

# **TEST REPORT**

**SCOPE:** EMISSIONS, EFFICIENCY AND OUTPUT

**FUEL:** EPA TEST FUEL (CRIBS)

**TEST STANDARD: EPA** 

**MODEL: MATRIX WOOD STOVE** 

**Notice to reader**: Our Matrix wood stove was tested as part of our 2.3 Series (XTD 1.9) firebox. Therefore, the 2.3 Series (XTD 1.9) is referenced throughout the attached test report.





REPORT NUMBER: 100456088MTL-002 REPORT DATE: March 21, 2012

#### **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:**

MODEL XTD 1.9 Wood Stove

Report of Testing Model XTD 1.9 Wood Fuel Room Heater for compliance as an "Affected Facility" with the applicable requirements of the following criteria: EPA Method 28 "Certification and Auditing of Wood Heaters" and EPA Method 5G "Determination of Particulate Matter Emissions from Wood Heaters".

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Client: Stove Builder International Project No. G100456088

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#### I. INTRODUCTION

Intertek Testing Services NA (Intertek) has witnesed testing for S.B.I.-Stove Builders International, on Wood Room Heater model XTD 1.9, to evaluate all applicable performance requirements included in EPA Method 28 "Certification and auditing of wood heaters" and Method 5G-3 "Determination of particulate matter emissions from wood heaters."

#### I.A PURPOSE OF TEST

The test was conducted to determine if the unit is in accordance with U.S EPA requirements for Residential Wood Room Heaters. This evaluation was conducted August 22, 2011 – August 26, 2011.

#### I.B LABORATORY

The test on Wood Room Heater model XTD 1.9 was conducted at the S.B.I's testing facility located at 250 Copenhague Street, St-Augustin-de-Desmaures, PQ G3A 2H3. The test was conducted by Florin Anghel.

#### I.C DESCRIPTION OF UNIT

The model XTD 1.9 Wood Room Heater is constructed of carbon steel. The outer dimensions are 25.45 - inches deep, 30.001 - inches high, and 25.625 - inches wide.

(See product drawings.)

Proprietary drawings are on file at Intertek in Montreal.

#### I.D REPORT ORGANIZATION

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



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#### II. SUMMARIZATION

#### **II.A PRETEST INFORMATION**

Prior to beginning the emissions tests the unit was operated for a minimum of one hour at the burn rate corresponding to the burn rate cathegory the unit was about to be tested. The fuel used for the break-in process was Douglas Fir.

On August 22, 2011 the unit was set-up for testing.

#### **II.B INFORMATION LOG**

#### **TEST STANDARD**

From August 22, 2011 – August 26, 2011 the unit was tested for EPA emissions.

#### **Deviation from Standard Method**

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



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#### **II.C SUMMARY OF TEST RESULTS**

RUN #1 (August 22, 2011) Burn time was 330 minutes with a category 2 burn rate of 0.96 Kg/hr and an emission rate of 4.82 g/hr. The fuel was loaded by 50 seconds and the door was closed at 90 seconds. The air control was fully opened for 5 minutes and then set to it's fully closed position at 5.0 minutes. The blower was off for the first 30 minutes and on-low for the reminder of the test.

RUN #2 (August 23, 2011) Burn time was 290 minutes with a category 2 burn rate of 1.09 and an emission rate of 4.07 g/hr. The fuel was loaded in 45 seconds and the door was left ajar (1/4") for 90 seconds. The air control was opened for the first 5 minutes and then abruptly set to 3/16" inch open at 5 minutes. The blower was off for the first 30 minutes and on-low for the reminder of the test.

RUN #3 (August 24, 2011) Burn time was 170 minutes with a category 3 burn rate of 1.84 kg/hr and an emission rate of 3.10 g/hr. The fuel was loaded in 45 seconds and the door was ajar (1/4") for 90 seconds. The air control was opened for 5 minutes and then abruptly set to 3/4 inch open for the reminder of the test. The blower was off for the first 30 minutes and on-low for the reminder of the test.

RUN #4 (August 25, 2011-Fan Confirmation) Burn time was 290 minutes with a category 2 burn rate of 1.09 kg/hr and an emission rate of 4.55 g/hr. The fuel was loaded in 50 seconds and the door was ajar at ¼" for 90 seconds. The air control was opened for 5 minutes and then set to 3/16 inch open from fully closed. Blower was off for the whole duration of the preburn and of the run.

RUN #5 (August 26, 2011) Burn time was 120 minutes with a category 4 burn rate of 2.67 Kg/hr. and an emission rate 2.86 g/hr. The fuel was loaded by 35 seconds and the door was left ajar at ¼" for 60 seconds. The air control was opened for 5 minutes and then set to it's fully open position. The blower was off for the first 30 minutes and on-low for the reminder of the test.



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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	09/22/2011	0.96	3.23	4.82	74.7
2	09/23/2011	1.09	2.64	4.07	77.2
3	09/24/2011	1.84	1.93	3.15	75.2
4	09/25/2011 Fan Conf.	1.09	3.03	4.56	75.9
5	09/26/2011	2.67	1.73	2.87	67.4

# **WEIGHTED AVERAGE CALCULATION**

Test No.	Burn Rate	(E) Average Emission Rate g/hr	Heat Output (Btu/hr)	Probability	(K) Weighting Factor	(KxE)	
1	0.96	4.82	11575.87	0.3384	0.4494	2.1161	
2	1.09	4.07	13143.44	0.4494	0.5422	2.2068	
3	1.84	3.15	22187.09	0.8806	0.5264	1.6582	
5	2.67	2.87	32195.39	0.9758	0.1194	0.3427	
	Totals: 1.6374 6.3737						
	Weighted average emission rate: 3.892						

# **TEST FACILITY CONDITIONS**

Run	Room Temp. °F before	Room Temp °F after	Baro. Pres. In. Hg before	Baro. Pres. In. Hg after	R.H. % before	R.H. % After	Air Vel. Ft/min before	Air Vel. Ft/min after
1	81.7	81.6	29.54	29.5	24	22	0	0
2	82.5	86.1	29.91	29.92	22	22	0	0
3	79.9	80.1	29.95	29.95	24	23	0	0
4	79.8	88.2	29.7	29.7	25	24	0	0
5	78.8	83.9	29.97	29.7	23	23	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.		ume nple		culate n (mg)
No.	(min)	(ft/sec)	(dscf/min)	(°R)	1	2	1	2
1	330	7.62	142.76	559.078	29.609	33.084	11.7	11.9
2	290	7.802	146.54	564.923	29.622	29.750	8.6	9.2
3	170	7.707	138.22	592.318	17.133	17.172	4.1	3.9
4	290	7.81	147.18	559.113	29.239	29.138	9.8	10.2
5	120	8.514	149.12	604.156	12.140	12.107	2.4	2.3

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

2.12 HOW 10 MILE 20 / 12 HW MILE 1 (12 OF 10 OF						
	Sample Ratios		Total Emissions (g)		%	% Deviation
Run No.	Train 1 Train 2		Train 1	Train 2	Deviation	of 7.5% of 7.5 grams*
						7.5 grains
1	1591.1	1423.9	18.62	16.94	3.90	5.01
2	1434.6	1428.4	12.34	13.14	2.62	2.84
3	1371.5	1368.4	5.62	5.34	2.17	1.82
4	1459.8	1464.9	14.31	14.94	1.80	2.19
5	1474.0	1478.1	3.54	3.40	1.65	1.27

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

#### **GENERAL SUMMARY OF RESULTS**

<b>—</b> — · · · · · · · · · · · · · · · · · ·							
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	0.96	-120.3	N/A	330	N/A		
2	1.09	-122.6	N/A	290	N/A		
3	1.84	-19.16	N/A	170	N/A		
4	1.09	-126 **	N/A	290	N/A		
5	2.67	-41.68	N/A	120	N/A		

<sup>\*</sup> The Initial draft was not recorded on all the test runs



<sup>\*\*</sup>We noticed that the Delta-T obtained in the Fan Confirmation Test one degree over the allowed limit. Nevertheless, we ask for it to be taken into consideration as a limit exception, given that this test does not get into the calculation of the overall weighed average and that it's purpose is solely to demonstrate that the the wood heater may be considered to have the same average emission rate with or without the blower operating

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#### III. PROCESS DESCRIPTION

#### III.A TEST SET-UP DESCRIPTON

A standard 8" diameter single wall pipe and insulated chimney system was installed to 15' above the scale level. The unit controls were set to the lowest setting during the test.

#### IV. SAMPLING SYSTEMS

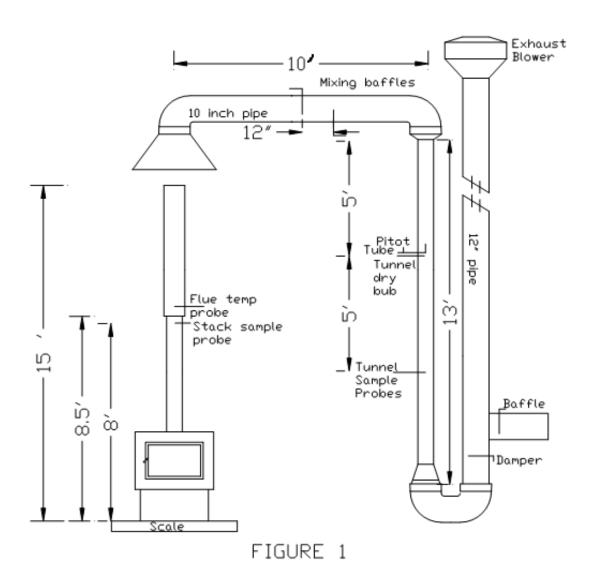
#### IV.A. SAMPLING LOCATIONS

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

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



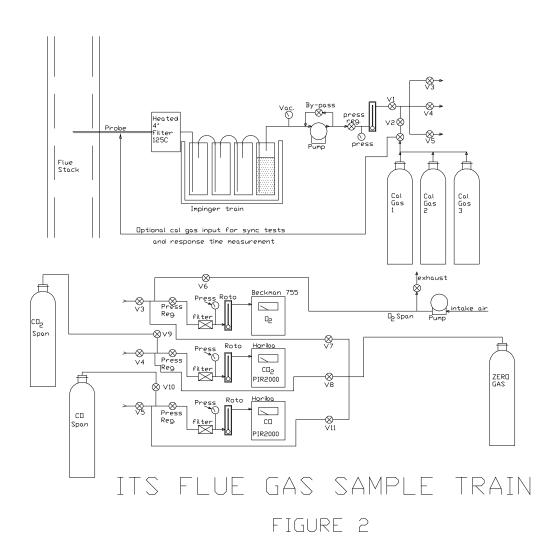
# IV.A.(1) DILUTION TUNNEL



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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

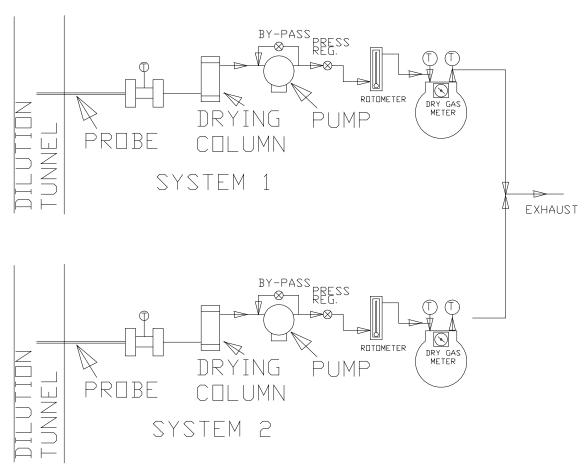


Figure 3

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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 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

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 3.89 g/hr meets the EPA requirements.

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

The Model XTD 1.9 Wood Room Heater has been found to be in compliance with the applicable performance and construction requirements of the following criteria: EPA Method 28 "Certification and auditing of wood heaters" and Method 5G-3 Determination of particulate matter emissions for pellet stoves."

#### INTERTEK TESTING SERVICES NA

Reported by:

Florin Anghel Testing Engineer

Reviewed by: 15

Bruce S. Davis, Project Engineer



# Appendix C Sample Analysis



CLIENT: SBI	MODEL: XTD	1.9 <b>PROJECT #</b> : <u>G100456088</u>
<b>DATE</b> : 8/22/2011	RUN #:	1s
SAMPLE TRAIN: A	SAMPLE ID #:	MTL1108221414-001
INTERTEK EQUIPMENT #'s:		SBI 206

		FILTER # OR		WEIGHTS	(mg)
SAMPLE COMPONENT	REAGENT	PROBE #	FINAL	TARE	PARTICULATE
FRONT FILTER CATCH	FILTER	1	133.6	122.6	
REAR FILTER CATCH	FILTER	2	122.8	122.3	
TOTAL TARE			256.4000	244.9000	11.50
PROBE & FILTER HOLDI	ER PROBE	17	139749.6	139749.4	0.20
				TOTAL:	11.70

ENGINEER:



CLIENT: SBI	MODEL: 2	XTD 1.9	PROJECT #: G100456088
<b>DATE</b> : 8/22/2011	RUN #:_	1	
SAMPLE TRAIN: B	SAMPLE ID #:_	MTL110	8221414-001
INTERTEK EQUIPMENT #'s:		SBI 206	

		FILTER # OR		WEIGHTS	(mg)
SAMPLE COMPONENT	REAGENT	PROBE #	FINAL	TARE	PARTICULATE
FRONT FILTER CATCH	FILTER	3	133	122.8	
REAR FILTER CATCH	FILTER	4	123.1	122.3	
TOTAL TARE			256.10	245.10	11.00
PROBE & FILTER HOLDER	PROBE	19	140123.3	140122.4	0.90
		-		TOTAL:	11.90

ENGINEER: _	Mughel	



CLIENT: SBI	MODEL: 2	(TD 1.9	PROJECT #: <u>G100456088</u>
<b>DATE</b> : 8/23/2011	RUN #:_	2	
SAMPLE TRAIN: A	SAMPLE ID #:_	MTL	1108221414-001
INTERTEK EQUIPMENT #'s:		SBI 206	

		FILTER # OR		WEIGHTS	(mg)
SAMPLE COMPONENT	REAGENT	PROBE #	FINAL	TARE	PARTICULATE
FRONT FILTER CATCH	FILTER	5	128.9	121.7	
REAR FILTER CATCH	FILTER	6	122.9	122.4	
TOTAL TARE			251.80	244.10	7.70
PROBE & FILTER HOLDE	R PROBE	20	139069	139068.1	0.90
				TOTAL:	8.60

ENGINEER: _	Maybel	



CLIENT: SBI	MODEL: XTD	1.9	PROJECT #: G100456088
<b>DATE</b> : 8/23/2011	RUN #:	2	
SAMPLE TRAIN: B	SAMPLE ID #:	MTL	_1108221414-001
INTERTEK EQUIPMENT #'s:		SBI 206	

		FILTER # OR		WEIGHTS	(mg)
SAMPLE COMPONENT	REAGENT	PROBE #	FINAL	TARE	PARTICULATE
FRONT FILTER CATCH	FILTER	7	133	122.7	
REAR FILTER CATCH	FILTER	8	123.1	122	
TOTAL TARE			253.20	244.70	8.50
PROBE & FILTER HOLDER	PROBE	21	139249.4	139248.7	0.70
				TOTAL:	9.20

ENGINEER:



CLIENT: SBI	MODEL: 2	XTD 1.9	PROJECT #: G100456088
<b>DATE</b> : 8/24/2011	RUN #:_	3	
SAMPLE TRAIN: A	SAMPLE ID #:_	МТ	L1108221414-001
INTERTEK EQUIPMENT #'s:		SBI 206	

	1	FILTER # OR		WEIGHTS	(mg)
SAMPLE COMPONENT	REAGENT	PROBE #	FINAL	TARE	PARTICULATE
FRONT FILTER CATCH	FILTER	9	124.7	121.6	
REAR FILTER CATCH	FILTER	10	122.4	121.8	
TOTAL TARE			247.10	243.40	3.70
PROBE & FILTER HOLDER	PROBE	23	136189	136188.6	0.40
	-			TOTAL:	4.10

ENGINEER:



CLIENT: SBI	MODEL: XTD	1.9 <b>PROJECT #</b> : <u>G100456088</u>
<b>DATE</b> : 8/24/2011	RUN #:	3
SAMPLE TRAIN: B	SAMPLE ID #:	MTL1108221414-001
INTERTEK EQUIPMENT #'s:		SBI 206

		FILTER # OR		WEIGHTS	(mg)
SAMPLE COMPONENT	REAGENT	PROBE #	FINAL	TARE	PARTICULATE
FRONT FILTER CATCH	FILTER	11	123.7	120.6	
REAR FILTER CATCH	FILTER	12	123.3	123	
TOTAL TARE			247.00	243.60	3.40
PROBE & FILTER HOLDER	PROBE	24	136041.3	136040.8	0.50
				TOTAL:	3.90

ENGINEER:



CLIENT: SBI	MODEL: X	TD 1.9	PROJECT #: <u>G100456088</u>
<b>DATE</b> : 8/25/2011	RUN #:_	4	
SAMPLE TRAIN: A	SAMPLE ID #:_	MTL11082	21414-001
INTERTEK EQUIPMENT #'s:		SBI 206	

		FILTER # OR		WEIGHTS	(mg)
SAMPLE COMPONENT	REAGENT	PROBE #	FINAL	TARE	PARTICULATE
FRONT FILTER CATCH	FILTER	13	130.6	122	
REAR FILTER CATCH	FILTER	14	123.1	122.4	
TOTAL TARE			253.70	244.40	9.30
PROBE & FILTER HOLDE	R PROBE	25	136833.6	136833.1	0.50
				TOTAL:	9.80

ENGINEER: _	- Vanghel	



CLIENT: SBI	MODEL: XTD	1.9 <b>PROJECT #</b> : <u>G10045</u>	6088
<b>DATE</b> : 8/25/2011	RUN #:	4	
SAMPLE TRAIN: B	SAMPLE ID #:	MTL1108221414-001	
INTERTEK EQUIPMENT #'s:		SBI 206	

		FILTER # OR		WEIGHTS	(mg)
SAMPLE COMPONENT	REAGENT	PROBE #	FINAL	TARE	PARTICULATE
FRONT FILTER CATCH	FILTER	15	132.2	123.3	
REAR FILTER CATCH	FILTER	16	123.8	122.9	
TOTAL TARE			256.00	246.20	9.80
PROBE & FILTER HOLDER	PROBE	26	139829.3	139828.9	0.40
-	<u>'''</u>			TOTAL:	10.20

ENGINEER: _	Thytel	
_		

**DATE**: \_\_\_\_11/8/2011



CLIENT: SBI	MODEL: XTD 1	1.9 <b>PROJECT #</b> : <u>G100456088</u>
<b>DATE</b> : 8/26/2011	RUN #:	5
SAMPLE TRAIN: A	SAMPLE ID #:	MTL1108221414-001
INTERTEK EQUIPMENT #'s:		SBI 206

		FILTER # OR		WEIGHTS	(mg)
SAMPLE COMPONENT	REAGENT	PROBE #	FINAL	TARE	PARTICULATE
FRONT FILTER CATCH	FILTER	17	124.6	123	
REAR FILTER CATCH	FILTER	18	122.5	122.3	
TOTAL TARE			247.10	245.30	1.80
PROBE & FILTER HOLDER	PROBE	27	136902.6	136902	0.60
				TOTAL:	2.40

ENGINEER:



CLIENT: SBI	MODEL: XTD	1.9	PROJECT #: G100456088
<b>DATE</b> : 8/26/2011	RUN #:	5	
SAMPLE TRAIN: B	SAMPLE ID #:	MT	L1108221414-001
INTERTEK EQUIPMENT #'s:		SBI 206	

		FILTER # OR		WEIGHTS	(mg)
SAMPLE COMPONENT	REAGENT	PROBE #	FINAL	TARE	PARTICULATE
FRONT FILTER CATCH	FILTER	19	124	122.2	
REAR FILTER CATCH	FILTER	20	117.6	117.5	
TOTAL TARE			241.60	239.70	1.90
PROBE & FILTER HOLDE	R PROBE	28	136224.2	136223.8	0.40
				TOTAL:	2.30

ENGINEER:

DATE: \_\_\_\_11/8/2011

Projet: Date: Tech: Standard:

XTD 1.9 V. Pelletier

	2011-08-10	201-08-10-2011-08-11 201-08-		12 2011-08-16 201-08-19 2011-08-22	201-08-19	2011-08-22	2011-01-22	2011-08-22	1CR 45	19435 100 10 10 10 10 10 10 10 10 10 10 10 10	184:0
d. Filtres	Date20//-08-	Date		Date	Date	Date	Date	Date	Date	Date	7-10-1107
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	201223	61220	0 1222	01223	01222	0, 1223	0.1230		D. 1230		
	30.1228	0.1227	0 1227	0,1226	0 128	0.1228	0.034		O.4333		
	4 6,1324	0,1223	01223	10.1224	6.1323	0.1223	55.21.0		0.1233		
	5 0,12 17	01216	01216	01216	01216			£121.0	0.1288		
	6 51225	0 1234	6,1224	0,1223	01223			4.2.2.4	0.1224 0.1230		
	7 0 1229	61228	61228	01228	1224			O 1227	0.1304		
	8 0, 1220	0.12.20	01220	01219	61214			0.1220 0.1227	42210		
	9 0 1217	0,12/6	0,1217	21210	01217			41040		ONSAG	5 12 LO
-	10 0 1219	0.1219	0.1219	01220	21810			0.1213		0 12 IB	1000
1	11 61205	6.1206	01206	0.1205				0.1206		O.120C	45010
1	12 0.1230	0 12 30	0 1229	61229	1 ~			0.1230		T	0.1035
	13 0 12 20	01218	01220	6 1220	0.1220						
H	14 C1222	0 1223	0 1223	0.1223	C. 127.30					01224	
7	15 0, 1235	01234	01233	71234	11235					0.1233	
1	16 0 12.29	6.1229	0.1229	0 1230	01229					5.1229	
1	17 6 1230	0.1229	0.1230	0.1230	0.1230						
1	18 01223	01222	01223	01223	61233						
1	19 J. 12 22	0 1233	0,1221	01322	0 1221						
2	20 C 11 7.6	0.1175	0.1176	0,1178	21176						
2	21 A. 1224	6.1224	1324	42210	0 1224						
2	22 0 1238	0.1228	01238	81220	01227						
2	23 0. 11 9.5	184	(I)	0.1184	イのこの						
2	24 0 12 30	0 1229	0,1330	0 1329	0.1331						
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XTD 1.9 Projet

V.Pelletier 7 1. Date: Tech:

Standard

17:00 13:00 12h:15

Date Date Date 2011-08-25 2011-08-25 2011-08-26 2011-08-26 2011-08-26 2011-09-42 2011-09-43 0.1175 Date 0.1222 0.1322 0.1237 0.1238 0.1247 0.1240 0.1306 0.1231 Date 0.1308 0.1231 Date Q1724 O.123年 44210 01223 0.1227 0.1239 0.1179 0.1233 0,245 Date 0.1222 0.1230 Date 0.12.28 0.1225 0.1330 18th 30 0.1248 0.1325 43510 0.1228 0.1289 0.4232 0.1236 0.1336 01211 Date 20 0.1223 60.1229 24 0.1230 18 0.1224 30.1330 21 0.1224 22 0.(228 70.1302 17 0.1225 50.1287 23 0.11 85 1 0.1336 20.1228 40.1231 Date 6 10 11 12 14 15 16 ld. Filtres

XTD 1.9 Projet: Date: Tech: Standard:

V. Pelletier 7. P.

17-R-100	Date								136,1281	136,0413															
1 C. P. 45 ZOII-08-24	Date		4	1268, 741				8845 621	136,1886	ROHOSEY	136,8329	133,8288	136,3017	136,2238											
	Date	4	タイナイラー		140,1230	1830'GE1	4842,051																		
201-08-23	Date		: 20 6 :	41C8 +41		139,0681	4842, CEN F842, CEN F842, CEN	139,5492	136,1884	136,0405	136,8387 136,8327	133,8288	136,3015	136,2232	135,18 33	18553031 1855361	134,0938	136,0196	135,255 ( <del>125,994</del> 7 (35,2547	108,4111	107,8385 104,8380 107,8380	108,5030	108,3835		
17£ 25 2011-08-22 2011-08-23	Date	10.10.00	100000	ナカカイナ		133,058A	484268H	133, 3759 128, 2382 125, 251	136,1888 136,1884 13C,1884	136,040@ 136,0405 126,0405	136,8327	139,8288 133,8288	136,301 136,3015 136,3015	136,2240 (26,222, 136,2232	135,1836 425,1835 135,1833	125,3031		136,0138 1 <del>36,013</del> 6 136,0196	F488(88)		104,8380	0502,801 0502,80 108,502,80A	( <del>108, 58 2</del> 5)		
2011-08-19 2011-08-22	Date	12021.94	100 C 17 C C C C	THE 89 10 14 1 CHES THE BOOK IN	140,1224 140,1224	133,0686 N <del>33,0681</del>	129,2491	135,57-35	136,1888	136,0408	134,8333	135,8231	136,3013	136,2240	135,1836	75,3035	137,1003 137,0998	136,0138	135,3352	भारतीका रागिश्वा	107,8385	108,5035	108,3840 ( <del>108,383</del> 5		
2011-08-19	Date	120 7460	10000	147 89 10	140 12 19	139 0684	1392486	1395798	136 1883	136,0404	136.8325		136,9017	1362235	135 1832	135 9031	137 0999	1360195	135 9949	108 4113		108 5030	109 3937		
2011-08-17	Date	120 01100	17 0410	4065 141	146 12 14	139 0678	1392482	139 5789	156 1880	36,0402	136 8323	139 8283	136 9009	136,2230	135 1826	134,9025	137.0493	136,0187	135 4942	108 411 0	1	108 5026	106 363 3		
201-08-12 2011-0	Date	126 9000		- 1	140 1230	13906BZ	1392484	1395793	1361882	136,0405	1368325	1398285	136 9013	136,2332	135 18 30	135, 9029	137.0 499	136 Cl44	135, 9049	108 4113	1858	108 5030	108 3837		
3011-08-11	Date	2000 00	000000000000000000000000000000000000000	10 147 8404	19 140 12 19	139,0630	139 2484	1395743	136 1879	136,0406	136,8325	139 9286	136,9013	136 2232											
	ld. Probes	17	101	To	19	20	21	22	23	24	25	26	77	28	29	30	31	32	33	34	35	36	37	38	
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XTD 1.9 Projet: Date: Tech: Standard:

V. Pelletier 31. /?

201-08-25 2011-08-25 2011-08-25 2011-08-25 2011-08-12

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17 139,456									T
18 App. 8517									T
19/140,1233		140,1231							T
20 139,0688 139,0631		13.0630							Τ
21 139,2493 (39,2495		4842,851							T
10									T
136, (891		136,1830							T
136,0420		136,0412							Т
1 136,8335			136.8340	1368336			_		T
				133 8293		-			Т
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Client: SBI Model: XTL 4.9

Project #: 9100456088 Sample ID #: MTL 1108221414-001

Date: 08-22-11 Engineer: FLORIN ANGHEL Run #: 1 Sample Train #:

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

Α						
7	Tare:	0.1226	Preliminary \	/Vt:	0.1340	7
2	Tare:	0.1223	Preliminary \	/Vt:	0.1230	
	Tare:		Preliminary V	Nt:		
sicator:	08-22-11	17:40	Preliminary V	Vt:	0.257	
Time	R/H %	Temp. (F)	Weight (grams)		I Initiale	
00:Fl	15%	69.9	0.2563	0.2=	AF	
8:30	17%	e8.2	0.2564			
05:81	17%	69.0	0.2564	0.2= D.2000	<u> </u>	THAL STABILIZ WEIGHT
						-
17	Tare:	139,7494	Preliminary V	Vt: ار	1844,66	
icator:	08-22-11	147:40				
Time	R/H %	Temp. (F)	Weight (grams)		I Initiale	
00:FI	15%	69.9	139,7496	200.00 200.00	= 7	
8:30	17%			200.0	=	FIHAL STABILIZI WEIGHT
	Time (7:00 8:30 8:30  17 cator: Time	Tare:	Tare:    Cator:   08-22-11   17:40     Time   R/H %   Temp. (F)     15%   69.9     8:30   17%   69.0     14%   69.0     Tare:   139,7494     Cator:   08-22-11   17:40     Time   R/H %   Temp. (F)     15%   69.9	Tare: Preliminary (	Tare: Preliminary Wt:    Cator:   08-22-11   17:40   Preliminary Wt:     Time   R/H %   Temp. (F)   Weight (grams)   0.2 = 0.200     15%   68.5   0.2569   0.200     8:30   17%   68.5   0.2564   0.200     8:30   17%   69.0   0.2564   0.200     8:30   17%	Tare: Preliminary Wt:    Cator:   08-22-11   17:40   Preliminary Wt:   0.257     Time   R/H %   Temp. (F)   Weight (grams)   Initials     17:00   15%   68.5   0.2569   0.2000   TA     18:30   17%   68.5   0.2564   0.2000   TA     18:30   17%   69.0   0.2564   0.2000   TA     18:30   17%   69.0   0.2564   0.2000   TA     19

Date: <u>11-08-11</u>		
Engineer signature:	Thyll	
-	d	



Client: SBi Model: XTD 1.9

Project #: 6400456088 Sample ID #: 11-1408224414-001

Date: 08-22-11 Engineer: FLORIN ANGHEL Run #: 1 Sample Train #: B

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

Audit weight Equipment #: 180-105

Audit weight Equi

Probe #: 19 Tare: 140, 1224 Preliminary Wt: 140, 1224  Date/Time in dessicator: 08-22-11 /12:40  Date Time R/H % Temp. (F) Weight (grams) Initials  08-23-11 /12:00 15/6 69.9 140,1230 200.002	Audit weight Equ	ipment #: 180-M	(Balance audit	mfr. std: $500 \pm 0$	).72 mg)			
Seal Set #   Tare:   Preliminary Wt:   Date/Time in dessicator:   08-22-44   17:40   Preliminary Wt:   0.2577	Front Filter #	3	Tare:	0. 1228	Preliminary	Wt:	0.1334	
Date/Time in dessicator:         0 8 - 22 - 11 / 12: 40         Preliminary Wt:         0.2577           Date         Time         R/H %         Temp. (F)         Weight (grams) (grams)         Initials           08 - 23 - 11         12:00         15%         63.9         0.2566 0.00         0.2 = 0.000         0.00           08 - 25 - 11         18:30         14%         68.5         0.2561 0.2000         14           08 - 25 - 11         18:30         14%         69.0         0.2561 0.2000         14           Probe #:         19         Tare:         140,1224         Preliminary Wt:         140,1224           Date/Time in dessicator:         08 - 22 - 11         140,1224         Preliminary Wt:         140,1224           Date         Time         R/H %         Temp. (F)         Weight (grams)         Audit (grams)         Initials           08 - 23 - 11         14:00         15%         69.3         140,1230 200.002         140           08 - 25 - 11         15:30         14%         68.5         140,1233 200.002         140	Rear Filter #	4	Tare:	0.1223	Preliminary Wt:		0.1233	
Date         Time         R/H %         Temp. (F)         Weight (grams) (grams)         Audit (grams)         Initials           08-23-11         17:00         15%         69.9         0.2566         0.2000         TA           08-25-11         8:30         17%         68.5         0.2561         0.2000         TA           08-25-11         18:30         17%         69.0         0.2561         0.2000         TA           Probe #:         19         Tare:         140,1224         Preliminary Wt:         140,1224           Date/Time in dessicator:         08-22-11         14:00         14:00         14:00           Date         Time         R/H %         Temp. (F)         Weight (grams)         Audit (grams)         Initials           08-23-11         14:00         15%         69.9         140,1233         200.002         TA           08-25-11         16:30         14%         68.5         140,1233         200.002         TA	Seal Set#		Tare:		Preliminary	Wt:		
Probe #:   19   Tare:   ALPO,   1224   Preliminary Wt:   ALPO,   1224     Date/Time in dessicator:   08-22-Al   13:00   15%   69:9   ALPO,   1233   200:002   15%     O8-23-Al   14:00   15%   69:9   ALPO,   1233   200:002   15%     O8-23-Al   15:00   15%   69:9   ALPO,   1233   200:002   15%     O8-23-Al   15:00   15%   69:9   ALPO,   1233   200:002   15%     O8-23-Al   15:00   15%   68:5   140,   1233   200:002   15%     O8-25-Al   15:30   14%   1500   15%   15%   15%   15%   15%     O8-25-Al   15:30   14%   15%	Date/Time in d	essicator:	08-22-11	/17:40	Preliminary	Wt:	0.2577	
08-25-11 17:00 17:	Date	Time	R/H %	Temp. (F)				
Date   Time   R/H %   Temp. (F)   Weight (grams)   Initials	08-23-11	17:00	12%	63.3	0.2566			
O8-25-M       18:30       17%       69.0       0.2561       0.2=0.0       TA         Probe #:       19       Tare:       140,1224       Preliminary Wt:       140,1224         Date/Time in dessicator:       08-22-11/42:40       Weight (grams)       Audit (grams)       Initials         08-23-11/40:00       15%       69.9       140,1233       200.0=       140,1233 </td <td>08-25-11</td> <td>8:30</td> <td>17%</td> <td>68.5</td> <td>0.2561</td> <td></td> <td></td> <td></td>	08-25-11	8:30	17%	68.5	0.2561			
Date/Time in dessicator:       08-22-11       National Action (224)         Date       Time       R/H %       Temp. (F)       Weight (grams)       Audit (grams)       Initials         08-23-11       140,1230       200.002       140,1233	08-25-11	18:30	17%	63.0	0.2561	0.2=	-	TAR WEI
Date/Time in dessicator:       08-22-11       National Action (224)         Date       Time       R/H %       Temp. (F)       Weight (grams)       Audit (grams)       Initials         08-23-11       140,1230       200.002       140,1233								
Date/Time in dessicator:       08-22-11       140,1224       140,1224         Date       Time       R/H %       Temp. (F)       Weight (grams)       Audit (grams)         08-23-11       140,1230       140,1230       140,1233						<u> </u>		
Date Time R/H % Temp. (F) Weight (grams) Initials  08-23-11 17:00 15% 69.9 140,1230 200,002 TT	Probe #:	19	Tare:	140,1224	Preliminary \	۷t: الم	40,1224	
08-23-M 17:00 15% (grams) (grams) (grams) (grams) 08-23-M 17:00 15% 69.9 140,1230 200.002 TA	Date/Time in de	essicator:	08-22-11	17:40				
08-25-M 17:00 10% 65.5 140,1230 200.002 TA	Date	Time	R/H %	Temp. (F)			Initiale	
108-25-11 0:50 176   650 140,1233 2mms 1 +1	08-23-11	17:00	12%	69.3	140,1230	200,00	1 1 1	
	08-25-11	8:30	17%	68.5	140,1233	_	1	FIN

Date:	11-08-11
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Client: SBI Model: XTL 1.9

Project #: 6100456088 Sample ID #: KTL 1108221414-001

Date: 08-23-11 Engineer: FLORIN ANGHEL Run #: 2 Sample Train #:

Balance Equipment #: SBi-20C Thermo/Hygro meter Equipment #: SBi-212

Audit weight Equipment #: Po-10C Palance audit mfr. etd; 500 + 0.73 mg)

Audit weight Equ	ipment #: 180-11	(Balance audit r	mfr. std: 500 ± 0	).72 mg)				
Front Filter #	5	Tare:	0.1217	Preliminary Wt:		Nt: 0.1288		
Rear Filter #	G	Tare:	0.1224	Preliminary	Wt: 0.1230		1230	
Seal Set #		Tare:		Preliminary Wt:				
Date/Time in dessicator:		8-23-11/17:00		Preliminary '	Preliminary Wt: 0.251			
Date	Time	R/H %	Temp. (F)	Weight (grams)		udit ams)	Initials	
8-52-W	8:30	17%	68.5	0.2516	0.2	_ =	<del>A</del>	
8-25-11	18:30	17%	63.0	0.2218	0.20	. =	*	
Probe #:	20	Tare:	139,0681	Preliminary \	Vt:	139	1830,	
Date/Time in d	essicator:	8-23-11	/17:00					
Date	Time	R/H %	Temp. (F)	Weight (grams)		dit ms)	Initials	
8-25-11	8:30	17	C8.5	133,0688	200.0	0.0=	TA	
8-2J-M	18:30	17	63.0	139,0691	200,	l'	<del>AF</del>	1
8-26-11	12:15	17	63.0	139,0620	200,	.o.≥	TA	
							N	
						-		_

Date: 11-08-11



Client: SBi Model: XTD 1.9

Project #: 5100456088 Sample ID #: HTL 1108221414-001

Date: 8-23-M Engineer: FLORIN ANGHELRun #: 2 Sample Train #: B

Balance Equipment #: 581206 Thermo/Hygro meter Equipment #: 581 - 212

Audit weight Equ	ipment #: 180-140	(Balance audit n	nfr. std: 500 ± 0	.72 mg)				
Front Filter #	7	Tare:	0. 1227	Preliminary Wt:		t: 0.1301		
Rear Filter #	8	Tare:	0.1220	Preliminary Wt:		0.1227		
Seal Set #		Tare:		Preliminary '	Wt:			
Date/Time in d	lessicator:	8-23-11	17:00	Preliminary '	Wt:	0	2528	٦
Date	Time	R/H %	Temp. (F)	Weight (grams)		udit ams)	Initials	
8-25-11	8:30	17%	68.5	0.2530	0.2	_=	TA.	
8-25-11	18:30	17	69.0	0,2532	0.29	200 200	1	
								_
Probe #:	21	Tare:	139,2487	Preliminary \	Wt:	130	1,2484	
Date/Time in d	essicator:	8-23-14	147:00					
Date	Time	R/H %	Temp. (F)	Weight (grams)		udit ams)	Initials	
8-52-11	8:30	17	68.5	139,2493	200.	0.0= 002	*	
8-25-11	18:30	17	0,62	139,2495		= 0,0	*	١,
8-26-11	12:15	17	69.0	139,2494	200,0		A	
national in								
								_

Date:	XI	1-0	8-	N
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Client: SEI Model: XTA 1.9

Project # 5100+ 6088 Sample ID #: 17 1108 22 1414-001

Date: 08-24-11 Engineer: FLORIN ANGHEL Run #: 3 Sample Train #: \_\_\_\_\_\_\_\_\_

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

Audit weight Equipment #: SBi 206 Thermo/Hygro meter Equipment #: SBi -212

Audit weight Equ	ipment #:180-110	(Balance audit n	nfr. std: 500 ± 0	).72 mg)				
Front Filter #	2	Tare:	0.1216	Preliminary Wt:		Vt: 0.1248		
Rear Filter #	10	Tare:	0.1218	Preliminary	Wt:	O.	1225	
Seal Set #		Tare:		Preliminary	Wt:	:		7
Date/Time in d	lessicator:	8-24-11/	18:00	Preliminary	Wt:	٥.	2473	
Date	Time	R/H %	Temp. (F)	Weight (grams)		dit ms)	Initials	
8-52-W	18:30	17	63.0	0.2470	O, 2 O, 2 o		*	
8-26-11	12:15	17	63.0	0.2471	0.20		<del></del>	۱ [
Probe #:	23	Tare:	136,1886	Preliminary \	Wt:	13	6,1881	
Date/Time in d	essicator:	8-24-11	18:00					
Date	Time	R/H %	Temp. (F)	Weight (grams)	Au (gra		Initials	
8-25-11	18:30	17	63.0	136,1831	200,0	0.0=	<del></del>	
8-26-11	12:15	17	69.00	136,1890	200,0		<del>-</del>	L
	l)							

Date: 11-08-11



Client: SBI Model: XTD 1.5

Project #: 6100456088 Sample ID #: 14TL 1108221414-001

Date: 8-24-M Engineer: FLORIH ANGHOLRun #: 3 Sample Train #: B

Balance Equipment #: 58 26 Thermo/Hygro meter Equipment #: 58 - 212.

Audit weight Equipment #: 180-150 (Balance audit mfr. std: 500 + 0.72 mg)

pment #: 180-110	(Balance audit m	$fr. std: 500 \pm 0$	.72 mg)				
44	Tare:	0. 1206	Preliminary Wt:		Nt: 0. 1237		
12	Tare:	0.1230	Preliminary Wt:		0.1235		7
	Tare:		Preliminary \	Wt:			
Date/Time in dessicator:		8-24-11/18:00		Preliminary Wt:		1.2472	
Time	R/H %	Temp. (F)	Weight (grams)			Initials	
18:30	17	65.0	0.2471	0, 2	=	*	
12:15	17	69.0	0.2470	0,21	000 5 ≥	**	],
							4
24	Tare:	136,0408	Preliminary \	Vt:	136	5,0413	
essicator:		1					
Time	R/H %	Temp. (F)	Weight (grams)			Initials	
18:30	17	69.0	136,0420			A	
12:15	17	69.0	10 001 10	200	.o=	-	
18:00	16	69.9	136,0413	200.0	0.0 F	<del>X</del>	],
						-	
	12. 15 essicator: Time 18:30 12:15  2-4 essicator: Time 18:30 12:15	AA       Tare:         12       Tare:         essicator:       8-24-AA/         Time       R/H %         12:AS       14         12:AS       14         essicator:       8-24-AA         essicator:       8-24-AA         Time       R/H %         18:30       14         12:15       14	Tare: 0, 1206  12 Tare: 0, 1230  Tare: 136,0408  Passicator: 8-24-11/18:00  Time R/H % Temp. (F)  18:30 17 69.0  12:15 17 69.0	Tare: O. 1230 Preliminary (12)  Tare: Preliminary (13)  Preliminary (14)  Time R/H % Temp. (F) Weight (grams)  18:30 17 63.0 0.2470  12:15 17 18:00  Preliminary (14)  Weight (grams)  Preliminary (15)  Weight (grams)  Time R/H % Temp. (F) Weight (grams)  18:30 17 18:00  18:30 17 69.0 136,0420  12:15 17 17 65.0 136,042	Tare: 0. 1230 Preliminary Wt:    12	Tare:   O. 1206   Preliminary Wt:   O	AA   Tare:



Client: SBi Model: MA 1.5

Project #: 6100456088 Sample ID #: MTL 1108221414-001

Date: 8-25-11 Engineer: FLORIH ANGHEL Run #: 4 Sample Train #: A

Balance Equipment #: SB1206 Thermo/Hygro meter Equipment #: SB1-212

Audit weight Equi	pment #:180-110	(Balance audit r	mfr. std: 500 ± 0	.72 mg)				
Front Filter #	13	Tare:	0.1220	Preliminary \	∕Vt:	0.1311		7
Rear Filter #	(4	Tare:	0.1224	Preliminary Wt:		0.1232		
Seal Set #	¥			Preliminary V	Vt:			
Date/Time in dessicator:		8-25-11/	18:30	Preliminary V	Vt:	C	.2543	7
Date	Time	R/H %	Temp. (F)	Weight (grams)		udit ams)	Initials	
8-26-11	19:00	17	69.6	0.2539		2=	TA	1
9-12-11	17:00	16	70.0	0.2537	0,° 0,26	00 5≈	<del>-</del>	
								1
Probe #:	25	Tare:	136,8331	Preliminary V	Vt:	136	:,8335	
Date/Time in de	essicator:	8-25-11	18:30					
Date	Time	R/H %	Temp. (F)	Weight (grams)		ıdit ams)	Initials	
8-25-M	19:00	17	69.6	136,8340	200. 200.	0,0= 002	<del></del>	
9-12-11	00:FX	16	70.0	136,8336	200.	0,0= 002	<del></del>	
								_

Date:	<b>X</b> V —	08-	XX



Client: SBI Model: XTD1.9

Project #: G100456088 Sample ID #: HTL M08221414-001

Date: 8-25-11 Engineer: FLORIN ANGHEL Run #: 4 Sample Train #: B

Balance Equipment #: SB1206 Thermo/Hygro meter Equipment #: SB1212

Audit weight Equipment #280-200 (Balance audit mfr. std: 500 ± 0.72 mg)										
Front Filter #	15		Tare:		0.1233		Preliminary Wt:		0.1325	
Rear Filter #	16	16			0.1229	Preliminary Wt:		0.1236		7
Seal Set #			Tare:			Preliminary	Wt:			1
Date/Time in dessicator:		8-29	5-11/	14	18:30	Preliminary	Wt:	0	. 2561	7
Date	Time	F	VH %		Temp. (F)	Weight (grams)		udit ams)	Initials	1
8-26-11	19:00	٨	·7		69.6	0.2559		.2=	<del></del>	1
9-12-11	M7:00	1	6		70.0	0.2560	1	.2=	<del></del>	1
Probe #:	26		Tare:	4	39,828.9	Preliminary \	Vt:	139	,829.8	1
Date/Time in de	ssicator:	8-25-M/18:30					,	1		
Date	Time	R/	/H %		Temp. (F)	Weight (grams)	(gra	udit ams)	Initials	1
8-26-11	19:00	٦	7		69.6	139,829.8	200.	0.0=	1	
9-12-11	17:00	_ \	C			139,829.3	25	20.0=	<del></del>	

Date: <u> </u>
----------------



Client: SBi Model: XTD 1.9

Project #: @10045088 Sample ID #: HTL 1108221414 -001

Date: 8-26-N Engineer: FLORIN ANGHEL Run #: 5 Sample Train #: A

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

Audit weight Equipment #: M20-430 (Balance audit mfr. std: 500 + 0.72 mg)

Audit weight Equi	ipment #: 180-110	(Balance audit n	nfr. std: 500 ± 0	.72 mg)			
Front Filter #	17	Tare:	0.1230	Preliminary Wt:		0.1245	
Rear Filter #	18	Tare:	0.1223	Preliminary \	Nt:	0.1227	
Seal Set #		Tare:		Preliminary \	Nt:		
Date/Time in dessicator: 8		8-26-41/	12:15	Preliminary \	Nt:		0.2472
Date	Time	R/H %	Temp. (F)	Weight (grams)	Aud (gran		Initials
9-12-11	17:00	٧e	0.0F	0.2473	0.2	2	A
10-20-11	9:30	16	69.5	0.2471	0.2 D.20		<del>**</del>
							19
Probe #:	27	Tare:	36,9020	Preliminary V	Vt:	136	5,9023
Date/Time in de	essicator:	8-26-11	12:15				
Date	Time	R/H %	Temp. (F)	Weight (grams)	Aud (gram	- 1	Initials
9-12-11	N7:00	16	0.0f	136,3027	200.0 200.0	0=	TA.
10-20-11	9:30	16	63.5	1000 - 0	<b>20</b> 0. 203. 0	0=	TA
10-21-11	9:00	16	70.0	136,9024	200.00 200.00	)= )2	+
						_	

Date: 11-08-11



Client: SBI Model: XTL 1.3

Project #: 5100456088 Sample ID #: 111 1108 22 1414 - 001

Date: 8-26-M Engineer: FLORIH ANGHELRun #: 5 Sample Train #: B

Balance Equipment #: <u>SBI-206</u>Thermo/Hygro meter Equipment #: <u>SBI-242</u>

pment #: 180-110	(Balance audit n	nfr. std: 500 ± 0	.72 mg)				
19	Tare:	0.1222	Preliminary \	Wt:	0	.1239	
20	Tare:	O. M75	Preliminary Wt:		0.1179		
Seal Set #			Preliminary \	Wt:			
Date/Time in dessicator:		12:15	Preliminary \	∕Vt:	0.	2418	
Time	R/H %	Temp. (F)	Weight (grams)			Initials	
17:00	λG	70.0	0.245			A	
9:30	16	69.5	0.2416			<del></del>	
28	Tare:	136,2238	Preliminary V	Vt:	136	,2238	
essicator:	8-26-M/	12:15					
Time	R/H %	Temp. (F)	Weight (grams)			Initials	
17:00	٨G	70.0	136,2240			#	
9:30	16	63.5	136,2242			A	
9:00	16	70.0	136,2240			-\A	
	19 20 essicator: Time 17:00 9:30  28 essicator: Time 17:00 9:30	19   Tare:	Tare: 0.1222  20 Tare: 0.1175  Tare: 0.1175	Tare:   O. NATS   Preliminary     Tare:   Preliminary     Weight (grams)   Preliminary     Weight (grams)   Preliminary     Preliminary	Tare: 0. 1222 Preliminary Wt:  20 Tare: 0. 1125 Preliminary Wt:  Tare: Preliminary Wt:  Pre	Tare:   O. 1222   Preliminary Wt:   O. 1272   O. 1272	Tare:   O. 1222   Preliminary Wt:   O. 1239

Date:	W-0	28 - VV
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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	International inc.				
Adresse :	250, rue Copenhague					
Ville :	St-Augustin	État/Pro	ovince :	Québec		
Code postal :	G3A 2V1	Astea C	Customer ID:	C037589	0001001	
Instrument						
Constructeur :	Rice Lake	Modèle	de terminal :	IND560		
Modèle :	Roughdeck	No de s	érie du termin	0092739	6KL	
No de série :	B00927396KL	No. Sér	ie Impr.	N/A		
Capacité :	625 kg	Service	/Pièce :	Lab		
Résolution :	0.02 kg	Nbre de	Divisions 31250			
Classe :	III.	Procédu	lure utilisée : Canadien		1	
Numéro/ID d'actif du clie	SBI-013					
Procédure:	Le présent certificat est é l'A2LA, en vertu de la nor laboratoire et la traçabilité	me ISO/IEC 17025, A2	LA a évalué la			
Date de calibrage	21-mars-2011	Le proci	hain Cal Date	31-mars-	2012	
Signataire autorisé (A2LA) :	Dany Careau	Signatu	re:	ELECTR	ONIC SIGNATURE	
Signature du client						
Étalons de travail						
Traçabilité	Les poids de test utilisés s	se réfèrent au National	Institute of Star	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

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### **METTLER TOLEDO**

#### Résultats de mesure

La température :

70 °F

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

#### Test de variation

_ <sub>1</sub>	20
o <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	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 régla	ge	-	
	Les poids Appliqués	Valeur lue	Erre	Erreur		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

### **METTLER TOLEDO**

	Après réglage					
	Les poids Appliqués	Valeur lue	Erre	Erreur		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	200,02 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 sub	stitution utilisée	· ·		•
Un réglage de la balance Si NON, les résultats rela		la prestation de service corre	spondent à l'état de	
<b>☑</b> oui	□ NON			
Dánátahilitá				

#### Répétabilite

100.00 kg Poids appliqués :

	£:		IN:
	Chargé	Vide	Différence
1	100,00 kg	0.00 kg	100 kg
2	100.02 kg	0.00 kg	100,02 kg
3	100.02 kg	0.00 kg	100.02 kg
	Erreur maximale:	0.02 kg	1.0 d
	Tolérance :	0.10 kg	5 d

#### Incertitude

Mesure de l'incertitude = 0.022 kg

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

#### Remarques

Aucune:

Version Logiciel:

4.3.0.7

Page 3 sur 3 © METTLER TOLEDO 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



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	Customer ID:	C037589	001001
Instrument					
Constructeur :	Weightronix	Modèle	de terminal :	(ND560	
Modèle :	DSL-6060	No de s	érie du termin	0092738	6KL
No de série :	B00927386KL	No. Sér	ie Impr.	N/A	
Capacité :	500 kg	Service	/Pièce :	LAB	
Résolution :	0,02 kg	Nbre de	Divisions	25000	
Classe :	III	Procédu	ıre utilisée :	Canadier	1
Numéro/ID d'actif du clie	SBI-014				
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 proci	hain Cal Date	31-mars-	2012
Signataire autorisé (A2LA) :	Dany Careau	Signatur	re.	ELECTR	ONIC SIGNATURE
Signature du client					
Étalons de travail					
Traçabilité	Les poids de test utilisés s	e 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-sept-2011
Kit S	1356103	M1	5-oct2	010	5-oct2011

Version Logiciel:

4.3.0.7

### **METTLER TOLEDO**

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

#### Résultats de mesure

La température :

70 °F

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

#### Test de variation

<sub>1</sub>	20
□ <sup>4</sup>	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	0.10 kg	

### Linéarité

			Avant régla	ge		
	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

### **METTLER TOLEDO**

	Après réglage					
	Les poids Appliqués	Valeur lue	Erre	Erreur		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

Zero 9	0,00 kg	0.00 kg	0.00 kg	0 d	1 d	OUI			
☐ Méth	Méthode de substitution utilisée								
Un réglage de la balance a été requis Si NON, les résultats relatifs à l'état du système avant la prestation de service correspondent à l'état de									
V	oui 🔲	NON							
Répétabil	ité								

100.00 kg Poids appliqués :

		7	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

#### Incertitude

Mesure de l'incertitude =	0.022 kg
---------------------------	----------

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

### Remarques

Aucune		50	

Version Logiciel:

4.3.0.7

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No du rapport d'étalonnag CA0003-090-032111

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 I	nternational inc.			
Adresse :	250, rue Copenhague				
Ville :	St-Augustin	État/Pro	vince :	Québec	
Code postal :	G3A 2V1	Astea C	ustomer ID:	C037589	001001
Instrument					
Constructeur :	Mettler Toledo	Modèle	de terminal :	IND560	
Modèle :	2256 kg	No de s	érie du termin	00927336	6KL
No de série :	B00927336KL	No. Séri	e Impr.	N/A	
Capacité :	625 kg	Service	Pièce :	Lab	
Résolution :	0.02 kg	Nbre de	Divisions	31250	
Classe:	Ш	Procédu	re utilisée :	Canadien	
Numéro/ID d'actif du clie	SBI-186				
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		
Date de calibrage :	21-mars-2011	Le proch	nain Cal Date	31-mars-2	2012
Signataire autorisé (A2LA) :	Dany Careau	Signatui	æ.	FLECTRO	ONIC SIGNATURE
Signature du client	Daily Gallous	Olgitalia.	•		STATE STOCKS TO THE
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'étal	onnage 🎨	Date proch. étalonnage
42268	M10-0278	M1	5-août-	2010	5-août-2011
MTP1	MT0015626	F1	17-sept.	-2010	17-sept2011
Kit S	1356103	M1	5-oct2	2010	5-oct2011
			·		

Version Logiciel:

4.3.0.7

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### **METTLER TOLEDO**

### Résultats de mesure

1 -	4	_ 4.	4.		
La	tem	nei	all	ıre.	1

70 °F

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

#### Test de variation

_ <sub>1</sub>	20
_ <sup>4</sup>	3

		Avant Réglage
Les poids Appliqués	Position	Valeur lue
1: 125 kg	Position 1	124,98 kg
2: 125 kg	Position 2	124.98 kg
3: 125 kg	Position 3	125.02 kg
4: 125 kg	Position 4	125,00 kg
Erreur maximum		0.04 kg
Max Erreur Admissible		0.10 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	100.00 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		

П	Méthode	de	substitution	utilisée
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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

**☑** NON

### **METTLER TOLEDO**

#### Répétabilité

Poids appliqués : 100.00 kg

	Chargé	Vide	Différence
1	100,00 kg	0.00 kg	100 kg
2	100.00 kg	0.00 kg	100 kg
3	100.00 kg	0.00 kg	100 kg
	Erreur maximale :	0,00 kg	0.0 d
	Tolérance :	0,10 kg	5 d

#### Incertitude

Mesure de l'incertitude =	0.012 kg	
---------------------------	----------	--

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

#### Remarques

Aucune.			

4.3.0.7



Certificat d'Étalonnage

		- 1				
Groupe de service des instruments 1-800-267-6633		<b>#</b> 724396 - 01				
Client: SBI Stove Builder Inte		,	Local: Metrologie			
St-Augustin de Desma	aures		Modèle: TE214S			
Balance			# <b>Série</b> : 258510	066		
Liste des Vérification	codes		Spécificati	ions: Fabricant: 🛭	Client:	
Câble d'alimentation	<u> </u>	Capacité : 210 g		Tolérance : 0.2 r	na	
Sélecteurs, clavier, commandes	<u> </u>	Résolution : 0.1 m	g			
Circuits imprimés	OK			☐ Linéarité 区	Charge Maximale	
Mécanisme de pesée	OK		Relevées de	<u>es vérifications</u>		
Poids d'étalonnage interne	N/A		Référence	Tel que trouvé	Tel que laissé	
Horizontalité	<u> </u>	⊠ g □ mg	0.0500	0.0500	0.0500	
Plateau et support de plateau	OK	⊠ g □ mg	5.0000	5.0056	5.0000	
Boîtier et housse	<u> </u>	⊠ g □ mg <sub>=</sub>	50.0000	50.0564	50.0001	
Vitres	<u>OK</u>	⊠ g □ mg	200.0000	200.2254	200.0000	
Fonction de tarage Fonction Auto-Calibration Hysteresis		Répond aux spécificat Répond aux spécificat	-			
Charges excentrées Tolérance : ±		4 1 2	4 3	Charges excentroids d'essai: 100	r <b>ées</b> ⊠g □ kg	
Commentaires :		Tel que trouvé :	Tel que laissé :			
		Centre: <u>0.0000</u> 1: 0.0000 2: 0.0000 3: 0.0000 4: 0.0000	Centre: <u>0.0000</u> 1: 0.0000 2: 0.0000 3: 0.0000 4: 0.0000	Répond aux : Tel que trouvé : Tel que laissé :		
Codes : OK = , vérifié , éta		N/A = non applicat		Déf = défectueux	Remp = Remplacer	
<u>Étalons certifiés</u>	ì	Représentant de		Daniel Toulouse	Digitally signed by Daniel Toulouse Date: 2010.11.15	
Jeu de poids QUE014		Date d'étalonna	ige:	15 Novembre 2010	PRINTING TWO W	
		Prochaine date	d'étalonnage :	30 Novembre 2011		
		Approbation du	client :			
		Date:		-		

## Thermal Metering System Calibration Y factor for Method 5G sampling

Manufacturer:

American Meter Company

Model:

Serial Number:

DTM-200A		
Per	90R054300	

Average Gas Meter y Factor 1,000

Calibration Date:

04-28-11

Calibrated by:

Claude Paré

Calibration Prequency:

Next Calibration Due:

6-month 10-27-11

Instrument Range:

1,000 cfm

Standard Temp.:

67 oF

Standard Press.:

29,92 "Hg

Barometric Press,:

29,66 "Hg

Signature/Date:

2011-04-28

Previous Calibration Comparision

Date	N/A	Acceptable	
		Deviation (5%)	Deviation
y Factor	1,003	5	0,003
Acceptance	Acc	eptable	

#### Current Calibration

Acceptable y Dev	iation	0,020
Maximum y Devi	ation	0,003
Acceptance	Accep	otable

	Reference	: Standard *	
Standard	Model	Standard Test	Meter
Calibrator	S/N	07J264834	
	Calib. Date	21-mars-11	
	Calib. Value	0,9930	y factor (ref)

Calibration Parameters	Run I	Run 2	Run 3
Vacuum ("Hg)	0,00	0,00	0,00
dH (*H2O)	0,00	0,00	0,00
Initial Reference Meter	543,9	549,1	554,5
Final Reference Meter	548,9	554,3	559,8
Initial DGM	462,625	467,778	473,129
Final DGM	467,581	472,933	478,407
Temp. Ref. Meter (°F), Tr	67,0	67,0	68,0
Temperature DGM (°F), Td	67,0	67,0	68,0
Time (Minutes)	45,5	48,0	50,0
Net Volume Ref. Meter, Vr	5,000	5,200	5,300
Net Volume DGM, Vd	4,956	5,155	5,278
Gas Meter y Factor =	1,002	1,002	0,997
Gas Meter y Factor Deviation (from avg.)	0,002	0,001	0,003
Orifice dH@	0,00	0,00	0,00
Orifice dH@ Deviation (from avg.)	0,000	0,000	0,000

where:

0,108923077

- 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.  $dH@=0.0317 \times dH / (Pb (Td + 460)) \times {(Tr + 460) \times time) / Vr}^2$
- Reference calibration is traceable to NIST through NIST Test # 40674, Kimble ASTM E1272

### Thermal Metering System Calibration Y factor for Method 5G sampling

Manufacturer: American Meter Company Model: DTM-200A Scrial Number: 987.332226

> Average Gas Meter y Factor 0,996

Calibration Date: 04-28-11 Calibrated by: Claude Paré Calibration Frequency: 6-month Next Calibration Due: 10-27-11 Instrument Range: 1,000 cfm Standard Temp.: 71 oF Standard Press.: 29,92 "Hg

Signature/Date:

Barometric Press.:

2011-04-28

Date	N/A	Acceptable	
		Deviation (5%)	Deviation
y Factor	0,996	5	0,000
Acceptance	Acc	centable	

**Previous Calibration Comparision** 

Curi	ent Calibration
Acceptable y Dev	iation 0,020
Maximum y Devi	ation 0,001
Acceptance	Acceptable

	Reference	Standard *	
Standard	Model	Standard Test	Meter
Calibrator	S/N	07J264834	
	Calib. Date	21-mars-11	
	Calib. Value	0,9930	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	560,3	565,5	57:
Final Reference Meter	565,3	572,8	578
Initial DGM	552,783	557,957	565,424
Final DGM	557,76	565,228	570,396
Temp. Ref. Meter (°F), Tr	70,5	71,0	71,0
Temperature DGM (°F), Td	70,0	70,0	70,0
Time (Minutes)	50,5	72,0	48,5
Net Volume Ref. Meter, V <sub>T</sub>	5,000	7,300	5,000
Net Volume DGM, Vd	4,977	7,271	4,972
Gas Meter y Factor =	0,997	0,995	0,997
Gas Meter y Factor Deviation (from avg.)	0,001	0,001	0,001
Orifice dH@	0,00	0,00	0,00
Orifice dH@ Deviation (from avg.)	0,000	0,000	0,000

29,49 "Hg

where:

#### 0,098554455

- I. 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.  $dH@ = 0.0317 \times dH / (Pb (Td + 460)) \times [(Tr + 460) \times time) / Vr]^2$
- 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

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	<u>Model#</u> 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:

0 to 250 sofh Method Used: Laminar

Accuracy Specified By: American Met.

Condition: Functional

Comments: Calibration Date: 03-21-2011

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.

Performed By:

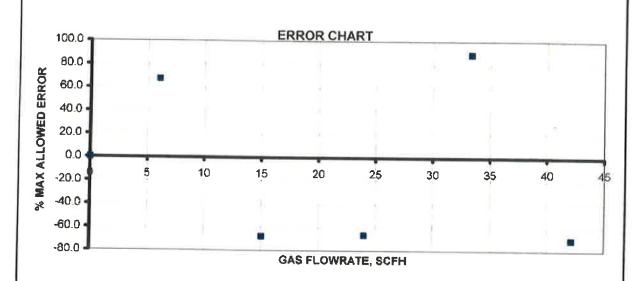
M. Rodriguez Calibration Technician

Date: 3/21/11

### ATTACHMENT TO CALIBRATION CERTIFICATE 24648 AS FOUND DATA

Page 2 of 2

Air Flow Rate From Standard, scfh	Air Vol From Standard, scf	Air Vol From Meter, cf	Air vol From Meter, scf	Diff Air Vol STD - METER scf	% Proof	Measurement Uncertainty, scf	STATUS
6.069	0.2962	0.300	0.294	0.00	100,679	0.002	Pass
15.044	0.9576	1.000	0.964	-0.01	99.327	0.005	Pass
24.043	0.9605	1.000	0.967	-0.01	99.338	0.005	Pass
33.346	1.9576	2.000	1.940	0.02	100.896	0.010	Pass
42.149	1.935	2.000	1.949	-0.01	99.301	0.010	Pass



		NSTRUMENT SPECIFICATIONS	
Test Gas	Air		
Standard Pressure, Meter	14.73	pala	
Standard Temperature, Meter	60	F	
Rated Accuracy	4	% Rding	
Full Scale Flow Rate	250	sofh Natural Gas @ 1/2 inch WC	
	LAB	ORATORY AMBIENT CONDITIONS	
Pressure	14.40	psia	
Humidity	30.8	% RH	
Temperature	69.6	F	



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

NIST Traceable Calibration Data Sheet

www graftel com

C. 870 Cambridge Drive, Elk Grave Villege, 11.80007 P. 847-384-2500 F. 847-384-2888

Date: 12/7/2010

Equipment: SBI-134 (T1)
Accuracy: 0.2
Reference: SBI-096

Temperature: R.H.:

71 F

41%	11/

7			
S.D.	0.00	%	
R.M.U.	0.10	%	
O.M.U	0.45	%	
	Ave A.D.	0.20	%
Standard	Reading	A.D.	
200.0	199.6	0.20	
200.0	199.6	0.20	
200.0	199.6	0.20	

Standard

A.D.

%

70.0 70.0 70.0

70.0 69.8 70.0

0.00 0.29 0.00

R.M.U.

0.00 0.29 **0.60** Ave A.D. Reading

0.10

S.D. R.M.U. O.M.U	0.00 0.01 <b>0.09</b> Ave A.D.	% 0.04
Standard	Reading	A.D.
1400.0	1399.4	0.04
1400.0	1399.4	0.04
1400.0	1399.4	0.04

R.M.U.

0.00 0.02 **0.10** Ave A.D. Reading

0.05

Standard

A.D.

%

1000.0 1000.0 1000.0

999.6 999.6 999.4

0.04

	000	2	
S.D.	0.00	%	
R.M.U.	0.03	%	
O.M.O	0.21	%	
	Ave A.D.	0.10	%
Standard	Reading	A.D.	
600.0	599.4	0.10	
600.0	599.4	0.10	
600.0	599.4	0.10	

Technician:	
Claude Paré	

Date:

12/7/2010

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

S.D. R.M.U.

Température: R.H.:

71 F 41%

_					_		_
70.8	70.8	70.8	Reading	Ave A.D.	2.36	0,29	20.0
1.14	1.14	1.14	A.D.	1.14	%	%	%
				%			
			(0)				

Standard

70.0 70.0 70.0

	0.04	1000.4	1000.0
	0.04	1000.4	1000.0
	0.04	1000.4	1000.0
	A.D.	Reading	Standard
%	0.04	Ave A.D.	
	%	0.09	O.M.U
	%	0.02	R.M.U.
	%	0.00	S.D.

Technician: Claude Paré

S.D. R.M.U. <b>O.M.U</b>	0.00 0.10 <b>0.45</b>	% % %	
	Ave A.D.	0.20	%
Standard	Reading	A.D.	
200.0	200.4	0.20	
200.0	200.4	0.20	
200.0	200.4	0.20	

S.D.	0.00	%	
R.M.U.	0.01	%	
O.M.O	0.03	%	
	Ave A.D.	0.01	%
Standard	Reading	A.D.	
1400.0	1400.2	0.01	
1400.0	1400.2	0.01	
1400.0	1400.0	0.00	

S.D.	0.00	%	
R.M.U.	0.03	%	
O.M.U	0.09	%	
	Ave A.D.	0.03	%
Standard	Reading	A.D.	
600.0	600.2	0.03	
600.0	600.2	0.03	
600.0	600.2	0.03	



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

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

### CALIBRATION CERTIFICATE

Certificate no.:

228051

Identification:

SBI-096

Description:

CALIBRATOR, OMEGA CL23A

Size:

TC K/J/T

Manufacturer: Model no.:

OMEGA CL23A

Serial no.:

T-256137

Calibration date

August 09, 2010

Certificate issued

August 09, 2010

Interval:

12 months

Due date:

August 9, 2011

Procedure no.:

MET/CAL

Environment:

CLAS Type 2 Laboratory

Temperature:

23 ± 2°C

Humidity:

35 - 55% RH

Metrologist:

NFS

Property of:

SBI

250 RUE DE COPENHAGUE

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

Approved by:

Viscolo Mercuri Lab Magazan

This calibration certificate is issued in accordance with the applicable requirement of ISO/IEC 17028 and QM-08. Measurement results provided are traveable to either the National Research Council Canada (NRC), the National Institute of Standards and Technology (NIST), a national Interatory of another country signatory to the CIPM Mutual Recognition Arrangement (MRA), to a valibration laboratory according by an according 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 (est 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. - Utrich Metrology Inc.

9912, Côte-de-Liesse Lachine, QC H8T1A1 www.ulrich.ca

Tel. (514) 631-6653 Fax (514) 631-6122

info@ulrich.ca

### CALIBRATION DATA

Certificate No.228051

Instrument ID:

SBI-096

Type:

CALIBRATOR THERMOMETER

Serial no.:

T-256137

Procedure:

Omega CL23A: 5520A-M

Result:

PASS

Condition: FOUND-LEFT

**CALIBRATION STANDARDS** 

Standard ID

Type

Manufacturer

Model no.

Cal. Date **Due Date** 

7870009

CALIBRATOR

FLUKE

5520A

2010/04/23 2011/04/23

MEASUREMENT RESID TO (POPMETICAL)

	TRUE	TEST	ACCEPTANC	E LIMITS	PASS/	
RAMETER	VALUE	RESULT	LOW	RIGH	PAIL	TUR
SPLAY CALIBRATION						
d all segments of the displa	v illuminate2					
sult of Operator Evaluation	.7					
					PASS	
ERMOMETER CALIBRATION						
Type Thermocouple						
00.0degF		-200.8	-201.0	-199.0	0.000	
0.0degF		-60.6	-61.0	-199.0 -59.0	PASS	1.7
3.0degF		-40.5	-40.5	-39.5	PASS	3.1
2.0degF		31.6	31.5		PASS	1.5
240.0degF		1239.6	1239.5	32,5 1240,5	PASS	1.7
260.0degF		1259.6	1259.5		PASS	1.1
00.0degF		2499.5	2499.0	1260.5	PASS	1.1
Thermocouple		4,477.2	2433.0	2501.0	PASS	1,4
0.0degF		-200.6	-201.0			
.OdegF		-60.4	-201.0	-199.0	PASS	2.1
.OdegF		-40.4	-40.5	-59.0	PASS	3.5
.OdegF		31.6	31.5	-39,5	PASS	1.7
40.0deg#		1239.5		32.5	PASS	2.0
60.0deg#		1259.5	1239.5 1259.5	1240.5	PASS	1.6
00.0degF		1399.5		1260.5	PASS	1.6
ype Thermocouple		1193.5	1399.4	1400,6	PASS	1.8
0.0degF		-200.3	202 0			
. OdegF		-60.0	-201.0	-199.0	PASS	2.3
.OdeqF		-40.1	-61.0	-59.0	PASS	2.3
. OdegF		31.6	-40.5	-39.5	PASS	1.2
D. OdeqP		749.8	31.5	32.5	PASS	1.7
-		743.0	749.5	750.5	PASS	2.0
IBRATOR CALIBRATION						
ype Thermocouple						
).0degF		-199.3	~201.0	160 4		
. Odeg F		-59,7		-199.0	PASS	1.7
.OdegF		-39.7	-61,0 -40,5	-59.0	PASS	3.1
OdegF		32.2		-39,5	PASS	1.5
-		36.6	31.5	32.5	PASS	1.7
		7010	21,3		34.3	32.3 PASS



### Ulrich Métrologie inc. - Ulrich Metrology inc.

9912, Côte de Liesse Lachine, QC H8T1A1

Tél. (514) 531-5653 Fax (514) 631-6122

www.ulrich.ca info@ulrich.ca

	TRUE	TEST	ACCEPTANCE	LIMITS	PASS/	
PARAMETER	VALUE	RESULT	LOW	HIGH	PAIL	TUR
1240.0degF		1239,6	1239.5	1240.5	PASS	1.1
1260.0degF		1259.6	1259.5	1260.5	PASS	1.1
2500.0degP		2499.3	2499.0	2501.0	PASS	1.4
Type Thermocouple				200210	ENDO	4 - 4
200.0degF		-199.9	-201.0	-199.0	PASS	2.1
60.0degF		-60.1	-61,0	-59.0	PASS	3.5
40.0degF		-39.9	40,5	-39.5	PASS	1.7
32.0degF		31.9	31.5	32.5	PASS	2.0
1240.0degF		1239.5	1239.5	1240.5	PASS	1.6
1260.0degF		1259.6	1259.5	1260.5	PASS	1.6
1400.0degF		1399.3	1399.4	1400.6	FAIL	1.8
1400.0degF		1399.5	1399.4	1400.6	PASS	1.8
Type Thermocouple				2.00.0	FALSE	1.0
200,0degF		-199.8	-201.0	199.0	PASS	2,3
60.0degF		-60.0	-61.0	-59.0	PASS	2,3
10.0degF		-39.0	-40.5	-39,5	PASS	1,2
12.0degF		31.9	31.5	32.5	PASS	1.7
750.0degP		749.6	749.5	750.5	PASS	2.0

End of Test Date



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

www.chevrierinstruments.com

Tèl. (514) 328-2550 I 800 522-1226 Fax (514) 327-0604

Info@chevrierinstruments.com

instruments de mesore et de régulation pour les procédés industriets et laboratoire d'étalonnage

### Certificat d'étalonnage

Numéro du certificat: CE1640

Étalonnage effectué par :

LA CIE J. CHEVRIER INSTRUMENTS INC. 4850 GOUIN EST

MONTREAL, QC, CANADA H1G 1A2

our:

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-101

Etat de l'instrument: BON

POINTS D'ÉTALONNAGE

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

C.O PJB

> OK OK OK OK OK OK OK

Water March Harry	Valeur Appliquée	Tolérance -	Lectures	Tolérance +
Ascendant	0.0000 poH2O	-0.0100	0	0.0100
Ascendant	0.0500 poH2O	0.0400	0.045	0.0600
Ascendant	0.1000 poH2O	0.0900	0.10	0.1100
Ascendant	0.1500 poH2O	0.1400	0.15	0.1600
Ascendant	0,2000 poH2O	0.1900	0.20	0.2100
Ascendant	0.2500 poH2O	0.2400	0.25	0.2600

n	The state of the s	rolerance -	Lectures	Tolerance +	Verdict
Descendant	0.2500 poH2O	0.2400	0.25	0.2600	OK
Descendant	0.2000 poH2O	0.1900	0.20	0.2100	
Descendant	0.1500 poH2O	0.1400	0.15	0.1600	OK OK
Descendant	0.1000 poH2O	0.0900	0.10	0.1100	
Descendant	0.0500 poH2O	0.0400	0.045		OK
Descendant	0.0000 poH2O		0.043	0.0600	OK
	orada porteo	-0.0100	0	0.0100	OK

### Certificat d'étalonnage

Numéro du certificat: CE1640

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

I.D.	Certificat No	Description	Étalonné le	Échéance	251
CHEV175	12688334994	CALIBRATEUR DE PRESSION DH PPC4	2010-03-17	2011-03-17	100

Procédures utilisées pour effectuer cet étalonnage

Procedure Description

3PR500-01-CHE ÉTALONNAGE DE MANOMÈTRE



4850, bd Gouin est Montréal-Nord, Qc Canada HIG IA2 www.chevrlerInstruments.com Tel. (514) 328-2550 1 800 522-1226

info@chevrierinstruments.com

laxiremente de mezuro et de régulation peur les procédés industriels et incorminte d'étalonnage

### Certificat d'Étalonnage

Numéro du certificat: CE509

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 Modèle:

DWYER 1608-24

Numéro de série

LD

SBI-203

État de l'instrument: BON

Commentaire :

Pour:

3424

SBI INC.

250, RUE DE COPENHAGUE

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

Dâte d'étalonnage : 2010-12-15

Échéance :

2011-12-15

Résultat de l'étalonnage: Conforme

Conditions ambiantes: 21:1 "C / 39 %hr

Technicien

Abdennour Hocini A. H

DC

Points d'étalonnage			
Valeur Appliquée pi/min	Pitot standard "Ce	Pitot Uut "Ce	ratio
298 pi-min	0.0055 poH2O	0.0074 paH2O	0.86
499 pi-min	0.0154 poH2O	0.0231 paH2O	0.82
802 pi-min	0 0398 poH2O	0.0577 paH2O	0.83
1002 pi-min	0,0622 poH2O	0.0920 poH2O	0.82
2004 pi-min	0.2485 poH2O	0 3614 poH2O	0.83
3008 pi-min	0.5592 poH2O	0.8208 poH2O	0.83
4014 pi-min	0.9940 poH2O	1.4596 poH2O	0.83
5022 pi-min	1.5535 poH2O	2.2827 poH2O	0.82



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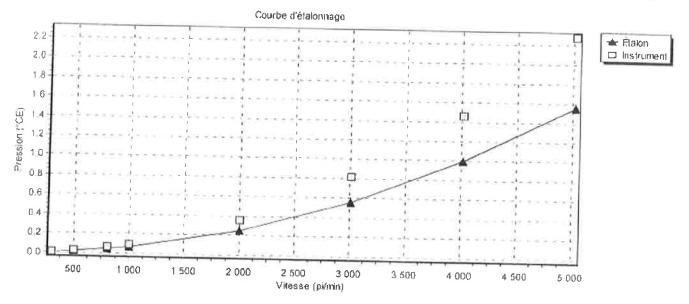
Tél. (514) 328-2550 1 800 522-1226

Fax (514) 327-0604 info@chevrierinstruments.com

instruments de montre et de régulation pour les procédés industrials et laboratoire d'étalones pa

### Certificat d'Étalonnage

Numéro du certificat: CE509



Fait conformément à l'Échelle International de Température EIT90.

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

LD. **Certificat No** Description

CHEV029

091210-960294 MANOMETRE NUMERIQUE FURNESS PPC500

CHEV031 CHEV121-100830

TUYÉRE AIRFLOW DEVELOPMENTS

Procedures utilisées dans cet étalonnage

Procédure

Description

3PR500-22-CHE

ÉTALONNAGE TUBE DE PITOT

Étalonné le Échéance 2009-12-16

2010 12-16

2010-08-30 2011-02-28

Date de révision

Date:

11/24/2010

ID:

SBI-113

### Post test calibration

	Calibration gas	Reading
СО	20.10%	20.14%
CO2	19.80%	19.85%
02	20.90%	20.95%

	Nitrogen	Reading
СО	0.00%	0.00%
CO2	0.00%	0.00%
02	0.00%	0.00%

# 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<sub>n</sub> Total particulate matter collected, mg

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

V<sub>s</sub> 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, lbs/hr

PR Proportional rate variation, %

### Dry Burn Rate

Using equation 28-3:

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

Where,

BR = Dry burn rate, 1b/hr

W<sub>wd</sub> = Mass of wood burned (wet basis) during test run, 1b

θ = 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,

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

$$\%M_{_{1P}} = 16.69\%$$

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:

 $K = 17.64 \,^{\circ}\text{R/in. Hg}$ 

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

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

V<sub>m</sub> = Volume of gas sample measured at the dry gas meter, dcf

Y = Dry gas meter calibration factor, dimensionless

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

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

 $T_m$  = 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:

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

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

Where:

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

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

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,  $H_2O$ 

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

 $m_n$  = 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:

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

Where:

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

3600 = Conversion from seconds to hours

B<sub>ws</sub> = Moisture content of dilution tunnel gas, ratio; assume 4% (per method 5G)

V<sub>i</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>g</sub> = Dilution tunnel static pressure, in. Hg

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

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

#### Sample calculation:

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

$$Q_{sd} = 8313,36 \ dsefthr = 138.56 \ dseftmin$$

### 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>sdj</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

 $Q_{sd}$  = 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:

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

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

Volume of gas sample measured by the dry gas meter during the "lib" 10 minute interval, dsef

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

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<sub>mi</sub> = Absolute average dry gas meter temperature during each 10 minute interval, i, of the test run, °R

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

T<sub>st</sub> = Absolute average gas temperature in the dilution tunnel during each 10 minute interval, i, of the test run, °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):

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

Appendix F

**Test Data** 

Manufacturer: SBI Model: XTD 1.9

Project No. G100456088

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

Type of Stove:

V 1.1

2

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

Weighted Average

1=cat

2=noncat

3=pellet

(E) Ave.

Heat

(K)

Test	Burn	Emission		Output		Weighting		
No.	Rate	Rate g/hr	(OHE)	(BTU/HR)	Prob.	Factor	(KxE)	KxOHE
1	0.96	4.82		11575.87	0.3384	0.4494	2.1661	0.00
2	1.09	4.07		13143.44	0.4494	0.5422	2.2068	0.00
3	1.84	3.15		22187.09	0.8806	0.5264	1.6582	0.00
5	2.67	2.87		32195.39	0.9758	0.1194	0.3427	0.00
				0.00	1.0000	0.0000	0.0000	0.00
				0.00	1.0000	0.0000	0.0000	0.00
				0.00	1.0000	0.0000	0.0000	0.00
				0.00	1.0000	0.0000	0.0000	0.00
				0.00	1.0000	0.0000	0.0000	0.00

0.0000 0.0000 0.00

Totals:

1.6374

6.3737

0.00

Weighted average emissions rate:	3.8926
Weighted Average OHE:	0.00

# Run 1



#### Run Notes EPA Methods 28 and 5G-3

PROJECT / TES	T INFORMATION
Project Number:	G100456088
Manufacturer:	SBI
Model:	XTD 1.9
Sample ID Number:	MTL1108221414-001
Test Date:	22-Aug-11
Test Run Number:	1
Date tunnel cleaned:	8/18/2011
Purpose of Test	Cat 1



	ļ.	Appliance Information					
	Appliance		1 - Catalytic 2 - Non - Catalytic				
i	Type:	2	3 - Pellet				
			4 - Hydronic				
je	Firebox Volume, ft <sup>3</sup> :	2.14	N/A for pellet type				
	Convection Blower	2	1 - No Fan 2 - Fan Optional 3 - Fan Standard				

		Test Settings
-	rimary Air:	Fully closed
	ondary Air:	
Co	ntrol Board:	N/A
E	Blower/Fan:	Off the first 30 minutes and turned On-Low after 30 minutes for the reminder of the test
		Pre- Burn Activities
Time (min.)		primary air when the scale indicated 8.00 pounds
45	Stirred the	
100	Leveled the	e Coal Bed for 50 seconds
		Otant III. Danca dona
	first said	Start-Up Procedure
		Loaded by 50 seconds
		Left ajar for 90 seconds
		Fully open the first 5 minutes. Abruptly closed at 5 minutes.
	condary air: ntrol board:	
		<u></u>
D	lower / tan:	Off the first 30 minutes and turned On-Low after 30 minutes for the reminder of the test
N1 D1-	0.00	Other Notes
oal Bed I	ange: 2.8-3.	4 10



				VERSION 1.2	2	2/5/2010						
Manufacturer:	SBI											
Model:	XTD 1.9											
Date:	22-08-2011				- 4							
Run:	1											
Control #:	G100456088											
Test Duration:	330											
		Start	End									
	Barometer (in.Hg):	29.54	29.5									
	N. Carrier (Table )											
	Dry Bulb (F):	82	82									
	Humidity (%):	24	22									
*Blower turned on at 30 min - lo	w position.											
Moisture content of	f wood (wet basis):	16.5786		1 1								
	Average	1.32	4.51	15.77	222.75	84.38	99.08	388.10	410.33	386.36	420.06	329.36
500			•		•		•	•		•	•	
Elapsed	Weight				Flue	Room	Tunnel	Unit	Unit	Unit	Unit	Unit
Time	Remaining	CO	CO2	O2	Gas	Temp	Dry Bulb	Тор	Back	R.Side	L.Side	Bottom
0	13.95	0.65	1.97	19.07	264.06	81.68	110,11	376.03	488 82	433.31	474.67	408.04
10	13.17	0.69	3.42	17.25	236,03	92.63	97,66	382.31	464_11	398.73	452.71	406,02
20	12.54	0.95	4.07	16.92	224.55	84.40	98,69	360,97	429.37	363.69	423.05	397.11
30	11,80	0.72	9.12	12.38	226,30	83.92	98,04	368,27	402 09	351.77	407.93	382,87
40	10.77	0.70	10.32	10.59	267,51	80,80	101,06	434.50	399.52	347.01	398.85	360.48
50	9,65	0.57	9.83	10.79	305.72	89.53	105,04	533.45	418.80	362 82	412.32	343,61
60	8.47	0.88	10.69	9.71	323,50	83.53	111,34	583.70	277.12	379.99	434.74	331.49
70	7.25	0.96	8.75	11.72	331.86	92.24	108,67	612.47	297,39	399 68	453.81	324,04
80	6.21	0.98	8.27	12.27	313,43	89.68	109,75	592.06	314.81	419.83	474.81	321,40
90	5.27	0.81	8.12	11.94	302,83	84,39	112,11	558,89	328.00	438 22	486,06	318.29
100	4.45	0.60	7.18	13,47	293.92	83.12	110,60	542,25	339.29	447.21	492,56	316,78
110	3,80	1.03	5.57	14.85	276.99	82.31	109.10	522.92	359.76	451.31	499.55	316,59
120	3.35	0.97	5.46	14.32	251.45	82.90	105.75	485.10	408.81	455.39	496.10	316,93
130	2.91	1.11	4.62	15.2B	244.29	81.50	105,15	455,33	506 74	458.82	487.86	317,01
140	2.62	1.00	4.58	15.58	230.41	79.22	102.78	434.16	528 58	461.66	482.36	317,82
150	2.42	1.27	4.15	15,83	220.39	79.40	101,75	410,23	514,94	449.20	475.50	318,59
160	2.22	1.51	3.31	16.72	214.12	78.46	100.32	390,84	505.08	431.31	466 23	318.82
170	2,07	1.67	3.40	16.51	209,55	77-71	99.01	372.79	494_16	412.28	456 24	320,02
180	1,92	1.52	3.12	16.72	201.83	85.81	96.15	357.47	480.73	393.25	443.24	321.60
190	1.73	1.81	3,03	16.66	196.09	86 15	96,63	344.24	467.38	380,69	430.71	322,86
200	1.55	1.87	2.96	16.79	191,56	84,50	95,60	332.62	453.95	375.73	418.53	323,48
210	1.41	2,27	2.51	17.16	187.99	83.42	95.18	324.72	442.70	364 12	408.40	322.81
220	1.29	1.76	2.81	17.37	185 14	84.16	93.30	316,35	432.57	358.93	400.20	321,64
230	1.18	1.85	2.72	17.41	182,43	86.36	93,37	309,29	421.99	356.56	391,25	320,55
240	1.04	2.02	2.48	17.63	179.70	85.18	92.97	304.02	410.81	347.66	384 62	318.74
250	0.90	1.88	2.59	17.6	178.06	84.52	92,55	299.06	401.65	341.23	378.63	316.90
260	0.75	1.98	2.04	17.96	175.76	84.96	92.49	292.58	395.71	336.78	370.42	314.82
270		1.81	2.16	17.92	172.57	82.91	92,08	286,65	390.07	335.34	361.37	312,89
280	1	1.67	2.33	17-71	169.44	82.71	92.15	279.59	381 27	341.17	352-29	312-14
290		1.34	2.89		166.11	87.51	90.06	273,75	372.08	346.71	344.31	312.23
300		1.41	2.56		163.92	88.72	88.31	268.25	363.55	352 94	337.95	312.95
310		1.46	2.06		163,46	86.84	89.79	266.89	357.81	355.02	332 93	310,99
320		1.41	2.18		162.04	86.03	90.49	263.78	353.50	347-14	328.65	310-50
330		1.60	1.94		160.34	81.61	90.61	259.95	347.98	340.87	323,06	307.39



Man	for all cases	CDI											
Manu	ıfacturer:	Control Consession											
		XTD 1.9											
	ALCOHOLD BY SHALL BE	22-08-20	111										
	Run:												
C	Control #:	G100456	8808									ļi	
												L	
348.76			81.82	388.01	79,58	79.50	82.74	0.02		0.00	386.84		
5.00	9.€1	*	•		•		1.0	) <b>(*</b> )		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	Elapse
Reading	Inlet T	Outlet T	Temp	Reading	Inlet T	Outlet T	Temp	Velocity	Draft	Observed	Temp	Temp.	Time
333,439	78.26	78.19	79.42	370.835	78.26	78.12	79.09	0.021			436.2	0	(
334.379	78.40	78.32	81,00	371.795	78.34	78,24	81.09	0.021			420.8	-15.402	10
335,300	78.44	78.38	81.23	372.745	78.40	78,31	81.57	0.021			394.8	-41.34	20
336,232	78.59	78.48	81.22	373.812	78.49	78.44	81.92	0.021	,		382.6	-53.591	30
337,163	78.79	78,65	81.44	374.925	78,65	78.65	82.22	0.021			388.1	-48.102	40
338.090	78.75	78.71	81.59	375.958	78.71	78,68	82.40	0.021			414.2	-21.978	50
339.012	78.83	78.76	81.85	376.962	78.78	78.76	82,99	0.021			401.4	-34.768	60
339.938	79.05	78.90	82.41	378.038	78.95	78.91	83.78	0.021			417.5	-18.699	70
340.866	79.11	79,00	82.42	379,064	79.05	78,99	83,96	0.021			424.6	-11.593	80
341.792	79.29	79.15	82.83	380,131	79.20	79.16	84.40	0.021			425.9	-10.285	90
342.726	79.39	79.24	82.95	381,218	79.31	79,27	84.52	0.021			427.6	-8.5597	100
343.657	79.51	79,35	82.95	382.265	79.42	79.38	84.57	0.021			430.0	-6.1501	110
344.580	79.51	79.37	82.85	383,313	79.51	79.40	84.38	0.021			432.5	-3.7093	120
345,513	79.55	79,44	82.73	384,363	79,56	79.43	84.19	0.021			445.1	8.9736	130
346.441	79.58	79.46	82.56	385,406	79,59	79.47	84.04	0.021			444.9	8.7391	140
347.382	79.66	79.55	82.43	386.468	79.68	79.55	83,80	0.021			433.7	-2.4874	150
348.305	79.65	79.57	82.30	387.495	79.69	79.57	83.51	0.021			422.5	-13.719	160
349,232	79.69	79.61	82.21	388,549	79.72	79.61	83.24	0.021			411.1	-25.078	170
350.261	79.72	79.70	82.12	389.695	79.81	79.70	83.10	0.021			399.3	-36.919	180
351.088	79.64	79.70	82.09	390.842	79.82	79.68	82.96	0.021			389.2	-47	190
352.011	79.76	79.80	81.92	391.694	79.86	79,79	82.78	0.021			380.9	-55.314	200
352.926	79.80	79.84	81.79	392.736	79.91	79.82	82.63	0.021			372.5	-63.626	210
353.843	79.89	79,91	81.63	393,788	80,01	79.97	82.44	0.021			365.9	-70.237	220
354.768	79.93	79.98	81.46	394.824	80,05	80.01	82.33	0.021			359.9	-76.247	230
355,698	79.97	80.04	81.60	395.862	80.07	80.03	82.38	0.021			353.2	-83.007	240
356.615	79.97	80.06	81.55	396,909	80.07	80.00	82.46	0.021			347.5	-88.682	250
357.549	80.04	80.12	81.70	397.945	80.14	80.08	82.51	0.021			342.1	-94.113	260
358,495	80.04	80.14	81.61	398.990	80.16	80,09	82.37	0.021			337.3	-98.913	270
359.422	80.19	80.25	81.49	400.035	80.31	80.28	82.19	0.021			333.3	-102.89	280
360.359	80.24	80.30	81.57	401.070	80.39	80,33	82.21	0.021			329.8	-106.36	290
361.381	80.21	80.29	81.23	402.118	80.41	80.28	81.84	0.021			327.1	-109.05	300
362.224	80.27	80.35	81.21	403.153	80.46	80.32	81.79	0.021			and the second of the latest and the	-111.45	310
363.160	80.28	80,33	81.22	404.191	80.49	80.35	81.80	0.021			320.7		320
364.104	80.33	80.35	81.28	405.238	80.46	80.34	81.82	0.021				-120.33 -120.3	4 (4)



	Manu	facturer:		SBI				
		Model:	I	XTD 1.9				
		Date:		22-08-2011				
		Run:		1				
	Projec	#:		G100456088		1		
	Test Dura	ation:		330				
Total Gas \	/olume (D	GM 1):		29.595	Pit	ot Factor	0.82	
Total Gas \	/olume (D	GM 2):		33.068		(0	.99 standar	d,
Average Bard	metric Pr	essure:		29.52		0.84 or Ca	al. Factor fo	r S-Type)
	Molecu	ılar Weig	ht:	28.56				
	Pitot C	orrection		0.9151				
Calibration Fa	actor (DG	M #1):		1.0000				
Calibration Fa	actor (DG	M #2):		0.9960				
			(1) VS:	0.0276				
			(2) VS:	0.0247			Filter	Filter
							Face	Face
DGM 1	DGM 1	DGM 1	DGM 2	DGM 2	DGM 2	Tunnel	Velocity	Velocity
Reading	Inlet T	Outlet T			Outlet T		DGM 1	DGM 2
333.439	78.3		370.835	78.3	78.1	110.1		
334.379	78.4	78.3	371.795	78.3	78.2	97.7	7.84	7.97
335.300	78.4		372.745	78.4	78.3	98.7	7.68	7.89
336.232	78.6		373.812	78.5	78.4	98.0	7.77	8.86
337.163	78.8	78.6	374.925	78.7	78.7	101.1	7.76	9.24
338.090	78.8	78.7	375.958	78.7	78.7	105.0	7.72	8.57
339.012	78.8	78.8	376.962	78.8	78.8	111.3	7.68	8.33
339.938	79.0	78.9	378.038	79.0	78.9	Committee of the Commit	7.71	8.93
340.866	79.1	79.0	379.064	79.1	79.0		7.73	8.51
341.792	79.3	79.2	380.131	79.2	79.2		7.71	8.85
342.726	79.4	79.2	381.218	79.3	79.3	110.6	7.77	9.01
343.657	79.5	79.3	382.265	79.4	79.4	109.1	7.75	8.68
344.580	79.5	79.4	383.313	79.5	79.4	105.8	7.68	8.69
345.513	79.5	79.4	384.363	79.6	79.4	105.2	7.76	8.70
346.441	79.6	79.5	385.406	79.6	79.5	102.8	7.72	8.64
347.382	79.7	79.6	386.468	79.7	79.6	101.7	7.83	8.80
348.305	79.6	79.6		79.7	79.6	100.3	7.68	8.51
349.232	79.7	79.6	388.549	79.7	79.6	99.0	7.71	8.73
350.261	79.7	79.7	389.695	79.8	79.7	96.1	8.56	9.49
351.088	79.6	79.7	390.642	79.8	79.7	96.6	6.88	7.84
352.011	79.8		391.694	79.9	79.8	95.6	7.68	8.71
352.926	79.8	79.8	392.736	79.9	79.8	95.2	7.61	8.63
353.843	79.9		393.788	80.0	80.0	93.3	7.62	8.71
354.768	79.9		394.824	80.08	80.0	93.4	7.69	8.58
355.698	80.0		395.862	80.1	80.0	93.0	7.73	8.59
356.615	0.08	80.1		80.1	80.0	92.6	7.62	8.67
357.549	80.0		397.945	80.1	80.1	92.5	7.76	8.58
358.495	80.0		398.990	80.2	80.1	92.1	7.86	8.65
359.422	80.2	1,000,000	400.035	80.3	80.3	92.2	7.70	8.65
360.359	80.2	80.3	401.070	80.4	80.3	90.1	7.79	8.56
361.381	80.2	20 7 to \$1.00 p. 10	402.118	80.4	80.3		8.49	8.67
362.224	80.3	80.3	403.153	80.5	80.3	89.8	7.00	8.56
363.160	80.3	THE RESERVE OF THE PARTY OF THE	404.191	80.5	80.3		7.78	8.59
364.104	80.3	80.3	405.238	80.5	80.3	90.6	7.84	8.66

1 Jught 03/26/12

	Clack	00 (62):	0.2404		84	ufacturer:	CDI	
107	Stack ar		0.3491		iviar			
	moisture	****	16.579			Long bands banks	XTD 1.9	4.1
	Veight (lb		13.95				22-08-2011	
Bum F	ate (Dry I	kg/nr):	0.960			Run:		
		(DGM #			539.524			
inal Te	mperature	(DGM #2	2) Degree	s Rankin	539.540			
Final To	unnel Ten	nperature	Degrees	Rankin:	559.078			
Final To	unnel Vel	ocity (feet	per seco	nd):	7.623023			
Sta	andardize	d Tunnel I	Flow (dsc	fm):	142.76			
		Average	Average					
		Inlet +	Inlet +					
		Outlet	Outlet	99,96	99,97	#1	#2	
Tunnel	Tunnel	Temp.	Temp.	1		dDGM	dDGM	
/elocity	Velocity	Meter 1	Meter 2			Vol.Std.	Vol.Std.	
Delta-P	Ft/Sec	Deg. R	Deg. R	PR1	PR2	(ft3)	(ft3)	Time
0.021	7.698	538.2	538.2	404.05	00.40	0.000	0.005	0
0.021	7.614	538.4	538.3	101.25	92,19	0.909	0.925	10
0.021	7.621	538.4	538.4	99.29	91.30	0.891	0.915	20
0.021	7.616	538.5	538.5	100.39	102.46	0.901	1.028	30
0.021	7.637	538.7	538.7	100.52	107.13	0.900	1.072	40
0.021	7.664	538.7	538.7	100.44	99.78	0.896	0.995	50
0.021	7.706	538.8	538.8	100.44	97.50	0.891	0.967	60
0.021	7.688	539.0	538.9	100.61	104.22	0.895	1.036	70
0.021	7.696	539.1	539.0	100.91	99.45	0.896	0.987	80
0.021	7.712	539.2	539.2	100.87	103.61	0.894	1.026	90
0.021	7.701	539.3	539.3	101.59	105.39	0.902	1.045	100
0.021	7.691	539.4	539.4	101.11	101.36	0.899	1.007	110
0.021	7.669	539.4	539.5	99.94	101.15	0.891	1.008	120
0.021	7.664	539.5	539.5	100.96	101.28	0.901	1.009	130
0.021	7.648	539.5	539.5	100.20	100.38	0.896	1.003	140
0.021	7.641	539.6	539.6	101.50	102.10	0.908	1.021	150
0.021	7.632	539.6	539.6	99.43	98.61	0.891	0.987	160
0.021	7.623	539.7	539.7	99.73	101.08	0.895	1.013	170
0.021	7.603	539.7	539.8	110.41	109.60	0.993	1.101	180
0.021	7.606	539.7	539.8	88.78	90.61	0.798	0.910	190
0.021	7.599	539.8	539.8	98.98	100.55 99.55	0.890	1.011	200
0.021	7.597	539.8	539.9	98.07		0.883	1.001	210
0.021	7.584	539.9	540.0	98.11	100.31	0.884	1.010	220
0.021	7.584	540.0	540.0	98.96	98.78	0.892	0.995	230
0.021	7.581	540.0	540.0	99.45	98.93	0.897	0.997	240
0.021	7.579	540.0	540.0	98.02	99.76	0.884	1.006	250
0.021	7.578	540.1	540.1	99.82	98.69	0.901	0.995	260
0.021	7.575	540.1	540.1	101.06	99.51	0.912	1.003	270
0.021	7.576	540.2	540.3	99.02	99.48	0.894	1.003	280
0.021	7.561	540.3	540.4	99.89	98.33	0.903	0.993	290
0.021	7.549	540.3	540.3	108.78	99.41	0.985	1.006	300
0.021	7.560	540.3	540.4	89.84	98.30	0.812	0.993	310
0.021	7.564	540.3	540.4	99.81	98.64	0.902	0.996	320
0.021	7.565	540.3	540.4	100.67	99.51	0.910	1.005	330



		Intertek Testing Service	s					
		SFBA EPA ADJUSTED	EMISSION	RESULT	S			
			WT-44-67-5-67-11		0			
Mani	ufacturer:	SBI				RESULT	S	
		XTD 1.9						
		22-08-2011		1-1-23-1-123		djusted Emis		4.82
	Run:			A	verage Ur	adjusted Em	ACCOUNT OF THE PARTY OF THE PAR	3.23
	*	G100456088				Burn Rate	(Dry kg/hr):	0.96
	Ouration (Minutes):	330				<u> </u>		
Tes	t Duration (Hours):	5.50						
				BABO	METDIC	PRESSU	DE	
				BARU	METRIC			20.5
							Average:	
	TEMPERATURE FAC	TORS DGM #1:	0.9786				Start: End:	29.5 29.
		DGM #1:	0.9786				CIIU.	29.
		DGIVI #Z.	0.9760	DEV	C METER	R VALUES		
	VOLUMES SAMP	I FD		DRT GA	IS IVIE I E	DGM #1	Final:	364.10
	VOLUMES SAME	DGM #1:	29.609			DGIVI #-1	Initial:	
		DGM #1:	33.084			ļ	nilla).	333,43
		DOWN WE.	55.00-			DGM #2	Final:	405.23
	TOTAL TUNNEL	OLUME (sch	47110			DOM #2	Initial:	370.83
	TOTAL TOTALLE	VOLUME (GGI).	41 110				in italian.	570.00
	SAMPLE RATIOS			TEMP	FRATU	RES (DEG	RANKIN	n .
		e Train 1:	1591.1	m.vew.	-13.11.01		DGM #1:	539.52
		e Train 2:	1423.9				DGM #2:	
	Campi	11,411,120	, .20.0					-55.5
	TOTAL EMISSION	NS		CALIB	RATION	FACTOR	S	
	Sample Train		18.62				DGM #1:	1.000
	Sample Train		16.94				DGM #2:	0.996
		Ave:	17.78					
	EMISSION RATES			TUNN	EL FLO	W RATE:		142.8
	Sample Train 1		3.38		A CONTRACTOR AND ADDRESS.	TICULATE	CATCH	
	Sample Train 2		3.08				Train 1:	
		Ave:	3.23				Filters	11.
	ADJUSTED EMIS	CONTRACTOR OF THE CONTRACTOR O				Management of	Probe	0.
	Sample Train 1		5.01			Ţ	Total	11.
	Sample Train 2		4.63			Sample	Train 2:	
		Ave:	4.82			T. Carrier	Filters	1
	DEV	/IATION:	3.90%				Probe	0.
							Total	11.
		ter than 7.5% due to low		catch				
		rates shall not differ by 7						
	of the weighted av	erage emission rate limi	t (4.1 or 7.5)	(5g-3)				
	Use the following:							
	Catalytic units		9.17%			1		
	7.5% of 4.1 g/hr		J.1170			-	7-02-51-1	
	1.070 OF THE GIRL							
	Non catalytic units	h	5.01%			<del>}</del>		

	Before 82	After 82	Before 29.54	After 29.50	Before 24	After 22	Before 0	Afte 0
		Temp	Bar Pressure	A ()	Relative H		Air Velo	
	Water C		19.54		1			
		DGM 1:	79.54		-		i	
	Tu	DGM 1:	79.52					
	Filte	r 2: nnel:	82.74 99.08		ļ			
	Filte	Sanda Talana Salah I	81.82					
	Company to the Company of the Compan	ation:	3.90%		ļ			
		em 2:	4.631		1			
		em 1:	5.007		1			
Adjust	ed Emission	A STATE OF THE STA	4.819					
	Burn F	A KAN ALMANDER OF STREET	0.960					
					ļ			
Chan	ge in stov	e temp:	-120.3276534		}			
<u> </u>			400 0070504					
					đ		1	
Ave	erage Roo		84.38			ļ	ii	
Stat		meter:	29.52					
	ck Static (r		-0.0925					
Euol	Moisture	Model:	XTD 1.9 19.87333333					
		Project:	G100456088		ļ			
		Date:	22-08-2011					
		Run:	1					
		Client:	SBI					
	REPORT	DATA	i i					

Manufacturer: SBI Model XTD 1.9 Project G100456088

П	Olect O LOC	7430000		and the second second second					
	Flue	Room	Tunnel	Unit	Unit	Unit	Unit	Unit	Scale
	Gas	Temp	Dry Bulb	Top	Back	R.Side	L.Side	<b>Bottom</b>	weight
-	609.46	85.92	174.76	688.52	456.68	589.43	565.00	469.30	10.28
	408.59	86.69	134.54	725.69	427.78	590.33	583.80	477.08	8.21
	358.29	85.57	122.60	634.08	438.83	556.52	574.42	474.02	7.03
	349.50	85.88	118.39	640.54	435.22	544.92	572.45	462.07	5.80
	353.02	86.41	4170.61	665.84	562.98	533.03	581.82	450.51	4.45
	300.31	85.93	115.50	613.82	462.44	533.08	581.70	435.28	3.84
	278.02	84.96	112.68	541.96	538.80	517.69	564.85	428.07	3.50
	249.51	83.73	107.79	479.79	456.58	483.90	538.29	423.05	3.33
	236.55	83.28	105.03	436.09	519.03	463.18	514.35	417.99	3.16
	224.35	80.10	100.76	408.85	514.06	445.53	495.61	415.07	3.00
	216.43	79.39	99.26	389.31	495.91	428.23	480.52	410.20	2.81

**VERSION 1.2** 

2/5/2010

## E&E Tunnel Traverse Worksheet

	TUNNEL	TUNNEL	SQUARE	Static Pressure:	
	VELOCITY	TEMP	ROOT		
A CENTER	0.023	119	0.1500		
<b>B CENTER</b>	0.020	118	0.1414		
A1	0.018	117	0.1323	PITOT	
A2	0.020	118	0.1414	CONSTANT	0.9151
A3	0.018	118	0.1323		
A4	0.018	108	0.1323		
B1	0.018	118	0.1323		
B2	0.020	119	0.1414		
В3	0.018	119	0.1323		
B4	0.015	113	0.1225		
<b>AVERAGE</b>	0.0185	116.86	0.1333		

Tunnel Diameter (in): Tunnel Area (ft2) Tunnel Static Pressure 8 0.349066 0.0925

20.21

### **E&E FUEL LOAD DATA SHEET**

Test Load Weight: Lower Ideal Upper Firebox Volume: 2.14 cu. ft 13.48 14.98 16.48 Load Volume: 0.0000 cu. ft Loading Density: 5.327 lbs./ft3 Number of Spacers: Load Density: #DIV/0! lbs./ft3 VERSION 1.2 2/5/2010

		Piece Size	):	Weight	М	eter Moistu	re Content
Thick	Х	Wide x	Length	lbs		Dry Unco	rrected %
	2	4	12	1.2	20.4	19	19
	2	4	12	1.3	20	19.7	21
	2	4	12	1.1	20.5	20.1	21
	2	4	12	1.2	21.2	21	21.4
	2	4	16	1.55	21	20.5	21
	2	4	16	1.75	19.00	19.50	20.90
	2	4	16	1.70	20.50	21.20	20.90
	2	4	16	1.60	20.10	19.90	19.90

Test Load Weigh 11.40 lbs.	Dry Weigh 4.28 kg.
Average Pretest Mo	isture Content: %

20.90

Wet:

17.29

two pin: (dry)

03/25/12

**VERSION 1.2** 

2/5/2010

### **E&E FUEL LOAD DATA SHEET**

Test Load Weight:

Lower Ideal Upper Firebox Volume: 2.14 cu. ft 13.48 14.98 16.48 Loading Density: 6.519 lbs./ft3 Load Volume: 0.0651 cu. ft lbs./ft3 Number of Spacers: 20 Load Density: 214.272

		Piece Si			Weight		Moisture C	
Thick	Х	Wide	Х	Length	lbs	Dry	Uncorrecte	d %
	2		4	15.75	2.10	21.40	21.40	21.10
	2		4	15.75	1.85	19.50	19.80	19.70
	2		4	15.75	1.75	19.90	19.70	19.00
	4		4	15.75	4.10	19.50	18.90	19.50
	4		4	15.75	4.15	20.00	19.20	19.50
			T					
			Ti					

Test Load Weigh	13.95 lbs.	Dry Weigh	5.28	kg.	
<b>Av</b> o	erage Moisture Co	ontent: % 19.87	Wet:	16.5	58
20.21	e-test moisture co	20.21	Wet:	16.8	31
Coal Bed Range:	2.8 lbs. to	3.4 lbs.	20% to 25	5% of test loa	ad

# Run 2



#### Run Notes EPA Methods 28 and 5G-3

PROJECT / TES	T INFORMATION
Project Number:	G100456088
Manufacturer:	SBI
	XTD 1.9
Sample ID Number:	MTL1108221414-001
Test Date:	23-Aug-11
Test Run Number:	2
Date tunnel cleaned:	8/18/2011
Purpose of Test	Cat 2



ij	Appl	iance	Information
i	Appliance Type:	2	1 - Catalytic 2 - Non - Catalytic 3 - Pellet 4 - Hydronic
	Firebox Volume, ft <sup>3</sup> :	2.14	N/A for pellet type
	Convection Blower	2	1 - No Fan 2 - Fan Optional 3 - Fan Standard

		Test Settings
	Primary Air:	Opened at 3/16"
Sed	condary Air:	Fixed
	ntrol Board:	. 11/2
	Blower/Fan:	Off the first 30 minutes and turned On-Low after 30 minutes for the reminder of the test
		Pre- Burn Activities
Time	Activity	
(min.)	Closed the	primary air at 3/16" when the scale indicated 8.750 pounds
45	Stirred the	
100		e Coal Bed and activate (door was left ajar 1/4" open) for 30 seconds.
	This manip	ulation lasted 55 seconds
- 200		Start-Up Procedure
	•	Loaded by 45 seconds
		Left ajar at 1/4" for 90 seconds
		Fully open the first 5 minutes. Abruptly closed (3/16") at 5 minutes.
	condary air:	
	ntrol board:	
В	Blower / fan:	Off the first 30 minutes and turned On-Low after 30 minutes for the reminder of the test
		Other Notes
Coal Bed	range: 2.8-3	.4 lb

03/29/12

				VERSION	1,2	2/5/2010						
Manufacturer:	SBI											
Model:	XTD 1.9											
Date:	23-08-2011						1					
Run:	2											
Control #:	G100456088											
Test Duration:	290											
		Start	End									
	Barometer (in.Hg):	29.91	29.92									
	(m. 1.3)											
	Dry Bulb (F):	87	87									
	Humidity (%):	22	22									
	runnary (70).	22										
*Blower turned on at 30 min-lov	v position											
Moisture content of		16.523										
Moisture content of	100000000000000000000000000000000000000		4.05	45.77	201.05	81,53	10100	404.55	433.95	424,81	456.18	345.81
1.5	Average	0.95	4,95	15.77	261.95	61.53	104.92	424.55	433 93	424,01	400.10	345.01
								1114	Class	1111	Unit	Unit
Elapsed					Flue	Room	Tunnel	Unit	Unit	Unit		Bottom
Time		CO	CO2	02	Gas	Temp 82,45	Dry Bulb	Top 403.35	Back 441.36	<b>R.Side</b> 453.78	L.Side 491.76	413.71
0		0.55	2.25		300.22		122 16		464 45	418.12	467.94	412.39
10		0.57	4.78		261.16	74.14	105.50	397,81			100	
20		0.46	9.99		253.60	78,90	102,08	378,25	459 23	378,31	432,10	403,36
30		0.35	10.36		329.92	77.49	107,19	450 63	445.48	381:18	411.62	387.72
40		0_45	10.25		357,00	82,81	112.16	559 73	314.22	395 11	428.75	366,66
50		0_48	10.65		363 85	85,31	112,23	594.79	324,57	419.75	455 22	351 58
60		0.49	9.79		370,73	82,66	117,37	623,39	362,96	427_78	475,99	342.85
70		0.41	9.09		360,68	87,93	116.47	628,62	377_04	442 62	494.79	336,84
80		0.56	8.36		350.32	82.14	115.10	604.56	382.43	464,41	514,53	332,61
90	4.34	0.66	7.48	13,41	330.84	83.08	115.09	577.39	396,26	476,11	525,14	330_30
100	3,66	0,50	7.33	13,62	316 18	87.34	111,82	550 67	396_48	481,11	526,35	329 57
110	3,10	0,63	5.86	14.8	296_46	82.24	110_52	518,18	445.09	489.21	522.44	329.10
120	2,65	0.78	4.92	15.6	281.69	79,89	109,15	495,72	517.45	501,31	523 60	328 78
130	2.39	0.88	4.77	15.83	264.69	79,39	106,67	461,40	513,24	489,54	522,99	327,97
140	2,09	0.90	4.62	15,81	254 16	80.80	105,14	433,18	503_55	478,12	513,39	328.08
150	1,90	0.99	4.59	15.87	246 44	78.24	104,71	414.56	518,98	471.09	502,41	328,67
160	1,69	1.05	4.37	16.02	240 42	76,77	102.97	400.48	515.03	468.19	492.54	330,69
170	1,46	0,94	3,88	16.5	238.41	74.94	103 28	389.73	506 52	464.72	484.67	333,26
180	1.24	1.31	3,53	16,8	233,64	75.19	102,42	383,24	497_99	464,84	477 98	335 83
190	1.09	1.20	3,16	17,11	226,66	81,90	98,87	373,11	491_28	448 57	470.02	340.14
200	0.91	1.27	3,36	17.39	222.50	80.94	99,62	361,49	481,35	432.06	458,36	343 60
210	0.77	1.31	2.95	17.38	218.66	85,86	99,19	349 84	467.55	417.48	445.07	345,80
220		1.61	1.59	18.62	213,27	81.82	98,86	341,53	455.31	411.05	431,88	347,59
230		1,52	1.62		207.59	82.03	97.23	330.68	443 26	393.69	419.08	348.82
240		1.46	1.51	19.09	201.26	78.92		316.29	426.02	377.96	403.25	344.99
250		1.46	1.25		195.20	83.13	97.34	302.12	407.21	355.56	387.29	339.62
260		1.66	1.03		188.60	82.12		290.73	389.92	345.65	372.74	334.97
270		1.38	1.56		181.69	85.63	95.07	277.46	372.86	334.72	357.76	330.83
280	0.05	1.30	1.7	18.97	177.16	85 66	92.92	267.05	356.78	329.86	343.59	326,54
290		1,32	1.7		175.40	86.06	93.47	260.68	344.70	332.30	332.04	321.33
290	0.00	1,30	1.98	10 94	1/5,40	00.00	93,47	200.00	344.70	الايكان	302,04	321,33

	Mani	ufacturer:	SBI											
	IVICALITY		XTD 1.9											
			23-08-20	11		-								
		Run:												
i			G100456	088										
		Jona or w.	0100100											
						-								
379.14	80,61	80.68	0.00	420.54	80.57	80.57	0.00	0.02	0.000	0.00	417.08			
•		•	•	•		•	•	1.01	•	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		Elapsed
Reading	Inlet T	Outlet T	Temp	Reading	Inlet T	Outlet T	Temp	Velocity	Draft	Observed	Temp	Temp.		Time
364,105	78.76	78.72	-11102	405.250	78,63	78.65		0.023			440.8	0		0
384.918	79.00	78.86		406,366	78,73	78,84		0,023			432.1	-8,6502		10
365,970	79.17	79.03		407,496	78,93	78,99		0,023			410.3	-30.544		20
367.022	79.19	79.17		408.435	79,06	79,09		0.023			415.3	-25.469		30
368 074	79.42	79.31		409,470	79,19	79,27		0,023			412.9	-27.9		40
369.117	79.60	79.51		410.598	79.43	79.54		0.023			429.2	-11.609		50
370.167	79,68	79,63		411,522	79,58	79.62		0.023			446.6	5.8003		60
371.210	79.97	79,85		412.571	79.79	79.89		0.023			456.0	15,188		70
372,260	80,18	80,05		413.846	79.97	80.08		0.023			459.7	18.915		80
373,315	80_45	80,31		414,698	80_21	80,29		0.023			461.0	20,245		90
374.368	80.47	80.46		415.761	80,33	80,43		0.023			456.8	16,044		100
375.424	80.63	80,62		416.813	80_41	80,49		0.023			460.8	20.009		110
376.477	80 84	80,75		417.894	80,59	80,69		0.023			473.4	32.58		120
377.531	80,91	80,90		418.940	80.72	80,81		0.023			463.0	22.234		130
378.585	81,01	81,03		419,956	80,90	80,94		0.023			451.3	10.471		140
379.645	81.07	81,16		421.024	80_99	80,99		0.023			447.1	6.348		150
380,705	81,14	81,24		422,191	81,06	81.10		0.023			441.4	0.5917		160
381.765	81,22	81.33		423,156	81_15	81.15		0.023				-5.0141		170
382.823	81.25	81.40		424.220	81.24	81.22		0.023				-8.8184		180
383.879	81.18	81 39		425.273	81.29	81.20		0.023			424.6	-16,168		190
384.944	81.18	81.43		426,347	81.31	81.24		0.023			415.4 405.1	-25.421 -35.645		200
385.998	81.17	81.41		427.398	81.28	81.19		0,023			397.5	-43.32		210 220
387.061	81,22	81.45		428,458	81.33	81,24		0.023			397.5	-43.32		230
388 114	81.22	81.47		429.504	81.37	81,24		0.023			387.1	-67.093		240
389,174	81.33	81.56		430.568	81.45	81,37		0.023			358.4	-82.432		250
390.224	81,35	81.63		431,616	81.54	81,43		0,023			346.8	-93,993		260
391.285	81.36	81,63		432.678	81.55	81.47		0.023			334.7	-93.993		270
392 331	81,32	81,65		433.732	81,56	81,45 81,52		0.023	- A - 2		324.8	-116.03		280
393,392 394,441	81.42 81.49	81.67 81.76		434,790 435,836	81.62 81.75	81,52		0.023			318.2		-122.58	290

	1							
	Manu	facturer:		SBI				
		Model:		XTD 1.9				
		Date:		23-08-2011				
		Run:		2				
	Project			G100456088				
	Test Dura			290				
Total Gas \				29.605	Pit	tot Factor	0.82	
Total Gas \	Transmission Contract	240100000000000		29 735		1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	.99 standar	d.
Average Baro		-		29,915			al. Factor for	
Werage Dark	a revenue co	lar Weig	ht	28.56				, , , , ,
		orrection		0.9124				
Calibration Fa				1.0000				
Calibration F	And the second second second	5-84 F (6252) 1 1 1		0.9960				
	(50	,	(1) VS:	0.0280				
			(2) VS:	0.0279			Filter	Filler
			17.	-1177			Face	Face
DGM 1	DGM 1	DGM 1	DGM 2	DGM 2	DGM 2	Tunnel	Velocity	Velocity
Reading	Inlet T	Outlet T		Inlet T	Outlet T		DGM 1	DGM 2
364.105	78.8	78.7	405.250	78.629247	78,652	122.16		
364.918	79.0	78.9	406.366	78.725053	78.837	105.5	6.86	9.39
365,970	79.2	79.0	407.496	78.934498	78.987	102.08	8.88	9.50
367.022	79.2	79.2	408,435	79.061544	79.09	107.19	8.88	7.89
368,074	79.4	79.3	409.470	79.186059	79.274	112.16	8.87	8.70
369.117	79,6	79.5	410.598	79.432406	79,538	112.23	8.79	9.47
370.167	79.7	79.6	411.522	79.581358	79.624	117.37	8,85	7.78
371.210	80.0	79.8	412.571	79.791744	79.885	116.47	8.79	8.80
372.260	80.2	80.0	413.646	79.96844	80.081	115.1	8.84	9.02
373,315	80.4	80.3	414.698	80.208142	80.289	115.09	8.88	8.8
374.368	80.5	80.5	415.761	80.329168	80.434	111.82	8.86	8.9
375.424	80.6	80.6	416,813	80.412347	80.494	110.52	8.89	8.82
376.477	80.8:	80.8	417.894	80.591955	80.686	109.15	8.86	9.06
377.531	80.9	80,9	418.940	80.719212	80,815	106.67	8.86	8.76
378,585	81.0	81.0	419.956	80.90165	80.938	105.14	8.86	8.51
379.645	81.1	81.2	421.024	80.991852	80,995	104.71	8.91	8.94
380.705	81.1	81.2	422.191	81.06308	81.1	102.97	8.91	9.77
381.765	81.2	81.3	423.156	81.154143	81.148		8.91	8.08
382.823	81.2	81.4	424.220	81.240354	81.219		8,89	8.9
383,879	81.2	81.4	425.273	81.287122	81.198	98.871	8.87	8.82
384.944	81.2		426.347	81.309336	81.245		8.95	8.9
385,998	81.2		427.398	81.276636	81.191	99.191	8.86	8.80
387.061	81.2		428.458	81.330697	81.243	98,865	8.93	8.8
388.114	81.2	81.5	429.504	81.365372	81.244	The state of the s	8,85	8.76
389.174	81.3	81.6	430.568	81.447432	81.37	96,566	8.91	8.90
390.224	81,3	81.6	431.616	81,543416	81.428		8,82	8.7
391.285	81.4	81.6	432.678	81.552549	81.472	F 2 1 1 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	8.91	8.8
392.331	81.3	81.6	433.732	81,556603	81.455	A LINE LOS AND A PARTY AND A P	8.79	8.8
393,392	81.4	81.7	434.790	81.616452	81.522	92.919	8.91	8.8
394.441	81.5	81.8	435,836	81.749149	81.608	93,474	8.81	8.75



	Proportio	nal Rate	Calculation	ns	(EPA Formu	ılas from F	PR5G)	
	Stack are	ea (ff2):	0.3491		Mar	nufacturer:	SBI	
Mood	moisture (	Control of the Contro	16.523		Wildi		XTD 1.9	
	Veight (lbs		13.9				23-08-20	11
	tate (Dry k	7 Sec. 20 A Sec.	1.089			Run:		
Duill N	ale (DIYK	gritt).	1.009			INUII.	-	
inal Ter	mperature	(DGM #1	) Degree	s Rankin:	540,644			
inal Ter	mperature	(DGM #2	) Degree	s Rankin;	540.567			
Final Tu	unnel Tem	perature	Degrees	Rankin:	564.923			
	unnel Velo	STATE THE PERSON NAMED IN	Chicken the beautiful to the second		7.802204			
	ndardized			1111	146.54			
		Average	Average					
		Inlet +	Inlet +					
		Outlet	Outlet	99_94	99 94	#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
0.023	7.921	538.7	538.6				50000	0
0.023	7.806	538,9	538.8	78.02	106.23	0.796	1.089	10
0.023	7.783	539.1	539.0	100,61	107.20	1.030	1.102	20
0.023	7.818	539.2	539.1	101.06	89.47	1.030	0.916	30
0.023	7.852	539.4	539.2	101.46	99.01	1.029	1.009	40
0.023	7.853	539.6	539.5	100.56	107.87	1.020	1.099	50
0.023	7.888	539.7	539.6	101.67	88.74	1.027	0.900	60
0.023	7.882	539.9	539.8	100.87	100.62	1.019	1.021	70
0.023	7.872	540.1	540.0	101.39	102.95	1.026	1.046	80
0.023	7.872	540.4	540.2	101.82	100.71	1.030	1.023	90
0.023	7.850	540.5	540.4	101,32	101.45	1.028	1.034	100
0.023	7.841	540.6	540.5	101.46	100.27	1.031	1.023	110
0.023	7,832	540.8	540.6	101.02	102.87	1.028	1.051	120
0.023	7.814	540.9	540.8	100.88	99,30	1.028	1.017	130
0,023	7.804	541.0	540.9	100.72	96.30	1.028	0.987	140
0.023	7.801	541.1	541.0	101.24	101.17	1.034	1.038	150
0.023	7.789	541.2	541.1	101.07	110.36	1.034	1.134	160
0.023	7.791	541.3	541.2	101.08	91.27	1.033	0.937	170
0.023	7.785	541.3	541.2		100.55	1.031	1.033	180
0.023	7.760	541.3	541.2	100.30	99.19	1.029	1.023	190
0.023	7.766	541.3	541.3	101.22	101.23	1.038	1.043	200
0.023	7,763	541.3		100.14	99.03	1.028	1.021	210
0.023	7.760	541.3	541.3	100.96	99.84	1.036	1.029	220
0.023	7.749	541.3	541.3	99.86	98.37	1.026	1.016	230
0.023	7.744	541.4	541.4	100.44	99.99	1.033	1.033	240
0.023	7.750	541.5	541.5	99.56	98.54	1.023	1.017	250
0.023	7.744	541.5	541.5	100.52	99.77	1.034	1.031	260
0.023	7.734	541.5	541.5	98.98	98.90	1.019	1.023	270
0.023	7.719	541.5	541.6	100.19	99.07	1.034	1.027	280
0.023	7.723	541.6	541.7	99.09	97.97	1.022	1.015	290



	Intertek Testing Service	S				
	SFBA EPA ADJUSTED	EMISSION F	RESULTS			
Manufacturer	SBI			RESULT	0	
TOTAL CONTRACTOR OF THE PROPERTY OF THE PROPER	XTD 1.9			KESULI	3	
	23-08-2011		Ann	age Adjusted Emis	elene Data	4.07
Run				ge Unadjusted Em	Personal Company of the Company of t	2.84
	G100456088		WAGIO		(Dry kg/hr):	1.09
Test Duration (Minutes):	290		- 1	-40,,,,,,,,,,	.,,,.	
Test Duration (Hours):	4.83					
			BAROME	TRIC PRESSU	DE .	
			BAROWE	I KIC PRESSU	Average:	29.915
TEMPERATURE FACT	TOPS				Start:	29.91
TEMPERATURE FAC	DGM #1:	0.9766			End:	29.92
	DGM #2:	0.9768			-	(10)01.0
	30111121	0.07.00	DRY GAS M	ETER VALUES		
VOLUMES SAMPL	ED			DGM #1	Final:	394.44
HE-HOVWA SHIDMANN	DGM #1:	29,622			Initial:	364.10
	DGM #2:	29,750				
				DGM #2	Final:	435.83
TOTAL TUNNEL V	OLUME (scf):	42496			Initial:	405.20
SAMPLE RATIOS			TEMPED/	ATURES (DEG.	DANKIN)	
	Train 1:	1434.6	TEIVII EIV	TOTALO (DEO.	DGM #1:	540.64
	Train 2:	1428.4			DGM #2:	540.57
Photograph of Manager			TO SERVICE AND ASSESSED.	THE RESERVE THE PROPERTY OF TH		
TOTAL EMISSION			CALIBRA	TION FACTOR:		
Sample Train 1		12.34			DGM #1:	1.000
Sample Train 2	197	13.14			DGM #2:	0.996
CANODION DATED	Ave:	12.74	TUNING !	TI OW DATE		440.5
EMISSION RATES		2.55	The State of the S	LOW RATE:	CATCUL	146,5
Sample Train 1 ( Sample Train 2 (		2.55		PARTICULATE	e Train 1:	ng)
Sample Train 2 (	g/iii). Ave:	2.72			Filters	7.7
ADJUSTED EMISS		2.04			Probe	0.9
Sample Train 1 (	7.4.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	3.96			Total	8.6
Sample Train 2 (		4.17		Sample	e Train 2:	
	Ave:	4.07		3 411.1/62	Filters	8.5
DEV	IATION:	2.62%			Probe	0,7
					Total	9.2
Midaylatina in a - 4	or then 7 50/ t- !	maratini dete	atab			
	er than 7.5% due to low ates shall not differ by 7.		atch			
	rage emission rate limit		5g-3)			
La andread						
Use the following:			-			
Catalytic units		5.20%				
7.5% of 4.1 g/hr		J.2070				
911						
Non catalytic units		2.84%				
7.5% of 7.5 g/hr						



	87	87	29.91	29.92	22	22	0	0
	Before	After	Before	After	Before	After	Before	
		Temp	Bar Pressure		Relative Hu		Air Velo	
					Liver of the later of the later			
	Water C	ollected:						
		DGM 2:	80.57					
		DGM 1:	80.64					
	Tur	nnel:	104.92					
	Filte	r 2:	0.00		1			
	Filte	r 1:	0.00					
	Devia	ation:	2.62%					
	Syst	em 2:	4.175					
	Syst	em 1:	3.962					
djuste	ed Emissio	n Rate:	4.068					
	Bum F	Rate:	1,089					
Chan	ge in stove	a temp;	-122.582564					
A62-			400 500504					
Ave	rage Roor	m Temp:	81.53					
124-4130		meter:	29.915					
	k Static (n		0.095					
Fuel	Moisture (	Dry):	19 79333333					
		Model:	XTD 1.9					
	1	Project:	G100456088					
		Date:	23-08-2011					
	1	Run:	2					
	1	Client:	SBI					
	ILLI OILLI	DAIA						
	REPORT	DATA					1	

2

Manufacturer SBI Model XTD 1.9 Project G100456088

١.		7700000							
1	Flue	Room	Tunnel	Unit	Unit	Unit	Unit	Unit	Scale
	Gas	Temp	Dry Bulb	Top	Back	R.Side	L.Side	Bottom	weight
-	436.96	84.08	156.35	477.01	405.05	577.00	562.04	422.45	12.69
	624.55	81.62	180.81	764.07	377.45	587.52	541.59	432.65	10.03
	403.01	77.67	130.83	670.34	380.39	560.45	546.41	450.00	8.37
	379.40	76.14	125.41	639.99	408.64	546.39	546.11	456.44	6.96
	358.50	77.87	120.73	601.00	414.39	542.31	544.89	454.52	5.89
	352.85	78.32	4170.00	600.28	516.58	528.07	550.43	449.09	4.82
	380.09	88.48	126.33	606.60	505.74	526.66	554.50	439.75	3.77
	310.65	85.91	113.21	568.36	534.91	508.50	553.92	428.14	3.38
	275.85	86.85	108.41	485.65	497.23	479.31	530.34	420.71	3.17
	257.11	84.35	103.86	437.27	493.99	457.76	507.45	414.97	2.99

Manufacturer SBI Model XTD 1.9 Project G100456088

## E&E Tunnel Traverse Worksheet

	TUNNEL VELOCITY	TUNNEL TEMP	SQUARE ROOT	Static Pressure:	
A CENTER	0.023	120	0.1500		
B CENTER	0.023	118	0.1500		
A1	0.018	118	0.1323	PITOT	
A2	0.020	117	0.1414	CONSTANT	0.9124
A3	0.020	118	0.1414		
A4	0.018	113	0.1323		
B1	0.018	117	0.1323		
B2	0.020	118	0.1414		
В3	0.020	118	0.1414		
В4	0.018	116	0.1323		
AVERAGE	0.0195	117.24	0.1369		

Tunnel Diameter (in): Tunnel Area (ft2) Tunnel Static Pressure 8 **0.349066** -0.095

#### **E&E FUEL LOAD DATA SHEET**

Test Load Weight:

Load Volume: 0.0651 cu. ft Loading Density: 5.724 lbs./ft3

Number of Spacers: Load Density: 188.160 lbs./ft3

VERSION 1.2 2/5/2010

		Piece Siz	e:		Weight	re Content			
Thick	Х	Wide	<b>(</b>	Length	lbs		Dry Uncorrected %		
	2		4	12	1	20.1	20.6	20.2	
	2		4	12	1	20.2	20.3	20.4	
	2		4	12	1	21	20.3	20.5	
	2		4	12	1.1	20.5	19.8	18.9	
	2		4	16	1.65	21.1	20.3	22	
	2		4	16	1.85	20.30	19.90	20.40	
	2	4	4	16	1.70	19.80	21.00	21.00	
	2	4	4	16	1.65	20.90	19.90	21.10	
	2	4	4	16	1.30	21.40	20.30	21.00	

Test Load Weigh 12.25 lbs. Dry Weigh 4.60 kg.

**Average Pretest Moisture Content: %** 

Dry: 20.58 two pin: (dry) 20.90 Wet: 17.29

Test Load Weight:

			Lower	Ideal	Upper
Firebox Volume:	2.14	cu. ft	13.48	14.98	16.48

Load Volume: 0.0651 cu. ft Loading Density: 6.495 lbs./ft3

Number of Spacers: 20 Load Density: 213.504 lbs./ft3

	Piece Size: Wide x	Length	Weight Ibs	Meter Moisture Content Dry Uncorrected %				
2	4	15.75	1.35	19.30	19.30	18.60		
2	4	15.75	1.30	19.80	19.20	19.80		
2	4	15.75	1.95	22.20	21.90	21.50		
4	4	15.75	3.55	19.70	19.10	18.90		
4	4	15.75	3.60	19.80	19.20	18.60		
		Spacers	2.15					

Test Load Weig	<b>h</b> 13.90 lbs.	Dry Weigh	5.26	6 kg.
Dry: 19.79	Average Moisture	2 Content: % 19.79	Wet:	16.52
20.58	Pre-test moisture	20.58	Wet:	17.07

Coal Bed Range: 2.8 lbs. to 3.4 lbs. 20% to 25% of test load

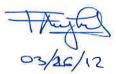
# Run 3



# Run Notes EPA Methods 28 and 5G-3

PROJECT / TES	T INFORMATION	Ap	pliance	Information
		Appliance Type:	2	1 - Catalytic 2 - Non - Catalytic 3 - Pellet 4 - Hydronic
Test Date:	24-Aug-11	SBI MODEL XTD19 RUN# 3 24 /08/2011 Firebox Volume, ft <sup>3</sup> :	2.14	N/A for pellet type
Test Run Number: Date tunnel cleaned: Purpose of Test	3 8/18/2011 Cat 3	Convection	n 2	1 - No Fan 2 - Fan Optional 3 - Fan Standard

		Test Settings
	Primary Air:	Open at 3/4"
	condary Air:	
	ntrol Board:	
E	Blower/Fan:	Off the first 30 minutes and turned On-Low after 30 minutes for the reminder of the test
		Pre- Burn Activities
Time	Activity	
(min.)		primary air at 3/4" when the scale indicated 11.5 pounds
45	Stirred the	
100		e Coal Bed and activate ( door left ajar at 1/4 " open) for 30 seconds
	This manip	ulation lasted for 55 seconds
l .		
		Start-Up Procedure
		Loaded by 45 seconds
		Left ajar (1/4") for 60 seconds
		Fully open the first 5 minutes. Abruptly closed at 3/4" at 5 minutes.
	ondary air:	
	ntrol board:	
В	lower / fan:	Off the first 30 minutes and turned On-Low after 30 minutes for the reminder of the test
		Other Notes
Coal Bed r	ange: 2.8-3	.4 lb



				VERSION 1.	2	2/5/2010						
Manufacturer:	SBI			TENDION I		21012010						
	XTD 1.9						- 1000					
	24-08-2011											
Run:												
Control #	G100456088											
Test Duration:												
1,00,00		Start	End									
	Barometer (in.Hg):	29.95	29.95									
	Dry Bulb (F):	87	87									
	Humidity (%):	24	23									
*Blower turned on at 30 min-lov	v position.											
Moisture content of	wood (wet basis):	16.2666										
	Average	0.67	6.54	14.49	400 69	84.74	132.32	544.97	512.12	498.60	550.21	353,50
	•	*	•		•	(0)	•	•	*	•		9 <b>≯</b> :
Elapsed	Welght			1	Flue	Room	Tunnel	Unit	Unit	Unit	Unit	Unit
Time	13 /44 ( / / / / / / / / / / / / / / / / /	CO .	CO2	02	Gas	Temp	Dry Bulb	Тор	Back	R.Side	L.Side	Bottom
0	13.70	0.37	9.22	13.27	Gas 411.36	79 92	140,87	459,32	545,92	457.42	501.75	355 45
0 10	13.70 12.29	0.37 0.35	9.22 12.02	13.27 9.09	411.36 428.60	79 92 86 01	140.87 134.97		545 92 520 06	457.42 429.67	501.75 482.87	355 45 367 95
0 10 20	13.70 12.29 10.40	0.37 0.35 0.25	9.22 12.02 11.24	13.27 9.09 9.51	411 36 428 60 519 39	79 92 86 01 88 59	140 87 134 97 145.22	459 32 502 97 648 93	545 92 520 06 344 21	457 42 429 67 448 44	501,75 482,87 486,08	355 45 367 95 363 78
0 10 20 30	13.70 12.29 10.40 8.58	0.37 0.35 0.25 0.23	9.22 12.02 11.24 9.82	13.27 9.09	411.36 428.60 519.39 523.57	79 92 86 01	140 87 134 97 145.22 150 61	459.32 502.97 648.93 721.59	545 92 520 06 344 21 382 50	457 42 429 67 448 44 481 50	501,75 482,87 486,08 515,53	355 45 367 95 363 78 356 74
0 10 20 30 40	13.70 12.29 10.40 8.58 7.16	0.37 0.35 0.25	9.22 12.02 11.24	13.27 9.09 9.51	411 36 428 60 519 39	79 92 86 01 88 59	140 87 134 97 145.22	459 32 502 97 648 93	545 92 520 06 344 21	457 42 429 67 448 44 481 50 484 42	501,75 482,87 486,08	355 45 367 95 363 78 356 74 346 90
0 10 20 30 40	13.70 12.29 10.40 8.58 7.16 5.91	0.37 0.35 0.25 0.23	9.22 12.02 11.24 9.82	13.27 9.09 9.51 11.58	411.36 428.60 519.39 523.57	79 92 86 01 88 59 83 76 84 40 83 90	140 87 134 97 145.22 150 61 143 78 144 28	459.32 502.97 648.93 721.59 695.04 674.20	545 92 520 06 344 21 382 50 451 44 579 88	457 42 429 67 448 44 481 50 484 42 481.15	501.75 482.87 486.08 515.53 548.25 566.31	355 45 367 95 363 78 356 74 346 90 342 62
0 10 20 30 40	13.70 12.29 10.40 8.58 7.16 5.91	0.37 0.35 0.25 0.23 0.25	9.22 12.02 11.24 9.82 9.31	13 27 9 09 9 51 11 58 11 84	411 36 428 60 519 39 523 57 486 62	79,92 86,01 88,59 83,76 84,40	140 87 134 97 145.22 150 61 143 78	459.32 502.97 648.93 721.59 695.04	545 92 520 06 344 21 382 50 451 44	457 42 429 67 448 44 481 50 484 42	501.75 482.87 486.08 515.53 548.25	355 45 367 95 363 78 356 74 346 90 342 62 339 14
0 10 20 30 40 50 60	13,70 12,29 10,40 8,58 7,16 5,91 4,84 3,79	0.37 0.35 0.25 0.23 0.25 0.28 0.31	9.22 12.02 11.24 9.82 9.31 9.26 9.07 8.65	13.27 9.09 9.51 11.58 11.84 12.39 12.3 12.27	411.36 428.80 519.39 523.57 486.62 471.68 455.04 443.62	79 92 86 01 88 59 83 76 84 40 83 90 84 87 85 90	140 87 134 97 145.22 150 61 143 78 144 28	459,32 502,97 648,93 721,59 695,04 674,20 642,64 625,04	545.92 520.06 344.21 382.50 451.44 579.88 508.43 520.19	457 42 429 67 448 44 481 50 484 42 481 15 487 35 506 93	501,75 482,87 486,08 515,53 548,25 566,31 578,32 594,70	355 45 367 95 363 78 356 74 346 90 342 62 339 14 337 52
0 10 20 30 40 50 60 70	13,70 12,29 10,40 8,58 7,16 5,91 4,84 3,79 2,76	0.37 0.35 0.25 0.23 0.25 0.28 0.31 0.33	9.22 12.02 11.24 9.82 9.31 9.26 9.07	13.27 9.09 9.51 11.58 11.84 12.39	411.36 428.60 519.39 523.57 486.62 471.68 455.04	79 92 86 01 88 59 83 76 84 40 83 90 84 87 85 90 87 57	140.87 134.97 145.22 150.61 143.78 144.26 141.52 140.46 141.54	459 32 502 97 648 93 721.59 695 04 674 20 642 64	545.92 520.06 344.21 382.50 451.44 579.88 508.43 520.19 574.44	457 42 429.67 448.44 481.50 484.42 481.15 487.35 506.93 539.29	501,75 482,87 486,08 515,53 548,25 566,31 578,32	355 45 367 95 363 78 356 74 346 90 342 62 339 14 337 52 338 30
0 10 20 30 40 50 60 70 80	13.70 12.29 10.40 8.58 7.16 5.91 4.84 3.79 2.76 2.06	0.37 0.35 0.25 0.23 0.25 0.28 0.31 0.33 0.44	9.22 12.02 11.24 9.82 9.31 9.26 9.07 8.65	13.27 9.09 9.51 11.58 11.84 12.39 12.3 12.27	411.36 428.80 519.39 523.57 486.62 471.68 455.04 443.62	79 92 86 01 88 59 83 76 84 40 83 90 84 87 85 90	140.87 134.97 145.22 150.61 143.78 144.26 141.52 140.46 141.54 136.35	459,32 502,97 648,93 721,59 695,04 674,20 642,64 625,04 626,91 598,55	545.92 520.06 344.21 382.50 451.44 579.88 508.43 520.19	457 42 429.67 448.44 481.50 484.42 481.15 487.35 506.93 539.29 555.60	501,75 482,87 486,08 515,53 548,25 566,31 578,32 594,70	355 45 367 95 363 78 356 74 346 90 342 62 339 14 337 52 338 30 341 97
0 10 20 30 40 50 60 70	13.70 12.29 10.40 8.58 7.16 5.91 4.84 3.79 2.76 2.06	0.37 0.35 0.25 0.23 0.25 0.28 0.31 0.33	9.22 12.02 11.24 9.82 9.31 9.26 9.07 6.65 6.71	13.27 9.09 9.51 11.58 11.84 12.39 12.3 12.27	411.36 428.60 519.39 523.57 486.62 471.68 455.04 443.62 448.82	79 92 86 01 88 59 83 76 84 40 83 90 84 87 85 90 87 57	140.87 134.97 145.22 150.61 143.78 144.26 141.52 140.46 141.54	459,32 502,97 648,93 721,59 695,04 674,20 642,64 625,04 626,91 598,55 552,16	545.92 520.06 344.21 382.50 451.44 579.88 508.43 520.19 574.44	457 42 429.67 448.44 481.50 484.42 481.15 487.35 506.93 539.29 555.60 553.59	501,75 482,87 486,08 515,53 548,25 566,31 576,32 594,70 609,75	355 45 367 95 363 78 356 74 346 90 342 62 339 14 337 52 338 30 341 97 346 88
0 10 20 30 40 50 60 70 80 90	13.70 12.29 10.40 8.58 7.16 5.91 4.84 3.79 2.76 2.06 1.60	0.37 0.35 0.25 0.23 0.25 0.28 0.31 0.33 0.44 0.62 0.71	9.22 12.02 11.24 9.82 9.31 9.26 9.07 6.65 6.71 5.17	13.27 9.09 9.51 11.58 11.84 12.39 12.3 12.27 14.48 15.57 16.07	411.36 428.60 519.39 523.57 486.62 471.68 455.04 443.62 448.82 409.73 378.42 356.21	79,92 86,01 88,59 83,76 84,40 83,90 84,87 85,90 87,57	140.87 134.97 145.22 150.61 143.78 144.26 141.52 140.46 141.54 136.35 132.65 126.80	459,32 502,97 648,93 721,59 695,04 674,20 642,64 625,04 626,91 598,55	545,92 520,08 344,21 382,50 451,44 579,88 508,43 520,19 574,44 498,75	457, 42 429, 67 448, 44 481, 50 484, 42 481, 15 487, 35 506, 93 539, 29 555, 60 553, 59 549, 92	501,75 482,87 486,08 515,53 548,25 566,31 576,32 594,70 609,75 618,37 609,16 589,89	355 45 367 95 363 78 356 74 346 90 342 62 339 14 337 52 338 30 341 97 346 88 351 59
0 10 20 30 40 50 70 80 90	13.70 12.29 10.40 8.58 7.16 5.91 4.84 3.79 2.76 2.06 1.60	0.37 0.35 0.25 0.23 0.25 0.28 0.31 0.33 0.44 0.62	9.22 12.02 11.24 9.82 9.31 9.26 9.07 6.65 6.71 5.17 4.68	13.27 9.09 9.51 11.58 11.84 12.39 12.3 12.27 14.48 15.57 16.07	411.36 428.60 519.39 523.57 486.62 471.68 455.04 443.62 446.82 409.73 378.42	79 92 96 01 98 59 83 76 84 40 83 90 84 87 85 90 87 57 87 68 84 80	140.87 134.97 145.22 150.61 143.78 144.26 141.52 140.46 141.54 136.35 132.65	459,32 502,97 648,93 721,59 695,04 674,20 642,64 625,04 626,91 598,55 552,16	545,92 520,08 344,21 382,50 451,44 579,88 508,43 520,19 574,44 498,75 609,09	457, 42 429,67 448,44 481,50 484,42 481,15 487,35 506,93 539,29 555,60 553,59 549,92 526,07	501,75 482,87 486,08 515,53 548,25 566,31 578,32 594,70 609,75 618,37 609,16	355.45 367.95 363.78 356.74 346.90 342.62 339.14 337.52 338.30 341.97 346.88 351.59 354.92
0 10 20 30 40 50 60 70 80 90	13.70 12.29 10.40 8.58 7.16 5.91 4.84 3.79 2.76 2.06 1.60 1.28	0.37 0.35 0.25 0.23 0.25 0.28 0.31 0.33 0.44 0.62 0.71	9.22 12.02 11.24 9.82 9.31 9.26 9.07 6.65 6.71 5.17 4.68	13.27 9.09 9.51 11.58 11.84 12.39 12.3 12.27 14.48 15.57 16.07	411.36 428.60 519.39 523.57 486.62 471.68 455.04 443.62 448.82 409.73 378.42 356.21	79.92 86.01 88.59 83.76 84.40 83.90 84.87 85.90 87.57 87.68 84.80	140.87 134.97 145.22 150.61 143.78 144.26 141.52 140.46 141.54 136.35 132.65 126.80	459,32 502,97 648,93 721,59 695,04 674,20 642,64 625,04 626,91 598,55 552,16 505,55	545.92 520.08 344.21 382.50 451.44 579.88 508.43 520.19 574.44 498.75 609.09 470.40	457, 42 429, 67 448, 44 481, 50 484, 42 481, 15 487, 35 506, 93 539, 29 555, 60 553, 59 549, 92	501,75 482,87 486,08 515,53 548,25 566,31 576,32 594,70 609,75 618,37 609,16 589,89	355.45 367.95 363.78 356.74 346.90 342.62 339.14 337.52 338.30 341.97 346.88 351.59 354.92 358.00
0 10 20 30 40 50 60 70 80 90 100	13.70 12.29 10.40 8.58 7.16 5.91 4.84 3.79 2.76 2.06 1.60 1.28 1.05 0.76	0.37 0.35 0.25 0.23 0.25 0.28 0.31 0.33 0.44 0.62 0.71 0.88 0.84	9.22 12.02 11.24 9.82 9.31 9.26 9.07 6.65 6.71 5.17 4.68 4.24	13.27 9.09 9.51 11.58 11.84 12.39 12.3 12.27 14.48 15.57 16.07 16.66 16.54	411.36 428.60 519.39 523.57 486.62 471.68 455.04 443.62 446.82 409.73 378.42 356.21 339.80	79.92 86.01 88.59 83.76 84.40 83.90 84.87 85.90 87.57 87.68 84.80 89.61	140.87 134.97 145.22 150.61 143.78 144.26 141.52 140.46 141.54 136.35 132.65 126.80 120.67	459.32 502.97 648.93 721.59 695.04 674.20 642.64 625.04 626.91 598.55 552.16 505.55 471.17	545,92 520,06 344,21 382,50 451,44 579,88 508,43 520,19 574,44 498,75 609,09 470,40 519,61	457.42 429.67 448.44 481.50 484.42 481.15 506.93 539.29 555.60 553.59 549.92 526.07 513.49 504.46	501,75 482,87 486,08 515,53 548,25 566,31 576,32 594,70 609,75 618,37 609,16 589,89 570,29	355.45 367.95 363.78 356.74 346.90 342.62 339.14 337.52 338.30 341.97 346.88 351.59 354.92 358.00 361.90
0 10 20 30 40 50 60 70 80 90 100 110	13,70 12,29 10,40 8,58 7,16 5,91 4,84 3,79 2,76 2,06 1,60 1,28 1,05 0,76	0.37 0.35 0.25 0.23 0.25 0.28 0.31 0.33 0.44 0.62 0.71 0.88 0.84 1.02	9.22 12.02 11.24 9.82 9.31 9.26 9.07 6.65 6.71 5.17 4.68 4.24 4.39 3.82	13.27 9.09 9.51 11.58 11.84 12.39 12.3 12.27 14.48 15.57 16.07 16.66 16.54 17.06	411.36 428.60 519.39 523.57 486.62 471.68 455.04 443.62 448.82 409.73 378.42 358.21 339.80 330.15	79.92 86.01 88.59 83.76 84.40 83.90 84.87 85.90 87.57 87.68 84.80 89.81 86.98	140.87 134.97 145.22 150.61 143.78 144.26 141.52 140.46 141.54 136.35 132.65 126.80 120.67 118.15	459.32 502.97 648.93 721.59 695.04 674.20 642.64 626.91 598.55 552.16 505.55 471.17 450.10	545,92 520,06 344,21 382,50 451,44 579,88 508,43 520,19 574,44 498,75 609,09 470,40 519,61 570,17	457.42 429.67 448.44 481.50 484.42 481.15 506.93 539.29 555.60 553.59 549.92 526.07 513.49	501.75 482.87 486.08 515.53 548.25 566.31 576.32 594.70 609.76 618.37 609.16 589.89 570.29 554.18	355.45 367.95 363.78 356.74 346.90 342.62 339.14 337.52 338.30 341.97 346.88 351.59 354.92 358.00
0 10 20 30 40 50 60 70 80 90 100 110 120 130	13,70 12,29 10,40 8,58 7,16 5,91 4,84 3,79 2,78 2,06 1,60 1,28 1,05 0,76 0,49 0,23	0.37 0.35 0.25 0.23 0.25 0.28 0.31 0.33 0.44 0.62 0.71 0.88 0.84 1.02	9,22 12,02 11,24 9,82 9,31 9,26 9,07 6,65 6,71 5,17 4,68 4,24 4,39 3,82 2,77	13.27 9.09 9.51 11.58 11.84 12.39 12.3 12.27 14.48 15.57 16.07 16.66 16.54 17.06 17.65	411,36 428,60 519,39 523,57 486,62 471,68 455,04 443,62 448,82 409,73 378,42 358,21 339,80 330,15 320,03	79.92 86.01 88.59 83.76 84.40 83.90 84.87 87.57 87.68 84.80 89.61 86.98	140.87 134.97 145.22 150.61 143.78 144.26 141.52 140.46 141.54 136.35 132.65 126.80 120.67 118.15 118.71	459.32 502.97 648.93 721.59 695.04 674.20 642.64 625.04 626.91 598.55 552.16 505.55 471.17 450.10 434.81	545,92 520,06 344,21 382,50 451,44 579,88 508,43 520,19 574,44 498,75 609,09 470,40 519,61 570,17 555,03	457.42 429.67 448.44 481.50 484.42 481.15 506.93 539.29 555.60 553.59 549.92 526.07 513.49 504.46	501,75 482,87 486,08 515,53 548,25 566,31 576,32 594,70 609,76 618,37 609,16 589,89 570,29 554,18	355.45 367.95 363.78 356.74 346.90 342.62 339.14 337.52 338.30 341.97 364.88 351.59 354.92 358.00 361.90

Manu	ufacturer:	SRI												
IVICITI		XTD 1.9												
-		24-08-20	14			-			-					
	Run													
,		G100456	000											
-	JOHUOI #.	G 100456	000											
												- i		
403.26	83.75	83.75	85.51	444.75	83.54	83.54	86.99	0.02	0.000	0.00	491.88			
403,26	*	*	80.51	444.75	83.34	83,54	60.99	0.02	0.000	Visual		Change in		
DGM 1	DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	DGM 2	Filter 2	Tunnet	Chimney	Smoke	Stove	Surface		Elapsed
Reading	Inlet T	Outlet T	Temp	Reading	Inlet T	Outlet T	Temp	Velocity	Draft	Observed	Temp	Temp.		Time
394.453	81.79		82.20	435.849	81.67	81.62	81.84	0.020		Opported	464.0	0		
395.485	82.15		86.65	436,941	81.94	81.93	87.71	0.020			460.7	-3.2684		10
398.540	82.33		88.95	437,999	82.10	82.12	89.96	0.020			458.3	-5.6832		20
397,558	82.72		86.31	439.017	82.39	82 47	88.02	0.020			491.6	27.599		30
398,589	83.10	82.89	84.53	440.055	82.67	82.79	86,56	0.020			505.2	41,236		40
399,631	83.27	83.11	84.15	441.122	82.88	82.99	85.60	0.020			528.8	64.861		50
400,669	83.57	83.42	84.51	442.185	83.17	83.30	85.84	0.020			510.8	46.802		60
401.710	83.80	83.67	84.17	443.210	83,44	83_54	86.16	0.020			516.9	52.904		70
402.744	84.00	83,90	84.14	444.243	83,71	83.76	86,17	0.020			537.7	73,765		80
403,774	84.12	84.10	83.98	445.271	83.87	83,91	86 54	0.020			522.6	58.673		90
404,805	84.20	84.23	83,67	446,305	84,01	83_98	86.12	0.020			534.2	70.203		100
405,847	84.35	84.41	87.52	447.345	84.14	84.10	89.05	0.020			493.5	29.5		110
406,882	84.35	84.49	83.47	448.387	84 18	84 11	85.29	0.020			488.4	24.439		120
407.925	84 51	84.65	86,31	449,423	84.36	84.28	87.66	0.020			489.2	25.215		130
408.961	84.70	84.82	88.05	450.463	84.58	84.50	89.33	0.020			479.6	15.64		140
410,002	84,80	84.97	84.87	451,500	84.77	84,69	86.23	0.020			470.2	6.2748		150
411.041	84,85	85.06	87.36	452,549	84.85	84.73	88.34	0.020			457.3	-6.6922		160
412.079	84.95	85.14	88.34	453,580	84.95	84.85	89.35	0.020			444.8	-19,163	-19,163	170

		fact as		oni				
	Manu	facturer.		SBI				
		Model:		XTD 1.9				
		Date:		24-08-2011				
		Run:		3				
	Project			G100456088				
	Test Dura	1.55 Sec. 15		170				
Total Gas V	appropriate the second	the second second second		17.122	Pit	ot Factor	0.82	
Total Gas V	The same of the sa			17 182			99 standar	
Average Baro				29.95		0.84 or Ca	al. Factor fo	r S-Type
		lar Weig		28.56				
	Pitot Co	orrection	1	0.9342				
Calibration Fa	ctor (DGN	Л#1):		1.0000				
Calibration Fa	ctor (DGN	Л #2):		0,9960	1 3			
			(1) VS:	0.0456				
			(2) VS:	0.0455			Filter	Filter
							Face	Face
DGM 1	DGM 1	DGM 1	DGM 2	DGM 2	DGM 2	Tunnel	Velocity	Velocity
Reading	Inlet T.	Outlet T	Exhibit Carlet Cartoval visited				DGM 1	DGM 2
394.453	81.8	81.8		81,668899		140.87		
395.485	82.2	82.0		81.941464	81.932	134.97	8.67	9.14
396.540	82.3	82.2		82.095693	82.122	145.22	8.86	8.8
397.558	82.7	82.5	the process of the second	82.388255	82.469	150.61	8.54	8.5
398.589	83.1	82.9	440.055	82.670854	82.791	143.78	8.65	8.6
399,631	83.3	83.1	441.122	82.884323	82.987	144.26	8.74	8.9
400.669	83.6	83.4	442.165	83.167972	83,301	141.52	8.70	8.7
401.710	83.8	83.7	443.210	83.438783	83.54	140.46	8.72	8.72
402.744	84.0	83.9	444.243	83.705638	83.757	141.54	8.66	8.6
403.774	84.1	84.1	445.271	83.867129	83,913	136,35	8.62	8.5
404.805	84.2	84.2	446,305	84.006334	83.975	132.65	8.63	8.6
405.847	84.3	84.4	447.345	84.137122	84.099	126.8	8.72	8.6
406.882	84.4	84.5	448.387	84.184462	84.11	120.67	8,66	8.6
407.925	84.5	84.6	449.423	84.363675	84.283	118.15	8.72	8,6
408.961	84.7	84.8	450.463	84.576035	84.501	118.71	8,66	8,6
410.002	84.8	85.0	451.500	84.772274	84.687	117.44	8.70	8.6
411.041	84.8	85.1	452.549	84.85142	84.735	115.22	8.68	8.7
	84.9	85.1	453.580	84.946482	84.853	112.53	8.67	8.5

	Proportio	nal Rate	Calculatio	ns	(EPA Formu	las from F	R5G)	
	011	(((0))	0.0404				CDI	
Mond	Stack are	C-10 10 10 10 10 10 10 10 10 10 10 10 10 1	0.3491		Mar	Manufacturer:		
	moisture (	Property American Street	16.267				XTD 1.9	4.4
	Veight (lbs		13.7				24-08-20	11
Bum R	ate (Dry k	g/nr):	1.837			Run:	3	
Final Ter	nperature	(DGM #1	) Degrees	s Rankin:	543,750			
Final Ter	nperature	(DGM #2	) Degrees	s Rankin:	543.537			
Final Tu	innel Tem	perature i	Degrees I	Rankin:	592.318			
Final Tu	innel Velo	city (feet	per secon	nd):	7.707459			
Sta	ndardized	Tunnel F	low (dscf	m):	138 22			
		Average	Average					
		Inlet +	Inlet +					
		Outlet	Outlet	99.95	99.95	#1	#2	
Tunnel	Tunnel	Temp.	Temp.			dDGM	dDGM	
Velocity	Velocity	Meter 1	Meter 2			Vol.Std.	Vol.Std.	
Delta-P	Ft/Sec	Deg. R	Deg. R	PR1	PR2	(ft3)	(ft3)	Time
0.020	7.763	541.8	541.6					0
0.020	7.725	542.1	541.9	100.08	105.26	1.006	1,060	10
0.020	7.791	542.3	542.1	103.15	102.82	1.028	1.027	20
0.020	7.826	542.6	542.4	99.91	99.31	0.991	0.988	30
0.020	7.782	543,0	542.7	100.55	100.64	1.003	1.006	40
0.020	7.785	543.2	542.9	101.63	103,46	1.013	1.034	50
0.020	7.768	543,5	543.2	100.95	100.84	1.009	1.010	60
0.020	7.761	543.7	543.5	101.11	100.90	1.011	1.012	70
0.020	7.768	544.0	543.7	100.48	99.79	1.004	1.000	80
0.020	7.734	544.1	543.9	99.63	98.85	1.000	0.995	90
0.020	7.710	544.2	544.0	99.40	99.10	1.001	1.000	100
0.020	7.672	544.4	544.1	99,93	99.15	1.011	1.006	110
0.020	7.632	544.4	544.1	98.73	98.82	1.004	1.008	120
0.020	7.615	544.6	544.3	99,25	98.01	1.012	1.002	130
0.020	7.619	544.8	544.5	98,60	98.39	1.005	1.005	140
0.020	7.610	544.9	544.7	98.94	97.97	1.009	1.002	150
0.020	7.596	545.0	544.8	98.55	98.90	1.007	1.013	160
0.020	7.578	545.0	544.9	98.21	96.95	1.006	0.996	170

Run: 3		Intertek Testing Services	S				
Model: XTD 1.9   Date: 24-08-2011   Run: 3   Aerage Adjusted Emission Rate   Run: 3   Average Unadjusted Emission Rate   Run: 412.0		SFBA EPA ADJUSTED	EMISSION F	RESULTS			
Model: XTD 1.9   Date: 24-08-2011   Run: 3   Aerage Adjusted Emissions Rate Run: 3   Average Unadjusted Emissions Rate Run: 15   Burn Rate (Dry kg/hr): 18   Burn Rate (Dry kg/hr): 19   Burn Rate (Dry kg/hr):	Manufacturer	SBI		-	RESULT	rs	
Date: 24-08-2011		Post transfer of the first			134004		
Run: 3	- Contract C	4014		A	erage Adjusted Emis	sions Rate:	3.15
Project #: G100456088   Bum Rate (Dry kg/hr):   1.5		Part I					1.93
Test Duration (Minutes):  Test Duration (Hours):  2.83  BAROMETRIC PRESSURE  Average: 29: Start: 29: Start: 29: DGM #1: DGM #2: D9714  VOLUMES SAMPLED DGM #1: DGM #2: DGM #2: TOTAL TUNNEL VOLUME (scf): DGM #1: Sample Train 1: Sample Train 2: DGM #1: DGM #1: DGM #1: DGM #1: DGM #2: DGM #2: DGM #2: DGM #2: DGM #2: A43.8  SAMPLE RATIOS Sample Train 1: Sample Train 2: DGM #1:		27		0.43	A SECURE OF STREET STREET, STR	E. ELEVANOR STREET, TOTAL PROPERTY AND ADDRESS.	1.84
BAROMETRIC PRESSURE		40/2-11	-		Dail House	ACAM MEDIUM	N-H-
BAROMETRIC PRESSURE   Average: 29: Start: 29: DGM #1: 0.9710   End: 29: DGM #2: 0.9714							
Average   29   Start   29   S	rest Daration (modify)	2.00					
Average   29   Start   29   S				BAROM	ETRIC PRESSU	RE	
TEMPERATURE FACTORS   DGM #1:							29.9
DGM #1:	TEMPERATURE FAC	TORS					29.9
DGM #2:	TEM ENTINE THE		0.9710				29.9
VOLUMES SAMPLED							
VOLUMES SAMPLED   DGM #1   Final:   17.133     Initial:   394.4     394.4     2.0		J J.M nZ.	0.01.17	DRY GAS	METER VALUES		
DGM #1:	VOLUMES SAMP	LED				Final:	412.07
DGM #2: 17.172  DGM #2: Final: 483.  TOTAL TUNNEL VOLUME (scf): 23498  SAMPLE RATIOS  Sample Train 1: 1371.5 Sample Train 2: 1368.4  TOTAL EMISSIONS  CALIBRATION FACTORS Sample Train 1 (g): 5.62 Sample Train 2 (g): 5.34 Ave: 5.48  EMISSION RATES  Sample Train 1 (g/hr): 1.98 Sample Train 1 (g/hr): 1.98 Sample Train 2 (g/hr): 1.88  ADJUSTED EMISSION RATES  Sample Train 1 (g/hr): 3.21 Sample Train 2 (g/hr): 3.08 Sample Train 2 (g/hr): 3.08 Sample Train 2 (g/hr): 3.08 Sample Train 2 (g/hr): 3.15 DEVIATION: 2.17%  Probe Total  If deviation is greater than 7.5% due to low particulate catch The two emission rates shall not differ by 7.5% of the weighted average emission rate limit (4.1 or 7.5) (5g-3)  Use the following:  Catalytic units  3.33% 7.5% of 4.1 g/hr  Non catalytic units  1.82%			17.133		25,52,513		394.4
TOTAL TUNNEL VOLUME (scf): 23498  SAMPLE RATIOS  Sample Train 1: 1371.5 DGM #1: 543.7  Sample Train 2: 1368.4 DGM #2: 543.5  TOTAL EMISSIONS  Sample Train 1 (g): 5.62 DGM #1: 1.00  Sample Train 2 (g): 5.34 DGM #2: 0.99  Ave: 5.48  EMISSION RATES  Sample Train 1 (g/hr): 1.98 PARTICULATE CATCH (mg)  Sample Train 2 (g/hr): 1.88 Sample Train 1:  Ave: 1.93 Filters  ADJUSTED EMISSION RATES  Sample Train 1 (g/hr): 3.21 Filters  Sample Train 2 (g/hr): 3.08 Sample Train 2:  Ave: 3.15 Filters  DEVIATION: 2.17% Probe  Total 4  If deviation is greater than 7.5% due to low particulate catch  The two emission rates shall not differ by 7.5% of the weighted average emission rate limit (4.1 or 7.5) (5g-3)  Use the following:  Catalytic units 3.33%  7.5% of 4.1 g/hr  Non catalytic units 1.82%		4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4					
TOTAL TUNNEL VOLUME (scf): 23498		W T.111 // E.11	ASSAULTE.		DGM #2	Final:	453.6
Sample Train 1: 1371.5   DGM #1: 543.7   Sample Train 2: 1368.4   DGM #2: 543.5	TOTAL TUNNEL	23498				435,8	
Sample Train 1: 1371.5   DGM #1: 543.7   Sample Train 2: 1368.4   DGM #2: 543.5	CAMPLE DATION			TEMPE	BATUBES (DEC	DANKINI	
Sample Train 2: 1368.4   DGM #2: 543.5			4074 E	TEMPE	KATUKES (DEG		
TOTAL EMISSIONS   Sample Train 1 (g):   5.62   DGM #1:   1.00						Colores Charles and Charles	
Sample Train 1 (g):	Sample	e Irain 2:	1308.4			DGW #2.	343.34
Sample Train 2 (g):	TOTAL EMISSION	IS		CALIBR	ATION FACTOR	S	
Sample Train 2 (g):	Sample Train	1 (g):	5.62	-		DGM #1:	1,000
Ave: 5.48  EMISSION RATES  Sample Train 1 (g/hr): 1.98  PARTICULATE CATCH (mg)  Sample Train 2 (g/hr): 1.88  Ave: 1.93  ADJUSTED EMISSION RATES  Sample Train 1 (g/hr): 3.21  Sample Train 1 (g/hr): 3.21  Sample Train 2 (g/hr): 3.08  Sample Train 2 (g/hr): 3.08  DEVIATION: 2.17%  Probe Total  If deviation is greater than 7.5% due to low particulate catch The two emission rates shall not differ by 7.5% of the weighted average emission rate limit (4.1 or 7.5) (5g-3)  Use the following:  Catalytic units 3.33% 7.5% of 4.1 g/hr  Non catalytic units 1.82%	10 10 10 10 10 10 10 10 10 10 10 10 10 1		5.34			DGM #2:	0.996
Sample Train 1 (g/hr): Sample Train 2 (g/hr): 1.88 Sample Train 1:  Ave: 1.93 ADJUSTED EMISSION RATES Sample Train 1 (g/hr): Sample Train 1 (g/hr): Sample Train 2 (g/hr): Sample Train 2 (g/hr): Ave: 3.21 Sample Train 2: Ave: 3.15 DEVIATION: 2.17% Probe Total  If deviation is greater than 7.5% due to low particulate catch The two emission rates shall not differ by 7.5% of the weighted average emission rate limit (4.1 or 7.5) (5g-3)  Use the following:  Catalytic units 7.5% of 4.1 g/hr  Non catalytic units 1.82%			5.48				
Sample Train 2 (g/hr):  Ave:  1.93  ADJUSTED EMISSION RATES Sample Train 1 (g/hr):  3.21  Sample Train 2 (g/hr):  Ave:  3.21  Sample Train 2:  Ave:  3.15  DEVIATION:  2.17%  If deviation is greater than 7.5% due to low particulate catch The two emission rates shall not differ by 7.5% of the weighted average emission rate limit (4.1 or 7.5) (5g-3)  Use the following:  Catalytic units  7.5% of 4.1 g/hr  Non catalytic units  1.82%	EMISSION RATES	3		TUNNE	L FLOW RATE:		138.
Sample Train 2 (g/hr):  Ave:  1.93  ADJUSTED EMISSION RATES Sample Train 1 (g/hr):  3.21  Sample Train 2 (g/hr):  Ave:  3.21  Sample Train 2:  Ave:  3.15  DEVIATION:  2.17%  If deviation is greater than 7.5% due to low particulate catch The two emission rates shall not differ by 7.5% of the weighted average emission rate limit (4.1 or 7.5) (5g-3)  Use the following:  Catalytic units  7.5% of 4.1 g/hr  Non catalytic units  1.82%			1.98			CATCH (n	ng)
Ave: 1.93  ADJUSTED EMISSION RATES  Sample Train 1 (g/hr): 3.21  Sample Train 2 (g/hr): 3.08  Ave: 3.15  DEVIATION: 2.17%  If deviation is greater than 7.5% due to low particulate catch The two emission rates shall not differ by 7.5% of the weighted average emission rate limit (4.1 or 7.5) (5g-3)  Use the following:  Catalytic units 3.33% 7.5% of 4.1 g/hr  Non catalytic units 1.82%	Sample Train 2	(g/hr):	1.88				20/
ADJUSTED EMISSION RATES  Sample Train 1 (g/hr): 3.21 Total 4 Sample Train 2 (g/hr): 3.08 Sample Train 2:  Ave: 3.15 Filters  DEVIATION: 2.17% Probe Total 3  If deviation is greater than 7.5% due to low particulate catch The two emission rates shall not differ by 7.5% of the weighted average emission rate limit (4.1 or 7.5) (5g-3)  Use the following:  Catalytic units 3.33% 7.5% of 4.1 g/hr  Non catalytic units 1.82%			1.93				3.
Sample Train 1 (g/hr):  Sample Train 2 (g/hr):  Ave: 3.15  DEVIATION:  If deviation is greater than 7.5% due to low particulate catch The two emission rates shall not differ by 7.5% of the weighted average emission rate limit (4.1 or 7.5) (5g-3)  Use the following:  Catalytic units  3.21  Total 4  Sample Train 2:  Filters 3  Total 3  If deviation is greater than 7.5% due to low particulate catch The two emission rates shall not differ by 7.5% of the weighted average emission rate limit (4.1 or 7.5) (5g-3)  Use the following:  Catalytic units  3.33% 7.5% of 4.1 g/hr  Non catalytic units  1.82%	ADJUSTED EMIS	1 1000000				Probe	0
Sample Train 2 (g/hr):  Ave: 3.15  DEVIATION:  2.17%  Probe Total  If deviation is greater than 7.5% due to low particulate catch The two emission rates shall not differ by 7.5% of the weighted average emission rate limit (4.1 or 7.5) (5g-3)  Use the following:  Catalytic units  3.33% 7.5% of 4.1 g/hr  Non catalytic units  1.82%	Enterprise State of Facilities Charles	Strangerick Control Control	3.21			Total	4.
Ave: 3.15  DEVIATION: 2.17% Probe Total 3  If deviation is greater than 7.5% due to low particulate catch The two emission rates shall not differ by 7.5% of the weighted average emission rate limit (4.1 or 7.5) (5g-3)  Use the following:  Catalytic units 3.33% 7.5% of 4.1 g/hr  Non catalytic units 1.82%			3.08		Sampl	e Train 2:	
DEVIATION: 2.17% Probe Total 3  If deviation is greater than 7.5% due to low particulate catch The two emission rates shall not differ by 7.5% of the weighted average emission rate limit (4.1 or 7.5) (5g-3)  Use the following:  Catalytic units 3.33% 7.5% of 4.1 g/hr  Non catalytic units 1.82%	B ( 222 M. 182 M. 1	Section 18 or	3.15		1.51537.303		3.
If deviation is greater than 7.5% due to low particulate catch The two emission rates shall not differ by 7.5% of the weighted average emission rate limit (4.1 or 7.5) (5g-3)  Use the following:  Catalytic units 3.33% 7.5% of 4.1 g/hr  Non catalytic units 1.82%	DEV	***************************************				Probe	0.
The two emission rates shall not differ by 7.5% of the weighted average emission rate limit (4.1 or 7.5) (5g-3)  Use the following:  Catalytic units 7.5% of 4.1 g/hr  Non catalytic units 1.82%			n1T				3.
The two emission rates shall not differ by 7.5% of the weighted average emission rate limit (4.1 or 7.5) (5g-3)  Use the following:  Catalytic units 7.5% of 4.1 g/hr  Non catalytic units 1.82%	If deviation is great	ter than 7 5% due to low	narticulate e	atch			
of the weighted average emission rate limit (4.1 or 7.5) (5g-3)  Use the following:  Catalytic units  7.5% of 4.1 g/hr  Non catalytic units  1.82%				GLOII			
Catalytic units 3.33% 7.5% of 4.1 g/hr  Non catalytic units 1.82%				(5g-3)			
Catalytic units 3.33% 7.5% of 4.1 g/hr  Non catalytic units 1.82%	Lien the following:						
7.5% of 4.1 g/hr  Non catalytic units 1.82%	ose the following:						
7.5% of 4.1 g/hr  Non catalytic units 1.82%	Catalytic units		3,33%				
	Control of the street of the s						
	Non establic units		1 970/				
	7.5% of 7.5 g/hr		1.02%				



Client: SBI   Run: 3   Date: 24-08-2011   Project: G100456088   Model: XTD 1.9   Fuel Moisture (Dry): 19.42666667   Stack Static (neg): 0.0925   Barometer: 29.95   Average Room Temp: 84.74   Change in stove temp: -19.1629032			nnel:	132.32			
Client: SBI   Run: 3   Date: 24-08-2011   Project: G100456088   Model: XTD 1.9   Fuel Moisture (Dry): 19.42666667   Stack Static (neg): 0.0925   Barometer: 29.95   Average Room Temp: 84.74   Change in stove temp: -19.1629032   Bum Rate: 1.837   Adjusted Emission Rate: 3.146   System 1: 3.215   System 2: 3.078   Deviation: 2.17%		Filter 2:		86.99			
Client: SBI   Run: 3   Date: 24-08-2011   Project: G100456088   Model: XTD 1.9   Fuel Moisture (Dry): 19.42666667   Stack Static (neg): 0.0925   Barometer: 29.95   Average Room Temp: 84.74   Change in stove temp: -19.1629032   Bum Rate: 1.837   Adjusted Emission Rate: 3.146   System 1: 3.215   System 2: 3.078   System 2: 3.078				11 487 37 37 37			
Client: SBI Run: 3 Date: 24-08-2011 Project: G100456088 Model: XTD 1.9 Fuel Moisture (Dry): 19.42666667 Stack Static (neg): 0.0925 Barometer: 29.95 Average Room Temp: 84.74  Change in stove temp: -19.1629032  Burn Rate: 1.837 Adjusted Emission Rate: 3.146 System 1: 3.215							
Client: SBI Run: 3 Date: 24-08-2011 Project: G100456088 Model: XTD 1.9 Fuel Moisture (Dry): 19.4266667 Stack Static (neg): 0.0925 Barometer: 29.95 Average Room Temp: 84.74  Change in stove temp: -19.1629032  Burn Rate: 1.837 Adjusted Emission Rate: 3.146					1	ì	
Client: SBI Run: 3 Date: 24-08-2011 Project: G100456088 Model: XTD 1.9 Fuel Moisture (Dry): 19.42666667 Stack Static (neg): 0.0925 Barometer: 29.95 Average Room Temp: 84.74  Change in stove temp: -19.1629032  Bum Rate: 1.837	nujusit						
Client: SBI Run: 3 Date: 24-08-2011 Project: G100456088 Model: XTD 1.9 Fuel Moisture (Dry): 19.42666667 Stack Static (neg): 0.0925 Barometer: 29.95 Average Room Temp: 84.74  Change in stove temp: -19.1629032	Adiust	April 2 1 A 1 A 2 A 2 A 2 A 2 A 2 A 2 A 2 A 2	A STATE OF THE STA	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
Client: SBI Run: 3 Date: 24-08-2011 Project: G100456088 Model: XTD 1.9 Fuel Moisture (Dry): 19.42666667 Stack Static (neg): 0.0925 Barometer: 29.95 Average Room Temp: 84.74							
Client: SBI Run: 3 Date: 24-08-2011 Project: G100456088 Model: XTD 1.9 Fuel Moisture (Dry): 19.42666667 Stack Static (neg): 0.0925 Barometer: 29.95 Average Room Temp: 84.74	Ondin		o tomp.	10.1020002			
Client: SBI Run: 3 Date: 24-08-2011 Project: G100456088 Model: XTD 1.9 Fuel Moisture (Dry): 19.42666667 Stack Static (neg): 0.0925 Barometer: 29.95	Chan	ge in stoy	e temn	-10 1620032			
Client: SBI Run: 3 Date: 24-08-2011 Project: G100456088 Model: XTD 1.9 Fuel Moisture (Dry): 19.42666667 Stack Static (neg): 0.0925 Barometer: 29.95							
Client: SBI Run: 3 Date: 24-08-2011 Project: G100456088 Model: XTD 1.9 Fuel Moisture (Dry): 19.42666667 Stack Static (neg): 0.0925 Barometer: 29.95	AVC	age Noo	ili reliip.	04.74			
Client: SBI Run: 3 Date: 24-08-2011 Project: G100456088 Model: XTD 1.9 Fuel Moisture (Dry): 19.42666667 Stack Static (neg): 0.0925	Δνιο						
Client: SBI Run: 3 Date: 24-08-2011 Project: G100456088 Model: XTD 1.9 Fuel Moisture (Dry): 19.42666667	Stac			/ 1 TO FEMALES			
Client: SBI Run: 3 Date: 24-08-2011 Project: G100456088 Model: XTD 1.9				117-7-7-7-7-7-7-7-7-7-7-7-7-7-7-7-7-7-7			
Client: SBI Run: 3 Date: 24-08-2011 Project: G100456088	Levie		1110 0011				
Client: SBI Run: 3			Project:	G100456088			
Client: SBI			Date:	24-08-2011			
			Run:	3			
THE OWN DATE.			Client	SBI			
		REPOR	DAIA				

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Manufacturer SBI Model XTD 1.9 Project G100456088

Project G10	0456088				and the second decrease of the second decreas			
Flue	Room	Tunnel	Unit	Unit	Unit	Unit	Unit	Scale
Gas	Temp	Dry Bulb	Top	Back	R.Side	L.Side	Bottom	weight
567.07	76.35	273.15	307.58	143.34	166.31	131.18	99.32	13.26
475.66	74.22	139.84	444.71	228.98	239.26	215.69	118.71	11.41
414.66	74.90	126.85	508.05	307.54	279.23	285.27	154.91	9.77
460.30	76.73	132.23	571.50	383.73	345.65	347.66	193.50	8.12
456.26	79.04	134.34	608.37	447.02	382.60	412.68	229.95	6.65
449.39	80.44	135.37	609.73	495.01	425.45	462.86	266.06	5.32
425.93	82.33	132.80	595.63	536.00	463.81	509.88	309.39	4.16
365.27	81.41	123.79	524.79	556.51	453.37	520.86	338.29	3.65
339.69	81.00	120.99	474.50	550.58	452.38	508.48	351.85	3.18

## E&E Tunnel Traverse Worksheet

	TUNNEL VELOCITY	TUNNEL TEMP	SQUARE ROOT	Static Pressure:	
A CENTER	0.020	132	0.1414		
B CENTER	0.020	133	0.1414		
<b>A</b> 1	0.018	131	0.1323	PITOT	
A2	0.020	131	0.1414	CONSTANT	0.9342
A3	0.018	130	0.1323		
A4	0.015	128	0.1225		
B1	0.018	133	0.1323		
B2	0.020	134	0.1414		
В3	0.018	134	0.1323		
B4	0.015	128	0.1225		
AVERAGE	0.018	131.46	0.1321		
			1		

Tunnel Diameter (in): Tunnel Area (ft2) Tunnel Static Pressure 8 0.349066 -0.0925

## **E&E FUEL LOAD DATA SHEET**

Test Load Weight: Lower Ideal Upper Firebox Volume: 14.98 16.48 2.14 cu. ft 13.48 lbs./ft3 0.0000 Loading Density: 5.958 Load Volume: cu. ft lbs./ft3 Load Density: #DIV/0! Number of Spacers: VERSION 1.2 2/5/2010

		Piece S	Size:		Weight	Meter Moisture Content					
Thick	Х	Wide	Х	Length	lbs	Dry Uncorrected %					
	2		4	12	1.2	19.5	20.9	20.8			
	2		4	12	1.15	21.2	21.1	21			
	2		4	12	1.25	20.3	20.4	20.9			
	2		4	12	1.15	20.5	21.6	21.7			
	2		4	16	1.55	20.5	20.8	21.4			
	2		4	16	1.65	20.80	19.70	20.30			
	2		4	16	1.60	21.50	20.10	20.10			
	2		4	16	1.60	21.00	20.80	20.90			
	2		4	16	1.60	21.00	19.20	20.20			

Test Load Weigh 12.75 lbs.

Dry Weigh 4.78

kg.

**Average Pretest Moisture Content: %** 

Dry: 20.47

two pin: (dry) 20.90

Wet:

17.29

Manufacturer SBI Model XTD 1.9 Project G100456088

Test Load Weight:

| Lower | Ideal | Upper | Firebox Volume: | 2.14 | cu. ft | 13.48 | 14.98 | 16.48 |

Load Volume: 0.0651 cu. ft Loading Density: 6.402 lbs./ft3

Number of Spacers: 20 Load Density: 210.432 lbs./ft3

Thick x	Piece Size Wide x		Weight Ibs	Meter Moisture Content Dry Uncorrected %					
2	4	15.75	1.50	19.50	19.50	19.50			
2	4	15.75	1.55	19.30	19.50	19.90			
2	4	15.75	1.45	19.20	19.10	19.10			
4	4	15.75	3.70	19.80	18.80	19.20			
4	4	15.75	3.35	19.50	19.50	20.00			
		Spacers	2.15						

Test Load Weigh 13.70 lbs. Dry Weigh 5.20 kg.

**Average Moisture Content: %** 

Dry: 19.43 Wet: 16.27

Pre-test moisture content: %

20.47 Wet: 16.99

Coal Bed Range: 2.8 lbs. to 3.4 lbs. 20% to 25% of test load

# Run 4



#### Run Notes EPA Methods 28 and 5G-3

PROJECT / TES	T INFORMATION
Project Number:	G100456088
Manufacturer:	SBI
	XTD 1.9
Sample ID Number:	MTL1108221414-001
Test Date:	25-Aug-11
Test Run Number:	4
Date tunnel cleaned:	8/18/2011
Purpose of Test	Fan Confirmation



Appl	Appliance Information									
Appliance Type:	2	1 - Catalytic 2 - Non - Catalytic 3 - Pellet 4 - Hydronic								
Firebox Volume, ft <sup>3</sup> :	2.14	N/A for pellet type								
Convection Blower	2	1 - No Fan 2 - Fan Optional 3 - Fan Standard								

		Test Settings
F	Primary Air:	Opened at 3/16"
	condary Air:	
Cor	ntrol Board:	N/A
E	Blower/Fan:	Off at all times
		Pre- Burn Activities
Time	Activity	
(min.)		
45	Stirred the	
90		e Coal Bed and activate (door was left ajar 1/4" open) for 30 seconds.
	The whole	manipulation lasted 55 seconds
		Start-Up Procedure
		Loaded by 50 seconds
		Left ajar at 1/4" for 90 seconds
		Fully open the first 5 minutes. Abruptly closed (3/16") at 5 minutes.
	condary air:	
	ntrol board:	
В	lower / fan:	Off at all times
		Other Notes
Coal Bed r	range: 2.8-3	.4 lb



	1			VERSION	1.2	2/5/2010	1					
Manufacturer:	CDI			VERSION	1,2	2/0/2010	1					
	XTD 1.9											
	25-08-2011							i				
	4-Fan Confirmatio	n										
	G100456088											
Test Duration:	290											
	100000000000000000000000000000000000000	Start	End									
	Barometer (in.Hg):	29.7	29.7									
	Dry Bulb (F):	87	87									
	Humidity (%):	25	24									
Blower turned on at 30 min-lov	w position.											
Moisture content of	A Control of the Control	16.6528										
	Average	0.95	4.69	16.12	257.38	88,11	99.11	422.13	396.21	433.76	454.48	311.2
	*			*		•		٠	*		*	,
Elapsed	Weight				Flue	Room	Tunnel	Unit	Unit	Unit	Unit	Unit
Time		co	CO2	02	Gas	Temp	Dry Bulb	Тор	Back	R.Side	L.Side	Bottom
0			2.28			79.77	116 74	408.57	517.87	463.82	489.75	374.5
10		0.61	4			83.78	101.53	405.06	481,22	411.58	459.55	369.3
20		0.45	9.54	11.74		82.25		382,21	436,64	369,30	424.36	358.1
30		0.69	10.85			82.34	104.43	445.74	413,16	370.93	410.54	341.8
40		0.44	9.93	11.13		85.06	108.76	572.88	271.88	408.67	429 58	327.0
50		0.43	7,58	13.35		87.95	111.01	620.78	292,25	436,46	460.54	315.0
60		0.6	6.37	14.58		87.33	108.79	604.16	306.98	445,41	485 36	310.7
70		0,6	6.79	14.35		85.88	105.88	553.58	320.16	437.79	491.70	306.2
80		0.59										
			7.5	13.73		87,59	104.17	520,16	340,48	437,98	494.15	301.4
90		0.66	6.19	14.57	303.76	88.84	103.37	508.04	343,64	444.96	501.14	298.9
100		0.84	5,31	15,58		87.74	101.97	495,71	377,03	451.48	507.12	293.8
110		0.7	5.84	15.29		88,17	100,22	466 13	512,47	454,96	499,90	295.0
120		0.37	7.4	14.24	263.47	88.92		446.90	323,63	462,80	493,73	293.0
130		0.53	6.44	14.83	268.72	85.29	98.96	448.48	343,94	477.18	491.56	291.4
140		0.42	6.04	14.91	269.92	87,30	98.74	459.77	365,79	492,52	498,57	293,3
150		0.82	4.55	16.19	267.17	84,69	98.59	459 08	373.78	507,07	503.07	293,9
160		1.08	4.2	16.32		84,62	97.15	440,60	353,75	498,90	501,28	297,1
170		1.26	3.89	16,53	243,37	85,62	96.14	418,68	361.67	487.46	492.05	297.9
180	1,44	1,42	3.62	16.67	235 93	84,19	95,38	400,47	417.32	479.87	480,74	299,3
190	1.25	1.42	3.46	16.83	231.51	84,55	95.07	385,71	491.74	471.92	469,84	303.8
200	1.07	1.22	3,25	17.2	224.36	84.54	94.34	371.30	481.49	463.72	459.15	303.1
210	0,90	1.33	3,03	17.39	221.20	86,11	94.49	362 48	471.27	452 19	449,93	304.7
220	0.76	1.5	2.17	18.2	217.40	86,81	93.91	353,78	459.54	435.19	440,76	307.6
230	0,63	1.56	2.02	18.3	209.30	86.88	93,32	341.32	446.51	418_60	429.46	310.1
240	0.50	1.65	1.81	18.54	203.72	87.01	92.78	327.19	432.03	402 54	414.08	310.6
250	0,38	1.36	1.45	19.12	197.46	87.82	92 15	315.10	418.42	389 62	400.16	310.5
260	0.26	1.34	1.28	19.31	192.06	88.40	92.13	304.02	405.12	378.24	385.80	308.4
200			,,20	, 0 0	102,00	00,40	02 10	00 T 02	100 12	0,027	300 00	000,7
270		1.5	1.01	19.42	185.68	87.95	91-77	292.16	390.12	364.65	371.31	308 1
270 280	0.17 0.10	1.5 1.38	1.01 1.46	19.42 19.3	185.68 180.98	87.95 87.77	91.77 91.65	292.16 281.80	390,12 375,38	364 65 352 17	371,31 356,52	308, 16 305, 69



												- 7	
Mani	ufacturer:	SBI											
IVIAITE		XTD 1.9										_	
		25-08-20	1.1	-									
		4-Fan Co											
_		G100456		-									
	JOHU OF#.	G 100430	000										
427.21	82.50	82.51	85.35	468.71	82.36	82.32	85.63	0.02	0.000	0.00	403,55		
	Eschilosof.	CVERTIFIES				1,000,000,000				Visual	Charles Address of the Parket	Change in	
DGM 1	DGM 1	DGM 1	Filter 1	DGM 2	DGM 2	DGM 2	Filter 2		Chimney	Smoke	Stove	Surface	Elapse
Reading	Inlet T	Outlet T	Temp	Reading	Inlet T	Outlet T	Temp	Velocity	Draft	Observed	Temp	Temp.	Time
412.092	81,92		81.88	453,582	81,78	81.76	81.98	0.023	·		450.9	0	(
413 145	82,10	82.01	84,89	454.840	81,93	81.91	84.84	0.023			425.4	-25.547	10
414.185	82.18	82.09	85.38	455.682	81.97	81.97	85.60	0.023			394.1	-56,766	20
415,202	82,25	82,17	85 60	458.708	82.04	82.05	85.92	0.023			396.4	-54.467	30
416.219	82,28	82,21	86,04	457.726	82,10	82 06	86,29	0.023			402.0	-48.885	40
417,264	82,41	82.33	86.58	458,763	82,20	82.22	86.74	0.023	:		425.0	-25.889	50
418 302	82,40	82,35	86.76	459.804	82 18	82_18	87.04	0.023			430.5	-20.38	60
419,372	82,52	82,45	86.67	460,898	82.32	82.27	87.02	0.023			421.9	-29.016	70
420,418	82,56	82,49	86.54	461.905	82,35	82.29	86.85	0.023			418.8	-32.059	80
421,460	82,52	82,54	86.42	462.955	82,39	82 32	86,70	0.023			419.3	-31.56	90
422,508	82.43	82,51	86.25	464.018	82.35	82.24	86.56	0.023			425.0	-25.859	100
423,545	82.40	82,46	86.04	465.052	82.29	82.22	86 22	0.023			445.7	-5.2	110
424.596	82,42	82,48	85.73.	466,113	82,32	82,25	86.08	0.023			404.0	-46.876	120
425,642	82,47	82.51	85.65	467.133	82,37	82,37	85,93	0.023			410.5	-40.378	130
426,685	82.42	82.52	85,65	468.187	82 33	82,28	85.79	0.023			422.0	-28.914	140
427.735	82.45	82.49	85.53	469,222	82,34	82,31	85.72	0,023			427.4	-23.518	150
428,775	82.49	82.57	85.55	470,280	82.36	82,34	85,68	0.023			418.3	-32.563	160
429 824	82.57	82 62	85.55	471.327	82,43	82.41	85,61	0.023			411.6	-39.349	170
430.870	82.54	82 62	85.28	472,363	82,44	82,38	85.39	0.023			415.6	-35.351	180
431,912	82,56	82.58	85.02	473.427	82,47	82.35	85.26	0.023	(		424.6	-26.296	190
432.959	82,65	82.63	84.94	474.478	82,46	82.41	85.22	0.023			415.8	-35.137	200
434,007	82,66	82,63	84.96	475.510	82,49	82,39	85.26	0.023			408.1	-42.79	210
435,055	82.67	82,65	84.92	476.551	82,54	82.46	85.19	0.023			399.4	-51.52	220
436,098	82.65	82.63	84.85	477.604	82.51	82.42	85.17	0.023			389.2	-61.704	230
437.137	82.66	82.72	84.79	478.652	82.60	82.56	85.14	0.023			377.3	-73,602	240
438 180	82.67	82.72	84.76	479.683	82.58	82.51	85,15	0.023			366.8	-84.139	250
439.217	82.76	82.77	84.75	480.707	82.63	82.60	85.22	0.023			356.3	-94.585	260
440 265	82.77	82.77	84,59	481.783	82.61	82.58	85.19	0.023			345.3	-105,63	270
441.314	82.75	82.83	84.48	482.818	82,70	82.69	85.03	0.023			334,3	-116.59	280
442.357	82.88	82.90	84.39	483.854	82.79	82.78	85.01	0.023			324.9	-126	290

	Manu	ıfacturer:		SBI				
		Model:		XTD 1.9				
		Date:		25-08-2011				
		Run:		4-Fan Confirma	ation			
	Project	#:		G100456088				
1	Test Dura	ation:		290				
Total Gas Vo	olume (D	GM 1):		29.227	Pit	tot Factor	0,82	
Total Gas Vo	olume (De	GM 2):		29 125		(0	99 standar	d,
Average Baron	netric Pro	essure:		29.7		0.84 or Ca	al. Factor fo	r S-Type)
	Molecu	lar Weig	ht:	28.56				ALC: NO CALLES
	Pitot Co	orrection		0.915				
Calibration Fac	ctor (DGI	VI #1):		1.0000				
Calibration Fac	ctor (DGI	M #2):		0.9960				
	A STATE	-6	(1) VS:	0.0287				
			(2) VS:	0.0288			Filter	Filter
			1				Face	Face
DGM 1	DGM 1	DGM 1	DGM 2	DGM 2	DGM 2	Tunnel	Velocity	Velocity
Reading	Inlet T	Outlet T	Reading		Outlet T		DGM 1	DGM 2
412.092	81.9	81.9	CONTRACTOR CONTRACTOR	81.781248	81.758			
413.145	82.1	82.0	454.640	81.929632	81,909	101.53.	8.77	8.78
414.185	82.2	82.1	455.682	81.971338	81.971	99,079	8.66	8.65
415.202	82.2	82.2	456.708	82.03575	82.045	104.43	8.47	8.5
416.219	82.3	82.2	457.726	82.099349	82.058	108.76	8.47	8.45
417.264	82.4	82.3	458.763	82.195643	82.221	111.01	8.70	8,60
418.302	82.4	82.3	459.804	82.180898	82.178	108.79	8.64	8.64
419.372	82.5	82.4	460.898	82.321816	82.27	105.88	8.91	9.07
420.418	82.6	82.5	461.905	82.348315	82.286	104.17	8.71	8.35
421.460	82.5	82.5	462.955	82.390194	82.316	103,37	8.67	8.71
422.508	82.4	82.5	464.016	82.351067	82.236	101.97	8.73	8.80
423,545	82.4	82.5	465.052	82.289862	82.223	100.22	8.63	8.59
424.596	82.4	82.5	466.113	82.321002	82.246	99,561	8.75	8.80
425.642	82.5	82.5	467.133	82.374472	82.37	98.964	8.71	8.46
426.685	82.4	82.5	468.187	82.327256	82.284	98.739	8.68	8.74
427.735	82.5	82.5	469.222	82.344883	82,306	98.59	8.74	8.58
428.775	82.5		470.280	82.362811	82.345	97.153	8.66	8.78
429.824	82.6		471.327	82.433036	82.414	96.144	8.73	8,68
430.870	82.5	82.6		82.43575	82.377	95.381	8.71	8.59
431.912	82.6	82.6		82.471214	82.353		8.67	8.82
432,959	82.6		474.478	82.461684	82,405	94.343	8.71	8.72
434,007	82.7	82.6		82.486717	82.391	94.489	8.72	8.56
435,055	82.7		476.551	82.536783	82.463	93,907	8.72	8.63
436,098	82.6		477,604	82.512443	82.42	93,321	8.68	8.73
437.137	82.7	82.7	478.652	82.604884	82.565	92.778	8.65	8.69
438,180	82.7	82.7		82.584228	82.508	92.153	8.68	8,55
439,217	82.8	82.8		82.628727	82,598	92.134	8.63	8.49
440.265	82.8	82.8		82.613875	82.576	91.769	8.72	8.92
441.314	82.8		482.818	82.701504	82.687		8.73	8.58
442.357	82.9	82.9	483.854	82.790418	82.782	91.293	8.68	8.59

	Proportio	nal Rate (	Calculatio	ns	(EPA Formulas from PR5G)					
	Stack are	ea (ft2):	0.3491		Mar	ufacturer:	SBI			
Wood	moisture (		16.653				XTD 1.9			
	Veight (lbs		13.9				25-08-20	11		
	ate (Dry k	make a second and the	1.087				4-Fan Co			
	7 20									
		(DGM #1					1			
	The state of second of the best point	(DGM #2	A second second							
		perature l	the way of the latest the same of		559.113					
		city (feet			7.812183					
Sta	ndardized	Tunnel F	low (dscf	m):	147 18					
		Average	Average							
		Inlet +	Inlet +		11-1		1			
		Outlet	Outlet	99.94	99.94	#1	#2			
Tunnel	Tunnel	Temp.	Temp.	35.54	99.94	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		
0.023	7.934	541.9	541.8				V-77	0		
0.023	7.829	542.1		101.20	101,65	1.018	1.019	10		
0.023	7.812	542.1	542.0		99.89	1.005	1.003	20		
0.023	7.849	542.2	542.0	97.97	98,81	0.983	0.988	30		
0.023	7.879	542.2	542.1		98.41	0.983	0.980	40		
0.023	7.895	542.4	542.2	101.22	100.42	1.009	0.998	50		
0.023	7.880	542.4	542.2		100.62	1.003	1.002	60		
0.023	7.859	542.5	542.3	103.15	105.45	1.033	1.053	70		
0.023	7.848	542.5	542.3		96,91	1.010	0.969	80		
0.023	7.842	542.5	542.4	100.22	100.97	1.006	1.010	90		
0.023	7.832	542.5	542.3	100.68	101.91	1.012	1.021	100		
0.023	7.820	542.4	542.3	99.48	99.36	1.002	0.997	110		
0.023	7.815	542.5	542.3	100,76	101.70	1.015	1.021	120		
0.023	7.811	542.5	542.4	100.22	97.70	1.010	0.981	130		
0.023	7.810	542.5	542.3	99.92	100.95	1.007	1.014	140		
0.023	7.809	542.5	542.3	100.57	99.11	1.014	0.996	150		
0.023	7.799	542.5	542.4	99.48	101.18	1.004	1.018	160		
0.023	7.792	542.6	542.4	100.23	100.02	1.013	1.007	170		
0.023	7.786	542.6	542.4	99.88	98.91	1.010	0.997	180		
0.023	7.784	542.6	542.4	99.47	101.55	1.006	1.024	190		
0.023	7.779	542.6	542.4	99,87	100.24	1.011	1.011	200		
0.023	7.780	542.6	542.4	99,98	98.44	1.012	0.993	210		
0.023	7.776	542.7	542.5	99,92	99.23	1.012	1.001	220		
0.023	7.772	542.6	542.5	99.40	100.33	1.007	1.013	230		
0.023	7.768	542.7	542.6	98,96	99.78	1.003	1.008	240		
0.023	7.764	542.7	542.5	99.28	98.12	1.007	0.992	250		
0.023	7.763	542.8	542.6	98.70	97.44	1.001	0.985	260		
0.023	7.761	542.8	542.6	99.71	102,35	1.012	1.035	270		
0.023	7.760	542.8	542.7	99.79	98.42	1.013	0,995	280		
0.023	7.757	542.9	542.8	99.17	98.47	1.007	0.996	290		

	Intertek Testing Service	S	-,			
	SFBA EPA ADJUSTED	EMISSION F	RESULTS			
Manufacturer	SBI			RESUL	re	
Control of the Contro	XTD 1.9			KESUL	10	
20000000	25-08-2011			anna Adamini Fasi	valeus Datas	4.56
				erage Adjusted Emi		3.01
	4-Fan Confirmation G100456088		Ave	rage Unadjusted En	PROCESS AND ADDRESS OF THE PARTY OF THE PART	1.09
14 Carlo (14)			-	Burn Rate	(Dry kg/hr):	1100
Test Duration (Minutes): Test Duration (Hours):						
rest Duration (nours).	4.03				1	
			BAROM	ETRIC PRESSU	nc .	
			BAROW	EIRIC PRESSU		29.
					Average: Start:	29.
TEMPERATURE FAC	DGM #1:	0.9733			End:	29.
	DGM #1.	0.9736			Eng.	25.
	DGIVI #2.	0.9736	DOVICAS	METER VALUES		
VOLUMES SAMP	ED		DRT GAS	DGM #1	Final:	442.35
VOLUNES SAWI	DGM #1:	29,239		DGIWI # I	Initial:	412.09
	DGM #1:	29.138			II III di.	412.03
	DOM WZ.	23.100		DGM #2	Final:	483.85
TOTAL TUNNEL	/OLLIME (ecf):	42683		DOM #2	Initial:	453.58
TOTAL TOTALL	OCONIC (SCI).	72000			unida.	400.00
SAMPLE RATIOS			TEMPE	RATURES (DEG	RANKIN	
Control of the Contro	e Train 1:	1459.8	I LIVIT LI	WI ONEO (DEG	DGM #1:	542.50
10000000	e Train 2:	1464.9			DGM #2:	542.34
Jampi	Jitam Z.	1404.5			DOWN IFZ.	042.04
TOTAL EMISSION	IS		CALIBR	ATION FACTOR	S	
Sample Train		14.31	OMEIDIO	· · · · · · · · · · · · · · · · · · ·	DGM #1:	1.000
Sample Train		14.94			DGM #2:	0.996
Syllipio (name	Ave:	14.62			The state of the s	
EMISSION RATES	4	19202	TUNNEL	FLOW RATE:		147.2
Sample Train 1		2.96		PARTICULATE	CATCH (n	
Sample Train 2		3,09			le Train 1:	19/
oumple Hum 2	Ave:	3.03		Cump	Filters	9.
ADJUSTED EMIS		0.00			Probe	0.
Sample Train 1		4.48		=======================================	Total	9.
Sample Train 2		4.64		Samo	e Train 2:	
Sample Hall 2	Ave:	4.56		Calling	Filters	9.
DEV	/IATION:	1.80%			Probe	0.
		7.0070			Total	10.
Water de Name 12	las than 7 FO/ disa to last	mantle date -	at at			
THE LANGE OF TAXABLE PARTY OF THE PARTY OF T	ter than 7.5% due to low	\$100,000 0 40 YEAR AND 10 400	attn			
	rates shall not differ by 7. erage emission rate limit		(5g-3)			
The second second second		Mei Sty	7.5.5			
Use the following:						
Catalytic units		4.02%				
7.5% of 4.1 g/hr		7.0270				
7.070 OF 4.1 g/fil						
Non catalytic units		2.19%				
7.5% of 7.5 g/hr		4,1570				
1.5 % 01 7.5 9/11						

	REPORT	T DATA						
		000						
		Client	SBI					
			Fan Confirmation				-	
		Date:	25-08-2011					
		Project:	G100456088					
		Model:	XTD 1.9					
Fuel N	loisture	(Dry):	19.98					
Stack	Static (r		0.085					
		meter:	29.7					
Aver	age Roo	m Temp:	86,11					
Change	e in stov	e temp:	0					
1								
-								
	Bum		1.087					
Adjusted		on Rate:	4.562					
		tem 1:	4.479					
	Sys	tem 2:	4.644					
1	Devi	ation:	1.80%					
	Filte	r 1:	85.35					
	Filte	er 2:	85.63					
	Tu	nnel:	99.11					
		DGM 1:	82.50					
		DGM 2:	82,34					
	Water C	ollected:						
	Room	Temp	Bar Pressure		Relative H	umidity	Air Velo	ocity
	Before	After	Before	After	Before	After	Before	Afte
	87	87	29.70	29.70	25	24	0	0

Manufacturer SBI Model XTD 1.9 Project G100456088

1	Flue	Room	Tunnel	Unit	Unit	Unit	Unit	Unit	Scale
	Gas	Temp	Dry Bulb	Top	Back	R.Side	L.Side	Bottom	weight
-	529.73	83.96	153.14	454.65	470.50	434.27	453.61	390.06	12.27
	474.43	88.47	131.29	726.59	321.31	502.54	489.77	374.24	9.28
	391.57	89.78	117.30	649.66	340.56	517.24	514.42	376.12	7.82
	403.34	92.11	117.89	671.78	495.58	530.29	534.92	380.38	6.33
	405.40	90.90	117.93	697.25	550.07	538.19	553.88	381.67	4.85
	354.64	89.77	111.55	654.29	518.49	546.37	565.62	379.22	3.97
	340.81	88.98	110.66	608.90	474.93	546.45	564.71	381.71	3.30
	293.24	90.46	105.10	529.82	575.42	519.39	546.12	382.80	3.09
	269.81	85.41	102.23	464.51	545.69	493.36	519.83	376.96	3.01
	253.08	84.32	99.38	424.35	525.82	470.31	496.75	372.55	2.82

03/25/12

## E&E Tunnel Traverse Worksheet

	TUNNEL VELOCITY	TUNNEL TEMP	SQUARE ROOT	Static Pressure:	
A CENTER	0.028	124	0.1658		
<b>B CENTER</b>	0.028	121	0.1658		
A1	0.025	122	0.1581	PITOT	
A2	0.028	122	0.1658	CONSTANT	0.9150
A3	0.025	122	0.1581	*	
A4	0.018	118	0.1323		
B1	0.023	120	0.1500		
B2	0.025	121	0.1581		
В3	0.023	122	0.1500		
B4	0.020	118	0.1414		
AVERAGE	0.024	121.08	0.1517		

Tunnel Diameter (in): Tunnel Area (ft2) Tunnel Static Pressure 8 0.349066 -0.085

### **E&E FUEL LOAD DATA SHEET**

Test Load Weight:

| Lower | Ideal | Upper | Firebox Volume: | 2.14 | cu. ft | 13.48 | 14.98 | 16.48 |

Load Volume: 0.0000 cu. ft Loading Density: 5.771 lbs./ft3

Number of Spacers: Load Density: #DIV/0! Ibs./ft3

VERSION 1.2 2/5/2010

		Piece Siz	e:		Weight	Meter Moisture Conter					
Thick	x Wide x Length				lbs		Dry Uncorrected				
	2		4	12	1.15	21.3	19.5	22.5			
	2		4	12	1.15	21.7	19	21.7			
	2		4	12	1.15	21.3	19.2	21.1			
	2		4	12	1.15	21	19.8	21.9			
	2		4	16	1.35	21.6	18.9	22.1			
	2	4	4	16	1.30	20.00	17.90	19.90			
	2	4	4	16	1.70	21.60	19.40	21.50			
	2	4	4	16	1.70	22.40	17.90	23.60			
	2	4	1	16	1.70	24.30	21.20	23.90			

Test Load Weigh	12.35	lbs.	Dry Weigh	4.63	ka.
lest Load Weigh	12.35	lbs.	Dry Weigh	4.63	kg

**Average Pretest Moisture Content: %** 

Dry: 21.13 two pin: (dry) 20.90 Wet: 17.29

Manufacturer SBI Model XTD 1.9 Project G100456088

| Lower | Ideal | Upper | Firebox Volume: | 2.14 | cu. ft | 13.48 | 14.98 | 16.48 |

Load Volume: 0.0651 cu. ft Loading Density: 6.495 lbs./ft3

Number of Spacers: 20 Load Density: 213.504 lbs./ft3

Thick	x	Piece Si Wide	ze: x	Length	Weight lbs	Meter Moisture Content Dry Uncorrected %				
	2		4	15.75	1.60	20.00	19.80	19.40		
	2		4	15.75	1.60	19.20	20.00	18.90		
	2		4	15.75	1.75	21.90	21.10	23.60		
	4		4	15.75	3.65	19.20	19.50	18.70		
	4		4	15.75	3.20	19.70	19.50	19.20		
				Spacers	2.10					
	Ī									

Test Load Weigh 13.90 lbs. Dry Weigh 5.25 k

**Average Moisture Content: %** 

Dry: 19.98 Wet: 16.65

Pre-test moisture content: %

21.13 Wet: 17.45

Coal Bed Range: 2.8 lbs. to 3.4 lbs. 20% to 25% of test load

# Run 5



#### Run Notes EPA Methods 28 and 5G-3

PROJECT / TES	T INFORMATION
Project Number:	G100456088
Manufacturer:	SBI
	XTD 1.9
Sample ID Number:	MTL1108221414-001
Test Date:	26-Aug-11
Test Run Number:	5
Date tunnel cleaned:	8/18/2011
Purpose of Test	Cat 4



Appl	iance	Information
Appliance Type:	2	1 - Catalytic 2 - Non - Catalytic 3 - Pellet 4 - Hydronic
Firebox Volume, ft <sup>3</sup> :	2.14	N/A for pellet type
Convection Blower	2	1 - No Fan 2 - Fan Optional 3 - Fan Standard

	Test Settings
	Primary Air: Fully open
	condary Air: Fixed
	ontrol Board: N/A
E	Blower/Fan: Off the first 30 minutes and turned On-Low after 30 minutes for the reminder of the test
	Pre- Burn Activities
Time	Activity
(min.)	Closed the primary air when the scale indicated 8.00 pounds
45	Stirred the Coad Bed
70	Added 1.6 lb of fuel consisting of 2x4 pieces of 4" of length
90	Leveled the Coal Bed and activated - the door was left ajar at 1/4" for 30 seconds.
	This manipulation lasted 55 seconds.
	Start-Up Procedure
	f fuel, sec. : Loaded by 40 seconds
	ading door : Left ajar at 1/4" for 60 seconds
	Primary air: Fully open.
	condary air: Fixed
	entrol board: N/A
B	Blower / fan: Off the first 30 minutes and turned On-Low after 30 minutes for the reminder of the test
	Other Notes
Coal Bed	range: 2.9-3.5 lb



				VERSION	1,2	2/5/2010						
Manufacturer:	SBI											
Model:	XTD 1.9						3					
Date:	26-08-2011											
Run:	5											
Control #:	G100456088											
Test Duration:	120											
		Start	End									
	Barometer (in.Hg):	29.97	29.7									
		07										
	Dry Bulb (F):	87	87									
	Humidity (%):	23	23									
*Blower turned on at 30 min-lov	w position.											
Moisture content of	wood (wet basis):	16.2479										
	Average	0.55	6.10	13.67	507.56	84.79	144.16	637.50	644.73	571.39	606.49	415.93
		•	•	٠				*	•	*	*	•
Elapsed	Weight				Flue	Room	Tunnel	Unit	Unit	Unit	Unit	Unit
Time	Remaining	CO	CO2	02	Gas	Temp	Dry Bulb	Тор	Back	R.Side	L.Side	Bottom
0	14.05	0,31	13,14	6,93	656.4	78.8	174.0	715,3	562.1	514.0	546.0	453.
10	11.28	0,21	9.41	10,47	659.3	81.3	175,7	814.0	604.5	537.1	570,4	446
20	8.64	0.23	9.59	10,78	8,008	84.5	162,8	793.6	635.8	544,2	598.0	433
30	6.81	0.18	9.63	10,15	595.5	85.4	161.9	744.5	660.7	535,2	624.8	423
40	5.25	0,19	8,32	11,58	580_5	84.1	157.B	777.3	681.1	578,7	647.5	414.
50	3,68	0,24	5.49	14,38	548.9	86.1	151.8	740.1	700.4	802.7	652,4	407.
80	2,37	0,3	5,82	14.3	493.9	85.0	141.1	664.8	705.3	628,8	650,5	405
70	1.49	0.62	4.16	15.49	459.3	87.7	133.2	583.0	692.1	618,1	639.2	403
80	0.99	0.75	3,81	15.77	437.9	89.4	130.0	546.5	674.5	606.7	627.1	406
90	0.60	0.92	3.15	16,35	415.0	86.7	125,3	511.1	648.1	579,8	606.0	405
100	0.29	1	2.88	16.57	393.1	84.7	121.B	481.3	620.3	569,0	586,4	403,
110	0.01	1.05	2,26	17.12	379.1	84.7	119.4	458.2	598.4	557,0	568,1	401,
120	0.00	1.1	1,59	17.77	378,6	83.9	119.0	457 <sub>.</sub> 8	598.2	556.9	567.9	401.

03/25/12

		V											
						-							
		_											
Man	ufacturer.	SBI											
IVICITIE		XTD 1.9											
	300000000000000000000000000000000000000	26-08-20	14										
	Run		1.1										
		G100456	000										
	JUILLOI #.	G 100430	000	-									
448.55	81.12	80.88	85.41	490.06	80,82	80.76	85.87	0.02	0.000	0.00	575.21	1	
•		1.0		•	*		*			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	Elapse
Reading	Inlet T	Outlet T	Temp	Reading	Inlet T	Outlet T	Temp	Velocity	Draft	Observed	Temp	Temp.	Tim
442.376	80.0	79.7	88.9	483,865	79.7	79.7	89.5	0.023			558.2	0	
443.410	80.3	79.9	88,1	484.911	79.9	79.9	88.9	0,023			594.6	36,368	1
444.398	80.6	80.2	86.2	485,908	80.1	80.2	80.6	0.023			601.0	42.784	2
445.395	80.9	80,5	85.3	486,905	80,4	80.4	82.2	0.023			597.7	39.528	3
446.440	80.9	80.6	84.5	487.941	80,5	80.6	86,6	0.023			619.7	61.533	4
447.505	81.0	80.8	83.5	489,010	80.6	80.6	88.4	0.023			620.7	62.472	5
448.545	81.2	81.0	82.4	490,048	81.0	80.9	86.1	0.023			611.0	52.806	6
449,555	81.4	81.2	81.5	491.061	81.2	81.0	83 7	0.023			587.2	28.949	7
450.603	81.5	81.3	85.4	492.093	81,3	81.1	85 6	0.023			572.2	13,953	8
451.652	81.6	81.4	86.3	493,153	81,4	81.3	86.4	0.023			550.0	-8.2094	9
452.710	81.7	81.5	86.1	494.209	81.4	81.3	86.3	0.023			532.2	-26.031	10
453.775	81.7	81.7	86.1	495.270	81.6	81,4	86,0	0.023			516.7	-41.506	11
454.850	81.7	81.6	86.1	496,350	81.6	81.4	86.0	0.023			516,5	-41.678	120

	Manu	facturer:		SBI				
		Model:		XTD 1.9				
		Date:		26-08-2011				
		Run:		5				
	Project	#:		G100456088				
	Test Dura	ition:		120				
Total Gas Vo	olume (Di	GM 1):		12.133	Pit	ot Factor	0.82	
Total Gas Vo	olume (De	GM 2):		12.099		(0	99 standar	d,
Average Baro	A A mark treet and the last			29.835		0.84 or Ca	al. Factor for	S-Type
		lar Weigi	ht:	28.56				
		orrection		0.9616				
Calibration Fa	ctor (DGI	VI #1):		1.0000				
Calibration Fa	ctor (DGI	VI #2):		0.9960				
	THE PARTY OF THE P		(1) VS:	0.0697				
			(2) VS:	0.0699			Filter	Filter
			363 7550				Face	Face
DGM 1	DGM 1	DGM 1	DGM 2	DGM 2	DGM 2	Tunnel	Velocity	Velocity
Reading	Inlet T	Outlet T	Reading	Infet T	Outlet T	Acres 44 years and a second	DGM 1	DGM 2
442.376	80.0	79.7	483,865	79.664485	79.691	174.04		
443,410	80,3	79.9	484.911	79.891642	79.912	175.7	8.69	8.75
444,398	80.6	80.2	485,908	80.119421	80.202	162.81	8.29	8,34
445.395	80.9	80.5	486,905	80.373522	80.448	161,93	8.37	
446.440	80.9	80,6	487.941	80,522855	80,561	157.8	8.77	8,66
447.505	81.0	80.8	489.010	80.64603	80.605	151.82.	8.93	8.94
448.545	81.2	81.0	490.048	80.963026	80,879	141.13	8.72	8.67
449.555	81.4	81.2	491.061	81.18308	81.011	133.24	8.47	8.40
450,603	81.5	81.3	492.093	81,259849	81.104	129.96	8.78	8.6
451.652	81.6	81.4	493.153	81.408024	81.255	125.33	8.79	8.8
452.710	81.7	81.5	494.209	81.442825	81.323	121.84	8.86	8.8
453.775	81.7	81.7	495.270	81.596558	81.45	119.4	8.92	8.8
454,850	81.7	81.6	496,350	81,565239	81.42	119.03	9.00	9.01

	Proportio	nal Rate	Calculatio	ns	(EPA Formu	ılas from F	PR5G)	
-	Stack area (ft2): 0.3491		Mar	ufacturer:	SBI			
Wood	moisture (	% wet):	16,248			Model:	XTD 1.9	
Load V	Veight (lbs	s wet):	14.05			Date:	26-08-2011	
Burn R	ate (Dry k	g/hr):	2.669			Run:	5	
Final Ter	nperature	(DGM #1	) Degree:	Rankin:	541.000			
Final Ter	nperature	(DGM #2	) Degrees	s Rankin:	540.788			
Final Tu	unnel Tem	perature I	Degrees I	Rankin:	604,156			
		city (feet	THE RESERVE AND ADDRESS OF THE PARTY OF THE		8.513885			
Sta	ndardized	Tunnel F	low (dscf	m):	149.12			
	Julius III III III II II II II II II II II II							
		Average	Average					
		Inlet +	inlet +					
		Outlet	Outlet	99.75	99.75	#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
0.023	8.723	539.9	539.7					C
0.023	8.735	540.1	539.9	102.21	103.30	1.008	1.016	10
0.023	8,645	540.4	540.2	96.61	97.41	0.962	0.968	20
0.023	8.639	540.7	540.4	97.37	97.30	0.970	0.967	30
0.023	8.611	540.8	540.5	101.70	100.74	1.017	1.005	40
0.023	8.569	540.9	540.6	103.12	103.43	1.036	1,036	50
0.023	8.494	541.1	540.9	99.78	99.50	1,012	1.006	60
0.023	8.438	541.3	541.1	96.23	96.43	0.982	0.981	70
0.023	8.414	541.4	541.2	99.56	97.95	1.019	1.000	80
0.023	8.381	541.5	541.3	99,24	100.19	1.019	1.026	90
0.023	8.356	541.6	541.4	99.77	99.50	1.028	1.022	100
0.023	8.339	541.7	541.5	100.21	99.74	1.035	1.027	110
0.023	8.336	541.7	541.5	101.13	101.50	1.045	1.045	120



	Intertek Testing Services	S					
	SFBA EPA ADJUSTED	EMISSION F	RESULTS				
weeken see te	000			RESULT			
Manufacturer:	SBI XTD 1.9			RESULI	5		
and the same of th	Name of the Control o	- 1			ales - Date	2.02	
	26-08-2011			verage Adjusted Emis		2.87	
Run:			AV	erage Unadjusted En		1.73	
C. Carlotte Control of the Control o	G100456088			Burn Rate	(Dry kg/hr):	2.67	
Test Duration (Minutes):							
Test Duration (Hours):	2.00						
			DAROL	AFTENO PRESCUI			
			BARON	METRIC PRESSU		00.00	
					Average:	29.83	
TEMPERATURE FAC		0.0700			Start:	29.9	
	DGM #1:	0.9760			End:	29.	
	DGM #2:	0.9764					
MOLLINE CONTRACT			DRY GAS	METER VALUES	Plant	454.8	
VOLUMES SAMP		40.440		DGM #1	Final:		
	DGM #1:	12.140			initial.	442.37	
	DGM #2:	12.107		DCM #0	Final:	496.3	
TOTAL TUNNEL A	(OLUME (***6):	47004	_	DGM #2	Initial:		
TOTAL TUNNEL V	OLUME (SCI):	17894			muai.	483,86	
SAMPLE RATIOS			TEMPE	RATURES (DEG	RANKIN)		
	Train 1:	1474.0	T LIVIT L	TOTALO (DEO	DGM #1:		
	Train 2:	1478.1			DGM #2:	541.00	
Cumpi	, main E.	1470.1			D 0111 1121		
TOTAL EMISSION	IS		CALIBE	RATION FACTOR	S		
Sample Train	ACCUPACION BY	3.54	Of this		DGM #1:	1.000	
Sample Train		3.40			DGM #2:	0.996	
200000000000000000000000000000000000000	Ave:	3.47				1000000	
EMISSION RATES			TUNNE	L FLOW RATE:		149.1	
Sample Train 1		1.77		PARTICULATE	CATCH (r		
Sample Train 2	X90 (C) (A) (A) (A) (A) (A) (A) (A) (A) (A) (A	1.70		Sample Train 1:		91	
oumpie main z	Ave:	1.73			Filters	1.	
ADJUSTED EMIS					Probe	0.	
Sample Train 1	CAROLY I.	2.92			Total	2.	
Sample Train 2		2.83		Sampl	e Train 2:		
· Campio mania	Ave:	2.87			Filters	1.	
DEV	/IATION:	1.65%			Probe	0.	
					Total	2.	
If deviation is area	ter than 7.5% due to low	particulate o	atch				
	rates shall not differ by 7.						
	erage emission rate limit		(5g-3)				
Use the following:							
Catalytic units		2.32%					
7.5% of 4.1 g/hr							
Non catalytic units		1.27%					
7.5% of 7.5 g/hr		1.21 /0					
7.5% UT 7.5 g/nr							



							1	
RE	PORT	DATA						
					1			
		Client:	SBI					
		Run:	5					
		Date:	26-08-2011					
1		Project:	G100456088					
		Model:	XTD 1.9					
Fuel Moi	isture (	(Dry)	19.4					
Stack S	tatic (r	neg):	0.075		i			
	Baro	meter:	29.835					
Averag	e Roo	m Temp:	84.79					
					1			
Change i	n stov	e temp:	0					
Ī								
	Burn f	Rate:	2.669					
Adjusted E	missio	on Rate:	2.874					
	Syst	em 1:	2.922					
	Syst	tem 2:	2.827					
i	Devi	ation:	1.65%		I			
	Filte	r 1:	85,41					
	Filte	г 2:	85,87					
	Tur	nnet:	144.16					
		DGM 1:	81.00					
		DGM 2:	80.79					
W	ater C	ollected:						
	Room	Temp	Bar Pressure		Relative Hu	umidity	Air Velo	seity
	efore	After	Before	After	Before	After		- 2
	87	87	29.97	29.70	23	23	Before	Afte 0
	01	01	29,91	29.70	20	20	U	U

Manufacturer SBI Model XTD 1.9 Project G100456088

in	Olock Cito	0.00000					lating and before the set before the set of		er .
	Flue	Room	Tunnel	Unit	Unit	Unit	Unit	Unit	Scale
	Gas	Temp	Dry Bulb	Тор	Back	R.Side	L.Side	Bottom	weight
	512.93	73.55	183.08	320.54	124.12	147.54	119.78	70.18	14.56
	664.48	74.46	176.21	671.06	219.64	221.18	204.59	108.24	11.38
	694.47	82.97	182.70	819.07	184.36	350.31	316.80	181.11	8.23
	602.06	88.56	160.17	769.42	322.71	497.90	424.33	278.21	5.98
	541.43	89.48	147.53	701.57	480.67	568.46	497.13	355.82	4.53
	532.83	87.49	145.68	686.40	534.40	600.31	547.82	413.36	3.18
	445.13	88.34	188.96	590.11	586.29	576.50	563.51	439.80	4.77
	457.34	79.43	133.83	564.30	589.27	556.16	551.67	444.24	3.76
	439.63	81.31	128.86	538.24	584.95	540.92	543.57	447.41	2.98

**VERSION 1.2** 

2/5/2010

## E&E Tunnel Traverse Worksheet

	TUNNEL VELOCITY	TUNNEL	SQUARE ROOT	Static Pressure:	
A CENTER	0.022	161	0.1483		
B CENTER	0.023	162	0.1500		
A1	0.020	160	0.1414	PITOT	
A2	0.023	160	0.1500	CONSTANT	0.9616
A3	0.023	160	0.1500		
A4	0.018	157	0.1323		
B1	0.020	160	0.1414		
B2	0.023	160	0.1500		
В3	0.023	160	0.1500		
B4	0.018	157	0.1323		
AVERAGE	0.02095	159.94	0.1434		

Tunnel Diameter (in): Tunnel Area (ft2) Tunnel Static Pressure 8 0.349066 -0.075

### **E&E FUEL LOAD DATA SHEET**

Test Load Weight:

| Lower | Ideal | Upper | Firebox Volume: | 2.14 | cu. ft | 13.48 | 14.98 | 16.48 |

Load Volume: 0.0651 cu. ft Loading Density: 6.145 lbs./ft3

Number of Spacers: 20 Load Density: 201.984 lbs./ft3

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	Piece Size	:	Weight	Meter Moisture Content			
Thick x	Wide x	Length	Ibs	Dry	Uncorrected	d %	
2	4	12	1.2	20.2	20	20.3	
2	4	12	1.25	21.2	20.8	21.3	
2	4	12	1.25	21.1	19.7	21.4	
2	4	12	1.3	21.4	20.3	21.2	
2	4	16	1.65	21.3	19.8	21.6	
2	4	16	1.65	20.30	19.50	21.30	
2	4	16	1.65	22.00	21.20	20.00	
2	4	16	1.60	22.10	19.90	21.40	
2	4	16	1.60	22.00	19.30	21.20	

Test Load Weigh 13.15 lbs. Dry Weigh 4.93 kg

**Average Pretest Moisture Content: %** 

Dry: 20.85 two pin: (dry) 20.90 Wet: 17.29

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## **E&E FUEL LOAD DATA SHEET**

		Test Load Weight:					
		Lower	Ideal	Upper			
Firebox Volume: 2.13	cu. ft	13.42	14.91	16.40			
Load Volume: 0.0000	cu. ft	Loading Density:		6.596	lbs./ft		
Number of Spacers:		Loa	ad Density:	#DIV/0!	lbs./ft3		

		Piece Size	e:	Weight	Meter Moisture Content Dry Uncorrected %			
Thick	Х	Wide	c Length	lbs				
	2	4	15.75	1.45	19.20	19.90	19.00	
	2	4	15.75	1.55	19.30	19.50	19.00	
	2	4	15.75	1.65	19.10	19.20	19.20	
	4		15.75	3.65	19.50	21.10	18.60	
	4	4	15.75	3.35	19.70	19.50	19.20	
			Spacers	2.40				
			T					

Test Load Weigh 14.05	lbs. Dry Weigh	5.34	kg.	
Average Dry: 19.40	Moisture Content: %	Wet:		16.25
Pre-test r	moisture content: %	Wet:		17.25
Coal Bed Range: 2.9	lbs. to 3.5 lbs.	20% to 25	5% of tes	st load