Evaluation Report

Non - CBI

Valley Comfort Systems, Inc. (Blaze King)

Model: Sentry S14

Report Number: 0142WS024E

***OMNI*-Test Laboratories, Inc.**

Product Testing & Certification

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Evaluation Report

Particulate Emissions of a Wood-Fired Freestanding Room Heater, Catalytic type.

Non - CBI

Valley Comfort Systems, Inc. (Blaze King)

Model : Sentry S14

Prepared For:	Valley Comfort Systems, Inc. (Blaze King) 1290 Commercial Way Penticton, BC V2A 3H5 CANADA
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Project Number:	0142WS024E

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** AUTHORIZED SIGNATORIES **

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Date

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Report Issue Date:
July 27, 2026

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1. INTRODUCTION

1.1 Purpose of Test Program

The Valley Comfort Systems/Blaze King model Sentry S14 Wood-Fired Freestanding Room Heater, Catalytic type is an appliance designed for use in residential heating applications and is identified as being an affected facility under the US Environmental Protection Agency's jurisdiction (EPA SCC code 2104008330) and is subject to the US EPA's performance requirements. Valley Comfort Systems, Inc. (Blaze King) contracted with OMNI to test the particulate emissions of the appliance in accordance with EPA regulations.

Testing was performed by OMNI at OMNI-Test Laboratories facility located at 13327 NE Airport Way - Portland, Oregon (45.563° latitude, -122.525° longitude and at an altitude of 30 feet above sea level). The unit was received in good condition and logged in on 08/25/25, then assigned and labeled with OMNI ID #2509. OMNI representatives Riley Tiegs conducted the certification testing and completed all testing by 10/03/25. This report is organized in accordance with the EPA-recommended outline and is summarized in the Table of Contents immediately preceding this section. The results in this report are limited to the item submitted.

1.2 Executive Summary

Weighted Average Emission-Rate :	**1.42**	g/hr.
Weighted Average Efficiency (HHV) :	**78.4**	%
Heat Output Range :	**8699 - 24453**	Btu/hr.
Average Carbon Monoxide Emission Rate:	**0.688**	g/min.

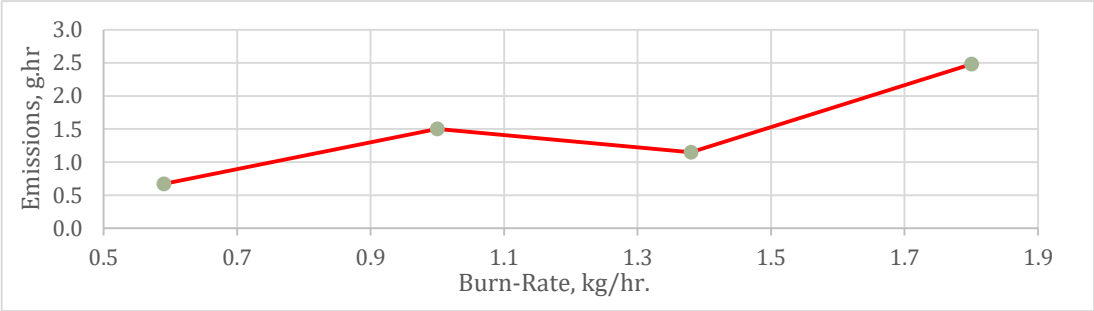


Figure 1 - Emissions Plot by Burn-Rate

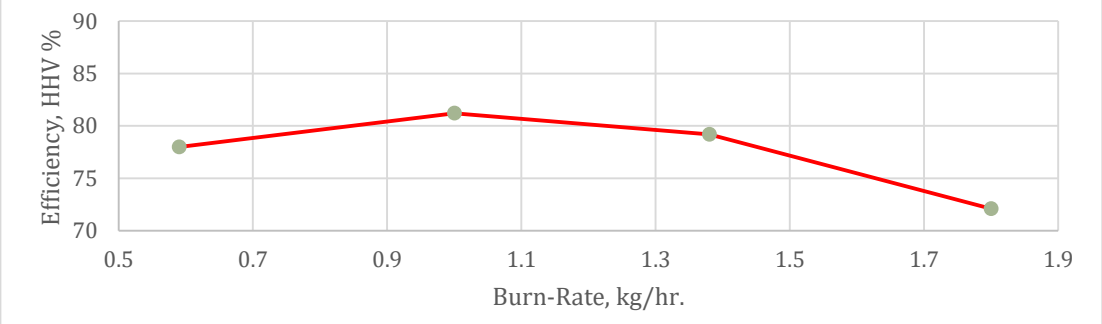


Figure 2 - Efficiency Plot (HHV) by Burn-Rate

2. Materials and Methods

2.1 - Test Methodology

The testing methodology used for the evaluation of the appliance described in this report is composed of four distinct aspects:

- **Particulate Matter Emissions:**

  The Model: Sentry S14 wood stove was tested in accordance with the U.S. EPA 40 CFR Part 60, Subpart AAA – Standards of Performance for New Residential Wood Heaters using ASTM E2515-11 "Standard Test Method for Determination of Particulate Matter Emissions Collected by a Dilution Tunnel". ALT -154 was also used during this evaluation.

- **Appliance Operation Procedure:**

  The Model: Sentry S14 wood stove was fueled and operated following written instructions from the manufacturer and in accordance with ASTM E2780-10 (2017) "Standard Test Method for Determining Particulate Matter Emissions from Wood Heaters" in conjunction with EPA Method 28R.

- **Stack Loss Efficiency:**

  Stack-loss efficiencies were evaluated following CSA B415.1:22 "Performance testing of solid-biofuel-burning heating appliance". It is also used to calculate the emissions of carbon monoxide. Example calculations for CSA B415.1:22 are not provided in this report because OMNI uses software provided by CSA. Printouts of the software's reporting is provided in the test data section of this report for each test run.

- **Applicable Alternate Test Method(s):**

  ALT-154 was used during this evaluation. See Appendix A for a copy of this alternate method. ALT-161 was used during this evaluation. See Appendix F for a copy of this alternate method.

2.2 Description of Appliance Under Test

The Sentry S14 is a variable burn-rate Catalytic Wood-Fired Room Heater designed for installation in residential areas as well as mobile homes (transportable buildings). Appliance is lined with 1.25" refractory brick and uses a thermostat and knob to regulate its primary air control. Appliance comes with optional 120V blower motor assembly and is suitable for mobile home (transportable buildings) installations. The firebox is rectangular and has usable volume of 1.46ft^3.

Type
Wood-Fired Freestanding Room Heater, Catalytic, 2104008330



Figure 3 - Pedestal Version

Materials of Construction

Appliance is primarily made of steel.

Air Introduction System
Primary air enters the firebox from the bottom rear of the appliance and is channeled up the back and to the front of the appliance via tubes located in the firebox. Air then flows into the firebox down through the air wash. No secondary or pilot air ports are utilized in the design. Primary air is controlled by a knob located at the top rear corner on the right side of the appliance and rotates clockwise from closed to fully open. Dimensions on all these features are provided in the manufacturer's design drawings.

Combustion Control Mechanisms

The thermostat is located at the rear of the appliance and is controlled by the thermostat knob which is located at the upper right rear corner of the appliance. When the knob is positioned at the HIGH setting, the appliance will operate at its highest burn rate and deliver its maximum heat output. As the knob is rotated counter clockwise the burn rate will decrease along with heat output. Burn rate is greatly influenced by location, installation, and external environment, so you may find it necessary to reposition the knob until you find the ideal setting to suit your situation.

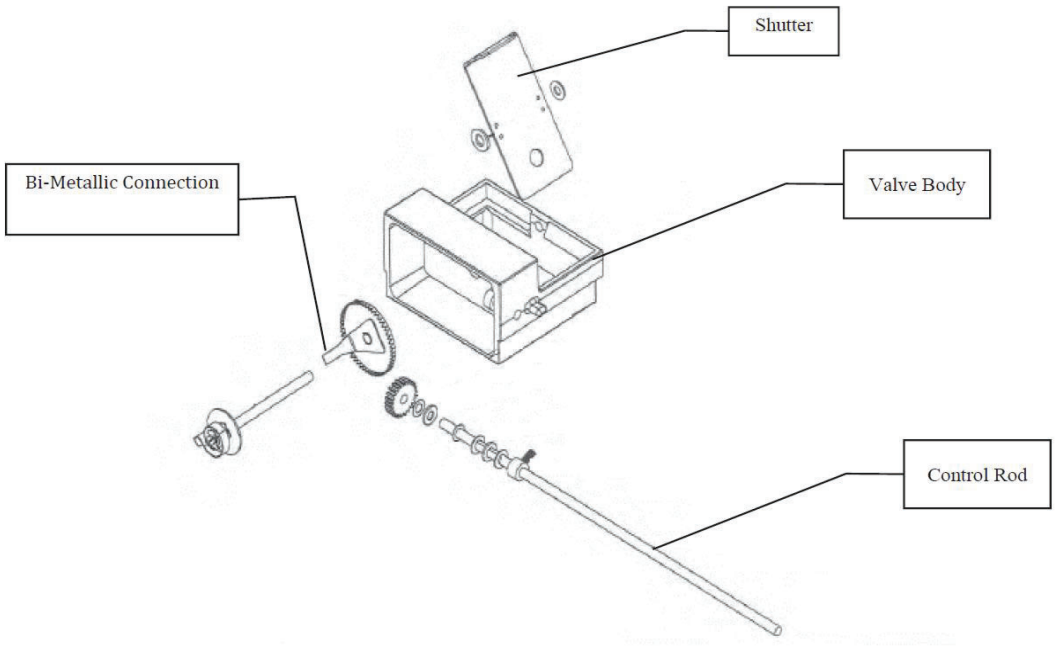


Figure 5 - Elements of Primary Air Control

Emissions Controls:

Certification testing was performed with an Applied Ceramics ceramic combustor (Manufacturer part No. 115-1505-C2). The combustor measures 10.62” x 2.65” x 2”.

Internal Baffles:

A 10” x 1.75” x 0.135” stainless steel smoke baffle hangs behind the combustor.

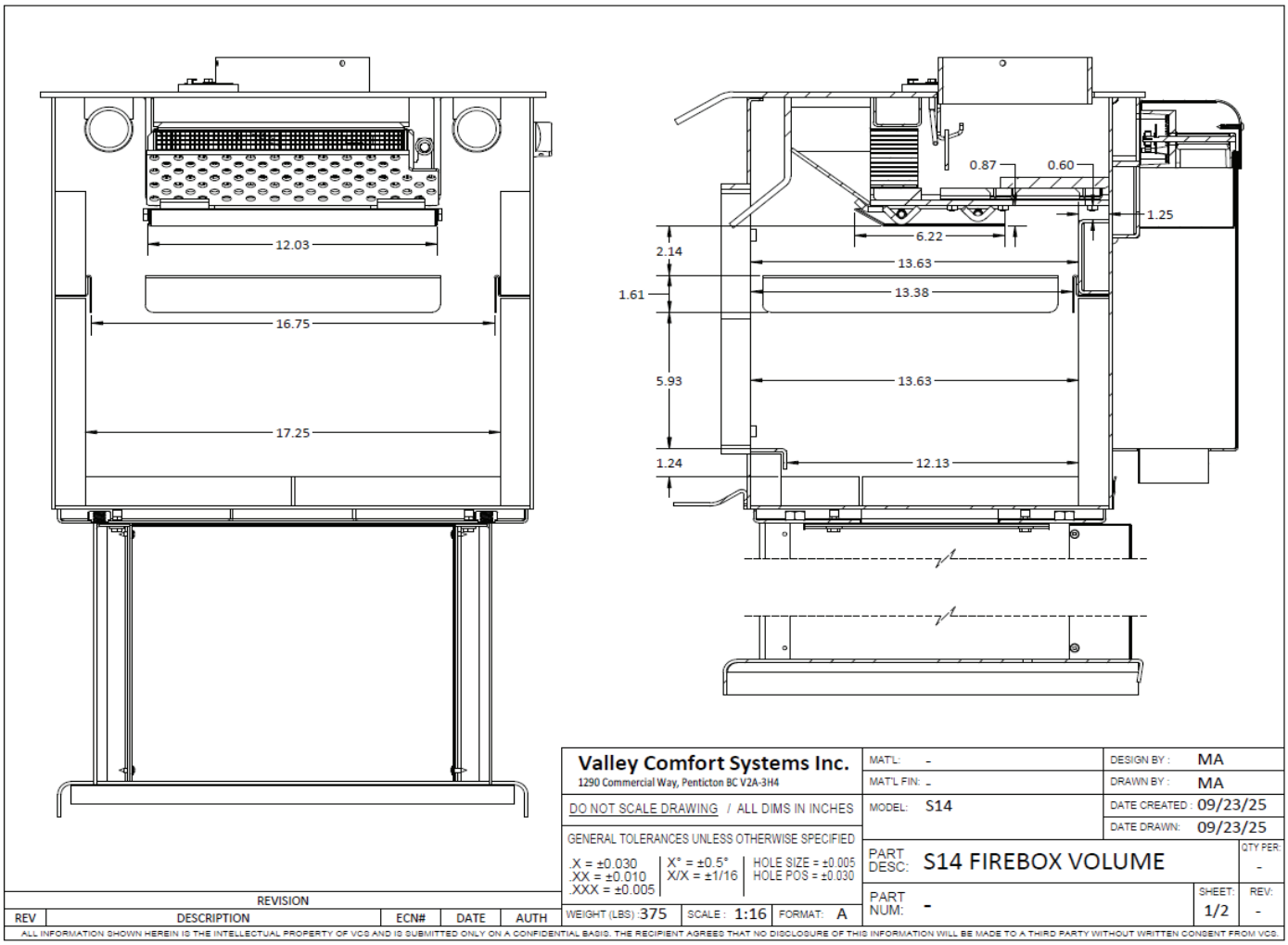
Flue Outlet:

The 6” diameter flue outlet is located at the rear of the top of the appliance.

Other Features:

Optional Dual Blower Motor Assembly; 120V, 0.9A

Usable Firebox Volume:



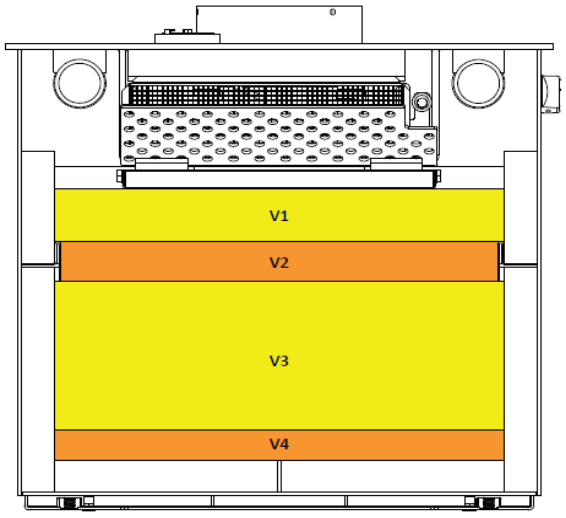
Valley Comfort Systems Inc. 1290 Commercial Way, Penticton BC V2A-3H4			MAT'L: -	DESIGN BY :	MA
			MAT'L FIN: -	DRAWN BY :	MA
DO NOT SCALE DRAWING / ALL DIMS IN INCHES			MODEL: S14	DATE CREATED :	09/23/25
				DATE DRAWN:	09/23/25
GENERAL TOLERANCES UNLESS OTHERWISE SPECIFIED			PART DESC: S14 FIREBOX VOLUME		QTY PER: -
.X = ±0.030 .XX = ±0.010 .XXX = ±0.005	X° = ±0.5° X/X = ±1/16	HOLE SIZE = ±0.005 HOLE POS = ±0.030			
WEIGHT (LBS) :375	SCALE : 1:16	FORMAT: A	PART NUM: -	SHEET: 1/2	REV: -

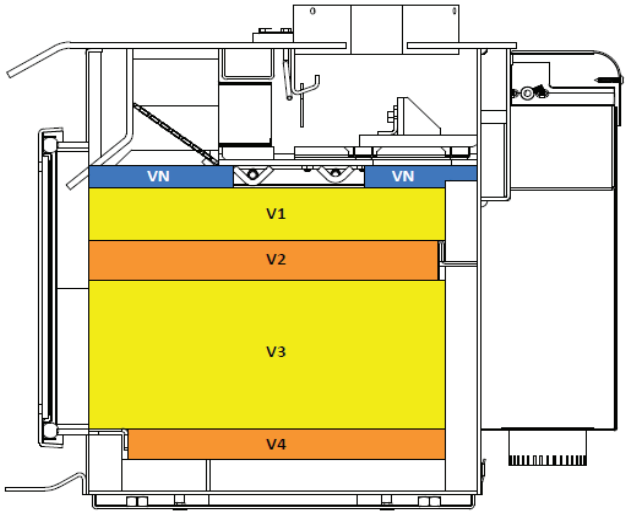
REVISION				
REV	DESCRIPTION	ECN#	DATE	AUTH

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Figure 6 - Firebox Volume Calculation

Firebox volume calculation was verified by OMNI Test Labs





V1 = 17.25 x 13.63 x 2.14 = 503.151
V2 = 16.75 x 13.38 x 1.61 = 360.825
V3 = 17.25 x 13.63 x 5.93 = 1394.2467
V4 = 17.25 x 12.13 x 1.24 = 259.4607
VN = (17.25 x 13.63 x 0.87) + (17.25 x 1.25 x 0.60) - (12.03 x 6.22 x 0.87) = 152.390

Usable firebox volume: VU = V1+V2+V3+V4 = 2517.6834 in3 = **1.46 ft3**

Non-usable firebox volume: VN = 152.390 in3 = 0.09 ft3
Total firebox volume (VT) = usable firebox volume (VU) + Non-usable firebox volume (VN)
Total firebox volume: VT = VU +VN = 1.46 + 0.09 = 1.55 ft3

Valley Comfort Systems Inc. 1290 Commercial Way, Penticton BC V2A-3H4	MAT'L: -	DESIGN BY :	MA
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DO NOT SCALE DRAWING / ALL DIMS IN INCHES	MODEL: S14	DATE CREATED :	09/23/25
		DATE DRAWN:	09/23/25
GENERAL TOLERANCES UNLESS OTHERWISE SPECIFIED .X = ±0.030 .XX = ±0.010 .XXX = ±0.005 | X° = ±0.5° X/X = ±1/16 | HOLE SIZE = ±0.005 HOLE POS = ±0.030	PART DESC: S14 FIREBOX VOLUME		QTY PER: -
WEIGHT (LBS) :375 | SCALE : 1:16 | FORMAT: A	PART NUM: -	SHEET: 2/2	REV: -

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2.3 Appliance Installation

The appliance was placed on a 1000 lb. capacity scale and fitted with a section of 6-inch diameter single wall connector pipe that extended upward to a height approximately eight feet from the top surface of the scale. Six-inch solid pack chimney was added further extending the total flue conveyance pipe upward to an over-all height of 15 feet as measured from the top of the platform scale. The lower portion of the solid pack chimney was fitted with a 3/8-inch diameter hole where a flue gas probe was inserted and with a 3/16" diameter hole where a shielded Type K thermocouple probe was inserted. A 3/8" diameter hole was drilled into the lower single wall connector pipe within 1 foot of the appliance and a draft probe was inserted. All joining sections of pipe and flue attachment were sealed with furnace cement. Type K thermocouples were attached to the top, bottom, back, left and right sides of the appliance for surface temperature measurement. Type K temperature probe was installed within an inch of the catalyst exit.



Figure 7 - Test structure and general work area



Figure 8 - Emissions testing area

2.4 Appliance Conditioning

The appliance conditioning was conducted by Valley Comfort. See Appendix B of this report for the data.

2.5 Dilution Tunnel

OMNI's facility uses permanent and dedicated dilution tunnels that are designed and are maintained to meet the specifications of the dilution tunnel prescribed in ASTM E2515. The dilution tunnel was cleaned on 09/29/25 immediately prior to the test series. Prior to testing, sample point and traverse point locations are verified to ensure their locations are within the prescribed specifications. Collection hood, tunnel diameter, and mixing section length are also verified to be within specifications. Test booth ambient temperature probe is located approximately four feet away from the platform scale in a 45° offset from the front of the platform scale. Room air draft was measured within two feet of the platform scale. Background sampling was conducted approximately 4 feet from the dilution tunnel hood.

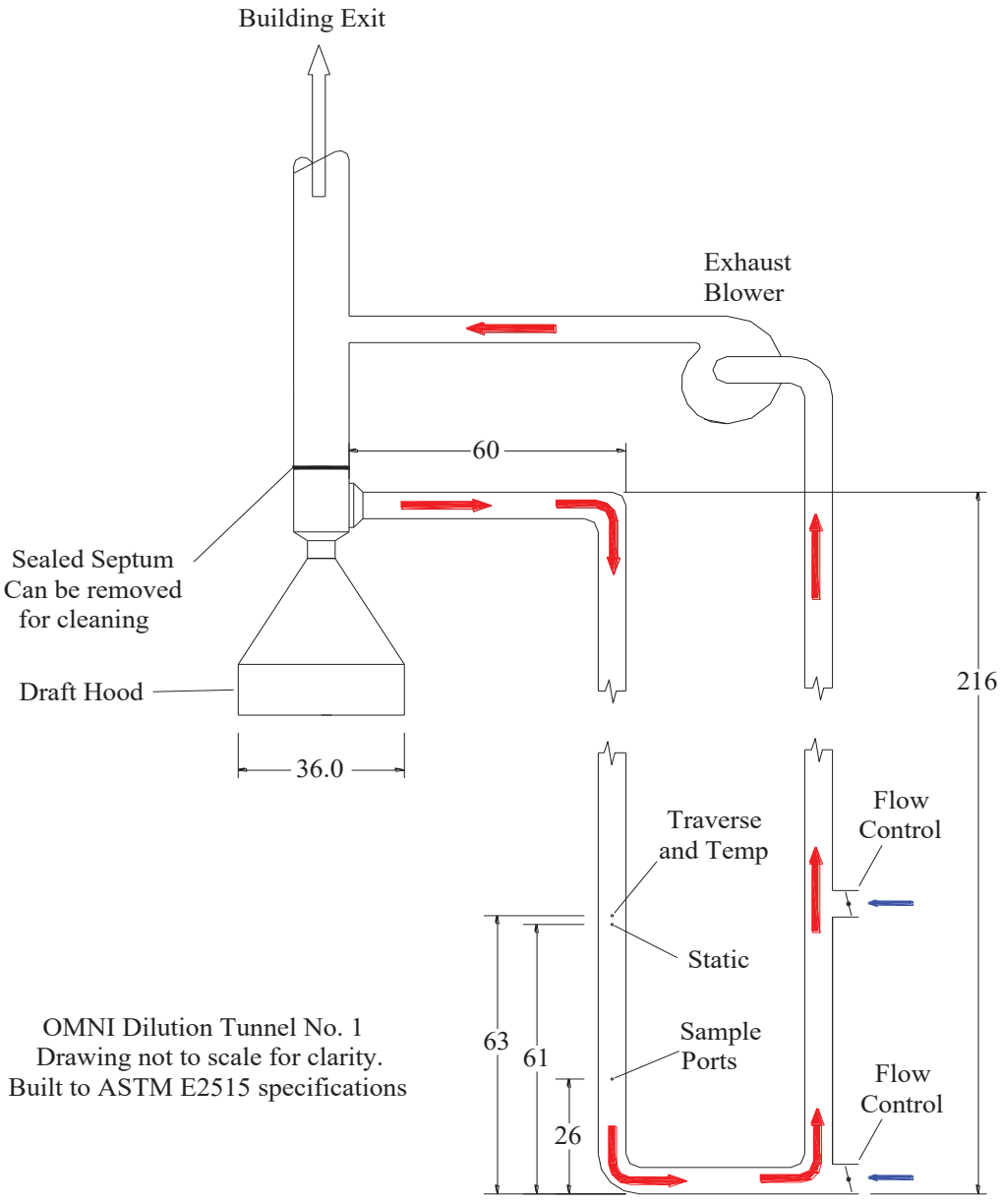


Figure 9 - Dilution Tunnel at OMNI-Test Laboratories Portland, Oregon Facility

2.6 Particulate Sampling Systems

The sampling system consisted of a single datalogging system managing four dry gas meters (Train A, Train B, Train C (first hour) and Train D (Background). All dry gas meter sampling trains were arranged identically and in accordance with Section 6 of ASTM E2515. The only exceptions are; 1) the pressure drop through an orifice on the exhaust end of each meter were monitored with a monometer to aid in identifying and responding to changes in the sample flow rates during operation as well as being used to account for internal meter pressures.

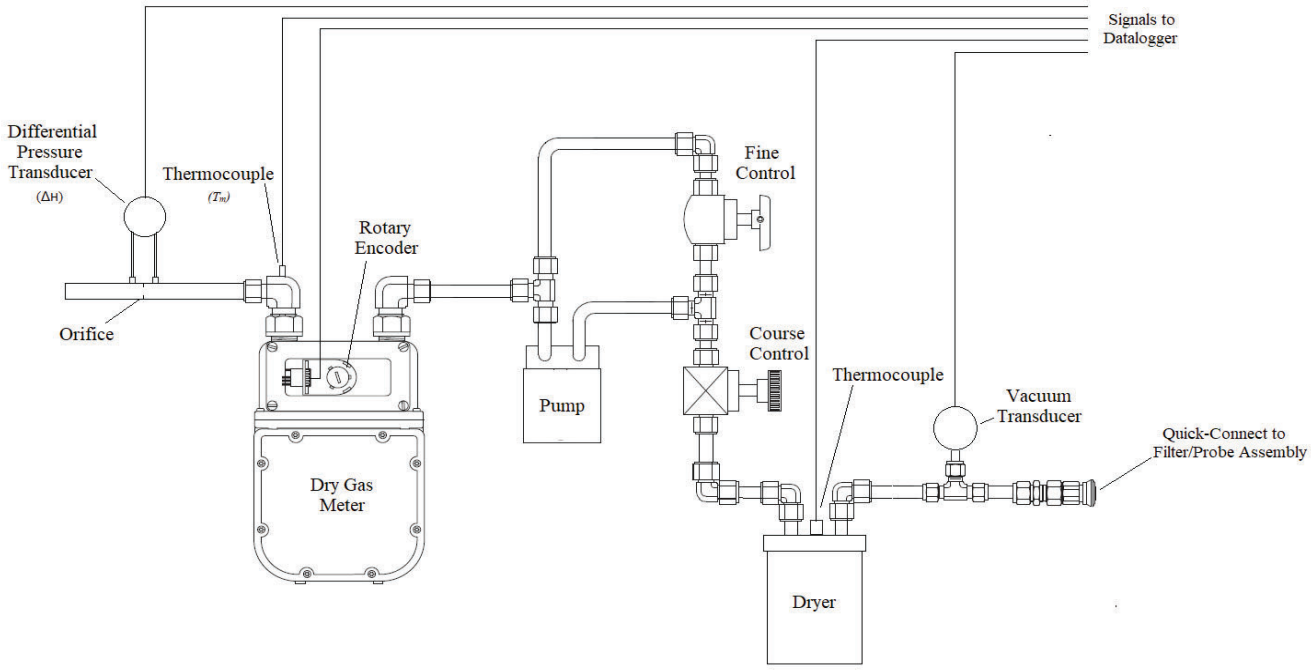


Figure 10 - Sampling System (typical) Used At OMNI-Test Laboratories

2.7 Particulate Sampling Probes and Filters

The probes used were 1/4" OD stainless steel. The front probe holders used were aluminum and the rear ones were polycarbonate. The O-ring seals used were 47mm x 3mm diameter Vitron. The filters used were PALL A/E glass Fiber, 1µm, 47mm diameter.

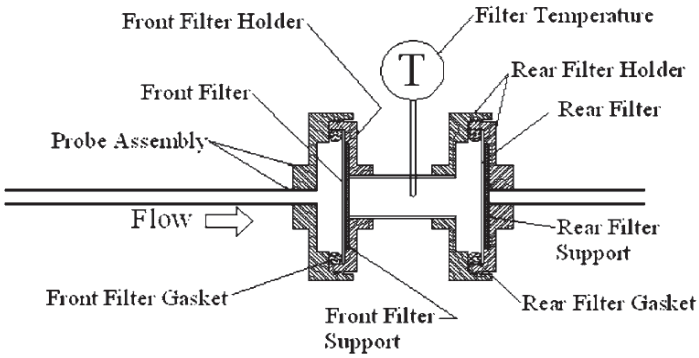


Figure 11 - Sample Probe Assembly as specified in ASTM E2515-11

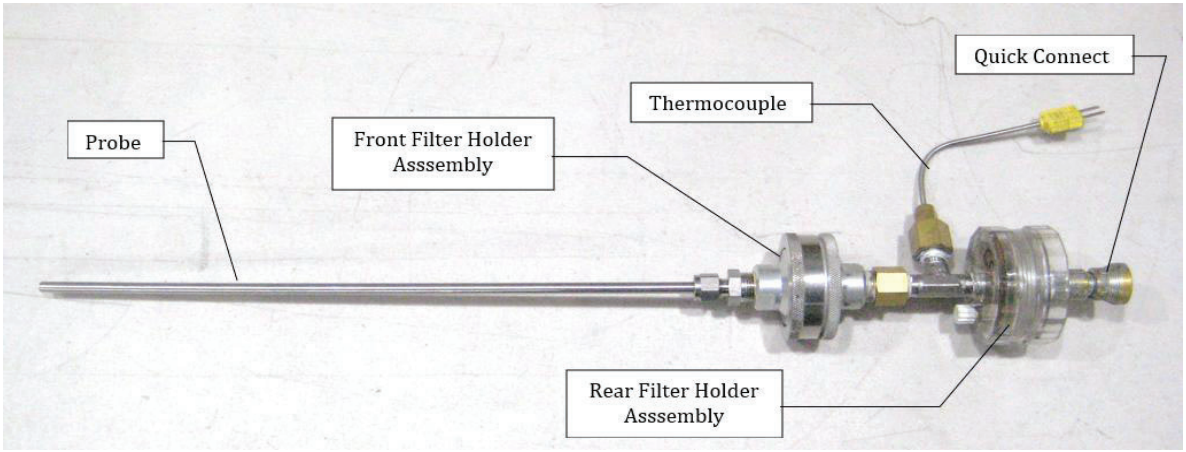


Figure 12 - Sample Probe used by OMNI

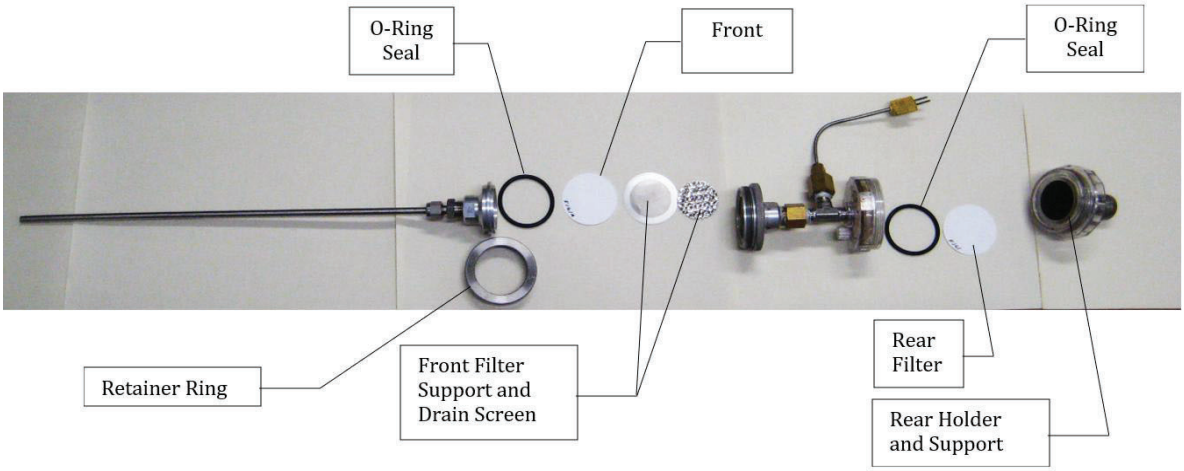


Figure 13 - Exploded View of Sample Probe Assembly used by OMNI

Clause 6.1.1 of ASTM E2515-11 requires that the filter face velocity shall not exceed 150 mm/sec (30 ft/sec). The O-ring seal covers a narrow portion of the perimeter of the filter thus reducing it's effective diameter from 47mm to 43mm. The area used in subsequent calculations of the filter face velocity is therefore based on 43mm diameter.

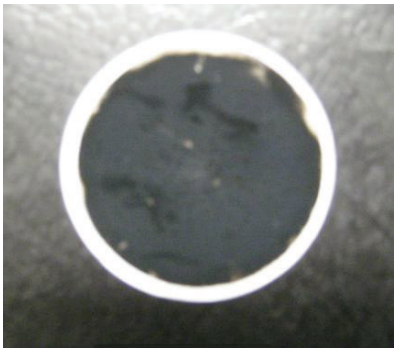


Figure 14 - Effective facial area of sample filter (file photo, not from the evaluation in this report)

2.8 Flue Gas Sampling Equipment

Carbon dioxide (CO_2) and carbon monoxide (CO) concentration measurements of the flue gases are required by CSA B415.1 to determine stack loss based efficiencies. Oxygen measurements are not taken as CSA B415.1 calculates oxygen empirically using mass-balance equations based upon the measured CO_2 and CO concentrations.

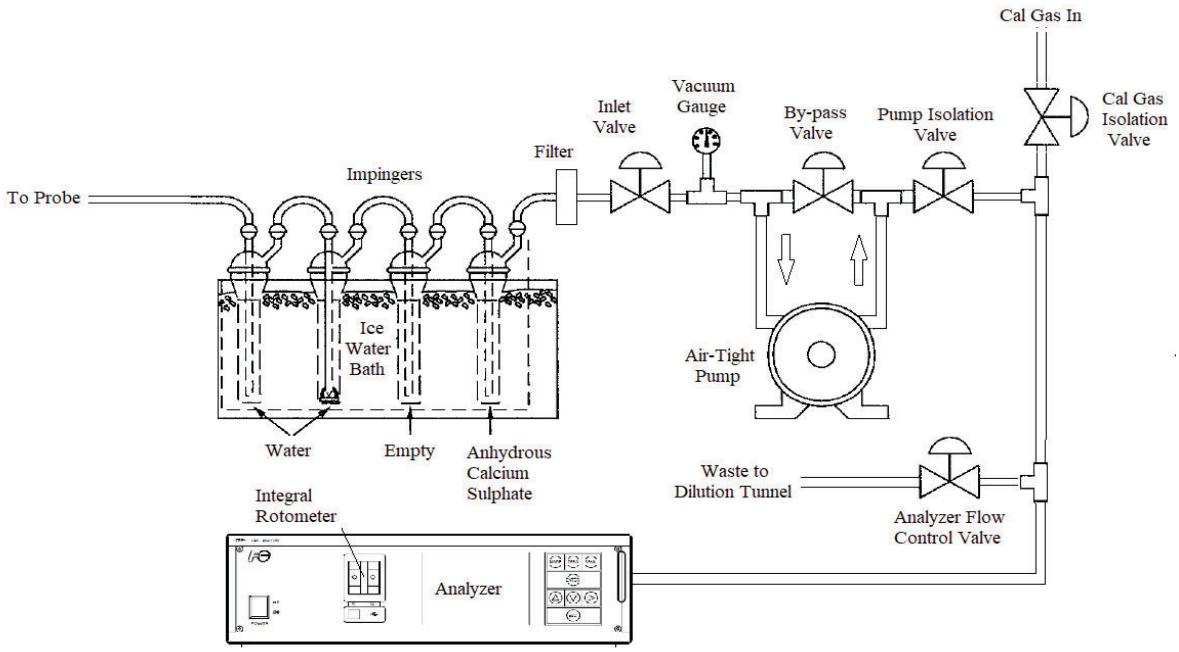


Figure 15 - Flue Gas Measurement System

2.9 Gravimetric Analysis Equipment

All taring of filters, Probes and O-Ring seals take place in a dedicated room for this purpose with ample facility for the preparation and handling of tared reagents as well as post-test processing. Upon test program completion, all filters are placed in plastic petri dishes, marked and stored for a period of 6 months.

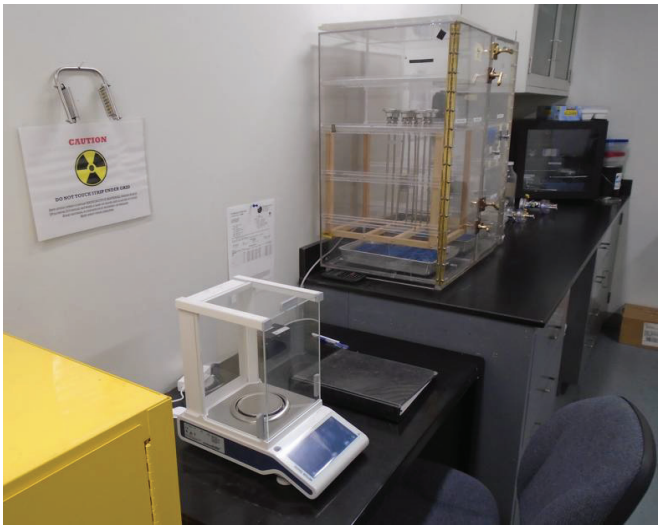


Figure 16 - Analytical Scale and Desiccator

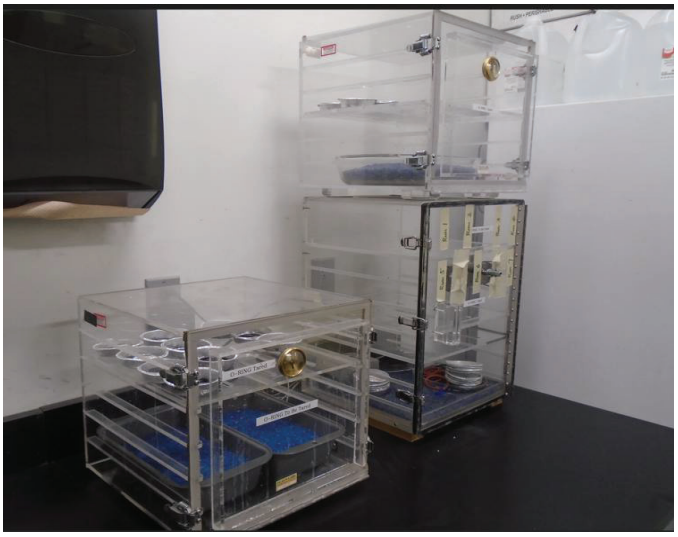


Figure 17 - Additional Desiccators

2.10 Test Fuel Acquisition

ASTM E2780, clause 3.2.3 requires Douglas-fir, untreated, standard or better grade with agency grade stamp: D. Fir or Douglas Fir. Green air dried Douglas Fir. A sizable lot of suitable Douglas-fir lumber with appropriate marking was acquired from a local home improvement store in Portland Oregon. All testing, including preburn, was performed with this selection of fuel.



Figure 18 - Typical of all stampings on the fuel lot



Figure 19 - Typical Stamping locations on random pieces of lumber

2.11 Specific Manufacturer's Written Operating Instructions

September 28, 2025
Prepared by Aaron Saxton
Product Development, Blaze King Industries

Blaze King Sentry 14 EPA Test Burn Instructions

The following literature shall be used as a guideline when operating a Blaze King Sentry 14 during an ASTM E2780/E2515 and 28R Wood Heater Test.

** before starting any test run ensure unit is clean; remove any material left from previous burns and zero scale**

Kindling Load

- prepare 8-9 lbs of Douglas Fir dimensional lumber (kindling load)
- with the thermostat set to high and the bypass door open, light the fire
- leave the loading door cracked open until fire is well established
- once loading door is closed and combustor temperature begins to climb, close the bypass door, turn fan on to high
- once load has burned down to 0.5-1.0 lbs, use the bypass handle to grab the top of the bypass latch to pull the rod outward and open bypass door and then loading door, break down load into chunks of coal
- scoop out coals (as much as possible) and zero scale
- place coals back in firebox and rake to make an even coal bed; rake hotter coals to front of unit for better preburn light off.
- close loading door
- close bypass, position the bypass handle on the center of the bypass latch and push inward
- prepare to load preburn.

Preburn Load

- when ready to load preburn, open bypass door then loading door and place 4(10inch) pieces onto coal bed in a front-to-back orientation (North-South), evenly spaced. Then place 3-4(14.375inch) pieces on top in a side-to-side orientation (East-West), evenly spaced, with the front top piece laid down flat. Close loading door, then bypass door and ensure thermostat and fan are both set to high. Keep loading time to a minimum.
- let unit burn until the following approximate weights are reached for their respective turn down settings

Burn Category	Pre-Burn Shut-down Weight, lb.	Primary Air Setting (From Horizontal Position)
I	(0.25 x TLW) + 0.1	(65° CCW)
II	(0.25 x TLW) + 0.3	(60° CCW)
III	(0.20 x TLW) + 4.1	(30° CCW)
IV	(0.20 x TLW) Coal Bed	0°

Fan Confirmation	(0.20 x TLW) + 4.0	(30° CCW)

- at turn down time, fan speed is also reduced respectively:
    - low burn = rheostat knob at lowest point
    - medium low burn = rheostat knob 1/3 open
    - medium high burn = rheostat knob 2/3 open
    - high burn = rheostat knob fully open
- once preburn has burned down to desired coal bed weight approximately (60-80 minutes after turndown) and catalyst temperature is trending upwards, open the bypass door then open the loading door and rake down preburn load into a coal bed. Close the loading door and bypass, prepare to load test fuel. Keep loading time to a minimum.

Test Load

- when ready to load; Leave thermostat knob at the test setting, turn fan off, open the bypass door, open loading door and load test fuel (five 2x4's, 14.375inches minimal length, based on 5/6th of the firebox width). Close loading door and bypass as soon as test fuel is loaded.
- Turn the fan on to its respective burn category position (as shown above).

3. Test Results

3.1 - Test Result Tables

Table 1 - Individual test run result summaries
Sorted primarily by inclusion in Weighted Average, secondarily by burn-rate

				Uncorrected[1]		Corrected[2]		Efficiency, %		
Run No.	Date	Category	BR, kg/hr.	ER. g/hr.	First Hour	ER, g/hr.	First Hour	HHV	LHV	Included in WA? (1 = yes)*
2	9/30/2025	I	0.59	0.67	1.89	0.67	1.89	78.0	84.3	1
3	10/1/2025	II	1.00	1.50	4.22	1.50	4.22	81.2	87.8	1
4	10/2/2025	III	1.38	1.15	2.12	1.15	2.12	79.2	85.6	1
1	9/29/2025	IV	1.80	2.48	4.75	2.48	4.75	72.1	78.0	1
6	10/3/2025	I	0.62	1.47	0.95	1.47	0.95	79.4	85.8	0
5	10/2/2025	II	1.02	0.85	2.80	0.85	2.80	80.1	86.5	0

Number of runs included in Weighted Average 4

NOTE: *Run number 1 was performed with the air control fully open, and thus qualifies as a Category IV burn-rate as per condition 3(b) of the broadly applicable Alternate Test Method ALT-161. See Appendix G for a copy of ALT-161.*

Table 2 - Weighted Average Weighting Factors
Sorted by Burn-Rate

Run No.	Burn-Rate, kg/hr.	ER, g/hr.	k_i	k_i x EU, Uncorrected[1]	k_i x EC_i, Corrected[2]	k_i x HHV_i	k_i x LHV_i	Contribution %
2	0.59	0.67	0.3224	0.2160	0.2160	25.1472	27.1783	18.13
3	1.00	1.50	0.5814	0.8721	0.8721	47.2097	51.0469	32.70
4	1.38	1.15	0.5526	0.6355	0.6355	43.7659	47.3026	31.08
1	1.80	2.48	0.3214	0.7971	0.7971	23.1729	25.0692	18.08
Sums			1.7778	2.5207	2.5207	139.2957	150.5970	100.00

	ER, g/hr. Uncorrected	ER, g/hr. Corrected	HHV, %	LHV, %
Weighted Averages (ΣkE / Σk)	**1.42**	**1.42**	**78.4**	**84.7**

[1] *For Tables 1 and 2, Uncorrected refers to gravimetric analysis that takes negative filter weights as a negative value in cases where filter residue was transferred to (stuck to) O-ring gaskets to account for the mass transfer.*

[2] *For Tables 1 and 2, Corrected refers to gravimetric analysis where negative filter weights are taken as zero, thus reporting a higher value by over-reporting of transferred filter material. The corrected values were added to OMNI's reporting in response to a request by the US EPA.*

Table 3 - Heat Output and CO Emissions (CSA B415.1:22)
Sorted primarily by inclusion in Weighted Average, secondarily by Burn-Rate

Run No.	Burn-Rate kg/hr.	Heat Input [1] Btu/hr.	Heat Output [1] (HHV) Btu/hr.	CO Emissions g/MJ	g/kg	g/hr	g/min
2	0.59	11158	8,699	2.38	36.81	21.86	0.364
3	1.00	18727	15,208	1.22	19.59	19.53	0.326
4	1.38	25939	20,546	2.00	31.36	43.28	0.721
1	1.80	33904	24,453	3.12	44.58	80.44	1.341
6	0.62	11646	9,247	2.06	32.74	33.30	0.555
5	1.02	19118	15,307	5.73	90.08	55.93	0.932
			Average of All runs	2.75	42.53	42.39	0.707
			Average of runs included in Weighed Average Only	2.18	33.09	41.28	0.688

[1] *Based on a calorific value of 8516.77 Btu/dry pound. (Source: CSA B415.1:22 for Douglas-fir)*

Table 4 - Test Facility Conditions
Sorted by Run Number

Run No.	Room Temperature, °F Before	After	Barometric Pressure, in Hg Before	After	Room Air Relative Humidity, % Before	After	Room Air Velocity, fpm Before	After
1	72	75	29.83	29.84	56	54	24	21
2	73	74	29.73	29.74	51	58	14	16
3	71	72	29.88	29.91	56	58	11	13
4	71	72	30.06	30.06	57	57	22	24
5	72	73	30.04	30.05	56	54	21	20
6	69	72	30.19	30.14	56	52	11	13

Table 5 - Preburn Test Fuel load description
Sorted by Run Number

Run No.	Number of Pieces	Pre-Test Fuel Weight, lb.	Pre-Test Moisture %, Dry Basis	Coal Bed Weight lb.
1	14	17.74	23.5	1.90
2	7	8.82	21.9	2.14
3	7	9.81	23.6	2.10
4	14	18.64	23.3	2.08
5	7	9.93	22.9	2.48
6	7	9.73	24.4	2.27

Table 6 - Test Fuel Properties
Sorted by Run Number

Run No.	*Mass lb., Wet*	*Mass, lb. Dry*	*Moisture content %, wb*	*Moisture content %, db*	*Length In.*	*Density lb./ft3*	*Loading Density lb./ft3*	*2 x 4 pieces used*	*4 x 4 pieces used*	*Direction [1] E/W or N/S*
1	9.40	7.75	17.51	21.22	14.5	26.81	6.43	5	0	E/W
2	9.80	8.14	16.66	19.99	14.5	28.65	6.69	5	0	E/W
3	10.07	8.42	16.39	19.6	14.5	29.31	6.90	5	0	E/W
4	9.55	8.11	15.05	17.72	14.5	28.88	6.54	5	0	E/W
5	10.18	8.52	16.3	19.48	14.5	30.76	6.97	5	0	E/W
6	9.86	8.24	16.42	19.65	14.5	29.82	6.75	5	0	E/W

[1] *"E/W" means "East-West", meaning the lengths of the fuel pieces ran from right-to-left within the firebox relative to the firebox door opening. "N/S" means "North-South", meaning the lengths of the fuel pieces ran front-to-rear within the firebox relative to the firebox door opening.*

Table 7 - Dilution Tunnel Gas Measurements Summary
Sorted by Run Number

Run no.	*Length of test, min*	*Velocity, ft/sec*	*Flow Rate, dscfm*	*Temperature °F*
1	117	17.310	186.8	101.1
2	376	18.056	203.5	80.4
3	230	18.672	209.1	81.6
4	160	18.335	205.4	86.2
5	228	18.381	204.8	89
6	362	18.103	207.4	75.8

Table 8 - Appliance Average Surface Temperature Data
Sorted by Run Number

Run No.	*Beginning*	*Ending*	*Δ T*
1	439	408	31
2	319	295	24
3	330	355	25
4	419	387	32
5	359	418	59
6	326	313	13

4. Discussion

4.1 The Test Series - Started September 29, 2025

The plan for this test series required a minimum of 7 test runs:
(1) A burn-rate of less than 0.80 kg/hr. (Category I)
(2) A burn-rate between 0.80 and 1.25 kg/hr. (Category II)
(3) A burn-rate between 1.25 and 1.80 kg/hr. (Category III)
(4) A Burn-rate that of the maximum potential of the appliance (Category III)
(5) A fan confirmation test at a burn rate in category II.
(6) A burn rate of less than 0.80kg/hr for Catalyst Equivalency
(7) A burn-rate of the maximum potential of the appliance for Catalyst Equivalency

A total of six tests were ultimately performed:
Test run 1 - Attempt at a maximum potential of the appliance, resulting in a burn rate of 1.80kg/hr.
Test run 2 - Attempt at a category I resulting in a category I burn rate of 0.59 kg/hr.
Test run 3 - Attempt at a category II resulting in a category II burn rate of 1.00 kg/hr.
Test run 4 - Attempt at a category III resulting in a category III burn rate 1.38 kg/hr.
Test run 5 - Attempt at a category II (fan confirmation) resulting in a category II burn rate of 1.02 kg/hr.
Test run 6 - Attempt at a minimum potential of the appliance, resulting in category I burn rate of 0.62kg/hr.
Test run 7 - Originally planned for Catalyst Equivalency, however based on comparative results of Run 6, the manufacturer discontinued the testing. Refer to ATM (Appendix F) "Catalyst Equivalency with an alternate Catalyst."

Of the 6 test runs performed, only four were used in the weighted average. The two test runs not used and the reasons:

Test run 5 - Confirmation test with optional blower powered off.
Test run 6 - Catalyst Equivalency Run not included in the weighted average.

NOTE: The low burn requirement was satisfied in accordance with EPA Method 28, section 8.1.1.3.2.

As a standard operating practice, for each test run within this series a small kindling fire with scrap fuel was created within the cold appliance and allowed to burn somewhat robustly. The remaining coals were removed and the platform scale was re-zeroed. A suitable amount of the live coals were then placed back into the fire chamber to provide ignition source of the preburn. The intention of this process is to eliminate any moisture mass that may have accumulated in the appliance refractory materials. All tests performed were then carried out following the manufacturer's written instructions/recommendations as a guideline.

Primary technician for this test series was Riley Tiegs, secondary technician who helped with traverse, filter holder assembly, and leak checks was Joe McShane.

Note on the Primary Air Control - The air control mechanisms used by Valley Comfort on several of their models, including the Sentry 14 and is unique in that it utilizes a bimetallic actuated control, a "flapper", for the entry of combustion air. The desired burn-rate is controlled by rotating the flapper, which in turn either increases or decreases the pre-loading tension of the bimetallic coil. This changes the sensitivity of the bimetallic coil that maintains control over the selected heat output range. Rotating the control knob fully clockwise (CW) stops with the indicator on the knob pointing straight down. This straight-down position has been noted as "0°" for the purpose of defining a point of reference in this test program and report. This is the fully open high-burn position. Turning counter-clockwise (CCW) reduces the burn-rate. Because of the sensitivity of this control, it is possible to turn the control so low that the appliance will burn-out. This is a Blaze King design philosophy as it permits low burn-rates in various installation climates and conditions that effect draft. The EPA has inquired for further detail regarding this feature in past Valley Comfort emissions reports. See Appendix E for the description and explanation from Valley Comfort that was originally submitted to and accepted by the EPA.



Figure 20 - Fully Open Air Control



Figure 21 - Fully Closed Air Control

4.2 - Individual Test Run Narratives

Run 1 - September 29, 2025
With both the primary air and convection fan controls adjusted to their highest respective settings, the first preburn charge weighing 9.5lbs. was placed within the firebox at 11:23am and allowed to burn at full intensity. The coal bed was below acceptable weight before the required 60 minutes (57minutes elapsed before missing the coal bed range), a second preburn was loaded at 12:20pm weighing 8.54lbs. Appliance was allowed to burn at maximum intensity until a coal bed of 1.9lbs was reached. Preburn was stopped at 1.9lbs at 13:50pm. Test fuel was measured for moisture at 11:53am.

During the pre-burn, the sample train probes were assembled, the continuous gas analyzers were calibrated and the velocity traverse measurements were made. Upon completion of the pre-burn, the remaining coals were raked and leveled. The platform scale was zeroed, and loading of the appliance and initiation of the sampling pumps were done simultaneously.

Sampling portion Start-up Procedures

Fuel Loading:	Fuel completely loaded by 65 seconds.
Door:	Fuel loading door closed at 70 seconds.
Air Control:	Fully Open
Secondary Air:	Non-Adjustable
Convection Fan:	On high



Figure 22 - Run 1 - Test Fuel



Figure 23 - Run 1 - Freshly Loaded Stove

At exactly one hour from the start of sampling, the first-hour (Sample Train C) was stopped and a leak check was immediately performed on it. The test continued without incident until it ended with zero mass remaining on the scale at 117 minutes from the start of the test and a resulting dry burn-rate of 1.80 kg/hr. Because this test was performed with the controls set to their maximum settings, this test qualifies as a Category IV burn-rate as per condition 3(b) of the broadly applicable Alternate Test Method ALT-161. See Appendix G for a copy of ALT-161.

Upon completion of the sampling portion of the test, all remaining sampling trains (A, B and ambient background) were leak-checked. Other tasks performed were (but not limited to) leak checking of pitot tube, recording of environmental conditions, post-test verification of continuous gas analyzers and placement of disassembled sample probe elements in desiccator.

The review of the test results indicates that there we no sampling anomalies that occurred. This test run was deemed to be valid and appropriate for inclusion in the weighted average.

Run 2 - September 30, 2025

With both the primary air and convection fan controls adjusted to their highest respective settings, the preburn charge weighing 8.82lbs. was placed within the firebox at 10:00am and allowed to burn at full intensity. Appliance was allowed to burn at maximum intensity until 2.5lbs read on the scale. The air setting was adjusted to its lowest setting at 10:38am as well as the fan speed. Preburn was stopped at 11:38am, test fuel was measured for moisture at 10:15am.

During the pre-burn, the sample train probes were assembled, the continuous gas analyzers were calibrated and the velocity traverse measurements were made. Upon completion of the pre-burn, the remaining coals were raked and leveled. The platform scale was zeroed, and loading of the appliance and initiation of the sampling pumps were done simultaneously.

Sampling portion Start-up Procedures

Fuel Loading:	Fuel completely loaded by 75 seconds.
Door:	Fuel loading door closed at 80 seconds.
Air Control:	Fully Closed (65°)
Secondary Air:	Non-Adjustable
Convection Fan:	Low



Figure 24 - Run 2 - Test Fuel



Figure 25 - Run 2 - Freshly Loaded Stove

At exactly one hour from the start of sampling, the first-hour (Sample Train C) was stopped and a leak check was immediately performed on it. The test continued without incident until it ended with zero mass remaining on the scale at 376 minutes from the start of the test and a resulting dry burn-rate of 0.59 kg/hr.

Upon completion of the sampling portion of the test, all remaining sampling trains (A, B and ambient background) were leak-checked. Other tasks performed were (but not limited to) leak checking of pitot tube, recording of environmental conditions, post-test verification of continuous gas analyzers and placement of disassembled sample probe elements in desiccator.

The review of the test results indicates that there we no sampling anomalies that occurred. This test run was deemed to be valid and appropriate for inclusion in the weighted average.

Run 3 - October 1, 2025

With both the primary air and convection fan controls adjusted to their highest respective settings, the preburn charge weighing 9.81lbs. was placed within the firebox at 09:27am and allowed to burn at full intensity. At 2.8lbs of preburn, the air setting was set to 60°. Preburn was stopped at 2.1lbs at 11:15am. Test fuel was measured for moisture at 9:52am.

During the pre-burn, the sample train probes were assembled, the continuous gas analyzers were calibrated and the velocity traverse measurements were made. Upon completion of the pre-burn, the remaining coals were raked and leveled. The platform scale was zeroed, and loading of the appliance and initiation of the sampling pumps were done simultaneously.

Sampling portion Start-up Procedures

Fuel Loading:	Fuel completely loaded by 65 seconds.
Door:	Fuel loading door closed at 70 seconds.
Air Control:	60°
Secondary Air:	Non-Adjustable
Convection Fan:	Medium Low



Figure 26 - Run 3 - Test Fuel



Figure 27 - Run 3 - Freshly Loaded Stove

At exactly one hour from the start of sampling, the first-hour (Sample Train C) was stopped and a leak check was immediately performed on it. The test continued without incident until it ended with zero mass remaining on the scale at 230 minutes from the start of the test and a resulting dry burn-rate of 1.00 kg/hr.

Upon completion of the sampling portion of the test, all remaining sampling trains (A, B and ambient background) were leak-checked. Other tasks performed were (but not limited to) leak checking of pitot tube, recording of environmental conditions, post-test verification of continuous gas analyzers and placement of disassembled sample probe elements in desiccator.

The review of the test results indicates that there we no sampling anomalies that occurred. This test run was deemed to be valid and appropriate for inclusion in the weighted average.

Run 4 - October 2, 2025

With both the primary air and convection fan controls adjusted to their highest respective settings, the preburn charge weighing 9.50lbs. was placed within the firebox at 07:21am and allowed to burn at full intensity until the scale reached 4.9lbs, at which point the fan and air control was adjusted to the medium high setting. Due to missing coal bed range by a few minutes, a second preburn was loaded at 09:20pm weighing 9.14lbs. Appliance was allowed to burn at maximum intensity until a weight of 6.1lbs was reached at which the appliance was set to its test setting at 09:36am. At 10:36am and a coal bed of 2.1lbs preburn was stopped. Test fuel moisture was measured at 9:55am.

During the pre-burn, the sample train probes were assembled, the continuous gas analyzers were calibrated and the velocity traverse measurements were made. Upon completion of the pre-burn, the remaining coals were raked and leveled. The platform scale was zeroed, and loading of the appliance and initiation of the sampling pumps were done simultaneously.

Sampling portion Start-up Procedures

Fuel Loading:	Fuel completely loaded by 75 seconds.
Door:	Fuel loading door closed at 80 seconds.
Air Control:	30°
Secondary Air:	Non-Adjustable
Convection Fan:	Medium High



Figure 28 - Run 4 - Test Fuel



Figure 29 - Run 4 - Freshly Loaded Stove

At exactly one hour from the start of sampling, the first-hour (Sample Train C) was stopped and a leak check was immediately performed on it. The test continued without incident until it ended with zero mass remaining on the scale at 160 minutes from the start of the test and a resulting dry burn-rate of 1.38 kg/hr.

Upon completion of the sampling portion of the test, all remaining sampling trains (A, B and ambient background) were leak-checked. Other tasks performed were (but not limited to) leak checking of pitot tube, recording of environmental conditions, post-test verification of continuous gas analyzers and placement of disassembled sample probe elements in desiccator.

The review of the test results indicates that there we no sampling anomalies that occurred. This test run was deemed to be valid and appropriate for inclusion in the weighted average.

Run 5 - October 2, 2025

With both the primary air and convection fan controls adjusted to their highest respective settings, the preburn charge weighing 9.93lbs. was placed within the firebox at 14:16pm and allowed to burn at full intensity. Appliance air setting was set to test setting at 14:43pm until a coal bed of 2.5lbs was reached. Preburn was stopped at 2.5lbs at 16:10pm. Test fuel was measured for moisture at 14:26pm.

During the pre-burn, the sample train probes were assembled, the continuous gas analyzers were calibrated and the velocity traverse measurements were made. Upon completion of the pre-burn, the remaining coals were raked and leveled. The platform scale was zeroed, and loading of the appliance and initiation of the sampling pumps were done simultaneously.

Sampling portion Start-up Procedures

Fuel Loading:	Fuel completely loaded by 75 seconds.
Door:	Fuel loading door closed at 80 seconds.
Air Control:	30°
Secondary Air:	Non-Adjustable
Convection Fan:	Off for fan confirmation



Figure 30 - Run 5 - Test Fuel



Figure 31 - Run 5 - Freshly Loaded Stove

At exactly one hour from the start of sampling, the first-hour (Sample Train C) was stopped and a leak check was immediately performed on it. The test continued without incident until it ended with zero mass remaining on the scale at 228 minutes from the start of the test and a resulting dry burn-rate of 1.02 kg/hr.

Upon completion of the sampling portion of the test, all remaining sampling trains (A, B and ambient background) were leak-checked. Other tasks performed were (but not limited to) leak checking of pitot tube, recording of environmental conditions, post-test verification of continuous gas analyzers and placement of disassembled sample probe elements in desiccator.

The review of the test results indicates that there we no sampling anomalies that occurred. This test run was deemed to be valid and appropriate for inclusion as a fan confirmation test.

Run 6 - October 3, 2025

With both the primary air and convection fan controls adjusted to their highest respective settings, the preburn charge weighing 9.73lbs. was placed within the firebox at 09:02am and allowed to burn at full intensity. Appliance was allowed to burn at maximum intensity until 2.5lbs was read on the scale. At 2.5lbs air and fan setting was set to test setting. Preburn was stopped at 2.3lbs at 10:43am. Test fuel was measured for moisture at 09:57am.

During the pre-burn, the sample train probes were assembled, the continuous gas analyzers were calibrated and the velocity traverse measurements were made. Upon completion of the pre-burn, the remaining coals were raked and leveled. The platform scale was zeroed, and loading of the appliance and initiation of the sampling pumps were done simultaneously.

Sampling portion Start-up Procedures

Fuel Loading:	Fuel completely loaded by 65 seconds.
Door:	Fuel loading door closed at 70 seconds.
Air Control:	65°
Secondary Air:	Non-Adjustable
Convection Fan:	On Low



Figure 32 - Run 6 - Test Fuel



Figure 33 - Run 6 - Freshly Loaded Stove

At exactly one hour from the start of sampling, the first-hour (Sample Train C) was stopped and a leak check was immediately performed on it. The test continued without incident until it ended with zero mass remaining on the scale at 348 minutes from the start of the test and a resulting dry burn-rate of 0.67 kg/hr.

Upon completion of the sampling portion of the test, all remaining sampling trains (A, B and ambient background) were leak-checked. Other tasks performed were (but not limited to) leak checking of pitot tube, recording of environmental conditions, post-test verification of continuous gas analyzers and placement of disassembled sample probe elements in desiccator.

The review of the test results indicates that there we no sampling anomalies that occurred. Due to the emissions discrepancy with the alternate catalyst and the original, the high burn was terminated and catalyst equivalency was not proceeded.

5. Test Data by Run

The data presented in this section is arranged as follows:

1. Test Run 1 as follows:
    a. Run 1 cover page
    b. Emissions Test Results
    c. CSA B415 Results and Data
    d. Test Fuel Properties
    e. Velocity Traverse and Supplemental Data
    f. Pre-Burn Data
    g. Sample Train A and Dilution Tunnel Data
    h. Sample Train B and Appliance Temperature Data
    i. Sample Train C (First Hour) Data
    j. Sample Train D (Background) and Flue Gas Data

Run 1 Test Data

Test Date: 9/29/2025
Manufacturer: Valley Comfort
Model Sentry 14

Contents, in the following order:

· Emissions Test Results
· CSA B415 Results and Data
· Test Fuel Properties
· Velocity Traverse / Supplemental Data Worksheet
· Test Pre-Burn Data
· Sample Train A / Dilution Tunnel Data
· Sample Train B / Appliance Temperature Data
· Sample Train C (First Hour) Data
· Sample Train D (Background) / Flue Gas Data
· Gravimetric Lab Analysis
· Test Lab Notes
  - Appliance Operation Notes
  - Velocity Traverse / Supplemental Data Notes
  - Test Fuel Notes
  - Gravimetric Analysis Notes
· Equations and Calculations

Wood Heater Test Results

ASTM E2780 / ASTM E2515

Manufacturer: Valley Comfort
Model: Sentry 14
Project No.: 0142WS024E
Tracking No.: 2509
Run: 1
Test Date: 09/29/25

Burn-Rate Result

1.80 kg/hr

Particulate Emissions Results

	Average of Trains A and B		First Hour	
	Uncorrected	*Corrected*	*Uncorrected*	*Corrected*
Total Emissions - E_T, g	4.84	4.84	4.75	4.75
Emission Rate, g/hr	**2.48**	2.48	**4.75**	4.75
Emissions Factor, g/kg	1.38	1.38	n/a	n/a

Dilution Tunnel Flow Parameters

		First Hour	Duration of Test
Average Tunnel Temperature, °F		105.4	101.1
Average Tunnel Gas Velocity (vs), feet/second		17.390	17.310
Average Tunnel Gas Flow Rate(Qsd)	DSCF/hr	11205.3	11240.9
	DSCF/min	186.8	187.3
Average Delta p, in. H2O		0.099	0.099
Tunnel Static Pressure, in. H2O		-0.400	-0.400
Total Time of Test, Min		60	117

Particulate Sample Measurement Parameters

	Uncorrected				*Corrected*			
	AMBIENT	Train A	Train B	First Hour	AMBIENT	Train A	Train B	First Hour
Total Sample Volume (V_m), ft^3	18.355	19.498	18.823	9.612	18.355	19.498	18.823	9.612
Average Gas Meter Temperature, °F	79	91	88	81	79	91	88	81
Total Sample Volume (V_{mstd}), DSCF	17.250	18.499	18.220	9.193	17.250	18.499	18.220	9.193
Total Particulates (mn), mg - m_n	0.0	3.9	4.2	3.9	0.0	3.9	4.2	3.9
Particulate Concentration (C_s - C_r), g/DSCF	0.00000	0.00021	0.00023	0.00042	0.00000	0.00021	0.00023	0.00042
Total Particulate Emissions (ET), grams	n/a	4.62	5.05	4.75	n/a	4.62	5.05	4.75
Particulate Emission Rate, g/hr	n/a	2.37	2.59	4.75	n/a	2.37	2.59	4.75
Emissions Factor, g/kg	n/a	1.32	1.44	n/a	n/a	1.32	1.44	n/a
Difference, ET from from Average ET, grams	n/a	-0.22	0.22	n/a	n/a	-0.22	0.22	n/a

Test Methodology Specifications and Quality Checks

Parameter	*Requirement*	*Measured / Observed*			*Complies?*
		First Hour	*Train 1*	*Train 2*	
Filter Temperature, °F	< 90	81	78	77	✓
Filter Face Velocity, fpm	< 30	8.73	9.16	8.78	✓
Dryer Exit Temperature, °F	< 80	71	49	47	✓
Tunnel Velocity, fpm	>800	1,043	1,039		✓
First Hour Leakage	0.006	0.002			✓
Train A Leakage Rate	0.007		0.002		✓
Train B Leakage Rate	0.006			0.002	✓
Leakage Rate Limits (cfm) are < 4% of average sample rate or < 0.01 cfm, which ever is less					
Negative Probe Weight	=> 0	0	0.1	0	✓
Pro-Rate Variation	< 90 for < 10% of θ	0.00%	0.85%	0.85%	✓
	> 110 for < 10% of θ	0.00%	0.000%	0.00%	✓
	# Readings < 80%	0	0	0	✓
	# Readings > 120%	0	0	0	✓
Ambient Temp, °F	> 55		72.5		✓
Ambient Temp, °F	< 90		76.2		✓
Trains A and B Precision	(*A*) < 7.5%		4.46%		✓
Either A or B must conform	(*B*) < 0.5 g/kg		0.12		✓
Stove Surface ΔT	<= 125 °F		31		✓
Room Air Velocity	< 50 fpm		24		✓

CSA B415.1-11 Efficiency Results

Manufacturer	Valley Comfort
Model:	Sentry 14
Project Number:	0142WS024E
Run Number:	1
Test Date:	9/29/2025

Efficiency results reported herein are based on a stack-loss method in accordance with CSA B415.1:22 "Performance testing of solid-biofuel-burning heating appliance". OMNI uses the spreadsheet provided by CSA that is to be used in conjunction with the current version of the test standard. The most recent version of the software is version 2.4, dated April 15, 2010. OMNI received confirmation from CSA on October 18, 2023 that this is the current version of the software.

OMNI Test Laboratories

Manufacturer: Valley Comfort
Model: Sentry 14
Date: 09/29/25
Run: 1
Control #: 2509
Test Duration: 117
Output Category: III

Technicians: R Tiegs

Test Results in Accordance with CSA B415.1-10

	HHV Basis	LHV Basis
Overall Efficiency	72.1%	78.0%
Combustion Efficiency	97.0%	97.0%
Heat Transfer Efficiency	74%	80.4%

Output Rate (kJ/h)	25,777	24,453	**(Btu/h)**
Burn Rate (kg/h)	1.80	3.98	**(lb/h)**
Input (kJ/h)	35,741	33,904	**(Btu/h)**

Test Load Weight (dry kg)	3.52	7.75	**dry lb**
MC wet (%)	17.51		
MC dry (%)	21.23		
Particulate (g)	4.84		
CO (g)	157		
Test Duration (h)	1.95		

Emissions	**Particulate**	**CO**
g/MJ Output	0.10	3.12
g/kg Dry Fuel	1.38	44.58
g/h	2.48	80.44
lb/MM Btu Output	0.22	7.25

Air/Fuel Ratio (A/F)	11.80

VERSION: **2.4** **4/15/2010**

VERSION: 2.4 4/15/2010

Manufacturer:	Valley Comfort	**Appliance Type:**	Cat (Cat, Non
Model:	Sentry 14		
Date:	9/29/2025	**Temp. Units**	F (F or C)
Run:	1	**Weight Units**	lb (kg or lb)
Control #:	2509		
Test Duration:	117		
Output Category:	III		

		Fuel Data		
			D. Fir	
Wood Moisture (% wet):	17.51	**HHV**	19,810	kJ/kg
Load Weight (lb wet):	9.40	**%C**	48.73	
Burn Rate (dry kg/h):	1.80	**%H**	6.87	
Total Particulate Emissions:	4.84 g	**%O**	43.9	
		%Ash	0.5	

Averages	**0.32**	**9.12**	**#DIV/0!**	**424.98**	**74.23**
				Temp. (ºF)	
Elapsed Time (min)	**Fuel Weight Remaining (lb)**	**Flue Gas Composition (%) CO**	**CO_2**	**O_2**	**Flue Gas**	**Room Temp**
0	9.40	0.02	6.60		352.1	73.3
1	9.30	0.11	3.08		441.6	73.9
2	9.21	0.04	4.07		378.9	73.7
3	9.08	0.06	7.03		377.8	73.4
4	8.96	0.05	7.51		391.5	73.5
5	8.84	0.05	8.05		405.2	73.8
6	8.68	0.03	8.60		415.4	72.8
7	8.56	0.03	9.13		422.9	72.9
8	8.42	0.04	8.63		428.6	72.5
9	8.27	0.07	10.05		436.0	72.6
10	8.10	0.14	10.45		444.5	73.1
11	7.96	0.18	10.84		453.1	72.8
12	7.78	0.27	11.18		459.4	73.0
13	7.65	0.16	10.91		463.4	73.8
14	7.48	0.16	11.02		465.0	73.4
15	7.35	0.23	11.45		468.3	73.7
16	7.17	0.28	11.82		470.9	73.2
17	7.03	0.33	12.16		473.5	73.4
18	6.88	0.39	12.32		476.4	72.8
19	6.69	0.43	12.29		478.1	73.1
20	6.57	0.46	12.27		479.7	73.1
21	6.40	0.44	12.36		481.2	73.4

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
22	6.27	0.50	12.40		482.8	73.4
23	6.10	0.62	12.58		483.1	73.1
24	5.96	0.66	12.67		485.4	73.1
25	5.78	0.97	12.81		487.6	73.2
26	5.64	0.96	12.81		489.6	73.2
27	5.47	1.35	12.89		490.6	73.8
28	5.29	1.50	13.03		491.3	73.5
29	5.11	1.80	13.02		491.1	73.4
30	4.95	2.13	12.99		489.3	73.2
31	4.77	1.82	12.92		488.0	73.8
32	4.64	1.10	12.70		488.2	73.4
33	4.47	1.08	12.42		489.3	73.2
34	4.34	1.26	12.43		489.5	73.5
35	4.19	1.18	12.43		490.1	73.6
36	4.07	1.07	12.39		489.2	73.2
37	3.95	0.87	12.38		487.8	73.5
38	3.79	0.83	12.32		486.8	73.6
39	3.68	0.84	12.20		484.8	73.4
40	3.57	0.77	12.27		484.1	73.6
41	3.44	0.76	12.07		481.9	73.6
42	3.30	0.72	11.88		480.3	73.8
43	3.19	0.68	11.62		479.4	74.6
44	3.09	0.76	11.70		478.7	73.4
45	2.99	0.63	11.40		479.8	73.5
46	2.87	0.51	11.13		478.7	73.4
47	2.79	0.45	10.97		477.6	73.6
48	2.70	0.40	10.62		475.9	73.8
49	2.65	0.375	10.556		472.8	73.4
50	2.57	0.326	10.655		470.3	73.5
51	2.47	0.401	10.9		469.3	73.4
52	2.39	0.398	10.978		468.9	73.5
53	2.28	0.503	11.28		469.3	73.7
54	2.18	0.591	11.462		470.5	73.8
55	2.08	0.706	11.693		471.8	73.9
56	1.97	0.793	11.92		472.9	73.9
57	1.87	0.794	11.875		473.7	74.6
58	1.78	0.562	11.815		474	75.1
59	1.68	0.538	11.637		471.4	74.6
60	1.61	0.35	11.122		466.6	73.9

Run 1 B415

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
61	1.57	0.147	10.053		459.3	73.9
62	1.49	0.102	9.707		453.2	74.2
63	1.46	0.028	9.496		447.3	73.8
64	1.40	0.011	9.182		440.9	73.8
65	1.38	0.028	7.809		434.3	74.6
66	1.34	0.016	7.624		427.9	75
67	1.30	0.019	7.351		422	75.5
68	1.29	0.019	7.272		415.9	74.6
69	1.27	0.009	7.308		410.3	74.4
70	1.23	0.009	7.315		404.9	75
71	1.19	0.006	7.328		399.8	75.1
72	1.17	0.003	7.326		395.4	75.4
73	1.15	0.009	7.272		391.9	74.5
74	1.11	0.009	7.239		388.8	74.6
75	1.09	0.014	7.313		385.9	74.8
76	1.07	0.008	7.341		383.3	74.7
77	1.04	0.017	7.386		381	75.8
78	1.01	0.01	7.389		378.5	75.8
79	0.99	0.01	7.417		376.2	74.7
80	0.97	0.011	7.335		374.5	75.4
81	0.91	0.008	7.464		373.4	76.2
82	0.87	0.006	7.45		372.5	75.5
83	0.88	0.015	7.661		371.7	75.5
84	0.85	0.01	7.686		370.7	74.6
85	0.80	0.01	7.607		369.8	75.3
86	0.78	0.007	7.579		369.8	75
87	0.76	0.011	7.071		369	74.4
88	0.71	0.008	7.009		368.1	75.5
89	0.68	0.014	6.933		367.1	75.8
90	0.69	0.012	6.883		366.4	75.6
91	0.65	0.026	6.671		366.6	75.3
92	0.63	0.007	6.687		366.6	74.5
93	0.60	0.018	6.638		366.4	75.9
94	0.58	0.02	6.589		367	74.8
95	0.57	0.018	6.263		367.6	74.7
96	0.55	0.017	6.29		366.7	75.2
97	0.51	0.018	6.242		366.3	74.7
98	0.48	0.021	6.262		365.9	75.5
99	0.48	0.022	6.342		366.4	74.9

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
100	0.46	0.021	6.348		365.8	75.8
101	0.41	0.023	6.277		366.8	74.5
102	0.40	0.011	6.186		366.2	74.3
103	0.39	0.019	6.278		366.8	74.2
104	0.36	0.025	6.201		366.6	74.8
105	0.34	0.027	6.227		366.1	74.7
106	0.30	0.023	6.134		365.6	75.5
107	0.30	0.027	6.131		365.8	75.8
108	0.27	0.02	6.114		365.3	75.8
109	0.26	0.024	6.187		364.8	75.1
110	0.22	0.025	6.053		364	75
111	0.20	0.028	5.976		364.3	74.9
112	0.19	0.022	6.068		363.7	75.4
113	0.17	0.018	5.926		363.6	74.4
114	0.15	0.029	5.874		363	74.8
115	0.12	0.025	5.773		361.7	75.6
116	0.10	0.013	6.064		361.8	75.6
117	-0.01	0.021	6.001		361.1	75.6

Test Fuel Properties

ASTM E2780

Manufacturer : Valley Comfort
Model : Sentry 14
Tracking No. : 2509
Project No. : 0142WS024E
Test Date : 9/29/2025
Run No. : 1

Moisture Meter Cal	
Cal Block	Measured
12.0	12.0
22.0	22.0

Firebox Volume : **1.460** ft^3
% 2 x 4 Required : 100 %
Ideal Fuel Weight : 10.22 lb.
Minimum Fuel Weight : 9.20 lb.
Maximum Fuel Weight : 11.24 lb.

Fuel Piece Data

PC #	Weight, lb	Size	Length, In	Moisture Readings, Dry Basis %			Average MC, % db	Dry Weight, lb.	Volume, ft3	Wet Weights, lb 4 x 4	Wet Weights, lb 2 x 4	Dry Weights, lb 4 x 4	Dry Weights, lb 2 x 4
1	1.44	2x4	14.50	21.7	22.2	22.2	22.0	1.18	0.0441		1.4		1.18
2	1.48	2x4	14.50	22.3	22.3	23.2	22.6	1.21	0.0441		1.5		1.21
3	1.46	2x4	14.50	22.1	24.2	23.8	23.4	1.18	0.0441		1.5		1.18
4	1.37	2x4	14.50	19.1	19.5	19.5	19.4	1.15	0.0441		1.4		1.15
5	1.45	2x4	14.50	21.3	23.8	21.2	22.1	1.19	0.0441		1.5		1.19
6													
7													
8													
9													

Spacer Data

Moisture Readings, Dry Basis % (One reading per spacer)								
21.9	22.8	22.3	18.8	9.6				
19.2	22.0	22.0	21.9	7.7				
22.0	22.0	21.9	21.9	9.5				
19.3	21.9	22.0	22.0	9.7				

Avg : 19.0

Assembled Crib Fuel Load with Spacers Attatched

PC #	Weight, lb with Spacers	Size	4 x 4s	2 x 4s
1	1.90	2x4		1.9000
2	1.91	2x4		1.9100
3	1.90	2x4		1.9000
4	1.82	2x4		1.8200
5	1.86	2x4		1.8600
6				
7				
8				
9				

Combined Mass of 4 x 4s 0.0 lb
Combined Mass of 2 x 4s 9.4 lb

Total Wet Mass of Fuel Load **9.4** lb

Fuel Load Properties

Type	*Number of Pieces*	*Wet Weight, lb.*	*Dry Weight, lb.*	*Fuel Loading Density, lb/ft³* Wet Basis	*Fuel Loading Density, lb/ft³* Dry Basis	Dry Fuel Density, lb/ft³	Wet Fuel Density, lb/ft³	*Moisture, %* Dry Basis	*Moisture, %* Wet Basis
2 x 4	5	7.2	5.91	6.43	5.31	26.81	32.69	21.22	17.51
4 x 4	0	0.0	0.00						
Spacers	20	2.2	1.84						
Totals		9.4	7.75						

Compliance Checks

	Fuel Load, Wet Lb.	Load Density, lb/ft³ of FB vol	Fuel Density, lb/ft³	% of Fuel load mass which is 2x4	Fuel Load Peices Mositure, % db
Measured	9.4	6.43	26.81	100	21.9
Required	9.2 - 11.2	6.3 - 7.7	25 - 36	100	19 -25
Complies ?	Yes	Yes	Yes	Yes	Yes

Dilution Tunnel Velocity Traverse and Supplementary Data

ASTM E2515-11

Run:	1	Tracking No.:	2509
Manufacturer:	Valley Comfort	Project No.:	0142WS024E
Model:	Sentry 14	Test Date:	9/29/2025

Dillution Tunnel Velocity Traverse

Pitot Location

Traverse Point	*% of Diameter*	*Inches into Tunnel*	*dP in. H_2O*	*Tunnel Temp, °F*	*$dP^{1/2}$*
X1	6.7	0.5*	0.054	101	0.232
X2	25.0	1.50	0.084	101	0.290
X3	75.0	4.50	0.076	101	0.276
X4	93.3	5.5*	0.048	101	0.219
Y1	6.7	0.5*	0.060	101	0.245
Y2	25.0	1.50	0.078	101	0.279
Y3	75.0	4.50	0.082	101	0.286
Y4	93.3	0.5*	0.060	101	0.245
Center	50.0	3.00	0.104	101	0.322

Tunnel Static Pressure	-0.400	*in. H_2O*
Tunnel Moisture	2.00	%
Tunnel Diameter	6.00	inches
Pitot Tube C_p	0.99	inches
Tunnel Molecular Weight	29	(dry)
Tunnel Molecular Weight	28.78	(M_S, wet)
Tunnel Area	0.19634954	*ft^2*
K_p	85.49	constant
$P_s=P_{bar}$+Tunnel Static	29.8005882	in HG

** Probe location must be no closer than 0.50" from tunnel wall*

$$V_{strav} = K_p C_p \sqrt{\Delta p}_{avg} \sqrt{\frac{T_{s,avg}}{P_s M_s}} = 17.7330$$

$$V_{scent} = K_p C_p \sqrt{\Delta p}_{center} \sqrt{\frac{T_{s,center}}{P_s M_s}} = 22.0745$$

$$F_P = V_{strav} / V_{scent} = 0.803$$

$$Initial\ Tunnel\ Velocity, V_s = F_P K_p C_p \sqrt{\Delta p}_{avg} \sqrt{\frac{T_{s,avg}}{P_s M_s}} = 14.245\ ft/sec$$

Supplementary Data and Information

Environment

	Test Start	Test End
Time of Day	13:51	15:48
Barometric Pressure, in. Hg	29.83	29.84
Room Air Velocity, fpm	24	21
Room Air Temperature, °F	72	75
Room Relative Humidity, %	56.0	54.0
Platform Scale Audit, lb.	10.0	10.0

Leak Checks

Pitot and associated tubing, (pass/fail)[1]	pass	pass

See sampling box worksheets for sampling boxes

Dillution Tunnel

Date last cleaned	9/29/2025	
Smoke Capture, % (visual)[2]	100	
Draft Inducement, (pass/fail)[3]	pass	
Static Pressure, in. H_2O	-0.400	-0.400

1 Both sides (independantly) of the pitot system are brought under a minimum vacuum of 3 in. H_2O and then sealed. Any indiction of pressure loss is deemed a fail.

2 Create a smoking condition during start of pre-burn activites and using adequate lighting pointed upward and aroud tunnel hood, visually observe if 100% of visible smoke is being captured by the hood. If not, increase flow tunnel flow and / or re-assess chimney proximity to draft hood as required and repeat until 100% capture is observed.

3 With the appliance installed and the dillution tunnel flow turned-off, observe the flue draft gauge while turning the dulution tunnel on. Any detectible response by the draft gauge associated with activation of the tunnel flow indicates that draft inducemnt is occuring. Determine the cause (i.e. flue chimnet too deep into tunnel?) before continuing.

Preburn Data

ASTM E2780

Run: 1

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E
Test Date: 9/29/25
Beginning Clock Time: 10:06

Coal Bed Range (lb):	1.9 (min)	2.3 (max)

Preburn Fuel Data

6 pieces @ 14.5 inches						
8 pieces @ 10 inches						
pieces @ inches						
Fuel Moisture Readings (% DB):						
24.8	25.2	24.3				
22.1	24.3	23				
23.8	21.9	22.5				
25.3	26.1	19.9				
23.2	21.9					
Avg Preburn Moisture (% DB):	**23.45**					

			Temperatures (°F)								
Elapsed Time (min)	Scale (lb)	Stack Draft (in H_2O)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Cat Exit	Avg. FB	Stack	Ambient
0	8.85	-0.01	72.9	73	72.8	72.5	72.6	71.6	73	71.8	70.4
1	8.78	0.015	73.6	73	72.7	72.5	72.5	72.1	73	94.4	70.4
2	8.74	0.012	77.1	73	72.9	72.5	72.6	73.6	74	121.5	70.4
3	8.66	0.007	81.6	73	73.3	72.8	72.6	74.7	75	139	70.4
4	8.41	0.018	89.4	72.9	74.1	73.3	72.9	70.3	77	148.8	70.5
5	8.37	0.041	104	72.9	75.7	74.1	73.4	79.6	80	248.5	70.5
6	8.47	0.049	120.6	72.9	78.5	75.5	74.4	83.9	84	295	70.6
7	8.17	0.058	137	72.8	83	77.8	76.3	4158.7	89	331.2	70.7
8	7.94	0.059	153	73	89.4	81	79.6	528.7	95	361.4	70.8
9	7.66	0.062	170.6	73.1	98	85	83.9	602	102	387.6	70.7
10	7.4	0.065	192.1	73.3	106.9	89.8	89.2	659.9	110	409.1	71
11	7.13	0.064	218	73.6	117.6	95.8	95.4	679.9	120	421	71.3
12	6.89	0.072	244.9	74.2	131	103.6	102.5	683.7	131	431.1	71.5
13	6.64	0.067	272	74.9	138.9	113.5	110.6	698	142	438.8	71.8
14	6.37	0.07	296.7	75.8	147	123.9	119.6	731.3	153	451.2	71.9
15	6.16	0.071	320.3	76.9	156.7	135	130.2	743.2	164	460.5	72.2
16	5.89	0.074	342.1	78.3	167.7	146.1	141.7	744.8	175	469.1	72.3
17	5.66	0.074	363.4	79.8	176.9	156.3	152.9	740.4	186	475.2	72.6
18	5.44	0.073	382.9	81.7	185.2	164.9	164.3	738	196	479.4	72.8
19	5.2	0.079	400.6	83.7	191.8	173.1	175.3	741.7	205	486.8	73.1
20	5	0.074	417.7	86	190.3	180.6	186.3	848.5	212	466.9	73.1
21	4.88	0.076	440.9	88.6	191.7	186.3	197.3	1043.6	221	459.3	73.2
22	4.74	0.078	469	91.5	194.1	191	204.1	1115.1	230	465.2	73.3
23	4.62	0.075	499.5	94.6	197.5	196.2	208.3	1136.4	239	470.3	73.5
24	4.49	0.077	515.9	97.9	201.7	202.5	214.2	1148.9	246	474.1	73.1
25	4.35	0.076	522.2	101.5	205.3	208.6	223.8	1153	252	477.5	73.4
26	4.29	0.056	531.4	105.2	207.5	214.4	232	1142.3	258	475.8	73.7
27	4.18	0.059	537.8	109.1	208.5	219.8	239.5	1129.7	263	474	73.7
28	4.07	0.06	542.7	112.8	209.3	225.2	246.3	1128.5	267	472.2	73.9
29	3.96	0.062	546	116.8	210.2	230.3	252.8	1122	271	471.6	73.6
30	3.86	0.066	548.4	121	211.5	235.2	259	1117	275	469.4	73.5
31	3.76	0.061	549.4	124.8	213.3	239.8	264.9	1108.8	278	469	73.6
32	3.66	0.061	548.5	128.6	215.4	244.3	270.2	1104.7	281	468.8	73.8
33	3.56	0.061	548	132.5	217.9	248.4	275.2	1107.2	284	466.8	73.7
34	3.45	0.061	548.2	136.6	220.4	252.4	279.9	1109.6	288	467.4	74
35	3.34	0.06	548.1	140.6	223	256.4	284.4	1107.9	291	467.2	73.9
36	3.21	0.063	548.8	144.6	225.8	260.3	288.8	1103.2	294	466.8	73.7
37	3.14	0.067	550.1	148.4	229.3	264.3	293.7	1094.7	297	466.7	74.3
38	3.03	0.064	550.1	152.3	232	268.1	298.6	1079.1	300	466.1	74.1
39	2.94	0.063	550.1	156.4	235.1	271.7	303	1075.1	303	466.1	74.3
40	2.84	0.059	551.2	160.4	239.3	275.7	307.3	1072	307	464.8	74.3
41	2.75	0.062	551.9	164.2	243.2	279.5	311.5	1065.3	310	463.6	74.2
42	2.66	0.063	551.5	168.3	247.5	283.1	315.8	1059.8	313	461	74.6

			Temperatures (°F)								
Elapsed Time (min)	Scale (lb)	Stack Draft (in H_2O)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Cat Exit	Avg. FB	Stack	Ambient
43	2.59	0.061	550.4	172.6	250.8	286.9	319.7	1067.6	316	458.6	74.1
44	2.48	0.062	549.1	176.5	254.9	291	323.4	1086.1	319	456.8	73.9
45	2.4	0.061	548.5	180.5	259.3	295	327.1	1094.9	322	455.7	74.1
46	2.35	0.068	547.8	184.5	263.4	299	330.6	1088	325	453.5	74.2
47	2.27	0.066	545.2	188.1	267	302.8	333.7	1070.9	327	451.6	74
48	2.18	0.06	542.8	191.8	271	306.7	337	1059.5	330	448.7	73.7
49	2.12	0.063	540.1	195.7	274.1	310.4	340.3	1065.7	332	446.3	74
50	2.05	0.063	539.1	199.4	277.1	314.2	343.5	1070.2	335	445.6	73.8
51	1.98	0.062	536.8	202.6	280.2	318.1	346.8	1069.6	337	445.4	74.5
52	1.88	0.061	535.4	205.6	282.7	322	350.1	1079.9	339	444.5	74.2
53	1.8	0.064	534.5	208.6	287	325.9	353.3	1075	342	444.9	74.4
54	1.75	0.066	533.3	212.5	289.2	329.9	356.4	1062.1	344	442.8	74.3
55	1.67	0.061	532.8	216.8	292.4	333.8	359.4	1057.2	347	441.3	74.6
56	1.58	0.065	532.1	220.8	296	337.6	362.2	1047.5	350	439.7	72.6
57	1.51	0.063	530	224.9	299.6	341.5	364.6	1028	352	438.1	72.2
58	1.49	0.06	528.8	229.2	302.5	345.2	367.3	1013.2	355	435.5	72.1
59	1.4	0.059	527.1	233.7	305	349.2	370	1007.9	357	432.7	72.3
60	1.34	0.059	524.3	238.1	307.3	352.8	372.6	997.3	359	431.6	72
61	1.28	0.06	520.9	242.6	308.4	356.6	374.9	994.6	361	430.5	71.9
62	1.21	0.063	518.5	247.5	310.9	360	377.3	1002.3	363	430.9	71.6
63	1.18	0.065	517.4	252.5	313	363.9	379.5	1000.7	365	431.4	71.7
64	1.1	0.061	516.4	257.7	313.6	367.4	381.3	989.3	367	430	71.4
65	1.06	0.062	514.4	263.1	314.7	371.1	383.1	983.6	369	428.3	71.9
66	1	0.061	511.7	268.9	316.2	375	384.8	976.1	371	424.9	71.8
67	0.96	0.059	507.5	275	317.3	378.6	386.2	957.2	373	420.7	71.9
68	0.9	0.061	503.5	281.5	319	382.3	387.6	936.6	375	415.6	71.8
69	0.88	0.057	498.1	288.4	320.7	385.9	388.9	926.2	376	411	71.7
70	0.8	0.058	493.2	295.6	321.5	389.4	390	926.7	378	408.4	71.7
71	0.78	0.058	488.2	303.4	322.2	392.7	391.2	918.7	380	406.4	71.9
72	0.77	0.059	482.8	311.6	324.7	395.6	392.3	910.2	381	403.6	72.1
73	0.71	0.058	477.8	320	325.6	398.4	393.4	898.4	383	401	72.5
74	0.68	0.064	473.1	328.1	326.8	400.7	394.5	882.8	385	398.1	72.2
75	-0.08	0.076	469.1	337.5	328.9	402.9	395.4	794.1	387	488	72.2
76	0.69	0.067	462.7	344.5	331.1	404.9	395.9	615	388	483.1	72.5
77	10.15	0.046	452	354.2	333.8	405.4	395.4	466	388	451.1	72.3
78	10.05	0.043	438	363.7	328.3	405	394.6	541.7	386	377.8	72.5
79	9.96	0.041	425	372.5	325.6	404.6	394	637.2	384	362.9	71.5
80	9.86	0.05	414.7	380.7	321.8	403.9	392.8	725.3	383	367.1	71.7
81	9.72	0.05	409.9	386.4	316.5	403.2	391.5	864	382	389.9	72.2
82	9.53	0.054	410.8	392.2	313.1	401.9	389.9	1030.4	382	418.7	71.4
83	9.35	0.057	419.4	396.8	308.5	400.8	387.9	1124	383	442.4	72
84	9.14	0.057	433.4	400.8	304.7	399.4	386	1186.1	385	460.4	72.2
85	8.94	0.059	451.6	404.7	300.8	397.9	383.9	1216.6	388	474.7	72.3
86	8.73	0.056	471.8	408.4	297.8	396.5	381.3	1228.4	391	484.7	72.1
87	8.51	0.057	491.3	411.8	296	395	379.2	1234.8	395	491.4	72.5
88	8.29	0.054	509.1	414.1	294.6	393.7	377.2	1239.4	398	496.9	72.3
89	8.08	0.058	526.2	415.7	293.1	392.5	375	1242.4	401	500.9	72.2
90	7.86	0.056	539.7	416.7	292.4	391.6	373.4	1247.4	403	503.4	71.9
91	7.64	0.058	551.3	417.2	292.6	390.8	371.7	1251.4	405	506.3	72.2
92	7.39	0.06	561.4	417.4	292.9	390.3	370.1	1251.6	406	507.5	72.3
93	7.17	0.059	569.7	417.3	293.8	390.2	369.1	1248.5	408	506.8	73
94	6.96	0.06	575.9	417.2	295.7	390.2	368	1245.8	409	506.9	71.8
95	6.74	0.064	581.5	417.1	296.8	390.6	367	1244.4	411	506.6	72.8
96	6.49	0.055	586.2	416.8	298.7	391.6	366.2	1233.8	412	504.8	72.1
97	6.29	0.06	589.6	416.6	301.4	392.3	365.7	1229.3	413	503.6	72.2
98	6.09	0.061	592.3	416.4	303.9	393.6	365.2	1227	414	501.6	72.2
99	5.89	0.065	596.1	416.4	305.9	395.1	365.2	1217.5	416	499.3	72.7
100	5.67	0.055	597	416.3	308.5	397.2	365.3	1209.4	417	498.3	72.4
101	5.46	0.061	598.5	416.4	311.7	399.4	365.4	1205.2	418	495.4	72.6
102	5.25	0.064	600.4	416.5	313.9	401.9	365.8	1202.5	420	492.5	72.3
103	5.06	0.063	601.2	416.7	316.7	404.4	366.4	1201.8	421	489.9	72.6

			Temperatures (°F)								
Elapsed Time (min)	Scale (lb)	Stack Draft (in H_2O)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Cat Exit	Avg. FB	Stack	Ambient
104	4.85	0.068	602.8	417.1	319.9	407.1	367.2	1200.8	423	488.1	72.4
105	4.67	0.057	602.8	417.5	323.7	410	367.9	1204.6	424	485.4	72.7
106	4.48	0.06	604.1	418.2	327.7	412.9	368.9	1207.6	426	482.6	72.7
107	4.28	0.062	605.1	418.7	331	415.8	370.1	1209.1	428	479.9	72.6
108	4.11	0.063	606.9	419.4	333.3	419.3	371.5	1208.2	430	477.6	73.1
109	3.95	0.061	608.2	420.2	337.9	422.5	372.7	1207.9	432	474.6	72.8
110	3.78	0.06	608.7	421	341	425.4	373.5	1209.1	434	472.2	73.5
111	3.61	0.062	610.6	422	343.8	428.8	375	1211.8	436	470.4	72.7
112	3.49	0.066	612.2	423.1	346.4	432.5	376.8	1212.1	438	468.3	72.8
113	3.3	0.065	614	424.2	349.3	436	378.6	1210.7	440	466.5	72.7
114	3.17	0.066	615.3	425.4	352.2	439.2	380.3	1218.7	442	465.1	73.1
115	3.04	0.063	616.1	426.6	355.6	442.6	382.1	1223.6	445	463.1	73.5
116	2.88	0.066	616.4	427.9	359.8	446.3	383.8	1225.2	447	459.9	72.7
117	2.77	0.058	613.9	429.3	364	450	385.5	1218.9	449	457.1	72.8
118	2.66	0.065	612.5	430.9	367.7	453.2	387.3	1208.5	450	454.8	72.8
119	2.55	0.061	611.1	432.5	372.9	457	388.9	1189.6	452	451.6	72.2
120	2.46	0.063	608.2	434.2	376.6	460.6	390.9	1168.8	454	448.8	72.9
121	2.34	0.067	606.1	436	381.7	463.9	393	1152.3	456	445	73
122	2.27	0.06	603.1	437.9	387.3	467.4	395.4	1123.3	458	440.5	72.9
123	2.18	0.063	601	439.8	392.7	470.8	397.9	1088.7	460	436.1	72.8
124	2.1	0.057	598.2	441.7	397.6	473.2	400.4	1053.2	462	432.9	73.6
125	2.07	0.059	594.9	443.8	403.8	476	403.1	1015.5	464	428.1	72.6
126	1.99	0.058	589.8	445.9	409.1	478.3	406.4	982.2	466	423.5	73.2
127	1.99	0.058	584.1	448.1	414.7	480.5	410	956.9	467	418.9	72.1
128	1.94	0.059	577.8	450.4	419.4	482.1	413.7	938.3	469	414.8	73
129	1.9	0.057	570.6	452.7	422.6	483.5	417.9	925.2	469	407.8	72.8
130	1.88	0.058	561.4	455.1	426.4	484.3	422.1	916.2	470	402.2	72.4
131	1.86	0.057	552.4	457.6	429.2	485.4	426.2	909.1	470	396.3	72.3
132	1.82	0.056	542.7	460.2	430.9	486.1	430.2	902	470	391.5	72.3
133	1.79	0.059	533.1	462.8	431.5	486.5	434	895.7	470	387.1	72.8
134	1.15	0.05	525	465.5	432.6	486.4	437.5	890.3	469	382.9	73.1
135	8.31	0.057	516.8	468.8	439.9	486.5	442.8	650.7	471	511.5	73.4
136	10.04	0.05	505.9	472.3	438.5	485.6	445.3	659.6	470	435	72.9
137	9.89	0.047	494.7	475.6	433.9	484.2	446.3	791.9	467	405.2	72.7
138	9.75	0.054	488.6	478.3	428.6	483	446.4	950.3	465	412.2	72.4
139	9.56	0.054	489.7	481.1	422.4	482.4	445.9	1092.7	464	428	72.5
140	9.37	0.052	496.3	483.6	416.6	481.2	444.8	1172	465	439.1	72.2
141	9.18	0.054	507.9	485.8	411.3	480.2	443.4	1210.4	466	447.2	72
142	8.98	0.057	520.3	487.6	404.6	478.9	441.3	1233.9	467	452.6	72.6
143	8.83	0.054	533	489	400.1	477.8	439	1246.7	468	457.7	72.3
144	8.64	0.056	544.7	490	395.4	477.2	436.1	1250.4	469	461	72.3
145	8.46	0.051	555.3	490.7	393	476.2	433.2	1251.7	470	464.3	73.1
146	8.27	0.054	563.5	491	389.9	475.8	430.2	1258.5	470	466.6	72.8
147	8.07	0.054	571.3	491.1	387.1	475.5	427.1	1270.6	470	469.1	72.4
148	7.88	0.054	577.4	491	383.7	475.5	424.1	1272.6	470	470.5	72.3
149	7.67	0.056	582.3	490.4	381.8	475.3	420.8	1275.7	470	471.7	72.8
150	7.53	0.055	588	489.8	378.8	475.2	417.4	1277	470	472.9	72.4
151	7.36	0.055	591.6	488.9	376.6	474.8	414.4	1279.8	469	473.9	73.5
152	7.17	0.059	596	487.9	375	474.5	411.5	1282.5	469	474.1	73.1
153	6.99	0.057	598.9	486.8	372.7	474.6	408.4	1281.6	468	473.9	72.4
154	6.8	0.056	601.4	485.5	370.9	473.9	405.4	1274	467	472.7	72.3
155	6.65	0.058	604	484.2	369.4	474	402.6	1269.6	467	469.6	72.9
156	6.45	0.052	605.2	482.8	369	474.1	400.1	1266.6	466	466	72.2
157	6.28	0.055	605.8	481.5	367.7	474.5	397.7	1262.6	465	463.6	73.7
158	6.09	0.055	606.4	480.2	367.6	474.8	395.6	1260.9	465	461.7	74.1
159	5.94	0.052	607	478.7	367.7	475.6	393.5	1256.7	465	459	74
160	5.78	0.059	607.1	477.4	368.3	476.7	391.4	1253.2	464	456.7	72.7
161	5.59	0.053	606.4	476	369.4	477.6	389.3	1249.4	464	454	73.6
162	5.44	0.055	605.7	474.7	370.2	479.5	387.7	1247.9	464	453.8	72.8
163	5.26	0.054	605.9	473.4	371.1	481.4	386	1244.5	464	452.7	74.5
164	5.07	0.061	603.9	472	372.6	483.2	384.7	1243	463	450.9	73.9

			Temperatures (°F)								
Elapsed Time (min)	Scale (lb)	Stack Draft (in H_2O)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Cat Exit	Avg. FB	Stack	Ambient
165	4.94	0.055	603.3	470.6	373.3	485.3	383.6	1241.2	463	449.1	74.2
166	4.79	0.055	601.5	469.3	374.6	487.5	382.8	1239.2	463	447.6	74.4
167	4.65	0.057	599.9	468.1	377.1	490	381.9	1238.9	463	445.5	72.9
168	4.51	0.058	599.9	466.9	378.9	492.4	381.1	1236.9	464	443.4	73
169	4.39	0.059	598.2	465.7	381	494.5	380.5	1232.4	464	441.8	72.9
170	4.28	0.058	598.3	464.5	383.1	496.9	379.4	1220	464	441.3	73.2
171	4.16	0.061	597.2	463.4	385	498.6	379.4	1201.5	465	440.3	72.8
172	4.05	0.062	595.7	462.3	387.6	500.6	379.2	1180.2	465	438.5	72.9
173	3.95	0.057	593.8	461.2	390.2	502.9	378.8	1161.8	465	436.6	73.7
174	3.86	0.058	591.2	460.2	393.2	504.8	378.8	1150.9	466	434.5	72.9
175	3.74	0.055	589.2	459.2	396	506.3	379.3	1144.8	466	432.7	73.5
176	3.66	0.056	586.8	458.3	399	507.7	380	1136.2	466	430.7	73.3
177	3.56	0.056	584.6	457.4	401.8	508.9	380.8	1125.6	467	428.3	73.1
178	3.47	0.059	582.2	456.7	403.8	510.3	381.8	1119.2	467	425.7	72.9
179	3.38	0.056	579.5	455.9	406.9	511.1	382.7	1114.2	467	424.1	73.5
180	3.29	0.058	577.8	455.3	409.1	511.5	383.6	1100	467	421.4	73
181	3.21	0.056	575.4	454.9	410.8	512.6	384.1	1075.1	468	418.9	73.1
182	3.15	0.058	571.9	454.5	412.6	513.1	385	1042.7	467	415.8	73
183	3.08	0.058	569.1	454.1	414.7	513.5	386.8	1016.7	468	411.8	73
184	3	0.057	565.7	453.9	416.9	513.5	388.7	999.9	468	408.7	73.6
185	2.97	0.056	563	453.6	419.6	513.6	390.9	989.3	468	405.9	74.1
186	2.88	0.056	558.9	453.5	422.3	513.8	393	976.1	468	403	73.8
187	2.86	0.057	555.4	453.5	424.8	513.8	395.5	955.7	469	399.9	74.3
188	2.8	0.056	550.8	453.5	427.4	513.5	398.4	936.5	469	397	73.4
189	2.78	0.055	546.4	453.7	429.4	513	401.5	921.1	469	394.4	73.2
190	2.76	0.057	540.2	454	430.9	512.6	404.9	910.6	469	390.7	73.4
191	2.71	0.053	535.2	454.4	432.1	511.4	408.3	904.1	468	386.1	74.3
192	2.7	0.053	527.9	454.8	432.4	510.4	412.1	899.4	468	381.3	73.8
193	2.69	0.052	519.8	455.2	433	509.2	415.4	894.8	467	377.3	73.9
194	2.68	0.054	512.6	455.8	432.6	508.1	418	890.5	465	373.6	73.7
195	2.64	0.05	505.1	456.4	432	507.4	420.1	887.5	464	370.8	73.6
196	2.59	0.054	499	457.2	431.4	506.4	422.2	887.1	463	367.9	73.1
197	2.59	0.048	492	458	430	505.5	423.8	885.2	462	365.5	73.3
198	2.57	0.048	487.2	458.9	427.9	504.4	426.2	874.6	461	363	75.2
199	2.5	0.048	481.9	459.9	427.2	503	428	864.1	460	360.4	73.5
200	2.48	0.049	477	460.9	425.9	501.7	429.5	858.2	459	358.8	72.9
201	2.47	0.05	472.6	462	424.1	501	430.4	856	458	358.2	72.9
202	2.44	0.05	468.8	463	422.3	500	431.5	856.5	457	357.1	73.6
203	2.4	0.054	464.5	464.1	420.6	499.5	432.4	857.2	456	356.7	73.3
204	2.38	0.052	461.1	465.4	417.2	498.5	433.2	857.7	455	355.7	73.2
205	2.38	0.054	458.2	466.7	415.8	497.5	433.2	858.6	454	356	72.9
206	2.35	0.054	455.6	468.2	413.7	496.9	433.5	859.6	454	355.6	73.2
207	2.29	0.052	453.2	469.5	411.5	495.9	433.9	860.5	453	356.3	73.1
208	2.29	0.053	450.5	471	409.8	495	434.3	861.2	452	356.2	73
209	2.27	0.052	448.2	472.4	407.7	494.2	434.8	861.1	451	356.1	72.9
210	2.25	0.052	446.2	473.8	406.4	493.3	435.1	860	451	356	72.9
211	2.19	0.053	444.4	475.3	405.2	492.6	435.1	859.4	451	355.8	73
212	2.18	0.051	443.2	476.7	403.1	492.3	434.8	855.7	450	356.2	73.2
213	2.17	0.052	441.1	478.2	401.4	491.8	435	847.4	450	355.7	72.7
214	2.14	0.045	439	479.5	399.3	490.7	435	838.8	449	355.1	73.3
215	2.1	0.048	437.2	480.9	396.6	489.9	433.5	832.6	448	354.3	73.5
216	2.08	0.053	434.3	482.2	393.4	489	433.4	828.4	446	354.1	73.4
217	2.09	0.054	432.6	483.4	390.6	488.5	433.5	825.2	446	353.4	73.2
218	2.07	0.049	431	484.7	388.3	487.8	433.5	822.3	445	353.1	73.6
219	2.01	0.054	428.4	485.8	385.9	487.1	433.3	819.9	444	353	73.1
220	1.99	0.051	426.3	486.9	383.2	486.2	433.1	818.2	443	352.9	73.3
221	1.98	0.05	424.4	487.9	381	485.2	432.7	817	442	352.7	73.7
222	1.96	0.05	422.5	488.9	378.5	484.1	432.7	815.5	441	352.4	73
223	1.95	0.047	420.6	489.8	376.1	482.9	432.1	814.2	440	352.4	73.1
224	1.9	0.051	418.6	490.7	373.4	481.7	431.5	813.2	439	352	73.3

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 1
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 13:51
Test Length: 117 min
Recording Interval: 1 min

Test Date: 9/29/25

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.003 cfm @ 18.2 in. Hg
Post-Test 0.002 cfm @ 7.6 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H (" H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP (" H_2O)*	$\sqrt{dP}$	*vs*
Tot / Avg		9.4	**19.498**	**0.167**	**1.19**	**91.3**	**2.09**	**77.80**	**48.95**	**74.23**	**100.0**	**101.1**	**0.099**	**0.315**	**17.31**
Minimum	0.0	0.0	0.000	0.145	-0.02	78	0.06	73	37	73	89.2	93	0.097	0.311	17.12
Max	9.4	0.2	19.498	0.171	1.24	101	2.28	79	52	76	104.1	123	0.101	0.318	17.56
0	9.4		0.000		-0.02	79	0.06	73.2	40.5	73		93	0.100	0.316	17.53
1	9.3	0.1	0.145	0.145	1.24	79	2.07	74.5	36.8	74	89.2	123	0.099	0.315	17.45
2	9.2	0.1	0.313	0.168	1.23	79	2.21	74.9	36.5	74	104.1	102	0.101	0.318	17.56
3	9.1	0.1	0.479	0.166	1.21	78	2.05	75	36.8	73	100.9	99	0.100	0.316	17.42
4	9.0	0.1	0.646	0.167	1.20	79	2.07	75.2	37.3	74	101.8	99	0.100	0.316	17.36
5	8.8	0.1	0.813	0.167	1.22	79	2.10	75.3	37.7	74	102.0	100	0.100	0.316	17.36
6	8.7	0.2	0.978	0.165	1.20	79	2.21	75.5	38.3	73	100.9	101	0.099	0.315	17.33
7	8.6	0.1	1.144	0.166	1.20	79	2.17	75.6	38.9	73	101.7	101	0.100	0.316	17.34
8	8.4	0.1	1.310	0.166	1.21	79	2.07	75.8	39.4	73	101.5	102	0.101	0.318	17.43
9	8.3	0.2	1.474	0.164	1.19	79	2.12	75.9	40	73	100.1	102	0.100	0.316	17.44
10	8.1	0.2	1.640	0.166	1.19	80	2.22	76	40.5	73	101.4	103	0.100	0.316	17.41
11	8.0	0.1	1.806	0.166	1.21	80	2.01	76.1	41	73	101.6	104	0.100	0.316	17.42
12	7.8	0.2	1.971	0.165	1.21	80	2.09	76.2	41.5	73	101.0	104	0.100	0.316	17.43
13	7.7	0.1	2.137	0.166	1.19	80	2.24	76.4	41.8	74	101.6	105	0.100	0.316	17.44
14	7.5	0.2	2.303	0.166	1.19	80	1.99	76.5	42.3	73	101.5	105	0.101	0.318	17.49
15	7.4	0.1	2.467	0.164	1.19	80	2.05	76.7	42.9	74	100.1	105	0.100	0.316	17.49
16	7.2	0.2	2.634	0.167	1.19	80	2.23	76.9	43.2	73	102.2	106	0.099	0.315	17.41
17	7.0	0.1	2.799	0.165	1.20	81	2.18	77	43.7	73	101.2	106	0.100	0.316	17.42
18	6.9	0.2	2.962	0.163	1.18	82	2.16	77.1	44.1	73	99.8	106	0.100	0.316	17.47
19	6.7	0.2	3.129	0.167	1.19	82	2.25	77.3	44.7	73	102.2	106	0.099	0.315	17.43
20	6.6	0.1	3.293	0.164	1.19	82	2.13	77.4	45	73	100.5	106	0.100	0.316	17.43
21	6.4	0.2	3.458	0.165	1.19	82	2.00	77.5	45.3	73	101.0	107	0.100	0.316	17.47
22	6.3	0.1	3.623	0.165	1.19	82	2.24	77.6	45.7	73	100.8	107	0.100	0.316	17.47
23	6.1	0.2	3.786	0.163	1.19	82	1.96	77.7	46	73	99.5	107	0.100	0.316	17.47
24	6.0	0.1	3.952	0.166	1.18	82	1.97	77.8	46.3	73	101.5	107	0.099	0.315	17.43
25	5.8	0.2	4.117	0.165	1.19	83	2.13	77.9	46.5	73	100.9	107	0.100	0.316	17.44
26	5.6	0.1	4.281	0.164	1.18	83	2.14	78	46.8	73	100.3	107	0.099	0.315	17.44
27	5.5	0.2	4.446	0.165	1.17	84	2.14	78.1	47.2	74	100.9	108	0.100	0.316	17.44
28	5.3	0.2	4.610	0.164	1.19	84	1.99	78.2	47.4	74	100.1	108	0.100	0.316	17.49
29	5.1	0.2	4.775	0.165	1.18	84	2.24	78.3	47.8	73	100.6	109	0.100	0.316	17.50
30	5.0	0.2	4.939	0.164	1.18	84	2.02	78.4	47.9	73	100.2	109	0.098	0.313	17.42
31	4.8	0.2	5.102	0.163	1.18	84	2.20	78.5	48.2	74	100.0	108	0.098	0.313	17.33
32	4.6	0.1	5.268	0.166	1.17	85	1.96	78.6	48.3	73	101.8	108	0.099	0.315	17.36
33	4.5	0.2	5.433	0.165	1.16	86	2.20	78.5	48.4	73	100.8	108	0.099	0.315	17.40
34	4.3	0.1	5.598	0.165	1.19	86	2.18	78.6	48.6	74	100.7	108	0.099	0.315	17.40
35	4.2	0.1	5.764	0.166	1.19	86	1.98	78.7	48.8	74	101.1	108	0.100	0.316	17.45
36	4.1	0.1	5.928	0.164	1.17	87	2.16	78.7	49	73	99.7	107	0.099	0.315	17.44
37	4.0	0.1	6.095	0.167	1.19	87	2.25	78.8	49.1	74	101.4	107	0.100	0.316	17.44
38	3.8	0.2	6.260	0.165	1.20	87	2.21	78.8	49.2	74	100.3	107	0.098	0.313	17.39
39	3.7	0.1	6.425	0.165	1.19	88	2.26	78.8	49.3	73	100.6	107	0.098	0.313	17.30
40	3.6	0.1	6.591	0.166	1.19	87	2.11	78.9	49.5	74	101.2	106	0.099	0.315	17.34

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 1
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 13:51
Test Length: 117 min
Recording Interval: 1 min

Test Date: 9/29/25

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.003 cfm @ 18.2 in. Hg
Post-Test 0.002 cfm @ 7.6 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ("H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ("H_2O)*	$\sqrt{dP}$	*vs*
41	3.4	0.1	6.756	0.165	1.17	88	2.03	78.9	49.7	74	100.5	107	0.098	0.313	17.34
42	3.3	0.1	6.920	0.164	1.18	88	2.16	78.9	50	74	99.8	106	0.099	0.315	17.34
43	3.2	0.1	7.087	0.167	1.19	89	2.08	79	50	75	101.5	106	0.098	0.313	17.33
44	3.1	0.1	7.252	0.165	1.18	89	1.98	79	49.9	73	100.2	106	0.099	0.315	17.33
45	3.0	0.1	7.416	0.164	1.19	90	1.97	79.1	50.1	74	99.5	106	0.098	0.313	17.33
46	2.9	0.1	7.582	0.166	1.18	89	2.12	79.1	50.3	73	100.7	106	0.099	0.315	17.33
47	2.8	0.1	7.747	0.165	1.18	90	1.99	79.1	50.4	74	99.9	106	0.099	0.315	17.37
48	2.7	0.1	7.912	0.165	1.18	91	2.25	79.1	50.5	74	99.8	105	0.098	0.313	17.32
49	2.7	0.1	8.077	0.165	1.17	90	2.01	79.1	50.6	73	99.8	105	0.099	0.315	17.32
50	2.6	0.1	8.242	0.165	1.15	91	2.07	79.2	50.7	74	99.7	105	0.099	0.315	17.36
51	2.5	0.1	8.408	0.166	1.19	91	1.96	79.2	50.8	73	100.1	105	0.099	0.315	17.36
52	2.4	0.1	8.573	0.165	1.17	91	2.05	79.2	51	74	99.6	105	0.098	0.313	17.31
53	2.3	0.1	8.738	0.165	1.18	92	2.03	79.2	51.1	74	99.7	105	0.098	0.313	17.27
54	2.2	0.1	8.904	0.166	1.20	92	2.23	79.2	51.2	74	100.4	105	0.098	0.313	17.27
55	2.1	0.1	9.069	0.165	1.17	92	2.09	79.3	51.2	74	99.8	105	0.098	0.313	17.27
56	2.0	0.1	9.233	0.164	1.19	92	2.09	79.3	51.3	74	99.1	105	0.099	0.315	17.32
57	1.9	0.1	9.400	0.167	1.18	93	2.22	79.3	51.5	75	100.6	105	0.099	0.315	17.36
58	1.8	0.1	9.566	0.166	1.19	93	1.96	79.3	51.5	75	100.0	105	0.097	0.311	17.27
59	1.7	0.1	9.730	0.164	1.18	93	2.08	79.3	51.5	75	99.1	105	0.098	0.313	17.23
60	1.6	0.1	9.897	0.167	1.17	94	2.00	79.3	51.4	74	100.6	104	0.100	0.316	17.35
61	1.6	0.0	10.062	0.165	1.18	94	2.19	79.2	51.4	74	98.7	103	0.099	0.315	17.38
62	1.5	0.1	10.227	0.165	1.20	94	2.25	79.2	51.4	74	98.7	103	0.098	0.313	17.29
63	1.5	0.0	10.394	0.167	1.17	94	2.25	79.2	51.5	74	100.1	102	0.099	0.315	17.28
64	1.4	0.1	10.558	0.164	1.18	94	2.12	79.2	51.5	74	98.4	102	0.097	0.311	17.23
65	1.4	0.0	10.725	0.167	1.21	95	2.23	79.2	51.5	75	100.4	101	0.098	0.313	17.18
66	1.3	0.0	10.894	0.169	1.21	95	2.20	79	51.5	75	101.4	101	0.099	0.315	17.25
67	1.3	0.0	11.062	0.168	1.21	95	2.02	79	51.5	76	100.2	100	0.100	0.316	17.33
68	1.3	0.0	11.230	0.168	1.20	95	2.09	78.9	51.5	75	99.8	100	0.099	0.315	17.33
69	1.3	0.0	11.397	0.167	1.20	95	2.27	78.9	51.5	74	99.2	99	0.100	0.316	17.32
70	1.2	0.0	11.567	0.170	1.22	95	2.04	78.8	51.5	75	101.0	99	0.098	0.313	17.27
71	1.2	0.0	11.735	0.168	1.21	96	1.98	78.7	51.5	75	100.0	99	0.099	0.315	17.22
72	1.2	0.0	11.902	0.167	1.22	96	2.12	78.7	51.5	75	99.4	98	0.099	0.315	17.26
73	1.2	0.0	12.070	0.168	1.21	97	2.09	78.6	51.6	75	99.9	98	0.098	0.313	17.21
74	1.1	0.0	12.240	0.170	1.21	96	2.28	78.5	51.6	75	101.2	98	0.098	0.313	17.16
75	1.1	0.0	12.408	0.168	1.22	97	2.07	78.3	51.6	75	100.0	97	0.099	0.315	17.20
76	1.1	0.0	12.576	0.168	1.21	97	1.98	78.2	51.6	75	99.7	97	0.099	0.315	17.24
77	1.0	0.0	12.743	0.167	1.21	97	2.17	78.2	51.6	76	98.9	97	0.099	0.315	17.24
78	1.0	0.0	12.913	0.170	1.22	97	2.01	78.1	51.6	76	100.8	97	0.098	0.313	17.19
79	1.0	0.0	13.081	0.168	1.21	97	2.17	78	51.6	75	99.7	96	0.098	0.313	17.14
80	1.0	0.0	13.249	0.168	1.20	98	1.98	78	51.7	75	99.6	96	0.100	0.316	17.23
81	0.9	0.1	13.417	0.168	1.20	98	2.22	78	51.7	76	99.3	96	0.098	0.313	17.22
82	0.9	0.0	13.585	0.168	1.20	98	2.14	77.9	51.7	76	99.2	96	0.100	0.316	17.22
83	0.9	0.0	13.755	0.170	1.22	98	2.15	78	51.8	76	100.4	96	0.098	0.313	17.22
84	0.9	0.0	13.923	0.168	1.21	98	2.19	78	51.8	75	99.2	96	0.100	0.316	17.22

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 1
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 13:51
Test Length: 117 min
Recording Interval: 1 min

Test Date: 9/29/25

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.003 cfm @ 18.2 in. Hg
Post-Test 0.002 cfm @ 7.6 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ("H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ("H_2O)*	$\sqrt{dP}$	*vs*
85	0.8	0.0	14.091	0.168	1.20	99	2.20	77.9	51.8	75	99.1	96	0.098	0.313	17.22
86	0.8	0.0	14.259	0.168	1.21	98	2.02	77.8	51.8	75	99.4	96	0.098	0.313	17.13
87	0.8	0.0	14.429	0.170	1.20	99	2.06	77.7	51.9	74	100.5	95	0.100	0.316	17.21
88	0.7	0.1	14.598	0.169	1.21	98	2.02	77.6	51.9	76	99.8	95	0.097	0.311	17.17
89	0.7	0.0	14.766	0.168	1.24	99	2.05	77.6	51.9	76	99.4	95	0.099	0.315	17.12
90	0.7	0.0	14.934	0.168	1.21	99	2.03	77.5	51.9	76	99.1	95	0.100	0.316	17.25
91	0.7	0.0	15.103	0.169	1.22	99	2.19	77.5	51.8	75	99.4	95	0.099	0.315	17.25
92	0.6	0.0	15.273	0.170	1.21	99	2.19	77.5	51.8	75	99.9	95	0.100	0.316	17.25
93	0.6	0.0	15.442	0.169	1.22	99	2.15	77.4	51.9	76	99.2	95	0.099	0.315	17.25
94	0.6	0.0	15.610	0.168	1.22	99	2.11	77.5	51.9	75	98.6	95	0.100	0.316	17.25
95	0.6	0.0	15.778	0.168	1.22	99	1.97	77.4	51.9	75	98.6	95	0.099	0.315	17.25
96	0.6	0.0	15.948	0.170	1.21	99	2.09	77.4	51.9	75	99.8	95	0.100	0.316	17.25
97	0.5	0.0	16.118	0.170	1.22	99	2.08	77.3	51.9	75	99.7	95	0.100	0.316	17.29
98	0.5	0.0	16.286	0.168	1.21	100	2.24	77.3	51.9	76	98.7	95	0.097	0.311	17.16
99	0.5	0.0	16.455	0.169	1.19	99	2.00	77.3	51.9	75	99.7	95	0.100	0.316	17.16
100	0.5	0.0	16.623	0.168	1.21	100	2.07	77.3	51.9	76	98.9	95	0.098	0.313	17.20
101	0.4	0.1	16.793	0.170	1.22	100	2.10	77.3	51.9	75	100.2	95	0.098	0.313	17.12
102	0.4	0.0	16.962	0.169	1.21	100	2.23	77.2	51.9	74	99.7	95	0.100	0.316	17.20
103	0.4	0.0	17.131	0.169	1.21	100	1.97	77.1	51.9	74	99.3	95	0.099	0.315	17.25
104	0.4	0.0	17.300	0.169	1.19	100	2.06	77.1	52	75	99.4	95	0.098	0.313	17.16
105	0.3	0.0	17.468	0.168	1.20	100	2.13	77.1	52	75	98.8	95	0.101	0.318	17.25
106	0.3	0.0	17.639	0.171	1.21	100	2.03	77.1	52	76	100.2	95	0.098	0.313	17.25
107	0.3	0.0	17.808	0.169	1.22	100	2.26	77.1	52	76	99.2	95	0.100	0.316	17.21
108	0.3	0.0	17.976	0.168	1.20	101	2.26	77.1	52	76	98.7	95	0.098	0.313	17.21
109	0.3	0.0	18.145	0.169	1.21	101	1.97	77.1	52.1	75	99.4	95	0.099	0.315	17.16
110	0.2	0.0	18.314	0.169	1.21	100	2.00	77.1	52.1	75	99.4	95	0.099	0.315	17.21
111	0.2	0.0	18.484	0.170	1.21	101	2.03	77	52.1	75	99.9	95	0.099	0.315	17.20
112	0.2	0.0	18.653	0.169	1.21	100	2.25	77	52.2	75	99.3	95	0.099	0.315	17.20
113	0.2	0.0	18.822	0.169	1.22	101	2.22	77	52.2	74	99.1	95	0.100	0.316	17.25
114	0.2	0.0	18.990	0.168	1.22	101	2.24	77.1	52.3	75	98.3	95	0.100	0.316	17.29
115	0.1	0.0	19.159	0.169	1.22	101	2.15	77	52.3	76	98.6	95	0.101	0.318	17.34
116	0.1	0.0	19.329	0.170	1.22	101	2.09	77	52.3	76	99.2	95	0.099	0.315	17.29
117	0.0	0.1	19.498	0.169	1.22	101	2.05	77	52.4	76	99.1	95	0.098	0.313	17.16

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 1
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Date: 9/29/25

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Test Start Time: 13:51
Total Sampling Time: 117 min
Recording Interval: 1 min

Sample Train Leak Checks
Pre-test 0.002 cfm @ 23.7 in. Hg
Post-Test 0.002 cfm @ 6.9 in. Hg

Elapsed Time (min)	**Train B Sampling System**								**Appliance Temperatures, °F**						
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Pro - Rate*	*Top*	*Bottom*	*Back*	*Left*	*Right*	*Catalyst Exit*	*Average Stove Surface (Tot = Δ T)*
Tot / Avg	**18.823**	**0.161**	**1.22**	**88.1**	**2.29**	**76.93**	**46.57**	**100.0**	**530.6**	**448.5**	**323.5**	**435.4**	**405.8**	**1024.1**	**31.0**
Minimum	0.000	0.139	0.03	76	0.00	73	36	88.5	405	421	284	392	375	589	408
Max	18.823	0.164	1.25	98	2.40	77	49	103.3	652	499	376	482	437	1269	442
0	0.000		0.03	76	0.00	72.8	40.9		419	491	373	482	431	813	439
1	0.139	0.139	1.23	76	2.25	73.6	36.8	88.5	417	492	376	481	436	589	441
2	0.300	0.161	1.23	76	2.31	73.9	36.4	103.3	412	493	374	481	437	654	439
3	0.460	0.160	1.22	76	2.26	74.1	36.7	100.6	410	494	370	480	436	810	438
4	0.620	0.160	1.22	76	2.43	74.2	37	100.9	412	495	365	478	435	922	437
5	0.781	0.161	1.22	76	2.39	74.4	37.3	101.8	417	496	359	476	434	965	436
6	0.940	0.159	1.22	76	2.37	74.4	37.6	100.7	426	497	353	472	432	984	436
7	1.099	0.159	1.21	76	2.44	74.5	37.9	100.9	436	498	345	469	430	1010	436
8	1.259	0.160	1.22	76	2.23	74.5	38.3	101.3	447	499	338	465	427	1027	435
9	1.419	0.160	1.21	76	2.30	74.6	38.7	101.0	457	499	333	460	424	1068	435
10	1.578	0.159	1.21	76	2.23	74.7	39.1	100.6	469	499	327	456	420	1100	434
11	1.736	0.158	1.21	77	2.25	74.8	39.5	100.1	482	499	321	451	416	1120	434
12	1.897	0.161	1.20	77	2.32	74.9	39.7	102.0	497	498	317	446	413	1136	434
13	2.054	0.157	1.20	77	2.37	75	40.2	99.5	510	497	313	442	409	1133	434
14	2.212	0.158	1.20	77	2.26	75.2	40.5	100.0	520	496	309	437	406	1132	434
15	2.372	0.160	1.20	77	2.21	75.3	40.8	101.1	529	495	305	433	403	1139	433
16	2.530	0.158	1.20	78	2.25	75.5	41.3	100.1	538	494	302	429	400	1147	432
17	2.687	0.157	1.18	78	2.24	75.6	41.6	99.7	546	492	299	425	397	1156	432
18	2.846	0.159	1.20	78	2.38	75.7	41.8	100.8	554	491	297	421	394	1161	431
19	3.005	0.159	1.19	78	2.40	75.9	42.2	100.8	561	489	294	418	392	1165	431
20	3.161	0.156	1.21	79	2.31	76.1	42.5	99.0	568	487	292	414	389	1167	430
21	3.320	0.159	1.21	79	2.38	76.3	42.9	100.7	575	485	290	411	387	1169	430
22	3.479	0.159	1.20	79	2.25	76.4	43.3	100.5	581	483	289	408	385	1169	429
23	3.635	0.156	1.21	80	2.25	76.5	43.6	98.6	587	481	287	406	384	1174	429
24	3.794	0.159	1.19	80	2.35	76.6	43.8	100.6	593	479	286	403	383	1185	429
25	3.952	0.158	1.21	80	2.34	76.7	44.1	100.0	599	477	286	401	381	1204	429
26	4.108	0.156	1.19	80	2.29	76.8	44.4	98.7	605	475	285	399	380	1218	429
27	4.267	0.159	1.19	81	2.18	76.9	44.6	100.6	611	473	284	398	379	1237	429
28	4.425	0.158	1.19	81	2.29	77	44.9	99.8	616	471	284	396	378	1252	429
29	4.581	0.156	1.19	81	2.25	77	45.1	98.4	620	469	284	395	377	1262	429
30	4.740	0.159	1.17	82	2.18	77.1	45.3	100.5	623	467	284	394	376	1261	429
31	4.896	0.156	1.20	82	2.23	77.2	45.5	99.0	625	465	285	394	377	1264	429
32	5.053	0.157	1.19	82	2.34	77.1	45.7	99.7	627	463	285	393	376	1267	429
33	5.213	0.160	1.24	82	2.40	77.1	45.7	101.3	629	461	285	393	375	1264	428
34	5.374	0.161	1.24	83	2.44	77.2	46	101.8	633	459	286	392	376	1269	429
35	5.535	0.161	1.24	83	2.32	77.4	46.3	101.6	635	457	286	392	377	1269	429
36	5.695	0.160	1.23	84	2.40	77.5	46.5	100.7	638	455	287	392	377	1261	430
37	5.856	0.161	1.23	84	2.45	77.6	46.7	101.2	640	453	288	393	377	1253	430
38	6.019	0.163	1.23	84	2.37	77.6	46.8	102.6	642	451	289	393	378	1251	430
39	6.179	0.160	1.23	84	2.28	77.6	46.9	101.0	644	449	290	393	378	1252	431
40	6.339	0.160	1.23	85	2.35	77.6	47	101.0	646	447	290	394	379	1246	431

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 1
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Date: 9/29/25

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Test Start Time: 13:51
Total Sampling Time: 117 min
Recording Interval: 1 min

Sample Train Leak Checks
Pre-test 0.002 cfm @ 23.7 in. Hg
Post-Test 0.002 cfm @ 6.9 in. Hg

Elapsed Time (min)	Train B Sampling System								Appliance Temperatures, °F						
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Filter Temp (°F)	Dryer Temp (°F)	Pro - Rate	Top	Bottom	Back	Left	Right	Catalyst Exit	Average Stove Surface (Tot = Δ T)
41	6.500	0.161	1.24	85	2.27	77.8	47.2	101.5	647	445	292	394	380	1239	432
42	6.661	0.161	1.24	85	2.28	77.8	47.4	101.4	648	443	293	395	381	1238	432
43	6.823	0.162	1.23	86	2.31	77.8	47.5	101.9	648	442	294	395	382	1237	432
44	6.983	0.160	1.22	86	2.41	77.8	47.5	100.6	649	440	295	396	383	1241	432
45	7.143	0.160	1.22	86	2.35	77.8	47.6	100.6	651	439	296	397	383	1237	433
46	7.304	0.161	1.23	86	2.43	77.8	47.7	101.2	651	437	297	398	384	1223	433
47	7.466	0.162	1.23	87	2.35	77.8	47.8	101.6	652	435	298	399	385	1214	434
48	7.627	0.161	1.22	87	2.39	77.8	47.9	100.9	651	434	299	400	386	1202	434
49	7.787	0.160	1.23	87	2.35	77.9	47.9	100.3	650	432	300	401	386	1194	434
50	7.947	0.160	1.24	87	2.43	77.8	48	100.1	649	431	301	403	387	1196	434
51	8.108	0.161	1.23	88	2.23	77.9	48.1	100.6	647	430	302	404	388	1201	434
52	8.271	0.163	1.23	88	2.34	78	48.2	101.9	644	428	304	406	389	1195	434
53	8.432	0.161	1.23	88	2.35	78	48.3	100.8	643	427	305	408	389	1191	434
54	8.592	0.160	1.23	89	2.34	78	48.4	100.3	641	426	307	410	390	1198	435
55	8.753	0.161	1.22	89	2.31	78.1	48.4	100.9	640	425	308	413	391	1210	436
56	8.914	0.161	1.23	89	2.30	78.1	48.5	100.7	641	425	310	415	393	1225	437
57	9.076	0.162	1.23	89	2.29	78.2	48.6	101.0	642	424	311	418	394	1236	438
58	9.238	0.162	1.22	90	2.25	78.1	48.6	101.1	645	423	312	420	396	1237	439
59	9.398	0.160	1.23	90	2.26	78.1	48.7	100.2	646	423	314	423	396	1234	440
60	9.559	0.161	1.22	90	2.37	78.1	48.8	100.5	647	422	315	426	398	1216	442
61	9.720	0.161	1.23	90	2.24	78.1	48.8	99.8	646	422	316	428	399	1180	442
62	9.883	0.163	1.21	91	2.31	78.2	49	101.1	642	422	318	431	400	1135	442
63	10.045	0.162	1.23	91	2.25	78.1	49	100.6	635	422	320	434	400	1100	442
64	10.206	0.161	1.23	91	2.41	78	49	100.1	627	421	323	436	401	1067	441
65	10.367	0.161	1.24	91	2.24	78	49	100.3	617	421	326	438	402	1038	441
66	10.528	0.161	1.24	91	2.31	78	49	100.0	606	421	330	440	403	1011	440
67	10.690	0.162	1.24	92	2.22	78.1	49.2	100.1	595	421	333	443	405	985	439
68	10.853	0.163	1.24	92	2.42	78	49.1	100.3	583	421	336	445	406	962	438
69	11.015	0.162	1.23	92	2.36	77.9	49.1	99.7	572	421	338	447	407	944	437
70	11.177	0.162	1.23	92	2.42	77.9	49	99.7	561	421	340	449	409	930	436
71	11.339	0.162	1.23	92	2.40	77.9	49	99.9	550	421	342	450	410	917	435
72	11.501	0.162	1.24	92	2.32	77.9	49	99.9	540	421	344	452	411	908	433
73	11.663	0.162	1.24	93	2.21	77.9	49.1	99.8	530	421	345	453	411	901	432
74	11.826	0.163	1.24	93	2.26	77.9	49.1	100.6	521	421	346	454	412	896	431
75	11.989	0.163	1.23	93	2.32	77.9	49.1	100.5	513	421	347	455	413	892	430
76	12.151	0.162	1.24	93	2.33	77.8	49.1	99.6	506	422	348	456	413	887	429
77	12.313	0.162	1.24	93	2.25	77.8	49.1	99.4	499	422	348	457	414	882	428
78	12.475	0.162	1.25	93	2.41	77.8	49.1	99.5	492	423	348	458	415	877	427
79	12.637	0.162	1.24	94	2.21	77.8	49.1	99.7	487	423	349	459	416	872	427
80	12.799	0.162	1.23	94	2.21	77.7	49.2	99.5	482	424	349	459	416	869	426
81	12.962	0.163	1.23	94	2.38	77.8	49.3	99.9	477	425	349	460	417	867	425
82	13.125	0.163	1.24	94	2.26	77.8	49.3	99.8	472	426	349	460	418	864	425
83	13.288	0.163	1.24	94	2.40	77.7	49.3	99.8	468	426	349	460	419	861	424
84	13.449	0.161	1.23	95	2.19	77.6	49.3	98.5	464	427	348	460	420	859	424

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 1
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 13:51
Total Sampling Time: 117 min
Recording Interval: 1 min

Test Date: 9/29/25

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Sample Train Leak Checks
Pre-test 0.002 cfm @ 23.7 in. Hg
Post-Test 0.002 cfm @ 6.9 in. Hg

Elapsed Time (min)	**Train B Sampling System**								**Appliance Temperatures, °F**						
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Pro - Rate*	*Top*	*Bottom*	*Back*	*Left*	*Right*	*Catalyst Exit*	*Average Stove Surface (Tot = Δ T)*
85	13.612	0.163	1.24	95	2.22	77.4	49.3	99.7	461	428	348	460	421	858	424
86	13.774	0.162	1.24	95	2.39	77.4	49.3	99.3	458	429	348	460	422	858	423
87	13.936	0.162	1.25	95	2.35	77.2	49.3	99.3	455	430	347	460	423	854	423
88	14.100	0.164	1.24	95	2.33	77.1	49.3	100.4	453	431	347	460	424	849	423
89	14.263	0.163	1.24	95	2.19	77	49.3	100.0	451	432	347	460	425	846	423
90	14.426	0.163	1.24	95	2.39	77	49.3	99.7	448	433	348	460	426	845	423
91	14.588	0.162	1.24	95	2.33	77	49.4	98.7	446	434	347	461	427	845	423
92	14.751	0.163	1.24	95	2.30	77	49.4	99.3	445	435	347	461	427	846	423
93	14.913	0.162	1.25	96	2.30	77	49.4	98.6	442	436	346	461	428	847	423
94	15.075	0.162	1.24	96	2.27	77	49.3	98.6	441	436	346	460	428	846	422
95	15.238	0.163	1.25	96	2.32	76.9	49.3	99.2	438	437	346	459	428	841	422
96	15.402	0.164	1.25	96	2.39	76.9	49.3	99.8	437	438	344	459	428	835	421
97	15.565	0.163	1.24	96	2.27	76.7	49.2	99.0	435	438	344	458	428	833	421
98	15.728	0.163	1.24	96	2.19	76.7	49.2	99.3	434	439	345	458	428	834	421
99	15.890	0.162	1.23	96	2.27	76.8	49.3	99.0	432	439	344	457	428	837	420
100	16.053	0.163	1.24	96	2.38	76.7	49.3	99.5	431	439	344	457	427	840	420
101	16.216	0.163	1.24	96	2.40	76.8	49.3	99.6	430	440	343	456	426	844	419
102	16.379	0.163	1.24	96	2.33	76.8	49.3	99.6	428	440	342	456	426	846	418
103	16.541	0.162	1.24	97	2.24	76.8	49.2	98.6	427	441	341	455	425	846	418
104	16.705	0.164	1.24	97	2.20	76.8	49.1	99.9	425	441	340	455	424	844	417
105	16.869	0.164	1.24	97	2.22	76.7	49.1	99.9	424	441	340	454	423	844	417
106	17.031	0.162	1.24	97	2.33	76.8	49.1	98.4	422	442	339	453	423	842	416
107	17.194	0.163	1.24	97	2.32	76.8	49.1	99.1	421	442	339	453	422	840	415
108	17.356	0.162	1.25	97	2.24	76.8	49.1	98.6	420	442	338	452	421	838	414
109	17.519	0.163	1.23	97	2.40	76.9	49.1	99.4	418	442	338	451	420	835	414
110	17.682	0.163	1.24	97	2.36	76.9	49.1	99.3	416	442	337	450	420	832	413
111	17.845	0.163	1.25	97	2.27	76.9	49.1	99.2	415	442	337	449	419	829	412
112	18.008	0.163	1.25	97	2.18	76.9	49.1	99.2	413	442	337	448	418	826	412
113	18.172	0.164	1.23	97	2.37	76.9	49	99.7	412	442	336	447	417	822	411
114	18.335	0.163	1.24	97	2.29	76.9	49	98.8	410	442	336	447	417	816	410
115	18.498	0.163	1.24	97	2.38	76.9	49	98.5	408	442	336	446	416	812	409
116	18.660	0.162	1.25	97	2.28	76.9	49	97.9	406	441	336	445	415	812	409
117	18.823	0.163	1.25	98	2.19	76.9	49	99.0	405	441	337	444	414	813	408

Train C - First Hour Particulate Sampling

Run: 1
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Start Time: 13:51
Total Sampling Time: 60 min
Recording Interval: 1 min

Test Date: 9/29/25

Meter Box Y Regression Offset: 0.981
Meter Box Y Regression Factor: 0
Meter Box Dynamic Y: 0.981
Sample Box ID: 0

Sample Train Leak Checks
Pre-test 0.002 cfm @ 18.5 in. Hg
Post-Test 0.002 cfm @ 9.5 in. Hg

Elapsed Time (min)	Train C Sampling System							
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Filter Temp (°F)	Dryer Temp (°F)	Pro - Rate
Tot / Avg	**9.612**	**0.160**	**1.01**	**81.0**	**2.49**	**79.1**	**70.5**	**100.2**
Minimum	0.000	0.154	0.00	77	0.10	74	66	96.6
Max	9.612	0.163	1.06	85	2.59	81	76	103.0
0	0.000		0.00	78	0.10	74.2	66	
1	0.154	0.154	1.06	77	2.55	75.4	67.1	96.6
2	0.317	0.163	1.05	77	2.47	75.8	67.3	103.0
3	0.478	0.161	1.05	77	2.49	76	67.5	99.7
4	0.638	0.160	1.04	78	2.55	76.2	67.7	99.4
5	0.800	0.162	1.04	78	2.56	76.3	67.9	100.8
6	0.960	0.160	1.04	78	2.56	76.5	68.2	99.8
7	1.121	0.161	1.04	78	2.52	76.7	68.4	100.6
8	1.282	0.161	1.04	78	2.55	76.8	68.6	100.4
9	1.442	0.160	1.03	78	2.51	77	68.9	99.5
10	1.602	0.160	1.03	78	2.55	77.1	69.2	99.7
11	1.763	0.161	1.03	78	2.56	77.3	69.4	100.5
12	1.922	0.159	1.03	78	2.52	77.5	69.7	99.3
13	2.083	0.161	1.03	78	2.56	77.7	70	100.5
14	2.243	0.160	1.02	78	2.46	77.8	70.3	99.8
15	2.403	0.160	1.02	78	2.51	78	70.5	99.7
16	2.564	0.161	1.02	79	2.53	78.2	70.9	100.5
17	2.723	0.159	1.02	79	2.50	78.3	71.1	99.5
18	2.883	0.160	1.02	79	2.45	78.5	71.5	100.0
19	3.044	0.161	1.02	79	2.50	78.6	71.7	100.6
20	3.203	0.159	1.02	79	2.55	78.7	72	99.5
21	3.363	0.160	1.02	80	2.45	78.9	72.3	99.9
22	3.524	0.161	1.02	80	2.46	79	72.6	100.4
23	3.683	0.159	1.02	80	2.54	79.1	72.9	99.2
24	3.844	0.161	1.02	80	2.47	79.2	73.2	100.5
25	4.003	0.159	1.02	80	2.47	79.3	73.5	99.4
26	4.163	0.160	1.02	81	2.52	79.4	73.7	100.0
27	4.324	0.161	1.02	81	2.50	79.5	74	100.6
28	4.483	0.159	1.02	81	2.56	79.6	74.3	99.3
29	4.644	0.161	1.02	81	2.54	79.7	74.7	100.4
30	4.804	0.160	1.02	81	2.55	79.8	75.2	100.0
31	4.964	0.160	1.02	81	2.51	79.9	75.5	100.5
32	5.124	0.160	1.02	81	2.58	79.9	75.5	100.6

Train C - First Hour Particulate Sampling

Run: 1
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Start Time: 13:51
Total Sampling Time: 60 min
Recording Interval: 1 min

Test Date: 9/29/25

Meter Box Y Regression Offset: 0.981
Meter Box Y Regression Factor: 0
Meter Box Dynamic Y: 0.981
Sample Box ID: 0

Sample Train Leak Checks
Pre-test 0.002 cfm @ 18.5 in. Hg
Post-Test 0.002 cfm @ 9.5 in. Hg

Elapsed Time (min)	**Train C Sampling System**							
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Pro - Rate*
33	5.284	0.160	1.02	81	2.52	79.9	74	100.3
34	5.444	0.160	1.02	82	2.57	80	72.5	100.2
35	5.605	0.161	1.02	82	2.57	80.1	71.5	100.7
36	5.765	0.160	1.01	82	2.47	80.2	70.7	99.9
37	5.925	0.160	1.02	82	2.59	80.2	70.2	99.8
38	6.086	0.161	1.02	82	2.58	80.2	69.7	100.6
39	6.245	0.159	1.02	83	2.50	80.2	69.4	99.7
40	6.405	0.160	1.02	83	2.50	80.2	69.3	100.4
41	6.566	0.161	1.02	83	2.53	80.3	69.4	100.9
42	6.726	0.160	1.02	83	2.56	80.3	69.4	100.2
43	6.886	0.160	1.02	83	2.49	80.3	69.4	100.2
44	7.046	0.160	1.02	83	2.52	80.3	69.4	100.2
45	7.206	0.160	1.01	83	2.55	80.4	69.5	100.2
46	7.367	0.161	1.02	84	2.56	80.4	69.6	100.8
47	7.526	0.159	1.01	84	2.58	80.4	69.6	99.4
48	7.687	0.161	1.02	84	2.54	80.4	69.6	100.6
49	7.847	0.160	1.02	84	2.56	80.5	69.6	100.1
50	8.007	0.160	1.02	84	2.54	80.5	69.5	99.9
51	8.167	0.160	1.02	84	2.59	80.5	69.4	99.8
52	8.328	0.161	1.02	84	2.50	80.5	69.5	100.5
53	8.488	0.160	1.02	85	2.47	80.5	69.7	100.1
54	8.648	0.160	1.02	85	2.53	80.6	69.8	100.3
55	8.809	0.161	1.02	85	2.52	80.5	69.8	100.9
56	8.969	0.160	1.02	85	2.51	80.6	69.9	100.2
57	9.130	0.161	1.02	85	2.50	80.6	69.9	100.6
58	9.290	0.160	1.01	85	2.54	80.6	69.9	100.1
59	9.450	0.160	1.02	85	2.59	80.6	69.9	100.8
60	9.612	0.162	1.02	85	2.51	80.5	69.9	102.0

Train D - Ambient Background and Flue Gas Data

Run: 1 **Test Date:** 9/29/2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 13:51
Total Sampling Time 117 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
Tot / Avg	**18.355**	**0.157**	**1.07**	**84.5**	**2.06**	**424.98**	**0.061**	**368.1**	**0.32**	**9.12**
Minimum	0.000	0.152	1.06	79	2.03	352.10	0.039	92.0	0.00	3.08
Max	18.355	0.159	1.09	88	2.13	491.30	0.089	547.0	2.13	13.03
0	0.000		-0.02	79	0.04	352.1	0.051	176.0	0.02	6.60
1	0.152	0.152	1.09	79	2.13	441.6	0.050	547.0	0.11	3.08
2	0.310	0.158	1.09	79	2.08	378.9	0.039	471.0	0.04	4.07
3	0.465	0.155	1.09	79	2.12	377.8	0.041	547.0	0.06	7.03
4	0.622	0.157	1.08	79	2.09	391.5	0.048	521.0	0.05	7.51
5	0.779	0.157	1.08	79	2.08	405.2	0.050	512.0	0.05	8.05
6	0.933	0.154	1.08	79	2.08	415.4	0.047	358.0	0.03	8.60
7	1.090	0.157	1.07	79	2.09	422.9	0.052	367.0	0.03	9.13
8	1.246	0.156	1.08	79	2.05	428.6	0.048	405.0	0.04	8.63
9	1.401	0.155	1.08	79	2.10	436	0.053	547.0	0.07	10.05
10	1.557	0.156	1.07	79	2.07	444.5	0.053	547.0	0.14	10.45
11	1.713	0.156	1.07	79	2.08	453.1	0.054	547.0	0.18	10.84
12	1.868	0.155	1.07	79	2.09	459.4	0.054	547.0	0.27	11.18
13	2.024	0.156	1.08	80	2.09	463.4	0.052	547.0	0.16	10.91
14	2.180	0.156	1.07	80	2.03	465	0.054	547.0	0.16	11.02
15	2.335	0.155	1.07	80	2.07	468.3	0.055	547.0	0.23	11.45
16	2.491	0.156	1.07	80	2.08	470.9	0.055	547.0	0.28	11.82
17	2.647	0.156	1.07	80	2.06	473.5	0.057	547.0	0.33	12.16
18	2.802	0.155	1.07	80	2.03	476.4	0.069	547.0	0.39	12.32
19	2.959	0.157	1.07	80	2.06	478.1	0.071	547.0	0.43	12.29
20	3.114	0.155	1.07	80	2.05	479.7	0.074	547.0	0.46	12.27
21	3.270	0.156	1.07	81	2.07	481.2	0.075	547.0	0.44	12.36
22	3.426	0.156	1.06	81	2.09	482.8	0.077	547.0	0.50	12.40
23	3.581	0.155	1.07	81	2.08	483.1	0.089	547.0	0.62	12.58
24	3.737	0.156	1.06	81	2.03	485.4	0.081	547.0	0.66	12.67
25	3.893	0.156	1.07	81	2.08	487.6	0.081	547.0	0.97	12.81
26	4.048	0.155	1.07	81	2.04	489.6	0.075	547.0	0.96	12.81
27	4.205	0.157	1.06	82	2.07	490.6	0.084	547.0	1.35	12.89
28	4.361	0.156	1.07	82	2.05	491.3	0.079	547.0	1.50	13.03
29	4.516	0.155	1.06	82	2.04	491.1	0.082	547.0	1.80	13.02
30	4.673	0.157	1.07	82	2.08	489.3	0.083	547.0	2.13	12.99
31	4.828	0.155	1.07	82	2.08	488	0.071	547.0	1.82	12.92
32	4.984	0.156	1.07	82	2.08	488.2	0.079	547.0	1.10	12.70

Train D - Ambient Background and Flue Gas Data

Run: 1 **Test Date:** 9/29/2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 13:51
Total Sampling Time 117 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
33	5.141	0.157	1.07	82	2.08	489.3	0.081	547.0	1.08	12.42
34	5.296	0.155	1.07	83	2.09	489.5	0.073	547.0	1.26	12.43
35	5.452	0.156	1.06	83	2.09	490.1	0.078	547.0	1.18	12.43
36	5.609	0.157	1.07	83	2.10	489.2	0.080	547.0	1.07	12.39
37	5.764	0.155	1.07	83	2.08	487.8	0.073	547.0	0.87	12.38
38	5.920	0.156	1.06	83	2.04	486.8	0.073	547.0	0.83	12.32
39	6.077	0.157	1.07	83	2.05	484.8	0.081	547.0	0.84	12.20
40	6.233	0.156	1.07	84	2.03	484.1	0.078	547.0	0.77	12.27
41	6.390	0.157	1.07	84	2.05	481.9	0.075	547.0	0.76	12.07
42	6.546	0.156	1.07	84	2.06	480.3	0.083	547.0	0.72	11.88
43	6.701	0.155	1.07	84	2.06	479.4	0.074	547.0	0.68	11.62
44	6.858	0.157	1.07	84	2.08	478.7	0.072	547.0	0.76	11.70
45	7.014	0.156	1.07	84	2.03	479.8	0.075	547.0	0.63	11.40
46	7.171	0.157	1.06	84	2.05	478.7	0.067	547.0	0.51	11.13
47	7.328	0.157	1.07	84	2.07	477.6	0.069	547.0	0.45	10.97
48	7.483	0.155	1.06	85	2.08	475.9	0.072	547.0	0.40	10.62
49	7.641	0.158	1.07	85	2.07	472.8	0.072	547.0	0.38	10.56
50	7.797	0.156	1.07	85	2.11	470.3	0.068	547.0	0.33	10.66
51	7.953	0.156	1.07	85	2.11	469.3	0.065	547.0	0.40	10.90
52	8.111	0.158	1.07	85	2.04	468.9	0.072	547.0	0.40	10.98
53	8.267	0.156	1.07	85	2.10	469.3	0.078	547.0	0.50	11.28
54	8.424	0.157	1.07	85	2.06	470.5	0.072	547.0	0.59	11.46
55	8.581	0.157	1.08	85	2.04	471.8	0.075	547.0	0.71	11.69
56	8.737	0.156	1.07	85	2.06	472.9	0.072	547.0	0.79	11.92
57	8.895	0.158	1.07	86	2.04	473.7	0.068	547.0	0.79	11.88
58	9.051	0.156	1.07	86	2.05	474	0.072	547.0	0.56	11.82
59	9.208	0.157	1.07	86	2.03	471.4	0.066	547.0	0.54	11.64
60	9.366	0.158	1.07	86	2.06	466.6	0.066	547.0	0.35	11.12
61	9.522	0.156	1.07	86	2.09	459.3	0.070	547.0	0.15	10.05
62	9.680	0.158	1.07	86	2.11	453.2	0.064	547.0	0.10	9.71
63	9.836	0.156	1.08	86	2.10	447.3	0.065	345.0	0.03	9.50
64	9.994	0.158	1.07	86	2.06	440.9	0.060	172.0	0.01	9.18
65	10.151	0.157	1.08	86	2.09	434.3	0.059	290.0	0.03	7.81
66	10.308	0.157	1.08	86	2.11	427.9	0.061	194.0	0.02	7.62
67	10.466	0.158	1.08	86	2.11	422	0.062	142.0	0.02	7.35
68	10.622	0.156	1.08	86	2.10	415.9	0.061	113.0	0.02	7.27

Train D - Ambient Background and Flue Gas Data

Run: 1 **Test Date:** 9/29/2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 13:51
Total Sampling Time 117 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
69	10.781	0.159	1.08	87	2.07	410.3	0.061	104.0	0.01	7.31
70	10.937	0.156	1.08	87	2.10	404.9	0.056	96.0	0.01	7.32
71	11.095	0.158	1.08	87	2.07	399.8	0.056	93.0	0.01	7.33
72	11.253	0.158	1.08	87	2.06	395.4	0.054	93.0	0.00	7.33
73	11.410	0.157	1.08	87	2.07	391.9	0.056	98.0	0.01	7.27
74	11.568	0.158	1.08	87	2.09	388.8	0.056	101.0	0.01	7.24
75	11.725	0.157	1.08	87	2.10	385.9	0.056	105.0	0.01	7.31
76	11.883	0.158	1.08	87	2.06	383.3	0.052	112.0	0.01	7.34
77	12.040	0.157	1.08	87	2.10	381	0.052	108.0	0.02	7.39
78	12.198	0.158	1.08	87	2.12	378.5	0.049	111.0	0.01	7.39
79	12.356	0.158	1.08	87	2.06	376.2	0.059	108.0	0.01	7.42
80	12.512	0.156	1.08	87	2.06	374.5	0.057	118.0	0.01	7.34
81	12.671	0.159	1.08	87	2.06	373.4	0.052	111.0	0.01	7.46
82	12.827	0.156	1.08	87	2.10	372.5	0.048	112.0	0.01	7.45
83	12.985	0.158	1.08	87	2.09	371.7	0.050	94.0	0.02	7.66
84	13.143	0.158	1.08	87	2.11	370.7	0.052	96.0	0.01	7.69
85	13.301	0.158	1.08	87	2.09	369.8	0.054	106.0	0.01	7.61
86	13.459	0.158	1.08	87	2.08	369.8	0.047	111.0	0.01	7.58
87	13.616	0.157	1.08	87	2.09	369	0.051	92.0	0.01	7.07
88	13.775	0.159	1.08	87	2.05	368.1	0.053	103.0	0.01	7.01
89	13.932	0.157	1.08	87	2.12	367.1	0.056	122.0	0.01	6.93
90	14.090	0.158	1.08	87	2.09	366.4	0.049	131.0	0.01	6.88
91	14.248	0.158	1.08	87	2.06	366.6	0.050	162.0	0.03	6.67
92	14.406	0.158	1.08	87	2.08	366.6	0.051	174.0	0.01	6.69
93	14.564	0.158	1.08	87	2.09	366.4	0.055	178.0	0.02	6.64
94	14.721	0.157	1.08	87	2.05	367	0.048	185.0	0.02	6.59
95	14.880	0.159	1.08	87	2.07	367.6	0.050	182.0	0.02	6.26
96	15.037	0.157	1.09	87	2.07	366.7	0.054	192.0	0.02	6.29
97	15.196	0.159	1.09	87	2.07	366.3	0.051	209.0	0.02	6.24
98	15.353	0.157	1.08	87	2.10	365.9	0.053	207.0	0.02	6.26
99	15.512	0.159	1.08	87	2.06	366.4	0.049	217.0	0.02	6.34
100	15.670	0.158	1.08	87	2.08	365.8	0.046	222.0	0.02	6.35
101	15.828	0.158	1.08	87	2.07	366.8	0.049	233.0	0.02	6.28
102	15.986	0.158	1.09	87	2.09	366.2	0.050	244.0	0.01	6.19
103	16.143	0.157	1.08	87	2.11	366.8	0.052	238.0	0.02	6.28
104	16.302	0.159	1.08	87	2.08	366.6	0.052	242.0	0.03	6.20

Train D - Ambient Background and Flue Gas Data

Run: 1 **Test Date:** 9/29/2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 13:51
Total Sampling Time 117 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
105	16.459	0.157	1.08	87	2.12	366.1	0.047	255.0	0.03	6.23
106	16.618	0.159	1.09	87	2.07	365.6	0.049	255.0	0.02	6.13
107	16.775	0.157	1.08	87	2.12	365.8	0.054	262.0	0.03	6.13
108	16.934	0.159	1.08	87	2.08	365.3	0.054	261.0	0.02	6.11
109	17.092	0.158	1.08	87	2.12	364.8	0.043	273.0	0.02	6.19
110	17.250	0.158	1.08	87	2.07	364	0.045	267.0	0.03	6.05
111	17.408	0.158	1.09	87	2.11	364.3	0.052	268.0	0.03	5.98
112	17.565	0.157	1.08	87	2.04	363.7	0.052	278.0	0.02	6.07
113	17.724	0.159	1.08	87	2.10	363.6	0.041	273.0	0.02	5.93
114	17.881	0.157	1.08	87	2.11	363	0.048	270.0	0.03	5.87
115	18.040	0.159	1.08	88	2.08	361.7	0.045	277.0	0.03	5.77
116	18.197	0.157	1.09	88	2.12	361.8	0.047	294.0	0.01	6.06
117	18.355	0.158	1.08	88	2.05	361.1	0.049	296.0	0.02	6.00

Gravimetric Lab Data

ASTM E2515

Manufacturer:	Valley Comfort
Model:	Sentry 14
Tracking No.:	2509
Project No.:	0142WS024E
Run No.:	1
Test Date:	9/29/25

OMNI Eq. ID Numbers	
Analytical Scale	
Audit Weight Set:	
Analytical Scale	
Hydrometer	
Filters are weighed	In Pairs

Train A

Sample Component / Date / Time in Dessicator		Reagent	Filter, Probe or Dish #	Weights: Final, mg	Weights: Tare, mg	Particulate, mg: Uncorrected	Particulate, mg: Corrected
FilterPairs		Filter	F564	245.2	242.4	2.8	2.8
			F564A				
Probe catch*		Probe	84	117638.0	117637.9	0.1	0.1
ilter seals catch*		Seals	S975	3358.4	3357.4	1.0	1.0
				Total Particulate, mg:		**3.9**	**3.9**

Train B

Sample Component / Date / Time in Dessicator		Reagent	Filter, Probe or Dish #	Weights: Final, mg	Weights: Tare, mg	Particulate, mg: Uncorrected	Particulate, mg: Corrected
FilterPairs		Filter	F565	245.5	241.7	3.8	3.8
			F565A				
Probe catch*		Probe	12	114284.1	114284.1	0.0	0.0
ilter seals catch*		Seals	S976	3264.4	3264.0	0.4	0.4
			Sub-Total	Total Particulate, mg:		**4.2**	**4.2**

Train C - *First Hour*

Sample Component / Date / Time in Dessicator		Reagent	Filter, Probe or Dish #	Weights: Final, mg	Weights: Tare, mg	Particulate, mg: Uncorrected	Particulate, mg: Corrected
FilterPairs		Filter	F566	244.5	241.4	3.1	3.1
			F566A				
Probe catch*		Probe	76	116966.1	116966.1	0.0	0.0
ilter seals catch*		Seals	S977	3391.0	3390.2	0.8	0.8
				Total Particulate, mg:		**3.9**	**3.9**

Train D - *Ambient Background*

Sample Component / Date / Time in Dessicator		Reagent	Filter # or	Weights: Final, mg	Weights: Tare, mg	Particulate, mg
Filter catch*		Filter	F576	121.8	121.8	0.0
				Total Particulate, mg:		**0.0**

Final (mg) - Tare (mg) = Particulate (mg)

NOTE: The Uncorrected values are those where any negative filter weights are taken as a negative value. This can possibly occur when filter matter adheres the O-ring seals and thereby transfers some mass to the O-ring. The Corrected values reflect where any negative filter weights are taken as ZERO, thus not accounting for any transfer of mass and resultingly over-reporting. Corrected values were added to this analysis to report the "Corrected" results in this report in response to a request by the US EPA. In cases where the Final weight minus the Tare weight of the Ambient filter occurs, it is taken as a ZERO. Any negative probe weights are evaluated pursuant to clause of ASTM E25215 (or appropriatelt associated test standard as defined in the introduction of this report).

Technician Signature:_____ Reviewed By:_____

Run 1 - Run Notes

Manufacturer	Valley Comfort
Model:	Sentry 14
Project Number:	0142WS024E
Run Number:	1
Test Date:	9/29/2025

This supplemental section of miscellaneous run notes is comprised of the following:

- Appliance Operation Notes
- Velocity Traverse / Supplementa Run Notes
- Test Fuel Notes
- Gravimetric Analysis Notes

ASTM E2780 Wood Heater Test Notes

Client: Valley Comfort Project Number: 0142WS024E Run Number: 1
Model: Sentry 14 Tracking Number: Date: 9/29/2025
Test Crew: RT

Test Fuel Properties

Equipment			
Device	**OMNI Number**	**Cal Date**	**Cal Due**
Tape Measure	728		
Moisture Meter	747		
Moisture Reference	431		
Fuel Scale	745		
Fuel Scale Audit Weight	255		
Fuel Species / Type	Douglas fir, untreated and air dried, standard grade or better dimensional lumber.		

Calibration Verifications			
Moisture Meter		Fuel Preparation Scale	
12% Reference :	12.0	10.0 lb. Reference Audit :	10.00
22% Reference :	22.0		

Pre-Burn Fuel								
Piece No.	Length, In.	Moisture % db	Piece No.	Length, In.	Moisture % db	Piece No.	Length, In.	Moisture % db
1	14.5	24.8	7	10	24.3	13	10	22.5
2	14.5	22.1	8	14.5	21.9	14	10	19.9
3	14.5	23.8	9	14.5	26.1	15		
4	10	25.3	10	14.5	21.9	16		
5	10	23.2	11	10	24.3	17		
6	10	25.2	12	10	23.0	18		
Total Weight, lb.		9.50		Time of Day	1022	Room Temp. °F		70
		8.24			1145			71

Test Fuel Charge					
Piece No.	**Weight, Lb.**	**Moisture Measurements**			**Lumber Type**
1	1.90 / 1.44	21.7	22.2	22.2	2x4
2	1.91 / 1.48	22.3	22.3	23.2	2x4
3	1.90 / 1.46	22.1	24.2	23.8	2x4
4	1.82 / 1.37	19.1	19.5	19.5	2x4
5	1.86 / 1.45	21.3	23.8	21.2	2x4
6					
7					
8					
Spacer Moisture Readings					
21.9	22.8	22.3	18.8	9.6	
19.2	22.0	22.0	21.9	7.7	
22.0	22.0	21.9	21.9	9.5	
19.3	21.9	22.0	22.0	9.7	
Time of Day		1155	Room Temp. °F		70
Total weight 2x4 with spacers, lb.		9.40	Total weight 4x4 with spacers, lb.		
			Total weight of fuel charge, Lb.		9.40

Technician Signature: Date: 9-29-2025

ASTM E2780 Wood Heater Test Notes

Client: Valley Comfort Project Number: 0142WS024E Run Number: 1
Model: Sentry 14 Tracking Number: Date: 9/29/2025
Test Crew: RT

Supplemental Data

Test Booth No. _____ Sampling Start Time: 1351 Sampling End Time: _____

Tunnel Cleaned Date 9-29-2025 % Smoke Capture 100 Induced Draft 0 in.H_2O

Systems Leak Checks			
System	**Pre-Test**	**Post-Test**	**Sampling Probe Change-out**
Pitot	0.00 @ 3.00"	0.00 @ 3.00"	
Train A	0.003 @ 13.20	0.002 @ 7.6	
Train B	0.002 @ 23.7	0.002 @ 6.9	
Train C	0.002 @ 18.50	0.001 @ 9.50	

Velocity Traverse, 6-inch tunnel			
Location	Microtector (in. H_2O)	Δp (in. H_2O)	Tunnel Temp., °F
Center	.052	.104	101
1	.027	.054	101
2	.042	.084	101
3	.038	.076	101
4	.024	.048	101
5	.030	.060	101
6	.039	.078	101
7	.041	.082	101
8	.030	.060	101
Tunnel Static (in. H_2O)		Pre-Test	Post-Test
		-0.4	-0.4

Miscellaneous Parameters			
Item	**Initial**	**Final**	**Equipment No.**
Room Air Velocity, ft/min.	24	21	
Scale Audit, lb. (20-80 % of fuel load)	10.0	10.0	
Room Relative Humidity, %	56	54	
Barometric Pressure, in. Hg	29.83	29.84	
Room Temperature, °F	72	75	

Flue Gas Continuous Analyzer						
Analyzer ID		Response Time, sec.		Leak Check Performed?		
Bias Checks	Concentration:		Pre-Test Response		Post-Test Response	
Concentration	Bottle No.	Value, %	Pre-Test Response		Post-Test Response	
			Zero	Span	Zero	Span
CO2 % Span		16.88	0	16.88	0.03	16.86
CO % Span		4.07	0	4.07	0.002	4.68
CO ppm Span		500	0	497	2	495
Zero		0				

Technician Signature: _____ Date: 9-29-2025

OMNI-Test Laboratories, Inc.

ASTM E2780 Wood Heater Test Notes

Client: Valley Comfort Project Number: 0142WS024E Run Number: 1
Model: Sentry 14 Tracking Number: Date: 9/29/2025
Test Crew: RT

Primary Air Control Settings

Secondary:

Tertiary/Pilot:

Fan: High

Preburn Notes

Time	Notes
1123	Preburn fuel loaded
1220	2nd preburn loaded
1350	At 1.9 lbs preburn was stopped

Sampling Portion Notes

Sketch test fuel configuration:

Start up procedures & Timeline:
Bypass: Used to load fuel
Fuel loaded by: 65
Door closed at: 70
Primary air: Fully open

Notes:

Time	Notes
1351	Test started
1451	First hour sampling stopped

Technician Signature: 9-29-2025 Date:

OMNI-Test Laboratories, Inc. **ASTM E2780 Wood Heater Test Notes**

Client: Valley Comfort Project Number: 0142WS024E Run Number: 1

Model: Sentry 14 Tracking Number: Date: 9/29/2025

Test Crew: RT

Gravimetric Analysis Sheet

Assembled By:

Ryley Tregs

Date/Time in Desiccator:

16:15
9-29-2025

	Weighing's				
	Date/Time: 9-30-25 0745	Date/Time: 10-1-2025 0730	Date/Time: 10-2-25 0800	Date/Time:	Date/Time:
	R/H %: 0.8 9.4	R/H %: 0.1 10.4	R/H %: 0.1 10.4	R/H %:	R/H %:
	Temp: 76.8	Temp: 73.4	Temp: 73.3	Temp:	Temp:
	100 mg Audit 99.9	100 mg Audit 100.0	100 mg Audit 100.0	100 mg Audit	100 mg Audit
	200 mg Audit: 200.1	200 mg Audit: 200.0	200 mg Audit: 200.0	200 mg Audit:	200 mg Audit:
	2 g Audit: 2000.2	2 g Audit: 2000.2	2 g Audit: 2000.2	2 g Audit:	2 g Audit:
	100 g Audit: 99997.8	100 g Audit 99997.7 ✓	100 g Audit 99997.8	100 g Audit	100 g Audit
	Initials: RT	Initials: RT	Initials: RT	Initials:	Initials:

Train	Element	ID #	Tare (mg)	v	Weight (mg)	Weight (mg)	Weight (mg)	Weight (mg)	Weight (mg)
A	Filter Pair	F564 F564A	242.4		245.2	245.2 ✓			
	Probe	84	117637.9		117638.0	117638.0 ✓			
	O-Ring Set	S975	3357.4		3359.5	3358.6	3358.4 ✓		
B	Front Filter	F565 F565A	241.7		245.5	245.3 ✓			
	Probe	12	114284.1		114284.1	114284.1 ✓			
	O-Ring Set	S976	3264.0		3264.6	3264.4 ✓ ~~3264.6~~			
C (1st hr)	Front Filter	F566 F566A	241.4		244.5	244.5 ✓			
	Probe	76	116966.1		116966.1	116966.1 ✓			
	O-Ring Set	S977	3390.2		3391.9	3391.2	3391.0 ✓		
BG	Filter	F576	121.8		121.8	121.8 ✓			

Technician Signature: Ryley Tregs Date: 10-16-2025

Equations and Calculations – ASTM E2780 & E2515

Manufacturer	Valley Comfort
Model:	Sentry 14
Project Number:	0142WS024E
Run Number:	1

Sample calculations of each equation used in the refernced standards for this test run.

Summary of INPUT values necessary for calculations

Global Input Parameters for Equations		Value	Source
FM_S	- Average moisture of test fuel spacers, % dry basis	19.02	Fuel Properties Work Sheet
M_{Swb}	- Weight of Test Fuel Spacers, wet basis, kg	2.19	Fuel Properties Work Sheet
M_{CPnwb}	- Weight of each test fuel piece n in fuel crib, excluding nails and spacers, wet basis , kg	[1]Varies	Fuel Properties Work Sheet
FM_{CPn}	- Average fuel Fuel moisture in fuel crib, % dry basis	[1]Varies	Fuel Properties Work Sheet
V_C	- Volume of Fuel Crib, ft^3 (less spacers)	0.220	Fuel Properties Work Sheet
V_{SCENT}	- Average gas velocity at the center of the dilution tunnel calculated after the Pitot tube traverse, ft/sec	0.00	Traverse Worksheet
V_{STRAV}	- Average gas velocity calculated after the multipoint Pitot traverse	14.25	Traverse Worksheet
θ	- Duration of test, min	117	*Train A Worksheet*
P_{bar}	- Barometric pressure (average) at the testing site, in. Hg	29.84	*Traverse Worksheet*
Pg	- Tunnel Static Pressure	-0.4	*Traverse Worksheet*

[1] *Denotes that this pararmeter for each individual piece of fuel is calculated in the Test Fuel Properties worksheet and the input values are pulled into these sample caculations.*

Sample Train Input Parameters for Equations		Train A	Train B	Train C	Train D
V_m	- Volume of gas sample measured at the dry gas meter, dcf	19.498	18.823	9.612	18.355
Y	Dry gas meter calibration factor	0.991	1.005	0.981	0.960
ΔH	- Average pressure differential across the orifice meter, in. H_2O	1.19	1.22	1.01	1.07
T_m	- Temperature of Dry Gas Meter, °F	91.3	88.1	81.0	79.0
Uncorrected Sample Mass					
m_p	- mass of particulate matter from probe, mg	0.1	0.0	0.0	n/a
m_f	- mass of particulate matter from filters, mg	2.8	3.8	3.1	0.0
m_g	- mass of particulate matter from filter seals, mg	1.0	0.4	0.8	n/a
Corrected Sample Mass					
m_p	- mass of particulate matter from probe, mg	0.1	0.0	0.0	n/a
m_f	- mass of particulate matter from filters, mg	2.8	3.8	3.1	n/a
m_g	- mass of particulate matter from filter seals, mg	1.0	0.4	0.8	n/a

M_{Sdb} – Weight of test fuel spacers, dry basis, kg - ASTM E2780 equation (1)

$$M_{Sdb} = (M_{Swb})\left(\frac{100}{100 + FM_S}\right)$$

Where,

FM_S = average moisture of test fuel spacers, % dry basis
M_{Swb} = weight of test fuel spacers, wet basis, kg

Sample Calculation:

FM_S = 19.02 %, dry basis
M_{Swb} = 2.19 lb.
0.4536 = Conversion factor, lb. → kg

M_{Sdb} = ((2.19 x 0.4536) (100 / (100 + 19.02))

M_{Sdb} = **0.835** kg

MCdb– Weight of test fuel crib, excluding nails and spacers, dry basis, kg - ASTM E2780 equation (2)

$$M_{Cdb} = \sum (M_{CPnwb})\left(\frac{100}{100 + FM_{CPn}}\right)$$

Where,

M_{CPnwb} = weight of each test fuel piece n in fuel crib, excluding nails and spacers, wet basis, kg
FM_{CPn} = Average fuel moisture of test fuel n in fuel crib, % dry basis

Sample Calculation:

ΣM_{CPnwb} = 7.2 lb.
FM_{CPn} = 21.89 %, dry basis
0.4536 = Conversion factor, lb. → kg

M_{Cdb} = 7.2 x 0.4536 x (100 / (100 + 21.8933333333333))

M_{Cdb} = **2.68** kg

DCdb - Density of fuel crib, excluding spacers and nails, dry basis, lbs/ft3 - ASTM E2780 equation (3)

$$D_{Cdb} = M_{Cdb}/V_C$$

Where,

V_C = Volume of Fuel Crib, ft^3 (less spacers)

Sample Calculation:

M_{Cdb} = 5.91 lb
V_C = 0.220 ft^3

D_{Cdb} = 5.91 / 0.22

D_{Cdb} = **26.82** lb/ft^3

M_{FTAdb} - Total weight of fuel crib including spacers and nails, dry basis - ASTM E2780 equation (4)

$$M_{FTAdb} = M_{Sdb} + M_{Cdb}$$

Sample Calculation:

M_{Sdb} = 0.835
M_{Cdb} = 2.68

M_{FTAdb} = 0.835 + 2.68

M_{FTAdb} = **3.51** kg

BR – dry burn rate, kg/hr - ASTM E2780 equation (5)

$$BR = \frac{60\ M_{FTAdb}}{\theta}$$

Sample Calculation:

M_{FTAdb} = 3.514
θ = 117

BR = (60 x 3.514) / 117

BR = **1.80** kg / hr

***Vs* – Average gas velocity in the dilution tunnel, ft/sec -** ASTM E2515 equation (9)

$$V_S = F_P \times K_P \times C_P \times \left(\sqrt{\Delta P}\right)_{avg} \times \sqrt{\frac{T_{s(avg)}}{P_s \times M_s}}$$

Where

F_P = Adjustment factor for center of tunnel pitot tube placement, where $F_P = V_{STRAV} / V_{SCENT}$

V_{SCENT} = Dilution tunnel velocity, at the center, ft/sec

V_{STRAV} = Dilution tunnel velocity, multi-point pitot traverse, ft/sec

K_P = Pitot tube constant, 85.49

C_P = Pitot tube coefficient: 0.99, unitless

$\Delta P^{1/2}_{AVG}$ = Velocity pressure in the dilution tunnel, in H_2O

$T_{S\,(avg)}$ = Absolute average gas temperature in the dilution tunnel, °R

P_S = Absolute average gas static pressure in tunnel, = Pbar + Pg , where Pbar = Barometric Pressure, in. Hg, Pg = Static pressure in tunnel, Hg (in H_2O / 13.6)

M_S = The dilution tunnel wet molecular weight; Ms = 28.78 assuming a dry weight of 29 lb/lb-mole

(Duration of Test)

F_P = 0.8033

$\Delta P^{1/2}_{AVG}$ = 0.3148

$T_{S\,(avg)}$ = 561.0703

Pbar = 29.8350

Pg = -0.4000

Ps = 29.8056

V_S = 0.803 x 85.49 x 0.99 x 0.315 x √ [(561 / (29.81 x 28.78)]

V_S = **17.310** ft/sec

(First Hour of Test)

F_P = 0.8033

$\Delta P^{1/2}_{AVG}$ = 0.3150

$T_{S\,(avg)}$ = 565.3738

Pbar = 29.8300

Pg = -0.4000

Ps = 29.8006

V_S = 0.803 x 85.49 x 0.99 x 0.315 x √ [(565 / (29.8 x 28.78)]

V_S = **17.390** ft/sec

Q_{std} – Average gas flow rate in dilution tunnel, dscf/hr - ASTM E2515 equation (3)

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

Where:

3600 = Conversion from seconds to hours (ASTM method uses 60 to convert in minutes)
B_{ws} = Water vapor in gas stream, proportion by volume; assume 2%
A = Cross sectional area of dilution tunnel, ft2
T_{std} = solute temperature, 528 °R
P_s = Absolute average gas static pressure in dilution tunnel, = Pbar + Pg , in Hg
$T_{s(avg)}$ = Absolute average gas temperature in the dilution tunnel, °R; (°R = °F + 460)
P_{std} = Standard absolute pressure, 29.92 in Hg

(Duration of Test):

B_{ws} = 0.02
A = 0.19635
P_s = 29.81
$T_{s(avg)}$ = 561
Vs = 17.31

Qstd = 3600 x (1 - 0.02) x 17.31 x 0.19635 x (528 / 561) x (29.81 / 29.92)

Qstd = **11240.9** dscf/hr

(First Hour):

B_{ws} = 0.02
A = 0.19635
P_s = 29.80
$T_{s(avg)}$ = 565
Vs = 17.390

Qstd = 3600 x (1 - 0.02) x 17.39 x 0.1963 x (528 / 565) x (29.8 / 29.92)

Qstd = **11205.3** dscf/hr

Vm(std) – Volume of Gas Sampled (Corrected), dscf - ASTM E2515 equation (6)

$$V_{m(std)} = K_1 V_m Y \frac{P_{bar} + \left(\frac{\Delta H}{13.6}\right)}{T_m}$$

Where:

K_1	=	17.64 °R/in. Hg
V_m	=	Volume of gas sample measured at the dry gas meter, dcf
Y	=	Dry gas meter calibration factor, dimensionless
P_{bar}	=	Barometric pressure at the testing site, in. Hg
ΔH	=	Average pressure differential across the orifice meter, in. H_2O
T_m	=	Absolute average dry gas meter temperature, °R

Sample Calculation:

Train A

$$V_{m(std)} = 17.64 \times 19.498 \times 0.991 \times \frac{\left(29.84 + \frac{1.19}{13.6}\right)}{(91.3 + 460)}$$

$V_{m(std)}$ = **18.499** dscf

Train B

$$V_{m(std)} = 17.64 \times 18.823 \times 1.005 \times \frac{\left(29.84 + \frac{1.22}{13.6}\right)}{(88 + 460)}$$

$V_{m(std)}$ = **18.220** dscf

Train C (1st Hour)

$$V_{m(std)} = 17.64 \times 9.61 \times 0.981 \times \frac{\left(\underline{29.83} + \frac{1.01}{13.6}\right)}{(81.0 + 460)}$$

$V_{m(std)}$ = **9.193** dscf

Train D (Background)

$$V_{m(std)} = 17.64 \times 18.36 \times 0.960 \times \frac{\left(\underline{29.84} + \frac{1.07}{13.6}\right)}{(79.0 + 460)}$$

$V_{m(std)}$ = **17.250** dscf

mn – Total Particulate Matter Collected, mg - ASTM E2515 Equation (12)

$$m_n = m_p + m_f + m_g$$

Where:

m_p = mass of particulate matter from probe, mg

m_f = mass of particulate matter from filters, mg

m_g = mass of particulate matter from filter seals, mg

Sample Calculations (Uncorrected):

Train A

m_n = 0.1 + 2.8 + 1.0

m_n = **3.9** mg

Train B

m_n = 0.0 + 3.8 + 0.4

m_n = **4.2** mg

Train C (1st hour)

m_n = 0.0 + 3.1 + 0.8

m_n = **3.9** mg

Train D (Background)

$m_n = m_f$ = 0.0

m_n = **0.0** mg

Sample Calculations (Corrected):

Train A

m_n = 0.1 + 2.8 + 1.0

m_n = **3.9** mg

Train B

m_n = 0.0 + 3.8 + 0.4

m_n = **4.2** mg

Train C (1st hour)

m_n = 0.0 + 3.1 + 0.8

m_n = **3.9** mg

Train D (Background)

$m_n = m_f$ = 0.0

m_n = **0.0** mg

C_s - Concentration of particulate matter in tunnel gas, dry basis, corrected to standard conditions

g/dscf - ASTM E2515 equation (13)

$$C_s = K_2 \times \frac{m_n}{V_{m(std)}}$$

Where:

K_2 = Constant, 0.001 g/mg

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

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

Sample Calculations (Uncorrected):

Train A

$$C_s = 0.001 \times \frac{3.9}{18.50}$$

C_s = **0.000211** g/dscf

Train B

$$C_s = 0.001 \times \frac{4.2}{18.22}$$

C_s = **0.0002305** g/dscf

Train C (1st Hour)

$$Cs = 0.001 \times \frac{3.9}{9.19}$$

Cs = **0.000424** g/dscf

Train D (Background)

$$C_r = 0.001 \times \frac{0.0}{17.25}$$

C_r = **0.000000** g/dscf

Sample Calculations (Corrected):

Train A

$$C_s = 0.001 \times \frac{3.9}{18.50}$$

C_s = **0.000211** g/dscf

Train B

$$C_s = 0.001 \times \frac{4.2}{18.22}$$

C_s = **0.0002305** g/dscf

Train C (1st Hour)

$$Cs = 0.001 \times \frac{3.9}{9.19}$$

Cs = **0.000424** g/dscf

Train D (Background)

$$C_r = 0.001 \times \frac{0.0}{17.25}$$

C_r = **0.000000** g/dscf

ET – Total Particulate Emissions, g - ASTM E2515 equation (15)

$$E_T = (c_s - c_r) \times Q_{std} \times \theta$$

Where:

C_s	=	Concentration of particulate matter in tunnel gas, g/dscf
C_r	=	Concentration particulate matter room air, g/dscf
Q_{std}	=	Average dilution tunnel gas flow rate, dscf/hr
θ	=	Total time of test run, minutes

Sample calculations (uncorrected)

Train A

E_T = (0.000211 - 0.000000) x 11240.9 x 117 / 60

E_T = **4.62** g

Train B

E_T = (0.000231 - 0.000000) x 11240.9 x 117 / 60

E_T = **5.05** g

First Hour

E_T = (0.000424 - 0.000000) x 11205.3 x 60 / 60

E_T = 4.75 g

Trains A and B Average

E = **4.84** g

Sample calculations (Corrected)

Train A

E_T = (0.000211 - 0.000000) x 11240.9 x 117 / 60

E_T = **4.62** g

Train B

E_T = (0.000231 - 0.000000) x 11240.9 x 117 / 60

E_T = **5.05** g

First Hour

E_T = (0.000424 - 0.000000) x 11205.3 x 60 / 60

E_T = **4.75** g

Trains A and B Average

E_T = **4.84** g

PM_R – Particulate emissions for test run, g/hr - ASTM E2780 equation (6)

$$PM_R = 60(E_T/\theta)$$

Where,

E_T = Total particulate emissions, grams

θ = Total length of full integrated test run, min

Sample Calculation (Uncorrected)

Train A

E_T = 4.62 g

θ = 117 min

PM_R = 60 x (4.62 / 117)

PM_R = **2.37** g/hr

Train B

E_T = 5.05 g

θ = 117 min

PM_R = 60 x (5.05 / 117)

PM_R = **2.59** g/hr

A and B Average

E_T = **2.48** g/hr

First Hour

E_T = 4.75 g

θ = 60 min

PM_R = 60 x (4.75 / 60)

PM_R = **4.75** g/hr

Sample Calculation (Corrected)

Train A

E_T = 4.62 g

θ = 117 min

PM_R = 60 x (4.62 / 117)

PM_R = **2.37** g/hr

Train B

E_T = 5.05 g

θ = 117 min

PM_R = 60 x (5.05 / 117)

PM_R = **2.59** g/hr

A and B Average

E_T = **2.48** g

First Hour

E_T = 4.75 g

θ = 60 min

PM_R = 60 x (4.75 / 60)

PM_R = **4.75** g/hr

PM_F – Particulate emission factor for test run, g/dry kg of fuel burned - ASTM E2780 equation (7)

$$PM_F = E_T / M_{FTAdb}$$

Sample Calculation (Uncorrected)

Train A

E_T = 4.62 g
M_{FTAdb} = 3.51 kg
PM_F = 4.62 / 3.51
PM_F = **1.32** g/kg

Train B

E_T = 5.05 g
M_{FTAdb} = 3.51 kg
PM_F = 5.05 / 3.51
PM_F = **1.44** g/kg

Sample Calculation (Corrected)

Train A

E_T = 4.62 g
M_{FTAdb} = 3.51 kg
PM_F = 4.62 / 3.51
PM_F = **1.32** g/kg

Train B

E_T = 5.05 g
M_{FTAdb} = 3.51 kg
PM_F = 5.05 / 3.51
PM_F = **1.44** g/kg

PR - Proportional Rate Variation - ASTM E2515 equation (16)

$$PR = \left[\frac{\theta \times V_{mi} \times V_s \times T_m \times T_{si}}{\theta_i \times V_m \times V_{si} \times T_{mi} \times T_s}\right] \times 100$$

Where:			Train A	Train B	Train C
θ	=	Total sampling time, min	117	117	60
θ_i	=	Length of recording interval, min	1	1	1
V_{mi}	=	Volume of gas sample measured by the dry gas meter during the "ith" time interval, dcf	0.168	0.161	0.163
V_m	=	Volume of gas sample as measured by dry gas meter, dcf	19.498	18.823	9.612
V_{si}	=	Average gas velocity in the dilution tunnel during the "ith" time interval, ft/sec	17.504	17.504	17.504
V_s	=	Average gas velocity in the dilution tunnel, ft/sec	17.313	17.313	17.392
T_{mi}	=	Absolute average dry gas meter temperature during the "ith" time interval, ^oR	538.6	535.7	537.4
T_m	=	Absolute average dry gas meter temperature, ^oR	551.3	548.1	541.0
T_{si}	=	Absolute average gas temperature in the dilution tunnel during the "ith" time interv	572.4	572.4	572.4
T_s	=	Absolute average gas temperature in the dilution tunnel, ^oR	561.1	561.1	565.4

NOTE: These sample calculations are for the Second interval of each train)

Train A PR = $\left(\frac{117 \text{ x } 0.168 \text{ x } 17.313 \text{ x } 551 \text{ x } 572}{1 \text{ x } 19.498 \text{ x } 17.504 \text{ x } 539 \text{ x } 561}\right)$ X 100 = 104.1 %

Train B PR = $\left(\frac{117 \text{ x } 0.161 \text{ x } 17.313 \text{ x } 548 \text{ x } 572}{1 \text{ x } 18.823 \text{ x } 17.504 \text{ x } 536 \text{ x } 561}\right)$ X 100 = 103.3 %

Train B PR = $\left(\frac{60 \text{ x } 0.163 \text{ x } 17.392 \text{ x } 541 \text{ x } 572}{1 \text{ x } 9.612 \text{ x } 17.504 \text{ x } 537 \text{ x } 565}\right)$ X 100 = 103.1 %

Run 2 Test Data

Test Date: 9/30.2025
Manufacturer: Valley Comfort
Model Sentry 14

Contents, in the following order:

· Emissions Test Results
· CSA B415 Results and Data
· Test Fuel Properties
· Velocity Traverse / Supplemental Data Worksheet
· Test Pre-Burn Data
· Sample Train A / Dilution Tunnel Data
· Sample Train B / Appliance Temperature Data
· Sample Train C (First Hour) Data
· Sample Train D (Background) / Flue Gas Data
· Gravimetric Lab Analysis
· Test Lab Notes
  - Appliance Operation Notes
  - Velocity Traverse / Supplemental Data Notes
  - Test Fuel Notes
  - Gravimetric Analysis Notes
· Equations and Calculations

Wood Heater Test Results

ASTM E2780 / ASTM E2515

Manufacturer: Valley Comfort
Model: Sentry 14
Project No.: 0142WS024E
Tracking No.: 2509
Run: 2
Test Date: 9/30.2025

Burn-Rate Result

0.59 kg/hr

Particulate Emissions Results

	Average of Trains A and B		First Hour	
	Uncorrected	*Corrected*	*Uncorrected*	*Corrected*
Total Emissions - E_T, g	4.20	4.20	1.89	1.89
Emission Rate, g/hr	**0.67**	0.67	**1.89**	1.89
Emissions Factor, g/kg	1.14	1.14	n/a	n/a

Dilution Tunnel Flow Parameters

		First Hour	Duration of Test
Average Tunnel Temperature, °F		81.3	80.4
Average Tunnel Gas Velocity (vs), feet/second		18.208	18.056
Average Tunnel Gas Flow Rate(Qsd)	DSCF/hr	12212.1	12132.7
	DSCF/min	203.5	202.2
Average Delta p, in. H2O		0.104	0.103
Tunnel Static Pressure, in. H2O		-0.400	-0.400
Total Time of Test, Min		60	376

Particulate Sample Measurement Parameters

	Uncorrected				*Corrected*			
	AMBIENT	Train A	Train B	First Hour	AMBIENT	Train A	Train B	First Hour
Total Sample Volume (V_m), ft^3	59.490	62.699	59.903	9.481	59.490	62.699	59.903	9.481
Average Gas Meter Temperature, °F	79	97	94	79	79	97	94	79
Total Sample Volume (V_{mstd}), DSCF	55.726	58.642	57.118	9.068	55.726	58.642	57.118	9.068
Total Particulates (mn), mg - m_n	0.0	3.3	3.1	1.4	0.0	3.3	3.1	1.4
Particulate Concentration (C_s - C_r), g/DSCF	0.00000	0.00006	0.00005	0.00015	0.00000	0.00006	0.00005	0.00015
Total Particulate Emissions (ET), grams	n/a	4.28	4.13	1.89	n/a	4.28	4.13	1.89
Particulate Emission Rate, g/hr	n/a	0.68	0.66	1.89	n/a	0.68	0.66	1.89
Emissions Factor, g/kg	n/a	1.16	1.12	n/a	n/a	1.16	1.12	n/a
Difference, ET from from Average ET, grams	n/a	0.08	-0.08	n/a	n/a	0.08	-0.08	n/a

Test Methodology Specifications and Quality Checks

Parameter	*Requirement*	*Measured / Observed*			*Complies?*
		First Hour	*Train 1*	*Train 2*	
Filter Temperature, °F	< 90	76	74	74	✓
Filter Face Velocity, fpm	< 30	8.68	9.16	8.78	✓
Dryer Exit Temperature, °F	< 80	68	56	56	✓
Tunnel Velocity, fpm	>800	1,092	1,083		✓
First Hour Leakage	0.006	0.001			✓
Train A Leakage Rate	0.007		0.001		✓
Train B Leakage Rate	0.006			0.000	✓
Leakage Rate Limits (cfm) are < 4% of average sample rate or < 0.01 cfm, which ever is less					
Negative Probe Weight	=> 0	0	0	0	✓
Pro-Rate Variation	< 90 for < 10% of θ	0.00%	0.00%	0.00%	✓
	> 110 for < 10% of θ	0.00%	0.000%	0.00%	✓
	# Readings < 80%	0	0	0	✓
	# Readings > 120%	0	0	0	✓
Ambient Temp, °F	> 55		72		✓
Ambient Temp, °F	< 90		75.2		✓
Trains A and B Precision	(*A*) < 7.5%		1.81%		✓
Either A or B must conform	(*B*) < 0.5 g/kg		0.04		✓
Stove Surface ΔT	<= 125 °F		24		✓
Room Air Velocity	< 50 fpm		16		✓

CSA B415.1-11 Efficiency Results

Manufacturer	Valley Comfort
Model:	S14
Project Number:	0142WS024E
Run Number:	2
Test Date:	9/30.2025

Efficiency results reported herein are based on a stack-loss method in accordance with CSA B415.1:22 "Performance testing of solid-biofuel-burning heating appliance". OMNI uses the spreadsheet provided by CSA that is to be used in conjunction with the current version of the test standard. The most recent version of the software is version 2.4, dated April 15, 2010. OMNI received confirmation from CSA on October 18, 2023 that this is the current version of the software.

OMNI Test Laboratories

Manufacturer: Valley Comfort
Model: Sentry 14
Date: 09/30/25
Run: 2
Control #: 2509
Test Duration: 376
Output Category:

Technicians: R Tiegs

Test Results in Accordance with CSA B415.1-10

	HHV Basis	LHV Basis
Overall Efficiency	78.0%	84.3%
Combustion Efficiency	97.7%	97.7%
Heat Transfer Efficiency	80%	86.3%

Output Rate (kJ/h)	9,170	8,699	**(Btu/h)**
Burn Rate (kg/h)	0.59	1.31	**(lb/h)**
Input (kJ/h)	11,762	11,158	**(Btu/h)**

Test Load Weight (dry kg)	3.72	8.20	**dry lb**
MC wet (%)	16.66		
MC dry (%)	19.99		
Particulate (g)	4.2		
CO (g)	137		
Test Duration (h)	6.27		

Emissions	**Particulate**	**CO**
g/MJ Output	0.07	2.38
g/kg Dry Fuel	1.13	36.81
g/h	0.67	21.86
lb/MM Btu Output	0.17	5.54

Air/Fuel Ratio (A/F)	12.85

VERSION: **2.4** **4/15/2010**

VERSION: 2.4 4/15/2010

Manufacturer: Valley Comfort
Model: Sentry 14
Date: 9/30/2025
Run: 2
Control #: 2509
Test Duration: 376
Output Category:

Appliance Type: Cat (Cat, Non)
Temp. Units F (F or C)
Weight Units lb (kg or lb)

Wood Moisture (% wet): 16.66
Load Weight (lb wet): 9.84
Burn Rate (dry kg/h): 0.59
Total Particulate Emissions: 4.2 g

Fuel Data

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

Averages	**0.21**	**8.40**	**#DIV/0!**	**188.27**	**#DIV/0!**	
					Temp. (ºF)	
Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Flue Gas	Room Temp
0	9.84	0.01	5.79		115.7	
1	9.80	0.10	1.18		197.5	
2	9.74	0.07	0.31		205.8	
3	9.74	0.05	0.68		173.8	
4	9.75	0.26	2.63		155.6	
5	9.73	0.31	3.23		144.7	
6	9.70	0.31	3.47		137.9	
7	9.70	0.29	3.67		133.3	
8	9.69	0.23	3.94		129.9	
9	9.69	0.15	4.46		127.6	
10	9.65	0.13	5.06		126.7	
11	9.66	0.14	5.29		126.8	
12	9.66	0.13	5.87		128.6	
13	9.64	0.13	6.37		131.4	
14	9.59	0.10	7.09		136.0	
15	9.56	0.12	8.04		141.9	
16	9.54	0.12	7.96		149.1	
17	9.49	0.10	7.77		156.8	
18	9.46	0.07	7.67		164.2	
19	9.39	0.03	7.90		171.4	
20	9.36	0.01	7.86		177.8	
21	9.30	0.00	8.02		183.9	

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
22	9.27	0.00	7.95		189.7	
23	9.20	0.00	7.97		195.3	
24	9.16	0.00	8.03		200.2	
25	9.09	0.01	7.80		204.9	
26	9.05	0.00	7.38		208.8	
27	8.98	0.00	7.46		213.1	
28	8.94	0.00	8.07		216.9	
29	8.86	0.01	8.06		220.5	
30	8.79	0.00	9.03		226.3	
31	8.75	0.01	9.06		230.7	
32	8.67	0.01	8.45		236.1	
33	8.63	0.00	8.71		239.6	
34	8.58	0.00	8.37		243.3	
35	8.50	0.00	8.37		247.1	
36	8.45	0.01	8.81		250.9	
37	8.37	0.00	9.44		254.6	
38	8.30	0.00	9.02		257.1	
39	8.26	0.01	8.70		258.8	
40	8.16	0.00	8.67		260.6	
41	8.14	0.01	8.64		262.1	
42	8.06	0.02	8.71		263.1	
43	7.99	0.00	8.58		263.9	
44	7.94	0.02	8.42		264.7	
45	7.87	0.00	9.46		266.7	
46	7.79	0.00	9.21		267.3	
47	7.74	0.01	8.84		268.2	
48	7.67	0.00	8.88		269.7	
49	7.60	0	9.031		270.8	
50	7.55	-0.018	9.332		271.6	
51	7.46	0.004	9.386		272.1	
52	7.43	0.001	8.626		272.7	
53	7.35	-0.013	8.918		272.9	
54	7.29	0.008	8.93		272.9	
55	7.24	0.008	8.957		272.7	
56	7.17	0.014	9.104		272.6	
57	7.10	0.007	9.06		272	
58	7.08	-0.005	8.572		271.3	
59	7.00	-0.003	8.268		271.1	
60	6.96	0.004	8.292		271.5	

Run 2 B415

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
61	6.90	-0.004	8.211		271.4	
62	6.86	-0.007	8.351		271.7	
63	6.78	0.012	8.274		271.4	
64	6.74	0.007	8.306		271.1	
65	6.69	0.01	8.463		270.9	
66	6.65	-0.003	8.502		270.8	
67	6.57	0.007	8.401		270.5	
68	6.54	0.002	8.721		270.3	
69	6.47	0.003	8.921		269.9	
70	6.41	0.009	9.746		270.5	
71	6.37	-0.006	9.492		270.2	
72	6.32	0.008	8.958		268	
73	6.28	0.006	8.569		265.8	
74	6.24	0.006	8.602		263.8	
75	6.17	0.004	8.704		261.7	
76	6.14	0.004	8.771		259.7	
77	6.08	0.005	8.843		257.5	
78	6.06	0.003	8.904		255.2	
79	5.99	-0.002	8.714		253.5	
80	5.97	0.007	9.129		251.9	
81	5.92	0.007	9.316		250.3	
82	5.88	0.004	9.276		249	
83	5.84	0.007	9.289		247.6	
84	5.79	0.003	9.264		246.1	
85	5.76	0.005	9.293		243.4	
86	5.70	0.008	9.428		240.9	
87	5.68	0.005	9.394		238	
88	5.65	0.001	9.427		235	
89	5.58	0.003	9.453		231.8	
90	5.58	0.005	9.471		228.3	
91	5.54	0.016	9.614		224.2	
92	5.49	0.016	9.66		219.5	
93	5.48	0.033	9.542		215.1	
94	5.44	0.041	9.672		210.7	
95	5.39	0.072	9.611		206.2	
96	5.36	0.1	9.672		202	
97	5.36	0.156	9.786		197.9	
98	5.31	0.181	9.652		194.4	
99	5.28	0.211	9.671		190.7	

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
100	5.28	0.233	9.762		187.1	
101	5.22	0.425	9.809		183.8	
102	5.19	0.515	9.692		181	
103	5.18	0.617	9.776		177.8	
104	5.15	0.713	9.578		174.8	
105	5.13	0.463	9.472		171.8	
106	5.09	0.236	9.395		169	
107	5.08	0.098	9.328		166.2	
108	5.07	0.042	9.172		163.9	
109	5.06	0.008	8.804		161.4	
110	5.04	0.003	8.573		159.2	
111	5.01	-0.015	8.404		157.2	
112	5.00	0.003	8.205		155.3	
113	4.98	-0.001	8.016		153.2	
114	4.98	0	7.939		151.3	
115	4.97	0.001	7.794		149.3	
116	4.95	0.001	7.819		147.7	
117	4.95	-0.001	7.735		146.3	
118	4.95	0	7.74		144.6	
119	4.91	0	7.571		143.1	
120	4.89	0.003	7.539		141.6	
121	4.89	0.003	7.592		140.3	
122	4.87	0.001	7.524		139.3	
123	4.88	0.002	7.522		138.3	
124	4.87	-0.004	7.69		137.5	
125	4.86	0.004	7.817		136.8	
126	4.84	0.002	7.929		136.3	
127	4.84	-0.003	7.932		136.3	
128	4.81	-0.002	7.904		135.9	
129	4.79	-0.004	7.732		135.9	
130	4.78	0	7.759		136.6	
131	4.76	-0.002	7.74		137.6	
132	4.78	-0.003	7.918		138.8	
133	4.75	0.004	8.026		140.1	
134	4.75	0.003	8.028		141.5	
135	4.70	-0.009	8.132		142.8	
136	4.69	-0.004	8.283		145	
137	4.67	-0.002	8.362		147.7	
138	4.67	-0.003	8.036		150.2	

Run 2 B415

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
139	4.64	-0.004	8.047		153.1	
140	4.60	-0.015	8.136		156.2	
141	4.59	0.002	8.257		159.5	
142	4.58	-0.001	8.346		162.5	
143	4.54	0.001	8.567		165.9	
144	4.51	0	8.695		169.4	
145	4.48	-0.003	8.877		173.8	
146	4.48	-0.002	9.057		178.4	
147	4.44	-0.002	9.246		183.7	
148	4.40	0.001	9.502		188	
149	4.38	-0.002	9.787		193	
150	4.34	-0.003	10.159		198	
151	4.29	0.004	10.636		203	
152	4.26	0.042	11.097		209.1	
153	4.19	0.027	11.192		215.6	
154	4.17	0.117	11.561		220	
155	4.10	0.261	11.764		225.6	
156	4.06	0.492	11.998		231	
157	3.97	1.346	12.142		237.3	
158	3.92	2.129	11.699		242.7	
159	3.85	2.29	11.599		246.7	
160	3.77	2.408	11.552		250.8	
161	3.68	2.509	11.547		251.8	
162	3.60	2.622	11.51		252.6	
163	3.56	2.539	11.471		251.6	
164	3.48	2.45	11.36		250.3	
165	3.40	2.245	11.241		248.4	
166	3.35	2.287	11.196		246.8	
167	3.29	2.032	11.33		245.2	
168	3.20	1.983	11.395		244.3	
169	3.16	1.821	11.337		242.3	
170	3.09	1.554	11.392		240.7	
171	3.05	2.308	10.968		238	
172	2.97	2.717	10.709		236.4	
173	2.94	2.92	10.469		234.4	
174	2.87	2.799	10.397		232.2	
175	2.85	2.891	10.204		228.6	
176	2.78	2.972	9.934		224	
177	2.76	3.086	9.719		218.4	

Run 2 B415

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
178	2.71	2.987	9.469		212.3	
179	2.68	2.915	9.279		206.2	
180	2.67	2.736	9.059		199.9	
181	2.63	2.597	8.808		193.4	
182	2.59	2.381	8.732		187.1	
183	2.58	2.045	8.822		181.8	
184	2.57	1.542	8.854		177.1	
185	2.56	1.102	9.013		172.9	
186	2.54	0.833	9.051		168.9	
187	2.51	0.704	9.376		165.8	
188	2.49	0.469	9.382		162.5	
189	2.48	0.288	9.444		159.6	
190	2.49	0.165	9.446		156.9	
191	2.48	0.088	9.532		154.4	
192	2.46	0.045	9.58		152.3	
193	2.45	0.018	9.475		150.3	
194	2.43	0.008	9.44		148.3	
195	2.41	0.003	9.31		146.3	
196	2.40	0	9.08		144.4	
197	2.39	0	8.815		143.1	
198	2.38	0	8.541		141.6	
199	2.38	0.001	8.313		140.3	
200	2.38	-0.001	8.051		138.9	
201	2.38	-0.002	7.916		137.4	
202	2.36	-0.002	7.72		136.1	
203	2.36	-0.002	7.678		134.8	
204	2.36	0	7.462		133.6	
205	2.36	-0.001	7.301		132.2	
206	2.35	0	7.269		131.2	
207	2.34	-0.003	7.078		129.8	
208	2.31	-0.003	6.963		128.6	
209	2.32	-0.002	6.802		127.5	
210	2.31	-0.002	6.713		126.5	
211	2.29	0.002	6.608		125.7	
212	2.30	-0.002	6.464		124.7	
213	2.29	-0.004	6.496		124	
214	2.29	-0.002	6.342		123.3	
215	2.29	0	6.333		122.9	
216	2.26	0	6.333		122.7	

Run 2 B415

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
217	2.27	0.002	6.407		122.7	
218	2.28	-0.003	6.52		122.9	
219	2.28	-0.004	6.664		123.5	
220	2.27	-0.003	6.815		124.3	
221	2.26	-0.005	6.995		125.6	
222	2.26	0	7.182		126.7	
223	2.25	-0.002	7.425		128.1	
224	2.21	-0.001	7.545		129.5	
225	2.20	-0.002	7.784		131.1	
226	2.21	-0.003	7.952		133.4	
227	2.18	0	8.38		135.8	
228	2.18	-0.002	8.731		138.4	
229	2.17	-0.003	9.054		141	
230	2.15	-0.003	9.337		143.9	
231	2.11	-0.002	9.601		147.4	
232	2.10	-0.002	9.917		151.1	
233	2.08	-0.001	10.106		154.9	
234	2.07	-0.004	10.153		158.6	
235	2.05	-0.003	10.462		163	
236	2.01	-0.003	10.672		167.3	
237	1.97	0.007	10.737		171.4	
238	1.98	-0.001	10.745		175.8	
239	1.95	-0.003	10.727		179.9	
240	1.91	-0.004	10.831		183.4	
241	1.89	-0.002	10.927		187.4	
242	1.87	0	11.008		191.8	
243	1.84	0.004	11.004		196.4	
244	1.80	0.008	11.357		200.1	
245	1.78	0.02	11.238		203.3	
246	1.76	0.029	11.29		206.9	
247	1.71	0.042	11.364		210.1	
248	1.68	0.059	11.253		213	
249	1.66	0.053	11.176		216.4	
250	1.62	0.053	11.223		219.5	
251	1.58	0.067	11.173		222.8	
252	1.58	0.051	11.068		224.2	
253	1.54	0.061	10.99		224.4	
254	1.50	0.056	10.717		225	
255	1.47	0.039	10.716		225.2	

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
256	1.48	0.01	10.507		224	
257	1.45	0.002	10.326		222.6	
258	1.40	-0.001	10.215		221.9	
259	1.39	-0.002	9.947		220.7	
260	1.38	-0.001	9.653		218.2	
261	1.37	-0.001	9.449		215.6	
262	1.34	-0.003	9.269		212.9	
263	1.32	-0.002	9.073		209.3	
264	1.30	0	8.873		205.7	
265	1.29	-0.004	8.671		201.8	
266	1.29	-0.002	8.571		198	
267	1.28	-0.004	8.429		194.5	
268	1.26	-0.004	8.363		190.8	
269	1.26	-0.002	8.242		187	
270	1.25	-0.002	8.166		183.6	
271	1.22	-0.001	8.052		180.3	
272	1.21	-0.002	7.953		177.4	
273	1.18	-0.002	7.975		174.4	
274	1.19	-0.002	7.864		171.5	
275	1.19	-0.002	7.869		169.1	
276	1.18	-0.001	7.817		166.9	
277	1.19	0	7.68		164.9	
278	1.18	-0.002	7.755		163.1	
279	1.17	-0.002	7.669		161.2	
280	1.17	-0.002	7.639		159.6	
281	1.15	-0.003	7.585		158	
282	1.14	-0.001	7.576		156.6	
283	1.11	-0.001	7.491		154.9	
284	1.11	-0.004	7.383		153.9	
285	1.11	-0.003	7.39		152.8	
286	1.10	-0.003	7.354		151.4	
287	1.09	-0.003	7.348		150.2	
288	1.07	-0.002	7.385		148.8	
289	1.08	-0.003	7.437		147.9	
290	1.08	-0.001	7.371		147.1	
291	1.08	-0.003	7.44		146.3	
292	1.09	0.001	7.416		145.4	
293	1.08	-0.001	7.501		144.5	
294	1.06	-0.002	7.503		144.1	

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
295	1.06	-0.002	7.48		143.6	
296	1.03	-0.003	7.548		143.3	
297	1.03	-0.002	7.688		143	
298	1.01	-0.001	7.733		143.1	
299	1.01	0	7.703		142.9	
300	1.00	-0.001	7.656		143.2	
301	0.99	-0.002	7.693		143.7	
302	0.99	-0.002	7.707		144.4	
303	0.99	-0.001	7.731		145.1	
304	0.98	0	7.772		146.3	
305	0.97	-0.001	7.821		147.2	
306	0.97	-0.001	7.846		147.7	
307	0.95	-0.002	7.848		149.3	
308	0.95	-0.001	7.802		150.5	
309	0.91	-0.003	7.799		152.1	
310	0.91	-0.001	7.858		153.8	
311	0.89	-0.003	7.799		155.3	
312	0.88	-0.005	7.793		156.5	
313	0.89	-0.003	7.809		158.4	
314	0.88	-0.001	7.845		160.5	
315	0.87	0	7.848		161.8	
316	0.86	-0.002	7.812		163.2	
317	0.84	-0.003	7.806		164.6	
318	0.81	0	7.795		166.6	
319	0.80	-0.003	7.852		167.9	
320	0.79	-0.003	7.83		169.4	
321	0.79	0	7.74		170.8	
322	0.77	-0.002	7.704		172.5	
323	0.77	-0.002	7.625		173.8	
324	0.76	-0.003	7.658		175.4	
325	0.74	-0.001	7.575		176.9	
326	0.71	0	7.606		177.6	
327	0.70	-0.003	7.638		178.8	
328	0.69	0.001	7.52		180.3	
329	0.69	-0.006	7.354		181.2	
330	0.68	-0.002	7.239		182.6	
331	0.67	-0.001	7.185		183.5	
332	0.66	-0.002	7.172		183.9	
333	0.65	-0.001	7.183		184.7	

Run 2 B415

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
334	0.62	-0.002	7.225		185.7	
335	0.60	-0.001	7.243		186.2	
336	0.59	-0.006	7.13		186.9	
337	0.58	0.001	7.098		187.4	
338	0.59	-0.002	7.065		188.3	
339	0.56	-0.001	7.071		188.8	
340	0.58	-0.002	7.079		189.4	
341	0.55	-0.003	6.987		189	
342	0.53	-0.002	7.041		189.7	
343	0.50	-0.002	6.962		190.1	
344	0.50	-0.002	6.983		190	
345	0.48	-0.001	7.043		190.3	
346	0.49	-0.002	6.975		191	
347	0.47	-0.002	6.97		191.1	
348	0.46	-0.002	6.919		191.3	
349	0.46	-0.002	6.948		191.6	
350	0.44	-0.002	6.915		192.4	
351	0.42	-0.002	6.837		192.6	
352	0.40	-0.001	6.881		192.9	
353	0.40	0	6.751		192.8	
354	0.39	-0.005	6.699		192.6	
355	0.39	0	6.689		192	
356	0.38	0.001	6.881		192.9	
357	0.36	-0.006	7.093		192.9	
358	0.35	0	7.232		192.7	
359	0.32	0.001	7.252		193.2	
360	0.30	-0.002	7.158		193.3	
361	0.29	-0.001	7.067		193.5	
362	0.29	-0.001	7.107		193.9	
363	0.30	-0.001	7.093		194.2	
364	0.28	0	7.149		194.6	
365	0.26	-0.002	7.124		194.7	
366	0.26	-0.004	7.16		194.5	
367	0.22	-0.001	7.221		194.7	
368	0.22	-0.004	7.288		195.5	
369	0.18	-0.002	7.412		195.7	
370	0.19	-0.003	8		196.9	
371	0.17	-0.002	8.518		197.6	
372	0.16	-0.005	8.486		197.7	

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
373	0.12	-0.003	8.33		198.1	
374	0.11	-0.002	8.113		198.6	
375	0.08	-0.002	7.965		199.3	
376	-0.01	-0.004	7.982		199.5	

Run 2 B415

Test Fuel Properties

ASTM E2780

Manufacturer : Valley Comfort
Model : Sentry 14
Tracking No. : 2509
Project No. : 0142WS024E
Test Date : 9/30.2025
Run No. : 2

Moisture Meter Cal	
Cal Block	Measured
12.0	12.0
22.0	22.0

Firebox Volume : **1.460** ft^3
% 2 x 4 Required : 100 %
Ideal Fuel Weight : 10.22 lb.
Minimum Fuel Weight : 9.20 lb.
Maximum Fuel Weight : 11.24 lb.

Fuel Piece Data

PC #	Weight, lb	Size	Length, In	Moisture Readings, Dry Basis %			Average MC, % db	Dry Weight, lb.	Volume, ft3	Wet Weights, lb 4 x 4	Wet Weights, lb 2 x 4	Dry Weights, lb 4 x 4	Dry Weights, lb 2 x 4
1	1.52	2x4	14.50	19.4	22.2	19.2	20.3	1.26	0.0441		1.5		1.26
2	1.52	2x4	14.50	20.5	21.7	20.3	20.8	1.26	0.0441		1.5		1.26
3	1.55	2x4	14.50	24.5	23.8	23.1	23.8	1.25	0.0441		1.6		1.25
4	1.53	2x4	14.50	19.7	20.6	19.1	19.8	1.28	0.0441		1.5		1.28
5	1.52	2x4	14.50	20.5	21.3	20.2	20.7	1.26	0.0441		1.5		1.26
6													
7													
8													
9													

Spacer Data

Moisture Readings, Dry Basis % (One reading per spacer)								
18.8	16.1	20.6	17.1	14.0				
16.4	19.2	17.3	20.4	16.0				
16.1	14.9	9.4	16.7	17.3				
17.5	14.0	9.0	22.6	12.6				

Avg : 16.3

Assembled Crib Fuel Load with Spacers Attatched

PC #	Weight, lb with Spacers	Size	4 x 4s	2 x 4s
1	1.94	2x4		1.9400
2	1.99	2x4		1.9900
3	2.02	2x4		2.0200
4	1.91	2x4		1.9100
5	1.91	2x4		1.9100
6				
7				
8				
9				

Combined Mass of 4 x 4s 0.0 lb
Combined Mass of 2 x 4s 9.8 lb

Total Wet Mass of Fuel Load **9.8** lb

Fuel Load Properties

Type	*Number of Pieces*	*Wet Weight, lb.*	*Dry Weight, lb.*	*Fuel Loading Density, lb/ft³* Wet Basis	*Fuel Loading Density, lb/ft³* Dry Basis	Dry Fuel Density, lb/ft³	Wet Fuel Density, lb/ft³	*Moisture, %* Dry Basis	*Moisture, %* Wet Basis
2 x 4	5	7.6	6.31	6.69	5.58	28.65	34.68	19.99	16.66
4 x 4	0	0.0	0.00						
Spacers	20	2.1	1.83						
Totals		9.8	8.14						

Compliance Checks

	Fuel Load, Wet Lb.	Load Density, lb/ft³ of FB vol	Fuel Density, lb/ft³	% of Fuel load mass which is 2x4	Fuel Load Peices Mositure, % db
Measured	9.8	6.69	28.65	100	21.1
Required	9.2 - 11.2	6.3 - 7.7	25 - 36	100	19 -25
Complies ?	Yes	Yes	Yes	Yes	Yes

Dilution Tunnel Velocity Traverse and Supplementary Data

ASTM E2515-11

Run:	2	Tracking No.:	2509
Manufacturer:	Valley Comfort	Project No.:	0142WS024E
Model:	Sentry 14	Test Date:	9/30.2025

Dillution Tunnel Velocity Traverse

Pitot Location

Traverse Point	*% of Diameter*	*Inches into Tunnel*	*dP in. H_2O*	*Tunnel Temp, °F*	*$dP^{1/2}$*
X1	6.7	0.5*	0.060	95	0.245
X2	25.0	1.50	0.082	95	0.286
X3	75.0	4.50	0.090	95	0.300
X4	93.3	5.5*	0.060	95	0.245
Y1	6.7	0.5*	0.060	95	0.245
Y2	25.0	1.50	0.100	95	0.316
Y3	75.0	4.50	0.090	95	0.300
Y4	93.3	0.5*	0.060	95	0.245
Center	50.0	3.00	0.106	95	0.326

Tunnel Static Pressure	-0.400	*in. H_2O*
Tunnel Moisture	2.00	%
Tunnel Diameter	6.00	inches
Pitot Tube C_p	0.99	inches
Tunnel Molecular Weight	29	(dry)
Tunnel Molecular Weight	28.78	(M_S, wet)
Tunnel Area	0.19634954	*ft^2*
K_p	85.49	constant
$P_s=P_{bar}$+Tunnel Static	29.7005882	in HG

** Probe location must be no closer than 0.50" from tunnel wall*

$$V_{strav} = K_p C_p \sqrt{\Delta p}_{avg} \sqrt{\frac{T_{s,avg}}{P_s M_s}} = 18.6041$$

$$V_{scent} = K_p C_p \sqrt{\Delta p}_{center} \sqrt{\frac{T_{s,center}}{P_s M_s}} = 22.2035$$

$$F_P = V_{strav} / V_{scent} = 0.838$$

$$Initial\ Tunnel\ Velocity, V_s = F_P K_p C_p \sqrt{\Delta p}_{avg} \sqrt{\frac{T_{s,avg}}{P_s M_s}} = 15.588\ ft/sec$$

Supplementary Data and Information

Environment

	Test Start	Test End
Time of Day	11:38	18:54
Barometric Pressure, in. Hg	29.73	29.74
Room Air Velocity, fpm	14	16
Room Air Temperature, °F	73	74
Room Relative Humidity, %	51.0	48.0
Platform Scale Audit, lb.	10.0	10.0

Leak Checks

Pitot and associated tubing, (pass/fail)[1]	pass	pass

See sampling box worksheets for sampling boxes

Dillution Tunnel

Date last cleaned	9/29/2025	
Smoke Capture, % (visual)[2]	100	
Draft Inducement, (pass/fail)[3]	pass	
Static Pressure, in. H_2O	-0.400	-0.400

1 Both sides (independantly) of the pitot system are brought under a minimum vacuum of 3 in. H_2O and then sealed. Any indiction of pressure loss is deemed a fail.

2 Create a smoking condition during start of pre-burn activites and using adequate lighting pointed upward and aroud tunnel hood, visually observe if 100% of visible smoke is being captured by the hood. If not, increase flow tunnel flow and / or re-assess chimney proximity to draft hood as required and repeat until 100% capture is observed.

3 With the appliance installed and the dillution tunnel flow turned-off, observe the flue draft gauge while turning the dulution tunnel on. Any detectible response by the draft gauge associated with activation of the tunnel flow indicates that draft inducemnt is occuring. Determine the cause (i.e. flue chimnet too deep into tunnel?) before continuing.

Preburn Data

ASTM E2780

Run: 2

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E
Test Date: 9/30.2025
Beginning Clock Time: 9:35

Coal Bed Range (lb):	2.0 (min)	2.4 (max)

Preburn Fuel Data

14.5 pieces @ 3 inches
10 pieces @ 4 inches
pieces @ inches

Fuel Moisture Readings (% DB):

23.3	19.2					
22.1	20.8					
19						
25						
23.8						

Avg Preburn Moisture (% DB): **21.89**

			Temperatures (°F)								
Elapsed Time (min)	Scale (lb)	Stack Draft (in H_2O)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Cat Exit	Avg. FB	Stack	Ambient
0	1.94	0.06	562.1	224.8	304.7	332.2	359.8	1001.2	357	432.4	71.9
1	1.88	0.062	553.5	228.8	308.7	337.1	363.7	996.5	358	428.1	72.3
2	1.78	0.059	546.5	232.6	312.4	341.8	367.2	996.9	360	426.6	72.1
3	1.75	0.062	539.9	236.4	315.4	346.4	370.9	997	362	424.7	72.1
4	1.68	0.059	534.5	240.3	318.3	350.6	374.4	990.8	364	422.4	72
5	1.59	0.062	530.2	244.1	320.8	354.7	377.8	990	366	420.9	72.6
6	1.52	0.063	527.4	247.7	323	358.6	381.1	1025.3	368	421.6	72.8
7	1.46	0.06	525.6	251.6	325.3	362.6	384.6	1074.3	370	422.5	71.9
8	1.38	0.063	525.7	255.3	327.9	366.6	388	1091.5	373	423.2	73
9	1.31	0.061	525.8	258.4	331	370.8	391.2	1083	375	423	72.1
10	1.25	0.065	526.6	262.3	334.6	375.2	394.1	1074.2	379	423.5	72.1
11	1.19	0.065	527.6	266.1	338.2	379.4	396.7	1057.3	382	409.7	72.4
12	1.15	0.061	526.7	270.1	341.1	383.8	399.2	1051.7	384	412.8	72.6
13	1.09	0.058	526.3	281.6	343.3	388.3	401.6	1019.8	388	411.6	71.9
14	1.07	0.058	524.4	289.2	345	392.2	403.6	995.3	391	409.7	72.1
15	0.99	0.063	521.9	294.1	346.6	395.9	405.3	980.8	393	406.7	72.6
16	0.95	0.058	518.5	299.9	347.9	399.4	407	974.8	395	403.5	72.2
17	0.89	0.057	514.6	304.9	349.4	402.7	408.8	975.1	396	401.2	72
18	0.87	0.055	509.8	308.2	350.8	405.6	410	967.6	397	398.8	71.9
19	0.81	0.058	505.6	313.1	352.6	408	411.2	962.7	398	397	71.9
20	0.77	0.056	501.2	318.2	354.4	410.2	412.4	956.2	399	395.7	72.1
21	5.24	0.047	497.1	323.5	356.2	412	413.5	942.2	400	392.9	72.3
22	0.69	0.057	493.1	329.1	357.9	413.8	414.9	929.9	402	390	72.9
23	0.65	0.055	488.2	334.8	359	415.4	416.2	920.5	403	386.8	72.8
24	0.59	0.058	483.8	340.6	359.6	416.8	417.3	917	404	384.9	72.1
25	7.56	0.055	479.5	344.6	362.9	417.9	416.2	747.1	404	481.9	72.8
26	9.46	0.041	472.4	350.9	362.9	418	415.4	604.9	404	443.2	73.2
27	9.36	0.045	461.9	356.6	358.3	417.9	414.9	694.3	402	395.5	72.3
28	9.27	0.046	453	362.6	353.7	417.4	414.3	789.5	400	386.5	71.9
29	9.1	0.044	448.5	368.4	348.4	416.9	413.4	901.4	399	396	72.2
30	8.95	0.056	450.6	373.7	343.2	416.3	412.4	1031.2	399	413.4	72.5
31	8.75	0.056	458.6	378.7	337.6	415.3	411	1107.4	400	429.8	72.2
32	8.57	0.056	471.5	383.2	332.3	414.1	409	1165.6	402	444	72.2
33	8.36	0.052	488.2	387.3	327.5	412.9	407.7	1202.9	405	454.9	71.7
34	8.17	0.056	503.9	391	323	411.2	405.9	1222.4	407	463.8	72.6
35	7.96	0.058	521.3	394.5	318.7	409.5	403.5	1241.2	410	471.7	72.1
36	7.77	0.055	536.7	397.9	315.4	408	401.7	1258	412	478.6	72.2
37	7.55	0.059	550	400.6	312.6	406.1	399.9	1271.4	414	483.8	72
38	7.34	0.06	562.1	402.7	310.3	404.6	398.3	1277.5	416	487.5	71.9
39	7.09	0.06	572.8	404.4	307.6	402.8	396.5	1277.5	417	489.9	72.8
40	6.88	0.06	581	405.9	306.3	401	393.7	1266.4	418	491.4	72
41	6.66	0.058	586.5	406.8	305	399.5	390.7	1254.3	418	491.7	71.9
42	6.44	0.057	590.4	407.5	304.7	398.2	389.9	1236.5	418	491	72

			Temperatures (°F)								
Elapsed Time (min)	Scale (lb)	Stack Draft (in H_2O)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Cat Exit	Avg. FB	Stack	Ambient
43	6.2	0.064	593.4	408	304.6	397.3	389.4	1217.8	419	490.2	72.9
44	5.98	0.059	595.2	408.5	305.3	396.6	388	1203.4	419	488.1	72.1
45	5.76	0.057	596.2	408.9	305.6	395.7	387.1	1193.3	419	486	72.5
46	5.54	0.062	596.6	409.3	307	395.2	386.5	1187.6	419	484.3	72.8
47	5.3	0.062	596.2	409.5	308.6	395.2	386.8	1180.1	419	482.4	73.1
48	5.07	0.058	596.2	409.9	310.1	395.1	386.5	1174.8	420	480	72.5
49	4.88	0.063	596.1	410.3	311.3	395.4	386.6	1167.7	420	477.9	72.6
50	4.66	0.063	595.3	410.8	314.6	396.2	387.4	1159.7	421	475.5	72.6
51	4.45	0.061	595	411.3	317.9	397.1	387.7	1141.4	422	473.1	73.3
52	4.25	0.061	593.6	411.9	321.5	398.4	389.8	1126.8	423	469.1	72.8
53	4.05	0.061	592.5	412.7	325.2	400	391.7	1113.7	424	465.8	72.7
54	3.86	0.064	590.7	413.4	329.2	401.7	393.9	1101.6	426	462.3	72.8
55	3.66	0.062	588.8	414.3	333.7	403.6	396.6	1092.6	427	458.5	73
56	3.47	0.063	587.7	415.5	337.6	405.8	398.6	1082.4	429	454.1	73.8
57	3.28	0.061	586.6	416.7	341.1	408.2	401.3	1076.6	431	450.5	73.1
58	3.15	0.063	585.5	418.1	345.6	410.5	403.4	1075.9	433	447.7	73.1
59	2.97	0.062	583.6	419.6	349.2	412.8	405.1	1077.1	434	445.2	72.6
60	2.85	0.063	583.5	421.2	353.3	415.1	406.8	1081.3	436	443.3	72.4
61	2.7	0.066	582.7	422.9	358.2	417.9	410	1088.6	438	442.2	73.8
62	2.61	0.062	582.6	424.7	363.3	420.6	413.3	1125.2	441	442.1	74.5
63	2.04	0.064	583.8	426.6	368.3	423.3	416.5	1142.2	444	442	74.2
64	2.48	0.05	593.8	429.1	378.3	426.3	419.7	1075.5	449	380.2	74.5
65	2.42	0.046	594.7	431.6	385.1	429.7	423.8	1027.7	453	342.7	73.3
66	2.38	0.042	593.2	433.8	389.8	432.5	426.6	986.4	455	316.6	72.7
67	2.39	0.042	588.3	436	393.7	434.8	429.1	956.2	456	296.3	73.3
68	2.36	0.041	582.2	438.1	396.6	436.6	431.1	935.5	457	279.9	74.1
69	2.33	0.037	575.2	440	398.7	438	432.5	920.6	457	266.4	74.5
70	2.29	0.034	567	441.7	400	438.6	433.4	908.8	456	254.3	74.3
71	2.29	0.031	559.1	443.1	400.7	438.6	433.8	898.9	455	243.7	73.6
72	2.29	0.029	552.1	444.1	401	438.3	433.8	889.7	454	234.6	72.6
73	2.27	0.024	544.4	444.9	400.8	437.7	433.4	881.4	452	226.1	73.3
74	2.27	0.029	537.7	445.5	400.3	436.8	432.7	874.5	451	218.8	73.1
75	2.27	0.024	530.6	445.8	399.5	435.4	431.9	873.1	449	211.8	72.9
76	2.28	0.026	524.1	445.8	398.3	433.8	431	881.6	447	205.9	72.5
77	2.26	0.023	518.3	445.7	396.8	431.8	429.5	886	444	200.3	72.4
78	2.26	0.018	512.8	445.5	395.2	429.7	427.7	885.9	442	195.4	73.1
79	2.25	0.019	507.4	445.1	393.4	427.8	426	881.9	440	190.8	72.6
80	2.23	0.02	503.6	444.6	391.3	425.6	424	875.2	438	186.6	72.7
81	2.21	0.022	499.2	444	389.1	423.1	421.8	866.5	435	182.8	73.8
82	2.21	0.018	495.2	443.2	386.6	420.5	419.6	856.2	433	179.2	73.5
83	2.2	0.017	490.5	442.5	384	417.3	417.1	844.5	430	175.8	73.2
84	2.2	0.017	486.6	441.5	381.2	414.2	414.8	832.4	428	172.8	72.9
85	2.2	0.017	481.7	440.6	378.3	411	412.2	820.5	425	169.5	72.7
86	2.19	0.016	476.7	439.6	375.3	407.9	409.5	809.1	422	166.5	72.8
87	2.18	0.016	471.7	438.6	372.3	405	406.9	798	419	164.1	73.2
88	2.19	0.016	466.2	437.5	369.1	402	404.1	787.5	416	161.7	72.9
89	2.18	0.017	460.8	436.3	365.9	398.7	401.3	777.2	413	159.2	73.4
90	2.18	0.014	454.8	435.2	362.8	395.2	398.5	767.5	409	157.1	72.8
91	2.18	0.013	449.3	434.1	359.6	392.3	395.8	758	406	154.8	73
92	2.17	0.017	443.8	432.9	356.4	389.5	393	749.2	403	152.7	73.4
93	2.17	0.015	438.2	431.7	353.3	386.6	390.2	740.4	400	150.7	73.4
94	2.17	0.011	432.6	430.5	350.2	383.8	387.5	732.2	397	148.6	72.7
95	2.19	0.013	427.8	429.2	347	380.8	384.8	724.1	394	146.9	73.2
96	2.2	0.012	421.8	427.9	343.9	377.8	382.2	716.3	391	145.3	73.1
97	2.18	0.01	416.1	426.6	341	374.7	379.6	708.6	388	143.5	72.8
98	2.18	0.009	410.9	425.2	337.9	371.5	377	701.3	385	142	72.8
99	2.18	0.011	406.5	423.8	334.8	368.7	374.1	693.8	382	140.7	72.5
100	2.18	0.007	401.1	422.4	331.8	365.7	371.5	686.5	379	139.3	72.6
101	2.17	0.011	396.4	421	328.7	362.5	368.9	679.4	376	137.9	72.6
102	2.18	0.009	391.4	419.5	325.7	359.8	366.1	672.6	373	136.4	72.4
103	2.18	0.006	387.2	418	322.7	357.1	363.5	665.9	370	135.2	72.6

			Temperatures (°F)								
Elapsed Time (min)	Scale (lb)	Stack Draft (in H_2O)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Cat Exit	Avg. FB	Stack	Ambient
104	2.17	0.007	383	416.5	319.8	354.5	361	659.4	367	134	72.7
105	2.16	0.006	378.5	415	316.9	351.8	358.4	652.9	364	132.7	72.4
106	2.17	0.004	373.9	413.4	314.1	349	355.9	646.6	361	131.5	72.6
107	2.16	0.009	370.3	411.9	311.3	346.1	353.4	640.3	359	130.2	72.4
108	2.16	0.004	366.2	410.4	308.5	343.7	351.1	634.1	356	129.1	72.7
109	2.16	0.009	362.2	408.9	305.8	341	348.7	627.5	353	128	72.7
110	2.16	0.006	358.9	407.3	303.1	338.5	346.2	620.8	351	127.1	72.6
111	2.16	0.009	354.7	405.7	300.4	335.9	344	614	348	125.9	72.7
112	2.16	0.006	351	404.1	297.8	333.6	341.7	607.4	346	124.9	72.4
113	2.16	0.005	346.8	402.6	295.3	330.9	339.3	600.9	343	124.2	72.5
114	2.15	0.007	343.2	401	292.8	328.5	337.1	594.6	341	123.4	72.6
115	2.15	0.007	339.8	399.4	290.3	325.4	334.8	588.7	338	122.7	72.7
116	2.14	0.003	336.7	397.8	287.9	322.9	332.6	583	336	121.7	72.9
117	2.14	0.007	333.5	396.4	285.6	320.6	330.4	578	333	120.6	73
118	2.15	0.007	329.9	394.8	283.2	318.1	328.2	572.8	331	119.6	72.9
119	2.15	0.005	326.9	393.4	280.9	315.8	326.2	567.6	329	118.8	72.5
120	2.15	0.002	324.1	391.8	278.7	313.5	323.9	562.9	326	118	72.6
121	2.15	0.001	320.5	390.3	276.5	311.2	321.9	557.7	324	117.2	72.6
122	2.14	0	317.9	388.8	274.4	308.9	319.6	552.8	322	116.5	73
123	2.14	-0.001	314.3	387.4	272.3	306.7	317.8	547.8	320	115.7	73

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 2
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 11:38
Test Length: 376 min
Recording Interval: 1 min

Test Date: 9/30.2025

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.002 cfm @ 23.7 in. Hg
Post-Test 0.001 cfm @ 5.3 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ("H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ("H_2O)*	$\sqrt{dP}$	*vs*
Tot / Avg		2.1	**62.699**	**0.167**	**1.17**	**97.4**	**2.05**	**74.16**	**56.24**	**73.78**	**100.0**	**80.4**	**0.103**	**0.320**	**18.06**
Minimum	0.0	-7.8	0.000	0.154	-0.03	76	0.09	72	41	72	95.4	76	0.098	0.313	17.78
Max	10.0	0.2	62.699	0.171	1.22	103	2.26	75	66	75	106.0	98	0.107	0.327	18.47
0	2.1		0.000		-0.03	76	0.09	71.7	42.5	73		76	0.105	0.324	18.47
1	10.0	-7.8	0.154	0.154	1.22	76	2.10	72	41.3	73	95.4	98	0.104	0.322	18.34
2	9.7	0.2	0.322	0.168	1.22	77	2.10	72.4	41.3	73	106.0	97	0.104	0.322	18.47
3	9.7	0.0	0.490	0.168	1.22	76	2.20	72.3	41.3	73	104.5	82	0.104	0.322	18.34
4	9.8	0.0	0.661	0.171	1.21	77	2.21	72.3	41.5	73	105.4	79	0.104	0.322	18.19
5	9.7	0.0	0.827	0.166	1.22	77	2.07	72.3	41.6	73	102.5	78	0.103	0.321	18.10
6	9.7	0.0	0.993	0.166	1.21	76	2.08	72.3	41.8	73	102.5	77	0.105	0.324	18.13
7	9.7	0.0	1.161	0.168	1.20	77	2.24	72.3	42	73	103.2	77	0.106	0.326	18.26
8	9.7	0.0	1.327	0.166	1.19	77	2.24	72.3	42.2	73	101.5	77	0.105	0.324	18.25
9	9.7	0.0	1.492	0.165	1.18	76	2.24	72.4	42.4	73	100.8	76	0.107	0.327	18.29
10	9.7	0.0	1.660	0.168	1.21	77	2.22	72.3	42.6	73	102.5	76	0.105	0.324	18.29
11	9.7	0.0	1.826	0.166	1.22	77	2.03	72.4	42.8	73	101.6	76	0.104	0.322	18.16
12	9.7	0.0	1.991	0.165	1.20	77	2.22	72.4	43	73	101.4	76	0.105	0.324	18.16
13	9.6	0.0	2.158	0.167	1.18	78	2.24	72.4	43.1	73	102.3	77	0.106	0.326	18.25
14	9.6	0.1	2.320	0.162	1.20	78	2.22	72.5	43.3	73	98.8	77	0.106	0.326	18.29
15	9.6	0.0	2.486	0.166	1.20	78	2.14	72.4	43.5	72	101.5	77	0.103	0.321	18.17
16	9.5	0.0	2.652	0.166	1.19	78	2.00	72.5	43.7	72	102.1	77	0.104	0.322	18.08
17	9.5	0.0	2.817	0.165	1.19	79	2.02	72.5	44	72	101.6	77	0.104	0.322	18.13
18	9.5	0.0	2.984	0.167	1.19	78	2.24	72.5	44.1	73	102.5	78	0.106	0.326	18.22
19	9.4	0.1	3.151	0.167	1.19	79	2.07	72.5	44.3	73	102.1	78	0.105	0.324	18.27
20	9.4	0.0	3.315	0.164	1.18	79	2.26	72.6	44.6	72	100.2	78	0.105	0.324	18.23
21	9.3	0.1	3.480	0.165	1.19	79	2.16	72.6	44.7	72	100.9	78	0.105	0.324	18.23
22	9.3	0.0	3.646	0.166	1.18	80	2.25	72.5	45	72	101.5	79	0.105	0.324	18.24
23	9.2	0.1	3.810	0.164	1.19	80	2.13	72.6	45.2	72	100.3	79	0.104	0.322	18.20
24	9.2	0.0	3.976	0.166	1.19	80	2.07	72.6	45.3	72	101.6	79	0.106	0.326	18.25
25	9.1	0.1	4.141	0.165	1.18	80	1.98	72.7	45.5	72	101.0	79	0.103	0.321	18.21
26	9.1	0.0	4.304	0.163	1.17	81	2.10	72.7	45.7	72	100.0	80	0.105	0.324	18.17
27	9.0	0.1	4.471	0.167	1.17	81	2.09	72.7	45.8	73	102.3	80	0.104	0.322	18.21
28	8.9	0.0	4.632	0.161	1.17	81	2.23	72.8	46.1	73	98.5	80	0.105	0.324	18.22
29	8.9	0.1	4.798	0.166	1.18	82	1.97	72.8	46.2	73	101.4	80	0.105	0.324	18.26
30	8.8	0.1	4.962	0.164	1.18	82	2.15	72.8	46.4	73	100.0	81	0.105	0.324	18.27
31	8.8	0.0	5.129	0.167	1.18	82	2.10	72.9	46.5	73	101.9	81	0.105	0.324	18.28
32	8.7	0.1	5.295	0.166	1.18	82	2.23	72.9	46.7	73	101.3	81	0.105	0.324	18.28
33	8.6	0.0	5.459	0.164	1.18	82	2.02	73	46.9	73	100.2	81	0.103	0.321	18.20
34	8.6	0.1	5.622	0.163	1.17	83	2.17	73	47.1	73	99.9	82	0.105	0.324	18.20
35	8.5	0.1	5.789	0.167	1.18	83	2.17	73.1	47.2	73	102.4	82	0.102	0.319	18.16
36	8.5	0.1	5.953	0.164	1.19	83	2.05	73.1	47.4	73	100.6	82	0.106	0.326	18.21
37	8.4	0.1	6.118	0.165	1.18	84	2.23	73.2	47.6	73	100.7	83	0.104	0.322	18.30
38	8.3	0.1	6.283	0.165	1.17	84	2.10	73.3	47.7	73	100.8	83	0.103	0.321	18.18
39	8.3	0.0	6.447	0.164	1.17	85	1.94	73.3	47.9	73	100.4	83	0.105	0.324	18.22
40	8.2	0.1	6.613	0.166	1.19	85	2.23	73.3	48	73	101.2	83	0.105	0.324	18.31

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 2
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 11:38
Test Length: 376 min
Recording Interval: 1 min

Test Date: 9/30.2025

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.002 cfm @ 23.7 in. Hg
Post-Test 0.001 cfm @ 5.3 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ("H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ("H_2O)*	$\sqrt{dP}$	*vs*
41	8.1	0.0	6.777	0.164	1.16	85	2.07	73.4	48.2	73	99.9	83	0.103	0.321	18.23
42	8.1	0.1	6.940	0.163	1.18	86	2.04	73.4	48.3	73	99.5	83	0.105	0.324	18.23
43	8.0	0.1	7.104	0.164	1.17	85	1.94	73.4	48.5	73	100.0	83	0.104	0.322	18.27
44	7.9	0.0	7.268	0.164	1.16	86	2.01	73.5	48.6	73	100.2	83	0.102	0.319	18.14
45	7.9	0.1	7.436	0.168	1.18	86	2.22	73.5	48.8	73	103.1	84	0.103	0.321	18.10
46	7.8	0.1	7.601	0.165	1.18	87	1.96	73.5	48.9	73	101.2	84	0.103	0.321	18.15
47	7.7	0.0	7.765	0.164	1.17	86	2.21	73.6	49	73	100.4	84	0.103	0.321	18.15
48	7.7	0.1	7.931	0.166	1.18	87	2.02	73.6	49.1	73	101.9	84	0.101	0.318	18.06
49	7.6	0.1	8.096	0.165	1.16	87	2.02	73.6	49.3	73	101.6	84	0.102	0.319	18.02
50	7.6	0.0	8.259	0.163	1.19	87	2.22	73.7	49.4	73	100.4	84	0.102	0.319	18.07
51	7.5	0.1	8.426	0.167	1.16	88	2.21	73.7	49.5	73	102.5	84	0.103	0.321	18.11
52	7.4	0.0	8.590	0.164	1.17	88	1.97	73.8	49.6	73	100.4	85	0.103	0.321	18.16
53	7.4	0.1	8.755	0.165	1.17	88	2.15	73.8	49.7	73	100.9	84	0.103	0.321	18.16
54	7.3	0.1	8.921	0.166	1.18	89	1.93	73.9	49.8	73	101.5	84	0.102	0.319	18.12
55	7.2	0.0	9.085	0.164	1.18	89	1.93	73.9	49.9	73	100.5	84	0.101	0.318	18.03
56	7.2	0.1	9.251	0.166	1.18	89	1.98	73.9	50	73	101.9	85	0.103	0.321	18.07
57	7.1	0.1	9.414	0.163	1.18	89	1.94	74	50.1	73	99.4	85	0.105	0.324	18.25
58	7.1	0.0	9.581	0.167	1.18	89	2.05	74.1	50.3	74	101.0	85	0.106	0.326	18.38
59	7.0	0.1	9.748	0.167	1.19	89	2.09	74.2	50.3	74	101.0	85	0.102	0.319	18.25
60	7.0	0.0	9.913	0.165	1.17	90	2.21	74.2	50.3	74	100.2	85	0.104	0.322	18.16
61	6.9	0.1	10.077	0.164	1.19	90	2.11	74.2	50.4	73	99.8	85	0.102	0.319	18.16
62	6.9	0.0	10.244	0.167	1.19	91	2.09	74.3	50.5	73	101.8	85	0.102	0.319	18.08
63	6.8	0.1	10.409	0.165	1.16	90	2.16	74.3	50.6	73	100.7	85	0.103	0.321	18.12
64	6.7	0.0	10.573	0.164	1.17	91	2.21	74.4	50.7	73	100.0	85	0.102	0.319	18.12
65	6.7	0.0	10.741	0.168	1.17	91	2.22	74.4	50.8	73	102.4	85	0.103	0.321	18.12
66	6.7	0.0	10.906	0.165	1.17	91	2.20	74.4	50.8	73	100.4	85	0.103	0.321	18.17
67	6.6	0.1	11.070	0.164	1.17	91	2.14	74.5	50.9	74	99.6	85	0.103	0.321	18.17
68	6.5	0.0	11.237	0.167	1.17	92	2.20	74.5	51	74	101.6	85	0.101	0.318	18.08
69	6.5	0.1	11.403	0.166	1.19	92	1.99	74.6	51	73	101.1	85	0.104	0.322	18.12
70	6.4	0.1	11.566	0.163	1.18	92	2.07	74.6	51.1	74	98.9	85	0.103	0.321	18.21
71	6.4	0.0	11.734	0.168	1.17	93	1.94	74.7	51.3	74	101.9	85	0.102	0.319	18.12
72	6.3	0.0	11.899	0.165	1.18	92	2.05	74.7	51.3	74	100.4	85	0.102	0.319	18.08
73	6.3	0.0	12.065	0.166	1.18	92	2.01	74.7	51.3	73	100.6	85	0.106	0.326	18.25
74	6.2	0.0	12.232	0.167	1.19	93	2.17	74.8	51.4	74	100.4	84	0.104	0.322	18.34
75	6.2	0.1	12.397	0.165	1.19	93	1.95	74.8	51.5	74	99.1	84	0.104	0.322	18.25
76	6.1	0.0	12.562	0.165	1.17	93	2.06	74.8	51.5	74	99.6	84	0.102	0.319	18.16
77	6.1	0.1	12.729	0.167	1.18	94	2.17	74.8	51.6	73	101.0	84	0.104	0.322	18.16
78	6.1	0.0	12.894	0.165	1.17	94	2.11	74.9	51.7	74	99.7	84	0.102	0.319	18.16
79	6.0	0.1	13.060	0.166	1.17	94	1.96	74.8	51.7	74	100.2	84	0.105	0.324	18.20
80	6.0	0.0	13.227	0.167	1.17	94	2.18	74.8	51.8	74	100.8	84	0.101	0.318	18.16
81	5.9	0.0	13.392	0.165	1.15	94	1.95	74.9	51.8	74	100.0	84	0.102	0.319	18.02
82	5.9	0.0	13.558	0.166	1.17	94	2.06	74.9	51.9	74	100.7	84	0.103	0.321	18.11
83	5.8	0.0	13.725	0.167	1.17	95	1.96	74.9	51.9	74	101.2	84	0.101	0.318	18.06
84	5.8	0.0	13.890	0.165	1.19	95	1.99	74.9	52	73	100.2	84	0.102	0.319	18.02

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ASTM E2515

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Sample Train Leak Checks

Pre-test 0.002 cfm @ 23.7 in. Hg
Post-Test 0.001 cfm @ 5.3 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ("H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ("H_2O)*	$\sqrt{dP}$	*vs*
85	5.8	0.0	14.056	0.166	1.18	95	2.16	74.9	52	74	101.0	84	0.100	0.316	17.97
86	5.7	0.1	14.223	0.167	1.16	95	2.19	74.9	52	74	101.4	84	0.104	0.322	18.06
87	5.7	0.0	14.389	0.166	1.18	95	2.18	74.9	52	74	100.0	83	0.104	0.322	18.23
88	5.7	0.0	14.554	0.165	1.18	96	1.93	74.9	52.1	74	99.1	83	0.102	0.319	18.14
89	5.6	0.1	14.722	0.168	1.16	95	2.01	74.9	52.2	74	101.4	83	0.102	0.319	18.05
90	5.6	0.0	14.888	0.166	1.18	95	2.17	74.9	52.2	74	100.2	83	0.104	0.322	18.13
91	5.5	0.0	15.052	0.164	1.19	96	1.93	75	52.3	74	98.5	83	0.103	0.321	18.17
92	5.5	0.0	15.220	0.168	1.18	96	2.17	74.9	52.3	74	100.4	82	0.107	0.327	18.30
93	5.5	0.0	15.386	0.166	1.18	96	1.98	74.9	52.3	74	99.0	82	0.101	0.318	18.21
94	5.4	0.0	15.551	0.165	1.19	96	1.98	74.9	52.3	74	99.1	82	0.103	0.321	18.03
95	5.4	0.1	15.719	0.168	1.18	97	1.99	74.9	52.3	74	101.2	82	0.102	0.319	18.07
96	5.4	0.0	15.885	0.166	1.17	97	1.94	74.8	52.3	74	99.8	82	0.103	0.321	18.07
97	5.4	0.0	16.051	0.166	1.18	96	2.12	74.8	52.3	74	99.6	81	0.104	0.322	18.16
98	5.3	0.1	16.218	0.167	1.18	96	1.93	74.8	52.4	74	100.2	81	0.101	0.318	18.07
99	5.3	0.0	16.384	0.166	1.17	96	2.12	74.8	52.4	74	99.9	81	0.104	0.322	18.06
100	5.3	0.0	16.550	0.166	1.15	97	2.06	74.9	52.4	74	99.7	81	0.102	0.319	18.11
101	5.2	0.1	16.717	0.167	1.18	97	2.17	74.9	52.4	74	100.1	81	0.104	0.322	18.11
102	5.2	0.0	16.884	0.167	1.17	97	1.95	74.8	52.5	74	100.0	81	0.103	0.321	18.15
103	5.2	0.0	17.049	0.165	1.18	97	2.15	74.8	52.5	74	98.6	81	0.104	0.322	18.14
104	5.2	0.0	17.216	0.167	1.16	97	2.10	74.8	52.6	74	100.0	81	0.101	0.318	18.05
105	5.1	0.0	17.383	0.167	1.17	97	2.00	74.8	52.6	74	100.1	81	0.105	0.324	18.10
106	5.1	0.0	17.550	0.167	1.18	98	2.02	74.8	52.6	74	99.8	80	0.102	0.319	18.14
107	5.1	0.0	17.715	0.165	1.17	97	2.07	74.8	52.6	74	98.7	80	0.103	0.321	18.05
108	5.1	0.0	17.883	0.168	1.19	98	1.93	74.8	52.7	74	100.5	80	0.104	0.322	18.13
109	5.1	0.0	18.050	0.167	1.15	97	2.01	74.8	52.7	74	99.9	80	0.101	0.318	18.04
110	5.0	0.0	18.216	0.166	1.16	97	2.05	74.8	52.8	74	99.6	80	0.103	0.321	17.99
111	5.0	0.0	18.383	0.167	1.18	98	2.14	74.8	52.8	74	99.9	79	0.104	0.322	18.12
112	5.0	0.0	18.550	0.167	1.17	98	2.10	74.7	52.8	74	99.3	79	0.105	0.324	18.21
113	5.0	0.0	18.716	0.166	1.19	98	1.93	74.7	52.7	74	98.3	79	0.105	0.324	18.25
114	5.0	0.0	18.883	0.167	1.18	98	1.91	74.7	52.8	74	99.0	79	0.103	0.321	18.16
115	5.0	0.0	19.051	0.168	1.17	99	2.13	74.6	52.7	74	99.7	79	0.105	0.324	18.16
116	5.0	0.0	19.217	0.166	1.17	99	1.94	74.6	52.7	74	98.6	79	0.102	0.319	18.11
117	5.0	0.0	19.383	0.166	1.17	99	2.15	74.6	52.7	74	98.7	79	0.105	0.324	18.11
118	5.0	0.0	19.552	0.169	1.18	98	1.90	74.6	52.8	74	100.5	79	0.102	0.319	18.11
119	4.9	0.0	19.718	0.166	1.19	99	2.16	74.6	52.7	74	99.0	79	0.103	0.321	18.02
120	4.9	0.0	19.884	0.166	1.19	99	2.02	74.6	52.7	74	98.9	79	0.104	0.322	18.11
121	4.9	0.0	20.051	0.167	1.17	98	2.18	74.5	52.7	74	99.6	79	0.101	0.318	18.02
122	4.9	0.0	20.219	0.168	1.19	98	2.09	74.5	52.7	74	100.3	79	0.105	0.324	18.06
123	4.9	0.0	20.385	0.166	1.18	99	2.01	74.5	52.7	74	99.0	79	0.101	0.318	18.06
124	4.9	0.0	20.551	0.166	1.18	99	2.02	74.5	52.8	74	98.9	78	0.105	0.324	18.06
125	4.9	0.0	20.719	0.168	1.19	99	2.07	74.5	52.7	74	99.8	79	0.103	0.321	18.15
126	4.8	0.0	20.886	0.167	1.19	99	1.91	74.5	52.7	74	99.4	78	0.102	0.319	18.02
127	4.8	0.0	21.052	0.166	1.18	99	2.16	74.5	52.8	74	98.9	78	0.104	0.322	18.06
128	4.8	0.0	21.220	0.168	1.19	99	1.98	74.4	52.8	74	99.9	78	0.103	0.321	18.10

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 2
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 11:38
Test Length: 376 min
Recording Interval: 1 min

Test Date: 9/30.2025

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.002 cfm @ 23.7 in. Hg
Post-Test 0.001 cfm @ 5.3 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ("H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ("H_2O)*	$\sqrt{dP}$	*vs*
129	4.8	0.0	21.387	0.167	1.16	99	1.98	74.5	52.8	74	99.5	79	0.102	0.319	18.02
130	4.8	0.0	21.553	0.166	1.18	99	2.11	74.4	52.9	74	99.1	79	0.103	0.321	18.02
131	4.8	0.0	21.719	0.166	1.18	100	2.12	74.5	52.9	74	99.2	79	0.101	0.318	17.98
132	4.8	0.0	21.887	0.168	1.17	99	1.91	74.5	53	74	100.7	79	0.101	0.318	17.89
133	4.8	0.0	22.054	0.167	1.18	100	2.15	74.5	53	74	100.1	79	0.103	0.321	17.98
134	4.8	0.0	22.220	0.166	1.18	100	2.11	74.5	53.1	74	99.0	79	0.103	0.321	18.06
135	4.7	0.0	22.388	0.168	1.17	100	2.16	74.4	53.2	74	100.2	79	0.101	0.318	17.98
136	4.7	0.0	22.555	0.167	1.17	99	2.05	74.5	53.3	74	100.1	79	0.101	0.318	17.89
137	4.7	0.0	22.721	0.166	1.17	100	1.96	74.4	53.4	74	99.9	79	0.100	0.316	17.85
138	4.7	0.0	22.888	0.167	1.18	100	2.18	74.4	53.4	74	100.5	79	0.102	0.319	17.89
139	4.6	0.0	23.056	0.168	1.18	99	1.92	74.4	53.5	74	100.8	79	0.102	0.319	17.98
140	4.6	0.0	23.223	0.167	1.18	99	2.15	74.5	53.7	74	99.8	79	0.103	0.321	18.03
141	4.6	0.0	23.389	0.166	1.18	100	1.96	74.5	53.7	74	99.0	79	0.102	0.319	18.03
142	4.6	0.0	23.557	0.168	1.16	100	1.96	74.5	53.8	74	100.3	79	0.102	0.319	17.98
143	4.5	0.0	23.724	0.167	1.17	100	1.95	74.6	53.9	74	99.8	79	0.102	0.319	17.99
144	4.5	0.0	23.890	0.166	1.17	100	2.01	74.5	54	74	99.4	80	0.101	0.318	17.95
145	4.5	0.0	24.057	0.167	1.18	100	2.12	74.5	54	74	100.4	80	0.100	0.316	17.86
146	4.5	0.0	24.225	0.168	1.16	100	2.15	74.5	54.1	74	101.4	80	0.100	0.316	17.82
147	4.4	0.0	24.392	0.167	1.17	100	2.14	74.6	54.2	74	100.9	80	0.100	0.316	17.82
148	4.4	0.0	24.557	0.165	1.17	100	2.16	74.6	54.3	74	99.8	80	0.099	0.315	17.78
149	4.4	0.0	24.726	0.169	1.18	100	2.02	74.6	54.4	74	102.4	81	0.100	0.316	17.78
150	4.3	0.0	24.892	0.166	1.18	100	2.15	74.6	54.4	74	100.3	81	0.102	0.319	17.92
151	4.3	0.0	25.059	0.167	1.17	101	1.91	74.6	54.5	74	100.0	81	0.104	0.322	18.10
152	4.3	0.0	25.226	0.167	1.17	101	1.94	74.6	54.5	74	99.3	81	0.103	0.321	18.15
153	4.2	0.1	25.394	0.168	1.17	101	2.11	74.7	54.7	74	100.3	82	0.100	0.316	17.98
154	4.2	0.0	25.560	0.166	1.15	101	2.10	74.7	54.7	74	100.0	82	0.100	0.316	17.85
155	4.1	0.1	25.726	0.166	1.17	101	2.05	74.7	54.8	74	100.3	82	0.101	0.318	17.90
156	4.1	0.0	25.895	0.169	1.18	101	1.98	74.7	54.8	74	101.7	82	0.102	0.319	17.99
157	4.0	0.1	26.061	0.166	1.17	101	1.92	74.8	54.9	74	99.4	83	0.104	0.322	18.13
158	3.9	0.1	26.227	0.166	1.17	101	2.17	74.8	55	74	99.3	83	0.100	0.316	18.05
159	3.9	0.1	26.395	0.168	1.16	101	2.14	74.8	55.1	74	101.3	84	0.099	0.315	17.83
160	3.8	0.1	26.562	0.167	1.17	100	2.11	74.8	55.2	74	101.2	84	0.102	0.319	17.93
161	3.7	0.1	26.728	0.166	1.18	101	2.02	74.9	55.2	75	99.7	84	0.104	0.322	18.15
162	3.6	0.1	26.895	0.167	1.16	101	1.96	74.9	55.3	74	99.8	84	0.101	0.318	18.11
163	3.6	0.0	27.063	0.168	1.18	101	1.98	74.9	55.4	74	101.3	84	0.098	0.313	17.84
164	3.5	0.1	27.229	0.166	1.18	101	2.06	75	55.4	74	100.8	84	0.101	0.318	17.85
165	3.4	0.1	27.395	0.166	1.16	101	1.93	75	55.6	74	100.1	84	0.104	0.322	18.11
166	3.4	0.0	27.563	0.168	1.18	101	1.92	75	55.6	74	100.4	84	0.102	0.319	18.16
167	3.3	0.1	27.730	0.167	1.18	101	1.91	75	55.7	75	100.1	84	0.100	0.316	17.98
168	3.2	0.1	27.896	0.166	1.17	101	2.06	75.1	55.7	75	99.8	84	0.103	0.321	18.02
169	3.2	0.0	28.063	0.167	1.18	101	2.17	75.1	55.8	74	99.9	84	0.103	0.321	18.15
170	3.1	0.1	28.231	0.168	1.18	101	2.10	75.1	55.8	75	100.4	84	0.101	0.318	18.06
171	3.1	0.0	28.398	0.167	1.19	101	2.15	75.1	55.8	75	100.6	83	0.099	0.315	17.88
172	3.0	0.1	28.564	0.166	1.18	101	2.17	75.1	55.9	75	100.4	83	0.102	0.319	17.92

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 2
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 11:38
Test Length: 376 min
Recording Interval: 1 min

Test Date: 9/30.2025

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.002 cfm @ 23.7 in. Hg
Post-Test 0.001 cfm @ 5.3 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ("H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ("H_2O)*	$\sqrt{dP}$	*vs*
173	2.9	0.0	28.732	0.168	1.18	101	2.13	75.1	55.9	74	100.8	83	0.104	0.322	18.14
174	2.9	0.1	28.899	0.167	1.18	101	1.97	75.1	55.9	75	99.5	83	0.102	0.319	18.14
175	2.9	0.0	29.065	0.166	1.17	101	2.02	75.1	56	75	99.1	83	0.103	0.321	18.09
176	2.8	0.1	29.233	0.168	1.17	102	2.06	75.1	56.1	75	100.1	83	0.104	0.322	18.18
177	2.8	0.0	29.401	0.168	1.17	101	1.91	75.1	56.1	75	99.8	82	0.103	0.321	18.17
178	2.7	0.0	29.568	0.167	1.15	101	2.12	75.1	56	75	99.4	82	0.102	0.319	18.08
179	2.7	0.0	29.734	0.166	1.18	102	1.98	75.1	56.1	74	99.2	82	0.101	0.318	17.99
180	2.7	0.0	29.902	0.168	1.16	101	2.10	75.1	56.2	74	100.8	82	0.101	0.318	17.94
181	2.6	0.0	30.069	0.167	1.18	101	1.97	75.1	56.1	74	100.1	81	0.103	0.321	18.03
182	2.6	0.0	30.236	0.167	1.18	101	2.09	75.1	56.1	74	99.5	81	0.104	0.322	18.15
183	2.6	0.0	30.403	0.167	1.19	102	2.18	75.1	56.1	75	99.4	81	0.100	0.316	18.01
184	2.6	0.0	30.571	0.168	1.18	102	1.94	75	56.1	75	100.3	81	0.104	0.322	18.01
185	2.6	0.0	30.738	0.167	1.17	101	2.18	75.1	56.2	75	99.6	80	0.101	0.318	18.05
186	2.5	0.0	30.904	0.166	1.17	102	1.99	75.1	56.1	74	99.2	81	0.101	0.318	17.92
187	2.5	0.0	31.072	0.168	1.18	102	1.90	75	56.1	74	100.5	81	0.103	0.321	18.01
188	2.5	0.0	31.240	0.168	1.17	101	2.11	75	56.1	74	100.2	80	0.102	0.319	18.05
189	2.5	0.0	31.406	0.166	1.16	102	1.90	75	56.2	74	99.0	80	0.102	0.319	18.01
190	2.5	0.0	31.573	0.167	1.16	101	1.99	75	56.2	74	99.7	80	0.102	0.319	18.00
191	2.5	0.0	31.741	0.168	1.18	101	1.90	75	56.2	74	100.0	80	0.104	0.322	18.09
192	2.5	0.0	31.908	0.167	1.18	102	1.96	75	56.2	74	98.8	80	0.105	0.324	18.22
193	2.5	0.0	32.075	0.167	1.19	102	2.18	74.9	56.2	74	98.5	80	0.103	0.321	18.17
194	2.4	0.0	32.243	0.168	1.18	102	1.99	74.9	56.2	74	99.4	80	0.103	0.321	18.08
195	2.4	0.0	32.410	0.167	1.17	101	1.96	74.9	56.2	74	99.3	80	0.102	0.319	18.04
196	2.4	0.0	32.578	0.168	1.19	102	1.94	74.9	56.3	74	100.1	79	0.102	0.319	17.99
197	2.4	0.0	32.744	0.166	1.18	101	2.12	74.9	56.3	74	99.2	79	0.100	0.316	17.90
198	2.4	0.0	32.913	0.169	1.17	102	1.90	74.9	56.3	74	101.3	79	0.102	0.319	17.90
199	2.4	0.0	33.080	0.167	1.17	101	2.04	74.9	56.3	74	99.8	79	0.102	0.319	17.99
200	2.4	0.0	33.246	0.166	1.16	102	2.17	74.8	56.3	74	99.1	79	0.101	0.318	17.94
201	2.4	0.0	33.413	0.167	1.20	101	2.17	74.8	56.3	74	99.7	79	0.103	0.321	17.98
202	2.4	0.0	33.582	0.169	1.19	102	2.15	74.8	56.3	74	100.6	79	0.102	0.319	18.03
203	2.4	0.0	33.749	0.167	1.18	102	2.19	74.8	56.3	74	99.4	79	0.102	0.319	17.98
204	2.4	0.0	33.916	0.167	1.18	102	1.95	74.8	56.3	74	99.3	79	0.104	0.322	18.07
205	2.4	0.0	34.084	0.168	1.18	102	1.92	74.8	56.4	74	99.5	79	0.103	0.321	18.11
206	2.4	0.0	34.252	0.168	1.17	102	1.98	74.9	56.4	74	99.7	79	0.101	0.318	17.98
207	2.3	0.0	34.419	0.167	1.20	102	2.12	74.8	56.4	74	99.4	79	0.104	0.322	18.02
208	2.3	0.0	34.585	0.166	1.18	102	2.17	74.9	56.4	74	98.6	79	0.102	0.319	18.07
209	2.3	0.0	34.754	0.169	1.18	102	2.05	74.8	56.4	74	100.1	79	0.105	0.324	18.11
210	2.3	0.0	34.921	0.167	1.16	102	1.97	74.9	56.5	74	98.8	79	0.102	0.319	18.11
211	2.3	0.0	35.088	0.167	1.17	102	1.89	74.9	56.5	74	98.8	79	0.104	0.322	18.07
212	2.3	0.0	35.255	0.167	1.17	102	2.07	74.8	56.5	74	99.0	79	0.101	0.318	18.02
213	2.3	0.0	35.423	0.168	1.18	102	2.17	74.8	56.6	74	99.9	78	0.103	0.321	17.97
214	2.3	0.0	35.590	0.167	1.19	102	1.98	74.9	56.7	74	99.0	78	0.104	0.322	18.10
215	2.3	0.0	35.757	0.167	1.16	102	1.96	74.8	56.7	74	98.8	78	0.102	0.319	18.06
216	2.3	0.0	35.925	0.168	1.18	102	1.91	74.8	56.8	74	99.5	78	0.104	0.322	18.06

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 2
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 11:38
Test Length: 376 min
Recording Interval: 1 min

Test Date: 9/30.2025

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.002 cfm @ 23.7 in. Hg
Post-Test 0.001 cfm @ 5.3 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ("H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ("H_2O)*	$\sqrt{dP}$	*vs*
217	2.3	0.0	36.093	0.168	1.17	102	2.05	74.8	56.9	74	99.6	78	0.101	0.318	18.01
218	2.3	0.0	36.260	0.167	1.18	102	2.19	74.7	57	74	99.1	78	0.104	0.322	18.01
219	2.3	0.0	36.427	0.167	1.17	102	2.13	74.7	57	74	99.2	78	0.101	0.318	18.01
220	2.3	0.0	36.595	0.168	1.17	102	1.93	74.7	57.1	74	99.8	78	0.104	0.322	18.01
221	2.3	0.0	36.763	0.168	1.18	102	1.92	74.6	57.2	74	99.5	78	0.103	0.321	18.10
222	2.3	0.0	36.930	0.167	1.17	102	2.14	74.6	57.3	74	99.0	78	0.101	0.318	17.97
223	2.3	0.0	37.096	0.166	1.18	102	2.08	74.6	57.3	74	98.8	78	0.103	0.321	17.97
224	2.2	0.0	37.265	0.169	1.18	102	2.15	74.6	57.4	74	100.3	78	0.103	0.321	18.06
225	2.2	0.0	37.432	0.167	1.18	102	2.03	74.6	57.5	74	99.2	78	0.100	0.316	17.92
226	2.2	0.0	37.599	0.167	1.18	102	2.04	74.6	57.6	74	99.9	78	0.101	0.318	17.84
227	2.2	0.0	37.766	0.167	1.19	102	2.10	74.6	57.7	74	99.8	78	0.103	0.321	17.97
228	2.2	0.0	37.935	0.169	1.17	102	1.90	74.6	57.8	74	100.3	78	0.103	0.321	18.06
229	2.2	0.0	38.102	0.167	1.17	102	2.06	74.6	57.9	74	99.3	78	0.100	0.316	17.93
230	2.2	0.0	38.268	0.166	1.17	102	1.99	74.6	57.9	74	99.2	79	0.102	0.319	17.89
231	2.1	0.0	38.437	0.169	1.18	102	2.05	74.6	58	74	100.8	79	0.102	0.319	17.98
232	2.1	0.0	38.604	0.167	1.20	102	2.15	74.6	58.1	74	99.1	79	0.104	0.322	18.06
233	2.1	0.0	38.771	0.167	1.18	102	2.19	74.6	58.3	74	98.8	79	0.103	0.321	18.11
234	2.1	0.0	38.938	0.167	1.18	102	2.17	74.6	58.3	74	98.8	79	0.103	0.321	18.07
235	2.1	0.0	39.106	0.168	1.17	102	1.89	74.6	58.4	74	99.6	79	0.102	0.319	18.03
236	2.0	0.0	39.274	0.168	1.19	102	2.07	74.5	58.5	74	99.6	79	0.104	0.322	18.07
237	2.0	0.0	39.440	0.166	1.19	102	2.05	74.6	58.6	74	98.3	79	0.103	0.321	18.12
238	2.0	0.0	39.608	0.168	1.18	102	2.13	74.5	58.7	74	99.5	79	0.103	0.321	18.08
239	2.0	0.0	39.776	0.168	1.19	102	1.95	74.5	58.8	74	99.5	80	0.104	0.322	18.12
240	1.9	0.0	39.944	0.168	1.19	102	2.06	74.5	59	74	99.5	80	0.102	0.319	18.08
241	1.9	0.0	40.110	0.166	1.17	102	1.97	74.5	59	74	98.5	80	0.103	0.321	18.04
242	1.9	0.0	40.279	0.169	1.18	102	2.03	74.5	59.1	74	100.5	80	0.102	0.319	18.04
243	1.8	0.0	40.446	0.167	1.17	102	1.97	74.5	59.2	74	99.7	80	0.100	0.316	17.91
244	1.8	0.0	40.613	0.167	1.18	102	2.06	74.4	59.3	74	100.2	80	0.101	0.318	17.87
245	1.8	0.0	40.780	0.167	1.17	102	2.04	74.4	59.4	74	100.2	81	0.101	0.318	17.92
246	1.8	0.0	40.949	0.169	1.19	102	2.18	74.4	59.5	74	101.2	81	0.102	0.319	17.97
247	1.7	0.1	41.116	0.167	1.18	102	2.06	74.4	59.6	74	99.8	81	0.102	0.319	18.01
248	1.7	0.0	41.283	0.167	1.18	103	2.13	74.4	59.7	74	99.9	81	0.100	0.316	17.93
249	1.7	0.0	41.450	0.167	1.18	102	2.17	74.4	59.8	74	100.0	81	0.103	0.321	17.97
250	1.6	0.0	41.619	0.169	1.20	102	2.01	74.4	59.9	74	100.8	81	0.103	0.321	18.11
251	1.6	0.0	41.786	0.167	1.19	102	2.14	74.5	60	74	99.2	81	0.103	0.321	18.11
252	1.6	0.0	41.952	0.166	1.18	102	2.16	74.5	60	74	98.6	82	0.103	0.321	18.11
253	1.5	0.0	42.120	0.168	1.18	102	1.93	74.5	60.1	74	99.9	82	0.102	0.319	18.07
254	1.5	0.0	42.288	0.168	1.17	102	2.15	74.5	60.3	74	100.4	82	0.100	0.316	17.94
255	1.5	0.0	42.455	0.167	1.17	102	2.14	74.5	60.3	74	100.2	82	0.102	0.319	17.94
256	1.5	0.0	42.622	0.167	1.17	102	2.13	74.5	60.4	74	99.8	82	0.103	0.321	18.07
257	1.5	0.0	42.791	0.169	1.17	102	1.93	74.5	60.5	74	100.6	82	0.102	0.319	18.07
258	1.4	0.1	42.958	0.167	1.18	102	1.91	74.5	60.6	74	99.6	81	0.102	0.319	18.02
259	1.4	0.0	43.124	0.166	1.17	102	1.89	74.5	60.6	74	99.0	81	0.102	0.319	18.02
260	1.4	0.0	43.291	0.167	1.17	102	2.01	74.5	60.7	74	99.8	81	0.101	0.318	17.98

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 2
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 11:38
Test Length: 376 min
Recording Interval: 1 min

Test Date: 9/30.2025

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.002 cfm @ 23.7 in. Hg
Post-Test 0.001 cfm @ 5.3 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ("H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ("H_2O)*	$\sqrt{dP}$	*vs*
261	1.4	0.0	43.460	0.169	1.20	102	1.90	74.4	60.8	75	101.0	81	0.102	0.319	17.97
262	1.3	0.0	43.627	0.167	1.18	102	2.17	74.4	60.9	74	99.6	81	0.103	0.321	18.06
263	1.3	0.0	43.794	0.167	1.17	102	2.15	74.4	61	74	99.5	81	0.101	0.318	18.02
264	1.3	0.0	43.962	0.168	1.18	102	2.12	74.4	61	74	100.4	81	0.101	0.318	17.93
265	1.3	0.0	44.130	0.168	1.18	102	1.94	74.4	61.1	74	100.4	81	0.103	0.321	18.01
266	1.3	0.0	44.297	0.167	1.18	102	2.18	74.3	61.1	74	99.4	80	0.102	0.319	18.05
267	1.3	0.0	44.464	0.167	1.18	102	2.11	74.3	61.2	74	99.5	80	0.101	0.318	17.96
268	1.3	0.0	44.632	0.168	1.19	102	2.08	74.3	61.3	74	100.5	80	0.101	0.318	17.92
269	1.3	0.0	44.799	0.167	1.17	102	1.91	74.2	61.4	74	99.7	80	0.103	0.321	18.00
270	1.3	0.0	44.966	0.167	1.18	103	2.02	74.3	61.5	74	99.3	80	0.102	0.319	18.04
271	1.2	0.0	45.132	0.166	1.17	102	2.14	74.2	61.5	74	98.9	80	0.101	0.318	17.95
272	1.2	0.0	45.301	0.169	1.19	103	2.13	74.2	61.6	74	100.8	80	0.103	0.321	18.00
273	1.2	0.0	45.468	0.167	1.17	102	1.89	74.2	61.7	74	99.2	80	0.103	0.321	18.08
274	1.2	0.0	45.635	0.167	1.17	102	2.01	74.1	61.8	74	99.1	80	0.102	0.319	18.04
275	1.2	0.0	45.803	0.168	1.18	102	1.89	74.1	61.8	74	100.0	79	0.102	0.319	17.99
276	1.2	0.0	45.970	0.167	1.16	102	1.90	74.1	61.9	74	99.5	79	0.102	0.319	17.99
277	1.2	0.0	46.138	0.168	1.18	103	2.07	74.1	61.9	74	100.1	79	0.101	0.318	17.94
278	1.2	0.0	46.304	0.166	1.16	102	2.01	74	62	74	99.0	79	0.102	0.319	17.94
279	1.2	0.0	46.473	0.169	1.18	102	2.09	74	62	75	100.7	79	0.102	0.319	17.98
280	1.2	0.0	46.640	0.167	1.18	102	2.10	74	62.1	74	99.6	79	0.100	0.316	17.89
281	1.2	0.0	46.806	0.166	1.17	102	1.92	74	62.2	74	99.4	79	0.101	0.318	17.85
282	1.1	0.0	46.973	0.167	1.17	102	2.15	73.9	62.2	74	99.9	79	0.102	0.319	17.94
283	1.1	0.0	47.142	0.169	1.18	103	1.96	73.9	62.3	74	100.5	79	0.104	0.322	18.07
284	1.1	0.0	47.309	0.167	1.18	103	2.10	73.9	62.3	74	98.6	79	0.104	0.322	18.16
285	1.1	0.0	47.475	0.166	1.18	102	2.18	73.9	62.4	74	98.1	79	0.102	0.319	18.07
286	1.1	0.0	47.643	0.168	1.18	102	1.92	73.9	62.5	74	99.7	79	0.103	0.321	18.02
287	1.1	0.0	47.811	0.168	1.18	102	2.00	73.9	62.5	74	100.0	79	0.100	0.316	17.93
288	1.1	0.0	47.978	0.167	1.19	102	2.03	73.9	62.6	74	99.8	79	0.102	0.319	17.89
289	1.1	0.0	48.144	0.166	1.17	102	1.92	73.9	62.7	75	99.2	79	0.101	0.318	17.93
290	1.1	0.0	48.313	0.169	1.18	102	2.12	73.9	62.7	74	101.0	79	0.101	0.318	17.89
291	1.1	0.0	48.480	0.167	1.18	102	2.11	73.9	62.8	74	99.5	79	0.104	0.322	18.02
292	1.1	0.0	48.647	0.167	1.17	102	2.02	73.9	62.8	74	98.9	79	0.103	0.321	18.11
293	1.1	0.0	48.814	0.167	1.18	102	1.89	73.8	62.9	74	99.1	79	0.101	0.318	17.98
294	1.1	0.0	48.982	0.168	1.17	102	2.06	73.8	62.9	74	100.3	79	0.101	0.318	17.89
295	1.1	0.0	49.149	0.167	1.18	102	1.96	73.8	62.9	74	99.9	79	0.101	0.318	17.89
296	1.0	0.0	49.316	0.167	1.18	102	2.00	73.8	63	74	99.6	78	0.103	0.321	17.97
297	1.0	0.0	49.484	0.168	1.16	103	2.19	73.8	63.1	75	99.8	79	0.102	0.319	18.02
298	1.0	0.0	49.651	0.167	1.17	102	1.99	73.9	63.2	74	99.4	79	0.101	0.318	17.93
299	1.0	0.0	49.818	0.167	1.17	103	2.15	73.9	63.2	74	99.7	79	0.101	0.318	17.89
300	1.0	0.0	49.984	0.166	1.17	102	1.92	73.8	63.2	74	99.1	78	0.102	0.319	17.93
301	1.0	0.0	50.153	0.169	1.18	102	2.13	73.9	63.3	74	100.7	79	0.102	0.319	17.97
302	1.0	0.0	50.320	0.167	1.18	102	2.14	73.9	63.4	74	99.3	79	0.103	0.321	18.02
303	1.0	0.0	50.487	0.167	1.18	102	1.90	73.9	63.4	74	99.2	79	0.102	0.319	18.02
304	1.0	0.0	50.655	0.168	1.17	103	1.94	73.9	63.5	73	99.6	79	0.104	0.322	18.06

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 2
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 11:38
Test Length: 376 min
Recording Interval: 1 min

Test Date: 9/30.2025

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.002 cfm @ 23.7 in. Hg
Post-Test 0.001 cfm @ 5.3 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ("H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ("H_2O)*	$\sqrt{dP}$	*vs*
305	1.0	0.0	50.823	0.168	1.19	102	1.97	73.9	63.5	73	99.3	79	0.104	0.322	18.15
306	1.0	0.0	50.990	0.167	1.16	102	2.00	73.8	63.5	73	98.5	79	0.104	0.322	18.15
307	1.0	0.0	51.156	0.166	1.17	102	2.18	73.7	63.5	72	98.0	79	0.103	0.321	18.11
308	1.0	0.0	51.325	0.169	1.19	102	2.11	73.7	63.6	72	100.0	79	0.103	0.321	18.07
309	0.9	0.0	51.492	0.167	1.18	102	2.18	73.6	63.6	73	99.1	79	0.102	0.319	18.02
310	0.9	0.0	51.659	0.167	1.18	102	2.18	73.6	63.6	73	99.5	79	0.101	0.318	17.94
311	0.9	0.0	51.825	0.166	1.15	102	2.16	73.6	63.7	73	99.2	79	0.101	0.318	17.89
312	0.9	0.0	51.994	0.169	1.17	102	2.03	73.6	63.7	73	101.0	79	0.102	0.319	17.94
313	0.9	0.0	52.161	0.167	1.18	102	2.16	73.6	63.8	74	99.6	79	0.102	0.319	17.98
314	0.9	0.0	52.328	0.167	1.18	102	2.00	73.6	63.8	74	99.7	79	0.100	0.316	17.89
315	0.9	0.0	52.495	0.167	1.19	102	1.93	73.6	63.8	74	99.9	79	0.102	0.319	17.89
316	0.9	0.0	52.663	0.168	1.18	102	1.97	73.6	63.9	74	100.3	79	0.102	0.319	17.98
317	0.8	0.0	52.830	0.167	1.18	102	2.07	73.6	63.9	74	99.5	79	0.102	0.319	17.98
318	0.8	0.0	52.996	0.166	1.17	102	2.15	73.6	64	74	99.0	79	0.101	0.318	17.94
319	0.8	0.0	53.165	0.169	1.18	102	2.14	73.6	64	74	100.9	79	0.102	0.319	17.94
320	0.8	0.0	53.332	0.167	1.17	102	1.98	73.6	64	74	99.6	79	0.102	0.319	17.98
321	0.8	0.0	53.499	0.167	1.17	102	1.94	73.6	64.1	74	99.5	79	0.102	0.319	17.98
322	0.8	0.0	53.666	0.167	1.20	102	1.91	73.7	64.1	74	99.3	79	0.103	0.321	18.03
323	0.8	0.0	53.834	0.168	1.16	102	1.93	73.7	64.1	74	100.0	79	0.101	0.318	17.98
324	0.8	0.0	54.001	0.167	1.18	102	2.16	73.7	64.2	74	99.9	79	0.100	0.316	17.85
325	0.7	0.0	54.167	0.166	1.17	102	1.91	73.7	64.2	74	99.7	79	0.100	0.316	17.81
326	0.7	0.0	54.336	0.169	1.17	102	2.10	73.7	64.2	74	101.3	79	0.103	0.321	17.94
327	0.7	0.0	54.503	0.167	1.17	102	2.04	73.7	64.3	74	99.6	79	0.101	0.318	17.98
328	0.7	0.0	54.669	0.166	1.17	102	2.12	73.7	64.3	74	98.9	79	0.103	0.321	17.98
329	0.7	0.0	54.836	0.167	1.18	102	2.18	73.7	64.4	74	99.3	79	0.103	0.321	18.07
330	0.7	0.0	55.005	0.169	1.17	102	2.18	73.7	64.4	74	100.4	79	0.102	0.319	18.03
331	0.7	0.0	55.171	0.166	1.19	102	2.17	73.7	64.4	74	98.8	79	0.102	0.319	17.99
332	0.7	0.0	55.338	0.167	1.16	102	1.93	73.7	64.4	74	99.5	79	0.102	0.319	17.99
333	0.7	0.0	55.506	0.168	1.17	102	1.97	73.7	64.5	74	100.2	79	0.101	0.318	17.95
334	0.6	0.0	55.673	0.167	1.17	102	2.02	73.7	64.5	74	99.9	80	0.101	0.318	17.90
335	0.6	0.0	55.840	0.167	1.19	102	2.17	73.7	64.5	74	99.8	80	0.103	0.321	17.99
336	0.6	0.0	56.010	0.170	1.17	102	1.93	73.8	64.5	74	101.3	79	0.101	0.318	17.99
337	0.6	0.0	56.175	0.165	1.18	102	2.02	73.7	64.6	74	98.5	79	0.102	0.319	17.95
338	0.6	0.0	56.342	0.167	1.17	102	2.18	73.7	64.6	74	99.7	80	0.102	0.319	17.99
339	0.6	0.0	56.509	0.167	1.19	102	1.95	73.7	64.6	74	99.4	79	0.103	0.321	18.03
340	0.6	0.0	56.676	0.167	1.16	102	1.90	73.7	64.7	74	99.3	79	0.102	0.319	18.03
341	0.6	0.0	56.844	0.168	1.16	102	1.89	73.7	64.7	74	100.0	79	0.102	0.319	17.99
342	0.5	0.0	57.011	0.167	1.17	102	2.03	73.7	64.7	74	99.7	80	0.101	0.318	17.95
343	0.5	0.0	57.177	0.166	1.20	102	2.18	73.7	64.8	74	99.1	79	0.103	0.321	17.99
344	0.5	0.0	57.346	0.169	1.19	102	2.05	73.7	64.8	74	100.4	80	0.104	0.322	18.12
345	0.5	0.0	57.513	0.167	1.18	102	2.18	73.7	64.8	74	99.2	79	0.100	0.316	17.99
346	0.5	0.0	57.679	0.166	1.19	102	1.93	73.7	64.9	74	99.5	80	0.100	0.316	17.81
347	0.5	0.0	57.846	0.167	1.17	102	1.97	73.7	64.9	74	100.3	80	0.102	0.319	17.90
348	0.5	0.0	58.015	0.169	1.17	102	1.95	73.7	64.9	74	100.8	80	0.104	0.322	18.08

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 2
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 11:38
Test Length: 376 min
Recording Interval: 1 min

Test Date: 9/30.2025

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.002 cfm @ 23.7 in. Hg
Post-Test 0.001 cfm @ 5.3 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ($" H_2O$)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ($" H_2O$)*	$\sqrt{dP}$	*vs*
349	0.5	0.0	58.184	0.169	1.17	102	1.95	73.7	64.9	74	100.4	80	0.101	0.318	18.04
350	0.4	0.0	58.351	0.167	1.17	102	2.12	73.7	64.9	74	99.8	80	0.100	0.316	17.86
351	0.4	0.0	58.516	0.165	1.17	102	2.06	73.7	64.9	74	99.0	80	0.102	0.319	17.90
352	0.4	0.0	58.683	0.167	1.18	102	2.12	73.7	65	74	99.7	80	0.103	0.321	18.04
353	0.4	0.0	58.850	0.167	1.17	102	2.14	73.7	65	74	99.2	80	0.103	0.321	18.08
354	0.4	0.0	59.016	0.166	1.18	102	2.06	73.7	65	74	98.7	80	0.101	0.318	17.99
355	0.4	0.0	59.185	0.169	1.18	102	2.18	73.7	65	74	100.9	80	0.101	0.318	17.90
356	0.4	0.0	59.352	0.167	1.19	102	2.19	73.7	65.1	74	99.7	80	0.103	0.321	17.99
357	0.4	0.0	59.518	0.166	1.18	102	2.10	73.7	65.1	74	98.7	80	0.103	0.321	18.08
358	0.4	0.0	59.686	0.168	1.17	102	2.14	73.7	65.1	74	99.6	80	0.103	0.321	18.08
359	0.3	0.0	59.854	0.168	1.17	102	1.92	73.7	65.1	74	99.7	80	0.103	0.321	18.08
360	0.3	0.0	60.021	0.167	1.17	102	1.98	73.6	65.2	74	99.2	80	0.102	0.319	18.04
361	0.3	0.0	60.187	0.166	1.17	102	2.15	73.7	65.2	74	98.8	80	0.102	0.319	17.99
362	0.3	0.0	60.356	0.169	1.18	102	2.05	73.7	65.2	74	100.6	80	0.103	0.321	18.04
363	0.3	0.0	60.526	0.170	1.19	102	2.08	73.7	65.2	74	101.0	80	0.103	0.321	18.08
364	0.3	0.0	60.693	0.167	1.18	102	2.16	73.7	65.3	74	99.2	80	0.102	0.319	18.04
365	0.3	0.0	60.859	0.166	1.18	102	1.99	73.7	65.3	74	98.6	80	0.104	0.322	18.09
366	0.3	0.0	61.025	0.166	1.18	102	2.09	73.7	65.3	74	98.4	80	0.103	0.321	18.13
367	0.2	0.0	61.192	0.167	1.18	102	2.10	73.7	65.4	74	99.1	80	0.102	0.319	18.04
368	0.2	0.0	61.358	0.166	1.16	102	1.94	73.7	65.4	74	98.8	80	0.103	0.321	18.04
369	0.2	0.0	61.527	0.169	1.17	102	2.04	73.7	65.4	74	100.4	80	0.103	0.321	18.08
370	0.2	0.0	61.694	0.167	1.19	102	1.92	73.7	65.4	74	99.0	80	0.104	0.322	18.13
371	0.2	0.0	61.861	0.167	1.18	102	2.14	73.7	65.4	74	99.1	80	0.101	0.318	18.04
372	0.2	0.0	62.027	0.166	1.18	102	2.18	73.7	65.4	74	98.8	80	0.103	0.321	18.00
373	0.1	0.0	62.196	0.169	1.20	102	1.90	73.7	65.5	74	100.5	80	0.103	0.321	18.08
374	0.1	0.0	62.363	0.167	1.18	102	1.94	73.7	65.5	74	99.1	80	0.103	0.321	18.08
375	0.1	0.0	62.530	0.167	1.18	102	1.99	73.7	65.5	74	99.2	80	0.102	0.319	18.04
376	0.0	0.1	62.699	0.169	1.18	102	2.00	73.7	65.5	74	100.6	80	0.102	0.319	18.00

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 2
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 11:38
Total Sampling Time: 376 min
Recording Interval: 1 min

Test Date: 9/30.2025

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Sample Train Leak Checks
Pre-test ____ cfm @ ____ in. Hg
Post-Test ____ cfm @ ____ in. Hg

Elapsed Time (min)	**Train B Sampling System**								**Appliance Temperatures, °F**						
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Pro - Rate*	*Top*	*Bottom*	*Back*	*Left*	*Right*	*Catalyst Exit*	*Average Stove Surface (Tot = Δ T)*
Tot / Avg	**59.903**	**0.159**	**1.19**	**94.5**	**2.16**	**74.08**	**55.52**	**100.0**	**391.3**	**314.8**	**226.8**	**258.9**	**270.7**	**831.9**	**24.2**
Minimum	0.000	0.147	0.03	74	0.01	71	44	95.2	262	290	185	213	255	370	269
Max	59.903	0.164	1.21	99	2.26	75	65	106.2	497	387	272	306	318	1089	319
0	0.000		0.03	74	0.01	71.4	45.8		314	387	272	306	317	547	319
1	0.147	0.147	1.22	74	2.31	71.7	44	95.2	312	386	272	306	318	463	319
2	0.308	0.161	1.23	74	2.31	72.1	43.9	106.2	309	384	271	306	318	370	318
3	0.470	0.162	1.22	74	2.24	72.1	43.9	105.3	304	383	269	305	316	386	315
4	0.632	0.162	1.22	74	2.22	72.1	44	104.4	298	382	266	303	314	397	312
5	0.791	0.159	1.20	74	2.29	72.1	44	102.7	292	380	263	300	312	406	309
6	0.950	0.159	1.21	74	2.20	72.1	44.1	102.7	286	379	260	298	309	416	306
7	1.111	0.161	1.20	75	2.27	72.1	44.2	103.4	281	377	257	294	306	432	303
8	1.270	0.159	1.20	75	2.18	72.1	44.3	101.7	276	376	253	291	303	445	300
9	1.427	0.157	1.20	75	2.29	72.1	44.3	100.3	272	375	250	288	300	455	297
10	1.587	0.160	1.19	75	2.26	72.1	44.5	102.0	268	373	247	285	297	474	294
11	1.746	0.159	1.19	75	2.18	72.1	44.6	101.7	265	372	243	282	294	504	291
12	1.904	0.158	1.21	75	2.28	72.2	44.7	101.4	263	370	240	278	291	535	288
13	2.062	0.158	1.20	75	2.22	72.2	44.8	101.2	262	368	236	275	288	559	286
14	2.219	0.157	1.19	76	2.27	72.2	45	100.2	262	367	233	272	286	579	284
15	2.376	0.157	1.20	76	2.16	72.2	45.1	100.4	263	365	229	269	283	602	282
16	2.535	0.159	1.20	76	2.22	72.3	45.3	102.2	266	364	225	265	280	626	280
17	2.693	0.158	1.19	76	2.17	72.3	45.5	101.7	270	362	222	262	278	651	279
18	2.853	0.160	1.19	76	2.13	72.3	45.6	102.6	275	360	218	259	276	675	278
19	3.010	0.157	1.18	77	2.14	72.3	45.8	100.3	281	359	215	256	273	696	277
20	3.170	0.160	1.20	77	2.13	72.4	45.9	102.2	287	357	212	253	271	712	276
21	3.327	0.157	1.19	77	2.17	72.4	46	100.3	294	355	209	251	269	724	276
22	3.484	0.157	1.20	77	2.15	72.4	46.2	100.4	301	354	206	248	267	734	275
23	3.644	0.160	1.20	78	2.16	72.4	46.3	102.4	308	352	204	246	266	747	275
24	3.801	0.157	1.20	78	2.16	72.4	46.4	100.4	315	351	201	243	264	760	275
25	3.959	0.158	1.19	78	2.19	72.5	46.7	101.0	322	349	199	241	263	771	275
26	4.118	0.159	1.19	79	2.13	72.5	46.8	101.8	328	348	197	239	262	775	275
27	4.275	0.157	1.19	79	2.13	72.6	46.9	100.6	333	346	196	237	261	773	275
28	4.430	0.155	1.19	79	2.31	72.7	47.1	99.1	339	345	194	235	260	771	274
29	4.589	0.159	1.19	79	2.24	72.7	47.2	101.5	344	343	193	233	259	776	274
30	4.746	0.157	1.19	80	2.27	72.7	47.3	100.1	350	342	191	232	258	790	275
31	4.906	0.160	1.19	80	2.32	72.7	47.4	102.0	356	341	190	230	257	807	275
32	5.066	0.160	1.19	80	2.21	72.8	47.5	102.0	363	340	189	228	257	817	275
33	5.223	0.157	1.18	81	2.13	72.8	47.7	100.3	369	338	188	227	256	820	276
34	5.380	0.157	1.19	81	2.13	72.9	47.9	100.5	375	337	187	226	256	822	276
35	5.539	0.159	1.20	81	2.17	72.9	48	101.9	380	336	187	224	256	826	277
36	5.696	0.157	1.20	81	2.21	73	48.1	100.6	386	335	186	223	256	830	277
37	5.853	0.157	1.18	82	2.19	73	48.2	100.2	392	334	186	222	256	833	278
38	6.012	0.159	1.18	82	2.28	73	48.3	101.6	397	334	185	221	256	835	278
39	6.168	0.156	1.18	82	2.21	73.1	48.4	99.8	402	333	185	220	256	834	279
40	6.326	0.158	1.19	83	2.14	73.1	48.5	100.7	407	332	185	219	256	834	280

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 2
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 11:38
Total Sampling Time: 376 min
Recording Interval: 1 min

Test Date: 9/30.2025

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Sample Train Leak Checks
Pre-test ____ cfm @ ____ in. Hg
Post-Test ____ cfm @ ____ in. Hg

Elapsed Time (min)	Train B Sampling System								Appliance Temperatures, °F						
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Filter Temp (°F)	Dryer Temp (°F)	Pro - Rate	Top	Bottom	Back	Left	Right	Catalyst Exit	Average Stove Surface (Tot = Δ T)
41	6.485	0.159	1.19	83	2.13	73.1	48.6	101.3	411	331	185	218	256	835	280
42	6.641	0.156	1.18	83	2.28	73.2	48.7	99.6	414	330	185	217	257	836	281
43	6.797	0.156	1.19	83	2.31	73.2	48.8	99.4	416	330	185	216	257	836	281
44	6.954	0.157	1.19	84	2.20	73.2	48.9	100.3	419	329	185	216	258	838	281
45	7.113	0.159	1.19	84	2.14	73.3	49.1	102.0	421	329	185	215	258	835	282
46	7.272	0.159	1.19	84	2.22	73.3	49.2	102.0	423	328	185	214	259	835	282
47	7.429	0.157	1.18	84	2.16	73.4	49.3	100.5	424	328	186	214	260	840	282
48	7.585	0.156	1.19	85	2.17	73.4	49.4	100.1	426	327	186	214	261	845	283
49	7.745	0.160	1.17	85	2.29	73.5	49.5	103.0	428	327	187	213	261	849	283
50	7.901	0.156	1.19	85	2.18	73.5	49.7	100.4	430	326	187	213	262	852	284
51	8.058	0.157	1.18	86	2.19	73.6	49.7	100.7	433	326	187	213	263	855	284
52	8.217	0.159	1.20	86	2.29	73.7	49.9	101.7	435	326	188	213	264	857	285
53	8.374	0.157	1.19	86	2.31	73.7	50	100.3	438	325	189	213	265	860	286
54	8.531	0.157	1.20	86	2.13	73.8	50.1	100.3	440	325	189	213	266	864	287
55	8.690	0.159	1.19	86	2.10	73.8	50.2	102.0	442	324	190	213	267	865	287
56	8.847	0.157	1.20	87	2.09	73.9	50.3	100.8	444	324	191	213	268	866	288
57	9.002	0.155	1.18	87	2.08	73.9	50.3	98.8	446	324	191	214	268	865	289
58	9.163	0.161	1.18	87	2.19	74	50.5	101.7	448	323	192	214	269	870	289
59	9.320	0.157	1.18	87	2.19	74	50.5	99.2	449	323	193	214	270	881	290
60	9.477	0.157	1.20	88	2.30	74.1	50.6	99.7	450	323	193	214	271	891	290
61	9.636	0.159	1.19	88	2.22	74.1	50.7	101.2	450	322	194	215	272	898	290
62	9.793	0.157	1.18	88	2.20	74.2	50.8	100.1	451	322	194	215	272	904	291
63	9.951	0.158	1.19	88	2.28	74.2	50.8	100.9	451	321	195	215	273	912	291
64	10.110	0.159	1.19	89	2.26	74.2	50.9	101.3	452	321	196	216	273	924	291
65	10.267	0.157	1.18	89	2.28	74.2	50.9	100.0	453	321	196	216	274	937	292
66	10.425	0.158	1.19	89	2.17	74.2	51.1	100.5	454	320	197	216	274	941	292
67	10.584	0.159	1.19	89	2.29	74.3	51.1	101.0	455	320	197	217	275	943	293
68	10.741	0.157	1.18	89	2.18	74.3	51.2	99.9	456	320	198	217	275	948	293
69	10.899	0.158	1.17	90	2.19	74.4	51.3	100.6	458	319	198	218	276	954	294
70	11.056	0.157	1.19	90	2.19	74.4	51.4	99.6	460	319	199	218	276	951	294
71	11.216	0.160	1.19	90	2.09	74.4	51.4	101.5	462	319	200	219	276	941	295
72	11.373	0.157	1.19	90	2.16	74.4	51.5	99.9	463	318	201	220	277	938	296
73	11.533	0.160	1.20	90	2.10	74.5	51.6	101.4	463	318	201	220	277	939	296
74	11.691	0.158	1.19	91	2.27	74.5	51.7	99.3	462	318	202	221	277	942	296
75	11.849	0.158	1.21	91	2.14	74.5	51.7	99.3	463	317	203	222	278	946	296
76	12.009	0.160	1.20	91	2.23	74.6	51.8	101.0	463	317	203	222	278	947	297
77	12.166	0.157	1.19	91	2.23	74.5	51.8	99.3	463	317	204	223	278	950	297
78	12.324	0.158	1.19	91	2.26	74.5	51.8	99.9	464	316	204	224	279	959	297
79	12.484	0.160	1.19	91	2.10	74.5	51.8	101.0	465	316	205	225	279	976	298
80	12.643	0.159	1.20	92	2.20	74.5	51.9	100.4	465	316	206	225	280	997	298
81	12.800	0.157	1.21	92	2.10	74.5	52	99.6	466	315	206	226	280	1018	299
82	12.959	0.159	1.19	92	2.27	74.6	52	100.9	468	315	207	227	280	1031	299
83	13.118	0.159	1.19	92	2.06	74.6	52	100.8	470	314	208	227	281	1040	300
84	13.276	0.158	1.19	92	2.08	74.6	52.1	100.3	472	314	208	228	281	1042	301

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 2
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 11:38
Total Sampling Time: 376 min
Recording Interval: 1 min

Test Date: 9/30.2025

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Sample Train Leak Checks
Pre-test cfm @ in. Hg
Post-Test cfm @ in. Hg

Elapsed Time (min)	Train B Sampling System								Appliance Temperatures, °F						
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Filter Temp (°F)	Dryer Temp (°F)	Pro - Rate	Top	Bottom	Back	Left	Right	Catalyst Exit	Average Stove Surface (Tot = Δ T)
85	13.434	0.158	1.19	92	2.25	74.7	52.2	100.5	475	314	209	228	281	1040	301
86	13.595	0.161	1.19	92	2.15	74.6	52.2	102.3	476	313	209	229	282	1038	302
87	13.753	0.158	1.19	93	2.07	74.6	52.2	99.6	477	313	210	229	282	1040	302
88	13.911	0.158	1.19	93	2.05	74.6	52.2	99.3	478	313	211	230	282	1039	303
89	14.071	0.160	1.20	93	2.06	74.6	52.2	101.0	478	312	211	230	283	1038	303
90	14.230	0.159	1.19	93	2.25	74.6	52.2	100.3	478	312	212	230	283	1035	303
91	14.388	0.158	1.20	93	2.21	74.6	52.2	99.3	478	312	212	231	283	1031	303
92	14.547	0.159	1.20	93	2.27	74.6	52.2	99.4	478	312	213	231	283	1029	303
93	14.707	0.160	1.19	93	2.17	74.6	52.3	99.9	477	311	214	232	283	1028	303
94	14.865	0.158	1.19	93	2.24	74.6	52.3	99.3	476	311	214	232	284	1026	303
95	15.023	0.158	1.20	94	2.06	74.6	52.3	99.6	475	311	215	233	284	1025	303
96	15.184	0.161	1.19	94	2.07	74.7	52.3	101.3	474	311	216	233	284	1023	303
97	15.342	0.158	1.20	94	2.11	74.7	52.4	99.2	473	311	216	234	284	1018	303
98	15.500	0.158	1.19	94	2.21	74.7	52.4	99.2	472	310	217	234	284	1011	303
99	15.659	0.159	1.18	94	2.18	74.6	52.3	100.0	471	310	218	234	284	1002	303
100	15.819	0.160	1.19	94	2.17	74.7	52.4	100.5	470	310	218	235	284	991	303
101	15.977	0.158	1.19	94	2.09	74.6	52.4	99.0	469	310	219	235	284	980	303
102	16.136	0.159	1.20	94	2.23	74.7	52.4	99.5	467	310	219	235	283	969	303
103	16.297	0.161	1.19	95	2.07	74.7	52.4	100.6	465	309	220	235	283	956	303
104	16.455	0.158	1.19	95	2.25	74.6	52.4	99.0	464	309	220	235	283	943	302
105	16.613	0.158	1.20	95	2.26	74.6	52.4	99.0	461	309	220	235	283	929	302
106	16.773	0.160	1.20	95	2.24	74.6	52.4	100.0	459	309	221	236	283	919	301
107	16.933	0.160	1.20	95	2.09	74.6	52.4	100.1	456	309	221	236	282	913	301
108	17.091	0.158	1.19	95	2.26	74.6	52.4	98.8	452	308	221	236	282	908	300
109	17.250	0.159	1.19	95	2.22	74.6	52.4	99.4	449	308	221	236	282	902	299
110	17.411	0.161	1.19	95	2.26	74.6	52.4	101.0	446	308	221	236	282	895	298
111	17.570	0.159	1.20	95	2.25	74.6	52.4	99.5	441	307	222	236	281	886	297
112	17.728	0.158	1.20	95	2.25	74.5	52.4	98.2	437	307	221	236	281	875	296
113	17.887	0.159	1.18	96	2.13	74.5	52.4	98.5	432	306	221	236	280	863	295
114	18.048	0.161	1.19	96	2.14	74.5	52.4	99.8	427	306	221	236	280	851	294
115	18.207	0.159	1.19	96	2.05	74.5	52.3	98.8	422	306	221	235	279	838	293
116	18.365	0.158	1.20	96	2.26	74.4	52.2	98.3	418	305	221	235	279	826	291
117	18.526	0.161	1.19	96	2.12	74.4	52.2	100.2	413	305	221	235	278	814	290
118	18.686	0.160	1.19	96	2.19	74.3	52.1	99.6	408	304	220	235	278	802	289
119	18.844	0.158	1.19	96	2.24	74.3	52.1	98.6	403	304	220	235	277	792	288
120	19.003	0.159	1.19	96	2.17	74.4	52.1	99.2	398	303	220	235	276	782	287
121	19.164	0.161	1.20	96	2.24	74.4	52.1	100.4	394	303	219	235	276	772	285
122	19.323	0.159	1.20	96	2.18	74.4	52.1	99.2	390	302	219	235	275	764	284
123	19.481	0.158	1.20	96	2.20	74.4	52.1	98.5	385	302	219	234	274	757	283
124	19.641	0.160	1.19	96	2.06	74.4	52.1	99.7	381	301	218	234	274	751	282
125	19.802	0.161	1.19	96	2.04	74.3	52	100.1	377	301	218	234	273	746	280
126	19.960	0.158	1.20	96	2.16	74.3	52	98.3	374	300	217	234	272	742	279
127	20.119	0.159	1.20	96	2.16	74.4	52.1	99.2	370	300	216	233	272	740	278
128	20.279	0.160	1.20	96	2.22	74.3	52	99.6	368	299	216	233	271	738	277

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 2
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 11:38
Total Sampling Time: 376 min
Recording Interval: 1 min

Test Date: 9/30.2025

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Sample Train Leak Checks
Pre-test cfm @ in. Hg
Post-Test cfm @ in. Hg

Elapsed Time (min)	Train B Sampling System								Appliance Temperatures, °F						
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Filter Temp (°F)	Dryer Temp (°F)	Pro - Rate	Top	Bottom	Back	Left	Right	Catalyst Exit	Average Stove Surface (Tot = Δ T)
129	20.439	0.160	1.19	96	2.23	74.3	52	99.7	365	299	215	233	270	737	276
130	20.598	0.159	1.19	97	2.08	74.3	52	99.3	362	298	214	233	270	738	275
131	20.757	0.159	1.19	97	2.11	74.3	52	99.4	360	298	213	232	269	739	274
132	20.918	0.161	1.21	97	2.25	74.3	52	101.0	358	297	213	232	268	742	274
133	21.077	0.159	1.20	97	2.06	74.2	52	99.8	356	297	212	232	267	745	273
134	21.236	0.159	1.18	97	2.25	74.2	52	99.3	355	296	211	232	267	749	272
135	21.395	0.159	1.19	97	2.06	74.3	52	99.3	354	296	210	231	266	754	271
136	21.556	0.161	1.20	97	2.24	74.3	52	101.0	354	295	209	231	266	762	271
137	21.715	0.159	1.19	97	2.17	74.2	52.1	100.1	353	295	208	231	265	770	270
138	21.874	0.159	1.20	97	2.17	74.2	52.1	100.1	353	294	207	230	265	781	270
139	22.033	0.159	1.20	97	2.16	74.3	52.1	99.8	354	293	207	230	264	793	270
140	22.194	0.161	1.20	97	2.06	74.3	52.2	100.6	355	293	206	230	264	805	269
141	22.353	0.159	1.20	97	2.24	74.3	52.2	99.2	356	293	205	229	263	820	269
142	22.512	0.159	1.18	97	2.06	74.3	52.2	99.4	357	292	204	229	263	835	269
143	22.672	0.160	1.20	97	2.16	74.3	52.2	100.1	359	292	204	229	262	852	269
144	22.833	0.161	1.20	97	2.12	74.3	52.2	100.9	361	292	203	229	262	869	269
145	22.991	0.158	1.19	97	2.23	74.3	52.3	99.4	364	291	203	229	262	888	270
146	23.150	0.159	1.20	97	2.08	74.3	52.3	100.4	367	291	202	229	262	908	270
147	23.311	0.161	1.18	97	2.05	74.3	52.4	101.8	370	291	202	229	261	929	271
148	23.471	0.160	1.20	97	2.06	74.3	52.3	101.3	374	291	202	228	261	952	271
149	23.630	0.159	1.20	97	2.26	74.3	52.4	100.8	379	291	202	228	261	976	272
150	23.789	0.159	1.18	97	2.06	74.3	52.4	100.5	384	290	201	228	261	1003	273
151	23.950	0.161	1.20	97	2.12	74.3	52.4	100.9	390	290	201	228	261	1030	274
152	24.109	0.159	1.20	97	2.25	74.4	52.4	99.0	397	290	202	228	261	1056	276
153	24.268	0.159	1.19	98	2.23	74.4	52.5	99.4	405	291	202	229	262	1070	277
154	24.427	0.159	1.18	97	2.23	74.4	52.5	100.3	413	291	202	229	262	1069	279
155	24.588	0.161	1.17	98	2.05	74.4	52.5	101.8	421	291	203	229	262	1062	281
156	24.747	0.159	1.19	98	2.24	74.5	52.6	100.2	429	291	203	229	262	1058	283
157	24.905	0.158	1.19	98	2.21	74.5	52.6	99.0	436	291	205	230	263	1062	285
158	25.065	0.160	1.19	98	2.20	74.5	52.6	100.2	443	292	206	230	264	1051	287
159	25.225	0.160	1.19	98	2.07	74.5	52.7	101.1	450	292	207	231	264	1032	289
160	25.384	0.159	1.19	98	2.05	74.6	52.7	100.8	456	293	209	232	265	1014	291
161	25.543	0.159	1.19	98	2.11	74.6	52.8	100.0	460	293	210	233	266	996	293
162	25.703	0.160	1.19	98	2.21	74.6	52.8	100.1	464	294	212	235	267	981	294
163	25.863	0.160	1.17	98	2.26	74.7	52.8	101.0	467	295	214	236	268	971	296
164	26.022	0.159	1.18	98	2.24	74.7	52.9	101.1	468	296	216	238	269	962	297
165	26.180	0.158	1.19	98	2.23	74.8	53	99.7	471	297	218	239	270	958	299
166	26.341	0.161	1.19	98	2.15	74.8	53	100.7	473	298	220	241	271	958	301
167	26.500	0.159	1.20	98	2.11	74.8	53.1	99.8	475	299	221	243	272	962	302
168	26.659	0.159	1.19	98	2.08	74.9	53.1	100.2	476	300	223	245	273	968	303
169	26.818	0.159	1.19	98	2.18	74.9	53.2	99.7	478	301	224	247	275	972	305
170	26.979	0.161	1.20	98	2.20	74.9	53.3	100.7	480	302	225	249	276	980	306
171	27.138	0.159	1.18	98	2.11	74.9	53.3	100.2	482	303	226	251	277	988	308
172	27.297	0.159	1.19	98	2.05	74.9	53.5	100.6	483	304	227	253	278	1017	309

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 2
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 11:38
Total Sampling Time: 376 min
Recording Interval: 1 min

Test Date: 9/30.2025

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Sample Train Leak Checks
Pre-test ____ cfm @ ____ in. Hg
Post-Test ____ cfm @ ____ in. Hg

Elapsed Time (min)	**Train B Sampling System**								**Appliance Temperatures, °F**						
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Pro - Rate*	*Top*	*Bottom*	*Back*	*Left*	*Right*	*Catalyst Exit*	*Average Stove Surface (Tot = Δ T)*
173	27.457	0.160	1.18	98	2.15	74.9	53.5	100.4	485	305	229	255	279	1048	310
174	27.617	0.160	1.19	98	2.26	74.9	53.6	99.8	488	305	230	257	280	1058	312
175	27.776	0.159	1.19	98	2.05	75	53.7	99.3	492	306	232	259	281	1058	314
176	27.935	0.159	1.18	98	2.24	75	53.8	99.1	495	307	233	260	282	1050	316
177	28.096	0.161	1.19	98	2.23	74.9	53.8	100.1	496	307	235	262	282	1036	317
178	28.256	0.160	1.19	98	2.04	74.9	53.8	99.7	497	308	237	264	283	1018	318
179	28.415	0.159	1.17	98	2.23	74.9	53.9	99.6	496	309	239	265	284	997	318
180	28.574	0.159	1.19	98	2.21	74.9	54	99.9	494	309	240	267	284	975	319
181	28.735	0.161	1.18	98	2.22	74.9	54	101.0	490	310	242	268	285	952	319
182	28.895	0.160	1.19	98	2.04	74.9	54	99.7	486	310	244	269	286	930	319
183	29.053	0.158	1.20	98	2.22	74.9	54.1	98.5	481	311	245	270	286	910	319
184	29.213	0.160	1.18	98	2.04	74.9	54.2	100.1	475	311	246	271	287	892	318
185	29.374	0.161	1.20	98	2.18	74.9	54.2	100.5	469	311	247	272	287	876	317
186	29.533	0.159	1.20	98	2.08	74.9	54.2	99.5	464	312	248	273	287	864	317
187	29.692	0.159	1.19	98	2.25	74.9	54.2	99.6	458	312	249	273	288	853	316
188	29.851	0.159	1.18	98	2.22	74.8	54.2	99.3	453	313	250	274	288	843	315
189	30.013	0.162	1.19	98	2.09	74.8	54.2	101.1	447	313	251	275	287	834	315
190	30.172	0.159	1.19	98	2.15	74.8	54.3	99.4	442	313	251	276	287	826	314
191	30.331	0.159	1.19	98	2.03	74.8	54.3	99.1	437	313	252	276	287	820	313
192	30.491	0.160	1.19	98	2.25	74.8	54.3	99.1	432	313	252	276	287	816	312
193	30.652	0.161	1.18	98	2.05	74.8	54.3	99.5	428	313	252	277	287	817	311
194	30.811	0.159	1.20	98	2.18	74.8	54.4	98.6	424	313	252	277	287	824	311
195	30.970	0.159	1.20	98	2.25	74.7	54.5	98.9	421	313	252	277	286	826	310
196	31.130	0.160	1.20	98	2.10	74.7	54.4	99.8	417	313	252	277	286	822	309
197	31.291	0.161	1.20	98	2.04	74.7	54.5	100.8	413	313	252	277	286	815	308
198	31.450	0.159	1.19	99	2.12	74.7	54.5	99.8	409	313	252	277	285	806	307
199	31.609	0.159	1.19	99	2.03	74.7	54.6	99.5	406	313	252	277	285	795	306
200	31.769	0.160	1.19	99	2.04	74.7	54.6	100.0	402	312	252	277	284	784	305
201	31.930	0.161	1.20	98	2.21	74.7	54.6	100.6	398	312	251	277	284	772	304
202	32.089	0.159	1.19	99	2.08	74.7	54.7	99.1	393	312	251	277	283	761	303
203	32.248	0.159	1.19	99	2.08	74.7	54.7	99.1	390	312	250	277	282	750	302
204	32.409	0.161	1.19	99	2.21	74.6	54.7	100.2	385	311	250	276	282	739	301
205	32.569	0.160	1.20	99	2.22	74.6	54.7	99.2	381	311	249	276	281	729	300
206	32.728	0.159	1.19	99	2.03	74.6	54.8	98.9	377	311	249	276	280	719	298
207	32.887	0.159	1.19	99	2.14	74.6	54.9	99.1	373	310	248	275	280	709	297
208	33.048	0.161	1.20	99	2.05	74.6	54.9	100.1	368	310	247	275	279	700	296
209	33.209	0.161	1.19	99	2.20	74.5	54.9	99.8	365	309	247	274	278	691	295
210	33.368	0.159	1.20	99	2.03	74.6	54.9	98.5	360	309	246	274	277	683	293
211	33.527	0.159	1.19	99	2.26	74.6	55	98.6	356	309	245	273	276	675	292
212	33.687	0.160	1.20	99	2.12	74.6	55.1	99.4	352	308	245	273	275	667	291
213	33.848	0.161	1.19	99	2.06	74.6	55.2	100.3	349	308	244	272	274	660	289
214	34.007	0.159	1.19	99	2.05	74.6	55.4	98.7	345	307	243	271	273	654	288
215	34.166	0.159	1.20	99	2.25	74.6	55.4	98.5	341	307	242	271	272	649	287
216	34.327	0.161	1.18	99	2.19	74.6	55.6	99.9	338	306	241	270	271	645	285

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 2
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 11:38
Total Sampling Time: 376 min
Recording Interval: 1 min

Test Date: 9/30.2025

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Sample Train Leak Checks
Pre-test cfm @ in. Hg
Post-Test cfm @ in. Hg

Elapsed Time (min)	Train B Sampling System								Appliance Temperatures, °F						
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Filter Temp (°F)	Dryer Temp (°F)	Pro - Rate	Top	Bottom	Back	Left	Right	Catalyst Exit	Average Stove Surface (Tot = Δ T)
217	34.487	0.160	1.19	99	2.20	74.5	55.6	99.3	334	305	240	269	270	642	284
218	34.646	0.159	1.19	99	2.08	74.5	55.6	98.8	331	305	239	268	270	639	283
219	34.806	0.160	1.20	99	2.04	74.4	55.7	99.5	329	304	238	267	269	638	281
220	34.966	0.160	1.18	99	2.07	74.4	55.8	99.5	326	304	237	267	268	639	280
221	35.127	0.161	1.18	99	2.25	74.4	56	99.9	324	303	236	266	267	641	279
222	35.286	0.159	1.19	99	2.14	74.4	56.1	98.7	322	303	235	265	266	645	278
223	35.445	0.159	1.20	99	2.03	74.4	56.2	99.1	320	302	234	265	265	650	277
224	35.606	0.161	1.20	99	2.05	74.4	56.3	100.1	318	301	233	264	264	657	276
225	35.766	0.160	1.20	99	2.22	74.4	56.4	99.6	318	301	232	263	263	664	275
226	35.925	0.159	1.20	99	2.04	74.4	56.6	99.6	317	300	231	262	263	674	275
227	36.084	0.159	1.20	99	2.15	74.3	56.6	99.5	317	300	230	261	262	685	274
228	36.245	0.161	1.19	99	2.20	74.3	56.7	100.1	317	299	229	261	261	698	274
229	36.405	0.160	1.20	99	2.12	74.4	56.8	99.6	318	299	229	260	261	714	273
230	36.564	0.159	1.20	99	2.24	74.3	56.9	99.5	319	298	228	259	260	732	273
231	36.724	0.160	1.21	99	2.24	74.3	57	100.0	321	298	228	259	260	752	273
232	36.885	0.161	1.20	99	2.22	74.3	57.1	100.2	323	298	227	258	259	773	273
233	37.045	0.160	1.20	99	2.26	74.3	57.2	99.2	326	297	227	257	259	796	273
234	37.204	0.159	1.20	99	2.05	74.3	57.3	98.6	330	297	227	257	259	819	274
235	37.363	0.159	1.19	99	2.21	74.3	57.4	98.8	335	297	227	256	259	843	275
236	37.524	0.161	1.19	99	2.26	74.3	57.5	100.1	339	297	227	256	258	867	275
237	37.684	0.160	1.19	99	2.25	74.3	57.6	99.2	345	297	227	256	258	890	277
238	37.843	0.159	1.20	99	2.05	74.2	57.7	98.6	350	297	227	255	259	913	278
239	38.002	0.159	1.20	99	2.25	74.2	57.8	98.6	356	297	228	255	259	935	279
240	38.164	0.162	1.19	99	2.05	74.2	57.9	100.5	363	297	228	255	259	955	280
241	38.323	0.159	1.20	99	2.19	74.2	58	98.9	370	298	228	255	259	974	282
242	38.482	0.159	1.20	99	2.26	74.2	58.1	99.0	376	298	229	255	260	991	283
243	38.642	0.160	1.18	99	2.03	74.2	58.2	100.0	384	298	229	255	260	1007	285
244	38.803	0.161	1.19	99	2.09	74.2	58.3	101.1	391	298	229	255	260	1022	287
245	38.963	0.160	1.20	99	2.25	74.3	58.4	100.5	399	299	230	255	261	1036	289
246	39.122	0.159	1.20	99	2.05	74.3	58.5	99.7	406	299	230	256	261	1048	291
247	39.281	0.159	1.19	99	2.26	74.3	58.6	99.5	414	300	231	257	262	1058	293
248	39.443	0.162	1.19	99	2.05	74.3	58.7	101.5	421	300	232	257	263	1068	294
249	39.602	0.159	1.19	99	2.04	74.3	58.8	99.7	428	301	232	258	263	1075	296
250	39.761	0.159	1.19	99	2.17	74.3	58.9	99.3	435	301	233	259	264	1080	298
251	39.921	0.160	1.20	99	2.12	74.3	59	99.5	441	302	234	260	265	1085	300
252	40.082	0.161	1.19	99	2.04	74.3	59.1	100.2	447	302	235	260	265	1088	302
253	40.242	0.160	1.20	99	2.05	74.4	59.2	99.7	453	303	236	261	266	1089	304
254	40.400	0.158	1.20	99	2.04	74.4	59.3	98.9	458	304	237	263	267	1087	306
255	40.560	0.160	1.18	99	2.03	74.4	59.4	100.5	462	304	238	264	268	1084	307
256	40.722	0.162	1.19	99	2.25	74.4	59.4	101.4	465	305	239	265	269	1077	309
257	40.881	0.159	1.21	99	2.26	74.4	59.6	99.1	467	306	240	266	269	1070	310
258	41.040	0.159	1.20	99	2.25	74.4	59.7	99.3	469	307	241	267	270	1061	311
259	41.200	0.160	1.20	99	2.12	74.4	59.7	100.0	469	307	242	268	271	1051	312
260	41.361	0.161	1.20	99	2.14	74.4	59.8	100.7	469	308	243	269	272	1038	312

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 2
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 11:38
Total Sampling Time: 376 min
Recording Interval: 1 min

Test Date: 9/30.2025

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Sample Train Leak Checks
Pre-test ____ cfm @ ____ in. Hg
Post-Test ____ cfm @ ____ in. Hg

Elapsed Time (min)	Train B Sampling System								Appliance Temperatures, °F						
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Filter Temp (°F)	Dryer Temp (°F)	Pro - Rate	Top	Bottom	Back	Left	Right	Catalyst Exit	Average Stove Surface (Tot = Δ T)
261	41.521	0.160	1.19	99	2.23	74.3	59.9	100.2	468	309	244	270	273	1023	313
262	41.679	0.158	1.21	99	2.07	74.4	60	98.7	467	310	245	272	274	1006	313
263	41.839	0.160	1.20	99	2.06	74.4	60	99.8	464	311	246	273	275	988	314
264	42.001	0.162	1.20	99	2.10	74.4	60.1	101.4	461	311	247	274	276	970	314
265	42.161	0.160	1.20	99	2.25	74.4	60.2	100.2	457	312	248	274	277	952	314
266	42.319	0.158	1.19	99	2.10	74.4	60.3	98.5	454	313	249	275	277	934	314
267	42.479	0.160	1.20	99	2.23	74.4	60.4	99.9	450	313	250	276	278	917	313
268	42.641	0.162	1.19	99	2.04	74.4	60.4	101.5	446	314	250	277	279	901	313
269	42.800	0.159	1.20	99	2.15	74.4	60.5	99.5	441	315	251	278	279	886	313
270	42.958	0.158	1.19	99	2.26	74.4	60.5	98.5	436	315	252	279	280	872	312
271	43.118	0.160	1.21	99	2.20	74.3	60.6	99.8	432	316	253	280	281	858	312
272	43.280	0.162	1.19	99	2.23	74.3	60.7	101.2	427	316	253	280	281	846	311
273	43.439	0.159	1.20	99	2.18	74.3	60.7	99.0	422	317	254	282	281	835	311
274	43.598	0.159	1.19	99	2.04	74.3	60.8	98.8	417	317	254	282	282	824	310
275	43.758	0.160	1.20	99	2.11	74.3	60.9	99.7	413	317	254	283	282	815	310
276	43.919	0.161	1.19	99	2.14	74.3	60.9	100.4	408	318	254	284	282	806	309
277	44.078	0.159	1.19	99	2.25	74.3	61	99.3	404	318	255	284	282	798	309
278	44.237	0.159	1.18	99	2.25	74.3	61	99.4	400	318	255	285	282	791	308
279	44.397	0.160	1.19	99	2.04	74.3	61.1	99.9	396	319	255	285	282	784	307
280	44.559	0.162	1.20	99	2.21	74.3	61.2	101.2	392	319	255	286	282	778	307
281	44.718	0.159	1.20	99	2.21	74.3	61.2	99.7	389	319	254	286	281	772	306
282	44.877	0.159	1.19	99	2.19	74.2	61.3	99.6	385	319	254	287	281	767	305
283	45.037	0.160	1.19	99	2.07	74.2	61.3	99.6	382	319	254	287	281	762	305
284	45.198	0.161	1.19	99	2.24	74.2	61.4	99.7	379	319	254	288	281	757	304
285	45.357	0.159	1.19	99	2.13	74.2	61.4	98.4	376	319	253	288	280	751	303
286	45.516	0.159	1.20	99	2.21	74.2	61.5	98.8	373	319	253	289	280	747	303
287	45.676	0.160	1.18	99	2.26	74.2	61.6	99.7	370	319	253	289	279	742	302
288	45.838	0.162	1.20	99	2.26	74.2	61.6	101.4	367	319	253	289	279	737	301
289	45.997	0.159	1.19	99	2.09	74.1	61.7	99.5	364	319	252	289	278	733	300
290	46.156	0.159	1.19	99	2.19	74.2	61.7	99.5	361	319	252	289	278	729	300
291	46.316	0.160	1.20	99	2.04	74.1	61.7	99.9	359	319	251	289	277	725	299
292	46.477	0.161	1.20	99	2.05	74.1	61.8	99.9	357	319	251	289	276	722	298
293	46.637	0.160	1.20	99	2.20	74.1	61.9	99.4	355	319	250	289	276	719	298
294	46.796	0.159	1.18	99	2.05	74.1	61.9	99.4	353	318	250	289	275	716	297
295	46.956	0.160	1.19	99	2.26	74.1	62	100.2	350	318	249	289	274	714	296
296	47.117	0.161	1.20	99	2.25	74.1	62	100.6	349	318	249	289	274	713	296
297	47.276	0.159	1.20	99	2.05	74.1	62.1	99.0	347	318	248	289	273	712	295
298	47.435	0.159	1.20	99	2.14	74.1	62.1	99.1	345	318	248	289	272	712	294
299	47.595	0.160	1.20	99	2.04	74	62.2	100.1	344	317	247	289	272	713	294
300	47.757	0.162	1.19	99	2.24	74.1	62.2	101.4	343	317	246	289	271	714	293
301	47.916	0.159	1.20	99	2.21	74	62.2	99.2	342	317	246	288	270	715	292
302	48.075	0.159	1.20	99	2.04	74.1	62.3	99.0	341	317	245	288	269	717	292
303	48.235	0.160	1.20	99	2.25	74	62.3	99.5	340	316	244	288	268	719	291
304	48.397	0.162	1.20	99	2.21	74	62.4	100.6	340	316	243	288	268	722	291

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 2
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 11:38
Total Sampling Time: 376 min
Recording Interval: 1 min

Test Date: 9/30.2025

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Sample Train Leak Checks
Pre-test ____ cfm @ ____ in. Hg
Post-Test ____ cfm @ ____ in. Hg

Elapsed Time (min)	**Train B Sampling System**								**Appliance Temperatures, °F**						
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Pro - Rate*	*Top*	*Bottom*	*Back*	*Left*	*Right*	*Catalyst Exit*	*Average Stove Surface (Tot = Δ T)*
305	48.556	0.159	1.20	99	2.05	74	62.4	98.4	339	316	243	288	267	725	291
306	48.715	0.159	1.20	99	2.25	73.9	62.5	98.2	339	316	242	288	266	728	290
307	48.875	0.160	1.21	99	2.11	73.8	62.6	98.9	339	315	241	288	265	731	290
308	49.036	0.161	1.20	99	2.20	73.7	62.6	99.8	339	315	241	287	264	735	289
309	49.196	0.160	1.20	99	2.11	73.7	62.7	99.4	339	315	240	287	264	739	289
310	49.355	0.159	1.20	99	2.05	73.7	62.7	99.2	339	314	239	287	263	742	288
311	49.515	0.160	1.20	99	2.05	73.6	62.7	100.2	340	314	238	287	262	745	288
312	49.676	0.161	1.20	99	2.24	73.6	62.7	100.8	340	314	238	287	262	749	288
313	49.836	0.160	1.20	99	2.15	73.7	62.7	99.9	340	314	237	288	261	752	288
314	49.994	0.158	1.19	99	2.05	73.6	62.8	98.8	341	313	237	288	261	756	288
315	50.154	0.160	1.18	99	2.24	73.6	62.8	100.3	341	313	236	288	260	759	288
316	50.316	0.162	1.20	99	2.09	73.6	62.8	101.3	342	313	236	288	260	763	288
317	50.475	0.159	1.20	99	2.05	73.7	62.8	99.2	343	313	235	288	259	766	288
318	50.634	0.159	1.19	99	2.04	73.7	62.9	99.3	344	313	235	288	259	769	288
319	50.793	0.159	1.18	99	2.15	73.7	62.9	99.4	345	312	235	288	258	772	288
320	50.955	0.162	1.20	99	2.23	73.8	63	101.2	345	312	234	288	258	775	287
321	51.114	0.159	1.18	99	2.17	73.8	63	99.2	346	312	234	288	258	778	287
322	51.273	0.159	1.20	99	2.25	73.8	63.1	99.1	347	312	234	288	257	780	288
323	51.433	0.160	1.20	99	2.20	73.9	63.1	99.7	348	312	233	288	257	782	288
324	51.594	0.161	1.20	99	2.23	73.9	63.1	100.8	348	312	233	288	257	784	288
325	51.753	0.159	1.18	99	2.12	73.8	63.2	100.1	349	312	233	288	256	785	288
326	51.912	0.159	1.21	99	2.21	73.9	63.2	99.8	350	312	233	288	256	787	288
327	52.072	0.160	1.18	99	2.25	73.9	63.2	100.0	350	312	233	288	256	788	288
328	52.233	0.161	1.18	99	2.20	73.9	63.2	100.5	351	312	233	288	256	789	288
329	52.392	0.159	1.20	99	2.11	73.9	63.2	99.0	352	312	233	289	256	790	288
330	52.551	0.159	1.19	99	2.18	73.9	63.3	98.9	352	312	233	289	256	789	288
331	52.712	0.161	1.19	99	2.13	73.8	63.3	100.4	352	312	233	289	256	786	288
332	52.872	0.160	1.19	99	2.21	73.9	63.4	99.9	352	312	233	290	255	784	288
333	53.031	0.159	1.19	99	2.06	73.9	63.4	99.4	352	312	233	290	255	782	288
334	53.190	0.159	1.20	99	2.25	73.9	63.4	99.6	352	312	233	290	255	781	289
335	53.351	0.161	1.20	99	2.18	73.9	63.4	100.8	352	312	233	290	255	781	288
336	53.514	0.163	1.20	99	2.08	74	63.5	101.8	352	312	234	290	255	781	289
337	53.670	0.156	1.17	99	2.26	74	63.5	97.5	352	312	234	290	255	781	289
338	53.829	0.159	1.19	99	2.15	74	63.5	99.4	352	312	234	290	255	781	289
339	53.990	0.161	1.21	99	2.24	74	63.6	100.4	352	312	234	291	255	781	289
340	54.150	0.160	1.18	99	2.10	74	63.6	99.6	352	312	234	291	255	781	289
341	54.309	0.159	1.19	99	2.14	74	63.7	99.1	352	313	234	291	255	780	289
342	54.468	0.159	1.20	99	2.04	74	63.7	99.4	352	313	234	291	255	780	289
343	54.629	0.161	1.20	99	2.17	74	63.7	100.6	352	313	234	291	255	779	289
344	54.789	0.160	1.18	99	2.26	74	63.7	99.5	352	313	234	291	255	779	289
345	54.948	0.159	1.19	99	2.18	74	63.8	98.9	351	313	235	291	255	778	289
346	55.107	0.159	1.20	99	2.18	74	63.8	99.7	352	313	235	292	255	778	289
347	55.268	0.161	1.20	99	2.04	74	63.9	101.2	351	313	235	292	255	778	289
348	55.428	0.160	1.19	99	2.08	74	63.8	99.9	351	313	235	292	255	778	289

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 2
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 11:38
Total Sampling Time: 376 min
Recording Interval: 1 min

Test Date: 9/30.2025

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Sample Train Leak Checks
Pre-test cfm @ in. Hg
Post-Test cfm @ in. Hg

Elapsed Time (min)	Train B Sampling System								Appliance Temperatures, °F						
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Filter Temp (°F)	Dryer Temp (°F)	Pro - Rate	Top	Bottom	Back	Left	Right	Catalyst Exit	Average Stove Surface (Tot = Δ T)
349	55.589	0.161	1.20	99	2.26	74	63.8	100.2	351	313	235	292	255	778	289
350	55.749	0.160	1.19	99	2.03	74	63.9	100.2	351	313	235	292	255	778	289
351	55.907	0.158	1.20	99	2.09	74	63.9	99.3	351	313	235	292	255	778	289
352	56.067	0.160	1.19	99	2.09	74	63.9	100.0	351	313	235	292	255	777	289
353	56.225	0.158	1.18	99	2.04	74	63.9	98.3	351	313	235	293	255	776	289
354	56.385	0.160	1.20	99	2.24	74	64	99.7	350	313	236	293	255	774	289
355	56.546	0.161	1.20	99	2.13	74	64	100.8	350	313	236	293	255	772	289
356	56.705	0.159	1.20	99	2.15	74	64	99.5	350	313	236	293	255	771	290
357	56.864	0.159	1.20	99	2.24	74	64.1	99.1	350	313	236	294	255	771	290
358	57.024	0.160	1.20	98	2.08	74	64.1	99.4	349	313	237	294	256	773	290
359	57.185	0.161	1.19	98	2.12	74	64.1	100.1	349	313	237	294	256	776	290
360	57.344	0.159	1.20	98	2.05	74	64.1	99.0	349	313	238	294	256	779	290
361	57.503	0.159	1.19	99	2.19	74	64.2	99.2	349	313	238	294	256	781	290
362	57.663	0.160	1.19	99	2.25	74	64.2	99.8	349	313	239	294	256	781	290
363	57.827	0.164	1.18	99	2.04	74	64.2	102.1	350	313	239	294	256	782	291
364	57.986	0.159	1.20	98	2.19	74	64.2	99.0	350	313	240	295	256	783	291
365	58.145	0.159	1.21	98	2.04	74	64.2	99.0	350	313	241	295	256	783	291
366	58.302	0.157	1.18	98	2.05	74	64.2	97.5	350	314	241	295	256	784	291
367	58.463	0.161	1.20	98	2.06	74	64.3	100.1	351	314	242	295	256	785	291
368	58.622	0.159	1.20	98	2.18	74	64.3	99.1	351	314	243	295	256	786	292
369	58.781	0.159	1.20	98	2.25	74	64.3	99.0	351	314	243	295	256	788	292
370	58.942	0.161	1.20	99	2.17	74	64.4	100.0	352	314	244	296	256	791	292
371	59.102	0.160	1.20	98	2.11	74	64.4	99.5	352	314	245	296	256	798	293
372	59.261	0.159	1.20	98	2.18	74	64.4	99.2	353	314	246	296	256	806	293
373	59.420	0.159	1.19	99	2.10	74	64.4	99.1	354	314	247	297	256	813	293
374	59.581	0.161	1.20	98	2.21	74	64.5	100.1	355	314	248	297	256	817	294
375	59.741	0.160	1.19	99	2.05	74	64.5	99.6	356	314	249	298	256	819	295
376	59.903	0.162	1.19	98	2.25	74	64.5	101.1	357	314	250	298	256	820	295

Train C - First Hour Particulate Sampling

Run: 2
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Start Time: 11:38
Total Sampling Time: 60 min
Recording Interval: 1 min

Test Date: 9/30.2025

Meter Box Y Regression Offset: 0.981
Meter Box Y Regression Factor: 0
Meter Box Dynamic Y: 0.981
Sample Box ID: 0

Sample Train Leak Checks
Pre-test 0.002 cfm @ 21.9 in. Hg
Post-Test 0.001 cfm @ 7.71 in. Hg

Elapsed Time (min)	Train C Sampling System							
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Filter Temp (°F)	Dryer Temp (°F)	Pro - Rate
Tot / Avg	**9.481**	**0.158**	**0.97**	**79.2**	**2.37**	**74.3**	**67.6**	**99.5**
Minimum	0.000	0.148	0.00	76	0.13	73	66	94.3
Max	9.481	0.162	1.00	83	2.47	76	70	102.5
0	0.000		0.00	76	0.13	72.7	69.2	
1	0.148	0.148	1.00	76	2.45	73.2	68.8	94.3
2	0.306	0.158	1.00	76	2.46	73.6	68.5	102.5
3	0.465	0.159	0.99	76	2.43	73.6	68.2	101.7
4	0.624	0.159	0.99	76	2.37	73.6	67.9	100.8
5	0.783	0.159	0.98	76	2.40	73.5	67.6	101.0
6	0.940	0.157	1.00	76	2.45	73.5	67.4	99.7
7	1.099	0.159	1.00	76	2.40	73.5	67.2	100.4
8	1.258	0.159	0.99	76	2.43	73.6	67	100.0
9	1.416	0.158	1.00	76	2.41	73.6	66.8	99.2
10	1.575	0.159	0.99	76	2.37	73.6	66.7	99.6
11	1.733	0.158	0.99	76	2.39	73.6	66.6	99.3
12	1.891	0.158	0.99	77	2.42	73.6	66.5	99.6
13	2.049	0.158	0.99	77	2.46	73.6	66.4	99.3
14	2.205	0.156	0.99	77	2.37	73.6	66.3	97.7
15	2.363	0.158	0.99	77	2.46	73.7	66.3	99.2
16	2.521	0.158	0.99	77	2.37	73.7	66.2	99.7
17	2.679	0.158	0.98	77	2.46	73.7	66.1	99.8
18	2.839	0.160	0.99	77	2.37	73.7	66.1	100.7
19	2.998	0.159	0.99	78	2.46	73.7	66.1	99.7
20	3.155	0.157	0.99	78	2.41	73.8	66.1	98.4
21	3.314	0.159	0.98	78	2.41	73.8	66.1	99.7
22	3.471	0.157	0.98	78	2.36	73.8	66.2	98.4
23	3.630	0.159	0.99	78	2.45	73.8	66.2	99.8
24	3.787	0.157	0.99	78	2.40	73.9	66.3	98.5
25	3.946	0.159	0.98	79	2.45	73.9	66.3	99.7
26	4.103	0.157	0.98	79	2.38	74	66.4	98.6
27	4.261	0.158	0.98	79	2.47	74	66.5	99.2
28	4.416	0.155	0.98	79	2.39	74.1	66.5	97.2
29	4.574	0.158	0.98	79	2.39	74.1	66.7	98.9
30	4.733	0.159	0.98	79	2.39	74.2	66.7	99.4
31	4.893	0.160	0.98	79	2.45	74.2	66.8	100.1
32	5.052	0.159	0.98	80	2.45	74.2	66.9	99.4

Train C - First Hour Particulate Sampling

Run: 2
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Start Time: 11:38
Total Sampling Time: 60 min
Recording Interval: 1 min

Test Date: 9/30.2025

Meter Box Y Regression Offset: 0.981
Meter Box Y Regression Factor: 0
Meter Box Dynamic Y: 0.981
Sample Box ID: 0

Sample Train Leak Checks
Pre-test 0.002 cfm @ 21.9 in. Hg
Post-Test 0.001 cfm @ 7.71 in. Hg

Elapsed Time (min)	Train C Sampling System							
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Filter Temp (°F)	Dryer Temp (°F)	Pro - Rate
33	5.209	0.157	0.98	80	2.44	74.3	67	98.4
34	5.368	0.159	0.98	80	2.35	74.4	67.1	99.9
35	5.525	0.157	0.98	80	2.46	74.4	67.3	98.7
36	5.684	0.159	0.98	80	2.45	74.5	67.4	100.0
37	5.841	0.157	0.98	80	2.44	74.5	67.5	98.4
38	5.999	0.158	0.98	80	2.37	74.5	67.5	99.1
39	6.158	0.159	0.98	81	2.36	74.6	67.7	99.9
40	6.316	0.158	0.98	81	2.35	74.6	67.8	98.9
41	6.474	0.158	0.98	81	2.45	74.7	67.9	98.9
42	6.632	0.158	0.98	81	2.36	74.7	68	99.1
43	6.788	0.156	0.98	81	2.47	74.8	68.1	97.7
44	6.945	0.157	0.98	81	2.36	74.8	68.3	98.6
45	7.107	0.162	0.98	81	2.45	74.8	68.4	102.2
46	7.265	0.158	0.98	81	2.37	74.9	68.4	99.7
47	7.423	0.158	0.98	82	2.40	75	68.6	99.5
48	7.582	0.159	0.98	82	2.41	75	68.7	100.4
49	7.739	0.157	0.98	82	2.43	75	68.8	99.5
50	7.898	0.159	0.98	82	2.37	75.1	68.9	100.8
51	8.056	0.158	0.98	82	2.38	75.1	69	99.9
52	8.215	0.159	0.98	82	2.37	75.2	69.1	100.3
53	8.373	0.158	0.98	82	2.37	75.3	69.3	99.5
54	8.531	0.158	0.98	82	2.37	75.4	69.4	99.7
55	8.689	0.158	0.98	83	2.39	75.4	69.4	100.0
56	8.848	0.159	0.99	83	2.38	75.5	69.5	100.8
57	9.004	0.156	0.98	83	2.37	75.4	69.6	98.3
58	9.164	0.160	0.98	83	2.36	75.5	69.7	100.0
59	9.324	0.160	0.98	83	2.44	75.6	69.8	99.9
60	9.481	0.157	0.99	83	2.39	75.6	69.8	98.6

Train D - Ambient Background and Flue Gas Data

Run: 2 **Test Date:** 9/30.2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 11:38
Total Sampling Time 376 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Stack Temp (°F)*	*Draft (In. H_2O)*	*CO (ppm)*	*CO (%)*	*CO_2 (%)*
Tot / Avg	**59.490**	**0.158**	**1.09**	**85.1**	**2.06**	**188.27**	**0.025**	**182.8**	**0.21**	**8.40**
Minimum	0.000	0.153	1.08	77	2.00	115.70	-0.005	38.0	-0.02	0.31
Max	59.490	0.162	1.12	87	2.11	272.90	0.067	547.0	3.09	12.14
0	0.000		-0.02	77	0.07	115.7	0.002	67.0	0.01	5.79
1	0.153	0.153	1.11	77	2.04	197.5	0.013	547.0	0.10	1.18
2	0.312	0.159	1.12	77	2.11	205.8	0.019	547.0	0.07	0.31
3	0.469	0.157	1.11	77	2.10	173.8	0.009	530.0	0.05	0.68
4	0.631	0.162	1.11	77	2.07	155.6	0.000	547.0	0.26	2.63
5	0.787	0.156	1.10	77	2.07	144.7	-0.003	547.0	0.31	3.23
6	0.945	0.158	1.10	77	2.07	137.9	-0.003	547.0	0.31	3.47
7	1.101	0.156	1.10	77	2.07	133.3	-0.004	547.0	0.29	3.67
8	1.259	0.158	1.09	77	2.08	129.9	-0.005	547.0	0.23	3.94
9	1.416	0.157	1.09	78	2.04	127.6	-0.002	547.0	0.15	4.46
10	1.572	0.156	1.09	78	2.07	126.7	-0.004	547.0	0.13	5.06
11	1.730	0.158	1.09	78	2.04	126.8	-0.003	547.0	0.14	5.29
12	1.886	0.156	1.09	78	2.08	128.6	-0.001	547.0	0.13	5.87
13	2.043	0.157	1.09	78	2.08	131.4	0.001	547.0	0.13	6.37
14	2.198	0.155	1.09	78	2.03	136	0.002	547.0	0.10	7.09
15	2.354	0.156	1.09	78	2.05	141.9	0.027	547.0	0.12	8.04
16	2.511	0.157	1.09	78	2.05	149.1	0.010	547.0	0.12	7.96
17	2.668	0.157	1.09	78	2.05	156.8	0.011	547.0	0.10	7.77
18	2.827	0.159	1.08	78	2.03	164.2	0.013	547.0	0.07	7.67
19	2.985	0.158	1.09	79	2.02	171.4	0.016	406.0	0.03	7.90
20	3.141	0.156	1.08	79	2.04	177.8	0.015	146.0	0.01	7.86
21	3.299	0.158	1.09	79	2.03	183.9	0.019	40.0	0.00	8.02
22	3.455	0.156	1.09	79	2.06	189.7	0.031	38.0	0.00	7.95
23	3.612	0.157	1.08	79	2.04	195.3	0.017	43.0	0.00	7.97
24	3.770	0.158	1.09	79	2.05	200.2	0.041	48.0	0.00	8.03
25	3.925	0.155	1.09	79	2.07	204.9	0.036	54.0	0.01	7.80
26	4.083	0.158	1.09	79	2.05	208.8	0.040	56.0	0.00	7.38
27	4.239	0.156	1.09	80	2.04	213.1	0.046	57.0	0.00	7.46
28	4.394	0.155	1.09	80	2.08	216.9	0.036	57.0	0.00	8.07
29	4.552	0.158	1.08	80	2.06	220.5	0.023	61.0	0.01	8.06
30	4.708	0.156	1.09	80	2.06	226.3	0.040	69.0	0.00	9.03
31	4.868	0.160	1.08	80	2.08	230.7	0.042	73.0	0.01	9.06
32	5.025	0.157	1.08	80	2.07	236.1	0.049	79.0	0.01	8.45

Train D - Ambient Background and Flue Gas Data

Run: 2 **Test Date:** 9/30.2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 11:38
Total Sampling Time 376 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
33	5.182	0.157	1.08	80	2.06	239.6	0.047	81.0	0.00	8.71
34	5.340	0.158	1.09	80	2.08	243.3	0.050	91.0	0.00	8.37
35	5.496	0.156	1.08	81	2.03	247.1	0.050	99.0	0.00	8.37
36	5.654	0.158	1.08	81	2.03	250.9	0.049	105.0	0.01	8.81
37	5.810	0.156	1.09	81	2.03	254.6	0.045	111.0	0.00	9.44
38	5.968	0.158	1.08	81	2.02	257.1	0.048	120.0	0.00	9.02
39	6.125	0.157	1.09	81	2.05	258.8	0.048	119.0	0.01	8.70
40	6.282	0.157	1.09	81	2.08	260.6	0.050	120.0	0.00	8.67
41	6.440	0.158	1.08	81	2.05	262.1	0.050	119.0	0.01	8.64
42	6.596	0.156	1.09	81	2.05	263.1	0.043	119.0	0.02	8.71
43	6.751	0.155	1.08	82	2.07	263.9	0.049	112.0	0.00	8.58
44	6.909	0.158	1.08	82	2.07	264.7	0.051	115.0	0.02	8.42
45	7.068	0.159	1.08	82	2.09	266.7	0.049	94.0	0.00	9.46
46	7.226	0.158	1.08	82	2.08	267.3	0.048	90.0	0.00	9.21
47	7.383	0.157	1.09	82	2.05	268.2	0.054	102.0	0.01	8.84
48	7.541	0.158	1.08	82	2.09	269.7	0.055	105.0	0.00	8.88
49	7.697	0.156	1.09	82	2.09	270.8	0.055	105.0	0.00	9.03
50	7.855	0.158	1.08	82	2.02	271.6	0.056	103.0	-0.02	9.33
51	8.013	0.158	1.09	82	2.05	272.1	0.053	99.0	0.00	9.39
52	8.169	0.156	1.08	82	2.05	272.7	0.048	92.0	0.00	8.63
53	8.328	0.159	1.08	83	2.01	272.9	0.050	104.0	-0.01	8.92
54	8.484	0.156	1.09	83	2.05	272.9	0.051	103.0	0.01	8.93
55	8.643	0.159	1.08	83	2.08	272.7	0.055	103.0	0.01	8.96
56	8.800	0.157	1.09	83	2.06	272.6	0.067	101.0	0.01	9.10
57	8.954	0.154	1.08	83	2.04	272	0.035	99.0	0.01	9.06
58	9.116	0.162	1.08	83	2.02	271.3	0.036	108.0	-0.01	8.57
59	9.272	0.156	1.08	83	2.04	271.1	0.036	115.0	0.00	8.27
60	9.431	0.159	1.09	83	2.02	271.5	0.039	117.0	0.00	8.29
61	9.587	0.156	1.09	83	2.08	271.4	0.038	116.0	0.00	8.21
62	9.745	0.158	1.08	83	2.05	271.7	0.038	114.0	-0.01	8.35
63	9.903	0.158	1.08	83	2.00	271.4	0.036	117.0	0.01	8.27
64	10.060	0.157	1.09	83	2.07	271.1	0.037	127.0	0.01	8.31
65	10.219	0.159	1.08	84	2.02	270.9	0.038	140.0	0.01	8.46
66	10.376	0.157	1.09	84	2.05	270.8	0.032	136.0	0.00	8.50
67	10.534	0.158	1.09	84	2.03	270.5	0.038	130.0	0.01	8.40
68	10.691	0.157	1.09	84	2.04	270.3	0.037	135.0	0.00	8.72

Train D - Ambient Background and Flue Gas Data

Run: 2 **Test Date:** 9/30.2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 11:38
Total Sampling Time 376 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
69	10.849	0.158	1.08	84	2.03	269.9	0.042	130.0	0.00	8.92
70	11.005	0.156	1.08	84	2.07	270.5	0.039	129.0	0.01	9.75
71	11.165	0.160	1.08	84	2.08	270.2	0.039	98.0	-0.01	9.49
72	11.323	0.158	1.08	84	2.07	268	0.040	102.0	0.01	8.96
73	11.480	0.157	1.08	84	2.06	265.8	0.040	111.0	0.01	8.57
74	11.639	0.159	1.09	84	2.05	263.8	0.038	126.0	0.01	8.60
75	11.795	0.156	1.09	84	2.07	261.7	0.034	118.0	0.00	8.70
76	11.954	0.159	1.08	84	2.09	259.7	0.039	107.0	0.00	8.77
77	12.111	0.157	1.08	84	2.05	257.5	0.037	102.0	0.01	8.84
78	12.269	0.158	1.08	85	2.05	255.2	0.038	109.0	0.00	8.90
79	12.428	0.159	1.09	85	2.09	253.5	0.036	117.0	0.00	8.71
80	12.585	0.157	1.08	85	2.04	251.9	0.035	135.0	0.01	9.13
81	12.743	0.158	1.08	85	2.10	250.3	0.038	138.0	0.01	9.32
82	12.901	0.158	1.09	85	2.09	249	0.037	138.0	0.00	9.28
83	13.059	0.158	1.09	85	2.07	247.6	0.039	143.0	0.01	9.29
84	13.216	0.157	1.09	85	2.09	246.1	0.036	149.0	0.00	9.26
85	13.375	0.159	1.08	85	2.03	243.4	0.035	127.0	0.01	9.29
86	13.533	0.158	1.09	85	2.01	240.9	0.037	126.0	0.01	9.43
87	13.691	0.158	1.08	85	2.02	238	0.037	111.0	0.01	9.39
88	13.849	0.158	1.08	85	2.04	235	0.034	113.0	0.00	9.43
89	14.006	0.157	1.09	85	2.06	231.8	0.038	107.0	0.00	9.45
90	14.165	0.159	1.08	85	2.03	228.3	0.036	138.0	0.01	9.47
91	14.322	0.157	1.09	85	2.02	224.2	0.034	235.0	0.02	9.61
92	14.481	0.159	1.08	85	2.08	219.5	0.029	295.0	0.02	9.66
93	14.638	0.157	1.08	85	2.04	215.1	0.036	346.0	0.03	9.54
94	14.797	0.159	1.08	85	2.04	210.7	0.033	493.0	0.04	9.67
95	14.955	0.158	1.09	85	2.08	206.2	0.031	547.0	0.07	9.61
96	15.112	0.157	1.09	85	2.06	202	0.034	547.0	0.10	9.67
97	15.271	0.159	1.08	85	2.05	197.9	0.034	547.0	0.16	9.79
98	15.428	0.157	1.09	86	2.09	194.4	0.038	547.0	0.18	9.65
99	15.587	0.159	1.08	86	2.04	190.7	0.038	547.0	0.21	9.67
100	15.744	0.157	1.09	86	2.02	187.1	0.035	547.0	0.23	9.76
101	15.903	0.159	1.09	86	2.06	183.8	0.030	547.0	0.43	9.81
102	16.061	0.158	1.09	86	2.08	181	0.032	547.0	0.52	9.69
103	16.219	0.158	1.08	86	2.02	177.8	0.035	547.0	0.62	9.78
104	16.378	0.159	1.09	86	2.05	174.8	0.031	547.0	0.71	9.58

Train D - Ambient Background and Flue Gas Data

Run: 2 **Test Date:** 9/30.2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 11:38
Total Sampling Time 376 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
105	16.536	0.158	1.09	86	2.08	171.8	0.026	547.0	0.46	9.47
106	16.695	0.159	1.09	86	2.03	169	0.029	547.0	0.24	9.40
107	16.852	0.157	1.08	86	2.08	166.2	0.029	547.0	0.10	9.33
108	17.011	0.159	1.08	86	2.07	163.9	0.026	457.0	0.04	9.17
109	17.168	0.157	1.09	86	2.04	161.4	0.029	171.0	0.01	8.80
110	17.327	0.159	1.09	86	2.03	159.2	0.018	82.0	0.00	8.57
111	17.485	0.158	1.09	86	2.07	157.2	0.020	68.0	-0.02	8.40
112	17.643	0.158	1.09	86	2.09	155.3	0.025	66.0	0.00	8.21
113	17.802	0.159	1.09	86	2.02	153.2	0.026	65.0	0.00	8.02
114	17.960	0.158	1.09	86	2.07	151.3	0.025	66.0	0.00	7.94
115	18.119	0.159	1.09	86	2.04	149.3	0.016	66.0	0.00	7.79
116	18.276	0.157	1.09	86	2.04	147.7	0.019	67.0	0.00	7.82
117	18.435	0.159	1.09	86	2.05	146.3	0.024	66.0	0.00	7.74
118	18.593	0.158	1.09	86	2.09	144.6	0.023	67.0	0.00	7.74
119	18.752	0.159	1.08	86	2.10	143.1	0.019	67.0	0.00	7.57
120	18.909	0.157	1.09	86	2.02	141.6	0.016	68.0	0.00	7.54
121	19.068	0.159	1.09	86	2.07	140.3	0.016	68.0	0.00	7.59
122	19.226	0.158	1.09	86	2.08	139.3	0.016	69.0	0.00	7.52
123	19.384	0.158	1.08	86	2.10	138.3	0.021	67.0	0.00	7.52
124	19.543	0.159	1.09	86	2.08	137.5	0.022	68.0	0.00	7.69
125	19.701	0.158	1.09	86	2.09	136.8	0.020	69.0	0.00	7.82
126	19.860	0.159	1.09	86	2.07	136.3	0.017	69.0	0.00	7.93
127	20.017	0.157	1.09	86	2.08	136.3	0.019	68.0	0.00	7.93
128	20.176	0.159	1.08	86	2.09	135.9	0.017	68.0	0.00	7.90
129	20.333	0.157	1.09	86	2.10	135.9	0.019	65.0	0.00	7.73
130	20.492	0.159	1.08	86	2.03	136.6	0.018	62.0	0.00	7.76
131	20.650	0.158	1.09	86	2.05	137.6	0.016	59.0	0.00	7.74
132	20.808	0.158	1.08	86	2.03	138.8	0.019	58.0	0.00	7.92
133	20.966	0.158	1.09	86	2.09	140.1	0.014	56.0	0.00	8.03
134	21.125	0.159	1.08	86	2.10	141.5	0.018	56.0	0.00	8.03
135	21.283	0.158	1.09	86	2.01	142.8	0.022	56.0	-0.01	8.13
136	21.441	0.158	1.08	86	2.04	145	0.020	55.0	0.00	8.28
137	21.600	0.159	1.09	86	2.08	147.7	0.025	56.0	0.00	8.36
138	21.757	0.157	1.09	86	2.09	150.2	0.025	55.0	0.00	8.04
139	21.916	0.159	1.08	86	2.02	153.1	0.019	54.0	0.00	8.05
140	22.074	0.158	1.09	86	2.10	156.2	0.027	55.0	-0.02	8.14

Train D - Ambient Background and Flue Gas Data

Run: 2 **Test Date:** 9/30.2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 11:38
Total Sampling Time 376 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
141	22.233	0.159	1.09	86	2.06	159.5	0.026	56.0	0.00	8.26
142	22.390	0.157	1.09	86	2.07	162.5	0.031	56.0	0.00	8.35
143	22.549	0.159	1.08	86	2.05	165.9	0.023	59.0	0.00	8.57
144	22.707	0.158	1.09	86	2.09	169.4	0.030	62.0	0.00	8.70
145	22.865	0.158	1.08	86	2.05	173.8	0.029	65.0	0.00	8.88
146	23.024	0.159	1.09	86	2.05	178.4	0.033	69.0	0.00	9.06
147	23.182	0.158	1.09	86	2.08	183.7	0.033	73.0	0.00	9.25
148	23.341	0.159	1.09	86	2.01	188	0.035	79.0	0.00	9.50
149	23.498	0.157	1.09	86	2.07	193	0.032	85.0	0.00	9.79
150	23.657	0.159	1.08	86	2.09	198	0.042	92.0	0.00	10.16
151	23.815	0.158	1.09	86	2.05	203	0.037	121.0	0.00	10.64
152	23.974	0.159	1.09	86	2.08	209.1	0.034	294.0	0.04	11.10
153	24.131	0.157	1.09	86	2.09	215.6	0.039	381.0	0.03	11.19
154	24.290	0.159	1.08	86	2.05	220	0.040	547.0	0.12	11.56
155	24.448	0.158	1.08	86	2.04	225.6	0.041	547.0	0.26	11.76
156	24.606	0.158	1.08	86	2.09	231	0.032	547.0	0.49	12.00
157	24.765	0.159	1.09	86	2.04	237.3	0.041	547.0	1.35	12.14
158	24.922	0.157	1.08	86	2.08	242.7	0.049	547.0	2.13	11.70
159	25.081	0.159	1.08	86	2.03	246.7	0.049	547.0	2.29	11.60
160	25.239	0.158	1.08	86	2.08	250.8	0.043	547.0	2.41	11.55
161	25.398	0.159	1.09	86	2.04	251.8	0.050	547.0	2.51	11.55
162	25.555	0.157	1.09	86	2.07	252.6	0.044	547.0	2.62	11.51
163	25.714	0.159	1.08	86	2.10	251.6	0.044	547.0	2.54	11.47
164	25.872	0.158	1.08	86	2.10	250.3	0.042	547.0	2.45	11.36
165	26.030	0.158	1.08	86	2.05	248.4	0.038	547.0	2.25	11.24
166	26.189	0.159	1.08	86	2.09	246.8	0.045	547.0	2.29	11.20
167	26.347	0.158	1.09	86	2.11	245.2	0.036	547.0	2.03	11.33
168	26.506	0.159	1.09	86	2.05	244.3	0.035	547.0	1.98	11.40
169	26.663	0.157	1.08	86	2.06	242.3	0.046	547.0	1.82	11.34
170	26.822	0.159	1.08	86	2.08	240.7	0.040	547.0	1.55	11.39
171	26.979	0.157	1.09	87	2.04	238	0.039	547.0	2.31	10.97
172	27.139	0.160	1.09	86	2.03	236.4	0.038	547.0	2.72	10.71
173	27.296	0.157	1.09	87	2.03	234.4	0.043	547.0	2.92	10.47
174	27.455	0.159	1.09	87	2.08	232.2	0.039	547.0	2.80	10.40
175	27.613	0.158	1.09	87	2.10	228.6	0.043	547.0	2.89	10.20
176	27.772	0.159	1.08	87	2.03	224	0.027	547.0	2.97	9.93

Train D - Ambient Background and Flue Gas Data

Run: 2 **Test Date:** 9/30.2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 11:38
Total Sampling Time 376 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
177	27.930	0.158	1.09	86	2.10	218.4	0.033	547.0	3.09	9.72
178	28.088	0.158	1.09	87	2.07	212.3	0.035	547.0	2.99	9.47
179	28.247	0.159	1.09	87	2.03	206.2	0.030	547.0	2.92	9.28
180	28.405	0.158	1.09	87	2.07	199.9	0.030	547.0	2.74	9.06
181	28.564	0.159	1.08	87	2.04	193.4	0.027	547.0	2.60	8.81
182	28.722	0.158	1.09	87	2.02	187.1	0.030	547.0	2.38	8.73
183	28.881	0.159	1.09	87	2.03	181.8	0.025	547.0	2.05	8.82
184	29.039	0.158	1.09	87	2.09	177.1	0.026	547.0	1.54	8.85
185	29.198	0.159	1.09	87	2.08	172.9	0.023	547.0	1.10	9.01
186	29.355	0.157	1.09	87	2.02	168.9	0.021	547.0	0.83	9.05
187	29.514	0.159	1.08	87	2.04	165.8	0.018	547.0	0.70	9.38
188	29.673	0.159	1.09	87	2.08	162.5	0.019	547.0	0.47	9.38
189	29.831	0.158	1.08	87	2.06	159.6	0.018	547.0	0.29	9.44
190	29.990	0.159	1.09	87	2.08	156.9	0.014	547.0	0.17	9.45
191	30.148	0.158	1.08	87	2.08	154.4	0.016	547.0	0.09	9.53
192	30.307	0.159	1.09	87	2.08	152.3	0.011	547.0	0.05	9.58
193	30.465	0.158	1.08	87	2.07	150.3	0.017	301.0	0.02	9.48
194	30.624	0.159	1.09	87	2.10	148.3	0.018	175.0	0.01	9.44
195	30.782	0.158	1.09	87	2.09	146.3	0.011	129.0	0.00	9.31
196	30.941	0.159	1.09	87	2.07	144.4	0.014	103.0	0.00	9.08
197	31.098	0.157	1.09	87	2.03	143.1	0.018	90.0	0.00	8.82
198	31.258	0.160	1.09	87	2.03	141.6	0.013	85.0	0.00	8.54
199	31.416	0.158	1.09	87	2.08	140.3	0.020	83.0	0.00	8.31
200	31.574	0.158	1.08	87	2.09	138.9	0.017	81.0	0.00	8.05
201	31.733	0.159	1.09	87	2.07	137.4	0.009	80.0	0.00	7.92
202	31.891	0.158	1.08	87	2.04	136.1	0.012	78.0	0.00	7.72
203	32.050	0.159	1.09	87	2.05	134.8	0.013	79.0	0.00	7.68
204	32.208	0.158	1.09	87	2.09	133.6	0.010	77.0	0.00	7.46
205	32.368	0.160	1.09	87	2.04	132.2	0.009	75.0	0.00	7.30
206	32.525	0.157	1.09	87	2.10	131.2	0.015	75.0	0.00	7.27
207	32.685	0.160	1.08	87	2.09	129.8	0.008	74.0	0.00	7.08
208	32.842	0.157	1.09	87	2.10	128.6	0.015	73.0	0.00	6.96
209	33.002	0.160	1.09	87	2.04	127.5	0.010	72.0	0.00	6.80
210	33.159	0.157	1.09	87	2.08	126.5	0.014	71.0	0.00	6.71
211	33.319	0.160	1.09	87	2.11	125.7	0.007	69.0	0.00	6.61
212	33.476	0.157	1.09	87	2.06	124.7	0.009	67.0	0.00	6.46

Train D - Ambient Background and Flue Gas Data

Run: 2 **Test Date:** 9/30.2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 11:38
Total Sampling Time 376 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
213	33.635	0.159	1.09	87	2.08	124	0.008	68.0	0.00	6.50
214	33.794	0.159	1.09	87	2.08	123.3	0.015	64.0	0.00	6.34
215	33.952	0.158	1.09	87	2.10	122.9	0.011	62.0	0.00	6.33
216	34.111	0.159	1.09	87	2.07	122.7	0.008	60.0	0.00	6.33
217	34.269	0.158	1.09	87	2.10	122.7	0.009	59.0	0.00	6.41
218	34.429	0.160	1.09	87	2.05	122.9	0.013	58.0	0.00	6.52
219	34.586	0.157	1.09	87	2.08	123.5	0.014	59.0	0.00	6.66
220	34.746	0.160	1.09	87	2.05	124.3	0.010	59.0	0.00	6.82
221	34.903	0.157	1.09	87	2.09	125.6	0.007	59.0	-0.01	7.00
222	35.063	0.160	1.08	87	2.11	126.7	0.009	60.0	0.00	7.18
223	35.221	0.158	1.09	87	2.10	128.1	0.016	60.0	0.00	7.43
224	35.380	0.159	1.09	87	2.03	129.5	0.014	59.0	0.00	7.55
225	35.537	0.157	1.09	87	2.02	131.1	0.013	61.0	0.00	7.78
226	35.697	0.160	1.09	87	2.08	133.4	0.014	61.0	0.00	7.95
227	35.855	0.158	1.09	87	2.08	135.8	0.010	64.0	0.00	8.38
228	36.013	0.158	1.09	87	2.10	138.4	0.007	65.0	0.00	8.73
229	36.172	0.159	1.09	87	2.06	141	0.014	65.0	0.00	9.05
230	36.330	0.158	1.08	87	2.03	143.9	0.018	66.0	0.00	9.34
231	36.490	0.160	1.09	87	2.10	147.4	0.015	67.0	0.00	9.60
232	36.647	0.157	1.09	87	2.08	151.1	0.015	68.0	0.00	9.92
233	36.806	0.159	1.09	87	2.03	154.9	0.015	67.0	0.00	10.11
234	36.964	0.158	1.09	87	2.04	158.6	0.018	66.0	0.00	10.15
235	37.123	0.159	1.08	87	2.05	163	0.019	67.0	0.00	10.46
236	37.281	0.158	1.09	87	2.09	167.3	0.022	68.0	0.00	10.67
237	37.440	0.159	1.09	87	2.08	171.4	0.017	70.0	0.01	10.74
238	37.598	0.158	1.09	87	2.05	175.8	0.022	69.0	0.00	10.75
239	37.757	0.159	1.09	87	2.10	179.9	0.019	68.0	0.00	10.73
240	37.915	0.158	1.09	87	2.07	183.4	0.026	70.0	0.00	10.83
241	38.074	0.159	1.08	87	2.07	187.4	0.030	73.0	0.00	10.93
242	38.232	0.158	1.09	87	2.09	191.8	0.025	93.0	0.00	11.01
243	38.391	0.159	1.09	87	2.03	196.4	0.030	125.0	0.00	11.00
244	38.550	0.159	1.09	87	2.08	200.1	0.028	197.0	0.01	11.36
245	38.708	0.158	1.09	87	2.05	203.3	0.025	287.0	0.02	11.24
246	38.867	0.159	1.09	87	2.08	206.9	0.034	417.0	0.03	11.29
247	39.025	0.158	1.09	87	2.09	210.1	0.030	519.0	0.04	11.36
248	39.184	0.159	1.09	87	2.02	213	0.036	547.0	0.06	11.25

Train D - Ambient Background and Flue Gas Data

Run: 2 **Test Date:** 9/30.2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 11:38
Total Sampling Time 376 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
249	39.342	0.158	1.09	87	2.06	216.4	0.035	547.0	0.05	11.18
250	39.501	0.159	1.09	87	2.06	219.5	0.032	547.0	0.05	11.22
251	39.659	0.158	1.09	87	2.10	222.8	0.033	547.0	0.07	11.17
252	39.818	0.159	1.09	87	2.04	224.2	0.033	547.0	0.05	11.07
253	39.976	0.158	1.09	87	2.09	224.4	0.035	547.0	0.06	10.99
254	40.135	0.159	1.09	87	2.07	225	0.035	547.0	0.06	10.72
255	40.293	0.158	1.09	87	2.08	225.2	0.035	469.0	0.04	10.72
256	40.452	0.159	1.08	87	2.08	224	0.027	238.0	0.01	10.51
257	40.611	0.159	1.09	87	2.03	222.6	0.023	126.0	0.00	10.33
258	40.769	0.158	1.09	87	2.05	221.9	0.023	98.0	0.00	10.22
259	40.928	0.159	1.09	87	2.08	220.7	0.031	89.0	0.00	9.95
260	41.086	0.158	1.09	87	2.10	218.2	0.032	72.0	0.00	9.65
261	41.245	0.159	1.09	87	2.09	215.6	0.032	69.0	0.00	9.45
262	41.403	0.158	1.09	87	2.05	212.9	0.029	65.0	0.00	9.27
263	41.562	0.159	1.09	87	2.05	209.3	0.027	61.0	0.00	9.07
264	41.720	0.158	1.09	87	2.04	205.7	0.024	58.0	0.00	8.87
265	41.879	0.159	1.09	87	2.04	201.8	0.022	55.0	0.00	8.67
266	42.037	0.158	1.10	87	2.10	198	0.027	54.0	0.00	8.57
267	42.196	0.159	1.09	87	2.05	194.5	0.023	52.0	0.00	8.43
268	42.354	0.158	1.09	87	2.07	190.8	0.026	52.0	0.00	8.36
269	42.513	0.159	1.09	87	2.04	187	0.022	52.0	0.00	8.24
270	42.672	0.159	1.09	87	2.09	183.6	0.018	54.0	0.00	8.17
271	42.830	0.158	1.09	87	2.09	180.3	0.020	54.0	0.00	8.05
272	42.990	0.160	1.09	87	2.09	177.4	0.018	54.0	0.00	7.95
273	43.148	0.158	1.09	87	2.07	174.4	0.017	54.0	0.00	7.98
274	43.307	0.159	1.09	87	2.09	171.5	0.023	57.0	0.00	7.86
275	43.464	0.157	1.09	87	2.09	169.1	0.021	58.0	0.00	7.87
276	43.624	0.160	1.09	87	2.04	166.9	0.021	57.0	0.00	7.82
277	43.782	0.158	1.09	87	2.02	164.9	0.017	58.0	0.00	7.68
278	43.941	0.159	1.09	87	2.08	163.1	0.016	58.0	0.00	7.76
279	44.099	0.158	1.10	87	2.03	161.2	0.019	57.0	0.00	7.67
280	44.259	0.160	1.09	87	2.05	159.6	0.016	58.0	0.00	7.64
281	44.416	0.157	1.10	87	2.05	158	0.017	58.0	0.00	7.59
282	44.576	0.160	1.09	87	2.10	156.6	0.012	59.0	0.00	7.58
283	44.734	0.158	1.10	87	2.05	154.9	0.017	59.0	0.00	7.49
284	44.893	0.159	1.09	87	2.09	153.9	0.018	59.0	0.00	7.38

Train D - Ambient Background and Flue Gas Data

Run: 2 **Test Date:** 9/30.2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 11:38
Total Sampling Time 376 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
285	45.051	0.158	1.09	87	2.07	152.8	0.013	58.0	0.00	7.39
286	45.210	0.159	1.09	86	2.10	151.4	0.013	59.0	0.00	7.35
287	45.369	0.159	1.09	87	2.09	150.2	0.013	60.0	0.00	7.35
288	45.527	0.158	1.09	87	2.11	148.8	0.009	61.0	0.00	7.39
289	45.686	0.159	1.09	87	2.11	147.9	0.011	64.0	0.00	7.44
290	45.844	0.158	1.09	87	2.03	147.1	0.011	65.0	0.00	7.37
291	46.003	0.159	1.09	87	2.08	146.3	0.016	64.0	0.00	7.44
292	46.161	0.158	1.09	86	2.07	145.4	0.013	66.0	0.00	7.42
293	46.320	0.159	1.09	87	2.05	144.5	0.015	67.0	0.00	7.50
294	46.478	0.158	1.09	86	2.11	144.1	0.015	68.0	0.00	7.50
295	46.638	0.160	1.09	86	2.07	143.6	0.010	69.0	0.00	7.48
296	46.795	0.157	1.10	86	2.07	143.3	0.011	71.0	0.00	7.55
297	46.955	0.160	1.09	86	2.03	143	0.013	72.0	0.00	7.69
298	47.113	0.158	1.10	86	2.06	143.1	0.013	72.0	0.00	7.73
299	47.272	0.159	1.09	86	2.07	142.9	0.013	71.0	0.00	7.70
300	47.430	0.158	1.09	86	2.04	143.2	0.004	71.0	0.00	7.66
301	47.589	0.159	1.08	86	2.04	143.7	0.007	70.0	0.00	7.69
302	47.748	0.159	1.09	86	2.04	144.4	0.013	72.0	0.00	7.71
303	47.906	0.158	1.09	86	2.04	145.1	0.012	70.0	0.00	7.73
304	48.065	0.159	1.09	86	2.09	146.3	0.012	69.0	0.00	7.77
305	48.223	0.158	1.09	86	2.03	147.2	0.015	68.0	0.00	7.82
306	48.383	0.160	1.09	86	2.10	147.7	0.014	67.0	0.00	7.85
307	48.540	0.157	1.09	86	2.04	149.3	0.018	65.0	0.00	7.85
308	48.700	0.160	1.09	86	2.08	150.5	0.016	64.0	0.00	7.80
309	48.858	0.158	1.10	86	2.02	152.1	0.018	62.0	0.00	7.80
310	49.018	0.160	1.09	86	2.06	153.8	0.020	61.0	0.00	7.86
311	49.175	0.157	1.09	86	2.10	155.3	0.020	60.0	0.00	7.80
312	49.335	0.160	1.09	86	2.07	156.5	0.014	60.0	-0.01	7.79
313	49.492	0.157	1.09	86	2.10	158.4	0.018	59.0	0.00	7.81
314	49.652	0.160	1.09	86	2.08	160.5	0.019	58.0	0.00	7.85
315	49.810	0.158	1.09	86	2.03	161.8	0.015	59.0	0.00	7.85
316	49.969	0.159	1.09	86	2.05	163.2	0.019	59.0	0.00	7.81
317	50.128	0.159	1.09	86	2.11	164.6	0.019	58.0	0.00	7.81
318	50.286	0.158	1.09	86	2.02	166.6	0.020	58.0	0.00	7.80
319	50.445	0.159	1.09	86	2.05	167.9	0.021	58.0	0.00	7.85
320	50.603	0.158	1.09	86	2.06	169.4	0.019	57.0	0.00	7.83

Train D - Ambient Background and Flue Gas Data

Run: 2 **Test Date:** 9/30.2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 11:38
Total Sampling Time 376 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
321	50.763	0.160	1.09	86	2.04	170.8	0.020	56.0	0.00	7.74
322	50.920	0.157	1.09	86	2.09	172.5	0.019	56.0	0.00	7.70
323	51.080	0.160	1.09	86	2.03	173.8	0.023	55.0	0.00	7.63
324	51.238	0.158	1.09	86	2.02	175.4	0.020	55.0	0.00	7.66
325	51.397	0.159	1.09	86	2.08	176.9	0.021	54.0	0.00	7.58
326	51.555	0.158	1.09	86	2.05	177.6	0.021	56.0	0.00	7.61
327	51.714	0.159	1.09	86	2.10	178.8	0.021	55.0	0.00	7.64
328	51.872	0.158	1.09	86	2.03	180.3	0.022	54.0	0.00	7.52
329	52.031	0.159	1.09	86	2.10	181.2	0.022	54.0	-0.01	7.35
330	52.189	0.158	1.09	86	2.09	182.6	0.023	54.0	0.00	7.24
331	52.348	0.159	1.09	86	2.10	183.5	0.024	53.0	0.00	7.19
332	52.507	0.159	1.09	86	2.09	183.9	0.021	54.0	0.00	7.17
333	52.665	0.158	1.09	86	2.05	184.7	0.025	54.0	0.00	7.18
334	52.825	0.160	1.09	86	2.08	185.7	0.020	54.0	0.00	7.23
335	52.983	0.158	1.09	86	2.04	186.2	0.023	56.0	0.00	7.24
336	53.144	0.161	1.09	86	2.08	186.9	0.024	53.0	-0.01	7.13
337	53.299	0.155	1.09	86	2.09	187.4	0.021	53.0	0.00	7.10
338	53.459	0.160	1.09	86	2.11	188.3	0.023	53.0	0.00	7.07
339	53.616	0.157	1.09	86	2.05	188.8	0.022	51.0	0.00	7.07
340	53.776	0.160	1.09	86	2.09	189.4	0.023	52.0	0.00	7.08
341	53.934	0.158	1.09	86	2.08	189	0.023	51.0	0.00	6.99
342	54.093	0.159	1.09	86	2.03	189.7	0.025	51.0	0.00	7.04
343	54.251	0.158	1.09	86	2.04	190.1	0.024	51.0	0.00	6.96
344	54.410	0.159	1.09	86	2.10	190	0.018	51.0	0.00	6.98
345	54.568	0.158	1.09	86	2.11	190.3	0.025	51.0	0.00	7.04
346	54.727	0.159	1.09	86	2.10	191	0.022	52.0	0.00	6.98
347	54.886	0.159	1.09	86	2.02	191.1	0.028	52.0	0.00	6.97
348	55.044	0.158	1.09	86	2.06	191.3	0.019	53.0	0.00	6.92
349	55.205	0.161	1.09	86	2.08	191.6	0.020	53.0	0.00	6.95
350	55.364	0.159	1.08	86	2.05	192.4	0.025	53.0	0.00	6.92
351	55.520	0.156	1.09	86	2.02	192.6	0.021	53.0	0.00	6.84
352	55.678	0.158	1.09	86	2.10	192.9	0.020	52.0	0.00	6.88
353	55.837	0.159	1.08	86	2.01	192.8	0.021	52.0	0.00	6.75
354	55.995	0.158	1.09	86	2.04	192.6	0.018	52.0	-0.01	6.70
355	56.155	0.160	1.09	86	2.02	192	0.022	52.0	0.00	6.69
356	56.312	0.157	1.09	86	2.05	192.9	0.019	56.0	0.00	6.88

Train D - Ambient Background and Flue Gas Data

Run: 2 **Test Date:** 9/30.2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 11:38
Total Sampling Time 376 min
Recording Interval 1 min

Elapsed Time (min)	**Ambient Sampling System**					**Flue Gas Data**				
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Stack Temp (°F)*	*Draft (In. H_2O)*	*CO (ppm)*	*CO (%)*	*CO_2 (%)*
357	56.472	0.160	1.09	86	2.04	192.9	0.020	62.0	-0.01	7.09
358	56.630	0.158	1.09	86	2.08	192.7	0.022	62.0	0.00	7.23
359	56.789	0.159	1.09	86	2.08	193.2	0.019	61.0	0.00	7.25
360	56.947	0.158	1.09	86	2.10	193.3	0.019	62.0	0.00	7.16
361	57.106	0.159	1.09	86	2.11	193.5	0.021	62.0	0.00	7.07
362	57.265	0.159	1.09	86	2.04	193.9	0.016	61.0	0.00	7.11
363	57.426	0.161	1.09	86	2.08	194.2	0.026	62.0	0.00	7.09
364	57.585	0.159	1.09	86	2.08	194.6	0.027	65.0	0.00	7.15
365	57.743	0.158	1.09	86	2.07	194.7	0.029	64.0	0.00	7.12
366	57.900	0.157	1.10	86	2.09	194.5	0.022	63.0	0.00	7.16
367	58.058	0.158	1.09	86	2.06	194.7	0.023	63.0	0.00	7.22
368	58.218	0.160	1.09	86	2.08	195.5	0.022	64.0	0.00	7.29
369	58.375	0.157	1.09	86	2.09	195.7	0.020	65.0	0.00	7.41
370	58.535	0.160	1.09	86	2.07	196.9	0.023	65.0	0.00	8.00
371	58.693	0.158	1.10	86	2.03	197.6	0.022	68.0	0.00	8.52
372	58.853	0.160	1.09	86	2.06	197.7	0.024	68.0	-0.01	8.49
373	59.010	0.157	1.10	86	2.04	198.1	0.025	65.0	0.00	8.33
374	59.170	0.160	1.10	86	2.10	198.6	0.021	64.0	0.00	8.11
375	59.328	0.158	1.09	86	2.08	199.3	0.026	63.0	0.00	7.97
376	59.490	0.162	1.09	86	2.06	199.5	0.020	64.0	0.00	7.98

Gravimetric Lab Data

ASTM E2515

Manufacturer:	Valley Comfort
Model:	Sentry 14
Tracking No.:	2509
Project No.:	0142WS024E
Run No.:	2
Test Date:	9/30.2025

OMNI Eq. ID Numbers	
Analytical Scale	
Audit Weight Set:	
Analytical Scale	
Hydrometer	
Filters are weighed	In Pairs

Train A

Sample Component / Date / Time in Dessicator		Reagent	Filter, Probe or Dish #	Weights: Final, mg	Weights: Tare, mg	Particulate, mg: Uncorrected	Particulate, mg: Corrected
FilterPairs		Filter	F567	245.0	241.7	3.3	3.3
			F567A				
Probe catch*		Probe	OES5	163565.7	163565.7	0.0	0.0
ilter seals catch*		Seals	S978	3264.9	3264.9	0.0	0.0
				Total Particulate, mg:		**3.3**	**3.3**

Train B

Sample Component / Date / Time in Dessicator		Reagent	Filter, Probe or Dish #	Weights: Final, mg	Weights: Tare, mg	Particulate, mg: Uncorrected	Particulate, mg: Corrected
FilterPairs		Filter	F568	243.9	240.8	3.1	3.1
			F568A				
Probe catch*		Probe	36	114881.2	114881.2	0.0	0.0
ilter seals catch*		Seals	S979	3368.8	3368.8	0.0	0.0
			Sub-Total	Total Particulate, mg:		**3.1**	**3.1**

Train C - *First Hour*

Sample Component / Date / Time in Dessicator		Reagent	Filter, Probe or Dish #	Weights: Final, mg	Weights: Tare, mg	Particulate, mg: Uncorrected	Particulate, mg: Corrected
FilterPairs		Filter	F569	243.4	242.0	1.4	1.4
			F569A				
Probe catch*		Probe	28	114747.4	114747.4	0.0	0.0
ilter seals catch*		Seals	S980	3324.7	3324.7	0.0	0.0
				Total Particulate, mg:		**1.4**	**1.4**

Train D - *Ambient Background*

Sample Component / Date / Time in Dessicator		Reagent	Filter # or	Weights: Final, mg	Weights: Tare, mg	Particulate, mg
Filter catch*		Filter				0.0
				Total Particulate, mg:		**0.0**

Final (mg) - Tare (mg) = Particulate (mg)

NOTE: The Uncorrected values are those where any negative filter weights are taken as a negative value. This can possibly occur when filter matter adheres the O-ring seals and thereby transfers some mass to the O-ring. The Corrected values reflect where any negative filter weights are taken as ZERO, thus not accounting for any transfer of mass and resultingly over-reporting. Corrected values were added to this analysis to report the "Corrected" results in this report in response to a request by the US EPA. In cases where the Final weight minus the Tare weight of the Ambient filter occurs, it is taken as a ZERO. Any negative probe weights are evaluated pursuant to clause of ASTM E25215 (or appropriatelt associated test standard as defined in the introduction of this report).

Technician Signature:_____ Reviewed By:_____

Run 2 - Run Notes

Manufacturer	Valley Comfort
Model:	Sentry 14
Project Number:	0142WS024E
Run Number:	2
Test Date:	9/30.2025

This supplemental section of miscellaneous run notes is comprised of the following:

- Appliance Operation Notes
- Velocity Traverse / Supplementa Run Notes
- Test Fuel Notes
- Gravimetric Analysis Notes

ASTM E2780 Wood Heater Test Notes

Client: Valley Comfort Project Number: 0142WS024E Run Number: 2
Model: Sentry 14 Tracking Number: Date: 9/30/2025
Test Crew:

Test Fuel Properties

Equipment			
Device	**OMNI Number**	**Cal Date**	**Cal Due**
Tape Measure			
Moisture Meter			
Moisture Reference			
Fuel Scale			
Fuel Scale Audit Weight			
Fuel Species / Type	Douglas fir, untreated and air dried, standard grade or better dimensional lumber.		

Calibration Verifications			
Moisture Meter		Fuel Preparation Scale	
12% Reference :	12.0	10.0 lb. Reference Audit :	10.00
22% Reference :	22.0		

Pre-Burn Fuel								
Piece No.	Length, In.	Moisture % db	Piece No.	Length, In.	Moisture % db	Piece No.	Length, In.	Moisture % db
1	14.5	23.3	7	10	20.8	13		
2	14.5	22.1	8	~~10~~		14		
3	14.5	19.0	9			15		
4	10	25	10			16		
5	10	23.8	11			17		
6	10	19.2	12			18		
Total Weight, lb.		8.82	Time of Day		0905	Room Temp. °F		67

Test Fuel Charge					
Piece No.	**Weight, Lb.**	**Moisture Measurements**			**Lumber Type**
1	1.94 / 1.52	19.4	22.2	19.2	2x4
2	1.92 / 1.52	20.5	21.7	20.3	
3	2.02 / 1.55	24.5	23.8	23.1	
4	1.91 / 1.53	19.7	20.6	19.1	
5	1.91 / 1.52	20.5	21.3	20.2	
6					
7					
8					
Spacer Moisture Readings					
18.8	16.1	20.6	17.1	14.0	
16.4	19.2	17.3	20.4	16.0	
16.1	14.9	9.4	16.7	17.3	
17.5	14.0	9.0	22.6	12.6	
Time of Day		1015	Room Temp. °F		66
Total weight 2x4 with spacers, lb.		9.84	Total weight 4x4 with spacers, lb.		
			Total weight of fuel charge, Lb.		

Technician Signature: Date: 9-30-2025

ASTM E2780 Wood Heater Test Notes

Client: Valley Comfort Project Number: 0142WS024E Run Number: 2
Model: Sentry 14 Tracking Number: Date: 9/30/2025
Test Crew:

Supplemental Data

Test Booth No. _____ Sampling Start Time: _____ Sampling End Time: _____

Tunnel Cleaned Date _____ % Smoke Capture 100 Induced Draft _____ in.H_2O

Systems Leak Checks			
System	Pre-Test	Post-Test	Sampling Probe Change-out
Pitot	0.00 @ 3.03"	0.001 @ 5.3	
Train A	0.002 @ 23.7	0.00 @ 3" Pitot	
Train B	0.002 @ 21.9	0.001 @ 7.71	
Train C	0.003 @ 19.7	0.002 @ 9.78	

Velocity Traverse, 6-inch tunnel			
Location	Microtector (in. H_2O)	Δp (in. H_2O)	Tunnel Temp., °F
Center	.053	.106	95
1	.030	.060	95
2	.041	.082	95
3	.045	.090	95
4	.030	.060	95
5	.030	.060	95
6	.050	.100	95
7	.045	.090	95
8	.030	.060	95
Tunnel Static (in. H_2O)		Pre-Test	Post-Test
		-0.4	

Miscellaneous Parameters			
Item	Initial	Final	Equipment No.
Room Air Velocity, ft/min.	14	16	
Scale Audit, lb. (20-80 % of fuel load)	10.0	10.0	
Room Relative Humidity, %	51	49	
Barometric Pressure, in. Hg	29.73	29.74	
Room Temperature, °F	73	74	

Flue Gas Continuous Analyzer						
Analyzer ID		Response Time, sec.		Leak Check Performed?		
Bias Checks	Concentration:		Pre-Test Response		Post-Test Response	
Concentration	Bottle No.	Value, %	Pre-Test Response		Post-Test Response	
			Zero	Span	Zero	Span
CO2 % Span		4.07 16.88	0	16.88	0.00	16.84
CO % Span		4.07	0	4.07	0.00	4.047
CO ppm Span		500	0	497	0.00	472
Zero		0	0			

Technician Signature: _____ Date: 9-30-2025

OMNI-Test Laboratories, Inc. **ASTM E2780 Wood Heater Test Notes**

Client: Valley Comfort Project Number: 0142WS024E Run Number:2
Model: Sentry 14 Tracking Number: Date: 9/30/2025
Test Crew:

Primary Air Control Settings

Secondary:

Tertiary/Pilot:

Fan: Low

Preburn Notes

Time	Notes
1000	Preburn loaded aftertaring Stove
1038	At 2.5 lbs air setting changed to test setting
1138	Preburn stopped

Sampling Portion Notes

Sketch test fuel configuration:

Start up procedures & Timeline:
Bypass: Used
Fuel loaded by: 75
Door closed at: 80
Primary air: 65°

Notes:

Time	Notes
1139	Test Start
1238	First hour sampling stopped

Technician Signature: Date: 10-16-2025

ASTM E2780 Wood Heater Test Notes

Client: Valley Comfort Project Number: 0142WS024E Run Number:2
Model: Sentry 14 Tracking Number: Date: 9/30/2025
Test Crew:

Gravimetric Analysis Sheet

Assembled By:

RT

Date/Time in Desiccator:

	Weighing's				
	Date/Time: 0745 10-1-25	Date/Time: 0600 10-2-2025	Date/Time: 10-3-2025 0710	Date/Time:	Date/Time:
	R/H %: 0.1 10.4	R/H %: 0.1 10.8	R/H %: 0.1 11.5	R/H %:	R/H %:
	Temp: 73.4	Temp: 73.3	Temp: 73.1	Temp:	Temp:
	100 mg Audit 100.0	100 mg Audit 100.0	100 mg Audit 100.0	100 mg Audit	100 mg Audit
	200 mg Audit: 200.0	200 mg Audit: 200.0	200 mg Audit: 200.0	200 mg Audit:	200 mg Audit:
	2 g Audit: 2000.2	2 g Audit: 2000.2	2 g Audit: 2000.1	2 g Audit:	2 g Audit:
	100 g Audit: 99997.7	100 g Audit 99997.8	100 g Audit 99997.7	100 g Audit	100 g Audit
	Initials: RT	Initials: RT	Initials: RT	Initials:	Initials:

Train	Element	ID #	Tare (mg)	√	Weight (mg)	Weight (mg)	Weight (mg)	Weight (mg)	Weight (mg)
A	Filter Pair	F567 F567A	241.7		245.1	245.0 ✓			
	Probe	OES 5	113565.7		113565.7	113565.7 ✓			
	O-Ring Set	5978	3264.9		3265.4	3264.9 ✓	3264.9 ✓		
B	Front Filter	F568 F568A	240.8		243.9	243.9 ✓			
	Probe	36	114881.2		114881.2	114881.2 ✓			
	O-Ring Set	5979	3368.6		3369.2	3368.8	3368.8 ✓		
C (1st hr)	Front Filter	F569 F569A	242.0		243.4	243.4 ✓			
	Probe	28	114747.4		114747.4	114747.4 ✓			
	O-Ring Set	5980	3324.7		3324.8	3324.7 ✓			
BG	Filter	F577	123.3		123.3	123.3 ✓			

Technician Signature: Date: 10-16-2025

Equations and Calculations – ASTM E2780 & E2515

Manufacturer	Valley Comfort
Model:	Sentry 14
Project Number:	0142WS024E
Run Number:	2

Sample calculations of each equation used in the refernced standards for this test run.

Summary of INPUT values necessary for calculations

Global Input Parameters for Equations		Value	Source
FM_S	- Average moisture of test fuel spacers, % dry basis	16.30	Fuel Properties Work Sheet
M_{Swb}	- Weight of Test Fuel Spacers, wet basis, kg	2.13	Fuel Properties Work Sheet
M_{CPnwb}	- Weight of each test fuel piece n in fuel crib, excluding nails and spacers, wet basis , kg	[1]Varies	Fuel Properties Work Sheet
FM_{CPn}	- Average fuel Fuel moisture in fuel crib, % dry basis	[1]Varies	Fuel Properties Work Sheet
V_C	- Volume of Fuel Crib, ft^3 (less spacers)	0.220	Fuel Properties Work Sheet
V_{SCENT}	- Average gas velocity at the center of the dilution tunnel calculated after the Pitot tube traverse, ft/sec	0.00	Traverse Worksheet
V_{STRAV}	- Average gas velocity calculated after the multipoint Pitot traverse	15.59	Traverse Worksheet
θ	- Duration of test, min	376	*Train A Worksheet*
P_{bar}	- Barometric pressure (average) at the testing site, in. Hg	29.74	*Traverse Worksheet*
Pg	- Tunnel Static Pressure	-0.4	*Traverse Worksheet*

[1] *Denotes that this pararmeter for each individual piece of fuel is calculated in the Test Fuel Properties worksheet and the input values are pulled into these sample caculations.*

Sample Train Input Parameters for Equations		Train A	Train B	Train C	Train D
V_m	- Volume of gas sample measured at the dry gas meter, dcf	62.699	59.903	9.481	59.49
Y	Dry gas meter calibration factor	0.991	1.005	0.981	0.960
ΔH	- Average pressure differential across the orifice meter, in. H_2O	1.17	1.19	0.97	1.09
T_m	- Temperature of Dry Gas Meter, °F	97.4	94.5	79.2	79.0
Uncorrected Sample Mass					
m_p	- mass of particulate matter from probe, mg	0.0	0.0	0.0	n/a
m_f	- mass of particulate matter from filters, mg	3.3	3.1	1.4	0.0
m_g	- mass of particulate matter from filter seals, mg	0.0	0.0	0.0	n/a
Corrected Sample Mass					
m_p	- mass of particulate matter from probe, mg	0.0	0.0	0.0	n/a
m_f	- mass of particulate matter from filters, mg	3.3	3.1	1.4	n/a
m_g	- mass of particulate matter from filter seals, mg	0.0	0.0	0.0	n/a

M_{Sdb} – Weight of test fuel spacers, dry basis, kg - ASTM E2780 equation (1)

$$M_{Sdb} = (M_{Swb})\left(\frac{100}{100 + FM_S}\right)$$

Where,

FM_S = average moisture of test fuel spacers, % dry basis
M_{Swb} = weight of test fuel spacers, wet basis, kg

Sample Calculation:

FM_S = 16.30 %, dry basis
M_{Swb} = 2.13 lb.
0.4536 = Conversion factor, lb. → kg

M_{Sdb} = ((2.13 x 0.4536) (100 / (100 + 16.3))

M_{Sdb} = **0.831** kg

MCdb– Weight of test fuel crib, excluding nails and spacers, dry basis, kg - ASTM E2780 equation (2)

$$M_{Cdb} = \sum (M_{CPnwb})\left(\frac{100}{100 + FM_{CPn}}\right)$$

Where,

M_{CPnwb} = weight of each test fuel piece n in fuel crib, excluding nails and spacers, wet basis, kg
FM_{CPn} = Average fuel moisture of test fuel n in fuel crib, % dry basis

Sample Calculation:

ΣM_{CPnwb} = 7.64 lb.
FM_{CPn} = 21.07 %, dry basis
0.4536 = Conversion factor, lb. → kg

M_{Cdb} = 7.64 x 0.4536 x (100 / (100 + 21.0733333333333))

M_{Cdb} = **2.86** kg

DCdb - Density of fuel crib, excluding spacers and nails, dry basis, lbs/ft3 - ASTM E2780 equation (3)

$$D_{Cdb} = M_{Cdb}/V_C$$

Where,

V_C = Volume of Fuel Crib, ft³ (less spacers)

Sample Calculation:

M_{Cdb} = 6.31 lb
V_C = 0.220 ft^3

D_{Cdb} = 6.31 / 0.22

D_{Cdb} = **28.65** lb/ft^3

M_{FTAdb} - Total weight of fuel crib including spacers and nails, dry basis - ASTM E2780 equation (4)

$$M_{FTAdb} = M_{Sdb} + M_{Cdb}$$

Sample Calculation:

M_{Sdb} = 0.831
M_{Cdb} = 2.86

M_{FTAdb} = 0.831 + 2.86

M_{FTAdb} = **3.69** kg

BR – dry burn rate, kg/hr - ASTM E2780 equation (5)

$$BR = \frac{60\ M_{FTAdb}}{\theta}$$

Sample Calculation:

M_{FTAdb} = 3.693
θ = 376

BR = (60 x 3.693) / 376

BR = **0.59** kg / hr

***Vs* – Average gas velocity in the dilution tunnel, ft/sec -** ASTM E2515 equation (9)

$$V_S = F_P \times K_P \times C_P \times \left(\sqrt{\Delta P}\right)_{avg} \times \sqrt{\frac{T_{s(avg)}}{P_s \times M_s}}$$

Where

F_P = Adjustment factor for center of tunnel pitot tube placement, where $F_P = V_{STRAV} / V_{SCENT}$

V_{SCENT} = Dilution tunnel velocity, at the center, ft/sec

V_{STRAV} = Dilution tunnel velocity, multi-point pitot traverse, ft/sec

K_P = Pitot tube constant, 85.49

C_P = Pitot tube coefficient: 0.99, unitless

$\Delta P^{1/2}_{AVG}$ = Velocity pressure in the dilution tunnel, in H_2O

$T_{S\,(avg)}$ = Absolute average gas temperature in the dilution tunnel, °R

P_S = Absolute average gas static pressure in tunnel, = Pbar + Pg , where Pbar = Barometric Pressure, in. Hg, Pg = Static pressure in tunnel, Hg (in H_2O / 13.6)

M_S = The dilution tunnel wet molecular weight; Ms = 28.78 assuming a dry weight of 29 lb/lb-mole

(Duration of Test)

F_P = 0.8379

$\Delta P^{1/2}_{AVG}$ = 0.3202

$T_{S\,(avg)}$ = 540.4215

Pbar = 29.7350

Pg = -0.4000

Ps = 29.7056

V_S = 0.838 x 85.49 x 0.99 x 0.32 x √ [(540 / (29.71 x 28.78)]

V_S = **18.056** ft/sec

(First Hour of Test)

F_P = 0.8379

$\Delta P^{1/2}_{AVG}$ = 0.3226

$T_{S\,(avg)}$ = 541.3262

Pbar = 29.7300

Pg = -0.4000

Ps = 29.7006

V_S = 0.838 x 85.49 x 0.99 x 0.323 x √ [(541 / (29.7 x 28.78)]

V_S = **18.208** ft/sec

Q_{std} – Average gas flow rate in dilution tunnel, dscf/hr - ASTM E2515 equation (3)

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

Where:

3600 = Conversion from seconds to hours (ASTM method uses 60 to convert in minutes)
B_{ws} = Water vapor in gas stream, proportion by volume; assume 2%
A = Cross sectional area of dilution tunnel, ft2
T_{std} = solute temperature, 528 °R
P_s = Absolute average gas static pressure in dilution tunnel, = Pbar + Pg , in Hg
$T_{s(avg)}$ = Absolute average gas temperature in the dilution tunnel, °R; (°R = °F + 460)
P_{std} = Standard absolute pressure, 29.92 in Hg

(Duration of Test):

B_{ws} = 0.02
A = 0.19635
P_s = 29.71
$T_{s(avg)}$ = 540
Vs = 18.06

Qstd = 3600 x (1 - 0.02) x 18.056 x 0.19635 x (528 / 540) x (29.71 / 29.92)

Qstd = **12132.7** dscf/hr

(First Hour):

B_{ws} = 0.02
A = 0.19635
P_s = 29.70
$T_{s(avg)}$ = 541
Vs = 18.208

Qstd = 3600 x (1 - 0.02) x 18.208 x 0.1963 x (528 / 541) x (29.7 / 29.92)

Qstd = **12212.1** dscf/hr

Vm(std) – Volume of Gas Sampled (Corrected), dscf - ASTM E2515 equation (6)

$$V_{m(std)} = K_1 V_m Y \frac{P_{bar} + \left(\frac{\Delta H}{13.6}\right)}{T_m}$$

Where:

K_1	=	17.64 °R/in. Hg
V_m	=	Volume of gas sample measured at the dry gas meter, dcf
Y	=	Dry gas meter calibration factor, dimensionless
P_{bar}	=	Barometric pressure at the testing site, in. Hg
ΔH	=	Average pressure differential across the orifice meter, in. H_2O
T_m	=	Absolute average dry gas meter temperature, °R

Sample Calculation:

Train A

$$V_{m(std)} = 17.64 \times 62.699 \times 0.991 \times \frac{\left(29.74 + \frac{1.17}{13.6}\right)}{(97.4 + 460)}$$

$V_{m(std)}$ = **58.642** dscf

Train B

$$V_{m(std)} = 17.64 \times 59.903 \times 1.005 \times \frac{\left(29.74 + \frac{1.19}{13.6}\right)}{(94 + 460)}$$

$V_{m(std)}$ = **57.118** dscf

Train C (1st Hour)

$$V_{m(std)} = 17.64 \times 9.48 \times 0.981 \times \frac{\left(\underline{29.73} + \frac{0.97}{13.6}\right)}{(79.2 + 460)}$$

$V_{m(std)}$ = **9.068** dscf

Train D (Background)

$$V_{m(std)} = 17.64 \times 59.49 \times 0.960 \times \frac{\left(\underline{29.74} + \frac{1.09}{13.6}\right)}{(79.0 + 460)}$$

$V_{m(std)}$ = **55.726** dscf

mn – Total Particulate Matter Collected, mg - ASTM E2515 Equation (12)

$$m_n = m_p + m_f + m_g$$

Where:

m_p = mass of particulate matter from probe, mg

m_f = mass of particulate matter from filters, mg

m_g = mass of particulate matter from filter seals, mg

Sample Calculations (Uncorrected):

Train A

m_n = 0.0 + 3.3 + 0.0

m_n = **3.3** mg

Train B

m_n = 0.0 + 3.1 + 0.0

m_n = **3.1** mg

Train C (1st hour)

m_n = 0.0 + 1.4 + 0

m_n = **1.4** mg

Train D (Background)

$m_n = m_f$ = 0.0

m_n = **0.0** mg

Sample Calculations (Corrected):

Train A

m_n = 0.0 + 3.3 + 0.0

m_n = **3.3** mg

Train B

m_n = 0.0 + 3.1 + 0.0

m_n = **3.1** mg

Train C (1st hour)

m_n = 0.0 + 1.4 + 0

m_n = **1.4** mg

Train D (Background)

$m_n = m_f$ = 0.0

m_n = **0.0** mg

C_s - Concentration of particulate matter in tunnel gas, dry basis, corrected to standard conditions

g/dscf - ASTM E2515 equation (13)

$$C_s = K_2 \times \frac{m_n}{V_{m(std)}}$$

Where:

K_2 = Constant, 0.001 g/mg

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

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

Sample Calculations (Uncorrected):

Train A

$$C_s = 0.001 \times \frac{3.3}{58.64}$$

C_s = **0.000056** g/dscf

Train B

$$C_s = 0.001 \times \frac{3.1}{57.12}$$

C_s = **0.0000543** g/dscf

Train C (1st Hour)

$$Cs = 0.001 \times \frac{1.4}{9.07}$$

Cs = **0.000154** g/dscf

Train D (Background)

$$C_r = 0.001 \times \frac{0.0}{55.73}$$

C_r = **0.000000** g/dscf

Sample Calculations (Corrected):

Train A

$$C_s = 0.001 \times \frac{3.3}{58.64}$$

C_s = **0.000056** g/dscf

Train B

$$C_s = 0.001 \times \frac{3.1}{57.12}$$

C_s = **0.0000543** g/dscf

Train C (1st Hour)

$$Cs = 0.001 \times \frac{1.4}{9.07}$$

Cs = **0.000154** g/dscf

Train D (Background)

$$C_r = 0.001 \times \frac{0.0}{55.73}$$

C_r = **0.000000** g/dscf

ET – Total Particulate Emissions, g - ASTM E2515 equation (15)

$$E_T = (c_s - c_r) \times Q_{std} \times \theta$$

Where:

C_s	=	Concentration of particulate matter in tunnel gas, g/dscf
C_r	=	Concentration particulate matter room air, g/dscf
Q_{std}	=	Average dilution tunnel gas flow rate, dscf/hr
θ	=	Total time of test run, minutes

Sample calculations (uncorrected)

Train A

E_T = (0.000056 - 0.000000) x 12132.7 x 376 / 60

E_T = **4.28** g

Train B

E_T = (0.000054 - 0.000000) x 12132.7 x 376 / 60

E_T = **4.13** g

First Hour

E_T = (0.000154 - 0.000000) x 12212.1 x 60 / 60

E_T = 1.89 g

Trains A and B Average

E = **4.20** g

Sample calculations (Corrected)

Train A

E_T = (0.000056 - 0.000000) x 12132.7 x 376 / 60

E_T = **4.28** g

Train B

E_T = (0.000054 - 0.000000) x 12132.7 x 376 / 60

E_T = **4.13** g

First Hour

E_T = (0.000154 - 0.000000) x 12212.1 x 60 / 60

E_T = **1.89** g

Trains A and B Average

E_T = **4.20** g

PM_R – Particulate emissions for test run, g/hr - ASTM E2780 equation (6)

$$PM_R = 60(E_T/\theta)$$

Where,

E_T = Total particulate emissions, grams

θ = Total length of full integrated test run, min

Sample Calculation (Uncorrected)

Train A

E_T = 4.28 g

θ = 376 min

PM_R = 60 x (4.28 / 376)

PM_R = **0.68** g/hr

Train B

E_T = 4.13 g

θ = 376 min

PM_R = 60 x (4.13 / 376)

PM_R = **0.66** g/hr

A and B Average

E_T = **0.67** g/hr

First Hour

E_T = 1.89 g

θ = 60 min

PM_R = 60 x (1.89 / 60)

PM_R = **1.89** g/hr

Sample Calculation (Corrected)

Train A

E_T = 4.28 g

θ = 376 min

PM_R = 60 x (4.28 / 376)

PM_R = **0.68** g/hr

Train B

E_T = 4.13 g

θ = 376 min

PM_R = 60 x (4.13 / 376)

PM_R = **0.66** g/hr

A and B Average

E_T = **0.67** g

First Hour

E_T = 1.89 g

θ = 60 min

PM_R = 60 x (1.89 / 60)

PM_R = **1.89** g/hr

PM_F – Particulate emission factor for test run, g/dry kg of fuel burned - ASTM E2780 equation (7)

$$PM_F = E_T / M_{FTAdb}$$

Sample Calculation (Uncorrected)

Train A

E_T = 4.28 g
M_{FTAdb} = 3.69 kg
PM_F = 4.28 / 3.69
PM_F = **1.16** g/kg

Train B

E_T = 4.13 g
M_{FTAdb} = 3.69 kg
PM_F = 4.13 / 3.69
PM_F = **1.12** g/kg

Sample Calculation (Corrected)

Train A

E_T = 4.28 g
M_{FTAdb} = 3.69 kg
PM_F = 4.28 / 3.69
PM_F = **1.16** g/kg

Train B

E_T = 4.13 g
M_{FTAdb} = 3.69 kg
PM_F = 4.13 / 3.69
PM_F = **1.12** g/kg

PR - Proportional Rate Variation - ASTM E2515 equation (16)

$$PR = \left[\frac{\theta \times V_{mi} \times V_s \times T_m \times T_{si}}{\theta_i \times V_m \times V_{si} \times T_{mi} \times T_s}\right] \times 100$$

Where:			Train A	Train B	Train C
θ	=	Total sampling time, min	376	376	60
θ_i	=	Length of recording interval, min	1	1	1
V_{mi}	=	Volume of gas sample measured by the dry gas meter during the "ith" time interval, dcf	0.168	0.161	0.158
V_m	=	Volume of gas sample as measured by dry gas meter, dcf	62.699	59.903	9.481
V_{si}	=	Average gas velocity in the dilution tunnel during the "ith" time interval, ft/sec	18.405	18.405	18.405
V_s	=	Average gas velocity in the dilution tunnel, ft/sec	18.057	18.057	18.210
T_{mi}	=	Absolute average dry gas meter temperature during the "ith" time interval, ^oR	536.3	534.0	535.8
T_m	=	Absolute average dry gas meter temperature, ^oR	557.4	554.5	539.2
T_{si}	=	Absolute average gas temperature in the dilution tunnel during the "ith" time interv	557.7	557.7	557.7
T_s	=	Absolute average gas temperature in the dilution tunnel, ^oR	540.4	540.4	541.3

NOTE: These sample calculations are for the Second interval of each train)

Train A PR = $\left(\frac{376 \text{ x } 0.168 \text{ x } 18.057 \text{ x } 557 \text{ x } 558}{1 \text{ x } 62.699 \text{ x } 18.405 \text{ x } 536 \text{ x } 540}\right)$ X 100 = 106.0 %

Train B PR = $\left(\frac{376 \text{ x } 0.161 \text{ x } 18.057 \text{ x } 554 \text{ x } 558}{1 \text{ x } 59.903 \text{ x } 18.405 \text{ x } 534 \text{ x } 540}\right)$ X 100 = 106.2 %

Train B PR = $\left(\frac{60 \text{ x } 0.158 \text{ x } 18.21 \text{ x } 539 \text{ x } 558}{1 \text{ x } 9.481 \text{ x } 18.405 \text{ x } 536 \text{ x } 541}\right)$ X 100 = 102.6 %

Run 3 Test Data

Test Date: 10./1/2025
Manufacturer: Valley Comfort
Model Sentry 14

Contents, in the following order:

· Emissions Test Results
· CSA B415 Results and Data
· Test Fuel Properties
· Velocity Traverse / Supplemental Data Worksheet
· Test Pre-Burn Data
· Sample Train A / Dilution Tunnel Data
· Sample Train B / Appliance Temperature Data
· Sample Train C (First Hour) Data
· Sample Train D (Background) / Flue Gas Data
· Gravimetric Lab Analysis
· Test Lab Notes
  - Appliance Operation Notes
  - Velocity Traverse / Supplemental Data Notes
  - Test Fuel Notes
  - Gravimetric Analysis Notes
· Equations and Calculations

Wood Heater Test Results

ASTM E2780 / ASTM E2515

Manufacturer: Valley Comfort
Model: Sentry 14
Project No.: 0142WS024E
Tracking No.: 2509
Run: 3
Test Date: 10./1/2025

Burn-Rate Result

1.00 kg/hr

Particulate Emissions Results

	Average of Trains A and B		First Hour	
	Uncorrected	*Corrected*	*Uncorrected*	*Corrected*
Total Emissions - E_T, g	5.77	5.77	4.22	4.22
Emission Rate, g/hr	**1.50**	1.50	**4.22**	4.22
Emissions Factor, g/kg	1.51	1.51	n/a	n/a

Dilution Tunnel Flow Parameters

		First Hour	Duration of Test
Average Tunnel Temperature, °F		83.3	81.6
Average Tunnel Gas Velocity (vs), feet/second		18.672	18.612
Average Tunnel Gas Flow Rate(Qsd)	DSCF/hr	12541.3	12546.4
	DSCF/m	209.0	209.1
Average Delta p, in. H2O		0.111	0.110
Tunnel Static Pressure, in. H2O		-0.420	-0.420
Total Time of Test, Min		60	230

Particulate Sample Measurement Parameters

	Uncorrected				*Corrected*			
	AMBIENT	Train A	Train B	First Hour	AMBIENT	Train A	Train B	First Hour
Total Sample Volume (V_m), ft^3	35.806	38.222	36.682	9.563	35.806	38.222	36.682	9.563
Average Gas Meter Temperature, °F	79	92	90	78	79	92	90	78
Total Sample Volume (V_{mstd}), DSCF	33.719	36.263	35.472	9.221	33.719	36.263	35.472	9.221
Total Particulates (mn), mg - m_n	0.0	4.4	4.2	3.1	0.0	4.4	4.2	3.1
Particulate Concentration (C_s - C_r), g/DSCF	0.00000	0.00012	0.00012	0.00034	0.00000	0.00012	0.00012	0.00034
Total Particulate Emissions (ET), grams	n/a	5.84	5.69	4.22	n/a	5.84	5.69	4.22
Particulate Emission Rate, g/hr	n/a	1.52	1.49	4.22	n/a	1.52	1.49	4.22
Emissions Factor, g/kg	n/a	1.53	1.49	n/a	n/a	1.53	1.49	n/a
Difference, ET from from Average ET, grams	n/a	0.07	-0.07	n/a	n/a	0.07	-0.07	n/a

Test Methodology Specifications and Quality Checks

Parameter	*Requirement*	*Measured / Observed*			*Complies?*
		First Hour	*Train 1*	*Train 2*	
Filter Temperature, °F	< 90	74	72	72	✓
Filter Face Velocity, fpm	< 30	8.68	9.11	8.78	✓
Dryer Exit Temperature, °F	< 80	74	56	52	✓
Tunnel Velocity, fpm	>800	1,120	1,117		✓
First Hour Leakage Rate	0.006	0.003			✓
Train A Leakage Rate	0.007		0.002		✓
Train B Leakage Rate	0.006			0.001	✓
Leakage Rate Limits (cfm) are < 4% of average sample rate or < 0.01 cfm, which ever is less					
Negative Probe Weight	=> 0	0	0	0	✓
Pro-Rate Variation	< 90 for < 10% of θ	0.00%	0.00%	0.00%	✓
	> 110 for < 10% of θ	0.00%	0.000%	0.00%	✓
	# Readings < 80%	0	0	0	✓
	# Readings > 120%	0	0	0	✓
Ambient Temp, °F	> 55		70		✓
Ambient Temp, °F	< 90		73.2		✓
Trains A and B Precision	(*A*) < 7.5%		1.22%		✓
Either A or B must conform	(*B*) < 0.5 g/kg		0.04		✓
Stove Surface ΔT	<= 125 °F		25		✓
Room Air Velocity	< 50 fpm		13		✓

OMNI Test Laboratories

Manufacturer: Valley Comfort
Model: Sentry 14
Date: 10/01/25
Run: 3
Control #: 2509
Test Duration: 230
Output Category:

Technicians: R Tiegs

Test Results in Accordance with CSA B415.1-10

	HHV Basis	LHV Basis
Overall Efficiency	81.2%	87.8%
Combustion Efficiency	98.8%	98.8%
Heat Transfer Efficiency	82%	88.9%

Output Rate (kJ/h)	16,032	15,208	**(Btu/h)**
Burn Rate (kg/h)	1.00	2.20	**(lb/h)**
Input (kJ/h)	19,742	18,727	**(Btu/h)**

Test Load Weight (dry kg)	3.82	8.42	**dry lb**
MC wet (%)	16.39		
MC dry (%)	19.60		
Particulate (g)	5.77		
CO (g)	75		
Test Duration (h)	3.83		

Emissions	**Particulate**	**CO**
g/MJ Output	0.09	1.22
g/kg Dry Fuel	1.51	19.59
g/h	1.51	19.53
lb/MM Btu Output	0.22	2.83

Air/Fuel Ratio (A/F)	9.82

VERSION: **2.4** **4/15/2010**

VERSION: 2.4 4/15/2010

Manufacturer:	Valley Comfort	**Appliance Type:**	Cat (Cat, Non
Model:	Sentr9 14		
Date:	10/1/2025	**Temp. Units**	F (F or C)
Run:	3	**Weight Units**	lb (kg or lb)
Control #:	2509		
Test Duration:	230		
Output Category:			

		Fuel Data		
			D. Fir	
Wood Moisture (% wet):	16.39	**HHV**	19,810	kJ/kg
Load Weight (lb wet):	10.07	**%C**	48.73	
Burn Rate (dry kg/h):	1.00	**%H**	6.87	
Total Particulate Emissions:	5.77 g	**%O**	43.9	
		%Ash	0.5	

Averages	**0.21**	**11.32**	**#DIV/0!**	**264.36**	**72.02**	
				Temp. (ºF)	
Elapsed Time (min)	**Fuel Weight Remaining (lb)**	**Flue Gas Composition (%) CO**	**CO_2**	**O_2**	**Flue Gas**	**Room Temp**
0	10.07	0.00	9.59		194.6	71.1
1	10.00	0.17	5.29		262.1	71.0
2	9.94	0.09	2.10		235.5	71.2
3	9.94	0.01	3.95		221.1	71.3
4	9.90	0.01	3.84		214.6	71.0
5	9.87	0.01	4.42		213.3	71.3
6	9.84	0.01	4.61		213.9	71.0
7	9.80	0.01	5.00		216.4	70.9
8	9.78	0.01	5.60		219.5	70.9
9	9.72	0.01	5.60		222.6	71.0
10	9.67	0.01	6.10		226.8	71.0
11	9.65	0.01	6.60		231.0	71.1
12	9.58	0.01	6.69		234.8	71.2
13	9.55	0.01	7.17		238.6	71.1
14	9.47	0.01	7.49		242.7	71.0
15	9.42	0.01	7.80		246.4	71.0
16	9.37	0.01	7.88		250.6	71.1
17	9.29	0.01	8.00		254.1	71.0
18	9.26	0.01	7.89		257.8	71.0
19	9.18	0.01	8.10		261.4	71.1
20	9.13	0.01	8.61		265.0	71.1
21	9.07	0.01	9.20		268.5	71.0

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
22	8.98	0.01	9.43		271.5	71.0
23	8.88	0.01	9.40		275.3	71.0
24	8.83	0.01	10.15		279.6	70.8
25	8.74	0.02	10.74		284.5	70.7
26	8.68	0.02	9.31		288.3	71.1
27	8.60	0.02	8.34		290.9	71.1
28	8.55	0.02	8.45		293.2	70.9
29	8.46	0.02	8.09		294.9	71.3
30	8.40	0.02	8.75		296.8	71.3
31	8.34	0.02	10.09		299.7	71.5
32	8.26	0.02	10.53		302.6	71.5
33	8.17	0.02	10.88		305.2	71.2
34	8.08	0.02	11.04		308.4	71.1
35	8.00	0.02	11.17		312.2	70.9
36	7.93	0.03	11.51		315.3	70.7
37	7.83	0.02	10.74		317.6	70.4
38	7.77	0.03	10.27		318.4	70.0
39	7.68	0.02	10.23		319.5	70.1
40	7.60	0.02	10.66		320.9	70.3
41	7.53	0.03	11.49		323.2	70.6
42	7.43	0.03	12.23		327.0	71.3
43	7.34	0.03	12.62		330.3	71.6
44	7.26	0.03	12.76		332.9	71.1
45	7.17	0.03	12.89		335.0	71.0
46	7.07	0.03	13.00		337.2	70.8
47	6.97	0.04	13.34		339.8	71.0
48	6.88	0.05	13.66		342.3	71.0
49	6.77	0.054	13.616		343.5	70.8
50	6.68	0.092	13.656		344.3	70.9
51	6.58	0.088	13.946		346.5	71.6
52	6.48	0.131	14.111		346.8	71.9
53	6.38	0.115	13.092		345.9	71.7
54	6.29	0.059	12.49		344.7	71.1
55	6.21	0.049	12.132		343.9	71.1
56	6.15	0.053	11.799		342.7	71.9
57	6.07	0.051	12.092		341.4	72.3
58	5.98	0.082	12.063		339.9	71.4
59	5.90	0.044	12.191		338.9	71.6
60	5.83	0.065	12.171		337.1	71.7

Run 3 B415

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
61	5.75	0.031	11.956		336.1	72.3
62	5.68	0.021	11.704		334.9	72.4
63	5.60	0.021	11.726		333.5	72.5
64	5.53	0.025	11.946		333.1	72.2
65	5.47	0.023	12.125		333.3	72.5
66	5.37	0.034	12.814		333.4	72.2
67	5.31	0.024	12.699		332.7	72.2
68	5.25	0.02	12.701		331.6	72.5
69	5.17	0.025	12.757		331	72.7
70	5.09	0.029	12.867		330.9	72.3
71	5.04	0.025	12.994		329.8	72.1
72	4.96	0.04	13.091		328.5	72.6
73	4.88	0.045	13.168		327.4	71.9
74	4.84	0.082	13.281		326.5	71.7
75	4.76	0.112	13.628		325.8	71.9
76	4.68	0.155	13.862		325.6	72.1
77	4.60	0.197	14.205		324.7	72.5
78	4.54	0.275	14.183		324.4	72.4
79	4.47	0.412	14.34		323.8	72.8
80	4.38	0.612	14.548		323.2	72.5
81	4.30	0.719	14.73		322.6	72.7
82	4.25	0.669	14.933		322.1	72.1
83	4.18	0.592	14.733		321.1	72.4
84	4.08	0.5	14.533		319.6	73
85	4.05	0.37	14.296		317.4	72.8
86	3.98	0.365	13.876		315.4	72.9
87	3.89	0.372	13.663		313.5	73
88	3.86	0.401	13.671		310.9	72.4
89	3.79	0.318	13.652		309.2	72.9
90	3.75	0.339	13.68		306.8	72
91	3.68	0.34	13.431		305.5	71.7
92	3.63	0.263	13.145		303.6	72.5
93	3.59	0.222	13.138		303.4	72
94	3.54	0.261	13.241		301.3	72.3
95	3.49	0.271	13.192		301	71.6
96	3.41	0.288	13.217		299.2	71.3
97	3.37	0.28	13.159		298.7	70.9
98	3.29	0.384	13.272		297.4	70.9
99	3.27	0.346	13.591		295.9	70.6

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
100	3.19	0.377	13.324		294.9	70.5
101	3.16	0.487	13.357		292.8	71.6
102	3.08	0.287	13.585		290.8	71.9
103	3.04	0.241	13.422		289.4	72.8
104	2.97	0.271	13.244		288.2	71.6
105	2.95	0.202	13.078		286.3	71.9
106	2.89	0.219	13.125		283.4	72.1
107	2.85	0.502	13.368		282.6	72.7
108	2.79	0.379	13.333		282.8	71.7
109	2.76	0.675	13.521		280.4	72
110	2.68	1.152	13.69		280.1	71.9
111	2.64	1.49	13.564		280.5	71.5
112	2.59	1.684	13.509		282	71.8
113	2.54	1.255	13.633		279.4	71.7
114	2.48	1.953	13.205		278.1	72.4
115	2.45	2.301	13.028		277.3	72.4
116	2.39	2.283	13.163		273.5	72.4
117	2.37	2.51	12.682		268.1	71.9
118	2.29	2.62	12.648		264.9	72.7
119	2.28	1.976	12.962		260.4	72.9
120	2.22	2.467	12.638		257	72.7
121	2.18	1.75	12.869		254.3	72.4
122	2.15	2.049	12.79		250.8	72.8
123	2.09	1.997	12.763		248.1	72.5
124	2.09	1.61	12.866		244.8	71.9
125	2.06	1.347	12.864		241.8	71.8
126	2.00	1.105	12.745		238.5	71.8
127	1.98	0.667	12.601		235.6	71.9
128	1.99	0.092	12.585		232.8	72.2
129	1.95	0.095	12.278		229.9	72.6
130	1.91	0.045	11.906		227.1	72.7
131	1.89	0.018	11.681		224.5	72.7
132	1.87	0.009	11.492		222	72.6
133	1.89	-0.006	11.431		219.4	72.7
134	1.86	-0.005	11.21		217	72.5
135	1.84	-0.006	11.048		214.1	71.9
136	1.80	0.009	11.041		211.6	72.3
137	1.80	-0.001	11.048		209.2	72.4
138	1.79	0	11.035		206.6	72.7

Run 3 B415

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
139	1.78	0.007	11.004		204.2	72.7
140	1.78	0.001	10.849		202.1	72.5
141	1.76	0.002	10.944		199.9	72.3
142	1.72	0.001	10.885		198.2	72.7
143	1.71	-0.002	10.907		196.2	72.5
144	1.69	0.003	10.825		195.2	72.7
145	1.68	0	10.858		194.4	72.9
146	1.67	0	10.898		193.8	72.8
147	1.67	0	10.975		193.7	72.4
148	1.66	-0.001	11.099		194.3	72.7
149	1.61	-0.002	11.161		195.4	72.2
150	1.60	0.002	11.212		196.8	72.4
151	1.58	0	11.419		198.8	72.3
152	1.58	0.001	11.355		200.7	72.3
153	1.55	0.002	11.354		202.6	72.9
154	1.55	-0.008	11.377		204.5	72.6
155	1.51	-0.001	11.426		206.7	72.6
156	1.48	-0.001	11.446		209.1	72.5
157	1.47	0.001	11.312		211.7	72.5
158	1.47	-0.003	11.633		213.7	72.6
159	1.44	-0.001	11.846		216.8	72.3
160	1.39	0	11.929		219.2	72.6
161	1.39	-0.002	12.006		221.3	72.4
162	1.36	0	12.065		222.9	72
163	1.34	0.001	12.047		225.2	72.5
164	1.29	0	11.98		227	72.6
165	1.29	-0.002	12.068		228.3	72.3
166	1.27	-0.001	12.086		229.5	72.5
167	1.22	0.004	12.082		231	72.6
168	1.19	0.002	12.169		232.2	72.5
169	1.19	-0.003	12.167		233	72.7
170	1.17	-0.008	12.086		233.6	72.6
171	1.16	-0.006	12.119		234.3	72.2
172	1.10	0	12.186		234.4	72.6
173	1.08	-0.003	12.338		235	72.5
174	1.07	-0.003	12.372		235.3	72.4
175	1.02	-0.001	12.373		235.3	72.3
176	0.99	-0.004	12.4		235.7	72.4
177	0.99	0	12.328		235.8	72.3

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
178	0.96	-0.005	12.335		236	72.9
179	0.92	-0.006	12.349		236.2	72.7
180	0.88	-0.009	12.318		236.3	73
181	0.88	-0.013	12.228		236.6	72.3
182	0.88	-0.003	12.111		235.9	72.4
183	0.84	-0.001	12.045		235.8	72.1
184	0.81	-0.002	11.61		235.8	72.8
185	0.79	0	11.164		235.5	72.5
186	0.78	-0.002	10.802		235.3	72.6
187	0.77	-0.004	10.557		235.4	72.5
188	0.75	-0.001	10.581		235.5	72.4
189	0.70	-0.004	10.556		235.2	72.9
190	0.69	-0.003	10.476		234.9	72.9
191	0.68	-0.005	10.389		234.6	72.3
192	0.67	-0.001	10.424		234.4	72.2
193	0.66	-0.001	10.453		234.3	72.1
194	0.65	-0.002	10.432		234.2	73
195	0.61	-0.001	10.359		233.9	72.4
196	0.60	0	10.284		234.1	72.4
197	0.58	-0.001	10.295		233.8	72.5
198	0.57	-0.002	10.26		233.9	72.6
199	0.58	-0.001	10.233		234	72.7
200	0.55	-0.001	10.171		233.9	72.3
201	0.55	-0.001	10.005		234.4	72.9
202	0.51	0	9.878		234.2	72.7
203	0.50	0.001	9.873		234	72.7
204	0.49	-0.001	9.863		234.2	72.7
205	0.48	0.007	9.795		234.7	72.8
206	0.48	-0.001	9.836		234.8	72.8
207	0.45	0.006	9.829		234.9	72.2
208	0.44	0	10.311		235.2	72.7
209	0.39	0	10.307		235.5	72.7
210	0.38	0.002	10.34		235.8	72.5
211	0.38	-0.001	10.302		236	72.5
212	0.38	-0.002	10.357		236.6	72.5
213	0.37	0.004	10.35		236.5	72.4
214	0.35	0.005	10.473		236.5	72.3
215	0.31	0.004	10.532		236.7	72.9
216	0.29	-0.003	10.311		237.3	72.8

Run 3 B415

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
217	0.29	-0.001	10.258		238.3	73.2
218	0.29	0.004	10.25		238.9	72.8
219	0.27	-0.001	10.155		239.1	72.3
220	0.24	-0.003	10.259		239.9	72.6
221	0.20	0.001	10.276		240.4	72.6
222	0.20	-0.015	10.274		241	71.7
223	0.18	-0.002	10.272		241.6	71.2
224	0.18	0.002	10.242		242.6	70.6
225	0.18	0	10.269		242.9	71.2
226	0.15	0.01	10.274		244	71.8
227	0.12	0.005	10.519		244.5	72.4
228	0.09	0.001	10.53		245.7	72.5
229	0.09	-0.001	10.395		246.4	72
230	-0.02	-0.005	10.364		246.7	72.5

Test Fuel Properties

ASTM E2780

Manufacturer :	Valley Comfort
Model :	Sentry 14
Tracking No. :	2509
Project No. :	0142WS024E
Test Date :	10./1/2025
Run No. :	3

Moisture Meter Cal	
Cal Block	Measured
12.0	12.0
22.0	22.0

Firebox Volume :	**1.460**	ft^3
% 2 x 4 Required :	100	%
Ideal Fuel Weight :	10.22	lb.
Minimum Fuel Weight :	9.20	lb.
Maximum Fuel Weight :	11.24	lb.

Fuel Piece Data

PC #	Weight, lb	Size	Length, In	Moisture Readings, Dry Basis %			Average MC, % db	Dry Weight, lb.	Volume, ft3	Wet Weights, lb 4 x 4	Wet Weights, lb 2 x 4	Dry Weights, lb 4 x 4	Dry Weights, lb 2 x 4
1	1.48	2x4	14.50	19.2	22.5	19.7	20.5	1.23	0.0441		1.5		1.23
2	1.47	2x4	14.50	19.0	20.2	19.4	19.5	1.23	0.0441		1.5		1.23
3	1.48	2x4	14.50	20.2	19.2	20.4	19.9	1.23	0.0441		1.5		1.23
4	1.67	2x4	14.50	23.8	20.1	23.4	22.4	1.36	0.0441		1.7		1.36
5	1.72	2x4	14.50	21.9	24.4	22.3	22.9	1.40	0.0441		1.7		1.40
6													
7													
8													
9													

Spacer Data

Moisture Readings, Dry Basis % (One reading per spacer)								
17.5	17.9	20.2	7.8	17.5				
17.6	15.5	15.4	7.1	20.7				
17.6	15.0	10.4	7.1	15.8				
15.4	15.4	16.8	7.7	13.7				

Avg : 14.6

Assembled Crib Fuel Load with Spacers Attatched

PC #	Weight, lb with Spacers	Size	4 x 4s	2 x 4s
1	1.92	2x4		1.9200
2	1.91	2x4		1.9100
3	1.93	2x4		1.9300
4	2.12	2x4		2.1200
5	2.19	2x4		2.1900
6				
7				
8				
9				

Combined Mass of 4 x 4s	0.0	lb
Combined Mass of 2 x 4s	10.1	lb
Total Wet Mass of Fuel Load	**10.07**	lb

Fuel Load Properties

Type	*Number of Pieces*	*Wet Weight, lb.*	*Dry Weight, lb.*	*Fuel Loading Density, lb/ft³* Wet Basis	*Fuel Loading Density, lb/ft³* Dry Basis	Dry Fuel Density, lb/ft³	Wet Fuel Density, lb/ft³	*Moisture, %* Dry Basis	*Moisture, %* Wet Basis
2 x 4	5	7.8	6.46	6.90	5.77	29.31	35.50	19.60	16.39
4 x 4	0	0.0	0.00						
Spacers	20	2.3	1.96						
Totals		10.1	8.42						

Compliance Checks

	Fuel Load, Wet Lb.	Load Density, lb/ft³ of FB vol	Fuel Density, lb/ft³	% of Fuel load mass which is 2x4	Fuel Load Peices Mositure, % db
Measured	10.1	6.90	29.31	100	21.0
Required	9.2 - 11.2	6.3 - 7.7	25 - 36	100	19 -25
Complies ?	Yes	Yes	Yes	Yes	Yes

Dilution Tunnel Velocity Traverse and Supplementary Data

ASTM E2515-11

Run:	3	Tracking No.:	2509
Manufacturer:	Valley Comfort	Project No.:	0142WS024E
Model:	Sentry 14	Test Date:	10./1/2025

Dilution Tunnel Velocity Traverse

Pitot Location

Traverse Point	*% of Diameter*	*Inches into Tunnel*	*dP in. H_2O*	*Tunnel Temp, °F*	*$dP^{1/2}$*
X1	6.7	0.5*	0.060	101	0.245
X2	25.0	1.50	0.090	101	0.300
X3	75.0	4.50	0.090	101	0.300
X4	93.3	5.5*	0.066	101	0.257
Y1	6.7	0.5*	0.070	101	0.265
Y2	25.0	1.50	0.090	101	0.300
Y3	75.0	4.50	0.090	101	0.300
Y4	93.3	0.5*	0.060	101	0.245
Center	50.0	3.00	0.110	101	0.332

Tunnel Static Pressure	-0.420	*in. H_2O*
Tunnel Moisture	2.00	%
Tunnel Diameter	6.00	inches
Pitot Tube C_p	0.99	inches
Tunnel Molecular Weight	29	(dry)
Tunnel Molecular Weight	28.78	(M_S, wet)
Tunnel Area	0.1963495	ft^2
K_p	85.49	constant
$P_s=P_{bar}$+Tunnel Static	29.849118	in HG

** Probe location must be no closer than 0.50" from tunnel wall*

$$V_{strav} = K_p C_p \sqrt{\Delta p}_{avg} \sqrt{\frac{T_{s,avg}}{P_s M_s}} = 18.9057$$

$$V_{scent} = K_p C_p \sqrt{\Delta p}_{center} \sqrt{\frac{T_{s,center}}{P_s M_s}} = 22.6839$$

$$F_P = V_{strav} / V_{scent} = 0.833$$

$$\text{Initial Tunnel Velocity}, V_s = F_P K_p C_p \sqrt{\Delta p}_{avg} \sqrt{\frac{T_{s,avg}}{P_s M_s}} = 15.757 \text{ ft/sec}$$

Supplementary Data and Information

Environment

	Test Start	Test End
Time of Day	11:16	15:06
Barometric Pressure, in. Hg	29.88	29.91
Room Air Velocity, fpm	11	13
Room Air Temperature, °F	71	72
Room Relative Humidity, %	56.0	58.0
Platform Scale Audit, lb.	10.0	10.0

Leak Checks

Pitot and associated tubing, (pass/fail)[1]	pass	pass

See sampling box worksheets for sampling boxes

Dillution Tunnel

Date last cleaned	9/29/2025	
Smoke Capture, % (visual)[2]	100	
Draft Inducement, (pass/fail)[3]	pass	
Static Pressure, in. H_2O	-0.420	-0.420

1 Both sides (independantly) of the pitot system are brought under a minimum vacuum of 3 in. H_2O and then sealed. Any indiction of pressure loss is deemed a fail.

2 Create a smoking condition during start of pre-burn activites and using adequate lighting pointed upward and aroud tunnel hood, visually observe if 100% of visible smoke is being captured by the hood. If not, increase flow tunnel flow and / or re-assess chimney proximity to draft hood as required and repeat until 100% capture is observed.

3 With the appliance installed and the dillution tunnel flow turned-off, observe the flue draft gauge while turning the dulution tunnel on. Any detectible response by the draft gauge associated with activation of the tunnel flow indicates that draft inducemnt is occuring. Determine the cause (i.e. flue chimnet too deep into tunnel?) before continuing.

Preburn Data

ASTM E2780

Run: 3

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E
Test Date: 10./1/2025
Beginning Clock Time: 9:35

Coal Bed Range (lb):	2.0 (min)	2.5 (max)

Preburn Fuel Data

14.5 pieces @ 3 inches
10 pieces @ 4 inches
pieces @ inches

Fuel Moisture Readings (% DB):

22	24.8					
24.3	24.9					
23.8						
21.9						
23.8						

Avg Preburn Moisture (% DB): **23.64**

			Temperatures (°F)								
Elapsed Time (min)	Scale (lb)	Stack Draft (in H_2O)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Cat Exit	Avg. FB	Stack	Ambient
0	0.59	0.059	490.3	370.9	345.2	425	402	894.9	407	397.2	71.5
1	5.44	0.065	484.1	378.8	347.6	428.2	404.5	864.3	409	432.4	72.1
2	6.54	0.046	478.1	388.3	352.6	430.1	403.9	630.7	411	488.1	71.2
3	10.46	0.047	467	396.9	350.1	431.4	403	631.4	410	423.8	72
4	10.37	0.051	455.8	405.6	347.3	432.5	402.6	728.1	409	397.7	71.2
5	10.23	0.049	446.7	414.2	345.4	433.4	402.1	885.7	408	401.3	71
6	9.99	0.058	444.6	422.9	345.4	434.1	401.8	1030.4	410	422.6	71.3
7	9.76	0.064	450.2	430.9	346.5	434.6	401.5	1120.5	413	442.4	71.8
8	9.55	0.059	460.9	437.9	348.2	434.1	401	1185.2	416	457.2	72
9	9.33	0.056	475.5	443.7	350	433.5	400.5	1202.2	421	470.3	71.7
10	9.07	0.062	491.3	448.6	351.5	432.4	399.9	1169.6	425	479.3	71.1
11	8.86	0.062	506.5	452.5	352.9	430.9	399	1152.5	428	485.1	71.7
12	8.57	0.059	520.1	455.6	354.5	429.2	398.1	1136.6	432	489	71.9
13	8.33	0.059	531.7	458	356.5	427.4	397.6	1125.4	434	491.4	71.4
14	8.08	0.06	540.9	459.9	357.8	425.7	396.9	1126.4	436	492.6	71.5
15	7.83	0.058	548.8	461.4	359.6	423.5	396.6	1127.5	438	493.9	72
16	7.57	0.057	555	462.4	361.2	422.1	396.1	1128.5	439	494.6	71.5
17	7.3	0.062	559.9	463	363.2	420.1	396	1125.2	440	494.7	71.6
18	7.06	0.061	563.3	463.6	364.7	418.2	396.1	1121.1	441	494.3	71.1
19	6.79	0.062	566.5	463.9	366.2	416.6	396.5	1112.7	442	492.3	71.4
20	6.56	0.057	568.8	464.1	368.5	415.4	396.9	1108.4	443	491.6	71.4
21	6.28	0.065	570.1	464.3	370.1	414.1	397.8	1103.2	443	489.6	71.9
22	6.07	0.06	570.5	464.4	372.6	413.2	399.1	1099.7	444	487.5	70.9
23	5.84	0.059	571.8	464.6	375.4	412.4	400.6	1095.8	445	485.7	71.6
24	5.59	0.059	572.2	464.9	378	412	402.3	1093.9	446	483.4	71.5
25	5.36	0.059	573.1	465.2	380.4	411.6	404	1093.2	447	481.4	71.3
26	5.15	0.067	574.4	465.5	383.1	411.7	406.4	1084.5	448	479	72
27	4.95	0.06	575	465.9	385.6	412.1	408.7	1076.4	449	475.8	71.4
28	4.71	0.06	575.3	466.4	388.7	412.8	411.2	1069.8	451	473.3	72.2
29	4.49	0.065	576	467.1	391.5	413.4	413.8	1064.4	452	470.3	72
30	4.27	0.063	575.9	467.8	394.3	414.5	416.5	1060.2	454	467.7	72.4
31	4.08	0.062	576.5	468.7	397.5	415.7	419.7	1052.9	456	463.7	72
32	3.94	0.065	575.6	469.6	399.8	417	422.5	1045.3	457	462.5	71.4
33	3.71	0.064	573.2	470.7	403.1	418.2	425.7	1042.7	458	458.8	71.8
34	3.54	0.063	571.5	471.8	406.5	419.6	429.2	1039	460	454.8	72.8
35	3.35	0.06	569	473.2	410	421.1	432.7	1037.2	461	451.1	72
36	3.19	0.061	566.7	474.5	414	423.3	436.6	1040.8	463	447.9	72.3
37	3.05	0.066	564.8	476.1	418.6	425.4	440.3	1043.5	465	445.1	72.7
38	2.88	0.057	562.3	477.9	423.6	427.9	444.3	1031.3	467	441.7	72.3
39	2.77	0.06	560.1	479.8	428.5	430.5	448	1017.6	469	438.2	72.7
40	2.67	0.053	562.6	482.5	438.6	434.3	452.3	980.6	474	388	72.5
41	2.6	0.048	560.7	485.4	445.9	438.6	456.5	950.2	477	349.2	73

			Temperatures (°F)								
Elapsed Time (min)	Scale (lb)	Stack Draft (in H_2O)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Cat Exit	Avg. FB	Stack	Ambient
42	2.58	0.044	556.3	488.1	450.1	442.2	459.8	922.8	479	322.3	72.1
43	2.57	0.04	551.8	490.5	452.1	445	462.3	901.4	480	301.5	72
44	2.55	0.037	545.3	492.7	452.6	447	464.1	886.7	480	284	71.5
45	2.5	0.039	538.5	494.7	452.4	448.4	465	874.7	480	269.2	71.3
46	2.48	0.033	531.9	496.3	451.5	449.1	465.1	863.4	479	256.7	71.5
47	2.48	0.03	525.4	497.5	450	449.6	464.5	852.4	477	246.3	72.6
48	2.46	0.027	518.2	498.3	448.4	449.5	463.2	842.5	476	236.8	73.1
49	2.45	0.03	512.4	498.7	446.4	448.9	461.8	834.4	474	228.1	73.3
50	2.41	0.026	505.8	498.7	444	448.1	460.4	829.5	471	220.4	72.1
51	2.4	0.026	500.4	498.6	441.2	446.9	458.8	827.3	469	213.5	72.1
52	2.4	0.023	495.6	498	438.2	444.8	456.6	825.4	467	207.2	71.4
53	2.39	0.023	490.4	497.2	434.9	442.7	454.3	823.7	464	201.4	71
54	2.38	0.021	486.1	496.3	431.4	440	451.9	824.1	461	196.1	71.2
55	2.37	0.015	481.1	495.1	427.9	437.2	449.3	830.2	458	191.3	71.1
56	2.38	0.024	477.1	493.7	424.1	434.3	446.4	844	455	186.4	70.6
57	2.38	0.019	474.3	492.2	420.1	431.4	443.3	870.2	452	182.6	70.6
58	2.37	0.015	471	490.5	416	428.6	440	909	449	179	71.4
59	2.38	0.017	468	488.7	411.9	426	436.6	922.8	446	175.7	71.3
60	2.38	0.019	464.4	486.9	407.6	423	433.1	895.5	443	172.5	71.1
61	2.37	0.016	460.5	485	403.4	420.4	429.8	865.3	440	169.4	70.8
62	2.36	0.012	455.8	483.1	399	417.3	426.3	838.7	436	166.6	70.9
63	2.37	0.02	450.7	481.1	394.9	414.4	422.9	814.9	433	164	70.8
64	2.37	0.016	446.2	479.1	390.7	411.3	419.6	794	429	161.3	70.5
65	2.35	0.014	440.2	477	386.6	408.1	416.2	775.9	426	158.7	72
66	2.36	0.011	434.7	474.9	382.6	404.8	412.6	760.1	422	156.4	71.9
67	2.36	0.012	428.9	472.7	378.7	401.4	409.2	746	418	154.1	71.1
68	2.35	0.013	423.4	470.6	374.8	398.1	405.6	733.5	415	151.9	71.6
69	2.34	0.014	417.6	468.5	371	394.9	402.5	722.3	411	149.7	71.7
70	2.35	0.012	412.3	466.4	367.3	391.9	399	711.8	407	147.9	72.1
71	2.35	0.012	406.8	464.2	363.5	388.9	395.6	701.9	404	145.9	71.7
72	2.35	0.014	401.1	462.1	359.9	386.1	392.2	692.9	400	144	71.4
73	2.34	0.011	395.5	459.9	356.3	383.2	388.9	684.2	397	142.1	71.4
74	2.34	0.015	390.2	457.7	352.7	379.7	385.6	675.8	393	140.6	71.5
75	2.34	0.01	385.4	455.6	349.1	376.5	382.5	668.1	390	139	71.5
76	2.34	0.01	380.4	453.3	345.6	373.5	379.2	660.5	386	137.6	71.1
77	2.33	0.008	375.6	451.1	342.1	370.3	376	653.1	383	136.1	71.4
78	2.32	0.011	371.1	449	338.8	367.5	373	645.8	380	134.7	71.8
79	2.31	0.007	366.1	446.8	335.4	364.8	369.9	638.9	377	133.4	71.1
80	2.31	0.008	362.1	444.6	332.2	362	366.8	632.3	374	131.9	71.4
81	2.31	0.009	357.5	442.5	328.9	359.3	363.7	625.7	370	130.7	71.7
82	2.32	0.009	353.6	440.2	325.7	356.6	360.7	620.1	367	130	70.8
83	2.3	0.006	349.6	438.1	322.6	353.6	357.9	615.4	364	129.8	71.1
84	2.31	0.007	346.4	435.9	319.5	350.8	355.1	611.4	362	130	71.2
85	2.31	0.009	342.8	433.8	316.4	348	352.2	608.4	359	130.7	71.3
86	2.29	0.011	339.6	431.6	313.3	345.5	349.4	607.2	356	132.5	71.6
87	2.29	0.011	336.4	429.4	309.9	342.9	346.6	608.8	353	135.1	71.7
88	2.28	0.015	334	427.4	306.6	340.4	343.7	613.4	350	138.6	71.5
89	2.27	0.016	331.9	425.4	303.2	338.2	340.9	622.5	348	142.6	71.5
90	2.28	0.013	330.2	423.4	299.7	335.9	338.3	636.3	346	146.9	71.3
91	2.27	0.019	329.2	421.4	296.6	333.7	335.6	654.9	343	152	71.1
92	2.27	0.014	328.7	419.6	293.6	331.4	333.1	673.8	341	157.4	71.2
93	2.25	0.021	329.4	417.8	290.7	329.4	330.8	685.1	340	163.2	71.2
94	2.21	0.021	329.5	416.2	288.2	327.3	328.6	686.1	338	169.2	71.4
95	2.21	0.021	329.9	414.7	286	325.4	326.4	681.5	336	174.9	70.7
96	2.19	0.021	329.8	413.4	284	323.5	324.3	675.1	335	179.7	70.8
97	2.19	0.024	329.6	412.2	282.4	322	322.4	668.5	334	183.8	71
98	2.17	0.023	328.9	411.2	281.1	320.7	320.4	661.6	332	187.1	71.1
99	2.16	0.022	328.2	410.3	280	319.7	318.6	655.7	331	190.2	71.1
100	2.1	0.024	327.6	409.5	279	318.9	317	652	330	193.7	71.2

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 3
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Date: 10./1/2025

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Test Start Time: 11:16
Test Length: 230 min
Recording Interval: 1 min

Sample Train Leak Checks

Pre-test	0.002	cfm @	21.7	in. Hg
Post-Test	0.002	cfm @	5.07	in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ($"H_2O$)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ($"H_2O$)*	$\sqrt{dP}$	*vs*
Tot / Avg		2.1	**38.222**	**0.166**	**1.18**	**92.4**	**2.05**	**71.59**	**55.80**	**72.02**	**100.0**	**81.6**	**0.110**	**0.332**	**18.61**
Minimum	0.0	-23.1	0.000	0.163	-0.01	75	0.04	69	51	70	97.5	76	0.106	0.326	18.38
Max	25.2	15.3	38.222	0.170	1.25	100	2.25	72	61	73	105.8	107	0.113	0.336	18.87
0	2.1		0.000		-0.01	75	0.04	69.4	51.7	71		76	0.110	0.332	18.87
1	25.2	-23.1	0.163	0.163	1.21	75	2.13	69.5	52.1	71	102.5	107	0.106	0.326	18.57
2	9.9	15.3	0.328	0.165	1.20	75	2.05	69.5	52.2	71	105.6	86	0.108	0.329	18.57
3	9.9	0.0	0.497	0.169	1.25	75	2.15	69.6	52.1	71	105.8	80	0.109	0.330	18.47
4	9.9	0.0	0.665	0.168	1.23	75	2.13	69.6	51.7	71	104.6	79	0.111	0.333	18.53
5	9.9	0.0	0.831	0.166	1.21	75	2.07	69.8	51.5	71	102.6	78	0.112	0.335	18.64
6	9.8	0.0	0.998	0.167	1.22	75	2.07	69.9	51.3	71	102.9	78	0.111	0.333	18.63
7	9.8	0.0	1.166	0.168	1.22	75	2.04	69.9	51.2	71	103.7	78	0.110	0.332	18.55
8	9.8	0.0	1.331	0.165	1.20	75	2.05	70	51	71	102.0	78	0.112	0.335	18.59
9	9.7	0.1	1.497	0.166	1.22	76	2.08	70	50.9	71	102.3	78	0.112	0.335	18.68
10	9.7	0.1	1.664	0.167	1.21	76	2.16	70	50.8	71	102.6	78	0.112	0.335	18.68
11	9.7	0.0	1.829	0.165	1.20	76	2.03	70.1	50.8	71	101.4	79	0.112	0.335	18.68
12	9.6	0.1	1.995	0.166	1.18	76	2.05	70.1	50.7	71	102.0	79	0.112	0.335	18.69
13	9.6	0.0	2.161	0.166	1.19	76	2.19	70.2	50.7	71	102.1	79	0.111	0.333	18.65
14	9.5	0.1	2.326	0.165	1.20	76	2.19	70.2	50.7	71	101.6	79	0.112	0.335	18.65
15	9.4	0.1	2.492	0.166	1.19	76	1.98	70.2	50.6	71	102.4	79	0.110	0.332	18.61
16	9.4	0.1	2.658	0.166	1.20	76	1.99	70.3	50.6	71	102.6	80	0.111	0.333	18.58
17	9.3	0.1	2.822	0.164	1.19	77	2.21	70.3	50.6	71	101.1	80	0.113	0.336	18.71
18	9.3	0.0	2.988	0.166	1.18	77	1.97	70.4	50.6	71	102.0	80	0.110	0.332	18.67
19	9.2	0.1	3.153	0.165	1.19	77	2.21	70.4	50.6	71	101.6	80	0.112	0.335	18.63
20	9.1	0.0	3.316	0.163	1.18	78	2.01	70.5	50.6	71	100.2	80	0.112	0.335	18.72
21	9.1	0.1	3.483	0.167	1.20	78	2.01	70.5	50.6	71	102.4	81	0.112	0.335	18.72
22	9.0	0.1	3.647	0.164	1.20	78	1.98	70.5	50.5	71	100.6	81	0.112	0.335	18.73
23	8.9	0.1	3.811	0.164	1.19	79	2.24	70.6	50.6	71	100.4	81	0.113	0.336	18.77
24	8.8	0.1	3.977	0.166	1.21	79	2.25	70.6	50.6	71	102.0	81	0.108	0.329	18.61
25	8.7	0.1	4.141	0.164	1.21	79	2.23	70.7	50.6	71	101.4	82	0.111	0.333	18.53
26	8.7	0.1	4.306	0.165	1.18	79	2.05	70.7	50.6	71	101.7	82	0.112	0.335	18.70
27	8.6	0.1	4.471	0.165	1.18	79	2.21	70.7	50.7	71	101.3	82	0.111	0.333	18.70
28	8.6	0.0	4.634	0.163	1.19	80	2.19	70.8	50.6	71	100.0	82	0.113	0.336	18.75
29	8.5	0.1	4.800	0.166	1.19	80	1.98	70.8	50.7	71	101.7	82	0.110	0.332	18.71
30	8.4	0.1	4.964	0.164	1.18	81	2.20	70.8	50.7	71	100.9	82	0.110	0.332	18.58
31	8.3	0.1	5.129	0.165	1.19	80	1.97	70.9	50.7	72	101.8	83	0.110	0.332	18.59
32	8.3	0.1	5.294	0.165	1.18	81	1.96	70.9	50.8	72	101.6	83	0.112	0.335	18.68
33	8.2	0.1	5.458	0.164	1.19	81	2.11	70.9	50.8	71	100.7	83	0.110	0.332	18.68
34	8.1	0.1	5.623	0.165	1.20	82	2.21	71	50.8	71	101.6	84	0.109	0.330	18.56
35	8.0	0.1	5.788	0.165	1.18	82	2.10	71.1	50.8	71	101.9	84	0.111	0.333	18.61
36	7.9	0.1	5.951	0.163	1.17	82	2.21	71.3	50.9	71	100.4	85	0.110	0.332	18.66
37	7.8	0.1	6.117	0.166	1.19	82	1.93	71.3	51	70	102.1	85	0.111	0.333	18.67
38	7.8	0.1	6.281	0.164	1.18	82	1.94	71.4	51	70	100.7	85	0.111	0.333	18.71
39	7.7	0.1	6.446	0.165	1.18	83	1.98	71.5	51.1	70	101.2	85	0.111	0.333	18.71
40	7.6	0.1	6.611	0.165	1.18	83	2.21	71.6	51.2	70	101.0	85	0.112	0.335	18.76

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 3
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Date: 10./1/2025

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Test Start Time: 11:16
Test Length: 230 min
Recording Interval: 1 min

Sample Train Leak Checks

Pre-test	0.002	cfm @	21.7	in. Hg
Post-Test	0.002	cfm @	5.07	in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ($"H_2O$)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ($"H_2O$)*	$\sqrt{dP}$	*vs*
41	7.5	0.1	6.774	0.163	1.19	83	2.16	71.6	51.2	71	99.8	86	0.110	0.332	18.72
42	7.4	0.1	6.940	0.166	1.18	83	2.06	71.7	51.3	71	101.7	86	0.112	0.335	18.73
43	7.3	0.1	7.104	0.164	1.19	84	2.17	71.7	51.4	72	100.3	86	0.111	0.333	18.77
44	7.3	0.1	7.269	0.165	1.18	84	2.18	71.7	51.5	71	101.0	86	0.110	0.332	18.69
45	7.2	0.1	7.434	0.165	1.17	84	2.00	71.7	51.5	71	101.2	86	0.111	0.333	18.69
46	7.1	0.1	7.598	0.164	1.18	84	2.14	71.7	51.6	71	100.5	87	0.111	0.333	18.74
47	7.0	0.1	7.763	0.165	1.17	85	1.93	71.8	51.6	71	101.0	87	0.111	0.333	18.75
48	6.9	0.1	7.928	0.165	1.18	85	1.95	71.8	51.7	71	100.8	87	0.112	0.335	18.79
49	6.8	0.1	8.091	0.163	1.18	86	2.08	71.8	51.8	71	99.5	87	0.110	0.332	18.75
50	6.7	0.1	8.257	0.166	1.18	86	2.13	71.8	51.9	71	101.6	87	0.111	0.333	18.71
51	6.6	0.1	8.421	0.164	1.18	86	2.07	71.8	52	72	100.4	87	0.110	0.332	18.71
52	6.5	0.1	8.587	0.166	1.18	86	1.94	71.9	52.1	72	101.8	87	0.109	0.330	18.62
53	6.4	0.1	8.751	0.164	1.19	86	2.20	71.8	52.2	72	100.4	87	0.113	0.336	18.75
54	6.3	0.1	8.915	0.164	1.18	87	1.93	71.9	52.3	71	100.0	87	0.109	0.330	18.74
55	6.2	0.1	9.081	0.166	1.19	87	1.96	71.8	52.4	71	101.5	87	0.110	0.332	18.61
56	6.2	0.1	9.246	0.165	1.16	87	1.98	71.9	52.5	72	101.1	87	0.110	0.332	18.66
57	6.1	0.1	9.410	0.164	1.18	87	2.17	71.8	52.6	72	100.1	87	0.112	0.335	18.74
58	6.0	0.1	9.576	0.166	1.18	87	2.15	71.8	52.6	71	100.9	87	0.111	0.333	18.78
59	5.9	0.1	9.740	0.164	1.18	88	1.94	71.9	52.7	72	99.8	87	0.110	0.332	18.70
60	5.8	0.1	9.906	0.166	1.18	88	2.18	72	52.8	72	101.4	86	0.109	0.330	18.61
61	5.8	0.1	10.071	0.165	1.18	89	1.94	71.9	52.8	72	100.9	86	0.110	0.332	18.61
62	5.7	0.1	10.235	0.164	1.18	89	2.12	72	53	72	100.2	86	0.109	0.330	18.60
63	5.6	0.1	10.402	0.167	1.19	89	2.00	71.9	53	73	102.1	86	0.110	0.332	18.60
64	5.5	0.1	10.566	0.164	1.17	89	2.18	71.9	53.1	72	100.3	86	0.108	0.329	18.56
65	5.5	0.1	10.730	0.164	1.18	89	2.20	71.9	53.1	73	100.3	86	0.110	0.332	18.56
66	5.4	0.1	10.897	0.167	1.19	89	1.93	71.9	53.2	72	101.9	86	0.110	0.332	18.64
67	5.3	0.1	11.062	0.165	1.17	90	2.21	71.9	53.3	72	100.4	86	0.110	0.332	18.64
68	5.3	0.1	11.226	0.164	1.18	90	2.13	71.9	53.3	73	99.8	86	0.110	0.332	18.64
69	5.2	0.1	11.393	0.167	1.17	90	2.01	71.9	53.5	73	101.6	86	0.110	0.332	18.64
70	5.1	0.1	11.558	0.165	1.18	90	2.03	72	53.5	72	100.3	86	0.110	0.332	18.64
71	5.0	0.0	11.723	0.165	1.18	91	2.12	71.9	53.5	72	100.0	86	0.112	0.335	18.73
72	5.0	0.1	11.889	0.166	1.20	90	2.20	71.9	53.6	73	100.4	85	0.110	0.332	18.72
73	4.9	0.1	12.054	0.165	1.20	91	1.93	71.9	53.6	72	99.9	85	0.111	0.333	18.68
74	4.8	0.0	12.220	0.166	1.17	91	2.03	71.9	53.7	72	100.5	86	0.110	0.332	18.68
75	4.8	0.1	12.386	0.166	1.18	91	2.11	71.9	53.8	72	100.6	85	0.110	0.332	18.64
76	4.7	0.1	12.551	0.165	1.18	91	2.18	72	53.9	72	100.1	85	0.110	0.332	18.63
77	4.6	0.1	12.717	0.166	1.19	92	2.01	71.9	53.9	73	100.6	85	0.110	0.332	18.63
78	4.5	0.1	12.883	0.166	1.20	92	1.95	71.9	54	72	100.6	85	0.110	0.332	18.63
79	4.5	0.1	13.048	0.165	1.19	92	2.11	71.9	54.1	73	100.2	85	0.108	0.329	18.55
80	4.4	0.1	13.215	0.167	1.18	92	2.16	71.9	54.2	73	101.5	85	0.111	0.333	18.59
81	4.3	0.1	13.381	0.166	1.19	92	2.16	71.9	54.3	73	100.3	85	0.112	0.335	18.76
82	4.3	0.0	13.546	0.165	1.18	92	1.94	72	54.4	72	99.2	85	0.111	0.333	18.76
83	4.2	0.1	13.712	0.166	1.19	92	1.96	72	54.4	72	99.9	85	0.111	0.333	18.72
84	4.1	0.1	13.879	0.167	1.20	92	2.15	72	54.5	73	100.8	85	0.109	0.330	18.63

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 3 **Test Date:** 10./1/2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 11:16
Test Length: 230 min
Recording Interval: 1 min

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test	0.002	cfm @	21.7	in. Hg
Post-Test	0.002	cfm @	5.07	in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ($" H_2O$)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ($" H_2O$)*	$\sqrt{dP}$	*vs*
85	4.1	0.0	14.044	0.165	1.18	93	2.10	72	54.6	73	99.9	85	0.110	0.332	18.58
86	4.0	0.1	14.210	0.166	1.18	93	2.00	72	54.6	73	100.2	84	0.112	0.335	18.70
87	3.9	0.1	14.377	0.167	1.19	93	1.91	71.9	54.7	73	100.4	84	0.110	0.332	18.70
88	3.9	0.0	14.542	0.165	1.18	93	2.03	71.9	54.8	72	99.5	84	0.110	0.332	18.62
89	3.8	0.1	14.708	0.166	1.18	94	2.07	71.9	54.8	73	100.2	84	0.110	0.332	18.62
90	3.8	0.0	14.875	0.167	1.19	93	2.15	71.9	54.9	72	100.5	84	0.112	0.335	18.70
91	3.7	0.1	15.040	0.165	1.18	94	2.00	72	54.9	72	99.1	85	0.111	0.333	18.74
92	3.6	0.1	15.206	0.166	1.20	94	2.10	72	55	73	99.6	84	0.111	0.333	18.70
93	3.6	0.0	15.373	0.167	1.18	94	2.09	72	55.1	72	100.2	84	0.111	0.333	18.70
94	3.5	0.0	15.538	0.165	1.18	94	1.90	72.1	55.1	72	99.1	84	0.110	0.332	18.65
95	3.5	0.0	15.704	0.166	1.18	94	2.11	72.2	55.2	72	99.8	84	0.111	0.333	18.65
96	3.4	0.1	15.871	0.167	1.17	94	2.05	72.2	55.3	71	100.4	84	0.110	0.332	18.65
97	3.4	0.0	16.037	0.166	1.17	94	1.96	72.2	55.3	71	99.9	84	0.110	0.332	18.61
98	3.3	0.1	16.202	0.165	1.17	95	1.93	72.3	55.4	71	99.3	84	0.111	0.333	18.65
99	3.3	0.0	16.370	0.168	1.18	95	2.04	72.3	55.5	71	100.8	84	0.111	0.333	18.70
100	3.2	0.1	16.536	0.166	1.17	95	2.08	72.3	55.4	71	99.6	84	0.110	0.332	18.65
101	3.2	0.0	16.701	0.165	1.17	95	2.11	72.3	55.6	72	99.2	84	0.110	0.332	18.61
102	3.1	0.1	16.868	0.167	1.19	95	2.18	72.3	55.6	72	100.5	84	0.110	0.332	18.61
103	3.0	0.0	17.034	0.166	1.18	95	2.18	72.3	55.7	73	100.0	84	0.109	0.330	18.56
104	3.0	0.1	17.199	0.165	1.18	96	2.05	72.3	55.7	72	99.5	83	0.109	0.330	18.52
105	3.0	0.0	17.367	0.168	1.18	95	2.05	72.2	55.8	72	101.2	83	0.111	0.333	18.60
106	2.9	0.1	17.533	0.166	1.19	96	1.91	72.2	55.8	72	99.3	83	0.113	0.336	18.77
107	2.9	0.0	17.699	0.166	1.19	95	2.05	72.2	56	73	98.8	83	0.111	0.333	18.76
108	2.8	0.1	17.866	0.167	1.18	96	2.18	72.2	56	72	99.7	83	0.110	0.332	18.64
109	2.8	0.0	18.032	0.166	1.19	96	1.89	72.1	56	72	99.5	82	0.110	0.332	18.59
110	2.7	0.1	18.198	0.166	1.18	96	1.89	72.1	56.1	72	99.4	82	0.111	0.333	18.63
111	2.6	0.0	18.365	0.167	1.17	96	2.11	72.2	56.2	72	99.9	83	0.110	0.332	18.63
112	2.6	0.1	18.531	0.166	1.19	96	2.04	72.1	56.2	72	99.5	83	0.110	0.332	18.59
113	2.5	0.0	18.697	0.166	1.19	96	1.93	72.1	56.3	72	99.5	83	0.111	0.333	18.63
114	2.5	0.1	18.863	0.166	1.17	96	2.19	72.1	56.4	72	99.4	83	0.109	0.330	18.59
115	2.5	0.0	19.030	0.167	1.18	96	2.09	72.2	56.5	72	100.3	83	0.110	0.332	18.55
116	2.4	0.1	19.196	0.166	1.17	96	1.92	72.1	56.5	72	99.6	82	0.110	0.332	18.59
117	2.4	0.0	19.362	0.166	1.17	97	1.99	72.1	56.6	72	99.6	82	0.109	0.330	18.54
118	2.3	0.1	19.530	0.168	1.19	97	2.17	72	56.6	73	100.8	82	0.110	0.332	18.53
119	2.3	0.0	19.696	0.166	1.18	96	2.00	72	56.6	73	99.5	82	0.110	0.332	18.57
120	2.2	0.1	19.861	0.165	1.18	97	2.20	72	56.7	73	98.7	82	0.111	0.333	18.62
121	2.2	0.0	20.030	0.169	1.19	97	2.16	71.9	56.8	72	101.0	81	0.109	0.330	18.57
122	2.2	0.0	20.196	0.166	1.19	97	2.15	71.9	56.9	73	99.6	82	0.109	0.330	18.48
123	2.1	0.1	20.362	0.166	1.18	97	2.04	71.9	57	73	99.5	81	0.112	0.335	18.61
124	2.1	0.0	20.529	0.167	1.20	97	2.17	71.9	57	72	99.4	81	0.111	0.333	18.69
125	2.1	0.0	20.696	0.167	1.19	97	2.08	71.9	57.1	72	99.2	81	0.111	0.333	18.64
126	2.0	0.1	20.862	0.166	1.19	97	1.93	71.9	57.1	72	98.7	80	0.111	0.333	18.63
127	2.0	0.0	21.028	0.166	1.19	97	1.96	71.9	57.1	72	98.6	80	0.112	0.335	18.67
128	2.0	0.0	21.196	0.168	1.19	97	1.96	71.8	57.2	72	99.7	80	0.111	0.333	18.67

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 3
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 11:16
Test Length: 230 min
Recording Interval: 1 min

Test Date: 10./1/2025

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test	0.002	cfm @	21.7	in. Hg
Post-Test	0.002	cfm @	5.07	in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ($"H_2O$)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ($"H_2O$)*	$\sqrt{dP}$	*vs*
129	2.0	0.0	21.362	0.166	1.18	97	1.99	71.8	57.2	73	98.5	80	0.111	0.333	18.62
130	1.9	0.0	21.528	0.166	1.19	97	2.13	71.8	57.2	73	98.7	79	0.110	0.332	18.58
131	1.9	0.0	21.696	0.168	1.18	97	2.05	71.8	57.3	73	100.0	79	0.111	0.333	18.57
132	1.9	0.0	21.862	0.166	1.19	97	2.06	71.8	57.3	73	98.7	79	0.111	0.333	18.61
133	1.9	0.0	22.028	0.166	1.16	98	2.18	71.7	57.3	73	98.5	79	0.111	0.333	18.61
134	1.9	0.0	22.196	0.168	1.20	97	1.89	71.7	57.4	73	99.7	79	0.111	0.333	18.60
135	1.8	0.0	22.363	0.167	1.19	98	1.99	71.7	57.4	72	99.1	79	0.111	0.333	18.61
136	1.8	0.0	22.528	0.165	1.18	98	1.93	71.7	57.4	72	97.8	79	0.112	0.335	18.65
137	1.8	0.0	22.695	0.167	1.18	98	2.08	71.7	57.5	72	98.8	79	0.111	0.333	18.65
138	1.8	0.0	22.863	0.168	1.18	98	2.11	71.7	57.5	73	99.4	78	0.112	0.335	18.64
139	1.8	0.0	23.029	0.166	1.18	98	1.92	71.7	57.5	73	98.4	78	0.109	0.330	18.56
140	1.8	0.0	23.194	0.165	1.17	98	2.13	71.7	57.5	73	98.3	78	0.110	0.332	18.47
141	1.8	0.0	23.363	0.169	1.19	98	2.19	71.6	57.5	72	100.9	78	0.109	0.330	18.47
142	1.7	0.0	23.529	0.166	1.19	98	1.94	71.7	57.6	73	99.0	78	0.110	0.332	18.46
143	1.7	0.0	23.695	0.166	1.17	98	2.16	71.6	57.6	73	98.8	78	0.111	0.333	18.55
144	1.7	0.0	23.863	0.168	1.18	98	2.02	71.6	57.6	73	99.7	78	0.111	0.333	18.59
145	1.7	0.0	24.030	0.167	1.19	98	1.92	71.6	57.7	73	99.1	78	0.110	0.332	18.55
146	1.7	0.0	24.196	0.166	1.18	98	2.18	71.6	57.8	73	98.7	78	0.110	0.332	18.50
147	1.7	0.0	24.363	0.167	1.19	98	1.90	71.6	57.7	72	99.4	78	0.110	0.332	18.50
148	1.7	0.0	24.531	0.168	1.18	98	1.91	71.6	57.8	73	99.9	77	0.111	0.333	18.54
149	1.6	0.0	24.697	0.166	1.19	98	2.03	71.5	57.8	72	98.4	78	0.111	0.333	18.58
150	1.6	0.0	24.863	0.166	1.20	98	1.93	71.6	57.8	72	98.4	78	0.110	0.332	18.54
151	1.6	0.0	25.031	0.168	1.19	98	1.90	71.6	57.8	72	99.7	78	0.111	0.333	18.55
152	1.6	0.0	25.198	0.167	1.17	98	1.92	71.6	57.9	72	99.1	78	0.110	0.332	18.55
153	1.6	0.0	25.364	0.166	1.19	98	2.19	71.6	57.9	73	98.5	78	0.111	0.333	18.54
154	1.6	0.0	25.531	0.167	1.18	98	1.93	71.6	57.9	73	99.3	78	0.108	0.329	18.46
155	1.5	0.0	25.699	0.168	1.20	99	1.98	71.6	58	73	100.4	78	0.109	0.330	18.38
156	1.5	0.0	25.865	0.166	1.19	98	2.15	71.6	58	73	99.1	78	0.111	0.333	18.51
157	1.5	0.0	26.031	0.166	1.17	99	2.02	71.5	58	73	98.5	78	0.111	0.333	18.60
158	1.5	0.0	26.199	0.168	1.21	98	1.99	71.5	58	73	99.7	79	0.109	0.330	18.52
159	1.4	0.0	26.366	0.167	1.18	99	2.18	71.5	58.1	72	99.5	78	0.110	0.332	18.48
160	1.4	0.1	26.532	0.166	1.18	99	2.06	71.5	58.1	73	98.8	79	0.110	0.332	18.52
161	1.4	0.0	26.700	0.168	1.20	99	2.03	71.5	58.2	72	100.0	79	0.110	0.332	18.52
162	1.4	0.0	26.867	0.167	1.19	98	2.14	71.5	58.2	72	99.3	79	0.111	0.333	18.57
163	1.3	0.0	27.033	0.166	1.18	98	2.09	71.6	58.3	73	98.5	79	0.111	0.333	18.61
164	1.3	0.1	27.199	0.166	1.18	98	2.04	71.6	58.4	73	98.5	79	0.110	0.332	18.57
165	1.3	0.0	27.368	0.169	1.18	99	2.06	71.5	58.4	72	100.3	79	0.111	0.333	18.57
166	1.3	0.0	27.534	0.166	1.19	99	1.99	71.6	58.4	73	98.4	79	0.111	0.333	18.61
167	1.2	0.1	27.700	0.166	1.18	98	2.08	71.6	58.5	73	98.5	79	0.110	0.332	18.57
168	1.2	0.0	27.868	0.168	1.18	99	2.10	71.5	58.5	73	99.6	79	0.112	0.335	18.61
169	1.2	0.0	28.035	0.167	1.17	99	2.00	71.6	58.6	73	98.7	79	0.112	0.335	18.70
170	1.2	0.0	28.201	0.166	1.17	99	2.05	71.6	58.7	73	98.0	79	0.111	0.333	18.66
171	1.2	0.0	28.368	0.167	1.20	98	2.14	71.5	58.7	72	98.9	79	0.111	0.333	18.62
172	1.1	0.1	28.536	0.168	1.19	98	2.18	71.6	58.7	73	99.6	79	0.111	0.333	18.62

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 3
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 11:16
Test Length: 230 min
Recording Interval: 1 min

Test Date: 10./1/2025

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test	0.002	cfm @	21.7	in. Hg
Post-Test	0.002	cfm @	5.07	in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ($"H_2O$)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ($"H_2O$)*	$\sqrt{dP}$	*vs*
173	1.1	0.0	28.703	0.167	1.18	99	2.05	71.6	58.7	73	98.9	79	0.111	0.333	18.62
174	1.1	0.0	28.868	0.165	1.19	99	1.98	71.6	58.8	72	97.6	80	0.112	0.335	18.66
175	1.0	0.1	29.037	0.169	1.18	99	1.99	71.7	58.9	72	100.0	79	0.110	0.332	18.62
176	1.0	0.0	29.203	0.166	1.18	99	1.98	71.6	58.9	72	98.6	80	0.110	0.332	18.53
177	1.0	0.0	29.370	0.167	1.18	99	2.04	71.7	59	72	99.3	79	0.111	0.333	18.58
178	1.0	0.0	29.537	0.167	1.19	99	2.05	71.7	59	73	99.0	79	0.111	0.333	18.62
179	0.9	0.0	29.704	0.167	1.19	99	2.02	71.6	59	73	99.1	79	0.109	0.330	18.53
180	0.9	0.0	29.871	0.167	1.18	99	2.03	71.7	59.1	73	99.6	79	0.109	0.330	18.45
181	0.9	0.0	30.037	0.166	1.19	99	2.13	71.7	59.1	72	99.1	80	0.110	0.332	18.49
182	0.9	0.0	30.205	0.168	1.19	99	1.97	71.6	59.1	72	100.0	80	0.111	0.333	18.58
183	0.8	0.0	30.372	0.167	1.18	99	1.99	71.6	59.1	72	99.0	80	0.111	0.333	18.62
184	0.8	0.0	30.538	0.166	1.18	99	2.04	71.6	59.2	73	98.2	79	0.112	0.335	18.66
185	0.8	0.0	30.706	0.168	1.19	99	2.11	71.7	59.3	73	99.2	79	0.111	0.333	18.66
186	0.8	0.0	30.873	0.167	1.20	99	2.14	71.7	59.3	73	98.8	79	0.111	0.333	18.62
187	0.8	0.0	31.040	0.167	1.18	99	2.10	71.7	59.4	73	98.9	79	0.111	0.333	18.62
188	0.8	0.0	31.206	0.166	1.17	99	2.14	71.7	59.4	72	98.4	79	0.110	0.332	18.57
189	0.7	0.1	31.374	0.168	1.19	99	2.15	71.7	59.5	73	99.7	79	0.111	0.333	18.57
190	0.7	0.0	31.541	0.167	1.18	99	2.00	71.8	59.6	73	99.0	80	0.111	0.333	18.62
191	0.7	0.0	31.707	0.166	1.18	99	1.90	71.7	59.5	72	98.3	79	0.111	0.333	18.62
192	0.7	0.0	31.875	0.168	1.18	99	2.08	71.7	59.6	72	99.6	79	0.110	0.332	18.57
193	0.7	0.0	32.042	0.167	1.20	99	2.17	71.7	59.6	72	99.1	79	0.111	0.333	18.57
194	0.7	0.0	32.208	0.166	1.18	99	1.91	71.7	59.6	73	98.4	79	0.111	0.333	18.62
195	0.6	0.0	32.375	0.167	1.17	99	2.10	71.7	59.6	72	99.0	79	0.110	0.332	18.57
196	0.6	0.0	32.543	0.168	1.19	99	2.00	71.7	59.6	72	99.7	80	0.111	0.333	18.58
197	0.6	0.0	32.710	0.167	1.19	99	2.17	71.7	59.7	73	99.1	80	0.110	0.332	18.58
198	0.6	0.0	32.876	0.166	1.19	99	2.16	71.7	59.7	73	98.7	80	0.110	0.332	18.54
199	0.6	0.0	33.044	0.168	1.17	99	2.01	71.7	59.7	73	100.0	80	0.110	0.332	18.54
200	0.6	0.0	33.211	0.167	1.19	99	2.18	71.7	59.8	72	99.3	79	0.110	0.332	18.53
201	0.6	0.0	33.377	0.166	1.18	99	1.94	71.7	59.8	73	98.7	80	0.110	0.332	18.53
202	0.5	0.0	33.544	0.167	1.18	99	2.01	71.7	59.8	73	99.4	80	0.110	0.332	18.54
203	0.5	0.0	33.712	0.168	1.19	99	2.06	71.7	59.8	73	100.0	80	0.110	0.332	18.54
204	0.5	0.0	33.879	0.167	1.18	100	1.98	71.8	59.9	73	99.3	80	0.110	0.332	18.54
205	0.5	0.0	34.045	0.166	1.18	99	2.09	71.8	60	73	98.9	80	0.108	0.329	18.45
206	0.5	0.0	34.213	0.168	1.18	99	2.14	71.8	60	73	100.2	79	0.111	0.333	18.49
207	0.5	0.0	34.380	0.167	1.17	99	2.05	71.8	60	72	99.3	79	0.110	0.332	18.57
208	0.4	0.0	34.546	0.166	1.19	99	2.02	71.8	60	73	98.6	80	0.110	0.332	18.54
209	0.4	0.1	34.713	0.167	1.17	99	2.13	71.8	60	73	99.3	79	0.110	0.332	18.54
210	0.4	0.0	34.881	0.168	1.17	100	2.09	71.9	60.1	73	99.8	80	0.111	0.333	18.58
211	0.4	0.0	35.048	0.167	1.18	100	2.16	71.9	60.1	73	99.0	80	0.110	0.332	18.58
212	0.4	0.0	35.214	0.166	1.19	99	2.08	71.9	60.2	73	98.5	80	0.111	0.333	18.58
213	0.4	0.0	35.383	0.169	1.17	99	1.99	71.9	60.2	72	100.4	80	0.109	0.330	18.54
214	0.4	0.0	35.550	0.167	1.18	100	2.00	71.9	60.2	72	99.5	80	0.109	0.330	18.45
215	0.3	0.0	35.716	0.166	1.19	100	2.13	71.9	60.3	73	99.0	80	0.110	0.332	18.49
216	0.3	0.0	35.883	0.167	1.18	99	1.99	71.9	60.2	73	99.4	80	0.110	0.332	18.54

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 3
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Date: 10./1/2025

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Test Start Time: 11:16
Test Length: 230 min
Recording Interval: 1 min

Sample Train Leak Checks

Pre-test	0.002	cfm @	21.7	in. Hg
Post-Test	0.002	cfm @	5.07	in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ("H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ("H_2O)*	$\sqrt{dP}$	*vs*
217	0.3	0.0	36.051	0.168	1.19	100	1.92	71.9	60.3	73	99.9	79	0.110	0.332	18.54
218	0.3	0.0	36.218	0.167	1.19	99	2.16	72	60.3	73	99.2	79	0.111	0.333	18.58
219	0.3	0.0	36.384	0.166	1.19	100	1.90	72	60.4	72	98.3	80	0.112	0.335	18.66
220	0.2	0.0	36.552	0.168	1.20	99	1.90	72	60.4	73	99.2	80	0.111	0.333	18.67
221	0.2	0.0	36.719	0.167	1.20	100	2.15	72	60.4	73	98.6	80	0.112	0.335	18.67
222	0.2	0.0	36.886	0.167	1.17	100	1.97	72.1	60.5	72	98.6	80	0.111	0.333	18.67
223	0.2	0.0	37.052	0.166	1.19	100	1.88	72.1	60.5	71	98.1	80	0.111	0.333	18.63
224	0.2	0.0	37.221	0.169	1.16	100	2.00	72.1	60.5	71	100.0	80	0.111	0.333	18.63
225	0.2	0.0	37.387	0.166	1.18	100	1.90	72	60.5	71	98.4	81	0.110	0.332	18.59
226	0.2	0.0	37.554	0.167	1.18	99	2.18	72	60.5	72	99.4	81	0.108	0.329	18.47
227	0.1	0.0	37.722	0.168	1.19	100	2.02	72	60.5	72	100.4	80	0.110	0.332	18.47
228	0.1	0.0	37.892	0.170	1.19	100	2.04	72	60.5	73	101.6	81	0.108	0.329	18.47
229	0.1	0.0	38.055	0.163	1.19	100	1.94	72	60.5	72	97.5	81	0.109	0.330	18.43
230	0.0	0.1	38.222	0.167	1.19	100	1.89	72.1	60.6	73	99.8	81	0.110	0.332	18.51

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 3
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Date: 10./1/2025

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Test Start Time: 11:16
Total Sampling Time: 230 min
Recording Interval: 1 min

Sample Train Leak Checks

Pre-test 0.002 cfm @ 24.7 in. Hg
Post-Test 0.001 cfm @ 4.97 in. Hg

Elapsed Time (min)	**Train B Sampling System**								**Appliance Temperatures, °F**						
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Pro - Rate*	*Top*	*Bottom*	*Back*	*Left*	*Right*	*Catalyst Exit*	*Average Stove Surface (Tot = Δ T)*
Tot / Avg	**36.682**	**0.159**	**1.20**	**89.7**	**2.27**	**71.72**	**52.03**	**100.0**	**447.5**	**365.2**	**263.0**	**308.7**	**320.3**	**911.0**	**25.4**
Minimum	0.000	0.155	0.03	73	-0.01	70	48	97.4	305	331	196	254	272	526	302
Max	36.682	0.164	1.24	96	2.38	72	59	106.2	575	409	328	348	357	1196	367
0	0.000		0.03	73	-0.01	69.7	51.1		327	409	279	319	316	651	330
1	0.155	0.155	1.20	73	2.28	69.7	50.1	101.5	328	409	280	320	317	556	331
2	0.313	0.158	1.18	73	2.31	69.7	49.8	105.2	326	408	279	322	317	526	331
3	0.476	0.163	1.24	73	2.33	69.7	49.6	106.2	322	408	278	322	316	531	329
4	0.635	0.159	1.21	73	2.35	69.8	49.3	103.0	317	408	275	321	314	550	327
5	0.793	0.158	1.22	73	2.35	69.9	49.1	101.7	314	408	273	320	313	574	325
6	0.952	0.159	1.21	73	2.36	70	48.9	102.0	310	408	269	319	311	597	323
7	1.112	0.160	1.20	73	2.36	70.1	48.7	102.8	308	408	266	318	308	616	321
8	1.269	0.157	1.20	74	2.37	70.1	48.5	101.0	306	408	262	316	306	626	320
9	1.427	0.158	1.20	74	2.38	70.2	48.4	101.3	305	408	258	314	304	637	318
10	1.587	0.160	1.19	74	2.39	70.2	48.3	102.3	305	408	254	312	302	647	316
11	1.744	0.157	1.19	74	2.38	70.3	48.2	100.4	305	408	250	310	299	646	314
12	1.901	0.157	1.22	74	2.32	70.3	48	100.4	306	407	246	308	297	655	313
13	2.062	0.161	1.22	74	2.31	70.4	48	103.1	308	407	242	305	295	675	311
14	2.222	0.160	1.20	74	2.41	70.4	47.9	102.5	310	406	238	303	293	689	310
15	2.380	0.158	1.20	75	2.28	70.5	47.9	101.3	313	406	234	300	290	705	309
16	2.539	0.159	1.21	75	2.35	70.5	47.8	102.2	317	405	231	297	288	721	308
17	2.700	0.161	1.20	75	2.36	70.6	47.8	103.3	321	404	228	295	287	736	307
18	2.859	0.159	1.21	75	2.28	70.6	47.7	101.7	325	403	225	292	285	746	306
19	3.017	0.158	1.20	76	2.41	70.6	47.7	101.2	329	403	222	289	283	753	305
20	3.178	0.161	1.20	76	2.43	70.7	47.6	103.0	333	402	220	287	282	759	305
21	3.337	0.159	1.21	76	2.31	70.7	47.6	101.5	338	401	217	284	280	764	304
22	3.495	0.158	1.22	76	2.33	70.7	47.5	100.9	343	399	215	282	279	772	304
23	3.654	0.159	1.20	76	2.42	70.7	47.5	101.3	348	398	213	280	278	782	303
24	3.814	0.160	1.19	77	2.35	70.8	47.5	102.3	353	397	211	277	277	795	303
25	3.972	0.158	1.20	77	2.27	70.8	47.5	101.7	359	396	209	275	276	816	303
26	4.130	0.158	1.20	77	2.31	70.9	47.5	101.4	365	395	208	273	275	830	303
27	4.290	0.160	1.20	77	2.32	70.9	47.6	102.2	370	394	206	271	275	836	303
28	4.449	0.159	1.20	78	2.27	71	47.5	101.4	373	393	204	269	275	840	303
29	4.607	0.158	1.20	78	2.25	71	47.5	100.8	377	392	203	268	275	840	303
30	4.766	0.159	1.20	78	2.42	71	47.5	101.8	379	391	202	266	274	831	302
31	4.926	0.160	1.20	79	2.28	71.1	47.6	102.8	382	390	201	265	274	828	302
32	5.084	0.158	1.21	79	2.29	71.1	47.6	101.2	385	390	200	263	274	839	302
33	5.241	0.157	1.19	79	2.41	71.1	47.6	100.3	389	389	199	262	273	851	302
34	5.402	0.161	1.21	79	2.27	71.3	47.7	103.2	394	388	198	261	273	860	303
35	5.559	0.157	1.21	80	2.32	71.3	47.7	100.9	400	387	197	259	273	872	303
36	5.717	0.158	1.20	80	2.25	71.4	47.8	101.3	405	386	197	258	272	880	304
37	5.877	0.160	1.20	80	2.41	71.4	47.7	102.4	408	385	196	257	272	886	304
38	6.035	0.158	1.20	81	2.28	71.4	47.7	101.0	412	385	196	256	272	895	304
39	6.193	0.158	1.21	81	2.37	71.4	47.8	100.8	414	384	196	256	272	908	304
40	6.352	0.159	1.20	81	2.35	71.4	47.8	101.3	417	384	196	255	272	918	305

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 3
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Date: 10./1/2025

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Test Start Time: 11:16
Total Sampling Time: 230 min
Recording Interval: 1 min

Sample Train Leak Checks

Pre-test 0.002 cfm @ 24.7 in. Hg
Post-Test 0.001 cfm @ 4.97 in. Hg

Elapsed Time (min)	**Train B Sampling System**								**Appliance Temperatures, °F**						
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Pro - Rate*	*Top*	*Bottom*	*Back*	*Left*	*Right*	*Catalyst Exit*	*Average Stove Surface (Tot = Δ T)*
41	6.511	0.159	1.19	81	2.23	71.4	47.8	101.3	420	383	196	254	272	937	305
42	6.668	0.157	1.20	82	2.41	71.5	47.9	100.1	424	383	196	254	272	952	306
43	6.827	0.159	1.21	82	2.41	71.5	47.9	101.3	428	382	196	254	272	966	307
44	6.987	0.160	1.21	82	2.21	71.5	48	102.0	433	382	197	254	273	980	308
45	7.145	0.158	1.20	82	2.25	71.6	48	100.9	437	381	197	254	273	991	309
46	7.302	0.157	1.21	83	2.22	71.6	48	100.1	443	381	198	255	274	1005	310
47	7.463	0.161	1.20	83	2.42	71.6	48	102.5	448	381	199	255	274	1020	311
48	7.620	0.157	1.20	83	2.40	71.7	48.1	99.8	453	380	200	255	274	1039	313
49	7.778	0.158	1.20	83	2.32	71.7	48.1	100.4	459	380	201	256	275	1051	314
50	7.938	0.160	1.21	84	2.26	71.8	48.3	101.9	465	380	202	257	276	1060	316
51	8.096	0.158	1.20	84	2.33	71.9	48.4	100.7	470	380	203	258	276	1052	317
52	8.253	0.157	1.19	84	2.40	71.9	48.4	100.2	476	379	204	259	277	1035	319
53	8.413	0.160	1.19	84	2.24	71.9	48.4	102.0	482	379	205	260	278	1022	321
54	8.572	0.159	1.20	85	2.29	71.9	48.5	100.9	487	379	207	261	279	1015	323
55	8.729	0.157	1.21	85	2.36	72	48.5	99.9	491	379	208	262	280	1007	324
56	8.888	0.159	1.23	85	2.40	72	48.6	101.4	494	378	209	264	281	999	325
57	9.048	0.160	1.21	85	2.29	72	48.7	101.6	496	378	210	265	282	993	326
58	9.206	0.158	1.22	85	2.41	72	48.7	100.0	498	378	212	267	283	991	327
59	9.364	0.158	1.21	86	2.40	72.1	48.7	100.1	499	377	213	268	284	991	328
60	9.524	0.160	1.20	86	2.28	72.1	48.8	101.7	501	377	214	270	285	992	329
61	9.681	0.157	1.21	86	2.40	72.2	48.9	100.0	502	376	215	271	286	993	330
62	9.839	0.158	1.20	86	2.38	72.2	49	100.5	502	376	217	273	287	994	331
63	9.999	0.160	1.20	87	2.37	72.2	49	101.8	504	375	218	274	287	1001	332
64	10.158	0.159	1.21	87	2.31	72.2	49	101.2	504	374	219	276	288	1012	332
65	10.315	0.157	1.19	87	2.33	72.2	49.1	100.0	505	374	220	277	289	1019	333
66	10.475	0.160	1.20	87	2.32	72.3	49.1	101.7	507	373	221	278	289	1019	334
67	10.634	0.159	1.20	87	2.30	72.2	49.1	100.8	508	372	222	280	290	1017	334
68	10.792	0.158	1.21	88	2.21	72.3	49.2	100.1	509	371	223	281	291	1020	335
69	10.950	0.158	1.21	88	2.20	72.3	49.3	100.1	511	370	224	282	291	1025	336
70	11.111	0.161	1.20	88	2.19	72.3	49.3	101.9	513	370	225	283	292	1030	336
71	11.269	0.158	1.20	88	2.40	72.3	49.3	99.8	515	369	226	284	293	1032	337
72	11.427	0.158	1.20	88	2.37	72.3	49.3	99.5	516	368	228	285	294	1035	338
73	11.587	0.160	1.21	88	2.21	72.3	49.4	100.8	518	367	229	286	295	1041	339
74	11.747	0.160	1.19	89	2.30	72.4	49.5	100.9	519	366	230	287	296	1044	340
75	11.904	0.157	1.21	89	2.30	72.4	49.4	99.1	522	365	231	288	297	1044	341
76	12.063	0.159	1.21	89	2.36	72.4	49.6	100.4	524	365	232	289	298	1042	342
77	12.224	0.161	1.20	89	2.22	72.4	49.5	101.6	526	364	233	290	300	1040	343
78	12.382	0.158	1.21	89	2.18	72.4	49.6	99.7	529	363	234	291	301	1049	344
79	12.541	0.159	1.21	90	2.33	72.4	49.6	100.5	532	362	236	292	302	1063	345
80	12.701	0.160	1.21	90	2.36	72.4	49.7	101.3	535	361	237	293	303	1070	346
81	12.860	0.159	1.20	90	2.37	72.4	49.7	100.1	538	360	238	294	305	1067	347
82	13.019	0.159	1.20	90	2.18	72.4	49.7	99.6	541	359	240	295	306	1059	348
83	13.177	0.158	1.21	90	2.21	72.3	49.8	99.0	544	358	241	296	307	1050	349
84	13.339	0.162	1.21	90	2.37	72.3	49.8	101.8	546	358	242	297	308	1045	350

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 3
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Date: 10./1/2025

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Test Start Time: 11:16
Total Sampling Time: 230 min
Recording Interval: 1 min

Sample Train Leak Checks

Pre-test 0.002 cfm @ 24.7 in. Hg
Post-Test 0.001 cfm @ 4.97 in. Hg

Elapsed Time (min)	**Train B Sampling System**								**Appliance Temperatures, °F**						
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Pro - Rate*	*Top*	*Bottom*	*Back*	*Left*	*Right*	*Catalyst Exit*	*Average Stove Surface (Tot = Δ T)*
85	13.497	0.158	1.21	90	2.32	72.3	49.8	99.6	548	357	244	298	310	1041	351
86	13.656	0.159	1.21	91	2.22	72.3	49.8	99.9	549	356	245	299	311	1040	352
87	13.816	0.160	1.22	91	2.19	72.3	49.9	100.2	550	355	246	300	313	1039	353
88	13.976	0.160	1.21	91	2.24	72.3	49.9	100.4	550	354	248	301	314	1039	353
89	14.135	0.159	1.21	91	2.30	72.3	50	100.0	550	353	249	302	315	1039	354
90	14.293	0.158	1.21	91	2.34	72.3	50	99.1	549	353	251	303	317	1041	354
91	14.454	0.161	1.21	91	2.25	72.4	50	100.6	549	352	252	304	318	1047	355
92	14.613	0.159	1.21	91	2.33	72.4	50	99.3	549	351	253	305	320	1053	355
93	14.772	0.159	1.21	91	2.32	72.3	50.1	99.4	549	350	254	306	321	1059	356
94	14.931	0.159	1.20	91	2.17	72.4	50.1	99.5	549	349	255	307	322	1067	356
95	15.092	0.161	1.20	92	2.31	72.4	50.2	100.8	548	348	256	308	323	1083	357
96	15.251	0.159	1.21	92	2.31	72.3	50.2	99.6	549	347	257	308	325	1088	357
97	15.409	0.158	1.21	92	2.25	72.3	50.3	99.0	549	347	257	309	326	1083	357
98	15.569	0.160	1.23	92	2.22	72.3	50.3	100.3	550	346	258	309	327	1078	358
99	15.730	0.161	1.21	92	2.25	72.2	50.3	100.7	549	345	259	310	327	1069	358
100	15.888	0.158	1.22	92	2.29	72.2	50.3	98.7	549	344	260	310	328	1064	358
101	16.047	0.159	1.21	92	2.31	72.2	50.4	99.6	548	344	261	311	329	1053	358
102	16.208	0.161	1.21	92	2.37	72.2	50.5	100.9	547	343	262	312	330	1042	359
103	16.368	0.160	1.21	92	2.38	72.2	50.5	100.4	545	342	262	313	330	1039	359
104	16.527	0.159	1.20	92	2.31	72.2	50.5	100.0	543	342	263	314	331	1043	358
105	16.685	0.158	1.21	93	2.27	72.2	50.6	99.2	542	341	264	314	331	1057	358
106	16.846	0.161	1.20	93	2.18	72.2	50.6	100.4	541	341	264	315	332	1063	359
107	17.006	0.160	1.20	93	2.25	72.2	50.7	99.2	540	340	265	316	332	1094	359
108	17.164	0.158	1.20	93	2.38	72.2	50.7	98.3	541	339	265	317	332	1132	359
109	17.323	0.159	1.20	93	2.16	72.1	50.8	99.4	543	339	265	318	333	1148	360
110	17.485	0.162	1.20	93	2.16	72.1	50.8	101.2	547	338	266	318	333	1172	360
111	17.644	0.159	1.20	93	2.30	72.2	50.9	99.2	552	338	266	319	334	1190	362
112	17.802	0.158	1.18	93	2.24	72.1	50.9	98.7	558	337	266	319	334	1196	363
113	17.962	0.160	1.20	93	2.15	72.1	51	99.9	564	337	266	319	334	1186	364
114	18.123	0.161	1.19	93	2.35	72.2	51.1	100.6	569	336	267	320	335	1173	365
115	18.282	0.159	1.19	93	2.25	72.2	51.1	99.5	572	336	267	320	335	1167	366
116	18.441	0.159	1.17	93	2.23	72.2	51.2	99.5	575	335	267	320	335	1156	366
117	18.601	0.160	1.19	93	2.17	72.2	51.3	100.0	575	335	268	320	335	1136	367
118	18.761	0.160	1.20	93	2.38	72.2	51.3	100.1	575	334	268	320	335	1118	367
119	18.920	0.159	1.20	94	2.18	72.2	51.3	99.4	574	334	269	320	335	1109	367
120	19.080	0.160	1.19	94	2.38	72.1	51.4	99.8	572	334	269	320	335	1102	366
121	19.240	0.160	1.20	94	2.37	72.1	51.4	99.7	570	333	270	320	335	1095	365
122	19.400	0.160	1.18	94	2.36	72.1	51.5	100.0	567	333	270	320	335	1088	365
123	19.559	0.159	1.19	94	2.23	72.1	51.5	99.3	564	333	271	320	335	1084	364
124	19.719	0.160	1.19	94	2.33	72	51.5	99.3	562	332	271	320	335	1082	364
125	19.879	0.160	1.20	94	2.31	72	51.5	99.1	559	332	271	320	334	1080	363
126	20.040	0.161	1.20	94	2.20	72	51.6	99.8	556	332	272	320	334	1080	363
127	20.199	0.159	1.21	94	2.23	72	51.7	98.5	552	332	272	320	334	1084	362
128	20.358	0.159	1.22	94	2.16	71.9	51.6	98.3	548	331	273	320	334	1080	361

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 3
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Date: 10./1/2025

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Test Start Time: 11:16
Total Sampling Time: 230 min
Recording Interval: 1 min

Sample Train Leak Checks
Pre-test 0.002 cfm @ 24.7 in. Hg
Post-Test 0.001 cfm @ 4.97 in. Hg

Elapsed Time (min)	Train B Sampling System								Appliance Temperatures, °F						
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Filter Temp (°F)	Dryer Temp (°F)	Pro - Rate	Top	Bottom	Back	Left	Right	Catalyst Exit	Average Stove Surface (Tot = Δ T)
129	20.519	0.161	1.19	94	2.21	71.9	51.7	99.6	544	331	273	320	334	1070	360
130	20.679	0.160	1.20	94	2.31	71.9	51.7	99.2	538	331	274	320	334	1055	359
131	20.838	0.159	1.20	94	2.23	71.9	51.8	98.7	532	331	275	320	334	1038	358
132	20.997	0.159	1.21	94	2.26	71.9	51.9	98.5	525	331	275	320	334	1018	357
133	21.158	0.161	1.21	94	2.37	71.9	51.9	99.6	518	331	276	320	334	997	356
134	21.318	0.160	1.22	94	2.15	71.9	51.9	99.0	510	331	276	320	334	976	354
135	21.477	0.159	1.22	95	2.22	71.9	51.9	98.4	503	331	277	320	334	956	353
136	21.637	0.160	1.21	94	2.16	71.9	52	98.9	495	331	278	320	334	936	352
137	21.798	0.161	1.22	95	2.29	71.9	52	99.4	488	331	278	320	334	918	350
138	21.958	0.160	1.21	95	2.32	71.9	52.1	98.7	480	331	279	320	334	901	349
139	22.117	0.159	1.21	95	2.19	71.9	52.2	98.3	473	331	279	320	334	886	347
140	22.276	0.159	1.20	95	2.34	71.9	52.2	98.7	467	332	280	319	334	873	346
141	22.437	0.161	1.22	95	2.37	71.9	52.2	100.2	460	332	280	319	334	860	345
142	22.597	0.160	1.22	95	2.18	71.8	52.2	99.5	454	332	281	319	334	849	344
143	22.756	0.159	1.21	95	2.36	71.8	52.3	98.7	448	333	281	318	334	839	343
144	22.916	0.160	1.21	95	2.25	71.8	52.3	99.0	443	333	281	317	333	829	342
145	23.077	0.161	1.21	95	2.18	71.7	52.2	99.5	438	333	282	317	333	821	340
146	23.237	0.160	1.21	95	2.37	71.7	52.4	99.1	433	334	282	316	333	815	339
147	23.396	0.159	1.22	95	2.17	71.7	52.4	98.6	428	334	282	316	333	811	339
148	23.556	0.160	1.21	95	2.15	71.7	52.5	99.1	424	335	282	316	333	808	338
149	23.717	0.161	1.21	95	2.18	71.7	52.5	99.5	420	335	281	315	332	807	337
150	23.877	0.160	1.21	95	2.30	71.7	52.6	98.9	417	336	281	314	332	806	336
151	24.036	0.159	1.22	95	2.15	71.7	52.7	98.4	414	336	281	314	332	807	336
152	24.195	0.159	1.20	95	2.18	71.7	52.8	98.4	411	337	281	313	332	809	335
153	24.356	0.161	1.22	95	2.36	71.6	52.9	99.6	409	337	282	313	332	813	335
154	24.517	0.161	1.21	95	2.16	71.6	53	99.8	408	338	282	313	332	818	334
155	24.676	0.159	1.21	95	2.24	71.6	53.2	99.1	407	338	282	312	332	822	334
156	24.835	0.159	1.21	95	2.32	71.6	53.3	99.0	406	339	282	312	333	827	334
157	24.996	0.161	1.21	95	2.19	71.6	53.4	99.7	405	339	283	312	333	830	334
158	25.157	0.161	1.22	95	2.20	71.7	53.6	99.7	405	340	283	311	333	833	334
159	25.316	0.159	1.21	95	2.20	71.7	53.8	98.8	404	340	284	311	334	835	335
160	25.475	0.159	1.22	95	2.15	71.6	53.9	98.8	404	341	285	311	334	836	335
161	25.636	0.161	1.22	95	2.19	71.7	54	99.9	403	341	286	311	335	836	335
162	25.797	0.161	1.21	95	2.17	71.6	54.1	99.8	403	342	287	311	335	835	336
163	25.956	0.159	1.21	95	2.32	71.6	54.3	98.3	403	343	288	311	336	834	336
164	26.115	0.159	1.21	95	2.33	71.6	54.4	98.3	403	343	290	311	337	834	337
165	26.276	0.161	1.22	95	2.16	71.6	54.6	99.7	402	344	291	312	337	833	337
166	26.437	0.161	1.21	95	2.14	71.6	54.7	99.5	402	345	293	312	338	831	338
167	26.596	0.159	1.21	95	2.34	71.6	54.8	98.3	402	346	295	312	339	828	339
168	26.755	0.159	1.21	95	2.22	71.6	54.9	98.3	402	346	296	313	340	827	339
169	26.916	0.161	1.19	95	2.17	71.6	55.1	99.2	402	347	298	314	341	824	340
170	27.077	0.161	1.22	96	2.16	71.6	55.2	99.1	402	348	299	315	342	820	341
171	27.236	0.159	1.23	95	2.31	71.6	55.3	98.1	402	349	301	316	343	815	342
172	27.395	0.159	1.21	95	2.29	71.6	55.4	98.2	402	350	303	317	344	810	343

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 3
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Date: 10./1/2025

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Test Start Time: 11:16
Total Sampling Time: 230 min
Recording Interval: 1 min

Sample Train Leak Checks

Pre-test 0.002 cfm @ 24.7 in. Hg
Post-Test 0.001 cfm @ 4.97 in. Hg

Elapsed Time (min)	Train B Sampling System								Appliance Temperatures, °F						
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Filter Temp (°F)	Dryer Temp (°F)	Pro - Rate	Top	Bottom	Back	Left	Right	Catalyst Exit	Average Stove Surface (Tot = Δ T)
173	27.556	0.161	1.22	96	2.28	71.6	55.5	99.5	402	351	304	318	345	807	344
174	27.717	0.161	1.22	96	2.36	71.7	55.6	99.4	401	352	306	319	346	808	345
175	27.876	0.159	1.20	96	2.14	71.7	55.7	98.1	400	353	308	320	347	812	346
176	28.035	0.159	1.21	96	2.18	71.7	55.8	98.4	401	354	309	322	348	816	347
177	28.196	0.161	1.21	96	2.31	71.7	55.9	99.8	401	356	311	323	349	819	348
178	28.357	0.161	1.21	96	2.16	71.7	56	99.6	401	357	313	324	350	821	349
179	28.516	0.159	1.22	96	2.27	71.7	56.1	98.4	401	358	315	325	350	821	350
180	28.676	0.160	1.19	96	2.18	71.7	56.2	99.5	402	359	317	327	351	820	351
181	28.836	0.160	1.19	96	2.35	71.8	56.3	99.6	402	360	319	329	352	818	352
182	28.997	0.161	1.22	96	2.22	71.7	56.3	99.9	402	362	321	330	353	816	353
183	29.157	0.160	1.21	96	2.29	71.8	56.4	98.9	402	363	323	332	354	813	354
184	29.316	0.159	1.21	96	2.31	71.8	56.5	98.1	402	364	325	334	354	811	356
185	29.476	0.160	1.21	96	2.35	71.8	56.6	98.6	402	365	326	336	355	814	357
186	29.638	0.162	1.21	96	2.18	71.8	56.6	99.9	403	367	327	337	356	820	358
187	29.797	0.159	1.22	96	2.23	71.8	56.7	98.2	404	368	327	338	356	826	359
188	29.956	0.159	1.21	96	2.19	71.7	56.7	98.3	405	369	328	340	356	830	360
189	30.116	0.160	1.22	96	2.35	71.7	56.8	99.0	406	370	327	341	357	832	360
190	30.278	0.162	1.20	96	2.14	71.8	56.9	100.2	407	371	327	342	357	834	361
191	30.438	0.160	1.21	96	2.14	71.7	56.9	98.8	408	372	326	343	357	836	361
192	30.597	0.159	1.20	96	2.34	71.8	57	98.3	408	373	325	344	357	837	361
193	30.757	0.160	1.21	96	2.36	71.8	57	99.0	409	374	324	344	357	837	362
194	30.918	0.161	1.21	96	2.27	71.8	57.1	99.5	410	375	322	345	357	837	362
195	31.078	0.160	1.21	96	2.15	71.8	57.1	98.9	410	375	321	345	357	838	362
196	31.238	0.160	1.22	96	2.19	71.8	57.2	99.0	410	376	320	346	357	839	362
197	31.397	0.159	1.20	96	2.36	71.8	57.3	98.4	410	376	318	346	357	841	362
198	31.558	0.161	1.21	96	2.28	71.9	57.3	99.8	410	377	316	347	356	842	361
199	31.719	0.161	1.22	96	2.20	71.8	57.3	99.9	410	377	315	347	356	844	361
200	31.878	0.159	1.21	96	2.33	71.8	57.4	98.6	410	378	313	347	356	846	361
201	32.038	0.160	1.21	96	2.35	71.8	57.4	99.2	411	378	312	347	356	847	361
202	32.199	0.161	1.21	96	2.19	71.9	57.5	99.9	410	378	310	347	355	847	360
203	32.359	0.160	1.24	96	2.16	71.9	57.5	99.3	411	379	309	347	355	848	360
204	32.519	0.160	1.21	96	2.33	71.9	57.6	99.3	410	379	307	347	355	849	360
205	32.678	0.159	1.21	96	2.33	72	57.7	98.8	410	379	306	347	354	851	359
206	32.839	0.161	1.22	96	2.35	71.9	57.7	100.2	410	380	304	347	354	852	359
207	33.000	0.161	1.22	96	2.14	71.9	57.7	99.8	410	380	303	348	353	854	359
208	33.159	0.159	1.22	96	2.25	72	57.8	98.5	410	380	302	348	352	858	358
209	33.319	0.160	1.21	96	2.23	72	57.8	99.2	410	380	301	347	352	861	358
210	33.479	0.160	1.21	96	2.24	72	57.9	99.1	410	381	300	347	351	863	358
211	33.640	0.161	1.22	96	2.34	72	57.9	99.6	410	381	299	347	351	864	357
212	33.800	0.160	1.20	96	2.32	72	58	99.0	410	381	298	347	350	864	357
213	33.959	0.159	1.22	96	2.18	72	58	98.5	410	381	297	348	350	865	357
214	34.119	0.160	1.22	96	2.32	72	58	99.5	410	381	296	348	349	866	357
215	34.281	0.162	1.22	96	2.21	72	58.1	100.8	410	382	295	347	348	868	356
216	34.441	0.160	1.22	96	2.35	72	58.1	99.3	410	382	295	347	348	870	356

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 3
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 11:16
Total Sampling Time: 230 min
Recording Interval: 1 min

Test Date: 10./1/2025

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.002 cfm @ 24.7 in. Hg
Post-Test 0.001 cfm @ 4.97 in. Hg

Elapsed Time (min)	**Train B Sampling System**								**Appliance Temperatures, °F**						
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Pro - Rate*	*Top*	*Bottom*	*Back*	*Left*	*Right*	*Catalyst Exit*	*Average Stove Surface (Tot = Δ T)*
217	34.600	0.159	1.22	96	2.16	72	58.1	98.6	410	382	294	347	347	870	356
218	34.760	0.160	1.22	96	2.35	72	58.2	99.1	410	383	293	348	347	868	356
219	34.922	0.162	1.22	96	2.16	72	58.3	100.0	410	383	293	347	346	867	356
220	35.081	0.159	1.22	96	2.22	72	58.3	97.9	410	383	292	347	346	867	356
221	35.241	0.160	1.22	96	2.35	72.1	58.4	98.6	410	384	291	348	346	868	356
222	35.400	0.159	1.22	96	2.25	72	58.5	97.9	409	384	291	347	345	870	355
223	35.562	0.162	1.21	96	2.26	72	58.5	99.9	410	385	290	347	345	873	355
224	35.722	0.160	1.21	96	2.34	71.9	58.5	98.8	409	385	290	347	344	875	355
225	35.882	0.160	1.21	96	2.15	71.9	58.5	99.0	408	385	290	347	344	877	355
226	36.041	0.159	1.21	96	2.34	71.8	58.6	98.8	409	385	290	347	344	879	355
227	36.202	0.161	1.22	96	2.19	71.8	58.6	100.4	408	386	290	348	343	882	355
228	36.366	0.164	1.21	96	2.17	71.9	58.6	102.2	409	386	290	348	343	882	355
229	36.522	0.156	1.20	96	2.32	71.8	58.6	97.4	409	386	290	348	343	877	355
230	36.682	0.160	1.21	96	2.27	71.9	58.6	99.7	409	386	291	348	343	868	355

Train C - First Hour Particulate Sampling

Run: 3
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Start Time: 11:16
Total Sampling Time: 60 min
Recording Interval: 1 min

Test Date: 10./1/2025

Meter Box Y Regression Offset: 0.981
Meter Box Y Regression Factor: 0
Meter Box Dynamic Y: 0.981
Sample Box ID: 0

Sample Train Leak Checks
Pre-test 0.004 cfm @ 15.7 in. Hg
Post-Test 0.003 cfm @ 7.9 in. Hg

Elapsed Time (min)	**Train C Sampling System**							
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Pro - Rate*
Tot / Avg	**9.563**	**0.159**	**0.99**	**77.5**	**2.49**	**72.4**	**74.2**	**99.7**
Minimum	0.000	0.158	-0.01	75	0.09	71	71	98.3
Max	9.563	0.162	1.04	81	2.58	74	77	105.2
0	0.000		-0.01	75	0.09	70.9	70.9	
1	0.158	0.158	1.04	75	2.49	70.9	70.8	100.9
2	0.320	0.162	1.04	75	2.52	70.9	70.9	105.2
3	0.481	0.161	1.04	75	2.49	70.9	70.9	102.4
4	0.640	0.159	1.02	75	2.48	71.1	71	100.5
5	0.801	0.161	1.02	75	2.57	71.2	71	101.1
6	0.959	0.158	1.01	75	2.52	71.3	71.1	98.9
7	1.118	0.159	1.02	75	2.53	71.3	71.2	99.7
8	1.279	0.161	1.02	75	2.47	71.4	71.3	101.0
9	1.438	0.159	1.02	75	2.47	71.5	71.4	99.4
10	1.598	0.160	1.01	75	2.56	71.5	71.6	99.8
11	1.758	0.160	1.01	75	2.56	71.5	71.6	99.8
12	1.917	0.159	1.01	75	2.47	71.6	71.8	99.1
13	2.077	0.160	1.01	75	2.55	71.7	72	99.8
14	2.236	0.159	1.01	75	2.56	71.7	72.1	99.3
15	2.395	0.159	1.01	76	2.57	71.7	72.3	99.4
16	2.554	0.159	1.00	76	2.53	71.8	72.4	99.6
17	2.713	0.159	1.01	76	2.46	71.9	72.6	99.4
18	2.873	0.160	1.01	76	2.54	71.9	72.7	99.8
19	3.032	0.159	1.01	76	2.52	71.9	72.9	99.3
20	3.191	0.159	1.01	76	2.53	72	73	99.2
21	3.350	0.159	1.00	76	2.57	72	73.2	98.9
22	3.509	0.159	1.01	76	2.57	72.1	73.4	98.9
23	3.669	0.160	1.01	77	2.53	72.1	73.6	99.4
24	3.828	0.159	1.01	77	2.55	72.2	73.7	99.1
25	3.987	0.159	1.01	77	2.55	72.2	74	99.8
26	4.146	0.159	1.00	77	2.57	72.3	74.2	99.5
27	4.305	0.159	1.01	77	2.57	72.3	74.3	99.1
28	4.465	0.160	1.00	77	2.58	72.3	74.4	99.6
29	4.623	0.158	1.01	78	2.56	72.4	74.7	98.3
30	4.783	0.160	1.01	78	2.57	72.4	74.8	99.9
31	4.942	0.159	1.00	78	2.47	72.5	75	99.6
32	5.101	0.159	1.01	78	2.57	72.5	75.1	99.4

Train C - First Hour Particulate Sampling

Run: 3
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Start Time: 11:16
Total Sampling Time: 60 min
Recording Interval: 1 min

Test Date: 10./1/2025

Meter Box Y Regression Offset: 0.981
Meter Box Y Regression Factor: 0
Meter Box Dynamic Y: 0.981
Sample Box ID: 0

Sample Train Leak Checks
Pre-test 0.004 cfm @ 15.7 in. Hg
Post-Test 0.003 cfm @ 7.9 in. Hg

Elapsed Time (min)	**Train C Sampling System**							
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Pro - Rate*
33	5.261	0.160	1.00	78	2.48	72.6	75.2	99.8
34	5.420	0.159	1.01	78	2.57	72.7	75.3	99.6
35	5.579	0.159	1.01	78	2.55	72.8	75.4	99.8
36	5.738	0.159	1.00	78	2.57	72.8	75.4	99.6
37	5.897	0.159	1.01	79	2.47	72.8	75.5	99.5
38	6.057	0.160	1.00	79	2.54	72.9	75.6	100.0
39	6.216	0.159	1.01	79	2.53	72.9	75.6	99.3
40	6.376	0.160	1.01	79	2.54	73	75.6	99.8
41	6.535	0.159	1.00	79	2.57	73	75.6	99.1
42	6.694	0.159	1.01	79	2.54	73.1	75.8	99.3
43	6.854	0.160	1.00	79	2.51	73.1	75.8	99.8
44	7.013	0.159	1.01	79	2.49	73.2	75.9	99.2
45	7.172	0.159	1.00	79	2.52	73.2	76	99.4
46	7.332	0.160	1.00	79	2.54	73.2	76.1	100.0
47	7.491	0.159	1.00	80	2.55	73.3	76.1	99.3
48	7.651	0.160	1.00	80	2.47	73.3	76.2	99.8
49	7.810	0.159	1.01	80	2.52	73.3	76.3	99.1
50	7.969	0.159	1.00	80	2.51	73.3	76.4	99.3
51	8.129	0.160	1.00	80	2.53	73.4	76.5	100.1
52	8.288	0.159	1.01	80	2.48	73.4	76.5	99.6
53	8.448	0.160	1.01	80	2.46	73.5	76.6	100.1
54	8.607	0.159	1.01	80	2.50	73.5	76.7	99.1
55	8.766	0.159	1.00	80	2.55	73.5	76.7	99.4
56	8.926	0.160	1.01	80	2.51	73.5	76.8	100.3
57	9.085	0.159	1.00	81	2.58	73.6	76.9	99.3
58	9.245	0.160	1.01	81	2.57	73.6	76.9	99.6
59	9.404	0.159	1.00	81	2.51	73.6	77	99.0
60	9.563	0.159	1.01	81	2.52	73.6	77	99.5

Train D - Ambient Background and Flue Gas Data

Run: 3 **Test Date:** 10./1/2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 11:16
Total Sampling Time 230 min
Recording Interval 1 min

Elapsed Time (min)	**Ambient Sampling System**					**Flue Gas Data**				
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter ΔH*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Stack Temp (°F)*	*Draft (In. H_2O)*	*CO (ppm)*	*CO (%)*	*CO_2 (%)*
Tot / Avg	**35.806**	**0.156**	**1.06**	**82.1**	**2.01**	**264.36**	**0.050**	**255.1**	**0.21**	**11.32**
Minimum	0.000	0.153	1.06	76	1.97	193.70	0.011	34.0	-0.02	2.10
Max	35.806	0.158	1.14	84	2.07	346.80	0.079	547.0	2.62	14.93
0	0.000		-0.01	76	0.03	194.6	0.024	37.0	0.00	9.59
1	0.154	0.154	1.14	76	2.04	262.1	0.011	547.0	0.17	5.29
2	0.312	0.158	1.10	76	2.03	235.5	0.031	547.0	0.09	2.10
3	0.467	0.155	1.09	76	2.04	221.1	0.023	120.0	0.01	3.95
4	0.623	0.156	1.08	76	2.05	214.6	0.032	92.0	0.01	3.84
5	0.779	0.156	1.08	76	2.05	213.3	0.032	92.0	0.01	4.42
6	0.934	0.155	1.08	76	2.04	213.9	0.032	96.0	0.01	4.61
7	1.088	0.154	1.08	76	2.03	216.4	0.038	109.0	0.01	5.00
8	1.244	0.156	1.08	76	2.04	219.5	0.030	116.0	0.01	5.60
9	1.398	0.154	1.07	76	2.00	222.6	0.032	117.0	0.01	5.60
10	1.553	0.155	1.07	76	2.00	226.8	0.034	117.0	0.01	6.10
11	1.708	0.155	1.07	76	2.05	231	0.042	113.0	0.01	6.60
12	1.863	0.155	1.07	76	1.99	234.8	0.034	121.0	0.01	6.69
13	2.016	0.153	1.07	76	2.04	238.6	0.037	135.0	0.01	7.17
14	2.171	0.155	1.06	76	2.04	242.7	0.022	123.0	0.01	7.49
15	2.326	0.155	1.07	77	2.04	246.4	0.026	141.0	0.01	7.80
16	2.480	0.154	1.07	77	2.01	250.6	0.035	150.0	0.01	7.88
17	2.635	0.155	1.06	77	1.98	254.1	0.026	146.0	0.01	8.00
18	2.791	0.156	1.06	77	1.98	257.8	0.032	151.0	0.01	7.89
19	2.945	0.154	1.07	77	2.02	261.4	0.030	161.0	0.01	8.10
20	3.099	0.154	1.06	77	1.98	265	0.033	165.0	0.01	8.61
21	3.255	0.156	1.07	77	2.03	268.5	0.027	157.0	0.01	9.20
22	3.409	0.154	1.06	77	2.03	271.5	0.032	161.0	0.01	9.43
23	3.563	0.154	1.06	77	1.98	275.3	0.033	185.0	0.01	9.40
24	3.718	0.155	1.06	77	1.98	279.6	0.032	199.0	0.01	10.15
25	3.874	0.156	1.07	78	2.00	284.5	0.032	232.0	0.02	10.74
26	4.027	0.153	1.06	78	2.04	288.3	0.038	233.0	0.02	9.31
27	4.182	0.155	1.06	78	1.98	290.9	0.039	247.0	0.02	8.34
28	4.338	0.156	1.06	78	2.02	293.2	0.031	232.0	0.02	8.45
29	4.491	0.153	1.06	78	2.03	294.9	0.038	232.0	0.02	8.09
30	4.647	0.156	1.06	78	1.97	296.8	0.050	229.0	0.02	8.75
31	4.802	0.155	1.06	78	2.00	299.7	0.053	225.0	0.02	10.09
32	4.956	0.154	1.07	78	2.04	302.6	0.059	257.0	0.02	10.53

Train D - Ambient Background and Flue Gas Data

Run: 3 **Test Date:** 10./1/2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 11:16
Total Sampling Time 230 min
Recording Interval 1 min

Elapsed Time (min)	**Ambient Sampling System**					**Flue Gas Data**				
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter ΔH*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Stack Temp (°F)*	*Draft (In. H_2O)*	*CO (ppm)*	*CO (%)*	*CO_2 (%)*
33	5.111	0.155	1.07	79	2.04	305.2	0.052	261.0	0.02	10.88
34	5.266	0.155	1.07	79	2.03	308.4	0.058	257.0	0.02	11.04
35	5.421	0.155	1.06	79	2.03	312.2	0.055	267.0	0.02	11.17
36	5.575	0.154	1.06	79	1.98	315.3	0.064	284.0	0.03	11.51
37	5.731	0.156	1.06	79	2.00	317.6	0.043	301.0	0.02	10.74
38	5.886	0.155	1.07	79	2.02	318.4	0.058	303.0	0.03	10.27
39	6.040	0.154	1.06	79	2.03	319.5	0.057	307.0	0.02	10.23
40	6.196	0.156	1.06	79	2.04	320.9	0.063	317.0	0.02	10.66
41	6.351	0.155	1.07	79	2.03	323.2	0.041	342.0	0.03	11.49
42	6.505	0.154	1.07	80	2.02	327	0.061	372.0	0.03	12.23
43	6.661	0.156	1.06	80	2.03	330.3	0.061	400.0	0.03	12.62
44	6.816	0.155	1.07	80	2.03	332.9	0.071	366.0	0.03	12.76
45	6.970	0.154	1.07	80	2.00	335	0.073	363.0	0.03	12.89
46	7.126	0.156	1.06	80	2.01	337.2	0.066	379.0	0.03	13.00
47	7.282	0.156	1.07	80	2.03	339.8	0.064	411.0	0.04	13.34
48	7.436	0.154	1.07	80	2.05	342.3	0.067	547.0	0.05	13.66
49	7.591	0.155	1.06	80	2.00	343.5	0.075	547.0	0.05	13.62
50	7.747	0.156	1.06	80	2.01	344.3	0.075	547.0	0.09	13.66
51	7.901	0.154	1.07	80	2.04	346.5	0.075	547.0	0.09	13.95
52	8.057	0.156	1.06	80	1.98	346.8	0.045	547.0	0.13	14.11
53	8.213	0.156	1.06	81	2.03	345.9	0.047	547.0	0.12	13.09
54	8.367	0.154	1.06	81	1.97	344.7	0.052	547.0	0.06	12.49
55	8.523	0.156	1.06	81	2.00	343.9	0.076	547.0	0.05	12.13
56	8.678	0.155	1.06	81	2.03	342.7	0.069	547.0	0.05	11.80
57	8.833	0.155	1.06	81	2.02	341.4	0.072	547.0	0.05	12.09
58	8.988	0.155	1.06	81	2.02	339.9	0.070	547.0	0.08	12.06
59	9.144	0.156	1.06	81	2.03	338.9	0.079	517.0	0.04	12.19
60	9.299	0.155	1.07	81	2.00	337.1	0.071	547.0	0.07	12.17
61	9.454	0.155	1.06	81	2.04	336.1	0.063	396.0	0.03	11.96
62	9.610	0.156	1.06	81	2.04	334.9	0.065	294.0	0.02	11.70
63	9.764	0.154	1.07	81	1.98	333.5	0.052	265.0	0.02	11.73
64	9.920	0.156	1.06	81	2.04	333.1	0.052	294.0	0.03	11.95
65	10.076	0.156	1.06	81	2.00	333.3	0.051	271.0	0.02	12.13
66	10.230	0.154	1.07	82	2.00	333.4	0.052	404.0	0.03	12.81
67	10.386	0.156	1.06	82	2.03	332.7	0.049	326.0	0.02	12.70
68	10.542	0.156	1.06	82	2.04	331.6	0.048	278.0	0.02	12.70

Train D - Ambient Background and Flue Gas Data

Run: 3 **Test Date:** 10./1/2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 11:16
Total Sampling Time 230 min
Recording Interval 1 min

Elapsed Time (min)	**Ambient Sampling System**					**Flue Gas Data**				
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter ΔH*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Stack Temp (°F)*	*Draft (In. H_2O)*	*CO (ppm)*	*CO (%)*	*CO_2 (%)*
69	10.697	0.155	1.07	82	1.99	331	0.055	331.0	0.03	12.76
70	10.853	0.156	1.06	82	2.02	330.9	0.069	334.0	0.03	12.87
71	11.009	0.156	1.06	82	2.03	329.8	0.074	319.0	0.03	12.99
72	11.163	0.154	1.07	82	1.97	328.5	0.064	487.0	0.04	13.09
73	11.319	0.156	1.06	82	2.00	327.4	0.064	476.0	0.05	13.17
74	11.475	0.156	1.06	82	2.02	326.5	0.069	547.0	0.08	13.28
75	11.630	0.155	1.06	82	2.03	325.8	0.064	547.0	0.11	13.63
76	11.786	0.156	1.06	82	2.02	325.6	0.069	547.0	0.16	13.86
77	11.942	0.156	1.06	82	2.05	324.7	0.075	547.0	0.20	14.21
78	12.097	0.155	1.06	82	2.04	324.4	0.067	547.0	0.28	14.18
79	12.252	0.155	1.06	82	2.00	323.8	0.055	547.0	0.41	14.34
80	12.409	0.157	1.07	83	2.05	323.2	0.060	547.0	0.61	14.55
81	12.563	0.154	1.07	83	2.00	322.6	0.058	547.0	0.72	14.73
82	12.719	0.156	1.06	83	2.00	322.1	0.055	547.0	0.67	14.93
83	12.876	0.157	1.07	83	2.05	321.1	0.055	547.0	0.59	14.73
84	13.030	0.154	1.06	83	2.03	319.6	0.066	547.0	0.50	14.53
85	13.187	0.157	1.07	83	2.04	317.4	0.058	547.0	0.37	14.30
86	13.343	0.156	1.07	83	1.99	315.4	0.072	547.0	0.37	13.88
87	13.497	0.154	1.07	83	2.03	313.5	0.070	547.0	0.37	13.66
88	13.654	0.157	1.07	83	2.04	310.9	0.070	547.0	0.40	13.67
89	13.809	0.155	1.07	83	2.02	309.2	0.076	547.0	0.32	13.65
90	13.965	0.156	1.07	83	2.04	306.8	0.053	547.0	0.34	13.68
91	14.121	0.156	1.07	83	2.00	305.5	0.056	547.0	0.34	13.43
92	14.276	0.155	1.07	83	2.05	303.6	0.058	547.0	0.26	13.15
93	14.432	0.156	1.06	83	2.03	303.4	0.059	547.0	0.22	13.14
94	14.588	0.156	1.06	83	2.01	301.3	0.062	547.0	0.26	13.24
95	14.743	0.155	1.07	83	2.05	301	0.062	547.0	0.27	13.19
96	14.899	0.156	1.06	83	2.01	299.2	0.056	547.0	0.29	13.22
97	15.055	0.156	1.06	83	2.00	298.7	0.073	547.0	0.28	13.16
98	15.210	0.155	1.07	83	2.03	297.4	0.061	547.0	0.38	13.27
99	15.366	0.156	1.06	83	2.04	295.9	0.060	547.0	0.35	13.59
100	15.523	0.157	1.07	83	2.02	294.9	0.054	547.0	0.38	13.32
101	15.678	0.155	1.07	83	1.99	292.8	0.059	547.0	0.49	13.36
102	15.834	0.156	1.06	83	2.00	290.8	0.054	547.0	0.29	13.59
103	15.990	0.156	1.07	83	1.98	289.4	0.051	547.0	0.24	13.42
104	16.145	0.155	1.07	83	2.00	288.2	0.054	547.0	0.27	13.24

Train D - Ambient Background and Flue Gas Data

Run: 3 **Test Date:** 10./1/2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 11:16
Total Sampling Time 230 min
Recording Interval 1 min

Elapsed Time (min)	**Ambient Sampling System**					**Flue Gas Data**				
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Stack Temp (°F)*	*Draft (In. H_2O)*	*CO (ppm)*	*CO (%)*	*CO_2 (%)*
105	16.302	0.157	1.07	83	1.99	286.3	0.058	547.0	0.20	13.08
106	16.458	0.156	1.07	83	2.03	283.4	0.057	547.0	0.22	13.13
107	16.613	0.155	1.07	83	1.97	282.6	0.049	547.0	0.50	13.37
108	16.769	0.156	1.07	83	1.99	282.8	0.063	547.0	0.38	13.33
109	16.925	0.156	1.07	83	1.98	280.4	0.054	547.0	0.68	13.52
110	17.080	0.155	1.07	83	1.99	280.1	0.056	547.0	1.15	13.69
111	17.237	0.157	1.06	84	2.04	280.5	0.056	547.0	1.49	13.56
112	17.392	0.155	1.07	84	1.98	282	0.047	547.0	1.68	13.51
113	17.548	0.156	1.07	84	2.06	279.4	0.061	547.0	1.26	13.63
114	17.704	0.156	1.06	84	2.03	278.1	0.058	547.0	1.95	13.21
115	17.859	0.155	1.07	84	1.99	277.3	0.062	547.0	2.30	13.03
116	18.016	0.157	1.06	84	2.04	273.5	0.051	547.0	2.28	13.16
117	18.172	0.156	1.07	84	2.03	268.1	0.055	547.0	2.51	12.68
118	18.327	0.155	1.07	84	2.05	264.9	0.046	547.0	2.62	12.65
119	18.484	0.157	1.06	84	2.04	260.4	0.053	547.0	1.98	12.96
120	18.640	0.156	1.07	84	2.02	257	0.049	547.0	2.47	12.64
121	18.795	0.155	1.07	84	2.00	254.3	0.055	547.0	1.75	12.87
122	18.952	0.157	1.07	84	2.02	250.8	0.050	547.0	2.05	12.79
123	19.108	0.156	1.07	84	2.00	248.1	0.054	547.0	2.00	12.76
124	19.263	0.155	1.06	84	2.04	244.8	0.052	547.0	1.61	12.87
125	19.420	0.157	1.06	84	2.04	241.8	0.051	547.0	1.35	12.86
126	19.575	0.155	1.07	84	2.02	238.5	0.038	547.0	1.11	12.75
127	19.731	0.156	1.06	84	2.00	235.6	0.048	547.0	0.67	12.60
128	19.888	0.157	1.07	84	2.02	232.8	0.045	547.0	0.09	12.59
129	20.043	0.155	1.07	84	2.03	229.9	0.048	547.0	0.10	12.28
130	20.199	0.156	1.06	84	2.01	227.1	0.045	534.0	0.05	11.91
131	20.356	0.157	1.07	84	2.05	224.5	0.046	316.0	0.02	11.68
132	20.511	0.155	1.06	84	2.05	222	0.039	157.0	0.01	11.49
133	20.668	0.157	1.07	84	1.99	219.4	0.047	79.0	-0.01	11.43
134	20.824	0.156	1.07	84	1.99	217	0.045	70.0	-0.01	11.21
135	20.979	0.155	1.07	84	1.99	214.1	0.044	64.0	-0.01	11.05
136	21.136	0.157	1.07	84	1.98	211.6	0.042	59.0	0.01	11.04
137	21.291	0.155	1.07	84	1.99	209.2	0.043	57.0	0.00	11.05
138	21.447	0.156	1.06	84	2.06	206.6	0.043	53.0	0.00	11.04
139	21.604	0.157	1.06	84	2.01	204.2	0.034	51.0	0.01	11.00
140	21.759	0.155	1.07	84	2.04	202.1	0.042	50.0	0.00	10.85

Train D - Ambient Background and Flue Gas Data

Run: 3 **Test Date:** 10./1/2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 11:16
Total Sampling Time 230 min
Recording Interval 1 min

Elapsed Time (min)	**Ambient Sampling System**					**Flue Gas Data**				
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Stack Temp (°F)*	*Draft (In. H_2O)*	*CO (ppm)*	*CO (%)*	*CO_2 (%)*
141	21.915	0.156	1.06	84	2.03	199.9	0.039	50.0	0.00	10.94
142	22.072	0.157	1.07	84	2.06	198.2	0.041	48.0	0.00	10.89
143	22.227	0.155	1.07	84	2.05	196.2	0.038	47.0	0.00	10.91
144	22.383	0.156	1.07	84	2.06	195.2	0.033	46.0	0.00	10.83
145	22.540	0.157	1.07	84	2.04	194.4	0.039	44.0	0.00	10.86
146	22.695	0.155	1.07	84	2.01	193.8	0.038	45.0	0.00	10.90
147	22.852	0.157	1.07	84	1.98	193.7	0.037	46.0	0.00	10.98
148	23.007	0.155	1.07	84	2.05	194.3	0.041	47.0	0.00	11.10
149	23.163	0.156	1.07	84	1.98	195.4	0.040	49.0	0.00	11.16
150	23.320	0.157	1.06	84	2.05	196.8	0.040	49.0	0.00	11.21
151	23.475	0.155	1.07	84	2.06	198.8	0.043	49.0	0.00	11.42
152	23.632	0.157	1.06	84	2.05	200.7	0.040	49.0	0.00	11.36
153	23.788	0.156	1.07	84	2.05	202.6	0.044	48.0	0.00	11.35
154	23.943	0.155	1.07	84	2.00	204.5	0.041	45.0	-0.01	11.38
155	24.100	0.157	1.07	84	2.03	206.7	0.046	44.0	0.00	11.43
156	24.257	0.157	1.07	84	2.00	209.1	0.041	45.0	0.00	11.45
157	24.412	0.155	1.06	84	2.05	211.7	0.048	44.0	0.00	11.31
158	24.569	0.157	1.07	84	2.02	213.7	0.047	44.0	0.00	11.63
159	24.724	0.155	1.07	84	2.03	216.8	0.043	41.0	0.00	11.85
160	24.880	0.156	1.07	84	2.04	219.2	0.046	39.0	0.00	11.93
161	25.037	0.157	1.07	84	2.01	221.3	0.047	39.0	0.00	12.01
162	25.192	0.155	1.07	84	2.01	222.9	0.043	38.0	0.00	12.07
163	25.349	0.157	1.06	84	2.02	225.2	0.050	39.0	0.00	12.05
164	25.505	0.156	1.07	84	2.05	227	0.050	40.0	0.00	11.98
165	25.661	0.156	1.07	84	1.98	228.3	0.044	41.0	0.00	12.07
166	25.817	0.156	1.06	84	2.01	229.5	0.044	41.0	0.00	12.09
167	25.973	0.156	1.07	84	2.05	231	0.049	40.0	0.00	12.08
168	26.129	0.156	1.07	84	2.03	232.2	0.043	41.0	0.00	12.17
169	26.286	0.157	1.07	84	2.03	233	0.048	41.0	0.00	12.17
170	26.441	0.155	1.07	84	1.99	233.6	0.050	38.0	-0.01	12.09
171	26.597	0.156	1.07	84	2.00	234.3	0.045	40.0	-0.01	12.12
172	26.754	0.157	1.07	84	2.04	234.4	0.051	38.0	0.00	12.19
173	26.909	0.155	1.07	84	2.03	235	0.049	38.0	0.00	12.34
174	27.065	0.156	1.06	84	2.00	235.3	0.047	41.0	0.00	12.37
175	27.222	0.157	1.07	84	2.05	235.3	0.048	40.0	0.00	12.37
176	27.377	0.155	1.07	84	1.98	235.7	0.049	40.0	0.00	12.40

Train D - Ambient Background and Flue Gas Data

Run: 3 **Test Date:** 10./1/2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 11:16
Total Sampling Time 230 min
Recording Interval 1 min

Elapsed Time (min)	**Ambient Sampling System**					**Flue Gas Data**				
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter ΔH*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Stack Temp (°F)*	*Draft (In. H_2O)*	*CO (ppm)*	*CO (%)*	*CO_2 (%)*
177	27.534	0.157	1.07	84	1.99	235.8	0.047	40.0	0.00	12.33
178	27.690	0.156	1.07	84	2.01	236	0.052	38.0	-0.01	12.34
179	27.845	0.155	1.07	84	2.02	236.2	0.048	37.0	-0.01	12.35
180	28.002	0.157	1.07	84	1.98	236.3	0.047	37.0	-0.01	12.32
181	28.158	0.156	1.07	84	2.04	236.6	0.051	37.0	-0.01	12.23
182	28.314	0.156	1.07	84	2.04	235.9	0.048	36.0	0.00	12.11
183	28.471	0.157	1.07	84	2.02	235.8	0.047	34.0	0.00	12.05
184	28.626	0.155	1.07	84	1.99	235.8	0.051	40.0	0.00	11.61
185	28.782	0.156	1.06	84	2.06	235.5	0.054	43.0	0.00	11.16
186	28.939	0.157	1.07	84	2.05	235.3	0.046	42.0	0.00	10.80
187	29.094	0.155	1.07	84	1.99	235.4	0.050	43.0	0.00	10.56
188	29.251	0.157	1.07	84	1.99	235.5	0.050	43.0	0.00	10.58
189	29.407	0.156	1.07	84	1.98	235.2	0.046	42.0	0.00	10.56
190	29.562	0.155	1.06	84	2.06	234.9	0.048	44.0	0.00	10.48
191	29.719	0.157	1.07	84	2.05	234.6	0.053	43.0	-0.01	10.39
192	29.875	0.156	1.07	84	2.04	234.4	0.045	44.0	0.00	10.42
193	30.031	0.156	1.07	84	2.04	234.3	0.050	45.0	0.00	10.45
194	30.187	0.156	1.06	84	1.99	234.2	0.052	45.0	0.00	10.43
195	30.342	0.155	1.07	84	2.06	233.9	0.043	45.0	0.00	10.36
196	30.499	0.157	1.06	84	2.00	234.1	0.051	47.0	0.00	10.28
197	30.655	0.156	1.07	84	2.01	233.8	0.051	47.0	0.00	10.30
198	30.811	0.156	1.07	84	2.01	233.9	0.044	47.0	0.00	10.26
199	30.967	0.156	1.06	84	2.03	234	0.050	49.0	0.00	10.23
200	31.124	0.157	1.07	84	2.04	233.9	0.053	49.0	0.00	10.17
201	31.279	0.155	1.07	84	2.04	234.4	0.045	49.0	0.00	10.01
202	31.435	0.156	1.07	84	2.01	234.2	0.050	52.0	0.00	9.88
203	31.591	0.156	1.07	84	2.06	234	0.050	51.0	0.00	9.87
204	31.747	0.156	1.07	84	2.04	234.2	0.048	53.0	0.00	9.86
205	31.904	0.157	1.07	84	1.99	234.7	0.047	53.0	0.01	9.80
206	32.059	0.155	1.07	84	2.06	234.8	0.048	54.0	0.00	9.84
207	32.215	0.156	1.07	84	2.03	234.9	0.051	57.0	0.01	9.83
208	32.372	0.157	1.06	84	1.97	235.2	0.046	54.0	0.00	10.31
209	32.527	0.155	1.07	84	2.04	235.5	0.040	53.0	0.00	10.31
210	32.683	0.156	1.06	84	2.04	235.8	0.053	53.0	0.00	10.34
211	32.840	0.157	1.07	84	1.99	236	0.054	53.0	0.00	10.30
212	32.995	0.155	1.07	84	1.98	236.6	0.049	54.0	0.00	10.36

Train D - Ambient Background and Flue Gas Data

Run: 3 **Test Date:** 10./1/2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 11:16
Total Sampling Time 230 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
213	33.152	0.157	1.07	84	2.05	236.5	0.045	55.0	0.00	10.35
214	33.308	0.156	1.07	84	1.99	236.5	0.054	58.0	0.01	10.47
215	33.463	0.155	1.07	84	1.99	236.7	0.047	60.0	0.00	10.53
216	33.620	0.157	1.07	84	2.05	237.3	0.048	60.0	0.00	10.31
217	33.775	0.155	1.07	84	2.00	238.3	0.049	58.0	0.00	10.26
218	33.932	0.157	1.07	84	1.99	238.9	0.051	59.0	0.00	10.25
219	34.088	0.156	1.06	84	2.00	239.1	0.049	56.0	0.00	10.16
220	34.244	0.156	1.07	84	2.04	239.9	0.052	63.0	0.00	10.26
221	34.400	0.156	1.07	84	2.03	240.4	0.049	64.0	0.00	10.28
222	34.557	0.157	1.07	84	1.98	241	0.051	66.0	-0.02	10.27
223	34.712	0.155	1.07	84	1.99	241.6	0.050	65.0	0.00	10.27
224	34.869	0.157	1.07	84	2.04	242.6	0.050	67.0	0.00	10.24
225	35.025	0.156	1.07	84	2.00	242.9	0.055	68.0	0.00	10.27
226	35.181	0.156	1.07	84	2.04	244	0.049	72.0	0.01	10.27
227	35.338	0.157	1.07	84	2.00	244.5	0.050	66.0	0.01	10.52
228	35.496	0.158	1.07	84	2.07	245.7	0.051	67.0	0.00	10.53
229	35.649	0.153	1.07	84	2.06	246.4	0.051	58.0	0.00	10.40
230	35.806	0.157	1.07	84	2.01	246.7	0.047	57.0	-0.01	10.36

Gravimetric Lab Data

ASTM E2515

Manufacturer:	Valley Comfort
Model:	Sentry 14
Tracking No.:	2509
Project No.:	0142WS024E
Run No.:	3
Test Date:	10./1/2025

OMNI Eq. ID Numbers	
Analytical Scale	
Audit Weight Set:	
Analytical Scale	
Hydrometer	
Filters are weighed	In Pairs

Train A

Sample Component	Date / Time in Dessicator	Reagent	Filter, Probe or Dish #	Weights: Final, mg	Weights: Tare, mg	Particulate, mg: Uncorrected	Particulate, mg: Corrected
FilterPairs		Filter	F570	245.4	241.1	4.3	4.3
			F570A				
Probe catch*		Probe	82	116287.1	116287.1	0.0	0.0
lter seals catch*		Seals	S981	3445.5	3445.4	0.1	0.1
				Total Particulate, mg:		**4.4**	**4.4**

Train B

Sample Component	Date / Time in Dessicator	Reagent	Filter, Probe or Dish #	Weights: Final, mg	Weights: Tare, mg	Particulate, mg: Uncorrected	Particulate, mg: Corrected
FilterPairs		Filter	F591	248.4	244.4	4.0	4.0
			F591A				
Probe catch*		Probe	73	117074.7	117074.7	0.0	0.0
lter seals catch*		Seals	S982	3371.0	3370.8	0.2	0.2
		Sub-Total		Total Particulate, mg:		**4.2**	**4.2**

Train C - *First Hour*

Sample Component	Date / Time in Dessicator	Reagent	Filter, Probe or Dish #	Weights: Final, mg	Weights: Tare, mg	Particulate, mg: Uncorrected	Particulate, mg: Corrected
FilterPairs		Filter	F592	248.1	245.1	3.0	3.0
			F592A				
Probe catch*		Probe	66	118456.9	118456.9	0.0	0.0
lter seals catch*		Seals	S983	3340.3	3340.2	0.1	0.1
				Total Particulate, mg:		**3.1**	**3.1**

Train D - *Ambient Background*

Sample Component	Date / Time in Dessicator	Reagent	Filter # or	Weights: Final, mg	Weights: Tare, mg	Particulate, mg
Filter catch*		Filter				0.0
				Total Particulate, mg:		**0.0**

Final (mg) - Tare (mg) = Particulate (mg)

NOTE: The Uncorrected values are those where any negative filter weights are taken as a negative value. This can possibly occur when filter matter adheres the O-ring seals and thereby transfers some mass to the O-ring. The Corrected values reflect where any negative filter weights are taken as ZERO, thus not accounting for any transfer of mass and resultingly over-reporting. Corrected values were added to this analysis to report the "Corrected" results in this report in response to a request by the US EPA. In cases where the Final weight minus the Tare weight of the Ambient filter occurs, it is taken as a ZERO. Any negative probe weights are evaluated pursuant to clause of ASTM E25215 (or appropriatelt associated test standard as defined in the introduction of this report).

Technician Signature:_____ Reviewed By:_____

Run 3 - Run Notes

Manufacturer	Valley Comfort
Model:	Sentry 14
Project Number:	0142WS024E
Run Number:	3
Test Date:	10./1/2025

This supplemental section of miscellaneous run notes is comprised of the following:

- Appliance Operation Notes
- Velocity Traverse / Supplementa Run Notes
- Test Fuel Notes
- Gravimetric Analysis Notes

ASTM E2780 Wood Heater Test Notes

Client: Valley Comfort Project Number: 0142WS024E Run Number: 3
Model: Sentry 14 Tracking Number: Date: 10/1/2025
Test Crew:

Test Fuel Properties

Equipment			
Device	**OMNI Number**	**Cal Date**	**Cal Due**
Tape Measure			
Moisture Meter			
Moisture Reference			
Fuel Scale			
Fuel Scale Audit Weight			
Fuel Species / Type	Douglas fir, untreated and air dried, standard grade or better dimensional lumber.		

Calibration Verifications			
Moisture Meter		Fuel Preparation Scale	
12% Reference :	12.0	10.0 lb. Reference Audit :	10.00
22% Reference :	22.0		

Pre-Burn Fuel								
Piece No.	Length, In.	Moisture % db	Piece No.	Length, In.	Moisture % db	Piece No.	Length, In.	Moisture % db
1	14.5	22.0	7	10	24.9	13		
2	14.5	24.3	8			14		
3	14.5	23.8	9			15		
4	10	21.9	10			16		
5	10	23.8	11			17		
6	10	24.8	12			18		
Total Weight, lb.		9.81	Time of Day		0900	Room Temp. °F		67

Test Fuel Charge					
Piece No.	**Weight, Lb.**	**Moisture Measurements**			**Lumber Type**
1	1.92 / 1.48	19.2	22.5	19.7	2x4
2	1.91 / 1.47	19.0	20.2	19.4	
3	1.93 / 1.48	20.2	19.2	20.4	
4	2.12 / 1.67	23.8	20.1	23.4	
5	2.19 / 1.72	21.9	24.4	22.3	
6					
7					
8					
Spacer Moisture Readings					
17.5	17.9	17.5	20.2	7.8	
17.6	15.5	20.7	15.4	7.1	
17.6	15.0	15.8	10.4	7.1	
15.4	15.4	13.7	16.8	7.7	
Time of Day		0952	Room Temp. °F		68
Total weight 2x4 with spacers, lb.		10.66	Total weight 4x4 with spacers, lb.		
			Total weight of fuel charge, Lb.		

Technician Signature: Date: 10-16-2025

ASTM E2780 Wood Heater Test Notes

Client: Valley Comfort Project Number: 0142WS024E Run Number:3
Model: Sentry 14 Tracking Number: Date: 10/1/2025
Test Crew:

Supplemental Data

Test Booth No. _____ Sampling Start Time:_____ Sampling End Time: _____

Tunnel Cleaned Date _____ % Smoke Capture 100 Induced Draft NONE in.H_2O

Systems Leak Checks			
System	**Pre-Test**	**Post-Test**	**Sampling Probe Change-out**
Pitot	0.06 @ 3.00	0.002 @ 3"	
Train A	0.002 @ 21.7	0.02 @ 5.07	
Train B	0.002 @ 24.7	0.01 @ 4.97	
Train C	0.004 @ 15.7	0.003 @ 7.9	

Velocity Traverse, 6-inch tunnel			
Location	Microtector (in. H_2O)	Δp (in. H_2O)	Tunnel Temp. , °F
Center	.055	.110	101
1	.030	0.060	101
2	.045	.090	101
3	.045	.090	101
4	.033	.066	101
5	.035	.070	101
6	.045	.090	101
7	.045	.090	101
8	.030	.060	101
Tunnel Static (in. H_2O)		Pre-Test	Post-Test
		-0.92	-0.42

Miscellaneous Parameters			
Item	**Initial**	**Final**	**Equipment No.**
Room Air Velocity, ft/min.	11	13	
Scale Audit, lb. (20-80 % of fuel load)	100	100	
Room Relative Humidity, %	56	58	
Barometric Pressure, in. Hg	29.88	29.91	
Room Temperature, °F	71	72	

Flue Gas Continuous Analyzer						
Analyzer ID		Response Time, sec.		Leak Check Performed?		
Bias Checks	Concentration:		Pre-Test Response		Post-Test Response	
Concentration	Bottle No.	Value, %	Pre-Test Response		Post-Test Response	
			Zero	Span	Zero	Span
CO2 % Span		16.88	0	16.88	0	16.89
CO % Span		4.07	0	4.07	0	4.067
CO ppm Span		500	0	498	0	489
Zero		0	0			

Technician Signature: _____ Date: 10-16-2025

OMNI-Test Laboratories, Inc. **ASTM E2780 Wood Heater Test Notes**

Client: Valley Comfort Project Number: 0142WS024E Run Number:3

Model: Sentry 14 Tracking Number: Date: 10/1/2025

Test Crew:

Primary Air Control Settings

~~50°~~ 60° PT

Secondary:

Tertiary/Pilot:

Fan: Med Low

Preburn Notes

Time	Notes
0937 1041 ~~1144~~ 1145	At 0.5 lbs stove was tared & preburn loaded At 2.8 lbs air setting & fan set to test setting Preburn stopped

Sampling Portion Notes

Sketch test fuel configuration:

Start up procedures & Timeline:

Bypass: Used

Fuel loaded by: 65

Door closed at: 70

Primary air: 60°

Notes:

Time	Notes
~~1116~~ ~~1145~~ 1245	Test start First hour sampling stopped

Technician Signature: 10-16-2025 Date:

ASTM E2780 Wood Heater Test Notes

Client: Valley Comfort Project Number: 0142WS024E Run Number: 3
Model: Sentry 14 Tracking Number: Date: 10/1/2025
Test Crew:

Gravimetric Analysis Sheet

Assembled By: RP

Date/Time in Desiccator:

	Weighing's				
Date/Time:	0600 10-2-2025	0710 10-7-2025			
R/H %:	0.1 10.8	0.1 11.5			
Temp:	73.3	73.1			
100 mg Audit	100.0	100.0			
200 mg Audit:	200.0	200.0			
2 g Audit:	2000.2	2000.1			
100 g Audit:	99997.8	99997.7			
Initials:	RC	RT			

Train	Element	ID #	Tare (mg)	√	Weight (mg)	Weight (mg)	Weight (mg)	Weight (mg)	Weight (mg)
Probe A	~~Filter~~ Pair	82	116287.1		116787.2	116787.1 ✓			
	~~Filter~~ Probe	FS70 FS70A	241.1		245.4	245.4 ✓			
	O-Ring Set	5981	3445.4		3445.5	3445.5 ✓			
B	Front Filter	FS91 FS91B	244.4		248.6	248.4 ✓			
	Probe	73	117074.7		117074.8	117074.7 ✓			
	O-Ring Set	5982	3370.8		3371.0	3371.0 ✓			
C (1st hr)	Front Filter	FS92 FS92A	245.1		248.0	248.1 ✓			
	Probe	66	118456.9		118457.0	118456.9 ✓			
	O-Ring Set	5983	3340.2		3340.5	3340.3 ✓			
BG	Filter	FS78	121.9		121.9	121.9 ✓			

Technician Signature: Date: 10-16-2025

Run 4 Test Data

Test Date: 10/2/2025
Manufacturer: Valley Comfort
Model Sentry 14

Contents, in the following order:

· Emissions Test Results
· CSA B415 Results and Data
· Test Fuel Properties
· Velocity Traverse / Supplemental Data Worksheet
· Test Pre-Burn Data
· Sample Train A / Dilution Tunnel Data
· Sample Train B / Appliance Temperature Data
· Sample Train C (First Hour) Data
· Sample Train D (Background) / Flue Gas Data
· Gravimetric Lab Analysis
· Test Lab Notes
  - Appliance Operation Notes
  - Velocity Traverse / Supplemental Data Notes
  - Test Fuel Notes
  - Gravimetric Analysis Notes
· Equations and Calculations

Equations and Calculations – ASTM E2780 & E2515

Manufacturer	Valley Comfort
Model:	Sentry 14
Project Number:	0142WS024E
Run Number:	3

Sample calculations of each equation used in the refernced standards for this test run.

Summary of INPUT values necessary for calculations

	Global Input Parameters for Equations	Value	Source
FM_S	- Average moisture of test fuel spacers, % dry basis	14.61	Fuel Properties Work Sheet
M_{Swb}	- Weight of Test Fuel Spacers, wet basis, kg	2.25	Fuel Properties Work Sheet
M_{CPnwb}	- Weight of each test fuel piece n in fuel crib, excluding nails and spacers, wet basis , kg	[1]Varies	Fuel Properties Work Sheet
FM_{CPn}	- Average fuel Fuel moisture in fuel crib, % dry basis	[1]Varies	Fuel Properties Work Sheet
V_C	- Volume of Fuel Crib, ft^3 (less spacers)	0.220	Fuel Properties Work Sheet
V_{SCENT}	- Average gas velocity at the center of the dilution tunnel calculated after the Pitot tube traverse, ft/sec	0.00	Traverse Worksheet
V_{STRAV}	- Average gas velocity calculated after the multipoint Pitot traverse	15.76	Traverse Worksheet
θ	- Duration of test, min	230	*Train A Worksheet*
P_{bar}	- Barometric pressure (average) at the testing site, in. Hg	29.90	*Traverse Worksheet*
Pg	- Tunnel Static Pressure	-0.42	*Traverse Worksheet*

[1] *Denotes that this pararmeter for each individual piece of fuel is calculated in the Test Fuel Properties worksheet and the input values are pulled into these sample caculations.*

Sample Train Input Parameters for Equations		Train A	Train B	Train C	Train D
V_m	- Volume of gas sample measured at the dry gas meter, dcf	38.222	36.682	9.563	35.806
Y	Dry gas meter calibration factor	0.991	1.005	0.981	0.960
ΔH	- Average pressure differential across the orifice meter, in. H_2O	1.18	1.20	0.99	1.06
T_m	- Temperature of Dry Gas Meter, °F	92.4	89.7	77.5	79.0
Uncorrected Sample Mass					
m_p	- mass of particulate matter from probe, mg	0.0	0.0	0.0	n/a
m_f	- mass of particulate matter from filters, mg	4.3	4.0	3.0	0.0
m_g	- mass of particulate matter from filter seals, mg	0.1	0.2	0.1	n/a
Corrected Sample Mass					
m_p	- mass of particulate matter from probe, mg	0.0	0.0	0.0	n/a
m_f	- mass of particulate matter from filters, mg	4.3	4.0	3.0	n/a
m_g	- mass of particulate matter from filter seals, mg	0.1	0.2	0.1	n/a

M_{Sdb} – Weight of test fuel spacers, dry basis, kg - ASTM E2780 equation (1)

$$M_{Sdb} = (M_{Swb})\left(\frac{100}{100 + FM_S}\right)$$

Where,

FM_S = average moisture of test fuel spacers, % dry basis
M_{Swb} = weight of test fuel spacers, wet basis, kg

Sample Calculation:

FM_S = 14.61 %, dry basis
M_{Swb} = 2.25 lb.
0.4536 = Conversion factor, lb. → kg

M_{Sdb} = ((2.25 x 0.4536) (100 / (100 + 14.61))

M_{Sdb} = **0.891** kg

MCdb– Weight of test fuel crib, excluding nails and spacers, dry basis, kg - ASTM E2780 equation (2)

$$M_{Cdb} = \sum (M_{CPnwb})\left(\frac{100}{100 + FM_{CPn}}\right)$$

Where,

M_{CPnwb} = weight of each test fuel piece n in fuel crib, excluding nails and spacers, wet basis, kg
FM_{CPn} = Average fuel moisture of test fuel n in fuel crib, % dry basis

Sample Calculation:

ΣM_{CPnwb} = 7.82 lb.
FM_{CPn} = 21.05 %, dry basis
0.4536 = Conversion factor, lb. → kg

M_{Cdb} = 7.82 x 0.4536 x (100 / (100 + 21.0466666666667))

M_{Cdb} = **2.93** kg

DCdb - Density of fuel crib, excluding spacers and nails, dry basis, lbs/ft3 - ASTM E2780 equation (3)

$$D_{Cdb} = M_{Cdb}/V_C$$

Where,

V_C = Volume of Fuel Crib, ft³ (less spacers)

Sample Calculation:

M_{Cdb} = 6.46 lb
V_C = 0.220 ft^3

D_{Cdb} = 6.46 / 0.22

D_{Cdb} = **29.33** lb/ft^3

M_{FTAdb} - Total weight of fuel crib including spacers and nails, dry basis - ASTM E2780 equation (4)

$$M_{FTAdb} = M_{Sdb} + M_{Cdb}$$

Sample Calculation:

M_{Sdb} = 0.891
M_{Cdb} = 2.93

M_{FTAdb} = 0.891 + 2.93

M_{FTAdb} = **3.82** kg

BR – dry burn rate, kg/hr - ASTM E2780 equation (5)

$$BR = \frac{60\ M_{FTAdb}}{\theta}$$

Sample Calculation:

M_{FTAdb} = 3.821
θ = 230

BR = (60 x 3.821) / 230

BR = **1.00** kg / hr

***Vs* – Average gas velocity in the dilution tunnel, ft/sec -** ASTM E2515 equation (9)

$$V_S = F_P \times K_P \times C_P \times \left(\sqrt{\Delta P}\right)_{avg} \times \sqrt{\frac{T_{s(avg)}}{P_s \times M_s}}$$

Where

F_P = Adjustment factor for center of tunnel pitot tube placement, where $F_P = V_{STRAV} / V_{SCENT}$

V_{SCENT} = Dilution tunnel velocity, at the center, ft/sec

V_{STRAV} = Dilution tunnel velocity, multi-point pitot traverse, ft/sec

K_P = Pitot tube constant, 85.49

C_P = Pitot tube coefficient: 0.99, unitless

$\Delta P^{1/2}_{AVG}$ = Velocity pressure in the dilution tunnel, in H_2O

$T_{S\,(avg)}$ = Absolute average gas temperature in the dilution tunnel, °R

P_S = Absolute average gas static pressure in tunnel, = Pbar + Pg , where Pbar = Barometric Pressure, in. Hg, Pg = Static pressure in tunnel, Hg (in H_2O / 13.6)

M_S = The dilution tunnel wet molecular weight; Ms = 28.78 assuming a dry weight of 29 lb/lb-mole

(Duration of Test)

F_P = 0.8334

$\Delta P^{1/2}_{AVG}$ = 0.3324

$T_{S\,(avg)}$ = 541.5823

Pbar = 29.8950

Pg = -0.4200

Ps = 29.8641

V_S = 0.833 x 85.49 x 0.99 x 0.332 x √ [(542 / (29.86 x 28.78)]

V_S = **18.612** ft/sec

(First Hour of Test)

F_P = 0.8334

$\Delta P^{1/2}_{AVG}$ = 0.3329

$T_{S\,(avg)}$ = 543.2590

Pbar = 29.8800

Pg = -0.4200

Ps = 29.8491

V_S = 0.833 x 85.49 x 0.99 x 0.333 x √ [(543 / (29.85 x 28.78)]

V_S = **18.672** ft/sec

Q_{std} – Average gas flow rate in dilution tunnel, dscf/hr - ASTM E2515 equation (3)

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

Where:

3600 = Conversion from seconds to hours (ASTM method uses 60 to convert in minutes)
B_{ws} = Water vapor in gas stream, proportion by volume; assume 2%
A = Cross sectional area of dilution tunnel, ft2
T_{std} = solute temperature, 528 °R
P_s = Absolute average gas static pressure in dilution tunnel, = Pbar + Pg , in Hg
$T_{s(avg)}$ = Absolute average gas temperature in the dilution tunnel, °R; (°R = °F + 460)
P_{std} = Standard absolute pressure, 29.92 in Hg

(Duration of Test):

B_{ws} = 0.02
A = 0.19635
P_s = 29.86
$T_{s(avg)}$ = 542
Vs = 18.61

$Qstd$ = 3600 x (1 - 0.02) x 18.612 x 0.19635 x (528 / 542) x (29.86 / 29.92)

$Qstd$ = **12546.4** dscf/hr

(First Hour):

B_{ws} = 0.02
A = 0.19635
P_s = 29.85
$T_{s(avg)}$ = 543
Vs = 18.672

$Qstd$ = 3600 x (1 - 0.02) x 18.672 x 0.1963 x (528 / 543) x (29.85 / 29.92)

$Qstd$ = **12541.3** dscf/hr

Vm(std) – Volume of Gas Sampled (Corrected), dscf - ASTM E2515 equation (6)

$$V_{m(std)} = K_1 V_m Y \frac{P_{bar} + \left(\frac{\Delta H}{13.6}\right)}{T_m}$$

Where:

K_1	=	17.64 °R/in. Hg
V_m	=	Volume of gas sample measured at the dry gas meter, dcf
Y	=	Dry gas meter calibration factor, dimensionless
P_{bar}	=	Barometric pressure at the testing site, in. Hg
ΔH	=	Average pressure differential across the orifice meter, in. H_2O
T_m	=	Absolute average dry gas meter temperature, °R

Sample Calculation:

Train A

$$V_{m(std)} = 17.64 \times 38.222 \times 0.991 \times \frac{(29.90 + \frac{1.18}{13.6})}{(92.4 + 460)}$$

$V_{m(std)}$ = **36.263** dscf

Train B

$$V_{m(std)} = 17.64 \times 36.682 \times 1.005 \times \frac{(29.90 + \frac{1.20}{13.6})}{(90 + 460)}$$

$V_{m(std)}$ = **35.472** dscf

Train C (1st Hour)

$$V_{m(std)} = 17.64 \times 9.56 \times 0.981 \times \frac{(\underline{29.88} + \frac{0.99}{13.6})}{(77.5 + 460)}$$

$V_{m(std)}$ = **9.221** dscf

Train D (Background)

$$V_{m(std)} = 17.64 \times 35.81 \times 0.960 \times \frac{(\underline{29.90} + \frac{1.06}{13.6})}{(79.0 + 460)}$$

$V_{m(std)}$ = **33.719** dscf

mn – Total Particulate Matter Collected, mg - ASTM E2515 Equation (12)

$$m_n = m_p + m_f + m_g$$

Where:

m_p = mass of particulate matter from probe, mg
m_f = mass of particulate matter from filters, mg
m_g = mass of particulate matter from filter seals, mg

Sample Calculations (Uncorrected):

Train A
m_n = 0.0 + 4.3 + 0.1
m_n = **4.4** mg

Train B
m_n = 0.0 + 4.0 + 0.2
m_n = **4.2** mg

Train C (1st hour)
m_n = 0.0 + 3.0 + 0.1
m_n = **3.1** mg

Train D (Background)
$m_n = m_f$ = 0.0
m_n = **0.0** mg

Sample Calculations (Corrected):

Train A
m_n = 0.0 + 4.3 + 0.1
m_n = **4.4** mg

Train B
m_n = 0.0 + 4.0 + 0.2
m_n = **4.2** mg

Train C (1st hour)
m_n = 0.0 + 3.0 + 0.1
m_n = **3.1** mg

Train D (Background)
$m_n = m_f$ = 0.0
m_n = **0.0** mg

C_s - Concentration of particulate matter in tunnel gas, dry basis, corrected to standard conditions

g/dscf - ASTM E2515 equation (13)

$$C_s = K_2 \times \frac{m_n}{V_{m(std)}}$$

Where:

K_2 = Constant, 0.001 g/mg

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

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

Sample Calculations (Uncorrected):

Train A

$$C_s = 0.001 \times \frac{4.4}{36.26}$$

C_s = **0.000121** g/dscf

Train B

$$C_s = 0.001 \times \frac{4.2}{35.47}$$

C_s = **0.0001184** g/dscf

Train C (1st Hour)

$$Cs = 0.001 \times \frac{3.1}{9.22}$$

Cs = **0.000336** g/dscf

Train D (Background)

$$C_r = 0.001 \times \frac{0.0}{33.72}$$

C_r = **0.000000** g/dscf

Sample Calculations (Corrected):

Train A

$$C_s = 0.001 \times \frac{4.4}{36.26}$$

C_s = **0.000121** g/dscf

Train B

$$C_s = 0.001 \times \frac{4.2}{35.47}$$

C_s = **0.0001184** g/dscf

Train C (1st Hour)

$$Cs = 0.001 \times \frac{3.1}{9.22}$$

Cs = **0.000336** g/dscf

Train D (Background)

$$C_r = 0.001 \times \frac{0.0}{33.72}$$

C_r = **0.000000** g/dscf

ET – Total Particulate Emissions, g - ASTM E2515 equation (15)

$$E_T = (c_s - c_r) \times Q_{std} \times \theta$$

Where:

C_s	=	Concentration of particulate matter in tunnel gas, g/dscf
C_r	=	Concentration particulate matter room air, g/dscf
Q_{std}	=	Average dilution tunnel gas flow rate, dscf/hr
θ	=	Total time of test run, minutes

Sample calculations (uncorrected)

Train A

E_T = (0.000121 - 0.000000) x 12546.4 x 230 / 60

E_T = **5.84** g

Train B

E_T = (0.000118 - 0.000000) x 12546.4 x 230 / 60

E_T = **5.69** g

First Hour

E_T = (0.000336 - 0.000000) x 12541.3 x 60 / 60

E_T = 4.22 g

Trains A and B Average

E = **5.77** g

Sample calculations (Corrected)

Train A

E_T = (0.000121 - 0.000000) x 12546.4 x 230 / 60

E_T = **5.84** g

Train B

E_T = (0.000118 - 0.000000) x 12546.4 x 230 / 60

E_T = **5.69** g

First Hour

E_T = (0.000336 - 0.000000) x 12541.3 x 60 / 60

E_T = **4.22** g

Trains A and B Average

E_T = **5.77** g

PM_R – Particulate emissions for test run, g/hr - ASTM E2780 equation (6)

$$PM_R = 60(E_T/\theta)$$

Where,

E_T = Total particulate emissions, grams

θ = Total length of full integrated test run, min

Sample Calculation (Uncorrected)

Train A

E_T = 5.84 g

θ = 230 min

PM_R = 60 x (5.84 / 230)

PM_R = **1.52** g/hr

Train B

E_T = 5.69 g

θ = 230 min

PM_R = 60 x (5.69 / 230)

PM_R = **1.49** g/hr

A and B Average

E_T = **1.50** g/hr

First Hour

E_T = 4.22 g

θ = 60 min

PM_R = 60 x (4.22 / 60)

PM_R = **4.22** g/hr

Sample Calculation (Corrected)

Train A

E_T = 5.84 g

θ = 230 min

PM_R = 60 x (5.84 / 230)

PM_R = **1.52** g/hr

Train B

E_T = 5.69 g

θ = 230 min

PM_R = 60 x (5.69 / 230)

PM_R = **1.49** g/hr

A and B Average

E_T = **1.50** g

First Hour

E_T = 4.22 g

θ = 60 min

PM_R = 60 x (4.22 / 60)

PM_R = **4.22** g/hr

PM_F – Particulate emission factor for test run, g/dry kg of fuel burned - ASTM E2780 equation (7)

$$PM_F = E_T / M_{FTAdb}$$

Sample Calculation (Uncorrected)

Train A

E_T = 5.84 g
M_{FTAdb} = 3.82 kg
PM_F = 5.84 / 3.82
PM_F = **1.53** g/kg

Train B

E_T = 5.69 g
M_{FTAdb} = 3.82 kg
PM_F = 5.69 / 3.82
PM_F = **1.49** g/kg

Sample Calculation (Corrected)

Train A

E_T = 5.84 g
M_{FTAdb} = 3.82 kg
PM_F = 5.84 / 3.82
PM_F = **1.53** g/kg

Train B

E_T = 5.69 g
M_{FTAdb} = 3.82 kg
PM_F = 5.69 / 3.82
PM_F = **1.49** g/kg

PR - Proportional Rate Variation - ASTM E2515 equation (16)

$$PR = \left[\frac{\theta \times V_{mi} \times V_s \times T_m \times T_{si}}{\theta_i \times V_m \times V_{si} \times T_{mi} \times T_s}\right] \times 100$$

Where:			Train A	Train B	Train C
θ	=	Total sampling time, min	230	230	60
θ_i	=	Length of recording interval, min	1	1	1
V_{mi}	=	Volume of gas sample measured by the dry gas meter during the “ith” time interval, dcf	0.165	0.158	0.162
V_m	=	Volume of gas sample as measured by dry gas meter, dcf	38.222	36.682	9.563
V_{si}	=	Average gas velocity in the dilution tunnel during the "ith" time interval, ft/sec	18.567	18.567	18.567
V_s	=	Average gas velocity in the dilution tunnel, ft/sec	18.614	18.614	18.673
T_{mi}	=	Absolute average dry gas meter temperature during the "ith" time interval, ^oR	535.1	533.1	534.6
T_m	=	Absolute average dry gas meter temperature, ^oR	552.4	549.7	537.5
T_{si}	=	Absolute average gas temperature in the dilution tunnel during the "ith" time interv	556.5	556.5	556.5
T_s	=	Absolute average gas temperature in the dilution tunnel, ^oR	541.6	541.6	543.3

NOTE: These sample calculations are for the Second interval of each train)

Train A PR = $\left(\frac{230 \times 0.165 \times 18.614 \times 552 \times 557}{1 \times 38.222 \times 18.567 \times 535 \times 542}\right)$ X 100 = 105.6 %

Train B PR = $\left(\frac{230 \times 0.158 \times 18.614 \times 550 \times 557}{1 \times 36.682 \times 18.567 \times 533 \times 542}\right)$ X 100 = 105.2 %

Train B PR = $\left(\frac{60 \times 0.162 \times 18.673 \times 538 \times 557}{1 \times 9.563 \times 18.567 \times 535 \times 543}\right)$ X 100 = 105.3 %

Run 4 Test Data

Test Date: 10/2/2025
Manufacturer: Valley Comfort
Model Sentry 14

Contents, in the following order:

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Wood Heater Test Results

ASTM E2780 / ASTM E2515

Manufacturer: Valley Comfort
Model: Sentry 14
Project No.: 0142WS024E
Tracking No.: 2509
Run: 4
Test Date: 10/02/25

Burn-Rate Result

1.38 kg/hr

Particulate Emissions Results

	Average of Trains A and B		First Hour	
	Uncorrected	*Corrected*	*Uncorrected*	*Corrected*
Total Emissions - E_T, g	3.06	3.06	2.12	2.12
Emission Rate, g/hr	**1.15**	1.15	**2.12**	2.12
Emissions Factor, g/kg	0.83	0.83	n/a	n/a

Dilution Tunnel Flow Parameters

		First Hour	Duration of Test
Average Tunnel Temperature, °F		89.6	86.2
Average Tunnel Gas Velocity (vs), feet/second		18.403	18.335
Average Tunnel Gas Flow Rate(Qsd)	DSCF/hr	12292.7	12322.8
	DSCF/min	204.9	205.4
Average Delta p, in. H2O		0.112	0.112
Tunnel Static Pressure, in. H2O		-0.400	-0.400
Total Time of Test, Min		60	160

Particulate Sample Measurement Parameters

	Uncorrected				*Corrected*			
	AMBIENT	Train A	Train B	First Hour	AMBIENT	Train A	Train B	First Hour
Total Sample Volume (V_m), ft^3	24.841	26.745	25.383	9.559	24.841	26.745	25.383	9.559
Average Gas Meter Temperature, °F	79	89	86	77	79	89	86	77
Total Sample Volume (V_{mstd}), DSCF	0.000	25.656	24.830	9.288	0.000	25.656	24.830	9.288
Total Particulates (mn), mg - m_n	0.0	2.4	2.3	1.6	0.0	2.4	2.3	1.6
Particulate Concentration (C_s - C_r), g/DSCF	0.00000	0.00009	0.00009	0.00017	0.00000	0.00009	0.00009	0.00017
Total Particulate Emissions (ET), grams	n/a	3.07	3.04	2.12	n/a	3.07	3.04	2.12
Particulate Emission Rate, g/hr	n/a	1.15	1.14	2.12	n/a	1.15	1.14	2.12
Emissions Factor, g/kg	n/a	0.84	0.83	n/a	n/a	0.84	0.83	n/a
Difference, ET from from Average ET, grams	n/a	0.01	-0.01	n/a	n/a	0.01	-0.01	n/a

Test Methodology Specifications and Quality Checks

Parameter	*Requirement*	*Measured / Observed*			*Complies?*
		First Hour	*Train 1*	*Train 2*	
Filter Temperature, °F	< 90	73	71	71	✓
Filter Face Velocity, fpm	< 30	8.73	9.16	8.73	✓
Dryer Exit Temperature, °F	< 80	65	57	55	✓
Tunnel Velocity, fpm	>800	1,104	1,100		✓
First Hour Leakage	0.006	0.002			✓
Train A Leakage Rate	0.007		0.003		✓
Train B Leakage Rate	0.006			0.001	✓
Leakage Rate Limits (cfm) are < 4% of average sample rate or < 0.01 cfm, which ever is less					
Negative Probe Weight	=> 0	0	0.1	0	✓
Pro-Rate Variation	< 90 for < 10% of θ	0.00%	0.00%	0.00%	✓
	> 110 for < 10% of θ	0.00%	0.000%	0.00%	✓
	# Readings < 80%	0	0	0	✓
	# Readings > 120%	0	0	0	✓
Ambient Temp, °F	> 55		70.5		✓
Ambient Temp, °F	< 90		73.3		✓
Trains A and B Precision	(*A*) < 7.5%		0.49%		✓
Either A or B must conform	(*B*) < 0.5 g/kg		0.01		✓
Stove Surface ΔT	<= 125 °F		32		✓
Room Air Velocity	< 50 fpm		24		✓

CSA B415.1-11 Efficiency Results

Manufacturer	Valley Comfort
Model:	Sentry 14
Project Number:	0142WS024E
Run Number:	4
Test Date:	10/2/2025

Efficiency results reported herein are based on a stack-loss method in accordance with CSA B415.1:22 "Performance testing of solid-biofuel-burning heating appliance". OMNI uses the spreadsheet provided by CSA that is to be used in conjunction with the current version of the test standard. The most recent version of the software is version 2.4, dated April 15, 2010. OMNI received confirmation from CSA on October 18, 2023 that this is the current version of the software.

OMNI Test Laboratories

Manufacturer: Valley Comfort
Model: Sentry 14
Date: 10/02/25
Run: 4
Control #: 2509
Test Duration: 160
Output Category:

Technicians: R Tiegs

Test Results in Accordance with CSA B415.1-10

	HHV Basis	LHV Basis
Overall Efficiency	79.2%	85.6%
Combustion Efficiency	97.8%	97.8%
Heat Transfer Efficiency	81%	87.5%

Output Rate (kJ/h)	21,659	20,546	**(Btu/h)**
Burn Rate (kg/h)	1.38	3.04	**(lb/h)**
Input (kJ/h)	27,345	25,939	**(Btu/h)**

Test Load Weight (dry kg)	3.68	8.11	**dry lb**
MC wet (%)	15.05		
MC dry (%)	17.72		
Particulate (g)	3.06		
CO (g)	115		
Test Duration (h)	2.67		

Emissions	**Particulate**	**CO**
g/MJ Output	0.05	2.00
g/kg Dry Fuel	0.83	31.36
g/h	1.15	43.28
lb/MM Btu Output	0.12	4.64

Air/Fuel Ratio (A/F)	9.17

VERSION: **2.4** **4/15/2010**

VERSION: 2.4 4/15/2010

Manufacturer:	Valley Comfort		**Appliance Type:**	Cat	(Cat, Non
Model:	Sentry 14				
Date:	10/2/2025		**Temp. Units**	F	(F or C)
Run:	4		**Weight Units**	lb	(kg or lb)
Control #:	2509				
Test Duration:	160				
Output Category:			**Fuel Data**		
				D. Fir	
Wood Moisture (% wet):	15.05		**HHV**	19,810	kJ/kg
Load Weight (lb wet):	9.55		**%C**	48.73	
Burn Rate (dry kg/h):	1.38		**%H**	6.87	
Total Particulate Emissions:	3.06	g	**%O**	43.9	
			%Ash	0.5	

Averages	**0.29**	**12.11**	**#DIV/0!**	**337.36**	**71.90**	
				Temp. (ºF)	
Elapsed Time (min)	**Fuel Weight Remaining (lb)**	**Flue Gas Composition (%) CO**	**CO_2**	**O_2**	**Flue Gas**	**Room Temp**
0	9.55	0.00	10.17		269.4	71.5
1	9.40	0.03	9.34		337.4	71.3
2	9.37	0.19	2.00		315.3	71.2
3	9.28	0.05	10.47		303.6	71.2
4	9.18	0.05	12.31		308.2	71.0
5	9.09	0.10	12.72		317.6	71.4
6	8.98	0.38	13.09		325.3	71.2
7	8.89	0.30	12.54		330.0	71.6
8	8.78	0.09	11.68		334.0	71.2
9	8.69	0.04	11.85		338.8	71.6
10	8.58	0.22	13.47		343.9	71.1
11	8.46	0.33	13.83		347.9	71.1
12	8.37	0.22	13.64		351.7	71.2
13	8.28	0.21	13.46		355.2	70.9
14	8.16	0.24	13.35		358.9	71.2
15	8.03	0.31	13.63		362.3	70.5
16	7.94	0.44	14.03		364.1	70.5
17	7.83	0.28	13.88		365.1	71.2
18	7.70	0.12	12.90		366.5	71.2
19	7.59	0.10	12.71		367.7	70.6
20	7.46	0.17	13.33		370.8	71.4
21	7.38	0.32	14.12		372.3	71.3

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
22	7.25	0.45	14.67		375.3	71.7
23	7.13	0.47	14.96		377.6	71.7
24	7.00	0.42	14.86		379.1	71.0
25	6.89	0.32	14.68		378.9	70.7
26	6.78	0.30	14.47		379.5	71.6
27	6.67	0.30	14.33		379.7	70.8
28	6.58	0.21	14.21		379.4	71.2
29	6.47	0.18	14.31		378.8	71.7
30	6.37	0.18	14.36		378.7	72.0
31	6.26	0.20	14.50		378.9	71.6
32	6.15	0.22	14.71		379.0	71.8
33	6.06	0.28	14.82		378.9	72.2
34	5.95	0.35	14.97		380.1	71.8
35	5.81	0.42	15.13		381.0	71.9
36	5.70	0.46	15.23		382.0	71.7
37	5.60	0.47	15.17		382.0	70.8
38	5.50	0.40	14.94		382.3	71.7
39	5.41	0.46	14.88		383.1	71.7
40	5.31	0.60	14.94		383.6	71.7
41	5.20	0.81	14.95		384.4	72.3
42	5.10	0.87	14.92		384.6	71.7
43	4.99	0.86	14.97		385.1	72.2
44	4.90	0.97	15.04		385.4	71.4
45	4.79	1.05	15.02		385.3	72.1
46	4.70	1.20	15.04		386.1	71.8
47	4.60	1.18	15.12		386.4	72.3
48	4.49	1.31	15.19		386.9	72.3
49	4.38	1.419	15.257		387.1	71.2
50	4.28	1.554	15.308		386.6	71.2
51	4.19	1.673	15.289		386.5	71.8
52	4.08	1.765	15.203		386.3	72.6
53	3.99	1.402	15.11		385.6	72.4
54	3.89	1.156	14.906		383.9	71.9
55	3.81	0.942	14.618		382	72.1
56	3.74	0.791	14.241		380.1	71.7
57	3.67	0.73	13.932		377.3	72.5
58	3.58	0.538	13.772		374.6	71.9
59	3.49	0.481	13.666		372.5	71.7
60	3.42	0.448	13.675		370.9	71

Run 4 B415

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
61	3.36	0.556	13.722		370.1	71.5
62	3.28	0.577	13.794		368.6	71
63	3.18	0.638	13.778		367.9	72.2
64	3.11	0.443	13.808		366.8	72.7
65	3.03	0.547	13.814		366.3	71.9
66	2.97	0.52	13.667		364.9	72.1
67	2.88	0.49	13.582		363.8	72.3
68	2.80	0.469	13.603		362.9	72.3
69	2.76	0.411	13.519		361.4	72.4
70	2.68	0.36	13.263		360.2	71.6
71	2.60	0.352	13.268		358.7	71.3
72	2.56	0.47	13.543		357.8	70.9
73	2.49	0.602	13.862		357.9	71.9
74	2.40	0.539	13.669		357.4	72.3
75	2.35	1.002	14.107		356.6	72.2
76	2.28	1.022	13.899		356.1	72.1
77	2.20	0.95	13.935		354.9	72.8
78	2.15	0.947	13.693		354.4	72.5
79	2.07	0.889	13.779		353.8	72.4
80	2.04	0.779	14.113		353.2	70.6
81	1.98	0.611	14.398		351.5	71.1
82	1.90	0.487	14.361		350.5	71.7
83	1.87	0.315	14.271		348.9	72
84	1.81	0.155	13.952		347.2	71.7
85	1.78	0.065	13.552		345.3	71.7
86	1.75	0.03	13.168		343.4	71.6
87	1.69	0.016	12.682		340.7	71.2
88	1.68	0.009	12.298		338.4	72.1
89	1.64	0.004	12.045		336.1	72.7
90	1.60	0.003	11.891		334.1	72.4
91	1.59	-0.003	11.697		331.6	72.8
92	1.55	0.004	11.509		329.2	72.8
93	1.51	0.001	11.336		327	73.1
94	1.48	0.001	11.315		324.7	73.3
95	1.48	0.002	11.335		321.7	72.4
96	1.44	-0.002	11.39		319.7	72.1
97	1.40	0	11.437		317.5	72.5
98	1.38	-0.002	11.238		315.7	72.7
99	1.36	-0.001	11.123		313.5	72.3

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
100	1.34	0.001	11.047		311.7	72.7
101	1.31	0.003	10.936		310	72.6
102	1.28	0.001	10.807		308.9	72.7
103	1.27	0.002	10.793		307.7	72.7
104	1.26	0.004	10.76		307.4	72.6
105	1.20	0.003	10.756		306.7	72.8
106	1.19	0.004	10.742		306.3	72.9
107	1.18	0.004	10.704		305.3	72.7
108	1.16	0.003	10.638		304.7	72.4
109	1.15	0.002	10.597		304.7	71.3
110	1.10	0.005	10.498		304.4	71.5
111	1.08	0.003	10.485		303.9	72.3
112	1.08	0.002	10.442		303.8	72.5
113	1.06	0.005	10.414		303.4	72.4
114	1.01	0.004	10.379		303.3	72
115	0.99	0.004	10.37		303.3	72.2
116	0.99	0.004	9.763		302.5	72
117	0.97	0.006	9.546		302.5	72.3
118	0.95	0.005	9.496		302	72.1
119	0.91	0.007	9.62		301.6	72.2
120	0.90	0.005	9.588		301	72.1
121	0.88	0.005	9.62		301.1	72.1
122	0.87	0.005	9.672		300.9	72.1
123	0.85	0.005	9.627		300.6	72.3
124	0.80	0.008	9.54		301	72.1
125	0.78	0.007	9.48		300.5	72
126	0.79	0.009	9.437		300.2	72.5
127	0.77	0.008	9.429		300.4	72
128	0.76	0.007	9.453		300.5	72.2
129	0.71	0.007	9.38		300.5	72
130	0.69	0.007	9.392		300.6	72.4
131	0.69	0.009	9.434		300.5	72.5
132	0.67	0.005	9.378		300.2	71.9
133	0.65	0.01	9.369		300.6	72.2
134	0.60	0.011	9.397		300.7	71.8
135	0.58	0.011	9.395		300.6	72.1
136	0.59	0.004	9.415		301	72.1
137	0.57	0.009	9.395		301.3	72.3
138	0.55	0.01	9.473		300.9	72.3

Run 4 B415

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
139	0.50	0.008	9.54		300.5	72.2
140	0.49	0.008	9.56		300.1	72.1
141	0.48	0.011	9.534		299.9	71.5
142	0.47	0.008	9.421		299.5	71.8
143	0.45	0.011	9.33		299.4	72.1
144	0.41	0.008	9.409		298.8	71.6
145	0.39	0.008	9.473		298.6	72.1
146	0.37	0.01	9.514		299.1	71.9
147	0.35	0.006	9.545		298.9	71.9
148	0.32	0.011	9.501		299	71.6
149	0.30	0.009	9.523		298.9	71.5
150	0.29	0.009	9.456		298.5	71.9
151	0.27	0.009	9.62		298.4	72
152	0.25	0.008	9.542		298.2	72.1
153	0.21	0.01	9.383		298	72.3
154	0.19	0.009	9.564		297.8	72.4
155	0.18	0.005	9.456		297.9	72.4
156	0.17	0.012	9.352		297.4	72.4
157	0.15	0.013	9.258		297.2	72.2
158	0.11	0.01	9.208		296.7	71.6
159	0.09	0.01	9.128		296.7	72.1
160	-0.01	0.008	8.982		296.8	72

Run 4 B415

Test Fuel Properties

ASTM E2780

Manufacturer : Valley Comfort
Model : Sentry 14
Tracking No. : 2509
Project No. : 0142WS024E
Test Date : 10/2/2025
Run No. : 4

Moisture Meter Cal	
Cal Block	Measured
12.0	12.0
22.0	22.0

Firebox Volume : **1.460** ft^3
% 2 x 4 Required : 100 %
Ideal Fuel Weight : 10.22 lb.
Minimum Fuel Weight : 9.20 lb.
Maximum Fuel Weight : 11.24 lb.

Fuel Piece Data

PC #	Weight, lb	Size	Length, In	Moisture Readings, Dry Basis %			Average MC, % db	Dry Weight, lb.	Volume, ft3	Wet Weights, lb 4 x 4	Wet Weights, lb 2 x 4	Dry Weights, lb 4 x 4	Dry Weights, lb 2 x 4
1	1.58	2x4	14.50	19.0	20.8	19.5	19.8	1.32	0.0441		1.6		1.32
2	1.57	2x4	14.50	19.7	20.9	20.7	20.4	1.30	0.0441		1.6		1.30
3	1.49	2x4	14.50	19.8	20.9	19.8	20.2	1.24	0.0441		1.5		1.24
4	1.49	2x4	14.50	19.7	21.4	19.2	20.1	1.24	0.0441		1.5		1.24
5	1.51	2x4	14.50	19.6	21.4	19.4	20.1	1.26	0.0441		1.5		1.26
6													
7													
8													
9													

Spacer Data

Moisture Readings, Dry Basis % (One reading per spacer)								
9.4	9.1	9.6	9.7	8.7				
9.3	8.7	9.5	9.3	8.7				
8.8	9.0	8.3	8.1	9.2				
8.6	9.0	9.6	9.5	8.1				

Avg : 9.0

Assembled Crib Fuel Load with Spacers Attatched

PC #	Weight, lb with Spacers	Size	4 x 4s	2 x 4s
1	1.96	2x4		1.9600
2	1.96	2x4		1.9600
3	1.87	2x4		1.8700
4	1.86	2x4		1.8600
5	1.90	2x4		1.9000
6				
7				
8				
9				

Combined Mass of 4 x 4s 0.0 lb
Combined Mass of 2 x 4s 9.6 lb

Total Wet Mass of Fuel Load **9.55** lb

Fuel Load Properties

Type	*Number of Pieces*	*Wet Weight, lb.*	*Dry Weight, lb.*	*Fuel Loading Density, lb/ft³* Wet Basis	*Fuel Loading Density, lb/ft³* Dry Basis	Dry Fuel Density, lb/ft³	Wet Fuel Density, lb/ft³	*Moisture, %* Dry Basis	*Moisture, %* Wet Basis
2 x 4	5	7.6	6.36	6.54	5.56	28.88	34.68	17.72	15.05
4 x 4	0	0.0	0.00						
Spacers	20	1.9	1.75						
Totals		9.6	8.11						

Compliance Checks

	Fuel Load, Wet Lb.	Load Density, lb/ft³ of FB vol	Fuel Density, lb/ft³	% of Fuel load mass which is 2x4	Fuel Load Peices Mositure, % db
Measured	9.6	6.54	28.88	100	20.1
Required	9.2 - 11.2	6.3 - 7.7	25 - 36	100	19 -25
Complies ?	Yes	Yes	Yes	Yes	Yes

Dilution Tunnel Velocity Traverse and Supplementary Data

ASTM E2515-11

Run:	4	Tracking No.:	2509
Manufacturer:	Valley Comfort	Project No.:	0142WS024E
Model:	Sentry 14	Test Date:	10/2/2025

Dillution Tunnel Velocity Traverse

Traverse Point	Pitot Location: % of Diameter	Inches into Tunnel	dP in. H_2O	Tunnel Temp, °F	$dP^{1/2}$
X1	6.7	0.5*	0.060	89	0.245
X2	25.0	1.50	0.080	89	0.283
X3	75.0	4.50	0.080	89	0.283
X4	93.3	5.5*	0.064	89	0.253
Y1	6.7	0.5*	0.066	89	0.257
Y2	25.0	1.50	0.090	89	0.300
Y3	75.0	4.50	0.084	89	0.290
Y4	93.3	0.5*	0.054	89	0.232
Center	50.0	3.00	0.108	89	0.329

Tunnel Static Pressure	-0.400	in. H_2O
Tunnel Moisture	2.00	%
Tunnel Diameter	6.00	inches
Pitot Tube C_p	0.99	inches
Tunnel Molecular Weight	29	(dry)
Tunnel Molecular Weight	28.78	(M_S, wet)
Tunnel Area	0.19634954	ft^2
K_p	85.49	constant
$P_s=P_{bar}$+Tunnel Static	30.0305882	in HG

** Probe location must be no closer than 0.50" from tunnel wall*

$$V_{strav} = K_p C_p \sqrt{\Delta p}_{avg} \sqrt{\frac{T_{s,avg}}{P_s M_s}} = 18.0670$$

$$V_{scent} = K_p C_p \sqrt{\Delta p}_{center} \sqrt{\frac{T_{s,center}}{P_s M_s}} = 22.1677$$

$$F_P = V_{strav} / V_{scent} = 0.815$$

$$Initial\ Tunnel\ Velocity, V_s = F_P K_p C_p \sqrt{\Delta p}_{avg} \sqrt{\frac{T_{s,avg}}{P_s M_s}} = 14.725\ ft/sec$$

Supplementary Data and Information

Environment

	Test Start	Test End
Time of Day	10:36	13:16
Barometric Pressure, in. Hg	30.06	30.06
Room Air Velocity, fpm	22	24
Room Air Temperature, °F	71	72
Room Relative Humidity, %	57.0	57.0
Platform Scale Audit, lb.	10.0	10.0

Leak Checks

Pitot and associated tubing, (pass/fail)[1]	pass	pass

See sampling box worksheets for sampling boxes

Dillution Tunnel

Date last cleaned	9/29/2025	
Smoke Capture, % (visual)[2]	100	
Draft Inducement, (pass/fail)[3]	pass	
Static Pressure, in. H_2O	-0.400	-0.400

1 Both sides (independantly) of the pitot system are brought under a minimum vacuum of 3 in. H_2O and then sealed. Any indiction of pressure loss is deemed a fail.

2 Create a smoking condition during start of pre-burn activites and using adequate lighting pointed upward and aroud tunnel hood, visually observe if 100% of visible smoke is being captured by the hood. If not, increase flow tunnel flow and / or re-assess chimney proximity to draft hood as required and repeat until 100% capture is observed.

3 With the appliance installed and the dillution tunnel flow turned-off, observe the flue draft gauge while turning the dulution tunnel on. Any detectible response by the draft gauge associated with activation of the tunnel flow indicates that draft inducemnt is occuring. Determine the cause (i.e. flue chimnet too deep into tunnel?) before continuing.

Preburn Data

ASTM E2780

Run: 4

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E
Test Date: 10/2/25
Beginning Clock Time: 7:18

Coal Bed Range (lb):	1.9 (min)	2.4 (max)

Preburn Fuel Data

6 pieces @ 14.5 inches						
8 pieces @ 10 inches						
pieces @ inches						
Fuel Moisture Readings (% DB):						
25.3	21	25.1				
24.4	25	18.8				
24.8	22.3					
24.6	19.3					
25.2	23.8					
Avg Preburn Moisture (% DB):	**23.30**					

			Temperatures (°F)								
Elapsed Time (min)	Scale (lb)	Stack Draft (in H_2O)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Cat Exit	Avg. FB	Stack	Ambient
0	0.61	0.059	534.5	377.6	378.9	422.1	425.4	957.4	428	405.5	70.1
1	0.58	0.061	527.4	386.1	380	426	427.5	944.9	429	401.8	70.4
2	0.56	0.055	519.9	393.5	380.8	429.4	428.8	932	430	398.5	70.9
3	18.83	0.067	514	401	383.6	431.7	429.5	731.3	432	497.3	71.3
4	10.18	0.045	503.7	407.7	384	432.3	430.2	635.2	432	466.7	71.7
5	10.06	0.055	491.2	414.7	379.1	432.5	429.7	753.4	429	421.2	70.8
6	9.88	0.056	483.8	421.5	375.2	432.7	429.2	935.5	428	421.8	71.5
7	9.69	0.06	483.8	427.6	370.8	433.1	428.8	1075.8	429	433.6	71.6
8	9.54	0.054	488.9	432.5	366.5	433	428.4	1140.4	430	444.2	71.9
9	9.36	0.06	498.8	436.5	361.2	432.6	427.3	1178.6	431	453.3	71
10	9.17	0.063	510.3	439.8	357.7	431.9	426.2	1204.3	433	460.9	71.1
11	8.97	0.06	522.6	442.9	353.5	430.9	424.3	1225.2	435	467.7	71.5
12	8.77	0.059	533.1	445.9	349.4	430.1	421.4	1240.3	436	473	71.5
13	8.57	0.057	543.6	448.8	347.2	428.6	419.3	1248.3	438	477.6	71.8
14	8.35	0.063	553.6	451.5	344.5	427.3	416.8	1249.9	439	480.9	71.7
15	8.15	0.06	561.1	453	343.1	426.1	414.3	1250.9	440	483.5	70.7
16	7.94	0.058	567.3	454.1	341.4	424.7	411.9	1251.3	440	486.2	71.4
17	7.74	0.059	573.2	454.8	340.5	423.5	409.4	1258.3	440	488.2	71.4
18	7.5	0.059	578.5	455.2	340.3	422.7	407.4	1265.4	441	490.1	72.6
19	7.3	0.061	582.8	455.2	339.3	422.1	405.2	1267.5	441	491.1	71.8
20	7.09	0.055	586.9	455	338.4	422	402.9	1269.9	441	491.7	72.3
21	6.88	0.058	591.1	454.8	338.2	422	400.4	1271.2	441	492.6	71.4
22	6.66	0.06	593.6	454.7	338.1	422.7	398	1263.5	441	492.6	70.8
23	6.43	0.061	595	454.5	338.2	423.6	396.1	1259.6	441	491	72
24	6.23	0.062	595.7	454.4	339.2	425	394.5	1261.2	442	489.5	71.7
25	6.01	0.059	595.7	454.2	340.4	426.9	393	1254	442	488.4	72.1
26	5.78	0.064	595.9	454.2	341	428.8	391.3	1244.8	442	486.9	72.1
27	5.57	0.063	595.1	454.2	342.3	431.6	390.3	1238.7	443	484.8	72.3
28	5.38	0.062	594.8	454.3	344.1	434.2	389.2	1232.4	443	483	72.3
29	5.17	0.061	594.7	454.4	346.2	436.9	388.3	1226.2	444	480.9	72.1
30	4.97	0.065	593.9	454.6	348.6	440.4	387.5	1219.6	445	477.3	72
31	4.78	0.059	598.6	455	351.3	444.3	386.9	1192.5	447	456.2	72.2
32	4.65	0.055	598.7	455.5	353.2	448.4	385.9	1157.3	448	432.2	71
33	4.54	0.054	598.6	456.1	355.5	452.2	385.4	1153	450	417.1	72
34	4.39	0.056	598.5	456.6	355.5	456	384.5	1156.5	450	406.4	72
35	4.29	0.056	600	457.3	358	459.2	383.6	1154.1	452	398.6	72
36	4.17	0.056	601.2	457.9	358.8	462	383.5	1149.4	453	391.4	71.2
37	4.08	0.049	601.6	458.6	359.8	464.3	383.2	1143.9	454	385.2	71.6
38	3.97	0.053	601.8	459.1	360.2	465.6	383	1140.5	454	379.8	71.4
39	3.87	0.057	602.7	459.7	360.2	467.1	382.7	1141.3	454	375.1	71.5
40	3.78	0.052	602.9	460.3	359.8	468.1	382.1	1147.7	455	370.5	71
41	3.68	0.053	602.8	460.7	358.6	468.9	381.3	1155.5	454	366.4	70.8
42	3.61	0.053	603.2	461.1	359.1	469.1	380.6	1158.7	455	362.3	71.7

			Temperatures (°F)								
Elapsed Time (min)	Scale (lb)	Stack Draft (in H_2O)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Cat Exit	Avg. FB	Stack	Ambient
43	3.55	0.056	602.8	461.3	359.9	469.1	380.2	1155.7	455	359.1	72.4
44	3.46	0.051	601.7	461.5	359.9	469.2	379.9	1152.9	454	355.8	72.2
45	3.37	0.05	600.7	461.6	360.2	469	379.2	1149.6	454	352.8	71.7
46	3.29	0.053	599.5	461.6	360.2	468.6	378.8	1144.1	454	349.4	71.5
47	3.24	0.052	596.8	461.6	360	468.2	378.2	1139.3	453	346.6	71.4
48	3.17	0.053	594.6	461.5	360.7	467.8	377.7	1120.2	452	343.9	71
49	3.11	0.048	590.7	461.3	361.1	467.5	377.2	1093.5	452	340.5	71.7
50	3.07	0.051	586.6	461.1	361.2	467.3	376.6	1070.9	451	337.6	71.6
51	2.99	0.049	580.7	460.9	361.6	466.7	376.1	1052.9	449	334.9	71.1
52	2.93	0.05	576.2	460.7	362.4	466.1	375.6	1038.9	448	332.3	71.4
53	2.88	0.049	570.9	460.4	363.7	465.8	374.9	1029.7	447	329.6	71.4
54	2.8	0.049	565.6	460.3	365.4	465.4	374.7	1021.3	446	327.7	70.7
55	2.76	0.047	560.6	460.1	367.6	465.1	374.6	1021.3	446	326	71.3
56	2.66	0.05	556.8	460	369.9	465	374.7	1028.6	445	324.8	70.6
57	2.65	0.052	552.3	459.8	371.8	465	374.6	1033.4	445	323.1	71.4
58	2.57	0.05	547.5	459.7	374.5	465	374.8	1036.9	444	321.7	70.7
59	2.54	0.052	543.6	459.8	377.4	464.8	375	1040.5	444	319.6	70.6
60	2.48	0.047	540.3	459.7	380.6	464.7	375.4	1041.2	444	318.4	70.8
61	2.44	0.047	536.9	459.7	383.4	465.1	375.6	1032.6	444	316.8	71.1
62	2.38	0.043	533.4	460	386.2	465.3	376.3	1012	444	314.5	70.8
63	2.36	0.048	530	460.2	389.6	465.4	377	984.4	444	311.9	70.5
64	2.32	0.05	525	460.4	392.1	465.3	377.8	956.4	444	309.8	70.6
65	2.28	0.043	521.7	460.8	394.4	465	378.7	934.7	444	307.4	70.3
66	2.27	0.043	516.8	461.3	396.3	465	379.7	921.5	444	304.9	70.4
67	2.23	0.046	513.6	461.8	397.9	464.6	380.4	907.3	444	303.2	70.9
68	2.21	0.044	510.6	462.5	399.7	464.2	381.7	888.4	444	300.2	70.5
69	2.18	0.042	505.8	463.3	401.1	463.5	383.2	869.1	443	297.1	71.6
70	2.18	0.045	501.3	464.1	401.9	462.7	384.7	852	443	293.9	71.6
71	2.16	0.041	495.7	465.2	402.9	461.8	386.4	837.8	442	290	71.5
72	2.12	0.041	490.8	466.3	403.4	461.3	387.9	827.3	442	286.3	71.2
73	2.1	0.039	484.8	467.5	403.9	459.9	389.5	820.3	441	283	71.2
74	2.07	0.038	478.8	468.8	404.5	459	391	815.2	440	280.1	71.7
75	2.08	0.035	473	470.3	404.3	458.1	392.5	810.7	440	277.3	71.7
76	2.06	0.037	467.7	471.8	404.4	457	394	807.3	439	274.5	70.4
77	2.04	0.038	463	473.3	403.5	456.1	395.3	805.8	438	272.2	71
78	2.01	0.038	458.1	475	402.7	454.9	397	805.6	438	270.3	71.4
79	1.99	0.038	453.1	476.7	401.1	453.6	398.3	803.9	437	268.5	70.4
80	1.98	0.036	449.1	478.3	398.8	452.4	399.1	801.4	436	267.4	70.3
81	1.97	0.039	444.8	479.5	396.3	450.7	400	797.7	434	265.9	69.9
82	1.96	0.036	441.3	480.6	394	449.3	400.6	793.3	433	265.2	69.7
83	1.95	0.037	437.4	481.4	391.3	448	401.1	789.3	432	264.4	69.2
84	1.9	0.04	433.6	481.9	388.4	446.6	401.4	786.2	430	263.7	70.1
85	1.9	0.037	430.3	482.3	385.6	445.5	401.6	784.5	429	263.4	70.2
86	1.88	0.036	426.7	482.4	382.9	444.5	401.9	784.8	428	263.3	70.3
87	1.88	0.036	424.3	482.5	380.3	443.8	401.9	786.7	427	263.6	70.6
88	1.86	0.035	422.3	482.7	377.5	442.5	402	788.8	425	264.2	69.8
89	1.82	0.037	419.7	482.7	374.8	441.5	401.9	790.7	424	264.7	69
90	1.8	0.037	417.5	482.7	372.7	440.7	401.7	792.8	423	265.3	68.9
91	1.78	0.038	415.8	482.7	370.6	439.9	401.5	794.2	422	266	68.4
92	1.77	0.038	414.3	482.9	368.3	439.3	401.3	795.6	421	266.6	68.4
93	1.76	0.036	412.7	483.2	366	438.7	401	796.9	420	267.7	68.2
94	1.72	0.041	411	483.4	364.7	438	400.5	797.8	420	268.4	68
95	1.71	0.038	409.7	483.7	362.7	437.4	400.4	798.6	419	268.9	68.1
96	1.68	0.04	408.4	484.2	360.7	437	400	799	418	269.8	67.8
97	1.69	0.039	407.1	484.7	358.8	436.4	399.8	798.2	417	270.2	68.2
98	1.66	0.038	406.6	485.2	357.7	435.9	399.4	796.8	417	270.7	68
99	1.65	0.037	405.5	485.7	356	435.4	399.1	794.9	416	271.4	67.6
100	1.6	0.04	404.3	486.3	354.3	434.8	398.8	792.5	416	271.8	67.4
101	1.58	0.039	402.9	486.9	352.8	434.1	398.6	790.6	415	272.2	67.2
102	1.58	0.042	402.2	487.4	351.9	433.6	398.4	788.9	415	272.8	67.1
103	1.56	0.038	400.9	488	350.8	433.1	398.3	787	414	273.1	67.2

			Temperatures (°F)								
Elapsed Time (min)	Scale (lb)	Stack Draft (in H_2O)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Cat Exit	Avg. FB	Stack	Ambient
104	1.54	0.035	399.4	488.5	349.5	432.8	398.1	785.5	414	273.3	67.8
105	1.51	0.039	398.2	489.1	348.1	432.1	397.9	784.1	413	273.8	67.3
106	1.48	0.04	397.3	489.7	347.1	431.6	397.8	783.3	413	274.1	66.9
107	1.48	0.041	396	490.2	346	431.1	397.6	783.1	412	274.2	67.6
108	1.47	0.039	394.9	490.8	345.6	430.5	397.4	783.8	412	274.6	67.9
109	1.44	0.042	394	491.4	344.8	430	397.1	784.9	411	275	68
110	1.41	0.043	393.3	492	343.5	429.4	397	786.1	411	275.9	67.6
111	1.39	0.04	392.7	492.5	343.2	428.8	396.9	787	411	276.6	67.2
112	1.39	0.04	392.1	493.2	342.4	428.4	396.9	786	411	276.6	67.7
113	1.36	0.04	391.5	493.8	341.9	427.7	396.8	784.9	410	277.2	68.6
114	1.35	0.04	391.5	494.4	340.8	427.5	396.7	785	410	277.9	68.5
115	1.31	0.041	390.9	495.1	340.4	427	396.4	785.9	410	278.6	68.7
116	1.3	0.041	389.9	495.8	339.4	426.5	396.5	786.3	410	279.2	69
117	1.28	0.04	389.1	496.4	338.5	425.1	396.4	786.1	409	279.6	69.1
118	1.27	0.039	388.3	497.2	337.9	424.3	396.5	786.3	409	279.6	69.3
119	1.25	0.041	388	497.9	337.8	423.8	396.4	786.8	409	279.7	69.4
120	1.22	0.04	387.3	498.6	336.5	423.2	396.3	791.4	408	288.7	69.8
121	1.18	0.048	385.5	499.2	335.5	422.3	396.2	787.3	408	290.4	69.6
122	10.26	0.049	382.4	500.8	337.3	422.2	397.7	603.5	408	381.4	69.2
123	10.2	0.04	379.4	501.7	334.3	421.4	397.4	623.7	407	348.3	69.3
124	10.07	0.048	374.7	502.6	330.7	420	396.4	722.7	405	344.7	69.5
125	9.94	0.044	372.4	503.5	327.7	418.5	395.4	866.3	404	360.5	69.3
126	9.69	0.054	374.4	504.3	326	416.8	394.4	1007.1	403	392.3	69.8
127	9.46	0.057	385	505	325.4	415.2	393.4	1005	405	419.3	69.3
128	9.18	0.059	399.1	505.5	324.5	413.4	392.5	1005.8	407	437.4	69.4
129	8.88	0.055	415.3	505.7	323.5	411.8	391.7	1013.6	410	448.9	69.3
130	8.6	0.06	429.8	505.7	322.5	410.1	390.7	1021.3	412	458.2	69.6
131	8.33	0.056	444.1	505.3	322.5	408.3	390.1	1024.2	414	465.5	69.3
132	8.04	0.064	455.5	504.6	322.8	406.4	389.8	1029.5	416	471	69.4
133	7.74	0.06	466.2	503.5	324.1	404.8	389.4	1026.4	418	474.5	69.8
134	7.42	0.06	475.2	502.3	324.8	403.4	388.6	1026.6	419	478	70.4
135	7.14	0.062	482.9	500.8	327	402.2	388.2	1032.1	420	480.4	69.8
136	6.84	0.061	490.5	499.3	329.6	400.8	388.2	1038.6	422	482.1	69.6
137	6.56	0.059	496.2	497.6	331.1	399.9	388	1041.4	423	482.5	69.8
138	6.27	0.059	501.1	496.1	335	399.4	387.6	1036.6	424	481.9	69.6
139	5.98	0.053	507.3	494.6	339.3	399.5	388.2	1005.2	426	472.5	70.5
140	5.78	0.057	513.2	493	343.4	400.6	388.4	985.7	428	445.1	69.7
141	5.58	0.056	515.4	491.4	347.7	402.2	388.1	978.8	429	429.7	70.9
142	5.38	0.052	517.3	489.9	352.2	404.4	388.4	971.4	430	418.9	71.2
143	5.23	0.054	518.1	488.5	356.3	406.8	389.9	964.5	432	411.1	71.3
144	5.06	0.053	518.4	487.2	360	409.5	391.2	958.1	433	404.3	71.5
145	4.88	0.053	518.1	485.8	364.2	412.2	392.7	953.2	435	398.5	70.9
146	4.74	0.049	517.4	484.6	367	414.8	394.4	949.6	436	393.3	71.1
147	4.58	0.053	516.6	483.4	369.3	417.9	395.7	948.3	437	388.2	70.5
148	4.4	0.052	515.6	482.4	372.3	420.5	397.2	958.2	438	384.2	70.6
149	4.27	0.05	515.9	481.4	374.8	423.1	398.3	970.4	439	380.7	70.9
150	4.09	0.053	517.8	480.6	377.4	425.6	399.2	993.4	440	378.4	70.3
151	3.97	0.051	520.2	479.7	378.3	426.8	400.1	1030.2	441	375.2	71.2
152	3.85	0.05	525.1	478.7	377.2	428.5	400.6	1057.1	442	371.5	71.1
153	3.75	0.054	531.5	477.7	375.5	429.3	401	1098.1	443	369.5	71.1
154	3.65	0.053	537.4	476.6	374.2	429.9	401.3	1080.1	444	368.4	70.8
155	3.48	0.05	540.3	475.4	374.5	430.1	401.5	1036.8	444	367	71.6
156	3.38	0.053	541.7	474.3	376	430.6	402	991.7	445	364	70.9
157	3.24	0.051	539.8	473.2	377.7	431.4	403.2	959.5	445	360	70.9
158	3.14	0.051	537.4	472.1	379.3	431.9	404.1	961.9	445	353.9	71.2
159	3.06	0.053	534.7	470.7	380.3	432.4	404.9	975.4	445	349.5	70
160	2.97	0.048	532.4	469.3	380.4	432.9	405.4	994.1	444	345.8	70.1
161	2.94	0.049	530.5	467.9	382.9	433	406.3	1006.6	444	341.4	70.4
162	2.87	0.048	529.1	466.5	384.8	433.8	407.1	1018.5	444	337.2	70.9
163	2.82	0.048	527.8	465.2	387	434.2	406.9	1037.4	444	333.9	71
164	2.79	0.046	527.6	463.9	389.6	435.2	406.7	1092	445	331.3	71.4

			Temperatures (°F)								
Elapsed Time (min)	Scale (lb)	Stack Draft (in H_2O)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Cat Exit	Avg. FB	Stack	Ambient
165	2.75	0.049	529	462.7	392.4	436.5	407.8	1062.2	446	329.2	71
166	2.71	0.048	529.5	461.5	395.1	437.6	408.9	999.3	447	326.7	70.9
167	2.68	0.049	528.4	460.3	397.8	438.7	410.4	953.4	447	323.1	70.8
168	2.68	0.047	524.2	459.2	399.2	439.5	411.2	919.9	447	319.1	70.3
169	2.66	0.043	519.6	458.2	401	439.7	410.8	897	446	314.5	70.2
170	2.61	0.045	513.6	457.4	402.1	440.7	412.4	880.9	445	309.2	70.2
171	2.59	0.044	507	456.7	403	441.3	413.7	868.9	444	304.4	71.6
172	2.58	0.043	500.3	456	403.7	441.9	414.7	859.9	443	300	70.4
173	2.57	0.038	493.1	455.6	403.8	442.1	416.1	853	442	296.1	70.7
174	2.56	0.039	487.7	455.3	404	442.1	417.4	847.7	441	292.5	70.3
175	2.51	0.039	480.8	455.1	403.4	442.9	418	843.6	440	289.8	71.1
176	2.5	0.04	475.3	455	403.1	442.9	418.7	840.3	439	286.9	70.6
177	2.46	0.041	470.6	455	402.5	442.7	419.2	837.5	438	284.5	70.4
178	2.49	0.04	466	455.1	401.6	442.6	419.8	834.7	437	282.5	70.5
179	2.46	0.041	460.4	455.2	400.4	442.4	420.6	832.7	436	280.6	70.9
180	2.43	0.039	456.8	455.4	399.5	442.1	420.9	831.4	435	279	70.2
181	2.39	0.039	453.4	455.7	398.4	441.9	421.3	830.2	434	277.5	70.4
182	2.38	0.039	449.8	456	396.9	441.7	421.2	829.1	433	276.6	71.2
183	2.38	0.037	446.6	456.3	395.1	440.8	420.7	828.7	432	275.4	71
184	2.36	0.041	443.9	456.7	394	440.3	420.2	828.8	431	275	71.7
185	2.35	0.038	441	456.9	392.7	439.9	420.6	823.7	430	274.4	70.1
186	2.31	0.035	438.1	457.3	391.6	439	421.5	812.6	430	273.5	70.3
187	2.29	0.037	435	457.8	390.1	438.2	421.7	801.8	429	272.7	70.7
188	2.28	0.041	432.1	458.2	388.1	437.2	422	793.8	428	272.1	71.5
189	2.27	0.035	430.2	458.7	386.9	436.6	422.1	788.7	427	271.7	71.3
190	2.24	0.036	427.4	459	385.6	435.7	423.5	784.9	426	271.6	71.4
191	2.21	0.036	425.1	459.4	383.6	435.1	424.4	780.7	426	271.4	71.5
192	2.19	0.039	423.5	459.8	381.5	434.4	425.1	776.9	425	271.2	70.8
193	2.18	0.039	420.1	460.4	379.5	433.3	425.6	773.8	424	270.6	71.3
194	2.17	0.041	418.5	460.8	377.2	432.4	426	771.3	423	270.5	71.7
195	2.15	0.038	415.6	461.3	374.9	431.3	426.2	769.1	422	269.7	71.3
196	2.11	0.036	413.5	461.8	372.9	430.1	426.5	766.5	421	269.6	70.9
197	2.09	0.038	411.3	462.1	370.8	428.7	426.6	763.9	420	269.7	70.7
198	2.08	0.035	409.2	462.5	368.5	427.7	426.6	760.3	419	269.3	71.3

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 4 **Test Date:** 10/2/25

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 10:36
Test Length: 160 min
Recording Interval: 1 min

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.002 cfm @ 24.5 in. Hg
Post-Test 0.003 cfm @ 5.71 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H (" H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP (" H_2O)*	$\sqrt{dP}$	*vs*
Tot / Avg		2.1	**26.745**	**0.167**	**1.20**	**89.4**	**2.12**	**70.88**	**57.31**	**71.90**	**100.0**	**86.2**	**0.112**	**0.334**	**18.34**
Minimum	0.0	-23.9	0.000	0.160	0.01	74	0.47	68	53	71	96.0	81	0.109	0.330	18.16
Max	26.0	16.6	26.745	0.171	1.26	98	2.27	72	59	73	108.4	122	0.115	0.339	18.77
0	2.1		0.000		0.01	75	0.47	68.4	55.4	72		81	0.113	0.336	18.77
1	26.0	-23.9	0.160	0.160	1.24	74	2.20	69.2	53.9	71	99.5	122	0.109	0.330	18.52
2	9.4	16.6	0.331	0.171	1.25	75	2.22	69.7	53.5	71	108.4	99	0.113	0.336	18.68
3	9.3	0.1	0.499	0.168	1.26	74	2.17	69.7	53.2	71	103.5	89	0.111	0.333	18.49
4	9.2	0.1	0.667	0.168	1.25	74	2.21	69.7	52.9	71	103.3	87	0.112	0.335	18.34
5	9.1	0.1	0.834	0.167	1.24	75	2.21	69.8	52.8	71	102.6	86	0.113	0.336	18.40
6	9.0	0.1	1.004	0.170	1.23	75	2.20	69.8	52.7	71	104.0	86	0.113	0.336	18.43
7	8.9	0.1	1.172	0.168	1.24	75	2.16	69.9	52.7	72	102.7	86	0.113	0.336	18.43
8	8.8	0.1	1.339	0.167	1.23	75	2.13	70	52.7	71	102.2	86	0.112	0.335	18.39
9	8.7	0.1	1.505	0.166	1.23	75	2.22	70	52.6	72	101.8	86	0.112	0.335	18.35
10	8.6	0.1	1.674	0.169	1.24	76	2.20	70.1	52.7	71	103.6	87	0.113	0.336	18.40
11	8.5	0.1	1.841	0.167	1.21	76	2.15	70.1	52.7	71	102.2	87	0.113	0.336	18.45
12	8.4	0.1	2.007	0.166	1.21	75	2.18	70.1	52.7	71	101.6	87	0.112	0.335	18.41
13	8.3	0.1	2.176	0.169	1.22	76	2.06	70.2	52.8	71	103.7	88	0.112	0.335	18.38
14	8.2	0.1	2.341	0.165	1.23	76	2.20	70.2	52.9	71	101.6	88	0.110	0.332	18.30
15	8.0	0.1	2.507	0.166	1.22	76	2.20	70.3	53	71	102.4	89	0.112	0.335	18.31
16	7.9	0.1	2.672	0.165	1.22	77	2.15	70.3	53.1	71	101.6	88	0.111	0.333	18.35
17	7.8	0.1	2.840	0.168	1.21	77	2.04	70.4	53.3	71	103.1	88	0.113	0.336	18.38
18	7.7	0.1	3.006	0.166	1.20	76	2.14	70.4	53.4	71	101.6	88	0.112	0.335	18.42
19	7.6	0.1	3.171	0.165	1.20	77	2.10	70.5	53.5	71	101.1	89	0.112	0.335	18.39
20	7.5	0.1	3.338	0.167	1.22	77	2.23	70.6	53.7	71	102.4	89	0.112	0.335	18.39
21	7.4	0.1	3.504	0.166	1.20	78	2.06	70.6	53.8	71	101.7	89	0.112	0.335	18.39
22	7.3	0.1	3.669	0.165	1.22	78	2.27	70.6	53.9	72	101.0	89	0.112	0.335	18.40
23	7.1	0.1	3.836	0.167	1.22	78	2.16	70.6	54	72	102.2	90	0.113	0.336	18.44
24	7.0	0.1	4.002	0.166	1.21	78	2.21	70.7	54.1	71	101.6	90	0.111	0.333	18.41
25	6.9	0.1	4.167	0.165	1.20	79	2.21	70.8	54.3	71	101.3	90	0.110	0.332	18.29
26	6.8	0.1	4.337	0.170	1.20	79	2.17	70.8	54.4	72	104.5	90	0.113	0.336	18.37
27	6.7	0.1	4.500	0.163	1.20	79	2.10	70.9	54.5	71	99.7	90	0.112	0.335	18.46
28	6.6	0.1	4.664	0.164	1.20	80	2.11	71	54.7	71	100.2	90	0.111	0.333	18.37
29	6.5	0.1	4.832	0.168	1.20	80	2.27	71	54.8	72	102.8	90	0.112	0.335	18.37
30	6.4	0.1	4.997	0.165	1.21	80	2.13	71	54.9	72	100.9	90	0.112	0.335	18.42
31	6.3	0.1	5.161	0.164	1.21	81	2.02	71	55	72	100.0	90	0.112	0.335	18.41
32	6.2	0.1	5.329	0.168	1.22	81	2.05	71	55.1	72	102.3	90	0.112	0.335	18.41
33	6.1	0.1	5.495	0.166	1.20	81	2.27	71.1	55.3	72	101.2	90	0.111	0.333	18.37
34	6.0	0.1	5.659	0.164	1.21	82	2.11	71	55.4	72	100.0	90	0.112	0.335	18.37
35	5.8	0.1	5.827	0.168	1.20	81	2.26	71	55.5	72	102.3	89	0.112	0.335	18.41
36	5.7	0.1	5.992	0.165	1.21	82	2.13	71.1	55.6	72	100.5	90	0.111	0.333	18.37
37	5.6	0.1	6.157	0.165	1.21	82	2.10	71	55.7	71	100.5	90	0.113	0.336	18.42
38	5.5	0.1	6.324	0.167	1.21	82	2.08	70.9	55.8	72	101.5	90	0.111	0.333	18.42
39	5.4	0.1	6.492	0.168	1.20	83	2.24	71	55.9	72	102.1	90	0.112	0.335	18.38
40	5.3	0.1	6.658	0.166	1.20	83	2.09	71	56.1	72	100.8	90	0.113	0.336	18.46

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 4
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 10:36
Test Length: 160 min
Recording Interval: 1 min

Test Date: 10/2/25

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.002 cfm @ 24.5 in. Hg
Post-Test 0.003 cfm @ 5.71 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ("H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ("H_2O)*	$\sqrt{dP}$	*vs*
41	5.2	0.1	6.822	0.164	1.21	84	2.01	71	56.2	72	99.4	90	0.111	0.333	18.42
42	5.1	0.1	6.988	0.166	1.21	84	2.17	70.9	56.2	72	100.8	90	0.112	0.335	18.38
43	5.0	0.1	7.152	0.164	1.21	84	2.27	71	56.3	72	99.7	90	0.111	0.333	18.38
44	4.9	0.1	7.320	0.168	1.20	85	2.26	71	56.4	71	102.1	90	0.111	0.333	18.33
45	4.8	0.1	7.486	0.166	1.21	85	2.00	71	56.5	72	100.7	90	0.112	0.335	18.37
46	4.7	0.1	7.650	0.164	1.20	85	2.25	71.1	56.7	72	99.4	90	0.111	0.333	18.37
47	4.6	0.1	7.818	0.168	1.20	85	2.21	71	56.8	72	101.8	90	0.112	0.335	18.37
48	4.5	0.1	7.984	0.166	1.20	85	2.09	71	56.8	72	100.6	90	0.111	0.333	18.37
49	4.4	0.1	8.149	0.165	1.20	85	2.16	71.2	57	71	100.0	91	0.112	0.335	18.38
50	4.3	0.1	8.316	0.167	1.22	86	2.11	71.2	57.1	71	101.1	90	0.111	0.333	18.38
51	4.2	0.1	8.482	0.166	1.20	86	2.11	71.2	57.1	72	100.4	90	0.112	0.335	18.38
52	4.1	0.1	8.650	0.168	1.19	86	1.98	71.2	57.2	73	101.5	90	0.112	0.335	18.41
53	4.0	0.1	8.817	0.167	1.20	86	2.23	71.2	57.3	72	100.7	89	0.112	0.335	18.41
54	3.9	0.1	8.983	0.166	1.20	87	2.26	71.2	57.4	72	100.3	90	0.110	0.332	18.32
55	3.8	0.1	9.145	0.162	1.20	87	2.05	71.2	57.4	72	98.1	90	0.111	0.333	18.29
56	3.7	0.1	9.313	0.168	1.20	87	2.10	71.2	57.5	72	101.5	89	0.113	0.336	18.41
57	3.7	0.1	9.479	0.166	1.19	88	2.06	71.2	57.5	73	99.5	89	0.114	0.338	18.52
58	3.6	0.1	9.644	0.165	1.19	88	2.18	71.2	57.6	72	98.4	89	0.114	0.338	18.56
59	3.5	0.1	9.811	0.167	1.21	88	2.25	71.1	57.7	72	99.4	89	0.115	0.339	18.60
60	3.4	0.1	9.978	0.167	1.21	88	2.02	71	57.7	71	99.6	89	0.111	0.333	18.48
61	3.4	0.1	10.144	0.166	1.19	88	2.22	71	57.7	72	99.6	89	0.112	0.335	18.36
62	3.3	0.1	10.310	0.166	1.20	89	2.23	71	57.7	71	99.8	89	0.112	0.335	18.40
63	3.2	0.1	10.478	0.168	1.20	89	2.12	71	57.8	72	100.8	89	0.112	0.335	18.40
64	3.1	0.1	10.645	0.167	1.22	90	2.20	71	57.9	73	100.2	89	0.111	0.333	18.36
65	3.0	0.1	10.813	0.168	1.20	89	2.15	71	58	72	100.9	89	0.112	0.335	18.35
66	3.0	0.1	10.981	0.168	1.20	90	2.04	71	58	72	101.0	88	0.109	0.330	18.27
67	2.9	0.1	11.148	0.167	1.21	90	1.99	71	58.1	72	100.6	88	0.112	0.335	18.26
68	2.8	0.1	11.314	0.166	1.21	90	2.25	71.1	58.2	72	99.4	87	0.113	0.336	18.42
69	2.8	0.0	11.478	0.164	1.21	90	2.25	71	58.2	72	98.0	88	0.110	0.332	18.33
70	2.7	0.1	11.646	0.168	1.20	91	2.12	71	58.2	72	100.8	87	0.111	0.333	18.25
71	2.6	0.1	11.812	0.166	1.20	90	2.13	71	58.2	71	99.6	87	0.112	0.335	18.33
72	2.6	0.0	11.978	0.166	1.20	91	2.09	71	58.2	71	99.2	87	0.112	0.335	18.37
73	2.5	0.1	12.146	0.168	1.21	91	2.17	71.1	58.3	72	100.4	88	0.111	0.333	18.33
74	2.4	0.1	12.313	0.167	1.22	91	2.21	71.1	58.3	72	99.9	87	0.112	0.335	18.33
75	2.4	0.0	12.479	0.166	1.19	91	2.20	71.1	58.5	72	99.1	87	0.112	0.335	18.37
76	2.3	0.1	12.647	0.168	1.21	91	2.14	71.2	58.5	72	100.2	88	0.112	0.335	18.37
77	2.2	0.1	12.814	0.167	1.20	92	2.09	71.2	58.5	73	99.3	87	0.114	0.338	18.45
78	2.2	0.1	12.984	0.170	1.21	92	1.99	71.2	58.6	73	100.9	87	0.111	0.333	18.41
79	2.1	0.1	13.149	0.165	1.20	92	2.09	71.2	58.6	72	98.4	87	0.111	0.333	18.28
80	2.0	0.0	13.318	0.169	1.20	92	2.12	71.3	58.6	71	101.2	87	0.110	0.332	18.24
81	2.0	0.1	13.485	0.167	1.19	92	2.21	71.3	58.5	71	100.0	87	0.112	0.335	18.29
82	1.9	0.1	13.651	0.166	1.20	93	2.07	71.3	58.6	72	99.1	87	0.111	0.333	18.33
83	1.9	0.0	13.816	0.165	1.20	93	2.04	71.4	58.6	72	98.5	87	0.111	0.333	18.29
84	1.8	0.1	13.983	0.167	1.21	93	2.01	71.5	58.6	72	99.9	87	0.110	0.332	18.24

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 4
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 10:36
Test Length: 160 min
Recording Interval: 1 min

Test Date: 10/2/25

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.002 cfm @ 24.5 in. Hg
Post-Test 0.003 cfm @ 5.71 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H (" H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP (" H_2O)*	$\sqrt{dP}$	*vs*
85	1.8	0.0	14.150	0.167	1.21	93	2.06	71.6	58.6	72	100.2	87	0.109	0.330	18.16
86	1.8	0.0	14.317	0.167	1.19	93	2.16	71.6	58.6	72	100.1	87	0.112	0.335	18.24
87	1.7	0.1	14.485	0.168	1.23	93	2.15	71.6	58.7	71	100.1	87	0.112	0.335	18.36
88	1.7	0.0	14.652	0.167	1.21	93	2.00	71.6	58.6	72	99.2	86	0.112	0.335	18.36
89	1.6	0.0	14.818	0.166	1.19	94	2.24	71.6	58.7	73	98.6	85	0.111	0.333	18.30
90	1.6	0.0	14.986	0.168	1.22	94	2.03	71.5	58.6	72	99.8	85	0.111	0.333	18.25
91	1.6	0.0	15.157	0.171	1.21	93	2.24	71.6	58.6	73	101.6	84	0.112	0.335	18.28
92	1.6	0.0	15.324	0.167	1.20	94	1.98	71.5	58.6	73	99.1	85	0.111	0.333	18.28
93	1.5	0.0	15.490	0.166	1.19	94	2.25	71.5	58.6	73	98.3	84	0.113	0.336	18.32
94	1.5	0.0	15.658	0.168	1.20	94	2.20	71.5	58.7	73	99.3	84	0.112	0.335	18.36
95	1.5	0.0	15.826	0.168	1.21	94	2.15	71.4	58.7	72	99.3	84	0.112	0.335	18.32
96	1.4	0.0	15.992	0.166	1.20	94	2.23	71.3	58.7	72	97.9	84	0.114	0.338	18.40
97	1.4	0.0	16.157	0.165	1.20	94	2.12	71.2	58.7	73	97.0	84	0.113	0.336	18.43
98	1.4	0.0	16.325	0.168	1.20	95	2.01	71.2	58.7	73	98.8	84	0.112	0.335	18.35
99	1.4	0.0	16.492	0.167	1.20	95	2.23	71.1	58.7	72	98.6	84	0.111	0.333	18.27
100	1.3	0.0	16.659	0.167	1.21	95	2.24	71.1	58.7	73	98.7	83	0.113	0.336	18.30
101	1.3	0.0	16.828	0.169	1.21	95	2.07	71.1	58.8	73	99.6	83	0.112	0.335	18.34
102	1.3	0.0	16.996	0.168	1.21	95	2.11	71	58.8	73	99.1	83	0.111	0.333	18.26
103	1.3	0.0	17.163	0.167	1.20	95	2.02	71	58.8	73	98.6	83	0.113	0.336	18.30
104	1.3	0.0	17.333	0.170	1.20	95	2.03	71	58.7	73	100.2	83	0.112	0.335	18.34
105	1.2	0.1	17.501	0.168	1.20	95	2.06	71	58.8	73	99.0	83	0.112	0.335	18.30
106	1.2	0.0	17.670	0.169	1.19	95	2.22	70.9	58.8	73	99.7	83	0.112	0.335	18.29
107	1.2	0.0	17.837	0.167	1.23	96	2.12	70.9	58.9	73	98.4	83	0.112	0.335	18.29
108	1.2	0.0	18.004	0.167	1.21	96	2.23	70.9	58.8	72	98.3	83	0.113	0.336	18.34
109	1.2	0.0	18.172	0.168	1.21	96	2.21	70.8	58.8	71	98.7	83	0.113	0.336	18.38
110	1.1	0.0	18.341	0.169	1.22	96	2.05	70.9	58.8	72	99.3	83	0.112	0.335	18.34
111	1.1	0.0	18.506	0.165	1.21	96	2.09	70.8	58.8	72	97.1	83	0.112	0.335	18.30
112	1.1	0.0	18.673	0.167	1.21	96	2.18	70.8	58.8	73	98.4	83	0.111	0.333	18.25
113	1.1	0.0	18.842	0.169	1.21	96	2.17	70.8	58.8	72	99.8	83	0.112	0.335	18.25
114	1.0	0.1	19.010	0.168	1.20	96	2.17	70.8	58.8	72	99.2	83	0.111	0.333	18.26
115	1.0	0.0	19.177	0.167	1.21	97	2.02	70.8	58.9	72	98.6	83	0.111	0.333	18.21
116	1.0	0.0	19.344	0.167	1.21	97	2.17	70.7	58.9	72	98.6	83	0.112	0.335	18.25
117	1.0	0.0	19.514	0.170	1.21	96	2.20	70.7	58.9	72	100.2	82	0.111	0.333	18.25
118	1.0	0.0	19.685	0.171	1.21	96	2.15	70.8	58.9	72	101.1	83	0.110	0.332	18.16
119	0.9	0.0	19.852	0.167	1.22	96	2.04	70.8	58.9	72	98.8	83	0.112	0.335	18.21
120	0.9	0.0	20.020	0.168	1.21	97	2.12	70.7	58.9	72	99.0	83	0.112	0.335	18.29
121	0.9	0.0	20.188	0.168	1.22	96	2.17	70.8	58.9	72	98.9	83	0.111	0.333	18.25
122	0.9	0.0	20.357	0.169	1.21	97	2.24	70.7	58.9	72	99.5	83	0.113	0.336	18.29
123	0.9	0.0	20.524	0.167	1.21	97	2.08	70.8	58.9	72	98.0	82	0.112	0.335	18.33
124	0.8	0.0	20.692	0.168	1.21	96	1.96	70.7	58.9	72	98.6	82	0.112	0.335	18.29
125	0.8	0.0	20.858	0.166	1.22	97	2.23	70.7	58.9	72	97.5	82	0.113	0.336	18.33
126	0.8	0.0	21.026	0.168	1.21	97	2.03	70.8	58.9	73	98.7	83	0.111	0.333	18.29
127	0.8	0.0	21.194	0.168	1.21	97	2.09	70.8	58.9	72	99.0	82	0.111	0.333	18.21
128	0.8	0.0	21.361	0.167	1.18	97	2.05	70.8	59	72	98.5	82	0.112	0.335	18.25

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 4
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 10:36
Test Length: 160 min
Recording Interval: 1 min

Test Date: 10/2/25

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.002 cfm @ 24.5 in. Hg
Post-Test 0.003 cfm @ 5.71 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H (" H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP (" H_2O)*	$\sqrt{dP}$	*vs*
129	0.7	0.1	21.530	0.169	1.22	97	1.95	70.8	58.9	72	99.4	82	0.112	0.335	18.28
130	0.7	0.0	21.698	0.168	1.21	97	2.22	70.8	59	72	98.8	82	0.111	0.333	18.24
131	0.7	0.0	21.869	0.171	1.20	97	2.15	70.8	59	73	100.8	82	0.111	0.333	18.20
132	0.7	0.0	22.036	0.167	1.20	97	2.20	70.8	59	72	98.4	82	0.112	0.335	18.24
133	0.7	0.0	22.204	0.168	1.21	97	2.21	70.7	58.9	72	98.9	82	0.111	0.333	18.25
134	0.6	0.1	22.373	0.169	1.21	97	2.05	70.8	59	72	99.6	82	0.112	0.335	18.24
135	0.6	0.0	22.541	0.168	1.22	97	2.20	70.7	59	72	98.7	82	0.113	0.336	18.33
136	0.6	0.0	22.709	0.168	1.20	97	2.09	70.7	59	72	98.7	83	0.110	0.332	18.25
137	0.6	0.0	22.876	0.167	1.20	97	2.22	70.8	59	72	98.5	82	0.111	0.333	18.16
138	0.6	0.0	23.046	0.170	1.21	97	2.04	70.9	59	72	100.3	82	0.112	0.335	18.24
139	0.5	0.1	23.211	0.165	1.22	97	2.03	70.8	59	72	97.1	82	0.111	0.333	18.24
140	0.5	0.0	23.379	0.168	1.20	97	2.06	70.8	59	72	98.9	82	0.112	0.335	18.25
141	0.5	0.0	23.547	0.168	1.21	97	1.95	70.8	59	72	98.8	82	0.112	0.335	18.29
142	0.5	0.0	23.716	0.169	1.22	98	2.21	70.8	59	72	99.4	83	0.111	0.333	18.25
143	0.5	0.0	23.884	0.168	1.21	97	2.12	70.9	59	72	98.9	83	0.112	0.335	18.25
144	0.4	0.0	24.054	0.170	1.21	97	2.10	70.9	59	72	99.9	83	0.113	0.336	18.33
145	0.4	0.0	24.222	0.168	1.19	98	2.07	70.9	59	72	98.4	83	0.112	0.335	18.33
146	0.4	0.0	24.391	0.169	1.22	97	2.20	70.9	59	72	99.2	83	0.111	0.333	18.25
147	0.4	0.0	24.559	0.168	1.22	98	2.02	71	58.9	72	99.0	83	0.111	0.333	18.21
148	0.3	0.0	24.727	0.168	1.21	98	2.03	71	59	72	99.1	83	0.111	0.333	18.21
149	0.3	0.0	24.894	0.167	1.21	98	2.23	71	59	72	98.4	83	0.112	0.335	18.25
150	0.3	0.0	25.063	0.169	1.21	98	2.19	71	58.9	72	99.3	83	0.112	0.335	18.29
151	0.3	0.0	25.232	0.169	1.22	98	2.23	71	58.9	72	99.0	83	0.113	0.336	18.33
152	0.3	0.0	25.400	0.168	1.22	98	2.05	71	59	72	98.2	83	0.113	0.336	18.37
153	0.2	0.0	25.564	0.164	1.19	97	2.11	71.1	58.9	72	96.0	83	0.112	0.335	18.33
154	0.2	0.0	25.734	0.170	1.22	98	2.06	71.1	59	72	99.9	83	0.110	0.332	18.21
155	0.2	0.0	25.902	0.168	1.21	98	2.23	71.1	59	72	99.0	82	0.112	0.335	18.21
156	0.2	0.0	26.069	0.167	1.21	98	1.95	71.1	59	72	98.2	83	0.112	0.335	18.29
157	0.2	0.0	26.237	0.168	1.21	98	1.97	71.1	59	72	98.6	83	0.112	0.335	18.29
158	0.1	0.0	26.408	0.171	1.21	98	2.21	71.1	59	72	100.2	83	0.113	0.336	18.33
159	0.1	0.0	26.577	0.169	1.22	98	2.11	71.2	59	72	99.0	83	0.111	0.333	18.29
160	0.0	0.1	26.745	0.168	1.22	98	2.09	71.2	59	72	98.7	83	0.112	0.335	18.25

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 4
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 10:36
Total Sampling Time: 160 min
Recording Interval: 1 min

Test Date: 10/2/25

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Sample Train Leak Checks
Pre-test 0.003 cfm @ 23.7 in. Hg
Post-Test 0.001 cfm @ 5.89 in. Hg

Elapsed Time (min)	**Train B Sampling System**								**Appliance Temperatures, °F**						
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Pro - Rate*	*Top*	*Bottom*	*Back*	*Left*	*Right*	*Catalyst Exit*	*Average Stove Surface (Tot = Δ T)*
Tot / Avg	**25.383**	**0.159**	**1.20**	**86.4**	**2.28**	**71.26**	**54.85**	**100.0**	**504.3**	**409.3**	**307.0**	**372.4**	**384.4**	**979.2**	**32.1**
Minimum	0.000	0.153	0.06	72	0.34	69	50	96.0	400	367	269	338	362	621	384
Max	25.383	0.163	1.22	94	2.37	72	57	107.4	612	466	369	428	427	1144	419
0	0.000		0.06	72	0.34	68.7	54.4		409	463	368	427	427	759	419
1	0.154	0.154	1.24	72	2.43	69.2	51.3	100.8	408	463	369	427	426	646	419
2	0.315	0.161	1.22	72	2.41	69.6	50.8	107.4	405	463	367	428	426	621	418
3	0.477	0.162	1.23	72	2.38	69.7	50.5	105.0	403	464	362	427	426	757	416
4	0.637	0.160	1.24	72	2.37	69.7	50.3	103.5	405	464	357	425	425	899	415
5	0.796	0.159	1.22	72	2.39	69.7	50	102.8	413	465	351	423	424	968	415
6	0.955	0.159	1.21	72	2.39	69.8	49.9	102.5	421	465	345	421	422	952	415
7	1.116	0.161	1.22	72	2.33	69.9	49.8	103.6	431	466	340	418	420	919	415
8	1.274	0.158	1.19	72	2.38	70	49.7	101.8	440	466	333	415	418	921	414
9	1.433	0.159	1.21	72	2.38	70	49.6	102.7	448	466	327	411	415	951	413
10	1.593	0.160	1.20	73	2.39	70.1	49.6	103.3	457	466	322	407	412	985	413
11	1.751	0.158	1.19	73	2.45	70.2	49.6	101.8	467	466	317	403	409	1001	412
12	1.908	0.157	1.21	73	2.32	70.3	49.6	101.2	475	466	311	399	407	1004	412
13	2.069	0.161	1.19	73	2.30	70.4	49.5	104.0	483	466	307	395	404	1001	411
14	2.226	0.157	1.20	73	2.36	70.4	49.6	101.8	490	465	303	391	401	1004	410
15	2.383	0.157	1.19	74	2.42	70.5	49.6	102.0	496	465	299	388	398	1015	409
16	2.541	0.158	1.19	74	2.29	70.6	49.7	102.5	502	464	295	384	395	1031	408
17	2.700	0.159	1.20	74	2.43	70.7	49.7	102.8	508	463	292	380	392	1028	407
18	2.856	0.156	1.19	74	2.43	70.7	49.8	100.5	512	462	288	377	388	1013	405
19	3.015	0.159	1.21	75	2.43	70.7	49.8	102.5	515	461	285	373	386	1007	404
20	3.172	0.157	1.18	75	2.28	70.8	49.9	101.3	517	459	282	370	383	1015	402
21	3.329	0.157	1.20	75	2.35	70.7	50	101.3	519	458	280	367	381	1036	401
22	3.488	0.159	1.19	75	2.37	70.8	50	102.5	523	457	278	364	378	1054	400
23	3.644	0.156	1.19	75	2.35	70.9	50.1	100.5	527	455	276	362	377	1064	399
24	3.801	0.157	1.19	76	2.41	70.9	50.2	101.1	530	454	275	359	375	1069	398
25	3.960	0.159	1.20	76	2.28	71.1	50.3	102.8	534	452	273	357	373	1073	398
26	4.119	0.159	1.18	76	2.41	71.1	50.4	102.9	538	450	272	354	372	1072	397
27	4.273	0.154	1.18	76	2.28	71.1	50.5	99.2	541	449	271	353	371	1058	397
28	4.431	0.158	1.20	77	2.32	71.2	50.6	101.7	543	447	271	351	369	1050	396
29	4.587	0.156	1.18	77	2.29	71.2	50.7	100.5	545	445	270	349	368	1046	396
30	4.745	0.158	1.19	78	2.41	71.3	50.8	101.7	546	443	270	348	367	1047	395
31	4.903	0.158	1.20	78	2.24	71.3	50.9	101.5	548	442	269	347	366	1054	394
32	5.059	0.156	1.19	78	2.33	71.3	51	100.1	549	440	269	345	366	1062	394
33	5.217	0.158	1.20	78	2.36	71.4	51.1	101.5	551	438	269	344	365	1071	393
34	5.374	0.157	1.21	79	2.42	71.3	51.3	100.9	554	436	269	343	364	1081	393
35	5.531	0.157	1.20	79	2.29	71.4	51.4	100.7	557	434	269	343	364	1089	393
36	5.690	0.159	1.20	79	2.21	71.4	51.6	101.9	561	433	269	342	364	1093	394
37	5.846	0.156	1.20	80	2.40	71.4	51.8	100.0	564	431	269	341	363	1096	394
38	6.003	0.157	1.19	80	2.30	71.4	52	100.5	568	429	269	341	363	1093	394
39	6.165	0.162	1.20	80	2.33	71.5	52.2	103.8	571	427	269	340	363	1099	394
40	6.322	0.157	1.20	80	2.21	71.5	52.4	100.4	573	425	270	340	363	1116	394

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 4
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 10:36
Total Sampling Time: 160 min
Recording Interval: 1 min

Test Date: 10/2/25

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Sample Train Leak Checks
Pre-test 0.003 cfm @ 23.7 in. Hg
Post-Test 0.001 cfm @ 5.89 in. Hg

Elapsed Time (min)	Train B Sampling System								Appliance Temperatures, °F						
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Filter Temp (°F)	Dryer Temp (°F)	Pro - Rate	Top	Bottom	Back	Left	Right	Catalyst Exit	Average Stove Surface (Tot = Δ T)
41	6.476	0.154	1.19	81	2.27	71.5	52.6	98.3	576	424	271	340	363	1132	394
42	6.635	0.159	1.20	81	2.39	71.5	52.8	101.7	579	422	271	339	363	1138	395
43	6.792	0.157	1.19	81	2.21	71.5	52.9	100.5	583	420	271	339	362	1141	395
44	6.949	0.157	1.19	81	2.21	71.5	53.1	100.5	585	418	271	339	363	1137	395
45	7.108	0.159	1.18	82	2.37	71.5	53.3	101.7	588	416	272	339	363	1135	396
46	7.265	0.157	1.19	82	2.31	71.5	53.5	100.2	591	415	272	338	363	1137	396
47	7.422	0.157	1.18	82	2.30	71.5	53.6	100.2	595	413	273	338	363	1140	396
48	7.581	0.159	1.19	83	2.40	71.6	53.8	101.5	599	411	273	338	364	1139	397
49	7.738	0.157	1.19	83	2.37	71.6	54	100.1	601	410	274	338	364	1136	397
50	7.896	0.158	1.18	83	2.22	71.5	54.1	100.7	603	408	274	339	364	1128	398
51	8.054	0.158	1.18	83	2.19	71.5	54.2	100.7	606	407	275	339	365	1117	398
52	8.214	0.160	1.19	83	2.31	71.5	54.4	101.8	608	405	276	339	365	1111	399
53	8.371	0.157	1.18	84	2.28	71.6	54.5	99.7	610	404	276	339	366	1109	399
54	8.531	0.160	1.19	84	2.35	71.5	54.6	101.8	611	402	277	340	367	1109	399
55	8.684	0.153	1.19	84	2.40	71.5	54.7	97.6	612	401	278	340	368	1114	400
56	8.843	0.159	1.19	85	2.39	71.5	54.8	101.1	611	400	278	340	369	1113	400
57	9.002	0.159	1.19	85	2.39	71.5	54.9	100.4	610	399	280	341	369	1113	400
58	9.158	0.156	1.18	85	2.38	71.5	55.1	98.0	608	398	280	341	370	1116	399
59	9.317	0.159	1.19	85	2.31	71.5	55.2	99.6	605	396	281	341	371	1122	399
60	9.476	0.159	1.20	86	2.22	71.5	55.4	99.8	603	395	282	342	372	1128	399
61	9.633	0.157	1.20	86	2.30	71.5	55.5	99.2	600	394	283	342	373	1138	398
62	9.791	0.158	1.21	86	2.38	71.6	55.5	100.0	599	393	283	343	373	1143	398
63	9.950	0.159	1.20	86	2.20	71.6	55.6	100.5	597	392	284	343	374	1144	398
64	10.107	0.157	1.20	86	2.33	71.6	55.7	99.3	595	391	285	344	375	1141	398
65	10.268	0.161	1.19	87	2.34	71.6	55.8	101.8	594	390	285	345	375	1141	398
66	10.428	0.160	1.20	87	2.21	71.6	55.8	101.4	592	389	286	345	376	1138	397
67	10.585	0.157	1.20	87	2.19	71.6	55.9	99.6	592	388	286	346	376	1133	397
68	10.743	0.158	1.20	87	2.37	71.6	56	99.7	589	387	287	347	376	1123	397
69	10.900	0.157	1.20	87	2.39	71.6	56	98.8	590	385	287	347	376	1112	397
70	11.058	0.158	1.21	87	2.27	71.6	56.1	99.9	589	384	287	348	376	1106	397
71	11.216	0.158	1.19	88	2.33	71.5	56.1	99.8	587	383	288	349	376	1104	396
72	11.376	0.160	1.20	88	2.26	71.5	56.2	100.7	586	382	289	350	376	1106	396
73	11.533	0.157	1.20	88	2.33	71.6	56.3	98.8	585	381	290	350	376	1107	396
74	11.691	0.158	1.19	88	2.37	71.6	56.4	99.5	584	380	291	351	376	1106	396
75	11.851	0.160	1.20	89	2.32	71.6	56.4	100.6	583	379	291	351	376	1100	396
76	12.009	0.158	1.19	89	2.24	71.6	56.5	99.2	583	377	292	352	377	1094	396
77	12.166	0.157	1.19	89	2.29	71.6	56.5	98.4	583	376	292	353	377	1093	396
78	12.327	0.161	1.19	89	2.32	71.6	56.6	100.7	582	375	294	354	377	1089	396
79	12.487	0.160	1.18	89	2.22	71.6	56.6	100.5	581	374	294	355	378	1084	396
80	12.645	0.158	1.20	89	2.22	71.6	56.7	99.7	580	373	295	355	378	1088	396
81	12.803	0.158	1.20	89	2.29	71.7	56.8	99.7	579	372	297	356	379	1093	397
82	12.963	0.160	1.20	89	2.24	71.8	56.9	100.7	578	371	298	357	380	1094	397
83	13.118	0.155	1.20	90	2.18	71.8	56.9	97.5	577	370	300	358	380	1091	397
84	13.276	0.158	1.21	90	2.32	71.9	57	99.6	575	370	301	359	381	1082	397

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 4
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Date: 10/2/25

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Test Start Time: 10:36
Total Sampling Time: 160 min
Recording Interval: 1 min

Sample Train Leak Checks
Pre-test 0.003 cfm @ 23.7 in. Hg
Post-Test 0.001 cfm @ 5.89 in. Hg

Elapsed Time (min)	Train B Sampling System								Appliance Temperatures, °F						
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Filter Temp (°F)	Dryer Temp (°F)	Pro - Rate	Top	Bottom	Back	Left	Right	Catalyst Exit	Average Stove Surface (Tot = Δ T)
85	13.436	0.160	1.21	90	2.23	72	57.1	101.1	573	369	303	360	382	1072	397
86	13.594	0.158	1.20	90	2.36	72	57.1	99.8	570	368	305	361	383	1059	397
87	13.752	0.158	1.22	90	2.35	72	57.1	99.2	566	368	308	362	383	1046	397
88	13.912	0.160	1.21	90	2.20	71.9	56.9	100.1	562	367	311	363	384	1033	397
89	14.071	0.159	1.20	90	2.22	71.8	56.9	99.5	558	367	313	364	384	1021	397
90	14.229	0.158	1.21	90	2.16	71.7	56.9	99.0	552	367	314	366	385	1014	397
91	14.390	0.161	1.21	91	2.37	71.7	56.9	100.8	547	367	317	367	385	1008	396
92	14.551	0.161	1.21	91	2.18	71.7	56.9	100.7	541	367	319	368	386	998	396
93	14.709	0.158	1.22	91	2.37	71.6	56.9	98.7	535	367	321	369	387	983	396
94	14.866	0.157	1.19	91	2.16	71.6	56.9	97.8	529	367	323	370	388	967	395
95	15.026	0.160	1.21	91	2.34	71.6	56.9	99.7	524	368	324	371	388	954	395
96	15.185	0.159	1.20	91	2.18	71.6	56.9	98.9	518	368	326	372	389	944	394
97	15.340	0.155	1.21	91	2.25	71.5	56.9	96.0	512	368	327	373	390	935	394
98	15.500	0.160	1.21	91	2.21	71.5	56.9	99.2	507	369	329	374	390	926	394
99	15.660	0.160	1.20	92	2.22	71.5	56.9	99.6	501	370	330	375	391	920	393
100	15.818	0.158	1.21	92	2.33	71.5	56.9	98.4	496	371	332	376	392	916	393
101	15.976	0.158	1.21	92	2.33	71.5	56.9	98.2	491	372	333	377	393	913	393
102	16.137	0.161	1.22	92	2.35	71.5	57	100.1	487	373	334	378	393	912	393
103	16.296	0.159	1.21	92	2.15	71.5	56.9	99.0	483	374	334	379	394	911	393
104	16.457	0.161	1.22	92	2.20	71.5	56.9	100.0	480	375	335	380	395	911	393
105	16.616	0.159	1.21	92	2.36	71.5	56.9	98.7	477	377	335	381	396	911	393
106	16.777	0.161	1.20	92	2.17	71.4	56.9	100.0	475	378	335	381	396	909	393
107	16.935	0.158	1.22	92	2.26	71.4	57	98.2	471	379	335	382	397	906	393
108	17.093	0.158	1.21	92	2.20	71.4	56.9	98.0	469	381	335	383	397	904	393
109	17.253	0.160	1.21	92	2.32	71.5	57	99.1	467	382	335	384	397	903	393
110	17.413	0.160	1.22	93	2.32	71.5	57	99.1	464	384	335	384	397	902	393
111	17.569	0.156	1.21	92	2.17	71.4	56.9	96.8	462	385	335	384	397	901	393
112	17.728	0.159	1.22	93	2.34	71.4	56.9	98.8	460	386	334	385	397	899	393
113	17.889	0.161	1.20	93	2.20	71.4	56.9	100.2	458	388	334	385	397	895	393
114	18.047	0.158	1.21	93	2.24	71.4	56.9	98.3	456	389	334	386	397	891	392
115	18.206	0.159	1.22	93	2.28	71.4	56.9	99.0	454	391	333	386	397	888	392
116	18.366	0.160	1.22	93	2.18	71.4	56.9	99.6	452	392	333	387	397	883	392
117	18.526	0.160	1.21	93	2.23	71.3	56.9	99.5	450	393	332	387	397	878	392
118	18.687	0.161	1.21	93	2.32	71.3	56.9	100.3	448	395	332	388	396	875	392
119	18.846	0.159	1.21	93	2.18	71.3	56.9	99.2	446	396	331	388	396	872	391
120	19.006	0.160	1.22	93	2.22	71.3	56.9	99.4	444	397	330	388	396	870	391
121	19.166	0.160	1.22	93	2.36	71.4	56.9	99.3	441	398	330	389	396	868	391
122	19.325	0.159	1.21	93	2.25	71.3	56.9	98.7	440	400	329	389	395	866	390
123	19.484	0.159	1.21	93	2.36	71.4	56.9	98.5	438	401	328	389	394	864	390
124	19.644	0.160	1.21	93	2.37	71.3	56.9	99.1	436	402	328	390	394	863	390
125	19.800	0.156	1.21	93	2.18	71.3	56.9	96.6	435	402	327	390	393	862	389
126	19.959	0.159	1.21	93	2.17	71.4	56.9	98.5	433	403	326	390	393	861	389
127	20.119	0.160	1.21	93	2.23	71.3	56.9	99.4	432	404	325	391	392	861	389
128	20.279	0.160	1.21	94	2.23	71.4	57	99.4	430	405	324	391	392	861	388

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 4
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 10:36
Total Sampling Time: 160 min
Recording Interval: 1 min

Test Date: 10/2/25

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Sample Train Leak Checks
Pre-test 0.003 cfm @ 23.7 in. Hg
Post-Test 0.001 cfm @ 5.89 in. Hg

Elapsed Time (min)	**Train B Sampling System**								**Appliance Temperatures, °F**						
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Pro - Rate*	*Top*	*Bottom*	*Back*	*Left*	*Right*	*Catalyst Exit*	*Average Stove Surface (Tot = Δ T)*
129	20.438	0.159	1.21	94	2.14	71.3	56.9	98.6	429	405	324	391	391	859	388
130	20.597	0.159	1.21	94	2.36	71.3	56.9	98.6	428	406	324	391	391	858	388
131	20.760	0.163	1.20	94	2.34	71.3	56.9	101.3	426	406	323	391	390	858	387
132	20.920	0.160	1.19	94	2.36	71.2	56.9	99.4	425	407	322	391	390	858	387
133	21.079	0.159	1.21	94	2.34	71.2	56.9	98.7	424	407	321	391	389	858	386
134	21.238	0.159	1.21	94	2.35	71.3	56.9	98.7	423	408	321	391	388	858	386
135	21.398	0.160	1.22	94	2.25	71.3	57	99.1	422	408	320	392	388	858	386
136	21.558	0.160	1.20	94	2.37	71.2	56.9	99.1	421	409	320	392	388	857	386
137	21.717	0.159	1.21	94	2.36	71.2	56.9	98.9	420	409	319	392	387	856	385
138	21.876	0.159	1.21	94	2.19	71.2	56.9	98.9	419	410	319	392	387	854	385
139	22.034	0.158	1.21	94	2.30	71.2	56.9	98.0	418	410	318	392	386	852	385
140	22.192	0.158	1.21	94	2.35	71.2	56.9	98.0	417	410	318	392	386	850	385
141	22.351	0.159	1.20	94	2.20	71.3	56.9	98.5	416	411	318	393	385	848	385
142	22.512	0.161	1.21	94	2.32	71.3	56.9	99.8	415	411	318	393	385	845	384
143	22.671	0.159	1.21	94	2.16	71.2	57	98.7	414	412	318	393	384	842	384
144	22.833	0.162	1.19	94	2.29	71.2	56.9	100.3	413	412	319	394	384	840	384
145	22.992	0.159	1.21	94	2.18	71.3	56.9	98.2	412	412	319	394	384	839	384
146	23.152	0.160	1.20	94	2.31	71.3	56.9	99.1	411	413	319	394	383	839	384
147	23.312	0.160	1.21	94	2.27	71.3	57	99.4	410	413	320	395	383	838	384
148	23.470	0.158	1.21	94	2.14	71.3	57	98.3	409	414	320	395	383	838	384
149	23.629	0.159	1.21	94	2.21	71.3	57	98.8	408	414	321	396	383	837	384
150	23.790	0.161	1.21	94	2.27	71.3	56.9	99.8	408	415	322	396	383	836	385
151	23.949	0.159	1.21	94	2.32	71.3	57	98.3	407	415	323	397	382	835	385
152	24.107	0.158	1.20	94	2.21	71.4	57	97.5	406	416	324	397	382	833	385
153	24.265	0.158	1.21	94	2.16	71.4	57	97.5	405	416	325	397	382	830	385
154	24.425	0.160	1.21	94	2.15	71.3	57	99.2	404	417	327	398	382	827	385
155	24.584	0.159	1.21	94	2.14	71.3	57	98.8	403	417	328	398	382	824	386
156	24.743	0.159	1.21	94	2.21	71.3	57	98.6	403	418	329	398	381	822	386
157	24.904	0.161	1.22	94	2.21	71.3	57	99.6	402	418	330	398	381	822	386
158	25.065	0.161	1.19	94	2.30	71.3	57	99.5	401	419	331	398	381	822	386
159	25.224	0.159	1.22	94	2.20	71.4	57.1	98.3	400	419	333	399	381	823	386
160	25.383	0.159	1.22	94	2.16	71.4	57.1	98.5	400	420	334	399	381	824	387

Train C - First Hour Particulate Sampling

Run: 4
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Start Time: 10:36
Total Sampling Time: 60 min
Recording Interval: 1 min

Test Date: 10/2/25

Meter Box Y Regression Offset: 0.981
Meter Box Y Regression Factor: 0
Meter Box Dynamic Y: 0.981
Sample Box ID: 0

Sample Train Leak Checks
Pre-test 0.004 cfm @ 18.7 in. Hg
Post-Test 0.002 cfm @ 10.77 in. Hg

Elapsed Time (min)	Train C Sampling System							
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Filter Temp (°F)	Dryer Temp (°F)	Pro - Rate
Tot / Avg	**9.559**	**0.159**	**1.00**	**76.7**	**2.51**	**72.7**	**65.2**	**100.1**
Minimum	0.000	0.156	0.05	73	0.65	70	64	98.2
Max	9.559	0.163	1.05	80	2.60	73	67	103.8
0	0.000		0.05	73	0.65	70	64.7	
1	0.157	0.157	1.05	73	2.59	70.9	64.7	100.0
2	0.317	0.160	1.04	73	2.58	71.5	64.7	103.8
3	0.477	0.160	1.04	73	2.51	71.4	64.7	101.0
4	0.638	0.161	1.04	73	2.56	71.5	64.6	101.4
5	0.797	0.159	1.03	73	2.54	71.5	64.6	100.1
6	0.957	0.160	1.03	74	2.60	71.6	64.6	100.4
7	1.117	0.160	1.03	74	2.59	71.7	64.5	100.3
8	1.276	0.159	1.03	74	2.49	71.8	64.5	99.7
9	1.436	0.160	1.03	74	2.51	71.9	64.4	100.6
10	1.595	0.159	1.02	74	2.58	71.9	64.4	100.0
11	1.754	0.159	1.02	74	2.49	72	64.3	99.7
12	1.914	0.160	1.02	74	2.57	72.1	64.3	100.4
13	2.075	0.161	1.02	74	2.59	72.2	64.3	101.2
14	2.232	0.157	1.02	74	2.60	72.3	64.3	99.1
15	2.391	0.159	1.01	75	2.54	72.4	64.3	100.5
16	2.549	0.158	1.02	75	2.60	72.5	64.3	99.7
17	2.709	0.160	1.02	75	2.58	72.5	64.3	100.7
18	2.867	0.158	1.01	75	2.57	72.6	64.3	99.2
19	3.027	0.160	1.02	75	2.49	72.5	64.3	100.5
20	3.186	0.159	1.01	75	2.47	72.6	64.4	100.0
21	3.344	0.158	1.02	75	2.56	72.6	64.4	99.3
22	3.504	0.160	1.01	75	2.51	72.6	64.4	100.6
23	3.662	0.158	1.01	76	2.51	72.6	64.4	99.2
24	3.822	0.160	1.02	76	2.58	72.8	64.4	100.5
25	3.980	0.158	1.02	76	2.58	72.8	64.5	99.6
26	4.142	0.162	1.02	76	2.52	73	64.6	102.2
27	4.299	0.157	1.01	76	2.51	73	64.6	98.6
28	4.458	0.159	1.02	77	2.51	73	64.6	99.8
29	4.617	0.159	1.01	77	2.59	73	64.7	100.0
30	4.776	0.159	1.02	77	2.57	73.1	64.8	99.9
31	4.935	0.159	1.01	77	2.49	73.1	64.9	99.7
32	5.094	0.159	1.01	77	2.59	73.1	64.9	99.7

Train C - First Hour Particulate Sampling

Run: 4
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Start Time: 10:36
Total Sampling Time: 60 min
Recording Interval: 1 min

Test Date: 10/2/25

Meter Box Y Regression Offset: 0.981
Meter Box Y Regression Factor: 0
Meter Box Dynamic Y: 0.981
Sample Box ID: 0

Sample Train Leak Checks
Pre-test 0.004 cfm @ 18.7 in. Hg
Post-Test 0.002 cfm @ 10.77 in. Hg

Elapsed Time (min)	Train C Sampling System							
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Filter Temp (°F)	Dryer Temp (°F)	Pro - Rate
33	5.253	0.159	1.02	77	2.56	73.1	64.9	99.8
34	5.413	0.160	1.01	77	2.50	73.1	65.1	100.5
35	5.572	0.159	1.01	78	2.58	73.1	65.1	99.7
36	5.731	0.159	1.02	78	2.52	73.2	65.2	99.7
37	5.890	0.159	1.01	78	2.49	73.2	65.4	99.8
38	6.049	0.159	1.02	78	2.49	73.1	65.4	99.7
39	6.212	0.163	1.02	78	2.50	73.1	65.5	102.3
40	6.371	0.159	1.01	78	2.49	73.2	65.6	99.6
41	6.528	0.157	1.02	78	2.54	73.1	65.6	98.3
42	6.687	0.159	1.01	78	2.57	73.2	65.7	99.7
43	6.846	0.159	1.02	79	2.50	73.2	65.8	99.8
44	7.006	0.160	1.01	79	2.59	73.2	65.9	100.5
45	7.165	0.159	1.02	79	2.57	73.2	66	99.8
46	7.325	0.160	1.01	79	2.52	73.2	66.1	100.4
47	7.484	0.159	1.01	79	2.51	73.1	66.1	99.8
48	7.643	0.159	1.02	79	2.58	73.2	66.2	99.8
49	7.804	0.161	1.02	79	2.54	73.2	66.2	101.1
50	7.963	0.159	1.02	79	2.55	73.2	66.3	99.8
51	8.122	0.159	1.02	79	2.58	73.3	66.4	99.8
52	8.285	0.163	1.02	80	2.59	73.2	66.4	102.2
53	8.444	0.159	1.02	80	2.57	73.2	66.5	99.5
54	8.604	0.160	1.02	80	2.49	73.2	66.5	100.3
55	8.760	0.156	1.01	80	2.51	73.2	66.7	98.2
56	8.920	0.160	1.02	80	2.51	73.2	66.7	100.4
57	9.080	0.160	1.02	80	2.58	73.2	66.8	99.7
58	9.239	0.159	1.02	80	2.55	73.1	66.9	98.6
59	9.400	0.161	1.02	80	2.57	73	67	99.6
60	9.559	0.159	1.02	80	2.57	73	67.1	98.6

Train D - Ambient Background and Flue Gas Data

Run: 4 **Test Date:** 10/2/2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset:
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.000
Sample Box ID: 0

Test Start Time: 10:36
Total Sampling Time 160 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
Tot / Avg	**24.841**	**0.155**	**1.06**	**80.7**	**2.03**	**337.36**	**0.057**	**338.4**	**0.29**	**12.11**
Minimum	0.000	0.150	1.06	75	2.00	269.40	0.035	49.0	0.00	2.00
Max	24.841	0.159	1.10	83	2.09	387.10	0.076	547.0	1.77	15.31
0	0.000		0.03	75	0.69	269.4	0.035	49.0	0.00	10.17
1	0.151	0.151	1.10	75	2.07	337.4	0.036	119.0	0.03	9.34
2	0.308	0.157	1.10	75	2.08	315.3	0.035	547.0	0.19	2.00
3	0.464	0.156	1.10	75	2.07	303.6	0.054	527.0	0.05	10.47
4	0.618	0.154	1.08	75	2.07	308.2	0.059	547.0	0.05	12.31
5	0.774	0.156	1.08	75	2.07	317.6	0.053	547.0	0.10	12.72
6	0.929	0.155	1.08	75	2.05	325.3	0.059	547.0	0.38	13.09
7	1.083	0.154	1.08	75	2.06	330	0.058	547.0	0.30	12.54
8	1.237	0.154	1.08	75	2.03	334	0.047	547.0	0.09	11.68
9	1.393	0.156	1.08	75	2.07	338.8	0.062	512.0	0.04	11.85
10	1.546	0.153	1.08	75	2.03	343.9	0.065	547.0	0.22	13.47
11	1.700	0.154	1.07	75	2.06	347.9	0.041	547.0	0.33	13.83
12	1.855	0.155	1.07	75	2.06	351.7	0.049	547.0	0.22	13.64
13	2.011	0.156	1.07	75	2.07	355.2	0.054	547.0	0.21	13.46
14	2.163	0.152	1.07	76	2.05	358.9	0.066	547.0	0.24	13.35
15	2.318	0.155	1.07	76	2.00	362.3	0.044	547.0	0.31	13.63
16	2.473	0.155	1.07	76	2.07	364.1	0.051	547.0	0.44	14.03
17	2.626	0.153	1.07	76	2.02	365.1	0.047	547.0	0.28	13.88
18	2.781	0.155	1.07	76	2.06	366.5	0.047	547.0	0.12	12.90
19	2.935	0.154	1.07	76	2.01	367.7	0.068	547.0	0.10	12.71
20	3.089	0.154	1.07	76	2.03	370.8	0.049	547.0	0.17	13.33
21	3.243	0.154	1.07	77	2.03	372.3	0.049	547.0	0.32	14.12
22	3.398	0.155	1.07	77	2.04	375.3	0.051	547.0	0.45	14.67
23	3.553	0.155	1.07	77	2.03	377.6	0.050	547.0	0.47	14.96
24	3.706	0.153	1.07	77	2.04	379.1	0.052	547.0	0.42	14.86
25	3.861	0.155	1.07	77	2.05	378.9	0.050	547.0	0.32	14.68
26	4.019	0.158	1.07	77	2.02	379.5	0.048	547.0	0.30	14.47
27	4.169	0.150	1.07	77	2.02	379.7	0.049	547.0	0.30	14.33
28	4.324	0.155	1.07	78	2.06	379.4	0.052	547.0	0.21	14.21
29	4.479	0.155	1.07	78	2.06	378.8	0.051	547.0	0.18	14.31
30	4.633	0.154	1.07	78	2.05	378.7	0.048	547.0	0.18	14.36
31	4.787	0.154	1.07	78	2.07	378.9	0.072	547.0	0.20	14.50
32	4.942	0.155	1.07	78	2.05	379	0.046	547.0	0.22	14.71

Train D - Ambient Background and Flue Gas Data

Run: 4 **Test Date:** 10/2/2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset:
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.000
Sample Box ID: 0

Test Start Time: 10:36
Total Sampling Time 160 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
33	5.097	0.155	1.07	78	2.07	378.9	0.072	547.0	0.28	14.82
34	5.251	0.154	1.07	78	2.05	380.1	0.068	547.0	0.35	14.97
35	5.406	0.155	1.06	78	2.07	381	0.076	547.0	0.42	15.13
36	5.561	0.155	1.06	79	2.00	382	0.074	547.0	0.46	15.23
37	5.715	0.154	1.07	79	2.07	382	0.068	547.0	0.47	15.17
38	5.870	0.155	1.07	79	2.01	382.3	0.069	547.0	0.40	14.94
39	6.028	0.158	1.07	79	2.01	383.1	0.069	547.0	0.46	14.88
40	6.181	0.153	1.07	79	2.06	383.6	0.067	547.0	0.60	14.94
41	6.334	0.153	1.07	79	2.03	384.4	0.075	547.0	0.81	14.95
42	6.489	0.155	1.07	79	2.05	384.6	0.075	547.0	0.87	14.92
43	6.644	0.155	1.07	79	2.03	385.1	0.059	547.0	0.86	14.97
44	6.798	0.154	1.07	79	2.01	385.4	0.056	547.0	0.97	15.04
45	6.953	0.155	1.06	80	2.07	385.3	0.059	547.0	1.05	15.02
46	7.109	0.156	1.07	80	2.06	386.1	0.062	547.0	1.20	15.04
47	7.263	0.154	1.07	80	2.05	386.4	0.058	547.0	1.18	15.12
48	7.418	0.155	1.07	80	2.00	386.9	0.064	547.0	1.31	15.19
49	7.574	0.156	1.07	80	2.06	387.1	0.062	547.0	1.42	15.26
50	7.727	0.153	1.07	80	2.01	386.6	0.061	547.0	1.55	15.31
51	7.883	0.156	1.06	80	2.05	386.5	0.064	547.0	1.67	15.29
52	8.041	0.158	1.07	80	2.05	386.3	0.064	547.0	1.77	15.20
53	8.195	0.154	1.07	80	2.04	385.6	0.065	547.0	1.40	15.11
54	8.350	0.155	1.06	80	2.05	383.9	0.059	547.0	1.16	14.91
55	8.503	0.153	1.06	81	2.05	382	0.064	547.0	0.94	14.62
56	8.657	0.154	1.07	81	2.01	380.1	0.061	547.0	0.79	14.24
57	8.813	0.156	1.06	81	2.04	377.3	0.063	547.0	0.73	13.93
58	8.969	0.156	1.07	81	2.06	374.6	0.061	547.0	0.54	13.77
59	9.123	0.154	1.07	81	2.00	372.5	0.061	547.0	0.48	13.67
60	9.278	0.155	1.07	81	2.04	370.9	0.066	547.0	0.45	13.68
61	9.434	0.156	1.07	81	2.05	370.1	0.065	547.0	0.56	13.72
62	9.588	0.154	1.07	81	2.06	368.6	0.064	547.0	0.58	13.79
63	9.744	0.156	1.07	81	2.04	367.9	0.059	547.0	0.64	13.78
64	9.900	0.156	1.07	81	2.02	366.8	0.064	547.0	0.44	13.81
65	10.056	0.156	1.07	81	2.06	366.3	0.066	547.0	0.55	13.81
66	10.212	0.156	1.06	81	2.07	364.9	0.065	547.0	0.52	13.67
67	10.368	0.156	1.07	81	2.03	363.8	0.067	547.0	0.49	13.58
68	10.522	0.154	1.07	82	2.07	362.9	0.063	547.0	0.47	13.60

Train D - Ambient Background and Flue Gas Data

Run: 4 **Test Date:** 10/2/2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset:
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.000
Sample Box ID: 0

Test Start Time: 10:36
Total Sampling Time 160 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
69	10.675	0.153	1.07	82	2.05	361.4	0.065	547.0	0.41	13.52
70	10.831	0.156	1.07	82	2.06	360.2	0.066	547.0	0.36	13.26
71	10.986	0.155	1.07	82	2.00	358.7	0.066	547.0	0.35	13.27
72	11.140	0.154	1.07	82	2.01	357.8	0.066	547.0	0.47	13.54
73	11.297	0.157	1.07	82	2.06	357.9	0.063	547.0	0.60	13.86
74	11.452	0.155	1.07	82	2.01	357.4	0.067	547.0	0.54	13.67
75	11.606	0.154	1.07	82	2.03	356.6	0.066	547.0	1.00	14.11
76	11.763	0.157	1.07	82	2.03	356.1	0.061	547.0	1.02	13.90
77	11.918	0.155	1.07	82	2.02	354.9	0.065	547.0	0.95	13.94
78	12.075	0.157	1.07	82	2.01	354.4	0.067	547.0	0.95	13.69
79	12.231	0.156	1.07	82	2.06	353.8	0.062	547.0	0.89	13.78
80	12.386	0.155	1.07	82	2.02	353.2	0.068	547.0	0.78	14.11
81	12.542	0.156	1.07	82	2.06	351.5	0.068	547.0	0.61	14.40
82	12.697	0.155	1.07	82	2.02	350.5	0.068	547.0	0.49	14.36
83	12.850	0.153	1.07	82	2.02	348.9	0.065	547.0	0.32	14.27
84	13.005	0.155	1.07	82	2.07	347.2	0.065	547.0	0.16	13.95
85	13.161	0.156	1.07	82	2.07	345.3	0.065	547.0	0.07	13.55
86	13.316	0.155	1.07	82	2.06	343.4	0.064	379.0	0.03	13.17
87	13.471	0.155	1.07	82	2.03	340.7	0.067	220.0	0.02	12.68
88	13.627	0.156	1.07	82	2.00	338.4	0.061	154.0	0.01	12.30
89	13.782	0.155	1.07	82	2.01	336.1	0.061	122.0	0.00	12.05
90	13.937	0.155	1.07	83	2.03	334.1	0.065	102.0	0.00	11.89
91	14.096	0.159	1.07	83	2.07	331.6	0.064	92.0	0.00	11.70
92	14.251	0.155	1.07	83	2.04	329.2	0.063	83.0	0.00	11.51
93	14.407	0.156	1.06	83	2.02	327	0.061	72.0	0.00	11.34
94	14.563	0.156	1.07	83	2.02	324.7	0.062	65.0	0.00	11.32
95	14.717	0.154	1.07	83	2.05	321.7	0.062	64.0	0.00	11.34
96	14.873	0.156	1.06	83	2.05	319.7	0.058	63.0	0.00	11.39
97	15.026	0.153	1.07	83	2.08	317.5	0.066	59.0	0.00	11.44
98	15.181	0.155	1.07	83	2.05	315.7	0.061	57.0	0.00	11.24
99	15.337	0.156	1.07	83	2.08	313.5	0.061	67.0	0.00	11.12
100	15.493	0.156	1.07	83	2.04	311.7	0.064	68.0	0.00	11.05
101	15.648	0.155	1.07	83	2.03	310	0.066	70.0	0.00	10.94
102	15.804	0.156	1.07	83	2.04	308.9	0.059	73.0	0.00	10.81
103	15.960	0.156	1.07	83	2.06	307.7	0.062	75.0	0.00	10.79
104	16.117	0.157	1.07	83	2.02	307.4	0.073	75.0	0.00	10.76

Train D - Ambient Background and Flue Gas Data

Run: 4 **Test Date:** 10/2/2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset:
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.000
Sample Box ID: 0

Test Start Time: 10:36
Total Sampling Time 160 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
105	16.274	0.157	1.07	83	2.00	306.7	0.057	78.0	0.00	10.76
106	16.430	0.156	1.07	83	2.03	306.3	0.058	77.0	0.00	10.74
107	16.584	0.154	1.07	83	2.02	305.3	0.062	80.0	0.00	10.70
108	16.741	0.157	1.07	83	2.07	304.7	0.065	81.0	0.00	10.64
109	16.896	0.155	1.07	83	2.02	304.7	0.059	83.0	0.00	10.60
110	17.051	0.155	1.07	83	2.06	304.4	0.057	85.0	0.01	10.50
111	17.205	0.154	1.07	83	2.06	303.9	0.066	87.0	0.00	10.49
112	17.361	0.156	1.07	83	2.05	303.8	0.059	87.0	0.00	10.44
113	17.516	0.155	1.07	83	2.02	303.4	0.057	87.0	0.01	10.41
114	17.672	0.156	1.07	83	2.03	303.3	0.061	87.0	0.00	10.38
115	17.828	0.156	1.07	83	2.05	303.3	0.063	90.0	0.00	10.37
116	17.983	0.155	1.07	83	2.00	302.5	0.061	95.0	0.00	9.76
117	18.139	0.156	1.07	83	2.08	302.5	0.058	98.0	0.01	9.55
118	18.297	0.158	1.07	83	2.00	302	0.063	100.0	0.01	9.50
119	18.453	0.156	1.07	83	2.03	301.6	0.061	100.0	0.01	9.62
120	18.609	0.156	1.07	83	2.02	301	0.056	102.0	0.01	9.59
121	18.764	0.155	1.07	83	2.07	301.1	0.062	101.0	0.01	9.62
122	18.920	0.156	1.07	83	2.02	300.9	0.063	104.0	0.01	9.67
123	19.077	0.157	1.08	83	2.05	300.6	0.072	104.0	0.01	9.63
124	19.232	0.155	1.07	83	2.00	301	0.047	107.0	0.01	9.54
125	19.385	0.153	1.07	83	2.05	300.5	0.054	110.0	0.01	9.48
126	19.541	0.156	1.07	83	2.01	300.2	0.053	112.0	0.01	9.44
127	19.696	0.155	1.07	83	2.02	300.4	0.045	114.0	0.01	9.43
128	19.852	0.156	1.07	83	2.01	300.5	0.049	119.0	0.01	9.45
129	20.009	0.157	1.07	83	2.01	300.5	0.052	116.0	0.01	9.38
130	20.164	0.155	1.07	83	2.05	300.6	0.048	119.0	0.01	9.39
131	20.323	0.159	1.07	83	2.02	300.5	0.047	121.0	0.01	9.43
132	20.478	0.155	1.07	83	2.05	300.2	0.050	124.0	0.01	9.38
133	20.634	0.156	1.07	83	2.02	300.6	0.050	124.0	0.01	9.37
134	20.790	0.156	1.07	83	2.00	300.7	0.040	125.0	0.01	9.40
135	20.945	0.155	1.07	83	2.02	300.6	0.045	126.0	0.01	9.40
136	21.102	0.157	1.07	83	2.02	301	0.046	125.0	0.00	9.42
137	21.258	0.156	1.07	83	2.02	301.3	0.048	127.0	0.01	9.40
138	21.413	0.155	1.08	83	2.08	300.9	0.050	128.0	0.01	9.47
139	21.567	0.154	1.07	83	2.06	300.5	0.049	129.0	0.01	9.54
140	21.723	0.156	1.07	83	2.09	300.1	0.047	127.0	0.01	9.56

Train D - Ambient Background and Flue Gas Data

Run: 4 **Test Date:** 10/2/2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset:
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.000
Sample Box ID: 0

Test Start Time: 10:36
Total Sampling Time 160 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
141	21.878	0.155	1.07	83	2.07	299.9	0.052	128.0	0.01	9.53
142	22.034	0.156	1.07	83	2.06	299.5	0.048	129.0	0.01	9.42
143	22.190	0.156	1.07	83	2.07	299.4	0.048	128.0	0.01	9.33
144	22.348	0.158	1.07	83	2.03	298.8	0.046	130.0	0.01	9.41
145	22.504	0.156	1.07	83	2.07	298.6	0.050	132.0	0.01	9.47
146	22.660	0.156	1.07	83	2.06	299.1	0.047	133.0	0.01	9.51
147	22.815	0.155	1.07	83	2.06	298.9	0.047	136.0	0.01	9.55
148	22.972	0.157	1.07	83	2.02	299	0.045	136.0	0.01	9.50
149	23.127	0.155	1.07	83	2.07	298.9	0.046	136.0	0.01	9.52
150	23.282	0.155	1.07	83	2.05	298.5	0.041	134.0	0.01	9.46
151	23.439	0.157	1.07	83	2.09	298.4	0.040	131.0	0.01	9.62
152	23.594	0.155	1.07	83	2.06	298.2	0.045	129.0	0.01	9.54
153	23.747	0.153	1.07	83	2.08	298	0.049	132.0	0.01	9.38
154	23.904	0.157	1.07	83	2.09	297.8	0.045	132.0	0.01	9.56
155	24.059	0.155	1.08	83	2.06	297.9	0.043	133.0	0.01	9.46
156	24.215	0.156	1.07	83	2.03	297.4	0.044	136.0	0.01	9.35
157	24.371	0.156	1.07	83	2.08	297.2	0.037	134.0	0.01	9.26
158	24.529	0.158	1.07	83	2.04	296.7	0.042	139.0	0.01	9.21
159	24.685	0.156	1.07	83	2.04	296.7	0.049	141.0	0.01	9.13
160	24.841	0.156	1.07	83	2.06	296.8	0.055	149.0	0.01	8.98

Gravimetric Lab Data

ASTM E2515

Manufacturer:	Valley Comfort
Model:	Sentry 14
Tracking No.:	2509
Project No.:	0142WS024E
Run No.:	4
Test Date:	10/2/25

OMNI Eq. ID Numbers	
Analytical Scale	
Audit Weight Set:	
Analytical Scale	
Hydrometer	
Filters are weighed	In Pairs

Train A

Sample Component	Date / Time in Dessicator	Reagent	Filter, Probe or Dish #	Weights			
				Final, mg	Tare, mg	Particulate, mg	
						Uncorrected	Corrected
FilterPairs		Filter	F593	247.2	244.9	2.3	2.3
			F593a				
Probe catch*		Probe	OES 6	113704.9	113704.8	0.1	0.1
ilter seals catch*		Seals	S984	4083.9	4083.9	0.0	0.0
				Total Particulate, mg:		**2.4**	**2.4**

Train B

Sample Component	Date / Time in Dessicator	Reagent	Filter, Probe or Dish #	Weights			
				Final, mg	Tare, mg	Particulate, mg	
						Uncorrected	Corrected
FilterPairs		Filter	F594	248.3	246.0	2.3	2.3
			F594A				
Probe catch*		Probe	6	115342.8	115342.8	0.0	0.0
ilter seals catch*		Seals	S985	3372.7	3372.7	0.0	0.0
			Sub-Total	Total Particulate, mg:		**2.3**	**2.3**

Train C - *First Hour*

Sample Component	Date / Time in Dessicator	Reagent	Filter, Probe or Dish #	Weights			
				Final, mg	Tare, mg	Particulate, mg	
						Uncorrected	Corrected
FilterPairs		Filter	F595	247.7	246.1	1.6	1.6
			F595A				
Probe catch*		Probe	80	117554.6	117554.6	0.0	0.0
ilter seals catch*		Seals	S986	3375.5	3375.5	0.0	0.0
				Total Particulate, mg:		**1.6**	**1.6**

Train D - *Ambient Background*

Sample Component	Date / Time in Dessicator	Reagent	Filter # or	Weights		
				Final, mg	Tare, mg	Particulate, mg
Filter catch*		Filter	F579	122.7	122.7	0.0
				Total Particulate, mg:		**0.0**

Final (mg) - Tare (mg) = Particulate (mg)

NOTE: The Uncorrected values are those where any negative filter weights are taken as a negative value. This can possibly occur when filter matter adheres the O-ring seals and thereby transfers some mass to the O-ring. The Corrected values reflect where any negative filter weights are taken as ZERO, thus not accounting for any transfer of mass and resultingly over-reporting. Corrected values were added to this analysis to report the "Corrected" results in this report in response to a request by the US EPA. In cases where the Final weight minus the Tare weight of the Ambient filter occurs, it is taken as a ZERO. Any negative probe weights are evaluated pursuant to clause of ASTM E25215 (or appropriatelt associated test standard as defined in the introduction of this report).

Technician Signature:_____ Reviewed By:_____

Run 4 - Run Notes

Manufacturer	Valley Comfort
Model:	Sentry 14
Project Number:	0142WS024E
Run Number:	4
Test Date:	10/2/2025

This supplemental section of miscellaneous run notes is comprised of the following:

- Appliance Operation Notes
- Velocity Traverse / Supplementa Run Notes
- Test Fuel Notes
- Gravimetric Analysis Notes

ASTM E2780 Wood Heater Test Notes

Client: Valley Comfort Project Number: 0142WS024E Run Number:4
Model: Sentry 14 Tracking Number: Date: 10/2/2025
Test Crew:

Test Fuel Properties

Equipment			
Device	**OMNI Number**	**Cal Date**	**Cal Due**
Tape Measure			
Moisture Meter			
Moisture Reference			
Fuel Scale			
Fuel Scale Audit Weight			
Fuel Species / Type	Douglas fir, untreated and air dried, standard grade or better dimensional lumber.		

Calibration Verifications			
Moisture Meter		Fuel Preparation Scale	
12% Reference :	12.0	10.0 lb. Reference Audit :	10.00
22% Reference :	22.0		

Pre-Burn Fuel								
Piece No.	Length, In.	Moisture % db	Piece No.	Length, In.	Moisture % db	Piece No.	Length, In.	Moisture % db
1	10	25.3	7	14.5	25.0	13		
2	10	24.4	8	20	22.3	14		
3	10	24.8	9	20	19.3	15		
4	10	24.6	10	14.5	23.8	16		
5	14.5	25.2	11	14.5	25.1	17		
6	14.5	21.0	12	14.5	18.8	18		
Total Weight, lb.		9.50		Time of Day	0640		Room Temp. °F	65
		9.14			0911			68

Test Fuel Charge					
Piece No.	**Weight, Lb.**	**Moisture Measurements**			**Lumber Type**
1	1.96 1.98	19.0	20.8	19.5	2x4
2	1.96 1.57	19.7	20.9	20.7	
3	1.82 1.48	19.8	20.9	19.8	
4	1.86 1.49	19.7	21.4	19.2	
5	~~1.92~~	~~24.9~~	21.4	19.4	
6	1.90/1.51	19.6			
7					
8					
Spacer Moisture Readings					
9.4	9.1	7.6	9.7	8.7	
9.3	8.7	9.5	9.3	8.7	
8.8	9.0	8.3	8.1	9.2	
8.6	9.0	9.6	9.5	8.1	
Time of Day			Room Temp. °F		
Total weight 2x4 with spacers, lb.		9.55	Total weight 4x4 with spacers, lb.		
			Total weight of fuel charge, Lb.		

Technician Signature: Date: 10-6-2025

Client: Valley Comfort Project Number: 0142WS024E Run Number:4
Model: Sentry 14 Tracking Number: Date: 10/2/2025
Test Crew:

Supplemental Data

Test Booth No. _____ Sampling Start Time:_____ Sampling End Time: _____

Tunnel Cleaned Date _____ % Smoke Capture _____ Induced Draft _____in.H_2O

Systems Leak Checks			
System	**Pre-Test**	**Post-Test**	**Sampling Probe Change-out**
Pitot	2.00 @ 3.00"	0.00 @ 3.00	
Train A	0.002 @ 24.5	0.001 @ 5.71	
Train B	0.003 @ 23.7	0.001 @ 5.89	
Train C	0.004 @ 13.7	0.002 @ 10.77	

Velocity Traverse, 6-inch tunnel			
Location	Microtector (in. H_2O)	Δp (in. H_2O)	Tunnel Temp. , °F
Center	.054	.108	89
1	.030	.060	89
2	.040	.080	89
3	.040	.080	89
4	.032	.064	89
5	.033	.066	89
6	.045	.090	89
7	.042	.084	89
8	.027	.054	89
Tunnel Static (in. H_2O)		Pre-Test	Post-Test
		-0.42	-0.42

Miscellaneous Parameters			
Item	**Initial**	**Final**	**Equipment No.**
Room Air Velocity, ft/min.	22	24	
Scale Audit, lb. (20-80 % of fuel load)	10.0	10.0	
Room Relative Humidity, %	57	57	
Barometric Pressure, in. Hg	30.06	30.06	
Room Temperature, °F	71	72	

Flue Gas Continuous Analyzer						
Analyzer ID		Response Time, sec.		Leak Check Performed?		
Bias Checks	Concentration:		Pre-Test Response		Post-Test Response	
Concentration	Bottle No.	Value, %	Pre-Test Response		Post-Test Response	
			Zero	Span	Zero	Span
CO2 % Span		16.88	0	16.88	0	16.86
CO % Span		4.07	0	4.01	0	4.06
CO ppm Span		500	0	499	2	487
Zero						

Technician Signature: Date: 10-16-2025

OMNI-Test Laboratories, Inc.

ASTM E2780 Wood Heater Test Notes

Client: Valley Comfort Project Number: 0142WS024E Run Number: 4
Model: Sentry 14 Tracking Number: Date: 10/2/2025
Test Crew:

Primary Air Control Settings

30°

Secondary:

Tertiary/Pilot:

Fan: Medium High

Preburn Notes

Time	Notes
0748	At 4.9 lbs air + fan set to test setting
0920	Due to missing coal bed weight, another preburn
0936	was loaded, air setting adjusted to high, fan high. At 6.1 lbs, air + fan setting was turned down to test setting
1036	Preburn stopped

Sampling Portion Notes

Sketch test fuel configuration:

Start up procedures & Timeline:
Bypass: Used
Fuel loaded by: 75
Door closed at: 80
Primary air: 30°

Notes:

Time	Notes
1036	Test start
1136	First hour stopped

Technician Signature: Date: 10-16-2025

ASTM E2780 Wood Heater Test Notes

Client: Valley Comfort Project Number: 0142WS024E Run Number:4
Model: Sentry 14 Tracking Number: Date: 10/2/2025
Test Crew:

Gravimetric Analysis Sheet

Assembled By: RT

Date/Time in Desiccator:

	Weighing's				
	Date/Time: 10-3-25	Date/Time: 10-6-25	Date/Time: 10-7-25	Date/Time:	Date/Time:
	R/H %: 0.1 11.5	R/H %: 0.6 11.0	R/H %: .08 10.8	R/H %:	R/H %:
	Temp: 73.1	Temp: 72.6	Temp: 74.3	Temp:	Temp:
	100 mg Audit 100.0	100 mg Audit 99.9	100 mg Audit 100.0	100 mg Audit	100 mg Audit
	200 mg Audit: 200.0	200 mg Audit: 200.0	200 mg Audit: 200.1	200 mg Audit:	200 mg Audit:
	2 g Audit: 2000.1	2 g Audit: 2000.2	2 g Audit: 2000.1	2 g Audit:	2 g Audit:
	100 g Audit: 99987.7	100 g Audit 99997.2	100 g Audit 99997.6	100 g Audit	100 g Audit
	Initials: RT	Initials: RT	Initials: RT	Initials:	Initials:

Train	Element	ID #	Tare (mg)	√	Weight (mg)	Weight (mg)	Weight (mg)	Weight (mg)	Weight (mg)
A	Filter Pair	F593 F593A	244.9		247.2	246.7	246.7√		
	Probe	OES 6	113704.8		113704.9	113709.8√			
	O-Ring Set	S984	4083.9		4085.0	4083.9√	4083.9√		
B	Front Filter	F594 F594A	246.0		248.3 ~~249~~	248.0	248.2√ ~~247.8√~~		
	Probe	6	115342.8		115342.8	115342.8√			
	O-Ring Set	S985	3372.7		3373.2	3372.7√	3372.7√		
C (1st hr)	Front Filter	F595 F595A	246.1		247.9	247.7√			
	Probe	80	117554.6		117554.6	117554.6√			
	O-Ring Set	S986	3375.5		3375.5	3375.5√			
BG	Filter	F579	122.7		122.7	122.7√			

Technician Signature: Date: 10-16-2025

Equations and Calculations – ASTM E2780 & E2515

Manufacturer	Valley Comfort
Model:	Sentry 14
Project Number:	0142WS024E
Run Number:	4

Sample calculations of each equation used in the refernced standards for this test run.

Summary of INPUT values necessary for calculations

	Global Input Parameters for Equations	Value	Source
FM_S	- Average moisture of test fuel spacers, % dry basis	9.01	Fuel Properties Work Sheet
M_{Swb}	- Weight of Test Fuel Spacers, wet basis, kg	1.91	Fuel Properties Work Sheet
M_{CPnwb}	- Weight of each test fuel piece n in fuel crib, excluding nails and spacers, wet basis , kg	[1]Varies	Fuel Properties Work Sheet
FM_{CPn}	- Average fuel Fuel moisture in fuel crib, % dry basis	[1]Varies	Fuel Properties Work Sheet
V_C	- Volume of Fuel Crib, ft^3 (less spacers)	0.220	Fuel Properties Work Sheet
V_{SCENT}	- Average gas velocity at the center of the dilution tunnel calculated after the Pitot tube traverse, ft/sec	0.00	Traverse Worksheet
V_{STRAV}	- Average gas velocity calculated after the multipoint Pitot traverse	14.72	Traverse Worksheet
θ	- Duration of test, min	160	*Train A Worksheet*
P_{bar}	- Barometric pressure (average) at the testing site, in. Hg	30.06	*Traverse Worksheet*
Pg	- Tunnel Static Pressure	-0.4	*Traverse Worksheet*

[1] *Denotes that this pararmeter for each individual piece of fuel is calculated in the Test Fuel Properties worksheet and the input values are pulled into these sample caculations.*

	Sample Train Input Parameters for Equations	Train A	Train B	Train C	Train D
V_m	- Volume of gas sample measured at the dry gas meter, dcf	26.745	25.383	9.559	24.841
Y	Dry gas meter calibration factor	0.991	1.005	0.981	0.000
ΔH	- Average pressure differential across the orifice meter, in. H_2O	1.20	1.20	1.00	1.06
T_m	- Temperature of Dry Gas Meter, °F	89.4	86.4	76.7	79.0
Uncorrected Sample Mass					
m_p	- mass of particulate matter from probe, mg	0.1	0.0	0.0	n/a
m_f	- mass of particulate matter from filters, mg	2.3	2.3	1.6	0.0
m_g	- mass of particulate matter from filter seals, mg	0.0	0.0	0.0	n/a
Corrected Sample Mass					
m_p	- mass of particulate matter from probe, mg	0.1	0.0	0.0	n/a
m_f	- mass of particulate matter from filters, mg	2.3	2.3	1.6	n/a
m_g	- mass of particulate matter from filter seals, mg	0.0	0.0	0.0	n/a

M_{Sdb} – Weight of test fuel spacers, dry basis, kg - ASTM E2780 equation (1)

$$M_{Sdb} = (M_{Swb})\left(\frac{100}{100 + FM_S}\right)$$

Where,

FM_S = average moisture of test fuel spacers, % dry basis
M_{Swb} = weight of test fuel spacers, wet basis, kg

Sample Calculation:

FM_S = 9.01 %, dry basis
M_{Swb} = 1.91 lb.
0.4536 = Conversion factor, lb. → kg

M_{Sdb} = ((1.91 x 0.4536) (100 / (100 + 9.01))

M_{Sdb} = **0.795** kg

MCdb– Weight of test fuel crib, excluding nails and spacers, dry basis, kg - ASTM E2780 equation (2)

$$M_{Cdb} = \sum (M_{CPnwb})\left(\frac{100}{100 + FM_{CPn}}\right)$$

Where,

M_{CPnwb} = weight of each test fuel piece n in fuel crib, excluding nails and spacers, wet basis, kg
FM_{CPn} = Average fuel moisture of test fuel n in fuel crib, % dry basis

Sample Calculation:

ΣM_{CPnwb} = 7.64 lb.
FM_{CPn} = 20.12 %, dry basis
0.4536 = Conversion factor, lb. → kg

M_{Cdb} = 7.64 x 0.4536 x (100 / (100 + 20.12))

M_{Cdb} = **2.89** kg

DCdb - Density of fuel crib, excluding spacers and nails, dry basis, lbs/ft3 - ASTM E2780 equation (3)

$$D_{Cdb} = M_{Cdb}/V_C$$

Where,

V_C = Volume of Fuel Crib, ft³ (less spacers)

Sample Calculation:

M_{Cdb} = 6.36 lb
V_C = 0.220 ft^3

D_{Cdb} = 6.36 / 0.22

D_{Cdb} = **28.88** lb/ft^3

M_{FTAdb} - Total weight of fuel crib including spacers and nails, dry basis - ASTM E2780 equation (4)

$$M_{FTAdb} = M_{Sdb} + M_{Cdb}$$

Sample Calculation:

M_{Sdb} = 0.795
M_{Cdb} = 2.89

M_{FTAdb} = 0.795 + 2.89

M_{FTAdb} = **3.68** kg

BR – dry burn rate, kg/hr - ASTM E2780 equation (5)

$$BR = \frac{60\ M_{FTAdb}}{\theta}$$

Sample Calculation:

M_{FTAdb} = 3.680
θ = 160

BR = (60 x 3.68) / 160

BR = **1.38** kg / hr

***Vs* – Average gas velocity in the dilution tunnel, ft/sec -** ASTM E2515 equation (9)

$$V_S = F_P \times K_P \times C_P \times \left(\sqrt{\Delta P}\right)_{avg} \times \sqrt{\frac{T_{s(avg)}}{P_s \times M_s}}$$

Where

F_P = Adjustment factor for center of tunnel pitot tube placement, where $F_P = V_{STRAV} / V_{SCENT}$

V_{SCENT} = Dilution tunnel velocity, at the center, ft/sec

V_{STRAV} = Dilution tunnel velocity, multi-point pitot traverse, ft/sec

K_P = Pitot tube constant, 85.49

C_P = Pitot tube coefficient: 0.99, unitless

$\Delta P^{1/2}_{AVG}$ = Velocity pressure in the dilution tunnel, in H_2O

$T_{S\,(avg)}$ = Absolute average gas temperature in the dilution tunnel, °R

P_S = Absolute average gas static pressure in tunnel, = Pbar + Pg , where Pbar = Barometric Pressure, in. Hg, Pg = Static pressure in tunnel, Hg (in H_2O / 13.6)

M_S = The dilution tunnel wet molecular weight; Ms = 28.78 assuming a dry weight of 29 lb/lb-mole

(Duration of Test)

F_P = 0.8150

$\Delta P^{1/2}_{AVG}$ = 0.3344

$T_{S\,(avg)}$ = 546.2161

Pbar = 30.0600

Pg = -0.4000

Ps = 30.0306

V_S = 0.815 x 85.49 x 0.99 x 0.334 x √ [(546 / (30.03 x 28.78)]

V_S = **18.335** ft/sec

(First Hour of Test)

F_P = 0.8150

$\Delta P^{1/2}_{AVG}$ = 0.3346

$T_{S\,(avg)}$ = 549.5705

Pbar = 30.0600

Pg = -0.4000

Ps = 30.0306

V_S = 0.815 x 85.49 x 0.99 x 0.335 x √ [(550 / (30.03 x 28.78)]

V_S = **18.403** ft/sec

Q_{std} – Average gas flow rate in dilution tunnel, dscf/hr - ASTM E2515 equation (3)

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

Where:

3600 = Conversion from seconds to hours (ASTM method uses 60 to convert in minutes)
B_{ws} = Water vapor in gas stream, proportion by volume; assume 2%
A = Cross sectional area of dilution tunnel, ft2
T_{std} = solute temperature, 528 °R
P_s = Absolute average gas static pressure in dilution tunnel, = Pbar + Pg , in Hg
$T_{s(avg)}$ = Absolute average gas temperature in the dilution tunnel, °R; (°R = °F + 460)
P_{std} = Standard absolute pressure, 29.92 in Hg

(Duration of Test):

B_{ws} = 0.02
A = 0.19635
P_s = 30.03
$T_{s(avg)}$ = 546
Vs = 18.33

Qstd = 3600 x (1 - 0.02) x 18.335 x 0.19635 x (528 / 546) x (30.03 / 29.92)

Qstd = **12322.8** dscf/hr

(First Hour):

B_{ws} = 0.02
A = 0.19635
P_s = 30.03
$T_{s(avg)}$ = 550
Vs = 18.403

Qstd = 3600 x (1 - 0.02) x 18.403 x 0.1963 x (528 / 550) x (30.03 / 29.92)

Qstd = **12292.7** dscf/hr

Vm(std) – Volume of Gas Sampled (Corrected), dscf - ASTM E2515 equation (6)

$$V_{m(std)} = K_1 V_m Y \frac{P_{bar} + \left(\frac{\Delta H}{13.6}\right)}{T_m}$$

Where:

K_1	=	17.64 °R/in. Hg
V_m	=	Volume of gas sample measured at the dry gas meter, dcf
Y	=	Dry gas meter calibration factor, dimensionless
P_{bar}	=	Barometric pressure at the testing site, in. Hg
ΔH	=	Average pressure differential across the orifice meter, in. H_2O
T_m	=	Absolute average dry gas meter temperature, °R

Sample Calculation:

Train A

$$V_{m(std)} = 17.64 \times 26.745 \times 0.991 \times \frac{\left(30.06 + \frac{1.20}{13.6}\right)}{(89.4 + 460)}$$

$V_{m(std)}$ = **25.656** dscf

Train B

$$V_{m(std)} = 17.64 \times 25.383 \times 1.005 \times \frac{\left(30.06 + \frac{1.20}{13.6}\right)}{(86 + 460)}$$

$V_{m(std)}$ = **24.830** dscf

Train C (1st Hour)

$$V_{m(std)} = 17.64 \times 9.56 \times 0.981 \times \frac{\left(\underline{30.06} + \frac{1.00}{13.6}\right)}{(76.7 + 460)}$$

$V_{m(std)}$ = **9.288** dscf

Train D (Background)

$$V_{m(std)} = 17.64 \times 24.84 \times 0.000 \times \frac{\left(\underline{30.06} + \frac{1.06}{13.6}\right)}{(79.0 + 460)}$$

$V_{m(std)}$ = **0.000** dscf

mn – Total Particulate Matter Collected, mg - ASTM E2515 Equation (12)

$$m_n = m_p + m_f + m_g$$

Where:

m_p = mass of particulate matter from probe, mg

m_f = mass of particulate matter from filters, mg

m_g = mass of particulate matter from filter seals, mg

Sample Calculations (Uncorrected):

Train A

m_n = 0.1 + 2.3 + 0.0

m_n = **2.4** mg

Train B

m_n = 0.0 + 2.3 + 0.0

m_n = **2.3** mg

Train C (1st hour)

m_n = 0.0 + 1.6 + 0

m_n = **1.6** mg

Train D (Background)

$m_n = m_f$ = 0.0

m_n = **0.0** mg

Sample Calculations (Corrected):

Train A

m_n = 0.1 + 2.3 + 0.0

m_n = **2.4** mg

Train B

m_n = 0.0 + 2.3 + 0.0

m_n = **2.3** mg

Train C (1st hour)

m_n = 0.0 + 1.6 + 0

m_n = **1.6** mg

Train D (Background)

$m_n = m_f$ = 0.0

m_n = **0.0** mg

C_s - Concentration of particulate matter in tunnel gas, dry basis, corrected to standard conditions

g/dscf - ASTM E2515 equation (13)

$$C_s = K_2 \times \frac{m_n}{V_{m(std)}}$$

Where:

K_2 = Constant, 0.001 g/mg

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

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

Sample Calculations (Uncorrected):

Train A

$$C_s = 0.001 \times \frac{2.4}{25.66}$$

C_s = **0.000094** g/dscf

Train B

$$C_s = 0.001 \times \frac{2.3}{24.83}$$

C_s = **0.0000926** g/dscf

Train C (1st Hour)

$$Cs = 0.001 \times \frac{1.6}{9.29}$$

Cs = **0.000172** g/dscf

Train D (Background)

$$C_r = 0.001 \times \frac{0.0}{0.00}$$

C_r = **0.000000** g/dscf

Sample Calculations (Corrected):

Train A

$$C_s = 0.001 \times \frac{2.4}{25.66}$$

C_s = **0.000094** g/dscf

Train B

$$C_s = 0.001 \times \frac{2.3}{24.83}$$

C_s = **0.0000926** g/dscf

Train C (1st Hour)

$$Cs = 0.001 \times \frac{1.6}{9.29}$$

Cs = **0.000172** g/dscf

Train D (Background)

$$C_r = 0.001 \times \frac{0.0}{0.00}$$

C_r = **0.000000** g/dscf

ET – Total Particulate Emissions, g - ASTM E2515 equation (15)

$$E_T = (c_s - c_r) \times Q_{std} \times \theta$$

Where:

C_s	=	Concentration of particulate matter in tunnel gas, g/dscf
C_r	=	Concentration particulate matter room air, g/dscf
Q_{std}	=	Average dilution tunnel gas flow rate, dscf/hr
θ	=	Total time of test run, minutes

Sample calculations (uncorrected)

Train A

E_T = (0.000094 - 0.000000) x 12322.8 x 160 / 60

E_T = **3.07** g

Train B

E_T = (0.000093 - 0.000000) x 12322.8 x 160 / 60

E_T = **3.04** g

First Hour

E_T = (0.000172 - 0.000000) x 12292.7 x 60 / 60

E_T = 2.12 g

Trains A and B Average

E = **3.06** g

Sample calculations (Corrected)

Train A

E_T = (0.000094 - 0.000000) x 12322.8 x 160 / 60

E_T = **3.07** g

Train B

E_T = (0.000093 - 0.000000) x 12322.8 x 160 / 60

E_T = **3.04** g

First Hour

E_T = (0.000172 - 0.000000) x 12292.7 x 60 / 60

E_T = **2.12** g

Trains A and B Average

E_T = **3.06** g

PM_R – Particulate emissions for test run, g/hr - ASTM E2780 equation (6)

$$PM_R = 60(E_T/\theta)$$

Where,

E_T = Total particulate emissions, grams

θ = Total length of full integrated test run, min

Sample Calculation (Uncorrected)

Train A

E_T = 3.07 g

θ = 160 min

PM_R = 60 x (3.07 / 160)

PM_R = **1.15** g/hr

Train B

E_T = 3.04 g

θ = 160 min

PM_R = 60 x (3.04 / 160)

PM_R = **1.14** g/hr

A and B Average

E_T = **1.15** g/hr

First Hour

E_T = 2.12 g

θ = 60 min

PM_R = 60 x (2.12 / 60)

PM_R = **2.12** g/hr

Sample Calculation (Corrected)

Train A

E_T = 3.07 g

θ = 160 min

PM_R = 60 x (3.07 / 160)

PM_R = **1.15** g/hr

Train B

E_T = 3.04 g

θ = 160 min

PM_R = 60 x (3.04 / 160)

PM_R = **1.14** g/hr

A and B Average

E_T = **1.15** g

First Hour

E_T = 2.12 g

θ = 60 min

PM_R = 60 x (2.12 / 60)

PM_R = **2.12** g/hr

PM_F – Particulate emission factor for test run, g/dry kg of fuel burned - ASTM E2780 equation (7)

$$PM_F = E_T / M_{FTAdb}$$

Sample Calculation (Uncorrected)

Train A

E_T = 3.07 g
M_{FTAdb} = 3.68 kg
PM_F = 3.07 / 3.68
PM_F = **0.84** g/kg

Train B

E_T = 3.04 g
M_{FTAdb} = 3.68 kg
PM_F = 3.04 / 3.68
PM_F = **0.83** g/kg

Sample Calculation (Corrected)

Train A

E_T = 3.07 g
M_{FTAdb} = 3.68 kg
PM_F = 3.07 / 3.68
PM_F = **0.84** g/kg

Train B

E_T = 3.04 g
M_{FTAdb} = 3.68 kg
PM_F = 3.04 / 3.68
PM_F = **0.83** g/kg

PR - Proportional Rate Variation - ASTM E2515 equation (16)

$$PR = \left[\frac{\theta \times V_{mi} \times V_s \times T_m \times T_{si}}{\theta_i \times V_m \times V_{si} \times T_{mi} \times T_s}\right] \times 100$$

Where:			Train A	Train B	Train C
θ	=	Total sampling time, min	160	160	60
θ_i	=	Length of recording interval, min	1	1	1
V_{mi}	=	Volume of gas sample measured by the dry gas meter during the “ith” time interval, dcf	0.171	0.161	0.16
V_m	=	Volume of gas sample as measured by dry gas meter, dcf	26.745	25.383	9.559
V_{si}	=	Average gas velocity in the dilution tunnel during the "ith" time interval, ft/sec	18.600	18.600	18.600
V_s	=	Average gas velocity in the dilution tunnel, ft/sec	18.338	18.338	18.410
T_{mi}	=	Absolute average dry gas meter temperature during the "ith" time interval, ^oR	534.5	532.1	533.3
T_m	=	Absolute average dry gas meter temperature, ^oR	549.4	546.4	536.7
T_{si}	=	Absolute average gas temperature in the dilution tunnel during the "ith" time interv	570.9	570.9	570.9
T_s	=	Absolute average gas temperature in the dilution tunnel, ^oR	546.2	546.2	549.6

NOTE: These sample calculations are for the Second interval of each train)

Train A PR = $\left(\frac{160 \text{ x } 0.171 \text{ x } 18.338 \text{ x } 549 \text{ x } 571}{1 \text{ x } 26.745 \text{ x } 18.6 \text{ x } 534 \text{ x } 546}\right)$ X 100 = 108.4 %

Train B PR = $\left(\frac{160 \text{ x } 0.161 \text{ x } 18.338 \text{ x } 546 \text{ x } 571}{1 \text{ x } 25.383 \text{ x } 18.6 \text{ x } 532 \text{ x } 546}\right)$ X 100 = 107.4 %

Train B PR = $\left(\frac{60 \text{ x } 0.16 \text{ x } 18.41 \text{ x } 537 \text{ x } 571}{1 \text{ x } 9.559 \text{ x } 18.6 \text{ x } 533 \text{ x } 550}\right)$ X 100 = 103.9 %

Run 5 Test Data

Test Date: 10/2/2025
Manufacturer: Valley Comfort
Model Sentry 14

Contents, in the following order:

· Emissions Test Results
· CSA B415 Results and Data
· Test Fuel Properties
· Velocity Traverse / Supplemental Data Worksheet
· Test Pre-Burn Data
· Sample Train A / Dilution Tunnel Data
· Sample Train B / Appliance Temperature Data
· Sample Train C (First Hour) Data
· Sample Train D (Background) / Flue Gas Data
· Gravimetric Lab Analysis
· Test Lab Notes
  - Appliance Operation Notes
  - Velocity Traverse / Supplemental Data Notes
  - Test Fuel Notes
  - Gravimetric Analysis Notes
· Equations and Calculations

Wood Heater Test Results

ASTM E2780 / ASTM E2515

Manufacturer: Valley Comfort
Model: Sentry 14
Project No.: 0142WS024E
Tracking No.: 2509
Run: 5
Test Date: 10/02/25

Burn-Rate Result

1.02 kg/hr

Particulate Emissions Results

	Average of Trains A and B		First Hour	
	Uncorrected	*Corrected*	*Uncorrected*	*Corrected*
Total Emissions - E_T, g	3.23	3.23	2.80	2.80
Emission Rate, g/hr	**0.85**	0.85	**2.80**	2.80
Emissions Factor, g/kg	0.84	0.84	n/a	n/a

Dilution Tunnel Flow Parameters

		First Hour	Duration of Test
Average Tunnel Temperature, °F		93.4	89.0
Average Tunnel Gas Velocity (vs), feet/second		18.432	18.381
Average Tunnel Gas Flow Rate(Qsd)	DSCF/hr	12219.0	12285.2
	DSCF/min	203.7	204.8
Average Delta p, in. H2O		0.110	0.110
Tunnel Static Pressure, in. H2O		-0.400	-0.400
Total Time of Test, Min		60	228

Particulate Sample Measurement Parameters

	Uncorrected				*Corrected*			
	AMBIENT	Train A	Train B	First Hour	AMBIENT	Train A	Train B	First Hour
Total Sample Volume (V_m), ft^3	35.603	38.282	36.974	9.469	35.603	38.282	36.974	9.469
Average Gas Meter Temperature, °F	79	94	92	79	79	94	92	79
Total Sample Volume (V_{mstd}), DSCF	33.696	36.368	35.816	9.160	33.696	36.368	35.816	9.160
Total Particulates (mn), mg - m_n	0.0	2.4	2.6	2.1	0.0	2.4	2.6	2.1
Particulate Concentration (C_s - C_r), g/DSCF	0.00000	0.00007	0.00007	0.00023	0.00000	0.00007	0.00007	0.00023
Total Particulate Emissions (ET), grams	n/a	3.08	3.39	2.80	n/a	3.08	3.39	2.80
Particulate Emission Rate, g/hr	n/a	0.81	0.89	2.80	n/a	0.81	0.89	2.80
Emissions Factor, g/kg	n/a	0.80	0.88	n/a	n/a	0.80	0.88	n/a
Difference, ET from from Average ET, grams	n/a	-0.15	0.15	n/a	n/a	-0.15	0.15	n/a

Test Methodology Specifications and Quality Checks

Parameter	*Requirement*	*Measured / Observed*			*Complies?*
		First Hour	*Train 1*	*Train 2*	
Filter Temperature, °F	< 90	77	75	74	✓
Filter Face Velocity, fpm	< 30	8.57	9.27	8.94	✓
Dryer Exit Temperature, °F	< 80	71	60	60	✓
Tunnel Velocity, fpm	>800	1,106	1,103		✓
First Hour Leakage	0.006	0.004			✓
Train A Leakage Rate	0.007		0.002		✓
Train B Leakage Rate	0.006			0.001	✓
Leakage Rate Limits (cfm) are < 4% of average sample rate or < 0.01 cfm, which ever is less					
Negative Probe Weight	=> 0	0	0	0	✓
Pro-Rate Variation	< 90 for < 10% of θ	0.00%	0.44%	0.00%	✓
	> 110 for < 10% of θ	0.00%	0.000%	0.00%	✓
	# Readings < 80%	0	0	0	✓
	# Readings > 120%	0	0	0	✓
Ambient Temp, °F	> 55		70.5		✓
Ambient Temp, °F	< 90		75		✓
Trains A and B Precision	(*A*) < 7.5%		4.76%		✓
Either A or B must conform	(*B*) < 0.5 g/kg		0.08		✓
Stove Surface ΔT	<= 125 °F		59		✓
Room Air Velocity	< 50 fpm		21		✓

CSA B415.1-11 Efficiency Results

Manufacturer	Valley Comfort
Model:	Sentry 14
Project Number:	0142WS024E
Run Number:	5
Test Date:	10/2/2025

Efficiency results reported herein are based on a stack-loss method in accordance with CSA B415.1:22 "Performance testing of solid-biofuel-burning heating appliance". OMNI uses the spreadsheet provided by CSA that is to be used in conjunction with the current version of the test standard. The most recent version of the software is version 2.4, dated April 15, 2010. OMNI received confirmation from CSA on October 18, 2023 that this is the current version of the software.

OMNI Test Laboratories

Manufacturer: Valley Comfort
Model: Sentry 14
Date: 10/02/25
Run: 5
Control #: 2509
Test Duration: 228
Output Category:

Technicians: R Tiegs

Test Results in Accordance with CSA B415.1-10

	HHV Basis	LHV Basis
Overall Efficiency	80.1%	86.5%
Combustion Efficiency	97.8%	97.8%
Heat Transfer Efficiency	82%	88.5%

Output Rate (kJ/h)	16,137	15,307	**(Btu/h)**
Burn Rate (kg/h)	1.02	2.24	**(lb/h)**
Input (kJ/h)	20,154	19,118	**(Btu/h)**

Test Load Weight (dry kg)	3.87	8.52	**dry lb**
MC wet (%)	16.3		
MC dry (%)	19.47		
Particulate (g)	3.23		
CO (g)	127		
Test Duration (h)	3.80		

Emissions	**Particulate**	**CO**
g/MJ Output	0.05	2.06
g/kg Dry Fuel	0.84	32.74
g/h	0.85	33.30
lb/MM Btu Output	0.12	4.80

Air/Fuel Ratio (A/F)	9.37

VERSION: **2.4** **4/15/2010**

VERSION: 2.4 4/15/2010

Manufacturer:	Valley Comfort		**Appliance Type:**	Cat	(Cat, Non
Model:	Sentry 14				
Date:	10/2/2025		**Temp. Units**	F	(F or C)
Run:	5		**Weight Units**	lb	(kg or lb)
Control #:	2509				
Test Duration:	228				
Output Category:			**Fuel Data**		
				D. Fir	
Wood Moisture (% wet):	16.30		**HHV**	19,810	kJ/kg
Load Weight (lb wet):	10.18		**%C**	48.73	
Burn Rate (dry kg/h):	1.02		**%H**	6.87	
Total Particulate Emissions:	3.23 g		**%O**	43.9	
			%Ash	0.5	

Averages	**0.32**	**11.79**	**#DIV/0!**	**265.02**	**72.52**	
				Temp. (ºF)	
Elapsed Time (min)	**Fuel Weight Remaining (lb)**	**Flue Gas Composition (%) CO**	**CO_2**	**O_2**	**Flue Gas**	**Room Temp**
0	10.18	0.00	10.39		210.1	70.9
1	10.15	0.12	7.76		301.1	71.2
2	10.06	0.25	1.46		287.3	71.6
3	9.99	0.23	9.42		267.1	71.4
4	9.93	0.02	10.15		261.9	71.2
5	9.85	0.03	11.10		265.5	71.3
6	9.75	0.08	11.29		272.7	71.6
7	9.67	0.02	10.97		280.7	71.3
8	9.56	0.02	9.98		286.8	71.5
9	9.48	0.02	10.09		292.8	71.6
10	9.43	0.02	10.16		298.0	71.2
11	9.33	0.02	9.99		302.6	71.4
12	9.26	0.02	9.60		305.2	71.4
13	9.18	0.01	9.34		307.6	71.3
14	9.07	0.03	10.29		312.6	71.3
15	8.97	0.02	10.39		317.5	71.4
16	8.87	0.04	11.67		323.8	71.5
17	8.77	0.03	10.39		326.9	71.4
18	8.67	0.02	10.12		329.3	71.9
19	8.56	0.03	9.83		331.1	71.4
20	8.49	0.04	9.76		333.6	71.3
21	8.40	0.04	10.57		336.1	71.5

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
22	8.29	0.05	11.38		339.2	71.5
23	8.18	0.05	11.41		342.7	71.3
24	8.07	0.06	11.45		345.8	71.3
25	7.97	0.17	11.80		348.7	71.4
26	7.86	0.08	11.54		350.7	71.6
27	7.76	0.06	10.51		351.6	71.8
28	7.68	0.05	10.09		352.2	71.8
29	7.59	0.04	10.35		353.1	72.0
30	7.48	0.07	11.43		354.1	72.3
31	7.37	0.21	12.71		355.0	71.8
32	7.28	0.23	13.00		355.6	71.9
33	7.18	0.16	12.61		355.8	72.1
34	7.09	0.14	12.33		356.3	71.8
35	6.99	0.14	12.31		356.4	72.0
36	6.88	0.13	12.32		356.4	71.9
37	6.81	0.12	12.51		356.9	72.2
38	6.72	0.15	12.52		356.8	72.1
39	6.62	0.12	12.71		356.5	71.8
40	6.54	0.15	12.74		356.6	72.1
41	6.45	0.21	13.02		356.4	72.0
42	6.36	0.19	13.18		356.2	72.3
43	6.27	0.17	13.23		355.9	72.3
44	6.18	0.14	13.08		355.1	72.1
45	6.07	0.15	12.91		354.4	72.2
46	5.98	0.11	12.96		354.0	72.3
47	5.90	0.15	13.42		353.1	71.6
48	5.81	0.12	13.19		352.6	71.6
49	5.74	0.139	13.295		351	71.6
50	5.66	0.174	13.429		349.8	71.7
51	5.57	0.222	13.461		348.5	71.7
52	5.47	0.234	13.35		346.6	71.8
53	5.39	0.194	13.541		344.4	71.6
54	5.33	0.266	13.423		342.7	71.8
55	5.25	0.398	13.724		341	71.5
56	5.17	0.451	13.795		340	72.2
57	5.07	0.619	13.991		338.8	72.2
58	4.99	0.729	13.938		337.9	71.6
59	4.91	0.862	14.15		337.1	71.6
60	4.85	0.944	14.082		335.4	71.9

Run 5 B415

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
61	4.77	0.918	14.111		333.7	72.2
62	4.67	1.073	13.95		331.8	72
63	4.59	1	14.073		330	72
64	4.52	1.027	14.143		328.4	71.8
65	4.46	0.907	14.409		326.7	72.1
66	4.36	1.455	14.563		325.5	71.7
67	4.28	1.787	14.563		324.6	71.8
68	4.17	1.696	14.58		323.2	72
69	4.09	1.391	14.56		321.4	72
70	4.04	1.31	14.402		318.8	71.8
71	3.97	1.253	14.283		316.7	71.9
72	3.88	0.984	14.375		314.9	72.4
73	3.81	1.049	14.017		311.7	71.9
74	3.74	1.143	13.999		308.4	71.8
75	3.67	1.025	14.156		306.2	71.9
76	3.61	1.109	14.103		302.7	71.5
77	3.57	0.803	13.91		299.4	71.5
78	3.47	1.088	13.912		295.9	72.4
79	3.44	1.145	13.843		292.8	72.6
80	3.37	1.199	13.905		289.1	73.1
81	3.29	1.168	13.927		286.3	72.9
82	3.25	1.124	13.956		283.7	72.4
83	3.19	0.986	13.729		280.9	72.9
84	3.15	0.948	13.924		277.5	73.4
85	3.09	1.064	13.822		274.5	72.9
86	3.04	1.195	13.825		272	73.2
87	2.97	1.089	13.99		270	73.1
88	2.90	1.15	13.996		267.9	73.3
89	2.87	1.132	13.779		265.5	73.8
90	2.84	1.051	13.599		262.2	74
91	2.78	1.021	13.279		257.3	73.9
92	2.75	0.976	12.974		252.9	73.5
93	2.70	0.871	12.872		249.6	74.4
94	2.68	0.863	12.826		245.8	73.4
95	2.66	1.184	12.528		240.3	74.2
96	2.59	1.364	12.505		235.7	74.5
97	2.58	1.574	12.361		231.5	73.9
98	2.55	1.588	12.384		227.7	74.3
99	2.50	1.766	12.108		223.9	74.4

Run 5 B415

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
100	2.49	1.991	11.954		220.3	73.7
101	2.46	2.188	11.64		216.6	73.7
102	2.41	2.222	11.675		213	73.2
103	2.38	2.118	11.497		209.4	73.7
104	2.38	1.841	11.635		206	73.1
105	2.35	1.598	11.608		203	73
106	2.30	1.314	11.607		199.6	72.8
107	2.29	1.19	11.786		196.8	72.9
108	2.28	0.929	11.888		194.2	72.5
109	2.28	0.722	11.939		191.1	72.9
110	2.25	0.626	11.846		188.6	73
111	2.25	0.437	11.859		186	73.2
112	2.21	0.31	11.783		183.5	72.9
113	2.21	0.131	12.01		181.3	73
114	2.20	0.091	11.791		179.9	72.9
115	2.18	0.027	11.68		177.9	73.5
116	2.17	0.04	11.575		176.4	73.1
117	2.19	0.03	11.513		174.6	73
118	2.18	0.011	11.355		173.3	73.5
119	2.17	0.008	11.337		172.1	73.2
120	2.16	0.004	11.328		170.6	73.7
121	2.15	0.003	11.263		169.3	73.2
122	2.14	0.003	11.141		167.8	73.8
123	2.11	0.019	11.018		166.3	73.5
124	2.10	0.002	11.322		165.3	74.1
125	2.09	0.002	11.187		164.3	73.8
126	2.07	-0.001	11.226		163.3	73.6
127	2.07	0.003	11.143		162.4	72.8
128	2.08	-0.009	11.267		161.3	72.3
129	2.08	0.006	11.241		160.5	72.2
130	2.08	0.01	11.324		160.1	72.1
131	2.07	0.003	11.345		159.9	71.7
132	2.07	0	11.324		160	71.9
133	2.05	0.006	11.333		160.8	71.9
134	2.01	0.003	11.366		161.6	71.5
135	2.00	-0.008	11.426		163	72.2
136	2.00	-0.004	11.571		165.3	71.6
137	1.98	0.003	11.587		167.6	71.6
138	1.98	-0.004	11.671		170.6	71.4

Run 5 B415

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
139	1.97	-0.001	11.583		174.8	71.3
140	1.95	0.006	11.576		178.8	71.4
141	1.91	-0.002	11.592		183.3	71.8
142	1.89	0.001	11.719		188.5	71.6
143	1.88	-0.004	11.733		193.6	71.6
144	1.86	0.003	11.689		199	71.4
145	1.84	0.008	11.621		203.6	71.1
146	1.81	-0.015	11.669		208.3	71.9
147	1.78	0.002	11.782		213.2	72.5
148	1.78	-0.002	11.831		217.3	72.8
149	1.76	-0.001	11.942		221.6	72.8
150	1.70	0.001	12.003		226.2	72.8
151	1.68	0.003	11.89		229.3	73.2
152	1.67	0.003	11.961		233.5	73.1
153	1.65	-0.003	11.991		236.9	73.4
154	1.59	0	12.177		240.2	73.3
155	1.58	-0.002	12.193		242.8	73.7
156	1.55	-0.002	12.3		245.1	73.7
157	1.51	-0.001	12.323		246.8	74
158	1.48	0.001	12.349		249.7	74
159	1.47	0.001	12.416		252.3	74.1
160	1.41	0.002	12.429		253.4	73.3
161	1.39	-0.002	12.547		255.1	74.3
162	1.37	0	12.588		256.4	74
163	1.35	0	12.222		257.6	74.1
164	1.30	-0.002	12.117		258.8	74.4
165	1.28	-0.003	12.009		259.6	74.1
166	1.26	0	12.006		260.2	74.8
167	1.21	-0.001	11.996		260.7	74.2
168	1.19	-0.001	11.978		261.6	74.1
169	1.18	0	11.963		262.1	74.1
170	1.17	-0.002	11.878		262.3	74.4
171	1.10	-0.002	11.903		262.6	75
172	1.09	0.007	11.895		263.3	74.6
173	1.08	-0.001	11.792		263.5	74.3
174	1.07	-0.003	11.756		263.7	74.6
175	1.05	-0.003	11.625		263.6	73.6
176	1.00	0.001	11.443		263.6	72.5
177	0.98	0	11.404		263.1	72.4

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
178	0.97	-0.001	11.415		263.1	72.1
179	0.95	-0.003	11.389		263	71.7
180	0.90	-0.002	11.341		262.5	71.4
181	0.90	-0.005	11.317		261.8	71.3
182	0.88	-0.002	11.252		260.6	71.3
183	0.87	-0.006	11.222		260.1	71.1
184	0.85	-0.003	11.208		259.6	71.5
185	0.82	-0.004	11.126		258.8	71.1
186	0.79	-0.002	11.132		258.7	71.1
187	0.79	0.001	11.202		258.1	70.6
188	0.77	0.001	10.959		257.9	71.7
189	0.77	0.001	10.941		257.8	72.3
190	0.71	-0.001	10.972		257.3	72.6
191	0.69	0	10.849		257	72.7
192	0.68	-0.005	10.746		256.5	73.8
193	0.68	-0.002	10.781		256.7	73.7
194	0.66	-0.002	10.776		256.6	73.7
195	0.64	-0.002	10.735		257.1	73.9
196	0.60	-0.001	10.642		257	74.2
197	0.59	-0.004	10.622		256.8	73.8
198	0.59	0	10.555		256.6	74
199	0.58	-0.001	10.447		256.6	73.9
200	0.56	-0.002	10.433		256.1	73.8
201	0.53	0	10.433		255.7	73.4
202	0.51	-0.001	10.368		255.8	73.7
203	0.48	0.001	10.224		255	73.5
204	0.48	0.006	10.207		254.6	74
205	0.47	-0.002	10.251		254.1	73.1
206	0.46	-0.001	10.25		254	71.6
207	0.41	-0.001	10.225		254.1	71.7
208	0.40	-0.001	10.546		253.2	71.1
209	0.37	-0.001	10.517		253.3	71
210	0.40	-0.002	10.486		252.9	70.7
211	0.37	-0.006	10.452		252.8	70.7
212	0.34	-0.002	10.412		252.4	70.9
213	0.31	0.002	10.389		252.7	70.9
214	0.30	0.001	10.266		252.8	70.5
215	0.27	-0.011	10.285		252.2	71.2
216	0.28	-0.001	10.268		252.6	71.6

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
217	0.27	0.001	10.191		252.6	72.1
218	0.25	-0.007	10.275		252.8	72.7
219	0.21	-0.002	10.329		252.9	73
220	0.19	0	10.392		253	72.8
221	0.18	-0.008	10.385		253.3	72.5
222	0.18	0.005	10.326		253.2	73.6
223	0.18	0.001	10.5		253.1	73.8
224	0.15	-0.003	10.531		253.4	73.5
225	0.12	-0.007	9.989		253.3	73.3
226	0.10	-0.002	9.8		252.8	73.5
227	0.10	-0.001	9.868		252.9	73.5
228	-0.01	-0.001	9.848		253.3	73.7

Run 5 B415

Test Fuel Properties

ASTM E2780

Manufacturer : Valley Comfort
Model : Sentry 14
Tracking No. : 2509
Project No. : 0142WS024E
Test Date : 10/2/2025
Run No. : 5

Moisture Meter Cal	
Cal Block	Measured
12.0	12.0
22.0	22.0

Firebox Volume : **1.460** ft^3
% 2 x 4 Required : 100 %
Ideal Fuel Weight : 10.22 lb.
Minimum Fuel Weight : 9.20 lb.
Maximum Fuel Weight : 11.24 lb.

Fuel Piece Data

PC #	Weight, lb	Size	Length, In	Moisture Readings, Dry Basis %			Average MC, % db	Dry Weight, lb.	Volume, ft3	Wet Weights, lb 4 x 4	Wet Weights, lb 2 x 4	Dry Weights, lb 4 x 4	Dry Weights, lb 2 x 4
1	1.60	2x4	14.50	23.2	23.8	24.4	23.8	1.29	0.0441		1.6		1.29
2	1.70	2x4	14.50	24.6	23.8	22.3	23.6	1.38	0.0441		1.7		1.38
3	1.52	2x4	14.50	20.5	20.0	19.7	20.1	1.27	0.0441		1.5		1.27
4	1.73	2x4	14.50	20.9	21.2	21.7	21.3	1.43	0.0441		1.7		1.43
5	1.72	2x4	14.50	19.9	22.0	23.1	21.7	1.41	0.0441		1.7		1.41
6													
7													
8													
9													

Spacer Data

Moisture Readings, Dry Basis % (One reading per spacer)								
9.0	10.0	9.4	8.8	10.0				
9.2	8.6	9.8	8.7	8.4				
9.3	9.1	9.2	10.0	9.8				
9.6	10.2	9.2	10.1	9.6				

Avg : 9.4

Assembled Crib Fuel Load with Spacers Attatched

PC #	Weight, lb with Spacers	Size	4 x 4s	2 x 4s
1	1.98	2x4		1.9800
2	2.09	2x4		2.0900
3	1.91	2x4		1.9100
4	2.10	2x4		2.1000
5	2.10	2x4		2.1000
6				
7				
8				
9				

Combined Mass of 4 x 4s 0.0 lb
Combined Mass of 2 x 4s 10.2 lb

Total Wet Mass of Fuel Load **10.18** lb

Fuel Load Properties

Type	Number of Pieces	Wet Weight, lb.	Dry Weight, lb.	Fuel Loading Density, lb/ft^3 Wet Basis	Fuel Loading Density, lb/ft^3 Dry Basis	Dry Fuel Density, lb/ft^3	Wet Fuel Density, lb/ft^3	Moisture, % Dry Basis	Moisture, % Wet Basis
2 x 4	5	8.3	6.77	6.97	5.84	30.76	37.54	19.48	16.30
4 x 4	0	0.0	0.00						
Spacers	20	1.9	1.75						
Totals		10.2	8.52						

Compliance Checks

	Fuel Load, Wet Lb.	Load Density, lb/ft^3 of FB vol	Fuel Density, lb/ft^3	% of Fuel load mass which is 2x4	Fuel Load Peices Mositure, % db
Measured	10.2	6.97	30.76	100	22.1
Required	9.2 - 11.2	6.3 - 7.7	25 - 36	100	19 -25
Complies ?	Yes	Yes	Yes	Yes	Yes

Dilution Tunnel Velocity Traverse and Supplementary Data

ASTM E2515-11

Run:	5	Tracking No.:	2509
Manufacturer:	Valley Comfort	Project No.:	0142WS024E
Model:	Sentry 14	Test Date:	10/2/2025

Dillution Tunnel Velocity Traverse

Traverse Point	Pitot Location % of Diameter	Inches into Tunnel	dP in. H_2O	Tunnel Temp, °F	$dP^{1/2}$
X1	6.7	0.5*	0.062	90	0.249
X2	25.0	1.50	0.082	90	0.286
X3	75.0	4.50	0.090	90	0.300
X4	93.3	5.5*	0.060	90	0.245
Y1	6.7	0.5*	0.064	90	0.253
Y2	25.0	1.50	0.084	90	0.290
Y3	75.0	4.50	0.082	90	0.286
Y4	93.3	0.5*	0.062	90	0.249
Center	50.0	3.00	0.108	90	0.329

Tunnel Static Pressure	-0.400	in. H_2O
Tunnel Moisture	2.00	%
Tunnel Diameter	6.00	inches
Pitot Tube C_p	0.99	inches
Tunnel Molecular Weight	29	(dry)
Tunnel Molecular Weight	28.78	(M_S, wet)
Tunnel Area	0.19634954	ft^2
K_p	85.49	constant
$P_s=P_{bar}$+Tunnel Static	30.0105882	in HG

** Probe location must be no closer than 0.50" from tunnel wall*

$$V_{strav} = K_p C_p \sqrt{\Delta p}_{avg} \sqrt{\frac{T_{s,avg}}{P_s M_s}} = 18.2224$$

$$V_{scent} = K_p C_p \sqrt{\Delta p}_{center} \sqrt{\frac{T_{s,center}}{P_s M_s}} = 22.1953$$

$$F_P = V_{strav} / V_{scent} = 0.821$$

$$Initial\ Tunnel\ Velocity, V_s = F_P K_p C_p \sqrt{\Delta p}_{avg} \sqrt{\frac{T_{s,avg}}{P_s M_s}} = 14.961\ ft/sec$$

Supplementary Data and Information

Environment

	Test Start	Test End
Time of Day	16:10	19:58
Barometric Pressure, in. Hg	30.04	30.05
Room Air Velocity, fpm	21	20
Room Air Temperature, °F	72	73
Room Relative Humidity, %	56.0	54.0
Platform Scale Audit, lb.	10.0	10.0

Leak Checks

Pitot and associated tubing, (pass/fail)[1]	pass	pass

See sampling box worksheets for sampling boxes

Dillution Tunnel

Date last cleaned	9/29/2025	
Smoke Capture, % (visual)[2]	100	
Draft Inducement, (pass/fail)[3]	pass	
Static Pressure, in. H_2O	-0.400	-0.400

1 Both sides (independantly) of the pitot system are brought under a minimum vacuum of 3 in. H_2O and then sealed. Any indiction of pressure loss is deemed a fail.

2 Create a smoking condition during start of pre-burn activites and using adequate lighting pointed upward and aroud tunnel hood, visually observe if 100% of visible smoke is being captured by the hood. If not, increase flow tunnel flow and / or re-assess chimney proximity to draft hood as required and repeat until 100% capture is observed.

3 With the appliance installed and the dillution tunnel flow turned-off, observe the flue draft gauge while turning the dulution tunnel on. Any detectible response by the draft gauge associated with activation of the tunnel flow indicates that draft inducemnt is occuring. Determine the cause (i.e. flue chimnet too deep into tunnel?) before continuing.

Preburn Data

ASTM E2780

Run: 5

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E
Test Date: 10/2/25
Beginning Clock Time: 13:19

Coal Bed Range (lb):	2.0 (min)	2.5 (max)

Preburn Fuel Data

3	pieces @	14.5	inches
4	pieces @	10	inches
	pieces @		inches

Fuel Moisture Readings (% DB):

19.4	24.7					
19.7	21.1					
25.3						
24.4						
25.5						

Avg Preburn Moisture (% DB): **22.87**

			Temperatures (°F)								
Elapsed Time (min)	Scale (lb)	Stack Draft (in H_2O)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Cat Exit	Avg. FB	Stack	Ambient
0	7.2	0.062	404.6	420.8	335.9	398.9	380.5	815.2	388	318.1	70.9
1	2.24	0.072	415.5	421.2	338.7	397.2	379.8	612.7	390	413	71.6
2	1.98	0.058	403.4	421.7	339.3	396.4	379.3	657.2	388	366.9	71.5
3	1.98	0.055	396.6	422.1	340.3	396.2	379.1	717.7	387	350.7	70.8
4	1.96	0.065	390.2	422.6	339.2	395.7	379	757.7	385	346.1	71.2
5	1.92	0.063	385.3	423	337.1	395.2	378.9	777.6	384	345	71
6	1.89	0.064	380.9	423.4	334.3	394.3	378.5	785.1	382	345.1	71.3
7	1.88	0.058	377.6	423.7	331.6	392.9	378.2	787.2	381	346.1	71.6
8	1.87	0.06	374.7	424.1	328.6	391.9	378	788.4	379	346.7	71.3
9	1.84	0.059	372.8	424.4	325.1	390.8	377.7	787.4	378	347.2	71.4
10	1.81	0.057	370.4	424.6	322.3	389.5	377.7	784.2	377	347.6	71.7
11	1.8	0.057	368.8	424.8	319.2	388.3	377.7	779.3	376	347.7	71.5
12	1.78	0.053	367	425.1	316.2	386.9	377.6	774.6	375	347.3	71.8
13	1.77	0.05	365	425.4	313.3	385.6	377.6	772.4	373	348.3	71.2
14	1.77	0.06	363.7	425.8	311	384.6	377.6	771.4	373	347.9	71.1
15	1.73	0.058	362	426.2	308.2	383.4	377.8	772	372	349	71.8
16	1.69	0.058	360.2	426.7	305.6	382.3	377.7	770.3	371	350	71.6
17	1.68	0.058	359	427.2	301.6	381.3	377.7	769.5	369	350.8	71.5
18	1.68	0.059	358.1	427.8	298.5	380.4	377.7	771.5	369	351.8	71.2
19	1.65	0.057	357.4	428.3	295.6	379	377.4	776.1	368	353.5	71.1
20	1.65	0.06	357.1	429	294.9	378	376.6	773.9	367	355.1	71.1
21	1.3	0.056	356.4	429.8	293.4	376.7	376	770.9	366	351.9	71.6
22	1.28	0.054	356.4	430.5	292.6	376.1	376.2	769.3	366	345.6	72.2
23	1.28	0.055	355.7	431.4	291.5	375.1	376.4	769.5	366	343.6	71.7
24	1.25	0.056	355.4	432.2	290.2	373.9	376.2	765.5	366	342.3	71
25	1.21	0.052	354.5	433.1	289.3	372.9	376.1	754.2	365	341.1	71.5
26	1.19	0.054	353.4	434	288.4	372.2	376.2	745.4	365	339.6	71.3
27	1.18	0.056	352.2	434.9	287.7	371.5	376	741.2	364	338.8	71.6
28	1.18	0.056	350.9	436	286.8	370.6	376.3	738.1	364	337.8	72.1
29	1.15	0.053	349.2	437	286.4	369.8	375.9	735.9	364	336.9	71.3
30	1.11	0.059	348.5	438.1	285.3	369.4	374.7	733.9	363	336.8	71.1
31	1.61	0.059	347.3	439.2	284.6	368.7	374.8	730.7	363	342	71.7
32	1.35	0.057	345.9	440.4	284.3	368.2	375	727.6	363	344.6	71.7
33	1.36	0.069	345	441.5	284	367.6	374.8	715.2	363	353.7	71.6
34	1.22	0.054	343.6	442.7	284.5	367.5	374.6	606.9	363	375.2	71.6
35	1.19	0.058	340.9	443.8	282.1	366.6	373.4	647.2	361	354	71.7
36	1.19	0.058	338.3	444.9	281.7	365.8	372.8	683.7	361	347.4	71.7
37	1.17	0.057	336	446	281.3	364.9	372.7	701.9	360	345.7	72.2
38	1.13	0.055	334.6	446.9	279.8	364	371.8	708.1	359	345.1	72.3
39	1.11	0.072	333.2	447.7	279.8	363.5	371.9	711.2	359	344.8	72.4
40	1.09	0.055	332.3	448.4	279.7	362.9	371.9	713.8	359	344.4	72.5
41	1.09	0.059	331.7	448.8	279.3	361.9	371.7	714.9	359	344.3	72.5
42	1.08	0.06	331.1	449.2	278.9	361.6	371.5	714.5	358	344.4	72.5

			Temperatures (°F)								
Elapsed Time (min)	Scale (lb)	Stack Draft (in H_2O)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Cat Exit	Avg. FB	Stack	Ambient
43	1.06	0.058	330.5	449.4	278.6	361.4	371.3	713.1	358	344.3	72.4
44	1.04	0.06	329.9	449.6	278.2	361	371	710.1	358	343.7	72.5
45	1.02	0.059	329.3	449.7	277.8	360.6	370.6	708.5	358	343.3	72.2
46	0.98	0.057	328.8	449.7	277	360.2	370.1	709.5	357	343.4	72
47	0.98	0.061	328.5	449.7	276.7	359.8	368.8	710.5	357	343.7	72.1
48	0.97	0.057	328.1	449.8	276.7	359.7	368.5	709.8	357	343.4	72.4
49	0.95	0.055	327.7	449.8	276.2	359.6	368.1	709	356	343.6	72.1
50	0.92	0.06	326.8	449.9	276	359.7	367.7	707.3	356	343.4	72
51	0.88	0.055	326.5	449.9	275.3	359.3	367.2	705	356	342.5	72
52	0.89	0.06	326	450.1	275	359.4	366.6	701.6	355	341.8	71.8
53	0.88	0.062	325.3	450.3	275	359.3	364.5	699.8	355	341.2	72.1
54	0.87	0.062	324.9	450.4	275.1	359.3	363.6	698.8	355	340.8	71.7
55	0.85	0.067	324.1	450.6	274.4	359.3	363.5	696.5	354	339.8	71.7
56	0.81	0.065	323.4	450.7	274.7	359.1	363.3	694.1	354	338.4	71.8
57	0.79	0.059	322.4	451	274.3	359.1	363	692.2	354	336.9	72.1
58	6.88	0.076	321.4	451.3	277.5	359	362.2	515.1	354	375.5	71.9
59	10.67	0.053	317.6	451.7	277.5	358.7	360.3	444.5	353	350	71.8
60	10.64	0.056	311.8	452.3	275.6	358.3	358.2	494.6	351	324.8	71.8
61	10.57	0.047	306.6	453	273.5	357.6	356.9	534.6	350	315.8	72
62	10.56	0.053	301.2	453.6	270.4	356.6	355.1	561	347	313.7	71.8
63	10.48	0.053	297.3	454.2	267.5	355.1	353	581.6	345	314.2	72.1
64	10.43	0.055	294.3	454.5	264.5	353.4	350.5	602.4	343	316.2	72.5
65	10.33	0.055	292.4	454.8	263.1	351.6	348	643.7	342	321	72.4
66	10.18	0.059	292.7	454.7	263	349.5	345.2	746.8	341	334.7	72
67	10.07	0.062	296.3	454.5	263.4	348	342.2	832.4	341	350.9	72.1
68	9.9	0.064	303.2	454	264	346.8	339	908.5	341	370.4	72.3
69	9.75	0.066	314.3	453.4	265.3	345.6	336	1004.6	343	391.3	72.3
70	9.57	0.065	329.3	452.5	266.6	345	333.1	1086.4	345	409.4	72.1
71	9.42	0.073	347.8	451.6	268.4	345	330.3	1122.9	349	424.8	72.1
72	9.27	0.071	366.2	450.5	271	345.4	327.5	1140.3	352	436	72.4
73	9.01	0.075	384.3	449.4	273.5	346.6	325	1163.9	356	450.3	72.5
74	8.77	0.078	404.2	448.3	276.6	348.7	322.6	1157	360	460.5	72.3
75	8.47	0.077	422	447.3	281.1	351.4	320.5	1146.9	364	467.3	72.5
76	8.18	0.079	437.7	446.5	286.5	354.8	319	1141.2	369	472.5	72.5
77	7.88	0.08	450.4	445.5	292.7	358.3	316.6	1135.9	373	477.1	72.8
78	7.6	0.081	460.3	444.7	299.6	362.6	315.8	1135.8	377	479.5	72.6
79	7.35	0.082	469.9	443.9	307	367.4	315	1135.8	381	481.7	73.1
80	7.06	0.077	477.7	443.2	314.6	372.5	314.4	1133.2	384	483.5	73.2
81	6.77	0.078	485	442.6	322.5	377.8	314.1	1127.2	388	485.1	73.2
82	6.5	0.079	491.2	442.2	330.3	383.7	315.1	1116.2	393	486	73.4
83	6.25	0.079	512.5	441.8	336.3	389.5	315.8	1102.2	399	484.7	72.8
84	5.99	0.079	529.8	441.6	342.7	395.3	317.5	1089	405	482.2	72.2
85	5.77	0.079	544.3	441.7	353.4	401.8	319.2	1075.5	412	460.2	73
86	5.58	0.076	555.2	441.9	364.6	408.7	321.8	1089.6	418	444.7	72.2
87	5.43	0.068	566.1	442.2	374.9	415.4	324.7	1095.2	425	433.9	72.1
88	5.26	0.073	575.6	442.7	385.3	421.7	327.6	1086.9	431	424.5	73.5
89	5.08	0.073	584	443.4	394.3	427.7	330.9	1080.8	436	416.2	73.1
90	4.93	0.066	590.9	444.3	404.3	432.9	334.1	1071.5	441	408.4	72.6
91	4.77	0.07	597.2	445.3	412.9	437.8	337.4	1055.8	446	401	72.2
92	4.58	0.071	601.8	446.5	421.9	442.2	340.8	1034.2	451	394	72.6
93	4.44	0.072	605.5	447.7	427.3	445.8	344.1	1015.7	454	386.5	72.8
94	4.29	0.067	607.3	449.1	431	449.1	347.5	1007	457	378.7	72.5
95	4.17	0.068	608.3	450.5	434.7	451.6	350.5	1010.3	459	369.7	72.4
96	4.08	0.067	608.7	451.6	438	453.8	353.4	1001.2	461	361.2	72
97	3.97	0.065	608.1	452.8	440.4	455.4	356.1	987.5	463	352.1	71.8
98	3.88	0.062	607.5	454	443.3	456.8	358.9	976	464	343	72
99	3.79	0.056	606.3	455.2	447.8	458.1	361.3	969.5	466	333.2	71.3
100	3.71	0.056	605.4	456.4	451.3	459	363.9	969.8	467	323.5	71.7
101	3.64	0.055	605.2	457.5	452.9	459.7	366.2	971.6	468	313.1	72.7
102	3.58	0.051	604.9	458.6	453.5	460.1	368.3	967.1	469	301.7	72.3
103	3.5	0.049	604.8	459.5	454.1	460	370.3	955.1	470	288.2	71.6

			Temperatures (°F)								
Elapsed Time (min)	Scale (lb)	Stack Draft (in H_2O)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Cat Exit	Avg. FB	Stack	Ambient
104	3.48	0.045	603.9	460.4	454.7	459.8	372.2	938	470	273.5	71.7
105	3.45	0.046	602.5	461.1	454.2	459.1	373.8	920.6	470	259.4	71.2
106	3.39	0.046	599.7	461.7	453.2	458.3	375.1	907.7	470	247.2	71.3
107	3.37	0.046	596.5	461.9	451.8	457.5	376.5	899.2	469	237.5	71.3
108	3.34	0.043	592.6	461.9	449.8	456.1	377.3	893.6	468	229.1	71.6
109	3.29	0.043	588.4	461.7	448	454.7	378	888.8	466	222.1	72
110	3.27	0.042	583.5	461.2	446.3	453	378.4	884.2	464	215.9	71.4
111	3.25	0.04	579.9	460.6	444.5	451.1	378.6	879	463	210	71.4
112	3.19	0.036	575.3	459.7	442.5	449.2	378.6	873.8	461	204.8	71.8
113	3.19	0.035	571.1	458.7	440.6	447.3	378.6	868.5	459	200.2	71.2
114	3.16	0.036	567	457.6	438.6	445.3	378.4	862.7	457	195.9	71
115	3.14	0.038	562.3	456.5	436.8	443.3	378.1	856.6	455	192	71
116	3.1	0.033	558	455.1	435.2	441.1	377.7	850.9	453	188.5	71.1
117	3.07	0.03	553.7	453.8	433.1	439	377.3	845.8	451	185.1	71.5
118	3.07	0.034	550.3	452.4	431.4	436.6	376.7	841.2	449	181.9	71
119	3.06	0.032	546.1	451	429.7	434.4	376	837.3	447	179.1	71.6
120	3.02	0.034	542.1	449.6	427.9	432.3	375.3	833.5	445	176.6	72
121	2.98	0.03	538.8	448.1	426.1	429.8	374.6	829.9	443	174.2	71.4
122	2.97	0.028	535.1	446.7	424.5	427.5	373.8	825.6	442	171.7	71
123	2.97	0.03	531.6	445.3	422.8	425.2	373.1	820.6	440	169.3	71
124	2.96	0.029	528.7	443.8	421	422.8	372.3	815.8	438	166.7	71
125	2.94	0.028	524.6	442.4	419.2	420.4	371.4	811.8	436	164.4	71
126	2.9	0.029	522.1	440.9	417.4	417.9	370.5	808.5	434	162.2	71.2
127	2.89	0.026	518.5	439.5	415.6	415.6	369.5	805.4	432	160.3	71.1
128	2.88	0.028	515.9	438	413.6	413.1	368.6	802.9	430	158.3	71
129	2.88	0.025	513	436.5	411.7	410.7	367.6	800.8	428	156.8	71.1
130	2.88	0.023	510	435.1	409.7	408.1	366.5	799.8	426	155.2	71.1
131	2.87	0.021	507.4	433.6	407.6	405.6	365.6	799.7	424	153.6	71.1
132	2.85	0.025	504.8	432.2	405.4	403.3	364.5	800	422	152.2	71.1
133	2.86	0.027	502.6	430.8	403.5	400.8	363.3	801.6	420	150.7	70.8
134	2.86	0.021	500.1	429.3	401.6	398.3	362.2	807.9	418	149	70.8
135	2.82	0.019	497	427.8	399.6	395.9	361	826.7	416	147.1	71
136	2.84	0.019	494.7	426.3	397.5	393.5	359.9	856.2	414	145.4	70.9
137	2.82	0.022	492.5	424.9	395.4	391	358.7	858.6	413	143.9	70.5
138	2.82	0.022	490.6	423.4	393.4	388.4	357.6	837.6	411	142.3	70.6
139	2.81	0.021	488.9	421.9	391.2	385.9	356.3	812.5	409	141.1	70.3
140	2.79	0.022	487.1	420.4	389	383.5	355.1	789.6	407	139.7	70.7
141	2.8	0.022	484.7	419	386.8	381.2	353.8	770.6	405	138.7	70.8
142	2.79	0.021	481.9	417.5	384.8	378.9	352.6	754.4	403	138	70.7
143	2.78	0.016	479.1	416	382.8	376.5	351.3	740	401	137.1	70.8
144	2.78	0.02	475.2	414.6	380.6	374.3	349.7	727.3	399	136.1	70.9
145	2.8	0.02	471.6	413.2	378.5	372.1	348.6	715.7	397	134.8	70.5
146	2.78	0.021	467	411.7	376.4	369.8	347.1	705.1	394	134.1	70.8
147	2.79	0.015	463.4	410.4	374.4	367.6	345.9	695.7	392	133.1	70.5
148	2.79	0.018	458.7	409	372.3	365.5	344.6	687.6	390	132.6	70.9
149	2.78	0.021	454.4	407.6	370.2	363.2	343.2	680.2	388	131.8	70.6
150	2.78	0.018	450.4	406.2	368.2	361	341.8	673.8	386	131.4	70.3
151	2.77	0.02	446.1	404.9	366	358.8	340.5	668.2	383	131.2	70.5
152	2.79	0.021	441.9	403.6	363.8	356.7	339.1	663.7	381	131.2	70.6
153	2.77	0.018	438	402.2	361.7	354.4	337.7	660.3	379	131.3	70.3
154	2.78	0.022	434	400.8	359.5	352.3	336.3	657.7	377	131.5	70.3
155	2.77	0.023	430.6	399.5	357.3	350.1	335	656.6	375	131.4	70.2
156	2.77	0.015	427.5	398.1	354.9	348.2	333.7	657	372	132.3	70.4
157	2.75	0.021	424.4	396.9	352.4	346.4	332.4	660.3	371	134.3	70.6
158	2.74	0.021	422.3	395.6	350.1	344.5	331.2	666.6	369	136.6	70.6
159	2.74	0.023	420	394.3	347.5	342.8	329.9	676.9	367	140.1	70.9
160	2.7	0.021	419.1	393.1	345.1	341	328.8	692.3	365	144.8	70.7
161	2.7	0.023	418.9	391.9	342.4	339.3	327.7	709.6	364	150	70.7
162	2.67	0.028	418.5	390.8	340	337.6	326.6	721.8	363	155	70.8
163	2.68	0.03	418.8	389.7	338.3	336.1	325.5	727.9	362	160.4	70.8
164	2.66	0.03	419.7	388.6	336.6	334.6	324.6	732.1	361	166.8	71

			Temperatures (°F)								
Elapsed Time (min)	Scale (lb)	Stack Draft (in H_2O)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Cat Exit	Avg. FB	Stack	Ambient
165	2.64	0.033	421.1	387.7	334.4	333.3	323.8	735	360	173.6	70.9
166	2.6	0.031	422.3	387	333.3	332.2	323.3	738	360	180.5	70.9
167	2.57	0.036	423.7	386.2	332.3	331	322.6	741.1	359	186.8	70.9
168	2.58	0.038	425.3	385.7	332.1	330	322.2	743.9	359	192.8	70.8
169	2.55	0.04	427.1	385.3	331.5	329.1	322	745.9	359	198.8	71
170	2.51	0.039	429.3	385	330.6	328.5	321.8	747.1	359	203.8	70.9
171	2.48	0.036	431.7	385	330.6	328	321.9	749.5	359	209.3	70.9

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 5
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 16:10
Test Length: 228 min
Recording Interval: 1 min

Test Date: 10/2/25

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.002 cfm @ 23.71 in. Hg
Post-Test 0.002 cfm @ 7.13 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ("H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ("H_2O)*	$\sqrt{dP}$	*vs*
Tot / Avg		10.2	**38.282**	**0.168**	**1.21**	**94.5**	**2.15**	**74.79**	**60.40**	**72.52**	**100.0**	**89.0**	**0.110**	**0.332**	**18.38**
Minimum	0.0	-6.2	0.000	0.145	-0.02	78	0.04	71	52	71	90.0	83	0.107	0.327	18.19
Max	10.5	5.9	38.282	0.173	1.24	102	2.32	76	63	75	106.8	116	0.112	0.335	18.63
0	10.2		0.000		-0.02	78	0.04	70.7	59.7	71		83	0.110	0.332	18.63
1	4.3	5.9	0.145	0.145	1.23	78	2.24	71.6	54.1	71	90.0	116	0.107	0.327	18.42
2	10.5	-6.2	0.314	0.169	1.22	78	2.23	72.6	52.8	72	106.8	103	0.110	0.332	18.58
3	10.0	0.5	0.481	0.167	1.22	78	2.23	72.6	52.2	71	102.9	91	0.111	0.333	18.54
4	9.9	0.1	0.647	0.166	1.22	78	2.23	72.5	51.9	71	101.5	89	0.110	0.332	18.43
5	9.9	0.1	0.815	0.168	1.22	78	2.18	72.6	51.9	71	102.7	89	0.112	0.335	18.45
6	9.8	0.1	0.982	0.167	1.22	78	2.22	72.6	51.8	72	101.9	89	0.111	0.333	18.49
7	9.7	0.1	1.148	0.166	1.22	78	2.24	72.7	51.9	71	101.2	89	0.112	0.335	18.49
8	9.6	0.1	1.314	0.166	1.21	79	2.17	72.9	51.9	72	101.2	89	0.111	0.333	18.49
9	9.5	0.1	1.481	0.167	1.22	78	2.15	73	52.2	72	101.9	89	0.111	0.333	18.46
10	9.4	0.1	1.646	0.165	1.22	78	2.26	73.1	52.3	71	101.0	89	0.110	0.332	18.42
11	9.3	0.1	1.811	0.165	1.21	78	2.27	73.2	52.4	71	101.1	90	0.111	0.333	18.42
12	9.3	0.1	1.978	0.167	1.20	79	2.11	73.3	52.5	71	102.1	90	0.112	0.335	18.51
13	9.2	0.1	2.143	0.165	1.21	79	2.14	73.4	52.7	71	100.7	90	0.110	0.332	18.47
14	9.1	0.1	2.308	0.165	1.19	79	2.29	73.5	52.9	71	101.0	91	0.111	0.333	18.44
15	9.0	0.1	2.474	0.166	1.20	79	2.25	73.6	53.1	71	101.7	91	0.110	0.332	18.44
16	8.9	0.1	2.638	0.164	1.19	79	2.11	73.7	53.3	72	100.7	91	0.109	0.330	18.36
17	8.8	0.1	2.804	0.166	1.19	80	2.10	73.8	53.6	71	102.1	91	0.110	0.332	18.37
18	8.7	0.1	2.969	0.165	1.20	80	2.27	73.9	53.8	72	101.3	91	0.110	0.332	18.41
19	8.6	0.1	3.132	0.163	1.20	80	2.29	74	54	71	100.0	92	0.110	0.332	18.42
20	8.5	0.1	3.298	0.166	1.18	80	2.10	74.1	54.3	71	101.7	92	0.111	0.333	18.46
21	8.4	0.1	3.462	0.164	1.18	80	2.25	74.2	54.5	72	100.4	93	0.110	0.332	18.47
22	8.3	0.1	3.627	0.165	1.18	81	2.05	74.3	54.6	72	101.2	93	0.109	0.330	18.40
23	8.2	0.1	3.792	0.165	1.19	81	2.11	74.4	54.9	71	101.7	93	0.108	0.329	18.32
24	8.1	0.1	3.956	0.164	1.17	81	2.26	74.4	55.1	71	101.0	93	0.111	0.333	18.40
25	8.0	0.1	4.121	0.165	1.19	81	2.05	74.5	55.3	71	101.1	93	0.110	0.332	18.49
26	7.9	0.1	4.285	0.164	1.19	82	2.13	74.6	55.5	72	100.3	94	0.111	0.333	18.49
27	7.8	0.1	4.449	0.164	1.18	82	2.26	74.7	55.7	72	100.3	94	0.110	0.332	18.50
28	7.7	0.1	4.615	0.166	1.18	82	2.22	74.8	55.9	72	101.5	94	0.110	0.332	18.46
29	7.6	0.1	4.778	0.163	1.19	83	2.30	74.8	56.2	72	99.9	94	0.109	0.330	18.41
30	7.5	0.1	4.944	0.166	1.19	83	2.04	74.9	56.3	72	101.9	94	0.109	0.330	18.37
31	7.4	0.1	5.108	0.164	1.18	83	2.11	75	56.5	72	100.8	95	0.109	0.330	18.38
32	7.3	0.1	5.271	0.163	1.18	83	2.29	75	56.7	72	100.1	94	0.109	0.330	18.38
33	7.2	0.1	5.437	0.166	1.18	83	2.21	75.1	56.9	72	101.9	95	0.109	0.330	18.38
34	7.1	0.1	5.600	0.163	1.20	84	2.03	75.1	57.1	72	100.2	94	0.108	0.329	18.34
35	7.0	0.1	5.766	0.166	1.19	84	2.06	75.2	57.3	72	101.8	94	0.111	0.333	18.42
36	6.9	0.1	5.930	0.164	1.20	84	2.02	75.3	57.4	72	100.2	95	0.109	0.330	18.46
37	6.8	0.1	6.094	0.164	1.18	84	2.17	75.4	57.6	72	100.4	95	0.108	0.329	18.34
38	6.7	0.1	6.260	0.166	1.19	85	2.02	75.3	57.8	72	101.8	95	0.110	0.332	18.38
39	6.6	0.1	6.424	0.164	1.18	85	2.03	75.4	57.9	72	100.3	95	0.109	0.330	18.43
40	6.5	0.1	6.588	0.164	1.17	85	2.05	75.4	58.1	72	100.1	95	0.110	0.332	18.43

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 5
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 16:10
Test Length: 228 min
Recording Interval: 1 min

Test Date: 10/2/25

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.002 cfm @ 23.71 in. Hg
Post-Test 0.002 cfm @ 7.13 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ("H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ("H_2O)*	$\sqrt{dP}$	*vs*
41	6.5	0.1	6.753	0.165	1.16	86	2.27	75.4	58.2	72	100.5	94	0.110	0.332	18.47
42	6.4	0.1	6.917	0.164	1.18	86	2.20	75.5	58.4	72	100.0	95	0.108	0.329	18.38
43	6.3	0.1	7.083	0.166	1.19	87	2.27	75.5	58.5	72	101.6	95	0.109	0.330	18.34
44	6.2	0.1	7.247	0.164	1.17	86	2.25	75.5	58.7	72	100.2	95	0.110	0.332	18.43
45	6.1	0.1	7.410	0.163	1.22	87	2.28	75.5	58.8	72	99.3	95	0.109	0.330	18.43
46	6.0	0.1	7.579	0.169	1.22	87	2.32	75.6	58.9	72	103.1	95	0.108	0.329	18.35
47	5.9	0.1	7.745	0.166	1.21	87	2.18	75.7	59	72	101.5	95	0.109	0.330	18.35
48	5.8	0.1	7.911	0.166	1.20	88	2.07	75.7	59.2	72	101.2	95	0.110	0.332	18.43
49	5.7	0.1	8.079	0.168	1.21	88	2.12	75.8	59.3	72	102.1	95	0.109	0.330	18.43
50	5.7	0.1	8.246	0.167	1.21	88	2.03	75.8	59.4	72	101.4	95	0.110	0.332	18.43
51	5.6	0.1	8.413	0.167	1.20	89	2.04	75.8	59.5	72	101.2	95	0.111	0.333	18.51
52	5.5	0.1	8.579	0.166	1.21	89	2.14	75.8	59.6	72	100.3	95	0.110	0.332	18.51
53	5.4	0.1	8.747	0.168	1.21	89	2.04	75.9	59.7	72	101.6	95	0.110	0.332	18.47
54	5.3	0.1	8.914	0.167	1.21	89	2.09	75.8	59.8	72	101.0	94	0.110	0.332	18.47
55	5.3	0.1	9.081	0.167	1.22	90	2.24	75.8	59.9	72	101.0	94	0.109	0.330	18.42
56	5.2	0.1	9.249	0.168	1.22	90	2.22	75.8	60	72	101.9	94	0.108	0.329	18.33
57	5.1	0.1	9.416	0.167	1.21	90	2.30	75.8	60.1	72	101.4	94	0.110	0.332	18.37
58	5.0	0.1	9.583	0.167	1.21	90	2.04	75.8	60.2	72	101.0	94	0.110	0.332	18.46
59	4.9	0.1	9.749	0.166	1.21	91	2.18	75.8	60.3	72	100.1	94	0.110	0.332	18.45
60	4.9	0.1	9.918	0.169	1.22	91	2.28	75.8	60.4	72	101.7	94	0.111	0.333	18.49
61	4.8	0.1	10.085	0.167	1.21	91	2.07	75.8	60.5	72	100.4	93	0.110	0.332	18.49
62	4.7	0.1	10.252	0.167	1.20	91	2.17	75.7	60.5	72	100.6	94	0.109	0.330	18.40
63	4.6	0.1	10.420	0.168	1.21	91	2.01	75.7	60.6	72	101.5	94	0.109	0.330	18.36
64	4.5	0.1	10.588	0.168	1.21	92	2.20	75.7	60.6	72	101.6	94	0.109	0.330	18.37
65	4.5	0.1	10.755	0.167	1.21	92	2.25	75.6	60.7	72	101.0	94	0.108	0.329	18.33
66	4.4	0.1	10.922	0.167	1.22	92	2.03	75.7	60.8	72	101.1	93	0.109	0.330	18.32
67	4.3	0.1	11.090	0.168	1.22	92	2.31	75.7	60.9	72	101.5	94	0.109	0.330	18.36
68	4.2	0.1	11.258	0.168	1.20	92	2.11	75.6	60.9	72	101.3	93	0.110	0.332	18.40
69	4.1	0.1	11.425	0.167	1.22	93	2.30	75.6	61	72	100.5	93	0.109	0.330	18.40
70	4.0	0.0	11.591	0.166	1.21	93	2.24	75.6	61.1	72	99.9	93	0.110	0.332	18.40
71	4.0	0.1	11.761	0.170	1.22	93	2.08	75.6	61.1	72	102.2	93	0.110	0.332	18.44
72	3.9	0.1	11.928	0.167	1.21	93	2.29	75.6	61.1	72	100.5	93	0.108	0.329	18.36
73	3.8	0.1	12.095	0.167	1.20	93	2.27	75.6	61.2	72	100.6	93	0.110	0.332	18.36
74	3.7	0.1	12.262	0.167	1.20	94	2.09	75.6	61.2	72	100.3	93	0.110	0.332	18.44
75	3.7	0.1	12.431	0.169	1.20	94	2.17	75.6	61.2	72	101.3	92	0.109	0.330	18.39
76	3.6	0.1	12.599	0.168	1.21	94	2.24	75.5	61.3	72	100.7	92	0.110	0.332	18.38
77	3.6	0.0	12.766	0.167	1.22	94	2.02	75.5	61.2	72	100.1	92	0.109	0.330	18.37
78	3.5	0.1	12.933	0.167	1.21	94	2.03	75.5	61.3	72	100.3	91	0.108	0.329	18.29
79	3.4	0.0	13.102	0.169	1.20	95	2.02	75.4	61.4	73	101.6	91	0.109	0.330	18.28
80	3.4	0.1	13.270	0.168	1.20	94	2.01	75.5	61.4	73	100.9	92	0.110	0.332	18.37
81	3.3	0.1	13.437	0.167	1.20	94	2.01	75.5	61.4	73	99.9	91	0.110	0.332	18.41
82	3.3	0.0	13.605	0.168	1.22	94	2.21	75.5	61.4	72	100.4	91	0.109	0.330	18.37
83	3.2	0.1	13.774	0.169	1.20	94	2.06	75.5	61.5	73	101.3	91	0.109	0.330	18.32
84	3.2	0.0	13.941	0.167	1.22	95	2.19	75.6	61.5	73	100.0	90	0.110	0.332	18.36

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 5
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 16:10
Test Length: 228 min
Recording Interval: 1 min

Test Date: 10/2/25

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.002 cfm @ 23.71 in. Hg
Post-Test 0.002 cfm @ 7.13 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ("H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ("H_2O)*	$\sqrt{dP}$	*vs*
85	3.1	0.1	14.108	0.167	1.22	95	2.20	75.5	61.5	73	99.8	90	0.109	0.330	18.35
86	3.0	0.0	14.276	0.168	1.21	95	2.05	75.6	61.6	73	100.4	90	0.110	0.332	18.35
87	3.0	0.1	14.445	0.169	1.21	95	2.21	75.6	61.6	73	101.0	91	0.109	0.330	18.35
88	2.9	0.1	14.613	0.168	1.20	96	2.26	75.6	61.7	73	100.3	91	0.110	0.332	18.36
89	2.9	0.0	14.780	0.167	1.23	95	2.17	75.6	61.7	74	99.7	90	0.109	0.330	18.36
90	2.8	0.0	14.948	0.168	1.21	96	2.00	75.6	61.7	74	100.4	90	0.109	0.330	18.31
91	2.8	0.1	15.117	0.169	1.20	96	2.16	75.5	61.6	74	100.8	90	0.111	0.333	18.39
92	2.8	0.0	15.285	0.168	1.21	96	2.26	75.6	61.7	74	99.8	90	0.110	0.332	18.43
93	2.7	0.0	15.452	0.167	1.23	96	2.21	75.5	61.7	74	99.1	89	0.111	0.333	18.42
94	2.7	0.0	15.620	0.168	1.21	96	2.18	75.5	61.6	73	99.6	89	0.110	0.332	18.42
95	2.7	0.0	15.789	0.169	1.22	96	2.23	75.5	61.7	74	100.3	89	0.110	0.332	18.37
96	2.6	0.1	15.957	0.168	1.22	96	2.07	75.4	61.7	75	99.9	89	0.109	0.330	18.33
97	2.6	0.0	16.125	0.168	1.20	97	2.21	75.4	61.7	74	99.9	88	0.110	0.332	18.32
98	2.6	0.0	16.293	0.168	1.20	97	2.29	75.3	61.7	74	99.7	88	0.110	0.332	18.36
99	2.5	0.0	16.463	0.170	1.21	97	2.10	75.3	61.7	74	100.9	88	0.109	0.330	18.32
100	2.5	0.0	16.631	0.168	1.21	97	2.22	75.2	61.7	74	99.9	88	0.109	0.330	18.27
101	2.5	0.0	16.799	0.168	1.20	97	2.29	75.2	61.7	74	99.9	87	0.110	0.332	18.30
102	2.4	0.0	16.967	0.168	1.22	97	2.29	75.2	61.7	73	99.5	87	0.111	0.333	18.38
103	2.4	0.0	17.136	0.169	1.22	97	2.28	75.2	61.7	74	99.7	87	0.111	0.333	18.43
104	2.4	0.0	17.305	0.169	1.21	98	2.16	75.2	61.7	73	99.6	87	0.111	0.333	18.42
105	2.4	0.0	17.473	0.168	1.22	97	2.26	75.2	61.7	73	98.9	87	0.112	0.335	18.46
106	2.3	0.1	17.641	0.168	1.21	98	2.30	75.2	61.7	73	98.7	87	0.111	0.333	18.46
107	2.3	0.0	17.810	0.169	1.22	98	2.27	75.2	61.7	73	99.6	87	0.109	0.330	18.34
108	2.3	0.0	17.979	0.169	1.21	98	2.30	75.2	61.7	73	99.9	87	0.111	0.333	18.34
109	2.3	0.0	18.147	0.168	1.21	98	2.04	75.2	61.7	73	99.1	87	0.110	0.332	18.37
110	2.3	0.0	18.316	0.169	1.22	98	2.28	75.1	61.7	73	99.9	86	0.108	0.329	18.24
111	2.3	0.0	18.483	0.167	1.21	98	2.10	75.1	61.7	73	99.2	86	0.109	0.330	18.19
112	2.2	0.0	18.654	0.171	1.21	98	2.22	75	61.7	73	101.5	85	0.109	0.330	18.23
113	2.2	0.0	18.822	0.168	1.21	98	2.25	75	61.8	73	99.6	85	0.109	0.330	18.23
114	2.2	0.0	18.991	0.169	1.21	98	2.11	75	61.7	73	100.1	86	0.110	0.332	18.27
115	2.2	0.0	19.159	0.168	1.21	98	2.28	75	61.7	74	99.2	85	0.111	0.333	18.35
116	2.2	0.0	19.328	0.169	1.22	98	2.12	75	61.7	73	99.4	85	0.111	0.333	18.39
117	2.2	0.0	19.497	0.169	1.22	98	2.11	75	61.7	73	99.3	85	0.110	0.332	18.35
118	2.2	0.0	19.666	0.169	1.21	98	2.25	75	61.7	74	99.7	85	0.109	0.330	18.27
119	2.2	0.0	19.835	0.169	1.21	98	2.25	75	61.7	73	99.9	85	0.110	0.332	18.27
120	2.2	0.0	20.003	0.168	1.21	99	2.19	74.9	61.7	74	99.2	85	0.110	0.332	18.31
121	2.2	0.0	20.172	0.169	1.21	99	2.16	74.9	61.7	73	99.5	85	0.111	0.333	18.35
122	2.1	0.0	20.342	0.170	1.23	99	2.27	74.9	61.7	74	99.8	85	0.111	0.333	18.39
123	2.1	0.0	20.510	0.168	1.21	99	2.25	74.9	61.7	74	98.6	85	0.110	0.332	18.34
124	2.1	0.0	20.679	0.169	1.21	99	2.12	74.8	61.6	74	99.5	85	0.110	0.332	18.30
125	2.1	0.0	20.847	0.168	1.22	99	2.05	74.8	61.7	74	99.0	85	0.110	0.332	18.30
126	2.1	0.0	21.017	0.170	1.24	99	2.19	74.8	61.6	74	100.1	85	0.110	0.332	18.30
127	2.1	0.0	21.186	0.169	1.20	99	2.24	74.8	61.6	73	99.4	84	0.111	0.333	18.34
128	2.1	0.0	21.355	0.169	1.21	99	2.00	74.8	61.7	72	99.1	84	0.111	0.333	18.37

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 5
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 16:10
Test Length: 228 min
Recording Interval: 1 min

Test Date: 10/2/25

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.002 cfm @ 23.71 in. Hg
Post-Test 0.002 cfm @ 7.13 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ("H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ("H_2O)*	$\sqrt{dP}$	*vs*
129	2.1	0.0	21.523	0.168	1.22	100	2.16	74.8	61.7	72	98.4	84	0.110	0.332	18.33
130	2.1	0.0	21.692	0.169	1.21	99	2.22	74.7	61.6	72	99.2	84	0.111	0.333	18.33
131	2.1	0.0	21.862	0.170	1.22	100	2.29	74.7	61.6	72	99.7	84	0.111	0.333	18.38
132	2.1	0.0	22.031	0.169	1.21	100	2.05	74.7	61.6	72	99.0	84	0.110	0.332	18.33
133	2.1	0.0	22.200	0.169	1.21	99	2.29	74.6	61.6	72	99.1	84	0.111	0.333	18.33
134	2.0	0.0	22.369	0.169	1.21	100	2.29	74.6	61.6	72	99.0	84	0.111	0.333	18.37
135	2.0	0.0	22.537	0.168	1.22	100	2.22	74.6	61.6	72	98.2	84	0.111	0.333	18.36
136	2.0	0.0	22.710	0.173	1.22	100	2.08	74.5	61.6	72	101.3	84	0.110	0.332	18.32
137	2.0	0.0	22.880	0.170	1.22	99	2.26	74.5	61.6	72	99.5	83	0.112	0.335	18.36
138	2.0	0.0	23.046	0.166	1.22	100	2.17	74.4	61.6	71	97.1	84	0.110	0.332	18.36
139	2.0	0.0	23.214	0.168	1.22	100	2.14	74.4	61.6	71	98.5	84	0.110	0.332	18.28
140	2.0	0.0	23.383	0.169	1.23	100	2.29	74.4	61.6	71	99.2	84	0.111	0.333	18.32
141	1.9	0.0	23.553	0.170	1.23	100	2.26	74.4	61.6	72	99.5	84	0.111	0.333	18.37
142	1.9	0.0	23.723	0.170	1.21	100	2.26	74.4	61.7	72	99.5	84	0.111	0.333	18.37
143	1.9	0.0	23.892	0.169	1.22	100	2.09	74.4	61.6	72	98.9	84	0.111	0.333	18.37
144	1.9	0.0	24.060	0.168	1.21	100	2.10	74.3	61.6	71	98.4	84	0.110	0.332	18.33
145	1.8	0.0	24.229	0.169	1.21	100	2.16	74.3	61.6	71	99.1	84	0.111	0.333	18.34
146	1.8	0.0	24.400	0.171	1.22	100	2.10	74.3	61.6	72	100.4	85	0.109	0.330	18.30
147	1.8	0.0	24.569	0.169	1.23	100	2.25	74.3	61.6	73	99.6	85	0.109	0.330	18.21
148	1.8	0.0	24.738	0.169	1.23	100	2.06	74.3	61.6	73	99.8	85	0.109	0.330	18.22
149	1.8	0.0	24.909	0.171	1.20	100	2.23	74.3	61.6	73	100.9	86	0.110	0.332	18.27
150	1.7	0.1	25.078	0.169	1.22	100	2.28	74.3	61.6	73	99.6	86	0.109	0.330	18.27
151	1.7	0.0	25.248	0.170	1.22	100	2.15	74.3	61.6	73	100.2	86	0.110	0.332	18.27
152	1.7	0.0	25.415	0.167	1.22	100	2.18	74.3	61.6	73	98.3	86	0.111	0.333	18.36
153	1.7	0.0	25.583	0.168	1.22	100	2.16	74.3	61.6	73	98.6	86	0.110	0.332	18.36
154	1.6	0.1	25.752	0.169	1.24	100	2.28	74.4	61.6	73	99.3	86	0.111	0.333	18.36
155	1.6	0.0	25.921	0.169	1.22	100	2.12	74.4	61.6	74	99.3	86	0.110	0.332	18.37
156	1.6	0.0	26.091	0.170	1.22	100	2.24	74.4	61.6	74	100.1	86	0.109	0.330	18.29
157	1.5	0.0	26.260	0.169	1.23	100	2.15	74.4	61.6	74	99.6	86	0.111	0.333	18.33
158	1.5	0.0	26.429	0.169	1.21	100	2.09	74.4	61.7	74	99.4	86	0.110	0.332	18.37
159	1.5	0.0	26.597	0.168	1.21	100	2.26	74.4	61.7	74	98.8	86	0.109	0.330	18.28
160	1.4	0.1	26.766	0.169	1.22	100	2.02	74.5	61.7	73	99.7	87	0.110	0.332	18.28
161	1.4	0.0	26.936	0.170	1.22	100	2.06	74.5	61.8	74	100.2	87	0.110	0.332	18.33
162	1.4	0.0	27.106	0.170	1.22	100	2.07	74.5	61.8	74	100.1	87	0.110	0.332	18.34
163	1.4	0.0	27.277	0.171	1.21	100	2.25	74.5	61.8	74	100.7	87	0.110	0.332	18.34
164	1.3	0.1	27.446	0.169	1.22	100	2.01	74.5	61.8	74	99.6	87	0.109	0.330	18.29
165	1.3	0.0	27.612	0.166	1.22	100	2.13	74.5	61.8	74	98.0	87	0.110	0.332	18.29
166	1.3	0.0	27.782	0.170	1.21	100	2.02	74.6	61.8	75	100.1	87	0.111	0.333	18.38
167	1.2	0.1	27.951	0.169	1.22	100	2.25	74.5	61.8	74	99.3	87	0.110	0.332	18.38
168	1.2	0.0	28.120	0.169	1.20	100	2.15	74.6	61.9	74	99.5	87	0.109	0.330	18.29
169	1.2	0.0	28.288	0.168	1.21	100	2.13	74.5	61.9	74	99.1	87	0.111	0.333	18.34
170	1.2	0.0	28.458	0.170	1.20	101	2.26	74.6	61.9	74	100.1	87	0.109	0.330	18.34
171	1.1	0.1	28.628	0.170	1.21	101	2.00	74.6	61.9	75	100.1	87	0.110	0.332	18.30
172	1.1	0.0	28.796	0.168	1.21	100	2.23	74.6	61.9	75	99.0	87	0.110	0.332	18.33

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 5
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 16:10
Test Length: 228 min
Recording Interval: 1 min

Test Date: 10/2/25

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.002 cfm @ 23.71 in. Hg
Post-Test 0.002 cfm @ 7.13 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ("H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ("H_2O)*	$\sqrt{dP}$	*vs*
173	1.1	0.0	28.965	0.169	1.22	101	2.29	74.7	62	74	99.5	87	0.110	0.332	18.33
174	1.1	0.0	29.133	0.168	1.21	101	2.25	74.7	62	75	99.0	87	0.109	0.330	18.30
175	1.1	0.0	29.303	0.170	1.19	101	2.15	74.7	62	74	100.3	87	0.110	0.332	18.30
176	1.0	0.1	29.476	0.173	1.21	101	2.04	74.9	62.1	73	101.8	87	0.111	0.333	18.38
177	1.0	0.0	29.645	0.169	1.22	101	2.28	75	62.2	72	99.1	87	0.111	0.333	18.43
178	1.0	0.0	29.814	0.169	1.21	101	2.05	75	62.2	72	99.0	87	0.111	0.333	18.43
179	1.0	0.0	29.982	0.168	1.21	101	2.13	75	62.2	72	98.5	87	0.110	0.332	18.39
180	0.9	0.0	30.149	0.167	1.22	101	2.24	74.9	62.2	71	98.1	88	0.111	0.333	18.39
181	0.9	0.0	30.319	0.170	1.20	101	2.02	74.9	62.2	71	99.7	87	0.111	0.333	18.43
182	0.9	0.0	30.488	0.169	1.23	100	2.04	74.8	62.2	71	99.0	87	0.111	0.333	18.43
183	0.9	0.0	30.657	0.169	1.20	101	2.28	74.9	62.3	71	99.1	88	0.110	0.332	18.39
184	0.9	0.0	30.825	0.168	1.21	101	2.02	74.8	62.3	72	98.6	87	0.111	0.333	18.39
185	0.8	0.0	30.995	0.170	1.22	101	2.05	74.8	62.3	71	99.7	88	0.111	0.333	18.43
186	0.8	0.0	31.165	0.170	1.21	101	2.12	74.8	62.4	71	99.6	88	0.111	0.333	18.43
187	0.8	0.0	31.334	0.169	1.20	101	2.08	74.7	62.3	71	99.0	87	0.111	0.333	18.43
188	0.8	0.0	31.503	0.169	1.20	101	2.20	74.7	62.4	72	99.2	88	0.109	0.330	18.35
189	0.8	0.0	31.675	0.172	1.19	101	2.02	74.7	62.4	72	101.4	87	0.109	0.330	18.26
190	0.7	0.1	31.843	0.168	1.23	101	2.02	74.7	62.4	73	99.0	88	0.111	0.333	18.35
191	0.7	0.0	32.014	0.171	1.22	101	2.00	74.7	62.4	73	100.4	88	0.111	0.333	18.43
192	0.7	0.0	32.184	0.170	1.22	101	2.28	74.6	62.4	74	99.9	88	0.109	0.330	18.35
193	0.7	0.0	32.353	0.169	1.21	101	2.22	74.6	62.4	74	99.6	88	0.109	0.330	18.27
194	0.7	0.0	32.518	0.165	1.21	101	2.21	74.6	62.5	74	97.2	87	0.112	0.335	18.39
195	0.6	0.0	32.688	0.170	1.22	101	2.14	74.7	62.5	74	99.5	88	0.112	0.335	18.51
196	0.6	0.0	32.858	0.170	1.22	101	2.18	74.7	62.5	74	99.4	87	0.110	0.332	18.43
197	0.6	0.0	33.027	0.169	1.23	101	2.15	74.7	62.5	74	99.0	87	0.111	0.333	18.38
198	0.6	0.0	33.196	0.169	1.22	101	2.02	74.7	62.6	74	98.9	87	0.112	0.335	18.46
199	0.6	0.0	33.365	0.169	1.22	101	2.13	74.7	62.6	74	98.6	87	0.112	0.335	18.50
200	0.6	0.0	33.534	0.169	1.21	101	2.17	74.7	62.6	74	98.6	87	0.111	0.333	18.46
201	0.5	0.0	33.705	0.171	1.21	101	2.29	74.7	62.6	73	100.1	87	0.110	0.332	18.38
202	0.5	0.0	33.877	0.172	1.22	101	2.20	74.7	62.7	74	100.9	87	0.111	0.333	18.38
203	0.5	0.0	34.046	0.169	1.21	101	2.26	74.7	62.7	74	99.0	87	0.111	0.333	18.42
204	0.5	0.0	34.214	0.168	1.23	101	2.00	74.7	62.7	74	98.2	87	0.111	0.333	18.42
205	0.5	0.0	34.383	0.169	1.21	101	2.18	74.7	62.7	73	98.9	87	0.111	0.333	18.42
206	0.5	0.0	34.553	0.170	1.22	101	2.28	74.8	62.8	72	99.5	87	0.111	0.333	18.42
207	0.4	0.1	34.721	0.168	1.22	101	2.20	74.9	62.9	72	98.3	87	0.111	0.333	18.42
208	0.4	0.0	34.890	0.169	1.21	101	2.22	74.9	63	71	98.7	87	0.112	0.335	18.46
209	0.4	0.0	35.058	0.168	1.20	101	2.06	74.8	62.9	71	98.0	87	0.111	0.333	18.45
210	0.4	0.0	35.227	0.169	1.22	101	2.22	74.8	62.9	71	98.8	87	0.111	0.333	18.42
211	0.4	0.0	35.398	0.171	1.22	101	2.01	74.7	62.9	71	100.1	87	0.111	0.333	18.42
212	0.3	0.0	35.568	0.170	1.24	101	2.21	74.7	62.9	71	99.5	87	0.111	0.333	18.42
213	0.3	0.0	35.737	0.169	1.22	101	2.07	74.6	63	71	98.9	87	0.111	0.333	18.42
214	0.3	0.0	35.906	0.169	1.22	101	2.06	74.6	62.9	71	98.9	87	0.111	0.333	18.42
215	0.3	0.0	36.078	0.172	1.22	101	2.05	74.6	63	71	100.7	87	0.110	0.332	18.38
216	0.3	0.0	36.247	0.169	1.22	101	2.05	74.5	63	72	99.2	87	0.110	0.332	18.34

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 5 **Test Date:** 10/2/25

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 16:10
Test Length: 228 min
Recording Interval: 1 min

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.002 cfm @ 23.71 in. Hg
Post-Test 0.002 cfm @ 7.13 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H (" H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP (" H_2O)*	$\sqrt{dP}$	*vs*
217	0.3	0.0	36.418	0.171	1.21	101	2.00	74.5	63	72	100.5	87	0.110	0.332	18.34
218	0.3	0.0	36.587	0.169	1.22	101	2.15	74.5	63	73	99.1	87	0.112	0.335	18.42
219	0.2	0.0	36.757	0.170	1.21	101	2.26	74.5	63	73	99.3	87	0.111	0.333	18.46
220	0.2	0.0	36.926	0.169	1.21	101	2.26	74.5	63.1	73	98.6	87	0.112	0.335	18.46
221	0.2	0.0	37.092	0.166	1.23	101	2.24	74.5	63.1	73	96.9	86	0.111	0.333	18.46
222	0.2	0.0	37.262	0.170	1.23	101	2.03	74.5	63.1	74	99.3	87	0.111	0.333	18.41
223	0.2	0.0	37.432	0.170	1.23	102	2.05	74.5	63.1	74	99.4	86	0.111	0.333	18.41
224	0.2	0.0	37.601	0.169	1.22	101	2.11	74.5	63.2	74	98.9	86	0.110	0.332	18.37
225	0.1	0.0	37.770	0.169	1.22	101	2.11	74.5	63.1	73	99.1	87	0.111	0.333	18.37
226	0.1	0.0	37.939	0.169	1.24	101	2.20	74.4	63.2	74	99.0	87	0.111	0.333	18.42
227	0.1	0.0	38.110	0.171	1.22	101	2.23	74.5	63.2	74	100.0	86	0.111	0.333	18.41
228	0.0	0.1	38.282	0.172	1.22	101	2.05	74.5	63.3	74	100.4	86	0.112	0.335	18.45

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 5
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 16:10
Total Sampling Time: 228 min
Recording Interval: 1 min

Test Date: 10/2/25

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Sample Train Leak Checks
Pre-test 0.002 cfm @ 21.98 in. Hg
Post-Test 0.001 cfm @ 7.36 in. Hg

Elapsed Time (min)	Train B Sampling System								Appliance Temperatures, °F						
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Pro - Rate*	*Top*	*Bottom*	*Back*	*Left*	*Right*	*Catalyst Exit*	*Average Stove Surface (Tot = Δ T)*
Tot / Avg	**36.974**	**0.162**	**1.24**	**91.5**	**2.36**	**74.07**	**59.56**	**100.0**	**549.7**	**376.4**	**337.2**	**345.3**	**350.0**	**907.3**	**59.0**
Minimum	0.000	0.141	0.05	76	-0.01	71	53	90.4	432	341	283	304	297	590	359
Max	36.974	0.167	1.27	98	2.47	75	62	103.9	680	421	382	398	400	1105	421
0	0.000		0.05	77	-0.01	70.7	59.2		432	385	330	328	322	750	359
1	0.141	0.141	1.21	76	2.45	71.2	54.2	90.4	435	385	335	328	325	667	362
2	0.300	0.159	1.20	76	2.37	71.6	53.4	103.9	435	386	336	331	327	590	363
3	0.461	0.161	1.21	76	2.36	71.5	53	102.6	434	387	334	331	327	617	363
4	0.620	0.159	1.21	76	2.38	71.6	52.8	100.5	434	388	333	331	327	687	363
5	0.777	0.157	1.20	76	2.39	71.6	52.7	99.3	438	389	331	331	327	761	363
6	0.936	0.159	1.21	76	2.39	71.7	52.6	100.4	444	390	329	330	327	817	364
7	1.094	0.158	1.19	76	2.34	71.8	52.6	99.6	453	391	327	329	326	846	365
8	1.251	0.157	1.19	76	2.34	71.9	52.7	99.0	463	392	325	328	325	860	367
9	1.409	0.158	1.20	76	2.39	72	52.7	99.7	471	393	322	327	324	865	367
10	1.567	0.158	1.19	76	2.40	72.1	52.8	99.9	480	393	320	325	323	873	368
11	1.723	0.156	1.19	77	2.30	72.1	52.9	98.8	488	394	317	324	321	892	369
12	1.882	0.159	1.19	77	2.40	72.2	53	100.5	494	395	313	322	320	908	369
13	2.038	0.156	1.18	77	2.30	72.4	53.2	98.5	499	395	311	320	318	923	369
14	2.195	0.157	1.18	77	2.28	72.4	53.3	99.3	503	395	308	318	317	953	368
15	2.353	0.158	1.19	77	2.41	72.5	53.4	100.1	507	396	306	317	315	970	368
16	2.508	0.155	1.18	77	2.38	72.6	53.5	98.4	512	396	303	315	314	974	368
17	2.669	0.161	1.25	77	2.51	72.6	53.6	102.4	517	396	301	314	312	972	368
18	2.831	0.162	1.23	78	2.40	72.7	53.7	102.9	521	396	299	312	311	970	368
19	2.994	0.163	1.24	78	2.44	72.8	53.9	103.4	526	396	297	311	309	978	368
20	3.155	0.161	1.23	78	2.37	72.9	54.1	102.0	530	396	296	310	308	988	368
21	3.316	0.161	1.23	78	2.38	73	54.3	101.9	534	396	294	309	307	989	368
22	3.477	0.161	1.24	79	2.40	73	54.4	102.1	538	396	292	308	306	994	368
23	3.638	0.161	1.23	79	2.33	73.1	54.6	102.6	542	396	291	307	305	1006	368
24	3.801	0.163	1.24	79	2.53	73.2	54.7	103.8	548	396	289	306	303	1024	368
25	3.962	0.161	1.23	80	2.41	73.3	55	102.0	553	396	288	305	303	1036	369
26	4.122	0.160	1.23	80	2.46	73.3	55.1	101.1	560	396	287	305	302	1048	370
27	4.283	0.161	1.23	80	2.44	73.5	55.3	101.7	565	396	286	305	301	1050	370
28	4.444	0.161	1.24	80	2.43	73.6	55.5	101.8	570	396	286	304	300	1039	371
29	4.606	0.162	1.23	80	2.50	73.6	55.6	102.6	574	395	285	304	300	1028	372
30	4.767	0.161	1.24	81	2.37	73.6	55.8	102.2	578	395	284	304	299	1023	372
31	4.928	0.161	1.23	81	2.33	73.6	55.9	102.3	582	395	284	304	299	1032	373
32	5.088	0.160	1.23	81	2.51	73.7	56.1	101.6	585	395	284	304	298	1045	373
33	5.249	0.161	1.23	82	2.44	73.8	56.3	102.2	590	395	284	304	298	1051	374
34	5.412	0.163	1.23	82	2.31	73.8	56.4	103.5	594	395	283	305	298	1056	375
35	5.572	0.160	1.23	82	2.38	73.9	56.5	101.4	597	394	284	305	298	1056	376
36	5.732	0.160	1.23	82	2.34	74	56.7	101.0	600	394	284	305	297	1056	376
37	5.893	0.161	1.24	83	2.37	74	56.8	101.9	604	394	284	306	297	1057	377
38	6.054	0.161	1.24	83	2.38	74	57	102.1	606	394	284	307	297	1056	378
39	6.216	0.162	1.23	83	2.29	74.1	57.1	102.4	610	393	284	307	297	1058	378
40	6.377	0.161	1.24	83	2.36	74.1	57.3	101.6	612	393	285	308	297	1061	379

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 5
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Date: 10/2/25

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Test Start Time: 16:10
Total Sampling Time: 228 min
Recording Interval: 1 min

Sample Train Leak Checks
Pre-test 0.002 cfm @ 21.98 in. Hg
Post-Test 0.001 cfm @ 7.36 in. Hg

Elapsed Time (min)	Train B Sampling System								Appliance Temperatures, °F						
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Filter Temp (°F)	Dryer Temp (°F)	Pro - Rate	Top	Bottom	Back	Left	Right	Catalyst Exit	Average Stove Surface (Tot = Δ T)
41	6.537	0.160	1.25	84	2.51	74.1	57.4	100.8	614	393	285	309	297	1065	380
42	6.697	0.160	1.23	84	2.51	74.2	57.6	100.9	618	392	285	310	298	1071	381
43	6.859	0.162	1.24	84	2.42	74.2	57.7	102.5	622	392	286	311	298	1079	382
44	7.020	0.161	1.23	84	2.36	74.3	57.8	101.7	625	391	286	312	298	1087	382
45	7.181	0.161	1.24	85	2.50	74.3	58	101.4	629	391	288	313	298	1092	384
46	7.341	0.160	1.23	85	2.50	74.4	58.1	101.0	632	391	288	314	299	1098	385
47	7.502	0.161	1.23	85	2.30	74.4	58.2	101.8	634	390	290	315	299	1105	386
48	7.664	0.162	1.24	85	2.42	74.5	58.4	102.1	637	390	290	316	299	1102	386
49	7.825	0.161	1.23	86	2.40	74.4	58.5	101.2	639	389	291	317	300	1097	387
50	7.986	0.161	1.24	86	2.40	74.5	58.6	101.2	642	388	292	318	301	1091	388
51	8.147	0.161	1.24	86	2.31	74.5	58.7	100.9	644	388	293	319	302	1084	389
52	8.308	0.161	1.24	86	2.29	74.6	58.8	100.6	646	387	294	320	302	1077	390
53	8.469	0.161	1.24	87	2.42	74.5	58.8	100.7	648	386	295	321	303	1073	391
54	8.631	0.162	1.24	87	2.30	74.5	58.9	101.4	650	385	296	322	304	1072	391
55	8.792	0.161	1.24	87	2.30	74.5	59	100.8	649	384	297	323	305	1077	392
56	8.953	0.161	1.23	87	2.28	74.4	59	101.1	651	383	299	324	306	1082	393
57	9.114	0.161	1.23	87	2.36	74.4	59	101.1	653	382	300	325	308	1089	394
58	9.276	0.162	1.24	88	2.31	74.4	59.2	101.4	653	381	301	326	309	1089	394
59	9.439	0.163	1.23	88	2.49	74.4	59.2	101.7	654	380	302	327	310	1091	395
60	9.600	0.161	1.23	88	2.41	74.5	59.3	100.3	656	379	303	328	311	1095	395
61	9.761	0.161	1.22	88	2.35	74.5	59.5	100.1	657	378	303	329	312	1097	396
62	9.922	0.161	1.22	88	2.28	74.5	59.5	100.3	659	377	305	330	313	1091	397
63	10.084	0.162	1.23	89	2.45	74.5	59.6	101.3	661	376	306	331	314	1082	398
64	10.246	0.162	1.23	89	2.27	74.4	59.7	101.4	663	375	307	332	315	1075	398
65	10.409	0.163	1.23	89	2.28	74.5	59.7	102.1	664	374	308	333	316	1069	399
66	10.571	0.162	1.23	89	2.31	74.5	59.8	101.5	666	373	308	334	318	1063	400
67	10.732	0.161	1.23	89	2.27	74.5	59.9	100.7	669	373	310	334	319	1058	401
68	10.893	0.161	1.23	90	2.48	74.5	59.9	100.4	671	372	311	335	320	1055	402
69	11.055	0.162	1.23	90	2.41	74.4	59.9	100.9	674	371	312	336	322	1055	403
70	11.218	0.163	1.24	90	2.33	74.5	60	101.5	676	370	313	337	323	1052	404
71	11.381	0.163	1.23	90	2.27	74.5	60.1	101.4	677	369	314	338	325	1051	405
72	11.542	0.161	1.24	90	2.44	74.4	60	100.2	679	368	316	338	327	1051	405
73	11.704	0.162	1.24	91	2.38	74.5	60.1	101.0	680	368	317	339	328	1048	406
74	11.865	0.161	1.23	91	2.41	74.4	60.2	100.1	680	367	317	340	330	1045	407
75	12.027	0.162	1.24	91	2.30	74.5	60.2	100.5	679	366	319	340	332	1044	407
76	12.190	0.163	1.24	91	2.44	74.4	60.2	101.2	678	365	320	341	333	1042	407
77	12.353	0.163	1.24	91	2.39	74.3	60.2	101.1	677	364	321	341	335	1038	408
78	12.515	0.162	1.24	91	2.49	74.4	60.3	100.7	676	364	323	342	336	1036	408
79	12.677	0.162	1.22	91	2.26	74.4	60.3	100.9	676	363	324	343	338	1034	408
80	12.839	0.162	1.25	92	2.40	74.4	60.3	100.7	672	362	325	343	339	1030	408
81	13.001	0.162	1.23	92	2.38	74.4	60.3	100.3	671	361	326	344	341	1027	408
82	13.163	0.162	1.24	92	2.46	74.4	60.3	100.2	669	360	327	344	342	1022	409
83	13.326	0.163	1.23	92	2.40	74.5	60.4	101.0	665	359	328	345	343	1017	408
84	13.489	0.163	1.24	92	2.48	74.6	60.4	101.0	663	358	328	346	345	1011	408

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 5
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 16:10
Total Sampling Time: 228 min
Recording Interval: 1 min

Test Date: 10/2/25

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.002 cfm @ 21.98 in. Hg
Post-Test 0.001 cfm @ 7.36 in. Hg

Elapsed Time (min)	**Train B Sampling System**								**Appliance Temperatures, °F**						
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Pro - Rate*	*Top*	*Bottom*	*Back*	*Left*	*Right*	*Catalyst Exit*	*Average Stove Surface (Tot = Δ T)*
85	13.651	0.162	1.25	92	2.46	74.5	60.3	100.2	661	358	329	346	346	1006	408
86	13.813	0.162	1.24	92	2.37	74.6	60.4	100.2	658	357	329	347	347	1001	408
87	13.975	0.162	1.24	93	2.26	74.6	60.5	100.1	656	356	330	347	348	996	408
88	14.137	0.162	1.24	93	2.45	74.6	60.4	100.2	654	355	331	348	349	993	407
89	14.299	0.162	1.24	93	2.47	74.6	60.4	100.1	651	354	332	348	350	990	407
90	14.463	0.164	1.24	93	2.44	74.6	60.3	101.4	649	354	333	348	351	987	407
91	14.625	0.162	1.25	93	2.26	74.6	60.4	100.0	647	353	334	349	351	981	407
92	14.788	0.163	1.24	93	2.42	74.6	60.4	100.3	644	352	335	349	352	979	406
93	14.949	0.161	1.26	93	2.44	74.6	60.3	98.9	641	351	335	349	353	980	406
94	15.111	0.162	1.24	93	2.31	74.7	60.3	99.4	639	351	336	349	353	979	406
95	15.274	0.163	1.23	93	2.42	74.7	60.3	100.1	636	350	336	350	354	974	405
96	15.436	0.162	1.23	94	2.41	74.6	60.3	99.7	633	349	337	350	354	970	405
97	15.600	0.164	1.24	94	2.31	74.7	60.4	101.0	629	348	338	350	355	968	404
98	15.763	0.163	1.25	94	2.37	74.7	60.4	100.2	625	348	338	350	355	967	403
99	15.925	0.162	1.25	94	2.28	74.8	60.5	99.6	622	347	339	350	356	963	403
100	16.087	0.162	1.25	94	2.26	74.8	60.5	99.7	617	346	340	350	356	954	402
101	16.250	0.163	1.23	94	2.37	74.7	60.4	100.3	613	346	340	350	356	944	401
102	16.412	0.162	1.23	94	2.37	74.8	60.4	99.3	609	345	341	350	356	932	400
103	16.575	0.163	1.23	94	2.42	74.8	60.4	99.6	603	345	342	350	357	920	399
104	16.738	0.163	1.23	94	2.28	74.8	60.5	99.4	598	344	343	350	357	909	398
105	16.902	0.164	1.24	94	2.44	74.8	60.5	99.9	593	344	344	349	357	899	397
106	17.064	0.162	1.23	95	2.45	74.9	60.6	98.6	588	343	345	349	357	891	396
107	17.227	0.163	1.25	95	2.40	74.8	60.6	99.5	584	343	346	348	357	883	396
108	17.389	0.162	1.24	95	2.25	74.8	60.7	99.2	579	343	347	348	357	876	395
109	17.551	0.162	1.25	95	2.43	74.8	60.7	99.1	574	342	347	348	357	869	394
110	17.714	0.163	1.24	95	2.47	74.8	60.7	99.8	569	342	347	347	358	864	393
111	17.876	0.162	1.24	95	2.24	74.8	60.7	99.6	562	342	348	347	358	864	391
112	18.040	0.164	1.25	95	2.43	74.8	60.7	100.8	557	341	348	347	358	866	390
113	18.204	0.164	1.25	95	2.46	74.7	60.7	100.6	554	341	348	346	357	873	389
114	18.366	0.162	1.26	95	2.29	74.7	60.7	99.3	550	341	348	346	357	875	389
115	18.529	0.163	1.25	95	2.41	74.7	60.7	99.6	547	341	349	346	357	872	388
116	18.691	0.162	1.24	95	2.30	74.7	60.7	98.6	543	341	348	345	357	865	387
117	18.854	0.163	1.24	95	2.33	74.7	60.7	99.2	539	341	349	345	357	857	386
118	19.017	0.163	1.25	95	2.32	74.7	60.6	99.5	536	341	349	344	357	848	385
119	19.180	0.163	1.25	95	2.43	74.6	60.6	99.8	532	341	349	344	357	838	384
120	19.343	0.163	1.25	96	2.37	74.6	60.5	99.6	528	341	348	343	356	830	383
121	19.507	0.164	1.24	96	2.34	74.7	60.6	100.0	524	341	348	343	356	822	382
122	19.670	0.163	1.25	96	2.40	74.6	60.6	99.1	521	341	348	342	356	815	381
123	19.833	0.163	1.25	96	2.35	74.6	60.6	99.1	517	341	348	342	356	809	381
124	19.995	0.162	1.26	96	2.35	74.5	60.4	98.7	513	341	347	341	355	803	380
125	20.158	0.163	1.26	96	2.25	74.5	60.5	99.4	509	341	347	340	355	797	379
126	20.321	0.163	1.25	96	2.41	74.6	60.5	99.4	506	341	347	340	354	791	377
127	20.484	0.163	1.26	96	2.24	74.6	60.6	99.3	502	341	346	339	354	785	376
128	20.647	0.163	1.25	96	2.43	74.6	60.6	99.0	499	341	346	338	353	780	375

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 5
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 16:10
Total Sampling Time: 228 min
Recording Interval: 1 min

Test Date: 10/2/25

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Sample Train Leak Checks
Pre-test 0.002 cfm @ 21.98 in. Hg
Post-Test 0.001 cfm @ 7.36 in. Hg

Elapsed Time (min)	**Train B Sampling System**								**Appliance Temperatures, °F**						
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Pro - Rate*	*Top*	*Bottom*	*Back*	*Left*	*Right*	*Catalyst Exit*	*Average Stove Surface (Tot = Δ T)*
129	20.811	0.164	1.26	96	2.28	74.5	60.7	99.6	496	341	345	337	353	775	375
130	20.974	0.163	1.25	96	2.45	74.4	60.7	99.1	493	341	345	337	352	771	374
131	21.137	0.163	1.25	96	2.28	74.4	60.7	99.0	490	341	344	336	352	769	373
132	21.300	0.163	1.24	96	2.45	74.5	60.8	99.0	487	342	343	335	351	767	371
133	21.463	0.163	1.25	96	2.36	74.4	60.8	99.0	485	342	342	334	350	767	371
134	21.626	0.163	1.25	96	2.44	74.4	60.8	98.9	482	342	341	333	350	768	369
135	21.789	0.163	1.24	96	2.41	74.3	60.9	98.8	480	342	339	332	349	770	369
136	21.955	0.166	1.25	96	2.27	74.3	60.8	100.7	478	342	338	332	348	772	368
137	22.118	0.163	1.26	96	2.40	74.2	60.9	98.9	476	342	337	331	348	774	367
138	22.280	0.162	1.24	96	2.31	74.1	60.8	98.1	474	342	336	330	347	777	366
139	22.443	0.163	1.25	96	2.27	74	60.8	99.0	474	342	335	329	347	780	365
140	22.606	0.163	1.25	96	2.36	74.1	60.8	99.1	472	343	334	329	346	783	365
141	22.769	0.163	1.25	96	2.32	73.9	60.7	98.9	472	343	333	328	346	784	364
142	22.932	0.163	1.25	96	2.46	73.9	60.7	98.8	471	343	333	328	346	785	364
143	23.094	0.162	1.26	96	2.27	73.8	60.7	98.2	471	343	332	327	345	787	364
144	23.257	0.163	1.25	97	2.28	73.8	60.7	98.9	471	343	332	327	345	788	364
145	23.421	0.164	1.24	96	2.32	73.6	60.6	99.7	471	344	331	326	345	787	364
146	23.584	0.163	1.25	96	2.24	73.6	60.6	99.2	472	344	331	326	345	788	364
147	23.748	0.164	1.26	96	2.45	73.7	60.7	100.1	471	345	332	326	346	789	364
148	23.912	0.164	1.25	97	2.25	73.7	60.7	100.4	472	345	332	326	346	791	364
149	24.078	0.166	1.26	97	2.33	73.7	60.7	101.5	473	346	333	326	347	795	365
150	24.241	0.163	1.26	97	2.31	73.8	60.7	99.6	474	346	333	327	347	800	365
151	24.403	0.162	1.26	97	2.41	73.8	60.7	99.0	475	347	334	327	348	803	366
152	24.563	0.160	1.25	97	2.45	73.8	60.6	97.5	476	348	335	328	349	807	367
153	24.726	0.163	1.26	97	2.37	73.8	60.6	99.1	477	348	336	328	350	811	368
154	24.889	0.163	1.25	97	2.39	73.9	60.7	99.1	478	349	337	329	352	814	369
155	25.053	0.164	1.25	97	2.30	74	60.7	99.8	481	350	339	330	353	817	370
156	25.217	0.164	1.25	97	2.29	74	60.7	100.0	482	351	340	331	355	817	372
157	25.380	0.163	1.25	97	2.25	74	60.7	99.5	484	352	340	332	356	815	373
158	25.543	0.163	1.25	97	2.41	74.1	60.7	99.3	485	353	342	333	358	815	374
159	25.706	0.163	1.25	97	2.45	74.1	60.7	99.4	487	354	345	334	359	816	376
160	25.869	0.163	1.25	97	2.46	74.1	60.7	99.6	488	356	347	335	361	816	377
161	26.031	0.162	1.25	97	2.27	74.2	60.8	98.9	489	357	349	337	363	817	379
162	26.194	0.163	1.25	97	2.29	74.2	60.8	99.4	491	358	351	338	365	817	381
163	26.360	0.166	1.25	97	2.37	74.3	60.8	101.2	492	359	353	340	367	818	382
164	26.523	0.163	1.25	97	2.43	74.3	60.8	99.5	493	361	356	342	369	819	384
165	26.685	0.162	1.25	97	2.26	74.3	60.9	99.0	495	362	358	344	371	819	386
166	26.848	0.163	1.23	97	2.24	74.4	60.9	99.4	496	364	360	346	373	818	388
167	27.011	0.163	1.25	97	2.27	74.4	60.9	99.2	498	365	362	347	375	817	389
168	27.174	0.163	1.25	97	2.44	74.4	60.9	99.4	499	367	364	349	377	817	391
169	27.337	0.163	1.25	97	2.26	74.5	60.9	99.5	500	368	366	351	378	818	393
170	27.500	0.163	1.25	97	2.45	74.5	60.9	99.4	501	370	368	353	380	820	394
171	27.663	0.163	1.25	97	2.37	74.5	61	99.5	502	372	369	356	381	823	396
172	27.826	0.163	1.24	97	2.24	74.5	61	99.5	503	373	370	358	383	825	397

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 5
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Date: 10/2/25

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Test Start Time: 16:10
Total Sampling Time: 228 min
Recording Interval: 1 min

Sample Train Leak Checks
Pre-test 0.002 cfm @ 21.98 in. Hg
Post-Test 0.001 cfm @ 7.36 in. Hg

Elapsed Time (min)	Train B Sampling System								Appliance Temperatures, °F						
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Filter Temp (°F)	Dryer Temp (°F)	Pro - Rate	Top	Bottom	Back	Left	Right	Catalyst Exit	Average Stove Surface (Tot = Δ T)
173	27.990	0.164	1.25	97	2.36	74.5	61	100.0	504	375	371	360	384	828	399
174	28.154	0.164	1.25	97	2.45	74.6	61	100.1	505	377	373	361	386	829	400
175	28.317	0.163	1.25	97	2.24	74.6	61.1	99.7	506	379	374	363	387	829	402
176	28.483	0.166	1.26	97	2.45	74.5	61	101.2	507	381	374	365	389	826	403
177	28.646	0.163	1.25	97	2.35	74.5	61	99.1	509	383	375	367	390	824	405
178	28.808	0.162	1.26	97	2.26	74.3	60.9	98.4	509	384	376	368	391	823	406
179	28.971	0.163	1.25	97	2.44	74.4	61	99.1	510	386	376	370	392	823	407
180	29.132	0.161	1.25	97	2.26	74.3	61.1	98.0	510	388	377	371	393	824	408
181	29.295	0.163	1.26	97	2.42	74.2	61.1	99.1	510	390	378	373	394	826	409
182	29.459	0.164	1.27	97	2.24	74.2	61.2	99.6	510	391	378	374	395	831	410
183	29.623	0.164	1.25	97	2.45	74.2	61.3	99.7	510	393	379	376	396	835	411
184	29.786	0.163	1.25	97	2.32	74.2	61.3	99.2	510	395	379	377	396	838	411
185	29.949	0.163	1.26	97	2.24	74.2	61.4	99.1	509	396	380	378	397	840	412
186	30.112	0.163	1.24	97	2.46	74.1	61.3	99.0	509	398	380	380	397	842	413
187	30.275	0.163	1.26	97	2.43	74	61.3	98.9	510	399	379	381	398	844	413
188	30.438	0.163	1.25	97	2.31	74	61.3	99.2	509	401	380	382	398	847	414
189	30.604	0.166	1.24	97	2.44	74	61.4	101.4	509	402	381	384	399	849	415
190	30.767	0.163	1.25	97	2.43	74	61.4	99.6	510	404	382	385	399	851	416
191	30.931	0.164	1.25	97	2.36	74	61.4	99.8	510	405	381	386	399	853	416
192	31.094	0.163	1.25	97	2.44	74	61.4	99.2	511	406	381	387	400	855	417
193	31.259	0.165	1.25	97	2.41	74.1	61.5	100.9	511	407	382	388	400	857	418
194	31.419	0.160	1.25	97	2.32	74.1	61.5	97.7	512	408	382	389	400	858	418
195	31.582	0.163	1.25	97	2.42	74.2	61.5	98.9	512	409	382	390	400	859	419
196	31.745	0.163	1.23	97	2.41	74.2	61.5	98.7	512	410	382	391	400	860	419
197	31.908	0.163	1.25	97	2.25	74.2	61.5	99.0	512	411	381	392	400	859	419
198	32.071	0.163	1.25	97	2.25	74.3	61.6	98.9	512	412	381	393	400	857	420
199	32.234	0.163	1.25	97	2.27	74.4	61.6	98.5	512	413	382	393	400	855	420
200	32.398	0.164	1.24	97	2.45	74.4	61.6	99.1	512	414	382	394	400	853	420
201	32.562	0.164	1.25	97	2.27	74.4	61.6	99.5	511	414	382	395	400	852	421
202	32.728	0.166	1.25	97	2.27	74.4	61.6	100.9	511	415	382	396	400	850	421
203	32.891	0.163	1.25	97	2.26	74.4	61.6	99.0	510	416	382	396	400	849	421
204	33.054	0.163	1.24	97	2.45	74.4	61.6	98.9	510	416	382	397	400	848	421
205	33.217	0.163	1.26	97	2.40	74.4	61.7	98.9	510	417	381	397	400	846	421
206	33.380	0.163	1.25	97	2.36	74.4	61.7	98.9	509	417	381	397	400	845	421
207	33.540	0.160	1.24	97	2.37	74.3	61.7	97.0	508	418	381	397	400	844	421
208	33.704	0.164	1.26	97	2.45	74.2	61.7	99.3	507	418	380	398	399	845	420
209	33.867	0.163	1.25	97	2.46	74.1	61.7	98.6	507	419	380	398	399	848	420
210	34.031	0.164	1.26	97	2.24	74	61.7	99.4	506	419	380	398	399	851	420
211	34.195	0.164	1.26	97	2.30	74.1	61.8	99.5	505	419	379	398	399	853	420
212	34.359	0.164	1.26	97	2.43	74.1	61.9	99.5	505	419	379	398	399	854	420
213	34.522	0.163	1.26	97	2.24	74	61.9	98.9	504	420	379	398	398	855	420
214	34.685	0.163	1.25	97	2.46	73.9	62	98.9	505	420	379	397	398	856	420
215	34.852	0.167	1.25	97	2.45	73.9	62	101.4	505	420	378	397	398	857	420
216	35.014	0.162	1.26	97	2.39	73.9	62	98.6	505	420	378	397	398	858	419

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 5
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Date: 10/2/25

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Test Start Time: 16:10
Total Sampling Time: 228 min
Recording Interval: 1 min

Sample Train Leak Checks
Pre-test 0.002 cfm @ 21.98 in. Hg
Post-Test 0.001 cfm @ 7.36 in. Hg

Elapsed Time (min)	Train B Sampling System								Appliance Temperatures, °F						
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Filter Temp (°F)	Dryer Temp (°F)	Pro - Rate	Top	Bottom	Back	Left	Right	Catalyst Exit	Average Stove Surface (Tot = Δ T)
217	35.178	0.164	1.26	97	2.24	73.9	62.1	99.9	504	420	378	397	397	858	419
218	35.340	0.162	1.27	98	2.32	73.9	62.1	98.5	505	420	378	397	397	859	420
219	35.504	0.164	1.25	97	2.40	74	62.2	99.4	505	420	377	397	397	860	419
220	35.667	0.163	1.25	97	2.29	74	62.2	98.6	505	420	377	397	397	860	419
221	35.829	0.162	1.26	97	2.44	74	62.2	98.0	505	421	377	397	397	860	419
222	35.993	0.164	1.25	98	2.26	74.1	62.2	99.3	504	421	377	397	397	858	419
223	36.156	0.163	1.26	97	2.25	74.1	62.3	98.8	504	421	376	397	397	857	419
224	36.318	0.162	1.26	97	2.40	74	62.2	98.3	504	421	377	397	397	856	419
225	36.482	0.164	1.26	98	2.24	74.1	62.3	99.6	503	421	377	397	396	854	419
226	36.645	0.163	1.25	97	2.40	74.1	62.3	99.0	503	421	377	397	396	853	419
227	36.808	0.163	1.26	98	2.38	74.1	62.3	98.8	503	421	377	397	396	853	419
228	36.974	0.166	1.25	97	2.26	74.1	62.3	100.5	502	421	377	397	396	854	418

Train C - First Hour Particulate Sampling

Run: 5
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Start Time: 16:10
Total Sampling Time: 60 min
Recording Interval: 1 min

Test Date: 10/2/25

Meter Box Y Regression Offset: 0.981
Meter Box Y Regression Factor: 0
Meter Box Dynamic Y: 0.981
Sample Box ID: 0

Sample Train Leak Checks
Pre-test 0.002 cfm @ 21.98 in. Hg
Post-Test 0.004 cfm @ 10.76 in. Hg

Elapsed Time (min)	**Train C Sampling System**							
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Pro - Rate*
Tot / Avg	**9.469**	**0.158**	**0.98**	**78.7**	**2.47**	**75.5**	**71.2**	**100.0**
Minimum	0.000	0.145	-0.01	75	0.10	72	67	93.0
Max	9.469	0.160	1.02	82	2.57	77	76	103.9
0	0.000		-0.01	76	0.10	71.8	68.7	
1	0.145	0.145	1.01	75	2.56	72.7	67.9	93.0
2	0.304	0.159	1.02	75	2.49	73.4	67.6	103.9
3	0.463	0.159	1.01	75	2.52	73.3	67.4	101.3
4	0.621	0.158	1.00	75	2.55	73.4	67.3	99.8
5	0.779	0.158	1.00	75	2.54	73.5	67.2	99.9
6	0.936	0.157	0.99	75	2.47	73.6	67.2	99.0
7	1.095	0.159	1.00	76	2.47	73.7	67.2	100.1
8	1.251	0.156	1.00	76	2.54	73.9	67.3	98.2
9	1.409	0.158	0.99	76	2.48	73.9	67.3	99.6
10	1.566	0.157	0.99	76	2.55	74	67.4	99.1
11	1.724	0.158	0.99	76	2.54	74.1	67.5	99.9
12	1.880	0.156	0.99	76	2.54	74.2	67.6	98.4
13	2.037	0.157	0.99	76	2.45	74.3	67.7	98.9
14	2.194	0.157	0.98	76	2.49	74.4	67.9	99.1
15	2.351	0.157	0.98	77	2.54	74.5	68	99.2
16	2.507	0.156	1.00	77	2.56	74.7	68.2	98.8
17	2.666	0.159	1.00	77	2.54	74.7	68.4	100.9
18	2.823	0.157	0.99	77	2.55	74.9	68.6	99.5
19	2.981	0.158	1.00	77	2.48	75	68.8	100.0
20	3.140	0.159	1.00	77	2.56	75.1	69	100.5
21	3.298	0.158	1.00	77	2.47	75.1	69.2	99.8
22	3.456	0.158	0.99	78	2.57	75.2	69.4	100.0
23	3.613	0.157	0.99	78	2.46	75.3	69.5	99.8
24	3.772	0.159	1.00	78	2.47	75.4	69.8	101.1
25	3.929	0.157	1.00	78	2.48	75.5	70	99.3
26	4.088	0.159	1.00	78	2.49	75.6	70.2	100.4
27	4.245	0.157	0.99	78	2.55	75.7	70.4	99.1
28	4.403	0.158	1.00	79	2.51	75.7	70.6	99.8
29	4.561	0.158	0.99	79	2.46	75.8	70.9	100.0
30	4.719	0.158	1.00	79	2.55	75.8	71.1	100.2
31	4.878	0.159	0.99	79	2.53	75.9	71.4	101.0
32	5.035	0.157	1.00	79	2.56	76	71.6	99.7

Train C - First Hour Particulate Sampling

Run: 5
Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Test Date: 10/2/25

Meter Box Y Regression Offset: 0.981
Meter Box Y Regression Factor: 0
Meter Box Dynamic Y: 0.981
Sample Box ID: 0

Start Time: 16:10
Total Sampling Time: 60 min
Recording Interval: 1 min

Sample Train Leak Checks
Pre-test 0.002 cfm @ 21.98 in. Hg
Post-Test 0.004 cfm @ 10.76 in. Hg

Elapsed Time (min)	Train C Sampling System							
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Filter Temp (°F)	Dryer Temp (°F)	Pro - Rate
33	5.194	0.159	0.99	79	2.56	76	71.8	101.0
34	5.351	0.157	0.99	79	2.55	76.1	72	99.8
35	5.510	0.159	1.00	79	2.45	76.2	72.2	101.0
36	5.667	0.157	1.00	80	2.52	76.3	72.5	99.4
37	5.826	0.159	0.99	80	2.48	76.3	72.6	100.8
38	5.984	0.158	0.99	80	2.46	76.4	72.8	100.4
39	6.142	0.158	0.99	80	2.48	76.4	73	100.2
40	6.300	0.158	0.99	80	2.48	76.4	73.2	100.1
41	6.458	0.158	1.00	80	2.45	76.4	73.4	99.9
42	6.617	0.159	0.99	81	2.56	76.5	73.5	100.6
43	6.774	0.157	1.00	81	2.48	76.5	73.7	99.7
44	6.933	0.159	1.00	81	2.49	76.6	73.8	100.9
45	7.091	0.158	1.00	81	2.56	76.6	74	100.0
46	7.250	0.159	1.00	81	2.53	76.6	74.1	100.9
47	7.408	0.158	0.99	81	2.46	76.7	74.3	100.5
48	7.566	0.158	1.00	81	2.49	76.7	74.4	100.3
49	7.725	0.159	1.00	81	2.57	76.8	74.5	100.7
50	7.883	0.158	1.00	82	2.45	76.8	74.6	100.0
51	8.042	0.159	0.99	82	2.49	76.8	74.8	100.4
52	8.199	0.157	1.00	82	2.45	76.8	74.9	98.9
53	8.359	0.160	1.00	82	2.47	76.9	75	100.9
54	8.517	0.158	1.00	82	2.46	76.8	75.1	99.8
55	8.675	0.158	1.00	82	2.56	76.9	75.2	99.8
56	8.834	0.159	1.00	82	2.54	76.8	75.2	100.8
57	8.992	0.158	1.00	82	2.46	76.8	75.4	100.3
58	9.152	0.160	1.00	82	2.53	76.7	75.5	101.2
59	9.310	0.158	1.00	82	2.48	76.7	75.6	99.7
60	9.469	0.159	1.00	82	2.53	76.7	75.7	100.2

Train D - Ambient Background and Flue Gas Data

Run: 5 **Test Date:** 10/2/2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 16:10
Total Sampling Time 228 min
Recording Interval 1 min

Elapsed Time (min)	**Ambient Sampling System**					**Flue Gas Data**				
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Stack Temp (°F)*	*Draft (In. H_2O)*	*CO (ppm)*	*CO (%)*	*CO_2 (%)*
Tot / Avg	**35.603**	**0.156**	**1.07**	**83.7**	**2.05**	**265.02**	**0.040**	**279.4**	**0.32**	**11.79**
Minimum	0.000	0.153	1.07	77	2.00	159.90	0.016	26.0	-0.02	1.46
Max	35.603	0.160	1.11	86	2.11	356.90	0.065	547.0	2.22	14.58
0	0.000		-0.01	77	0.03	210.1	0.039	39.0	0.00	10.39
1	0.153	0.153	1.11	77	2.11	301.1	0.043	437.0	0.12	7.76
2	0.311	0.158	1.10	77	2.09	287.3	0.030	547.0	0.25	1.46
3	0.467	0.156	1.11	77	2.10	267.1	0.032	547.0	0.23	9.42
4	0.625	0.158	1.10	77	2.10	261.9	0.032	384.0	0.02	10.15
5	0.781	0.156	1.10	77	2.08	265.5	0.038	303.0	0.03	11.10
6	0.937	0.156	1.09	77	2.08	272.7	0.045	547.0	0.08	11.29
7	1.094	0.157	1.09	77	2.05	280.7	0.035	328.0	0.02	10.97
8	1.249	0.155	1.09	77	2.06	286.8	0.040	197.0	0.02	9.98
9	1.405	0.156	1.09	77	2.06	292.8	0.046	206.0	0.02	10.09
10	1.561	0.156	1.08	77	2.04	298	0.036	200.0	0.02	10.16
11	1.716	0.155	1.08	77	2.09	302.6	0.058	203.0	0.02	9.99
12	1.872	0.156	1.08	77	2.03	305.2	0.053	222.0	0.02	9.60
13	2.028	0.156	1.07	77	2.09	307.6	0.054	220.0	0.01	9.34
14	2.182	0.154	1.08	78	2.09	312.6	0.038	272.0	0.03	10.29
15	2.338	0.156	1.08	78	2.07	317.5	0.039	339.0	0.02	10.39
16	2.494	0.156	1.07	78	2.07	323.8	0.037	438.0	0.04	11.67
17	2.648	0.154	1.08	78	2.06	326.9	0.054	341.0	0.03	10.39
18	2.804	0.156	1.08	78	2.09	329.3	0.043	344.0	0.02	10.12
19	2.959	0.155	1.07	78	2.01	331.1	0.044	355.0	0.03	9.83
20	3.114	0.155	1.08	78	2.02	333.6	0.045	385.0	0.04	9.76
21	3.269	0.155	1.07	78	2.03	336.1	0.044	413.0	0.04	10.57
22	3.425	0.156	1.07	79	2.05	339.2	0.042	495.0	0.05	11.38
23	3.580	0.155	1.07	79	2.06	342.7	0.040	547.0	0.05	11.41
24	3.735	0.155	1.07	79	2.08	345.8	0.044	547.0	0.06	11.45
25	3.891	0.156	1.07	79	2.01	348.7	0.046	547.0	0.17	11.80
26	4.045	0.154	1.07	79	2.08	350.7	0.047	547.0	0.08	11.54
27	4.201	0.156	1.07	79	2.06	351.6	0.045	547.0	0.06	10.51
28	4.356	0.155	1.07	79	2.00	352.2	0.065	547.0	0.05	10.09
29	4.511	0.155	1.07	79	2.04	353.1	0.065	479.0	0.04	10.35
30	4.666	0.155	1.07	80	2.10	354.1	0.065	547.0	0.07	11.43
31	4.822	0.156	1.07	80	2.01	355	0.051	547.0	0.21	12.71
32	4.977	0.155	1.07	80	2.04	355.6	0.049	547.0	0.23	13.00

Train D - Ambient Background and Flue Gas Data

Run: 5 **Test Date:** 10/2/2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 16:10
Total Sampling Time 228 min
Recording Interval 1 min

Elapsed Time (min)	**Ambient Sampling System**					**Flue Gas Data**				
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Stack Temp (°F)*	*Draft (In. H_2O)*	*CO (ppm)*	*CO (%)*	*CO_2 (%)*
33	5.132	0.155	1.07	80	2.08	355.8	0.046	547.0	0.16	12.61
34	5.288	0.156	1.07	80	2.09	356.3	0.047	547.0	0.14	12.33
35	5.443	0.155	1.07	80	2.06	356.4	0.046	547.0	0.14	12.31
36	5.598	0.155	1.07	80	2.02	356.4	0.046	547.0	0.13	12.32
37	5.754	0.156	1.07	81	2.01	356.9	0.045	547.0	0.12	12.51
38	5.909	0.155	1.07	81	2.03	356.8	0.050	547.0	0.15	12.52
39	6.064	0.155	1.07	81	2.04	356.5	0.055	547.0	0.12	12.71
40	6.220	0.156	1.07	81	2.10	356.6	0.049	547.0	0.15	12.74
41	6.375	0.155	1.07	81	2.00	356.4	0.047	547.0	0.21	13.02
42	6.530	0.155	1.07	81	2.08	356.2	0.048	547.0	0.19	13.18
43	6.686	0.156	1.07	81	2.07	355.9	0.052	547.0	0.17	13.23
44	6.841	0.155	1.07	81	2.09	355.1	0.050	547.0	0.14	13.08
45	6.997	0.156	1.07	82	2.11	354.4	0.054	547.0	0.15	12.91
46	7.153	0.156	1.07	82	2.10	354	0.052	547.0	0.11	12.96
47	7.308	0.155	1.07	82	2.09	353.1	0.051	547.0	0.15	13.42
48	7.463	0.155	1.07	82	2.04	352.6	0.047	547.0	0.12	13.19
49	7.619	0.156	1.07	82	2.08	351	0.049	547.0	0.14	13.30
50	7.774	0.155	1.07	82	2.01	349.8	0.051	547.0	0.17	13.43
51	7.930	0.156	1.07	82	2.07	348.5	0.050	547.0	0.22	13.46
52	8.086	0.156	1.07	82	2.04	346.6	0.049	547.0	0.23	13.35
53	8.241	0.155	1.07	82	2.03	344.4	0.053	547.0	0.19	13.54
54	8.397	0.156	1.07	82	2.10	342.7	0.055	547.0	0.27	13.42
55	8.553	0.156	1.07	82	2.00	341	0.052	547.0	0.40	13.72
56	8.708	0.155	1.07	83	2.02	340	0.050	547.0	0.45	13.80
57	8.864	0.156	1.07	83	2.07	338.8	0.054	547.0	0.62	13.99
58	9.021	0.157	1.08	83	2.09	337.9	0.057	547.0	0.73	13.94
59	9.176	0.155	1.07	83	2.03	337.1	0.054	547.0	0.86	14.15
60	9.332	0.156	1.07	83	2.09	335.4	0.053	547.0	0.94	14.08
61	9.488	0.156	1.08	83	2.07	333.7	0.057	547.0	0.92	14.11
62	9.643	0.155	1.07	83	2.07	331.8	0.054	547.0	1.07	13.95
63	9.800	0.157	1.07	83	2.03	330	0.055	547.0	1.00	14.07
64	9.956	0.156	1.07	83	2.03	328.4	0.054	547.0	1.03	14.14
65	10.111	0.155	1.08	83	2.09	326.7	0.047	547.0	0.91	14.41
66	10.268	0.157	1.07	83	2.07	325.5	0.053	547.0	1.46	14.56
67	10.423	0.155	1.07	83	2.07	324.6	0.053	547.0	1.79	14.56
68	10.579	0.156	1.07	83	2.07	323.2	0.054	547.0	1.70	14.58

Train D - Ambient Background and Flue Gas Data

Run: 5 **Test Date:** 10/2/2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 16:10
Total Sampling Time 228 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
69	10.736	0.157	1.07	83	2.03	321.4	0.055	547.0	1.39	14.56
70	10.891	0.155	1.07	84	2.09	318.8	0.054	547.0	1.31	14.40
71	11.047	0.156	1.07	84	2.03	316.7	0.056	547.0	1.25	14.28
72	11.204	0.157	1.07	84	2.03	314.9	0.055	547.0	0.98	14.38
73	11.359	0.155	1.07	84	2.06	311.7	0.056	547.0	1.05	14.02
74	11.515	0.156	1.07	84	2.08	308.4	0.056	547.0	1.14	14.00
75	11.672	0.157	1.07	84	2.07	306.2	0.056	547.0	1.03	14.16
76	11.827	0.155	1.07	84	2.06	302.7	0.055	547.0	1.11	14.10
77	11.984	0.157	1.08	84	2.03	299.4	0.051	547.0	0.80	13.91
78	12.139	0.155	1.07	84	2.03	295.9	0.055	547.0	1.09	13.91
79	12.295	0.156	1.07	84	2.04	292.8	0.053	547.0	1.15	13.84
80	12.451	0.156	1.07	84	2.04	289.1	0.058	547.0	1.20	13.91
81	12.607	0.156	1.07	84	2.08	286.3	0.046	547.0	1.17	13.93
82	12.763	0.156	1.07	84	2.06	283.7	0.053	547.0	1.12	13.96
83	12.920	0.157	1.07	84	2.03	280.9	0.049	547.0	0.99	13.73
84	13.075	0.155	1.07	84	2.07	277.5	0.057	547.0	0.95	13.92
85	13.231	0.156	1.07	84	2.03	274.5	0.055	547.0	1.06	13.82
86	13.388	0.157	1.07	84	2.10	272	0.052	547.0	1.20	13.83
87	13.543	0.155	1.07	85	2.02	270	0.049	547.0	1.09	13.99
88	13.700	0.157	1.07	85	2.10	267.9	0.047	547.0	1.15	14.00
89	13.855	0.155	1.07	85	2.09	265.5	0.047	547.0	1.13	13.78
90	14.011	0.156	1.07	85	2.02	262.2	0.050	547.0	1.05	13.60
91	14.168	0.157	1.07	85	2.07	257.3	0.047	547.0	1.02	13.28
92	14.323	0.155	1.07	85	2.02	252.9	0.048	547.0	0.98	12.97
93	14.479	0.156	1.07	85	2.01	249.6	0.048	547.0	0.87	12.87
94	14.636	0.157	1.07	85	2.01	245.8	0.043	547.0	0.86	12.83
95	14.791	0.155	1.07	85	2.02	240.3	0.048	547.0	1.18	12.53
96	14.947	0.156	1.07	85	2.08	235.7	0.050	547.0	1.36	12.51
97	15.104	0.157	1.07	85	2.09	231.5	0.047	547.0	1.57	12.36
98	15.259	0.155	1.07	85	2.09	227.7	0.041	547.0	1.59	12.38
99	15.416	0.157	1.07	85	2.02	223.9	0.041	547.0	1.77	12.11
100	15.572	0.156	1.07	85	2.05	220.3	0.045	547.0	1.99	11.95
101	15.727	0.155	1.07	85	2.05	216.6	0.043	547.0	2.19	11.64
102	15.884	0.157	1.07	85	2.04	213	0.040	547.0	2.22	11.68
103	16.039	0.155	1.08	85	2.09	209.4	0.036	547.0	2.12	11.50
104	16.196	0.157	1.07	85	2.09	206	0.039	547.0	1.84	11.64

Train D - Ambient Background and Flue Gas Data

Run: 5 **Test Date:** 10/2/2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 16:10
Total Sampling Time 228 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
105	16.353	0.157	1.07	85	2.09	203	0.040	547.0	1.60	11.61
106	16.508	0.155	1.07	85	2.02	199.6	0.039	547.0	1.31	11.61
107	16.664	0.156	1.07	85	2.04	196.8	0.036	547.0	1.19	11.79
108	16.821	0.157	1.08	85	2.06	194.2	0.028	547.0	0.93	11.89
109	16.977	0.156	1.07	85	2.09	191.1	0.028	547.0	0.72	11.94
110	17.134	0.157	1.07	86	2.10	188.6	0.036	547.0	0.63	11.85
111	17.289	0.155	1.07	86	2.07	186	0.032	547.0	0.44	11.86
112	17.446	0.157	1.07	85	2.03	183.5	0.033	547.0	0.31	11.78
113	17.602	0.156	1.07	86	2.08	181.3	0.040	547.0	0.13	12.01
114	17.758	0.156	1.08	86	2.08	179.9	0.032	547.0	0.09	11.79
115	17.914	0.156	1.07	86	2.05	177.9	0.031	431.0	0.03	11.68
116	18.072	0.158	1.07	86	2.08	176.4	0.025	301.0	0.04	11.58
117	18.227	0.155	1.08	86	2.08	174.6	0.023	203.0	0.03	11.51
118	18.384	0.157	1.08	86	2.09	173.3	0.022	142.0	0.01	11.36
119	18.540	0.156	1.08	86	2.07	172.1	0.021	112.0	0.01	11.34
120	18.696	0.156	1.07	86	2.08	170.6	0.023	95.0	0.00	11.33
121	18.853	0.157	1.07	86	2.08	169.3	0.021	89.0	0.00	11.26
122	19.009	0.156	1.08	86	2.08	167.8	0.023	83.0	0.00	11.14
123	19.165	0.156	1.07	86	2.05	166.3	0.023	77.0	0.02	11.02
124	19.323	0.158	1.08	86	2.07	165.3	0.031	77.0	0.00	11.32
125	19.478	0.155	1.08	86	2.04	164.3	0.022	73.0	0.00	11.19
126	19.635	0.157	1.07	86	2.03	163.3	0.026	75.0	0.00	11.23
127	19.791	0.156	1.07	86	2.08	162.4	0.032	72.0	0.00	11.14
128	19.947	0.156	1.07	86	2.08	161.3	0.031	72.0	-0.01	11.27
129	20.104	0.157	1.07	86	2.04	160.5	0.028	70.0	0.01	11.24
130	20.260	0.156	1.08	86	2.05	160.1	0.027	68.0	0.01	11.32
131	20.417	0.157	1.07	86	2.04	159.9	0.018	70.0	0.00	11.35
132	20.574	0.157	1.08	86	2.03	160	0.018	70.0	0.00	11.32
133	20.729	0.155	1.07	86	2.09	160.8	0.019	67.0	0.01	11.33
134	20.887	0.158	1.08	86	2.04	161.6	0.025	66.0	0.00	11.37
135	21.042	0.155	1.08	86	2.07	163	0.016	61.0	-0.01	11.43
136	21.202	0.160	1.08	86	2.08	165.3	0.026	56.0	0.00	11.57
137	21.359	0.157	1.08	86	2.04	167.6	0.024	52.0	0.00	11.59
138	21.512	0.153	1.08	86	2.03	170.6	0.025	51.0	0.00	11.67
139	21.669	0.157	1.07	86	2.08	174.8	0.025	44.0	0.00	11.58
140	21.826	0.157	1.08	86	2.02	178.8	0.020	36.0	0.01	11.58

Train D - Ambient Background and Flue Gas Data

Run: 5 **Test Date:** 10/2/2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 16:10
Total Sampling Time 228 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
141	21.982	0.156	1.07	86	2.03	183.3	0.028	36.0	0.00	11.59
142	22.139	0.157	1.08	86	2.06	188.5	0.028	34.0	0.00	11.72
143	22.295	0.156	1.08	86	2.10	193.6	0.029	30.0	0.00	11.73
144	22.452	0.157	1.07	86	2.06	199	0.029	26.0	0.00	11.69
145	22.609	0.157	1.08	86	2.05	203.6	0.036	27.0	0.01	11.62
146	22.765	0.156	1.08	86	2.07	208.3	0.035	29.0	-0.02	11.67
147	22.922	0.157	1.08	86	2.08	213.2	0.034	27.0	0.00	11.78
148	23.078	0.156	1.08	86	2.08	217.3	0.037	30.0	0.00	11.83
149	23.237	0.159	1.07	86	2.04	221.6	0.038	30.0	0.00	11.94
150	23.395	0.158	1.08	85	2.04	226.2	0.041	31.0	0.00	12.00
151	23.550	0.155	1.08	86	2.06	229.3	0.033	34.0	0.00	11.89
152	23.705	0.155	1.07	86	2.08	233.5	0.032	32.0	0.00	11.96
153	23.861	0.156	1.08	86	2.09	236.9	0.037	34.0	0.00	11.99
154	24.017	0.156	1.08	86	2.05	240.2	0.038	35.0	0.00	12.18
155	24.174	0.157	1.07	86	2.09	242.8	0.040	36.0	0.00	12.19
156	24.330	0.156	1.07	86	2.07	245.1	0.036	34.0	0.00	12.30
157	24.487	0.157	1.07	86	2.10	246.8	0.042	34.0	0.00	12.32
158	24.644	0.157	1.08	86	2.07	249.7	0.038	35.0	0.00	12.35
159	24.799	0.155	1.07	86	2.06	252.3	0.036	38.0	0.00	12.42
160	24.956	0.157	1.07	86	2.09	253.4	0.038	38.0	0.00	12.43
161	25.113	0.157	1.08	86	2.03	255.1	0.037	37.0	0.00	12.55
162	25.269	0.156	1.08	86	2.07	256.4	0.037	38.0	0.00	12.59
163	25.429	0.160	1.08	86	2.07	257.6	0.041	36.0	0.00	12.22
164	25.584	0.155	1.08	86	2.06	258.8	0.034	35.0	0.00	12.12
165	25.738	0.154	1.07	86	2.06	259.6	0.038	33.0	0.00	12.01
166	25.895	0.157	1.08	86	2.02	260.2	0.040	34.0	0.00	12.01
167	26.051	0.156	1.07	86	2.06	260.7	0.041	36.0	0.00	12.00
168	26.208	0.157	1.08	86	2.07	261.6	0.040	34.0	0.00	11.98
169	26.364	0.156	1.08	86	2.03	262.1	0.039	34.0	0.00	11.96
170	26.520	0.156	1.08	86	2.03	262.3	0.036	37.0	0.00	11.88
171	26.677	0.157	1.07	86	2.05	262.6	0.037	38.0	0.00	11.90
172	26.832	0.155	1.07	86	2.04	263.3	0.041	37.0	0.01	11.90
173	26.989	0.157	1.07	86	2.05	263.5	0.042	37.0	0.00	11.79
174	27.146	0.157	1.08	86	2.01	263.7	0.033	38.0	0.00	11.76
175	27.302	0.156	1.07	86	2.06	263.6	0.038	36.0	0.00	11.63
176	27.461	0.159	1.07	86	2.08	263.6	0.040	34.0	0.00	11.44

Train D - Ambient Background and Flue Gas Data

Run: 5 **Test Date:** 10/2/2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 16:10
Total Sampling Time 228 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
177	27.617	0.156	1.08	86	2.04	263.1	0.037	35.0	0.00	11.40
178	27.774	0.157	1.07	86	2.06	263.1	0.039	34.0	0.00	11.42
179	27.931	0.157	1.08	86	2.08	263	0.035	33.0	0.00	11.39
180	28.084	0.153	1.08	86	2.03	262.5	0.041	33.0	0.00	11.34
181	28.241	0.157	1.07	86	2.07	261.8	0.032	32.0	-0.01	11.32
182	28.398	0.157	1.08	86	2.04	260.6	0.040	32.0	0.00	11.25
183	28.553	0.155	1.08	86	2.08	260.1	0.038	34.0	-0.01	11.22
184	28.711	0.158	1.08	86	2.06	259.6	0.035	33.0	0.00	11.21
185	28.867	0.156	1.08	86	2.10	258.8	0.035	34.0	0.00	11.13
186	29.024	0.157	1.07	86	2.05	258.7	0.032	34.0	0.00	11.13
187	29.181	0.157	1.08	86	2.05	258.1	0.036	35.0	0.00	11.20
188	29.336	0.155	1.08	86	2.07	257.9	0.041	37.0	0.00	10.96
189	29.496	0.160	1.08	86	2.10	257.8	0.035	40.0	0.00	10.94
190	29.652	0.156	1.08	86	2.04	257.3	0.032	41.0	0.00	10.97
191	29.809	0.157	1.07	86	2.05	257	0.034	41.0	0.00	10.85
192	29.966	0.157	1.08	86	2.05	256.5	0.036	42.0	-0.01	10.75
193	30.122	0.156	1.08	86	2.07	256.7	0.040	42.0	0.00	10.78
194	30.276	0.154	1.07	86	2.08	256.6	0.038	42.0	0.00	10.78
195	30.434	0.158	1.08	86	2.09	257.1	0.031	43.0	0.00	10.74
196	30.589	0.155	1.08	86	2.08	257	0.035	43.0	0.00	10.64
197	30.746	0.157	1.08	86	2.05	256.8	0.038	41.0	0.00	10.62
198	30.902	0.156	1.08	86	2.06	256.6	0.039	40.0	0.00	10.56
199	31.059	0.157	1.07	86	2.04	256.6	0.033	41.0	0.00	10.45
200	31.216	0.157	1.08	86	2.05	256.1	0.036	41.0	0.00	10.43
201	31.372	0.156	1.08	86	2.02	255.7	0.035	42.0	0.00	10.43
202	31.532	0.160	1.08	86	2.07	255.8	0.042	41.0	0.00	10.37
203	31.687	0.155	1.08	86	2.03	255	0.033	41.0	0.00	10.22
204	31.844	0.157	1.07	86	2.08	254.6	0.033	40.0	0.01	10.21
205	32.001	0.157	1.07	86	2.08	254.1	0.036	40.0	0.00	10.25
206	32.157	0.156	1.08	86	2.09	254	0.035	40.0	0.00	10.25
207	32.311	0.154	1.08	86	2.10	254.1	0.036	40.0	0.00	10.23
208	32.468	0.157	1.08	86	2.06	253.2	0.037	46.0	0.00	10.55
209	32.624	0.156	1.08	86	2.08	253.3	0.035	46.0	0.00	10.52
210	32.781	0.157	1.08	86	2.09	252.9	0.037	47.0	0.00	10.49
211	32.937	0.156	1.08	86	2.08	252.8	0.039	43.0	-0.01	10.45
212	33.094	0.157	1.08	86	2.09	252.4	0.036	44.0	0.00	10.41

Train D - Ambient Background and Flue Gas Data

Run: 5 **Test Date:** 10/2/2025

Manufacturer: Valley Comfort
Model: Sentry 14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 16:10
Total Sampling Time 228 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
213	33.251	0.157	1.08	86	2.01	252.7	0.034	43.0	0.00	10.39
214	33.407	0.156	1.08	86	2.04	252.8	0.033	44.0	0.00	10.27
215	33.567	0.160	1.08	86	2.03	252.2	0.028	46.0	-0.01	10.29
216	33.723	0.156	1.08	86	2.04	252.6	0.035	45.0	0.00	10.27
217	33.880	0.157	1.07	86	2.03	252.6	0.039	45.0	0.00	10.19
218	34.038	0.158	1.08	86	2.09	252.8	0.037	46.0	-0.01	10.28
219	34.193	0.155	1.08	86	2.08	252.9	0.037	47.0	0.00	10.33
220	34.350	0.157	1.08	86	2.05	253	0.035	47.0	0.00	10.39
221	34.505	0.155	1.08	86	2.05	253.3	0.034	46.0	-0.01	10.39
222	34.660	0.155	1.08	86	2.10	253.2	0.037	45.0	0.01	10.33
223	34.818	0.158	1.08	86	2.04	253.1	0.036	42.0	0.00	10.50
224	34.973	0.155	1.08	86	2.09	253.4	0.036	44.0	0.00	10.53
225	35.130	0.157	1.08	86	2.03	253.3	0.033	44.0	-0.01	9.99
226	35.287	0.157	1.07	86	2.09	252.8	0.038	45.0	0.00	9.80
227	35.443	0.156	1.08	86	2.10	252.9	0.034	44.0	0.00	9.87
228	35.603	0.160	1.08	86	2.09	253.3	0.037	42.0	0.00	9.85

Gravimetric Lab Data

ASTM E2515

Manufacturer:	Valley Comfort
Model:	Sentry 14
Tracking No.:	2509
Project No.:	0142WS024E
Run No.:	5
Test Date:	10/2/25

OMNI Eq. ID Numbers	
Analytical Scale	
Audit Weight Set:	
Analytical Scale	
Hydrometer	
Filters are weighed	In Pairs

Train A

Sample Component / Date / Time in Dessicator		Reagent	Filter, Probe or Dish #	Weights: Final, mg	Weights: Tare, mg	Particulate, mg: Uncorrected	Particulate, mg: Corrected
FilterPairs		Filter	F596	247.6	245.2	2.4	2.4
			F596A				
Probe catch*		Probe	22	114339.2	114339.2	0.0	0.0
ilter seals catch*		Seals	S987	3327.6	3327.6	0.0	0.0
				Total Particulate, mg:		**2.4**	**2.4**

Train B

Sample Component / Date / Time in Dessicator		Reagent	Filter, Probe or Dish #	Weights: Final, mg	Weights: Tare, mg	Particulate, mg: Uncorrected	Particulate, mg: Corrected
FilterPairs		Filter	F597	247.4	244.8	2.6	2.6
			F597A				
Probe catch*		Probe	38	114148.5	114148.5	0.0	0.0
ilter seals catch*		Seals	S988	3343.6	3343.6	0.0	0.0
			Sub-Total	Total Particulate, mg:		**2.6**	**2.6**

Train C - *First Hour*

Sample Component / Date / Time in Dessicator		Reagent	Filter, Probe or Dish #	Weights: Final, mg	Weights: Tare, mg	Particulate, mg: Uncorrected	Particulate, mg: Corrected
FilterPairs		Filter	F598	249.0	246.9	2.1	2.1
			F598A				
Probe catch*		Probe	50	118128.6	118128.6	0.0	0.0
ilter seals catch*		Seals	S989	3453.4	3453.4	0.0	0.0
				Total Particulate, mg:		**2.1**	**2.1**

Train D - *Ambient Background*

Sample Component / Date / Time in Dessicator		Reagent	Filter # or	Weights: Final, mg	Weights: Tare, mg	Particulate, mg
Filter catch*		Filter	580	122.0	122.0	0.0
				Total Particulate, mg:		**0.0**

Final (mg) - Tare (mg) = Particulate (mg)

NOTE: The Uncorrected values are those where any negative filter weights are taken as a negative value. This can possibly occur when filter matter adheres the O-ring seals and thereby transfers some mass to the O-ring. The Corrected values reflect where any negative filter weights are taken as ZERO, thus not accounting for any transfer of mass and resultingly over-reporting. Corrected values were added to this analysis to report the "Corrected" results in this report in response to a request by the US EPA. In cases where the Final weight minus the Tare weight of the Ambient filter occurs, it is taken as a ZERO. Any negative probe weights are evaluated pursuant to clause of ASTM E25215 (or appropriatelt associated test standard as defined in the introduction of this report).

Technician Signature:_____ Reviewed By:_____

Run 5 - Run Notes

Manufacturer	Valley Comfort
Model:	Sentry 14
Project Number:	0142WS024E
Run Number:	5
Test Date:	10/2/2025

This supplemental section of miscellaneous run notes is comprised of the following:

- Appliance Operation Notes
- Velocity Traverse / Supplementa Run Notes
- Test Fuel Notes
- Gravimetric Analysis Notes

ASTM E2780 Wood Heater Test Notes

Client: Valley Comfort Project Number: 0142WS024E Run Number:5
Model: Sentry 14 Tracking Number: Date: 10/2/2025
Test Crew:

Test Fuel Properties

Equipment			
Device	**OMNI Number**	**Cal Date**	**Cal Due**
Tape Measure			
Moisture Meter			
Moisture Reference			
Fuel Scale			
Fuel Scale Audit Weight			
Fuel Species / Type	Douglas fir, untreated and air dried, standard grade or better dimensional lumber.		

Calibration Verifications			
Moisture Meter		Fuel Preparation Scale	
12% Reference :	12.0	10.0 lb. Reference Audit :	10.80
22% Reference :	22.0		

Pre-Burn Fuel								
Piece No.	Length, In.	Moisture % db	Piece No.	Length, In.	Moisture % db	Piece No.	Length, In.	Moisture % db
1	10	19.4	7	14.5	24.7	13		
2	10	19.7	8			14		
3	14.5	25.3	9			15		
4	10	24.4	10			16		
5	10	25.5	11			17		
6	14.5	21.1	12			18		
Total Weight, lb.		9.93	Time of Day		13.22	Room Temp. °F		71

Test Fuel Charge					
Piece No.	**Weight, Lb.**	**Moisture Measurements**			**Lumber Type**
1	1.98 / 1.60	23.2	23.8	24.4	2x4
2	2.09 1.70	24.6	23.8	22.3	
3	1.91 1.52	20.5	20.0	19.7	
4	2.10 1.73	20.9	21.2	21.7	
5	2.10 1.72	19.9	22.0	23.1	
6					
7					
8					
Spacer Moisture Readings					
9.0	10.0	9.4	8.8	10.0	
9.2	8.6	9.8	8.7	8.4	
9.3	9.1	9.2	10.0	9.8	
9.6	10.2	9.2	10.1	9.6	
Time of Day		1426	Room Temp. °F		71
Total weight 2x4 with spacers, lb.		10.18	Total weight 4x4 with spacers, lb.		
			Total weight of fuel charge, Lb.		

Technician Signature: Date: 10-16-2025

ASTM E2780 Wood Heater Test Notes

Client: Valley Comfort Project Number: 0142WS024E Run Number:5
Model: Sentry 14 Tracking Number: Date: 10/2/2025
Test Crew:

Supplemental Data

Test Booth No. _____ Sampling Start Time:_____ Sampling End Time: _____

Tunnel Cleaned Date _____ % Smoke Capture _____ Induced Draft _____ in.H_2O

Systems Leak Checks			
System	**Pre-Test**	**Post-Test**	**Sampling Probe Change-out**
Pitot	0.00 @ 3.00"	0.00 @ 3"	
Train A	0.002 @ 23.71	0.002 @ 7.13	
Train B	0.002 @ 21.98	0.001 @ 7.36	
Train C	0.003 @ 18.21	0.004 @ 10.76	

Velocity Traverse, 6-inch tunnel			
Location	Microtector (in. H_2O)	Δp (in. H_2O)	Tunnel Temp. , °F
Center	.054	.108	90
1	.031	.062	90
2	.041	.082	90
3	.045	.090	90
4	.030	.060	90
5	.032	.064	90
6	.042	.084	90
7	.041	.082	90
8	.031	.062	90
Tunnel Static (in. H_2O)		Pre-Test	Post-Test
		-0.4	-0.4

Miscellaneous Parameters			
Item	**Initial**	**Final**	**Equipment No.**
Room Air Velocity, ft/min.	21	20	
Scale Audit, lb. (20-80 % of fuel load)	10.0	10.0	
Room Relative Humidity, %	56	54	
Barometric Pressure, in. Hg	30.04	30.05	
Room Temperature, °F	72	73	

Flue Gas Continuous Analyzer						
Analyzer ID		Response Time, sec.		Leak Check Performed?		
Bias Checks	Concentration:		Pre-Test Response		Post-Test Response	
Concentration	Bottle No.	Value, %	Pre-Test Response		Post-Test Response	
			Zero	Span	Zero	Span
CO2 % Span		16.88	0	16.88	0	16.87
CO % Span		4.07	0	4.07	0	4.06
CO ppm Span		500	0	499	0	490
Zero		0	0			

Technician Signature: _____ Date: 10-16-2025

OMNI-Test Laboratories, Inc.

ASTM E2780 Wood Heater Test Notes

Client: Valley Comfort Project Number: 0142WS024E Run Number:5
Model: Sentry 14 Tracking Number: Date: 10/2/2025
Test Crew:

Primary Air Control Settings

30°

Secondary:

Tertiary/Pilot:

Fan: off

Preburn Notes

Time	Notes
1416	Preburn loaded
1443	Air setting set to test setting
1610	At 2.5 lbs preburn was stopped

Sampling Portion Notes

Sketch test fuel configuration:

Start up procedures & Timeline:
Bypass: Used
Fuel loaded by: 25
Door closed at: 50
Primary air: 30°

Notes:

Time	Notes
1610	Test start
1710	First hour sampling stopped
1928	Test Complete

Technician Signature: Date: 10/2/2025

ASTM E2780 Wood Heater Test Notes

Client: Valley Comfort Project Number: 0142WS024E Run Number:5
Model: Sentry 14 Tracking Number: Date: 10/2/2025
Test Crew:

Gravimetric Analysis Sheet

Assembled By: RT

Date/Time in Desiccator:

	Weighing's				
	Date/Time: 10-3-25 0730	Date/Time: 10-6-25 0800	Date/Time: 10-8-25 0730	Date/Time:	Date/Time:
	R/H %: 0.1 11.5	R/H %: 0.6 11.0	R/H %: 0.4 11.8	R/H %:	R/H %:
	Temp: 73.1	Temp: 72.6	Temp: 71.9	Temp:	Temp:
	100 mg Audit 100.0	100 mg Audit 99.9	100 mg Audit 100.0	100 mg Audit	100 mg Audit
	200 mg Audit: 200.0	200 mg Audit: 200.0	200 mg Audit: 200.0	200 mg Audit:	200 mg Audit:
	2 g Audit: 2.0001	2 g Audit: 2.0002	2 g Audit: 2000.2	2 g Audit:	2 g Audit:
	100 g Audit: 99997.7	100 g Audit 99997.7	100 g Audit 99997.7	100 g Audit	100 g Audit
	Initials: RT	Initials: RT	Initials: RT	Initials:	Initials:

Train	Element	ID #	Tare (mg)	V	Weight (mg)	Weight (mg)	Weight (mg)	Weight (mg)	Weight (mg)
A	Filter Pair	F596 F596A	245.2		247.8	247.6✓			
	Probe	22	114339.2		114339.3	114339.2			
	O-Ring Set	S987	3327.6		3327.9	3327.6✓	3327.6✓		
B	Front Filter	F597 F597A	244.8		247.5	247.4✓			
	Probe	38	114148.5		114148.5	~~114148.5~~ 114148.5✓			
	O-Ring Set	S988	3343.6		3343.9	3343.6✓	3343.6✓		
C (1st hr)	Front Filter	F598 F598A	246.9		249.0	249.0✓			
	Probe	50	118128.6		118128.6	118128.6✓			
	O-Ring Set	S989	3453.4		3453.4	3452.4✓			
BG	Filter	F580	122.0		122.0✓	122.0✓			

Technician Signature: Date: 10-16-2025

Equations and Calculations – ASTM E2780 & E2515

Manufacturer	Valley Comfort
Model:	Sentry 14
Project Number:	0142WS024E
Run Number:	5

Sample calculations of each equation used in the refernced standards for this test run.

Summary of INPUT values necessary for calculations

Global Input Parameters for Equations		Value	Source
FM_S	- Average moisture of test fuel spacers, % dry basis	9.40	Fuel Properties Work Sheet
M_{Swb}	- Weight of Test Fuel Spacers, wet basis, kg	1.91	Fuel Properties Work Sheet
M_{CPnwb}	- Weight of each test fuel piece n in fuel crib, excluding nails and spacers, wet basis , kg	[1]Varies	Fuel Properties Work Sheet
FM_{CPn}	- Average fuel Fuel moisture in fuel crib, % dry basis	[1]Varies	Fuel Properties Work Sheet
V_C	- Volume of Fuel Crib, ft^3 (less spacers)	0.220	Fuel Properties Work Sheet
V_{SCENT}	- Average gas velocity at the center of the dilution tunnel calculated after the Pitot tube traverse, ft/sec	0.00	Traverse Worksheet
V_{STRAV}	- Average gas velocity calculated after the multipoint Pitot traverse	14.96	Traverse Worksheet
θ	- Duration of test, min	228	*Train A Worksheet*
P_{bar}	- Barometric pressure (average) at the testing site, in. Hg	30.05	*Traverse Worksheet*
Pg	- Tunnel Static Pressure	-0.4	*Traverse Worksheet*

[1] *Denotes that this pararmeter for each individual piece of fuel is calculated in the Test Fuel Properties worksheet and the input values are pulled into these sample caculations.*

Sample Train Input Parameters for Equations		Train A	Train B	Train C	Train D
V_m	- Volume of gas sample measured at the dry gas meter, dcf	38.282	36.974	9.469	35.603
Y	Dry gas meter calibration factor	0.991	1.005	0.981	0.960
ΔH	- Average pressure differential across the orifice meter, in. H_2O	1.21	1.24	0.98	1.07
T_m	- Temperature of Dry Gas Meter, °F	94.5	91.5	78.7	79.0
Uncorrected Sample Mass					
m_p	- mass of particulate matter from probe, mg	0.0	0.0	0.0	n/a
m_f	- mass of particulate matter from filters, mg	2.4	2.6	2.1	0.0
m_g	- mass of particulate matter from filter seals, mg	0.0	0.0	0.0	n/a
Corrected Sample Mass					
m_p	- mass of particulate matter from probe, mg	0.0	0.0	0.0	n/a
m_f	- mass of particulate matter from filters, mg	2.4	2.6	2.1	n/a
m_g	- mass of particulate matter from filter seals, mg	0.0	0.0	0.0	n/a

M_{Sdb} – Weight of test fuel spacers, dry basis, kg - ASTM E2780 equation (1)

$$M_{Sdb} = (M_{Swb})\left(\frac{100}{100 + FM_S}\right)$$

Where,

FM_S = average moisture of test fuel spacers, % dry basis
M_{Swb} = weight of test fuel spacers, wet basis, kg

Sample Calculation:

FM_S = 9.40 %, dry basis
M_{Swb} = 1.91 lb.
0.4536 = Conversion factor, lb. → kg

M_{Sdb} = ((1.91 x 0.4536) (100 / (100 + 9.4))

M_{Sdb} = **0.792** kg

MCdb– Weight of test fuel crib, excluding nails and spacers, dry basis, kg - ASTM E2780 equation (2)

$$M_{Cdb} = \sum (M_{CPnwb})\left(\frac{100}{100 + FM_{CPn}}\right)$$

Where,

M_{CPnwb} = weight of each test fuel piece n in fuel crib, excluding nails and spacers, wet basis, kg
FM_{CPn} = Average fuel moisture of test fuel n in fuel crib, % dry basis

Sample Calculation:

ΣM_{CPnwb} = 8.27 lb.
FM_{CPn} = 22.07 %, dry basis
0.4536 = Conversion factor, lb. → kg

M_{Cdb} = 8.27 x 0.4536 x (100 / (100 + 22.0733333333333))

M_{Cdb} = **3.07** kg

DCdb - Density of fuel crib, excluding spacers and nails, dry basis, lbs/ft3 - ASTM E2780 equation (3)

$$D_{Cdb} = M_{Cdb}/V_C$$

Where,

V_C = Volume of Fuel Crib, ft³ (less spacers)

Sample Calculation:

M_{Cdb} = 6.77 lb
V_C = 0.220 ft^3

D_{Cdb} = 6.77 / 0.22

D_{Cdb} = **30.76** lb/ft^3

M_{FTAdb} - Total weight of fuel crib including spacers and nails, dry basis - ASTM E2780 equation (4)

$$M_{FTAdb} = M_{Sdb} + M_{Cdb}$$

Sample Calculation:

M_{Sdb} = 0.792
M_{Cdb} = 3.07

M_{FTAdb} = 0.792 + 3.07

M_{FTAdb} = **3.86** kg

BR – dry burn rate, kg/hr - ASTM E2780 equation (5)

$$BR = \frac{60\ M_{FTAdb}}{\theta}$$

Sample Calculation:

M_{FTAdb} = 3.865
θ = 228

BR = (60 x 3.865) / 228

BR = **1.02** kg / hr

***Vs* – Average gas velocity in the dilution tunnel, ft/sec -** ASTM E2515 equation (9)

$$V_S = F_P \times K_P \times C_P \times \left(\sqrt{\Delta P}\right)_{avg} \times \sqrt{\frac{T_{s(avg)}}{P_s \times M_s}}$$

Where

F_P = Adjustment factor for center of tunnel pitot tube placement, where $F_P = V_{STRAV} / V_{SCENT}$

V_{SCENT} = Dilution tunnel velocity, at the center, ft/sec

V_{STRAV} = Dilution tunnel velocity, multi-point pitot traverse, ft/sec

K_P = Pitot tube constant, 85.49

C_P = Pitot tube coefficient: 0.99, unitless

$\Delta P^{1/2}_{AVG}$ = Velocity pressure in the dilution tunnel, in H_2O

$T_{S\,(avg)}$ = Absolute average gas temperature in the dilution tunnel, °R

P_S = Absolute average gas static pressure in tunnel, = Pbar + Pg , where Pbar = Barometric Pressure, in. Hg, Pg = Static pressure in tunnel, Hg (in H_2O / 13.6)

M_S = The dilution tunnel wet molecular weight; Ms = 28.78 assuming a dry weight of 29 lb/lb-mole

(Duration of Test)

F_P = 0.8210

$\Delta P^{1/2}_{AVG}$ = 0.3318

$T_{S\,(avg)}$ = 548.9808

Pbar = 30.0450

Pg = -0.4000

Ps = 30.0156

V_S = 0.821 x 85.49 x 0.99 x 0.332 x √ [(549 / (30.02 x 28.78)]

V_S = **18.381** ft/sec

(First Hour of Test)

F_P = 0.8210

$\Delta P^{1/2}_{AVG}$ = 0.3314

$T_{S\,(avg)}$ = 553.3885

Pbar = 30.0400

Pg = -0.4000

Ps = 30.0106

V_S = 0.821 x 85.49 x 0.99 x 0.331 x √ [(553 / (30.01 x 28.78)]

V_S = **18.432** ft/sec

Q_{std} – Average gas flow rate in dilution tunnel, dscf/hr - ASTM E2515 equation (3)

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

Where:

3600 = Conversion from seconds to hours (ASTM method uses 60 to convert in minutes)
B_{ws} = Water vapor in gas stream, proportion by volume; assume 2%
A = Cross sectional area of dilution tunnel, ft2
T_{std} = solute temperature, 528 °R
P_s = Absolute average gas static pressure in dilution tunnel, = Pbar + Pg , in Hg
$T_{s(avg)}$ = Absolute average gas temperature in the dilution tunnel, °R; (°R = °F + 460)
P_{std} = Standard absolute pressure, 29.92 in Hg

(Duration of Test):

B_{ws} = 0.02
A = 0.19635
P_s = 30.02
$T_{s(avg)}$ = 549
Vs = 18.38

Qstd = 3600 x (1 - 0.02) x 18.381 x 0.19635 x (528 / 549) x (30.02 / 29.92)

Qstd = **12285.2** dscf/hr

(First Hour):

B_{ws} = 0.02
A = 0.19635
P_s = 30.01
$T_{s(avg)}$ = 553
Vs = 18.432

Qstd = 3600 x (1 - 0.02) x 18.432 x 0.1963 x (528 / 553) x (30.01 / 29.92)

Qstd = **12219.0** dscf/hr

Vm(std) – Volume of Gas Sampled (Corrected), dscf - ASTM E2515 equation (6)

$$V_{m(std)} = K_1 V_m Y \frac{P_{bar} + \left(\frac{\Delta H}{13.6}\right)}{T_m}$$

Where:

K_1	=	17.64 °R/in. Hg
V_m	=	Volume of gas sample measured at the dry gas meter, dcf
Y	=	Dry gas meter calibration factor, dimensionless
P_{bar}	=	Barometric pressure at the testing site, in. Hg
ΔH	=	Average pressure differential across the orifice meter, in. H_2O
T_m	=	Absolute average dry gas meter temperature, °R

Sample Calculation:

Train A

$$V_{m(std)} = 17.64 \times 38.282 \times 0.991 \times \frac{(30.05 + \frac{1.21}{13.6})}{(94.5 + 460)}$$

$V_{m(std)}$ = **36.368** dscf

Train B

$$V_{m(std)} = 17.64 \times 36.974 \times 1.005 \times \frac{(30.05 + \frac{1.24}{13.6})}{(92 + 460)}$$

$V_{m(std)}$ = **35.816** dscf

Train C (1st Hour)

$$V_{m(std)} = 17.64 \times 9.47 \times 0.981 \times \frac{(\underline{30.04} + \frac{0.98}{13.6})}{(78.7 + 460)}$$

$V_{m(std)}$ = **9.160** dscf

Train D (Background)

$$V_{m(std)} = 17.64 \times 35.60 \times 0.960 \times \frac{(\underline{30.05} + \frac{1.07}{13.6})}{(79.0 + 460)}$$

$V_{m(std)}$ = **33.696** dscf

mn – Total Particulate Matter Collected, mg - ASTM E2515 Equation (12)

$$m_n = m_p + m_f + m_g$$

Where:

m_p = mass of particulate matter from probe, mg

m_f = mass of particulate matter from filters, mg

m_g = mass of particulate matter from filter seals, mg

Sample Calculations (Uncorrected):

Train A

m_n = 0.0 + 2.4 + 0.0

m_n = **2.4** mg

Train B

m_n = 0.0 + 2.6 + 0.0

m_n = **2.6** mg

Train C (1st hour)

m_n = 0.0 + 2.1 + 0

m_n = **2.1** mg

Train D (Background)

$m_n = m_f$ = 0.0

m_n = **0.0** mg

Sample Calculations (Corrected):

Train A

m_n = 0.0 + 2.4 + 0.0

m_n = **2.4** mg

Train B

m_n = 0.0 + 2.6 + 0.0

m_n = **2.6** mg

Train C (1st hour)

m_n = 0.0 + 2.1 + 0

m_n = **2.1** mg

Train D (Background)

$m_n = m_f$ = 0.0

m_n = **0.0** mg

C_s - Concentration of particulate matter in tunnel gas, dry basis, corrected to standard conditions

g/dscf - ASTM E2515 equation (13)

$$C_s = K_2 \times \frac{m_n}{V_{m(std)}}$$

Where:

K_2 = Constant, 0.001 g/mg

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

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

Sample Calculations (Uncorrected):

Train A

$$C_s = 0.001 \times \frac{2.4}{36.37}$$

C_s = **0.000066** g/dscf

Train B

$$C_s = 0.001 \times \frac{2.6}{35.82}$$

C_s = **0.0000726** g/dscf

Train C (1st Hour)

$$Cs = 0.001 \times \frac{2.1}{9.16}$$

Cs = **0.000229** g/dscf

Train D (Background)

$$C_r = 0.001 \times \frac{0.0}{33.70}$$

C_r = **0.000000** g/dscf

Sample Calculations (Corrected):

Train A

$$C_s = 0.001 \times \frac{2.4}{36.37}$$

C_s = **0.000066** g/dscf

Train B

$$C_s = 0.001 \times \frac{2.6}{35.82}$$

C_s = **0.0000726** g/dscf

Train C (1st Hour)

$$Cs = 0.001 \times \frac{2.1}{9.16}$$

Cs = **0.000229** g/dscf

Train D (Background)

$$C_r = 0.001 \times \frac{0.0}{33.70}$$

C_r = **0.000000** g/dscf

ET – Total Particulate Emissions, g - ASTM E2515 equation (15)

$$E_T = (c_s - c_r) \times Q_{std} \times \theta$$

Where:

C_s	=	Concentration of particulate matter in tunnel gas, g/dscf
C_r	=	Concentration particulate matter room air, g/dscf
Q_{std}	=	Average dilution tunnel gas flow rate, dscf/hr
θ	=	Total time of test run, minutes

Sample calculations (uncorrected)

Train A

E_T = (0.000066 - 0.000000) x 12285.2 x 228 / 60

E_T = **3.08** g

Train B

E_T = (0.000073 - 0.000000) x 12285.2 x 228 / 60

E_T = **3.39** g

First Hour

E_T = (0.000229 - 0.000000) x 12219.0 x 60 / 60

E_T = 2.80 g

Trains A and B Average

E = **3.23** g

Sample calculations (Corrected)

Train A

E_T = (0.000066 - 0.000000) x 12285.2 x 228 / 60

E_T = **3.08** g

Train B

E_T = (0.000073 - 0.000000) x 12285.2 x 228 / 60

E_T = **3.39** g

First Hour

E_T = (0.000229 - 0.000000) x 12219.0 x 60 / 60

E_T = **2.80** g

Trains A and B Average

E_T = **3.23** g

PM_R – Particulate emissions for test run, g/hr - ASTM E2780 equation (6)

$$PM_R = 60(E_T/\theta)$$

Where,

E_T = Total particulate emissions, grams

θ = Total length of full integrated test run, min

Sample Calculation (Uncorrected)

Train A

E_T = 3.08 g

θ = 228 min

PM_R = 60 x (3.08 / 228)

PM_R = **0.81** g/hr

Train B

E_T = 3.39 g

θ = 228 min

PM_R = 60 x (3.39 / 228)

PM_R = **0.89** g/hr

A and B Average

E_T = **0.85** g/hr

First Hour

E_T = 2.80 g

θ = 60 min

PM_R = 60 x (2.80 / 60)

PM_R = **2.80** g/hr

Sample Calculation (Corrected)

Train A

E_T = 3.08 g

θ = 228 min

PM_R = 60 x (3.08 / 228)

PM_R = **0.81** g/hr

Train B

E_T = 3.39 g

θ = 228 min

PM_R = 60 x (3.39 / 228)

PM_R = **0.89** g/hr

A and B Average

E_T = **0.85** g

First Hour

E_T = 2.80 g

θ = 60 min

PM_R = 60 x (2.80 / 60)

PM_R = **2.80** g/hr

PM_F – Particulate emission factor for test run, g/dry kg of fuel burned - ASTM E2780 equation (7)

$$PM_F = E_T / M_{FTAdb}$$

Sample Calculation (Uncorrected)

Train A

E_T = 3.08 g
M_{FTAdb} = 3.86 kg
PM_F = 3.08 / 3.86
PM_F = **0.80** g/kg

Train B

E_T = 3.39 g
M_{FTAdb} = 3.86 kg
PM_F = 3.39 / 3.86
PM_F = **0.88** g/kg

Sample Calculation (Corrected)

Train A

E_T = 3.08 g
M_{FTAdb} = 3.86 kg
PM_F = 3.08 / 3.86
PM_F = **0.80** g/kg

Train B

E_T = 3.39 g
M_{FTAdb} = 3.86 kg
PM_F = 3.39 / 3.86
PM_F = **0.88** g/kg

PR - Proportional Rate Variation - ASTM E2515 equation (16)

$$PR = \left[\frac{\theta \times V_{mi} \times V_s \times T_m \times T_{si}}{\theta_i \times V_m \times V_{si} \times T_{mi} \times T_s}\right] \times 100$$

Where:			Train A	Train B	Train C
θ	=	Total sampling time, min	228	228	60
θ_i	=	Length of recording interval, min	1	1	1
V_{mi}	=	Volume of gas sample measured by the dry gas meter during the "ith" time interval, dcf	0.169	0.159	0.159
V_m	=	Volume of gas sample as measured by dry gas meter, dcf	38.282	36.974	9.469
V_{si}	=	Average gas velocity in the dilution tunnel during the "ith" time interval, ft/sec	18.501	18.501	18.501
V_s	=	Average gas velocity in the dilution tunnel, ft/sec	18.382	18.382	18.434
T_{mi}	=	Absolute average dry gas meter temperature during the "ith" time interval, ^oR	538.2	536.1	535.4
T_m	=	Absolute average dry gas meter temperature, ^oR	554.5	551.5	538.7
T_{si}	=	Absolute average gas temperature in the dilution tunnel during the "ith" time interv	569.3	569.3	569.3
T_s	=	Absolute average gas temperature in the dilution tunnel, ^oR	549.0	549.0	553.4

NOTE: These sample calculations are for the Second interval of each train)

Train A PR = $\left(\frac{228 \text{ x } 0.169 \text{ x } 18.382 \text{ x } 554 \text{ x } 569}{1 \text{ x } 38.282 \text{ x } 18.501 \text{ x } 538 \text{ x } 549}\right)$ X 100 = 106.8 %

Train B PR = $\left(\frac{228 \text{ x } 0.159 \text{ x } 18.382 \text{ x } 552 \text{ x } 569}{1 \text{ x } 36.974 \text{ x } 18.501 \text{ x } 536 \text{ x } 549}\right)$ X 100 = 103.9 %

Train B PR = $\left(\frac{60 \text{ x } 0.159 \text{ x } 18.434 \text{ x } 539 \text{ x } 569}{1 \text{ x } 9.469 \text{ x } 18.501 \text{ x } 535 \text{ x } 553}\right)$ X 100 = 103.9 %

Run 6 Test Data

Test Date: 10/3/2025
Manufacturer: Valley Comfort
Model S14

Contents, in the following order:

· Emissions Test Results
· CSA B415 Results and Data
· Test Fuel Properties
· Velocity Traverse / Supplemental Data Worksheet
· Test Pre-Burn Data
· Sample Train A / Dilution Tunnel Data
· Sample Train B / Appliance Temperature Data
· Sample Train C (First Hour) Data
· Sample Train D (Background) / Flue Gas Data
· Gravimetric Lab Analysis
· Test Lab Notes
  - Appliance Operation Notes
  - Velocity Traverse / Supplemental Data Notes
  - Test Fuel Notes
  - Gravimetric Analysis Notes
· Equations and Calculations

Wood Heater Test Results

ASTM E2780 / ASTM E2515

Manufacturer: Valley Comfort
Model: S14
Project No.: 0142WS024E
Tracking No.: 2509
Run: 6
Test Date: 10/03/25

Burn-Rate Result

0.62 kg/hr

Particulate Emissions Results

	Average of Trains A and B		First Hour	
	Uncorrected	*Corrected*	*Uncorrected*	*Corrected*
Total Emissions - E_T, g	8.88	8.88	0.95	0.95
Emission Rate, g/hr	**1.47**	1.47	**0.95**	0.95
Emissions Factor, g/kg	2.37	2.37	n/a	n/a

Dilution Tunnel Flow Parameters

		First Hour	Duration of Test
Average Tunnel Temperature, °F		78.0	75.8
Average Tunnel Gas Velocity (vs), feet/second		18.080	18.103
Average Tunnel Gas Flow Rate(Qsd)	DSCF/hr	12390.1	12446.1
	DSCF/min	206.5	207.4
Average Delta p, in. H2O		0.108	0.109
Tunnel Static Pressure, in. H2O		-0.400	-0.400
Total Time of Test, Min		60	362

Particulate Sample Measurement Parameters

	Uncorrected				*Corrected*			
	AMBIENT	Train A	Train B	First Hour	AMBIENT	Train A	Train B	First Hour
Total Sample Volume (V_m), ft^3	56.742	60.263	58.103	9.385	56.742	60.263	58.103	9.385
Average Gas Meter Temperature, °F	79	93	91	76	79	93	91	76
Total Sample Volume (V_{mstd}), DSCF	53.919	57.581	56.600	9.169	53.919	57.581	56.600	9.169
Total Particulates (mn), mg - m_n	0.0	6.7	6.8	0.7	0.0	6.7	6.8	0.7
Particulate Concentration (C_s - C_r), g/DSCF	0.00000	0.00012	0.00012	0.00008	0.00000	0.00012	0.00012	0.00008
Total Particulate Emissions (ET), grams	n/a	8.74	9.02	0.95	n/a	8.74	9.02	0.95
Particulate Emission Rate, g/hr	n/a	1.45	1.50	0.95	n/a	1.45	1.50	0.95
Emissions Factor, g/kg	n/a	2.34	2.41	n/a	n/a	2.34	2.41	n/a
Difference, ET from from Average ET, grams	n/a	-0.14	0.14	n/a	n/a	-0.14	0.14	n/a

Test Methodology Specifications and Quality Checks

Parameter	*Requirement*	*Measured / Observed*			*Complies?*
		First Hour	*Train 1*	*Train 2*	
Filter Temperature, °F	< 90	72	70	70	✓
Filter Face Velocity, fpm	< 30	8.62	9.16	8.84	✓
Dryer Exit Temperature, °F	< 80	68	53	51	✓
Tunnel Velocity, fpm	>800	1,085	1,086		✓
First Hour Leakage	0.006	0.002			✓
Train A Leakage Rate	0.007		0.002		✓
Train B Leakage Rate	0.006			0.001	✓
Leakage Rate Limits (cfm) are < 4% of average sample rate or < 0.01 cfm, which ever is less					
Negative Probe Weight	=> 0	0	0	0	✓
Pro-Rate Variation	< 90 for < 10% of θ	0.00%	0.28%	0.28%	✓
	> 110 for < 10% of θ	0.00%	0.000%	0.00%	✓
	# Readings < 80%	0	0	0	✓
	# Readings > 120%	0	0	0	✓
Ambient Temp, °F	> 55		67.4		✓
Ambient Temp, °F	< 90		72.3		✓
Trains A and B Precision	(*A*) < 7.5%		1.60%		✓
Either A or B must conform	(*B*) < 0.5 g/kg		0.08		✓
Stove Surface ΔT	<= 125 °F		13		✓
Room Air Velocity	< 50 fpm		13		✓

CSA B415.1-11 Efficiency Results

Manufacturer	Valley Comfort
Model:	S14
Project Number:	0142WS024E
Run Number:	6
Test Date:	10/3/2025

Efficiency results reported herein are based on a stack-loss method in accordance with CSA B415.1:22 "Performance testing of solid-biofuel-burning heating appliance". OMNI uses the spreadsheet provided by CSA that is to be used in conjunction with the current version of the test standard. The most recent version of the software is version 2.4, dated April 15, 2010. OMNI received confirmation from CSA on October 18, 2023 that this is the current version of the software.

OMNI Test Laboratories

Manufacturer: Valley Comfort
Model: Sentry 14
Date: 10/03/25
Run: 6
Control #: 2509
Test Duration: 362
Output Category:

Technicians: R Tiegs

Test Results in Accordance with CSA B415.1-10

	HHV Basis	LHV Basis
Overall Efficiency	79.4%	85.8%
Combustion Efficiency	93.5%	93.5%
Heat Transfer Efficiency	85%	91.8%

Output Rate (kJ/h)	9,748	9,247	**(Btu/h)**
Burn Rate (kg/h)	0.62	1.37	**(lb/h)**
Input (kJ/h)	12,277	11,646	**(Btu/h)**

Test Load Weight (dry kg)	3.74	8.24	**dry lb**
MC wet (%)	16.42		
MC dry (%)	19.65		
Particulate (g)	8.88		
CO (g)	337		
Test Duration (h)	6.03		

Emissions	**Particulate**	**CO**
g/MJ Output	0.15	5.73
g/kg Dry Fuel	2.37	90.08
g/h	1.47	55.83
lb/MM Btu Output	0.35	13.31

Air/Fuel Ratio (A/F)	9.79

VERSION: **2.4** **4/15/2010**

VERSION: 2.4 4/15/2010

Manufacturer:	Valley Comfort	**Appliance Type:**	Cat (Cat, Non
Model:	Sentry 14		
Date:	10/3/2025	**Temp. Units**	F (F or C)
Run:	6	**Weight Units**	lb (kg or lb)
Control #:	2509		
Test Duration:	362		
Output Category:			

		Fuel Data		
			D. Fir	
Wood Moisture (% wet):	16.42	**HHV**	19,810	kJ/kg
Load Weight (lb wet):	9.86	**%C**	48.73	
Burn Rate (dry kg/h):	0.62	**%H**	6.87	
Total Particulate Emissions:	8.88 g	**%O**	43.9	
		%Ash	0.5	

Averages	**0.70**	**10.84**	**#DIV/0!**	**176.71**	**70.61**
				Temp. (ºF)	
Elapsed Time (min)	**Fuel Weight Remaining (lb)**	**Flue Gas Composition (%) CO**	**CO_2**	**O_2**	**Flue Gas**	**Room Temp**
0	9.86	0.01	6.54		115.8	69.5
1	9.83	0.10	2.17		174.4	69.4
2	9.83	0.11	0.49		162.4	69.5
3	9.82	0.53	2.49		148.7	69.6
4	9.80	0.63	3.60		140.1	69.7
5	9.79	0.32	4.28		134.4	69.7
6	9.78	0.06	4.72		130.5	69.3
7	9.78	0.01	5.13		127.5	69.2
8	9.77	0.01	5.57		125.8	68.2
9	9.76	0.01	5.91		125.2	68.1
10	9.76	0.01	6.44		125.8	68.1
11	9.74	0.01	8.15		128.1	68.0
12	9.71	0.00	8.37		131.7	67.4
13	9.67	0.01	8.17		136.7	67.8
14	9.66	0.01	8.36		142.8	68.1
15	9.62	0.01	8.47		150.4	68.3
16	9.58	0.01	9.38		157.4	68.6
17	9.54	0.01	8.55		165.0	68.7
18	9.49	0.01	9.43		171.9	68.9
19	9.46	0.01	9.34		178.6	68.7
20	9.38	0.01	9.52		185.7	68.5
21	9.35	0.01	10.27		193.7	68.8

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
22	9.27	0.02	10.04		201.3	68.9
23	9.20	0.02	11.37		209.0	69.1
24	9.15	0.02	11.02		216.7	69.1
25	9.07	0.02	11.40		222.7	69.1
26	9.00	0.02	11.37		228.9	69.1
27	8.95	0.02	11.81		234.2	68.9
28	8.87	0.03	11.85		240.2	69.3
29	8.78	0.03	11.82		245.3	69.2
30	8.73	0.03	11.87		250.9	69.2
31	8.66	0.03	11.96		258.4	69.3
32	8.58	0.03	12.43		265.1	69.1
33	8.49	0.03	12.57		271.5	69.3
34	8.39	0.04	12.66		276.2	69.5
35	8.31	0.04	12.80		280.4	69.2
36	8.25	0.07	13.20		285.3	69.5
37	8.15	0.10	14.10		290.7	69.7
38	8.06	0.24	14.70		294.3	69.7
39	7.97	0.08	14.13		296.1	69.3
40	7.87	0.04	13.37		297.2	69.6
41	7.78	0.03	13.02		297.6	69.6
42	7.72	0.04	12.84		298.6	69.8
43	7.64	0.03	13.02		299.8	69.7
44	7.56	0.04	13.53		301.0	69.6
45	7.47	0.05	13.54		301.7	69.6
46	7.38	0.07	13.74		301.8	69.9
47	7.29	0.12	13.97		302.7	69.8
48	7.22	0.23	14.11		302.4	70.1
49	7.14	0.289	14.037		301.7	70
50	7.08	0.348	14.188		300.6	69.9
51	6.97	0.349	14.218		299.1	69.8
52	6.87	0.465	14.238		297.9	70
53	6.80	0.549	14.177		296.3	70
54	6.73	0.709	14.155		293.6	70
55	6.66	0.781	14.029		291.2	70.1
56	6.58	0.831	13.904		287.7	70.1
57	6.50	0.757	13.841		284.6	70.3
58	6.46	0.657	13.768		280.9	70.3
59	6.37	0.551	13.748		277.4	69.9
60	6.32	0.44	13.689		274	70.2

Run 6 B415

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
61	6.27	0.421	13.576		270.7	70.3
62	6.19	0.363	13.46		266.7	70.4
63	6.16	0.348	13.277		262.9	70.2
64	6.08	0.35	13.246		258.5	69.7
65	6.06	0.472	13.208		253.8	69.7
66	5.98	0.629	13.036		248.7	69.2
67	5.96	0.842	12.823		242.9	69.2
68	5.88	0.888	12.511		237	69.2
69	5.86	0.962	12.253		230.8	69.3
70	5.81	1.105	11.937		224.4	68.5
71	5.78	1.115	11.79		218.5	69.2
72	5.76	1.164	11.535		212.4	69.5
73	5.70	1.113	11.263		206.7	69.6
74	5.68	1.071	11.29		201.6	69.7
75	5.67	0.993	11.294		197.1	69.9
76	5.59	0.911	11.339		193.3	70.2
77	5.57	1.008	11.418		190	70
78	5.57	1.139	11.261		187	70.1
79	5.50	1.118	11.289		184.2	70.3
80	5.47	1.046	11.233		181.6	69.9
81	5.49	0.671	11.349		178.9	70.2
82	5.45	0.383	11.416		176.4	70
83	5.41	0.234	11.491		174.1	70.1
84	5.39	0.174	11.517		172	70.3
85	5.37	0.135	11.504		170	70.2
86	5.36	0.123	11.461		167.9	70.2
87	5.34	0.1	11.515		166.4	70.3
88	5.30	0.331	11.592		164.9	69.9
89	5.28	0.446	11.812		163.5	69.8
90	5.27	0.503	11.725		162	70.1
91	5.25	0.531	11.742		160.5	70.1
92	5.20	0.581	11.8		159.2	70.1
93	5.17	0.607	11.867		158.2	70
94	5.18	0.724	11.726		157.3	70.1
95	5.15	0.791	11.752		156.3	69.8
96	5.10	0.829	11.789		155.4	69.7
97	5.08	0.961	11.796		154.7	69.8
98	5.07	1.245	11.708		154.4	69.9
99	5.05	1.542	11.547		153.9	70.1

Run 6 B415

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
100	5.00	1.783	11.588		153.7	70.2
101	4.97	2.052	11.486		153.1	70.2
102	4.96	2.203	11.575		153.3	69.9
103	4.90	2.293	11.453		153.6	70.1
104	4.88	2.31	11.563		154.2	70
105	4.87	2.3	11.758		155.2	70.1
106	4.81	2.34	11.838		156.5	70.2
107	4.77	2.403	11.938		157.3	70.1
108	4.77	2.728	11.845		158.5	69.9
109	4.70	3.057	11.75		160.2	70.1
110	4.67	3.123	11.879		162.1	69.7
111	4.63	3.258	11.914		163.7	69.8
112	4.57	3.395	11.825		165.5	70.1
113	4.54	3.565	11.851		167.6	70
114	4.48	3.88	11.929		170	70
115	4.45	4.002	11.875		172.3	70
116	4.38	4.33	11.739		174.3	70.1
117	4.34	4.567	11.656		175.8	70.2
118	4.28	4.772	11.656		177.6	70.2
119	4.20	5.003	11.356		179.3	70.2
120	4.18	5.173	11.326		180.9	70.1
121	4.09	5.372	11.311		182	70
122	4.05	5.482	11.256		183.3	69.7
123	3.99	5.478	11.285		184.4	69.5
124	3.91	5.481	11.185		185.6	69.8
125	3.87	5.48	11.12		186	69.1
126	3.79	5.477	11.185		186.7	68.5
127	3.75	5.438	11.225		187.3	68.7
128	3.68	5.349	11.171		187.7	69.1
129	3.61	5.345	11.322		187.8	69.5
130	3.58	5.32	11.275		188.4	69.6
131	3.49	5.274	11.309		187.9	69.6
132	3.45	5.214	11.281		188.2	69.9
133	3.38	5.107	11.241		188.3	70.1
134	3.35	5.034	11.329		187.9	70
135	3.28	4.919	11.349		187.3	70.2
136	3.23	4.793	11.36		186.8	70.4
137	3.19	4.716	11.353		186.4	70.3
138	3.14	4.496	11.352		185.3	70

Run 6 B415

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
139	3.07	4.32	11.395		184.8	70.4
140	3.05	4.123	11.379		183.6	70.5
141	2.98	4.061	11.457		182.9	70.4
142	2.96	3.923	11.418		181.9	70.4
143	2.90	3.929	11.416		180.5	70.6
144	2.89	3.864	11.291		179.3	70.6
145	2.84	3.861	11.26		177.8	70.4
146	2.78	3.708	11.157		175.9	70.5
147	2.78	3.422	11.065		173.7	70.5
148	2.75	2.498	11.633		171.3	70.5
149	2.70	2.345	11.537		168.7	70.3
150	2.68	2.004	11.568		166.2	70.6
151	2.67	1.778	11.543		163.6	70.1
152	2.66	1.397	11.561		161.2	70.4
153	2.61	1.173	11.602		158.7	70.3
154	2.60	0.996	11.556		156.4	70.5
155	2.58	0.825	11.537		154	70.5
156	2.58	0.731	11.463		151.9	70.6
157	2.56	0.609	11.407		149.8	70.6
158	2.57	0.488	11.424		147.7	70.3
159	2.56	0.42	11.397		145.8	70.3
160	2.51	0.319	11.215		144	69.9
161	2.51	0.254	11.284		142.4	70.1
162	2.51	0.178	11.22		140.9	70
163	2.49	0.137	11.322		139.5	70
164	2.48	0.099	11.29		138.2	69.6
165	2.48	0.063	11.155		136.9	70.2
166	2.48	0.041	11.208		135.6	69.9
167	2.46	0.026	11.176		134.4	70.3
168	2.46	0.022	11.112		133.2	70.6
169	2.45	0.016	11.062		132.3	70.6
170	2.44	0.012	10.812		131	70.6
171	2.42	0.012	10.784		129.9	70.7
172	2.41	0.013	10.853		128.9	70.6
173	2.40	0.015	10.742		127.9	70.4
174	2.39	0.01	10.565		127	70.7
175	2.39	0.012	10.521		126.2	70.5
176	2.38	0.012	10.391		125.3	70.6
177	2.39	0.018	10.373		124.4	70.4

Run 6 B415

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
178	2.39	0.011	10.338		123.4	70.7
179	2.39	0.011	10.237		122.7	70.6
180	2.38	0.015	10.061		122	70.4
181	2.38	0.012	10.099		121.2	70.7
182	2.37	0.012	9.944		120.3	70.7
183	2.36	0.014	9.899		119.8	70.6
184	2.36	0.01	9.792		119.1	70.7
185	2.36	0.015	9.871		118.5	70.6
186	2.35	0.012	9.791		118.2	70.8
187	2.33	0.011	9.714		118.1	70.8
188	2.33	0.007	9.975		118	70.9
189	2.30	0.015	9.817		117.8	70.8
190	2.30	0.015	10.07		117.7	70.5
191	2.30	0.015	10.1		117.9	70.7
192	2.29	0.015	10.307		118.3	70.8
193	2.28	0.011	10.403		118.5	70.8
194	2.29	0.004	10.534		118.8	70.9
195	2.28	0.008	10.607		119	70.9
196	2.27	0.007	10.742		119.9	70.9
197	2.26	0.025	10.792		121	70.8
198	2.26	0.015	10.877		122.3	70.9
199	2.24	0.007	11.117		123.5	70.9
200	2.21	0.014	11.204		124.8	70.9
201	2.20	0.017	11.354		126.5	70.8
202	2.20	0.009	11.399		128	70.8
203	2.18	0.01	11.636		129.7	70.6
204	2.19	0.012	11.622		131.9	70.9
205	2.16	0.011	11.701		133.6	70.7
206	2.14	0.012	11.818		135.6	70.7
207	2.12	0.013	11.865		137.2	70.8
208	2.09	0.013	12.035		139.3	70.8
209	2.08	0.013	11.973		141.5	70.7
210	2.08	0.012	12.133		143.4	70.9
211	2.06	0.012	12.14		145.3	70.9
212	2.06	0.011	12.146		147.4	70.8
213	2.01	0.014	12.128		149.5	70.8
214	2.00	0.014	12.088		151.3	70.7
215	1.98	0.013	12.109		153	70.9
216	1.99	0.01	12.127		154.7	70.9

Run 6 B415

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
217	1.97	0.011	12.149		156.3	71
218	1.96	0.011	11.112		158.1	70.9
219	1.92	0.008	11.063		159.5	70.8
220	1.91	0.008	11.015		160.2	71
221	1.89	0.008	11.018		161.2	70.9
222	1.87	0.009	10.888		161.9	71
223	1.88	0.01	10.895		162	71
224	1.88	0.019	10.912		162.4	71.1
225	1.85	0.01	10.972		163.3	71
226	1.80	0.01	10.98		163.8	70.9
227	1.81	0.005	10.817		164.1	71
228	1.79	0.008	10.884		164.9	71
229	1.78	0.009	10.937		165.1	71
230	1.77	0.007	10.846		165.5	71.2
231	1.77	0.005	10.827		165.7	71.2
232	1.76	0.008	10.738		166.2	70.9
233	1.71	0.007	10.633		166.5	71.1
234	1.71	0.008	10.527		166.6	71.3
235	1.69	0.008	10.502		167.1	70.7
236	1.68	0.008	10.413		167.5	70.3
237	1.69	0.011	10.348		167.9	70.3
238	1.68	0.008	10.359		168.2	70.7
239	1.66	0.009	10.181		167.9	70.8
240	1.65	0.003	10.204		167.8	70.8
241	1.62	0.008	10.1		168	70.7
242	1.60	0.007	10.053		167.9	70.8
243	1.60	0.007	9.958		167.6	70.9
244	1.58	0.009	9.901		167.3	71
245	1.59	0.01	9.91		166.9	71.2
246	1.57	0.011	9.888		166.7	71.1
247	1.57	0.009	9.785		166.6	71.3
248	1.55	0.01	9.97		166.6	71.1
249	1.52	0.01	10.046		166.1	71.2
250	1.50	0.01	10.085		166	71.3
251	1.50	0.014	10.083		165.7	71.2
252	1.48	0.009	10.015		165.5	71.2
253	1.49	0.009	9.916		165.5	71.2
254	1.49	0.008	9.899		165.1	71.3
255	1.47	0.008	10.309		165	71.4

Run 6 B415

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
256	1.46	0.01	10.653		164.8	71.3
257	1.43	0.008	10.558		164.7	71.3
258	1.39	0.009	10.499		164.7	71.4
259	1.40	0.01	10.541		164.9	71.4
260	1.38	0.009	10.374		164.4	71.4
261	1.38	0.009	10.332		164.5	71.3
262	1.38	0.008	10.328		164.6	71.3
263	1.36	0.007	10.272		164.6	71.3
264	1.35	0.006	10.214		164.1	71.4
265	1.35	0.007	10.184		163.7	71.4
266	1.31	0.009	10.228		163.3	71.5
267	1.30	0.008	10.166		163.4	71.6
268	1.29	0.008	10.235		163.3	71.7
269	1.28	0.008	10.198		162.9	71.6
270	1.29	0.01	10.244		162.5	71.4
271	1.28	0.009	10.303		162.6	71.4
272	1.26	0.009	10.288		162.5	71.5
273	1.25	0.008	10.263		162.3	71.5
274	1.22	0.01	10.208		162.4	71.5
275	1.21	0.009	10.31		162.4	71.7
276	1.20	0.008	10.402		162.1	71.7
277	1.17	0.007	10.413		161.9	71.6
278	1.19	0.008	10.381		161.6	71.7
279	1.17	0.008	10.529		161.7	71.7
280	1.18	0.009	10.512		161.9	71.7
281	1.16	0.007	10.473		162.1	71.6
282	1.13	0.009	10.508		162.6	71.7
283	1.12	0.006	10.555		163.2	71.6
284	1.09	0.008	10.536		163.7	71.7
285	1.08	0.009	10.495		163.6	71.7
286	1.09	0.008	10.487		164.3	71
287	1.09	0.008	10.357		164.7	71
288	1.07	0.01	10.513		165.3	71.3
289	1.06	0.009	10.283		165.8	71.5
290	1.04	0.01	10.164		166.4	71.4
291	1.01	0.009	10.146		167.2	71
292	1.00	0.01	10.183		168.4	71
293	0.98	0.007	10.119		169.3	71.3
294	0.99	0.011	10.232		169.8	71.6

Run 6 B415

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
295	0.97	0.008	10.111		170.7	71.8
296	0.96	0.011	10.011		171.3	71.8
297	0.96	0.008	9.932		171.9	71.8
298	0.93	0.008	10.08		172.1	71.7
299	0.91	0.008	10.104		173.3	71.8
300	0.89	0.01	10.055		174.4	71.7
301	0.89	0.007	9.99		175	71.8
302	0.88	0.008	9.953		175.7	71.8
303	0.86	0.008	9.905		176	71.7
304	0.86	0.009	10.039		176.6	71.9
305	0.84	0.009	10.397		177	71.8
306	0.82	0.008	10.38		177.1	72
307	0.80	0.011	10.506		177.8	71.9
308	0.78	0.01	10.687		178.3	71.9
309	0.79	0.01	10.688		178.6	72
310	0.78	0.007	10.907		179.3	72
311	0.75	0.01	11.066		179.6	72
312	0.73	0.009	11.252		180.1	72
313	0.71	0.008	11.303		180.8	72
314	0.69	0.005	11.561		181.1	72
315	0.70	0.005	11.626		181.3	71.9
316	0.68	0.006	11.273		181.1	72
317	0.65	0.007	11.249		181.3	71.8
318	0.62	0.005	11.232		181.2	72.1
319	0.61	0.006	11.126		181.7	72
320	0.59	0.007	11.103		181.9	72.1
321	0.60	0.007	11.064		182.1	72
322	0.56	0.007	11.111		182.2	71.4
323	0.56	0.004	11.1		182.7	71.5
324	0.51	0.006	10.99		183.6	71.6
325	0.50	0.008	10.915		184	71.8
326	0.49	0.009	10.956		183.7	71.9
327	0.49	0.009	10.859		183.7	71.9
328	0.47	0.008	10.76		183.6	71.5
329	0.45	0.007	10.795		183.3	71.7
330	0.43	0.008	10.907		182.9	71.7
331	0.41	0.006	10.746		182.5	71.9
332	0.39	0.009	10.554		182	72.1
333	0.38	0.005	10.455		181.3	72.1

Run 6 B415

Elapsed Time (min)	Fuel Weight Remaining (lb)	Flue Gas Composition (%) CO	CO_2	O_2	Temp. (ºF) Flue Gas	Room Temp
334	0.39	0.008	10.298		180.3	72.3
335	0.38	0.006	10.268		179.7	72.3
336	0.37	0.008	10.197		179.3	72.2
337	0.35	0.007	10.109		178.4	72.2
338	0.34	0.009	9.936		177.6	72.2
339	0.32	0.005	9.844		177	72.2
340	0.30	0.006	9.82		176.3	72.3
341	0.29	0.007	9.762		175.9	72.3
342	0.28	0.008	9.661		175.3	72
343	0.29	0.006	9.59		174.6	72.2
344	0.28	0.005	9.645		174.4	72.2
345	0.27	0.007	9.604		173.9	72.2
346	0.25	0.006	9.498		173.1	72.1
347	0.21	0.007	9.471		172.9	71.9
348	0.22	0.007	9.396		172.3	72
349	0.21	0.007	9.36		171.9	72.3
350	0.18	0.006	9.238		171	72.1
351	0.18	0.006	9.117		170.6	72.2
352	0.19	0.002	9.05		170.7	72.3
353	0.18	0.006	9.065		170	72.1
354	0.16	0.008	9.073		170.1	72.1
355	0.16	0.005	8.956		169.6	72.2
356	0.14	0.003	9.002		169.4	72.2
357	0.13	0.006	8.855		169	72.1
358	0.11	0.004	8.939		168.5	72
359	0.11	0.006	8.901		168.1	72.2
360	0.09	0.006	8.859		167.6	72.3
361	0.08	0.007	8.779		167.6	72
362	-0.02	0.005	8.746		167.6	72.2

Test Fuel Properties

ASTM E2780

Manufacturer : Valley Comfort
Model : S14
Tracking No. : 2509
Project No. : 0142WS024E
Test Date : 10/3/2025
Run No. : 6

Moisture Meter Cal	
Cal Block	Measured
12.0	12.0
22.0	22.0

Firebox Volume :	**1.460**	ft^3
% 2 x 4 Required :	100	%
Ideal Fuel Weight :	10.22	lb.
Minimum Fuel Weight :	9.20	lb.
Maximum Fuel Weight :	11.24	lb.

Fuel Piece Data

PC #	Weight, lb	Size	Length, In	Moisture Readings, Dry Basis %			Average MC, % db	Dry Weight, lb.	Volume, ft3	Wet Weights, lb 4 x 4	Wet Weights, lb 2 x 4	Dry Weights, lb 4 x 4	Dry Weights, lb 2 x 4
1	1.60	2x4	14.50	23.8	21.4	24.5	23.2	1.30	0.0441		1.6		1.30
2	1.67	2x4	14.50	23.8	23.8	23.0	23.5	1.35	0.0441		1.7		1.35
3	1.55	2x4	14.50	20.3	19.9	20.2	20.1	1.29	0.0441		1.6		1.29
4	1.77	2x4	14.50	25.0	24.4	22.1	23.8	1.43	0.0441		1.8		1.43
5	1.46	2x4	14.50	19.6	21.7	23.8	21.7	1.20	0.0441		1.5		1.20
6													
7													
8													
9													

Spacer Data

Moisture Readings, Dry Basis % (One reading per spacer)								
8.0	8.0	8.1	9.0	8.1				
8.1	9.0	8.1	8.3	8.0				
8.4	8.7	9.1	8.1	8.0				
8.0	8.1	8.6	8.0	8.1				

Avg : 8.3

Assembled Crib Fuel Load with Spacers Attatched

PC #	Weight, lb with Spacers	Size	4 x 4s	2 x 4s
1	1.94	2x4		1.9400
2	2.12	2x4		2.1200
3	1.90	2x4		1.9000
4	2.11	2x4		2.1100
5	1.79	2x4		1.7900
6				
7				
8				
9				

Combined Mass of 4 x 4s	0.0	lb
Combined Mass of 2 x 4s	9.9	lb
Total Wet Mass of Fuel Load	**9.86**	lb

Fuel Load Properties

Type	*Number of Pieces*	*Wet Weight, lb.*	*Dry Weight, lb.*	*Fuel Loading Density, lb/ft³* Wet Basis	*Fuel Loading Density, lb/ft³* Dry Basis	Dry Fuel Density, lb/ft³	Wet Fuel Density, lb/ft³	*Moisture, %* Dry Basis	*Moisture, %* Wet Basis
2 x 4	5	8.1	6.57	6.75	5.64	29.82	36.55	19.65	16.42
4 x 4	0	0.0	0.00						
Spacers	20	1.8	1.67						
Totals		9.9	8.24						

Compliance Checks

	Fuel Load, Wet Lb.	Load Density, lb/ft³ of FB vol	Fuel Density, lb/ft³	% of Fuel load mass which is 2x4	Fuel Load Peices Mositure, % db
Measured	9.9	6.75	29.82	100	22.5
Required	9.2 - 11.2	6.3 - 7.7	25 - 36	100	19 -25
Complies ?	Yes	Yes	Yes	Yes	Yes

Dilution Tunnel Velocity Traverse and Supplementary Data

ASTM E2515-11

Run:	6	Tracking No.:	2509
Manufacturer:	Valley Comfort	Project No.:	0142WS024E
Model:	S14	Test Date:	10/3/2025

Dillution Tunnel Velocity Traverse

Pitot Location

Traverse Point	*% of Diameter*	*Inches into Tunnel*	*dP in. H_2O*	*Tunnel Temp, °F*	*$dP^{1/2}$*
X1	6.7	0.5*	0.070	102	0.265
X2	25.0	1.50	0.086	102	0.293
X3	75.0	4.50	0.090	102	0.300
X4	93.3	5.5*	0.058	102	0.241
Y1	6.7	0.5*	0.064	102	0.253
Y2	25.0	1.50	0.064	102	0.253
Y3	75.0	4.50	0.092	102	0.303
Y4	93.3	0.5*	0.080	102	0.283
Center	50.0	3.00	0.110	102	0.332

Tunnel Static Pressure	-0.400	*in. H_2O*
Tunnel Moisture	2.00	%
Tunnel Diameter	6.00	inches
Pitot Tube C_p	0.99	inches
Tunnel Molecular Weight	29	(dry)
Tunnel Molecular Weight	28.78	(M_S, wet)
Tunnel Area	0.19634954	*ft^2*
K_p	85.49	constant
$P_s=P_{bar}$+Tunnel Static	30.1605882	in HG

** Probe location must be no closer than 0.50" from tunnel wall*

$$V_{strav} = K_p C_p \sqrt{\Delta p}_{avg} \sqrt{\frac{T_{s,avg}}{P_s M_s}} = 18.6493$$

$$V_{scent} = K_p C_p \sqrt{\Delta p}_{center} \sqrt{\frac{T_{s,center}}{P_s M_s}} = 22.5865$$

$$F_P = V_{strav} / V_{scent} = 0.826$$

$$Initial\ Tunnel\ Velocity, V_s = F_P K_p C_p \sqrt{\Delta p}_{avg} \sqrt{\frac{T_{s,avg}}{P_s M_s}} = 15.398\ ft/sec$$

Supplementary Data and Information

Environment

	Test Start	Test End
Time of Day	10:43	16:45
Barometric Pressure, in. Hg	30.19	30.14
Room Air Velocity, fpm	11	13
Room Air Temperature, °F	69	72
Room Relative Humidity, %	56.0	52.0
Platform Scale Audit, lb.	10.0	10.0

Leak Checks

Pitot and associated tubing, (pass/fail)[1]	pass	pass

See sampling box worksheets for sampling boxes

Dillution Tunnel

Date last cleaned	9/29/2025	
Smoke Capture, % (visual)[2]	100	
Draft Inducement, (pass/fail)[3]	pass	
Static Pressure, in. H_2O	-0.400	-0.400

1 Both sides (independantly) of the pitot system are brought under a minimum vacuum of 3 in. H_2O and then sealed. Any indiction of pressure loss is deemed a fail.

2 Create a smoking condition during start of pre-burn activites and using adequate lighting pointed upward and aroud tunnel hood, visually observe if 100% of visible smoke is being captured by the hood. If not, increase flow tunnel flow and / or re-assess chimney proximity to draft hood as required and repeat until 100% capture is observed.

3 With the appliance installed and the dillution tunnel flow turned-off, observe the flue draft gauge while turning the dulution tunnel on. Any detectible response by the draft gauge associated with activation of the tunnel flow indicates that draft inducemnt is occuring. Determine the cause (i.e. flue chimnet too deep into tunnel?) before continuing.

Preburn Data

ASTM E2780

Run: 6

Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E
Test Date: 10/3/25
Beginning Clock Time: 8:58

Coal Bed Range (lb):	2.0 (min)	2.5 (max)

Preburn Fuel Data

4 pieces @ 10 inches
3 pieces @ 14.5 inches
pieces @ inches

Fuel Moisture Readings (% DB):

24.7	24.7					
25.3						
24.7						
24.2						
22.5						

Avg Preburn Moisture (% DB): **24.35**

			Temperatures (°F)								
Elapsed Time (min)	Scale (lb)	Stack Draft (in H_2O)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Cat Exit	Avg. FB	Stack	Ambient
0	0.68	0.065	555	326.1	324	378.5	388.3	1038	394	442.9	70.2
1	0.65	0.059	546.3	335.7	326	383.6	390.8	1011.3	396	436.9	70.7
2	0.61	0.065	536.9	345.7	329.6	388.4	394.5	984.8	399	430.7	70.4
3	5.12	0.058	527.5	358.2	337.4	390.2	399.4	665.9	403	496.2	71.1
4	10.4	0.054	513.4	369.4	337.9	393.2	401.2	759.7	403	456.2	71.4
5	10.26	0.058	502.9	380.3	337	396.1	402.5	935.6	404	441.9	70.6
6	10.1	0.06	498.7	390.5	336.1	398.7	403.5	1044.8	406	448.2	70.9
7	9.86	0.062	502.3	400.3	335.1	401.2	404.4	1184.8	409	464.4	70.8
8	9.64	0.065	511.2	408.9	334.8	403.9	404.7	1184	413	474.2	70.6
9	9.37	0.062	520.3	415.6	334.6	405.6	404.6	1172.2	416	480.1	70.6
10	9.13	0.059	529.2	421	334.8	407.4	404	1179.2	419	484.6	70.2
11	8.87	0.065	537.2	426	335.4	408.8	403.2	1178.2	422	487.3	70.9
12	8.64	0.061	543.3	431.1	336.7	409.6	402.1	1177.3	425	489.7	70.4
13	8.37	0.06	549.1	435.7	338.8	410.4	400.8	1177.8	427	491.6	71.1
14	8.15	0.061	553.9	439.9	341.1	410.6	399.5	1181.3	429	493.4	71.5
15	7.9	0.059	558.8	443	343.7	411.2	398.1	1189.1	431	495.1	70.3
16	7.67	0.06	563.1	445.2	346.6	411.8	396.7	1196.7	433	496.3	70.7
17	7.41	0.062	567	446.8	349.8	411.7	395.3	1197	434	497.1	70.6
18	7.17	0.061	570.2	448.1	352.9	412.3	394	1203.7	436	497.7	71.1
19	6.94	0.064	574.5	449.1	356.3	412.8	393.3	1196.7	437	498.4	70.7
20	6.69	0.067	577.6	449.9	359.8	413.5	392.1	1185.5	439	497.5	70.4
21	6.46	0.063	580	450.4	363.6	414.4	391	1185.2	440	495.8	70.3
22	6.24	0.059	582	451	367.1	415.7	390	1185.9	441	493.8	70.5
23	6	0.064	584.2	451.6	370.8	417.6	389.4	1186	443	492.4	71.2
24	5.78	0.064	584.6	452.2	374.6	419.5	389.2	1199.5	444	490.1	71.3
25	5.58	0.065	585.2	452.9	378.8	422.1	389.6	1221.1	446	488.6	70.7
26	5.38	0.066	587	453.5	383.3	424.9	389.8	1228	448	487.5	71
27	5.17	0.061	588.3	454.2	387.3	428.1	390.3	1235	450	486.1	71.1
28	4.98	0.066	591.1	455	391.1	431.3	391	1236.1	452	483.8	70.5
29	4.78	0.061	593.4	455.8	394.8	434.6	391.9	1239.6	454	481.4	70.4
30	4.58	0.062	595.8	456.7	398.1	437.7	392.7	1241.5	456	479.4	70.5
31	4.4	0.062	597.9	457.7	400.9	440.6	393.8	1230.9	458	476.6	70.9
32	4.24	0.064	601.1	458.7	403.4	443.8	394.9	1219	460	473.6	71.3
33	4.07	0.065	602.9	459.9	405.6	446.4	395.7	1208	462	470.7	71.1
34	3.86	0.062	604.3	461	407.2	448.7	396.9	1198.3	464	467.9	70.5
35	3.71	0.067	605.5	462.2	408.7	451.3	397.7	1195.3	465	465.2	72
36	3.57	0.065	605.6	463.5	409.6	453.8	399.1	1191.9	466	462.9	72.2
37	3.4	0.064	606.1	464.8	410.1	455.9	400.5	1190.5	467	460.3	71
38	3.27	0.067	606.5	466	410.5	458	401.8	1194.1	469	457.9	70.8
39	3.13	0.066	606.5	467.1	410.9	460	403.3	1200.3	470	455.4	71.6
40	2.98	0.066	607.5	468.3	411.5	462	405	1206.2	471	453.5	71.5
41	2.88	0.069	607.1	469.6	412.7	463.4	406.8	1220.4	472	452.1	70.6
42	2.76	0.065	607.7	470.8	414.3	465.1	408.3	1237.3	473	451.4	71.1

			Temperatures (°F)								
Elapsed Time (min)	Scale (lb)	Stack Draft (in H_2O)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Cat Exit	Avg. FB	Stack	Ambient
43	2.68	0.068	607.7	472.1	416	466.8	410	1238.7	475	449.8	71
44	2.59	0.069	607.6	473.3	418.1	468.7	411.8	1211.8	476	447.6	71.2
45	2.48	0.069	606.7	474.6	421.3	470.3	413.7	1167.3	477	444.9	70.9
46	2.46	0.051	613.7	476.3	429.2	472.9	415.9	1093.7	482	400.7	72.5
47	2.46	0.047	612.5	478.1	435.5	475.5	418.1	1037.9	484	362	72.7
48	2.44	0.041	607.2	479.5	439.8	477.3	419.6	1004	485	334.7	71.6
49	2.41	0.042	600.1	480.9	443.1	478.6	420.9	991	485	313.8	71.9
50	2.42	0.039	592.9	482.1	446	479.6	422.3	983	485	296.6	72.6
51	2.39	0.035	584.3	483.2	447.9	479.3	423.2	992.5	484	281.5	70.7
52	2.39	0.027	577	484.1	448.9	479.3	423.7	983.9	483	268.9	70.7
53	2.38	0.027	569.3	484.9	449	478.5	424	967.7	481	258	71.7
54	2.37	0.032	561	485.3	448.3	477	423.8	950.6	479	247.7	70.5
55	2.37	0.026	554.4	485.6	447.2	475.1	423.2	934.2	477	239.1	70.1
56	2.37	0.028	546.6	485.7	445.5	472.9	422.4	918.6	475	230.9	70.2
57	2.38	0.026	539.1	485.5	443.4	470.2	421.4	904	472	224.1	70.4
58	2.38	0.025	531.9	485	441	467.3	420.1	890	469	217.4	69.6
59	2.38	0.026	525.3	484.4	438.3	464.1	418.7	876.4	466	211.4	70.1
60	2.38	0.023	518.1	483.6	435.2	461	417	863.4	463	205.9	69.4
61	2.37	0.021	510.9	482.6	432.1	457.8	415.4	850.5	460	200.8	70
62	2.37	0.022	503.8	481.4	428.6	454.9	413.8	837.8	457	196	70.2
63	2.37	0.022	496.5	480.2	425	451.8	411.9	825.4	453	191.7	69.9
64	2.36	0.024	489.9	478.9	421.5	448.5	409.8	813.5	450	187.2	69.6
65	2.37	0.017	482.1	477.4	417.6	445	407.5	801.8	446	183.4	69.7
66	2.37	0.017	475.1	475.8	413.9	441.5	405.4	790.4	442	179.8	70.4
67	2.35	0.015	469.1	474.1	410.1	437.9	403.3	779.5	439	176.5	70
68	2.35	0.022	462.5	472.4	406.2	434.6	401.1	768.7	435	173.1	69.8
69	2.35	0.013	456.3	470.5	402.4	431	399	758.2	432	170	70.2
70	2.35	0.014	449.4	468.7	398.7	427.6	396.7	748.3	428	167	70.7
71	2.34	0.019	443.5	466.7	394.9	424.3	394.4	738.6	425	164.5	70.4
72	2.32	0.014	437.7	464.8	391.1	420.9	391.7	729.1	421	162.1	70.1
73	2.34	0.012	431.4	462.8	387.4	417.2	389.2	719.7	418	159.7	70.3
74	2.32	0.014	425	460.8	383.7	413.7	386.9	710.7	414	157.2	70.5
75	2.32	0.012	420	458.9	380	410.1	384.3	701.7	411	154.9	70.5
76	2.32	0.013	413.7	456.8	376.6	406.2	381.8	693	407	152.7	70.7
77	2.31	0.012	408.5	454.8	373	402.5	379.4	684.8	404	150.9	70.7
78	2.32	0.012	403.5	452.8	369.5	398.8	376.9	676.3	400	149	70.2
79	2.31	0.011	398.1	450.7	366.1	395.3	374.5	668.4	397	146.9	70.5
80	2.32	0.007	393.4	448.7	362.7	391.6	371.9	660.8	394	145.3	70.9
81	2.31	0.008	387.7	446.6	359.4	388.1	369.3	653.5	390	143.6	70.7
82	2.3	0.008	383.3	444.5	356.1	384.9	366.9	646.4	387	141.8	70.7
83	2.31	0.009	379	442.5	352.8	381.9	364.2	639.4	384	140.3	69.7
84	2.27	0.013	374	440.4	349.6	378.6	361.7	632.7	381	138.8	70.1
85	2.3	0.008	370.2	438.4	346.6	375.8	359.3	626.4	378	137.4	69.8
86	2.29	0.007	366.1	436.5	343.5	372.8	357	620.7	375	136	69.4
87	2.3	0.01	361.9	434.4	340.5	369.7	354.5	615.3	372	134.8	68.9
88	2.3	0.009	357.6	432.4	337.5	366.3	352	609.9	369	133.5	68.6
89	2.29	0.005	354.3	430.5	334.6	363	349.6	604.6	366	132.3	68.5
90	2.3	0.004	350.3	428.4	331.7	359.6	347.2	599.2	363	130.9	68.5
91	2.28	0.006	346.2	426.4	328.8	356.8	344.7	593.6	361	129.8	68
92	2.29	0.005	342.9	424.4	326	354.1	342.3	587.9	358	128.4	68.3
93	2.28	0.003	339.5	422.4	323.1	351.2	340	582.6	355	127.2	68.6
94	2.29	0.003	335.9	420.5	320.4	348.5	337.5	577.3	353	125.8	69.1
95	2.29	0.002	332.4	418.6	317.8	345.9	335.3	572.3	350	124.8	69.3
96	2.29	0.005	329.3	416.7	315.1	343.2	332.9	567.2	347	123.8	68.9
97	2.29	0.002	326.3	414.8	312.5	340.7	330.7	562.3	345	122.9	69.1
98	2.28	0.003	323.6	412.8	309.9	338.4	328.7	557.4	343	121.8	69.2
99	2.29	0.005	320.2	410.9	307.3	335.7	326.4	552.6	340	120.9	69.4
100	2.28	0	317.2	409.1	304.8	332.9	324.4	547.8	338	119.9	69.4
101	2.29	0.005	314.1	407.2	302.3	330.1	322.5	543.2	335	119	69.4
102	2.29	0.001	311.3	405.3	299.8	327.7	320.5	538.8	333	118.3	69.6
103	2.28	0	308.8	403.5	297.4	325.1	318.6	534.5	331	117.3	69.4

			Temperatures (°F)								
Elapsed Time (min)	Scale (lb)	Stack Draft (in H_2O)	FB Top	FB Bottom	FB Back	FB Left	FB Right	Cat Exit	Avg. FB	Stack	Ambient
104	2.28	0.002	306.2	401.7	295	322.9	316.3	530.4	328	116.5	69.4
105	2.27	0	303.5	399.9	292.7	320.5	314.2	526.4	326	115.8	69.6

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 6
Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 10:43
Test Length: 362 min
Recording Interval: 1 min

Test Date: 10/3/25

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.003 cfm @ 21.9 in. Hg
Post-Test 0.002 cfm @ 6.01 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ("H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ("H_2O)*	$\sqrt{dP}$	*vs*
Tot / Avg		9.9	**60.263**	**0.166**	**1.19**	**93.5**	**2.11**	**70.30**	**52.90**	**70.61**	**100.0**	**75.8**	**0.109**	**0.330**	**18.10**
Minimum	0.0	0.0	0.000	0.138	-0.02	74	0.17	68	42	67	86.4	72	0.105	0.324	17.89
Max	9.9	0.1	60.263	0.171	1.23	100	2.30	72	58	72	104.7	93	0.112	0.335	18.33
0	9.9		0.000		-0.02	74	0.17	68.1	41.8	70		72	0.108	0.329	18.33
1	9.8	0.1	0.138	0.138	1.22	74	2.15	68.5	46	69	86.4	93	0.107	0.327	18.12
2	9.8	0.0	0.303	0.165	1.21	74	2.20	68.6	47	70	104.5	80	0.108	0.329	18.19
3	9.8	0.0	0.468	0.165	1.19	74	2.20	68.6	47.3	70	102.9	75	0.108	0.329	18.08
4	9.8	0.0	0.631	0.163	1.20	74	2.15	68.6	47.2	70	101.5	74	0.108	0.329	18.03
5	9.8	0.0	0.799	0.168	1.19	74	2.22	68.6	47.1	70	104.6	73	0.108	0.329	18.01
6	9.8	0.0	0.963	0.164	1.18	74	2.21	68.6	47.1	69	102.0	73	0.109	0.330	18.04
7	9.8	0.0	1.125	0.162	1.18	74	2.15	68.6	47.1	69	100.3	72	0.110	0.332	18.12
8	9.8	0.0	1.290	0.165	1.18	74	2.06	68.6	47.1	68	101.9	73	0.109	0.330	18.12
9	9.8	0.0	1.449	0.159	1.18	74	2.23	68.6	47.1	68	98.2	73	0.111	0.333	18.16
10	9.8	0.0	1.613	0.164	1.18	75	2.15	68.7	47.1	68	101.1	73	0.109	0.330	18.16
11	9.7	0.0	1.775	0.162	1.18	75	2.04	68.6	47.1	68	99.9	73	0.110	0.332	18.12
12	9.7	0.0	1.940	0.165	1.18	75	2.20	68.6	47	67	101.8	73	0.110	0.332	18.17
13	9.7	0.0	2.101	0.161	1.20	75	2.20	68.6	47	68	99.4	73	0.109	0.330	18.13
14	9.7	0.0	2.268	0.167	1.18	75	2.03	68.6	47	68	103.5	73	0.107	0.327	18.00
15	9.6	0.0	2.430	0.162	1.18	75	2.23	68.5	46.9	68	100.8	73	0.109	0.330	18.01
16	9.6	0.0	2.593	0.163	1.19	76	2.10	68.5	46.9	69	101.2	74	0.108	0.329	18.05
17	9.5	0.0	2.759	0.166	1.21	76	2.28	68.5	47	69	102.9	74	0.109	0.330	18.06
18	9.5	0.0	2.923	0.164	1.21	76	2.07	68.5	47.1	69	101.5	74	0.109	0.330	18.10
19	9.5	0.0	3.087	0.164	1.22	76	2.04	68.6	47	69	101.5	74	0.108	0.329	18.06
20	9.4	0.1	3.252	0.165	1.21	76	2.29	68.6	47.1	69	102.2	74	0.109	0.330	18.06
21	9.4	0.0	3.416	0.164	1.21	76	2.14	68.6	47.2	69	101.5	74	0.109	0.330	18.10
22	9.3	0.1	3.582	0.166	1.20	77	2.05	68.7	47.2	69	102.6	75	0.109	0.330	18.11
23	9.2	0.1	3.750	0.168	1.18	77	2.27	68.7	47.2	69	104.0	76	0.108	0.329	18.08
24	9.2	0.0	3.913	0.163	1.21	77	2.28	68.8	47.3	69	101.0	76	0.109	0.330	18.10
25	9.1	0.1	4.080	0.167	1.21	77	2.26	68.8	47.3	69	103.5	77	0.108	0.329	18.10
26	9.0	0.1	4.244	0.164	1.20	78	2.21	68.9	47.3	69	101.8	77	0.107	0.327	18.02
27	9.0	0.1	4.409	0.165	1.19	78	2.29	68.9	47.4	69	102.6	77	0.108	0.329	18.03
28	8.9	0.1	4.574	0.165	1.21	79	2.12	68.9	47.4	69	102.4	78	0.109	0.330	18.12
29	8.8	0.1	4.735	0.161	1.20	79	2.02	68.9	47.5	69	99.6	78	0.108	0.329	18.13
30	8.7	0.0	4.901	0.166	1.20	79	2.02	69	47.5	69	102.8	78	0.108	0.329	18.09
31	8.7	0.1	5.065	0.164	1.20	79	2.16	69	47.5	69	101.7	79	0.108	0.329	18.10
32	8.6	0.1	5.230	0.165	1.19	79	2.03	69.1	47.5	69	102.4	79	0.108	0.329	18.11
33	8.5	0.1	5.398	0.168	1.20	80	2.11	69.1	47.6	69	104.2	80	0.108	0.329	18.11
34	8.4	0.1	5.562	0.164	1.19	80	2.30	69.2	47.6	70	101.9	80	0.106	0.326	18.03
35	8.3	0.1	5.727	0.165	1.20	80	2.01	69.2	47.7	69	102.8	80	0.108	0.329	18.04
36	8.3	0.1	5.892	0.165	1.21	80	2.27	69.3	47.7	70	102.7	81	0.107	0.327	18.09
37	8.2	0.1	6.056	0.164	1.19	81	2.16	69.3	47.7	70	101.9	81	0.108	0.329	18.09
38	8.1	0.1	6.219	0.163	1.20	81	2.18	69.4	47.7	70	101.1	82	0.108	0.329	18.14
39	8.0	0.1	6.383	0.164	1.19	82	2.03	69.5	47.8	69	101.7	82	0.107	0.327	18.11
40	7.9	0.1	6.548	0.165	1.19	82	2.07	69.5	47.9	70	102.6	82	0.106	0.326	18.02

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 6
Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 10:43
Test Length: 362 min
Recording Interval: 1 min

Test Date: 10/3/25

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.003 cfm @ 21.9 in. Hg
Post-Test 0.002 cfm @ 6.01 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ("H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ("H_2O)*	$\sqrt{dP}$	*vs*
41	7.8	0.1	6.716	0.168	1.21	82	2.25	69.5	47.9	70	104.7	82	0.107	0.327	18.02
42	7.7	0.1	6.880	0.164	1.21	82	2.09	69.6	48	70	102.0	82	0.108	0.329	18.11
43	7.6	0.1	7.046	0.166	1.20	82	2.10	69.6	48	70	102.8	82	0.108	0.329	18.15
44	7.6	0.1	7.211	0.165	1.20	83	2.23	69.7	48	70	102.0	82	0.108	0.329	18.15
45	7.5	0.1	7.375	0.164	1.20	83	2.05	69.7	48.1	70	101.3	82	0.108	0.329	18.15
46	7.4	0.1	7.542	0.167	1.20	83	2.02	69.8	48.1	70	103.1	82	0.108	0.329	18.15
47	7.3	0.1	7.704	0.162	1.21	83	2.16	69.8	48.1	70	100.1	82	0.107	0.327	18.12
48	7.2	0.1	7.868	0.164	1.19	84	2.23	69.9	48.2	70	101.5	82	0.107	0.327	18.07
49	7.1	0.1	8.035	0.167	1.20	84	2.21	69.9	48.2	70	103.2	82	0.109	0.330	18.16
50	7.1	0.1	8.202	0.167	1.19	84	2.19	69.9	48.2	70	102.9	82	0.107	0.327	18.15
51	7.0	0.1	8.366	0.164	1.20	84	2.11	70	48.3	70	101.3	81	0.106	0.326	18.02
52	6.9	0.1	8.533	0.167	1.20	85	2.02	70	48.3	70	103.6	81	0.106	0.326	17.97
53	6.8	0.1	8.697	0.164	1.20	85	2.00	70	48.4	70	101.7	81	0.107	0.327	18.02
54	6.7	0.1	8.863	0.166	1.19	85	2.11	69.9	48.4	70	102.5	81	0.108	0.329	18.10
55	6.7	0.1	9.029	0.166	1.20	86	2.15	70	48.5	70	102.2	81	0.107	0.327	18.09
56	6.6	0.1	9.193	0.164	1.20	86	2.23	69.9	48.5	70	101.2	81	0.106	0.326	18.01
57	6.5	0.1	9.357	0.164	1.18	86	2.24	70	48.6	70	101.3	81	0.108	0.329	18.05
58	6.5	0.0	9.522	0.165	1.20	86	2.24	69.9	48.6	70	101.3	80	0.109	0.330	18.17
59	6.4	0.1	9.686	0.164	1.20	87	2.01	69.8	48.6	70	100.4	80	0.107	0.327	18.12
60	6.3	0.0	9.856	0.170	1.19	86	2.01	69.9	48.7	70	104.4	80	0.107	0.327	18.04
61	6.3	0.1	10.021	0.165	1.19	87	2.05	69.9	48.7	70	101.7	80	0.106	0.326	17.99
62	6.2	0.1	10.185	0.164	1.20	87	2.19	69.9	48.7	70	101.1	80	0.107	0.327	17.99
63	6.2	0.0	10.352	0.167	1.20	87	2.23	69.9	48.8	70	102.6	79	0.108	0.329	18.07
64	6.1	0.1	10.518	0.166	1.20	87	2.01	69.9	48.8	70	101.6	79	0.108	0.329	18.11
65	6.1	0.0	10.682	0.164	1.20	88	2.26	70	48.8	70	100.4	79	0.107	0.327	18.07
66	6.0	0.1	10.846	0.164	1.20	88	2.25	70	48.9	69	100.2	79	0.109	0.330	18.11
67	6.0	0.0	11.011	0.165	1.20	88	2.06	70	48.9	69	100.3	79	0.110	0.332	18.22
68	5.9	0.1	11.177	0.166	1.20	88	2.08	70	48.9	69	100.5	78	0.109	0.330	18.22
69	5.9	0.0	11.346	0.169	1.20	88	2.26	70.1	48.9	69	102.4	78	0.109	0.330	18.17
70	5.8	0.1	11.512	0.166	1.20	88	2.00	70	48.9	69	100.8	78	0.108	0.329	18.13
71	5.8	0.0	11.676	0.164	1.18	89	2.05	70	49	69	99.9	77	0.107	0.327	18.04
72	5.8	0.0	11.844	0.168	1.20	89	2.12	70	49	70	102.5	77	0.108	0.329	18.03
73	5.7	0.1	12.009	0.165	1.19	89	2.24	69.9	49	70	100.4	77	0.108	0.329	18.07
74	5.7	0.0	12.174	0.165	1.19	89	2.25	69.9	49	70	100.1	76	0.109	0.330	18.11
75	5.7	0.0	12.341	0.167	1.22	89	2.05	69.9	49	70	101.1	76	0.108	0.329	18.10
76	5.6	0.1	12.504	0.163	1.19	90	2.24	69.9	49	70	98.8	76	0.108	0.329	18.05
77	5.6	0.0	12.670	0.166	1.21	90	2.17	69.9	49.1	70	100.6	76	0.109	0.330	18.09
78	5.6	0.0	12.839	0.169	1.19	90	2.24	69.8	49.1	70	102.2	75	0.108	0.329	18.09
79	5.5	0.1	13.005	0.166	1.20	90	2.14	69.8	49.1	70	100.6	75	0.107	0.327	18.00
80	5.5	0.0	13.170	0.165	1.21	91	2.00	69.7	49.2	70	100.2	75	0.108	0.329	18.00
81	5.5	0.0	13.338	0.168	1.21	90	2.15	69.6	49.3	70	102.1	75	0.106	0.326	17.96
82	5.5	0.0	13.504	0.166	1.21	91	2.07	69.6	49.3	70	100.8	75	0.109	0.330	17.99
83	5.4	0.0	13.669	0.165	1.20	91	2.04	69.6	49.4	70	99.8	75	0.108	0.329	18.07
84	5.4	0.0	13.836	0.167	1.20	91	2.17	69.6	49.4	70	100.9	75	0.108	0.329	18.03

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 6
Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 10:43
Test Length: 362 min
Recording Interval: 1 min

Test Date: 10/3/25

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.003 cfm @ 21.9 in. Hg
Post-Test 0.002 cfm @ 6.01 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ("H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ("H_2O)*	$\sqrt{dP}$	*vs*
85	5.4	0.0	14.000	0.164	1.23	91	2.06	69.6	49.4	70	99.2	74	0.108	0.329	18.03
86	5.4	0.0	14.165	0.165	1.20	92	2.00	69.5	49.5	70	99.8	74	0.107	0.327	17.98
87	5.3	0.0	14.335	0.170	1.20	92	2.07	69.5	49.6	70	102.7	74	0.109	0.330	18.02
88	5.3	0.0	14.502	0.167	1.20	91	2.09	69.5	49.6	70	100.7	74	0.108	0.329	18.06
89	5.3	0.0	14.667	0.165	1.21	92	2.01	69.4	49.6	70	99.5	74	0.108	0.329	18.02
90	5.3	0.0	14.834	0.167	1.20	92	2.12	69.4	49.7	70	100.8	74	0.108	0.329	18.02
91	5.3	0.0	15.002	0.168	1.20	92	2.09	69.4	49.8	70	101.2	74	0.109	0.330	18.06
92	5.2	0.0	15.168	0.166	1.21	92	2.23	69.3	49.8	70	100.0	74	0.106	0.326	17.98
93	5.2	0.0	15.334	0.166	1.20	92	2.21	69.4	49.8	70	100.5	74	0.107	0.327	17.89
94	5.2	0.0	15.499	0.165	1.21	92	2.22	69.3	49.9	70	99.9	74	0.108	0.329	17.97
95	5.2	0.0	15.668	0.169	1.21	92	2.23	69.3	50	70	102.2	74	0.106	0.326	17.93
96	5.1	0.1	15.834	0.166	1.20	92	2.05	69.3	50	70	100.6	74	0.107	0.327	17.89
97	5.1	0.0	16.002	0.168	1.20	92	2.01	69.3	50.1	70	101.8	74	0.107	0.327	17.93
98	5.1	0.0	16.169	0.167	1.20	93	2.10	69.2	50.1	70	101.0	74	0.107	0.327	17.93
99	5.1	0.0	16.335	0.166	1.20	93	2.01	69.2	50.2	70	100.3	73	0.108	0.329	17.97
100	5.0	0.0	16.502	0.167	1.22	93	2.05	69.2	50.3	70	100.7	74	0.108	0.329	18.01
101	5.0	0.0	16.669	0.167	1.22	93	2.14	69.2	50.3	70	100.7	74	0.107	0.327	17.97
102	5.0	0.0	16.836	0.167	1.23	93	2.20	69.2	50.4	70	100.8	74	0.108	0.329	17.97
103	4.9	0.1	16.999	0.163	1.21	93	2.02	69.2	50.5	70	98.3	74	0.107	0.327	17.97
104	4.9	0.0	17.167	0.168	1.22	93	2.18	69.2	50.5	70	101.3	74	0.108	0.329	17.97
105	4.9	0.0	17.336	0.169	1.20	93	2.04	69.2	50.5	70	101.8	74	0.108	0.329	18.01
106	4.8	0.1	17.503	0.167	1.20	94	2.09	69.2	50.6	70	100.4	74	0.108	0.329	18.01
107	4.8	0.0	17.670	0.167	1.21	93	2.06	69.2	50.6	70	100.4	74	0.108	0.329	18.01
108	4.8	0.0	17.838	0.168	1.21	94	2.16	69.1	50.6	70	100.9	74	0.109	0.330	18.06
109	4.7	0.1	18.004	0.166	1.20	93	2.21	69.1	50.6	70	99.6	74	0.108	0.329	18.06
110	4.7	0.0	18.170	0.166	1.19	94	2.21	69.1	50.6	70	99.8	74	0.107	0.327	17.98
111	4.6	0.0	18.338	0.168	1.20	94	2.23	69	50.6	70	101.3	74	0.107	0.327	17.94
112	4.6	0.1	18.505	0.167	1.21	94	2.01	69.1	50.7	70	100.8	74	0.108	0.329	17.98
113	4.5	0.0	18.668	0.163	1.20	94	2.04	69.1	50.7	70	98.1	74	0.108	0.329	18.02
114	4.5	0.1	18.839	0.171	1.20	94	2.22	69.1	50.8	70	102.9	74	0.107	0.327	17.98
115	4.5	0.0	19.006	0.167	1.20	94	2.19	69.2	50.8	70	100.7	74	0.107	0.327	17.94
116	4.4	0.1	19.172	0.166	1.19	94	2.01	69.2	50.9	70	100.1	74	0.108	0.329	17.98
117	4.3	0.0	19.339	0.167	1.20	94	2.02	69.2	50.9	70	100.5	75	0.108	0.329	18.03
118	4.3	0.1	19.507	0.168	1.20	94	2.15	69.2	50.9	70	101.0	75	0.108	0.329	18.03
119	4.2	0.1	19.674	0.167	1.20	95	2.05	69.2	51	70	100.1	75	0.110	0.332	18.11
120	4.2	0.0	19.840	0.166	1.19	94	2.03	69.2	51	70	99.3	75	0.108	0.329	18.11
121	4.1	0.1	20.008	0.168	1.20	94	2.18	69.2	51.1	70	100.6	75	0.109	0.330	18.07
122	4.1	0.0	20.175	0.167	1.20	95	2.02	69.3	51.1	70	100.2	75	0.107	0.327	18.04
123	4.0	0.1	20.342	0.167	1.20	94	2.19	69.2	51.1	70	100.5	75	0.108	0.329	18.00
124	3.9	0.1	20.508	0.166	1.20	94	2.20	69.3	51.1	70	99.9	75	0.108	0.329	18.04
125	3.9	0.0	20.677	0.169	1.22	95	2.20	69.4	51.2	69	101.4	76	0.110	0.332	18.13
126	3.8	0.1	20.843	0.166	1.21	94	2.19	69.4	51.2	69	99.1	76	0.110	0.332	18.21
127	3.8	0.0	21.010	0.167	1.21	94	2.19	69.4	51.2	69	99.5	76	0.110	0.332	18.21
128	3.7	0.1	21.178	0.168	1.21	95	2.17	69.5	51.3	69	100.2	76	0.109	0.330	18.17

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 6
Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 10:43
Test Length: 362 min
Recording Interval: 1 min

Test Date: 10/3/25

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.003 cfm @ 21.9 in. Hg
Post-Test 0.002 cfm @ 6.01 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ("H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ("H_2O)*	$\sqrt{dP}$	*vs*
129	3.6	0.1	21.345	0.167	1.20	95	2.22	69.4	51.2	70	99.9	76	0.108	0.329	18.09
130	3.6	0.0	21.511	0.166	1.19	95	2.02	69.4	51.2	70	99.5	76	0.109	0.330	18.09
131	3.5	0.1	21.678	0.167	1.19	95	2.15	69.4	51.2	70	100.1	76	0.108	0.329	18.09
132	3.5	0.0	21.846	0.168	1.20	95	2.08	69.5	51.2	70	100.6	76	0.110	0.332	18.13
133	3.4	0.1	22.013	0.167	1.21	95	2.03	69.5	51.3	70	99.6	76	0.110	0.332	18.22
134	3.4	0.0	22.179	0.166	1.19	96	2.02	69.5	51.3	70	98.8	75	0.109	0.330	18.17
135	3.3	0.1	22.347	0.168	1.21	95	2.15	69.5	51.3	70	100.2	75	0.109	0.330	18.12
136	3.2	0.0	22.514	0.167	1.21	96	2.07	69.5	51.3	70	99.7	75	0.109	0.330	18.12
137	3.2	0.0	22.681	0.167	1.20	96	2.12	69.6	51.3	70	99.7	75	0.109	0.330	18.12
138	3.1	0.0	22.847	0.166	1.21	95	2.20	69.5	51.3	70	99.0	75	0.110	0.332	18.16
139	3.1	0.1	23.015	0.168	1.19	95	2.00	69.6	51.4	70	100.2	75	0.108	0.329	18.11
140	3.1	0.0	23.182	0.167	1.20	96	2.13	69.6	51.4	71	99.7	75	0.110	0.332	18.12
141	3.0	0.1	23.348	0.166	1.20	96	2.19	69.6	51.5	70	98.7	75	0.111	0.333	18.24
142	3.0	0.0	23.516	0.168	1.20	95	2.15	69.6	51.5	70	99.7	75	0.109	0.330	18.20
143	2.9	0.1	23.683	0.167	1.19	96	2.04	69.6	51.5	71	99.3	75	0.110	0.332	18.16
144	2.9	0.0	23.849	0.166	1.20	96	2.13	69.6	51.5	71	98.8	75	0.109	0.330	18.16
145	2.8	0.1	24.016	0.167	1.21	96	2.04	69.6	51.6	70	99.4	75	0.110	0.332	18.16
146	2.8	0.1	24.184	0.168	1.19	96	1.99	69.5	51.6	71	99.9	75	0.110	0.332	18.20
147	2.8	0.0	24.350	0.166	1.19	96	2.14	69.6	51.6	71	98.6	74	0.110	0.332	18.20
148	2.8	0.0	24.516	0.166	1.21	96	2.18	69.6	51.7	71	98.5	74	0.110	0.332	18.19
149	2.7	0.0	24.685	0.169	1.19	96	2.13	69.6	51.7	70	100.3	74	0.110	0.332	18.19
150	2.7	0.0	24.851	0.166	1.20	96	2.00	69.6	51.7	71	98.5	74	0.110	0.332	18.19
151	2.7	0.0	25.018	0.167	1.20	96	2.09	69.5	51.7	70	99.2	74	0.109	0.330	18.15
152	2.7	0.0	25.185	0.167	1.20	96	2.20	69.5	51.8	70	99.5	74	0.108	0.329	18.06
153	2.6	0.1	25.353	0.168	1.20	96	2.10	69.5	51.8	70	100.4	74	0.109	0.330	18.06
154	2.6	0.0	25.519	0.166	1.20	96	2.20	69.6	51.8	71	99.1	74	0.108	0.329	18.06
155	2.6	0.0	25.685	0.166	1.20	96	2.12	69.6	51.9	71	99.0	74	0.110	0.332	18.10
156	2.6	0.0	25.854	0.169	1.22	96	2.09	69.6	51.9	71	100.4	74	0.110	0.332	18.18
157	2.6	0.0	26.020	0.166	1.20	96	2.00	69.6	51.9	71	98.6	74	0.108	0.329	18.10
158	2.6	0.0	26.186	0.166	1.19	96	2.19	69.6	52	70	98.8	74	0.111	0.333	18.14
159	2.6	0.0	26.354	0.168	1.19	96	2.26	69.6	52.1	70	99.8	74	0.109	0.330	18.18
160	2.5	0.1	26.521	0.167	1.19	96	2.26	69.6	52.1	70	99.3	74	0.109	0.330	18.10
161	2.5	0.0	26.687	0.166	1.19	97	2.20	69.6	52.1	70	98.9	74	0.109	0.330	18.11
162	2.5	0.0	26.853	0.166	1.20	96	2.03	69.7	52.1	70	98.8	74	0.109	0.330	18.10
163	2.5	0.0	27.021	0.168	1.19	96	2.15	69.7	52.2	70	99.9	74	0.110	0.332	18.14
164	2.5	0.0	27.188	0.167	1.20	96	2.13	69.8	52.3	70	99.0	74	0.111	0.333	18.22
165	2.5	0.0	27.354	0.166	1.20	97	1.99	69.8	52.3	70	98.3	74	0.109	0.330	18.18
166	2.5	0.0	27.522	0.168	1.19	97	2.17	69.8	52.4	70	99.5	74	0.111	0.333	18.18
167	2.5	0.0	27.689	0.167	1.20	97	2.23	69.8	52.3	70	99.0	74	0.109	0.330	18.18
168	2.5	0.0	27.855	0.166	1.18	96	2.25	69.8	52.4	71	98.4	74	0.111	0.333	18.19
169	2.5	0.0	28.022	0.167	1.19	96	2.20	69.9	52.5	71	98.9	74	0.110	0.332	18.23
170	2.4	0.0	28.189	0.167	1.21	96	2.14	69.9	52.5	71	99.0	74	0.109	0.330	18.14
171	2.4	0.0	28.356	0.167	1.22	97	2.13	69.8	52.5	71	99.4	74	0.108	0.329	18.06
172	2.4	0.0	28.521	0.165	1.20	96	2.24	69.9	52.6	71	98.4	74	0.109	0.330	18.06

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 6
Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 10:43
Test Length: 362 min
Recording Interval: 1 min

Test Date: 10/3/25

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.003 cfm @ 21.9 in. Hg
Post-Test 0.002 cfm @ 6.01 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ("H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ("H_2O)*	$\sqrt{dP}$	*vs*
173	2.4	0.0	28.690	0.169	1.20	97	2.18	69.8	52.6	70	100.4	74	0.111	0.333	18.18
174	2.4	0.0	28.856	0.166	1.19	96	2.06	69.9	52.6	71	98.1	74	0.111	0.333	18.26
175	2.4	0.0	29.023	0.167	1.20	97	2.05	69.9	52.7	71	98.7	74	0.109	0.330	18.18
176	2.4	0.0	29.190	0.167	1.21	97	2.24	69.9	52.7	71	99.1	74	0.109	0.330	18.10
177	2.4	0.0	29.358	0.168	1.20	97	2.13	69.9	52.8	70	99.9	74	0.109	0.330	18.10
178	2.4	0.0	29.524	0.166	1.20	97	2.14	69.9	52.8	71	98.8	73	0.109	0.330	18.10
179	2.4	0.0	29.690	0.166	1.20	97	2.18	69.9	52.8	71	98.8	73	0.109	0.330	18.09
180	2.4	0.0	29.858	0.168	1.20	97	1.98	69.9	52.9	70	99.9	73	0.109	0.330	18.09
181	2.4	0.0	30.025	0.167	1.22	97	2.25	69.9	53	71	99.3	73	0.109	0.330	18.09
182	2.4	0.0	30.191	0.166	1.21	97	2.03	69.9	53	71	98.7	73	0.109	0.330	18.09
183	2.4	0.0	30.359	0.168	1.20	97	1.99	69.9	53	71	99.7	73	0.111	0.333	18.17
184	2.4	0.0	30.526	0.167	1.20	97	2.23	69.9	53.1	71	98.7	74	0.110	0.332	18.22
185	2.4	0.0	30.692	0.166	1.18	97	2.24	69.9	53.2	71	98.1	74	0.110	0.332	18.18
186	2.4	0.0	30.859	0.167	1.19	97	2.01	69.9	53.2	71	98.9	74	0.110	0.332	18.18
187	2.3	0.0	31.027	0.168	1.20	97	1.97	69.9	53.2	71	99.5	74	0.110	0.332	18.18
188	2.3	0.0	31.193	0.166	1.19	97	2.21	69.9	53.2	71	98.2	74	0.110	0.332	18.18
189	2.3	0.0	31.359	0.166	1.19	97	1.96	69.9	53.3	71	98.4	73	0.109	0.330	18.14
190	2.3	0.0	31.527	0.168	1.20	97	2.21	70	53.3	71	99.8	73	0.109	0.330	18.09
191	2.3	0.0	31.694	0.167	1.20	97	2.08	70	53.3	71	99.1	73	0.111	0.333	18.18
192	2.3	0.0	31.860	0.166	1.19	97	2.21	70	53.4	71	98.4	73	0.108	0.329	18.13
193	2.3	0.0	32.027	0.167	1.20	97	2.19	70	53.4	71	99.2	73	0.110	0.332	18.09
194	2.3	0.0	32.195	0.168	1.19	97	2.23	70	53.5	71	99.8	74	0.109	0.330	18.13
195	2.3	0.0	32.361	0.166	1.20	97	2.08	70	53.6	71	98.3	73	0.111	0.333	18.18
196	2.3	0.0	32.527	0.166	1.19	97	1.99	70	53.5	71	98.2	74	0.109	0.330	18.18
197	2.3	0.0	32.696	0.169	1.21	97	2.25	70	53.6	71	100.2	73	0.109	0.330	18.09
198	2.3	0.0	32.862	0.166	1.20	97	2.06	70.1	53.7	71	98.5	74	0.110	0.332	18.14
199	2.2	0.0	33.029	0.167	1.21	97	2.11	70.1	53.7	71	98.9	74	0.110	0.332	18.18
200	2.2	0.0	33.196	0.167	1.19	97	2.03	70.1	53.7	71	98.9	74	0.109	0.330	18.14
201	2.2	0.0	33.364	0.168	1.19	97	2.05	70.1	53.7	71	99.6	74	0.110	0.332	18.14
202	2.2	0.0	33.531	0.167	1.20	97	1.98	70.1	53.8	71	98.8	74	0.111	0.333	18.22
203	2.2	0.0	33.697	0.166	1.18	97	2.05	70.1	53.8	71	98.0	74	0.110	0.332	18.22
204	2.2	0.0	33.865	0.168	1.20	97	2.13	70.1	53.9	71	99.2	74	0.111	0.333	18.22
205	2.2	0.0	34.032	0.167	1.20	98	2.19	70.2	53.9	71	98.6	74	0.110	0.332	18.23
206	2.1	0.0	34.199	0.167	1.19	97	1.99	70.2	53.9	71	98.8	74	0.109	0.330	18.14
207	2.1	0.0	34.366	0.167	1.21	98	2.22	70.2	54	71	99.3	74	0.108	0.329	18.06
208	2.1	0.0	34.534	0.168	1.20	97	2.22	70.2	54	71	99.9	74	0.111	0.333	18.15
209	2.1	0.0	34.701	0.167	1.20	97	2.09	70.2	54	71	98.8	74	0.111	0.333	18.27
210	2.1	0.0	34.867	0.166	1.20	98	2.01	70.3	54.1	71	97.9	74	0.110	0.332	18.23
211	2.1	0.0	35.035	0.168	1.19	98	2.00	70.3	54.2	71	99.2	74	0.111	0.333	18.23
212	2.1	0.0	35.202	0.167	1.18	97	1.99	70.3	54.2	71	98.8	74	0.109	0.330	18.19
213	2.0	0.1	35.368	0.166	1.19	97	2.15	70.3	54.3	71	98.2	75	0.112	0.335	18.24
214	2.0	0.0	35.536	0.168	1.21	97	2.23	70.3	54.3	71	99.2	75	0.110	0.332	18.28
215	2.0	0.0	35.704	0.168	1.20	97	2.11	70.4	54.3	71	99.2	75	0.111	0.333	18.24
216	2.0	0.0	35.870	0.166	1.19	97	2.24	70.4	54.4	71	98.0	75	0.111	0.333	18.28

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 6
Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 10:43
Test Length: 362 min
Recording Interval: 1 min

Test Date: 10/3/25

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.003 cfm @ 21.9 in. Hg
Post-Test 0.002 cfm @ 6.01 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ("H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ("H_2O)*	$\sqrt{dP}$	*vs*
217	2.0	0.0	36.036	0.166	1.19	98	2.01	70.4	54.4	71	98.1	75	0.109	0.330	18.20
218	2.0	0.0	36.205	0.169	1.20	98	2.24	70.4	54.5	71	100.3	75	0.109	0.330	18.12
219	1.9	0.0	36.372	0.167	1.20	97	2.14	70.4	54.5	71	99.2	75	0.110	0.332	18.16
220	1.9	0.0	36.538	0.166	1.20	97	2.06	70.5	54.6	71	98.4	75	0.110	0.332	18.20
221	1.9	0.0	36.705	0.167	1.21	98	2.13	70.5	54.7	71	99.0	75	0.109	0.330	18.16
222	1.9	0.0	36.873	0.168	1.20	98	2.13	70.5	54.7	71	99.8	75	0.109	0.330	18.12
223	1.9	0.0	37.040	0.167	1.20	98	2.08	70.5	54.7	71	99.4	75	0.109	0.330	18.12
224	1.9	0.0	37.206	0.166	1.20	97	2.23	70.5	54.8	71	98.8	75	0.109	0.330	18.12
225	1.9	0.0	37.375	0.169	1.21	97	1.98	70.6	54.9	71	100.6	75	0.109	0.330	18.12
226	1.8	0.1	37.541	0.166	1.22	98	2.19	70.5	54.9	71	98.9	75	0.108	0.329	18.08
227	1.8	0.0	37.708	0.167	1.18	98	2.07	70.6	55	71	99.6	75	0.109	0.330	18.08
228	1.8	0.0	37.875	0.167	1.19	98	1.98	70.6	55	71	99.4	75	0.109	0.330	18.13
229	1.8	0.0	38.043	0.168	1.18	98	1.97	70.6	55.1	71	99.8	75	0.110	0.332	18.17
230	1.8	0.0	38.210	0.167	1.19	98	2.19	70.6	55.1	71	99.2	75	0.108	0.329	18.13
231	1.8	0.0	38.376	0.166	1.19	98	2.20	70.6	55.2	71	98.8	76	0.110	0.332	18.13
232	1.8	0.0	38.544	0.168	1.20	98	2.23	70.7	55.2	71	99.6	75	0.111	0.333	18.25
233	1.7	0.1	38.711	0.167	1.19	98	2.21	70.7	55.3	71	98.9	75	0.108	0.329	18.17
234	1.7	0.0	38.877	0.166	1.18	98	2.06	70.7	55.3	71	98.6	75	0.110	0.332	18.13
235	1.7	0.0	39.044	0.167	1.18	97	2.06	70.7	55.3	71	99.2	76	0.110	0.332	18.21
236	1.7	0.0	39.212	0.168	1.20	98	1.98	70.8	55.4	70	99.8	76	0.108	0.329	18.13
237	1.7	0.0	39.379	0.167	1.18	97	2.08	70.8	55.4	70	99.7	75	0.107	0.327	18.00
238	1.7	0.0	39.545	0.166	1.19	98	1.96	70.8	55.5	71	99.4	75	0.108	0.329	18.00
239	1.7	0.0	39.713	0.168	1.20	98	2.18	70.8	55.5	71	100.6	75	0.107	0.327	18.00
240	1.7	0.0	39.880	0.167	1.19	98	2.03	70.8	55.5	71	99.8	75	0.110	0.332	18.08
241	1.6	0.0	40.046	0.166	1.19	98	2.21	70.9	55.6	71	98.7	75	0.109	0.330	18.17
242	1.6	0.0	40.213	0.167	1.20	98	1.98	70.9	55.6	71	99.1	76	0.110	0.332	18.17
243	1.6	0.0	40.381	0.168	1.19	98	2.07	70.9	55.7	71	99.7	76	0.109	0.330	18.17
244	1.6	0.0	40.548	0.167	1.19	98	1.98	70.9	55.6	71	99.1	76	0.110	0.332	18.17
245	1.6	0.0	40.714	0.166	1.21	98	2.06	70.9	55.7	71	98.6	76	0.108	0.329	18.13
246	1.6	0.0	40.883	0.169	1.18	98	2.03	70.9	55.7	71	100.5	76	0.110	0.332	18.13
247	1.6	0.0	41.049	0.166	1.20	98	2.05	71	55.8	71	98.5	76	0.110	0.332	18.21
248	1.6	0.0	41.216	0.167	1.19	98	2.13	71	55.8	71	99.1	76	0.108	0.329	18.13
249	1.5	0.0	41.383	0.167	1.20	98	2.12	71	55.8	71	99.4	76	0.109	0.330	18.09
250	1.5	0.0	41.551	0.168	1.20	98	1.98	71	55.9	71	99.8	76	0.111	0.333	18.21
251	1.5	0.0	41.718	0.167	1.19	98	2.13	71	55.9	71	99.0	76	0.108	0.329	18.17
252	1.5	0.0	41.884	0.166	1.19	98	2.11	71	55.9	71	98.5	76	0.111	0.333	18.17
253	1.5	0.0	42.052	0.168	1.19	98	2.16	71	56	71	99.4	76	0.110	0.332	18.25
254	1.5	0.0	42.219	0.167	1.20	98	1.99	71	56	71	98.9	76	0.108	0.329	18.13
255	1.5	0.0	42.386	0.167	1.19	98	2.15	71.1	56	71	99.5	76	0.108	0.329	18.05
256	1.5	0.0	42.552	0.166	1.21	98	2.20	71.1	56	71	99.2	76	0.108	0.329	18.05
257	1.4	0.0	42.721	0.169	1.19	98	2.08	71.1	56.1	71	100.6	76	0.111	0.333	18.17
258	1.4	0.0	42.888	0.167	1.21	98	2.03	71.1	56.1	71	99.1	76	0.108	0.329	18.17
259	1.4	0.0	43.054	0.166	1.19	98	2.01	71.1	56.1	71	98.7	76	0.109	0.330	18.09
260	1.4	0.0	43.222	0.168	1.19	98	2.14	71.1	56.1	71	100.2	76	0.108	0.329	18.09

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 6
Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 10:43
Test Length: 362 min
Recording Interval: 1 min

Test Date: 10/3/25

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.003 cfm @ 21.9 in. Hg
Post-Test 0.002 cfm @ 6.01 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H (" H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP (" H_2O)*	$\sqrt{dP}$	*vs*
261	1.4	0.0	43.389	0.167	1.20	98	1.98	71.1	56.2	71	99.4	76	0.110	0.332	18.13
262	1.4	0.0	43.555	0.166	1.19	98	2.07	71.1	56.2	71	98.5	76	0.110	0.332	18.22
263	1.4	0.0	43.722	0.167	1.19	98	1.98	71.1	56.2	71	99.0	76	0.109	0.330	18.18
264	1.4	0.0	43.890	0.168	1.20	98	2.00	71.2	56.3	71	100.1	76	0.107	0.327	18.05
265	1.4	0.0	44.057	0.167	1.19	98	2.02	71.2	56.3	71	99.8	76	0.109	0.330	18.05
266	1.3	0.0	44.223	0.166	1.20	99	1.98	71.2	56.4	72	99.2	76	0.107	0.327	18.05
267	1.3	0.0	44.392	0.169	1.19	98	2.18	71.2	56.3	72	100.7	76	0.111	0.333	18.14
268	1.3	0.0	44.559	0.167	1.20	98	2.13	71.2	56.4	72	99.2	76	0.108	0.329	18.18
269	1.3	0.0	44.725	0.166	1.19	99	2.21	71.2	56.4	72	98.8	76	0.108	0.329	18.05
270	1.3	0.0	44.892	0.167	1.20	98	2.10	71.2	56.5	71	99.5	76	0.110	0.332	18.13
271	1.3	0.0	45.060	0.168	1.18	98	2.01	71.3	56.4	71	99.7	76	0.109	0.330	18.17
272	1.3	0.0	45.227	0.167	1.21	98	2.23	71.2	56.5	72	99.2	76	0.109	0.330	18.13
273	1.3	0.0	45.393	0.166	1.20	98	2.07	71.3	56.5	72	98.8	76	0.108	0.329	18.09
274	1.2	0.0	45.561	0.168	1.19	98	2.21	71.3	56.5	72	100.0	76	0.110	0.332	18.14
275	1.2	0.0	45.728	0.167	1.22	98	2.18	71.3	56.6	72	99.3	76	0.108	0.329	18.14
276	1.2	0.0	45.895	0.167	1.19	98	1.99	71.3	56.6	72	99.7	76	0.106	0.326	17.97
277	1.2	0.0	46.061	0.166	1.18	99	1.98	71.3	56.5	72	99.3	76	0.110	0.332	18.05
278	1.2	0.0	46.229	0.168	1.20	99	2.23	71.3	56.6	72	99.9	76	0.109	0.330	18.18
279	1.2	0.0	46.396	0.167	1.20	98	2.09	71.4	56.6	72	99.3	76	0.108	0.329	18.09
280	1.2	0.0	46.563	0.167	1.19	99	2.14	71.3	56.7	72	99.6	76	0.108	0.329	18.05
281	1.2	0.0	46.731	0.168	1.19	98	2.19	71.4	56.7	72	100.2	76	0.109	0.330	18.10
282	1.1	0.0	46.898	0.167	1.20	99	2.09	71.4	56.7	72	99.6	76	0.107	0.327	18.06
283	1.1	0.0	47.064	0.166	1.19	99	2.08	71.4	56.7	72	99.2	76	0.108	0.329	18.01
284	1.1	0.0	47.231	0.167	1.20	99	2.16	71.4	56.8	72	99.7	76	0.109	0.330	18.09
285	1.1	0.0	47.399	0.168	1.19	98	2.09	71.4	56.8	72	100.0	76	0.109	0.330	18.14
286	1.1	0.0	47.566	0.167	1.19	98	2.21	71.5	56.8	71	99.4	76	0.108	0.329	18.10
287	1.1	0.0	47.732	0.166	1.19	99	2.05	71.5	56.8	71	98.9	76	0.109	0.330	18.10
288	1.1	0.0	47.900	0.168	1.19	99	2.07	71.5	56.9	71	100.2	76	0.107	0.327	18.05
289	1.1	0.0	48.067	0.167	1.19	99	2.09	71.5	56.9	72	99.8	76	0.108	0.329	18.01
290	1.0	0.0	48.233	0.166	1.19	98	2.23	71.5	56.9	71	98.9	76	0.111	0.333	18.18
291	1.0	0.0	48.400	0.167	1.20	99	2.08	71.5	56.9	71	98.8	76	0.110	0.332	18.27
292	1.0	0.0	48.568	0.168	1.19	99	2.06	71.6	56.9	71	99.4	76	0.109	0.330	18.18
293	1.0	0.0	48.735	0.167	1.18	99	2.16	71.6	56.9	71	99.3	76	0.108	0.329	18.10
294	1.0	0.0	48.901	0.166	1.19	98	2.25	71.6	57	72	99.0	76	0.108	0.329	18.06
295	1.0	0.0	49.069	0.168	1.19	99	2.13	71.6	57	72	100.3	76	0.108	0.329	18.06
296	1.0	0.0	49.236	0.167	1.19	99	2.13	71.6	57	72	99.5	77	0.110	0.332	18.14
297	1.0	0.0	49.403	0.167	1.20	99	1.97	71.6	57	72	99.2	77	0.109	0.330	18.19
298	0.9	0.0	49.569	0.166	1.18	99	2.23	71.6	57	72	98.6	76	0.109	0.330	18.15
299	0.9	0.0	49.738	0.169	1.19	99	1.99	71.7	57.1	72	100.7	77	0.107	0.327	18.06
300	0.9	0.0	49.904	0.166	1.21	98	2.18	71.7	57.1	72	99.4	77	0.107	0.327	17.98
301	0.9	0.0	50.071	0.167	1.20	99	2.07	71.7	57.1	72	100.2	77	0.107	0.327	17.98
302	0.9	0.0	50.239	0.168	1.21	98	2.18	71.7	57.1	72	100.8	77	0.107	0.327	17.98
303	0.9	0.0	50.406	0.167	1.19	99	1.98	71.7	57.1	72	100.0	77	0.109	0.330	18.07
304	0.9	0.0	50.572	0.166	1.18	99	2.09	71.7	57.2	72	98.8	77	0.110	0.332	18.19

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 6
Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 10:43
Test Length: 362 min
Recording Interval: 1 min

Test Date: 10/3/25

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.003 cfm @ 21.9 in. Hg
Post-Test 0.002 cfm @ 6.01 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H ($" H_2O$)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP ($" H_2O$)*	$\sqrt{dP}$	*vs*
305	0.8	0.0	50.739	0.167	1.20	99	2.02	71.7	57.2	72	99.1	77	0.109	0.330	18.19
306	0.8	0.0	50.907	0.168	1.19	99	2.20	71.7	57.2	72	99.9	77	0.108	0.329	18.11
307	0.8	0.0	51.074	0.167	1.19	99	2.16	71.7	57.2	72	99.7	77	0.108	0.329	18.07
308	0.8	0.0	51.240	0.166	1.19	99	2.11	71.7	57.2	72	99.4	77	0.106	0.326	17.98
309	0.8	0.0	51.408	0.168	1.18	99	1.99	71.8	57.2	72	100.9	77	0.107	0.327	17.94
310	0.8	0.0	51.575	0.167	1.19	99	2.18	71.8	57.3	72	100.3	77	0.107	0.327	17.99
311	0.8	0.0	51.741	0.166	1.20	99	2.09	71.8	57.3	72	99.7	77	0.106	0.326	17.94
312	0.7	0.0	51.908	0.167	1.20	99	2.21	71.8	57.3	72	100.5	77	0.107	0.327	17.95
313	0.7	0.0	52.076	0.168	1.19	99	2.17	71.8	57.3	72	101.1	77	0.106	0.326	17.95
314	0.7	0.0	52.243	0.167	1.20	99	2.18	71.8	57.3	72	100.4	77	0.107	0.327	17.94
315	0.7	0.0	52.409	0.166	1.19	99	2.16	71.8	57.4	72	99.6	77	0.108	0.329	18.03
316	0.7	0.0	52.577	0.168	1.22	99	1.98	71.8	57.4	72	100.4	77	0.108	0.329	18.07
317	0.7	0.0	52.745	0.168	1.18	99	1.98	71.9	57.4	72	100.1	77	0.110	0.332	18.16
318	0.6	0.0	52.911	0.166	1.19	99	2.06	71.9	57.5	72	98.6	77	0.109	0.330	18.20
319	0.6	0.0	53.077	0.166	1.19	99	2.03	71.9	57.4	72	98.3	77	0.111	0.333	18.24
320	0.6	0.0	53.246	0.169	1.21	99	2.19	71.9	57.4	72	100.1	77	0.108	0.329	18.20
321	0.6	0.0	53.413	0.167	1.19	99	2.23	71.9	57.5	72	99.3	77	0.109	0.330	18.11
322	0.6	0.0	53.579	0.166	1.20	99	2.23	71.9	57.5	71	98.7	77	0.110	0.332	18.20
323	0.6	0.0	53.747	0.168	1.20	99	2.23	71.9	57.5	72	99.8	77	0.108	0.329	18.16
324	0.5	0.1	53.914	0.167	1.19	99	2.15	72	57.6	72	99.6	77	0.107	0.327	18.03
325	0.5	0.0	54.080	0.166	1.20	99	2.17	72	57.6	72	99.3	77	0.108	0.329	18.03
326	0.5	0.0	54.247	0.167	1.19	99	2.20	72	57.6	72	99.5	77	0.111	0.333	18.20
327	0.5	0.0	54.415	0.168	1.20	99	2.18	72	57.6	72	99.4	77	0.110	0.332	18.28
328	0.5	0.0	54.582	0.167	1.20	99	2.15	72	57.6	72	99.0	77	0.108	0.329	18.15
329	0.5	0.0	54.748	0.166	1.18	99	2.14	72.1	57.6	72	99.0	77	0.108	0.329	18.07
330	0.4	0.0	54.916	0.168	1.21	99	1.99	72	57.6	72	100.4	77	0.108	0.329	18.08
331	0.4	0.0	55.084	0.168	1.19	99	2.22	72	57.6	72	100.4	77	0.107	0.327	18.03
332	0.4	0.0	55.250	0.166	1.18	99	2.24	72	57.6	72	99.1	77	0.110	0.332	18.11
333	0.4	0.0	55.416	0.166	1.18	99	2.16	72.1	57.6	72	98.5	77	0.110	0.332	18.24
334	0.4	0.0	55.585	0.169	1.20	99	2.01	72	57.6	72	100.3	77	0.107	0.327	18.11
335	0.4	0.0	55.751	0.166	1.19	99	2.05	72	57.7	72	99.0	77	0.109	0.330	18.07
336	0.4	0.0	55.918	0.167	1.19	99	2.21	72.1	57.7	72	99.5	77	0.109	0.330	18.15
337	0.4	0.0	56.086	0.168	1.19	99	2.22	72	57.7	72	99.8	77	0.110	0.332	18.19
338	0.3	0.0	56.253	0.167	1.20	100	2.13	72	57.7	72	99.2	77	0.107	0.327	18.11
339	0.3	0.0	56.419	0.166	1.19	99	1.97	72	57.7	72	99.3	77	0.106	0.326	17.94
340	0.3	0.0	56.586	0.167	1.18	99	2.09	72.1	57.7	72	100.2	77	0.109	0.330	18.03
341	0.3	0.0	56.754	0.168	1.19	99	1.98	72.1	57.8	72	100.1	77	0.110	0.332	18.20
342	0.3	0.0	56.921	0.167	1.19	99	2.05	72	57.7	72	99.1	77	0.108	0.329	18.15
343	0.3	0.0	57.087	0.166	1.20	99	2.20	72	57.8	72	99.1	77	0.106	0.326	17.99
344	0.3	0.0	57.255	0.168	1.18	99	2.09	72	57.8	72	100.8	77	0.108	0.329	17.99
345	0.3	0.0	57.423	0.168	1.18	99	2.24	72	57.8	72	100.2	77	0.111	0.333	18.20
346	0.3	0.0	57.589	0.166	1.21	99	2.02	72	57.8	72	98.4	77	0.108	0.329	18.20
347	0.2	0.0	57.755	0.166	1.21	99	1.97	72	57.8	72	99.1	77	0.105	0.324	17.94
348	0.2	0.0	57.924	0.169	1.19	99	2.10	72	57.8	72	101.3	77	0.110	0.332	18.03

Train A - Particulate Sampling and Dilution Tunnel Data

ASTM E2515

Run: 6
Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 10:43
Test Length: 362 min
Recording Interval: 1 min

Test Date: 10/3/25

Meter Box Y Regression Offset: 0.991
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 0.991
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.003 cfm @ 21.9 in. Hg
Post-Test 0.002 cfm @ 6.01 in. Hg

θ	Fuel Consumption		Train A Sampling System									Dilution Tunnel			
Elapsed Time (min)	*Scale Reading (lb.)*	*Weight Change*	*Meter Volume (ft^3)*	*Sample Rate (CFM)*	*Meter Δ H (" H_2O)*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Room Ambient (°F)*	*Pro - Rate*	*Tunnel Temp (°F)*	*Center dP (" H_2O)*	$\sqrt{dP}$	*vs*
349	0.2	0.0	58.091	0.167	1.19	99	2.05	72.1	57.9	72	99.5	77	0.109	0.330	18.19
350	0.2	0.0	58.257	0.166	1.19	99	1.98	72.1	57.9	72	98.9	77	0.106	0.326	18.03
351	0.2	0.0	58.425	0.168	1.19	99	2.23	72.1	57.9	72	100.5	77	0.109	0.330	18.03
352	0.2	0.0	58.592	0.167	1.19	99	2.08	72.1	57.9	72	99.6	77	0.109	0.330	18.15
353	0.2	0.0	58.759	0.167	1.19	99	1.97	72.1	57.9	72	99.3	77	0.108	0.329	18.11
354	0.2	0.0	58.925	0.166	1.19	99	2.24	72.1	57.9	72	99.1	77	0.107	0.327	18.03
355	0.2	0.0	59.093	0.168	1.20	99	2.18	72.1	58	72	100.6	77	0.108	0.329	18.03
356	0.1	0.0	59.260	0.167	1.20	100	2.20	72.2	58	72	99.7	77	0.109	0.330	18.12
357	0.1	0.0	59.427	0.167	1.18	100	1.98	72.1	58	72	99.1	77	0.110	0.332	18.20
358	0.1	0.0	59.594	0.167	1.21	99	2.18	72.1	58	72	99.2	77	0.107	0.327	18.11
359	0.1	0.0	59.762	0.168	1.16	99	1.99	72.1	58	72	100.4	77	0.107	0.327	17.99
360	0.1	0.0	59.929	0.167	1.19	99	2.01	72.1	58	72	99.8	77	0.110	0.332	18.11
361	0.1	0.0	60.095	0.166	1.19	99	2.24	72.1	58	72	98.7	77	0.108	0.329	18.16
362	0.0	0.1	60.263	0.168	1.20	100	2.24	72.2	58	72	100.0	77	0.108	0.329	18.07

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 6
Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 10:43
Total Sampling Time: 362 min
Recording Interval: 1 min

Test Date: 10/3/25

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Sample Train Leak Checks
Pre-test 0.001 cfm @ 24.9 in. Hg
Post-Test 0.001 cfm @ 5.98 in. Hg

Elapsed Time (min)	**Train B Sampling System**								**Appliance Temperatures, °F**						
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Pro - Rate*	*Top*	*Bottom*	*Back*	*Left*	*Right*	*Catalyst Exit*	*Average Stove Surface (Tot = Δ T)*
Tot / Avg	**58.103**	**0.161**	**1.22**	**90.6**	**2.33**	**70.24**	**51.11**	**100.0**	**386.6**	**340.4**	**254.5**	**258.8**	**297.6**	**841.8**	**13.0**
Minimum	0.000	0.135	0.03	72	0.07	68	46	87.5	266	310	197	229	253	350	283
Max	58.103	0.165	1.25	96	2.44	72	58	105.2	530	400	292	321	316	1044	332
0	0.000		0.03	72	0.07	68.3	46.5		303	400	292	320	314	526	326
1	0.135	0.135	1.23	72	2.39	68.6	47	87.5	301	398	292	320	315	381	325
2	0.294	0.159	1.22	72	2.39	68.7	47.1	104.3	298	396	291	321	316	350	324
3	0.455	0.161	1.21	72	2.37	68.6	47.1	104.0	293	394	289	319	315	362	322
4	0.613	0.158	1.20	72	2.40	68.6	47	101.9	288	393	287	317	314	379	320
5	0.773	0.160	1.21	72	2.34	68.6	46.9	103.2	283	391	283	315	312	406	317
6	0.932	0.159	1.21	72	2.35	68.7	46.8	102.4	280	389	280	312	309	428	314
7	1.091	0.159	1.20	72	2.31	68.7	46.8	102.0	275	387	276	309	306	445	311
8	1.248	0.157	1.19	72	2.32	68.7	46.8	100.5	272	386	273	305	304	466	308
9	1.404	0.156	1.21	72	2.38	68.6	46.7	99.7	269	384	269	302	301	487	305
10	1.561	0.157	1.20	73	2.42	68.6	46.6	100.2	267	383	265	298	297	514	302
11	1.718	0.157	1.21	73	2.41	68.6	46.6	100.3	266	381	261	295	294	560	299
12	1.878	0.160	1.21	73	2.28	68.5	46.5	102.2	266	380	257	291	291	612	297
13	2.034	0.156	1.21	73	2.25	68.4	46.5	99.7	267	378	253	287	288	650	295
14	2.193	0.159	1.20	73	2.37	68.4	46.5	102.0	269	377	249	284	285	682	292
15	2.352	0.159	1.19	73	2.39	68.4	46.4	102.4	272	375	244	281	282	712	291
16	2.508	0.156	1.19	74	2.25	68.5	46.5	100.3	276	374	240	277	279	726	289
17	2.666	0.158	1.23	74	2.46	68.5	46.5	101.4	280	372	236	274	276	733	288
18	2.827	0.161	1.24	74	2.31	68.5	46.5	103.2	285	371	232	271	273	748	287
19	2.985	0.158	1.23	74	2.34	68.5	46.5	101.2	289	370	229	269	271	772	285
20	3.144	0.159	1.22	74	2.49	68.5	46.4	102.0	295	369	225	266	268	799	285
21	3.303	0.159	1.23	75	2.39	68.6	46.4	101.8	301	368	222	263	266	815	284
22	3.465	0.162	1.22	75	2.31	68.6	46.4	103.7	307	367	219	260	264	834	283
23	3.627	0.162	1.22	75	2.44	68.6	46.4	103.8	314	366	216	258	262	864	283
24	3.785	0.158	1.22	75	2.45	68.7	46.5	101.4	322	365	214	255	261	891	283
25	3.944	0.159	1.22	76	2.40	68.7	46.5	102.0	331	364	212	253	259	900	284
26	4.105	0.161	1.22	76	2.37	68.7	46.5	103.5	339	363	210	251	258	920	284
27	4.265	0.160	1.25	76	2.49	68.8	46.5	103.1	348	363	208	248	257	924	285
28	4.423	0.158	1.21	76	2.32	68.8	46.6	101.5	356	362	206	246	256	939	285
29	4.580	0.157	1.21	77	2.29	68.9	46.6	100.6	365	362	204	244	255	962	286
30	4.740	0.160	1.22	77	2.47	68.9	46.7	102.7	373	361	203	242	254	981	287
31	4.898	0.158	1.24	77	2.33	69	46.7	101.5	381	361	202	240	254	989	288
32	5.057	0.159	1.21	77	2.45	69	46.7	102.1	390	361	201	239	254	986	289
33	5.220	0.163	1.22	78	2.46	69	46.7	104.7	399	361	200	237	253	984	290
34	5.380	0.160	1.22	78	2.49	69.1	46.8	103.0	409	361	199	236	253	990	291
35	5.538	0.158	1.24	78	2.43	69.1	46.8	101.9	418	361	198	235	254	1001	293
36	5.697	0.159	1.23	79	2.33	69.2	46.8	102.4	427	361	197	234	254	1014	295
37	5.858	0.161	1.23	79	2.47	69.2	46.9	103.6	436	361	197	233	254	1029	296
38	6.013	0.155	1.23	79	2.30	69.2	46.9	99.6	446	362	197	232	255	1036	298
39	6.172	0.159	1.22	79	2.36	69.3	46.9	102.1	455	362	197	231	256	1028	300
40	6.332	0.160	1.22	80	2.49	69.4	47	103.1	462	362	197	230	257	1014	302

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 6
Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 10:43
Total Sampling Time: 362 min
Recording Interval: 1 min

Test Date: 10/3/25

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Sample Train Leak Checks
Pre-test 0.001 cfm @ 24.9 in. Hg
Post-Test 0.001 cfm @ 5.98 in. Hg

Elapsed Time (min)	**Train B Sampling System**								**Appliance Temperatures, °F**						
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Pro - Rate*	*Top*	*Bottom*	*Back*	*Left*	*Right*	*Catalyst Exit*	*Average Stove Surface (Tot = Δ T)*
41	6.495	0.163	1.22	80	2.34	69.4	47	105.2	468	363	198	230	258	1007	303
42	6.653	0.158	1.21	80	2.47	69.5	47	101.7	472	363	198	229	259	1012	305
43	6.812	0.159	1.21	81	2.29	69.5	47	101.9	477	364	199	229	261	1017	306
44	6.973	0.161	1.22	81	2.46	69.5	47.1	103.0	480	364	200	229	262	1017	307
45	7.132	0.159	1.23	81	2.34	69.6	47.1	101.7	484	365	200	229	264	1022	308
46	7.291	0.159	1.20	81	2.28	69.7	47.2	101.7	488	365	201	229	265	1029	310
47	7.448	0.157	1.22	82	2.47	69.7	47.2	100.5	492	366	202	229	267	1028	311
48	7.608	0.160	1.22	82	2.27	69.7	47.2	102.6	496	366	203	230	269	1026	313
49	7.767	0.159	1.22	82	2.43	69.7	47.3	101.8	501	366	204	230	270	1027	314
50	7.929	0.162	1.22	82	2.47	69.7	47.3	103.4	505	367	205	230	272	1020	316
51	8.088	0.159	1.22	83	2.41	69.8	47.3	101.7	508	367	206	230	274	1026	317
52	8.250	0.162	1.22	83	2.43	69.8	47.3	104.1	512	368	207	231	276	1036	319
53	8.409	0.159	1.23	83	2.45	69.8	47.4	102.1	516	368	208	231	278	1041	320
54	8.567	0.158	1.22	83	2.45	69.9	47.4	101.1	519	368	209	232	279	1044	321
55	8.727	0.160	1.21	83	2.39	69.9	47.4	102.0	522	369	211	233	281	1044	323
56	8.888	0.161	1.22	84	2.26	69.9	47.4	102.9	524	369	212	233	283	1042	324
57	9.045	0.157	1.22	84	2.44	69.9	47.5	100.4	527	369	213	234	285	1040	326
58	9.204	0.159	1.22	84	2.29	69.9	47.5	101.1	528	369	215	234	287	1036	327
59	9.365	0.161	1.23	84	2.36	69.9	47.5	102.1	529	369	216	235	289	1032	328
60	9.528	0.163	1.23	85	2.28	70	47.6	103.6	529	369	217	236	291	1027	328
61	9.687	0.159	1.22	85	2.43	70	47.6	101.4	530	369	218	237	293	1021	329
62	9.846	0.159	1.21	85	2.44	70	47.7	101.5	529	369	219	237	295	1023	330
63	10.007	0.161	1.24	85	2.39	70	47.7	102.4	528	369	220	238	297	1024	330
64	10.168	0.161	1.23	85	2.46	70	47.7	102.0	528	369	222	239	299	1030	331
65	10.328	0.160	1.22	86	2.40	70.1	47.8	101.4	526	368	223	240	301	1031	331
66	10.484	0.156	1.23	86	2.41	70.1	47.9	98.8	524	368	224	240	302	1029	332
67	10.645	0.161	1.22	86	2.43	70.1	47.8	101.4	522	368	225	241	304	1033	332
68	10.806	0.161	1.21	86	2.32	70	47.8	101.0	519	367	226	241	305	1033	332
69	10.969	0.163	1.22	86	2.44	70	47.8	102.3	516	367	227	242	307	1036	332
70	11.128	0.159	1.23	86	2.29	69.9	47.8	100.0	513	366	228	243	309	1036	332
71	11.288	0.160	1.21	87	2.28	69.9	47.8	100.9	509	366	229	243	310	1027	331
72	11.449	0.161	1.21	87	2.44	69.8	47.8	101.7	506	365	230	243	311	1011	331
73	11.610	0.161	1.21	87	2.46	69.8	47.8	101.5	502	365	231	244	311	995	330
74	11.769	0.159	1.21	87	2.43	69.8	47.8	99.9	498	364	232	244	312	981	330
75	11.929	0.160	1.23	87	2.43	69.7	47.8	100.4	493	363	233	245	312	972	329
76	12.089	0.160	1.22	88	2.40	69.8	47.8	100.5	488	363	233	245	313	967	328
77	12.249	0.160	1.21	88	2.29	69.8	47.8	100.4	484	362	234	245	313	961	328
78	12.411	0.162	1.21	88	2.41	69.7	47.8	101.5	479	361	234	245	313	957	327
79	12.571	0.160	1.22	88	2.25	69.7	47.8	100.4	475	360	235	245	314	952	326
80	12.731	0.160	1.23	88	2.31	69.7	47.8	100.6	471	360	235	245	313	948	325
81	12.893	0.162	1.24	88	2.24	69.7	47.8	102.0	467	359	235	245	313	944	324
82	13.054	0.161	1.22	88	2.42	69.7	47.8	101.3	463	358	235	246	313	944	323
83	13.213	0.159	1.23	89	2.26	69.7	47.8	99.6	460	357	236	246	313	945	322
84	13.374	0.161	1.22	89	2.41	69.7	47.8	100.8	456	357	236	246	313	943	321

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 6
Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Test Date: 10/3/25

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Test Start Time: 10:43
Total Sampling Time: 362 min
Recording Interval: 1 min

Sample Train Leak Checks
Pre-test 0.001 cfm @ 24.9 in. Hg
Post-Test 0.001 cfm @ 5.98 in. Hg

Elapsed Time (min)	Train B Sampling System								Appliance Temperatures, °F						
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Filter Temp (°F)	Dryer Temp (°F)	Pro - Rate	Top	Bottom	Back	Left	Right	Catalyst Exit	Average Stove Surface (Tot = Δ T)
85	13.533	0.159	1.21	89	2.26	69.7	47.8	99.6	453	356	236	246	312	941	320
86	13.693	0.160	1.23	89	2.25	69.7	47.8	100.3	450	355	236	246	312	938	320
87	13.856	0.163	1.23	89	2.31	69.7	47.8	102.1	446	354	236	246	311	933	319
88	14.016	0.160	1.22	89	2.45	69.7	47.8	100.0	443	353	236	246	311	923	318
89	14.177	0.161	1.24	89	2.41	69.6	47.8	100.6	440	353	236	246	310	915	317
90	14.339	0.162	1.23	89	2.38	69.6	47.8	101.3	437	352	236	246	310	908	316
91	14.500	0.161	1.23	89	2.31	69.6	47.8	100.5	433	351	236	245	309	903	315
92	14.660	0.160	1.23	90	2.43	69.6	47.8	100.0	431	350	236	245	309	900	314
93	14.820	0.160	1.22	90	2.27	69.6	47.8	100.4	428	349	235	245	308	897	313
94	14.980	0.160	1.22	90	2.38	69.6	47.8	100.4	425	349	235	245	307	894	312
95	15.144	0.164	1.24	90	2.34	69.6	47.8	102.8	423	348	235	244	307	891	311
96	15.305	0.161	1.22	90	2.26	69.6	47.8	101.1	421	347	235	244	306	889	311
97	15.465	0.160	1.23	90	2.34	69.6	47.7	100.5	419	346	235	244	305	886	310
98	15.625	0.160	1.22	90	2.38	69.6	47.7	100.3	416	345	235	244	305	881	309
99	15.787	0.162	1.22	90	2.39	69.6	47.7	101.4	414	344	235	244	304	875	308
100	15.949	0.162	1.22	90	2.26	69.5	47.6	101.2	412	344	235	243	304	871	307
101	16.109	0.160	1.22	90	2.43	69.5	47.6	99.9	410	343	235	243	303	867	307
102	16.270	0.161	1.22	90	2.42	69.5	47.6	100.7	408	342	235	243	303	865	306
103	16.427	0.157	1.21	91	2.28	69.5	47.6	98.2	407	341	235	242	302	867	305
104	16.590	0.163	1.22	91	2.25	69.5	47.5	101.9	405	341	234	242	301	872	305
105	16.754	0.164	1.22	91	2.39	69.4	47.5	102.4	403	340	234	242	301	881	304
106	16.915	0.161	1.21	91	2.40	69.5	47.5	100.4	403	339	234	241	300	889	304
107	17.075	0.160	1.23	91	2.41	69.4	47.5	99.7	403	338	234	241	299	897	303
108	17.236	0.161	1.24	91	2.28	69.4	47.5	100.2	404	338	234	241	299	903	303
109	17.397	0.161	1.23	91	2.32	69.4	47.5	100.1	404	337	234	241	299	907	303
110	17.559	0.162	1.23	91	2.28	69.4	47.5	101.0	405	336	234	241	298	914	303
111	17.720	0.161	1.22	91	2.40	69.4	47.4	100.7	406	336	234	240	298	922	303
112	17.881	0.161	1.23	91	2.27	69.4	47.5	100.7	408	335	234	240	298	929	303
113	18.038	0.157	1.23	91	2.25	69.4	47.5	97.9	409	334	234	240	297	935	303
114	18.203	0.165	1.22	91	2.24	69.4	47.5	102.9	411	334	234	240	297	941	303
115	18.365	0.162	1.23	92	2.25	69.4	47.5	101.3	413	333	234	240	297	945	303
116	18.526	0.161	1.21	92	2.40	69.4	47.4	100.7	415	333	234	239	297	947	304
117	18.687	0.161	1.23	92	2.42	69.4	47.4	100.4	417	332	235	239	297	948	304
118	18.847	0.160	1.22	92	2.30	69.4	47.4	99.7	418	331	235	239	297	949	304
119	19.009	0.162	1.22	92	2.37	69.4	47.4	100.7	419	331	236	239	297	949	304
120	19.171	0.162	1.22	92	2.36	69.4	47.5	100.4	421	331	236	239	297	947	305
121	19.332	0.161	1.20	92	2.38	69.4	47.4	99.9	422	330	237	239	297	946	305
122	19.492	0.160	1.21	92	2.39	69.4	47.5	99.6	423	330	238	239	297	943	305
123	19.653	0.161	1.22	92	2.25	69.4	47.5	100.4	423	329	239	239	297	942	306
124	19.814	0.161	1.22	92	2.28	69.5	47.6	100.4	423	329	240	240	298	940	306
125	19.977	0.163	1.22	92	2.39	69.5	47.5	101.3	424	329	242	240	298	939	306
126	20.137	0.160	1.22	92	2.39	69.4	47.4	99.0	424	329	243	240	298	939	307
127	20.298	0.161	1.21	92	2.40	69.4	47.5	99.4	424	329	244	240	299	940	307
128	20.458	0.160	1.21	92	2.41	69.4	47.5	98.9	425	329	246	240	299	942	308

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 6
Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 10:43
Total Sampling Time: 362 min
Recording Interval: 1 min

Test Date: 10/3/25

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Sample Train Leak Checks
Pre-test 0.001 cfm @ 24.9 in. Hg
Post-Test 0.001 cfm @ 5.98 in. Hg

Elapsed Time (min)	**Train B Sampling System**								**Appliance Temperatures, °F**						
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Pro - Rate*	*Top*	*Bottom*	*Back*	*Left*	*Right*	*Catalyst Exit*	*Average Stove Surface (Tot = Δ T)*
129	20.620	0.162	1.21	92	2.28	69.4	47.5	100.5	426	328	247	240	299	942	308
130	20.782	0.162	1.20	92	2.41	69.3	47.4	100.7	426	328	248	240	300	941	309
131	20.943	0.161	1.22	92	2.25	69.3	47.4	100.0	427	328	250	241	300	940	309
132	21.103	0.160	1.22	92	2.40	69.4	47.5	99.3	428	328	251	241	300	939	310
133	21.264	0.161	1.23	92	2.24	69.4	47.5	99.6	429	328	252	241	301	937	310
134	21.425	0.161	1.21	92	2.24	69.4	47.5	99.4	428	328	253	242	301	936	311
135	21.587	0.162	1.22	93	2.34	69.4	47.5	100.2	429	328	255	242	302	934	311
136	21.748	0.161	1.22	92	2.38	69.4	47.5	99.7	428	328	256	242	302	932	311
137	21.908	0.160	1.21	93	2.42	69.4	47.5	99.1	429	328	257	242	303	930	312
138	22.068	0.160	1.22	92	2.28	69.4	47.5	99.0	429	328	258	242	303	928	312
139	22.230	0.162	1.20	92	2.34	69.4	47.4	100.2	429	328	260	243	304	926	313
140	22.392	0.162	1.21	93	2.24	69.4	47.5	100.3	429	328	261	243	305	923	313
141	22.552	0.160	1.20	93	2.37	69.4	47.4	98.7	428	328	262	244	306	920	314
142	22.712	0.160	1.22	93	2.43	69.4	47.4	98.5	428	328	263	244	306	917	314
143	22.873	0.161	1.21	93	2.23	69.4	47.4	99.3	428	328	264	245	307	913	314
144	23.035	0.162	1.22	93	2.23	69.4	47.4	100.0	427	328	265	245	307	907	315
145	23.196	0.161	1.22	93	2.31	69.4	47.4	99.4	427	328	266	246	308	900	315
146	23.356	0.160	1.22	93	2.38	69.4	47.4	98.7	426	328	268	246	309	891	315
147	23.516	0.160	1.22	93	2.36	69.4	47.4	98.5	425	328	269	247	309	883	316
148	23.677	0.161	1.23	93	2.30	69.5	47.5	99.1	422	329	270	247	310	880	316
149	23.839	0.162	1.23	93	2.36	69.4	47.5	99.7	421	329	271	248	310	874	316
150	24.000	0.161	1.23	93	2.40	69.5	47.5	99.1	419	329	273	248	310	867	316
151	24.161	0.161	1.22	93	2.40	69.4	47.5	99.2	418	329	274	249	311	861	316
152	24.321	0.160	1.23	93	2.26	69.5	47.5	98.9	416	329	275	250	311	855	316
153	24.482	0.161	1.24	93	2.44	69.5	47.5	99.8	414	329	275	250	312	849	316
154	24.645	0.163	1.23	93	2.30	69.5	47.5	101.0	412	329	276	251	312	842	316
155	24.805	0.160	1.24	93	2.43	69.6	47.5	99.0	410	329	277	252	312	836	316
156	24.965	0.160	1.23	93	2.43	69.6	47.5	98.6	408	329	277	252	312	830	316
157	25.126	0.161	1.23	93	2.28	69.6	47.5	99.2	405	329	278	253	312	823	315
158	25.287	0.161	1.22	93	2.31	69.6	47.5	99.4	404	329	278	254	312	817	315
159	25.449	0.162	1.23	93	2.43	69.6	47.6	99.8	402	329	278	254	312	811	315
160	25.609	0.160	1.21	93	2.35	69.7	47.7	98.7	400	328	279	255	312	805	315
161	25.769	0.160	1.24	93	2.33	69.7	47.7	98.9	398	328	279	255	312	800	314
162	25.930	0.161	1.23	93	2.29	69.7	47.7	99.5	395	328	279	255	312	796	314
163	26.091	0.161	1.23	93	2.44	69.7	47.7	99.4	393	328	279	256	312	793	314
164	26.252	0.161	1.23	93	2.28	69.7	47.7	99.0	391	328	279	256	311	791	313
165	26.412	0.160	1.22	93	2.28	69.7	47.7	98.3	389	328	279	256	311	789	313
166	26.573	0.161	1.23	93	2.31	69.7	47.8	99.0	387	328	279	257	310	788	312
167	26.733	0.160	1.23	94	2.23	69.7	47.8	98.4	385	327	279	257	310	787	312
168	26.896	0.163	1.24	94	2.29	69.7	47.8	100.2	383	327	279	257	309	786	311
169	27.056	0.160	1.24	94	2.34	69.7	47.8	98.3	381	327	279	257	308	785	310
170	27.216	0.160	1.22	93	2.29	69.7	47.9	98.4	379	327	279	258	308	785	310
171	27.376	0.160	1.23	94	2.44	69.7	47.9	98.8	377	326	278	258	307	784	309
172	27.537	0.161	1.23	93	2.22	69.7	47.9	99.6	375	326	278	258	306	784	309

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 6
Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 10:43
Total Sampling Time: 362 min
Recording Interval: 1 min

Test Date: 10/3/25

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Sample Train Leak Checks
Pre-test 0.001 cfm @ 24.9 in. Hg
Post-Test 0.001 cfm @ 5.98 in. Hg

Elapsed Time (min)	**Train B Sampling System**								**Appliance Temperatures, °F**						
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Pro - Rate*	*Top*	*Bottom*	*Back*	*Left*	*Right*	*Catalyst Exit*	*Average Stove Surface (Tot = Δ T)*
173	27.700	0.163	1.23	94	2.32	69.7	47.9	100.5	373	326	278	258	305	784	308
174	27.860	0.160	1.23	94	2.42	69.7	48.1	98.1	371	326	277	258	304	784	307
175	28.020	0.160	1.24	94	2.24	69.8	48.1	98.1	369	325	277	258	304	785	306
176	28.180	0.160	1.24	94	2.38	69.8	48.2	98.6	367	325	276	258	303	787	306
177	28.342	0.162	1.24	94	2.22	69.8	48.2	100.0	364	324	276	258	302	788	305
178	28.503	0.161	1.23	94	2.23	69.8	48.3	99.4	362	324	276	258	301	789	304
179	28.664	0.161	1.24	94	2.25	69.8	48.4	99.4	360	324	275	257	300	789	303
180	28.824	0.160	1.23	94	2.33	69.8	48.5	98.7	357	323	275	257	299	787	302
181	28.984	0.160	1.24	94	2.42	69.8	48.6	98.7	354	323	274	257	298	784	301
182	29.146	0.162	1.22	94	2.23	69.8	48.6	100.0	352	322	274	257	297	779	300
183	29.307	0.161	1.23	94	2.23	69.8	48.6	99.1	350	322	273	257	296	770	299
184	29.467	0.160	1.22	94	2.22	69.8	48.7	98.2	347	321	273	256	295	758	298
185	29.627	0.160	1.23	94	2.21	69.9	48.8	98.2	345	321	272	256	294	746	298
186	29.788	0.161	1.23	94	2.35	69.9	48.9	98.9	342	320	271	256	293	734	296
187	29.951	0.163	1.23	94	2.43	69.9	48.9	100.1	339	320	271	256	292	722	296
188	30.111	0.160	1.23	94	2.32	69.9	49	98.3	337	319	270	255	291	713	295
189	30.272	0.161	1.23	94	2.35	69.9	49	99.0	335	319	270	255	291	704	294
190	30.432	0.160	1.24	94	2.42	70	49.1	98.6	333	318	269	254	289	698	293
191	30.593	0.161	1.24	94	2.37	70	49.2	99.1	331	318	269	254	289	695	292
192	30.755	0.162	1.23	94	2.40	69.9	49.2	99.6	329	317	268	254	288	695	291
193	30.915	0.160	1.25	94	2.25	70	49.4	98.6	328	317	268	253	287	696	291
194	31.075	0.160	1.22	94	2.24	70	49.4	98.6	327	316	268	253	286	698	290
195	31.236	0.161	1.24	94	2.37	70	49.4	99.0	326	316	267	253	285	702	289
196	31.398	0.162	1.23	94	2.25	70	49.5	99.5	325	315	267	252	284	706	289
197	31.559	0.161	1.24	94	2.32	70	49.6	99.1	324	315	266	252	284	711	288
198	31.719	0.160	1.24	94	2.22	70.1	49.7	98.6	323	314	266	251	283	718	288
199	31.879	0.160	1.23	94	2.33	70	49.7	98.4	323	314	266	251	282	725	287
200	32.040	0.161	1.22	94	2.33	70	49.9	99.0	324	313	266	251	282	733	287
201	32.203	0.163	1.24	94	2.41	70	49.8	100.3	324	313	265	250	281	742	287
202	32.364	0.161	1.23	94	2.22	70.1	50	98.9	324	312	265	250	280	751	286
203	32.524	0.160	1.24	94	2.29	70.1	50	98.0	325	312	265	250	280	760	286
204	32.684	0.160	1.24	94	2.22	70.1	50.2	98.1	326	312	265	249	280	769	286
205	32.845	0.161	1.23	94	2.33	70.1	50.3	98.7	328	311	265	249	279	779	286
206	33.008	0.163	1.22	94	2.35	70.1	50.4	100.1	329	311	265	249	279	788	287
207	33.169	0.161	1.23	94	2.22	70.1	50.5	99.4	331	311	265	248	279	796	287
208	33.329	0.160	1.21	94	2.38	70.2	50.7	98.7	333	311	265	248	279	805	287
209	33.489	0.160	1.23	94	2.31	70.2	50.8	98.2	335	310	265	248	279	813	288
210	33.650	0.161	1.23	94	2.39	70.3	51	98.6	337	310	266	248	279	821	288
211	33.813	0.163	1.23	94	2.28	70.2	51.2	99.9	339	310	266	248	279	828	288
212	33.973	0.160	1.23	94	2.25	70.3	51.3	98.2	342	310	266	248	279	835	289
213	34.134	0.161	1.23	94	2.28	70.3	51.5	98.8	344	310	267	248	280	840	290
214	34.294	0.160	1.23	94	2.42	70.3	51.5	98.0	347	310	267	248	280	845	290
215	34.455	0.161	1.23	94	2.42	70.3	51.7	98.6	350	310	268	248	281	850	291
216	34.618	0.163	1.23	94	2.27	70.3	51.8	99.8	352	311	269	248	281	854	292

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 6
Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 10:43
Total Sampling Time: 362 min
Recording Interval: 1 min

Test Date: 10/3/25

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Sample Train Leak Checks
Pre-test 0.001 cfm @ 24.9 in. Hg
Post-Test 0.001 cfm @ 5.98 in. Hg

Elapsed Time (min)	**Train B Sampling System**								**Appliance Temperatures, °F**						
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Pro - Rate*	*Top*	*Bottom*	*Back*	*Left*	*Right*	*Catalyst Exit*	*Average Stove Surface (Tot = Δ T)*
217	34.778	0.160	1.23	94	2.23	70.3	51.9	98.1	354	311	269	248	282	856	293
218	34.938	0.160	1.23	94	2.43	70.3	52.1	98.6	357	311	270	248	283	843	294
219	35.099	0.161	1.22	94	2.26	70.3	52.1	99.3	358	311	270	248	283	827	294
220	35.260	0.161	1.23	94	2.32	70.3	52.3	99.0	359	312	271	248	284	816	295
221	35.422	0.162	1.23	94	2.25	70.3	52.4	99.7	359	312	271	248	285	808	295
222	35.582	0.160	1.22	94	2.41	70.4	52.5	98.7	360	313	272	249	286	804	296
223	35.743	0.161	1.23	94	2.40	70.4	52.6	99.5	360	313	272	249	286	801	296
224	35.903	0.160	1.23	94	2.42	70.4	52.8	98.8	360	313	272	249	287	801	296
225	36.065	0.162	1.23	94	2.25	70.5	52.9	100.0	359	314	273	250	288	801	297
226	36.226	0.161	1.22	94	2.39	70.5	53	99.5	359	314	273	250	289	800	297
227	36.387	0.161	1.22	94	2.28	70.5	53.2	99.7	359	314	273	250	290	797	297
228	36.547	0.160	1.23	94	2.39	70.5	53.2	98.9	358	315	274	251	291	798	298
229	36.708	0.161	1.23	94	2.41	70.5	53.3	99.3	359	315	274	251	291	800	298
230	36.870	0.162	1.23	94	2.28	70.5	53.4	99.9	359	316	275	251	292	799	298
231	37.031	0.161	1.23	94	2.23	70.6	53.6	99.4	359	316	275	252	293	794	299
232	37.191	0.160	1.22	94	2.23	70.6	53.6	98.5	359	316	276	252	294	792	299
233	37.351	0.160	1.22	94	2.23	70.6	53.8	98.3	358	317	276	253	295	792	300
234	37.512	0.161	1.23	94	2.36	70.6	53.8	99.3	358	318	276	253	296	791	300
235	37.674	0.162	1.24	94	2.38	70.6	53.9	99.8	358	318	277	254	297	790	301
236	37.835	0.161	1.22	95	2.35	70.7	54	99.2	359	319	277	254	297	789	301
237	37.995	0.160	1.24	94	2.24	70.7	54	99.1	358	319	278	254	298	788	302
238	38.155	0.160	1.23	94	2.37	70.7	54.1	99.5	358	320	278	255	299	787	302
239	38.317	0.162	1.23	95	2.23	70.7	54.2	100.7	358	320	278	255	300	786	302
240	38.479	0.162	1.23	94	2.42	70.6	54.2	100.5	358	321	279	255	301	785	303
241	38.639	0.160	1.23	94	2.38	70.7	54.3	98.8	358	321	279	256	302	784	303
242	38.799	0.160	1.22	94	2.33	70.7	54.3	98.6	358	322	279	256	302	782	303
243	38.960	0.161	1.23	95	2.26	70.7	54.4	99.2	358	322	279	257	302	780	304
244	39.121	0.161	1.23	95	2.26	70.7	54.5	99.2	358	322	279	257	303	780	304
245	39.283	0.162	1.23	95	2.22	70.8	54.6	99.9	358	323	280	258	304	782	304
246	39.443	0.160	1.24	95	2.35	70.7	54.6	98.8	358	323	279	258	304	783	305
247	39.603	0.160	1.23	95	2.22	70.8	54.7	98.6	358	323	279	258	305	785	305
248	39.764	0.161	1.23	95	2.43	70.8	54.7	99.2	358	324	279	259	305	788	305
249	39.926	0.162	1.25	95	2.27	70.8	54.8	100.1	358	324	279	259	306	794	305
250	40.087	0.161	1.23	95	2.34	70.8	54.9	99.3	358	324	279	259	307	800	305
251	40.247	0.160	1.22	95	2.29	70.8	54.9	98.4	359	325	278	259	307	803	306
252	40.407	0.160	1.23	95	2.34	70.8	55	98.6	359	325	278	260	307	805	306
253	40.568	0.161	1.23	95	2.27	70.9	55	99.0	360	325	277	260	308	806	306
254	40.730	0.162	1.24	95	2.29	70.9	55.1	99.7	360	325	277	260	308	806	306
255	40.891	0.161	1.23	95	2.43	70.9	55.1	99.6	361	325	276	260	308	807	306
256	41.051	0.160	1.22	95	2.24	70.9	55.2	99.2	361	325	276	260	308	812	306
257	41.211	0.160	1.23	95	2.31	70.9	55.2	98.9	362	326	275	261	309	816	306
258	41.373	0.162	1.24	95	2.36	70.9	55.3	99.8	363	326	274	261	309	819	307
259	41.535	0.162	1.23	95	2.40	70.9	55.3	100.0	364	326	274	261	309	816	307
260	41.695	0.160	1.23	95	2.42	71	55.4	99.0	364	326	273	261	309	810	307

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 6
Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 10:43
Total Sampling Time: 362 min
Recording Interval: 1 min

Test Date: 10/3/25

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Sample Train Leak Checks
Pre-test 0.001 cfm @ 24.9 in. Hg
Post-Test 0.001 cfm @ 5.98 in. Hg

Elapsed Time (min)	**Train B Sampling System**								**Appliance Temperatures, °F**						
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Pro - Rate*	*Top*	*Bottom*	*Back*	*Left*	*Right*	*Catalyst Exit*	*Average Stove Surface (Tot = Δ T)*
261	41.855	0.160	1.23	95	2.21	71	55.4	98.9	365	326	272	261	309	805	307
262	42.016	0.161	1.23	95	2.26	71	55.5	99.2	365	326	271	261	310	802	307
263	42.177	0.161	1.23	95	2.43	71	55.5	99.0	365	326	270	262	310	799	307
264	42.339	0.162	1.23	95	2.42	71.1	55.6	100.1	366	327	270	262	310	796	307
265	42.499	0.160	1.23	95	2.41	71.1	55.7	99.2	365	327	269	262	310	793	306
266	42.659	0.160	1.23	95	2.30	71.1	55.7	99.2	365	327	268	262	310	790	306
267	42.820	0.161	1.22	95	2.42	71.1	55.8	99.6	365	327	267	262	310	788	306
268	42.982	0.162	1.23	95	2.36	71.1	55.8	99.9	364	327	266	262	310	789	306
269	43.143	0.161	1.23	95	2.37	71.1	55.8	99.5	364	327	266	262	310	791	306
270	43.303	0.160	1.23	95	2.27	71.1	55.8	98.9	364	327	265	262	310	792	306
271	43.463	0.160	1.23	95	2.43	71.1	55.8	98.6	364	328	264	262	310	793	305
272	43.624	0.161	1.21	95	2.32	71.1	55.9	99.3	363	328	263	262	310	794	305
273	43.787	0.163	1.22	95	2.23	71.2	56	100.7	363	328	263	262	310	794	305
274	43.947	0.160	1.23	95	2.37	71.2	56	98.9	363	328	262	262	310	793	305
275	44.108	0.161	1.22	95	2.32	71.2	56.1	99.4	363	328	262	262	310	792	305
276	44.268	0.160	1.23	95	2.42	71.2	56	99.2	362	329	261	262	310	791	305
277	44.429	0.161	1.22	95	2.37	71.2	56	100.0	362	329	260	263	310	791	305
278	44.591	0.162	1.21	95	2.38	71.2	56.1	100.1	362	329	260	263	310	791	305
279	44.752	0.161	1.23	95	2.27	71.2	56.2	99.4	362	329	259	263	310	793	305
280	44.912	0.160	1.23	95	2.21	71.2	56.2	99.1	362	330	259	263	310	795	305
281	45.072	0.160	1.21	95	2.25	71.2	56.2	99.1	362	330	258	263	310	796	304
282	45.234	0.162	1.23	95	2.39	71.3	56.3	100.3	362	330	258	263	310	796	304
283	45.395	0.161	1.23	95	2.43	71.3	56.3	99.9	362	331	257	263	310	798	304
284	45.556	0.161	1.24	95	2.41	71.3	56.3	99.8	362	331	257	263	310	798	304
285	45.716	0.160	1.23	95	2.22	71.3	56.3	98.8	362	331	256	263	310	799	304
286	45.877	0.161	1.23	95	2.23	71.3	56.4	99.5	362	332	256	263	309	799	304
287	46.038	0.161	1.24	95	2.23	71.3	56.5	99.6	362	332	255	263	309	800	304
288	46.200	0.162	1.23	95	2.43	71.3	56.5	100.3	362	333	255	263	310	802	304
289	46.360	0.160	1.23	95	2.41	71.4	56.6	99.3	362	333	255	263	310	804	304
290	46.520	0.160	1.22	95	2.26	71.4	56.6	99.0	363	334	254	263	310	806	305
291	46.681	0.161	1.23	95	2.22	71.4	56.6	98.9	362	334	254	263	310	807	305
292	46.843	0.162	1.23	95	2.29	71.3	56.6	99.5	362	334	254	263	310	809	305
293	47.004	0.161	1.23	95	2.23	71.4	56.6	99.3	362	335	254	263	310	811	305
294	47.164	0.160	1.22	95	2.30	71.4	56.7	99.1	362	335	254	264	310	813	305
295	47.324	0.160	1.22	95	2.33	71.4	56.7	99.2	362	336	254	264	310	815	305
296	47.485	0.161	1.22	95	2.21	71.4	56.7	99.6	362	336	255	264	310	815	305
297	47.648	0.163	1.23	95	2.42	71.4	56.7	100.5	362	337	255	265	310	815	305
298	47.808	0.160	1.23	95	2.42	71.4	56.8	98.6	361	337	255	265	310	814	306
299	47.968	0.160	1.23	95	2.41	71.5	56.8	99.0	361	338	255	265	309	814	306
300	48.128	0.160	1.23	95	2.40	71.5	56.8	99.4	361	338	255	266	309	815	306
301	48.290	0.162	1.22	95	2.38	71.5	56.8	100.9	361	339	256	266	309	816	306
302	48.452	0.162	1.23	95	2.27	71.5	56.9	100.9	361	339	256	267	309	817	306
303	48.612	0.160	1.23	95	2.22	71.5	56.8	99.4	361	339	256	267	309	817	306
304	48.772	0.160	1.23	95	2.26	71.5	56.9	98.9	361	340	257	268	309	818	307

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 6
Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Test Start Time: 10:43
Total Sampling Time: 362 min
Recording Interval: 1 min

Test Date: 10/3/25

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Sample Train Leak Checks

Pre-test 0.001 cfm @ 24.9 in. Hg
Post-Test 0.001 cfm @ 5.98 in. Hg

Elapsed Time (min)	**Train B Sampling System**								**Appliance Temperatures, °F**						
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Pro - Rate*	*Top*	*Bottom*	*Back*	*Left*	*Right*	*Catalyst Exit*	*Average Stove Surface (Tot = Δ T)*
305	48.933	0.161	1.22	95	2.30	71.5	56.8	99.1	361	340	257	268	309	824	307
306	49.094	0.161	1.24	95	2.41	71.5	56.9	99.4	361	340	258	269	309	831	307
307	49.256	0.162	1.23	95	2.41	71.5	56.9	100.3	360	341	258	269	308	836	307
308	49.416	0.160	1.23	95	2.38	71.5	57	99.4	361	341	259	270	308	842	308
309	49.576	0.160	1.23	95	2.42	71.6	57	99.8	361	341	260	270	308	848	308
310	49.736	0.160	1.23	96	2.23	71.6	57	99.8	362	342	260	271	308	852	309
311	49.899	0.163	1.23	95	2.26	71.6	57	101.7	363	342	261	272	308	856	309
312	50.060	0.161	1.23	96	2.43	71.6	57	100.6	364	342	262	272	308	860	310
313	50.220	0.160	1.23	95	2.25	71.6	57	99.9	365	342	263	273	308	861	310
314	50.380	0.160	1.23	95	2.22	71.6	57.1	99.9	366	343	264	273	308	844	311
315	50.541	0.161	1.22	96	2.43	71.7	57.1	100.3	366	343	265	274	308	823	311
316	50.704	0.163	1.23	96	2.22	71.6	57.1	101.2	367	343	266	275	308	813	312
317	50.864	0.160	1.23	95	2.37	71.7	57.1	99.0	367	344	267	276	308	811	312
318	51.024	0.160	1.22	96	2.39	71.7	57.2	98.6	367	344	268	277	308	812	313
319	51.185	0.161	1.21	96	2.22	71.7	57.2	99.0	367	345	269	278	308	815	313
320	51.346	0.161	1.23	96	2.39	71.7	57.1	99.0	367	345	270	279	308	821	314
321	51.508	0.162	1.22	95	2.35	71.7	57.2	100.0	367	346	272	280	308	828	314
322	51.668	0.160	1.24	96	2.26	71.8	57.2	98.8	367	346	273	281	308	830	315
323	51.828	0.160	1.23	96	2.42	71.7	57.2	98.6	368	347	274	282	308	832	316
324	51.989	0.161	1.23	96	2.24	71.8	57.3	99.7	369	347	275	284	308	835	316
325	52.151	0.162	1.23	96	2.42	71.8	57.4	100.7	370	348	276	285	308	843	317
326	52.312	0.161	1.23	96	2.33	71.9	57.4	99.6	371	349	276	286	308	860	318
327	52.472	0.160	1.23	96	2.22	71.8	57.4	98.3	373	349	277	287	308	873	319
328	52.632	0.160	1.23	96	2.42	71.8	57.4	98.4	375	350	277	288	308	878	320
329	52.793	0.161	1.23	96	2.25	71.8	57.4	99.6	377	350	277	289	307	879	320
330	52.955	0.162	1.22	96	2.36	71.8	57.4	100.4	379	350	277	290	307	878	321
331	53.117	0.162	1.23	96	2.31	71.8	57.4	100.5	380	351	277	292	307	876	321
332	53.276	0.159	1.23	96	2.40	71.8	57.4	98.6	382	351	276	293	307	872	322
333	53.437	0.161	1.22	96	2.30	71.8	57.4	99.3	383	351	276	294	306	867	322
334	53.598	0.161	1.23	96	2.41	71.8	57.4	99.2	384	352	275	295	306	862	322
335	53.760	0.162	1.23	96	2.42	71.8	57.4	100.3	384	352	275	296	305	857	322
336	53.921	0.161	1.23	96	2.42	71.8	57.4	99.5	385	352	274	297	305	853	323
337	54.081	0.160	1.23	96	2.24	71.8	57.4	98.6	385	353	274	297	305	848	323
338	54.241	0.160	1.23	96	2.24	71.8	57.4	98.7	384	353	273	298	304	844	322
339	54.402	0.161	1.23	96	2.30	71.8	57.4	100.0	384	353	273	299	304	839	322
340	54.565	0.163	1.23	96	2.40	71.8	57.4	101.5	383	353	272	300	303	835	322
341	54.725	0.160	1.22	96	2.24	71.9	57.5	98.9	382	353	271	300	303	832	322
342	54.886	0.161	1.23	96	2.41	71.9	57.5	99.2	382	353	271	301	302	828	322
343	55.046	0.160	1.24	96	2.33	71.9	57.5	99.2	380	353	270	302	302	825	321
344	55.207	0.161	1.22	96	2.40	71.9	57.6	100.3	379	354	270	302	301	821	321
345	55.369	0.162	1.21	96	2.26	72	57.6	100.3	378	354	269	303	301	817	321
346	55.530	0.161	1.22	96	2.29	71.9	57.5	99.1	377	354	268	303	300	813	320
347	55.690	0.160	1.23	96	2.38	72	57.6	99.1	376	354	267	304	300	809	320
348	55.851	0.161	1.22	96	2.42	72	57.6	100.2	375	354	267	304	299	807	320

Train B - Particulate Sampling and Appliance Temperatures

ASTM E2515

Run: 6
Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Test Date: 10/3/25

Meter Box Y Regression Offset: 1.005
Meter Box Y Regression Slope: 0
Meter Box Dynamic Y: 1.005
Sampling Box ID: 0

Test Start Time: 10:43
Total Sampling Time: 362 min
Recording Interval: 1 min

Sample Train Leak Checks
Pre-test 0.001 cfm @ 24.9 in. Hg
Post-Test 0.001 cfm @ 5.98 in. Hg

Elapsed Time (min)	Train B Sampling System								Appliance Temperatures, °F						
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Filter Temp (°F)	Dryer Temp (°F)	Pro - Rate	Top	Bottom	Back	Left	Right	Catalyst Exit	Average Stove Surface (Tot = Δ T)
349	56.012	0.161	1.24	96	2.42	72	57.7	99.5	373	354	266	305	298	803	319
350	56.174	0.162	1.23	96	2.33	72.1	57.7	100.2	372	354	266	305	298	799	319
351	56.334	0.160	1.23	96	2.33	72.1	57.7	99.4	371	354	265	306	297	795	318
352	56.494	0.160	1.23	96	2.23	72.1	57.7	99.0	370	354	264	306	297	792	318
353	56.655	0.161	1.23	96	2.21	72	57.7	99.4	369	354	264	306	296	789	318
354	56.817	0.162	1.22	96	2.22	72.1	57.6	100.4	367	354	263	306	296	787	317
355	56.978	0.161	1.23	96	2.43	72.1	57.7	100.0	366	353	262	306	295	785	317
356	57.138	0.160	1.21	96	2.35	72.1	57.8	99.1	365	353	262	307	294	784	316
357	57.299	0.161	1.22	96	2.26	72.1	57.7	99.3	364	353	261	307	294	783	316
358	57.460	0.161	1.23	96	2.40	72.1	57.8	99.3	362	353	260	307	293	781	315
359	57.622	0.162	1.23	96	2.42	72.1	57.8	100.5	361	353	259	307	292	779	314
360	57.783	0.161	1.24	96	2.22	72.1	57.7	99.9	360	352	259	307	292	777	314
361	57.943	0.160	1.22	96	2.27	72.1	57.8	98.8	359	352	258	307	291	775	313
362	58.103	0.160	1.23	96	2.41	72.1	57.8	98.9	358	352	257	307	290	772	313

Train C - First Hour Particulate Sampling

Run: 6
Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Start Time: 10:43
Total Sampling Time: 60 min
Recording Interval: 1 min

Test Date: 10/3/25

Meter Box Y Regression Offset: 0.981
Meter Box Y Regression Factor: 0
Meter Box Dynamic Y: 0.981
Sample Box ID: 0

Sample Train Leak Checks
Pre-test 0.003 cfm @ 18.9 in. Hg
Post-Test 0.002 cfm @ 10.32 in. Hg

Elapsed Time (min)	Train C Sampling System							
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter Δ H	Meter Temp (°F)	Filter Vac (in. Hg)	Filter Temp (°F)	Dryer Temp (°F)	Pro - Rate
Tot / Avg	**9.385**	**0.156**	**0.97**	**76.0**	**2.42**	**70.6**	**68.2**	**99.9**
Minimum	0.000	0.140	0.00	73	0.21	70	67	90.0
Max	9.385	0.161	1.01	79	2.51	72	71	102.9
0	0.000		0.00	73	0.21	69.5	67.2	
1	0.140	0.140	1.01	73	2.49	69.9	67.2	90.0
2	0.298	0.158	1.01	73	2.51	70.1	67.2	102.7
3	0.456	0.158	1.01	73	2.46	70.1	67.1	101.2
4	0.613	0.157	1.00	73	2.47	70	67.1	100.4
5	0.773	0.160	1.00	73	2.49	70	67	102.3
6	0.931	0.158	1.00	73	2.49	70	66.9	100.9
7	1.087	0.156	1.00	73	2.46	70	66.8	99.2
8	1.245	0.158	0.99	74	2.50	70	66.8	100.2
9	1.399	0.154	0.99	74	2.41	70	66.7	97.6
10	1.555	0.156	0.99	74	2.40	69.9	66.6	98.7
11	1.713	0.158	0.99	74	2.42	69.9	66.6	100.1
12	1.869	0.156	0.99	74	2.46	69.9	66.5	98.8
13	2.026	0.157	0.99	74	2.49	69.9	66.6	99.4
14	2.185	0.159	0.99	74	2.43	69.9	66.6	101.1
15	2.342	0.157	0.99	74	2.49	69.8	66.6	100.2
16	2.498	0.156	0.98	74	2.42	69.9	66.6	99.4
17	2.655	0.157	0.99	74	2.40	69.8	66.6	99.9
18	2.811	0.156	0.98	74	2.40	69.9	66.7	99.1
19	2.966	0.155	0.98	75	2.49	70	66.9	98.5
20	3.122	0.156	0.98	75	2.47	69.9	66.9	99.2
21	3.279	0.157	0.98	75	2.43	70	67	99.7
22	3.434	0.155	0.98	75	2.41	70	67	98.4
23	3.594	0.160	0.98	75	2.43	70.1	67.2	101.7
24	3.750	0.156	0.98	75	2.40	70.1	67.2	99.3
25	3.907	0.157	0.98	75	2.41	70.1	67.3	99.9
26	4.062	0.155	0.98	75	2.47	70.2	67.5	98.9
27	4.220	0.158	0.98	76	2.48	70.3	67.6	101.1
28	4.375	0.155	0.98	76	2.45	70.4	67.7	98.9
29	4.529	0.154	0.98	76	2.40	70.4	67.8	98.1
30	4.685	0.156	0.98	76	2.48	70.4	67.9	99.5
31	4.842	0.157	0.98	76	2.50	70.5	67.9	100.2
32	4.997	0.155	0.98	76	2.45	70.6	68.1	99.0

Train C - First Hour Particulate Sampling

Run: 6
Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Start Time: 10:43
Total Sampling Time: 60 min
Recording Interval: 1 min

Test Date: 10/3/25

Meter Box Y Regression Offset: 0.981
Meter Box Y Regression Factor: 0
Meter Box Dynamic Y: 0.981
Sample Box ID: 0

Sample Train Leak Checks
Pre-test 0.003 cfm @ 18.9 in. Hg
Post-Test 0.002 cfm @ 10.32 in. Hg

Elapsed Time (min)	**Train C Sampling System**							
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Filter Temp (°F)*	*Dryer Temp (°F)*	*Pro - Rate*
33	5.157	0.160	0.98	76	2.44	70.6	68.2	102.2
34	5.313	0.156	0.98	77	2.43	70.7	68.3	99.9
35	5.470	0.157	0.98	77	2.41	70.7	68.4	100.7
36	5.625	0.155	0.98	77	2.49	70.8	68.4	99.4
37	5.782	0.157	0.98	77	2.44	70.9	68.6	100.6
38	5.936	0.154	0.98	77	2.50	71	68.8	98.6
39	6.092	0.156	0.98	77	2.47	71	68.8	99.8
40	6.249	0.157	0.98	77	2.50	71.1	69	100.8
41	6.407	0.158	0.98	78	2.47	71.1	69	101.7
42	6.564	0.157	0.98	78	2.50	71.2	69.2	100.8
43	6.720	0.156	0.98	78	2.40	71.2	69.2	99.8
44	6.877	0.157	0.98	78	2.39	71.3	69.3	100.4
45	7.033	0.156	0.98	78	2.46	71.3	69.5	99.7
46	7.190	0.157	0.98	78	2.47	71.4	69.6	100.3
47	7.344	0.154	0.98	78	2.45	71.4	69.7	98.5
48	7.501	0.157	0.98	78	2.48	71.5	69.8	100.7
49	7.657	0.156	0.98	78	2.40	71.5	69.8	99.9
50	7.817	0.160	0.98	78	2.51	71.5	70	102.2
51	7.973	0.156	0.98	79	2.48	71.6	70.1	100.0
52	8.130	0.157	0.98	79	2.43	71.6	70.2	101.0
53	8.286	0.156	0.98	79	2.50	71.6	70.2	100.4
54	8.444	0.158	0.98	79	2.50	71.6	70.3	101.3
55	8.600	0.156	0.98	79	2.45	71.6	70.4	99.8
56	8.757	0.157	0.98	79	2.42	71.7	70.5	100.7
57	8.911	0.154	0.98	79	2.46	71.6	70.6	98.8
58	9.068	0.157	0.98	79	2.49	71.6	70.6	100.3
59	9.224	0.156	0.98	79	2.39	71.6	70.7	99.4
60	9.385	0.161	0.98	79	2.45	71.6	70.8	102.9

Train D - Ambient Background and Flue Gas Data

Run: 6 **Test Date:** 10/3/2025

Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 10:43
Total Sampling Time 362 min
Recording Interval 1 min

Elapsed Time (min)	**Ambient Sampling System**					**Flue Gas Data**				
	Meter Volume (ft^3)	*Sample Rate (CFM)*	*Meter Δ H*	*Meter Temp (°F)*	*Filter Vac (in. Hg)*	*Stack Temp (°F)*	*Draft (In. H_2O)*	*CO (ppm)*	*CO (%)*	*CO_2 (%)*
Tot / Avg	**56.742**	**0.157**	**1.09**	**81.2**	**2.04**	**176.71**	**0.026**	**274.1**	**0.70**	**10.84**
Minimum	0.000	0.151	1.09	75	1.98	115.80	-0.001	45.0	0.00	0.49
Max	56.742	0.160	1.13	84	2.09	302.70	0.064	547.0	5.48	14.70
0	0.000		-0.01	75	0.24	115.8	0.003	45.0	0.01	6.54
1	0.151	0.151	1.13	75	2.06	174.4	0.012	547.0	0.10	2.17
2	0.308	0.157	1.12	75	2.08	162.4	-0.001	547.0	0.11	0.49
3	0.466	0.158	1.12	75	2.08	148.7	0.005	547.0	0.53	2.49
4	0.622	0.156	1.12	75	2.06	140.1	-0.001	547.0	0.63	3.60
5	0.782	0.160	1.11	75	2.08	134.4	0.009	547.0	0.32	4.28
6	0.937	0.155	1.11	75	2.05	130.5	0.007	547.0	0.06	4.72
7	1.094	0.157	1.10	75	2.07	127.5	0.014	101.0	0.01	5.13
8	1.251	0.157	1.11	75	2.06	125.8	0.000	79.0	0.01	5.57
9	1.403	0.152	1.11	75	2.03	125.2	0.012	77.0	0.01	5.91
10	1.559	0.156	1.10	75	2.01	125.8	0.015	76.0	0.01	6.44
11	1.716	0.157	1.10	75	2.02	128.1	0.017	69.0	0.01	8.15
12	1.871	0.155	1.11	75	2.04	131.7	0.021	69.0	0.00	8.37
13	2.027	0.156	1.10	75	2.01	136.7	0.015	63.0	0.01	8.17
14	2.186	0.159	1.10	75	2.00	142.8	0.026	62.0	0.01	8.36
15	2.342	0.156	1.10	75	2.05	150.4	0.028	63.0	0.01	8.47
16	2.498	0.156	1.10	75	2.06	157.4	0.032	56.0	0.01	9.38
17	2.653	0.155	1.10	75	2.05	165	0.018	57.0	0.01	8.55
18	2.810	0.157	1.09	75	1.99	171.9	0.035	65.0	0.01	9.43
19	2.963	0.153	1.10	75	2.00	178.6	0.035	72.0	0.01	9.34
20	3.118	0.155	1.10	76	2.02	185.7	0.021	82.0	0.01	9.52
21	3.275	0.157	1.10	76	2.00	193.7	0.028	94.0	0.01	10.27
22	3.431	0.156	1.10	76	2.00	201.3	0.025	108.0	0.02	10.04
23	3.588	0.157	1.09	76	1.99	209	0.023	128.0	0.02	11.37
24	3.745	0.157	1.10	76	2.06	216.7	0.027	160.0	0.02	11.02
25	3.901	0.156	1.09	76	2.07	222.7	0.028	175.0	0.02	11.40
26	4.056	0.155	1.09	76	2.02	228.9	0.031	201.0	0.02	11.37
27	4.212	0.156	1.09	76	1.99	234.2	0.055	208.0	0.02	11.81
28	4.368	0.156	1.09	76	1.98	240.2	0.032	233.0	0.03	11.85
29	4.520	0.152	1.09	76	1.98	245.3	0.032	268.0	0.03	11.82
30	4.677	0.157	1.09	77	2.05	250.9	0.034	308.0	0.03	11.87
31	4.833	0.156	1.09	77	2.07	258.4	0.057	343.0	0.03	11.96
32	4.988	0.155	1.09	77	1.99	265.1	0.032	343.0	0.03	12.43

Train D - Ambient Background and Flue Gas Data

Run: 6 **Test Date:** 10/3/2025

Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 10:43
Total Sampling Time 362 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
33	5.147	0.159	1.09	77	2.03	271.5	0.054	351.0	0.03	12.57
34	5.302	0.155	1.10	77	2.04	276.2	0.049	362.0	0.04	12.66
35	5.459	0.157	1.09	77	2.01	280.4	0.055	438.0	0.04	12.80
36	5.615	0.156	1.10	77	2.06	285.3	0.059	547.0	0.07	13.20
37	5.770	0.155	1.10	77	2.02	290.7	0.058	547.0	0.10	14.10
38	5.924	0.154	1.09	77	2.04	294.3	0.059	547.0	0.24	14.70
39	6.081	0.157	1.10	77	2.07	296.1	0.061	547.0	0.08	14.13
40	6.236	0.155	1.10	78	2.06	297.2	0.056	445.0	0.04	13.37
41	6.395	0.159	1.10	78	2.05	297.6	0.058	352.0	0.03	13.02
42	6.551	0.156	1.10	78	2.05	298.6	0.058	370.0	0.04	12.84
43	6.707	0.156	1.10	78	2.06	299.8	0.038	390.0	0.03	13.02
44	6.864	0.157	1.09	78	2.07	301	0.042	406.0	0.04	13.53
45	7.019	0.155	1.10	78	2.05	301.7	0.064	538.0	0.05	13.54
46	7.176	0.157	1.09	78	2.07	301.8	0.042	547.0	0.07	13.74
47	7.330	0.154	1.09	78	2.06	302.7	0.058	547.0	0.12	13.97
48	7.485	0.155	1.10	78	2.01	302.4	0.041	547.0	0.23	14.11
49	7.642	0.157	1.09	78	2.06	301.7	0.040	547.0	0.29	14.04
50	7.801	0.159	1.10	79	2.06	300.6	0.040	547.0	0.35	14.19
51	7.957	0.156	1.10	79	2.01	299.1	0.041	547.0	0.35	14.22
52	8.114	0.157	1.09	79	2.05	297.9	0.042	547.0	0.47	14.24
53	8.269	0.155	1.10	79	2.02	296.3	0.043	547.0	0.55	14.18
54	8.426	0.157	1.09	79	2.03	293.6	0.042	547.0	0.71	14.16
55	8.583	0.157	1.10	79	2.06	291.2	0.038	547.0	0.78	14.03
56	8.739	0.156	1.10	79	2.06	287.7	0.035	547.0	0.83	13.90
57	8.893	0.154	1.09	79	2.02	284.6	0.042	547.0	0.76	13.84
58	9.050	0.157	1.10	79	2.06	280.9	0.037	547.0	0.66	13.77
59	9.205	0.155	1.10	79	2.02	277.4	0.037	547.0	0.55	13.75
60	9.365	0.160	1.09	79	2.05	274	0.040	547.0	0.44	13.69
61	9.520	0.155	1.10	79	1.99	270.7	0.036	547.0	0.42	13.58
62	9.677	0.157	1.09	79	2.03	266.7	0.035	547.0	0.36	13.46
63	9.834	0.157	1.10	80	2.00	262.9	0.038	547.0	0.35	13.28
64	9.990	0.156	1.09	80	2.07	258.5	0.034	547.0	0.35	13.25
65	10.147	0.157	1.09	80	2.03	253.8	0.036	547.0	0.47	13.21
66	10.301	0.154	1.10	80	2.02	248.7	0.035	547.0	0.63	13.04
67	10.456	0.155	1.09	80	2.04	242.9	0.035	547.0	0.84	12.82
68	10.614	0.158	1.10	80	2.04	237	0.037	547.0	0.89	12.51

Train D - Ambient Background and Flue Gas Data

Run: 6 **Test Date:** 10/3/2025

Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 10:43
Total Sampling Time 362 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
69	10.772	0.158	1.10	80	2.07	230.8	0.030	547.0	0.96	12.25
70	10.929	0.157	1.09	80	2.01	224.4	0.031	547.0	1.11	11.94
71	11.086	0.157	1.10	80	2.04	218.5	0.031	547.0	1.12	11.79
72	11.241	0.155	1.09	80	2.06	212.4	0.028	547.0	1.16	11.54
73	11.399	0.158	1.10	80	2.04	206.7	0.025	547.0	1.11	11.26
74	11.555	0.156	1.10	80	2.01	201.6	0.029	547.0	1.07	11.29
75	11.711	0.156	1.09	80	2.06	197.1	0.026	547.0	0.99	11.29
76	11.866	0.155	1.09	80	2.08	193.3	0.026	547.0	0.91	11.34
77	12.022	0.156	1.10	80	2.08	190	0.023	547.0	1.01	11.42
78	12.181	0.159	1.09	80	2.05	187	0.021	547.0	1.14	11.26
79	12.338	0.157	1.10	80	2.01	184.2	0.027	547.0	1.12	11.29
80	12.494	0.156	1.09	81	2.00	181.6	0.023	547.0	1.05	11.23
81	12.651	0.157	1.09	81	2.03	178.9	0.023	547.0	0.67	11.35
82	12.807	0.156	1.10	81	2.05	176.4	0.020	547.0	0.38	11.42
83	12.964	0.157	1.09	81	2.03	174.1	0.021	547.0	0.23	11.49
84	13.121	0.157	1.10	81	2.07	172	0.019	547.0	0.17	11.52
85	13.274	0.153	1.10	81	2.05	170	0.019	547.0	0.14	11.50
86	13.431	0.157	1.09	81	2.08	167.9	0.021	547.0	0.12	11.46
87	13.590	0.159	1.10	81	2.03	166.4	0.019	547.0	0.10	11.52
88	13.747	0.157	1.09	81	2.07	164.9	0.023	547.0	0.33	11.59
89	13.904	0.157	1.10	81	2.05	163.5	0.019	547.0	0.45	11.81
90	14.060	0.156	1.10	81	2.07	162	0.024	547.0	0.50	11.73
91	14.218	0.158	1.10	81	2.01	160.5	0.019	547.0	0.53	11.74
92	14.374	0.156	1.10	81	2.06	159.2	0.019	547.0	0.58	11.80
93	14.531	0.157	1.09	81	2.04	158.2	0.021	547.0	0.61	11.87
94	14.685	0.154	1.10	81	2.07	157.3	0.017	547.0	0.72	11.73
95	14.844	0.159	1.10	81	2.05	156.3	0.020	547.0	0.79	11.75
96	15.001	0.157	1.09	81	2.07	155.4	0.019	547.0	0.83	11.79
97	15.158	0.157	1.10	81	2.03	154.7	0.018	547.0	0.96	11.80
98	15.314	0.156	1.10	81	2.04	154.4	0.022	547.0	1.25	11.71
99	15.472	0.158	1.09	81	2.06	153.9	0.016	547.0	1.54	11.55
100	15.627	0.155	1.10	81	2.01	153.7	0.021	547.0	1.78	11.59
101	15.785	0.158	1.09	81	2.01	153.1	0.016	547.0	2.05	11.49
102	15.942	0.157	1.10	81	2.05	153.3	0.020	547.0	2.20	11.58
103	16.095	0.153	1.10	81	2.06	153.6	0.022	547.0	2.29	11.45
104	16.253	0.158	1.10	81	2.05	154.2	0.023	547.0	2.31	11.56

Train D - Ambient Background and Flue Gas Data

Run: 6 **Test Date:** 10/3/2025

Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 10:43
Total Sampling Time 362 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
105	16.411	0.158	1.10	81	2.05	155.2	0.018	547.0	2.30	11.76
106	16.568	0.157	1.09	81	2.06	156.5	0.025	547.0	2.34	11.84
107	16.726	0.158	1.10	81	2.02	157.3	0.024	547.0	2.40	11.94
108	16.882	0.156	1.10	81	2.03	158.5	0.026	547.0	2.73	11.85
109	17.039	0.157	1.10	81	2.05	160.2	0.031	547.0	3.06	11.75
110	17.196	0.157	1.10	81	2.01	162.1	0.034	547.0	3.12	11.88
111	17.353	0.157	1.09	81	2.03	163.7	0.029	547.0	3.26	11.91
112	17.510	0.157	1.10	81	2.07	165.5	0.039	547.0	3.40	11.83
113	17.663	0.153	1.10	81	2.06	167.6	0.046	547.0	3.57	11.85
114	17.823	0.160	1.10	81	2.01	170	0.038	547.0	3.88	11.93
115	17.980	0.157	1.10	81	2.04	172.3	0.042	547.0	4.00	11.88
116	18.137	0.157	1.10	81	2.04	174.3	0.044	547.0	4.33	11.74
117	18.294	0.157	1.09	81	2.07	175.8	0.045	547.0	4.57	11.66
118	18.450	0.156	1.10	81	2.06	177.6	0.048	547.0	4.77	11.66
119	18.608	0.158	1.10	81	2.05	179.3	0.043	547.0	5.00	11.36
120	18.764	0.156	1.10	81	2.04	180.9	0.040	547.0	5.17	11.33
121	18.921	0.157	1.10	81	2.07	182	0.044	547.0	5.37	11.31
122	19.078	0.157	1.10	81	2.03	183.3	0.044	547.0	5.48	11.26
123	19.234	0.156	1.10	81	2.01	184.4	0.050	547.0	5.48	11.29
124	19.392	0.158	1.10	81	2.02	185.6	0.048	547.0	5.48	11.19
125	19.549	0.157	1.10	81	2.05	186	0.050	547.0	5.48	11.12
126	19.705	0.156	1.10	81	2.02	186.7	0.042	547.0	5.48	11.19
127	19.863	0.158	1.10	81	2.02	187.3	0.045	547.0	5.44	11.23
128	20.019	0.156	1.10	81	2.05	187.7	0.041	547.0	5.35	11.17
129	20.176	0.157	1.10	81	2.01	187.8	0.037	547.0	5.35	11.32
130	20.334	0.158	1.10	81	2.07	188.4	0.041	547.0	5.32	11.28
131	20.490	0.156	1.10	81	2.07	187.9	0.045	547.0	5.27	11.31
132	20.648	0.158	1.10	81	2.01	188.2	0.042	547.0	5.21	11.28
133	20.804	0.156	1.10	81	2.07	188.3	0.044	547.0	5.11	11.24
134	20.961	0.157	1.10	81	2.04	187.9	0.045	547.0	5.03	11.33
135	21.118	0.157	1.10	81	2.07	187.3	0.043	547.0	4.92	11.35
136	21.275	0.157	1.10	81	2.05	186.8	0.043	547.0	4.79	11.36
137	21.432	0.157	1.09	81	2.07	186.4	0.034	547.0	4.72	11.35
138	21.588	0.156	1.10	81	2.03	185.3	0.040	547.0	4.50	11.35
139	21.746	0.158	1.10	81	2.02	184.8	0.035	547.0	4.32	11.40
140	21.903	0.157	1.10	82	2.08	183.6	0.040	547.0	4.12	11.38

Train D - Ambient Background and Flue Gas Data

Run: 6 **Test Date:** 10/3/2025

Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 10:43
Total Sampling Time 362 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
141	22.059	0.156	1.10	81	2.05	182.9	0.036	547.0	4.06	11.46
142	22.217	0.158	1.10	82	2.08	181.9	0.036	547.0	3.92	11.42
143	22.373	0.156	1.10	82	2.05	180.5	0.042	547.0	3.93	11.42
144	22.530	0.157	1.09	82	2.08	179.3	0.043	547.0	3.86	11.29
145	22.687	0.157	1.10	82	2.03	177.8	0.037	547.0	3.86	11.26
146	22.843	0.156	1.10	82	2.06	175.9	0.035	547.0	3.71	11.16
147	23.001	0.158	1.10	82	2.04	173.7	0.031	547.0	3.42	11.07
148	23.157	0.156	1.10	82	2.05	171.3	0.028	547.0	2.50	11.63
149	23.314	0.157	1.09	82	2.05	168.7	0.026	547.0	2.35	11.54
150	23.472	0.158	1.10	82	2.08	166.2	0.029	547.0	2.00	11.57
151	23.628	0.156	1.10	82	2.01	163.6	0.030	547.0	1.78	11.54
152	23.786	0.158	1.09	82	2.01	161.2	0.031	547.0	1.40	11.56
153	23.942	0.156	1.10	82	2.01	158.7	0.026	547.0	1.17	11.60
154	24.099	0.157	1.09	82	2.08	156.4	0.027	547.0	1.00	11.56
155	24.257	0.158	1.10	82	2.00	154	0.024	547.0	0.83	11.54
156	24.413	0.156	1.09	82	2.07	151.9	0.022	547.0	0.73	11.46
157	24.570	0.157	1.10	82	2.05	149.8	0.022	547.0	0.61	11.41
158	24.726	0.156	1.10	82	2.06	147.7	0.024	547.0	0.49	11.42
159	24.883	0.157	1.09	82	2.01	145.8	0.022	547.0	0.42	11.40
160	25.041	0.158	1.10	82	2.03	144	0.023	547.0	0.32	11.22
161	25.197	0.156	1.09	82	2.06	142.4	0.023	547.0	0.25	11.28
162	25.355	0.158	1.10	82	2.00	140.9	0.021	547.0	0.18	11.22
163	25.511	0.156	1.10	82	2.07	139.5	0.015	547.0	0.14	11.32
164	25.668	0.157	1.09	82	2.08	138.2	0.016	547.0	0.10	11.29
165	25.825	0.157	1.10	82	2.05	136.9	0.017	547.0	0.06	11.16
166	25.981	0.156	1.10	82	2.04	135.6	0.016	473.0	0.04	11.21
167	26.139	0.158	1.10	82	2.05	134.4	0.018	305.0	0.03	11.18
168	26.295	0.156	1.10	82	2.04	133.2	0.019	228.0	0.02	11.11
169	26.452	0.157	1.09	82	2.05	132.3	0.020	184.0	0.02	11.06
170	26.610	0.158	1.09	82	2.03	131	0.018	155.0	0.01	10.81
171	26.766	0.156	1.10	82	2.06	129.9	0.017	143.0	0.01	10.78
172	26.923	0.157	1.10	82	2.05	128.9	0.018	140.0	0.01	10.85
173	27.080	0.157	1.10	82	2.02	127.9	0.012	135.0	0.02	10.74
174	27.237	0.157	1.09	82	2.05	127	0.009	132.0	0.01	10.57
175	27.394	0.157	1.10	82	2.01	126.2	0.017	132.0	0.01	10.52
176	27.550	0.156	1.10	82	2.08	125.3	0.015	130.0	0.01	10.39

Train D - Ambient Background and Flue Gas Data

Run: 6 **Test Date:** 10/3/2025

Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 10:43
Total Sampling Time 362 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
177	27.708	0.158	1.10	82	2.04	124.4	0.014	129.0	0.02	10.37
178	27.864	0.156	1.10	82	2.08	123.4	0.015	129.0	0.01	10.34
179	28.021	0.157	1.09	82	2.02	122.7	0.017	129.0	0.01	10.24
180	28.178	0.157	1.10	82	2.06	122	0.015	128.0	0.02	10.06
181	28.335	0.157	1.10	82	2.01	121.2	0.015	130.0	0.01	10.10
182	28.492	0.157	1.10	82	2.07	120.3	0.018	131.0	0.01	9.94
183	28.649	0.157	1.10	82	2.08	119.8	0.019	132.0	0.01	9.90
184	28.806	0.157	1.09	82	2.03	119.1	0.018	132.0	0.01	9.79
185	28.963	0.157	1.09	82	2.08	118.5	0.019	134.0	0.02	9.87
186	29.119	0.156	1.10	82	2.07	118.2	0.015	133.0	0.01	9.79
187	29.276	0.157	1.09	82	2.05	118.1	0.009	132.0	0.01	9.71
188	29.433	0.157	1.10	82	2.02	118	0.015	132.0	0.01	9.98
189	29.590	0.157	1.10	82	2.03	117.8	0.011	135.0	0.02	9.82
190	29.747	0.157	1.09	82	2.04	117.7	0.009	137.0	0.02	10.07
191	29.903	0.156	1.10	82	2.00	117.9	0.013	139.0	0.02	10.10
192	30.061	0.158	1.10	82	2.05	118.3	0.010	140.0	0.02	10.31
193	30.218	0.157	1.10	82	2.07	118.5	0.009	140.0	0.01	10.40
194	30.374	0.156	1.10	82	2.03	118.8	0.011	142.0	0.00	10.53
195	30.532	0.158	1.09	82	2.07	119	0.013	144.0	0.01	10.61
196	30.688	0.156	1.10	82	2.07	119.9	0.012	142.0	0.01	10.74
197	30.845	0.157	1.10	82	2.07	121	0.013	142.0	0.03	10.79
198	31.003	0.158	1.10	82	2.07	122.3	0.019	140.0	0.02	10.88
199	31.159	0.156	1.10	82	2.07	123.5	0.018	143.0	0.01	11.12
200	31.317	0.158	1.09	82	2.02	124.8	0.018	141.0	0.01	11.20
201	31.473	0.156	1.10	82	2.01	126.5	0.021	139.0	0.02	11.35
202	31.630	0.157	1.09	82	2.07	128	0.018	140.0	0.01	11.40
203	31.788	0.158	1.10	82	2.07	129.7	0.020	142.0	0.01	11.64
204	31.944	0.156	1.10	82	2.08	131.9	0.028	139.0	0.01	11.62
205	32.102	0.158	1.10	82	2.08	133.6	0.025	140.0	0.01	11.70
206	32.258	0.156	1.10	82	2.04	135.6	0.027	138.0	0.01	11.82
207	32.415	0.157	1.09	82	2.06	137.2	0.025	136.0	0.01	11.87
208	32.572	0.157	1.10	82	2.05	139.3	0.018	137.0	0.01	12.04
209	32.729	0.157	1.10	82	2.04	141.5	0.022	136.0	0.01	11.97
210	32.886	0.157	1.09	82	2.03	143.4	0.020	135.0	0.01	12.13
211	33.042	0.156	1.10	82	2.04	145.3	0.021	132.0	0.01	12.14
212	33.200	0.158	1.09	82	2.02	147.4	0.023	131.0	0.01	12.15

Train D - Ambient Background and Flue Gas Data

Run: 6 **Test Date:** 10/3/2025

Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 10:43
Total Sampling Time 362 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
213	33.357	0.157	1.10	82	2.06	149.5	0.021	132.0	0.01	12.13
214	33.513	0.156	1.10	82	2.04	151.3	0.023	130.0	0.01	12.09
215	33.671	0.158	1.09	82	2.03	153	0.023	129.0	0.01	12.11
216	33.827	0.156	1.10	82	2.07	154.7	0.026	126.0	0.01	12.13
217	33.984	0.157	1.09	82	2.04	156.3	0.027	128.0	0.01	12.15
218	34.142	0.158	1.10	82	2.01	158.1	0.024	115.0	0.01	11.11
219	34.298	0.156	1.10	82	2.05	159.5	0.028	97.0	0.01	11.06
220	34.456	0.158	1.09	82	2.07	160.2	0.025	95.0	0.01	11.02
221	34.612	0.156	1.10	82	2.08	161.2	0.026	94.0	0.01	11.02
222	34.769	0.157	1.09	82	2.01	161.9	0.023	95.0	0.01	10.89
223	34.926	0.157	1.10	82	2.07	162	0.023	96.0	0.01	10.90
224	35.082	0.156	1.09	82	2.05	162.4	0.026	96.0	0.02	10.91
225	35.240	0.158	1.10	82	2.05	163.3	0.026	97.0	0.01	10.97
226	35.396	0.156	1.10	82	2.07	163.8	0.024	86.0	0.01	10.98
227	35.553	0.157	1.09	82	2.07	164.1	0.027	81.0	0.01	10.82
228	35.711	0.158	1.10	82	2.08	164.9	0.025	96.0	0.01	10.88
229	35.867	0.156	1.09	82	2.07	165.1	0.023	94.0	0.01	10.94
230	36.025	0.158	1.09	82	2.03	165.5	0.026	87.0	0.01	10.85
231	36.181	0.156	1.10	82	2.07	165.7	0.025	77.0	0.01	10.83
232	36.338	0.157	1.09	82	2.03	166.2	0.026	85.0	0.01	10.74
233	36.496	0.158	1.10	82	2.03	166.5	0.027	86.0	0.01	10.63
234	36.651	0.155	1.09	82	2.07	166.6	0.023	83.0	0.01	10.53
235	36.809	0.158	1.10	82	2.01	167.1	0.025	85.0	0.01	10.50
236	36.965	0.156	1.10	82	2.07	167.5	0.025	85.0	0.01	10.41
237	37.122	0.157	1.09	82	2.00	167.9	0.028	85.0	0.01	10.35
238	37.280	0.158	1.10	82	2.06	168.2	0.025	85.0	0.01	10.36
239	37.436	0.156	1.09	82	2.02	167.9	0.022	84.0	0.01	10.18
240	37.593	0.157	1.10	82	2.00	167.8	0.024	85.0	0.00	10.20
241	37.749	0.156	1.10	82	2.04	168	0.023	83.0	0.01	10.10
242	37.907	0.158	1.09	82	2.08	167.9	0.020	83.0	0.01	10.05
243	38.064	0.157	1.09	82	2.09	167.6	0.022	81.0	0.01	9.96
244	38.220	0.156	1.09	82	2.07	167.3	0.025	87.0	0.01	9.90
245	38.378	0.158	1.10	82	2.01	166.9	0.022	89.0	0.01	9.91
246	38.534	0.156	1.10	82	2.03	166.7	0.019	91.0	0.01	9.89
247	38.691	0.157	1.09	83	2.03	166.6	0.025	92.0	0.01	9.79
248	38.848	0.157	1.10	82	2.07	166.6	0.019	95.0	0.01	9.97

Train D - Ambient Background and Flue Gas Data

Run: 6 **Test Date:** 10/3/2025

Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 10:43
Total Sampling Time 362 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
249	39.004	0.156	1.10	82	2.06	166.1	0.019	104.0	0.01	10.05
250	39.162	0.158	1.10	83	2.03	166	0.022	107.0	0.01	10.09
251	39.319	0.157	1.10	83	2.02	165.7	0.019	108.0	0.01	10.08
252	39.476	0.157	1.10	83	2.02	165.5	0.021	106.0	0.01	10.02
253	39.633	0.157	1.10	83	2.05	165.5	0.025	106.0	0.01	9.92
254	39.789	0.156	1.10	83	2.08	165.1	0.024	104.0	0.01	9.90
255	39.947	0.158	1.10	83	2.08	165	0.018	108.0	0.01	10.31
256	40.103	0.156	1.10	83	2.05	164.8	0.017	114.0	0.01	10.65
257	40.260	0.157	1.09	83	2.07	164.7	0.023	111.0	0.01	10.56
258	40.418	0.158	1.10	83	2.03	164.7	0.022	109.0	0.01	10.50
259	40.574	0.156	1.10	83	2.04	164.9	0.022	102.0	0.01	10.54
260	40.732	0.158	1.10	83	2.08	164.4	0.019	95.0	0.01	10.37
261	40.888	0.156	1.09	83	2.06	164.5	0.022	94.0	0.01	10.33
262	41.045	0.157	1.09	83	2.07	164.6	0.021	92.0	0.01	10.33
263	41.203	0.158	1.09	83	2.04	164.6	0.022	90.0	0.01	10.27
264	41.359	0.156	1.10	83	2.02	164.1	0.020	87.0	0.01	10.21
265	41.517	0.158	1.10	83	2.07	163.7	0.024	88.0	0.01	10.18
266	41.673	0.156	1.10	83	2.06	163.3	0.021	87.0	0.01	10.23
267	41.830	0.157	1.09	83	2.07	163.4	0.024	88.0	0.01	10.17
268	41.988	0.158	1.09	83	2.01	163.3	0.021	91.0	0.01	10.24
269	42.144	0.156	1.10	83	2.02	162.9	0.023	92.0	0.01	10.20
270	42.302	0.158	1.09	83	2.02	162.5	0.025	94.0	0.01	10.24
271	42.458	0.156	1.10	83	2.04	162.6	0.024	95.0	0.01	10.30
272	42.615	0.157	1.09	83	2.07	162.5	0.025	94.0	0.01	10.29
273	42.773	0.158	1.10	83	2.04	162.3	0.026	93.0	0.01	10.26
274	42.929	0.156	1.09	83	2.01	162.4	0.024	93.0	0.01	10.21
275	43.086	0.157	1.09	83	2.06	162.4	0.026	93.0	0.01	10.31
276	43.243	0.157	1.09	83	2.05	162.1	0.021	94.0	0.01	10.40
277	43.400	0.157	1.09	83	2.08	161.9	0.023	93.0	0.01	10.41
278	43.557	0.157	1.09	83	2.08	161.6	0.022	94.0	0.01	10.38
279	43.714	0.157	1.09	83	2.08	161.7	0.022	98.0	0.01	10.53
280	43.871	0.157	1.09	83	2.05	161.9	0.024	98.0	0.01	10.51
281	44.028	0.157	1.10	83	2.08	162.1	0.022	96.0	0.01	10.47
282	44.185	0.157	1.09	83	2.06	162.6	0.019	95.0	0.01	10.51
283	44.342	0.157	1.09	83	2.01	163.2	0.021	95.0	0.01	10.56
284	44.498	0.156	1.10	83	2.00	163.7	0.018	94.0	0.01	10.54

Train D - Ambient Background and Flue Gas Data

Run: 6 **Test Date:** 10/3/2025

Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 10:43
Total Sampling Time 362 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
285	44.656	0.158	1.09	83	2.07	163.6	0.016	93.0	0.01	10.50
286	44.812	0.156	1.09	83	2.03	164.3	0.024	92.0	0.01	10.49
287	44.969	0.157	1.09	83	2.05	164.7	0.020	91.0	0.01	10.36
288	45.127	0.158	1.09	83	2.01	165.3	0.021	93.0	0.01	10.51
289	45.283	0.156	1.09	83	2.07	165.8	0.017	94.0	0.01	10.28
290	45.440	0.157	1.09	83	2.08	166.4	0.020	97.0	0.01	10.16
291	45.597	0.157	1.10	83	2.02	167.2	0.020	101.0	0.01	10.15
292	45.754	0.157	1.10	83	2.02	168.4	0.024	102.0	0.01	10.18
293	45.911	0.157	1.09	83	2.07	169.3	0.025	101.0	0.01	10.12
294	46.067	0.156	1.09	83	2.03	169.8	0.025	101.0	0.01	10.23
295	46.225	0.158	1.09	83	2.06	170.7	0.024	101.0	0.01	10.11
296	46.381	0.156	1.09	83	2.07	171.3	0.026	100.0	0.01	10.01
297	46.538	0.157	1.09	83	2.06	171.9	0.024	101.0	0.01	9.93
298	46.695	0.157	1.09	83	2.03	172.1	0.023	101.0	0.01	10.08
299	46.852	0.157	1.10	83	2.08	173.3	0.023	102.0	0.01	10.10
300	47.009	0.157	1.09	83	2.08	174.4	0.022	101.0	0.01	10.06
301	47.166	0.157	1.09	83	2.05	175	0.023	99.0	0.01	9.99
302	47.323	0.157	1.09	83	2.03	175.7	0.021	100.0	0.01	9.95
303	47.480	0.157	1.09	83	2.01	176	0.023	99.0	0.01	9.91
304	47.636	0.156	1.10	83	2.02	176.6	0.024	100.0	0.01	10.04
305	47.794	0.158	1.09	83	2.04	177	0.028	101.0	0.01	10.40
306	47.951	0.157	1.09	83	2.06	177.1	0.023	101.0	0.01	10.38
307	48.107	0.156	1.09	83	2.03	177.8	0.023	102.0	0.01	10.51
308	48.265	0.158	1.09	83	2.07	178.3	0.021	104.0	0.01	10.69
309	48.421	0.156	1.09	83	2.02	178.6	0.025	104.0	0.01	10.69
310	48.578	0.157	1.09	83	2.05	179.3	0.028	106.0	0.01	10.91
311	48.735	0.157	1.09	83	2.02	179.6	0.026	108.0	0.01	11.07
312	48.892	0.157	1.10	83	2.08	180.1	0.023	110.0	0.01	11.25
313	49.049	0.157	1.09	83	2.01	180.8	0.027	112.0	0.01	11.30
314	49.205	0.156	1.09	83	2.07	181.1	0.030	78.0	0.01	11.56
315	49.363	0.158	1.09	83	2.04	181.3	0.024	73.0	0.01	11.63
316	49.520	0.157	1.09	83	2.01	181.1	0.028	77.0	0.01	11.27
317	49.676	0.156	1.09	83	2.08	181.3	0.025	78.0	0.01	11.25
318	49.834	0.158	1.09	83	2.03	181.2	0.024	79.0	0.01	11.23
319	49.990	0.156	1.09	83	2.03	181.7	0.027	78.0	0.01	11.13
320	50.147	0.157	1.09	83	2.08	181.9	0.024	80.0	0.01	11.10

Train D - Ambient Background and Flue Gas Data

Run: 6 **Test Date:** 10/3/2025

Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 10:43
Total Sampling Time 362 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
321	50.305	0.158	1.09	83	2.01	182.1	0.023	81.0	0.01	11.06
322	50.461	0.156	1.09	83	2.03	182.2	0.025	79.0	0.01	11.11
323	50.619	0.158	1.09	83	2.05	182.7	0.025	79.0	0.00	11.10
324	50.775	0.156	1.09	83	2.08	183.6	0.029	80.0	0.01	10.99
325	50.932	0.157	1.09	84	2.07	184	0.022	88.0	0.01	10.92
326	51.090	0.158	1.10	83	2.08	183.7	0.021	107.0	0.01	10.96
327	51.246	0.156	1.09	83	2.04	183.7	0.024	107.0	0.01	10.86
328	51.404	0.158	1.09	83	2.04	183.6	0.025	106.0	0.01	10.76
329	51.560	0.156	1.10	84	2.07	183.3	0.025	103.0	0.01	10.80
330	51.718	0.158	1.09	84	2.06	182.9	0.026	101.0	0.01	10.91
331	51.875	0.157	1.10	84	2.08	182.5	0.024	99.0	0.01	10.75
332	52.032	0.157	1.09	84	2.06	182	0.022	96.0	0.01	10.55
333	52.189	0.157	1.09	84	2.03	181.3	0.023	95.0	0.01	10.46
334	52.345	0.156	1.09	84	2.04	180.3	0.019	94.0	0.01	10.30
335	52.503	0.158	1.09	84	2.05	179.7	0.018	93.0	0.01	10.27
336	52.660	0.157	1.09	84	2.06	179.3	0.020	93.0	0.01	10.20
337	52.817	0.157	1.09	84	2.04	178.4	0.024	92.0	0.01	10.11
338	52.974	0.157	1.09	84	2.07	177.6	0.024	91.0	0.01	9.94
339	53.131	0.157	1.09	84	2.08	177	0.024	90.0	0.01	9.84
340	53.288	0.157	1.09	84	2.02	176.3	0.023	91.0	0.01	9.82
341	53.445	0.157	1.10	84	2.08	175.9	0.025	91.0	0.01	9.76
342	53.602	0.157	1.09	84	2.06	175.3	0.022	89.0	0.01	9.66
343	53.760	0.158	1.09	84	2.07	174.6	0.025	89.0	0.01	9.59
344	53.916	0.156	1.09	84	2.03	174.4	0.022	88.0	0.01	9.65
345	54.073	0.157	1.09	84	2.00	173.9	0.024	86.0	0.01	9.60
346	54.230	0.157	1.09	84	2.02	173.1	0.019	86.0	0.01	9.50
347	54.387	0.157	1.09	84	2.06	172.9	0.022	85.0	0.01	9.47
348	54.544	0.157	1.09	84	2.09	172.3	0.018	86.0	0.01	9.40
349	54.701	0.157	1.09	84	2.04	171.9	0.016	85.0	0.01	9.36
350	54.858	0.157	1.09	84	2.09	171	0.018	82.0	0.01	9.24
351	55.015	0.157	1.09	84	2.05	170.6	0.020	81.0	0.01	9.12
352	55.172	0.157	1.09	84	2.07	170.7	0.023	81.0	0.00	9.05
353	55.329	0.157	1.09	84	2.01	170	0.019	81.0	0.01	9.07
354	55.485	0.156	1.09	84	2.03	170.1	0.024	82.0	0.01	9.07
355	55.643	0.158	1.09	84	2.08	169.6	0.018	80.0	0.01	8.96
356	55.800	0.157	1.09	84	2.03	169.4	0.020	82.0	0.00	9.00

Train D - Ambient Background and Flue Gas Data

Run: 6 **Test Date:** 10/3/2025

Manufacturer: Valley Comfort
Model: S14
Tracking No.: 2509
Project No.: 0142WS024E

Meter Box Y Regression Offset: 0.96
Meter Box Y Regression Factor:
Meter Box Dynamic Y: 0.960
Sample Box ID: 0

Test Start Time: 10:43
Total Sampling Time 362 min
Recording Interval 1 min

Elapsed Time (min)	Ambient Sampling System					Flue Gas Data				
	Meter Volume (ft^3)	Sample Rate (CFM)	Meter ΔH	Meter Temp (°F)	Filter Vac (in. Hg)	Stack Temp (°F)	Draft (In. H_2O)	CO (ppm)	CO (%)	CO_2 (%)
357	55.957	0.157	1.09	84	2.09	169	0.021	81.0	0.01	8.86
358	56.114	0.157	1.09	84	2.04	168.5	0.018	81.0	0.00	8.94
359	56.270	0.156	1.10	84	2.09	168.1	0.021	81.0	0.01	8.90
360	56.428	0.158	1.09	84	2.09	167.6	0.023	81.0	0.01	8.86
361	56.585	0.157	1.09	84	2.06	167.6	0.017	80.0	0.01	8.78
362	56.742	0.157	1.09	84	2.02	167.6	0.016	79.0	0.01	8.75

Gravimetric Lab Data

ASTM E2515

Manufacturer:	Valley Comfort
Model:	S14
Tracking No.:	2509
Project No.:	0142WS024E
Run No.:	6
Test Date:	10/3/25

OMNI Eq. ID Numbers	
Analytical Scale	
Audit Weight Set:	
Analytical Scale	
Hydrometer	
Filters are weighed	In Pairs

Train A

Sample Component / Date / Time in Dessicator		Reagent	Filter, Probe or Dish #	Weights: Final, mg	Weights: Tare, mg	Particulate, mg: Uncorrected	Particulate, mg: Corrected
FilterPairs		Filter	F599	252.2	245.5	6.7	6.7
			F599A				
Probe catch*		Probe	56	118641.7	118641.7	0.0	0.0
ilter seals catch*		Seals	S990	3325.1	3325.1	0.0	0.0
				Total Particulate, mg:		**6.7**	**6.7**

Train B

Sample Component / Date / Time in Dessicator		Reagent	Filter, Probe or Dish #	Weights: Final, mg	Weights: Tare, mg	Particulate, mg: Uncorrected	Particulate, mg: Corrected
FilterPairs		Filter	F600	253.2	246.4	6.8	6.8
			F600A				
Probe catch*		Probe	69	117370.2	117370.2	0.0	0.0
ilter seals catch*		Seals	S991	3344.1	3344.1	0.0	0.0
			Sub-Total	Total Particulate, mg:		**6.8**	**6.8**

Train C - *First Hour*

Sample Component / Date / Time in Dessicator		Reagent	Filter, Probe or Dish #	Weights: Final, mg	Weights: Tare, mg	Particulate, mg: Uncorrected	Particulate, mg: Corrected
FilterPairs		Filter	F601	247.0	246.3	0.7	0.7
			F601A				
Probe catch*		Probe	59	117788.8	117788.8	0.0	0.0
ilter seals catch*		Seals	S992	3283.5	3283.5	0.0	0.0
				Total Particulate, mg:		**0.7**	**0.7**

Train D - *Ambient Background*

Sample Component / Date / Time in Dessicator		Reagent	Filter # or	Weights: Final, mg	Weights: Tare, mg	Particulate, mg
Filter catch*		Filter	F581	121.4	121.4	0.0
				Total Particulate, mg:		**0.0**

Final (mg) - Tare (mg) = Particulate (mg)

NOTE: The Uncorrected values are those where any negative filter weights are taken as a negative value. This can possibly occur when filter matter adheres the O-ring seals and thereby transfers some mass to the O-ring. The Corrected values reflect where any negative filter weights are taken as ZERO, thus not accounting for any transfer of mass and resultingly over-reporting. Corrected values were added to this analysis to report the "Corrected" results in this report in response to a request by the US EPA. In cases where the Final weight minus the Tare weight of the Ambient filter occurs, it is taken as a ZERO. Any negative probe weights are evaluated pursuant to clause of ASTM E25215 (or appropriatelt associated test standard as defined in the introduction of this report).

Technician Signature:_____ Reviewed By:_____

Run 6 - Run Notes

Manufacturer	Valley Comfort
Model:	S14
Project Number:	0142WS024E
Run Number:	6
Test Date:	10/3/2025

This supplemental section of miscellaneous run notes is comprised of the following:

- Appliance Operation Notes
- Velocity Traverse / Supplementa Run Notes
- Test Fuel Notes
- Gravimetric Analysis Notes

ASTM E2780 Wood Heater Test Notes

Client: Valley Comfort Project Number: 0142WS024E Run Number: 6
Model: Sentry 14 Tracking Number: Date: 10/3/2025
Test Crew:

Test Fuel Properties

Equipment			
Device	**OMNI Number**	**Cal Date**	**Cal Due**
Tape Measure			
Moisture Meter			
Moisture Reference			
Fuel Scale			
Fuel Scale Audit Weight			
Fuel Species / Type	Douglas fir, untreated and air dried, standard grade or better dimensional lumber.		

Calibration Verifications			
Moisture Meter		Fuel Preparation Scale	
12% Reference :	12.0	10.0 lb. Reference Audit :	10.00
22% Reference :	22.0		

Pre-Burn Fuel								
Piece No.	Length, In.	Moisture % db	Piece No.	Length, In.	Moisture % db	Piece No.	Length, In.	Moisture % db
1	10	24.7	7	14.5	24.7	13		
2	10	25.3	8			14		
3	10	24.7	9			15		
4	10	24.2	10			16		
5	14.5	22.1	11			17		
6	14.5	22.5	12			18		
Total Weight, lb.		9.73	Time of Day		0800	Room Temp. °F		70

1.94 / 1.60

Test Fuel Charge					
Piece No.	**Weight, Lb.**	**Moisture Measurements**			**Lumber Type**
1	~~1.71~~	23.8	21.4	24.5	
2	2.12 / 1.67	23.8	23.8	23.0	
3	1.90 / 1.55	20.3	19.9	20.2	
4	2.11 / 1.77	25.0	24.4	22.1	
5	1.79 / 1.46	19.6	21.7	23.8	
6					
7					
8					
Spacer Moisture Readings					
8	8.0	8.1	8.0	8.1	
8.1	9.0	8.1	8.3	8.0	
8.4	8.7	9.1	8.1	8.0	
8.0	8.1	8.6	8.0	8.1	
Time of Day		1000	Room Temp. °F		70
Total weight 2x4 with spacers, lb.		7.86	Total weight 4x4 with spacers, lb.		
			Total weight of fuel charge, Lb.		

Technician Signature: Date: 10-16-2025

ASTM E2780 Wood Heater Test Notes

Client: Valley Comfort Project Number: 0142WS024E Run Number:6
Model: Sentry 14 Tracking Number: Date: 10/3/2025
Test Crew:

Supplemental Data

Test Booth No. _____ Sampling Start Time:_____ Sampling End Time: _____

Tunnel Cleaned Date _____ % Smoke Capture _____ Induced Draft _____in.H_2O

Systems Leak Checks			
System	**Pre-Test**	**Post-Test**	**Sampling Probe Change-out**
Pitot	0.004 @ 3.00"	0.00 @ 3"	
Train A	0.003 @ 21.9	0.002 @ 6.41	
Train B	0.001 @ 24.9	0.001 @ 5.98	
Train C	0.003 @ 18.9	0.002 @ 10.37	

Velocity Traverse, 6-inch tunnel			
Location	Microtector (in. H_2O)	Δp (in. H_2O)	Tunnel Temp. , °F
Center	.055	.110	102
1	.035	.070	102
2	.043	.086	102
3	.045	.090	102
4	.029	.058	102
5	.032	.064	102
6	.046	.092	102
7	.040	.080	102
8	.028	.056	102
Tunnel Static (in. H_2O)		Pre-Test	Post-Test
		-0.39	

Miscellaneous Parameters			
Item	**Initial**	**Final**	**Equipment No.**
Room Air Velocity, ft/min.	11	13	
Scale Audit, lb. (20-80 % of fuel load)	18.0	10.0	
Room Relative Humidity, %	56	52	
Barometric Pressure, in. Hg	30.19	30.14	
Room Temperature, °F	69	72	

Flue Gas Continuous Analyzer						
Analyzer ID		Response Time, sec.		Leak Check Performed?		
Bias Checks	Concentration:		Pre-Test Response		Post-Test Response	
Concentration	Bottle No.	Value, %	Pre-Test Response		Post-Test Response	
			Zero	Span	~~Zero~~	~~Span~~
CO2 % Span		16.86	0	16.86	16.85	0
CO % Span		4.07	0	4.07	4.01	0
CO ppm Span		500	10	497	491	3
Zero						

Technician Signature: _____ Date: 10-16-2025

OMNI-Test Laboratories, Inc.

ASTM E2780 Wood Heater Test Notes

Client: Valley Comfort Project Number: 0142WS024E Run Number:6
Model: Sentry 14 Tracking Number: Date: 10/3/2025
Test Crew:

Primary Air Control Settings

65°

Secondary:

Tertiary/Pilot:

Fan: Low

Preburn Notes

Time	Notes
0943	At 2.5 hrs air setting set to 1st setting
1043	Preburn stopped

Sampling Portion Notes

Sketch test fuel configuration:

Start up procedures & Timeline:
Bypass: Used
Fuel loaded by: 65
Door closed at: 70
Primary air: 65°

Notes:

Time	Notes
1045	Test start
1143	First hour stopped

Technician Signature: Date: 10-16-2025

Client: Valley Comfort Project Number: 0142WS024E Run Number:6
Model: Sentry 14 Tracking Number: Date: 10/3/2025
Test Crew:

Gravimetric Analysis Sheet

Assembled By:

_____

Date/Time in Desiccator:

_____

	Weighing's				
	Date/Time: 10-6-25	Date/Time: 10-7-25	Date/Time:	Date/Time:	Date/Time:
	R/H %: 0.6 11.0	R/H %: .08 10-8	R/H %:	R/H %:	R/H %:
	Temp: 72.6	Temp: 74.3	Temp:	Temp:	Temp:
	100 mg Audit 99.9	100 mg Audit 100.0	100 mg Audit	100 mg Audit	100 mg Audit
	200 mg Audit: 200.0	200 mg Audit: 200.1	200 mg Audit:	200 mg Audit:	200 mg Audit:
	2 g Audit: 2000.2	2 g Audit: 2000.1	2 g Audit:	2 g Audit:	2 g Audit:
	100 g Audit: 99997.1	100 g Audit 99997.6	100 g Audit	100 g Audit	100 g Audit
	Initials: RT	Initials: RT	Initials:	Initials:	Initials:

Train	Element	ID #	Tare (mg)	√	Weight (mg)	Weight (mg)	Weight (mg)	Weight (mg)	Weight (mg)
A	Filter Pair	F599 F599a	245.5		252.4	252.2✓			
	Probe	56	118641.7		118641.7	118641.7✓			
	O-Ring Set	5990	3325.1		3325.1	3325.1✓			
B	Front Filter	F600 F600a	246.4		253.4	253.2✓			
	Probe	69	117370.2		117370.2	117370.2✓			
	O-Ring Set	5991	3344.1		3344.1	3344.1✓			
C (1st hr)	Front Filter	F601 F601A	246.3		247.0	247.0✓			
	Probe	59	117788.8		117788.8	117788.8✓			
	O-Ring Set	5992	3283.5		3283.5	3283.5✓			
BG	Filter	F581	121.4 ~~124~~		121.4	121.4✓			

Technician Signature: _____ Date: 10-16-2025

Equations and Calculations – ASTM E2780 & E2515

Manufacturer	Valley Comfort
Model:	S14
Project Number:	0142WS024E
Run Number:	6

Sample calculations of each equation used in the refernced standards for this test run.

Summary of INPUT values necessary for calculations

	Global Input Parameters for Equations	Value	Source
FM_S	- Average moisture of test fuel spacers, % dry basis	8.29	Fuel Properties Work Sheet
M_{Swb}	- Weight of Test Fuel Spacers, wet basis, kg	1.81	Fuel Properties Work Sheet
M_{CPnwb}	- Weight of each test fuel piece n in fuel crib, excluding nails and spacers, wet basis , kg	[1]Varies	Fuel Properties Work Sheet
FM_{CPn}	- Average fuel Fuel moisture in fuel crib, % dry basis	[1]Varies	Fuel Properties Work Sheet
V_C	- Volume of Fuel Crib, ft^3 (less spacers)	0.220	Fuel Properties Work Sheet
V_{SCENT}	- Average gas velocity at the center of the dilution tunnel calculated after the Pitot tube traverse, ft/sec	0.00	Traverse Worksheet
V_{STRAV}	- Average gas velocity calculated after the multipoint Pitot traverse	15.40	Traverse Worksheet
θ	- Duration of test, min	362	*Train A Worksheet*
P_{bar}	- Barometric pressure (average) at the testing site, in. Hg	30.17	*Traverse Worksheet*
Pg	- Tunnel Static Pressure	-0.4	*Traverse Worksheet*

[1] *Denotes that this pararmeter for each individual piece of fuel is calculated in the Test Fuel Properties worksheet and the input values are pulled into these sample caculations.*

	Sample Train Input Parameters for Equations	Train A	Train B	Train C	Train D
V_m	- Volume of gas sample measured at the dry gas meter, dcf	60.263	58.103	9.385	56.742
Y	Dry gas meter calibration factor	0.991	1.005	0.981	0.960
ΔH	- Average pressure differential across the orifice meter, in. H_2O	1.19	1.22	0.97	1.09
T_m	- Temperature of Dry Gas Meter, °F	93.5	90.6	76.0	79.0
Uncorrected Sample Mass					
m_p	- mass of particulate matter from probe, mg	0.0	0.0	0.0	n/a
m_f	- mass of particulate matter from filters, mg	6.7	6.8	0.7	0.0
m_g	- mass of particulate matter from filter seals, mg	0.0	0.0	0.0	n/a
Corrected Sample Mass					
m_p	- mass of particulate matter from probe, mg	0.0	0.0	0.0	n/a
m_f	- mass of particulate matter from filters, mg	6.7	6.8	0.7	n/a
m_g	- mass of particulate matter from filter seals, mg	0.0	0.0	0.0	n/a

M_{Sdb} – Weight of test fuel spacers, dry basis, kg - ASTM E2780 equation (1)

$$M_{Sdb} = (M_{Swb})\left(\frac{100}{100 + FM_S}\right)$$

Where,

FM_S = average moisture of test fuel spacers, % dry basis
M_{Swb} = weight of test fuel spacers, wet basis, kg

Sample Calculation:

FM_S = 8.29 %, dry basis
M_{Swb} = 1.81 lb.
0.4536 = Conversion factor, lb. → kg

M_{Sdb} = ((1.81 x 0.4536) (100 / (100 + 8.29))

M_{Sdb} = **0.758** kg

MCdb– Weight of test fuel crib, excluding nails and spacers, dry basis, kg - ASTM E2780 equation (2)

$$M_{Cdb} = \sum (M_{CPnwb})\left(\frac{100}{100 + FM_{CPn}}\right)$$

Where,

M_{CPnwb} = weight of each test fuel piece n in fuel crib, excluding nails and spacers, wet basis, kg
FM_{CPn} = Average fuel moisture of test fuel n in fuel crib, % dry basis

Sample Calculation:

ΣM_{CPnwb} = 8.05 lb.
FM_{CPn} = 22.49 %, dry basis
0.4536 = Conversion factor, lb. → kg

M_{Cdb} = 8.05 x 0.4536 x (100 / (100 + 22.4866666666667))

M_{Cdb} = **2.98** kg

DCdb - Density of fuel crib, excluding spacers and nails, dry basis, lbs/ft3 - ASTM E2780 equation (3)

$$D_{Cdb} = M_{Cdb}/V_C$$

Where,

V_C = Volume of Fuel Crib, ft^3 (less spacers)

Sample Calculation:

M_{Cdb} = 6.57 lb
V_C = 0.220 ft^3

D_{Cdb} = 6.57 / 0.22

D_{Cdb} = **29.84** lb/ft^3

M_{FTAdb} - Total weight of fuel crib including spacers and nails, dry basis - ASTM E2780 equation (4)

$$M_{FTAdb} = M_{Sdb} + M_{Cdb}$$

Sample Calculation:

M_{Sdb} = 0.758
M_{Cdb} = 2.98

M_{FTAdb} = 0.758 + 2.98

M_{FTAdb} = **3.74** kg

BR – dry burn rate, kg/hr - ASTM E2780 equation (5)

$$BR = \frac{60\ M_{FTAdb}}{\theta}$$

Sample Calculation:

M_{FTAdb} = 3.739
θ = 362

BR = (60 x 3.739) / 362

BR = **0.62** kg / hr

***Vs* – Average gas velocity in the dilution tunnel, ft/sec -** ASTM E2515 equation (9)

$$V_S = F_P \times K_P \times C_P \times \left(\sqrt{\Delta P}\right)_{avg} \times \sqrt{\frac{T_{s(avg)}}{P_s \times M_s}}$$

Where

F_P = Adjustment factor for center of tunnel pitot tube placement, where $F_P = V_{STRAV} / V_{SCENT}$

V_{SCENT} = Dilution tunnel velocity, at the center, ft/sec

V_{STRAV} = Dilution tunnel velocity, multi-point pitot traverse, ft/sec

K_P = Pitot tube constant, 85.49

C_P = Pitot tube coefficient: 0.99, unitless

$\Delta P^{1/2}_{AVG}$ = Velocity pressure in the dilution tunnel, in H_2O

$T_{S\,(avg)}$ = Absolute average gas temperature in the dilution tunnel, °R

P_S = Absolute average gas static pressure in tunnel, = Pbar + Pg , where Pbar = Barometric Pressure, in. Hg, Pg = Static pressure in tunnel, Hg (in H_2O / 13.6)

M_S = The dilution tunnel wet molecular weight; Ms = 28.78 assuming a dry weight of 29 lb/lb-mole

(Duration of Test)

F_P = 0.8257

$\Delta P^{1/2}_{AVG}$ = 0.3296

$T_{S\,(avg)}$ = 535.8152

Pbar = 30.1650

Pg = -0.4000

Ps = 30.1356

V_S = 0.826 x 85.49 x 0.99 x 0.33 x √ [(536 / (30.14 x 28.78)]

V_S = **18.103** ft/sec

(First Hour of Test)

F_P = 0.8257

$\Delta P^{1/2}_{AVG}$ = 0.3286

$T_{S\,(avg)}$ = 538.0262

Pbar = 30.1900

Pg = -0.4000

Ps = 30.1606

V_S = 0.826 x 85.49 x 0.99 x 0.329 x √ [(538 / (30.16 x 28.78)]

V_S = **18.080** ft/sec

Q_{std} – Average gas flow rate in dilution tunnel, dscf/hr - ASTM E2515 equation (3)

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

Where:

3600 = Conversion from seconds to hours (ASTM method uses 60 to convert in minutes)
B_{ws} = Water vapor in gas stream, proportion by volume; assume 2%
A = Cross sectional area of dilution tunnel, ft2
T_{std} = solute temperature, 528 °R
P_s = Absolute average gas static pressure in dilution tunnel, = Pbar + Pg , in Hg
$T_{s(avg)}$ = Absolute average gas temperature in the dilution tunnel, °R; (°R = °F + 460)
P_{std} = Standard absolute pressure, 29.92 in Hg

(Duration of Test):

B_{ws} = 0.02
A = 0.19635
P_s = 30.14
$T_{s(avg)}$ = 536
Vs = 18.10

Qstd = 3600 x (1 - 0.02) x 18.103 x 0.19635 x (528 / 536) x (30.14 / 29.92)

Qstd = **12446.1** dscf/hr

(First Hour):

B_{ws} = 0.02
A = 0.19635
P_s = 30.16
$T_{s(avg)}$ = 538
Vs = 18.080

Qstd = 3600 x (1 - 0.02) x 18.08 x 0.1963 x (528 / 538) x (30.16 / 29.92)

Qstd = **12390.1** dscf/hr

Vm(std) – Volume of Gas Sampled (Corrected), dscf - ASTM E2515 equation (6)

$$V_{m(std)} = K_1 V_m Y \frac{P_{bar} + \left(\frac{\Delta H}{13.6}\right)}{T_m}$$

Where:

K_1	=	17.64 °R/in. Hg
V_m	=	Volume of gas sample measured at the dry gas meter, dcf
Y	=	Dry gas meter calibration factor, dimensionless
P_{bar}	=	Barometric pressure at the testing site, in. Hg
ΔH	=	Average pressure differential across the orifice meter, in. H_2O
T_m	=	Absolute average dry gas meter temperature, °R

Sample Calculation:

Train A

$$V_{m(std)} = 17.64 \times 60.263 \times 0.991 \times \frac{(30.17 + \frac{1.19}{13.6})}{(93.5 + 460)}$$

$V_{m(std)}$ = **57.581** dscf

Train B

$$V_{m(std)} = 17.64 \times 58.103 \times 1.005 \times \frac{(30.17 + \frac{1.22}{13.6})}{(91 + 460)}$$

$V_{m(std)}$ = **56.600** dscf

Train C (1st Hour)

$$V_{m(std)} = 17.64 \times 9.39 \times 0.981 \times \frac{(\underline{30.19} + \frac{0.97}{13.6})}{(76.0 + 460)}$$

$V_{m(std)}$ = **9.169** dscf

Train D (Background)

$$V_{m(std)} = 17.64 \times 56.74 \times 0.960 \times \frac{(\underline{30.17} + \frac{1.09}{13.6})}{(79.0 + 460)}$$

$V_{m(std)}$ = **53.919** dscf

mn – Total Particulate Matter Collected, mg - ASTM E2515 Equation (12)

$$m_n = m_p + m_f + m_g$$

Where:

m_p = mass of particulate matter from probe, mg

m_f = mass of particulate matter from filters, mg

m_g = mass of particulate matter from filter seals, mg

Sample Calculations (Uncorrected):

Train A

m_n = 0.0 + 6.7 + 0.0

m_n = **6.7** mg

Train B

m_n = 0.0 + 6.8 + 0.0

m_n = **6.8** mg

Train C (1st hour)

m_n = 0.0 + 0.7 + 0

m_n = **0.7** mg

Train D (Background)

$m_n = m_f$ = 0.0

m_n = **0.0** mg

Sample Calculations (Corrected):

Train A

m_n = 0.0 + 6.7 + 0.0

m_n = **6.7** mg

Train B

m_n = 0.0 + 6.8 + 0.0

m_n = **6.8** mg

Train C (1st hour)

m_n = 0.0 + 0.7 + 0

m_n = **0.7** mg

Train D (Background)

$m_n = m_f$ = 0.0

m_n = **0.0** mg

C_s - Concentration of particulate matter in tunnel gas, dry basis, corrected to standard conditions

g/dscf - ASTM E2515 equation (13)

$$C_s = K_2 \times \frac{m_n}{V_{m(std)}}$$

Where:

K_2 = Constant, 0.001 g/mg

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

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

Sample Calculations (Uncorrected):

Train A

$$C_s = 0.001 \times \frac{6.7}{57.58}$$

C_s = **0.000116** g/dscf

Train B

$$C_s = 0.001 \times \frac{6.8}{56.60}$$

C_s = **0.0001201** g/dscf

Train C (1st Hour)

$$Cs = 0.001 \times \frac{0.7}{9.17}$$

Cs = **0.000076** g/dscf

Train D (Background)

$$C_r = 0.001 \times \frac{0.0}{53.92}$$

C_r = **0.000000** g/dscf

Sample Calculations (Corrected):

Train A

$$C_s = 0.001 \times \frac{6.7}{57.58}$$

C_s = **0.000116** g/dscf

Train B

$$C_s = 0.001 \times \frac{6.8}{56.60}$$

C_s = **0.0001201** g/dscf

Train C (1st Hour)

$$Cs = 0.001 \times \frac{0.7}{9.17}$$

Cs = **0.000076** g/dscf

Train D (Background)

$$C_r = 0.001 \times \frac{0.0}{53.92}$$

C_r = **0.000000** g/dscf

ET – Total Particulate Emissions, g - ASTM E2515 equation (15)

$$E_T = (c_s - c_r) \times Q_{std} \times \theta$$

Where:

C_s	=	Concentration of particulate matter in tunnel gas, g/dscf
C_r	=	Concentration particulate matter room air, g/dscf
Q_{std}	=	Average dilution tunnel gas flow rate, dscf/hr
θ	=	Total time of test run, minutes

Sample calculations (uncorrected)

Train A

E_T = (0.000116 - 0.000000) x 12446.1 x 362 / 60

E_T = **8.74** g

Train B

E_T = (0.000120 - 0.000000) x 12446.1 x 362 / 60

E_T = **9.02** g

First Hour

E_T = (0.000076 - 0.000000) x 12390.1 x 60 / 60

E_T = 0.95 g

Trains A and B Average

E = **8.88** g

Sample calculations (Corrected)

Train A

E_T = (0.000116 - 0.000000) x 12446.1 x 362 / 60

E_T = **8.74** g

Train B

E_T = (0.000120 - 0.000000) x 12446.1 x 362 / 60

E_T = **9.02** g

First Hour

E_T = (0.000076 - 0.000000) x 12390.1 x 60 / 60

E_T = **0.95** g

Trains A and B Average

E_T = **8.88** g

PM_R – Particulate emissions for test run, g/hr - ASTM E2780 equation (6)

$$PM_R = 60(E_T/\theta)$$

Where,

E_T = Total particulate emissions, grams

θ = Total length of full integrated test run, min

Sample Calculation (Uncorrected)

Train A

E_T = 8.74 g

θ = 362 min

$PM_R = 60 \times (8.74 / 362)$

PM_R = **1.45** g/hr

Train B

E_T = 9.02 g

θ = 362 min

$PM_R = 60 \times (9.02 / 362)$

PM_R = **1.50** g/hr

A and B Average

E_T = **1.47** g/hr

First Hour

E_T = 0.95 g

θ = 60 min

$PM_R = 60 \times (0.95 / 60)$

PM_R = **0.95** g/hr

Sample Calculation (Corrected)

Train A

E_T = 8.74 g

θ = 362 min

$PM_R = 60 \times (8.74 / 362)$

PM_R = **1.45** g/hr

Train B

E_T = 9.02 g

θ = 362 min

$PM_R = 60 \times (9.02 / 362)$

PM_R = **1.50** g/hr

A and B Average

E_T = **1.47** g

First Hour

E_T = 0.95 g

θ = 60 min

$PM_R = 60 \times (0.95 / 60)$

PM_R = **0.95** g/hr

PM_F – Particulate emission factor for test run, g/dry kg of fuel burned - ASTM E2780 equation (7)

$$PM_F = E_T / M_{FTAdb}$$

Sample Calculation (Uncorrected)

Train A

E_T = 8.74 g
M_{FTAdb} = 3.74 kg
PM_F = 8.74 / 3.74
PM_F = **2.34** g/kg

Train B

E_T = 9.02 g
M_{FTAdb} = 3.74 kg
PM_F = 9.02 / 3.74
PM_F = **2.41** g/kg

Sample Calculation (Corrected)

Train A

E_T = 8.74 g
M_{FTAdb} = 3.74 kg
PM_F = 8.74 / 3.74
PM_F = **2.34** g/kg

Train B

E_T = 9.02 g
M_{FTAdb} = 3.74 kg
PM_F = 9.02 / 3.74
PM_F = **2.41** g/kg

PR - Proportional Rate Variation - ASTM E2515 equation (16)

$$PR = \left[\frac{\theta \times V_{mi} \times V_s \times T_m \times T_{si}}{\theta_i \times V_m \times V_{si} \times T_{mi} \times T_s}\right] \times 100$$

Where:			Train A	Train B	Train C
θ	=	Total sampling time, min	362	362	60
θ_i	=	Length of recording interval, min	1	1	1
V_{mi}	=	Volume of gas sample measured by the dry gas meter during the "ith" time interval, dcf	0.165	0.159	0.158
V_m	=	Volume of gas sample as measured by dry gas meter, dcf	60.263	58.103	9.385
V_{si}	=	Average gas velocity in the dilution tunnel during the "ith" time interval, ft/sec	18.153	18.153	18.153
V_s	=	Average gas velocity in the dilution tunnel, ft/sec	18.103	18.103	18.093
T_{mi}	=	Absolute average dry gas meter temperature during the "ith" time interval, ^oR	533.9	532.0	533.3
T_m	=	Absolute average dry gas meter temperature, ^oR	553.5	550.6	536.0
T_{si}	=	Absolute average gas temperature in the dilution tunnel during the "ith" time interv	546.4	546.4	546.4
T_s	=	Absolute average gas temperature in the dilution tunnel, ^oR	535.8	535.8	538.0

NOTE: These sample calculations are for the Second interval of each train)

Train A PR = $\left(\frac{362 \text{ x } 0.165 \text{ x } 18.103 \text{ x } 553 \text{ x } 546}{1 \text{ x } 60.263 \text{ x } 18.153 \text{ x } 534 \text{ x } 536}\right)$ X 100 = 104.5 %

Train B PR = $\left(\frac{362 \text{ x } 0.159 \text{ x } 18.103 \text{ x } 551 \text{ x } 546}{1 \text{ x } 58.103 \text{ x } 18.153 \text{ x } 532 \text{ x } 536}\right)$ X 100 = 104.3 %

Train B PR = $\left(\frac{60 \text{ x } 0.158 \text{ x } 18.093 \text{ x } 536 \text{ x } 546}{1 \text{ x } 9.385 \text{ x } 18.153 \text{ x } 533 \text{ x } 538}\right)$ X 100 = 102.8 %

Tare Sheet: (check one) **Probes**_____ **47mm Filters**_____ **100mm Filters**_____ **O-Ring Pair**_____

Prepared By: Balance ID #: Thermohygrometer ID #: Audit Weight ID #/Mass: /

ID #	Placed in Dessicator: Date: 9-23-25 Time: 1300	Date: 9-24-2025 Time: 0830 RH %: 9.9 T (°F): 76.1 Audit: 100.1 300.0	Date: 9-24-25 Time: 1430 RH %: 11.7 T (°F): 76.7 Audit: 100.1 300.0	Date: Time: RH %: T (°F): Audit:	Date: Time: RH %: T (°F): Audit:	Date Used	Project Number	Run No.
F591, F591A		244.4	244.4 ✓			10-1-2025	0142WS024E	3
F592, F592A		245.0	245.1 ✓			↓	↓	↓
F593, F593A		244.9	244.9 ✓			10-2-2025	0142WS024E	4
F594, F594A		245.8	246.0 ✓			↓	↓	↓
F595, F595A		245.9	246.1 ✓			↓	↓	↓
F596, F596A		245.2	245.7 ✓			10-2-2025	0142WS024E	5
F597, F597A		244.6	244.8 ✓			↓	↓	↓
F598, F598A		246.8	246.9 ✓			↓	↓	↓
F599, F599A		245.4	245.5 ✓			10-3-2025	0142WS024E	6
F600, F600A		246.4	246.4 ✓			↓	↓	↓
F601, F601A		246.2	246.3 ✓			↓	↓	↓
F602, F602A		245.5	245.3 ✓					
F603, F603A		245.6	245.1 ✓					
F604, F604A		244.9	244.8 ✓					
~~F605, F604A~~ F605A		244.6	244.7 ✓					
F606, F606A		245.0	244.9 ✓					
F607, F607A		245.7	245.7 ✓					
F608, F608A		244.5	244.5 ✓					
F609, F609A		245.3	245.3 ✓					
F610, F610A		246.5	246.6					
		Initials: RT	Initials: RT	Initials:	Initials:			

[redacted]

Final Technician Signature: _____ Date: 9-24-2025 Evaluator signature: _____

Control No. P-SFDP-0002.xls, Effective date: 2/1/2017

Tare Sheet: (check one) **Probes**_____ **47mm Filters**_____ **100mm Filters**_____ **O-Ring Pair**_____

Prepared By: Balance ID #: Thermohygrometer ID #: Audit Weight ID #/Mass: /

Placed in Dessicator: Date: 5-30-25 Time: 1330 ID #	Date: 6-3-25 Time: 12:45 RH %: 16.1 T (°F): 77.1 Audit: 100.0 300.0	Date: 6-4-25 Time: 3:05 RH %: 0.3 T (°F): 77.7 Audit: 100.0 300.0	Date: Time: RH %: T (°F): Audit:	Date: Time: RH %: T (°F): Audit:	Date Used	Project Number	Run No.
FS51, FS51A	242.5	242.5 ✓					
FS52, FS52A	242.2	242.2 ✓					
FS53, FS53A	241.9	241.9 ✓					
FS54, FS54A	241.3	241.3 ✓					
FS55, FS55A	240.8	240.8 ✓					
FS56, FS56A	241.9	242.0 ✓					
FS57, FS57A	242.8	242.8 ✓					
FS58, FS58A	241.3	241.4 ✓					
FS59, FS59A	240.7	240.7 ✓					
FS60, FS60A	241.1	241.1 ✓					
FS61, FS61A	241.4	241.5 ✓					
FS62, FS62A	241.3	241.4 ✓					
FS63, FS63A	241.4	241.4 ✓					
FS64, FS64A	242.4	242.4 ✓			9-29-2025	0142WS024E	1
FS65, FS65A	241.7	241.7 ✓			↓	↓	↓
FS66, FS66A	241.4	241.4 ✓			↓	↓	↓
FS67, FS67A	241.7	241.7 ✓			9-30-25	0142WS024E	2
FS68, FS68A	240.7	240.8 ✓			↓	↓	↓
FS69, FS69A	242.0	242.0 ✓			↓	↓	↓
FS70, FS70A	241.0	241.1 ✓			10-1-2025	0142WS024E	3
	Initials: JM	Initials: JM	Initials:	Initials:			

[redacted]

Final Technician Signature: _____ Date: 5-19-2025 Evaluator signature: _____

Tare Sheet: (check one) **Probes**_____ **47mm Filters**_____ **100mm Filters**_____ **O-Ring Pair**_____

Prepared By: Balance ID #: Thermohygrometer ID #: Audit Weight ID #/Mass: /

Placed in Dessicator: Date: _____ Time: _____ ID #	Date: 6-3-25 Time: 1:22 RH %: 15.5 T (°F): 77.7 (100.0) Audit: 200.1	Date: 6-4-25 Time: 3:30 RH %: 0.3 T (°F): 77.8 (100.0) Audit: 200.1	Date: _____ Time: _____ RH %: _____ T (°F): _____ Audit: _____	Date: _____ Time: _____ RH %: _____ T (°F): _____ Audit: _____	Date Used	Project Number	Run No.
FS71	120.2	120.4 ✓			NOT USED		
F572	121.9	121.9 ✓			7-7-2025	0418WS021E	1
F573	120.7	120.8 ✓			7-8-2025	↓	2
F574	123.6	123.6 ✓			7-9-2025	0418WS021E	3
F575	122.0	122.0 ✓			7-10-2025	0418WS021E	4
F576	121.8	121.8 ✓			9-29-2025	0142WS024E	1
F577	123.3	123.3 ✓			9-30-25	↓	2
F578	121.9	121.9 ✓			10-1-2025	0142WS024E	3
F579	122.7	122.7 ✓			10-2-2025	0142WS024E	4
F580	122.0	122.0 ✓			10-2-2025	0142WS024E	5
F581	121.4	121.4 ✓			10-3-25	0142WS024E	6
F582	122.9	122.9 ✓			[redacted]		
F583	121.5	121.5 ✓					
F584	123.6	123.6 ✓					
F585	120.9	121.0 ✓					
F586	123.1	123.2 ✓					
F587	121.5	121.5 ✓					
F588	123.2	123.2 ✓					
F589	122.2	122.2 ✓					
F590	121.2	121.2 ✓					
	Initials: JM	Initials: JM	Initials:	Initials:			

Final Technician Signature: _____ Date: 8-19-2025 Evaluator signature: _____

Tare Sheet: (check one) **Probes**_____ **47mm Filters**_____ **100mm Filters**_____ **O-Ring Pair**_____

Prepared By: Balance ID #: Thermohygrometer ID #: Audit Weight ID #/Mass: /

Placed in Dessicator: Date: 9-23-25 Time: 1115 ID #	Date: 9-24-2025 Time: 0900 RH %: 0.1 T (°F): 76.9 Audit: 5000.1 / 3000.2	Date: 9-25-2025 Time: 0800 RH %: 0.1 T (°F): 76.4 Audit: 5000.0 / 3000.2	Date: 9-25-2025 Time: 15:35 RH %: 0.1 T (°F): 76.1 Audit: 5000.0 / 3000.2	Date: Time: RH %: T (°F): Audit:	Date Used	Project Number	Run No.
S975	3357.6	3357.4✓			9-29-25	0142WS024E	1
S976	3264.1	3264.0✓			↓	↓	↓
S977	3390.4	3390.2✓			↓	↓	↓
S978	3264.9	3264.9			9-30-2025	0142WS024E	2
S979	3368.6	3368.6✓			↓	↓	↓
S980	3324.9	3324.7✓			↓	↓	↓
S981	3445.6	3445.2	3445.4✓		10-1-2025	0142WS024E	3
S982	3371.0	3370.8✓	3370.8✓		↓		↓
S983	3340.4	3340.2✓			↓		↓
S984	4084.3	4083.7	4083.9✓		10-2-25	0142WS024E	4
S985	3372.7	3372.7✓			↓	↓	↓
S986	3376.6	3375.7	3375.5✓		↓	↓	↓
S987	3329.5	3327.6	3327.6✓		10-2-2025	0142WS024E	5
S988	3344.9	3343.7	3343.6✓		↓	↓	↓
S989	3454.3	3453.4	3453.4✓		↓	↓	↓
S990	3326.0	3325.0	3325.1		10-3-25	0142WS024E	6
S991	3344.7	3343.9	3344.1✓		↓	↓	↓
S992	3284.3	3283.4	3283.5✓		↓	↓	↓
S993	4887.3	4886.8	4886.8✓		[redacted]		
S994	3420.8	3420.2	3420.4✓				
	Initials: RT	Initials: RT	Initials: RT	Initials:			

Final Technician Signature: _____ Date: 9-25-2025 Evaluator signature: _____

Control No. P-SFDP-0002.xls, Effective date: 2/1/2017

Tare Sheet: (check one) Probes_____ 47mm Filters_____ 100mm Filters_____ O-Ring Pair_____

Prepared By: Balance ID #: Thermohygrometer ID #: Audit Weight ID #/Mass: 1

Placed in Dessicator: Date: 9-23-25 Time: 1145 ID #	Date: 9-24-25 Time: 0930 RH %: 9.4 T (°F): 76.2 Audit: 999974 / 119978.4	Date: 9-25-2025 Time: 0830 RH %: 10.1 T (°F): 76.4 Audit: 99997.4 / 119978.4	Date: Time: RH %: T (°F): Audit:	Date: Time: RH %: T (°F): Audit:	Date Used	Project Number	Run No.
12	114284.0	114284.1✓			9-29-25	0142WS024E	1
76	116965.9	116966.1✓			↓	↓	↓
84	117638.0	117637.9✓			↓	↓	2
OES 5	113565.7	113565.8✓			9-30-2025	0142WS024E	↓
36	114881.3	114881.2✓			↓	↓	3
28	114747.5	114747.4✓			↓	↓	↓
82	116287.1	116287.1✓			10-1-2025	0142WS024E	4
73	117074.8	117074.7✓			↓	↓	↓
66	118456.9	118456.9✓			↓	↓	5
OES6	113705.0	113704.8✓			10-2-25	0142WS024E	↓
6	115342.9	115342.8✓			↓	↓	6
80	117554.8	117554.6✓			↓	↓	↓
22	114339.3	114339.2✓			10-2-2025	0142WS024E	7
38	114148.3	114148.5✓			↓	↓	↓
50	118128.8	118128.6✓			↓	↓	8
56	118641.9	118641.7✓			10-3-25	0142WS024E	↓
69	117370.4	117370.2✓			↓	↓	9
59	117789.0	117788.8✓			↓	↓	↓
11	114184.7	114184.5✓			[redacted]		
3	116009.4	116009.2✓					
	Initials: RT	Initials: RT	Initials:	Initials:			

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Final Technician Signature: [signature] Date: 9-25-2025 Evaluator signature: [signature]

6. Appliance Engineering Drawings

(CBI Report Only)

7. Appliance Labeling and Owner's Manual(s)

SENTRY S14

SN - 65.

BLAZE KING CATALYTIC STOVE - POÊLE À BOIS CATALYTIQUE

0142WS024E
0142WS024S

MODEL / MODÈLE: S14
ROOM HEATER, SOLID FUEL TYPE / APPAREIL DE CHAUFFAGE, TYPE COMBUSTIBLE SOLIDE
TESTED TO / TESTÉ: UL 1482-11(R2022) & CAN/ULC-S627:2023
CERTIFIED FOR USE IN BOTH USA AND CANADA / CERTIFIÉ POUR UNE UTILISATION AUX ÉTATS-UNIS ET AU CANADA
APPROVED FOR USE IN MOBILE HOMES (USA) AND IN TRANSPORTABLE BUILDINGS (CAN) / APPROUVÉ POUR UNE UTILISATION DANS LES MAISONS MOBILES (USA) ET DANS LES BÂTIMENTS TRANSPORTABLES (CAN)

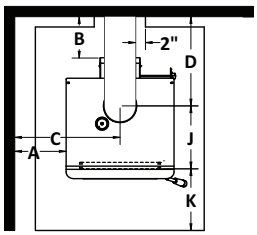
Install and use this appliance in accordance with Blaze King's installation and operation instructions. Contact local building or fire officials about restrictions and installation inspection in your area. To be installed as a freestanding space heater with the clearances listed below and in the installation instructions. Not to be installed in any fireplace. DO NOT CONNECT THIS APPLIANCE TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE. The flue diameter is 6". Except for the installation detailed below, use a 6" listed, factory built chimney suitable for use with solid fuels conforming to UL-103HT (USA) or CAN/ULC-S629 (CAN) or a code compliant, masonry chimney. Mobile Home (USA) or Transportable Building (CAN) and residential close clearance installations require a 6" listed double wall, close clearance chimney connector with matching listed factory built chimney suitable for use with solid fuels and conforming to UL-103HT (USA) or CAN/ULC-S629 (CAN). Mobile Home (USA) or Transportable Buildings (CAN) installations are approved for roof exit only. Do not install in a sleeping room. Connection through a wall or ceiling requires special methods, see instructions and refer to local building codes to ensure proper installation.

Installez et utilisez cet appareil conformément aux instructions d'installation et d'utilisation de Blaze King. Contactez les responsables locaux du bâtiment ou des pompiers au sujet des restrictions et de l'inspection de l'installation dans votre région. À installer en tant qu'appareil de chauffage autonome avec les dégagements indiqués ci-dessous et dans les instructions d'installation. Ne pas installer dans une cheminée. NE RACCORDEZ PAS CET APPAREIL À UN CONDUIT DE CHEMINÉE DESSERVANT UN AUTRE APPAREIL. Le diamètre du conduit est de 6". À l'exception de l'installation détaillée ci-dessous, utilisez une cheminée de 6" homologuée et fabriquée en usine adaptée à une utilisation avec des combustibles solides conformes à UL-103HT (USA) ou CAN/ULC-S629 (CAN) ou un code conforme, cheminée en maçonnerie. Les installations de maisons mobiles (USA) ou de bâtiments transportables (CAN) et résidentielles à dégagement réduit nécessitent un connecteur de cheminée homologué à double paroi et à dégagement réduit avec une cheminée fabriquée en usine homologuée adaptée à une utilisation avec des combustibles solides et conforme à UL-103HT (USA) ou CAN/ULC-S629 (CAN). Les installations de maisons mobiles (USA) ou de bâtiments transportables (CAN) sont approuvées pour une sortie sur le toit uniquement. Ne pas installer dans une chambre à coucher. La connexion à travers un mur ou un plafond nécessite des méthodes spéciales, voir les instructions et se référer aux codes du bâtiment locaux pour assurer une installation correcte.

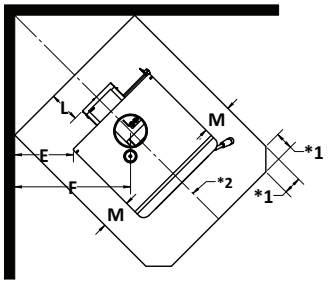
MINIMUM CLEARANCES TO COMBUSTIBLES (see owners manual for complete description of all requirements)
*** In Canada, 18" clearances from single wall pipe is required. Check with local codes and pipe manufacturers for minimum pipe clearances.**
DÉGAGEMENTS MINIMUM AUX COMBUSTIBLES (voir les directives d'installation pour la description complète de toutes les conditions)
*** Au Canada, un dégagement de 18 po est exigé pour un tuyau à simple paroi. Vérifier avec le code du bâtiment local et avec le manufacturier de tuyaux pour les dégagements.**

Residential Installations / Installations Résidentielles	A	B	*C	*D	E	*F	G	H
Roof exit or wall exit, parallel or corner minimum clearances Dégagements minimaux de sortie de toit ou de sortie murale, parallèle ou d'angle	9.5" 242 mm	1" 26 mm	20.25" 515 mm	10.25" 261 mm	1" 26 mm	13.25" 337 mm	50.5" 1283 mm	82" 2083 mm
Alcove Installations / Installations en alcôve								
Roof exit or wall exit minimum clearances; requires double-wall pipe Dégagements minimaux à la sortie du toit ou à la sortie des murs; nécessite un tuyau à double paroi	12" 305 mm	1" 26 mm	23.25" 591 mm	10.25" 261 mm	n/a	n/a	50.5" 1283 mm	82" 2083 mm
Mobile Home (USA) or Transportable Building (CAN) / Maison mobile (USA) or Bâtiment transportable (CAN)								
Roof exit only; requires double-wall pipe and outside air / nécessite un tuyau à double paroi et de l'air extérieur								

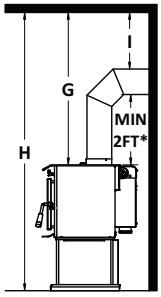
ROOF OR WALL EXIT; PARALLEL



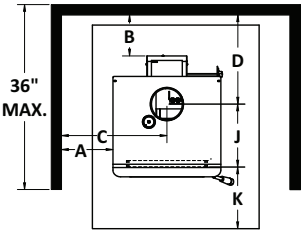
ROOF OR WALL EXIT; CORNER



CEILING



ROOF OR WALL EXIT; ALCOVE



***1 = 2.25" (58 mm) IN USA / 3.5" (89 mm) IN CANADA**
***2 = 48.25" (1226 mm) IN USA / 50.25" (1277 mm) IN CANADA**

***3ft MINIMUM RECOMMENDED**

*** I = 18" (457 mm) for single wall pipe in Canada**	**J-12.25" (312 mm)**	**K = 16" (407 mm) in USA 18" (458 mm) in Canada**	**L = 0" in USA 8" (203 mm) in Canada**	**M = 5.25" (134 mm) in USA 8" (203 mm) in Canada**

This appliance does not require thermal hearth pad floor protection; however, if installed on a combustible floor, a non-combustible floor shield must be used. Minimum floor protection size is: 31.75" x 37.5" (807 mm x 953 mm) in USA or 37" x 47.5" (940 mm x 1207 mm) in Canada.
U.S. ENVIRONMENTAL PROTECTION AGENCY - Certified to comply with 2020 particulate emission standards using crib wood (certified to EPA test method 28R with an emission-rate of 1.42 g/hr). It is against federal regulations to operate this appliance in a manner inconsistent with operating instructions in the owner's manual or if the catalytic combustor is deactivated or removed. This appliance needs periodic inspection and repair for proper operation; consult the owner's manual for instruction. Inspect and clean chimney frequently - under certain conditions of use, creosote buildup may occur rapidly. Do not use grate or elevate fire - build wood fire directly on hearth. Only operate with door closed; open door to feed fire only. Do not obstruct combustion air openings or the space beneath the appliance. Provide adequate outside air for combustion. For use with solid wood fuel only; do not burn other fuels as this will cause the catalyst in the combustor to become inactive. The performance of the combustor or its durability has not been evaluated as part of the certification. Combustor OEM part number: 115-1505-C2. Replace glass with 5mm ceramic glass only; attach as instructed in the installation instructions.

Cet appareil ne nécessite pas de protection thermique du sol du foyer; cependant, s'il est installé sur un plancher combustible, un protecteur de plancher non combustible doit être utilisé. La taille minimale de la protection de plancher est de: 31.75" x 37.5" (807 mm x 953 mm) aux USA ou 37" x 47.5" (940 mm x 1207 mm) au Canada.
L'AGENCE DE PROTECTION ENVIRONNEMENTALE DES U.S. - Certifié conformément aux normes d'émission de particules 2020 (certifié selon les méthode de test EPA 28R avec un taux d'émission de 1.42 g/h). Il est contraire aux réglementations fédérales d'utiliser cet appareil d'une manière incompatible avec les instructions d'utilisation du manuel du propriétaire ou si la chambre de combustion catalytique est désactivée ou retirée. Cet appareil nécessite une inspection et une réparation périodiques pour un bon fonctionnement; consultez le manuel du propriétaire pour obtenir des instructions. Inspectez et nettoyez fréquemment la cheminée ; dans certaines conditions d'utilisation, une accumulation de créosote peut se produire rapidement. Ne pas utiliser de grille ni surélever le feu ; allumer le feu de bois directement sur le foyer. Fonctionner uniquement avec la porte fermée; ouvrir la porte uniquement pour alimenter le feu. Ne pas obstruer les ouvertures d'air de combustion ou l'espace sous l'appareil. Fournir suffisamment d'air extérieur pour la combustion. À utiliser uniquement avec du bois de chauffage solide; ne brûlez pas d'autres combustibles car cela rendrait le catalyseur dans la chambre de combustion inactif. Les performances de la chambre de combustion ou sa durabilité n'ont pas été évaluées dans le cadre de la certification. Numéro de pièce OEM de la chambre de combustion: 115-1505-C2. Remplacez le verre par du verre céramique de 5 mm uniquement; fixer comme indiqué dans les instructions d'installation.

MANUFACTURED IN

☐ USA:
Blaze King Industries
146A Street
Walla Walla, WA.
99362

☐ CANADA:
Valley Comfort Systems
1290 Commercial Way
Penticton, B.C.
V2A 3H5

MANUFACTURE DATE

JAN ☐ FEB ☐ MAR ☐ APR ☐ MAY ☐ JUN ☐
JUL ☐ AUG ☐ SEP ☐ OCT ☐ NOV ☐ DEC ☐
2025 ☐ 2026 ☐ 2027 ☐ 2028 ☐ 2029 ☐ 2030 ☐

170-0275 [11 25]

Blaze King

SENTRY S14

SOLID FUEL CATALYTIC STOVE

OPERATION & INSTALLATION MANUAL



NATIONAL FIREPLACE INSTITUTE NFI CERTIFIED www.nficertified.org

We recommend that our woodburning hearth products be installed and serviced by professionals who are certified in the U.S. by the National Fireplace Institute® (NFI) as NFI Woodburning Specialists or who are certified in Canada by Wood Energy Technical Training (WETT).

Wood Energy Technical Training www.wettinc.ca

U.S. EPA CERTIFIED TO COMPLY WITH 2020 PARTICULATE EMISSION STANDARDS USING CRIB WOOD

EM C O-TL US

0142WS024E
0142WS024S

Installer: Please COMPLETE THE DETAILS ON THE LAST PAGE and leave this manual with the homeowner.
Homeowner: Please SAVE THESE INSTRUCTIONS for future reference.

MANUFACTURED BY
Valley Comfort Systems Inc., 1290 Commercial Way, Penticton BC, Canada, V2A 3H5
web: www.blazeking.com email: info@blazeking.com

ATTENTION: The authority having jurisdiction (municipal building department, fire department, etc.) should be consulted before installation to determine the need to obtain a permit.

Pour la version française de nos manuels S.V.P. vous référez à notre site web: www.blazeking.com

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CERTIFICATION LABEL

For reference only - please refer to label on the appliance

SENTRY S14

SN - 65.

BLAZE KING CATALYTIC STOVE - POÊLE À BOIS CATALYTIQUE

MODEL / MODÈLE: S14
ROOM HEATER, SOLID FUEL TYPE / APPAREIL DE CHAUFFAGE, TYPE COMBUSTIBLE SOLIDE
TESTED TO / TESTÉ: UL 1482-11(R2022) & CAN/ULC-S627:2023
CERTIFIED FOR USE IN BOTH USA AND CANADA / CERTIFIÉ POUR UNE UTILISATION AUX ÉTATS-UNIS ET AU CANADA
APPROVED FOR USE IN MOBILE HOMES (USA) AND IN TRANSPORTABLE BUILDINGS (CAN) / APPROUVÉ POUR UNE UTILISATION DANS LES MAISONS MOBILES (USA) ET DANS LES BÂTIMENTS TRANSPORTABLES (CAN)

0142WS024E
0142WS024S

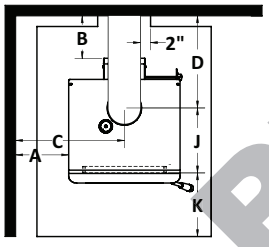
Install and use this appliance in accordance with Blaze King's installation and operation instructions. Contact local building or fire officials about restrictions and installation inspection in your area. To be installed as a freestanding space heater with the clearances listed below and in the installation instructions. Not to be installed in any fireplace. DO NOT CONNECT THIS APPLIANCE TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE. The flue diameter is 6". Except for the installation detailed below, use a 6" listed, factory built chimney suitable for use with solid fuels conforming to UL-103HT (USA) or CAN/ULC-S629 (CAN) or a code compliant, masonry chimney. Mobile Home (USA) or Transportable Building (CAN) and residential close clearance installations require a 6" listed double wall, close clearance chimney connector with matching listed factory built chimney suitable for use with solid fuels and conforming to UL-103HT (USA) or CAN/ULC-S629 (CAN). Mobile Home (USA) or Transportable Buildings (CAN) installations are approved for roof exit only. Do not install in a sleeping room. Connection through a wall or ceiling requires special methods, see instructions and refer to local building codes to ensure proper installation.

Installez et utilisez cet appareil conformément aux instructions d'installation et d'utilisation de Blaze King. Contactez les responsables locaux du bâtiment ou des pompiers au sujet des restrictions et de l'inspection de l'installation dans votre région. À installer en tant qu'appareil de chauffage autonome avec les dégagements indiqués ci-dessous et dans les instructions d'installation. Ne pas installer dans une cheminée. NE RACCORDEZ PAS CET APPAREIL À UN CONDUIT DE CHEMINÉE DESSERVANT UN AUTRE APPAREIL. Le diamètre du conduit est de 6". À l'exception de l'installation détaillée ci-dessous, utilisez une cheminée de 6" homologuée et fabriquée en usine adaptée à une utilisation avec des combustibles solides conformes à UL-103HT (USA) ou CAN/ULC-S629 (CAN) ou un code conforme, cheminée en maçonnerie. Les installations de maisons mobiles (USA) ou de bâtiments transportables (CAN) et résidentielles à dégagement réduit nécessitent un connecteur de cheminée homologué à double paroi et à dégagement réduit avec une cheminée fabriquée en usine homologuée adaptée à une utilisation avec des combustibles solides et conforme à UL-103HT (USA) ou CAN/ULC-S629 (CAN). Les installations de maisons mobiles (USA) ou de bâtiments transportables (CAN) sont approuvées pour une sortie sur le toit uniquement. Ne pas installer dans une chambre à coucher. La connexion à travers un mur ou un plafond nécessite des méthodes spéciales, voir les instructions et se référer aux codes du bâtiment locaux pour assurer une installation correcte.

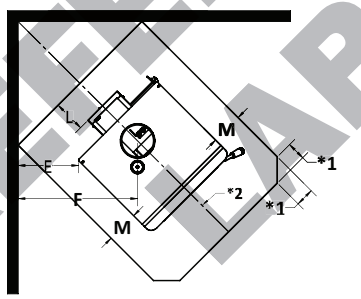
MINIMUM CLEARANCES TO COMBUSTIBLES (see owners manual for complete description of all requirements)
*** In Canada, 18" clearances from single wall pipe is required. Check with local codes and pipe manufacturers for minimum pipe clearances.**
DÉGAGEMENTS MINIMUM AUX COMBUSTIBLES (voir les directives d'installation pour la description complète de toutes les conditions)
*** Au Canada, un dégagement de 18 po est exigé pour un tuyau à simple paroi. Vérifier avec le code du bâtiment local et avec le manufacturier de tuyaux pour les dégagements.**

Residential Installations / Installations Résidentielles	A	B	*C	*D	E	*F	G	H
Roof exit or wall exit, parallel or corner minimum clearances Dégagements minimaux de sortie de toit ou de sortie murale, parallèle ou d'angle	9.5" 242 mm	1" 26 mm	20.25" 515 mm	10.25" 261 mm	1" 26 mm	13.25" 337 mm	50.5" 1283 mm	82" 2083 mm
Alcove Installations / Installations en alcôve								
Roof exit or wall exit minimum clearances; requires double-wall pipe Dégagements minimaux à la sortie du toit ou à la sortie des murs; nécessite un tuyau à double paroi	12" 305 mm	1" 26 mm	23.25" 591 mm	10.25" 261 mm	n/a	n/a	50.5" 1283 mm	82" 2083 mm
Mobile Home (USA) or Transportable Building (CAN) / Maison mobile (USA) or Bâtiment transportable (CAN)								
Roof exit only; requires double-wall pipe and outside air / nécessite un tuyau à double paroi et de l'air extérieur								

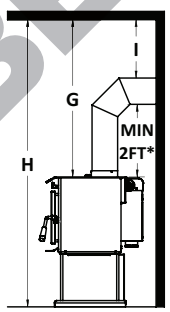
ROOF OR WALL EXIT; PARALLEL



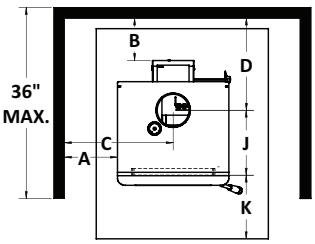
ROOF OR WALL EXIT; CORNER



CEILING



ROOF OR WALL EXIT; ALCOVE



***1 = 2.25" (58 mm) IN USA / 3.5" (89 mm) IN CANADA**
***2 = 48.25" (1226 mm) IN USA / 50.25" (1277 mm) IN CANADA**

***3ft MINIMUM RECOMMENDED**

* I = 18" (457 mm) for single wall pipe in Canada	J-12.25" (312 mm)	K = 16" (407 mm) in USA 18" (458 mm) in Canada	L = 0" in USA 8" (203 mm) in Canada	M = 5.25" (134 mm) in USA 8" (203 mm) in Canada

This appliance does not require thermal hearth pad floor protection; however, if installed on a combustible floor, a non-combustible floor shield must be used. Minimum floor protection size is: 31.75" x 37.5" (807 mm x 953 mm) in USA or 37" x 47.5" (940 mm x 1207 mm) in Canada.
U.S. ENVIRONMENTAL PROTECTION AGENCY - Certified to comply with 2020 particulate emission standards using crib wood (certified to EPA test method 28R with an emission-rate of 1.42 g/hr). It is against federal regulations to operate this appliance in a manner inconsistent with operating instructions in the owner's manual or if the catalytic combustor is deactivated or removed. This appliance needs periodic inspection and repair for proper operation; consult the owner's manual for instruction. Inspect and clean chimney frequently - under certain conditions of use, creosote buildup may occur rapidly. Do not use grate or elevate fire - build wood fire directly on hearth. Only operate with door closed; open door to feed fire only. Do not obstruct combustion air openings or the space beneath the appliance. Provide adequate outside air for combustion. For use with solid wood fuel only; do not burn other fuels as this will cause the catalyst in the combustor to become inactive. The performance of the combustor or its durability has not been evaluated as part of the certification. Combustor OEM part number: 115-1505-C2. Replace glass with 5mm ceramic glass only; attach as instructed in the installation instructions.

Cet appareil ne nécessite pas de protection thermique du sol du foyer; cependant, s'il est installé sur un plancher combustible, un protecteur de plancher non combustible doit être utilisé. La taille minimale de la protection de plancher est de: 31.75" x 37.5" (807 mm x 953 mm) aux USA ou 37" x 47.5" (940 mm x 1207 mm) au Canada.
L'AGENCE DE PROTECTION ENVIRONNEMENTALE DES U.S. - Certifié conformément aux normes d'émission de particules 2020 (certifié selon les méthode de test EPA 28R avec un taux d'émission de 1.42 g/h). Il est contraire aux réglementations fédérales d'utiliser cet appareil d'une manière incompatible avec les instructions d'utilisation du manuel du propriétaire ou si la chambre de combustion catalytique est désactivée ou retirée. Cet appareil nécessite une inspection et une réparation périodiques pour un bon fonctionnement; consultez le manuel du propriétaire pour obtenir des instructions. Inspectez et nettoyez fréquemment la cheminée ; dans certaines conditions d'utilisation, une accumulation de créosote peut se produire rapidement. Ne pas utiliser de grille ni surélever le feu ; allumer le feu de bois directement sur le foyer. Fonctionner uniquement avec la porte fermée; ouvrir la porte uniquement pour alimenter le feu. Ne pas obstruer les ouvertures d'air de combustion ou l'espace sous l'appareil. Fournir suffisamment d'air extérieur pour la combustion. À utiliser uniquement avec du bois de chauffage solide; ne brûlez pas d'autres combustibles car cela rendrait le catalyseur dans la chambre de combustion inactif. Les performances de la chambre de combustion ou sa durabilité n'ont pas été évaluées dans le cadre de la certification. Numéro de pièce OEM de la chambre de combustion: 115-1505-C2. Remplacez le verre par du verre céramique de 5 mm uniquement; fixer comme indiqué dans les instructions d'installation.

MANUFACTURED IN

☐ USA:
Blaze King Industries
146A Street
Walla Walla, WA.
99362

☐ CANADA:
Valley Comfort Systems
1290 Commercial Way
Penticton, B.C.
V2A 3H5

MANUFACTURE DATE

JAN ☐ FEB ☐ MAR ☐ APR ☐ MAY ☐ JUN ☐
JUL ☐ AUG ☐ SEP ☐ OCT ☐ NOV ☐ DEC ☐
2025 ☐ 2026 ☐ 2027 ☐ 2028 ☐ 2029 ☐ 2030 ☐

170-0275 [11 25]

REFERENCE LABEL

The content within this manual describes the installation and operation of the Blaze King S14. It is against federal regulations to operate this appliance in a manner inconsistent with the operating instructions in this manual. Blaze King grants no warranty, implied or stated, for the installation and maintenance of this appliance and assumes no responsibility of any consequential damage(s).

EPA CERTIFICATION TEST DATA		
Burn Category	**CO Avg**	**Emission Rate**
Low Burn	0.364 g/min	0.67 g/hr
Med-low Burn	0.326 g/min	1.50 g/hr
Med-high Burn	0.721 g/min	1.15 g/hr
High Burn	1.341 g/min	2.48 g/hr
EPA emission rate weighted average		1.42 g/hr

This appliance was tested and listed to CAN/ULC-S627:2023 & UL1482-11 (R2022) OMNI-Test Laboratories. This appliance is certified to comply with the 2020 U.S. Environmental Protection Agency's particulate emission standards using crib wood. Under specific test conditions, this appliance has been shown to deliver heat at rates ranging from 8,699 to 24,453 Btu/hr. This appliance has a manufacturer-set minimum low burn rate that must not be altered. It is against federal regulations to alter this setting.

This appliance contains a catalytic combustor which needs periodic inspection and may require replacement to ensure proper operation. It is against federal regulations to operate this appliance if the catalytic combustor is deactivated or removed.

⚠WARNING

IF THIS APPLIANCE IS NOT PROPERLY INSTALLED OR OPERATED, A HOUSE FIRE MAY RESULT LEADING TO SERIOUS BODILY HARM AND EVEN DEATH. TO REDUCE THE RISK OF FIRE, PLEASE READ THIS ENTIRE MANUAL BEFORE INSTALLING AND OPERATING THIS APPLIANCE. CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION REQUIREMENTS IN YOUR AREA.

DO NOT OPERATE THIS APPLIANCE WITHOUT FULLY ASSEMBLING ALL COMPONENTS. DO NOT INSTALL DAMAGED, INCOMPLETE, OR SUBSTITUTE COMPONENTS. FAILURE TO POSITION COMPONENTS IN ACCORDANCE WITH THE DIAGRAMS IN THIS BOOKLET, OR FAILURE TO USE COMPONENTS SPECIFICALLY APPROVED WITH THIS APPLIANCE, MAY RESULT IN PROPERTY DAMAGE OR PERSONAL INJURY.

SMOKE DETECTORS, CARBON MONOXIDE DETECTORS, AND FIRE EXTINGUISHERS

IT IS VERY IMPORTANT TO HAVE AT LEAST ONE SMOKE DETECTOR AND ONE CARBON MONOXIDE MONITOR IN THE ROOM CONTAINING THE APPLIANCE. IT IS RECOMMENDED TO HAVE SEVERAL SMOKE DETECTORS AND CARBON MONOXIDE MONITORS POSITIONED IN KEY AREAS THROUGHOUT YOUR HOME. IF AN ALARM SOUNDS, EVACUATE THE HOME IMMEDIATELY. AFTER YOU HAVE DETERMINED THAT THERE IS NO RISK TO HEALTH OR PROPERTY, YOU MAY CORRECT THE CAUSE OF THE ALARM. DO NOT DE-ACTIVATE OR RELOCATE THE SMOKE DETECTORS OR CARBON MONOXIDE MONITORS. ALL HOMES WITH A SOLID FUEL BURNING APPLIANCE SHOULD HAVE AT LEAST ONE FIRE EXTINGUISHER IN A CENTRAL LOCATION THAT IS KNOWN TO ALL OCCUPANTS IN THE HOUSE.

CALIFORNIA PROPOSITION 65

WARNING: This product can expose you to chemicals including benzene, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information: **www.P65Warnings.ca.gov**

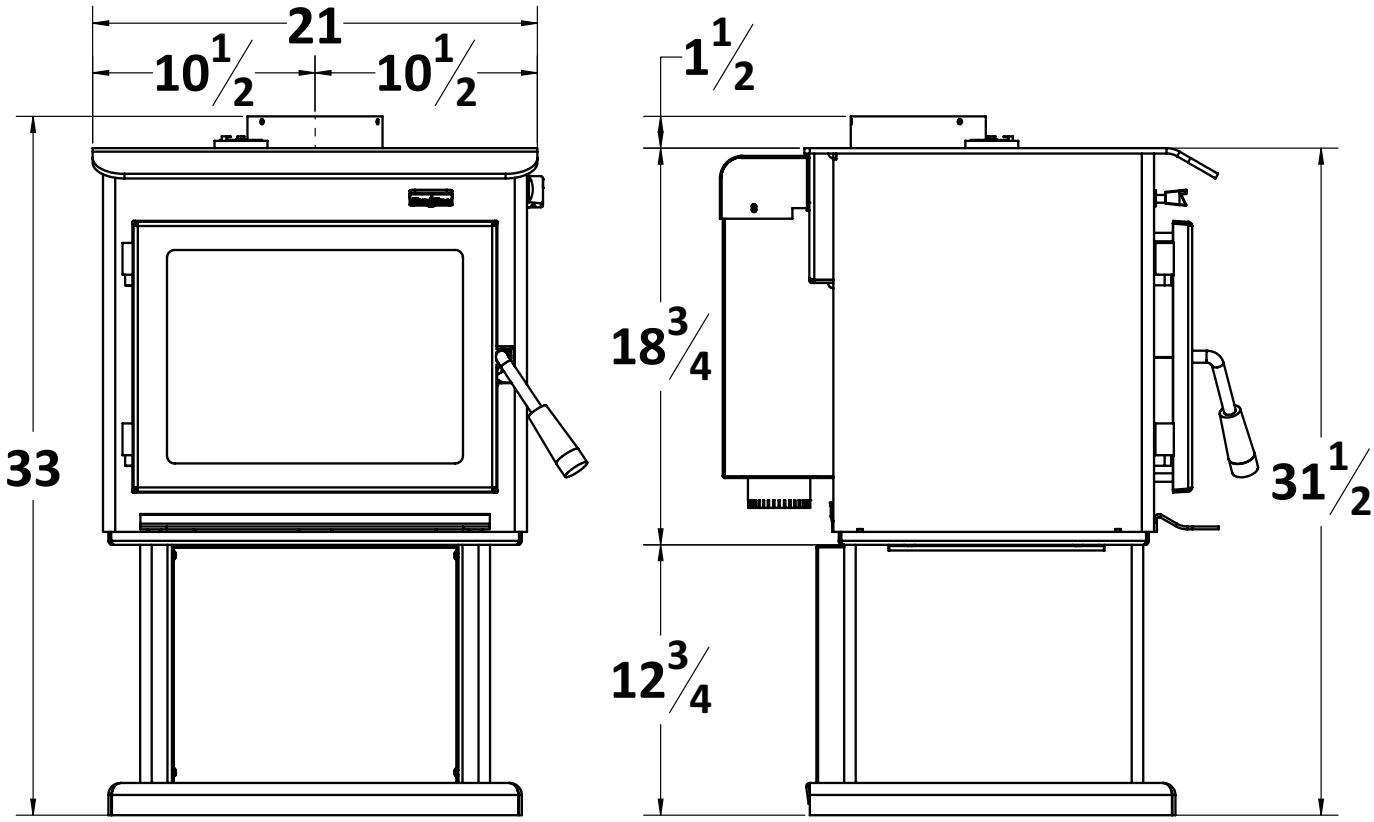
SPECIFICATIONS

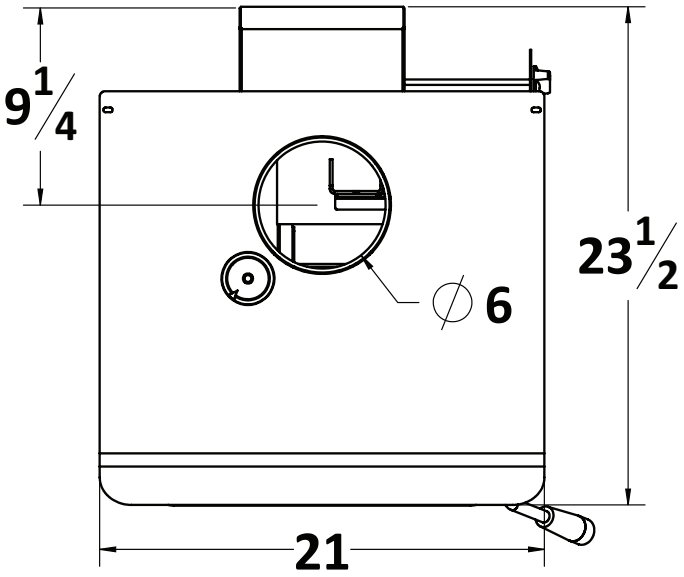
SENTRY S14 SPECIFICATIONS	
Flue Collar Opening	6” I.D. (152 mm)
Firebox Door Opening	15 1/4” x 11 1/4” (387 mm x 286 mm)
Firebox Volume	1.46 ft^3 (0.041 m^3)
Firebox Width (brick to brick)	17 1/4”
Firebox Depth (flange to brick)	13 5/8”
Tested Fuel Length	14.5” (368 mm) left to right
Wood Capacity (approximate)	White Oak - 36 lb (16.3 kg) / Douglas Fir - 25 lb (11.3 kg)
Shipping Weight	258 lb (117 kg)

PARTS INCLUDED
1. Manual Kit (w/ Warranty Cards, Catalytic Thermometer, Bypass Handle)

OPTIONAL ACCESSORY
1. S.Z6814 - Fan Kit with Convection Deck
2. S.Z6849 - Convection Deck

S14 APPLIANCE DIMENSIONS





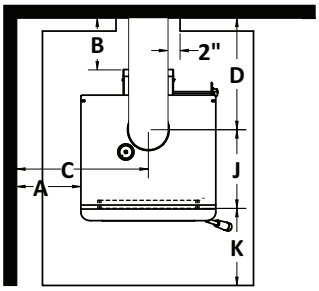
SAFETY CLEARANCES

MINIMUM CLEARANCES

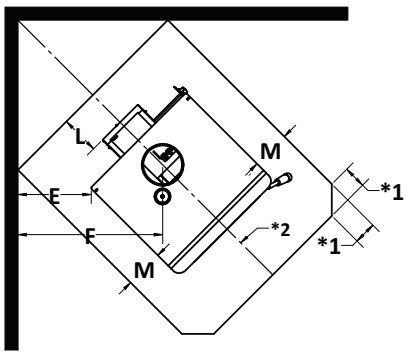
This appliance must be installed in compliance with all local codes and regulations. Minimum clearances may only be reduced by means approved by the regulatory authority. Flue pipe must be 6” diameter and 24 MSG steel construction. Do not use aluminum or galvanized steel. Refer to local codes and pipe manufacturer specs for required minimum clearances. ***In Canada, a minimum 18” (450 mm) clearance from single wall pipe is required.**

RESIDENTIAL INSTALLATIONS	A	B	* C	* D	E	* F	G	H
Roof or wall exit; parallel or corner	9.5” 242 mm	1” 26 mm	20.25” 515 mm	10.25” 261 mm	1” 26 mm	13.25” 337 mm	50.5” 1283 mm	82” 2083 mm
ALCOVE INSTALLATIONS								
Roof or wall exit; requires double-wall pipe	12” 305 mm	1” 26 mm	23.25” 591 mm	10.25” 261 mm	n/a	n/a	50.5” 1283 mm	82” 2083 mm
MOBILE HOME (USA) OR TRANSPORTABLE BUILDING (CAN) INSTALLATIONS								
Roof exit only; requires double-wall pipe and outside air								

ROOF OR WALL EXIT; PARALLEL

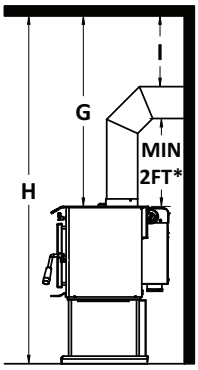


ROOF OR WALL EXIT; CORNER



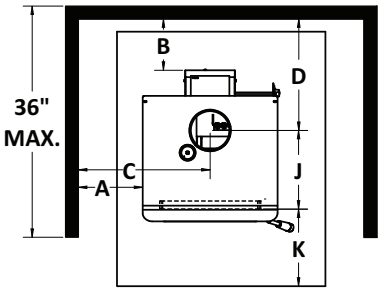
***1 = 2.25" (58 mm) IN USA / 3.5" (89 mm) IN CANADA**
***2 = 48.25" (1226 mm) IN USA / 50.25" (1277 mm) IN CANADA**

CEILING



***3ft MINIMUM RECOMMENDED**

ROOF OR WALL EXIT; ALCOVE



I = 18” (457 mm) for single wall pipe in Canada	J=12.25” (312 mm)	K = 16” (406 mm) in USA 18” (456 mm) in Canada	L = 0” (0 mm) in USA 8” (203 mm) in Canada	M = 5.25” (134 mm) in USA 8” (203 mm) in Canada

FLOOR PROTECTION

This appliance does not require thermal hearth pad floor protection; however, if installed on a combustible floor, a non-combustible floor shield must be used. In the USA, this floor shield must extend 16” out from the front and 8” out from either side of the fuel-loading door. In Canada, to comply with CSA B365, any combustible covering beneath the appliance and/or within the area extending horizontally at least 18” (450 mm) beyond the appliance on any side equipped with a door, and at least 8” (200 mm) beyond the appliance on other sides, shall be protected by a continuous, durable, non-combustible pad that will provide ember protection. The 18” (450 mm) ember protection required on any side with a door shall extend for the full width of the appliance plus the 8” (200 mm) required on each side of the appliance without a door. Where an appliance is installed less than 8” (200 mm) from a wall, the ember pad need only extend to the base of the wall. An ember pad shall not be placed on top of a carpet unless the pad is structurally supported to prevent displacement and distortion.
A non-combustible shield is also required underneath the chimney connector and extend at least 2” on either side of the chimney connector. This shield does not need an insulation value, but must be listed under UL 1618-2009 (Type 1) and have a minimum size of:

31.75” x 37.5” (807 mm x 953 mm) in USA and 37” x 47.5” (940 mm x 1207 mm) in Canada

Blaze King does not recommend adhesive based vinyl flooring in front of appliances due to thermal expansion and warping which could be permanent.

⚠WARNING

DO NOT CONNECT TO OR USE THIS APPLIANCE IN CONJUNCTION WITH ANY AIR DISTRIBUTION DUCTWORK UNLESS SPECIFICALLY APPROVED FOR SUCH INSTALLATIONS
THIS APPLIANCE MUST BE CONNECTED TO: 1) A CHIMNEY COMPLYING WITH THE REQUIREMENTS FOR TYPE HT CHIMNEYS IN THE STANDARD FOR CHIMNEYS, FACTORY-BUILT, RESIDENTIAL TYPE AND BUILDING HEATING APPLIANCE, UL 103, OR 2) A CODE-APPROVED MASONRY CHIMNEY WITH A FLUE LINER. FAILURE TO DO SO MAY RESULT IN A HOUSE FIRE CAUSING SERIOUS BODILY HARM.

COMBUSTION AIR

In air tight homes (most modern construction), careful considerations must be taken into account before installing a wood burning appliance. It is important to ensure there is adequate intake (combustion) air for all exhausting type appliances within the dwelling. Heat recovery ventilator (HRV) systems along with constant running fan motors in air handlers are examples of appliances that must be taken into account when balancing intake air (others include fireplaces, range hoods, dryers, etc.). When outside air connects directly to the stove's rear, it is strongly recommended that the fresh air pipe's outside termination be no higher than the rear connection. Otherwise, flue gases may reverse through the intake, causing fire, property damage, or death Consult a HVAC specialist for proper installation practices.

DRAFT PERFORMANCE

Draft is the movement of combustion air into the appliance and out through the chimney as exhaust gas. In essence, it is the difference in pressure between the exhaust gas inside the chimney and the outside air that creates this movement. Warmer, lighter exhaust gasses in the chimney tend to move upward. The amount of draft created by your chimney can depend on chimney length, horizontal offsets, insulating properties, local geography, external forces, and other factors. External factors (outdoor temperature, wind, barometric pressure, topography, etc.) or internal factors within the dwelling (negative pressure from exhaust fans, chimneys, air infiltration, etc.) may adversely affect draft.

Too much draft can yield very high temperatures within the appliance and may result in damage. An uncontrollable burn or excessive room temperatures are indicators of too much draft. Too little draft may cause back puffing (smoke spillage) into the room and plugging of the chimney, chimney cap, or spark arrestor screen. Inadequate draft can also lead to low heat output and the inability for the combustor to remain active at low burn rate settings. Your Blaze King heater is a high efficiency appliance and will require fine tuning of your chimney system in order to maximize draft performance. **Blaze King cannot be responsible for external forces leading to less than optimal draft performance.**

ROLE OF THE CHIMNEY

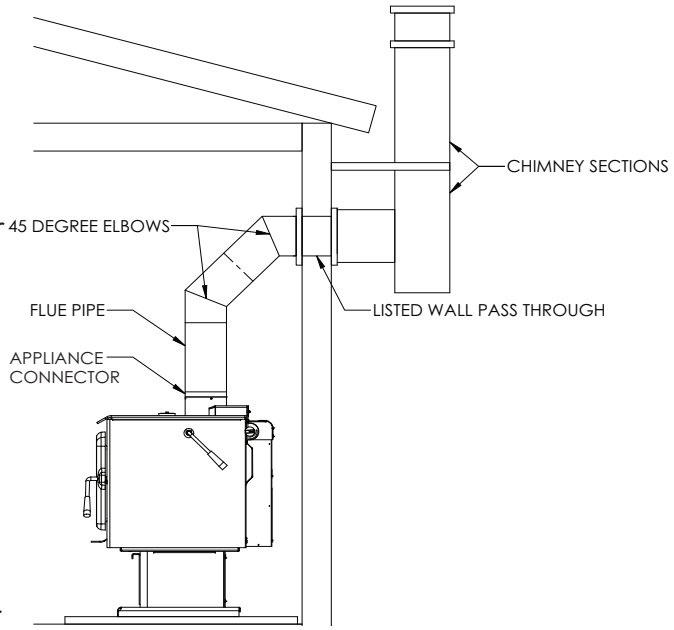
The role of the chimney is to maintain sufficient draft to achieve complete combustion. To ensure maximum performance, Blaze King recommends a minimum vertical chimney height of 15 ft (from stove top to termination) when installing an appliance at sea level (and up to 1000 ft of elevation). For freestanding installations, it is also recommended to use double wall pipe from stove top adaptor to ceiling support box. Double wall pipe helps to keep the chimney warm and improve draft performance. For wall exit installations, a vertical length of 3 ft from stove top to elbow is recommended. It is also recommended to use a pair of 45 degree elbows rather than a single 90 degree elbow to allow for a smoother transition of airflow. When possible, outside chimney systems should be isolated from the external environment by building a chase around the chimney. Doing so will help keep the chimney warm and maintain sufficient draft (please refer to the "***RECOMMENDED FLUE HEIGHTS***" section). **Without a properly installed chimney, this appliance will not operate at its maximum performance which could yield incomplete combustion.**

CHIMNEY CONNECTIONS

VENTING SYSTEM

A venting system consists of:

- Appliance Connector - a “stove top adaptor” that creates a positive connection between the appliance and flue pipe.
- Flue Pipe - either single or double wall pipe that is only used within the room, connecting the appliance to either a ceiling box or wall pass through.
- Chimney - a listed, factory built component with either 1” or 2” insulation that is suitable for use with solid fuels, conforming to CAN/ULC-S629 in Canada or UL 103HT in the USA. Note: This appliance may also be connected to a code compliant Masonry Chimney.

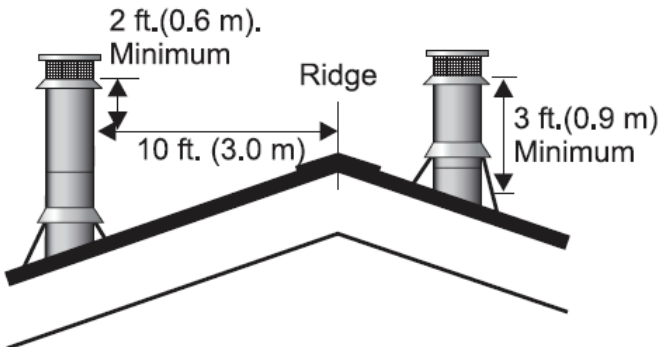


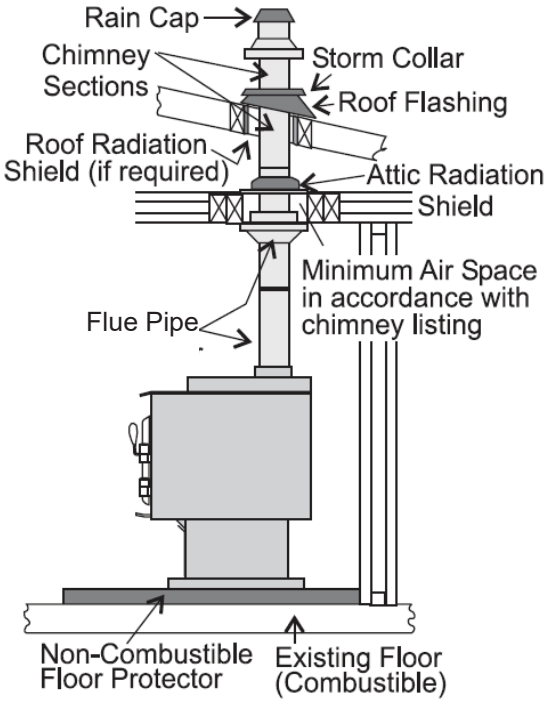
Do not install the chimney directly at the outlet of the appliance. A chimney connector is required unless the appliance is specifically approved for that type of installation. The flue pipe between the appliance connector and chimney should be kept as direct as possible. Do not use a flue pipe to pass through an attic or roof space, closet or similar concealed space, or a floor or ceiling. All joints within the venting system must be securely fastened with sheet metal screws. A chimney support package must be used when a connection is made through a ceiling to a listed prefabricated chimney. A listed wall thimble must be used when a connection is made through a combustible wall to a chimney. These accessories are necessary to provide safe clearances to combustible walls and ceilings as these components can get extremely hot during use. In the event of a creosote fire, temperatures inside the chimney may exceed 2000F (1100°C). An effective vapor barrier must be maintained at the location where the chimney or vent component penetrates the exterior structure. Do not connect this appliance to a chimney serving another appliance, doing so will affect the safe operation of both appliances and will void warranty. You must comply with the local authority having jurisdiction and, in Canada, CSA installation standard B365-M87.

CONNECTION TO A METAL PREFABRICATED CHIMNEY

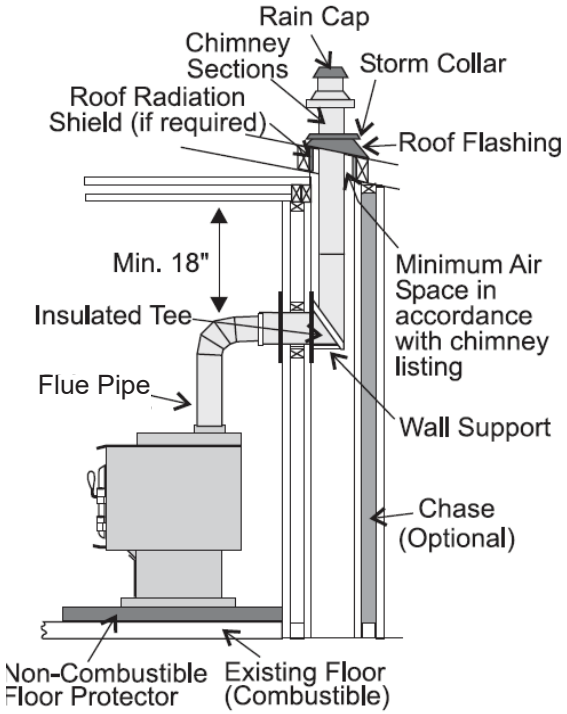
Refer to the prefabricated chimney manufacturer’s installation instructions to ensure safe clearance to combustibles are maintained when installing. All components (ceiling support package or wall pass through and “T” section package, fire stops, insulation shield, roof flashing, chimney cap, etc.) must be purchased from the same prefab chimney manufacturer. There are two common methods of a prefab chimney installation: the recommended method is to install the chimney inside the dwelling up through the ceiling(s) and the roof, while the alternative method is to install an exterior chimney that runs up the outside of the structure. Though not recommended, the alternative method is sometimes it is the only option. In that case it is recommended to build a chase around the external chimney.

The chimney must meet a minimum height above the roof and/or other obstruction(s) for safety purposes and to ensure sufficient draft. It is required that the chimney be at least 3ft higher than the highest point where it passes through the roof and at least 2ft higher than the highest part of the roof or any obstruction within 10ft (measured horizontally) of the chimney. Refer to the “***RECOMMENDED CHIMNEY HEIGHTS***” chart for minimum flue height recommendations and CAN/ULC-S629 in Canada or UL-103HT in the USA for installation codes.





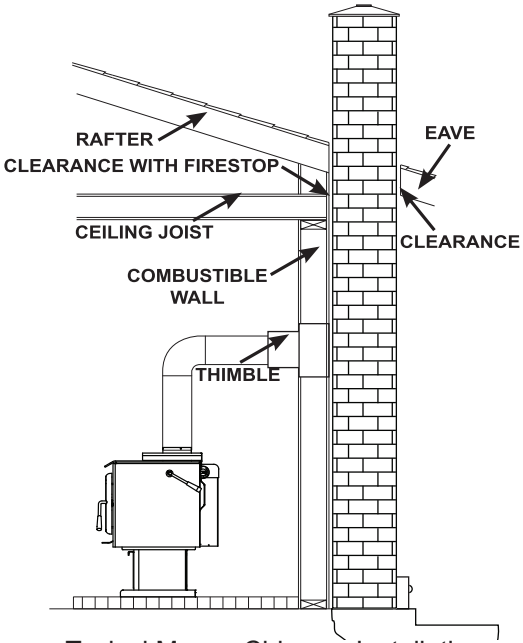
Prefab Chimney Through Ceiling Installation



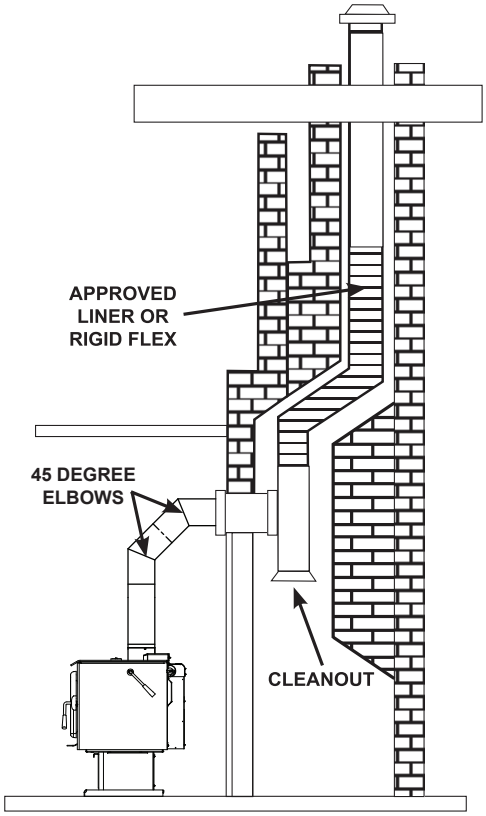
Prefab Chimney Exterior Installation

CONNECTION TO A MASONRY CHIMNEY

First and foremost, ensure the masonry chimney meets the minimum standards per the National Fire Protection Association by having it inspected by a certified professional. There must be no cracks, no loose mortar, and no signs of deterioration or blockage. Ensure the chimney is properly cleaned before installing the appliance. When connecting the appliance through a combustible wall, special methods are required; refer to local jurisdiction for the approved methods of passing a chimney connector through a combustible wall in your area (In the USA, refer to the NFPA minimum standards, and in Canada, refer to CAN/CSA-B365, the Installation Code for Solid Fuel Burning Appliances and Equipment). **Blaze King recommends the use of a stainless steel liner, preferably insulated, inside a masonry chimney. This is to help maintain a proper draft to achieve optimal performance of the appliance.**



Typical Mason Chimney Installation



Blaze King Recommend Installation

RECOMMENDED CHIMNEY HEIGHTS

Every installation is unique, especially when considering geographical location. As previously mentioned, maintaining sufficient draft is of utmost importance, but this can be a challenge as draft can be heavily influenced by topographical and geographical phenomena. The understanding of pressure planes and the stack effect are imperative in planning and executing a successful installation.

As previously mentioned, Blaze King recommends a minimum vertical chimney height of 15 feet (from stove top to termination) when installing an appliance at sea level (and up to 1000 feet of elevation). If the install is at a higher elevation, please refer to the table below for recommended chimney heights:

MINIMUM RECOMMENDED CHIMNEY HEIGHT				
ELEVATION ABOVE SEA LEVEL	**NUMBER OF ELBOWS**			
	0	**2 X 15°**	**2 X 30°**	**2 X 45°**
0 - 1000 ft 0 - 305 m	15 ft 4.6 m	16 ft 4.9 m	18 ft 5.5 m	19 ft 5.8 m
1000 - 2000 ft 305 - 610 m	15.5 ft 4.7 m	16.5 ft 5.0 m	18.5 ft 5.6 m	19.5 ft 5.9 m
2000 - 3000 ft 610 - 914 m	16 ft 4.9 m	17 ft 5.2 m	19 ft 5.8 m	20 ft 6.1 m
3000 - 4000 ft 914 - 1219 m	16.5 ft 5.0 m	17.5 ft 5.3 m	19.5 ft 5.9 m	20.5 ft 6.2 m
4000 - 5000 ft 1219 - 1524 m	17 ft 5.2 m	18 ft 5.5 m	20 ft 6.1 m	21 ft 6.4 m
5000 - 6000 ft 1524 - 1829 m	17.5 ft 5.3 m	18.5 ft 5.6 m	20.5 ft 6.2 m	21.5 ft 6.6 m
6000-7000 ft 1829 - 2134 m	18 ft 5.5 m	19 ft 5.8 m	21 ft 6.4 m	22 ft 6.7 m
7000 - 8000 ft 2134 - 2438 m	18.5 ft 5.6 m	19.5 ft 5.9 m	21.5 ft 6.6 m	22.5 ft 6.9 m
NOTE: No more than one offset (two elbows) are allowed. Two 45°elbows equal one 90° elbow				

For other common chimney components, use the following vertical height(s) to compensate for:

90° elbow = 2.0 ft (0.610 m)
"T" section = 3.0 ft (0.915 m)
1.0 ft (0.305 m) of horizontal run = 2 ft (0.610 m) of vertical rise

Example Chimney Height Calculation (at sea level):

Min Chimney Height = 15.0 ft (4.575 m)
One 90° Elbow = 2.0 ft (0.610 m)
2.0' Horizontal Run = 4.0 ft (1.200 m)
One Base "T" = 3.0 ft (0.915 m)
Final Chimney Height = 24.0 ft (7.3 m)

The above figures are only guidelines, please refer to the "***DRAFT PERFORMANCE"*** section.

⚠WARNING

IF THIS APPLIANCE IS NOT PROPERLY INSTALLED OR OPERATED, A HOUSE FIRE AND/OR PERSONAL INJURY MAY RESULT. TO REDUCE THE RISK OF FIRE AND PERSONAL INJURY, FOLLOW THE INSTALLATION INSTRUCTIONS. CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION REQUIREMENTS IN YOUR AREA.

FACTORY BUILT FIREPLACES

Do not install this appliance in a factory built fireplace.

ELECTRICAL CONNECTION

Your Blaze King fan kit (if equipped) uses a three-prong (grounded) plug to decrease shock hazard. This plug should be inserted directly into a properly grounded, three hole receptacle. DO NOT CUT OR REMOVE THE GROUNDING PRONG FROM THIS PLUG. DO NOT ROUTE THE POWER CORD IN FRONT OF OR UNDER THE APPLIANCE.

MOBILE HOME or TRANSPORTABLE BUILDING INSTALLATION

For Mobile Home (in USA) or Transportable Building (in Canada) installations, outside air is required. It is recommended that outside air hose and termination be installed prior to appliance installation.

OUSTSIDE AIR

A outside air intake hose is a flexible metal tube (not supplied with the unit). It is used to supply combustion air into the appliance from an outdoor environment. It can be installed through an external wall or up through the floor **(CAUTION: THE STRUCTURAL INTEGRITY OF THE FLOOR, WALL, AND CEILING / ROOF, MUST BE MAINTAINED)**, this hose must be kept open at all times. Note for mobile home installations: Under no circumstances should the termination of the fresh air intake penetrate a wall at a location higher than the bottom of the intake air channel on the rear of the appliance.

PREFABRICATED CHIMNEY

When a metal prefabricated chimney is used, the manufacturer's installation instructions must be followed precisely. The ceiling support package must be purchased from the same manufacturer (ie. fire stops, insulation shield and roof flashing, chimney cap, etc). Be sure to maintain required safe clearances to combustibles as recommended by the manufacturer. The flue pipe must be double wall, close clearance type with either CAN/ULC-S629 or ULCS610 designation (single wall pipe is not allowed). Insulated chimney components must be a listed factory built chimney suitable for usewith solid fuels and conforming to, CAN/ULC-S629 in Canada or UL-103HT in the USA. Where the space heater is installed in mobile home or transportable building, removal of the chimney is required for transportation of the building.

⚠WARNING

THE APPLIANCE MAY ONLY BE INSTALLED IN AN OPEN AREA THAT IS NOT USED FOR SLEEPING. UNDER NO CIRCUMSTANCES SHOULD THE APPLIANCE BE INSTALLED INSIDE A BEDROOM. FAILURE TO COMPLY MAY LEAD TO SERIOUS BODILY HARM IN THE EVENT OF A HOUSE FIRE.

For mobile home or transportable building installations, the appliance must be securely fastened to the floor using a #10 screw and washer through the hole in the pedestal base to secure the stove to the floor. **(Fig. 1)**

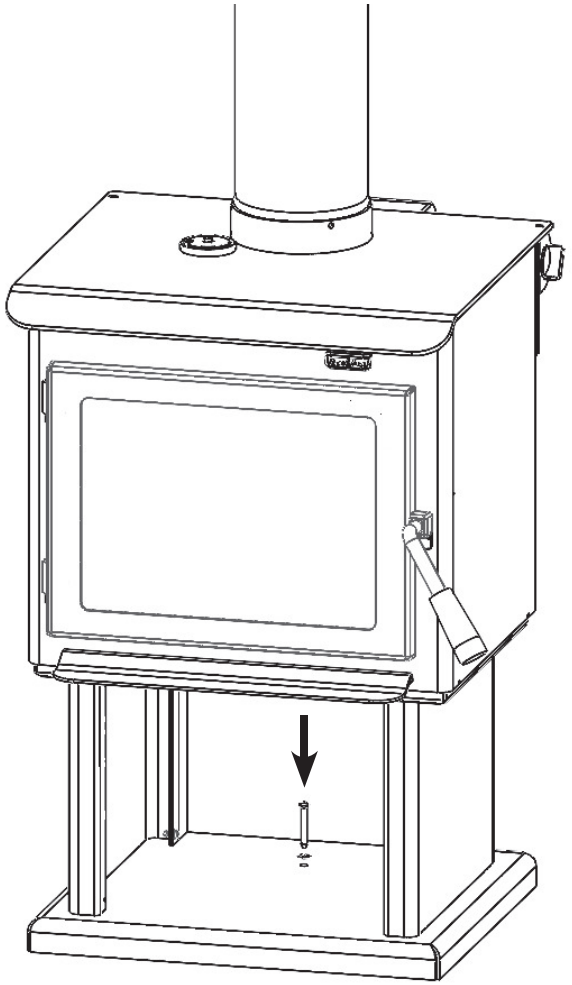


Fig. 1

OPTIONAL ACCESSORIES

FAN KIT (S.Z6814) - Please see installation instructions provided with the fan kit, this kit includes a convection deck.

CONVECTION DECK (S.Z6849) - Please see installation instructions provided with the convection kit.

DOOR CHANGE-OUT

To install the door upon appliance installation or to change it out, follow these steps:

1. Align bottom door hinge hole with bottom firebox hinge pin. (**Fig. 2**)
   Note: Door is heavy, hold firmly.

2. Lower door onto bottom hinge pin, then align top door hinge hole with top firebox hinge pin.

3. Lower door onto pins until door hinge surface contacts firebox hinge surface.



Fig. 2

⚠WARNING

DO NOT OPERATE THIS APPLIANCE WITH THE LOADING DOOR UNINSTALLED OR LEFT OPEN. DOING SO MAY LEAD TO A RUN AWAY FIRE RESULTING IN PROPERTY DAMAGE.

YOUR FIRST FIRE!

The following pages contain information on the operation of the major components on your Blaze King appliance. Please take the time to read through this section as it will give you a better understanding of how your appliance works. This understanding will help you to operate your appliance at its optimum level thus extended its life while allowing you to get the highest efficiencies from your heater.

INTRODUCTION

All Blaze King wood burning appliances are designed as radiant room space heaters. They have been tested and certified to be installed in insulated, habitable rooms within your dwelling. The appliance has not been designed to be installed in a concrete, uninsulated basement or in a shop/garage environment. Such applications may cause the thermostat to be unresponsive due the constant call for heat resulting in appliance being in a constant over fire situation. **Consequential damage from this type of operation will deem the warranty null and void.**

All Blaze King wood appliances are designed to burn cord wood only. Dimensional timber off cuts, very low moisture content small diameter wood and pressed wood logs, when used in excess, may result in excessive internal firebox temperatures that can cause irreversible damage to the firebox's internal structure. Excessive temperatures can be caused by many small pieces of very low moisture content wood being used as a primary fuel source. This may be evident by warping or warped internal plates and retainers, possible cracking of the outer firebox and possibly premature failure of the catalytic combustor. All wood appliances should be cleaned out and inspected at the end of every burning season to identify if any internal components have been affected during the burning season. If problems are observed steps must be taken to identify and correct the problem before the subsequent burning season. Failure to do so will result in the warranty of the product being null and void.

EFFICIENCY

Efficiency was determined using the method outlined in B415.1-10 test method. It is represented by the Higher Heating Value (HHV) as the fuel used during testing contains between 19% - 25% water moisture included in the total calculated fuel weight. (Other test methods such as LHV or Low Heating Value, does not take the water moisture into account). The weighted average efficiency of this appliance is: 78.4%HHV and 84.7%LHV

Annual Fuel Utilization Efficiency (AFUE) attempts to represent the actual, season long, average efficiency of an appliance. HHV is the actual, calculated average efficiency obtained under test conditions. Using correctly seasoned wood is important when trying to gain efficiency. The more seasoned (dry) the wood, the higher the efficiency (less energy wasted on eliminating moisture during combustion). Operating your Blaze King at lower settings will result in higher efficiencies as the fuel will undergo a more complete combustion. For maximum efficiency, the appliance should be installed in a location that provides adequate intake/combustion air as well as a location that will allow for the straightest run of optimal chimney length to establish necessary draft.

FAN OPERATION

Fans are an optional item for most Blaze King appliances. If fans are installed on your appliance, they should be turned off until the stove reaches normal operating temperatures. Approximately 30 minutes after a fire has been established within the appliance, the fan speed should match the thermostat control setting. (i.e. if your thermostat is set to a medium heat output then your fan should also be set at medium, low—low, high—high etc.). We recommend the use of fans on all of our wood appliances. The fan system recirculates room air over the hot surfaces of your appliance and helps spread this super heated air around your home.

SELECTING WOOD

It takes a great deal of energy to evaporate the moisture contained in green or wet wood and that energy will not be heating your home. Green or wet wood will also greatly increase creosote issues. To ensure that your wood fuel has a moisture content of 20% or lower, only use seasoned wood that has been split, stacked, and protected from rain or snow for at least 24 months. Firewood should be split and stacked in a manner that allows for air flow to all areas.

Both hardwood and softwood burn equally well in this appliance, but the more dense hardwood will weigh more per cord and burn a little slower and longer. Never burn salt-water driftwood as it is very corrosive and will deteriorate the structure of the appliance. The burning of salt-water driftwood will void the warranty. The only way to accurately determine wood moisture is to purchase and measure with a moisture meter.

⚠WARNING

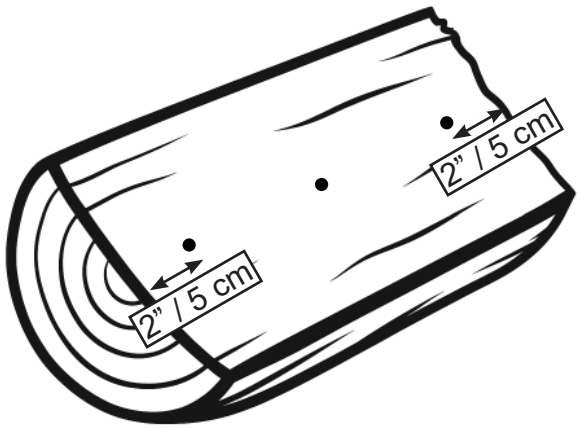
THIS APPLIANCE IS DESIGNED TO BURN NATURAL WOOD ONLY. DO NOT BURN WET UNSEASONED WOOD. DOING SO CAN CAUSE EXCESSIVE CREOSOTE ACCUMULATION AND IF IGNITED, CAN CAUSE A CHIMNEY FIRE THAT MAY RESULT IN A HOUSE FIRE CAUSING SERIOUS BODILY HARM. BURNING AIR DRIED SEASONED WOOD WILL REDUCE THE RISK OF CHIMNEY FIRES AND YIELD HIGHER EFFICIENCIES AND LOWER EMISSIONS.

HOW TO USE MOISTURE METERS

1. Randomly select three logs from your wood pile. Place sample logs in your home for 24 hours. Split each one down the middle after allowing the logs to acclimatize to room temperature.

2. Three points of measurement are required to determine the moisture content of each log: 2” (5 cm) from either end and in the middle of the split surface of the log. To take these measurements, insert the moisture meter pins at the points described, keeping the pins in line with the wood grain. Record each measurement.

3. Do this to all three logs and take an average of the readings (this is an approximate indication).



⚠WARNING

DO NOT BURN TREATED WOOD, COAL, CHARCOAL, COLORED PAPER, CARDBOARD, SOLVENTS OR GARBAGE. BURNING THESE MATERIALS MAY RESULT IN THE RELEASE OF TOXIC FUMES AND/OR CARBON MONOXIDE WHICH MAY RESULT IN POISONING. DO NOT BURN GARBAGE OR FLAMMABLE FLUIDS SUCH AS GASOLINE, NAPHTHA, OR ENGINE GEL. DO NOT USE CHEMICALS OR FLUIDS SUCH AS GASOLINE TYPE LANTERN FUEL, KEROSENE, OR CHARCOAL LIGHTER FLUID TO START OR FRESHEN UP A FIRE IN THIS APPLIANCE. DOING SO MAY LEAD TO OVER FIRING RESULTING IN A HOUSE FIRE AND SERIOUS BODILY HARM. KEEP ALL SUCH LIQUIDS AWAY FROM THE HEATER WHILE IT IS IN USE.

BYPASS DOOR & BYPASS HANDLE

This catalytic wood burning appliance is fitted with a bypass door which allows exhaust from the fire to temporarily bypass the catalytic combustor. The bypass door is located inside the dome of the firebox at the top of the appliance. To open the bypass door, use the bypass handle to grab the **side of the bypass latch** (**Fig. A)** to pull the rod outward. To close, position the bypass handle on the **center of the bypasss latch** (**Fig. B**) and push inward.

⚠WARNING

DO NOT TOUCH THE BYPASS LATCH DIRECTLY AS DIRECT CONTACT MAY CAUSE SERIOUS BURNS. ALWAYS USE THE BYPASS HANDLE TO MANUVER THE BYPASS LATCH.



Fig. A



Fig. B

CATALYTIC THERMOMETER

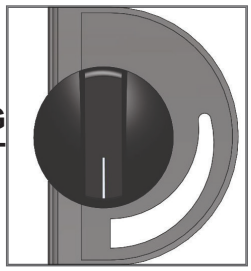
The catalytic thermometer is located on the top of the appliance. Its sole purpose is measure the exhaust gasses after they have passed through the combustor to indicate whether the combustor is ACTIVE or INACTIVE. It is important to ensure that the appliance is operated in the ACTIVE zone. When the thermometer reads INACTIVE it means that the combustor temperature is below 500F and is not producing a clean burn. For the most accurate reading, turn the fan off for approximately 5 minutes before reading the thermometer. For calibration instructions, please refer to the "***MAINTENANCE***" section.

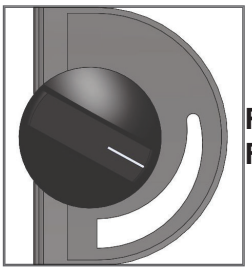


THERMOSTAT

The thermostat is located at the rear of the appliance and is controlled by the thermostat knob which is located at the upper right rear corner of the appliance. When the knob is positioned at the HIGH setting, the appliance will operate at its highest burn rate and deliver its maximum heat output. As the knob is rotated counter clockwise the burn rate will decrease along with heat output. Burn rate is greatly influenced by location, installation, and external environment, so you may find it necessary to reposition the knob until you find the ideal setting to suit your situation. Please note that all adjustments to the thermostat should be done gradually as too rapid a change may cause the thermostat to operate improperly. The thermostat 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.

HIGH SETTING
MAXIMUM HEAT OUTPUT

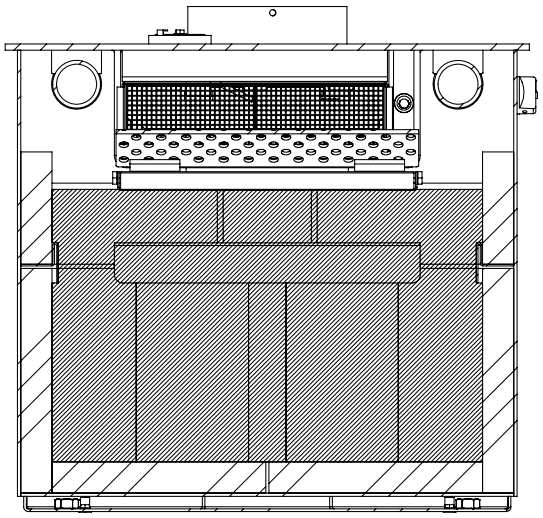




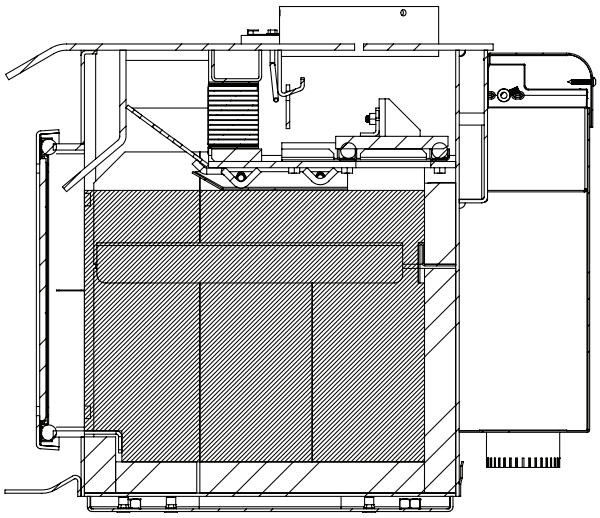
ROTATE COUNTER CLOCKWISE
FOR REDUCED HEAT OUTPUT

USABLE FIREBOX LOADING AREA

Your Blaze King wood heater is designed and tested to be an exceptionally clean burning and highly efficient heater. To obtain both clean burning and utmost efficiencies, you should **ONLY** load fuel in the area indicated by the grey shaded area in the image below. Attempting to load fuel in any additional space will void your warranty and represents a safety hazard.



Inside fuel loading area - FRONT VIEW



Inside fuel loading area - SIDE VIEW

LIGHTING THE FIRE

NOTE: As you heat up the appliance for the first time, the paint will go through a curing process and will give off a strong odor coupled with smoke. To minimize the inconvenience, burn the stove at a low temperature setting for several hours. It is recommended to open a door or window until the odor and smoke dissipates. You may also notice a change in color as the paint cures, this is normal and will appear uniform after subsequent firings.

1. **ENSURE ALL BRICKS ARE CORRECTLY POSITIONED INSIDE THE FIREBOX AND BUILD THE FIRE DIRECTLY ON THE BRICK IN THE BOTTOM OF THE STOVE. DO NOT USE A GRATE.**
2. Position the thermostat to the **HIGH** setting and turn the fan (if equipped) **OFF**.
3. Open the bypass then open the loading door.
4. Place 10 balls of non-glossy paper towards the front of the bottom of the firebox then stack 20 pieces of kindling on top of the paper in a crisscross fashion (leaving air gaps in between sticks).
5. Light the fire and allow it to get a good start while leaving the loading door cracked open. **DO NOT LEAVE THE STOVE UNATTENDED.**
6. Once the kindling is fully on fire, place two or three medium size logs onto the fire. Keeping the loading door unlatched, allow the logs to catch fire. **DO NOT LEAVE THE STOVE UNATTENDED.**
7. Once the logs are burning, latch the loading door shut. Once loading door is closed and combustor temperature begins to climb, close the bypass door, turn fan(s) on to high (if equipped). Leaving the loading door open after the wood load has caught fire may cause premature failure of the catalytic combustor.
8. When nearly all of the wood in the firebox is fully burning and the catalytic thermometer is in the active zone, open the bypass door and loading door, and finish loading the appliance. Lay the wood as far back in the stove as possible. Latch the loading door shut, and close the bypass door.
9. Let the fire burn with the thermostat at the **HIGH** setting until the fire is well established. This ensures that the stove, catalyst, and wood load are all stabilized at optimum operating temperatures. The temperature in the stove and the gases entering the combustor must be raised to at least 500F (indicated by the thermometer needle in the **ACTIVE ZONE**) for catalytic activity to be initiated.
10. Gradually turn the thermostat down to the desired heat output setting once the fire is well established. Please note that if the thermostat is turned down too low too quickly, the fire may go out or the combustor may stop working, indicated by the thermometer needle falling into the **INACTIVE ZONE**. If this happens, simply turn the thermostat back to a higher heat output setting to let the fire reestablish itself.
11. Turn the fan (if equipped) on after the initial warm up.

Probably the least understood requirement of maintaining a good fire is that of establishing a good base of coals or embers. A glowing hot coal bed will help to maintain more even temperatures as well as assist in relighting the next fuel load. Put as much wood into the appliance as needed, practice will teach the amount of wood necessary to keep the fire going until the next reloading time. Don't be afraid to fill it completely if necessary. With the Blaze King thermostat, the wood will only burn at the rate set on the thermostat. Once the fire is established, the appliance should be left to complete the full burn cycle. This is evident by a) only a glowing coal bed (ember bed) remaining or b) the catalytic thermometer hovers just inside the active zone. Following this procedure will maximize the efficiency of the appliance as well as limit exhaust emissions and smoke spillage.

⚠WARNING

DO NOT BUILD THE FIRE TOO CLOSE TO THE DOOR GLASS, REFER TO *"USABLE FIREBOX LOADING AREA"* ON THE PREVIOUS PAGE

RELOADING PROCEDURE

WHEN PREPARING TO RELOAD, IF THE NEEDLE ON THE CATALYTIC THERMOMETER IS STILL IN THE ACTIVE ZONE, FOLLOW THE PROCEDURE BELOW; IF THE NEEDLE HAS DROPPED INTO THE INACTIVE ZONE, REFER BACK TO THE "LIGHTING THE FIRE" PROCEDURE ON THE PREVIOUS PAGE.



It is important to note that the catalytic thermometer is simply displaying the temperature of the catalytic combustor. It may be used as an aid when it comes to identifying a reload point, but other factors such as lack of fuel in the firebox or dropping room temperatures should be used as well.

1. Have your next load of wood ready before beginning. Turn the thermostat to **HIGH** to ensure the remaining coal bed is active before reloading. Wait a few minutes for the air flow to stabilize.
2. To help minimize smoke spillage into the room, open the bypass door and again wait a few minutes for the air flow to stabilize.
3. Open the bypass door and crack open the loading door to allow ambient room air to be introduced into the firebox, this may take a minute to stabilize.
4. Slowly open the loading door and proceed to reload the firebox. If you experience excessive smoke spillage, slightly close the loading door to re-establish a draft through the chimney.
5. Once loaded, latch the loading door shut and (if opened) close the bypass door immediately. Let the fire burn on the HIGH thermostat setting until the fire is well established. At that point, turn the thermostat down to the desired setting. Keep in mind, you may not see a large amount of flame activity in the lower thermostat setting. The thermometer needle will remain in the active zone indicating that the burn cycle is continuing.
6. Should you burn the stove on a very low setting for extended periods of time, you will begin to see creosote deposits forming on the glass door. To remove these deposits, simply run the stove on **HIGH** for approximately 30 minutes. The **HIGH** setting will burn off most of the deposits.

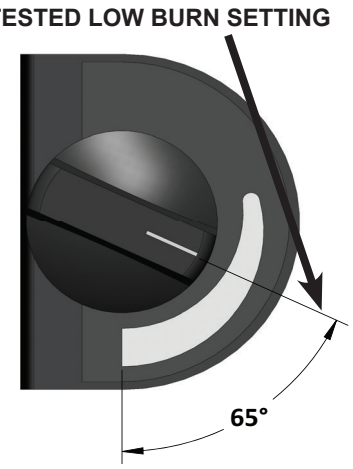
Note: Our loading instructions are outlined in general terms due to the variables that arise with each installation. Such variables include type of wood fuel, chimney height and configuration, installation altitude, seasonal weather conditions, draft, and the desired heat output required. Over time you will learn which settings are necessary to achieve optimal performance with your specific installation.

⚠WARNING

THIS APPLIANCE IS HOT WHILE IN OPERATION. CHILDREN AND PETS MUST BE KEPT FROM TOUCHING THE APPLIANCE WHEN IN USE. COMBUSTIBLE OBJECTS MUST BE KEPT A MINIMUM OF 48"(1219 MM) FROM THE FRONT OF THE APPLIANCE. COMBUSTIBLE MATERIAL SUCH AS CLOTHING OR FURNITURE PLACED TOO CLOSE TO THE APPLIANCE CAN CATCH FIRE. DO NOT STORE WOOD WITHIN THE SPECIFIED SAFETY CLEARANCES OR WITHIN THE SPACE REQUIRED FOR RE-FUELING AND ASH REMOVAL. FAILURE TO COMPLY MAY CAUSE SKIN BURNS OR RESULT IN A HOUSE FIRE CAUSING SERIOUS BODILY HARM.

OPTIMAL LOW BURN THERMOSTAT SETTING

Your Blaze King appliance was tested and certified in accordance to the New Source Performance Standards for Residential Wood Heaters. During this test series, the low burn rate of the unit was determined by setting the thermostat knob to a position that yielded the lowest burn rate achievable. If you find that you are setting your thermostat beyond the test setting, please note that if the thermostat is turned down too low the fire will go out or the combustor may stop working which is indicated by the thermometer needle falling into the **INACTIVE ZONE**. If this happens, simply turn the thermostat back to a higher heat output setting and let the fire reestablish itself.



WOOD BURNING IN THE SHOULDER SEASON

There are a few things to consider if you choose to light a fire during the spring or fall seasons when the outside temperature is milder, perhaps 55F to 70F (13°C to 21°C).

You may notice smoke spillage out of the loading door when it is opened during start up or reloading. This is caused by a lack of natural draft within the chimney system. The temperature difference between the chimney system and the outside air causes flue gasses to be drawn up and out of the chimney. Smaller temperature differences produce less draft in your chimney system than larger temperature differences. This air movement, referred to as Stack Effect, is also influenced by air density and moisture differences. To eliminate the smoke spillage you may have to stoke the fire for longer than usual. Once the fire warms the chimney the draft will improve and spillage will be reduced. When operating the appliance on a lower thermostat setting, the resultant lower flue temperatures can cause your chimney system to cool down. This also decreases natural draft and spillage may occur.

General Rules for burning in the shoulder season:

- Run your appliance on **HIGH** for 30 minutes after start up and reloading before gradually turning the thermostat down to the desired heat output setting.
- The thermostat setting needs to be high enough to keep the catalytic thermometer in the active zone. If the thermometer will not stay in the active zone, turn the thermostat to a higher setting and then wait 15 minutes to confirm that the thermometer remains in the active zone. Repeat as required.
- If your appliance is producing too much heat, try to reduce the volume of wood fuel loads rather than turning your thermostat down. It is good burning practice to build smaller, hotter fires on milder days in the spring and fall.

ICE - FORMATION AND PREVENTION

Most of what you see coming from the chimney of a properly operating catalytic appliance is water vapor. In extremely cold weather, and with some exterior chimneys, this vapor may freeze in the chimney to the point of actually blocking the chimney and extinguishing the fire. In such weather, burn the appliance for 5 to 10 minutes with the thermostat set to **HIGH** to melt any possible ice build.

⚠WARNING

DO NOT OPERATE THIS APPLIANCE WITHOUT THE CATALYTIC COMBUSTOR INSTALLED. DOING SO WILL LEAD TO EXCESSIVE SMOKE AND TEMPERATURES THAT COULD RESULT IN A HOUSE FIRE CAUSING SERIOUS BODILY HARM. ONLY BURN SEASONED WOOD. FAILURE TO DO SO MAY DAMAGE THE COMBUSTOR AND WILL VOID ALL WARRANTIES.

COMBUSTOR MONITORING

It is good practice to monitor the catalytic combustor to ensure it is functioning properly. An improperly functioning combustor will result in a loss of heating efficiency and an increase in emissions and creosote buildup. The following list of items should be checked on a periodic basis:

- Combustors should be visually inspected at least three times during the heating season to determine if physical degradation has occurred. Actual removal of the combustor is not recommended unless more detailed inspection is warranted because of decreased performance. Please refer to the "***COMBUSTOR TROUBLESHOOTING***" section.
- This appliance is equipped with a catalytic thermometer to monitor combustor operation. A properly functioning combustor will maintain temperatures in excess of 500 F (indicated by the thermometer needle in the ACTIVE zone) and often reach temperatures in excess of 1000 F. If the combustor temperature falls below 500 F (thermometer needle in the INACTIVE zone), refer to the "***COMBUSTOR TESTING***" section.
- A good way to determine whether the combustor is functioning properly is by comparing the amount of smoke exiting the chimney while the combustor is engaged (bypass door closed) versus when the combustor is bypassed (bypass door open).
  Note: Open the bypass door, wait a few minutes and observe the smoke exiting the chimney, then close the bypass door again. Significantly more smoke may be seen when the exhaust is not routed through the combustor (bypass mode). Smoke may be visible shortly after lighting the fire and shortly after reloading the fire so allow the fire to stabilize before making observations.

COMBUSTOR TESTING

Follow these instructions to test the catalytic combustor:

1. Light a fire per the "***LIGHTING THE FIRE"*** instructions.
2. After burning a well established fire for 1 hour, position the thermostat knob to a medium-low burn rate setting.
3. After 5 minutes at the lower burn rate, observe the location of the thermometer needle. A properly functioning combustor will have a temperature greater than 500F with the thermometer needle in the ACTIVE zone. An improperly functioning combustor will yield thermometer reading in the INACTIVE zone.
4. Repeat step 3 for at least 3 burn cycles.
5. If the thermometer needled is still not reaching the ACTIVE zone, your combustor may require cleaning.
6. If, after cleaning the combustor and reburning, the thermometer needle is still not reaching the ACTIVE zone, your combustor may need replacing. Contact your Blaze King dealer for a replacement combustor.

Note - It is also possible that the catalytic thermometer itself may not be functioning properly. Before deeming the combustor "dysfunctional", please refer to the "***CATALYTIC THERMOMETER"*** section.

CATALYTIC COMBUSTOR

⚠WARNING

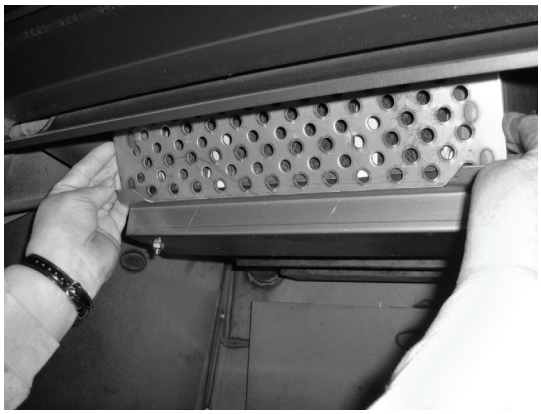
DO NOT PERFORM ANY CLEANING UNTIL THE FIRE IS OUT AND THE APPLIANCE IS COOL. HOT ASH IN A VACUUM CLEANER BAG COULD MELT THE VACUUM AND COULD RESULT IN A HOUSE FIRE CAUSING SERIOUS BODILY HARM.

COMBUSTOR CLEANING

Under certain conditions, ash particles may become attached to the face of the combustor. These particles may be seen while the combustor is glowing under fire or when the fire is out. Any deposits on the face of the combustor should be removed. There are two ways to clean the face of the combustor: (1) Brushing the combustor with a soft bristle paint brush, or (2) Passing a vacuum cleaner wand or brush near the face of the combustor. Limit cleaning to the face of the combustor (note - the flame shield will have to be removed to gain access to the face). Do not scrape the combustor with any hard tool or brush and do not run pipe cleaner through the individual cells of the combustor as this may do more harm than good. Do not remove the combustor during this process. **Note - simply burning a hot fire usually proves to be the best method of cleaning the combustor of deposits.**

COMBUSTOR REPLACEMENT

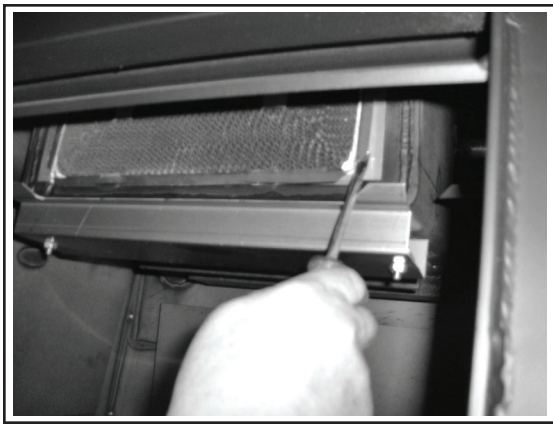
If the catalytic combustor has been deemed "dysfunctional" per the guidelines in "***COMBUSTOR TESTING***", discontinue use of the appliance until the combustor is replaced. Follow the steps below to complete the replacement **(BLAZE KING RECOMMENDS THAT YOUR DEALER OR CERTIFIED INSTALLER PERFORM THIS PROCEDURE):**



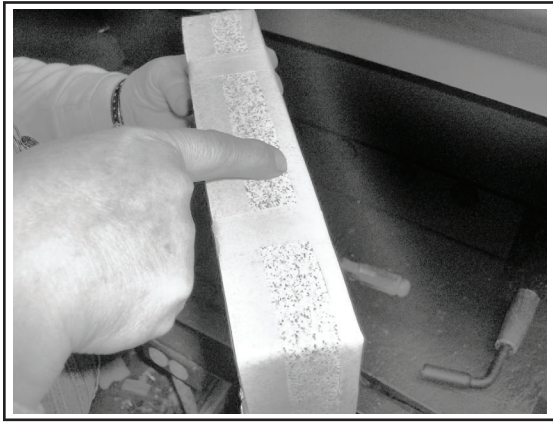
1. The appliance must be cool to touch, having gone at least 12 hours without being burned. A combustor can reach 1400F and hold temperatures for several hours, even after the fire is out. After waiting 12 hours, begin by removing the flame shield by simply lifting the shield off the two tabs at either lower corner. Pay particular attention to orientation of the flame shield in order to reinstall in the correct position.



2. Once the flame shield is removed, you will have access to the combustor. The combustor can be made of different materials such as cordierite, mulite, or stainless steel. They are all the same with regard to removal and caution should be taken so as to not drop or damage the combustor. If your combustor has never been cleaned according the manufacturers directions, you may wish to clean the combustor before replacing it with a new combustor (please refer to the "***COMBUSTOR CLEANING***" section).



3. There are metal tabs across the bottom and on either side of the combustor. Using a flat blade screwdriver or pocket knife blade, slide the tip in between the metal tab on the left side of the combustor and the steel dome of the stove (the dome is the housing that encases the combustor). Apply slight pressure until the combustor begins to move forward. Repeat the process on the metal tab on the right side of the combustor. By working back and forth the combustor will work free of the dome housing. It is normal for the gasket that is wrapped around the combustor to fall apart during this process, clean and scrape away any remaining gasket material.



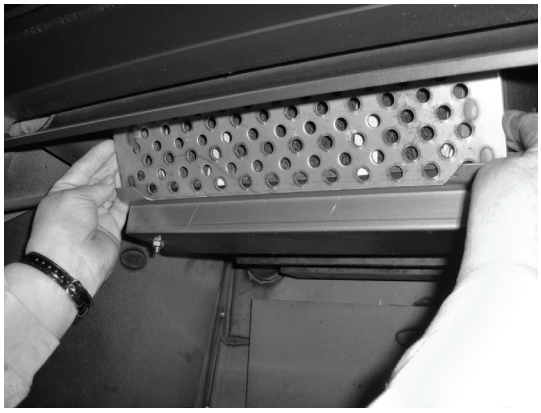
4. New combustors are wrapped in gasket, note the 1” wide masking tape - this will help to keep the leading edge of the gasket from snagging during installation. If you intend to reuse you original combustor, wrap the combustor with new gasket as you see here, use 1” masking tape around the front and rear perimeter. During the first fire the masking tape will burn off and the combustor gasket will swell to provide a tight seal. This seal ensures optimal efficiency and performance. Do not burn the appliance without the combustor gasket installed.



5. Before installing, align the combustor within the opening of the dome housing. Slowly push the combustor in at the top and apply even pressure to the left and right corners. This will allow for a better view of the bottom edge for the final fitting. **DO NOT FORCE THE COMBUSTOR INTO THE OPENING. TAKE YOUR TIME AND WORK IT INTO PLACE SLOWLY.**



6. Once the combustor is fully reinserted into the opening of the dome housing, replace the flame shield. Do not operate your appliance without the flame shield in place. The flame shield protects the face of the combustor against direct flame impingement and potential collisions when loading fuel.



7. When correctly installed, the flame shield will rest on the two tabs located on the dome and will lean slightly forward. Now that the combustor and flame shield have been properly reinstalled, the appliance can be relit.

A few reminders, do not burn anything other than dry, seasoned cordwood. Burning other materials may contaminate or ruin your new combustor. Also, remember to keep your firebox door gasket seal properly adjusted (please refer to the "***LOADING DOOR TENSION ADJUSTMENT"*** section). Doing so will ensure optimal performance of both the appliance and the combustor.

COMBUSTOR WARRANTY

This appliance contains a catalytic combustor, which needs periodic inspection and may require replacement for proper operation. It is against federal regulations to operate this appliance if the catalytic combustor is deactivated or removed.

The catalytic combustor supplied with this appliance is **OEM Blaze King part #115-1505-C2.** For technical support please contact your Blaze King Dealer.

Please consult the catalytic combustor warranty info also supplied with this appliance. Warranty claims should be addressed to:

CANADA	USA
Blaze King Industries / Valley Comfort Systems Warranty Department 1290 Commercial Way Penticton, BC, Canada V2A 3H5	Blaze King Industries Warranty Department 146 A Street Walla Walla, Washington, USA 99362

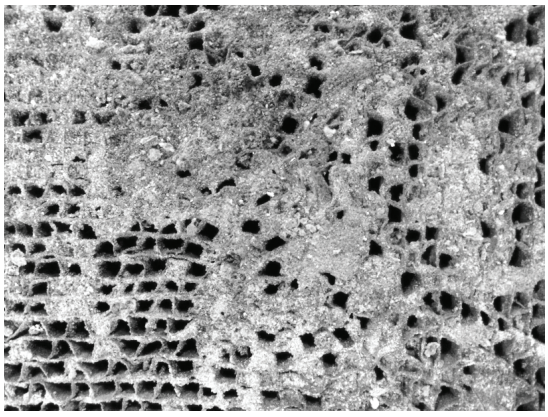
COMBUSTOR TROUBLESHOOTING

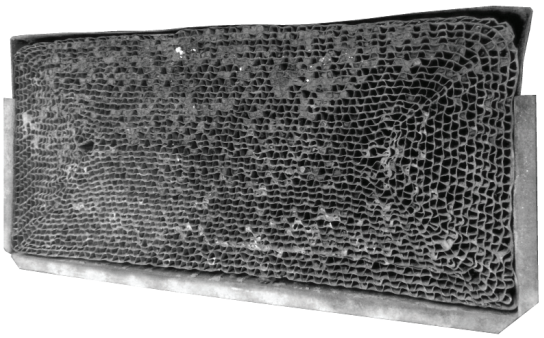
PROBLEM: CREOSOTE PLUGGING

Possible Cause: The combustor is coated with creosote burning material that produces substantial char and fly-ash.
Solution: Only burn dry, seasoned wood. Do not burn materials such as garbage, gift wrap, or cardboard.

Possible Cause: Burning wet, pitchy wood or burning large amounts of small diameter wood without the catalytic thermometer needle in the ACTIVE zone.
Solution: Burn dry, seasoned wood until temperatures are high enough to initiate catalyst light-off (indicated by the catalytic thermometer needle in the ACTIVE zone).

Possible Cause: Combustor not functioning.
Solution: If proper burning procedures have been followed and this problem persists, replace the combustor with an OEM Blaze King combustor (failure to do so will void your warranty).

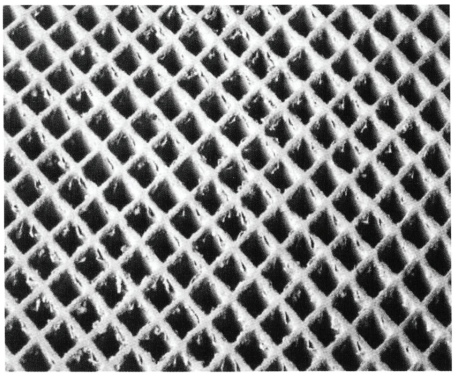




PROBLEM: COMBUSTOR PEELING

Possible Cause: Over firing and flame impingement can yield extreme temperatures (above 1800F/1000°C) at combustor surface and can cause peeling.
Solution: Avoid extreme temperatures by adjusting size of fuel loads. If peeling is severe, replace combustor.

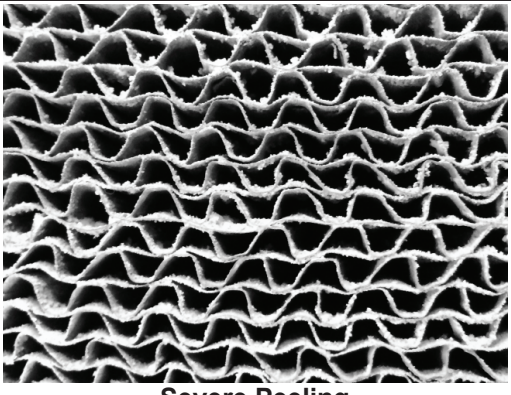
The images to the right are examples of minor peeling (does not affect proper combustor function) and severe peeling (closed or plugged combustor that needs replacement).



Minor Peeling

PROBLEM: CATALYTIC DEACTIVATION

Possible Cause: Burning improper fuels (ie. garbage, pressure-treated lumber, painted wood, etc.).
Solution: Burn good quality, dry, seasoned wood. If proper burning procedures have been followed and this problem persists, replace the combustor with an OEM Blaze King combustor (failure to do so will void your warranty).

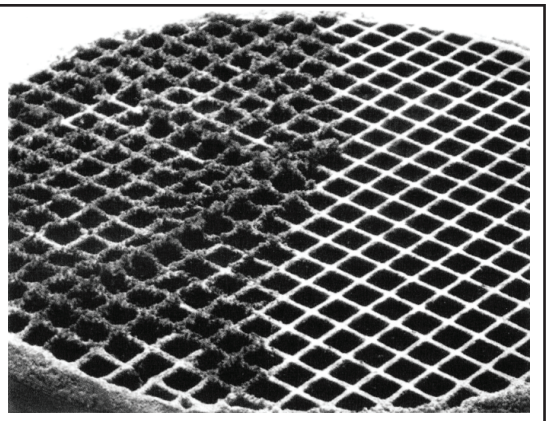


Severe Peeling

CATALYTIC COMBUSTOR

PROBLEM: COMBUSTOR MASKING

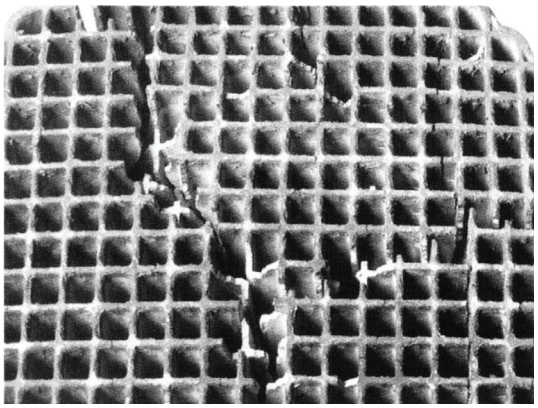
Possible Cause: The combustor is coated with a layer of fly-ash or soot from burning material that produces substantial char and fly-ash.
Solution: When the appliance is cool to touch, clean the front face of the combustor with a soft-bristled brush or vacuum lightly (refer to ***COMBUSTOR CLEANING*** for proper procedure).



PROBLEM: THERMAL CRACKING

Possible Cause: Extreme temperature fluctuations (ie. opening loading door while the combustor is in the ACTIVE zone) can cause thermal shock which can lead to cracking.
Solution: Avoid flooding a hot, active combustor with cool room air when reloading.

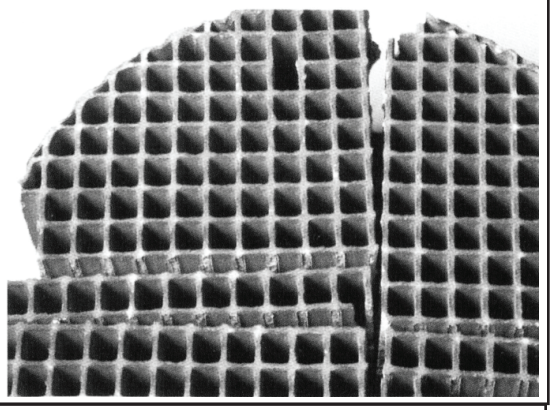
If cracking causes large pieces of the combustor to separate, replace the combustor with an OEM Blaze King combustor (failure to do so will void your warranty).



PROBLEM: MECHANICAL CRACKING

Possible Cause: Mishandling the combustor or operating the appliance without the proper gasket installed.
Solution: Handle with care. Ensure combustor is wrapped with gasket upon reinstallation.

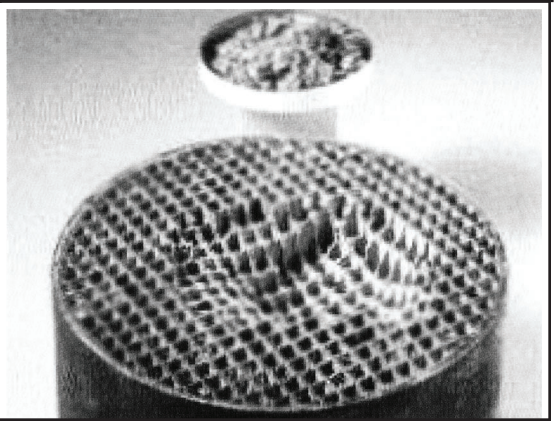
Possible Cause: Distortion of surrounding dome housing.
Solution: The combustor should slide in and out of the dome housing with relative ease. If this is not the case, contact your dealer for further inspection.



PROBLEM: COMBUSTOR CRUMBLING

Possible Cause: Excess air leaking into the firebox.
Solution: Ensure tight seal at loading door (see ***MAINTENANCE*** for instruction on gasket inspection).

Possible Cause: Excessive chimney draft.
Solution: Use a manometer to check and ensure chimney draft is within manufacturer specifications. Adjusting the appliance thermostat can help regulate chimney draft.



⚠WARNING

TO PREVENT SERIOUS BURNS, DO NOT PERFORM ANY MAINTENANCE UNTIL THE APPLIANCE IS COOL. APPLIANCE SURFACES, INCLUDING THE GLASS AND ANY ATTACHED COMPONENT, WILL REMAIN HOT FOR EXTENDED PERIODS OF TIME AFTER THE FIRE HAS BEEN PUT OUT.

RECOMMENDED MAINTENANCE

It is strongly recommended to complete the following tasks on a regular basis throughout the heating season:

1. Visually inspect Catalytic Combustor and clean as required (see "***COMBUSTOR CLEANING***")
2. Clean behind internal baffles (where applicable) and inspect metal components for warping/distortion.
3. Check Catalytic Thermometer for proper calibration.
4. Check Thermostat for proper function.
5. Check Fan Assemblies for proper operation.
6. Remove all ash from firebox and ash drawer after final burn of season.
7. Check all gaskets for proper seal and adjust as required.
8. Inspect and clean the Venting System.

CATALYTIC THERMOMETER MAINTENANCE

The catalytic thermometer probe (shaft) should be cleaned regularly. Ensure the fire is out and the appliance is cool, then remove the thermometer and wipe the probe clean. While removed, confirm the thermometer indicator needle points towards the bottom of the INACTIVE zone (allow the thermometer to sit at room temperature for 10 minutes before checking). If the needle does not point towards the bottom of the INACTIVE zone, it may need adjustment. Grasp the probe with a pair of pliers then slightly loosen the bolt on the top of the dial. Turn the dial to align the needle to the bottom of the INACTIVE zone and then retighten the bolt. Once finished, reinsert the thermometer back into the appliance. **Note: If your appliance is equipped with a fan kit, turn it off and wait 10 minutes before observing the catalytic thermometer reading.**

THERMOSTAT or THERMOMETER MAINTENANCE

Any thermostat or thermometer maintenance must be completed by a certified installer. If the thermostat or thermometer malfunctions, contact your dealer for replacement.

OPTIONAL FAN ASSEMBLY MAINTENANCE

Fan assemblies should be inspected at the beginning of each burn season to ensure they are free from debris such as ash, dust, pet dander, lint, etc. The accumulation of such debris could prevent the fan blades/blower wheels from rotating freely and put excessive strain on the fan motors, ultimately leading to failure.

ASH REMOVAL

Ashes should be removed any time they come within one inch of the door opening, though it is not advisable to completely remove all of the ashes as wood burns best on a bed of ashes around 1/2" thick. When removing ashes, ensure the fire is out and the appliance is cool to touch. Ashes should be placed in a metal container with a tight fitting lid. The closed container of ashes should be placed on a noncombustible floor or on the ground (outside), well away from all combustible materials, while awaiting final disposal. If the ashes are disposed of by burial in soil or otherwise locally dispersed, they should be retained in the closed container until all cinders have thoroughly cooled. Do not place other waste in this container.

⚠WARNING

NEVER STORE HOT ASHES IN A GARAGE OR BASEMENT. HOT ASHES WILL GENERATE CARBON MONOXIDE AND / OR FLAMMABLE GASES. THESE GASES MAY CAUSE SUFFOCATION AND POSSIBLE DEATH.

LOADING DOOR TENSION ADJUSTMENT

Use a 9/16” wrench to tighten the loading door seal. Loosen the retainer nut threaded onto the latch catch on the outer right face of the firebox. Once loose, tighten the nut on the inside of the firebox (also threaded onto the latch catch) to secure the latch catch in a position closer to the firebox. Ensure the outer nut is tight and preform a paper test (see “DOOR GASKET PAPER TEST”) to ensure a proper seal is achieved. DO NOT FORCE THE NUT LOOSE. Use penetrating oil if necessary to make loosening the nut easier.



LOADING DOOR GASKET INSPECTION

Inspect the loading door gasket for physical deterioration, missing sections, or obvious leakage. The appliance door flange should make a groove in the gasket material. The side of the gasket on the inside of the groove will be dark or black while the outer side will be light or white. Dark smudges on the outer side of the gasket may indicate an air leak. If the groove in the gasket is very shallow or if there is a heavy ash or creosote deposit along the bottom edge of the gasket, it may need to be replaced. Frayed or broken gasket material, or a gasket that is hard and unyielding, will also indicate a need for replacement. Any time a piece of gasket is missing or broken the entire gasket must be replaced. A way to physically check if the gasket needs replacing is by performing a paper test (see ***“DOOR GASKET PAPER TEST”)***

LOADING DOOR GASKET REPLACEMENT

If door gasket replacement is required, only replace with OEM door gasket ordered through your Blaze King dealer. This gasket will be properly sized and ready to install. **Do not stretch or cut the gasket at any time during this installation. Ensure only high temperature silicone adhesive is used for this installation (do not use household silicone caulking). Blaze King recommends that your dealer perform this task:**

1. Ensure the fire is out and the appliance is cooled to touch before removing the loading door.
2. Use a pair of pliers to pull the old door gasket out of the channel and dispose of it.
3. Clean the gasket channel of any residual adhesive to ensure the new adhesive will adhere sufficiently.
4. To ensure proper fit, dry fit the new gasket by distributing it evenly around the frame and then remove.
5. Run a small bead of a high temperature silicone adhesive along the center of the gasket channel.
6. Starting in the lower right corner, insert the new gasket into the gasket channel. Be sure to distribute the gasket evenly around the entire channel frame.
7. Allow the adhesive to dry for at least 1 hour before reinstalling and closing the loading door.
8. Confirm proper gasket installation by performing a paper test (see ***“DOOR GASKET PAPER TEST”).***

⚠WARNING

DO NOT OPERATE THIS APPLIANCE IF THE DOOR GASKET IS MISSING OR DAMAGED. OVER-FIRING MAY OCCUR WHICH CAN CAUSE DAMAGE TO THE APPLIANCE OR IGNITE CREOSOTE IN THE CHIMNEY WHICH COULD LEAD TO A HOUSE FIRE CAUSING SERIOUS BODILY HARM.

DOOR GASKET PAPER TEST

Perform this test when inspecting or replacing loading door gasket:

1. Ensure the fire is out and the appliance is cooled to touch.
2. Insert a piece of paper (ie. a dollar bill) into the door opening and then latch the door shut.
3. Pull the paper out of the door while noting any obvious resistance when doing so.
4. If no resistance is felt, adjust the door tension (see "***LOADING DOOR TENSION ADJUSTMENT***").
5. Repeat this process around the perimeter of the door until consistent resistance is achieved.

DOOR GLASS GASKET INSPECTION

To inspect the door glass gasket:

1. Ensure the fire is out and the appliance is cooled to touch.
2. Hold the glass by placing the palm of each hand on either side and try to move it; If the glass moves:
   a. Inspect the glass retainers and ensure the screws holding the retainers in place are tight (hand tight plus 1/4 turn). If loose, retighten, but do not over tighten.
   b. Inspect the door glass gasket. If the gasket is frayed or missing sections, replace the gasket.

⚠WARNING

REFRAIN FROM STRIKING THE GLASS OR SLAMMING THE DOOR SHUT. DO NOT OPERATE THIS APPLIANCE IF THE DOOR GLASS OR GASKET SEAL IS BROKEN. DOING SO MAY LEAD TO A RUN AWAY FIRE WHICH COULD RESULT IN PROPERTY DAMAGE.

DOOR GLASS GASKET REPLACEMENT

If door glass gasket replacement is required, only replace with OEM door glass gasket ordered through your Blaze King dealer. The OEM gasket will be ordered to size and ready to re-install. **Do not stretch or cut the gasket at any time during this installation. Blaze King recommends that your dealer perform this task:**

1. Ensure the fire is out and the appliance is cooled to touch.
2. Remove the old glass gasket.
3. Starting at the corner opposite of the "Blaze King" logo, carefully wrap the gasket around the edges of the door glass, pressing firmly onto the sides of the glass with the gasket centered on the edge. Finish the wrapping with a 1/2" overlap. Ensure the thickness of the gasket remains consistent and uniform.
4. Reposition the glass onto the door and then install the glass retainers with original fasteners. Ensure the glass is parallel to the frame and tighten the fasteners (hand tight plus 1/4 turn).



DOOR GLASS CLEANING

The best way to keep the glass clean is to leave the appliance on high burn for a period of time after each reloading The moisture which is driven from a new load of wood contributes much of the creosote on the inside of the glass. Removing that moisture at the beginning of the burn cycle helps to keep the glass clean. Leaving the thermostat on a higher setting for 30 minutes to an hour before turning to low for an overnight burn will also help. Heavier deposits may require hand cleaning. Manual glass cleaning should be done when the appliance and glass are cool. **DO NOT CLEAN THE GLASS WHILE IT IS HOT AND DO NOT USE ABRASIVE CLEANERS TO CLEAN THE GLASS.** Use a soft cloth. After using any cleaner, thoroughly rinse the glass with water to remove any deposits left by the cleaner. Failure to remove all traces of glass cleaner will result in the glass cleaner residue baking on. This residue may be very difficult to remove.

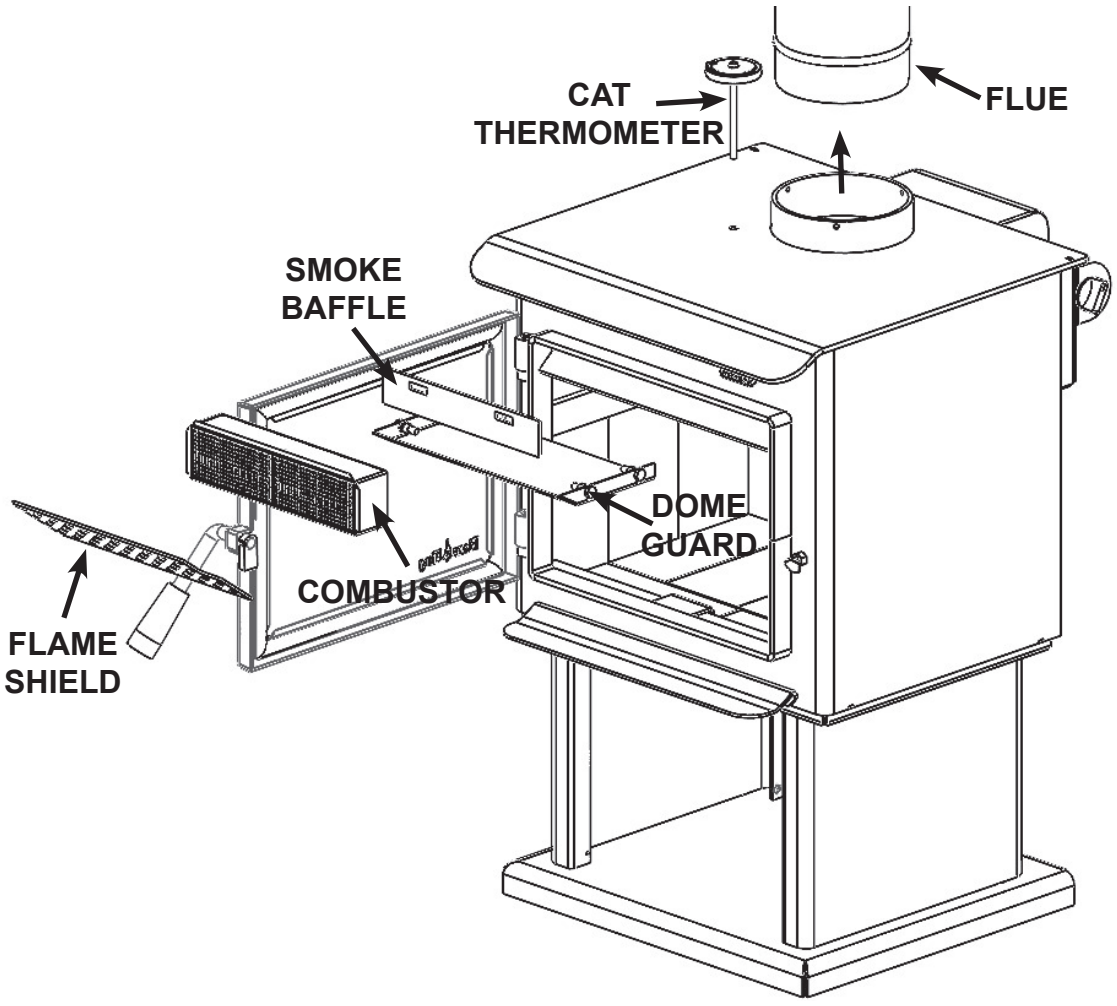
BYPASS DOOR GASKET INSPECTION

Visually note the amount of smoke exiting the chimney while the bypass door is both OPEN and CLOSED. There should be significantly less smoke when the door is in the CLOSED position. If this is not the case, the bypass gasket may need to be replaced.

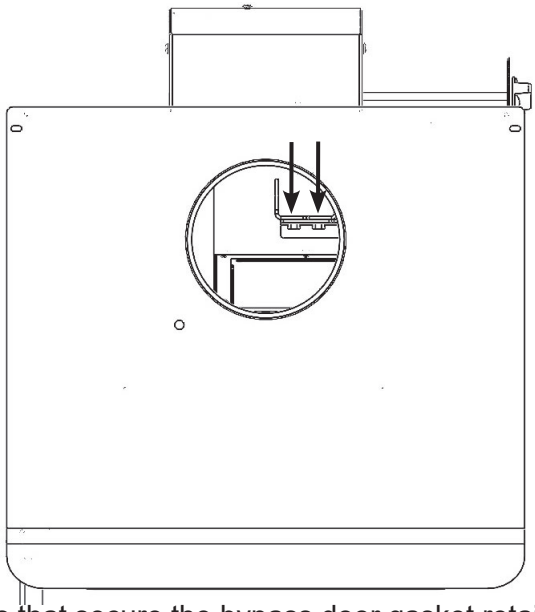
Note: This inspection could also yield a dead combustor, see "*COMBUSTOR MONITORING*".

BYPASS DOOR GASKET RETAINER REPLACEMENT

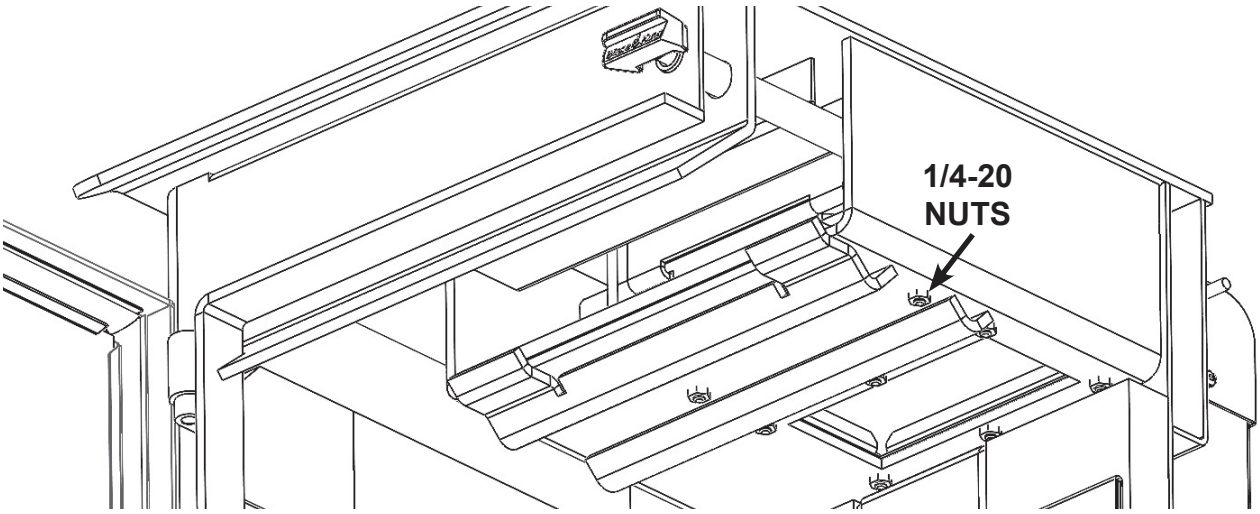
1. Remove flame shield, combustor, smoke baffle, and dome guard from dome (see "***CATALYTIC COMBUSTOR REPLACEMENT***"). Remove the cat thermometer and disconnect the flue.



2. Use a 7/16” wrench through the flue opening to unfasten the bolts that hold the bypass door to the bypass slide bracket. Once loose, remove the bypass door through the flue or combustor opening.



3. Remove the eight 1/4-20 nuts that secure the bypass door gasket retainer to the dome. Reach in through the combustor opening, lift the gasket retainer upwards (enough to clear the threaded posts from the dome) and remove through the combustor opening. Once removed, ensure all debris is cleared from the inner surface of the dome.



4. Once the inner dome surface has been cleared, insert the new bypass door gasket retainer assembly and follow steps 1 to 3 in reverse to ensure complete install. Ensure that 1/8” ceramic paper gasket is in between the gasket retainer assembly and inner dome surface. Also ensure that all nuts are completely fastened up to the dome bottom. When tightening the 1/4-20 bolt through the bypass door into the bypass rod bracket, do not over tighten. Simply finger tighten the bolt as this allows the bypass door to move down as the gasket begins to seat after the first few fires. Ensure that any reinstalled combustors are wrapped with new expanding gasket. **Note, do not install combustors without gasket.**

VENTING SYSTEM MAINTENANCE

The entire chimney system must be cleaned and inspected regularly, especially during the coldest months of the burn season. The most efficient method to clean the chimney is to “sweep” it using a brush. Brush downwards so soot and creosote residues will come off the inner surface and fall to the bottom of the chimney where they can be removed easily. **Ensure the bypass door is OPEN prior to chimney cleaning so soot and creosote fall into the firebox.** Once cleaned, inspect the chimney for any possible damage. If damage is present, the chimney section in question must be replaced.

CREOSOTE FORMATION AND REMOVAL

When wood is burned slowly, it produces tar and other organic vapors which combine with expelled moisture to form creosote. These vapors condense in the relatively cooler chimney flue of a slow burning fire and when ignited, make an extremely hot fire. Be aware that the hotter the fire, the less creosote is deposited. The flue pipe and chimney should be inspected regularly during the heating season, until a safe frequency for cleaning is established to determine if a creosote build up has occurred. If creosote accumulation is excessive, cleaning is required. It is recommended that a professional chimney sweep does the cleaning. Both the chimney and the appliance have to be cleaned at least once a year or as often as necessary.

⚠WARNING

A CHIMNEY FIRE CAN PERMANENTLY DAMAGE YOUR VENTING SYSTEM, WHICH CAN ONLY BE REPAIRED BY REPLACING THE DAMAGED COMPONENTS. FAILURE TO REPAIR COULD LEAD TO FURTHER PROPERTY DAMAGE. DAMAGE FROM A CHIMNEY FIRE IS NOT COVERED BY THE LIMITED WARRANTY.

RUN-AWAY OR CHIMNEY FIRE

CAUSES:

1. Using incorrect fuel or small fuel pieces which would normally be used as kindling.
2. Leaving the door ajar too long and creating extreme temperatures as the air rushes in the open door.
3. Improperly installed or worn gaskets.
4. Creosote build up in the chimney.
5. Leaving the bypass door open too long.

SOLUTIONS:

1. Do not burn treated or processed wood, coal, charcoal, colored paper, or cardboard.
2. Be careful not to over fire the appliance by leaving the door open too long after the initial start-up.
3. Replace worn, dried out (inflexible) gaskets.
4. Have your chimney cleaned regularly.

WHAT TO DO IF A RUN-AWAY OR CHIMNEY FIRE STARTS:

1. Close the thermostat by rotating the knob fully counter clockwise and ensure the firebox door and the bypass door are closed.
2. Call the local fire department.
3. Examine the chimney, attic, and roof of the house to see if any part has become hot enough to catch fire. If necessary, hose area down with a fire extinguisher or water from a garden hose.
4. Do not operate the appliance again until you are certain the chimney has not been damaged

IT IS ADVISED TO HAVE A WELL UNDERSTOOD PLAN OF ACTION IN THE EVENT OF A CHIMNEY FIRE

TROUBLESHOOTING

Your Blaze King is designed to allow a wide selection of heat output levels. If you begin to lose control of the amount of heat the stove is emitting, determine the cause early so that major problems may be avoided.
The six major needs of a well-controlled fire are:

1. Knowledgeable operator.
2. Adequate air supply.
3. Firewood of good quality and proper size.
4. Catalytic combustor in good condition.
5. Clean chimney, properly sized and installed.
6. Door gasket tight and firm.

Considering all of the above, number one is the most important for safe and efficient operation of any wood stove. Please study the operation instructions carefully. Consult your BLAZE KING dealer if you have any questions not answered in this manual.

All of the six above mentioned needs are interrelated. A deficiency in any one will affect all of the others. If you encounter a problem, determine the source of the problem and then follow-up by checking the other needs as possible contributing factors.

PROBLEM: Chimney Fire	
CAUSE Act immediately regardless of cause	**SOLUTION** Turn the thermostat to lowest setting, make sure the loading door and the bypass door are tightly closed. **Call Fire Department.**
After the fire is out, have your chimney and flue connector inspected by a certified chimney sweep. A damaged masonry chimney should be repaired or rebuilt. A prefabricated chimney (factory built) that is damaged should be replaced. Any damage to the flue connector should be corrected before the system is used again. Possible causes of a chimney fire, and remedies for those causes, can be found further in this section: “Excessive Creosote Formation”, and “Spots of Creosote Accumulation in Chimney or Flue Pipe”.	

PROBLEM: Not enough heat.	
CAUSE Green or wet wood. Not enough fuel in stove.	**SOLUTION** Use a moisture meter to ensure you are burning seasoned wood. Don’t be afraid to FULLY load the stove. A FULL load of wood won’t burn any hotter than the thermostat is set.
Obstruction in chimney or cap screen. Combustor plugged or coated.	Remove obstruction. See “COMBUSTOR, TESTING” See “COMBUSTOR, CLEANING”
Combustor not functioning.	See “COMBUSTOR, TESTING”. If needed, replace combustor, See”“COMBUSTOR, REPLACING”.
Thermostat set too low.	Raise thermostat setting.
Thermostat not operating properly.	Consult your Blaze King dealer.
Poor draft caused by a poorly designed chimney system.	Measure draft with Manometer. See “CHIMNEY DRAFTS” Consult your Blaze King dealer or a chimney sweep.
Strong, gusting winds causing downdraft in chimney	Install wind-resistant chimney cap. Directional caps may not stay freely rotating. If you have a directional cap, check it frequently.
Tightly sealed house, inadequate air supply.	Slightly open a window, near the stove or install an outside air kit.
Reloading too much wood on top of too few coals.	Allow a larger bed of coals to build up.

PROBLEM: Too much heat.	
CAUSE	**SOLUTION**
Bypass door left open.	Close the bypass door.
Thermostat set too high.	Lower thermostat setting.
Loading door gasket leaking, admitting excess air into firebox.	Replace door gasket and/or adjust door. See “GASKET INSPECTION”
Excessive draft in the chimney.	Measure draft with a Manometer. See “DRAFTS”. Consult your Blaze King dealer or a chimney sweep. Install a cap.
Thermostat not operating properly.	Consult your Blaze King dealer.
Wood is too small.	Use larger pieces.

PROBLEM: One or both fans will not run, or there is no adjustment for fan speed.	
CAUSE	**SOLUTION**
Fans mounted improperly.	Check that fan blade’s not touch edges of hole.
Fan speed control.	Consult your Blaze King dealer for replacement.

PROBLEM: Fans minimum speed too fast or maximum speed too slow.	
CAUSE	**SOLUTION**
Fan speed control out of adjustment.	Consult your Blaze King Dealer.

PROBLEM: Excessive creosote formation in chimney and chimney Connector.	
CAUSE	**SOLUTION**
Bypass door left open.	Close bypass door.
Bypass door not sealing tightly.	Inspect bypass door and seal for warping. Ash or creosote buildup may occur on door or seat. With stove cold scrape and vacuum area around bypass. Be sure all mating steel surfaces are clean and smooth.
Improper operation.	Check thermostat setting and operating procedures. See “THERMOSTAT & OPTIMAL THERMOSTAT SETTING”
Wood too green or wet.	Use seasoned wood. Use a moisture meter to confirm.
Catalytic combustor not operating properly.	Inspect the combustor. See “CATALYTIC COMBUSTOR, TESTING”
Poor draft caused by a poorly designed chimney system.	Measure draft with Manometer. See “DRAFTS”. Consult your Blaze King dealer or a chimney sweep.
Chimney too cold or poorly insulated.	Upgrade chimney system. Consult your Blaze King dealer or a chimney sweep.

PROBLEM: Catalytic Thermometer (on top of stove) does not go into "Active" zone, or does not stay there for long. (Fans must be in “off” position for 10 minutes prior to checking)	
CAUSE	**SOLUTION**
Improper operation.	Check thermostat setting and operating procedures. See “THERMOSTAT & OPTIMAL THERMOSTAT SETTING”
Obstruction in chimney or cap.	Clean chimney, remove obstructions.
Faulty catalytic thermometer.	Check catalytic thermometer calibration.
Wood too green or wet.	Use seasoned wood.

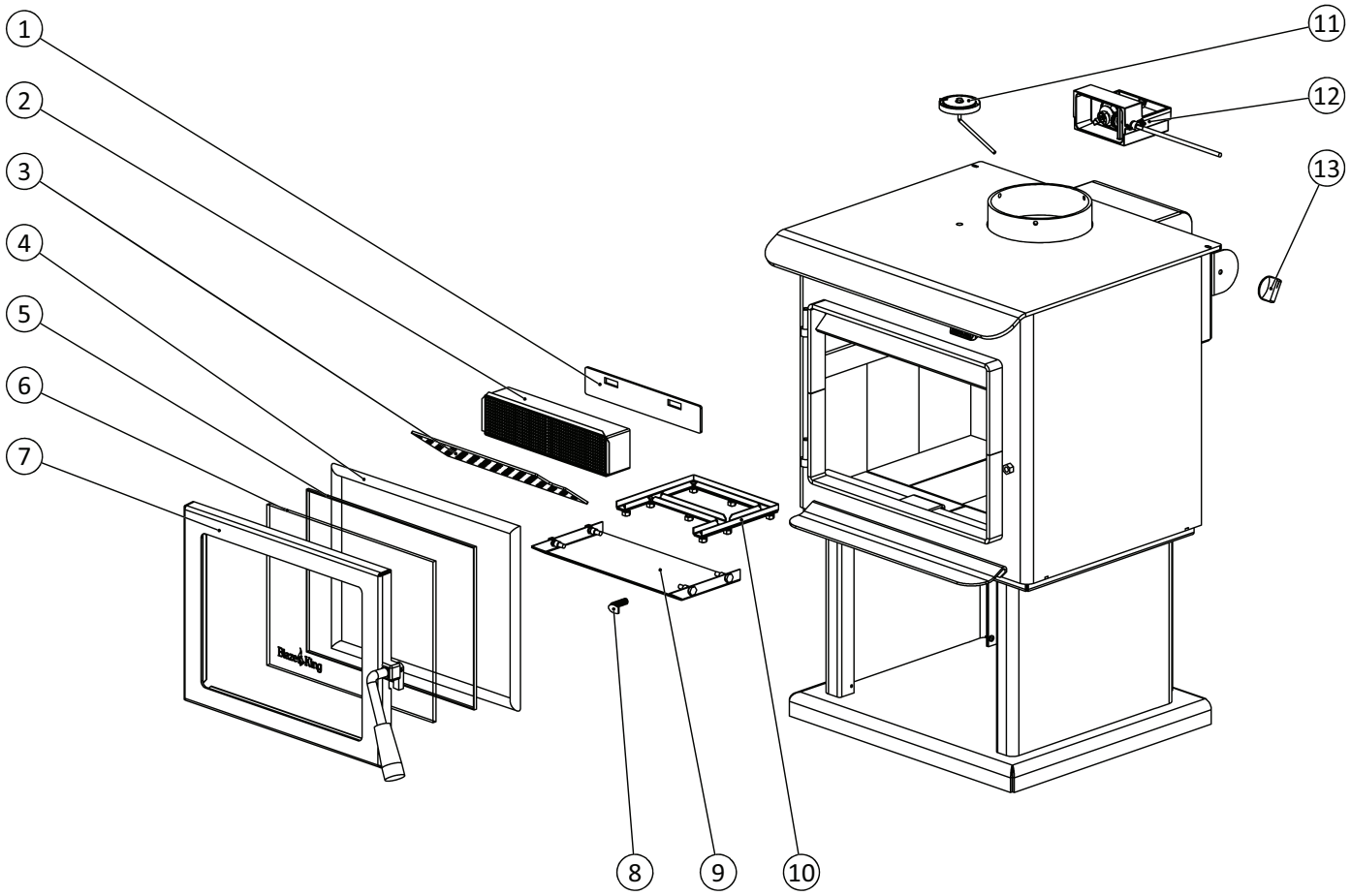
Combustor plugged or coated.	Clean combustor. See “CATALYTIC COMBUSTOR TESTING”
Combustor not functioning.	Check and test combustor. If needed replace combustor. See “CATALYTIC COMBUSTOR, REPLACING”
Thermostat not operating properly.	Consult your blaze King Dealer.
Bypass door leaking or not closing completely.	Inspect and clean area around bypass doors. Adjust or replace gasket if necessary. Consult your Blaze King Dealer.

PROBLEM: Spots of creosote accumulation in flue pipe or chimney.	
CAUSE Air leaks in flue pipe or chimney.	**SOLUTION** Inspect flue pipe and chimney. Repair or replace as necessary. Check to be sure that the flue pipe is installed correctly.
CAUTION: a leaking chimney system is a fire hazard and demands immediate attention.	
Poor draft caused by an oversize flue, single wall pipe, to many elbows, etc.	Measure draft with Manometer. See “DRAFTS”. Consult your Blaze King dealer or a chimney sweep.

PROBLEM: Door glass quickly becomes coated with creosote.	
CAUSE Low thermostat setting or lowering the thermostat setting too far, too quickly.	**SOLUTION** Turn the thermostat to the warmest setting during the first 20-30 minutes or until the fire is well established after each reloading.
Poor draft caused by an oversize or short flue, etc.	Measure draft with Manometer. See “DRAFTS”. Consult your Blaze King dealer or a chimney sweep.
Obstruction in chimney or cap screen.	Remove obstruction. Clean chimney and/or cap screen.
Strong, gusting winds causing downdraft in chimney.	Install wind-resistant chimney cap.
Tightly sealed house, inadequate air supply.	Open a window, slightly, near the stove. Install a Fresh Air Kit.
Burning poorly seasoned wet wood, or wood with high pitch content.	Use seasoned wood with low pitch content, such as some types of pine.

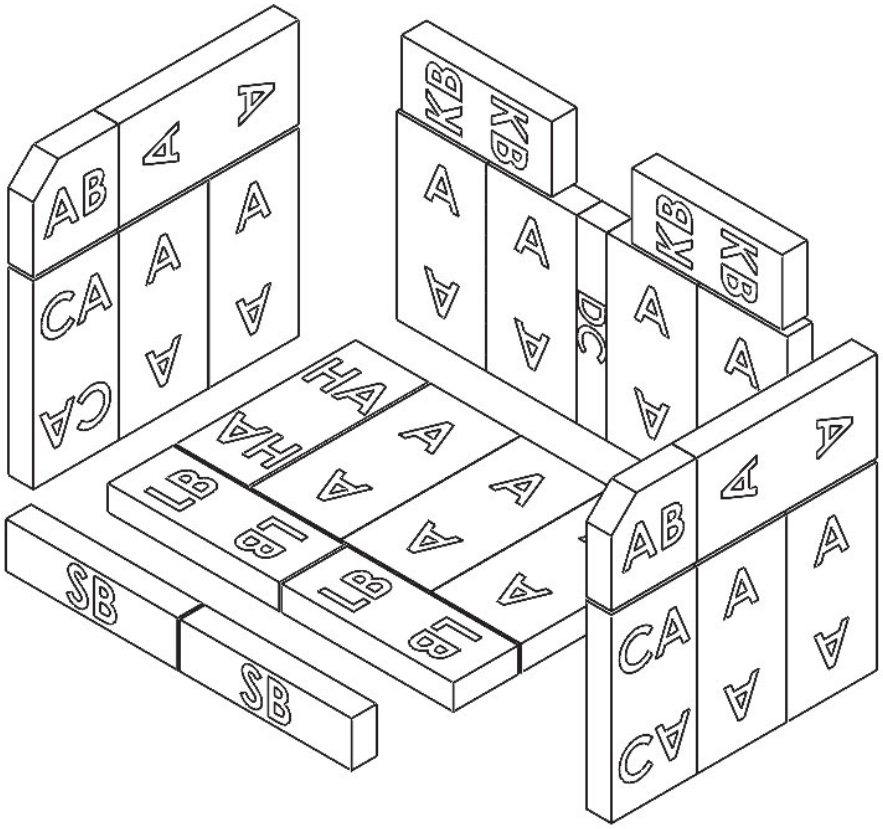
PROBLEM: The combustor temperature cannot be controlled. Turning the thermostat down often makes the combustor temperature go up.
CAUSE Turning the thermostat down, particularly in the first half of the burn cycle, causes the fire to emit more smoke, which is fuel for the combustor. The combustor temperature therefore climbs for up to several hours. This is normal, and is of no concern. As long as only the combustor temperature is elevated, there is nothing to worry about.

PROBLEM: Smoke spills from door opening when loading fuel	
CAUSE Spark arrestor screen on cap plugged.	**SOLUTION** Clean spark arrestor screen to bare metal wire.
Chimney too cold.	Make certain double wall stove pipe is used in installation.
Not enough vertical rise.	Make certain a minimum vertical rise of 36” is observed prior to elbows. Use two 45 elbows instead of 90 elbow.
Chimney not drafting.	Turn thermostat to highest setting, open bypass, leave loading door closed and wait 5-10 minutes to increase chimney or flue temperature.



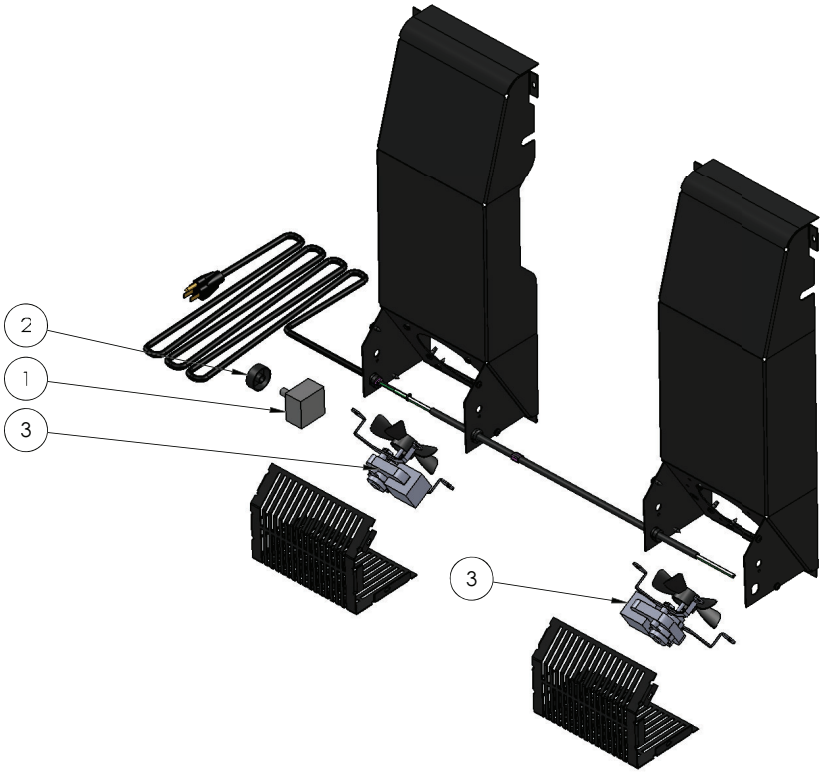
No. exploded view	Part #	Description	QTY
1	6843	SMOKE BAFFLE	1
2	S.CATSENTRY	COMBUSTOR ASSEMBLY	1
3	6841	FLAME SHIELD	1
4	S.155.0186.6	DOOR GASKET - 5 ft	1
5	S.155.0254.6	DOOR GLASS GASKET - 4 ft	1
6	130-0249	GLASS CERAMIC 5MM	1
7	S.Z6820	DOOR ASSEMBLY	1
8	S.0693	LATCH CATCH	1
9	S.Z6829	DOME GUARD ASSEMBLY	1
10	S.Z6821	BYPASS RETAINER ASSEMBLY	1
11	120-0343	CAT THERM	1
12	S.Z3014	THERMOSTAT S14	1
13	220-0102	THERMOSTAT KNOB	1

ZS14.BRK Brick Layout



Part #	QTY
A	13
AB	2
CA	2
DC	1
HA	1
KB	2
LB	2
SB	2

S.Z6814 Fan Kit



No.	Part #	Description	QTY
1	145-0136	RHEOSTAT WITH OFF (O/H/LOW)	1
2	220-0137	RHEOSTAT KNOB BLACK SILVER LINE	1
3	150-0175-C	FAN AXIAL SPIDER MOUNT	1

WARRANTY

BLAZE KING WOOD LIMITED WARRANTY

Blaze King and Valley Comfort's respective brands extend the following warranty for wood fired appliances purchased from an authorized Blaze King / Valley Comfort dealer and installed in the United States of America or Canada. Warranty starts with date of purchase by the original owner (End User) except as noted for replacement parts.

Warranty Period		Components Covered	
Parts	Labor	Wood	
1 Year		X	All parts, materials and surface finishes (flaking and peeling) Subject to Conditions, Exclusion, and Limitations listed.
2 Years		X	Fan assemblies and motors, thermal sensors, catalytic thermometer, bi-metallic thermostat assembly, door handle metal components.
5 Years	2 Years	X	Firebox & Heat Exchanger, Bypass Door Steel Components
6 Years		X	Catalyst Combustor (see Conditions, Exclusions, and Limitations)
1 Year		X	Other Replacement Parts
SEE CONDITIONS, EXCLUSIONS, AND LIMITATIONS.			

Blaze King Wood Limited 5 Year Warranty

Blaze King is the manufacturer of the Blaze King line of heating products. At Blaze King, our commitment to the highest level of quality and customer service is the most important thing we do. Each Blaze King stove is built on a tradition of using only the finest materials and is backed by our limited warranty to the original purchaser. With Blaze King, you're not just buying a stove; you're buying a company with years of unequalled performance and quality.

Limited Six (6) Year Warranty:
The CATALYTIC COMBUSTOR is under warranty by Blaze King for six (6) years from the date of original retail purchase. The purchaser shall pay the following share of the then current retail price for the combustor: The first three (3) years no charge, 4th year 60%; 5th year 70%, 6th year 80%. The Combustor must be returned to your dealer along with a completed COMBUSTOR FAILURE REPORT and original proof of purchase document.

Limited (5) Year Warranty:
Under this warranty, Blaze King covers the stove body and accessories against defects in materials and workmanship, for part repair or replacement for the first five (5) years *** to the original purchaser. This Warranty covers: All Steel firebox components against defects in material and workmanship. Please see the exclusions and limitation section below as certain restrictions and exclusions apply this warranty.

Limited Two (2) Year Warranty:
Under this warranty, Blaze King covers, fan assemblies , modular thermostat and door handle steel components against defects in materials and workmanship, for part repair or replacement and limited labor for the first two (2) years to the original purchaser. Please see the exclusions and limitation section below as certain restrictions and exclusions apply to this warranty.

Limited One (1) Year Warranty:
Under this warranty, Blaze King covers all parts and materials against defects in materials and workmanship including exterior paint finishes, for part repair or replacement and limited labor for the first year to the original purchaser. Please see the exclusions and limitation section below as certain restrictions and exclusions apply to this warranty.

How the Warranty Works

1. All warranties by the manufacturer are set herein and no claim shall be made against the manufacturer on any oral warranty or representation. All claims under this Limited Warranty must be made in writing by your dealer.
2. Any stove or part thereof that is repaired or replaced during the Limited Warranty period will be warranted under the terms of the Limited Warranty for a period not exceeding the remaining term of the original Limited Warranty or six (6) months, whichever is longer.
3. For any part or parts of this stove, which in our judgment show evidence of defects, Blaze King reserves the option to repair or to replace the defective part(s) through an accredited distributor or agent, provided the defective part is returned to the distributor or agent, transportation prepaid, if requested.
4. If you discover a problem that you think may be covered by the Limited Warranty, you MUST REPORT it to your Blaze King dealer WITHIN 30 DAYS from the date the problem was first detected, giving them proof of purchase and the date of purchase. The dealer will investigate the problem and work with Blaze King to determine whether the problem:
   a) Is covered by the Limited Warranty or
   b) Can be fixed in your home or does the product need to be returned to Blaze King for repair.
5. If Blaze King determines that the stove needs to be returned to Blaze King for repair, the customer has the responsibility and the expense of removing it from their home and shipping it to Blaze King. If the problem is covered by the Warranty, Blaze King will repair or replace the item at their discretion and the customer will be responsible for return shipping and re-installation in their home.
6. If the problem is not covered by the Limited Warranty, the customer will be responsible for all repair costs, as well as all storage, shipping and the cost of removing and re-installing the stove.
   If you are not satisfied with the service provided by the Blaze King dealer, write to Blaze King at the address listed on the first page of the Owner's Manual. Include a copy of the original purchase invoice and a description of the problem.

Exclusions and Limitations:

1. This Warranty does not cover tarnish, discoloration or wear on the plated surfaces Painted finishes will change color after initial firing and will continue to change through the lifetime of the stove. This is normal occurrence for all high temperature coatings.
2. This Warranty does not cover gasket material or firebrick.
3. Blaze King strongly recommends installation by a certified installer. Failure to comply may adversely affect coverage under the terms of this warranty. This Limited Warranty covers defects in materials and workmanship only if the product has been installed in accordance with local building and fire codes; in their absence refer to the owner's manual. If the product is damaged or broken as a result of any alteration, wilful abuse, mishandling, accident, neglect, or misuse of the product, the Limited Warranty does not apply.
4. The stove must be operated and maintained at all times in accordance with the instructions in the Owner's Manual. If the unit shows signs of neglect or misuse, it is not covered under the terms of this Warranty policy. Performance problems due to operator error will not be covered by the Limited Warranty policy.
   Some minor expansion, contraction, or movement of certain parts and resulting noise, is normal and not a defect and, therefore, is not covered under this Limited Warranty.
5. Misuse includes over-firing. Over-firing can be identified later by warped plates and paint pigment being burnt off. Over-firing this appliance can cause serious damage and will nullify the Limited Warranty.
6. The Limited Warranty will cover glass thermal breakage only and will not cover misuse of the stove glass, including but not limited to:
   a) Glass that is struck, has surface contaminates or has had harsh or abrasive cleaners used on it.
   b) If the door is slammed or is closed while wood in the firebox is protruding out the stove opening thus striking the glass.
7. This warranty does not cover products made or provided by other manufacturers and used in conjunction with the operation of this stove without prior authorization from Blaze King The use of such products may nullify the Limited Warranty on this stove. If unsure as to the extent of this Limited Warranty, contact your authorized Blaze King dealer before installation.
8. Blaze King will not be responsible for inadequate performance caused by environmental conditions.
9. The Limited Warranty does not cover installation and operational related problems such as use of downdrafts or spillage caused by environmental conditions. Environmental conditions include but are not limited to nearby trees, buildings, roof tops, wind, hills, mountains, inadequate venting or ventilation, excessive offsets, negative air pressures or other influences caused by mechanical systems such as furnaces, fans, clothes dryers etc.
10. The Limited Warranty does not cover damage caused by burning salt-saturated wood, corrosive driftwood, chemically treated wood or any fuel not recommended in the Owner's Manual (use cord wood only).
11. The Limited Warranty is void if:
    a) The stove has been operated in atmospheres contaminated by chlorine, fluorine or other damaging chemicals.
    b) The stove is subject to submersion in water or prolonged periods of dampness or condensation.
    c) Any damage to the unit, combustion chamber or other components due to water, or weather damage which is the result of, but not limited to, improper chimney/venting installation.
    d) Salt air in coastal areas or high humidity can be corrosive to the finish; these environmental conditions can cause rusting. Damage caused by salt air or high humidity is not covered by the Limited Warranty.
12. Exclusions to the Limited Warranty include: injury, loss of use, damage, failure to function due to accident, negligence, misuse, improper installation, alteration or adjustment of the manufacturer's settings of components, lack of proper and regular maintenance, alteration, or act of God.
13. The Limited Warranty does not cover damage caused to the stove while in transit. If this occurs, do not operate the stove and contact your courier and/or dealer.
14. The Limited Warranty does not extend to or include paint, door or glass gaskets or firebricks damage caused by normal wear and tear, such as paint discoloration or chipping, worn or torn gaskets, chipped or cracked firebrick, etc.
15. The Limited Warranty does not include damage to the unit caused by abuse, improper installation, or modification of the unit.
16. Damage to plated surfaces caused by fingerprints, scratches, melted items, or other external scores and residues left on the plated surfaces from the use of abrasive cleaners or polishes is not covered in this warranty.

17. Blaze King is free of liability for any damages caused by the stove, as well as inconvenience expenses and materials. The Limited Warranty does not cover incidental or consequential damages.

18. The Limited Warranty does not cover any loss or damage incurred by the use or removal of any component or apparatus to or from the Blaze King stove without the express written permission of Blaze King and bearing a Blaze King label of approval.

19. Any statement or representation of Blaze King Products and their performance contained in Blaze King advertising, packaging literature, or printed material is not part of the Limited Warranty.

20. The Limited Warranty is automatically voided if the stove's serial number has been removed or altered in any way. If the stove is used for commercial purposes, it is excluded from the Limited Warranty.

21. No dealer, distributor, or similar person has the authority to represent or warrant Blaze King Products beyond the terms contained within the Limited Warranty. Blaze King assumes no liability for such warranties or representations.

22. Blaze King will not cover the cost of the removal or re-installation of the stove, hearth, facing, mantels, venting or other components.

23. Labor to replace or repair items under this Limited Warranty will be covered per our warranty service fee reimbursement and labor rates are set per component schedule. Labor rates vary from location to location and as such total labor costs may not be covered. Please consult with your dealer or service technician for any additional charges such as travel time or additional labor charges that may apply.

24. For parts of the Blaze King wood stove or fireplace insert warranted beyond the first year, the five year limited warranty will have the same obligations as described in this document, provided, however that the purchaser shall pay the following percentage of the then current retail cost of the repair or the replacement, according to the year after purchase in the which the defect is brought to the attention of Blaze King.*** During the 2nd year----purchaser pays 20%. 3rd year ----purchaser pays 40%. 4th year -----purchaser pays 60%. 5th year---- purchaser pays 80%.

25. If a defect or problem is determined by Blaze King to be non warrantable, Blaze King is not liable for travel costs for service work. In the event of in-home repair work, the customer will pay any in-home travel fees or service charges required by the Authorized Dealer.

26. At no time will Blaze King be liable for any consequential damages which exceed the purchase price of the unit. Blaze King has no obligation to enhance or modify any stove once manufactured (example: as a stove model evolves, field modifications or upgrades will not be performed).

27. This Limited Warranty is applicable only to the original purchaser and it is nontransferable.

28. This warranty only covers Blaze King Products that are purchased through an authorized Blaze King dealer.

29. If for any reason any section of the Limited Warranty is declared invalid, the balance of the warranty remains in effect and all other clauses shall remain in effect.

30. The Limited Warranty is the only warranty supplied by Blaze King, the manufacturer of the stove. All other warranties, whether express or implied, are hereby expressly disclaimed and the purchaser's recourse is expressly limited to the Limited Warranty.

31. Blaze King and its employees or representatives will not assume any liability for damages, either directly or indirectly, caused by improper usage, operation, installation, servicing or maintenance of this stove.

32. Blaze King reserves the right to make changes without notice. Please complete and mail the warranty registration card and have the installer fill in the installation data sheet in the back of the manual for warranty and future reference.

33. Blaze King is responsible for stocking parts for a maximum of seven (7) years after discontinuing the manufacture or incorporation of the item into its products. An exception to this would be if an OEM supplier is not able to supply a part.

INSTALLER NOTES

Installer - Please complete the following information:

Dealer Name & Address:_____

_____

Installer Name (print): _____

Installer Signature: _____

Installer Phone #: _____

Date Installed:_____

Appliance Serial No.: _____

8. Quality Assurance / Quality Control

8.1 OMNI's Quality Statement

OMNI's Testing capabilities and Evaluation credentials are covered under the requirements of ISO/IEC Standards, which are utilized by the recognized ILAC Accreditation Agencies to ensure that OMNI's services maintain quality and consistency. This includes the appliance Data/Results (associated with the Construction Evaluation and Performance Evaluation), which are summarized in this specific Report, and are maintained through diligent adherence to the accreditation standards. The Testing, Data Evaluation, Document Review, and Evaluation Report are all conducted and adhere to the system and process/procedures requirements of ISO/IEC 17025, as well as the those set forth by each agency's own program guidelines.

Along with the ISO/IEC 17025 and accreditation agency requirements, OMNI incorporates its own procedures and company policies. These are reviewed (at minimum) on an annual basis, through both internal and external audits of OMNI's Quality Management System. A short list of agencies that accredit OMNI for approval to conduct the scope of services provided, please read the list below.

OMNI's scope of accreditation includes (but is not limited to), the following agencies:

- **International Accreditation Service, Inc. (IAS):** Approved to Test and complete an Evaluation of specified appliances (covered in OMNI's scope of testing certificate) to confirm compliance with performance standard criteria and (ID #TL-130). Also approved for Certification of United States products to the applicable U.S. safety standards (ID #PCA-156) and Inspection/Surveillance of those products (ID #AA-706).
- **Standards Council of Canada (SCC):** Approved for Certification of Canadian products to Canadian safety standards.

  EPA Recognition and Approval: Approved under 40 CFR 60 by the United States EPA as a Test Lab, 3rd Party Certification Body, and an Inspection agency.

If this Evaluation Report is used in an appliance's Certification, an Initial Factory Audit will need to be completed before a Certification can be issued (this may be waived after a client's first Certification has been completed and the client has maintained their Listings in good standing). If the appliance covered in this Report is Certified and Listed on OMNI's Public Listing Directory (PLD), then this Report may be used as a reference document to conduct the annual Quality Control and Product Inspections, which is required to maintain the appliance Listing. If discrepancies are found between the appliance and the information in this Report during the annual inspections, and the owner(s) of the Listing appliance fails to produce evidence or data to resolve said discrepancies, especially in cases that may jeopardize an end-user's safety, then OMNI reserves the right to revoke the appliance Listing.

8.2 - Manufacturer's Quality Assurance Plan (QAP) - (CBI Report Only)

8.3 Equipment and Calibrations

Equipment List

Item No.	Eq. No.	Description	Cal Date	Cal Due
1	340	Moisture Meter	VBU[1]	
2	730	Tape Measure	12/6/2023	12/6/2028
3	431	Moisture Meter Calibrator	10/18/2024	10/18/2025
4	745	Digital Bench Scale	8/1/2025	8/1/2026
5	132	10.00lb audit weight	2/15/2023	2/15/2028
6	274	10.00lb audit weight	4/7/2023	4/7/2028
7	737	Hot-Wire Thermoanemometer	11/7/2024	11/7/2025
8	716	Digital Barometer	6/12/2025	12/12/2025
9	185	Platform Scale	8/7/2025	8/7/2026
10	692	Dry Gas Meter System A (Train A)	6/26/2025	12/26/2025
11	692A	Differential Manometer (Tunnel dP)	2/10/2025	2/10/2026
12	692B	Differential Manometer (DGM A dH)	2/10/2025	2/10/2026
13	691	Dry Gas Meter System B (Train B)	6/26/2025	12/26/2025
14	691A	Differential Manometer (Flue Draft)	2/10/2025	2/10/2026
15	691B	Differential Manometer (DGM B dH)	2/10/2025	2/10/2026
16	336	Dry Gas Meter System C (Train C - First Hour)	6/26/2025	12/26/2025
17	336B	Differential Manometer (DGM C dH)	2/10/2025	2/10/2026
18	335	Dry Gas Meter System (Train D - Background)	6/30/2025	12/30/2025
19	335B	Differential Manometer (DGM D dH)	2/10/2025	2/10/2026
20	410	Traverse Microtector	6/2/2025	6/2/2026
21	637	Lab Mg Scale	2/17/2025	2/17/2026
22	283a	Precision Weight Set	10/24/2023	10/24/2028
23	273	100mg audit weight	9/10/2024	9/10/2029
24	594	Gas Analyzer	VBU[2]	
25	733	Lab Temperature Humidity Meter	3/14/2025	3/14/2026
26	709	Lab Temperature Humidity Meter	3/6/2023	3/6/2028
27	CC506601	Span Gas, 16.88% CO_2, 4.07%CO	6/20/2023	6/20/2031
28	CC305741	Span Gas, 500 ppm CO	6/6/2023	6/1/2028
29	TC3AAM183	Nitrogen (Zero Gas)		
30	352	Humidity & Temp. Logger- Model: Spectrum SP-2000-20R	10/22/2024	10/22/2026
31	394	Differential Pressure Gauge (Magnehilic) 0-1" WC	3/8/2024	3/8/2029
32	318	Thermometer (Handheld Digital)	3/4/2025	3/4/2026
33	753	Temperature, DAQ NI-USB 9213 (Trains A,B,C, Meters, Tunnel, Firebox Surfaces, Flue, Catalyst, Trains A&B Filters and Dryers, Room Ambient	2/10/2025	8/10/2025
34	754	Temperature, DAQ NI-USB 9210 (Train C Filter and Dryer, Train D Meter)	2/10/2025	8/10/2025

VBU[1] - Verified Before Use using Item No. 3 prior of each test.
VBU[2] - Calibrated and verified before use using Items 27,28,29 before each test run.

Certificate of Calibration

Certificate Number: 806340

JJ Calibrations, Inc.
7724 SE Aspen Summit Drive
Portland, OR 97266-9217
Phone 503.786.3005
FAX 503.786.2994

Omni-Test Laboratories
13327 NE Airport Way
Portland, OR 97230

PO: 230462
Order Date: 11/30/2023
Authorized By: N/A

ACCREDITED CERT # 0723.01

Property #: OMNI-00730
User: N/A
Department: N/A
Make: Starrett
Model: TX34-16ME
Serial #: 23275596
Description: Tape Measure, 16'/5m
Procedure: 500614
Accuracy: ±1 Division

Calibrated on: 12/06/2023
*Recommended Due: 12/06/2028
Environment: 20 °C 48 % RH
* As Received: Within Tolerance
* As Returned: Within Tolerance
Action Taken: Calibrated
Technician: 175

Remarks: * Many factors may cause the unit to drift out of calibration before the recommended due date. Any reported error is the absolute value between the reference and the unit. Uncertainties include the effects of the unit.

Standards Used

Std ID	Manufacturer	Model	Nomenclature	Due Date	Trace ID
591A	Mitutoyo	PH-3500	Optical Comparator	09/19/2024	801238

Measurement Data

Parameter / Measurement Description	Range	Unit	Reference	Min	Max	*Error	UUT	Uncertainty
Before/After								Accredited = ✓
Length								
1-2" (16ths)		Inch	1.00000	0.9375	1.0625	0.0005	1.0005 Inch	3.6E-02 ✓
191-192" (16ths)		Inch	1.00000	0.9375	1.0625	0.0005	1.0005 Inch	3.6E-02 ✓
1-2" (32nds)		Inch	1.000000	0.96875	1.03125	0.00050	0.99950 Inch	1.8E-02 ✓
191-192" (32nds)		Inch	1.000000	0.96875	1.03125	0.00000	1.00000 Inch	1.8E-02 ✓

This instrument has been calibrated in accordance with the JJ Calibrations Quality Assurance Manual and is traceable to the SI through an NMI such as but not limited to National Institute of Standards and Technology (NIST). The quality system and this certificate are in compliance with ANSI/NCSL Z540-1-1994, ISO/IEC 17025-2017, ISO 10012-1, the ISO 9000 family and QS 9000. The expanded uncertainties of measurements for this calibration are based upon 95% (2 sigma) confidence limits. Unless stated in the comments, certificates reflect the "Simple Acceptance Rule" as specified by ILAC G8:2019. Unless otherwise stated, a test uncertainty ratio (TUR) of 4:1, if achievable, is maintained. The results reported herein apply only to the calibration of the item described above.
This report may not be reproduced, except in full, without written approval of JJ Calibrations.

Reviewer

3 Issued 12/07/2023 Rev # 15

Inspector

Certificate of Calibration

Certificate Number: 824107

JJ Calibrations, Inc.
7724 SE Aspen Summit Drive
Portland, OR 97266-9217
Phone 503.786.3005
FAX 503.786.2994

Omni-Test Laboratories
13327 NE Airport Way
Portland, OR 97230

PO: 240504
Order Date: 10/10/2024
Authorized By: N/A

Property #: OMNI 00431
User: N/A
Department: N/A
Make: Delmhorst
Model: MCS-1
Serial #: OMNI 00431
Description: Moisture Calibrator
Procedure: Raw Data
Accuracy: Raw Data

Calibrated on: 10/18/2024
*Recommended Due: 10/18/2025
Environment: 22 °C 43 % RH
* As Received: Other - See Remarks
* As Returned: Other - See Remarks
Action Taken: Calibrated
Technician: 128

Remarks: * Many factors may cause the unit to drift out of calibration before the recommended due date. Any reported error is the absolute value between the reference and the unit. Uncertainties include the effects of the unit.

Data is provided for your determination of acceptability.

Standards Used

Std ID	Manufacturer	Model	Nomenclature	Due Date	Trace ID
582A	Fluke	8508A	8 1/2 Reference Mtr	10/07/2025	819058

Measurement Data

Parameter / Measurement Description	Range	Unit	Reference	Min	Max	*Error	UUT	Uncertainty
Before/After								Accredited = ✓
Resistance								
12 %		MOhm	120.000	0.00	0.00	0.91	120.91 MOhm	5.7E-01 ✓
22 %		MOhm	1.100000	0.00000	0.00000	0.00105	1.10105 MOhm	5.7E-01 ✓

This instrument has been calibrated in accordance with the JJ Calibrations Quality Assurance Manual and is traceable to the SI through an NMI such as but not limited to National Institute of Standards and Technology (NIST). The quality system and this certificate are in compliance with ANSI/NCSL Z540-1-1994, ISO/IEC 17025-2017, ISO 10012-1, the ISO 9000 family and QS 9000. The expanded uncertainties of measurements for this calibration are based upon 95% (2 sigma) confidence limits. Unless stated in the comments, certificates reflect the "Simple Acceptance Rule" as specified by ILAC G8:2019. A test uncertainty ratio (TUR) of 4:1, if achievable, is maintained. Where uncertainties are reported, see uncertainties to calculate TUR to determine your possible Risk. The results reported herein apply only to the calibration of the item described above. JJ Calibrations does not alter or update software of the UUT, version stays the same unless otherwise noted. This report may not be reproduced, except in full, without written approval of JJ Calibrations

Reviewer

3 Issued 10/19/2024 Rev # 15

Inspector

QUALITY CONTROL SERVICES
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(503) 236-2712 • FAX (503) 235-2535 • www.qc-services.com
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A2LA ACCREDITED
CERTIFICATE #1550.01

OMNI-Test Laboratories, Inc.
13327 NE Airport Way
Portland, OR 97230

Report Number: OMNE03AE83723924250807

A2LA ACCREDITED
CERTIFICATE OF CALIBRATION WITH DATA

INSTRUMENT INFORMATION

Item	Make	Model	Serial Number	Customer ID	Location
Scale	Adam	GFK165aH	AE83723924	OMNI-00745	Lab
Units	**Readability**	**SOP**	**Cal Date**	**Last Cal Date**	**Cal Due Date**
kg	0.01	QC033	8/7/25	9/25/24	8/2026

FUNCTIONAL CHECKS

SHIFT TEST	LINEARITY	REPEATABILITY	ENVIRONMENTAL CONDITIONS
Test Wt: 20 Tol: 0.0010	Test Wt: HB44 Tol: HB44	Test Wt: 5 Tol: 0.0005	☐ Good ☑ Fair ☐ Poor
As-Found: Pass:☑ Fail:☐	As-Found: Pass:☑ Fail:☐	As-Found: Pass:☑ Fail:☐	Temperature: 22.9°C
As-Left: Pass:☑ Fail:☐	As-Left: Pass:☑ Fail:☐	As-Left: Pass:☑ Fail:☐	

CALIBRATION DATA

Standard	As-Found	As-Left	Expanded Uncertainty
150	149.97	150.00	0.005
100	99.94	100.00	0.005
75	74.96	75.00	0.005
50	49.97	50.01	0.005
25	24.98	24.99	0.005
10	9.99	10.00	0.005

CALIBRATION STANDARDS

Item	Make	Model	Serial Number	Cal Date	Cal Due Date	NIST ID
Avoirdupois Cast W	Rice Lake	25 and 50lb	PWO990-CA	7/26/24	7/2026	20221688

Permanent Information Concerning this Equipment:
1 YEAR CYCLE

Comments/Information Concerning this Calibration
8/7/25: Adjusted span. RH 48%

Report prepared/reviewed by: CC **Date:** 8-7-25 **Technician:** C.Call **Signature:**

THIS CERTIFICATE SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE APPROVAL OF QUALITY CONTROL SERVICES, INC.

The uncertainty is calculated according to the ISO Guide to the Expression of Uncertainty in Measurement and includes the uncertainty of standards used combined with the observed standard deviation of the unit under test. The uncertainty is expanded with a k factor of 2 for an approximate 95% level of confidence. Instruments listed above were calibrated using standards traceable to the National Institute of Standards and Technology (NIST). Calibration data reflect results at the time and location of calibration. Calibration data should be reviewed to insure that the instrument is performing to its required accuracy. Calibrations comply with ISO/IEC 17025 and ANSI/Z540-1-1994 quality standards.

PT ID: OMNE03

SCALE WEIGHT CALIBRATION DATA SHEET

Weight to be calibrated: 10 lbs

ID Number: OMNI-00132

Reference Standard Weight: 10 lbs

ID Number: OMNI-00255

Scale Used: MTW-150K

ID Number: OMNI-00353

Date: 02/15/2023 By: Tony Tong

Standard Weight (A) (Lb.)	Weight Verified (B) (Lb.)	Difference (A – B)	Error (%)
10.0	10.0	0.0	0.0

Acceptable tolerance is 1%.

This calibration is traceable to NIST using calibrated standard weight.

Technician signature: Tony Tong Date: 02/15/2023

Certificate of Calibration

Certificate Number: 791395

JJ Calibrations, Inc.
7724 SE Aspen Summit Drive
Portland, OR 97266-9217
Phone 503.786.3005
FAX 503.786.2994

Omni-Test Laboratories
13327 NE Airport Way
Portland, OR 97230

PO: 230427
Order Date: 03/30/2023
Authorized By: N/A

Property #: OMNI-00274
User: N/A
Department: N/A
Make: Rice Lake
Model: 10 Lbs. (Class F)
Serial #: OMNI-00274
Description: Mass
Procedure: DCN 500901
Accuracy: Class F (±450mg)

Calibrated on: 04/07/2023
*Recommended Due: 04/07/2028
Environment: 20 °C 44 % RH
* As Received: Within Tolerance
* As Returned: Within Tolerance
Action Taken: Calibrated
Technician: 175

Remarks: * Many factors may cause the unit to drift out of calibration before the recommended due date. Any reported error is the absolute value between the reference and the unit. Uncertainties include the effects of the unit.

Received and returned with no case.

Standards Used

Std ID	Manufacturer	Model	Nomenclature	Due Date	Trace ID
550A	And (A&D) Co.	HP-30K	Analytical Balance, 30Kg	02/07/2024	785492
92A	Rice Lake	1oz to 10 lbs (Class F)	Mass Set,	11/18/2023	759449

Measurement Data

Parameter / Measurement Description	Range	Unit	Reference	Min	Max	*Error	UUT	Uncertainty
Before/After								Accredited = ✓
Mass								
10 Lbs.		g	4535.9240	4535.474	4536.374	0.324	4535.600 g	3.6E-01 ✓

This instrument has been calibrated in accordance with the JJ Calibrations Quality Assurance Manual and is traceable to either the SI or to National Institute of Standards and Technology (NIST). The quality system and this certificate are in compliance with ANSI/NCSL Z540-1-1994, ISO/IEC 17025-2017, ISO 10012-1, the ISO 9000 family and QS 9000. The expanded uncertainties of measurements for this calibration are based upon 95% (2 sigma) confidence limits. Unless stated in the comments, certificates reflect the "Simple Acceptance Rule" as specified by JCGM 106:2012. Unless otherwise stated, a test accuracy ratio (TAR) of 4:1, if achievable, is maintained. The results reported herein apply only to the calibration of the item described above. This report may not be reproduced, except in full, without written approval of JJ Calibrations.

Reviewer

3 Issued 04/07/2023 Rev # 15

Inspector

INNOCAL by cole-parmer

625 East Bunker Court
Vernon Hills, Illinois 60061
PH: 866-466-6225
Fax: 847-327-2993
www.innocalsolutions.com

NIST Traceable Calibration Report

REPORT NUMBER
1769963

Reference Number: 175228700
PO Number: 240506

Omni-Test Laboratories, Inc.
13327 NE Airport Way
Portland, OR 97230 United States

ACCREDITED
CERT #1746.01

Manufacturer:	Digi-Sense	**Calibration Date**	11/07/2024
Model Number:	20250-16	**Calibration Due Date**	11/07/2025
Description:	Air Velocity, Hot Wire Anemometer	**Condition As Found:**	Out of Tolerance
Asset Number:	OMNI-00737	**Condition As Left:**	In Tolerance After Adjustment
Serial Number:	230544726		
Procedure:	DS Digi-Sense 20250-16		

Remarks:
NIST-traceable calibration performed on the unit referenced above in accordance with customer requirements, published specifications and the lab's standard operating procedures. Unit was received out-of-tolerance as indicated in the as-found data; adjustments were successful in bringing unit within specifications. As-left data reflects measurements taken after adjustments.

Standards Used

Standard ID	Manufacturer	Model Number	Description	Cal Date	Due Date
CP105979	Kanomax	X5602	Air Velocity, Wind Tunnel, Open Jet	7/01/2024	7/31/2025
CP144552	Fluke Corporation	1551A EX	Temperature, Stik Thermometer	7/10/2024	7/31/2025

Calibration Data

Function Tested	Nominal / Reference Value	Measured Value	OOT	Calibration Tolerance *g: = Guard Banding Applied*	TUR	EMU
Air Velocity Accuracy	5.00 m/s					
As Found	5.00	4.89		4.74 to 5.26 m/s	6.2:1	± 0.042 m/s
As Left	5.00	5.02		4.74 to 5.26 m/s	6.2:1	± 0.042 m/s
	10.00 m/s					
As Found	10.00	9.70		9.49 to 10.51 m/s	11:1	± 0.045 m/s
As Left	10.00	9.96		9.49 to 10.51 m/s	11:1	± 0.045 m/s
	15.00 m/s					
As Found	15.00	14.26		14.24 to 15.76 m/s	8.1:1	± 0.094 m/s
As Left	15.00	15.01		14.24 to 15.76 m/s	8.1:1	± 0.094 m/s
	20.00 m/s					
As Found	20.00	18.45	X	18.99 to 21.01 m/s	8.1:1	± 0.12 m/s
As Left	20.00	20.04		18.99 to 21.01 m/s	8.1:1	± 0.12 m/s
	25.00 m/s					
As Found	25.00	22.18	X	23.74 to 26.26 m/s	8.1:1	± 0.16 m/s
As Left	25.00	25.06		23.74 to 26.26 m/s	8.1:1	± 0.16 m/s
Temperature Accuracy	25.0 °C					
As Found	25.0	25.0		24.0 to 26.0 °C	13:1	± 0.077 °C
As Left	25.0	25.0		24.0 to 26.0 °C	13:1	± 0.077 °C

Temperature: 23 °C
Humidity: 36 %RH
Rpt. No.: 1769963

Calibration Performed By:		Quality Reviewer:	
Chris Lu	Technician, Metrology	James Alexander	11/7/2024
Name	Title	Name	Date

This report may not be reproduced, except in full, without written permission of Innocal. The results stated in this report relate only to the items tested or calibrated. Measurements reported herein are traceable to SI units via national standards maintained by NIST and were performed in compliance with MIL-STD-45662A, ANSI/NCSL Z540-1-1994, 10CFR50, Appendix B, ISO 9002-94, and ISO 17025:2017. Conformance based on Simple Acceptance as defined in ILAC G8 with a < 50% PFA. The estimated measurement uncertainty (EMU), if reported on this certificate, is being reported at a confidence level of 95% or K=2 unless otherwise noted in the remarks section.

Certificate of Calibration

Certificate Number: 834126

JJ Calibrations, Inc.
7724 SE Aspen Summit Drive
Portland, OR 97266-9217
Phone 503.786.3005
FAX 503.786.2994

Omni-Test Laboratories
13327 NE Airport Way
Portland, OR 97230

PO: 250533
Order Date: 05/01/2025
Authorized By: N/A

Property #: OMNI-00716
User: N/A
Department: N/A
Make: Control Company
Model: 6530
Serial #: 221461635
Description: Thermohygrometer / Barometer
Procedure: 403406
Accuracy: ±3%RH, ±.4°C(0.8°F), ±4mbar

Calibrated on: 06/12/2025
*Recommended Due: 12/12/2025
Environment: 23 °C 38 % RH
* As Received: Within Tolerance
* As Returned: Within Tolerance
Action Taken: Calibrated
Technician: 175

Remarks: * Many factors may cause the unit to drift out of calibration before the recommended due date. Any reported error is the absolute value between the reference and the unit. Uncertainties include the effects of the unit.

TUR<4:1. See Uncertainties to calculate TUR to determine your possible Risk.

Standards Used

Std ID	Manufacturer	Model	Nomenclature	Due Date	Trace ID
925A	RH Systems	CGS-240	Humidity Generator	04/09/2026	832510

Measurement Data

Parameter / Measurement Description	Range Unit	Reference	Min	Max	*Error	UUT	Uncertainty
Before/After							Accredited = ✓
Humidity							
	10 %	20.0	17	23	3	23 %	6E-01 ✓
	50 %	50.0	47	53	3	53 %	6E-01 ✓
	80 %	80.0	77	83	0	80 %	6E-01 ✓
Temperature							
	10 °C	10.00	9.6	10.4	0.2	10.2 °C	7.5E-02 ✓
	25 °C	25.00	24.6	25.4	0.1	25.1 °C	7.5E-02 ✓
	40 °C	40.00	39.6	40.4	0.3	39.7 °C	7.5E-02 ✓
Barometer							
	inHg	29.850000	29.73188	29.96812	0.06000	29.79000 inHg	1.8E-01 ✓

This instrument has been calibrated in accordance with the JJ Calibrations Quality Assurance Manual and is traceable to the SI through an NMI such as but not limited to National Institute of Standards and Technology (NIST). The quality system and this certificate are in compliance with ANSI/NCSL Z540-1-1994, ISO/IEC 17025-2017, ISO 10012-1, the ISO 9000 family and QS 9000. The expanded uncertainties of measurements for this calibration are based upon 95% (2 sigma) confidence limits. Unless stated in the comments, certificates reflect the "Simple Acceptance Rule" as specified by ILAC G8:2019. A test uncertainty ratio (TUR) of 4:1, if achievable, is maintained. Where uncertainties are reported, see uncertainties to calculate TUR to determine your possible Risk. The results reported herein apply only to the calibration of the item described above. JJ Calibrations does not alter or update software of the UUT, version stays the same unless otherwise noted. This report may not be reproduced, except in full, without written approval of JJ Calibrations

Reviewer

3 Issued 06/13/2025 Rev # 15

Inspector

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A2LA ACCREDITED
CERTIFICATE #1550.01

OMNI-Test Laboratories, Inc.
13327 NE Airport Way
Portland, OR 97230

Report Number: OMNE03005547250807

A2LA ACCREDITED
CERTIFICATE OF CALIBRATION WITH DATA

INSTRUMENT INFORMATION

Item	Make	Model	Serial Number	Customer ID	Location
Scale	Weigh-Tronix	WI-127 1000x0.1lb	005547	OMNI-00185	Lab
Units	**Readability**	**SOP**	**Cal Date**	**Last Cal Date**	**Cal Due Date**
lbs	0.1	QC033	8/7/25	8/26/24	8/2026

FUNCTIONAL CHECKS

SHIFT TEST	LINEARITY	REPEATABILITY	ENVIRONMENTAL CONDITIONS
Test Wt: 500 Tol: 0.5	Test Wt: HB44 Tol: HB44	Test Wt: 200 Tol: 0.2	☐ Good ☑ Fair ☐ Poor
As-Found: Pass:☑ Fail:☐	As-Found: Pass:☑ Fail:☐	As-Found: Pass:☑ Fail:☐	Temperature: 23.0°C
As-Left: Pass:☑ Fail:☐	As-Left: Pass:☑ Fail:☐	As-Left: Pass:☑ Fail:☐	

CALIBRATION DATA

Standard	As-Found	As-Left	Expanded Uncertainty
1000	999.8	999.8	0.05
700	700.0	700.0	0.05
500	500.0	500.0	0.05
200	200.0	200.0	0.05
100	99.9	99.9	0.05
50	50.0	50.0	0.05

CALIBRATION STANDARDS

Item	Make	Model	Serial Number	Cal Date	Cal Due Date	NIST ID
Avoirdupois Cast W	Rice Lake	25 and 50lb	PWO990-CA	7/26/24	7/2026	20221688

Permanent Information Concerning this Equipment:
Old s/n 21676

Comments/Information Concerning this Calibration
8/7/25: RH 48%

Report prepared/reviewed by: CC **Date:** 8-7-25 **Technician:** C.Call **Signature:**

THIS CERTIFICATE SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE APPROVAL OF QUALITY CONTROL SERVICES, INC.

The uncertainty is calculated according to the ISO Guide to the Expression of Uncertainty in Measurement and includes the uncertainty of standards used combined with the observed standard deviation of the unit under test. The uncertainty is expanded with a k factor of 2 for an approximate 95% level of confidence. Instruments listed above were calibrated using standards traceable to the National Institute of Standards and Technology (NIST). Calibration data reflect results at the time and location of calibration. Calibration data should be reviewed to insure that the instrument is performing to its required accuracy. Calibrations comply with ISO/IEC 17025 and ANSI/Z540-1-1994 quality standards.

Thermal Metering System Calibration
Y Factor

Manufacturer:	Apex Instruments
Model:	XC-60-EP
Serial Number:	1905003
OMNI Tracking No.:	335
Calibrated Orifice:	☐ Yes

Average Gas Meter y Factor	Orifice Meter dH@
0.960	N/A

Calibration Date:	06/30/25	
Calibrated by:	J McShane	
Calibration Frequency:	6 month	
Next Calibration Due:	12/30/2025	
Instrument Range:	0 - 1.471	cfm
Standard Temp.:	68	oF
Standard Press.:	29.92	"Hg
Barometric Press., Pb:	29.92	"Hg
Signature/Date:		

Previous Calibration Comparision

		Acceptable Deviation (5%)	Deviation
Date	1/8/2025		
y Factor	1.0056251	0.050281255	0.045
Acceptance	Acceptable		

Current Calibration

Acceptable y Deviation	0.020
Maximum y Deviation	0.009
Acceptable dH@ Deviation	N/A
Maximum dH@ Deviation	N/A
Acceptance	Acceptable

Reference Standard *			
Standard Calibrator	Model	Standard Test Meter	
	S/N	OMNI-00330	
	Calib. Date	02-May-25	
	Calib. Value	1.0023	y factor (ref)

Calibration Parameters	Run 1	Run 2	Run 3
Reference Meter Pressure ("H2O), Pr	-0.28	-0.23	-0.33
DGM Pressure ("H2O), Pd	1.10	0.70	1.50
Initial Reference Meter	610.2	615.4	620.6
Final Reference Meter	615	620.2	625.4
Initial DGM	0	0	0
Final DGM	5.063	5.022	5.094
Temp. Ref. Meter (°F), Tr	83.0	84.0	85.0
Temperature DGM (°F), Td	87.0	92.0	95.0
Time (min)	32.1	39.3	27.3
Net Volume Ref. Meter, Vr	4.800	4.800	4.800
Net Volume DGM, Vd	5.063	5.022	5.094
Gas Meter y Factor =	**0.954**	**0.970**	**0.957**
Gas Meter y Factor Deviation (from avg.)	0.006	0.009	0.003
Orifice dH@	**N/A**	**N/A**	**N/A**
Orifice dH@ Deviation (from avg.)	N/A	N/A	N/A

where:

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

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

** Equations come from EPA Method 5

The uncertainty of measurement is ±0.14 ft^3/min. This is based on the reference standard having a TAR (Test Accuracy Ratio) of at least 4:1.

Thermal Metering System Calibration
Y Factor

Manufacturer:	Apex Instruments
Model:	XC-60-EP
Serial Number:	1905003
OMNI Tracking No.:	336
Calibrated Orifice:	☐ Yes

Average Gas Meter y Factor	Orifice Meter dH@
0.981	N/A

Calibration Date:	06/26/25	
Calibrated by:	R. Tiegs	
Calibration Frequency:	6 month	
Next Calibration Due:	12/26/2025	
Instrument Range:	0 - 1.471	cfm
Standard Temp.:	68	oF
Standard Press.:	29.92	"Hg
Barometric Press., Pb:	30.07	"Hg
Signature/Date:		

Previous Calibration Comparision

		Acceptable Deviation (5%)	Deviation
Date	1/8/2025		
y Factor	1.007419	0.05037095	0.026
Acceptance	Acceptable		

Current Calibration

Acceptable y Deviation	0.020
Maximum y Deviation	0.002
Acceptable dH@ Deviation	N/A
Maximum dH@ Deviation	N/A
Acceptance	Acceptable

Reference Standard *			
Standard Calibrator	Model	Standard Test Meter	
	S/N	OMNI-00330	
	Calib. Date	02-May-25	
	Calib. Value	1.0023	y factor (ref)

Calibration Parameters	Run 1	Run 2	Run 3
Reference Meter Pressure ("H2O), Pr	-0.31	-0.25	-0.36
DGM Pressure ("H2O), Pd	1.05	0.65	1.44
Initial Reference Meter	594.5	599.7	605.1
Final Reference Meter	599.4	604.6	610
Initial DGM	0	0	0
Final DGM	5.082	5.091	5.064
Temp. Ref. Meter (°F), Tr	77.0	77.0	77.0
Temperature DGM (°F), Td	86.0	87.0	87.0
Time (min)	31.1	39.4	26.5
Net Volume Ref. Meter, Vr	4.900	4.900	4.900
Net Volume DGM, Vd	5.082	5.091	5.064
Gas Meter y Factor =	**0.979**	**0.980**	**0.984**
Gas Meter y Factor Deviation (from avg.)	0.002	0.001	0.002
Orifice dH@	**N/A**	**N/A**	**N/A**
Orifice dH@ Deviation (from avg.)	N/A	N/A	N/A

where:

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

* Reference calibration is traceable to NIST through NIST Test # 40674, Kimble ASTM E1272, or NIST traceable laboratory
** Equations come from EPA Method 5
The uncertainty of measurement is ±0.14 ft^3/min. This is based on the reference standard having a TAR (Test Accuracy Ratio) of at least 4:1.

Thermal Metering System Calibration
Y Factor

Manufacturer:	Apex Instruments
Model:	XC-50-NK
Serial Number:	1905003
OMNI Tracking No.:	691
Calibrated Orifice:	☐ Yes

Average Gas Meter y Factor	Orifice Meter dH@
1.005	N/A

Calibration Date:	06/26/25	
Calibrated by:	R. Tiegs	
Calibration Frequency:	6 month	
Next Calibration Due:	12/26/2025	
Instrument Range:	0 - 1.471	cfm
Standard Temp.:	68	oF
Standard Press.:	29.92	"Hg
Barometric Press., Pb:	30.07	"Hg
Signature/Date:		

Previous Calibration Comparision

Date	6/26/2025	Acceptable Deviation (5%)	Deviation
y Factor	1.0244	0.05122	0.019
Acceptance	Acceptable		

Current Calibration

Acceptable y Deviation	0.020
Maximum y Deviation	0.005
Acceptable dH@ Deviation	N/A
Maximum dH@ Deviation	N/A
Acceptance	Acceptable

Reference Standard *			
Standard Calibrator	Model	Standard Test Meter	
	S/N	OMNI-00330	
	Calib. Date	02-May-25	
	Calib. Value	1.0023	y factor (ref)

Calibration Parameters	Run 1	Run 2	Run 3
Reference Meter Pressure ("H2O), Pr	-0.32	-0.26	-0.35
DGM Pressure ("H2O), Pd	1.20	0.81	1.61
Initial Reference Meter	578.8	583.9	589.1
Final Reference Meter	583.8	588.8	594.1
Initial DGM	0	0	0
Final DGM	5.074	5.034	5.104
Temp. Ref. Meter (°F), Tr	75.0	76.0	76.0
Temperature DGM (°F), Td	87.0	91.0	94.0
Time (min)	31.3	39.3	26.2
Net Volume Ref. Meter, Vr	5.000	4.900	5.000
Net Volume DGM, Vd	5.074	5.034	5.104
Gas Meter y Factor =	**1.006**	**1.000**	**1.010**
Gas Meter y Factor Deviation (from avg.)	0.001	0.005	0.005
Orifice dH@	**N/A**	**N/A**	**N/A**
Orifice dH@ Deviation (from avg.)	N/A	N/A	N/A

where:

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

* Reference calibration is traceable to NIST through NIST Test # 40674, Kimble ASTM E1272, or NIST traceable laboratory
** Equations come from EPA Method 5
The uncertainty of measurement is ±0.14 ft^3/min. This is based on the reference standard having a TAR (Test Accuracy Ratio) of at least 4:1.

Thermal Metering System Calibration
Y Factor

Manufacturer:	Apex Instruments
Model:	XC-50-NK
Serial Number:	1905004
OMNI Tracking No.:	692
Calibrated Orifice:	☐ Yes

Average Gas Meter y Factor	Orifice Meter dH@
0.991	N/A

Calibration Date:	06/26/25	
Calibrated by:	R. Tiegs	
Calibration Frequency:	6 month	
Next Calibration Due:	12/26/2025	
Instrument Range:	0 - 1.471	cfm
Standard Temp.:	68	oF
Standard Press.:	29.92	"Hg
Barometric Press., Pb:	30.07	"Hg
Signature/Date:		

Previous Calibration Comparision

Date	6/26/2025	Acceptable Deviation (5%)	Deviation
y Factor	1.0244	0.05122	0.033
Acceptance	Acceptable		

Current Calibration

Acceptable y Deviation	0.020
Maximum y Deviation	0.010
Acceptable dH@ Deviation	N/A
Maximum dH@ Deviation	N/A
Acceptance	Acceptable

Reference Standard *			
Standard Calibrator	Model	Standard Test Meter	
	S/N	OMNI-00330	
	Calib. Date	02-May-25	
	Calib. Value	1.0023	y factor (ref)

Calibration Parameters	Run 1	Run 2	Run 3
Reference Meter Pressure ("H2O), Pr	-0.30	-0.25	-0.35
DGM Pressure ("H2O), Pd	1.23	0.89	1.62
Initial Reference Meter	555.3	560.3	565.5
Final Reference Meter	560.2	565.2	570.7
Initial DGM	0	0	0
Final DGM	5.006	5.052	5.341
Temp. Ref. Meter (°F), Tr	75.0	75.0	75.0
Temperature DGM (°F), Td	78.5	86.0	91.5
Time (min)	32.0	38.6	28.7
Net Volume Ref. Meter, Vr	4.900	4.900	5.200
Net Volume DGM, Vd	5.006	5.052	5.341
Gas Meter y Factor =	**0.984**	**0.989**	**1.001**
Gas Meter y Factor Deviation (from avg.)	0.008	0.002	0.010
Orifice dH@	**N/A**	**N/A**	**N/A**
Orifice dH@ Deviation (from avg.)	N/A	N/A	N/A

where:

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

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

** Equations come from EPA Method 5

The uncertainty of measurement is ±0.14 ft^3/min. This is based on the reference standard having a TAR (Test Accuracy Ratio) of at least 4:1.

CALIBRATED BY TRANSCAT CERTIFICATE OF CALIBRATION

Customer: OMNI-TEST LABORATORIES INC
13327 NE AIRPORT WAY
PORTLAND, OR 97230

PO Number: 250534

ANAB ACCREDITED ISO/IEC 17025 CALIBRATION LABORATORY
ANAB AC-2489.01

Certificate/SO Number: 2-JN6QR-20-1 Revision 0

Manufacturer: Dwyer Instruments Inc.
Model Number: 1430
Description: Microtector
Serial Number: OMNI-00410
ID: OMNI-00410

As-Found: In Tolerance
As-Left: In Tolerance

Issue Date: Jul 02, 2025
Calibration Date: Jul 02, 2025
Due Date: Jul 02, 2026

Calibrated To: Manufacturer Specification
Calibration Procedure: 1-AC15388-2

4/6

Transcat Calibration Laboratories have been audited and found in compliance with ISO/IEC 17025:2017. Accredited calibrations performed within the Lab Scope of Accreditation are indicated by the presence of the Accrediting Body Logo and Certificate Number. Any measurements on an accredited calibration not covered by the Lab Scope of Accreditation are listed in the notes section of the certificate. SCC, NRC, CLAS or ANAB do not guarantee the accuracy of an individual calibration by accredited laboratories.

Transcat calibrations, as applicable, are performed in compliance with the requirements of the Transcat Quality Manual QAC-P01-000, the customer Purchase Order and/or Quality Agreement requirements, ISO 9001:2015, ANSI/NCSL Z540.1-1994 (R2002), and ISO 10012:2003, as applicable. When specified contractually, the requirements of ISO TS16949:2009, 10CFR21, 10CFR50 App. B, ASME NQA-1:2012, and ANSI/NCSL Z540.3-2006 (R2013) are also covered.

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

Transcat documents the traceability of measurements to the SI units through the National Institute of Standards and Technology(NIST), or the National Research Council of Canada (NRC), or other national measurement institutes (NMI) that are signatories to the CIPM Mutual Recognition Arrangement, or accepted fundamental and/or natural physical constants, or by the use of specified methods, consensus standards or ratio type measurements. Documentation supporting traceability information is available for review upon written request at a Transcat facility. The measured quantity and the measurement uncertainty are required for further dissemination of traceability.

Uncertainties are reported with a coverage factor k=2, providing a level of confidence of approximately 95%. All calibrations have been performed using processes having a TUR of 4:1 or better (3:1 for mass calibrations), unless otherwise noted. The Test Uncertainty Ratio (TUR) is calculated in accordance with NCSL International RP-18. For mass calibrations: Conventional mass referenced to 8.0 g/cm³.

The results in this report relate only to the item calibrated or tested. Recorded calibration data is valid at the time of calibration within the stated uncertainties at the environmental conditions noted. The determination of compliance to the specification is specific to the model/serial no./ID no. referenced above based on the tolerances shown; these tolerances are either the original equipment manufacturers (OEM's) warranted specifications or the client's requested specifications. Any number of factors can cause a unit to drift out of tolerance at any time following its calibration. Limitations on the uses of this instrument are detailed in the OEM's operating instructions. This certificate may not be reproduced except in full, without the written approval of Transcat. Additional information, if applicable may be included on separate report(s).

CALIBRATED BY TRANSCAT — CERTIFICATE OF CALIBRATION

Customer: OMNI-TEST LABORATORIES INC
13327 NE AIRPORT WAY
PORTLAND, OR 97230

PO Number: 250534

ANAB ANSI National Accreditation Board ACCREDITED ISO/IEC 17025 CALIBRATION LABORATORY
ANAB AC-2489.01

Certificate/SO Number: 2-JN6QR-20-1 Revision 0

As Found/As Left Data

Description	Setpoints	Accuracy	Low Limit	High Limit	As Found / As Left	OOT	Cal Process Uncertainty (k=2; ±)	Measurement Uncertainty (k=2; ±)	Units	TUR
Length Measure										
Linearity	0.2100in	±(0.0002 in)	0.2098	0.2102	0.2100 in		1.3e-005	5.9e-005	in	15.4 : 1
	0.4200in	±(0.0002 in)	0.4198	0.4202	0.4200 in		1.3e-005	5.9e-005	in	15.4 : 1
	0.6050in	±(0.0002 in)	0.6048	0.6052	0.6050 in		1.3e-005	5.9e-005	in	15.4 : 1
	0.8150in	±(0.0002 in)	0.8148	0.8152	0.8150 in		1.3e-005	5.9e-005	in	15.4 : 1
	1.0000in	±(0.0002 in)	0.9998	1.0002	1.0000 in		1.4e-005	5.9e-005	in	14.3 : 1
Function Check										
Meter Deflection			P	P	P					

Field not applicable.

Traceable Standards

Asset	Manufacturer	Model Number	Description	Cal Date	Due Date	Traceability Number	Use
1284W	Mitutoyo	960-612	Precision Level	2-Jun-25	31-Aug-26	2-&1284W-13-1	AF/AL
306W	Mitutoyo	516-902	Gage Block Set, 81 pcs.	18-Nov-24	30-Nov-25	15-&306W -9-1	AF/AL

The use of the standard is defined as: AF - used for as-found readings, AL - used for as-left readings.

Environmental Data

Temperature	Relative Humidity	Temp / RH Asset	Lab Area	Lab Description
70.80°F /21.56°C	55.40%	1015W	C	Torque

Decision Rule

When compliance statements are present, they are reported without factoring in the effects of uncertainty and comply with the guidelines as follows: The acceptance zone is defined as: less than or equal

QUALITY CONTROL SERVICES
LABORATORY EQUIPMENT • SALES • SERVICE • CALIBRATION • REPAIRS
2340 SE 11TH Ave. Portland, Oregon 97214 • Box 14831 Portland, Oregon 97293
(503) 236-2712 • FAX (503) 235-2535 • www.qc-services.com
An AccreditedLabs Company
A2LA ACCREDITED CERTIFICATE #1550.01

OMNI-Test Laboratories, Inc.
13327 NE Airport Way
Portland, OR 97230

Report Number: OMNE03B729400181250807

A2LA ACCREDITED
CERTIFICATE OF CALIBRATION WITH DATA

INSTRUMENT INFORMATION

Item	Make	Model	Serial Number	Customer ID	Location
Balance	Mettler	MS104TS	B729400181	OMNI-00637	Lab
Units	**Readability**	**SOP**	**Cal Date**	**Last Cal Date**	**Cal Due Date**
g	0.0001	qcs012	8/7/25	2/17/25	2/2026

FUNCTIONAL CHECKS

ECCENTRICITY

Test Wt:	Tol:
50	0.0001

As-Found: Pass: ☑ Fail: ☐
As-Left: Pass: ☑ Fail: ☐

LINEARITY

Test Wt:	Tol:
20x4	0.0001

As-Found: Pass: ☑ Fail: ☐
As-Left: Pass: ☑ Fail: ☐

STANDARD DEVIATION

Test Wt:	Tol:
100	0.0001

1. 99.9995	5. 99.9996	9. 99.9994
2. 99.9996	6. 99.9995	10. 99.9994
3. 99.9996	7. 99.9996	**Result**
4. 99.9995	8. 99.9995	0.00007

ENVIRONMENTAL CONDITIONS

☐ Good ☑ Fair ☐ Poor

Temperature: 23.8°C

A2LA ACCREDITED SECTION OF REPORT

Standard	As-Found	As-Left	Expanded Uncertainty
100	99.9996	99.9996	0.00020
80	79.9998	79.9997	0.00020
50	50.0000	50.0000	0.00019
20	20.0000	20.0000	0.00019
1	1.0000	1.0000	0.00019
0.1	0.1000	0.1000	0.00019

CALIBRATION STANDARDS

Item	Make	Model	Serial Number	Cal Date	Cal Due Date	NIST ID
Weight Set	R.L./Troemner	10kg to 1mg	G782	5/23/25	5/2026	20251142

Permanent Information Concerning this Equipment:

Comments/Info Concerning this Calibration:
08/07/2025: Cleaned. RH=48%

Report prepared/reviewed by: TP **Date:** 08.07.2025 **Technician:** T.Peterson
Signature:

THIS CERTIFICATE SHALL NOT BE REPRODUCED WITHOUT THE APPROVAL OF QUALITY CONTROL SERVICES, INC.

The uncertainty is calculated according to the ISO Guide to the Expression of Uncertainty in Measurement and includes the uncertainty of standards used combined with the observed standard deviation and readability of the unit under test. The uncertainty is expanded with a k factor of 2 for an approximate 95% level of confidence. Instruments listed above were calibrated using standards traceable to the National Institute of Standards and Technology (NIST). Calibration data reflect results at the time and location of calibration. Calibration data should be reviewed to insure that the instrument is performing to its required accuracy. Calibrations comply with ISO/IEC 17025 and ANSI/Z540-1-1994 quality standards. Results relate only to the item(s) tested. Unless otherwise noted, statements of conformity do not include measurement

CALIBRATED BY TRANSCAT CERTIFICATE OF CALIBRATION

Customer: OMNI-TEST LABORATORIES INC
13327 NE AIRPORT WAY
PORTLAND, OR 97230

PO Number: 230453

ANAB ANSI National Accreditation Board ACCREDITED ISO/IEC 17025 CALIBRATION AND DIMENSIONAL MEASUREMENT ANAB AC-2489.08

ilac-MRA

Certificate/SO Number: 19-E6W3O-20-1 Revision 0

Manufacturer: Troemner/Talboys
Model Number: 100 g - 200 mg
Description: Weight Set, 8 Pcs, Class F
Serial Number: 47883
ID: OMNI-00283A

As-Found: In Tolerance
As-Left: In Tolerance

Issue Date: Oct 24, 2023
Calibration Date: Oct 24, 2023
Due Date: Oct 24, 2028

Calibrated To: Manufacturer Specification
Calibration Procedure: 6-AC11601-3

449

Transcat Calibration Laboratories have been audited and found in compliance with ISO/IEC 17025:2017. Accredited calibrations performed within the Lab Scope of Accreditation are indicated by the presence of the Accrediting Body Logo and Certificate Number. Any measurements on an accredited calibration not covered by the Lab Scope of Accreditation are listed in the notes section of the certificate. SCC, NRC, CLAS or ANAB do not guarantee the accuracy of an individual calibration by accredited laboratories.

Transcat calibrations, as applicable, are performed in compliance with the requirements of the Transcat Quality Manual QAC-P01-000, the customer Purchase Order and/or Quality Agreement requirements, ISO 9001:2015, ANSI/NCSL Z540.1-1994 (R2002), and ISO 10012:2003, as applicable. When specified contractually, the requirements of ISO TS16949:2009, 10CFR21, 10CFR50 App. B, ASME NQA-1:2012, and ANSI/NCSL Z540.3-2006 (R2013) are also covered.

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

Transcat documents the traceability of measurements to the SI units through the National Institute of Standards and Technology(NIST), or the National Research Council of Canada (NRC), or other national measurement institutes (NMI) that are signatories to the CIPM Mutual Recognition Arrangement, or accepted fundamental and/or natural physical constants, or by the use of specified methods, consensus standards or ratio type measurements. Documentation supporting traceability information is available for review upon written request at a Transcat facility. The measured quantity and the measurement uncertainty are required for further dissemination of traceability.

Uncertainties are reported with a coverage factor k=2, providing a level of confidence of approximately 95%. All calibrations have been performed using processes having a TUR of 4:1 or better (3:1 for mass calibrations), unless otherwise noted. The Test Uncertainty Ratio (TUR) is calculated in accordance with NCSL International RP-18. For mass calibrations: Conventional mass referenced to 8.0 g/cm³.

The results in this report relate only to the item calibrated or tested. Recorded calibration data is valid at the time of calibration within the stated uncertainties at the environmental conditions noted. The determination of compliance to the specification is specific to the model/serial no./ID no. referenced above based on the tolerances shown; these tolerances are either the original equipment manufacturers (OEM's) warranted specifications or the client's requested specifications. Any number of factors can cause a unit to drift out of tolerance at any time following its calibration. Limitations on the uses of this instrument are detailed in the OEM's operating instructions. This certificate may not be reproduced except in full, without the written approval of Transcat. Additional information, if applicable may be included on separate report(s).

CALIBRATED BY TRANSCAT CERTIFICATE OF CALIBRATION

Customer: OMNI-TEST LABORATORIES INC
13327 NE AIRPORT WAY
PORTLAND, OR 97230

PO Number: 230453

ANAB ANSI National Accreditation Board ACCREDITED ISO/IEC 17025 CALIBRATION AND DIMENSIONAL MEASUREMENT ANAB AC-2489.08

ilac-MRA

Certificate/SO Number: 19-E6W3O-20-1 Revision 0

As Found/As Left Data

Description	Setpoints	Accuracy	Low Limit	High Limit	As Found / As Left	OOT	Cal Process Uncertainty (k=2; ±)	Measurement Uncertainty (k=2; ±)	Units	TUR
Test Environment Ambient Temperature - W1										
Ambient Temperature					20.000 °C					
Test Environment Ambient Relative Humidity - W1										
Relative Humidity					40.00 %RH					
Test Environment Barometric Pressure - W1										
Barometric Presssure					29.751 "Hg@0°C					
Mass Measurement - W1	100.0000g	±(0.02 g)	99.9800	100.0200	99.9982 g		0.00025	0.00025	g	80.0 : 1
Mass Measurement - W2	50.0000g	±(0.01 g)	49.9900	50.0100	49.9994 g		0.00015	0.00015	g	66.7 : 1
Mass Measurement - W3	20.0000g	±(0.004 g)	19.9960	20.0040	20.0010 g		0.000087	0.000087	g	46.0 : 1
Mass Measurement - W4	10.0000g	±(0.002 g)	9.9980	10.0020	9.9998 g		0.000062	0.000062	g	32.3 : 1
Mass Measurement - W5	5.000000g	±(0.001501 g)	4.998499	5.001501	4.999870 g		0.000045	0.000045	g	33.4 : 1
Mass Measurement - W6	2.000000g	±(0.001122 g)	1.998878	2.001122	2.000407 g		0.000032	0.000032	g	35.1 : 1
Mass Measurement - W7	1.00000g	±(0.0009 g)	0.99910	1.00090	1.00011 g		0.000025	0.000025	g	36.0 : 1
Mass Measurement - W8	200.0000mg	±(0.5395 mg)	199.4605	200.5395	200.0602 mg		0.0047	0.0047	mg	100.0 : 1

CALIBRATED BY TRANSCAT CERTIFICATE OF CALIBRATION

Customer: OMNI-TEST LABORATORIES INC
13327 NE AIRPORT WAY
PORTLAND, OR 97230

PO Number: 230453

ANAB ANSI National Accreditation Board ACCREDITED ISO/IEC 17025 CALIBRATION AND DIMENSIONAL MEASUREMENT ANAB AC-2489.08

ilac-MRA

Certificate/SO Number: 19-E6W3O-20-1 Revision 0

Field not applicable.

453

Date Received: October 13, 2023
Service Level : R9

Customer Number: 1-599076-000

CALIBRATED BY TRANSCAT CERTIFICATE OF CALIBRATION

Customer: OMNI-TEST LABORATORIES INC
13327 NE AIRPORT WAY
PORTLAND, OR 97230

PO Number: 230453

ANAB ANSI National Accreditation Board ACCREDITED ISO/IEC 17025 CALIBRATION AND DIMENSIONAL MEASUREMENT
ANAB AC-2489.08

Certificate/SO Number: 19-E6W3O-20-1 Revision 0

Traceable Standards

Asset	Manufacturer	Model Number	Description	Cal Date	Due Date	Traceability Number	Use
19-321	Fluke	2626-H	Hygro-Thermometer, Probe,	31-May-23	31-Mar-24	19-&19-321-22-1	AF/AL
19-Mass3	Transcat	Echelon III	Transfer Mass Standard Set	23-Oct-23	23-Nov-23	19-&19-Mass3-99-1	AF/AL
19-P100	Troemner	7210-1	Weight Set, 5 kg to 1 g, Class 1	4-Oct-23	31-Oct-24	19-&19-P100-19-1	AF/AL
19-P126	Druck Inc.	DPI 740 (22 to 34 inHg)	Barometer	22-Mar-23	31-Mar-24	19-&19-P126-17-1	AF/AL
19-P129	Mettler Toledo	XPE2004SC	Comparator Balance	25-Oct-22	31-Oct-23	19-&19-P129-15-1	AF/AL
19-P142	Mettler Toledo	UMX5	Micro Balance	25-Oct-22	31-Oct-23	19-&19-P142-13-1	AF/AL

The use of the standard is defined as: AF - used for as-found readings, AL - used for as-left readings.

Environmental Data

Temperature	Relative Humidity	Temp / RH Asset	Lab Area	Lab Description
68.80°F /20.44°C	40.20%	19-321	E2C	Echelon II (10 kg)

Decision Rule

When compliance statements are present, they are reported without factoring in the effects of uncertainty and comply with the guidelines as follows: The acceptance zone is defined as: less than or equal to the high limit, and/or greater than or equal to the low limit. The rejection zones are defined as greater than the high limit and/or less than the low limit. Single measurement results in the acceptance zone are identified as in-tolerance. Single measurement results in the rejection zone are identified as out-of-tolerance (OOT). When all measurement results are in the acceptance zone for repeated measurements, for the same characteristic, the test is identified as in-tolerance. For repeated characteristic measurements, a single measurement result in the rejection zone, will cause the test to be identified as out-of-tolerance (OOT). Data rejection for cause, (outliers) is permitted after the â€œDetermining and Verifying Out Of Tolerance(OOT) and/or Op Fail Readingsâ€□ procedure outlined in this document has been completed and the anomalous reading cannot be repeated, and the anomalous reading does not represent the system under test. Statements of conformity are binary.

CALIBRATED BY TRANSCAT CERTIFICATE OF CALIBRATION

Customer: OMNI-TEST LABORATORIES INC
13327 NE AIRPORT WAY
PORTLAND, OR 97230

PO Number: 230453

ANAB ANSI National Accreditation Board ACCREDITED ISO/IEC 17025 CALIBRATION AND DIMENSIONAL MEASUREMENT ANAB AC-2489.08

ilac-MRA

Certificate/SO Number: 19-E6W3O-20-1 Revision 0

Legend

Topic	Description
Accuracy	UUT specification that establishes expected tolerances and a time limit (calibration interval) over which the instrument is expected to hold these tolerances
As Found	Initial measurement results
As Left	Measurement results after adjustment and/or repair
Blank Data Field	Test is not applicable for the UUT
Cal Process Uncertainty (CPU)	The uncertainty of calibration process for the reported measurement result
Calibration Date	Indicates the date that the calibration was completed
Cover Factor (k)	A measure of uncertainty that defines an interval about the measurement result
Due Date	Indicates the end of the calibration cycle as requested by the customer
Issue Date	Indicates the date that the calibration has passed the Data Review Process and was signed by an authorized signatory or the date that a revision to the original certificate has been issued
Low / High Limits	Establishes UUT acceptable performance limits for the test measurement
Measurement Uncertainty	The dispersion of the values attributed to a measured quantity
OOA	Out of Acceptance (#)
OOT	Out of Tolerance (*)
Setpoints	Measurement target values
Traceability	Unbroken chain of comparisons relating an instrument's measurements to a known standard(s)
Traceability Number	Unique identifier(s) used to document traceability of calibration standards
TUR	Test Uncertainty Ratio, ratio of the tolerance or specification of the test measurement in relation to the uncertainty in measurement results
UUT	Unit Under test

CALIBRATED BY TRANSCAT — CERTIFICATE OF CALIBRATION

Customer: OMNI-TEST LABORATORIES INC
13327 NE AIRPORT WAY
PORTLAND, OR 97230

PO Number: 230453

ANAB ANSI National Accreditation Board ACCREDITED ISO/IEC 17025 CALIBRATION AND DIMENSIONAL MEASUREMENT ANAB AC-2489.08

ilac-MRA

Certificate/SO Number: 19-E6W3O-20-1 Revision 0

456

Calibrated At:
1503 E Orangethorpe Ave
Fullerton, CA 92831

Facility Responsible:
1503 E Orangethorpe Ave
Fullerton, CA 92831
800-828-1470

Calibrated By:
Electronically Signed By:
Vianey Manriquez

Vianey Manriquez	Oct 24, 2023
Calibration Technician	07:33:18 -04:00

Reviewed By:
Electronically Signed By:
Cody Viers for

Mathew Bundy	Oct 24, 2023
Lab Manager	10:58:21 -04:00

Unit Barcode: 0900B531163

Date Received: October 13, 2023
Service Level : R9

Customer Number: 1-599076-000

TRANSCAT®
CALIBRATION SERVICES • TEST & MEASUREMENT INSTRUMENTS

Received 10/30/23
Jamie Castillo

Packing List

Page 1
Print 10/24/23
Order 10/10/23
Request 10/10/23
Whse 19

Purchase Order: 230453
Order Nbr: E6W3O/00

Ship To: OMNI-TEST LABORATORIES INC
13327 NE AIRPORT WAY
PORTLAND OR 97230
UNITED STATES

Contact: MICHAEL CASTILLO
Shipping Method: UPS Ground
Misc Note:

Co/Cust #01/0000599076

Item Number/Description	Qty Order	Qty Ship	Qty B/O	U/M	
Carrier: UPS Ground					
This order was from quote: HL72D					
PM0202-9-O	1.000	1.000	.000	EA	20
Cal-TROEMNER/TALBOYS Mdl:UNKNOW N (PM0202),Weight Set					
S/N:47883 UNIT ID:-OMNI-00283A-					
CAL CYC:60Months					
WEIGHTS CALIBRATED SHOWING A PRECISION OF 4 DECIMAL PLACES 60					
MTH CASE TORN 200MG/1G/2G/5G/10G/20G/50G/100G Accessory: 1 C ase					

* COMPLETE *

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PCKE

Certificate of Calibration

Certificate Number: 821552

JJ Calibrations, Inc.
7724 SE Aspen Summit Drive
Portland, OR 97266-9217
Phone 503.786.3005
FAX 503.786.2994

Omni-Test Laboratories
13327 NE Airport Way
Portland, OR 97230

PO: 240499
Order Date: 09/09/2024
Authorized By: N/A

ACCREDITED CERT # 0723.01

Property #: OMNI-00273
User: N/A
Department: N/A
Make: Ohaus
Model: 100 mg
Serial #: OMNI-00273
Description: Mass
Procedure: DCN 500901
Accuracy: Class F (±0.43mg)

Calibrated on: 09/10/2024
*Recommended Due: 09/10/2029
Environment: 21 °C 57 % RH
* As Received: Within Tolerance
* As Returned: Within Tolerance
Action Taken: Calibrated
Technician: 126

Remarks: * Many factors may cause the unit to drift out of calibration before the recommended due date. Any reported error is the absolute value between the reference and the unit. Uncertainties include the effects of the unit.

Received/returned with case.

Standards Used

Std ID	Manufacturer	Model	Nomenclature	Due Date	Trace ID
723A	Rice Lake	1mg-200g (Class 0)	Mass Set,	12/12/2024	804865
801A	Sartorius	MSE6.6S	Analytical Balance	01/08/2025	807470

Measurement Data

Parameter / Measurement Description	Range Unit	Reference	Min	Max	*Error	UUT	Uncertainty
Before/After							Accredited = ✓
Mass							
Mass	mg	100.00000	99.5700	100.4300	0.0064	100.0064 mg	2.9E-02 ✓

This instrument has been calibrated in accordance with the JJ Calibrations Quality Assurance Manual and is traceable to the SI through an NMI such as but not limited to National Institute of Standards and Technology (NIST). The quality system and this certificate are in compliance with ANSI/NCSL Z540-1-1994, ISO/IEC 17025-2017, ISO 10012-1, the ISO 9000 family and QS 9000. The expanded uncertainties of measurements for this calibration are based upon 95% (2 sigma) confidence limits. Unless stated in the comments, certificates reflect the "Simple Acceptance Rule" as specified by ILAC G8:2019. A test uncertainty ratio (TUR) of 4:1, if achievable, is maintained. Where uncertainties are reported, see uncertainties to calculate TUR to determine your possible Risk. The results reported herein apply only to the calibration of the item described above. JJ Calibrations does not alter or update software of the UUT, version stays the same unless otherwise noted. This report may not be reproduced, except in full, without written approval of JJ Calibrations

Reviewer

3 Issued 09/10/2024 Rev # 15

Inspector

Certificate of Calibration

Certificate Number: 829802

JJ Calibrations, Inc.
7724 SE Aspen Summit Drive
Portland, OR 97266-9217
Phone 503.786.3005
FAX 503.786.2994

Omni-Test Laboratories
13327 NE Airport Way
Portland, OR 97230

PO: 250524
Order Date: 02/10/2025
Authorized By: N/A

Property #: OMNI-00733
User: N/A
Department: N/A
Make: Omega
Model: THDP-10
Serial #: 220348
Description: Thermohygrometer
Procedure: 403436
Accuracy: Temp ± 0.6° C , RH ± 3%

Calibrated on: 03/14/2025
*Recommended Due: 03/14/2026
Environment: 23 °C 37 % RH
* As Received: Within Tolerance
* As Returned: Within Tolerance
Action Taken: Calibrated
Technician: 135

Remarks: * Many factors may cause the unit to drift out of calibration before the recommended due date. Any reported error is the absolute value between the reference and the unit. Uncertainties include the effects of the unit.

TUR<4:1. See Uncertainties to calculate TUR to determine your possible Risk.

Standards Used

Std ID	Manufacturer	Model	Nomenclature	Due Date	Trace ID
925A	RH Systems	CGS-240	Humidity Generator	04/04/2025	811937

Measurement Data

Parameter / Measurement Description	Range Unit	Reference	Min	Max	*Error	UUT	Uncertainty
Before/After							Accredited = ✓
Temperature							
	0 °C	0.1140	-0.486	0.714	0.186	0.300 °C	1E-01 ✓
	20 °C	20.0580	19.458	20.658	0.058	20.000 °C	1E-01 ✓
	30 °C	30.5650	29.965	31.165	0.565	30.000 °C	1E-01 ✓
	50 °C	50.0030	49.403	50.603	0.103	49.900 °C	1E-01 ✓
Relative Humidity							
	25 %	29.8440	26.844	32.844	1.256	31.100 %	1.2E+00 ✓
	50 %	50.0140	47.014	53.014	1.086	51.100 %	1.2E+00 ✓
	75 %	75.0980	72.098	78.098	1.502	76.600 %	1.2E+00 ✓

This instrument has been calibrated in accordance with the JJ Calibrations Quality Assurance Manual and is traceable to the SI through an NMI such as but not limited to National Institute of Standards and Technology (NIST). The quality system and this certificate are in compliance with ANSI/NCSL Z540-1-1994, ISO/IEC 17025-2017, ISO 10012-1, the ISO 9000 family and QS 9000. The expanded uncertainties of measurements for this calibration are based upon 95% (2 sigma) confidence limits. Unless stated in the comments, certificates reflect the "Simple Acceptance Rule" as specified by ILAC G8:2019. A test uncertainty ratio (TUR) of 4:1, if achievable, is maintained. Where uncertainties are reported, see uncertainties to calculate TUR to determine your possible Risk. The results reported herein apply only to the calibration of the item described above. JJ Calibrations does not alter or update software of the UUT, version stays the same unless otherwise noted. This report may not be reproduced, except in full, without written approval of JJ Calibrations

Reviewer

3 Issued 03/17/2025 Rev # 15

Inspector

Certificate of Calibration

Certificate Number: 788485

JJ Calibrations, Inc.
7724 SE Aspen Summit Drive
Portland, OR 97266-9217
Phone 503.786.3005
FAX 503.786.2994

Omni-Test Laboratories
13327 NE Airport Way
Portland, OR 97230

PO: 230420
Order Date: 02/16/2023
Authorized By: N/A

Property #: OMNI-00709
User: N/A
Department: N/A
Make: Omega
Model: RH81
Serial #: 10361019
Description: Thermohygrometer
Procedure: DCN 401013/403410
Accuracy: RH ±3%, TEMP ±1°C(±1.8°F)

Calibrated on: 03/06/2023
*Recommended Due: 03/06/2028
Environment: 23 °C 35 % RH
* As Received: Within Tolerance
* As Returned: Within Tolerance
Action Taken: Calibrated
Technician: 173

Remarks: * Many factors may cause the unit to drift out of calibration before the recommended due date. Any reported error is the absolute value between the reference and the unit. Uncertainties include the effects of the unit.

Standards Used

Std ID	Manufacturer	Model	Nomenclature	Due Date	Trace ID
925A	RH Systems	CGS-240	Humidity Generator	02/22/2024	789080

Measurement Data

Parameter / Measurement Description	Range Unit	Reference	Min	Max	*Error	UUT	Uncertainty
Before/After							Accredited = ✓
Relative Humidity							
	RH	25.00	22.0	28.0	0.3	25.3 RH	6.3E-01 ✓
	RH	50.00	47.0	53.0	1.3	48.7 RH	6.3E-01 ✓
	RH	75.00	72.0	78.0	0.7	74.3 RH	6.3E-01 ✓
Temperature							
	℃	20.0	19	21	0	20 ℃	2.8E-01 ✓
	℃	30.00	29.0	31.0	0.6	29.4 ℃	2.8E-01 ✓
	℃	40.60	39.6	41.6	0.4	40.2 ℃	2.8E-01 ✓

This instrument has been calibrated in accordance with the JJ Calibrations Quality Assurance Manual and is traceable to either the SI or to National Institute of Standards and Technology (NIST). The quality system and this certificate are in compliance with ANSI/NCSL Z540-1-1994, ISO/IEC 17025-2017, ISO 10012-1, the ISO 9000 family and QS 9000. The expanded uncertainties of measurements for this calibration are based upon 95% (2 sigma) confidence limits. Unless stated in the comments, certificates reflect the "Simple Acceptance Rule" as specified by JCGM 106:2012. Unless otherwise stated, a test accuracy ratio (TAR) of 4:1, if achievable, is maintained. The results reported herein apply only to the calibration of the item described above. This report may not be reproduced, except in full, without written approval of JJ Calibrations.

Reviewer

3 Issued 03/08/2023 Rev # 15

Inspector

Received: 09/23/24

Making our world more productive

DocNumber: 551950

Linde Gas & Equipment Inc.
5700 S. Alameda Street
Los Angeles CA 90058
Tel: 323-585-2154
Fax: 714-542-6689
PGVP ID: F22023

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information

LGEPKG TUALATIN OR H
10450 SW TUALATIN SHERWOOD ROAD
TUALATIN OR 97062-9547

Certificate Issuance Date: 06/20/2023
Linde Order Number: 72440820
Part Number: NI CD17CO8E-AS
Customer PO Number: 80449472

Fill Date: 06/16/2023
Lot Number: 70086316710
Cylinder Style & Outlet: AS CGA 590
Cylinder Pressure and Volume: 1290 psig 99 ft3

Certified Concentration

ProSpec EZ Cert

Expiration Date: 06/20/2031		NIST Traceable
Cylinder Number: CC506601		Expanded Uncertainty
16.88 %	Carbon dioxide	± 0.15 %
4.07 %	Carbon monoxide	± 0.03 %
17.14 %	Oxygen	± 0.04 %
Balance	Nitrogen	

Certification Information:

Certification Date: 06/20/2023 Term: 96 Months Expiration Date: 06/20/2031

This cylinder was certified according to the 2012 EPA Traceability Protocol, Document #EPA-600/R-12/531, using Procedure G1. Uncertainty above is expressed as absolute expanded uncertainty at a level of confidence of approximately 95% with a coverage factor k = 2. Do Not Use this Standard if Pressure is less than 100 PSIG.

CO2 responses have been corrected for Oxygen IR Broadening effect.

Analytical Data:

(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)

1. **Component:** Carbon dioxide

Requested Concentration: 17 %
Certified Concentration: 16.88 %
Instrument Used: Horiba VIA-510 S/N 20C194WK
Analytical Method: NDIR
Last Multipoint Calibration: 05/30/2023

First Analysis Data:						Date	06/20/2023
Z:	0	R:	19.34	C:	16.89	Conc:	16.88
R:	19.35	Z:	0	C:	16.89	Conc:	16.88
Z:	0	C:	16.88	R:	19.36	Conc:	16.87
UOM:	%			Mean Test Assay:			16.88 %

Reference Standard: Type / Cylinder #: NTRM / CC725981
Concentration / Uncertainty: 19.34 % ±0.16 %
Expiration Date: 01/12/2027
Traceable to: SRM # / Sample # / Cylinder #: NTRM / 190701 / CC725973
SRM Concentration / Uncertainty: 19.34% / ±0.16%
SRM Expiration Date: 01/12/2027

Second Analysis Data:						Date	
Z:	0	R:	0	C:	0	Conc:	0
R:	0	Z:	0	C:	0	Conc:	0
Z:	0	C:	0	R:	0	Conc:	0
UOM:	%			Mean Test Assay:			%

2. **Component:** Carbon monoxide

Requested Concentration: 4.25 %
Certified Concentration: 4.07 %
Instrument Used: Horiba VIA-510 S/N UB9UCSYX
Analytical Method: NDIR
Last Multipoint Calibration: 05/30/2023

First Analysis Data:						Date	06/20/2023
Z:	0	R:	7.81	C:	4.09	Conc:	4.08
R:	7.85	Z:	0	C:	4.07	Conc:	4.06
Z:	0	C:	4.08	R:	7.8	Conc:	4.07
UOM:	%			Mean Test Assay:			4.07 %

Reference Standard: Type / Cylinder #: GMIS / CC187322
Concentration / Uncertainty: 7.81 % ±0.04 %
Expiration Date: 04/03/2025
Traceable to: SRM # / Sample # / Cylinder #: SRM 2642a / 51-D-23 / FF23106
SRM Concentration / Uncertainty: 7.859% / ±0.039%
SRM Expiration Date: 07/15/2019

Second Analysis Data:						Date	
Z:	0	R:	0	C:	0	Conc:	0
R:	0	Z:	0	C:	0	Conc:	0
Z:	0	C:	0	R:	0	Conc:	0
UOM:	%			Mean Test Assay:			%

3. **Component:** Oxygen

Requested Concentration: 17 %
Certified Concentration: 17.14 %
Instrument Used: Siemens Oxymat 6E S/N 7MB20211AA000CA1
Analytical Method: Paramagnetic
Last Multipoint Calibration: 05/30/2023

First Analysis Data:						Date	06/20/2023
Z:	0	R:	24.96	C:	17.16	Conc:	17.16
R:	24.97	Z:	0	C:	17.1	Conc:	17.1
Z:	0	C:	17.14	R:	24.94	Conc:	17.14
UOM:	%			Mean Test Assay:			17.14 %

Reference Standard: Type / Cylinder #: GMIS / DT0025134
Concentration / Uncertainty: 24.96 % ±0.04 %
Expiration Date: 12/14/2026
Traceable to: SRM # / Sample # / Cylinder #: SRM 2659a / 71-E-19 / FF22331
SRM Concentration / Uncertainty: 20.863% / ±0.021%
SRM Expiration Date: 02/27/2026

Second Analysis Data:						Date	
Z:	0	R:	0	C:	0	Conc:	0
R:	0	Z:	0	C:	0	Conc:	0
Z:	0	C:	0	R:	0	Conc:	0
UOM:	%			Mean Test Assay:			%

Analyzed By: Courtney Zielke

Certified By: Nelson Ma

Information contained herein has been prepared at your request by qualified experts within Linde Gas & Equipment Inc. While we believe that the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability of Linde Gas & Equipment Inc. , arising out of the use of the information contained herein exceed the fee established for providing such information.

Received 06/22/23

Making our world more productive

Linde Gas & Equipment Inc.
5700 S. Alameda Street
Los Angeles, CA 90058
Tel: 323-585-2154
Fax: 714-542-6689

Customer & Order Information:

LGEPKG TUALATIN OR H
10450 SW TUALATIN SHERWOOD ROAD,
TUALATIN, OR 97062-9547

Linde Order Number: **72440818**
Customer PO Number: **80449468**

Certificate Issuance Date: **6/6/2023**

Certification Date: **6/6/2023**
Lot Number: **70086313906**
Part Number: **NI CD15C5P-AS**
DocNumber: **683272**
Expiration Date: **6/1/2028**

CERTIFICATE OF ANALYSIS

Primary Standard

Component	Requested Concentration (Molar)	Certified Concentration (Molar)	Analytical Reference	Analytical Uncertainty
Carbon dioxide	**15 %**	**15.00 %**	**1**	**± 0.02% Abs.**
Carbon monoxide	**500 ppm**	**502 ppm**	**1**	**± 1%**
Nitrogen	**Balance**	**Balance**		

Cylinder Style: **AS**
Cylinder Pressure @ 70 F: **2000 psig**
Cylinder Volume: **150 ft3**
Valve Outlet Connection: **CGA 350**
Cylinder Number(s): **CC305741**

Fill Date: **5/19/2023**
Analysis Date: **6/1/2023**

Filling Method: **Gravimetric**

Analyst: **Ying Yu**

Approved Signer: **Amalia Real**

Key to Analytical Techniques:

Reference	Analytical Instrument - Analytical Principle
1	Mettler ID5 - Gravimetric Method

Received 6/22/2023

The gas calibration cylinder standard prepared by Linde Gas & Equipment Inc. is considered a certified standard. It is prepared by gravimetric, volumetric, or partial pressure techniques. The calibration standard provided is certified against Linde Gas & Equipment Inc. Reference Materials which are traceable to the International System of Units (SI) through either weights traceable to the National Institute of Standards and Technology (NIST) or Measurement Canada, or through NIST Standard Reference Materials or equivalent where available.

Note: All expressions for concentration (e.g., % or ppm) are for gas phase, by mole unless otherwise noted. Analytical uncertainty is expressed as a Relative % unless otherwise noted.

IMPORTANT
The information contained herein has been prepared at your request by personnel within Linde Gas & Equipment Inc. While we believe the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall liability of Linde Gas & Equipment Inc. arising out of the use of the information contained herein exceed the fee established for providing such information.

Date

10/22/2024

	Reference OMNI-00291		Logger OMNI-00352	
Time	Thermometer F	Humidity %	Temperature F	Humidity %
15:30	67.5	50.1	67.6	52.2
15:45	67.6	49.6	67.5	47.2
16:00	67.7	48.8	67.6	46.7
16:15	67.7	49.7	67.7	46.9
16:30	67.9	49.5	67.8	46.8
Average:	67.7	49.5	67.7	48.0
	Temp Percent Deviation	**-0.04%**	**Humidity Percent Deviation**	**-3.19%**

VWR Temperature Hygrometer Calibration Procedure and Data Sheet

Frequency: 24 Months

Step 1: Locate NIST traceable reference standard.

Step 2: Place the unit to be calibrated, OMNI-00352 next to reference standard OMNI-00291 at the same location used to record ambient conditions.

Step 3: After a period of not less than four hours record the temperature and humidity of reference meter and compare them to the records of data logger, OMNI-00352.

Step 4: If data recorded from OMNI-00352 matches the NIST standard within ± 4%, it is acceptable. If not, the unit needs to be sent to a repair company or replaced.

Verification Data:

Date: 10/22/2024 Technician: _____

Time in desiccate: N/A Recording time: 15:30 – 16:30

NIST Standard Temperature: 67.7 °F NIST Standard Humidity Reading%: 49.5

Test Unit Temperature Reading: 67.7 °F Test Unit Humidity Reading%: 48.0

Test unit OMNI- 00352 is X or was not _____ within acceptable limits.

Technician Signature: Tony Tong

Comments: Data was recorded manually from reference meter OMNI-00291 for an hour with 15 minutes interval. Hand recorded data was compared to data logged by OMNI-00352 at the same time interval. The readings from each instrument were averaged and compared for both temperature and relative humidity.

Both temperature and humidity logged by OMNI-00352 match the NIST standard within ±4%.

Certificate of Calibration

Certificate Number: 809188

JJ Calibrations, Inc.
7724 SE Aspen Summit Drive
Portland, OR 97266-9217
Phone 503.786.3005
FAX 503.786.2994

Omni-Test Laboratories
13327 NE Airport Way
Portland, OR 97230

PO: 1564/240469
Order Date: 02/01/2024
Authorized By: N/A

Property #: OMNI-00394
User: N/A
Department: N/A
Make: Dwyer
Model: 2001
Serial #: R070831GR73
Description: Magnehelic Pressure Gage, 0-1.0 InH2O
Procedure: DCN 500792
Accuracy: ±2% FS

Calibrated on: 03/08/2024
*Recommended Due: 03/08/2029
Environment: 20 °C 32 % RH
* As Received: Within Tolerance
* As Returned: Within Tolerance
Action Taken: Calibrated
Technician: 111

Remarks: * Many factors may cause the unit to drift out of calibration before the recommended due date. Any reported error is the absolute value between the reference and the unit. Uncertainties include the effects of the unit.

Standards Used

Std ID	Manufacturer	Model	Nomenclature	Due Date	Trace ID
847A	Fluke	RPM4	Reference Pressure Monitor	06/01/2024	787534

Measurement Data

Parameter / Measurement Description	Range Unit	Reference	Min	Max	*Error	UUT	Uncertainty
Before/After							Accredited = ✓
Pressure							
	In/H20	0.20630	0.1863	0.2263	0.0063	0.2000 In/H20	5.9E-03 ✓
	In/H20	0.40650	0.3865	0.4265	0.0065	0.4000 In/H20	5.9E-03 ✓
	In/H20	0.60740	0.5874	0.6274	0.0074	0.6000 In/H20	5.9E-03 ✓
	In/H20	0.80610	0.7861	0.8261	0.0061	0.8000 In/H20	5.9E-03 ✓
	In/H20	1.00770	0.9877	1.0277	0.0077	1.0000 In/H20	5.9E-03 ✓

This instrument has been calibrated in accordance with the JJ Calibrations Quality Assurance Manual and is traceable to the SI through an NMI such as but not limited to National Institute of Standards and Technology (NIST). The quality system and this certificate are in compliance with ANSI/NCSL Z540-1-1994, ISO/IEC 17025-2017, ISO 10012-1, the ISO 9000 family and QS 9000. The expanded uncertainties of measurements for this calibration are based upon 95% (2 sigma) confidence limits. Unless stated in the comments, certificates reflect the "Simple Acceptance Rule" as specified by ILAC G8:2019. Unless otherwise stated, a test uncertainty ratio (TUR) of 4:1, if achievable, is maintained. The results reported herein apply only to the calibration of the item described above.
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Reviewer

3 Issued 03/12/2024 Rev # 15

Inspector

Certificate of Calibration

Certificate Number: 830345

JJ Calibrations, Inc.
7724 SE Aspen Summit Drive
Portland, OR 97266-9217
Phone 503.786.3005
FAX 503.786.2994

Omni-Test Laboratories
13327 NE Airport Way
Portland, OR 97230

PO: 250525
Order Date: 02/20/2025
Authorized By: N/A

Property #: OMNI-00318
User: N/A
Department: N/A
Make: Fluke
Model: 52 II
Serial #: 89160126
Description: Thermometer
Procedure: 400048
Accuracy: ±0.05%+.3°C

Calibrated on: 03/04/2025
*Recommended Due: 03/04/2026
Environment: 22 °C 39 % RH
* As Received: Within Tolerance
* As Returned: Within Tolerance
Action Taken: Calibrated
Technician: 126

Remarks: * Many factors may cause the unit to drift out of calibration before the recommended due date. Any reported error is the absolute value between the reference and the unit. Uncertainties include the effects of the unit.

TUR<4:1. See Uncertainties to calculate TUR to determine your possible Risk. Received/returned with cover.

Standards Used

Std ID	Manufacturer	Model	Nomenclature	Due Date	Trace ID
804A	Fluke	5522A	Calibrator, SC1100 Option	01/10/2026	823539
880A	Hart Scientific	1502A	Precision Digital Thermometer	06/10/2025	816135
889A	Fluke	5618B	PRT	09/13/2025	816153

Measurement Data

Parameter / Measurement Description	Range Unit	Reference	Min	Max	*Error	UUT	Uncertainty
Before/After							Accredited = ✓
Thermocouple Type K							
T1 @ 0mV	-190 °C	0.00	-0.3	0.3	0.2	0.2 °C	1.9E-01 ✓
T1 @ 0.9193mV	1200 °C	23.00	22.7	23.3	0.1	23.1 °C	3E-01 ✓
T1 @ -5.8914mV	-190 °C	-200.00	-200.7	-199.3	0.3	-199.7 °C	3.8E-01 ✓
T1 @ 40.8853mV	1200 °C	990.00	989.2	990.8	0.2	990.2 °C	3E-01 ✓
T1 @ 54.8864mV	1200 °C	1372.0	1371	1373	0	1372 °C	4.6E-01 ✓
T2 @ 0mV	-190 °C	0.00	-0.3	0.3	0.2	0.2 °C	1.9E-01 ✓
T2 @ 0.9193mV	1200 °C	23.00	22.7	23.3	0.1	23.1 °C	3E-01 ✓
T2 @ -5.8914mV	-190 °C	-200.00	-200.7	-199.3	0.5	-199.5 °C	3.8E-01 ✓
T2 @ 40.8853mV	1200 °C	990.00	989.2	990.8	0.2	990.2 °C	3E-01 ✓
T2 @ 54.8864mV	1200 °C	1372.0	1371	1373	0	1372 °C	4.6E-01 ✓

This instrument has been calibrated in accordance with the JJ Calibrations Quality Assurance Manual and is traceable to the SI through an NMI such as but not limited to National Institute of Standards and Technology (NIST). The quality system and this certificate are in compliance with ANSI/NCSL Z540-1-1994, ISO/IEC 17025-2017, ISO 10012-1, the ISO 9000 family and QS 9000. The expanded uncertainties of measurements for this calibration are based upon 95% (2 sigma) confidence limits. Unless stated in the comments, certificates reflect the "Simple Acceptance Rule" as specified by ILAC G8:2019. A test uncertainty ratio (TUR) of 4:1, if achievable, is maintained. Where uncertainties are reported, see uncertainties to calculate TUR to determine your possible Risk. The results reported herein apply only to the calibration of the item described above. JJ Calibrations does not alter or update software of the UUT, version stays the same unless otherwise noted. This report may not be reproduced, except in full, without written approval of JJ Calibrations

Reviewer

3 Issued 03/12/2025 Rev # 15

Inspector

Temperature Calibration/Verification
EPA Method 28R, ASTM E2515

Booth	Temperature Monitor Type	Equipment Number
E1	National Instruments Datalogger NI-USB 9213	00753

Reference Meter Eq. No.	Reference Meter Calibration Due Date
00373	11-07-25

Calibration/Verification Performed By	Date	Ambient Temperature, °F	Barometric Pressure, In. Hg
K. Morgan	2-10-25	53	30.36

	Input Temperature, °F							
Channel Tag	0	100	300	500	700	1000	1500	2000
Dry Gas Meter A	-0.6	99.5	299.5	499.5	699.5	999.6	1499.6	1999.6
Dryer A	-1.1	99.1	299.1	499.1	699.0	999.0	1499.0	1999.1
Filter A	-1.2	99.0	299.0	499.0	699.0	999.0	1499.0	1999.1
Dry Gas Meter B	-1.1	99.0	299.0	499.0	699.0	999.0	1499.0	1999.1
Dryer B	-1.1	99.0	299.0	499.0	699.0	999.0	1499.0	1999.1
Filter B	-1.1	99.0	299.0	499.0	699.0	999.0	1499.0	1999.0
Dry Gas Meter C	-1.2	99.0	299.0	499.0	699.0	999.1	1499.0	1999.0
Dryer C	0.2	100.2	300.2	500.2	700.2	1000.2	1500.2	2000.1
Filter C	0.2	100.2	300.2	500.2	700.1	1000.3	1500.2	2000.1
Dry Gas Meter D	0.2	100.2	300.2	500.2	700.2	1000.3	1500.2	2000.2
Ambient	-1.2	99.0	299.0	499.0	699.0	999.0	1499.0	1999.0
Stack	-0.9	99.1	299.1	499.1	699.1	999.1	1499.1	1999.1
Dilution Tunnel	-0.8	99.3	299.3	499.2	699.3	999.3	1499.2	1999.2
Catalyst	-0.9	99.2	299.2	499.2	699.2	999.2	1499.2	1999.2
Fire Box Top	-0.9	99.2	299.2	499.2	699.2	999.2	1499.2	1999.2
Fire Box Bottom	-0.9	99.2	299.2	499.2	699.2	999.2	1499.2	1999.0
Fire Box Back	-1.0	99.1	299.1	499.1	699.1	999.1	1499.0	1999.0
Fire Box Left	-1.0	99.1	299.1	499.1	699.1	999.1	1499.1	1999.1
Fire Box Right	-1.0	99.1	299.1	499.1	699.1	999.1	1499.1	1999.0

754

Ken Morgan
Technician

K. Morgan
Signature

2-10-25
Date

Differential Pressure Gauge Calibration/Verification

Instrument to be calibrated

Eq. No,	00335B		
Description	Manometer, ΔH	Date	2/10/2025
Max Range	4	Expires	2/10/2026
Units	Inches of Water		

Reference Gauge

Eq. No.	OMNI-00633
Cal Due Date	10/2/2025
Units	Inches of Water
MU	0.0057
k=	2

Range of Calibration Point	Ref Value	DUT Response	Error
0-20 % of Max Range 0 - 0.8	0.392	0.394	0.002
20 - 40 % of Max Range 0.8 - 1.6	1.402	1.405	0.003
40-60 % of Max Range 1.6 - 2.4	2.125	2.126	0.001
60-80 % of Max Range 2.4 - 3.2	2.912	2.908	-0.004
80-100% of Max Range 3.2 - 4	3.876	3.87	-0.006

Measurement Uncertianty = ± 0.0098 In. H2O, k=2

Ken Morgan		2/10/25
Technician	Signature	Date

Differential Pressure Gauge Calibration/Verification

Instrument to be calibrated

Eq. No,	00336B		
Description	Manometer, ΔH	Date	2/10/2025
Max Range	4	Expires	2/10/2026
Units	Inches of Water		

Reference Gauge

Eq. No.	OMNI-00633
Cal Due Date	10/2/2025
Units	Inches of Water
MU	0.0057
k=	2

Range of Calibration Point	Ref Value	DUT Response	Error
0-20 % of Max Range 0 - 0.8	0.418	0.419	0.001
20 - 40 % of Max Range 0.8 - 1.6	1.376	1.375	-0.001
40-60 % of Max Range 1.6 - 2.4	2.221	2.222	0.001
60-80 % of Max Range 2.4 - 3.2	2.862	2.858	-0.004
80-100% of Max Range 3.2 - 4	3.969	3.961	-0.008

Measurement Uncertianty = ± 0.0096 In. H2O, k=2

Ken Morgan		2/10/2025
Technician	Signature	Date

Differential Pressure Gauge Calibration/Verification

Instrument to be calibrated

Eq. No,	00691A		
Description	Manometer, Draft	Date	2/10/2025
Max Range	2	Expires	2/10/2026
Units	Inches of Water		

Reference Gauge

Eq. No.	OMNI-00410
Cal Due Date	10/2/2025
Units	Inches of Water
MU	0.00058
k=	2

Range of Calibration Point	Ref Value	DUT Response	Error
0-20 % of Max Range 0 - 0.4	0.018	0.017	-0.001
20 - 40 % of Max Range 0.4 - 0.8	0.14	0.14	0
40-60 % of Max Range 0.8 - 1.2	0.843	0.846	0.003
60-80 % of Max Range 1.2 - 1.6	1.36	1.362	0.002
80-100% of Max Range 1.6 - 2	1.922	1.924	0.002

Measurement Uncertianty = ± 0.0035 In. H2O, k=2

Ken Morgan		2/10/2025
Technician	Signature	Date

Differential Pressure Gauge Calibration/Verification

Instrument to be calibrated

Eq. No,	00691B		
Description	Manometer, ΔH	Date	2/10/2025
Max Range	4	Expires	2/10/2026
Units	Inches of Water		

Reference Gauge

Eq. No.	OMNI-00633
Cal Due Date	10/2/2025
Units	Inches of Water
MU	0.0057
k=	2

Range of Calibration Point	Ref Value	DUT Response	Error
0-20 % of Max Range 0 - 0.8	0.362	0.36	-0.002
20 - 40 % of Max Range 0.8 - 1.6	1.418	1.419	0.001
40-60 % of Max Range 1.6 - 2.4	2.12	2.118	-0.002
60-80 % of Max Range 2.4 - 3.2	2.769	2.760	-0.009
80-100% of Max Range 3.2 - 4	3.842	3.838	-0.004

Measurement Uncertianty = ± 0.0094 In. H2O, k=2

Ken Morgan		2/10/2025
Technician	Signature	Date

Differential Pressure Gauge Calibration/Verification

Instrument to be calibrated

Eq. No,	00692A		
Description	Manometer, Δp	Date	2/10/2025
Max Range	2	Expires	2/10/2026
Units	Inches of Water		

Reference Gauge

Eq. No.	OMNI-00410
Cal Due Date	10/2/2025
Units	Inches of Water
MU	0.00058
k=	2

Range of Calibration Point	Ref Value	DUT Response	Error
0-20 % of Max Range 0 - 0.4	0.023	0.025	0.002
20 - 40 % of Max Range 0.4 - 0.8	0.143	0.141	-0.002
40-60 % of Max Range 0.8 - 1.2	0.871	0.868	-0.003
60-80 % of Max Range 1.2 - 1.6	1.415	1.409	-0.006
80-100% of Max Range 1.6 - 2	2.002	1.994	-0.008

Measurement Uncertianty = ± 0.0078 In. H2O, k=2

Ken Morgan		2/10/2025
Technician	Signature	Date

Differential Pressure Gauge Calibration/Verification

Instrument to be calibrated

Eq. No,	00692B		
Description	Manometer, ΔH	Date	2/10/2025
Max Range	4	Expires	2/10/2026
Units	Inches of Water		

Reference Gauge

Eq. No.	OMNI-00633
Cal Due Date	10/2/2025
Units	Inches of Water
MU	0.0057
k=	2

Range of Calibration Point	Ref Value	DUT Response	Error
0-20 % of Max Range 0 - 0.8	0.432	0.43	-0.002
20 - 40 % of Max Range 0.8 - 1.6	1.428	1.425	-0.003
40-60 % of Max Range 1.6 - 2.4	2.022	2.018	-0.004
60-80 % of Max Range 2.4 - 3.2	2.886	2.881	-0.005
80-100% of Max Range 3.2 - 4	3.715	3.709	-0.006

Measurement Uncertianty = ± 0.0066 In. H2O, k=2

Ken Morgan		2/10/2025
Technician	Signature	Date

8.4 - Archival of Appliance Specimen

The tested unit was sealed by OMNI-Test Laboratories after the completion of certification testing. This unit will be stored at the manufacturer's premises in the sealed state until 5 years after the certification testing at the following address:

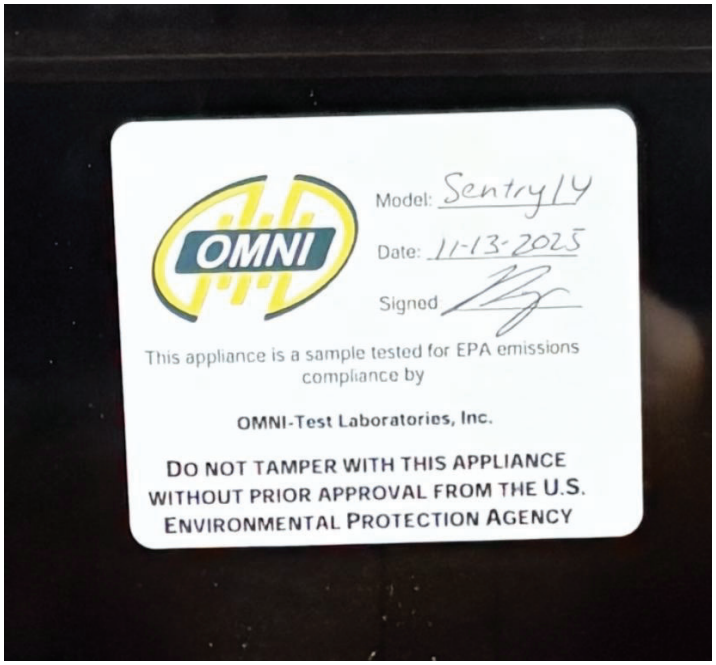
Valley Comfort Systems, Inc. (Blaze King)
146 A Street
Walla Walla, WA 99362
USA



Sentry 14 Secured to Pallet and Sealed - Front 3/4 View



Banded Unit - Front 3/4 View



Typical Seal Applied

9. References

U.S. EPA 40 CFR Part 60, Subpart AAA – "Standards of Performance for New Residential Wood Heaters"

ASTM E2515-11, "Standard Test Method for Determination of Particulate Matter Emissions Collected by a Dilution Tunnel", ASTM International, West Conshohocken, PA, 2011, www.astm.org

ASTM E2780-10 (2017) "Standard Test Method for Determining Particulate Matter Emissions from Wood Heaters", ASTM International, West Conshohocken, PA, 2011, www.astm.org

Mark's Standard Handbook for Mechanical Engineers, 9th edition (1986)

CSA B415.1:22 "Performance testing of solid-biofuel-burning heating appliance"

EPA Method 1 - Sample and Velocity Traverses for Stationary Sources

EPA Method 2 - Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)

EPA Method 5G - Particulate Matter Wood Heaters from a Dilution Tunnel

EPA Method 28R - Certification and Auditing of Wood Heaters

EPA Source Classification Codes (SCCs) - https://sor-scc-api.epa.gov/sccwebservices/sccsearch/

EPA Method 7E—Determination of Nitrogen Oxides Emissions from Stationary Sources (Instrumental Analyzer Procedure)

10. Appendices

Appendix A - ALT-154

Appendix B - Original 50 hours conditioning data

Appendix C - EPA 30 days notice

Appendix D - Laboratory Ambient Data

Appendix E - Manufacturer's communications regarding Bimetallic Control Mechanism

Appendix F - Catalyst Equivalence Test Procedure

Appendix G - ALT 161

Appendix A

EPA ALT - 154

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

Mr. Ken Morgan
Technical Services Director
OMNI-Test Laboratories, INC
Post Office Box 301367
Portland, Oregon, 97294

01/21/2025

Dear Mr. Morgan,

This letter is a modification of my original response letter dated December 13, 2024. This modification is made to include approval to use this alternative 40 CFR part 60, Subpart QQQQ - Standards of Performance for New Residential Hydronic Heaters and Forced-Air Furnaces (Subpart QQQQ). The approval to also use this alternative on central heaters under Subpart QQQQ should have been included in the original response letter. These letters are written in response to your emails and letter dated November 20, 2023, requesting that the Environmental Protection Agency approve for use an alternative test method (ATM) for demonstrating compliance with New Source Performance Standard (NSPS) Subpart AAA, Standards of Performance for New Residential Wood Heaters (Subpart AAA). Specifically, the filter weighing procedures as outlined in ASTM E2515-11 to determine compliance for wood heaters under 40 CFR Part 60. The Office of Air Quality Planning and Standards, as the delegated authority, must make the determination on any major alternatives to test methods and procedures required under 40 CFR parts 59, 60, 61, 63, and 65. Your proposed alternative test method and our approval decisions are discussed below.

Your letter outlines concerns with the gravimetric analysis of the pair of filters used to capture particulate during each compliance test. Specifically, you state that the method suggests that weighing filters and filter assemblies in pairs will reduce measurement error, but that the method provides direction inconsistent with achieving error reduction.

As detailed in your letter ASTM E2515-11 section 9.4.4 states:

> *"9.4.4 Desiccate the filters, filter gaskets, and the probe assemblies at 20 +/- 5.6°C (68 +/- 10°F) and ambient pressure for at least 24 h. Weigh each component at intervals of not less than 6 h until a constant weight is achieved. Record results to the nearest 0.1 mg. During each weighing, the period for which the components are exposed to the laboratory environment shall be less than 2 min. The filter gaskets can be weighed in sets to be used in each filter holder and kept in an identified container at all times except during sampling and weighing. The filter holder assembly after the front filter need not*

be desiccated or weighed."

As shown above, section 9.4.4 states that "…the filter gaskets may be weighed in pairs", however it does not say that you may do so for the filter tares.

In contrast, section 10.2.1 of ASTM E2515-11 states:

> *"10.2.1 Desiccate the filters and filter gaskets at 20 +/- 5.6°C (68 +/-10°F) and ambient pressure for at least 24 h. Weigh each component at intervals of at least 6 h until a constant weight is achieved. Report the results to the nearest 0.1 mg. Filters and filter gaskets may be weighed directly without a Petri dish. They may be weighed in pairs (front and back filters and front and back filter gaskets from same filter train) to reduce handling and weighing errors. During each weighing, the components shall not be exposed to the laboratory atmosphere for longer than 2 min. For the room air background sample filter and filter gasket, treat negative particulate catch weights as "zero" when determining total room air particulate weight in accordance with 10.2."*

Additionally, you point out that section 10.2.1 allows, during post-test analysis, the filters to be weighed in pairs. You also assert that not only does this section state that filters may be weighed in pairs, but it also expresses that it is advantageous to do in order to reduce handling and weighing errors.

Furthermore, during our recent discussions of this issue, you pointed out that since ASTM E2515-11 does not specify that filters may be weighed in pairs during pre-test processing, doing so would likely lead to concerns regarding whether proper procedures were being followed. Also,in response to our inquiry of whether ASTM E2515-11 could be followed as written, where one would weigh both filters independently during pre-test processing (clause 9.4.4) and in pairs during post-test processing (section 10.2.1), you point out that this defeats the intent of section 10.2.1 in that more measurements are being performed than necessary and this goes against the stated intent of reducing handling and weighing errors.

It is your opinion, given the language in ASTM E2515-11 discussed above, that the authors originally intended that both filter gaskets and filters should be weighed in pairs during both pre-test and post-test procedures in order to reduce such errors (as evidenced by the language in section 10.2.1). Based on this, you are asking for consideration and approval of an alternative test method that would allow pre-test processing (taring) of filters in pairs as is currently allowed for filter gaskets in section 9.4.4. As you state, you seek this alternative because the errors imposed by the extra weighing of independent filters can account for a very high degree of error on today's cleaner stoves where a ±0.1 mg of measured catch can mean ± 0.2 grams of emissions under ordinary conditions. In light of these circumstances, we agree that appropriate paired weighings must be done during both pre and post test weighings.

We have reviewed your request to perform the pre-test processing (taring) of filters in pairs as is currently allowed for filter gaskets in section 9.4.4 when conducting testing testing of wood heaters under Subpart AAA. Because of the similarities in the requirements, we are also approving this alternative for use on central heaters under Subpart QQQQ. This approval is contingent on the following conditions:

- All of the pieces of the filter and filter assemblies that are tared together during pre-test assessment must also be weighed together when the post-test gravimetric assessment is made and the results of these assessments must be recorded to the nearest 0.1 mg. Please note that this alternative method approval is valid until such time that Subpart AAA and QQQQ are revised or replaced to require a different certification method, and at such time, this alternative will be reconsidered and possibly withdrawn. A copy of this letter must be included in each certification test report where this alternative test method is utilized.

Since this alternative test method may be of interest to others performing testing as described in ASTM2515-11 on wood heaters subject to 40 CFR 60, Subpart AAA or central heaters subject to Subpart QQQQ, we believe it is reasonable to make it broadly applicable. Therefore, we will post this letter as ALT-154 on the EPA website at *https://www.epa.gov/emc/broadly-applicable-approved-alternative-test-methods* for use by other interested parties.

If you have additional questions regarding this approval, please contact Michael Toney of my staff at 919-541-5247 or toney.mike@epa.gov.

Sincerely,

Steffan M. Johnson, Group Leader
Measurement Technology Group

cc: Shannon Banner, EPA/OAQPS/SPPD
Lessard, Patrick, EPA/OAQPS/SPPD
Rafael Sanchez, EPA/OECA
Robert Scinta, EPA/OECA
Michael Toney, EPA/OAQPS/AQAD
Mark Turner, EPA/OAQPS/SPPD
Richard Wayland, EPA/OAQPS/AQAD

Appendix B

Original 50 hours conditioning data (Conducted by Valley Comfort)

List of required data points for combustor conditioning

- 50 hours (1 minute increments) 66.00 hours
- Type of combustor: Ceramic 25cell c2, Applied Ceramics (p/n: 115-1505-C2)
- Hourly data logged points
    - fuel weight
    - flue temperature
    - catalyst temperature
    - ambient temperature
- Fuel type (Doug Fir cordwood, dimensional lumber)
    - moisture content (Dry Basis)
    - load weight at the time of loading (lbs)
- Documentation of thermostat setting/time setting is changed (category 2, 3)
    - Burn rate will be determined based on data logged weight loss

kindling	9/8/2025 8.01am-9.57 am
	9/10/2025 7.19am-9.09am

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue	
9/8/2025	8:01:45 AM	9.59	65.69	87.88	79.75	**Kindling load**
9/8/2025	8:02:45 AM	9.46	65.74	141.11	121.83	
9/8/2025	8:03:45 AM	9.34	65.86	254.91	211.99	
9/8/2025	8:04:45 AM	12.07	65.74	486.54	413.75	
9/8/2025	8:05:45 AM	8.96	65.74	829.34	363.05	
9/8/2025	8:06:46 AM	8.79	65.86	1056.43	399.86	
9/8/2025	8:07:46 AM	8.63	65.97	1182.22	446.42	
9/8/2025	8:08:46 AM	8.47	66.02	1235.51	480.54	
9/8/2025	8:09:46 AM	8.32	66.08	1240.77	496.23	
9/8/2025	8:10:46 AM	8.2	66.19	1189.79	499.15	
9/8/2025	8:11:46 AM	8.05	66.36	1201.22	504.92	
9/8/2025	8:12:46 AM	7.91	66.47	1202.78	515.95	
9/8/2025	8:13:46 AM	7.78	66.59	1203.91	525.87	
9/8/2025	8:14:46 AM	7.64	66.81	1219.31	533.49	
9/8/2025	8:15:46 AM	7.49	66.87	1238.92	542.46	
9/8/2025	8:16:46 AM	7.36	66.98	1248.73	546.55	
9/8/2025	8:17:46 AM	7.21	67.15	1242.9	550.58	
9/8/2025	8:18:46 AM	7.08	67.26	1229.06	551.59	
9/8/2025	8:19:47 AM	6.96	67.37	1226.37	551.65	
9/8/2025	8:20:47 AM	6.82	67.59	1227.38	550.36	
9/8/2025	8:21:47 AM	6.68	67.76	1226.21	549.41	
9/8/2025	8:22:47 AM	6.55	67.93	1222.4	547.61	
9/8/2025	8:23:47 AM	6.41	68.15	1229.51	543.41	
9/8/2025	8:24:47 AM	6.26	68.38	1236.63	539.88	
9/8/2025	8:25:47 AM	6.13	68.43	1248.62	534.39	
9/8/2025	8:26:47 AM	5.98	68.66	1265.2	530.47	
9/8/2025	8:27:47 AM	5.84	68.83	1262.68	524.86	
9/8/2025	8:28:47 AM	5.7	68.99	1266.04	522.06	
9/8/2025	8:29:47 AM	5.55	69.16	1268.28	520.1	
9/8/2025	8:30:48 AM	5.4	69.33	1278.09	518.59	
9/8/2025	8:31:48 AM	5.28	69.5	1284.65	515.17	
9/8/2025	8:32:48 AM	5.15	69.72	1262.4	513.6	
9/8/2025	8:33:48 AM	5.03	69.78	1224.19	508.67	
9/8/2025	8:34:48 AM	4.93	69.78	1188.61	501.44	
9/8/2025	8:35:48 AM	4.83	70.17	1159.64	492.53	
9/8/2025	8:36:48 AM	4.72	70.17	1148.77	486.59	
9/8/2025	8:37:48 AM	4.62	70.34	1153.98	481.16	
9/8/2025	8:38:48 AM	4.53	70.34	1146.25	476.45	
9/8/2025	8:39:49 AM	4.45	70.45	1132.24	472.53	
9/8/2025	8:40:49 AM	4.35	70.62	1130.95	470.51	
9/8/2025	8:41:49 AM	4.26	70.73	1136.89	468.22	
9/8/2025	8:42:50 AM	4.17	70.84	1132.07	465.69	
9/8/2025	8:43:50 AM	4.1	70.84	1132.97	462.67	
9/8/2025	8:44:50 AM	4.01	71.12	1131.96	460.04	
9/8/2025	8:45:50 AM	3.92	71.29	1127.03	457.91	
9/8/2025	8:46:50 AM	3.85	71.07	1123.22	456.23	
9/8/2025	8:47:50 AM	3.77	71.35	1115.66	453.7	
9/8/2025	8:48:50 AM	3.69	71.4	1123.72	451.86	
9/8/2025	8:49:51 AM	3.59	71.57	1152.75	452.47	
9/8/2025	8:50:51 AM	3.52	71.63	1159.64	448.94	
9/8/2025	8:51:51 AM	3.43	71.85	1146.42	445.58	
9/8/2025	8:52:51 AM	3.37	71.68	1127.7	442.11	
9/8/2025	8:53:52 AM	3.3	71.85	1111.85	438.74	
9/8/2025	8:54:52 AM	3.23	72.02	1102.82	434.99	

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/8/2025	8:55:53 AM	3.16	72.19	1097.33	431.74
9/8/2025	8:56:53 AM	3.09	72.3	1095.15	430.28
9/8/2025	8:57:54 AM	3.01	72.52	1099.52	428.04
9/8/2025	8:58:54 AM	2.95	72.3	1108.82	428.38
9/8/2025	8:59:54 AM	2.89	72.24	1121.82	427.2
9/8/2025	9:00:54 AM	2.82	72.36	1129.55	427.2
9/8/2025	9:01:55 AM	2.75	72.41	1125.74	427.37
9/8/2025	9:02:55 AM	2.69	72.24	1118.4	426.98
9/8/2025	9:03:55 AM	2.63	72.52	1109.55	425.3
9/8/2025	9:04:55 AM	2.57	72.58	1093.69	422.38
9/8/2025	9:05:56 AM	2.51	72.52	1082.65	419.13
9/8/2025	9:06:56 AM	2.45	72.69	1083.21	417
9/8/2025	9:07:56 AM	2.41	72.64	1084.05	414.09
9/8/2025	9:08:56 AM	2.34	72.69	1094.25	411.91
9/8/2025	9:09:56 AM	2.29	72.75	1106.3	411.74
9/8/2025	9:10:56 AM	2.22	72.58	1114.14	411.4
9/8/2025	9:11:56 AM	2.18	72.64	1115.1	410.39
9/8/2025	9:12:57 AM	2.12	72.92	1111.23	409.38
9/8/2025	9:13:57 AM	2.07	72.64	1106.97	407.31
9/8/2025	9:14:57 AM	2.01	72.75	1103.83	406.02
9/8/2025	9:15:58 AM	1.95	73.31	1101.03	404.06
9/8/2025	9:16:58 AM	1.9	73.2	1094.92	401.88
9/8/2025	9:17:58 AM	1.86	73.31	1086.46	400.25
9/8/2025	9:18:58 AM	1.8	73.31	1067.47	397.45
9/8/2025	9:19:58 AM	1.76	73.31	1038.95	394.09
9/8/2025	9:20:58 AM	1.72	73.36	1011.72	388.88
9/8/2025	9:21:59 AM	1.68	73.59	987.12	383.55
9/8/2025	9:22:59 AM	1.66	73.59	972.66	378.29
9/8/2025	9:23:59 AM	1.61	73.65	969.69	374.7
9/8/2025	9:24:59 AM	1.57	73.53	972.66	371.73
9/8/2025	9:25:59 AM	1.54	73.87	975.07	369.83
9/8/2025	9:26:59 AM	1.52	73.81	972.1	367.98
9/8/2025	9:27:59 AM	1.48	73.87	967.85	367.19
9/8/2025	9:29:00 AM	1.46	73.87	958.82	365.06
9/8/2025	9:30:00 AM	1.43	73.87	947.45	363.33
9/8/2025	9:31:00 AM	1.4	73.98	935.8	360.13
9/8/2025	9:32:01 AM	1.38	74.15	924.59	357.5
9/8/2025	9:33:01 AM	1.35	74.21	916.47	356.21
9/8/2025	9:34:01 AM	1.33	74.15	911.2	354.92
9/8/2025	9:35:01 AM	1.31	74.26	905.76	354.19
9/8/2025	9:36:01 AM	1.27	74.32	900.16	353.3
9/8/2025	9:37:01 AM	1.25	74.32	895.45	352.18
9/8/2025	9:38:02 AM	1.22	74.49	889.74	349.71
9/8/2025	9:39:02 AM	1.19	73.98	884.7	348.42
9/8/2025	9:40:02 AM	1.17	74.49	881.17	346.8
9/8/2025	9:41:02 AM	1.14	74.21	877.92	347.47
9/8/2025	9:42:02 AM	1.11	74.15	874.27	346.12
9/8/2025	9:43:02 AM	1.09	74.37	871.25	345.51
9/8/2025	9:44:03 AM	1.07	74.37	867.55	345.23
9/8/2025	9:45:03 AM	1.04	74.82	864.3	345
9/8/2025	9:46:03 AM	1.02	74.37	861.27	344.28
9/8/2025	9:47:03 AM	1	74.71	858.42	344
9/8/2025	9:48:04 AM	0.97	74.32	855.34	343.1
9/8/2025	9:49:04 AM	0.94	74.37	852.65	342.82

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue	
9/8/2025	9:50:04 AM	0.92	74.71	850.35	341.98	
9/8/2025	9:51:04 AM	0.89	74.93	847.15	342.09	
9/8/2025	9:52:04 AM	0.86	74.54	842.73	341.92	
9/8/2025	9:53:04 AM	0.84	74.6	839.76	341.87	
9/8/2025	9:54:04 AM	0.82	74.54	839.37	341.14	
9/8/2025	9:55:05 AM	0.79	74.88	839.81	341.36	
9/8/2025	9:56:05 AM	0.79	74.71	838.92	341.7	
9/8/2025	9:57:06 AM	0.01	74.54	564.14	413.92	
9/8/2025	9:58:06 AM	16.76	74.77	550.25	374.48	**Added 16.76lbs 19-23% MC, Medium Air Setting**
9/8/2025	9:59:06 AM	16.73	74.93	578.37	301.52	
9/8/2025	10:00:07 AM	16.67	74.71	633.62	265.22	
9/8/2025	10:01:07 AM	16.64	74.71	704.22	246.11	
9/8/2025	10:02:07 AM	16.61	74.93	772.3	238.1	
9/8/2025	10:03:07 AM	16.56	74.82	829.51	234.73	
9/8/2025	10:04:08 AM	16.51	75.05	880.05	234.73	
9/8/2025	10:05:08 AM	16.47	75.1	930.36	239.83	
9/8/2025	10:06:08 AM	16.41	74.77	993.34	247.73	
9/8/2025	10:07:08 AM	16.35	75.16	1054.3	258.44	
9/8/2025	10:08:08 AM	16.3	75.05	1103.11	269.81	
9/8/2025	10:09:08 AM	16.22	74.93	1141.37	281.52	
9/8/2025	10:10:08 AM	16.16	74.88	1155.38	289.98	
9/8/2025	10:11:09 AM	16.08	74.82	1171.18	298.89	
9/8/2025	10:12:09 AM	16.01	74.82	1177.68	307.63	
9/8/2025	10:13:09 AM	15.93	74.93	1169	312.95	
9/8/2025	10:14:09 AM	15.85	74.93	1138.96	316.93	
9/8/2025	10:15:09 AM	15.75	74.82	1105.12	319.62	
9/8/2025	10:16:09 AM	15.69	74.82	1081.87	322.59	
9/8/2025	10:17:09 AM	15.62	74.93	1065.23	324.89	
9/8/2025	10:18:10 AM	15.52	75.16	1050.66	330.27	
9/8/2025	10:19:10 AM	15.43	74.82	1017.55	332.9	
9/8/2025	10:20:10 AM	15.34	74.88	1004.99	333.41	
9/8/2025	10:21:10 AM	15.26	74.88	1025.17	334.36	
9/8/2025	10:22:10 AM	15.16	75.21	1061.47	338.56	
9/8/2025	10:23:10 AM	15.07	74.93	1082.26	345.34	
9/8/2025	10:24:10 AM	14.98	74.82	1088.99	350.44	
9/8/2025	10:25:10 AM	14.89	75.05	1095.93	354.36	
9/8/2025	10:26:10 AM	14.81	75.05	1104.62	356.99	
9/8/2025	10:27:11 AM	14.71	75.16	1125.13	361.2	
9/8/2025	10:28:11 AM	14.63	75.1	1126.92	363.33	
9/8/2025	10:29:11 AM	14.53	74.93	1128.38	364.33	
9/8/2025	10:30:11 AM	14.45	75.16	1139.19	364.5	
9/8/2025	10:31:11 AM	14.35	75.1	1143.11	366.74	
9/8/2025	10:32:11 AM	14.26	75.21	1143.22	367.3	
9/8/2025	10:33:11 AM	14.18	75.1	1144.29	368.42	
9/8/2025	10:34:11 AM	14.08	75.1	1145.91	368.99	
9/8/2025	10:35:12 AM	13.98	75.05	1150.51	371.9	
9/8/2025	10:36:12 AM	13.89	75.38	1153.25	374.53	
9/8/2025	10:37:12 AM	13.8	74.77	1119.07	362.15	
9/8/2025	10:38:12 AM	13.73	75.27	1067.47	343.77	
9/8/2025	10:39:12 AM	13.66	75.21	1053.46	330.44	
9/8/2025	10:40:12 AM	13.59	75.38	1070.61	321.69	
9/8/2025	10:41:12 AM	13.52	75.44	1094.03	317.44	
9/8/2025	10:42:12 AM	13.44	75.38	1105.57	315.03	
9/8/2025	10:43:12 AM	13.37	75.27	1095.15	313.35	

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/8/2025	10:44:13 AM	13.3	75.44	1078.28	311.61
9/8/2025	10:45:13 AM	13.23	75.16	1059.18	312.56
9/8/2025	10:46:13 AM	13.14	75.21	1030.94	310.26
9/8/2025	10:47:13 AM	13.07	75.27	1010.43	306.34
9/8/2025	10:48:13 AM	13	75.21	1001.07	302.59
9/8/2025	10:49:13 AM	12.92	75.49	994.96	300.85
9/8/2025	10:50:13 AM	12.84	75.1	989.19	298.55
9/8/2025	10:51:13 AM	12.76	75.27	984.82	296.65
9/8/2025	10:52:14 AM	12.69	75.38	980.57	295.36
9/8/2025	10:53:14 AM	12.63	75.21	980.34	295.75
9/8/2025	10:54:15 AM	12.55	75.21	974.79	295.42
9/8/2025	10:55:15 AM	12.48	75.1	974.46	293.34
9/8/2025	10:56:16 AM	12.41	74.93	997.37	292.33
9/8/2025	10:57:16 AM	12.34	74.88	1018.11	292
9/8/2025	10:58:16 AM	12.27	75.16	1032.39	291.27
9/8/2025	10:59:16 AM	12.19	75.21	1041.36	292.33
9/8/2025	11:00:17 AM	12.14	74.93	1047.35	294.02
9/8/2025	11:01:17 AM	12.07	75.1	1049.71	296.54
9/8/2025	11:02:17 AM	12	74.77	1048.03	299
9/8/2025	11:03:17 AM	11.94	74.82	1043.49	300.29
9/8/2025	11:04:18 AM	11.86	74.77	1037.27	300.01
9/8/2025	11:05:18 AM	11.79	74.93	1031.5	300.4
9/8/2025	11:06:18 AM	11.71	74.93	1027.91	300.29
9/8/2025	11:07:18 AM	11.64	74.6	1029.65	303.88
9/8/2025	11:08:18 AM	11.58	75.05	1035.36	306.29
9/8/2025	11:09:19 AM	11.5	75.1	1035.08	307.86
9/8/2025	11:10:19 AM	11.43	75.05	1028.14	308.14
9/8/2025	11:11:19 AM	11.37	74.88	1021.8	307.8
9/8/2025	11:12:19 AM	11.3	75.1	1019.51	307.01
9/8/2025	11:13:19 AM	11.21	74.93	1018.44	306.57
9/8/2025	11:14:19 AM	11.16	74.93	1015.86	306.01
9/8/2025	11:15:19 AM	11.08	75.05	1008.19	306.62
9/8/2025	11:16:19 AM	11	75.1	993.28	307.74
9/8/2025	11:17:19 AM	10.91	75.1	982.81	306.57
9/8/2025	11:18:19 AM	10.84	75.16	1036.04	303.82
9/8/2025	11:19:20 AM	10.79	75.27	1009.2	302.2
9/8/2025	11:20:20 AM	10.74	75.27	993.06	298.05
9/8/2025	11:21:20 AM	10.68	75.05	994.46	294.63
9/8/2025	11:22:20 AM	10.64	75.21	999.34	291.1
9/8/2025	11:23:20 AM	10.61	75.27	993.84	289.03
9/8/2025	11:24:20 AM	10.57	75.44	979.28	287.4
9/8/2025	11:25:21 AM	10.54	75.27	961.07	284.15
9/8/2025	11:26:21 AM	10.49	75.49	942.35	281.52
9/8/2025	11:27:21 AM	10.47	75.55	929.13	279.22
9/8/2025	11:28:21 AM	10.44	75.44	923.41	276.25
9/8/2025	11:29:21 AM	10.41	75.49	930.64	275.64
9/8/2025	11:30:22 AM	10.37	75.72	945.66	275.41
9/8/2025	11:31:22 AM	10.33	75.55	963.7	276.76
9/8/2025	11:32:22 AM	10.29	75.77	984.66	279
9/8/2025	11:33:22 AM	10.27	75.94	1009.81	282.25
9/8/2025	11:34:22 AM	10.2	75.83	1041.81	288.19
9/8/2025	11:35:23 AM	10.17	75.89	1058.39	295.81
9/8/2025	11:36:23 AM	10.1	75.94	1061.25	301.3
9/8/2025	11:37:23 AM	10.06	75.72	1068.65	305.61

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/8/2025	11:38:23 AM	10.01	75.94	1075.48	309.76
9/8/2025	11:39:23 AM	9.95	75.83	1074.31	313.29
9/8/2025	11:40:23 AM	9.89	75.89	1080.24	316.93
9/8/2025	11:41:23 AM	9.83	76.28	1104.06	323.04
9/8/2025	11:42:23 AM	9.77	76.28	1125.24	329.48
9/8/2025	11:43:23 AM	9.71	76.22	1142.55	333.52
9/8/2025	11:44:23 AM	9.65	76.22	1155.1	338.78
9/8/2025	11:45:23 AM	9.57	76.28	1168.83	341.08
9/8/2025	11:46:24 AM	9.53	76.5	1170.85	342.43
9/8/2025	11:47:24 AM	9.47	76.61	1183.06	343.27
9/8/2025	11:48:25 AM	9.41	76.56	1209.79	346.46
9/8/2025	11:49:25 AM	9.35	76.56	1235.11	349.77
9/8/2025	11:50:25 AM	9.29	76.78	1235.34	352.96
9/8/2025	11:51:25 AM	9.24	76.73	1231.36	355.48
9/8/2025	11:52:25 AM	9.19	76.61	1233.04	356.21
9/8/2025	11:53:25 AM	9.12	76.89	1234.39	356.43
9/8/2025	11:54:26 AM	9.05	76.84	1220.71	357.67
9/8/2025	11:55:26 AM	8.99	76.95	1198.25	355.48
9/8/2025	11:56:26 AM	8.92	77.12	1188.66	351.62
9/8/2025	11:57:26 AM	8.88	77.06	1177.85	346.85
9/8/2025	11:58:26 AM	8.81	76.84	1176	344.72
9/8/2025	11:59:26 AM	8.76	77.18	1173.82	344.28
9/8/2025	12:00:26 PM	8.7	77.29	1177.85	341.75
9/8/2025	12:01:26 PM	8.64	77.18	1170.23	340.8
9/8/2025	12:02:27 PM	8.57	77.29	1164.57	339.79
9/8/2025	12:03:27 PM	8.51	77.4	1152.75	338.56
9/8/2025	12:04:28 PM	8.44	77.18	1140.42	335.03
9/8/2025	12:05:28 PM	8.38	77.4	1130.34	332.06
9/8/2025	12:06:28 PM	8.32	77.34	1111.06	330.04
9/8/2025	12:07:28 PM	8.25	77.34	1095.88	329.65
9/8/2025	12:08:28 PM	8.19	77.34	1090.72	327.8
9/8/2025	12:09:28 PM	8.12	77.18	1090.89	327.47
9/8/2025	12:10:29 PM	8.05	77.4	1091	326.96
9/8/2025	12:11:29 PM	7.99	77.46	1085.68	326.29
9/8/2025	12:12:29 PM	7.91	77.34	1079.96	325.11
9/8/2025	12:13:29 PM	7.85	77.46	1074.81	324.44
9/8/2025	12:14:29 PM	7.79	77.4	1068.81	322.7
9/8/2025	12:15:29 PM	7.73	77.34	1059.91	321.25
9/8/2025	12:16:29 PM	7.66	77.4	1050.6	318.84
9/8/2025	12:17:30 PM	7.61	77.62	1038.56	317.16
9/8/2025	12:18:30 PM	7.55	77.46	1027.97	314.3
9/8/2025	12:19:30 PM	7.5	77.68	1019	311.22
9/8/2025	12:20:30 PM	7.46	77.68	1011.16	308.36
9/8/2025	12:21:31 PM	7.41	77.51	1003.87	305.56
9/8/2025	12:22:31 PM	7.36	77.18	996.53	301.92
9/8/2025	12:23:31 PM	7.33	77.51	990.76	297.71
9/8/2025	12:24:31 PM	7.29	77.51	983.81	293.9
9/8/2025	12:25:32 PM	7.25	77.4	976.59	290.32
9/8/2025	12:26:32 PM	7.22	77.34	970.76	288.02
9/8/2025	12:27:32 PM	7.18	76.89	967.96	286
9/8/2025	12:28:33 PM	7.15	77.12	965.55	283.87
9/8/2025	12:29:33 PM	7.12	77.18	961.79	282.98
9/8/2025	12:30:34 PM	7.09	77.18	957.7	281.02
9/8/2025	12:31:34 PM	7.06	76.78	953.39	279.34

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/8/2025	12:32:34 PM	7.04	76.89	948.8	277.43
9/8/2025	12:33:34 PM	7.01	76.73	945.43	276.81
9/8/2025	12:34:34 PM	6.98	76.61	944.14	275.08
9/8/2025	12:35:34 PM	6.93	76.5	942.52	275.3
9/8/2025	12:36:35 PM	6.9	76.5	937.87	274.07
9/8/2025	12:37:35 PM	6.88	76.5	936.97	273.51
9/8/2025	12:38:36 PM	6.84	76.39	932.55	273.79
9/8/2025	12:39:36 PM	6.82	76.39	925.04	273.12
9/8/2025	12:40:36 PM	6.78	76.28	916.47	271.1
9/8/2025	12:41:37 PM	6.74	76.11	911.76	271.27
9/8/2025	12:42:37 PM	6.69	76.17	910.36	271.1
9/8/2025	12:43:38 PM	6.65	76.17	914.17	270.54
9/8/2025	12:44:38 PM	6.63	75.94	918.37	270.54
9/8/2025	12:45:38 PM	6.62	76.28	921.23	270.15
9/8/2025	12:46:39 PM	6.58	76.17	921.23	270.31
9/8/2025	12:47:39 PM	6.55	76.05	919.77	270.54
9/8/2025	12:48:39 PM	6.53	75.94	922.46	270.93
9/8/2025	12:49:39 PM	6.51	75.83	921.23	271.94
9/8/2025	12:50:39 PM	6.49	75.83	914.45	272.05
9/8/2025	12:51:39 PM	6.45	75.83	919.38	272.89
9/8/2025	12:52:39 PM	6.43	75.77	930.25	275.3
9/8/2025	12:53:39 PM	6.41	75.55	940.22	276.87
9/8/2025	12:54:40 PM	6.37	75.72	950.59	278.38
9/8/2025	12:55:40 PM	6.34	75.77	963.81	280.34
9/8/2025	12:56:40 PM	6.32	75.72	979.61	283.71
9/8/2025	12:57:40 PM	6.27	75.55	998.49	287.01
9/8/2025	12:58:40 PM	6.24	75.72	1015.64	289.2
9/8/2025	12:59:40 PM	6.21	75.55	1029.82	292.45
9/8/2025	1:00:40 PM	6.18	75.49	1039.23	295.42
9/8/2025	1:01:40 PM	6.15	75.55	1044.61	297.49
9/8/2025	1:02:41 PM	6.13	75.38	1045.95	300.12
9/8/2025	1:03:41 PM	6.09	75.27	1039.73	301.47
9/8/2025	1:04:41 PM	6.05	75.61	1035.87	303.37
9/8/2025	1:05:42 PM	6.02	75.49	1032.95	305.28
9/8/2025	1:06:42 PM	5.99	75.27	1032	306.06
9/8/2025	1:07:42 PM	5.95	75.21	1032.17	306.17
9/8/2025	1:08:42 PM	5.92	75.27	1032.51	306.85
9/8/2025	1:09:42 PM	5.89	75.16	1030.49	307.18
9/8/2025	1:10:42 PM	5.87	75.05	1028.7	308.02
9/8/2025	1:11:42 PM	5.81	75.1	1027.69	308.08
9/8/2025	1:12:42 PM	5.79	74.93	1026.85	307.8
9/8/2025	1:13:42 PM	5.75	75.05	1028.42	307.58
9/8/2025	1:14:43 PM	5.72	74.88	1028.7	308.14
9/8/2025	1:15:43 PM	5.7	75.16	1030.54	308.98
9/8/2025	1:16:43 PM	5.66	74.82	1030.32	308.47
9/8/2025	1:17:43 PM	5.61	74.93	1021.3	309.14
9/8/2025	1:18:44 PM	5.58	74.88	1004.38	307.91
9/8/2025	1:19:44 PM	5.56	74.82	991.88	308.08
9/8/2025	1:20:44 PM	5.52	74.82	986.84	307.46
9/8/2025	1:21:45 PM	5.5	74.71	989.31	307.01
9/8/2025	1:22:45 PM	5.46	74.82	992.67	306.68
9/8/2025	1:23:45 PM	5.43	74.77	995.41	307.01
9/8/2025	1:24:46 PM	5.38	74.77	999.34	307.13
9/8/2025	1:25:46 PM	5.36	74.54	1002.7	307.63

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/8/2025	1:26:46 PM	5.33	74.71	1008.24	308.7
9/8/2025	1:27:47 PM	5.3	74.6	1014.02	308.25
9/8/2025	1:28:47 PM	5.26	74.6	1021.69	308.7
9/8/2025	1:29:47 PM	5.23	74.6	1029.48	310.04
9/8/2025	1:30:47 PM	5.19	74.54	1038.56	311.22
9/8/2025	1:31:47 PM	5.15	74.37	1046.85	311.95
9/8/2025	1:32:47 PM	5.12	74.37	1054.41	313.79
9/8/2025	1:33:47 PM	5.07	74.77	1061.42	315.25
9/8/2025	1:34:47 PM	5.03	74.32	1070.49	317.16
9/8/2025	1:35:47 PM	5.01	74.32	1080.8	319.29
9/8/2025	1:36:48 PM	4.97	74.37	1091	321.36
9/8/2025	1:37:48 PM	4.93	74.37	1100.92	323.04
9/8/2025	1:38:48 PM	4.88	74.32	1110.67	325.39
9/8/2025	1:39:48 PM	4.84	74.37	1118.74	326.96
9/8/2025	1:40:48 PM	4.79	74.32	1125.97	328.14
9/8/2025	1:41:48 PM	4.75	74.37	1134.15	327.97
9/8/2025	1:42:48 PM	4.71	74.32	1141.65	328.36
9/8/2025	1:43:48 PM	4.67	74.32	1148.6	328.75
9/8/2025	1:44:48 PM	4.63	74.54	1151.74	328.53
9/8/2025	1:45:48 PM	4.58	74.37	1153.93	328.7
9/8/2025	1:46:49 PM	4.54	74.32	1157.51	328.7
9/8/2025	1:47:49 PM	4.49	74.54	1160.48	327.97
9/8/2025	1:48:49 PM	4.44	74.71	1162.44	326.79
9/8/2025	1:49:49 PM	4.4	74.6	1161.21	325
9/8/2025	1:50:49 PM	4.35	74.49	1158.74	323.54
9/8/2025	1:51:49 PM	4.31	74.54	1154.65	319.17
9/8/2025	1:52:49 PM	4.25	74.6	1148.71	315.64
9/8/2025	1:53:50 PM	4.21	74.49	1139.64	310.6
9/8/2025	1:54:50 PM	4.16	74.77	1130.56	308.02
9/8/2025	1:55:50 PM	4.14	74.6	1124.79	301.64
9/8/2025	1:56:50 PM	4.1	74.71	1107.7	295.53
9/8/2025	1:57:50 PM	4.06	74.6	1098.45	289.53
9/8/2025	1:58:50 PM	4.03	74.71	1088.71	284.38
9/8/2025	1:59:50 PM	3.99	74.71	1079.96	277.88
9/8/2025	2:00:50 PM	3.96	74.71	1072.23	272.39
9/8/2025	2:01:51 PM	3.94	74.71	1066.63	265.22
9/8/2025	2:02:51 PM	3.9	74.77	1057.78	258.88
9/8/2025	2:03:51 PM	3.88	74.71	1046.35	251.88
9/8/2025	2:04:52 PM	3.86	74.82	1032.39	244.6
9/8/2025	2:05:52 PM	3.84	74.88	1014.52	237.87
9/8/2025	2:06:53 PM	3.83	75.05	995.3	228.85
9/8/2025	2:07:53 PM	3.81	75.21	974.23	219.94
9/8/2025	2:08:53 PM	3.81	74.93	953.45	209.91
9/8/2025	2:09:53 PM	3.8	74.93	934.62	203.08
9/8/2025	2:10:54 PM	3.79	74.82	918.31	195.29
9/8/2025	2:11:54 PM	3.78	74.93	903.69	188.06
9/8/2025	2:12:54 PM	3.77	75.1	887.67	182.4
9/8/2025	2:13:54 PM	3.77	74.93	870.13	177.92
9/8/2025	2:14:54 PM	3.77	75.1	852.14	172.54
9/8/2025	2:15:55 PM	3.77	75.21	833.71	168.51
9/8/2025	2:16:55 PM	3.75	75.21	814.77	164.58
9/8/2025	2:17:55 PM	3.75	75.21	797.51	162.06
9/8/2025	2:18:55 PM	3.75	75.16	780.76	160.1
9/8/2025	2:19:55 PM	3.75	75.16	764.4	157.47

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/8/2025	2:20:56 PM	3.75	75.1	750.33	155.67
9/8/2025	2:21:56 PM	3.75	75.21	735.09	153.1
9/8/2025	2:22:56 PM	3.74	75.21	724	151.81
9/8/2025	2:23:56 PM	3.74	75.05	712.06	150.3
9/8/2025	2:24:56 PM	3.75	75.27	701.81	148.45
9/8/2025	2:25:56 PM	3.73	75.27	693.8	147.44
9/8/2025	2:26:56 PM	3.73	75.49	686.57	146.77
9/8/2025	2:27:56 PM	3.74	75.44	680.52	148
9/8/2025	2:28:56 PM	3.72	75.49	678.56	149.9
9/8/2025	2:29:57 PM	3.73	75.21	677.77	151.64
9/8/2025	2:30:57 PM	3.72	75.27	679.9	154.5
9/8/2025	2:31:57 PM	3.71	75.05	685.79	158.53
9/8/2025	2:32:57 PM	3.7	75.38	696.77	163.24
9/8/2025	2:33:57 PM	3.69	75.27	711.17	169.23
9/8/2025	2:34:57 PM	3.69	75.16	724.28	176.57
9/8/2025	2:35:57 PM	3.66	75.16	732.8	182.85
9/8/2025	2:36:57 PM	3.66	75.16	739.63	189.46
9/8/2025	2:37:58 PM	3.65	75.21	745.4	196.47
9/8/2025	2:38:58 PM	3.64	75.21	747.14	203.25
9/8/2025	2:39:58 PM	3.61	75.27	745.07	210.08
9/8/2025	2:40:58 PM	3.6	75.27	741.37	215.4
9/8/2025	2:41:58 PM	3.59	75.27	739.41	219.66
9/8/2025	2:42:58 PM	3.57	75.27	739.63	222.74
9/8/2025	2:43:59 PM	3.55	75.49	741.76	227.45
9/8/2025	2:44:59 PM	3.54	75.38	745.01	229.47
9/8/2025	2:45:59 PM	3.52	75.38	747.92	233.61
9/8/2025	2:46:59 PM	3.5	75.44	751.34	237.98
9/8/2025	2:47:59 PM	3.47	75.44	755.15	239.95
9/8/2025	2:48:59 PM	3.47	75.38	760.98	243.31
9/8/2025	2:49:59 PM	3.44	75.44	767.81	245.94
9/8/2025	2:51:00 PM	3.41	75.44	775.38	249.19
9/8/2025	2:52:00 PM	3.39	75.61	781.49	251.77
9/8/2025	2:53:00 PM	3.37	75.44	787.71	254.51
9/8/2025	2:54:01 PM	3.35	75.55	791.96	255.8
9/8/2025	2:55:01 PM	3.33	75.49	798.3	257.88
9/8/2025	2:56:02 PM	3.3	75.49	801.77	260.56
9/8/2025	2:57:02 PM	3.29	75.38	802.83	262.86
9/8/2025	2:58:03 PM	3.27	75.49	804.07	264.66
9/8/2025	2:59:03 PM	3.25	75.55	806.42	265.72
9/8/2025	3:00:04 PM	3.22	75.44	810.23	266.9
9/8/2025	3:01:04 PM	3.2	75.49	816	267.91
9/8/2025	3:02:05 PM	3.18	75.44	823.23	268.52
9/8/2025	3:03:05 PM	3.15	75.49	830.46	269.36
9/8/2025	3:04:06 PM	3.13	75.49	837.91	270.31
9/8/2025	3:05:06 PM	3.11	75.38	844.69	272.11
9/8/2025	3:06:06 PM	3.09	75.44	849.23	273.68
9/8/2025	3:07:06 PM	3.08	75.49	851.02	275.47
9/8/2025	3:08:06 PM	3.03	75.49	851.64	277.15
9/8/2025	3:09:06 PM	3.02	75.38	851.53	277.88
9/8/2025	3:10:07 PM	3	75.38	850.91	278.38
9/8/2025	3:11:07 PM	2.96	75.44	847.21	278.16
9/8/2025	3:12:07 PM	2.95	75.44	838.75	277.71
9/8/2025	3:13:07 PM	2.95	75.44	831.91	277.88
9/8/2025	3:14:07 PM	2.94	75.49	826.14	278.27

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue	
9/8/2025	3:15:07 PM	2.91	75.49	820.88	277.99	
9/8/2025	3:16:07 PM	2.88	75.38	816.06	277.88	
9/8/2025	3:17:07 PM	2.87	75.44	811.86	277.32	
9/8/2025	3:18:07 PM	2.84	75.38	808.72	275.92	
9/8/2025	3:19:07 PM	2.84	75.38	806.48	275.3	
9/8/2025	3:20:07 PM	2.8	75.27	804.68	275.02	
9/8/2025	3:21:07 PM	2.79	75.44	802.55	274.4	
9/8/2025	3:22:07 PM	2.78	75.44	800.59	274.01	
9/8/2025	3:23:07 PM	2.75	75.38	800.2	272.67	
9/8/2025	3:24:07 PM	2.73	75.27	800.48	271.83	
9/8/2025	3:25:08 PM	2.72	75.27	801.49	271.49	
9/8/2025	3:26:08 PM	2.7	75.27	802.27	270.87	
9/8/2025	3:27:08 PM	2.68	75.55	801.77	269.36	
9/8/2025	3:28:08 PM	2.67	75.38	800.76	268.19	
9/8/2025	3:29:08 PM	2.65	75.38	801.6	267.91	
9/8/2025	3:30:08 PM	2.64	75.44	802.22	268.07	
9/8/2025	3:31:08 PM	2.61	75.44	802.89	267.91	
9/8/2025	3:32:08 PM	2.6	75.49	804.35	267.23	
9/8/2025	3:33:08 PM	2.58	75.44	806.92	267.23	
9/8/2025	3:34:08 PM	2.57	75.27	809.89	266.78	
9/8/2025	3:35:08 PM	2.55	75.27	813.09	266.78	
9/8/2025	3:36:08 PM	2.53	75.44	814.26	266.22	
9/8/2025	3:37:08 PM	2.52	75.21	815.78	265.83	
9/8/2025	3:38:08 PM	2.5	75.21	818.58	266.22	
9/8/2025	3:39:08 PM	2.48	75.21	819.81	265.78	
9/8/2025	3:40:08 PM	2.46	75.1	820.65	266.11	
9/8/2025	3:41:09 PM	2.45	75.16	819.64	264.88	
9/8/2025	3:42:09 PM	2.43	75.16	819.59	265.16	
9/8/2025	3:43:09 PM	2.41	75.27	819.42	265.72	
9/8/2025	3:44:09 PM	2.4	75.1	817.63	265.89	
9/8/2025	3:45:09 PM	2.38	75.05	814.49	264.77	
9/8/2025	3:46:09 PM	2.37	75.1	810.57	264.21	
9/8/2025	3:47:10 PM	2.36	75.21	807.93	263.53	
9/8/2025	3:48:10 PM	2.33	74.93	805.58	262.69	
9/8/2025	3:49:11 PM	2.32	75.1	802.78	261.63	
9/8/2025	3:50:11 PM	2.3	75.1	800.93	261.07	
9/8/2025	3:51:12 PM	2.28	75.1	799.81	260.56	
9/8/2025	3:52:12 PM	2.26	75.1	799.42	260.51	
9/8/2025	3:53:13 PM	2.26	75.05	799.19	260.79	
9/8/2025	3:54:13 PM	2.25	74.88	799.36	259.22	
9/8/2025	3:55:14 PM	2.24	75.1	800.14	259.33	
9/8/2025	3:56:14 PM	24.9	74.88	631.77	341.64	**Added 22.66lbs 19-23% MC, Medium Air Setting**
9/8/2025	3:57:15 PM	24.86	75.1	633.23	271.49	
9/8/2025	3:58:15 PM	24.82	75.05	628.52	234.57	
9/8/2025	3:59:15 PM	24.82	74.88	649.65	213.16	
9/8/2025	4:00:15 PM	24.78	74.71	677.83	201.12	
9/8/2025	4:01:15 PM	24.77	74.88	700.47	193.78	
9/8/2025	4:02:15 PM	24.74	74.77	716.43	188.96	
9/8/2025	4:03:15 PM	24.71	74.77	729.66	187.11	
9/8/2025	4:04:15 PM	24.69	74.49	738.34	185.48	
9/8/2025	4:05:15 PM	24.66	74.37	747.42	185.04	
9/8/2025	4:06:16 PM	24.64	74.32	751.23	184.19	
9/8/2025	4:07:16 PM	24.62	74.32	755.1	182.79	
9/8/2025	4:08:16 PM	24.61	74.32	756.94	182.29	

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/8/2025	4:09:16 PM	24.57	74.26	757.51	181.67
9/8/2025	4:10:16 PM	24.54	74.15	761.32	182.07
9/8/2025	4:11:16 PM	24.52	74.04	771.74	182.85
9/8/2025	4:12:16 PM	24.5	73.98	783.06	183.58
9/8/2025	4:13:16 PM	24.47	73.7	796.67	184.42
9/8/2025	4:14:16 PM	24.45	73.87	809.5	184.25
9/8/2025	4:15:17 PM	24.42	73.87	820.93	184.92
9/8/2025	4:16:17 PM	24.38	73.65	832.81	185.71
9/8/2025	4:17:17 PM	24.36	73.65	844.35	185.48
9/8/2025	4:18:17 PM	24.34	73.7	853.71	186.83
9/8/2025	4:19:17 PM	24.31	73.48	862.23	187.56
9/8/2025	4:20:17 PM	24.28	73.7	868.5	187.72
9/8/2025	4:21:17 PM	24.26	73.48	871.42	188.56
9/8/2025	4:22:18 PM	24.23	73.36	874.05	188.96
9/8/2025	4:23:18 PM	24.19	73.31	881.5	189.01
9/8/2025	4:24:18 PM	24.17	73.25	887.5	189.35
9/8/2025	4:25:18 PM	24.14	73.48	890.97	189.13
9/8/2025	4:26:18 PM	24.12	73.25	892.15	189.01
9/8/2025	4:27:18 PM	24.08	72.97	892.09	189.63
9/8/2025	4:28:18 PM	24.06	73.03	889.57	189.01
9/8/2025	4:29:18 PM	24.02	73.14	884.36	189.69
9/8/2025	4:30:18 PM	23.99	72.75	876.29	189.8
9/8/2025	4:31:18 PM	23.95	72.86	858.14	189.29
9/8/2025	4:32:18 PM	23.93	72.92	833.43	188.28
9/8/2025	4:33:18 PM	23.89	72.86	790.34	185.71
9/8/2025	4:34:19 PM	23.86	72.69	734.7	183.41
9/8/2025	4:35:19 PM	23.82	72.69	666.85	180.44
9/8/2025	4:36:19 PM	23.79	72.64	612.89	177.58
9/8/2025	4:37:19 PM	23.76	72.58	575.63	175.06
9/8/2025	4:38:19 PM	23.73	72.52	548.96	173.49
9/8/2025	4:39:19 PM	23.71	72.64	529.18	172.48
9/8/2025	4:40:19 PM	23.66	72.36	515.28	171.64
9/8/2025	4:41:19 PM	23.64	72.36	505.87	172.09
9/8/2025	4:42:19 PM	23.58	72.36	499.59	174.22
9/8/2025	4:43:19 PM	23.55	72.24	495.95	177.36
9/8/2025	4:44:19 PM	23.48	72.24	495.5	180.72
9/8/2025	4:45:20 PM	23.43	72.3	496.46	185.43
9/8/2025	4:46:20 PM	23.36	72.02	498.31	189.35
9/8/2025	4:47:20 PM	23.3	72.19	501.95	191.98
9/8/2025	4:48:20 PM	23.25	72.02	507.49	194.22
9/8/2025	4:49:20 PM	23.18	72.02	513.43	198.03
9/8/2025	4:50:20 PM	23.1	72.08	521.78	202.29
9/8/2025	4:51:20 PM	23.04	72.08	537.13	207.62
9/8/2025	4:52:20 PM	22.95	71.96	555.18	212.38
9/8/2025	4:53:20 PM	22.87	72.02	572.99	216.86
9/8/2025	4:54:20 PM	22.82	71.96	589.24	219.38
9/8/2025	4:55:20 PM	22.74	71.91	625.94	221.34
9/8/2025	4:56:20 PM	22.68	72.02	785.13	223.98
9/8/2025	4:57:20 PM	22.61	71.85	939.77	230.59
9/8/2025	4:58:21 PM	22.57	71.85	933.89	241.18
9/8/2025	4:59:21 PM	22.48	71.85	943.3	253.11
9/8/2025	5:00:21 PM	22.39	71.74	971.82	266.45
9/8/2025	5:01:21 PM	22.29	71.85	993.51	279.84
9/8/2025	5:02:21 PM	22.2	71.85	1018.22	292.89

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/8/2025	5:03:22 PM	22.1	71.96	1039.23	303.15
9/8/2025	5:04:22 PM	22.01	71.85	1057.66	311.5
9/8/2025	5:05:22 PM	21.9	71.91	1066.35	319.9
9/8/2025	5:06:22 PM	21.8	71.91	1051	323.94
9/8/2025	5:07:22 PM	21.7	71.74	1050.44	325
9/8/2025	5:08:22 PM	21.59	71.85	1052	326.96
9/8/2025	5:09:22 PM	21.48	71.91	1055.7	328.08
9/8/2025	5:10:22 PM	21.4	72.02	1083.05	327.63
9/8/2025	5:11:23 PM	21.32	71.85	1127.53	327.02
9/8/2025	5:12:23 PM	21.24	71.96	1146.25	326.12
9/8/2025	5:13:23 PM	21.17	71.96	1126.19	321.47
9/8/2025	5:14:23 PM	21.1	72.02	1094.08	315.53
9/8/2025	5:15:23 PM	21.01	72.08	1071.73	306.9
9/8/2025	5:16:23 PM	20.96	71.96	1057.78	297.55
9/8/2025	5:17:23 PM	20.9	72.08	1043.38	289.03
9/8/2025	5:18:23 PM	20.83	72.02	1025.5	280.57
9/8/2025	5:19:23 PM	20.78	72.02	1005.84	269.25
9/8/2025	5:20:23 PM	20.73	72.02	983.98	258.1
9/8/2025	5:21:23 PM	20.69	72.02	957.65	245.27
9/8/2025	5:22:23 PM	20.66	71.96	932.71	233.5
9/8/2025	5:23:24 PM	20.62	72.02	909.52	224.37
9/8/2025	5:24:24 PM	20.59	72.08	892.43	218.15
9/8/2025	5:25:24 PM	20.55	72.02	881.39	213.72
9/8/2025	5:26:24 PM	20.52	71.85	877.13	209.8
9/8/2025	5:27:24 PM	20.48	71.91	887.44	206.83
9/8/2025	5:28:24 PM	20.46	72.02	900.61	203.19
9/8/2025	5:29:24 PM	20.44	71.91	894.78	200.44
9/8/2025	5:30:25 PM	20.41	71.91	884.86	198.03
9/8/2025	5:31:25 PM	20.4	71.74	875.79	195.68
9/8/2025	5:32:25 PM	20.36	71.85	868.05	193.72
9/8/2025	5:33:25 PM	20.33	71.68	861.44	191.81
9/8/2025	5:34:25 PM	20.32	71.74	853.43	189.85
9/8/2025	5:35:25 PM	20.3	71.68	845.19	188.34
9/8/2025	5:36:25 PM	20.28	71.68	836.73	186.55
9/8/2025	5:37:25 PM	20.25	71.74	828.5	184.19
9/8/2025	5:38:25 PM	20.22	71.57	820.6	183.19
9/8/2025	5:39:25 PM	20.22	71.52	812.58	181.17
9/8/2025	5:40:25 PM	20.2	71.4	804.91	179.71
9/8/2025	5:41:25 PM	20.18	71.52	797.68	178.98
9/8/2025	5:42:26 PM	20.16	71.57	790.73	177.53
9/8/2025	5:43:26 PM	20.15	71.35	783.67	176.13
9/8/2025	5:44:26 PM	20.13	71.12	777.79	174.78
9/8/2025	5:45:26 PM	20.12	71.35	771.79	172.32
9/8/2025	5:46:26 PM	20.11	71.29	766.25	170.8
9/8/2025	5:47:26 PM	20.08	71.18	761.6	170.24
9/8/2025	5:48:26 PM	20.05	71.29	757.45	169.29
9/8/2025	5:49:26 PM	20.04	71.01	754.2	168.51
9/8/2025	5:50:26 PM	20.03	71.12	750.84	167.39
9/8/2025	5:51:26 PM	20.02	71.07	747.7	166.99
9/8/2025	5:52:27 PM	20	70.84	744.56	166.38
9/8/2025	5:53:27 PM	19.98	70.96	742.88	164.98
9/8/2025	5:54:27 PM	19.97	70.96	741.37	163.97
9/8/2025	5:55:27 PM	19.95	70.84	739.41	163.63
9/8/2025	5:56:27 PM	19.93	71.01	737.22	164.19

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/8/2025	5:57:27 PM	19.91	70.68	734.92	163.8
9/8/2025	5:58:27 PM	19.91	70.68	735.6	162.9
9/8/2025	5:59:27 PM	19.9	70.73	738.17	163.97
9/8/2025	6:00:28 PM	19.87	70.68	744.06	166.43
9/8/2025	6:01:28 PM	19.85	70.73	752.63	168
9/8/2025	6:02:28 PM	19.83	70.68	766.64	170.75
9/8/2025	6:03:28 PM	19.82	70.62	784.06	175.06
9/8/2025	6:04:28 PM	19.79	70.51	803.06	179.94
9/8/2025	6:05:29 PM	19.75	70.62	827.32	186.32
9/8/2025	6:06:29 PM	19.74	70.51	855.84	192.04
9/8/2025	6:07:29 PM	19.71	70.51	889.07	197.42
9/8/2025	6:08:29 PM	19.66	70.51	922.96	203.47
9/8/2025	6:09:29 PM	19.62	70.4	955.24	209.52
9/8/2025	6:10:29 PM	19.59	70.45	984.09	216.75
9/8/2025	6:11:29 PM	19.54	70.45	1010.82	223.7
9/8/2025	6:12:29 PM	19.52	70.45	1035.98	229.19
9/8/2025	6:13:29 PM	19.46	70.28	1059.12	234.4
9/8/2025	6:14:29 PM	19.41	70.4	1067.25	239.89
9/8/2025	6:15:29 PM	19.39	70.17	1027.18	243.7
9/8/2025	6:16:30 PM	19.34	70.4	961.91	244.99
9/8/2025	6:17:30 PM	19.3	70.34	915.12	244.65
9/8/2025	6:18:30 PM	19.24	70.28	892.2	244.43
9/8/2025	6:19:30 PM	19.2	70.34	891.48	243.76
9/8/2025	6:20:30 PM	19.16	70.4	902.68	243.76
9/8/2025	6:21:30 PM	19.12	70.4	911.65	244.65
9/8/2025	6:22:30 PM	19.07	70.34	907.33	244.04
9/8/2025	6:23:30 PM	19.04	70.28	897.19	242.75
9/8/2025	6:24:30 PM	19.02	70.28	889.4	239.89
9/8/2025	6:25:30 PM	18.96	70.34	888.9	238.1
9/8/2025	6:26:30 PM	18.94	70.28	896.74	237.09
9/8/2025	6:27:30 PM	18.93	70.28	913.16	237.26
9/8/2025	6:28:31 PM	18.86	70.28	935.18	238.77
9/8/2025	6:29:31 PM	18.84	70.28	961.29	240.28
9/8/2025	6:30:31 PM	18.78	70.12	990.15	243.25
9/8/2025	6:31:31 PM	18.75	70.12	1020.46	248.18
9/8/2025	6:32:31 PM	18.71	70.17	1050.21	251.82
9/8/2025	6:33:31 PM	18.66	70.12	1076.71	256.47
9/8/2025	6:34:31 PM	18.62	70.06	1079.46	263.37
9/8/2025	6:35:31 PM	18.58	70.17	1030.99	266.11
9/8/2025	6:36:31 PM	18.54	70.17	969.19	265.22
9/8/2025	6:37:31 PM	18.49	70.06	925.21	261.63
9/8/2025	6:38:31 PM	18.44	70.06	896.97	257.82
9/8/2025	6:39:32 PM	18.43	70.12	877.8	253.22
9/8/2025	6:40:32 PM	18.38	70.06	861.39	248.85
9/8/2025	6:41:32 PM	18.35	70.06	849.23	245.6
9/8/2025	6:42:32 PM	18.32	70.17	839.09	242.41
9/8/2025	6:43:32 PM	18.26	70.06	830.85	239.89
9/8/2025	6:44:32 PM	18.26	70.12	826.7	237.48
9/8/2025	6:45:32 PM	18.23	70.12	826.54	234.51
9/8/2025	6:46:32 PM	18.2	70	829	232.89
9/8/2025	6:47:32 PM	18.16	69.95	830.74	231.37
9/8/2025	6:48:32 PM	18.15	69.95	830.74	230.76
9/8/2025	6:49:32 PM	18.11	70.06	827.43	229.64
9/8/2025	6:50:33 PM	18.08	70.12	820.88	228.4

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/8/2025	6:51:33 PM	18.05	70	814.54	228.63
9/8/2025	6:52:33 PM	18.02	69.95	809.45	227.56
9/8/2025	6:53:33 PM	18	69.95	813.2	226.05
9/8/2025	6:54:33 PM	17.96	70	836.45	226.72
9/8/2025	6:55:33 PM	17.95	70.06	853.43	227.84
9/8/2025	6:56:33 PM	17.9	69.84	861.33	230.03
9/8/2025	6:57:33 PM	17.87	69.95	864.13	231.48
9/8/2025	6:58:33 PM	17.85	69.72	856.68	232.55
9/8/2025	6:59:33 PM	17.8	69.84	844.3	233.45
9/8/2025	7:00:33 PM	17.77	69.95	835.67	232.61
9/8/2025	7:01:33 PM	17.76	69.72	831.02	232.83
9/8/2025	7:02:34 PM	17.73	69.67	830.57	232.55
9/8/2025	7:03:34 PM	17.69	69.72	830.51	232.1
9/8/2025	7:04:34 PM	17.66	69.95	831.86	234.17
9/8/2025	7:05:34 PM	17.62	69.55	832.31	235.41
9/8/2025	7:06:34 PM	17.59	69.72	830.91	236.14
9/8/2025	7:07:34 PM	17.57	69.67	830.85	237.37
9/8/2025	7:08:34 PM	17.54	69.55	832.08	237.98
9/8/2025	7:09:35 PM	17.48	69.67	833.65	238.88
9/8/2025	7:10:35 PM	17.47	69.55	836.51	239.11
9/8/2025	7:11:35 PM	17.43	69.55	840.6	240.95
9/8/2025	7:12:35 PM	17.39	69.67	843.68	242.24
9/8/2025	7:13:35 PM	17.35	69.67	844.58	243.59
9/8/2025	7:14:35 PM	17.32	69.44	848	246.28
9/8/2025	7:15:35 PM	17.28	69.44	852.14	248.01
9/8/2025	7:16:35 PM	17.25	69.67	856.18	247.45
9/8/2025	7:17:35 PM	17.2	69.55	861.39	249.36
9/8/2025	7:18:35 PM	17.17	69.5	865.48	250.82
9/8/2025	7:19:35 PM	17.14	69.39	868.05	252.16
9/8/2025	7:20:35 PM	17.08	69.39	881.39	254.12
9/8/2025	7:21:36 PM	17.04	69.44	906.04	259.84
9/8/2025	7:22:36 PM	16.99	69.44	926.89	262.13
9/8/2025	7:23:36 PM	16.94	69.39	935.46	265.83
9/8/2025	7:24:36 PM	16.89	69.44	935.74	267.74
9/8/2025	7:25:36 PM	16.86	69.44	933.33	269.25
9/8/2025	7:26:36 PM	16.81	69.39	930.87	269.42
9/8/2025	7:27:36 PM	16.78	69.44	929.13	270.09
9/8/2025	7:28:36 PM	16.74	69.5	930.53	272.28
9/8/2025	7:29:36 PM	16.67	69.44	931.93	272.39
9/8/2025	7:30:36 PM	16.64	69.39	933.55	271.55
9/8/2025	7:31:36 PM	16.59	69.44	935.74	272.44
9/8/2025	7:32:37 PM	16.55	69.39	937.59	272.16
9/8/2025	7:33:37 PM	16.49	69.5	940.95	273.4
9/8/2025	7:34:37 PM	16.46	69.5	944.26	274.68
9/8/2025	7:35:37 PM	16.42	69.44	947.06	276.25
9/8/2025	7:36:37 PM	16.36	69.44	953.73	278.33
9/8/2025	7:37:37 PM	16.31	69.44	958.32	279.84
9/8/2025	7:38:37 PM	16.28	69.44	963.2	280.9
9/8/2025	7:39:37 PM	16.21	69.44	965.6	282.14
9/8/2025	7:40:37 PM	16.17	69.39	966.73	282.75
9/8/2025	7:41:37 PM	16.13	69.44	965.72	282.47
9/8/2025	7:42:37 PM	16.08	69.44	968.91	283.09
9/8/2025	7:43:37 PM	16.03	69.5	978.77	285.22
9/8/2025	7:44:38 PM	15.98	69.44	982.47	286.45

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/8/2025	7:45:38 PM	15.93	69.44	978.88	286.68
9/8/2025	7:46:38 PM	15.88	69.5	978.88	287.01
9/8/2025	7:47:38 PM	15.84	69.5	981.41	286.84
9/8/2025	7:48:38 PM	15.77	69.44	986.95	286.79
9/8/2025	7:49:38 PM	15.73	69.55	1006.23	288.52
9/8/2025	7:50:38 PM	15.68	69.44	1013.85	290.21
9/8/2025	7:51:38 PM	15.61	69.44	1013.51	292.28
9/8/2025	7:52:38 PM	15.56	69.55	996.09	292.84
9/8/2025	7:53:39 PM	15.49	69.39	990.15	291.77
9/8/2025	7:54:39 PM	15.43	69.44	1010.26	289.93
9/8/2025	7:55:39 PM	15.36	69.44	1030.99	288.86
9/8/2025	7:56:39 PM	15.28	69.5	1042.98	288.19
9/8/2025	7:57:39 PM	15.24	69.5	1050.66	287.91
9/8/2025	7:58:39 PM	15.17	69.44	1053.85	285.89
9/8/2025	7:59:39 PM	15.11	69.44	1051.39	283.82
9/8/2025	8:00:39 PM	15.05	69.55	1048.42	279.95
9/8/2025	8:01:40 PM	14.99	69.39	1034.02	276.53
9/8/2025	8:02:40 PM	14.94	69.55	1013.85	270.2
9/8/2025	8:03:40 PM	14.88	69.5	998.33	263.59
9/8/2025	8:04:40 PM	14.86	69.33	980.51	256.81
9/8/2025	8:05:40 PM	14.81	69.44	958.82	248.97
9/8/2025	8:06:40 PM	14.76	69.44	932.38	240.17
9/8/2025	8:07:40 PM	14.72	69.39	906.49	230.7
9/8/2025	8:08:40 PM	14.69	69.44	883.58	222.86
9/8/2025	8:09:40 PM	14.65	69.5	863.4	215.57
9/8/2025	8:10:40 PM	14.62	69.44	844.75	209.74
9/8/2025	8:11:40 PM	14.6	69.39	828.05	204.76
9/8/2025	8:12:41 PM	14.54	69.44	814.04	201.06
9/8/2025	8:13:41 PM	14.54	69.39	802.27	197.59
9/8/2025	8:14:41 PM	14.49	69.39	791.91	194.73
9/8/2025	8:15:41 PM	14.46	69.44	782.61	191.98
9/8/2025	8:16:41 PM	14.44	69.39	775.15	189.18
9/8/2025	8:17:41 PM	14.43	69.39	768.54	187.05
9/8/2025	8:18:41 PM	14.39	69.11	762.94	184.53
9/8/2025	8:19:41 PM	14.36	69.33	758.96	182.4
9/8/2025	8:20:41 PM	14.33	69.22	756.44	179.66
9/8/2025	8:21:41 PM	14.31	69.39	754.48	178.65
9/8/2025	8:22:41 PM	14.3	69.16	751.96	178.37
9/8/2025	8:23:41 PM	14.28	69.11	750.67	177.98
9/8/2025	8:24:42 PM	14.26	69.33	749.49	175.45
9/8/2025	8:25:42 PM	14.24	69.39	748.09	173.88
9/8/2025	8:26:42 PM	14.22	69.16	746.52	173.32
9/8/2025	8:27:42 PM	14.18	69.16	745.29	172.15
9/8/2025	8:28:42 PM	14.17	69.11	745.4	171.08
9/8/2025	8:29:42 PM	14.14	69.11	746.19	170.07
9/8/2025	8:30:42 PM	14.13	69.05	746.52	168.62
9/8/2025	8:31:42 PM	14.11	69.05	746.64	167.72
9/8/2025	8:32:43 PM	14.1	69.11	746.92	167.05
9/8/2025	8:33:43 PM	14.07	69.05	747.48	166.43
9/8/2025	8:34:43 PM	14.05	68.99	747.03	165.37
9/8/2025	8:35:43 PM	14.03	68.99	746.07	164.58
9/8/2025	8:36:43 PM	14.03	68.88	745.79	163.46
9/8/2025	8:37:43 PM	14	68.88	745.18	163.24
9/8/2025	8:38:43 PM	13.98	68.83	743.78	161.73

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/8/2025	8:39:43 PM	13.95	68.83	743.67	161.22
9/8/2025	8:40:43 PM	13.94	68.88	742.82	159.48
9/8/2025	8:41:43 PM	13.93	68.71	742.04	159.37
9/8/2025	8:42:43 PM	13.93	68.77	741.42	159.37
9/8/2025	8:43:43 PM	13.92	68.71	740.86	158.98
9/8/2025	8:44:44 PM	13.87	68.83	740.08	157.92
9/8/2025	8:45:44 PM	13.85	68.77	739.69	157.41
9/8/2025	8:46:44 PM	13.84	68.71	739.18	156.35
9/8/2025	8:47:44 PM	13.83	68.66	738.01	154.72
9/8/2025	8:48:44 PM	13.83	68.77	737.95	154.83
9/8/2025	8:49:44 PM	13.82	68.66	737.28	153.99
9/8/2025	8:50:44 PM	13.8	68.43	736.89	153.38
9/8/2025	8:51:44 PM	13.78	68.71	737.05	152.82
9/8/2025	8:52:44 PM	13.74	68.43	737.89	151.75
9/8/2025	8:53:44 PM	13.74	68.66	738.68	151.75
9/8/2025	8:54:44 PM	13.74	68.55	739.24	150.86
9/8/2025	8:55:44 PM	13.73	68.43	739.41	151.02
9/8/2025	8:56:45 PM	13.73	68.43	742.43	151.08
9/8/2025	8:57:45 PM	13.72	68.49	746.52	152.09
9/8/2025	8:58:45 PM	13.68	68.49	752.74	152.82
9/8/2025	8:59:45 PM	13.66	68.49	760.14	153.66
9/8/2025	9:00:45 PM	13.65	68.43	768.21	154.67
9/8/2025	9:01:45 PM	13.64	68.43	777.96	157.92
9/8/2025	9:02:45 PM	13.62	68.38	790.4	160.16
9/8/2025	9:03:45 PM	13.61	68.38	810.68	162.12
9/8/2025	9:04:45 PM	13.57	68.38	837.13	166.1
9/8/2025	9:05:45 PM	13.54	68.27	863.18	169.74
9/8/2025	9:06:45 PM	13.54	68.21	884.42	174.05
9/8/2025	9:07:45 PM	13.52	68.15	903.35	179.04
9/8/2025	9:08:45 PM	13.47	68.27	911.53	184.14
9/8/2025	9:09:46 PM	13.45	68.27	914.84	189.69
9/8/2025	9:10:46 PM	13.43	68.15	921.73	194.62
9/8/2025	9:11:46 PM	13.39	68.27	927.39	199.21
9/8/2025	9:12:46 PM	13.37	68.21	927.34	204.09
9/8/2025	9:13:46 PM	13.34	68.27	926.55	206.83
9/8/2025	9:14:46 PM	13.3	68.21	924.03	209.8
9/8/2025	9:15:46 PM	13.26	68.21	922.52	211.99
9/8/2025	9:16:46 PM	13.24	68.27	923.97	214
9/8/2025	9:17:46 PM	13.19	68.27	924.48	215.52
9/8/2025	9:18:46 PM	13.16	68.27	927.78	217.2
9/8/2025	9:19:46 PM	13.12	68.15	932.04	218.26
9/8/2025	9:20:46 PM	13.08	68.21	938.04	220.78
9/8/2025	9:21:47 PM	13.05	68.27	946.5	221.23
9/8/2025	9:22:47 PM	13.02	68.38	950.36	223.14
9/8/2025	9:23:47 PM	12.98	68.15	943.58	223.14
9/8/2025	9:24:47 PM	12.95	68.1	925.93	222.86
9/8/2025	9:25:47 PM	12.92	68.38	904.42	222.35
9/8/2025	9:26:47 PM	12.89	68.27	885.2	220.5
9/8/2025	9:27:47 PM	12.85	68.15	869.79	218.43
9/8/2025	9:28:47 PM	12.84	68.21	858.92	216.36
9/8/2025	9:29:47 PM	12.81	68.21	851.02	214.23
9/8/2025	9:30:47 PM	12.76	68.15	845.47	211.93
9/8/2025	9:31:47 PM	12.75	68.15	841.33	210.59
9/8/2025	9:32:47 PM	12.74	68.21	839.48	209.18

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/8/2025	9:33:48 PM	12.7	68.27	842.34	207.06
9/8/2025	9:34:48 PM	12.67	68.27	847.27	206.89
9/8/2025	9:35:48 PM	12.65	68.21	852.65	207.17
9/8/2025	9:36:48 PM	12.64	68.1	856.79	206.55
9/8/2025	9:37:48 PM	12.6	68.27	859.37	206.66
9/8/2025	9:38:48 PM	12.57	68.27	860.43	206.27
9/8/2025	9:39:48 PM	12.56	68.15	860.49	206.21
9/8/2025	9:40:48 PM	12.55	68.15	859.31	203.92
9/8/2025	9:41:48 PM	12.51	68.21	857.52	204.25
9/8/2025	9:42:48 PM	12.48	68.27	855.56	204.48
9/8/2025	9:43:48 PM	12.47	68.15	853.04	203.92
9/8/2025	9:44:48 PM	12.46	68.27	850.07	203.41
9/8/2025	9:45:49 PM	12.43	68.04	846.26	202.85
9/8/2025	9:46:49 PM	12.41	68.1	843.23	203.47
9/8/2025	9:47:49 PM	12.38	68.15	840.71	202.52
9/8/2025	9:48:49 PM	12.36	68.04	838.13	202.01
9/8/2025	9:49:49 PM	12.33	68.1	836.45	201.12
9/8/2025	9:50:49 PM	12.32	68.04	835.39	200.72
9/8/2025	9:51:49 PM	12.3	68.04	834.77	200.28
9/8/2025	9:52:49 PM	12.27	68.04	834.27	199.15
9/8/2025	9:53:49 PM	12.27	68.1	833.32	199.49
9/8/2025	9:54:49 PM	12.24	68.21	832.08	200.28
9/8/2025	9:55:49 PM	12.21	68.15	832.31	199.15
9/8/2025	9:56:49 PM	12.18	68.1	834.16	198.82
9/8/2025	9:57:49 PM	12.16	68.04	836.4	198.09
9/8/2025	9:58:50 PM	12.16	68.1	838.53	199.21
9/8/2025	9:59:50 PM	12.13	67.93	840.54	199.04
9/8/2025	10:00:50 PM	12.1	67.87	842.62	199.55
9/8/2025	10:01:50 PM	12.07	67.93	844.69	200
9/8/2025	10:02:50 PM	12.06	67.82	846.2	200.39
9/8/2025	10:03:50 PM	12.06	68.04	847.83	201.12
9/8/2025	10:04:50 PM	12.02	67.93	848.89	200.28
9/8/2025	10:05:50 PM	11.98	68.04	849.96	201.12
9/8/2025	10:06:50 PM	11.97	67.93	851.25	201.34
9/8/2025	10:07:50 PM	11.96	68.04	852.59	202.29
9/8/2025	10:08:50 PM	11.93	68.04	853.65	202.68
9/8/2025	10:09:50 PM	11.9	67.87	854.61	202.24
9/8/2025	10:10:50 PM	11.88	67.93	856.62	202.24
9/8/2025	10:11:51 PM	11.87	68.1	857.18	203.47
9/8/2025	10:12:51 PM	11.85	68.1	858.08	202.57
9/8/2025	10:13:51 PM	11.81	67.87	858.98	203.36
9/8/2025	10:14:51 PM	11.8	67.93	860.04	203.08
9/8/2025	10:15:51 PM	11.77	68.04	861.5	203.58
9/8/2025	10:16:51 PM	11.77	68.04	862.68	203.81
9/8/2025	10:17:51 PM	11.73	67.93	863.52	203.75
9/8/2025	10:18:51 PM	11.69	67.82	864.41	204.65
9/8/2025	10:19:51 PM	11.68	67.87	865.14	205.09
9/8/2025	10:20:51 PM	11.68	67.82	865.31	205.09
9/8/2025	10:21:51 PM	11.65	67.82	865.7	204.81
9/8/2025	10:22:51 PM	11.61	67.87	865.76	204.76
9/8/2025	10:23:51 PM	11.58	67.87	865.59	204.87
9/8/2025	10:24:52 PM	11.58	68.04	865.59	204.14
9/8/2025	10:25:52 PM	11.57	68.1	865.7	204.25
9/8/2025	10:26:52 PM	11.51	67.82	865.25	204.09

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/8/2025	10:27:52 PM	11.49	67.82	865.93	205.32
9/8/2025	10:28:52 PM	11.48	67.87	866.09	204.65
9/8/2025	10:29:52 PM	11.47	67.76	866.37	204.7
9/8/2025	10:30:52 PM	11.43	67.82	866.37	204.37
9/8/2025	10:31:52 PM	11.39	67.93	866.15	204.25
9/8/2025	10:32:52 PM	11.39	67.87	866.32	204.03
9/8/2025	10:33:52 PM	11.38	67.87	866.6	204.25
9/8/2025	10:34:52 PM	11.37	67.82	866.93	203.92
9/8/2025	10:35:52 PM	11.32	67.93	867.38	203.97
9/8/2025	10:36:53 PM	11.28	67.82	867.05	204.25
9/8/2025	10:37:53 PM	11.28	67.93	866.71	204.48
9/8/2025	10:38:53 PM	11.28	67.93	866.15	203.97
9/8/2025	10:39:53 PM	11.25	67.82	865.93	203.64
9/8/2025	10:40:53 PM	11.21	67.65	865.7	204.14
9/8/2025	10:41:53 PM	11.19	67.82	865.08	203.36
9/8/2025	10:42:54 PM	11.18	67.76	864.97	203.3
9/8/2025	10:43:54 PM	11.16	67.76	864.69	202.74
9/8/2025	10:44:54 PM	11.13	67.82	864.8	202.85
9/8/2025	10:45:55 PM	11.1	67.76	864.69	201.51
9/8/2025	10:46:55 PM	11.09	67.76	864.86	201.51
9/8/2025	10:47:55 PM	11.08	67.87	865.36	200.89
9/8/2025	10:48:55 PM	11.04	67.76	866.88	200.78
9/8/2025	10:49:55 PM	11.03	67.65	868.61	200.5
9/8/2025	10:50:55 PM	11	67.76	871.08	201.17
9/8/2025	10:51:55 PM	10.99	67.65	873.15	200
9/8/2025	10:52:56 PM	10.98	67.82	875.34	200.72
9/8/2025	10:53:56 PM	10.96	67.59	877.52	201.51
9/8/2025	10:54:56 PM	10.92	67.59	878.42	200.89
9/8/2025	10:55:56 PM	10.89	67.59	877.36	200.67
9/8/2025	10:56:56 PM	10.89	67.54	875.28	201.45
9/8/2025	10:57:56 PM	10.88	67.76	872.87	201.06
9/8/2025	10:58:56 PM	10.85	67.65	869.79	200.72
9/8/2025	10:59:56 PM	10.82	67.76	867.1	199.21
9/8/2025	11:00:56 PM	10.81	67.54	864.86	199.27
9/8/2025	11:01:56 PM	10.79	67.54	862.62	198.65
9/8/2025	11:02:56 PM	10.78	67.59	860.71	198.09
9/8/2025	11:03:56 PM	10.76	67.54	858.42	196.97
9/8/2025	11:04:57 PM	10.73	67.37	856.57	196.75
9/8/2025	11:05:57 PM	10.71	67.59	854.83	197.42
9/8/2025	11:06:57 PM	10.69	67.54	852.81	197.14
9/8/2025	11:07:57 PM	10.68	67.54	850.74	197.08
9/8/2025	11:08:57 PM	10.66	67.59	848.61	196.47
9/8/2025	11:09:57 PM	10.64	67.48	845.31	195.91
9/8/2025	11:10:57 PM	10.62	67.48	842.56	195.62
9/8/2025	11:11:57 PM	10.6	67.48	839.87	194.73
9/8/2025	11:12:57 PM	10.59	67.48	836.85	194.17
9/8/2025	11:13:57 PM	10.58	67.37	833.99	192.43
9/8/2025	11:14:57 PM	10.55	67.48	831.19	191.14
9/8/2025	11:15:57 PM	10.52	67.48	828.05	189.74
9/8/2025	11:16:58 PM	10.51	67.37	825.02	189.97
9/8/2025	11:17:58 PM	10.5	67.37	822	190.36
9/8/2025	11:18:58 PM	10.48	67.31	819.36	189.91
9/8/2025	11:19:58 PM	10.49	67.37	816.73	190.47
9/8/2025	11:20:58 PM	10.46	67.31	814.88	189.69

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/8/2025	11:21:58 PM	10.42	67.37	813.59	189.46
9/8/2025	11:22:58 PM	10.41	67.31	812.3	189.46
9/8/2025	11:23:58 PM	10.4	67.31	810.68	188.62
9/8/2025	11:24:58 PM	10.4	67.31	809.56	187.22
9/8/2025	11:25:58 PM	10.39	67.37	808.21	186.77
9/8/2025	11:26:58 PM	10.36	67.31	806.7	186.49
9/8/2025	11:27:58 PM	10.33	67.26	805.3	186.16
9/8/2025	11:28:59 PM	10.32	67.26	804.91	185.71
9/8/2025	11:29:59 PM	10.31	67.2	805.86	185.76
9/8/2025	11:30:59 PM	10.3	67.2	807.54	186.27
9/8/2025	11:31:59 PM	10.29	67.26	809.84	186.04
9/8/2025	11:32:59 PM	10.28	67.26	811.69	186.27
9/8/2025	11:33:59 PM	10.26	67.31	814.15	187.05
9/8/2025	11:34:59 PM	10.22	67.2	815.5	187.56
9/8/2025	11:35:59 PM	10.21	67.2	817.74	187.05
9/8/2025	11:36:59 PM	10.2	67.2	819.87	187.44
9/8/2025	11:37:59 PM	10.2	67.26	822.16	189.52
9/8/2025	11:38:59 PM	10.17	67.15	821.83	191.03
9/8/2025	11:40:00 PM	10.15	67.2	818.8	191.59
9/8/2025	11:41:00 PM	10.12	67.2	815.83	194.17
9/8/2025	11:42:00 PM	10.11	67.15	813.76	194.62
9/8/2025	11:43:00 PM	10.11	67.15	813.03	195.62
9/8/2025	11:44:00 PM	10.1	67.26	813.03	196.3
9/8/2025	11:45:00 PM	10.07	67.15	813.09	197.53
9/8/2025	11:46:00 PM	10.05	67.15	812.75	200.11
9/8/2025	11:47:00 PM	10.01	67.26	813.09	201.23
9/8/2025	11:48:00 PM	10.01	67.03	814.54	202.68
9/8/2025	11:49:00 PM	10	67.15	816.9	203.41
9/8/2025	11:50:00 PM	9.98	67.03	819.42	204.37
9/8/2025	11:51:00 PM	9.95	67.15	821.88	205.82
9/8/2025	11:52:01 PM	9.93	67.03	824.74	207.28
9/8/2025	11:53:01 PM	9.91	67.2	827.1	208.23
9/8/2025	11:54:02 PM	9.91	67.15	830.12	210.59
9/8/2025	11:55:02 PM	9.88	67.15	833.6	211.87
9/8/2025	11:56:02 PM	9.85	66.98	837.24	213.39
9/8/2025	11:57:02 PM	9.83	66.98	841.27	214.56
9/8/2025	11:58:02 PM	9.81	67.15	845.47	216.02
9/8/2025	11:59:02 PM	9.78	67.03	850.4	217.81
9/9/2025	12:00:02 AM	9.78	67.15	856.01	219.38
9/9/2025	12:01:02 AM	9.75	66.98	861.84	222.24
9/9/2025	12:02:02 AM	9.72	66.92	867.66	222.18
9/9/2025	12:03:02 AM	9.71	66.98	875.39	224.03
9/9/2025	12:04:02 AM	9.7	67.03	884.25	227.67
9/9/2025	12:05:03 AM	9.66	66.98	895.01	229.58
9/9/2025	12:06:03 AM	9.62	66.98	905.54	232.05
9/9/2025	12:07:03 AM	9.61	67.03	916.24	234.34
9/9/2025	12:08:03 AM	9.6	66.98	926.38	237.31
9/9/2025	12:09:03 AM	9.54	66.92	935.68	240.11
9/9/2025	12:10:03 AM	9.52	66.92	944.03	242.07
9/9/2025	12:11:03 AM	9.51	66.92	954.06	244.99
9/9/2025	12:12:03 AM	9.46	66.92	961.79	247.34
9/9/2025	12:13:03 AM	9.42	66.92	971.99	248.8
9/9/2025	12:14:03 AM	9.41	66.92	980.96	250.65
9/9/2025	12:15:04 AM	9.39	67.03	990.15	254.46

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/9/2025	12:16:04 AM	9.34	66.92	997.99	255.97
9/9/2025	12:17:04 AM	9.32	66.92	1007.12	258.32
9/9/2025	12:18:04 AM	9.29	66.87	1015.02	260.62
9/9/2025	12:19:04 AM	9.24	66.87	1023.6	262.97
9/9/2025	12:20:04 AM	9.22	66.87	1029.42	263.2
9/9/2025	12:21:04 AM	9.19	66.98	1033.35	263.93
9/9/2025	12:22:04 AM	9.14	66.92	1033.12	263.81
9/9/2025	12:23:04 AM	9.12	66.98	1040.63	264.94
9/9/2025	12:24:05 AM	9.12	66.92	1046.46	264.15
9/9/2025	12:25:05 AM	9.03	66.98	1054.36	265.27
9/9/2025	12:26:05 AM	9.02	66.98	1066.96	265.78
9/9/2025	12:27:05 AM	8.99	66.92	1072.12	266.45
9/9/2025	12:28:05 AM	8.94	67.03	1062.93	264.09
9/9/2025	12:29:05 AM	8.92	66.92	1051.5	260.79
9/9/2025	12:30:05 AM	8.9	67.03	1042.48	258.32
9/9/2025	12:31:05 AM	8.85	66.98	1033.57	254.57
9/9/2025	12:32:05 AM	8.83	67.03	1025.78	250.7
9/9/2025	12:33:05 AM	8.82	66.98	1020.57	245.1
9/9/2025	12:34:05 AM	8.77	66.92	1018.67	239.5
9/9/2025	12:35:05 AM	8.73	67.03	1014.69	233.11
9/9/2025	12:36:06 AM	8.72	66.87	1006.34	226.78
9/9/2025	12:37:06 AM	8.7	66.98	995.25	220.61
9/9/2025	12:38:06 AM	8.69	66.92	981.91	213.16
9/9/2025	12:39:06 AM	8.66	66.92	963.53	205.15
9/9/2025	12:40:06 AM	8.64	66.92	943.58	195.96
9/9/2025	12:41:06 AM	8.63	66.87	923.19	188.85
9/9/2025	12:42:06 AM	8.64	66.98	905.71	181.73
9/9/2025	12:43:06 AM	8.61	66.92	888.79	175.85
9/9/2025	12:44:06 AM	8.6	66.81	874.27	172.43
9/9/2025	12:45:06 AM	8.58	66.7	861.05	169.63
9/9/2025	12:46:06 AM	8.55	66.92	849.96	166.71
9/9/2025	12:47:07 AM	8.54	66.87	838.36	164.53
9/9/2025	12:48:07 AM	8.53	66.87	828.22	162.51
9/9/2025	12:49:07 AM	8.53	66.87	818.41	160.77
9/9/2025	12:50:07 AM	8.51	66.87	809.73	159.26
9/9/2025	12:51:07 AM	8.52	66.7	800.37	156.91
9/9/2025	12:52:07 AM	8.5	66.7	792.41	154.89
9/9/2025	12:53:07 AM	8.48	66.7	784.57	153.88
9/9/2025	12:54:07 AM	8.45	66.81	777.79	153.21
9/9/2025	12:55:07 AM	8.45	66.64	772.13	151.86
9/9/2025	12:56:07 AM	8.44	66.7	766.47	150.18
9/9/2025	12:57:07 AM	8.44	66.64	760.98	150.13
9/9/2025	12:58:08 AM	8.44	66.53	756.78	149.12
9/9/2025	12:59:08 AM	8.43	66.53	752.46	147.83
9/9/2025	1:00:08 AM	8.42	66.59	749.6	146.77
9/9/2025	1:01:08 AM	8.42	66.59	745.85	146.32
9/9/2025	1:02:08 AM	8.41	66.59	742.54	145.03
9/9/2025	1:03:08 AM	8.38	66.59	739.52	144.47
9/9/2025	1:04:08 AM	8.37	66.59	735.99	143.8
9/9/2025	1:05:08 AM	8.36	66.53	732.24	142.34
9/9/2025	1:06:08 AM	8.35	66.53	727.7	142.06
9/9/2025	1:07:08 AM	8.36	66.53	724.17	141.16
9/9/2025	1:08:08 AM	8.34	66.47	720.19	140.77
9/9/2025	1:09:08 AM	8.34	66.47	716.21	139.93

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/9/2025	1:10:09 AM	8.34	66.53	714.25	139.93
9/9/2025	1:11:09 AM	8.34	66.36	713.52	140.15
9/9/2025	1:12:09 AM	8.32	66.47	713.8	139.93
9/9/2025	1:13:09 AM	8.33	66.36	716.43	142.06
9/9/2025	1:14:09 AM	8.3	66.31	720.36	143.96
9/9/2025	1:15:09 AM	8.29	66.53	725.34	146.21
9/9/2025	1:16:09 AM	8.28	66.31	731.73	147.61
9/9/2025	1:17:09 AM	8.24	66.25	739.8	150.07
9/9/2025	1:18:09 AM	8.24	66.31	749.72	154.27
9/9/2025	1:19:09 AM	8.24	66.31	761.26	158.87
9/9/2025	1:20:09 AM	8.23	66.31	774.59	163.86
9/9/2025	1:21:09 AM	8.22	66.19	788.15	169.96
9/9/2025	1:22:10 AM	8.2	66.19	801.04	176.07
9/9/2025	1:23:10 AM	8.18	66.08	812.81	181.62
9/9/2025	1:24:10 AM	8.15	66.08	823.29	187.16
9/9/2025	1:25:10 AM	8.14	66.19	832.81	192.26
9/9/2025	1:26:10 AM	8.13	66.19	840.82	196.75
9/9/2025	1:27:10 AM	8.09	66.19	848.78	201.51
9/9/2025	1:28:10 AM	8.06	66.19	855.95	205.65
9/9/2025	1:29:11 AM	8.05	66.08	862.51	209.97
9/9/2025	1:30:11 AM	8.04	66.19	869.79	215.63
9/9/2025	1:31:11 AM	8.02	66.08	870.58	218.49
9/9/2025	1:32:11 AM	7.97	66.02	858.47	221.57
9/9/2025	1:33:11 AM	7.95	65.97	841.72	223.75
9/9/2025	1:34:11 AM	7.94	66.02	829.28	225.43
9/9/2025	1:35:11 AM	7.93	66.08	823.29	227.06
9/9/2025	1:36:11 AM	7.88	66.02	825.47	229.58
9/9/2025	1:37:11 AM	7.85	65.91	835.11	231.71
9/9/2025	1:38:11 AM	7.83	66.02	851.53	234.85
9/9/2025	1:39:11 AM	7.78	66.02	872.48	238.15
9/9/2025	1:40:12 AM	7.76	66.02	896.8	243.03
9/9/2025	1:41:12 AM	7.74	65.97	921.96	246.89
9/9/2025	1:42:12 AM	7.68	66.02	945.6	253.17
9/9/2025	1:43:12 AM	7.65	65.97	967.12	258.32
9/9/2025	1:44:12 AM	7.63	65.97	983.37	262.92
9/9/2025	1:45:12 AM	7.56	65.97	999.06	268.58
9/9/2025	1:46:12 AM	7.53	65.97	1011.61	273.56
9/9/2025	1:47:12 AM	7.48	65.97	1023.54	278.38
9/9/2025	1:48:12 AM	7.45	66.08	1035.42	282.47
9/9/2025	1:49:12 AM	7.4	66.08	1046.91	285.27
9/9/2025	1:50:12 AM	7.36	66.08	1057.5	287.8
9/9/2025	1:51:13 AM	7.33	66.08	1066.96	288.52
9/9/2025	1:52:13 AM	7.26	66.02	1074.53	289.25
9/9/2025	1:53:13 AM	7.23	66.02	1083.1	289.59
9/9/2025	1:54:13 AM	7.17	66.08	1087.81	285.39
9/9/2025	1:55:13 AM	7.16	66.25	1079.91	280.34
9/9/2025	1:56:13 AM	7.11	66.08	1075.03	275.02
9/9/2025	1:57:13 AM	7.06	66.02	1065.23	269.42
9/9/2025	1:58:13 AM	7.04	66.19	1060.3	260.12
9/9/2025	1:59:13 AM	6.99	66.25	1059.06	250.2
9/9/2025	2:00:13 AM	6.97	66.19	1051.84	242.07
9/9/2025	2:01:13 AM	6.95	66.36	1029.76	230.59
9/9/2025	2:02:13 AM	6.89	66.25	999.17	218.04
9/9/2025	2:03:14 AM	6.87	66.25	969.98	210.25

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/9/2025	2:04:14 AM	6.85	66.36	942.8	204.09
9/9/2025	2:05:14 AM	6.81	66.25	920.28	198.65
9/9/2025	2:06:14 AM	6.77	66.25	902.74	195.34
9/9/2025	2:07:14 AM	6.77	66.19	889.63	192.21
9/9/2025	2:08:14 AM	6.74	66.36	879.26	189.07
9/9/2025	2:09:14 AM	6.7	66.36	871.02	185.99
9/9/2025	2:10:14 AM	6.67	66.36	864.08	183.02
9/9/2025	2:11:14 AM	6.67	66.25	857.13	181.06
9/9/2025	2:12:14 AM	6.64	66.25	851.13	178.2
9/9/2025	2:13:14 AM	6.62	66.19	845.42	175.9
9/9/2025	2:14:14 AM	6.59	66.31	840.71	173.72
9/9/2025	2:15:15 AM	6.57	66.31	836.4	171.08
9/9/2025	2:16:15 AM	6.57	66.25	831.52	169.91
9/9/2025	2:17:15 AM	6.56	66.19	827.94	168.06
9/9/2025	2:18:15 AM	6.56	66.02	823.9	166.66
9/9/2025	2:19:15 AM	6.51	66.08	821.16	164.92
9/9/2025	2:20:16 AM	6.51	66.08	817.79	162.9
9/9/2025	2:21:16 AM	6.48	66.25	814.49	160.61
9/9/2025	2:22:16 AM	6.47	66.19	811.69	159.43
9/9/2025	2:23:16 AM	6.47	66.02	808.77	157.92
9/9/2025	2:24:16 AM	6.46	66.02	806.08	156.85
9/9/2025	2:25:16 AM	6.45	66.25	804.07	155.9
9/9/2025	2:26:16 AM	6.44	66.02	799.92	153.94
9/9/2025	2:27:16 AM	6.43	66.02	796.89	152.99
9/9/2025	2:28:16 AM	6.4	66.19	794.37	151.25
9/9/2025	2:29:16 AM	6.38	66.08	793.59	149.4
9/9/2025	2:30:16 AM	6.38	65.97	792.8	147.05
9/9/2025	2:31:16 AM	6.37	65.97	793.53	145.76
9/9/2025	2:32:17 AM	6.37	65.97	799.36	144.36
9/9/2025	2:33:17 AM	6.37	65.97	828.44	143.24
9/9/2025	2:34:17 AM	6.36	65.91	856.62	141.78
9/9/2025	2:35:17 AM	6.37	65.91	830.18	140.49
9/9/2025	2:36:17 AM	6.36	65.91	800.71	139.71
9/9/2025	2:37:17 AM	6.35	65.97	776.56	137.63
9/9/2025	2:38:17 AM	6.34	65.97	756.66	136.57
9/9/2025	2:39:17 AM	6.34	65.91	737.61	135.22
9/9/2025	2:40:17 AM	6.34	65.69	720.13	134.21
9/9/2025	2:41:17 AM	6.33	65.69	705.9	132.25
9/9/2025	2:42:17 AM	6.32	65.63	690.72	130.85
9/9/2025	2:43:17 AM	6.31	65.74	678.22	130.01
9/9/2025	2:44:18 AM	6.32	65.69	666.62	128.67
9/9/2025	2:45:18 AM	6.3	65.86	654.8	127.04
9/9/2025	2:46:18 AM	6.3	65.63	643.93	125.47
9/9/2025	2:47:18 AM	6.3	65.63	632.67	123.68
9/9/2025	2:48:18 AM	6.3	65.63	623.87	122.78
9/9/2025	2:49:18 AM	6.29	65.63	614.35	121.78
9/9/2025	2:50:18 AM	6.29	65.58	607.4	121.38
9/9/2025	2:51:18 AM	6.29	65.52	597.26	120.77
9/9/2025	2:52:18 AM	6.29	65.52	590.98	119.37
9/9/2025	2:53:18 AM	6.29	65.41	582.8	119.03
9/9/2025	2:54:18 AM	6.28	65.35	579.83	117.91
9/9/2025	2:55:18 AM	6.28	65.52	573.95	117.8
9/9/2025	2:56:19 AM	6.29	65.3	571.65	118.41
9/9/2025	2:57:19 AM	6.28	65.41	570.64	119.59

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/9/2025	2:58:19 AM	6.28	65.52	570.42	120.71
9/9/2025	2:59:19 AM	6.28	65.52	571.82	123.57
9/9/2025	3:00:19 AM	6.28	65.35	575.18	126.48
9/9/2025	3:01:19 AM	6.27	65.3	580.17	129.51
9/9/2025	3:02:19 AM	6.27	65.24	587.84	132.48
9/9/2025	3:03:19 AM	6.26	65.35	597.54	137.18
9/9/2025	3:04:19 AM	6.24	65.3	609.81	141.55
9/9/2025	3:05:19 AM	6.25	65.3	623.37	145.42
9/9/2025	3:06:19 AM	6.23	65.3	638.38	149.96
9/9/2025	3:07:19 AM	6.2	65.13	653.96	155.06
9/9/2025	3:08:19 AM	6.19	65.07	669.82	160.72
9/9/2025	3:09:19 AM	6.18	65.07	684.66	166.77
9/9/2025	3:10:20 AM	6.18	65.07	698.34	172.09
9/9/2025	3:11:20 AM	6.18	65.13	711.45	176.57
9/9/2025	3:12:20 AM	6.17	65.07	724.17	182.12
9/9/2025	3:13:20 AM	6.14	64.96	735.99	186.77
9/9/2025	3:14:20 AM	6.11	65.07	748.15	191.14
9/9/2025	3:15:20 AM	6.09	65.02	759.97	196.47
9/9/2025	3:16:20 AM	6.08	65.07	769.33	201.4
9/9/2025	3:17:20 AM	6.08	65.02	767.81	204.76
9/9/2025	3:18:20 AM	6.07	65.02	760.75	208.23
9/9/2025	3:19:20 AM	6.04	65.02	754.31	210.81
9/9/2025	3:20:20 AM	6.01	65.02	750.28	213.11
9/9/2025	3:21:20 AM	5.99	64.96	748.88	215.63
9/9/2025	3:22:20 AM	5.99	65.02	749.72	216.3
9/9/2025	3:23:20 AM	5.98	64.96	752.01	217.08
9/9/2025	3:24:21 AM	5.95	64.96	755.66	218.09
9/9/2025	3:25:21 AM	5.91	65.02	760.59	220.05
9/9/2025	3:26:21 AM	5.9	65.02	766.81	221.9
9/9/2025	3:27:21 AM	5.88	64.96	772.91	224.03
9/9/2025	3:28:21 AM	5.88	64.96	778.52	225.66
9/9/2025	3:29:21 AM	5.85	65.02	784.9	227.73
9/9/2025	3:30:21 AM	5.82	64.96	791.46	230.42
9/9/2025	3:31:21 AM	5.79	65.02	798.18	232.83
9/9/2025	3:32:21 AM	5.77	64.96	808.1	235.41
9/9/2025	3:33:22 AM	5.75	64.9	820.48	237.87
9/9/2025	3:34:22 AM	5.72	65.02	831.52	240.62
9/9/2025	3:35:22 AM	5.69	64.9	840.15	243.36
9/9/2025	3:36:22 AM	5.68	64.96	846.76	246.45
9/9/2025	3:37:22 AM	5.64	64.96	851.25	248.57
9/9/2025	3:38:22 AM	5.61	64.96	854.33	250.82
9/9/2025	3:39:22 AM	5.59	64.96	856.01	251.38
9/9/2025	3:40:23 AM	5.57	64.96	857.13	254.4
9/9/2025	3:41:23 AM	5.55	64.9	858.31	255.19
9/9/2025	3:42:23 AM	5.5	64.9	859.09	255.63
9/9/2025	3:43:23 AM	5.49	64.96	859.15	256.98
9/9/2025	3:44:23 AM	5.47	64.96	859.54	258.21
9/9/2025	3:45:23 AM	5.44	65.02	859.99	258.1
9/9/2025	3:46:23 AM	5.4	64.9	860.88	257.82
9/9/2025	3:47:23 AM	5.39	65.13	861.55	256.75
9/9/2025	3:48:24 AM	5.36	65.02	865.53	256.98
9/9/2025	3:49:24 AM	5.32	65.02	871.53	256.81
9/9/2025	3:50:24 AM	5.3	64.96	876.01	256.47
9/9/2025	3:51:24 AM	5.29	65.07	879.54	255.91

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/9/2025	3:52:24 AM	5.26	64.96	881.17	256.25
9/9/2025	3:53:24 AM	5.22	65.02	881.89	254.23
9/9/2025	3:54:24 AM	5.21	64.96	882.12	253.73
9/9/2025	3:55:24 AM	5.2	65.13	883.41	252.78
9/9/2025	3:56:24 AM	5.17	65.02	884.42	249.81
9/9/2025	3:57:25 AM	5.17	65.02	882.79	249.58
9/9/2025	3:58:25 AM	5.12	65.02	878.42	247.79
9/9/2025	3:59:25 AM	5.11	65.02	874.27	245.72
9/9/2025	4:00:25 AM	5.1	65.02	871.7	242.58
9/9/2025	4:01:25 AM	5.09	65.07	870.69	240.45
9/9/2025	4:02:25 AM	5.06	65.02	868.33	236.81
9/9/2025	4:03:25 AM	5.03	65.07	864.3	233.89
9/9/2025	4:04:25 AM	5.02	65.07	861.11	230.25
9/9/2025	4:05:26 AM	5.01	65.13	858.36	227.73
9/9/2025	4:06:26 AM	5	65.02	855.78	225.32
9/9/2025	4:07:26 AM	4.99	65.24	852.59	221.51
9/9/2025	4:08:26 AM	4.97	65.07	849.56	218.71
9/9/2025	4:09:26 AM	4.97	65.07	846.15	215.12
9/9/2025	4:10:26 AM	4.94	65.13	842.34	211.76
9/9/2025	4:11:26 AM	4.94	65.02	838.97	209.18
9/9/2025	4:12:26 AM	4.91	65.07	836.06	206.89
9/9/2025	4:13:27 AM	4.91	65.07	834.04	204.48
9/9/2025	4:14:27 AM	4.9	65.02	832.36	202.24
9/9/2025	4:15:27 AM	4.9	65.02	830.85	201.79
9/9/2025	4:16:27 AM	4.88	65.02	828.72	199.83
9/9/2025	4:17:27 AM	4.86	64.96	826.2	196.86
9/9/2025	4:18:27 AM	4.85	64.96	823.45	195.68
9/9/2025	4:19:27 AM	4.83	65.02	820.26	194.73
9/9/2025	4:20:27 AM	4.83	65.02	817.01	193.5
9/9/2025	4:21:28 AM	4.81	65.02	813.87	191.81
9/9/2025	4:22:28 AM	4.81	65.07	809.84	190.92
9/9/2025	4:23:28 AM	4.8	65.07	806.64	190.58
9/9/2025	4:24:28 AM	4.79	65.07	803.45	189.35
9/9/2025	4:25:28 AM	4.78	65.07	800.31	188.23
9/9/2025	4:26:28 AM	4.76	64.79	796.89	187.28
9/9/2025	4:27:28 AM	4.74	64.9	794.09	185.65
9/9/2025	4:28:28 AM	4.75	64.9	792.02	185.04
9/9/2025	4:29:29 AM	4.73	64.79	789.78	183.35
9/9/2025	4:30:29 AM	4.71	64.96	788.77	182.18
9/9/2025	4:31:29 AM	4.71	64.9	786.92	181.95
9/9/2025	4:32:29 AM	4.7	64.96	785.69	181.06
9/9/2025	4:33:29 AM	4.71	64.9	784.85	180.61
9/9/2025	4:34:29 AM	4.69	64.9	783.34	180.1
9/9/2025	4:35:29 AM	4.67	64.96	781.6	180.27
9/9/2025	4:36:29 AM	4.68	64.9	780.14	178.87
9/9/2025	4:37:29 AM	4.65	64.9	778.46	178.65
9/9/2025	4:38:30 AM	4.64	64.96	776.84	179.15
9/9/2025	4:39:30 AM	4.63	64.79	774.93	178.03
9/9/2025	4:40:30 AM	4.63	64.74	773.31	177.92
9/9/2025	4:41:30 AM	4.61	64.79	771.46	177.19
9/9/2025	4:42:30 AM	4.61	64.79	769.89	176.63
9/9/2025	4:43:30 AM	4.61	64.74	768.09	175.45
9/9/2025	4:44:30 AM	4.61	64.79	766.02	175.45
9/9/2025	4:45:30 AM	4.58	64.68	763.56	175.9

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/9/2025	4:46:31 AM	4.57	64.68	760.98	175.73
9/9/2025	4:47:31 AM	4.57	64.9	759.13	174.89
9/9/2025	4:48:31 AM	4.55	64.68	757.22	174.11
9/9/2025	4:49:31 AM	4.55	64.9	756.05	174
9/9/2025	4:50:31 AM	4.54	64.74	755.26	174
9/9/2025	4:51:31 AM	4.52	64.62	753.81	173.49
9/9/2025	4:52:31 AM	4.52	64.74	753.25	172.76
9/9/2025	4:53:31 AM	4.51	64.68	752.01	172.99
9/9/2025	4:54:32 AM	4.51	64.57	751.06	170.8
9/9/2025	4:55:32 AM	4.5	64.62	751.12	171.48
9/9/2025	4:56:32 AM	4.49	64.57	750.73	171.64
9/9/2025	4:57:32 AM	4.49	64.68	750.39	172.15
9/9/2025	4:58:32 AM	4.47	64.96	749.88	172.15
9/9/2025	4:59:32 AM	4.47	64.96	749.88	172.2
9/9/2025	5:00:32 AM	4.46	64.9	750.73	172.65
9/9/2025	5:01:32 AM	4.44	64.9	751.23	173.49
9/9/2025	5:02:33 AM	4.42	64.9	751.73	173.83
9/9/2025	5:03:33 AM	4.42	64.9	752.91	175.06
9/9/2025	5:04:33 AM	4.41	64.96	753.47	174.89
9/9/2025	5:05:33 AM	4.41	64.79	754.2	175.57
9/9/2025	5:06:33 AM	4.39	64.96	755.6	176.41
9/9/2025	5:07:33 AM	4.39	64.74	757.11	175.96
9/9/2025	5:08:33 AM	4.37	64.79	758.74	176.91
9/9/2025	5:09:33 AM	4.38	64.9	760.47	178.26
9/9/2025	5:10:33 AM	4.35	64.9	762.04	178.65
9/9/2025	5:11:34 AM	4.33	64.79	764.51	178.82
9/9/2025	5:12:34 AM	4.32	64.9	767.03	179.38
9/9/2025	5:13:34 AM	4.32	64.79	769.38	179.54
9/9/2025	5:14:34 AM	4.31	64.79	771.68	180.55
9/9/2025	5:15:34 AM	4.3	64.79	773.81	180.72
9/9/2025	5:16:34 AM	4.29	64.9	776.16	181.06
9/9/2025	5:17:34 AM	4.27	64.9	778.01	183.02
9/9/2025	5:18:35 AM	4.26	64.79	779.53	183.47
9/9/2025	5:19:35 AM	4.25	64.9	781.54	184.08
9/9/2025	5:20:35 AM	4.25	64.74	781.99	184.87
9/9/2025	5:21:35 AM	4.23	64.79	783.34	185.32
9/9/2025	5:22:35 AM	4.23	64.79	784.29	185.48
9/9/2025	5:23:35 AM	4.21	64.9	784.51	184.87
9/9/2025	5:24:35 AM	4.2	64.9	785.24	185.65
9/9/2025	5:25:35 AM	4.19	64.9	786.14	185.71
9/9/2025	5:26:36 AM	4.19	64.79	787.09	186.77
9/9/2025	5:27:36 AM	4.17	64.9	787.99	186.6
9/9/2025	5:28:36 AM	4.16	64.9	789.22	186.72
9/9/2025	5:29:36 AM	4.15	64.79	789.95	187.56
9/9/2025	5:30:36 AM	4.14	64.96	790.12	187.72
9/9/2025	5:31:36 AM	4.13	64.79	790.68	188.34
9/9/2025	5:32:36 AM	4.11	64.9	790.84	188.4
9/9/2025	5:33:37 AM	4.11	64.9	791.57	188.68
9/9/2025	5:34:37 AM	4.09	64.79	792.19	188.96
9/9/2025	5:35:37 AM	4.09	64.74	792.47	187.84
9/9/2025	5:36:37 AM	4.08	64.74	792.8	188.68
9/9/2025	5:37:37 AM	4.06	64.96	792.97	188.62
9/9/2025	5:38:37 AM	4.05	64.9	793.7	189.52
9/9/2025	5:39:37 AM	4.05	64.79	793.76	188.62

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/9/2025	5:40:37 AM	4.03	64.79	794.21	188.4
9/9/2025	5:41:38 AM	4.02	64.9	795.05	189.69
9/9/2025	5:42:38 AM	4	64.74	795.49	189.97
9/9/2025	5:43:38 AM	4	64.74	796.17	190.19
9/9/2025	5:44:38 AM	4	64.79	796.56	190.13
9/9/2025	5:45:38 AM	3.98	64.74	797.34	189.91
9/9/2025	5:46:38 AM	3.97	64.74	797.85	190.08
9/9/2025	5:47:38 AM	3.95	64.79	798.24	189.91
9/9/2025	5:48:39 AM	3.93	64.74	799.08	190.75
9/9/2025	5:49:39 AM	3.93	64.74	799.86	190.41
9/9/2025	5:50:39 AM	3.92	64.74	800.82	191.2
9/9/2025	5:51:39 AM	3.91	64.74	801.38	190.58
9/9/2025	5:52:39 AM	3.9	64.68	801.99	191.59
9/9/2025	5:53:39 AM	3.89	64.62	803.06	191.93
9/9/2025	5:54:39 AM	3.87	64.74	803.62	192.09
9/9/2025	5:55:39 AM	3.86	64.62	804.12	192.26
9/9/2025	5:56:40 AM	3.84	64.68	805.08	192.38
9/9/2025	5:57:40 AM	3.84	64.57	805.97	192.09
9/9/2025	5:58:40 AM	3.82	64.62	806.92	193.05
9/9/2025	5:59:40 AM	3.81	64.68	808.27	194.11
9/9/2025	6:00:40 AM	3.8	64.46	809.5	195.18
9/9/2025	6:01:40 AM	3.78	64.4	811.52	195.79
9/9/2025	6:02:40 AM	3.78	64.57	812.92	194.73
9/9/2025	6:03:40 AM	3.76	64.46	815.11	195.74
9/9/2025	6:04:41 AM	3.74	64.4	816.51	196.52
9/9/2025	6:05:41 AM	3.74	64.34	818.13	196.52
9/9/2025	6:06:41 AM	3.72	64.34	819.64	196.02
9/9/2025	6:07:41 AM	3.71	64.34	820.93	196.86
9/9/2025	6:08:41 AM	3.69	64.29	822.05	198.03
9/9/2025	6:09:41 AM	3.68	64.34	823.62	198.2
9/9/2025	6:10:41 AM	3.67	64.18	824.91	198.59
9/9/2025	6:11:41 AM	3.65	64.18	826.09	198.09
9/9/2025	6:12:42 AM	3.64	64.34	827.21	197.87
9/9/2025	6:13:42 AM	3.64	64.12	828.27	197.64
9/9/2025	6:14:42 AM	3.61	64.18	829.67	197.92
9/9/2025	6:15:42 AM	3.61	64.12	829.9	198.59
9/9/2025	6:16:42 AM	3.59	64.34	830.12	198.43
9/9/2025	6:17:42 AM	3.58	64.18	829.9	199.55
9/9/2025	6:18:42 AM	3.57	64.12	830.12	198.31
9/9/2025	6:19:42 AM	3.55	64.18	829.62	198.26
9/9/2025	6:20:43 AM	3.55	64.4	828.44	197.92
9/9/2025	6:21:43 AM	3.53	64.06	827.32	198.09
9/9/2025	6:22:43 AM	3.52	64.12	826.03	198.93
9/9/2025	6:23:43 AM	3.51	64.18	825.08	198.93
9/9/2025	6:24:43 AM	3.5	64.18	823.51	199.21
9/9/2025	6:25:43 AM	3.49	63.95	821.16	198.59
9/9/2025	6:26:43 AM	3.47	64.01	819.76	197.19
9/9/2025	6:27:44 AM	3.47	64.06	818.75	196.52
9/9/2025	6:28:44 AM	3.45	64.01	816.9	194.84
9/9/2025	6:29:44 AM	3.44	64.06	814.71	194.73
9/9/2025	6:30:44 AM	3.43	63.95	812.7	194.73
9/9/2025	6:31:44 AM	3.42	63.95	810.96	193.83
9/9/2025	6:32:44 AM	3.42	63.84	809.39	193.78
9/9/2025	6:33:44 AM	3.41	63.95	808.44	193.16

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/9/2025	6:34:44 AM	3.39	63.95	807.37	192.54
9/9/2025	6:35:44 AM	3.38	63.84	806.7	192.26
9/9/2025	6:36:45 AM	3.37	63.84	805.64	192.09
9/9/2025	6:37:45 AM	3.37	63.95	804.46	190.25
9/9/2025	6:38:45 AM	3.35	63.84	803.45	190.86
9/9/2025	6:39:45 AM	3.34	63.84	801.77	190.53
9/9/2025	6:40:45 AM	3.32	63.78	800.71	189.63
9/9/2025	6:41:45 AM	3.32	63.84	799.47	189.13
9/9/2025	6:42:45 AM	3.3	63.78	797.57	187.95
9/9/2025	6:43:45 AM	3.3	63.78	796.05	187.22
9/9/2025	6:44:45 AM	3.28	63.73	794.93	187.11
9/9/2025	6:45:46 AM	3.27	63.78	794.09	186.49
9/9/2025	6:46:46 AM	3.26	63.78	794.65	185.26
9/9/2025	6:47:46 AM	3.24	63.78	796.45	185.37
9/9/2025	6:48:46 AM	3.26	63.84	797.9	184.92
9/9/2025	6:49:46 AM	3.23	63.84	798.58	186.04
9/9/2025	6:50:46 AM	3.22	63.78	798.58	185.2
9/9/2025	6:51:46 AM	3.21	63.73	798.69	183.97
9/9/2025	6:52:46 AM	3.2	63.78	798.35	184.92
9/9/2025	6:53:46 AM	3.2	63.95	797.18	183.52
9/9/2025	6:54:47 AM	3.18	63.84	797.12	183.97
9/9/2025	6:55:47 AM	3.17	63.78	796.61	183.58
9/9/2025	6:56:47 AM	3.16	63.73	795.66	182.91
9/9/2025	6:57:47 AM	3.14	63.84	795.27	182.85
9/9/2025	6:58:47 AM	3.15	63.73	794.54	183.63
9/9/2025	6:59:47 AM	3.12	63.78	794.21	182.57
9/9/2025	7:00:47 AM	3.12	63.84	793.14	183.35
9/9/2025	7:01:47 AM	3.11	63.84	792.47	182.91
9/9/2025	7:02:47 AM	3.1	63.84	791.35	182.35
9/9/2025	7:03:48 AM	3.08	63.95	791.24	182.57
9/9/2025	7:04:48 AM	3.34	63.95	790.45	181.45
9/9/2025	7:05:48 AM	3.02	63.95	794.88	292.56
9/9/2025	7:06:48 AM	3	64.12	744.17	295.14
9/9/2025	7:07:48 AM	2.97	64.06	716.38	294.13
9/9/2025	7:08:49 AM	2.93	64.18	708.42	293.46
9/9/2025	7:09:49 AM	2.91	64.06	706.4	293.01
9/9/2025	7:10:49 AM	2.87	64.12	707.25	293.85
9/9/2025	7:11:49 AM	2.84	64.06	709.71	294.63
9/9/2025	7:12:49 AM	2.81	64.29	712.96	296.87
9/9/2025	7:13:50 AM	2.78	64.29	718.84	298.05
9/9/2025	7:14:50 AM	2.76	64.18	728.37	301.47
9/9/2025	7:15:50 AM	2.72	64.29	741.26	304.61
9/9/2025	7:16:50 AM	2.7	64.34	753.19	307.52
9/9/2025	7:17:50 AM	2.68	64.46	762.1	310.04
9/9/2025	7:18:51 AM	2.66	64.46	768.6	312.17
9/9/2025	7:19:51 AM	2.63	64.46	775.1	313.68
9/9/2025	7:20:51 AM	2.59	64.46	780.09	316.15
9/9/2025	7:21:51 AM	2.58	64.62	782.49	317.49
9/9/2025	7:22:52 AM	2.55	64.46	783	318.28
9/9/2025	7:23:52 AM	2.53	64.68	782.89	319.9
9/9/2025	7:24:52 AM	2.51	64.68	784.62	321.08
9/9/2025	7:25:52 AM	2.48	65.13	787.03	322.26
9/9/2025	7:26:53 AM	2.45	65.35	788.38	324.16
9/9/2025	7:27:53 AM	2.43	65.52	787.03	325.51

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue	
9/9/2025	7:28:53 AM	2.41	65.63	785.97	326.01	
9/9/2025	7:29:54 AM	2.38	65.86	786.98	326.96	
9/9/2025	7:30:53 AM	2.37	65.86	790.96	326.96	
9/9/2025	7:31:53 AM	2.35	65.97	797.12	327.58	
9/9/2025	7:32:54 AM	2.33	66.08	803.23	329.04	
9/9/2025	7:33:54 AM	2.3	66.19	808.44	330.55	
9/9/2025	7:34:54 AM	2.26	66.36	808.89	331.89	
9/9/2025	7:35:54 AM	2.24	66.47	801.1	331.61	
9/9/2025	7:36:54 AM	2.23	66.59	793.7	331.56	
9/9/2025	7:37:54 AM	2.2	66.59	789.27	330.6	
9/9/2025	7:38:54 AM	2.19	66.81	786.92	330.32	
9/9/2025	7:39:55 AM	2.16	66.87	785.74	329.99	
9/9/2025	7:40:55 AM	2.14	66.98	786.08	329.2	
9/9/2025	7:41:55 AM	2.11	67.03	787.43	328.53	
9/9/2025	7:42:55 AM	2.1	67.15	789.95	328.47	
9/9/2025	7:43:55 AM	2.08	67.26	789.39	329.2	
9/9/2025	7:44:55 AM	2.04	67.37	787.82	328.36	
9/9/2025	7:45:55 AM	2.04	67.54	790	328.08	
9/9/2025	7:46:55 AM	2.03	67.59	794.77	328.36	
9/9/2025	7:47:55 AM	2	67.65	799.36	328.42	
9/9/2025	7:48:55 AM	1.97	67.87	802.72	328.14	
9/9/2025	7:49:55 AM	1.96	67.93	805.75	328.42	
9/9/2025	7:50:55 AM	1.95	68.04	808.61	328.47	
9/9/2025	7:51:55 AM	1.93	68.15	811.46	328.59	
9/9/2025	7:52:55 AM	1.91	68.27	813.48	328.7	
9/9/2025	7:53:56 AM	1.89	68.43	815.16	329.48	
9/9/2025	7:54:56 AM	18.86	68.49	598.15	376.55	**Added 17.0lbs 19-23% MC, Medium Air Setting**
9/9/2025	7:55:57 AM	18.77	68.55	676.26	341.08	
9/9/2025	7:56:57 AM	18.71	68.77	711.9	326.91	
9/9/2025	7:57:58 AM	18.62	68.77	798.8	333.41	
9/9/2025	7:58:58 AM	18.49	68.99	951.88	359.35	
9/9/2025	7:59:58 AM	18.4	69.05	965.16	373.92	
9/9/2025	8:00:58 AM	18.32	69.22	928.29	376.55	
9/9/2025	8:01:58 AM	18.23	69.39	914.17	377.11	
9/9/2025	8:02:59 AM	18.14	69.5	916.75	376.77	
9/9/2025	8:03:59 AM	18.01	69.55	975.3	383.05	
9/9/2025	8:04:59 AM	17.87	69.67	1042.26	396.33	
9/9/2025	8:05:59 AM	17.72	69.78	1051.05	403.05	
9/9/2025	8:06:59 AM	17.59	70	1107.64	412.86	
9/9/2025	8:07:59 AM	17.45	70.12	1142.66	427.03	
9/9/2025	8:08:59 AM	17.31	70.28	1134.59	439.42	
9/9/2025	8:10:00 AM	17.17	70.45	1130.11	446.14	
9/9/2025	8:11:00 AM	17.02	70.45	1134.76	450.57	
9/9/2025	8:12:00 AM	16.9	70.68	1132.97	454.38	
9/9/2025	8:13:00 AM	16.76	70.84	1137.12	456.84	
9/9/2025	8:14:01 AM	16.61	71.12	1150.84	458.3	
9/9/2025	8:15:01 AM	16.49	71.18	1185.69	455.05	
9/9/2025	8:16:01 AM	16.39	71.29	1149.67	447.82	
9/9/2025	8:17:01 AM	16.3	71.57	1089.15	437.96	
9/9/2025	8:18:01 AM	16.23	71.74	1034.13	425.46	
9/9/2025	8:19:02 AM	16.16	71.74	989.25	411.29	
9/9/2025	8:20:02 AM	16.11	71.96	959.83	399.41	
9/9/2025	8:21:02 AM	16.04	72.19	946.5	389.32	
9/9/2025	8:22:02 AM	15.99	72.3	943.3	381.31	

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/9/2025	8:23:02 AM	15.92	72.52	940.78	377.89
9/9/2025	8:24:02 AM	15.83	72.58	958.99	379.46
9/9/2025	8:25:02 AM	15.74	72.64	1012.78	383.78
9/9/2025	8:26:02 AM	15.63	72.92	1079.68	392.35
9/9/2025	8:27:02 AM	15.52	72.92	1124.12	402.77
9/9/2025	8:28:02 AM	15.4	73.03	1141.21	410.73
9/9/2025	8:29:02 AM	15.3	73.14	1146.64	417.12
9/9/2025	8:30:03 AM	15.17	73.31	1149.78	421.49
9/9/2025	8:31:03 AM	15.06	73.36	1151.29	426.08
9/9/2025	8:32:03 AM	14.94	73.48	1153.36	428.94
9/9/2025	8:33:03 AM	14.81	73.7	1159.92	428.77
9/9/2025	8:34:03 AM	14.69	73.7	1161.66	428.71
9/9/2025	8:35:03 AM	14.58	74.04	1168.44	431.07
9/9/2025	8:36:03 AM	14.48	74.15	1169.56	427.99
9/9/2025	8:37:03 AM	14.37	74.21	1166.59	425.97
9/9/2025	8:38:03 AM	14.27	74.26	1158.8	423.11
9/9/2025	8:39:03 AM	14.18	74.54	1157.06	422.49
9/9/2025	8:40:03 AM	14.09	74.54	1157.51	422.16
9/9/2025	8:41:03 AM	13.98	74.71	1157.23	420.53
9/9/2025	8:42:04 AM	13.91	74.93	1157.18	419.41
9/9/2025	8:43:04 AM	13.82	75.1	1157.79	417.9
9/9/2025	8:44:04 AM	13.73	75.1	1152.19	415.21
9/9/2025	8:45:04 AM	13.63	75.21	1139.08	411.46
9/9/2025	8:46:04 AM	13.6	75.05	1120.36	408.49
9/9/2025	8:47:04 AM	13.53	75.1	1101.31	403.5
9/9/2025	8:48:04 AM	13.46	75.44	1089.49	398.74
9/9/2025	8:49:04 AM	13.41	75.27	1086.07	394.26
9/9/2025	8:50:04 AM	13.35	75.72	1088.76	390.22
9/9/2025	8:51:04 AM	13.29	75.83	1106.19	388.2
9/9/2025	8:52:04 AM	13.22	75.61	1118.29	386.92
9/9/2025	8:53:04 AM	13.17	75.72	1117.79	387.2
9/9/2025	8:54:04 AM	13.09	75.83	1098.51	385.79
9/9/2025	8:55:04 AM	13.02	75.83	1073.8	385.29
9/9/2025	8:56:05 AM	12.92	75.94	1068.42	383.22
9/9/2025	8:57:05 AM	12.86	75.94	1085.85	383.16
9/9/2025	8:58:05 AM	12.76	75.83	1107.53	384.11
9/9/2025	8:59:05 AM	12.68	76.05	1126.08	386.07
9/9/2025	9:00:05 AM	12.6	76.28	1143	387.25
9/9/2025	9:01:05 AM	12.51	76.5	1163	389.32
9/9/2025	9:02:05 AM	12.43	76.17	1168.61	390.84
9/9/2025	9:03:05 AM	12.35	76.28	1163.95	391.79
9/9/2025	9:04:05 AM	12.28	76.28	1154.21	391.29
9/9/2025	9:05:05 AM	12.21	76.05	1143.73	390.56
9/9/2025	9:06:05 AM	12.13	76.05	1132.52	389.55
9/9/2025	9:07:06 AM	12.06	76.28	1125.91	388.48
9/9/2025	9:08:06 AM	11.99	76.05	1119.97	387.31
9/9/2025	9:09:06 AM	11.93	76.17	1111.73	386.07
9/9/2025	9:10:06 AM	11.86	76.05	1099.8	383.16
9/9/2025	9:11:06 AM	11.78	76.22	1086.35	381.82
9/9/2025	9:12:06 AM	11.71	76.45	1078.9	380.19
9/9/2025	9:13:06 AM	11.63	76.5	1077.83	378.96
9/9/2025	9:14:06 AM	11.55	76.45	1082.77	378.17
9/9/2025	9:15:06 AM	11.49	76.61	1087.19	377.22
9/9/2025	9:16:06 AM	11.41	76.84	1094.64	376.72

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/9/2025	9:17:06 AM	11.33	76.5	1100.81	376.72
9/9/2025	9:18:06 AM	11.26	76.78	1105.51	377
9/9/2025	9:19:07 AM	11.18	76.89	1109.94	378.29
9/9/2025	9:20:07 AM	11.11	76.78	1111.57	378.23
9/9/2025	9:21:07 AM	11.02	76.73	1111.9	378.45
9/9/2025	9:22:07 AM	10.94	76.89	1109.88	378.51
9/9/2025	9:23:07 AM	10.87	76.95	1109.38	378.4
9/9/2025	9:24:07 AM	10.79	77.4	1108.65	379.63
9/9/2025	9:25:07 AM	10.71	77.06	1108.32	379.74
9/9/2025	9:26:07 AM	10.64	76.95	1106.97	379.97
9/9/2025	9:27:07 AM	10.56	77.18	1104.51	380.92
9/9/2025	9:28:08 AM	10.49	77.34	1099.91	380.81
9/9/2025	9:29:08 AM	10.41	77.34	1092.91	380.47
9/9/2025	9:30:08 AM	10.33	77.51	1089.55	379.58
9/9/2025	9:31:08 AM	10.25	77.34	1086.24	378.73
9/9/2025	9:32:08 AM	10.18	78.02	1087.08	379.18
9/9/2025	9:33:08 AM	10.11	77.74	1072.96	369.6
9/9/2025	9:34:08 AM	10.03	77.74	1068.37	357.61
9/9/2025	9:35:09 AM	9.97	77.68	1066.68	349.77
9/9/2025	9:36:09 AM	9.91	77.74	1065.68	344.67
9/9/2025	9:37:10 AM	9.84	77.68	1062.93	339.57
9/9/2025	9:38:10 AM	9.79	77.68	1053.91	334.86
9/9/2025	9:39:10 AM	9.72	78.02	1044.38	330.27
9/9/2025	9:40:10 AM	9.67	77.79	1038.73	326.18
9/9/2025	9:41:10 AM	9.6	77.79	1035.48	321.25
9/9/2025	9:42:10 AM	9.55	77.96	1028.81	317.44
9/9/2025	9:43:10 AM	9.5	78.13	1023.04	313.57
9/9/2025	9:44:10 AM	9.45	77.85	1017.99	310.26
9/9/2025	9:45:10 AM	9.39	77.96	1015.58	307.74
9/9/2025	9:46:10 AM	9.36	77.85	1015.58	304.49
9/9/2025	9:47:10 AM	9.31	77.96	1015.7	303.82
9/9/2025	9:48:10 AM	9.26	78.02	1013.12	301.3
9/9/2025	9:49:10 AM	9.2	77.62	1010.88	301.19
9/9/2025	9:50:10 AM	9.17	78.46	1010.21	299.62
9/9/2025	9:51:10 AM	9.11	78.46	1007.12	297.6
9/9/2025	9:52:10 AM	9.07	78.74	1005.11	296.37
9/9/2025	9:53:10 AM	9	78.18	1004.88	294.91
9/9/2025	9:54:10 AM	8.97	78.3	1005.39	294.02
9/9/2025	9:55:10 AM	8.92	78.35	1007.4	291.83
9/9/2025	9:56:11 AM	8.88	77.51	1005.72	291.72
9/9/2025	9:57:11 AM	8.84	77.51	1003.76	291.38
9/9/2025	9:58:11 AM	8.78	77.62	1001.58	290.21
9/9/2025	9:59:12 AM	8.74	77.62	1000.85	288.86
9/9/2025	10:00:12 AM	8.7	77.34	1002.36	288.52
9/9/2025	10:01:13 AM	8.66	76.89	1002.7	287.91
9/9/2025	10:02:13 AM	8.63	77.4	1001.58	286.51
9/9/2025	10:03:13 AM	8.58	77.06	997.82	285.44
9/9/2025	10:04:14 AM	8.53	77.29	994.63	283.93
9/9/2025	10:05:14 AM	8.5	76.78	991.94	282.25
9/9/2025	10:06:15 AM	8.46	76.78	988.97	282.47
9/9/2025	10:07:15 AM	8.41	76.11	983.53	282.75
9/9/2025	10:08:16 AM	8.39	75.94	980.17	281.8
9/9/2025	10:09:16 AM	8.35	76.11	983.93	281.41
9/9/2025	10:10:17 AM	8.31	76.5	994.18	283.26

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/9/2025	10:11:17 AM	8.26	76.39	997.65	284.21
9/9/2025	10:12:18 AM	8.22	76.28	998.44	285.5
9/9/2025	10:13:18 AM	8.17	76.17	996.59	286.28
9/9/2025	10:14:18 AM	8.13	75.89	995.36	288.58
9/9/2025	10:15:19 AM	8.1	75.89	995.64	288.19
9/9/2025	10:16:19 AM	8.06	75.72	996.87	290.93
9/9/2025	10:17:19 AM	8.02	75.83	998.21	293.12
9/9/2025	10:18:19 AM	7.98	75.55	998.94	294.69
9/9/2025	10:19:19 AM	7.94	75.77	1001.41	296.65
9/9/2025	10:20:19 AM	7.91	75.61	1006.56	299.79
9/9/2025	10:21:19 AM	7.86	75.55	1017.15	302.42
9/9/2025	10:22:19 AM	7.82	75.44	1026.73	305.28
9/9/2025	10:23:19 AM	7.78	75.27	1014.02	305.39
9/9/2025	10:24:20 AM	7.74	74.93	957.93	264.99
9/9/2025	10:25:20 AM	7.72	74.88	930.02	241.91
9/9/2025	10:26:20 AM	7.68	75.21	907.28	226.95
9/9/2025	10:27:20 AM	7.67	75.1	889.23	216.64
9/9/2025	10:28:20 AM	7.64	74.77	876.35	209.35
9/9/2025	10:29:20 AM	7.61	75.05	867.44	203.08
9/9/2025	10:30:21 AM	7.59	74.82	861.11	199.27
9/9/2025	10:31:21 AM	7.58	74.71	857.18	194.95
9/9/2025	10:32:21 AM	7.55	75.05	853.77	192.6
9/9/2025	10:33:21 AM	7.52	74.77	851.92	189.52
9/9/2025	10:34:21 AM	7.51	74.6	849.68	186.77
9/9/2025	10:35:21 AM	7.49	74.54	848.33	185.65
9/9/2025	10:36:21 AM	7.47	74.54	847.21	183.58
9/9/2025	10:37:22 AM	7.45	74.54	846.54	181.84
9/9/2025	10:38:22 AM	7.43	74.32	845.98	180.22
9/9/2025	10:39:22 AM	7.43	74.54	846.37	178.82
9/9/2025	10:40:22 AM	7.4	74.37	847.1	177.75
9/9/2025	10:41:22 AM	7.4	74.37	848.61	176.46
9/9/2025	10:42:22 AM	7.38	74.71	851.53	175.01
9/9/2025	10:43:22 AM	7.36	74.6	857.07	173.49
9/9/2025	10:44:22 AM	7.35	74.6	867.33	172.88
9/9/2025	10:45:22 AM	7.34	74.37	882.73	171.42
9/9/2025	10:46:22 AM	7.33	74.32	869.4	171.42
9/9/2025	10:47:22 AM	7.31	74.37	854.44	170.13
9/9/2025	10:48:22 AM	7.3	74.54	842.62	169.29
9/9/2025	10:49:22 AM	7.28	74.49	832.92	167.72
9/9/2025	10:50:22 AM	7.27	74.49	825.19	167.16
9/9/2025	10:51:22 AM	7.26	74.37	818.58	166.32
9/9/2025	10:52:23 AM	7.24	74.54	813.82	164.98
9/9/2025	10:53:23 AM	7.24	74.6	809.84	164.02
9/9/2025	10:54:23 AM	7.22	74.54	805.69	164.3
9/9/2025	10:55:23 AM	7.22	74.54	804.68	162.23
9/9/2025	10:56:23 AM	7.2	74.82	807.2	162.57
9/9/2025	10:57:23 AM	7.18	74.77	813.37	165.31
9/9/2025	10:58:23 AM	7.17	74.6	822.78	166.99
9/9/2025	10:59:23 AM	7.15	74.82	837.29	169.23
9/9/2025	11:00:23 AM	7.13	74.6	856.29	174.05
9/9/2025	11:01:23 AM	7.11	74.82	880.49	181.17
9/9/2025	11:02:24 AM	7.1	74.82	905.93	189.13
9/9/2025	11:03:24 AM	7.08	74.82	931.71	199.15
9/9/2025	11:04:24 AM	7.06	74.93	955.13	209.46

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/9/2025	11:05:25 AM	7.03	75.05	975.86	218.88
9/9/2025	11:06:25 AM	7.02	75.16	993.9	227.9
9/9/2025	11:07:26 AM	6.98	75.16	1010.77	236.64
9/9/2025	11:08:26 AM	6.97	75.21	1024.44	243.42
9/9/2025	11:09:27 AM	6.92	75.21	1036.6	251.1
9/9/2025	11:10:27 AM	6.89	75.38	1046.74	258.16
9/9/2025	11:11:28 AM	6.86	75.27	1054.92	263.81
9/9/2025	11:12:28 AM	6.83	75.55	1060.75	269.14
9/9/2025	11:13:29 AM	6.79	75.55	1064.33	273.17
9/9/2025	11:14:29 AM	6.77	75.55	1066.35	277.6
9/9/2025	11:15:29 AM	6.73	75.44	1066.35	280.9
9/9/2025	11:16:29 AM	6.71	75.49	1066.29	281.63
9/9/2025	11:17:30 AM	6.68	75.38	1065.56	284.21
9/9/2025	11:18:30 AM	6.65	75.27	1063.49	286.68
9/9/2025	11:19:30 AM	6.63	75.27	1060.8	288.3
9/9/2025	11:20:31 AM	6.59	75.05	1056.6	288.52
9/9/2025	11:21:31 AM	6.58	75.1	1051.16	290.37
9/9/2025	11:22:32 AM	6.54	75.16	1045.79	290.21
9/9/2025	11:23:32 AM	6.51	74.93	1041.36	290.88
9/9/2025	11:24:33 AM	6.51	75.27	1037.83	289.87
9/9/2025	11:25:33 AM	6.47	75.21	1035.59	291.21
9/9/2025	11:26:34 AM	6.45	74.82	1034.58	291.49
9/9/2025	11:27:34 AM	6.42	74.88	1034.75	291.89
9/9/2025	11:28:34 AM	6.39	75.16	1036.48	292.78
9/9/2025	11:29:34 AM	6.37	74.88	1038.39	293.46
9/9/2025	11:30:34 AM	6.35	74.77	1037.94	294.74
9/9/2025	11:31:34 AM	6.3	74.71	1032.11	295.14
9/9/2025	11:32:34 AM	6.27	74.54	1006.73	294.52
9/9/2025	11:33:34 AM	6.25	74.88	980.28	291.77
9/9/2025	11:34:34 AM	6.23	74.77	962.92	291.77
9/9/2025	11:35:34 AM	6.2	74.49	951.88	289.93
9/9/2025	11:36:34 AM	6.18	74.54	945.94	289.08
9/9/2025	11:37:35 AM	6.15	74.82	945.71	288.86
9/9/2025	11:38:35 AM	6.12	74.32	949.75	288.86
9/9/2025	11:39:35 AM	6.09	74.77	956.02	289.03
9/9/2025	11:40:35 AM	6.08	74.37	961.01	289.31
9/9/2025	11:41:35 AM	6.04	74.37	964.32	289.42
9/9/2025	11:42:35 AM	6.01	74.54	963.98	290.49
9/9/2025	11:43:35 AM	5.97	74.32	964.82	292
9/9/2025	11:44:35 AM	5.96	74.21	965.49	292.22
9/9/2025	11:45:35 AM	5.93	74.21	967.45	292.11
9/9/2025	11:46:36 AM	5.9	74.15	964.99	292.73
9/9/2025	11:47:36 AM	5.85	73.93	962.86	292.89
9/9/2025	11:48:37 AM	5.84	73.93	960.11	294.18
9/9/2025	11:49:37 AM	5.81	74.15	959.33	294.13
9/9/2025	11:50:37 AM	5.78	74.21	961.29	293.51
9/9/2025	11:51:37 AM	5.74	74.04	963.87	294.46
9/9/2025	11:52:37 AM	5.71	73.93	966.33	295.02
9/9/2025	11:53:37 AM	5.69	73.87	967.4	296.37
9/9/2025	11:54:38 AM	5.65	73.87	970.14	297.43
9/9/2025	11:55:38 AM	5.61	73.81	972.61	297.94
9/9/2025	11:56:38 AM	5.56	73.65	974.46	298.78
9/9/2025	11:57:38 AM	5.56	73.65	975.8	299.28
9/9/2025	11:58:38 AM	5.52	73.7	975.07	298.44

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/9/2025	11:59:39 AM	5.48	73.7	982.41	300.68
9/9/2025	12:00:39 PM	5.46	73.53	987.68	300.01
9/9/2025	12:01:39 PM	5.42	73.81	990.2	299.9
9/9/2025	12:02:40 PM	5.38	73.65	988.8	300.24
9/9/2025	12:03:40 PM	5.35	73.7	989.53	301.8
9/9/2025	12:04:40 PM	5.31	73.7	991.21	300.63
9/9/2025	12:05:40 PM	5.29	73.59	990.93	300.12
9/9/2025	12:06:40 PM	5.25	73.59	995.02	298.78
9/9/2025	12:07:40 PM	5.22	73.53	991.94	298.22
9/9/2025	12:08:40 PM	5.19	73.65	990.76	297.43
9/9/2025	12:09:40 PM	5.16	73.53	993.9	296.37
9/9/2025	12:10:41 PM	5.13	73.53	992.44	295.3
9/9/2025	12:11:41 PM	5.09	73.59	1000.12	294.91
9/9/2025	12:12:41 PM	5.06	73.53	1009.76	294.3
9/9/2025	12:13:41 PM	5.03	73.36	1011.55	294.46
9/9/2025	12:14:41 PM	4.98	73.48	1016.76	294.07
9/9/2025	12:15:41 PM	4.97	73.53	1015.53	291.44
9/9/2025	12:16:41 PM	4.93	73.36	1013.68	290.21
9/9/2025	12:17:41 PM	4.91	73.25	1010.21	287.4
9/9/2025	12:18:41 PM	4.88	73.25	1006.56	284.38
9/9/2025	12:19:41 PM	4.84	73.2	1005.11	280.46
9/9/2025	12:20:42 PM	4.82	73.25	1003.43	276.81
9/9/2025	12:21:42 PM	4.79	73.53	1006	275.75
9/9/2025	12:22:42 PM	4.76	73.25	1005.84	270.54
9/9/2025	12:23:42 PM	4.74	73.25	1012.78	267.46
9/9/2025	12:24:42 PM	4.71	73.14	1021.47	264.32
9/9/2025	12:25:42 PM	4.68	73.14	1030.82	262.13
9/9/2025	12:26:42 PM	4.66	73.14	1034.13	258.94
9/9/2025	12:27:42 PM	4.63	73.2	1031.72	256.47
9/9/2025	12:28:42 PM	4.62	73.2	1024.38	253.95
9/9/2025	12:29:42 PM	4.59	72.97	1031.5	249.69
9/9/2025	12:30:42 PM	4.56	73.03	1033.57	248.07
9/9/2025	12:31:42 PM	4.54	72.97	1038.5	246.05
9/9/2025	12:32:42 PM	4.51	73.03	1040.41	243.14
9/9/2025	12:33:42 PM	4.5	72.97	1040.01	239.95
9/9/2025	12:34:42 PM	4.48	72.75	1036.32	237.87
9/9/2025	12:35:42 PM	4.46	72.92	1028.25	235.07
9/9/2025	12:36:42 PM	4.44	73.03	1017.55	230.87
9/9/2025	12:37:42 PM	4.42	72.86	1003.76	225.77
9/9/2025	12:38:42 PM	4.41	72.92	988.07	221.51
9/9/2025	12:39:42 PM	4.4	72.92	973.22	218.99
9/9/2025	12:40:42 PM	4.38	72.86	960.84	214.62
9/9/2025	12:41:43 PM	4.37	72.69	948.74	210.87
9/9/2025	12:42:43 PM	4.36	72.69	933.78	207.22
9/9/2025	12:43:43 PM	4.35	72.69	916.41	203.97
9/9/2025	12:44:43 PM	4.35	72.69	895.62	201.34
9/9/2025	12:45:43 PM	4.33	72.52	873.38	198.93
9/9/2025	12:46:43 PM	4.33	72.64	851.81	195.91
9/9/2025	12:47:43 PM	4.32	72.58	831.24	192.77
9/9/2025	12:48:43 PM	4.31	72.52	813.26	191.59
9/9/2025	12:49:43 PM	4.31	72.36	797.46	189.91
9/9/2025	12:50:43 PM	4.3	72.41	784.57	189.13
9/9/2025	12:51:43 PM	4.3	72.36	773.7	188.06
9/9/2025	12:52:43 PM	4.29	72.24	764.4	187.89

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/9/2025	12:53:43 PM	4.28	72.36	756.44	188.73
9/9/2025	12:54:44 PM	4.28	72.19	750.56	190.86
9/9/2025	12:55:44 PM	4.27	72.19	746.86	192.38
9/9/2025	12:56:44 PM	4.27	72.24	745.23	195.91
9/9/2025	12:57:44 PM	4.25	72.02	745.07	199.6
9/9/2025	12:58:44 PM	4.25	72.24	746.97	204.03
9/9/2025	12:59:44 PM	4.24	72.19	749.77	208.12
9/9/2025	1:00:44 PM	4.22	72.08	753.47	211.93
9/9/2025	1:01:44 PM	4.22	72.08	756.94	214.79
9/9/2025	1:02:44 PM	4.19	71.96	760.31	219.05
9/9/2025	1:03:44 PM	4.19	72.19	763.33	222.63
9/9/2025	1:04:45 PM	4.17	72.08	766.19	225.15
9/9/2025	1:05:45 PM	4.17	72.02	769.72	228.46
9/9/2025	1:06:45 PM	4.16	71.96	774.09	231.93
9/9/2025	1:07:45 PM	4.15	72.08	778.35	234.9
9/9/2025	1:08:46 PM	4.13	72.02	782.55	237.98
9/9/2025	1:09:46 PM	4.11	71.96	786.36	240.23
9/9/2025	1:10:46 PM	4.09	72.02	789.22	243.42
9/9/2025	1:11:46 PM	4.09	72.02	792.08	245.72
9/9/2025	1:12:46 PM	4.08	71.96	794.09	248.18
9/9/2025	1:13:46 PM	4.06	72.02	795.61	249.19
9/9/2025	1:14:47 PM	4.04	71.96	797.06	250.42
9/9/2025	1:15:47 PM	4.03	72.02	799.53	252.55
9/9/2025	1:16:47 PM	4.01	72.02	801.55	253.62
9/9/2025	1:17:48 PM	4	72.19	803.11	255.97
9/9/2025	1:18:48 PM	3.99	72.02	805.52	257.09
9/9/2025	1:19:48 PM	3.97	71.96	807.43	258.32
9/9/2025	1:20:48 PM	3.96	71.96	809.89	259.56
9/9/2025	1:21:48 PM	3.95	71.96	812.19	260.62
9/9/2025	1:22:48 PM	3.93	72.02	813.87	262.64
9/9/2025	1:23:48 PM	3.92	71.96	815.22	262.36
9/9/2025	1:24:48 PM	3.9	72.19	817.07	263.65
9/9/2025	1:25:48 PM	3.9	72.02	818.75	264.54
9/9/2025	1:26:49 PM	3.88	71.91	820.6	264.82
9/9/2025	1:27:49 PM	3.85	71.91	821.77	266
9/9/2025	1:28:50 PM	3.83	71.91	819.81	266.56
9/9/2025	1:29:50 PM	3.83	71.91	816.79	266.56
9/9/2025	1:30:50 PM	3.81	71.96	814.66	267.51
9/9/2025	1:31:50 PM	3.8	71.91	815.72	267.74
9/9/2025	1:32:50 PM	3.79	71.74	820.2	268.24
9/9/2025	1:33:50 PM	3.76	71.85	823.29	268.75
9/9/2025	1:34:50 PM	3.75	71.85	825.02	269.47
9/9/2025	1:35:50 PM	3.74	71.85	825.98	269.59
9/9/2025	1:36:50 PM	3.73	71.85	827.54	269.36
9/9/2025	1:37:50 PM	3.71	71.85	828.61	270.59
9/9/2025	1:38:51 PM	3.7	72.02	828.27	271.55
9/9/2025	1:39:51 PM	3.68	71.91	828.16	272.11
9/9/2025	1:40:51 PM	3.68	71.96	827.82	272.11
9/9/2025	1:41:51 PM	3.65	71.96	827.6	271.44
9/9/2025	1:42:51 PM	3.64	71.96	826.82	271.49
9/9/2025	1:43:51 PM	3.62	71.96	826.37	272.05
9/9/2025	1:44:52 PM	3.6	71.91	826.42	272.56
9/9/2025	1:45:52 PM	3.6	71.91	826.48	272.89
9/9/2025	1:46:52 PM	3.59	72.02	827.1	273

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/9/2025	1:47:52 PM	3.58	71.91	826.14	273.73
9/9/2025	1:48:53 PM	3.56	72.08	825.36	272.84
9/9/2025	1:49:53 PM	3.55	71.96	825.3	273
9/9/2025	1:50:53 PM	3.53	71.96	825.92	273.34
9/9/2025	1:51:53 PM	3.51	71.96	825.98	273
9/9/2025	1:52:54 PM	3.51	71.96	825.86	273.68
9/9/2025	1:53:54 PM	3.48	72.08	825.69	273.17
9/9/2025	1:54:54 PM	3.49	72.02	824.13	273.73
9/9/2025	1:55:54 PM	3.47	72.02	820.65	273
9/9/2025	1:56:54 PM	3.46	72.02	817.51	272.39
9/9/2025	1:57:55 PM	3.43	72.02	815.22	271.6
9/9/2025	1:58:55 PM	3.44	72.19	813.93	272.05
9/9/2025	1:59:55 PM	3.41	72.08	813.26	272.16
9/9/2025	2:00:55 PM	3.42	72.08	813.2	271.94
9/9/2025	2:01:55 PM	3.4	72.19	813.87	271.77
9/9/2025	2:02:55 PM	3.38	72.19	814.88	271.83
9/9/2025	2:03:55 PM	3.37	72.19	815.33	271.88
9/9/2025	2:04:55 PM	3.35	72.24	813.14	271.55
9/9/2025	2:05:55 PM	3.35	72.19	810.23	271.15
9/9/2025	2:06:55 PM	3.33	72.19	809.45	270.65
9/9/2025	2:07:55 PM	3.33	72.24	810.68	271.21
9/9/2025	2:08:55 PM	3.31	72.19	811.91	270.43
9/9/2025	2:09:56 PM	3.3	72.3	813.59	270.48
9/9/2025	2:10:56 PM	3.28	72.3	816.56	270.43
9/9/2025	2:11:56 PM	3.26	72.3	819.25	270.87
9/9/2025	2:12:56 PM	3.26	72.3	821.32	271.27
9/9/2025	2:13:56 PM	3.24	72.36	823.62	270.76
9/9/2025	2:14:56 PM	3.23	72.19	826.76	271.77
9/9/2025	2:15:57 PM	3.21	72.08	829.73	271.49
9/9/2025	2:16:57 PM	3.19	72.19	832.87	272.39
9/9/2025	2:17:57 PM	3.19	72.08	837.29	273.73
9/9/2025	2:18:57 PM	3.17	72.24	842.34	274.4
9/9/2025	2:19:57 PM	3.15	72.19	847.49	275.02
9/9/2025	2:20:57 PM	3.14	72.08	852.09	277.6
9/9/2025	2:21:57 PM	3.14	72.19	856.23	277.93
9/9/2025	2:22:57 PM	3.12	72.08	859.31	278.55
9/9/2025	2:23:57 PM	3.1	72.08	863.4	279.28
9/9/2025	2:24:57 PM	3.08	72.24	867.44	280.79
9/9/2025	2:25:57 PM	3.07	72.02	871.36	282.19
9/9/2025	2:26:57 PM	3.04	72.08	874.44	283.09
9/9/2025	2:27:58 PM	3.04	72.19	876.07	283.26
9/9/2025	2:28:58 PM	3.01	72.08	877.08	284.83
9/9/2025	2:29:58 PM	3	72.19	877.24	284.99
9/9/2025	2:30:58 PM	2.98	72.19	877.8	285.84
9/9/2025	2:31:58 PM	2.99	72.19	879.26	286.84
9/9/2025	2:32:58 PM	2.97	71.96	880.55	287.63
9/9/2025	2:33:58 PM	2.94	72.08	881.22	287.18
9/9/2025	2:34:58 PM	2.93	72.19	881.17	287.07
9/9/2025	2:35:58 PM	2.91	72.02	881.33	287.18
9/9/2025	2:36:58 PM	2.89	72.08	881.39	287.07
9/9/2025	2:37:58 PM	2.89	72.02	881.33	287.74
9/9/2025	2:38:58 PM	2.86	72.24	881.84	287.12
9/9/2025	2:39:58 PM	2.85	72.24	884.08	287.29
9/9/2025	2:40:58 PM	2.83	72.3	885.65	286.28

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/9/2025	2:41:59 PM	2.82	72.24	888.06	286.68
9/9/2025	2:42:59 PM	2.8	72.08	890.41	287.63
9/9/2025	2:43:59 PM	2.79	72.19	893.88	287.96
9/9/2025	2:44:59 PM	2.76	72.08	896.74	288.69
9/9/2025	2:46:00 PM	2.75	72.24	890.52	289.25
9/9/2025	2:47:00 PM	2.73	72.08	864.97	288.36
9/9/2025	2:48:00 PM	2.72	72.3	836.51	285.39
9/9/2025	2:49:00 PM	2.69	72.41	816.62	282.42
9/9/2025	2:50:00 PM	2.68	73.03	804.8	278.27
9/9/2025	2:51:00 PM	2.66	72.75	799.19	274.96
9/9/2025	2:52:00 PM	2.63	72.69	796.28	272.89
9/9/2025	2:53:01 PM	2.62	72.52	794.99	271.49
9/9/2025	2:54:01 PM	2.61	72.52	794.82	270.54
9/9/2025	2:55:01 PM	2.59	72.64	795.61	269.42
9/9/2025	2:56:01 PM	2.56	72.58	796.22	268.52
9/9/2025	2:57:01 PM	2.55	72.52	797.46	267.46
9/9/2025	2:58:01 PM	2.53	72.58	799.25	266.56
9/9/2025	2:59:01 PM	2.52	72.58	801.43	266.22
9/9/2025	3:00:01 PM	2.5	72.52	803.06	266.11
9/9/2025	3:01:01 PM	2.48	72.52	804.12	265.72
9/9/2025	3:02:01 PM	2.46	72.58	804.91	264.49
9/9/2025	3:03:01 PM	2.45	72.64	805.52	263.7
9/9/2025	3:04:01 PM	2.43	72.75	806.03	263.14
9/9/2025	3:05:01 PM	2.42	72.69	806.42	262.81
9/9/2025	3:06:01 PM	2.41	72.69	806.31	261.91
9/9/2025	3:07:01 PM	2.4	72.75	806.98	260.9
9/9/2025	3:08:02 PM	2.38	72.69	807.2	259.95
9/9/2025	3:09:02 PM	2.37	72.75	807.43	259.84
9/9/2025	3:10:02 PM	2.36	72.75	807.32	259.22
9/9/2025	3:11:02 PM	2.33	72.75	806.81	257.93
9/9/2025	3:12:02 PM	2.33	72.92	806.14	257.6
9/9/2025	3:13:03 PM	2.31	72.75	806.98	256.53
9/9/2025	3:14:03 PM	2.3	72.75	807.65	256.31
9/9/2025	3:15:03 PM	2.28	72.69	808.27	255.24
9/9/2025	3:16:03 PM	2.26	72.69	808.33	254.68
9/9/2025	3:17:03 PM	2.25	72.58	808.1	253.79
9/9/2025	3:18:03 PM	2.25	72.69	807.76	252.78
9/9/2025	3:19:03 PM	2.24	72.58	807.93	251.49
9/9/2025	3:20:03 PM	2.23	72.58	808.55	251.43
9/9/2025	3:21:03 PM	2.2	72.58	808.33	251.04
9/9/2025	3:22:03 PM	2.19	72.64	803.9	250.65
9/9/2025	3:23:04 PM	2.18	72.64	797.06	249.75
9/9/2025	3:24:04 PM	2.17	72.58	793.59	248.01
9/9/2025	3:25:04 PM	2.15	72.52	792.75	247.68
9/9/2025	3:26:04 PM	2.14	72.41	793.03	247.62
9/9/2025	3:27:04 PM	2.13	72.58	792.69	247.29
9/9/2025	3:28:04 PM	2.12	72.52	791.96	246.11
9/9/2025	3:29:04 PM	2.11	72.36	791.57	246.67
9/9/2025	3:30:04 PM	2.09	72.36	791.18	245.66
9/9/2025	3:31:04 PM	2.08	72.41	790.79	244.6
9/9/2025	3:32:05 PM	2.08	72.52	790.96	244.71
9/9/2025	3:33:05 PM	2.05	72.58	790.9	244.99
9/9/2025	3:34:05 PM	2.06	72.58	790.51	244.2
9/9/2025	3:35:05 PM	2.02	72.41	790.96	243.64

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue	
9/9/2025	3:36:05 PM	2.01	72.52	791.12	244.93	
9/9/2025	3:37:05 PM	2.02	72.41	792.86	243.7	
9/9/2025	3:38:05 PM	2.01	72.36	792.92	244.43	
9/9/2025	3:39:05 PM	2	72.69	790.9	244.04	
9/9/2025	3:40:05 PM	2	72.58	788.55	243.92	
9/9/2025	3:41:05 PM	1.97	72.64	788.27	243.7	
9/9/2025	3:42:06 PM	1.96	72.64	792.47	243.42	
9/9/2025	3:43:06 PM	1.94	72.64	798.07	244.04	
9/9/2025	3:44:06 PM	1.95	72.58	796.22	243.92	
9/9/2025	3:45:06 PM	1.94	72.58	792.41	244.65	
9/9/2025	3:46:06 PM	1.91	72.52	790.23	244.6	
9/9/2025	3:47:06 PM	1.89	72.52	788.99	244.09	
9/9/2025	3:48:06 PM	1.89	72.52	793.25	244.99	
9/9/2025	3:49:06 PM	1.86	72.41	815.67	294.91	
9/9/2025	3:50:07 PM	1.83	72.58	791.29	319.29	
9/9/2025	3:51:07 PM	1.82	72.58	772.69	331	
9/9/2025	3:52:07 PM	1.8	72.52	763.61	334.92	
9/9/2025	3:53:07 PM	1.77	72.52	759.63	337.1	
9/9/2025	3:54:07 PM	1.77	72.52	757.34	337.33	
9/9/2025	3:55:08 PM	1.74	72.52	755.77	338.67	
9/9/2025	3:56:08 PM	1.73	72.41	753.64	339.23	
9/9/2025	3:57:08 PM	1.71	72.58	751.85	340.19	
9/9/2025	3:58:08 PM	1.67	72.41	751.23	339.79	
9/9/2025	3:59:08 PM	2.28	72.52	537.69	377.95	
9/9/2025	4:00:08 PM	24.85	72.75	492.37	339.01	**Added 23.2lbs 19-23% MC, Medium Air Setting**
9/9/2025	4:01:08 PM	24.82	72.69	549.13	308.81	
9/9/2025	4:02:08 PM	24.77	72.64	608.41	299.34	
9/9/2025	4:03:08 PM	24.73	72.58	653.85	301.64	
9/9/2025	4:04:08 PM	24.67	72.58	647.68	306.23	
9/9/2025	4:05:08 PM	24.61	72.52	637.99	310.38	
9/9/2025	4:06:08 PM	24.53	72.52	635.81	312.84	
9/9/2025	4:07:08 PM	24.47	72.52	646.68	314.3	
9/9/2025	4:08:09 PM	24.42	72.52	670.15	317.77	
9/9/2025	4:09:09 PM	24.34	72.52	691.72	324.22	
9/9/2025	4:10:09 PM	24.26	72.52	708.25	330.16	
9/9/2025	4:11:09 PM	24.18	72.58	726.63	333.07	
9/9/2025	4:12:09 PM	24.11	72.52	738.68	338.56	
9/9/2025	4:13:09 PM	24.01	72.52	757.51	344.05	
9/9/2025	4:14:09 PM	23.91	72.58	830.01	354.59	
9/9/2025	4:15:09 PM	23.78	72.52	916.97	373.13	
9/9/2025	4:16:10 PM	23.64	72.64	961.57	393.41	
9/9/2025	4:17:10 PM	23.52	72.64	948.68	407.42	
9/9/2025	4:18:10 PM	23.38	72.64	935.18	416.22	
9/9/2025	4:19:10 PM	23.25	72.58	962.97	425.46	
9/9/2025	4:20:10 PM	23.11	72.52	993.51	437.62	
9/9/2025	4:21:10 PM	22.94	72.75	1050.27	451.18	
9/9/2025	4:22:10 PM	22.79	72.69	1106.02	465.36	
9/9/2025	4:23:10 PM	22.61	72.75	1148.55	479.42	
9/9/2025	4:24:11 PM	22.44	72.75	1160.99	491.02	
9/9/2025	4:25:11 PM	22.29	72.97	1163.45	496.46	
9/9/2025	4:26:11 PM	22.11	73.2	1164.8	497.3	
9/9/2025	4:27:11 PM	21.97	73.14	1167.82	499.82	
9/9/2025	4:28:11 PM	21.79	73.14	1179.7	500.38	
9/9/2025	4:29:11 PM	21.62	73.2	1182.05	498.53	

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/9/2025	4:30:11 PM	21.45	73.36	1181.72	495.73
9/9/2025	4:31:11 PM	21.3	73.31	1177.01	495.17
9/9/2025	4:32:12 PM	21.15	73.31	1174.88	494.1
9/9/2025	4:33:12 PM	20.96	73.36	1177.01	492.7
9/9/2025	4:34:12 PM	20.8	73.53	1175.11	491.3
9/9/2025	4:35:12 PM	20.64	73.53	1172.42	490.91
9/9/2025	4:36:12 PM	20.48	73.53	1165.19	488.61
9/9/2025	4:37:12 PM	20.33	73.65	1160.59	486.09
9/9/2025	4:38:12 PM	20.19	73.87	1156.89	484.69
9/9/2025	4:39:12 PM	20.03	73.81	1151.24	483.01
9/9/2025	4:40:13 PM	19.87	73.7	1147.54	480.88
9/9/2025	4:41:13 PM	19.72	73.98	1149.83	478.58
9/9/2025	4:42:13 PM	19.57	73.98	1158.8	477.85
9/9/2025	4:43:13 PM	19.43	74.15	1166.25	477.97
9/9/2025	4:44:13 PM	19.27	74.21	1168.1	477.8
9/9/2025	4:45:13 PM	19.14	74.21	1160.48	476.17
9/9/2025	4:46:14 PM	18.99	74.37	1155.55	474.38
9/9/2025	4:47:14 PM	18.84	74.21	1165.3	472.64
9/9/2025	4:48:14 PM	18.69	74.26	1141.54	470.51
9/9/2025	4:49:14 PM	18.54	74.49	1112.46	467.99
9/9/2025	4:50:14 PM	18.4	74.49	1124.4	466.2
9/9/2025	4:51:14 PM	18.26	74.49	1164.96	465.25
9/9/2025	4:52:14 PM	18.15	74.6	1171.63	464.57
9/9/2025	4:53:14 PM	18.04	74.71	1152.64	461.49
9/9/2025	4:54:15 PM	17.94	74.6	1126.3	455.67
9/9/2025	4:55:15 PM	17.86	74.82	1100.86	447.82
9/9/2025	4:56:15 PM	17.77	74.77	1077.89	440.82
9/9/2025	4:57:15 PM	17.68	74.88	1057.72	433.31
9/9/2025	4:58:15 PM	17.63	74.93	1043.21	426.53
9/9/2025	4:59:15 PM	17.56	74.88	1033.57	421.49
9/9/2025	5:00:15 PM	17.48	75.16	1029.87	416.84
9/9/2025	5:01:15 PM	17.42	75.05	1031.67	413.87
9/9/2025	5:02:16 PM	17.34	75.16	1028.58	411.29
9/9/2025	5:03:16 PM	17.28	74.82	1022.59	407.59
9/9/2025	5:04:16 PM	17.21	75.1	1017.6	405.85
9/9/2025	5:05:17 PM	17.15	75.05	1013.29	404.56
9/9/2025	5:06:17 PM	17.08	75.16	1009.7	403.28
9/9/2025	5:07:18 PM	17.03	75.21	1009.65	402.04
9/9/2025	5:08:18 PM	16.96	75.16	1022.08	401.26
9/9/2025	5:09:18 PM	16.89	75.1	1026.17	401.76
9/9/2025	5:10:18 PM	16.84	75.21	1022.2	402.1
9/9/2025	5:11:18 PM	16.79	75.21	1011.55	401.43
9/9/2025	5:12:18 PM	16.7	75.16	1000.57	401.54
9/9/2025	5:13:18 PM	16.66	75.21	995.64	402.21
9/9/2025	5:14:18 PM	16.57	75.27	993.73	403.39
9/9/2025	5:15:18 PM	16.51	75.21	995.25	404.17
9/9/2025	5:16:19 PM	16.43	75.38	998.55	406.64
9/9/2025	5:17:19 PM	16.35	75.38	1001.46	408.32
9/9/2025	5:18:19 PM	16.28	75.44	1004.1	411.12
9/9/2025	5:19:19 PM	16.19	75.44	1010.15	413.92
9/9/2025	5:20:19 PM	16.1	75.38	1021.19	417.23
9/9/2025	5:21:19 PM	16.01	75.21	1036.48	420.93
9/9/2025	5:22:19 PM	15.91	75.27	1055.37	424.57
9/9/2025	5:23:19 PM	15.81	75.27	1071.34	428.99

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/9/2025	5:24:20 PM	15.71	75.21	1091.23	433.7
9/9/2025	5:25:20 PM	15.62	75.27	1108.26	438.63
9/9/2025	5:26:20 PM	15.52	75.55	1123.84	442.55
9/9/2025	5:27:20 PM	15.4	75.44	1132.24	445.24
9/9/2025	5:28:20 PM	15.3	75.44	1138.4	447.71
9/9/2025	5:29:20 PM	15.21	75.61	1143.5	448.77
9/9/2025	5:30:20 PM	15.09	75.44	1145.46	449.78
9/9/2025	5:31:20 PM	14.95	75.38	1148.32	450.68
9/9/2025	5:32:21 PM	14.84	75.61	1150.62	451.24
9/9/2025	5:33:21 PM	14.73	75.38	1152.08	451.01
9/9/2025	5:34:21 PM	14.63	75.49	1157.29	450.68
9/9/2025	5:35:21 PM	14.49	75.49	1163.95	450.73
9/9/2025	5:36:21 PM	14.4	75.44	1163.45	451.41
9/9/2025	5:37:21 PM	14.28	75.72	1158.91	451.29
9/9/2025	5:38:21 PM	14.15	75.83	1156.73	449.95
9/9/2025	5:39:21 PM	14.05	75.72	1152.92	449.56
9/9/2025	5:40:21 PM	13.94	75.72	1147.09	447.99
9/9/2025	5:41:22 PM	13.83	75.44	1140.48	445.75
9/9/2025	5:42:22 PM	13.72	75.72	1136.89	443.39
9/9/2025	5:43:22 PM	13.6	75.94	1134.71	440.99
9/9/2025	5:44:22 PM	13.5	75.77	1138.46	440.54
9/9/2025	5:45:22 PM	13.38	75.77	1136.61	439.7
9/9/2025	5:46:22 PM	13.27	75.72	1134.99	438.97
9/9/2025	5:47:22 PM	13.15	75.77	1132.91	438.69
9/9/2025	5:48:22 PM	13.04	75.77	1136.33	434.82
9/9/2025	5:49:23 PM	12.92	75.89	1134.31	432.13
9/9/2025	5:50:23 PM	12.82	75.83	1132.24	430.45
9/9/2025	5:51:23 PM	12.71	75.94	1132.02	428.94
9/9/2025	5:52:23 PM	12.59	76.05	1128.38	427.03
9/9/2025	5:53:23 PM	12.49	75.83	1135.55	426.08
9/9/2025	5:54:23 PM	12.39	75.94	1144.23	423.9
9/9/2025	5:55:23 PM	12.29	75.94	1149.05	423.39
9/9/2025	5:56:23 PM	12.19	76.05	1148.88	421.32
9/9/2025	5:57:24 PM	12.08	75.77	1151.29	419.75
9/9/2025	5:58:24 PM	11.99	75.83	1149.22	419.25
9/9/2025	5:59:24 PM	11.9	75.94	1146.75	418.46
9/9/2025	6:00:24 PM	11.81	75.94	1139.69	418.12
9/9/2025	6:01:24 PM	11.7	76.05	1132.24	417.45
9/9/2025	6:02:24 PM	11.6	75.89	1121.99	415.32
9/9/2025	6:03:25 PM	11.51	75.89	1117.28	413.53
9/9/2025	6:04:25 PM	11.4	75.83	1123.16	412.91
9/9/2025	6:05:25 PM	11.31	75.94	1126.97	411.68
9/9/2025	6:06:25 PM	11.2	75.89	1121.93	409.66
9/9/2025	6:07:25 PM	11.11	76.05	1116.55	408.04
9/9/2025	6:08:25 PM	11.03	75.94	1113.3	406.13
9/9/2025	6:09:25 PM	10.94	75.89	1107.98	403.95
9/9/2025	6:10:25 PM	10.83	75.89	1096.33	402.27
9/9/2025	6:11:26 PM	10.72	75.94	1087.36	402.21
9/9/2025	6:12:26 PM	10.63	75.94	1077.95	402.1
9/9/2025	6:13:26 PM	10.52	75.89	1071.06	400.53
9/9/2025	6:14:26 PM	10.43	75.89	1056.15	399.13
9/9/2025	6:15:26 PM	10.33	75.94	1062.31	399.47
9/9/2025	6:16:26 PM	10.23	75.94	1068.93	400.08
9/9/2025	6:17:26 PM	10.13	75.89	1070.89	399.02

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/9/2025	6:18:26 PM	10.02	75.83	1065.68	399.02
9/9/2025	6:19:27 PM	9.94	76.11	1061.53	397.9
9/9/2025	6:20:27 PM	9.85	75.83	1078.9	396.5
9/9/2025	6:21:27 PM	9.75	75.77	1119.19	394.98
9/9/2025	6:22:27 PM	9.67	75.89	1126.47	393.58
9/9/2025	6:23:27 PM	9.6	75.89	1116.44	392.63
9/9/2025	6:24:27 PM	9.52	75.94	1107.36	391.85
9/9/2025	6:25:27 PM	9.43	75.89	1112.85	390.67
9/9/2025	6:26:27 PM	9.38	75.94	1119.86	390.28
9/9/2025	6:27:28 PM	9.31	75.89	1113.53	388.82
9/9/2025	6:28:28 PM	9.23	75.89	1099.07	384.45
9/9/2025	6:29:28 PM	9.2	75.94	1081.48	381.59
9/9/2025	6:30:28 PM	9.13	76.11	1064.61	378.96
9/9/2025	6:31:28 PM	9.08	76.17	1050.49	376.94
9/9/2025	6:32:28 PM	9.02	75.94	1039.57	374.36
9/9/2025	6:33:28 PM	8.98	75.94	1033.79	372.63
9/9/2025	6:34:29 PM	8.93	75.89	1036.88	371.34
9/9/2025	6:35:29 PM	8.89	75.89	1052.23	371.34
9/9/2025	6:36:29 PM	8.84	75.89	1076.55	371.62
9/9/2025	6:37:29 PM	8.8	75.89	1094.31	372.8
9/9/2025	6:38:29 PM	8.74	76.22	1097.39	374.59
9/9/2025	6:39:29 PM	8.7	75.89	1089.49	375.43
9/9/2025	6:40:29 PM	8.64	75.77	1077.83	376.61
9/9/2025	6:41:29 PM	8.6	75.89	1063.55	377
9/9/2025	6:42:29 PM	8.53	75.94	1049.2	378.45
9/9/2025	6:43:30 PM	8.49	75.83	1034.58	378.57
9/9/2025	6:44:30 PM	8.44	75.89	1022.64	378.96
9/9/2025	6:45:30 PM	8.4	75.72	1013.51	378.45
9/9/2025	6:46:30 PM	8.33	75.72	1006.12	378.23
9/9/2025	6:47:30 PM	8.28	75.94	1002.53	378.23
9/9/2025	6:48:30 PM	8.24	75.83	1000.18	377.95
9/9/2025	6:49:30 PM	8.18	75.77	998.44	378.73
9/9/2025	6:50:30 PM	8.14	75.89	998.72	379.13
9/9/2025	6:51:30 PM	8.07	75.94	999.56	379.01
9/9/2025	6:52:31 PM	8.03	75.83	1002.14	380.02
9/9/2025	6:53:31 PM	7.97	75.94	1004.6	381.54
9/9/2025	6:54:31 PM	7.93	75.77	1007.8	381.54
9/9/2025	6:55:31 PM	7.86	75.77	1009.03	381.76
9/9/2025	6:56:31 PM	7.8	75.77	1011.89	382.38
9/9/2025	6:57:31 PM	7.75	75.77	1011.27	383.27
9/9/2025	6:58:31 PM	7.71	75.72	1010.88	384.45
9/9/2025	6:59:31 PM	7.64	75.94	1009.31	385.63
9/9/2025	7:00:32 PM	7.59	75.83	1009.31	386.52
9/9/2025	7:01:32 PM	7.53	75.72	1012.95	387.92
9/9/2025	7:02:32 PM	7.48	75.83	1014.58	389.94
9/9/2025	7:03:32 PM	7.41	75.72	1016.03	391.17
9/9/2025	7:04:32 PM	7.36	75.77	1018.44	392.07
9/9/2025	7:05:32 PM	7.3	75.61	1021.86	393.92
9/9/2025	7:06:32 PM	7.24	75.89	1024.94	395.54
9/9/2025	7:07:32 PM	7.17	75.94	1027.24	396.89
9/9/2025	7:08:32 PM	7.12	75.94	1027.97	398.68
9/9/2025	7:09:33 PM	7.07	75.89	1028.98	399.75
9/9/2025	7:10:33 PM	7	75.61	1030.43	400.87
9/9/2025	7:11:33 PM	6.95	75.77	1031.22	402.16

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/9/2025	7:12:33 PM	6.87	75.89	1030.82	402.66
9/9/2025	7:13:33 PM	6.82	75.72	1030.32	403.28
9/9/2025	7:14:33 PM	6.76	75.77	1032.9	403.44
9/9/2025	7:15:33 PM	6.71	75.72	1034.92	403.5
9/9/2025	7:16:33 PM	6.65	75.83	1034.02	403.16
9/9/2025	7:17:33 PM	6.6	75.72	1034.02	402.55
9/9/2025	7:18:34 PM	6.53	75.94	1031.89	402.49
9/9/2025	7:19:34 PM	6.49	75.72	1026.62	401.2
9/9/2025	7:20:34 PM	6.44	75.89	1019.23	400.31
9/9/2025	7:21:34 PM	6.38	75.94	1013.51	400.19
9/9/2025	7:22:34 PM	6.35	75.89	1009.42	399.86
9/9/2025	7:23:35 PM	6.29	75.83	1007.68	399.52
9/9/2025	7:24:35 PM	6.26	75.94	1007.96	399.69
9/9/2025	7:25:35 PM	6.21	75.72	1018.11	399.63
9/9/2025	7:26:35 PM	6.17	75.94	1031.33	400.64
9/9/2025	7:27:35 PM	6.11	75.94	1037.21	401.88
9/9/2025	7:28:35 PM	6.07	75.94	1041.81	402.66
9/9/2025	7:29:35 PM	6.01	75.83	1043.88	403.67
9/9/2025	7:30:35 PM	5.97	75.83	1043.88	404.9
9/9/2025	7:31:36 PM	5.91	75.77	1040.85	404.9
9/9/2025	7:32:36 PM	5.87	76.05	1039.45	405.18
9/9/2025	7:33:36 PM	5.81	75.89	1037.49	404.4
9/9/2025	7:34:36 PM	5.77	75.83	1035.42	404.4
9/9/2025	7:35:36 PM	5.71	75.83	1032.9	403.33
9/9/2025	7:36:36 PM	5.67	75.89	1031.78	403.33
9/9/2025	7:37:36 PM	5.61	75.94	1033.85	403.11
9/9/2025	7:38:36 PM	5.57	75.89	1037.27	403.05
9/9/2025	7:39:37 PM	5.52	76.05	1042.54	403.61
9/9/2025	7:40:37 PM	5.48	75.83	1048.47	403.16
9/9/2025	7:41:37 PM	5.42	75.89	1056.43	403.28
9/9/2025	7:42:37 PM	5.36	76.11	1062.59	404.23
9/9/2025	7:43:37 PM	5.31	75.94	1066.12	404.23
9/9/2025	7:44:37 PM	5.27	76.05	1076.21	404.17
9/9/2025	7:45:37 PM	5.23	75.89	1068.53	404.28
9/9/2025	7:46:37 PM	5.19	75.89	1052.12	401.99
9/9/2025	7:47:38 PM	5.13	76.05	1038.61	399.41
9/9/2025	7:48:38 PM	5.1	76.05	1030.66	396.61
9/9/2025	7:49:38 PM	5.08	75.94	1027.35	395.54
9/9/2025	7:50:38 PM	5.02	76.05	1025.95	394.37
9/9/2025	7:51:38 PM	4.99	75.83	1025.28	394.37
9/9/2025	7:52:38 PM	4.95	76.05	1025.5	394.76
9/9/2025	7:53:38 PM	4.9	75.77	1024.16	393.92
9/9/2025	7:54:38 PM	4.88	75.77	1022.42	393.36
9/9/2025	7:55:39 PM	4.81	75.77	1017.04	392.01
9/9/2025	7:56:39 PM	4.8	75.89	1011.49	390.95
9/9/2025	7:57:39 PM	4.75	75.83	1006.79	389.6
9/9/2025	7:58:39 PM	4.72	75.89	1001.35	387.76
9/9/2025	7:59:39 PM	4.68	75.77	994.91	385.74
9/9/2025	8:00:40 PM	4.64	75.83	987.18	383.89
9/9/2025	8:01:40 PM	4.61	75.89	981.01	381.7
9/9/2025	8:02:40 PM	4.57	75.77	976.75	380.19
9/9/2025	8:03:40 PM	4.54	75.72	971.21	378.4
9/9/2025	8:04:40 PM	4.51	75.83	966	375.37
9/9/2025	8:05:40 PM	4.48	75.72	960.45	374.25

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/9/2025	8:06:40 PM	4.46	75.55	953.95	371.95
9/9/2025	8:07:40 PM	4.42	75.72	950.92	370.67
9/9/2025	8:08:41 PM	4.41	75.77	948.52	368.59
9/9/2025	8:09:41 PM	4.38	75.49	946.89	367.58
9/9/2025	8:10:41 PM	4.35	75.49	945.6	366.41
9/9/2025	8:11:41 PM	4.33	75.72	943.75	365.74
9/9/2025	8:12:41 PM	4.31	75.77	941.34	364.78
9/9/2025	8:13:41 PM	4.3	75.83	937.36	364.05
9/9/2025	8:14:41 PM	4.28	75.83	934.9	363.38
9/9/2025	8:15:41 PM	4.24	75.49	933.78	363.33
9/9/2025	8:16:41 PM	4.23	75.49	933.95	362.37
9/9/2025	8:17:42 PM	4.21	75.38	934.51	362.37
9/9/2025	8:18:42 PM	4.16	75.49	934.56	362.15
9/9/2025	8:19:42 PM	4.14	75.55	934.23	361.81
9/9/2025	8:20:42 PM	4.12	75.44	932.77	361.65
9/9/2025	8:21:42 PM	4.11	75.55	931.15	360.69
9/9/2025	8:22:42 PM	4.09	75.55	930.19	360.64
9/9/2025	8:23:42 PM	4.06	75.44	929.63	359.96
9/9/2025	8:24:42 PM	4.04	75.38	929.35	359.74
9/9/2025	8:25:43 PM	4.02	75.38	929.3	359.4
9/9/2025	8:26:43 PM	4.01	75.49	929.41	358.68
9/9/2025	8:27:43 PM	3.99	75.38	929.52	358.9
9/9/2025	8:28:43 PM	3.95	75.55	929.8	359.12
9/9/2025	8:29:43 PM	3.94	75.21	931.2	359.63
9/9/2025	8:30:43 PM	3.92	75.38	931.71	359.35
9/9/2025	8:31:43 PM	3.9	75.38	931.99	359.85
9/9/2025	8:32:43 PM	3.86	75.38	932.43	359.35
9/9/2025	8:33:44 PM	3.85	75.16	931.48	360.13
9/9/2025	8:34:44 PM	3.82	75.16	929.02	359.96
9/9/2025	8:35:44 PM	3.81	75.38	927.73	360.97
9/9/2025	8:36:44 PM	3.78	75.16	927.11	360.64
9/9/2025	8:37:44 PM	3.75	75.16	926.38	360.75
9/9/2025	8:38:44 PM	3.74	75.27	925.71	360.58
9/9/2025	8:39:44 PM	3.72	75.1	925.88	361.53
9/9/2025	8:40:44 PM	3.71	75.16	926.66	361.87
9/9/2025	8:41:45 PM	3.68	75.21	927.39	361.65
9/9/2025	8:42:45 PM	3.65	75.05	928.34	361.59
9/9/2025	8:43:45 PM	3.62	74.88	929.13	362.09
9/9/2025	8:44:45 PM	3.61	75.1	929.3	362.21
9/9/2025	8:45:45 PM	3.6	75.1	929.35	363.05
9/9/2025	8:46:45 PM	3.55	75.05	928.29	362.09
9/9/2025	8:47:45 PM	3.53	75.05	926.78	362.09
9/9/2025	8:48:45 PM	3.53	75.38	925.88	363.44
9/9/2025	8:49:45 PM	3.49	74.88	923.13	363.44
9/9/2025	8:50:46 PM	3.46	75.05	917.59	363.44
9/9/2025	8:51:46 PM	3.44	74.82	912.09	362.77
9/9/2025	8:52:46 PM	3.43	74.93	908.23	362.49
9/9/2025	8:53:46 PM	3.42	74.88	905.09	361.25
9/9/2025	8:54:46 PM	3.39	74.93	902.01	361.53
9/9/2025	8:55:46 PM	3.36	74.82	899.88	360.36
9/9/2025	8:56:46 PM	3.34	74.77	898.7	360.47
9/9/2025	8:57:46 PM	3.33	75.05	897.69	359.8
9/9/2025	8:58:47 PM	3.32	74.93	896.8	359.12
9/9/2025	8:59:47 PM	3.28	75.05	896.74	359.4

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/9/2025	9:00:47 PM	3.24	74.82	896.29	359.96
9/9/2025	9:01:47 PM	3.23	74.88	895.45	359.35
9/9/2025	9:02:47 PM	3.23	74.88	894.78	359.12
9/9/2025	9:03:47 PM	3.2	74.88	895.01	360.13
9/9/2025	9:04:47 PM	3.17	74.82	896.35	360.92
9/9/2025	9:05:47 PM	3.14	74.93	897.19	360.58
9/9/2025	9:06:48 PM	3.12	75.1	899.88	360.92
9/9/2025	9:07:48 PM	3.12	75.05	903.86	360.97
9/9/2025	9:08:48 PM	3.09	75.05	907.44	361.98
9/9/2025	9:09:48 PM	3.06	75.1	909.74	362.37
9/9/2025	9:10:48 PM	3.04	74.93	910.41	362.15
9/9/2025	9:11:48 PM	3.01	75.05	906.27	362.49
9/9/2025	9:12:48 PM	3	75.1	899.94	362.65
9/9/2025	9:13:48 PM	2.97	75.05	895.62	361.81
9/9/2025	9:14:48 PM	2.95	74.93	895.29	361.03
9/9/2025	9:15:49 PM	2.94	75.05	896.35	360.92
9/9/2025	9:16:49 PM	2.91	75.1	897.92	360.92
9/9/2025	9:17:49 PM	2.87	75.1	897.13	360.75
9/9/2025	9:18:49 PM	2.86	75.1	896.97	361.25
9/9/2025	9:19:49 PM	2.84	75.1	896.69	361.65
9/9/2025	9:20:49 PM	2.84	75.1	895.45	361.65
9/9/2025	9:21:49 PM	2.82	75.16	894.22	361.65
9/9/2025	9:22:49 PM	2.77	75.16	893.27	361.2
9/9/2025	9:23:50 PM	2.76	75.1	891.98	360.92
9/9/2025	9:24:50 PM	2.74	75.38	890.75	360.69
9/9/2025	9:25:50 PM	2.73	75.21	890.69	361.03
9/9/2025	9:26:50 PM	2.72	75.27	889.74	360.92
9/9/2025	9:27:50 PM	2.66	75.05	889.35	360.41
9/9/2025	9:28:50 PM	2.65	75.1	889.68	360.58
9/9/2025	9:29:50 PM	2.63	75.1	890.07	359.4
9/9/2025	9:30:50 PM	2.62	75.21	890.47	359.24
9/9/2025	9:31:51 PM	2.6	74.93	891.92	360.02
9/9/2025	9:32:51 PM	2.57	74.93	896.13	360.02
9/9/2025	9:33:51 PM	2.55	75.05	899.77	360.58
9/9/2025	9:34:51 PM	2.54	75.16	901	360.58
9/9/2025	9:35:51 PM	2.51	75.16	900.94	361.2
9/9/2025	9:36:51 PM	2.47	75.16	902.23	360.41
9/9/2025	9:37:51 PM	2.45	75.1	902.91	360.8
9/9/2025	9:38:51 PM	2.45	75.16	904.03	361.36
9/9/2025	9:39:52 PM	2.43	75.1	903.52	360.64
9/9/2025	9:40:52 PM	2.39	75.1	904.47	360.69
9/9/2025	9:41:52 PM	2.37	75.16	905.32	361.25
9/9/2025	9:42:52 PM	2.36	75.1	908.34	362.21
9/9/2025	9:43:52 PM	2.34	75.16	908.51	363.05
9/9/2025	9:44:52 PM	2.34	74.93	904.19	363.33
9/9/2025	9:45:52 PM	2.29	75.1	899.21	362.77
9/9/2025	9:46:52 PM	2.28	75.05	896.24	363.1
9/9/2025	9:47:53 PM	2.26	75.1	894.22	361.48
9/9/2025	9:48:53 PM	2.26	75.1	893.38	361.65
9/9/2025	9:49:53 PM	2.25	74.93	892.71	361.2
9/9/2025	9:50:53 PM	2.23	75.1	891.48	361.65
9/9/2025	9:51:53 PM	2.18	75.05	888.79	359.85
9/9/2025	9:52:53 PM	2.17	75.05	886.6	359.46
9/9/2025	9:53:53 PM	2.15	74.93	883.41	358.45

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/9/2025	9:54:53 PM	2.14	75.05	881.22	358.17
9/9/2025	9:55:54 PM	2.13	74.88	877.13	357.5
9/9/2025	9:56:54 PM	2.11	74.82	873.66	357.05
9/9/2025	9:57:54 PM	2.08	74.77	872.14	356.55
9/9/2025	9:58:54 PM	2.06	74.77	869.46	356.1
9/9/2025	9:59:54 PM	2.05	74.82	865.25	355.59
9/9/2025	10:00:54 PM	2.04	74.88	862.28	354.02
9/9/2025	10:01:54 PM	2.03	74.77	861.33	354.7
9/9/2025	10:02:54 PM	1.99	74.77	859.48	354.64
9/9/2025	10:03:55 PM	1.97	74.77	856.06	354.87
9/9/2025	10:04:55 PM	1.97	74.77	853.04	354.53
9/9/2025	10:05:55 PM	1.95	74.6	850.96	352.34
9/9/2025	10:06:55 PM	1.94	74.88	848.78	352.9
9/9/2025	10:07:55 PM	1.92	74.88	846.82	352.9
9/9/2025	10:08:55 PM	1.88	74.71	846.87	351.95
9/9/2025	10:09:55 PM	1.87	74.6	846.54	352.29
9/9/2025	10:10:55 PM	1.85	74.54	845.98	351.73
9/9/2025	10:11:56 PM	1.85	74.54	842.39	350.66
9/9/2025	10:12:56 PM	1.83	74.54	837.35	350.21
9/9/2025	10:13:56 PM	1.79	74.37	833.82	349.93
9/9/2025	10:14:56 PM	1.77	74.71	832.92	349.32
9/9/2025	10:15:56 PM	1.76	74.54	834.32	349.6
9/9/2025	10:16:56 PM	1.74	74.37	835.39	350.38
9/9/2025	10:17:56 PM	1.73	74.54	834.83	350.16
9/9/2025	10:18:56 PM	1.7	74.54	833.43	349.77
9/9/2025	10:19:56 PM	1.67	74.54	832.59	349.43
9/9/2025	10:20:57 PM	1.66	74.37	831.24	349.93
9/9/2025	10:21:57 PM	1.65	74.37	830.07	349.43
9/9/2025	10:22:57 PM	1.62	74.21	829.06	349.6
9/9/2025	10:23:57 PM	1.57	74.32	828.16	349.26
9/9/2025	10:24:57 PM	1.57	74.32	827.32	348.98
9/9/2025	10:25:57 PM	1.56	74.21	827.15	348.59
9/9/2025	10:26:57 PM	1.56	74.32	828.16	348.65
9/9/2025	10:27:57 PM	1.51	74.32	829	349.04
9/9/2025	10:28:58 PM	1.48	74.26	830.12	348.65
9/9/2025	10:29:58 PM	1.47	74.21	830.46	348.87
9/9/2025	10:30:58 PM	1.47	74.26	826.76	349.15
9/9/2025	10:31:58 PM	1.46	74.15	825.08	348.98
9/9/2025	10:32:58 PM	1.42	74.15	825.69	348.37
9/9/2025	10:33:58 PM	1.4	74.21	826.42	348.14
9/9/2025	10:34:58 PM	1.38	74.21	824.91	348.09
9/9/2025	10:35:58 PM	1.37	74.15	823.06	347.19
9/9/2025	10:36:59 PM	1.37	73.98	821.44	346.91
9/9/2025	10:37:59 PM	1.34	73.98	819.87	347.13
9/9/2025	10:38:59 PM	1.31	74.04	818.86	347.19
9/9/2025	10:39:59 PM	1.29	73.98	818.75	346.24
9/9/2025	10:40:59 PM	1.27	73.98	820.15	346.29
9/9/2025	10:41:59 PM	1.27	74.04	821.6	346.74
9/9/2025	10:42:59 PM	1.27	73.93	822.73	347.19
9/9/2025	10:43:59 PM	1.24	74.21	824.13	347.08
9/9/2025	10:45:00 PM	1.22	74.15	824.74	347.02
9/9/2025	10:46:00 PM	1.2	73.93	825.02	347.02
9/9/2025	10:47:00 PM	1.18	73.98	824.13	347.08
9/9/2025	10:48:00 PM	1.17	74.15	822.73	347.19

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/9/2025	10:49:00 PM	1.17	73.98	821.49	347.19
9/9/2025	10:50:00 PM	1.15	73.81	819.7	347.02
9/9/2025	10:51:00 PM	1.14	73.93	818.47	346.18
9/9/2025	10:52:00 PM	1.11	73.81	817.01	346.29
9/9/2025	10:53:01 PM	1.09	73.98	815.67	345.84
9/9/2025	10:54:01 PM	1.08	73.81	814.21	346.4
9/9/2025	10:55:01 PM	1.08	73.81	812.64	345.79
9/9/2025	10:56:01 PM	1.07	73.65	812.19	344.89
9/9/2025	10:57:01 PM	1.06	73.81	811.41	344.5
9/9/2025	10:58:01 PM	1.04	73.81	810.96	345
9/9/2025	10:59:01 PM	1.02	73.87	808.77	345.4
9/9/2025	11:00:01 PM	0.99	73.87	806.36	345.51
9/9/2025	11:01:02 PM	1	73.7	801.55	344.67
9/9/2025	11:02:02 PM	0.98	73.7	795.66	343.66
9/9/2025	11:03:02 PM	0.98	73.65	791.24	342.2
9/9/2025	11:04:02 PM	0.96	73.87	788.32	341.53
9/9/2025	11:05:02 PM	0.94	73.7	786.19	340.69
9/9/2025	11:06:02 PM	0.93	73.7	784.29	340.13
9/9/2025	11:07:02 PM	0.92	73.81	781.37	339.51
9/9/2025	11:08:02 PM	0.91	73.53	779.25	339.57
9/9/2025	11:09:03 PM	0.89	73.81	776.72	338.9
9/9/2025	11:10:03 PM	0.88	73.65	774.87	338.17
9/9/2025	11:11:03 PM	0.86	73.59	772.19	338.28
9/9/2025	11:12:03 PM	0.87	73.59	768.04	337.33
9/9/2025	11:13:03 PM	0.86	73.59	763.33	336.54
9/9/2025	11:14:03 PM	0.85	73.53	757.56	335.42
9/9/2025	11:15:03 PM	0.82	73.53	751.62	334.02
9/9/2025	11:16:03 PM	0.81	73.53	749.16	333.69
9/9/2025	11:17:03 PM	0.79	73.59	747.25	333.07
9/9/2025	11:18:04 PM	0.8	73.7	744.84	332.73
9/9/2025	11:19:04 PM	0.78	73.48	741.76	332.28
9/9/2025	11:20:04 PM	0.78	73.36	738.4	331.33
9/9/2025	11:21:04 PM	0.77	73.48	734.87	330.88
9/9/2025	11:22:04 PM	0.78	73.53	731.56	330.1
9/9/2025	11:23:04 PM	0.75	73.31	728.71	329.65
9/9/2025	11:24:04 PM	0.74	73.53	725.34	328.75
9/9/2025	11:25:04 PM	0.72	73.48	722.37	327.8
9/9/2025	11:26:05 PM	0.71	73.36	719.74	326.96
9/9/2025	11:27:05 PM	0.69	73.2	716.38	326.29
9/9/2025	11:28:05 PM	0.69	73.25	712.57	325.73
9/9/2025	11:29:05 PM	0.68	73.25	709.99	325.34
9/9/2025	11:30:05 PM	0.68	73.2	709.15	325.45
9/9/2025	11:31:05 PM	0.68	73.14	707.92	324.83
9/9/2025	11:32:05 PM	0.67	73.31	707.19	324.72
9/9/2025	11:33:05 PM	0.66	73.2	706.35	324.44
9/9/2025	11:34:06 PM	0.65	73.03	705.17	323.99
9/9/2025	11:35:06 PM	0.63	73.14	701.31	323.94
9/9/2025	11:36:06 PM	0.61	73.03	694.81	322.7
9/9/2025	11:37:06 PM	0.61	73.2	689.76	321.47
9/9/2025	11:38:06 PM	0.59	72.97	687.91	320.46
9/9/2025	11:39:06 PM	0.58	72.75	687.3	320.24
9/9/2025	11:40:06 PM	0.59	73.03	686.57	319.17
9/9/2025	11:41:06 PM	0.58	73.03	685.45	318.67
9/9/2025	11:42:07 PM	0.58	72.97	682.37	318.5

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue	
9/9/2025	11:43:07 PM	0.58	72.75	681.19	318	
9/9/2025	11:44:07 PM	0.57	72.86	679.68	317.44	
9/9/2025	11:45:07 PM	0.57	72.86	675.03	316.82	
9/9/2025	11:46:07 PM	0.55	72.64	669.48	316.54	
9/9/2025	11:47:07 PM	0.51	72.75	664.44	314.97	
9/9/2025	11:48:07 PM	0.52	72.75	660.68	313.18	
9/9/2025	11:49:07 PM	0.52	72.52	657.04	312.56	
9/9/2025	11:50:08 PM	0.51	72.69	654.18	311.16	
9/9/2025	11:51:08 PM	0.5	72.58	650.6	310.6	
9/9/2025	11:52:08 PM	0.49	72.69	645.95	309.82	
9/9/2025	11:53:08 PM	0.47	72.64	642.25	308.81	
9/9/2025	11:54:08 PM	0.48	72.41	639.28	307.18	
9/9/2025	11:55:08 PM	0.46	72.36	636.59	306.34	
9/9/2025	11:56:08 PM	0.47	72.24	633.34	305.22	
9/9/2025	11:57:08 PM	0.47	72.41	630.59	303.76	
9/9/2025	11:58:08 PM	0.45	72.41	628.35	303.26	
9/9/2025	11:59:08 PM	0.45	72.52	625.5	302.48	
9/10/2025	12:00:09 AM	0.44	72.24	619.33	300.96	
9/10/2025	12:01:09 AM	0.45	72.3	610.37	299	
9/10/2025	12:02:09 AM	0.42	72.41	601.46	296.26	
9/10/2025	12:03:09 AM	0.42	72.3	594.4	293.74	
9/10/2025	12:04:09 AM	0.4	72.3	588.85	291.21	
9/10/2025	12:05:09 AM	0.4	72.19	584.82	289.36	
9/10/2025	12:06:09 AM	0.4	72.24	580.84	287.35	
9/10/2025	12:07:09 AM	0.39	72.02	576.92	285.55	
9/10/2025	12:08:10 AM	0.39	72.24	570.75	284.32	
9/10/2025	12:09:10 AM	0.39	72.19	563.58	282.19	
9/10/2025	12:10:10 AM	0.39	71.96	557.42	280.01	
9/10/2025	12:11:10 AM	0.39	72.02	551.65	277.99	
9/10/2025	12:12:10 AM	0.38	72.02	543.75	275.92	
9/10/2025	12:13:11 AM	0.39	71.96	535.57	273.06	
9/10/2025	12:14:11 AM	0.39	71.85	527.67	270.15	
9/10/2025	12:15:11 AM	0.38	71.91	519.32	267.06	
9/10/2025	12:16:11 AM	0.38	71.91	511.02	263.98	
9/10/2025	12:17:11 AM	0.37	71.74	503.4	261.24	
9/10/2025	7:19:46 AM	9.02	66.53	90.96	76.22	**Kindling load**
9/10/2025	7:20:46 AM	8.83	66.53	235.01	144.24	
9/10/2025	7:21:46 AM	8.67	66.64	446.08	275.02	
9/10/2025	7:22:47 AM	8.38	66.59	770.11	420.03	
9/10/2025	7:23:47 AM	8.22	66.64	1097.73	414.37	
9/10/2025	7:24:47 AM	8.06	66.7	1185.92	440.54	
9/10/2025	7:25:47 AM	7.91	66.87	1190.96	462.89	
9/10/2025	7:26:47 AM	7.73	66.87	1262.68	487.77	
9/10/2025	7:27:47 AM	7.58	66.92	1272.26	505.31	
9/10/2025	7:28:47 AM	7.43	67.03	1239.54	515.73	
9/10/2025	7:29:47 AM	7.31	67.03	1200.66	518.14	
9/10/2025	7:30:47 AM	7.2	67.15	1140.98	509.85	
9/10/2025	7:31:47 AM	7.09	67.31	1117.84	497.24	
9/10/2025	7:32:47 AM	7.01	67.31	1111.57	488.84	
9/10/2025	7:33:47 AM	6.92	67.48	1099.97	482.78	
9/10/2025	7:34:47 AM	6.82	67.59	1065.96	478.75	
9/10/2025	7:35:48 AM	6.71	67.76	1082.09	480.77	
9/10/2025	7:36:48 AM	6.61	67.87	1127.53	485.59	
9/10/2025	7:37:48 AM	6.5	68.1	1181.77	489.28	

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/10/2025	7:38:48 AM	6.39	68.1	1207.38	492.09
9/10/2025	7:39:48 AM	6.27	68.27	1216.12	496.18
9/10/2025	7:40:48 AM	6.15	68.49	1232.37	500.94
9/10/2025	7:41:48 AM	6.02	68.66	1249.96	505.31
9/10/2025	7:42:48 AM	5.91	68.77	1256.8	506.54
9/10/2025	7:43:48 AM	5.8	68.83	1257.36	509.46
9/10/2025	7:44:48 AM	5.68	68.99	1281.56	513.43
9/10/2025	7:45:48 AM	5.55	69.16	1298.43	515.23
9/10/2025	7:46:48 AM	5.43	69.33	1296.58	515.23
9/10/2025	7:47:48 AM	5.31	69.39	1297.65	519.26
9/10/2025	7:48:49 AM	5.19	69.5	1301.57	523.07
9/10/2025	7:49:49 AM	5.08	69.67	1305.6	525.26
9/10/2025	7:50:49 AM	4.96	69.78	1300	526.26
9/10/2025	7:51:49 AM	4.84	69.95	1298.37	526.38
9/10/2025	7:52:49 AM	4.72	70	1289.63	526.15
9/10/2025	7:53:49 AM	4.62	70.12	1263.91	522.9
9/10/2025	7:54:49 AM	4.51	70.12	1258.7	520.38
9/10/2025	7:55:50 AM	4.42	70.28	1260.66	512.26
9/10/2025	7:56:50 AM	4.29	70.45	1245.31	504.19
9/10/2025	7:57:50 AM	4.18	70.51	1230.97	497.74
9/10/2025	7:58:50 AM	4.07	70.62	1223.91	493.88
9/10/2025	7:59:50 AM	3.98	70.79	1238.03	492.98
9/10/2025	8:00:50 AM	3.86	70.79	1252.26	493.37
9/10/2025	8:01:51 AM	3.77	70.96	1251.2	493.54
9/10/2025	8:02:51 AM	3.67	71.07	1209.12	488.16
9/10/2025	8:03:51 AM	3.58	71.07	1177.4	480.43
9/10/2025	8:04:51 AM	3.49	70.96	1164.18	473.48
9/10/2025	8:05:52 AM	3.39	70.79	1161.99	467.1
9/10/2025	8:06:52 AM	3.29	70.79	1162.5	462.56
9/10/2025	8:07:52 AM	3.21	71.01	1177.57	461.16
9/10/2025	8:08:52 AM	3.09	70.45	1189.22	460.71
9/10/2025	8:09:52 AM	2.99	70.73	1175.33	460.71
9/10/2025	8:10:52 AM	2.91	70.68	1152.64	456.11
9/10/2025	8:11:52 AM	2.85	70.73	1121.09	448.83
9/10/2025	8:12:52 AM	2.78	70.68	1091.23	442.11
9/10/2025	8:13:52 AM	2.72	70.79	1074.98	435.94
9/10/2025	8:14:52 AM	2.66	70.73	1068.37	430.23
9/10/2025	8:15:52 AM	2.59	70.96	1069.65	426.14
9/10/2025	8:16:52 AM	2.52	70.79	1077.95	423.28
9/10/2025	8:17:52 AM	2.47	71.12	1089.27	421.43
9/10/2025	8:18:53 AM	2.4	70.84	1130.5	418.96
9/10/2025	8:19:53 AM	2.34	71.01	1176.67	417.62
9/10/2025	8:20:53 AM	2.29	71.35	1185.13	419.3
9/10/2025	8:21:54 AM	2.24	71.12	1174.1	421.88
9/10/2025	8:22:54 AM	2.18	71.29	1154.82	423.11
9/10/2025	8:23:54 AM	2.12	70.96	1132.58	422.78
9/10/2025	8:24:55 AM	2.07	71.52	1105.29	420.76
9/10/2025	8:25:55 AM	2.01	71.35	1107.14	417.9
9/10/2025	8:26:55 AM	1.94	71.57	1108.99	415.27
9/10/2025	8:27:55 AM	1.91	71.63	1098.73	414.31
9/10/2025	8:28:55 AM	1.86	71.85	1088.42	411.34
9/10/2025	8:29:56 AM	1.81	71.96	1086.63	410.11
9/10/2025	8:30:56 AM	1.74	71.96	1093.19	407.81
9/10/2025	8:31:56 AM	1.69	72.24	1108.15	406.41

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue	
9/10/2025	8:32:56 AM	1.65	72.19	1119.75	406.53	
9/10/2025	8:33:56 AM	1.59	72.24	1113.98	405.24	
9/10/2025	8:34:56 AM	1.57	72.36	1095.32	402.49	
9/10/2025	8:35:56 AM	1.52	72.36	1077.11	397.45	
9/10/2025	8:36:57 AM	1.49	72.41	1056.15	392.91	
9/10/2025	8:37:57 AM	1.45	72.58	1037.49	388.88	
9/10/2025	8:38:57 AM	1.42	72.52	1033.29	385.91	
9/10/2025	8:39:57 AM	1.38	72.69	1034.07	384.17	
9/10/2025	8:40:57 AM	1.34	72.69	1038	381.42	
9/10/2025	8:41:57 AM	1.32	72.97	1041.41	380.36	
9/10/2025	8:42:57 AM	1.29	73.03	1043.77	379.41	
9/10/2025	8:43:57 AM	1.24	73.25	1056.94	378.79	
9/10/2025	8:44:57 AM	1.21	73.2	1064.56	379.46	
9/10/2025	8:45:57 AM	1.17	73.03	1065.56	379.97	
9/10/2025	8:46:57 AM	1.13	73.25	1067.3	380.58	
9/10/2025	8:47:57 AM	1.1	73.2	1072.85	380.36	
9/10/2025	8:48:58 AM	1.07	73.31	1077.11	380.25	
9/10/2025	8:49:58 AM	1.04	73.31	1073.63	378.85	
9/10/2025	8:50:58 AM	1	73.48	1054.81	377.84	
9/10/2025	8:51:58 AM	0.98	73.65	1027.35	375.37	
9/10/2025	8:52:58 AM	0.95	73.7	1003.93	373.13	
9/10/2025	8:53:58 AM	0.92	73.7	984.26	370.11	
9/10/2025	8:54:58 AM	0.9	73.81	960.9	367.53	
9/10/2025	8:55:58 AM	0.87	73.65	935.74	363.61	
9/10/2025	8:56:58 AM	0.84	73.65	912.88	360.08	
9/10/2025	8:57:58 AM	0.82	73.93	893.32	356.77	
9/10/2025	8:58:58 AM	0.79	73.59	880.1	354.42	
9/10/2025	8:59:58 AM	0.78	73.65	875.17	352.34	
9/10/2025	9:00:58 AM	0.76	73.98	879.2	351.95	
9/10/2025	9:01:58 AM	0.72	73.98	883.18	351.9	
9/10/2025	9:02:59 AM	0.7	73.93	882.68	350.38	
9/10/2025	9:03:59 AM	0.68	73.93	878.03	350.33	
9/10/2025	9:04:59 AM	0.65	74.21	878.25	349.32	
9/10/2025	9:05:59 AM	0.64	74.04	880.72	349.21	
9/10/2025	9:06:59 AM	0.62	73.98	880.21	349.43	
9/10/2025	9:07:59 AM	0.59	74.04	877.86	349.6	
9/10/2025	9:09:00 AM	0.57	74.32	873.83	350.49	
9/10/2025	9:10:00 AM	0.01	74.26	557.92	419.81	
9/10/2025	9:11:00 AM	14.3	74.15	554.22	383.27	**Added 14.5lbs 19-23% MC, Medium Air Setting**
9/10/2025	9:12:00 AM	14.21	74.49	669.82	349.04	
9/10/2025	9:13:00 AM	14.09	74.54	909.91	360.13	
9/10/2025	9:14:00 AM	13.96	74.37	1045.56	389.72	
9/10/2025	9:15:00 AM	13.84	74.26	1126.3	417.96	
9/10/2025	9:16:01 AM	13.71	74.54	1152.58	437.68	
9/10/2025	9:17:01 AM	13.59	74.54	1142.55	449.05	
9/10/2025	9:18:01 AM	13.46	74.77	1143.28	455.67	
9/10/2025	9:19:02 AM	13.35	74.93	1073.13	424.01	
9/10/2025	9:20:02 AM	13.3	74.77	1023.65	350.78	
9/10/2025	9:21:03 AM	13.26	74.49	1004.49	308.75	
9/10/2025	9:22:03 AM	13.22	74.77	989.75	282.59	
9/10/2025	9:23:03 AM	13.19	74.71	964.37	264.32	
9/10/2025	9:24:04 AM	13.16	74.88	944.59	250.09	
9/10/2025	9:25:04 AM	13.12	74.71	930.36	238.77	
9/10/2025	9:26:04 AM	13.08	74.71	921.62	231.54	

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/10/2025	9:27:05 AM	13.05	74.37	918.15	224.71
9/10/2025	9:28:05 AM	13.01	74.71	917.47	220.17
9/10/2025	9:29:05 AM	12.98	74.37	919.32	216.75
9/10/2025	9:30:05 AM	12.96	74.6	921.79	214.12
9/10/2025	9:31:06 AM	12.92	74.49	925.21	211.71
9/10/2025	9:32:06 AM	12.9	74.82	930.02	210.36
9/10/2025	9:33:07 AM	12.86	74.71	935.74	209.13
9/10/2025	9:34:07 AM	12.83	74.88	942.02	208.18
9/10/2025	9:35:07 AM	12.79	74.82	943.53	207.67
9/10/2025	9:36:08 AM	12.76	74.6	941.29	207.28
9/10/2025	9:37:08 AM	12.73	74.88	940.89	206.55
9/10/2025	9:38:08 AM	12.69	74.49	941.74	206.38
9/10/2025	9:39:09 AM	12.66	74.6	940.5	206.1
9/10/2025	9:40:09 AM	12.63	74.37	937.65	207.17
9/10/2025	9:41:09 AM	12.58	74.49	934	206.89
9/10/2025	9:42:10 AM	12.53	74.77	929.24	207.45
9/10/2025	9:43:10 AM	12.5	74.77	925.15	209.3
9/10/2025	9:44:11 AM	12.46	74.32	918.99	209.8
9/10/2025	9:45:11 AM	12.41	74.26	910.02	209.13
9/10/2025	9:46:11 AM	12.38	74.15	904.7	208.18
9/10/2025	9:47:12 AM	12.33	74.32	901.9	207.17
9/10/2025	9:48:12 AM	12.29	74.26	897.75	206.55
9/10/2025	9:49:13 AM	12.26	74.15	894.33	205.04
9/10/2025	9:50:13 AM	12.23	74.04	891.36	203.58
9/10/2025	9:51:13 AM	12.18	74.26	888.9	202.18
9/10/2025	9:52:14 AM	12.15	74.21	886.82	200.84
9/10/2025	9:53:14 AM	12.12	74.15	885.09	199.32
9/10/2025	9:54:14 AM	12.1	74.32	884.08	198.43
9/10/2025	9:55:15 AM	12.05	73.93	883.63	197.42
9/10/2025	9:56:15 AM	12.01	74.04	885.76	197.47
9/10/2025	9:57:15 AM	11.99	73.98	890.52	197.47
9/10/2025	9:58:16 AM	11.95	73.98	899.38	200.05
9/10/2025	9:59:16 AM	11.92	73.98	913.66	202.52
9/10/2025	10:00:16 AM	11.88	73.93	933.72	207.06
9/10/2025	10:01:17 AM	11.83	73.93	961.4	213.72
9/10/2025	10:02:17 AM	11.78	73.53	995.53	222.24
9/10/2025	10:03:17 AM	11.73	73.87	1029.31	233.22
9/10/2025	10:04:18 AM	11.67	73.65	1040.85	237.31
9/10/2025	10:05:18 AM	11.62	73.48	1039.62	237.37
9/10/2025	10:06:19 AM	11.56	73.65	1025	237.26
9/10/2025	10:07:19 AM	11.51	73.59	1012.95	237.03
9/10/2025	10:08:19 AM	11.46	73.81	1006.62	237.42
9/10/2025	10:09:20 AM	11.41	73.53	1003.65	237.42
9/10/2025	10:10:20 AM	11.37	73.53	1003.15	238.54
9/10/2025	10:11:20 AM	11.31	73.48	1002.81	238.21
9/10/2025	10:12:21 AM	11.26	73.36	1003.99	238.82
9/10/2025	10:13:21 AM	11.22	73.53	1005.84	238.32
9/10/2025	10:14:22 AM	11.17	73.53	1007.85	239.61
9/10/2025	10:15:22 AM	11.11	73.31	1008.69	240.73
9/10/2025	10:16:22 AM	11.07	73.25	1008.8	241.35
9/10/2025	10:17:22 AM	11.01	73.48	1008.19	241.63
9/10/2025	10:18:22 AM	10.95	73.31	1006.06	242.58
9/10/2025	10:19:23 AM	10.9	73.36	1004.43	242.92
9/10/2025	10:20:23 AM	10.86	73.14	1003.37	242.41

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/10/2025	10:21:23 AM	10.81	73.25	1001.74	242.19
9/10/2025	10:22:24 AM	10.75	73.14	1000.9	241.51
9/10/2025	10:23:24 AM	10.71	73.31	999.5	242.02
9/10/2025	10:24:24 AM	10.66	73.31	999	242.92
9/10/2025	10:25:24 AM	10.6	73.14	990.93	243.14
9/10/2025	10:26:25 AM	10.55	73.14	969.69	243.87
9/10/2025	10:27:25 AM	10.49	73.25	948.8	244.32
9/10/2025	10:28:25 AM	10.44	73.25	933.33	243.36
9/10/2025	10:29:26 AM	10.38	73.2	920.16	242.64
9/10/2025	10:30:26 AM	10.31	73.25	908.73	242.64
9/10/2025	10:31:26 AM	10.27	73.36	899.82	241.68
9/10/2025	10:32:27 AM	10.22	73.31	892.15	240
9/10/2025	10:33:27 AM	10.16	73.2	884.42	239.16
9/10/2025	10:34:27 AM	10.13	73.25	876.63	237.82
9/10/2025	10:35:28 AM	10.06	72.97	870.02	236.7
9/10/2025	10:36:28 AM	10	73.2	865.76	234.29
9/10/2025	10:37:28 AM	9.95	72.92	863.46	233
9/10/2025	10:38:29 AM	9.91	72.92	863.01	231.71
9/10/2025	10:39:29 AM	9.86	73.14	864.08	230.59
9/10/2025	10:40:29 AM	9.82	72.97	866.6	229.52
9/10/2025	10:41:30 AM	9.78	73.03	868.17	227.95
9/10/2025	10:42:30 AM	9.72	72.86	869.18	225.1
9/10/2025	10:43:30 AM	9.69	72.75	867.49	221.68
9/10/2025	10:44:31 AM	9.65	72.86	863.07	219.33
9/10/2025	10:45:31 AM	9.61	72.86	854.83	216.69
9/10/2025	10:46:31 AM	9.58	72.75	848.95	212.32
9/10/2025	10:47:32 AM	9.55	72.75	850.07	206.27
9/10/2025	10:48:32 AM	9.52	72.75	852.48	200.67
9/10/2025	10:49:32 AM	9.49	72.69	850.07	196.47
9/10/2025	10:50:32 AM	9.47	72.86	846.31	194.11
9/10/2025	10:51:33 AM	9.42	72.58	842.39	190.69
9/10/2025	10:52:33 AM	9.41	72.69	838.75	188.17
9/10/2025	10:53:33 AM	9.39	72.64	835.72	186.38
9/10/2025	10:54:34 AM	9.36	72.64	833.6	184.31
9/10/2025	10:55:34 AM	9.34	72.41	831.63	183.07
9/10/2025	10:56:34 AM	9.31	72.64	829.84	181.28
9/10/2025	10:57:35 AM	9.3	72.52	828.33	179.94
9/10/2025	10:58:35 AM	9.26	72.52	826.54	177.69
9/10/2025	10:59:35 AM	9.25	72.52	824.8	177.19
9/10/2025	11:00:36 AM	9.23	72.64	823.12	176.85
9/10/2025	11:01:36 AM	9.2	72.58	821.6	175.9
9/10/2025	11:02:36 AM	9.19	72.52	820.2	175.12
9/10/2025	11:03:37 AM	9.16	72.58	818.64	174.73
9/10/2025	11:04:37 AM	9.14	72.36	816.73	173.55
9/10/2025	11:05:37 AM	9.12	72.64	814.49	173.38
9/10/2025	11:06:38 AM	9.08	72.41	813.59	173.32
9/10/2025	11:07:38 AM	9.08	72.41	811.29	172.93
9/10/2025	11:08:39 AM	9.03	72.41	810.23	172.65
9/10/2025	11:09:39 AM	9.01	72.64	808.89	172.93
9/10/2025	11:10:39 AM	9.02	72.58	807.71	172.43
9/10/2025	11:11:40 AM	8.96	72.86	806.98	172.48
9/10/2025	11:12:40 AM	8.95	72.86	806.59	172.26
9/10/2025	11:13:40 AM	8.93	72.86	806.36	172.09
9/10/2025	11:14:41 AM	8.92	72.92	806.14	172.99

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/10/2025	11:15:41 AM	8.89	72.92	808.16	172.48
9/10/2025	11:16:41 AM	8.87	72.75	811.29	174
9/10/2025	11:17:42 AM	8.83	72.97	816.79	174.67
9/10/2025	11:18:42 AM	8.81	73.14	825.3	176.57
9/10/2025	11:19:43 AM	8.78	72.86	834.88	177.58
9/10/2025	11:20:43 AM	8.74	73.14	846.76	179.99
9/10/2025	11:21:43 AM	8.72	73.14	861.27	183.19
9/10/2025	11:22:44 AM	8.67	73.25	876.29	185.65
9/10/2025	11:23:44 AM	8.64	73.36	896.74	191.14
9/10/2025	11:24:44 AM	8.61	73.53	920.78	198.2
9/10/2025	11:25:45 AM	8.56	73.48	945.32	204.81
9/10/2025	11:26:45 AM	8.51	73.48	969.08	212.43
9/10/2025	11:27:46 AM	8.46	73.59	989.75	218.71
9/10/2025	11:28:46 AM	8.39	73.7	1008.3	225.27
9/10/2025	11:29:46 AM	8.34	73.65	1024.16	232.61
9/10/2025	11:30:47 AM	8.27	73.87	1037.49	239.22
9/10/2025	11:31:47 AM	8.21	73.87	1048.31	244.37
9/10/2025	11:32:47 AM	8.14	73.87	1056.49	249.36
9/10/2025	11:33:48 AM	8.07	73.93	1061.59	252.22
9/10/2025	11:34:48 AM	8.01	73.98	1065.12	255.3
9/10/2025	11:35:48 AM	7.94	74.26	1065.06	257.88
9/10/2025	11:36:49 AM	7.87	74.32	1067.19	259.72
9/10/2025	11:37:49 AM	7.8	74.26	1070.38	260.45
9/10/2025	11:38:50 AM	7.73	74.49	1072.12	260.17
9/10/2025	11:39:50 AM	7.67	74.6	1070.21	259.56
9/10/2025	11:40:50 AM	7.6	74.54	1064.61	257.26
9/10/2025	11:41:51 AM	7.55	74.82	1056.43	254.79
9/10/2025	11:42:51 AM	7.49	74.77	1045.17	250.09
9/10/2025	11:43:51 AM	7.43	74.6	1032	245.38
9/10/2025	11:44:51 AM	7.37	74.88	1018.61	240.51
9/10/2025	11:45:52 AM	7.33	74.77	1004.38	235.91
9/10/2025	11:46:52 AM	7.28	75.1	989.47	230.48
9/10/2025	11:47:52 AM	7.24	75.16	972.89	224.71
9/10/2025	11:48:52 AM	7.21	75.05	953.33	217.98
9/10/2025	11:49:52 AM	7.17	75.27	930.25	209.13
9/10/2025	11:50:52 AM	7.12	75.38	909.07	202.68
9/10/2025	11:51:52 AM	7.09	75.21	888.67	197.59
9/10/2025	11:52:52 AM	7.07	75.27	871.47	191.93
9/10/2025	11:53:52 AM	7.04	75.44	857.41	188
9/10/2025	11:54:53 AM	7.02	75.27	845.7	184.31
9/10/2025	11:55:53 AM	7	75.49	835.28	181.06
9/10/2025	11:56:53 AM	6.98	75.55	827.77	177.75
9/10/2025	11:57:53 AM	6.96	75.55	820.32	174.5
9/10/2025	11:58:54 AM	6.95	75.44	816.17	172.88
9/10/2025	11:59:54 AM	6.93	75.61	812.7	170.41
9/10/2025	12:00:54 PM	6.89	75.55	810.06	167.89
9/10/2025	12:01:55 PM	6.88	75.61	809.61	165.76
9/10/2025	12:02:55 PM	6.89	75.49	810.62	164.14
9/10/2025	12:03:55 PM	6.88	75.44	815.78	160.94
9/10/2025	12:04:55 PM	6.86	75.49	822.67	159.82
9/10/2025	12:05:55 PM	6.83	75.49	835.33	158.64
9/10/2025	12:06:55 PM	6.83	75.44	851.41	156.52
9/10/2025	12:07:56 PM	6.82	75.55	873.94	156.01
9/10/2025	12:08:56 PM	6.82	75.38	914.28	155.62

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/10/2025	12:09:56 PM	6.8	75.38	956.02	154.27
9/10/2025	12:10:56 PM	6.79	75.61	910.53	152.37
9/10/2025	12:11:56 PM	6.78	75.72	849.68	151.47
9/10/2025	12:12:56 PM	6.78	75.44	803.45	149.96
9/10/2025	12:13:56 PM	6.76	75.49	769.83	149.06
9/10/2025	12:14:56 PM	6.76	75.44	741.98	146.26
9/10/2025	12:15:56 PM	6.75	75.21	719.57	144.02
9/10/2025	12:16:56 PM	6.75	75.21	699.96	142.17
9/10/2025	12:17:57 PM	6.73	75.16	682.87	140.66
9/10/2025	12:18:57 PM	6.74	75.38	669.14	139.26
9/10/2025	12:19:57 PM	6.72	75.44	656.03	137.91
9/10/2025	12:20:57 PM	6.73	75.05	643.43	137.41
9/10/2025	12:21:57 PM	6.72	75.38	634.07	136.12
9/10/2025	12:22:57 PM	6.71	75.27	625.55	135.28
9/10/2025	12:23:57 PM	6.7	74.93	619.28	135.5
9/10/2025	12:24:57 PM	6.72	75.05	613.79	136.06
9/10/2025	12:25:58 PM	6.7	75.05	610.26	136.85
9/10/2025	12:26:58 PM	6.68	74.77	609.64	138.47
9/10/2025	12:27:58 PM	6.68	74.6	609.75	140.83
9/10/2025	12:28:58 PM	6.66	74.37	611.82	144.41
9/10/2025	12:29:58 PM	6.66	74.77	615.86	148.11
9/10/2025	12:30:58 PM	6.65	74.88	621.35	151.86
9/10/2025	12:31:58 PM	6.63	74.6	629.08	156.52
9/10/2025	12:32:58 PM	6.63	74.88	640.01	161.67
9/10/2025	12:33:59 PM	6.6	74.77	653.29	165.76
9/10/2025	12:34:59 PM	6.59	74.6	669.2	170.3
9/10/2025	12:35:59 PM	6.57	74.6	687.8	175.01
9/10/2025	12:36:59 PM	6.54	74.77	708.76	178.76
9/10/2025	12:37:59 PM	6.53	74.82	731.23	183.47
9/10/2025	12:38:59 PM	6.51	74.71	754.87	189.29
9/10/2025	12:39:59 PM	6.47	74.49	778.63	193.89
9/10/2025	12:40:59 PM	6.46	74.82	801.99	199.6
9/10/2025	12:41:59 PM	6.42	74.77	824.52	205.43
9/10/2025	12:42:59 PM	6.41	74.77	845.36	211.37
9/10/2025	12:44:00 PM	6.38	74.77	865.25	217.65
9/10/2025	12:45:00 PM	6.36	74.93	884.58	223.02
9/10/2025	12:46:00 PM	6.32	74.82	903.24	228.07
9/10/2025	12:47:00 PM	6.28	74.88	922.12	233.45
9/10/2025	12:48:00 PM	6.24	74.82	941.68	238.77
9/10/2025	12:49:00 PM	6.22	74.93	962.35	243.59
9/10/2025	12:50:00 PM	6.18	74.93	984.32	249.47
9/10/2025	12:51:00 PM	6.15	75.1	1006.96	255.13
9/10/2025	12:52:01 PM	6.11	75.05	1029.98	259.61
9/10/2025	12:53:01 PM	6.06	75.1	1053.57	266.28
9/10/2025	12:54:01 PM	6.03	75.21	1078.51	272.11
9/10/2025	12:55:01 PM	5.98	75.21	1103.72	277.49
9/10/2025	12:56:01 PM	5.94	75.21	1129.44	283.59
9/10/2025	12:57:01 PM	5.89	75.44	1153.81	289.2
9/10/2025	12:58:01 PM	5.85	75.44	1174.6	294.97
9/10/2025	12:59:01 PM	5.79	75.44	1191.58	297.15
9/10/2025	1:00:02 PM	5.75	75.61	1206.99	300.24
9/10/2025	1:01:02 PM	5.7	75.72	1219.59	301.19
9/10/2025	1:02:02 PM	5.66	75.72	1228.05	302.42
9/10/2025	1:03:02 PM	5.59	75.72	1230.52	301.64

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/10/2025	1:04:02 PM	5.54	75.72	1229.06	298.78
9/10/2025	1:05:02 PM	5.51	75.77	1219.54	296.54
9/10/2025	1:06:02 PM	5.45	75.72	1200.32	290.65
9/10/2025	1:07:02 PM	5.4	75.83	1178.52	285.55
9/10/2025	1:08:03 PM	5.36	75.89	1153.93	277.65
9/10/2025	1:09:03 PM	5.33	75.94	1124.85	271.38
9/10/2025	1:10:03 PM	5.28	76.05	1094.2	262.92
9/10/2025	1:11:03 PM	5.24	76.22	1061.75	251.71
9/10/2025	1:12:03 PM	5.21	76.22	1026.85	241.63
9/10/2025	1:13:03 PM	5.17	76.17	991.72	230.42
9/10/2025	1:14:03 PM	5.14	76.39	958.21	218.43
9/10/2025	1:15:03 PM	5.1	76.28	930.14	210.19
9/10/2025	1:16:03 PM	5.08	76.56	905.54	203.25
9/10/2025	1:17:04 PM	5.05	76.45	885.76	198.26
9/10/2025	1:18:04 PM	5.03	76.5	871.14	194.06
9/10/2025	1:19:04 PM	5	76.56	858.64	190.36
9/10/2025	1:20:04 PM	4.97	76.5	849.23	187.44
9/10/2025	1:21:04 PM	4.96	76.61	841.1	185.2
9/10/2025	1:22:04 PM	4.93	76.89	833.32	181.79
9/10/2025	1:23:04 PM	4.91	76.78	826.93	180.33
9/10/2025	1:24:04 PM	4.9	76.78	821.04	179.21
9/10/2025	1:25:05 PM	4.87	77.06	815.55	177.75
9/10/2025	1:26:05 PM	4.84	76.84	811.69	175.73
9/10/2025	1:27:05 PM	4.82	76.89	809.39	174.84
9/10/2025	1:28:05 PM	4.82	77.12	807.54	173.94
9/10/2025	1:29:05 PM	4.79	76.95	806.81	171.81
9/10/2025	1:30:05 PM	4.76	76.89	805.47	171.08
9/10/2025	1:31:05 PM	4.75	76.89	804.91	170.97
9/10/2025	1:32:05 PM	4.73	77.06	803.51	169.35
9/10/2025	1:33:06 PM	4.71	77.06	801.99	168.79
9/10/2025	1:34:06 PM	4.7	77.06	799.92	167.55
9/10/2025	1:35:06 PM	4.68	76.84	799.25	166.43
9/10/2025	1:36:06 PM	4.66	77.46	798.24	165.7
9/10/2025	1:37:06 PM	4.65	77.29	796.5	166.1
9/10/2025	1:38:06 PM	4.62	77.29	794.88	165.37
9/10/2025	1:39:06 PM	4.6	77.34	793.7	164.19
9/10/2025	1:40:06 PM	4.59	77.51	792.41	163.8
9/10/2025	1:41:07 PM	4.57	77.4	790.12	162.96
9/10/2025	1:42:07 PM	4.56	77.4	788.71	161.78
9/10/2025	1:43:07 PM	4.55	77.34	786.64	160.89
9/10/2025	1:44:07 PM	4.52	77.68	784.9	159.76
9/10/2025	1:45:07 PM	4.51	77.68	783.45	158.98
9/10/2025	1:46:07 PM	4.49	77.51	781.54	158.64
9/10/2025	1:47:07 PM	4.48	77.74	780.09	157.69
9/10/2025	1:48:07 PM	4.48	77.62	778.29	156.46
9/10/2025	1:49:07 PM	4.46	77.79	776.67	156.18
9/10/2025	1:50:08 PM	4.45	77.51	775.38	155.39
9/10/2025	1:51:08 PM	4.44	77.74	776	154.72
9/10/2025	1:52:08 PM	4.43	77.74	776.72	154.22
9/10/2025	1:53:08 PM	4.41	77.79	777.79	153.21
9/10/2025	1:54:08 PM	4.4	77.51	781.15	152.26
9/10/2025	1:55:08 PM	4.39	77.51	785.02	152.26
9/10/2025	1:56:08 PM	4.37	77.74	789.44	151.08
9/10/2025	1:57:08 PM	4.38	77.74	797.85	150.3

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/10/2025	1:58:08 PM	4.36	77.74	810.73	150.63
9/10/2025	1:59:09 PM	4.36	77.79	836.45	150.18
9/10/2025	2:00:09 PM	4.33	77.74	909.85	150.74
9/10/2025	2:01:09 PM	4.33	77.85	925.04	151.36
9/10/2025	2:02:09 PM	4.32	77.62	854.55	150.07
9/10/2025	2:03:09 PM	4.3	77.62	816.56	151.19
9/10/2025	2:04:10 PM	4.29	77.68	792.52	151.7
9/10/2025	2:05:10 PM	4.3	77.74	775.49	153.43
9/10/2025	2:06:10 PM	4.27	77.68	763.44	155.62
9/10/2025	2:07:10 PM	4.27	77.51	755.15	157.8
9/10/2025	2:08:10 PM	4.26	77.51	749.49	159.88
9/10/2025	2:09:10 PM	4.25	77.51	745.4	164.14
9/10/2025	2:10:10 PM	4.24	77.46	743.67	167.5
9/10/2025	2:11:10 PM	4.21	77.18	743.83	170.92
9/10/2025	2:12:10 PM	4.2	77.4	746.58	174.39
9/10/2025	2:13:10 PM	4.18	77.29	751.34	179.49
9/10/2025	2:14:11 PM	4.17	77.29	757.67	183.41
9/10/2025	2:15:11 PM	4.16	77.29	766.47	186.88
9/10/2025	2:16:11 PM	4.15	77.34	776.61	190.19
9/10/2025	2:17:11 PM	4.13	77.29	788.66	194.62
9/10/2025	2:18:11 PM	4.1	77.29	802.55	197.87
9/10/2025	2:19:11 PM	4.09	77.12	816.79	202.18
9/10/2025	2:20:11 PM	4.05	77.12	832.08	206.61
9/10/2025	2:21:11 PM	4.04	77.06	847.04	210.53
9/10/2025	2:22:12 PM	4.01	77.06	861.78	214.56
9/10/2025	2:23:12 PM	3.98	77.12	875.17	220.22
9/10/2025	2:24:12 PM	3.97	77.18	887.33	223.92
9/10/2025	2:25:12 PM	3.94	76.95	898.09	226.72
9/10/2025	2:26:12 PM	3.93	77.12	907.39	230.03
9/10/2025	2:27:12 PM	3.9	76.89	915.51	233.11
9/10/2025	2:28:12 PM	3.87	77.18	922.63	236.14
9/10/2025	2:29:12 PM	3.85	76.89	929.86	238.15
9/10/2025	2:30:12 PM	3.82	77.06	938.43	240.28
9/10/2025	2:31:12 PM	3.8	77.12	945.94	242.3
9/10/2025	2:32:12 PM	3.77	76.89	951.99	245.55
9/10/2025	2:33:12 PM	3.76	77.12	956.64	247.4
9/10/2025	2:34:12 PM	3.72	77.29	959.22	247.45
9/10/2025	2:35:13 PM	3.7	77.12	960.67	250.14
9/10/2025	2:36:13 PM	3.67	76.95	962.07	252.5
9/10/2025	2:37:13 PM	3.63	77.06	963.64	253.51
9/10/2025	2:38:13 PM	3.62	77.06	963.87	254.68
9/10/2025	2:39:13 PM	3.6	77.12	963.98	254.91
9/10/2025	2:40:13 PM	3.56	77.06	963.2	255.13
9/10/2025	2:41:13 PM	3.54	77.18	962.35	255.58
9/10/2025	2:42:13 PM	3.52	77.12	960.9	257.37
9/10/2025	2:43:13 PM	3.49	77.29	959.95	257.2
9/10/2025	2:44:14 PM	3.47	76.95	958.21	258.27
9/10/2025	2:45:14 PM	3.44	77.12	956.53	259.16
9/10/2025	2:46:14 PM	3.43	77.12	954.12	259.44
9/10/2025	2:47:14 PM	3.39	76.95	951.88	258.77
9/10/2025	2:48:14 PM	3.37	76.84	949.75	258.88
9/10/2025	2:49:15 PM	3.35	77.06	947.56	258.6
9/10/2025	2:50:15 PM	3.33	77.18	945.43	258.55
9/10/2025	2:51:15 PM	3.31	77.06	943.25	258.21

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/10/2025	2:52:15 PM	3.28	77.12	939.94	257.65
9/10/2025	2:53:16 PM	3.27	77.06	935.46	256.19
9/10/2025	2:54:16 PM	3.26	77.12	931.37	255.75
9/10/2025	2:55:16 PM	3.22	77.06	927.9	255.8
9/10/2025	2:56:16 PM	3.21	76.95	924.59	253.84
9/10/2025	2:57:17 PM	3.19	77.06	921.79	253.79
9/10/2025	2:58:17 PM	3.18	76.95	919.94	253.34
9/10/2025	2:59:17 PM	3.16	77.06	917.75	251.54
9/10/2025	3:00:17 PM	3.13	76.89	915.91	251.26
9/10/2025	3:01:17 PM	3.11	77.06	915.23	251.77
9/10/2025	3:02:18 PM	3.1	76.95	914.95	250.54
9/10/2025	3:03:18 PM	3.08	76.89	914.11	250.54
9/10/2025	3:04:18 PM	3.06	76.95	911.93	250.26
9/10/2025	3:05:18 PM	3.06	76.89	909.29	250.09
9/10/2025	3:06:19 PM	3.04	76.78	905.65	249.81
9/10/2025	3:07:19 PM	2.99	76.89	902.29	249.58
9/10/2025	3:08:19 PM	2.99	76.95	898.37	248.07
9/10/2025	3:09:20 PM	2.98	76.84	894.56	246.73
9/10/2025	3:10:20 PM	2.97	76.84	891.08	245.94
9/10/2025	3:11:20 PM	2.96	76.78	888.06	244.76
9/10/2025	3:12:21 PM	2.94	76.95	885.31	243.03
9/10/2025	3:13:21 PM	2.92	76.61	882.29	242.86
9/10/2025	3:14:21 PM	2.91	76.78	879.6	242.07
9/10/2025	3:15:22 PM	2.9	76.78	877.19	241.51
9/10/2025	3:16:22 PM	2.89	76.78	875.45	241.18
9/10/2025	3:17:22 PM	2.88	76.89	876.96	240.62
9/10/2025	3:18:22 PM	2.85	76.61	878.81	239.83
9/10/2025	3:19:22 PM	2.86	76.56	879.65	239.05
9/10/2025	3:20:23 PM	2.81	76.5	879.54	238.04
9/10/2025	3:21:23 PM	2.8	76.73	878.76	238.38
9/10/2025	3:22:23 PM	2.8	76.56	877.08	239.05
9/10/2025	3:23:23 PM	2.79	76.73	875.39	239.39
9/10/2025	3:24:24 PM	2.78	76.61	873.43	238.54
9/10/2025	3:25:24 PM	2.76	76.5	871.58	238.32
9/10/2025	3:26:24 PM	2.74	76.61	869.85	238.77
9/10/2025	3:27:24 PM	2.73	76.45	867.72	239.16
9/10/2025	3:28:24 PM	2.71	76.5	866.15	238.6
9/10/2025	3:29:25 PM	2.71	76.39	864.3	238.38
9/10/2025	3:30:25 PM	2.7	76.45	862.73	237.65
9/10/2025	3:31:26 PM	2.69	76.5	861.72	236.86
9/10/2025	3:32:26 PM	2.67	76.56	860.04	236.53
9/10/2025	3:33:26 PM	2.67	76.56	858.31	236.47
9/10/2025	3:34:26 PM	2.65	76.39	856.29	236.36
9/10/2025	3:35:26 PM	2.65	76.5	854.33	234.85
9/10/2025	3:36:27 PM	2.63	76.45	851.53	234.68
9/10/2025	3:37:27 PM	2.61	76.39	849.06	234.62
9/10/2025	3:38:27 PM	2.61	76.28	846.59	234.06
9/10/2025	3:39:27 PM	2.56	76.39	898.93	296.82
9/10/2025	3:40:27 PM	2.52	76.39	855.95	332.06
9/10/2025	3:41:28 PM	2.5	76.28	814.54	343.44
9/10/2025	3:42:28 PM	2.48	76.28	794.21	346.91
9/10/2025	3:43:28 PM	2.42	76.39	788.04	347.47
9/10/2025	3:44:28 PM	2.4	76.39	788.71	347.81
9/10/2025	3:45:28 PM	2.38	76.45	793.31	348.7

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue	
9/10/2025	3:46:29 PM	2.35	76.28	797.18	350.05	
9/10/2025	3:47:29 PM	2.31	76.22	803.67	351.95	
9/10/2025	3:48:29 PM	2.28	76.22	807.48	354.31	
9/10/2025	3:49:29 PM	2.23	76.28	813.26	356.43	
9/10/2025	3:50:29 PM	2.19	76.22	827.32	359.68	
9/10/2025	3:51:30 PM	2.14	76.28	847.55	361.93	
9/10/2025	3:52:30 PM	2.1	76.28	866.65	366.24	
9/10/2025	3:53:31 PM	2.06	76.39	882.68	368.42	
9/10/2025	3:54:30 PM	2.01	76.28	893.1	371.34	
9/10/2025	3:55:30 PM	1.99	76.17	894.73	374.25	
9/10/2025	3:56:30 PM	23.83	76.39	744.17	412.02	**Added 21.8lbs 19-23% MC, Medium Air Setting**
9/10/2025	3:57:31 PM	23.78	76.39	746.86	343.21	
9/10/2025	3:58:31 PM	23.75	76.17	760.92	294.46	
9/10/2025	3:59:31 PM	23.71	76.28	784.06	265.5	
9/10/2025	4:00:31 PM	23.69	76.22	792.47	245.83	
9/10/2025	4:01:31 PM	23.66	76.28	791.18	232.55	
9/10/2025	4:02:31 PM	23.63	76.17	788.15	220.22	
9/10/2025	4:03:31 PM	23.6	76.22	787.37	212.32	
9/10/2025	4:04:31 PM	23.57	76.17	787.48	206.1	
9/10/2025	4:05:31 PM	23.53	76.17	787.99	201.51	
9/10/2025	4:06:31 PM	23.52	76.05	788.15	196.35	
9/10/2025	4:07:31 PM	23.49	76.05	790.51	194.17	
9/10/2025	4:08:31 PM	23.46	76.05	798.97	192.09	
9/10/2025	4:09:31 PM	23.42	76.17	804.24	191.65	
9/10/2025	4:10:31 PM	23.41	75.89	811.07	191.31	
9/10/2025	4:11:31 PM	23.39	75.83	816.51	191.25	
9/10/2025	4:12:32 PM	23.35	75.94	818.19	191.48	
9/10/2025	4:13:32 PM	23.32	75.89	818.47	191.59	
9/10/2025	4:14:32 PM	23.28	75.61	816.06	191.48	
9/10/2025	4:15:32 PM	23.26	75.89	813.37	191.7	
9/10/2025	4:16:32 PM	23.23	75.61	809.17	191.81	
9/10/2025	4:17:32 PM	23.19	75.61	804.63	191.03	
9/10/2025	4:18:32 PM	23.16	75.72	798.97	191.03	
9/10/2025	4:19:32 PM	23.12	75.55	792.52	190.25	
9/10/2025	4:20:32 PM	23.09	75.55	785.97	189.85	
9/10/2025	4:21:32 PM	23.06	75.49	780.98	188.28	
9/10/2025	4:22:32 PM	23.06	75.55	777.12	186.38	
9/10/2025	4:23:32 PM	23.02	75.38	773.31	185.93	
9/10/2025	4:24:32 PM	22.99	75.21	770.5	185.09	
9/10/2025	4:25:32 PM	22.97	75.27	770.17	184.14	
9/10/2025	4:26:33 PM	22.93	75.27	771.01	183.02	
9/10/2025	4:27:33 PM	22.92	75.38	773.14	182.57	
9/10/2025	4:28:33 PM	22.89	75.1	776.39	181.79	
9/10/2025	4:29:33 PM	22.85	75.16	785.07	182.91	
9/10/2025	4:30:33 PM	22.83	75.16	791.57	183.86	
9/10/2025	4:31:33 PM	22.79	75.1	808.27	184.87	
9/10/2025	4:32:33 PM	22.75	75.05	837.57	187.67	
9/10/2025	4:33:33 PM	22.72	75.1	881.84	191.25	
9/10/2025	4:34:33 PM	22.69	75.05	993.12	196.07	
9/10/2025	4:35:33 PM	22.65	75.05	986.39	203.08	
9/10/2025	4:36:33 PM	22.6	74.93	980.51	209.41	
9/10/2025	4:37:33 PM	22.57	75.05	972.1	213.61	
9/10/2025	4:38:33 PM	22.53	74.82	967.73	218.37	
9/10/2025	4:39:33 PM	22.49	74.82	963.7	221.06	

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/10/2025	4:40:34 PM	22.45	74.77	960.79	225.38
9/10/2025	4:41:34 PM	22.41	74.77	959.61	228.57
9/10/2025	4:42:34 PM	22.35	74.77	963.98	232.44
9/10/2025	4:43:34 PM	22.29	74.54	968.69	237.37
9/10/2025	4:44:34 PM	22.23	74.77	967.01	243.92
9/10/2025	4:45:34 PM	22.17	74.6	972.94	251.26
9/10/2025	4:46:34 PM	22.11	74.77	977.37	256.25
9/10/2025	4:47:34 PM	22.03	74.6	980	260.23
9/10/2025	4:48:34 PM	21.97	74.6	986	263.65
9/10/2025	4:49:34 PM	21.89	74.54	995.81	266.11
9/10/2025	4:50:34 PM	21.83	74.6	1005.22	267.85
9/10/2025	4:51:34 PM	21.75	74.71	1048.92	270.54
9/10/2025	4:52:34 PM	21.7	74.82	1099.63	273.9
9/10/2025	4:53:34 PM	21.63	74.6	1127.14	278.33
9/10/2025	4:54:35 PM	21.56	74.49	1137.45	281.8
9/10/2025	4:55:35 PM	21.5	74.6	1145.18	283.59
9/10/2025	4:56:35 PM	21.43	74.54	1156.73	286.06
9/10/2025	4:57:35 PM	21.36	74.37	1165.92	288.24
9/10/2025	4:58:35 PM	21.3	74.49	1170.79	290.21
9/10/2025	4:59:35 PM	21.22	74.49	1176.84	291.55
9/10/2025	5:00:35 PM	21.15	74.49	1168.44	290.65
9/10/2025	5:01:35 PM	21.1	74.49	1151.68	287.35
9/10/2025	5:02:35 PM	21.03	74.6	1126.75	285.22
9/10/2025	5:03:35 PM	20.97	74.54	1097.05	281.3
9/10/2025	5:04:35 PM	20.9	74.32	1065.68	276.87
9/10/2025	5:05:35 PM	20.84	74.54	1031.27	270.2
9/10/2025	5:06:35 PM	20.79	74.54	999.78	264.15
9/10/2025	5:07:35 PM	20.73	74.49	971.88	257.37
9/10/2025	5:08:36 PM	20.68	74.32	947.95	249.08
9/10/2025	5:09:36 PM	20.63	74.32	931.71	243.36
9/10/2025	5:10:36 PM	20.58	74.32	919.83	237.65
9/10/2025	5:11:36 PM	20.52	74.26	906.55	232.49
9/10/2025	5:12:36 PM	20.47	74.26	891.36	227.95
9/10/2025	5:13:36 PM	20.42	74.21	874.5	222.63
9/10/2025	5:14:36 PM	20.37	74.15	857.69	218.49
9/10/2025	5:15:36 PM	20.35	74.15	842.22	214.06
9/10/2025	5:16:36 PM	20.29	74.26	830.07	210.81
9/10/2025	5:17:36 PM	20.25	74.15	821.77	207.78
9/10/2025	5:18:36 PM	20.2	74.04	814.82	204.76
9/10/2025	5:19:36 PM	20.17	74.04	807.37	202.57
9/10/2025	5:20:36 PM	20.12	73.98	801.1	200.05
9/10/2025	5:21:36 PM	20.11	73.98	796.89	197.53
9/10/2025	5:22:37 PM	20.07	73.87	801.15	194.28
9/10/2025	5:23:37 PM	20.04	73.87	816.17	191.65
9/10/2025	5:24:37 PM	20.02	73.81	835.72	188.9
9/10/2025	5:25:37 PM	19.98	73.87	858.25	187.28
9/10/2025	5:26:37 PM	19.97	73.7	884.53	186.16
9/10/2025	5:27:37 PM	19.96	73.7	922.12	184.19
9/10/2025	5:28:37 PM	19.94	73.65	997.26	184.53
9/10/2025	5:29:37 PM	19.91	73.59	962.35	183.52
9/10/2025	5:30:37 PM	19.89	73.59	921.4	182.35
9/10/2025	5:31:37 PM	19.89	73.53	891.64	179.66
9/10/2025	5:32:37 PM	19.87	73.53	868.17	178.2
9/10/2025	5:33:37 PM	19.84	73.48	848.84	175.73

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/10/2025	5:34:37 PM	19.83	73.53	831.19	174.33
9/10/2025	5:35:37 PM	19.81	73.53	816.17	172.32
9/10/2025	5:36:38 PM	19.79	73.48	802.16	170.97
9/10/2025	5:37:38 PM	19.79	73.31	790.79	168.9
9/10/2025	5:38:38 PM	19.77	73.25	780.31	167.83
9/10/2025	5:39:38 PM	19.76	73.25	771.29	166.66
9/10/2025	5:40:38 PM	19.75	73.14	763.33	165.65
9/10/2025	5:41:38 PM	19.73	73.25	756.22	163.52
9/10/2025	5:42:38 PM	19.72	73.03	749.55	162.68
9/10/2025	5:43:38 PM	19.69	73.14	743.61	161.67
9/10/2025	5:44:38 PM	19.69	73.03	738.68	160.33
9/10/2025	5:45:38 PM	19.69	72.97	734.48	160.38
9/10/2025	5:46:38 PM	19.67	72.92	732.52	159.88
9/10/2025	5:47:38 PM	19.66	72.92	732.07	160.33
9/10/2025	5:48:38 PM	19.64	72.86	733.92	160.55
9/10/2025	5:49:38 PM	19.62	72.86	738.06	162.01
9/10/2025	5:50:39 PM	19.62	72.86	745.85	165.7
9/10/2025	5:51:39 PM	19.59	72.69	757.67	168.28
9/10/2025	5:52:39 PM	19.55	72.69	774.15	171.42
9/10/2025	5:53:39 PM	19.54	72.64	795.05	175.12
9/10/2025	5:54:39 PM	19.51	72.75	822.33	180.5
9/10/2025	5:55:39 PM	19.48	72.58	857.41	186.6
9/10/2025	5:56:39 PM	19.46	72.58	902.23	194.84
9/10/2025	5:57:39 PM	19.4	72.52	955.35	202.96
9/10/2025	5:58:39 PM	19.39	72.52	1011.33	211.87
9/10/2025	5:59:39 PM	19.33	72.52	1060.35	222.3
9/10/2025	6:00:39 PM	19.27	72.41	1096.89	233.45
9/10/2025	6:01:39 PM	19.21	72.52	1121.37	243.36
9/10/2025	6:02:39 PM	19.17	72.41	1135.77	253.22
9/10/2025	6:03:39 PM	19.07	72.41	1143.5	262.13
9/10/2025	6:04:40 PM	19.02	72.36	1148.04	269.47
9/10/2025	6:05:40 PM	18.93	72.52	1153.08	275.92
9/10/2025	6:06:40 PM	18.88	72.36	1157.01	280.57
9/10/2025	6:07:40 PM	18.8	72.52	1160.31	284.43
9/10/2025	6:08:40 PM	18.72	72.3	1164.07	287.07
9/10/2025	6:09:40 PM	18.63	72.36	1164.63	289.59
9/10/2025	6:10:40 PM	18.55	72.41	1162.61	291.27
9/10/2025	6:11:40 PM	18.48	72.36	1152.92	289.53
9/10/2025	6:12:40 PM	18.39	72.3	1140.2	288.41
9/10/2025	6:13:40 PM	18.31	72.3	1125.63	286.96
9/10/2025	6:14:40 PM	18.21	72.3	1116.33	283.15
9/10/2025	6:15:40 PM	18.15	72.52	1109.94	279.06
9/10/2025	6:16:40 PM	18.08	72.58	1094.08	273.4
9/10/2025	6:17:41 PM	18.01	72.52	1073.13	266.45
9/10/2025	6:18:41 PM	17.93	72.41	1050.72	259.22
9/10/2025	6:19:41 PM	17.91	72.41	1028.25	252.27
9/10/2025	6:20:41 PM	17.82	72.41	1002.14	243.98
9/10/2025	6:21:41 PM	17.78	72.36	975.47	234.17
9/10/2025	6:22:41 PM	17.73	72.24	951.15	225.83
9/10/2025	6:23:41 PM	17.68	72.36	930.14	219.38
9/10/2025	6:24:41 PM	17.65	72.24	913.05	214.79
9/10/2025	6:25:41 PM	17.6	72.24	899.21	210.19
9/10/2025	6:26:41 PM	17.56	72.24	888.62	206.72
9/10/2025	6:27:41 PM	17.52	72.3	879.54	202.4

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/10/2025	6:28:41 PM	17.5	72.19	872.14	199.77
9/10/2025	6:29:41 PM	17.45	72.41	865.65	197.59
9/10/2025	6:30:41 PM	17.42	72.19	860.1	195.57
9/10/2025	6:31:42 PM	17.41	72.36	854.72	192.66
9/10/2025	6:32:42 PM	17.35	72.19	850.29	191.2
9/10/2025	6:33:42 PM	17.33	72.19	845.92	189.35
9/10/2025	6:34:42 PM	17.3	72.19	841.94	186.32
9/10/2025	6:35:42 PM	17.27	72.08	838.47	184.92
9/10/2025	6:36:42 PM	17.24	72.02	834.83	183.47
9/10/2025	6:37:42 PM	17.21	71.96	831.8	182.74
9/10/2025	6:38:42 PM	17.18	71.96	828.72	181.06
9/10/2025	6:39:42 PM	17.14	72.02	825.64	180.16
9/10/2025	6:40:42 PM	17.13	72.08	823.45	179.77
9/10/2025	6:41:42 PM	17.12	72.08	820.93	178.65
9/10/2025	6:42:42 PM	17.08	71.96	819.03	178.2
9/10/2025	6:43:42 PM	17.05	71.96	816.73	177.19
9/10/2025	6:44:42 PM	17.03	71.74	814.32	176.97
9/10/2025	6:45:43 PM	16.99	71.85	812.3	176.24
9/10/2025	6:46:43 PM	16.97	71.91	810.17	175.34
9/10/2025	6:47:43 PM	16.94	71.91	809	174.45
9/10/2025	6:48:43 PM	16.93	71.74	808.33	173.38
9/10/2025	6:49:43 PM	16.89	71.68	806.31	172.48
9/10/2025	6:50:43 PM	16.85	71.63	805.19	171.87
9/10/2025	6:51:43 PM	16.84	71.68	804.12	171.87
9/10/2025	6:52:43 PM	16.83	71.68	802.55	172.15
9/10/2025	6:53:43 PM	16.78	71.63	801.83	171.81
9/10/2025	6:54:43 PM	16.76	71.57	801.77	171.36
9/10/2025	6:55:43 PM	16.74	71.63	802.78	170.92
9/10/2025	6:56:43 PM	16.71	71.57	804.74	171.76
9/10/2025	6:57:43 PM	16.7	71.57	807.37	172.88
9/10/2025	6:58:43 PM	16.66	71.68	811.91	174.33
9/10/2025	6:59:44 PM	16.62	71.4	817.35	174.89
9/10/2025	7:00:44 PM	16.59	71.4	824.35	176.29
9/10/2025	7:01:44 PM	16.57	71.52	832.81	177.92
9/10/2025	7:02:44 PM	16.54	71.57	842.78	178.98
9/10/2025	7:03:44 PM	16.5	71.52	854.21	182.4
9/10/2025	7:04:44 PM	16.45	71.35	866.88	185.65
9/10/2025	7:05:44 PM	16.44	71.4	881.5	188.56
9/10/2025	7:06:44 PM	16.38	71.4	895.9	192.09
9/10/2025	7:07:44 PM	16.34	71.4	910.19	194.9
9/10/2025	7:08:44 PM	16.31	71.35	924.53	198.82
9/10/2025	7:09:44 PM	16.25	71.35	937.48	201.73
9/10/2025	7:10:44 PM	16.22	71.29	949.19	205.65
9/10/2025	7:11:44 PM	16.16	71.29	959.44	208.74
9/10/2025	7:12:45 PM	16.15	71.18	967.62	211.87
9/10/2025	7:13:45 PM	16.09	71.29	973.95	213.33
9/10/2025	7:14:45 PM	16.02	71.35	979.11	215.52
9/10/2025	7:15:45 PM	15.98	71.29	983.09	217.76
9/10/2025	7:16:45 PM	15.94	71.18	986.22	219.44
9/10/2025	7:17:45 PM	15.87	71.29	988.75	221.29
9/10/2025	7:18:45 PM	15.82	71.18	990.59	221.96
9/10/2025	7:19:45 PM	15.77	71.18	992.33	223.25
9/10/2025	7:20:45 PM	15.75	71.18	994.18	224.09
9/10/2025	7:21:45 PM	15.67	71.18	996.14	224.93

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/10/2025	7:22:45 PM	15.63	71.35	997.65	225.38
9/10/2025	7:23:45 PM	15.56	71.12	999.62	226.22
9/10/2025	7:24:45 PM	15.52	71.35	1001.24	226.39
9/10/2025	7:25:45 PM	15.46	71.18	1002.87	226.89
9/10/2025	7:26:46 PM	15.42	71.12	1004.55	226.83
9/10/2025	7:27:46 PM	15.36	71.29	1006.17	227.11
9/10/2025	7:28:46 PM	15.3	71.35	1007.68	227.73
9/10/2025	7:29:46 PM	15.26	71.18	1008.47	227.9
9/10/2025	7:30:46 PM	15.21	71.29	1009.59	227.17
9/10/2025	7:31:46 PM	15.16	71.18	1010.26	226.89
9/10/2025	7:32:46 PM	15.11	71.18	1010.6	227.73
9/10/2025	7:33:46 PM	15.06	71.18	1010.04	226.22
9/10/2025	7:34:46 PM	15.01	71.18	1008.41	225.49
9/10/2025	7:35:46 PM	14.97	71.29	1005.11	223.7
9/10/2025	7:36:46 PM	14.92	71.01	1000.4	221.18
9/10/2025	7:37:46 PM	14.87	71.18	994.96	218.99
9/10/2025	7:38:46 PM	14.84	71.07	988.52	215.91
9/10/2025	7:39:46 PM	14.79	71.18	981.01	213.78
9/10/2025	7:40:47 PM	14.76	71.18	972.61	209.63
9/10/2025	7:41:47 PM	14.72	71.18	962.97	207.17
9/10/2025	7:42:47 PM	14.69	71.18	951.48	203.41
9/10/2025	7:43:47 PM	14.65	71.07	938.15	199.6
9/10/2025	7:44:47 PM	14.64	71.07	923.3	194.28
9/10/2025	7:45:47 PM	14.58	71.18	906.27	189.52
9/10/2025	7:46:47 PM	14.58	71.07	889.4	184.98
9/10/2025	7:47:47 PM	14.55	71.07	874.16	181.28
9/10/2025	7:48:47 PM	14.52	71.01	860.27	178.03
9/10/2025	7:49:47 PM	14.5	71.18	848.67	174.84
9/10/2025	7:50:47 PM	14.48	71.07	838.92	173.21
9/10/2025	7:51:47 PM	14.47	71.12	830.18	171.42
9/10/2025	7:52:47 PM	14.46	71.01	824.35	169.63
9/10/2025	7:53:47 PM	14.41	71.01	818.97	168
9/10/2025	7:54:48 PM	14.39	70.96	815.55	166.1
9/10/2025	7:55:48 PM	14.39	70.96	813.03	165.76
9/10/2025	7:56:48 PM	14.37	70.96	810.06	163.29
9/10/2025	7:57:48 PM	14.36	70.84	806.59	162.68
9/10/2025	7:58:48 PM	14.33	70.84	804.8	161.73
9/10/2025	7:59:48 PM	14.33	70.79	802.83	161
9/10/2025	8:00:48 PM	14.29	70.79	800.99	159.99
9/10/2025	8:01:48 PM	14.27	70.84	798.74	159.37
9/10/2025	8:02:48 PM	14.26	70.79	797.79	158.7
9/10/2025	8:03:48 PM	14.26	70.73	795.83	157.13
9/10/2025	8:04:48 PM	14.23	70.73	795.72	156.74
9/10/2025	8:05:48 PM	14.22	70.73	794.65	156.63
9/10/2025	8:06:48 PM	14.2	70.73	793.81	155.39
9/10/2025	8:07:48 PM	14.18	70.68	793.2	155.62
9/10/2025	8:08:49 PM	14.18	70.62	791.63	154.95
9/10/2025	8:09:49 PM	14.15	70.62	790.51	153.83
9/10/2025	8:10:49 PM	14.16	70.68	789.27	153.6
9/10/2025	8:11:49 PM	14.12	70.68	789.78	153.88
9/10/2025	8:12:49 PM	14.12	70.51	790.84	153.43
9/10/2025	8:13:49 PM	14.1	70.51	791.07	152.48
9/10/2025	8:14:49 PM	14.09	70.45	791.52	152.31
9/10/2025	8:15:49 PM	14.08	70.62	792.47	151.7

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/10/2025	8:16:49 PM	14.08	70.4	794.88	151.75
9/10/2025	8:17:49 PM	14.05	70.28	798.63	151.25
9/10/2025	8:18:49 PM	14.03	70.4	805.13	151.75
9/10/2025	8:19:49 PM	14.02	70.4	812.3	151.86
9/10/2025	8:20:49 PM	13.99	70.34	822.73	152.03
9/10/2025	8:21:49 PM	13.99	70.28	834.44	153.04
9/10/2025	8:22:50 PM	13.98	70.28	848.72	154.33
9/10/2025	8:23:50 PM	13.96	70.17	867.33	155.79
9/10/2025	8:24:50 PM	13.93	70.4	893.21	157.08
9/10/2025	8:25:50 PM	13.94	70.28	932.77	159.15
9/10/2025	8:26:50 PM	13.9	70.12	989.53	162.06
9/10/2025	8:27:50 PM	13.88	70.17	1011.72	164.64
9/10/2025	8:28:50 PM	13.85	70.12	962.02	167.55
9/10/2025	8:29:50 PM	13.84	70	927.95	169.4
9/10/2025	8:30:50 PM	13.83	70.06	912.32	170.8
9/10/2025	8:31:50 PM	13.8	70.06	904.53	172.82
9/10/2025	8:32:50 PM	13.78	70.06	899.82	173.49
9/10/2025	8:33:50 PM	13.77	70.12	898.14	175.12
9/10/2025	8:34:50 PM	13.74	70.06	898.7	176.07
9/10/2025	8:35:51 PM	13.71	70.17	899.71	176.41
9/10/2025	8:36:51 PM	13.69	70.12	901.73	177.08
9/10/2025	8:37:51 PM	13.68	70	905.65	177.92
9/10/2025	8:38:51 PM	13.65	70.06	910.81	179.88
9/10/2025	8:39:51 PM	13.62	70.06	917.42	180.5
9/10/2025	8:40:51 PM	13.6	70	924.65	182.18
9/10/2025	8:41:51 PM	13.58	70	933.33	183.24
9/10/2025	8:42:51 PM	13.56	70	942.97	185.65
9/10/2025	8:43:51 PM	13.52	69.95	953.73	187.44
9/10/2025	8:44:51 PM	13.5	69.95	965.49	189.35
9/10/2025	8:45:51 PM	13.48	69.95	978.32	190.36
9/10/2025	8:46:51 PM	13.44	70	990.48	192.04
9/10/2025	8:47:51 PM	13.41	70	1001.52	193.44
9/10/2025	8:48:51 PM	13.38	69.95	1010.49	195.23
9/10/2025	8:49:52 PM	13.34	69.95	1017.6	197.59
9/10/2025	8:50:52 PM	13.31	70	1023.04	199.6
9/10/2025	8:51:52 PM	13.29	69.84	1026.57	201.34
9/10/2025	8:52:52 PM	13.25	69.84	1029.26	202.01
9/10/2025	8:53:52 PM	13.21	69.95	1031.67	202.29
9/10/2025	8:54:52 PM	13.2	69.95	1033.74	203.25
9/10/2025	8:55:52 PM	13.16	69.95	1035.36	203.97
9/10/2025	8:56:52 PM	13.11	69.95	1036.71	204.76
9/10/2025	8:57:52 PM	13.1	69.84	1038.05	204.81
9/10/2025	8:58:52 PM	13.06	69.72	1038.45	205.6
9/10/2025	8:59:52 PM	13.02	69.84	1038.61	206.72
9/10/2025	9:00:52 PM	13	69.84	1038.5	207.17
9/10/2025	9:01:52 PM	12.97	70	1039.12	206.83
9/10/2025	9:02:52 PM	12.91	69.78	1039.23	206.72
9/10/2025	9:03:53 PM	12.89	69.95	1039.79	207.17
9/10/2025	9:04:53 PM	12.87	69.84	1040.97	207.67
9/10/2025	9:05:53 PM	12.82	69.95	1042.48	207.06
9/10/2025	9:06:53 PM	12.81	69.95	1044.27	206.61
9/10/2025	9:07:53 PM	12.78	70	1046.12	207.17
9/10/2025	9:08:53 PM	12.72	69.95	1045.51	206.72
9/10/2025	9:09:53 PM	12.71	69.84	1041.36	205.04

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/10/2025	9:10:53 PM	12.67	69.95	1032.39	204.09
9/10/2025	9:11:53 PM	12.63	69.84	1022.25	202.46
9/10/2025	9:12:53 PM	12.61	70	1010.65	199.6
9/10/2025	9:13:53 PM	12.59	70	998.21	197.19
9/10/2025	9:14:53 PM	12.56	69.84	984.49	192.77
9/10/2025	9:15:53 PM	12.51	69.78	968.97	190.25
9/10/2025	9:16:54 PM	12.51	69.78	951.37	186.38
9/10/2025	9:17:54 PM	12.49	69.84	933.16	182.29
9/10/2025	9:18:54 PM	12.46	69.95	914.67	178.65
9/10/2025	9:19:54 PM	12.45	69.84	896.29	173.6
9/10/2025	9:20:54 PM	12.42	69.84	878.81	170.13
9/10/2025	9:21:54 PM	12.4	69.72	862.68	167.5
9/10/2025	9:22:54 PM	12.4	69.78	848.78	165.42
9/10/2025	9:23:54 PM	12.38	69.78	836.9	163.13
9/10/2025	9:24:54 PM	12.37	69.78	827.21	160.49
9/10/2025	9:25:54 PM	12.34	69.78	819.25	159.04
9/10/2025	9:26:54 PM	12.33	69.78	811.91	157.86
9/10/2025	9:27:54 PM	12.32	69.72	806.81	155.9
9/10/2025	9:28:54 PM	12.32	69.67	803.06	154.11
9/10/2025	9:29:54 PM	12.31	69.67	799.53	153.6
9/10/2025	9:30:55 PM	12.29	69.67	798.58	151.86
9/10/2025	9:31:55 PM	12.28	69.67	799.19	150.63
9/10/2025	9:32:55 PM	12.26	69.55	796.89	149.74
9/10/2025	9:33:55 PM	12.24	69.55	794.43	148.33
9/10/2025	9:34:55 PM	12.23	69.5	788.77	146.77
9/10/2025	9:35:55 PM	12.22	69.5	782.61	146.15
9/10/2025	9:36:55 PM	12.22	69.5	775.49	145.81
9/10/2025	9:37:55 PM	12.21	69.44	768.82	144.47
9/10/2025	9:38:55 PM	12.22	69.55	761.37	143.52
9/10/2025	9:39:55 PM	12.21	69.39	755.04	142.73
9/10/2025	9:40:55 PM	12.2	69.44	748.2	141.78
9/10/2025	9:41:55 PM	12.19	69.44	740.42	140.88
9/10/2025	9:42:55 PM	12.17	69.5	733.13	140.32
9/10/2025	9:43:56 PM	12.17	69.44	728.42	138.98
9/10/2025	9:44:56 PM	12.15	69.44	721.7	137.74
9/10/2025	9:45:56 PM	12.13	69.44	715.99	136.68
9/10/2025	9:46:56 PM	12.12	69.44	710.16	135.28
9/10/2025	9:47:56 PM	12.14	69.39	702.93	134.66
9/10/2025	9:48:56 PM	12.12	69.39	699.18	133.99
9/10/2025	9:49:56 PM	12.13	69.39	694.58	133.49
9/10/2025	9:50:56 PM	12.12	69.33	692.12	132.98
9/10/2025	9:51:56 PM	12.12	69.22	689.65	133.32
9/10/2025	9:52:56 PM	12.11	69.22	688.31	133.21
9/10/2025	9:53:56 PM	12.11	69.22	687.58	133.6
9/10/2025	9:54:56 PM	12.09	69.16	689.32	134.49
9/10/2025	9:55:56 PM	12.07	69.16	692.57	135.78
9/10/2025	9:56:56 PM	12.05	69.22	697.55	136.57
9/10/2025	9:57:57 PM	12.04	69.11	704.78	138.53
9/10/2025	9:58:57 PM	12.03	69.11	713.91	140.32
9/10/2025	9:59:57 PM	12.03	69.05	724.56	142.68
9/10/2025	10:00:57 PM	12.02	69.16	736.83	145.2
9/10/2025	10:01:57 PM	12.01	69.05	751.4	148.5
9/10/2025	10:02:57 PM	11.99	69.05	768.15	152.37
9/10/2025	10:03:57 PM	11.96	68.99	786.7	156.96

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/10/2025	10:04:57 PM	11.93	69.05	806.2	160.83
9/10/2025	10:05:57 PM	11.92	69.16	826.93	166.15
9/10/2025	10:06:57 PM	11.92	68.88	848.33	171.03
9/10/2025	10:07:57 PM	11.88	68.99	871.08	177.36
9/10/2025	10:08:57 PM	11.84	69.05	894.39	182.63
9/10/2025	10:09:57 PM	11.82	68.88	918.54	188.34
9/10/2025	10:10:58 PM	11.81	68.99	942.74	194.73
9/10/2025	10:11:58 PM	11.75	69.05	966.84	200.44
9/10/2025	10:12:58 PM	11.73	68.88	988.91	205.04
9/10/2025	10:13:58 PM	11.71	68.88	1011.05	209.41
9/10/2025	10:14:58 PM	11.65	68.88	1032.62	214.9
9/10/2025	10:15:58 PM	11.63	68.88	1051.89	219.44
9/10/2025	10:16:58 PM	11.61	69.05	1069.71	224.71
9/10/2025	10:17:58 PM	11.53	69.05	1087.47	228.74
9/10/2025	10:18:58 PM	11.53	69.05	1105.01	233.33
9/10/2025	10:19:58 PM	11.45	69.05	1120.81	236.36
9/10/2025	10:20:58 PM	11.42	69.05	1135.6	241.29
9/10/2025	10:21:58 PM	11.38	69.05	1145.91	245.44
9/10/2025	10:22:58 PM	11.34	69.11	1154.15	248.69
9/10/2025	10:23:59 PM	11.29	69.11	1159.08	251.04
9/10/2025	10:24:59 PM	11.25	69.05	1158.52	252.38
9/10/2025	10:25:59 PM	11.21	69.11	1153.42	252.22
9/10/2025	10:26:59 PM	11.14	69.22	1145.18	250.93
9/10/2025	10:27:59 PM	11.13	69.11	1135.15	249.02
9/10/2025	10:28:59 PM	11.06	69.11	1123.16	245.94
9/10/2025	10:29:59 PM	11.04	69.16	1109.49	241.57
9/10/2025	10:30:59 PM	10.99	69.11	1093.92	238.94
9/10/2025	10:31:59 PM	10.95	69.11	1075.76	234.17
9/10/2025	10:32:59 PM	10.93	69.16	1054.97	228.8
9/10/2025	10:33:59 PM	10.87	69.11	1030.66	221.68
9/10/2025	10:34:59 PM	10.85	68.99	1004.6	213.11
9/10/2025	10:35:59 PM	10.84	69.11	976.25	205.15
9/10/2025	10:36:59 PM	10.8	69.16	948.63	197.81
9/10/2025	10:38:00 PM	10.77	69.22	919.88	190.81
9/10/2025	10:39:00 PM	10.75	69.33	893.94	184.36
9/10/2025	10:40:00 PM	10.75	69.22	870.69	179.32
9/10/2025	10:41:00 PM	10.74	69.22	850.91	174.89
9/10/2025	10:42:00 PM	10.69	69.16	834.94	171.64
9/10/2025	10:43:00 PM	10.7	69.22	821.55	168.17
9/10/2025	10:44:00 PM	10.66	69.22	811.46	166.1
9/10/2025	10:45:00 PM	10.65	69.22	801.94	164.19
9/10/2025	10:46:00 PM	10.65	69.22	794.54	162.85
9/10/2025	10:47:00 PM	10.64	69.22	789.39	160.05
9/10/2025	10:48:00 PM	10.63	69.16	784.46	159.15
9/10/2025	10:49:00 PM	10.61	69.16	780.37	157.8
9/10/2025	10:50:00 PM	10.58	69.11	776.16	156.63
9/10/2025	10:51:00 PM	10.56	69.11	773.42	154.95
9/10/2025	10:52:01 PM	10.57	69.11	771.01	153.88
9/10/2025	10:53:01 PM	10.55	69.11	768.99	152.03
9/10/2025	10:54:01 PM	10.55	69.22	766.58	150.91
9/10/2025	10:55:01 PM	10.54	69.05	764.73	149.96
9/10/2025	10:56:01 PM	10.53	69.11	762.55	148.95
9/10/2025	10:57:01 PM	10.52	69.11	762.49	147.83
9/10/2025	10:58:01 PM	10.5	68.99	762.44	147.44

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/10/2025	10:59:01 PM	10.49	68.88	763.78	146.54
9/10/2025	11:00:01 PM	10.47	68.88	764.85	145.59
9/10/2025	11:01:01 PM	10.45	69.11	764.4	145.48
9/10/2025	11:02:01 PM	10.45	68.99	765.85	144.13
9/10/2025	11:03:01 PM	10.45	68.99	763.22	143.96
9/10/2025	11:04:01 PM	10.44	69.05	760.75	143.35
9/10/2025	11:05:02 PM	10.45	68.83	756.05	142.34
9/10/2025	11:06:02 PM	10.43	68.83	753.47	141.27
9/10/2025	11:07:02 PM	10.43	68.99	748.15	140.88
9/10/2025	11:08:02 PM	10.42	68.83	744.23	140.04
9/10/2025	11:09:02 PM	10.4	68.83	739.63	139.26
9/10/2025	11:10:02 PM	10.38	68.77	734.59	138.98
9/10/2025	11:11:02 PM	10.37	68.71	729.99	138.25
9/10/2025	11:12:02 PM	10.37	68.83	724.78	137.07
9/10/2025	11:13:02 PM	10.36	68.77	719.01	136.68
9/10/2025	11:14:02 PM	10.36	68.77	715.15	135.95
9/10/2025	11:15:02 PM	10.35	68.66	710.33	135.45
9/10/2025	11:16:02 PM	10.35	68.66	705.06	134.33
9/10/2025	11:17:02 PM	10.35	68.66	700.86	134.33
9/10/2025	11:18:02 PM	10.34	68.77	698.22	133.71
9/10/2025	11:19:03 PM	10.34	68.66	695.7	133.54
9/10/2025	11:20:03 PM	10.33	68.71	693.69	133.88
9/10/2025	11:21:03 PM	10.32	68.66	694.3	133.93
9/10/2025	11:22:03 PM	10.3	68.49	695.2	134.49
9/10/2025	11:23:03 PM	10.29	68.66	696.88	135.28
9/10/2025	11:24:03 PM	10.28	68.55	701.47	136.51
9/10/2025	11:25:03 PM	10.27	68.49	707.53	138.7
9/10/2025	11:26:03 PM	10.25	68.55	716.04	140.1
9/10/2025	11:27:03 PM	10.25	68.49	724.73	141.84
9/10/2025	11:28:03 PM	10.24	68.49	735.32	143.96
9/10/2025	11:29:03 PM	10.23	68.55	747.03	146.65
9/10/2025	11:30:03 PM	10.21	68.49	760.47	148.28
9/10/2025	11:31:03 PM	10.19	68.55	773.92	151.42
9/10/2025	11:32:04 PM	10.16	68.49	787.82	153.15
9/10/2025	11:33:04 PM	10.15	68.43	802.22	155.62
9/10/2025	11:34:04 PM	10.15	68.43	817.01	159.04
9/10/2025	11:35:04 PM	10.14	68.43	831.58	162.06
9/10/2025	11:36:04 PM	10.11	68.43	846.65	164.81
9/10/2025	11:37:04 PM	10.07	68.43	862.28	168.11
9/10/2025	11:38:04 PM	10.05	68.38	877.97	171.81
9/10/2025	11:39:04 PM	10.05	68.38	893.44	175.68
9/10/2025	11:40:04 PM	10.03	68.43	908.85	179.38
9/10/2025	11:41:04 PM	9.98	68.38	923.69	182.4
9/10/2025	11:42:04 PM	9.96	68.38	938.15	185.2
9/10/2025	11:43:04 PM	9.95	68.27	951.6	188.23
9/10/2025	11:44:04 PM	9.91	68.38	963.92	191.48
9/10/2025	11:45:04 PM	9.88	68.38	975.24	193.89
9/10/2025	11:46:05 PM	9.86	68.38	985.61	196.41
9/10/2025	11:47:05 PM	9.84	68.27	995.02	199.21
9/10/2025	11:48:05 PM	9.79	68.38	1003.71	202.01
9/10/2025	11:49:05 PM	9.77	68.27	1011.72	203.81
9/10/2025	11:50:05 PM	9.74	68.43	1018.72	206.72
9/10/2025	11:51:05 PM	9.7	68.49	1025.28	207.67
9/10/2025	11:52:05 PM	9.67	68.49	1030.66	209.58

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/10/2025	11:53:05 PM	9.67	68.43	1035.98	211.03
9/10/2025	11:54:05 PM	9.63	68.49	1041.13	212.94
9/10/2025	11:55:05 PM	9.57	68.27	1045.06	214.4
9/10/2025	11:56:05 PM	9.56	68.38	1048.14	216.19
9/10/2025	11:57:05 PM	9.54	68.66	1050.94	217.42
9/10/2025	11:58:05 PM	9.49	68.49	1051.78	217.7
9/10/2025	11:59:06 PM	9.47	68.66	1051.05	217.48
9/11/2025	12:00:06 AM	9.46	68.43	1048.75	216.02
9/11/2025	12:01:06 AM	9.42	68.49	1043.99	213.84
9/11/2025	12:02:06 AM	9.38	68.49	1037.49	211.87
9/11/2025	12:03:06 AM	9.37	68.55	1029.26	208.9
9/11/2025	12:04:06 AM	9.35	68.49	1017.6	204.48
9/11/2025	12:05:06 AM	9.31	68.66	1002.31	200.67
9/11/2025	12:06:06 AM	9.28	68.66	982.41	194.39
9/11/2025	12:07:06 AM	9.27	68.43	959.05	187.22
9/11/2025	12:08:06 AM	9.25	68.66	933.11	180.33
9/11/2025	12:09:06 AM	9.25	68.66	907.05	173.27
9/11/2025	12:10:06 AM	9.22	68.55	885.37	168.56
9/11/2025	12:11:06 AM	9.21	68.55	865.36	165.98
9/11/2025	12:12:07 AM	9.19	68.66	849.34	163.24
9/11/2025	12:13:07 AM	9.19	68.43	837.69	161.73
9/11/2025	12:14:07 AM	9.18	68.55	830.96	159.04
9/11/2025	12:15:07 AM	9.17	68.49	826.42	157.58
9/11/2025	12:16:07 AM	9.16	68.49	821.88	155.73
9/11/2025	12:17:07 AM	9.14	68.66	816.17	154.61
9/11/2025	12:18:07 AM	9.13	68.49	811.01	152.37
9/11/2025	12:19:07 AM	9.11	68.38	806.03	151.75
9/11/2025	12:20:07 AM	9.09	68.43	799.86	150.46
9/11/2025	12:21:07 AM	9.09	68.43	794.77	149.57
9/11/2025	12:22:07 AM	9.08	68.27	790.06	149.06
9/11/2025	12:23:07 AM	9.08	68.38	783.67	148.28
9/11/2025	12:24:07 AM	9.07	68.27	777.56	147.33
9/11/2025	12:25:07 AM	9.06	68.43	771.4	146.37
9/11/2025	12:26:08 AM	9.05	68.27	765.69	145.31
9/11/2025	12:27:08 AM	9.04	68.27	759.47	145.59
9/11/2025	12:28:08 AM	9.03	68.43	754.82	143.57
9/11/2025	12:29:08 AM	9.03	68.27	748.15	143.4
9/11/2025	12:30:08 AM	9.01	68.27	742.77	142.45
9/11/2025	12:31:08 AM	9	68.15	736.72	141.27
9/11/2025	12:32:08 AM	8.99	68.27	729.71	140.15
9/11/2025	12:33:08 AM	8.98	68.27	723.21	138.92
9/11/2025	12:34:08 AM	8.98	68.38	716.27	138.36
9/11/2025	12:35:08 AM	8.98	68.15	710.78	137.3
9/11/2025	12:36:08 AM	8.98	68.15	704.28	136.51
9/11/2025	12:37:08 AM	8.97	68.15	697.78	135.84
9/11/2025	12:38:08 AM	8.97	68.21	692.06	134.94
9/11/2025	12:39:08 AM	8.97	68.1	686.91	134.49
9/11/2025	12:40:09 AM	8.97	68.04	680.91	132.81
9/11/2025	12:41:09 AM	8.95	68.1	675.08	132.59
9/11/2025	12:42:09 AM	8.94	68.15	670.04	131.86
9/11/2025	12:43:09 AM	8.94	67.93	664.55	131.02
9/11/2025	12:44:09 AM	8.92	67.93	660.4	130.96
9/11/2025	12:45:09 AM	8.91	68.04	657.94	130.96
9/11/2025	12:46:09 AM	8.9	67.87	655.58	131.36

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/11/2025	12:47:09 AM	8.91	68.04	653.68	131.19
9/11/2025	12:48:09 AM	8.89	67.87	654.41	131.97
9/11/2025	12:49:09 AM	8.88	67.87	655.86	132.59
9/11/2025	12:50:09 AM	8.88	67.93	658.67	133.93
9/11/2025	12:51:09 AM	8.88	67.93	662.7	134.27
9/11/2025	12:52:09 AM	8.88	67.93	668.47	135.84
9/11/2025	12:53:10 AM	8.88	67.82	675.81	138.31
9/11/2025	12:54:10 AM	8.86	67.82	684.55	140.15
9/11/2025	12:55:10 AM	8.85	67.93	695.42	142.23
9/11/2025	12:56:10 AM	8.81	67.82	707.64	144.86
9/11/2025	12:57:10 AM	8.8	67.82	720.64	147.61
9/11/2025	12:58:10 AM	8.78	67.87	734.59	150.86
9/11/2025	12:59:10 AM	8.78	67.82	752.46	154.5
9/11/2025	1:00:10 AM	8.77	67.65	771.68	158.7
9/11/2025	1:01:10 AM	8.75	67.65	791.07	164.25
9/11/2025	1:02:10 AM	8.71	67.59	810.34	169.07
9/11/2025	1:03:10 AM	8.68	67.76	829.34	173.94
9/11/2025	1:04:10 AM	8.68	67.59	846.87	179.21
9/11/2025	1:05:10 AM	8.66	67.76	862.62	183.07
9/11/2025	1:06:10 AM	8.62	67.76	876.35	187.33
9/11/2025	1:07:11 AM	8.59	67.65	889.46	192.04
9/11/2025	1:08:11 AM	8.58	67.65	900.5	195.51
9/11/2025	1:09:11 AM	8.56	67.54	911.09	198.87
9/11/2025	1:10:11 AM	8.53	67.59	920.16	202.29
9/11/2025	1:11:11 AM	8.49	67.65	928.57	205.88
9/11/2025	1:12:11 AM	8.49	67.59	936.8	208.34
9/11/2025	1:13:11 AM	8.47	67.54	944.76	211.26
9/11/2025	1:14:11 AM	8.42	67.59	952.66	214.56
9/11/2025	1:15:11 AM	8.39	67.54	959.95	216.41
9/11/2025	1:16:11 AM	8.38	67.65	967.79	218.15
9/11/2025	1:17:11 AM	8.36	67.59	975.19	221.96
9/11/2025	1:18:11 AM	8.31	67.65	982.08	223.64
9/11/2025	1:19:11 AM	8.29	67.59	989.25	225.77
9/11/2025	1:20:12 AM	8.28	67.76	996.14	227.79
9/11/2025	1:21:12 AM	8.23	67.65	1003.48	229.47
9/11/2025	1:22:12 AM	8.2	67.59	1010.93	232.16
9/11/2025	1:23:12 AM	8.19	67.65	1018.11	234.29
9/11/2025	1:24:12 AM	8.14	67.82	1024.72	234.62
9/11/2025	1:25:12 AM	8.1	67.65	1030.04	237.09
9/11/2025	1:26:12 AM	8.09	67.87	1034.02	238.71
9/11/2025	1:27:12 AM	8.06	67.76	1036.71	238.04
9/11/2025	1:28:12 AM	8.01	67.65	1038.84	237.42
9/11/2025	1:29:12 AM	8	67.76	1039.57	235.97
9/11/2025	1:30:12 AM	7.98	67.76	1038.5	234.23
9/11/2025	1:31:12 AM	7.94	67.87	1034.97	231.88
9/11/2025	1:32:12 AM	7.91	67.65	1047.69	230.81
9/11/2025	1:33:13 AM	7.88	67.76	1069.37	230.03
9/11/2025	1:34:13 AM	7.84	67.65	1086.41	228.96
9/11/2025	1:35:13 AM	7.8	67.76	1091.9	227.79
9/11/2025	1:36:13 AM	7.8	67.82	1086.02	225.04
9/11/2025	1:37:13 AM	7.75	68.04	1071.95	219.1
9/11/2025	1:38:13 AM	7.7	68.1	1050.6	213.44
9/11/2025	1:39:13 AM	7.7	68.1	1024.05	204.53
9/11/2025	1:40:13 AM	7.69	67.82	994.12	196.75

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/11/2025	1:41:13 AM	7.66	67.87	961.74	187.5
9/11/2025	1:42:13 AM	7.63	67.87	933.11	180.66
9/11/2025	1:43:13 AM	7.62	67.82	907.05	175.45
9/11/2025	1:44:13 AM	7.61	67.76	885.48	170.41
9/11/2025	1:45:13 AM	7.6	67.87	865.87	166.15
9/11/2025	1:46:14 AM	7.6	67.76	850.8	163.46
9/11/2025	1:47:14 AM	7.58	67.82	837.91	161
9/11/2025	1:48:14 AM	7.57	67.82	828.27	158.53
9/11/2025	1:49:14 AM	7.54	67.82	819.31	156.91
9/11/2025	1:50:14 AM	7.53	67.87	812.81	154.16
9/11/2025	1:51:14 AM	7.52	67.87	808.44	153.1
9/11/2025	1:52:14 AM	7.52	67.76	805.24	151.64
9/11/2025	1:53:14 AM	7.51	67.87	803.67	150.58
9/11/2025	1:54:14 AM	7.5	67.76	800.99	148.89
9/11/2025	1:55:14 AM	7.49	67.76	795.83	147.61
9/11/2025	1:56:14 AM	7.49	67.76	788.43	146.21
9/11/2025	1:57:14 AM	7.49	67.87	780.98	144.86
9/11/2025	1:58:14 AM	7.47	67.59	771.85	142.68
9/11/2025	1:59:15 AM	7.46	67.76	764.34	142.68
9/11/2025	2:00:15 AM	7.45	67.65	755.21	140.49
9/11/2025	2:01:15 AM	7.44	67.65	746.92	139.65
9/11/2025	2:02:15 AM	7.42	67.59	737.56	138.19
9/11/2025	2:03:15 AM	7.42	67.59	729.1	137.18
9/11/2025	2:04:15 AM	7.41	67.54	721.36	136.06
9/11/2025	2:05:15 AM	7.41	67.65	713.3	134.89
9/11/2025	2:06:15 AM	7.41	67.48	703.66	133.6
9/11/2025	2:07:15 AM	7.41	67.54	697.33	133.65
9/11/2025	2:08:15 AM	7.41	67.54	691.56	132.03
9/11/2025	2:09:15 AM	7.41	67.37	684.89	130.57
9/11/2025	2:10:15 AM	7.4	67.37	678.22	129.68
9/11/2025	2:11:15 AM	7.4	67.26	669.93	129.4
9/11/2025	2:12:16 AM	7.4	67.37	663.04	128.05
9/11/2025	2:13:16 AM	7.39	67.48	654.52	126.99
9/11/2025	2:14:16 AM	7.38	67.37	649.65	126.48
9/11/2025	2:15:16 AM	7.38	67.37	643.43	125.47
9/11/2025	2:16:16 AM	7.37	67.31	639.39	124.63
9/11/2025	2:17:16 AM	7.36	67.31	635.08	123.91
9/11/2025	2:18:16 AM	7.34	67.31	630.65	123.57
9/11/2025	2:19:16 AM	7.35	67.26	628.69	123.29
9/11/2025	2:20:16 AM	7.34	67.2	626.84	123.51
9/11/2025	2:21:16 AM	7.34	67.15	626.17	124.13
9/11/2025	2:22:16 AM	7.32	67.03	627.62	125.31
9/11/2025	2:23:16 AM	7.33	67.2	629.47	126.65
9/11/2025	2:24:17 AM	7.32	67.26	632.61	128.89
9/11/2025	2:25:17 AM	7.31	67.26	636.87	130.35
9/11/2025	2:26:17 AM	7.31	67.15	642.36	132.14
9/11/2025	2:27:17 AM	7.31	67.03	649.87	134.05
9/11/2025	2:28:17 AM	7.29	67.03	657.77	136.68
9/11/2025	2:29:17 AM	7.28	67.03	667.63	138.98
9/11/2025	2:30:17 AM	7.27	67.03	678.78	142.51
9/11/2025	2:31:17 AM	7.27	66.98	691.22	146.99
9/11/2025	2:32:17 AM	7.23	66.98	704.84	151.08
9/11/2025	2:33:17 AM	7.21	66.98	719.4	155.39
9/11/2025	2:34:17 AM	7.22	66.98	734.36	160.33

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/11/2025	2:35:17 AM	7.21	66.87	749.88	165.03
9/11/2025	2:36:18 AM	7.2	66.92	765.57	169.51
9/11/2025	2:37:18 AM	7.17	66.98	782.1	173.72
9/11/2025	2:38:18 AM	7.13	66.92	796.11	178.76
9/11/2025	2:39:18 AM	7.12	66.92	794.88	183.24
9/11/2025	2:40:18 AM	7.11	66.98	772.63	186.77
9/11/2025	2:41:18 AM	7.1	66.92	745.74	189.07
9/11/2025	2:42:18 AM	7.08	66.98	723.27	190.08
9/11/2025	2:43:18 AM	7.04	66.92	707.69	191.2
9/11/2025	2:44:18 AM	7.02	66.87	697.78	191.14
9/11/2025	2:45:18 AM	7.01	66.92	692.06	191.03
9/11/2025	2:46:18 AM	6.99	66.87	689.93	192.38
9/11/2025	2:47:19 AM	6.97	66.92	690.27	192.77
9/11/2025	2:48:19 AM	6.94	66.92	693.57	193.33
9/11/2025	2:49:19 AM	6.92	66.92	698.67	193.83
9/11/2025	2:50:19 AM	6.91	66.92	705.06	195.34
9/11/2025	2:51:19 AM	6.88	66.87	712.79	196.24
9/11/2025	2:52:19 AM	6.84	66.81	724.05	197.92
9/11/2025	2:53:19 AM	6.82	66.87	734.48	199.77
9/11/2025	2:54:19 AM	6.82	66.87	741.65	201
9/11/2025	2:55:19 AM	6.78	66.92	751.45	203.3
9/11/2025	2:56:19 AM	6.75	67.03	762.88	205.09
9/11/2025	2:57:19 AM	6.72	66.98	772.24	207.06
9/11/2025	2:58:19 AM	6.7	66.98	779.69	208.74
9/11/2025	2:59:20 AM	6.69	66.92	784.9	209.63
9/11/2025	3:00:20 AM	6.65	66.98	789.44	210.64
9/11/2025	3:01:20 AM	6.62	66.87	794.09	213.05
9/11/2025	3:02:20 AM	6.61	66.92	798.35	215.07
9/11/2025	3:03:20 AM	6.58	66.92	803.39	215.91
9/11/2025	3:04:20 AM	6.54	66.98	808.66	216.24
9/11/2025	3:05:20 AM	6.53	67.03	814.26	218.71
9/11/2025	3:06:20 AM	6.52	67.15	819.42	219.66
9/11/2025	3:07:20 AM	6.47	66.92	824.24	220.11
9/11/2025	3:08:20 AM	6.45	66.92	828.66	221.85
9/11/2025	3:09:20 AM	6.43	67.03	832.92	222.52
9/11/2025	3:10:20 AM	6.4	67.03	837.57	223.25
9/11/2025	3:11:21 AM	6.36	67.15	842.17	225.15
9/11/2025	3:12:21 AM	6.33	67.2	847.77	227.67
9/11/2025	3:13:21 AM	6.32	67.03	853.21	229.69
9/11/2025	3:14:21 AM	6.29	67.15	858.81	230.08
9/11/2025	3:15:21 AM	6.24	67.15	863.68	230.08
9/11/2025	3:16:21 AM	6.23	66.98	868.17	231.65
9/11/2025	3:17:21 AM	6.22	67.15	872.09	233.33
9/11/2025	3:18:21 AM	6.19	67.2	875.9	233.95
9/11/2025	3:19:21 AM	6.14	67.15	879.65	233.78
9/11/2025	3:20:21 AM	6.12	67.2	883.24	235.13
9/11/2025	3:21:21 AM	6.09	67.15	886.15	235.8
9/11/2025	3:22:22 AM	6.04	67.2	888.56	235.24
9/11/2025	3:23:22 AM	6.03	67.2	890.02	235.74
9/11/2025	3:24:22 AM	6.02	67.31	890.07	235.58
9/11/2025	3:25:22 AM	5.97	67.37	890.35	234.51
9/11/2025	3:26:22 AM	5.94	67.37	891.53	234.17
9/11/2025	3:27:22 AM	5.93	67.26	893.88	232.27
9/11/2025	3:28:22 AM	5.91	67.26	896.29	230.76

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/11/2025	3:29:22 AM	5.88	67.26	897.98	228.4
9/11/2025	3:30:22 AM	5.84	67.26	899.49	225.04
9/11/2025	3:31:22 AM	5.84	67.26	900.61	223.25
9/11/2025	3:32:22 AM	5.82	67.31	899.94	219.61
9/11/2025	3:33:22 AM	5.8	67.37	897.08	218.88
9/11/2025	3:34:23 AM	5.76	67.31	892.32	216.3
9/11/2025	3:35:23 AM	5.74	67.37	886.6	213.61
9/11/2025	3:36:23 AM	5.73	67.37	881.22	210.81
9/11/2025	3:37:23 AM	5.72	67.37	875.9	207.34
9/11/2025	3:38:23 AM	5.7	67.31	870.69	204.42
9/11/2025	3:39:23 AM	5.67	67.26	864.97	200.39
9/11/2025	3:40:23 AM	5.65	67.2	858.53	197.03
9/11/2025	3:41:23 AM	5.64	67.31	851.97	193.38
9/11/2025	3:42:23 AM	5.64	67.2	844.3	188.96
9/11/2025	3:43:23 AM	5.62	67.2	837.01	183.07
9/11/2025	3:44:23 AM	5.62	67.26	829.11	178.09
9/11/2025	3:45:23 AM	5.6	67.26	821.77	173.32
9/11/2025	3:46:24 AM	5.58	67.2	812.42	168.06
9/11/2025	3:47:24 AM	5.58	67.31	801.15	161.84
9/11/2025	3:48:24 AM	5.56	67.48	786.75	157.58
9/11/2025	3:49:24 AM	5.55	67.31	772.19	152.26
9/11/2025	3:50:24 AM	5.55	67.31	757.95	148.05
9/11/2025	3:51:24 AM	5.55	67.2	745.51	144.41
9/11/2025	3:52:24 AM	5.56	67.2	733.69	141.61
9/11/2025	3:53:24 AM	5.55	67.2	721.98	138.64
9/11/2025	3:54:24 AM	5.54	67.2	710.44	137.3
9/11/2025	3:55:24 AM	5.54	67.15	699.62	135.62
9/11/2025	3:56:24 AM	5.55	67.2	689.04	134.94
9/11/2025	3:57:24 AM	5.54	67.2	678.95	132.98
9/11/2025	3:58:25 AM	5.53	67.2	669.37	132.76
9/11/2025	3:59:25 AM	5.54	67.2	659	131.81
9/11/2025	4:00:25 AM	5.54	66.92	653.23	130.46
9/11/2025	4:01:25 AM	5.54	67.15	644.94	128.5
9/11/2025	4:02:25 AM	5.53	66.98	636.48	127.77
9/11/2025	4:03:25 AM	5.52	66.92	629.14	126.99
9/11/2025	4:04:25 AM	5.52	66.92	623.14	126.03
9/11/2025	4:05:25 AM	5.52	66.92	615.69	125.14
9/11/2025	4:06:25 AM	5.5	67.15	609.3	123.91
9/11/2025	4:07:25 AM	5.51	66.92	602.69	123.01
9/11/2025	4:08:25 AM	5.51	66.92	595.01	122.11
9/11/2025	4:09:25 AM	5.52	66.92	588.4	121.5
9/11/2025	4:10:26 AM	5.54	66.92	583.53	120.71
9/11/2025	4:11:26 AM	5.52	66.92	576.86	119.76
9/11/2025	4:12:26 AM	5.51	66.87	571.09	118.58
9/11/2025	4:13:26 AM	5.51	66.81	565.32	118.25
9/11/2025	4:14:26 AM	5.51	66.87	561.23	117.24
9/11/2025	4:15:26 AM	5.5	66.64	555.79	117.57
9/11/2025	4:16:26 AM	5.49	66.7	553.55	118.41
9/11/2025	4:17:26 AM	5.49	66.7	551.2	118.3
9/11/2025	4:18:26 AM	5.49	66.64	548.85	118.53
9/11/2025	4:19:26 AM	5.49	66.81	548.4	119.76
9/11/2025	4:20:26 AM	5.49	66.59	549.13	121.94
9/11/2025	4:21:27 AM	5.47	66.64	551.2	124.19
9/11/2025	4:22:27 AM	5.47	66.81	555.62	126.03

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/11/2025	4:23:27 AM	5.45	66.59	562.07	127.88
9/11/2025	4:24:27 AM	5.45	66.64	570.47	131.02
9/11/2025	4:25:27 AM	5.45	66.53	579.89	132.76
9/11/2025	4:26:27 AM	5.45	66.59	591.43	136.9
9/11/2025	4:27:27 AM	5.45	66.59	604.2	141.95
9/11/2025	4:28:27 AM	5.44	66.53	617.15	146.77
9/11/2025	4:29:27 AM	5.44	66.53	630.2	150.97
9/11/2025	4:30:27 AM	5.41	66.53	643.93	156.52
9/11/2025	4:31:27 AM	5.4	66.53	657.21	161.33
9/11/2025	4:32:28 AM	5.39	66.31	668.7	167.05
9/11/2025	4:33:28 AM	5.38	66.36	679.12	172.6
9/11/2025	4:34:28 AM	5.35	66.53	687.69	176.41
9/11/2025	4:35:28 AM	5.36	66.36	696.04	181.34
9/11/2025	4:36:28 AM	5.34	66.36	704.22	185.04
9/11/2025	4:37:28 AM	5.34	66.36	712.18	189.29
9/11/2025	4:38:28 AM	5.33	66.36	720.02	194.22
9/11/2025	4:39:28 AM	5.3	66.53	727.86	199.15
9/11/2025	4:40:28 AM	5.28	66.36	735.65	202.52
9/11/2025	4:41:28 AM	5.25	66.36	743.67	206.16
9/11/2025	4:42:28 AM	5.25	66.36	747.14	210.19
9/11/2025	4:43:28 AM	5.25	66.36	740.58	212.71
9/11/2025	4:44:29 AM	5.24	66.25	731.06	214.4
9/11/2025	4:45:29 AM	5.2	66.31	724.78	215.68
9/11/2025	4:46:29 AM	5.18	66.36	722.09	217.25
9/11/2025	4:47:29 AM	5.16	66.31	722.26	218.82
9/11/2025	4:48:29 AM	5.15	66.36	724.33	219.44
9/11/2025	4:49:29 AM	5.15	66.36	727.08	220.17
9/11/2025	4:50:29 AM	5.11	66.47	730.72	221.06
9/11/2025	4:51:29 AM	5.1	66.31	734.42	223.14
9/11/2025	4:52:29 AM	5.08	66.36	737.56	224.31
9/11/2025	4:53:29 AM	5.05	66.36	740.08	226.11
9/11/2025	4:54:29 AM	5.05	66.31	741.82	227.34
9/11/2025	4:55:29 AM	5.04	66.31	743.83	227.73
9/11/2025	4:56:30 AM	5.02	66.25	746.64	228.24
9/11/2025	4:57:30 AM	5.01	66.25	750.22	229.97
9/11/2025	4:58:30 AM	5	66.31	753.58	231.04
9/11/2025	4:59:30 AM	4.97	66.31	757.06	232.55
9/11/2025	5:00:30 AM	4.96	66.36	760.75	233.78
9/11/2025	5:01:30 AM	4.95	66.31	764.17	234.62
9/11/2025	5:02:30 AM	4.93	66.47	766.69	235.35
9/11/2025	5:03:30 AM	4.91	66.36	770.84	236.75
9/11/2025	5:04:30 AM	4.88	66.36	775.88	237.48
9/11/2025	5:05:30 AM	4.88	66.36	781.15	239.22
9/11/2025	5:06:30 AM	4.86	66.31	786.31	240.39
9/11/2025	5:07:30 AM	4.85	66.47	790.23	241.85
9/11/2025	5:08:31 AM	4.84	66.47	792.47	243.87
9/11/2025	5:09:31 AM	4.82	66.31	793.31	243.7
9/11/2025	5:10:31 AM	4.79	66.36	792.02	244.6
9/11/2025	5:11:31 AM	4.79	66.31	788.83	246.5
9/11/2025	5:12:31 AM	4.78	66.47	786.31	246.89
9/11/2025	5:13:31 AM	4.76	66.36	785.13	246.78
9/11/2025	5:14:31 AM	4.76	66.31	784.51	246.89
9/11/2025	5:15:31 AM	4.75	66.59	783.73	246.67
9/11/2025	5:16:31 AM	4.72	66.47	782.89	246.5

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/11/2025	5:17:31 AM	4.73	66.36	782.16	246.78
9/11/2025	5:18:31 AM	4.7	66.36	782.44	247.62
9/11/2025	5:19:32 AM	4.69	66.31	783.34	247.68
9/11/2025	5:20:32 AM	4.69	66.36	784.46	247.17
9/11/2025	5:21:32 AM	4.67	66.36	785.02	247.06
9/11/2025	5:22:32 AM	4.66	66.31	785.41	247.62
9/11/2025	5:23:32 AM	4.64	66.31	785.24	248.01
9/11/2025	5:24:32 AM	4.63	66.31	784.68	247.29
9/11/2025	5:25:32 AM	4.62	66.25	784.01	247.79
9/11/2025	5:26:32 AM	4.6	66.31	783.45	248.41
9/11/2025	5:27:32 AM	4.58	66.47	783.22	247.68
9/11/2025	5:28:32 AM	4.58	66.25	782.89	248.01
9/11/2025	5:29:32 AM	4.58	66.25	783.67	248.41
9/11/2025	5:30:32 AM	4.56	66.31	785.13	248.13
9/11/2025	5:31:33 AM	4.55	66.25	785.74	248.13
9/11/2025	5:32:33 AM	4.52	66.19	786.25	248.18
9/11/2025	5:33:33 AM	4.52	66.31	787.09	248.18
9/11/2025	5:34:33 AM	4.51	66.25	787.82	248.57
9/11/2025	5:35:33 AM	4.49	66.25	787.71	248.69
9/11/2025	5:36:33 AM	4.48	66.08	788.04	249.13
9/11/2025	5:37:33 AM	4.47	66.19	788.43	249.58
9/11/2025	5:38:33 AM	4.46	66.08	788.21	249.58
9/11/2025	5:39:33 AM	4.46	66.19	787.76	249.02
9/11/2025	5:40:33 AM	4.45	66.25	787.76	248.24
9/11/2025	5:41:33 AM	4.44	66.02	787.43	247.85
9/11/2025	5:42:33 AM	4.4	66.08	787.09	248.57
9/11/2025	5:43:34 AM	4.4	66.08	786.64	248.46
9/11/2025	5:44:34 AM	4.38	66.08	786.81	248.07
9/11/2025	5:45:34 AM	4.38	66.19	786.92	248.07
9/11/2025	5:46:34 AM	4.36	66.25	787.31	247.96
9/11/2025	5:47:34 AM	4.36	66.08	787.37	249.08
9/11/2025	5:48:34 AM	4.35	66.02	787.54	248.24
9/11/2025	5:49:34 AM	4.33	66.02	788.55	248.85
9/11/2025	5:50:34 AM	4.32	66.08	788.99	248.57
9/11/2025	5:51:34 AM	4.32	66.08	788.6	248.41
9/11/2025	5:52:34 AM	4.3	66.02	787.71	248.97
9/11/2025	5:53:34 AM	4.29	66.08	787.48	249.3
9/11/2025	5:54:34 AM	4.28	65.97	789.16	249.3
9/11/2025	5:55:35 AM	4.25	66.08	791.57	249.47
9/11/2025	5:56:35 AM	4.26	66.02	792.97	250.09
9/11/2025	5:57:35 AM	4.25	66.08	792.52	249.92
9/11/2025	5:58:35 AM	4.23	66.19	791.85	250.65
9/11/2025	5:59:35 AM	4.22	66.25	790.96	250.2
9/11/2025	6:00:35 AM	4.21	66.25	789.95	250.26
9/11/2025	6:01:35 AM	4.2	66.81	787.99	250.76
9/11/2025	6:02:35 AM	4.19	66.92	785.46	250.26
9/11/2025	6:03:35 AM	4.18	67.03	782.44	250.42
9/11/2025	6:04:35 AM	4.17	67.2	780.31	250.03
9/11/2025	6:05:35 AM	4.16	67.26	778.52	249.86
9/11/2025	6:06:36 AM	4.14	67.31	776.61	249.58
9/11/2025	6:07:36 AM	4.14	67.37	775.15	249.58
9/11/2025	6:08:36 AM	4.13	67.59	773.87	249.47
9/11/2025	6:09:36 AM	4.13	67.65	772.58	249.41
9/11/2025	6:10:36 AM	4.11	67.82	771.4	249.36

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/11/2025	6:11:36 AM	4.1	67.82	769.38	249.13
9/11/2025	6:12:36 AM	4.08	67.93	767.59	249.02
9/11/2025	6:13:36 AM	4.08	67.93	764.85	248.01
9/11/2025	6:14:36 AM	4.08	68.1	762.49	247.51
9/11/2025	6:15:36 AM	4.06	68.15	761.37	247.62
9/11/2025	6:16:36 AM	4.05	68.21	762.49	246.67
9/11/2025	6:17:36 AM	4.04	68.38	765.57	246.39
9/11/2025	6:18:37 AM	4.02	68.38	768.32	245.38
9/11/2025	6:19:37 AM	4.03	68.43	770.67	245.6
9/11/2025	6:20:37 AM	4.01	68.55	772.91	245.83
9/11/2025	6:21:37 AM	3.99	68.55	773.14	246.67
9/11/2025	6:22:37 AM	4	68.77	770.5	246.61
9/11/2025	6:23:37 AM	3.97	68.77	766.58	246.5
9/11/2025	6:24:37 AM	3.97	68.71	762.55	245.94
9/11/2025	6:25:37 AM	3.95	68.77	759.63	245.77
9/11/2025	6:26:37 AM	3.95	68.77	757.51	244.99
9/11/2025	6:27:37 AM	3.94	68.88	755.49	245.1
9/11/2025	6:28:37 AM	3.93	68.83	753.41	244.93
9/11/2025	6:29:38 AM	3.92	68.99	751.06	243.76
9/11/2025	6:30:38 AM	3.91	69.05	748.88	242.92
9/11/2025	6:31:38 AM	3.89	69.16	747.42	241.79
9/11/2025	6:32:38 AM	3.89	69.05	746.64	241.51
9/11/2025	6:33:38 AM	3.89	69.22	745.4	240.95
9/11/2025	6:34:38 AM	3.88	69.22	743.61	240.73
9/11/2025	6:35:38 AM	3.87	69.16	741.59	240.73
9/11/2025	6:36:38 AM	3.85	69.11	739.74	240.51
9/11/2025	6:37:38 AM	3.84	69.16	737.61	239.83
9/11/2025	6:38:38 AM	3.83	69.22	735.99	239.95
9/11/2025	6:39:38 AM	3.82	69.33	733.92	239.22
9/11/2025	6:40:38 AM	3.81	69.16	732.12	238.88
9/11/2025	6:41:39 AM	3.8	69.22	730.61	238.54
9/11/2025	6:42:39 AM	3.8	69.22	729.66	237.82
9/11/2025	6:43:39 AM	3.79	69.22	728.48	237.37
9/11/2025	6:44:39 AM	3.78	69.22	726.97	237.09
9/11/2025	6:45:39 AM	3.78	69.33	724.89	237.26
9/11/2025	6:46:39 AM	3.75	69.22	722.99	236.64
9/11/2025	6:47:39 AM	3.75	69.39	721.25	236.36
9/11/2025	6:48:39 AM	3.74	69.39	719.35	235.07
9/11/2025	6:49:39 AM	3.74	69.39	717.55	234.62
9/11/2025	6:50:39 AM	3.71	69.33	720.08	236.81
9/11/2025	6:51:39 AM	3.68	69.55	712.96	238.6
9/11/2025	6:52:39 AM	3.65	69.33	694.47	237.76
9/11/2025	6:53:40 AM	3.62	69.44	684.61	236.53
9/11/2025	6:54:40 AM	3.6	69.44	686.51	236.3
9/11/2025	6:55:40 AM	3.56	69.5	692.28	236.47
9/11/2025	6:56:40 AM	3.54	69.39	699.06	237.26
9/11/2025	6:57:40 AM	3.51	69.5	706.8	238.43
9/11/2025	6:58:40 AM	3.48	69.84	717.33	238.6
9/11/2025	6:59:40 AM	3.46	69.72	731.73	240.39
9/11/2025	7:00:40 AM	3.44	69.67	747.31	243.31
9/11/2025	7:01:40 AM	3.41	69.55	758.79	245.32
9/11/2025	7:02:40 AM	3.38	69.72	766.97	247.79
9/11/2025	7:03:40 AM	3.35	69.84	774.2	250.09
9/11/2025	7:04:40 AM	3.32	69.72	782.1	252.38

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/11/2025	7:05:40 AM	3.29	69.72	792.41	254.51
9/11/2025	7:06:41 AM	3.27	69.67	799.08	257.6
9/11/2025	7:07:41 AM	3.22	69.78	805.69	259.78
9/11/2025	7:08:41 AM	3.2	69.84	817.23	261.57
9/11/2025	7:09:41 AM	3.17	69.78	831.35	262.86
9/11/2025	7:10:41 AM	3.14	69.78	844.47	264.82
9/11/2025	7:11:41 AM	3.12	69.78	855.84	265.83
9/11/2025	7:12:41 AM	3.09	69.72	865.14	265.89
9/11/2025	7:13:41 AM	3.06	69.95	867.77	266.62
9/11/2025	7:14:41 AM	3.04	70	867.49	265.22
9/11/2025	7:15:41 AM	3.01	70	865.08	264.6
9/11/2025	7:16:41 AM	2.99	70.12	858.98	263.14
9/11/2025	7:17:42 AM	2.97	70	853.82	260.34
9/11/2025	7:18:42 AM	2.95	70.06	846.37	257.82
9/11/2025	7:19:42 AM	2.93	70.12	836.73	254.96
9/11/2025	7:20:42 AM	2.91	70.28	826.03	251.43
9/11/2025	7:21:42 AM	2.9	70.12	816.62	247.96
9/11/2025	7:22:42 AM	2.88	70.17	808.77	244.2
9/11/2025	7:23:42 AM	2.86	70.28	800.93	241.63
9/11/2025	7:24:42 AM	2.86	70.17	793.59	238.43
9/11/2025	7:25:43 AM	2.85	70.28	786.47	235.01
9/11/2025	7:26:43 AM	2.82	70.34	779.53	231.2
9/11/2025	7:27:43 AM	2.82	70.4	772.97	227.79
9/11/2025	7:28:43 AM	2.81	70.4	766.92	223.64
9/11/2025	7:29:43 AM	2.8	70.45	761.37	220.45
9/11/2025	7:30:43 AM	2.79	70.68	755.43	216.92
9/11/2025	7:31:43 AM	2.78	70.62	749.6	213.05
9/11/2025	7:32:43 AM	2.76	70.62	742.49	210.25
9/11/2025	7:33:43 AM	2.77	70.73	734.03	207.62
9/11/2025	7:34:43 AM	2.76	70.79	725.57	205.21
9/11/2025	7:35:43 AM	2.73	70.84	718.51	202.96
9/11/2025	7:36:43 AM	2.74	70.79	712.46	200.72
9/11/2025	7:37:44 AM	2.72	71.01	706.91	197.64
9/11/2025	7:38:44 AM	2.7	71.01	740.42	228.85
9/11/2025	7:39:44 AM	2.67	71.07	735.76	277.32
9/11/2025	7:40:44 AM	2.64	71.18	719.12	301.47
9/11/2025	7:41:44 AM	2.63	71.12	708.76	312.84
9/11/2025	7:42:44 AM	2.59	71.29	704.33	319.57
9/11/2025	7:43:44 AM	2.56	71.57	703.15	323.1
9/11/2025	7:44:44 AM	2.54	71.57	705.51	325.95
9/11/2025	7:45:44 AM	2.51	71.68	707.97	328.47
9/11/2025	7:46:44 AM	2.5	71.85	709.6	330.6
9/11/2025	7:47:44 AM	2.47	71.91	711.17	332.56
9/11/2025	7:48:44 AM	2.44	72.02	713.8	333.8
9/11/2025	7:49:44 AM	2.41	72.08	714.98	335.42
9/11/2025	7:50:44 AM	2.39	72.19	714.31	335.81
9/11/2025	7:51:44 AM	2.36	72.36	715.31	337.27
9/11/2025	7:52:45 AM	2.33	72.52	717.78	337.05
9/11/2025	7:53:45 AM	2.31	72.58	720.97	337.94
9/11/2025	7:54:46 AM	2.27	72.58	722.49	339.57
9/11/2025	7:55:46 AM	2.25	72.75	724	340.02
9/11/2025	7:56:47 AM	2.23	72.69	726.74	341.31
9/11/2025	7:57:47 AM	2.19	72.92	727.75	341.98
9/11/2025	7:58:48 AM	2.17	72.92	728.71	342.76

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/11/2025	7:59:48 AM	2.15	73.14	729.66	343.04
9/11/2025	8:00:49 AM	2.11	73.2	731.06	343.38
9/11/2025	8:01:49 AM	2.1	73.31	734.25	344.44
9/11/2025	8:02:49 AM	2.08	73.36	739.63	345.79
9/11/2025	8:03:49 AM	2.04	73.59	744.67	347.08
9/11/2025	8:04:50 AM	2.03	73.7	748.15	348.14
9/11/2025	8:05:50 AM	1.99	73.81	751.62	349.43
9/11/2025	8:06:51 AM	1.98	73.98	754.03	350.16
9/11/2025	8:07:51 AM	1.95	74.15	756.83	350.38
9/11/2025	8:08:51 AM	1.94	74.26	759.75	351.39
9/11/2025	8:09:51 AM	1.91	74.26	762.94	351.95
9/11/2025	8:10:51 AM	1.88	74.49	763.44	352.23
9/11/2025	8:11:52 AM	1.88	74.77	763.05	351.84
9/11/2025	8:12:52 AM	1.85	74.82	764.4	352.18
9/11/2025	8:13:53 AM	1.82	74.77	767.09	352.23
9/11/2025	8:14:53 AM	1.81	74.82	769.94	352.29
9/11/2025	8:15:54 AM	1.78	74.77	771.46	352.9
9/11/2025	8:16:54 AM	1.78	74.88	773.14	352.79
9/11/2025	8:17:54 AM	1.75	75.05	774.54	353.46
9/11/2025	8:18:55 AM	1.74	75.16	775.38	353.91
9/11/2025	8:19:55 AM	1.71	75.16	773.81	353.46
9/11/2025	8:20:56 AM	1.71	75.1	771.23	352.85
9/11/2025	8:21:56 AM	1.69	75.1	769.44	353.18
9/11/2025	8:22:57 AM	1.66	75.38	768.66	352.34
9/11/2025	8:23:57 AM	1.63	75.21	768.26	352.06
9/11/2025	8:24:58 AM	1.65	75.44	767.98	351.95
9/11/2025	8:25:58 AM	1.61	75.38	766.69	351.73
9/11/2025	8:26:59 AM	1.61	75.38	764.23	351.06
9/11/2025	8:27:59 AM	1.59	75.27	761.26	350.05
9/11/2025	8:29:00 AM	1.58	75.44	757.67	349.04
9/11/2025	8:30:00 AM	1.56	75.49	754.48	348.03
9/11/2025	8:31:01 AM	1.55	75.61	752.69	347.13
9/11/2025	8:32:01 AM	1.53	75.44	752.63	346.74
9/11/2025	8:33:02 AM	1.51	75.89	752.97	346.85
9/11/2025	8:34:02 AM	1.51	75.55	753.19	346.52
9/11/2025	8:35:03 AM	1.49	75.55	752.91	346.4
9/11/2025	8:36:03 AM	1.47	75.61	752.24	346.12
9/11/2025	8:37:04 AM	1.45	75.83	752.18	346.24
9/11/2025	8:38:04 AM	1.43	75.77	751.62	346.12
9/11/2025	8:39:04 AM	1.41	75.94	743.55	345.17
9/11/2025	8:40:04 AM	1.41	75.61	737	343.44
9/11/2025	8:41:04 AM	1.41	75.77	733.47	342.03
9/11/2025	8:42:05 AM	1.4	75.77	728.93	341.03
9/11/2025	8:43:05 AM	1.38	75.77	723.38	339.46
9/11/2025	8:44:06 AM	1.37	75.72	717.16	337.27
9/11/2025	8:45:06 AM	1.36	75.89	711.11	335.87
9/11/2025	8:46:07 AM	1.36	76.28	704.56	333.69
9/11/2025	8:47:07 AM	1.34	75.94	698.45	332.06
9/11/2025	8:48:07 AM	1.34	75.83	692.9	330.04
9/11/2025	8:49:07 AM	1.33	75.94	687.35	327.47
9/11/2025	8:50:07 AM	1.33	75.83	682.37	325.95
9/11/2025	8:51:08 AM	1.32	76.05	678.61	324.5
9/11/2025	8:52:08 AM	1.3	75.89	673.68	322.76
9/11/2025	8:53:09 AM	1.31	75.83	667.63	321.81

Date	Time	[0]Fuel(lbs)	[1]Ambient	[2]Combustor	[3]Flue
9/11/2025	8:54:09 AM	1.29	75.89	661.02	319.62
9/11/2025	8:55:10 AM	1.29	75.94	655.25	318.05
9/11/2025	8:56:10 AM	1.27	75.94	650.37	315.87
9/11/2025	8:57:11 AM	1.27	75.89	645.16	314.02
9/11/2025	8:58:11 AM	1.27	75.89	640.46	312
9/11/2025	8:59:11 AM	1.26	76.17	635.81	309.82
9/11/2025	9:00:12 AM	1.25	76.11	631.43	308.53
9/11/2025	9:01:12 AM	1.25	75.94	626.39	306.45
9/11/2025	9:02:13 AM	1.23	75.94	620.17	305.11
9/11/2025	9:03:13 AM	1.23	76.17	614.35	303.88
9/11/2025	9:04:14 AM	1.23	76.05	608.07	301.97
9/11/2025	9:05:14 AM	1.22	76.17	602.07	299.79
9/11/2025	9:06:15 AM	1.21	76.05	596.86	298.05
9/11/2025	9:07:15 AM	1.2	75.83	592.49	295.92
9/11/2025	9:08:15 AM	1.2	75.94	588.01	294.41
9/11/2025	9:09:15 AM	1.19	75.89	582.86	292.56
9/11/2025	9:10:15 AM	1.19	76.5	577.14	290.65
9/11/2025	9:11:15 AM	1.18	76.17	571.76	288.92
9/11/2025	9:12:15 AM	1.18	76.17	567.34	286.84
9/11/2025	9:13:15 AM	1.16	76.05	562.52	285.22
9/11/2025	9:14:15 AM	1.18	76.22	555.96	283.2
9/11/2025	9:15:16 AM	1.15	76.17	548.12	281.02
9/11/2025	9:16:16 AM	1.15	76.11	542.07	278.94
9/11/2025	9:17:16 AM	1.16	76.17	536.18	276.37
9/11/2025	9:18:16 AM	1.14	76.22	530.58	274.18
9/11/2025	9:19:17 AM	1.15	76.17	525.54	271.72
9/11/2025	9:20:17 AM	1.15	76.11	520.49	269.81
9/11/2025	9:21:18 AM	1.13	76.39	515.56	267.51
9/11/2025	9:22:18 AM	1.13	76.17	511.58	265.44
9/11/2025	9:23:18 AM	1.13	76.11	507.49	263.65
9/11/2025	9:24:19 AM	1.13	76.11	502.96	261.52

Appendix C

EPA 30 days notice

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)
30-DAY NOTIFICATION FORM
PURSUANT TO 40 CFR PART 60 SUBPARTS AAA AND QQQQ
2015 STANDARDS OF PERFOMANCE FOR NEW RESIDENTIAL WOOD HEATERS, NEW RESIDENTIAL HYDRONIC HEATERS AND FORCED-AIR FURNACES

Disclaimer: The statutory provisions and the EPA regulations described in this document contain legally binding requirements. This document is not a substitute for those provisions or regulations, nor is it a regulation itself. In the event of a discrepancy, please refer to 40 CFR PART 60 Subparts AAA AND QQQQ, Sections 60.533(b) and 60.5475(b). This document may be revised periodically without public notice. If you have additional questions, please contact Rafael Sanchez at 202-564-7028 or via email at sanchez.rafael@epa.gov.

- **The manufacturer of an affected wood/pellet heater/central heater model line must notify the Administrator of the date that certification testing is scheduled to begin by email to WoodHeaterReports@epa.gov.**
- **This notice must be received by the EPA at least 30 days before the start of testing.**

GENERAL INFORMATION						
Manufacturer's Name: **Blaze King Industries, Inc.**						
Appliance Type (Circle One):	Adjustable Burn Rate Wood Heater	Pellet Stove	Single Burn Rate Heater	Hydronic Heater	Forced Air Furnace	Other:
Hydronic Heater Type (Circle One): **NA**	Traditional	Full Storage	Partial Storage	Indoor/Outdoor	Other:	
Forced-Air Furnace Type (Circle One): NA	Small (less than 65,000 BTU/hr heat output)		Large (greater than 65,000 BTU/hr heat output)		Other:	
Fuel Type:	Cribs (Yes)	Pellet	Cordwood	Other:		
Model Name and Number: **Sentry 14**						
Catalyst: YES Plus 1 catalyst equivalency for alternate catalytic device.						
Mailing Address: **146 A Street Walla Walla WA 99362**						
Street Address: **146 A Street**						
City: Walla Walla	**State: WA**	**ZIP Code:99362**				
Phone:509-522-2730	**Fax:509-522-9803**	**Web Site: www.Blazeking.com**				
Address of Manufacturing Facility: **146 A Street**						
City: Walla Walla	**State WA**	**ZIP Code:99362**				
EPA APPROVED TEST LABORATORY						
Name and Title of Authorized Representative: Alex Tiegs President						
Company: OMNI Test Laboratories, Inc.						

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U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)
30-DAY NOTIFICATION FORM
PURSUANT TO 40 CFR PART 60 SUBPARTS AAA AND QQQQ
2015 STANDARDS OF PERFOMANCE FOR NEW RESIDENTIAL WOOD HEATERS, NEW RESIDENTIAL HYDRONIC HEATERS AND FORCED-AIR FURNACES

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Phone:503-643-3788	**E-mail: Alex Tiegs <atiegs@omni-test.com>**	**Fax:**
City: Portland	**State: Oregon**	**ZIP Code: 97230**
EPA APPROVED THIRD-PARTY CERTIFIER		
Name and Title of Authorized Representative: Alex Tiegs President		
Company: OMNI Test Laboratories, Inc.		
Phone: 503-643-3788	**E-mail: Alex Tiegs <atiegs@omni-test.com>**	**Fax:**
City: Portland	**State: Oregon**	**ZIP Code:97230**
COMPLIANCE TEST INFORMATION		
Test Method(s):M28R		
Date(s) of Proposed Test: September 29, 2025		
Testing Location: OMNI-Test Laboratories, Inc. 13327 NE Airport Way Portland, Oregon 97230 atiegs@omni-test.com		

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U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)
30-DAY NOTIFICATION FORM
PURSUANT TO 40 CFR PART 60 SUBPARTS AAA AND QQQQ
2015 STANDARDS OF PERFOMANCE FOR NEW RESIDENTIAL WOOD HEATERS, NEW RESIDENTIAL HYDRONIC HEATERS AND FORCED-AIR FURNACES

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- **This notice must be received by the EPA at least 30 days before the start of testing.**

Chris Neufeld Vice President

Print Name and Title of Authorized Official

Signature



Date
8/28/2025

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Appendix D

Laboratory Ambient Data

9/29/2025	12:00:00 AM	76.46	38.2
9/29/2025	12:05:00 AM	76.39	38.3
9/29/2025	12:10:00 AM	76.39	38.3
9/29/2025	12:15:00 AM	76.39	38.3
9/29/2025	12:20:00 AM	76.32	38.3
9/29/2025	12:25:00 AM	76.32	38.4
9/29/2025	12:30:00 AM	76.32	38.4
9/29/2025	12:35:00 AM	76.24	38.4
9/29/2025	12:40:00 AM	76.24	38.4
9/29/2025	12:45:00 AM	76.24	38.5
9/29/2025	12:50:00 AM	76.17	38.6
9/29/2025	12:55:00 AM	76.17	38.6
9/29/2025	1:00:00 AM	76.17	38.6
9/29/2025	1:05:00 AM	76.08	38.7
9/29/2025	1:10:00 AM	76.08	38.7
9/29/2025	1:15:00 AM	76.08	38.7
9/29/2025	1:20:00 AM	76.01	38.8
9/29/2025	1:25:00 AM	76.01	38.8
9/29/2025	1:30:00 AM	76.01	38.8
9/29/2025	1:35:00 AM	75.94	38.9
9/29/2025	1:40:00 AM	75.94	38.9
9/29/2025	1:45:00 AM	75.94	39.0
9/29/2025	1:50:00 AM	75.87	39.0
9/29/2025	1:55:00 AM	75.87	39.0
9/29/2025	2:00:00 AM	75.87	39.1
9/29/2025	2:05:00 AM	75.79	39.1

9/29/2025	2:10:00 AM	75.79	39.1
9/29/2025	2:15:00 AM	75.79	39.1
9/29/2025	2:20:00 AM	75.72	39.2
9/29/2025	2:25:00 AM	75.72	39.2
9/29/2025	2:30:00 AM	75.72	39.2
9/29/2025	2:35:00 AM	75.63	39.2
9/29/2025	2:40:00 AM	75.63	39.4
9/29/2025	2:45:00 AM	75.63	39.4
9/29/2025	2:50:00 AM	75.63	39.4
9/29/2025	2:55:00 AM	75.56	39.4
9/29/2025	3:00:00 AM	75.56	39.6
9/29/2025	3:05:00 AM	75.56	39.6
9/29/2025	3:10:00 AM	75.56	39.6
9/29/2025	3:15:00 AM	75.49	39.6
9/29/2025	3:20:00 AM	75.49	39.6
9/29/2025	3:25:00 AM	75.49	39.6
9/29/2025	3:30:00 AM	75.42	39.8
9/29/2025	3:35:00 AM	75.42	39.8
9/29/2025	3:40:00 AM	75.42	39.8
9/29/2025	3:45:00 AM	75.42	39.8
9/29/2025	3:50:00 AM	75.34	39.8
9/29/2025	3:55:00 AM	75.34	39.9
9/29/2025	4:00:00 AM	75.34	40.0
9/29/2025	4:05:00 AM	75.27	40.0
9/29/2025	4:10:00 AM	75.27	40.0
9/29/2025	4:15:00 AM	75.27	40.0

9/29/2025	4:20:00 AM	75.18	40.0
9/29/2025	4:25:00 AM	75.18	40.0
9/29/2025	4:30:00 AM	75.18	40.2
9/29/2025	4:35:00 AM	75.18	40.2
9/29/2025	4:40:00 AM	75.11	40.1
9/29/2025	4:45:00 AM	75.11	40.1
9/29/2025	4:50:00 AM	75.11	40.1
9/29/2025	4:55:00 AM	75.11	40.1
9/29/2025	5:00:00 AM	75.11	40.2
9/29/2025	5:05:00 AM	75.04	40.2
9/29/2025	5:10:00 AM	75.04	40.2
9/29/2025	5:15:00 AM	75.04	40.2
9/29/2025	5:20:00 AM	75.04	40.2
9/29/2025	5:25:00 AM	74.97	40.3
9/29/2025	5:30:00 AM	74.97	40.3
9/29/2025	5:35:00 AM	74.97	40.5
9/29/2025	5:40:00 AM	74.89	40.4
9/29/2025	5:45:00 AM	74.89	40.5
9/29/2025	5:50:00 AM	74.89	40.5
9/29/2025	5:55:00 AM	74.89	40.5
9/29/2025	6:00:00 AM	74.82	40.6
9/29/2025	6:05:00 AM	74.82	40.5
9/29/2025	6:10:00 AM	74.82	40.7
9/29/2025	6:15:00 AM	74.82	40.7
9/29/2025	6:20:00 AM	74.73	40.7
9/29/2025	6:25:00 AM	74.73	40.8

9/29/2025	6:30:00 AM	74.73	40.8
9/29/2025	6:35:00 AM	74.73	40.9
9/29/2025	6:40:00 AM	74.66	40.9
9/29/2025	6:45:00 AM	74.66	40.9
9/29/2025	6:50:00 AM	74.66	41.0
9/29/2025	6:55:00 AM	74.66	41.0
9/29/2025	7:00:00 AM	74.59	41.0
9/29/2025	7:05:00 AM	74.59	41.0
9/29/2025	7:10:00 AM	74.59	41.1
9/29/2025	7:15:00 AM	74.52	41.1
9/29/2025	7:20:00 AM	74.52	41.1
9/29/2025	7:25:00 AM	74.52	41.1
9/29/2025	7:30:00 AM	74.52	41.1
9/29/2025	7:35:00 AM	74.52	41.2
9/29/2025	7:40:00 AM	74.52	41.2
9/29/2025	7:45:00 AM	74.52	41.2
9/29/2025	7:50:00 AM	74.52	41.3
9/29/2025	7:55:00 AM	74.41	42.4
9/29/2025	8:00:00 AM	74.30	43.0
9/29/2025	8:05:00 AM	74.21	43.4
9/29/2025	8:10:00 AM	74.10	44.5
9/29/2025	8:15:00 AM	74.10	45.2
9/29/2025	8:20:00 AM	74.03	45.6
9/29/2025	8:25:00 AM	73.96	45.9
9/29/2025	8:30:00 AM	73.96	46.2
9/29/2025	8:35:00 AM	73.81	46.4

9/29/2025	8:40:00 AM	73.65	47.5
9/29/2025	8:45:00 AM	73.54	48.0
9/29/2025	8:50:00 AM	73.47	48.3
9/29/2025	8:55:00 AM	73.29	48.1
9/29/2025	9:00:00 AM	73.29	48.5
9/29/2025	9:05:00 AM	73.29	48.5
9/29/2025	9:10:00 AM	73.17	48.1
9/29/2025	9:15:00 AM	73.09	48.9
9/29/2025	9:20:00 AM	72.99	49.5
9/29/2025	9:25:00 AM	72.99	49.6
9/29/2025	9:30:00 AM	72.88	49.9
9/29/2025	9:35:00 AM	72.77	50.1
9/29/2025	9:40:00 AM	72.68	50.3
9/29/2025	9:45:00 AM	72.61	50.5
9/29/2025	9:50:00 AM	72.54	51.0
9/29/2025	9:55:00 AM	72.43	51.3
9/29/2025	10:00:00 AM	72.43	51.0
9/29/2025	10:05:00 AM	72.32	50.9
9/29/2025	10:10:00 AM	72.32	51.0
9/29/2025	10:15:00 AM	72.32	51.0
9/29/2025	10:20:00 AM	72.25	50.7
9/29/2025	10:25:00 AM	72.25	51.0
9/29/2025	10:30:00 AM	72.25	51.1
9/29/2025	10:35:00 AM	72.25	51.5
9/29/2025	10:40:00 AM	72.09	52.2
9/29/2025	10:45:00 AM	72.09	52.5

9/29/2025	10:50:00 AM	72.09	54.6
9/29/2025	10:55:00 AM	72.09	54.5
9/29/2025	11:00:00 AM	72.16	54.4
9/29/2025	11:05:00 AM	72.25	54.2
9/29/2025	11:10:00 AM	72.25	53.6
9/29/2025	11:15:00 AM	72.25	53.3
9/29/2025	11:20:00 AM	72.25	53.1
9/29/2025	11:25:00 AM	72.25	53.1
9/29/2025	11:30:00 AM	72.39	53.5
9/29/2025	11:35:00 AM	72.39	53.8
9/29/2025	11:40:00 AM	72.39	53.3
9/29/2025	11:45:00 AM	72.46	53.4
9/29/2025	11:50:00 AM	72.46	52.9
9/29/2025	11:55:00 AM	72.54	52.6
9/29/2025	12:00:00 PM	72.54	52.5
9/29/2025	12:05:00 PM	72.54	53.0
9/29/2025	12:10:00 PM	72.61	52.5
9/29/2025	12:15:00 PM	72.61	52.8
9/29/2025	12:20:00 PM	72.61	53.8
9/29/2025	12:25:00 PM	72.61	53.1
9/29/2025	12:30:00 PM	72.88	52.9
9/29/2025	12:35:00 PM	72.99	52.3
9/29/2025	12:40:00 PM	73.17	51.9
9/29/2025	12:45:00 PM	73.29	51.6
9/29/2025	12:50:00 PM	73.40	51.6
9/29/2025	12:55:00 PM	73.51	51.2

9/29/2025	1:00:00 PM	73.51	50.9
9/29/2025	1:05:00 PM	73.51	52.3
9/29/2025	1:10:00 PM	73.58	51.7
9/29/2025	1:15:00 PM	73.65	51.4
9/29/2025	1:20:00 PM	73.72	51.0
9/29/2025	1:25:00 PM	73.81	50.9
9/29/2025	1:30:00 PM	73.89	50.9
9/29/2025	1:35:00 PM	73.89	50.7
9/29/2025	1:40:00 PM	73.96	51.4
9/29/2025	1:45:00 PM	73.85	53.1
9/29/2025	1:50:00 PM	73.96	51.7
9/29/2025	1:55:00 PM	74.03	51.5
9/29/2025	2:00:00 PM	74.03	51.3
9/29/2025	2:05:00 PM	74.14	51.4
9/29/2025	2:10:00 PM	74.14	51.2
9/29/2025	2:15:00 PM	74.25	50.9
9/29/2025	2:20:00 PM	74.34	51.1
9/29/2025	2:25:00 PM	74.34	50.9
9/29/2025	2:30:00 PM	74.44	51.0
9/29/2025	2:35:00 PM	74.52	51.1
9/29/2025	2:40:00 PM	74.52	51.2
9/29/2025	2:45:00 PM	74.62	50.9
9/29/2025	2:50:00 PM	74.70	50.4
9/29/2025	2:55:00 PM	74.79	50.2
9/29/2025	3:00:00 PM	74.62	50.9
9/29/2025	3:05:00 PM	74.52	50.8

9/29/2025	3:10:00 PM	74.59	51.4
9/29/2025	3:15:00 PM	74.59	51.0
9/29/2025	3:20:00 PM	74.73	50.4
9/29/2025	3:25:00 PM	74.82	50.1
9/29/2025	3:30:00 PM	74.89	49.7
9/29/2025	3:35:00 PM	74.89	49.4
9/29/2025	3:40:00 PM	74.97	49.1
9/29/2025	3:45:00 PM	75.04	49.1
9/29/2025	3:50:00 PM	75.04	49.3
9/29/2025	3:55:00 PM	75.04	48.8
9/29/2025	4:00:00 PM	75.04	48.7
9/29/2025	4:05:00 PM	75.11	48.7
9/29/2025	4:10:00 PM	75.11	48.8
9/29/2025	4:15:00 PM	75.18	48.7
9/29/2025	4:20:00 PM	75.18	48.7
9/29/2025	4:25:00 PM	75.18	48.5
9/29/2025	4:30:00 PM	75.18	48.6
9/29/2025	4:35:00 PM	75.27	48.4
9/29/2025	4:40:00 PM	75.27	48.4
9/29/2025	4:45:00 PM	75.27	48.4
9/29/2025	4:50:00 PM	75.27	48.6
9/29/2025	4:55:00 PM	75.27	48.4
9/29/2025	5:00:00 PM	75.27	48.6
9/29/2025	5:05:00 PM	75.27	48.4
9/29/2025	5:10:00 PM	75.27	48.4
9/29/2025	5:15:00 PM	75.27	48.6

9/29/2025	5:20:00 PM	75.34	48.3
9/29/2025	5:25:00 PM	75.34	48.3
9/29/2025	5:30:00 PM	75.34	48.3
9/29/2025	5:35:00 PM	75.42	48.1
9/29/2025	5:40:00 PM	75.42	48.3
9/29/2025	5:45:00 PM	75.42	48.1
9/29/2025	5:50:00 PM	75.42	48.0
9/29/2025	5:55:00 PM	75.42	48.0
9/29/2025	6:00:00 PM	75.42	48.0
9/29/2025	6:05:00 PM	75.42	47.9
9/29/2025	6:10:00 PM	75.42	47.9
9/29/2025	6:15:00 PM	75.42	47.9
9/29/2025	6:20:00 PM	75.42	47.9
9/29/2025	6:25:00 PM	75.42	47.8
9/29/2025	6:30:00 PM	75.42	47.8
9/29/2025	6:35:00 PM	75.42	47.7
9/29/2025	6:40:00 PM	75.42	47.7
9/29/2025	6:45:00 PM	75.42	47.7
9/29/2025	6:50:00 PM	75.34	47.7
9/29/2025	6:55:00 PM	75.34	47.7
9/29/2025	7:00:00 PM	75.34	47.6
9/29/2025	7:05:00 PM	75.34	47.6
9/29/2025	7:10:00 PM	75.34	47.6
9/29/2025	7:15:00 PM	75.34	47.6
9/29/2025	7:20:00 PM	75.27	47.4
9/29/2025	7:25:00 PM	75.27	47.4

9/29/2025	7:30:00 PM	75.27	47.5
9/29/2025	7:35:00 PM	75.27	47.5
9/29/2025	7:40:00 PM	75.27	47.3
9/29/2025	7:45:00 PM	75.18	47.3
9/29/2025	7:50:00 PM	75.18	47.3
9/29/2025	7:55:00 PM	75.18	47.3
9/29/2025	8:00:00 PM	75.18	47.3
9/29/2025	8:05:00 PM	75.11	47.3
9/29/2025	8:10:00 PM	75.11	47.3
9/29/2025	8:15:00 PM	75.11	47.3
9/29/2025	8:20:00 PM	75.11	47.3
9/29/2025	8:25:00 PM	75.04	47.3
9/29/2025	8:30:00 PM	75.04	47.3
9/29/2025	8:35:00 PM	75.04	47.3
9/29/2025	8:40:00 PM	75.04	47.3
9/29/2025	8:45:00 PM	75.04	47.3
9/29/2025	8:50:00 PM	74.97	47.3
9/29/2025	8:55:00 PM	74.97	47.2
9/29/2025	9:00:00 PM	74.97	47.3
9/29/2025	9:05:00 PM	74.97	47.2
9/29/2025	9:10:00 PM	74.97	47.2
9/29/2025	9:15:00 PM	74.89	47.2
9/29/2025	9:20:00 PM	74.89	47.4
9/29/2025	9:25:00 PM	74.89	47.2
9/29/2025	9:30:00 PM	74.89	47.2
9/29/2025	9:35:00 PM	74.82	47.2

9/29/2025	9:40:00 PM	74.82	47.2
9/29/2025	9:45:00 PM	74.82	47.2
9/29/2025	9:50:00 PM	74.82	47.2
9/29/2025	9:55:00 PM	74.82	47.2
9/29/2025	10:00:00 PM	74.73	47.2
9/29/2025	10:05:00 PM	74.73	47.2
9/29/2025	10:10:00 PM	74.73	47.2
9/29/2025	10:15:00 PM	74.73	47.2
9/29/2025	10:20:00 PM	74.66	47.2
9/29/2025	10:25:00 PM	74.66	47.2
9/29/2025	10:30:00 PM	74.66	47.2
9/29/2025	10:35:00 PM	74.66	47.2
9/29/2025	10:40:00 PM	74.59	47.2
9/29/2025	10:45:00 PM	74.59	47.2
9/29/2025	10:50:00 PM	74.59	47.2
9/29/2025	10:55:00 PM	74.59	47.2
9/29/2025	11:00:00 PM	74.52	47.2
9/29/2025	11:05:00 PM	74.52	47.2
9/29/2025	11:10:00 PM	74.52	47.1
9/29/2025	11:15:00 PM	74.52	47.1
9/29/2025	11:20:00 PM	74.52	47.1
9/29/2025	11:25:00 PM	74.44	47.1
9/29/2025	11:30:00 PM	74.44	47.1
9/29/2025	11:35:00 PM	74.44	47.1
9/29/2025	11:40:00 PM	74.44	47.1
9/29/2025	11:45:00 PM	74.44	47.1

9/29/2025	11:50:00 PM	74.37	47.1
9/29/2025	11:55:00 PM	74.37	47.1
9/30/2025	12:00:00 AM	74.37	47.1
9/30/2025	12:05:00 AM	74.37	47.1
9/30/2025	12:10:00 AM	74.37	47.0
9/30/2025	12:15:00 AM	74.30	47.0
9/30/2025	12:20:00 AM	74.30	47.0
9/30/2025	12:25:00 AM	74.30	47.0
9/30/2025	12:30:00 AM	74.30	47.0
9/30/2025	12:35:00 AM	74.30	47.0
9/30/2025	12:40:00 AM	74.21	47.0
9/30/2025	12:45:00 AM	74.21	47.0
9/30/2025	12:50:00 AM	74.21	47.0
9/30/2025	12:55:00 AM	74.14	47.0
9/30/2025	1:00:00 AM	74.14	47.0
9/30/2025	1:05:00 AM	74.14	47.0
9/30/2025	1:10:00 AM	74.14	47.0
9/30/2025	1:15:00 AM	74.14	47.0
9/30/2025	1:20:00 AM	74.07	47.0
9/30/2025	1:25:00 AM	74.07	47.0
9/30/2025	1:30:00 AM	74.07	47.0
9/30/2025	1:35:00 AM	74.07	47.0
9/30/2025	1:40:00 AM	74.07	47.0
9/30/2025	1:45:00 AM	73.99	46.9
9/30/2025	1:50:00 AM	73.99	46.9
9/30/2025	1:55:00 AM	73.99	46.9

9/30/2025	2:00:00 AM	73.92	46.9
9/30/2025	2:05:00 AM	73.92	46.9
9/30/2025	2:10:00 AM	73.92	46.9
9/30/2025	2:15:00 AM	73.92	46.9
9/30/2025	2:20:00 AM	73.85	46.8
9/30/2025	2:25:00 AM	73.85	46.8
9/30/2025	2:30:00 AM	73.85	46.8
9/30/2025	2:35:00 AM	73.85	46.8
9/30/2025	2:40:00 AM	73.76	46.8
9/30/2025	2:45:00 AM	73.76	46.8
9/30/2025	2:50:00 AM	73.76	46.8
9/30/2025	2:55:00 AM	73.69	46.8
9/30/2025	3:00:00 AM	73.69	46.8
9/30/2025	3:05:00 AM	73.69	46.8
9/30/2025	3:10:00 AM	73.62	46.9
9/30/2025	3:15:00 AM	73.62	46.8
9/30/2025	3:20:00 AM	73.62	46.8
9/30/2025	3:25:00 AM	73.54	46.8
9/30/2025	3:30:00 AM	73.54	46.7
9/30/2025	3:35:00 AM	73.54	46.7
9/30/2025	3:40:00 AM	73.47	46.7
9/30/2025	3:45:00 AM	73.47	46.7
9/30/2025	3:50:00 AM	73.47	46.7
9/30/2025	3:55:00 AM	73.47	46.7
9/30/2025	4:00:00 AM	73.40	46.7
9/30/2025	4:05:00 AM	73.40	46.7

9/30/2025	4:10:00 AM	73.33	46.7
9/30/2025	4:15:00 AM	73.33	46.7
9/30/2025	4:20:00 AM	73.33	46.7
9/30/2025	4:25:00 AM	73.24	46.7
9/30/2025	4:30:00 AM	73.24	46.6
9/30/2025	4:35:00 AM	73.24	46.7
9/30/2025	4:40:00 AM	73.24	46.7
9/30/2025	4:45:00 AM	73.17	46.7
9/30/2025	4:50:00 AM	73.17	46.7
9/30/2025	4:55:00 AM	73.17	46.6
9/30/2025	5:00:00 AM	73.17	46.7
9/30/2025	5:05:00 AM	73.09	46.7
9/30/2025	5:10:00 AM	73.09	46.6
9/30/2025	5:15:00 AM	73.09	46.6
9/30/2025	5:20:00 AM	73.09	46.6
9/30/2025	5:25:00 AM	73.02	46.6
9/30/2025	5:30:00 AM	73.02	46.6
9/30/2025	5:35:00 AM	73.02	46.6
9/30/2025	5:40:00 AM	72.95	46.6
9/30/2025	5:45:00 AM	72.95	46.5
9/30/2025	5:50:00 AM	72.95	46.5
9/30/2025	5:55:00 AM	72.95	46.5
9/30/2025	6:00:00 AM	72.88	46.5
9/30/2025	6:05:00 AM	72.88	46.6
9/30/2025	6:10:00 AM	72.88	46.5
9/30/2025	6:15:00 AM	72.88	46.5

9/30/2025	6:20:00 AM	72.88	46.5
9/30/2025	6:25:00 AM	72.81	46.5
9/30/2025	6:30:00 AM	72.81	46.5
9/30/2025	6:35:00 AM	72.81	46.5
9/30/2025	6:40:00 AM	72.72	46.5
9/30/2025	6:45:00 AM	72.72	46.5
9/30/2025	6:50:00 AM	72.72	46.5
9/30/2025	6:55:00 AM	72.64	46.4
9/30/2025	7:00:00 AM	72.57	46.5
9/30/2025	7:05:00 AM	72.57	46.6
9/30/2025	7:10:00 AM	72.57	46.5
9/30/2025	7:15:00 AM	72.57	46.6
9/30/2025	7:20:00 AM	72.50	46.6
9/30/2025	7:25:00 AM	72.50	46.4
9/30/2025	7:30:00 AM	72.50	46.4
9/30/2025	7:35:00 AM	72.50	46.5
9/30/2025	7:40:00 AM	72.43	46.5
9/30/2025	7:45:00 AM	72.43	46.5
9/30/2025	7:50:00 AM	72.43	46.4
9/30/2025	7:55:00 AM	72.43	46.5
9/30/2025	8:00:00 AM	72.43	46.5
9/30/2025	8:05:00 AM	72.43	46.5
9/30/2025	8:10:00 AM	72.43	46.4
9/30/2025	8:15:00 AM	72.43	46.3
9/30/2025	8:20:00 AM	72.43	46.2
9/30/2025	8:25:00 AM	72.36	46.2

9/30/2025	8:30:00 AM	72.28	46.2
9/30/2025	8:35:00 AM	72.28	46.2
9/30/2025	8:40:00 AM	72.28	46.0
9/30/2025	8:45:00 AM	72.28	46.0
9/30/2025	8:50:00 AM	72.19	46.0
9/30/2025	8:55:00 AM	71.98	46.0
9/30/2025	9:00:00 AM	71.87	46.2
9/30/2025	9:05:00 AM	71.87	46.2
9/30/2025	9:10:00 AM	71.98	46.2
9/30/2025	9:15:00 AM	72.09	46.0
9/30/2025	9:20:00 AM	72.09	45.9
9/30/2025	9:25:00 AM	72.16	45.9
9/30/2025	9:30:00 AM	72.16	45.8
9/30/2025	9:35:00 AM	72.16	45.7
9/30/2025	9:40:00 AM	72.16	45.7
9/30/2025	9:45:00 AM	72.25	45.7
9/30/2025	9:50:00 AM	72.25	45.7
9/30/2025	9:55:00 AM	72.32	45.5
9/30/2025	10:00:00 AM	72.32	45.5
9/30/2025	10:05:00 AM	72.43	45.4
9/30/2025	10:10:00 AM	72.43	45.3
9/30/2025	10:15:00 AM	72.54	45.3
9/30/2025	10:20:00 AM	72.54	45.1
9/30/2025	10:25:00 AM	72.64	45.2
9/30/2025	10:30:00 AM	72.54	45.6
9/30/2025	10:35:00 AM	72.43	45.9

9/30/2025	10:40:00 AM	72.54	45.8
9/30/2025	10:45:00 AM	72.68	45.6
9/30/2025	10:50:00 AM	72.68	45.5
9/30/2025	10:55:00 AM	72.84	45.4
9/30/2025	11:00:00 AM	72.91	45.3
9/30/2025	11:05:00 AM	72.91	45.3
9/30/2025	11:10:00 AM	73.02	45.2
9/30/2025	11:15:00 AM	73.09	45.1
9/30/2025	11:20:00 AM	73.09	45.0
9/30/2025	11:25:00 AM	73.17	45.0
9/30/2025	11:30:00 AM	73.24	44.8
9/30/2025	11:35:00 AM	73.33	44.7
9/30/2025	11:40:00 AM	73.33	44.8
9/30/2025	11:45:00 AM	73.24	44.8
9/30/2025	11:50:00 AM	73.40	44.6
9/30/2025	11:55:00 AM	73.47	44.5
9/30/2025	12:00:00 PM	73.58	44.4
9/30/2025	12:05:00 PM	73.65	44.3
9/30/2025	12:10:00 PM	73.65	44.1
9/30/2025	12:15:00 PM	73.76	43.8
9/30/2025	12:20:00 PM	73.89	43.7
9/30/2025	12:25:00 PM	73.96	43.2
9/30/2025	12:30:00 PM	74.03	43.2
9/30/2025	12:35:00 PM	74.14	42.6
9/30/2025	12:40:00 PM	74.21	42.6
9/30/2025	12:45:00 PM	74.30	42.2

9/30/2025	12:50:00 PM	74.30	39.9
9/30/2025	12:55:00 PM	74.37	39.4
9/30/2025	1:00:00 PM	74.44	39.5
9/30/2025	1:05:00 PM	74.52	39.8
9/30/2025	1:10:00 PM	74.52	40.0
9/30/2025	1:15:00 PM	74.52	36.9
9/30/2025	1:20:00 PM	74.52	36.1
9/30/2025	1:25:00 PM	74.62	36.9
9/30/2025	1:30:00 PM	74.70	37.3
9/30/2025	1:35:00 PM	74.79	37.8
9/30/2025	1:40:00 PM	74.79	37.8
9/30/2025	1:45:00 PM	74.86	37.8
9/30/2025	1:50:00 PM	74.86	37.8
9/30/2025	1:55:00 PM	74.93	37.6
9/30/2025	2:00:00 PM	75.00	37.6
9/30/2025	2:05:00 PM	75.00	37.3
9/30/2025	2:10:00 PM	75.07	36.5
9/30/2025	2:15:00 PM	75.07	34.1
9/30/2025	2:20:00 PM	75.07	33.6
9/30/2025	2:25:00 PM	75.07	32.7
9/30/2025	2:30:00 PM	75.07	33.0
9/30/2025	2:35:00 PM	75.07	32.6
9/30/2025	2:40:00 PM	75.07	32.8
9/30/2025	2:45:00 PM	75.18	33.6
9/30/2025	2:50:00 PM	75.18	33.7
9/30/2025	2:55:00 PM	75.27	34.9

9/30/2025	3:00:00 PM	75.18	34.7
9/30/2025	3:05:00 PM	75.18	35.8
9/30/2025	3:10:00 PM	75.18	36.3
9/30/2025	3:15:00 PM	75.18	36.8
9/30/2025	3:20:00 PM	75.18	37.3
9/30/2025	3:25:00 PM	75.18	37.4
9/30/2025	3:30:00 PM	75.18	37.5
9/30/2025	3:35:00 PM	75.18	37.8
9/30/2025	3:40:00 PM	75.18	38.0
9/30/2025	3:45:00 PM	75.18	37.9
9/30/2025	3:50:00 PM	75.27	38.2
9/30/2025	3:55:00 PM	75.27	38.2
9/30/2025	4:00:00 PM	75.27	38.3
9/30/2025	4:05:00 PM	75.27	38.6
9/30/2025	4:10:00 PM	75.27	39.0
9/30/2025	4:15:00 PM	75.27	39.1
9/30/2025	4:20:00 PM	75.38	39.3
9/30/2025	4:25:00 PM	75.38	39.7
9/30/2025	4:30:00 PM	75.15	42.0
9/30/2025	4:35:00 PM	75.22	40.8
9/30/2025	4:40:00 PM	75.31	40.5
9/30/2025	4:45:00 PM	75.31	40.5
9/30/2025	4:50:00 PM	75.38	40.8
9/30/2025	4:55:00 PM	75.38	41.1
9/30/2025	5:00:00 PM	75.38	41.1
9/30/2025	5:05:00 PM	75.31	41.3

9/30/2025	5:10:00 PM	75.31	41.4
9/30/2025	5:15:00 PM	75.31	41.5
9/30/2025	5:20:00 PM	75.31	41.7
9/30/2025	5:25:00 PM	75.22	42.0
9/30/2025	5:30:00 PM	75.22	42.0
9/30/2025	5:35:00 PM	75.22	42.3
9/30/2025	5:40:00 PM	75.11	42.4
9/30/2025	5:45:00 PM	75.11	42.4
9/30/2025	5:50:00 PM	75.11	42.5
9/30/2025	5:55:00 PM	75.11	42.3
9/30/2025	6:00:00 PM	75.11	42.5
9/30/2025	6:05:00 PM	75.11	42.4
9/30/2025	6:10:00 PM	75.11	42.4
9/30/2025	6:15:00 PM	75.11	42.4
9/30/2025	6:20:00 PM	75.11	42.4
9/30/2025	6:25:00 PM	75.18	42.4
9/30/2025	6:30:00 PM	75.18	42.3
9/30/2025	6:35:00 PM	75.18	42.3
9/30/2025	6:40:00 PM	75.18	42.3
9/30/2025	6:45:00 PM	75.18	42.3
9/30/2025	6:50:00 PM	75.18	42.3
9/30/2025	6:55:00 PM	75.18	42.3
9/30/2025	7:00:00 PM	75.18	42.2
9/30/2025	7:05:00 PM	75.18	42.2
9/30/2025	7:10:00 PM	75.18	42.1
9/30/2025	7:15:00 PM	75.18	42.1

9/30/2025	7:20:00 PM	75.18	42.1
9/30/2025	7:25:00 PM	75.18	42.1
9/30/2025	7:30:00 PM	75.11	42.0
9/30/2025	7:35:00 PM	75.11	41.9
9/30/2025	7:40:00 PM	75.11	41.9
9/30/2025	7:45:00 PM	75.11	41.9
9/30/2025	7:50:00 PM	75.04	41.8
9/30/2025	7:55:00 PM	75.04	41.8
9/30/2025	8:00:00 PM	75.04	41.8
9/30/2025	8:05:00 PM	74.97	41.7
9/30/2025	8:10:00 PM	74.97	41.7
9/30/2025	8:15:00 PM	74.97	41.7
9/30/2025	8:20:00 PM	74.89	41.7
9/30/2025	8:25:00 PM	74.89	41.8
9/30/2025	8:30:00 PM	74.82	41.9
9/30/2025	8:35:00 PM	74.82	41.9
9/30/2025	8:40:00 PM	74.82	41.9
9/30/2025	8:45:00 PM	74.73	41.9
9/30/2025	8:50:00 PM	74.73	42.0
9/30/2025	8:55:00 PM	74.66	42.0
9/30/2025	9:00:00 PM	74.66	41.9
9/30/2025	9:05:00 PM	74.59	41.9
9/30/2025	9:10:00 PM	74.59	42.1
9/30/2025	9:15:00 PM	74.52	42.1
9/30/2025	9:20:00 PM	74.52	42.1
9/30/2025	9:25:00 PM	74.41	42.2

9/30/2025	9:30:00 PM	74.41	42.2
9/30/2025	9:35:00 PM	74.34	42.2
9/30/2025	9:40:00 PM	74.34	42.3
9/30/2025	9:45:00 PM	74.25	42.3
9/30/2025	9:50:00 PM	74.25	42.4
9/30/2025	9:55:00 PM	74.25	42.4
9/30/2025	10:00:00 PM	74.14	42.4
9/30/2025	10:05:00 PM	74.14	42.4
9/30/2025	10:10:00 PM	74.07	42.4
9/30/2025	10:15:00 PM	74.07	42.5
9/30/2025	10:20:00 PM	73.99	42.6
9/30/2025	10:25:00 PM	73.99	42.6
9/30/2025	10:30:00 PM	73.92	42.6
9/30/2025	10:35:00 PM	73.92	42.6
9/30/2025	10:40:00 PM	73.85	42.6
9/30/2025	10:45:00 PM	73.76	42.6
9/30/2025	10:50:00 PM	73.76	42.6
9/30/2025	10:55:00 PM	73.76	42.7
9/30/2025	11:00:00 PM	73.65	42.7
9/30/2025	11:05:00 PM	73.65	42.9
9/30/2025	11:10:00 PM	73.58	42.8
9/30/2025	11:15:00 PM	73.58	42.9
9/30/2025	11:20:00 PM	73.51	42.8
9/30/2025	11:25:00 PM	73.51	42.8
9/30/2025	11:30:00 PM	73.51	43.0
9/30/2025	11:35:00 PM	73.40	43.0

9/30/2025	11:40:00 PM	73.40	43.0
9/30/2025	11:45:00 PM	73.40	43.1
9/30/2025	11:50:00 PM	73.33	43.0
9/30/2025	11:55:00 PM	73.33	43.0
10/1/2025	12:00:00 AM	73.24	43.0
10/1/2025	12:05:00 AM	73.24	43.2
10/1/2025	12:10:00 AM	73.17	43.2
10/1/2025	12:15:00 AM	73.17	43.2
10/1/2025	12:20:00 AM	73.17	43.3
10/1/2025	12:25:00 AM	73.09	43.2
10/1/2025	12:30:00 AM	73.09	43.3
10/1/2025	12:35:00 AM	73.02	43.4
10/1/2025	12:40:00 AM	73.02	43.4
10/1/2025	12:45:00 AM	73.02	43.4
10/1/2025	12:50:00 AM	72.91	43.4
10/1/2025	12:55:00 AM	72.91	43.4
10/1/2025	1:00:00 AM	72.91	43.4
10/1/2025	1:05:00 AM	72.84	43.6
10/1/2025	1:10:00 AM	72.84	43.6
10/1/2025	1:15:00 AM	72.77	43.6
10/1/2025	1:20:00 AM	72.77	43.6
10/1/2025	1:25:00 AM	72.68	43.6
10/1/2025	1:30:00 AM	72.68	43.6
10/1/2025	1:35:00 AM	72.68	43.7
10/1/2025	1:40:00 AM	72.61	43.7
10/1/2025	1:45:00 AM	72.61	43.8

10/1/2025	1:50:00 AM	72.61	43.8
10/1/2025	1:55:00 AM	72.54	43.8
10/1/2025	2:00:00 AM	72.54	43.9
10/1/2025	2:05:00 AM	72.54	43.9
10/1/2025	2:10:00 AM	72.46	44.0
10/1/2025	2:15:00 AM	72.46	43.9
10/1/2025	2:20:00 AM	72.46	44.1
10/1/2025	2:25:00 AM	72.39	44.0
10/1/2025	2:30:00 AM	72.39	44.1
10/1/2025	2:35:00 AM	72.39	44.1
10/1/2025	2:40:00 AM	72.39	44.1
10/1/2025	2:45:00 AM	72.32	44.2
10/1/2025	2:50:00 AM	72.32	44.2
10/1/2025	2:55:00 AM	72.32	44.3
10/1/2025	3:00:00 AM	72.25	44.3
10/1/2025	3:05:00 AM	72.25	44.3
10/1/2025	3:10:00 AM	72.25	44.4
10/1/2025	3:15:00 AM	72.25	44.4
10/1/2025	3:20:00 AM	72.16	44.5
10/1/2025	3:25:00 AM	72.16	44.5
10/1/2025	3:30:00 AM	72.16	44.5
10/1/2025	3:35:00 AM	72.09	44.5
10/1/2025	3:40:00 AM	72.09	44.5
10/1/2025	3:45:00 AM	72.09	44.5
10/1/2025	3:50:00 AM	72.09	44.6
10/1/2025	3:55:00 AM	72.01	44.6

10/1/2025	4:00:00 AM	72.01	44.6
10/1/2025	4:05:00 AM	72.01	44.7
10/1/2025	4:10:00 AM	72.01	44.8
10/1/2025	4:15:00 AM	71.94	44.8
10/1/2025	4:20:00 AM	71.94	44.8
10/1/2025	4:25:00 AM	71.94	44.8
10/1/2025	4:30:00 AM	71.94	45.0
10/1/2025	4:35:00 AM	71.87	45.0
10/1/2025	4:40:00 AM	71.87	45.0
10/1/2025	4:45:00 AM	71.87	45.1
10/1/2025	4:50:00 AM	71.87	45.1
10/1/2025	4:55:00 AM	71.87	45.1
10/1/2025	5:00:00 AM	71.87	45.1
10/1/2025	5:05:00 AM	71.80	45.1
10/1/2025	5:10:00 AM	71.80	45.1
10/1/2025	5:15:00 AM	71.80	45.1
10/1/2025	5:20:00 AM	71.80	45.3
10/1/2025	5:25:00 AM	71.80	45.2
10/1/2025	5:30:00 AM	71.80	45.3
10/1/2025	5:35:00 AM	71.73	45.3
10/1/2025	5:40:00 AM	71.73	45.3
10/1/2025	5:45:00 AM	71.73	45.3
10/1/2025	5:50:00 AM	71.73	45.3
10/1/2025	5:55:00 AM	71.73	45.3
10/1/2025	6:00:00 AM	71.73	45.3
10/1/2025	6:05:00 AM	71.64	45.4

10/1/2025	6:10:00 AM	71.64	45.4
10/1/2025	6:15:00 AM	71.64	45.4
10/1/2025	6:20:00 AM	71.64	45.4
10/1/2025	6:25:00 AM	71.56	45.5
10/1/2025	6:30:00 AM	71.56	45.6
10/1/2025	6:35:00 AM	71.56	45.6
10/1/2025	6:40:00 AM	71.56	45.6
10/1/2025	6:45:00 AM	71.56	45.6
10/1/2025	6:50:00 AM	71.56	45.7
10/1/2025	6:55:00 AM	71.49	45.8
10/1/2025	7:00:00 AM	71.49	45.8
10/1/2025	7:05:00 AM	71.49	45.8
10/1/2025	7:10:00 AM	71.49	46.0
10/1/2025	7:15:00 AM	71.49	46.1
10/1/2025	7:20:00 AM	71.49	46.1
10/1/2025	7:25:00 AM	71.49	46.0
10/1/2025	7:30:00 AM	71.49	46.2
10/1/2025	7:35:00 AM	71.49	46.2
10/1/2025	7:40:00 AM	71.49	46.3
10/1/2025	7:45:00 AM	71.49	46.3
10/1/2025	7:50:00 AM	71.56	46.3
10/1/2025	7:55:00 AM	71.56	46.2
10/1/2025	8:00:00 AM	71.56	46.2
10/1/2025	8:05:00 AM	71.56	46.3
10/1/2025	8:10:00 AM	71.64	46.3
10/1/2025	8:15:00 AM	71.64	46.7

10/1/2025	8:20:00 AM	71.53	46.8
10/1/2025	8:25:00 AM	71.53	47.3
10/1/2025	8:30:00 AM	71.53	47.3
10/1/2025	8:35:00 AM	71.53	47.5
10/1/2025	8:40:00 AM	71.53	47.6
10/1/2025	8:45:00 AM	71.53	47.7
10/1/2025	8:50:00 AM	71.60	47.9
10/1/2025	8:55:00 AM	71.60	48.1
10/1/2025	9:00:00 AM	71.60	48.1
10/1/2025	9:05:00 AM	71.60	48.2
10/1/2025	9:10:00 AM	71.69	48.3
10/1/2025	9:15:00 AM	71.49	50.3
10/1/2025	9:20:00 AM	71.49	50.8
10/1/2025	9:25:00 AM	71.49	49.0
10/1/2025	9:30:00 AM	71.60	49.3
10/1/2025	9:35:00 AM	71.69	49.2
10/1/2025	9:40:00 AM	71.69	49.2
10/1/2025	9:45:00 AM	71.69	49.2
10/1/2025	9:50:00 AM	71.76	49.1
10/1/2025	9:55:00 AM	71.76	49.1
10/1/2025	10:00:00 AM	71.83	49.1
10/1/2025	10:05:00 AM	71.83	49.1
10/1/2025	10:10:00 AM	71.83	50.0
10/1/2025	10:15:00 AM	71.53	52.4
10/1/2025	10:20:00 AM	71.53	52.4
10/1/2025	10:25:00 AM	71.64	50.8

10/1/2025	10:30:00 AM	71.73	50.6
10/1/2025	10:35:00 AM	71.73	50.8
10/1/2025	10:40:00 AM	71.73	50.6
10/1/2025	10:45:00 AM	71.80	50.6
10/1/2025	10:50:00 AM	71.80	50.8
10/1/2025	10:55:00 AM	71.80	50.8
10/1/2025	11:00:00 AM	71.80	50.8
10/1/2025	11:05:00 AM	71.80	50.9
10/1/2025	11:10:00 AM	71.80	51.0
10/1/2025	11:15:00 AM	71.80	51.0
10/1/2025	11:20:00 AM	71.80	51.0
10/1/2025	11:25:00 AM	71.80	51.0
10/1/2025	11:30:00 AM	71.80	51.0
10/1/2025	11:35:00 AM	71.80	52.1
10/1/2025	11:40:00 AM	71.64	54.0
10/1/2025	11:45:00 AM	71.64	52.6
10/1/2025	11:50:00 AM	71.76	52.1
10/1/2025	11:55:00 AM	71.83	51.9
10/1/2025	12:00:00 PM	71.83	51.7
10/1/2025	12:05:00 PM	71.91	51.7
10/1/2025	12:10:00 PM	71.98	51.7
10/1/2025	12:15:00 PM	71.98	51.7
10/1/2025	12:20:00 PM	72.05	51.6
10/1/2025	12:25:00 PM	72.05	51.6
10/1/2025	12:30:00 PM	72.12	51.6
10/1/2025	12:35:00 PM	72.05	52.6

10/1/2025	12:40:00 PM	71.98	54.2
10/1/2025	12:45:00 PM	71.98	54.4
10/1/2025	12:50:00 PM	72.09	52.6
10/1/2025	12:55:00 PM	72.16	52.4
10/1/2025	1:00:00 PM	72.25	52.4
10/1/2025	1:05:00 PM	72.32	52.4
10/1/2025	1:10:00 PM	72.32	52.2
10/1/2025	1:15:00 PM	72.32	52.1
10/1/2025	1:20:00 PM	72.43	52.3
10/1/2025	1:25:00 PM	72.50	52.2
10/1/2025	1:30:00 PM	72.50	52.3
10/1/2025	1:35:00 PM	72.57	52.3
10/1/2025	1:40:00 PM	72.57	52.3
10/1/2025	1:45:00 PM	72.57	52.3
10/1/2025	1:50:00 PM	72.64	52.1
10/1/2025	1:55:00 PM	72.64	52.1
10/1/2025	2:00:00 PM	72.72	52.1
10/1/2025	2:05:00 PM	72.72	52.3
10/1/2025	2:10:00 PM	72.72	52.3
10/1/2025	2:15:00 PM	72.72	52.4
10/1/2025	2:20:00 PM	72.81	52.4
10/1/2025	2:25:00 PM	72.81	52.4
10/1/2025	2:30:00 PM	72.81	52.4
10/1/2025	2:35:00 PM	72.88	52.4
10/1/2025	2:40:00 PM	72.77	52.1
10/1/2025	2:45:00 PM	72.54	52.5

10/1/2025	2:50:00 PM	72.64	52.2
10/1/2025	2:55:00 PM	72.77	52.1
10/1/2025	3:00:00 PM	72.77	52.1
10/1/2025	3:05:00 PM	72.88	51.7
10/1/2025	3:10:00 PM	72.88	51.8
10/1/2025	3:15:00 PM	72.99	51.6
10/1/2025	3:20:00 PM	72.99	51.6
10/1/2025	3:25:00 PM	73.13	51.6
10/1/2025	3:30:00 PM	73.20	51.3
10/1/2025	3:35:00 PM	73.29	51.3
10/1/2025	3:40:00 PM	73.29	51.2
10/1/2025	3:45:00 PM	73.40	51.1
10/1/2025	3:50:00 PM	73.47	51.0
10/1/2025	3:55:00 PM	73.47	51.1
10/1/2025	4:00:00 PM	73.33	52.1
10/1/2025	4:05:00 PM	73.44	51.9
10/1/2025	4:10:00 PM	73.54	51.0
10/1/2025	4:15:00 PM	73.54	50.8
10/1/2025	4:20:00 PM	73.65	50.6
10/1/2025	4:25:00 PM	73.65	50.3
10/1/2025	4:30:00 PM	73.72	50.3
10/1/2025	4:35:00 PM	73.72	50.1
10/1/2025	4:40:00 PM	73.72	49.9
10/1/2025	4:45:00 PM	73.81	49.6
10/1/2025	4:50:00 PM	73.81	49.3
10/1/2025	4:55:00 PM	73.81	49.3

10/1/2025	5:00:00 PM	73.89	49.5
10/1/2025	5:05:00 PM	73.89	49.1
10/1/2025	5:10:00 PM	73.89	48.9
10/1/2025	5:15:00 PM	73.89	48.7
10/1/2025	5:20:00 PM	73.89	48.8
10/1/2025	5:25:00 PM	73.96	48.6
10/1/2025	5:30:00 PM	73.96	48.8
10/1/2025	5:35:00 PM	73.96	48.6
10/1/2025	5:40:00 PM	73.96	48.5
10/1/2025	5:45:00 PM	73.96	48.5
10/1/2025	5:50:00 PM	73.96	48.3
10/1/2025	5:55:00 PM	73.96	48.6
10/1/2025	6:00:00 PM	74.03	48.6
10/1/2025	6:05:00 PM	74.03	48.5
10/1/2025	6:10:00 PM	74.10	48.3
10/1/2025	6:15:00 PM	74.10	48.3
10/1/2025	6:20:00 PM	74.10	48.3
10/1/2025	6:25:00 PM	74.10	48.2
10/1/2025	6:30:00 PM	74.10	48.2
10/1/2025	6:35:00 PM	74.17	48.3
10/1/2025	6:40:00 PM	74.17	48.3
10/1/2025	6:45:00 PM	74.17	48.3
10/1/2025	6:50:00 PM	74.17	48.3
10/1/2025	6:55:00 PM	74.17	48.1
10/1/2025	7:00:00 PM	74.17	48.1
10/1/2025	7:05:00 PM	74.17	48.1

10/1/2025	7:10:00 PM	74.17	48.0
10/1/2025	7:15:00 PM	74.25	48.0
10/1/2025	7:20:00 PM	74.25	47.9
10/1/2025	7:25:00 PM	74.25	47.9
10/1/2025	7:30:00 PM	74.25	47.9
10/1/2025	7:35:00 PM	74.25	47.9
10/1/2025	7:40:00 PM	74.25	47.9
10/1/2025	7:45:00 PM	74.25	47.8
10/1/2025	7:50:00 PM	74.25	47.8
10/1/2025	7:55:00 PM	74.25	47.8
10/1/2025	8:00:00 PM	74.17	47.8
10/1/2025	8:05:00 PM	74.17	47.8
10/1/2025	8:10:00 PM	74.17	47.8
10/1/2025	8:15:00 PM	74.17	47.8
10/1/2025	8:20:00 PM	74.17	47.8
10/1/2025	8:25:00 PM	74.17	47.8
10/1/2025	8:30:00 PM	74.10	47.8
10/1/2025	8:35:00 PM	74.10	47.8
10/1/2025	8:40:00 PM	74.10	47.8
10/1/2025	8:45:00 PM	74.10	47.8
10/1/2025	8:50:00 PM	74.03	47.8
10/1/2025	8:55:00 PM	74.03	47.8
10/1/2025	9:00:00 PM	74.03	47.7
10/1/2025	9:05:00 PM	73.96	47.8
10/1/2025	9:10:00 PM	73.96	47.8
10/1/2025	9:15:00 PM	73.96	47.8

10/1/2025	9:20:00 PM	73.89	47.8
10/1/2025	9:25:00 PM	73.89	47.7
10/1/2025	9:30:00 PM	73.81	47.9
10/1/2025	9:35:00 PM	73.81	47.8
10/1/2025	9:40:00 PM	73.81	47.9
10/1/2025	9:45:00 PM	73.72	47.8
10/1/2025	9:50:00 PM	73.72	47.8
10/1/2025	9:55:00 PM	73.72	47.8
10/1/2025	10:00:00 PM	73.65	47.8
10/1/2025	10:05:00 PM	73.65	47.9
10/1/2025	10:10:00 PM	73.65	47.9
10/1/2025	10:15:00 PM	73.58	47.9
10/1/2025	10:20:00 PM	73.58	47.9
10/1/2025	10:25:00 PM	73.58	47.9
10/1/2025	10:30:00 PM	73.51	48.0
10/1/2025	10:35:00 PM	73.51	48.0
10/1/2025	10:40:00 PM	73.51	48.0
10/1/2025	10:45:00 PM	73.44	48.0
10/1/2025	10:50:00 PM	73.44	48.0
10/1/2025	10:55:00 PM	73.44	48.0
10/1/2025	11:00:00 PM	73.36	48.0
10/1/2025	11:05:00 PM	73.36	48.0
10/1/2025	11:10:00 PM	73.36	48.0
10/1/2025	11:15:00 PM	73.36	48.0
10/1/2025	11:20:00 PM	73.29	48.0
10/1/2025	11:25:00 PM	73.29	48.0

10/1/2025	11:30:00 PM	73.20	48.0
10/1/2025	11:35:00 PM	73.20	48.0
10/1/2025	11:40:00 PM	73.20	48.0
10/1/2025	11:45:00 PM	73.20	48.1
10/1/2025	11:50:00 PM	73.13	47.9
10/1/2025	11:55:00 PM	73.13	48.0
10/2/2025	12:00:00 AM	73.06	47.9
10/2/2025	12:05:00 AM	73.06	48.1
10/2/2025	12:10:00 AM	73.06	48.1
10/2/2025	12:15:00 AM	73.06	48.1
10/2/2025	12:20:00 AM	72.99	48.1
10/2/2025	12:25:00 AM	72.99	48.1
10/2/2025	12:30:00 AM	72.99	48.1
10/2/2025	12:35:00 AM	72.91	48.1
10/2/2025	12:40:00 AM	72.91	47.9
10/2/2025	12:45:00 AM	72.91	48.1
10/2/2025	12:50:00 AM	72.84	48.0
10/2/2025	12:55:00 AM	72.84	48.0
10/2/2025	1:00:00 AM	72.84	48.0
10/2/2025	1:05:00 AM	72.77	48.0
10/2/2025	1:10:00 AM	72.77	48.0
10/2/2025	1:15:00 AM	72.77	48.0
10/2/2025	1:20:00 AM	72.68	48.0
10/2/2025	1:25:00 AM	72.68	47.9
10/2/2025	1:30:00 AM	72.68	47.9
10/2/2025	1:35:00 AM	72.61	47.9

10/2/2025	1:40:00 AM	72.61	48.0
10/2/2025	1:45:00 AM	72.61	47.9
10/2/2025	1:50:00 AM	72.54	47.9
10/2/2025	1:55:00 AM	72.54	47.9
10/2/2025	2:00:00 AM	72.54	47.9
10/2/2025	2:05:00 AM	72.46	47.9
10/2/2025	2:10:00 AM	72.46	47.9
10/2/2025	2:15:00 AM	72.39	47.9
10/2/2025	2:20:00 AM	72.39	47.9
10/2/2025	2:25:00 AM	72.39	47.9
10/2/2025	2:30:00 AM	72.39	48.0
10/2/2025	2:35:00 AM	72.32	48.0
10/2/2025	2:40:00 AM	72.32	48.0
10/2/2025	2:45:00 AM	72.32	48.0
10/2/2025	2:50:00 AM	72.25	48.0
10/2/2025	2:55:00 AM	72.25	48.0
10/2/2025	3:00:00 AM	72.25	48.1
10/2/2025	3:05:00 AM	72.16	48.1
10/2/2025	3:10:00 AM	72.16	48.1
10/2/2025	3:15:00 AM	72.16	48.1
10/2/2025	3:20:00 AM	72.09	48.1
10/2/2025	3:25:00 AM	72.09	48.1
10/2/2025	3:30:00 AM	72.09	48.1
10/2/2025	3:35:00 AM	72.09	48.2
10/2/2025	3:40:00 AM	72.01	48.2
10/2/2025	3:45:00 AM	72.01	48.3

10/2/2025	3:50:00 AM	72.01	48.2
10/2/2025	3:55:00 AM	72.01	48.2
10/2/2025	4:00:00 AM	71.94	48.2
10/2/2025	4:05:00 AM	71.94	48.2
10/2/2025	4:10:00 AM	71.94	48.2
10/2/2025	4:15:00 AM	71.87	48.1
10/2/2025	4:20:00 AM	71.87	48.2
10/2/2025	4:25:00 AM	71.80	48.2
10/2/2025	4:30:00 AM	71.80	48.2
10/2/2025	4:35:00 AM	71.80	48.2
10/2/2025	4:40:00 AM	71.80	48.2
10/2/2025	4:45:00 AM	71.80	48.2
10/2/2025	4:50:00 AM	71.73	48.2
10/2/2025	4:55:00 AM	71.73	48.2
10/2/2025	5:00:00 AM	71.73	48.2
10/2/2025	5:05:00 AM	71.64	48.2
10/2/2025	5:10:00 AM	71.64	48.4
10/2/2025	5:15:00 AM	71.64	48.2
10/2/2025	5:20:00 AM	71.56	48.2
10/2/2025	5:25:00 AM	71.56	48.2
10/2/2025	5:30:00 AM	71.49	48.2
10/2/2025	5:35:00 AM	71.49	48.2
10/2/2025	5:40:00 AM	71.49	48.3
10/2/2025	5:45:00 AM	71.49	48.2
10/2/2025	5:50:00 AM	71.38	48.2
10/2/2025	5:55:00 AM	71.24	48.2

10/2/2025	6:00:00 AM	71.17	48.3
10/2/2025	6:05:00 AM	71.17	48.2
10/2/2025	6:10:00 AM	71.17	48.2
10/2/2025	6:15:00 AM	71.17	48.2
10/2/2025	6:20:00 AM	71.08	48.2
10/2/2025	6:25:00 AM	71.08	48.2
10/2/2025	6:30:00 AM	71.08	48.2
10/2/2025	6:35:00 AM	71.08	48.1
10/2/2025	6:40:00 AM	71.08	48.1
10/2/2025	6:45:00 AM	71.08	48.1
10/2/2025	6:50:00 AM	71.08	48.0
10/2/2025	6:55:00 AM	71.08	48.0
10/2/2025	7:00:00 AM	70.83	48.2
10/2/2025	7:05:00 AM	70.83	48.2
10/2/2025	7:10:00 AM	70.93	48.2
10/2/2025	7:15:00 AM	70.93	48.0
10/2/2025	7:20:00 AM	71.01	48.0
10/2/2025	7:25:00 AM	71.01	48.0
10/2/2025	7:30:00 AM	71.01	48.0
10/2/2025	7:35:00 AM	71.01	47.9
10/2/2025	7:40:00 AM	71.08	47.9
10/2/2025	7:45:00 AM	71.08	47.9
10/2/2025	7:50:00 AM	71.08	47.8
10/2/2025	7:55:00 AM	71.08	47.8
10/2/2025	8:00:00 AM	71.08	47.8
10/2/2025	8:05:00 AM	71.08	47.8

10/2/2025	8:10:00 AM	71.08	47.8
10/2/2025	8:15:00 AM	71.08	47.8
10/2/2025	8:20:00 AM	71.08	47.8
10/2/2025	8:25:00 AM	70.86	48.6
10/2/2025	8:30:00 AM	70.75	48.6
10/2/2025	8:35:00 AM	70.61	48.6
10/2/2025	8:40:00 AM	70.38	48.6
10/2/2025	8:45:00 AM	70.20	49.2
10/2/2025	8:50:00 AM	70.02	49.9
10/2/2025	8:55:00 AM	69.85	50.5
10/2/2025	9:00:00 AM	69.85	50.7
10/2/2025	9:05:00 AM	70.02	50.6
10/2/2025	9:10:00 AM	70.09	50.6
10/2/2025	9:15:00 AM	70.09	50.8
10/2/2025	9:20:00 AM	70.20	51.4
10/2/2025	9:25:00 AM	70.27	50.9
10/2/2025	9:30:00 AM	70.27	50.9
10/2/2025	9:35:00 AM	70.34	50.9
10/2/2025	9:40:00 AM	70.41	50.9
10/2/2025	9:45:00 AM	70.41	50.9
10/2/2025	9:50:00 AM	70.48	50.4
10/2/2025	9:55:00 AM	70.57	50.4
10/2/2025	10:00:00 AM	70.57	50.4
10/2/2025	10:05:00 AM	70.57	50.4
10/2/2025	10:10:00 AM	70.68	50.4
10/2/2025	10:15:00 AM	70.68	50.4

10/2/2025	10:20:00 AM	70.68	50.4
10/2/2025	10:25:00 AM	70.68	50.5
10/2/2025	10:30:00 AM	70.75	50.5
10/2/2025	10:35:00 AM	70.75	50.5
10/2/2025	10:40:00 AM	70.75	50.5
10/2/2025	10:45:00 AM	70.83	50.5
10/2/2025	10:50:00 AM	70.83	50.5
10/2/2025	10:55:00 AM	70.83	50.6
10/2/2025	11:00:00 AM	70.90	50.6
10/2/2025	11:05:00 AM	70.90	50.5
10/2/2025	11:10:00 AM	70.90	50.5
10/2/2025	11:15:00 AM	70.90	50.5
10/2/2025	11:20:00 AM	70.97	50.5
10/2/2025	11:25:00 AM	70.97	50.5
10/2/2025	11:30:00 AM	70.97	50.6
10/2/2025	11:35:00 AM	70.97	50.7
10/2/2025	11:40:00 AM	70.97	50.7
10/2/2025	11:45:00 AM	71.04	50.3
10/2/2025	11:50:00 AM	71.13	50.2
10/2/2025	11:55:00 AM	71.13	50.3
10/2/2025	12:00:00 PM	71.13	50.4
10/2/2025	12:05:00 PM	71.20	50.5
10/2/2025	12:10:00 PM	71.20	50.5
10/2/2025	12:15:00 PM	71.20	50.6
10/2/2025	12:20:00 PM	71.20	50.7
10/2/2025	12:25:00 PM	71.28	50.8

10/2/2025	12:30:00 PM	71.28	50.8
10/2/2025	12:35:00 PM	71.28	51.0
10/2/2025	12:40:00 PM	71.35	51.0
10/2/2025	12:45:00 PM	71.35	51.0
10/2/2025	12:50:00 PM	71.42	51.0
10/2/2025	12:55:00 PM	71.42	51.0
10/2/2025	1:00:00 PM	71.49	50.9
10/2/2025	1:05:00 PM	71.49	50.9
10/2/2025	1:10:00 PM	71.56	50.9
10/2/2025	1:15:00 PM	71.64	50.6
10/2/2025	1:20:00 PM	71.53	52.7
10/2/2025	1:25:00 PM	71.60	53.0
10/2/2025	1:30:00 PM	71.60	51.6
10/2/2025	1:35:00 PM	71.76	51.7
10/2/2025	1:40:00 PM	71.76	51.5
10/2/2025	1:45:00 PM	71.83	50.8
10/2/2025	1:50:00 PM	71.94	50.9
10/2/2025	1:55:00 PM	71.94	50.6
10/2/2025	2:00:00 PM	72.01	50.8
10/2/2025	2:05:00 PM	72.09	50.7
10/2/2025	2:10:00 PM	72.09	50.6
10/2/2025	2:15:00 PM	72.19	50.6
10/2/2025	2:20:00 PM	72.19	50.5
10/2/2025	2:25:00 PM	72.32	50.5
10/2/2025	2:30:00 PM	72.39	50.4
10/2/2025	2:35:00 PM	72.46	50.4

10/2/2025	2:40:00 PM	72.32	51.0
10/2/2025	2:45:00 PM	72.25	50.9
10/2/2025	2:50:00 PM	72.01	50.4
10/2/2025	2:55:00 PM	72.09	50.5
10/2/2025	3:00:00 PM	72.09	50.6
10/2/2025	3:05:00 PM	72.16	51.6
10/2/2025	3:10:00 PM	72.16	50.9
10/2/2025	3:15:00 PM	72.16	50.9
10/2/2025	3:20:00 PM	72.09	50.6
10/2/2025	3:25:00 PM	72.09	51.6
10/2/2025	3:30:00 PM	72.09	52.6
10/2/2025	3:35:00 PM	72.09	52.4
10/2/2025	3:40:00 PM	72.09	52.8
10/2/2025	3:45:00 PM	72.09	52.5
10/2/2025	3:50:00 PM	72.09	52.4
10/2/2025	3:55:00 PM	72.16	52.4
10/2/2025	4:00:00 PM	72.25	52.2
10/2/2025	4:05:00 PM	72.25	52.7
10/2/2025	4:10:00 PM	72.32	52.6
10/2/2025	4:15:00 PM	72.32	51.8
10/2/2025	4:20:00 PM	72.43	52.2
10/2/2025	4:25:00 PM	72.50	52.0
10/2/2025	4:30:00 PM	72.50	51.6
10/2/2025	4:35:00 PM	72.50	51.3
10/2/2025	4:40:00 PM	72.57	51.0
10/2/2025	4:45:00 PM	72.57	51.0

10/2/2025	4:50:00 PM	72.57	51.0
10/2/2025	4:55:00 PM	72.57	51.5
10/2/2025	5:00:00 PM	72.57	51.1
10/2/2025	5:05:00 PM	72.57	51.5
10/2/2025	5:10:00 PM	72.57	51.2
10/2/2025	5:15:00 PM	72.68	51.2
10/2/2025	5:20:00 PM	72.95	50.8
10/2/2025	5:25:00 PM	73.13	50.2
10/2/2025	5:30:00 PM	73.24	49.9
10/2/2025	5:35:00 PM	73.36	49.6
10/2/2025	5:40:00 PM	73.36	49.8
10/2/2025	5:45:00 PM	73.36	49.8
10/2/2025	5:50:00 PM	73.47	49.8
10/2/2025	5:55:00 PM	73.54	49.3
10/2/2025	6:00:00 PM	73.62	48.9
10/2/2025	6:05:00 PM	73.44	49.3
10/2/2025	6:10:00 PM	73.33	49.8
10/2/2025	6:15:00 PM	73.24	50.1
10/2/2025	6:20:00 PM	73.13	50.3
10/2/2025	6:25:00 PM	73.47	49.6
10/2/2025	6:30:00 PM	73.58	49.3
10/2/2025	6:35:00 PM	73.72	49.1
10/2/2025	6:40:00 PM	73.72	48.8
10/2/2025	6:45:00 PM	73.72	48.8
10/2/2025	6:50:00 PM	73.81	48.7
10/2/2025	6:55:00 PM	73.62	49.3

10/2/2025	7:00:00 PM	73.51	49.6
10/2/2025	7:05:00 PM	73.62	49.2
10/2/2025	7:10:00 PM	73.72	49.0
10/2/2025	7:15:00 PM	73.72	49.1
10/2/2025	7:20:00 PM	73.72	49.0
10/2/2025	7:25:00 PM	73.54	49.5
10/2/2025	7:30:00 PM	73.44	49.5
10/2/2025	7:35:00 PM	73.58	49.3
10/2/2025	7:40:00 PM	73.58	49.3
10/2/2025	7:45:00 PM	73.58	49.5
10/2/2025	7:50:00 PM	73.58	49.5
10/2/2025	7:55:00 PM	73.58	49.3
10/2/2025	8:00:00 PM	73.58	49.3
10/2/2025	8:05:00 PM	73.58	49.3
10/2/2025	8:10:00 PM	73.58	49.1
10/2/2025	8:15:00 PM	73.58	49.1
10/2/2025	8:20:00 PM	73.65	49.1
10/2/2025	8:25:00 PM	73.65	49.1
10/2/2025	8:30:00 PM	73.65	49.1
10/2/2025	8:35:00 PM	73.65	49.0
10/2/2025	8:40:00 PM	73.65	49.0
10/2/2025	8:45:00 PM	73.65	48.9
10/2/2025	8:50:00 PM	73.72	49.0
10/2/2025	8:55:00 PM	73.72	48.9
10/2/2025	9:00:00 PM	73.72	48.8
10/2/2025	9:05:00 PM	73.72	48.8

10/2/2025	9:10:00 PM	73.72	48.8
10/2/2025	9:15:00 PM	73.72	48.8
10/2/2025	9:20:00 PM	73.72	48.7
10/2/2025	9:25:00 PM	73.72	48.7
10/2/2025	9:30:00 PM	73.72	48.7
10/2/2025	9:35:00 PM	73.65	48.7
10/2/2025	9:40:00 PM	73.65	48.7
10/2/2025	9:45:00 PM	73.65	48.7
10/2/2025	9:50:00 PM	73.65	48.7
10/2/2025	9:55:00 PM	73.65	48.7
10/2/2025	10:00:00 PM	73.58	48.7
10/2/2025	10:05:00 PM	73.58	48.7
10/2/2025	10:10:00 PM	73.58	48.7
10/2/2025	10:15:00 PM	73.58	48.7
10/2/2025	10:20:00 PM	73.51	48.7
10/2/2025	10:25:00 PM	73.51	48.7
10/2/2025	10:30:00 PM	73.44	48.7
10/2/2025	10:35:00 PM	73.44	48.7
10/2/2025	10:40:00 PM	73.44	48.7
10/2/2025	10:45:00 PM	73.36	48.7
10/2/2025	10:50:00 PM	73.36	48.6
10/2/2025	10:55:00 PM	73.29	48.6
10/2/2025	11:00:00 PM	73.29	48.6
10/2/2025	11:05:00 PM	73.29	48.6
10/2/2025	11:10:00 PM	73.20	48.6
10/2/2025	11:15:00 PM	73.20	48.6

10/2/2025	11:20:00 PM	73.13	48.6
10/2/2025	11:25:00 PM	73.13	48.6
10/2/2025	11:30:00 PM	73.06	48.6
10/2/2025	11:35:00 PM	73.06	48.6
10/2/2025	11:40:00 PM	72.99	48.7
10/2/2025	11:45:00 PM	72.99	48.8
10/2/2025	11:50:00 PM	72.88	48.8
10/2/2025	11:55:00 PM	72.88	48.9
10/3/2025	12:00:00 AM	72.81	49.0
10/3/2025	12:05:00 AM	72.81	49.0
10/3/2025	12:10:00 AM	72.72	49.0
10/3/2025	12:15:00 AM	72.64	49.0
10/3/2025	12:20:00 AM	72.64	49.0
10/3/2025	12:25:00 AM	72.57	49.0
10/3/2025	12:30:00 AM	72.57	49.0
10/3/2025	12:35:00 AM	72.50	49.0
10/3/2025	12:40:00 AM	72.50	49.0
10/3/2025	12:45:00 AM	72.43	49.0
10/3/2025	12:50:00 AM	72.43	49.0
10/3/2025	12:55:00 AM	72.36	49.0
10/3/2025	1:00:00 AM	72.36	49.1
10/3/2025	1:05:00 AM	72.36	49.1
10/3/2025	1:10:00 AM	72.28	49.3
10/3/2025	1:15:00 AM	72.28	49.1
10/3/2025	1:20:00 AM	72.19	49.1
10/3/2025	1:25:00 AM	72.19	49.1

10/3/2025	1:30:00 AM	72.12	49.3
10/3/2025	1:35:00 AM	72.12	49.3
10/3/2025	1:40:00 AM	72.12	49.3
10/3/2025	1:45:00 AM	72.12	49.3
10/3/2025	1:50:00 AM	72.05	49.3
10/3/2025	1:55:00 AM	72.05	49.3
10/3/2025	2:00:00 AM	71.98	49.4
10/3/2025	2:05:00 AM	71.98	49.4
10/3/2025	2:10:00 AM	71.98	49.4
10/3/2025	2:15:00 AM	71.98	49.4
10/3/2025	2:20:00 AM	71.91	49.5
10/3/2025	2:25:00 AM	71.91	49.5
10/3/2025	2:30:00 AM	71.83	49.5
10/3/2025	2:35:00 AM	71.83	49.5
10/3/2025	2:40:00 AM	71.83	49.5
10/3/2025	2:45:00 AM	71.83	49.6
10/3/2025	2:50:00 AM	71.83	49.6
10/3/2025	2:55:00 AM	71.76	49.6
10/3/2025	3:00:00 AM	71.76	49.6
10/3/2025	3:05:00 AM	71.69	49.6
10/3/2025	3:10:00 AM	71.69	49.6
10/3/2025	3:15:00 AM	71.69	49.6
10/3/2025	3:20:00 AM	71.69	49.7
10/3/2025	3:25:00 AM	71.69	49.7
10/3/2025	3:30:00 AM	71.60	49.7
10/3/2025	3:35:00 AM	71.60	49.7

10/3/2025	3:40:00 AM	71.60	49.9
10/3/2025	3:45:00 AM	71.53	49.9
10/3/2025	3:50:00 AM	71.53	49.9
10/3/2025	3:55:00 AM	71.53	49.9
10/3/2025	4:00:00 AM	71.53	49.9
10/3/2025	4:05:00 AM	71.46	49.8
10/3/2025	4:10:00 AM	71.46	49.9
10/3/2025	4:15:00 AM	71.46	49.9
10/3/2025	4:20:00 AM	71.46	50.1
10/3/2025	4:25:00 AM	71.46	50.1
10/3/2025	4:30:00 AM	71.38	50.0
10/3/2025	4:35:00 AM	71.38	50.0
10/3/2025	4:40:00 AM	71.38	50.0
10/3/2025	4:45:00 AM	71.38	50.0
10/3/2025	4:50:00 AM	71.31	50.0
10/3/2025	4:55:00 AM	71.31	50.0
10/3/2025	5:00:00 AM	71.31	50.0
10/3/2025	5:05:00 AM	71.31	50.0
10/3/2025	5:10:00 AM	71.31	50.0
10/3/2025	5:15:00 AM	71.24	50.0
10/3/2025	5:20:00 AM	71.24	50.0
10/3/2025	5:25:00 AM	71.24	50.2
10/3/2025	5:30:00 AM	71.24	50.1
10/3/2025	5:35:00 AM	71.17	50.2
10/3/2025	5:40:00 AM	71.17	50.0
10/3/2025	5:45:00 AM	71.17	50.2

10/3/2025	5:50:00 AM	71.17	50.1
10/3/2025	5:55:00 AM	71.17	50.1
10/3/2025	6:00:00 AM	71.17	50.1
10/3/2025	6:05:00 AM	71.08	50.1
10/3/2025	6:10:00 AM	71.08	50.2
10/3/2025	6:15:00 AM	71.08	50.2
10/3/2025	6:20:00 AM	71.08	50.1
10/3/2025	6:25:00 AM	71.08	50.2
10/3/2025	6:30:00 AM	71.08	50.2
10/3/2025	6:35:00 AM	71.08	50.2
10/3/2025	6:40:00 AM	71.01	50.1
10/3/2025	6:45:00 AM	71.01	50.1
10/3/2025	6:50:00 AM	71.01	50.1
10/3/2025	6:55:00 AM	71.01	50.1
10/3/2025	7:00:00 AM	71.01	50.1
10/3/2025	7:05:00 AM	71.01	50.1
10/3/2025	7:10:00 AM	71.01	50.1
10/3/2025	7:15:00 AM	71.01	50.1
10/3/2025	7:20:00 AM	71.01	50.1
10/3/2025	7:25:00 AM	71.01	50.1
10/3/2025	7:30:00 AM	71.01	50.1
10/3/2025	7:35:00 AM	71.01	50.1
10/3/2025	7:40:00 AM	70.93	49.9
10/3/2025	7:45:00 AM	70.93	49.9
10/3/2025	7:50:00 AM	70.86	49.9
10/3/2025	7:55:00 AM	70.86	49.9

10/3/2025	8:00:00 AM	70.86	50.0
10/3/2025	8:05:00 AM	70.79	49.9
10/3/2025	8:10:00 AM	70.79	49.9
10/3/2025	8:15:00 AM	70.79	49.9
10/3/2025	8:20:00 AM	70.79	49.9
10/3/2025	8:25:00 AM	70.79	50.0
10/3/2025	8:30:00 AM	70.34	50.4
10/3/2025	8:35:00 AM	70.12	50.8
10/3/2025	8:40:00 AM	70.38	50.7
10/3/2025	8:45:00 AM	70.57	50.3
10/3/2025	8:50:00 AM	70.57	50.2
10/3/2025	8:55:00 AM	70.65	50.1
10/3/2025	9:00:00 AM	70.72	50.1
10/3/2025	9:05:00 AM	70.72	49.9
10/3/2025	9:10:00 AM	70.72	49.9
10/3/2025	9:15:00 AM	70.79	49.8
10/3/2025	9:20:00 AM	70.79	49.8
10/3/2025	9:25:00 AM	70.79	49.6
10/3/2025	9:30:00 AM	70.86	49.6
10/3/2025	9:35:00 AM	70.86	49.6
10/3/2025	9:40:00 AM	70.48	49.9
10/3/2025	9:45:00 AM	70.41	50.0
10/3/2025	9:50:00 AM	70.54	50.0
10/3/2025	9:55:00 AM	70.61	49.9
10/3/2025	10:00:00 AM	70.61	49.9
10/3/2025	10:05:00 AM	70.61	50.0

10/3/2025	10:10:00 AM	70.20	50.3
10/3/2025	10:15:00 AM	69.89	50.7
10/3/2025	10:20:00 AM	70.16	50.4
10/3/2025	10:25:00 AM	70.27	50.4
10/3/2025	10:30:00 AM	70.27	50.2
10/3/2025	10:35:00 AM	70.27	50.2
10/3/2025	10:40:00 AM	70.02	50.6
10/3/2025	10:45:00 AM	70.09	50.6
10/3/2025	10:50:00 AM	70.16	50.5
10/3/2025	10:55:00 AM	70.16	50.4
10/3/2025	11:00:00 AM	70.16	50.4
10/3/2025	11:05:00 AM	70.16	50.4
10/3/2025	11:10:00 AM	70.23	50.2
10/3/2025	11:15:00 AM	70.30	50.2
10/3/2025	11:20:00 AM	70.30	50.2
10/3/2025	11:25:00 AM	70.30	50.3
10/3/2025	11:30:00 AM	70.41	50.3
10/3/2025	11:35:00 AM	70.27	50.9
10/3/2025	11:40:00 AM	70.20	50.6
10/3/2025	11:45:00 AM	70.34	50.5
10/3/2025	11:50:00 AM	70.41	50.5
10/3/2025	11:55:00 AM	70.41	50.3
10/3/2025	12:00:00 PM	70.48	50.3
10/3/2025	12:05:00 PM	70.48	50.3
10/3/2025	12:10:00 PM	70.57	50.2
10/3/2025	12:15:00 PM	70.57	50.2

10/3/2025	12:20:00 PM	70.65	50.0
10/3/2025	12:25:00 PM	70.65	50.0
10/3/2025	12:30:00 PM	70.72	50.0
10/3/2025	12:35:00 PM	70.54	50.2
10/3/2025	12:40:00 PM	70.65	50.1
10/3/2025	12:45:00 PM	70.72	49.8
10/3/2025	12:50:00 PM	70.72	49.9
10/3/2025	12:55:00 PM	70.83	49.6
10/3/2025	1:00:00 PM	70.83	49.6
10/3/2025	1:05:00 PM	70.93	49.5
10/3/2025	1:10:00 PM	70.93	50.5
10/3/2025	1:15:00 PM	70.93	50.1
10/3/2025	1:20:00 PM	71.04	49.6
10/3/2025	1:25:00 PM	71.13	49.5
10/3/2025	1:30:00 PM	71.13	49.4
10/3/2025	1:35:00 PM	71.24	49.2
10/3/2025	1:40:00 PM	71.31	49.4
10/3/2025	1:45:00 PM	71.31	49.4
10/3/2025	1:50:00 PM	71.42	49.4
10/3/2025	1:55:00 PM	71.49	49.1
10/3/2025	2:00:00 PM	71.49	49.1
10/3/2025	2:05:00 PM	71.60	49.1
10/3/2025	2:10:00 PM	71.60	49.0
10/3/2025	2:15:00 PM	71.73	48.9
10/3/2025	2:20:00 PM	71.73	48.8
10/3/2025	2:25:00 PM	71.73	49.1

10/3/2025	2:30:00 PM	71.73	48.9
10/3/2025	2:35:00 PM	71.87	48.7
10/3/2025	2:40:00 PM	71.94	48.5
10/3/2025	2:45:00 PM	72.01	48.3
10/3/2025	2:50:00 PM	72.01	48.1
10/3/2025	2:55:00 PM	72.12	48.0
10/3/2025	3:00:00 PM	72.12	48.0
10/3/2025	3:05:00 PM	72.25	47.8
10/3/2025	3:10:00 PM	72.25	47.7
10/3/2025	3:15:00 PM	72.36	47.7
10/3/2025	3:20:00 PM	72.36	48.2
10/3/2025	3:25:00 PM	72.43	47.9
10/3/2025	3:30:00 PM	72.43	47.7
10/3/2025	3:35:00 PM	72.54	47.4
10/3/2025	3:40:00 PM	72.54	47.4
10/3/2025	3:45:00 PM	72.61	47.3
10/3/2025	3:50:00 PM	72.68	47.2
10/3/2025	3:55:00 PM	72.61	47.3
10/3/2025	4:00:00 PM	72.61	47.2
10/3/2025	4:05:00 PM	72.68	47.1
10/3/2025	4:10:00 PM	72.68	47.1
10/3/2025	4:15:00 PM	72.81	47.2
10/3/2025	4:20:00 PM	72.81	47.1
10/3/2025	4:25:00 PM	72.88	46.9
10/3/2025	4:30:00 PM	72.88	46.9
10/3/2025	4:35:00 PM	72.95	46.8

10/3/2025	4:40:00 PM	72.95	46.8
10/3/2025	4:45:00 PM	72.95	46.8
10/3/2025	4:50:00 PM	73.02	46.8
10/3/2025	4:55:00 PM	73.09	46.8
10/3/2025	5:00:00 PM	73.09	46.8
10/3/2025	5:05:00 PM	73.09	46.8
10/3/2025	5:10:00 PM	73.17	46.8
10/3/2025	5:15:00 PM	73.17	46.8
10/3/2025	5:20:00 PM	73.24	46.6
10/3/2025	5:25:00 PM	73.24	46.6
10/3/2025	5:30:00 PM	73.24	46.6
10/3/2025	5:35:00 PM	73.33	46.6
10/3/2025	5:40:00 PM	73.33	46.6
10/3/2025	5:45:00 PM	73.33	46.6
10/3/2025	5:50:00 PM	73.40	46.5
10/3/2025	5:55:00 PM	73.40	46.5
10/3/2025	6:00:00 PM	73.40	46.5
10/3/2025	6:05:00 PM	73.47	46.5
10/3/2025	6:10:00 PM	73.47	46.5
10/3/2025	6:15:00 PM	73.47	46.4
10/3/2025	6:20:00 PM	73.54	46.4
10/3/2025	6:25:00 PM	73.54	46.5
10/3/2025	6:30:00 PM	73.54	46.4
10/3/2025	6:35:00 PM	73.54	46.4
10/3/2025	6:40:00 PM	73.54	46.4
10/3/2025	6:45:00 PM	73.54	46.4

10/3/2025	6:50:00 PM	73.62	46.4
10/3/2025	6:55:00 PM	73.62	46.4
10/3/2025	7:00:00 PM	73.62	46.4
10/3/2025	7:05:00 PM	73.62	46.3
10/3/2025	7:10:00 PM	73.62	46.3
10/3/2025	7:15:00 PM	73.62	46.3
10/3/2025	7:20:00 PM	73.62	46.3
10/3/2025	7:25:00 PM	73.62	46.3
10/3/2025	7:30:00 PM	73.62	46.3
10/3/2025	7:35:00 PM	73.62	46.3
10/3/2025	7:40:00 PM	73.62	46.3
10/3/2025	7:45:00 PM	73.62	46.4
10/3/2025	7:50:00 PM	73.62	46.4
10/3/2025	7:55:00 PM	73.62	46.4
10/3/2025	8:00:00 PM	73.62	46.4
10/3/2025	8:05:00 PM	73.62	46.4
10/3/2025	8:10:00 PM	73.62	46.4
10/3/2025	8:15:00 PM	73.62	46.4
10/3/2025	8:20:00 PM	73.62	46.4
10/3/2025	8:25:00 PM	73.62	46.4
10/3/2025	8:30:00 PM	73.54	46.5
10/3/2025	8:35:00 PM	73.54	46.5
10/3/2025	8:40:00 PM	73.54	46.5
10/3/2025	8:45:00 PM	73.54	46.5
10/3/2025	8:50:00 PM	73.47	46.6
10/3/2025	8:55:00 PM	73.47	46.6

10/3/2025	9:00:00 PM	73.47	46.7
10/3/2025	9:05:00 PM	73.47	46.7
10/3/2025	9:10:00 PM	73.47	46.8
10/3/2025	9:15:00 PM	73.47	47.0
10/3/2025	9:20:00 PM	73.40	46.9
10/3/2025	9:25:00 PM	73.40	46.9
10/3/2025	9:30:00 PM	73.40	47.0
10/3/2025	9:35:00 PM	73.33	46.9
10/3/2025	9:40:00 PM	73.33	46.9
10/3/2025	9:45:00 PM	73.33	46.9
10/3/2025	9:50:00 PM	73.33	47.1
10/3/2025	9:55:00 PM	73.33	47.1
10/3/2025	10:00:00 PM	73.33	47.1
10/3/2025	10:05:00 PM	73.24	47.2
10/3/2025	10:10:00 PM	73.24	47.1
10/3/2025	10:15:00 PM	73.24	47.2
10/3/2025	10:20:00 PM	73.24	47.2
10/3/2025	10:25:00 PM	73.17	47.2
10/3/2025	10:30:00 PM	73.17	47.3
10/3/2025	10:35:00 PM	73.17	47.3
10/3/2025	10:40:00 PM	73.17	47.4
10/3/2025	10:45:00 PM	73.09	47.4
10/3/2025	10:50:00 PM	73.09	47.4
10/3/2025	10:55:00 PM	73.09	47.5
10/3/2025	11:00:00 PM	73.09	47.5
10/3/2025	11:05:00 PM	73.02	47.5

10/3/2025	11:10:00 PM	73.02	47.5
10/3/2025	11:15:00 PM	73.02	47.6
10/3/2025	11:20:00 PM	73.02	47.6
10/3/2025	11:25:00 PM	72.95	47.6
10/3/2025	11:30:00 PM	72.95	47.8
10/3/2025	11:35:00 PM	72.95	47.8
10/3/2025	11:40:00 PM	72.88	47.8
10/3/2025	11:45:00 PM	72.88	47.8
10/3/2025	11:50:00 PM	72.88	47.8
10/3/2025	11:55:00 PM	72.88	47.8

Appendix E

Manufacturer's communications regarding Bimetalic Control Mechanism

Low Burn Rate Justification

Completed by Ashnil Reddy
Product Development, Blaze King Ind.
December 14, 2016
Revised January 13, 2021

The two main components of a Blaze King thermostat are the damper blade and the bimetallic coil; they work in unison to produce a consistent heat output. The damper blade is controlled by a thermostat knob that can be positioned accordingly based on desired heat output. The bimetallic coil regulates the volume of intake combustion air by adjusting the damper blade angle based on its reaction with heat radiating off the unit. As the fire loses intensity and the unit radiates less heat, the bimetallic coil contracts and repositions the damper blade angle to allow more combustion air to stoke the fire so the unit can continue to radiate the desired heat output. As the fire gains intensity, the same procedure occurs in the opposite direction.

When preforming a 5G emission test run in the Low Burn Rate Category (<0.8kg/hr), Blaze King's target fuel consumption rate is 0.1lb of test fuel per 10 minute interval. To achieve this, the thermostat knob is positioned such that the damper blade is almost fully closed. If the blade is closed beyond this point, inadequate intake air would cause the burn to stall. This low burn rate is consistently achievable in a test lab environment given that external conditions are held constant. However, when burning in a real world environment, external conditions cannot be held constant which yields a much different low burn rate given the same thermostat knob setting as used in the test lab environment.

A great example of a real world inconsistency that would affect low burn rate is chimney draft. If the unit were installed with a chimney height of 20ft or greater, the increased draft associated with that chimney height could increase the velocity of combustion air into the unit and result in a faster burn rate given the same thermostat knob setting as used in the test lab. In this scenario, the operator would be able to turn the thermostat knob lower to account for the increased draft and maintain the low burn rate that was achieved in the test lab environment. If the consumer were to turn the thermostat knob too low, the fire would stall due to inadequate intake as previously mentioned. This proves that when the damper blade is closed within the thermostat, regardless of the thermostat knob position, the low burn rate achieved during emissions testing is no greater than the rate that an operator can achieve in real world use.

In compliment with this verbal justification is a data set obtained during inhouse testing. The goal of this test run was to determine the thermostat knob setting that would yield the lowest burn rate achievable. For this test, the thermostat knob was positioned to 80 degrees below fully open; the run subsequently failed due to fuel consumption stalling. It was later found that a thermostat knob setting positioned 76 degrees below fully open yielded the desired low burn rate.

Blaze King / Valley Comfort

Wood Heater Test Data - EPA Method 5G

Run:	
Manufacture	Blaze King
Model	PE32
Tracking No	
Project No.	Low Burn - Invalid Run Stalled
Test Date	02-Jul-18
Beginning Clock Time	00:00
Recording Interval	10 min
Total Sampling Time	890 min
Burn Rate	N/A kg/hr

Velocity Traverse Data	Pt 1	Pt 2	Pt 3	Pt 4	Pt 5	Pt 6	Pt 7	Pt 8	
Initial dP									"H2O
Initial Temp									oF

Equipment Numbers: THERMOSTAT KNOB WAS CLOSED 80° FROM FULLY OPEN
NOTE: THERM KNOB WAS CLOSED 76° FROM FULLY OPEN FOR OFFICIAL EPA LOW BURN
TEST TERMINATED AT 890 MINS BECAUSE < 1 LB/MIN WEIGHT CHANGE FOR 30 MINUTES

PM Control Module:	BK-06	
Dilution Tunnel MW(dry):	29.00	lb/lb-mole
Dilution Tunnel MW(wet):	28.56	lb/lb-mole
Dilution Tunnel H2O:	4.00	percent
Dilution Tunnel Static:	-0.680	"H2O
Pitot Tube Cp:	0.99	
Meter Box Y Factor:	0.988	
Barometric Pressure:	Begin / Middle / End / Average	0.00 "Hg

Signature/Date:

Tunnel Velocity:	#DIV/0!	ft/sec.
Initial Tunnel Flow:	#DIV/0!	scfm
Average Tunnel Flow:	#DIV/0!	scfm
Tunnel Area:	0.196	ft2
Post-Test Leak Check:	0.006	cfm@"Hg
Fuel Moisture (dry basis):	22.3	%
Total Particulate:		mg
Filter Holder No.:		

	Particulate Sampling Data								Fuel Weight, lb		Wood Heater Temperature Data, oF												Stack	
Elapsed Time	Gas Meter Cubic Feet	Sample Rate, cfm	Orifice dH	Meter oF	Meter Vac. In. Hg	Dilution Tunnel Temp	Dilution Tunnel dP	Pro Rate (10%)	Scale Reading	Weight Change	Firebox Top	Firebox Bottom	Firebox Back	Firebox Left	Firebox Right	Firebox Interior	Average Surface	Stack	Filter	Impinger exit	Ambient	Draft In H2O	Catalyst Temp
0	1.000					#DIV/0!	#DIV/0!		20.78		252.89	386.58	200.39	221.34	219.33		256.1	223.14			69.78		382.99
10	1.000	0.00					#DIV/0!	#DIV/0!	20.71	-0.07	234.17	360.64	175.17	191.65	188.9		230.1	199.55			69.95		444.57
20	1.000	0.00						#DIV/0!	20.56	-0.15	231.32	347.64	158.76	170.75	168.45		215.4	185.54			69.39		495.28
30	1.000	0.00						#DIV/0!	20.3	-0.26	246.05	347.92	150.46	159.71	158.64		212.6	183.97			69.39		580.11
40	1.000	0.00					#DIV/0!	#DIV/0!	19.76	-0.54	279.84	354.64	146.54	162.68	160.83		220.9	195.46			69.16		679.73
50	1.000	0.00					#DIV/0!	#DIV/0!	19.11	-0.65	299.51	361.25	147.38	172.2	170.41		230.2	203.97			69.67		685.51
60	1	0.00					#DIV/0!	#DIV/0!	18.42	-0.69	314.3	362.65	147.49	180.55	177.08		236.4	213.44			69.05		709.6
70	1.000	0.00					#DIV/0!	#DIV/0!	17.68	-0.74	341.14	366.3	149.85	186.27	182.46		245.2	225.43			68.88		765.74
80	1.000	0.00					#DIV/0!	#DIV/0!	16.94	-0.74	369.88	371.34	151.58	196.3	192.26		256.3	237.98			69.67		785.91
90	1.000	0.00					#DIV/0!	#DIV/0!	16.4	-0.54	360.36	369.27	151.7	200.5	199.83		256.3	235.46			69.78		735.15
100	1.000	0.00					#DIV/0!	#DIV/0!	15.87	-0.53	372.35	367.81	152.03	201.9	204.7		259.8	237.82			69.84		806.59
110	1.000	0.00					#DIV/0!	#DIV/0!	15.43	-0.44	400.25	368.59	151.75	200.39	200.28		264.3	244.6			70.45		856.18
120	1	0.00					#DIV/0!	#DIV/0!	14.85	-0.58	428.6	366.35	153.39	201.84	199.15		269.9	252.55			70.45		874.27
130	1.000	0.00					#DIV/0!	#DIV/0!	14.38	-0.47	434.21	364	154.39	206.21	201.45		272.1	255.75			70.62		854.44
140	1.000	0.00					#DIV/0!	#DIV/0!	13.94	-0.44	426.31	363.38	156.24	208.74	204.37		271.8	254.96			70.28		835.5
150	1.000	0.00					#DIV/0!	#DIV/0!	13.49	-0.45	427.43	365.4	157.97	213.16	207.45		274.3	255.91			71.12		846.99
160	1.000	0.00					#DIV/0!	#DIV/0!	13.03	-0.46	437.34	369.94	160.61	218.04	211.54		279.5	258.83			71.4		863.18
170	1.000	0.00					#DIV/0!	#DIV/0!	12.61	-0.42	442.72	374.81	164.47	223.64	215.24		284.2	261.97			71.63		855.34
180	1	0.00					#DIV/0!	#DIV/0!	12.19	-0.42	440.2	377.22	167.44	228.52	218.43		286.4	262.25			71.96		841.94
190	1.000	0.00					#DIV/0!	#DIV/0!	11.81	-0.38	437.4	377.22	171.08	231.32	220.17		287.4	262.36			72.02		841.55
200	1.000	0.00					#DIV/0!	#DIV/0!	11.4	-0.41	438.41	375.88	174.28	234.51	222.18		289.1	263.7			72.41		843.23
210	1.000	0.00					#DIV/0!	#DIV/0!	11.03	-0.37	434.6	372.18	177.3	235.91	224.71		288.9	263.53			72.58		830.91
220	1.000	0.00					#DIV/0!	#DIV/0!	10.67	-0.36	433.14	368.09	181.39	237.26	224.65		288.9	263.31			72.92		833.2
230	1.000	0.00					#DIV/0!	#DIV/0!	10.28	-0.39	441.77	364.78	186.49	238.49	226.96		291.7	265.5			73.03		852.2
240	1	0.00					#DIV/0!	#DIV/0!	9.89	-0.39	448.33	361.93	191.53	239.11	229.36		294.1	267.79			73.2		844.35
250	1.000	0.00					#DIV/0!	#DIV/0!	9.57	-0.32	437.29	355.76	195.57	237.7	231.82		291.6	266.9			73.48		806.14
260	1.000	0.00					#DIV/0!	#DIV/0!	9.31	-0.26	412.07	346.52	199.27	238.71	231.32		285.6	261.97			73.65		758.23
270	1.000	0.00					#DIV/0!	#DIV/0!	9.1	-0.21	383.67	336.88	200.44	236.14	229.36		277.3	255.3			73.98		706.35
280	1.000	0.00					#DIV/0!	#DIV/0!	8.92	-0.18	356.04	326.68	200.5	231.93	226.83		268.4	247.4			74.21		665.56

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Blaze King / Valley Comfort

Wood Heater Test Data - EPA Method 5G

Run:	
Manufacturer	Blaze King
Model:	PE32
Tracking No.	
Project No.	Low Burn - Invalid Run Stalled
Test Date	02-Jul-18
Beginning Clock Time	00:00
Recording Interval	10 min.
Total Sampling Time	890 min.
Burn Rate	N/A kg/hr

Velocity Traverse Data	Pt 1	Pt 2	Pt 3	Pt 4	Pt 5	Pt 6	Pt 7	Pt 8	
Initial dP									"H2O
Initial Temp									oF

Equipment Numbers: THERMOSTAT KNOB WAS CLOSED 80° FROM FULLY OPEN
NOTE: THERM KNOB WAS CLOSED 76° FROM FULLY OPEN FOR OFFICIAL EPA LOW BURN
TEST TERMINATED AT 890 MINS BECAUSE < 1 LB/MIN WEIGHT CHANGE FOR 30 MINUTES

PM Control Module:	BK-06	
Dilution Tunnel MW(dry):	29.00	lb/lb-mole
Dilution Tunnel MW(wet):	28.56	lb/lb-mole
Dilution Tunnel H2O:	4.00	percent
Dilution Tunnel Static:	-0.680	"H2O
Pitot Tube Cp:	0.99	
Meter Box Y Factor:	0.988	
Barometric Pressure:	Begin / Middle / End / Average	
	0.00	"Hg

Signature/Date:

Tunnel Velocity:	#DIV/0!	ft/sec.
Initial Tunnel Flow:	#DIV/0!	scfm
Average Tunnel Flow:	#DIV/0!	scfm
Tunnel Area:	0.196	ft2
Post-Test Leak Check:	[illegible]	cfm@"Hg
Fuel Moisture (dry basis)	22.3	%
Total Particulate:		mg
Filter Holder No.		

	Particulate Sampling Data								Fuel Weight, lb		Wood Heater Temperature Data, oF												Stack	
Elapsed Time	Gas Meter Cubic Feet	Sample Rate, cfm	Orifice dH	Meter oF	Meter Vac In. Hg	Dilution Tunnel Temp	Dilution Tunnel dP	Pro. Rate (10%)	Scale Reading	Weight Change	Firebox Top	Firebox Bottom	Firebox Back	Firebox Left	Firebox Right	Firebox Interior	Average Surface	Stack	Filter	Impinger exit	Ambient	Draft In. H2O	Catalyst Temp
290	1.000	0.00					#DIV/0!	#DIV/0!	8.75	-0.17	339.23	316.71	201.23	226.83	223.92		261.6	241.57			74.26		655.19
300	1	0.00					#DIV/0!	#DIV/0!	8.55	-0.2	336.43	307.01	204.09	222.86	222.63		258.6	240.17			74.37		672.56
310	1.000	0.00					#DIV/0!	#DIV/0!	8.33	-0.22	343.49	298.11	209.58	219.55	222.91		258.7	241.79			74.32		695.76
320	1.000	0.00					#DIV/0!	#DIV/0!	8.1	-0.23	353.24	290.21	213.33	217.25	226.11		260.0	243.87			74.54		716.21
330	1.000	0.00					#DIV/0!	#DIV/0!	7.84	-0.26	366.86	283.71	216.58	215.85	233.56		263.3	246.05			74.54		738.29
340	1.000	0.00					#DIV/0!	#DIV/0!	7.61	-0.23	372.01	278.94	218.82	215.29	240.62		265.1	247.62			74.82		740.58
350	1.000	0.00					#DIV/0!	#DIV/0!	7.38	-0.23	371.28	275.69	220.17	215.57	245.21		265.6	248.18			74.77		727.98
360	1	0.00					#DIV/0!	#DIV/0!	7.18	-0.2	359.4	273.79	219.66	215.63	248.85		263.5	246.05			75.05		695.25
370	1.000	0.00					#DIV/0!	#DIV/0!	7.03	-0.15	339.62	274.07	214.84	214.56	249.81		258.6	240.11			74.93		653.4
380	1.000	0.00					#DIV/0!	#DIV/0!	6.91	-0.12	323.54	276.42	209.13	212.83	249.69		254.3	233.5			74.93		633.62
390	1.000	0.00					#DIV/0!	#DIV/0!	6.76	-0.15	318.39	278.16	203.92	210.98	249.41		252.2	229.58			75.16		644.15
400	1.000	0.00					#DIV/0!	#DIV/0!	6.58	-0.18	326.29	279.84	200.44	210.36	251.26		253.6	229.3			75.27		681.64
410	1.000	0.00					#DIV/0!	#DIV/0!	6.37	-0.21	352.85	283.87	202.46	210.59	253.79		260.7	235.91			75.38		737
420	1	0.00					#DIV/0!	#DIV/0!	6.17	-0.2	357.61	288.69	205.49	213.27	259.61		264.9	241.18			75.44		722.82
430	1.000	0.00					#DIV/0!	#DIV/0!	6.01	-0.16	353.97	292.84	208.23	216.36	264.99		267.3	243.64			75.55		705.34
440	1.000	0.00					#DIV/0!	#DIV/0!	5.84	-0.17	345.9	295.42	208.23	217.81	267.79		267.0	243.2			75.61		684.22
450	1.000	0.00					#DIV/0!	#DIV/0!	5.71	-0.13	334.81	295.36	206.89	217.81	267.51		264.5	240.62			75.77		662.03
460	1.000	0.00					#DIV/0!	#DIV/0!	5.57	-0.14	325.67	293.79	203.75	216.41	264.32		260.8	237.03			75.89		645.22
470	1.000	0.00					#DIV/0!	#DIV/0!	5.47	-0.1	313.63	291.55	198.71	214.28	260.73		255.8	231.54			75.77		618.27
480	1	0.00					#DIV/0!	#DIV/0!	5.36	-0.11	303.54	288.36	193.89	210.53	256.42		250.5	225.55			75.83		609.64
490	1.000	0.00					#DIV/0!	#DIV/0!	5.23	-0.13	305	285.78	188.4	207.06	252.44		247.7	222.07			75.77		641.8
500	1.000	0.00					#DIV/0!	#DIV/0!	5.08	-0.15	307.86	287.18	187.67	205.49	251.04		247.8	221.85			75.83		637.93
510	1.000	0.00					#DIV/0!	#DIV/0!	4.98	-0.1	303.2	289.25	188.34	204.09	248.46		246.7	221.51			75.77		623.87
520	1.000	0.00					#DIV/0!	#DIV/0!	4.86	-0.12	297.43	289.25	187.05	202.01	243.53		243.9	219.83			75.77		619.28
530	1.000	0.00					#DIV/0!	#DIV/0!	4.74	-0.12	295.64	290.93	186.44	200.39	238.49		242.4	219.1			75.77		620.28
540	1	0.00					#DIV/0!	#DIV/0!	4.62	-0.12	293.4	293.68	184.53	199.15	233.22		240.8	217.76			75.55		617.76
550	1.000	0.00					#DIV/0!	#DIV/0!	4.49	-0.13	291.61	295.75	184.36	199.32	228.18		239.8	217.48			75.72		620.28
560	1.000	0.00					#DIV/0!	#DIV/0!	4.3	-0.19	303.88	298.16	184.92	202.01	223.64		242.5	221.34			75.55		668.25
570	1.000	0.00					#DIV/0!	#DIV/0!	4.09	-0.21	326.12	299.51	185.54	207.62	220.5		247.9	227.95			75.72		720.36

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Blaze King / Valley Comfort

Wood Heater Test Data - EPA Method 5G

Run:

Manufacturer:	Blaze King		
Model:	PE32		
Tracking No:			
Project No.:	Error Run - Invalid Test Method		
Test Date:	02-Jul-18		
Beginning Clock Time:	00:00		
Recording Interval:	10	min.	
Total Sampling Time:	890	min.	
Burn Rate:	N/A	kg/hr	

Velocity Traverse Data

	Pt 1	Pt 2	Pt 3	Pt 4	Pt 5	Pt 6	Pt 7	Pt 8	
Initial dP									"H2O
Initial Temp									oF

Equipment Numbers: THERMOSTAT KNOB WAS CLOSED 80° FROM FULLY OPEN

NOTE THERM KNOB WAS CLOSED 76° FROM FULLY OPEN FOR OFFICIAL EPA LOW BURN

TEST TERMINATED AT 890 MINS BECAUSE < 1 LB/MIN WEIGHT CHANGE FOR 30 MINUTES

PM Control Module:	BK-06				
Dilution Tunnel MW(dry):	29.00	lb/lb-mole			
Dilution Tunnel MW(wet):	28.56	lb/lb-mole			
Dilution Tunnel H2O:	4.00	percent			
Dilution Tunnel Stasc:	-0.680	"H2O			
Pitot Tube Cp:	0.99				
Meter Box Y Factor:	0.988				
Barometric Pressure:	Begin	Middle	End	Average	
				0.00	"Hg

Signature/Date:

Tunnel Velocity:	#DIV/0!	ft/sec
Intial Tunnel Flow:	#DIV/0!	scfm
Average Tunnel Flow:	#DIV/0!	scfm
Tunnel Area:	0.196	ft2
Post-Test Leak Check:	passed	cfm@"Hg
Fuel Moisture (dry basis):	22.3	%
Total Particulate:		mg
Filter Holder No.:		

	Particulate Sampling Data								Fuel Weight, lb		Wood Heater Temperature Data, oF											Stack	
Elapsed Time	Gas Meter Cubic Feet	Sample Rate, cfm	Orifice dH	Meter oF	Meter Vac. In. Hg.	Dilution Tunnel Temp.	Dilution Tunnel dP	Pro Rate (10%)	Scale Reading	Weight Change	Firebox Top	Firebox Bottom	Firebox Back	Firebox Left	Firebox Right	Firebox Interior	Average Surface	Stack	Filter	Impinger exit	Ambient	Draft In H2O	Catalyst Temp
580	1.000	0.00					#DIV/0!	#DIV/0!	3.81	-0.28	359.24	301.97	187.72	216.75	220.11		257.2	237.48			75.27		789.44
590	1.000	0.00					#DIV/0!	#DIV/0!	3.5	-0.31	400.64	304.77	191.03	229.69	223.02		269.8	249.47			75.05		837.07
600	1	0.00					#DIV/0!	#DIV/0!	3.21	-0.29	415.04	305.89	194.45	243.03	226.11		276.9	256.19			75.44		815.72
610	1.000	0.00					#DIV/0!	#DIV/0!	2.98	-0.23	400.92	305.39	195.23	253.11	228.18		276.6	255.91			75.44		766.81
620	1.000	0.00					#DIV/0!	#DIV/0!	2.82	-0.16	374.25	302.81	193.5	260.96	227.23		271.8	251.1			75.44		707.92
630	1.000	0.00					#DIV/0!	#DIV/0!	2.7	-0.12	343.66	298.27	190.19	262.64	222.58		263.5	243.31			75.16		650.93
640	1.000	0.00					#DIV/0!	#DIV/0!	2.62	-0.08	320.41	292.61	184.98	261.52	217.08		255.3	235.24			75.1		621.29
650	1.000	0.00					#DIV/0!	#DIV/0!	2.5	-0.12	308.14	286.79	180.61	259.28	211.43		249.3	229.19			75.16		619.39
660	1	0.00					#DIV/0!	#DIV/0!	2.35	-0.15	292.78	281.97	179.1	263.87	209.02		245.3	226.33			74.77		578.77
670	1.000	0.00					#DIV/0!	#DIV/0!	2.2	-0.15	284.88	280.01	178.82	272.56	208.79		245.0	227.9			74.71		573.95
680	1.000	0.00					#DIV/0!	#DIV/0!	2.07	-0.13	280.46	279.17	179.71	276.7	208.4		244.9	230.76			74.37		556.69
690	1.000	0.00					#DIV/0!	#DIV/0!	1.94	-0.13	275.36	277.26	179.1	277.09	207.39		243.2	231.09			74.49		547.28
700	1.000	0.00					#DIV/0!	#DIV/0!	1.83	-0.11	270.93	274.63	176.91	274.91	206.83		240.8	227.95			74.15		539.25
710	1.000	0.00					#DIV/0!	#DIV/0!	1.73	-0.1	267.74	274.07	175.45	273.73	205.88		239.4	225.15			74.04		534.56
720	1	0.00					#DIV/0!	#DIV/0!	1.63	-0.1	268.52	273.4	172.65	266.22	203.47		236.9	222.97			73.98		550.97
730	1.000	0.00					#DIV/0!	#DIV/0!	1.53	-0.1	270.2	271.94	171.14	258.83	200.56		234.5	220.78			73.65		553.94
740	1.000	0.00					#DIV/0!	#DIV/0!	1.43	-0.1	268.97	270.31	169.35	253.28	199.15		232.2	218.82			73.59		552.26
750	1.000	0.00					#DIV/0!	#DIV/0!	1.32	-0.11	268.75	272.11	167.89	247.4	197.36		230.7	216.47			73.31		558.26
760	1.000	0.00					#DIV/0!	#DIV/0!	1.22	-0.1	266.95	273.45	166.38	242.75	195.74		229.1	214.68			73.2		554.95
770	1.000	0.00					#DIV/0!	#DIV/0!	1.12	-0.1	260.28	274.18	163.86	238.94	193.78		226.2	211.59			73.14		530.41
780	1	0.00					#DIV/0!	#DIV/0!	1.03	-0.09	259.22	275.36	160.61	232.72	189.74		223.5	208.12			72.89		550.47
790	1.000	0.00					#DIV/0!	#DIV/0!	0.93	-0.1	259.28	273.51	157.41	225.71	185.48		220.3	204.87			72.86		550.36
800	1.000	0.00					#DIV/0!	#DIV/0!	0.86	-0.07	253.95	272.11	154.11	219.94	181.67		216.4	200.39			72.58		532.6
810	1.000	0.00					#DIV/0!	#DIV/0!	0.82	-0.04	243.2	271.88	150.13	212.43	176.52		210.8	193.72			72.36		495.84
820	1.000	0.00					#DIV/0!	#DIV/0!	0.75	-0.07	230.59	268.8	145.14	204.65	170.92		204.0	186.44			72.08		473.6
830	1.000	0.00					#DIV/0!	#DIV/0!	0.72	-0.03	219.94	263.81	140.6	197.42	165.2		197.4	179.43			72.19		451.91
840	1	0.00					#DIV/0!	#DIV/0!	0.67	-0.05	210.47	257.82	136.46	190.75	159.43		191.0	172.99			71.96		432.24
850	1.000	0.00					#DIV/0!	#DIV/0!	0.64	-0.03	197.42	251.77	132.2	183.35	153.77		183.7	165.93			72.08		391.68
860	1.000	0.00					#DIV/0!	#DIV/0!	0.61	-0.03	172.2	245.32	128.05	174.5	147.83		173.6	154.72			71.74		279.22

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Blaze King / Valley Comfort

Wood Heater Test Data - EPA Method 5G

Run:	
Manufacturer	Blaze King
Model	PE32
Tracking No.	
Project No.	[illegible]
Test Date	02-Jul-18
Beginning Clock Time	00:00
Recording Interval	10 min
Total Sampling Time	390 min
Burn Rate	N/A kg/hr

Velocity Traverse Data	Pt 1	Pt 2	Pt 3	Pt 4	Pt 5	Pt 6	Pt 7	Pt 8	
Initial dP									"H2O
Initial Temp									oF

Equipment Numbers: THERMOSTAT KNOB WAS CLOSED 80° FROM FULLY OPEN
NOTE: THERM KNOB WAS CLOSED 76° FROM FULLY OPEN FOR OFFICIAL EPA LOW BURN
TEST TERMINATED AT 890 MINS BECAUSE < .1 LB/MIN WEIGHT CHANGE FOR 30 MINUTES

PM Control Module:	BK-06	
Dilution Tunnel MW(dry):	29.00	lb/lb-mole
Dilution Tunnel MW(wet):	28.56	lb/lb-mole
Dilution Tunnel H2O:	4.00	percent
Dilution Tunnel Static:	-0.680	"H2O
Pitot Tube Cp:	0.99	
Meter Box Y Factor:	0.988	
Barometric Pressure:	Begin / Middle / End / Average	0.00 "Hg

Signature/Date:		
Tunnel Velocity:	#DIV/0!	ft/sec
Initial Tunnel Flow:	#DIV/0!	scfm
Average Tunnel Flow:	#DIV/0!	scfm
Tunnel Area:	0.196	ft2
Post-Test Leak Check:	[illegible]	cfm@"Hg
Fuel Moisture (dry basis):	22.3	%
Total Particulate:		mg
Filter Holder No.:		

	Particulate Sampling Data								Fuel Weight, lb		Wood Heater Temperature Data, oF											Stack	
Elapsed Time	Gas Meter Cubic Feet	Sample Rate, cfm	Orifice dH	Meter oF	Meter Vac In Hg.	Dilution Tunnel Temp	Dilution Tunnel dP	Pro Rate (10%)	Scale Reading	Weight Change	Firebox Top	Firebox Bottom	Firebox Back	Firebox Left	Firebox Right	Firebox Interior	Average Surface	Stack	Filter	Impinger exit	Ambient	Draft In H2O	Catalyst Temp
870	1.000	0.00					#DIV/0!	#DIV/0!	0.59	-0.02	156.01	238.04	123.46	164.92	141.39		164.8	145.08			71.63		248.18
880	1.000	0.00					#DIV/0!	#DIV/0!	0.59	0	145.08	229.52	119.25	156.07	135.62		157.1	137.13			71.29		226.78
890	1.000	0.00					#DIV/0!	#DIV/0!	0.59	0	136.4	219.55	115.11	147.77	129.73		149.7	130.35			71.4		210.31
Avg/Total	0.00	0.00	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	#DIV/0!		-0.23	324.50	307.69	177.47	218.79	213.29		248.26	227.70			73.35		650.81

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Note To File

Subject: Low Burn Rate Justification

Parties: EPA Staff

Dr. Rafael Sanchez-OEECA

Robert (Bob) Scinta-OEECA

Steffan Johnson-OAQPS

Patrick Yellin-OEECA

Angelina Brashear-OAQPS

Mike Toney-OAQPS

Ashnil Reddy-Blaze King

Chris Neufeld-Blaze King

Background: On January 1, 2021, we received an email from Dr. Sanchez in which he comments that EPA had received an email expressing concern about the low burn rate on the PE32 test report. The email expressing concern was from ADEC.

EPA requested data to support the PE32 was in fact tested at the lowest burn rate possible. Data was submitted (attached) to EPA on January 13, 2021. Subsequently, EPA requested a virtual phone call with Blaze King's Ashnil Reddy and Chris Neufeld where we were to be asked questions related to the data. OAQPS was given the time to review the data and Low Burn Justification memorandum submitted 01/13/2021.

Blaze King and EPA conducted a virtual phone call. Present were all the parties cited in the header of this memorandum. Several questions were asked about the data and responded to by Ashnil Reddy. OEECA's Bob Scinta inquired of Steffan Johnson if he was satisfied that the Blaze King Princess 32 had in fact been tested at the lowest burn rate possible. Stef asked Angelina Brashear her opinion, having reviewed the supporting data and she commented she was. Stef then asked Mike Toney, having also reviewed the data, and he too acknowledged his support.

Stef then said that as far has he and his staff were concerned, the data a supporting document supported the PE32 had been tested at the lowest possible burn rate.

	Bob Scinta commented that as far as EPA was concerned, Blaze King had provided sufficient data for the agency to review and it was the decision of EPA that the PE32 had been tested at the lowest possible burn rate.
Update:	Dr. Rafael Sanchez called me (Chris Neufeld) and asked that we included the letter of Low Burn Justification with each test report for all our units that use out thermostat.
	This cover memo and supporting documents and data will be included in all CBI reports submitted to EPA

Appendix F

Catalyst Equivalence Test Procedure

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF
COMPLIANCE

DEC 15 2016

Chris Neufeld
Vice President
Blaze King Industries, Inc.
146 A Street
Walla Walla, Washington 99362

RE: Blaze King Industries, Inc. (Blaze King) Request for Catalyst Suitable Replacement Procedures

Dear Mr. Neufeld:

This letter is in response to the February 3, 2016, Blaze King letter requesting the United States Environmental Protection Agency (EPA) implement a program to allow catalyst equipped wood heater manufacturers and suppliers to seek suitable replacement status during the life cycle of the product. As discussed below, replacement catalysts may be used if equivalency is properly demonstrated.

To have a catalyst deemed suitable for replacement, equivalency testing must be conducted by an EPA-approved test laboratory. Consistent with the 2015 Standards of Performance for New Residential Wood Heaters, New Residential Hydronic Heaters and Forced-Air Furnaces (Subpart AAA) (2015 Standards), the manufacturer must notify the EPA of the date that certification testing (catalyst equivalency testing) is scheduled to begin as stated in Section 60.534(g). This notice must be received by the EPA at least 30 days before the start of testing. EPA will consider the following steps to be adequate to demonstrate replacement catalyst equivalency:

1) The manufacturer uses the same test method as the original certification test was conducted. If the original certification test method is no longer valid, the manufacturer requests an alternative test method prior to testing.

2) The replacement catalyst is aged 50 hours prior to catalytic equivalency testing. The catalyst is tested in the same model or model line unit in which the original catalyst was tested.

3) Both a Category 1 run and Category 4 run are conducted by an EPA-approved test laboratory.

4) The new Category 1 run is compared to the original Category 1 run, and the new Category 4 run is compared to the original Category 4 run. The new runs are not more than 0.5 grams/hour greater than the original certification test results for each run. They are compared separately, with no averaging. In equation form:

Replacement catalyst category 1 ≤ (original catalyst category 1 + 0.5g/hr)

AND

Replacement catalyst category 4 ≤ (original catalyst category 4 + 0.5g/hr)

As noted in Section 60.533(k)(4)[1], the EPA Administrator must approve the change in the catalyst in advance, with proper documentation of the equivalency testing. This documentation consists of the original certification test report category 1 and 4 data and the new category 1 and 4 test data results. All demonstration test data must be sent to WoodHeaterReports@epa.gov within 60 days after the date of completing the test. EPA considers the catalyst equivalency testing to be a form of certification testing governed by the provisions in Section 60.534.

The EPA finds the request outside the scope of an applicability determination. The term "applicability determination" is limited to the Agency's formal decisions, issued in response to a non-hypothetical and site-specific request about the applicability of a specific rule to a specific facility. Therefore, the EPA considers this response to be a regulatory interpretation to a source request for clarification.[2]

This response has been prepared in consultation with the Office of Air Quality, Planning, and Standards, and the Office of General Counsel. If you have any questions, please contact Rafael Sanchez of my staff at 202-564-7028 or email at sanchez.rafael@epa.gov.

Sincerely,

Edward J. Messina, Director
Monitoring, Assistance, and Media Programs Division
Office of Compliance

[1] A change in the make, model or composition of a catalyst is presumed to affect particulate matter and carbon monoxide emissions and efficiency, unless the change has been requested by the heater manufacturer and has been approved in advance by the Administrator, based on test data that demonstrate that the replacement catalyst is equivalent to or better than the original catalyst in terms of particulate matter emission reduction.
[2] This regulatory interpretation updates EPA Applicability Determination WDS-138 (July 6, 1990).

cc: Amanda Aldridge, OAQPS
Adam Baumgart-Getz, OAQPS
Mike Toney, OAQPS
Scott Jordan, OGC
Sara Ayres, OC

Appendix F

ALT - 161

OFFICE OF AIR QUALITY PLANNING AND STANDARDS
RESEARCH TRIANGLE PARK, NC 27711

09/23/2024

Mr. John Steinert
Vice President, Hearth Products Division
PFS-TECO Laboratories
11785 SE Hwy 212, Suite 305
Clackamas, OR 97215

Dear Mr. Steinert,

I am writing in response to your letter dated September 20, 2024, in which you request approval of an alternative test method for demonstrating compliance with New Source Performance Standard (NSPS) Subpart AAA, Standards of Performance for New Residential Wood Heaters (Subpart AAA). The U.S. Environmental Protection Agency's (EPA) Office of Air Quality Planning and Standards is the delegated authority for approval/disapproval determinations on any major alternatives to test methods and other compliance determination procedures required under 40 CFR parts 59, 60, 61, 63, and 65.

As required by 40 CFR 60.534(a)(1)(i), an affected wood heater must:

Conduct testing with crib wood using EPA Method 28R of appendix A-8 of this part or an alternative crib wood test method approved by the Administrator or the ASTM E2779-10 (IBR, see § 60.17) pellet heater test method to establish the certification test conditions and the particulate matter emission values.

With this request, you are seeking clarification regarding the definition of "Maximum achievable burn-rate" found in EPA Method 28 (40 CFR 60, Appendix A), Sections 8.1.1 and 8.1.1.1, which are required for compliance through Section 2.1.1 of EPA Method 28R (40 CFR 60, Appendix A). Specifically, you point out that while the text of the method defines the maximum burn rate as:

8.1.1.1 Maximum Burn Rate for Category 4, the wood heater shall be operated with the primary air supply inlet controls fully open (or, if thermostatically controlled, the thermostat shall be set at maximum heat output) during the entire test run, or the maximum burn rate setting specified by the manufacturer's written instructions.

Whereas the table that provides numeric ranges for each burn rate category places burn rates that fall below 1.9 kg.hr in Category III, as shown below:

Average kg/hr (lb/hr) dry basis

Category 1	Category 2	Category 3	Category 4
<0.80	0.80 to 1.25	1.25 to 1.90	Maximum
(<1.76)	(1.76 to 2.76)	(2.76 to 4.19)	burn rate

You specifically seek clarification as to how PFS-TECO test laboratory should categorize and time weight emissions test results where the appliance was operated with the primary air inlet controls fully opened and/or thermostatic controls set at a maximum heat output during the entire test run but where the appliance burn rate, when calculated, falls below 1.9 kg/hr. Such a test result meets the written criteria for Maximum Burn Rate as described in Method 28, section 8.1.1.1 but would fall into Category 3 if held to the numeric ranges in the table (above) found in Method 28, section 8.1.1. You specifically ask for an Alternate Test Method for an FPI- Regency Fireplace model F1150-1 as well as model variants I1150-1, CI1150-1 and HI1150-1 appliance(s) where the manufacturer indicates that the burn rate, when operated with air controls fully open, is likely to fall below 1.9 kg/hr.

EPA notes the confusion caused by the written and tabular information in Method 28, and we agree that an Alternate Test Method is appropriate to resolve this concern in the near term. With the following direction, we approve your alternative test method request for certifying wood heaters using EPA Method 28 through Method 28r.

1. All attempts at achieving a maximum burn rate must be conducted with the appliance air controls fully open, or the thermostat set to maximum heat output for the entire duration of the test. Documentation of this must be included in the test report.
2. Any test run with a burn rate above 1.9 kg/hr must be treated as a Category 4 test run for the purposes of the compliance test and weighted average of the emissions test result.
3. Any test run meeting the requirements listed in #1 (above) where the calculated burn rate falls below 1.9 kg/hr must complete the following:
    a. Must be compared to any other test run that falls within Category 3
    b. The highest burn rate test result of all Category 3 tests MUST be treated as the Maximum Burn Rate test and included as a Category 4 test result in the test method weighted emissions averaging calculations.
    c. Should the lab find it necessary to exclude the test run identified in item b (above) two more maximum burn rate tests would be required to replace that test run. In this instance, the highest 2 burn rate test results that fall into Category 3 would then be treated as Maximum Burn Rate tests with regard to weighted averaging. Should 1 or both of these test runs result in a Maximum Burn Rate above 1.9 kg/hr, that(those) test run(s) must be used as the Category 4 test runs.
4. A copy of this letter must be included in each certification test report where this alternative test method is utilized.

It is reasonable that this alternative test method approval be broadly applicable to all wood heaters subject to the crib fuel test requirements of 40 CFR part 60, Subpart AAA. For this reason, we will post this letter as ALT-161 on our website at *http://www3.epa.gov/ttn/emc/approalt.html* for use by other interested parties. This alternative method approval is valid until such time that Method 28 is revised

to clarify the maximum burn rate requirements, or Subpart AAA and QQQQ are revised or replaced to require a different certification method, and at such time, this alternative will be reconsidered and possibly withdrawn.

If you have additional questions regarding this approval, please contact Michael Toney of my staff at 919-541-5247 or toney.mike@epa.gov.

Sincerely,

Steffan M. Johnson, Group Leader
Measurement Technology Group

cc:

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11. Revision History

Closure Date	Project # / CR ID #	Technician / Evaluator	Report Sect.	Report Item	Summary of Changes
12/1/2025	0142WS024E	R. Tiegs, J. McShane / K. Morgan	All	All	First edition of Non CBI report
7/27/2026	0412WS024E Edition 001	K. Morgan	5	Pages 156-162	CSA B415 data for Run 3 was mistakenly omitted from original report. This has been added.
			8.3	Page 433	Temperature device calibrations were present in original report, however they were not listed on the Equipment List. The Equipment List has been revised.