.ca www.ulrich.ca

### CALIBRATION CERTIFICATE

Certificate no.:

280384

Identification:

SBI-096

Description:

CALIBRATOR, OMEGA CL23A

Size:

TC K/J/T

Manufacturer:

**OMEGA** 

Model no.: Serial no.:

T-256137

CL23A

Calibration date

August 25, 2011

Certificate issued

August 25, 2011

Interval:

12 months

Due date:

August 25, 2012

CLAS Type 2 Laboratory

Procedure no.:

MET/CAL

Environment:

Temperature:

23 ± 2°C

Humidity:

35 - 55% RH

Metrologist:

NRS

Property of:

250 RUE DE COPENHAGUE

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

Approved by:

This colibration corrificate is issued in necessitative with the applicable requirement of ISO/IEC 17025 and QM-08. Measurement results provided are traceable to either the National Research Council Consider (NRC), the National Institute of Standards and Technology (NIST), a national laboratory of another country signatory to the CPM Minual 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. 8912, Côte-de-Liesse Motnréal (Québec) H8T 1A1

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

### CALIBRATION DATA

Certificate no.:

280384

Identification:

SBI-096

Description:

CALIBRATOR THERMOMETER

Serial no.:

T-256137

Procedure:

Omega CL23A: 5520A-M

**CALIBRATION STANDARDS** 

Identification

Description

Manufacturer

Model no.

Result:

Cal. Date **Due Date** 

7870009

CALIBRATOR

FLUKE

5520A

2011/05/06 2012/05/06

MEASUREMENT RESULTS (Per MET/CAL)

PARAMETER

TRUE VALUE ACCEPTANCE LIMITS

PASS/

PASS

Condition: FOUND-LEFT

Temperature measurements are performed by electrical simulation.

DISPLAY CALIBRATION

Did all segments of the display illuminate?

Result of Operator Evaluation

PASS

THERMOMETER CALIBRATION

K Type Thermocouple

W.U.	and the second
-40	.OdegF
32	.OdegF
124	10.0degF
	0.0degF
250	00.0degF

-200.0degF

-60 OdenE

J Type Thermocouple -200.0degF

-40.0degF 32.0degF 1240.0degF 1260.0degF

1400.0degF

-60.0degF

T Type Thermocouple

T Type Thermocouple -200,0degF -60.0degF -40.0degF

32.0degF 750.0degE

CALIBRATOR CALIBRATION

TEST RESULT

1239.5

1259.5

2499.3

LOW

HIGH

FAIL

TUR

-201.0 -201.0 -199.0 PASS 1.7 -60.4 -61.0 -59.0 PASS 3.1 -40.5 -40.5 -39.5 PASS 1.5 31.5 32.5 31.5 PASS 1.7

1239.5 1240.5 PASS 1.3 1259.5 1260.5 PASS 1.1 2499.0 2501.0 PASS 1.4

1400.6

-200.7 -199.0 -201.0 PASS 2.1 -59.0 -60.4 -61.0 PASS 3.5 -40.5 -40.5 -39.5 PASS 1.7 31.6 31.5 32.5 PASS 2.0 1239.6 1239.5 1240.5 PASS 1.6 1259.7 1259.5 1260.5 PASS 1.6

-200.2 -60.0 -40.1

31.9

749.8

1399.6

-201.0 -61.0 -40.5 31.5

749.5

1399.4

-199.0 -59.0 -39.5 32.5

750.5

PASS PASS PASS PASS

PASS

1.2 1.7 PASS 2.0

Calibration Data for Certificate No.

260384

Rinsho1

Page 1 of 2

1.8

2.3

2.3



Ulrich Métrologie inc. Ulrich Metrology inc. 9912, Côte-de-Llesse Metrical (Guébec) HST IAI Tél. (514) 631-6653 Fax (514) 631-6122 info@ulrich.ca www.ulrich.ca

, , , , , , , , , , , , , , , , , , , ,	TRUE	TEST	ACCEPTANC	E LIMITS	PASS/	
PARAMETER	VALUE	RESULT	LOW	HIGH	FAIL	TUR
K Type Thermocouple						
-20B.OdegF		-199.4	-201.0	-199.0	PASS	1.7
-60.0degF		-59.8	-61.0	-59.0	PASS	3,1
-40.0degF		-39.8	-40.5	-39.5	PASS	1.5
32,0degF		32.1	31.5	32.5	PASS	1.7
1240.0degF		1239.5	1239.5	1240.5	PASS	1.1
1260,0degF		1259.5	1259.5	1260.5	PASS	1.1
2500.0degF		2499.0	2199.0	2501.0	PASS	1.4
J Type Thermocouple						
-200.0degF		-200.0	-201.0	-199.0	PASS	2.1
-60.0degF		-60.2	-61.0	-59.0	PASS	3.5
-40,0degF		-40.0	-40.5	~39.5	PASS	1.7
32.0degF		31.8	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
I Type Thermocouple						
-200.0degF		-159.2	-201.0	-199.0	PASS	2.3
-60,0degF		-59.9	-61.0	-59.0	PASS	2.3
·40.0degF		-39.7	-40.5	-39.5	PASS	1.2
32.0degF		32.1	31.5	32.5	PASS	1.7
750.0degF		749.6	749.5	750.5	PASS	2.0

End of Test Data



4850, bd Gouin est Montréal-Nord, Qc Canada HIG 1A2 www.chevrierinstruments.com Tél. (514) 328-2550 1 800 522-1226 Fax (514) 327-0604

info@chevrierinstruments.com

tustruments de mesore et de régulation pour les procédés (aéuxtrisis et laboratoire d'étalonnage

## Certificat d'étalonnage

Numéro du certificat: CE1638

Étalonnage effectué par :

LA CIE J. CHEVRIER INSTRUMENTS INC.

4850 GOUIN EST

MONTREAL, QC, CANADA H1G 1A2

SBI INC.

250, RUE DE COPENHAGUE

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

Informations sur l'instrument

Description: MANOMETRE DIFFERENTIEL ANALOGIQUE

Manufacturier:

DWYER

Modèle:

2000-00N

Plage:

0/0.20 POH2O

Précision:

±4%P.E.

Numero de série :

Commentaire:

I.D.:

SBI-025

Etat de l'instrument: BON

Pour:

3424

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

### POINTS D'ÉTALONNAGE

		OF THE REAL PROPERTY.			
	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	0.1926	0.2100	OK
	Valeur Appliquée	Tolérance -	Lectures	Tolérance +	Verdict
Descendant	0.2000 poH2O	0.1900	0,1926	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

1.D.	Certificat No	Description	Étalonné le	Échéance	S.
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** 



4850, bd Gouin est Montréal-Nord, Qc. Canada HIG 1A2 Tél. (514) 328-2550 1 800 522-1226

www.chevrlerinstruments.com

info@chevrierinstruments.com

lextroments de mezere et de régulation pour les pracédes industriels et laboratoire d'étalennage

## Certificat d'étalonnage

Numéro du certificat: CE1639

Étalonnage effectué par :

LA CIE J. CHEVRIER INSTRUMENTS INC. 4850 GOUIN EST

MONTREAL, QC, CANADA H1G 1A2

3424

SBI INC.

250, RUE DE COPENHAGUE

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

Informations sur l'instrument

Description.

MANOMETRE DIFFERENTIEL ANALOGIQUE

Manufacturier:

DWYER

Modèle:

2000-00

Plage:

0/0.25 POH2O

Précision: ±4%P.E.

Numéro de série :

I.D.:

SBI-027

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

SHIMING LOUIS SHIP	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	QK
Ascendant	0.2000 poH2O	0.1900	0.205	0.2100	OK
Ascendant	0.2450 poH2O	0.2350	0.25	0.2550	OK
	Valeur Appliquée	Tolérance -	Lectures -	Tolérance +	Verdict
Descendant	0.2450 poH2O	0.2350	0.25	0.2550	OK
Descendant	0.2000 poH2O	0.1900	0.205	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: CE1639

### 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

Procédures utilisées pour effectuer cet étalonnage

Procédure Description

3PR500-01-CHE ÉTALONNAGE DE MANOMÈTRE



4850, bd Gouin est Montréal-Nord, Qc Canada H1G 1A2 www.chevrierinstruments.com

Tél. (514) 32B-2550 1 800 522-1226 Fox (514) 327-0604

info@chevrierinstruments.com

Instruments de mesure et de régulation pour les procédés indestriels et faboratoire d'étalennage

## Certificat d'étalonnage

Numéro du certificat: CE1640

Étalonnage effectué par :

LA CIE J. CHEVRIER INSTRUMENTS INC. 4850 GOUIN EST

MONTREAL, QC, CANADA H1G 1A2

Informations sur l'Instrument

Description: MANOMETRE DIFFERENTIEL ANALOGIQUE

Manufacturier: DWYER Modèle:

2000-00

Plage: 0/0.25 POH2O

Précision: ±4%P.E.

Numéro de série :

I.D.: SBI-101

Etat de l'instrument: BON

Commentaire:

Pour:

3424

SBI INC.

250, RUE DE COPENHAGUE

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

Date d'étalonnage : 2011-02-10

Échéance :

2012-02-10

Résultat de l'étalonnage: Conforme

20.9 °C / 29.9%HR Conditions ambiantes

Technicien:

Pierre Junior Berlus



POINTS D'ÉTALO	NNAGE				
	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	Tolerance -	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	D	0.0100	OK

## Certificat d'étalonnage

Numéro du certificat: CE1640

### 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	220

Procédures utilisées pour effectuer cet étalonnage

Procedure Description

3PR500-01-CHE ÉTALONNAGE DE MANOMÈTRE

3/28/2011 Date:

Equipment; SBI-214 (12%) Accuracy: 0.1 Reference: SBI-153

	0.01	%	
	0.79	%	
O.M.U	2.23	%	
	Ave A.D.	0.79	%
Standard	Reading	A.D.	
12.7	12.8	0.79	

2%	10/71
SRI-214 (	
2	5
Follinment	
-	7

Accura Refere

65F 35%

Temperature: R.H.:

ē:

65F 35%

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0	
=	•
┶	-
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_	Ω

R.H.:				%			
	%	%	%	0.85	A.D.	0.85	
0.1 SBI-153	0.01	0.42	1.90	Ave A.D.	Reading	23.8	
Accuracy: Reference:	S.D.	R.M.U.	O.M.U		Standard	23.6	

Technician: Claude Paré



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

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info@chevrierinstruments.com

habraments de masure et de régulation pour les procédés indestriels et laboratoire d'étalonnage

## Certificat d'Étalonnage

Numéro du certificat: CE6926

Étalonnage effectué par :

LA CIE J. CHEVRIER INSTRUMENTS INC.

**4850 GOUIN EST** 

MONTREAL, QC, CANADA H1G 1A2

Informations sur l'instrument

Description:

TUBE DE PITOT EN S

Manufacturier;

DWYER

Modèle:

1605-24

Numéro de série

SBI-104

État de l'instrument BON

Approuvé par

Commentaire:

Pour:

3424

SBI INC.

250, RUE DE COPENHAGUE

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

Date d'étalonnage : 2011-08-17

Échèance

2012-08-17

Résultat de l'étalonnage: Reçu Conforme Conditions ambiantes: 21.7 °C /42.5%hr

Technicien:

Benjamin Ricard SQ

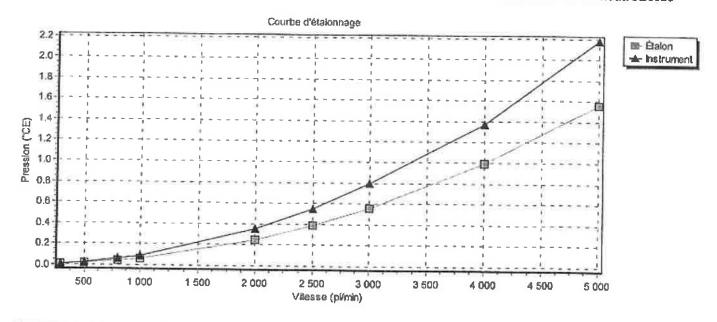
C.Q B.R



Pitot Étalon "Ce	Pitot sous test "Ce	Facteur
0.0055 poH2O	0.0058 paH2O	0.97
0.0157 poH2O	0.0205 poH2O	0.88
0.0398 poH2O	0.0593 poH2O	0.82
0.0622 poH2O	0.0901 poH2O	0.83
0.2488 poH2O	0.3521 poH2O	0.84
0.3896 poH2O	0.5515 poH2O	0.84
0.5605 poH2O	0.7945 poH2O	0.84
0.9965 poH2O	1.3695 poH2O	0.85
1.5583 poH2O	2.1798 poH2O	0.85
	0.0055 poH2O 0.0157 poH2O 0.0398 poH2O 0.0622 poH2O 0.2488 poH2O 0.3896 poH2O 0.5605 poH2O 0.9965 poH2O	0.0055 poH2O       0.0058 poH2O         0.0157 poH2O       0.0205 poH2O         0.0398 poH2O       0.0593 poH2O         0.0622 poH2O       0.0901 poH2O         0.2488 poH2O       0.3521 poH2O         0.3896 poH2O       0.5515 poH2O         0.5605 poH2O       0.7945 poH2O         0.9965 poH2O       1.3695 poH2O

## Certificat d'Étalonnage

### Numéro du certificat: CE6926

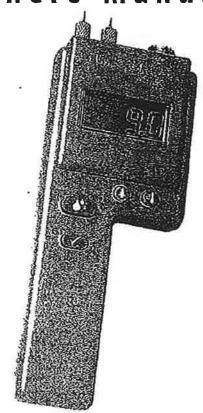


### Étalons utilisés traçables au C.N.R.C / N.I.S.T ou non traçables

I.D.	Certificat No	Description	Étalonné le	Échéance
CHEV029	CE530	MANOMETRE NUMERIQUE FURNIESS PPC500	2010-12-20	2011-12-20
CHEV031	CHEV121-100930	TUYÈRE ARFLOW DEVELOPMENTS	2010-08-30	2011-08-30
Procedures	utilisans dans cat 6	planne we	2010.00.00	2011-90-90

riocedures utilisees t	lans cet etalonnage	
Procédure	Description	Date de révision
3PR500-22-CHE	ÉTALONNAGE TUBE DE PITOT	Sale de l'evision

# J-2000 owners manual

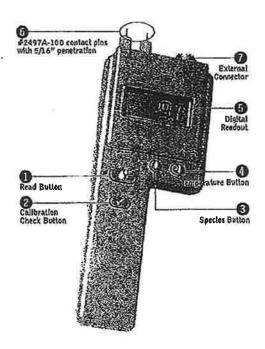




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# DELMHORST J-2000



# 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 Fahrenhelt 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**

- 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.
- TEMPERATURE BUTTON Sets the wood temperature and changes the temperature mode (Fahrenheit or Ceisius). This button also acts as a scroli 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% (+ 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 Moter 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.

# SET SPECIES 🎚

The J-2000 defaults to Species Code #1 - Douglas Fir - the USDA standard and basis for all calibrations. Because the electrical characteristics of different species vary, all species read differently at the same moisture content. For this reason you need to adjust for species. If you are working with a species other than Douglas Fir, set the species code using the species button 3, and the meter will make the necessary corrections.

- ► To change species press the species button ③. The meter will display the current species code for one second.
- ➤ To scroll forward through the species list hold the species button ③ while the current species code is displayed and scroll to the species number desired.
- ►To scroll backward through the species list, press and release the species button ③. Within one second, press and hold the temperature button ④. Continue to hold the temperature button ④ and the species number will decrease.
- ► When scrolling in either direction, release the button to stop at your desired species.

The J-2000 can be used to test more than just wood. It will also give a relative reading on plywood, OSB, particleboard and MDF or can be fitted with a 26-ES slide hammer for specific applications. Call Delmhorst at 1-877-DELMHORST or e-mail info@delmhorst.com for information on how to interpret the readings for other materials.

Species Code Chart

CODE	/SPECIES	CODE	/ SPECIES
1	Fir, Douglas	25	Magnolfa
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, Ponderosa
12	Cherry	36	Pine, Shortleaf
13	Cottonwood	37	Pine, Sugar
14	Cypress	38	Pine, White
15	Elm, American	39	Poplar, Yellow
16	Flr, Red	40	Ramin
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	Virola
23	Keruing	47	Walnut, Black
24	Larch	48	Western Hemlock - COFI*

<sup>\*</sup>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 plns, and the J-2000, he sure both meters are set to 2-pin electrode (insulated plns).

# SET TEMPERATURE

The J-2000 defaults to a temperature of 70°F. As wood temperature increases, its electrical resistance decreases and indicated moisture content rises. Lower wood temperatures result in lower indicated moisture content. A correction is necessary if the wood temperature is outside the range of 50°F (10°C) to 90°F (32°C). Set the temperature accordingly and the meter will make the correction.

- ▶To change temperature press and release the temperature button 4. The meter will display the current temperature for one second.
- ► To scroll forward through the temperature settings, press and hold the temperature button 4 while the current temperature is displayed.
- ➤ To scroll backward press and release the temperature button . Within one second, press and hold the species button . Continue to hold the species button . and the temperature will decrease.
- When scrolling in either direction, release the button to stop at the desired temperature.

#### Set Temperature Mode

- ►To change from Fahrenhelt to Celsius mode or Celsius to Fahrenhelt mode press the temperature button .
- ▶ Press the calibration check button 2 within one second and release when you are in the mode needed.
- ►The meter will display the current temperature setting in the new mode and will wait one more second until shutting off so that you may change the temperature value as described above.

If the meter is in Fahrenheit mode, the letter "F" will display in the left-hand corner. If it is in Celsius mode, no letter will appear in the display.

In the Fahrenheit mode, the temperature will change in increments of 5°F. In Celsius, the temperature will change in increments of either 2°C or 3°C depending on its conversion from Fahrenheit.

In the Fahrenhelt mode, the temperature value will display in whole numbers. In the Celsius mode, positive values will display in whole numbers; negative values will display with a decimal point and a "-" sign in the left-hand corner. (i.e.: -27.0)

# SET PIN CALIBRATION **(L**)

The basic factory calibration of the J-2000 is for use with uninsulated pins — either the integral pins 6 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 ③, then press the calibration check button ② 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 2, 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 **6** 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 **7**. See additional information under the Pin Talk section.

- ► Remove the protective cover to expose the pins. Check that the contact pins 6 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 vxood, if possible. Insulated pins read only at the tip and can be driven to the desired depth.
- Press the read button 1 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 indicated 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 plns, 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 plns as needed. Keep contact plns 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 7.
- 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-DELMHORST.
- ► 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 layoice.
- Ship via UPS, Express Mall, 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/MasierCard 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

Delmhorst Instrument Co., referred to hereafter as Delmhorst, 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 Mater section. This limited warranty does not cover abuse, alteration, misuse, damage during shipment, improper service, unauthorized or unreasonable uso 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.

Delmhorst shall not be flable 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 Delmhorst 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. Delmhorst 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 Delmhorst meters and electrodes and no other warranty, written, orai, or implied applies. This warranty is personal to the customer purchasing the product and is not transferable.

# 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, Total particulate matter collected, mg

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

v, Average dilution tunnel gas velocity, ft/sec

C<sub>s</sub> Particulate concentration, g/dsef

Q<sub>sd</sub> Average dilution tunnel gas flow rate, dscf/min

E Particulate emission rate, 1bs/hr

PR Proportional rate variation, %

# Dry Burn Rate

Using equation 28-3:

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

Where,

BR = Dry burn rate, 1b/hr

W<sub>wd</sub> = Mass of wood burned (wet basis) during test run, lb

 $\theta$  = Total time of test run, minutes

%M<sub>w</sub> = 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,

$$\%M_{W} = \frac{20.03 \times 100}{20.03 + 100}$$

$$%M_{\odot} = 16.69\%$$

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:

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

$$BR = 0.98 \, kg/hr = 2.17 \, lb/hr$$

# Volume of Gas Sampled Corrected to Dry Standard Conditions

Using equation 5-1:

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

Where:

K = 17.64 °R/in. Hg

 $T_{std} = 528 \,^{\circ}R$ 

 $P_{std} = 29.92 \text{ in. Hg}$ 

V<sub>m</sub> = 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

 $\Delta H$  = Average pressure differential across the orifice meter, in.  $H_2O$ 

T<sub>m</sub> = Absolute average dry gas meter temperature, °R

Sample Calculation:

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

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

## Dilution Tunnel Gas Velocity

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

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

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

Where:

v<sub>s</sub> = Average dilution tunnel gas velocity, ft/sec

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

C<sub>p</sub> = 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

 $\Delta P$  =  $\Delta P$  measured during the pre-test flow traverse of the dilution tunnel; the square root of the  $\Delta P$  values are averaged for this calculation, in. H<sub>2</sub>O

 $P_b$  = Barometric pressure at test site, in. Hg

P<sub>g</sub> = Static Pressure of tunnel, in. Hg

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

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

B<sub>ws</sub> = Moisture content of dilution tunnel gas, ratio; assume 4% (per method 50)

 $T_s$  = Dilution tunnel temperature, °R; (°R = °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:

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

Where:

C<sub>s</sub> = Concentration of particulate matter in stack gas, dry basis, corrected to standard conditions, g/dscf

m<sub>n</sub> = Total mass of particulate matter collected in the sampling train, mg

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

Sample calculation:

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

 $C_s = 0.000163$  g/dscf

## Average Dilution Tunnel Gas Flow Rate

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

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

Where:

Q<sub>sd</sub> = Gas flow rate corrected to dry, standard conditions, dscf/hr

3600 = Conversion from seconds to hours

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

v<sub>s</sub> = Average dilution tunnel gas velocity, ft/sec

A = Cross sectional area of dilution tunnel, ft<sup>2</sup>

T<sub>std</sub> = Standard absolute temperature, 538°R

 $T_{s(avg)} = Average absolute dilution tunnel temperature, °R, (°R = °F + 460)$ 

P<sub>b</sub> = Barometric pressure at test site, in. Hg

P<sub>e</sub> = Dilution tunnel static pressure, in. Hg

 $P_s$  = Absolute dilution tunnel gas pressure, in Hg, (Hg =  $P_b + P_g$ )

P<sub>std</sub> = Standard absolute pressure, 29.92 in Hg

Sample calculation:

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

 $Q_{sd} = 8313.36 \ dseffhr = 138.56 \ dseffmin$ 

### 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<sub>edj</sub> = Particulate emission rate, adjusted, g/hr

C<sub>s</sub> = Concentration of particulate matter in the stack, corrected to dry, standard conditions, g/dscf

Q<sub>si</sub> = Average dilution tunnel gas flow rate, dscf/hr

K<sub>3</sub> = Constant, 1.82 for metric units, 0.643 for English units

Sample calculation:

$$E = 0.000163 \times 8313.36$$

$$E = 1.36 g/hr$$

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

$$E = 2.35 g/hr$$

## **Proportional Rate Variation**

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

$$PR = \frac{\theta \times (V_{ml} \times V_s \times T_m \times T_{sl})}{10 \times (V_m \times V_{si} \times T_s \times T_{ml})} \times 100$$

Where:

PR = Percent proportional rate

 $\theta$  = Time of test, min

S<sub>1</sub> = Measured tracer gas concentration for the "i<sup>th</sup>" interval, in this case, the inverse of the calculated flow in the stack based on CO<sub>2</sub> concentrations in the stack and in the dilution tunnel

V<sub>mi(std)</sub> = Volume of gas sample measured by the dry gas meter during the "i<sup>th</sup>" 10 minute interval, dscf

V<sub>m</sub> = Volume of gas sample as measured by dry gas meter, dscf

V<sub>st</sub> = Average gas velocity in the dilution tunnel during each 10 minute interval, i, of the test run, m/sec

V<sub>s</sub> = Average gas velocity in the dilution tunnel, m/sec

 $T_{mi}$  = Absolute average dry gas meter temperature during each 10 minute interval, i, of the test run,  ${}^{\circ}R$ 

T<sub>m</sub> = 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,  ${}^{\circ}R$ 

T<sub>s</sub> = Absolute average gas temperature in the dilution tunnel, °R

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

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

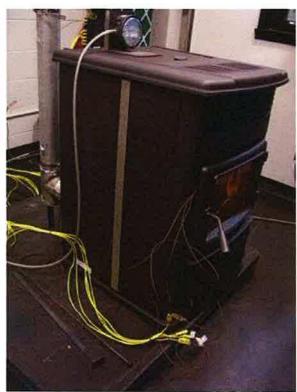
PR = 103.8%

# **Appendix F Test Data**

# Stove Builders International Series 50: Eurostar & Osburn 5000 Project Number G100903464



Eurostar Front view



Eurostar Side view

### **EPA NSPS WEIGHTED AVERAGE CALCULATION**

V 1.1

3

Date:

Manufact SBI SBI - G100903464 - Eติโอเลโลง เกาปรุกษาเอร 50 Eurostar/Osburn 5000

Sept. 17 - Sept 19, 2012

Type of Stove:

Project #: G100903464

Weighted Average 1=cat

> 2=noncat 3=pellet

(E) Ave.

Heat

(K)

		, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		TIOUL		(, 4)		
Test	Burn	Emission		Output		Weighting		
No.	Rate	Rate g/hr	(OHE)	(BTU/HR)	Prob.	Factor	(KxE)	KxOHE
4	0.69	1.26	×	10301.15	0.1442	0.3854	0.4856	0.00
3	1.01	2.42		15078.49	0.3854	0.7530	1.8223	0.00
5	1.91	2.49		28514.77	0.8972	0.5330	1.3272	0.00
6	2.04	2.20		30455.57	0.9184	0.1028	0.2262	0.00
				0.00	1.0000	0.0000	0.0000	0.00
		0.0		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
						0.0000	0.0000	0.00

Totals: 1.7742 3.8612 0.00

Weighted	average emissions rate:	2.1763
	Weighted Average OHE:	0.00

Model:			***								-	
	Model: Eurostar/Osburn 5000	000										
Date:	9/17/2012											
Run:			Townson I	V								
Project #	Project #: G100903464		)									
Test Duration: 120	120											
		Start	End									
	Barometer (in.Hg):	30.032	29.97									
	Dry Bulb (F):	79	8									
	Humidity (%):	37	32									
Moisture content of wood (wet basis):	wood (wet basis):	4.6802	or the second of	and vote one of the state of th	20 000 000 000 000 000 000 000 000 000	and the second s	10 (000 PC to 10 PC T) (PC T)					
	Average	0.23	4.24	16.63	361.58	79.55	133.18	589.25	868.83	442.64	478.41	166.95
	*	*	*	*	*	*	*	*	*	*	*	*
Elapsed	Weight				Flue	Room	Tunnel	Unit	Unit	Unit	Unit	Unit
Time	Remaining	8	C02	05	Gas	Temp	Dry Bulb	Тор	Back	R.Side	L.Side	Bottom
0	9.00	0.22	4.44	16.4	359.7	78.63	132.3	595.5	875.2	435	472	164.5
10	8.24	0.22	4.16	16.58	354.9	78.87	131.6	595.3	898.9	432.7	464	168.1
20	7.50	0.21	4.45	17.81	356.7	79.65	132.7	572.6	852.5	436	467.4	167.5
30	6.71	0.22	4.31	17.09	364.4	78.5	133.6	9.609	880.2	450.9	483.5	169
40	5.96	0.23	4.48	15.81	365.1	79.45	134.6	604.1	883	451.5	484.6	172
90	5.25	0.24	3.98	16.17	353.0	79.43	134.3	554.4	818.6	430.3	465.9	165
09	4.48	0.24	4.53	17.61	358.7	78.9	134.4	571.4	820.1	435.9	474.3	167.2
02	3.76	0.23	4.01	16.48	363.4	79.41	132.2	596.4	908.2	435.3	475.2	167
80	2.97	0.22	3.87	16.15	366.9	79.9	133.1	591.4	884.3	447.9	487.2	165
06	2.21	0.23	4.53	17.2	365.5	80.22	132.9	8,009	887.4	448.7	485.1	166.4
100	1.41	0.24	3.6	17.06	372.4	80.2	133.6	626.2	926.2	459.7	502.6	167.4
110	0.71	0.25	4.43	15.14	356.5	80.61	132.7	560.2	818.4	44	472.8	164.6

2	Manufacturer: SB	SBI	A STATE OF THE STA										
	Model:	Model: Eurostar/Osburn 5000	sburn 5000										
	Date:	Date: 9/17/12											
	Run: 1	-											
	Project #:	Project #: G100903464	42										
									And the second of the second of				0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
718.16	78.09		83.86	341.31	77.21	84.09	77.44	0.02	0.000	0.00	509.22		
+	**	¥	*	*	×	*	*	*	*	Visual	Average	Change in	
DGM 1	DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	DGM 2	Filter 2	Tunnel	Chimney	Smoke	Stove	Surface	
Reading	Inlet T	Outlet T	Temp	Reading	Inlet T	Outlet T	Temp	Velocity	Draft	Observed	Temp	Temp.	
708.955	76.36	76.2	76.64	333.907	75.98	76.51	75.93	0.015			508.4	0	
710.535	76.82	76.44	84.71	335.165	76.09	85.49	76.28	0.015			511.8	3.36	
712.088	77.22	76.71	83.67	336.412	76.44	83.52	76.57	0.015			499.2	-9.24	
713.625	77.58	76.97	86.46	337.647	76.67	86.3	76.98	0.015			518.6	10.2	
715.135	77.94	77.27	88.88	338.875	76.81	88.27	77.2	0.015			519.1	10.64	
716.655	78.11	77.51	83.69	340.108	77.1	83.98	77.37	0.015			486.9	-21.54	
718.182	78.31		83.3	341.339	77.24	83.76	77.63	0.015			493.8	-14.66	
719.702	78.36	77.91	83.37	342.580	77.39	83.75	69.77	0.015			516.5	8.06	
721.218	78.57	78.08	83.47	343.785	77.66	84.01	77.86	0.015			515.2	6.8	
722.739	78.7	78.3	83.86	344.995	77.8	84.09	78.14	0.015			517.7	9.24	
724.248	78.94	78.49	83.91	346.208	77.99	84.27	78.29	0.015			536.4	27.98	
725.761	79.07	78.69	83.88	347.420	78.14	84.43	78.29	0.015			491.4	-17.04	
727.267	79.21	78.9	84.29	348.625	78.36	84.78	78.48	0.015			504.7	-3.72	-3 72

		Manufa		SBI					
		M	odel:	Eurostar/C	Sburn 5000				
		[	Date:	9/17/12					
			Run:	1					
		Pi	roject #:	G1009034	164				
		Test Dura	tion:		120				
	Total Gas \	/olume (Do	GM 1):		18,266	Pit	tot Factor	0.83	
	Total Gas \	/olume (Do	GM 2):		14.556		(0	.99 standar	d,
	Average Baro	ometric Pre	essure:		30.001		0.84 or Ca	al. Factor for	S-Type)
		Molecu	lar Weig	ht:	28.56				
		Pitot Co	orrection	:	0.998248595				
	Calibration Fa	actor (DGN	/I #1):		1.0140				
	Calibration Fa	actor (DGN	/l #2):		1.0110				
				(1) VS:	0.0400				
				(2) VS:	0.0502			Filter	Filter
								Face	Face
Elapsed	DGM 1	DGM 1	DGM 1	DGM 2	DGM 2	DGM 2	Tunnel	Velocity	Velocity
Time		Inlet T	Outlet T		Inlet T	Outlet T	Dry Bulb	DGM 1	DGM 2
0		76.36	76.2		75.98	76.51	132.3		
10	710.535	76.82	76.44	335.165	76.09	85.49	131.6	13.62	10.7
20		77.22	76.71	***********	76.44	83.52	132.7	13.38	10.6
30		77.58	76.97	337.647	76.67	86.3	133.6	13.23	10.5
40		77.94	77.27	,	76.81	88.27	134.6	12.99	10.4
50	716.655	78.11	77.51	340.108	77.1	83.98	134.3	13.07	10.5
60	718.182	78.31	77.72	341.339	77.24	83.76	134.4	13.13	10.50
70		78.36	77.91	342.580	77.39	83.75	132.2	13.07	10.5
80	721.218	78.57	78.08	lanavana sanasan	77.66	84.01	133.1	13.03	10.2
90	722.739	78.7	78.3	344.995	77.8	84.09	132.9	13.07	10.3
	724,248	78.94	78.49	346.208	77.99	84.27	133.6	12.96	10.3
100									
100 110		79.07	78.69	347.420	78.14	84.43	132.7	12.99	10.3

	Proportio	nal Rate (	Calculatio	ns	(EPA Formu	ulas from F	PR5G)	
	Stack are	ea (ft2):	0.3491		Man	ufacturer:	SBI	
Wood	moisture (		4.6802		-	Model:	Eurostar/	Osburn 5000
	Veight (lbs		9			Date:	9/17/12	
*********	ate (Dry k		1.946		-	Run:	1	
					Pr	oject No.:		464
Final Ter	nperature	(DGM #1)	) Degrees	Rankin:				
	*********	(DGM #2						
		perature I			593.185			
		city (feet			7.217526			
	*****	Tunnel F			129.47			
						**********		
		Average	Average					
		Inlet +	Inlet +					
		Outlet	Outlet	100.01	100.01	#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
0.015	7.212	536.3	536.2					0
0.015	7.208	536.6	540.8	103.66	102.47	1.580	1.245	10
0.015	7.215	537.0	540.0	101.92	101.82	1.552	1.236	20
0.015	7.220	537.3	541.5	100.89	100.64	1.535	1.220	30
0.015	7.226	537.6	542.5	99.14	99.96	1.507	1.211	40
0.015	7.224	537.8	540.5	99.73	100.71	1.517	1.220	50
0.015	7.225	538.0	540.5	100.16	100.56	1.523	1.219	60
0.015	7.212	538.1	540.6	99.50	101.18	1.516	1.228	70
0.015	7.217	538.3	540.8	99.27	98.27	1.511	1.192	80
0.015	7.216	538.5	540.9	99.55	98.64	1.516	1.197	90
0.010			F 44 4	98.79	98.91	1.503	1.199	100
0.015	7.220	538.7	541.1	90.19	90.91	1.000	1.100	100
	7.220 7.215	538.7 538.9	541.1	98.94	98.73	1.503	1.198	110

		Intertek Testing Service	es				
		SFBA EPA ADJUSTE	D EMISSION	RESULTS			
Manufacturer:		SBI			RESULT	S	
	Model	Eurostar/Osburn 5000	************			Ĭ	
		9/17/12		Δνο	rage Adjusted Emis	einne Rate	2.38
	Run:		***************************************		age Unadjusted Em		1.38
Proi		G100903464				(Dry kg/hr):	1.95
Test Duration (Mi		120					
Test Duration (F		2.00	*************				
			*********	ļļ.			
				BAROM	ETRIC PRESSU	RE	
						Average:	30.00
TEMPERATU	IRE FAC	TORS		**********		Start:	30.03
		DGM #1:	0.9817			End:	29.9
		DGM #2:	0.9766				
				DRY GAS	METER VALUES		
VOLUMES	SAMP				DGM #1		727.26
		DGM #1:	18.277			Initial:	708.9
		DGM #2:	14.571				
					DGM #2		348.62
TOTAL TUI	NNEL V	OLUME (scf):	15536	ļ		Initial:	333.90
SAMPLE R	ATIOS			TEMPER	RATURES (DEG	. RANKIN)	
	Sample	Train 1:	850.0			DGM #1:	537.86
		e Train 2:	1066.2			DGM #2:	540.68
TOTAL EM	ISSION	C	**********	CALIDD	ATION FACTOR		
	e Train		2.98	CALIBRA	ATION FACTOR	DGM #1:	1.014
	e Train		2.56			DGM #1.	1.01
Cumpi	o main	Ave:	2.77			DOIVI #2.	1.01
EMISSION	RATES			TUNNFI	FLOW RATE:		129.
Sample			1.49		PARTICULATE	CATCH (r	And the land of the land of the
Sample			1.28			le Train 1:	9/
		Ave:	1.38			Filters	3.
ADJUSTED	EMIS	SION RATES				Probe	0
Sample	Train 1	(g/hr):	2.53			Total	3.
Sample	Train 2	(g/hr):	2.23		Sampl	e Train 2:	
		Ave:	2.38			Filters	2.
	DE/	/IATION:	6.25%			Probe	
						Total	2.
If deviation	is grea	ter than 7.5% due to lo	w particulate	catch			
		rates shall not differ by					
		erage emission rate lim		(5g-3)			
Use the foll	owing:					2.07.742	
			**************				
Catalytic ur			7.26%	************			
7.5% of 4.1	g/hr			ļ			
Non catalyt	ic units		3.97%				
7.5% of 7.5					***************************************		

	REPORT	DATA						
		Client:						
		Run:						
			9/17/12					
	Pro		G100903464					
			Eurostar/Osburn 50	00				
	Moisture (		4.91		1			
Stacl	k Static (r		-0.07					
		meter:	30.001					
Ave	rage Rooi	n Temp:	79.55					
Chang	ge in stov	e temp:	-3.72					
							ļ	
					4			****
Adiusts	Burn I d Emissio		1.946 2.382					
Aujuste		tem 1:	2.531					
		tem 2:	2.233		-			
		ation:	6.25%					
	Filte		83.86					
	Filte		77.44					
		nnel:	133.18					
	Iu	DGM 1:	77.86					
	*****	DGM 1:	80.65					
	Water C		00.00					
	. valor o	oncolou.						
	Room	Temp	Bar Pressure		Relative Hu	ımiditv	Air Velo	city
	Before	After	Before	After	Before	After	Before	Aft
	79	80	30.03	29.97	37	32	0	C
	D-16 33 3							
	Delta H A							
	DGM#1:	0	i		4		1 1	

#### Pellet Fuel Moisture Content Worksheet



#### Intertek Montreal

Client	SBI
Model	Eurostar/Osburn 5000
Project No.	G100903464

Sample Description

Saw Dust Pellets

Container	Container ID No.	Date Placed in Oven	Time Placed in Oven	Container Tare Weight, Grams	Initial Gross Weight, Grams	Date Removed from Oven	Time Removed From Oven	Final Gross Weight, Grams	Moisture Content, Wet Basis, %	Moisture Content, Dry Basis, %
1		9/19/2012	12:00	190.4906	327.0401	9/20/2012	12:00	321.9121	3.7554	3.9019
2		9/19/2012	12:00	181.8458	323.8649	9/20/2012	12:00	318.5024	3.7759	3.9241

Average Moisture Content, Wet Basis 3.77 %

Average Moisture Content, Dry Basis 3.91 %

Method: ASTM D4442-92 Method A -- Oven Drying Method

Dry Basis, % = (Initial net - Final net) / Final net x 100

Wet Basis, % = (Initial net - Final net) / Initial net x 100

Engineer Signature	Florin Anghel
Date	9/25/2012

Maliulactural Job	SBI											
:Wodel:	Model: Eurostar / Osburn 5000	2000							the are the the the test of the test are the	on me, on the one we we see me		
Date:	9/18/2012		ALL R	4						and the same was the same from the same tree way to the same tree tree tree tree tree tree tree tr	a cre un der un aut von act von der un der u	ALC 10 AL
Run: 2	2		D <sup></sup>									
Project #:	Project #: G100903464								VIII 200 out pro ead measurement and 1907			
Test Duration: 120	120							1				
		Start	End			de det par entre van der fal, dat plan det tal dan gen		Cd.				
	Barometer (in.Hg):	29.88	29.85									
	Dry Bulb (F):	79	8							20 10 10 10 10 10 10 10 10 10 10 10 10 10		# ac C ac
	Humidity (%):	41	39	3				the art has are me and me, are not an ann the date	the fact was two two the first was first the gap was	Section per service data special services and services are services and services are services ar		98 80 90 10 100 44
Moisture content of wood (wet basis): 3.76287	wood (wet basis):	3.76287							and the state of t	And the second s	en and the contract of the con	
	Average	0.23	2.58	18.23	289.25	79.60	118.01	435.37	670.75	307.88	331.81	131.96
		*	*	*	*	*		*	*	*	*	*
Elapsed	Weight				Flue	Room	Tunnel	Unit	Unit	Cmit	Unit	Unit
Time	Remaining	8	C02	05	Gas	Temp	Dry Bulb	Top	Back	R.Side	L.Side	Bottom
0	6.15	0.23	2.83	18.56	287.0	78.7	117	417.4	637.6	302	326.6	128.3
10	5.63	0.23		18.2	285.4	78.82	116.8	432.6	679.5	300.5	327.2	129.1
20	5.16	0.21		18.46	276.5	78.53	117.1	415.3	646.3	299.8	320.2	129.2
30	4.62	0.21		17.74	292.9	79.52	118	465.4	721.8	305.7	329.8	130.
40	4.15	0.23	2.39	18.21	281.8	79.73	117.8	434.2	674.5	304.3	325.5	131.9
90	3.62	0.24		17.97	289.4	79.97	117.8	428.2	9.999	308.8	329.9	132.
09	3.12	0.23		18.38	282.9	79.76	117.3	421.9	8.099	309.5	331.7	133.
70	2.61	0.23		17.88	288.3	80.05	117.3	430.6	668.4	308	329.7	131.
80	2.04	0.25		17.8	304.5	80.18	119	472	714.3	321.7	345.3	134.
06	1.55	0.24	2.45	18.52	290.8	79.59	119	440.3	299	313	337.5	135.4
100	1.06	0.25		18.16	285.6	79.72	117.8	433.4	682.9	304.5	326.9	131.4
110	0.53	0.23	2.51	18.41	291.7	79.62	119.1	425.3	629.8	308.3	336.9	132.6
120	•			100		0	, ,		100		!	

500=50400***	Manufacturer:	SBI					N					1	
	Model:	Eurostar / 0	Osburn 500	0									
	Date:	9/18/12	**********								**********		
	Run	2		I				***********				†***********************	
	Project #:	G10090346	64								*********	1	
									o-meseumi)				A
								**********				T	
				***************************************									
								**********				1	
	,										0.000 (0.000) (0.000)		*****
	***************************************					*********	7********	112122					
									************			·	
736.62	77.01	76.84	86.06	356,61	76.35	84.87	76.49	0.02	0.025	0.00	375.55		
	*	*	*	*		*	*	*	•	Visual	The State of the S	Change in	
DGM 1	DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	DGM 2	Filter 2	Tunnel	Chimney	Smoke	Stove	Surface	
Reading	Inlet T	Outlet T	Temp	Reading	Inlet T	Outlet T	Temp	Velocity	Draft	Observed	Temp	Temp.	
727.301	75.57	75.46	77.42	348.686	75.19	76.35	75.25	0.018	0.023		362.4	0	
728.899	75.97	75.81	82.59	350,010	75.36	82.43	75.46	0.018	0.023		373.8	11.4	
730.468	76.26	76.03	85.04	351.335	75.66	84.53	75.85	0.018	0.023		362.2	-0.22	
732.019	76.52	76.28	86.09	352.646	75.89	85.46	75.98	0.018	0.025		390.6	28.22	
733.561	76.8	76.51	86.63	353.949	76	85.8	76.23	0.018	0.025		374.1	11.7	
735,099	76.98	76.68	87.15	355.253	76.19	85.92	76.25	0.018	0.028		373.2	10.82	
736.636	77.04	76.88	87.11	356.665	76.37	86.65	76.66	0.018	0.025		371.4	9.02	
738,174	77.26	77.12	87.33	358.108	76.61	86.81	76.79	0.018	0.025		373.6	11.18	
739.707	77.48	77.25	87.59	359.447	76,7	86.13	76.79	0.018	0.028		397.6	35.26	
741.240	77.62	77.48	87.7	360,650	76.9	85.74	77.12	0.018	0.025		378.6	16.26	
742.720	77.73	77.62	87.89	361,856	77.06	85.69	77.25	0.018	0.025		376.4	14.04	
744.311	77.88	77.8	88.02	363.055	77.23	85.82	77.24	0.018	0.025		366.6	4.2	
	78.01	78	88.16	364.298	77.38	85.95	77.46	0.018	0.028		381.7	19.36	19.

		Manufa	cturer:	SBI					
		M	odel:	Eurostar /	Osburn 5000				
		Į.	Date:	9/18/12					
			Run:	2					
		Pi	roject #:	G1009034	64				
		Test Dura	tion:		120				
	Total Gas V	olume (Do	GM 1):		18.469	Pit	tot Factor	0.83	
	Total Gas V	olume (Do	GM 2):		15.370		(0	.99 standar	d,
	Average Baro	metric Pre	essure:		29.865		0.84 or Ca	l. Factor for	S-Type)
		Molecu	lar Weig	ht:	28.56				
		Pitot Co	orrection		0.902320748				
	Calibration Fa	ctor (DGN	/I #1):		1.0140				
	Calibration Fa	ctor (DGN	Λ #2):	İ.	1.0110				
				(1) VS:	0.0393				
				(2) VS:	0.0472			Filter	Filter
								Face	Face
Elapsed	DGM 1	DGM 1	DGM 1		DGM 2	DGM 2		Velocity	Velocity
Time		Inlet T	Outlet T	The state of the state of the state of the	Inlet T	Outlet T	Dry Bulb	DGM 1	DGM 2
0		75.57	75.46		75.19	76.35			
10	Annean annean antenna de la constitución de la cons	75.97	75.81		75.36	82.43	I	13.73	11.28
20		76.26	76.03	351.335	75.66	84.53	117.1	13.48	11.26
30	732.019	76.52	76.28	352.646	75.89	85.46		13.32	11.13
40	733.561	76.8	76.51	353.949	76	85,8	A STATE OF THE PARTY OF THE PAR	13.23	11.06
50	735.099	76.98	76.68	355.253	76.19	85.92	117.8	13.19	11.07
60	736.636	77.04	76.88	356.665	76.37	86.65	117.3	13.18	11.97
70	738.174	77.26	77.12	358.108	76.61	86.81	117.3	13.18	12.23
80	739.707	77.48	77.25	359.447	76.7	86.13	119	13.14	11.36
90	741.240	77.62	77.48	360.650	76.9	85.74	119	13.13	10.20
100	742.720	77.73	77.62	361.856	77.06	85.69	117.8	12.68	10.23
110	744.311	77.88	77.8	363.055	77.23	85.82	119.1	13.62	10.17
120	745.868	78.01	78	364.298	77.38	85.95	120.1	13.33	10.54

	Proportion	nal Rate (	Calculatio	ns	(EPA Formu	ılas from F	R5G)	
	Stack are	a (ft2):	0.34907		Man	ufacturer:	SBI	
Wood r	moisture (	% wet):	3.76287			Model:	Eurostar /	Osburn 50
the state of the second state of the second state of	Veight (lbs	at the first of the second of the second of	6.15		-	Date:	9/18/12	
	ate (Dry k		1.342			Run:	2	
					Pr	oject No.:	G100903	464
Final Ter	nperature	(DGM #1	) Degrees	Rankin:	536.925			
the last and the first has been part the real of the	nperature	the section of the section of the section of		of the car of the territories per tax for the car.	540.608			
	innel Tem				578.008			
of the property and the second party and the	innel Velo	A STAN WORLD, ST. RE JOHN SO. AND RESERVE.	bet the decision which become only to the law in-	of the case has been been an include any on-	6.986913			
	ndardized				128.04			
		Average	Average					
		Inlet +	Inlet +					
		Outlet	Outlet	99.99	100.01	#1	#2	
Tunnel	Tunnel	Temp.	Temp.	******	1	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
0.018	6.966	535.5	535.8					0
0.018	6.964	535.9	538.9	103.62	102.28	1.593	1.309	10
0.018	6.966	536.1	540.1	101.72	102.16	1.563	1.307	20
0.018	6.972	536.4	540.7	100.58	101.05	1.545	1.291	30
0.018	6.970	536.7	540.9	99.93	100.37	1.535	1.283	40
0.018	6.970	536.8	541.1	99.64	100.42	1.530	1.284	50
0.018	6.967	537.0	541.5	99.51	108.60	1.529	1.389	60
0.018	6.967	537.2	541.7	99.53	110.94	1.529	1.419	70
0.018	6.978	537.4	541.4	99.32	103.16	1.524	1.317	80
0.018	6.978	537.6	541.3	99.29	92.70	1.523	1.184	90
0.018	7.069	537.7	541.4	94.39	91.52	1.470	1.186	100
0.018	7.077	537.8	541.5	101.55	91.07	1.580	1.179	110
0.018	6.984	538.0	541.7	100.85	95.81	1.546	1.222	120

			Intertek Testing Service	ces	ļ <u>ļ</u>				
			SFBA EPA ADJUSTE	D EMISSION	RESULTS				
Manu	ıfacturer:		SBI				RESULT	S	
		Model:	Eurostar / Osburn 500	00					
		Date:	9/18/12		Av	rerage Adji	usted Emiss	sions Rate:	3.41
		Run:			Ave	erage Una	djusted Emi	ssion Rate	2.13
	Pi	roject #::	G100903464				Burn Rate (	(Dry kg/hr):	1.34
Test D	Duration (	Minutes):	120						
Tes	t Duration	(Hours):	2.00						
					BARON	METRIC I	PRESSU	RE	
							Ti.	Average:	29.86
	TEMPERA	TURE FAC	TORS		1			Start:	29.8
			DGM #1:	0.9834				End:	29.8
			DGM #2:	0.9767					
					DRY GAS	METER '			
	VOLUME	S SAMPI					DGM #1	Final:	745.86
			DGM #1:	18.480				Initial:	727.30
			DGM #2:	15.387					
				1			DGM #2	Final:	364.29
	TOTAL T	UNNEL \	/OLUME (scf):	15365	<u> </u>			Initial:	348.68
					<u> L</u>			<u></u>	
	SAMPLE				TEMPE	RATURI		RANKIN)	
			e Train 1:	831.4	ļ			DGM #1:	536.92
		Sample	e Train 2:	998.5	ļi			DGM #2:	540.61
					ļl			ļ	
	TOTAL E	er in the last feet that the table in the last has been			CALIBR	RATION	FACTORS	******	
		ple Train		4.32	ļļ			DGM #1:	1.014
	Sam	ple Train		4.19				DGM #2:	1.011
			Ave:	4.26	1				
	EMISSIO				TUNNE	L FLOW	the state of the last territory and the last territory as		128.0
		e Train 1		2.16		PARTI		CATCH (r	ng)
	Sampl	e Train 2	\$	2.10	ļ		Sample	e Train 1:	
			Ave:	2.13				Filters	5.
			SION RATES		<u> </u>		,	Probe	
		e Train 1		3.45				Total	5.
	Sampl	e Train 2		3.36			Sample	e Train 2:	
			Ave:		ļi			Filters	4.
		DE	/IATION:	1.26%	ļ			Probe	
								Total	4.
				l	ļ				
		A DESCRIPTION OF THE PARTY OF T	ter than 7.5% due to lo	Charles College and the State of the College and the College a	catch				
			rates shall not differ by		<u> </u>				
	of the we	ignted av	erage emission rate lir	nit (4.1 or 7.5)	(5g-3)				
					ļ				
	Use the f	ollowing:		ļ	ļļ				
	0-4-1-0				ļļ				
	Catalytic			2.10%					
	7.5% of 4	.1 g/hr							
			1		1				
	Non cata			1.15%	·				

	REPORT	DATA							
		Client:			ļ				
		Run:			J				
			9/18/12				ļ		
	Pro	The late of the second state of the second state of	G100903464						
			Eurostar / Osburn 5	000					
	Moisture (		3.91		ļ				
Stack	k Static (n		-0.0775						ļ
1	and the second reaction with resistance and the forces of	meter:	29.865				ļj		
Aver	rage Roor	n Temp:	79.60						
i							9		
									<u> </u>
Chang	ge in stove	e temp:	19.36				ļl		İ
					ļ			00 de mil vir de de de mil 10 mm	-
			The section and the condition that should have taken that the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the		ļ				ļ
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Adjuste	d Emission		3.408			and the same and one has not one of the same	In the law are that and diff that did are that one and		ļ
		tem 1:	3.451		ļ				ļ
		tem 2:	3.365						
		ation:	1.26%	×=====================================					
	Filte		86.06						
	Filte		76.49				ļ		ļ
	Tu	nnel:	118.01						
		DGM 1:							
		DGM 2:	80.61				ļl		
	Water C	ollected:							
	Room	Temp	Bar Pressure		Relative Hu	ımidity	Air Velo	city	
	Before	After	Before	After	Before	After	Before	After	
	79	81	29.88	29.85	41	39	0	0	
		X	20.00		·				
	Delta H	verage							ĺ
	DGM#1:	0							
		0							



#### Intertek Montreal

Client	SBI
Model	Eurostar/Osburn 5000
Project No.	G100903464

Sample Description

Saw Dust Pellets

Container	Container ID No.	Date Placed in Oven	Time Placed in Oven	Container Tare Weight, Grams	Initial Gross Weight, Grams	Date Removed from Oven	Time Removed From Oven	Final Gross Weight, Grams	Moisture Content, Wet Basis, %	Moisture Content, Dry Basis, %
1		9/19/2012	12:00	190.4906	327.0401	9/20/2012	12:00	321.9121	3.7554	3.9019
2		9/19/2012	12:00	181.8458	323.8649	9/20/2012	12:00	318.5024	3.7759	3.9241

Average Moisture Content, Wet Basis 3.77 Average Moisture Content, Dry Basis 3.91

Method: ASTM D4442-92 Method A -- Oven Drying Method

Dry Basis, % = (Initial net - Final net) / Final net x 100

Engineer Signature	Florin Anghel
Date	9/25/2012

Mailulacturel. 3D	SBI					od	3			to the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second se	and have not any one to the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the total of the tot	to the same and the same and the same and
	Model: Eurostar / Osburn 5000	2000				0.00						
Date:	Date: 9/18/2012	The second second	A CONTROL	,								
Run: 3	3	***	)									
Project #:	Project #: G100903464					400 MM 44C AU	The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon					
Test Duration: 120	120					UN SEC	and not not the fact and for any fact the cont the cont of the cont of the cont of the cont of the cont of the cont of the cont of the cont of the cont of the cont of the cont of the cont of the cont of the cont of the cont of the cont of the cont of the cont of the cont of the cont					9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9
		Start	End									
	Barometer (in.Hg):	29.79	29.707			b		b				
	Dry Bulb (F):	79.5	79.03			346						
	Humidity (%):	32	33			and any and		AND AND AND AND AND AND AND AND AND AND			and the table of the table of the table of the table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of table of t	
Moisture content of wood (wet basis):	THE RESERVE	3.76287										was dry was and love or
		0.21	1.73	18.83	248.61	79.27	111.95	346.55	519.25	246.72	275.58	116.75
*	*	*	*	*	*	*	1	*	*	*	*	*
Elapsed	Weight				Flue	Room	Tunnel	Unit	Unit	Unit	Unit	Unit
Time	Remaining	8	C02	05	Gas	Temp	Dry Bulb	Top	Back	R.Side	L.Side	Bottom
0	4.63	0.22	2.1	18.77	252.3	79.54	112	340.9	516.7	246.1	273.1	117.00
10	4.29	0.23	1.68	18.89	244.7	80.08	111.6	315	479.6	241.3	272.6	117.60
20	3.88	0.21	1.49	19.06	246.8	80	112	330.1	506.9	240.7	274.4	116.50
30	3.51	0.22	1.79	18.77	254	79.37	112	346.4	544.6	241.1	275.3	117.10
40	3.16	0.22	1.62	19	240.7	79.44	111.6	325.1	496.2	235.7	270.7	115.40
90	2.74	0.2	1.75	18.62	253.8	79.28	112.2	356.4	529.8	243.3	274.6	115.70
09	2.34	0.22	2.33	18.76	249.4	79.34	112.1	351.2	529.9	245	272	116.50
0/	1.96	0.23	4.1	18.9	246.2	78.86	112.2	349.3	514.4	245.6	271.2	116.20
80	1.58	0.21	1.65	18.83	248.8	79.12	112.2	361.6	527	247.3	274.4	117.20
06	1.21	0.19	1.21	19.07	242.1	78.97	111.6	349.8	500.6	250.4	271.6	116.80
1001	62'0	0.19	1.74	18.83	255.8	78.95	112.7	372.8	551.6	260.6	285.1	117.60
110	0.43	0.18	1.73	19.04	242.7	78.57	111.2	350.6	503.4	249.9	274.8	116.60
000	***											

		Manufa	cturer:	SBI					
		M	lodel:	Eurostar /	Osburn 5000				
		[	Date:	9/18/12					
			Run:	3					
		P	roject #:	G1009034	64				
		Test Dura	ition:		120				
	Total Gas \	olume (Do	GM 1):		18.491	Pit	ot Factor	0.83	
	Total Gas V	/olume (Do	GM 2):		14.818		(0	.99 standar	d,
	Average Baro	metric Pre	essure:		29.7485		0.84 or Ca	al. Factor for	S-Type)
		Molecu	lar Weig	ht:	28.56				************
		Pitot Co	orrection		0.974351713				
******	Calibration Fa	actor (DGN	Л #1):	,	1.0140			and also dust the sage AND finds and find and all the	
	Calibration Fa	actor (DGN	Л #2):		1.0110				
				(1) VS:	0.0426				
				(2) VS:	0.0531			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	The property and the last the last the party and the last the	Inlet T	Outlet T	Dry Bulb	DGM 1	DGM 2
0	754.065	78.66	78.59	371.021	78.25	80.2	112		
10	755.681	79.01	79.12	372.319	78.53	84.89	111.6	13.75	10.96
20	757.264	78.92	79.12	373.588	78.56	86.27	112	13.47	10.70
30	758.834	78.98	79.09	374.847	78.54	86.65	112	13.36	10.61
40	760.399	78.98	79.14	376.128	78.6	86.62	111.6	13.32	10.80
50	761.959	78.96	79.11	377.374	78.61	86.46	112.2	13.28	10.50
60	763.515	78.82	79.12	378.642	78.47	86.69	112.1	13.24	10.69
70	765.067	78.88	79.09	379.915	78.52	86.61	112.2	13.21	10.73
80	766.665	78.85	79.12	381.168	78.54	86.72	112.2	13.60	10.56
90	768.163	78.77	79.01	382.420	78.47	86.49	111.6	12.75	10.56
100	769.705	78.71	78.98	383.682	78.37	86.44	112.7	13.13	10.64
110	771.247	78.62	78.95	384.931	78.41	86.37	111.2	13.13	10.53
120	772.794	78.49	78.83	386.170	78.37	85.3	111.9	13.17	10.46

	Proportio	nal Rate 0	Calculation	ns	(EPA Formu	ılas from F	PR5G)	
	Stack are	a (ff2).	0.34907		Man	ufacturer:	SBI	
Wood !	moisture (	the beside and the second of the law are properly	3.76287		iviaii	Model:		Osburn 5000
	Veight (lbs		4.63		-		9/18/12	Osbum 5000
	ate (Dry k				-			
Dulli K	ate (DIY K	g/III).	1.011		D.	Run:		ACA
Einal Tar	nnoroturo	(DCM #4	\ Dogroop	Donkin	\$ 10 m to the second contract of the	oject No.:	G100903	404
of the last last last last last last last last	nperature	the above of the second state of the second second second			538.920 542.152		ļ	
the state of the state of the state of	nperature						ļ	
to all the second products are not below the	innel Tem	and the second particles are not the second part	THE RESEARCH PRINTED BY SHOW THE PARTY SHOW	THE RESIDENCE AND ADDRESS.	571.946			
	innel Velo	THE ST. P. LEWIS CO., LANSING MICH. 49 11 11 11 11 11 11 11 11 11 11 11 11 11		the last local collection and the last local	7.503327			
Sta	ndardized	i unnel F	iow (ascir	n):	138.42			
*********		Average	Average					
		Inlet +	Inlet +					
		Outlet	Outlet	100.00	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)	Time
0.018	7.504	538.6	539.2					0
0.018	7.501	539.1	541.7	103.49	102.92	1.595	1.271	10
0.018	7.504	539.0	542.4	101.42	100.52	1.563	1.241	20
0.018	7.504	539.0	542.6	100.58	99.70	1.550	1.231	30
0.018	7.501	539.1	542.6	100.22	101.40	1.545	1.252	40
0.018	7.505	539.0	542.5	99.96	98.70	1.540	1.218	50
	A THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE PART OF THE	E00 0	F 40 0	00 70	100 10	1.536	1.240	60
0.018	7.504	539.0	542.6	99.70	100.42	1.556	1.240	00
	7.504 7.505	539.0	542.6	99.70	100.42	1.532	1.245	70
0.018							dancourse, ever end	
0.018 0.018	7.505	539.0	542.6	99.45	100.83	1.532	1.245	70
0.018 0.018 0.018	7.505 7.505	539.0 539.0	542.6 542.6	99.45 102.40	100.83 99.23	1.532 1.578	1.245 1.225	70 80
0.018 0.018 0.018 0.018	7.505 7.505 7.501	539.0 539.0 538.9	542.6 542.6 542.5	99.45 102.40 95.96	100.83 99.23 99.13	1.532 1.578 1.479	1.245 1.225 1.224	70 80 90
0.018 0.018 0.018 0.018 0.018	7.505 7.505 7.501 7.508	539.0 539.0 538.9 538.8	542.6 542.6 542.5 542.4	99.45 102.40 95.96 98.88	100.83 99.23 99.13 100.03	1.532 1.578 1.479 1.523	1.245 1.225 1.224 1.234	70 80 90 100

		Intertek Testing Service	S	<del> </del>			
		SFBA EPA ADJUSTED	EMISSION	RESULTS			
Manufacturer:		SBI		<del> </del>	RESULT	S	
Manufacturer.	Model:	Eurostar / Osburn 5000		<del></del>	INLOOLI	-	
		9/18/12		Ave	erage Adjusted Emis	cione Pate:	2.42
	Run:			**************************************	rage Unadjusted Emis		1.41
Pr	remove the security of the late of the security	G100903464		AVG		(Dry kg/hr):	1.01
Test Duration (I		120			Bannitate	(Ery Kgrin)	
Test Duration		2.00		†			
	(1.0010).			†·····			
				1	1		
				BAROM	ETRIC PRESSUI	RE	
				I		Average:	29.748
TEMPERA*	TURE FAC	TORS				Start:	29.7
		DGM #1:	0.9797			End:	29.70
		DGM #2:	0.9739	ļl.			
	0.04145			DRY GAS	METER VALUES		
VOLUME	SSAMP		40.500	ļ	DGM #1	Final:	772.79
		DGM #1:	18.500	ļ		Initial:	754.06
		DGM #2:	14.830	<del> </del>	DGM #2	Final:	200
TOTAL T	I ININIEL V	/OLUME (scf):	16610	<del></del>	DGIVI #2	Initial:	386.1 371.02
TOTAL	OIVINEL V	OLOWE (SCI).	10010	<del> </del>		IIIIIai.	3/1.02
SAMPLE	RATIOS	·····	**********	TEMPE	RATURES (DEG.	RANKINI	
	the second of the device of the second of the	Train 1:	897.9	1-1411	VITORILO (DEO.	DGM #1:	538.92
		e Train 2:	1120.0	11-		DGM #2:	542.15
		[					
TOTAL E	MISSION	IS		CALIBR	ATION FACTOR	S	
Sam	ole Train	1 (g):	2.60			DGM #1:	1.014
Samı	ole Train	2 (g):	3.02		1	DGM #2:	1.011
		Ave:	2.81				
EMISSIO		Service and the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of th		TUNNEL	FLOW RATE:		138.4
	e Train 1		1.30		PARTICULATE		ng)
Sample	e Train 2	(g/hr):	1.51	1	Sampl	e Train 1:	
		Ave:	1.41		L	Filters	2.
		SION RATES		ļļ.		Probe	
	e Train 1		2.27	ļļ.		Total	2.
Sample	e Train 2		2.57	ļ	Sampl	e Train 2:	_
	DEV	/IATION:	2.42			Filters	2.
	DE	ATION.	6.20%	1 1		Probe Total	0.
				<u> </u>		Iolai	2.
If deviation	n is grea	ter than 7.5% due to low	narticulate	catch		<u> </u>	
	All the state of the fact of the state of the	rates shall not differ by 7	I to be to all or and from the fill of the to the file.	Jacon			
		erage emission rate limit		(5a-3)			
	San 2 - 2 - 2 - 2 - 2			(-5 -/			
Use the fo	ollowing:						
					1		
	units		7.31%				
Catalytic	to be a beauty and a second						
Catalytic 7.5% of 4				1			
	.1 g/hr		3.99%				

a.

		Client:	SBI		000 000 300 -000 300 700 000 300, 700 -000 400 400 400 400 400 400 400 400	yel mir 40+1,00+10+10+10+10+10+10+10+10+10+10+10+10+1	†		
	********	Run:					}		
			9/18/12					1 W 10 10 10 10 10 10 10 10 10 10 10 10 10	
	Pro		G100903464					- 40, -02 av - 00	
			Eurostar / Osburn 5	000		for the following the text of the sea out to a			
Fuel N	/loisture (	the latest and the latest and the	3.91	000		fact are not the six, con not now are her over 1884 W.	4 0 00 000 mm are me at 100 000 000 000 000 000 000 000 000 00		
	Static (r		-0.075			3 Ex			<del> </del>
1		meter:	29.7485				j		
Aver	age Rooi		79.27	*****	· · · · · · · · · · · · · · · · · · ·				
		i i o i i jo		No.	79 AND NO. 200 AND 100				
					** ***********************************				
a per ma saar sar sar sar ma maranda. E				and the second second second second					
Chang	e in stove	e temp:	16.46	PH 200 AV PIX 400 AV, 400.	·		1		
				war yang soon, sooy god, sygg, uggr	A void for one over				
				we als no we go do do do	1				
	Burn F		1.011						
Adjuste	d Emissio		2.415		es self-con mes con men men con men con men con con con con con con con con con co	~~~~	th South and the task was the real of the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sale and the sa		
	THE RESERVE AND ADDRESS.	em 1:	2.266	[Mil soc all Test now were series	1	200 TO 200 TO 100			
		em 2:	2.565						
· · · · · · · · · · · · · · · · · · ·		ation:	6.20%						
	Filte		86.21						
	Filte		78.33						
	Tu	nnel:	111.95		an eer me me eer eer eer eer eer eer eer e	The last was had the sen had the sen set the last last last last last last last last	4 day 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100 to 100		
		DGM 1:							
		DGM 2:	82.15						
	Water C	ollected:	, we give the transfer that the definition of the sections despite the QC (10) of $\frac{1}{4}$						
	Doom	Temp	Bar Pressure		Dolotive III	idit	Air Vala		
	Before	After	Before	After	Relative Hu Before	After	Air Velo Before	After	
	80	79	29.79	29.71	32	33	0	0	
			23.13	23.11	32	JJ	0	U	
	Delta H A	verage							
	DGM#1:	0			1				
at the set to be seen as the second	DGM#2:	0					-		W. W

**VERSION 1.2** 

2/5/2010

Manufactui SBI

Model:

Eurostar / Osburn 5000

E&E Tunnel Traverse Worksheet

Date:

41170

Run:

3

Project #: G100903464

	TUNNEL	TUNNEL	SQUARE	Static Pressure:	
	VELOCITY	TEMP	ROOT		
A CENTER	0.018	111	0.1323		
B CENTER	0.020	113	0.1414		
A1	0.015	111	0.1225	PITOT	
A2	0.020	112	0.1414	CONSTANT:	0.9744
A3	0.018	112	0.1323		
A4	0.018	112	0.1323		
B1	0.018	113	0.1323		
B2	0.020	113	0.1414		
B3	0.018	113	0.1323		
B4	0.018	199	0.1323		
AVERAGE	0.018	120.91	0.1333		

Tunnel Diameter (in): Tunnel Area (ft2) Tunnel Static Pressure

Manufacturer:   SBI	
Model: Eurostar / Osburn	cha. On 2004 fair, gold. The stack can have stack duel. The stack also keep stack.
Date: 9/18/2012	- Amel
Run: 3	7
Project #: G100903464	

Flue	Room		Unit	Cuit	Unit	Unit	Chiit	Scale	
Gas	Temp	Dry Bulb	Тор	Bottom	Back	L.Side	Right	weight Draft	Time
245,6	80,28	5	342,3	115,6	525,1	261,9	238	2.33 0,002	13,16
239,1	79,39		310,6	115,7	476,7	263,4	242,2	1.96 0,003	13,26
259,6	79,91		379,8	116,4	590,3	276,8	252,6	1.52 0,003	13,36
248,2	79,87		350,4	116,2	517,3	274,7	251,6	1.15 0,004	13,46
252,2	79,5		355,1	117,1	532,1	275,3	249,5	0.76 0,002	13,56
246,5	79,82		328,3	116,4	509,2	271,3	247,3	0.39 0,004	14,06
252,3	79,54		340,9	117	516,7	273,1	246,1	0 0,003	14,16



#### Intertek Montreal

Client	SBI
Model	Eurostar/Osburn 5000
Project No.	G100903464

Sample Description

Saw Dust Pellets

Container	Container ID No.	Date Placed in Oven	Time Placed in Oven	Container Tare Weight, Grams	Initial Gross Weight, Grams	Date Removed from Oven	Time Removed From Oven	Final Gross Weight, Grams	Moisture Content, Wet Basis, %	Moisture Content, Dry Basis, %
1		9/19/2012	12:00	190.4906	327.0401	9/20/2012	12:00	321.9121	3.7554	3.9019
2		9/19/2012	12:00	181.8458	323.8649	9/20/2012	12:00	318.5024	3.7759	3.9241

Average Moisture Content, Wet Basis

3.77

Average Moisture Content, Dry Basis

91 0

Method: ASTM D4442-92 Method A -- Oven Drying Method

Dry Basis, % = (Initial net - Final net) / Final net x 100

Engineer Signature	Florin Anghel	
Date	9/25/2012	

Manufacturer: SBI	SBI											
Model	Model: Eurostar / Osburn 5000	2000	19. W	197								
Date:	9/18/2012			,								
Run:	4											
Project #	Project #: G100903464											
Test Duration: 120	120											
		Start	End									
	Barometer (in.Hg):	29.68	29.56									
	Dry Bulb (F):	78.5	78.1									
	Humidity (%):	35	40									
Moisture content o	Moisture content of wood (wet basis):	3.76287										
	Average	0.14	1.18	19.55	201.83	78.26	104.78	256.30	406.00	188.61	214.73	103.41
*	*	*	*	*	*	*	*	*	*	*	*	*
Elapsed	l Weight				Flue	E	Tunnel	Unit	Unit		Unit	Unit
Time	œ	8	C02	05	Gas		Dry Bulb	Top	Back	R.Side	L.Side	Bottom
0	3.14	0.15	1.32	19.4	202.7	i)	104.9	267	434.6		208.4	104
10	2.89	0.16	1.4	19.43	199.6			266.3	440.5		204.9	103
20	2.62	0.15		19.43	200.3			263.1	429.1		206.4	103
30	2.34	0.12	1.02	19.4	204.8			266	438.7	187.7	212.9	103
40	2.09	0.12		19.46	207.3			256.7	427.2		218.2	103
50	1.83	0.12		19.36	207.8			250.7	391.3		225.7	103
09	1.56	0.15		19.38	201.8			243.6	374.8		221.9	103
02	1.30	0.16		19.63	205.4			276.9	432.3		218.6	103
80	1.05	0.13	1.11	19.8	197.2			251.2	393.1		213.9	103
06	0.78	0.13		19.79	197.6			246.2	377.3		213.5	103.1
100	0.51	0.17	1.34	19.53	204.4	78.15	104.9	268.9	416.2		216.5	102
110	0.27	0.14		19.75	196.4			240.9	372.4		213.4	102
120	000	0.16		10 77	108 5			234 4	350 5		2172	100

						0.013 0.00 233.81	* Visual Average Change in	ney Smoke Stove Surface	Draft Observed Temp Temp.	0.010 240.8 0	0.010 240.3 -0.48	0.008 237.7 -3.12	0.008 241.7 0.86	0.008 239.0 -1.78	0.008 232.9 -7.94	0.008 226.9 -13.88	0.075 244.6 3.82	0.008 229.9 -10.94	0.008 225.3 -15.48	0.010 238.6 -2.2	77 77 12 77 77
						0.02	*	Tunnel Chimney	Velocity Dr	0.018	0.020	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
						77.43	*	Filter 2	Temp	77.69	77.42	77.51	77.42	77.46	77.39	77.41	77.52	77.36	77.43	77.29	77 41
				1		84.77	*	DGM 2	Outlet T	78.03	83.72	85.31	85.95	85.9	85.46	85.56	85.88	85.6	85.36	85.28	85 34
						77.60	ŧ	DGM 2	Inlet T	77.59	7.77	77.71	77.58	77.62	77.66	77.61	77.57	77.62	77.54	77.61	77 51
						395.05	*	DGM 2	Reading	386,212	387.692	389.216	390.712	392.222	393.640	395.048	396.585	397.962	399.409	400.846	402 297
The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon	sburn 5000			4		84.08	*	Filter 1	Temp	78.43	82.39	83.91	84.63	84.89	84.9	85.07	85.13	85.01	84.87	84.6	84 66
SBI	Model: Eurostar / Osburn 5000	Date: 9/18/12	4	Project #: G100903464		78.04	*	DGM 1	Outlet T	77.85	78.23	78.2	78.08	78.03	78.07	78	78	78.04	78.02	78.05	78.02
Manufacturer: SBI	Model: I	Date: (	Run: 4	Project #: (		77.74	*	DGM 1	Inlet T	77.87	77.74	77.73	77.76	77.68	77.73	77.75	77.81	77.77	77.71	77.63	77 77
				-		782.17	*	DGM 1	Reading	772.823	774.441	776.023	777.590	779.143	780.695	782.225	783.757	785.280	786.792	788.307	789 815

		Manufa	cturer:	SBI					
		M	lodel:	Eurostar /	Osburn 5000				
		[	Date:	9/18/12					
			Run:	4					
		P	roject #:	G1009034	64				
		Test Dura	tion:		120				
	Total Gas \	/olume (Do	GM 1):		18.208	Pit	ot Factor	0.83	
	Total Gas \	/olume (Do	GM 2):		17.135		(0	.99 standar	d,
	Average Bard	ometric Pre	essure:		29.62	)	0.84 or Ca	al. Factor for	S-Type)
		Molecu	lar Weig	ht:	28.56				
		Pitot Co	orrection		1.008121089		100 mg m m, an m, an m, an an an m, an	**************	
	Calibration Fa	actor (DGN	Л #1):		1.0140				
	Calibration Fa	actor (DGN	Л #2):		1.0110				
				(1) VS:	0.0453				
				(2) VS:	0.0482			Filter	Filter
								Face	Face
Elapsed	DGM 1	DGM 1	DGM 1	DGM 2	DGM 2	DGM 2	Tunnel	Velocity	Velocity
Time		Inlet T	Outlet T		Inlet T	Outlet T	Dry Bulb	DGM 1	DGM 2
0		77.87	77.85		77.59	78.03	104.9		
10		77.74	78.23		77.7	83.72	104.7	13.74	12.46
20	776.023	77.73	78.2	389.216	77.71	85.31	104.6	13.43	12.82
30	777.590	77.76	78.08	390.712	77.58	85.95	105.1	13.31	12.57
40	779.143	77.68	78.03	392.222	77.62	85.9	105	13.19	12.69
50	780.695	77.73	78.07	393.640	77.66	85.46	105.2	13.18	11.92
60	782.225	77.75	78	395.048	77.61	85.56	104.7	12.99	11.84
70	783.757	77.81	78	396.585	77.57	85.88	105.3	13.01	12.92
80	785.280	77.77	78.04	397.962	77.62	85.6	104.6	12.93	11.58
90	786.792	77.71	78.02	399.409	77.54	85.36	104.5	12.84	12.17
400	788.307	77.63	78.05	400.846	77.61	85.28	104.9	12.87	12.09
100					T)				
100 110	789.815	77.72	78.02	402.297	77.51	85.34	104	12.81	12.20

****	Proportio	nal Rate 0	Calculation	ns	(EPA Formu	ılas from F	PR5G)	
	Stack are	ea (ft2):	0.34907		Man	ufacturer:	SBI	
Wood	moisture (	the period of the second of the period of the	3.76287		1	Model:		Osburn 5000
	Veight (lbs		3.14	****	-	Date:	9/18/12	
	ate (Dry k		0.685		1	Run:		
	(,	3		******	Pr	oject No.:	***	464
Final Ter	nperature	(DGM #1	) Degrees	Rankin	537.888	.,	10.00000	
the first for the second at the second of the second	nperature	the form of the party of the party of the party of	the first war will did the set of the last did the ter-	with the fact that the fact that the fact that the fact the	541.186			
or to be supply to the street or	innel Tem				564.777			
to the state of the state of the state of the	unnel Velo	And the second second second second second second	many and the first the fact that the same through the same	the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	7.772366		1	
A CAN TO SERVE WAS A SERVE WAS	ndardized		****		144.57		1	
		Average	Average					
		Inlet +	Inlet +					
		Outlet	Outlet	99.96	99.98	#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
0.018	7.732	537.9	537.8					0
0.020	8.265	538.0	540.7	98.75	95.21	1.593	1.446	10
0.018	7.730	538.0	541.5	103.21	104.65	1.558	1.487	20
0.018	7.734	537.9	541.8	102.28	102.72	1.543	1.459	30
0.018	7.733	537.9	541.8	101.37	103.68	1.530	1.472	40
							A CONTRACT OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE	COLUMN TAXABLE PARTIES
0.018	7.734	537.9	541.6	101.32	97.41	1.529	1.383	50
0.018 0.018	7.734 7.731	537.9 537.9	541.6 541.6	101.32 99.84	97.41 96.68	1.529 1.507	1.383 1.373	50 60
0.018 0.018 0.018	7.731 7.735			**********	incommence and			
0.018 0.018 0.018 0.018	7.731	537.9	541.6	99.84	96.68	1.507	1.373	60
0.018 0.018 0.018	7.731 7.735	537.9 537.9	541.6 541.7	99.84 100.02	96.68 105.57	1.507 1.509	1.373 1.499	60 70
0.018 0.018 0.018 0.018	7.731 7.735 7.730	537.9 537.9 537.9	541.6 541.7 541.6	99.84 100.02 99.37	96.68 105.57 94.54	1.507 1.509 1.500	1.373 1.499 1.343	60 70 80
0.018 0.018 0.018 0.018 0.018	7.731 7.735 7.730 7.729	537.9 537.9 537.9 537.9	541.6 541.7 541.6 541.5	99.84 100.02 99.37 98.65	96.68 105.57 94.54 99.37	1.507 1.509 1.500 1.489	1.373 1.499 1.343 1.412	60 70 80 90
0.018 0.018 0.018 0.018 0.018 0.018	7.731 7.735 7.730 7.729 7.732	537.9 537.9 537.9 537.9 537.8	541.6 541.7 541.6 541.5 541.4	99.84 100.02 99.37 98.65 98.89	96.68 105.57 94.54 99.37 98.71	1.507 1.509 1.500 1.489 1.492	1.373 1.499 1.343 1.412 1.402	60 70 80 90 100

			Intertek Testing Services	S	<u> </u>		<u> </u>	
			SFBA EPA ADJUSTED	EMISSION	RESULTS		÷	
Manufa	cturer:		SBI			RESULT	S	
		Model:	Eurostar / Osburn 5000	********	·		7	
			9/18/12		Av	erage Adjusted Emis	sions Rate	1.26
		Run:				erage Unadjusted Em	****	0.64
	Pr	management are not become	G100903464				(Dry kg/hr):	0.69
Test Dur		Minutes):	A	***********	1	Barritate	(Dry kg/m/).	0.00
		(Hours):		****	<del> </del>			
	aradon	(Floure).	2.00	******	†		hi	
					1			
					BARON	METRIC PRESSU	RE	
			<u> </u>			1	Average:	29.6
TE	MPERA	TURE FAC	TORS		1		Start:	29.6
			DGM #1:	0.9816			End:	29.5
			DGM #2:	0.9756	ļ		ļ	
	21.1.4	0.04445			DRY GAS	METER VALUES	<u> </u>	
VC	DLUME	SSAMP	p		ļ	DGM #1		791.30
			DGM #1:	18.216	ļ		Initial:	772.82
			DGM #2:	17.151			ļ <u>.</u>	
т.	TAL T	LININITTI N	(OLLIME /0.	47040		DGM #2	the second of the second of	403.77
119	JIALI	UNINEL 1	/OLUME (scf):	17349	<del> +</del>		Initial:	386.21
SA	AMPLE	RATIOS			TEMPE	RATURES (DEG	PANKINI	
	11411	And the second part of the second by the	e Train 1:	952.4	I LIVII L	INATORES (DES	DGM #1:	537.89
			e Train 2:	1011.5	† <u>-</u>		DGM #2:	541.19
		Cumpi					DOW #2.	341.10
TC	OTAL E	MISSION	IS		CALIBE	RATION FACTOR	S	
	common day to and thrown of the fel-	ole Train	******************************	1.14	1	1	DGM #1:	1.014
		ole Train		1.42	T		DGM #2:	1.011
			Ave:	1.28	1			
EN	MISSIO	N RATES	3		TUNNE	L FLOW RATE:		144.6
	Sample	e Train 1	(g/hr):	0.57	i i	PARTICULATE	CATCH (r	ng)
	Sample	Train 2	(g/hr):	0.71	1		le Train 1:	
			Ave:	0.64			Filters	1.
A	DJUSTE	ED EMIS	SION RATES			***********	Probe	
		e Train 1		1.14			Total	1.
	Sample	e Train 2	(g/hr):	1.37		Samp	le Train 2:	
			Ave:	1.26			Filters	1.
		DE\	/IATION:	8.87%			Probe	
					ļ		Total	1.
16	العاليما		14b 7 CO( -141		ļ.,		ļ	
			ter than 7.5% due to low		catcn			
			rates shall not differ by 7 erage emission rate limit		(5a. 2)			
OI	ine we	gineu av	craye emission rate iimit	(4.1 01 7.5)	(59-5)			
Us	se the fo	ollowing:			1		<u> </u>	
			******************************					
	atalytic			5.43%		1		
7.5	5% of 4	.1 g/hr				i i		
		ytic units		2.97%	ii			
7	5% of 7	.5 g/hr						

REPOR	T DATA							
	Client:			ļ				
	Run:			1	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~			
3	Date:	9/18/12		4				
Pr	oject No.:	G100903464						
	Model:	Eurostar / Osburn 5	000					
Fuel Moisture	(Dry):	3.91						
Stack Static	(neg):	-0.0725						
Bar	ometer:	29.62						
Average Ro	om Temp:	78.26						
and the second second second second second second second second second	of the Section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section and the section		age age son son age age age of age of age of age age.				N. W No. V No. Vo. Vo	
we have now all all now and an according to his had all the had a new year per a 2 5	er det som ver den des som den som ver den som ver den som ver den som ver den som ver den som ver den som ver			1				
Change in sto	ve temp:	-22.26						
Pur	Rate:	0.685						
Adjusted Emiss		1.255		1				
~~~~~~~~~~~	stem 1:	1.144						
	stem 2:	1.367		1				
	viation:	8.87%		1				
	er 1:	84.08		†				
	er 2:	77.43		<u> </u>				ļ
	unnel:	104.78		}				
	DGM 1			ļ		ļi		
	DGM 2			†				
Water	Collected:	01.10						
Rooi	m Temp	Bar Pressure		Relative Hu	ımidity	Air Velo	city	
Before	After	Before	After	Before	After	Before	After	
79	78	29.68	29.56	35	40	0	0	
	Average			1				
DGM#1	: 0							
DGM#2	: 0			1				

# Manufactui SBI

Model:

Eurostar / Osburn 5000

E&E Tunnel Traverse Worksheet

Date:

41170

Run:

4

Project #: G100903464

	TUNNEL	TUNNEL	SQUARE	Static Pressure:	
	VELOCITY	TEMP	ROOT		
A CENTER	0.015	103	0.1225		
<b>B CENTER</b>	0.018	104	0.1323		
<b>A</b> 1	0.013	104	0.1118	PITOT	
A2	0.018	104	0.1323	CONSTANT:	1.0081
A3	0.015	104	0.1225		
A4	0.018	100	0.1323		
B1	0.018	104	0.1323		
B2	0.020	104	0.1414		
В3	0.018	105	0.1323		
B4	0.015	95	0.1225		
AVERAGE	0.0165	102.73	0.1284		

Tunnel Diameter (in): Tunnel Area (ft2) Tunnel Static Pressure

Manufacturer:	SBI	der ver som s	
Model:	Eurostar / Osburn 5000	2000	
Date:	9/18/2012	P.	
Run:	4		Show they work to the
Project #:	G100903464		3 Jan 40 10 10 10 10 10 10 10 10 10 10 10 10 10

Flue	Room	Tunnel	Unit	Onit	Onit		Onit	Scale		
Gas	_	Dry Bulb	Тор	Bottom	Back	L.Side	Right	weight	Draft	Time
232.7	78.69	109.5	333.2	115.7	461.6	9.	239.9	-80	0.004	16.31
219.1		107.3	307.4	113.3	428		224.7		0.002	16.41
209.8		105.7	292.2	111.2	412.2		213.1		0.002	16.51
204.5		104.4	257.8	109.2	382.7		202.7		0.002	17.01
199.5		103.8	241.5	107.8	383.4		193.7		0.004	17.11
204		105	280.1	105.9	440.9		189.8		0.004	17.21
202.7		104.9	267	104.8	434.6		189.3		0.003	17.31



#### Intertek Montreal

Client	SBI
Model	Eurostar/Osbum 5000
Project No.	G100903464
Sample Desc	cription

Container	Container ID No.	Date Placed in Oven	Time Placed in Oven	Container Tare Weight, Grams	Initial Gross Weight, Grams	Date Removed from Oven	Time Removed From Oven	Final Gross Weight, Grams	Moisture Content, Wet Basis, %	Moisture Content, Dry Basis, %
1		9/19/2012	12:00	190.4906	327.0401	9/20/2012	12:00	321.9121	3.7554	3.9019
2		9/19/2012	12:00	181.8458	323.8649	9/20/2012	12:00	318.5024	3.7759	3.9241

Average Moisture Content, Wet Basis 3.77 %

Average Moisture Content, Dry Basis 3.91 %

Method: ASTM D4442-92 Method A -- Oven Drying Method

Dry Basis, % = (Initial net - Final net) / Final net x 100

Engineer Signature	Florin Anghel	
Date	9/25/2012	

Manufacturer:   SBI											and And Company of the St. St. St. And And And And And And And And And And	A new little to the title file the title the first
	SBI					And the last task and may and the day was give any						t een van der eij nachter norden ner on
Model:	Model: Eurostar / Osburn 5000	000	A. D.					-				e tes ann tes any tes, per tes, per tes, ann
Date:	Date: 9/19/2012		þ	}								1 20 MY 40 10 Jan 10 Jan 10 Jan 10 JA 10 JA
Run:	5											
Project #:	Project #: G100903464		See that the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of the see of th	1 to 40 to 100 to 40 to								
Test Duration: 120	120											
		Start	End		\$ \$ 3							
	Barometer (in. Hg):	29.85	29.94		A. And the great state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	Of the special process and the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special process of the special proces						
	Dry Bulb (F):	79.2	79.2		of the car can are can are can are can are	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						
	Humidity (%):	36	29	50		to any one one on one on the de-			C			
Moisture content of wood (wet basis)		3 76287										
		0.23	3.82	16.77	358.04	79.32	125.94	561.32	821.53	430.58	465.35	168.08
*	*	*	*	*	*	*	*	*	*	*	*	*
Elapsed	Weight				Flue	Room	Tunnel	Unit	8 3	Unit	Unit	Unit
Time	Remaining	8	C02	05	Gas	Temp	Dry Bulb	Тор	Back	R.Side	L.Side	Bottom
0	8,77	0.23		11	359	79.28		572.3			467.3	172.3
10	8.00	0.23		16.68	362.3	79.16		576.2			469.2	17
20	7.25	0.25	3.44	16.18	363.1	79.57		588.8			473.8	170.
		0.24		17.5	354.4	79.47		561.2			463.8	168.
40	5.80	0.23	3.45	16.95	355.4	79.4	125.9	559.5	804.6	427.8	461.1	169.3
50	5.09	0.24		17.06	352.7	78.92		546.4			456.1	168.
09	4.34	0.24		16.68	361.9	79.15		574.3			470.8	171.
02	3.67	0.24		16.37	349.9	79.85		526			446.2	163.
80	2.94	0.23	3.15	16.94	352.3	79.41		535.6			451.1	164
06	2.18	0.21		16.97	361	79.32		568.1			466.4	16
100	1.43	0.2		15.86	365.9	79.06		565			481.5	165
110	0.73	0.22		17.2	354.8	79.32		548.8			467	164
120	0	0.23	3.98	16.62	361.8	79.25		574.9		438.5	475.3	168

-	Manufacturer: SBI	SBI												
	Model:	Model: Eurostar / Osburn 5000	<b>Jsburn</b> 5000											
	Date:	Date: 9/19/12												
	Run: 5	5												
	Project #:	Project #: G100903464	4											
800.64	77.29	77.77	82.79	412.14	76.88	83.79	76.88	0.02	0.037	0.00	489.37			
*	*	*	*	*	*	×	*	*		Visual	Average	Average Change in		
DGM 1	DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	DGM 2	Filter 2	Tunnel	Chimney	Smoke	Stove	Surface		Elapsed
Reading	Inlet T	Outlet T	Temp	Reading	Inlet T	Outlet T	Temp	Velocity	Draft	Observed	Temp	Temp.		Time
791.389	76.68	76.58	76.95	403.856	76.42	76.94	76.29	0.018	0.038		498.7	0	V- 100	0
792,955	77.01	76.78	84.63	405 139	76.52	85.24	76.38	0.018	0.038		495.2	-3.52		10
794.513	77.03	76.86	87.69	406.397	76.48	87.85	99'92	0.018	0.040		503.7	5.04		20
796.056	77.12	76.87	82.3	407.862	76.6	84.24	76.55	0.018	0.035		488.0	-10.68		30
797,595	77.23	77.07	81.89	409.305	76.71	83.9	76.73	0.018	0.038		484.5	-14.24		40
799.129	77.36	77.2	86.18	410.721	76.89	83.51	76.94	0.018	0.038		482.5	-16.16		50
800.661	77.41	77.41	85.76	412.141	76.89	83.47	77.09	0.018	0.035		495.0	-3.72		9
802.190	77.46	77.43	82.02	413.542	77.01	83.88	76.99	0.018	0.038		462.9	-35.76		70
803.717	77.44	77.53	81.84	414.959	77.04	84.12	77.2	0.018	0.035		469.1	-29.64		80
805.242	77.57	77.57	81.8	416.371	77.18	84.13	27.06	0.018	0.038		492.9	-5.76	- 100 000	06
806.766	77.64	7.77	81.9	417.774	77.26	84.29	77.12	0.018	0.038		499.3	0.56		100
808.291	77.41	77.73	81.64	419.173	77.23	83.77	77.19	0.018	0.035		486.5	-12.24	·	110
809.807	77.43	77.72	81.68	420.586	77.19	83.98	77.28	0.018	0.038		503.5	4.84	4 84	120

		Manufa	cturer:	SBI					
		M	odel:	Eurostar /	Osburn 5000				
		[	Date:	9/19/12					
			Run:	5					
		P	roject #:	G1009034	64				
		Test Dura	tion:		120				
	Total Gas \	/olume (Do	GM 1):		18.329	Pit	ot Factor	0.83	
	Total Gas \	/olume (Do	GM 2):		16.499		(0	).99 standar	d,
	Average Baro	metric Pre	essure:		29.895		0.84 or Ca	al. Factor for	S-Type)
		Molecu	lar Weig	ht:	28.56		\$ Par to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same to the same	The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon	
		Pitot C	orrection		0.974351713				
	Calibration Fa	actor (DGN	Л #1):		1.0140				
	Calibration Fa	actor (DGN	Л #2):		1.0110				
				(1) VS:	0.0423				
			0.0000000000000000000000000000000000000	(2) VS:	0.0470			Filter	Filter
								Face	Face
Elapsed	DGM 1	DGM 1	DGM 1	DGM 2	DGM 2	DGM 2	Tunnel	Velocity	Velocity
Time	CONTRACTOR AND ADDRESS OF	Inlet T	Outlet T		Inlet T	Outlet T	Dry Bulb	DGM 1	DGM 2
0		76.68	76.58		76.42	76.94	125.4		
10		77.01	76.78		76.52	85.24	vieneed	13.45	10.90
20		77.03	76.86		76.48	87.85		13.38	10.66
30	0	77.12	76.87		76.6	84.24	125.9	13.25	12.46
40		77.23	77.07		76.71	83.9		13.21	12.27
50	799.129	77.36	77.2		76.89	83.51	125.2	13.16	12.05
		1,111,011,011,011						10 11	12.00
60		77.41	77.41	V	76.89	83.47		13.14	12.08
70	802.190	77.41 77.46	77.41 77.43		76.89 77.01	83.47 83.88	126.4 125.2	13.14 13.11	11.91
	802.190 803.717	£		413.542					
70 80 90	802.190 803.717 805.242	77.46	77.43	413.542 414.959	77.01	83.88	125.2 125.7	13.11	11.91
70 80	802.190 803.717 805.242	77.46 77.44	77.43 77.53	413.542 414.959 416.371	77.01 77.04	83.88 84.12	125.2 125.7 126.1	13.11 13.10	11.91 12.05
70 80 90	802.190 803.717 805.242 806.766	77.46 77.44 77.57	77.43 77.53 77.57	413.542 414.959 416.371 417.774	77,01 77.04 77.18	83.88 84.12 84.13	125.2 125.7 126.1	13.11 13.10 13.08	11.91 12.05 12.00
70 80 90 100	802.190 803.717 805.242 806.766 808.291	77.46 77.44 77.57 77.64	77.43 77.53 77.57 77.7	413.542 414.959 416.371 417.774 419.173	77,01 77.04 77.18 77.26	83.88 84.12 84.13 84.29	125.2 125.7 126.1 126.6 126	13.11 13.10 13.08 13.07	11.91 12.05 12.00 11.92

	Proportio	nal Rate (	Calculation	ns	(EPA Formu	ulas from F	R5G)	
	Stack are	a (ft2):	0.34907		Man	ufacturer:	SBI	
Wood	moisture (	AND SHOULD SHOW AN ADDRESS OF THE PARTY.	3.76287			Model:		Osburn 5000
	Veight (lbs		8.77			Date:	9/19/12	
	ate (Dry k		1.914	********		Run:		
				******	Pr	oject No.:		464
Final Ter	nperature	(DGM #1	Degrees	Rankin:	537.278		i	17.1
ent the text of the text of the text of the text of	nperature	and the set that the term that the part of the term and the set of	of the last set that the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last	the sale of the law was not been decided as the	540.336			
	unnel Tem				585.938			
AND RESIDENCE AND ADDRESS OF THE PARTY OF	innel Velo	An in the section as an appearance on the parties of		per tal per tal tal tal tal tal tal tal tal tal	7.57581			
	ndardized				137.09			
		Average	Average					
		Inlet +	Inlet +					
		Outlet	Outlet	100.00	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)	Time
0.018	7.572	536.6	536.7					0
0.018	7.576	536.9	540.9	102.11	91.98	1.560	1.265	10
0.018	7.578	536.9	542.2	101.61	90.00	1.552	1.237	20
0.018	7.576	537.0	540.4	100.59	105.12	1.536	1.445	30
0.018	7.576	537.2	540.3	100.30	103.56	1.532	1.424	40
0.018	7.571	537.3	540.2	99.89	101.58	1.527	1.398	50
0.018	7.579	537.4	540.2	99.84	101.98	1.524	1.402	60
0.018	7.571	537.4	540.4	99.54	100.46	1.521	1.382	70
0.018	7.574	537.5	540.6	99.44	101.63	1.519	1.398	80
0.018	7.577	537.6	540.7	99.33	101.29	1.517	1.392	90
0.018	7.580	537.7	540.8	99.29	100.66	1.516	1.383	100
0.018	7.576	537.6	540.5	99.32	100.37	1.517	1.380	110
0.018	7.580	537.6	540.6	98.78	101.42	1.508	1.394	120

		Intertek Testing Servic	es	<del>  </del>			
		SFBA EPA ADJUSTE	EMISSION	RESULTS			
Manufacturer:		SBI		<del>  </del>	RESULT	S	
	Model:	Eurostar / Osburn 500	0	<del>       </del>		ř	
	and the second second second	9/19/12		Av	erage Adjusted Emis	sions Rate	2.49
	Run:				erage Unadjusted Em		1.40
Pr	oject #::	G100903464		- serrenteeriees		(Dry kg/hr):	1.9
Test Duration (I	Minutes):	120					
Test Duration				ļ			
				<del> </del>			*******
				BARON	METRIC PRESSU	RE	
	*********			1		Average:	29.89
TEMPERA	TURE FAC			<u> </u>		Start:	29.8
		DGM #1:	0.9827	<u> </u>		End:	29.9
		DGM #2:	0.9772	ļl			
VOLUME	CCAMP	LED	*****	DRY GAS	METER VALUES	T Pro-I	
VOLUME	S SAIVIP	DGM #1:	18.338		DGM #1	Final:	809.8
		DGM #1:	16.514			Initial:	791.3
		DOW #2.	10.314		DGM #2	Final:	420.5
TOTAL T	UNNEL \	VOLUME (scf):	16451		BGINI #Z	Initial:	403.8
SAMPLE	RATIOS			TEMPE	RATURES (DEG.	DANKINI	
O/ IIIII EE	property and the state of the state of	e Train 1:	897.1	1 - 1011 -	INTONES (DEG.	DGM #1:	537.2
		e Train 2:	996.2			DGM #2:	540.3
				1			
TOTAL E	MISSION	NS .		CALIBR	RATION FACTOR	S	
	ole Train		2.96			DGM #1:	1.01
Sam	ole Train	2 (g):	2.89			DGM #2:	1.01
		Ave:	2.92				
EMISSIO	A Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Comp			TUNNE	L FLOW RATE:		137.
	e Train 1		1.48	ļl	PARTICULATE		ng)
Sample	e Train 2		1.44	ļ	Sampl	e Train 1:	
AD II IOT	ED EMIC	Ave:	1.46			Filters	2
	e Train 1	SION RATES	2.52	<del> </del>		Probe	0
	e Train 2		2.52	<del>  </del>	Sampl	Total e Train 2:	3
Campi	- Hamz	Ave:	2.49	<del> </del>	Sampi	Filters	2.
	DEV	/IATION:	1.01%	l		Probe	0.
						Total	2
If deviation	n is grea	ter than 7.5% due to lov	v particulate	catch			
		rates shall not differ by	the first the first of the second contract to the second to the				
		erage emission rate lim		(5g-3)			
Use the fo	ollowina:						
Catalytic			1.23%	1			
7.5% of 4	.1 g/hr			ļ			
Non catal	ytic units		0.68%				*****
	.5 g/hr		0.0070	<del> </del>			

	REPORT	DATA			Į				
and the first and an appropriate any second					L				
		Client:							
		Run:			on the engine his terr you con the end that	Establishment of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the			
			9/19/12		į.				
	Pro	to less after than the teat that they are also are the transferred	G100903464	W w	1				
			Eurostar / Osburn 5	000	1				
	Moisture (		3.91		1				
Stac	k Static (n		-0.0875		1				
	the state of the state of the state of	meter:	29.895						
Ave	rage Roor	n Temp:	79.32						
					İ				ļ
					1				
Chan	ge in stove	e temp:	4.84						İ
			·					The second state was not too too to	
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- 40 AT 301 - 101 - 101 - 10.	vvalei C	ollected.			÷		ļ		
	Room	Temp	Bar Pressure		Relative Hu	ımidity	Air Velo	city	.,
	Before	After	Before	After	Before	After	Before	After	
to the six six of the conjugate for the	79	79	29.85	29.94	36	29	0	0	
					1		-		
*****	Delta H A	verage			1				
	DGM#1:	0			1				†
	DGM#2:	0			Ť				
	DOININE.								

### Manufactui SBI

Model:

Eurostar / Osburn 5000

**E&E Tunnel Traverse Worksheet** 

Date:

19-Sep-12

Run:

Project #: G100903464

	IUNNEL	IUNNEL	SQUARE	Static Pressure:	
	VELOCITY	TEMP	ROOT		
A CENTER	0.018	122	0.1323		
B CENTER	0.020	129	0.1414		
A1	0.018	123	0.1323	PITOT	
A2	0.020	124	0.1414	CONSTANT:	0.9744
A3	0.018	124	0.1323		
A4	0.015	120	0.1225		
B1	0.018	128	0.1323		
B2	0.020	128	0.1414		
В3	0.018	128	0.1323		
B4	0.018	107	0.1323		
AVERAGE	0.018	123.25	0.1333		27

Tunnel Diameter (in):

Tunnel Area (ft2)

**Tunnel Static Pressure** 

					,	Time	8.54	9.04	9.14	9.24	9.34	9.44	9.54		
		91				Draft	0.002	0.001	0.001	0.003	0.003	0.002	0.005		
					Scale	weight	4.45	3.7	2.95	2.23	1.48	0.73	0		
One and that the east one are the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of the part of					Chiit		343.9	383.2	410.3	419.6	428.8	440.7	435.7		
Side over two and and and and and and and and and and	ĮQ.				Unit	L.Side	386.3	424.9	447	453.3	463.7	471.6	467.3		
40 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to 60 to					Cnit	Back	782.5	822	890.7	852.9	837.2	890.9	845.9		
	S de de de de de de de de de de de de de		and and and and and and and and and and	NOW WITH CHIP	Cait	Bottom	128.9	141.3	149.7	159.1	162.4	169.6	172.3		
	urn 5000	BK 4464 2007	olic, volve dilan		Ti C		524.1	548	592	576.4	581.7	595.8	572.3	ũ	
SBI	Model: Eurostar / Osburn 5000	Date: 9/19/2012	ıc	Project #: G100903464	Tunnel	Dry Bulb	121.5	125.2	126.7	128.1	128.7	129.3	125.4		
Manufacturer: SBI	Model: [	Date:	Run: 5	Project #. (	Room	Temp	78.39	78.43	78.59	78.97	78.72	78.75	79.28		
Mar					Flue	Gas	323.7	341.4	350.7	352.6	354.9	359.6	359		



#### Intertek Montreal

Client	SBI
Model	Eurostar/Osburn 5000
Project No.	G100903464

Sample Description

Saw Dust Pellets

Container	Container ID No.	Date Placed in Oven	Time Placed in Oven	Container Tare Weight, Grams	Initial Gross Weight, Grams	Date Removed from Oven	Time Removed From Oven	Final Gross Weight, Grams	Moisture Content, Wet Basis, %	Moisture Content, Dry Basis, %
1		9/19/2012	12:00	190.4906	327.0401	9/20/2012	12:00	321.9121	3.7554	3.9019
2		9/19/2012	12:00	181.8458	323.8649	9/20/2012	12:00	318.5024	3.7759	3.9241

Average Moisture Content, Wet Basis 3.77 %

Average Moisture Content, Dry Basis 3.91 %

Method: ASTM D4442-92 Method A -- Oven Drying Method

Dry Basis, % = (Initial net - Final net) / Final net x 100

Engineer Signature	Florin	Anghel
Date	9/25/2012	

Manufacturer:   SBI	SBI				8	A 04 A 0			460, 400, 10 <u>0</u>			
:Model:	Model: Eurostar	F	10,7			6 to 700 pgs 0	to only the state and the state was state that state the state of					
Date:	Date: 9/19/2012	Ŋ	0									
Run: 6	9									an an W (18)		
Project #:	Project #: G100903464		> = = = -	\$0 may 70 //0 \$	0 00 00 00 00 00 00 00 00 00 00 00 00 0							
Test Duration: 120	120			) — w w								
		Start	End									
	Barometer (in.Hg):	29.97	30.06									
	Dry Bulb (F):	8	81									
	Humidity (%):	27.4	22.4					200 200 200 200 200 200 200 200 200 200			John College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College College C	1
Moisture content of wood (wet basis):	T W et 20 .	3 76287	4 4					on and the decision (s).			en de maner sel, mar sel, cer sel, dels ses	
	- A	0.24	4.31	16.35	372.09	80.57	131.17	546.14	818.75	475.14	517.75	174.63
· · · · · · · · · · · · · · · · · · ·	*	1	*	*	*	*	*	*	*	*	*	*
Elapsed	Weight			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Flue	Room	Tunnel	Unit	Unit	Unit	Unit	Unit
Time	Remaining	8	C02	02	Gas	Temp	Dry Bulb	Top	Back	R.Side	L.Side	Bottom
	9.33	0.24	5.14	15.46	379	80.41	130.9	568.9	855.8	477.7	518	172.2
10	8.53	0.24	5.01	16.62	373.5	80.34	130.8	545.5	803.6	481.2	524.8	176.2
20	7.73	0.25	3.66	15.86	370.7	80.55	131.4	559.5	841	484.1	514.4	176
30	6.95	0.22	5.1	15.96	378.4	80.8	131.6	200.7	850.4	483.9	530.9	178.6
40	6.18	0.25	4.98	16.03	374.6	80.57	130.8	546.7	822	476.1	523.9	174
90	5.43	0.25	4.72	16.49	373.7	80.46	131.5	541.2	838.7	462.7	513.2	171
09	4.70	0.23	3.86	17.23	364.1	80.24	130.6	534.5	804.4	456.7	501.5	17.
07	3.93	0.25	4.33	16.06	370.1	80.5	130.5	550.2	841.8	464.4	510.8	169.5
80	3.16	0.24	3.81	16.76	368.3	80.61	131.3	540.2	789.2	468.6	511.7	17.
06	2.40	0.24	3.52	16.76	365.6	80.64	131.1	519.8	776.5	468.9	202	17(
100	1.60	0.25	3.97	15.8	371.3	80.32	131	546.7	828.7	475.3	514.2	176
110	08.0	0.25	4.13	16.66	371.9	80.58	131.4	542.7	795.6	485.4	526.5	179.7
000	000	1										

	Maridiacturer, Sol	281				40. 4							-	
	Model:	Model: Eurostar				of the terms of	and finish that the man the man the man that and the color	VA per YA me YA per					to one and the same table to the same table to the table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table table tab	and of mar was dark and, and take dare took dare
	Date:	Date: 9/19/12	A. A. C. C. C. C. C. C. C. C. C. C. C. C. C.											
	Run: 6	တ												
	Project #:	Project #: G100903464	34			, as an an an an an an an an an an an an an								and price will not be for the price when the best will be a few to the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when the price when
818.97	17.77	97.77	82.10	429.26	77.41	83.81	77.36	0.02	0.038	0.00	506.48			
*	*	*		*	*	*	*			Visual	Average	Average Change in		
DGM 1	DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	DGM 2	Filter 2	Tunnel	Chimney	Smoke	Stove	Surface		Elapsed
Reading	Inlet T	Outlet T	Temp	Reading	Inlet T	Outlet T	Temp	Velocity	Draft	Observed	Temp	Temp.		Time
809.875	77.33	77.34	80.21	420.647	77	77.84	76.91	0.018	0.038		518.5	0		0
811.460	77.43	77.44	84.04	422.050	77.13	86.53	76.99	0.018	0.038		506.3	-12.26		10
813.070	77.49		82.52	423.445	77.18	83.86	77.08	0.018	0.038		515.0	-3.52		20
814.536	77.57	77.57	82.15	424.936	77.18	84.24	77.2	0.018	0.038		520.9	2.38		30
816.042	77.63	77.62	82.09	426.398	77.26	84.29	77.29	0.018			508.6	-9.96		40
817.538	77.66	77.72	82.22	427.852	77.35	83.92	77.29	0.018	0.038		505.5	-13		50
819.030	77.81	77.81	82.1	429.300	77.48	84.06	77.47	0.018	0.038		493.8	-24.68		9
820.509	77.98		81.9	430.735	77.53	84.28	77.64	0.018	0.038		507.3	-11.18		70
821.979	77.76		82.24	432.175	77.58	84.44	77.51	0.018	0.038		496.4	-22.1		80
823.435	77.98	78.1	82.37	433.595	77.66	84.17	77.65	0.018	0.038		488.6	-29.96		90
824.902	77.87	<i>M</i> (5)	82.14	435.010	77.65	84.24	77.56	0.018	0.038		508.2	-10.3		100
100 300	77 82	78.08	81.97	436.422	77.66	84.33	77.54	0.018	0.038		506.0	-12.54		110
020.000	1													

		Manufa	cturer:	SBI					
		M	lodel:	Eurostar					
		[	Date:	9/19/12					
			Run:	6					
		P	roject #:	G1009034	64				
		Test Dura	ition:		120			***********	
	Total Gas V	/olume (Do	GM 1):		17.943	Pit	ot Factor	0.83	
	Total Gas V	/olume (Do	GM 2):		17.001		(0	.99 standar	d,
	Average Baro	metric Pre	essure:		30.015		0.84 or Ca	al. Factor fo	r S-Type)
		Molecu	lar Weig	ht:	28.56			*************	
		Pitot Co	orrection		1.005369714				
	Calibration Fa	actor (DGN	/I #1):		1.0140				
	Calibration Fa	actor (DGN	Л #2):		1.0110				
				(1) VS:	0.0443				
				(2) VS:	0.0468			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	809.875	77.33	77.34		77	77.84	130.9		
10	811.460	77.43	77.44		77.13	86.53	130.8	13.65	11.95
20	813.070	77.49	77.51		77.18	83.86	131.4	13.86	11.91
30	814.536	77.57	77.57	424.936	77.18	84.24	131.6	12.62	12.72
40	816.042	77.63	77.62	becommonser	77.26	84.29	130.8	12.96	12.48
50	817.538	77.66	77.72		77.35	83.92	131.5	12.88	12.41
60	819.030	77.81	77.81	429.300	77.48	84.06	130.6	12.84	12.36
70	820.509	77.98	77.97	430.735	77.53	84.28	130.5	12.72	12.24
80	821.979	77.76	78.06		77.58	84.44	131.3	12.65	12.28
90	823.435	77.98	78.1	433.595	77.66	84.17	131.1	12.52	12.11
100	824.902	77.87	78.12	435.010	77.65	84.24	131	12.62	12.07
110	826.381	77.82	78.08	436.422	77.66	84.33	131.4	12.72	12.04
120	827.848	77.89	77.95	437.826	77.73	83.38	132.3	12.62	11.99

	Proportio	nal Rate	Calculatio	ns	(EPA Formu	ılas from P	PR5G)	5 ANT INC DATE OF THE STOCKER DAY AND AND AND AND AND AND AND AND AND AND	
*******	Stack are	ea (ft2):	0.34907		Man	ufacturer:	SBI		
Wood	moisture (	% wet):	3.76287		~	Model:	Eurostar		
	Veight (lbs		9.33		24	Note that the first the second section is	9/19/12		
	ate (Dry k		2.036		See	Run:			
					Pr	oject No.:		464	
Final Ter	nperature	(DGM #1	) Degrees	Rankin:	537.750				
	nperature				540.614				
	innel Tem	the factor was to see the set of the factor at an	the selection of the second second	and the fact that the second section is	591.169	**********			
	innel Velo		seem made and to see the see to see the	a and the second are properly and the second are a	7.836184	**********			
THE RESIDENCE OF SECURITION AND ADDRESS.	ndardized			THE RESERVE OF THE PERSON NAMED IN	141.11		1		
7 1 7 00 000 000 00 000 000	**************************************	y ma me ew we we we to the mile we we		~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~		**************			
		Average	Average			******			
		Inlet +	Inlet +						
		Outlet	Outlet	100.00	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)	Time	
0.018	7.834	537.3	537.4					0	
0.018	7.834							the second section of the second section is a second section of	
AND RESIDENCE OF SHIPPING AND ADDRESS.		537.4	541.8	105.86	97.80	1.583	1.386	10	
0.018	7.838	537.5	540.5	105.86 107.57	97.80 97.53	1.583 1.608	1.386 1.381	10 20	
0.018 0.018	7.838 7.839	537.5 537.6	540.5 540.7						
0.018 0.018 0.018	7.838 7.839 7.834	537.5 537.6 537.6	540.5 540.7 540.8	107.57	97.53	1.608	1.381	20	
0.018 0.018 0.018 0.018	7.838 7.839 7.834 7.838	537.5 537.6 537.6 537.7	540.5 540.7	107.57 97.95	97.53 104.22	1.608 1.464	1.381 1.476	20 30	
0.018 0.018 0.018	7.838 7.839 7.834	537.5 537.6 537.6	540.5 540.7 540.8	107.57 97.95 100.55	97.53 104.22 102.11	1.608 1.464 1.504	1.381 1.476 1.447	20 30 40	
0.018 0.018 0.018 0.018 0.018 0.018	7.838 7.839 7.834 7.838	537.5 537.6 537.6 537.7	540.5 540.7 540.8 540.6	107.57 97.95 100.55 99.93	97.53 104.22 102.11 101.64	1.608 1.464 1.504 1.494	1.381 1.476 1.447 1.440	20 30 40 50	
0.018 0.018 0.018 0.018 0.018	7.838 7.839 7.834 7.838 7.832	537.5 537.6 537.6 537.7 537.8	540.5 540.7 540.8 540.6 540.8	107.57 97.95 100.55 99.93 99.56	97.53 104.22 102.11 101.64 101.12	1.608 1.464 1.504 1.494 1.489	1.381 1.476 1.447 1.440 1.433	20 30 40 50 60	
0.018 0.018 0.018 0.018 0.018 0.018	7.838 7.839 7.834 7.838 7.832 7.832	537.5 537.6 537.6 537.7 537.8 538.0	540.5 540.7 540.8 540.6 540.8 540.9	107.57 97.95 100.55 99.93 99.56 98.66	97.53 104.22 102.11 101.64 101.12 100.18	1.608 1.464 1.504 1.494 1.489 1.476	1.381 1.476 1.447 1.440 1.433 1.420	20 30 40 50 60 70	
0.018 0.018 0.018 0.018 0.018 0.018 0.018	7.838 7.839 7.834 7.838 7.832 7.832 7.837	537.5 537.6 537.6 537.7 537.8 538.0 537.9	540.5 540.7 540.8 540.6 540.8 540.9 541.0	107.57 97.95 100.55 99.93 99.56 98.66 98.13	97.53 104.22 102.11 101.64 101.12 100.18 100.57	1.608 1.464 1.504 1.494 1.489 1.476 1.467	1.381 1.476 1.447 1.440 1.433 1.420 1.425	20 30 40 50 60 70 80	
0.018 0.018 0.018 0.018 0.018 0.018 0.018	7.838 7.839 7.834 7.838 7.832 7.832 7.837 7.836	537.5 537.6 537.6 537.7 537.8 538.0 537.9 538.0	540.5 540.7 540.8 540.6 540.8 540.9 541.0 540.9	107.57 97.95 100.55 99.93 99.56 98.66 98.13 97.16	97.53 104.22 102.11 101.64 101.12 100.18 100.57 99.18	1.608 1.464 1.504 1.494 1.489 1.476 1.467 1.453	1.381 1.476 1.447 1.440 1.433 1.420 1.425 1.405	20 30 40 50 60 70 80 90	
0.018 0.018 0.018 0.018 0.018 0.018 0.018 0.018 0.018	7.838 7.839 7.834 7.838 7.832 7.832 7.837 7.836 7.835	537.5 537.6 537.6 537.7 537.8 538.0 537.9 538.0 538.0	540.5 540.7 540.8 540.6 540.8 540.9 541.0 540.9 540.9	107.57 97.95 100.55 99.93 99.56 98.66 98.13 97.16 97.89	97.53 104.22 102.11 101.64 101.12 100.18 100.57 99.18 98.82	1.608 1.464 1.504 1.494 1.489 1.476 1.467 1.453 1.464	1.381 1.476 1.447 1.440 1.433 1.420 1.425 1.405 1.400	20 30 40 50 60 70 80 90 100	

		Intertek Testing Service	es	<del> </del>		ļ	
		SFBA EPA ADJUSTED	EMISSION	RESULTS	· · · · · · · · · · · · · · · · · · ·		
Manufactur	er	SBI			RESULT	S	
Manadada		Eurostar	- ANT TOO TOO AND LOST ONE THE THE TOO TOO LOST LOST LOST LOST LOST LOST L				
		: 9/19/12		Ave	erage Adjusted Emis	sions Rate:	2.20
	Run				rage Unadjusted Em		1.26
		: G100903464				(Dry kg/hr):	2.04
Test Duratio	THE R. P. LEWIS CO., LANSING, MICH.						
	tion (Hours						
				ļ			
				BAROM	ETRIC PRESSU	RE	
				i I	·····	Average:	30.01
TEMP	RATURE FA	CTORS				Start:	29.9
		DGM #1:	0.9819			End:	30.0
		DGM #2:	0.9767				
				DRY GAS	METER VALUES		
VOLU	MES SAM	,		ļ	DGM #1	Final:	827.84
		DGM #1: DGM #2:	17.951 17.017	ļ		Initial:	809.87
		DGW #Z:	17.017	<del>  -</del>	DGM #2	Final:	437.82
TOTA	LTUNNEL	VOLUME (scf):	16933		DGIVI #2	Initial:	420.64
	LIOIVILL	VOLONIE (GGI):	10000	† <u>†</u> -	****	i iiiigi.	420.04
SAME	LE RATIO	S		TEMPE	RATURES (DEG.	RANKIN)	
	Samp	ole Train 1:	943.3			DGM #1:	537.75
		ole Train 2:	995.1			DGM #2:	540.61
THE RESERVE AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PR	LEMISSIC			CALIBR	ATION FACTOR		
	ample Trai		2.64			DGM #1:	1.014
S	ample Trail		2.39			DGM #2:	1.01
	NON DATE	Ave:	2.51				
	SION RATE	PTS	1.00	TUNNE	L FLOW RATE:	CATOLL	141.
	nple Train nple Train :		1.32 1.19		PARTICULATE	e Train 1:	ng)
Oai	iipie i raiii	2 (g/iii).	1.19	<del> </del>	Sampl	Filters	2.
AD.IU	STED EMI	SSION RATES	1.20			Probe	0.
	nple Train		2.29	†		Total	2.
	nple Train		2.11	·	Sampl	e Train 2:	
		Ave:	2.20			Filters	2.
	DE	EVIATION:	4.18%			Probe	
			**********			Total	2.
100				11			
		eater than 7.5% due to low		catch			
		n rates shall not differ by 7		(5a 2\)		ļi	
or the	weighted a	verage emission rate limi	it (4.1 or 7.5)	(5g-3)			
Use ti	ne following	ji		t i			
	tic units		4.48%	ļ	*****		
7.5%	of 4.1 g/hr	-		ļ			
				ļ			
None	atalytic uni	C	2.45%	OF CO.			

F	REPORT	DATA						
					I			
		Client:						
		Run:						
		Date:	9/19/12					
	Pro	ject No.:	G100903464					
		Model:	Eurostar		1			
Fuel M	loisture (	Dry):	3.91					
Stack	Static (n	eg):	-0.0775					
	Baro	meter:	30.015					
Avera	age Roor	n Temp:	80.57					
Change	in stove	e temp:	-9.4		į			
the section on the works and surject an	***********	****		****				
		<u> </u>						
Adjusted	Burn F		2.036 2.201					
Aujusted		em 1:	2.293					
		em 2:	2.109					
		ation:	4.18%		-			
	Filte	the second second second second second second	82.10		ļ			*****
	Filte		77.36		ł			
*****		nnel:	131.17		ł			
	i ui	DGM 1:			+			
		DGM 1:			1		-	*****
	Water C		00.01					
					1		4 And 400 Att. 200 Att. 200 Att and and are not all all all all all all all all all al	
	Room	Temp	Bar Pressure		Relative Hu	umidity	Air Velo	city
	Before	After	Before	After	Before	After	Before	Afte
	80	81	29.97	30.06	27.4	22.4	0	0
	Delta H A	verage						
	DGM#1:	0	1	************			-	
	JOINIT I.							

**VERSION 1.2** 

2/5/2010

Manufactui SBI

Model:

Eurostar

Date:

19-Sep-12

Run:

Project #: G100903464

# E&E Tunnel Traverse Worksheet

	TUNNEL	TUNNEL	SQUARE	Static Pressure:	
	VELOCITY	TEMP	ROOT		
A CENTER	0.018	129	0.1323		
B CENTER	0.018	128	0.1323		
A1	0.015	127	0.1225	PITOT	
A2	0.020	129	0.1414	CONSTANT:	1.0054
А3	0.018	128	0.1323		
A4	0.013	117	0.1118		
B1	0.018	128	0.1323		
B2	0.023	128	0.1500		
В3	0.018	125	0.1323		
B4	0.020	112	0.1414		
<b>AVERAGE</b>	0.01775	125.11	0.1330		

Tunnel Diameter (in): Tunnel Area (ft2)
Tunnel Static Pressure

										uel Added			13.42
	(m. m. m. )					Time	12.42	12.52	13.02	13.12 F	13.22	13.32	13.42
	***					Draft	0.001	0.001	0.002	0.003	0.005	0.002	0.002
	555				Scale	weight					28.67		
					Unit	Right	427.7	445.1	464.6	448.6	466.1	465.2	477.7
	M M M				Unit	L.Side	457.9	486.6	507.4	482.3	507.4	502.2	518
					Unit	Back	769.3	820.4	863.3	830.3	860.7	838.4	822.8
	10.1				Unit	Bottom	160.4	166.7	167.7	170.6	173.1	169.5	172.2
ja 1000-	A	7		7"	Unit	Top	534.2	547.3	578.2	554.1	580.8	527.5	568.9
BI	urostar	Date: 9/19/2012		Project #: G100903464	Tunnel	Dry Bulb	126.6	126.4	127.7	126.9	128	126.4	130.9
Manufacturer: SBI	Model: Eurostar	Date: 9,	Run: 6	oject #: G	Room	Temp	79.35	79.53	80.25	79.95	80.05	80.51	80.41
Manuf				Ē	Flue	Gas	347.6	362.1	373.5	360.5	372.2	371	379



#### Intertek Montreal

Client	SBI
Model	Eurostar/Osburn 5000
Project No.	G100903464

Sample Description

Saw Dust Pellets

Container	Container ID No.	Date Placed in Oven	Time Placed in Oven	Container Tare Weight, Grams	Initial Gross Weight, Grams	Date Removed from Oven	Time Removed From Oven	Final Gross Weight, Grams	Moisture Content, Wet Basis, %	Moisture Content, Dry Basis, %
1		9/19/2012	12:00	190.4906	327.0401	9/20/2012	12:00	321.9121	3.7554	3.9019
2		9/19/2012	12:00	181.8458	323.8649	9/20/2012	12:00	318.5024	3.7759	3.9241

Average Moisture Content, Wet Basis 3.77 %

Average Moisture Content, Dry Basis 3.91 %

Method: ASTM D4442-92 Method A -- Oven Drying Method

Dry Basis, % = (Initial net - Final net) / Final net x 100

Engineer Signature	Florin Anghel	
Date	9/25/2012	