



TEST REPORT

TEST OF A NON CATALYTIC WOOD BURNING FIREPLACE FOR EMISSIONS AND EFFICIENCY

PER EPA METHODS 28R AND ASTM E2515 and ASTM E2780, MAY 2015

Client: Foyers Suprême
Model Name: Ambiance Elegance 36 (24SF model number)

Attention: Rafael Sanchez

TESTED BY:

Services Polytests inc.
695-B Gaudette
St-jean-sur-Richelieu, QC, J3B 7S7

TEST DATES: September 6th to 14th 2016

REPORT DATE: September 20th 2016

Revision 1: June 28th 2017

Project number: PI-20131

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Tested:

A handwritten signature in dark ink, appearing to read "Maxime Martin".

Maxime Martin

written by:

A handwritten signature in dark ink, appearing to read "Danick Power".

Danick Power, P. Eng

Verified by third party certifier (Dirigo lab):

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1 INTRODUCTION

1.1 GENERAL

Laboratory

- Location: Services Polytests Inc., 695-B Gaudette St-jean-sur-Richelieu QC, Canada J3B 7S7
- Elevation: 100 feet above sea level

Test program

- Purpose: unit qualification NSPS 2020
- Test dates: September 6th to 14th 2016
- Test methods used:
 - Particulate emissions: ASTM E2780-10 ; methods 28R and ASMT E2515 as referred into 40 CFR Part 60 Subpart AAA
 - Efficiency: CSA B415.1-10

1.2 TEST UNIT INFORMATION

General

- Manufacturer: Foyers Suprême inc.
- Product type: non-catalytic Wood burning Zero-Clearance fireplace
- Combustion system: non-catalytic
- Unit tested: Ambiance Elegance 36 (24SF model number)

Particularities

The engine will have the model number of 24SF, which comprises the standard components related to the combustion of the unit (such as the firebox, the controls, and the baffle system). The engine will be under the model name Ambiance Elegance 36. In addition, two other models (Novo and Lotus) will be derived from the Ambiance Elegance 36, which will differ in cosmetics/aesthetics and in marketing strategies; these models will not alter the performance of the engine and will respect all k-list components.

1.3 RESULTS

Emission results obtained

- Weighted average emission rate: 1.77 grams/hour
- Maximum rate cap: 4.3 grams/hour at run 6

Conformity: NSPS Phase 2020

1.4 PRETEST INFORMATION

Unit condition: The unit was received by carrier on September 1st 2016. The 50hrs of aging was made by the manufacturer during month of August 2016.

Set up

- Venting system type: 6 inch steel pipe and insulated chimney
- System height from floor: 15 feet
- Particularities: none

Break in period

- Duration: the unit was run for at least 50 hours at a category 2 burn rate with adequate documentation of fuel additions and flue and unit temperatures during month of August by the manufacturer.
- Fuel: cribwood

2 SUMMARY OF TEST RESULTS

2.1 EMISSIONS

Run Number	Test Date AAAA-MM-DD	Emission Rate (g/hr)	Burn Rate (kg/hr)	1st hour Emission Rate (g/hr)	CSA B415.1 CO emission (g/hr)	CO Emissions (g/Kg dry)	CO Emissions (g/MJ output)
1	2016-09-06	na	na	na	na	na	na
2	2016-09-07	1.16	0.81	7,46	71,86	89.16	6.577
3	2016-09-08	1.64	1.68	5.53	157.96	93.86	16.75
4	2016-09-09	1.73	2.134	4.49	142.83	66.91	12.13
5	2016-09-12	1.33	1.33	3.33	97.03	71.77	12.43
6	2016-09-13	4.3	0.804	24	98.65	122.7	21.47
7	2016-09-14	2.26	1.59	8,39	147,70	93.15	7.05

2.2 WEIGHTED AVERAGE CALCULATION

Test No.	Burn Rate Kg/hr	(E) Ave. Emission Rate g/hr	Overall Efficiency (%)	Heat Output (BTU/HR)	Prob.	(K) Weighting Factor
6	0,804	4,30	67,03	10125	0,2227	0,2241
2	0,806	1,20	68,43	10364	0,2241	0,3973
5	1,3	1,33	67,72	17203	0,6200	0,6099
3	1,68	1,60	65,73	20786	0,8340	0,3092
4	2,13	1,70	64,68	25944	0,9292	0,1660

Weighted Average Emissions Rate: 1.77g/hr

Weighted Average Overall Efficiency: 67.14%

2.3 TEST FACILITY CONDITIONS

Run Number	Room Temperature		Barometric pressure		Relative humidity		Air Velocity	
	Before (F)	After (F)	Before (in.Hg)	After (in.Hg)	Before (%)	After (%)	Before (ft/min)	After (ft/min)
1	na	na	na	na	na	na	na	na
2	80	81	30,032	29,914	66,5	47,4	19	18
3	81	84	29,766	29,766	65	60,5	18	22
4	80	84	29,766	29,855	65,5	48	24	21
5	76	81	30,150	30,121	48	35,9	22	18
6	78	85	30,091	29,914	48	43	12	15
7	79	81	29,914	30,062	58	38	17	19

2.4 FUEL QUALITIES

Run Number	Pre-test Load			Test Load						
	Loading Weight Wet Basis (lbs)	Moisture Content Dry Basis (%)	Coal bed Weight (lbs)	Weight Wet Basis (lbs)	Density Wet Basis (lbs/cuft)	Moisture Content Dry Basis (%)	Piece Length (in.)	Number of 2X4's	Number of 4x4's	Number of Spacers
1	na	na	na	na	na	na	na	na	na	na
2	17,95	21,20	3,3	16,44	7,341	21,81	22	2	2	12
3	18,02	20,28	3,3	16,16	7,216	20,50	22	2	2	12
4	19,87	20,49	3,2	15,79	7,048	21,30	22	2	2	12
5	18,52	19,70	3,5	16,16	7,216	21,24	22	2	2	12
6	17,97	20,32	3,4	16,27	7,262	20,80	22	2	2	12
7	20,24	20,33	3,5	15,79	7,050	19,98	22	2	2	12

2.5 DILUTION TUNNEL FLOW RATE MEASUREMENTS AND SAMPLING DATA (ASTM E2515)

Average dilution tunnel measurements				Sample Data			
Run Number	Burn Rate (Min)	Volumetric Flow Rate (dscf/min)	Total Temperatures (°R)	Volume sampled (DSCF)		Particulate catch (mg)	
				1	2	1	2
1	na	na	na	na	na	na	na
2	456	289,07	558,30	81,240	78,768	5,70	5,10
3	217	271,36	564,07	38,339	37,249	3,90	3,70
4	166	270,48	569,76	28,999	28,340	3,10	3,00
5	272	276,92	555,30	47,494	46,289	3,80	3,80
6	456	273,84	555,45	80,118	77,574	21,30	20,00
7	226	273,86	561,17	45,750	38,619	6,20	5,50

2.6 DILUTION TUNNEL DUAL TRAIN PRECISION

Run Number	Sample Ratio		Total Emission (g)		
	Train 1	Train 2	Train 1	Train 2	% Deviation
1	na	na	na	na	na
2	1622,57	1673,50	9,17	8,46	4,02%
3	1535,93	1580,88	5,99	5,85	1,19%
4	1548,33	1584,35	4,80	4,75	0,49%
5	1585,95	1627,23	5,96	6,13	1,33%
6	1558,57	1609,69	33,20	32,19	1,54%
7	1352,81	1602,61	8,31	8,76	2,65%

2.7 GENERAL SUMMARY OF RESULTS

Run Number	Burn Rate (kg/hr)	Average Surface Temperature (F)	Change in surface Temperature (F)	Initial Draft (in. H ² O)	static pressure tunnel (in. H ² O)	Primary Air Setting	Run Time (min)
1	na	na	na	na	na	na	na
2	0,806	296,13	-92,6	0,037	0,231	full close	456
3	1,682	417,56	41,0	0,042	0,215	Medium-high	217
4	2,134	485,51	64,4	0,038	0,218	Medium-high	166
5	1,334	391,23	26,4	0,037	0,224	fully close	272
6	0,804	306,66	-67,5	0,037	0,214	fully close	456
7	1,585	524,21	128,3	0,041	0,214	full close	226

3 PROCESS DESCRIPTION

3.1 DISCUSSION

At the reception of the unit we do preliminary test run to ensure the unit can reach the limit of the standard. We use those run for the aging of the unit

3.2 UNIT DIMENSIONS

Baffle

- Location: between top of combustion chamber and hearth
- Restriction: 1 3/4 in x 24 in. at the front of unit
- Dimensions: covers the hearth area minus the restriction at front
- Material: Stainless steel baffle

Bricks

- Inside Firebox refractory brick 1 ¼ inch. tick cover all the sides and the back of the combustion chamber

Flue gas exhaust

- Location: top flue located at the top,
- Dimensions: 6 in. diameter
- Material: Stainless

Gasket

The door of the unit consists of three sections of gaskets, where 2 of them are holding the glass (SGI-260-0230) and 1 is sealing around the door onto the firebox (SGI-265-0125). Please refer to page 47 of 24SF_Tech_DRAW.pdf for information on dimensions, materials, and assembly details. The ANPGA gasket is located at the top edge of the flue and is used to seal the anchor plate onto the unit. Please refer to page 2 of 24SF_Tech_DRAW.pdf (5) for information on dimensions, materials, and assembly.

Overall unit dimension

- Firebox dimensions : 24 in wide x 12 in. deep x 13 ½ in. high
- Usable volume : 2.24 cuft
- Overall fireplace dimension : 35 inch wide x 20 ¾ inch deep x 34 ½ high

Convection fan

- Optional blower supplied with unit see appendix 6 for all detail

Catalyst

- none

Bi-metallic combustion air control

The Primary Air Control is a patented mechanism (Patent No: US 7,325,541 B2) that regulates the air flow into the firebox based on the temperature of the unit. It is located on the top of the firebox, at the front center of the unit. The combustion air control of the 24SF has two components: the Activator and the Burn Rate Selector. The left combustion control lever is the Activator. When starting a fire or adding a new load of wood, the Activator must be pushed in to allow a primary source of air to enter the firebox. The Activator will retract automatically with heat. The right combustion control lever is the Burn Rate Selector. The Burn Rate Selector can slide sideways to achieve different burn rates. When the Burn Rate Selector is positioned to the left, a maximum burn rate is achieved and when it is positioned to the right, a minimum burn rate is set. Please refer to page 42 of 24SF_Tech_DRAW.pdf for details on the Primary Air Control assembly.

3.3 AIR SUPPLY SYSTEM

Description

- Primary air: window wash design with air intake on the top of unit
- Secondary air: secondary tube design with air intake on the top of unit

Characterization

The following table shows the inlet and outlet sections of each system. The air introduction system number is referred to on a set of drawings in Appendix 6.

AIR INTRODUCTION SYSTEM		INLET (1) sq. in.			OUTLET
Identification	Type	Imin	Imax	Controlled	(sq. in.)
A *	Primary	0.05	4.75	yes	28.27
B *	Secondary	1.77	1.77	No	-
C *	Pilot	none	none	No	-

* This section would be filled by measuring and comparing with the manufacturer's drawings included in the test report .

Legend

Identification: Tag name referred to on drawings in Appendix 14, section airflow pattern

Type: Characterization of air intake

Imin: Minimum air intake of a particular air channel

Imax: Maximum air intake of a particular air channel

Controlled: Determines if a provision for air control is present

Outlet: Total air outlet of a particular air channel

Note: surfaces are expressed in sq. Inches

3.4 OPERATION DURING TEST

Run #1

This run was performed on September 6th 2016. Following the load insertion the bi-metallic control, jammed in intermediate position. The test is stop and control operation fixation is modified to allowed free movement of the bi-metallic slider. As the unit is modified, test series will begin with the next test.

Run #2

This run was performed on September 7th 2016. It lasted 456 minutes and a category 2 burn rate was obtained at 0.81 kg/hr & emission at 1.16gr/hr. the optional blower was at on position and combustion air control was fully closed.

Run #3

This run was performed on September 8th 2016. It lasted 217 minutes and a category 3 burn rate was obtained at 1.68 kg/hr & emission at 1.64gr/hr. the optional blower was at on position

Run #4

This run was performed on September 9th 2016. It lasted 166 minutes and a category 4 burn rate was obtained at 2.13 kg/hr & emission at 1.73gr/hr. the optional blower was at on position and combustion air control was fully opened.

Run #5

This run was performed on September 12th 2016. It lasted 272 minutes and a category 3 burn rate was obtained at 1.33 kg/hr & emission at 1.33gr/hr. the optional blower was at on position, the air inlet control was fully closed, we were aiming for a minimum burn rate, but the wood burn faster than it was supposed, probably due to hotter firebox.

Run #6

This run was performed on September 13th 2016. It lasted 456 minutes and a category 2 burn rate was obtained at 0.804 kg/hr & emission at 4.3gr/hr. the optional blower was at on position and combustion air inlet fully closed.

Run #7

This run was performed on September 14th 2016. It lasted 226 minutes and a medium burn rate was obtained at 1.58 kg/hr & emission at 2.26gr/hr. the optional blower was at off position, it was confirmation test without fan.

- Details: Refer to the front page of each test run data sheets found in appendix for the detailed test sequence showing air supply settings and adjustments, fuel bed adjustments and operational specifics of the test unit.

Test fuel cribs

- Type of wood: Douglas fir, grade c or better, 19 to 25% dry basis moisture content
- Description: for each test, description of the fuel crib is found on the front page of each test run data sheet together with photograph in appendix.

3.5 START-UP OPERATION

The complete manufacturer's firing procedure of each burn rate category is fully described in appendix 13.

3.6 SAMPLING LOCATIONS

Particulate samples are collected from the dilution tunnel at a point 15 feet from the tunnel entrance. The tunnel has two elbows and two mixing baffles in the system ahead of the sampling section. The sampling section is a continuous 10 foot section of 6 inch diameter pipe straight over its entire length. Tunnel velocity pressure is determined by a standard pitot tube located 48 inches from the beginning of the sampling section. Thermocouple is installed on the pitot tube to measure the dry bulb temperature. MC is assumed, as allowed, to be 4%. Tunnel samplers are located 56 inches downstream of the pitot tube and 16 inches upstream from the end of this section.

3.7 DRAWINGS

Various drawings of the stack gas sampling train and of dilution tunnel system are found in Appendix 1.

3.8 EMISSIONS EFFICIENCY TESTING EQUIPMENT LIST

The complete test equipment list together with all corresponding calibration data can be found in Appendix 3.

4 SAMPLING METHODS

4.1 PARTICULATE SAMPLING

Particulates were sampled in strict accordance with ASTM E2515. This method uses two identical sampling systems with Gelman A/E 61631 binder free (or equivalent), 47 mm diameter filters. The dryers used in the sample systems are filled with "Drierite" before each test run.

5 QUALITY ASSURANCE

5.1 INSTRUMENT CALIBRATION

5.1.1 GAS METERS

At the conclusion of each test program the gas meters are verified using the reference dry gas meter. This process involves sampling the train operation for 1 cubic foot of volume. With readings made to .01 fr', the resolution is 1 %, giving an accuracy higher than the 2% required by the standard.

5.1.2 SCALES

Before each test program, the different scales used are checked with traceable calibration weights to ensure their accuracy.

5.1.3 GAS ANALYZERS

The continuous analyzers are zeroed and spanned before each test with NBS traceable 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.

5.2 TEST METHOD PROCEDURES

5.2.1 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. Pre-test and post-test leak checks are conducted with a vacuum of 5 inches of mercury. Vacuum is monitored during each test and the highest vacuum reached is then used for the post test vacuum value. If leakage limits are not met, the test run is rejected. During these tests, the vacuum is typically less than 2 inches of mercury. Thus, leakage rates reported are expected to be much higher than actual leakage during the tests.

5.2.2 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.

5.2.3 PM SAMPLING PROPORTIONALITY (ASTM E2515)

Proportionalities were calculated in accordance with ASTM E2515. The data and results are found in appendix.

St-jean-sur-Richelieu, September 20th 2016
rev1 June 28th 2017
Client: Foyers Suprême inc
Project: PI-201301
Model: Ambiance Elegance 36 (24SF model number)

APPENDIX 1: Raw data, forms and results

Paramètres

Tous les facteurs de corrections et autres paramètres qui peuvent être modifiés par l'utilisateur du fichier sont regroupés ici.

Code verrouillage: SUP

Description du test

Test standard	EPA
Run #	2
Date	07/09/2016
Technicien	M.M
Project #	pi-20131

Description de l'unité

Manufacturier	FOYER SUPREME	
Modèle	NV 200	
Combustion system	Non-Cat	
Appliance type	wood fireplace	
Firebox volume	2,24	cu ft.
Appliance weight empty	na	lbs
Appliance weight full	na	lbs

Paramètres du test

Logging time	1	min
Manufacturer's rated heat output	na	BTU/h Donnée fournie par le manfacturier
Targeted category	1	
Targeted output	à définir	BTU/h
Cp steel	0,1	BTU/lb-°F

Échantillonnage

Blank sampling rate	0,20	cuft/min
Internal probe diameter	0,18	in.
Calibration Factor (DGM #1):	0,993	Dimensionless
Equipment number (DGM #1):	EM-078	
Calibration Factor (DGM #2):	0,992	Dimensionless
Equipment number (DGM #2):	EM-079	
Calibration Factor (DGM #3):	0,993	
Equipment number (DGM #3):	EM- 078	Dimensionless

Tunnel

Targeted tunnel flow rate	240	scfm
Tunnel diameter	8	in.
Molecular weight	28,78	May be assumed to be 28,78 (EPA) Si B-415 = 29
Pitot tube type	Standard	
Pitot tube coefficient	0,99	Dimensionless

Project nu.	pi-20131
Date	42620
Technicien	M.M

Fuel data

Fuel type	Dimension
Fuel specie	D. Fir
HHV	19810,0 kJ/kg
%C	48,7
%H	6,9
%O	43,9
%Ash	0,5
HHV	8519,2 Btu/lb
LHV	7451,0 Btu/lb

Default Fuel Values		
	D. Fir	Oak/Maple
HHV	19 810	19 887
%C	48,73	50
%H	6,87	6,6
%O	43,9	42,9
%Ash	0,5	0,5
HHV (Btu/lb)	8519	8552
LHV (Btu/lb)	7451	7480

	Start	End
Barometer (kPa):	101,7	101,3
Barometer (in.Hg):	30,031999	29,913879
Dry Bulb (F):	76,28	80,96
Humidity (%):	66,5	47,4
Air velocity (ft/min)	19	18

DGM #1	Final: ##### cuft
	Initial: ##### cuft
DGM #2	Final: ##### cuft
	Initial: ##### cuft

DGM room	
----------	--

Final: 425170,410	Liter
Initial: 422718,330	Liter
Final: 367401,630	Liter
Initial: 365048,420	Liter

Final: 310,640	cuft
Initial: 253,080	cuft

Numéro de la ligne dans "Raw data" à partir duquel les données du VRAI test commencent

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Autres données à rentrer: dans preload data, load data, traverse et filter set weight

Project nu.	pi-20131
Date	42620
Technicien	M.M

FUEL LOAD DATA SHEET, CSA B415

Test Load Weight:

Lower	Ideal	Upper
-------	-------	-------

14,1	15,7	17,2
------	------	------

* For boilers, a loading density factor of 10 lb/ft³ is applied

Load Volume: cu. ft

Loading Density: 7,3 lbs./ft3

Number of Spaces: 12
Spacer weight: lbs

Load Density (wet):	31,4	lbs./ft3
Dry Wood Density:	25,8	lbs./ft3

Piece Size (in):			Weight lbs	Meter Moisture Content					Ave. MC x	Volume	Ave. MC
Thick	Wide	:Length		Dry Uncorrected %					Weight	Cubic Inches	%
1,5	3,5	22	2,12	22,40	23,20	23,10	23,40	23,10	48,79872	115,50	23,0
1,5	3,5	22	2,46	22,20	22,90	23,40	23,10	23,10	56,52416	115,50	22,9
3,5	3,5	22	5,21	21,90	20,90	21,60	21,80	21,30	112,058	269,50	21,5
3,5	3,5	22	5,23	22,10	21,80	22,60	20,60	21,10	113,13392	269,50	21,6
1,5	0,75	5	0,11			19,60			2,156	5,63	19,6
1,5	0,75	5	0,12			19,30			2,3546	5,63	19,3
1,5	0,75	5	0,12			20,10			2,412	5,63	20,1
1,5	0,75	5	0,12			20,60			2,4308	5,63	20,6
1,5	0,75	5	0,13			20,00			2,6	5,63	20,0
1,5	0,75	5	0,12			19,90			2,3482	5,63	19,9
1,5	0,75	5	0,12			19,80			2,376	5,63	19,8
1,5	0,75	5	0,12			19,60			2,352	5,63	19,6
1,5	0,75	5	0,12			19,30			2,3546	5,63	19,3
1,5	0,75	5	0,12			19,30			2,2774	5,63	19,3
1,5	0,75	5	0,10			19,40			2,0176	5,63	19,4
1,5	0,75	5	0,12			19,80			2,376	5,63	19,8
										0,00	
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										0,00	
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										0,00	
										0,00	
								SUM MCx	358,57		20,4 %

Test Load Weight: 16,44 lbs.

Dry Weight: kg.

Average Moisture Content: %

Dry:	21,81	Dry(EPA)	21,81
		Dry(B415)	21,81

21,81
Must be 19-25

Wet: 17,90
must be 15,2-22

Coal Bed Range: lbs. to

4,1 lbs.

TEST CHARGE:

Coal bed weight: 3,3

lbs.

Project nu.	pi-20131
Date	42620
Technicien	m.m

Tunnel Traverse Worksheet (for velocity calculations)

Static Pressure: 0,21 in. H₂O
 Barometer: 29,900 in. Hg

Pour un tunnel de 12" et plus, prendre 6 lectures

	TUNNEL VELOCITY	TUNNEL TEMP	SQUARE ROOT
	In. wc	°F	
A center			0,0000
B center			0,0000
A1			0,0000
A2			0,0000
A3			0,0000
A4			0,0000
A5			0,0000
A6			0,0000
B1			0,0000
B2			0,0000
B3			0,0000
B4			0,0000
B5			0,0000
B6			0,0000
AVERAGE	#DIV/0!	#DIV/0!	0,0000

PITOT CONSTANT=
0,971

Pour un tunnel moins de 12", prendre 4 lectures

	TUNNEL VELOCITY	TUNNEL TEMP	SQUARE ROOT
	In. wc	°F	
A center	0,055	76,28	0,2345
B center	0,056	76,58	0,2366
A1	0,045	76,31	0,2121
A2	0,064	76,29	0,2530
A3	0,056	76,34	0,2366
A4	0,048	76,34	0,2191
B1	0,047	76,610	0,2168
B2	0,053	76,570	0,2302
B3	0,061	76,550	0,2470
B4	0,054	76,310	0,2324
AVERAGE	0,0539	76,4180	0,2318

Project nu.	pi-20131
Date	42620
Technicien	M.M

Filter set weight

	System 1 (g) 1st hour				System 1 (g)				System 2 (g)				Ambient blank (g)	Date	Heure
	probe	front	back	gasket	probe	front	back	gasket	probe	front	back	gasket	Filter		
Number															
Before (1)															
Before (2)															
Before (3)															
Before (4)															
Before (5)	95,1525	0,1270	0,1273	10,3491	110,1014	0,1255	0,1265	10,2001	107,6451	0,1283	0,1266	10,3142	0,1281	06/09/2016	18:00
Before (6)	95,1525	0,1271	0,1275	10,3490	110,1013	0,1256	0,1266	10,2002	107,6452	0,1284	0,1267	10,3142	0,1280	07/09/2016	08:30
After (1)	95,1541	0,1307	0,1274	10,3538	110,1016	0,1264	0,1267	10,2052	107,6462	0,1320	0,1268	10,3188	0,1281	08/09/2016	08:00
After (2)	95,1527	0,1306	0,1273	10,3503	110,1015	0,1254	0,1267	10,2013	107,6456	0,1317	0,1268	10,3154	0,1281	12/09/2016	08:00
After (3)	95,1527	0,1306	0,1273	10,3501	110,1015	0,1254	0,1267	10,2013	107,6456	0,1317	0,1268	10,3156	0,1281	14/09/2016	08:00
After (4)	95,1527	0,1306	0,1273	10,3501	110,1015	0,1254	0,1267	10,2013	107,6456	0,1317	0,1268	10,3156	0,1281	15/09/2016	08:00
After (5)															
After (6)	95,1527	0,1306	0,1273	10,3501	110,1015	0,1254	0,1267	10,2013	107,6456	0,1317	0,1268	10,3156	0,1281	15/09/2016	08:00
Difference	0,0002	0,0035	-0,0002	0,0011	0,0002	-0,0002	0,0001	0,0011	0,0004	0,0033	0,0001	0,0014	0,0001		
Total (mg)		4,6				5,8				5,2			0,1		
Total ajusté (mg)		4,50				5,70				5,10					

Project nu.	pi-20131
Date	42620
Technicien	m.m

SFBA EPA EMISSION RESULTS

RESULTS

Average emission rate: 1,2 g/hr
Burn Rate : 0,806 Dry kg/hr

Test Duration: 456 min

PRESSURE FACTOR: DGM 1 0,97472
 DGM 2 0,98620
 DGM 3 1,00177

BAROMETRIC PRESSURE
 Average: 29,972939 in Hg
 Start: 30,031999 in Hg
 End: 29,913879 in Hg

TEMPERATURE FACTORS DGM 1 0,96928
 DGM 2 0,96884
 DGM 3 0,96774

DGM CONTROLLER VALUES

DGM 1 Final: 15014,752 Cuft
 Initial: 14928,157 Cuft

VOLUMES SAMPLED DGM 1 81,240 SCft
 DGM 2 78,768 SCft
 DGM 3 55,411 SCft

DGM 2 Final: 12974,666 Cuft
 Initial: 12891,564 Cuft

DGM #3 Final: 310,640 Cuft
 Initial: 253,080 Cuft

TOTAL TUNNEL VOLUME : 131818

TEMPERATURES

SAMPLE RATIOS
 Sample Train 1: 1622,573
 Sample Train 2: 1673,501

DGM 1 544,732 °R
 DGM 2 544,979 °R

Paticulate concentration
 Sample Train 1 0,000071 g/dscf
 Sample Train 2 0,000066 g/dscf
 Room 0,000002 g/dscf

CALIBRATION FACTORS

DGM 1 0,9930
 DGM 2 0,9920
 DGM #3 0,9930

TUNNEL FLOW RATE: 289,074 Dscfm

TOTAL EMISSIONS
 Sample Train 1 9,17 g
 Sample Train 2 8,46 g

PARTICULATE CATCH
 Total Sample Train 1: 5,80 mg
 Total Sample Train 2: 5,20 mg
 Total Sample Train 1 1st hour: 4,60 mg

EMISSION RATES
 Sample Train 1 1,21 g/hr
 Sample Train 2 1,11 g/hr

1st hour emission rate 7,46 g/hr

DEVIATION: 4,02%

Cs Train 1 Train 2
 7,139E-05 6,60168E-05

* Elapsed Time	* Raw data rate	* Weight Remaining	* CO	* CO ₂	* O ₂	* H ₂ Gas	* Temp	* Fuel Dry Bulb	* Unit Top	* Unit Back	* Unit R.Side	* Unit Bottom	* Mass flow 1	* DGM 1	* DGM 1	* Filter 1	* Mass flow 2	* DGM 2	* DGM 2	* Filter 2	* Turnout Valve	* Flow draft	* Change in	
Time													Reading	Input	Output	Temp	Reading	Input	Output	Temp	Pressure	in wc	Temp	
0.00	199.00	15.4	0.4	1.8	258.9	175.0	79.5	94.5	205.5	205.7	29.2	30.2	3.3	0.18	80.04	80.09	79.35	0.17	80.42	80.64	79.84	0.05	0.02	0
1.0	200.0	16.4	0.3	2.0	264.9	204.0	79.6	88.8	195.5	200.0	29.2	30.1	33.2	0.18	80.18	80.10	79.38	0.17	80.44	80.66	79.88	0.05	0.04	-4.041318
2.0	200.0	16.4	0.3	2.1	261.7	204.0	79.5	91.5	188.0	195.5	29.2	30.1	33.2	0.18	80.24	80.12	79.44	0.17	80.50	80.72	79.92	0.05	0.05	-7.228995
3.0	200.0	16.3	0.3	2.1	261.3	217.5	79.5	91.5	188.0	195.5	29.2	30.1	33.2	0.18	80.24	80.12	79.44	0.17	80.50	80.72	79.92	0.05	0.05	-7.420811
4.0	203.0	16.1	0.3	4.9	265.2	313.1	79.6	96.0	232.0	185.4	284.7	294.7	329.3	0.18	80.27	80.15	79.58	0.17	80.54	80.70	80.04	0.05	0.06	-3.693314
5.0	203.0	16.0	0.3	6.2	277.1	302.8	79.7	106.0	249.0	185.4	284.7	294.7	329.3	0.18	80.27	80.15	79.58	0.17	80.54	80.70	80.04	0.05	0.06	-3.1811226
6.0	205.0	15.7	0.3	6.8	282.4	499.9	79.9	106.0	249.0	185.4	284.7	294.7	329.3	0.18	80.38	80.15	79.58	0.17	80.62	80.78	80.18	0.05	0.08	-13.452224
7.0	205.0	15.5	0.3	6.9	301.8	499.9	80.0	116.0	406.0	185.4	284.7	294.7	329.3	0.18	80.38	80.15	79.58	0.17	80.62	80.78	80.18	0.05	0.08	-10.6077
8.0	207.0	15.2	0.6	9.2	320.2	600.9	80.4	121.2	455.0	279.6	290.5	304.0	369.7	0.18	80.51	80.22	80.08	0.17	80.74	80.82	80.27	0.05	0.09	51.246549
9.0	208.0	15.0	0.5	10.0	336.4	648.5	80.5	124.4	550.8	189.0	284.0	296.0	369.7	0.18	80.51	80.22	80.08	0.17	80.74	80.82	80.27	0.05	0.09	67.470914
10.0	210.0	14.7	0.7	10.7	356.7	616.0	80.5	117.0	565.5	211.5	290.6	309.9	412.3	0.18	81.01	80.46	81.27	0.17	81.15	81.03	81.05	0.05	0.09	76.320508
11.0	210.0	14.5	0.8	8.5	348.3	615.9	80.2	119.8	576.2	199.7	281.8	294.8	389.0	0.18	80.65	80.29	80.65	0.17	80.86	80.99	81.22	0.05	0.09	79.375339
12.0	211.0	14.3	0.8	9.7	351.4	625.9	80.5	120.0	574.0	205.6	284.0	296.6	369.7	0.18	80.76	80.34	80.82	0.17	80.95	80.92	81.46	0.05	0.09	82.477521
13.0	211.0	14.1	1.0	10.1	351.3	630.6	80.8	119.4	572.3	200.0	285.8	294.8	405.5	0.18	80.85	80.37	81.01	0.17	81.02	80.95	81.68	0.05	0.09	84.650504
14.0	213.0	13.8	1.0	10.3	356.0	628.5	80.5	118.8	572.4	209.6	288.1	301.6	408.5	0.18	80.96	80.42	81.16	0.17	81.08	80.99	81.85	0.05	0.09	87.125394
15.0	214.0	13.6	0.8	8.7	356.7	616.0	80.5	117.0	565.5	211.5	290.6	309.9	412.3	0.18	81.01	80.46	81.27	0.17	81.15	81.03	81.05	0.05	0.09	87.832382
16.0	215.0	13.4	0.8	8.7	356.3	593.9	81.0	115.6	552.4	213.4	292.8	304.6	418.1	0.18	81.09	80.49	81.36	0.17	81.23	81.08	84.09	0.05	0.09	87.36394
17.0	216.0	13.3	0.8	7.8	353.8	573.0	80.8	114.5	530.6	215.2	294.7	306.8	421.8	0.18	81.16	80.55	81.56	0.17	81.29	81.10	84.27	0.05	0.09	84.920114
18.0	217.0	13.1	0.8	7.4	352.8	558.1	80.8	113.2	515.3	217.1	291.9	306.8	421.8	0.18	81.24	80.58	81.77	0.17	81.35	81.16	84.38	0.05	0.09	83.892102
19.0	218.0	12.9	0.7	7.4	352.0	549.8	80.5	113.0	503.0	219.0	296.6	309.3	429.1	0.18	81.36	80.64	81.96	0.17	81.44	81.19	84.52	0.05	0.09	83.831573
20.0	219.0	12.8	0.7	8.2	352.8	535.9	80.7	112.8	502.2	206.0	298.2	310.9	430.2	0.18	81.42	80.66	82.21	0.17	81.47	81.21	84.70	0.05	0.09	83.922397
21.0	220.0	12.6	0.8	9.0	355.5	565.3	81.2	113.9	514.1	221.6	302.6	310.4	431.4	0.18	81.46	80.69	82.43	0.17	81.51	81.24	84.92	0.05	0.09	86.570822
22.0	221.0	12.4	0.8	9.5	360.2	578.1	80.8	114.7	528.2	222.8	304.4	310.9	434.7	0.18	81.54	80.74	82.60	0.17	81.57	81.29	85.06	0.05	0.09	91.269763
23.0	222.0	12.2	0.7	9.8	364.5	590.2	80.8	115.6	540.7	234.8	306.6	321.3	436.2	0.18	81.59	80.75	82.77	0.17	81.60	81.31	85.18	0.05	0.09	95.586713
24.0	223.0	12.0	0.6	10.0	368.8	602.7	81.2	116.5	556.9	226.6	308.8	319.9	437.7	0.18	81.57	80.79	82.96	0.17	81.60	81.34	85.50	0.05	0.09	99.86189
25.0	225.0	11.9	0.6	10.4	374.2	615.9	81.2	117.6	574.0	228.1	312.1	315.5	446.8	0.18	81.62	80.84	83.15	0.17	81.65	81.39	85.73	0.05	0.09	105.24711
26.0	226.0	11.6	0.6	10.6	319.8	604.2	81.4	118.4	600.0	232.9	315.2	317.9	442.2	0.18	81.67	80.89	83.34	0.17	81.68	81.44	85.95	0.05	0.09	113.858087
27.0	226.0	11.4	0.6	11.1	386.2	639.4	81.3	117.8	615.5	233.0	318.4	320.4	443.8	0.18	81.76	80.88	83.45	0.17	81.75	81.49	86.11	0.05	0.09	117.31179
28.0	227.0	11.3	0.7	10.7	388.7	611.3	81.3	117.8	611.3	233.0	318.4	320.4	443.8	0.18	81.76	80.88	83.45	0.17	81.75	81.49	86.11	0.05	0.09	117.31179
29.0	228.0	11.1	0.8	10.3	388.5	603.5	81.6	113.4	605.6	238.0	323.7	325.9	448.6	0.18	81.86	80.96	83.77	0.17	81.84	81.58	86.19	0.05	0.09	119.628
30.0	229.0	11.0	0.8	10.0	387.4	591.0	81.4	112.7	592.8	239.8	325.9	329.2	449.5	0.18	81.89	81.00	83.89	0.17	81.89	81.63	86.28	0.05	0.09	119.158288
31.0	230.0	10.9	0.7	9.6	388.0	580.6	81.7	112.7	592.8	241.7	329.1	331.7	452.2	0.18	81.91	81.04	84.03	0.17	81.91	81.65	86.39	0.05	0.09	121.012677
32.0	231.0	10.7	0.8	9.8	384.5	574.6	82.2	112.2	564.3	243.1	329.1	331.7	452.2	0.18	82.02	81.07	84.19	0.17	81.98	81.68	86.44	0.05	0.09	115.559048
33.0	232.0	10.5	0.7	10.3	384.3	545.9	81.4	113.4	554.3	245.9	329.1	331.7	452.2	0.18	82.04	81.11	84.31	0.17	82.04	81.72	86.58	0.05	0.09	121.12122
34.0	233.0	10.4	0.8	10.0	384.4	565.4	82.0	111.6	547.5	247.1	332.0	339.2	456.5	0.18	82.13	81.13	84.44	0.17	82.07	81.76	86.55	0.05	0.09	115.51569
35.0	234.0	10.3	0.7	10.2	385.5	563.3	81.3	110.7	546.1	249.0	333.0	341.9	456.7	0.18	82.21	81.19	84.55	0.17	82.13	81.81	86.64	0.05	0.09	116.1327
36.0	235.0	10.1	0.8	10.0	387.4	567.0	81.2	110.7	553.8	251.8	336.6	346.0	460.3	0.18	82.24	81.21	84.67	0.17	82.15	81.87	86.77	0.05	0.09	120.76537
37.0	236.0	10.0	0.6	11.3	393.0	573.1	81.8	111.1	560.0	254.1	338.4	348.2	463.0	0.18	82.30	81.24	84.78	0.17	82.18	81.88	86.83	0.05	0.09	124.04777
38.0	237.0	9.8	0.6	11.8	398.2	582.5	82.1	110.2	568.2	257.9	341.2	351.2	466.6	0.18	82.34	81.27	84.85	0.17	82.22	81.90	86.88	0.05	0.09	124.04777
39.0	238.0	9.5	0.9	11.8	402.6	588.3	81.8	112.0	589.0	257.9	343.9	353.9	468.1	0.18	82.39	81.33	85.07	0.17	82.27	81.97	87.01	0.05	0.09	133.68689
40.0	240.0	9.3	1.0	11.9	402.6	588.3	81.8	112.0	589.0	257.9	343.9	353.9	468.1	0.18	82.39	81.33	85.07	0.17	82.27	81.97	87.01	0.05	0.09	133.68689
41.0	241.0	9.2	1.0	12.0	411.3	586.7	82.6	110.6	612.1	263.0	349.6	359.5	473.5	0.18	82.50	81.38	85.21	0.17	82.39	82.04	87.10	0.05	0.09	142.43146
42.0	242.0	9.1	1.1	11.9	413.4	571.2	82.0	109.6	613.1	265.5	352.8	362.1	473.7	0.18	82.56	81.42	85.36	0.17	82.43	82.08	87.11	0.05	0.09	144.52292
43.0	243.0	8.9	1.0	12.0	414.4	567.0	81.9	110.0	614.0	267.0	354.0	364.0	475.0	0.18	82.59	81.47	85.41	0.17	82.46	82.11	87.12	0.05	0.09	145.65727
44.0	244.0	8.8	0.7	12.1	416.4	561.6	81.8	108.2	610.5	270.8	358.8	367.1	474.8	0.18	82.66	81.50	85.55	0.17	82.51	82.15	87.08	0.05	0.09	147.51011
45.0	245.0	8.6	0.6	12.1	416.4	561.6	81.8	108.2	610.5	270.8	358.8	367.1	474.8	0.18	82.66	81.50	85.55	0.17	82.51	82.15	87.08	0.05	0.09	147.51011
46.0	246.0	8.5	0.5	12.0	418.5	552.0	82.1	107.6	607.1	274.7	366.4	372.7	471.5	0.18	82.75	81.59	85.46	0.17	82.60	82.24	87.06	0.05	0.09	149.55342
47.0	247.0	8.4	0.4	11.9	419.5	550.8	82.0	108.3	604.0	277.2	369.3	374.2	473.0	0.18	82.80	81.61	85.52	0.17	82.63	82.26	87.13	0.05	0.09	149.55342
48.0	248.0	8.3	0.4																					

182.0	381.0	1.8	3.5	4.1	330.4	193.1	84.9	90.8	267.5	246.3	356.9	372.6	408.5	0.18	86.77	85.42	85.98	0.17	86.47	86.03	85.81	0.05	0.03	61.453497
183.0	382.0	1.8	3.5	4.2	332.0	193.2	85.0	90.7	268.4	248.3	358.1	373.7	409.7	0.18	86.78	85.43	85.99	0.17	86.48	86.04	85.82	0.05	0.03	60.816988
184.0	383.0	1.8	3.5	4.1	327.3	190.8	85.2	90.7	266.4	245.0	354.1	369.3	401.8	0.18	86.79	85.47	86.00	0.17	86.52	86.09	85.80	0.05	0.03	58.400842
185.0	384.0	1.8	3.4	4.1	325.6	189.8	85.7	90.5	265.5	244.0	353.1	367.3	398.3	0.18	86.83	85.50	85.99	0.17	86.55	86.13	85.80	0.05	0.03	56.728467
186.0	385.0	1.8	3.4	4.1	323.6	188.8	85.8	90.7	264.3	243.1	352.5	366.2	397.2	0.18	86.85	85.56	86.00	0.17	86.58	86.19	85.81	0.05	0.03	55.57272
187.0	386.0	1.8	3.4	4.1	323.2	187.6	85.5	90.6	263.9	242.3	349.7	365.4	396.4	0.18	86.90	85.59	86.02	0.17	86.63	86.21	85.86	0.05	0.03	54.248401
188.0	387.0	1.8	3.4	4.1	323.0	186.8	85.2	90.6	263.2	241.6	348.8	364.2	395.4	0.18	86.92	85.61	86.04	0.17	86.65	86.23	85.85	0.05	0.03	52.858888
189.0	388.0	1.7	3.4	4.1	320.6	186.3	85.3	90.6	261.6	240.8	347.2	361.2	392.1	0.18	86.97	85.67	86.07	0.17	86.72	86.30	85.87	0.05	0.03	51.66666
190.0	389.0	1.8	3.4	4.1	319.2	185.6	85.4	90.7	259.7	239.8	346.0	359.4	391.0	0.18	87.02	85.70	86.09	0.17	86.74	86.30	85.87	0.05	0.03	50.279984
191.0	390.0	1.7	3.3	4.1	318.3	184.8	85.4	90.8	258.4	238.4	344.7	358.3	390.1	0.18	87.09	85.73	86.10	0.17	86.79	86.33	85.89	0.05	0.03	49.48185
192.0	391.0	1.7	3.3	4.1	317.3	184.5	85.5	90.9	258.7	238.3	342.6	356.7	390.3	0.18	87.15	85.78	86.14	0.17	86.86	86.39	85.91	0.05	0.03	48.309788
193.0	392.0	1.7	3.3	4.1	316.3	183.7	85.2	90.9	257.6	237.2	341.0	355.6	389.4	0.18	87.21	85.83	86.19	0.17	86.91	86.43	85.95	0.05	0.03	47.16893
194.0	393.0	1.7	3.3	4.1	314.6	182.6	85.4	90.9	257.2	237.2	340.4	354.3	384.0	0.18	87.22	85.85	86.15	0.17	86.93	86.47	85.96	0.05	0.03	45.722479
195.0	394.0	1.7	3.2	4.0	313.0	181.6	85.6	90.9	256.2	236.2	339.2	353.2	380.8	0.18	87.27	85.91	86.17	0.17	86.98	86.50	85.98	0.05	0.03	44.032844
196.0	395.0	1.6	3.2	4.0	309.6	180.8	85.6	91.0	254.8	234.8	337.0	350.6	378.4	0.18	87.31	85.96	86.21	0.17	87.01	86.54	86.01	0.05	0.03	42.977243
197.0	396.0	1.7	3.2	4.0	310.7	180.5	86.4	91.1	254.3	234.4	336.2	349.8	378.6	0.18	87.35	85.98	86.21	0.17	87.05	86.57	86.02	0.05	0.03	41.765964
198.0	397.0	1.7	3.2	4.0	309.6	180.1	86.4	91.1	254.3	234.4	336.2	349.8	378.6	0.18	87.35	85.98	86.21	0.17	87.05	86.57	86.02	0.05	0.03	40.683072
199.0	398.0	1.7	3.2	4.0	308.1	179.3	85.7	91.0	253.1	233.3	332.9	345.9	376.2	0.18	87.50	86.07	86.29	0.17	87.19	86.67	86.07	0.05	0.03	39.149097
200.0	399.0	1.6	3.2	4.0	306.7	178.8	85.6	91.1	251.2	232.3	331.4	344.8	373.7	0.18	87.54	86.12	86.30	0.17	87.22	86.71	86.09	0.05	0.03	37.788376
201.0	400.0	1.6	3.2	4.0	305.5	178.2	85.9	91.0	250.2	231.9	330.2	343.1	371.2	0.18	87.56	86.14	86.30	0.17	87.26	86.75	86.12	0.05	0.03	36.598442
202.0	401.0	1.6	3.2	4.0	304.1	177.5	85.9	91.1	250.1	230.9	329.3	343.0	370.7	0.18	87.59	86.18	86.34	0.17	87.31	86.79	86.13	0.05	0.03	35.20231
203.0	402.0	1.6	3.1	4.0	302.6	177.3	85.9	91.1	248.3	230.4	327.6	341.1	365.7	0.18	87.63	86.23	86.36	0.17	87.33	86.82	86.16	0.05	0.03	33.7207
204.0	403.0	1.6	3.1	4.0	301.2	176.5	85.9	91.2	246.6	229.4	326.7	339.7	363.5	0.18	87.66	86.27	86.38	0.17	87.38	86.85	86.19	0.05	0.03	32.265519
205.0	404.0	1.6	3.1	4.0	299.9	175.7	85.9	91.3	246.6	228.2	325.3	338.8	360.7	0.18	87.73	86.29	86.41	0.17	87.45	86.88	86.24	0.05	0.03	31.030487
206.0	405.0	1.6	3.2	4.0	298.3	175.3	86.1	91.4	245.8	227.6	324.6	337.6	358.4	0.18	87.79	86.34	86.42	0.17	87.49	86.93	86.25	0.05	0.03	29.344788
207.0	406.0	1.6	3.1	4.0	297.5	174.9	86.2	91.4	245.2	225.5	322.8	336.8	357.1	0.18	87.87	86.43	86.47	0.17	87.56	86.98	86.28	0.05	0.03	28.265415
208.0	407.0	1.6	3.1	4.0	295.9	174.2	86.2	91.5	244.9	223.3	321.7	335.1	356.8	0.18	87.95	86.48	86.51	0.17	87.61	87.03	86.31	0.05	0.03	27.073514
209.0	408.0	1.6	3.1	3.9	294.6	173.9	86.2	91.6	244.0	219.9	320.7	334.0	354.5	0.18	88.03	86.51	86.54	0.17	87.71	87.10	86.36	0.05	0.03	25.677194
210.0	409.0	1.6	3.1	3.9	293.2	173.8	86.5	91.6	243.0	216.6	320.1	332.7	353.3	0.18	88.08	86.56	86.57	0.17	87.77	87.16	86.37	0.05	0.03	24.238351
211.0	410.0	1.6	3.1	3.9	291.9	173.1	86.4	91.6	242.2	214.5	319.4	331.4	352.1	0.18	88.18	86.61	86.60	0.17	87.84	87.21	86.37	0.05	0.03	23.002432
212.0	411.0	1.5	3.0	3.9	290.8	172.3	86.1	91.7	243.2	212.6	317.7	330.4	350.7	0.18	88.20	86.65	86.63	0.17	87.88	87.25	86.44	0.05	0.03	21.819116
213.0	412.0	1.6	3.0	3.9	289.5	172.0	86.2	91.7	240.8	211.3	317.2	329.1	348.9	0.18	88.22	86.69	86.66	0.17	87.89	87.28	86.46	0.05	0.03	20.54407
214.0	413.0	1.5	3.0	3.8	288.3	171.6	86.3	91.8	239.7	210.2	316.1	327.7	346.9	0.18	88.26	86.74	86.70	0.17	87.93	87.35	86.49	0.05	0.03	19.428369
215.0	414.0	1.6	3.0	3.8	287.1	170.6	86.6	91.8	239.0	210.2	315.1	326.1	344.8	0.18	88.28	86.79	86.70	0.17	87.98	87.38	86.52	0.05	0.03	18.148267
216.0	415.0	1.6	3.0	3.8	285.7	169.9	86.9	91.9	237.9	209.3	313.9	324.1	342.9	0.18	88.31	86.83	86.73	0.17	88.01	87.43	86.54	0.05	0.03	17.09354
217.0	416.0	1.5	2.9	3.8	284.7	169.2	86.4	91.9	237.2	209.4	313.0	323.7	340.3	0.18	88.33	86.89	86.80	0.17	88.09	87.46	86.61	0.05	0.03	15.789703
218.0	417.0	1.5	2.9	3.8	283.5	168.5	86.4	91.9	236.3	209.1	311.6	322.2	338.2	0.18	88.36	86.93	86.80	0.17	88.09	87.50	86.66	0.05	0.03	14.559864
219.0	418.0	1.5	2.9	3.8	282.3	167.8	86.3	92.0	235.0	208.6	310.0	320.8	336.2	0.18	88.39	86.97	86.83	0.17	88.14	87.54	86.69	0.05	0.03	13.409587
220.0	419.0	1.5	2.9	3.7	281.4	168.0	86.5	92.0	233.1	208.3	309.6	319.7	334.5	0.18	88.38	86.99	86.85	0.17	88.14	87.57	86.72	0.05	0.03	12.252546
221.0	420.0	1.5	2.9	3.8	280.6	167.4	86.5	91.9	233.0	207.9	308.5	319.3	333.0	0.18	88.35	86.97	86.85	0.17	88.16	87.62	86.75	0.05	0.03	11.122998
222.0	421.0	1.5	2.9	3.8	279.2	167.2	86.7	91.9	232.7	207.6	307.8	317.6	330.5	0.18	88.37	86.95	86.84	0.17	88.19	87.64	86.75	0.05	0.03	10.026755
223.0	422.0	1.5	2.9	3.8	278.0	166.6	86.5	91.9	232.6	207.0	305.4	316.4	328.5	0.18	88.39	87.10	86.95	0.17	88.20	87.68	86.79	0.05	0.03	9.056728
224.0	423.0	1.5	2.9	3.8	277.1	166.3	86.5	91.9	232.0	206.3	304.1	315.3	327.5	0.18	88.41	87.13	86.97	0.17	88.21	87.73	86.81	0.05	0.03	8.233444
225.0	424.0	1.5	2.9	3.8	276.0	165.7	86.6	91.8	231.3	206.5	304.1	314.3	326.5	0.18	88.39	87.17	87.01	0.17	88.22	87.75	86.81	0.05	0.03	7.0409416
226.0	425.0	1.4	2.9	3.7	274.9	165.1	86.6	91.9	230.5	206.3	303.1	312.9	321.8	0.18	88.39	87.18	87.02	0.17	88.24	87.77	86.84	0.05	0.03	6.030306
227.0	426.0	1.4	2.9	3.7	273.8	164.1	86.6	91.9	230.1	205.8	302.1	312.0	321.2	0.18	88.40	87.22	87.03	0.17	88.25	87.80	86.84	0.05	0.03	5.079354
228.0	427.0	1.5	2.9	3.7	272.3	163.6	86.7	91.7	229.3	206.0	300.7	311.0	319.3	0.18	88.40	87.24	87.10	0.17	88.26	87.85	86.93	0.05	0.03	4.2466218
229.0	428.0	1.4	2.8	3.7	271.7	163.1	86.5	91.8	229.0	205.4	299.6	310.2	318.4	0.18	88.41	87.28	87.10	0.17	88.27	87.88	86.94	0.05	0.03	3.4814226
230.0	429.0	1.4	2.8	3.6	271.5	162.5	86.6	91.8	228.8	205.7	298.9	308.7	316.6	0.18	88.45	87.31	87.13	0.17	88.31	87.91	86.96	0.05	0.03	2.6436116
231.0	430.0	1.4	2.8	3.6	270.9	162.2	86.8	91.7	227.3	205.2	298.7	307.6	315.6	0.18	88.48	87.34	87.16	0.17	88.32	87.94	86.9			

368.0	567.0	0.6	3.1	3.7	195.5	136.4	88.8	93.2	179.1	166.0	203.5	222.2	206.9	0.18	90.27	90.20	89.23	0.17	90.33	90.77	89.08	0.05	0.02	-73.36983
369.0	568.0	0.6	3.2	3.7	195.1	136.4	88.6	93.3	178.9	166.0	203.0	222.7	204.8	0.18	90.28	90.20	89.21	0.17	90.35	90.78	89.06	0.05	0.02	-73.85522
370.0	569.0	0.6	3.4	3.8	194.4	136.6	88.7	93.3	178.5	165.9	202.1	222.5	203.1	0.18	90.29	90.23	89.23	0.17	90.35	90.79	89.09	0.05	0.02	-74.49671
371.0	570.0	0.6	3.4	3.7	193.9	136.5	88.9	93.3	178.0	165.7	201.4	222.3	202.0	0.18	90.27	90.25	89.24	0.17	90.39	90.81	89.10	0.05	0.02	-75.01429
372.0	571.0	0.6	3.4	3.7	193.2	136.4	88.6	93.3	177.9	165.6	200.5	222.3	200.0	0.18	90.35	90.25	89.25	0.17	90.39	90.84	89.10	0.05	0.02	-75.66599
373.0	572.0	0.6	3.4	3.7	193.0	136.1	89.3	93.0	178.1	165.4	200.5	222.8	198.3	0.18	90.32	90.24	89.26	0.17	90.39	90.84	89.10	0.05	0.02	-75.89134
374.0	573.0	0.5	3.4	3.6	192.5	136.0	88.7	93.2	177.6	165.2	200.2	222.7	196.6	0.18	90.28	90.26	89.26	0.17	90.37	90.84	89.12	0.05	0.02	-76.45036
375.0	574.0	0.5	3.3	3.6	192.0	135.9	88.4	93.2	177.4	164.9	199.4	223.0	195.4	0.18	90.29	90.27	89.26	0.17	90.36	90.86	89.12	0.05	0.02	-76.88253
376.0	575.0	0.5	3.3	3.6	191.5	135.6	88.6	93.3	177.3	164.3	198.9	222.9	194.3	0.18	90.23	90.27	89.25	0.17	90.30	90.85	89.15	0.05	0.02	-77.36993
377.0	576.0	0.5	3.3	3.6	191.0	135.1	88.6	93.3	176.7	164.1	198.4	223.0	192.6	0.18	90.20	90.25	89.26	0.17	90.29	90.84	89.13	0.05	0.02	-77.93182
378.0	577.0	0.5	3.3	3.5	190.6	135.1	88.6	93.4	176.1	163.6	197.9	223.8	191.6	0.18	90.21	90.26	89.27	0.17	90.33	90.85	89.12	0.05	0.02	-78.30027
379.0	578.0	0.5	3.3	3.5	190.3	134.6	88.6	93.4	176.2	163.1	197.3	224.0	191.1	0.18	90.23	90.26	89.27	0.17	90.33	90.86	89.15	0.05	0.02	-78.56475
380.0	579.0	0.5	3.3	3.4	189.6	134.2	88.6	93.4	175.9	162.3	196.6	224.1	188.9	0.18	90.23	90.26	89.30	0.17	90.32	90.85	89.16	0.05	0.02	-79.35954
381.0	580.0	0.5	3.3	3.5	189.4	134.2	88.9	93.4	175.5	161.9	195.8	224.5	189.0	0.18	90.24	90.29	89.28	0.17	90.31	90.87	89.15	0.05	0.02	-79.54635
382.0	581.0	0.5	3.4	3.5	188.8	134.2	88.7	93.3	175.6	161.0	195.0	224.4	187.9	0.18	90.26	90.30	89.29	0.17	90.33	90.86	89.15	0.05	0.02	-80.14034
383.0	582.0	0.5	3.3	3.4	188.3	133.5	88.6	93.3	175.0	160.2	194.5	224.8	187.0	0.18	90.28	90.30	89.30	0.17	90.34	90.87	89.18	0.05	0.02	-80.61074
384.0	583.0	0.5	3.3	3.4	188.0	133.6	88.6	93.3	174.5	159.8	194.2	225.0	186.4	0.18	90.27	90.30	89.29	0.17	90.32	90.89	89.17	0.05	0.02	-80.92784
385.0	584.0	0.4	3.3	3.3	187.9	133.6	88.6	93.3	174.5	159.6	193.5	225.8	186.3	0.18	90.27	90.34	89.29	0.17	90.36	90.90	89.15	0.05	0.02	-80.97809
386.0	585.0	0.5	3.3	3.3	187.7	133.4	88.4	93.2	174.4	159.3	193.3	226.2	185.3	0.18	90.24	90.31	89.31	0.17	90.33	90.90	89.15	0.05	0.02	-81.20304
387.0	586.0	0.5	3.3	3.3	187.4	133.3	88.2	93.2	174.4	159.0	193.0	226.6	183.9	0.18	90.21	90.31	89.30	0.17	90.30	90.89	89.13	0.05	0.02	-81.51988
388.0	587.0	0.5	3.2	3.3	187.1	133.3	88.2	93.1	174.1	158.8	192.3	227.4	182.9	0.18	90.16	90.33	89.30	0.17	90.27	90.90	89.14	0.05	0.02	-81.7906
389.0	588.0	0.4	3.1	3.2	186.7	133.2	88.1	93.1	173.6	158.7	191.6	227.3	182.3	0.18	90.20	90.32	89.27	0.17	90.23	90.88	89.15	0.05	0.02	-82.21121
390.0	589.0	0.5	3.1	3.1	186.5	133.1	88.1	93.2	173.3	158.2	191.2	227.5	182.0	0.18	90.06	90.29	89.26	0.17	90.18	90.87	89.13	0.05	0.02	-82.45052
391.0	590.0	0.5	3.1	3.2	186.1	132.9	88.0	93.2	173.2	158.2	190.5	227.4	181.4	0.18	89.96	90.27	89.26	0.17	90.13	90.87	89.12	0.05	0.02	-82.78857
392.0	591.0	0.4	3.1	3.1	185.9	132.6	87.9	92.9	173.0	157.8	190.1	227.4	181.0	0.18	89.89	90.26	89.24	0.17	90.09	90.85	89.10	0.05	0.02	-83.03298
393.0	592.0	0.4	3.1	3.1	185.5	132.4	87.8	92.9	172.6	157.7	189.6	227.5	180.2	0.18	89.81	90.23	89.23	0.17	90.00	90.83	89.09	0.05	0.02	-83.41044
394.0	593.0	0.4	3.0	3.1	185.3	132.1	87.8	92.9	172.3	157.5	189.2	227.6	179.8	0.18	89.78	90.19	89.21	0.17	89.95	90.83	89.05	0.05	0.02	-83.63305
395.0	594.0	0.4	3.0	3.1	185.0	131.8	87.8	92.9	172.3	157.1	188.6	227.6	179.6	0.18	89.75	90.18	89.21	0.17	89.91	90.81	89.03	0.05	0.02	-83.88653
396.0	595.0	0.4	3.0	3.1	184.7	131.7	87.8	92.9	171.8	156.8	188.4	227.5	179.1	0.18	89.71	90.19	89.21	0.17	89.87	90.76	89.02	0.05	0.02	-84.17882
397.0	596.0	0.4	3.0	3.1	184.4	131.8	88.3	92.6	171.3	156.6	187.8	227.4	178.7	0.18	89.69	90.15	89.20	0.17	89.87	90.77	88.99	0.05	0.02	-84.52787
398.0	597.0	0.4	2.9	3.0	183.9	131.5	87.9	92.8	170.8	156.2	187.1	227.1	178.5	0.18	89.66	90.15	89.19	0.17	89.82	90.75	88.99	0.05	0.02	-84.9795
399.0	598.0	0.4	3.0	3.1	183.7	131.1	87.9	92.7	170.8	156.0	186.6	226.9	178.4	0.18	89.64	90.15	89.17	0.17	89.81	90.74	88.98	0.05	0.02	-85.19183
400.0	599.0	0.4	3.2	3.2	183.2	131.0	87.9	92.8	170.4	155.8	185.7	226.9	177.3	0.18	89.69	90.18	89.17	0.17	89.82	90.73	88.99	0.05	0.02	-85.6961
401.0	600.0	0.4	3.2	3.3	183.0	130.8	87.9	92.7	170.1	155.5	185.2	226.9	177.0	0.18	89.76	90.18	89.14	0.17	89.85	90.74	88.98	0.05	0.02	-85.94914
402.0	601.0	0.4	3.3	3.3	182.8	130.6	88.0	92.7	170.4	155.5	184.6	226.9	176.5	0.18	89.75	90.16	89.15	0.17	89.85	90.74	88.95	0.05	0.02	-86.15387
403.0	602.0	0.4	3.3	3.4	182.5	130.3	88.0	92.7	170.4	155.1	184.1	227.1	175.6	0.18	89.75	90.15	89.13	0.17	89.85	90.73	88.96	0.05	0.02	-86.46006
404.0	603.0	0.4	3.4	3.4	182.2	130.3	88.0	92.7	170.4	155.0	183.8	226.8	175.0	0.18	89.76	90.16	89.13	0.17	89.85	90.74	88.95	0.05	0.02	-86.73001
405.0	604.0	0.4	3.5	3.5	181.9	130.1	87.9	92.7	170.7	154.8	183.1	227.6	174.6	0.18	89.81	90.17	89.13	0.17	89.86	90.73	88.94	0.05	0.02	-87.07878
406.0	605.0	0.3	3.5	3.5	181.9	130.6	87.9	92.7	170.7	154.6	183.1	226.9	174.0	0.18	89.70	90.14	89.09	0.17	89.83	90.72	88.94	0.05	0.02	-87.05569
407.0	606.0	0.3	3.4	3.4	181.6	130.9	87.8	92.5	171.3	154.3	182.6	226.7	173.0	0.18	89.67	90.14	89.07	0.17	89.80	90.73	88.93	0.05	0.02	-87.34039
408.0	607.0	0.3	3.4	3.4	181.4	131.4	87.6	92.5	171.6	154.2	182.0	227.0	172.5	0.18	89.64	90.12	89.06	0.17	89.77	90.73	88.89	0.05	0.02	-87.47058
409.0	608.0	0.3	3.5	3.5	181.2	131.5	87.6	92.5	171.8	154.0	181.7	226.6	171.9	0.18	89.56	90.10	89.06	0.17	89.74	90.71	88.88	0.05	0.02	-87.70454
410.0	609.0	0.3	3.5	3.5	181.0	131.9	87.6	92.4	171.9	153.6	181.3	226.7	171.1	0.18	89.48	90.09	89.04	0.17	89.66	90.69	88.84	0.05	0.02	-87.95529
411.0	610.0	0.3	3.5	3.5	180.7	131.8	87.6	92.1	172.0	153.3	180.9	226.7	170.4	0.18	89.41	90.05	89.01	0.17	89.60	90.66	88.79	0.05	0.02	-88.22899
412.0	611.0	0.3	3.5	3.5	180.6	132.5	87.5	92.1	172.2	153.1	180.2	226.7	170.5	0.18	89.32	90.04	89.03	0.17	89.54	90.63	88.78	0.05	0.02	-88.35101
413.0	612.0	0.3	3.4	3.4	180.4	132.6	87.4	92.1	172.2	152.8	179.6	226.6	170.5	0.18	89.26	90.01	89.08	0.17	89.46	90.60	88.76	0.05	0.02	-88.50274
414.0	613.0	0.3	3.4	3.4	180.3	132.4	87.4	91.9	172.4	152.9	179.4	226.6	170.1	0.18	89.21	89.97	88.94	0.17	89.42	90.58	88.72	0.05	0.02	-88.61925
415.0	614.0	0.3	3.5	3.5	180.1	132.3	87.3	91.8	172.7	152.8	179.2	226.3	169.8	0.18	89.16	89.96	88.94	0.17	89.39	90.56	88.69	0.05	0.02	-88.76511
416.0	615.0	0.3	3.5	3.5	180.0	132.7	87.2	91.9	172.4	152.6	179.0	226.4	169.7	0.18	89.12	89.93	88.91	0.17	89.38	90.55	88.67	0.05	0.02	-88.88882
417.0	616.0	0.3	3.4	3.4	179.9	132.8	87.2	91.8	172.6	152.2	178.7	226.6	169.2	0.18	89.09	89.92	88.88	0.17	89.30	90.53	88.65	0.05	0.02	-89.02397

Manufacturer: FOYER SUPREME
Model: NV 200

Run: 2
Project #: pi-20131
Test Duration: 456 min

	HHV	LHV
Eff	68,43%	73,96%
Comb Eff	93,69%	93,69%
HT Eff	73,04%	78,94%
Output	10 925	kJ/h
Burn Rate	0,81	kg/h
Grams CO	546	g
Input	15 966	kJ/h
MC wet	17,90	

Note: In the "Input data", "Calc. % O₂", "Fuel Properties", and "Mass Balance" columns, [e], [d], [g], [a], [b], [c], [h], [u], [w], [j], and [k] refer to their respective variables in Clauses 13.7.3

Ultimate CO₂
CO_{2-ult} 19,64
F_o
1,061

Overall Heating Efficiency: 68,43%
Combustion Efficiency: 93,69%
Heat Transfer Efficiency: 73,04%

Air Fuel Ratio (A/F)	
Dry Molecular Weight (M _d)	29,44
Dry Moles Exhaust Gas (N _p):	461,42
Air Fuel Ratio (A/F)	13,08

Heat Output:	10 364 Btu/h	10 925 kJ/h
Heat Input:	15 146 Btu/h	15 966 kJ/h
Burn Duration:	7,60 h	
Burn Rate:	1,78 lb/h	0,806 kg/h
Stack Temp:	325,2 Deg. F	162,9 Deg. C

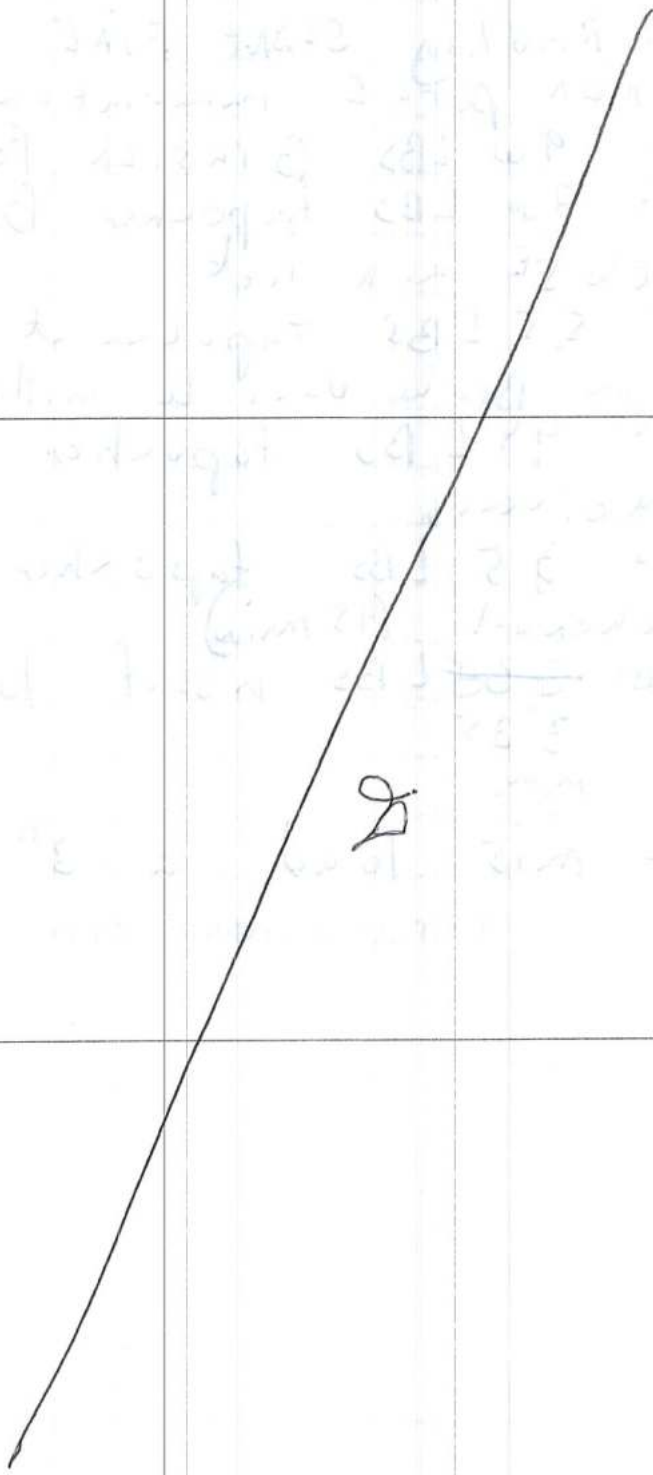
Date: 2016-02-03 Manufacturer: Foyer Supreme Model: NV200
Project #: PI 20131 Run: 2 Tech: MM Reviewer: DE

- No kindling start FIRE 12.89 LBS
- Per MEA port E immédiatement
- At 9.00 LBS Brassier Feu
- At 7.00 LBS tapocher Brassier and close air inlet
- At 5.5 LBS tapocher et Ramener les morceaux Non Brûlé dans le milieu
- At 4.4 LBS tapocher et Casser morceaux
- At 3.5 LBS tapocher et Fer channel (45 min)
- At ~~3.35~~ LBS insert load 3.35 min.
- mis load a 3" du lip avant

TEST LOAD CONFIGURATION

38 min
3.35 LBS

Date: _____ Manufacturer: _____ Model: _____
 Project #: _____ Run: _____ Tech: _____ Reviewer: _____

Side view	Front view	Top view
		

Date: _____ Manufacturer: _____ Model: _____
 Project #: _____ Run: _____ Tech: _____ Reviewer: _____

	ADDITION		SUBTRACTION	
	ft3	Volume	ft3	Volume
V measure				
V ashlip				
%				
V usable				
Usable Firebox: _____				
Test load weight: _____ Minimum: _____ Maximum: _____				
Déviation: _____				

PRE / POST CHECKS

Date: 2016-09-07 Manufacturer: foyer Supreme Model: NV200
 Project #: PT 20131 Run: 2 Tech: mm Reviewer: DE

Moisture Meter Calibration Check:

Equipment #	Time	12%	22%
<u>EM-191</u>	<u>7:00</u>	<u>ok</u>	<u>ok</u>

Pre-Test

Post-Test

Facility Conditions:

Air Velocity from less than 2 feet

<u>19</u> (max50 Fpm)	<u>18</u> (max50 Fpm)
<u>ok</u>	<u>ok</u>
4 sides	<u>ok</u>

Smoke Capture Check.....

Picture.....

Wood Heater Conditions:

Date Wood Heater Stack Cleaned.....

Date Dilution Tunnel Cleaned.....

Induced Draft Check (max 0.005 H2O).....

Traverse before ignition.....

Flow Rate 140 cfm $\pm$ 10%.....

<u>2016-09-06</u>
<u>2016-09-06</u>
<u>ok</u>
<u>ok</u>

ok

Temperature System:

Ambient (65°-90°F).....

Wood Heater Surface ($\pm$ 125°F).....

<u>ok</u>	°F
<u>ok</u>	°F

Proportional Checks:

Thermocouple check.....

Pitot Clean.....

Pitot verification.....

<u>ok</u>
<u>ok</u>
<u>ok</u>

Sampling Train ID Numbers:

Probe.....

Filter Front.....

Filter Back.....

Filter Thermocouple.....

Filter (<90°F).....

Train 1 st hour	Train 1	Train 2
<u>13</u>	<u>39</u>	<u>50</u>
<u>56</u>	<u>62</u>	<u>69</u>
<u>58</u>	<u>64</u>	<u>75</u>
<u>11</u>	<u>11</u>	<u>12</u>
<u>ok</u>	<u>ok</u>	<u>ok</u>

SAMPLING EQUIPMENT CHECK OUT

Date: 2016-09-07 Manufacturer: Foyer Supreme Model: NV200
 Project #: PI 10131 Run: 2 Tech: Mr Reviewer: DP

Leakage Checks Tunnel Samplers

	System 1 st hour		System 1		System 2	
Unplugged Flow Rate = .25cfm	Pre-Test ASTM (-15) CSA B415 (-5)	Post-Test (max test)	Pre-Test ASTM (-15) CSA B415 (-5)	Post-Test (Max test)	Pre-Test ASTM (-15) CSA B415 (-5)	Post-Test (Max test)
Vacuum (inches Hg.)	-15	-15	-15	-15	-15	-15
Final 1minute DGM (Liter)	422715,86	425172,38	422717,60	425173,01	365047,52	367403,88
Initial 1minute DGM (Liter)	422715,85	425172,38	422717,56	425173,01	365047,51	367403,88
Change © (Liter)	0,01	9	0,04	9	0,01	9
Allowable leakage .04 x Sample rate or 0.28Lpm CSA B415 (0.56)						
Check OK	ok	ok	ok	ok	ok	ok

Leakage Checks Flue Gas Sampler

Plugged Probe	Pre Test	Post Test
Vacuum (inches Hg.)	-5	-5
Rotometer Reading (mml/min.)	0	0
Flow Rate (lpm)	1.5	1.5
Allowable (.02 x Sample Rate)	30	30
Check OK	ok	ok

Leakage Checks Pitot

Plugged Probe	Pre Test 3 H2o static	Pre Test 0.4-0.5 H2o velocity	Post Test 3 H2o Static	Post Test 0.4-0.5 H2o velocity
Vacuum (inches Hg.)	3	5	3	4
Check OK (no change after 15 sec.)	ok	ok	ok	ok

PRE-TEST SCALE AUDIT

Date: 2016-07-07 Manufacturer: Foyer Supreme Model: NV 200
 Project #: PI 10131 Run: 2 Tech: MM Reviewer: DP

Scale Type	Audit		Measured Weight
	Equipment #	Weight	
Platform	<u>EM-090</u>	<u>4.4</u> lbs, Class F	<u>4.4</u> lbs
Wood	<u>EM-090</u>	<u>4.4</u> lbs, Class F	<u>4.4</u> lbs
Analytical	<u>EM-128</u>	<u>100</u> mg, Class S	<u>100</u> mg
Analytical	<u>EM-129</u>	<u>200</u> g, Class S	<u>200</u> g

LIMITS OF WEIGHT RANGES

ANALYTICAL SCALE: 50%-150% of dry filter weight, ± 0.1 mg
PLATFORM SCALE: 20%-80% of ideal test load weight, ± 0.1 lbs or 1%
WOOD SCALE: 20%-80% of ideal test load weight, ± 0.01 lbs or 1%

Date: 2016 09-07 Manufacturer: Fogel Supreme Model: NV 200
 Project #: PI 20131 Run: 2 Tech: MR Reviewer: DP

FOR TUNNELS < 12 in

Barometric pressure (P_{bar}) 101.3 (KPa.) Static pressure (P_q) 0.21 (inches w.c.)
 Inside diameter: Port A _____ Port B _____
 Tunnel cross sectional area: .1963Ft²
 Pitot tube type: Standard

Traverse Point	Position (inches)			Velocity Head Δ_p (inches H ₂ O)	Tunnel Temperature (°F)
	6 po	7 po	8 po		
A- Centroid	3.00	3.50	4	0.055	76.28
B - Centroid	3.00	3.50	4	0.056	76.58
A-1	0.40	0.50	0.50	0.045	76.31
A-2	1.50	1.75	2	0.064	76.29
A-3	4.50	5.25	6	0.056	76.34
A-4	5.60	6.5	7.5	0.048	76.34
B-1	0.40	0.50	0.50	0.047	76.61
B-2	1.50	1.75	2	0.053	76.57
B-3	4.50	5.25	6	0.061	76.55
B-4	5.60	6.5	7.5	0.054	76.31
AVERAGE					

$$v_s = K_p C_p (\sqrt{\Delta p})_{avg} \sqrt{\frac{(T_s)_{avg}}{P_s M_s}}$$

Where,

C_p = pitot tube coefficient, dimension less = 0.99 for standard pitot.

Δ_p = manometer reading (inches H₂O)

T_s = average absolute dilution tunnel temperature (°F + 460)

P_s = absolute dilution tunnel gas pressure or $P_{bar} + P_{qg}$

P_q = static pressure in. H₂O
 { 13.6 }

M_s = 28.56, wet molecular weight of stack gas (alternatively, it may be measured)

K_p = 85.49 pitot tube constant, (conversion factor for English units)

Δ_{pavg} = average of the square roots of the velocity heads (Δ_p) measured at each traverse point.

CONTINUOUS ANALYZERS

Date: 2016-09-07 Manufacturer: Fogel Supreme Model: NV200
 Project #: PI 20131 Run: 2 Tech: MM Reviewer: DP

Pre-Test (Adjust and Record)

	ZERO		SPAN		CAL. (Record Only)	
CO	0	0	2,965	2,971	1,003	1,00
Tolerance CO		+/- 0.02		+/- 0.15		+/- 0.05
CO ₂	0	0	17,86	17,87	9,69	10,00
Tolerance CO ₂		+/- 0.02		+/- 0.5		+/- 0.5
O ₂ informative CSA B415 calculated value	na	na	na	na	na	na
	Actual	Should Be	Actual	Should Be	Actual	Should Be

Post Test (Record Only)

	Zero	Span	Cal.	Zero Drift	Limit	Span Drift	Limit	Cal. Drift	Limit	OK?	Not OK*
CO	0,003	2,968	1,001	0,003	0.02	0,003	0.15	0,002	0.05	✓	
CO ₂	0	17,83	9,70	0	0.02	0,04	0.5	0,06	0.5	✓	
O ₂	na	na	na	—	na	—	na	—	na	—	

TEST DATA LOG

Date: 2016-09-07 Manufacturer: Fager Supreme Model: NV 200
 Project #: PI 16131 Run: 2 Tech: MM Reviewer: SP

RAW DRY GAS METER READINGS

	System 1	System 2	Blank
Final (Liter)	425170, 41	367401, 63	310, 64
Initial (Liter)	422718, 33	365048, 42	253, 08

AMBIENT CONDITIONS

	Before	After
Barometer (kPa):	101, 2	101, 3
Dry Bulb (F):	76, 28	80, 96
Humidity (%):	66, 5	47, 4

Flow Meter

	Start	End
Flow meter reading	N.A	N.A

Flow Meter Verification

	Before	After
Flow meter Check (liters)	N.A	N.A
Scale Weight (Kg)	N.A	N.A

FUEL DATA

Date: 2016-09-02 Manufacturer: Fayer Supreme Model: NV 200
 Project #: PI 20131 Run: 2 Tech: Mr Reviewer: DL

FUEL DESCRIPTION:

Type of wood:

PRE-TEST LOAD

Piece Size	Weight	Meter Moisture Content (% dry)*		
2 x 4 x 5 in.	0.676 lbs.	22.9	22.6	22.1
2 x 4 x 5 in.	0.664 lbs.	21.8	22.0	21.6
2 x 4 x 5 in.	0.686 lbs.	23.1	22.6	22.4
2 x 4 x 5 in.	0.672 lbs.	20.9	19.9	19.6
2 x 4 x 5 in.	0.700 lbs.	21.8	21.3	21.9
2 x 4 x 5 in.	0.664 lbs.	21.2	21.6	21.3
2 x 4 x 5 in.	0.694 lbs.	20.1	20.6	20.3
2 x 4 x 5 in.	0.704 lbs.	23.1	22.9	22.6
2 x 4 x 5 in.	0.692 lbs.	19.6	19.3	19.8
2 x 4 x 5 in.	0.646 lbs.	21.8	21.3	21.3
2 x 4 x 5 in.	0.710 lbs.	21.7	21.6	21.3
2 x 4 x 5 in.	0.714 lbs.	23.0	23.6	22.8
2 x 4 x 5 in.	0.652 lbs.	20.5	20.3	21.1
2 x 4 x 5 in.	0.694 lbs.	20.3	21.1	20.5
2 x 4 x 5 in.	0.842 lbs.	22.7	22.1	21.6
2 x 4 x 5 in.	0.720 lbs.	21.8	21.6	21.3
2 x 4 x 5 in.	0.724 lbs.	20.6	20.3	20.6
2 x 4 x 5 in.	0.718 lbs.	22.9	22.6	22.0
2 x 4 x 5 in.	0.690 lbs.	20.2	20.6	20.4
2 x 4 x 5 in.	0.620 lbs.	21.1	20.9	21.4
2 x 4 x 5 in.	0.628 lbs.	20.1	20.6	20.3
2 x 4 x 5 in.	0.670 lbs.	20.1	20.6	20.3
2 x 4 x 5 in.	0.640 lbs.	20.7	20.8	20.9

TEST LOAD WEIGHT: _____ lbs



FUEL DATA

Date: 8016-09-07

Manufacturer: Foyer Supreme

Model: NV 200

Project #: 91 20131

Run: 2

Tech: *MM*

Reviewer: BP

FUEL DESCRIPTION:

Type of wood:

PRE-TEST LOAD

[illegible]

TEST LOAD WEIGHT: 1289 lbs

FUEL DATA

Date: 2016-09-07 Manufacturer: Foyer Supreme Model: NV200
 Project #: PI 20131 Run: 2 Tech: MR Reviewer: DP

FUEL DESCRIPTION:

Type of wood :

TEST LOAD

Piece Size	Weight	Meter Moisture Content (% dry)*				
1' x 3 1/2" x 22 in.	2,118 lbs.	22.4	23.2	22.1	23.4	23.1
1' x 3 1/2" x 22 in.	2,464 lbs.	22.7	22.4	23.4	23.1	22.9
3 1/2" x 3 1/2" x 22 in.	5,212 lbs.	21.9	20.9	21.6	21.8	21.3
3 1/2" x 3 1/2" x 22 in.	5,228 lbs.	22.1	21.8	22.6	20.6	21.1
1,5 x 3/4 x 5 in.	0,110 lbs.			19.6		
1,5 x 3/4 x 5 in.	0,112 lbs.			19.3		
1,5 x 3/4 x 5 in.	0,120 lbs.			20.1		
1,5 x 3/4 x 5 in.	0,118 lbs.			20.6		
1,5 x 3/4 x 5 in.	0,130 lbs.			20.0		
1,5 x 3/4 x 5 in.	0,118 lbs.			19.9		
1,5 x 3/4 x 5 in.	0,120 lbs.			19.8		
1,5 x 3/4 x 5 in.	0,120 lbs.			19.6		
1,5 x 3/4 x 5 in.	0,122 lbs.			19.3		
1,5 x 3/4 x 5 in.	0,118 lbs.			19.3		
1,5 x 3/4 x 5 in.	0,104 lbs.			19.4		
1,5 x 3/4 x 5 in.	0,108 lbs.			19.8		
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					

TEST LOAD WEIGHT: 16,44 lbs Min 20%: 3,29 Max 25%: 4,11

DILUTION TUNNEL PARTICULATE SAMPLER DATA

Date: 2016-09-07 Manufacturer: foyer Super Model: NV260
 Project #: P16131 Run: 2 Tech: MM Reviewer: DP

		SYSTEM 1 - 1 st hour					SYSTEM 1				
Pre-test Weight Record	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets	Probe & Housing Number	Front Filter Number	Back Filter Number
Date	Time	13	56	58	9	34	62	64	12	150	150
2016-09-06	18:00	95, 1525	0, 1270	0, 1273	10, 3491	110, 1014	0, 1255	0, 1265	10, 2001	0, 1281	0, 1281
2016-09-07	8:30	95, 1525	0, 1271	0, 1275	10, 3490	110, 1013	0, 1256	0, 1266	10, 2002	0, 1280	0, 1280

		SYSTEM 1 - 1 st hour					SYSTEM 1				
Post-test Weight Record	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets	Probe & Housing Number	Front Filter Number	Back Filter Number
Date	Time	13	56	58	9	34	62	64	12	150	150
2016-09-08	8:00	95, 1541	0, 1307	0, 1274	10, 3538	110, 1016	0, 1254	0, 1267	10, 2052	0, 1281	0, 1281
2016-09-12	8:00	95, 1527	0, 1306	0, 1273	10, 3503	110, 1015	0, 1254	0, 1267	10, 2013	0, 1281	0, 1281
2016-09-14	8:00	95, 1527	0, 1306	0, 1273	10, 3501	110, 1015	0, 1254	0, 1267	10, 2013	0, 1281	0, 1281
2016-09-15	8:00	95, 1527	0, 1306	0, 1273	10, 3501	110, 1015	0, 1254	0, 1267	10, 2013	0, 1281	0, 1281

DILUTION TUNNEL PARTICULATE SAMPLER DATA

Date: 2016-09-07 Run: 2 Manufacturer: foyer supreme Model: NV 200
 Project #: PI 20131 Tech: MM Reviewer: DP

SYSTEM 2				
Pre-test Weight Record	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets
Date	Time			
2016-09-06	18:00	50	69	75
		1076451	0,1283	0,1266
2016-09-07	8:30	1076452	0,1284	0,1267
		1076452	0,1284	0,1267

SYSTEM 2				
Post-test Weight Record	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets
Date	Time			
2016-09-08	8:00	50	69	75
		1076462	0,1320	0,1269
2016-09-12	8:00	1076456	0,1317	0,1268
2016-09-14	8:00	1076456	0,1317	0,1268
2016-09-16	8:00	1076456	0,1317	0,1268

Paramètres

Tous les facteurs de corrections et autres paramètres qui peuvent être modifiés par l'utilisateur du fichier sont regroupés ici.

Code verrouillage: SUP

Description du test

Test standard	EPA
Run #	3
Date	09/08/2016
Technicien	M.M
Project #	pi-20131

Description de l'unité

Manufacturier	FOYER SUPREME	
Modèle	NV 200	
Combustion system	Non-Cat	
Appliance type	Wood fireplace	
Firebox volume	2,24	cu ft.
Appliance weight empty	na	lbs
Appliance weight full	na	lbs

Paramètres du test

Logging time	1	min
Manufacturer's rated heat output	na	BTU/h Donnée fournie par le manfacturier
Targeted category	1	
Targeted output	à définir	BTU/h
Cp steel	0,1	BTU/lb-°F

Échantillonnage

Blank sampling rate	0,20	cuft/min
Internal probe diameter	0,18	in.
Calibration Factor (DGM #1):	0,993	Dimensionless
Equipment number (DGM #1):	EM-078	
Calibration Factor (DGM #2):	0,992	Dimensionless
Equipment number (DGM #2):	EM-079	
Calibration Factor (DGM #3):	0,993	Dimensionless
Equipment number (DGM #3):	EM- 078	Dimensionless

Tunnel

Targeted tunnel flow rate	140	scfm
Tunnel diameter	8	in.
Molecular weight	28,78	May be assumed to be 28,78 (EPA) Si B-415 = 29
Pitot tube type	Standard	
Pitot tube coefficient	0,99	Dimensionless

Project nu.	pi-20131
Date	9 août 2016
Technicien	M.M

Fuel data

Fuel type	Dimension
Fuel specie	D. Fir
HHV	19810,0 kJ/kg
%C	48,7
%H	6,9
%O	43,9
%Ash	0,5
HHV	8519,2 Btu/lb
LHV	7451,0 Btu/lb

Default Fuel Values		
	D. Fir	Oak/Maple
HHV	19 810	19 887
%C	48,73	50
%H	6,87	6,6
%O	43,9	42,9
%Ash	0,5	0,5
HHV (Btu/lb)	8519	8552
LHV (Btu/lb)	7451	7480

	Start	End
Barometer (kPa):	100,8	100,8
Barometer (in.Hg):	29,766229	29,766229
Dry Bulb (F):	79,34	83,66
Humidity (%):	65	60,5
Air velocity (ft/min)	18	22

DGM #1	Final: ##### cuft
	Initial: ##### cuft
DGM #2	Final: ##### cuft
	Initial: ##### cuft

DGM room	
----------	--

Final: 426341,510	Liter
Initial: 425175,670	Liter
Final: 368524,490	Liter
Initial: 367404,920	Liter

Final: 346,040	cuft
Initial: 310,640	cuft

Numéro de la ligne dans "Raw data" à partir duquel les données du VRAI test commencent

203

Autres données à rentrer: dans preload data, load data, traverse et filter set weight

Project nu.	pi-20131
Date	9 août 2016
Technicien	M.M

Preload data sheet

Test Load Weight:

Lower Ideal Upper

14,11	15,68	17,25
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Load Volume: cu. ft

Loading Density: 8,043 lbs./ft3

Number of Spaces:

Load Density (wet): 31,132 lbs./ft3

Spacer weight (lbs):

Dry Wood Density: 25,8818

Piece Size (in):			Weight lbs	Meter Moisture Content				Ave. MC x	Volume	
Thick	Wide	x Length		Dry Uncorrected %				Weight	Cubic Inches	
2	4	5	0,724	19,7		19,9		20,1	14,4076	40,00
2	4	5	0,682	19,3		19,6		19,9	13,3672	40,00
2	4	5	0,694	19,6		19,7		20,6	13,856867	40,00
2	4	5	0,756	19,4		19,5		20,1	14,868	40,00
2	4	5	0,684	21,5		19,3		20,5	13,9764	40,00
2	4	5	0,846	19,3		19,2		19,6	16,3842	40,00
2	4	5	0,68	21,5		21,6		21,3	14,597333	40,00
2	4	5	0,662	21,7		22,3		20,8	14,2992	40,00
2	4	5	0,672	21,6		22,1		21,6	14,6272	40,00
2	4	5	0,7	19,2		20,6		20,5	14,07	40,00
2	4	5	0,718	19,6		20,3		21	14,5754	40,00
2	4	5	0,69	19,1		20,6		19,8	13,685	40,00
2	4	5	0,738	20,1		20,1		20,8	15,006	40,00
2	4	5	0,786	21,1		20,2		20,5	16,1916	40,00
2	4	5	0,694	19,3		20		21	13,9494	40,00
2	4	5	0,788	20,7		20,6		20,8	16,3116	40,00
2	4	5	0,714	19,5		19,9		19,8	14,0896	40,00
2	4	5	0,67	21		21		20,5	13,958333	40,00
2	4	5	0,722	20		20,5		21	14,801	40,00
2	4	5	0,688	19,2		20,3		19,6	13,5536	40,00
2	4	5	0,738	19,6		20,6		20,1	14,8338	40,00
2	4	5	0,722	19,6		20,3		19,5	14,2956	40,00
2	4	5	0,838	21		19,9		20,5	17,151067	40,00
2	4	5	0,688	19,9		20,1		20,5	13,874667	40,00
2	4	5	0,722	19,6		21		20,5	14,704733	40,00
										0,00
										0,00

SUM MC 365,4354

PreTest Load Weight: lbs.Dry Weight: kg.

Average Moisture Content: %

Dry:

Must be 18-28

Wet:

must be 15,2-22

Project nu.	pi-20131
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Technicien	M.M

FUEL LOAD DATA SHEET, CSA B415

Test Load Weight:

Lower	Ideal	Upper
14,1	15,7	17,2

* For boilers, a loading density factor of 10 lb/ft³ is applied

Load Volume: cu. ft

Loading Density: 7,2 lbs./ft3

Number of Spaces: 12
Spacer weight: lbs

Load Density (wet):	30,9	lbs./ft3
Dry Wood Density:	25,6	lbs./ft3

Piece Size (in):			Weight lbs	Meter Moisture Content					Ave. MC x	Volume	Ave. MC
Thick	Wide	:Length		Dry Uncorrected %					Weight	Cubic Inches	%
1,5	3,5	22	2,21	21,10	20,40	20,40	20,90	19,60	45,30176	115,50	20,5
1,5	3,5	22	2,52	21,90	21,20	20,20	21,80	22,10	54,11456	115,50	21,4
3,5	3,5	22	5,36	20,60	20,50	21,10	20,90	20,80	111,29768	269,50	20,8
3,5	3,5	22	4,62	19,70	19,10	19,80	20,10	20,10	91,21216	269,50	19,8
1,5	0,75	5	0,11			19,80			2,178	5,63	19,8
1,5	0,75	5	0,12			20,10			2,4924	5,63	20,1
1,5	0,75	5	0,12			20,60			2,3896	5,63	20,6
1,5	0,75	5	0,11			20,30			2,2736	5,63	20,3
1,5	0,75	5	0,13			20,10			2,5326	5,63	20,1
1,5	0,75	5	0,12			19,60			2,3912	5,63	19,6
1,5	0,75	5	0,12			19,90			2,4278	5,63	19,9
1,5	0,75	5	0,12			20,60			2,4308	5,63	20,6
1,5	0,75	5	0,13			21,00			2,73	5,63	21,0
1,5	0,75	5	0,12			20,80			2,4544	5,63	20,8
1,5	0,75	5	0,12			20,30			2,3954	5,63	20,3
1,5	0,75	5	0,14			20,00			2,8	5,63	20,0
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
								SUM MCx	331,42196		20,3 %

Test Load Weight: 16,16 lbs.

Dry Weight: kg.

Average Moisture Content: %

Dry:	20,50	Dry(EPA)	20,50
		Dry(B415)	20,50

20,50
Must be 19-25

Wet:
must be 15,2-22

Coal Bed Range: lbs. to

4,0 lbs.

TEST CHARGE:

Coal bed weight: 3,25

lbs.

Project nu.	pi-20131
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Tunnel Traverse Worksheet (for velocity calculations)

Static Pressure: 0,25 in. H2O
 Barometer: 29,900 in. Hg

Pour un tunnel de 12" et plus, prendre 6 lectures

	TUNNEL VELOCITY	TUNNEL TEMP	SQUARE ROOT
	In. wc	°F	
A center			0,0000
B center			0,0000
A1			0,0000
A2			0,0000
A3			0,0000
A4			0,0000
A5			0,0000
A6			0,0000
B1			0,0000
B2			0,0000
B3			0,0000
B4			0,0000
B5			0,0000
B6			0,0000
AVERAGE	#DIV/0!	#DIV/0!	0,0000

PITOT CONSTANT=
0,970

Pour un tunnel moins de 12", prendre 4 lectures

	TUNNEL VELOCITY	TUNNEL TEMP	SQUARE ROOT
	In. wc	°F	
A center	0,050	79,76	0,2236
B center	0,050	79,06	0,2236
A1	0,042	79,8	0,2049
A2	0,052	79,61	0,2280
A3	0,056	79,71	0,2366
A4	0,046	79,69	0,2145
B1	0,040	79,170	0,2000
B2	0,050	79,160	0,2236
B3	0,052	78,970	0,2280
B4	0,047	78,910	0,2168
AVERAGE	0,0485	79,3840	0,2200

Project nu.	pi-20131
Date	9 août 2016
Technicien	M.M

Filter set weight

	System 1 (g) 1st hour				System 1 (g)				System 2 (g)				Ambient blank (g)	Date	Heure
	probe	front	back	gasket	probe	front	back	gasket	probe	front	back	gasket	Filter		
Number															
Before (1)															
Before (2)															
Before (3)															
Before (4)															
Before (5)	94,5442	0,1307	0,1261	10,1154	109,0933	0,1270	0,1270	10,2284	107,9731	0,1266	0,1271	9,9832	0,1289	07/09/2016	18:00
Before (6)	94,5442	0,1308	0,1260	10,1155	109,0934	0,1271	0,1271	10,2285	107,9730	0,1265	0,1271	9,9831	0,1288	08/09/2016	09:00
After (1)	94,5451	0,1332	0,1261	10,1198	109,0935	0,1264	0,1271	10,2322	107,9730	0,1285	0,1272	9,9870	0,1288	08/09/2016	16:00
After (2)	94,5447	0,1329	0,1261	10,1167	109,0936	0,1264	0,1271	10,2293	107,9730	0,1284	0,1272	9,9845	0,1288	12/09/2016	08:00
After (3)	94,5448	0,1328	0,1261	10,1164	109,0936	0,1264	0,1271	10,2293	107,9731	0,1285	0,1272	9,9847	0,1288	14/09/2016	08:00
After (4)	94,5447	0,1329	0,1261	10,1164	109,0936	0,1264	0,1271	10,2293	107,9731	0,1285	0,1272	9,9846	0,1288	15/09/2016	08:00
After (5)															
After (6)	94,5447	0,1329	0,1261	10,1164	109,0936	0,1264	0,1271	10,2293	107,9731	0,1285	0,1272	9,9846	0,1288	15/09/2016	08:00
Difference	0,0005	0,0021	0,0001	0,0009	0,0002	-0,0007	0,0000	0,0008	0,0001	0,0020	0,0001	0,0015	0,0000		
Total (mg)		3,6				3,9				3,7			0		
Total ajusté (mg)		3,60				3,90				3,70					

Project nu. pi-20131
Date 9 août 2016
Technicien m.m

SFBA EPA EMISSION RESULTS

RESULTS

Average emission rate: 1,6 g/hr
Burn Rate : 1,682 Dry kg/hr

Test Duration: 217 min

PRESSURE FACTOR: DGM 1 0,96623
 DGM 2 0,97865
 DGM 3 0,99486

BAROMETRIC PRESSURE
 Average: 29,766229 in Hg
 Start: 29,766229 in Hg
 End: 29,766229 in Hg

TEMPERATURE FACTORS DGM 1 0,97054
 DGM 2 0,97043
 DGM 3 0,97285

DGM CONTROLLER VALUES

DGM 1 Final: 15056,109 Cuft
 Initial: 15014,937 Cuft

VOLUMES SAMPLED DGM 1 38,339 SCft
 DGM 2 37,249 SCft
 DGM 3 34,022 SCft

DGM 2 Final: 13014,320 Cuft
 Initial: 12974,783 Cuft

DGM #3 Final: 346,040 Cuft
 Initial: 310,640 Cuft

TOTAL TUNNEL VOLUME : 58885

TEMPERATURES

SAMPLE RATIOS
 Sample Train 1: 1535,927
 Sample Train 2: 1580,881

DGM 1 544,027 °R
 DGM 2 544,090 °R

Paticulate concentration
 Sample Train 1 0,000102 g/dscf
 Sample Train 2 0,000099 g/dscf
 Room 0,000000 g/dscf

CALIBRATION FACTORS

DGM 1 0,9930
 DGM 2 0,9920
 DGM #3 0,9930

TUNNEL FLOW RATE: 271,361 Dscfm

TOTAL EMISSIONS
 Sample Train 1 5,99 g
 Sample Train 2 5,85 g

PARTICULATE CATCH
 Total Sample Train 1: 3,90 mg
 Total Sample Train 2: 3,70 mg
 Total Sample Train 1 1st hour: 3,60 mg

EMISSION RATES
 Sample Train 1 1,66 g/hr
 Sample Train 2 1,62 g/hr

1st hour emission rate 5,53 g/hr

DEVIATION: 1,19%

Cs Train 1 Train 2
 0,0001017 9,93328E-05

* Elapsed Time min	* Raw data row	* Weight Remaining lbs	* CO %	* CO ₂ %	* O ₂ %	*1 Flue Gas %	*2 Room Temp °F	*3 Tunnel Dry Bulb °F	*4 Unit Top °F	*5 Unit Back °F	*6 Unit R.Side °F	*7 Unit L.Side °F	*8 Unit Bottom °F	Mass flow 1 Reading cuft/min	DGM 1 Inlet T °F	DGM 1 Outlet T °F	Filter 1 Temp °F	Mass flow 2 Reading cuft/min	DGM 2 Inlet T °F	DGM 2 Outlet T °F	Filter 2 Temp °F	Tunnel Velo Pressure in wc	Flue draft Pressure in wc	Change in Surface Temp. °F
0,00	203,00	16,2	0,3	0,3	291,8	207,6	80,6	103,5	217,0	226,3	326,2	362,5	327,0	0,18	81,74	81,90	81,12	0,17	82,05	82,11	80,70	0,05	0,02	0
1,0	204,0	16,2	0,2	0,2	288,2	225,0	80,8	94,9	205,4	225,7	325,2	360,3	324,4	0,18	81,78	81,94	81,11	0,17	82,09	82,17	80,68	0,05	0,04	-3,61983
2,0	205,0	16,1	0,3	0,4	285,7	228,4	80,7	94,8	202,0	224,6	323,2	357,7	320,9	0,18	81,81	81,98	81,15	0,17	82,07	82,18	80,74	0,05	0,04	-6,117117
3,0	206,0	16,1	0,4	0,6	283,0	234,6	80,9	93,3	199,6	222,3	320,1	353,8	319,1	0,18	81,86	81,99	81,20	0,17	82,10	82,22	80,76	0,05	0,04	-8,834018
4,0	207,0	16,0	0,4	6,9	281,7	264,7	80,8	95,6	205,4	219,3	317,1	349,3	317,3	0,18	81,89	82,04	81,28	0,17	82,15	82,26	80,82	0,05	0,05	-10,1187
5,0	208,0	15,8	0,2	0,4	288,4	264,8	80,8	103,4	216,7	245,9	320,4	352,9	317,9	0,18	81,92	82,06	81,54	0,17	82,16	82,27	80,87	0,05	0,07	-3,365216
6,0	209,0	15,7	0,2	7,0	296,1	425,8	80,6	109,0	296,4	209,7	310,3	342,6	321,3	0,18	81,95	82,07	81,66	0,17	82,18	82,33	80,88	0,04	0,07	4,2681734
7,0	210,0	15,4	0,2	7,6	307,7	503,9	80,6	115,5	355,8	209,6	308,4	340,3	324,4	0,18	81,97	82,10	81,82	0,17	82,19	82,33	80,99	0,04	0,08	15,877335
8,0	211,0	14,4	0,4	9,4	322,7	562,4	80,5	123,3	425,4	213,3	307,8	337,6	329,6	0,18	81,97	82,08	82,01	0,17	82,21	82,37	81,09	0,04	0,08	30,929553
9,0	212,0	14,9	0,4	9,2	334,5	615,0	80,7	124,0	476,0	217,6	307,9	336,9	334,2	0,18	82,02	82,12	82,19	0,17	82,18	82,36	81,17	0,04	0,09	42,715988
10,0	213,0	14,6	0,5	9,9	343,6	608,3	81,0	123,3	511,5	220,2	308,2	336,4	341,8	0,18	82,07	82,14	82,22	0,17	82,19	82,35	81,29	0,05	0,09	51,799338
11,0	214,0	14,4	0,4	7,6	343,6	566,7	80,8	119,1	503,7	221,8	309,6	356,7	345,9	0,18	82,12	82,15	82,18	0,17	82,18	82,34	81,43	0,05	0,08	51,746496
12,0	215,0	14,2	0,4	7,9	344,4	563,7	80,9	118,2	499,8	222,5	311,4	337,8	350,4	0,18	82,13	82,15	82,29	0,17	82,10	82,31	81,45	0,04	0,08	52,574274
13,0	216,0	14,0	0,4	8,5	348,1	582,9	81,0	119,8	507,7	223,7	313,9	338,4	356,7	0,18	82,20	82,18	82,52	0,17	82,18	82,32	81,51	0,05	0,09	56,279147
14,0	217,0	13,8	0,4	9,6	352,9	596,3	81,1	120,1	522,6	225,0	315,9	338,8	362,4	0,18	82,24	82,19	82,66	0,17	82,25	82,32	81,59	0,05	0,09	61,134884
15,0	218,0	13,6	0,5	9,7	357,5	607,4	81,2	120,9	535,3	226,5	317,7	340,2	367,9	0,18	82,31	82,24	82,92	0,17	82,29	82,35	81,58	0,04	0,09	65,709573
16,0	219,0	13,4	0,8	11,2	364,3	626,1	81,2	122,2	556,4	228,3	320,2	341,7	375,1	0,18	82,39	82,25	83,08	0,17	82,35	82,37	81,73	0,04	0,09	72,531848
17,0	220,0	13,2	0,8	10,2	366,2	615,9	81,0	118,9	556,0	230,1	322,8	343,5	378,6	0,18	82,46	82,28	83,12	0,17	82,38	82,40	81,88	0,05	0,09	74,39346
18,0	221,0	13,0	0,9	9,8	366,8	603,5	81,1	116,9	548,9	232,0	325,7	344,8	382,7	0,18	82,47	82,28	83,24	0,17	82,38	82,40	81,97	0,05	0,09	75,014896
19,0	222,0	12,8	0,9	9,6	367,6	596,8	81,3	116,1	543,3	234,2	327,7	346,4	386,4	0,18	82,53	82,32	83,40	0,17	82,44	82,42	81,98	0,05	0,09	75,790591
20,0	223,0	12,6	0,8	9,7	369,9	593,0	81,8	116,4	544,6	236,3	329,0	347,2	392,5	0,18	82,61	82,34	83,58	0,17	82,53	82,48	82,18	0,05	0,09	78,109226
21,0	224,0	12,4	0,9	10,3	373,9	599,8	82,0	116,8	553,3	238,2	332,6	348,6	396,6	0,18	82,69	82,38	83,75	0,17	82,61	82,53	82,21	0,05	0,09	82,04855
22,0	225,0	12,2	1,0	10,7	379,2	609,3	82,1	117,7	568,3	240,1	335,5	350,1	400,0	0,18	82,75	82,44	83,92	0,17	82,72	82,60	82,32	0,04	0,09	87,405546
23,0	226,0	12,0	1,0	10,8	385,5	625,1	81,9	117,5	580,9	242,9	338,2	352,0	403,5	0,18	82,82	82,48	84,08	0,17	82,77	82,64	82,34	0,04	0,09	93,72424
24,0	227,0	11,8	1,1	10,5	387,8	594,4	82,1	116,2	590,9	245,0	341,8	353,5	407,9	0,18	82,87	82,51	84,23	0,17	82,80	82,66	82,36	0,05	0,09	95,996261
25,0	228,0	11,6	1,2	10,5	388,2	587,2	82,3	114,7	581,0	247,8	344,2	354,4	413,6	0,18	82,96	82,54	84,78	0,17	82,87	82,71	82,31	0,05	0,09	96,41106
26,0	229,0	11,5	1,4	10,5	388,4	581,6	82,3	115,3	572,9	250,1	347,4	355,5	416,2	0,18	82,94	82,57	84,57	0,17	82,93	82,76	82,33	0,04	0,09	96,618771
27,0	230,0	11,3	1,4	11,0	390,3	588,1	82,2	115,1	572,1	252,8	350,0	356,9	419,6	0,18	83,02	82,60	84,70	0,17	82,96	82,79	82,39	0,04	0,09	98,479343
28,0	231,0	11,1	1,4	11,9	394,1	602,1	82,5	115,2	580,4	255,2	351,5	358,8	424,5	0,18	83,07	82,63	84,85	0,17	83,00	82,82	82,44	0,05	0,09	102,2817
29,0	232,0	10,9	1,5	12,3	399,7	609,6	82,6	116,0	596,8	257,3	354,7	361,0	428,4	0,18	83,13	82,67	84,98	0,17	83,07	82,85	82,43	0,05	0,09	107,84734
30,0	233,0	10,7	1,5	12,0	402,0	606,7	82,7	115,7	596,2	260,1	357,0	362,9	433,9	0,18	83,21	82,71	85,16	0,17	83,12	82,90	82,52	0,04	0,09	110,20897
31,0	234,0	10,5	1,4	11,8	402,5	601,1	82,5	115,1	589,6	262,0	358,9	365,0	437,2	0,18	83,24	82,74	85,25	0,17	83,20	82,94	82,53	0,05	0,09	110,71968
32,0	235,0	10,3	1,4	11,7	403,7	597,8	82,2	114,4	586,0	264,4	361,6	367,9	438,4	0,18	83,24	82,75	85,35	0,17	83,20	82,98	82,65	0,05	0,09	111,866642
33,0	236,0	10,2	1,3	11,7	406,0	595,8	82,2	115,1	584,8	266,4	365,3	370,6	442,8	0,18	83,26	82,76	85,53	0,17	83,19	82,97	82,71	0,04	0,09	114,17518
34,0	237,0	10,0	1,0	11,8	407,9	594,9	82,3	115,4	583,3	269,7	367,0	372,4	445,3	0,18	83,28	82,80	85,60	0,17	83,21	82,97	82,66	0,04	0,09	116,08469
35,0	238,0	9,8	0,9	12,3	409,8	594,8	82,1	115,4	594,8	272,3	369,4	375,5	448,4	0,18	83,32	82,82	85,73	0,17	83,20	82,98	82,71	0,04	0,09	118,08439
36,0	239,0	9,7	0,9	12,0	414,9	597,1	82,1	115,5	591,2	275,2	372,4	380,4	455,1	0,18	83,34	82,81	85,80	0,17	83,20	82,95	82,74	0,05	0,09	123,05611
37,0	240,0	9,5	0,8	12,3	418,3	601,6	82,3	114,7	598,8	277,4	376,3	383,5	455,4	0,18	83,31	82,80	85,97	0,17	83,16	82,94	82,76	0,04	0,09	126,49293
38,0	241,0	9,3	0,9	12,5	422,1	607,8	82,2	115,3	607,2	279,4	380,3	386,6	457,2	0,18	83,33	82,82	86,00	0,17	83,14	82,92	82,71	0,05	0,09	130,33117
39,0	242,0	9,1	0,8	12,9	425,8	614,2	82,2	115,5	613,0	282,3	383,3	390,2	460,4	0,18	83,35	82,81	86,09	0,17	83,19	82,92	82,65	0,05	0,09	134,02144
40,0	243,0	9,0	0,7	13,0	430,2	621,8	82,2	116,4	621,8	285,3	386,6	392,9	464,7	0,18	83,35	82,82	86,14	0,17	83,20	82,91	82,59	0,04	0,09	138,43091
41,0	244,0	8,8	0,6	13,1	434,9	631,3	82,1	117,3	632,1	288,1	391,3	396,5	468,4	0,18	83,37	82,83	86,23	0,17	83,16	82,93	82,63	0,04	0,09	143,10439
42,0	245,0	8,7	0,7	13,1	438,4	630,3	81,5	116,2	630,3	291,3	393,8	399,6	470,2	0,18	83,39	82,81	86,31	0,17	83,12	82,88	82,65	0,04	0,09	146,57141
43,0	246,0	8,5	0,6	13,1	441,2	631,9	81,8	117,3	639,7	294,3	396,9	403,6	471,5	0,18	83,32	82,85	86,36	0,17	83,18	82,92	82,72	0,05	0,09	149,39204
44,0	247,0	8,3	0,6	13,1	444,5	633,0	82,0	116,3	643,1	296,8	400,5	407,2	475,0	0,18	83,31	82,85	86,43	0,17	83,22	82,95	82,68	0,05	0,09	152,72023
45,0	248,0	8,2	0,6	13,1	447,7	633,2	82,2	116,1	645,7	300,4	403,4	410,5	478,6	0,18	83,38	82,90	86,42	0,17	83,30	82,99	82,82	0,05	0,09	155,93026
46,0	249,0	8,0	0,4	13,2	449,5	635,1	82,5	116,8	647,0	303,6	405,7	413,9	478,8	0,18	83,45	82,93	86,47	0,17	83,38	83,03	82,84	0,05	0,09	157,583
47,0	250,0	7,9	0,4	13,2	452,8	635,2	82,6	117,3	649,7	307,0	409,2	417,8	480,4	0,18	83,51	82,97	86,54	0,17	83,44	83,09	82,88	0,05	0,09	161,02657
48,0</																								

96,0	299,0	2,7	0,7	7,7	493,9	493,4	83,4	106,9	505,9	379,7	525,6	543,7	514,5	0,18	84,64	83,88	88,81	0,17	84,59	84,12	83,56	0,04	0,08	202,06628
97,0	300,0	2,7	0,8	7,6	492,1	487,3	83,7	106,6	495,2	379,1	525,0	542,0	519,1	0,18	84,61	83,87	88,81	0,17	84,61	84,16	83,50	0,05	0,07	200,2886
98,0	301,0	2,7	0,8	7,6	490,7	482,7	83,0	106,5	490,7	375,8	527,8	543,0	515,9	0,18	84,55	83,88	88,83	0,17	84,56	84,17	83,46	0,04	0,07	198,65039
99,0	302,0	2,6	0,8	7,6	489,8	478,5	83,4	106,2	488,4	374,2	527,3	542,9	521,1	0,18	84,48	83,88	88,85	0,17	84,56	84,21	83,40	0,05	0,07	197,98506
100,0	303,0	2,5	0,8	7,7	487,5	475,4	83,7	106,3	477,8	372,3	525,9	541,8	519,8	0,18	84,50	83,89	88,86	0,17	84,56	84,24	83,26	0,04	0,07	195,71744
101,0	304,0	2,5	0,8	7,7	486,3	472,3	83,7	105,7	473,9	370,9	525,5	540,4	520,8	0,18	84,52	83,89	88,85	0,17	84,60	84,27	83,24	0,05	0,07	194,4995
102,0	305,0	2,5	0,9	7,7	485,7	468,9	83,7	105,2	470,9	368,9	525,6	539,5	523,5	0,18	84,53	83,92	88,84	0,17	84,63	84,29	83,25	0,05	0,07	193,86242
103,0	306,0	2,4	0,9	7,8	485,3	465,6	83,5	105,3	468,3	366,2	527,8	539,6	524,7	0,18	84,56	83,94	88,86	0,17	84,62	84,30	83,28	0,05	0,07	193,49604
104,0	307,0	2,3	0,9	7,6	484,0	464,3	83,0	104,4	463,4	364,0	528,7	539,7	523,8	0,18	84,57	83,95	88,85	0,17	84,60	84,31	83,33	0,05	0,07	192,16522
105,0	308,0	2,3	1,0	7,3	482,9	455,3	82,5	103,9	458,9	361,9	530,1	540,4	524,9	0,18	84,58	83,94	88,87	0,17	84,59	84,32	83,23	0,05	0,07	190,91943
106,0	309,0	2,3	1,0	7,3	481,2	450,3	83,2	104,1	451,3	359,8	531,8	539,7	523,4	0,18	84,51	83,94	88,78	0,17	84,58	84,32	83,15	0,05	0,07	189,39001
107,0	310,0	2,2	0,9	7,3	479,0	445,8	83,4	103,4	442,7	358,6	529,5	539,6	524,5	0,18	84,47	83,95	88,72	0,17	84,55	84,34	83,09	0,05	0,07	187,15084
108,0	311,0	2,2	0,9	7,0	477,5	441,4	83,1	102,0	437,6	356,9	530,5	540,1	522,3	0,18	84,51	83,97	88,67	0,17	84,55	84,36	83,26	0,04	0,07	185,66962
109,0	312,0	2,2	1,0	6,9	475,8	436,9	82,8	102,5	431,6	355,0	528,4	538,8	525,3	0,18	84,50	83,96	88,63	0,17	84,53	84,33	83,18	0,05	0,07	184,03752
110,0	313,0	2,1	1,0	7,0	474,5	432,3	82,8	102,1	426,9	352,9	527,2	538,9	526,4	0,18	84,55	84,00	88,57	0,17	84,55	84,35	83,23	0,05	0,07	182,66516
111,0	314,0	2,1	1,1	6,9	473,9	429,4	82,6	102,0	422,0	352,0	525,9	537,4	523,1	0,18	84,59	83,99	88,53	0,17	84,57	84,31	83,25	0,05	0,07	182,06184
112,0	315,0	2,1	1,1	6,9	472,3	425,8	83,3	101,4	418,8	350,1	523,2	536,0	533,6	0,18	84,63	84,00	88,46	0,17	84,60	84,32	83,20	0,04	0,07	180,51773
113,0	316,0	2,1	1,2	6,8	471,7	423,5	83,3	101,2	416,4	348,2	522,2	535,9	535,9	0,18	84,68	84,03	88,42	0,17	84,58	84,33	83,22	0,04	0,07	179,91812
114,0	317,0	2,0	1,2	6,8	470,9	420,6	82,7	101,0	416,0	345,3	522,1	536,1	535,1	0,18	84,65	84,04	88,34	0,17	84,56	84,32	83,20	0,05	0,07	179,10658
115,0	318,0	2,0	1,2	6,8	469,8	418,0	83,0	99,8	414,1	344,0	521,8	534,5	534,9	0,18	84,66	84,02	88,30	0,17	84,51	84,30	83,12	0,05	0,07	178,02958
116,0	319,0	1,9	1,2	6,8	468,2	415,6	82,6	100,1	410,9	342,8	518,7	533,1	535,6	0,18	84,64	84,03	88,27	0,17	84,50	84,30	83,18	0,04	0,07	176,41122
117,0	320,0	1,9	1,3	6,8	467,2	413,4	82,6	100,1	410,4	340,3	518,3	531,9	535,1	0,18	84,63	84,04	88,18	0,17	84,50	84,29	83,24	0,04	0,07	175,40442
118,0	321,0	1,9	1,3	6,7	466,6	410,6	83,0	100,4	408,0	338,6	515,7	531,7	539,0	0,18	84,63	84,05	88,14	0,17	84,50	84,28	83,16	0,05	0,07	174,80688
119,0	322,0	1,9	1,3	6,7	464,7	407,9	82,8	99,5	404,3	337,1	514,0	530,4	537,6	0,18	84,66	84,08	88,12	0,17	84,53	84,29	83,14	0,05	0,07	172,87372
120,0	323,0	1,8	1,3	6,6	462,9	407,1	83,3	99,0	402,0	336,4	511,7	528,9	535,7	0,18	84,68	84,10	88,04	0,17	84,58	84,31	83,20	0,05	0,07	171,13142
121,0	324,0	1,8	1,4	6,6	461,7	404,4	83,0	99,7	400,2	334,5	509,3	526,7	537,7	0,18	84,72	84,11	88,02	0,17	84,59	84,33	83,28	0,05	0,07	169,88118
122,0	325,0	1,8	1,4	6,5	460,7	402,5	83,1	99,0	400,0	332,4	509,2	524,3	537,6	0,18	84,76	84,13	87,97	0,17	84,63	84,33	83,24	0,05	0,07	168,89991
123,0	326,0	1,8	1,4	6,5	460,1	400,8	83,0	99,7	401,5	329,6	510,6	526,0	532,7	0,18	84,72	84,11	87,96	0,17	84,56	84,29	83,37	0,04	0,06	168,25977
124,0	327,0	1,7	1,5	6,5	458,3	399,0	82,6	98,5	397,8	329,2	507,5	523,6	533,6	0,18	84,71	84,12	87,93	0,17	84,51	84,28	83,38	0,04	0,07	166,53582
125,0	328,0	1,7	1,5	6,4	456,7	395,8	82,8	99,6	396,1	328,1	506,8	521,9	530,7	0,18	84,73	84,11	87,85	0,17	84,52	84,29	83,30	0,05	0,06	164,91929
126,0	329,0	1,7	1,6	6,4	455,3	394,3	82,8	99,5	395,9	326,9	504,6	521,7	527,5	0,18	84,71	84,14	87,89	0,17	84,48	84,29	83,28	0,05	0,06	163,51146
127,0	330,0	1,7	1,6	5,7	454,7	392,3	82,7	98,6	397,1	325,4	504,5	520,9	525,8	0,18	84,71	84,12	87,78	0,17	84,46	84,26	83,31	0,05	0,06	162,92848
128,0	331,0	1,6	1,7	5,5	454,0	389,9	82,4	98,8	396,4	324,4	504,1	520,2	524,4	0,18	84,74	84,14	87,76	0,17	84,50	84,29	83,29	0,05	0,06	161,42423
129,0	332,0	1,6	1,7	5,4	451,5	386,9	82,9	97,6	395,0	323,1	500,5	516,7	522,2	0,18	84,77	84,15	87,66	0,17	84,52	84,27	83,30	0,05	0,06	159,71311
130,0	333,0	1,6	1,8	5,3	450,0	383,7	82,6	97,1	393,0	322,2	498,2	514,7	522,1	0,18	84,80	84,15	87,61	0,17	84,53	84,27	83,29	0,05	0,06	158,23776
131,0	334,0	1,5	1,8	5,2	448,2	379,7	83,1	97,7	390,1	321,0	497,1	513,8	518,8	0,18	84,78	84,16	87,57	0,17	84,52	84,26	83,28	0,05	0,06	156,3531
132,0	335,0	1,6	1,8	5,1	446,2	376,7	82,9	97,0	387,6	320,1	495,1	512,8	515,4	0,18	84,80	84,15	87,49	0,17	84,54	84,27	83,23	0,05	0,06	154,38699
133,0	336,0	1,5	1,8	5,1	443,6	372,2	83,0	96,8	384,0	318,5	493,2	510,6	511,5	0,18	84,78	84,16	87,43	0,17	84,54	84,29	83,28	0,05	0,06	151,75743
134,0	337,0	1,5	1,9	5,0	441,4	369,8	82,9	96,1	381,5	317,2	491,4	508,1	517,4	0,18	84,81	84,17	87,42	0,17	84,57	84,31	83,23	0,04	0,06	149,79850
135,0	338,0	1,5	1,9	5,0	439,2	366,8	82,7	96,6	379,2	316,1	490,8	506,8	503,2	0,18	84,81	84,23	87,38	0,17	84,60	84,33	83,21	0,04	0,06	147,40826
136,0	339,0	1,5	1,9	5,0	437,0	364,7	82,8	96,6	375,7	314,9	489,5	503,9	500,8	0,18	84,83	84,22	87,32	0,17	84,59	84,34	83,20	0,04	0,06	145,16002
137,0	340,0	1,5	2,0	4,9	435,6	360,7	82,9	97,3	375,6	312,9	489,8	503,2	496,4	0,18	84,82	84,24	87,30	0,17	84,60	84,38	83,20	0,05	0,06	143,78189
138,0	341,0	1,4	2,0	4,9	433,8	357,8	82,8	97,0	373,5	312,3	486,1	502,0	495,0	0,18	84,81	84,23	87,31	0,17	84,59	84,39	83,31	0,05	0,06	141,96327
139,0	342,0	1,4	2,0	5,0	431,1	355,8	82,9	95,8	371,1	310,6	484,1	498,1	491,4	0,18	84,81	84,23	87,25	0,17	84,57	84,38	83,28	0,05	0,06	139,28696
140,0	343,0	1,3	2,1	4,9	429,3	353,9	83,0	96,1	369,2	309,8	481,6	496,6	488,8	0,18	84,79	84,24	87,20	0,17	84,58	84,37	83,28	0,05	0,06	137,28079
141,0	344,0	1,3	2,1	4,9	427,9	351,7	82,7	96,7	369,8	307,6	481,9	494,5	485,6	0,18	84,80	84,24	87,17	0,17	84,54	84,35	83,25	0,05	0,06	136,07592
142,0	345,0	1,3	2,1	5,0	426,2	350,3	82,7	95,5	368,1	306,4	480,9	493,3	482,1	0,18	84,75	84,23	87,11	0,17	84,45	84,30	83,24	0,05	0,06	134,37287
143,0	346,0	1,3	2,0	4,9	424,4	349,2	82,3	95,1	366,3	304,6	480,1	492,1	479,1	0,18	84,72	84,20	87,06	0,17	84,42	84,27	83,13	0,05	0,06	132,64402
144,0	347,0	1,2	2,1	4,9	422,2	346,4	82,8	95,5	363,9	303,9	476,9	491,0	475,3	0,18	84,66	84,21	87,04	0,17	84,38	84,26	83,13	0,05	0,06	130,39528
145,0	348,0	1,3	2,1	4,8	420,5	344,3	82,3	95,6	362,0	302,6	476,4	488,0	472,8	0,18	84,64	84,20	87,07	0,17</						

197,0	400,0	0,3	2,0	4,0	350,5	279,6	83,6	93,1	304,0	256,2	390,4	399,2	402,6	0,18	85,47	85,01	86,16	0,17	85,43	85,37	83,40	0,05	0,05	58,673181
198,0	401,0	0,3	2,0	4,0	349,3	277,9	83,3	93,2	302,4	254,7	388,5	398,2	402,8	0,18	85,49	85,02	86,15	0,17	85,44	85,42	83,41	0,04	0,05	57,529028
199,0	402,0	0,3	2,0	4,0	348,7	277,1	83,6	93,4	300,9	254,3	388,4	397,0	403,1	0,18	85,51	85,05	86,19	0,17	85,47	85,46	83,46	0,05	0,05	56,928381
200,0	403,0	0,2	2,0	4,0	348,0	276,6	83,7	93,2	299,7	253,6	387,6	395,7	403,2	0,18	85,57	85,09	86,23	0,17	85,53	85,48	83,51	0,05	0,05	56,160141
201,0	404,0	0,2	2,0	4,0	346,9	275,4	83,8	93,2	299,0	252,7	385,7	394,7	402,4	0,18	85,59	85,10	86,23	0,17	85,55	85,51	83,60	0,05	0,05	55,080985
202,0	405,0	0,2	2,0	4,0	346,2	274,9	83,6	93,2	298,0	252,1	384,9	393,1	403,1	0,18	85,67	85,13	86,25	0,17	85,55	85,52	83,62	0,05	0,05	54,431693
203,0	406,0	0,2	2,0	4,0	345,9	274,1	83,7	93,0	297,2	251,5	383,9	392,2	404,7	0,18	85,63	85,14	86,23	0,17	85,54	85,53	83,60	0,05	0,05	54,093008
204,0	407,0	0,2	1,9	3,7	344,7	272,6	83,9	93,1	295,9	251,1	382,1	390,8	403,6	0,18	85,64	85,16	86,23	0,17	85,57	85,56	83,61	0,05	0,05	52,910092
205,0	408,0	0,2	1,9	3,7	344,4	271,9	83,8	93,3	294,9	250,8	381,8	390,1	404,1	0,18	85,66	85,18	86,24	0,17	85,61	85,59	83,71	0,05	0,05	52,548547
206,0	409,0	0,2	1,9	3,8	343,6	271,0	83,8	92,8	294,0	250,0	380,4	388,0	405,8	0,18	85,71	85,21	86,28	0,17	85,63	85,61	83,72	0,04	0,05	51,844919
207,0	410,0	0,1	1,9	3,8	342,5	271,1	83,7	93,1	292,1	249,5	378,7	386,9	405,1	0,18	85,74	85,24	86,29	0,17	85,69	85,63	83,73	0,05	0,05	50,655862
208,0	411,0	0,1	1,9	3,7	341,6	271,8	83,7	93,3	291,6	248,3	377,5	386,1	404,6	0,18	85,71	85,24	86,33	0,17	85,68	85,65	83,74	0,04	0,05	49,824472
209,0	412,0	0,1	2,0	3,7	339,9	271,1	84,0	93,2	289,8	248,0	375,5	384,4	401,7	0,18	85,71	85,26	86,33	0,17	85,71	85,66	83,73	0,05	0,05	48,061264
210,0	413,0	0,1	2,0	3,6	339,3	271,3	83,9	93,3	288,7	247,3	374,5	383,3	402,8	0,18	85,75	85,29	86,35	0,17	85,74	85,71	83,75	0,04	0,05	47,484961
211,0	414,0	0,1	2,0	3,6	338,7	270,4	84,1	93,4	287,3	246,1	373,1	383,3	403,7	0,18	85,72	85,31	86,34	0,17	85,76	85,74	83,74	0,05	0,05	46,904321
212,0	415,0	0,1	2,0	3,7	337,7	269,8	84,1	93,2	286,2	245,7	372,4	382,0	402,1	0,18	85,78	85,33	86,36	0,17	85,79	85,77	83,84	0,05	0,05	45,870288
213,0	416,0	0,1	2,0	3,7	337,0	269,2	84,0	93,3	284,3	244,9	371,4	380,2	404,5	0,18	85,79	85,36	86,38	0,17	85,81	85,78	83,89	0,05	0,05	45,219046
214,0	417,0	0,1	2,0	3,7	336,0	268,5	84,1	93,2	282,7	244,3	370,1	379,0	403,9	0,18	85,82	85,39	86,41	0,17	85,84	85,80	83,88	0,05	0,05	44,183645
215,0	418,0	0,1	2,0	3,6	334,9	267,7	84,0	93,3	280,7	243,6	367,9	378,2	404,2	0,18	85,82	85,40	86,42	0,17	85,84	85,83	83,88	0,05	0,05	43,120684
216,0	419,0	0,1	2,0	3,7	334,0	266,2	84,2	93,1	280,5	242,8	366,9	378,0	401,6	0,18	85,82	85,40	86,41	0,17	85,84	85,85	83,82	0,05	0,05	42,171832
217,0	420,0	0,0	2,0	3,6	332,8	265,2	84,1	93,1	278,7	242,2	366,1	376,8	400,0	0,18	85,82	85,42	86,45	0,17	85,83	85,87	83,91	0,05	0,05	40,967001

Manufacturer: FOYER SUPREME
Model: NV 200

Run: 3
Project #: pi-20131
Test Duration: 217

	min	
	HHV	LHV
Eff	65,73%	71,04%
Comb Eff	93,38%	93,38%
HT Eff	70,39%	76,08%
Output	21 912	kJ/h
Burn Rate	1,68	kg/h
Grams CO	571	g
Input	33 336	kJ/h
MC wet	17,02	

Note: In the "Input data", "Calc. % O₂", "Fuel Properties", and "Mass Balance" columns, [e], [d], [g], [a], [b], [c], [h], [u], [w], [j], and [k] refer to their respective variables in Clauses 13.7.3

Ultimate CO₂
CO_{2-ult} 19,64
F₀
1,061

Overall Heating Efficiency: 65,73%
Combustion Efficiency: 93,38%
Heat Transfer Efficiency: 70,39%

Air Fuel Ratio (A/F)	
Dry Molecular Weight (M _d)	29,69
Dry Moles Exhaust Gas (N _p):	421,69
Air Fuel Ratio (A/F)	12,01

Heat Output:	20 786 Btu/h	21 912 kJ/h
Heat Input:	31 623 Btu/h	33 336 kJ/h
Burn Duration:	3,62 h	
Burn Rate:	3,71 lb/h	1,683 kg/h
Stack Temp:	443,6 Deg. F	228,7 Deg. C

CAT 3

Date: 06/10-09-08 Manufacturer: Foyer Supreme Model: NV200
Project #: PI 20131 Run: 3 Tech: MM Reviewer: SD

- No kindling START FIRE 18,01 LBS
- At 8,3 LBS BRASSER FEUX and close a.a inlet (angle 10°)
- At 6,5 LBS BRASSER FEUX
- At 5,00 tapocher de mis morceaux Non Bruler dans millier
- At 4,00 LBS BRASSER FEUX tapocher de Faire channel channel dans millier
- At 3,6 LBS tapocher FEUX Faire autre channel (48 min)
- At 3,4 LBS tapocher FEUX (52 min)
- At 3,25 instant load (1:18 min)
- mis load a 3" de lip avant

TEST LOAD CONFIGURATION

1:28 h.
3,3 LBS

Date: _____
Project #: _____

Manufacturer: _____
Run: _____

Model: _____
Reviewer: _____

Side view	Front view	Top view

Date: _____ Manufacturer: _____ Model: _____
 Project #: _____ Run: _____ Tech: _____ Reviewer: _____

	ADDITION		SUBTRACTION	
	ft3	Volume	ft3	Volume
V measure				
V ashlip				
%				
V usable				
Usable Firebox: _____				
Test load weight: _____ Minimum: _____ Maximum: _____				
Déviation: _____				

PRE / POST CHECKS

Date: 2016-09-08 Manufacturer: Fager Supreme Model: NV200
 Project #: PI 20131 Run: 3 Tech: MM Reviewer: DR

Moisture Meter Calibration Check:

Equipment #	Time	12%	22%
<u>LM 191</u>	<u>7:15</u>	<u>ok</u>	<u>ok</u>

Pre-Test

Post-Test

Facility Conditions:

Air Velocity from less than 2 feet

Smoke Capture Check.....

Picture.....

<u>18</u> (max50 Fpm)	<u>22</u> (max50 Fpm)
<u>ok</u>	<u>ok</u>
4 sides <u>ok</u>	<u>ok</u>

Wood Heater Conditions:

Date Wood Heater Stack Cleaned.....

Date Dilution Tunnel Cleaned.....

Induced Draft Check (max 0.005 H2O).....

Traverse before ignition.....

Flow Rate 140 cfm $\pm$ 10%.....

<u>2016-09-06</u>
<u>2016-09-06</u>
<u>ok</u>
<u>ok</u>

<u>ok</u>

Temperature System:

Ambient (65°-90°F).....

Wood Heater Surface ($\pm$ 125°F).....

<u>ok</u> °F
<u>ok</u> °F

Proportional Checks:

Thermocouple check.....

Pitot Clean.....

Pitot verification.....

<u>ok</u>
<u>ok</u>
<u>ok</u>

Sampling Train ID Numbers:

Probe.....

Filter Front.....

Filter Back.....

Filter Thermocouple.....

Filter (<90°F).....

Train 1 st hour	Train 1	Train 2
<u>12</u>	<u>19</u>	<u>32</u>
<u>53</u>	<u>24</u>	<u>29</u>
<u>23</u>	<u>28</u>	<u>81</u>
<u>11</u>	<u>11</u>	<u>11</u>
<u>ok</u>	<u>ok</u>	<u>ok</u>

SAMPLING EQUIPMENT CHECK OUT

 Date: 20 10-09-08

 Manufacturer: Geyer Supreme

 Model: NV 100

 Project #: PT 20131

 Run: 3

 Tech: MM

 Reviewer: DP

Leakage Checks Tunnel Samplers

	System 1 st hour		System 1		System 2	
Unplugged Flow Rate = .25cfm	Pre-Test ASTM (-15) CSA B415 (-5)	Post-Test (max test)	Pre-Test ASTM (-15) CSA B415 (-5)	Post-Test (Max test)	Pre-Test ASTM (-15) CSA B415 (-5)	Post-Test (Max test)
Vacuum (inches Hg.)	-15	-15	-15	-15	-15	-15
Final 1minute DGM (Liter)	425/73,84	426342,25	425/75,42	426343,86	367404,33	368525,24
Initial 1minute DGM (Liter)	425/73,84	426342,25	425/75,41	426343,85	367404,33	368525,24
Change © (Liter)	Ø	Ø	0,01	0,01	Ø	Ø
Allowable leakage .04 x Sample rate or 0.28Lpm CSA B415 (0.56)						
Check OK	ok	ok	ok	ok	ok	ok

Leakage Checks Flue Gas Sampler

Plugged Probe	Pre Test	Post Test
Vacuum (inches Hg.)	-5	-5
Rotometer Reading (mml/min.)	0	0
Flow Rate (lpm)	1.5	1.5
Allowable (.02 x Sample Rate)	30	30
Check OK	ok	ok

Leakage Checks Pitot

Plugged Probe	Pre Test 3 H2o static	Pre Test 0.4-0.5 H2o velocity	Post Test 3 H2o Static	Post Test 0.4-0.5 H2o velocity
Vacuum (inches Hg.)	3	4	3	5
Check OK (no change after 15 sec.)	ok	ok	ok	ok

PRE-TEST SCALE AUDIT

Date: 2016-09-08 Manufacturer: Foyer Supreme Model: NV 200
 Project #: PT 20131 Run: 3 Tech: MM Reviewer: 18

Scale Type	Audit		Measured Weight
	Equipment #	Weight	
Platform	<u>EM-090</u>	<u>4.4</u> lbs, Class F	<u>4.4</u> lbs
Wood	<u>EM-090</u>	<u>4.4</u> lbs, Class F	<u>4.4</u> lbs
Analytical	<u>EM-128</u>	<u>100</u> mg, Class S	<u>100</u> mg
Analytical	<u>EM-129</u>	<u>200</u> g, Class S	<u>200</u> g

LIMITS OF WEIGHT RANGES

ANALYTICAL SCALE: 50%-150% of dry filter weight, ± 0.1 mg
PLATFORM SCALE: 20%-80% of ideal test load weight, ± 0.1 lbs or 1%
WOOD SCALE: 20%-80% of ideal test load weight, ± 0.01 lbs or 1%

Date: 2016-09-08 Manufacturer: foyer supreme Model: NV 200
 Project #: PI 20131 Run: 3 Tech: MM Reviewer: DP

FOR TUNNELS < 12 in

Barometric pressure (P_{bar}) 100.8 (KPa.) Static pressure (P_q) 0.20 (inches w.c.)
 Inside diameter: Port A _____ Port B _____
 Tunnel cross sectional area: .1963Ft²
 Pitot tube type: Standard

Traverse Point	Position (inches)			Velocity Head Δ_p (inches H ₂ O)	Tunnel Temperature (°F)
	6 po	7 po	8 po		
A- Centroid	3.00	3.50	4	0.050	79.76
B - Centroid	3.00	3.50	4	0.050	79.06
A-1	0.40	0.50	0.50	0.042	79.80
A-2	1.50	1.75	2	0.052	79.61
A-3	4.50	5.25	6	0.056	79.71
A-4	5.60	6.5	7.5	0.046	79.69
B-1	0.40	0.50	0.50	0.040	79.12
B-2	1.50	1.75	2	0.050	79.16
B-3	4.50	5.25	6	0.052	78.97
B-4	5.60	6.5	7.5	0.047	78.91
AVERAGE					

$$v_s = K_p C_p (\sqrt{\Delta p})_{avg} \sqrt{\frac{(T_s)_{avg}}{P_s M_s}}$$

Where,

C_p = pitot tube coefficient, dimension less = 0.99 for standard pitot.

Δ_p = manometer reading (inches H₂O)

T_s = average absolute dilution tunnel temperature (°F + 460)

P_s = absolute dilution tunnel gas pressure or $P_{bar} + P_{qg}$

P_q = static pressure in. H₂O
 { 13.6 }

M_s = 28.56, wet molecular weight of stack gas (alternatively, it may be measured)

K_p = 85.49 pitot tube constant, (conversion factor for English units)

Δ_{pavg} = average of the square roots of the velocity heads (Δ_p) measured at each traverse point.

CONTINUOUS ANALYZERS

Date: 20/10/09-08 Manufacturer: Fager Supreme Model: NV 200
 Project #: PI 20131 Run: 3 Tech: MM Reviewer: SE

Pre-Test (Adjust and Record)

	ZERO		SPAN		CAL. (Record Only)	
CO	0	0	2,956	2,971	1,003	1,00
Tolerance CO		+/- 0.02		+/- 0.15		+/- 0.05
CO ₂	0	0	12,86	12,87	9,71	10,00
Tolerance CO ₂		+/- 0.02		+/- 0.5		+/- 0.5
O ₂ informative CSA B415 calculated value	na	na	na	na	na	na
	Actual	Should Be	Actual	Should Be	Actual	Should Be

Post Test (Record Only)

	Zero	Span	Cal.	Zero Drift	Limit	Span Drift	Limit	Cal. Drift	Limit	OK?	Not OK*
CO	0,002	2,961	0,999	0,002	0.02	0,005	0.15	0,004	0.05	✓	
CO ₂	0	12,85	9,69	0	0.02	0,01	0.5	0,02	0.5	✓	
O ₂	na	na	na	-	na	-	na	-	na	-	

TEST DATA LOG

Date: 2016-09-08 Manufacturer: foyer supreme Model: NV 200
 Project #: PI 20121 Run: 3 Tech: mm Reviewer: JP

RAW DRY GAS METER READINGS

	System 1	System 2	Blank
Final (Liter)	426341,51	368524,49	346,04
Initial (Liter)	425125,67	367404,92	310,64

AMBIENT CONDITIONS

	Before	After
Barometer (kPa):	100,8	100,8
Dry Bulb (F):	79,34	83,66
Humidity (%):	65,0	60,5

Flow Meter

	Start	End
Flow meter reading	N.A	N.A

Flow Meter Verification

	Before	After
Flow meter Check (liters)	N.A	N.A
Scale Weight (Kg)	N.A	N.A

FUEL DATA

Date: 2016-09-08 Manufacturer: Foyer Supreme Model: NV 200
 Project #: PT 16131 Run: 3 Tech: MM Reviewer: DP

FUEL DESCRIPTION:

Type of wood:

PRE-TEST LOAD

Piece Size	Weight	Meter Moisture Content (% dry)*
2 x 4 x 5 in.	0.724 lbs.	19.7
2 x 4 x 5 in.	0.682 lbs.	19.3
2 x 4 x 5 in.	0.694 lbs.	19.6
2 x 4 x 5 in.	0.756 lbs.	19.4
2 x 4 x 5 in.	0.684 lbs.	21.5
2 x 4 x 5 in.	0.846 lbs.	19.3
2 x 4 x 5 in.	0.686 lbs.	21.5
2 x 4 x 5 in.	0.662 lbs.	21.7
2 x 4 x 5 in.	0.672 lbs.	21.6
2 x 4 x 5 in.	0.700 lbs.	19.2
2 x 4 x 5 in.	0.718 lbs.	19.6
2 x 4 x 5 in.	0.690 lbs.	19.1
2 x 4 x 5 in.	0.738 lbs.	20.1
2 x 4 x 5 in.	0.786 lbs.	21.1
2 x 4 x 5 in.	0.694 lbs.	19.3
2 x 4 x 5 in.	0.788 lbs.	20.7
2 x 4 x 5 in.	0.714 lbs.	19.5
2 x 4 x 5 in.	0.670 lbs.	21.0
2 x 4 x 5 in.	0.722 lbs.	20.0
2 x 4 x 5 in.	0.688 lbs.	19.2
2 x 4 x 5 in.	0.738 lbs.	19.6
2 x 4 x 5 in.	0.722 lbs.	19.6
2 x 4 x 5 in.	0.838 lbs.	21.0

TEST LOAD WEIGHT: 18.074 lbs



FUEL DATA

Date: 20.16.09.08

Manufacturer: Fox Supreme

Model: NV 206

Project #: PI 20131

Run: 3

Tech: mm

Reviewer: DP

FUEL DESCRIPTION:

Type of wood:

PRE-TEST LOAD

[illegible]

TEST LOAD WEIGHT: 18.014 lbs

FUEL DATA

Date: 2016-09-08 Manufacturer: Foyer Supreme Model: NV200
 Project #: PI 2011 Run: 3 Tech: MM Reviewer: _____

FUEL DESCRIPTION:

Type of wood :

TEST LOAD

Piece Size		Weight	Meter Moisture Content (% dry)*					
1 1/2	x 3 1/2 x 22 in.	2,212 lbs.	21.1	20.4	20.4	20.9	19.6	
1 1/2	x 3 1/2 x 22 in.	2,524 lbs.	21.9	21.2	20.2	21.8	22.1	
3 1/2	x 3 1/2 x 22 in.	5,356 lbs.	20.6	20.5	21.1	20.9	20.8	
3 1/2	x 3 1/2 x 22 in.	4,616 lbs.	19.7	19.1	19.8	20.1	20.1	
1 1/2	x 3/4 x 5 in.	0,110 lbs.			19.8			
1 1/2	x 3/4 x 5 in.	0,124 lbs.			20.1			
1 1/2	x 3/4 x 5 in.	0,116 lbs.			20.6			
1 1/2	x 3/4 x 5 in.	0,112 lbs.			20.3			
1 1/2	x 3/4 x 5 in.	0,126 lbs.			20.1			
1 1/2	x 3/4 x 5 in.	0,122 lbs.			19.6			
1 1/2	x 3/4 x 5 in.	0,122 lbs.			19.9			
1 1/2	x 3/4 x 5 in.	0,118 lbs.			20.6			
1 1/2	x 3/4 x 5 in.	0,130 lbs.			20.0			
1 1/2	x 3/4 x 5 in.	0,118 lbs.			20.8			
1 1/2	x 3/4 x 5 in.	0,118 lbs.			20.3			
1 1/2	x 3/4 x 5 in.	0,126 lbs.			20.0			
x	x in.	lbs.						
x	x in.	lbs.						
x	x in.	lbs.						
x	x in.	lbs.						
x	x in.	lbs.						
x	x in.	lbs.						
x	x in.	lbs.						
x	x in.	lbs.						
x	x in.	lbs.						
x	x in.	lbs.						
x	x in.	lbs.						

TEST LOAD WEIGHT: 16 1/6 lbs Min 20%: 3.23 Max 25%: 4.04

Date: 2016-07-07 3 Run: 3 Manufacturer: foyer supreme Model: NU200
Project #: PT 20131 Tech: MM Reviewer: DL

		SYSTEM 1 - 1 st hour					SYSTEM 1				
Pre-test Weight Record	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets	Probe & Housing Number	Front Filter Number	Back Filter Number
Date	Time	12	53	73	3	19	74	78	21	82	
2016-07-07 18:00	94,5442	0,1307	0,1161	10,1154	109,0933	0,1270	0,1270	10,2284	0,1289		
2016-07-08 9:00	94,5442	0,1308	0,1260	10,1155	109,0934	0,1271	0,1271	10,2285	0,1284		

		SYSTEM 1 - 1 st hour					SYSTEM 1				
Post-test Weight Record	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets	Probe & Housing Number	Front Filter Number	Back Filter Number
Date	Time	12	53	73	3	19	74	78	21	82	
2016-07-08 12:00	94,5441	0,1332	0,1261	10,1198	109,0935	0,1264	0,1271	10,2322	0,1288		
2016-07-12 8:00	94,5447	0,1329	0,1261	10,1167	109,0936	0,1264	0,1271	10,2293	0,1288		
2016-07-14 8:00	94,5448	0,1328	0,1261	10,1164	109,0936	0,1264	0,1271	10,2293	0,1288		
2016-07-15 8:00	94,5447	0,1329	0,1261	10,1161	109,0936	0,1264	0,1271	10,2293	0,1288		

DILUTION TUNNEL PARTICULATE SAMPLER DATA

Date: 2016-09-07 Project #: PL 20131 Run: 3 Manufacturer: foyer supreme Model: NV700
 Tech: MS Reviewer: DD

SYSTEM 2					
Pre-test Weight Record	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets	
Date	Time				
2016-09-07	18:00	107 9731	0,1266	0,1271	9 9832
2016-09-08	9:00	107 9730	0,1265	0,1271	9 9831

SYSTEM 2					
Post-test Weight Record	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets	
Date	Time				
2016-09-08	16:00	107 9730	0,1285	0,1272	9 9870
2016-09-12	8:00	~~107 9730~~	~~0,1284~~	~~0,1272~~	~~9 9845~~
2016-09-14	8:00	107 9731	0,1285	0,1272	9 9847
2016-09-15	8:10	107 9731	0,1285	0,1272	9 9846

Paramètres

Tous les facteurs de corrections et autres paramètres qui peuvent être modifiés par l'utilisateur du fichier sont regroupés ici.

Code verrouillage: SUP

Description du test

Test standard	EPA
Run #	4
Date	09/09/2016
Technicien	M.M
Project #	pi-20131

Description de l'unité

Manufacturier	FOYER SUPREME	
Modèle	NV 200	
Combustion system	Non-Cat	
Appliance type	Wood fireplace	
Firebox volume	2,24	cu ft.
Appliance weight empty	na	lbs
Appliance weight full	na	lbs

Paramètres du test

Logging time	1	min
Manufacturer's rated heat output	na	BTU/h Donnée fournie par le manfacturier
Targeted category	1	
Targeted output	à définir	BTU/h
Cp steel	0,1	BTU/lb-°F

Échantillonnage

Blank sampling rate	0,20	cuft/min
Internal probe diameter	0,18	in.
Calibration Factor (DGM #1):	0,993	Dimensionless
Equipment number (DGM #1):	EM-078	
Calibration Factor (DGM #2):	0,992	Dimensionless
Equipment number (DGM #2):	EM-079	
Calibration Factor (DGM #3):	0,993	
Equipment number (DGM #3):	EM- 078	Dimensionless

Tunnel

Targeted tunnel flow rate	140	scfm
Tunnel diameter	8	in.
Molecular weight	28,78	May be assumed to be 28,78 (EPA) Si B-415 = 29
Pitot tube type	Standard	
Pitot tube coefficient	0,99	Dimensionless

Project nu.	pi-20131
Date	#####
Technicien	M.M

Fuel data

Fuel type	Dimension
Fuel specie	D. Fir
HHV	19810,0 kJ/kg
%C	48,7
%H	6,9
%O	43,9
%Ash	0,5
HHV	8519,2 Btu/lb
LHV	7451,0 Btu/lb

Default Fuel Values		
	D. Fir	Oak/Maple
HHV	19 810	19 887
%C	48,73	50
%H	6,87	6,6
%O	43,9	42,9
%Ash	0,5	0,5
HHV (Btu/lb)	8519	8552
LHV (Btu/lb)	7451	7480

	Start	End
Barometer (kPa):	100,8	101,1
Barometer (in.Hg):	29,766229	29,854819
Dry Bulb (F):	77,18	83,66
Humidity (%):	65,5	48
Air velocity (ft/min)	24	21

DGM #1	Final: ##### cuft
	Initial: ##### cuft
DGM #2	Final: ##### cuft
	Initial: ##### cuft

DGM room	
----------	--

Final: 427222,520	Liter
Initial: 426344,170	Liter
Final: 369373,580	Liter
Initial: 368525,750	Liter

Final: 357,210	cuft
Initial: 336,040	cuft

Numéro de la ligne dans "Raw data" à partir duquel les données du VRAI test commencent

216

Autres données à rentrer: dans preload data, load data, traverse et filter set weight

Project nu.	pi-20131
Date	9 septembre 2016
Technicien	M.M

Preload data sheet

Test Load Weight:

Lower Ideal Upper

14,11	15,68	17,25
-------	-------	-------

Load Volume: 0,4630 cu. ft

Loading Density: 8,869

Number of Spaces:

Load Density (wet): 42,911

Spacer weight (lbs):

Dry Wood Density: 35,612167

Piece Size (in):			Weight lbs	Meter Moisture Content Dry Uncorrected %				Ave. MC x Weight
Thick	Wide	x Length						
2	4	5	0,618	20,1		19,9	20,6	12,4836
2	4	5	0,65	20,6		19,6	20,7	13,195
2	4	5	0,618	20,3		19,3	20,3	12,3394
2	4	5	1,08	21,1		19,1	20,6	21,888
2	4	5	0,622	22,4		20,6	19,8	13,020533
2	4	5	0,604	20,3		21	20,3	12,402133
2	4	5	0,746	19,6		20,3	20,6	15,044333
2	4	5	0,61	19,3		21,1	20,5	12,383
2	4	5	0,758	19,8		22	20,5	15,741133
2	4	5	0,804	19,6		19,8	19,9	15,8924
2	4	5	0,76	20,1		19,3	20,6	15,2
2	4	5	0,79	20,2		19,8	20,5	15,931667
2	4	5	0,774	20,7		20,3	21	15,996
2	4	5	0,774	19,9		20,4	20,3	15,6348
2	4	5	0,616	19,6		20,4	20,6	12,4432
2	4	5	0,61	19,8		20,5	20,5	12,362667
2	4	5	0,62	20,1		21	21,1	12,854667
2	4	5	0,804	21,6		20,8	20,3	16,8036
2	4	5	0,728	20,9		20,7	20,6	15,093867
2	4	5	0,764	20,8		21	20,3	15,8148
2	4	5	0,76	21		22,1	20,8	16,188
2	4	5	0,8	22		19,9	20,9	16,746667
2	4	5	0,766	22		21,1	21	16,366867
2	4	5	0,81	20,8		20,6	21	16,848
2	4	5	0,776	20,9		19,9	19,8	15,6752
2	4	5	0,826	20,6		20,6	20,8	17,070667
2	4	5	0,778	19,6		20,3	20,7	15,7156
								407,1358

PreTest Load Weight: 19,87 lbs.

Dry Weight: 7,48

Average Moisture Content: %

Dry: 20,49

20,49

Wet:

Must be 18-28

Project nu.
Date
Technicien

lbs./ft³

must be 15,2-22

FUEL LOAD DATA SHEET, CSA B415

Test Load Weight:

Lower	Ideal	Upper
14,1	15,7	17,2

* For boilers, a loading density factor of 10 lb/ft³ is applied

Load Volume: cu. ft

Loading Density: 7,0 lbs./ft3

Number of Spaces: 12
Spacer weight: lbs

Load Density (wet):	30,1	lbs./ft3
Dry Wood Density:	24,9	lbs./ft3

Piece Size (in):			Weight lbs	Meter Moisture Content					Ave. MC x	Volume	Ave. MC
Thick	Wide	:Length		Dry Uncorrected %					Weight	Cubic Inches	%
1,5	3,5	22	2,27	19,50	20,20	20,60	20,30	20,80	46,0356	115,50	20,3
1,5	3,5	22	2,18	20,00	21,00	20,00	21,30	20,50	44,8208	115,50	20,6
3,5	3,5	22	5,00	21,20	21,70	21,80	20,50	20,80	105,9152	269,50	21,2
3,5	3,5	22	4,86	21,50	23,00	22,80	22,40	22,80	109,26	269,50	22,5
1,5	0,75	5	0,12			19,60			2,3912	5,63	19,6
1,5	0,75	5	0,12			19,30			2,3546	5,63	19,3
1,5	0,75	5	0,13			20,10			2,613	5,63	20,1
1,5	0,75	5	0,12			20,30			2,436	5,63	20,3
1,5	0,75	5	0,12			21,00			2,52	5,63	21,0
1,5	0,75	5	0,12			19,60			2,352	5,63	19,6
1,5	0,75	5	0,12			19,30			2,3932	5,63	19,3
1,5	0,75	5	0,12			20,60			2,5132	5,63	20,6
1,5	0,75	5	0,13			20,30			2,7202	5,63	20,3
1,5	0,75	5	0,12			21,10			2,6164	5,63	21,1
1,5	0,75	5	0,12			21,60			2,5488	5,63	21,6
1,5	0,75	5	0,13			22,00			2,86	5,63	22,0
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
								SUM MCx	336,3502		20,6 %

Test Load Weight: 15,79 lbs.

Dry Weight: kg.

Average Moisture Content: %

Dry:	21,30	Dry(EPA)	21,30
		Dry(B415)	21,30

21,30
Must be 19-25

Wet: 17,56
must be 15,2-22

Coal Bed Range: lbs. to

3,9 lbs.

TEST CHARGE:

Coal bed weight: 3,15

lbs.

Project nu.	pi-20131
Date	9 septembre 2016
Technicien	m.m

Tunnel Traverse Worksheet (for velocity calculations)

Static Pressure: 0,25 in. H₂O
 Barometer: 29,900 in. Hg

Pour un tunnel de 12" et plus, prendre 6 lectures

	TUNNEL VELOCITY	TUNNEL TEMP	SQUARE ROOT
	In. wc	°F	
A center			0,0000
B center			0,0000
A1			0,0000
A2			0,0000
A3			0,0000
A4			0,0000
A5			0,0000
A6			0,0000
B1			0,0000
B2			0,0000
B3			0,0000
B4			0,0000
B5			0,0000
B6			0,0000
AVERAGE	#DIV/0!	#DIV/0!	0,0000

PITOT CONSTANT=
0,958

Pour un tunnel moins de 12", prendre 4 lectures

	TUNNEL VELOCITY	TUNNEL TEMP	SQUARE ROOT
	In. wc	°F	
A center	0,049	76,13	0,2214
B center	0,050	76,1	0,2236
A1	0,039	76,16	0,1975
A2	0,054	76,17	0,2324
A3	0,048	76,03	0,2191
A4	0,045	76	0,2121
B1	0,041	76,020	0,2025
B2	0,049	76,010	0,2214
B3	0,053	75,730	0,2302
B4	0,046	75,780	0,2145
AVERAGE	0,0474	76,0130	0,2175

Project nu.	pi-20131
Date	9 septembre 2016
Technicien	M.M

Filter set weight

	System 1 (g) 1st hour				System 1 (g)				System 2 (g)				Ambient blank (g)	Date	Heure
	probe	front	back	gasket	probe	front	back	gasket	probe	front	back	gasket	Filter		
Number															
Before (1)															
Before (2)															
Before (3)															
Before (4)															
Before (5)	108,7829	0,1284	0,1268	10,1528	108,9502	0,1280	0,1271	10,2561	110,2749	0,1267	0,1259	10,1088	0,1278	08/09/2016	18:00
Before (6)	108,7828	0,1283	0,1268	10,1530	108,9502	0,1280	0,1272	10,2562	110,2750	0,1267	0,1259	10,1089	0,1278	09/09/2016	09:00
After (1)	108,7832	0,1296	0,1271	10,1572	108,9502	0,1275	0,1271	10,2599	110,2752	0,1278	0,1262	10,1126	0,1280	09/09/2016	15:00
After (2)	108,7830	0,1293	0,1270	10,1545	108,9502	0,1274	0,1270	10,2574	110,2750	0,1277	0,1262	10,1104	0,1278	12/09/2016	08:00
After (3)	108,7830	0,1293	0,1270	10,1545	108,9503	0,1274	0,1270	10,2571	110,2751	0,1277	0,1263	10,1105	0,1278	14/09/2016	08:00
After (4)	108,7830	0,1293	0,1270	10,1545	108,9502	0,1274	0,1270	10,2572	110,2751	0,1277	0,1263	10,1104	0,1278	15/09/2016	08:00
After (5)															
After (6)	108,7830	0,1293	0,1270	10,1545	108,9502	0,1274	0,1270	10,2572	110,2751	0,1277	0,1263	10,1104	0,1278	15/09/2016	08:00
Difference	0,0002	0,0010	0,0002	0,0015	0,0000	-0,0006	-0,0002	0,0010	0,0001	0,0010	0,0004	0,0015	0,0000		
Total (mg)		2,9				3,1				3			0		
Total ajusté (mg)		2,90				3,10				3,00					

Project nu.	pi-20131
Date	9 septembre 2016
Technicien	m.m

SFBA EPA EMISSION RESULTS

RESULTS

Average emission rate: 1,7 g/hr

Burn Rate : 2,134 Dry kg/hr

Test Duration: 166 min

PRESSURE FACTOR: DGM 1 0,96753
DGM 2 0,98086
DGM 3 0,99634

BAROMETRIC PRESSURE
Average: 29,810524 in Hg
Start: 29,766229 in Hg
End: 29,854819 in Hg

TEMPERATURE FACTORS DGM 1 0,97309
DGM 2 0,97279
DGM 3 0,97547

DGM CONTROLLER VALUES

DGM 1 Final: 15087,221 Cuft
Initial: 15056,203 Cuft

VOLUMES SAMPLED DGM 1 28,999 SCft
DGM 2 28,340 SCft
DGM 3 20,431 SCft

DGM 2 Final: 13044,305 Cuft
Initial: 13014,364 Cuft

DGM #3 Final: 357,210 Cuft
Initial: 336,040 Cuft

TOTAL TUNNEL VOLUME : 44900

TEMPERATURES

SAMPLE RATIOS
Sample Train 1: 1548,326
Sample Train 2: 1584,346

DGM 1 542,604 °R
DGM 2 542,769 °R

Paticulate concentration
Sample Train 1 0,000107 g/dscf
Sample Train 2 0,000106 g/dscf
Room 0,000000 g/dscf

CALIBRATION FACTORS

DGM 1 0,9930
DGM 2 0,9920
DGM #3 0,9930

TUNNEL FLOW RATE: 270,484 Dscfm

TOTAL EMISSIONS
Sample Train 1 4,80 g
Sample Train 2 4,75 g

PARTICULATE CATCH
Total Sample Train 1: 3,10 mg
Total Sample Train 2: 3,00 mg
Total Sample Train 1 1st hour: 2,90 mg

EMISSION RATES
Sample Train 1 1,73 g/hr
Sample Train 2 1,72 g/hr

1st hour emission rate 4,49 g/hr

DEVIATION: 0,49%

Cs Train 1 Train 2
0,0001069 0,000105858

* Elapsed Time min	* Raw data row	* Weight Remaining lbs	* CO %	* CO ₂ %	* O ₂ %	*1 Flue Gas %	*2 Room Temp °F	*3 Tunnel Dry Bulb °F	*4 Unit Top °F	*5 Unit Back °F	*6 Unit R.Side °F	*7 Unit L.Side °F	*8 Unit Bottom °F	Mass flow 1 Reading cuft/min	DGM 1 Inlet T °F	DGM 1 Outlet T °F	Filter 1 Temp °F	Mass flow 2 Reading cuft/min	DGM 2 Inlet T °F	DGM 2 Outlet T °F	Filter 2 Temp °F	Tunnel Velo Pressure in wc	Flue draft Pressure in wc	Change in Surface Temp. °F
0.00	216.00	15.8	0.3	10.2	358.5	282.4	79.6	103.6	266.6	255.1	384.5	399.1	487.3	0.18	80.19	80.28	80.04	0.22	80.56	80.54	79.78	0.05	0.03	0
1.0	217.0	15.7	0.2	0.3	352.4	233.7	79.7	108.8	243.6	257.8	380.8	396.5	483.5	0.18	80.50	80.41	80.91	0.17	80.69	80.64	79.84	0.05	0.04	-6.091803
2.0	218.0	15.5	0.5	5.7	350.4	296.7	79.4	98.2	242.0	255.2	379.2	395.1	480.3	0.18	80.55	80.43	80.90	0.17	80.70	80.66	79.91	0.05	0.06	-8.161035
3.0	219.0	15.4	0.5	6.3	356.4	381.2	79.6	103.3	276.7	253.4	376.2	392.2	483.6	0.17	80.57	80.43	81.08	0.17	80.73	80.67	80.01	0.05	0.07	-2.098691
4.0	220.0	15.2	0.4	7.5	366.3	453.4	79.5	108.9	329.2	252.8	373.5	389.7	486.4	0.18	80.58	80.46	81.46	0.17	80.73	80.70	80.14	0.05	0.08	7.7959316
5.0	221.0	14.9	0.8	3.8	379.5	534.8	79.8	116.2	395.2	254.5	379.1	392.5	481.2	0.17	80.59	80.48	81.98	0.17	80.78	80.73	80.17	0.04	0.08	21.014282
6.0	222.0	14.6	0.7	10.4	396.4	613.6	79.5	119.4	476.2	254.7	369.9	383.9	497.4	0.18	80.60	80.48	82.02	0.17	80.80	80.76	79.99	0.05	0.09	37.913977
7.0	223.0	14.4	0.5	10.4	407.9	629.6	79.3	121.8	527.3	256.5	368.2	382.9	504.7	0.18	80.64	80.50	82.04	0.17	80.80	80.77	79.69	0.04	0.09	49.415692
8.0	224.0	13.5	0.7	9.7	412.1	611.0	79.4	116.6	541.0	258.7	366.4	381.7	512.4	0.17	80.71	80.53	81.85	0.17	80.86	80.80	79.33	0.05	0.09	53.546954
9.0	225.0	13.9	0.6	9.1	412.5	592.6	79.3	114.3	537.4	261.8	365.5	381.5	516.5	0.18	80.74	80.56	81.75	0.17	80.91	80.82	79.10	0.05	0.09	54.013714
10.0	226.0	13.8	0.6	9.0	413.6	587.4	79.8	114.2	536.5	264.1	364.9	381.6	520.9	0.18	80.77	80.57	81.71	0.17	80.95	80.82	79.00	0.05	0.09	55.06167
11.0	227.0	13.5	0.7	9.3	414.7	581.6	79.3	114.3	535.0	266.7	364.4	381.7	525.8	0.18	80.83	80.61	81.71	0.17	80.97	80.85	78.91	0.04	0.09	56.198303
12.0	228.0	13.4	0.7	9.1	415.4	582.9	79.7	114.2	534.8	268.9	364.0	381.5	527.9	0.17	80.86	80.64	81.77	0.17	80.99	80.88	78.90	0.05	0.09	56.902533
13.0	229.0	13.2	0.9	10.5	427.5	642.2	79.7	117.0	590.4	271.1	364.4	381.6	530.1	0.18	80.91	80.67	81.88	0.17	81.07	80.94	78.98	0.05	0.10	68.997858
14.0	230.0	13.0	0.5	11.7	439.0	637.2	79.9	114.5	641.3	274.0	364.2	381.2	534.5	0.17	80.96	80.69	81.83	0.17	81.09	80.96	78.81	0.04	0.09	80.506818
15.0	231.0	12.7	0.6	9.8	438.1	621.2	79.9	114.8	636.5	275.5	365.5	382.0	531.2	0.17	81.00	80.74	81.82	0.17	81.17	81.00	78.71	0.05	0.09	79.589172
16.0	232.0	12.6	0.7	9.2	435.3	604.5	80.0	115.5	618.7	277.3	366.8	382.5	531.1	0.18	81.03	80.75	81.94	0.17	81.19	81.04	78.71	0.04	0.09	76.777295
17.0	233.0	12.4	0.7	9.1	433.3	592.8	79.7	114.2	603.2	279.0	367.8	382.1	534.6	0.17	81.07	80.78	81.95	0.17	81.22	81.08	78.70	0.05	0.09	85.990869
18.0	234.0	12.2	0.8	9.6	432.9	590.2	80.0	113.4	596.4	280.5	368.5	382.0	536.8	0.18	81.12	80.80	81.97	0.17	81.27	81.12	78.74	0.05	0.09	74.334802
19.0	235.0	12.0	0.9	9.9	432.8	594.1	79.6	114.8	595.0	281.9	369.6	381.0	536.5	0.18	81.15	80.83	82.06	0.17	81.29	81.13	78.75	0.05	0.09	74.286229
20.0	236.0	11.8	0.9	10.8	435.5	612.1	79.6	114.9	602.5	283.1	370.8	381.5	539.8	0.18	81.21	80.85	82.16	0.17	81.35	81.14	78.80	0.05	0.09	77.005298
21.0	237.0	11.6	0.7	11.7	440.1	643.1	80.3	116.8	624.2	284.8	371.9	382.0	537.7	0.17	81.26	80.88	82.22	0.17	81.38	81.18	78.83	0.05	0.09	81.5948
22.0	238.0	11.4	0.5	11.7	443.1	654.1	80.6	118.4	632.5	286.6	373.2	383.7	539.7	0.18	81.28	80.90	82.36	0.17	81.42	81.22	78.83	0.05	0.09	84.599084
23.0	239.0	11.2	0.5	11.4	444.5	654.4	80.6	117.9	634.4	288.7	373.7	384.2	541.6	0.17	81.25	80.91	82.45	0.17	81.42	81.25	78.85	0.05	0.09	85.990869
24.0	240.0	11.0	0.5	11.4	447.0	660.6	79.8	120.4	641.9	290.0	374.0	384.5	544.3	0.18	81.31	80.94	82.61	0.17	81.47	81.27	78.95	0.04	0.09	88.457898
25.0	241.0	10.8	0.5	11.6	451.5	670.1	80.3	119.2	657.8	291.1	376.9	386.5	545.1	0.18	81.40	80.98	82.68	0.17	81.51	81.29	79.01	0.04	0.09	92.953851
26.0	242.0	10.7	0.4	11.6	455.0	678.2	80.0	119.1	670.5	292.2	378.7	387.9	545.8	0.17	81.44	81.00	82.71	0.17	81.57	81.32	78.99	0.05	0.10	96.502075
27.0	243.0	10.4	0.4	11.6	456.6	675.5	80.1	120.6	672.3	294.2	380.0	389.0	547.3	0.17	81.50	81.07	82.81	0.17	81.63	81.37	79.09	0.04	0.10	98.054449
28.0	244.0	10.3	0.5	12.0	458.5	681.0	80.4	120.6	674.6	295.2	381.7	391.2	549.7	0.17	81.55	81.10	82.86	0.17	81.65	81.41	79.11	0.05	0.10	99.952234
29.0	245.0	10.1	0.4	12.2	460.4	683.7	80.2	120.5	677.2	296.6	383.2	391.3	551.6	0.17	81.56	81.13	82.93	0.17	81.69	81.43	79.16	0.05	0.10	101.89647
30.0	246.0	9.9	0.4	12.0	462.7	681.9	80.2	121.7	680.8	298.7	385.6	393.9	554.7	0.18	81.57	81.14	83.03	0.17	81.71	81.45	79.22	0.05	0.10	104.22278
31.0	247.0	9.7	0.4	11.8	463.7	674.5	80.9	121.6	678.7	301.0	388.4	395.5	555.0	0.18	81.59	81.15	83.11	0.17	81.74	81.48	79.16	0.05	0.09	105.20815
32.0	248.0	9.5	0.4	11.8	465.5	673.4	81.0	121.6	677.6	302.7	391.2	396.7	559.2	0.18	81.63	81.19	83.18	0.17	81.76	81.50	79.20	0.04	0.10	106.93946
33.0	249.0	9.4	0.4	12.0	467.2	678.3	80.5	122.1	677.4	305.3	394.2	397.8	561.4	0.18	81.73	81.21	83.31	0.17	81.81	81.52	79.39	0.04	0.10	108.72556
34.0	250.0	9.2	0.4	12.2	469.0	680.5	80.2	121.8	679.2	307.0	395.8	399.1	563.8	0.18	81.79	81.23	83.61	0.17	81.84	81.56	79.79	0.05	0.10	110.4703
35.0	251.0	9.0	0.5	12.2	470.4	682.0	80.2	121.2	680.8	308.1	397.7	401.2	566.8	0.17	81.82	81.26	83.95	0.17	81.89	81.55	80.21	0.05	0.10	112.897022
36.0	252.0	8.8	0.4	12.8	474.2	696.8	80.3	121.7	686.0	311.8	401.2	403.9	567.9	0.17	81.86	81.32	84.30	0.17	81.94	81.61	80.62	0.04	0.10	115.63635
37.0	253.0	8.6	0.4	13.1	477.2	704.0	80.2	121.9	687.0	314.5	404.4	406.2	573.9	0.18	81.91	81.34	84.59	0.17	81.98	81.65	80.97	0.04	0.10	118.6898
38.0	254.0	8.4	0.4	13.4	479.7	712.2	80.5	123.3	691.2	317.3	407.4	408.6	574.1	0.18	81.94	81.38	84.95	0.17	82.04	81.71	81.29	0.05	0.10	121.20919
39.0	255.0	8.2	0.3	13.4	482.5	711.9	80.7	122.9	694.3	320.2	412.3	411.7	574.3	0.18	82.02	81.41	85.23	0.17	82.08	81.72	81.61	0.05	0.10	124.01732
40.0	256.0	8.0	0.3	13.3	485.5	708.3	81.3	123.5	695.5	324.1	416.0	414.2	577.8	0.17	82.07	81.44	85.54	0.17	82.10	81.75	81.92	0.05	0.10	126.99094
41.0	257.0	7.8	0.2	13.1	488.4	703.4	80.8	124.2	694.3	328.5	419.0	418.0	582.2	0.18	82.16	81.47	85.82	0.17	82.17	81.78	82.26	0.05	0.10	129.82702
42.0	258.0	7.7	0.2	12.9	490.3	703.6	81.2	123.2	690.4	332.0	422.1	421.7	585.5	0.17	82.17	81.50	86.06	0.17	82.20	81.82	82.53	0.04	0.09	131.81586
43.0	259.0	7.5	0.2	12.9	492.5	697.2	80.9	123.1	686.6	335.8	425.7	424.9	589.4	0.18	82.20	81.50	86.31	0.17	82.20	81.82	82.81	0.05	0.10	133.93907
44.0	260.0	7.3	0.2	12.9	495.5	695.6	80.9	123.3	688.9	338.8	430.0	427.7	591.8	0.18	82.26	81.53	86.57	0.17	82.24	81.83	83.09	0.04	0.10	136.94797
45.0	261.0	7.2	0.2	12.9	498.7	693.2	80.5	123.2	689.3	341.8	434.2	431.5	596.2	0.18	82.32	81.56	86.80	0.17	82.26	81.84	83.32	0.05	0.10	140.13754
46.0	262.0	7.0	0.2	12.7	501.7	691.3	81.5	123.3	690.3	346.2	436.6	434.0	601.5	0.18	82.34	81.57	87.00	0.17	82.29	81.87	83.56	0.05	0.10	143.20719
47.0	263.0	6.8	0.2	12.7	504.2	689.4	80.7	123.7	689.4	349.1	441.1	439.1	604.0	0.18										

96,0	312,0	1,8	0,7	6,5	547,7	506,6	82,1	107,4	475,7	413,9	557,0	575,1	716,5	0,18	83,50	82,69	79,65	0,17	83,35	82,98	81,01	0,05	0,08	189,14505
97,0	313,0	1,7	0,7	6,1	545,0	498,4	82,9	107,4	467,1	411,6	554,8	573,0	718,3	0,17	83,49	82,70	79,63	0,17	83,38	82,97	80,98	0,04	0,08	186,4484
98,0	314,0	1,7	0,8	6,2	542,6	491,3	82,5	107,2	462,0	408,0	555,7	572,2	715,0	0,18	83,52	82,73	79,65	0,17	83,42	83,02	80,95	0,05	0,08	184,05317
99,0	315,0	1,7	0,8	6,3	541,8	486,2	82,2	107,0	455,4	405,5	555,5	571,8	720,9	0,17	83,56	82,76	79,64	0,17	83,45	83,05	80,95	0,04	0,08	185,28383
100,0	316,0	1,7	0,9	6,3	539,4	481,6	81,8	105,2	449,7	402,7	553,0	569,9	722,0	0,18	83,61	82,78	79,63	0,17	83,48	83,06	80,92	0,05	0,08	180,929
101,0	317,0	1,6	0,9	6,3	537,8	477,7	81,9	104,3	445,5	399,9	551,7	568,1	723,6	0,18	83,60	82,82	79,64	0,17	83,51	83,09	80,91	0,05	0,08	179,24732
102,0	318,0	1,6	0,9	6,3	535,9	474,5	82,1	104,8	442,3	397,5	549,5	566,2	723,9	0,17	83,58	82,83	79,64	0,17	83,55	83,13	80,90	0,05	0,08	177,33875
103,0	319,0	1,6	0,9	6,3	534,5	470,0	81,6	104,7	439,1	394,6	549,1	565,6	723,9	0,17	83,60	82,86	79,62	0,17	83,57	83,17	80,86	0,05	0,07	175,94167
104,0	320,0	1,5	1,0	6,3	532,7	467,0	81,1	104,9	436,9	392,7	547,1	562,9	724,1	0,17	83,60	82,88	79,64	0,17	83,56	83,16	80,84	0,05	0,07	174,2131
105,0	321,0	1,5	1,0	6,1	529,3	463,4	81,0	104,3	434,2	388,9	546,1	561,1	716,3	0,17	83,60	82,88	79,63	0,17	83,52	83,15	80,82	0,05	0,07	170,82678
106,0	322,0	1,4	1,0	6,1	526,8	460,7	80,8	104,8	432,2	386,6	544,5	560,6	710,0	0,18	83,59	82,88	79,62	0,17	83,50	83,15	80,79	0,05	0,07	168,25416
107,0	323,0	1,4	1,1	6,0	522,5	456,7	81,7	103,7	428,1	383,9	542,2	557,2	701,2	0,18	83,60	82,91	79,62	0,17	83,54	83,15	80,76	0,05	0,07	163,98318
108,0	324,0	1,4	1,1	6,0	520,0	453,3	81,3	103,6	426,0	380,5	541,9	556,9	694,7	0,18	83,60	82,90	79,61	0,17	83,53	83,16	80,74	0,05	0,07	161,4929
109,0	325,0	1,4	1,1	5,9	517,5	450,7	81,1	103,7	423,3	378,2	541,2	554,8	689,9	0,18	83,61	82,93	79,61	0,17	83,50	83,17	80,72	0,05	0,07	158,98358
110,0	326,0	1,4	1,2	5,9	514,9	447,3	81,5	102,5	420,1	375,9	539,6	554,4	684,3	0,18	83,64	82,93	79,60	0,17	83,52	83,18	80,67	0,05	0,07	156,342
111,0	327,0	1,3	1,2	5,8	513,0	444,5	81,9	101,8	417,8	373,6	538,5	553,1	680,0	0,17	83,61	82,95	79,59	0,17	83,54	83,21	80,66	0,05	0,07	154,46372
112,0	328,0	1,3	1,2	5,8	510,3	441,8	82,1	102,3	415,1	370,9	536,8	551,7	676,8	0,17	83,59	82,96	79,59	0,17	83,53	83,23	80,64	0,04	0,07	151,7342
113,0	329,0	1,3	1,3	5,8	508,9	439,0	81,7	102,2	413,5	368,5	535,2	549,7	677,5	0,18	83,58	83,00	79,56	0,17	83,56	83,24	80,64	0,05	0,07	150,33821
114,0	330,0	1,2	1,3	5,8	506,4	436,6	81,5	101,7	411,8	365,2	534,3	548,3	672,4	0,18	83,63	83,01	79,56	0,17	83,56	83,31	80,60	0,05	0,07	147,85912
115,0	331,0	1,2	1,3	5,6	504,3	434,7	81,6	101,1	409,1	362,9	533,5	546,2	669,9	0,18	83,64	83,03	79,54	0,17	83,59	83,32	80,57	0,05	0,07	145,81311
116,0	332,0	1,1	1,3	5,6	503,0	431,9	81,9	100,8	407,0	359,5	531,9	545,8	670,7	0,17	83,63	83,04	79,53	0,17	83,62	83,34	80,57	0,05	0,07	144,46757
117,0	333,0	1,1	1,3	5,5	500,4	429,1	81,8	100,2	403,7	357,1	529,0	543,7	668,4	0,18	83,63	83,07	79,50	0,17	83,60	83,38	80,56	0,05	0,07	141,86088
118,0	334,0	1,1	1,4	5,5	498,7	426,9	81,9	100,4	400,9	355,4	527,9	541,3	667,9	0,17	83,58	83,07	79,49	0,17	83,61	83,40	80,54	0,05	0,07	140,13326
119,0	335,0	1,1	1,4	5,5	496,4	424,3	81,8	100,0	398,4	352,6	525,4	540,8	664,9	0,18	83,60	83,10	79,48	0,17	83,62	83,42	80,53	0,05	0,07	137,9011
120,0	336,0	1,1	1,4	5,3	495,2	422,3	81,1	100,6	397,2	350,4	525,3	539,3	663,5	0,18	83,62	83,12	79,48	0,17	83,61	83,44	80,50	0,05	0,07	136,64235
121,0	337,0	1,0	1,5	5,2	493,7	420,2	81,0	100,4	394,8	348,9	525,2	536,4	663,1	0,18	83,60	83,13	79,44	0,17	83,60	83,45	80,47	0,05	0,07	135,16649
122,0	338,0	1,0	1,5	5,2	492,0	418,3	81,2	100,6	392,4	347,0	522,7	534,5	659,4	0,18	83,60	83,12	79,43	0,17	83,60	83,46	80,44	0,05	0,07	132,68108
123,0	339,0	1,0	1,5	5,2	489,6	416,6	81,1	100,6	389,7	346,1	519,8	534,2	658,2	0,18	83,66	83,15	79,42	0,17	83,64	83,48	80,42	0,05	0,07	131,09704
124,0	340,0	0,9	1,5	5,2	488,1	414,4	81,3	100,4	387,8	343,3	518,0	533,4	658,2	0,17	83,70	83,17	79,40	0,17	83,66	83,47	80,40	0,05	0,07	129,6161
125,0	341,0	0,9	1,5	5,1	486,0	412,1	81,8	100,3	385,9	341,5	515,1	532,0	655,8	0,18	83,72	83,18	79,38	0,17	83,67	83,48	80,37	0,05	0,07	127,51367
126,0	342,0	0,9	1,6	5,0	484,4	410,7	81,4	100,0	383,7	339,9	514,9	529,4	654,1	0,18	83,77	83,18	79,35	0,17	83,68	83,48	80,34	0,05	0,07	125,86204
127,0	343,0	0,9	1,6	5,0	482,1	408,2	82,3	100,2	383,6	337,1	513,4	529,2	647,2	0,18	83,80	83,22	79,34	0,17	83,70	83,49	80,30	0,05	0,07	123,57759
128,0	344,0	0,8	1,6	5,0	480,5	405,8	81,5	100,7	380,9	336,5	510,8	527,1	648,0	0,18	83,85	83,27	79,37	0,17	83,80	83,55	80,30	0,05	0,07	121,95666
129,0	345,0	0,8	1,6	5,0	478,1	403,7	81,1	100,0	377,0	334,7	508,1	524,3	646,2	0,18	83,92	83,30	79,34	0,17	83,83	83,57	80,25	0,05	0,07	119,56043
130,0	346,0	0,8	1,7	4,8	476,1	402,5	81,7	99,8	374,6	333,5	506,6	522,4	643,4	0,18	83,95	83,30	79,31	0,17	83,86	83,59	80,23	0,05	0,07	117,56368
131,0	347,0	0,8	1,6	5,0	473,8	400,7	81,7	99,5	373,2	331,6	504,0	520,1	640,2	0,18	83,94	83,34	79,31	0,17	83,90	83,64	80,21	0,05	0,07	115,31371
132,0	348,0	0,8	1,7	5,0	472,2	399,2	82,1	99,0	372,0	330,1	502,4	519,6	637,2	0,17	83,90	83,36	79,29	0,17	83,88	83,64	80,18	0,05	0,07	113,72138
133,0	349,0	0,7	1,6	5,1	471,4	398,8	82,2	98,4	371,2	328,9	500,4	517,7	638,8	0,17	83,88	83,36	79,26	0,17	83,88	83,66	80,17	0,05	0,07	112,87921
134,0	350,0	0,7	1,6	5,0	470,1	395,6	82,6	99,5	370,9	327,2	499,0	515,4	638,1	0,17	83,87	83,37	79,25	0,17	83,90	83,68	80,15	0,05	0,07	111,59985
135,0	351,0	0,7	1,7	4,5	468,9	392,7	82,1	98,1	368,1	325,7	496,8	514,6	639,5	0,18	83,90	83,39	79,26	0,17	83,94	83,68	80,14	0,05	0,07	110,42643
136,0	352,0	0,6	1,7	4,5	467,4	389,1	81,7	98,2	367,3	324,4	495,7	512,2	637,6	0,18	83,91	83,41	79,27	0,17	83,93	83,72	80,11	0,05	0,06	108,90756
137,0	353,0	0,7	1,7	4,7	465,4	387,8	81,9	97,6	366,0	322,6	493,4	509,6	635,4	0,18	83,91	83,43	79,22	0,17	83,94	83,74	80,07	0,05	0,07	106,87128
138,0	354,0	0,6	1,8	4,6	464,0	385,9	81,9	98,1	365,1	321,4	491,6	508,7	632,9	0,18	83,90	83,46	79,23	0,17	83,95	83,78	80,11	0,04	0,06	105,43304
139,0	355,0	0,6	1,9	4,2	461,7	384,1	81,5	98,0	361,6	320,7	490,1	506,5	629,7	0,18	83,89	83,44	79,20	0,17	83,94	83,78	80,09	0,05	0,06	103,2261
140,0	356,0	0,6	1,9	4,2	459,4	381,9	82,1	98,2	360,0	319,0	487,7	505,3	625,1	0,18	83,91	83,47	79,19	0,17	83,94	83,80	80,05	0,05	0,06	100,91008
141,0	357,0	0,6	2,0	4,3	457,1	379,0	81,7	98,0	357,2	318,4	485,5	503,6	620,7	0,18	83,94	83,52	79,17	0,17	83,98	83,81	80,03	0,05	0,06	98,558752
142,0	358,0	0,5	1,9	4,2	454,9	376,6	82,2	97,7	355,4	317,1	485,5	501,7	615,1	0,18	83,96	83,51	79,16	0,17	83,98	83,83	80,00	0,05	0,06	96,420294
143,0	359,0	0,5	1,9	4,1	452,1	373,9	81,7	97,4	351,5	315,4	483,2	499,8	610,8	0,17	83,92	83,53	79,14	0,17	83,98	83,85	80,03	0,05	0,06	93,626294
144,0	360,0	0,5	2,0	4,1	449,5	372,1	82,0	97,1	348,5	314,2	481,1	497,9	605,6	0,18	83,92	83,53	79,11	0,17	83,96	83,88	79,99	0,05	0,06	90,939685
145,0	361,0	0,5	1,9	4,1	446,4	369,6	81,9	97,1	345,6	313,4	479,5	495,9	597,9	0,17	83,89	83,56	79,10	0						

Manufacturer: FOYER SUPREME
Model: NV 200

Run: 4
Project #: pi-20131
Test Duration: 166

	min	
	HHV	LHV
Eff	64,68%	69,91%
Comb Eff	95,55%	95,55%
HT Eff	67,70%	73,17%
Output	27 350	kJ/h
Burn Rate	2,13	kg/h
Grams CO	395	g
Input	42 283	kJ/h
MC wet	17,56	

Note: In the "Input data", "Calc. % O₂", "Fuel Properties", and "Mass Balance" columns, [e], [d], [g], [a], [b], [c], [h], [u], [w], [j], and [k] refer to their respective variables in Clauses 13.7.3

Ultimate CO₂
CO_{2-ult} 19,64
F₀
1,062

Overall Heating Efficiency: 64,68%
Combustion Efficiency: 95,55%
Heat Transfer Efficiency: 67,70%

Air Fuel Ratio (A/F)	
Dry Molecular Weight (M _d)	29,79
Dry Moles Exhaust Gas (N _p):	407,00
Air Fuel Ratio (A/F)	11,62

Heat Output:	25 944 Btu/h	27 350 kJ/h
Heat Input:	40 110 Btu/h	42 283 kJ/h
Burn Duration:	2,77 h	
Burn Rate:	4,70 lb/h	2,134 kg/h
Stack Temp:	530,6 Deg. F	277,0 Deg. C

Date: 2016-09-09 Manufacturer: Fager Supreme Model: MV200
Project #: PI 20131 Run: 4 Tech: MM Reviewer: DP

- No kindling Start FIRE 20,00 LBS
- At 11,00 LBS tapocher Ramen with morceaux
vers millier and close air inlet
- At 9,00 LBS tapocher et Ramen with morceaux
vers millier
- At 7,00 LBS tapocher, fait channel et mis
Morceaux sur cote (~~lost~~ ^{Mr.} open air
inlet)
- At 4,9 LBS tapocher fait channel
et mis Morceaux non Brulee sur cote
- At 3,4 LBS tapocher fait channel (45 min)
- At 3,20 insert load
- Fermer porte apres 45 sec.

TEST LOAD CONFIGURATION

Date: _____ Manufacturer: _____ Model: _____
 Project #: _____ Run: _____ Tech: _____ Reviewer: _____

Side view	Front view	Top view
		

Date: _____ Manufacturer: _____ Model: _____
 Project #: _____ Run: _____ Tech: _____ Reviewer: _____

	ADDITION		SUBSTRACTION	
	ft3	Volume	ft3	Volume
V measure				
V ashlip				
%				
V usable				
Usable Firebox: _____ 				
Test load weight: _____	Minimum: _____		Maximum: _____	
Déviation: _____				

PRE / POST CHECKS

Date: 2016-09-09 Manufacturer: Fager Supreme Model: NV 200
 Project #: PI 20131 Run: 4 Tech: MM Reviewer: SP

Moisture Meter Calibration Check:

Equipment #	Time	12%	22%
EM-191	7130	0h	0h

Pre-Test

Post-Test

Facility Conditions:

Air Velocity from less than 2 feet

Smoke Capture Check.....

Picture.....

24 (max50 Fpm)	21 (max50 Fpm)
0h	0h
4 sides 0h	0h

Wood Heater Conditions:

Date Wood Heater Stack Cleaned.....

Date Dilution Tunnel Cleaned.....

Induced Draft Check (max 0.005 H2O).....

Traverse before ignition.....

Flow Rate 140 cfm ±10%.....

2016-09-06
2016-09-06
0h
0h

0h

Temperature System:

Ambient (65°-90°F).....

Wood Heater Surface (±125°F).....

0h °F
0h °F

Proportional Checks:

Thermocouple check.....

Pitot Clean.....

Pitot verification.....

0h
0h
0h

Sampling Train ID Numbers:

Probe.....

Filter Front.....

Filter Back.....

Filter Thermocouple.....

Filter (<90°F).....

Train 1 st hour	Train 1	Train 2
15	17	39
61	70	72
68	71	77
11	11	12
0h	0h	0h

SAMPLING EQUIPMENT CHECK OUT

 Date: 2016-09-09

 Manufacturer: Foyer Supreme

 Model: NV200

 Project #: PT 20131

 Run: 4

 Tech: MM

 Reviewer: DP

Leakage Checks Tunnel Samplers

	System 1 st hour		System 1		System 2	
Unplugged Flow Rate = .25cfm	Pre-Test ASTM (-15) CSA B415 (-5)	Post-Test (max test)	Pre-Test ASTM (-15) CSA B415 (-5)	Post-Test (Max test)	Pre-Test ASTM (-15) CSA B415 (-5)	Post-Test (Max test)
Vacuum (inches Hg.)	-15	-15	-15	-15	-15	-15
Final 1minute DGM (Liter)	426343, 92	427223, 22	426344, 03	427223, 31	368525, 61	369373, 31
Initial 1minute DGM (Liter)	426343, 91	427223, 21	426344, 00	427223, 28	368525, 60	369373, 31
Change © (Liter)	0,01	0,01	0,03	0,03	0,01	0,01
Allowable leakage .04 x Sample rate or 0.28Lpm CSA B415 (0.56)						
Check OK	OK	OK	OK	OK	OK	OK

Leakage Checks Flue Gas Sampler

Plugged Probe	Pre Test	Post Test
Vacuum (inches Hg.)	-5	-5
Rotometer Reading (mml/min.)	0	0
Flow Rate (lpm)	1.5	1.5
Allowable (.02 x Sample Rate)	30	30
Check OK	OK	OK

Leakage Checks Pitot

Plugged Probe	Pre Test 3 H2o static	Pre Test 0.4-0.5 H2o velocity	Post Test 3 H2o Static	Post Test 0.4-0.5 H2o velocity
Vacuum (inches Hg.)	3	4	3	0.4
Check OK (no change after 15 sec.)	OK	OK	OK	OK

PRE-TEST SCALE AUDIT

Date: 2016-09-09 Manufacturer: Foyer Supreme Model: NV200
 Project #: PI 20131 Run: 4 Tech: MM Reviewer: DD

Scale Type	Audit		Measured Weight
	Equipment #	Weight	
Platform	EM-090	4.4 lbs, Class F	4.4 lbs
Wood	EM-090	4.4 lbs, Class F	4.4 lbs
Analytical	EM-128	100 mg, Class S	100 mg
Analytical	EM-129	200 g, Class S	200 g

LIMITS OF WEIGHT RANGES

ANALYTICAL SCALE: 50%-150% of dry filter weight, ± 0.1 mg
PLATFORM SCALE: 20%-80% of ideal test load weight, ± 0.1 lbs or 1%
WOOD SCALE: 20%-80% of ideal test load weight, ± 0.01 lbs or 1%

Date: 2016-09-09 Manufacturer: Foyer Supreme Model: NU 200
 Project #: PI 20131 Run: 4 Tech: MM Reviewer: DP

FOR TUNNELS < 12 in

Barometric pressure (P_{bar}) 100.8 (KPa.) Static pressure (P_q) 0.20 (inches w.c.)
 Inside diameter: Port A _____ Port B _____
 Tunnel cross sectional area: .1963Ft²
 Pitot tube type: Standard

Traverse Point	Position (inches)			Velocity Head Δ_p (inches H ₂ O)	Tunnel Temperature (°F)
	6 po	7 po	8 po		
A- Centroid	3.00	3.50	4	0.049	76.13
B - Centroid	3.00	3.50	4	0.050	76.10
A-1	0.40	0.50	0.50	0.039	76.16
A-2	1.50	1.75	2	0.054	76.17
A-3	4.50	5.25	6	0.048	76.03
A-4	5.60	6.5	7.5	0.045	76.00
B-1	0.40	0.50	0.50	0.041	76.02
B-2	1.50	1.75	2	0.049	76.01
B-3	4.50	5.25	6	0.053	75.73
B-4	5.60	6.5	7.5	0.046	75.78
AVERAGE					

$$V_s = K_p C_p (\sqrt{\Delta p})_{avg} \sqrt{\frac{(T_s)_{avg}}{P_s M_s}}$$

Where,

C_p = pitot tube coefficient, dimension less = 0.99 for standard pitot.

Δ_p = manometer reading (inches H₂O)

T_s = average absolute dilution tunnel temperature (°F + 460)

P_s = absolute dilution tunnel gas pressure or $P_{bar} + P_{qg}$

P_q = static pressure in H₂O
 { 13.6 }

M_s = 28.56, wet molecular weight of stack gas (alternatively, it may be measured)

K_p = 85.49 pitot tube constant, (conversion factor for English units)

Δ_{pavg} = average of the square roots of the velocity heads (Δ_p) measured at each traverse point.

CONTINUOUS ANALYZERS

Date: 2016-04-07 Manufacturer: Fager Supreme Model: NV 200
 Project #: PI 20131 Run: 4 Tech: MM Reviewer: DP

Pre-Test (Adjust and Record)

	ZERO		SPAN		CAL. (Record Only)	
CO	0	0	2,951	2,971	0,999	1,00
Tolerance CO		+/- 0.02		+/- 0.15		+/- 0.05
CO ₂	0	0	12,85	12,87	969	10,00
Tolerance CO ₂		+/- 0.02		+/- 0.5		+/- 0.5
O ₂ informative CSA B415 calculated value	na	na	na	na	na	na
	Actual	Should Be	Actual	Should Be	Actual	Should Be

Post Test (Record Only)

	Zero	Span	Cal.	Zero Drift	Limit	Span Drift	Limit	Cal. Drift	Limit	OK?	Not OK*
CO	0,003	2,943	1,002	0,003	0.02	0,007	0.15	0,003	0.05	✓	
CO ₂	0	12,78	9,70	0	0.02	0,07	0.5	0,01	0.5	✓	
O ₂	na	na	na	✓	na	—	na	—	na	—	

TEST DATA LOG

Date: 2016-09-09 Manufacturer: Fager Supreme ME Model: NV 200
 Project #: PI 20131 Run: 4 Tech: MS Reviewer: DP

RAW DRY GAS METER READINGS

	System 1	System 2	Blank
Final (Liter)	427222, 52	369373, 58	357, 21
Initial (Liter)	426344, 17	368525, 75	336, 09

AMBIENT CONDITIONS

	Before	After
Barometer (kPa):	100, 8	101, 1
Dry Bulb (F):	77, 18	83, 66
Humidity (%):	65, 5	48

Flow Meter

	Start	End
Flow meter reading	N.A	N.A

Flow Meter Verification

	Before	After
Flow meter Check (liters)	N.A	N.A
Scale Weight (Kg)	N.A	N.A

FUEL DATA

Date: 2016 09 09 Manufacturer: Fogel Supreme Model: NV 200
 Project #: PI 20131 Run: 4 Tech: mm Reviewer: BP

FUEL DESCRIPTION:

Type of wood:

PRE-TEST LOAD

Piece Size	Weight	Meter Moisture Content (% dry)*			
2 x 4 x 5 in.	0.618 lbs.	201		199	206
2 x 4 x 5 in.	0.650 lbs.	206		196	203
2 x 4 x 5 in.	0.618 lbs.	203		193	203
2 x 4 x 5 in.	1.08 lbs.	211		191	206
2 x 4 x 5 in.	0.622 lbs.	222		206	198 198 m. m
2 x 4 x 5 in.	0.604 lbs.	203		210	203
2 x 4 x 5 in.	0.746 lbs.	196		203	206
2 x 4 x 5 in.	0.610 lbs.	193		211	205
2 x 4 x 5 in.	0.758 lbs.	198		220	205
2 x 4 x 5 in.	0.804 lbs.	196		198	199
2 x 4 x 5 in.	0.26 lbs.	201		193	206
2 x 4 x 5 in.	0.79 lbs.	202		198	205
2 x 4 x 5 in.	0.774 lbs.	207		203	210
2 x 4 x 5 in.	0.774 lbs.	199		204	203
2 x 4 x 5 in.	0.616 lbs.	196		204	206
2 x 4 x 5 in.	0.610 lbs.	198		205	205
2 x 4 x 5 in.	0.62 lbs.	201		210	211
2 x 4 x 5 in.	0.804 lbs.	216		208	203
2 x 4 x 5 in.	0.728 lbs.	209		207	206
2 x 4 x 5 in.	0.764 lbs.	208		210	203
2 x 4 x 5 in.	0.760 lbs.	210		221	208
2 x 4 x 5 in.	0.800 lbs.	220		199	209
2 x 4 x 5 in.	0.76 lbs.	220		211	210

TEST LOAD WEIGHT: _____ lbs



FUEL DATA

Date: 2016-09-09 Manufacturer: fager supreme Model: M1200
Project #: PI20131 Run: 4 Tech: MM Reviewer: SD

FUEL DESCRIPTION:

Type of wood:

PRE-TEST LOAD

[illegible]

TEST LOAD WEIGHT: 1987 lbs

FUEL DATA

Date: 2016-09-09 Manufacturer: Fayer Supreme Model: NV200
 Project #: PT 20131 Run: 4 Tech: MM Reviewer: DP

FUEL DESCRIPTION:

Type of wood :

TEST LOAD

Piece Size	Weight	Meter Moisture Content (% dry)*				
1 1/2 x 3 1/2 x 22 in.	2,22 lbs.	195	202	206	203	208
1 1/2 x 3 1/2 x 22 in.	2,18 lbs.	20	210	200	213	205
3 1/2 x 3 1/2 x 22 in.	4,996 lbs.	212	217	218	205	208
3 1/2 x 3 1/2 x 22 in.	4,856 lbs.	215	230	228	224	228
1 1/2 x 3/4 x 5 in.	0,122 lbs.			196		
1 1/2 x 3/4 x 5 in.	0,122 lbs.			193		
1 1/2 x 3/4 x 5 in.	0,130 lbs.			201		
1 1/2 x 3/4 x 5 in.	0,120 lbs.			203		
1 1/2 x 3/4 x 5 in.	0,120 lbs.			210		
1 1/2 x 3/4 x 5 in.	0,120 lbs.			196		
1 1/2 x 3/4 x 5 in.	0,124 lbs.			193		
1 1/2 x 3/4 x 5 in.	0,122 lbs.			206		
1 1/2 x 3/4 x 5 in.	0,134 lbs.			203		
1 1/2 x 3/4 x 5 in.	0,124 lbs.			211		
1 1/2 x 3/4 x 5 in.	0,118 lbs.			216		
1 1/2 x 3/4 x 5 in.	0,120 lbs.			22		
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					

TEST LOAD WEIGHT: 15,29 lbs Min 20%: 3,16 Max 25%: 3,94

DILUTION TUNNEL PARTICULATE SAMPLER DATA

Date: 2016-09-08 4 Manufacturer: fyger Supreme Model: NV 200
 Project #: PI 20131 Run: 1 Tech: MM Reviewer: SD

		SYSTEM 1 - 1 st hour					SYSTEM 1				
Pre-test Weight Record	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets	Back Filter Number	gaskets	Blank
Date	Time	15	61	68	4	17	70	71	7	80	
2016-09-08	18:00	108, 7829	0, 1284	0, 1268	10, 1528	108, 9502	0, 1280	0, 1271	10, 2561	0, 1278	
2016-09-09	19:00	108, 7828	0, 1283	0, 1268	10, 1530	108, 9502	0, 1280	0, 1272	10, 2562	0, 1278	

		SYSTEM 1 - 1 st hour					SYSTEM 1				
Post-test Weight Record	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets	Back Filter Number	Blank	
Date	Time	15	61	68	4	17	70	71	7	80	
2016-09-09	15:00	108, 7832	0, 1296	0, 1271	10, 1572	108, 9502	0, 1275	0, 1271	10, 2599	0, 1280	
2016-09-12	8:00	108, 7830	0, 1293	0, 1270	10, 1545	108, 9502	0, 1274	0, 1270	10, 2574	0, 1278	
2016-09-14	8:00	108, 7830	0, 1293	0, 1270	10, 1545	108, 9503	0, 1274	0, 1270	10, 2571	0, 1278	
2016-09-15	8:00	108, 7830	0, 1293	0, 1270	10, 1545	108, 9503	0, 1274	0, 1270	10, 2572	0, 1278	

DILUTION TUNNEL PARTICULATE SAMPLER DATA

Date: 2016-09-08

Project #: PI 20131 Run: 4

Manufacturer: foyr super mlc

Tech: MM Reviewer: SP

Model: NV 200

SYSTEM 2				
Pre-test Weight Record	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets
Date	Time	39	72	20
2016-09-08	18:00	110, 2759	0, 1267	0, 1259
2016-09-09	9:00	110, 2750	0, 1267	0, 1259
				10, 1088
				10, 1089

SYSTEM 2				
Post-test Weight Record	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets
Date	Time	39	72	20
2016-09-09	15:00	110, 2752	0, 1278	0, 1262
2016-09-12	8:00	110, 2750	0, 1277	0, 1262
2016-09-14	8:00	110, 2751	0, 1277	0, 1263
2016-09-16	8:00	110, 2751	0, 1277	0, 1263
				10, 1104

Paramètres

Tous les facteurs de corrections et autres paramètres qui peuvent être modifiés par l'utilisateur du fichier sont regroupés ici.

Code verrouillage: SUP

Description du test

Test standard	EPA
Run #	4
Date	12/09/2016
Technicien	M.M
Project #	pi-20131

Description de l'unité

Manufacturier	FOYER SUPREME	
Modèle	NV 200	
Combustion system	Non-Cat	
Appliance type	Wood fireplace	
Firebox volume	2,24	cu ft.
Appliance weight empty	na	lbs
Appliance weight full	na	lbs

Paramètres du test

Logging time	1	min
Manufacturer's rated heat output	na	BTU/h Donnée fournie par le manfacturier
Targeted category	1	
Targeted output	à définir	BTU/h
Cp steel	0,1	BTU/lb-°F

Échantillonnage

Blank sampling rate	0,20	cuft/min
Internal probe diameter	0,18	in.
Calibration Factor (DGM #1):	0,993	Dimensionless
Equipment number (DGM #1):	EM-078	
Calibration Factor (DGM #2):	0,992	Dimensionless
Equipment number (DGM #2):	EM-079	
Calibration Factor (DGM #3):	0,993	
Equipment number (DGM #3):	EM- 078	Dimensionless

Tunnel

Targeted tunnel flow rate	140	scfm
Tunnel diameter	8	in.
Molecular weight	28,78	May be assumed to be 28,78 (EPA) Si B-415 = 29
Pitot tube type	Standard	
Pitot tube coefficient	0,99	Dimensionless

Project nu.	pi-20131
Date	#####
Technicien	M.M

Fuel data

Fuel type	Dimension
Fuel specie	D. Fir
HHV	19810,0 kJ/kg
%C	48,7
%H	6,9
%O	43,9
%Ash	0,5
HHV	8519,2 Btu/lb
LHV	7451,0 Btu/lb

Default Fuel Values		
	D. Fir	Oak/Maple
HHV	19 810	19 887
%C	48,73	50
%H	6,87	6,6
%O	43,9	42,9
%Ash	0,5	0,5
HHV (Btu/lb)	8519	8552
LHV (Btu/lb)	7451	7480

	Start	End
Barometer (kPa):	102,1	102
Barometer (in.Hg):	30,150119	30,120589
Dry Bulb (F):	68,54	80,96
Humidity (%):	48	35,9
Air velocity (ft/min)	22	18

DGM #1	Final: ##### cuft
	Initial: ##### cuft
DGM #2	Final: ##### cuft
	Initial: ##### cuft

DGM room	
----------	--

Final: 428641,080	Liter
Initial: 427224,180	Liter
Final: 370740,610	Liter
Initial: 369375,140	Liter

Final: 392,100	cuft
Initial: 357,210	cuft

Numéro de la ligne dans "Raw data" à partir duquel les données du VRAI test commencent

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Autres données à rentrer: dans preload data, load data, traverse et filter set weight

Project nu.	pi-20131
Date	#####
Technicien	M.M

Preload data sheet

Test Load Weight:

Lower	Ideal	Upper
14,11	15,68	17,25

Load Volume: 0,6250 cu. ft

Loading Density: 8,266 lbs./ft3

 Number of Spaces:
 Spacer weight (lbs):

 Load Density (wet): 29,626 lbs./ft3
 Dry Wood Density: 24,750547

Piece Size (in):			Weight lbs	Meter Moisture Content					Ave. MC x	Volume
Thick	Wide	x Length		Dry Uncorrected %					Weight	Cubic Inches
2	4	5	0,658	19,2					12,6336	40,00
2	4	5	0,604	19,1					11,5364	40,00
2	4	5	0,768	21,1					16,2048	40,00
2	4	5	0,74	21,7					16,058	40,00
2	4	5	0,722	20,6					14,8732	40,00
2	4	5	0,71	19,5					13,845	40,00
2	4	5	0,71	19					13,49	40,00
2	4	5	0,702	19,2					13,4784	40,00
2	4	5	0,666	19,7					13,1202	40,00
2	4	5	0,698	19					13,262	40,00
2	4	5	0,734	20,2					14,8268	40,00
2	4	5	0,708	19,4					13,7352	40,00
2	4	5	0,67	19,6					13,132	40,00
2	4	5	0,684	20					13,68	40,00
2	4	5	0,714	19,6					13,9944	40,00
2	4	5	0,662	20,3					13,4386	40,00
2	4	5	0,666	19,9					13,2534	40,00
2	4	5	0,624	19,3					12,0432	40,00
2	4	5	0,728	19,6					14,2688	40,00
2	4	5	0,64	19,1					12,224	40,00
2	4	5	0,65	19,6					12,74	40,00
2	4	5	0,716	19,5					13,962	40,00
2	4	5	0,666	19,2					12,7872	40,00
2	4	5	0,63	19,6					12,348	40,00
2	4	5	0,702	19,4					13,6188	40,00
2	4	5	0,706	19,6					13,8376	40,00
2	4	5	0,638	19,3					12,3134	40,00
										0,00

SUM MC 364,705

PreTest Load Weight: 18,52 lbs.

Dry Weight: 7,02 kg.

Dry: 19,70

Average Moisture Content: %

19,70

Must be 18-28

Wet: 16,46

must be 15,2-22

Project nu.	pi-20131
Date	#####
Technicien	M.M

FUEL LOAD DATA SHEET, CSA B415

Test Load Weight:

Lower	Ideal	Upper
-------	-------	-------

14,1	15,7	17,2
------	------	------

* For boilers, a loading density factor of 10 lb/ft³ is applied

Load Volume: cu. ft

Loading Density: 7,2 lbs./ft3

Number of Spaces: 12
Spacer weight: lbs

Load Density (wet):	30,9	lbs./ft3
Dry Wood Density:	25,5	lbs./ft3

Piece Size (in):			Weight lbs	Meter Moisture Content					Ave. MC x	Volume	Ave. MC
Thick	Wide	:Length		Dry Uncorrected %					Weight	Cubic Inches	%
1,5	3,5	22	2,13	20,90	21,60	23,10	22,10	20,90	46,22016	115,50	21,7
1,5	3,5	22	2,38	22,30	22,10	22,30	22,30	22,60	53,21088	115,50	22,3
3,5	3,5	22	5,23	21,00	21,10	22,20	22,60	21,80	113,78716	269,50	21,7
3,5	3,5	22	5,10	20,20	20,10	20,50	20,90	19,60	103,24496	269,50	20,3
1,5	0,75	5	0,10			20,10			2,0904	5,63	20,1
1,5	0,75	5	0,11			20,60			2,3072	5,63	20,6
1,5	0,75	5	0,11			20,30			2,233	5,63	20,3
1,5	0,75	5	0,11			21,00			2,226	5,63	21,0
1,5	0,75	5	0,13			19,90			2,6666	5,63	19,9
1,5	0,75	5	0,11			19,60			2,0776	5,63	19,6
1,5	0,75	5	0,11			19,30			2,123	5,63	19,3
1,5	0,75	5	0,11			20,60			2,2248	5,63	20,6
1,5	0,75	5	0,11			20,30			2,233	5,63	20,3
1,5	0,75	5	0,11			20,80			2,2048	5,63	20,8
1,5	0,75	5	0,11			20,70			2,1942	5,63	20,7
1,5	0,75	5	0,11			20,60			2,266	5,63	20,6
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
								SUM MCx	343,30976		20,6 %

Test Load Weight: 16,16 lbs.

Dry Weight: kg.

Average Moisture Content: %

Dry:	21,24	Dry(EPA)	21,24
		Dry(B415)	21,24

21,24
Must be 19-25

Wet: 17,52
must be 15,2-22

Coal Bed Range: lbs. to

4,0 lbs.

TEST CHARGE:

Coal bed weight: 3,5

lbs.

Project nu.	pi-20131
Date	#####
Technicien	m.m

Tunnel Traverse Worksheet (for velocity calculations)

Static Pressure: 0,22 in. H2O
 Barometer: 29,900 in. Hg

Pour un tunnel de 12" et plus, prendre 6 lectures

	TUNNEL VELOCITY	TUNNEL TEMP	SQUARE ROOT
	In. wc	°F	
A center			0,0000
B center			0,0000
A1			0,0000
A2			0,0000
A3			0,0000
A4			0,0000
A5			0,0000
A6			0,0000
B1			0,0000
B2			0,0000
B3			0,0000
B4			0,0000
B5			0,0000
B6			0,0000
AVERAGE	#DIV/0!	#DIV/0!	0,0000

PITOT CONSTANT=
0,968

Pour un tunnel moins de 12", prendre 4 lectures

	TUNNEL VELOCITY	TUNNEL TEMP	SQUARE ROOT
	In. wc	°F	
A center	0,052	71,6	0,2280
B center	0,053	71,54	0,2302
A1	0,041	71,61	0,2025
A2	0,058	71,48	0,2408
A3	0,053	71,52	0,2302
A4	0,049	71,91	0,2214
B1	0,042	70,520	0,2049
B2	0,054	71,540	0,2324
B3	0,056	71,300	0,2366
B4	0,050	71,280	0,2236
AVERAGE	0,0508	71,4300	0,2251

Project nu.	pi-20131
Date	#####
Technicien	M.M

Filter set weight

	System 1 (g) 1st hour				System 1 (g)				System 2 (g)				Ambient blank (g)	Date	Heure
	probe	front	back	gasket	probe	front	back	gasket	probe	front	back	gasket	Filter		
Number	10	850	852	1	16	862	887	6	43	853	861	10	888		
Before (1)															
Before (2)															
Before (3)															
Before (4)															
Before (5)	109,1633	0,1281	0,1258	10,1360	108,7542	0,1280	0,1280	11,1015	94,6425	0,1270	0,1259	11,0565	0,1301	09/09/2016	18:00
Before (6)	109,1633	0,1280	0,1259	10,1360	108,7543	0,1281	0,1281	11,1016	94,6426	0,1269	0,1259	11,0564	0,1300	12/09/2016	10:00
After (1)	109,1634	0,1305	0,1253	10,1386	108,7548	0,1279	0,1279	11,1051	94,6430	0,1295	0,1256	11,0597	0,1301	12/09/2016	17:00
After (2)	109,1634	0,1296	0,1252	10,1372	108,7549	0,1277	0,1277	11,1038	94,6430	0,1292	0,1255	11,0581	0,1301	14/09/2016	08:00
After (3)	109,1634	0,1296	0,1251	10,1372	108,7548	0,1277	0,1277	11,1037	94,6430	0,1292	0,1254	11,0581	0,1301	21/09/2016	08:00
After (4)															
After (5)															
After (6)	109,1634	0,1296	0,1251	10,1372	108,7548	0,1277	0,1277	11,1037	94,6430	0,1292	0,1254	11,0581	0,1301	21/09/2016	08:00
Difference	0,0001	0,0016	-0,0008	0,0012	0,0005	-0,0004	-0,0004	0,0021	0,0004	0,0023	-0,0005	0,0017	0,0001		
Total (mg)		2,1				3,9				3,9			0,1		
Total ajusté (mg)		2,00				3,80				3,80					

Project nu. pi-20131
 Date #####
 Technicien m.m

SFBA EPA EMISSION RESULTS

RESULTS

Average emission rate: 1,3 g/hr

Burn Rate : 1,334 Dry kg/hr

Test Duration: 272 min

PRESSURE FACTOR: DGM 1 0,97778
 DGM 2 0,99070
 DGM 3 1,00720

BAROMETRIC PRESSURE
 Average: 30,135354 in Hg
 Start: 30,150119 in Hg
 End: 30,120589 in Hg

TEMPERATURE FACTORS DGM 1 0,97758
 DGM 2 0,97676
 DGM 3 0,97990

DGM CONTROLLER VALUES

DGM 1 Final: 15137,317 Cuft
 Initial: 15087,280 Cuft

VOLUMES SAMPLED DGM 1 47,494 SCft
 DGM 2 46,289 SCft
 DGM 3 34,194 SCft

DGM 2 Final: 13092,581 Cuft
 Initial: 13044,360 Cuft

DGM #3 Final: 392,100 Cuft
 Initial: 357,210 Cuft

TOTAL TUNNEL VOLUME : 75323

TEMPERATURES

SAMPLE RATIOS
 Sample Train 1: 1585,950
 Sample Train 2: 1627,227

DGM 1 540,107 °R
 DGM 2 540,561 °R

Paticulate concentration
 Sample Train 1 0,000082 g/dscf
 Sample Train 2 0,000084 g/dscf
 Room 0,000003 g/dscf

CALIBRATION FACTORS

DGM 1 0,9930
 DGM 2 0,9920
 DGM #3 0,9930

TUNNEL FLOW RATE: 276,924 Dscfm

TOTAL EMISSIONS
 Sample Train 1 5,96 g
 Sample Train 2 6,13 g

PARTICULATE CATCH

Total Sample Train 1: 3,90 mg
 Total Sample Train 2: 3,90 mg
 Total Sample Train 1 1st hour: 2,10 mg

EMISSION RATES
 Sample Train 1 1,32 g/hr
 Sample Train 2 1,35 g/hr

1st hour emission rate 3,33 g/hr

DEVIATION: 1,33%

Cs Train 1 Train 2
 8,212E-05 8,42525E-05

* Elapsed Time	* Raw data row	* Weight Remaining	* CO %	* CO ₂ %	* O ₂ %	*1 Flue Gas	*2 Room Temp	*3 Tunnel Dry Bulb	*4 Unit Top	*5 Unit Back	*6 Unit R.Side	*7 Unit L.Side	*8 Unit Bottom	Mass flow 1 Reading	DGM 1 Inlet T	DGM 1 Outlet T	Filter 1 Temp	Mass flow 2 Reading	DGM 2 Inlet T	DGM 2 Outlet T	Filter 2 Temp	Tunnel Velo Pressure	Flue draft Pressure	Change in Surface Temp.
min		lbs	%	%	%	%	°F	°F	°F	°F	°F	°F	°F	cuft/min	°F	°F	°F	cuft/min	°F	°F	°F	in wc	in wc	°F
0.00	241.00	16.4	0.5	0.4	266.8	167.9	75.8	92.0	196.9	195.9	279.9	292.9	368.7	0.18	76.94	76.92	76.50	0.17	77.12	77.41	76.32	0.05	0.02	0
1.0	242.0	16.0	0.2	0.2	262.9	188.5	75.8	86.3	193.1	193.1	280.1	291.9	364.5	0.17	77.04	76.92	76.53	0.17	77.15	77.47	76.36	0.05	0.04	-3.941199
2.0	243.0	16.0	0.5	0.8	260.6	202.6	75.9	85.7	182.7	188.4	278.9	289.7	363.4	0.18	77.07	76.94	76.52	0.17	77.17	77.48	76.36	0.05	0.04	-6.20676
3.0	244.0	15.9	0.5	1.6	259.0	229.2	75.8	87.4	185.4	183.5	277.3	288.1	360.6	0.17	77.08	76.94	76.59	0.17	77.20	77.50	76.40	0.05	0.05	-7.853241
4.0	245.0	15.8	0.4	4.5	260.1	284.3	75.8	91.3	202.5	178.8	274.6	285.6	359.3	0.18	77.10	76.97	76.63	0.17	77.21	77.52	76.46	0.05	0.06	-6.690411
5.0	246.0	15.6	0.3	6.0	266.4	338.7	75.6	96.6	238.0	176.6	253.7	269.9	352.9	0.17	77.07	76.96	76.68	0.17	77.21	77.53	76.51	0.05	0.07	-6.40903
6.0	247.0	15.4	0.5	7.4	282.2	448.1	76.0	104.8	315.8	177.2	271.8	282.0	364.1	0.17	77.10	76.97	76.77	0.17	77.24	77.55	76.61	0.05	0.08	15.359055
7.0	248.0	15.1	0.6	8.7	302.3	537.8	76.0	114.8	406.9	180.0	270.4	281.0	373.3	0.18	77.17	77.01	76.98	0.17	77.30	77.60	76.84	0.04	0.09	35.482663
8.0	249.0	14.8	1.0	9.8	325.8	624.2	76.2	123.5	510.7	185.0	270.7	280.1	382.7	0.18	77.21	77.03	77.11	0.17	77.37	77.64	77.00	0.05	0.09	59.009976
9.0	250.0	14.5	1.0	9.7	337.7	632.3	76.3	124.1	550.2	193.3	271.6	280.6	392.8	0.18	77.29	77.08	77.21	0.17	77.44	77.68	77.07	0.04	0.09	70.873294
10.0	251.0	14.3	0.9	9.6	342.9	638.5	75.5	122.2	560.8	196.0	272.9	281.2	403.5	0.17	77.37	77.11	77.31	0.17	77.52	77.75	77.15	0.05	0.09	76.050647
11.0	252.0	14.1	0.8	9.7	347.0	638.4	76.3	121.1	566.8	198.0	274.4	282.0	413.7	0.18	77.47	77.14	77.47	0.17	77.60	77.81	77.33	0.05	0.09	80.311405
12.0	253.0	13.8	0.8	9.6	350.0	624.5	76.6	119.6	568.7	200.5	276.4	283.0	421.1	0.17	77.53	77.19	77.65	0.17	77.66	77.84	77.54	0.05	0.09	83.121387
13.0	254.0	13.6	0.9	9.4	351.2	613.3	76.6	118.5	562.2	203.0	279.0	284.4	427.6	0.17	77.60	77.22	77.83	0.17	77.72	77.90	77.72	0.04	0.09	84.412079
14.0	255.0	13.4	0.9	9.0	352.3	600.5	76.6	116.8	555.3	205.3	281.4	286.2	433.1	0.18	77.59	77.25	78.02	0.17	77.76	77.92	77.89	0.04	0.09	85.433798
15.0	256.0	13.2	0.8	8.7	352.6	592.0	76.5	116.3	543.7	208.1	283.5	287.8	439.8	0.18	77.64	77.28	78.20	0.17	77.80	77.96	78.08	0.05	0.09	85.730896
16.0	257.0	13.0	0.7	8.9	353.9	597.6	76.4	115.5	537.6	210.6	286.0	290.4	444.6	0.18	77.64	77.31	78.40	0.17	77.83	77.99	78.27	0.05	0.09	87.024295
17.0	258.0	12.8	0.6	8.5	355.1	589.2	76.7	116.0	530.7	213.6	287.6	292.0	451.9	0.18	77.65	77.33	78.59	0.17	77.84	78.02	78.47	0.04	0.09	88.311405
18.0	259.0	12.6	0.7	8.6	356.6	585.2	75.9	115.6	527.4	216.8	289.2	293.0	456.7	0.18	77.68	77.37	78.84	0.17	77.89	78.08	78.63	0.04	0.09	89.795743
19.0	260.0	12.4	0.7	8.8	358.6	591.9	76.8	114.7	528.9	219.4	291.6	295.2	458.0	0.17	77.72	77.40	78.99	0.17	77.95	78.12	78.83	0.05	0.09	91.764468
20.0	261.0	12.2	0.6	9.3	361.5	600.9	77.2	115.6	532.2	223.4	293.8	297.7	460.3	0.18	77.79	77.43	79.19	0.17	77.97	78.15	78.99	0.05	0.09	94.660626
21.0	262.0	12.0	0.6	9.5	366.4	610.3	76.7	117.6	540.9	227.4	296.2	300.5	467.2	0.17	77.84	77.45	79.43	0.17	78.01	78.19	79.22	0.04	0.09	99.602273
22.0	263.0	11.8	0.7	10.4	372.9	623.5	76.9	117.9	561.6	231.2	298.0	302.6	471.4	0.18	77.90	77.51	79.64	0.17	78.10	78.23	79.40	0.04	0.09	106.10097
23.0	264.0	11.6	0.7	11.5	382.3	629.8	77.4	118.4	594.5	235.5	301.1	305.6	475.9	0.18	77.95	77.55	79.85	0.17	78.18	78.29	79.60	0.04	0.10	115.10335
24.0	265.0	11.4	0.8	10.9	388.3	621.8	77.2	117.0	610.6	239.9	303.8	308.3	479.0	0.17	78.08	77.59	80.02	0.17	78.27	78.34	79.75	0.05	0.09	121.48074
25.0	266.0	11.2	0.9	10.6	390.3	606.7	77.1	115.1	607.8	244.1	307.2	310.8	481.8	0.17	78.14	77.63	80.23	0.17	78.31	78.36	79.96	0.05	0.09	123.46869
26.0	267.0	11.1	0.9	10.3	390.0	595.5	77.1	113.2	596.9	247.3	310.4	313.3	482.0	0.18	78.19	77.65	80.39	0.17	78.32	78.39	80.13	0.05	0.09	123.15299
27.0	268.0	10.9	0.8	10.0	389.5	585.1	77.1	112.1	582.9	249.9	312.8	315.6	486.4	0.17	78.21	77.70	80.53	0.17	78.38	78.43	80.29	0.05	0.09	122.69444
28.0	269.0	10.8	0.8	10.0	388.5	576.5	76.9	111.3	567.9	252.7	315.5	317.8	488.6	0.17	78.24	77.71	80.71	0.17	78.42	78.46	80.44	0.05	0.09	121.65308
29.0	270.0	10.6	0.8	10.4	389.5	574.4	76.9	111.1	562.8	255.2	318.2	320.0	491.4	0.18	78.27	77.74	80.88	0.17	78.44	78.50	80.61	0.05	0.09	122.69559
30.0	271.0	10.4	0.9	10.9	391.7	581.6	77.0	111.5	562.7	258.2	320.9	322.7	494.0	0.17	78.24	77.77	81.01	0.17	78.44	78.51	80.76	0.04	0.09	124.87721
31.0	272.0	10.3	0.7	11.1	394.5	588.5	77.4	112.2	567.4	261.4	323.3	325.7	494.6	0.18	78.26	77.79	81.15	0.17	78.46	78.53	80.90	0.04	0.09	127.65602
32.0	273.0	10.1	0.6	11.1	396.8	591.8	76.6	112.1	568.9	264.6	326.5	329.9	494.2	0.17	78.30	77.83	81.32	0.17	78.51	78.59	81.04	0.04	0.09	129.98697
33.0	274.0	9.9	0.6	11.1	399.4	593.4	76.3	112.4	568.9	267.9	328.9	333.5	497.5	0.18	78.37	77.87	81.47	0.17	78.54	78.60	81.13	0.04	0.09	132.52092
34.0	275.0	9.8	0.6	11.0	401.6	593.0	77.4	111.3	569.9	271.2	330.1	337.0	499.7	0.17	78.43	77.89	81.57	0.17	78.61	78.64	81.25	0.05	0.09	134.75755
35.0	276.0	9.6	0.5	11.5	394.0	591.0	77.4	111.1	594.6	272.2	331.7	340.6	501.3	0.17	78.46	77.91	81.67	0.17	78.62	78.64	81.37	0.04	0.09	136.39934
36.0	277.0	9.5	0.5	11.2	405.3	594.7	77.6	112.6	571.1	276.9	334.4	343.4	500.6	0.18	78.48	77.94	81.76	0.17	78.67	78.70	81.46	0.05	0.09	138.45369
37.0	278.0	9.3	0.4	11.5	408.4	597.9	77.3	112.0	573.0	282.2	337.2	347.1	504.4	0.18	78.52	77.98	81.86	0.17	78.70	78.72	81.57	0.05	0.09	141.54607
38.0	279.0	9.2	0.4	11.9	412.0	589.1	77.8	110.3	578.6	284.2	339.7	351.3	506.0	0.18	78.50	77.99	81.89	0.17	78.72	78.75	81.65	0.05	0.09	145.12786
39.0	280.0	9.0	0.4	12.4	415.1	583.0	77.9	110.2	585.4	287.2	342.7	353.7	506.6	0.17	78.54	78.02	81.99	0.17	78.74	78.79	81.77	0.04	0.09	148.297
40.0	281.0	8.8	0.4	12.3	417.9	576.2	78.0	109.0	590.0	289.5	345.4	357.3	507.4	0.18	78.58	78.06	82.11	0.17	78.77	78.83	81.86	0.04	0.09	151.08969
41.0	282.0	8.7	0.4	12.4	420.8	578.0	78.0	108.4	596.3	292.0	348.5	359.6	509.6	0.17	78.62	78.09	82.21	0.17	78.82	78.86	81.94	0.04	0.09	153.921
42.0	283.0	8.6	0.4	12.5	423.6	563.4	77.9	107.8	601.7	294.4	352.2	363.5	506.2	0.17	78.64	78.11	82.28	0.17	78.85	78.88	81.98	0.04	0.09	156.75622
43.0	284.0	8.4	0.4	12.8	426.5	554.8	78.0	106.6	607.8	296.6	355.5	366.2	506.3	0.18	78.66	78.15	82.32	0.17	78.87	78.91	82.05	0.05	0.09	159.66871
44.0	285.0	8.3	0.3	12.6	427.8	547.3	77.8	105.0	608.0	298.6	359.5	369.9	502.9	0.18	78.65	78.15	82.38	0.17	78.87	78.91	82.05	0.05	0.09	160.94727
45.0	286.0	8.2	0.3	12.5	428.9	541.4	78.0	104.7	604.0	301.6	362.0	372.2	504.7	0.18	78.67	78.18	82.39	0.17	78.90	78.96	82.13	0.05	0.09	162.0777
46.0	287.0	8.1	0.3	12.6	430.2	535.1	77.9	104.5	601.0	304.6	365.0	375.1	505.7	0.18	78.71	78.20	82.44	0.17	78.91	78.98	82.15	0.04	0.09	163.39628
47.0	288.0	7.9	0.3	12.7	431.1	530.0	78.0	103.9	596.3	306.4	368.3	378.0	506.5	0.18	78.72	78.22	82.47	0						

96,0	337,0	3,2	0,4	11,2	477,3	475,3	78,3	98,5	554,8	347,0	473,2	491,1	520,5	0,18	79,56	79,11	82,98	0,17	79,77	79,94	82,21	0,05	0,08	210,49351
97,0	338,0	3,1	0,4	11,2	478,5	476,6	78,9	98,6	550,7	348,8	476,2	492,2	524,7	0,17	79,61	79,15	83,04	0,17	79,80	79,96	82,19	0,05	0,08	211,68723
98,0	339,0	3,0	0,4	11,2	479,5	469,1	78,8	98,5	549,7	349,7	475,3	492,7	523,9	0,18	79,68	79,17	83,08	0,17	79,82	79,98	82,20	0,04	0,08	212,65322
99,0	340,0	3,0	0,3	11,1	479,5	466,6	78,9	98,5	544,5	350,1	481,2	495,6	530,7	0,18	79,68	79,19	83,10	0,17	79,86	80,02	82,20	0,05	0,08	213,21821
100,0	341,0	2,9	0,4	10,7	480,4	462,6	78,9	98,7	537,7	350,9	482,1	495,1	536,3	0,17	79,71	79,20	83,16	0,17	79,88	80,04	82,15	0,05	0,08	213,58507
101,0	342,0	2,9	0,6	10,2	479,4	459,0	78,8	98,7	528,3	351,4	482,5	495,8	538,9	0,17	79,78	79,23	83,19	0,17	79,92	80,06	82,09	0,05	0,07	212,5506
102,0	343,0	2,8	0,6	10,1	478,6	455,0	78,6	98,3	520,3	352,1	483,7	497,1	539,9	0,18	79,84	79,28	83,22	0,17	79,96	80,06	82,10	0,05	0,08	211,77885
103,0	344,0	2,8	0,6	10,0	478,2	451,2	78,5	97,4	514,7	352,1	484,4	498,0	541,7	0,17	79,84	79,29	83,24	0,17	80,01	80,07	82,05	0,05	0,08	211,36448
104,0	345,0	2,7	0,6	9,9	478,9	448,4	78,3	96,9	505,5	352,5	485,1	497,8	547,8	0,17	79,87	79,33	83,22	0,17	80,03	80,11	82,06	0,04	0,07	212,78364
105,0	346,0	2,6	0,6	10,0	477,9	445,4	78,8	97,2	500,8	353,1	486,5	500,4	548,5	0,18	79,90	79,35	83,25	0,17	80,07	80,14	82,04	0,05	0,08	213,40307
106,0	347,0	2,6	0,6	9,9	477,7	441,6	78,1	97,4	495,4	352,9	486,2	500,8	553,3	0,17	79,91	79,37	83,24	0,17	80,09	80,17	82,00	0,05	0,07	210,89221
107,0	348,0	2,5	0,7	9,8	477,9	436,7	78,9	96,7	491,4	352,9	488,1	500,9	556,2	0,18	79,95	79,39	83,28	0,17	80,12	80,21	81,99	0,05	0,07	211,07584
108,0	349,0	2,5	0,2	8,3	477,2	428,2	77,6	95,7	485,3	353,3	490,3	502,9	554,2	0,17	79,94	79,43	83,24	0,17	80,17	80,22	82,00	0,05	0,07	210,37388
109,0	350,0	2,5	0,3	7,4	475,6	421,0	78,0	96,0	477,8	354,2	490,8	505,5	549,7	0,18	79,96	79,46	83,24	0,17	80,20	80,27	81,97	0,04	0,07	208,80884
110,0	351,0	2,4	0,3	6,9	473,2	410,6	78,9	96,0	469,1	353,7	491,9	506,0	545,4	0,17	79,97	79,48	83,21	0,17	80,23	80,28	81,98	0,05	0,07	206,39725
111,0	352,0	2,4	0,3	6,6	471,2	402,5	78,1	94,3	459,6	353,4	491,9	505,6	545,4	0,17	79,97	79,49	83,19	0,17	80,22	80,32	81,97	0,05	0,07	204,36595
112,0	353,0	2,4	0,3	6,4	468,5	391,9	78,8	94,0	448,3	353,5	491,6	504,0	545,0	0,18	79,97	79,51	83,15	0,17	80,22	80,32	81,96	0,04	0,07	201,64058
113,0	354,0	2,4	0,4	6,3	465,5	381,1	78,9	94,1	441,5	351,9	492,1	504,1	538,0	0,18	79,98	79,53	83,15	0,17	80,23	80,34	81,94	0,04	0,07	198,68255
114,0	355,0	2,4	0,4	6,2	463,5	372,1	78,9	94,1	432,3	350,9	491,7	503,0	539,7	0,18	80,00	79,55	83,15	0,17	80,27	80,39	81,96	0,04	0,07	196,69506
115,0	356,0	2,3	0,4	6,1	460,8	365,7	79,0	92,7	422,8	349,4	491,1	501,6	539,2	0,17	80,01	79,57	83,12	0,17	80,27	80,40	81,94	0,05	0,07	193,9684
116,0	357,0	2,3	0,4	6,1	458,6	359,4	78,3	92,8	413,5	349,0	488,8	500,9	540,7	0,18	80,03	79,58	83,07	0,17	80,30	80,45	81,93	0,04	0,07	191,74227
117,0	358,0	2,3	0,4	6,1	456,3	354,4	79,0	92,5	407,8	347,5	486,6	499,8	539,8	0,17	80,05	79,62	83,03	0,17	80,30	80,49	81,90	0,04	0,06	189,48232
118,0	359,0	2,3	0,4	6,1	454,7	349,3	79,0	93,0	402,8	346,4	486,3	499,0	539,3	0,17	80,09	79,63	83,05	0,17	80,32	80,49	81,92	0,04	0,06	187,91348
119,0	360,0	2,2	0,4	6,0	453,1	344,9	78,5	92,6	396,7	345,5	485,6	497,1	540,3	0,18	80,09	79,64	83,02	0,17	80,31	80,49	81,89	0,04	0,06	186,22239
120,0	361,0	2,2	0,5	6,0	451,2	340,5	79,0	92,3	390,9	348,2	482,3	496,1	538,5	0,18	80,12	79,66	82,98	0,17	80,34	80,54	81,86	0,05	0,06	184,3632
121,0	362,0	2,2	0,4	6,3	450,0	338,1	79,1	92,5	387,3	348,7	480,9	494,9	538,4	0,18	80,14	79,68	82,99	0,17	80,34	80,55	81,87	0,05	0,06	183,21252
122,0	363,0	2,1	0,4	6,2	448,6	335,2	79,0	91,2	385,4	347,9	482,5	494,3	540,3	0,17	80,17	79,70	83,04	0,17	80,33	80,54	81,84	0,04	0,06	182,85333
123,0	364,0	2,2	0,4	6,3	447,2	332,0	79,0	91,7	378,8	347,6	476,8	490,0	542,9	0,18	80,12	79,70	82,93	0,17	80,31	80,55	81,82	0,04	0,06	180,41617
124,0	365,0	2,2	0,4	6,3	444,7	328,8	78,8	91,7	375,2	345,5	475,2	487,9	539,6	0,17	80,12	79,72	82,88	0,17	80,31	80,56	81,81	0,05	0,06	177,8441
125,0	366,0	2,1	0,4	6,3	443,6	326,6	79,4	91,7	373,8	343,6	473,9	487,0	539,5	0,18	80,13	79,74	82,86	0,17	80,34	80,57	81,78	0,04	0,06	176,76506
126,0	367,0	2,1	0,4	6,2	442,3	324,5	79,3	91,4	373,5	341,5	473,1	485,2	538,2	0,17	80,15	79,76	82,84	0,17	80,35	80,59	81,75	0,04	0,06	175,46768
127,0	368,0	2,1	0,4	6,2	440,9	322,3	79,0	91,4	371,2	339,9	471,8	484,5	537,3	0,18	80,19	79,77	82,82	0,17	80,39	80,60	81,76	0,04	0,06	174,10054
128,0	369,0	2,1	0,4	6,7	439,5	320,2	79,0	91,0	368,1	338,0	470,2	483,8	537,0	0,18	80,19	79,80	82,83	0,17	80,39	80,63	81,74	0,05	0,06	172,68477
129,0	370,0	2,0	0,4	6,2	439,8	318,6	78,4	90,8	367,0	337,3	470,1	483,0	541,7	0,17	80,22	79,82	82,76	0,17	80,40	80,64	81,74	0,05	0,06	172,98928
130,0	371,0	2,0	0,4	6,0	437,8	316,4	78,7	91,0	363,8	335,7	468,3	481,9	539,5	0,17	80,21	79,82	82,71	0,17	80,39	80,64	81,70	0,04	0,06	171,01102
131,0	372,0	2,0	0,5	5,8	435,9	315,3	78,2	90,6	361,9	332,3	468,8	480,3	536,1	0,17	80,24	79,83	82,71	0,17	80,41	80,65	81,70	0,05	0,06	169,05112
132,0	373,0	2,0	0,4	6,0	434,5	313,3	78,7	91,1	360,8	329,9	466,0	478,7	536,9	0,17	80,29	79,86	82,69	0,17	80,44	80,66	81,68	0,04	0,06	167,62415
133,0	374,0	2,0	0,4	6,0	433,3	311,0	78,9	91,2	359,2	327,7	466,2	476,5	537,0	0,18	80,36	79,88	82,68	0,17	80,47	80,67	81,63	0,04	0,06	166,48675
134,0	375,0	1,9	0,4	6,1	431,9	308,4	78,4	90,4	357,5	325,4	464,9	474,9	536,4	0,18	80,39	79,92	82,67	0,17	80,52	80,71	81,63	0,05	0,06	165,23971
135,0	376,0	1,9	0,4	6,1	429,5	308,4	78,8	90,7	355,8	321,8	461,9	474,5	535,5	0,18	80,39	79,94	82,65	0,17	80,53	80,74	81,59	0,05	0,06	162,66718
136,0	377,0	1,9	0,4	6,2	428,1	307,3	78,5	90,4	354,2	318,0	461,2	474,1	533,0	0,17	80,43	79,95	82,60	0,17	80,55	80,74	81,59	0,05	0,06	161,25499
137,0	378,0	1,9	0,4	6,1	426,6	306,4	78,6	90,4	353,7	315,2	459,8	472,7	531,8	0,18	80,48	79,98	82,61	0,17	80,60	80,78	81,59	0,04	0,06	159,81321
138,0	379,0	1,9	0,4	6,0	425,1	305,4	79,2	90,2	351,3	313,5	458,0	470,2	532,7	0,17	80,49	80,01	82,61	0,17	80,60	80,80	81,57	0,04	0,06	158,31561
139,0	380,0	1,8	0,4	6,1	423,8	303,8	79,3	90,4	349,1	312,7	456,3	469,6	531,2	0,17	80,52	80,03	82,62	0,17	80,64	80,81	81,55	0,04	0,05	156,95243
140,0	381,0	1,8	0,4	5,9	423,3	302,2	79,2	89,9	347,5	310,4	454,8	468,9	529,6	0,18	80,60	80,08	82,60	0,17	80,70	80,85	81,53	0,04	0,05	156,41781
141,0	382,0	1,8	0,4	5,9	421,9	301,1	78,8	90,4	347,2	309,7	455,9	467,6	528,9	0,18	80,64	80,09	82,63	0,17	80,73	80,87	81,53	0,04	0,06	155,03931
142,0	383,0	1,8	0,5	5,9	421,4	300,0	78,5	90,0	346,6	308,9	454,7	465,3	531,5	0,18	80,69	80,15	82,56	0,17	80,78	80,89	81,52	0,05	0,06	154,56815
143,0	384,0	1,8	0,5	5,8	420,4	299,4	78,3	90,0	346,0	306,9	454,3	465,8	528,9	0,17	80,74	80,15	82,58	0,17	80,79	80,92	81,49	0,05	0,05	153,54066
144,0	385,0	1,7	0,5	5,8	418,6	298,2	78,9	90,0	343,8	306,2	451,5	463,2	528,1	0,18	80,77	80,18	82,59	0,17	80,83	80,94	81,49	0,05	0,05	151,73129
145,0	386,0	1,7	0,5	5,7	417,6	297,6	79,0	89,4	341,6	305,4	449,4	462,2	527,9	0,17	80,80	80,21	82,60	0,17	80,87	8				

197,0	438,0	0,8	0,6	4,8	367,5	242,5	79,8	88,2	289,2	268,3	399,6	409,9	470,5	0,18	81,55	81,28	82,76	0,17	81,73	82,00	81,39	0,04	0,05	100,67159
198,0	439,0	0,7	0,5	4,5	366,8	235,9	80,1	88,3	288,4	267,5	397,5	409,1	471,7	0,18	81,53	81,29	82,75	0,17	81,73	82,00	81,39	0,04	0,04	99,998614
199,0	440,0	0,7	0,5	4,5	365,1	231,5	79,9	88,0	287,8	265,9	395,6	408,7	467,4	0,18	81,56	81,31	82,74	0,17	81,73	82,01	81,39	0,05	0,04	98,264685
200,0	441,0	0,7	0,5	4,7	363,2	228,0	79,8	88,1	285,0	265,2	393,4	407,9	464,7	0,18	81,58	81,34	82,74	0,17	81,75	82,02	81,41	0,05	0,04	96,391443
201,0	442,0	0,7	0,5	5,3	362,7	224,7	79,8	88,1	283,8	264,2	392,4	406,3	466,9	0,18	81,55	81,34	82,76	0,17	81,74	82,04	81,43	0,05	0,04	95,889038
202,0	443,0	0,7	0,5	5,3	362,0	221,6	80,0	88,1	283,4	263,2	392,2	405,8	465,5	0,18	81,57	81,35	82,75	0,17	81,76	82,07	81,40	0,04	0,04	95,174494
203,0	444,0	0,7	0,5	5,2	360,8	218,7	79,7	87,8	281,1	262,7	389,8	404,9	465,6	0,18	81,59	81,38	82,73	0,17	81,78	82,06	81,37	0,05	0,04	94,000869
204,0	445,0	0,7	0,5	5,0	359,9	216,6	80,2	87,8	278,2	262,7	387,1	403,9	467,5	0,18	81,64	81,39	82,73	0,17	81,81	82,10	81,39	0,05	0,04	93,050801
205,0	446,0	0,7	0,5	5,0	358,6	214,5	79,9	87,6	277,3	261,6	386,4	402,7	466,6	0,17	81,65	81,42	82,73	0,17	81,82	82,12	81,40	0,04	0,04	92,084332
206,0	447,0	0,7	0,5	5,0	357,5	212,3	80,0	87,7	275,9	261,3	383,9	401,0	465,5	0,17	81,67	81,45	82,73	0,17	81,85	82,14	81,42	0,05	0,04	90,661169
207,0	448,0	0,7	0,5	5,0	356,6	211,2	79,7	87,8	274,8	259,8	382,6	399,1	466,7	0,17	81,70	81,47	82,73	0,17	81,87	82,17	81,43	0,05	0,04	89,761191
208,0	449,0	0,7	0,5	5,0	354,6	209,9	79,9	87,8	271,8	259,3	380,2	396,8	465,0	0,18	81,69	81,48	82,75	0,17	81,86	82,15	81,42	0,05	0,04	87,794224
209,0	450,0	0,6	0,5	4,9	352,7	207,9	80,1	87,5	271,6	258,3	377,8	395,3	460,5	0,17	81,72	81,50	82,73	0,17	81,88	82,19	81,42	0,04	0,04	85,869538
210,0	451,0	0,6	0,5	5,0	351,3	205,9	80,6	87,9	271,7	257,1	377,9	394,5	455,5	0,17	81,75	81,52	82,76	0,17	81,93	82,21	81,43	0,05	0,04	84,516797
211,0	452,0	0,6	0,5	4,9	351,0	205,2	80,4	87,6	271,4	256,0	378,0	392,8	456,6	0,18	81,84	81,58	82,75	0,17	81,98	82,25	81,44	0,05	0,04	84,119016
212,0	453,0	0,7	0,5	4,9	349,7	204,3	80,4	87,6	270,4	255,5	376,0	391,8	455,0	0,17	81,94	81,60	82,75	0,17	82,06	82,29	81,41	0,04	0,04	82,882782
213,0	454,0	0,6	0,5	4,9	348,8	203,8	80,3	87,7	269,1	254,5	375,1	391,4	453,9	0,18	82,02	81,64	82,76	0,17	82,11	82,32	81,45	0,05	0,04	81,952295
214,0	455,0	0,6	0,5	5,2	348,2	202,3	80,5	87,6	270,2	253,5	374,1	390,0	453,2	0,17	82,07	81,67	82,77	0,17	82,15	82,34	81,46	0,04	0,04	81,3504
215,0	456,0	0,6	0,4	5,4	346,6	201,3	80,0	87,7	271,0	252,2	372,0	388,5	449,1	0,18	82,10	81,68	82,77	0,17	82,20	82,37	81,46	0,04	0,04	79,738861
216,0	457,0	0,6	0,4	5,3	345,4	199,8	80,6	87,5	271,1	251,5	370,5	387,2	446,6	0,17	82,08	81,69	82,75	0,17	82,19	82,39	81,47	0,05	0,04	78,571909
217,0	458,0	0,5	0,4	5,3	344,2	198,7	80,3	87,5	269,8	251,1	369,1	385,2	445,7	0,17	82,05	81,71	82,74	0,17	82,19	82,41	81,48	0,04	0,04	77,363611
218,0	459,0	0,6	0,4	5,2	342,8	197,6	79,7	87,5	269,5	249,9	367,2	384,2	442,8	0,18	82,01	81,70	82,74	0,17	82,16	82,41	81,43	0,05	0,04	75,925162
219,0	460,0	0,5	0,4	5,2	341,2	196,6	80,1	87,4	268,2	249,4	366,0	382,6	440,0	0,18	81,97	81,73	82,75	0,17	82,14	82,43	81,47	0,04	0,04	74,397296
220,0	461,0	0,5	0,5	5,1	340,4	196,4	80,0	87,2	266,9	248,8	364,8	381,5	439,9	0,18	81,95	81,74	82,75	0,17	82,14	82,44	81,49	0,04	0,04	73,534241
221,0	462,0	0,5	0,5	5,1	339,1	195,5	80,2	87,1	265,4	247,8	364,8	380,4	437,0	0,17	81,93	81,76	82,72	0,17	82,12	82,45	81,44	0,05	0,04	72,250562
222,0	463,0	0,5	0,5	5,1	338,2	195,4	80,4	87,2	265,2	247,2	364,3	379,9	434,2	0,18	81,95	81,76	82,73	0,17	82,15	82,44	81,45	0,05	0,04	71,326315
223,0	464,0	0,5	0,5	5,2	337,3	194,5	80,3	87,2	265,0	246,3	363,6	379,2	434,1	0,17	81,92	81,78	82,71	0,17	82,13	82,45	81,45	0,05	0,04	70,505563
224,0	465,0	0,5	0,5	5,1	335,9	193,5	80,0	87,1	262,6	245,0	361,9	377,7	432,5	0,17	81,89	81,78	82,71	0,17	82,09	82,44	81,45	0,05	0,04	69,082541
225,0	466,0	0,5	0,5	5,1	334,5	192,8	79,7	86,9	260,8	244,7	360,7	376,8	429,7	0,18	81,91	81,80	82,73	0,17	82,12	82,47	81,48	0,04	0,04	67,711173
226,0	467,0	0,5	0,5	5,2	333,4	192,7	80,2	86,9	260,9	243,9	358,9	375,9	427,2	0,18	81,89	81,80	82,73	0,17	82,09	82,47	81,47	0,05	0,04	66,534961
227,0	468,0	0,5	0,5	5,1	332,7	192,5	80,2	86,9	259,7	243,0	359,3	374,3	427,3	0,18	81,90	81,81	82,72	0,17	82,13	82,49	81,47	0,05	0,04	65,878003
228,0	469,0	0,5	0,5	5,1	331,6	192,4	80,2	86,9	258,8	242,4	357,5	373,6	425,7	0,18	81,89	81,84	82,69	0,17	82,13	82,53	81,48	0,05	0,04	64,755395
229,0	470,0	0,4	0,5	5,2	330,6	191,9	80,8	87,2	260,2	241,5	352,8	372,8	421,6	0,18	81,91	81,84	82,69	0,17	82,13	82,52	81,49	0,04	0,03	63,781949
230,0	471,0	0,4	0,5	5,2	329,9	190,4	80,1	87,2	260,3	240,7	356,0	371,8	420,5	0,17	81,91	81,85	82,70	0,17	82,12	82,52	81,51	0,05	0,03	63,02276
231,0	472,0	0,4	0,5	5,2	329,3	190,1	80,4	86,9	259,3	240,0	354,5	371,0	421,7	0,18	81,96	81,87	82,71	0,17	82,17	82,55	81,52	0,04	0,03	62,50426
232,0	473,0	0,4	0,5	5,3	327,6	190,4	80,2	86,8	257,3	239,2	353,1	369,7	418,7	0,17	81,99	81,89	82,69	0,17	82,19	82,57	81,52	0,05	0,03	60,768033
233,0	474,0	0,4	0,5	5,4	326,8	189,9	79,8	86,9	257,7	238,6	351,9	368,9	416,9	0,18	81,98	81,91	82,70	0,17	82,18	82,58	81,51	0,04	0,03	59,969879
234,0	475,0	0,4	0,5	5,4	326,1	190,2	80,2	86,9	256,6	238,3	350,3	368,2	416,8	0,18	82,00	81,92	82,70	0,17	82,19	82,59	81,51	0,04	0,03	59,22536
235,0	476,0	0,4	0,5	5,3	324,8	189,5	79,8	87,0	255,5	237,3	348,3	366,8	416,1	0,17	82,01	81,93	82,70	0,17	82,20	82,61	81,49	0,04	0,03	57,980429
236,0	477,0	0,4	0,5	5,3	324,1	189,3	79,9	86,9	253,9	236,9	347,6	366,1	415,7	0,17	81,96	81,95	82,70	0,17	82,17	82,62	81,50	0,04	0,03	57,22131
237,0	478,0	0,3	0,5	5,3	323,4	189,0	80,4	86,8	253,0	236,4	346,8	365,3	415,5	0,17	81,93	81,94	82,69	0,17	82,16	82,63	81,52	0,04	0,03	56,558402
238,0	479,0	0,3	0,5	5,2	322,1	189,3	80,9	86,8	252,6	235,5	345,0	363,9	413,5	0,17	81,94	81,94	82,69	0,17	82,17	82,62	81,50	0,05	0,03	55,269376
239,0	480,0	0,3	0,5	5,2	321,5	189,0	80,5	86,9	252,9	234,4	345,5	363,7	410,9	0,18	81,95	81,94	82,67	0,17	82,17	82,63	81,48	0,05	0,03	54,660672
240,0	481,0	0,3	0,5	5,2	320,4	188,2	80,1	86,7	252,0	234,1	344,0	362,7	409,4	0,18	82,00	81,98	82,66	0,17	82,23	82,65	81,51	0,05	0,03	53,600403
241,0	482,0	0,3	0,5	5,2	319,5	188,7	80,5	86,8	251,5	233,4	342,7	362,3	407,5	0,18	82,01	82,01	82,67	0,17	82,21	82,68	81,51	0,05	0,03	52,655313
242,0	483,0	0,3	0,5	5,1	318,8	188,0	80,1	86,7	250,9	233,2	341,6	360,5	407,9	0,17	82,04	82,03	82,65	0,17	82,26	82,68	81,50	0,04	0,03	51,98689
243,0	484,0	0,3	0,5	5,1	318,0	188,4	80,4	86,6	251,1	232,4	339,7	359,8	406,8	0,18	82,04	82,03	82,64	0,17	82,27	82,71	81,48	0,04	0,03	51,12251
244,0	485,0	0,3	0,5	5,1	317,0	187,8	80,3	86,7	250,9	232,1	337,9	358,9	405,4	0,17	82,05	82,06	82,66	0,17	82,27	82,72	81,51	0,05	0,03	50,210413
245,0	486,0	0,3	0,5	5,0	316,4	187,4	80,6	86,7	249,8	231,7	337,0	358,1	405,5	0,17	82,08	82,08	82,68	0,17	82,26	82,71	81,48	0,04	0,03	49,600034
246,0	487,0	0,2	0,5	5,0	315,7	187,4	80,4	86,6	249,0	230,3	336,4	359,0	403,9	0,18	82,10	82,08	82,64	0,17	82,28	82,72				

Manufacturer: FOYER SUPREME
Model: NV 200

Run: 4
Project #: pi-20131
Test Duration: 272

	min	
	HHV	LHV
Eff	67,72%	73,19%
Comb Eff	95,59%	95,59%
HT Eff	70,84%	76,56%
Output	18 135	kJ/h
Burn Rate	1,35	kg/h
Grams CO	440	g
Input	26 780	kJ/h
MC wet	17,52	

Note: In the "Input data", "Calc. % O₂", "Fuel Properties", and "Mass Balance" columns, [e], [d], [g], [a], [b], [c], [h], [u], [w], [j], and [k] refer to their respective variables in Clauses 13.7.3

Ultimate CO₂
CO_{2-ult} 19,64
F₀
1,061

Overall Heating Efficiency:
Combustion Efficiency:
Heat Transfer Efficiency:

67,72%
95,59%
70,84%

Air Fuel Ratio (A/F)	
Dry Molecular Weight (M _d)	29,71
Dry Moles Exhaust Gas (N _p):	458,32
Air Fuel Ratio (A/F)	13,11

Heat Output:	17 203 Btu/h	18 135 kJ/h
Heat Input:	25 404 Btu/h	26 780 kJ/h
Burn Duration:	4,53 h	
Burn Rate:	2,98 lb/h	1,352 kg/h
Stack Temp:	357,5 Deg. F	180,8 Deg. C

Date: 2011-09-12 Manufacturer: Fager Supreme ME Model: NV 200
Project #: PI 20131 Run: 5 Tech: MM Reviewer: JP

- No kindling START FIRE 18.7 LBS
- At 11 LBS BRASSER FURY
- At 8.00 LBS tapocher and close
and in lb
- At 5.6 LBS BRASSER et tapocher FURY
- At 4.00 LBS tapocher et mis a Niveau
BRASSE
- At 3.7 LBS tapocher et Faut channel
(1:01)
- At 3.5 LBS insert load (1:44)

TEST LOAD CONFIGURATION

1:44h.
3.5 LBS.

Date: _____ Model: _____
 Project #: _____ Manufacturer: _____ Tech: _____
 Run: _____ Reviewer: _____

Side view	Front view	Top view
		

Date: _____ Manufacturer: _____ Model: _____
 Project #: _____ Run: _____ Tech: _____ Reviewer: _____

	ADDITION		SUBSTRACTION	
	ft3	Volume	ft3	Volume
V measure				
V ashlip				
%				
V usable				
Usable Firebox: _____				
Test load weight: _____		Minimum: _____		Maximum: _____
Déviation: _____				

PRE / POST CHECKS

Date: 2016-09-12 Manufacturer: Foyer Supreme Model: M200
 Project #: PI 20131 Run: 5 Tech: MM Reviewer: DP

Moisture Meter Calibration Check:

Equipment #	Time	12%	22%
<u>EM-191</u>	<u>7:30</u>	<u>ok</u>	<u>ok</u>

Pre-Test

Post-Test

Facility Conditions:

Air Velocity from less than 2 feet

<u>22</u> (max50 Fpm)	<u>18</u> (max50 Fpm)
<u>ok</u>	<u>ok</u>
4 sides <u>ok</u>	<u>ok</u>

Smoke Capture Check.....

Picture.....

Wood Heater Conditions:

Date Wood Heater Stack Cleaned.....

Date Dilution Tunnel Cleaned.....

Induced Draft Check (max 0.005 H₂O).....

Traverse before ignition.....

Flow Rate 140 cfm ±10%.....

<u>2016-09-06</u>
<u>2016-09-06</u>
<u>ok</u>
<u>ok</u>

ok

Temperature System:

Ambient (65°-90°F).....

Wood Heater Surface (±125°F).....

<u>ok</u> °F
<u>ok</u> °F

Proportional Checks:

Thermocouple check.....

Pitot Clean.....

Pitot verification.....

<u>ok</u>
<u>ok</u>
<u>ok</u>

Sampling Train ID Numbers:

Probe.....

Filter Front.....

Filter Back.....

Filter Thermocouple.....

Filter (<90°F).....

Train 1 st hour	Train 1	Train 2
<u>10</u>	<u>16</u>	<u>43</u>
<u>850</u>	<u>853</u>	<u>862</u>
<u>852</u>	<u>861</u>	<u>887</u>
<u>4</u>	<u>11</u>	<u>12</u>
<u>ok</u>	<u>ok</u>	<u>ok</u>

SAMPLING EQUIPMENT CHECK OUT

 Date: 2016-09-12

 Manufacturer: Foyer Supreme

 Model: NV 206

 Project #: PI 10131

 Run: 5

 Tech: MM

 Reviewer: DP

Leakage Checks Tunnel Samplers

	System 1 st hour		System 1		System 2	
Unplugged Flow Rate = .25cfm	Pre-Test ASTM (-15) CSA B415 (-5)	Post-Test (max test)	Pre-Test ASTM (-15) CSA B415 (-5)	Post-Test (Max test)	Pre-Test ASTM (-15) CSA B415 (-5)	Post-Test (Max test)
Vacuum (inches Hg.)	-15	-15	-15	-15	-15	-15
Final 1minute DGM (Liter)	427223,64	428641,76	427223,70	428641,84	369379,70	370741,33
Initial 1minute DGM (Liter)	427223,64	428641,78	427223,70	428641,83	369379,70	370741,31
Change © (Liter)	Ø	0,01	Ø	0,01	Ø	0,02
Allowable leakage .04 x Sample rate or 0.28Lpm CSA B415 (0.56)						
Check OK	ok	ok	ok		ok	ok

Leakage Checks Flue Gas Sampler

Plugged Probe	Pre Test	Post Test
Vacuum (inches Hg.)	-5	-5
Rotometer Reading (mml/min.)	0	0
Flow Rate (lpm)	1.5	1.5
Allowable (.02 x Sample Rate)	30	30
Check OK	ok	ok

Leakage Checks Pitot

Plugged Probe	Pre Test 3 H2o static	Pre Test 0.4-0.5 H2o velocity	Post Test 3 H2o Static	Post Test 0.4-0.5 H2o velocity
Vacuum (inches Hg.)	3	-5	3	.4
Check OK (no change after 15 sec.)	ok	ok	ok	ok

PRE-TEST SCALE AUDIT

Date: 2016-09-12 Manufacturer: Foyer Supreme Model: NV 200
 Project #: PL 26131 Run: 5 Tech: MR Reviewer: DO

Scale Type	Audit		Measured Weight
	Equipment #	Weight	
Platform	<u>EM-090</u>	<u>4.4</u> lbs, Class F	<u>4.4</u> lbs
Wood	<u>EM-090</u>	<u>4.4</u> lbs, Class F	<u>4.4</u> lbs
Analytical	<u>EM-128</u>	<u>100</u> mg, Class S	<u>100</u> mg
Analytical	<u>EM-129</u>	<u>200</u> g, Class S	<u>200</u> g

LIMITS OF WEIGHT RANGES

ANALYTICAL SCALE: 50%-150% of dry filter weight, ± 0.1 mg
PLATFORM SCALE: 20%-80% of ideal test load weight, ± 0.1 lbs or 1%
WOOD SCALE: 20%-80% of ideal test load weight, ± 0.01 lbs or 1%

Date: 2016 09-12 Manufacturer: Fager Supreme Model: NV206
 Project #: PI 20131 Run: 5 Tech: MM Reviewer: DP

FOR TUNNELS < 12 in

Barometric pressure (P_{bar}) 102.1 (KPa.) Static pressure (P_q) 0.22 (inches w.c.)
 Inside diameter: Port A _____ Port B _____
 Tunnel cross sectional area: .1963Ft²
 Pitot tube type: Standard

Traverse Point	Position (inches)			Velocity Head Δ_p (inches H ₂ O)	Tunnel Temperature (°F)
	6 po	7 po	8 po		
A- Centroid	3.00	3.50	4	0.052	71.60
B - Centroid	3.00	3.50	4	0.053	71.54
A-1	0.40	0.50	0.50	0.041	71.61
A-2	1.50	1.75	2	0.058	71.48
A-3	4.50	5.25	6	0.053	71.52
A-4	5.60	6.5	7.5	0.049	70.91
B-1	0.40	0.50	0.50	0.042	71.52
B-2	1.50	1.75	2	0.054	71.54
B-3	4.50	5.25	6	0.056	71.30
B-4	5.60	6.5	7.5	0.050	71.28
				AVERAGE	

$$v_s = K_p C_p (\sqrt{\Delta p})_{avg} \sqrt{\frac{(T_s)_{avg}}{P_s M_s}}$$

Where,

C_p = pitot tube coefficient, dimension less = 0.99 for standard pitot.

Δ_p = manometer reading (inches H₂O)

T_s = average absolute dilution tunnel temperature (°F + 460)

P_s = absolute dilution tunnel gas pressure or $P_{bar} + P_{qg}$

P_q = static pressure $\frac{\text{in. H}_2\text{O}}{\{ 13.6 \}}$

M_s = 28.56, wet molecular weight of stack gas (alternatively, it may be measured)

K_p = 85.49 pitot tube constant, (conversion factor for English units)

Δ_{pavg} = average of the square roots of the velocity heads (Δ_p) measured at each traverse point.

CONTINUOUS ANALYZERS

Date: 2016-09-12 Manufacturer: Fager Supreme Model: NV200
 Project #: PI 20131 Run: 5 Tech: MM Reviewer: DP

Pre-Test (Adjust and Record)

	ZERO		SPAN		CAL. (Record Only)	
CO	0	0	2956	2971	0.999	1.00
Tolerance CO		+/- 0.02		+/- 0.15		+/- 0.05
CO ₂	0	0	17.87	17.87	9.70	10.00
Tolerance CO ₂		+/- 0.02		+/- 0.5		+/- 0.5
O ₂ informative CSA B415 calculated value	na	na	na	na	na	na
	Actual	Should Be	Actual	Should Be	Actual	Should Be

Post Test (Record Only)

	Zero	Span	Cal.	Zero Drift	Limit	Span Drift	Limit	Cal. Drift	Limit	OK?	Not OK*
CO	0	2951	1.004	0	0.02	0.005	0.15	0.005	0.05	✓	
CO ₂	0	17.77	9.80	0	0.02	0.1	0.5	0.1	0.5	✓	
O ₂	na	na	na	—	na	—	na	—	na	✓	

TEST DATA LOG

Date: 2016-09-12 Manufacturer: Foyer Supreme Model: NV200
 Project #: PI 20131 Run: 5 Tech: MM Reviewer: JP

RAW DRY GAS METER READINGS

	System 1	System 2	Blank
Final (Liter)	428641, 08	370740, 61	392, 10
Initial (Liter)	427224, 18	369375, 14	357, 21

AMBIENT CONDITIONS

	Before	After
Barometer (kPa):	102, 1	102
Dry Bulb (F):	68, 54	80, 96
Humidity (%):	48	35, 9

Flow Meter

	Start	End
Flow meter reading	N.A	N.A

Flow Meter Verification

	Before	After
Flow meter Check (liters)	N.A	N.A
Scale Weight (Kg)	N.A	N.A

FUEL DATA

Date: 2016-09-12 Manufacturer: Foyer Supreme Model: NV 200
 Project #: PI 20131 Run: 5 Tech: MM Reviewer: DP

FUEL DESCRIPTION:

Type of wood:

PRE-TEST LOAD

Piece Size	Weight	Meter Moisture Content (% dry)*
2 x 4 x 5 in.	0.658 lbs.	19.2
2 x 4 x 5 in.	0.604 lbs.	19.1
2 x 4 x 5 in.	0.768 lbs.	21.1
2 x 4 x 5 in.	0.740 lbs.	21.7
2 x 4 x 5 in.	0.722 lbs.	20.6
2 x 4 x 5 in.	0.710 lbs.	19.5
2 x 4 x 5 in.	0.710 lbs.	19.0
2 x 4 x 5 in.	0.702 lbs.	19.2
2 x 4 x 5 in.	0.666 lbs.	19.7
2 x 4 x 5 in.	0.698 lbs.	19.0
2 x 4 x 5 in.	0.734 lbs.	20.2
2 x 4 x 5 in.	0.708 lbs.	19.4
2 x 4 x 5 in.	0.670 lbs.	19.6
2 x 4 x 5 in.	0.684 lbs.	20.0
2 x 4 x 5 in.	0.714 lbs.	19.6
2 x 4 x 5 in.	0.662 lbs.	20.3
2 x 4 x 5 in.	0.666 lbs.	19.9
2 x 4 x 5 in.	0.674 lbs.	19.3
2 x 4 x 5 in.	0.728 lbs.	19.6
2 x 4 x 5 in.	0.640 lbs.	19.1
2 x 4 x 5 in.	0.650 lbs.	19.6
2 x 4 x 5 in.	0.716 lbs.	19.5
2 x 4 x 5 in.	0.666 lbs.	19.2

TEST LOAD WEIGHT: _____ lbs



FUEL DATA

Date: 2016-09-12 Manufacturer: Foyer Supreme Model: NV 200
Project #: PI 20131 Run: 5 Tech: MM Reviewer: DO

FUEL DESCRIPTION:

Type of wood:

PRE-TEST LOAD

[illegible]

TEST LOAD WEIGHT: 18,51 lbs

FUEL DATA

Date: 20 09-12 Manufacturer: Fager Supreme Model: NV 200
 Project #: PJ 20131 Run: 5 Tech: MM Reviewer: DP

FUEL DESCRIPTION:

Type of wood :

TEST LOAD

Piece Size		Weight	Meter Moisture Content (% dry)*				
1 1/4	x 3/4 x 22 in.	2, 128 lbs.	20,9	21,6	22,1	22,1	20,9
1 1/4	x 3/4 x 22 in.	2, 384 lbs.	22,3	22,1	22,3	22,3	22,6
3 1/4	x 3/4 x 22 in.	5, 234 lbs.	21,0	21,1	22,2	22,6	21,8
3 1/4	x 3/4 x 22 in.	5, 096 lbs.	20,2	20,1	20,5	20,9	19,6
1 1/4	x 3/4 x 5 in.	0, 104 lbs.			20,1		
1 1/4	x 3/4 x 5 in.	0, 112 lbs.			20,6		
1 1/4	x 3/4 x 5 in.	0, 110 lbs.			20,3		
1 1/4	x 3/4 x 5 in.	0, 106 lbs.			21,0		
1 1/4	x 3/4 x 5 in.	0, 134 lbs.			19,9		
1 1/4	x 3/4 x 5 in.	0, 106 lbs.			19,6		
1 1/4	x 3/4 x 5 in.	0, 106 lbs.			19,3		
1 1/4	x 3/4 x 5 in.	0, 110 lbs.			20,6		
1 1/4	x 3/4 x 5 in.	0, 108 lbs.			20,3		
1 1/4	x 3/4 x 5 in.	0, 110 lbs.			20,8		
1 1/4	x 3/4 x 5 in.	0, 106 lbs.			20,7		
1 1/4	x 3/4 x 5 in.	0, 110 lbs.			20,6		
x	x in.	lbs.					
x	x in.	lbs.					
x	x in.	lbs.					
x	x in.	lbs.					
x	x in.	lbs.					
x	x in.	lbs.					
x	x in.	lbs.					
x	x in.	lbs.					
x	x in.	lbs.					
x	x in.	lbs.					
x	x in.	lbs.					

TEST LOAD WEIGHT: 16, 16 lbs Min 20%: 3, 23 Max 25%: 4, 04

Date: 2016-09-09 Project #: PT 20131 Run: 5 Manufacturer: Foyer Super ME Model: NV 200
Tech: MR Reviewer: DP

		SYSTEM 1 - 1 st hour - 2 hr.				SYSTEM 1			
Pre-test Weight Record	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets	Blank
Date	Time	10	850	853	1	862	887	6	888
2016-09-09	18:00	946425	0,1270	0,1259	11,0565	108,7542	0,1280	11,1015	0,1301
2016-09-12	10:00	~~946426~~ 946426	0,1269	0,1259	11,0564	108,7543	0,1281	11,1016	0,1300

		SYSTEM 1 - 1 st hour - 2 hr.				SYSTEM 1			
Post-test Weight Record	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets	Blank
Date	Time	10	850	852	1	862	887	6	888
2016-09-12	17:00	946430	0,1295	0,1256	11,0597	108,7548	0,1279	11,1051	0,1301
2016-09-14	8:00	946430	0,1292	0,1254	11,0581	108,7548	0,1277	11,1037	0,1301
2016-09-21	8:00	946430	0,1292	0,1254	11,0581	108,7548	0,1277	11,1037	0,1301

DILUTION TUNNEL PARTICULATE SAMPLER DATA

Date: 2016-09-09 Project #: PI 20 131 Run: 5 Manufacturer: Fager Supra ME Model: NV 200
 Tech: MM Reviewer: DO

SYSTEM 2 1 st Hour M.M.				
Pre-test Weight Record	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets
Date	Time			
2016-09-09	18:00	1091633	01281	101360
2016-09-09	18:00	1091633	01280	101360

SYSTEM 2 1 st Hour M.M.				
Post-test Weight Record	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets
Date	Time			
2016-09-12	17:00	1091634	01305	101386
2016-09-14	8:00	1091634	01296	101372
2016-09-21	8:00	1091634	01296	101373

Paramètres

Tous les facteurs de corrections et autres paramètres qui peuvent être modifiés par l'utilisateur du fichier sont regroupés ici.

Code verrouillage: SUP

Description du test

Test standard	EPA
Run #	6
Date	13/09/2016
Technicien	M.M
Project #	pi-20131

Description de l'unité

Manufacturier	FOYER SUPREME	
Modèle	NV 200	
Combustion system	Non-Cat	
Appliance type	Wood fireplace	
Firebox volume	2,24	cu ft.
Appliance weight empty	na	lbs
Appliance weight full	na	lbs

Paramètres du test

Logging time	1	min
Manufacturer's rated heat output	na	BTU/h Donnée fournie par le manfacturier
Targeted category	1	
Targeted output	à définir	BTU/h
Cp steel	0,1	BTU/lb-°F

Échantillonnage

Blank sampling rate	0,20	cuft/min
Internal probe diameter	0,18	in.
Calibration Factor (DGM #1):	0,993	Dimensionless
Equipment number (DGM #1):	EM-078	
Calibration Factor (DGM #2):	0,992	Dimensionless
Equipment number (DGM #2):	EM-079	
Calibration Factor (DGM #3):	0,993	
Equipment number (DGM #3):	EM- 078	Dimensionless

Tunnel

Targeted tunnel flow rate	140	scfm
Tunnel diameter	8	in.
Molecular weight	28,78	May be assumed to be 28,78 (EPA) Si B-415 = 29
Pitot tube type	Standard	
Pitot tube coefficient	0,99	Dimensionless

Project nu.	pi-20131
Date	#####
Technicien	M.M

Fuel data

Fuel type	Dimension
Fuel specie	D. Fir
HHV	19810,0 kJ/kg
%C	48,7
%H	6,9
%O	43,9
%Ash	0,5
HHV	8519,2 Btu/lb
LHV	7451,0 Btu/lb

Default Fuel Values		
	D. Fir	Oak/Maple
HHV	19 810	19 887
%C	48,73	50
%H	6,87	6,6
%O	43,9	42,9
%Ash	0,5	0,5
HHV (Btu/lb)	8519	8552
LHV (Btu/lb)	7451	7480

	Start	End
Barometer (kPa):	101,9	101,3
Barometer (in.Hg):	30,091059	29,913879
Dry Bulb (F):	76,28	85,1
Humidity (%):	48	43
Air velocity (ft/min)	12	15

DGM #1	Final: ##### cuft
	Initial: ##### cuft
DGM #2	Final: ##### cuft
	Initial: ##### cuft

DGM room	
----------	--

Final: 431051,140	Liter
Initial: 428642,170	Liter
Final: 373050,980	Liter
Initial: 370742,180	Liter

Final: 450,280	cuft
Initial: 392,200	cuft

Numéro de la ligne dans "Raw data" à partir duquel les données du VRAI test commencent

215

Autres données à rentrer: dans preload data, load data, traverse et filter set weight

Project nu.	pi-20131
Date	#####
Technicien	M.M

Preload data sheet

Test Load Weight:

Lower	Ideal	Upper
14,11	15,68	17,25

Load Volume: 0,5787 cu. ft

Loading Density: 8,022 lbs./ft3

 Number of Spaces:
 Spacer weight (lbs):

 Load Density (wet): 31,052 lbs./ft3
 Dry Wood Density: 25,80766

Piece Size (in):			Weight lbs	Meter Moisture Content				Ave. MC x	Volume	
Thick	Wide	x Length		Dry Uncorrected %				Weight	Cubic Inches	
2	4	5	0,732	20		20,1		20,6	14,8108	40,00
2	4	5	0,682	19,3		19,6		20	13,389933	40,00
2	4	5	0,676	19,9		19,3		20,6	13,474933	40,00
2	4	5	0,696	20,3		20,6		20,3	14,1984	40,00
2	4	5	0,672	19,3		19,8		19,4	13,104	40,00
2	4	5	0,702	20		20,9		20,8	14,4378	40,00
2	4	5	0,74	21,3		21		20,8	15,564667	40,00
2	4	5	0,71	19,6		19,3		20,1	13,963333	40,00
2	4	5	0,688	19,6		19,1		19,3	13,301333	40,00
2	4	5	0,754	20,2		20,4		20,6	15,3816	40,00
2	4	5	0,708	20,2		20,5		21	14,5612	40,00
2	4	5	0,712	19,5		19,6		20	14,0264	40,00
2	4	5	0,688	19,6		20,1		20,9	13,8976	40,00
2	4	5	0,698	20		20,2		19,6	13,913467	40,00
2	4	5	0,806	20,8		20,9		20,8	16,791667	40,00
2	4	5	0,704	20,8		20,2		20,6	14,455467	40,00
2	4	5	0,722	19,1		19,2		19,6	13,9346	40,00
2	4	5	0,66	19,2		19,6		19,8	12,892	40,00
2	4	5	0,682	20,6		20,2		20,9	14,026467	40,00
2	4	5	0,692	20,3		20,2		20,6	14,093733	40,00
2	4	5	0,762	21,2		21		21,4	16,1544	40,00
2	4	5	0,71	20,6		20,5		20,7	14,626	40,00
2	4	5	0,682	20,4		20,3		20,8	13,981	40,00
2	4	5	1	22		22,1		22	22,033333	40,00
2	4	5	0,692	20,6		20,4		20,4	14,162933	40,00
										0,00
										0,00

SUM MC 365,17707

PreTest Load Weight: 17,97 lbs.

Dry Weight: 6,77 kg.

Average Moisture Content: %

Dry: 20,32

20,32

Must be 18-28

Wet: 16,89

must be 15,2-22

Project nu.	pi-20131
Date	#####
Technicien	M.M

FUEL LOAD DATA SHEET, CSA B415

Test Load Weight:

Lower	Ideal	Upper
-------	-------	-------

14,1	15,7	17,2
------	------	------

* For boilers, a loading density factor of 10 lb/ft³ is applied

Load Volume: cu. ft

Loading Density: 7,3 lbs./ft3

Number of Spaces: 12
Spacer weight: lbs

Load Density (wet):	31,1	lbs./ft3
Dry Wood Density:	25,7	lbs./ft3

[illegible]

Test Load Weight: 16,27 lbs.

Dry Weight: kg.

Average Moisture Content: %

Dry:	20,80	Dry(EPA)	20,80
		Dry(B415)	20,80

20,80
Must be 19-25

Wet: 17,22
must be 15,2-22

Coal Bed Range: lbs. to

4,1 lbs.

TEST CHARGE:

Coal bed weight: 3,4

lbs.

Project nu.	pi-20131
Date	#####
Technicien	m.m

Tunnel Traverse Worksheet (for velocity calculations)

Static Pressure: 0,2 in. H2O
 Barometer: 29,900 in. Hg

Pour un tunnel de 12" et plus, prendre 6 lectures

	TUNNEL VELOCITY	TUNNEL TEMP	SQUARE ROOT
	In. wc	°F	
A center			0,0000
B center			0,0000
A1			0,0000
A2			0,0000
A3			0,0000
A4			0,0000
A5			0,0000
A6			0,0000
B1			0,0000
B2			0,0000
B3			0,0000
B4			0,0000
B5			0,0000
B6			0,0000
AVERAGE	#DIV/0!	#DIV/0!	0,0000

PITOT CONSTANT=
0,944

Pour un tunnel moins de 12", prendre 4 lectures

	TUNNEL VELOCITY	TUNNEL TEMP	SQUARE ROOT
	In. wc	°F	
A center	0,051	74,95	0,2258
B center	0,052	74,99	0,2280
A1	0,041	74,89	0,2025
A2	0,054	74,96	0,2324
A3	0,048	74,98	0,2191
A4	0,042	75	0,2049
B1	0,041	75,020	0,2025
B2	0,053	75,060	0,2302
B3	0,055	74,990	0,2345
B4	0,049	74,940	0,2214
AVERAGE	0,0486	74,9780	0,2201

Project nu.	pi-20131
Date	#####
Technicien	M.M

Filter set weight

	System 1 (g) 1st hour				System 1 (g)				System 2 (g)				Ambient blank (g)	Date	Heure
	probe	front	back	gasket	probe	front	back	gasket	probe	front	back	gasket	Filter		
Number	2	855	856	11	30	858	859	31	864	33	860	863	32		
Before (1)															
Before (2)															
Before (3)															
Before (4)															
Before (5)	61,1021	0,1261	0,1284	10,3131	110,2392	0,1285	0,1275	10,1704	109,3623	0,1269	0,1250	10,4147	0,1289	12/09/2016	18:30
Before (6)	61,1022	0,1261	0,1285	10,3130	110,2393	0,1284	0,1276	10,1703	109,3622	0,1270	0,1249	10,4148	0,1289	13/09/2016	09:00
After (1)	61,1026	0,1431	0,1281	10,3179	110,2393	0,1335	0,1276	10,1744	109,3624	0,1457	0,1249	10,4191	0,1289	13/09/2016	20:00
After (2)	61,1026	0,1401	0,1281	10,3144	110,2393	0,1335	0,1276	10,1711	109,3624	0,1453	0,1249	10,4163	0,1289	16/09/2016	08:00
After (3)	61,1026	0,1401	0,1281	10,3144	110,2393	0,1335	0,1276	10,1711	109,3624	0,1453	0,1249	10,4163	0,1289	22/09/2016	08:00
After (4)															
After (5)															
After (6)	61,1026	0,1401	0,1281	10,3144	110,2393	0,1335	0,1276	10,1711	109,3624	0,1453	0,1249	10,4163	0,1289	22/09/2016	08:00
Difference	0,0004	0,0140	-0,0004	0,0014	0,0000	0,0051	0,0000	0,0008	0,0002	0,0183	0,0000	0,0015	0,0000		
Total (mg)		15,4				21,3				20			0		
Total ajusté (mg)		15,40				21,30				20,00					

Project nu. pi-20131
 Date #####
 Technicien m.m

SFBA EPA EMISSION RESULTS

RESULTS

Average emission rate: 4,3 g/hr

Burn Rate : 0,804 Dry kg/hr

Test Duration: 456 min

PRESSURE FACTOR: DGM 1 0,97473
 DGM 2 0,98655
 DGM 3 1,00276

BAROMETRIC PRESSURE
 Average: 30,002469 in Hg
 Start: 30,091059 in Hg
 End: 29,913879 in Hg

TEMPERATURE FACTORS DGM 1 0,97299
 DGM 2 0,97217
 DGM 3 0,97370

DGM CONTROLLER VALUES

DGM 1 Final: 15222,428 Cuft
 Initial: 15137,356 Cuft

VOLUMES SAMPLED DGM 1 80,118 SCft
 DGM 2 77,574 SCft
 DGM 3 56,311 SCft

DGM 2 Final: 13174,171 Cuft
 Initial: 13092,637 Cuft

DGM #3 Final: 450,280 Cuft
 Initial: 392,200 Cuft

TOTAL TUNNEL VOLUME : 124869

TEMPERATURES

SAMPLE RATIOS
 Sample Train 1: 1558,566
 Sample Train 2: 1609,685

DGM 1 542,655 °R
 DGM 2 543,114 °R

Paticulate concentration
 Sample Train 1 0,000266 g/dscf
 Sample Train 2 0,000258 g/dscf
 Room 0,000000 g/dscf

CALIBRATION FACTORS

DGM 1 0,9930
 DGM 2 0,9920
 DGM #3 0,9930

TUNNEL FLOW RATE: 273,836 Dscfm

TOTAL EMISSIONS
 Sample Train 1 33,20 g
 Sample Train 2 32,19 g

PARTICULATE CATCH
 Total Sample Train 1: 21,30 mg
 Total Sample Train 2: 20,00 mg
 Total Sample Train 1 1st hour: 15,40 mg

EMISSION RATES
 Sample Train 1 4,37 g/hr
 Sample Train 2 4,24 g/hr

1st hour emission rate 24,00 g/hr

DEVIATION: 1,54%

Cs Train 1 Train 2
 0,0002659 0,000257819

* Elapsed Time min	* Raw data row	* Weight Remaining lbs	* CO %	* CO ₂ %	* O ₂ %	*1 Flue Gas %	*2 Room Temp °F	*3 Tunnel Dry Bulb °F	*4 Unit Top °F	*5 Unit Back °F	*6 Unit R.Side °F	*7 Unit L.Side °F	*8 Unit Bottom °F	Mass flow 1 Reading cuft/min	DGM 1 Inlet T °F	DGM 1 Outlet T °F	Filter 1 Temp °F	Mass flow 2 Reading cuft/min	DGM 2 Inlet T °F	DGM 2 Outlet T °F	Filter 2 Temp °F	Tunnel Velo Pressure in wc	Flue draft Pressure in wc	Change in Surface Temp. °F
0,00	215,00	16,3	0,3	0,4	267,7	164,0	78,3	93,3	203,1	195,3	285,0	305,1	350,2	0,18	79,33	79,01	78,16	0,17	79,37	79,46	78,54	0,05	0,02	0
1,0	216,0	16,1	0,2	0,3	263,1	186,6	78,4	88,2	190,2	192,8	283,9	303,4	342,8	0,18	79,46	79,02	78,19	0,17	79,44	79,46	78,62	0,04	0,04	-4,651847
2,0	217,0	16,1	0,4	0,8	260,9	200,2	77,8	87,7	185,9	190,6	282,9	301,1	344,0	0,18	79,55	79,06	78,26	0,17	79,49	79,51	78,67	0,05	0,04	-6,819037
3,0	218,0	16,1	0,5	1,1	258,8	215,4	77,9	88,7	185,3	188,7	280,8	298,1	341,2	0,18	79,60	79,10	78,31	0,17	79,58	79,55	78,77	0,04	0,04	-8,940586
4,0	219,0	15,9	0,4	3,8	259,4	235,0	78,2	91,5	194,8	187,6	278,6	295,9	340,2	0,18	79,61	79,12	78,37	0,17	79,62	79,62	78,94	0,04	0,05	-8,324274
5,0	220,0	15,8	0,3	5,4	263,4	309,1	78,1	89,5	196,9	186,9	276,7	296,7	342,6	0,18	79,62	79,14	78,46	0,17	79,63	79,62	79,22	0,04	0,06	-4,353755
6,0	221,0	15,6	0,4	6,1	270,7	363,7	78,0	99,7	249,9	188,7	274,8	292,2	348,2	0,18	79,64	79,14	78,56	0,17	79,67	79,66	79,54	0,04	0,07	3,0012114
7,0	222,0	15,4	0,3	7,0	281,8	431,0	78,2	106,4	294,9	193,1	273,8	291,3	355,6	0,18	79,65	79,17	78,67	0,17	79,70	79,68	79,98	0,04	0,08	14,019803
8,0	223,0	15,2	0,5	6,9	293,4	472,4	78,4	111,7	338,2	198,6	272,8	290,2	367,0	0,18	79,64	79,20	78,86	0,17	79,73	79,72	80,47	0,04	0,08	25,628256
9,0	224,0	15,0	0,5	7,6	308,7	531,0	78,4	111,4	405,4	199,6	272,7	289,5	378,5	0,18	79,70	79,23	79,02	0,17	79,76	79,76	81,00	0,05	0,09	40,98761
10,0	225,0	14,8	0,4	8,4	320,7	568,2	78,3	121,0	453,2	200,5	271,7	288,7	389,5	0,18	79,75	79,26	79,16	0,17	79,82	79,80	81,47	0,04	0,09	52,977804
11,0	226,0	14,6	0,6	7,8	329,1	575,3	78,5	123,0	483,9	202,3	271,9	287,9	399,6	0,18	79,81	79,29	79,35	0,17	79,88	79,84	81,92	0,04	0,09	61,380212
12,0	227,0	14,3	0,7	8,0	337,7	586,4	78,2	123,3	512,9	204,6	271,8	288,8	410,4	0,18	79,87	79,32	79,53	0,17	79,94	79,87	82,28	0,04	0,09	69,957583
13,0	228,0	14,1	0,7	8,5	345,4	601,8	78,7	124,4	538,9	207,2	272,4	289,5	418,9	0,18	79,94	79,38	79,76	0,17	80,01	79,92	82,60	0,04	0,09	77,63143
14,0	229,0	13,9	0,8	8,5	351,1	595,7	79,0	122,1	552,5	210,2	273,9	291,0	428,0	0,18	80,05	79,40	79,94	0,17	80,09	79,96	82,86	0,05	0,09	83,368338
15,0	230,0	13,6	0,8	8,8	354,0	601,4	78,7	121,5	553,1	212,9	275,1	292,0	436,9	0,18	80,11	79,45	80,15	0,17	80,15	80,06	83,12	0,04	0,09	86,256342
16,0	231,0	13,4	0,8	8,7	355,3	602,0	79,0	121,2	550,7	215,1	276,3	292,4	442,0	0,18	80,19	79,49	80,38	0,17	80,22	80,05	83,34	0,05	0,09	87,566641
17,0	232,0	13,2	0,8	9,4	357,9	614,1	78,6	122,3	551,7	217,3	277,4	294,1	449,0	0,18	80,21	79,53	80,65	0,17	80,25	80,05	83,67	0,04	0,09	90,184961
18,0	233,0	13,0	0,9	10,5	365,3	641,1	78,6	124,4	575,5	219,9	279,3	295,9	455,8	0,18	80,30	79,58	80,89	0,17	80,34	80,15	84,00	0,04	0,10	97,562744
19,0	234,0	12,8	1,0	10,8	370,6	631,8	79,0	122,6	591,7	222,3	281,3	297,9	459,6	0,18	80,39	79,62	81,10	0,17	80,41	80,19	84,23	0,04	0,09	102,81386
20,0	235,0	12,6	0,9	10,2	372,6	615,0	79,3	120,1	591,1	224,7	283,2	299,4	464,7	0,18	80,45	79,68	81,34	0,17	80,49	80,22	84,36	0,05	0,09	104,9078
21,0	236,0	12,4	0,9	10,1	373,7	611,0	79,2	119,8	584,9	227,0	285,7	301,8	469,1	0,18	80,54	79,71	81,58	0,17	80,53	80,27	84,54	0,04	0,09	105,97914
22,0	237,0	12,2	1,0	10,0	375,7	598,6	79,7	118,3	582,6	229,2	288,8	303,8	474,0	0,18	80,60	79,77	81,82	0,17	80,63	80,33	84,75	0,04	0,09	107,93335
23,0	238,0	12,0	1,1	10,0	377,0	588,7	78,8	117,2	576,4	231,9	292,6	305,5	478,7	0,18	80,70	79,83	82,04	0,17	80,70	80,39	84,84	0,04	0,09	109,26426
24,0	239,0	11,8	1,0	10,0	378,6	585,8	79,2	116,9	572,9	234,0	295,5	308,1	482,6	0,18	80,77	79,86	82,26	0,17	80,79	80,45	84,98	0,04	0,09	110,87935
25,0	240,0	11,6	1,0	10,4	380,8	590,2	79,6	117,4	574,6	235,7	299,0	309,8	485,1	0,18	80,85	79,93	82,45	0,17	80,85	80,49	85,17	0,04	0,09	113,08141
26,0	241,0	11,4	1,0	10,6	383,5	595,5	79,4	117,7	579,9	238,0	300,9	311,9	486,8	0,18	80,90	79,95	82,70	0,17	80,93	80,56	85,36	0,04	0,09	115,78086
27,0	242,0	11,3	0,9	11,1	388,0	606,6	79,9	117,9	590,9	239,8	303,9	314,0	491,5	0,18	80,97	80,01	82,89	0,17	80,99	80,60	85,54	0,04	0,09	120,29233
28,0	243,0	11,0	0,7	12,0	394,9	621,4	79,3	117,5	614,3	242,5	307,2	316,5	494,2	0,18	81,02	80,06	83,10	0,17	81,04	80,67	85,74	0,04	0,09	127,18251
29,0	244,0	10,8	0,6	12,3	401,2	620,0	79,4	115,5	633,6	245,5	310,3	319,1	497,5	0,18	81,08	80,12	83,29	0,17	81,12	80,71	85,84	0,05	0,09	133,4763
30,0	245,0	10,7	0,6	12,0	404,4	599,7	79,9	113,5	640,9	248,5	313,0	321,8	497,4	0,18	81,09	80,16	83,43	0,17	81,15	80,75	85,85	0,04	0,09	136,6143
31,0	246,0	10,6	0,6	10,9	403,6	565,7	79,6	109,3	628,6	250,7	315,8	325,2	497,9	0,18	81,14	80,18	83,58	0,17	81,18	80,79	85,80	0,05	0,09	135,88896
32,0	247,0	10,5	1,0	9,0	397,7	535,3	79,7	108,0	591,1	252,8	318,2	327,8	498,6	0,18	81,20	80,23	83,72	0,17	81,25	80,84	85,76	0,05	0,09	129,97731
33,0	248,0	10,4	1,1	8,0	391,3	508,6	79,9	106,4	554,6	254,3	320,0	330,6	496,7	0,18	81,24	80,26	83,85	0,17	81,27	80,91	85,77	0,04	0,08	123,52236
34,0	249,0	10,3	1,3	6,9	384,0	483,9	79,8	104,5	516,4	255,6	321,3	332,0	494,5	0,18	81,24	80,31	83,92	0,17	81,32	80,95	85,74	0,05	0,08	116,23021
35,0	250,0	10,2	1,3	6,3	378,4	463,8	79,9	103,5	483,9	256,8	321,9	332,8	493,8	0,18	81,24	80,33	84,01	0,17	81,34	80,97	85,70	0,05	0,08	109,33144
36,0	251,0	10,1	1,3	6,8	373,7	446,7	79,7	102,2	462,4	255,9	323,8	335,4	490,9	0,18	81,31	80,38	84,08	0,17	81,38	81,01	85,70	0,05	0,08	105,93914
37,0	252,0	10,0	1,3	6,8	369,7	429,1	79,9	100,8	442,7	256,3	324,2	336,7	488,6	0,18	81,36	80,42	84,12	0,17	81,41	81,05	85,62	0,05	0,08	101,98115
38,0	253,0	9,9	1,4	6,5	366,3	411,5	79,8	100,1	425,7	256,3	323,8	337,6	488,2	0,18	81,36	80,45	84,13	0,17	81,44	81,08	85,60	0,04	0,07	98,591723
39,0	254,0	9,9	1,5	6,3	363,1	397,2	80,0	99,7	410,9	256,6	323,6	338,2	486,5	0,18	81,39	80,48	84,15	0,17	81,45	81,10	85,55	0,05	0,07	95,391388
40,0	255,0	9,8	1,5	6,2	360,6	384,9	79,7	98,6	397,5	256,7	324,1	339,6	485,3	0,18	81,41	80,51	84,14	0,17	81,49	81,13	85,51	0,05	0,07	92,912048
41,0	256,0	9,7	1,5	6,4	358,1	375,2	80,0	98,4	386,1	256,8	324,7	340,4	484,6	0,18	81,41	80,54	84,17	0,17	81,51	81,15	85,43	0,04	0,07	90,373671
42,0	257,0	9,6	1,5	5,9	355,2	363,8	80,0	97,3	374,5	256,9	322,4	341,0	481,3	0,18	81,40	80,57	84,20	0,17	81,51	81,19	85,36	0,05	0,07	87,484808
43,0	258,0	9,6	1,5	5,8	353,1	354,1	79,6	96,7	365,9	257,6	322,3	340,8	478,8	0,18	81,48	80,59	84,21	0,17	81,56	81,22	85,33	0,05	0,07	85,34834
44,0	259,0	9,5	1,6	6,0	351,5	346,4	80,2	96,0	359,0	257,7	321,5	340,7	478,8	0,18	81,50	80,62	84,21	0,17	81,57	81,25	85,25	0,05	0,07	83,803753
45,0	260,0	9,4	1,5	5,9	349,8	338,4	80,3	95,7	352,9	257,7	321,0	340,6	476,6	0,18	81,57	80,68	84,20	0,17	81,62	81,30	85,18	0,04	0,07	82,020776
46,0	261,0	9,4	1,7	5,6	347,3	329,6	80,0	95,0	346,1	258,0	320,2	340,9	471,3	0,18	81,61	80,69	84,19	0,17	81,65	81,31	85,14	0,05	0,06	79,571606
47,0	262,0	9,3	1,8	5,4	345,4	322,4	80,6	94,8	339,6	258,0	319,9	341,6	467,8	0,18	81,62	80,71	84,17	0,17	81,67	81,35	85,10	0,05	0,06	77,636841
48,0	263,0	9,3	1																					

96,0	311,0	5,0	0,3	11,8	412,1	463,1	80,8	100,5	512,9	292,4	377,6	407,6	470,3	0,18	82,92	82,32	84,22	0,17	83,21	83,16	85,67	0,05	0,08	144,41153
97,0	312,0	4,9	0,3	12,0	413,7	461,7	80,5	99,9	517,5	292,6	379,0	409,6	470,0	0,18	82,92	82,33	84,29	0,17	83,24	83,18	85,65	0,05	0,08	145,9761
98,0	313,0	4,8	0,3	12,2	414,1	464,7	80,3	100,0	519,2	292,7	380,9	411,4	471,0	0,18	82,92	82,35	84,36	0,17	83,22	83,21	85,66	0,05	0,08	147,32328
99,0	314,0	4,8	0,3	12,3	416,3	466,3	80,5	100,2	520,8	293,8	383,0	414,1	469,6	0,18	82,89	82,37	84,38	0,17	83,25	83,24	85,66	0,05	0,08	148,51573
100,0	315,0	4,7	0,3	12,4	417,9	468,0	81,2	100,3	525,3	294,6	386,0	417,1	466,5	0,18	82,86	82,37	84,43	0,17	83,20	83,24	85,65	0,05	0,08	150,16014
101,0	316,0	4,6	0,2	12,6	420,5	471,6	81,1	100,1	529,8	296,1	388,4	420,2	468,1	0,18	82,83	82,38	84,48	0,17	83,20	83,24	85,68	0,05	0,08	152,76175
102,0	317,0	4,5	0,2	12,8	422,8	475,0	80,8	100,8	536,8	297,2	390,3	422,6	467,2	0,18	82,83	82,39	84,50	0,17	83,19	83,25	85,69	0,05	0,08	155,06965
103,0	318,0	4,4	0,2	12,8	426,6	478,0	80,8	100,6	548,7	298,0	393,2	426,0	466,9	0,18	82,85	82,41	84,54	0,17	83,19	83,26	85,72	0,05	0,08	158,81833
104,0	319,0	4,3	0,2	13,1	431,5	481,0	80,3	100,7	556,6	299,3	395,6	429,5	466,3	0,18	82,82	82,41	83,18	0,17	83,18	83,29	85,73	0,05	0,08	163,75099
105,0	320,0	4,2	0,2	13,2	436,6	485,9	80,5	101,7	565,2	300,9	398,9	432,1	466,2	0,18	82,86	82,42	84,65	0,17	83,21	83,26	85,77	0,04	0,07	168,86226
106,0	321,0	4,1	0,3	13,5	440,0	490,3	80,7	101,9	597,2	301,7	402,6	435,4	462,9	0,18	82,88	82,46	84,66	0,17	83,25	83,35	85,83	0,04	0,08	172,23525
107,0	322,0	4,0	0,3	13,4	442,5	493,9	81,0	101,1	605,7	302,7	405,7	437,8	460,8	0,18	82,84	82,46	84,69	0,17	83,23	83,37	85,82	0,05	0,08	174,80941
108,0	323,0	3,9	0,2	13,3	444,8	496,8	80,9	101,7	605,3	304,4	409,0	441,1	464,1	0,18	82,84	82,47	84,74	0,17	83,22	83,39	85,85	0,05	0,08	177,03698
109,0	324,0	3,8	0,3	13,5	445,7	496,5	80,9	102,2	600,1	306,1	411,8	444,8	465,6	0,18	82,86	82,50	84,77	0,17	83,23	83,38	85,88	0,05	0,08	177,94648
110,0	325,0	3,7	0,3	13,2	447,3	496,1	81,3	102,5	595,6	307,5	416,2	446,7	470,5	0,18	82,88	82,52	84,79	0,17	83,24	83,40	85,88	0,05	0,08	179,55139
111,0	326,0	3,6	0,3	13,0	449,1	493,6	80,5	102,1	592,4	308,9	418,9	449,0	476,2	0,18	82,93	82,54	84,78	0,17	83,30	83,43	85,93	0,05	0,08	181,35401
112,0	327,0	3,6	0,3	12,7	451,3	490,6	80,4	101,6	590,3	310,8	422,0	451,1	482,6	0,18	82,92	82,57	84,80	0,17	83,29	83,47	85,93	0,05	0,08	183,61036
113,0	328,0	3,5	0,3	12,6	452,7	487,2	80,9	101,9	585,4	312,6	424,1	454,5	486,6	0,18	82,93	82,56	84,84	0,17	83,29	83,52	85,97	0,05	0,08	184,92426
114,0	329,0	3,4	0,2	12,5	455,1	485,1	80,8	102,0	583,7	314,2	426,9	458,3	492,5	0,18	82,90	82,57	84,85	0,17	83,30	83,54	85,98	0,05	0,08	187,37728
115,0	330,0	3,3	0,2	12,2	456,7	482,0	80,8	101,6	580,4	315,8	430,1	460,4	496,9	0,18	82,90	82,59	84,88	0,17	83,28	83,56	86,01	0,05	0,08	188,99606
116,0	331,0	3,3	0,3	11,1	456,6	475,4	80,5	101,0	569,6	317,8	432,3	462,8	500,4	0,18	82,89	82,60	84,91	0,17	83,28	83,57	86,01	0,05	0,08	188,85038
117,0	332,0	3,2	0,5	10,6	453,5	464,7	80,4	101,1	547,0	319,6	434,1	465,4	501,1	0,18	82,87	82,61	84,91	0,17	83,27	83,61	85,98	0,05	0,08	185,72195
118,0	333,0	3,2	0,7	9,9	449,5	456,5	80,7	100,4	523,5	320,5	435,9	467,5	500,0	0,18	82,86	82,60	84,94	0,17	83,27	83,62	85,98	0,05	0,08	181,74319
119,0	334,0	3,1	0,8	9,6	446,2	449,4	80,6	100,2	502,6	321,1	437,4	469,9	500,0	0,18	82,89	82,63	84,93	0,17	83,28	83,63	85,99	0,05	0,07	178,46291
120,0	335,0	3,1	0,7	9,5	444,0	441,9	80,5	99,7	484,9	321,8	439,4	471,7	502,0	0,18	82,89	82,63	84,93	0,17	83,29	83,66	85,98	0,05	0,07	176,24019
121,0	336,0	3,0	0,8	9,4	442,7	435,6	80,8	99,5	471,9	322,7	441,0	474,3	503,9	0,18	82,90	82,65	84,95	0,17	83,30	83,68	85,99	0,04	0,07	175,00701
122,0	337,0	2,9	0,8	9,3	440,0	428,0	80,9	99,3	428,0	324,7	442,7	476,9	505,9	0,18	82,91	82,68	84,94	0,17	83,30	83,68	85,99	0,05	0,07	169,44657
123,0	338,0	2,9	0,8	9,3	440,9	420,4	80,8	98,9	452,9	320,0	442,2	477,9	507,5	0,18	82,91	82,70	84,97	0,17	83,30	83,70	85,96	0,05	0,07	173,17144
124,0	339,0	2,9	0,8	9,2	440,1	412,4	80,9	98,2	445,0	323,3	443,3	481,5	507,1	0,18	82,89	82,70	84,98	0,17	83,29	83,73	85,93	0,05	0,07	172,31669
125,0	340,0	2,8	0,8	9,1	439,5	405,6	80,5	97,7	438,1	323,6	445,0	482,9	507,9	0,18	82,89	82,71	84,98	0,17	83,29	83,72	85,90	0,05	0,07	171,77002
126,0	341,0	2,8	0,8	8,8	439,2	396,8	80,7	96,7	432,2	323,7	446,6	485,2	508,2	0,18	82,88	82,72	84,98	0,17	83,25	83,73	85,77	0,04	0,07	171,4257
127,0	342,0	2,8	1,0	8,4	438,0	387,2	81,4	96,6	425,6	323,4	446,6	486,5	508,0	0,18	82,83	82,70	84,91	0,17	83,22	83,73	85,73	0,04	0,07	170,30458
128,0	343,0	2,7	1,3	7,9	438,0	378,8	81,7	95,9	421,3	324,2	447,2	488,5	508,2	0,18	82,82	82,71	84,91	0,17	83,21	83,73	85,71	0,05	0,07	169,41938
129,0	344,0	2,7	1,5	7,5	436,1	371,3	81,5	95,2	414,7	323,3	446,0	486,3	510,2	0,18	82,84	82,71	84,90	0,17	83,22	83,72	85,63	0,05	0,07	168,38418
130,0	345,0	2,7	1,7	7,0	435,2	363,1	82,0	95,3	406,1	322,3	446,3	486,3	514,9	0,18	82,88	82,72	84,91	0,17	83,25	83,71	85,57	0,05	0,06	167,42577
131,0	346,0	2,7	1,8	6,8	434,3	354,6	81,0	94,7	398,7	322,0	446,1	487,7	516,8	0,18	82,87	82,73	84,88	0,17	83,22	83,70	85,56	0,05	0,06	166,51373
132,0	347,0	2,7	1,8	6,9	433,6	347,1	81,1	94,6	391,9	321,4	447,0	489,2	518,4	0,18	82,85	82,74	84,87	0,17	83,24	83,73	85,49	0,05	0,06	165,8497
133,0	348,0	2,6	1,8	6,9	431,9	339,6	81,1	94,1	385,4	320,9	446,1	488,0	519,4	0,18	82,87	82,77	84,84	0,17	83,22	83,71	85,46	0,05	0,06	164,20276
134,0	349,0	2,6	1,8	6,9	431,7	339,7	81,6	94,1	383,7	320,9	446,1	488,0	519,4	0,18	82,87	82,77	84,84	0,17	83,26	83,71	85,40	0,05	0,06	164,20276
135,0	350,0	2,6	1,8	6,9	428,7	328,0	81,5	93,5	377,9	317,9	443,3	486,0	518,5	0,18	82,89	82,76	84,81	0,17	83,27	83,74	85,34	0,05	0,06	160,97844
136,0	351,0	2,6	1,8	7,0	427,3	321,8	81,4	93,1	373,4	317,0	443,1	485,0	517,8	0,18	82,88	82,78	84,76	0,17	83,26	83,73	85,29	0,05	0,06	159,51621
137,0	352,0	2,6	2,1	6,6	425,1	316,4	81,4	92,6	367,8	316,4	442,2	483,2	516,1	0,18	82,90	82,79	84,75	0,17	83,25	83,70	85,22	0,05	0,06	157,38793
138,0	353,0	2,5	2,0	6,8	423,5	311,4	81,6	92,3	364,3	315,3	440,5	482,2	515,3	0,18	82,86	82,77	84,71	0,17	83,21	83,69	85,18	0,05	0,06	155,79787
139,0	354,0	2,6	2,0	6,7	422,2	307,6	81,5	91,9	362,2	313,2	438,8	480,2	516,6	0,18	82,84	82,78	84,69	0,17	83,19	83,66	85,09	0,05	0,06	154,48351
140,0	355,0	2,5	2,1	6,7	420,5	303,6	81,6	91,3	357,3	312,0	438,2	475,5	517,9	0,18	82,79	82,77	84,67	0,17	83,15	83,66	85,08	0,05	0,06	152,78942
141,0	356,0	2,5	2,1	6,7	419,2	299,3	81,8	92,3	354,3	310,7	437,8	478,2	515,2	0,18	82,79	82,76	84,63	0,17	83,11	83,65	85,00	0,05	0,06	151,51118
142,0	357,0	2,5	2,2	6,5	417,6	294,7	81,6	91,2	350,7	309,8	436,3	477,7	513,4	0,18	82,76	82,76	84,57	0,17	83,10	83,64	84,92	0,05	0,05	149,85831
143,0	358,0	2,5	2,3	6,5	416,2	290,8	81,5	91,4	346,0	309,0	435,5	475,6	514,7	0,18	82,79	82,78	84,54	0,17	83,14	83,66	84,87	0,05	0,05	148,44511
144,0	359,0	2,5	2,3	6,3	415,0	287,4	81,2	90,9	343,2	308,0	435,0	475,2	513,6	0,18	82,79	82,76	84,53	0,17	83,14	83,66	84,78	0,05	0,05	147,27173
145,0	360,0	2,4	2,4	6,3	413,5	284,3	81,5	90,7	341,2	306,7	433,4	473,6	512,6	0,18	82,83	82,								

197,0	412,0	1,8	3,1	4,8	338,7	194,5	82,8	88,1	271,9	251,7	365,9	389,8	414,1	0,18	83,71	83,51	83,68	0,17	83,94	84,27	83,70	0,05	0,04	70,936255
198,0	413,0	1,8	3,1	4,8	337,4	193,6	82,9	88,6	272,0	250,4	364,8	387,3	412,5	0,18	83,74	83,51	83,69	0,17	83,95	84,29	83,72	0,05	0,04	69,659409
199,0	414,0	1,8	3,1	4,7	335,9	192,8	83,8	88,5	270,2	249,6	363,4	385,0	410,8	0,18	83,75	83,54	83,68	0,17	83,96	84,30	83,70	0,05	0,04	68,185769
200,0	415,0	1,8	3,0	4,7	334,8	192,2	82,6	88,1	269,7	248,9	361,9	383,8	409,5	0,18	83,78	83,56	83,71	0,17	83,98	84,33	83,72	0,05	0,04	67,027792
201,0	416,0	1,8	3,0	4,7	333,8	191,8	82,6	88,1	268,8	248,0	361,0	382,8	408,5	0,18	83,77	83,56	83,68	0,17	83,99	84,33	83,69	0,05	0,04	66,087686
202,0	417,0	1,8	3,0	4,6	332,4	191,4	82,2	87,9	267,5	247,2	360,0	380,7	406,8	0,18	83,81	83,57	83,69	0,17	84,02	84,34	83,69	0,05	0,04	64,684601
203,0	418,0	1,7	2,9	4,6	331,3	190,7	82,0	87,8	267,4	246,4	358,9	379,1	404,7	0,18	83,82	83,61	83,69	0,17	84,04	84,36	83,66	0,05	0,04	63,557455
204,0	419,0	1,8	2,9	4,6	330,6	189,5	82,3	87,8	266,5	245,8	357,8	378,2	404,5	0,18	83,82	83,61	83,68	0,17	84,04	84,36	83,65	0,05	0,04	62,813507
205,0	420,0	1,8	2,9	4,6	329,9	188,1	82,1	87,9	265,6	245,6	356,7	377,9	403,7	0,18	83,79	83,61	83,79	0,18	84,03	84,35	83,63	0,05	0,03	62,142654
206,0	421,0	1,7	2,9	4,6	328,9	187,1	82,2	87,7	264,8	244,2	355,7	377,4	403,3	0,18	83,78	83,63	83,69	0,17	84,03	84,35	83,64	0,05	0,04	61,193149
207,0	422,0	1,7	2,9	4,6	327,6	186,5	82,3	88,0	264,2	243,8	353,8	376,0	400,3	0,18	83,85	83,65	83,68	0,17	84,07	84,38	83,64	0,05	0,03	59,886667
208,0	423,0	1,7	2,9	4,6	326,7	185,3	83,0	88,2	264,4	242,9	352,9	374,6	398,5	0,18	83,88	83,66	83,68	0,17	84,07	84,39	83,64	0,05	0,03	58,934222
209,0	424,0	1,7	2,9	4,6	326,3	184,6	83,0	88,4	264,0	242,2	353,9	373,5	398,1	0,18	83,91	83,70	83,70	0,17	84,11	84,42	83,67	0,05	0,03	58,574356
210,0	425,0	1,7	2,9	4,6	325,3	183,7	83,3	88,3	263,4	241,3	352,3	372,6	396,9	0,18	83,92	83,69	83,69	0,17	84,12	84,43	83,67	0,05	0,03	57,555368
211,0	426,0	1,7	2,9	4,6	324,0	183,2	83,0	88,1	261,7	241,1	350,6	371,1	395,6	0,18	83,96	83,72	83,72	0,17	84,17	84,46	83,67	0,05	0,03	56,265619
212,0	427,0	1,7	2,9	4,6	322,5	182,5	83,3	88,1	261,3	240,1	349,5	369,1	393,6	0,18	83,96	83,73	83,71	0,17	84,15	84,47	83,65	0,05	0,03	54,5806
213,0	428,0	1,7	2,8	4,6	321,5	181,7	83,2	88,3	260,9	239,2	347,6	368,2	391,8	0,18	83,96	83,75	83,71	0,17	84,16	84,51	83,68	0,05	0,03	53,812546
214,0	429,0	1,7	2,9	4,5	319,9	181,2	82,5	88,0	258,7	238,5	346,0	366,2	390,2	0,18	83,97	83,74	83,72	0,17	84,15	84,51	83,68	0,04	0,03	52,190738
215,0	430,0	1,6	2,9	4,5	318,6	180,6	82,5	88,3	258,1	237,6	344,1	364,1	389,2	0,18	83,97	83,77	83,72	0,17	84,16	84,51	83,69	0,05	0,03	50,87933
216,0	431,0	1,7	2,9	4,6	317,6	180,5	82,7	87,9	257,9	236,6	343,5	363,1	386,9	0,18	83,96	83,78	83,74	0,17	84,17	84,52	83,70	0,05	0,03	49,876434
217,0	432,0	1,6	2,9	4,5	316,8	180,0	82,0	87,9	257,1	236,1	342,5	361,3	387,0	0,18	83,97	83,79	83,75	0,17	84,18	84,54	83,71	0,05	0,03	49,059399
218,0	433,0	1,6	2,9	4,5	315,5	179,0	82,8	88,1	256,3	235,2	341,9	359,9	384,1	0,18	83,96	83,78	83,72	0,17	84,15	84,53	83,68	0,05	0,03	47,743362
219,0	434,0	1,6	2,9	4,6	314,6	178,7	83,0	88,1	255,5	234,5	340,3	359,7	383,0	0,18	83,99	83,81	83,73	0,17	84,19	84,56	83,69	0,05	0,03	46,873111
220,0	435,0	1,6	2,9	4,5	313,6	178,4	82,4	88,1	255,1	233,9	339,5	358,1	381,4	0,18	83,99	83,83	83,77	0,17	84,21	84,59	83,69	0,05	0,03	45,867944
221,0	436,0	1,6	2,9	4,5	312,4	177,9	82,5	88,0	254,0	233,6	338,2	356,7	379,5	0,18	84,03	83,85	83,78	0,17	84,24	84,61	83,70	0,05	0,03	44,672418
222,0	437,0	1,6	2,9	4,5	311,6	177,2	81,8	88,0	253,5	232,8	337,1	355,5	379,0	0,18	84,05	83,87	83,76	0,17	84,26	84,65	83,72	0,05	0,03	43,866373
223,0	438,0	1,6	2,9	4,5	310,9	176,7	82,4	88,2	253,0	232,1	336,5	354,9	378,10	0,18	84,09	83,74	83,79	0,17	84,29	84,68	83,71	0,05	0,03	43,066411
224,0	439,0	1,6	2,9	4,4	310,6	176,3	82,3	88,1	252,4	231,7	336,6	354,7	377,4	0,18	84,12	83,91	83,76	0,17	84,31	84,69	83,71	0,05	0,03	42,848907
225,0	440,0	1,6	2,9	4,4	309,6	175,5	82,6	88,2	252,1	230,8	335,7	353,6	375,9	0,18	84,13	83,94	83,76	0,17	84,33	84,70	83,72	0,05	0,03	41,876706
226,0	441,0	1,6	2,8	4,4	308,7	175,0	82,1	88,2	252,0	230,5	334,7	352,3	373,9	0,18	84,15	83,97	83,78	0,17	84,34	84,70	83,72	0,05	0,03	40,947259
227,0	442,0	1,6	2,8	4,4	307,6	174,1	82,5	87,9	250,6	230,0	333,2	351,1	372,8	0,18	84,16	83,97	83,79	0,17	84,34	84,71	83,72	0,05	0,03	39,827157
228,0	443,0	1,5	2,8	4,4	306,4	173,4	82,4	88,0	249,6	229,5	332,4	349,8	370,7	0,18	84,18	83,99	83,79	0,17	84,37	84,73	83,72	0,05	0,03	38,666085
229,0	444,0	1,5	2,8	4,5	305,4	172,7	82,7	88,0	249,5	229,4	331,6	348,6	369,2	0,18	84,19	83,99	83,78	0,17	84,37	84,73	83,74	0,05	0,03	37,705659
230,0	445,0	1,5	2,8	4,5	304,4	172,0	82,5	88,0	248,9	227,9	330,2	346,6	368,3	0,18	84,20	84,01	83,82	0,17	84,38	84,74	83,74	0,05	0,03	36,645428
231,0	446,0	1,5	2,7	4,4	303,4	172,7	82,7	87,9	247,4	227,3	329,4	345,6	367,5	0,18	84,20	84,03	83,82	0,17	84,40	84,76	83,75	0,05	0,03	35,703192
232,0	447,0	1,5	2,5	4,4	302,6	172,0	82,7	88,0	246,2	226,9	328,1	344,6	367,1	0,18	84,21	84,03	83,82	0,17	84,42	84,78	83,76	0,05	0,03	34,825366
233,0	448,0	1,5	2,5	4,4	301,9	171,4	82,8	88,2	245,6	225,9	327,1	343,1	367,7	0,18	84,26	84,05	83,83	0,17	84,46	84,81	83,75	0,05	0,03	34,135278
234,0	449,0	1,5	2,5	4,4	300,5	170,8	81,9	88,1	244,1	225,6	325,4	341,3	365,9	0,18	84,27	84,08	83,82	0,17	84,48	84,80	83,76	0,05	0,03	32,746617
235,0	450,0	1,5	2,5	4,4	299,6	170,4	82,6	88,0	243,6	225,0	324,5	340,5	365,1	0,18	84,28	84,09	83,85	0,17	84,49	84,81	83,74	0,05	0,03	31,820774
236,0	451,0	1,5	2,5	4,3	299,2	169,7	82,6	88,1	242,5	223,7	323,6	339,2	367,2	0,18	84,35	84,12	83,87	0,17	84,54	84,87	83,76	0,05	0,03	31,496661
237,0	452,0	1,5	2,5	4,4	298,7	169,1	82,4	88,1	241,2	223,3	322,5	338,6	367,8	0,18	84,36	84,13	83,85	0,17	84,53	84,85	83,75	0,05	0,03	30,945526
238,0	453,0	1,5	2,5	4,4	297,7	168,6	83,3	88,3	240,7	222,8	321,7	337,1	366,2	0,18	84,36	84,12	83,90	0,17	84,53	84,85	83,79	0,05	0,03	29,974118
239,0	454,0	1,5	2,4	4,4	296,9	168,3	83,0	88,1	239,9	222,3	320,8	335,9	365,4	0,18	84,37	84,15	83,90	0,17	84,53	84,89	83,77	0,05	0,03	29,120184
240,0	455,0	1,4	2,4	4,3	296,4	167,3	82,4	88,2	239,3	222,0	319,7	335,5	364,8	0,18	84,39	84,17	83,90	0,17	84,54	84,89	83,80	0,05	0,03	28,625747
241,0	456,0	1,4	2,4	4,3	296,3	166,8	83,0	88,3	239,0	221,4	320,2	334,8	364,1	0,18	84,39	84,18	83,91	0,17	84,56	84,89	83,81	0,05	0,03	28,569702
242,0	457,0	1,4	2,4	4,3	295,5	166,1	83,6	88,1	239,0	220,6	318,9	333,0	366,1	0,18	84,41	84,19	83,92	0,17	84,57	84,90	83,80	0,05	0,03	27,78674
243,0	458,0	1,4	2,3	4,3	295,2	166,0	83,8	88,2	238,7	220,1	317,9	332,0	368,0	0,18	84,44	84,24	83,93	0,17	84,59	84,93	83,82	0,05	0,03	27,444821
244,0	459,0	1,4	2,3	4,3	294,8	165,7	83,0	88,2	236,9	219,9	316,9	331,1	369,0	0,18	84,47	84,21	83,94	0,17	84,59	84,93	83,82	0,05	0,03	27,019318
245,0	460,0	1,4	2,3	4,3	294,0	165,5	83,3	88,2	236,4	219,2	315,7	329,8	369,1	0,18	84,49	84,23	83,96	0,17	84,61	84,93	83,85	0,05	0,03	26,288766
246,0	461,0	1,4	2,3	4,3	293,6	165,4	83,0	88,2	235,8	218,7	315,1	328,6	370,8	0,18	84,50	84,24	83,96	0,17	84,62	84,95				

298.0	513.0	1,1	2,1	3,6	247,7	145,7	83,4	88,7	210,8	192,0	276,0	278,1	281,6	0,18	85,22	85,15	84,62	0,17	85,42	85,82	84,38	0,05	0,02	-20,03987
299.0	514.0	1,1	2,1	3,6	246,6	145,2	83,1	88,7	210,5	191,8	274,7	277,3	278,6	0,18	85,24	85,15	84,61	0,17	85,43	85,83	84,41	0,05	0,02	-21,16878
300.0	515.0	1,1	2,1	3,7	245,8	144,9	83,2	88,7	210,5	191,6	274,0	276,5	277,9	0,18	85,19	85,18	84,61	0,17	85,41	85,87	84,39	0,05	0,02	-21,94558
301.0	516.0	1,1	2,1	3,7	244,6	144,6	82,9	88,7	209,3	191,4	273,7	275,8	277,9	0,18	85,22	85,19	84,64	0,17	85,42	85,88	84,40	0,05	0,02	-23,10895
302.0	517.0	1,1	2,2	3,6	244,1	144,6	82,8	88,7	208,9	191,3	272,9	274,9	272,4	0,18	85,16	85,20	84,64	0,17	85,41	85,89	84,40	0,05	0,02	-23,6372
303.0	518.0	1,1	2,4	3,4	243,5	144,3	83,2	88,7	208,6	190,8	272,8	274,1	271,1	0,18	85,18	85,21	84,64	0,17	85,42	85,91	84,40	0,05	0,02	-24,26189
304.0	519.0	1,1	2,2	3,6	242,9	143,7	83,2	88,7	208,1	190,7	272,8	273,3	269,7	0,18	85,16	85,21	84,62	0,17	85,42	85,91	84,41	0,05	0,02	-24,78726
305.0	520.0	1,1	2,2	3,7	242,2	143,3	83,2	88,7	207,3	190,2	272,2	272,6	268,6	0,18	85,21	85,22	84,66	0,17	85,43	85,93	84,41	0,05	0,02	-25,52914
306.0	521.0	1,0	2,3	3,6	241,1	143,0	82,8	88,7	206,9	189,7	271,6	272,0	266,7	0,18	85,20	85,23	84,66	0,17	85,43	85,94	84,41	0,05	0,02	-26,33413
307.0	522.0	1,0	2,2	3,7	240,7	143,0	83,0	88,7	206,8	189,5	270,7	270,7	264,9	0,18	85,19	85,24	84,67	0,17	85,44	85,94	84,41	0,05	0,02	-27,03147
308.0	523.0	1,1	2,2	3,8	240,2	142,9	82,9	88,7	206,6	189,3	270,6	269,9	264,5	0,18	85,16	85,24	84,67	0,17	85,43	85,96	84,45	0,05	0,02	-27,56533
309.0	524.0	1,0	2,1	3,8	239,7	142,7	83,1	88,8	205,9	189,1	270,5	269,3	263,7	0,18	85,16	85,26	84,65	0,17	85,42	85,97	84,43	0,05	0,02	-28,04731
310.0	525.0	1,0	2,2	3,8	239,2	142,2	82,9	88,7	205,7	189,1	269,9	268,6	262,6	0,18	85,17	85,26	84,67	0,17	85,43	85,99	84,42	0,05	0,02	-28,58084
311.0	526.0	1,0	2,1	3,7	238,7	141,9	83,2	88,8	205,8	188,7	269,7	267,4	261,8	0,18	85,15	85,28	84,67	0,17	85,44	85,99	84,43	0,05	0,02	-29,06577
312.0	527.0	1,0	2,1	3,8	237,8	141,3	83,1	88,8	205,2	188,8	269,3	265,7	259,9	0,18	85,13	85,29	84,69	0,17	85,41	85,98	84,45	0,05	0,02	-29,96951
313.0	528.0	1,0	2,1	3,7	237,4	141,1	83,3	88,8	204,9	188,7	269,0	265,5	258,8	0,18	85,15	85,27	84,70	0,17	85,41	86,00	84,46	0,05	0,02	-30,37637
314.0	529.0	1,0	2,1	3,7	236,7	140,8	83,2	88,8	204,8	188,5	268,3	265,2	256,9	0,18	85,14	85,30	84,69	0,17	85,40	85,98	84,47	0,05	0,02	-31,01917
315.0	530.0	1,0	2,2	3,6	236,1	140,9	83,1	88,8	203,9	188,1	268,9	264,4	255,3	0,18	85,15	85,30	84,71	0,17	85,41	86,00	84,48	0,05	0,02	-31,60038
316.0	531.0	1,0	2,2	3,5	235,6	140,5	83,2	88,8	202,9	187,7	268,8	263,7	255,0	0,18	85,19	85,34	84,75	0,17	85,43	86,01	84,51	0,05	0,02	-32,12868
317.0	532.0	1,0	2,1	3,6	235,2	140,4	83,7	88,8	202,3	187,4	268,7	263,1	254,3	0,18	85,20	85,31	84,75	0,17	85,44	86,01	84,51	0,05	0,02	-32,57852
318.0	533.0	1,0	2,2	3,9	234,4	140,1	83,5	88,7	201,4	187,1	268,1	262,4	253,0	0,18	85,24	85,33	84,75	0,17	85,45	86,03	84,52	0,05	0,02	-33,30635
319.0	534.0	1,0	2,2	4,0	233,5	140,0	83,0	88,8	201,2	186,7	267,3	261,4	251,0	0,18	85,26	85,39	84,77	0,17	85,48	86,06	84,53	0,05	0,02	-34,22419
320.0	535.0	1,0	2,3	4,0	232,8	139,4	83,5	88,8	200,6	186,3	266,4	261,2	249,6	0,18	85,30	85,40	84,81	0,17	85,51	86,08	84,56	0,05	0,02	-34,93266
321.0	536.0	0,9	2,4	4,0	232,2	139,5	83,3	88,9	200,2	185,8	265,7	260,4	248,8	0,18	85,30	85,39	84,80	0,17	85,51	86,09	84,57	0,05	0,02	-35,54512
322.0	537.0	0,9	2,4	4,0	231,8	139,5	83,7	88,9	199,8	185,3	265,9	259,5	248,3	0,18	85,33	85,44	84,82	0,17	85,54	86,10	84,58	0,05	0,02	-35,95239
323.0	538.0	0,9	2,3	4,0	231,6	139,5	83,2	88,8	200,0	185,3	265,9	258,7	248,0	0,18	85,39	85,46	84,84	0,17	85,57	86,14	84,61	0,05	0,02	-36,162
324.0	539.0	0,9	2,1	4,2	230,9	139,1	83,4	88,9	199,8	185,1	265,8	257,2	247,2	0,18	85,40	85,47	84,85	0,17	85,60	86,17	84,60	0,05	0,02	-36,72552
325.0	540.0	0,9	2,3	4,1	231,0	138,7	83,0	88,8	200,0	184,6	266,0	257,6	246,9	0,18	85,39	85,48	84,85	0,17	85,62	86,16	84,61	0,05	0,02	-36,70673
326.0	541.0	0,9	2,2	4,1	230,6	138,4	83,1	88,8	200,2	184,2	265,5	256,6	246,4	0,18	85,39	85,50	84,86	0,17	85,62	86,17	84,61	0,05	0,02	-37,1625
327.0	542.0	0,9	2,2	4,1	230,4	138,0	83,0	88,7	200,5	184,2	265,4	256,1	245,9	0,18	85,39	85,51	84,84	0,17	85,62	86,19	84,62	0,05	0,02	-37,31961
328.0	543.0	0,9	2,1	4,0	230,2	137,3	83,1	88,8	201,0	183,8	265,4	255,7	244,9	0,18	85,34	85,51	84,92	0,17	85,63	86,20	84,63	0,05	0,02	-37,57339
329.0	544.0	0,9	2,1	4,0	230,1	137,2	83,3	88,8	202,5	183,6	264,9	255,1	244,6	0,18	85,35	85,53	84,89	0,17	85,62	86,21	84,64	0,05	0,02	-37,60243
330.0	545.0	0,9	2,1	4,2	230,0	136,9	83,3	88,8	202,2	183,3	264,4	254,4	243,1	0,18	85,38	85,55	84,92	0,17	85,65	86,22	84,63	0,05	0,02	-37,75908
331.0	546.0	0,9	2,1	4,2	230,1	136,7	83,5	88,8	203,9	182,9	265,6	253,5	244,5	0,18	85,43	85,58	84,90	0,17	85,68	86,27	84,64	0,05	0,02	-37,6433
332.0	547.0	0,9	2,0	4,3	229,6	136,5	83,5	88,8	203,5	182,9	265,4	252,4	244,0	0,18	85,44	85,59	84,93	0,17	85,68	86,26	84,64	0,05	0,02	-38,10717
333.0	548.0	0,9	2,0	4,2	229,5	136,6	83,5	88,9	204,6	182,8	265,3	251,3	243,2	0,18	85,46	85,61	84,93	0,17	85,72	86,30	84,67	0,05	0,02	-38,28243
334.0	549.0	0,9	2,0	4,3	228,8	136,5	83,7	88,8	205,1	182,1	264,4	250,6	242,0	0,18	85,47	85,62	84,95	0,17	85,72	86,32	84,68	0,05	0,02	-38,91602
335.0	550.0	0,8	2,0	4,3	228,3	136,2	84,0	88,9	205,6	181,8	263,7	249,2	241,1	0,18	85,50	85,64	84,96	0,17	85,74	86,32	84,67	0,05	0,02	-39,46227
336.0	551.0	0,9	2,0	4,3	227,6	136,4	83,7	88,9	206,2	181,3	263,0	248,3	240,3	0,18	85,52	85,67	84,90	0,17	85,78	86,34	84,71	0,05	0,02	-40,10353
337.0	552.0	0,8	2,0	4,3	227,1	136,4	83,7	88,9	206,1	181,1	263,2	247,5	239,8	0,18	85,54	85,65	85,00	0,17	85,81	86,35	84,71	0,05	0,02	-40,61202
338.0	553.0	0,9	2,0	4,2	226,7	136,3	83,8	88,9	204,6	180,7	262,8	246,9	238,3	0,18	85,55	85,68	84,99	0,17	85,80	86,36	84,72	0,05	0,02	-41,08541
339.0	554.0	0,9	2,0	4,2	226,1	135,8	83,5	88,9	204,0	180,5	262,2	245,9	237,9	0,18	85,51	85,68	85,00	0,17	85,78	86,36	84,72	0,05	0,02	-41,63252
340.0	555.0	0,8	2,0	4,2	226,2	136,0	83,5	88,8	204,4	180,5	262,9	245,7	237,4	0,18	85,47	85,67	85,02	0,17	85,76	86,39	84,72	0,05	0,02	-41,55629
341.0	556.0	0,8	2,0	4,1	225,7	135,7	83,3	89,0	204,1	180,4	263,3	244,7	236,0	0,18	85,45	85,69	84,99	0,17	85,77	86,40	84,74	0,05	0,02	-42,02232
342.0	557.0	0,8	2,0	4,2	225,7	135,2	83,5	88,9	204,2	180,4	263,6	244,8	236,6	0,18	85,44	85,69	84,99	0,17	85,77	86,42	84,75	0,05	0,02	-42,0217
343.0	558.0	0,8	2,0	4,1	225,1	135,2	83,4	88,9	204,7	179,7	263,0	243,6	234,6	0,18	85,40	85,72	85,02	0,17	85,74	86,40	84,77	0,05	0,02	-42,62791
344.0	559.0	0,8	2,1	4,1	224,6	135,3	84,0	89,0	203,8	179,5	263,4	242,8	233,4	0,18	85,42	85,71	85,01	0,17	85,74	86,40	84,75	0,05	0,02	-43,15929
345.0	560.0	0,8	2,1	4,1	224,1	135,3	83,7	88,9	203,6	179,0	262,5	242,1	233,1	0,18	85,44	85,73	85,02	0,17	85,76	86,43	84,75	0,05	0,02	-43,68402
346.0	561.0	0,8	2,1	4,1	223,6	135,3	83,6	88,9	203,4	178,5	262,2	241,4	232,6	0,18	85,49	85,75	85,00	0,17	85,78	86,44	84,76	0,05	0,02	-44,10958
347.0	562.0	0,8	2,1	4,0	223,4	135,4	83,6	89,0	203,1	178,6	262,0	240,5	232,0	0,18	85,53	85,74	85,03	0,17	85,82	86,46	84,74	0,05	0,02	-44,30909
3																								

399,0	614,0	0,4	2,2	4,6	219,7	150,3	84,1	89,3	223,9	166,7	256,9	217,6	233,5	0,18	85,99	86,34	85,43	0,17	86,28	87,04	85,18	0,05	0,02	-48,01791
400,0	615,0	0,4	2,2	4,6	219,7	149,7	84,1	89,4	224,1	166,3	256,4	217,2	234,4	0,18	86,01	86,33	85,45	0,17	86,30	87,03	85,19	0,05	0,02	-48,06889
401,0	616,0	0,4	2,2	4,6	219,6	149,6	83,9	89,4	224,6	166,2	255,2	217,0	235,2	0,18	86,00	86,35	85,44	0,17	86,31	87,05	85,18	0,05	0,02	-48,11608
402,0	617,0	0,4	2,2	4,6	219,5	149,8	84,0	89,4	224,2	166,1	254,5	216,9	236,1	0,18	86,01	86,35	85,45	0,17	86,30	87,05	85,19	0,05	0,02	-48,27398
403,0	618,0	0,4	2,2	4,7	219,6	150,3	83,6	89,4	224,8	165,9	254,1	216,7	236,2	0,18	86,05	86,40	85,44	0,17	86,34	87,08	85,20	0,05	0,02	-48,17548
404,0	619,0	0,4	2,2	4,9	219,5	150,5	83,7	89,3	225,6	165,7	253,1	216,4	236,6	0,18	86,02	86,39	85,44	0,17	86,33	87,08	85,17	0,05	0,02	-48,25253
405,0	620,0	0,4	2,1	5,1	219,3	151,0	83,9	89,4	226,3	165,3	252,4	216,0	236,3	0,18	86,05	86,40	85,48	0,17	86,36	87,09	85,21	0,05	0,02	-48,44719
406,0	621,0	0,4	2,2	5,1	219,1	151,1	84,2	89,5	226,0	165,3	251,9	215,7	236,7	0,18	86,05	86,42	85,48	0,17	86,39	87,11	85,20	0,05	0,02	-48,62516
407,0	622,0	0,3	2,3	4,8	218,9	151,7	84,2	89,4	226,2	164,8	251,1	215,3	237,1	0,18	86,09	86,43	85,49	0,17	86,40	87,12	85,22	0,05	0,02	-48,83655
408,0	623,0	0,3	2,4	4,6	218,8	152,1	83,4	89,5	225,2	164,6	250,9	215,3	238,3	0,18	86,06	86,44	85,47	0,17	86,40	87,11	85,20	0,04	0,02	-48,90526
409,0	624,0	0,3	2,4	4,6	219,0	152,0	83,9	89,5	224,9	164,6	251,1	215,1	239,1	0,18	86,06	86,45	85,51	0,17	86,37	87,13	85,22	0,05	0,02	-48,76328
410,0	625,0	0,3	2,4	4,5	219,3	152,3	84,1	89,5	225,1	164,6	250,9	215,3	240,7	0,18	86,02	86,42	85,49	0,17	86,36	87,10	85,21	0,05	0,02	-48,4188
411,0	626,0	0,3	2,4	4,5	219,6	152,0	84,1	89,4	225,8	164,6	251,0	215,4	241,0	0,18	86,01	86,46	85,50	0,17	86,38	87,13	85,22	0,05	0,02	-48,18553
412,0	627,0	0,3	2,4	4,5	219,6	152,9	84,0	89,5	225,2	164,3	250,5	215,6	242,5	0,18	86,02	86,44	85,50	0,17	86,35	87,12	85,24	0,05	0,02	-48,13223
413,0	628,0	0,3	2,4	4,4	219,0	152,8	84,2	89,6	224,1	163,9	249,6	215,5	242,1	0,18	86,02	86,44	85,49	0,17	86,36	87,15	85,22	0,05	0,02	-48,70489
414,0	629,0	0,3	2,5	4,4	218,6	153,1	84,2	89,6	223,4	163,5	248,8	215,2	242,1	0,18	86,06	86,47	85,49	0,17	86,39	87,16	85,24	0,05	0,02	-49,13566
415,0	630,0	0,3	2,5	4,4	218,3	153,3	84,3	89,6	223,5	163,4	247,9	214,7	241,9	0,18	86,09	86,47	85,52	0,17	86,43	87,17	85,26	0,05	0,02	-49,44082
416,0	631,0	0,3	2,5	4,3	218,4	153,0	84,2	89,6	223,5	163,3	247,6	214,8	242,8	0,18	86,15	86,51	85,53	0,17	86,48	87,18	85,28	0,05	0,02	-49,3633
417,0	632,0	0,3	2,5	4,3	218,4	153,4	84,3	89,6	223,5	163,1	247,4	214,4	243,7	0,18	86,19	86,51	85,54	0,17	86,50	87,21	85,26	0,05	0,02	-49,31765
418,0	633,0	0,3	2,4	4,3	218,1	153,4	84,2	89,6	223,6	163,0	246,2	214,1	243,8	0,18	86,22	86,52	85,56	0,17	86,52	87,23	85,26	0,05	0,02	-49,58976
419,0	634,0	0,3	2,4	4,3	217,9	153,5	84,2	89,6	223,3	162,6	246,3	214,0	243,3	0,18	86,21	86,53	85,54	0,17	86,53	87,24	85,26	0,05	0,03	-49,85127
420,0	635,0	0,2	2,4	4,3	217,7	153,3	84,2	89,6	223,0	162,5	245,7	213,9	243,5	0,18	86,25	86,57	85,57	0,17	86,55	87,25	85,26	0,05	0,02	-50,02089
421,0	636,0	0,2	2,4	4,3	217,5	153,3	84,2	89,6	223,0	162,2	245,0	213,6	243,8	0,18	86,23	86,55	85,57	0,17	86,55	87,24	85,23	0,05	0,03	-50,21815
422,0	637,0	0,3	2,4	4,3	217,3	153,4	84,1	89,6	222,7	162,1	244,8	213,4	243,3	0,18	86,22	86,56	85,59	0,17	86,55	87,30	85,26	0,05	0,03	-50,48077
423,0	638,0	0,2	2,4	4,2	217,2	153,8	84,0	89,6	222,4	162,1	244,3	213,6	243,7	0,18	86,21	86,55	85,58	0,17	86,55	87,28	85,26	0,05	0,03	-50,5125
424,0	639,0	0,2	2,4	4,1	216,8	153,8	84,0	89,6	221,9	162,0	243,2	213,2	243,7	0,18	86,19	86,57	85,59	0,17	86,54	87,30	85,26	0,05	0,03	-50,92001
425,0	640,0	0,3	2,4	4,1	216,5	153,3	83,3	89,5	221,2	162,1	242,8	212,9	243,3	0,18	86,19	86,59	85,61	0,17	86,53	87,29	85,29	0,05	0,02	-51,2746
426,0	641,0	0,2	2,2	3,9	215,6	151,5	84,0	89,5	218,6	161,8	242,4	212,6	242,6	0,18	86,12	86,58	85,57	0,17	86,49	87,30	85,26	0,05	0,02	-52,12795
427,0	642,0	0,2	2,0	3,8	215,0	150,1	84,3	89,6	216,2	161,6	241,9	212,9	242,4	0,18	86,12	86,59	85,60	0,17	86,51	87,30	85,29	0,05	0,02	-52,73333
428,0	643,0	0,2	2,1	3,8	214,3	149,5	84,1	89,6	214,6	161,4	241,5	212,7	241,6	0,18	86,10	86,59	85,58	0,17	86,50	87,31	85,29	0,05	0,02	-53,39767
429,0	644,0	0,2	2,2	3,7	213,7	148,4	83,7	89,6	213,6	161,3	240,3	212,4	240,9	0,18	86,11	86,58	85,57	0,17	86,45	87,30	85,29	0,05	0,02	-54,04542
430,0	645,0	0,2	2,3	3,6	213,3	148,2	83,8	89,5	212,4	161,1	239,5	212,6	240,8	0,18	86,11	86,60	85,58	0,17	86,48	87,32	85,29	0,05	0,02	-54,46835
431,0	646,0	0,2	2,3	3,6	212,7	147,6	84,2	89,5	210,3	160,9	238,9	212,4	241,0	0,18	86,11	86,58	85,60	0,17	86,48	87,32	85,31	0,05	0,02	-55,03579
432,0	647,0	0,2	2,4	3,4	212,2	146,5	84,5	89,6	208,6	161,1	238,1	212,4	241,1	0,18	86,12	86,59	85,59	0,17	86,50	87,30	85,29	0,05	0,02	-55,05663
433,0	648,0	0,2	2,3	3,3	211,3	145,6	83,5	89,4	206,9	160,8	237,2	212,1	239,4	0,18	86,12	86,61	85,58	0,17	86,47	87,32	85,29	0,05	0,02	-56,4404
434,0	649,0	0,2	2,3	3,3	210,8	145,0	83,9	89,6	205,3	160,5	236,5	212,2	239,6	0,18	86,11	86,60	85,60	0,17	86,47	87,32	85,32	0,05	0,02	-56,92065
435,0	650,0	0,2	2,4	3,1	210,3	143,8	83,9	89,5	202,9	160,3	236,4	212,3	239,9	0,18	86,11	86,60	85,58	0,17	86,49	87,33	85,33	0,05	0,02	-57,38945
436,0	651,0	0,1	2,5	3,0	210,0	143,0	83,9	89,5	201,3	160,1	235,2	212,2	241,1	0,18	86,11	86,60	85,59	0,17	86,49	87,31	85,30	0,05	0,02	-57,73645
437,0	652,0	0,1	2,5	3,0	209,5	141,7	84,0	89,5	199,8	160,2	234,6	212,0	240,9	0,18	86,10	86,61	85,63	0,17	86,49	87,34	85,31	0,05	0,02	-58,23787
438,0	653,0	0,1	2,5	3,0	208,4	140,6	83,7	89,4	198,4	159,7	232,7	211,8	239,3	0,18	86,05	86,61	85,58	0,17	86,46	87,33	85,30	0,05	0,02	-59,3502
439,0	654,0	0,2	2,5	3,0	207,5	139,6	84,0	89,4	196,7	159,4	231,6	211,4	238,5	0,18	86,01	86,59	85,58	0,17	86,42	87,33	85,26	0,05	0,02	-60,2121
440,0	655,0	0,1	2,6	3,0	206,6	138,7	84,0	89,4	194,0	159,3	230,3	210,9	238,3	0,18	86,03	86,60	85,58	0,17	86,43	87,32	85,30	0,05	0,02	-61,17257
441,0	656,0	0,1	2,6	3,1	205,7	137,5	84,3	89,4	191,7	159,2	229,0	211,0	237,3	0,18	86,02	86,59	85,58	0,17	86,43	87,32	85,29	0,05	0,02	-62,07525
442,0	657,0	0,1	2,4	2,9	205,1	136,4	83,8	89,1	190,1	159,0	228,3	211,5	236,6	0,18	85,99	86,60	85,58	0,17	86,39	87,33	85,28	0,05	0,02	-62,63467
443,0	658,0	0,1	2,5	2,9	204,4	135,4	84,2	89,2	188,0	159,1	227,5	211,4	236,2	0,18	85,99	86,58	85,57	0,17	86,38	87,30	85,25	0,05	0,02	-63,29713
444,0	659,0	0,1	2,6	2,9	203,8	134,5	84,2	89,1	187,1	158,8	226,7	211,4	235,0	0,18	85,98	86,60	85,58	0,17	86,37	87,29	85,26	0,05	0,02	-63,95502
445,0	660,0	0,1	2,7	3,1	203,1	133,6	83,6	89,1	185,3	158,9	225,9	211,4	233,9	0,18	85,97	86,57	85,58	0,17	86,37	87,31	85,24	0,05	0,02	-64,66389
446,0	661,0	0,1	2,8	3,2	202,6	132,9	83,5	89,1	183,9	159,1	225,2	211,6	233,2	0,18	85,92	86,57	85,56	0,17	86,35	87,29	85,23	0,05	0,02	-65,12239
447,0	662,0	0,1	2,9	3,3	202,0	132,1	83,9	89,0	183,0	158,9	224,1	211,7	232,5	0,18	85,92	86,58	85,56	0,17	86,32	87,30	85,27	0,05	0,02	-65,69645
448,0	663,0	0,1	3,1	3,4	201,2	131,4	83,9	89,1	181,4	158,8	222,7	211,6	231,7	0,18	85,92	86,59	85,56	0,17	86,33	87,31	85,27	0,05	0,02	-66,59884
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Manufacturer: FOYER SUPREME
Model: NV 200

Run: 6
Project #: pi-20131
Test Duration: 456 min

	HHV	LHV
Eff	67,03%	72,44%
Comb Eff	91,49%	91,49%
HT Eff	73,26%	79,18%
Output	10 674	kJ/h
Burn Rate	0,80	kg/h
Grams CO	750	g
Input	15 924	kJ/h
MC wet	17,22	

Note: In the "Input data", "Calc. % O₂", "Fuel Properties", and "Mass Balance" columns, [e], [d], [g], [a], [b], [c], [h], [u], [w], [j], and [k] refer to their respective variables in Clauses 13.7.3

Ultimate CO₂
CO_{2-ult} 19,64
F₀
1,061

Overall Heating Efficiency:
Combustion Efficiency:
Heat Transfer Efficiency:

67,03%
91,49%
73,26%

Air Fuel Ratio (A/F)	
Dry Molecular Weight (M _d)	29,48
Dry Moles Exhaust Gas (N _p):	465,49
Air Fuel Ratio (A/F)	13,21

Heat Output:	10 125 Btu/h	10 674 kJ/h
Heat Input:	15 106 Btu/h	15 924 kJ/h
Burn Duration:	7,60 h	
Burn Rate:	1,77 lb/h	0,804 kg/h
Stack Temp:	310,4 Deg. F	154,7 Deg. C



Model: NV 100

Reviewer: DP

7:37

1. 48 H.
3. 4 HBS

Date: _____
Project #: _____

Manufacturer: _____
Run: _____

Model: _____
Reviewer: _____

Side view	Front view	Top view
		

Date: _____ Manufacturer: _____ Model: _____
 Project #: _____ Run: _____ Tech: _____ Reviewer: _____

	ADDITION		SUBTRACTION	
	ft3	Volume	ft3	Volume
V measure				
V ashlip				
%				
V usable				
Usable Firebox: _____				
Test load weight: _____ Minimum: _____ Maximum: _____				
Déviation: _____				

PRE / POST CHECKS

Date: 2016-09-13 Manufacturer: Boyer Supreme Model: NH 200
 Project #: PI 20131 Run: 6 Tech: MR Reviewer: DO

Moisture Meter Calibration Check:

Equipment #	Time	12%	22%
EM-191	7:30	OK	OK

Pre-Test

Post-Test

Facility Conditions:

Air Velocity from less than 2 feet

Smoke Capture Check.....

Picture.....

12 (max50 Fpm)	15 (max50 Fpm)
OK	OK
4 sides OK	OK

Wood Heater Conditions:

Date Wood Heater Stack Cleaned.....

Date Dilution Tunnel Cleaned.....

Induced Draft Check (max 0.005 H2O).....

Traverse before ignition.....

Flow Rate 140 cfm $\pm$ 10%.....

2016-09-06
2016-09-06
OK
OK

OK

Temperature System:

Ambient (65°-90°F).....

Wood Heater Surface ($\pm$ 125°F).....

OK	°F
OK	°F

Proportional Checks:

Thermocouple check.....

Pitot Clean.....

Pitot verification.....

OK
OK
OK

Sampling Train ID Numbers:

Probe.....

Filter Front.....

Filter Back.....

Filter Thermocouple.....

Filter (<90°F).....

Train 1 st hour	Train 1	Train 2
02	30	33
855	858	860
856	~~859~~ 859	863
11	11	12
OK	OK	OK

SAMPLING EQUIPMENT CHECK OUT

 Date: 20th 09-13

 Manufacturer: Fager Supreme

 Model: NL 200

 Project #: PI 131

 Run: 6

 Tech: MM

 Reviewer: SP

Leakage Checks Tunnel Samplers

	System 1 st hour		System 1		System 2	
Unplugged Flow Rate = .25cfm	Pre-Test ASTM (-15) CSA B415 (-5)	Post-Test (max test)	Pre-Test ASTM (-15) CSA B415 (-5)	Post-Test (Max test)	Pre-Test ASTM (-15) CSA B415 (-5)	Post-Test (Max test)
Vacuum (inches Hg.)	-15	-15	-15	-15	-15	-15
Final 1minute DGM (Liter)	428641,90	431051,95	428641,94	431051,94	370741,59	373054,70
Initial 1minute DGM (Liter)	428641,90	431051,94	428641,94	431051,99	370741,58	373054,70
Change © (Liter)	0	0,01	0	0	0,01	0
Allowable leakage .04 x Sample rate or 0.28Lpm CSA B415 (0.56)						
Check OK	ok	ok	ok	ok	ok	ok

Leakage Checks Flue Gas Sampler

Plugged Probe	Pre Test	Post Test
Vacuum (inches Hg.)	-5	-5
Rotometer Reading (mml/min.)	0	0
Flow Rate (lpm)	1.5	1.5
Allowable (.02 x Sample Rate)	30	30
Check OK	ok	ok

Leakage Checks Pitot

Plugged Probe	Pre Test 3 H2o static	Pre Test 0.4-0.5 H2o velocity	Post Test 3 H2o Static	Post Test 0.4-0.5 H2o velocity
Vacuum (inches Hg.)	3	.5	3	.4
Check OK (no change after 15 sec.)	ok	ok	ok	ok

PRE-TEST SCALE AUDIT

Date: 06-09-13 Manufacturer: Foyer Supreme Model: NV 200
 Project #: PI 20131 Run: 6 Tech: MM Reviewer: DO

Scale Type	Audit		Measured Weight
	Equipment #	Weight	
Platform	EM-090	4.4 lbs, Class F	4.4 lbs
Wood	EM-090	4.4 lbs, Class F	4.4 lbs
Analytical	EM-128	100 mg, Class S	100 mg
Analytical	EM-129	200 g, Class S	200 g

LIMITS OF WEIGHT RANGES

ANALYTICAL SCALE: 50%-150% of dry filter weight, ± 0.1 mg
PLATFORM SCALE: 20%-80% of ideal test load weight, ± 0.1 lbs or 1%
WOOD SCALE: 20%-80% of ideal test load weight, ± 0.01 lbs or 1%

CONTINUOUS ANALYZERS

Date: 2016 09-13 Manufacturer: Foyer Supreme Model: NV200
 Project #: P1 6131 Run: 6 Tech: MM Reviewer: _____

Pre-Test (Adjust and Record)

	ZERO		SPAN		CAL. (Record Only)	
CO	0	0	2,958	2,921	0,998	1,00
Tolerance CO		+/- 0.02		+/- 0.15		+/- 0.05
CO ₂	0	0	17,88	17,82	9,72	10,00
Tolerance CO ₂		+/- 0.02		+/- 0.5		+/- 0.5
O ₂ informative CSA B415 calculated value	na	na	na	na	na	na
	Actual	Should Be	Actual	Should Be	Actual	Should Be

Post Test (Record Only)

	Zero	Span	Cal.	Zero Drift	Limit	Span Drift	Limit	Cal. Drift	Limit	OK?	Not OK*
CO	0,004	2,968	1,008	0,004	0.02	0,003	0.15	0,010	0.05	✓	
CO ₂	0,00	17,72	9,73	0	0.02	0,08	0.5	0,01	0.5	✓	
O ₂	na	na	na	N.A	na	N.A	na	N.A	na	N.A	N.A

TEST DATA LOG

Date: 2016-09-13 Manufacturer: Fager Supreme Model: NV200
 Project #: PZ 20131 Run: 6 Tech: MM Reviewer: TS

RAW DRY GAS METER READINGS

	System 1	System 2	Blank
Final (Liter)	431051, 14	373050, 98	450, 28
Initial (Liter)	428642, 17	370742, 18	392, 20

AMBIENT CONDITIONS

	Before	After
Barometer (kPa):	101, 9	101, 3
Dry Bulb (F):	76, 28	85, 1
Humidity (%):	48	43

Flow Meter

	Start	End
Flow meter reading	N.A	N.A

Flow Meter Verification

	Before	After
Flow meter Check (liters)	N.A	N.A
Scale Weight (Kg)	N.A	N.A

FUEL DATA

 Date: 2-16-09-13

 Manufacturer: foyer Supreme

 Model: NV 200

 Project #: PI 20131

 Run: 6

 Tech: MM

 Reviewer: DP

FUEL DESCRIPTION:

Type of wood:

PRE-TEST LOAD

Piece Size	Weight	Meter Moisture Content (% dry)*			
2 x 4 x 5 in.	0.732 lbs.	20.0	20.1	20.6	
2 x 4 x 5 in.	0.682 lbs.	19.3	19.6	20.0	
2 x 4 x 5 in.	0.676 lbs.	19.9	19.3	20.6	
2 x 4 x 5 in.	0.696 lbs.	20.3	20.6	20.3	
2 x 4 x 5 in.	0.672 lbs.	19.3	19.8	19.4	
2 x 4 x 5 in.	0.702 lbs.	20.0	20.9	20.8	
2 x 4 x 5 in.	0.740 lbs.	21.3	21.6	20.8	
2 x 4 x 5 in.	0.710 lbs.	19.6	19.3	20.1	
2 x 4 x 5 in.	0.688 lbs.	19.6	19.1	19.3	
2 x 4 x 5 in.	0.754 lbs.	20.2	20.4	20.6	
2 x 4 x 5 in.	0.708 lbs.	20.2	20.5	21.0	
2 x 4 x 5 in.	0.712 lbs.	19.5	19.6	20.0	
2 x 4 x 5 in.	0.688 lbs.	19.6	20.1	20.9	
2 x 4 x 5 in.	0.698 lbs.	20.0	20.2	19.6	
2 x 4 x 5 in.	0.806 lbs.	20.8	20.9	20.8	
2 x 4 x 5 in.	0.704 lbs.	20.8	20.2	20.6	
2 x 4 x 5 in.	0.722 lbs.	19.1	19.4	19.6	
2 x 4 x 5 in.	0.660 lbs.	19.2	19.6	19.8	
2 x 4 x 5 in.	0.682 lbs.	20.6	20.2	20.9	
2 x 4 x 5 in.	0.692 lbs.	20.3	20.2	20.6	
2 x 4 x 5 in.	0.762 lbs.	21.2	21.0	21.4	
2 x 4 x 5 in.	0.710 lbs.	20.6	20.5	20.7	
2 x 4 x 5 in.	0.682 lbs.	20.4	20.3	20.8	

TEST LOAD WEIGHT: _____ lbs



TESTING THROUGH YOUR REALITY

Model: NV 200

Reviewer: DP

Type of wood:

Piece Size

Weight

Meter Moisture Content (% dry)*

2	x	4	x	5	in.	1,00	lbs.	22,0			22,1			22,4
---	---	---	---	---	-----	------	------	------	--	--	------	--	--	------

FUEL DATA

 Date: 2016-09-13

 Manufacturer: Foyer Supreme

 Model: NV200

 Project #: P1 20131

 Run: 6

 Tech: MM

 Reviewer: DP

FUEL DESCRIPTION:

Type of wood :

TEST LOAD

Piece Size	Weight	Meter Moisture Content (% dry)*				
1 1/2 x 3 1/2 x 22 in.	2,524 lbs.	21.6	22.1	21.7	21.7	22.3
1 1/2 x 3 1/2 x 22 in.	2,414 lbs.	22.1	20.9	20.8	21.3	21.4
3 1/2 x 3 1/2 x 22 in.	5,092 lbs.	20.9	20.0	21.6	20.7	20.9
3 1/2 x 3 1/2 x 22 in.	4,888 lbs.	19.8	20.7	19.0	19.6	21.2
1 1/2 x 3 1/4 x 5 in.	0,116 lbs.			19.8		
1 1/2 x 3 1/4 x 5 in.	0,164 lbs.			20.1		
1 1/2 x 3 1/4 x 5 in.	0,108 lbs.			21.0		
1 1/2 x 3 1/4 x 5 in.	0,166 lbs.			20.5		
1 1/2 x 3 1/4 x 5 in.	0,110 lbs.			20.5		
1 1/2 x 3 1/4 x 5 in.	0,104 lbs.			19.9		
1 1/2 x 3 1/4 x 5 in.	0,108 lbs.			21.0		
1 1/2 x 3 1/4 x 5 in.	0,102 lbs.			21.0		
1 1/2 x 3 1/4 x 5 in.	0,100 lbs.			20.5		
1 1/2 x 3 1/4 x 5 in.	0,104 lbs.			20.5		
1 1/2 x 3 1/4 x 5 in.	0,098 lbs.			20.8		
1 1/2 x 3 1/4 x 5 in.	0,126 lbs.			21.0		
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					

 TEST LOAD WEIGHT: 16,27 lbs Min 20%: 3,25 Max 25%: 4,06

Date: 2016-09-12 Manufacturer: foyer supreme Model: N200
Project #: PI20131 Run: 6 Tech: MM Reviewer: DE

		SYSTEM 1 - 1 st hour					SYSTEM 1				
Pre-test Weight Record	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets	Probe & Housing Number	Front Filter Number	Back Filter Number
Date	Time	02	855	856	11	30	858	859	31	864	
18:30	61,1021	0,1261	0,1284	10,3131	110,2392	0,1285	0,1275	10,1704	0,1289		
19:00	61,1022	0,1261	0,1285	10,3130	110,2393	0,1284	0,1276	10,1703	0,1289		

		SYSTEM 1 - 1 st hour					SYSTEM 1				
Post-test Weight Record	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets	Probe & Housing Number	Front Filter Number	Back Filter Number
Date	Time	02	855	856	11	30	858	859	31	864	
2016-09-13	20:00	61,1026	0,1431	0,1281	10,3179	110,2393	0,1335	0,1276	10,1744	0,1289	
2016-09-16	8:00	61,1026	0,1401	0,1281	10,3144	110,2393	0,1335	0,1276	10,1711	0,1289	
2016-09-22	8:00	61,1026	0,1401	0,1281	10,3144	110,2393	0,1335	0,1276	10,1711	0,1289	

DILUTION TUNNEL PARTICULATE SAMPLER DATA

Date: 2016-09-12 Project #: PI 20131 Run: 6 Manufacturer: Fager Sverre Model: NV100
Tech: MM Reviewer: SD

SYSTEM 2				
Pre-test Weight Record	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets
Date	Time			
2016-09-12	18:30	109 3623	0, 1259	10, 4147
2016-09-12	9:00	109 3622	0, 1270	10, 4148

SYSTEM 2				
Post-test Weight Record	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets
Date	Time			
2016-09-13	20:00	109 3624	0, 1457	10, 4191
2016-09-16	8:00	109 3624	0, 1453	10, 4163
2016-09-22	8:00	109 3624	0, 1453	10, 4163

Paramètres

Tous les facteurs de corrections et autres paramètres qui peuvent être modifiés par l'utilisateur du fichier sont regroupés ici.

Code verrouillage: SUP

Description du test

Test standard	EPA
Run #	7
Date	14/09/2016
Technicien	M.M
Project #	pi-20131

Description de l'unité

Manufacturier	FOYER SUPREME	
Modèle	NV 200	
Combustion system	Non-Cat	
Appliance type	Wood fireplace	
Firebox volume	2,24	cu ft.
Appliance weight empty	na	lbs
Appliance weight full	na	lbs

Paramètres du test

Logging time	1	min
Manufacturer's rated heat output	na	BTU/h Donnée fournie par le manfacturier
Targeted category	1	
Targeted output	à définir	BTU/h
Cp steel	0,1	BTU/lb-°F

Échantillonnage

Blank sampling rate	0,20	cuft/min
Internal probe diameter	0,18	in.
Calibration Factor (DGM #1):	0,993	Dimensionless
Equipment number (DGM #1):	EM-078	
Calibration Factor (DGM #2):	0,992	Dimensionless
Equipment number (DGM #2):	EM-079	
Calibration Factor (DGM #3):	0,993	Dimensionless
Equipment number (DGM #3):	EM- 078	Dimensionless

Tunnel

Targeted tunnel flow rate	140	scfm
Tunnel diameter	8	in.
Molecular weight	28,78	May be assumed to be 28,78 (EPA) Si B-415 = 29
Pitot tube type	Standard	
Pitot tube coefficient	0,99	Dimensionless

Project nu.	pi-20131
Date	#####
Technicien	M.M

Fuel data

Fuel type	Dimension
Fuel specie	D. Fir
HHV	19810,0 kJ/kg
%C	48,7
%H	6,9
%O	43,9
%Ash	0,5
HHV	8519,2 Btu/lb
LHV	7451,0 Btu/lb

Default Fuel Values		
	D. Fir	Oak/Maple
HHV	19 810	19 887
%C	48,73	50
%H	6,87	6,6
%O	43,9	42,9
%Ash	0,5	0,5
HHV (Btu/lb)	8519	8552
LHV (Btu/lb)	7451	7480

	Start	End
Barometer (kPa):	101,3	101,8
Barometer (in.Hg):	29,913879	30,061529
Dry Bulb (F):	79,16	80,78
Humidity (%):	58	38
Air velocity (ft/min)	17	19

DGM #1	Final: ##### cuft
	Initial: ##### cuft
DGM #2	Final: ##### cuft
	Initial: ##### cuft

DGM room	
----------	--

Final: 432427,350	Liter
Initial: 431052,700	Liter
Final: 374202,400	Liter
Initial: 373055,430	Liter

Final: 479,530	cuft
Initial: 450,280	cuft

Numéro de la ligne dans "Raw data" à partir duquel les données du VRAI test commencent

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Autres données à rentrer: dans preload data, load data, traverse et filter set weight

Project nu.	pi-20131
Date	#####
Technicien	M.M

Preload data sheet

Test Load Weight:

Lower	Ideal	Upper
14,11	15,68	17,25

Load Volume: 0,6944 cu. ft

Loading Density: 9,035 lbs./ft3

 Number of Spaces:
 Spacer weight (lbs):

Load Density (wet): 29,143 lbs./ft3

Dry Wood Density: 24,219162

Piece Size (in):			Weight lbs	Meter Moisture Content				Ave. MC x Weight	Volume Cubic Inches
Thick	Wide	x Length		Dry Uncorrected %					
2	4	5	0,642	20,3		20,6		13,1824	40,00
2	4	5	0,788	19,3		19,1		15,234667	40,00
2	4	5	0,628	19,6		19,4		12,1832	40,00
2	4	5	0,69	21,2		21,3		14,743	40,00
2	4	5	0,836	19,9		19,7		16,6364	40,00
2	4	5	0,698	21		21,2		14,7976	40,00
2	4	5	0,632	19,6		19,3		12,239733	40,00
2	4	5	0,692	20,4		21,6		14,831867	40,00
2	4	5	0,674	21		22,1		14,828	40,00
2	4	5	0,646	19,3		19,6		12,7262	40,00
2	4	5	0,638	19,6		19,3		12,5686	40,00
2	4	5	0,68	21,6		22,3		15,141333	40,00
2	4	5	0,742	20,6		21,3		15,8046	40,00
2	4	5	0,642	21		20,5		13,2038	40,00
2	4	5	0,624	19,6		19,3		12,2096	40,00
2	4	5	0,822	20,6		20,2		16,8784	40,00
2	4	5	0,704	20		21,5		15,089067	40,00
2	4	5	0,64	19,6		19,8		12,714667	40,00
2	4	5	0,688	20		19,8		13,8288	40,00
2	4	5	0,68	19,6		19,9		13,554667	40,00
2	4	5	0,62	19,6		19,2		12,172667	40,00
2	4	5	0,708	19,3		19,6		13,8768	40,00
2	4	5	0,634	19,3		19,4		12,320733	40,00
2	4	5	0,692	19,9		20,5		14,162933	40,00
2	4	5	0,622	19,6		20,4		12,294867	40,00
2	4	5	0,664	21		21,8		14,320267	40,00
2	4	5	0,662	19,2		19,1		12,7104	40,00
2	4	5	0,632	19,6		19,1		12,218667	40,00
2	4	5	0,628	20		20,4		12,853067	40,00
2	4	5	0,59	20,3		20,6		12,095	40,00
									0,00
									0,00
									0,00
									0,00
									0,00
									0,00
									0,00
									0,00

SUM MC 411,422

PreTest Load Weight: 20,24 lbs.

Dry Weight: 7,63 kg.

Average Moisture Content: %

Dry: 20,33

20,33

Must be 18-28

Wet: 16,89

must be 15,2-22

 Project nu. pi-20131
 Date #####
 Technicien M.M

FUEL LOAD DATA SHEET, CSA B415

Test Load Weight:

Lower	Ideal	Upper
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14,1	15,7	17,2
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* For boilers, a loading density factor of 10 lb/ft³ is applied

Load Volume: cu. ft

Loading Density: 7,1 lbs./ft3

Number of Spaces: 12
Spacer weight: lbs

Load Density (wet):	30,2	lbs./ft3
Dry Wood Density:	25,1	lbs./ft3

Piece Size (in):			Weight lbs	Meter Moisture Content					Ave. MC x	Volume	Ave. MC
Thick	Wide	:Length		Dry Uncorrected %					Weight	Cubic Inches	%
1,5	3,5	22	2,49	20,00	20,20	19,90	19,80	20,80	50,10832	115,50	20,1
1,5	3,5	22	2,38	19,70	20,00	19,90	19,60	20,20	47,23488	115,50	19,9
3,5	3,5	22	4,84	21,80	19,80	19,80	21,80	20,10	99,95308	269,50	20,7
3,5	3,5	22	4,74	19,40	19,30	19,10	19,70	19,40	91,89996	269,50	19,4
1,5	0,75	5	0,11			19,60			2,1952	5,63	19,6
1,5	0,75	5	0,11			19,30			2,0458	5,63	19,3
1,5	0,75	5	0,11			19,60			2,1168	5,63	19,6
1,5	0,75	5	0,11			19,50			2,223	5,63	19,5
1,5	0,75	5	0,11			20,10			2,2914	5,63	20,1
1,5	0,75	5	0,10			20,00			2	5,63	20,0
1,5	0,75	5	0,11			19,30			2,0844	5,63	19,3
1,5	0,75	5	0,11			19,20			2,1888	5,63	19,2
1,5	0,75	5	0,10			19,40			1,9788	5,63	19,4
1,5	0,75	5	0,11			19,40			2,134	5,63	19,4
1,5	0,75	5	0,12			19,60			2,352	5,63	19,6
1,5	0,75	5	0,14			19,20			2,688	5,63	19,2
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
										0,00	
									SUM MCx	315,49444	19,6 %

Test Load Weight: 15,79 lbs.

Dry Weight: kg.

Average Moisture Content: %

Dry:	19,98	Dry(EPA)	19,98
		Dry(B415)	19,98

19,98
Must be 19-25

Wet: 16,65
must be 15,2-22

Coal Bed Range: lbs. to

3,9 lbs.

TEST CHARGE:

Coal bed weight: 3,5

lbs.

Project nu.	pi-20131
Date	#####
Technicien	m.m

Tunnel Traverse Worksheet (for velocity calculations)

Static Pressure: 0,2 in. H2O
 Barometer: 29,900 in. Hg

Pour un tunnel de 12" et plus, prendre 6 lectures

	TUNNEL VELOCITY	TUNNEL TEMP	SQUARE ROOT
	In. wc	°F	
A center			0,0000
B center			0,0000
A1			0,0000
A2			0,0000
A3			0,0000
A4			0,0000
A5			0,0000
A6			0,0000
B1			0,0000
B2			0,0000
B3			0,0000
B4			0,0000
B5			0,0000
B6			0,0000
AVERAGE	#DIV/0!	#DIV/0!	0,0000

PITOT CONSTANT=
0,946

Pour un tunnel moins de 12", prendre 4 lectures

	TUNNEL VELOCITY	TUNNEL TEMP	SQUARE ROOT
	In. wc	°F	
A center	0,048	78,46	0,2191
B center	0,049	78,19	0,2214
A1	0,039	78,45	0,1975
A2	0,054	78,48	0,2324
A3	0,049	78,34	0,2214
A4	0,040	78,12	0,2000
B1	0,039	78,300	0,1975
B2	0,049	77,990	0,2214
B3	0,049	77,470	0,2214
B4	0,043	76,530	0,2074
AVERAGE	0,0459	78,0330	0,2139

Project nu.	pi-20131
Date	#####
Technicien	M.M

Filter set weight

	System 1 (g) 1st hour				System 1 (g)				System 2 (g)				Ambient blank (g)	Date	Heure
	probe	front	back	gasket	probe	front	back	gasket	probe	front	back	gasket	Filter		
Number	7	851	857	5	20	882	883	20	36	891	895	21	898		
Before (1)															
Before (2)															
Before (3)															
Before (4)															
Before (5)	61,4775	0,1261	0,1272	11,2523	108,8420	0,1267	0,1282	10,1090	107,7396	0,1255	0,1280	10,2282	0,1283	13/09/2016	21:00
Before (6)	61,4775	0,1260	0,1272	11,2524	108,8421	0,1268	0,1281	10,1089	107,7397	0,1256	0,1279	10,2283	0,1284	14/09/2016	09:00
After (1)	61,4780	0,1311	0,1274	11,2557	108,8423	0,1261	0,1282	10,1119	107,7401	0,1300	0,1280	10,2315	0,1285	14/09/2016	14:30
After (2)	61,4780	0,1309	0,1274	11,2539	108,8423	0,1261	0,1281	10,1100	107,7401	0,1300	0,1280	10,2298	0,1285	26/09/2016	08:00
After (3)	61,4780	0,1309	0,1274	11,2531	108,8423	0,1261	0,1281	10,1096	107,7401	0,1300	0,1280	10,2290	0,1285	29/09/2016	08:00
After (4)	61,4780	0,1309	0,1274	11,2530	108,8423	0,1261	0,1281	10,1095	107,7401	0,1300	0,1280	10,2290	0,1285	30/09/2016	08:00
After (5)															
After (6)	61,4780	0,1309	0,1274	11,2530	108,8423	0,1261	0,1281	10,1095	107,7401	0,1300	0,1280	10,2290	0,1285	30/09/2016	08:00
Difference	0,0005	0,0049	0,0002	0,0006	0,0002	-0,0007	0,0000	0,0006	0,0004	0,0044	0,0001	0,0007	0,0001		
Total (mg)		6,2				6,3				5,6			0,1		
Total ajusté (mg)		6,10				6,20				5,50					

Project nu. pi-20131
 Date #####
 Technicien m.m

SFBA EPA EMISSION RESULTS

RESULTS

Average emission rate: 2,3 g/hr

Burn Rate : 1,585 Dry kg/hr

Test Duration: 226 min

PRESSURE FACTOR: DGM 1 0,97297
DGM 2 0,98643
DGM 3 1,00226

BAROMETRIC PRESSURE
Average: 29,987704 in Hg
Start: 29,913879 in Hg
End: 30,061529 in Hg

TEMPERATURE FACTORS DGM 1 0,97544
DGM 2 0,97436
DGM 3 0,97687

DGM CONTROLLER VALUES

DGM 1 Final: 15271,028 Cuft
Initial: 15222,483 Cuft

VOLUMES SAMPLED DGM 1 45,750 SCft
DGM 2 38,619 SCft
DGM 3 28,438 SCft

DGM 2 Final: 13214,833 Cuft
Initial: 13174,328 Cuft

DGM #3 Final: 479,530 Cuft
Initial: 450,280 Cuft

TOTAL TUNNEL VOLUME : 61891

TEMPERATURES

SAMPLE RATIOS
Sample Train 1: 1352,807
Sample Train 2: 1602,607

DGM 1 541,297 °R
DGM 2 541,896 °R

Paticulate concentration
Sample Train 1 0,000138 g/dscf
Sample Train 2 0,000145 g/dscf
Room 0,000004 g/dscf

CALIBRATION FACTORS

DGM 1 0,9930
DGM 2 0,9920
DGM #3 0,9930

TUNNEL FLOW RATE: 273,856 Dscfm

TOTAL EMISSIONS
Sample Train 1 8,31 g
Sample Train 2 8,76 g

PARTICULATE CATCH
Total Sample Train 1: 6,30 mg
Total Sample Train 2: 5,60 mg
Total Sample Train 1 1st hour: 6,20 mg

EMISSION RATES
Sample Train 1 2,20 g/hr
Sample Train 2 2,32 g/hr

1st hour emission rate 8,39 g/hr

DEVIATION: 2,65%

Cs Train 1 Train 2
0,0001377 0,000145006

* Elapsed Time min	* Raw data row	* Weight Remaining lbs	* CO %	* CO ₂ %	* O ₂ %	*1 Flue Gas %	*2 Room Temp °F	*3 Tunnel Dry Bulb °F	*4 Unit Top °F	*5 Unit Back °F	*6 Unit R.Side °F	*7 Unit L.Side °F	*8 Unit Bottom °F	Mass flow 1 Reading cuft/min	DGM 1 Inlet T °F	DGM 1 Outlet T °F	Filter 1 Temp °F	Mass flow 2 Reading cuft/min	DGM 2 Inlet T °F	DGM 2 Outlet T °F	Filter 2 Temp °F	Tunnel Velo Pressure in wc	Flue draft Pressure in wc	Change in Surface Temp. °F
0.00	289.00	15.8	0.6	0.8	348.5	194.0	79.1	100.2	254.2	361.6	342.4	345.8	438.6	0.17	79.76	80.20	79.61	0.17	80.11	80.74	79.45	0.05	0.03	0
1.0	290.0	15.8	0.1	0.2	343.5	204.6	79.0	92.5	237.9	358.1	341.1	343.4	436.9	0.18	79.82	80.24	79.60	0.17	80.13	80.81	79.47	0.05	0.04	-0.05423
2.0	291.0	15.8	0.2	0.4	340.4	222.6	78.9	91.3	233.7	354.1	338.5	340.9	434.9	0.18	79.85	80.25	79.61	0.17	80.12	80.84	79.45	0.05	0.04	-8.13916
3.0	292.0	15.7	0.3	0.5	337.4	227.9	78.8	90.5	231.7	350.2	334.2	338.0	433.1	0.18	79.86	80.26	79.64	0.17	80.11	80.85	79.50	0.05	0.04	-11.09614
4.0	293.0	15.6	0.4	0.6	335.0	232.4	79.0	91.0	229.3	346.9	329.5	335.1	434.0	0.18	79.90	80.26	79.68	0.17	80.13	80.87	79.52	0.05	0.04	-13.56823
5.0	294.0	15.5	0.4	1.0	334.8	235.3	79.0	94.8	238.2	346.9	325.9	338.2	434.5	0.18	79.92	80.29	79.76	0.17	80.13	80.88	79.60	0.05	0.06	-13.70233
6.0	295.0	15.3	0.3	6.5	345.6	383.8	79.1	102.9	295.7	340.6	324.3	328.3	438.9	0.17	79.97	80.29	79.85	0.17	80.16	80.91	79.70	0.05	0.07	-2.964044
7.0	296.0	15.0	0.4	8.3	365.8	473.1	79.4	110.5	392.6	340.3	322.2	325.6	448.0	0.18	80.02	80.33	79.98	0.17	80.19	80.94	79.78	0.04	0.08	17.224011
8.0	297.0	14.8	0.4	9.5	387.9	551.9	79.0	116.6	493.8	344.8	319.8	323.3	458.0	0.17	80.08	80.34	80.12	0.17	80.21	80.97	79.93	0.05	0.09	39.413556
9.0	298.0	14.5	0.6	10.6	411.4	628.1	78.8	120.8	596.7	350.4	317.7	321.5	470.5	0.18	80.06	80.32	80.29	0.17	80.21	80.98	80.03	0.05	0.09	62.859686
10.0	299.0	14.3	0.7	12.0	421.5	613.9	79.0	115.4	637.5	356.2	314.5	319.8	479.5	0.18	80.17	80.36	80.26	0.17	80.28	81.01	80.08	0.04	0.09	72.968176
11.0	300.0	14.1	0.8	10.7	422.0	564.6	79.0	107.7	628.2	361.7	314.2	319.2	486.4	0.17	80.17	80.36	80.34	0.17	80.26	81.01	80.14	0.05	0.09	73.43479
12.0	301.0	14.0	0.7	8.3	416.2	506.3	79.4	102.9	589.7	366.5	315.0	319.3	490.6	0.17	80.18	80.38	80.48	0.17	80.32	81.04	80.26	0.05	0.08	67.675848
13.0	302.0	13.9	0.7	6.2	409.0	471.6	79.1	102.1	549.2	370.2	315.2	318.7	491.9	0.18	80.24	80.40	80.63	0.17	80.36	81.05	80.38	0.05	0.08	60.507514
14.0	303.0	13.8	0.7	5.6	403.6	450.5	79.0	100.3	516.4	374.1	315.4	318.3	493.6	0.18	80.28	80.39	80.77	0.17	80.40	81.08	80.52	0.05	0.08	55.032898
15.0	304.0	13.7	0.7	6.0	399.5	431.3	79.2	98.6	492.1	376.9	314.9	318.3	495.1	0.18	80.33	80.43	80.89	0.17	80.41	81.11	80.64	0.05	0.08	50.942151
16.0	305.0	13.6	0.8	4.8	396.0	414.6	79.2	98.2	471.4	379.6	314.6	318.4	495.9	0.18	80.31	80.43	81.01	0.17	80.42	81.12	80.77	0.05	0.07	47.422504
17.0	306.0	13.5	0.8	6.9	394.0	385.6	79.2	96.5	443.3	403.0	308.1	315.0	500.7	0.18	80.42	80.52	81.12	0.17	80.58	81.24	81.38	0.04	0.07	45.84631
18.0	307.0	13.4	0.8	5.3	391.6	395.3	79.5	96.6	443.6	386.5	312.4	317.4	498.0	0.18	80.39	80.47	81.22	0.17	80.51	81.17	80.94	0.05	0.07	43.068158
19.0	308.0	13.3	0.7	5.4	390.4	389.2	79.1	96.5	437.4	389.5	311.1	316.6	497.4	0.17	80.39	80.47	81.31	0.17	80.52	81.19	81.02	0.05	0.07	41.874762
20.0	309.0	13.2	0.6	5.9	390.8	385.3	79.3	96.4	436.4	392.5	310.8	316.5	497.8	0.18	80.37	80.49	81.42	0.17	80.53	81.17	81.12	0.05	0.07	42.272986
21.0	310.0	13.1	0.7	6.7	391.9	385.2	79.2	96.5	438.3	395.9	310.1	316.4	498.7	0.18	80.40	80.49	81.51	0.17	80.56	81.18	81.21	0.05	0.07	43.326276
22.0	311.0	13.0	0.7	7.1	392.9	385.3	79.2	96.5	441.4	399.5	309.0	315.6	499.2	0.17	80.38	80.52	81.59	0.17	80.57	81.20	81.32	0.05	0.07	44.420294
23.0	312.0	12.9	0.8	6.9	394.0	385.6	79.2	96.5	443.6	403.0	308.1	315.0	500.7	0.18	80.42	80.52	81.68	0.17	80.58	81.24	81.38	0.04	0.07	45.84631
24.0	313.0	12.8	0.8	7.2	395.4	386.9	79.1	96.7	447.5	406.7	306.5	314.9	501.1	0.18	80.39	80.50	81.75	0.17	80.56	81.24	81.47	0.04	0.07	46.82572
25.0	314.0	12.7	0.8	7.4	397.1	389.1	79.2	97.2	454.0	409.4	306.7	314.1	501.1	0.18	80.45	80.51	81.81	0.17	80.57	81.23	81.51	0.05	0.07	48.537122
26.0	315.0	12.6	0.9	7.4	399.8	395.2	79.1	97.2	463.4	412.7	306.3	313.8	502.9	0.17	80.50	80.53	81.89	0.17	80.57	81.25	81.59	0.05	0.07	51.306402
27.0	316.0	12.4	0.9	7.9	403.5	405.5	79.3	97.3	478.0	415.2	306.3	313.9	504.1	0.18	80.48	80.53	81.98	0.17	80.56	81.22	81.63	0.05	0.07	54.95893
28.0	317.0	12.3	0.9	8.8	409.8	422.5	79.3	98.1	503.4	417.7	307.3	314.1	506.4	0.17	80.52	80.55	82.04	0.17	80.62	81.22	81.72	0.05	0.08	61.28161
29.0	318.0	12.2	0.9	11.6	419.3	450.5	79.4	100.1	546.4	421.6	305.8	315.0	509.6	0.18	80.53	80.55	82.09	0.17	80.66	81.25	81.79	0.05	0.08	70.764913
30.0	319.0	12.0	0.9	11.8	430.7	479.9	79.4	101.0	598.2	424.8	305.0	314.0	511.6	0.18	80.56	80.58	82.18	0.17	80.69	81.27	81.86	0.05	0.08	82.193024
31.0	320.0	11.8	1.0	12.3	442.1	510.5	79.4	102.9	648.8	427.2	306.0	314.5	514.0	0.18	80.55	80.57	82.21	0.17	80.70	81.29	81.91	0.05	0.09	93.557959
32.0	321.0	11.6	0.6	13.3	452.0	532.7	79.4	104.3	691.1	429.2	307.9	314.6	516.1	0.18	80.54	80.57	82.26	0.17	80.69	81.31	81.97	0.05	0.09	103.47731
33.0	322.0	11.5	0.3	13.4	462.3	558.6	79.6	105.5	733.7	433.4	310.7	315.5	518.2	0.18	80.55	80.58	82.35	0.17	80.72	81.32	82.03	0.05	0.09	113.74812
34.0	323.0	11.3	0.2	13.9	470.1	582.8	79.5	106.9	763.6	436.6	313.7	316.6	520.1	0.18	80.59	80.60	82.41	0.17	80.77	81.36	82.10	0.05	0.09	121.59338
35.0	324.0	11.2	0.2	14.2	485.6	604.9	79.4	107.1	799.0	439.0	314.4	316.9	521.4	0.17	80.61	80.61	82.48	0.17	80.79	81.48	82.18	0.05	0.09	124.59138
36.0	325.0	11.0	0.2	11.9	473.3	579.9	79.8	107.3	762.2	441.9	318.1	321.0	523.3	0.18	80.65	80.63	82.53	0.17	80.84	81.40	82.24	0.05	0.09	124.77646
37.0	326.0	10.9	0.4	11.4	472.4	579.9	79.6	107.3	749.0	444.9	319.0	322.7	526.2	0.17	80.70	80.64	82.62	0.17	80.88	81.41	82.33	0.05	0.09	123.83315
38.0	327.0	10.7	0.7	10.6	471.3	564.7	79.6	107.4	734.9	447.4	320.0	324.9	529.3	0.18	80.71	80.67	82.71	0.17	80.92	81.44	82.38	0.05	0.09	122.78513
39.0	328.0	10.6	0.6	11.0	471.0	563.4	79.8	107.6	725.5	449.7	321.1	326.5	532.3	0.18	80.74	80.66	82.80	0.17	80.92	81.44	82.44	0.05	0.09	122.49611
40.0	329.0	10.5	0.6	11.5	472.7	567.0	79.8	108.1	723.3	453.2	322.6	328.3	536.3	0.17	80.75	80.67	82.87	0.17	80.93	81.47	82.52	0.04	0.09	124.19661
41.0	330.0	10.4	0.5	11.8	474.8	570.7	79.7	108.2	723.7	474.0	323.1	329.8	540.2	0.17	80.77	80.67	82.96	0.17	80.96	81.48	82.58	0.05	0.09	126.23236
42.0	331.0	10.1	0.5	12.2	478.9	577.5	79.7	108.8	734.1	459.0	325.7	331.7	544.0	0.17	80.78	80.68	83.05	0.17	80.96	81.51	82.66	0.05	0.09	130.37372
43.0	332.0	10.0	0.5	12.3	483.0	576.6	79.5	108.3	743.9	462.7	326.9	333.4	548.1	0.17	80.79	80.68	83.12	0.17	80.99	81.52	82.76	0.05	0.09	134.45765
44.0	333.0	9.9	0.5	12.8	486.7	573.8	79.7	109.7	753.0	466.6	329.1	335.2	549.7	0.18	80.83	80.71	83.22	0.17	81.03	81.53	82.85	0.05	0.09	138.22009
45.0	334.0	9.7	0.5	12.7	488.6	574.4	80.0	109.1	754.7	469.0	331.5	336.8	551.1	0.18	80.88	80.71	83.31	0.17	81.06	81.57	82.91	0.05	0.09	140.10418
46.0	335.0	9.6	0.5	12.2	489.5	572.7	80.3	108.5	751.6	472.1	334.5	338.8	552.5	0.18	80.91	80.72	83.38	0.17	81.08	81.59	82.99	0.05	0.09	141.38468
47.0	336.0	9.5	0.6	11.9	490.5	571.5	80.1	109.1	745.9	474.0	337.2	340.8	554.6	0.18	80.92	80.74	83.46	0.17	81.12	81.59	83.09	0.05	0.09	141.98259
48.0	337.0																							

96,0	385,0	3,5	0,1	12,1	605,5	545,8	80,6	107,6	711,0	656,5	483,5	479,2	697,1	0,18	81,52	81,41	87,04	0,17	81,90	82,29	85,40	0,05	0,08	256,92188
97,0	386,0	3,4	0,1	11,9	607,6	543,5	80,3	108,1	708,3	659,8	487,4	481,8	700,6	0,18	81,56	81,41	87,09	0,17	81,95	82,31	85,41	0,05	0,08	259,05195
98,0	387,0	3,3	0,1	11,7	608,5	539,9	80,2	107,3	704,1	661,6	488,2	484,5	703,8	0,17	81,59	81,43	87,08	0,17	81,96	82,32	85,40	0,05	0,08	259,21225
99,0	388,0	3,3	0,1	11,6	609,9	537,6	80,4	107,5	701,4	663,0	492,9	486,7	705,6	0,18	81,63	81,44	87,13	0,17	82,01	82,36	85,38	0,05	0,08	261,40914
100,0	389,0	3,2	0,1	11,6	610,6	533,2	80,5	106,6	695,4	664,3	494,9	489,9	708,4	0,18	81,65	81,47	87,12	0,17	82,02	82,37	85,37	0,05	0,08	262,06603
101,0	390,0	3,2	0,1	11,4	611,4	528,7	81,2	106,7	690,7	661,9	500,5	492,4	711,4	0,18	81,64	81,46	87,12	0,17	82,02	82,40	85,37	0,05	0,08	262,83236
102,0	391,0	3,1	0,1	10,8	611,6	523,0	80,7	106,0	681,9	663,0	502,6	495,1	715,4	0,17	81,63	81,47	87,12	0,17	81,99	82,40	85,35	0,05	0,08	263,0652
103,0	392,0	3,0	0,2	10,5	611,3	518,5	80,6	106,4	673,6	662,5	504,6	497,4	718,4	0,18	81,67	81,49	87,15	0,17	82,02	82,40	85,34	0,05	0,08	262,78591
104,0	393,0	3,0	0,2	10,5	611,8	514,5	80,5	106,4	666,9	662,9	507,4	504,0	721,4	0,17	81,65	81,49	87,18	0,17	82,04	82,41	85,35	0,05	0,08	263,2827
105,0	394,0	2,9	0,2	10,2	612,1	510,2	80,7	106,2	663,5	663,7	509,6	503,0	723,7	0,17	81,70	81,50	87,13	0,17	82,03	82,43	85,34	0,05	0,08	263,77223
106,0	395,0	2,9	0,2	10,2	612,3	506,4	81,2	106,1	654,3	663,6	513,3	505,3	725,0	0,18	81,69	81,52	87,23	0,17	82,07	82,45	85,34	0,05	0,08	263,76408
107,0	396,0	2,8	0,2	10,0	611,8	502,2	80,8	105,7	647,0	663,7	515,8	507,0	725,8	0,18	81,70	81,52	87,19	0,17	82,04	82,47	85,35	0,05	0,08	263,3199
108,0	397,0	2,8	0,3	9,8	611,6	498,6	80,8	105,0	641,0	663,7	518,4	508,8	725,8	0,18	81,69	81,51	87,20	0,17	82,04	82,47	85,36	0,05	0,08	263,02157
109,0	398,0	2,7	0,3	9,6	610,8	495,3	81,1	104,8	636,2	661,1	520,9	510,3	725,8	0,18	81,69	81,50	87,18	0,17	82,02	82,46	85,31	0,05	0,08	262,31358
110,0	399,0	2,7	0,4	9,3	610,5	490,4	80,8	104,4	628,6	660,5	523,4	512,0	727,9	0,18	81,75	81,55	87,15	0,17	82,06	82,45	85,27	0,05	0,08	261,94052
111,0	400,0	2,7	0,4	9,0	609,5	485,8	81,0	104,6	621,7	660,1	524,5	513,6	727,7	0,17	81,74	81,54	87,15	0,17	82,05	82,45	85,25	0,05	0,08	260,98893
112,0	401,0	2,6	0,4	9,0	608,6	481,6	81,3	104,7	617,3	658,8	526,0	514,3	726,4	0,18	81,79	81,54	87,17	0,17	82,10	82,48	85,23	0,05	0,08	260,03064
113,0	402,0	2,6	0,5	8,9	608,0	478,3	81,2	104,1	611,8	658,5	526,8	515,7	727,2	0,17	81,80	81,55	87,10	0,17	82,10	82,51	85,21	0,05	0,08	259,45719
114,0	403,0	2,5	0,5	8,9	608,0	475,7	81,1	103,5	606,5	658,5	528,6	517,2	729,0	0,18	81,82	81,57	87,09	0,17	82,11	82,53	85,19	0,05	0,08	259,42603
115,0	404,0	2,5	0,6	8,8	606,9	472,4	80,8	103,5	601,9	656,2	529,6	518,4	728,4	0,18	81,80	81,57	87,07	0,17	82,13	82,55	85,17	0,05	0,08	258,38231
116,0	405,0	2,5	0,6	8,7	605,9	467,6	81,2	103,0	595,7	655,6	529,8	519,5	728,9	0,17	81,78	81,58	87,05	0,17	82,12	82,59	85,17	0,05	0,08	257,37771
117,0	406,0	2,5	0,8	7,6	604,2	459,6	81,0	101,6	587,7	653,9	532,4	520,9	726,2	0,17	81,74	81,58	86,96	0,17	82,10	82,56	85,13	0,05	0,08	255,67911
118,0	407,0	2,4	1,0	6,9	601,8	454,3	80,7	102,3	579,2	653,3	531,4	522,2	725,8	0,17	81,78	81,60	86,92	0,17	82,14	82,57	85,14	0,05	0,08	253,27255
119,0	408,0	2,4	1,1	6,8	599,9	448,1	80,5	102,3	570,5	652,5	533,3	523,3	720,2	0,17	81,79	81,61	86,90	0,17	82,16	82,58	85,10	0,05	0,08	251,42001
120,0	409,0	2,3	1,2	6,7	597,7	442,6	81,1	102,3	562,7	650,0	535,8	523,6	716,3	0,18	81,78	81,63	86,89	0,17	82,17	82,62	85,08	0,05	0,08	249,16072
121,0	410,0	2,3	1,2	6,6	595,8	438,0	80,7	101,3	555,9	648,1	536,5	524,5	713,8	0,18	81,76	81,63	86,86	0,17	82,17	82,63	85,02	0,05	0,08	247,24319
122,0	411,0	2,3	1,2	6,5	594,8	434,8	80,4	100,7	548,9	646,2	534,5	525,9	714,5	0,18	81,75	81,64	86,81	0,17	82,15	82,65	85,00	0,05	0,08	245,60000
123,0	412,0	2,3	1,3	6,7	591,6	431,4	81,9	100,6	546,1	640,9	535,1	525,1	710,8	0,18	81,76	81,65	86,75	0,17	82,17	82,67	84,96	0,05	0,08	243,07041
124,0	413,0	2,3	1,3	6,7	590,4	427,8	81,2	100,3	543,1	638,0	536,4	525,0	709,5	0,18	81,73	81,66	86,67	0,17	82,18	82,63	84,92	0,05	0,08	241,86924
125,0	414,0	2,2	1,3	6,8	589,0	426,0	81,3	100,4	540,0	635,0	536,9	525,0	707,9	0,17	81,74	81,66	86,64	0,17	82,16	82,62	84,92	0,05	0,08	240,43748
126,0	415,0	2,2	1,4	6,7	587,3	424,1	81,3	99,3	536,6	631,9	536,7	524,9	706,5	0,17	81,74	81,67	86,57	0,17	82,17	82,62	84,85	0,05	0,08	238,79402
127,0	416,0	2,2	1,4	6,7	585,2	420,5	81,0	99,7	531,0	630,6	533,1	524,1	707,1	0,18	81,73	81,67	86,53	0,17	82,15	82,62	84,84	0,05	0,08	236,64992
128,0	417,0	2,1	1,4	6,7	589,1	417,8	80,8	99,8	527,9	627,9	536,2	524,2	709,6	0,18	81,72	81,68	86,49	0,17	82,19	82,65	84,78	0,05	0,08	235,95809
129,0	418,0	2,1	1,5	6,7	582,4	415,0	81,0	99,4	523,7	626,4	532,8	523,8	705,1	0,18	81,72	81,69	86,48	0,17	82,16	82,66	84,75	0,05	0,08	233,82228
130,0	419,0	2,1	1,5	6,7	581,1	413,3	81,7	98,3	521,5	623,0	533,5	523,8	703,5	0,17	81,72	81,67	86,40	0,17	82,13	82,65	84,74	0,04	0,08	232,53486
131,0	420,0	2,1	1,5	6,7	579,6	410,9	81,4	98,5	519,3	619,8	532,7	523,4	702,7	0,18	81,73	81,69	86,34	0,17	82,12	82,63	84,66	0,05	0,08	231,02927
132,0	421,0	2,1	1,6	6,6	578,1	408,7	80,7	98,6	516,7	616,4	533,3	522,4	701,8	0,17	81,75	81,69	86,32	0,17	82,14	82,62	84,64	0,05	0,08	229,60327
133,0	422,0	2,0	1,6	6,7	576,9	407,2	80,5	98,9	514,0	613,7	532,3	522,3	702,1	0,18	81,73	81,67	86,27	0,17	82,10	82,60	84,59	0,05	0,08	228,34553
134,0	423,0	2,0	1,6	6,5	575,3	405,6	81,2	99,1	512,9	611,2	532,0	521,3	701,0	0,17	81,72	81,67	86,22	0,17	82,10	82,60	84,54	0,05	0,08	227,16794
135,0	424,0	2,0	1,6	6,8	574,4	404,0	81,3	98,9	506,9	609,9	531,9	522,0	701,1	0,18	81,68	81,68	86,16	0,17	82,12	82,64	84,52	0,05	0,08	225,84099
136,0	425,0	1,9	1,6	6,8	573,5	402,3	81,2	98,3	504,0	608,0	531,4	521,9	702,1	0,18	81,67	81,68	86,14	0,17	82,06	82,63	84,46	0,05	0,08	224,95464
137,0	426,0	1,9	1,7	6,7	572,7	400,5	81,5	98,9	501,8	605,3	532,5	521,0	702,9	0,18	81,66	81,69	86,14	0,17	82,06	82,64	84,43	0,05	0,08	224,19661
138,0	427,0	1,9	1,6	6,9	571,9	399,4	80,9	98,4	499,9	602,4	532,0	520,6	704,5	0,17	81,64	81,68	86,12	0,17	82,03	82,62	84,42	0,05	0,08	223,32289
139,0	428,0	1,9	1,6	6,7	570,3	398,5	80,7	97,3	497,4	600,7	528,1	520,3	705,0	0,17	81,62	81,67	86,04	0,17	82,00	82,60	84,41	0,05	0,08	221,79657
140,0	429,0	1,8	1,6	6,7	569,7	396,4	81,0	97,6	495,7	599,2	527,3	519,9	704,6	0,18	81,60	81,67	85,99	0,17	81,99	82,60	84,40	0,05	0,08	220,16794
141,0	430,0	1,8	1,7	6,6	569,2	395,2	81,5	98,1	493,0	598,3	527,9	519,2	707,7	0,18	81,62	81,65	85,96	0,17	82,00	82,60	84,37	0,05	0,08	220,67627
142,0	431,0	1,8	1,7	6,6	568,6	393,5	81,6	97,5	492,0	595,8	528,4	519,3	707,5	0,18	81,63	81,67	85,95	0,17	81,99	82,63	84,32	0,05	0,08	220,07282
143,0	432,0	1,8	1,7	6,5	567,6	392,3	81,2	97,3	489,6	594,0	527,8	518,7	707,8	0,18	81,65	81,68	85,89	0,17	82,01	82,63	84,31	0,05	0,08	219,06042
144,0	433,0	1,8	1,7	6,6	566,7	390,9	81,0	97,7	487,5	592,3	528,3	518,3	707,3	0,18	81,68	81,68	85,86	0,17	82,04	82,62	84,26	0,05	0,08	218,21244
145,0	434,0	1,7	1,7	6,5	565,6	388,8	81,4	97,6	486,6	589,3	527,7	517,9	706,6	0,18	81,67	81,6								

197,0	486,0	0,5	2,4	4,8	519,7	328,0	80,6	93,4	417,8	527,2	486,7	484,4	682,2	0,18	81,28	81,79	84,46	0,17	81,85	82,62	83,00	0,05	0,06	171,15674
198,0	487,0	0,5	2,5	4,7	518,8	326,2	80,9	92,9	417,5	526,1	486,6	483,6	680,4	0,18	81,26	81,78	84,42	0,17	81,83	82,60	82,98	0,05	0,06	170,30368
199,0	488,0	0,5	2,5	4,6	517,8	325,0	80,4	93,1	416,4	525,3	485,8	482,8	678,9	0,17	81,27	81,77	84,41	0,17	81,83	82,61	82,98	0,05	0,06	169,31706
200,0	489,0	0,5	2,5	4,5	516,6	324,4	81,2	93,3	415,0	524,6	485,2	481,9	676,3	0,18	81,24	81,77	84,39	0,17	81,77	82,60	82,94	0,05	0,06	168,07764
201,0	490,0	0,5	2,6	4,5	515,0	323,7	81,4	93,7	413,1	523,5	483,8	480,8	673,9	0,17	81,23	81,75	84,35	0,17	81,75	82,59	82,94	0,05	0,06	166,50571
202,0	491,0	0,4	2,6	4,4	514,0	323,1	81,2	93,7	411,7	522,0	484,1	479,7	672,3	0,18	81,21	81,74	84,37	0,17	81,74	82,59	82,90	0,05	0,06	165,42477
203,0	492,0	0,4	2,7	4,4	512,2	322,7	81,3	93,0	410,1	520,3	481,0	478,8	670,7	0,18	81,21	81,73	84,33	0,17	81,73	82,58	82,90	0,05	0,06	163,65567
204,0	493,0	0,4	2,7	4,3	511,1	320,9	81,4	92,9	409,1	519,1	481,4	478,0	668,1	0,17	81,18	81,72	84,31	0,17	81,68	82,58	82,89	0,05	0,06	162,5958
205,0	494,0	0,4	2,6	4,4	509,8	320,0	79,8	90,7	409,2	517,8	481,3	476,9	663,9	0,18	81,18	81,70	84,21	0,17	81,67	82,57	82,84	0,05	0,06	161,30537
206,0	495,0	0,4	2,6	4,3	509,0	318,9	80,8	91,4	408,2	514,7	483,4	475,8	662,8	0,18	81,08	81,66	84,09	0,17	81,63	82,54	82,79	0,05	0,06	160,45161
207,0	496,0	0,3	2,7	4,3	507,5	318,1	80,5	92,8	408,0	514,2	480,1	474,4	661,1	0,18	81,02	81,64	84,11	0,17	81,62	82,52	82,74	0,05	0,06	159,01813
208,0	497,0	0,3	2,6	4,3	506,4	317,5	81,0	92,1	407,2	513,3	477,9	473,5	660,3	0,17	80,98	81,62	84,07	0,17	81,56	82,51	82,72	0,05	0,06	157,89559
209,0	498,0	0,3	2,6	4,4	505,1	316,9	80,4	92,1	406,9	511,6	475,8	472,1	659,1	0,18	81,02	81,63	84,05	0,17	81,63	82,47	82,69	0,05	0,06	156,55513
210,0	499,0	0,3	2,7	4,2	503,6	315,8	81,4	92,1	406,4	510,4	473,2	470,8	657,1	0,17	81,01	81,63	84,02	0,17	81,60	82,47	82,68	0,05	0,06	155,04105
211,0	500,0	0,3	2,7	4,1	502,2	314,7	81,0	92,5	405,6	509,5	470,8	469,4	655,5	0,17	80,98	81,62	83,99	0,17	81,55	82,43	82,64	0,05	0,06	153,62574
212,0	501,0	0,3	2,7	4,1	501,3	312,6	80,6	92,3	404,4	508,8	470,8	468,2	654,3	0,18	81,00	81,64	83,97	0,17	81,57	82,45	82,66	0,05	0,06	152,76232
213,0	502,0	0,3	2,6	4,1	500,1	311,7	81,3	92,2	404,3	506,8	470,7	467,7	651,1	0,18	81,03	81,63	83,95	0,17	81,57	82,45	82,66	0,05	0,06	151,58476
214,0	503,0	0,2	2,7	4,0	498,2	310,7	81,1	92,2	403,5	505,2	468,2	466,2	648,2	0,18	81,07	81,61	83,90	0,17	81,58	82,43	82,64	0,05	0,06	149,7151
215,0	504,0	0,2	2,8	4,0	496,9	310,1	81,3	91,7	401,9	504,7	466,7	464,5	646,5	0,18	81,12	81,64	83,87	0,17	81,67	82,44	82,63	0,05	0,06	148,34177
216,0	505,0	0,2	2,6	4,1	494,7	308,0	81,0	92,4	399,7	501,9	465,4	463,1	643,3	0,18	81,13	81,63	83,89	0,17	81,68	82,44	82,60	0,05	0,06	146,17082
217,0	506,0	0,2	2,8	3,8	493,1	306,4	81,2	92,0	397,6	501,7	463,4	462,0	640,8	0,17	81,16	81,62	83,87	0,17	81,68	82,45	82,58	0,05	0,06	144,57432
218,0	507,0	0,2	2,8	3,9	491,3	304,3	80,9	92,1	396,7	500,0	462,1	460,6	636,9	0,18	81,11	81,61	83,85	0,17	81,68	82,45	82,59	0,05	0,06	142,72905
219,0	508,0	0,1	2,8	3,7	489,7	303,0	80,8	91,8	395,4	498,2	461,6	459,6	633,5	0,17	81,10	81,61	83,82	0,17	81,65	82,43	82,57	0,05	0,06	141,14468
220,0	509,0	0,1	2,8	3,7	488,4	301,4	80,6	91,3	394,1	497,0	460,3	459,0	631,4	0,18	81,11	81,61	83,76	0,17	81,67	82,43	82,58	0,05	0,06	139,83148
221,0	510,0	0,1	2,8	3,7	486,6	300,4	81,1	91,1	393,4	494,8	459,2	457,8	627,7	0,18	81,13	81,63	83,74	0,17	81,66	82,42	82,54	0,05	0,06	138,05911
222,0	511,0	0,1	2,8	3,7	484,8	298,3	80,3	90,9	391,5	493,2	458,4	456,4	624,5	0,17	81,15	81,63	83,73	0,17	81,71	82,42	82,50	0,05	0,05	136,28719
223,0	512,0	0,1	2,8	3,6	482,8	297,5	80,9	89,8	389,9	491,6	456,4	455,6	620,7	0,17	81,12	81,61	83,65	0,17	81,67	82,38	82,48	0,05	0,05	134,29811
224,0	513,0	0,1	2,7	3,6	480,7	295,8	81,1	90,2	387,7	490,7	453,6	453,9	617,6	0,17	81,19	81,62	83,61	0,17	81,70	82,35	82,45	0,05	0,05	132,16931
225,0	514,0	0,1	2,6	3,7	479,1	294,1	81,1	90,7	386,4	488,7	452,4	452,6	615,3	0,17	81,25	81,64	83,62	0,17	81,75	82,35	82,44	0,05	0,05	130,55417
226,0	515,0	0,1	2,6	3,6	477,9	292,2	81,0	91,3	384,7	488,2	452,1	451,3	613,4	0,18	81,30	81,64	83,60	0,17	81,79	82,37	82,42	0,05	0,05	129,39224
225,0	516,0	0,0	2,6	3,6	476,8	289,8	80,9	91,5	384,1	485,3	453,4	450,4	610,8	0,18	81,32	81,65	83,57	0,17	81,80	82,37	82,42	0,05	0,05	128,28364

Manufacturer: FOYER SUPREME
Model: NV 200

Run: 7
Project #: pi-20131
Test Duration: 226

min

	HHV	LHV
Eff	66,72%	72,11%
Comb Eff	93,54%	93,54%
HT Eff	71,33%	77,10%
Output	20 956	kJ/h
Burn Rate	1,59	kg/h
Grams CO	556	g
Input	31 409	kJ/h
MC wet	16,65	

Note: In the "Input data", "Calc. % O₂", "Fuel Properties", and "Mass Balance" columns, [e], [d], [g], [a], [b], [c], [h], [u], [w], [j], and [k] refer to their respective variables in Clauses 13.7.3

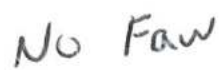
Ultimate CO₂
CO_{2-ult} 19,64
F₀
1,062

Overall Heating Efficiency:
Combustion Efficiency:
Heat Transfer Efficiency:

66,72%
93,54%
71,33%

Air Fuel Ratio (A/F)	
Dry Molecular Weight (M _d)	29,77
Dry Moles Exhaust Gas (N _p):	397,41
Air Fuel Ratio (A/F)	11,32

Heat Output:	19 879 Btu/h	20 956 kJ/h
Heat Input:	29 795 Btu/h	31 409 kJ/h
Burn Duration:	3,77 h	
Burn Rate:	3,49 lb/h	1,586 kg/h
Stack Temp:	443,7 Deg. F	228,7 Deg. C



Date: 2016-09-14 Manufacturer: Foyer Supreme Model: NV100
Project #: PT 10131 Run: 7 Tech: MM Reviewer: DO

- No kindling START FINE 20 LBS
- Setting 18° platen immediate ent
- At 18,00 LBS mis setting moister
- At 17,00 LBS mis setting a High
- At 16,00 LBS mis setting a moister
- At 15,00 LBS mis setting a 18°
- At 9,00 LBS Brass kn & tapocher
- At 6,00 Brass kn & tapocher
- At 45 LBS tapocher Felt channel (1/14 m)
- At 39 LBS tapocher & McFelt channel (1/25)
- At 35 LBS mis kn to load (2:23)

TEST LOAD CONFIGURATION

Date: _____ Manufacturer: _____ Model: _____
 Project #: _____ Run: _____ Tech: _____ Reviewer: _____

Side view	Front view	Top view
		

Date: _____ Manufacturer: _____ Model: _____
 Project #: _____ Run: _____ Tech: _____ Reviewer: _____

	ADDITION		SUBSTRACTION	
	ft3	Volume	ft3	Volume
V measure				
V ashlip				
%				
V usable				
Usable Firebox: _____				
Test load weight: _____ Minimum: _____ Maximum: _____				
Déviation: _____				

DP

PRE / POST CHECKS

Date: 2016-09-14 Manufacturer: foyer supreme Model: NV200
 Project #: pj 10131 Run: 7 Tech: mm Reviewer: DP

Moisture Meter Calibration Check:

Equipment #	Time	12%	22%
EM-191	7:00	ok	ok

Pre-Test

Post-Test

Facility Conditions:

Air Velocity from less than 2 feet

17 (max50 Fpm)	19 (max50 Fpm)
ok	ok
4 sides ok	ok

Smoke Capture Check.....

Picture.....

Wood Heater Conditions:

Date Wood Heater Stack Cleaned.....

Date Dilution Tunnel Cleaned.....

Induced Draft Check (max 0.005 H2O).....

Traverse before ignition.....

Flow Rate 140 cfm ±10%.....

2016-09-06
10/16-09-06
ok
ok

ok

Temperature System:

Ambient (65°-90°F).....

Wood Heater Surface (±125°F).....

ok	°F
ok	°F

Proportional Checks:

Thermocouple check.....

Pitot Clean.....

Pitot verification.....

ok
ok
ok

Sampling Train ID Numbers:

Probe.....

Filter Front.....

Filter Back.....

Filter Thermocouple.....

Filter (<90°F).....

Train 1 st hour	Train 1	Train 2
7	20	36
851	882	891
853	883	895
11	11	12
ok	ok	ok

SAMPLING EQUIPMENT CHECK OUT

 Date: 2016-09-14

 Manufacturer: Fryer Supreme

 Model: NV 200

 Project #: PT 2131

 Run: 7

 Tech: MM

 Reviewer: DP

Leakage Checks Tunnel Samplers

	System 1 st hour		System 1		System 2	
Unplugged Flow Rate = .25cfm	Pre-Test ASTM (-15) CSA B415 (-5)	Post-Test (max test)	Pre-Test ASTM (-15) CSA B415 (-5)	Post-Test (Max test)	Pre-Test ASTM (-15) CSA B415 (-5)	Post-Test (Max test)
Vacuum (inches Hg.)	-15	-15	-15	-15	-15	-15
Final 1minute DGM (Liter)	431052.49	432248.01	431052.55	432248.05	373055.10	374203.11
Initial 1minute DGM (Liter)	431052.48	432248.00	431052.54	432248.05	373055.03	374203.10
Change © (Liter)	0.01	0.01	0.01	0	0.07	0.01
Allowable leakage .04 x Sample rate or 0.28Lpm CSA B415 (0.56)						
Check OK	OK	OK	OK	OK	OK	OK

Leakage Checks Flue Gas Sampler

Plugged Probe	Pre Test	Post Test
Vacuum (inches Hg.)	-5	-5
Rotometer Reading (mml/min.)	0	0
Flow Rate (lpm)	1.5	1.5
Allowable (.02 x Sample Rate)	30	30
Check OK	OK	OK

Leakage Checks Pitot

Plugged Probe	Pre Test 3 H2o static	Pre Test 0.4-0.5 H2o velocity	Post Test 3 H2o Static	Post Test 0.4-0.5 H2o velocity
Vacuum (inches Hg.)	3	1.5	3	1.4
Check OK (no change after 15 sec.)	OK	OK	OK	OK

PRE-TEST SCALE AUDIT

Date: 2016-09-14

Manufacturer: Foyer Supreme

Model: NV 200

Project #: PI 20131

Run: 7

Tech: MM

Reviewer: DO

Scale Type	Audit		Measured Weight
	Equipment #	Weight	
Platform	<u>EM-090</u>	<u>4.4</u> lbs, Class F	<u>4.4</u> lbs
Wood	<u>EM-090</u>	<u>4.4</u> lbs, Class F	<u>4.4</u> lbs
Analytical	<u>EM-128</u>	<u>100</u> mg, Class S	<u>100</u> mg
Analytical	<u>EM-129</u>	<u>200</u> g, Class S	<u>200</u> g

LIMITS OF WEIGHT RANGES

ANALYTICAL SCALE: 50%-150% of dry filter weight, ± 0.1 mg

PLATFORM SCALE: 20%-80% of ideal test load weight, ± 0.1 lbs or 1%

WOOD SCALE: 20%-80% of ideal test load weight, ± 0.01 lbs or 1%

Date: 2016-09-14 Manufacturer: Foyer Supreme Model: NV 200
 Project #: PI 20131 Run: 1 Tech: MM Reviewer: DP

FOR TUNNELS < 12 in

Barometric pressure (P_{bar}) 101.3 (KPa.) Static pressure (P_q) 6.19 (inches w.c.)
 Inside diameter: Port A _____ Port B _____
 Tunnel cross sectional area: .1963Ft²
 Pitot tube type: Standard

Traverse Point	Position (inches)			Velocity Head Δ_p (inches H ₂ O)	Tunnel Temperature (°F)
	6 po	7 po	8 po		
A- Centroid	3.00	3.50	4	0.048	78.46
B - Centroid	3.00	3.50	4	0.049	78.19
A-1	0.40	0.50	0.50	0.039	78.45
A-2	1.50	1.75	2	0.054	78.48
A-3	4.50	5.25	6	0.049	78.39
A-4	5.60	6.5	7.5	0.040	78.12
B-1	0.40	0.50	0.50	0.039	78.30
B-2	1.50	1.75	2	0.049	77.99
B-3	4.50	5.25	6	0.049	77.47
B-4	5.60	6.5	7.5	0.043	76.53
AVERAGE					

$$v_s = K_p C_p (\sqrt{\Delta p})_{avg} \sqrt{\frac{(T_s)_{avg}}{P_s M_s}}$$

Where,

C_p = pitot tube coefficient, dimension less = 0.99 for standard pitot.

Δ_p = manometer reading (inches H₂O)

T_s = average absolute dilution tunnel temperature (°F + 460)

P_s = absolute dilution tunnel gas pressure or $P_{bar} + P_{qg}$

P_q = static pressure in. H₂O
 { 13.6 }

M_s = 28.56, wet molecular weight of stack gas (alternatively, it may be measured)

K_p = 85.49 pitot tube constant, (conversion factor for English units)

Δ_p avg. = average of the square roots of the velocity heads (Δ_p) measured at each traverse point.

CONTINUOUS ANALYZERS

Date: 2016-09-14 Manufacturer: Fager Supreme Model: NV 200
 Project #: PI 20131 Run: 7 Tech: MR Reviewer: BP

Pre-Test (Adjust and Record)

	ZERO		SPAN		CAL. (Record Only)	
CO	0	0	2,954	2,921	1.00	1.00
Tolerance CO		+/- 0.02		+/- 0.15		+/- 0.05
CO ₂	0	0	17,83	17,82	9.69	10.00
Tolerance CO ₂		+/- 0.02		+/- 0.5		+/- 0.5
O ₂ informative CSA B415 calculated value	na	na	na	na	na	na
	Actual	Should Be	Actual	Should Be	Actual	Should Be

Post Test (Record Only)

	Zero	Span	Cal.	Zero Drift	Limit	Span Drift	Limit	Cal. Drift	Limit	OK?	Not OK*
CO	0.001	2,949	1.000	0.001	0.02	0.02	0.15	0	0.05	✓	
CO ₂	0	17,80	9.69	0	0.02	0.03	0.5	0	0.5	✓	
O ₂	na	na	na	NA	na	N.A	na	N.A	na	✓	

TEST DATA LOG

Date: 2016-09-14 Manufacturer: Fogon Supre ML Model: NV200
 Project #: PZ 20131 Run: 7 Tech: MM Reviewer: DO

RAW DRY GAS METER READINGS

	System 1	System 2	Blanck
Final (Liter)	432247, 35	374202, 40	479, 53
Initial (Liter)	431052, 70	373055, 43	450, 28

AMBIENT CONDITIONS

	Before	After
Barometer (kPa):	101,3	101,8
Dry Bulb (F):	79,16	80,78
Humidity (%):	58	38

Flow Meter

	Start	End
Flow meter reading	N.A	N.A

Flow Meter Verification

	Before	After
Flow meter Check (liters)	N.A	N.A
Scale Weight (Kg)	N.A	N.A

FUEL DATA

Date: 2016-09-14 Manufacturer: Foyer Supreme Model: NV 200
 Project #: PI 20131 Run: 7 Tech: MM Reviewer: BP

FUEL DESCRIPTION:

Type of wood:

PRE-TEST LOAD

Piece Size	Weight	Meter Moisture Content (% dry)*			
2 x 4 x 5 in.	0.642 lbs.	203		206	207
2 x 4 x 5 in.	0.788 lbs.	193		191	196
2 x 4 x 5 in.	0.628 lbs.	196		194	192
2 x 4 x 5 in.	0.690 lbs.	212		213	216
2 x 4 x 5 in.	0.836 lbs.	199		197	201
2 x 4 x 5 in.	0.698 lbs.	210		212	214
2 x 4 x 5 in.	0.632 lbs.	196		193	192
2 x 4 x 5 in.	0.692 lbs.	204		216	223
2 x 4 x 5 in.	0.674 lbs.	210		221	229
2 x 4 x 5 in.	0.646 lbs.	193		196	202
2 x 4 x 5 in.	0.638 lbs.	196		193	202
2 x 4 x 5 in.	0.680 lbs.	216		223	229
2 x 4 x 5 in.	0.742 lbs.	206		213	220
2 x 4 x 5 in.	0.642 lbs.	210		205	202
2 x 4 x 5 in.	0.624 lbs.	196		193	198
2 x 4 x 5 in.	0.822 lbs.	206		202	208
2 x 4 x 5 in.	0.704 lbs.	200		215	228
2 x 4 x 5 in.	0.640 lbs.	196		198	202
2 x 4 x 5 in.	0.688 lbs.	200		198	205
2 x 4 x 5 in.	0.680 lbs.	196		199	203
2 x 4 x 5 in.	0.620 lbs.	196		192	201
2 x 4 x 5 in.	0.708 lbs.	193		196	199
2 x 4 x 5 in.	0.634 lbs.	193		194	196

TEST LOAD WEIGHT: 2024 lbs



Model: NV 200

Reviewer: DE

FUEL DATA

Date: 2-16-29-14 Manufacturer: foyer supreme Model: NV200
 Project #: p1 to 131 Run: 7 Tech: MM Reviewer: DP

FUEL DESCRIPTION:

Type of wood :

TEST LOAD

Piece Size	Weight	Meter Moisture Content (% dry)*				
1" x 3" x 22 in.	2 488 lbs.	200	202	199	198	208
1" x 3" x 22 in.	2 376 lbs.	197	200	199	196	202
3" x 3" x 22 in.	4 838 lbs.	218	198	198	218	201
3" x 3" x 22 in.	4 742 lbs.	194	193	191	192	194
1 1/2" x 3/4" x 5 in.	0 112 lbs.			196		
1 1/2" x 3/4" x 5 in.	0 106 lbs.			193		
1 1/2" x 3/4" x 5 in.	0 108 lbs.			196		
1 1/2" x 3/4" x 5 in.	0 114 lbs.			195		
1 1/2" x 3/4" x 5 in.	0 114 lbs.			201		
1 1/2" x 3/4" x 5 in.	0 100 lbs.			200		
1 1/2" x 3/4" x 5 in.	0 108 lbs.			193		
1 1/2" x 3/4" x 5 in.	0 114 lbs.			192		
1 1/2" x 3/4" x 5 in.	0 102 lbs.			194		
1 1/2" x 3/4" x 5 in.	0 110 lbs.			194		
1 1/2" x 3/4" x 5 in.	0 120 lbs.			196		
1 1/2" x 3/4" x 5 in.	0 130 lbs.			192		
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					
x x in.	lbs.					

TEST LOAD WEIGHT: 15, 79 lbs Min 20%: 3.16 Max 25%: 3.94

Date: 2016-09-13 Project #: PT 20131 Run: 7 Manufacturer: foyer supreme Model: NU 200
Tech: MM Reviewer: DP

Pre-test Weight Record		SYSTEM 1 - 1 st hour						SYSTEM 1		
		Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets	Blank
Date	Time	7	851	857	5	20	882	883	20	898
2016-09-13	21:00	614775	01261	01272	11,2523	108,8420	01267	01282	10,1090	01283
2016-09-14	9:00	614775	01260	01272	11,2524	108,8421	01268	01281	10,1089	01284

Post-test Weight Record		SYSTEM 1 - 1 st hour						SYSTEM 1		
		Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets	Blank
Date	Time	7	851	857	5	20	882	883	20	898
2016-09-13	21:00	614780	01311	01274	11,2557	108,8423	01261	01282	10,1119	01285
2016-09-26	8:00	614780	01309	01274	11,2539	108,8423	01261	01281	10,1100	01285
2016-09-29	8:00	614780	01309	01274	11,2531	108,8423	01261	01281	10,1096	01285
2016-09-30	8:00	614780	01309	01274	11,2530	108,8423	01261	01281	10,1095	01285

DILUTION TUNNEL PARTICULATE SAMPLER DATA

Date: 2016-09-13 Project #: PT120131 Run: 7 Manufacturer: foyer supreme Model: NV 200
Tech: Mr Reviewer: DP

SYSTEM 2				
Pre-test Weight Record	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets
Date	Time			
2016-09-13	21:00	1077396	0,1255	0,1280
2016-09-14	9:00	1077397	0,1256	0,1279
				10,2282
				10,2283

SYSTEM 2				
Post-test Weight Record	Probe & Housing Number	Front Filter Number	Back Filter Number	gaskets
Date	Time			
2016-09-14	16:30	1077401	0,1300	0,1280
2016-09-20	8:00	1077401	0,1300	0,1280
2016-09-24	8:00	1077401	0,1300	0,1280
2016-09-30	8:00	1077401	0,1300	0,1280
				10,22315
				10,2298
				10,2290
				10,2290

St-jean-sur-Richelieu, September 20th 2016
rev1 June 28th 2017
Client: Foyers Suprême inc
Project: PI-201301
Model: Ambiance Elegance 36 (24SF model number)

APPENDIX 2: Proportionality results

Average	Average	Average						Average
14,86	Inlet +	Inlet +						0,225
	Outlet	Outlet	Average	Average	#1	#2		
Tunnel	Temp.	Temp.	100,51	99,27	System 1	System 2		SQRT
Velocity	Meter 1	Meter 2	Proportional Rates		Vol.Std.	Vol.Std.		Delta-P
			PR1	PR2			Time	
Ft/Sec	Deg. R	Deg. R	%	%	(ft3)	(ft3)	min	(in H2O)2
15,238	540,1	540,5			0,176	0,167	0	0,2311627
15,116	540,1	540,6	98,60	96,93	0,176	0,167	1	0,2305024
15,082	540,2	540,6	98,95	96,93	0,175	0,167	2	0,2300622
15,052	540,2	540,6	99,40	97,85	0,175	0,167	3	0,2289564
15,009	540,2	540,6	100,73	98,95	0,175	0,167	4	0,2274004
15,024	540,2	540,6	101,31	99,63	0,175	0,167	5	0,2267301
14,932	540,3	540,7	103,02	101,57	0,175	0,167	6	0,2240435
15,111	540,3	540,7	103,57	102,00	0,175	0,167	7	0,2249248
14,795	540,3	540,7	106,82	104,76	0,175	0,167	8	0,2192206
15,022	540,4	540,8	105,84	103,70	0,175	0,167	9	0,2219802
14,461	540,4	540,8	109,24	107,58	0,175	0,167	10	0,2140673
14,916	540,5	540,9	105,71	103,96	0,175	0,167	11	0,221292
15,149	540,6	540,9	103,79	102,34	0,175	0,167	12	0,2247067
15,095	540,6	541,0	103,96	102,57	0,175	0,167	13	0,2240279
15,057	540,7	541,0	104,49	102,55	0,175	0,167	14	0,2235747
15,064	540,7	541,1	104,00	102,20	0,175	0,167	15	0,2240276
14,938	540,8	541,2	104,83	102,56	0,175	0,166	16	0,2224358
15,107	540,9	541,2	103,36	101,47	0,175	0,166	17	0,2251569
15,090	540,9	541,3	103,27	101,47	0,175	0,167	18	0,2251568
14,982	541,0	541,3	103,74	102,15	0,175	0,167	19	0,2235744
14,609	541,0	541,3	106,51	104,90	0,175	0,167	20	0,2180582
14,387	541,1	541,4	108,18	106,28	0,175	0,167	21	0,2145424
14,820	541,1	541,4	105,26	103,53	0,175	0,167	22	0,2208341
14,862	541,2	541,5	105,23	103,43	0,175	0,167	23	0,2212941
15,058	541,2	541,5	103,80	102,12	0,175	0,167	24	0,2240286
15,041	541,2	541,5	103,89	102,48	0,175	0,167	25	0,223575
15,083	541,3	541,6	104,08	102,49	0,175	0,167	26	0,2240287
14,828	541,3	541,6	105,65	104,20	0,175	0,167	27	0,2203749
14,905	541,4	541,7	104,65	102,95	0,175	0,167	28	0,2219809
14,911	541,4	541,7	104,72	102,43	0,175	0,166	29	0,2224368
14,902	541,4	541,8	104,13	102,46	0,175	0,166	30	0,2224375
15,047	541,5	541,8	103,23	101,43	0,175	0,167	31	0,224707
14,757	541,5	541,8	104,93	103,25	0,175	0,166	32	0,2203753
14,878	541,6	541,9	104,09	102,37	0,175	0,166	33	0,2224375
15,038	541,6	541,9	102,98	101,52	0,175	0,167	34	0,2247075
14,982	541,7	542,0	103,10	101,66	0,175	0,167	35	0,224029
14,347	541,7	542,0	107,99	106,34	0,175	0,167	36	0,2143532
14,952	541,7	542,0	103,52	101,71	0,175	0,167	37	0,223575
14,988	541,8	542,0	103,41	101,47	0,175	0,166	38	0,224029
14,968	541,8	542,1	103,39	101,71	0,175	0,166	39	0,2235751
14,969	541,9	542,1	103,66	102,10	0,175	0,167	40	0,2235755
14,902	541,9	542,2	103,93	102,61	0,175	0,167	41	0,2224379
14,920	541,9	542,2	103,34	101,96	0,174	0,167	42	0,2231213
14,967	542,0	542,3	103,19	101,64	0,175	0,167	43	0,2240293
14,822	542,0	542,3	103,96	102,61	0,175	0,167	44	0,2219932
14,888	542,1	542,3	103,59	101,59	0,175	0,167	45	0,2231214
15,014	542,1	542,4	102,49	100,77	0,175	0,166	46	0,2251588
14,434	542,2	542,4	106,67	104,80	0,175	0,167	47	0,2164269
14,126	542,2	542,4	108,86	107,48	0,175	0,167	48	0,2116874
14,901	542,2	542,5	103,11	101,42	0,175	0,167	49	0,2235757
14,971	542,3	542,5	102,39	101,08	0,175	0,167	50	0,2247076
14,970	542,3	542,5	102,47	100,77	0,175	0,167	51	0,2247079
14,939	542,3	542,6	102,96	101,04	0,175	0,166	52	0,2240297
14,824	542,4	542,6	103,29	101,93	0,175	0,166	53	0,2224381

14,967	542,4	542,6	102,31	100,99	0,174	0,167	54	0,2247084
15,072	542,4	542,6	101,44	100,25	0,174	0,167	55	0,2262828
15,004	542,5	542,7	102,13	100,82	0,174	0,167	56	0,2251591
14,866	542,5	542,7	103,29	101,76	0,175	0,167	57	0,223122
14,928	542,5	542,7	102,78	101,16	0,175	0,167	58	0,2240302
14,747	542,5	542,7	104,09	102,02	0,175	0,166	59	0,221336
14,742	542,5	542,8	103,92	102,14	0,175	0,166	60	0,2212954
14,889	542,6	542,8	102,99	101,09	0,175	0,166	61	0,223513
14,900	542,6	542,8	102,87	101,65	0,175	0,166	62	0,223576
14,917	542,7	542,9	102,47	101,25	0,174	0,167	63	0,2240302
14,448	542,7	542,9	106,26	104,66	0,175	0,167	64	0,2168949
14,820	542,7	542,9	103,51	101,67	0,175	0,166	65	0,2224383
14,894	542,8	543,0	103,24	101,26	0,175	0,166	66	0,2235761
14,896	542,8	543,0	102,72	101,04	0,175	0,166	67	0,2235763
14,925	542,8	543,0	102,62	100,95	0,174	0,166	68	0,2240299
14,859	542,8	543,1	102,78	101,34	0,174	0,166	69	0,2231223
14,916	542,8	543,1	102,71	101,01	0,174	0,166	70	0,2240306
14,916	542,9	543,1	103,01	101,13	0,175	0,166	71	0,2240303
14,988	542,9	543,2	101,99	100,34	0,175	0,166	72	0,2251598
14,988	542,9	543,2	102,14	100,58	0,175	0,166	73	0,2251598
14,979	543,0	543,3	102,06	100,23	0,175	0,166	74	0,2251594
15,063	543,0	543,3	101,38	99,94	0,174	0,166	75	0,2262814
14,951	543,1	543,3	102,57	100,85	0,175	0,167	76	0,224709
14,842	543,1	543,3	102,77	101,30	0,175	0,167	77	0,2231225
15,046	543,1	543,3	101,49	99,76	0,174	0,166	78	0,2262832
15,046	543,1	543,4	101,18	99,75	0,174	0,166	79	0,2262838
14,966	543,1	543,4	101,90	100,14	0,174	0,166	80	0,2251605
14,893	543,1	543,4	102,32	100,53	0,174	0,166	81	0,2240309
14,891	543,2	543,5	102,19	100,41	0,174	0,166	82	0,2240305
15,046	543,2	543,5	101,36	99,61	0,174	0,166	83	0,2262837
14,964	543,2	543,5	101,88	100,41	0,174	0,166	84	0,2251599
14,891	543,2	543,5	102,46	101,11	0,175	0,167	85	0,2240313
14,690	543,3	543,6	103,69	102,29	0,174	0,167	86	0,2208709
14,631	543,3	543,6	104,36	102,58	0,174	0,166	87	0,2200067
15,046	543,3	543,6	101,14	99,65	0,174	0,166	88	0,2262845
14,942	543,3	543,6	101,77	100,11	0,174	0,166	89	0,2247095
14,973	543,4	543,7	101,94	100,26	0,174	0,166	90	0,22516
15,049	543,4	543,7	101,34	99,49	0,174	0,166	91	0,2262838
14,864	543,4	543,7	102,79	101,03	0,175	0,166	92	0,2235281
14,972	543,4	543,7	101,95	100,25	0,175	0,166	93	0,2251608
14,866	543,5	543,8	102,70	100,91	0,175	0,166	94	0,2235775
15,072	543,5	543,8	101,01	99,45	0,174	0,166	95	0,2267332
14,389	543,5	543,8	106,02	104,00	0,174	0,166	96	0,2164287
14,782	543,5	543,8	102,94	101,33	0,174	0,166	97	0,22244
15,063	543,5	543,8	101,06	99,54	0,174	0,166	98	0,2267331
14,513	543,5	543,9	104,92	103,24	0,174	0,166	99	0,2185286
14,841	543,5	543,9	102,27	100,85	0,174	0,166	100	0,2235778
14,907	543,6	543,9	101,48	100,28	0,174	0,166	101	0,2247106
14,858	543,6	543,9	102,09	100,52	0,174	0,166	102	0,2240315
14,902	543,6	544,0	101,68	100,04	0,174	0,166	103	0,2247099
15,079	543,6	544,0	100,46	98,96	0,174	0,166	104	0,2274037
14,866	543,6	544,0	102,22	100,34	0,175	0,166	105	0,2243394
15,010	543,7	544,1	100,54	99,09	0,175	0,166	106	0,2267341
14,997	543,7	544,1	100,85	99,38	0,174	0,166	107	0,2265059
14,900	543,7	544,1	101,08	99,65	0,174	0,166	108	0,2251611
14,819	543,7	544,1	101,80	100,19	0,174	0,166	109	0,2240324
14,856	543,8	544,1	101,33	99,54	0,174	0,166	110	0,2247108
15,023	543,8	544,2	99,94	98,35	0,174	0,166	111	0,2274047
14,805	543,8	544,2	101,62	99,88	0,174	0,166	112	0,2240325
14,943	543,8	544,2	100,61	98,86	0,174	0,166	113	0,2262849
14,967	543,9	544,2	100,41	98,57	0,174	0,166	114	0,2267408

14,932	543,9	544,3	100,30	99,11	0,174	0,166	115	0,2262855
15,003	543,9	544,3	100,05	98,26	0,174	0,166	116	0,2274049
14,820	544,0	544,3	100,90	99,42	0,174	0,166	117	0,2247117
14,307	544,0	544,3	104,46	102,92	0,174	0,166	118	0,2168971
14,740	544,0	544,4	101,66	100,01	0,174	0,166	119	0,2235788
14,990	544,1	544,4	99,83	98,22	0,174	0,166	120	0,227405
14,985	544,1	544,4	100,00	98,21	0,174	0,166	121	0,2274048
14,336	544,1	544,4	104,39	102,58	0,174	0,166	122	0,217599
14,935	544,2	544,5	100,19	98,55	0,174	0,166	123	0,2267357
14,905	544,2	544,5	100,16	98,33	0,174	0,166	124	0,2262862
14,827	544,2	544,5	100,79	99,16	0,174	0,166	125	0,2251704
15,045	544,2	544,5	99,14	97,38	0,174	0,166	126	0,2285184
15,071	544,3	544,5	99,01	97,48	0,174	0,166	127	0,228962
14,892	544,3	544,6	100,24	98,44	0,174	0,166	128	0,2262856
15,038	544,3	544,6	98,92	97,50	0,174	0,166	129	0,2285177
14,891	544,4	544,6	100,01	98,61	0,174	0,166	130	0,2262855
15,069	544,4	544,7	98,69	97,34	0,174	0,166	131	0,2289617
14,961	544,5	544,7	99,46	98,16	0,174	0,166	132	0,2274056
15,038	544,5	544,7	99,24	97,54	0,174	0,166	133	0,2285189
14,161	544,5	544,8	105,22	103,15	0,174	0,165	134	0,2152557
14,919	544,6	544,8	99,97	98,31	0,174	0,166	135	0,2267349
15,060	544,6	544,8	98,79	97,26	0,174	0,166	136	0,2289622
14,882	544,7	544,9	100,05	98,45	0,174	0,166	137	0,2262873
15,091	544,7	544,9	98,57	96,88	0,174	0,166	138	0,2294058
14,878	544,8	545,0	99,87	98,43	0,174	0,166	139	0,2261842
14,983	544,8	545,0	99,46	97,64	0,174	0,166	140	0,2278535
14,987	544,8	545,0	99,37	97,64	0,174	0,166	141	0,2278522
14,885	544,9	545,0	100,33	98,28	0,174	0,166	142	0,2262842
14,954	544,9	545,1	99,29	97,69	0,174	0,165	143	0,2274064
14,985	544,9	545,1	99,22	97,86	0,174	0,166	144	0,2278518
14,731	545,0	545,1	100,68	99,31	0,174	0,166	145	0,2240338
14,775	545,0	545,2	100,72	98,77	0,174	0,165	146	0,2247134
14,982	545,0	545,2	99,63	97,56	0,174	0,165	147	0,2278522
14,952	545,1	545,2	99,34	97,71	0,174	0,165	148	0,2274072
15,023	545,1	545,3	99,00	97,09	0,174	0,165	149	0,2285203
15,022	545,1	545,3	98,97	97,42	0,174	0,165	150	0,2285202
15,049	545,1	545,3	98,55	97,09	0,174	0,166	151	0,2289636
15,020	545,2	545,4	98,51	97,28	0,173	0,166	152	0,2285209
14,770	545,2	545,4	100,59	98,70	0,174	0,165	153	0,2247135
14,945	545,2	545,4	99,34	97,73	0,174	0,165	154	0,2274077
14,945	545,3	545,5	99,65	97,57	0,174	0,165	155	0,2274079
15,051	545,3	545,5	99,04	97,11	0,174	0,165	156	0,2289641
14,971	545,3	545,5	99,10	97,49	0,174	0,166	157	0,2278542
15,018	545,3	545,5	98,79	97,14	0,174	0,165	158	0,2285207
14,795	545,4	545,5	100,09	98,75	0,174	0,165	159	0,2251646
14,940	545,4	545,6	99,01	97,82	0,173	0,166	160	0,2274081
14,939	545,4	545,6	99,08	97,68	0,173	0,166	161	0,227408
14,939	545,4	545,6	99,30	97,35	0,174	0,165	162	0,2273958
14,939	545,5	545,7	99,40	97,61	0,174	0,165	163	0,2274082
14,791	545,5	545,7	100,31	98,58	0,174	0,165	164	0,2251648
14,762	545,5	545,7	100,37	98,80	0,174	0,165	165	0,2247141
14,967	545,5	545,7	98,98	97,43	0,174	0,165	166	0,2278534
15,041	545,6	545,8	98,50	97,11	0,174	0,166	167	0,2289645
14,933	545,6	545,8	99,13	97,33	0,174	0,165	168	0,2274082
14,935	545,6	545,8	99,58	97,50	0,174	0,165	169	0,2274085
14,968	545,6	545,8	98,91	97,17	0,174	0,165	170	0,227854
14,940	545,7	545,9	99,31	97,43	0,174	0,165	171	0,2274076
14,672	545,7	545,9	100,79	99,21	0,174	0,165	172	0,2233456
14,896	545,8	545,9	99,53	98,10	0,173	0,165	173	0,2267378
14,896	545,8	546,0	99,42	97,69	0,174	0,165	174	0,2267385
14,941	545,8	546,0	99,02	97,35	0,173	0,165	175	0,2274086

15,014	545,9	546,0	98,67	96,64	0,173	0,165	176	0,2285221
14,869	545,9	546,1	99,72	97,91	0,174	0,165	177	0,2262901
14,849	546,0	546,1	99,85	97,83	0,174	0,165	178	0,2260477
14,939	546,0	546,2	98,97	97,27	0,173	0,165	179	0,2274095
14,788	546,0	546,2	100,28	98,50	0,173	0,165	180	0,2250822
15,013	546,1	546,2	98,45	97,01	0,173	0,165	181	0,2285223
14,792	546,1	546,3	99,84	98,10	0,173	0,165	182	0,2251663
15,041	546,1	546,3	98,54	96,68	0,173	0,165	183	0,2289655
14,788	546,1	546,3	100,11	98,35	0,174	0,165	184	0,2251229
14,936	546,2	546,3	99,29	97,31	0,174	0,165	185	0,2274082
14,894	546,2	546,4	99,50	97,67	0,174	0,165	186	0,2267386
14,864	546,2	546,4	99,72	98,07	0,174	0,165	187	0,2262903
14,760	546,3	546,5	100,19	98,40	0,173	0,165	188	0,2247155
15,013	546,3	546,5	98,69	96,98	0,173	0,165	189	0,2285222
14,894	546,4	546,5	99,31	97,62	0,173	0,165	190	0,2267266
14,763	546,4	546,6	100,29	98,55	0,173	0,165	191	0,2247154
14,942	546,5	546,6	99,21	97,36	0,174	0,165	192	0,2274095
14,972	546,5	546,7	98,80	97,10	0,173	0,165	193	0,2278549
14,971	546,5	546,7	98,59	97,18	0,173	0,165	194	0,227855
14,941	546,6	546,7	99,08	97,36	0,173	0,165	195	0,2274103
14,943	546,6	546,8	98,98	97,51	0,173	0,165	196	0,2274098
14,974	546,7	546,8	98,91	97,24	0,173	0,165	197	0,2278552
14,869	546,7	546,9	99,68	97,83	0,173	0,165	198	0,2262912
14,973	546,8	546,9	98,89	96,87	0,173	0,165	199	0,2278557
15,017	546,8	547,0	98,61	96,84	0,173	0,165	200	0,2285232
14,972	546,9	547,0	98,78	96,98	0,173	0,165	201	0,2278556
14,945	546,9	547,1	99,06	97,18	0,173	0,165	202	0,2274101
15,047	546,9	547,1	98,31	96,79	0,173	0,165	203	0,2289661
14,332	547,0	547,1	103,30	101,53	0,173	0,165	204	0,2180738
14,770	547,0	547,2	99,96	98,62	0,173	0,165	205	0,2247168
14,411	547,1	547,2	102,63	100,99	0,173	0,165	206	0,2192301
14,771	547,2	547,3	100,10	98,10	0,173	0,165	207	0,2247164
14,950	547,2	547,3	99,00	97,29	0,173	0,164	208	0,2274101
14,907	547,3	547,4	99,24	97,57	0,173	0,165	209	0,2267399
14,937	547,3	547,5	99,03	97,36	0,173	0,165	210	0,2271952
14,954	547,4	547,5	99,38	97,74	0,173	0,165	211	0,2274109
15,025	547,4	547,6	98,39	96,99	0,173	0,165	212	0,2285237
14,952	547,5	547,6	99,06	97,28	0,173	0,165	213	0,2274106
14,983	547,5	547,6	98,57	96,89	0,173	0,165	214	0,2278564
15,027	547,5	547,7	98,52	96,77	0,173	0,164	215	0,2285247
14,733	547,6	547,7	100,39	98,64	0,173	0,165	216	0,2240387
14,955	547,6	547,8	98,80	97,32	0,173	0,165	217	0,2274109
14,989	547,6	547,8	98,70	97,26	0,173	0,165	218	0,227932
14,985	547,7	547,8	98,80	97,31	0,173	0,165	219	0,2278566
15,087	547,7	547,9	98,19	96,40	0,173	0,165	220	0,229411
14,911	547,7	547,9	99,06	97,38	0,173	0,164	221	0,2267409
15,028	547,7	547,9	98,55	96,63	0,173	0,164	222	0,2285243
14,603	547,7	547,9	101,10	99,63	0,173	0,165	223	0,2220631
14,882	547,7	548,0	99,15	97,90	0,173	0,165	224	0,2262922
14,910	547,8	548,0	99,30	97,76	0,173	0,165	225	0,2267412
14,911	547,8	548,0	99,20	97,63	0,173	0,165	226	0,226742
14,371	547,8	548,0	103,14	101,01	0,173	0,165	227	0,2185358
14,261	547,8	548,1	103,81	101,94	0,173	0,164	228	0,2169038
14,777	547,8	548,1	100,24	98,21	0,173	0,164	229	0,224718
14,910	547,9	548,1	99,12	97,61	0,173	0,165	230	0,2267417
14,953	547,9	548,1	98,97	96,90	0,173	0,164	231	0,2274119
14,807	548,0	548,2	99,81	98,35	0,173	0,164	232	0,2251685
14,955	548,0	548,2	98,92	97,29	0,173	0,165	233	0,2274117
14,881	548,0	548,2	99,49	97,82	0,173	0,165	234	0,2262926
14,910	548,0	548,2	98,96	97,67	0,173	0,165	235	0,2267418
14,775	548,0	548,3	99,99	97,98	0,173	0,164	236	0,2246706

14,310	548,1	548,3	103,07	101,42	0,173	0,164	237	0,2176053
14,734	548,1	548,3	100,26	98,67	0,173	0,164	238	0,2240398
14,984	548,1	548,4	98,80	97,12	0,173	0,165	239	0,2278573
14,984	548,2	548,4	98,70	97,00	0,173	0,165	240	0,2278572
14,954	548,2	548,4	98,95	97,27	0,173	0,165	241	0,2274125
14,600	548,2	548,5	101,21	99,65	0,173	0,165	242	0,221992
14,986	548,2	548,5	98,71	96,79	0,173	0,164	243	0,227858
14,882	548,3	548,5	99,26	97,80	0,173	0,164	244	0,2262927
14,884	548,3	548,5	99,17	97,75	0,173	0,165	245	0,2262925
14,707	548,4	548,6	100,73	98,90	0,173	0,165	246	0,2235859
14,914	548,4	548,6	99,21	97,45	0,173	0,164	247	0,2267421
14,958	548,4	548,7	99,17	97,30	0,173	0,165	248	0,2274127
15,032	548,5	548,7	98,19	96,77	0,173	0,165	249	0,2285256
14,806	548,5	548,7	99,78	98,54	0,173	0,165	250	0,2251114
14,810	548,5	548,8	99,54	98,10	0,172	0,165	251	0,2251694
14,782	548,6	548,8	100,10	98,21	0,173	0,164	252	0,2247183
14,812	548,6	548,8	100,20	98,15	0,173	0,164	253	0,2251696
14,558	548,6	548,9	101,47	99,91	0,173	0,164	254	0,2213049
14,347	548,7	548,9	103,15	101,75	0,173	0,165	255	0,2180709
14,962	548,7	548,9	98,89	97,41	0,173	0,165	256	0,2274126
14,888	548,7	549,0	99,15	97,67	0,173	0,165	257	0,2262932
15,035	548,8	549,0	97,97	96,93	0,172	0,165	258	0,2285258
14,378	548,8	549,0	102,87	100,90	0,172	0,164	259	0,2185374
14,741	548,8	549,1	100,28	98,70	0,173	0,164	260	0,224039
14,711	548,8	549,1	100,80	98,99	0,173	0,165	261	0,2235866
15,036	548,9	549,1	98,67	97,44	0,173	0,165	262	0,2285259
14,815	548,9	549,2	99,75	98,34	0,173	0,165	263	0,2251698
14,815	549,0	549,2	99,71	98,28	0,173	0,165	264	0,2251696
14,889	548,9	549,2	99,07	97,76	0,172	0,165	265	0,2262934
14,711	549,0	549,2	100,19	98,79	0,172	0,164	266	0,2235866
14,993	549,0	549,3	98,40	97,45	0,172	0,165	267	0,227858
14,963	549,0	549,3	98,80	97,39	0,172	0,165	268	0,2274128
14,891	549,1	549,3	99,40	97,67	0,173	0,165	269	0,2262939
14,918	549,1	549,3	99,12	97,63	0,173	0,165	270	0,226742
14,891	549,1	549,4	99,19	97,75	0,173	0,165	271	0,2262942
14,818	549,1	549,4	99,68	98,54	0,172	0,165	272	0,22517
14,919	549,2	549,4	98,97	97,74	0,172	0,165	273	0,2267431
14,742	549,2	549,4	100,17	98,69	0,172	0,165	274	0,2240408
14,920	549,2	549,5	99,41	97,87	0,173	0,165	275	0,2267426
14,817	549,2	549,5	99,61	98,49	0,173	0,165	276	0,2251703
14,920	549,2	549,5	99,12	97,95	0,173	0,165	277	0,2267426
14,919	549,2	549,5	98,81	97,79	0,172	0,165	278	0,226743
14,962	549,1	549,4	98,77	97,66	0,172	0,165	279	0,2274134
14,815	549,1	549,4	99,66	98,54	0,173	0,165	280	0,225172
14,817	549,1	549,4	99,57	98,49	0,172	0,165	281	0,2251699
14,890	549,1	549,5	99,21	97,82	0,172	0,165	282	0,226294
14,786	549,2	549,5	99,96	98,71	0,173	0,165	283	0,2247193
14,715	549,2	549,5	100,55	99,32	0,173	0,165	284	0,223587
14,743	549,2	549,5	100,04	98,98	0,172	0,165	285	0,2240432
14,892	549,3	549,6	99,31	98,05	0,172	0,165	286	0,2262939
14,789	549,3	549,6	99,70	98,64	0,172	0,165	287	0,2247195
14,893	549,3	549,6	98,93	97,99	0,172	0,165	288	0,2262944
14,740	549,4	549,6	100,32	99,13	0,172	0,165	289	0,2239682
14,923	549,4	549,7	98,99	97,69	0,173	0,165	290	0,2267434
14,924	549,4	549,7	99,20	97,91	0,173	0,165	291	0,226743
14,818	549,4	549,7	99,79	98,62	0,173	0,165	292	0,2251706
14,970	549,4	549,7	98,87	97,57	0,173	0,165	293	0,2274135
14,822	549,5	549,7	99,63	98,38	0,172	0,165	294	0,2251705
14,896	549,5	549,8	99,29	97,85	0,172	0,165	295	0,226294
14,687	549,5	549,8	100,53	99,39	0,172	0,165	296	0,2231337
14,972	549,5	549,8	98,75	97,37	0,172	0,165	297	0,2274137

14,970	549,5	549,8	98,84	97,74	0,173	0,165	298	0,2274137
14,896	549,5	549,8	99,11	98,19	0,172	0,165	299	0,226294
14,971	549,6	549,8	98,43	97,84	0,172	0,165	300	0,2274138
14,908	549,6	549,9	99,17	97,88	0,172	0,165	301	0,2264446
14,928	549,6	549,9	98,96	97,78	0,172	0,165	302	0,2267433
14,925	549,6	549,9	98,93	97,98	0,172	0,165	303	0,2267428
14,794	549,6	549,9	100,28	98,85	0,173	0,165	304	0,2247195
14,821	549,6	549,9	99,58	98,57	0,173	0,165	305	0,2251704
14,537	549,6	549,9	101,73	100,50	0,172	0,165	306	0,2208456
14,897	549,6	549,9	98,99	98,40	0,172	0,165	307	0,2262943
14,897	549,6	549,9	99,23	97,97	0,172	0,165	308	0,2262945
14,794	549,6	549,9	99,82	98,96	0,172	0,165	309	0,2247199
14,897	549,7	549,9	99,01	98,17	0,172	0,165	310	0,2262936
14,569	549,7	550,0	101,38	100,29	0,172	0,165	311	0,2213065
14,750	549,7	550,0	100,22	99,38	0,172	0,165	312	0,2240412
14,896	549,7	550,0	99,27	98,29	0,172	0,165	313	0,2262941
14,928	549,7	550,0	99,37	98,13	0,173	0,165	314	0,2267436
14,719	549,7	550,0	100,27	99,51	0,173	0,165	315	0,2235873
14,928	549,7	550,0	99,07	98,16	0,172	0,165	316	0,2267434
14,989	549,7	550,0	98,36	97,53	0,172	0,165	317	0,2276841
14,795	549,7	550,0	99,91	98,83	0,172	0,165	318	0,2247165
14,924	549,7	550,0	98,90	98,08	0,172	0,165	319	0,2267435
14,792	549,8	550,0	99,69	99,12	0,172	0,166	320	0,22472
14,970	549,8	550,1	98,64	97,85	0,172	0,166	321	0,2274135
14,926	549,8	550,1	99,01	98,09	0,172	0,165	322	0,2267431
14,893	549,8	550,1	99,24	98,19	0,172	0,165	323	0,2262944
14,641	549,8	550,1	100,68	100,06	0,172	0,165	324	0,2224498
14,897	549,8	550,0	99,25	98,31	0,172	0,165	325	0,2262947
14,793	549,7	550,0	99,65	98,97	0,172	0,165	326	0,2247203
14,898	549,8	550,0	98,89	98,23	0,172	0,165	327	0,2262949
14,720	549,8	550,1	100,45	99,57	0,172	0,165	328	0,223587
14,925	549,8	550,1	98,97	98,33	0,172	0,166	329	0,2266911
14,930	549,8	550,1	99,16	98,06	0,172	0,166	330	0,2267432
14,928	549,9	550,1	99,06	98,02	0,173	0,165	331	0,2267433
15,003	549,9	550,1	98,62	97,55	0,173	0,165	332	0,2278593
14,720	549,9	550,2	100,26	99,67	0,172	0,165	333	0,2235872
14,722	549,9	550,2	100,44	99,46	0,172	0,166	334	0,2235873
14,795	550,0	550,2	99,76	99,14	0,172	0,165	335	0,2247199
14,973	550,0	550,3	98,67	97,68	0,172	0,165	336	0,2274141
14,998	550,0	550,3	98,55	97,43	0,172	0,165	337	0,2278589
14,793	550,0	550,3	99,73	98,94	0,172	0,165	338	0,2247202
14,435	549,9	550,3	102,05	101,39	0,172	0,165	339	0,219233
14,927	549,9	550,3	98,97	97,96	0,172	0,165	340	0,2267434
14,121	549,9	550,3	104,47	103,29	0,172	0,165	341	0,2145548
14,966	549,9	550,2	98,57	97,77	0,172	0,165	342	0,2274141
14,897	549,9	550,2	99,53	98,38	0,173	0,165	343	0,226296
14,822	549,9	550,2	99,52	98,92	0,173	0,166	344	0,2251707
14,823	549,9	550,2	99,73	98,93	0,172	0,166	345	0,2251704
14,926	549,9	550,2	98,73	98,05	0,172	0,165	346	0,2267428
14,795	549,9	550,2	99,86	99,09	0,172	0,165	347	0,2247392
14,747	549,9	550,2	100,06	99,29	0,172	0,166	348	0,2240412
14,972	550,0	550,3	98,48	97,96	0,172	0,166	349	0,2274139
14,928	550,0	550,3	98,91	98,52	0,172	0,166	350	0,2267434
14,927	550,1	550,3	98,96	98,33	0,172	0,166	351	0,2267375
14,795	550,1	550,4	99,92	98,99	0,172	0,166	352	0,2247197
15,002	550,1	550,4	98,26	97,63	0,172	0,165	353	0,2278593
14,929	550,2	550,4	99,01	98,29	0,172	0,166	354	0,226743
14,900	550,2	550,5	98,90	98,68	0,172	0,166	355	0,2262947
14,973	550,2	550,5	98,33	97,99	0,172	0,166	356	0,2274139
14,753	550,2	550,5	100,19	99,59	0,172	0,166	357	0,2240427
14,096	550,2	550,5	104,74	104,12	0,172	0,166	358	0,2140813

14,901	550,3	550,5	99,29	98,70	0,172	0,166	359	0,2262951
14,975	550,3	550,5	98,72	98,08	0,172	0,166	360	0,2274138
14,648	550,3	550,6	100,96	100,20	0,172	0,166	361	0,2224504
14,867	550,3	550,6	99,23	98,74	0,172	0,166	362	0,2257815
14,647	550,3	550,6	100,89	100,39	0,172	0,166	363	0,2224497
14,830	550,3	550,6	99,49	99,33	0,172	0,166	364	0,2252306
15,001	550,2	550,6	98,42	97,82	0,172	0,166	365	0,2278645
14,530	550,2	550,5	101,72	101,16	0,172	0,166	366	0,2206832
14,898	550,2	550,5	98,87	98,52	0,172	0,166	367	0,2262947
14,736	550,2	550,5	100,09	99,61	0,172	0,166	368	0,2238152
14,389	550,2	550,6	102,35	102,18	0,172	0,166	369	0,2185384
14,901	550,3	550,6	98,98	98,43	0,172	0,166	370	0,226295
14,826	550,3	550,6	99,71	99,23	0,172	0,166	371	0,2251709
14,931	550,3	550,6	98,92	98,32	0,172	0,166	372	0,226756
14,822	550,3	550,6	99,66	99,22	0,172	0,166	373	0,2251705
14,721	550,3	550,6	100,23	99,70	0,172	0,166	374	0,2235876
14,825	550,3	550,6	99,63	99,03	0,172	0,166	375	0,2251706
14,930	550,2	550,6	98,83	98,36	0,172	0,166	376	0,2267434
14,900	550,2	550,6	98,93	98,87	0,172	0,166	377	0,2262949
14,931	550,2	550,6	99,09	98,58	0,172	0,166	378	0,2267434
14,902	550,2	550,6	99,19	98,81	0,172	0,166	379	0,2262946
14,798	550,2	550,6	100,15	99,48	0,173	0,166	380	0,2247199
14,828	550,3	550,6	99,44	99,08	0,172	0,166	381	0,2251702
15,048	550,3	550,6	98,08	97,65	0,172	0,166	382	0,2285268
14,901	550,3	550,6	98,84	98,58	0,172	0,166	383	0,2262949
14,827	550,3	550,6	99,69	99,23	0,172	0,166	384	0,2251706
14,826	550,3	550,6	99,98	99,19	0,173	0,166	385	0,2251705
14,900	550,3	550,6	99,02	98,82	0,172	0,166	386	0,2262947
14,434	550,3	550,6	102,37	101,78	0,172	0,166	387	0,219233
14,927	550,2	550,6	98,97	98,62	0,172	0,166	388	0,2267419
14,927	550,2	550,6	98,75	98,41	0,172	0,166	389	0,2267431
14,796	550,2	550,5	99,45	99,25	0,172	0,166	390	0,22472
14,825	550,1	550,5	99,67	99,11	0,172	0,166	391	0,2251704
14,247	550,1	550,5	103,61	103,55	0,172	0,166	392	0,2164384
14,822	550,0	550,4	99,92	99,30	0,173	0,166	393	0,2251701
14,747	550,0	550,4	100,49	99,67	0,173	0,166	394	0,2240415
14,717	550,0	550,4	100,31	99,98	0,173	0,166	395	0,2235872
14,924	550,0	550,3	98,88	98,28	0,172	0,166	396	0,2267427
14,712	549,9	550,3	100,10	100,04	0,172	0,166	397	0,2235872
14,505	549,9	550,3	101,51	101,46	0,172	0,166	398	0,2203909
14,967	549,9	550,3	98,45	98,14	0,172	0,166	399	0,2274132
14,790	549,9	550,3	99,85	99,51	0,172	0,166	400	0,2247193
14,789	550,0	550,3	99,94	99,56	0,172	0,166	401	0,2247195
14,922	550,0	550,3	98,99	98,74	0,172	0,166	402	0,2267384
14,818	550,0	550,3	99,53	99,04	0,172	0,166	403	0,2251696
14,788	550,0	550,3	99,73	99,43	0,172	0,166	404	0,2247195
14,789	549,9	550,3	99,74	99,24	0,172	0,166	405	0,2247196
14,789	549,9	550,3	99,75	99,27	0,172	0,166	406	0,2247189
14,993	549,9	550,3	98,79	98,06	0,173	0,166	407	0,2278586
14,889	549,9	550,2	98,99	98,95	0,173	0,166	408	0,2262935
14,992	549,8	550,2	98,51	97,99	0,172	0,166	409	0,2278582
14,888	549,8	550,2	98,89	98,73	0,172	0,166	410	0,226294
14,706	549,7	550,1	100,32	99,75	0,172	0,166	411	0,2235871
14,810	549,7	550,1	99,52	99,31	0,172	0,166	412	0,2251699
14,913	549,6	550,0	98,74	98,54	0,172	0,166	413	0,2267426
14,882	549,6	550,0	99,07	98,81	0,172	0,166	414	0,2262931
14,673	549,6	550,0	100,54	100,31	0,172	0,167	415	0,2231328
14,955	549,5	549,9	98,72	98,65	0,173	0,167	416	0,2274127
14,909	549,5	549,9	98,73	98,60	0,172	0,167	417	0,2267426
14,879	549,5	549,9	99,19	98,64	0,172	0,166	418	0,2262934
14,874	549,4	549,8	98,86	98,58	0,172	0,166	419	0,2262931

14,548	549,4	549,8	101,04	100,63	0,172	0,166	420	0,2212962
14,800	549,4	549,8	99,65	99,33	0,172	0,166	421	0,2251688
14,669	549,3	549,7	100,49	100,34	0,173	0,167	422	0,2231326
14,800	549,3	549,7	99,78	99,38	0,173	0,167	423	0,225169
14,770	549,3	549,7	99,90	99,30	0,173	0,166	424	0,2247181
14,870	549,2	549,6	99,22	98,74	0,173	0,166	425	0,2262926
14,946	549,2	549,6	98,53	98,41	0,173	0,167	426	0,2274122
14,901	549,2	549,6	98,99	98,53	0,173	0,167	427	0,2267413
14,766	549,1	549,5	99,72	99,52	0,173	0,167	428	0,224716
14,691	549,1	549,5	100,32	100,12	0,173	0,167	429	0,223586
14,899	549,1	549,5	99,03	98,61	0,173	0,167	430	0,2267413
14,794	549,0	549,4	99,51	99,20	0,173	0,166	431	0,2251685
14,584	549,0	549,4	100,73	100,49	0,172	0,166	432	0,2219887
14,867	549,0	549,4	99,13	98,62	0,172	0,166	433	0,2262923
14,763	549,0	549,4	99,71	99,34	0,173	0,166	434	0,2247175
14,967	549,0	549,3	98,45	98,20	0,173	0,167	435	0,227857
14,293	548,9	549,3	103,20	102,41	0,173	0,166	436	0,2176036
14,215	548,9	549,3	103,66	103,55	0,173	0,167	437	0,2164369
14,862	548,9	549,3	99,15	98,79	0,173	0,167	438	0,226292
14,684	548,9	549,3	100,24	100,05	0,173	0,167	439	0,2235852
14,892	548,8	549,2	98,95	98,54	0,173	0,167	440	0,2267404
14,610	548,8	549,2	100,78	100,30	0,173	0,166	441	0,2224471
14,861	548,8	549,1	99,15	98,47	0,173	0,166	442	0,2262922
14,934	548,7	549,1	98,38	98,30	0,172	0,166	443	0,2274106
14,859	548,7	549,1	99,01	98,87	0,172	0,167	444	0,2262914
14,754	548,7	549,1	99,70	99,51	0,173	0,167	445	0,2247169
14,933	548,7	549,1	98,62	98,33	0,173	0,167	446	0,2274107
14,351	548,7	549,0	102,57	102,10	0,173	0,167	447	0,2185351
14,319	548,7	549,0	102,79	102,21	0,173	0,166	448	0,2180699
14,887	548,7	549,0	99,29	98,43	0,173	0,166	449	0,2267401
14,961	548,7	549,0	98,32	97,86	0,173	0,166	450	0,2278563
14,888	548,6	549,0	99,01	98,75	0,173	0,167	451	0,2267406
14,783	548,6	549,0	99,39	99,28	0,173	0,167	452	0,2251675
14,857	548,6	548,9	99,15	98,79	0,173	0,167	453	0,2262913
14,751	548,6	548,9	99,73	99,34	0,173	0,167	454	0,224717
14,781	548,6	548,9	99,43	99,05	0,173	0,166	455	0,2251679
14,750	548,5	548,9	99,76	99,47	0,173	0,167	456	0,2247167

Average	Average	Average						Average
14,19	Inlet +	Inlet +						0,213
	Outlet	Outlet	Average	Average	#1	#2		
Tunnel	Temp.	Temp.	100,67	100,30	System 1	System 2		SQRT
Velocity	Meter 1	Meter 2	Proportional Rates		Vol.Std.	Vol.Std.		Delta-P
			PR1	PR2			Time	
Ft/Sec	Deg. R	Deg. R	%	%	(ft3)	(ft3)	min	(in H2O)2
14,289	541,8	542,1			0,171	0,164	0	0,2145433
14,382	541,9	542,1	98,25	97,67	0,171	0,165	1	0,2175939
14,595	541,9	542,1	96,72	96,05	0,171	0,165	2	0,2208344
14,422	541,9	542,2	97,63	97,03	0,171	0,165	3	0,2185247
14,498	542,0	542,2	97,29	97,00	0,171	0,165	4	0,2192203
14,333	542,0	542,2	99,93	99,11	0,171	0,165	5	0,2152494
13,744	542,0	542,3	105,11	104,58	0,171	0,165	6	0,20536
14,216	542,0	542,3	102,88	102,06	0,171	0,165	7	0,2112046
14,200	542,0	542,3	104,05	103,48	0,171	0,165	8	0,210001
14,320	542,1	542,3	103,51	103,14	0,171	0,165	9	0,2112046
14,473	542,1	542,3	102,07	102,09	0,171	0,165	10	0,2135937
14,373	542,1	542,3	102,37	101,97	0,171	0,165	11	0,2128799
13,738	542,1	542,2	106,85	106,44	0,171	0,165	12	0,2036238
14,494	542,2	542,2	101,54	101,11	0,171	0,165	13	0,2145418
14,433	542,2	542,3	102,47	101,42	0,171	0,165	14	0,2135831
13,803	542,3	542,3	106,75	106,43	0,171	0,165	15	0,2041217
13,908	542,3	542,4	106,48	105,80	0,171	0,165	16	0,2053598
14,339	542,4	542,4	102,29	102,13	0,171	0,165	17	0,2124019
14,458	542,4	542,4	101,35	100,87	0,171	0,165	18	0,214542
14,416	542,4	542,4	101,39	101,19	0,171	0,165	19	0,2140677
14,452	542,5	542,5	101,08	100,77	0,171	0,165	20	0,2145419
14,457	542,5	542,6	101,25	100,55	0,171	0,165	21	0,2145418
14,275	542,6	542,7	102,75	101,99	0,171	0,165	22	0,2116796
13,846	542,7	542,7	105,95	105,23	0,171	0,165	23	0,2053599
14,337	542,7	542,7	101,80	101,53	0,171	0,165	24	0,2128803
14,430	542,8	542,8	101,14	100,66	0,171	0,165	25	0,2145421
13,501	542,8	542,8	107,89	107,77	0,171	0,165	26	0,2006126
14,178	542,8	542,9	102,61	102,37	0,170	0,165	27	0,2107249
14,373	542,8	542,9	101,61	101,13	0,171	0,165	28	0,213594
14,303	542,9	543,0	102,13	101,60	0,171	0,165	29	0,2124033
13,742	543,0	543,0	106,46	105,92	0,171	0,165	30	0,2041219
14,324	543,0	543,1	101,94	101,43	0,171	0,165	31	0,2128804
14,426	543,0	543,1	101,12	100,64	0,171	0,165	32	0,2145427
13,413	543,0	543,1	108,64	108,42	0,171	0,165	33	0,1993452
13,935	543,0	543,1	104,80	104,30	0,171	0,165	34	0,2070536
13,499	543,1	543,1	107,96	107,22	0,171	0,165	35	0,2006138
14,328	543,1	543,1	101,87	101,04	0,171	0,164	36	0,2128804
14,174	543,1	543,0	102,93	102,23	0,171	0,165	37	0,2107259
14,294	543,1	543,0	101,83	101,36	0,171	0,165	38	0,2124027
14,409	543,1	543,1	101,18	101,13	0,170	0,165	39	0,2140687
14,260	543,1	543,1	102,24	102,19	0,170	0,165	40	0,2116864
14,126	543,1	543,0	103,05	102,83	0,170	0,165	41	0,2100019
13,426	543,0	543,0	108,98	108,61	0,171	0,165	42	0,1993458
14,400	543,1	543,0	101,70	101,16	0,171	0,165	43	0,2135946
14,387	543,1	543,1	101,68	100,97	0,171	0,165	44	0,2135952
14,385	543,1	543,1	101,49	101,43	0,171	0,165	45	0,2135949
14,393	543,2	543,2	101,65	101,18	0,171	0,165	46	0,2135949
14,431	543,2	543,3	101,33	101,14	0,171	0,165	47	0,2140693
14,390	543,3	543,3	101,38	101,39	0,170	0,165	48	0,2135952
14,512	543,3	543,4	101,03	100,49	0,171	0,165	49	0,2152507
14,431	543,4	543,4	101,46	100,99	0,171	0,165	50	0,214069
13,728	543,4	543,5	106,96	105,97	0,171	0,165	51	0,2036246
14,313	543,4	543,5	101,96	101,59	0,171	0,165	52	0,212404
14,282	543,5	543,6	102,34	101,95	0,170	0,165	53	0,2118897

14,311	543,5	543,6	101,84	101,83	0,170	0,165	54	0,2124033
14,317	543,5	543,6	102,25	101,78	0,170	0,165	55	0,2124035
14,379	543,5	543,6	101,85	101,06	0,171	0,165	56	0,2135949
14,443	543,5	543,6	100,92	100,40	0,171	0,165	57	0,2145435
14,418	543,5	543,6	101,36	100,77	0,171	0,165	58	0,2140693
14,469	543,5	543,5	100,59	100,10	0,171	0,165	59	0,2152509
13,653	543,5	543,5	106,61	106,46	0,170	0,165	60	0,2028767
13,423	543,5	543,5	109,14	108,31	0,171	0,165	61	0,1993459
14,175	543,5	543,5	102,70	102,65	0,171	0,165	62	0,2106566
13,583	543,5	543,5	107,37	107,01	0,171	0,165	63	0,2018748
13,891	543,5	543,5	104,53	104,23	0,170	0,165	64	0,206592
14,316	543,5	543,5	101,71	101,14	0,170	0,165	65	0,2128819
14,286	543,6	543,5	101,84	101,28	0,171	0,165	66	0,2124031
13,690	543,6	543,5	106,08	105,95	0,170	0,165	67	0,203625
13,732	543,6	543,5	106,03	105,76	0,170	0,165	68	0,2041229
14,420	543,6	543,6	100,87	100,61	0,171	0,165	69	0,2145433
14,307	543,6	543,6	101,70	101,41	0,171	0,165	70	0,2128812
14,121	543,6	543,7	102,85	102,52	0,170	0,165	71	0,2100022
14,225	543,7	543,7	102,23	101,59	0,170	0,165	72	0,2116865
13,639	543,8	543,8	106,38	106,00	0,170	0,165	73	0,2028765
14,197	543,8	543,8	102,09	101,47	0,170	0,164	74	0,2112056
14,392	543,9	543,9	100,92	100,52	0,170	0,164	75	0,2142572
13,749	543,9	543,9	105,34	105,01	0,170	0,165	76	0,2048674
13,994	543,9	543,9	103,90	103,51	0,171	0,165	77	0,2083208
13,784	543,9	543,9	105,23	104,82	0,171	0,165	78	0,2053614
13,701	543,9	543,9	105,91	105,12	0,171	0,165	79	0,2041237
14,141	543,9	543,9	102,33	101,95	0,170	0,165	80	0,2107258
14,276	543,9	543,9	101,40	100,71	0,170	0,165	81	0,2128815
14,472	544,0	543,9	99,94	99,77	0,170	0,165	82	0,2157223
13,662	543,9	543,9	105,99	105,67	0,170	0,165	83	0,2036254
14,344	544,0	544,0	101,24	100,72	0,171	0,165	84	0,213596
14,357	544,0	544,0	100,65	100,65	0,170	0,165	85	0,2140695
14,171	544,1	544,1	101,85	101,67	0,170	0,165	86	0,2112068
14,332	544,1	544,1	101,03	100,51	0,170	0,165	87	0,2135956
14,379	544,2	544,2	100,37	100,01	0,170	0,165	88	0,214544
13,934	544,2	544,3	103,65	103,08	0,170	0,164	89	0,2078176
14,338	544,3	544,3	100,95	100,29	0,171	0,165	90	0,2140747
14,253	544,3	544,3	100,98	101,14	0,171	0,165	91	0,212882
14,327	544,3	544,3	100,58	100,51	0,170	0,165	92	0,21407
14,099	544,2	544,3	101,84	101,79	0,170	0,165	93	0,2107258
14,394	544,2	544,3	99,89	99,53	0,170	0,165	94	0,215251
14,305	544,3	544,3	100,26	99,81	0,170	0,165	95	0,214076
14,142	544,3	544,4	101,26	101,03	0,170	0,165	96	0,2116871
14,486	544,2	544,4	98,95	98,89	0,170	0,165	97	0,2168953
14,072	544,2	544,4	101,91	101,58	0,170	0,165	98	0,2107217
14,403	544,2	544,4	99,59	99,24	0,170	0,165	99	0,2157238
14,134	544,2	544,4	101,21	100,96	0,170	0,165	100	0,2116877
14,320	544,2	544,4	100,05	99,60	0,170	0,165	101	0,2145926
14,279	544,2	544,5	99,94	99,73	0,170	0,165	102	0,2140703
14,312	544,2	544,5	99,65	99,59	0,170	0,165	103	0,2145448
14,190	544,3	544,5	100,72	100,31	0,170	0,165	104	0,2128828
14,231	544,3	544,4	100,24	99,80	0,170	0,165	105	0,2135962
14,297	544,2	544,5	100,03	99,51	0,170	0,165	106	0,2145447
14,146	544,2	544,4	100,90	100,52	0,171	0,165	107	0,212405
13,578	544,2	544,5	104,89	104,40	0,171	0,165	108	0,204124
14,276	544,2	544,4	99,61	99,47	0,170	0,165	109	0,2145441
14,161	544,3	544,5	100,52	100,02	0,170	0,165	110	0,2128826
14,318	544,3	544,4	99,24	99,17	0,170	0,165	111	0,2152518
13,337	544,3	544,5	106,53	106,11	0,170	0,165	112	0,2006165
13,682	544,4	544,5	103,87	103,51	0,170	0,165	113	0,2058563
14,305	544,3	544,4	98,99	98,79	0,170	0,165	114	0,2152516

14,321	544,3	544,4	98,80	98,67	0,170	0,165	115	0,2157231
13,555	544,3	544,4	104,28	104,10	0,170	0,165	116	0,2041243
13,554	544,3	544,4	104,42	104,23	0,170	0,165	117	0,2041242
14,187	544,3	544,4	100,06	99,28	0,170	0,164	118	0,2135965
14,317	544,4	544,4	98,89	98,57	0,170	0,164	119	0,2157235
14,121	544,4	544,4	100,23	99,78	0,170	0,165	120	0,2128825
14,288	544,4	544,5	99,03	98,67	0,170	0,165	121	0,2152526
14,177	544,4	544,5	99,89	99,39	0,170	0,165	122	0,2135979
13,665	544,4	544,4	103,53	103,15	0,170	0,164	123	0,2058569
13,731	544,4	544,4	102,71	102,40	0,170	0,164	124	0,2070854
14,422	544,4	544,4	98,34	97,66	0,170	0,164	125	0,217279
14,441	544,4	544,4	98,08	97,61	0,170	0,164	126	0,2175971
14,117	544,4	544,4	100,44	99,69	0,171	0,165	127	0,2128835
14,188	544,4	544,4	99,31	99,17	0,170	0,165	128	0,2140708
14,261	544,5	544,4	98,84	98,62	0,170	0,165	129	0,215253
14,255	544,5	544,4	98,60	98,56	0,170	0,165	130	0,2152528
14,263	544,5	544,4	99,01	98,44	0,170	0,165	131	0,215253
14,410	544,5	544,4	98,17	97,61	0,171	0,165	132	0,2175979
14,406	544,5	544,4	97,69	97,46	0,171	0,165	133	0,2175978
14,357	544,5	544,4	98,14	97,81	0,170	0,165	134	0,2168967
14,018	544,5	544,5	100,49	100,00	0,170	0,165	135	0,2117846
13,627	544,5	544,5	103,16	103,09	0,170	0,165	136	0,205857
14,288	544,5	544,5	98,28	98,39	0,170	0,165	137	0,2157244
14,254	544,5	544,5	98,89	98,59	0,170	0,165	138	0,2152541
14,269	544,5	544,5	98,51	98,04	0,170	0,165	139	0,2157255
14,351	544,5	544,5	98,32	97,57	0,171	0,164	140	0,2168972
14,203	544,5	544,4	99,50	98,70	0,171	0,164	141	0,2145461
14,420	544,5	544,4	97,42	97,29	0,171	0,165	142	0,2180637
14,338	544,5	544,3	97,88	97,41	0,170	0,165	143	0,2168971
14,125	544,4	544,3	99,28	99,53	0,170	0,165	144	0,2135985
14,342	544,4	544,3	97,70	97,54	0,170	0,165	145	0,2168988
14,152	544,4	544,3	99,06	98,76	0,170	0,165	146	0,2140724
14,254	544,4	544,2	98,46	98,08	0,170	0,165	147	0,215725
14,245	544,4	544,2	98,50	97,98	0,170	0,165	148	0,2157252
13,981	544,4	544,3	100,33	100,02	0,170	0,165	149	0,2116898
14,251	544,5	544,3	98,33	97,88	0,170	0,165	150	0,2157253
13,802	544,5	544,4	101,57	101,49	0,170	0,165	151	0,2088784
14,376	544,5	544,4	97,49	97,23	0,170	0,165	152	0,2175984
14,174	544,5	544,5	98,86	98,58	0,170	0,165	153	0,2145468
14,330	544,6	544,5	98,24	97,52	0,171	0,165	154	0,2168973
13,877	544,6	544,5	100,97	100,89	0,170	0,165	155	0,2100056
14,219	544,6	544,6	98,68	98,39	0,170	0,165	156	0,2152545
14,108	544,5	544,6	99,12	99,20	0,170	0,165	157	0,2135984
14,245	544,5	544,5	98,37	98,36	0,170	0,165	158	0,2157254
14,220	544,5	544,5	98,53	98,42	0,170	0,165	159	0,2152591
14,164	544,5	544,5	98,69	98,71	0,170	0,165	160	0,2145465
14,312	544,5	544,5	97,71	97,24	0,170	0,165	161	0,2168976
13,526	544,5	544,5	103,58	103,10	0,170	0,164	162	0,2048703
14,168	544,5	544,5	98,99	98,60	0,170	0,165	163	0,2145469
14,158	544,5	544,6	98,71	98,69	0,170	0,165	164	0,2144666
14,207	544,5	544,6	98,60	98,11	0,170	0,165	165	0,2152545
14,101	544,5	544,6	99,08	98,96	0,170	0,165	166	0,2135988
14,388	544,5	544,6	96,92	97,06	0,170	0,165	167	0,2180659
14,310	544,5	544,6	97,79	97,14	0,170	0,165	168	0,2168983
14,391	544,5	544,6	97,20	96,52	0,170	0,164	169	0,2180645
14,354	544,6	544,6	97,66	96,96	0,170	0,164	170	0,2175014
14,209	544,6	544,6	98,62	98,15	0,170	0,164	171	0,2152544
13,749	544,6	544,7	101,93	101,73	0,170	0,165	172	0,2083079
14,395	544,6	544,7	97,16	97,13	0,170	0,165	173	0,2180647
14,319	544,6	544,7	97,85	97,40	0,170	0,165	174	0,2168978
14,363	544,7	544,8	97,35	96,97	0,170	0,164	175	0,2175975

14,394	544,7	544,8	97,24	96,60	0,170	0,164	176	0,2180644
14,209	544,7	544,8	98,61	98,05	0,170	0,164	177	0,2152548
14,113	544,8	544,9	99,08	99,05	0,170	0,165	178	0,2137805
13,719	544,8	544,9	101,70	101,58	0,170	0,165	179	0,2078226
14,127	544,8	544,9	99,07	99,05	0,170	0,165	180	0,2140148
14,210	544,8	544,9	98,39	98,07	0,170	0,165	181	0,2152551
14,364	544,8	545,0	97,44	96,96	0,170	0,164	182	0,2175993
14,426	544,9	545,0	97,13	96,53	0,170	0,164	183	0,2185298
14,362	544,9	545,0	97,43	97,07	0,170	0,164	184	0,2175997
14,318	544,9	545,0	97,77	97,27	0,170	0,164	185	0,2168985
14,315	544,9	545,1	97,64	97,31	0,170	0,164	186	0,2168985
14,394	544,9	545,1	97,21	96,90	0,170	0,165	187	0,218065
14,393	545,0	545,1	97,12	97,22	0,170	0,165	188	0,2180652
14,317	545,0	545,1	97,73	97,31	0,170	0,165	189	0,216898
14,469	545,0	545,2	96,39	96,38	0,170	0,165	190	0,2192259
14,473	545,1	545,2	96,57	96,13	0,170	0,164	191	0,2192257
14,364	545,1	545,2	97,27	97,23	0,170	0,164	192	0,2176001
14,394	545,1	545,3	97,13	96,76	0,170	0,165	193	0,2180652
14,160	545,2	545,3	98,65	98,49	0,170	0,165	194	0,2145477
14,359	545,3	545,4	97,24	97,11	0,170	0,165	195	0,2175999
14,496	545,2	545,4	96,74	96,12	0,170	0,165	196	0,2196866
14,389	545,2	545,4	96,98	96,86	0,170	0,165	197	0,218065
13,906	545,3	545,4	100,57	99,96	0,170	0,164	198	0,2107182
14,424	545,3	545,5	96,69	96,45	0,170	0,164	199	0,2185313
14,236	545,3	545,5	98,16	98,15	0,170	0,165	200	0,2157271
14,360	545,3	545,5	97,22	97,25	0,170	0,165	201	0,2176005
14,236	545,4	545,5	97,95	97,96	0,170	0,165	202	0,2157281
14,156	545,4	545,5	98,62	98,45	0,170	0,165	203	0,2145486
14,126	545,4	545,6	98,91	98,83	0,170	0,165	204	0,214074
14,361	545,4	545,6	97,38	96,80	0,170	0,165	205	0,2176009
13,774	545,5	545,6	101,15	100,97	0,170	0,164	206	0,2087963
14,420	545,5	545,7	96,93	96,55	0,170	0,164	207	0,2185312
13,748	545,5	545,7	101,39	101,32	0,170	0,164	208	0,208309
14,360	545,5	545,7	96,98	97,06	0,170	0,165	209	0,2176009
13,749	545,5	545,7	101,68	101,26	0,170	0,164	210	0,2083092
14,394	545,5	545,7	97,05	96,71	0,170	0,164	211	0,218066
14,236	545,6	545,8	98,27	97,88	0,170	0,164	212	0,2157274
14,354	545,6	545,8	97,39	96,90	0,170	0,164	213	0,2175075
14,390	545,6	545,8	97,16	96,48	0,170	0,164	214	0,218067
14,238	545,6	545,8	98,01	97,57	0,170	0,164	215	0,2157275
14,420	545,6	545,8	96,89	96,62	0,170	0,164	216	0,218532
14,396	545,6	545,8	96,90	96,58	0,170	0,164	217	0,2181687

Average	Average	Average						Average
14,27	Inlet +	Inlet +						0,216
	Outlet	Outlet	Average	Average	#1	#2		
Tunnel	Temp.	Temp.	100,29	100,68	System 1	System 2		SQRT
Velocity	Meter 1	Meter 2	Proportional Rates		Vol.Std.	Vol.Std.		Delta-P
			PR1	PR2			Time	
Ft/Sec	Deg. R	Deg. R	%	%	(ft3)	(ft3)	min	(in H2O)2
14,328	540,2	540,6			0,169	0,214	0	0,2180586
14,424	540,5	540,7	99,30	99,57	0,169	0,190	1	0,2185255
14,259	540,5	540,7	99,02	99,05	0,169	0,166	2	0,2180591
14,506	540,5	540,7	97,73	98,27	0,169	0,166	3	0,2208339
14,426	540,5	540,7	99,45	99,83	0,169	0,166	4	0,2185248
13,806	540,5	540,8	104,92	105,53	0,169	0,166	5	0,2078156
14,496	540,5	540,8	100,73	101,06	0,169	0,166	6	0,2175941
13,627	540,6	540,8	107,48	108,03	0,169	0,166	7	0,2041217
14,492	540,6	540,8	100,05	100,54	0,169	0,166	8	0,2180594
14,387	540,6	540,9	100,53	100,91	0,169	0,166	9	0,2168918
14,386	540,7	540,9	100,59	100,99	0,169	0,166	10	0,2168957
13,703	540,7	540,9	105,67	106,17	0,169	0,166	11	0,2065913
14,190	540,8	540,9	101,73	102,23	0,169	0,166	12	0,2139551
14,342	540,8	541,0	101,41	101,63	0,169	0,166	13	0,2157205
14,011	540,8	541,0	103,02	103,43	0,169	0,165	14	0,2112053
14,392	540,9	541,1	100,27	101,07	0,169	0,166	15	0,2168931
13,863	540,9	541,1	104,60	104,74	0,169	0,166	16	0,2087903
14,385	540,9	541,1	100,47	101,00	0,169	0,166	17	0,2168911
14,483	541,0	541,2	99,86	100,07	0,169	0,166	18	0,2185248
14,392	541,0	541,2	100,64	101,17	0,169	0,166	19	0,2168933
14,393	541,0	541,2	100,68	100,78	0,169	0,166	20	0,2168931
14,418	541,1	541,3	100,61	101,33	0,169	0,166	21	0,2168936
14,484	541,1	541,3	100,59	100,78	0,169	0,166	22	0,2175947
14,133	541,1	541,3	102,85	103,20	0,169	0,165	23	0,2124034
13,857	541,1	541,4	105,44	105,90	0,169	0,166	24	0,207816
14,100	541,2	541,4	103,47	103,85	0,169	0,166	25	0,2116854
14,555	541,2	541,4	99,89	101,10	0,169	0,166	26	0,2185249
13,530	541,3	541,5	107,86	108,34	0,169	0,166	27	0,2028768
14,387	541,3	541,5	101,27	101,62	0,169	0,165	28	0,2157211
14,464	541,3	541,6	100,85	100,98	0,169	0,165	29	0,2168937
14,369	541,4	541,6	101,97	102,25	0,169	0,165	30	0,2152501
14,555	541,4	541,6	100,55	101,02	0,169	0,166	31	0,2180522
14,017	541,4	541,6	104,47	104,70	0,169	0,166	32	0,2100016
13,810	541,5	541,7	105,95	106,55	0,169	0,166	33	0,2067974
14,260	541,5	541,7	102,66	103,06	0,169	0,166	34	0,2135944
14,135	541,5	541,7	103,51	103,95	0,169	0,165	35	0,2116478
13,626	541,6	541,8	107,16	107,72	0,169	0,165	36	0,204123
14,069	541,6	541,8	104,19	104,23	0,169	0,165	37	0,2107253
14,546	541,7	541,9	100,91	101,30	0,169	0,165	38	0,2175951
14,415	541,7	541,9	102,01	102,07	0,169	0,165	39	0,2157223
14,422	541,8	541,9	101,53	102,18	0,169	0,165	40	0,2157216
14,275	541,8	542,0	102,10	102,81	0,169	0,166	41	0,2141282
14,117	541,8	542,0	103,56	104,49	0,169	0,166	42	0,2112074
14,418	541,9	542,0	101,75	101,87	0,169	0,165	43	0,2157222
14,118	541,9	542,0	104,25	104,20	0,169	0,165	44	0,2112055
14,545	541,9	542,1	100,70	100,96	0,169	0,165	45	0,2175955
14,419	542,0	542,1	101,73	102,23	0,169	0,165	46	0,2157222
14,503	542,0	542,1	101,20	101,42	0,169	0,165	47	0,2168938
14,312	542,1	542,2	102,28	102,90	0,169	0,165	48	0,214069
14,035	542,1	542,2	104,78	104,84	0,169	0,165	49	0,2100016
13,679	542,1	542,2	106,77	107,30	0,169	0,165	50	0,2048668
14,226	542,1	542,2	103,05	103,38	0,169	0,165	51	0,2128814
14,489	542,1	542,3	100,78	101,23	0,169	0,165	52	0,2168947
14,461	542,2	542,3	100,83	100,96	0,169	0,165	53	0,2168949

13,756	542,2	542,3	106,37	106,64	0,169	0,165	54	0,2058557
13,696	542,2	542,4	106,81	107,57	0,168	0,165	55	0,2048675
14,296	542,3	542,4	102,24	102,79	0,168	0,165	56	0,2140705
14,507	542,3	542,4	100,49	100,86	0,169	0,165	57	0,2175962
13,681	542,3	542,5	106,96	107,46	0,169	0,165	58	0,2048677
13,810	542,3	542,5	105,87	106,46	0,169	0,165	59	0,2065933
14,632	542,4	542,5	99,89	100,27	0,169	0,165	60	0,2192223
14,315	542,4	542,5	101,05	101,82	0,168	0,165	61	0,2152513
14,085	542,4	542,5	102,72	103,45	0,168	0,165	62	0,2116893
14,410	542,4	542,6	100,48	100,99	0,168	0,165	63	0,2168948
14,335	542,4	542,6	100,94	101,43	0,169	0,165	64	0,215726
13,875	542,4	542,6	105,03	105,25	0,169	0,165	65	0,2082759
14,484	542,5	542,6	100,36	100,82	0,169	0,165	66	0,2175969
14,367	542,5	542,7	101,31	101,52	0,169	0,165	67	0,215723
14,210	542,6	542,7	101,97	102,35	0,169	0,165	68	0,2135954
14,471	542,6	542,7	100,22	100,64	0,169	0,165	69	0,2175961
14,297	542,6	542,7	101,03	101,45	0,169	0,165	70	0,2152516
13,876	542,6	542,7	104,31	104,73	0,168	0,165	71	0,2087928
14,520	542,6	542,8	99,74	100,25	0,169	0,165	72	0,2185276
14,017	542,7	542,8	103,32	103,80	0,169	0,165	73	0,2107267
13,681	542,7	542,8	105,45	106,16	0,168	0,165	74	0,2058566
14,097	542,7	542,9	102,38	103,10	0,168	0,165	75	0,2124041
14,306	542,8	542,9	100,62	101,07	0,168	0,165	76	0,2157327
14,228	542,8	542,9	101,18	101,89	0,168	0,165	77	0,2145448
14,463	542,8	542,9	99,57	99,76	0,169	0,165	78	0,2185273
14,374	542,8	543,0	99,96	100,48	0,169	0,165	79	0,2168962
14,466	542,8	543,0	99,73	99,94	0,168	0,165	80	0,2180591
13,754	542,9	543,0	104,80	105,42	0,168	0,165	81	0,2070852
14,317	542,9	543,0	100,78	100,99	0,168	0,165	82	0,2157237
14,470	542,9	543,0	99,58	100,06	0,168	0,165	83	0,2180627
14,306	543,0	543,1	100,48	101,21	0,168	0,165	84	0,2157227
14,299	543,0	543,1	100,58	101,10	0,168	0,165	85	0,2157144
14,211	543,0	543,1	101,12	101,67	0,168	0,165	86	0,214542
13,673	543,0	543,1	104,98	105,35	0,169	0,165	87	0,2065946
14,074	543,0	543,1	101,54	102,05	0,168	0,165	88	0,2128258
14,392	543,0	543,1	99,18	99,61	0,168	0,165	89	0,2180629
13,670	543,0	543,1	104,14	104,90	0,168	0,165	90	0,2070861
14,435	543,0	543,1	98,69	99,56	0,168	0,165	91	0,2185286
14,406	543,0	543,2	99,26	99,78	0,168	0,165	92	0,2180757
14,474	543,0	543,2	98,58	98,94	0,168	0,165	93	0,2192241
13,869	543,1	543,1	103,14	103,24	0,169	0,165	94	0,2100052
13,665	543,1	543,1	104,43	104,83	0,169	0,165	95	0,2070859
14,453	543,1	543,2	98,58	98,80	0,169	0,165	96	0,2192242
13,893	543,1	543,2	102,32	102,64	0,168	0,165	97	0,2107284
14,188	543,1	543,2	100,31	100,42	0,168	0,165	98	0,2152536
13,841	543,2	543,2	102,64	103,08	0,168	0,165	99	0,2100045
14,081	543,2	543,3	100,65	101,05	0,168	0,165	100	0,2139989
14,444	543,2	543,3	98,05	98,23	0,168	0,165	101	0,2196861
14,476	543,2	543,3	97,60	98,13	0,168	0,165	102	0,2200687
14,419	543,2	543,4	98,09	98,54	0,168	0,165	103	0,2192247
14,051	543,2	543,4	100,52	101,23	0,168	0,165	104	0,2135985
14,444	543,2	543,3	97,83	98,19	0,168	0,165	105	0,2196862
14,450	543,2	543,3	98,11	98,46	0,168	0,165	106	0,2196866
14,360	543,3	543,3	98,43	98,81	0,168	0,165	107	0,2185303
14,298	543,2	543,3	98,92	99,26	0,168	0,165	108	0,2175988
14,436	543,3	543,3	97,82	97,88	0,168	0,165	109	0,2196861
14,315	543,3	543,4	98,55	98,68	0,168	0,164	110	0,2180636
14,412	543,3	543,4	97,64	98,03	0,168	0,165	111	0,2196864
13,862	543,3	543,4	101,51	102,07	0,168	0,165	112	0,2112093
14,462	543,3	543,4	97,62	97,79	0,168	0,165	113	0,2203793
14,380	543,3	543,4	97,98	98,62	0,169	0,165	114	0,2192252

14,327	543,3	543,5	98,50	98,48	0,169	0,165	115	0,2185294
14,323	543,3	543,5	97,97	98,47	0,168	0,165	116	0,2185286
14,316	543,3	543,5	98,03	98,54	0,168	0,165	117	0,218529
14,363	543,3	543,5	97,54	98,05	0,168	0,165	118	0,2192245
14,389	543,3	543,5	97,65	97,90	0,168	0,165	119	0,2196866
14,320	543,4	543,5	98,51	98,32	0,169	0,165	120	0,2185298
14,394	543,4	543,5	97,51	98,10	0,169	0,165	121	0,2196866
14,214	543,4	543,5	98,95	99,15	0,168	0,165	122	0,216898
14,397	543,4	543,6	97,67	97,87	0,168	0,165	123	0,2196927
14,470	543,4	543,6	96,92	97,20	0,168	0,165	124	0,2208396
14,498	543,5	543,6	96,49	97,07	0,168	0,165	125	0,2212985
14,207	543,5	543,6	98,84	98,84	0,168	0,164	126	0,2168975
14,541	543,5	543,6	96,52	96,89	0,168	0,165	127	0,2219859
14,503	543,6	543,7	97,17	97,32	0,169	0,165	128	0,2212985
14,252	543,6	543,7	98,80	99,10	0,169	0,165	129	0,217599
14,386	543,6	543,7	97,47	97,57	0,169	0,165	130	0,2196872
14,352	543,6	543,8	97,61	97,80	0,168	0,164	131	0,2192256
14,526	543,6	543,8	96,21	96,48	0,168	0,164	132	0,2219848
14,519	543,6	543,8	96,10	96,64	0,168	0,164	133	0,2219852
14,488	543,6	543,8	96,57	96,82	0,168	0,164	134	0,2212984
14,410	543,6	543,8	97,06	97,51	0,168	0,165	135	0,2203796
14,411	543,7	543,8	97,17	97,49	0,168	0,165	136	0,2203799
14,327	543,7	543,8	97,56	98,00	0,168	0,165	137	0,2192253
13,541	543,7	543,9	103,18	103,61	0,168	0,165	138	0,2071005
14,438	543,7	543,9	96,75	97,16	0,168	0,165	139	0,2208387
14,471	543,7	543,9	96,57	96,85	0,168	0,165	140	0,2212985
14,227	543,7	543,9	98,18	98,58	0,168	0,165	141	0,2176003
14,284	543,7	543,9	98,18	98,25	0,168	0,165	142	0,2185302
14,355	543,7	543,9	97,14	97,98	0,168	0,165	143	0,2196873
14,397	543,7	543,9	97,01	97,30	0,168	0,165	144	0,2203799
14,061	543,7	543,9	99,01	99,56	0,168	0,165	145	0,2152531
14,423	543,7	543,9	96,73	96,89	0,168	0,165	146	0,2208396
14,502	543,7	543,9	96,16	96,35	0,168	0,164	147	0,2219858
14,453	543,7	543,9	96,33	96,74	0,168	0,164	148	0,221299
14,399	543,8	544,0	96,90	97,24	0,168	0,165	149	0,2203802
14,460	543,8	544,0	96,55	96,73	0,168	0,165	150	0,2213201
14,578	543,8	544,0	95,82	96,19	0,168	0,165	151	0,2231262
14,577	543,9	544,1	95,53	96,17	0,168	0,165	152	0,2231256
14,430	543,9	544,1	96,79	97,11	0,168	0,165	153	0,2208397
14,090	544,0	544,1	98,73	99,15	0,168	0,165	154	0,2157275
14,391	544,0	544,1	96,56	97,09	0,168	0,164	155	0,2203803
14,337	544,0	544,2	97,16	97,13	0,168	0,164	156	0,2196871
14,388	544,0	544,2	96,80	96,88	0,168	0,164	157	0,2203801
14,315	543,9	544,2	97,53	97,81	0,168	0,165	158	0,2192259
14,259	543,9	544,2	97,69	97,93	0,168	0,165	159	0,218531
14,386	544,0	544,2	96,95	96,95	0,168	0,164	160	0,2203801
13,870	544,0	544,3	100,38	100,68	0,168	0,164	161	0,2124078
14,412	544,0	544,3	96,64	96,77	0,168	0,164	162	0,2208395
14,492	544,1	544,3	96,02	96,24	0,168	0,164	163	0,2219865
14,392	544,1	544,3	96,84	97,22	0,168	0,164	164	0,2203803
14,450	544,1	544,4	96,52	96,85	0,168	0,165	165	0,2212992
14,388	544,2	544,4	96,69	97,23	0,168	0,165	166	0,2203804

Average	Average	Average						Average
14,08	Inlet +	Inlet +						0,215
	Outlet	Outlet	Average	Average	#1	#2		
Tunnel	Temp.	Temp.	100,32	100,55	System 1	System 2		SQRT
Velocity	Meter 1	Meter 2	Proportional Rates		Vol.Std.	Vol.Std.		Delta-P
			PR1	PR2			Time	
Ft/Sec	Deg. R	Deg. R	%	%	(ft3)	(ft3)	min	(in H2O)2
14,640	536,9	537,3			0,173	0,167	0	0,2240206
14,564	537,0	537,3	95,83	95,87	0,172	0,167	1	0,2240205
13,961	537,0	537,3	100,06	99,65	0,172	0,167	2	0,2148558
14,579	537,0	537,3	95,82	95,75	0,172	0,167	3	0,2240211
14,129	537,0	537,4	99,82	99,78	0,172	0,167	4	0,2163347
13,938	537,0	537,4	102,05	101,97	0,172	0,167	5	0,2123945
14,632	537,0	537,4	98,54	98,80	0,172	0,167	6	0,22134
14,117	537,1	537,4	104,09	104,23	0,172	0,168	7	0,2116775
14,271	537,1	537,5	104,59	104,35	0,172	0,167	8	0,2123943
14,084	537,2	537,6	106,14	106,25	0,172	0,167	9	0,2095087
14,790	537,2	537,6	100,45	100,60	0,172	0,168	10	0,2203664
14,730	537,3	537,7	100,93	100,91	0,172	0,167	11	0,2196742
14,711	537,4	537,7	100,48	100,64	0,172	0,167	12	0,2196745
14,162	537,4	537,8	104,09	104,40	0,172	0,167	13	0,2116776
13,996	537,4	537,8	105,40	105,45	0,172	0,167	14	0,2095092
14,482	537,5	537,9	101,66	101,68	0,172	0,167	15	0,2168851
14,666	537,5	537,9	100,45	100,42	0,172	0,167	16	0,219797
13,987	537,5	537,9	105,34	105,23	0,172	0,167	17	0,2095099
13,981	537,5	538,0	105,34	105,01	0,172	0,167	18	0,2095092
14,541	537,6	538,0	100,89	100,87	0,172	0,167	19	0,2180535
14,706	537,6	538,1	100,07	99,85	0,172	0,167	20	0,2203666
14,119	537,6	538,1	104,42	104,52	0,172	0,167	21	0,2112023
14,010	537,7	538,2	105,38	105,39	0,172	0,167	22	0,2095095
13,934	537,8	538,2	106,14	105,96	0,172	0,167	23	0,2082959
14,754	537,8	538,3	99,77	99,81	0,172	0,167	24	0,2208261
14,186	537,9	538,3	103,21	103,04	0,172	0,167	25	0,2126604
14,223	537,9	538,4	102,91	103,04	0,172	0,167	26	0,213589
14,398	538,0	538,4	101,38	101,39	0,172	0,167	27	0,2164178
14,528	538,0	538,4	100,33	100,67	0,172	0,167	28	0,2185176
14,709	538,0	538,5	99,49	99,48	0,172	0,168	29	0,2212855
14,044	538,0	538,5	103,76	104,03	0,172	0,168	30	0,2111979
14,052	538,0	538,5	104,03	104,06	0,172	0,167	31	0,211198
13,939	538,1	538,5	104,54	104,65	0,172	0,167	32	0,2095094
13,975	538,1	538,6	104,58	104,46	0,172	0,167	33	0,2099942
14,712	538,2	538,6	99,03	99,28	0,172	0,167	34	0,2212858
14,052	538,2	538,6	103,73	103,86	0,172	0,167	35	0,2111982
14,405	538,2	538,7	101,40	101,71	0,172	0,167	36	0,2164175
14,398	538,3	538,7	101,42	101,46	0,172	0,167	37	0,2164177
14,593	538,2	538,7	99,83	99,80	0,172	0,167	38	0,2196743
13,948	538,3	538,8	104,12	104,25	0,172	0,167	39	0,2099947
14,013	538,3	538,8	103,68	103,60	0,172	0,167	40	0,2111976
14,038	538,4	538,8	103,07	103,11	0,172	0,167	41	0,2116783
13,887	538,4	538,9	104,01	104,39	0,171	0,167	42	0,20951
14,360	538,4	538,9	100,73	100,86	0,171	0,167	43	0,2168855
14,630	538,4	538,9	98,48	98,64	0,172	0,167	44	0,2212864
14,070	538,4	538,9	102,56	102,57	0,172	0,167	45	0,2128734
13,685	538,5	538,9	105,32	105,49	0,172	0,167	46	0,2070771
14,737	538,5	539,0	97,73	97,70	0,172	0,167	47	0,2231137
14,607	538,5	539,0	98,24	98,40	0,172	0,167	48	0,2212871
13,675	538,5	539,0	105,21	105,10	0,172	0,167	49	0,2070753
14,051	538,6	539,0	102,12	102,68	0,172	0,167	50	0,212873
13,860	538,6	539,1	103,61	103,74	0,172	0,167	51	0,2099958
14,599	538,6	539,1	98,36	98,49	0,172	0,167	52	0,2212874
14,818	538,6	539,1	96,50	96,85	0,172	0,167	53	0,2246988

14,819	538,6	539,1	96,63	96,68	0,171	0,167	54	0,2246994
14,489	538,6	539,1	98,69	99,06	0,171	0,167	55	0,2196722
14,040	538,7	539,2	101,97	102,24	0,171	0,167	56	0,2128733
13,769	538,7	539,2	104,22	104,41	0,172	0,167	57	0,2087835
14,006	538,7	539,2	102,32	102,31	0,172	0,167	58	0,2123959
14,490	538,8	539,2	99,05	99,30	0,172	0,167	59	0,2196498
14,702	538,7	539,2	97,25	97,26	0,172	0,167	60	0,2231124
14,003	538,8	539,2	102,32	102,32	0,172	0,167	61	0,2123961
14,081	538,8	539,3	101,61	101,44	0,172	0,167	62	0,2135875
14,628	538,8	539,3	97,64	97,85	0,171	0,167	63	0,2219736
13,840	538,8	539,3	103,57	103,37	0,172	0,167	64	0,2099946
14,402	538,9	539,3	99,43	99,60	0,172	0,167	65	0,2185178
14,009	538,9	539,3	102,46	102,38	0,172	0,167	66	0,2125967
14,624	538,9	539,3	97,60	97,88	0,172	0,167	67	0,2219737
14,622	538,9	539,4	97,69	97,83	0,171	0,167	68	0,2219738
13,839	538,9	539,4	103,10	103,32	0,171	0,167	69	0,2099944
14,081	539,0	539,4	101,76	101,81	0,171	0,167	70	0,2135871
14,550	539,0	539,4	98,62	98,14	0,172	0,167	71	0,2208782
14,706	539,0	539,5	97,23	97,37	0,172	0,167	72	0,2231142
14,638	539,0	539,5	97,85	97,99	0,172	0,167	73	0,2220707
13,955	539,0	539,5	102,64	102,64	0,172	0,167	74	0,2116791
14,655	539,0	539,5	97,41	97,53	0,171	0,167	75	0,2224296
14,579	539,0	539,5	98,43	97,97	0,172	0,167	76	0,2212837
14,656	539,1	539,5	97,43	97,20	0,172	0,166	77	0,2224295
14,027	539,1	539,5	102,02	101,98	0,171	0,167	78	0,2128733
14,650	539,1	539,6	97,29	97,79	0,171	0,167	79	0,2224294
14,866	539,1	539,6	96,02	96,15	0,171	0,167	80	0,225826
14,695	539,1	539,6	97,13	97,37	0,171	0,167	81	0,2231123
14,179	539,1	539,6	100,59	100,64	0,171	0,167	82	0,2152426
14,647	539,1	539,6	97,44	97,41	0,171	0,167	83	0,2224299
14,550	539,1	539,6	98,27	98,26	0,171	0,167	84	0,2208277
14,026	539,2	539,6	102,00	101,71	0,172	0,167	85	0,2128737
14,650	539,2	539,7	97,30	97,34	0,171	0,166	86	0,2224297
14,135	539,2	539,7	101,19	101,24	0,171	0,167	87	0,2145352
14,176	539,2	539,7	100,50	100,73	0,171	0,167	88	0,2152422
14,646	539,3	539,8	97,16	97,65	0,171	0,167	89	0,22243
14,349	539,3	539,8	99,41	99,41	0,171	0,167	90	0,2180528
14,605	539,3	539,8	97,54	97,44	0,171	0,167	91	0,2219747
14,735	539,3	539,8	96,82	96,35	0,172	0,166	92	0,2240218
14,679	539,3	539,8	97,15	96,68	0,172	0,166	93	0,2231139
14,599	539,3	539,8	97,65	97,56	0,172	0,166	94	0,2219739
13,964	539,3	539,8	101,79	102,19	0,171	0,167	95	0,2123963
14,666	539,3	539,9	97,05	96,88	0,171	0,167	96	0,2231141
14,668	539,4	539,9	96,90	97,15	0,171	0,167	97	0,223116
13,752	539,4	539,9	103,43	103,05	0,171	0,167	98	0,209194
13,993	539,4	539,9	101,74	101,75	0,171	0,167	99	0,2128742
14,043	539,5	540,0	101,20	101,00	0,171	0,167	100	0,2135883
13,960	539,5	540,0	101,57	101,78	0,171	0,166	101	0,2123329
14,038	539,6	540,0	101,26	101,68	0,171	0,167	102	0,2135882
14,472	539,6	540,0	97,99	98,11	0,171	0,167	103	0,2203627
14,704	539,6	540,1	96,33	96,55	0,171	0,167	104	0,2240217
14,318	539,6	540,1	99,44	99,02	0,172	0,167	105	0,2180533
14,350	539,6	540,1	98,74	98,73	0,172	0,166	106	0,2185265
14,598	539,7	540,2	97,14	96,87	0,171	0,166	107	0,2224309
14,734	539,7	540,2	95,77	95,73	0,171	0,166	108	0,2247009
13,883	539,7	540,2	101,94	101,84	0,171	0,166	109	0,2116799
14,147	539,7	540,3	99,93	100,06	0,171	0,167	110	0,2157027
14,537	539,7	540,3	96,86	97,19	0,171	0,167	111	0,2219749
13,637	539,7	540,3	103,33	103,43	0,171	0,167	112	0,2082986
13,860	539,8	540,3	101,76	101,49	0,171	0,166	113	0,2116832
13,476	539,8	540,3	104,72	104,60	0,171	0,166	114	0,2058254

14,335	539,8	540,3	97,92	98,07	0,171	0,167	115	0,2192089
13,654	539,8	540,4	103,10	102,99	0,171	0,167	116	0,2087844
13,619	539,8	540,4	102,98	103,24	0,171	0,167	117	0,208298
13,545	539,9	540,4	103,56	103,83	0,171	0,167	118	0,2070772
13,620	539,9	540,4	103,29	103,11	0,171	0,166	119	0,2082977
14,102	539,9	540,4	99,61	99,76	0,171	0,167	120	0,2157155
13,995	539,9	540,4	100,60	100,31	0,171	0,167	121	0,214062
13,615	539,9	540,5	103,27	103,23	0,171	0,167	122	0,2082976
13,641	539,9	540,4	103,03	102,89	0,171	0,167	123	0,208785
14,137	539,9	540,4	99,18	99,37	0,171	0,167	124	0,2163756
13,577	539,9	540,5	103,44	103,46	0,171	0,167	125	0,2078116
13,684	540,0	540,5	102,40	102,39	0,171	0,167	126	0,2095118
13,684	540,0	540,5	102,50	102,61	0,171	0,167	127	0,2095121
14,087	540,0	540,5	99,62	99,39	0,171	0,167	128	0,2157151
13,897	540,0	540,5	100,57	100,74	0,171	0,166	129	0,2128739
13,680	540,0	540,5	102,33	102,51	0,171	0,167	130	0,2095115
14,232	540,0	540,5	98,13	98,52	0,171	0,167	131	0,2180496
13,791	540,1	540,5	101,50	101,89	0,171	0,167	132	0,2112
13,571	540,1	540,6	103,41	103,32	0,171	0,167	133	0,207811
14,305	540,2	540,6	97,85	97,68	0,171	0,166	134	0,2192153
14,414	540,2	540,6	97,23	97,05	0,171	0,166	135	0,2208286
14,410	540,2	540,6	97,04	96,97	0,171	0,166	136	0,2208291
13,625	540,2	540,7	102,75	102,85	0,171	0,166	137	0,2087857
13,591	540,2	540,7	102,84	103,20	0,171	0,167	138	0,208299
13,704	540,3	540,7	101,92	102,44	0,171	0,167	139	0,2099965
13,563	540,3	540,8	103,36	103,29	0,171	0,167	140	0,2078115
13,594	540,4	540,8	103,00	103,21	0,171	0,167	141	0,2082986
14,300	540,4	540,8	98,08	97,67	0,171	0,167	142	0,2192155
14,330	540,4	540,9	97,37	97,33	0,171	0,166	143	0,2196779
14,300	540,5	540,9	97,68	97,85	0,171	0,166	144	0,2192157
13,699	540,5	540,9	101,75	102,07	0,171	0,166	145	0,2099967
13,508	540,5	541,0	103,55	103,50	0,171	0,166	146	0,207078
13,619	540,6	541,0	103,01	103,07	0,171	0,167	147	0,2087862
14,076	540,6	541,0	99,20	99,39	0,171	0,167	148	0,2157798
13,992	540,6	541,0	99,92	100,03	0,171	0,167	149	0,2145369
13,508	540,6	541,0	103,52	103,62	0,171	0,167	150	0,2070793
13,667	540,6	541,0	102,08	102,41	0,171	0,167	151	0,209513
14,146	540,6	541,0	98,39	98,99	0,171	0,167	152	0,2168889
13,664	540,6	541,1	102,27	102,45	0,171	0,167	153	0,2095128
14,404	540,6	541,1	96,98	97,24	0,171	0,167	154	0,2208298
13,666	540,7	541,1	102,55	102,56	0,171	0,167	155	0,2095132
13,693	540,7	541,1	102,33	102,22	0,172	0,167	156	0,2099972
13,772	540,7	541,1	101,36	101,31	0,171	0,166	157	0,2112012
14,111	540,7	541,1	98,86	99,21	0,171	0,167	158	0,2164216
13,774	540,7	541,2	101,18	101,72	0,171	0,167	159	0,2112013
13,612	540,7	541,2	102,24	102,85	0,171	0,167	160	0,2087864
14,292	540,7	541,2	97,45	97,86	0,171	0,167	161	0,2192167
13,689	540,7	541,2	101,94	102,27	0,171	0,167	162	0,2099947
13,662	540,8	541,2	102,31	102,47	0,171	0,167	163	0,2095132
13,583	540,8	541,2	102,84	102,83	0,171	0,167	164	0,2082995
13,662	540,8	541,3	102,09	102,20	0,171	0,166	165	0,2095137
14,246	540,8	541,3	97,86	98,21	0,171	0,167	166	0,2185214
13,695	540,8	541,3	101,87	102,10	0,171	0,167	167	0,2099976
13,659	540,9	541,3	102,06	102,50	0,171	0,167	168	0,2095134
13,846	540,9	541,3	101,11	100,99	0,171	0,167	169	0,2123994
13,611	540,9	541,4	102,32	102,68	0,171	0,167	170	0,2088138
13,769	541,0	541,4	101,38	101,51	0,171	0,167	171	0,2112017
14,106	541,0	541,4	98,60	99,14	0,171	0,167	172	0,2164221
14,466	541,0	541,5	96,35	96,52	0,171	0,167	173	0,2219777
14,392	541,1	541,5	96,75	97,11	0,171	0,167	174	0,2208311
13,688	541,1	541,5	101,65	102,37	0,171	0,167	175	0,2099989

13,799	541,1	541,6	100,98	101,22	0,171	0,167	176	0,2116831
14,319	541,1	541,6	97,37	97,88	0,171	0,167	177	0,2196794
14,216	541,2	541,6	98,17	98,24	0,171	0,167	178	0,2180564
14,364	541,2	541,6	96,84	97,00	0,171	0,166	179	0,2203718
14,108	541,2	541,6	98,89	99,06	0,171	0,166	180	0,2164227
13,467	541,2	541,6	103,27	103,81	0,171	0,167	181	0,2065886
13,582	541,2	541,6	102,37	102,88	0,170	0,167	182	0,2083002
13,690	541,2	541,7	101,94	102,26	0,171	0,167	183	0,2099562
14,288	541,3	541,7	97,49	97,93	0,171	0,167	184	0,2192167
13,687	541,3	541,7	101,98	102,09	0,171	0,167	185	0,2099983
14,213	541,3	541,7	98,13	98,23	0,171	0,167	186	0,2180575
13,609	541,3	541,7	102,52	102,89	0,171	0,167	187	0,2087876
13,661	541,3	541,7	101,96	102,28	0,171	0,167	188	0,209515
13,663	541,3	541,8	102,15	102,27	0,171	0,166	189	0,2095148
13,548	541,3	541,8	102,79	103,38	0,171	0,167	190	0,2078134
13,690	541,4	541,8	101,81	102,34	0,171	0,167	191	0,2099991
14,065	541,4	541,8	99,23	99,66	0,171	0,167	192	0,2157176
14,395	541,4	541,8	96,69	97,04	0,171	0,167	193	0,2208315
13,496	541,4	541,9	102,88	103,36	0,170	0,166	194	0,2070806
13,925	541,4	541,9	100,10	100,47	0,170	0,167	195	0,2135919
13,681	541,4	541,9	101,62	102,11	0,171	0,167	196	0,2099989
13,786	541,4	541,9	100,90	101,30	0,171	0,167	197	0,2116824
13,756	541,4	541,9	101,25	101,41	0,171	0,167	198	0,2112029
14,350	541,4	541,9	96,92	97,22	0,171	0,167	199	0,2203727
14,352	541,5	541,9	96,92	97,38	0,171	0,167	200	0,2203901
14,381	541,4	541,9	96,62	96,96	0,171	0,167	201	0,2208317
13,754	541,5	541,9	101,12	101,35	0,171	0,167	202	0,2112029
13,966	541,5	541,9	99,43	99,97	0,171	0,167	203	0,2145367
14,226	541,5	542,0	97,69	98,14	0,171	0,167	204	0,2185232
13,590	541,5	542,0	101,93	102,86	0,171	0,167	205	0,2087867
14,119	541,6	542,0	98,28	98,87	0,170	0,167	206	0,2168908
13,906	541,6	542,0	99,81	100,36	0,171	0,167	207	0,2135924
14,275	541,6	542,0	97,30	97,77	0,171	0,167	208	0,2192653
13,778	541,6	542,0	100,71	101,01	0,171	0,167	209	0,2116832
13,969	541,6	542,1	99,40	99,89	0,171	0,167	210	0,2145402
14,269	541,7	542,1	97,67	97,69	0,171	0,167	211	0,2192184
13,779	541,8	542,2	100,63	101,61	0,171	0,167	212	0,2116832
14,300	541,8	542,2	97,16	97,50	0,171	0,167	213	0,2196798
13,637	541,9	542,2	101,55	102,27	0,170	0,167	214	0,2095152
13,639	541,9	542,3	101,81	102,22	0,170	0,167	215	0,2095151
13,901	541,9	542,3	99,75	100,32	0,171	0,167	216	0,2135879
13,746	541,9	542,3	100,77	101,45	0,170	0,167	217	0,2112045
13,824	541,9	542,3	100,35	100,78	0,170	0,167	218	0,2124014
13,588	541,8	542,3	102,16	102,60	0,171	0,167	219	0,2087884
13,633	541,8	542,3	101,85	102,34	0,171	0,167	220	0,2095148
14,262	541,8	542,3	97,05	97,90	0,171	0,167	221	0,2192182
14,369	541,9	542,3	96,61	97,06	0,171	0,167	222	0,2208317
14,112	541,9	542,3	98,06	98,86	0,170	0,167	223	0,2168912
14,209	541,8	542,3	97,31	98,04	0,170	0,167	224	0,2183917
13,661	541,9	542,3	101,56	101,75	0,170	0,167	225	0,2100013
14,256	541,8	542,3	97,22	97,85	0,171	0,167	226	0,2191465
14,109	541,9	542,3	98,44	98,83	0,171	0,167	227	0,2168911
14,032	541,9	542,3	98,89	99,43	0,171	0,167	228	0,2157192
13,474	541,9	542,3	103,07	103,45	0,171	0,167	229	0,2070806
13,960	541,9	542,3	99,26	99,75	0,171	0,167	230	0,2145412
13,629	541,9	542,4	101,78	102,46	0,171	0,167	231	0,2095147
14,364	541,9	542,4	96,40	96,76	0,171	0,167	232	0,2208319
13,550	541,9	542,4	102,31	102,73	0,171	0,167	233	0,2083017
13,769	542,0	542,4	100,75	101,08	0,171	0,167	234	0,2116833
13,661	542,0	542,4	101,23	102,03	0,170	0,167	235	0,2099992
13,582	542,0	542,4	101,94	102,49	0,170	0,167	236	0,2087881

13,660	541,9	542,4	101,19	101,94	0,170	0,167	237	0,2099992
14,108	541,9	542,4	98,11	98,49	0,170	0,167	238	0,2168916
14,044	541,9	542,4	98,81	98,79	0,171	0,166	239	0,2159019
14,030	542,0	542,4	98,77	99,30	0,171	0,166	240	0,2157192
14,333	542,0	542,4	96,75	97,20	0,171	0,167	241	0,220373
13,579	542,0	542,5	101,95	102,70	0,171	0,167	242	0,2087883
13,735	542,0	542,5	100,88	101,43	0,171	0,167	243	0,2112027
14,362	542,1	542,5	96,37	97,02	0,170	0,167	244	0,2208316
13,626	542,1	542,5	101,47	102,12	0,170	0,167	245	0,2095155
14,212	542,1	542,5	97,63	98,10	0,171	0,167	246	0,2185216
14,328	542,1	542,5	96,71	97,11	0,171	0,167	247	0,2203477
14,255	542,1	542,5	97,47	97,65	0,171	0,167	248	0,2192183
13,734	542,1	542,5	100,64	101,54	0,171	0,167	249	0,2112027
14,390	542,1	542,5	96,17	97,01	0,170	0,167	250	0,2212919
14,391	542,1	542,5	95,97	96,79	0,170	0,167	251	0,2212923
13,766	542,1	542,5	100,69	101,12	0,170	0,167	252	0,2116839
14,285	542,1	542,6	97,31	97,49	0,171	0,167	253	0,2196797
14,286	542,1	542,6	96,86	97,59	0,171	0,167	254	0,219681
14,360	542,1	542,6	96,50	97,03	0,171	0,167	255	0,2208322
14,000	542,2	542,6	99,01	99,80	0,171	0,167	256	0,2152476
13,767	542,2	542,6	100,43	101,27	0,170	0,167	257	0,2116829
13,466	542,2	542,6	102,43	103,48	0,170	0,167	258	0,2070803
13,766	542,3	542,7	100,63	101,30	0,170	0,167	259	0,2116832
13,657	542,3	542,7	101,37	101,87	0,170	0,167	260	0,2100024
13,654	542,3	542,7	101,68	101,69	0,171	0,166	261	0,2099994
13,996	542,3	542,7	99,25	99,63	0,171	0,167	262	0,215247
13,655	542,3	542,7	101,35	102,04	0,171	0,167	263	0,2099994
13,842	542,3	542,8	99,93	100,63	0,170	0,167	264	0,2128786
14,330	542,3	542,8	96,39	97,34	0,170	0,167	265	0,2203723
13,764	542,3	542,7	100,27	101,11	0,170	0,167	266	0,2116837
14,285	542,3	542,7	96,71	97,61	0,170	0,167	267	0,2196906
14,283	542,3	542,7	96,91	97,51	0,170	0,167	268	0,2196805
13,767	542,3	542,7	100,71	101,32	0,171	0,167	269	0,2116836
13,733	542,3	542,8	100,85	101,49	0,171	0,167	270	0,2112033
13,624	542,3	542,8	101,52	102,24	0,170	0,167	271	0,2095153
14,284	542,4	542,8	96,81	97,72	0,170	0,167	272	0,2196807

Average	Average	Average						Average
13,99	Inlet +	Inlet +						0,219
	Outlet	Outlet	Average	Average	#1	#2		
Tunnel	Temp.	Temp.	100,51	100,13	System 1	System 2		SQRT
Velocity	Meter 1	Meter 2	Proportional Rates		Vol.Std.	Vol.Std.		Delta-P
			PR1	PR2			Time	
Ft/Sec	Deg. R	Deg. R	%	%	(ft3)	(ft3)	min	(in H2O)2
13,659	539,2	539,4			0,174	0,167	0	0,2135869
13,444	539,2	539,5	104,46	104,51	0,174	0,167	1	0,2111965
13,514	539,3	539,5	104,03	103,56	0,173	0,167	2	0,2123945
13,296	539,4	539,6	105,58	105,16	0,173	0,167	3	0,2087842
13,407	539,4	539,6	105,51	104,88	0,173	0,166	4	0,2099931
13,425	539,4	539,6	106,02	105,16	0,173	0,166	5	0,2095091
13,428	539,4	539,7	106,67	106,33	0,173	0,166	6	0,2087824
13,696	539,4	539,7	105,99	105,50	0,173	0,167	7	0,2116774
13,619	539,4	539,7	107,66	106,94	0,173	0,166	8	0,209509
14,396	539,5	539,8	102,92	102,61	0,173	0,167	9	0,2203649
13,872	539,5	539,8	107,17	106,90	0,173	0,167	10	0,211679
13,673	539,5	539,9	109,38	108,68	0,173	0,167	11	0,2082955
13,868	539,6	539,9	107,57	107,16	0,173	0,166	12	0,2111963
13,797	539,7	540,0	108,24	107,91	0,173	0,166	13	0,2099145
13,931	539,7	540,0	107,14	106,74	0,173	0,167	14	0,2123947
13,846	539,8	540,1	107,57	107,24	0,173	0,167	15	0,2111978
14,139	539,8	540,1	105,51	105,15	0,173	0,167	16	0,2157126
13,697	539,9	540,2	109,01	108,50	0,173	0,167	17	0,2087825
13,722	539,9	540,2	109,24	108,72	0,173	0,167	18	0,2087826
13,701	540,0	540,3	108,81	108,38	0,173	0,167	19	0,2087829
14,308	540,1	540,4	103,90	103,20	0,173	0,166	20	0,2185177
13,715	540,1	540,4	108,15	107,42	0,173	0,166	21	0,2095135
13,697	540,2	540,5	108,10	107,40	0,173	0,166	22	0,2095099
13,826	540,3	540,5	107,00	106,40	0,173	0,166	23	0,2116787
13,791	540,3	540,6	106,97	106,70	0,173	0,166	24	0,2111979
13,797	540,4	540,7	106,78	106,70	0,173	0,167	25	0,2111983
13,722	540,4	540,7	107,76	107,01	0,173	0,166	26	0,2099943
13,835	540,5	540,8	106,82	106,56	0,173	0,166	27	0,2116787
13,608	540,5	540,9	108,50	107,91	0,173	0,166	28	0,2082973
14,252	540,6	540,9	103,70	103,01	0,173	0,166	29	0,2185187
13,750	540,6	541,0	106,57	106,49	0,173	0,167	30	0,2111987
14,220	540,7	541,0	102,50	101,72	0,173	0,166	31	0,2192137
13,762	540,7	541,0	105,33	105,05	0,173	0,166	32	0,2123959
13,556	540,7	541,1	106,90	106,47	0,173	0,166	33	0,2095108
14,264	540,8	541,1	101,14	100,59	0,173	0,166	34	0,2208275
14,150	540,8	541,1	101,70	101,12	0,173	0,166	35	0,2192141
14,265	540,8	541,2	100,75	100,36	0,173	0,166	36	0,221287
13,675	540,9	541,2	104,90	104,51	0,173	0,166	37	0,2123966
13,605	540,9	541,3	105,37	105,03	0,173	0,166	38	0,2114447
13,738	540,9	541,3	103,97	103,76	0,173	0,166	39	0,2135881
14,262	541,0	541,3	100,21	99,38	0,173	0,166	40	0,2219739
13,568	541,0	541,3	104,97	104,84	0,173	0,166	41	0,2111988
13,663	541,0	541,4	103,97	103,67	0,172	0,166	42	0,2128745
14,268	541,0	541,4	99,81	99,15	0,173	0,166	43	0,22243
14,362	541,1	541,4	98,94	98,45	0,173	0,166	44	0,2240224
13,535	541,1	541,5	105,12	104,42	0,173	0,166	45	0,2111998
13,635	541,1	541,5	104,14	103,77	0,173	0,166	46	0,2128746
13,632	541,2	541,5	104,15	103,44	0,173	0,166	47	0,2128745
14,341	541,2	541,5	98,70	98,44	0,173	0,166	48	0,2240216
13,590	541,2	541,6	104,23	103,48	0,173	0,166	49	0,212397
13,726	541,3	541,6	103,00	102,44	0,173	0,166	50	0,2145378
13,538	541,3	541,6	104,45	104,24	0,173	0,166	51	0,2116797
13,686	541,3	541,7	103,34	102,77	0,173	0,166	52	0,2140625
13,656	541,4	541,7	103,22	103,17	0,172	0,166	53	0,2135889

14,083	541,4	541,7	100,11	99,77	0,172	0,166	54	0,2203676
13,823	541,5	541,8	101,70	101,67	0,172	0,166	55	0,2164211
14,108	541,6	541,8	99,83	99,10	0,172	0,166	56	0,2208287
13,862	541,6	541,9	101,83	101,17	0,173	0,166	57	0,2169788
13,851	541,7	542,0	101,72	101,13	0,173	0,166	58	0,2168933
13,823	541,8	542,0	102,01	101,75	0,173	0,166	59	0,2164205
13,818	541,8	542,1	101,81	101,53	0,172	0,166	60	0,2164213
13,773	541,9	542,1	102,24	101,85	0,172	0,166	61	0,2157165
13,925	541,9	542,2	101,03	100,68	0,172	0,166	62	0,2180549
13,817	542,0	542,2	101,67	101,11	0,172	0,166	63	0,2164208
14,129	542,0	542,2	99,78	99,14	0,172	0,166	64	0,2212896
14,491	542,0	542,3	97,39	96,98	0,173	0,166	65	0,2267255
14,439	542,1	542,3	98,06	97,14	0,173	0,166	66	0,225829
13,770	542,1	542,4	102,41	102,37	0,173	0,166	67	0,2152458
14,028	542,1	542,4	100,70	100,47	0,172	0,166	68	0,2192159
13,812	542,1	542,4	102,18	101,99	0,172	0,166	69	0,2157165
14,466	542,2	542,5	97,99	97,39	0,172	0,166	70	0,2258284
14,359	542,2	542,5	99,13	98,39	0,173	0,166	71	0,2240239
14,139	542,2	542,5	100,39	100,04	0,173	0,166	72	0,2203759
13,676	542,2	542,6	104,23	103,78	0,172	0,166	73	0,2128758
13,773	542,2	542,6	103,80	103,71	0,172	0,166	74	0,2140638
13,796	542,3	542,6	103,73	103,58	0,172	0,166	75	0,214064
13,923	542,3	542,6	103,72	103,03	0,173	0,166	76	0,2156297
14,433	542,3	542,7	99,92	99,70	0,173	0,166	77	0,2231159
13,956	542,3	542,7	103,98	103,24	0,172	0,166	78	0,2152884
13,682	542,3	542,7	105,59	104,92	0,172	0,165	79	0,2112015
13,853	542,4	542,8	104,32	103,33	0,172	0,165	80	0,2140645
14,131	542,4	542,8	102,01	101,58	0,172	0,165	81	0,2185208
13,724	542,4	542,8	104,75	104,37	0,172	0,166	82	0,2123988
14,088	542,5	542,9	102,16	101,71	0,172	0,166	83	0,2180551
14,502	542,5	542,9	99,10	98,71	0,172	0,166	84	0,2247026
14,397	542,5	543,0	99,85	98,98	0,172	0,166	85	0,223115
13,656	542,6	543,0	104,91	104,90	0,172	0,166	86	0,2116815
13,728	542,6	543,0	104,57	103,94	0,172	0,166	87	0,2128765
14,431	542,5	543,0	99,06	98,70	0,172	0,166	88	0,2238926
14,202	542,6	543,0	100,55	100,45	0,172	0,166	89	0,2203722
13,869	542,5	543,0	103,31	102,80	0,172	0,166	90	0,2152458
13,821	542,6	543,1	103,53	103,02	0,172	0,166	91	0,2145375
14,218	542,6	543,1	100,73	99,95	0,172	0,166	92	0,2208303
14,418	542,6	543,1	99,17	98,54	0,172	0,165	93	0,2240242
14,460	542,6	543,2	98,89	98,10	0,172	0,165	94	0,2247026
13,962	542,6	543,2	102,25	101,73	0,172	0,165	95	0,2168895
13,852	542,6	543,2	103,21	102,48	0,172	0,165	96	0,2152099
14,412	542,6	543,2	98,94	98,75	0,172	0,166	97	0,2240242
14,456	542,6	543,2	98,74	98,51	0,172	0,166	98	0,2247028
13,851	542,6	543,2	103,21	102,42	0,172	0,166	99	0,2152454
14,241	542,6	543,2	100,19	99,80	0,172	0,165	100	0,221289
14,486	542,6	543,2	98,25	98,04	0,172	0,166	101	0,2251524
14,364	542,6	543,2	99,53	98,97	0,172	0,166	102	0,2231149
14,460	542,6	543,2	98,75	98,34	0,172	0,166	103	0,2246376
14,494	542,6	543,2	98,53	98,09	0,172	0,166	104	0,2251528
13,639	542,6	543,3	105,36	104,49	0,172	0,166	105	0,2116817
13,611	542,7	543,3	105,09	104,61	0,172	0,166	106	0,2112005
14,222	542,7	543,3	100,65	99,97	0,172	0,165	107	0,2208285
14,229	542,7	543,3	100,39	100,19	0,172	0,166	108	0,2208289
13,829	542,7	543,3	103,63	102,80	0,172	0,165	109	0,2145378
13,834	542,7	543,3	103,55	103,16	0,172	0,165	110	0,2145378
13,905	542,7	543,4	102,84	102,62	0,172	0,166	111	0,2157164
14,331	542,7	543,4	99,83	99,58	0,172	0,166	112	0,2224319
14,052	542,7	543,4	101,92	101,63	0,172	0,166	113	0,2180554
13,827	542,7	543,4	103,67	103,13	0,172	0,166	114	0,2145375

13,761	542,7	543,4	103,80	103,61	0,172	0,166	115	0,2135902
14,426	542,7	543,4	99,18	98,52	0,172	0,166	116	0,2240241
13,678	542,7	543,4	104,29	103,94	0,172	0,165	117	0,2123987
13,958	542,7	543,4	102,00	101,79	0,172	0,166	118	0,2168893
13,698	542,8	543,5	104,28	103,59	0,172	0,165	119	0,2128761
13,875	542,8	543,5	102,76	102,63	0,172	0,166	120	0,2157162
13,613	542,8	543,5	104,93	103,97	0,172	0,166	121	0,2116811
13,914	542,8	543,5	102,51	101,86	0,172	0,165	122	0,2164214
13,729	542,8	543,5	103,87	103,11	0,172	0,165	123	0,2135901
14,288	542,8	543,5	99,45	98,87	0,172	0,165	124	0,2224324
14,281	542,8	543,5	99,57	98,79	0,172	0,165	125	0,2224319
14,372	542,8	543,5	98,61	98,33	0,172	0,165	126	0,2240523
13,577	542,8	543,5	104,47	103,96	0,172	0,166	127	0,2116817
14,253	542,8	543,5	99,40	98,65	0,172	0,165	128	0,2224354
13,743	542,8	543,5	102,69	102,45	0,172	0,165	129	0,2145378
13,684	542,8	543,5	103,29	102,72	0,172	0,165	130	0,21359
13,813	542,8	543,5	102,05	101,66	0,172	0,165	131	0,2157165
14,416	542,8	543,5	97,91	97,45	0,172	0,165	132	0,2251524
13,774	542,8	543,5	102,61	102,05	0,172	0,166	133	0,2152451
13,702	542,8	543,5	103,06	102,93	0,172	0,166	134	0,2140985
13,977	542,8	543,5	100,99	100,40	0,172	0,166	135	0,2185207
13,687	542,8	543,5	102,89	102,30	0,172	0,165	136	0,2140638
13,756	542,8	543,5	102,39	101,68	0,172	0,165	137	0,2152459
14,357	542,8	543,4	97,93	97,34	0,172	0,165	138	0,2247023
14,380	542,8	543,4	97,61	97,25	0,172	0,165	139	0,2251529
13,752	542,8	543,4	102,51	101,91	0,172	0,166	140	0,2152455
13,782	542,8	543,4	102,17	101,56	0,172	0,166	141	0,2157168
13,633	542,8	543,4	103,37	102,69	0,173	0,166	142	0,2135902
13,772	542,8	543,4	101,85	101,47	0,172	0,166	143	0,2157168
13,690	542,8	543,4	102,48	102,01	0,172	0,165	144	0,214538
13,505	542,8	543,4	103,63	103,10	0,172	0,165	145	0,2116813
13,813	542,8	543,4	101,76	101,11	0,172	0,165	146	0,2164212
13,658	542,8	543,4	103,15	101,89	0,173	0,165	147	0,2140645
13,763	542,8	543,4	101,88	101,60	0,172	0,165	148	0,2157165
13,810	542,8	543,4	101,72	101,38	0,172	0,166	149	0,2164213
13,759	542,8	543,4	101,99	101,64	0,172	0,166	150	0,2157174
13,841	542,8	543,4	101,27	100,76	0,172	0,166	151	0,2168913
14,366	542,8	543,4	97,32	96,93	0,172	0,165	152	0,2251525
14,324	542,9	543,5	97,83	97,28	0,172	0,165	153	0,2247026
13,658	542,9	543,5	102,73	102,24	0,172	0,166	154	0,2140641
13,987	542,9	543,5	100,63	100,00	0,172	0,166	155	0,219216
14,190	542,9	543,5	99,21	98,47	0,173	0,166	156	0,2224337
13,909	542,9	543,5	100,80	100,36	0,172	0,166	157	0,2180557
13,797	542,9	543,5	101,46	101,00	0,172	0,166	158	0,216422
13,728	543,0	543,5	101,91	101,49	0,172	0,165	159	0,2152458
14,320	543,0	543,5	97,47	97,14	0,172	0,165	160	0,2247026
14,456	543,0	543,6	96,51	96,07	0,172	0,165	161	0,2269921
13,748	543,0	543,6	101,84	101,39	0,172	0,165	162	0,2157174
14,275	543,0	543,6	98,14	97,58	0,172	0,166	163	0,2240279
14,142	543,0	543,6	98,97	98,56	0,172	0,166	164	0,2219776
13,715	543,1	543,6	101,93	101,75	0,172	0,166	165	0,2152455
13,643	543,1	543,6	102,51	102,10	0,172	0,166	166	0,2140648
13,893	543,1	543,6	100,60	99,74	0,172	0,165	167	0,2180559
14,142	543,1	543,7	98,81	98,22	0,172	0,165	168	0,2219759
13,819	543,1	543,7	101,59	100,64	0,172	0,165	169	0,2168812
13,786	543,2	543,7	101,27	100,95	0,172	0,165	170	0,2164214
14,316	543,2	543,7	97,76	97,41	0,172	0,166	171	0,224702
13,964	543,2	543,7	99,86	99,78	0,172	0,166	172	0,2192166
13,993	543,3	543,7	99,89	99,38	0,172	0,166	173	0,2196781
13,785	543,3	543,8	101,28	100,89	0,172	0,165	174	0,2164219
13,665	543,3	543,8	102,06	101,45	0,172	0,165	175	0,2145382

14,167	543,4	543,8	98,57	98,12	0,172	0,165	176	0,2224341
13,842	543,3	543,8	100,98	100,49	0,172	0,165	177	0,2173093
14,436	543,4	543,9	96,80	96,36	0,172	0,166	178	0,2267265
14,060	543,3	543,8	99,11	98,89	0,172	0,166	179	0,2208308
14,409	543,3	543,8	96,99	96,72	0,172	0,166	180	0,2262778
14,478	543,4	543,9	96,20	95,79	0,172	0,165	181	0,2273971
14,304	543,4	543,9	97,27	96,75	0,172	0,165	182	0,2246996
13,663	543,4	543,9	102,23	101,43	0,172	0,165	183	0,2146105
14,404	543,4	543,9	96,84	96,58	0,172	0,165	184	0,2262773
13,784	543,4	543,9	101,52	100,77	0,172	0,165	185	0,2164225
13,658	543,4	543,9	102,28	101,81	0,172	0,165	186	0,2145393
13,732	543,4	543,9	101,74	101,00	0,172	0,165	187	0,2157184
14,305	543,5	543,9	97,45	96,97	0,172	0,165	188	0,2247037
13,659	543,5	544,0	102,24	101,90	0,172	0,165	189	0,2145394
13,734	543,5	544,0	101,52	100,97	0,172	0,165	190	0,2157176
13,953	543,5	544,0	99,96	99,39	0,172	0,165	191	0,2192171
14,056	543,6	544,0	99,35	98,68	0,172	0,165	192	0,2208184
14,157	543,6	544,1	98,40	98,13	0,172	0,165	193	0,2224335
14,430	543,6	544,1	96,33	96,18	0,172	0,165	194	0,2267268
14,376	543,6	544,1	97,04	96,58	0,172	0,165	195	0,2258302
13,907	543,6	544,1	100,15	99,72	0,172	0,165	196	0,2185223
13,804	543,6	544,1	101,04	100,12	0,172	0,165	197	0,2168907
13,850	543,6	544,1	100,91	100,41	0,172	0,165	198	0,2174998
14,336	543,6	544,1	97,38	97,04	0,172	0,166	199	0,2251544
14,331	543,7	544,2	97,35	96,81	0,172	0,165	200	0,2251545
14,374	543,7	544,2	96,95	96,50	0,172	0,165	201	0,2258304
14,277	543,7	544,2	97,66	97,02	0,172	0,165	202	0,2243382
13,652	543,7	544,2	102,02	101,50	0,172	0,165	203	0,2145399
13,906	543,7	544,2	100,25	99,59	0,172	0,165	204	0,2185229
14,155	543,7	544,2	98,21	97,88	0,172	0,165	205	0,222434
14,056	543,7	544,2	99,10	98,60	0,172	0,165	206	0,2208313
13,729	543,8	544,2	101,43	101,00	0,172	0,165	207	0,215719
14,130	543,8	544,2	98,66	98,26	0,172	0,165	208	0,2219781
13,808	543,8	544,3	100,93	100,34	0,172	0,165	209	0,2168915
14,029	543,8	544,3	99,33	98,88	0,172	0,165	210	0,2203723
13,878	543,8	544,3	100,81	99,96	0,172	0,165	211	0,218057
14,201	543,8	544,3	98,04	97,70	0,172	0,165	212	0,2231182
13,807	543,9	544,3	101,07	100,62	0,172	0,165	213	0,216886
13,472	543,9	544,3	103,21	102,83	0,172	0,165	214	0,2116838
14,376	543,9	544,3	97,01	96,66	0,172	0,165	215	0,2258303
14,300	543,9	544,3	97,36	97,07	0,172	0,165	216	0,2247044
13,803	543,9	544,4	100,77	100,25	0,172	0,165	217	0,216891
13,879	543,9	544,3	100,39	99,93	0,172	0,165	218	0,2180578
14,085	543,9	544,4	98,98	98,21	0,172	0,165	219	0,2212914
13,652	543,9	544,4	102,18	101,28	0,172	0,165	220	0,2144937
13,729	543,9	544,4	101,30	100,76	0,172	0,165	221	0,2157191
13,981	544,0	544,5	99,74	99,32	0,172	0,165	222	0,2196796
13,804	544,0	544,5	100,70	100,34	0,172	0,165	223	0,2168916
13,805	544,0	544,5	100,64	100,41	0,171	0,165	224	0,2168908
13,732	544,0	544,5	101,56	100,89	0,172	0,165	225	0,2157192
13,732	544,1	544,5	101,46	101,09	0,172	0,165	226	0,2157193
14,156	544,1	544,5	98,58	97,69	0,172	0,165	227	0,2224354
13,624	544,1	544,5	102,35	101,61	0,172	0,165	228	0,2140659
13,803	544,1	544,6	101,04	100,44	0,172	0,165	229	0,2168914
13,784	544,1	544,6	100,96	100,59	0,172	0,165	230	0,2165829
14,300	544,1	544,6	97,47	96,85	0,172	0,165	231	0,2247048
14,472	544,1	544,6	96,16	95,67	0,172	0,165	232	0,2273993
13,806	544,2	544,6	100,93	100,16	0,172	0,165	233	0,2168911
14,201	544,2	544,6	98,18	97,32	0,172	0,165	234	0,2231189
14,157	544,2	544,7	98,15	97,68	0,172	0,165	235	0,2224356
13,909	544,2	544,7	100,03	99,45	0,171	0,165	236	0,218523

14,331	544,2	544,7	96,93	96,68	0,171	0,165	237	0,2251557
13,733	544,2	544,7	101,33	101,02	0,171	0,165	238	0,2157201
13,775	544,3	544,7	101,23	100,81	0,172	0,165	239	0,216424
14,130	544,3	544,7	98,60	97,91	0,172	0,165	240	0,2219786
13,955	544,3	544,7	99,92	99,25	0,172	0,165	241	0,219219
14,331	544,3	544,7	97,11	96,55	0,172	0,165	242	0,2251553
13,732	544,3	544,8	101,47	100,90	0,172	0,165	243	0,2157324
13,656	544,3	544,8	101,90	101,56	0,172	0,165	244	0,2145412
13,807	544,4	544,8	100,70	100,50	0,171	0,165	245	0,2168921
14,475	544,4	544,8	96,38	95,78	0,172	0,165	246	0,2273994
14,476	544,4	544,8	96,29	95,38	0,172	0,165	247	0,2273994
14,332	544,4	544,8	97,50	96,32	0,172	0,164	248	0,2251563
14,476	544,4	544,9	96,03	95,74	0,172	0,165	249	0,2274142
13,778	544,5	544,9	101,03	100,63	0,171	0,165	250	0,2164245
14,434	544,5	544,9	96,24	96,09	0,171	0,165	251	0,226729
13,779	544,5	544,9	101,19	100,50	0,171	0,165	252	0,2164246
14,379	544,5	544,9	97,27	96,36	0,172	0,165	253	0,2258322
14,334	544,6	545,0	97,08	96,66	0,172	0,165	254	0,225157
13,780	544,6	545,0	101,17	100,40	0,172	0,165	255	0,2164292
14,379	544,6	545,0	96,94	96,09	0,172	0,165	256	0,2258323
13,778	544,6	545,0	100,91	100,64	0,172	0,165	257	0,2164255
13,779	544,6	545,0	100,70	100,58	0,171	0,165	258	0,2164251
14,307	544,6	545,0	97,41	97,17	0,171	0,165	259	0,2247059
13,956	544,5	545,0	99,79	99,60	0,172	0,166	260	0,2192215
13,633	544,6	545,0	102,51	101,75	0,172	0,165	261	0,214109
13,911	544,6	545,0	100,46	99,58	0,172	0,165	262	0,2185246
13,808	544,6	545,0	100,83	100,19	0,172	0,165	263	0,2168922
14,306	544,6	545,1	97,29	96,81	0,172	0,165	264	0,2247048
13,702	544,7	545,1	101,40	100,78	0,171	0,165	265	0,2152487
13,881	544,7	545,1	100,02	99,70	0,171	0,165	266	0,218059
14,504	544,7	545,1	95,80	95,61	0,171	0,165	267	0,227845
14,377	544,7	545,1	96,87	96,23	0,171	0,165	268	0,2258325
13,809	544,7	545,1	100,98	100,58	0,172	0,165	269	0,2168926
13,704	544,7	545,1	101,68	101,11	0,172	0,165	270	0,2152485
13,659	544,8	545,2	101,86	101,27	0,172	0,165	271	0,2145409
13,883	544,7	545,2	100,22	99,51	0,171	0,165	272	0,2180586
13,778	544,8	545,2	100,97	100,37	0,171	0,165	273	0,2164242
14,378	544,8	545,2	96,77	96,49	0,171	0,165	274	0,2258319
13,958	544,8	545,3	100,13	99,30	0,172	0,165	275	0,2192197
13,810	544,9	545,3	100,69	100,25	0,172	0,165	276	0,2168923
13,630	544,9	545,3	102,22	101,57	0,171	0,165	277	0,2140672
14,436	544,9	545,4	96,21	95,76	0,171	0,165	278	0,2267294
13,884	545,0	545,4	100,28	99,83	0,171	0,165	279	0,2180631
14,091	545,0	545,4	98,72	98,38	0,171	0,165	280	0,221293
13,661	544,9	545,4	101,73	101,38	0,171	0,165	281	0,2145419
13,810	544,9	545,4	100,76	100,31	0,171	0,165	282	0,2168924
13,810	545,0	545,4	100,83	100,51	0,171	0,165	283	0,2168926
14,306	545,0	545,4	97,38	96,81	0,172	0,165	284	0,2247051
14,436	545,0	545,4	96,24	95,79	0,171	0,165	285	0,2267291
14,061	545,0	545,4	99,08	98,55	0,171	0,165	286	0,2208333
14,508	545,0	545,4	95,73	95,51	0,171	0,165	287	0,2278449
14,408	545,0	545,4	96,32	96,17	0,171	0,165	288	0,2262812
13,914	545,0	545,5	100,11	99,60	0,171	0,165	289	0,2185244
13,736	545,0	545,4	101,31	100,91	0,171	0,165	290	0,2157199
14,336	545,0	545,5	97,26	96,65	0,172	0,165	291	0,2251567
14,266	545,0	545,5	97,68	97,26	0,172	0,165	292	0,2240281
13,813	545,1	545,5	100,93	100,02	0,172	0,165	293	0,2168926
13,812	545,1	545,5	100,69	100,46	0,171	0,165	294	0,2168925
13,962	545,1	545,5	99,80	99,14	0,171	0,165	295	0,2192202
13,738	545,1	545,6	101,25	101,04	0,171	0,165	296	0,2157205
14,410	545,2	545,6	96,60	96,64	0,171	0,165	297	0,2262808

14,316	545,2	545,6	97,35	96,73	0,172	0,165	298	0,2247916
14,209	545,2	545,6	97,86	97,26	0,171	0,165	299	0,2231194
13,738	545,2	545,6	101,02	100,72	0,171	0,165	300	0,2157219
14,382	545,2	545,7	96,80	96,21	0,171	0,165	301	0,2258329
13,917	545,2	545,7	99,96	99,52	0,171	0,165	302	0,2185249
13,783	545,2	545,7	100,92	100,65	0,171	0,165	303	0,2164253
13,813	545,2	545,7	101,16	100,72	0,172	0,165	304	0,2168928
13,993	545,2	545,7	99,36	99,01	0,172	0,165	305	0,2197227
14,137	545,2	545,7	98,54	97,94	0,171	0,165	306	0,2219801
14,267	545,2	545,7	97,34	97,06	0,171	0,165	307	0,2240274
13,738	545,2	545,7	101,35	100,78	0,171	0,165	308	0,2157209
14,311	545,2	545,7	97,20	96,97	0,171	0,165	309	0,2247062
14,481	545,2	545,7	95,94	95,72	0,171	0,165	310	0,2274011
13,917	545,2	545,7	99,99	99,87	0,171	0,165	311	0,2185241
13,813	545,2	545,7	100,81	100,46	0,171	0,165	312	0,2168931
14,094	545,2	545,7	98,87	98,25	0,172	0,165	313	0,2212932
14,554	545,2	545,7	96,02	95,11	0,172	0,165	314	0,2285131
13,739	545,2	545,7	101,21	100,78	0,172	0,165	315	0,215721
13,739	545,3	545,7	101,40	100,97	0,171	0,165	316	0,2157283
13,784	545,3	545,7	100,76	100,50	0,171	0,165	317	0,2164245
13,887	545,3	545,7	100,24	99,82	0,171	0,165	318	0,2180588
14,412	545,3	545,8	96,50	96,47	0,171	0,165	319	0,2262809
14,340	545,4	545,8	96,88	96,76	0,171	0,165	320	0,2251571
14,413	545,3	545,8	96,54	95,82	0,171	0,165	321	0,2262812
13,740	545,4	545,8	101,33	100,83	0,171	0,165	322	0,2157209
14,138	545,4	545,9	98,52	98,17	0,171	0,165	323	0,221982
14,412	545,4	545,9	96,38	96,05	0,171	0,165	324	0,2262809
13,813	545,4	545,9	100,82	100,33	0,171	0,165	325	0,2168836
13,814	545,4	545,9	100,51	100,43	0,171	0,165	326	0,2168935
13,917	545,5	545,9	99,68	99,42	0,171	0,165	327	0,2185211
13,888	545,4	545,9	100,27	100,01	0,171	0,165	328	0,2180593
13,784	545,4	545,9	100,92	100,32	0,171	0,165	329	0,2164253
13,784	545,5	545,9	101,13	100,53	0,171	0,165	330	0,2164252
13,785	545,5	546,0	101,04	100,44	0,172	0,165	331	0,2164254
13,888	545,5	546,0	100,32	99,75	0,171	0,165	332	0,2180598
14,212	545,5	546,0	97,82	97,64	0,171	0,165	333	0,2231208
14,512	545,5	546,0	95,95	95,34	0,171	0,165	334	0,2278456
14,484	545,6	546,0	95,99	95,74	0,171	0,165	335	0,2274008
14,037	545,6	546,1	99,14	98,83	0,171	0,165	336	0,220375
14,414	545,6	546,1	96,66	96,03	0,171	0,165	337	0,2262818
13,740	545,6	546,1	101,16	100,91	0,171	0,165	338	0,2157214
13,815	545,6	546,1	100,41	100,70	0,171	0,165	339	0,2168927
14,269	545,6	546,1	97,53	97,24	0,171	0,165	340	0,2240284
13,816	545,6	546,1	100,66	100,32	0,171	0,165	341	0,2168936
13,816	545,6	546,1	100,66	100,41	0,171	0,165	342	0,2168932
14,442	545,6	546,1	96,72	96,12	0,172	0,165	343	0,2267305
13,787	545,6	546,1	100,83	100,61	0,171	0,165	344	0,2164257
13,741	545,6	546,1	101,35	101,05	0,171	0,165	345	0,2157212
13,759	545,6	546,1	100,90	100,89	0,171	0,165	346	0,2160047
13,786	545,6	546,1	100,96	100,65	0,171	0,165	347	0,2164257
14,147	545,7	546,2	98,28	98,18	0,171	0,165	348	0,2220864
13,561	545,7	546,2	102,43	102,62	0,171	0,165	349	0,2128809
14,313	545,7	546,2	97,16	96,74	0,171	0,165	350	0,2247048
14,386	545,7	546,2	96,75	96,33	0,171	0,165	351	0,2258334
13,561	545,7	546,2	102,70	102,29	0,171	0,165	352	0,2128813
14,416	545,7	546,2	96,35	96,23	0,171	0,165	353	0,2262817
14,068	545,7	546,3	98,99	98,47	0,171	0,165	354	0,2208353
14,315	545,7	546,2	96,99	97,12	0,171	0,165	355	0,2247029
14,315	545,8	546,3	96,91	96,90	0,171	0,165	356	0,2247072
14,415	545,8	546,3	96,59	96,19	0,171	0,165	357	0,2262819
14,164	545,8	546,3	98,20	98,17	0,171	0,165	358	0,2223447

13,891	545,8	546,3	100,35	99,69	0,171	0,165	359	0,2180596
13,891	545,8	546,3	100,25	99,74	0,171	0,165	360	0,2180601
14,315	545,8	546,3	97,33	96,74	0,171	0,165	361	0,224707
14,414	545,8	546,3	96,41	96,20	0,171	0,165	362	0,2262813
13,818	545,8	546,3	100,77	100,42	0,171	0,165	363	0,2168935
13,740	545,8	546,4	101,13	101,16	0,171	0,165	364	0,2157208
13,788	545,9	546,4	100,91	100,81	0,171	0,165	365	0,2164264
13,787	545,9	546,4	100,99	100,45	0,171	0,165	366	0,2164252
13,788	545,9	546,4	100,66	100,62	0,171	0,165	367	0,216426
13,922	545,9	546,4	99,81	99,84	0,171	0,165	368	0,2185252
13,893	545,9	546,4	99,87	99,86	0,171	0,165	369	0,2180601
13,899	545,9	546,4	99,97	100,17	0,171	0,165	370	0,2181589
13,789	546,0	546,4	101,01	100,55	0,171	0,165	371	0,2164266
13,789	546,0	546,5	100,91	100,87	0,171	0,165	372	0,216426
13,967	546,0	546,5	99,70	99,52	0,171	0,165	373	0,2192211
13,907	546,0	546,5	99,95	99,79	0,171	0,165	374	0,218289
14,274	546,0	546,5	97,50	97,06	0,171	0,165	375	0,224029
14,142	546,0	546,6	98,27	97,97	0,171	0,165	376	0,2219808
13,789	546,0	546,6	100,70	100,54	0,171	0,165	377	0,2164259
13,921	546,0	546,6	100,07	99,74	0,171	0,165	378	0,2185256
13,714	546,0	546,5	101,50	101,24	0,171	0,165	379	0,215253
14,389	546,0	546,5	97,01	96,56	0,171	0,165	380	0,2258337
13,744	546,0	546,5	101,04	101,19	0,171	0,165	381	0,2157213
13,820	546,0	546,5	100,60	100,35	0,171	0,165	382	0,2168949
13,790	546,0	546,6	100,62	100,86	0,171	0,165	383	0,2164264
13,741	546,1	546,6	101,35	100,80	0,171	0,165	384	0,2156452
14,419	546,1	546,6	96,88	96,41	0,172	0,165	385	0,2262816
13,923	546,1	546,5	99,83	99,98	0,171	0,165	386	0,2185256
14,041	546,1	546,6	99,16	98,81	0,171	0,165	387	0,2203751
13,821	546,1	546,6	100,74	100,16	0,171	0,165	388	0,2168936
14,318	546,1	546,6	97,02	97,11	0,171	0,165	389	0,2247069
14,390	546,1	546,6	96,33	96,44	0,171	0,165	390	0,2258333
14,417	546,1	546,6	96,53	96,55	0,171	0,165	391	0,2262752
14,348	546,1	546,6	96,97	96,95	0,171	0,165	392	0,2251582
14,390	546,1	546,6	96,98	96,61	0,171	0,165	393	0,2258329
13,671	546,1	546,6	102,14	101,55	0,172	0,165	394	0,2145427
14,319	546,1	546,6	97,15	97,03	0,171	0,165	395	0,2247086
14,101	546,1	546,7	98,60	98,38	0,171	0,165	396	0,2212942
14,144	546,1	546,6	98,14	98,16	0,171	0,165	397	0,2219845
14,216	546,2	546,7	97,57	97,59	0,171	0,165	398	0,2231202
14,419	546,2	546,7	96,30	96,46	0,171	0,165	399	0,2262819
14,351	546,2	546,7	96,96	96,85	0,171	0,165	400	0,2252126
13,747	546,2	546,7	101,34	101,08	0,171	0,165	401	0,2157236
14,218	546,2	546,7	97,92	97,67	0,171	0,165	402	0,2231209
13,716	546,2	546,7	101,35	101,14	0,171	0,165	403	0,2152499
14,448	546,2	546,7	96,22	96,13	0,171	0,165	404	0,2267302
14,391	546,2	546,7	96,60	96,66	0,171	0,165	405	0,2258337
14,492	546,2	546,7	95,94	95,94	0,171	0,165	406	0,2274009
13,792	546,3	546,8	101,24	100,84	0,171	0,165	407	0,216427
13,490	546,3	546,8	103,00	103,02	0,171	0,165	408	0,2116865
13,793	546,3	546,7	100,95	100,59	0,171	0,165	409	0,2164259
14,074	546,2	546,7	98,64	98,55	0,171	0,165	410	0,2208341
14,420	546,2	546,8	96,50	96,47	0,171	0,165	411	0,226282
14,493	546,2	546,7	95,93	95,98	0,171	0,165	412	0,2274012
13,794	546,2	546,8	100,70	100,82	0,171	0,165	413	0,2164257
13,749	546,3	546,8	101,17	101,27	0,171	0,165	414	0,2157216
13,720	546,3	546,8	101,46	101,46	0,171	0,165	415	0,2152499
14,220	546,3	546,8	97,93	97,62	0,171	0,165	416	0,2231208
14,565	546,4	546,9	95,34	95,44	0,171	0,165	417	0,2285141
13,644	546,4	546,9	102,05	101,68	0,171	0,165	418	0,2140681
13,794	546,4	546,9	100,63	101,02	0,171	0,165	419	0,2164202

13,806	546,4	546,9	100,46	100,80	0,171	0,165	420	0,2166126
14,424	546,4	546,9	96,52	96,42	0,171	0,165	421	0,22631
14,322	546,4	546,9	97,10	97,38	0,171	0,165	422	0,2247075
13,899	546,4	546,9	100,28	100,00	0,171	0,165	423	0,2180673
13,824	546,4	546,9	100,73	100,74	0,171	0,165	424	0,216894
13,822	546,4	546,9	100,76	100,59	0,171	0,165	425	0,2168932
14,278	546,3	546,9	97,34	97,13	0,171	0,165	426	0,2240284
13,674	546,4	546,9	101,81	101,73	0,171	0,165	427	0,2145424
13,898	546,3	546,9	100,02	100,07	0,171	0,165	428	0,2180598
13,823	546,3	546,9	100,65	100,60	0,171	0,165	429	0,216894
13,793	546,4	546,9	100,97	101,02	0,171	0,165	430	0,216426
13,897	546,3	546,9	100,00	99,84	0,171	0,165	431	0,2180596
13,750	546,4	546,9	100,89	101,12	0,171	0,165	432	0,2157211
13,716	546,4	546,9	101,41	101,45	0,171	0,165	433	0,2152505
14,493	546,4	546,9	95,90	96,01	0,171	0,165	434	0,2274011
13,719	546,4	546,9	101,43	101,11	0,171	0,165	435	0,2152497
13,748	546,4	546,9	101,32	101,34	0,171	0,165	436	0,2157219
13,971	546,4	546,9	99,61	99,89	0,171	0,166	437	0,2192206
13,821	546,3	546,9	100,68	100,75	0,171	0,166	438	0,216893
13,716	546,3	546,9	101,34	101,61	0,171	0,166	439	0,2152469
13,792	546,3	546,9	100,88	100,81	0,171	0,165	440	0,2164256
13,791	546,3	546,9	100,80	100,74	0,171	0,165	441	0,2164255
13,818	546,3	546,9	100,64	100,41	0,171	0,165	442	0,2168935
14,274	546,3	546,8	97,17	97,47	0,171	0,165	443	0,2240286
14,040	546,3	546,8	98,92	99,04	0,171	0,165	444	0,2203754
13,817	546,3	546,8	100,51	100,63	0,171	0,165	445	0,2168933
14,315	546,2	546,8	97,10	96,92	0,171	0,165	446	0,2247072
14,314	546,3	546,8	97,04	96,88	0,171	0,165	447	0,2247074
14,359	546,3	546,8	96,75	96,71	0,171	0,165	448	0,2254062
14,213	546,2	546,8	98,17	97,85	0,171	0,165	449	0,2231204
13,919	546,2	546,8	99,73	99,81	0,171	0,165	450	0,218525
13,963	546,2	546,8	99,62	99,50	0,171	0,165	451	0,21922
14,210	546,2	546,8	97,57	97,87	0,171	0,165	452	0,2231201
14,268	546,2	546,8	97,42	97,54	0,171	0,166	453	0,2240292
13,917	546,2	546,8	99,77	99,87	0,171	0,165	454	0,2185244
14,410	546,2	546,8	96,24	96,28	0,171	0,165	455	0,2262813
14,439	546,2	546,7	96,19	96,01	0,171	0,165	456	0,22673

Average	Average	Average						Average
14,14	Inlet +	Inlet +						0,219
	Outlet	Outlet	Average	Average	#1	#2		
Tunnel	Temp.	Temp.	86,54	100,10	System 1	System 2		SQRT
Velocity	Meter 1	Meter 2	Proportional Rates		Vol.Std.	Vol.Std.		Delta-P
			PR1	PR2			Time	
Ft/Sec	Deg. R	Deg. R	%	%	(ft3)	(ft3)	min	(in H2O)2
13,787	540,0	540,4			0,170	0,166	0	0,2135858
13,903	540,0	540,5	86,90	100,35	0,170	0,166	1	0,2168845
14,416	540,0	540,5	83,53	96,80	0,170	0,166	2	0,2251475
14,378	540,1	540,5	83,82	96,87	0,170	0,166	3	0,2246973
14,312	540,1	540,5	84,20	97,51	0,171	0,166	4	0,2235708
14,564	540,1	540,5	83,35	96,66	0,171	0,166	5	0,2267208
14,288	540,1	540,5	85,99	99,71	0,170	0,166	6	0,2208259
13,789	540,2	540,6	90,46	104,55	0,170	0,166	7	0,2116766
14,049	540,2	540,6	89,58	103,34	0,170	0,166	8	0,2145327
13,991	540,2	540,6	90,70	104,53	0,170	0,165	9	0,2128718
13,811	540,3	540,6	91,12	105,41	0,170	0,166	10	0,2111162
14,199	540,3	540,6	87,25	101,09	0,170	0,166	11	0,2185141
14,392	540,3	540,7	85,17	99,03	0,170	0,166	12	0,2224273
13,872	540,3	540,7	88,53	102,55	0,170	0,166	13	0,2145332
13,711	540,3	540,7	89,19	103,47	0,170	0,166	14	0,2123937
13,950	540,4	540,8	87,40	101,33	0,170	0,166	15	0,2164156
14,080	540,4	540,8	86,91	100,09	0,171	0,166	16	0,2185157
14,327	540,4	540,8	84,93	98,45	0,170	0,166	17	0,2224269
14,355	540,4	540,8	84,74	98,00	0,170	0,166	18	0,2231111
14,557	540,4	540,9	83,29	96,88	0,170	0,166	19	0,2262724
14,526	540,4	540,9	83,65	96,93	0,170	0,166	20	0,2258237
14,586	540,4	540,9	83,25	96,40	0,170	0,166	21	0,2267201
14,412	540,4	540,9	84,16	97,66	0,170	0,166	22	0,2240186
13,619	540,5	540,9	89,20	103,08	0,170	0,166	23	0,2116776
13,621	540,4	540,9	89,28	103,33	0,170	0,166	24	0,211678
14,216	540,5	540,9	85,66	99,02	0,170	0,166	25	0,2208248
14,465	540,5	540,9	83,95	97,70	0,170	0,166	26	0,224699
14,039	540,5	540,9	86,75	100,57	0,170	0,166	27	0,2180507
14,123	540,5	540,9	86,07	100,18	0,170	0,166	28	0,2192133
13,833	540,5	541,0	88,13	102,32	0,170	0,166	29	0,2143269
13,903	540,6	541,0	88,15	101,79	0,170	0,166	30	0,2152413
13,820	540,6	541,0	88,90	102,72	0,170	0,166	31	0,2135853
13,944	540,6	541,0	88,51	102,24	0,170	0,166	32	0,2152406
14,424	540,6	541,0	85,66	99,20	0,170	0,166	33	0,2224277
14,487	540,6	541,1	85,53	99,18	0,170	0,166	34	0,2231118
13,872	540,6	541,1	89,16	103,24	0,170	0,166	35	0,2135856
13,827	540,6	541,1	89,62	103,60	0,170	0,166	36	0,2128717
13,827	540,7	541,1	89,48	103,53	0,170	0,166	37	0,2128717
13,797	540,7	541,2	89,76	103,89	0,170	0,166	38	0,212394
13,877	540,7	541,2	89,35	103,41	0,170	0,166	39	0,2135861
13,759	540,7	541,2	89,90	104,33	0,170	0,166	40	0,2116772
13,947	540,7	541,2	88,82	103,24	0,170	0,166	41	0,214534
14,332	540,7	541,2	86,37	100,44	0,170	0,166	42	0,2203655
14,070	540,7	541,3	88,03	102,00	0,170	0,166	43	0,2164206
13,934	540,8	541,3	89,33	103,32	0,170	0,166	44	0,2140628
14,515	540,8	541,3	85,57	98,78	0,170	0,166	45	0,2231114
14,389	540,8	541,3	86,29	99,57	0,170	0,165	46	0,2212841
13,896	540,8	541,4	89,30	103,51	0,170	0,166	47	0,2135858
14,514	540,9	541,4	85,57	99,11	0,170	0,166	48	0,2231122
14,368	540,9	541,4	86,36	100,15	0,170	0,166	49	0,2208267
14,444	540,9	541,4	85,85	99,55	0,170	0,166	50	0,2219721
13,780	540,9	541,4	90,37	104,40	0,170	0,166	51	0,2116772
14,447	540,9	541,4	86,07	99,46	0,170	0,166	52	0,2219729
14,231	541,0	541,5	87,72	101,13	0,170	0,166	53	0,2185162

14,629	541,0	541,5	84,84	98,21	0,170	0,166	54	0,2246974
13,869	541,0	541,5	89,71	104,08	0,170	0,166	55	0,2128722
13,793	541,0	541,6	90,04	104,81	0,170	0,166	56	0,2116709
13,688	541,1	541,6	90,99	105,22	0,170	0,166	57	0,2101369
14,107	541,1	541,6	88,68	102,14	0,170	0,166	58	0,2164151
13,918	541,1	541,6	89,39	103,38	0,170	0,166	59	0,2135861
13,921	541,1	541,7	89,56	103,71	0,170	0,166	60	0,213586
13,986	541,2	541,7	89,16	103,20	0,170	0,166	61	0,2145339
14,392	541,2	541,7	86,40	100,04	0,170	0,166	62	0,2208254
14,721	541,2	541,7	84,95	98,12	0,170	0,166	63	0,2258247
14,431	541,2	541,8	86,32	99,96	0,170	0,166	64	0,2212617
13,668	541,2	541,8	91,36	105,80	0,170	0,166	65	0,2095096
13,969	541,2	541,8	89,17	103,48	0,170	0,166	66	0,2140599
14,483	541,2	541,8	86,16	99,37	0,170	0,165	67	0,2220217
13,707	541,3	541,8	91,05	105,50	0,170	0,165	68	0,2099933
14,616	541,2	541,8	85,23	98,89	0,170	0,166	69	0,22402
14,120	541,2	541,8	88,34	102,56	0,170	0,166	70	0,216419
13,937	541,3	541,9	89,59	103,85	0,170	0,166	71	0,2135859
14,660	541,3	541,9	85,20	98,40	0,170	0,166	72	0,2246984
13,869	541,3	541,9	89,88	104,39	0,170	0,166	73	0,2124808
13,780	541,3	541,9	90,64	104,71	0,170	0,166	74	0,2111975
13,998	541,3	541,9	88,95	102,86	0,170	0,165	75	0,2145335
14,676	541,3	541,9	84,61	98,22	0,170	0,165	76	0,2251487
13,848	541,3	541,9	90,04	104,33	0,170	0,166	77	0,2123951
13,799	541,4	541,9	90,23	104,51	0,170	0,166	78	0,2116797
14,489	541,4	541,9	85,99	99,28	0,170	0,166	79	0,2224285
13,839	541,4	542,0	89,99	104,13	0,170	0,166	80	0,2123949
14,268	541,5	542,0	87,13	100,78	0,170	0,166	81	0,219212
14,121	541,4	542,0	87,89	101,76	0,170	0,166	82	0,2168847
14,440	541,5	542,0	85,94	99,28	0,170	0,165	83	0,2219727
14,273	541,5	542,1	86,96	100,67	0,170	0,165	84	0,219212
14,583	541,5	542,1	85,16	98,80	0,170	0,166	85	0,2240203
14,395	541,5	542,1	86,25	99,86	0,170	0,166	86	0,2212854
14,522	541,5	542,1	85,40	98,84	0,170	0,166	87	0,2231123
13,957	541,5	542,1	88,59	102,74	0,170	0,165	88	0,2145341
13,903	541,5	542,1	89,32	103,20	0,170	0,165	89	0,2135861
14,512	541,5	542,1	85,37	98,86	0,170	0,166	90	0,2231134
13,524	541,5	542,1	91,71	106,58	0,170	0,166	91	0,2078097
13,749	541,5	542,1	90,67	104,63	0,170	0,166	92	0,2111967
13,588	541,5	542,1	91,24	105,92	0,170	0,166	93	0,2087831
14,606	541,4	542,1	84,85	98,27	0,170	0,166	94	0,2246981
14,444	541,4	542,1	85,37	98,92	0,170	0,166	95	0,2224283
13,908	541,5	542,1	88,97	102,67	0,170	0,165	96	0,2140599
13,837	541,5	542,1	89,41	103,28	0,170	0,165	97	0,2128725
14,552	541,5	542,1	84,81	98,17	0,170	0,165	98	0,2240203
14,376	541,5	542,2	85,99	99,65	0,170	0,166	99	0,2212853
14,659	541,6	542,2	84,25	97,48	0,170	0,166	100	0,2258247
14,544	541,6	542,2	84,99	98,36	0,170	0,166	101	0,2240198
14,608	541,6	542,2	84,27	97,88	0,170	0,166	102	0,2251493
13,893	541,6	542,2	88,91	102,61	0,170	0,166	103	0,2140605
13,739	541,6	542,2	89,63	103,66	0,170	0,165	104	0,211678
13,969	541,6	542,2	88,10	102,33	0,169	0,165	105	0,2152112
13,812	541,6	542,3	89,36	103,21	0,170	0,166	106	0,2128723
14,292	541,6	542,3	86,22	99,94	0,170	0,166	107	0,2203376
14,284	541,6	542,3	86,34	99,83	0,170	0,166	108	0,2203643
14,057	541,6	542,2	87,63	101,32	0,170	0,166	109	0,2168847
13,761	541,7	542,3	89,48	103,52	0,170	0,166	110	0,2123951
13,871	541,6	542,2	88,59	102,50	0,170	0,166	111	0,2140598
13,949	541,7	542,3	88,27	101,84	0,170	0,165	112	0,2152415
14,627	541,7	542,3	83,94	97,10	0,170	0,165	113	0,225825
14,146	541,7	542,3	86,79	100,40	0,170	0,165	114	0,2185173

14,010	541,7	542,3	87,70	101,50	0,170	0,166	115	0,2164175
14,435	541,7	542,4	84,76	98,19	0,170	0,166	116	0,2230846
14,624	541,7	542,3	83,57	96,73	0,170	0,165	117	0,2262735
13,735	541,7	542,4	88,94	103,20	0,170	0,165	118	0,2123953
13,766	541,7	542,4	88,87	102,97	0,169	0,166	119	0,2128724
13,813	541,7	542,4	88,79	102,33	0,170	0,165	120	0,2135866
14,518	541,7	542,4	84,24	97,58	0,170	0,165	121	0,2246984
14,506	541,7	542,4	84,23	97,44	0,170	0,166	122	0,2246988
13,822	541,7	542,4	88,29	102,32	0,170	0,166	123	0,2140604
13,894	541,7	542,4	87,88	101,68	0,170	0,166	124	0,2152417
14,183	541,7	542,4	86,01	99,68	0,170	0,166	125	0,2196742
14,433	541,7	542,4	84,26	97,46	0,170	0,165	126	0,2237872
13,888	541,7	542,4	87,96	101,47	0,170	0,165	127	0,2152417
14,324	541,7	542,4	85,21	98,55	0,170	0,165	128	0,2219727
14,391	541,7	542,4	84,97	98,10	0,170	0,166	129	0,2231119
13,609	541,7	542,4	89,21	103,35	0,170	0,166	130	0,2111974
14,379	541,7	542,4	84,56	97,99	0,170	0,166	131	0,2231125
13,874	541,7	542,4	87,48	101,29	0,170	0,165	132	0,2152416
14,058	541,7	542,3	86,69	99,90	0,170	0,165	133	0,2180516
14,251	541,7	542,4	85,59	98,33	0,170	0,165	134	0,2212866
13,801	541,7	542,4	88,16	101,99	0,170	0,165	135	0,214061
13,794	541,7	542,3	88,26	102,31	0,170	0,166	136	0,2140602
14,341	541,7	542,3	84,97	98,29	0,170	0,166	137	0,2224285
14,510	541,7	542,3	83,72	97,15	0,170	0,166	138	0,2251523
14,495	541,6	542,3	83,46	96,68	0,169	0,165	139	0,2251502
14,075	541,6	542,3	86,39	99,54	0,170	0,165	140	0,2185186
13,792	541,6	542,3	88,17	101,64	0,170	0,165	141	0,2140608
13,708	541,7	542,3	88,89	102,64	0,170	0,165	142	0,212873
14,495	541,7	542,3	84,07	97,09	0,170	0,166	143	0,2251497
14,369	541,7	542,3	84,54	97,84	0,170	0,166	144	0,2231128
14,464	541,7	542,3	83,87	97,17	0,170	0,166	145	0,2246986
13,667	541,7	542,3	88,66	102,48	0,170	0,165	146	0,2122726
13,810	541,7	542,4	87,65	101,51	0,169	0,165	147	0,2145344
13,859	541,7	542,4	87,46	101,29	0,169	0,165	148	0,215242
14,365	541,7	542,4	84,54	97,52	0,170	0,165	149	0,2231161
13,779	541,7	542,4	88,20	101,92	0,170	0,165	150	0,214061
14,572	541,7	542,4	83,42	96,34	0,170	0,165	151	0,2262716
13,810	541,7	542,4	87,83	101,62	0,170	0,165	152	0,2145344
14,321	541,7	542,4	84,73	98,08	0,170	0,165	153	0,2224286
14,464	541,7	542,4	83,85	97,12	0,170	0,166	154	0,2246985
14,361	541,7	542,4	84,45	97,50	0,170	0,165	155	0,2231128
14,557	541,7	542,4	83,59	96,01	0,170	0,165	156	0,2262861
14,031	541,7	542,4	86,33	99,73	0,170	0,165	157	0,2180509
14,627	541,7	542,4	82,93	95,75	0,170	0,165	158	0,2273927
14,578	541,7	542,4	83,01	96,33	0,170	0,165	159	0,2265418
14,411	541,8	542,4	84,12	97,22	0,170	0,165	160	0,2240207
14,034	541,8	542,5	86,38	99,93	0,170	0,165	161	0,2180514
14,593	541,8	542,5	82,99	95,92	0,170	0,165	162	0,2267226
13,741	541,8	542,5	88,17	101,88	0,170	0,165	163	0,2135869
14,486	541,8	542,5	83,72	96,65	0,170	0,165	164	0,2251497
14,527	541,8	542,5	83,51	96,17	0,170	0,165	165	0,2258252
14,127	541,8	542,5	85,57	99,21	0,170	0,165	166	0,2196746
14,527	541,8	542,5	83,49	96,57	0,170	0,166	167	0,2258256
14,450	541,8	542,4	83,63	96,96	0,170	0,166	168	0,224699
14,407	541,8	542,4	83,82	96,95	0,169	0,165	169	0,2240208
14,509	541,8	542,4	83,46	96,20	0,170	0,165	170	0,2257192
13,744	541,8	542,4	88,21	102,01	0,170	0,165	171	0,2135868
13,798	541,8	542,4	87,96	101,44	0,170	0,165	172	0,2145348
13,763	541,8	542,4	88,05	101,59	0,170	0,165	173	0,2140607
13,793	541,7	542,4	87,89	101,54	0,170	0,165	174	0,2145349
13,724	541,7	542,4	88,03	101,87	0,170	0,165	175	0,2135867

14,400	541,8	542,4	84,10	97,12	0,170	0,165	176	0,2240207
14,124	541,8	542,4	85,65	99,04	0,170	0,165	177	0,2196744
13,762	541,8	542,4	87,97	101,49	0,170	0,165	178	0,2140609
13,779	541,8	542,4	87,79	101,31	0,170	0,165	179	0,2145346
13,644	541,8	542,4	88,49	102,42	0,170	0,165	180	0,2123959
13,788	541,8	542,4	87,48	101,51	0,169	0,165	181	0,2145352
13,775	541,7	542,4	87,69	101,55	0,170	0,166	182	0,2145348
14,073	541,7	542,3	85,70	99,32	0,170	0,166	183	0,2192121
14,463	541,6	542,3	83,60	96,41	0,170	0,165	184	0,2251495
14,530	541,7	542,3	83,25	96,11	0,170	0,165	185	0,2262734
14,580	541,7	542,3	82,64	95,43	0,170	0,165	186	0,2273921
13,738	541,7	542,3	87,87	101,53	0,170	0,165	187	0,2140602
14,456	541,7	542,4	83,48	96,49	0,170	0,165	188	0,2251496
14,450	541,7	542,4	83,52	96,59	0,170	0,165	189	0,2251497
13,740	541,7	542,4	87,79	101,47	0,170	0,165	190	0,2140608
14,279	541,7	542,4	84,57	97,61	0,170	0,165	191	0,2224284
14,524	541,7	542,3	82,89	96,07	0,170	0,165	192	0,2262739
13,766	541,6	542,3	87,54	101,00	0,170	0,165	193	0,2145362
13,746	541,6	542,3	87,80	101,10	0,170	0,165	194	0,2140605
13,631	541,6	542,3	88,51	102,00	0,170	0,165	195	0,2123948
13,793	541,5	542,2	87,37	101,02	0,170	0,165	196	0,2149972
14,373	541,5	542,2	83,86	97,00	0,170	0,165	197	0,2240205
14,235	541,5	542,2	84,97	97,67	0,170	0,165	198	0,2219722
13,759	541,5	542,2	87,49	101,10	0,170	0,165	199	0,2145344
14,515	541,5	542,2	83,14	95,79	0,170	0,165	200	0,2262737
14,449	541,5	542,2	83,33	96,39	0,170	0,165	201	0,2251491
14,419	541,5	542,2	83,71	96,49	0,170	0,165	202	0,2246991
13,879	541,5	542,2	86,77	100,65	0,170	0,165	203	0,2164179
14,160	541,4	542,1	84,94	98,30	0,170	0,166	204	0,2208262
13,806	541,4	542,1	86,91	100,32	0,170	0,165	205	0,215713
13,784	541,4	542,1	87,23	100,48	0,170	0,165	206	0,215242
14,538	541,3	542,1	82,98	95,54	0,170	0,165	207	0,2267218
13,823	541,3	542,0	86,91	100,53	0,170	0,165	208	0,2157113
13,822	541,3	542,0	87,14	100,49	0,170	0,165	209	0,2157133
14,121	541,3	542,0	85,04	98,43	0,170	0,165	210	0,2203667
14,361	541,3	542,0	83,63	96,87	0,170	0,165	211	0,2240205
14,266	541,3	542,0	84,46	97,38	0,170	0,165	212	0,2225903
14,357	541,3	542,0	83,83	96,69	0,170	0,165	213	0,2240204
14,472	541,3	542,0	83,33	95,78	0,170	0,165	214	0,225825
14,422	541,4	542,1	83,47	95,99	0,170	0,165	215	0,2251488
14,532	541,4	542,1	82,97	95,57	0,170	0,165	216	0,2267215
13,639	541,4	542,1	88,13	101,68	0,170	0,165	217	0,2128726
14,398	541,4	542,1	83,64	96,50	0,170	0,165	218	0,2246982
14,496	541,4	542,0	82,91	95,76	0,170	0,165	219	0,2262735
13,888	541,4	542,0	86,54	99,97	0,170	0,165	220	0,2168866
14,487	541,4	542,0	83,01	95,72	0,170	0,165	221	0,2262729
14,584	541,4	542,1	82,14	94,73	0,170	0,165	222	0,2278369
14,398	541,4	542,0	83,15	96,36	0,170	0,165	223	0,2251489
14,504	541,4	542,0	82,47	95,24	0,170	0,165	224	0,2267215
13,774	541,4	542,0	87,02	100,74	0,170	0,165	225	0,2152414
13,858	541,5	542,1	86,81	100,18	0,170	0,165	226	0,2164176
13,978	541,5	542,1	-86,01	-99,14	0,170	0,165	225	0,2182465

St-jean-sur-Richelieu, September 20th 2016
rev1 June 28th 2017
Client: Foyers Suprême inc
Project: PI-201301
Model: Ambiance Elegance 36 (24SF model number)

APPENDIX 4: Unit pre burn

Manufacturer: Foyers Suprême Inc.

Model: LASER-E

Date: 27-Oct-2016

RUN #:

Test Duration: 236

Burn rate: 1.373 dry kg/hr

Pollu rate: 2.405 gr/hr

Polluants: 5 mg

Delta Temp FB: #REF! degF

Pollution rate 1.399 gr/hr

non adjusted:

Time	Unit	Unit	Unit	Unit	Unit	DGM#1	Filter#1	DGM#2	Filt#2	Tunnel	Flue gas	Room	CO2	CO	O ²	Bimetal	Weight	Burn	FB		
[min]	top	bottom	back	LH side	RH side	In T	Out T	Temp	In T	Out T	Temp	Temp	Temp	Temp		Temp	Remaining	Rate	Temp		
0	263	258	228	356	323	87	86	#####	87	85	#####	102	212	86	2.89	1.29	#####	198	14.69	286	
2	242	242	223	351	319	86	87	#####	84	84	#####	112	232	82	1.10	0.44	#####	192	14.68	0.00	275
4	303	233	217	345	317	86	86	#####	85	84	#####	125	353	85	7.91	0.40	#####	192	14.32	0.36	283
6	475	244	220	343	315	86	85	#####	85	84	#####	147	521	89	11.05	0.35	9.29	225	13.88	0.44	319
8	563	252	229	341	314	85	84	#####	86	85	#####	153	558	93	10.25	0.97	9.71	270	13.42	0.46	340
10	608	263	237	340	316	85	83	#####	87	85	#####	153	585	93	11.75	1.10	8.19	300	12.98	0.44	353
12	587	282	242	342	317	85	84	#####	86	85	#####	150	583	94	11.90	1.22	8.08	308	12.60	0.38	354
14	595	297	248	346	318	85	83	#####	86	85	#####	150	594	96	14.48	1.08	5.80	317	12.20	0.40	361
16	621	290	254	349	323	84	82	#####	88	85	#####	145	558	94	12.68	0.78	7.39	336	11.80	0.40	367
18	604	283	260	355	325	84	82	#####	86	85	#####	142	539	93	12.31	0.92	7.83	338	11.50	0.30	365
20	599	305	263	360	328	84	83	#####	86	84	#####	141	532	92	11.99	0.94	8.18	337	11.14	0.36	371
22	593	281	266	362	330	84	83	#####	88	86	#####	140	528	87	12.89	0.86	7.43	337	10.84	0.30	366
24	604	309	269	367	332	85	83	#####	88	86	#####	141	542	94	13.79	0.66	6.81	339	10.50	0.34	376
26	634	299	272	373	335	84	82	#####	88	86	#####	143	559	95	14.54	0.55	6.16	348	10.19	0.31	382
28	661	297	276	377	336	84	82	#####	89	88	#####	143	565	89	13.98	0.42	6.70	363	9.80	0.39	389
30	652	294	277	384	340	84	83	#####	86	85	#####	143	556	95	13.32	0.51	7.34	366	9.51	0.30	390
32	658	307	278	387	342	84	83	#####	88	86	#####	145	572	98	14.84	0.45	5.98	368	9.19	0.32	394
34	689	292	283	391	348	84	82	#####	89	87	#####	147	584	95	15.55	0.31	5.29	380	8.87	0.32	401
36	695	294	288	398	353	84	83	#####	89	88	#####	147	592	90	15.43	0.32	5.39	389	8.53	0.34	406
38	701	301	294	403	359	85	84	#####	90	88	#####	148	601	89	16.02	0.46	4.69	394	8.19	0.34	412
40	714	306	300	409	363	85	83	#####	89	87	#####	149	608	94	16.41	0.55	4.23	401	7.82	0.37	418
42	722	310	306	418	368	85	84	#####	87	85	#####	151	616	93	16.38	0.57	4.24	404	7.53	0.29	425
44	725	300	313	422	374	85	85	#####	90	88	#####	150	618	90	16.07	0.46	4.58	409	7.18	0.35	427
46	721	302	320	430	378	85	84	#####	89	87	#####	150	611	93	15.73	0.37	4.94	411	6.88	0.30	430
48	722	309	326	437	383	85	84	#####	90	87	#####	150	603	96	15.79	0.39	4.89	409	6.57	0.31	435
50	718	309	331	444	390	85	82	#####	92	88	#####	151	598	96	15.53	0.33	5.09	409	6.27	0.30	438
52	707	310	336	450	394	85	83	#####	91	89	#####	150	587	97	14.90	0.27	5.62	407	6.01	0.26	439
54	697	303	341	457	401	85	85	#####	91	89	#####	148	575	91	14.66	0.23	5.92	404	5.71	0.30	440
56	688	294	345	462	404	85	83	#####	91	88	#####	148	566	96	14.42	0.18	6.14	400	5.47	0.25	439
58	679	322	350	468	412	86	85	#####	90	89	#####	147	555	96	14.07	0.13	6.42	398	5.26	0.20	446
60	665	319	352	475	417	86	85	#####	91	88	#####	145	541	96	13.57	0.09	6.89	393	4.99	0.27	445
62	652	324	353	480	422	86	86	85	89	87	#####	145	532	99	13.26	0.07	7.19	383	4.80	0.19	446
64	638	333	356	485	425	86	84	87	89	87	#####	144	526	97	12.93	0.06	7.49	377	4.60	0.20	447
66	626	341	359	490	427	86	84	88	90	89	#####	143	515	97	12.51	0.07	7.86	373	4.46	0.14	448
68	619	331	361	493	434	86	85	89	91	89	#####	142	504	97	12.33	0.07	8.08	370	4.26	0.20	447
70	614	343	361	498	439	87	86	90	90	88	#####	140	498	98	12.22	0.09	8.19	364	4.08	0.18	451
72	607	343	361	499	443	86	85	90	89	87	#####	140	494	99	12.09	0.10	8.31	361	3.92	0.16	450
74	599	335	361	500	443	86	84	91	92	90	#####	139	492	96	11.95	0.10	8.42	359	3.78	0.14	448
76	591	342	363	503	445	86	84	92	91	89	#####	138	484	95	11.71	0.10	8.57	357	3.62	0.16	449
78	580	341	364	505	449	86	85	93	91	89	#####	136	478	92	11.40	0.13	8.86	353	3.42	0.20	448
80	572	331	364	507	452	87	86	93	91	89	#####	135	468	93	11.31	0.13	8.98	349	3.32	0.10	445
82	563	346	363	509	455	87	86	93	90	87	#####	135	465	98	11.31	0.12	8.99	343	3.17	0.14	447
84	554	339	364	510	456	86	85	94	93	89	#####	135	460	96	11.13	0.15	9.15	338	3.01	0.16	444
86	549	349	363	512	458	86	87	95	89	87	#####	135	457	98	11.14	0.13	9.16	334	2.91	0.10	446
88	551	350	364	516	460	86	87	96	88	86	#####	134	452	96	11.29	0.09	9.03	331	2.77	0.14	448
90	563	343	364	519	463	86	86	97	88	86	#####	134	453	97	10.96	0.15	9.21	333	2.61	0.16	450
92	559	346	362	517	464	86	85	98	89	87	#####	134	450	99	9.87	0.30	#####	335	2.47	0.14	450
94	552	328	360	520	466	86	86	98	89	87	#####	132	444	99	9.29	0.51	#####	333	2.37	0.10	445
96	546	343	357	520	468	86	85	98	88	87	#####	132	434	98	9.14	0.61	#####	333	2.26	0.11	447
98	537	322	357	520	469	86	86	98	91	89	#####	130	426	91	9.15	0.68	#####	334	2.21	0.05	441
100	524	344	353	515	466	86	85	98	91	89	#####	129	416	92	8.52	0.88	#####	330	2.11	0.10	441
102	515	354	349	515	468	86	86	98	89	87	#####	128	406	99	8.76	0.90	#####	323	2.07	0.04	440
104	505	372	347	512	466	86	85	98	89	87	#####	128	398	99	8.78	0.95	#####	317	1.97	0.10	440
106	496	362	345	511	465	86	85	99	91	89	#####	127	392	91	8.61	1.04	#####	314	1.91	0.06	436

Manufacturer: Foyers Suprême Inc.

Model: LASER-E

Date: 27-Oct-2016

RUN #:

Test Duration: 356

Burn rate: 0.921 dry kg/hr

Pollu rate: 2.317 gr/hr

Polluants: 7 mg

Delta Temp FB: #REF! degF

Pollution rate 1.338 gr/hr

non adjusted:

Time	Unit	Unit	Unit	Unit	Unit	DGM#1	Filter#1	DGM#2	Filt#2	Tunnel	Flue gas	Room	CO2	CO	O ²	Bimetal	Weight	Burn	FB
[min]	top	bottom	back	LH side	RH side	In T	Out T	In T	Out T	Temp	Temp	Temp	Temp			Temp	Remaining	Rate	Temp
0	277	252	231	372	321	206	88	87	#####	87	88	#####	111	245	90.98	2.21	1.77	16	291
2	251	234	227	367	317	198	87	87	#####	87	88	#####	128	248	89.72	1.15	0.51	19	279
4	275	241	222	361	313	193	87	87	#####	86	87	#####	138	314	90.01	5.71	0.45	14	282
6	356	214	222	355	308	203	87	87	#####	86	88	#####	157	412	90.39	8.19	0.37	12	291
8	527	258	226	351	306	239	87	86	#####	87	89	#####	178	532	91.19	9.49	0.40	10	334
10	539	273	230	347	305	267	87	86	#####	87	88	#####	169	526	90.83	7.81	0.60	12	339
12	<u>609</u>	<u>286</u>	<u>234</u>	<u>346</u>	<u>305</u>	<u>287</u>	<u>87</u>	<u>86</u>	<u>#####</u>	<u>87</u>	<u>88</u>	<u>#####</u>	<u>181</u>	<u>605</u>	<u>91.68</u>	<u>12.80</u>	<u>0.87</u>	<u>7</u>	<u>356</u>
14	624	299	239	346	305	308	87	86	#####	87	88	#####	172	588	92.19	10.20	0.83	10	363
16	610	314	243	348	306	318	87	86	#####	86	88	#####	169	584	92.87	11.02	1.02	9	364
18	616	299	247	350	307	326	86	85	#####	87	88	#####	166	582	92.28	11.74	0.96	8	364
20	606	312	251	352	311	332	86	85	#####	87	88	#####	159	562	93.85	12.22	0.87	8	366
22	601	309	254	353	313	334	86	85	#####	88	89	#####	156	551	94.70	11.61	0.89	8	366
24	<u>585</u>	<u>293</u>	<u>257</u>	<u>356</u>	<u>314</u>	<u>331</u>	<u>87</u>	<u>86</u>	<u>#####</u>	<u>87</u>	<u>89</u>	<u>#####</u>	<u>154</u>	<u>535</u>	<u>93.62</u>	<u>10.63</u>	<u>1.01</u>	<u>9</u>	<u>361</u>
26	580	286	259	358	315	326	87	86	#####	87	88	#####	153	528	92.62	11.32	0.92	9	359
28	592	303	260	360	318	325	86	86	#####	87	89	#####	153	533	93.51	12.52	0.86	8	366
30	631	311	262	362	318	335	87	86	#####	88	89	#####	155	550	94.10	13.56	0.62	7	377
32	671	313	265	366	322	353	87	86	#####	86	88	#####	154	557	92.63	13.45	0.29	7	387
34	655	311	268	369	326	362	87	86	#####	87	88	#####	151	541	93.36	12.24	0.69	8	386
36	<u>626</u>	<u>279</u>	<u>270</u>	<u>372</u>	<u>327</u>	<u>356</u>	<u>86</u>	<u>86</u>	<u>#####</u>	<u>86</u>	<u>88</u>	<u>#####</u>	<u>150</u>	<u>533</u>	<u>93.88</u>	<u>12.93</u>	<u>0.82</u>	<u>7</u>	<u>375</u>
38	637	280	272	375	329	354	86	86	#####	86	88	#####	150	536	93.85	13.82	0.64	7	379
40	650	310	275	378	332	360	86	86	#####	87	88	#####	150	539	93.80	13.92	0.66	6	389
42	649	274	279	381	334	361	86	86	#####	86	88	#####	150	541	94.03	14.00	0.67	6	383
44	646	297	282	385	336	362	86	85	#####	86	88	#####	150	544	93.93	14.26	0.59	6	389
46	666	254	287	389	341	366	86	85	#####	86	88	#####	150	549	92.29	14.82	0.64	6	387
48	<u>658</u>	<u>315</u>	<u>289</u>	<u>393</u>	<u>344</u>	<u>369</u>	<u>86</u>	<u>85</u>	<u>#####</u>	<u>88</u>	<u>89</u>	<u>#####</u>	<u>151</u>	<u>551</u>	<u>95.10</u>	<u>14.41</u>	<u>0.35</u>	<u>6</u>	<u>400</u>
50	650	311	292	398	349	369	86	85	#####	88	89	#####	150	547	95.70	13.48	0.48	7	400
52	638	307	294	402	350	367	86	85	#####	87	88	#####	148	537	94.66	13.08	0.54	7	398
54	628	294	295	406	354	362	86	85	#####	87	88	#####	148	530	94.56	13.20	0.50	7	395
56	622	283	297	411	355	359	86	85	#####	87	88	#####	148	529	94.49	14.11	0.55	6	394
58	625	307	299	412	359	356	85	85	#####	87	88	#####	149	534	94.17	14.93	0.57	6	400
60	<u>642</u>	<u>282</u>	<u>303</u>	<u>420</u>	<u>362</u>	<u>361</u>	<u>85</u>	<u>85</u>	<u>#####</u>	<u>87</u>	<u>88</u>	<u>#####</u>	<u>149</u>	<u>542</u>	<u>94.84</u>	<u>15.01</u>	<u>0.67</u>	<u>5</u>	<u>402</u>
62	648	304	307	424	367	365	85	85	86	87	88	#####	149	545	95.25	14.98	0.53	5	410
64	651	276	312	431	371	368	85	85	87	86	88	#####	149	545	93.64	14.87	0.54	5	408
66	651	285	315	435	376	369	85	85	88	86	88	#####	148	542	94.28	14.56	0.54	6	412
68	641	328	318	438	378	368	85	85	90	88	89	#####	148	538	95.54	14.33	0.42	6	420
70	637	314	323	443	382	367	85	85	91	87	88	#####	147	531	94.16	14.21	0.37	6	420
72	<u>629</u>	<u>298</u>	<u>326</u>	<u>447</u>	<u>386</u>	<u>363</u>	<u>85</u>	<u>85</u>	<u>92</u>	<u>87</u>	<u>88</u>	<u>#####</u>	<u>146</u>	<u>524</u>	<u>93.59</u>	<u>13.85</u>	<u>0.31</u>	<u>6</u>	<u>417</u>
74	622	311	329	449	389	360	85	85	93	87	88	#####	146	517	96.30	13.52	0.33	7	420
76	615	305	331	453	392	358	85	85	93	87	89	#####	145	511	96.34	13.31	0.29	7	419
78	611	335	333	455	396	356	85	85	94	87	88	#####	144	506	94.97	13.35	0.29	7	426
80	600	339	335	455	397	353	85	85	94	87	88	#####	143	501	95.34	13.16	0.26	7	425
82	602	305	338	460	401	352	85	85	94	87	88	#####	142	495	93.64	13.26	0.27	7	421
84	600	307	339	463	404	350	85	85	95	87	88	#####	142	490	93.77	13.02	0.25	7	423
86	593	304	341	466	407	348	85	85	95	87	88	#####	141	485	95.62	13.02	0.24	7	422
88	589	319	343	468	409	346	85	85	95	87	89	#####	140	481	94.93	12.98	0.23	7	426
90	590	331	344	471	411	345	85	85	95	87	89	#####	140	478	94.35	13.12	0.20	7	429
92	592	338	345	472	414	346	86	85	95	88	89	#####	140	477	95.24	13.08	0.18	7	432
94	589	316	347	475	416	347	86	85	95	87	89	#####	139	474	94.59	12.58	0.21	7	429
96	582	320	349	479	418	345	86	85	94	87	89	#####	137	467	94.06	12.13	0.19	8	430
98	575	332	349	478	421	343	86	86	95	88	89	#####	137	462	94.55	12.18	0.19	8	431
100	565	344	349	478	422	339	86	85	95	89	90	#####	137	457	95.22	11.91	0.19	8	432
102	562	325	350	481	424	336	86	86	95	88	89	#####	136	452	94.40	11.77	0.17	8	429
104	556	350	349	480	426	333	86	86	95	88	89	#####	135	447	94.51	11.67	0.16	8	432
106	557	319	350	485	427	332	86	86	95	87	89	#####	134	443	94.80	11.39	0.25	8	428

Manufacturer: Foyers Suprême Inc.

Model: LASER-E

Date: 27-Oct-2016

RUN #:

Test Duration: 150

Burn rate: 2.323 dry kg/hr

Pollu rate: 3.065 gr/hr

Polluants: 4 mg

Delta Temp FB: #REF! degF

Pollution rate 1.874 gr/hr

non adjusted:

Time	Unit	Unit	Unit	Unit	Unit	DGM#1	Filter#1	DGM#2	Filt#2	Tunnel	Flue gas	Room	CO2	CO	O ²	Bimetal	Weight	Burn	FB
[min]	top	bottom	back	LH side	RH side	In T	Out T	In T	Out T	Temp	Temp	Temp	Temp			Temp	Remaining	Rate	Temp
0	377	390	272	446	407	245	86	85	83	84	86	####	135	369	93.20	3.09	1.02	16	378
2	332	374	268	440	400	233	86	85	84	83	85	####	140	324	92.81	1.19	0.47	19	363
4	336	381	263	431	393	224	85	85	86	85	87	####	140	346	91.76	5.78	0.45	14	361
6	371	379	261	422	385	226	85	85	87	83	85	####	144	381	92.45	7.92	0.35	12	363
8	501	368	263	415	378	250	85	85	88	83	86	####	155	465	92.75	11.01	0.66	9	385
10	590	373	267	410	373	291	85	84	90	84	86	####	154	477	94.00	8.19	0.81	12	403
12	<u>556</u>	<u>370</u>	<u>270</u>	<u>408</u>	<u>369</u>	<u>296</u>	<u>84</u>	<u>84</u>	<u>91</u>	<u>83</u>	<u>84</u>	<u>####</u>	<u>154</u>	<u>471</u>	<u>93.19</u>	<u>8.26</u>	<u>0.75</u>	<u>12</u>	<u>395</u>
14	622	385	274	402	366	310	84	84	92	84	86	####	160	516	90.88	11.06	0.63	9	410
16	669	383	276	398	364	328	84	83	92	83	85	####	166	561	94.23	11.40	0.58	9	418
18	714	389	279	398	361	348	84	83	92	84	86	####	172	605	94.73	12.31	0.50	8	428
20	745	387	283	397	361	365	83	82	93	85	86	####	176	640	94.96	12.85	0.41	8	435
22	762	397	286	399	362	377	83	82	92	84	85	####	180	664	96.11	13.00	0.38	8	441
24	<u>776</u>	<u>405</u>	<u>291</u>	<u>401</u>	<u>363</u>	<u>386</u>	<u>83</u>	<u>82</u>	<u>93</u>	<u>85</u>	<u>86</u>	<u>####</u>	<u>185</u>	<u>686</u>	<u>96.81</u>	<u>13.49</u>	<u>0.35</u>	<u>7</u>	<u>447</u>
26	789	369	295	407	366	393	83	83	93	83	84	####	187	701	95.75	13.59	0.29	7	445
28	799	417	300	410	368	401	83	82	93	84	86	####	190	717	97.90	14.04	0.25	7	459
30	805	406	305	415	372	406	83	82	94	83	85	####	192	710	97.43	14.06	0.20	7	461
32	801	412	312	418	375	412	83	81	95	87	91	####	193	721	93.70	13.68	0.20	7	464
34	779	419	318	424	378	411	83	82	95	88	91	####	192	709	96.91	13.36	0.23	7	464
36	<u>771</u>	<u>409</u>	<u>324</u>	<u>429</u>	<u>381</u>	<u>408</u>	<u>83</u>	<u>81</u>	<u>96</u>	<u>86</u>	<u>90</u>	<u>####</u>	<u>192</u>	<u>699</u>	<u>96.92</u>	<u>13.40</u>	<u>0.33</u>	<u>7</u>	<u>463</u>
38	767	428	330	436	384	407	84	83	97	87	92	####	192	699	94.65	13.72	0.30	7	469
40	771	417	336	442	390	408	85	83	97	87	91	####	191	697	96.67	13.33	0.25	7	471
42	759	451	341	447	394	407	85	85	97	85	86	####	190	689	99.08	12.98	0.22	8	478
44	746	449	347	452	398	405	85	84	98	86	89	####	188	674	99.52	12.44	0.15	8	478
46	732	438	352	458	401	402	85	84	98	87	93	####	187	663	97.05	12.37	0.14	8	476
48	<u>721</u>	<u>448</u>	<u>359</u>	<u>464</u>	<u>404</u>	<u>401</u>	<u>86</u>	<u>84</u>	<u>98</u>	<u>89</u>	<u>92</u>	<u>####</u>	<u>184</u>	<u>651</u>	<u>97.88</u>	<u>12.23</u>	<u>0.12</u>	<u>8</u>	<u>479</u>
50	722	432	361	469	413	397	86	86	98	86	88	####	183	643	99.59	11.96	0.11	9	479
52	711	439	366	474	415	394	86	85	99	89	90	####	181	636	99.73	11.63	0.12	9	481
54	696	459	370	478	419	389	86	84	98	87	90	####	180	627	####	11.58	0.09	9	484
56	687	459	375	481	423	386	86	85	99	88	92	####	179	618	97.56	11.35	0.08	9	485
58	675	465	379	486	425	383	86	85	99	90	92	####	176	607	97.43	11.21	0.07	9	486
60	<u>668</u>	<u>482</u>	<u>384</u>	<u>492</u>	<u>432</u>	<u>378</u>	<u>87</u>	<u>86</u>	<u>99</u>	<u>88</u>	<u>92</u>	<u>####</u>	<u>175</u>	<u>600</u>	<u>96.66</u>	<u>11.08</u>	<u>0.06</u>	<u>9</u>	<u>491</u>
62	662	476	385	499	434	373	87	87	####	86	89	####	173	484	####	10.88	0.06	9	491
64	650	494	387	503	439	366	87	87	####	86	89	####	173	466	99.48	10.61	0.05	10	494
66	639	480	389	508	442	361	87	87	####	86	89	####	170	442	####	10.49	0.05	10	492
68	627	496	391	514	446	356	87	87	####	85	87	####	170	439	98.04	10.24	0.04	10	495
70	620	458	394	520	453	352	86	86	####	85	87	####	168	428	98.55	9.79	0.05	10	489
72	<u>609</u>	<u>482</u>	<u>394</u>	<u>525</u>	<u>457</u>	<u>348</u>	<u>86</u>	<u>86</u>	<u>####</u>	<u>86</u>	<u>88</u>	<u>####</u>	<u>167</u>	<u>430</u>	<u>99.67</u>	<u>9.49</u>	<u>0.06</u>	<u>11</u>	<u>493</u>
74	598	494	395	528	461	344	86	85	####	85	88	####	165	417	99.60	9.42	0.07	11	495
76	590	482	397	530	467	341	86	84	####	87	89	####	165	403	99.79	9.31	0.09	11	493
78	589	495	398	535	470	339	85	84	####	86	88	####	164	397	####	9.26	0.09	11	497
80	589	484	399	538	474	340	86	85	####	91	94	####	163	434	97.01	9.35	0.10	11	497
82	596	489	400	542	476	342	87	87	####	90	93	####	162	503	96.93	9.59	0.07	11	501
84	600	506	401	543	480	344	87	86	####	91	95	####	161	503	98.79	9.67	0.09	11	506
86	587	510	402	549	484	345	87	86	####	92	96	####	160	495	95.35	9.10	0.09	11	506
88	576	537	403	556	488	342	88	88	####	89	92	####	158	488	97.02	8.73	0.15	11	512
90	566	555	400	559	492	336	88	89	####	87	90	####	157	482	98.89	8.78	0.17	11	514
92	561	569	401	557	496	335	88	88	####	89	91	####	156	483	97.42	8.11	0.18	12	517
94	561	599	398	561	502	332	88	88	####	88	91	####	156	480	99.48	7.96	0.22	12	524
96	554	607	396	561	505	332	88	88	####	91	95	####	153	476	94.30	7.43	0.30	12	525
98	537	604	394	562	507	328	88	87	####	90	94	####	150	462	95.98	6.69	0.47	13	521
100	523	631	391	560	511	323	88	88	####	92	94	####	147	450	96.29	6.88	0.44	13	523
102	512	638	389	557	510	318	88	88	####	91	94	####	146	444	95.99	6.85	0.48	13	521
104	500	633	387	556	513	312	88	89	####	93	96	####	145	434	96.68	6.40	0.49	13	518
106	490	668	384	553	513	305	89	89	####	89	93	####	144	425	94.39	6.30	0.47	13	522

Manufacturer: Foyers Suprême Inc.

Model: LASER-E

Date: 27-Oct-2016

RUN #:

Test Duration: 280

Burn rate: 1.183 dry kg/hr

Pollu rate: 1.451 gr/hr

Polluants: 3 mg

Delta Temp FB: #REF! degF

Pollution rate 0.761 gr/hr

non adjusted:

Time	Unit	Unit	Unit	Unit	Unit	DGM#1	Filter#1	DGM#2	Filt#2	Tunnel	Flue gas	Room	CO2	CO	O ²	Bimetal	Weight	Burn	FB		
[min]	top	bottom	back	LH side	RH side	In T	Out T	Temp	In T	Out T	Temp	Temp	Temp	Temp		Temp	Remaining	Rate	Temp		
0	264	254	228	364	318	196	85	85	82	83	84	####	86	213	84.88	2.28	1.32	17	15.00	285	
2	243	242	225	359	313	190	84	85	82	83	83	####	86	211	82.90	1.11	0.41	19	14.94	0.06	276
4	304	227	220	352	310	191	84	85	83	83	83	####	86	286	82.69	6.81	0.26	14	14.64	0.30	283
6	495	236	224	348	308	220	84	84	84	84	84	####	89	413	85.19	10.70	0.37	10	14.14	0.50	322
8	589	242	229	348	304	261	84	83	86	85	86	####	92	462	88.41	9.66	0.69	11	13.64	0.50	342
10	641	260	236	348	304	294	84	82	87	84	86	####	93	488	88.40	10.47	0.96	10	13.20	0.44	358
12	661	264	240	350	304	314	84	82	87	86	88	####	93	506	89.14	11.36	0.96	9	12.76	0.44	364
14	682	264	245	353	308	332	84	83	87	84	87	####	94	526	88.18	12.40	0.78	8	12.35	0.40	370
16	673	278	251	356	311	344	84	84	88	85	87	####	94	528	89.08	12.97	0.84	7	11.91	0.44	374
18	653	284	256	359	315	348	84	84	88	85	86	####	94	524	88.41	13.02	0.59	7	11.55	0.36	373
20	650	272	261	365	318	347	85	82	89	86	87	####	95	519	91.71	12.96	0.43	8	11.15	0.40	373
22	658	290	267	372	321	350	85	83	89	87	89	####	96	522	90.83	13.46	0.38	7	10.81	0.34	382
24	678	294	273	375	325	356	85	84	89	87	90	####	97	520	90.72	13.34	0.46	7	10.45	0.36	389
26	702	291	278	380	330	367	86	85	89	87	89	####	96	521	90.56	13.66	0.58	7	10.10	0.34	396
28	715	287	283	383	336	376	86	85	90	87	89	####	97	522	91.07	13.92	0.54	7	9.74	0.36	401
30	694	272	287	387	340	378	86	85	90	88	90	####	96	522	91.94	13.86	0.40	7	9.44	0.30	396
32	682	293	292	392	343	376	86	85	90	87	90	####	97	526	89.33	14.49	0.41	6	9.10	0.34	400
34	701	297	297	398	349	379	86	85	91	88	91	####	96	536	91.89	14.91	0.51	6	8.79	0.30	408
36	714	301	302	404	353	385	87	85	91	88	90	####	99	540	92.11	14.98	0.50	6	8.41	0.38	415
38	726	287	308	409	358	391	87	86	91	88	90	####	97	545	91.75	14.86	0.51	6	8.11	0.30	418
40	730	293	313	414	364	395	87	85	92	87	88	####	98	544	94.05	14.54	0.32	6	7.81	0.30	423
42	727	291	317	421	367	397	87	85	92	86	87	####	98	545	94.48	14.37	0.29	6	7.51	0.30	425
44	725	299	322	426	374	396	87	86	93	88	91	####	99	543	93.72	15.04	0.32	6	7.21	0.30	429
46	737	288	327	431	379	401	88	88	93	88	90	####	96	546	90.55	15.33	0.40	5	6.85	0.36	432
48	747	292	332	435	383	408	88	87	93	88	90	####	97	547	91.26	15.10	0.29	6	6.54	0.30	438
50	749	292	336	442	390	408	88	87	93	89	91	####	98	544	94.01	14.98	0.23	6	6.24	0.30	442
52	744	290	340	449	395	408	88	87	94	89	91	####	98	540	92.86	14.84	0.20	6	5.94	0.30	444
54	738	290	344	455	400	408	88	88	94	88	90	####	97	535	91.70	14.69	0.19	6	5.70	0.24	445
56	730	288	348	461	406	407	88	88	93	88	90	####	96	531	93.00	14.42	0.16	6	5.44	0.26	447
58	722	293	351	465	410	403	88	87	94	89	92	####	97	524	93.46	14.21	0.15	6	5.13	0.30	448
60	714	286	355	473	417	399	88	87	94	90	92	####	98	517	93.94	13.76	0.12	7	4.93	0.20	449
62	706	289	358	478	423	394	88	87	#####	91	93	####	98	510	94.10	13.58	0.09	7	4.69	0.24	451
64	695	298	361	484	428	390	89	88	#####	90	92	####	99	501	93.66	13.12	0.08	7	4.49	0.20	453
66	671	301	364	487	431	385	89	88	#####	89	91	####	98	491	92.22	12.37	0.07	8	4.29	0.20	451
68	646	290	367	491	435	375	89	88	#####	91	93	####	97	479	94.16	11.74	0.06	9	4.15	0.14	446
70	625	308	368	497	441	364	89	87	#####	88	91	####	98	468	94.40	11.30	0.05	9	3.95	0.20	448
72	601	304	370	498	441	355	89	88	#####	89	92	####	98	458	92.68	10.88	0.09	9	3.81	0.14	443
74	593	313	370	501	446	347	89	87	#####	87	87	####	98	447	94.70	10.70	0.14	10	3.65	0.16	445
76	580	291	371	503	448	342	89	88	#####	90	92	####	97	439	93.56	10.60	0.16	10	3.51	0.14	439
78	575	295	375	506	449	336	89	88	#####	87	87	####	98	432	94.49	10.39	0.20	10	3.41	0.10	440
80	563	297	385	503	449	335	89	90	#####	88	89	####	96	425	94.33	10.25	0.22	10	3.25	0.16	439
82	556	305	388	504	450	332	89	90	#####	89	91	####	95	420	92.93	10.28	0.25	10	3.14	0.10	441
84	549	294	387	505	449	331	89	89	#####	88	89	####	94	416	90.66	10.33	0.23	10	3.00	0.14	437
86	550	302	385	505	450	329	88	89	#####	88	89	####	94	415	91.47	10.86	0.17	9	2.84	0.16	438
88	553	302	384	509	451	328	88	88	#####	89	91	####	94	414	93.35	10.83	0.15	9	2.70	0.14	440
90	556	289	383	509	453	329	88	88	#####	88	91	####	95	410	92.63	10.24	0.25	10	2.60	0.10	438
92	546	294	382	509	454	328	88	88	#####	88	91	####	95	405	93.05	10.02	0.32	10	2.44	0.16	437
94	533	296	381	511	453	323	88	88	#####	89	91	####	96	401	93.18	9.52	0.39	10	2.40	0.04	435
96	524	315	380	514	456	317	88	87	#####	89	91	####	96	392	93.11	8.85	0.62	11	2.30	0.10	438
98	515	305	378	514	454	316	88	88	#####	88	90	####	94	382	91.82	8.28	0.84	11	2.20	0.10	433
100	499	318	375	514	453	312	88	89	#####	88	90	####	93	374	91.42	7.84	1.04	11	2.14	0.06	432
102	486	318	371	512	454	306	88	88	#####	88	90	####	93	365	89.25	7.48	1.26	12	2.04	0.10	428
104	475	318	367	511	455	300	88	87	#####	89	91	####	93	356	92.91	7.50	1.25	12	2.00	0.04	425
106	468	324	364	509	454	295	88	87	#####	89	91	####	94	348	92.88	7.34	1.30	12	1.94	0.06	424

Manufacturer: Foyers Suprême Inc.

Model: LASER-E

Date: 27-Oct-2016

RUN #:

Test Duration: 376

Burn rate: 0.920 dry kg/hr

Pollu rate: 1.628 gr/hr

Polluants: 4 mg

Delta Temp FB: #REF! degF

Pollution rate 0.874 gr/hr

non adjusted:

Time	Unit	Unit	Unit	Unit	Unit	DGM#1	Filter#1	DGM#2	Filt#2	Tunnel	Flue gas	Room	CO2	CO	O ²	Bimetal	Weight	Burn	FB
[min]	top	bottom	back	LH side	RH side	In T	Out T	In T	Out T	Temp	Temp	Temp	Temp			Temp	Remaining	Rate	Temp
0	263	225	219	342	293	197	83	83	#####	79	80	#####	89	191	84.77	2.24	1.47	17	268
2	234	229	214	337	290	189	82	82	#####	81	82	#####	95	192	85.09	0.66	0.36	20	261
4	241	221	208	329	287	179	82	81	#####	81	82	#####	96	225	83.33	4.96	0.43	16	257
6	327	220	207	324	285	185	82	81	#####	80	81	#####	96	307	84.65	7.67	0.32	13	273
8	524	210	213	321	282	219	82	81	#####	80	82	#####	103	421	85.09	10.65	0.34	10	310
10	655	245	219	322	282	269	81	80	#####	80	81	#####	102	496	86.78	10.72	0.91	10	345
12	<u>679</u>	<u>226</u>	<u>227</u>	<u>325</u>	<u>282</u>	<u>300</u>	<u>81</u>	<u>80</u>	<u>#####</u>	<u>80</u>	<u>81</u>	<u>#####</u>	<u>106</u>	<u>511</u>	<u>85.69</u>	<u>10.56</u>	<u>1.15</u>	<u>10</u>	<u>348</u>
14	710	252	233	326	285	322	81	80	#####	79	80	#####	107	557	86.06	11.75	1.22	9	361
16	718	273	240	329	288	337	80	79	#####	80	81	#####	110	573	88.78	12.55	0.93	8	370
18	725	294	248	333	290	349	80	78	#####	81	82	#####	109	581	90.68	13.94	0.80	7	378
20	731	283	256	338	295	361	80	77	#####	82	84	#####	110	589	90.90	14.54	0.67	6	380
22	743	284	265	345	300	374	80	79	#####	80	81	#####	109	576	89.60	15.10	0.96	6	387
24	<u>696</u>	<u>264</u>	<u>271</u>	<u>352</u>	<u>304</u>	<u>377</u>	<u>80</u>	<u>79</u>	<u>#####</u>	<u>80</u>	<u>81</u>	<u>#####</u>	<u>105</u>	<u>525</u>	<u>87.48</u>	<u>10.86</u>	<u>0.93</u>	<u>9</u>	<u>377</u>
26	624	289	273	355	306	358	80	79	#####	80	81	#####	105	489	89.21	10.93	1.18	9	369
28	591	275	275	359	306	337	80	79	#####	80	81	#####	103	469	90.05	12.05	1.23	8	361
30	598	286	276	362	306	331	80	78	#####	81	82	#####	105	461	90.71	13.19	1.16	7	365
32	613	277	278	366	307	335	80	78	#####	82	83	#####	104	457	89.72	13.53	1.13	7	368
34	613	267	282	373	308	338	80	78	#####	80	81	#####	106	457	90.57	13.87	1.41	6	369
36	<u>616</u>	<u>278</u>	<u>285</u>	<u>379</u>	<u>310</u>	<u>341</u>	<u>80</u>	<u>78</u>	<u>#####</u>	<u>81</u>	<u>83</u>	<u>#####</u>	<u>104</u>	<u>457</u>	<u>91.02</u>	<u>14.07</u>	<u>1.51</u>	<u>6</u>	<u>374</u>
38	618	274	289	386	312	345	80	78	#####	81	82	#####	109	455	91.41	14.09	1.43	6	376
40	628	272	293	393	316	349	80	78	#####	80	81	#####	105	457	90.49	14.41	1.15	6	381
42	648	282	296	398	319	354	80	78	#####	82	84	#####	108	460	91.18	14.90	0.89	6	389
44	676	276	301	402	323	363	79	78	#####	82	84	#####	108	467	91.21	15.65	0.73	5	396
46	693	263	305	409	328	371	80	79	#####	81	82	#####	106	472	90.67	15.64	0.61	5	399
48	<u>703</u>	<u>279</u>	<u>308</u>	<u>415</u>	<u>332</u>	<u>379</u>	<u>79</u>	<u>78</u>	<u>#####</u>	<u>81</u>	<u>82</u>	<u>#####</u>	<u>110</u>	<u>475</u>	<u>91.77</u>	<u>15.43</u>	<u>0.52</u>	<u>5</u>	<u>408</u>
50	704	260	310	419	336	383	79	77	#####	82	84	#####	109	477	92.56	15.35	0.49	6	406
52	709	271	313	423	341	386	79	77	#####	83	85	#####	111	477	91.50	15.42	0.43	6	411
54	711	270	315	428	345	388	79	77	#####	83	85	#####	109	476	93.69	15.36	0.41	6	414
56	712	268	319	433	350	389	79	76	#####	84	86	#####	111	475	91.42	15.24	0.40	6	416
58	711	252	322	440	354	389	80	79	#####	81	82	#####	112	471	90.92	15.07	0.43	6	416
60	<u>710</u>	<u>267</u>	<u>323</u>	<u>447</u>	<u>357</u>	<u>389</u>	<u>80</u>	<u>79</u>	<u>#####</u>	<u>82</u>	<u>83</u>	<u>#####</u>	<u>112</u>	<u>468</u>	<u>93.13</u>	<u>15.01</u>	<u>0.39</u>	<u>6</u>	<u>421</u>
62	707	259	326	451	363	388	80	79	81	81	82	#####	108	464	91.20	14.57	0.37	6	421
64	695	263	329	452	365	387	80	79	82	83	85	#####	109	459	90.91	13.84	0.39	7	421
66	690	263	331	455	369	385	80	78	83	83	85	#####	110	454	93.78	13.61	0.37	7	421
68	685	241	333	459	372	382	80	80	84	81	82	#####	110	446	89.83	13.19	0.39	7	418
70	672	273	335	457	374	380	80	78	85	83	86	#####	113	440	91.03	13.04	0.30	7	422
72	<u>666</u>	<u>266</u>	<u>337</u>	<u>459</u>	<u>378</u>	<u>378</u>	<u>80</u>	<u>79</u>	<u>86</u>	<u>82</u>	<u>84</u>	<u>#####</u>	<u>112</u>	<u>433</u>	<u>92.87</u>	<u>13.00</u>	<u>0.29</u>	<u>7</u>	<u>421</u>
74	650	278	338	461	381	374	80	79	86	82	83	#####	113	427	92.60	12.77	0.17	8	422
76	638	267	338	464	385	368	80	79	87	82	83	#####	110	420	93.15	12.28	0.21	8	418
78	623	273	339	466	389	362	80	79	87	82	84	#####	110	412	92.22	12.23	0.18	8	418
80	612	264	348	467	389	356	80	79	87	82	84	#####	111	406	93.11	12.17	0.19	8	416
82	603	275	353	467	390	352	80	79	88	83	85	#####	111	401	92.60	12.18	0.17	8	417
84	595	279	354	467	391	350	80	79	89	83	85	#####	108	396	92.87	12.18	0.17	8	417
86	595	282	352	469	394	346	80	79	90	84	86	#####	109	392	91.42	12.22	0.16	8	418
88	591	279	351	473	396	343	80	80	90	82	84	#####	110	388	92.86	12.13	0.24	8	418
90	588	285	350	472	395	340	80	80	91	83	86	#####	108	386	89.20	12.10	0.28	8	418
92	590	274	349	476	398	337	80	80	91	83	84	#####	109	383	93.43	12.14	0.28	8	417
94	591	273	347	478	402	336	80	80	92	82	84	#####	112	385	92.70	12.57	0.26	8	418
96	593	277	349	482	404	337	81	81	91	81	83	#####	111	390	90.94	12.33	0.20	8	421
98	597	275	348	486	405	338	81	81	92	81	82	#####	109	388	90.48	11.00	0.21	9	422
100	599	261	348	489	405	338	81	81	91	81	82	#####	112	386	89.05	10.04	0.40	10	420
102	600	274	345	487	406	339	81	80	91	82	83	#####	106	381	92.65	9.97	0.47	10	423
104	606	284	343	484	408	344	80	79	92	83	85	#####	109	376	92.40	10.25	0.38	10	425
106	599	286	340	482	408	349	80	79	92	84	84	#####	110	369	93.53	9.40	0.42	10	423

Manufacturer: Foyers Suprême Inc.

Model: LASER-E

Date: 27-Oct-2016

RUN #:

Test Duration: 380

Burn rate: 0.864 dry kg/hr

Pollu rate: 1.913 gr/hr

Polluants: 5 mg

Delta Temp FB: #REF! degF

Pollution rate 1.062 gr/hr

non adjusted:

Time	Unit	Unit	Unit	Unit	Unit	DGM#1	Filter#1	DGM#2	Filt#2	Tunnel	Flue gas	Room	CO2	CO	O ²	Bimetal	Weight	Burn	FB
[min]	top	bottom	back	LH side	RH side	In T	Out T	In T	Out T	Temp	Temp	Temp	Temp			Temp	Remaining	Rate	Temp
0	246	228	217	327	299	192	85	85	82	85	84	####	87	167	84.60	2.36	2.05	16	263
2	231	212	214	323	298	186	84	85	82	83	84	####	86	184	85.41	2.18	0.44	19	256
4	291	216	211	319	296	185	84	84	83	85	84	####	87	254	85.67	6.49	0.36	14	267
6	453	222	213	316	296	210	84	83	85	85	85	####	89	348	87.01	8.77	0.44	12	300
8	618	231	218	316	297	259	84	83	86	86	86	####	91	443	87.98	9.36	0.44	11	336
10	645	250	224	317	296	294	84	82	87	86	86	####	91	463	87.24	9.50	0.81	11	346
12	<u>647</u>	<u>268</u>	<u>229</u>	<u>320</u>	<u>298</u>	<u>315</u>	<u>84</u>	<u>82</u>	<u>88</u>	<u>86</u>	<u>86</u>	<u>####</u>	<u>92</u>	<u>484</u>	<u>91.27</u>	<u>9.97</u>	<u>1.01</u>	<u>10</u>	<u>353</u>
14	652	288	233	323	302	330	84	82	89	85	85	####	93	494	92.25	11.53	0.94	9	360
16	644	275	238	328	305	337	83	82	89	84	84	####	94	499	92.05	11.89	0.75	8	358
18	632	297	242	334	309	342	83	82	90	84	84	####	94	486	92.90	10.69	0.82	9	363
20	603	287	246	337	311	338	83	81	91	84	84	####	94	461	91.97	9.08	1.15	11	357
22	563	309	248	340	313	324	83	82	92	84	85	####	94	443	92.81	9.08	1.19	11	354
24	<u>535</u>	<u>290</u>	<u>251</u>	<u>342</u>	<u>314</u>	<u>310</u>	<u>83</u>	<u>81</u>	<u>92</u>	<u>85</u>	<u>84</u>	<u>####</u>	<u>94</u>	<u>432</u>	<u>93.21</u>	<u>9.09</u>	<u>1.32</u>	<u>11</u>	<u>346</u>
26	537	295	252	346	315	302	83	81	93	84	84	####	94	432	92.18	10.62	1.07	10	349
28	580	292	255	348	316	311	83	81	93	85	85	####	95	445	93.53	12.64	0.80	8	358
30	662	304	259	353	321	339	83	81	93	84	85	####	95	465	93.13	13.38	0.62	7	380
32	699	282	264	359	327	366	83	81	93	83	84	####	95	469	93.12	13.51	0.60	7	386
34	685	310	268	363	331	379	82	81	94	85	86	####	95	456	93.81	12.56	0.86	8	391
36	<u>660</u>	<u>302</u>	<u>271</u>	<u>367</u>	<u>334</u>	<u>373</u>	<u>82</u>	<u>80</u>	<u>94</u>	<u>87</u>	<u>87</u>	<u>####</u>	<u>95</u>	<u>452</u>	<u>92.10</u>	<u>13.51</u>	<u>0.80</u>	<u>7</u>	<u>387</u>
38	673	303	275	373	338	373	82	80	94	86	86	####	95	454	94.31	13.67	0.52	7	392
40	669	282	279	380	341	375	83	81	94	84	84	####	96	452	93.09	12.94	0.54	8	390
42	654	264	281	386	345	372	83	82	94	84	84	####	95	448	91.59	12.49	0.53	8	386
44	643	260	284	390	347	366	82	81	94	84	84	####	95	443	92.37	12.60	0.51	8	385
46	634	297	285	391	348	362	83	81	95	83	84	####	95	440	92.63	12.59	0.52	8	391
48	<u>642</u>	<u>285</u>	<u>289</u>	<u>396</u>	<u>353</u>	<u>364</u>	<u>82</u>	<u>81</u>	<u>95</u>	<u>85</u>	<u>86</u>	<u>####</u>	<u>95</u>	<u>435</u>	<u>93.03</u>	<u>13.23</u>	<u>0.55</u>	<u>7</u>	<u>393</u>
50	655	292	291	401	358	367	82	80	95	85	85	####	95	436	94.49	13.34	0.53	7	400
52	660	278	294	406	363	370	82	81	96	84	84	####	96	435	94.07	12.86	0.53	8	400
54	651	295	296	408	366	371	82	80	96	86	86	####	96	432	94.64	12.70	0.50	8	403
56	644	286	299	412	368	371	83	81	96	88	88	####	95	430	93.86	12.75	0.53	8	402
58	639	282	301	414	372	369	83	81	96	88	88	####	95	428	93.53	12.93	0.56	8	402
60	<u>647</u>	<u>299</u>	<u>304</u>	<u>418</u>	<u>377</u>	<u>369</u>	<u>83</u>	<u>81</u>	<u>96</u>	<u>87</u>	<u>87</u>	<u>####</u>	<u>96</u>	<u>426</u>	<u>95.98</u>	<u>12.86</u>	<u>0.67</u>	<u>8</u>	<u>409</u>
62	651	286	307	421	377	372	83	82	83	89	89	####	96	424	90.49	12.93	0.54	8	409
64	654	287	309	423	380	375	84	83	85	90	88	####	95	422	93.37	12.53	0.50	8	411
66	658	295	312	429	387	374	84	83	86	89	87	####	96	417	93.69	13.01	0.36	8	416
68	657	299	314	433	392	374	84	83	87	86	85	####	96	415	94.47	13.06	0.25	7	419
70	655	277	315	438	396	373	84	84	88	85	85	####	96	413	94.95	13.04	0.23	7	416
72	<u>656</u>	<u>286</u>	<u>317</u>	<u>443</u>	<u>398</u>	<u>373</u>	<u>84</u>	<u>83</u>	<u>88</u>	<u>86</u>	<u>86</u>	<u>####</u>	<u>96</u>	<u>412</u>	<u>95.16</u>	<u>12.83</u>	<u>0.16</u>	<u>8</u>	<u>420</u>
74	653	298	319	446	402	372	84	82	89	88	87	####	96	412	95.87	12.67	0.13	8	424
76	649	287	322	449	406	370	84	83	90	88	88	####	96	410	95.31	12.42	0.13	8	423
78	644	279	322	452	409	369	84	83	90	87	87	####	96	408	94.98	12.09	0.12	8	421
80	634	285	322	455	411	363	84	83	91	87	88	####	97	405	94.62	11.58	0.14	9	421
82	626	276	323	457	415	359	84	83	92	87	86	####	96	400	95.12	11.16	0.15	9	420
84	611	285	323	460	414	356	85	84	92	89	89	####	96	394	93.72	10.74	0.21	10	418
86	602	283	322	460	417	352	84	83	93	88	88	####	96	388	95.90	10.57	0.23	10	417
88	588	281	322	461	419	346	85	83	94	87	87	####	97	383	96.53	10.42	0.25	10	414
90	572	290	322	463	419	341	84	83	94	88	89	####	97	378	95.19	10.63	0.21	10	413
92	572	275	323	464	422	338	85	83	94	86	85	####	97	373	95.55	10.57	0.45	10	411
94	576	272	325	465	421	338	85	84	94	86	85	####	97	370	94.78	10.71	0.47	9	412
96	577	280	325	465	422	339	84	84	95	87	87	####	97	366	95.68	10.84	0.34	9	414
98	577	283	327	467	424	340	84	83	95	87	87	####	97	365	96.10	10.95	0.36	9	415
100	577	289	328	468	429	340	85	84	95	86	86	####	97	364	96.49	10.87	0.43	9	418
102	576	287	329	469	430	341	85	84	95	87	87	####	97	363	96.29	10.98	0.37	9	418
104	573	282	330	470	433	342	85	83	95	87	86	####	97	360	95.67	10.26	0.49	9	418
106	547	298	331	470	432	337	85	83	95	89	89	####	97	351	94.92	8.64	0.95	11	415

Manufacturer: Foyers Suprême Inc.

Model: LASER-E

Date: 27-Oct-2016

RUN #:

Test Duration: 236

Burn rate: 1.395 dry kg/hr

Pollu rate: 7.494 gr/hr

Polluants: 22 mg

Delta Temp FB: #REF! degF

Pollution rate 5.502 gr/hr

non adjusted:

Time	Unit	Unit	Unit	Unit	Unit	DGM#1	Filter#1	DGM#2	Filt#2	Tunnel	Flue gas	Room	CO2	CO	O ²	Bimetal	Weight	Burn	FB
[min]	top	bottom	back	LH side	RH side	In T	Out T	In T	Out T	Temp	Temp	Temp	Temp			Temp	Remaining	Rate	Temp
0	369	453	426	408	421	292	83	83	81	84	83	####	89	255	85.79	1.64	0.63	18	415
2	331	449	422	404	417	285	84	83	82	85	83	####	90	239	85.67	0.56	0.20	20	405
4	332	453	416	398	412	273	84	83	83	84	83	####	89	244	84.35	1.97	0.25	18	402
6	334	450	409	391	405	267	84	83	84	84	83	####	89	244	84.22	2.44	0.28	18	398
8	331	449	402	384	396	262	83	82	84	84	83	####	89	245	84.47	3.15	0.39	17	392
10	354	447	396	377	389	261	83	82	85	84	83	####	89	257	84.64	5.85	0.43	14	392
12	<u>397</u>	<u>446</u>	<u>390</u>	<u>370</u>	<u>381</u>	<u>270</u>	<u>83</u>	<u>82</u>	<u>86</u>	<u>84</u>	<u>83</u>	<u>####</u>	<u>90</u>	<u>275</u>	<u>84.36</u>	<u>5.76</u>	<u>0.36</u>	<u>14</u>	<u>397</u>
14	485	445	387	366	376	290	83	82	88	84	84	####	91	312	84.94	6.64	0.61	14	412
16	480	450	386	363	371	310	83	81	87	84	83	####	91	318	85.03	4.61	0.50	16	410
18	463	454	385	360	367	313	82	81	88	84	83	####	91	319	85.93	5.19	0.64	15	406
20	453	454	385	357	363	312	82	81	88	84	83	####	91	319	85.90	5.59	0.83	14	402
22	452	455	386	356	360	312	82	80	89	85	84	####	89	320	85.95	5.33	0.79	15	402
24	<u>471</u>	<u>455</u>	<u>386</u>	<u>354</u>	<u>358</u>	<u>313</u>	<u>82</u>	<u>80</u>	<u>89</u>	<u>85</u>	<u>83</u>	<u>####</u>	<u>91</u>	<u>328</u>	<u>85.72</u>	<u>6.34</u>	<u>0.84</u>	<u>14</u>	<u>405</u>
26	577	455	387	354	356	341	82	80	90	85	83	####	92	378	86.52	11.85	0.73	9	426
28	686	455	390	354	357	400	82	80	90	85	84	####	92	409	86.46	9.86	0.30	11	449
30	680	453	394	356	359	437	82	80	91	84	83	####	94	411	87.44	7.68	0.54	13	448
32	674	452	397	357	359	446	82	80	91	85	84	####	94	423	87.52	9.87	0.63	10	448
34	724	453	400	356	361	465	82	80	92	86	85	####	95	452	87.65	12.08	0.47	9	459
36	<u>758</u>	<u>449</u>	<u>405</u>	<u>359</u>	<u>363</u>	<u>488</u>	<u>82</u>	<u>80</u>	<u>93</u>	<u>85</u>	<u>83</u>	<u>####</u>	<u>93</u>	<u>469</u>	<u>89.67</u>	<u>11.71</u>	<u>0.30</u>	<u>9</u>	<u>467</u>
38	771	451	410	361	366	503	82	81	94	85	86	####	95	484	89.56	11.94	0.22	9	472
40	778	452	415	365	369	516	82	81	95	85	85	####	95	491	89.93	11.70	0.17	9	476
42	772	456	420	368	371	523	82	81	95	85	85	26	97	495	89.59	11.88	0.23	9	477
44	761	455	424	372	374	524	82	81	96	84	85	####	97	500	90.24	12.41	0.31	8	477
46	767	458	430	376	376	526	82	81	97	84	84	####	97	506	90.27	12.64	0.27	8	482
48	<u>767</u>	<u>460</u>	<u>435</u>	<u>379</u>	<u>380</u>	<u>529</u>	<u>83</u>	<u>82</u>	<u>98</u>	<u>86</u>	<u>86</u>	<u>####</u>	<u>99</u>	<u>510</u>	<u>90.83</u>	<u>12.62</u>	<u>0.29</u>	<u>8</u>	<u>484</u>
50	765	463	441	383	382	530	83	82	99	85	86	####	99	510	91.22	12.44	0.34	8	487
52	770	464	447	388	386	531	83	82	99	85	86	(289)	98	510	90.98	12.62	0.34	8	491
54	780	464	453	392	390	534	83	82	100	86	86	####	100	512	91.14	12.72	0.33	8	496
56	780	464	461	396	394	537	83	82	100	85	85	####	99	513	92.32	12.83	0.38	8	499
58	788	465	467	400	400	541	83	82	101	86	86	####	98	517	92.57	13.48	0.31	7	504
60	<u>810</u>	<u>462</u>	<u>475</u>	<u>406</u>	<u>403</u>	<u>549</u>	<u>83</u>	<u>82</u>	<u>101</u>	<u>83</u>	<u>83</u>	<u>####</u>	<u>99</u>	<u>525</u>	<u>93.01</u>	<u>13.78</u>	<u>0.30</u>	<u>7</u>	<u>511</u>
62	822	463	484	413	410	559	83	82	101	83	83	####	99	530	92.01	13.66	0.29	7	518
64	818	466	494	418	415	566	83	82	101	85	85	####	100	532	93.77	13.22	0.27	7	522
66	810	459	502	424	420	567	84	82	102	85	85	####	102	530	92.50	12.78	0.29	8	523
68	798	463	510	429	426	562	84	82	102	85	86	####	99	525	92.44	12.32	0.31	8	525
70	780	464	518	433	432	557	84	83	103	84	84	####	100	518	92.59	11.79	0.35	9	525
72	<u>763</u>	<u>462</u>	<u>525</u>	<u>438</u>	<u>438</u>	<u>549</u>	<u>84</u>	<u>83</u>	<u>82</u>	<u>86</u>	<u>87</u>	<u>####</u>	<u>100</u>	<u>510</u>	<u>93.70</u>	<u>11.45</u>	<u>0.37</u>	<u>9</u>	<u>525</u>
74	743	470	533	441	444	539	84	83	85	85	85	####	99	500	91.99	11.06	0.34	9	526
76	724	465	538	447	448	527	84	83	86	84	84	####	100	491	93.08	10.94	0.27	9	525
78	709	470	545	451	454	516	84	83	87	85	85	####	102	483	93.50	10.74	0.23	10	526
80	695	468	550	456	460	505	84	83	88	86	86	248	100	476	92.46	10.28	0.27	10	526
82	677	472	553	461	464	496	84	83	89	85	84	####	100	465	93.29	9.65	0.38	10	525
84	656	470	555	467	468	485	84	83	90	85	83	####	100	455	93.93	8.87	0.58	11	523
86	636	473	556	472	473	472	84	83	91	86	87	####	99	446	93.40	8.63	0.61	11	522
88	621	475	557	474	478	460	84	84	91	87	85	####	100	437	92.38	8.49	0.60	12	521
90	611	473	558	479	479	450	84	83	92	85	84	####	99	430	92.86	8.63	0.54	11	520
92	607	478	559	482	480	444	84	84	92	86	86	####	101	425	92.53	8.72	0.54	11	521
94	612	480	559	485	482	439	84	84	93	87	88	####	99	423	92.63	9.01	0.48	11	524
96	619	480	560	488	483	439	84	84	93	86	85	####	98	421	92.77	8.52	0.49	12	526
98	622	480	559	491	485	440	84	84	93	87	86	####	100	416	91.91	7.55	0.64	12	527
100	627	481	559	492	487	442	84	83	94	87	86	####	102	407	93.10	7.59	0.76	12	529
102	623	472	559	493	488	443	84	84	94	85	86	####	102	400	92.46	7.81	0.68	12	527
104	613	479	558	494	491	441	85	84	94	87	86	(24)	99	393	92.88	7.59	0.81	12	527
106	597	472	557	495	491	436	85	84	94	87	87	####	101	388	92.35	7.75	0.81	12	522

Manufacturer: Foyers Suprême Inc.

Model: LASER-E

Date: 25-Jul-2016

RUN #:

Test Duration: 254

Burn rate: 1.291 dry kg/hr

Pollu rate: 1.354 gr/hr

Polluants: 3 mg

Delta Temp FB: 0 degF

Pollution rate 0.700 gr/hr

non adjusted:

Time	Unit	Unit	Unit	Unit	Unit	DGM#1	Filter#1	DGM#2	Filt#2	Tunnel	Flue gas	Room	CO2	CO	O ²	Bimetal	Weight	Burn	FB		
[min]	top	bottom	back	LH side	RH side	In T	Out T	Temp	In T	Out T	Temp	Temp	Temp	Temp		Temp	Remaining	Rate	Temp		
0	239	194	229	397	321	84	84	82	84	82	####	107	288	86	1.87	1.47	####	192	14.87	276	
2																			####		
4																			####		
6	320	204	228	376	307	84	83	87	83	81	####	134	340	87	7.87	0.30	####	199	14.20	####	287
8	409	213	234	372	305	84	83	87	83	82	####	143	401	85	10.64	0.70	9.79	228	13.80	0.40	307
10	504	213	239	374	306	84	82	88	83	82	####	146	455	88	10.08	1.11	9.86	271	13.36	0.44	327
12	512	228	245	375	308	83	82	88	83	82	####	146	480	87	9.58	0.87	####	286	13.00	0.36	334
14	517	224	249	379	309	83	82	89	83	82	####	146	497	88	9.99	0.54	####	287	12.68	0.32	336
16	515	235	252	385	310	83	81	90	84	82	####	148	511	87	9.95	0.53	####	288	12.28	0.40	339
18	554	233	255	391	314	83	81	90	84	82	####	149	532	87	11.36	0.75	8.92	305	11.92	0.36	349
20	543	229	259	394	314	83	81	90	85	83	####	147	530	87	8.08	0.77	####	319	11.62	0.30	348
22	515	232	262	396	315	82	81	90	84	83	####	144	525	86	9.95	0.65	####	310	11.28	0.34	344
24	500	236	263	398	316	82	81	90	84	83	####	143	525	85	10.52	0.60	9.88	302	10.98	0.30	343
26	499	241	267	405	317	82	81	91	84	82	####	144	528	88	11.05	0.74	9.35	299	10.68	0.30	346
28	499	242	269	411	318	82	80	92	85	84	####	145	535	88	11.42	1.05	8.87	300	10.37	0.31	348
30	513	244	272	419	319	82	80	93	84	82	####	146	542	88	11.91	1.05	8.47	304	10.01	0.36	353
32	529	235	275	427	322	82	81	93	86	83	####	147	551	89	12.41	0.88	8.04	312	9.71	0.30	358
34	562	230	279	434	326	82	80	94	83	81	####	148	565	89	13.04	0.57	7.60	327	9.37	0.34	366
36	580	245	282	440	329	82	80	94	83	81	####	147	570	89	12.18	0.57	8.32	342	9.07	0.30	375
38	571	240	285	447	332	82	81	93	83	81	####	147	571	88	11.94	0.61	8.57	342	8.81	0.26	375
40	560	244	288	452	335	81	80	93	82	81	####	148	572	89	12.08	0.85	8.30	338	8.53	0.28	376
42	559	247	291	459	337	81	79	94	83	82	####	148	574	91	12.28	0.82	8.12	338	8.19	0.34	379
44	561	255	293	465	340	81	79	93	83	81	####	149	576	90	12.37	0.78	8.07	339	7.93	0.26	383
46	563	259	296	470	343	81	79	94	83	82	####	149	579	91	12.47	0.62	8.03	341	7.63	0.30	386
48	567	258	298	475	346	81	80	93	84	82	####	149	581	90	12.51	0.52	8.04	345	7.39	0.24	389
50	577	265	300	481	350	82	80	94	84	82	####	150	584	91	12.66	0.49	7.91	349	7.09	0.30	394
52	579	259	303	487	353	82	80	94	84	82	####	150	586	91	12.69	0.48	7.89	352	6.83	0.26	396
54	586	267	305	492	358	82	80	94	83	81	####	151	587	92	12.60	0.41	7.99	356	6.53	0.30	402
56	592	253	309	496	361	82	80	94	83	82	####	150	587	92	12.46	0.36	8.15	360	6.32	0.20	402
58	595	270	311	499	364	82	80	94	84	83	####	150	586	92	12.19	0.32	8.42	363	6.02	0.30	408
60	597	268	313	503	367	82	79	94	84	82	####	150	584	91	11.88	0.28	8.72	365	5.82	0.20	410
62	593	256	315	508	369	82	80	#####	84	82	####	149	579	92	11.37	0.27	9.16	364	5.62	0.20	408
64	588	264	316	509	374	82	81	92	84	82	####	148	572	92	11.05	0.23	9.47	362	5.41	0.20	410
66	585	264	318	509	378	83	81	93	84	82	####	148	566	92	10.94	0.21	9.58	361	5.22	0.20	411
68	588	260	319	510	382	83	81	94	83	82	####	147	561	92	10.90	0.26	9.59	363	5.01	0.20	412
70	590	258	320	511	387	82	81	95	85	82	####	146	557	91	10.80	0.26	9.68	365	4.88	0.14	413
72	584	260	321	506	389	83	82	95	86	84	####	145	552	92	10.56	0.32	9.87	367	4.67	0.20	412
74	586	258	320	509	394	83	82	96	83	82	####	145	549	92	10.48	0.30	9.96	366	4.51	0.16	413
76	584	257	320	509	395	83	82	95	83	81	####	144	545	91	10.52	0.31	9.92	365	4.31	0.20	413
78	578	258	321	508	397	83	82	96	85	83	####	144	541	90	10.40	0.31	#####	363	4.19	0.12	412
80	576	251	321	508	402	83	82	96	85	83	####	143	538	91	10.40	0.29	#####	361	4.03	0.16	412
82	575	270	321	509	404	83	81	96	84	82	####	143	535	93	10.35	0.30	#####	361	3.83	0.20	416
84	574	268	320	509	408	83	81	96	84	83	####	142	533	92	10.40	0.25	#####	360	3.69	0.14	416
86	564	267	321	511	408	83	81	96	84	82	####	142	531	92	10.40	0.17	#####	357	3.53	0.16	414
88	551	258	321	510	412	83	82	96	84	82	####	142	528	92	10.40	0.14	9.98	350	3.39	0.14	411
90	547	268	321	513	412	83	81	96	84	83	####	141	526	93	10.62	0.14	9.77	345	3.23	0.16	412
92	539	254	320	515	413	83	82	97	87	83	####	141	523	90	10.26	0.14	#####	340	3.09	0.15	408
94	530	265	321	516	414	83	82	97	85	83	####	140	519	92	9.94	0.12	#####	335	2.93	0.16	409
96	517	269	320	517	416	83	82	97	86	83	####	139	515	92	9.21	0.17	#####	332	2.83	0.10	408
98	510	275	320	518	416	83	83	96	88	85	####	138	507	90	8.56	0.33	#####	329	2.72	0.10	408
100	509	274	319	518	420	83	83	96	84	83	####	137	499	92	8.54	0.36	#####	326	2.62	0.10	408
102	503	283	318	517	418	83	82	96	88	86	####	136	491	89	8.40	0.41	#####	324	2.52	0.10	408
104	497	271	318	513	417	83	83	96	88	85	####	135	485	91	8.36	0.44	#####	323	2.42	0.10	403
106	492	277	317	511	419	84	83	96	88	86	####	134	479	88	8.38	0.44	#####	320	2.32	0.10	403

Manufacturer: Foyers Suprême Inc.

Model: LASER-E

Date: 27-Oct-2016

RUN #:

Test Duration: 174

Burn rate: 1.997 dry kg/hr

Pollu rate: 3.900 gr/hr

Polluants: 8 mg

Delta Temp FB: #REF! degF

Pollution rate 2.505 gr/hr

non adjusted:

Time	Unit	Unit	Unit	Unit	Unit	DGM#1	Filter#1	DGM#2	Filt#2	Tunnel	Flue gas	Room	CO2	CO	O ²	Bimetal	Weight	Burn	FB
[min]	top	bottom	back	LH side	RH side	In T	Out T	In T	Out T	Temp	Temp	Temp	Temp			Temp	Remaining	Rate	Temp
0	393	409	287	474	420	257	87	86	89	86	87	####	102	346	97.75	3.27	1.21	16	397
2	348	400	283	468	414	246	87	87	92	87	87	####	102	322	96.92	2.85	0.52	17	383
4	387	393	278	459	410	238	87	87	93	85	86	####	101	360	96.41	6.02	0.49	14	386
6	504	363	279	452	402	252	87	87	94	86	86	####	102	417	96.58	7.33	0.58	13	400
8	599	422	282	443	393	285	87	87	95	89	90	####	102	457	97.08	7.56	0.90	12	428
10	643	379	287	438	387	308	87	88	96	85	86	####	103	496	98.15	8.65	0.75	11	427
12	<u>671</u>	<u>421</u>	<u>290</u>	<u>432</u>	<u>382</u>	<u>329</u>	<u>87</u>	<u>87</u>	<u>97</u>	<u>86</u>	<u>86</u>	<u>####</u>	<u>103</u>	<u>512</u>	<u>98.71</u>	<u>8.33</u>	<u>0.52</u>	<u>12</u>	<u>439</u>
14	647	365	291	427	378	334	87	87	98	85	86	####	105	512	98.25	9.44	0.78	11	422
16	697	446	290	421	372	351	86	85	99	88	90	####	106	555	####	11.30	0.85	9	445
18	731	381	291	420	368	367	86	86	100	86	86	####	106	592	98.55	12.23	0.81	8	438
20	753	370	292	420	368	379	86	86	100	85	86	####	106	611	99.95	12.00	0.57	8	441
22	767	354	295	421	365	389	86	86	101	85	86	####	108	626	####	12.77	0.50	8	441
24	<u>788</u>	<u>426</u>	<u>296</u>	<u>423</u>	<u>366</u>	<u>401</u>	<u>86</u>	<u>86</u>	<u>102</u>	<u>87</u>	<u>86</u>	<u>####</u>	<u>107</u>	<u>645</u>	<u>####</u>	<u>13.22</u>	<u>0.44</u>	<u>7</u>	<u>460</u>
26	791	383	300	425	366	408	86	85	103	85	86	####	108	653	####	12.93	0.36	8	453
28	790	372	304	428	368	414	86	86	104	85	86	####	110	663	####	13.50	0.40	7	453
30	782	438	306	432	369	413	85	86	105	85	86	####	110	671	####	13.67	0.55	7	465
32	777	451	308	435	371	411	85	84	107	86	87	####	110	667	####	13.49	0.63	7	468
34	774	444	312	440	374	410	85	83	109	87	87	####	110	663	####	13.52	0.58	7	469
36	<u>770</u>	<u>451</u>	<u>319</u>	<u>444</u>	<u>375</u>	<u>412</u>	<u>85</u>	<u>84</u>	<u>111</u>	<u>88</u>	<u>89</u>	<u>####</u>	<u>110</u>	<u>660</u>	<u>####</u>	<u>13.44</u>	<u>0.57</u>	<u>7</u>	<u>472</u>
38	774	442	323	446	377	413	85	87	114	86	87	####	110	666	####	13.65	0.65	7	472
40	784	384	329	453	382	416	85	86	115	86	87	####	112	669	####	13.57	0.71	7	466
42	785	454	333	458	384	418	85	86	116	87	87	####	111	666	####	13.24	0.61	7	483
44	786	466	339	461	388	422	85	84	114	87	87	####	112	661	####	13.14	0.51	7	488
46	790	435	344	467	392	424	85	83	112	87	86	####	112	652	####	12.92	0.45	7	486
48	<u>781</u>	<u>444</u>	<u>350</u>	<u>473</u>	<u>394</u>	<u>423</u>	<u>85</u>	<u>86</u>	<u>111</u>	<u>87</u>	<u>87</u>	<u>####</u>	<u>113</u>	<u>641</u>	<u>####</u>	<u>12.59</u>	<u>0.34</u>	<u>8</u>	<u>489</u>
50	775	379	355	478	399	422	85	86	110	86	87	####	114	628	####	12.21	0.27	8	477
52	764	433	358	483	404	420	85	85	110	86	87	####	113	619	####	12.06	0.24	8	488
54	742	467	362	488	404	417	85	85	109	87	88	####	111	607	####	12.34	0.24	8	493
56	736	380	367	494	410	414	85	86	109	86	87	####	113	601	####	12.49	0.25	8	477
58	731	447	370	499	415	409	85	86	109	87	87	####	112	592	####	12.06	0.23	8	492
60	<u>714</u>	<u>439</u>	<u>374</u>	<u>505</u>	<u>418</u>	<u>404</u>	<u>85</u>	<u>86</u>	<u>107</u>	<u>86</u>	<u>87</u>	<u>####</u>	<u>113</u>	<u>580</u>	<u>####</u>	<u>11.60</u>	<u>0.17</u>	<u>8</u>	<u>490</u>
62	696	398	379	509	423	397	85	85	85	87	87	####	113	567	####	11.12	0.13	9	481
64	680	453	381	516	427	388	85	85	87	87	87	####	111	557	####	10.82	0.10	9	492
66	670	505	382	520	434	383	84	83	90	88	88	####	111	546	####	10.74	0.08	9	502
68	659	446	386	524	437	377	84	83	92	86	87	####	112	537	####	10.59	0.07	10	491
70	651	510	387	529	442	373	85	84	93	88	88	####	111	529	####	10.44	0.06	10	504
72	<u>645</u>	<u>482</u>	<u>388</u>	<u>531</u>	<u>445</u>	<u>370</u>	<u>84</u>	<u>82</u>	<u>95</u>	<u>87</u>	<u>88</u>	<u>####</u>	<u>112</u>	<u>522</u>	<u>####</u>	<u>10.29</u>	<u>0.06</u>	<u>10</u>	<u>498</u>
74	637	499	389	536	447	366	85	84	97	88	88	####	112	515	####	10.19	0.05	10	502
76	630	503	389	539	449	362	85	84	98	89	90	####	111	508	####	10.12	0.05	10	502
78	622	526	403	540	451	362	85	83	99	94	96	####	105	503	92.05	10.10	0.04	10	508
80	625	534	408	544	452	360	85	84	100	89	92	####	110	497	####	10.22	0.04	10	513
82	635	501	408	549	461	360	85	84	101	88	88	####	110	496	####	10.46	0.04	10	511
84	640	481	408	555	462	362	86	88	101	87	88	####	111	498	####	10.54	0.05	10	509
86	634	524	407	559	465	363	86	88	102	88	89	####	110	498	####	10.25	0.06	10	518
88	636	515	405	563	468	365	85	85	102	88	88	####	110	497	####	9.80	0.05	10	517
90	634	563	404	564	473	365	85	86	102	87	88	####	111	492	####	9.26	0.07	10	528
92	614	554	403	564	474	361	85	84	103	92	94	####	109	481	####	8.54	0.11	11	522
94	595	569	400	565	478	354	85	84	104	89	89	####	110	470	####	8.24	0.15	11	521
96	576	585	398	564	483	345	85	84	104	88	89	####	110	457	####	7.29	0.35	12	521
98	553	596	395	564	486	336	85	84	104	88	89	####	110	445	####	7.04	0.49	12	519
100	530	614	393	561	486	327	85	85	105	89	90	####	110	434	####	7.07	0.54	12	517
102	513	613	389	560	489	319	86	87	105	88	88	####	109	424	####	7.10	0.60	12	513
104	499	631	386	558	489	311	86	86	105	88	89	####	109	416	####	7.09	0.63	12	513
106	488	643	384	557	489	305	85	85	105	89	89	####	109	408	####	6.97	0.62	13	512

Manufacturer: Foyers Suprême Inc.

Model: LASER-E

Date: 27-Oct-2016

RUN #:

Test Duration: 180

Burn rate: 1.849 dry kg/hr

Pollu rate: 1.669 gr/hr

Polluants: 3 mg

Delta Temp FB: #REF! degF

Pollution rate 0.901 gr/hr

non adjusted:

Time	Unit	Unit	Unit	Unit	Unit	DGM#1	Filter#1	DGM#2	Filt#2	Tunnel	Flue gas	Room	CO2	CO	O ²	Bimetal	Weight	Burn	FB
[min]	top	bottom	back	LH side	RH side	In T	Out T	In T	Out T	Temp	Temp	Temp	Temp			Temp	Remaining	Rate	Temp
0	292	368	255	394	351	212	88	88	89	90	91	####	93	262	88.96	1.73	1.09	18	332
2	266	355	251	388	346	206	88	90	93	90	90	####	95	244	90.03	0.72	0.42	19	321
4	357	347	246	382	342	209	88	90	94	90	90	####	94	319	89.14	7.52	0.37	13	335
6	546	358	247	376	339	248	88	89	96	91	91	####	96	428	90.15	10.21	0.41	10	373
8	636	362	255	374	337	298	88	89	97	90	90	####	95	478	89.41	10.19	0.92	10	393
10	657	379	261	375	335	323	88	88	98	89	90	####	99	509	95.52	10.05	0.98	10	401
12	<u>669</u>	<u>390</u>	<u>265</u>	<u>375</u>	<u>336</u>	<u>335</u>	<u>88</u>	<u>88</u>	<u>103</u>	<u>90</u>	<u>90</u>	<u>####</u>	<u>99</u>	<u>535</u>	<u>95.08</u>	<u>10.55</u>	<u>0.90</u>	<u>10</u>	<u>407</u>
14	679	403	269	377	335	346	88	88	106	90	91	####	100	554	96.02	10.25	1.16	10	413
16	688	420	275	379	338	351	88	88	106	92	93	####	101	572	90.32	11.00	1.11	9	420
18	709	418	281	382	340	364	88	88	106	91	91	####	101	581	90.85	11.70	0.97	8	426
20	732	429	287	386	342	376	88	88	106	91	92	####	102	595	97.36	12.18	0.79	8	435
22	750	432	292	391	346	387	88	88	106	91	92	####	105	609	99.65	12.38	0.77	8	442
24	<u>759</u>	<u>445</u>	<u>298</u>	<u>395</u>	<u>349</u>	<u>396</u>	<u>88</u>	<u>88</u>	<u>106</u>	<u>91</u>	<u>92</u>	<u>####</u>	<u>104</u>	<u>624</u>	<u>93.88</u>	<u>12.69</u>	<u>0.73</u>	<u>8</u>	<u>449</u>
26	768	434	304	401	354	404	88	89	108	92	93	####	105	636	98.07	12.85	0.68	7	452
28	767	452	309	407	359	407	88	88	109	91	92	####	104	635	96.92	12.75	0.65	8	459
30	762	446	315	414	363	408	88	88	110	91	91	####	106	639	98.40	13.14	0.79	7	460
32	761	458	321	421	368	408	88	88	110	91	92	####	105	646	####	13.35	0.70	7	466
34	765	463	327	431	374	410	88	88	111	91	92	####	106	645	####	12.67	0.49	8	472
36	<u>755</u>	<u>463</u>	<u>332</u>	<u>437</u>	<u>378</u>	<u>414</u>	<u>88</u>	<u>88</u>	<u>112</u>	<u>91</u>	<u>92</u>	<u>####</u>	<u>107</u>	<u>641</u>	<u>####</u>	<u>12.23</u>	<u>0.41</u>	<u>8</u>	<u>473</u>
38	745	483	336	440	382	415	88	88	112	93	95	####	108	634	99.06	12.04	0.41	8	477
40	746	472	339	445	387	415	88	88	112	93	94	####	107	628	96.45	12.29	0.29	8	478
42	752	489	342	450	392	418	88	88	112	94	95	####	103	624	96.27	12.35	0.28	8	485
44	750	481	347	455	398	419	89	89	111	94	95	####	106	617	97.10	12.28	0.24	8	486
46	747	472	350	462	402	419	89	89	110	94	95	####	106	610	####	12.10	0.19	8	487
48	<u>739</u>	<u>483</u>	<u>354</u>	<u>470</u>	<u>407</u>	<u>416</u>	<u>89</u>	<u>90</u>	<u>109</u>	<u>93</u>	<u>95</u>	<u>####</u>	<u>106</u>	<u>600</u>	<u>98.13</u>	<u>11.71</u>	<u>0.16</u>	<u>9</u>	<u>491</u>
50	726	481	357	477	412	412	89	90	111	92	93	####	106	588	####	11.39	0.14	9	491
52	710	479	361	482	417	406	89	90	112	93	95	####	107	578	94.78	11.49	0.10	9	490
54	706	470	364	489	421	403	89	90	112	93	94	####	105	568	93.61	11.41	0.09	9	490
56	696	478	367	495	425	400	89	90	112	93	94	####	106	559	92.89	11.28	0.06	9	492
58	689	473	369	501	430	396	89	90	113	93	94	####	106	551	####	11.10	0.06	9	492
60	<u>682</u>	<u>487</u>	<u>372</u>	<u>506</u>	<u>434</u>	<u>394</u>	<u>90</u>	<u>91</u>	<u>112</u>	<u>94</u>	<u>95</u>	<u>####</u>	<u>105</u>	<u>544</u>	<u>92.35</u>	<u>10.77</u>	<u>0.05</u>	<u>9</u>	<u>496</u>
62	669	494	375	512	440	391	90	92	86	94	94	####	105	535	94.26	10.43	0.05	10	498
64	655	503	376	516	444	383	90	91	89	92	92	####	105	525	####	10.08	0.05	10	499
66	641	498	377	521	448	376	90	91	92	92	92	####	105	516	####	9.90	0.06	10	497
68	627	499	380	523	452	370	90	90	94	93	93	####	104	507	95.80	9.80	0.06	10	496
70	621	499	380	527	457	363	90	90	95	93	94	####	104	500	97.38	9.69	0.06	11	497
72	<u>618</u>	<u>491</u>	<u>380</u>	<u>532</u>	<u>462</u>	<u>358</u>	<u>90</u>	<u>90</u>	<u>96</u>	<u>92</u>	<u>92</u>	<u>####</u>	<u>104</u>	<u>494</u>	<u>99.57</u>	<u>9.57</u>	<u>0.07</u>	<u>11</u>	<u>497</u>
74	612	503	386	537	466	355	89	90	97	91	92	####	105	490	####	9.32	0.07	11	501
76	600	489	395	536	468	353	89	90	98	92	93	####	105	484	97.29	9.26	0.07	11	498
78	595	498	396	538	471	350	89	90	99	91	93	####	105	479	99.78	9.21	0.07	11	500
80	594	485	397	540	475	348	89	90	100	93	94	####	103	476	94.95	9.26	0.06	11	498
82	594	471	398	542	477	349	89	89	101	93	94	####	99	474	92.70	9.41	0.04	11	496
84	594	500	397	543	482	350	89	90	101	93	93	####	103	474	97.25	9.46	0.05	11	503
86	601	507	395	546	487	350	89	90	102	92	93	####	104	477	97.35	9.53	0.06	11	507
88	595	484	394	548	493	352	89	90	103	91	92	####	104	472	####	8.08	0.15	12	503
90	565	476	395	552	495	345	89	90	104	93	94	####	99	459	94.33	6.85	0.34	13	497
92	542	496	392	550	496	335	89	90	104	94	94	####	103	447	93.82	6.42	0.48	13	495
94	518	508	388	549	497	325	89	90	104	93	93	####	103	432	98.51	5.68	0.75	14	
96	495	507	383	543	495	315	89	90	105	93	94	####	103	418	97.91	5.19	0.92	14	
98	475	510	377	541	494	304	89	90	105	93	93	####	103	406	97.19	5.18	0.98	14	
100	458	517	374	537	489	297	89	90	104	94	95	####	102	395	94.21	5.21	1.03	14	
102	451	499	368	534	489	290	89	90	104	93	94	####	103	385	98.06	5.19	1.06	14	
104	438	507	364	528	486	285	89	90	104	94	95	####	102	376	97.42	4.95	1.16	14	
106	427	525	359	523	484	281	90	90	104	94	95	####	101	368	96.89	4.90	1.23	14	

Manufacturer: Foyers Suprême Inc.

Model: LASER-E

Date: 27-Oct-2016

RUN #:

Test Duration: 152

Burn rate: 2.053 dry kg/hr

Pollu rate: 1.696 gr/hr

Polluants: 3 mg

Delta Temp FB: #REF! degF

Pollution rate 0.918 gr/hr

non adjusted:

Time	Unit	Unit	Unit	Unit	Unit	DGM#1	Filter#1	DGM#2	Filt#2	Tunnel	Flue gas	Room	CO2	CO	O ²	Bimetal	Weight	Burn	FB
[min]	top	bottom	back	LH side	RH side	In T	Out T	In T	Out T	Temp	Temp	Temp	Temp			Temp	Remaining	Rate	Temp
0	298	362	247	416	365	208	87	87	84	86	85	####	92	244	89.16	1.96	1.09	17	338
2	274	386	245	410	360	202	87	87	88	85	85	####	91	237	88.11	1.23	0.49	19	335
4	416	366	241	408	358	212	86	87	88	84	84	####	92	320	89.49	7.88	0.26	12	358
6	610	342	244	403	352	262	86	86	89	84	85	####	92	434	89.84	9.55	0.61	10	390
8	687	340	250	400	349	308	86	85	90	84	85	####	94	474	92.20	9.73	0.70	10	405
10	703	392	259	399	350	336	86	85	91	84	85	####	93	504	90.83	10.03	0.78	10	421
12	<u>723</u>	<u>406</u>	<u>264</u>	<u>400</u>	<u>350</u>	<u>349</u>	<u>85</u>	<u>85</u>	<u>92</u>	<u>85</u>	<u>85</u>	<u>####</u>	<u>95</u>	<u>534</u>	<u>92.66</u>	<u>10.07</u>	<u>0.81</u>	<u>10</u>	<u>429</u>
14	744	402	269	404	352	361	85	84	93	84	85	####	97	556	93.44	11.08	0.77	9	434
16	759	379	275	405	350	372	85	84	94	84	85	####	97	579	93.46	11.37	0.70	9	434
18	774	418	279	407	351	381	85	84	95	84	85	####	98	601	93.65	11.79	0.66	8	446
20	790	414	288	414	357	390	85	84	99	84	85	####	98	622	94.56	12.04	0.63	8	453
22	792	412	297	421	361	402	84	83	98	85	85	####	100	625	94.88	12.35	0.57	8	457
24	<u>785</u>	<u>391</u>	<u>303</u>	<u>425</u>	<u>363</u>	<u>407</u>	<u>84</u>	<u>83</u>	<u>98</u>	<u>85</u>	<u>85</u>	<u>####</u>	<u>98</u>	<u>624</u>	<u>95.54</u>	<u>12.17</u>	<u>0.63</u>	<u>8</u>	<u>453</u>
26	780	458	310	429	367	413	84	83	97	84	85	####	98	625	91.16	12.08	0.61	8	469
28	759	475	316	434	371	410	84	83	96	84	85	####	97	616	92.71	11.96	0.50	8	471
30	760	379	325	444	375	409	83	83	96	84	85	####	98	614	93.96	12.07	0.52	8	457
32	758	373	335	455	383	411	83	83	96	84	85	####	99	611	92.37	11.97	0.48	8	461
34	758	394	343	463	389	413	83	83	96	84	85	####	100	609	92.65	11.73	0.44	8	469
36	<u>743</u>	<u>475</u>	<u>348</u>	<u>467</u>	<u>394</u>	<u>416</u>	<u>83</u>	<u>82</u>	<u>96</u>	<u>84</u>	<u>85</u>	<u>####</u>	<u>99</u>	<u>602</u>	<u>93.32</u>	<u>11.43</u>	<u>0.28</u>	<u>9</u>	<u>485</u>
38	734	494	352	471	396	411	83	81	97	85	85	####	101	594	95.76	11.25	0.24	9	489
40	730	477	358	477	403	409	83	83	98	85	85	####	100	589	93.46	11.34	0.20	9	489
42	739	479	364	485	407	414	83	83	98	84	85	####	99	585	92.87	11.46	0.23	9	495
44	742	502	369	493	414	416	83	83	99	85	85	####	100	582	95.12	11.47	0.18	9	504
46	732	521	375	501	423	413	83	82	100	85	85	####	101	574	94.79	10.77	0.14	9	510
48	<u>716</u>	<u>523</u>	<u>379</u>	<u>505</u>	<u>431</u>	<u>410</u>	<u>83</u>	<u>83</u>	<u>99</u>	<u>84</u>	<u>85</u>	<u>####</u>	<u>100</u>	<u>565</u>	<u>93.68</u>	<u>10.49</u>	<u>0.11</u>	<u>10</u>	<u>511</u>
50	700	499	383	513	441	405	83	83	99	84	85	####	99	554	92.29	10.32	0.10	10	507
52	687	437	387	521	445	398	83	83	99	85	85	####	99	543	92.62	10.33	0.08	10	495
54	681	478	390	528	454	392	83	83	99	84	85	####	100	534	94.94	10.25	0.06	10	506
56	674	511	386	529	457	389	83	83	100	85	85	####	101	527	96.49	10.09	0.05	10	511
58	661	506	386	533	460	383	83	82	100	85	85	####	102	521	95.35	10.04	0.05	10	509
60	<u>647</u>	<u>500</u>	<u>389</u>	<u>537</u>	<u>467</u>	<u>377</u>	<u>83</u>	<u>82</u>	<u>100</u>	<u>85</u>	<u>86</u>	<u>####</u>	<u>101</u>	<u>514</u>	<u>95.43</u>	<u>9.70</u>	<u>0.06</u>	<u>10</u>	<u>508</u>
62	632	440	394	544	468	371	83	83	82	85	85	####	100	506	94.93	9.53	0.06	11	496
64	625	492	393	549	477	365	83	83	85	85	86	####	101	498	95.20	9.47	0.06	11	507
66	616	520	394	551	484	361	83	83	88	85	86	####	100	492	95.13	9.14	0.07	11	513
68	605	544	394	554	488	358	83	83	89	84	85	####	99	486	92.83	9.01	0.07	11	517
70	598	537	394	558	486	354	83	83	91	84	85	####	99	480	91.97	8.94	0.09	11	515
72	<u>592</u>	<u>533</u>	<u>394</u>	<u>560</u>	<u>491</u>	<u>351</u>	<u>83</u>	<u>83</u>	<u>92</u>	<u>85</u>	<u>85</u>	<u>####</u>	<u>99</u>	<u>476</u>	<u>92.53</u>	<u>8.95</u>	<u>0.08</u>	<u>11</u>	<u>514</u>
74	592	520	394	562	494	350	83	83	93	84	85	####	99	473	93.54	9.00	0.07	11	513
76	600	454	395	566	496	350	83	82	94	85	85	####	99	473	94.10	9.22	0.06	11	502
78	596	529	397	572	500	351	83	83	95	85	85	####	99	470	92.94	8.64	0.07	11	519
80	574	549	396	570	502	345	83	83	95	84	85	####	98	460	92.46	7.32	0.34	12	518
82	550	562	395	570	505	334	83	83	96	84	85	####	97	447	92.69	6.89	0.47	13	516
84	529	576	393	571	505	324	82	83	96	84	85	####	98	435	92.12	6.65	0.63	13	515
86	520	483	393	574	507	316	82	83	96	84	85	####	98	425	92.67	6.56	0.73	13	495
88	507	573	389	574	509	312	83	83	97	84	85	####	98	417	93.07	6.28	0.81	13	510
90	499	580	386	570	507	308	82	83	97	85	85	####	98	409	91.90	6.01	0.86	14	509
92	490	599	383	568	509	303	82	82	97	84	85	####	97	401	90.49	5.83	0.91	14	510
94	482	615	391	567	506	301	82	83	97	84	85	####	95	393	91.33	5.64	0.95	14	512
96	470	572	392	564	506	297	82	83	97	84	85	####	96	383	91.49	5.22	1.08	14	501
98	457	588	389	560	506	291	82	83	97	84	85	####	95	375	89.68	5.18	1.11	14	500
100	450	569	383	554	500	286	82	83	97	84	85	####	96	368	91.27	5.33	1.09	14	491
102	445	498	379	555	502	283	82	83	96	84	85	####	96	361	91.92	5.27	1.14	14	476
104	438	561	376	552	500	280	82	82	96	84	84	####	95	355	90.19	5.28	1.18	14	485
106	430	569	371	547	498	277	82	82	96	86	85	####	95	350	93.32	5.22	1.21	14	483

Manufacturer: Foyers Suprême Inc.

Model: LASER-E

Date: 27-Oct-2016

RUN #:

Test Duration: 190

Burn rate: 1.697 dry kg/hr

Pollu rate: 2.396 gr/hr

Polluants: 5 mg

Delta Temp FB: #REF! degF

Pollution rate 1.393 gr/hr

non adjusted:

Time	Unit	Unit	Unit	Unit	Unit	DGM#1	Filter#1	DGM#2	Filt#2	Tunnel	Flue gas	Room	CO2	CO	O ²	Bimetal	Weight	Burn	FB		
[min]	top	bottom	back	LH side	RH side	In T	Out T	Temp	In T	Out T	Temp	Temp	Temp	Temp		Temp	Remaining	Rate	Temp		
0	272	388	361	344	337	232	85	86	84	86	88	####	91	169	90.09	0.90	0.68	19	14.76		340
2	251	386	357	340	331	227	85	87	89	86	86	####	92	172	90.95	0.22	0.17	20	14.86	-0.10	333
4	245	377	352	336	329	215	85	86	89	86	86	####	91	179	90.21	0.36	0.24	20	14.82	0.04	328
6	266	380	346	330	323	210	85	85	89	86	87	####	91	203	91.06	2.68	0.20	18	14.62	0.20	329
8	347	374	342	326	317	219	85	85	89	85	86	####	92	255	90.42	4.32	0.22	16	14.22	0.40	341
10	555	382	337	322	313	258	85	85	91	87	87	####	92	361	90.76	6.74	0.31	14	13.52	0.70	382
12	649	387	339	322	313	326	85	84	92	87	88	####	94	404	92.16	5.86	0.43	14	13.05	0.46	402
14	683	397	351	323	314	371	85	84	94	86	87	####	95	431	93.05	6.04	0.43	14	12.63	0.42	414
16	733	404	365	325	316	409	85	84	95	87	88	####	95	466	92.28	7.65	0.46	13	12.17	0.46	429
18	651	416	378	327	318	428	85	84	96	86	87	####	96	423	93.10	4.84	0.58	15	12.07	0.10	418
20	565	422	386	329	317	409	85	85	96	86	87	####	96	389	91.53	3.62	0.49	16	11.97	0.10	404
22	512	436	391	330	319	379	84	85	96	86	88	####	95	366	91.57	4.15	0.44	16	11.83	0.14	398
24	503	441	394	330	319	360	84	84	96	88	90	####	96	363	92.97	7.05	0.65	13	11.53	0.30	397
26	542	443	398	332	319	357	85	84	96	87	90	####	97	390	94.07	9.84	0.56	10	11.13	0.40	407
28	616	442	406	336	319	376	85	85	97	86	88	####	96	421	93.25	10.27	0.39	10	10.72	0.40	424
30	690	443	414	341	322	415	85	85	97	87	88	####	97	445	94.39	10.18	0.39	10	10.36	0.36	442
32	728	448	424	346	325	449	84	84	98	87	87	####	97	461	95.23	10.64	0.36	10	10.02	0.34	454
34	777	440	434	351	329	481	84	84	100	87	90	44	98	480	95.87	10.93	0.20	10	9.66	0.36	466
36	777	452	445	357	333	506	85	84	102	87	90	188	99	491	96.50	9.62	0.25	11	9.36	0.30	473
38	770	458	455	362	338	515	85	84	103	87	88	####	99	497	96.93	9.86	0.27	11	9.04	0.32	477
40	779	460	465	366	342	522	85	84	105	88	91	####	99	505	95.79	9.81	0.20	11	8.75	0.28	483
42	775	463	477	370	348	526	85	85	106	88	91	####	99	507	96.63	9.59	0.22	11	8.47	0.28	487
44	780	465	488	376	351	532	85	86	107	87	87	####	100	510	97.24	9.87	0.24	11	8.17	0.30	492
46	785	473	497	382	356	537	85	86	107	87	91	####	100	511	96.37	9.81	0.28	11	7.82	0.34	499
48	787	472	505	387	360	541	85	84	108	87	89	####	101	514	97.97	10.02	0.28	10	7.52	0.30	502
50	794	481	513	393	364	544	85	84	107	88	93	####	101	516	98.27	10.11	0.27	10	7.26	0.26	509
52	792	488	520	398	369	548	85	85	107	88	94	####	101	517	98.74	10.24	0.27	10	6.96	0.30	513
54	797	491	528	404	375	551	85	84	107	88	93	####	102	519	98.62	10.45	0.25	10	6.66	0.30	519
56	798	493	537	410	381	555	85	85	106	87	92	####	102	521	98.00	10.34	0.26	10	6.42	0.24	524
58	796	500	548	416	387	557	85	85	106	88	91	####	103	520	98.73	10.25	0.27	10	6.12	0.30	529
60	795	499	559	423	390	558	85	85	106	88	91	####	102	517	99.16	10.18	0.26	10	5.81	0.30	533
62	786	503	571	429	395	555	85	84	84	89	94	####	103	512	####	10.17	0.23	10	5.55	0.26	537
64	779	502	581	436	402	551	85	85	87	88	94	####	103	508	99.06	10.06	0.21	10	5.31	0.24	540
66	774	511	591	443	405	547	85	85	89	88	93	####	103	502	99.78	9.98	0.18	10	5.05	0.26	545
68	772	511	600	450	411	546	85	86	92	88	94	####	103	497	99.25	9.95	0.15	10	4.81	0.24	549
70	764	517	609	458	418	543	85	86	94	88	93	####	103	493	98.39	9.75	0.14	10	4.61	0.20	553
72	757	519	618	464	424	539	85	86	95	88	93	####	103	488	98.70	9.66	0.11	11	4.40	0.20	556
74	748	523	625	470	429	534	85	86	96	87	94	####	103	483	98.40	9.50	0.10	11	4.22	0.18	559
76	739	528	631	477	433	530	85	86	98	88	94	####	103	478	98.77	9.27	0.08	11	4.02	0.20	562
78	731	527	637	483	437	525	85	84	99	88	94	####	103	472	####	9.07	0.06	11	3.82	0.20	563
80	725	529	641	488	443	521	85	85	101	89	95	####	103	467	99.97	8.96	0.06	11	3.66	0.16	565
82	719	529	647	493	447	516	85	85	101	88	93	####	104	463	####	8.85	0.05	11	3.46	0.20	567
84	713	524	650	498	452	513	85	85	102	88	91	####	104	458	99.74	8.71	0.05	11	3.32	0.14	567
86	703	532	655	502	456	506	85	85	103	87	93	####	104	453	99.21	8.50	0.05	12	3.22	0.10	570
88	697	535	656	506	462	503	85	86	103	88	93	####	103	447	####	8.40	0.04	12	3.06	0.16	572
90	695	539	658	510	468	499	85	86	104	88	90	####	103	443	99.72	8.34	0.05	12	2.91	0.14	574
92	691	537	660	515	471	496	85	86	104	88	93	####	103	440	99.82	8.08	0.04	12	2.76	0.16	575
94	684	532	662	518	473	492	85	84	104	88	95	####	103	436	####	7.85	0.05	12	2.61	0.14	574
96	676	523	663	519	478	490	86	85	104	94	102	####	101	431	98.00	7.23	0.18	13	2.55	0.06	572
98	670	537	663	526	482	485	86	85	105	89	95	####	103	426	####	6.97	0.24	13	2.35	0.20	575
100	664	535	660	529	483	480	86	87	105	88	95	####	103	421	99.55	6.60	0.34	13	2.25	0.10	574
102	657	544	657	533	486	478	86	87	105	88	93	####	103	417	####	6.30	0.35	13	2.15	0.10	575
104	650	554	652	534	491	476	86	87	105	88	91	####	103	411	99.70	6.07	0.38	14	2.05	0.10	576
106	644	554	648	534	494	474	86	86	105	89	90	####	103	406	####	5.99	0.38	14	1.95	0.10	575

Manufacturer: Foyers Suprême Inc.

Model: LASER-E

Date: 27-Oct-2016

RUN #:

Test Duration: 204

Burn rate: 1.553 dry kg/hr

Pollu rate: 2.983 gr/hr

Polluants: 8 mg

Delta Temp FB: #REF! degF

Pollution rate 1.813 gr/hr

non adjusted:

Time	Unit	Unit	Unit	Unit	Unit	DGM#1	Filter#1	DGM#2	Filt#2	Tunnel	Flue gas	Room	CO2	CO	O ²	Bimetal	Weight	Burn	FB		
[min]	top	bottom	back	LH side	RH side	In T	Out T	Temp	In T	Out T	Temp	Temp	Temp	Temp			Temp	Remaining	Rate	Temp	
0	289	355	366	350	354	243	85	85	85	84	85	####	84	181	82.13	1.29	1.00	18	14.53		343
2	267	387	361	349	350	235	84	84	87	84	84	####	87	183	90.13	0.42	0.31	20	14.48	0.05	343
4	281	366	357	341	344	226	84	85	87	83	83	####	84	209	84.72	3.10	0.25	17	14.43	0.05	338
6	372	359	354	336	340	236	84	84	87	84	84	####	84	273	81.78	6.15	0.23	14	13.87	0.56	352
8	552	391	360	334	336	273	84	83	89	83	83	####	87	376	88.03	7.95	0.43	12	13.26	0.60	394
10	691	418	373	333	334	344	84	83	90	85	85	####	88	454	89.58	7.87	0.49	12	12.78	0.48	430
12	687	449	389	337	336	384	84	82	90	86	84	####	90	455	91.88	6.76	0.64	13	12.38	0.40	440
14	676	466	403	341	338	399	84	82	91	86	85	####	92	458	93.22	6.83	0.70	13	11.98	0.40	445
16	676	473	416	342	340	415	84	83	90	86	85	####	92	450	92.65	7.25	0.58	13	11.68	0.30	449
18	599	477	426	343	341	415	84	83	93	85	85	####	91	413	91.37	5.22	0.86	14	11.54	0.14	437
20	544	485	431	346	342	394	84	83	94	86	86	####	92	395	92.16	6.99	0.97	13	11.23	0.30	430
22	539	484	435	349	341	379	84	83	95	85	85	####	91	400	91.12	9.27	0.84	11	10.93	0.30	430
24	574	489	440	353	341	382	84	83	95	85	85	####	92	413	93.08	9.64	0.84	11	10.57	0.36	439
26	628	473	445	357	341	404	84	83	96	86	86	####	91	424	92.81	9.99	0.69	10	10.23	0.34	449
28	676	477	451	359	344	431	84	83	96	86	86	####	92	437	92.13	10.01	0.59	10	9.93	0.30	461
30	714	461	457	361	347	455	84	83	97	86	87	####	91	451	92.64	10.67	0.42	10	9.57	0.36	468
32	711	475	464	366	350	470	84	83	97	88	87	####	91	453	92.53	9.87	0.52	11	9.32	0.24	473
34	717	490	469	372	354	478	84	83	97	88	86	####	94	454	95.60	10.33	0.49	10	8.96	0.36	480
36	722	489	473	377	356	488	84	83	97	87	87	####	94	454	97.44	10.18	0.49	10	8.66	0.30	484
38	718	415	478	377	360	493	84	84	97	87	86	####	92	453	89.64	10.42	0.47	10	8.44	0.22	470
40	719	475	482	380	365	495	84	84	97	87	87	####	92	454	94.69	10.96	0.41	10	8.18	0.26	484
42	726	476	487	386	368	500	84	83	97	88	89	####	93	457	95.93	11.42	0.35	9	7.87	0.30	489
44	735	491	493	391	371	505	85	83	97	88	88	####	93	462	94.65	11.73	0.29	9	7.63	0.24	496
46	739	485	499	395	375	509	85	84	98	88	88	####	94	466	98.74	11.99	0.28	9	7.37	0.26	499
48	741	460	504	403	378	513	85	84	98	89	90	####	93	471	92.35	12.20	0.24	8	7.07	0.30	497
50	735	454	511	406	383	516	85	84	98	88	88	####	90	475	90.07	11.89	0.23	9	6.83	0.24	498
52	738	475	519	411	387	518	85	85	99	88	88	####	93	477	93.22	12.61	0.31	8	6.57	0.26	506
54	755	470	526	416	391	524	85	85	100	87	88	####	92	483	94.75	13.04	0.33	8	6.27	0.30	512
56	763	482	536	422	396	531	85	84	102	89	89	####	92	487	97.01	13.15	0.34	7	5.96	0.30	520
58	766	513	546	431	399	537	85	84	103	87	87	####	95	489	99.26	13.14	0.35	7	5.66	0.30	531
60	765	520	556	438	404	539	85	84	104	88	89	####	97	488	99.11	12.77	0.41	8	5.42	0.24	537
62	758	506	567	441	409	537	85	86	106	90	89	####	94	484	99.08	12.36	0.40	8	5.16	0.26	536
64	753	518	576	448	415	535	86	86	105	87	87	####	95	478	96.88	12.01	0.38	8	5.02	0.14	542
66	742	459	587	452	417	530	86	86	106	88	89	####	89	472	89.07	11.72	0.33	9	4.75	0.26	531
68	728	506	594	456	423	524	86	86	106	87	88	####	92	465	97.37	11.44	0.28	9	4.61	0.14	542
70	722	463	601	460	428	519	85	86	105	86	87	####	89	459	89.13	11.38	0.20	9	4.41	0.20	535
72	722	466	607	465	432	515	85	85	105	87	88	####	91	453	90.93	11.32	0.17	9	4.23	0.18	538
74	719	463	612	468	437	513	85	86	104	86	87	####	89	448	91.80	11.19	0.17	9	4.07	0.16	540
76	720	490	616	473	442	513	85	85	104	86	87	####	90	444	93.11	11.49	0.16	9	3.87	0.20	548
78	721	501	619	479	447	513	85	85	86	89	89	####	91	443	96.48	11.53	0.15	9	3.67	0.20	553
80	725	506	622	480	452	513	85	85	90	89	89	####	91	441	98.78	11.62	0.14	9	3.46	0.20	557
82	721	454	626	485	456	516	85	85	92	87	88	####	90	440	87.48	11.09	0.24	9	3.32	0.14	548
84	707	514	629	488	461	511	85	85	95	89	90	####	92	435	95.14	10.51	0.26	10	3.16	0.16	560
86	692	511	632	492	463	505	85	85	96	90	90	####	92	428	94.40	9.98	0.35	10	3.05	0.11	558
88	681	547	634	498	467	498	85	85	96	90	88	####	93	421	####	9.76	0.36	10	2.92	0.13	565
90	671	514	637	500	470	491	85	85	97	88	89	####	91	415	95.37	9.73	0.38	10	2.82	0.10	558
92	662	465	640	499	469	483	85	86	97	85	85	####	86	410	86.86	9.77	0.33	10	2.66	0.16	547
94	655	538	639	502	473	477	85	85	97	88	88	####	92	404	96.27	9.82	0.29	10	2.56	0.10	562
96	644	543	641	507	478	472	85	84	98	89	89	####	92	398	98.45	9.44	0.35	10	2.46	0.10	562
98	634	504	641	510	482	467	85	85	98	87	88	####	88	394	90.19	9.49	0.29	10	2.36	0.10	554
100	632	549	639	515	483	463	85	84	98	90	90	####	93	391	95.31	9.39	0.29	10	2.22	0.14	563
102	628	533	638	517	486	460	85	85	99	89	89	####	91	386	95.91	8.68	0.46	11	2.11	0.10	560
104	620	543	637	516	490	457	85	85	99	88	88	####	89	380	92.88	8.43	0.54	11	2.06	0.06	561
106	612	529	635	518	493	452	85	85	99	90	90	####	92	375	92.50	8.29	0.58	11	1.95	0.10	557

St-jean-sur-Richelieu, September 20th 2016

rev1 June 28th 2017

Client: Foyers Suprême inc

Project: PI-201301

Model: Ambiance Elegance 36 (24SF model number)

APPENDIX 5: Participants

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v-p operation
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Maxime Martin
Technicien
Services Polytests inc.
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St-jean-sur-Richelieu, September 20th 2016

rev1 June 28th 2017

Client: Foyers Suprême inc

Project: PI-201301

Model: Ambiance Elegance 36 (24SF model number)

APPENDIX 6: Drawings and specifications

St-jean-sur-Richelieu, September 20th 2016
rev1 June 28th 2017
Client: Foyers Suprême inc
Project: PI-201301
Model: Ambiance Elegance 36 (24SF model number)

APPENDIX 7: Operator's manual



Ambiance Elegance 36

Nova

Lotus

EPA Documents

Model Number: **24SF**

This product is proudly manufactured in North America by **SUPREME FIREPLACES INC.**

3594 Jarry East, Montreal, QC H1Z 2G4

T: 877-593-4722, F: 514-593-4424

www.supremem.com

Revised: October 2016

IMPORTANT: Keep the owner's manual for future use.

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MODEL NUMBER/NUMERO MODELE: 24SF Ambiance Elegance 36 ☐ Nova ☐ Lotus ☐ SEPTEMBER 2016 / SEPTEMBRE 2016 TESTED TO / TESTÉ SELON: CERTIFIED FOR CANADA AND USA / CERTIFIÉ POUR LE CANADA ET LES É-U MADE IN CANADA / FABRIQUÉ AU CANADA		U.S. ENVIRONMENTAL PROTECTION AGENCY Certified to comply with 2020 particulate emission standards using crib wood. Tested with EPA Method 28R crib wood standard at 1.77 gm/hr of emissions. This wood heater needs periodic inspection and repair for proper operation. Consult the owner's manual for further information. It is against federal regulations to operate this wood heater in a manner inconsistent with the operating instructions in the owner's manual.		WH-24SF		3594 Jarry E., Montreal, QC H1Z 2G4, Canada									
				DATE OF FABRICATION / DATE DE FABRICATION											
				JA	FE	MR	AR	MA	JN	JL	AU	SE	OC	NO	DE
				2016		2017		2018		2019		2020		2021	
ELECTRICAL RATING - OPTIONAL ALIMENTATION ÉLECTRIQUE - OPTIONNEL VOLTAGE / VOLTAGE: 120 V FREQUENCY / FRÉQUENCE 60 Hz POWER / PUISSANCE 56 W															
CAUTION Hot while in operation. Do not touch. Keep children, clothing, and furniture away. Contact may cause skin burns. See nameplate and instructions. Chaud pendant fonctionnement. Ne pas toucher. Garder les enfants, les vêtements et les meubles hors de portée. Risque de brûlures au contact. Voir la fiche signalétique et instructions.															



AMBIANCE

FIREPLACES | GRILLS

Elegance 36

Owner's Manual



Model Number: **24SFP**

This product is proudly manufactured in North America by **SUPREME FIREPLACES INC.**

3594 Jarry East, Montreal, QC H1Z 2G4

T: 877-593-4722, F: 514-593-4424

www.supremem.com

Revised: October 2016

IMPORTANT: Keep the owner's manual for future use.

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1 SAFETY

SUPREME FIREPLACES INC. congratulates you on purchasing an Elegance 36 wood burning fireplace. This manual describes the installation and operation of the Elegance 36 non-catalytic wood heater. This heater meets the 2020 U.S. Environmental Protection Agency's crib wood emission limits for wood heaters sold after May 15, 2015. Under specific test conditions this heater has been shown to deliver heat at rates ranging from 10,125 to 25,944 Btu/hr. In addition, this fireplace complies with the ULC-S610 and UL 127 standards.

SAFETY NOTICE: Carefully read this manual before installation and operation of this fireplace. A house fire may result if not properly installed. To reduce the risk of a fire, follow the installation instructions. Failure to follow instructions presented in this manual can lead to property damage, bodily injury or even death. Alterations or modifications made on the unit or the installation is strictly forbidden as it may predispose the user to hazardous risks. Contact your local building or fire officials for restrictions and installation inspection requirements in your area and the need to obtain a permit.

WARNING: This unit is hot during operation; keep children, pets, flammable liquids, or combustible materials at a safe distance. Ensure that all clearances to combustible materials are respected. Contact with the unit during operation may cause severe harm. Install a safety screen to keep children and pets away.

CAUTION:

- Do not connect this unit to a chimney flue serving another appliance.
- Do not connect to any air distribution duct or system.
- Never use chemicals to ignite the fire.
- Never burn waste or flammable fluids (such as gasoline, naphtha, or engine oil).
- Only burn dry natural cordwood.
- Never leave the unit unattended with the door open or unlatched.
- Only refuel this unit when the wood is reduced to embers.
- Always keep the door closed during operation.
- Do not operate this unit with a fireplace grate.
- Do not install an unvented gas log set into the firebox.
- Do not install this unit in a mobile home.
- Do not clean or service the unit while it is hot.
- Allow proper air flow by keeping the louvers/openings clear of any obstructions.

Note: Failure to respect the above cautions may cause damages to the unit, damages to personal property, bodily harm and will void the warranty. "This wood heater needs periodic inspection and repair for proper operation. It is against federal regulations to operate this wood heater in a manner inconsistent with operating instructions in this manual."



WARRANTY REGISTRATION

Please register your SUPREME product online at <http://www.supremem.com/registration.php> to ensure full warranty coverage. Proof of purchase is required for all warranty claims.

2 GENERAL INFORMATION

2.1 Overall Dimensions

2.2 Specifications

Appliance Type:	Adjustable Burn Rate Wood Heater – Non-Catalytic
Fuel Type:	Dry Cordwood
Maximum Log Length:	24 in (609 cm)
Burn Time ¹ :	6 to 10 hrs
Firebox Volume:	2.4 ft ³ (0.069 m ³)
Heating Area:	500 to 2,000 ft ² (45 to 185 m ²)
Average Particulate Emissions Rate ² :	1.77 g/hr
Average CO Emissions Rate ³ :	106.9 g/hr
EPA Protocol:	Method 28R, ASTM2780-10, and ASTM2515-11
Efficiency (Crib Wood):	HHV ⁴ : 67.14% LHV ⁵ : 72.56%
Heat Output (Crib Wood):	10,125 to 25,944 BTU/hr (2,967 to 7,603 W)
Optimum Efficiency:	75%
Optimum Heat Output:	75,000 BTU (21.9 kWh)
Efficiency Protocol:	CSA B415.1-10

2.3 Combustion Air Control

The Combustion Air Control is a patented mechanism (Patent No: US 7,325,541 B2) that regulates the air flow into the firebox based on the temperature of the unit. It is located on the top of the firebox, at the front center of the unit. The combustion air control of the Elegance 36 has two components: the Activator and the Burn Rate Selector. The left combustion control lever is the Activator. When starting a fire or adding a new load of wood, the Activator must be pushed in to allow a primary source of air to enter the firebox. The Activator will retract automatically with heat. The right combustion control lever is the Burn Rate Selector. The Burn Rate Selector can slide sideways to achieve different burn rates. When the Burn Rate Selector is positioned to the left, a maximum burn rate is achieved and when it is positioned to the right, a minimum burn rate is set. For optimum efficiency, it is recommended to operate the unit with the Burn Rate Selector set at the low to medium/low position.

WARNING: Never manipulate the Combustion Air Control with bare hands as it gets hot when the Elegance 36 is in operation. Use the Cold Hand Key (see Section 2.3) to adjust the Combustion Air Control.

¹ Depending on combustion air control setting (see Section 4.3 for further details).

² Officially tested and certified by an independent.

³ Note that rate is smaller for low to medium/low burn rates.

⁴ Higher Heating Value.

⁵ Lower Heating Value.

2.4 Cold Hand Key

The Cold Hand Key is an accessory that comes standard with the Elegance 36 fireplace. The Cold Hand Key is a tool used to manipulate the Combustion Air Control Levers when it is hot.

2.5 Chimney Sweeping Cap

The chimney sweeping cap found at the baffle of the Elegance 36 allows easy access for chimney sweeping without having to remove any components of the firebox.

WARNING: The chimney sweeping cap should be blocking the access to the chimney at all times during combustion. A chimney sweeping cap that is not blocking the baffle hole during combustion is a safety hazard, will overheat the fireplace and void the warranty.

2.6 Door

The Elegance 36 wood burning fireplace comes with a Pyroceramic glass panel door. Pyroceramic is the highest grade available for fireplaces and stoves and can withstand temperatures up to 1300°F. To remove the door, open the door, lift it and pull it towards the bottom until the rod exits from the hinge holes.

2.7 Certification Label

The certification label contains important information regarding the installation and operation of the Elegance 36 fireplace. In addition, the serial number of the unit is permanently embossed onto the top right corner. The certification label is located below the bottom right corner of the door and is accessible by swiveling the plate.

2.8 Removable Ash Lip

The Ash Lip is a removable accessory that comes standard with the Elegance 36 fireplace. It is installed on the door holder (under the two small angled tags below the door) and prevents ashes from falling onto the front of the hearth. The Ash Lip can be installed with the door open or closed. It is safe to operate the unit without the Ash Lip.

NOTE: The door of the Elegance 36 must remain closed at all times during operation.

2.9 Optional Blower Kit

An AC tangential optional blower (electrical rating: 115V, 60Hz, and 56W) with a variable speed control can be installed into the Elegance 36 wood burning fireplace to maximize efficiency. Refer to Section *** for installation instructions.

WARNING: Make certain that the fireplace is not in operation and the blower is unplugged (breaker off) before accessing the electrical wiring of the blower kit.

CAUTION: Only a blower provided by SUPREME FIREPLACES INC. can be installed into the fireplace. Substituting the blower kit may result in overheating and will void the warranty.

2.10 Optional Hot Air Kit

The Optional Hot Air Kit allows heat to be drawn from the unit by a thermostatically controlled blower (electrical rating: ***V, ***Hz, and ***W) and dispersed to different areas of the house. This option is recommended when

the fireplace is installed in an area below the maximum heating space. A total of three kits can be installed onto one unit with a maximum distance of 25 feet. Note that a 5 inch insulated duct is required for the installation (item ordered separately). Refer to Section *** for installation instructions.

WARNING: Make certain that the fireplace is not in operation and that hot air blower is not powered (breaker off) before accessing the electrical wiring of the hot air kit.

CAUTION: Only a hot air kit provided by SUPREME FIREPLACES INC. can be installed onto the fireplace. Substituting the hot air kit may result in overheating and will void the warranty.

2.11 Optional Fresh Air Kit

The Optional Fresh Air Kit allows for exterior air (outdoors) to be drawn into the fireplace during operation of the unit. Note that a 4 inch insulated duct is required for the installation (item ordered separately). Refer to Section *** for installation instructions. Contact your local building official regarding mandatory fresh air kit installations within your area.

CAUTION: Only a fresh air kit provided by SUPREME FIREPLACES INC. can be installed onto the fireplace. Substituting the fresh air kit may result in overheating and will void the warranty.

3 INSTALLATION INSTRUCTIONS

Before installing the unit, consult an authority having jurisdiction (such as your municipal building department, your fire department, your fire prevention department...) to determine whether a permit is required. **CAUTION: Modifications/alterations to the unit/installation without written authorization from SUPREME FIREPLACES INC. are strictly forbidden and will void the warranty.** Refer to Section 1 for further safety information. Carefully read the instructions below before installing your Elegance 36.

3.1 Location

Determine the location of the Elegance 36 by taking into consideration the following criteria:

- The size of the room with respect to the heat output of the fireplace.
- The proximity of windows, doors, and traffic flow.
- The necessary amount of space in front of the unit for the hearth extension and mantel.
- The clearances to combustible materials.
- The passage of the chimney.

If possible, select a location for the fireplace that will minimize the number of offsets in the chimney course. Offsets will reduce the draft, complicate the chimney sweeper's work, and increase installation costs. Technical drawings outlining the chimney route should be prepared prior to the installation. NOTE: The cutting of joists and rafters for floor, ceiling, and roof chimney penetrations will affect the load bearing capacities of the dwelling structure. To determine whether additional support is required, consult your local building codes. Improper cutting of chimney openings in the attic and roof will affect the bearing and thermal insulating capacity, as well as the weather tightness of the dwelling. Avoid incorrect workmanship by consulting a professional engineer or a certified installer.

Through examination of the floor construction, ensure that the fireplace and chimney system is resting on a surface capable of withstanding its weight. Consult your building codes to see whether additional structural supports are required (applicable for rare and isolated cases).

Avoid having the chimney outlet near any obstructions (such as trees and roof offsets) as the draft of the chimney may be affected by wind turbulence. Ideally position the outlet of the chimney at the highest area of the roof.

NOTE: It is strongly recommended to install a carbon monoxide (CO) and smoke detector near the location of the unit.

3.2 Chimney Installation

The minimum chimney height from the base of the unit is 15 feet.

3.3 Façade Installation

3.4 Framing

3.5 Hearth Extension

3.6 Chase Installation

3.7 Clearances to Combustibles

3.8 Installation of Optional Blower Kit

3.9 Installation of Hot Air Kit

3.10 Installation of Fresh Air Kit

4 OPERATION INSTRUCTIONS

4.1 Fuel

The Elegance 36 is designed to burn natural wood only. Higher efficiencies and lower emissions generally result when burning air dried seasoned hardwoods (moisture content below 20%), as compared to softwoods or to green or freshly cut hardwoods. The following are a few signs indicating that firewood is sufficiently dry for use: (a) cracks on the ends and surface of the logs, (b) lighter in weight, and (c) color (yellow/grey). It is recommended to use a moisture meter with pin sensors for determining accurately the moisture content of firewood (read manufacturer's instruction manual before operating). The optimum log length is 18-22 inches, preferably split in halves or quarters and left to dry under a cover or away from external elements for a minimum of one year prior to use. Use good quality dry cordwood only. DO NOT burn garbage, lawn clipping, yard waste, materials containing rubber (including tires), materials containing plastic, waste petroleum products, paints, paint thinners, asphalt products, materials containing asbestos, construction debris, demolition debris, railroad ties, pressure-treated wood, manure, animal remains, coal, salt water driftwood or other previously salt water saturated materials, unseasoned wood, paper products, cardboard, plywood, particle boards, or other foreign materials in this product. The prohibition against burning these materials does not prohibit the use of fire starters made from paper, cardboard, saw dust, wax and similar substances for the purpose of starting a fire in an affected wood heater. Burning these materials may result in release of toxic fumes or render the heater ineffective and cause smoke. Do not over fire the Elegance 36 fireplace. Over firing will damage the fireplace, is hazardous and will void the warranty. NOTE: Gas logs cannot be installed in the Elegance 36 fireplace.

WARNING: Never use gasoline, gasoline-type lantern fuel, kerosene, charcoal lighter fluid, or similar liquids to start or "freshen up" a fire in this fireplace. Keep all such liquids well away from the fireplace while it is in use.

Ecological or compressed logs containing chemical additives are not tested and approved to be used with the Elegance 36. Using them will overheat and damage the fireplace and void the warranty. Ecological or compressed logs that are 100% wood and contain no other additives can be safely used in the Elegance 36. Never use more than three of these logs at a time. Using more is not only dangerous, but will damage the fireplace and void the warranty. Follow the ecological log manufacturer's safety guidelines and recommendations and be sure that they are intended for use in fireplaces. Reload only once the previous load of wood has been consumed and only embers remain.

WARNING: Do not keep the door open while the fireplace is in operation.

4.2 First Fires

For the first 3 fires, burn a maximum of 3 logs at the medium to low burn rate (refer to Section 4.3) to allow for proper conditioning of the unit. Due to oil residues and the curing of the paint of the fireplace, it is normal to smell an odor for the first fires of the Elegance 36. Open a window or a door near the fireplace insert to ventilate the house during the first fires. Oil residues may cause light smoking.

4.3 Operating the Combustion Air Control

The burn rate and the heat output are related to the amount of air entering into the firebox. The combustion air control of the Elegance 36 has two components: the Activator and the Burn Rate Selector (see Section 2.2). When starting the fire or when adding a new charge of wood, the fireplace needs additional air in order to establish a good fire. When the wood starts to burn properly, the amount of air can be reduced depending on the heating requirements.

The left combustion control lever is the Activator. When starting a fire or adding a new load of wood, the Activator must be pushed in to allow maximum air to enter the firebox. The right combustion control lever is the Burn Rate Selector. The Burn Rate Selector can slide sideways to achieve different burn rates. When the Burn Rate Selector is positioned to the left, a maximum burn rate is achieved and when it is positioned to the right, a minimum burn rate is set. Keeping the Burn Rate Selector to the right will burn the wood slower. Keeping the Burn Rate Selector to the left will provide a stronger fire and keep the glass of the fireplace cleaner for longer. Adjust the burn rate according to your heating requirements and the quality of your wood. The combustion air control will automatically and gradually close the primary air source to the selected burn rate setting (right lever) with the presence of heat to maximize the burn time.

NOTE: The Burn Rate Selector can remain at the same setting at all times if the burn rate is satisfactory. However, the Activator must be pushed in when starting a fire or when adding a new load of wood.

WARNING: The combustion air openings should never be obstructed.

WARNING: Never manipulate the Combustion Air Control with bare hands as it gets hot when the Elegance 36 is in operation. Use the Cold Hand Key (see Section 2.3) to adjust the Combustion Air Control.

WARNING: This wood heater has a manufacturer-set minimum low burn rate that must not be altered. It is against federal regulations to alter this setting or otherwise operate this wood heater in a manner inconsistent with operating instructions in this manual.

4.4 Starting a Fire

The Elegance 36 has patented technologies and innovative features that make starting a fire quick and easy. Before starting a fire, assure that all the safety precautions mentioned in the owner's manual are being respected. The following instructions describe starting a fire in Elegance 36 fireplace using a "top-down" approach, which results in a cleaner, more efficient, and longer burn:

- a) Place two logs in the firebox. The logs should sit directly on the hearth from left to right (parallel with the door). Do not use a fireplace grate.
- b) Place a third log at angle above the two logs of step a).
- c) Place a fourth log above the logs of step a) and step b) (tilted upwards), which will result in a "pocket" at the center of the firebox.
- d) Push the left combustion control lever (the Activator) inwards.
- e) Slide the right combustion control lever (the Burn Rate Selector) to the desired burn rate. Positioning the Burn Rate Selector towards the left is for maximum burn rate and towards the right is for minimum burn rate.
- f) Place and ignite a firestarter within the "pocket". Make sure that the firestarter is visible from the opening (facing the front) and directly below the logs of step b) and step c).
- g) Once the firestarter is well lit, close the door. Do not leave the door open for more than 2 minutes.

CAUTION: The wood should be placed away from the door to avoid damage to the glass.

WARNINGS: Over firing the unit may result in overheating and can damage the fireplace and/or result in fire hazards. The maximum firewood load must not exceed 4 medium sized logs (approximately 30 pounds). This fireplace has been designed to burn with the door closed. When the fireplace is being used, the door should remain closed at all times. Failing to do so is a safety hazard, will damage the fireplace and void the warranty.

WARNING: Do not use fire accelerants to rekindle the fire if the first attempt to start the fire failed. Do not open the door. Simply reactivate the Activator by pushing it inwards.

NOTE: Sufficient air exchange is necessary for the fireplace to operate properly. Air is required in order to maintain the combustion of the fireplace. If the house is airtight, the fireplace may not function properly. If the fireplace is deprived of air, it will be necessary to provide a source of fresh air into the dwelling. This may be done by using an air exchanger unit or simply by opening a window or a door near the fireplace partially for a few minutes. Make sure that other equipment such as the kitchen exhaust fans or oil central heating systems does not affect the fireplace functionality. Large return ducts of central heating systems located in the same room as the fireplace may affect the proper functioning of the unit and may cause smoking.

4.5 Adding a New Load of Wood

WARNING: Open the door to reload only when the wood has been reduced to embers, otherwise there is a risk of smoke infiltration into the house.

When the wood has been reduced to embers and there's no visible flame, you may add a new load.

- a) Crack the Elegance 36 door open and wait a few moments before opening the door completely.
- b) Use your fireplace tools to gather the remaining embers at the center of the firebox.
- c) Activate the Activator by pushing it in.
- d) Once the embers begin to glow red, add the new load of wood in the firebox.
- e) Keep the door of the Elegance 36 slightly unlatched until you see a flame in the firebox. Never leave the Elegance 36 door unlatched without constant supervision.
- f) Completely latch the Elegance 36 door.

Assure that a flame is maintained. Avoid wood smoldering on top of embers as this will result in a dirty glass, excessive emissions, chimney creosote buildup and poor heat output. If wood is smoldering, ensure the Activator has been activated and unlatch the door slightly with supervision until a flame has been maintained.

4.6 Blower Operation (Optional)

The optional blower kit for the Elegance 36 consists of a blower mounted at the back/bottom of the unit and a heat sensory thermodisk; the blower will start and stop automatically in the presence and absence of heat respectively. A variable speed control allows the adjustment of the speed of the blower. Do not install a substitute kit as this may result in overheating and risk of fire. Refer to Section *** for the installation instructions of the optional blower kit.

When the fireplace gets hot and the thermodisk reaches 95°F, the blower will turn on. The average time it takes for the blower to activate is 30 to 45 minutes after starting a fire as explained in this manual (Section ***). The fans will turn off once the insert has cooled down and the thermodisk reaches 85°F. The speed of the blower can be adjusted with the variable speed control.

5 TROUBLESHOOTING

5.1 Backdraft / Smoking

Draft is the force created by a difference in pressure, which moves air from the appliance up through the chimney. It is important to operate the Elegance 36 with proper draft to ensure optimal performance of the unit. Draft is depended on the length of the chimney, local geography, nearby obstructions and other factors. Proper draft results in an upwards flow through chimney, which prevents smoke infiltrating into the house during operation of the unit. As the temperature of the unit and chimney rises during combustion, the draft consequently increases due to a higher difference in pressure.

In contrast, backdraft is air flow from the chimney into the house, which results in smoke infiltration from the appliance and/or the chimney joints during operation. The unit is experiencing backdraft if air is flowing out from the exhaust of the baffle system (within the firebox). Backdraft is most commonly caused by fans around the house (such as in the kitchen and bathrooms) simultaneously in operation, insufficient length of the chimney (less than 15 feet), or a blocked chimney. Refer to the following suggestions to eliminate backdraft:

- Close any fans operating around the house (specifically for the duration of ignition).
- Clean the chimney of any obtrusions (when the unit is cold).
- Open one window or one door near the Elegance 36.
- Heat the chimney by burning newspaper near the exhaust of the baffle system.

5.2 Over Firing

The appearance of a red glow on the exterior of the firebox (top and sides) and/or on the flue is a sign of over firing. Excess air entering the firebox, over fueling, or an abnormal strong draft causes the unit to reach drastic temperatures from an uncontrollable combustion. Over firing is a safety hazard and may result in permanent damage to the unit. In the occurrence of over firing:

- a) Make sure the Elegance 36 door is properly closed.
- b) Manually close the Combustion Air Control by pulling the Activator (left lever).
- c) Turn on the blower to the maximum speed. The red glow on the exterior of the firebox and/or the flexible liner should gradually disappear.

WARNING: Do not touch hot surfaces with bare hands. Always wear heat protecting gloves and use fireplace tools.

Guideline to avoid over firing:

- Always keep the door closed during operation.
- Inspect regularly the door gasket/glass and replace accordingly.
- Always operate the unit with the chimney sweeping cap in position, blocking the hole in the baffle.
- Never load more than 30 lbs of wood at a time.
- Ensure that there is no excess draft.

WARNING: Failure to follow the above guideline will void the warranty. Over firing is a safety hazard, can cause irreversible damages to the Elegance 36 and will void the warranty.

6 MAINTENANCE

6.1 Disposal of Ashes

Ashes should be placed in a metal container with a tight fitting lid. The closed container of ashes should be placed on a non-combustible floor or on the ground, well away from all combustible materials, pending final disposal. If the ashes are disposed of by burial on soil or otherwise locally dispersed, they should be retained in the closed container until all cinders have been thoroughly cooled. **CAUTION: Always wear heat resistant gloves when removing the ashes from the firebox.**

- a) Let the firebox cool to ambient temperature before removing the ashes. It is recommended to remove the ashes once the bed has exceeded a height of 4 inches.
- b) Slowly open the door to prevent ashes from coming into the room.
- c) Place an ash bucket (metal container) near the fireplace, onto the non-combustible hearth.
- d) Using a shovel and brush, remove the bulk of the ashes from the firebox into the ash bucket. Note that it is not necessary to keep a thin bed of ashes for the next fire.
- e) Store the ash bucket (with the tight-fitting lid) on a non-combustible surface, away from any combustible materials, pending final disposal.

6.2 Chimney Maintenance

Creosote – Formation and Need for Removal: When wood is burned slowly, it produces tar and other organic vapors, which combine with expelled moisture to form creosote. The creosote vapor condenses in the relatively cool chimney flue of a slow-burning fire. As a result, creosote residue accumulates on the flue lining. When ignited, this creosote makes an extremely hot fire. The chimney connector and chimney burning wood or coal should be inspected at least once every two months during the heating season to determine if creosote buildup has occurred. **Never use chemical cleaners for your chimney.**

WARNING: In the case of a chimney fire: 1) close the door of the fireplace; 2) set the burn rate of the Combustion Air Control to minimum (Section 4.3); 3) call the local fire department (if assistance is needed); 4) use a dry chemical fire extinguisher (baking soda or sand) to control the fire.

CAUTION: Never use water to extinguish a fire as it may result to dangerous steam explosions. Do not use the unit until the chimney is inspected and repaired (if needed) by a qualified technician.

NOTE: Do not clean the chimney when the unit is in operation/hot. Follow the instructions below for sweeping the chimney of a Elegance 36 fireplace:

- a) Open the door of the unit.
- b) From within the firebox, displace the chimney sweeping cap located in the baffle by lifting and moving it to the side.
- c) Close the door of the unit.
- d) Using an appropriate sized chimney sweeping brush, clean the chimney from any creosote buildup and other residues.
- e) Remove all the fallen/loose creosote/residues from the firebox and baffle system (a shop vacuum cleaner can be used for a thorough cleaning).
- f) Place back the chimney sweeping cap.

CAUTION: Operating the unit without the chimney sweeping cap in position will result in over firing and void the warranty.

6.3 Cleaning of Glass

It is recommended to clean the glass door with a soft cloth, dampened with a non-abrasive solution, such as soap and water.

CAUTION: Cleaning the glass with an abrasive solution will result in surface scratches, reducing glass transparency and resistance to impacts.

The glass of the door may be cleaned with commercial products intended for fireplaces and stoves. After cleaning the glass, remove any remaining solutions with a wet cloth to avoid chemical reactions at elevated temperatures ("cloudiness" on the surface of the glass).

CAUTION: Do not apply commercial cleaners onto any painted surfaces as discoloration/peeling may occur.

NOTE: Never clean the glass when the unit is in operation or hot.

6.4 Replacing Soapstone Slab

Six soapstone slabs are assembled along the combustion chamber side walls (left, right, and back) allowing for a longer and a constant heat output. It is recommended to perform a weekly check on the condition of the slabs to ensure proper operation of the unit. The soapstone slabs need to be replaced when it is gravely chipped and/or cracked. Failure to replace the soapstone slab under the mentioned conditions will alter the performance of the unit. Refer to the following instructions for replacing a soapstone slab:

- a) Order the replacement kit for the Elegance 36 soapstone slab.
- b) Remove the door from the firebox and place it face down on a soft surface. NOTE: Rotate the handle to permit proper placing.
- c) Remove the bottom plate (hearth) by lifting it out of the firebox.
- d) Remove the retainer at the top of the damaged slab by unfastening the two screws. Note that 1 retainer holds 2 slabs.
- e) Remove and replace the damaged slab.
- f) Assemble the retainer by fastening the two screws.
- g) Insert the bottom plate (hearth) and door to its original position.

WARNING: Do not operate the unit with any of the soapstone slabs missing.

6.5 Replacement of Door Gasket

SUPREME FIREPLACES INC. assembles heat resistant graphite coated gaskets on the doors of all products, allowing for a proper seal of the unit at extreme temperatures (up to 1000°F). It is recommended to perform a weekly visual check on the condition of the ¾" gasket to ensure proper operation of the unit. The ¾" gasket of your door needs to be replaced when 1) the fibers of the gasket are coming loose and 2) the gasket is disintegrating. Failure to replace a gasket under the mentioned conditions can cause irreversible damage to the unit due to over firing. Refer to the following instructions for replacing the ¾" gasket:

- a) Order the replacement kit for the Elegance 36 ¾" door gasket.
- b) Remove the door from the firebox and place it face down on a soft surface. NOTE: Rotate the handle to permit proper placing.
- c) Cover all painted surfaces of the door to avoid damages.
- d) Using a wedging tool or flat head screwdriver, gently remove the old ¾" gasket (along with the old silicone) from the door framing.
- e) Apply a bead of high temperature silicone along the groove of the metal brackets.

- f) Place the new $\frac{3}{4}$ " gasket around the door framing and cut any excess gasket with scissors. NOTE: It is recommended to tape the extremity of the gasket for a cleaner result.

Give significant amount of time to allow the silicone to cure before reinstalling the door onto the firebox. A slight resistance is expected when closing the door with the new $\frac{3}{4}$ " gasket; the door will close normally after the gasket has taken proper shape.

6.6 Replacement of Glass

SUPREME FIREPLACES INC. uses a high quality 5mm thick Pyroceram III / Keralite ceramic glass that can withstand temperatures up to 1300°F. It is recommended to perform a weekly visual check for any damages or cracks on the glass.

WARNING: Avoid striking the glass and slamming the door shut. Never operate the unit with a broken or damage glass.

CAUTION: Wear protective gloves when handling broken glass. Refer to the following instructions for replacing the glass:

- a) Order the replacement kit for the Elegance 36 glass.
- b) Remove, clean, and dispose any broken glass from the door and the surroundings.
- c) Remove the door from the firebox and place it face down on a soft surface. NOTE: Rotate the handle to permit proper placing.
- d) Using a wedging tool or flat head screwdriver, gently remove the $\frac{3}{4}$ " gasket (along with the silicone) from the door framing.
- e) Using a wrench, remove the 8 nuts fastened around the door framing.
- f) Remove the first row of metal brackets (2 small and 2 big) and thin gasket.
- g) Remove the damage glass and clean thoroughly the door framing from loose glass fragments.
- h) Place the new glass onto the second row of thin gasket, centered with the door framing.
- i) Place back the first row of metal brackets (2 small and 2 big) and thin gasket.
- j) Using a wrench, fasten the 8 nuts around the door framing (do not over-tighten).
- k) Apply a bead of high temperature silicone along the groove of the metal brackets.
- l) Place the $\frac{3}{4}$ " gasket back into position.

Give significant amount of time to allow the silicone to cure before reinstalling the door onto the firebox.

6.7 Door Latch Lubrication

Lightly lubricate the hook of door latch (CM0031) on a yearly basis to prevent abrasive wear.

6.8 Paint

Paint touch-ups can be performed on the unit using a high temperature paint (in aerosol spray can format) by Stove Bright®. Refer to your invoice to determine the precise color of your unit. Contact your local hearth shop for further information on purchasing this paint.

NOTE: Apply the paint in a well ventilated area. If applying paint to the door, properly cover/mask the glass of the door using painters tape and cardboard. Wait for paint to dry before operating the unit. Refer to the instructions on the label of the aerosol spray can for proper paint application. **WARNING: Never apply paint to the unit during operation or when it is hot.**

7 WARRANTY

SUPREME FIREPLACES INC. warrants that the factory-built fireplaces, fireplace inserts, and stoves will be free from defects in material and workmanship, under normal use and service, for a period of **twenty-five (25) years** from the date of purchase.

This warranty is only intended for the original retail purchaser, given that the product was purchased from SUPREME FIREPLACES INC. or one of its authorized dealers. This warranty is conditional upon correct installation and intended use of the products and does not cover damages caused by misuse. This warranty shall be void if the fireplace and stove is not installed by an authorized qualified technician in accordance with the installation instructions in the manual provided with this product. The installation must meet local and national building codes.

WARRANTY LIMITATIONS:

Abuse and improper use of the unit may cause irreversible damage and will void the warranty.

- I. During the first two years of the Limited Warranty, SUPREME FIREPLACES INC. will provide replacement parts at no charge and will also pay for reasonable labor costs, except for the parts listed in the EXCLUSIONS portion of this warranty.
- II. During the third through the fifth year of the limited warranty, SUPREME FIREPLACES INC. will provide replacement parts (if available) at no charge, except for the parts mentioned in the EXCLUSIONS portion of this warranty. Supreme Fireplaces Inc. shall not be responsible for any labor costs.
- III. From the sixth through the twenty-fifth year of the limited lifetime warranty, SUPREME FIREPLACES INC. will provide replacement parts (if available) at 50% of the retail price, except for the parts listed in the EXCLUSIONS portion of this warranty. SUPREME FIREPLACES INC. shall not be responsible for any labor costs.

Transportation, packaging, and other related costs or expenses arising from the replacement or repair of defective parts will not be covered by this warranty, nor will SUPREME FIREPLACES INC. assume responsibility for them.

EXCLUSIONS:

SUPREME FIREPLACES INC. shall not be responsible for any labor costs for the replacement or repair of any electrical components, painted/plated parts, secondary air burning system, and the combustion air control.

The following parts are guaranteed for 1 year: blowers, painted/plated parts, secondary air burning system, soapstone, and door gasket.

The following parts are guaranteed for 90 days: ceramic glass (**thermal breakage ONLY**).

This warranty applies to normal residential use only. Damages caused by acts nature or natural disasters, accidents, over firing, misuse, abuse, negligence, improper installation, alterations or substitutions of components of the fireplace insert, abrasives, chemical cleaners, and negligence are not covered by this warranty. Burning anything other than natural wood will damage your fireplace and void the warranty.

SUPREME FIREPLACES INC. will not be responsible for environmental conditions such as inadequate vents or ventilation, excessive venting configurations or negative air pressures which may or may not be caused by mechanical systems such as exhaust fans, furnaces, clothes dryers, etc.

The manufacturer at its discretion may decide to repair or replace any part or unit after inspection and investigation of the defect. The manufacturer may, at its discretion, fully discharge all obligations with respect to this warranty by refunding the wholesale price of the defective part(s).

The manufacturer shall in no event be responsible for any consequential damages of any nature, which are in excess of the original purchase price of the product. Any complete fireplace, or part thereof, that is replaced or serviced under this warranty will be warranted for a period not exceeding the remaining term of the original warranty.

This **Limited Lifetime Warranty** is effective on all appliances sold and supersedes any and all warranties currently in existence.

Please register your SUPREME product online at <http://www.supremem.com/registration.php> to ensure full warranty coverage. Prior to contacting SUPREME FIREPLACES INC., have the following information available for warranty claim processing:

- Customer information (name, telephone number, and address)
- Proof of purchase
- Model name and serial number (see Section 2.7)
- Detailed description of defected component
- Digital pictures (if necessary)

In the case of a return for repair or replacement, it is the responsibility of the customer to adequately package the component/unit to prevent further damage during transport. Items sent to the SUPREME FIREPLACES INC. without an open warranty claim will be returned to the sender.

Warranty claims should be addressed to:

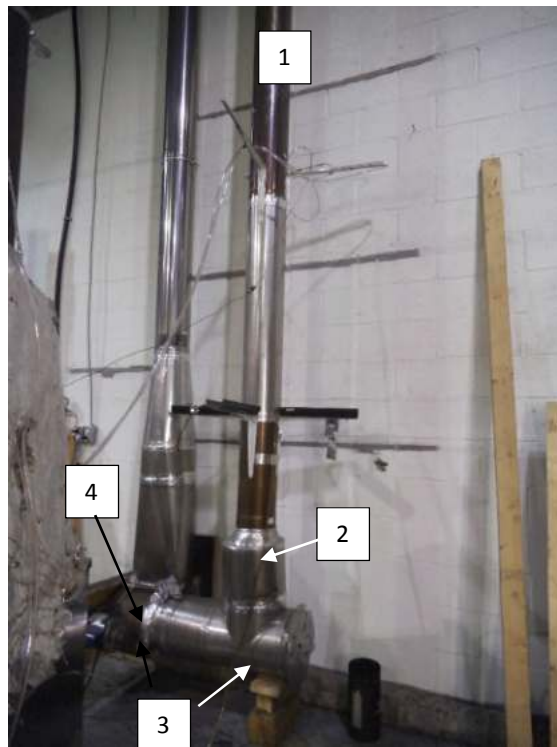
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St-jean-sur-Richelieu, September 20th 2016
rev1 June 28th 2017
Client: Foyers Suprême inc
Project: PI-201301
Model: Ambiance Elegance 36 (24SF model number)

APPENDIX 8: Photographs of test set up

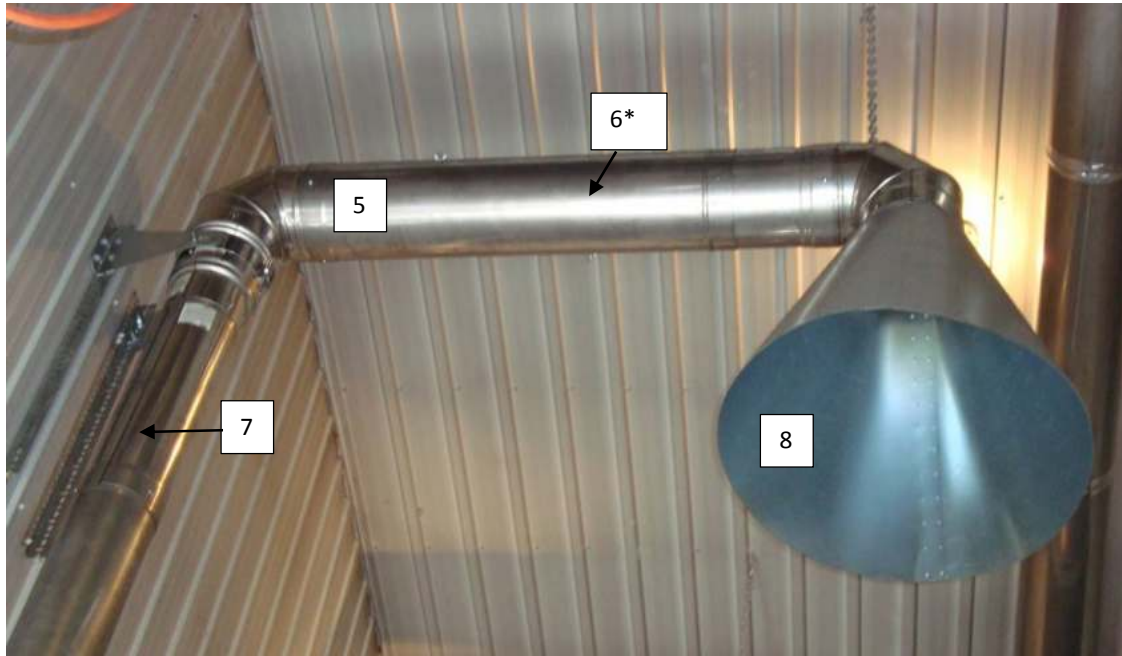
Dilution picture Dia 8

Picture 1: Sampling system



- 1 : 8 in dia Stainless steel pipe
- 2 : 16 in. Between sampling probe and lower elbow
- 3 : Air intake with damper to adjust flow rate
- 4 : Exhaust blower

Picture 2: Hood and mixing baffle



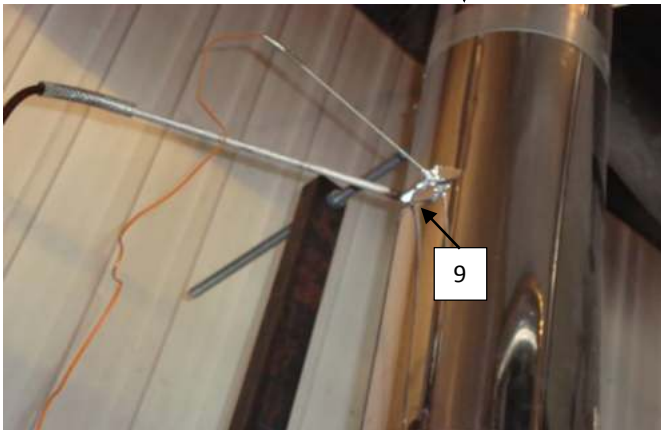
*The arrow point the deflectors inside of the pipe

- 5 : 8 in. dia. Stainless steel pipe
- 6 : Mixing baffle (2) location 1 foot between baffles
- 7 : 10 feet long between velocity port and upper elbow
- 8 : 48 in. dia. Galvanized steel smoke captures hood

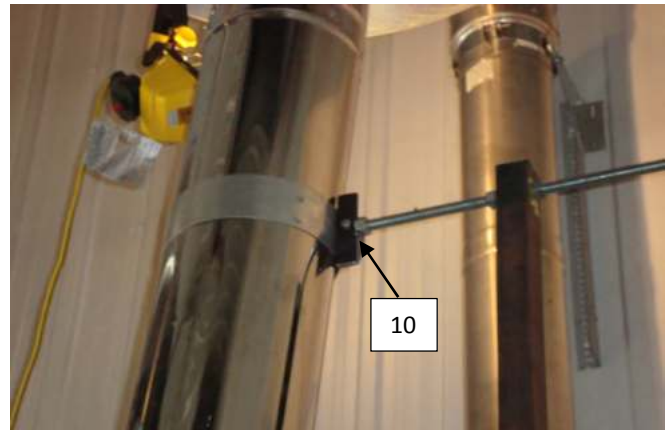
Picture 3: Stack sampling



Picture 3.1: Gas analysis and temperature probe



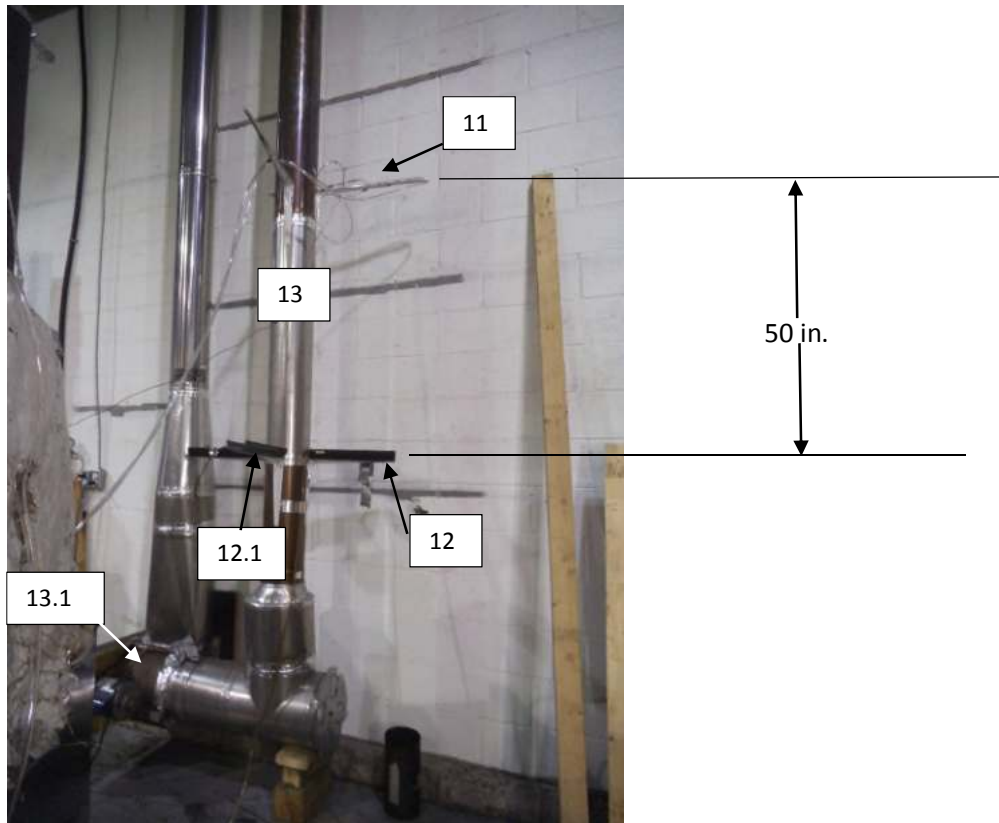
Picture 3.2: chimney support



9 : Temperature and gas analyser sampling ports located 9 feet above platform

10 : Exhaust system support bracket

Picture 4: Tunnel flow measurement and sampling probe



11 : Velocity port

12 : Sampling port, 2 sampling probes with 2x48 mm. dia.filter each. Filter used:
Millipore AP4004700

12.1 : Sampling port, sampling probes with 2x48 mm. dia.filter each. Filter used:
Millipore AP4004700, for first hour sampling

13 : 18 feet long dilution tunnel

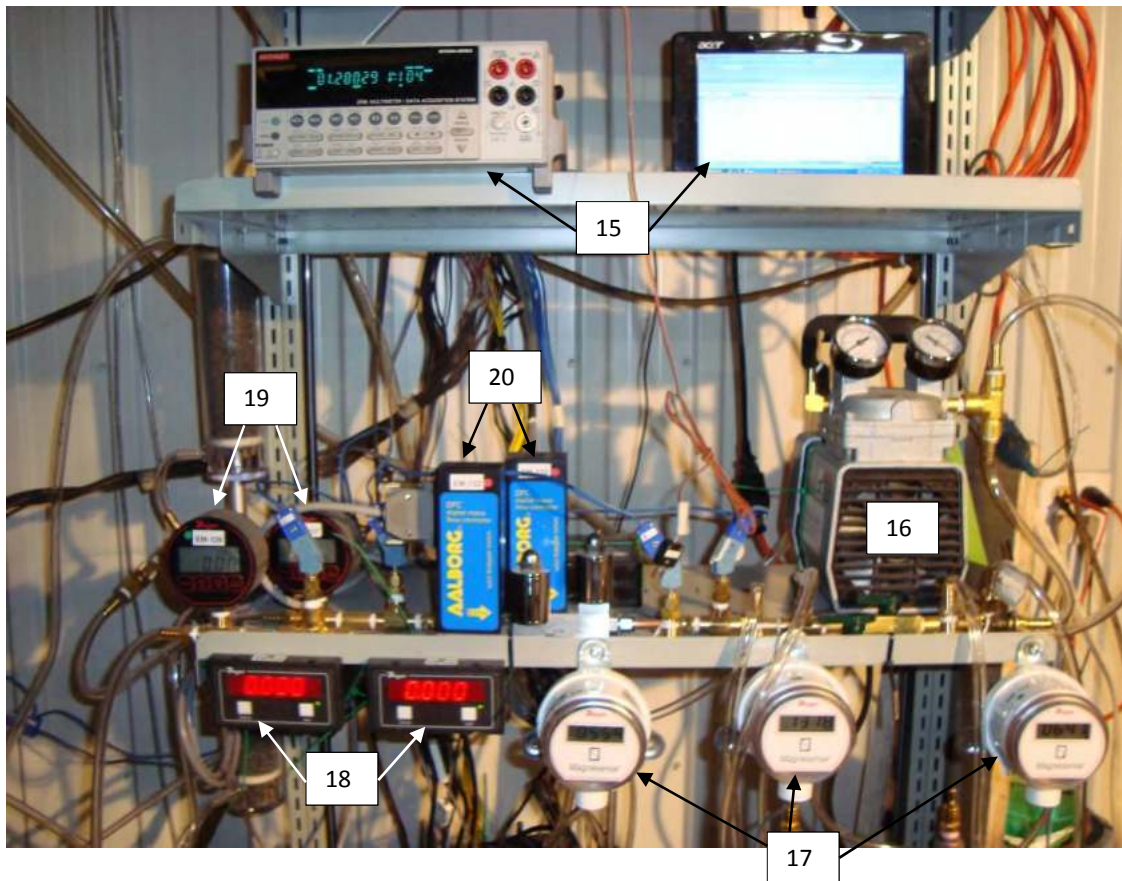
13.1 : Extraction blower

Picture 5: Draft sampling



14 : Draft sampling port located 6 in.from the flue outlet

Picture 6: Equipments



- 15 : Acquisition system
- 16 : Vacuum pump
- 17 : Digital manometer
- 18 : Digital read out for mass flow meter
- 19 : Digital vacuum gage
- 20 : Mass flow meter

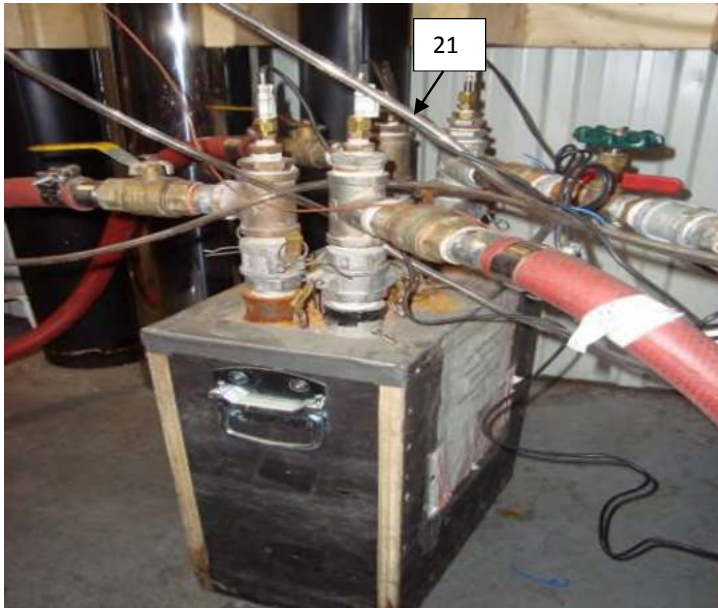
Picture 7: Gaz analyser



Picture 8: Reference dry gas meter

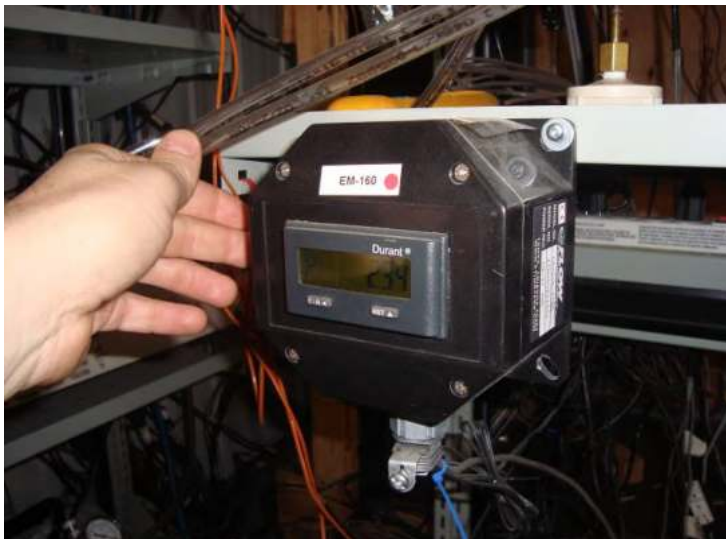


Picture 9: Heat exchanger



21 : PT 100 insertion probe

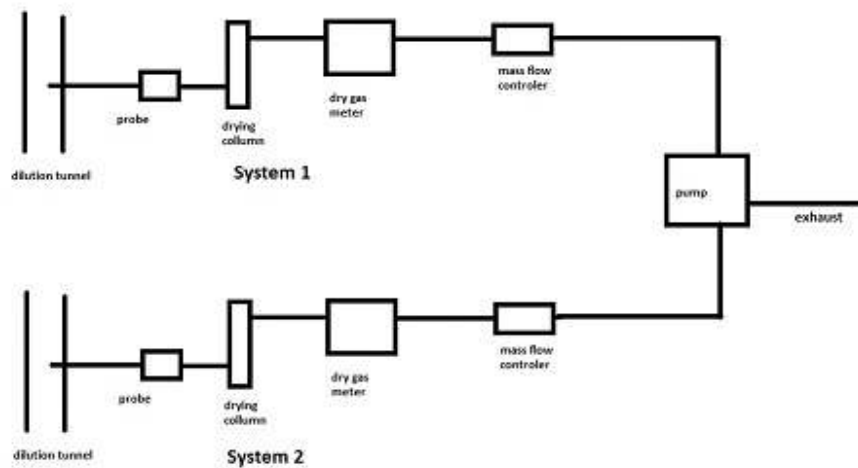
Picture 10: Water flow meter



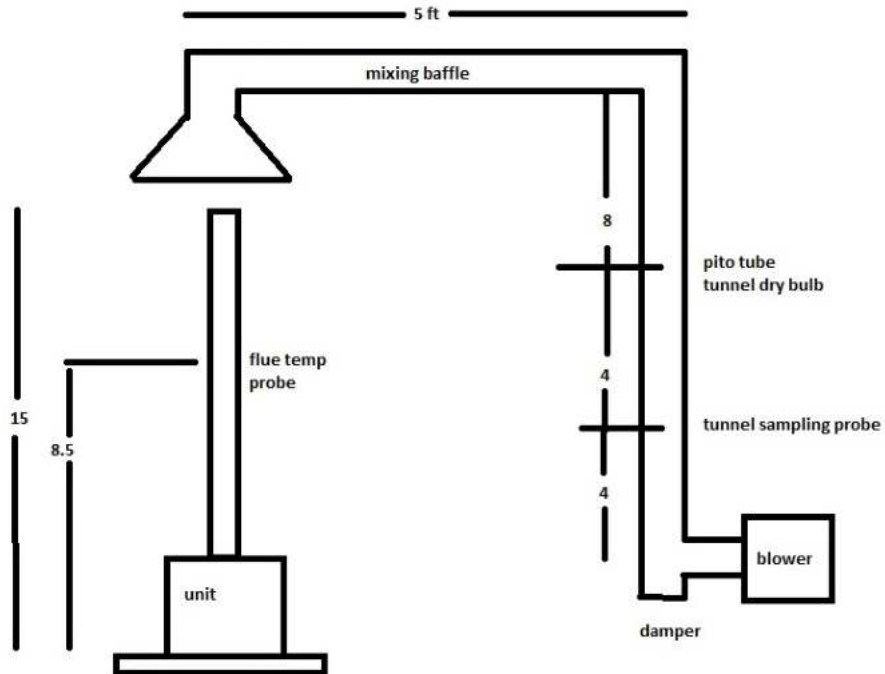
Picture 11: Dry gas meter



Picture 12 : Dilution tunnel sample system



Picture 13: Dilution tunnel



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APPENDIX 9: Test load photographs



Run 2





Run 4





Run 6



