

**Clean Air Act Section 114
Information Collection
Request for National
Emissions Standards for
Hazardous Air Pollutants
(NESHAP) for Stationary
Combustion Turbines**

Air Emissions Test Report

Middletown Power LLC
Combustion Turbine Unit 13
1866 River Road
Middletown, CT 06457
Report No. M223610E
September 9 through 11, 2022





**Clean Air Section 114 Information Collection Request for
National Emissions Standards for Hazardous Air Pollutants
(NESHAP) for Stationary Combustion Turbines
Air Emissions Test Report**

**Middletown Power LLC
Combustion Turbine Unit 13
1866 River Road
Middletown, CT 06457
September 9 through 11, 2022**

**Report Submittal Date
November 7, 2022**

© Copyright 2022
All rights reserved in
Mostardi Platt

Report No. M223610E

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY	1
2.0 PROCESS DESCRIPTION	2
3.0 TEST METHODOLOGY	3
3.1 Method 1 Sample and Velocity Traverse Determination	3
3.2 Method 2 Volumetric Flow Rate Determination	3
3.3 Method 3A O ₂ and CO ₂ Determination	3
3.4 Method 4 Moisture Determination	3
3.5 Method 5 FPM Determination	4
3.6 Method 29 Trace Metals Determination	4
3.7 Method 301 Field Validation of Pollutant Measurement	5
3.8 Methods 10 and 320 Multigas CO, H ₂ O, HCHO, and HCl/HF Determination	5
4.0 TEST RESULT SUMMARIES	7
5.0 CERTIFICATION	11
APPENDICES	
Appendix A - Test Section Diagrams	13
Appendix B - Sample Train Diagrams	16
Appendix C - Calculation Nomenclature and Formulas	20
Appendix D - Reference Method Test Data	38
Appendix E - Plant Operating Data	67
Appendix F - Field Data Sheets	96
Appendix G – QA/QC Data	124
Appendix H - Calibration and Response Time Data	143
Appendix I - Calibration Gas Cylinder Data	175
Appendix J – Laboratory Sample Analysis	182
Appendix K – Agency Correspondence	200
Appendix L – Test Procedures, Methods, and Reporting Requirements for the Section 114 Request	214

1.0 EXECUTIVE SUMMARY

Mostardi Platt performed an air emissions test program on Combustion Turbine Unit 13 for Middletown Power LLC, at its generating station located in Middletown, Connecticut. Testing was performed to determine the concentration of filterable particulate matter (FPM), metallic hazardous air pollutants (MHAP), carbon monoxide (CO), formaldehyde (HCHO), hydrogen chloride (HCl), and hydrogen fluoride (HF) from the exhausts of combustion turbine (CT) Unit 13 in accordance with United States Environmental Protection Agency (USEPA) Methods 1, 2, 3A, 4, 5/29, 10, and 320. PM/MHAP testing was performed while firing on pipeline natural gas.

The purpose of this test program was to meet the requirements of a “Stationary Combustion Turbine Emissions Information Collection Request” from USEPA under Clean Air Act (CAA) Section 114 (42 U.S.C. 7414) received by Middletown Power LLC on April 6, 2022. USEPA’s Section 114 Request required Middletown Power’s dual fuel turbines to conduct two tests while operating on natural gas and two while operating on ULSD oil. The Request also required one test to be conducted on the oil-fired turbine.

In a letter dated June 23, 2022, Middletown Power raised several concerns about the extent of testing the dual fuel units and the challenges of testing the oil-fired turbine. In a letter dated July 11, 2022, USEPA agreed with the request to reduce the number of tests on the dual fuel units to one test while operating on natural gas and one while operating on ULSD oil and to eliminate the requirement to test the oil-fired turbine. The Correspondence related to the reduced testing frequency can be found in Appendix K of this report.

All testing was performed in accordance with the Test Procedures, Methods, and Reporting Requirements for the Section 114 Request for Stationary Combustion Turbines document provided by USEPA with the initial letter. A copy of this document can be found in Appendix L of this report.

The identification of individuals associated with the test program is summarized below.

Location	Address	Contact
Test Coordinator	Consolidated Asset Management Services 910 Louisiana Street, Suite 2400 Houston, TX 77002	Patrick Yough P: 347.937.0380 E: pyough@camsops.com
Test Facility	Middletown Power LLC 1866 River Road Middletown, CT 06457	Keith Shortsleeve P: 207-376-2229 E: kshortsleeve@camsops.com
Test Company Representative	Mostardi Platt 888 Industrial Drive Elmhurst, IL 60126	Chris Trezak P: 630.993.2100 E: ctrezak@mp-mail.com

The test crew consisted of J. Gross, J. Carsello, R. Spoolstra, S. McGough, W. Drake, and C. Trezak of Mostardi Platt.

Below is a brief overview of test results, detailed test results summaries are included in Section 4.0.

Gaseous Test Results						
Test Location	Analyte	Emission Results				
		lb/hr	ppbvd	ppbvd @ 15% O ₂	ppmvd	ppmvd @ 15% O ₂
CT Unit 13	HCHO	0.04	36.69	35.55	-	-
	CO	8.51	-	-	7.59	7.36
	HCl	≤ 0.01	-	-	≤ 0.33	≤ 0.32
	HF	≤ 0.01	-	-	≤ 0.11	≤ 0.11

FPM Test Results			
Test Location	Analyte	Emission Results	
CT Unit 13	FPM	0.0001 grains/dscf	0.0001 grains/dscf @ 15% O ₂

MHAP Test Results				
Test Location	Analyte	Emission Results		
		mg/dscm	mg/dscm @15% O ₂	lb/hr
CT Unit 13	Mercury (Hg)	≤ 8.03E-05	≤ 7.96E-5	≤ 7.86E-05
	Antimony (Sb)	≤ 7.19E-04	≤ 7.11E-04	≤ 6.96E-04
	Arsenic (As)	≤ 2.54E-04	≤ 2.51E-04	≤ 2.45E-04
	Beryllium (Be)	≤ 5.70E-05	≤ 5.64E-05	≤ 5.54E-05
	Cadmium (Cd)	≤ 2.91E-04	≤ 2.79E-04	≤ 2.82E-04
	Chromium (Cr)	≤ 1.72E-03	≤ 1.69E-03	≤ 1.66E-03
	Cobalt (Co)	≤ 1.03E-04	≤ 1.04E-04	≤ 1.29E-04
	Lead (Pb)	≤ 3.15E-04	≤ 3.09E-04	≤ 3.00E-04
	Manganese (Mn)	1.64E-02	1.60E-02	1.57E-02
	Nickel (Ni)	3.24E-03	3.16E-03	3.11E-03
	Selenium (Se)	≤ 8.01E-04	≤ 7.90E-04	≤ 7.71E-04

2.0 PROCESS DESCRIPTION

The Middletown Power facility is located on the south bank of the Connecticut River southeast of the city of Middletown, CT. It consists of two (2) dual fuel-fired (No. 6 oil/natural gas) steam electric generating boilers, one No. 6 fuel oil fired steam electric generating boiler, a simple cycle Pratt & Whitey FT4-8 combustion turbine and four (4) General Electric LM6000PC simple cycle combustion turbines (SCCT) that fire both pipeline natural gas and Ultra Low Sulfur Distillate (ULSD) fuel. Each SCCT is equipped with an oxidation catalyst, ammonia injection, and water injection for emissions control. The SCCTs are arranged with two stacks sharing a common platform at the emissions monitoring level.

3.0 TEST METHODOLOGY

All testing was performed as described in the Title 40, *Code of Federal Regulations*, Part 60 (40CFR60), Appendix A, Methods 1, 2, 3A, 4, 5, 10, 29, and 320; the following provides description of the methodologies performed during the test program:

3.1 Method 1 Sample and Velocity Traverse Determination

Test measurement points were selected in accordance with Method 1, 40 CFR, Part 60, Appendix A. The characteristics of the measurement location is summarized in the table below. A null-point pitot traverse was performed prior to testing to ensure the absence of cyclonic flow. Cyclonic flow is presented in Appendix F of this report.

Sample Point Selection					
Test Location	Stack Diameter	Upstream Distance	Downstream Distance	Test Parameters	Number of Sampling Points
CT Unit 13	144.0"	146.5'	23'	FPM/MHAP	40
				CO, HCHO, HCl/HF	3

3.2 Method 2 Volumetric Flow Rate Determination

Gas velocity was measured following Method 2, 40 CFR, Part 60, Appendix A, for purposes of calculating gas volumetric flow rate and emission rates on a mass basis in conjunction with isokinetic sampling. An S-type pitot tube, as a component of the isokinetic sampling train, differential pressure gauge, thermocouple, and temperature readout were used to determine gas velocity at each sample point. All of the equipment used was calibrated in accordance with the specifications of the Method. Calibration data is presented in the Appendix H of this report.

3.3 Method 3A O₂ and CO₂ Determination

O₂ and CO₂ concentrations were determined in accordance with Method 3A. A ECOM analyzer was used to determine O₂ concentrations during sampling to determine molecular weight of the stack gas and to calculate concentrations corrected to a 15% O₂ basis.

3.4 Method 4 Moisture Determination

Stack gas moisture content was determined using a Method 4 sampling train as a component of the isokinetic sampling systems. In this technique, stack gas is drawn through a series of impingers. The impingers were prepared according to the underlying method. The entire impinger train was measured or weighed before and after each test run to determine the mass of moisture condensed.

During testing, the Method 4 sample train was incorporated in the manner specified in USEPA Method 5. All of the data specified in Method 4 (gas volume, delta H, impinger outlet well temperature, etc.) was recorded on field data sheets.

All of the equipment used was calibrated in accordance with the specifications of the Method. Calibration data is presented in the Appendix H of this report.

3.5 Method 5 FPM Determination

Flue gas FPM concentrations and emission rates were determined in accordance with USEPA Method 5 procedures. The probe and filter housing were maintained at a temperature of 248°F +/- 25°F. An Environmental Supply Company, Inc. sampling train was used to sample stack gas at an isokinetic rate. Impingers were utilized and recovered per Method 29 requirements. Impingers were weighed in order to determine moisture content. The total sample time was 180 minutes, with forty (40) sample points being utilized (10 points per port, 4 total ports).

Particulate matter in a quartz-lined sample probe was recovered utilizing acetone; a minimum of three passes of the Teflon probe brush through the entire probe was performed, followed by a visual inspection of the acetone exiting the probe. Once the acetone solution exiting the probe was clear, the wash was considered complete, if not, another pass of the brush through the probe was made and inspected until the solution was clear. The nozzle was then removed from the probe and cleaned in a similar manner, utilizing an appropriately sized nozzle brush. The filter housing was washed a minimum of three times with acetone and inspected for cleanliness, and the filter was then placed in its' corresponding petri dish. The acetone wash and the filter were labeled and marked. Final sample analyses was performed off site by Mostardi Platt personnel in accordance with the method.

All of the equipment used was calibrated in accordance with the specifications of the Method. Calibration data is presented in the Appendix H of this report

3.6 Method 29 Trace Metals Determination

Stack gas trace metals concentrations and emission rates were determined in accordance with USEPA Method 29 procedures. The probe and filter housing were maintained at a temperature of 248°F +/- 25°F. An Environmental Supply Company, Inc. sampling train was used to sample stack gas at an isokinetic rate. The total sample time was 240 minutes, with twelve (12) sample points being utilized (6 points per port, 2 total ports).

Upon completion of particulate matter recovery, a 0.1N Nitric Acid (HNO_3) rinse was performed on the glass-lined sample probe; these washes were combined with the acetone wash and filter catch for front half metals determination. The filter housing was rinsed with 0.1N HNO_3 and added to this fraction. Impingers one and two were initially charged with approximately 100mL of nitric peroxide, impinger three remained empty, and impingers four and five were each charged with approximately 100mL of acidic potassium permanganate, followed by impinger six which was charged with approximately 200g of silica gel. Impingers were recovered per Method 29 requirements. Impingers were weighed in order to determine moisture content. Sample analyses was performed off site by an approved laboratory in accordance with the method.

All of the equipment used was calibrated in accordance with the specifications of the Method. Calibration data is presented in the Appendix H of this report.

3.7 Method 301 Field Validation of Pollutant Measurement

The Limit of Detection (LOD) was determined for CO, HCHO, and HCl/HF in accordance with Section 15 of Method 301. The LOD is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero. For this protocol, the LOD is defined as three times the standard deviation, S_o , at the blank level. Zero grade nitrogen was used to establish the blank value – such that seven (7) trials were performed with results determined accordingly. The LOD was performed with the results from CT Unit 13 tests.

METHOD DETECTION LIMITS			
Analyte	Detection Limit (ppbv wet)	Detection Limit (ppmv wet)	Detection Limit (%v)
Formaldehyde	25.0	—	—
CO	—	1.0	—
HCl	—	0.3	—
HF	—	0.1	—

3.8 Methods 10 and 320 Multigas CO, H₂O, HCHO, and HCl/HF Determination

CO, H₂O, HCHO, and HCl/HF were sampled via an MKS Multigas Fourier Transform Infrared (FTIR) spectroscopy. FTIR technology works on the principle that most gases absorb infrared light. This is true for all compounds with the exception of homonuclear diatomic molecules and noble gases such as: N₂, O₂, H₂, He, Ne, and Ar. Vibrations, stretches, bends, and rotations within the bonds of a molecule determine the infrared absorption distinctiveness. The absorption creates a “fingerprint” which is unique to each given compound. The quantity of infrared light absorbed is proportional to the gas concentration. Most compounds have absorbencies at different infrared frequencies, thus allowing the simultaneous analysis of multiple compounds at one time. The FTIR software compares each sample spectrum to a user-selected list of calibration references and concentration data is generated.

Analyte spiking assured the ability of the FTIR to quantify constituents in the presence of effluent gas. All analyte spikes were introduced using an instrument grade stainless steel rotameter. All QA/QC procedures were within the acceptance criteria allowance of the applicable ASTM D6348-12 methodology and Method 320.

Per USEPA Method 4, 40CFR60, Appendix A, Section 16.3, USEPA Method 320 is an acceptable alternative to Method 4 for determining moisture. The gas sample is delivered to the FTIR by means of a heated probe, heated filter, heated sample line, heated pump, and heated jumper to generate a hot, wet sample heated to 375°F throughout the entire sample train for formaldehyde, acid gases, and moisture analyses. Results are collected on a wet basis and then converted to dry based utilizing H₂O results. The dry concentration results were then corrected to 15% O₂ utilizing the Method 3A O₂ concentration determined simultaneously.

A stratification test was performed using oxygen (O₂) prior to the testing. The results of the stratification test showed that all results were less than 5% on the unit. Consequently, all sampling was conducted from one port using one point. All samples below the FTIR detection limit were reported at the detection limit and used in averaging of each run. Stratification test is presented in Appendix D of this report.

FTIR QA/QC PROCEDURES						
QA/QC Specification	Purpose	Calibration Gas Analyte	Delivery	Frequency	Acceptance Criteria	Result
M320: Zero	Verify that the FTIR is free of contaminants & zero the FTIR	Nitrogen (zero)	Direct to FTIR	pre/post test	< MDL or Noise	Pass
M320: Calibration Transfer Standard (CTS) Direct	Verify FTIR stability, confirm optical path length	Ethylene	Direct to FTIR	pretest	+/- 5% cert. value	Pass
M320: CTS Response	Verify system stability, recovery, response time	Ethylene	Sampling System	Daily, pre/post test	+/- 5% of Direct Measurement	Pass
M320: Zero Response	Verify system is free of contaminants, system bias	Nitrogen (zero)	Sampling System	pretest	Bias correct data	Pass
M320: Analyte Spike	Verify system ability to deliver and quantify analyte of interest in the presence of other effluent gases	Formaldehyde N ₂ O SF ₆ HCl	Dynamic Addition to Sampling System, ~1:10 effluent	pre test	+/- 30% theoretical recovery	Pass

Note: The determined concentrations from direct analyses were used in all system/spike recovery calculations.

Analyte Spiking

Formaldehyde and HCl spiking were performed prior to testing and before each test run to verify the ability of the sampling system to quantitatively deliver a sample containing formaldehyde from the base of the probe to the FTIR. Analyte spiking assures the ability of the FTIR sampling system to recover acid gases in the presence of effluent gas.

As part of the spiking procedure, samples were measured to determine native formaldehyde and moisture concentrations to be used in the spike recovery calculations. Moisture in the stack gas prior to spiking and during spiking was used to determine dilution ratios of the formaldehyde. The spike target dilution ratio was 1:10 or less. The following equation illustrates the percent recovery calculation:

$$DF = 1 - \frac{H_2O (spike)}{(native)} \quad (\text{Sec. 9.2.3 (3) USEPA Method 320})$$

$$CS = DF * Spike(dir) + Unspike(1 - DF) \quad (\text{Sec. 9.2.3 (4) USEPA Method 320})$$

DF = Dilution factor of the spike gas

Spike_{dir} = Concentration of the analyte in the spike standard measure by the FTIR directly

CS = Expected concentration of the spiked samples

Unspike = Native concentration of analytes in unspiked samples

QA/QC data are found in Appendix G. Copies of gas cylinder certifications are found in Appendix I. The sample and data collection followed the procedures outlined in Method 320.

4.0 TEST RESULT SUMMARIES

Middletown Power LLC Middletown Facility Unit 13											
Test No.	Date	Start Time	End Time	Flowrate, DSCFM	H2O%	O ₂ % dry	CO ₂ % dry	Formaldehyde ppbv*	Formaldehyde ppbvd	Formaldehyde ppbvd @ 15% O ₂	Formaldehyde lb/hr
1	09/09/22	08:45	09:44	258,640.0	9.71	14.81	23.82	25.00	27.69	26.84	0.03
2	09/09/22	10:10	11:09	257,890.0	9.74	14.75	23.80	29.89	33.12	31.78	0.04
3	09/09/22	11:40	12:39	258,809.0	9.71	14.71	23.71	36.20	40.09	38.18	0.05
4	09/10/22	15:05	16:04	255,559.0	9.57	14.83	23.10	42.75	47.28	45.94	0.06
5	09/10/22	16:28	17:27	256,410.0	9.56	14.87	23.10	46.76	51.70	50.56	0.06
6	09/11/22	06:50	07:49	254,712.0	9.32	14.85	22.80	25.34	27.94	27.26	0.03
7	09/11/22	08:15	09:14	256,815.0	9.36	14.84	22.90	26.32	29.04	28.26	0.03
Average				256,976.4	9.57	14.81	23.32	33.18	36.69	35.55	0.04

Middletown Power LLC Middletown Facility Unit 13							
Test No.	Date	Start Time	End Time	CO ppmvw	CO ppmvd	CO ppbvd @ 15% O ₂	CO lb/hr
1	09/09/22	08:45	09:44	6.35	7.04	6.82	7.94
2	09/09/22	10:10	11:09	5.94	6.58	6.31	7.40
3	09/09/22	11:40	12:39	6.09	6.75	6.42	7.61
4	09/10/22	15:05	16:04	7.90	8.74	8.49	9.74
5	09/10/22	16:28	17:27	7.80	8.62	8.44	9.65
6	09/11/22	06:50	07:49	7.00	7.72	7.53	8.58
7	09/11/22	08:15	09:14	7.00	7.72	7.52	8.65
Average				6.87	7.59	7.36	8.51

Middletown Power LLC Middletown Facility Unit 13							
Test No.	Date	Start Time	End Time	HCl ppmvw*	HCl ppmvd	HCl ppbvd @ 15% O ₂	HCl lb/hr
1	09/09/22	08:45	09:44	0.30	0.33	0.32	0.01
2	09/09/22	10:10	11:09	0.30	0.33	0.32	0.01
3	09/09/22	11:40	12:39	0.30	0.33	0.32	0.01
4	09/10/22	15:05	16:04	0.30	0.33	0.32	0.01
5	09/10/22	16:28	17:27	0.30	0.33	0.32	0.01
6	09/11/22	06:50	07:49	0.30	0.33	0.32	0.01
7	09/11/22	08:15	09:14	0.30	0.33	0.32	0.01
Average				0.30	0.33	0.32	0.01

Middletown Power LLC Middletown Facility Unit 13							
Test No.	Date	Start Time	End Time	HF ppmvw*	HF ppmvd	HF ppbvd @ 15% O ₂	HF lb/hr
1	09/09/22	08:45	09:44	0.10	0.11	0.1	0.00
2	09/09/22	10:10	11:09	0.10	0.11	0.1	0.01
3	09/09/22	11:40	12:39	0.10	0.11	0.1	0.01
4	09/10/22	15:05	16:04	0.10	0.11	0.1	0.00
5	09/10/22	16:28	17:27	0.10	0.11	0.1	0.01
6	06/11/22	06:50	07:49	0.10	0.11	0.1	0.01
7	09/11/22	08:15	09:14	0.10	0.11	0.1	0.00
Average				0.10	0.11	0.11	0.00

* MDLs from Method 301 validation study utilized for runs below detection limit. See Section 3.7 of the report for MDLs

Client: Middleton Power, LLC
 Facility: Middletown
 Test Location: Unit 13
 Test Method: 5/29

	Source Condition	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
	Date	9/9/22	9/10/22	9/10/22	9/11/22	9/11/22	9/11/22	9/11/22	
	Start Time	9:00	11:02	14:32	6:22	9:45	12:58	16:14	
	End Time	12:38	14:14	17:44	9:35	12:57	16:13	19:26	
		Run 1	Run 2	Run 3	Run 4	Run 5	Run 6	Run 7	Average
Stack Conditions									
Average Gas Temperature, °F		787.3	773.8	777.6	773.9	778.9	784.1	778.6	779.2
Flue Gas Moisture, percent by volume		10.2%	9.3%	10.5%	11.0%	10.8%	10.6%	11.2%	10.51%
Average Flue Pressure, in. Hg		29.88	30.04	30.88	29.98	29.98	29.98	29.98	30.10
Gas Sample Volume, dscf		165.91	165.736	170.273	167.065	166.987	160.187	167.505	166.238
Average Gas Velocity, ft/sec		100.441	97.486	96.745	98.713	99.208	98.782	99.769	98.735
Gas Volumetric Flow Rate, acfm		681,578	661,525	656,493	669,848	673,210	670,320	677,016	669,999
Gas Volumetric Flow Rate, dscfm		258,640	257,890	258,809	255,559	256,410	254,712	256,815	256,976
Gas Volumetric Flow Rate, scfm		288,099	284,178	289,020	287,167	287,444	285,014	289,145	287,152
Average %CO ₂ by volume, dry basis		3.5	3.5	3.1	3.3	3.1	2.3	2.9	3.1
Average %O ₂ by volume, dry basis		14.7	14.8	14.6	15.0	15.0	15.7	14.6	14.9
Isokinetic Variance		100.7	100.9	103.3	102.6	102.2	100.9	102.4	101.9
Standard Fuel Factor Fd, dscf/mmBtu		8,710.0	8,710.0	8,710.0	8,710.0	8,710.0	8,710.0	8,710.0	8,710.0
Filterable Particulate Matter (Method 5)									
grams collected		0.00180	0.00119	0.00075	0.00076	0.00084	0.00056	0.0004	0.0009
mg/dscm		0.383	0.254	0.156	0.161	0.178	0.123	0.084	0.191
grains/dscf		0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	0.0001
grains/dscf @ 15% O ₂		0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	0.0001
lb/hr		0.371	0.245	0.151	0.154	0.171	0.118	0.081	0.184

Client: Middleton Power, LLC
Facility: Middletown
Test Location: Unit 13
Test Method: 5/29

Source Condition	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Average
Date	9/9/22	9/10/22	9/10/22	9/11/22	9/11/22	9/11/22	9/11/22	
Start Time	9:00	11:02	14:32	6:22	9:45	12:58	16:14	
End Time	12:38	14:14	17:44	9:35	12:57	16:13	19:26	
	Run 1	Run 2	Run 3	Run 4	Run 5	Run 6	Run 7	
Stack Conditions								
Average Gas Temperature, °F	787.3	773.8	777.6	773.9	778.9	784.1	778.6	779.2
Flue Gas Moisture, percent by volume	10.2%	9.3%	10.5%	11.0%	10.8%	10.6%	11.2%	10.5%
Average Flue Pressure, in. Hg	29.88	30.04	30.88	29.98	29.98	29.98	29.98	30.10
Gas Sample Volume, dscf	165.910	165.736	170.273	167.065	166.987	160.187	167.505	166.238
Average Gas Velocity, ft/sec	100.441	97.486	96.745	98.713	99.208	98.782	99.769	98.735
Gas Volumetric Flow Rate, acfm	681,578	661,525	656,493	669,848	673,210	670,320	677,016	669,999
Gas Volumetric Flow Rate, dscfm	258,640	257,890	258,809	255,559	256,410	254,712	256,815	256,976
Gas Volumetric Flow Rate, scfm	288,099	284,178	289,020	287,167	287,444	285,014	289,145	287,152
Average %CO ₂ by volume, dry basis	3.5	3.5	3.1	3.3	3.1	2.3	2.9	3.1
Average %O ₂ by volume, dry basis	14.7	14.8	14.6	15.0	15.0	15.7	14.6	14.9
Isokinetic Variance	100.7	100.9	103.3	102.6	102.2	100.9	102.4	101.9
Standard Fuel Factor Fd, dscf/mmBtu	8,710.0	8,710.0	8,710.0	8,710.0	8710.0	8710.0	8710.0	8,710.0
Mercury (Hg) Emissions								
ug of sample collected	≤ 0.247	≤ 0.41	≤ 0.49	≤ 0.40	≤ 0.40	≤ 0.39	≤ 0.36	≤ 0.38
mg/dscm	≤ 5.00E-05	≤ 8.63E-05	≤ 1.02E-04	≤ 8.35E-05	≤ 8.40E-05	≤ 8.20E-05	≤ 7.50E-05	≤ 8.03E-05
mg/dscm @ 15% O ₂	≤ 4.76E-05	≤ 8.35E-05	≤ 9.52E-05	≤ 8.35E-05	≤ 0.00	≤ 0.00	≤ 0.00	≤ 7.96E-05
lb/hr	≤ 5.09E-05	≤ 8.30E-05	≤ 1.01E-04	≤ 8.00E-05	≤ 8.10E-05	≤ 8.20E-05	≤ 7.20E-05	≤ 7.86E-05
lb/TBtu (Standard Fd Factor)	≤ 0.0964	≤ 0.1608	≤ 0.1833	≤ 0.1608	≤ 0.16	≤ 0.19	≤ 0.14	≤ 0.1552
Antimony (Sb) Emissions								
ug of sample collected	≤ 3.41	≤ 3.40	≤ 3.40	≤ 3.40	≤ 3.40	≤ 3.40	≤ 3.40	≤ 3.40
mg/dscm	≤ 7.26E-04	≤ 7.24E-04	≤ 7.05E-04	≤ 7.19E-04	≤ 7.19E-04	≤ 7.19E-04	≤ 7.19E-04	≤ 7.19E-04
mg/dscm @ 15% O ₂	≤ 6.91E-04	≤ 7.01E-04	≤ 6.60E-04	≤ 7.19E-04	≤ 7.19E-04	≤ 8.16E-04	≤ 6.73E-04	≤ 7.11E-04
lb/hr	≤ 7.03E-04	≤ 7.00E-04	≤ 6.84E-04	≤ 6.88E-04	≤ 6.91E-04	≤ 7.15E-04	≤ 6.90E-04	≤ 6.96E-04
lb/TBtu (Standard Fd Factor)	≤ 1.3304	≤ 1.3497	≤ 1.2720	≤ 1.3843	≤ 1.3850	≤ 1.6381	≤ 1.2930	≤ 1.3789
Arsenic (As) Emissions								
ug of sample collected	≤ 1.20	≤ 1.20	≤ 1.20	≤ 1.20	≤ 1.20	≤ 1.20	≤ 1.20	≤ 1.20
mg/dscm	≤ 2.55E-04	≤ 2.56E-04	≤ 2.49E-04	≤ 2.54E-04	≤ 2.54E-04	≤ 2.54E-04	≤ 2.54E-04	≤ 2.54E-04
mg/dscm @ 15% O ₂	≤ 2.43E-04	≤ 2.47E-04	≤ 2.33E-04	≤ 2.54E-04	≤ 2.54E-04	≤ 2.88E-04	≤ 2.38E-04	≤ 2.51E-04
lb/hr	≤ 2.47E-04	≤ 2.47E-04	≤ 2.41E-04	≤ 2.43E-04	≤ 2.44E-04	≤ 2.52E-04	≤ 2.43E-04	≤ 2.45E-04
lb/TBtu (Standard Fd Factor)	≤ 0.4682	≤ 0.4764	≤ 0.4489	≤ 0.4886	≤ 0.4888	≤ 0.5782	≤ 0.4564	≤ 0.4865
Beryllium (Be) Emissions								
ug of sample collected	≤ 0.27	≤ 0.27	≤ 0.27	≤ 0.27	≤ 0.27	≤ 0.27	≤ 0.27	≤ 0.27
mg/dscm	≤ 5.75E-05	≤ 5.75E-05	≤ 5.60E-05	≤ 5.71E-05	≤ 5.70E-05	≤ 5.70E-05	≤ 5.70E-05	≤ 5.70E-05
mg/dscm @ 15% O ₂	≤ 5.47E-05	≤ 5.56E-05	≤ 5.24E-05	≤ 5.71E-05	≤ 5.70E-05	≤ 6.47E-05	≤ 5.34E-05	≤ 5.64E-05
lb/hr	≤ 5.60E-05	≤ 5.60E-05	≤ 5.40E-05	≤ 5.50E-05	≤ 5.50E-05	≤ 5.70E-05	≤ 5.50E-05	≤ 5.54E-05
lb/TBtu (Standard Fd Factor)	≤ 0.1053	≤ 0.1072	≤ 0.1010	≤ 0.1099	≤ 0.1100	≤ 0.1301	≤ 0.1027	≤ 0.1095
Cadmium (Cd) Emissions								
ug of sample collected	≤ 7.91	≤ 0.29	≤ 0.27	≤ 0.29	≤ 0.29	≤ 0.27	≤ 0.27	≤ 1.37
mg/dscm	≤ 1.68E-03	≤ 6.20E-05	≤ 5.60E-05	≤ 6.13E-05	≤ 6.10E-05	≤ 5.70E-05	≤ 5.70E-05	≤ 2.91E-04
mg/dscm @ 15% O ₂	≤ 1.60E-03	≤ 6.00E-05	≤ 5.24E-05	≤ 6.13E-05	≤ 6.10E-05	≤ 6.47E-05	≤ 5.34E-05	≤ 2.79E-04
lb/hr	≤ 1.63E-03	≤ 6.00E-05	≤ 5.40E-05	≤ 5.90E-05	≤ 5.80E-05	≤ 5.70E-05	≤ 5.50E-05	≤ 2.82E-04
lb/TBtu (Standard Fd Factor)	≤ 3.0861	≤ 0.1155	≤ 0.1010	≤ 0.1181	≤ 0.1169	≤ 0.1301	≤ 0.1027	≤ 0.5386

Client: Middleton Power, LLC
 Facility: Middletown
 Test Location: Unit 13
 Test Method: 5/29

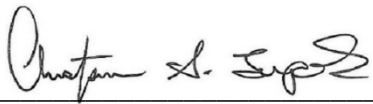
Source Condition	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
Date	9/9/22	9/10/22	9/10/22	9/11/22	9/11/22	9/11/22	9/11/22	
Start Time	9:00	11:02	14:32	6:22	9:45	12:58	16:14	
End Time	12:38	14:14	17:44	9:35	12:57	16:13	19:26	
	Run 1	Run 2	Run 3	Run 4	Run 5	Run 6	Run 7	Average
Stack Conditions								
Average Gas Temperature, °F	787.3	773.8	777.6	773.9	778.9	784.1	778.6	779.2
Flue Gas Moisture, percent by volume	10.2%	9.3%	10.5%	11.0%	10.8%	10.6%	11.2%	10.5%
Average Flue Pressure, in. Hg	29.88	30.04	30.88	29.98	29.98	29.98	29.98	30.10
Gas Sample Volume, dscf	165.910	165.736	170.273	167.065	166.987	160.187	167.505	166.238
Average Gas Velocity, ft/sec	100.441	97.486	96.745	98.713	99.208	98.782	99.769	98.735
Gas Volumetric Flow Rate, acfm	681,578	661,525	656,493	669,848	673,210	670,320	677,016	669,999
Gas Volumetric Flow Rate, dscfm	258,640	257,890	258,809	255,559	256,410	254,712	256,815	256,976
Gas Volumetric Flow Rate, scfm	288,099	284,178	289,020	287,167	287,444	285,014	289,145	287,152
Average %CO ₂ by volume, dry basis	3.5	3.5	3.1	3.3	3.1	2.3	2.9	3.1
Average %O ₂ by volume, dry basis	14.7	14.8	14.6	15.0	15.0	15.7	14.6	14.9
Isokinetic Variance	100.7	100.9	103.3	102.6	102.2	100.9	102.4	101.9
Standard Fuel Factor Fd, dscf/mmBtu	8,710.0	8,710.0	8,710.0	8,710.0	8,710.0	8,710.0	8,710.0	8,710.0
Chromium (Cr) Emissions								
ug of sample collected	≤ 4.50	≤ 11.00	10.90	8.60	6.20	7.20	8.20	≤ 8.09
mg/dscm	≤ 9.58E-04	≤ 2.34E-03	2.32E-03	1.83E-03	1.31E-03	1.52E-03	1.73E-03	≤ 1.72E-03
mg/dscm @ 15% O ₂	≤ 9.11E-04	≤ 2.26E-03	2.17E-03	1.83E-03	1.31E-03	1.73E-03	1.62E-03	≤ 1.69E-03
lb/hr	≤ 9.00E-04	≤ 2.30E-03	2.20E-03	1.70E-03	1.30E-03	1.50E-03	1.70E-03	≤ 1.66E-03
lb/TBtu (Standard Fd Factor)	≤ 1.7557	≤ 4.3666	4.0779	3.5015	2.5255	3.4689	3.1185	≤ 3.2592
Cobalt (Co) Emissions								
ug of sample collected	≤ 0.27	≤ 0.94	0.48	≤ 0.28	≤ 0.27	≤ 0.90	≤ 0.27	≤ 0.49
mg/dscm	≤ 5.75E-05	≤ 2.00E-04	1.02E-04	≤ 5.96E-05	≤ 5.80E-05	≤ 1.90E-04	≤ 5.70E-05	≤ 1.03E-04
mg/dscm @ 15% O ₂	≤ 5.47E-05	≤ 1.94E-04	9.55E-05	≤ 5.96E-05	≤ 5.80E-05	≤ 2.16E-04	≤ 5.34E-05	≤ 1.04E-04
lb/hr	≤ 1.00E-04	≤ 2.00E-04	1.00E-04	≤ 1.00E-04	≤ 1.00E-04	≤ 2.00E-04	≤ 1.00E-04	≤ 1.29E-04
lb/TBtu (Standard Fd Factor)	≤ 0.1053	≤ 0.3731	0.1792	≤ 0.1140	≤ 0.1116	≤ 0.4327	≤ 0.1027	≤ 0.2027
Lead (Pb) Emissions								
ug of sample collected	≤ 1.24	≤ 2.32	≤ 1.17	≤ 1.56	≤ 1.04	≤ 1.14	≤ 1.91	≤ 1.48
mg/dscm	≤ 2.64E-04	≤ 4.94E-04	≤ 2.49E-04	≤ 3.32E-04	≤ 2.20E-04	≤ 2.41E-04	≤ 4.04E-04	≤ 3.15E-04
mg/dscm @ 15% O ₂	≤ 2.51E-04	≤ 4.78E-04	≤ 2.33E-04	≤ 3.32E-04	≤ 2.20E-04	≤ 2.73E-04	≤ 3.78E-04	≤ 3.09E-04
lb/hr	≤ 3.00E-04	≤ 5.00E-04	≤ 2.00E-04	≤ 3.00E-04	≤ 2.00E-04	≤ 2.00E-04	≤ 4.00E-04	≤ 3.00E-04
lb/TBtu (Standard Fd Factor)	≤ 0.4838	≤ 0.9209	≤ 0.4377	≤ 0.6352	≤ 0.4236	≤ 0.5492	≤ 0.7264	≤ 0.5967
Manganese (Mn) Emissions								
ug of sample collected	23.06	25.80	181.60	52.60	71.90	64.00	122.20	77.31
mg/dscm	4.91E-03	5.49E-03	3.87E-02	1.12E-02	1.52E-02	1.35E-02	2.58E-02	1.64E-02
mg/dscm @ 15% O ₂	4.67E-03	5.31E-03	3.62E-02	1.12E-02	1.52E-02	1.54E-02	2.42E-02	1.60E-02
lb/hr	4.80E-03	5.30E-03	3.65E-02	1.06E-02	1.46E-02	1.35E-02	2.48E-02	1.57E-02
lb/TBtu (Standard Fd Factor)	8.9968	10.2416	67.9396	21.4162	29.2879	30.8350	46.4727	30.7414
Nickel (Ni) Emissions								
ug of sample collected	5.82	36.79	26.30	10.75	9.46	9.41	8.12	15.24
mg/dscm	1.24E-03	7.83E-03	5.60E-03	2.29E-03	2.00E-03	1.99E-03	1.72E-03	3.24E-03
mg/dscm @ 15% O ₂	1.18E-03	7.57E-03	5.24E-03	2.29E-03	2.00E-03	2.26E-03	1.61E-03	3.16E-03
lb/hr	1.20E-03	7.60E-03	5.30E-03	2.20E-03	1.90E-03	2.00E-03	1.60E-03	3.11E-03
lb/TBtu (Standard Fd Factor)	2.2707	14.6042	9.8393	4.3769	3.8535	4.5337	3.0880	6.0809
Selenium (Se) Emissions								
ug of sample collected	≤ 5.40	≤ 4.80	≤ 3.00	≤ 3.00	≤ 3.00	≤ 3.60	≤ 3.60	≤ 3.77
mg/dscm	≤ 1.15E-03	≤ 1.02E-03	≤ 6.39E-04	≤ 6.39E-04	≤ 6.34E-04	≤ 7.61E-04	≤ 7.61E-04	≤ 8.01E-04
mg/dscm @ 15% O ₂	≤ 1.09E-03	≤ 9.88E-04	≤ 5.98E-04	≤ 6.39E-04	≤ 6.34E-04	≤ 8.63E-04	≤ 7.13E-04	≤ 7.90E-04
lb/hr	≤ 1.10E-03	≤ 1.00E-03	≤ 6.00E-04	≤ 6.00E-04	≤ 6.00E-04	≤ 8.00E-04	≤ 7.00E-04	≤ 7.71E-04
lb/TBtu (Standard Fd Factor)	≤ 2.1068	≤ 1.9054	≤ 1.1224	≤ 1.2215	≤ 1.2220	≤ 1.7345	≤ 1.3691	≤ 1.5260

5.0 CERTIFICATION

Mostardi Platt is pleased to have been of service to the Middletown Power LLC. If you have any questions regarding this test report, please do not hesitate to contact us at 630-993-2100.

As the program manager, I hereby certify that this test report represents a true and accurate summary of emissions test results and the methodologies employed to obtain those results. The test program was performed in accordance with the test methods described in the document Test Procedures, Methods, and Reporting Requirements for the Section 114 Request for Stationary Combustion Turbines found in Appendix L of this report and the Mostardi Platt Quality Manual, as applicable.

MOSTARDI PLATT



Christopher S. Trezak

Program Manager



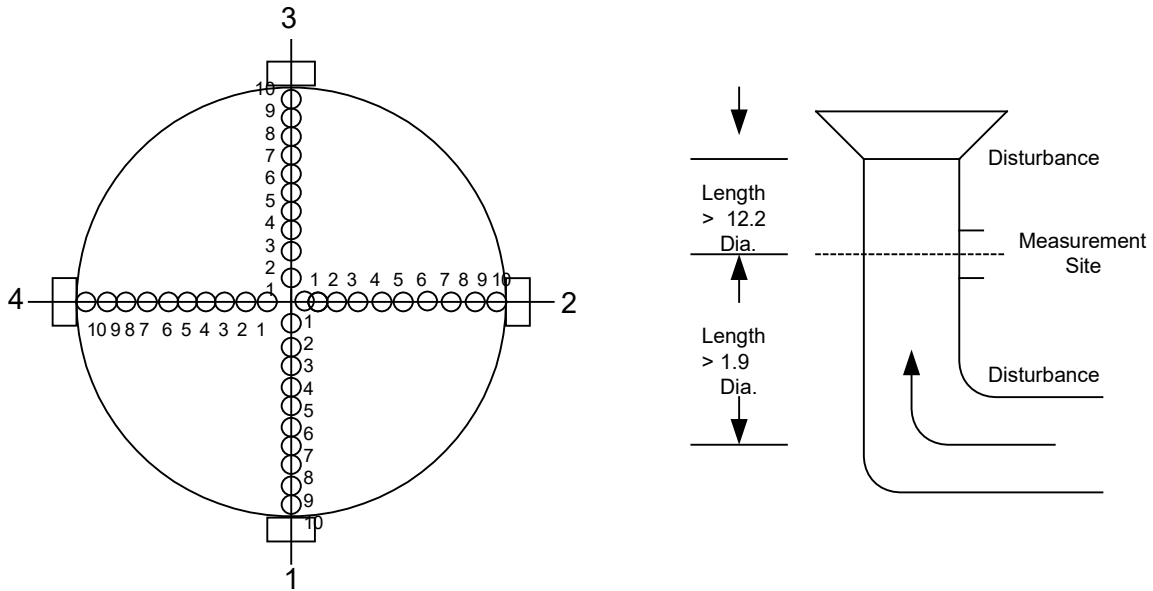
Eric Ehlers

Quality Assurance

APPENDICES

Appendix A - Test Section Diagrams

EQUAL AREA TRAVERSE FOR ROUND DUCTS (PM/Metals Testing)



Job: Middletown Power LLC

Test Location: Unit 13

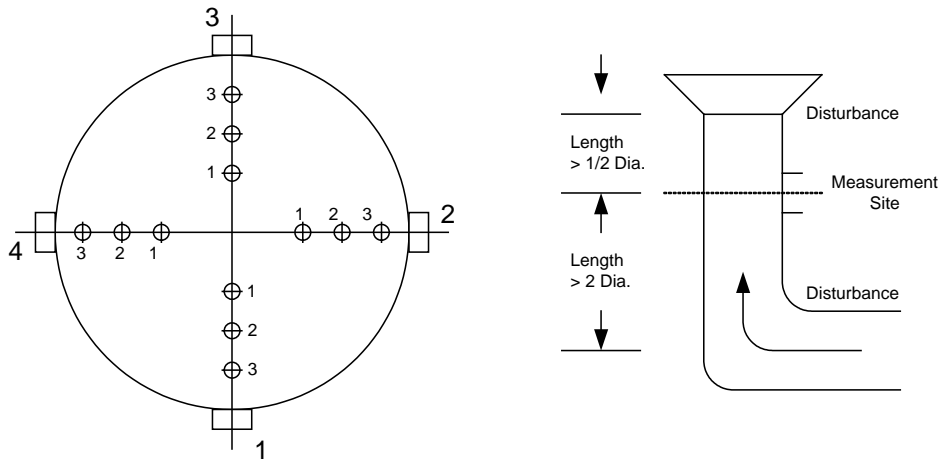
Stack Diameter: 144"

Stack Area: 113.1 Square Feet

No. of Points : 40

No. of Ports: 4

EQUAL AREA TRAVERSE FOR ROUND DUCTS (Stratification Test)



Project: Middletown, LLC

Test Location: Unit 13

Stack Diameter: 144"

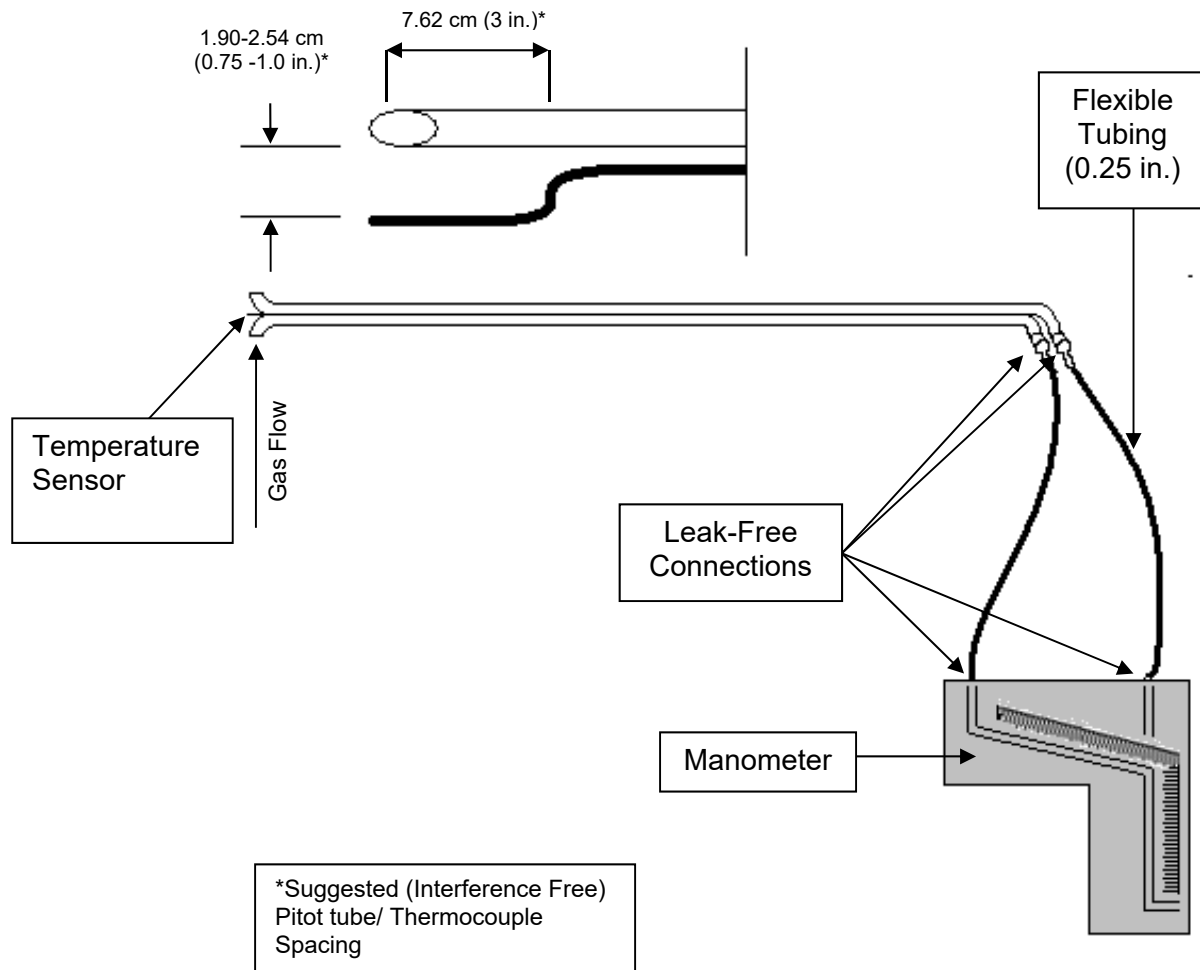
Stack Area: 113.1 Square Feet

No. Points Across Diameter: 6

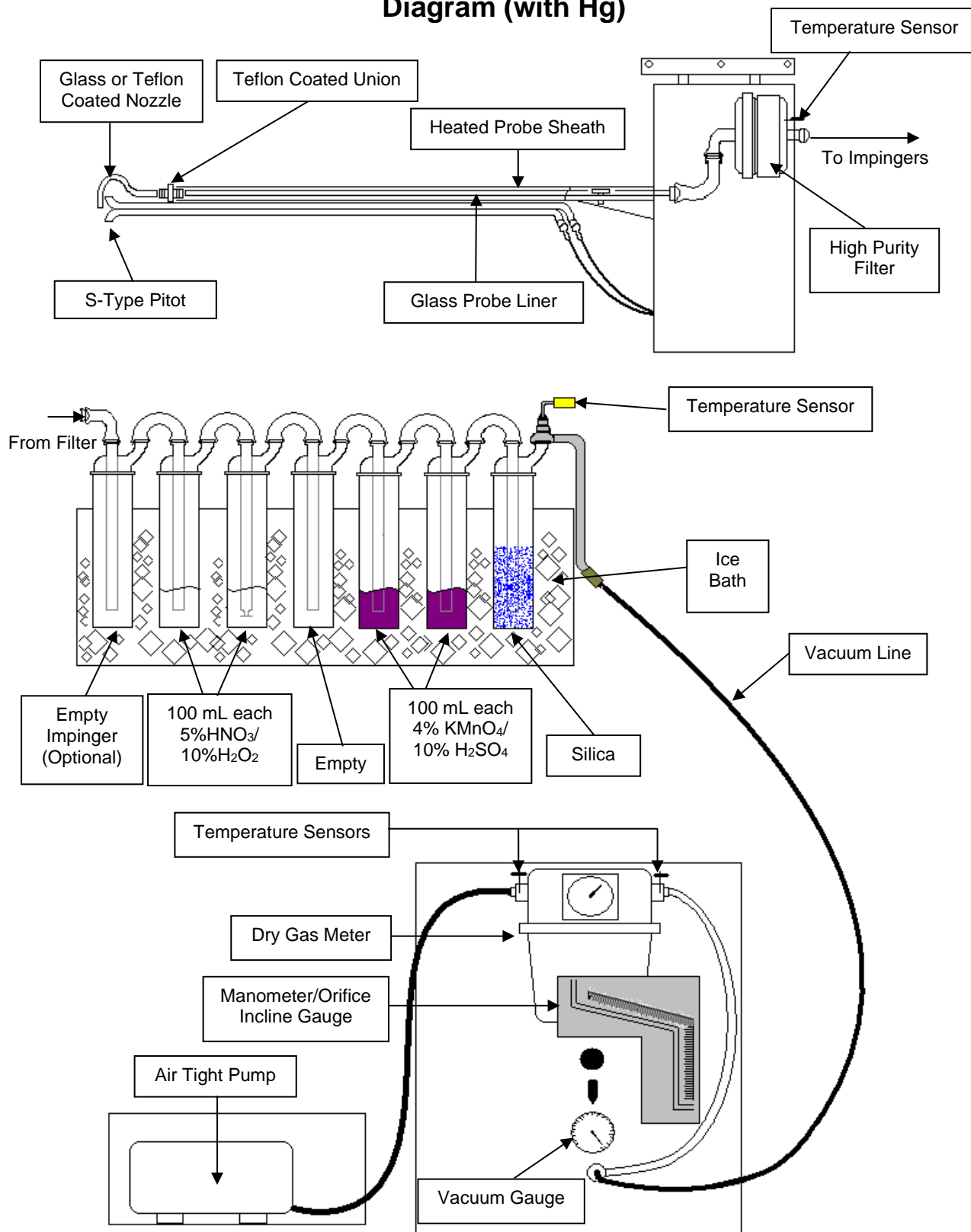
No. of Ports: 4

Appendix B - Sample Train Diagrams

USEPA Method 2 – Type S Pitot Tube Manometer Assembly



USEPA Method 5/29- Particulate Matter/Metals Sample Train Diagram (with Hg)

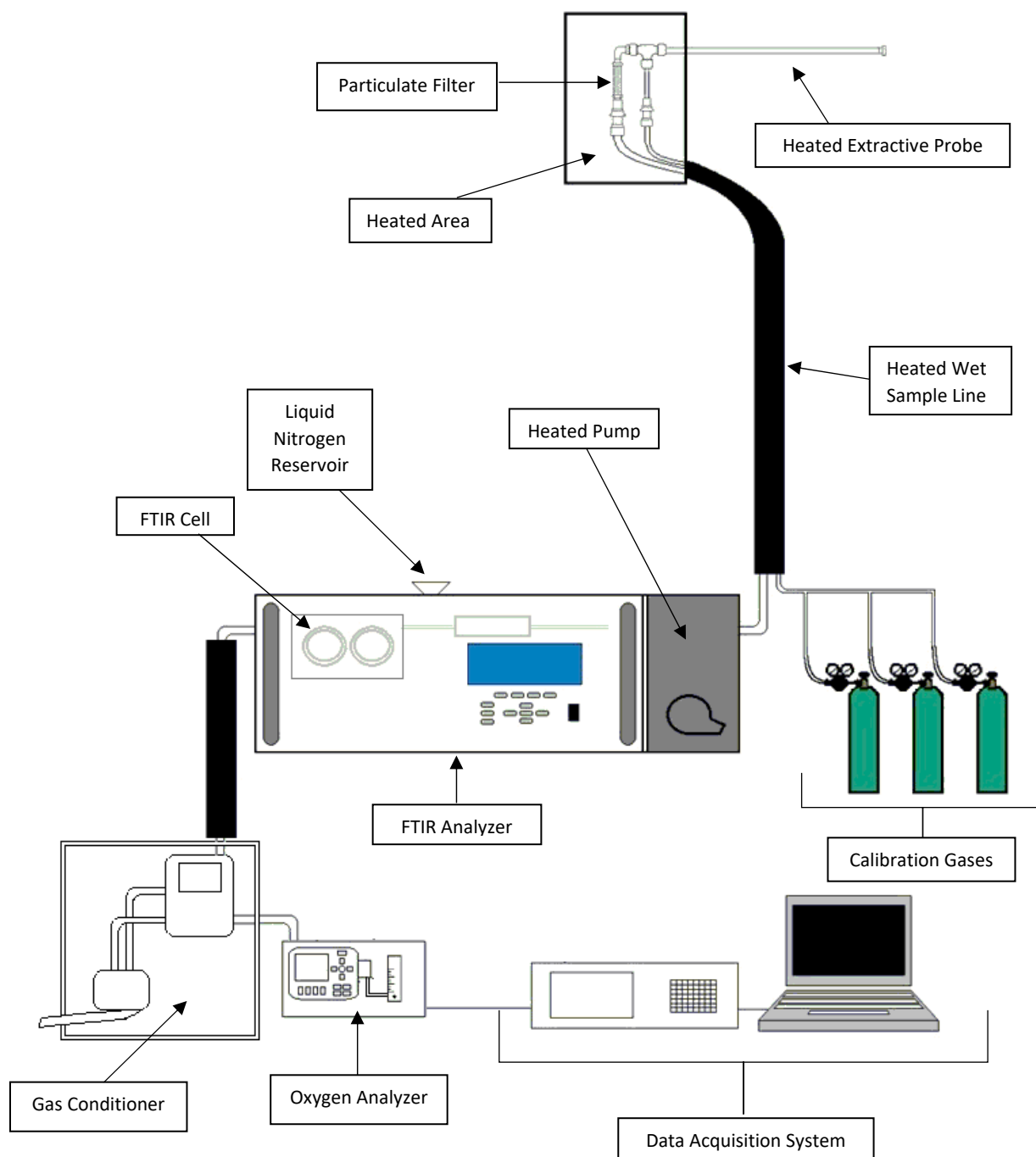


ATD-040 USEPA Method 5/29 (with Hg)

Rev. 1.2

1/1/2021

USEPA Methods 3A, 10, and 320 – Sample Train Diagram



Appendix C - Calculation Nomenclature and Formulas

Client: Middletown, LLC
Facility: Middletown
Project #: M223610

Test Location: Unit 13
Date: 9/9/22

Sample Calculations

$$14.93 \% - 0.00 \% \quad \times \quad \frac{\text{O}_2 \% \text{ (dry)}}{10.15 \% - 0.00 \%} = 14.7 \%$$

$$3.62 \% - 0.00 \% \quad \times \quad \frac{\text{CO}_2 \% \text{ (dry)}}{10.00 \% - 0.00 \%} = 3.5 \%$$

$$C_{\text{gas}} = (C - C_o) \times \frac{C_{\text{ma}}}{C_m - C_o}$$

where:

C_{gas} = Effluent gas concentration, dry basis, %

C = Average gas concentration indicated by gas analyzer, dry basis, %

C_o = Average of initial and final system calibration bias check responses for the zero gas, %

C_m = Average of initial and final system calibration bias check responses for the upscale calibration gas, %

C_{ma} = Actual concentration of the upscale calibration gas, %

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 13
 Run: 1
 Date: 9/9/2022
 Method: 5/29
 Source Condition: Normal

Dry Molecular Weight

$$M_d = 0.44 \times (\%CO_2) + 0.32 \times (\%O_2) + 0.28 \times \%N_2$$

$$\%CO_2 = \underline{3.5} \quad \%O_2 = \underline{14.7} \quad \%N_2 = \underline{81.8}$$

$$M_d = \underline{29.148}$$

Wet Molecular Weight

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

$$M_d = \underline{29.148} \quad B_{ws} = \underline{0.102}$$

$$M_s = \underline{28.008}$$

Meter Volume at Standard Conditions

$$V_m(\text{std}) = 17.647 \times Y \times V_m \times \frac{(P_{\text{bar}} + DH/13.6)}{T_m}$$

$$Y = \underline{0.988} \quad V_m = \underline{164.185} \quad P_{\text{bar}} = \underline{30.00}$$

$$DH = \underline{2.20} \quad T_m = \underline{520.4}$$

$$V_m(\text{std}) = \underline{165.910}$$

Volume of Water Vapor Condensed

$$V_w(\text{std}) = 0.0471 \times (\text{net } H_2O \text{ gain})$$

$$\text{Net } H_2O = \underline{401.2}$$

$$V_w(\text{std}) = \underline{18.897}$$

Moisture Content

$$B_{ws} = \frac{V_w(\text{std})}{V_w(\text{std}) + V_m(\text{std})}$$

$$V_w(\text{std}) = \underline{18.897} \quad V_m(\text{std}) = \underline{165.910}$$

$$B_{ws} = \underline{0.102}$$

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 13
 Run: 1
 Date: 9/9/2022
 Method: 5/29
 Source Condition: Normal

Average Duct Velocity

$$V_s = 85.49 \times C_p \times \sqrt{\text{DP (avg)}} \times (T_s (\text{avg}) + 460 / (P_s \times M_s))^{1/2}$$

$$C_p = \frac{0.840}{29.88} \quad T_s (\text{avg}) = \frac{787.3}{28.008} \quad \sqrt{\text{DP (avg)}} = 1.146$$

$$V_s = 100.441$$

Volumetric Flow Rate (Actual Basis)

$$Q = V_s \times A \times 60$$

$$V_s = 100.441 \quad A = 113.097$$

$$Q = 681,578$$

Volumetric Flow Rate (Standard Basis)

$$Q_{std} = 17.647 \times Q \times \frac{P_s}{T_s (\text{avg}) + 460}$$

$$Q = 681,578 \quad P_s = 29.88 \quad T_s (\text{avg}) = 787.3$$

$$Q_{std} = 288,099$$

Volumetric Flow Rate (Standard Dry Basis)

$$Q_{std}(\text{dry}) = Q_{std} \times (1 - Bws)$$

$$Q_{std} = 288,099 \quad Bws = 0.102$$

$$Q_{std}(\text{dry}) = 258,640$$

Isokinetic Variation:

$$\%ISO = \frac{0.0945 \times (T_s + 460) \times V_m(\text{std})}{V_s \times \theta \times A_n \times P_s \times (1 - Bws)}$$

$$T_s = \frac{787.3}{0.0004005} \quad V_m(\text{std}) = \frac{165.910}{180} \quad V_s = \frac{100.441}{29.88}$$

$$Bws = 0.102$$

$$\%ISO = 100.7$$

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 13
 Run: 1
 Date: 9/9/2022
 Method: 5/29
 Source Condition: Normal

PM Concentration:

This example represents the filterable fraction. For other fractions, use the obtained mn for that particulate fraction.

$$Co = \frac{m_n \times 15.43}{Vm(std)}$$

$$m_n (g) = \frac{0.00180}{Vm(std) = \frac{165.910}{}}$$

$$Co = \frac{0.0002}{gr/dscf}$$

PM Emission Rate:

$$Emission Rate lb/hr = \frac{Co}{7,000} \times Qstd(dry) \times 60$$

$$Co = \frac{0.0002}{Qstd(dry) = \frac{258,640}{}}$$

$$Emission Rate lb/hr = \frac{0.371}{lb/hr}$$

$$F_d = \frac{8,710.0}{O_2\% = \frac{14.7}{}}$$

$$Emission Rate lb/mmBtu (F_d Factor) = \frac{Co}{7,000} \times F_d (dscf/mmBtu) \times \frac{20.9}{20.9 - O_2\%}$$

$$Emission Rate lb/mmBtu (F_d Factor) = \frac{0.0007}{}$$

$$F_c = \frac{8,710.0}{CO_2\% = \frac{3.5}{}}$$

$$Emission Rate lb/mmBtu (F_c Factor) = \frac{Co}{7,000} \times F_c (dscf/mmBtu) \times \frac{100}{CO_2\%}$$

$$Emission Rate lb/mmBtu (F_c Factor) = \frac{0.0007}{}$$

$$Emission Rate lb/mmBtu (Heat Input) = \frac{Emission Rate lb/hr}{Heat Input (mmBtu/hr)}$$

$$Heat Input (mmBtu/hr) = \frac{8,710.0}{}$$

$$Emission Rate lb/mmBtu (Heat Input) = \frac{0.0007}{}$$

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 13
 Run: 1
 Date: 9/9/2022
 Method: 5/29
 Source Condition: Normal

Dry Molecular Weight

$$M_d = 0.44 \times (\%CO_2) + 0.32 \times (\%O_2) + 0.28 \times \%N_2$$

$$\%CO_2 = \underline{3.5} \qquad \%O_2 = \underline{14.7} \qquad \%N_2 = \underline{81.8}$$

$$M_d = \underline{29.148}$$

Wet Molecular Weight

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

$$M_d = \underline{29.148} \qquad B_{ws} = \underline{0.102}$$

$$M_s = \underline{28.008}$$

Meter Volume at Standard Conditions

$$V_m(\text{std}) = 17.647 \times Y \times V_m \times \frac{(P_{\text{bar}} + DH/13.6)}{T_m}$$

$$Y = \underline{0.988} \qquad V_m = \underline{164.185} \qquad P_{\text{bar}} = \underline{30.0}$$

$$DH = \underline{2.2} \qquad T_m = \underline{520.4}$$

$$V_m(\text{std}) = \underline{165.910}$$

Volume of Water Vapor Condensed

$$V_w(\text{std}) = 0.0471 \times (\text{net } H_2O \text{ gain})$$

$$\text{Net } H_2O = \underline{401.2}$$

$$V_w(\text{std}) = \underline{18.897}$$

Moisture Content

$$B_{ws} = \frac{V_w(\text{std})}{V_w(\text{std}) + V_m(\text{std})}$$

$$V_w(\text{std}) = \underline{18.897} \qquad V_m(\text{std}) = \underline{165.910}$$

$$B_{ws} = \underline{0.102}$$

Average Duct Velocity

$$V_s = 85.49 \times C_p \times \sqrt{DP \text{ (avg)}} \times (T_s \text{ (avg)} + 460 / (P_s \times M_s))^{1/2}$$

$$C_p = \underline{0.840} \qquad T_s \text{ (avg)} = \underline{787.3} \qquad \sqrt{DP \text{ (avg)}} = \underline{1.146}$$

$$P_s = \underline{29.88} \qquad M_s = \underline{28.008}$$

$$V_s = \underline{100.441}$$

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 13
 Run: 1
 Date: 9/9/2022
 Method: 5/29
 Source Condition: Normal

Volumetric Flow Rate (Actual Basis)

$$Q = V_s \times A \times 60$$

$$V_s = \underline{100.441} \quad A = \underline{113.097}$$

$$Q = \underline{681,578}$$

Volumetric Flow Rate (Standard Basis)

$$Q_{std} = 17.647 \times Q \times \frac{P_s}{T_s (avg) + 460}$$

$$Q = \underline{681,578} \quad P_s = \underline{29.88} \quad T_s (avg) = \underline{787.3}$$

$$Q_{std} = \underline{288,099}$$

Volumetric Flow Rate (Standard Dry Basis)

$$Q_{std(dry)} = Q_{std} \times (1 - Bws)$$

$$Q_{std} = \underline{288,099} \quad Bws = \underline{0.102}$$

$$Q_{std(dry)} = \underline{258,640}$$

Isokinetic Variation:

$$\%ISO = \frac{0.0945 \times (T_s + 460) \times V_m(std)}{V_s \times \theta \times A_n \times P_s \times (1 - Bws)}$$

$$\begin{array}{llll}
 T_s = \underline{787.3} & V_m(std) = \underline{165.910} & V_s = \underline{100.441} \\
 A_n = \underline{0.0004005} & \theta = \underline{180} & P_s = \underline{29.88} \\
 Bws = \underline{0.102} & &
 \end{array}$$

$$\%ISO = \underline{100.7}$$

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 13
 Run: 1
 Date: 9/9/2022
 Method: 5/29
 Source Condition: Normal

Mercury (Hg) Concentration:

$$\mu\text{g}/\text{m}^3 = \frac{\mu\text{g of Mercury (Hg)}}{\text{Vm(std)} \times 0.02832 \text{ m}^3/\text{ft}^3}$$

$$\mu\text{g} = \underline{0.25} \quad \text{Vm(std)} = \underline{165.910}$$

$$\mu\text{g}/\text{m}^3 = \underline{0.00}$$

Mercury (Hg) Emission Rate:

$$\text{lb of Mercury (Hg)} = \frac{\mu\text{g of sample} \times 10^{-6} \text{ grams}/\mu\text{g}}{453.6 \text{ grams/lb}}$$

$$\text{lb of Mercury (Hg)} = \underline{5.45\text{E-}10} \quad \text{dscfm} = \underline{258,640}$$

$$\text{Emission Rate lb/hr} = \frac{\text{lb of Mercury (Hg)}}{\text{Vm(std)}} \times \text{dscfm} \times 60 \text{ min/hr}$$

$$\text{Emission Rate lb/hr} = \underline{0.000}$$

$$\text{Emission Rate lb/Tbtu (F}_d \text{ Factor)} = \frac{\text{lb of Mercury (Hg)}}{\text{Vm(std)}} \times F_d (\text{dscf/mmBtu}) \times \frac{20.9}{(20.9 - \text{O}_2\%)} \times 1,000,000$$

$$F_d = \underline{8,710.0} \quad \text{O}_2\% = \underline{14.7}$$

$$\text{Emission Rate lb/Tbtu (F}_d \text{ Factor)} = \underline{0.0964}$$

$$\text{Emission Rate lb/Tbtu (F}_d \text{ Factor)} = \frac{\text{lb of Mercury (Hg)}}{\text{Vm(std)}} \times F_c (\text{scf/mmBtu}) \times \frac{100}{\text{CO}_2\%} \times 1,000,000$$

$$\text{Heat Input (mmBtu/hr)} = \underline{8710.0}$$

$$\text{Emission Rate lb/Tbtu (Heat Input)} = \underline{20.8054}$$

Client: Middletown Power LLC
 Facility: Middletown Facility
 Test Location: Unit 13
 Run: 1
 Date: 9/9/2022
 Method: 320
 Source Condition: Normal

Recovery % with Certified Transfer Standard System Purge

$$R_{cts} = \frac{Sys_{cts}}{D_{cts}} \times 100$$

$$Sys_{cts} = \underline{97.0}$$

$$D_{cts} = \underline{98.1}$$

$$R_{cts} = \underline{98.9\%}$$

Dilution Factor for Analyte Spiking

$$DF = \frac{H_2O_{spk}}{H_2O_{nat}}$$

$$H_2O_{spk} = \underline{8.485}$$

$$H_2O_{nat} = \underline{9.806}$$

$$DF = \underline{0.06}$$

Recovery % for Analyte Spike With Formaldehyde

$$R_x = \frac{Spkx}{(N_x \times (1-DF) + D_x \times DF)}$$

$$Spkx = \underline{50.2}$$

$$N_x = \underline{-14.4}$$

$$DF = \underline{0.06}$$

$$D_x = \underline{608.1}$$

$$R_x = \underline{0.1} \%$$

O2% Volume Dry Drift Correction

$$Cx = (C - Co) \times \frac{Cma}{Cm - Co}$$

where:

C_{gas} = Effluent gas concentration, dry basis, ppm

C = Average gas concentration indicated by gas analyzer, dry basis, ppm

Co = Average of initial and final system calibration bias check responses for the zero gas, ppm

Cm = Average of initial and final system calibration bias check responses for the upscale calibration gas, ppm

Cma = Actual concentration of the upscale calibration gas, ppm

MOSTARDI PLATT

Volumetric Flow Nomenclature

- A = Cross-sectional area of stack or duct, ft²
- Bws = Water vapor in gas stream, proportion by volume
- Cp = Pitot tube coefficient, dimensionless
- Md = Dry molecular weight of gas, lb/lb-mole
- Ms = Molecular weight of gas, wet basis, lb/lb-mole
- Mw = Molecular weight of water, 18.0 lb/lb-mole
- Pbar = Barometric pressure at testing site, in. Hg
- Pg = Static pressure of gas, in. Hg (in. H₂O/13.6)
- DH= Static pressure of gas, in.H₂O
- Ps = Absolute pressure of gas, in. Hg = Pbar + Pg
- Pstd = Standard absolute pressure, 29.92 in. Hg
- Acfm = Actual volumetric gas flow rate
- Scfm= Volumetric gas flow rate, corrected to standard conditions
- Dscfm = Standard volumetric flow rate, corrected to dry conditions
- R = Ideal gas constant, 21.85 in. Hg-ft³/°R-lb-mole
- Ts = Average stack gas temperature, °F
- Tm = Average dry gas meter temperature, °F
- Tstd = Standard absolute temperature, 528°R
- vs = Gas velocity, ft/sec
- Vm(std)= Volume of gas sampled, corrected to standard conditions, scf
- Vw(std) = Volume of water vapor in gas sample, corrected to standard conditions, scf
- Vlc= Volume of liquid collected
- Y = Dry gas meter calibration factor
- Δp = Velocity head of gas, in. H₂O
- K1 = 17.647 °R/in. Hg
- %EA = Percent excess air
- %CO₂ = Percent carbon dioxide by volume, dry basis
- %O₂ = Percent oxygen by volume, dry basis
- %N₂ = Percent nitrogen by volume, dry basis
- 0.264 = Ratio of O₂ to N₂ in air, v/v
- 0.28 = Molecular weight of N₂ or CO, divided by 100
- 0.32 = Molecular weight of O₂ divided by 100
- 0.44 = Molecular weight of CO₂ divided by 100
- 13.6 = Specific gravity of mercury (Hg)

MOSTARDI PLATT

Particulate Nomenclature

- A = Cross-sectional area of stack or duct, square feet
 A_n = Cross-sectional area of nozzle, square feet
 B_{ws} = Water vapor in gas stream, by volume
 C_a = Acetone blank residue concentration, g/g
 C_{acf} = Concentration of particulate matter in gas stream at actual conditions, gr/acf
 C_p = Pitot tube coefficient
 C_s = Concentration of particulate matter in gas stream, dry basis, corrected to standard conditions, gr/dscf
 IKV = Isokinetic sampling variance, must be $90.0\% \leq IKV \leq 110.0\%$
 M_d = Dry molecular weight of gas, lb/lb-mole
 M_s = Molecular weight of gas, wet basis, lb/lb-mole
 M_w = Molecular weight of water, 18.0 lb/lb-mole
 m_a = Mass of residue of acetone after evaporation, grams
 P_{bar} = Barometric pressure at testing site, inches mercury
 P_g = Static pressure of gas, inches mercury (inches water/13.6)
 P_s = Absolute pressure of gas, inches mercury = $P_{bar} + P_g$
 P_{std} = Standard absolute pressure, 29.92 inches mercury
 Q_{acfm} = Actual volumetric gas flow rate, acfm
 Q_{std} = Dry volumetric gas flow rate corrected to standard conditions, dscfh
 R = Ideal gas constant, 21.85 inches mercury cubic foot/°R-lb-mole
 T_m = Dry gas meter temperature, °R
 T_s = Gas temperature, °R
 T_{std} = Absolute temperature, 528°R
 V_a = Volume of acetone blank, ml
 V_{aw} = Volume of acetone used in wash, ml
 W_a = Weight of residue in acetone wash, grams
 m_n = Total amount of particulate matter collected, grams
 V_{1c} = Total volume of liquid collected in impingers and silica gel, ml
 V_m = Volume of gas sample as measured by dry gas meter, dcf
 $V_{m(std)}$ = Volume of gas sample measured by dry gas meter, corrected to standard conditions, dscf
 v_s = Gas velocity, ft/sec
 $V_{w(std)}$ = Volume of water vapor in gas sample, corrected to standard conditions, scf
 Y = Dry gas meter calibration factor
 ΔH = Average pressure differential across the orifice meter, inches water
 Δp = Velocity head of gas, inches water
 ρ_a = Density of acetone, 0.7855 g/ml (average)
 ρ_w = Density of water, 0.002201 lb/ml
 θ = Total sampling time, minutes
 K_1 = 17.647 °R/in. Hg
 K_2 = 0.04707 ft³/ml
 K_4 = 0.09450/100 = 0.000945
 K_p = Pitot tube constant, $85.49 \frac{\text{ft}}{\text{sec}} \left[\frac{(\text{lb/lb-mole})(\text{in. Hg})}{(^{\circ}\text{R})(\text{in. H}_2\text{O})} \right]^{1/2}$
 $\%EA$ = Percent excess air
 $\%CO_2$ = Percent carbon dioxide by volume, dry basis
 $\%O_2$ = Percent oxygen by volume, dry basis
 $\%CO$ = Percent carbon monoxide by volume, dry basis
 $\%N_2$ = Percent nitrogen by volume, dry basis
0.264 = Ratio of O_2 to N_2 in air, v/v
28 = Molecular weight of N_2 or CO
32 = Molecular weight of O_2
44 = Molecular weight of CO_2
13.6 = Specific gravity of mercury (Hg)

MOSTARDI PLATT

Particulates Calculation Formulas

1. $V_{w(std)} = V_{lc} \left(\frac{\rho_w}{M_w} \right) \left(\frac{RT_{std}}{P_{std}} \right) = K_2 V_{lc}$
2. $V_{m(std)} = V_m Y \left(\frac{T_{std}}{T_m} \right) \left(\frac{(P_{bar} + (\frac{\Delta H}{13.6}))}{P_{std}} \right) = K_1 V_m Y \frac{(P_{bar} + (\frac{\Delta H}{13.6}))}{T_m}$
3. $B_{ws} = \frac{V_{w(std)}}{(V_{m(std)} + V_{w(std)})}$
4. $M_d = 0.44(\%CO_2) + 0.32(\%O_2) + 0.28(\%N_2)$
5. $M_s = M_d (1 - B_{ws}) + 18.0(B_{ws})$
6. $C_a = \frac{m_a}{V_a \rho_a}$
7. $W_a = C_a V_{aw} \rho_a$
8. $C_{acf} = 15.43 K_i \left(\frac{m_n P_s}{V_{w(std)} + V_{m(std)} T_s} \right)$
9. $C_s = (15.43 \text{ grains/gram}) (m_n / V_{m(std)})$
10. $v_s = K_p C_p \sqrt{\frac{\Delta P T_s}{P_s M_s}}$
11. $Q_{acfm} = v_s A (60 \frac{\text{sec}}{\text{min}})$
12. $Q_{sd} = (3600 \frac{\text{sec}}{\text{hr}}) (1 - B_{ws}) v_s \left(\frac{T_{std} P_s}{T_s P_{std}} \right) A$
13. $E \text{ (emission rate, lbs/hr)} = Q_{std} (C_s / 7000 \text{ grains/lb})$
14. $IKV = \frac{T_s V_{m(std)} P_{std}}{T_{std} v_s \theta A_n P_s 60 (1 - B_{ws})} = K_4 \frac{T_s V_{m(std)}}{P_s v_s A_n \theta (1 - B_{ws})}$
15. $\%EA = \left(\frac{\%O_2 - (0.5 \%CO)}{0.264 \%N_2 - (\%O_2 - 0.5 \%CO)} \right) \times 100$

MOSTARDI PLATT

ppm Conversion Calculations and Factors

ppm to lbs/scf

$$(\text{ppm } X) \times (\text{conversion factor } X) = X \text{ lbs/scf}$$

lbs/scf to lbs/hr

Dry ppm's with dry flow, and wet ppm's with wet flow.

$$(X \text{ lbs/scf}) \times (\text{airflow scf/min}) \times (60 \text{ min/hr}) = X \text{ lbs/hr}$$

lbs/scf to lbs/mmBtu

Dry ppm's with dry diluent, and wet ppm's with wet diluent.

$$\text{CO}_2 - (X \text{ lbs/scf}) \times (F_c) \times (100/\text{CO}_2) = X \text{ lbs/mmBtu}$$

$$\text{O}_2 - (X \text{ lbs/scf}) \times (F_d) \times (20.9/(20.9-\text{O}_2)) = X \text{ lbs/mmBtu}$$

Conversion Factors

$$\text{CO} - 7.2664 \times 10^{-8}$$

$$\text{HCHO} - 7.7938 \times 10^{-8}$$

$$\text{HCl} - 9.4623 \times 10^{-8}$$

$$\text{HF} - 5.19309 \times 10^{-8}$$

MOSTARDI PLATT

Volumetric Air Flow Calculations

$$Vm (std) = 17.647 \times Vm \times \left[\frac{\left(P_{bar} + \left[\frac{DH}{13.6} \right] \right)}{(460 + Tm)} \right] \times Y$$

$$Vw (std) = 0.0471 \times Vlc$$

$$Bws = \left[\frac{Vw (std)}{Vw (std) + Vm (std)} \right]$$

$$Md = (0.44 \times \%CO_2) + (0.32 \times \%O_2) + [0.28 \times (100 - \%CO_2 - \%O_2)]$$

$$Ms = Md \times (1 - Bws) + (18 \times Bws)$$

$$Vs = \sqrt{\frac{(Ts + 460)}{Ms \times Ps}} \times \sqrt{DP} \times Cp \times 85.49$$

$$Acfm = Vs \times Area (of\ stack\ or\ duct) \times 60$$

$$Scfm = Acfm \times 17.647 \times \left[\frac{Ps}{(460 + Ts)} \right]$$

$$Scfh = Scfm \times 60 \frac{min}{hr}$$

$$Dscfm = Scfm \times (1 - Bws)$$

MOSTARDI PLATT

Moisture Calculations

$$V_{wc(std)} = \frac{(V_f - V_i)\rho_w RT_{std}}{P_{std}M_w} = 0.04707(V_f - V_i)$$

$$V_{wsg(std)} = \frac{(W_f - W_i)\rho_w RT_{std}}{P_{std}M_w} = 0.04715(W_f - W_i)$$

$$V_{m(std)} = 17.64 V_m Y \frac{P_{bar} + \frac{\Delta H}{13.6}}{T_m}$$

$$B_{ws} = \frac{V_{wc(std)} + V_{wsg(std)}}{V_{wc(std)} + V_{wsg(std)} + V_{m(std)}}$$

Where:

B_{ws} = Water vapor in gas stream, proportion by volume

M_w = Molecular weight of water, 18.015 lb/lb-mole

P_{bar} = Barometric pressure at the testing site, in. Hg

P_{std} = Standard absolute pressure, 29.92 in. Hg

R = Ideal gas constant, $0.048137 \text{ (in. Hg)(ft}^3\text{)/(g-mole)(}^\circ\text{R)} =$
 $[21.8348 \text{ (in. Hg)(ft}^3\text{)/(lb-mole)(}^\circ\text{R)}]/453.592 \text{ g-mole/lb-mole}$

T_m = Absolute average dry gas meter temperature, $^\circ\text{R}$

T_{std} = Standard absolute temperature, 528 $^\circ\text{R}$

V_f = Final volume of condenser water, ml

V_i = Initial volume of condenser water, ml

V_m = Dry gas volume measured by dry gas meter, dcf

$V_{m(std)}$ = Dry gas volume measured by dry gas meter, corrected to standard conditions, scf

$V_{wc(std)}$ = Volume of condensed water vapor, corrected to standard conditions, scf

$V_{wsg(std)}$ = Volume of water vapor collected in silica gel, corrected to standard conditions, scf

W_f = Final weight of silica gel, g

W_i = Initial weight of silica gel, g

Y = Dry gas meter calibration factor

ΔH = Average pressure exerted on dry gas meter outlet by gas sample bag, in. H_2O

ρ_w = Density of water, 0.9982 g/ml

13.6 = Specific gravity of mercury (Hg)

17.64 = T_{std}/P_{std}

0.04707 = ft^3/ml 0.04715 = ft^3/g

MOSTARDI PLATT

Derivation of Factors Used In Carbon Monoxide Calculations

Factors for calculating concentration as pounds per dry standard cubic feet:

$$\begin{aligned}\text{Factor for } C_{\text{CO}} &= \frac{28.01 \text{ grams/gram - mole}}{2 \frac{\text{gram - equivalents}}{\text{gram - mole}} \times 1000 \frac{\text{gram - milliequivalents}}{\text{gram - equivalent}} \times 453.592 \frac{\text{grams}}{\text{lb}}} \\ &= 3.087577 \times 10^{-5} \text{ lb/g - meq} \quad \text{Use } 3.0876 \times 10^{-5}\end{aligned}$$

Factors for calculating from lb/dscf to parts per million:

Using 22.414 liters of gas per gram-mole at 0°C and 1 atmosphere pressure,

One pound-mole of gas is contained in 359.04765 ft³ at 32°F and 29.92 in. Hg, or 385.31943 ft³ at 68°F and 29.92 in. Hg

$$\text{ppm} = \frac{M \text{ lb/lb-mole}}{385.31943 \text{ dscf/lb-mole} \times 10^6} = 2.5952494 \times 10^{-9} M \text{ lb/dscf}$$

Where M = pollutant molecular weight; CO = 28.01 lb/lb-mole

$$\text{Factor for ppm CO} = \frac{1}{28.01 \times 2.5952 \times 10^{-9}} = 1.3762 \times 10^7 \text{ dscf/lb}$$

MOSTARDI PLATT

Trace Metal (Including Mercury) Sample Calculations

Concentration

$$\frac{\mu g}{m^3} = \frac{\mu g \text{ of trace metal}}{dscf \text{ volume sampled} \times 0.02832 \frac{m^3}{ft^3}}$$

Emission Rate

$$\frac{\mu g \text{ of sample} \times \frac{1 \times 10^{-6} \text{ grams}}{\mu g}}{453.6 \text{ gr/lb}} = \text{lbs of trace metal}$$

$$\frac{\text{lbs of trace metal}}{V_m(\text{std})\text{sample}} \times dscfm \times 60 \frac{\text{min}}{\text{hr}} = \text{lbs of trace metal/hr}$$

MOSTARDI PLATT

Emission Rate Calculations

A pollutant emission rate (E), expressed as pounds of pollutant per million Btu heat input from the fuel combusted can be calculated by several methods as follows:

- A. $C = C_s/7000$ where, C = pollutant concentration, lb/dscf
 C_s = pollutant concentration, grains/dscf
- B. If fuel flow is monitored and the fuel combusted during the test is sampled and analyzed for gross calorific value, then:

$$E = \frac{Q_{sd} C}{\text{fuel flow rate (lb/hr) GCV}} \times 10^6$$

Where E = lbs per million Btu
 GCV = gross calorific value, Btu/lb
 Q_{sd} = dry volumetric gas flow at standard conditions, dscf/hr

- C. If an integrated gas sample is taken during the test and analyzed for %CO₂ or %O₂, dry basis by volume, with an approved USEPA Method 3 or 3A gas analyzer, then

$$E = CF_c \frac{100}{\%CO_2} \text{ or } E = CF_d \frac{20.9}{(20.9 - \%O_2)}$$

Where %CO₂ and %O₂ are expressed as percent values:

F_c = a factor representing a ratio of the volume of carbon dioxide generated to the calorific value of the specified fuel type combusted in Figure 1.

F_d = a factor representing a ratio of the volume of dry flue gases generated to the calorific value of the specified fuel type combusted in Figure 1.

Fuel Type	F_d	F_c	Fuel Type	F_d	F_c
Coal, Anthracite	10100	1970	Fuel Oil	9190	1420
Coal, Bituminous	9780	1800	Municipal	9570	1820
Coal, Lignite	9860	1910	Natural Gas	8710	1040
Coal, Sub-Bituminous	9820	1840	Wood	9240	1830

Figure 1. Fuel Type

- D. If fuel sample increments are taken and composited during the test and an ultimate analysis is performed and the GCV is determined, then

$$F_c = \frac{321 \times 10^3 (\%C)}{GCV} \text{ where } \%C = \text{Carbon content by weight expressed as percent}$$

$$F_d = \frac{[3.64(\%H) + 1.53(\%C) + 0.57(\%S) + 0.14(\%N) - 0.46(\%O_2)]}{GCV} \times 10^6$$

H = Hydrogen, percent; C = Carbon, percent; S = Sulfur, percent; N = Nitrogen, percent;
 O = Oxygen, percent

Appendix D - Reference Method Test Data

Client: Middletown Power LLC
 Facility: Middletown Facility
 Project #: M223610
 1g Condition: Normal

Test Location: Unit 13
 Date: 9/9/2022
 Operator: J. Gross
 FTIR s/n: 484

Run 1

Date	Time	H2O% %v	Formaldehyde ppbv wet	O2 % dry	CO2 % dry	CO ppmvw	HCl ppmvw	HF ppmvw
9/9/22	08:45:00	97152.40	25.0	14.80	3.17	6.61	0.30	0.10
9/9/22	08:46:00	96993.42	25.0	14.80	3.17	6.49	0.30	0.10
9/9/22	08:47:00	96728.66	25.0	14.80	3.17	6.53	0.30	0.10
9/9/22	08:48:00	96559.49	25.0	14.80	3.18	6.56	0.30	0.10
9/9/22	08:49:00	96698.02	25.0	14.80	3.17	6.65	0.30	0.10
9/9/22	08:50:00	96628.81	25.0	14.80	3.18	6.64	0.30	0.10
9/9/22	08:51:00	96755.84	25.0	14.80	3.18	6.66	0.30	0.10
9/9/22	08:52:00	96753.07	25.0	14.80	3.18	6.55	0.30	0.10
9/9/22	08:53:00	96692.03	25.0	14.80	3.18	6.51	0.30	0.10
9/9/22	08:54:00	96615.93	25.0	14.80	3.18	6.58	0.30	0.10
9/9/22	08:55:00	96590.50	25.0	14.80	3.17	6.54	0.30	0.10
9/9/22	08:56:00	96873.70	25.0	14.80	3.18	6.54	0.30	0.10
9/9/22	08:57:01	96903.70	25.0	14.80	3.18	6.57	0.30	0.10
9/9/22	08:58:00	96796.38	25.0	14.80	3.18	6.59	0.30	0.10
9/9/22	08:59:00	96823.64	25.0	14.80	3.18	6.53	0.30	0.10
9/9/22	09:00:00	96854.01	25.0	14.80	3.18	6.57	0.30	0.10
9/9/22	09:01:01	97074.05	25.0	14.80	3.18	6.50	0.30	0.10
9/9/22	09:02:00	97221.38	25.0	14.80	3.18	6.56	0.30	0.10
9/9/22	09:03:00	96783.17	25.0	14.80	3.18	6.58	0.30	0.10
9/9/22	09:04:01	96677.65	25.0	14.80	3.18	6.60	0.30	0.10
9/9/22	09:05:01	96782.83	25.0	14.80	3.18	6.56	0.30	0.10
9/9/22	09:06:01	97134.46	25.0	14.80	3.18	6.56	0.30	0.10
9/9/22	09:07:01	96866.73	25.0	14.80	3.19	6.56	0.30	0.10
9/9/22	09:08:01	97067.49	25.0	14.80	3.18	6.51	0.30	0.10
9/9/22	09:09:01	97341.99	25.0	14.80	3.18	6.64	0.30	0.10
9/9/22	09:10:01	97092.66	25.0	14.80	3.18	6.55	0.30	0.10
9/9/22	09:11:01	97143.64	25.0	14.80	3.18	6.55	0.30	0.10
9/9/22	09:12:01	97050.59	25.0	14.80	3.18	6.64	0.30	0.10
9/9/22	09:13:01	97108.98	25.0	14.80	3.18	6.55	0.30	0.10
9/9/22	09:14:01	97181.45	25.0	14.80	3.18	6.55	0.30	0.10
9/9/22	09:15:01	97544.40	25.0	14.80	3.18	6.61	0.30	0.10
9/9/22	09:16:01	97126.40	25.0	14.80	3.18	6.61	0.30	0.10
9/9/22	09:17:01	97103.33	25.0	14.80	3.18	6.62	0.30	0.10
9/9/22	09:18:01	97163.08	25.0	14.80	3.18	6.63	0.30	0.10
9/9/22	09:19:01	97100.23	25.0	14.80	3.18	6.62	0.30	0.10
9/9/22	09:20:01	97081.68	25.0	14.80	3.18	6.64	0.30	0.10
9/9/22	09:21:01	97114.51	25.0	14.80	3.18	6.49	0.30	0.10
9/9/22	09:22:01	97376.09	25.0	14.80	3.18	6.62	0.30	0.10
9/9/22	09:23:01	97346.42	25.0	14.80	3.18	6.60	0.30	0.10
9/9/22	09:24:01	97440.79	25.0	14.80	3.18	6.56	0.30	0.10
9/9/22	09:25:01	97304.47	25.0	14.80	3.18	6.57	0.30	0.10
9/9/22	09:26:01	97290.03	25.0	14.80	3.19	6.62	0.30	0.10
9/9/22	09:27:01	97480.77	25.0	14.80	3.19	6.51	0.30	0.10
9/9/22	09:28:01	97666.48	25.0	14.80	3.18	6.57	0.30	0.10
9/9/22	09:29:01	97437.28	25.0	14.80	3.18	6.59	0.30	0.10
9/9/22	09:30:01	97365.84	25.0	14.80	3.18	6.61	0.30	0.10
9/9/22	09:31:01	97523.69	25.0	14.80	3.18	6.61	0.30	0.10
9/9/22	09:32:01	97470.61	25.0	14.80	3.18	6.58	0.30	0.10
9/9/22	09:33:01	97340.99	25.0	14.80	3.18	6.69	0.30	0.10
9/9/22	09:34:01	97304.79	25.0	14.80	3.18	6.66	0.30	0.10
9/9/22	09:35:01	97250.10	25.0	14.80	3.18	6.56	0.30	0.10
9/9/22	09:36:01	97359.26	25.0	14.80	3.18	6.59	0.30	0.10
9/9/22	09:37:01	97308.17	25.0	14.80	3.18	6.56	0.30	0.10
9/9/22	09:38:01	97317.71	25.0	14.80	3.18	6.71	0.30	0.10
9/9/22	09:39:01	97379.39	25.0	14.80	3.19	6.58	0.30	0.10
9/9/22	09:40:01	97246.01	25.0	14.80	3.18	6.59	0.30	0.10
9/9/22	09:41:01	97428.54	25.0	14.80	3.18	6.67	0.30	0.10
9/9/22	09:42:01	97577.48	25.0	14.80	3.18	6.57	0.30	0.10
9/9/22	09:43:01	97498.26	25.0	14.80	3.19	6.61	0.30	0.10
9/9/22	09:44:01	97622.13	25.0	14.80	3.18	6.65	0.30	0.10
Average		9.7	25.0	14.8	3.2	6.6	0.3	0.1

Client: Middletown Power LLC
 Facility: Middletown Facility
 Project #: M223610
 1g Condition: Normal

Test Location: Unit 13
 Date: 9/9/2022
 Operator: J. Gross
 FTIR s/n: 484

Run 2

Date	Time	H2O% %v	Formaldehyde ppbv wet	O2 % dry	CO2 % dry	CO ppmvw	HCl ppmvw	HF ppmvw
9/9/22	10:10:30	96924.1	25.0	14.80	3.19	6.60	0.30	0.10
9/9/22	10:11:30	97446.2	25.0	14.80	3.19	6.49	0.30	0.10
9/9/22	10:12:30	97255.1	25.0	14.80	3.19	6.52	0.30	0.10
9/9/22	10:13:30	97292.7	25.0	14.80	3.19	6.57	0.30	0.10
9/9/22	10:14:30	97208.8	25.0	14.80	3.19	6.58	0.30	0.10
9/9/22	10:15:30	97244.4	25.0	14.80	3.18	6.53	0.30	0.10
9/9/22	10:16:30	97294.6	25.0	14.80	3.18	6.53	0.30	0.10
9/9/22	10:17:30	97367.2	25.0	14.80	3.19	6.60	0.30	0.10
9/9/22	10:18:30	97346.3	25.0	14.80	3.18	6.52	0.30	0.10
9/9/22	10:19:30	97432.4	25.0	14.80	3.19	6.48	0.30	0.10
9/9/22	10:20:30	97449.6	25.0	14.80	3.18	6.58	0.30	0.10
9/9/22	10:21:30	97455.8	25.0	14.80	3.18	6.48	0.30	0.10
9/9/22	10:22:30	97507.4	25.0	14.80	3.18	6.43	0.30	0.10
9/9/22	10:23:30	97460.2	25.0	14.80	3.19	6.50	0.30	0.10
9/9/22	10:24:30	97484.1	25.0	14.80	3.19	6.47	0.30	0.10
9/9/22	10:25:30	97420.0	25.0	14.80	3.19	6.60	0.30	0.10
9/9/22	10:26:30	97420.5	25.0	14.80	3.19	6.53	0.30	0.10
9/9/22	10:27:30	97409.1	25.0	14.80	3.19	6.58	0.30	0.10
9/9/22	10:28:30	97434.7	25.0	14.80	3.19	6.49	0.30	0.10
9/9/22	10:29:30	97498.4	25.0	14.80	3.19	6.54	0.30	0.10
9/9/22	10:30:30	97476.4	25.0	14.80	3.19	6.64	0.30	0.10
9/9/22	10:31:31	97446.5	25.0	14.80	3.19	6.59	0.30	0.10
9/9/22	10:32:30	97385.7	25.0	14.80	3.19	6.63	0.30	0.10
9/9/22	10:33:30	97433.6	25.0	14.80	3.19	6.51	0.30	0.10
9/9/22	10:34:30	97539.8	25.0	14.80	3.19	6.63	0.30	0.10
9/9/22	10:35:31	97618.2	25.0	14.80	3.19	6.56	0.30	0.10
9/9/22	10:36:30	97633.7	25.0	14.80	3.19	6.58	0.30	0.10
9/9/22	10:37:31	97664.7	29.1	14.80	3.20	6.47	0.30	0.10
9/9/22	10:38:31	97584.0	26.0	14.80	3.19	6.57	0.30	0.10
9/9/22	10:39:31	97607.7	25.0	14.80	3.19	6.58	0.30	0.10
9/9/22	10:40:31	97315.7	25.0	14.80	3.19	6.62	0.30	0.10
9/9/22	10:41:31	97348.3	25.0	14.80	3.19	6.53	0.30	0.10
9/9/22	10:42:31	97463.0	25.5	14.80	3.19	6.59	0.30	0.10
9/9/22	10:43:31	97590.0	28.8	14.80	3.20	6.65	0.30	0.10
9/9/22	10:44:31	97418.3	25.0	14.80	3.19	6.59	0.30	0.10
9/9/22	10:45:31	97497.4	25.0	14.80	3.19	6.59	0.30	0.10
9/9/22	10:46:31	97475.5	31.3	14.80	3.19	6.54	0.30	0.10
9/9/22	10:47:31	97426.5	29.9	14.80	3.19	6.54	0.30	0.10
9/9/22	10:48:31	97395.3	33.2	14.80	3.19	6.47	0.30	0.10
9/9/22	10:49:31	97485.4	32.7	14.80	3.19	6.55	0.30	0.10
9/9/22	10:50:31	97515.4	30.9	14.80	3.19	6.48	0.30	0.10
9/9/22	10:51:31	97474.5	33.2	14.80	3.19	6.64	0.30	0.10
9/9/22	10:52:31	97709.8	28.3	14.80	3.19	6.54	0.30	0.10
9/9/22	10:53:31	97557.9	43.9	14.80	3.19	6.49	0.30	0.10
9/9/22	10:54:31	97520.6	40.2	14.80	3.20	6.57	0.30	0.10
9/9/22	10:55:31	97503.6	39.3	14.80	3.20	6.58	0.30	0.10
9/9/22	10:56:31	97555.1	47.5	14.80	3.20	6.61	0.30	0.10
9/9/22	10:57:31	97494.6	37.1	14.80	3.19	6.58	0.30	0.10
9/9/22	10:58:31	97412.8	42.8	14.80	3.19	6.65	0.30	0.10
9/9/22	10:59:31	97483.9	37.0	14.80	3.20	6.49	0.30	0.10
9/9/22	11:00:31	97416.4	38.9	14.80	3.19	6.56	0.30	0.10
9/9/22	11:01:31	97362.1	38.5	14.80	3.20	6.61	0.30	0.10
9/9/22	11:02:31	97303.3	38.9	14.80	3.20	6.59	0.30	0.10
9/9/22	11:03:31	97445.8	34.7	14.80	3.19	6.63	0.30	0.10
9/9/22	11:04:31	97646.2	33.2	14.80	3.19	6.62	0.30	0.10
9/9/22	11:05:31	97357.5	34.2	14.80	3.20	6.55	0.30	0.10
9/9/22	11:06:31	97337.1	38.3	14.80	3.19	6.58	0.30	0.10
9/9/22	11:07:31	97364.0	33.2	14.80			0.30	0.10
9/9/22	11:08:31	97463.7	39.9	14.80			0.30	0.10
9/9/22	11:09:31	97574.3	46.9	14.80			0.30	0.10
Average		9.7	29.9	14.8	3.2	6.6	0.3	0.1

Client: Middletown Power LLC
 Facility: Middletown Facility
 Project #: M223610
 1g Condition: Normal

Test Location: Unit 13
 Date: 9/9/2022
 Operator: J. Gross
 FTIR s/n: 484

Run 3

Date	Time	H2O% %v	Formaldehyde ppbv wet	O2 % dry	CO2 % dry	CO ppmvw	HCl ppmvw	HF ppmvw
9/9/22	11:40:45	97032.73	25.0	14.80	3.19	6.66	0.30	0.10
9/9/22	11:41:45	97225.36	25.0	14.80	3.19	6.69	0.30	0.10
9/9/22	11:42:45	97186.10	25.8	14.80	3.18	6.66	0.30	0.10
9/9/22	11:43:45	97164.59	32.0	14.80	3.18	6.69	0.30	0.10
9/9/22	11:44:45	97186.80	29.1	14.80	3.19	6.66	0.30	0.10
9/9/22	11:45:45	97178.69	25.8	14.80	3.19	6.70	0.30	0.10
9/9/22	11:46:45	97166.27	28.8	14.80	3.19	6.72	0.30	0.10
9/9/22	11:47:45	97163.01	26.5	14.80	3.18	6.68	0.30	0.10
9/9/22	11:48:45	97027.70	25.0	14.80	3.18	6.74	0.30	0.10
9/9/22	11:49:45	97052.97	27.2	14.80	3.19	6.63	0.30	0.10
9/9/22	11:50:45	97043.31	28.7	14.80	3.19	6.71	0.30	0.10
9/9/22	11:51:45	97027.73	27.1	14.80	3.19	6.74	0.30	0.10
9/9/22	11:52:45	97014.62	28.9	14.80	3.19	6.66	0.30	0.10
9/9/22	11:53:45	97017.10	32.5	14.80	3.19	6.67	0.30	0.10
9/9/22	11:54:45	97196.37	33.8	14.80	3.19	6.64	0.30	0.10
9/9/22	11:55:45	97203.70	38.5	14.80	3.19	6.67	0.30	0.10
9/9/22	11:56:45	97207.77	32.9	14.80	3.19	6.74	0.30	0.10
9/9/22	11:57:45	97164.35	33.8	14.80	3.19	6.74	0.30	0.10
9/9/22	11:58:45	97166.47	30.5	14.80	3.19	6.62	0.30	0.10
9/9/22	11:59:45	97077.72	27.8	14.80	3.19	6.67	0.30	0.10
9/9/22	12:00:45	97263.38	31.6	14.80	3.20	6.68	0.30	0.10
9/9/22	12:01:45	97131.36	33.7	14.80	3.19	6.69	0.30	0.10
9/9/22	12:02:45	97177.41	30.1	14.80	3.19	6.68	0.30	0.10
9/9/22	12:03:45	97133.58	35.2	14.80	3.19	6.74	0.30	0.10
9/9/22	12:04:45	97086.68	41.4	14.80	3.19	6.60	0.30	0.10
9/9/22	12:05:45	97109.39	41.4	14.80	3.19	6.65	0.30	0.10
9/9/22	12:06:45	97166.23	40.1	14.80	3.19	6.65	0.30	0.10
9/9/22	12:07:45	97163.84	42.3	14.80	3.19	6.63	0.30	0.10
9/9/22	12:08:45	97125.81	48.8	14.80	3.19	6.67	0.30	0.10
9/9/22	12:09:45	97175.36	40.2	14.80	3.20	6.69	0.30	0.10
9/9/22	12:10:45	97153.60	44.8	14.80	3.19	6.69	0.30	0.10
9/9/22	12:11:45	97161.36	55.6	14.80	3.19	6.69	0.30	0.10
9/9/22	12:12:45	97295.88	51.7	14.80	3.20	6.74	0.30	0.10
9/9/22	12:13:45	97495.56	45.9	14.80	3.19	6.74	0.30	0.10
9/9/22	12:14:45	97386.85	52.9	14.80	3.19	6.69	0.30	0.10
9/9/22	12:15:45	97448.98	41.5	14.80	3.19	6.69	0.30	0.10
9/9/22	12:16:45	97199.84	52.0	14.90	3.19	6.76	0.30	0.10
9/9/22	12:17:46	97192.00	40.4	14.80	3.19	6.72	0.30	0.10
9/9/22	12:18:46	97074.30	45.4	14.80	3.20	6.69	0.30	0.10
9/9/22	12:19:46	96966.62	48.7	14.90	3.19	6.66	0.30	0.10
9/9/22	12:20:46	96990.24	50.0	14.90	3.19	6.66	0.30	0.10
9/9/22	12:21:45	97160.31	49.5	14.80	3.19	6.71	0.30	0.10
9/9/22	12:22:46	97163.60	51.8	14.80	3.19	6.68	0.30	0.10
9/9/22	12:23:45	97219.93	46.6	14.80	3.20	6.68	0.30	0.10
9/9/22	12:24:46	97057.77	51.8	14.80	3.20	6.66	0.30	0.10
9/9/22	12:25:46	97153.80	37.6	14.80	3.19	6.69	0.30	0.10
9/9/22	12:26:46	97125.33	34.2	14.80	3.19	6.64	0.30	0.10
9/9/22	12:27:46	97102.98	36.2	14.80	3.19	6.64	0.30	0.10
9/9/22	12:28:46	96896.93	25.0	14.80	3.19	6.59	0.30	0.10
9/9/22	12:29:46	96817.50	25.0	14.80	3.19	6.68	0.30	0.10
9/9/22	12:30:46	97040.25	25.1	14.80	3.19	6.66	0.30	0.10
9/9/22	12:31:46	97253.26	26.0	14.80	3.19	6.70	0.30	0.10
9/9/22	12:32:46	97077.65	32.3	14.80	3.19	6.63	0.30	0.10
9/9/22	12:33:46	97120.42	32.7	14.80	3.19	6.63	0.30	0.10
9/9/22	12:34:46	97191.63	32.7	14.90	3.19	6.62	0.30	0.10
9/9/22	12:35:46	97143.18	30.8	14.90	3.20	6.59	0.30	0.10
9/9/22	12:36:46	97297.80	30.8	14.90	3.19	6.61	0.30	0.10
9/9/22	12:37:46	97296.23	38.6	14.90	3.20	6.51	0.30	0.10
9/9/22	12:38:46	97301.41	29.1	14.90	3.20	6.57	0.30	0.10
9/9/22	12:39:46	97097.25	37.2	14.90	3.19	6.61	0.30	0.10
Average		9.7	36.2	14.8	3.2	6.7	0.3	0.1

Client: Middletown Power LLC
 Facility: Middletown Facility
 Project #: M223610
 Ig Condition: Normal

Test Location:
 Date:
 Operator:
 FTIR s/n:

Unit 13
 9/10/2022
 J. Gross
 484

Run 4

Date	Time	H2O% %v	Formaldehyde ppbv wet	O2 % dry	CO2 % dry	CO ppmvw	HCl ppmvw	HF ppmvw
9/10/22	15:05:16	95414.24	25.0	15.00	3.10	8.35	0.30	0.10
9/10/22	15:06:16	95477.78	25.0	15.00	3.10	8.35	0.30	0.10
9/10/22	15:07:17	95432.81	25.0	15.00	3.10	8.36	0.30	0.10
9/10/22	15:08:16	95368.03	25.0	15.00	3.12	8.41	0.30	0.10
9/10/22	15:09:16	95319.54	25.0	15.00	3.11	8.34	0.30	0.10
9/10/22	15:10:16	95362.44	25.0	15.00	3.11	8.43	0.30	0.10
9/10/22	15:11:16	95281.23	25.0	15.00	3.12	8.53	0.30	0.10
9/10/22	15:12:16	95449.50	25.0	15.00	3.12	8.57	0.30	0.10
9/10/22	15:13:17	95579.03	25.0	15.00	3.13	8.57	0.30	0.10
9/10/22	15:14:17	95610.49	25.0	15.00	3.12	8.62	0.30	0.10
9/10/22	15:15:16	95620.82	25.0	15.00	3.12	8.54	0.30	0.10
9/10/22	15:16:16	95406.81	25.0	15.00	3.13	8.59	0.30	0.10
9/10/22	15:17:17	95458.96	25.0	15.00	3.12	8.64	0.30	0.10
9/10/22	15:18:17	95408.86	25.0	15.00	3.12	8.55	0.30	0.10
9/10/22	15:19:17	95427.54	25.0	15.00	3.12	8.70	0.30	0.10
9/10/22	15:20:17	95457.28	25.0	15.00	3.12	8.64	0.30	0.10
9/10/22	15:21:17	95460.97	25.0	15.00	3.12	8.58	0.30	0.10
9/10/22	15:22:17	95390.10	25.0	15.00	3.12	8.42	0.30	0.10
9/10/22	15:23:17	95508.61	25.0	15.00	3.12	8.51	0.30	0.10
9/10/22	15:24:17	95783.13	32.0	15.00	3.12	8.50	0.30	0.10
9/10/22	15:25:17	95833.17	25.6	15.00	3.12	8.53	0.30	0.10
9/10/22	15:26:17	95891.79	30.6	15.00	3.12	8.49	0.30	0.10
9/10/22	15:27:17	95716.00	22.8	15.00	3.12	8.53	0.30	0.10
9/10/22	15:28:17	95648.52	26.5	15.00	3.12	8.46	0.30	0.10
9/10/22	15:29:17	95793.11	33.5	15.00	3.12	8.55	0.30	0.10
9/10/22	15:30:17	95793.69	26.0	15.00	3.12	8.44	0.30	0.10
9/10/22	15:31:17	95678.09	29.6	15.00	3.12	8.52	0.30	0.10
9/10/22	15:32:17	95638.49	29.4	15.00	3.12	8.49	0.30	0.10
9/10/22	15:33:17	95621.99	43.7	15.00	3.12	8.57	0.30	0.10
9/10/22	15:34:17	95626.55	35.5	15.00	3.13	8.42	0.30	0.10
9/10/22	15:35:17	95785.09	44.4	15.00	3.12	8.26	0.30	0.10
9/10/22	15:36:17	95777.56	47.6	15.00	3.12	8.29	0.30	0.10
9/10/22	15:37:17	95852.42	49.8	15.00	3.12	8.38	0.30	0.10
9/10/22	15:38:17	95796.89	41.4	15.00	3.12	8.55	0.30	0.10
9/10/22	15:39:17	95792.64	42.1	15.00	3.12	8.54	0.30	0.10
9/10/22	15:40:17	95634.27	41.8	15.00	3.12	8.31	0.30	0.10
9/10/22	15:41:17	95795.76	54.9	15.00	3.12	8.49	0.30	0.10
9/10/22	15:42:17	95669.96	41.4	15.00	3.11	8.33	0.30	0.10
9/10/22	15:43:17	95778.28	48.9	15.00	3.13	8.24	0.30	0.10
9/10/22	15:44:17	96132.50	63.4	15.00	3.13	8.23	0.30	0.10
9/10/22	15:45:17	96226.99	57.9	15.00	3.12	8.26	0.30	0.10
9/10/22	15:46:17	96105.93	61.4	15.00	3.12	8.48	0.30	0.10
9/10/22	15:47:17	95968.68	46.5	15.00	3.12	8.38	0.30	0.10
9/10/22	15:48:17	96203.74	57.7	15.00	3.12	8.58	0.30	0.10
9/10/22	15:49:17	96046.98	51.7	15.00	3.12	8.58	0.30	0.10
9/10/22	15:50:17	95996.66	44.8	15.00	3.11	8.57	0.30	0.10
9/10/22	15:51:17	95901.93	51.6	15.00	3.11	8.52	0.30	0.10
9/10/22	15:52:17	95941.39	54.7	15.00	3.12	8.22	0.30	0.10
9/10/22	15:53:17	96239.85	72.0	15.00	3.11	8.25	0.30	0.10
9/10/22	15:54:17	96079.86	74.1	15.00	3.11	8.26	0.30	0.10
9/10/22	15:55:17	96108.57	69.4	15.00	3.11	8.25	0.30	0.10
9/10/22	15:56:17	96098.06	74.1	15.00	3.11	8.20	0.30	0.10
9/10/22	15:57:17	96072.90	65.7	15.00	3.11	8.36	0.30	0.10
9/10/22	15:58:17	95845.70	73.0	15.00	3.10	8.37	0.30	0.10
9/10/22	15:59:17	95631.24	59.1	15.00	3.11	8.46	0.30	0.10
9/10/22	16:00:17	95727.63	69.9	15.00	3.11	8.38	0.30	0.10
9/10/22	16:01:17	95883.49	66.2	15.00	3.11	8.52	0.30	0.10
9/10/22	16:02:17	96007.40	75.3	15.00	3.12	8.36	0.30	0.10
9/10/22	16:03:17	95941.51	63.7	15.00	3.12	8.20	0.30	0.10
9/10/22	16:04:17	96356.76	90.3	15.00	3.12	8.33	0.30	0.10
Average		9.6	42.7	15.0	3.1	8.4	0.3	0.1

Client: Middletown Power LLC
Facility: Middletown Facility
Project #: M223610
ig Condition: Normal

Test Location:
Date:
Operator:
FTIR s/n:

Unit 13
 9/10/2022
 J. Gross
 484

Run 5

Date	Time	H2O% %v	Formaldehyde ppbv wet	O2 % dry	CO2 % dry	CO ppmvw	HCl ppmvw	HF ppmvw
9/10/22	16:28:49	95878.78	40.0	15.00	3.13	8.31	0.30	0.10
9/10/22	16:29:49	95866.47	36.4	15.00	3.13	8.41	0.30	0.10
9/10/22	16:30:49	95670.47	30.4	15.00	3.12	8.52	0.30	0.10
9/10/22	16:31:49	95579.99	29.9	15.00	3.12	8.56	0.30	0.10
9/10/22	16:32:49	95453.97	28.5	15.00	3.12	8.54	0.30	0.10
9/10/22	16:33:49	95713.27	28.4	15.00	3.12	8.63	0.30	0.10
9/10/22	16:34:49	95748.60	27.1	15.00	3.13	8.64	0.30	0.10
9/10/22	16:35:49	95665.70	31.1	15.00	3.12	8.53	0.30	0.10
9/10/22	16:36:49	95623.48	25.0	15.00	3.12	8.69	0.30	0.10
9/10/22	16:37:49	95833.03	37.9	15.00	3.13	8.49	0.30	0.10
9/10/22	16:38:49	95906.28	41.5	15.00	3.12	8.37	0.30	0.10
9/10/22	16:39:49	95672.48	42.2	15.00	3.12	8.35	0.30	0.10
9/10/22	16:40:49	95857.92	45.1	15.00	3.13	8.37	0.30	0.10
9/10/22	16:41:49	95613.08	38.3	15.00	3.12	8.58	0.30	0.10
9/10/22	16:42:49	95513.15	31.8	15.00	3.12	8.55	0.30	0.10
9/10/22	16:43:49	95645.77	39.7	15.00	3.12	8.43	0.30	0.10
9/10/22	16:44:49	95549.09	38.5	15.00	3.13	8.34	0.30	0.10
9/10/22	16:45:49	95801.51	41.5	15.00	3.13	8.47	0.30	0.10
9/10/22	16:46:49	95668.11	31.2	15.00	3.12	8.58	0.30	0.10
9/10/22	16:47:49	95518.75	32.1	15.00	3.13	8.63	0.30	0.10
9/10/22	16:48:49	95441.98	34.4	15.00	3.12	8.53	0.30	0.10
9/10/22	16:49:50	95585.10	43.3	15.00	3.13	8.60	0.30	0.10
9/10/22	16:50:49	95458.93	39.3	15.00	3.13	8.62	0.30	0.10
9/10/22	16:51:49	95454.18	41.1	15.00	3.13	8.62	0.30	0.10
9/10/22	16:52:49	95563.71	43.7	15.00	3.13	8.59	0.30	0.10
9/10/22	16:53:49	95618.36	49.4	15.00	3.13	8.51	0.30	0.10
9/10/22	16:54:49	95872.92	55.7	15.00	3.13	8.57	0.30	0.10
9/10/22	16:55:49	95524.50	46.1	15.00	3.13	8.47	0.30	0.10
9/10/22	16:56:49	95720.99	56.7	15.00	3.12	8.65	0.30	0.10
9/10/22	16:57:49	95657.71	48.4	15.00	3.12	8.57	0.30	0.10
9/10/22	16:58:49	95667.85	51.4	15.00	3.13	8.56	0.30	0.10
9/10/22	16:59:50	95643.77	53.3	15.00	3.12	8.58	0.30	0.10
9/10/22	17:00:49	95638.87	48.2	15.00	3.14	8.49	0.30	0.10
9/10/22	17:01:49	95779.05	58.0	15.00	3.13	8.36	0.30	0.10
9/10/22	17:02:49	95774.47	67.7	15.00	3.13	8.28	0.30	0.10
9/10/22	17:03:50	95565.14	57.0	15.10	3.12	8.48	0.30	0.10
9/10/22	17:04:50	95466.50	58.5	15.10	3.11	8.41	0.30	0.10
9/10/22	17:05:50	95593.10	62.7	15.10	3.12	8.27	0.30	0.10
9/10/22	17:06:50	95734.17	68.6	15.00	3.13	8.18	0.30	0.10
9/10/22	17:07:50	95872.12	69.0	15.10	3.13	8.27	0.30	0.10
9/10/22	17:08:50	95893.53	68.6	15.10	3.13	8.19	0.30	0.10
9/10/22	17:09:50	95815.31	64.0	15.10	3.13	8.44	0.30	0.10
9/10/22	17:10:50	95730.45	57.3	15.10	3.13	8.43	0.30	0.10
9/10/22	17:11:50	95551.89	53.7	15.10	3.12	8.42	0.30	0.10
9/10/22	17:12:50	95470.34	48.4	15.10	3.12	8.47	0.30	0.10
9/10/22	17:13:50	95483.32	52.7	15.10	3.13	8.57	0.30	0.10
9/10/22	17:14:50	95431.47	45.4	15.10	3.12	8.53	0.30	0.10
9/10/22	17:15:50	95524.06	45.4	15.10	3.11	8.53	0.30	0.10
9/10/22	17:16:50	95573.05	50.2	15.10	3.12	8.54	0.30	0.10
9/10/22	17:17:50	95499.78	52.5	15.10	3.12	8.44	0.30	0.10
9/10/22	17:18:50	95501.16	48.8	15.10	3.12	8.45	0.30	0.10
9/10/22	17:19:50	95471.27	51.9	15.10	3.11	8.51	0.30	0.10
9/10/22	17:20:50	95394.92	43.0	15.10	3.11	8.42	0.30	0.10
9/10/22	17:21:50	95564.45	54.3	15.10	3.12	8.29	0.30	0.10
9/10/22	17:22:50	95799.63	62.1	15.10	3.11	8.12	0.30	0.10
9/10/22	17:23:50	95743.27	63.2	15.10	3.11	8.16	0.30	0.10
9/10/22	17:24:50	95725.61	61.2	15.10	3.11	8.33	0.30	0.10
9/10/22	17:25:50	95421.69	50.2	15.10	3.11	8.52	0.30	0.10
9/10/22	17:26:50	95363.04	41.9	15.10	3.12	8.41	0.30	0.10
9/10/22	17:27:50	95591.84	41.6	15.10	3.11	8.49	0.30	0.10
Average		9.6	46.8	15.0	3.1	8.5	0.3	0.1

Client: Middletown Power LLC
 Facility: Middletown Facility
 Project #: M223610
 Ig Condition: Normal

Test Location:
 Date:
 Operator:
 FTIR s/n:

Unit 13
 9/11/2022
 J. Gross
 484

Run 6

Date	Time	H2O% %v	Formaldehyde ppbv wet	O2 % dry	CO2 % dry	CO ppmvw	HCl ppmvw	HF ppmvw
9/11/22	06:50:42	91891.77	25.0	15.00	3.09	7.82	0.30	0.10
9/11/22	06:51:42	91931.45	25.0	15.00	3.10	7.75	0.30	0.10
9/11/22	06:52:42	93906.96	25.0	15.00	3.08	7.65	0.30	0.10
9/11/22	06:53:42	95205.98	25.0	15.00	3.07	7.60	0.30	0.10
9/11/22	06:54:42	92762.95	25.0	15.00	3.09	7.67	0.30	0.10
9/11/22	06:55:42	91980.55	25.0	15.00	3.09	7.79	0.30	0.10
9/11/22	06:56:42	95776.37	25.0	15.00	3.07	7.70	0.30	0.10
9/11/22	06:57:42	92393.12	25.0	15.00	3.09	7.82	0.30	0.10
9/11/22	06:58:42	91783.24	25.0	15.00	3.10	7.77	0.30	0.10
9/11/22	06:59:42	91870.96	25.0	15.00	3.09	7.78	0.30	0.10
9/11/22	07:00:42	96508.95	25.0	15.00	3.07	7.65	0.30	0.10
9/11/22	07:01:42	92506.82	25.0	15.00	3.09	7.73	0.30	0.10
9/11/22	07:02:42	92033.85	25.0	15.00	3.09	7.72	0.30	0.10
9/11/22	07:03:42	92027.51	25.0	15.00	3.09	7.74	0.30	0.10
9/11/22	07:04:42	91956.62	25.0	15.00	3.09	7.77	0.30	0.10
9/11/22	07:05:42	93676.51	25.0	15.00	3.08	7.62	0.30	0.10
9/11/22	07:06:42	95157.21	25.0	15.00	3.08	7.56	0.30	0.10
9/11/22	07:07:42	92369.09	25.0	15.00	3.09	7.53	0.30	0.10
9/11/22	07:08:42	94877.56	25.0	15.00	3.08	7.63	0.30	0.10
9/11/22	07:09:42	92621.93	25.0	15.00	3.09	7.74	0.30	0.10
9/11/22	07:10:42	92006.57	25.0	15.00	3.08	7.69	0.30	0.10
9/11/22	07:11:42	91978.62	25.0	15.00	3.08	7.82	0.30	0.10
9/11/22	07:12:42	96888.32	25.0	15.00	3.07	7.70	0.30	0.10
9/11/22	07:13:42	92961.14	25.0	15.00	3.09	7.75	0.30	0.10
9/11/22	07:14:42	92058.16	25.0	15.00	3.08	7.83	0.30	0.10
9/11/22	07:15:42	91989.40	25.0	15.00	3.09	7.85	0.30	0.10
9/11/22	07:16:42	93909.11	25.0	15.00	3.07	7.75	0.30	0.10
9/11/22	07:17:42	96754.08	25.0	15.00	3.08	7.73	0.30	0.10
9/11/22	07:18:42	92300.14	25.0	15.00	3.09	7.62	0.30	0.10
9/11/22	07:19:42	91968.24	25.0	15.00	3.09	7.74	0.30	0.10
9/11/22	07:20:42	92024.81	25.0	15.00	3.09	7.83	0.30	0.10
9/11/22	07:21:42	91901.24	25.0	15.00	3.09	7.78	0.30	0.10
9/11/22	07:22:42	91951.99	25.0	15.00	3.07	7.79	0.30	0.10
9/11/22	07:23:42	97289.51	25.0	15.00	3.08	7.63	0.30	0.10
9/11/22	07:24:42	92197.90	25.0	15.00	3.09	7.75	0.30	0.10
9/11/22	07:25:42	92209.31	26.0	15.00	3.09	7.72	0.30	0.10
9/11/22	07:26:43	92950.27	28.2	15.00	3.08	7.79	0.30	0.10
9/11/22	07:27:42	93639.88	25.0	15.00	3.09	7.75	0.30	0.10
9/11/22	07:28:42	92136.70	22.4	15.10	3.08	7.75	0.30	0.10
9/11/22	07:29:43	92511.38	21.7	15.00	3.07	7.73	0.30	0.10
9/11/22	07:30:42	96924.76	25.0	15.10	3.09	7.83	0.30	0.10
9/11/22	07:31:43	92526.60	28.3	15.10	3.09	7.85	0.30	0.10
9/11/22	07:32:43	92000.05	25.0	15.10	3.09	7.73	0.30	0.10
9/11/22	07:33:43	92086.31	25.0	15.10	3.09	7.76	0.30	0.10
9/11/22	07:34:43	93416.21	25.0	15.10	3.07	7.81	0.30	0.10
9/11/22	07:35:42	95569.98	25.0	15.10	3.09	7.77	0.30	0.10
9/11/22	07:36:43	92027.15	25.0	15.10	3.09	7.66	0.30	0.10
9/11/22	07:37:43	92051.26	30.2	15.10	3.09	7.78	0.30	0.10
9/11/22	07:38:43	92192.27	26.5	15.00	3.09	7.74	0.30	0.10
9/11/22	07:39:43	92233.96	33.2	15.00	3.07	7.64	0.30	0.10
9/11/22	07:40:43	97159.27	25.0	15.00	3.09	7.65	0.30	0.10
9/11/22	07:41:43	92672.80	25.0	15.00	3.09	7.70	0.30	0.10
9/11/22	07:42:43	92324.48	25.0	15.00	3.09	7.61	0.30	0.10
9/11/22	07:43:43	92367.77	25.0	15.00	3.09	7.67	0.30	0.10
9/11/22	07:44:43	92236.11	26.6	15.10	3.07	7.59	0.30	0.10
9/11/22	07:45:43	98450.11	25.0	15.10	3.09	7.72	0.30	0.10
9/11/22	07:46:43	92998.59	25.0	15.10	3.09	7.80	0.30	0.10
9/11/22	07:47:43	92265.48	25.0	15.10	3.09	7.75	0.30	0.10
9/11/22	07:48:43	92032.58	25.7	15.10	3.08	7.79	0.30	0.10
9/11/22	07:49:43	92001.58	26.3	15.10	3.09	7.78	0.30	0.10
Average		9.3	25.3	15.0	3.1	7.7	0.3	0.1

Client: Middletown Power LLC
Facility: Middletown Facility
Project #: M223610
ig Condition: Normal

Test Location:
Date:
Operator:
FTIR s/n:

Unit 13
9/11/2022
J. Gross
484

Run 7

Date	Time	H2O% %v	Formaldehyde ppbv wet	O2 % dry	CO2 % dry	CO ppmvw	HCl ppmvw	HF ppmvw
9/11/22	08:15:26	92152.57	25.0	15.10	3.09	7.90	0.30	0.10
9/11/22	08:16:26	92008.99	25.0	15.10	3.10	7.82	0.30	0.10
9/11/22	08:17:26	92158.18	25.0	15.00	3.10	7.75	0.30	0.10
9/11/22	08:18:26	92389.56	25.0	15.00	3.09	7.85	0.30	0.10
9/11/22	08:19:26	92311.98	25.0	15.00	3.07	7.82	0.30	0.10
9/11/22	08:20:26	96621.71	31.3	15.00	3.09	7.82	0.30	0.10
9/11/22	08:21:26	92817.41	28.0	15.00	3.09	7.86	0.30	0.10
9/11/22	08:22:26	92461.76	25.0	15.00	3.09	7.81	0.30	0.10
9/11/22	08:23:26	92556.49	25.0	15.00	3.08	7.85	0.30	0.10
9/11/22	08:24:26	95332.07	25.0	15.00	3.09	7.79	0.30	0.10
9/11/22	08:25:26	92868.57	25.0	15.10	3.09	7.88	0.30	0.10
9/11/22	08:26:26	92379.11	25.0	15.00	3.09	7.78	0.30	0.10
9/11/22	08:27:26	92673.39	25.0	15.00	3.09	7.76	0.30	0.10
9/11/22	08:28:26	92506.15	25.0	15.10	3.07	7.75	0.30	0.10
9/11/22	08:29:26	96089.11	25.0	15.00	3.10	7.75	0.30	0.10
9/11/22	08:30:26	94716.98	39.7	15.00	3.10	7.84	0.30	0.10
9/11/22	08:31:26	92599.05	25.0	15.00	3.10	7.84	0.30	0.10
9/11/22	08:32:26	92620.76	25.0	15.10	3.09	7.69	0.30	0.10
9/11/22	08:33:26	94637.22	25.0	15.00	3.09	7.78	0.30	0.10
9/11/22	08:34:26	92680.55	25.0	15.00	3.09	7.81	0.30	0.10
9/11/22	08:35:26	92541.29	25.0	15.10	3.10	7.71	0.30	0.10
9/11/22	08:36:26	94534.33	25.0	15.00	3.09	7.67	0.30	0.10
9/11/22	08:37:26	92900.19	25.0	15.00	3.09	7.84	0.30	0.10
9/11/22	08:38:26	92509.56	25.0	15.00	3.09	7.76	0.30	0.10
9/11/22	08:39:26	94625.31	25.0	15.00	3.09	7.88	0.30	0.10
9/11/22	08:40:26	93027.62	25.0	15.00	3.10	7.73	0.30	0.10
9/11/22	08:41:26	94879.01	25.0	15.00	3.09	7.68	0.30	0.10
9/11/22	08:42:26	92724.08	25.0	15.00	3.09	7.81	0.30	0.10
9/11/22	08:43:26	94565.03	25.0	15.00	3.08	7.76	0.30	0.10
9/11/22	08:44:26	93125.14	25.0	15.00	3.09	7.74	0.30	0.10
9/11/22	08:45:26	94815.32	25.0	15.00	3.09	7.74	0.30	0.10
9/11/22	08:46:26	92617.37	25.0	15.00	3.09	7.68	0.30	0.10
9/11/22	08:47:26	94511.70	25.0	15.00	3.08	7.62	0.30	0.10
9/11/22	08:48:26	93469.78	25.0	15.00	3.09	7.75	0.30	0.10
9/11/22	08:49:26	94452.95	26.9	15.00	3.08	7.69	0.30	0.10
9/11/22	08:50:26	92640.26	25.0	15.00	3.09	7.58	0.30	0.10
9/11/22	08:51:26	94604.36	25.0	15.00	3.09	7.54	0.30	0.10
9/11/22	08:52:26	92766.60	25.0	15.00	3.09	7.57	0.30	0.10
9/11/22	08:53:26	94323.84	25.0	15.00	3.09	7.62	0.30	0.10
9/11/22	08:54:26	93164.50	25.0	15.00	3.09	7.64	0.30	0.10
9/11/22	08:55:26	94555.98	25.0	15.00	3.10	7.67	0.30	0.10
9/11/22	08:56:26	93686.24	25.0	15.00	3.09	7.76	0.30	0.10
9/11/22	08:57:26	92651.07	25.0	15.00	3.09	7.79	0.30	0.10
9/11/22	08:58:26	94712.05	25.0	15.00	3.10	7.72	0.30	0.10
9/11/22	08:59:26	93723.74	27.1	15.00	3.10	7.74	0.30	0.10
9/11/22	09:00:26	94657.76	39.9	15.00	3.10	7.78	0.30	0.10
9/11/22	09:01:26	92674.88	25.0	15.00	3.09	7.86	0.30	0.10
9/11/22	09:02:26	93758.78	25.0	15.00	3.09	7.73	0.30	0.10
9/11/22	09:03:26	94531.68	37.1	15.00	3.10	7.79	0.30	0.10
9/11/22	09:04:26	94643.78	42.7	15.00	3.10	7.70	0.30	0.10
9/11/22	09:05:26	92685.72	26.3	15.00	3.10	7.78	0.30	0.10
9/11/22	09:06:26	93683.50	25.0	15.00	3.08	7.70	0.30	0.10
9/11/22	09:07:26	92699.88	25.0	15.00	3.10	7.73	0.30	0.10
9/11/22	09:08:26	95985.76	28.3	15.00	3.10	7.75	0.30	0.10
9/11/22	09:09:26	93284.03	25.9	15.00	3.10	7.79	0.30	0.10
9/11/22	09:10:26	93528.23	25.0	15.00	3.09	7.81	0.30	0.10
9/11/22	09:11:26	94518.03	25.0	15.00	3.10	7.81	0.30	0.10
9/11/22	09:12:26	93080.86	25.0	15.00	3.10	7.78	0.30	0.10
9/11/22	09:13:26	93925.25	25.0	15.00	3.10	7.75	0.30	0.10
9/11/22	09:14:26	93279.71	26.1	15.00	3.09	7.76	0.30	0.10
Average		9.4	26.3	15.0	3.1	7.8	0.3	0.1

Compliance Stratification Test Results Summary
Middletown Power LLC
Middletown Facility
Unit 13
September 9, 2022

Number of Ports Sampled: 4
Number of Points per Port: 3
Total Number of Traverse Points: 12

Port No.	Point No.	Point Marking, Inches	Time	O ₂ %	Actual % Difference O ₂ %	Mean Difference O ₂ %
1	1	23.336	7:12	14.80	0.22	0.03
	2	34.52	7:14	14.80	0.22	0.03
	3	52.52	7:16	14.80	0.22	0.03
2	1	23.336	7:19	14.80	0.22	0.03
	2	34.52	7:21	14.80	0.22	0.03
	3	52.52	7:23	14.80	0.22	0.03
3	1	23.336	7:27	14.90	0.45	0.07
	2	34.52	7:29	14.90	0.45	0.07
	3	52.52	7:31	14.90	0.45	0.07
4	1	23.336	7:36	14.90	0.45	0.07
	2	34.52	7:38	14.80	0.22	0.03
	3	52.52	7:40	14.80	0.22	0.03
Average				14.83		

Client:	Middletown, LLC
Facility:	Middletown
Test Location:	Unit 13
Project #:	M223610
Test Method:	5/29
Test Engineer:	SMcG
Test Technician:	JVC/WJD
lb/mmBtu Emissions by:	Standard, O2 Based
Type of Fuel Firing:	Natural Gas

	<u>Run 1</u>	<u>Run 2</u>	<u>Run 3</u>	<u>Run 4</u>
Standard Fuel Factor Fd, dscf/mmBtu:	8,710.0	8,710.0	8,710.0	8,710.0
Temp ID:	CM13	CM7	CM7	CM7
Meter ID:	CM13	CM7	CM7	CM7
Pitot ID:	120	120	120	120
Nozzle Diameter (Inches):	0.271	0.271	0.271	0.271
Meter Calibration Date:	8/5/2022	9/6/2022	9/6/2022	9/6/2022
Meter Calibration Factor (Y):	0.988	0.997	0.997	0.997
Meter Orifice Setting (Delta H):	1.483	1.601	1.601	1.601
Nozzle Kit ID Number and Material:	Quartz	Quartz	Quartz	Quartz
Pitot Tube Coefficient:	0.840			
Probe Length (Feet):	6.0			
Probe Liner Material:	Quartz			
Sample Plane:	Horizontal			
Port Length (Inches):	10.00			
Port Size (Diameter, Inches):	6.00			
Port Type:	Flange			
Duct Shape:	Circular			
Diameter (Feet):	12			
Duct Area (Square Feet):	113.097			
Upstream Diameters:	12.2			
Downstream Diameters:	1.9			
Number of Ports Sampled:	4			
Number of Points per Port:	10			
Minutes per Point:	4.5			
Minutes per Reading:	4.5			
Total Number of Traverse Points:	40			
Test Length (Minutes):	180			
Train Type:	Anderson Box			
Source Condition:	Normal			
Diluent Model/Serial Number:	Ecom/707			
Moisture Balance ID:	1000g			
# of Runs	4			

Run 1 - Method 5/29

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 13
 Source Condition: Normal

Date: 9/9/22
 Start Time: 9:00
 End Time: 12:38

DRY GAS METER CONDITIONS				STACK CONDITIONS			
ΔH:	2.20	in. H ₂ O		Static Pressure	-1.70	in. H ₂ O	
Meter Temperature, Tm:	60.4	°F		Flue Pressure (Ps):	29.88	in. Hg. abs.	
Sqrt ΔP:	1.146	in. H ₂ O		Carbon Dioxide:	3.50	%	
Stack Temperature, Ts:	787.3	°F		Oxygen:	14.70	%	
Meter Volume, Vm:	164.185	ft ³		Nitrogen:	81.80	%	
Meter Volume, Vmstd:	165.910	dscf		Gas Weight dry, Md:	29.148	lb/lb mole	
Meter Volume, Vwstd:	18.897	wscf		Gas Weight wet, Ms:	28.008	lb/lb mole	
Isokinetic Variance:	100.7	%I		Excess Air:	---	%	
Test Length:	180.00	in mins.		Gas Velocity, Vs:	100.441	fps	
Nozzle Diameter:	0.271	in inches		Volumetric Flow:	681,578	acfm	
Barometric Pressure:	30.00	in Hg		Volumetric Flow:	258,640	dscfm	
				Volumetric Flow:	288,099	scfm	

MOISTURE DETERMINATION

Initial Impinger Content:	3368.4	ml	Silica Initial Wt.	846.2	grams
Final Impinger Content:	3732.7	ml	Silica Final Wt.	883.1	grams
Impinger Difference:	364.3	ml	Silica Difference:	36.9	grams
Total Water Gain:	401.2		Moisture, Bws:	0.102	

Port- Point No.	Clock Time	Velocity Head Δp in. H ₂ O	Orifice ΔH in. H ₂ O	Actual Meter Vol. ft ³	Stack Temp °F	Meter Temp Inlet °F	Meter Temp Outlet °F	Probe Temp °F	Filter Exit Temp °F	Impinger Exit Temp °F
1-1	9:00:00	1.70	2.80	21.669	785	55	54	250	254	68
1-2	9:04:30	1.50	2.46	26.306	785	51	50	258	256	58
1-3	9:09:00	1.40	2.30	30.614	783	53	50	262	256	57
1-4	9:13:30	1.50	2.47	34.768	784	54	52	263	252	57
1-5	9:18:00	1.50	2.47	39.091	784	53	51	261	254	58
1-6	9:22:30	1.50	2.47	43.430	785	54	51	259	251	58
1-7	9:27:00	1.40	2.31	47.762	786	56	53	250	249	58
1-8	9:31:30	1.10	1.82	51.934	786	58	55	253	254	58
1-9	9:36:00	0.88	1.47	55.681	783	59	56	243	249	59
1-10	9:40:30	0.87	1.45	59.027	780	58	55	245	253	59
	9:45:00			62.354						
2-1	9:57:00	1.40	2.34	62.354	786	61	59	245	245	51
2-2	10:01:30	1.40	2.34	66.607	787	62	59	253	255	50
2-3	10:06:00	1.50	2.50	70.846	788	62	59	254	262	51
2-4	10:10:30	1.30	2.16	75.229	788	61	58	255	258	52
2-5	10:15:00	1.20	2.00	79.314	788	61	58	256	242	52
2-6	10:19:30	1.30	2.16	83.231	789	62	58	252	253	53
2-7	10:24:00	1.10	1.83	87.308	789	62	59	250	252	54
2-8	10:28:30	1.00	1.67	91.055	787	62	59	246	248	54
2-9	10:33:00	1.10	1.84	94.647	784	62	59	244	251	54
2-10	10:37:30	1.10	1.85	98.412	783	63	60	242	253	55
	10:42:00			102.175						
3-1	10:56:00	1.50	2.50	102.175	789	62	60	248	251	59
3-2	11:00:30	1.70	2.84	106.578	789	62	60	252	251	56
3-3	11:05:00	1.70	2.84	111.246	790	63	60	252	253	55
3-4	11:09:30	1.50	2.50	115.934	790	63	60	259	253	56
3-5	11:14:00	1.40	2.34	120.327	790	63	61	266	251	56
3-6	11:18:30	1.50	2.51	124.570	790	64	61	268	247	57
3-7	11:23:00	1.50	2.51	128.972	790	64	61	268	246	57
3-8	11:27:30	1.30	2.18	133.365	789	64	61	270	250	58
3-9	11:32:00	1.40	2.35	137.463	787	65	61	267	257	58
3-10	11:36:30	1.40	2.36	141.720	784	65	62	265	255	59
	11:41:00			145.994						
4-1	11:53:00	1.30	2.17	145.994	789	63	61	250	248	60
4-2	11:57:30	1.50	2.51	150.102	789	65	62	248	256	56
4-3	12:02:00	1.30	2.18	154.517	790	66	62	249	256	54
4-4	12:06:30	1.20	2.01	158.624	791	67	63	256	256	56
4-5	12:11:00	1.40	2.35	162.579	791	67	63	261	249	56
4-6	12:15:30	1.20	2.02	166.847	790	68	64	266	249	57
4-7	12:20:00	1.10	1.85	170.816	790	69	64	264	250	58
4-8	12:24:30	1.10	1.85	174.608	789	69	64	253	246	60
4-9	12:29:00	1.10	1.86	178.402	788	70	65	250	251	61
4-10	12:33:30	1.00	1.69	182.217	785	70	65	248	250	61
	12:38:00			185.854						

Total	3:00:00		164.185		62.0	58.9				
Average			2.20		787.3	60.4				
Min			1.45		780.0	50.0				
Max			2.84		791.0	70.0				

Impinger Weight Sheet - Run 1

Client:	Middletown, LLC	Scale Calibration Check Date:	9/9/2022
Facility:	Middletown	<u>Scale Calibration Check (see QS-6.05C for procedure)</u>	
Test Location:	Unit 13	must be within $\pm 0.5g$ of certified mass	
Project #:	M223610	<u>Certified Weight, grams</u>	<u>Result, grams</u>
Date:	9/9/2022	250	250.0
Test Method:	5/29		
Weighed/Measured By:	CT	500	500.0
Balance ID:	1000g	750	750.1

IMPINGER		FINAL		INITIAL		GAIN	
CONTENTS		MLS / GRAMS		MLS / GRAMS		MLS / GRAMS	
HNO3/H2O2		944.8		718.0		226.8	
HNO3/H2O2		877.1		766.9		110.2	
Empty		565.8		546.4		19.4	
KMnO4/H2SO4		637.0		632.1		4.9	
KMnO4/H2SO4		708.0		705.0		3.0	
Silica Gel		883.1		846.2		36.9	

3,732.7	3,368.4	364.3
<u>Liquid Final</u>	<u>Liquid Initial</u>	<u>Liquid Gain</u>
883.1	846.2	36.9
<u>Silica Final</u>	<u>Silica Initial</u>	<u>Silica Gain</u>

Run 2 - Method 5/29

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 13
 Source Condition: Normal

Date: 9/10/22
 Start Time: 11:02
 End Time: 14:14

DRY GAS METER CONDITIONS					STACK CONDITIONS		
ΔH:	2.49	in. H ₂ O			Static Pressure	-1.70	in. H ₂ O
Meter Temperature, Tm:	90.3	°F			Flue Pressure (Ps):	30.04	in. Hg. abs.
Sqrt ΔP:	1.123	in. H ₂ O			Carbon Dioxide:	3.50	%
Stack Temperature, Ts:	773.8	°F			Oxygen:	14.80	%
Meter Volume, Vm:	170.854	ft ³			Nitrogen:	81.7	%
Meter Volume, Vmstd:	165.736	dscf			Gas Weight dry, Md:	29.152	lb/lb mole
Meter Volume, Vwstd:	16.895	wscf			Gas Weight wet, Ms:	28.120	lb/lb mole
Isokinetic Variance:	100.9	%I			Excess Air:	---	%
Test Length:	180.00	in mins.			Gas Velocity, Vs:	97.486	fps
Nozzle Diameter:	0.271	in inches			Volumetric Flow:	661,525	acfm
Barometric Pressure:	30.16	in Hg			Volumetric Flow:	257,890	dscfm
					Volumetric Flow:	284,178	scfm

MOISTURE DETERMINATION

Initial Impinger Content:	3387.2	ml	Silica Initial Wt.	838.3	grams
Final Impinger Content:	3730.5	ml	Silica Final Wt.	853.7	grams
Impinger Difference:	343.3	ml	Silica Difference:	15.4	grams
Total Water Gain:	358.7		Moisture, Bws:	0.093	

Port- Point No.	Clock Time	Velocity Head Δp in. H ₂ O	Orifice ΔH in. H ₂ O	Actual Meter Vol. ft ³	Stack Temp °F	Meter Temp Inlet °F	Meter Temp Outlet °F	Probe Temp °F	Filter Exit Temp °F	Impinger Exit Temp °F
1-1	11:02:00	1.50	2.91	24.092	767	80	80	259	251	68
1-2	11:06:30	1.30	2.52	28.685	769	81	81	270	250	60
1-3	11:11:00	1.40	2.71	32.961	770	82	81	260	251	64
1-4	11:15:30	1.30	2.52	37.384	771	83	81	262	251	62
1-5	11:20:00	1.30	2.52	41.663	771	83	81	265	250	60
1-6	11:24:30	1.30	2.52	45.937	772	85	81	266	251	60
1-7	11:29:00	1.30	2.53	50.226	772	86	82	260	252	61
1-8	11:33:30	1.10	2.14	54.507	773	86	82	257	251	61
1-9	11:38:00	1.10	2.14	58.447	774	88	83	256	251	62
1-10	11:42:30	1.10	2.14	62.402	773	89	83	255	247	63
	11:47:00			66.357						
2-1	11:51:00	1.60	3.13	66.357	770	88	84	259	248	66
2-2	11:55:30	1.40	2.73	71.150	774	89	84	258	252	62
2-3	12:00:00	1.40	2.74	75.621	774	92	85	260	250	61
2-4	12:04:30	1.30	2.55	80.101	774	93	86	262	251	61
2-5	12:09:00	1.30	2.55	84.427	774	93	86	263	252	62
2-6	12:13:30	1.40	2.74	88.756	774	93	86	261	252	62
2-7	12:18:00	1.20	2.35	93.248	775	93	86	258	250	63
2-8	12:22:30	1.10	2.16	97.404	775	93	87	255	250	63
2-9	12:27:00	1.00	1.97	101.382	775	95	88	254	251	64
2-10	12:31:30	0.95	1.87	105.193	774	95	88	254	249	64
	12:36:00			108.914						
3-1	12:40:00	1.40	2.76	108.914	775	96	90	252	250	68
3-2	12:44:30	1.40	2.76	113.456	775	97	91	255	253	62
3-3	12:49:00	1.40	2.77	117.978	776	98	91	256	252	59
3-4	12:53:30	1.30	2.57	122.505	775	98	91	260	252	60
3-5	12:58:00	1.50	2.97	126.872	775	98	91	259	251	60
3-6	13:02:30	1.40	2.76	131.555	775	97	91	257	250	61
3-7	13:07:00	1.30	2.57	136.082	775	98	91	255	250	61
3-8	13:11:30	1.20	2.37	140.448	775	97	91	257	250	62
3-9	13:16:00	1.10	2.17	144.638	775	98	91	256	252	62
3-10	13:20:30	1.00	1.98	148.652	775	98	91	254	250	62
	13:25:00			152.484						
4-1	13:29:00	1.40	2.76	152.484	774	95	91	252	250	68
4-2	13:33:30	1.30	2.57	157.027	775	97	91	254	250	63
4-3	13:38:00	1.40	2.77	161.392	775	98	92	255	252	63
4-4	13:42:30	1.20	2.37	165.917	775	98	92	255	252	64
4-5	13:47:00	1.30	2.57	170.112	775	98	92	259	251	64
4-6	13:51:30	1.30	2.57	174.481	775	98	92	264	250	64
4-7	13:56:00	1.20	2.37	178.852	776	98	92	263	250	65
4-8	14:00:30	1.10	2.18	183.061	775	99	92	259	251	65
4-9	14:05:00	1.10	2.18	187.072	776	100	93	254	252	66
4-10	14:09:30	1.00	1.98	191.104	775	100	93	254	252	66
	14:14:00			194.946						

Total	3:00:00		170.854		93.1	87.6				
Average		2.49		773.8	90.3					
Min		1.87		767.0	80.0					
Max		3.13		776.0	100.0					

Impinger Weight Sheet - Run 2

Client: Middletown, LLC Facility: Middletown Test Location: Unit 13 Project #: M223610 Date: 9/10/2022 Test Method: 5/29 Weighed/Measured By: CT Balance ID: 1000g	Scale Calibration Check Date: <u>9/9/2022</u> Scale Calibration Check (see QS-6.05C for procedure) must be within $\pm 0.5g$ of certified mass <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; border-bottom: 1px solid black;"><u>Certified Weight, grams</u></th> <th style="text-align: left; border-bottom: 1px solid black;"><u>Result, grams</u></th> </tr> <tr> <td style="text-align: center;">250</td> <td style="text-align: center; border-bottom: 1px solid black;">250.0</td> </tr> <tr> <td style="text-align: center;">500</td> <td style="text-align: center; border-bottom: 1px solid black;">500.0</td> </tr> <tr> <td style="text-align: center;">750</td> <td style="text-align: center; border-bottom: 1px solid black;">750.1</td> </tr> </table>	<u>Certified Weight, grams</u>	<u>Result, grams</u>	250	250.0	500	500.0	750	750.1
<u>Certified Weight, grams</u>	<u>Result, grams</u>								
250	250.0								
500	500.0								
750	750.1								

IMPINGER	FINAL	INITIAL	GAIN
CONTENTS	MLS / GRAMS	MLS / GRAMS	MLS / GRAMS
HNO3/H2O2	930.4	740.9	189.5
HNO3/H2O2	865.3	763.8	101.5
Empty	588.2	551.3	36.9
KMnO4/H2SO4	603.8	592.8	11.0
KMnO4/H2SO4	742.8	738.4	4.4
Silica Gel	853.7	838.3	15.4

<u>3,730.5</u> Liquid Final	<u>3,387.2</u> Liquid Initial	<u>343.3</u> Liquid Gain
<u>853.7</u> Silica Final	<u>838.3</u> Silica Initial	<u>15.4</u> Silica Gain

Run 3 - Method 5/29

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 13
 Source Condition: Normal

Date: 9/10/22
 Start Time: 14:32
 End Time: 17:44

DRY GAS METER CONDITIONS					STACK CONDITIONS		
ΔH:	2.51	In. H ₂ O			Static Pressure	-1.70	in. H ₂ O
Meter Temperature, Tm:	95.9	°F			Flue Pressure (Ps):	30.88	in. Hg. abs.
Sqrt ΔP:	1.124	In. H ₂ O			Carbon Dioxide:	3.10	%
Stack Temperature, Ts:	777.6	°F			Oxygen:	14.60	%
Meter Volume, Vm:	172.508	ft ³			Nitrogen:	82.3	%
Meter Volume, Vmstd:	170.273	dscf			Gas Weight dry, Md:	29.080	lb/lb mole
Meter Volume, Vwstd:	19.876	wscf			Gas Weight wet, Ms:	27.922	lb/lb mole
Isokinetic Variance:	103.3	%I			Excess Air:	---	%
Test Length:	180.00	in mins.			Gas Velocity, Vs:	96.745	fps
Nozzle Diameter:	0.271	in inches			Volumetric Flow:	656,493	acfm
Barometric Pressure:	31.00	in Hg			Volumetric Flow:	258,809	dscfm
					Volumetric Flow:	289,020	scfm

MOISTURE DETERMINATION

Initial Impinger Content:	3577.2	ml	Silica Initial Wt.	857.1	grams
Final Impinger Content:	3959.9	ml	Silica Final Wt.	896.4	grams
Impinger Difference:	382.7	ml	Silica Difference:	39.3	grams
Total Water Gain:	422.0		Moisture, Bws:	0.105	

Port- Point No.	Clock Time	Velocity Head Δp in. H ₂ O	Orifice ΔH in. H ₂ O	Actual Meter Vol. ft ³	Stack Temp °F	Meter Temp Inlet °F	Meter Temp Outlet °F	Probe Temp °F	Filter Exit Temp °F	Impinger Exit Temp °F
1-1	14:32:00	1.40	2.79	95.227	773	99	98	255	252	68
1-2	14:36:30	1.50	2.98	99.812	776	100	98	255	250	60
1-3	14:41:00	1.40	2.79	104.536	776	99	98	257	251	60
1-4	14:45:30	1.40	2.78	109.097	776	99	97	258	250	60
1-5	14:50:00	1.40	2.78	113.652	777	99	98	261	252	61
1-6	14:54:30	1.30	2.58	118.215	777	99	98	262	254	61
1-7	14:59:00	1.30	2.58	122.608	777	98	98	265	250	61
1-8	15:03:30	1.20	2.39	126.992	777	99	98	260	250	62
1-9	15:08:00	1.10	2.19	131.216	777	99	98	258	251	62
1-10	15:12:30	1.10	2.19	135.258	777	99	98	255	253	63
	15:17:00			139.291						
2-1	15:21:00	1.40	2.78	139.291	777	99	98	250	250	68
2-2	15:25:30	1.30	2.58	143.871	777	99	98	253	252	62
2-3	15:30:00	1.40	2.78	148.267	778	100	98	254	252	63
2-4	15:34:30	1.20	2.38	152.836	778	99	98	254	251	63
2-5	15:39:00	1.30	2.58	157.045	778	99	98	253	253	63
2-6	15:43:30	1.30	2.58	161.438	778	99	98	258	252	64
2-7	15:48:00	1.20	2.38	165.840	778	99	98	263	252	64
2-8	15:52:30	1.10	2.18	170.046	779	98	98	261	254	65
2-9	15:57:00	1.10	2.18	174.072	778	97	98	256	250	65
2-10	16:01:30	1.00	1.98	178.119	778	96	97	253	251	66
	16:06:00			181.946						
3-1	16:10:00	1.50	2.96	181.946	778	95	96	257	251	68
3-2	16:14:30	1.30	2.57	186.652	778	95	96	258	252	61
3-3	16:19:00	1.40	2.77	191.022	779	96	96	260	251	60
3-4	16:23:30	1.30	2.57	195.568	779	96	96	259	250	60
3-5	16:28:00	1.30	2.57	199.935	779	96	96	262	251	61
3-6	16:32:30	1.30	2.57	204.309	779	96	95	265	249	61
3-7	16:37:00	1.30	2.57	208.657	779	96	95	259	250	61
3-8	16:41:30	1.10	2.17	213.036	779	96	95	256	250	62
3-9	16:46:00	1.10	2.17	217.040	778	95	95	252	252	62
3-10	16:50:30	1.10	2.17	221.067	778	95	94	254	251	62
	16:55:00			225.078						
4-1	16:59:00	1.60	3.14	225.078	777	92	92	250	250	68
4-2	17:03:30	1.40	2.75	229.920	778	92	92	254	251	62
4-3	17:08:00	1.40	2.75	234.416	778	92	92	253	251	63
4-4	17:12:30	1.30	2.55	238.923	778	92	92	258	250	63
4-5	17:17:00	1.30	2.55	243.262	778	92	91	257	252	64
4-6	17:21:30	1.40	2.75	247.590	778	92	91	258	250	64
4-7	17:26:00	1.20	2.35	252.094	778	91	91	257	253	65
4-8	17:30:30	1.10	2.16	256.266	777	91	91	254	250	65
4-9	17:35:00	1.00	1.96	260.245	777	91	90	252	250	65
4-10	17:39:30	0.95	1.86	264.041	777	90	89	252	250	66
	17:44:00			267.735						

Total	3:00:00		172.508		96.2	95.6				
Average		2.51		777.6	95.9					
Min		1.86		773.0	89.0					
Max		3.14		779.0	100.0					

Impinger Weight Sheet - Run 3

Client: Middletown, LLC Facility: Middletown Test Location: Unit 13 Project #: M223610 Date: 9/10/2022 Test Method: 5/29 Weighed/Measured By: CT Balance ID: 1000g	Scale Calibration Check Date: <u>9/9/2022</u> Scale Calibration Check (see QS-6.05C for procedure) must be within $\pm 0.5g$ of certified mass <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; border-bottom: 1px solid black;"><u>Certified Weight, grams</u></th> <th style="text-align: left; border-bottom: 1px solid black;"><u>Result, grams</u></th> </tr> <tr> <td style="text-align: center;">250</td> <td style="text-align: center; border-bottom: 1px solid black;">250.0</td> </tr> <tr> <td style="text-align: center;">500</td> <td style="text-align: center; border-bottom: 1px solid black;">500.0</td> </tr> <tr> <td style="text-align: center;">750</td> <td style="text-align: center; border-bottom: 1px solid black;">750.1</td> </tr> </table>	<u>Certified Weight, grams</u>	<u>Result, grams</u>	250	250.0	500	500.0	750	750.1
<u>Certified Weight, grams</u>	<u>Result, grams</u>								
250	250.0								
500	500.0								
750	750.1								

IMPINGER	FINAL	INITIAL	GAIN
CONTENTS	MLS / GRAMS	MLS / GRAMS	MLS / GRAMS
HNO3/H2O2	796.2	711.9	84.3
HNO3/H2O2	916.6	754.4	162.2
Empty	720.1	648.6	71.5
KMnO4/H2SO4	794.7	756.9	37.8
KMnO4/H2SO4	732.3	705.4	26.9
Silica Gel	896.4	857.1	39.3

<u>3,959.9</u> Liquid Final	<u>3,577.2</u> Liquid Initial	<u>382.7</u> Liquid Gain
<u>896.4</u> Silica Final	<u>857.1</u> Silica Initial	<u>39.3</u> Silica Gain

Run 4 -Method 5/29

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 13
 Source Condition: Normal

Date: 9/11/22
 Start Time: 6:22
 End Time: 9:35

DRY GAS METER CONDITIONS				STACK CONDITIONS		
ΔH:	2.45	In. H ₂ O		Static Pressure	-1.70	In. H ₂ O
Meter Temperature, Tm:	75.4	°F		Flue Pressure (Ps):	29.98	In. Hg. abs.
Sqrt ΔP:	1.132	In. H ₂ O		Carbon Dioxide:	3.30	%
Stack Temperature, Ts:	773.9	°F		Oxygen:	15.00	%
Meter Volume, Vm:	167.906	ft ³		Nitrogen:	81.7	%
Meter Volume, Vmstd:	167.065	dscf		Gas Weight dry, Md:	29.128	lb/lb mole
Meter Volume, Vwstd:	20.663	wscf		Gas Weight wet, Ms:	27.903	lb/lb mole
Isokinetic Variance:	102.6	%I		Excess Air:	---	%
Test Length:	180.00	in mins.		Gas Velocity, Vs:	98.713	fps
Nozzle Diameter:	0.271	in inches		Volumetric Flow:	669,848	acfm
Barometric Pressure:	30.10	in Hg		Volumetric Flow:	255,559	dscfm
				Volumetric Flow:	287,167	scfm

MOISTURE DETERMINATION

Initial Impinger Content:	3512.5	ml	Silica Initial Wt.	865.7	grams
Final Impinger Content:	3919.6	ml	Silica Final Wt.	897.3	grams
Impinger Difference:	407.1	ml	Silica Difference:	31.6	grams
Total Water Gain:	438.7		Moisture, Bws:	0.110	

Port- Point No.	Clock Time	Velocity Head Δp in. H ₂ O	Orifice ΔH in. H ₂ O	Actual Meter Vol. ft ³	Stack Temp °F	Meter Temp Inlet °F	Meter Temp Outlet °F	Probe Temp °F	Filter Exit Temp °F	Impinger Exit Temp °F
1-1	6:22:00	1.50	2.81	68.112	767	62	62	255	254	45
1-2	6:26:30	1.40	2.62	72.564	768	63	63	255	250	44
1-3	6:31:00	1.40	2.62	76.861	769	63	63	258	256	46
1-4	6:35:30	1.30	2.44	81.157	770	64	63	260	251	49
1-5	6:40:00	1.40	2.63	85.302	770	65	63	262	252	51
1-6	6:44:30	1.30	2.44	89.613	771	66	64	263	246	53
1-7	6:49:00	1.20	2.26	93.750	771	67	64	261	251	55
1-8	6:53:30	1.30	2.45	97.742	771	69	65	257	252	58
1-9	6:58:00	1.10	2.08	101.914	771	71	66	258	252	58
1-10	7:02:30	1.10	2.08	105.746	771	72	66	255	251	59
	7:07:00			109.597						
2-1	7:12:00	1.40	2.65	109.597	769	70	67	252	249	61
2-2	7:16:30	1.40	2.65	113.952	774	73	68	250	252	52
2-3	7:21:00	1.40	2.66	118.307	774	75	69	261	251	52
2-4	7:25:30	1.30	2.47	122.658	774	75	69	266	250	53
2-5	7:30:00	1.40	2.66	126.869	774	76	69	265	253	53
2-6	7:34:30	1.30	2.47	131.238	774	76	70	263	250	53
2-7	7:39:00	1.20	2.28	135.442	774	76	70	260	250	50
2-8	7:43:30	1.10	2.10	139.470	774	77	71	259	252	49
2-9	7:48:00	1.00	1.91	143.355	774	78	71	257	252	48
2-10	7:52:30	1.00	1.91	147.066	774	80	72	256	250	49
	7:57:00			150.762						
3-1	8:01:00	1.40	2.68	150.762	774	79	75	250	254	55
3-2	8:05:30	1.50	2.87	155.180	775	80	75	250	252	48
3-3	8:10:00	1.40	2.69	159.737	775	81	76	258	250	49
3-4	8:14:30	1.30	2.50	164.144	775	81	76	262	251	50
3-5	8:19:00	1.30	2.50	168.404	775	83	77	264	252	49
3-6	8:23:30	1.30	2.50	172.648	775	84	77	264	250	49
3-7	8:28:00	1.20	2.32	176.925	776	86	78	261	250	49
3-8	8:32:30	1.20	2.32	181.037	776	86	79	257	249	50
3-9	8:37:00	1.10	2.13	185.141	776	87	79	258	250	51
3-10	8:41:30	1.00	1.93	189.084	776	87	79	257	249	51
	8:46:00			192.840						
4-1	8:50:00	1.50	2.89	192.840	776	83	80	250	250	61
4-2	8:54:30	1.50	2.90	197.446	776	85	80	256	252	51
4-3	8:59:00	1.40	2.71	202.040	776	86	80	260	251	52
4-4	9:03:30	1.50	2.90	206.491	777	87	80	261	253	52
4-5	9:08:00	1.30	2.51	211.093	777	87	80	262	250	53
4-6	9:12:30	1.30	2.52	215.389	777	88	80	259	250	52
4-7	9:17:00	1.20	2.33	219.667	777	89	80	259	254	51
4-8	9:21:30	1.20	2.33	223.794	777	89	81	257	251	52
4-9	9:26:00	1.20	2.33	227.936	778	90	81	256	250	53
4-10	9:30:30	1.10	2.14	232.058	777	90	81	257	251	53
	9:35:00			236.018						

Total	3:00:00		167.906		78.2	72.7				
Average			2.45		773.9	75.4				
Min			1.91		767.0	62.0				
Max			2.90		778.0	90.0				

Impinger Weight Sheet - Run 4

Client:	Middletown, LLC	Scale Calibration Check Date:	9/9/2022
Facility:	Middletown	<u>Scale Calibration Check (see QS-6.05C for procedure)</u>	
Test Location:	Unit 13	must be within $\pm 0.5g$ of certified mass	
Project #:	M223610	<u>Certified Weight, grams</u>	<u>Result, grams</u>
Date:	9/11/2022	250	250.0
Test Method:	5/29		
Weighed/Measured By:	CT	500	500.0
Balance ID:	1000g	750	750.1

IMPINGER	FINAL	INITIAL	GAIN
CONTENTS	MLS / GRAMS	MLS / GRAMS	MLS / GRAMS
HNO3/H2O2	894.4	675.6	218.8
HNO3/H2O2	839.5	710.5	129.0
Empty	667.6	631.2	36.4
KMnO4/H2SO4	725.2	710.1	15.1
KMnO4/H2SO4	792.9	785.1	7.8
Silica Gel	897.3	865.7	31.6

3,919.6	3,512.5	407.1
<u>Liquid Final</u>	<u>Liquid Initial</u>	<u>Liquid Gain</u>
897.3	865.7	31.6
<u>Silica Final</u>	<u>Silica Initial</u>	<u>Silica Gain</u>

Run 5 - Method 5/29

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 13
 Source Condition: Normal

Date: 9/11/22
 Start Time: 9:45
 End Time: 12:57

DRY GAS METER CONDITIONS				STACK CONDITIONS			
ΔH:	2.50	in. H ₂ O		Static Pressure	-1.70	in. H ₂ O	
Meter Temperature, Tm:	84.1	°F		Flue Pressure (Ps):	29.98	in. Hg. abs.	
Sqrt ΔP:	1.135	in. H ₂ O		Carbon Dioxide:	3.10	%	
Stack Temperature, Ts:	778.9	°F		Oxygen:	15.00	%	
Meter Volume, Vm:	170.532	ft ³		Nitrogen:	81.90	%	
Meter Volume, Vmstd:	166.987	dscf		Gas Weight dry, Md:	29.096	lb/lb mole	
Meter Volume, Vwstd:	20.211	wscf		Gas Weight wet, Ms:	27.898	lb/lb mole	
Isokinetic Variance:	102.2	%I		Excess Air:	---	%	
Test Length:	180.00	in mins.		Gas Velocity, Vs:	99.208	fps	
Nozzle Diameter:	0.271	in inches		Volumetric Flow:	673,210	acfm	
Barometric Pressure:	30.10	in Hg		Volumetric Flow:	256,410	dscfm	
				Volumetric Flow:	287,444	scfm	

MOISTURE DETERMINATION

Initial Impinger Content:	3385.8	ml	Silica Initial Wt.	849.3	grams
Final Impinger Content:	3781.1	ml	Silica Final Wt.	883.1	grams
Impinger Difference:	395.3	ml	Silica Difference:	33.8	grams
Total Water Gain:	429.1		Moisture, Bws:	0.108	

Port- Point No.	Clock Time	Velocity Head Δp in. H ₂ O	Orifice ΔH in. H ₂ O	Actual Meter Vol. ft ³	Stack Temp °F	Meter Temp Inlet °F	Meter Temp Outlet °F	Probe Temp °F	Filter Exit Temp °F	Impinger Exit Temp °F
1-1	9:45:00	1.50	2.89	36.324	777	82	81	248	257	68
1-2	9:49:30	1.60	3.08	40.896	777	82	81	256	250	67
1-3	9:54:00	1.50	2.90	45.649	776	83	81	258	256	64
1-4	9:58:30	1.40	2.70	50.238	777	83	81	260	251	62
1-5	10:03:00	1.40	2.70	54.662	776	84	81	262	250	55
1-6	10:07:30	1.30	2.51	59.104	776	84	80	263	253	54
1-7	10:12:00	1.20	2.32	63.367	776	84	81	265	252	51
1-8	10:16:30	1.30	2.51	67.480	777	85	81	258	250	49
1-9	10:21:00	1.10	2.13	71.762	777	86	82	260	251	49
1-10	10:25:30	1.10	2.13	75.687	778	86	82	258	253	50
	10:30:00			79.631						
2-1	10:34:00	1.50	2.90	79.631	778	84	82	250	248	58
2-2	10:38:30	1.40	2.71	84.244	778	85	82	256	253	50
2-3	10:43:00	1.30	2.51	88.677	778	85	82	260	251	50
2-4	10:47:30	1.30	2.51	92.960	778	85	82	260	256	49
2-5	10:52:00	1.40	2.71	97.233	778	85	82	259	250	49
2-6	10:56:30	1.40	2.70	101.672	779	85	82	262	255	49
2-7	11:01:00	1.20	2.32	106.114	779	86	82	264	250	50
2-8	11:05:30	1.30	2.51	110.227	780	86	82	260	251	50
2-9	11:10:00	1.20	2.32	114.510	780	87	82	258	249	52
2-10	11:14:30	1.10	2.13	118.617	779	87	83	257	248	52
	11:19:00			122.550						
3-1	11:23:00	1.40	2.71	122.550	779	85	84	252	251	64
3-2	11:27:30	1.30	2.52	127.021	779	86	84	256	252	57
3-3	11:32:00	1.40	2.71	131.308	779	86	84	263	250	56
3-4	11:36:30	1.30	2.52	135.750	779	86	84	260	252	57
3-5	11:41:00	1.40	2.71	140.036	780	87	84	262	251	59
3-6	11:45:30	1.20	2.32	144.474	780	87	84	259	252	57
3-7	11:50:00	1.30	2.52	148.615	780	87	84	261	247	57
3-8	11:54:30	1.10	2.13	152.909	780	88	84	258	255	56
3-9	11:59:00	1.10	2.13	156.857	780	88	85	260	247	56
3-10	12:03:30	1.00	1.94	160.814	780	88	85	260	250	56
	12:08:00			164.579						
4-1	12:12:00	1.40	2.71	164.579	780	86	85	250	246	65
4-2	12:16:30	1.40	2.71	169.048	780	85	84	254	253	63
4-3	12:21:00	1.40	2.71	173.492	780	85	84	257	250	64
4-4	12:25:30	1.30	2.51	177.936	781	86	84	260	248	64
4-5	12:30:00	1.40	2.71	182.231	780	86	84	259	252	64
4-6	12:34:30	1.30	2.51	186.664	781	86	84	261	254	57
4-7	12:39:00	1.30	2.51	190.957	780	86	83	263	253	56
4-8	12:43:30	1.20	2.32	195.236	781	85	83	264	248	56
4-9	12:48:00	1.00	1.93	199.338	781	86	83	260	250	56
4-10	12:52:30	1.00	1.93	203.091	781	86	83	258	250	56
	12:57:00			206.856						

Total	3:00:00		170.532		85.5	82.8	
Average		2.50		778.9	84.1		
Min		1.93		776.0	80.0		
Max		3.08		781.0	88.0		

Impinger Weight Sheet - Run 5

Client: Middletown, LLC Facility: Middletown Test Location: Unit 13 Project #: M223610 Date: 9/11/2022 Test Method: 5/29 Weighed/Measured By: CT Balance ID: 1000g	Scale Calibration Check Date: <u>9/11/2022</u> Scale Calibration Check (see QS-6.05C for procedure) must be within $\pm 0.5g$ of certified mass <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; border-bottom: 1px solid black;"><u>Certified Weight, grams</u></th> <th style="text-align: left; border-bottom: 1px solid black;"><u>Result, grams</u></th> </tr> <tr> <td style="text-align: center;">250</td> <td style="text-align: center; border-bottom: 1px solid black;">250.0</td> </tr> <tr> <td style="text-align: center;">500</td> <td style="text-align: center; border-bottom: 1px solid black;">500.0</td> </tr> <tr> <td style="text-align: center;">750</td> <td style="text-align: center; border-bottom: 1px solid black;">750.1</td> </tr> </table>	<u>Certified Weight, grams</u>	<u>Result, grams</u>	250	250.0	500	500.0	750	750.1
<u>Certified Weight, grams</u>	<u>Result, grams</u>								
250	250.0								
500	500.0								
750	750.1								

IMPINGER	FINAL	INITIAL	GAIN
CONTENTS	MLS / GRAMS	MLS / GRAMS	MLS / GRAMS
HNO3/H2O2	976.9	726.3	250.6
HNO3/H2O2	879.1	769.0	110.1
Empty	573.8	552.2	21.6
KMnO4/H2SO4	651.8	643.3	8.5
KMnO4/H2SO4	699.5	695.0	4.5
Silica Gel	883.1	849.3	33.8

<u>3,781.1</u> Liquid Final	<u>3,385.8</u> Liquid Initial	<u>395.3</u> Liquid Gain
<u>883.1</u> Silica Final	<u>849.3</u> Silica Initial	<u>33.8</u> Silica Gain

Run 6 - Method 5/29

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 13
 Source Condition: Normal

Date: 9/11/22
 Start Time: 12:58
 End Time: 16:13

DRY GAS METER CONDITIONS				STACK CONDITIONS		
ΔH:	2.74	in. H ₂ O		Static Pressure	-1.70	in. H ₂ O
Meter Temperature, Tm:	89.8	°F		Flue Pressure (Ps):	29.98	in. Hg. abs.
Sqrt ΔP:	1.126	in. H ₂ O		Carbon Dioxide:	2.30	%
Stack Temperature, Ts:	784.1	°F		Oxygen:	15.70	%
Meter Volume, Vm:	165.530	ft ³		Nitrogen:	82.0	%
Meter Volume, Vmstd:	160.187	dscf		Gas Weight dry, Md:	28.996	lb/lb mole
Meter Volume, Vwstd:	19.057	wscf		Gas Weight wet, Ms:	27.827	lb/lb mole
Isokinetic Variance:	100.9	%I		Excess Air:	---	%
Test Length:	180.00	in mins.		Gas Velocity, Vs:	98.782	fps
Nozzle Diameter:	0.268	in inches		Volumetric Flow:	670,320	acfm
Barometric Pressure:	30.10	in Hg		Volumetric Flow:	254,712	dscfm
				Volumetric Flow:	285,014	scfm

MOISTURE DETERMINATION

Initial Impinger Content:	3590.2	ml	Silica Initial Wt.	863.1	grams
Final Impinger Content:	3959.7	ml	Silica Final Wt.	898.2	grams
Impinger Difference:	369.5	ml	Silica Difference:	35.1	grams
Total Water Gain:	404.6		Moisture, Bws:	0.106	

Port- Point No.	Clock Time	Velocity Head Δp in. H ₂ O	Orifice ΔH in. H ₂ O	Actual Meter Vol. ft ³	Stack Temp °F	Meter Temp Inlet °F	Meter Temp Outlet °F	Probe Temp °F	Filter Exit Temp °F	Impinger Exit Temp °F
1-1	12:58:00	1.70	3.60	6.539	784	88	88	252	252	60
1-2	13:02:30	1.50	3.20	11.310	784	88	87	251	253	58
1-3	13:07:00	1.50	3.20	15.800	784	87	87	256	252	60
1-4	13:11:30	1.30	2.80	20.270	785	87	87	255	252	62
1-5	13:16:00	1.30	2.80	24.440	785	87	87	252	253	62
1-6	13:20:30	1.30	2.80	28.600	783	88	87	252	251	63
1-7	13:25:00	1.30	2.80	32.780	783	88	87	253	250	63
1-8	13:29:30	1.20	2.60	36.960	784	89	88	256	251	63
1-9	13:34:00	1.10	2.30	40.970	784	89	88	257	252	62
1-10	13:38:30	1.00	2.10	44.800	784	89	88	253	252	62
	13:43:00			48.482						
2-1	13:48:00	1.50	3.20	48.482	784	89	88	257	252	64
2-2	13:52:30	1.30	2.80	52.970	784	90	89	252	250	63
2-3	13:57:00	1.30	2.80	57.160	784	91	89	253	252	64
2-4	14:01:30	1.30	2.80	61.350	784	91	89	254	253	65
2-5	14:06:00	1.40	3.00	65.540	784	91	89	252	251	64
2-6	14:10:30	1.30	2.80	69.890	784	92	89	251	251	63
2-7	14:15:00	1.20	2.60	74.080	784	92	89	252	254	63
2-8	14:19:30	1.20	2.60	78.110	784	92	89	253	255	63
2-9	14:24:00	1.20	2.60	82.140	784	92	89	252	253	64
2-10	14:28:30	1.10	2.40	86.170	784	92	89	250	252	64
	14:33:00			90.035						
3-1	14:38:00	1.70	3.60	90.035	784	91	90	250	252	64
3-2	14:42:30	1.70	3.60	94.830	784	92	90	249	253	60
3-3	14:47:00	1.50	3.20	99.630	784	92	90	254	251	61
3-4	14:51:30	1.20	2.60	104.140	784	92	90	253	254	62
3-5	14:56:00	1.20	2.60	108.180	784	92	90	255	252	62
3-6	15:00:30	1.20	2.60	112.210	784	92	90	256	252	61
3-7	15:05:00	1.20	2.60	116.240	784	92	90	255	254	61
3-8	15:09:30	1.10	2.40	120.280	785	92	90	252	252	62
3-9	15:14:00	1.10	2.40	124.140	784	93	91	252	254	62
3-10	15:18:30	1.00	2.10	128.010	784	93	91	254	252	63
	15:23:00			131.695						
4-1	15:28:00	1.40	3.00	131.695	784	91	89	244	251	66
4-2	15:32:30	1.40	3.00	136.040	784	90	89	246	251	64
4-3	15:37:00	1.30	2.80	140.390	784	90	89	250	252	63
4-4	15:41:30	1.30	2.80	144.580	785	90	89	252	253	63
4-5	15:46:00	1.30	2.80	148.750	785	91	90	252	251	64
4-6	15:50:30	1.20	2.60	152.950	784	91	90	255	250	64
4-7	15:55:00	1.10	2.40	156.980	784	91	90	256	252	64
4-8	15:59:30	1.10	2.40	160.840	784	92	90	254	252	66
4-9	16:04:00	1.00	2.10	164.700	784	92	90	252	253	66
4-10	16:08:30	1.00	2.10	168.390	784	92	90	252	255	66
	16:13:00			172.069						

Total	3:00:00		165.530		90.6	89.0				
Average		2.74		784.1	89.8					
Min		2.10		783.0	87.0					
Max		3.60		785.0	93.0					

Impinger Weight Sheet - Run 6

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 13
 Project #: M223610
 Date: 9/11/2022
 Test Method: 5/29
 Weighed/Measured By: CT
 Balance ID: 1000g

Scale Calibration Check Date: 9/11/2022

Scale Calibration Check (see QS-6.05C for procedure)

must be within $\pm 0.5g$ of certified mass

<u>Certified Weight, grams</u>	<u>Result, grams</u>
250	250.0
500	500.0
750	750.1

IMPINGER	FINAL	INITIAL	GAIN
CONTENTS	MLS / GRAMS	MLS / GRAMS	MLS / GRAMS
HNO3/H2O2	933.9	721.7	212.2
HNO3/H2O2	866.1	744.5	121.6
Empty	665.9	646.6	19.3
KMnO4/H2SO4	737.8	728.6	9.2
KMnO4/H2SO4	756.0	748.8	7.2
Silica Gel	898.2	863.1	35.1

3,959.7	3,590.2	369.5
Liquid Final	Liquid Initial	Liquid Gain
898.2	863.1	35.1
Silica Final	Silica Initial	Silica Gain

Run 7 - Method 5/29

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 13
 Source Condition: Normal

Date: 9/11/22
 Start Time: 16:14
 End Time: 19:26

DRY GAS METER CONDITIONS				STACK CONDITIONS		
ΔH:	2.51	In. H ₂ O		Static Pressure	-1.70	In. H ₂ O
Meter Temperature, Tm:	80.2	°F		Flue Pressure (Ps):	29.98	In. Hg. abs.
Sqrt ΔP:	1.140	In. H ₂ O		Carbon Dioxide:	2.90	%
Stack Temperature, Ts:	778.6	°F		Oxygen:	14.60	%
Meter Volume, Vm:	169.832	ft ³		Nitrogen:	82.5	%
Meter Volume, Vmstd:	167.505	dscf		Gas Weight dry, Md:	29.048	lb/lb mole
Meter Volume, Vwstd:	21.087	wscf		Gas Weight wet, Ms:	27.813	lb/lb mole
Isokinetic Variance:	102.4	%I		Excess Air:	---	%
Test Length:	180.00	in mins.		Gas Velocity, Vs:	99.769	fps
Nozzle Diameter:	0.271	in inches		Volumetric Flow:	677,016	acfm
Barometric Pressure:	30.10	in Hg		Volumetric Flow:	256,815	dscfm
				Volumetric Flow:	289,145	scfm

MOISTURE DETERMINATION

Initial Impinger Content:	3520.7	ml	Silica Initial Wt.	866.0	grams
Final Impinger Content:	3942.5	ml	Silica Final Wt.	891.9	grams
Impinger Difference:	421.8	ml	Silica Difference:	25.9	grams
Total Water Gain:	447.7		Moisture, Bws:	0.112	

Port- Point No.	Clock Time	Velocity Head Δp in. H ₂ O	Orifice ΔH in. H ₂ O	Actual Meter Vol. ft ³	Stack Temp °F	Meter Temp Inlet Outlet °F °F		Probe Temp °F	Filter Exit Temp °F	Impinger Exit Temp °F
1-1	16:14:00	1.60	3.04	7.512	779	75	75	252	249	68
1-2	16:18:30	1.70	3.23	12.174	778	75	75	255	251	68
1-3	16:23:00	1.50	2.85	17.006	778	75	75	258	252	66
1-4	16:27:30	1.50	2.86	21.532	778	76	75	263	250	65
1-5	16:32:00	1.40	2.67	26.060	778	78	75	263	247	64
1-6	16:36:30	1.40	2.68	30.441	778	80	76	260	248	63
1-7	16:41:00	1.20	2.30	34.836	778	80	76	259	253	62
1-8	16:45:30	1.30	2.49	38.913	778	82	76	261	250	55
1-9	16:50:00	1.10	2.11	43.147	778	83	77	260	248	54
1-10	16:54:30	1.10	2.11	47.068	778	83	77	259	250	53
	16:59:00			50.967						
2-1	17:03:00	1.50	2.88	50.967	778	82	77	252	251	59
2-2	17:07:30	1.50	2.88	55.514	779	82	78	257	250	53
2-3	17:12:00	1.40	2.69	60.116	779	83	78	259	250	53
2-4	17:16:30	1.30	2.50	64.524	778	84	78	264	249	53
2-5	17:21:00	1.40	2.70	68.782	778	86	78	263	251	53
2-6	17:25:30	1.30	2.51	73.205	778	87	79	260	248	53
2-7	17:30:00	1.30	2.51	77.478	778	88	80	259	253	53
2-8	17:34:30	1.20	2.32	81.760	778	89	80	261	251	53
2-9	17:39:00	1.10	2.13	85.883	778	88	80	259	250	53
2-10	17:43:30	1.00	1.93	89.822	778	88	80	257	251	51
	17:48:00			93.578						
3-1	17:52:00	1.40	2.70	93.578	778	83	80	250	248	57
3-2	17:56:30	1.50	2.89	98.024	779	84	81	256	251	49
3-3	18:01:00	1.30	2.51	102.607	779	85	81	257	248	49
3-4	18:05:30	1.40	2.70	106.873	779	85	80	260	249	50
3-5	18:10:00	1.40	2.70	111.316	778	85	80	259	252	51
3-6	18:14:30	1.30	2.51	115.737	778	86	79	262	253	50
3-7	18:19:00	1.30	2.51	120.006	778	86	80	258	246	49
3-8	18:23:30	1.20	2.31	124.281	778	86	79	263	251	49
3-9	18:28:00	1.10	2.12	128.378	778	85	79	261	250	49
3-10	18:32:30	1.00	1.93	132.301	777	84	79	259	247	49
	18:37:00			136.045						
4-1	18:41:00	1.40	2.68	136.045	780	81	77	250	248	52
4-2	18:45:30	1.50	2.87	140.458	780	81	77	255	244	47
4-3	18:50:00	1.30	2.49	145.019	780	81	77	258	260	46
4-4	18:54:30	1.30	2.49	149.255	780	81	77	263	247	47
4-5	18:59:00	1.40	2.68	153.492	780	82	77	265	252	47
4-6	19:03:30	1.30	2.49	157.890	780	82	77	264	253	47
4-7	19:08:00	1.20	2.30	162.136	780	81	77	263	248	48
4-8	19:12:30	1.10	2.11	166.215	779	81	77	263	250	48
4-9	19:17:00	1.00	1.92	170.112	779	81	77	260	255	49
4-10	19:21:30	1.00	1.92	173.837	779	81	77	259	247	49
	19:26:00			177.344						

Total	3:00:00		169.832		82.6	77.8
Average		2.51		778.6	80.2	
Min		1.92		777.0	75.0	
Max		3.23		780.0	89.0	

Impinger Weight Sheet - Run 7

Client:	Middletown, LLC	Scale Calibration Check Date:	9/11/2022
Facility:	Middletown	<u>Scale Calibration Check (see QS-6.05C for procedure)</u>	
Test Location:	Unit 13	must be within $\pm 0.5g$ of certified mass	
Project #:	M223610	<u>Certified Weight, grams</u>	<u>Result, grams</u>
Date:	9/11/2022	250	250.0
Test Method:	5/29		
Weighed/Measured By:	CT	500	500.0
Balance ID:	1000g	750	750.1

IMPINGER		FINAL		INITIAL		GAIN	
CONTENTS		MLS / GRAMS		MLS / GRAMS		MLS / GRAMS	
HNO3/H2O2		900.5		684.8		215.7	
HNO3/H2O2		834.1		701.7		132.4	
Empty		675.2		633.5		41.7	
KMnO4/H2SO4		742.1		726.6		15.5	
KMnO4/H2SO4		790.6		774.1		16.5	
Silica Gel		891.9		866.0		25.9	

3,942.5	3,520.7	421.8
<u>Liquid Final</u>	<u>Liquid Initial</u>	<u>Liquid Gain</u>
891.9	866.0	25.9
<u>Silica Final</u>	<u>Silica Initial</u>	<u>Silica Gain</u>

Client: Middletown, LLC
Facility: Middletown
Test Location: Unit 13
Project #: M223610

Run 1			Run 2			Run 3			Run 4		
Date:	9/9/2022		Date:	9/10/2022		Date:	9/10/2022		Date:	9/11/2022	
Time	O2 % (dry)	CO2 % (dry)	Time	O2 % (dry)	CO2 % (dry)	Time	O2 % (dry)	CO2 % (dry)	Time	O2 % (dry)	CO2 % (dry)
9:05	15.00	3.50	11:23	15.10	3.60	14:34	15.30	3.40	6:30	15.00	3.40
9:06	14.90	3.60	11:24	15.10	3.60	14:35	15.20	3.30	6:31	15.00	3.40
9:07	14.90	3.60	11:25	15.10	3.60	14:36	15.10	3.20	6:32	15.00	3.40
9:08	14.90	3.70	11:26	15.10	3.60	14:37	15.10	3.10	6:33	15.00	3.40
9:09	14.90	3.70	11:27	15.10	3.60	14:38	15.10	3.10	6:34	15.00	3.40
9:10	14.90	3.60	11:28	15.10	3.60	14:39	15.10	3.10	6:35	15.10	3.30
9:11	14.90	3.70	11:29	15.10	3.60	14:40	15.10	3.10	6:36	15.10	3.30
9:12	14.90	3.70	11:30	15.10	3.60	14:41	15.20	3.10	6:37	15.10	3.30
9:13	14.90	3.60	11:31	15.10	3.60	14:42	15.20	3.10	6:38	15.10	3.30
9:14	14.90	3.70	11:32	15.10	3.60	14:43	15.20	3.20	6:39	15.10	3.30
9:15	14.90	3.70	11:33	15.10	3.60	14:44	15.20	3.20	6:40	15.10	3.30
9:16	14.90	3.60	11:34	15.10	3.60	14:45	15.20	3.20	6:41	15.10	3.30
9:17	14.90	3.60	11:35	15.10	3.60	14:46	15.30	3.20	6:42	15.10	3.30
9:18	14.90	3.70	11:36	15.10	3.60	14:47	15.30	3.30	6:43	15.10	3.30
9:19	14.90	3.70	11:37	15.10	3.60	14:48	15.30	3.30	6:44	15.10	3.30
9:20	14.90	3.60	11:38	15.10	3.60	14:49	15.30	3.30	6:45	15.10	3.30
9:21	14.90	3.70	11:39	15.10	3.60	14:50	15.30	3.30	6:46	15.10	3.30
9:22	14.90	3.60	11:40	15.10	3.60	14:51	15.30	3.30	6:47	15.10	3.30
9:23	14.80	3.70	11:41	15.10	3.60	14:52	15.30	3.30	6:48	15.10	3.30
9:24	14.80	3.70	11:42	15.10	3.60	14:53	15.30	3.30	6:49	15.10	3.30
9:25	14.80	3.70	11:43	15.10	3.60	14:54	15.30	3.30	6:50	15.10	3.30
9:26	14.80	3.70	11:44	15.20	3.60	14:55	15.30	3.30	6:51	15.10	3.30
9:27	14.80	3.70	11:45	15.20	3.60	14:56	15.30	3.20	6:52	15.10	3.30
9:28	14.80	3.60	11:46	15.20	3.60	14:57	15.30	3.30	6:53	15.10	3.30
9:29	14.80	3.70	11:52	15.20	3.50	14:58	15.30	3.20	6:54	15.10	3.30
9:30	14.80	3.70	11:53	15.20	3.60	14:59	15.30	3.20	6:55	15.10	3.30
9:31	14.80	3.70	11:54	15.20	3.50	15:00	15.30	3.20	6:56	15.10	3.30
9:32	14.80	3.70	11:55	15.20	3.60	15:01	15.20	3.20	6:57	15.10	3.30
9:33	14.80	3.60	11:56	15.20	3.60	15:02	15.20	3.20	6:58	15.10	3.30
9:34	14.80	3.70	11:57	15.20	3.60	15:03	15.20	3.20	6:59	15.10	3.30
9:35	14.80	3.60	11:58	15.20	3.60	15:04	15.20	3.20	7:00	15.10	3.30
9:36	14.80	3.70	11:59	15.20	3.60	15:05	15.20	3.20	7:01	15.10	3.30
9:37	14.80	3.60	12:00	15.20	3.60	15:06	15.20	3.20	7:02	15.10	3.30
9:38	14.80	3.60	12:01	15.20	3.60	15:07	15.20	3.20	7:03	15.10	3.30
9:39	14.80	3.60	12:02	15.20	3.60	15:08	15.20	3.20	7:04	15.10	3.30
9:40	14.80	3.60	12:03	15.20	3.60	15:09	15.20	3.10	7:05	15.10	3.30
9:41	14.80	3.70	12:04	15.20	3.60	15:10	15.20	3.10	7:06	15.10	3.30
9:42	14.90	3.70	12:05	15.20	3.60	15:11	15.20	3.10	7:07	15.10	3.30
9:43	14.90	3.60	12:06	15.20	3.50	15:12	15.20	3.20	7:12	15.10	2.90
9:44	14.90	3.60	12:07	15.20	3.60	15:13	15.20	3.10	7:13	15.10	3.20
9:45	14.90	3.70	12:08	15.20	3.60	15:14	15.20	3.10	7:14	15.10	3.30
9:57	15.10	3.30	12:09	15.20	3.50	15:15	15.20	3.10	7:15	15.10	3.30
9:58	15.40	3.40	12:10	15.20	3.60	15:16	15.20	3.10	7:16	15.10	3.30
9:59	15.80	3.20	12:11	15.20	3.50	15:17	15.20	3.00	7:17	15.10	3.30
10:00	15.90	3.10	12:12	15.20	3.60	15:22	15.20	3.00	7:18	15.10	3.30
10:01	15.90	3.10	12:13	15.20	3.60	15:23	15.20	3.00	7:19	15.10	3.20
10:02	15.90	3.10	12:14	15.20	3.60	15:24	15.20	3.10	7:20	15.10	3.30
10:03	15.20	3.50	12:15	15.20	3.60	15:25	15.20	3.10	7:21	15.10	3.20
10:04	15.10	3.60	12:16	15.20	3.60	15:26	15.20	3.10	7:22	15.10	3.20
10:05	15.10	3.60	12:17	15.20	3.60	15:27	15.20	3.10	7:23	15.10	3.20
10:06	15.10	3.60	12:18	15.20	3.60	15:28	15.20	3.10	7:24	15.10	3.20
10:07	15.10	3.60	12:19	15.20	3.60	15:29	15.20	3.10	7:25	15.10	3.20
10:08	15.10	3.60	12:20	15.20	3.60	15:30	15.20	3.10	7:26	15.10	3.20
10:09	15.00	3.60	12:21	15.20	3.60	15:31	15.20	3.10	7:27	15.10	3.20
10:10	15.00	3.60	12:22	15.20	3.60	15:32	15.20	3.10	7:28	15.10	3.20
10:11	15.00	3.60	12:23	15.20	3.50	15:33	15.20	3.10	7:29	15.10	3.20
10:12	15.00	3.60	12:24	15.20	3.60	15:34	15.20	3.10	7:30	15.10	3.20
10:13	15.00	3.70	12:25	15.20	3.50	15:35	15.20	3.10	7:31	15.10	3.20
10:14	15.00	3.60	12:26	15.20	3.60	15:36	15.20	3.10	7:32	15.10	3.20
10:15	15.00	3.60	12:27	15.20	3.60	15:37	15.20	3.10	7:33	15.10	3.20
10:16	15.00	3.60	12:28	15.20	3.60	15:38	15.20	3.10	7:34	15.10	3.20
10:17	15.00	3.60	12:29	15.20	3.60	15:39	15.20	3.10	7:35	15.10	3.20
10:18	15.00	3.60	12:30	15.20	3.60	15:40	15.20	3.10	7:36	15.10	3.20
10:19	15.00	3.60	12:31	15.20	3.60	15:41	15.20	3.10	7:37	15.10	3.20
10:20	15.00	3.60	12:32	15.20	3.60	15:42	15.20	3.10	7:38	15.10	3.20
10:21	15.00	3.60	12:33	15.20	3.60	15:43	15.20	3.10	7:39	15.10	3.20
10:22	15.00	3.60	12:34	15.20	3.60	15:44	15.20	3.10	7:40	15.10	3.20
10:23	15.00	3.60	12:35	15.20	3.60	15:45	15.20	3.10	7:41	15.10	3.20
10:24	15.00	3.60	12:41	15.20	3.50	15:46	15.20	3.10	7:42	15.10	3.20
10:25	15.00	3.60	12:42	15.20	3.60	15:47	15.20	3.10	7:43	15.10	3.20
10:26	15.00	3.60	12:43	15.20	3.60	15:48	15.20	3.10	7:44	15.10	3.20
10:27	15.00	3.60	12:44	15.20	3.60	15:49	15.20	3.10	7:45	15.10	3.20
10:28	15.00	3.60	12:45	15.20	3.50	15:50	15.20	3.10	7:46	15.00	3.20
10:29	15.00	3.70	12:46	15.20	3.60	15:51	15.20	3.10	7:47	15.00	3.20
10:30	15.00	3.60	12:47	15.20	3.50	15:52	15.20	3.10	7:48	15.00	3.20
10:31	15.00	3.60	12:48	15.20	3.50	15:53	15.20	3.10	7:49	15.00	3.20
10:32	15.00	3.60	12:49	15.20	3.50	15:54	15.30	3.10	7:50	15.00	3.20
10:33	15.00	3.70	12:50	15.20	3.50	15:55	15.30	3.10	7:51	15.00	3.20
10:34	15.00	3.60	12:51	15.30	3.60	15:56	15.30	3.10	7:52	15.00	3.20
10:35	15.00	3.60	12:52	15.30	3.60	15:57	15.30	3.10	7:53	15.00	3.20
10:36	15.00	3.70	12:53	15.30	3.50	15:58	15.30	3.10	7:54	15.00	3.20
10:37	15.00	3.60	12:54	15.30	3.60	15:59	15.30	3.10	7:55	15.00	3.20
10:38	15.00	3.60	12:55	15.30	3.60	16:00	15.30	3.20	7:56	15.00	3.20
10:39	15.00	3.70	12:56	15.30	3.60	16:01	15.30	3.20	8:01	15.00	3.00
10:40	15.00	3.60	12:57	15.30	3.60	16:02	15.30	3.10	8:02	15.00	3.20
10:41	15.00	3.70	12:58	15.30	3.60	16:03	15.30	3.20	8:03	15.00	3.20
10:58	15.50	3.30	12:59	15.30	3.60	16:04	15.30	3.10	8:04	15.00	3.20
10:59	15.50	3.30	13:00	15.30	3.70	16:05	15.20	3.20	8:05	15.00	3.20
11:00	14.80	3.70	13:01	15.30	3.50	16:10	15.30	3.10	8:06	15.00	3.20
11:01	15.00	3.60	13:02	15.30	3.60	16:11	15.20	3.10	8:07	15.00	3.20
11:02	14.90	3.70	13:03	15.30	3.60	16:12	15.20	3.10	8:08	15.00	3.20
11:03	14.90	3.70	13:04	15.30	3.60	16:13	15.20	3.10	8:09	15.00	3.20
11:04	14.90	3.60	13:05	15.30	3.60	16:14	15.20	3.10	8:10	15.00	3.20
11:05	14.90	3.70	13:06	15.30	3.60	16:15	15.20	3.10	8:11	15.00	3.20
11:06	14.90	3.70	13:07	15.30	3.60	16:16	15.20	3.10	8:12	15.00	3.20
11:07	14.90	3.70	13:08	15.30	3.60	16:17	15.20	3.10	8:13	15.00	3.20
11:08	14.90	3.70	13:09	15.30	3.60	16:18	15.20	3.10	8:14	15.00	3.20
11:09	14.90	3.70	13:10	15.30	3.60	16:19	15.20	3.10	8:15	15.00	3.20
11:10	14.80	3.70	13:11	15.30	3.60	16:20	15.20	3.10	8:16	15.00	3.20
11:11	14.80	3.70	13:12	15.30	3.50	16:21	15.20	3.10	8:17	15.00	3.20
11:12	14.80	3.70	13:13</								

Client: Middletown, LLC
Facility: Middletown
Test Location: Unit 13
Project #: M223610

Run 1			Run 2			Run 3			Run 4		
Date:	9/9/2022		Date:	9/10/2022		Date:	9/10/2022		Date:	9/11/2022	
Time	O2 % (dry)	CO2 % (dry)	Time	O2 % (dry)	CO2 % (dry)	Time	O2 % (dry)	CO2 % (dry)	Time	O2 % (dry)	CO2 % (dry)
11:21	14.90	3.70	13:22	15.20	3.60	16:31	15.20	3.20	8:27	15.00	3.20
11:22	14.90	3.70	13:23	15.30	3.60	16:32	15.20	3.20	8:28	15.00	3.20
11:23	14.90	3.70	13:24	15.30	3.60	16:33	15.20	3.20	8:29	15.00	3.20
11:24	14.80	3.70	13:25	15.30	3.60	16:34	15.20	3.20	8:30	15.00	3.20
11:25	14.80	3.70	13:29	15.30	3.40	16:35	15.20	3.20	8:31	15.00	3.20
11:26	14.80	3.70	13:30	15.30	3.60	16:36	15.20	3.20	8:32	15.00	3.20
11:27	14.80	3.70	13:31	15.30	3.60	16:37	15.20	3.20	8:33	15.00	3.20
11:28	14.80	3.70	13:32	15.30	3.60	16:38	15.20	3.20	8:34	15.00	3.20
11:29	14.80	3.70	13:33	15.30	3.60	16:39	15.20	3.20	8:35	15.00	3.20
11:30	14.80	3.70	13:34	15.30	3.60	16:40	15.20	3.20	8:36	15.00	3.20
11:31	14.80	3.70	13:35	15.30	3.60	16:41	15.20	3.20	8:37	15.00	3.20
11:32	14.80	3.70	13:36	15.30	3.60	16:42	15.20	3.20	8:38	15.00	3.20
11:33	14.80	3.70	13:37	15.30	3.60	16:43	15.20	3.20	8:39	15.00	3.20
11:34	14.80	3.70	13:38	15.30	3.60	16:44	15.20	3.20	8:40	15.00	3.20
11:35	14.80	3.70	13:39	15.30	3.60	16:45	15.20	3.20	8:41	15.00	3.20
11:36	14.80	3.70	13:40	15.20	3.60	16:46	15.20	3.20	8:42	15.00	3.20
11:37	14.80	3.70	13:41	15.30	3.60	16:47	15.20	3.20	8:43	15.00	3.20
11:38	14.80	3.70	13:42	15.30	3.60	16:48	15.20	3.20	8:44	15.00	3.20
11:39	14.80	3.70	13:43	15.30	3.60	16:49	15.20	3.20	8:45	15.00	3.20
11:40	14.80	3.70	13:44	15.30	3.60	16:50	15.20	3.20	8:50	15.00	3.00
11:41	14.80	3.70	13:45	15.30	3.60	16:51	15.20	3.20	8:51	15.00	3.20
11:42	14.80	3.70	13:46	15.30	3.60	16:52	15.20	3.20	8:52	15.00	3.20
11:54	15.00	3.40	13:47	15.30	3.60	16:53	15.20	3.20	8:53	15.00	3.20
11:55	15.50	3.30	13:48	15.30	3.60	16:54	15.30	3.20	8:54	15.00	3.20
11:56	15.30	3.40	13:49	15.30	3.60	16:59	15.50	2.40	8:55	15.00	3.20
11:57	15.20	3.50	13:50	15.30	3.60	17:00	15.20	3.10	8:56	15.00	3.20
11:58	15.20	3.50	13:51	15.30	3.60	17:01	15.20	3.10	8:57	15.00	3.20
11:59	15.10	3.50	13:52	15.30	3.60	17:02	15.20	3.20	8:58	15.00	3.20
12:00	15.00	3.60	13:53	15.30	3.60	17:03	15.20	3.20	8:59	15.00	3.20
12:01	15.00	3.60	13:54	15.30	3.60	17:04	15.20	3.20	9:00	15.00	3.20
12:02	14.90	3.60	13:55	15.30	3.60	17:05	15.20	3.10	9:01	15.00	3.20
12:03	14.90	3.70	13:56	15.30	3.60	17:06	15.20	3.10	9:02	15.00	3.20
12:04	14.90	3.60	13:57	15.30	3.60	17:07	15.20	3.20	9:03	15.00	3.20
12:05	14.90	3.60	13:58	15.30	3.60	17:08	15.20	3.10	9:04	15.00	3.20
12:06	14.90	3.60	13:59	15.30	3.60	17:09	15.20	3.10	9:05	15.00	3.20
12:07	14.90	3.60	14:00	15.30	3.60	17:10	15.20	3.20	9:06	15.00	3.20
12:08	14.90	3.60	14:01	15.30	3.60	17:11	15.20	3.10	9:07	15.00	3.20
12:09	14.90	3.60	14:02	15.30	3.60	17:12	15.20	3.10	9:08	15.00	3.20
12:10	14.80	3.60	14:03	15.30	3.60	17:13	15.20	3.10	9:09	15.00	3.20
12:11	14.90	3.60	14:04	15.30	3.60	17:14	15.20	3.10	9:10	15.00	3.20
12:12	14.80	3.60	14:05	15.30	3.60	17:15	15.20	3.10	9:11	15.00	3.20
12:13	14.80	3.60	14:06	15.20	3.60	17:16	15.20	3.10	9:12	15.00	3.20
12:14	14.80	3.60	14:07	15.20	3.60	17:17	15.20	3.20	9:13	15.00	3.20
12:15	14.80	3.70	14:08	15.20	3.60	17:18	15.20	3.20	9:14	15.00	3.20
12:16	14.80	3.60				17:19	15.20	3.10	9:15	15.00	3.20
12:17	14.80	3.60				17:20	15.20	3.10	9:16	15.00	3.20
12:18	14.80	3.60				17:21	15.20	3.20	9:17	15.00	3.20
12:19	14.80	3.60				17:22	15.20	3.10	9:18	15.00	3.20
12:20	14.80	3.60				17:23	15.20	3.10	9:19	15.00	3.20
12:21	14.80	3.60				17:24	15.20	3.10	9:20	15.00	3.20
12:22	14.80	3.60				17:25	15.20	3.10	9:21	15.00	3.20
12:23	14.80	3.60							9:22	15.00	3.20
12:24	14.80	3.60							9:23	15.00	3.20
12:25	14.80	3.60							9:24	15.00	3.20
12:26	14.80	3.60							9:25	15.00	3.20
12:27	14.80	3.60									
12:28	14.80	3.60									
12:29	14.80	3.60									
12:30	14.80	3.60									
12:31	14.80	3.60									
12:32	14.80	3.60									
12:33	14.70	3.60									
12:34	14.70	3.60									
12:35	14.70	3.60									
Average	14.93	3.62	Average	15.23	3.59	Average	15.22	3.15	Average	15.04	3.23
Min	14.80	3.10	Min	15.10	3.40	Min	15.10	3.00	Min	15.00	2.90
Max	15.90	3.70	Max	15.30	3.60	Max	15.30	3.40	Max	15.10	3.40

Client: Middletown, LLC
Facility: Middletown
Test Location: Unit 13
Project #: M223610

Run 5			Run 6			Run 7		
Date:	9/11/2022		Date:	9/11/2022		Date:	9/11/2022	
Time	O2 % (dry)	CO2 % (dry)	Time	O2 % (dry)	CO2 % (dry)	Time	O2 % (dry)	CO2 % (dry)
9:48	15.10	3.20	13:29	15.60	2.40	16:15	15.00	2.60
9:49	15.10	3.30	13:30	15.70	2.40	16:16	15.00	2.70
9:50	15.10	3.20	13:31	15.70	2.30	16:17	15.00	2.70
9:51	15.10	3.20	13:32	15.70	2.30	16:18	15.00	2.70
9:52	15.10	3.20	13:33	15.70	2.40	16:19	15.00	2.70
9:53	15.10	3.10	13:34	15.70	2.40	16:20	15.00	2.70
9:54	15.10	3.10	13:35	15.70	2.30	16:21	15.00	2.70
9:55	15.00	3.00	13:36	15.70	2.30	16:22	15.00	2.70
9:56	15.00	3.00	13:37	15.70	2.30	16:23	15.00	2.70
9:57	15.00	3.00	13:38	15.70	2.30	16:24	15.00	2.70
9:58	15.00	2.90	13:39	15.70	2.30	16:25	15.00	2.70
9:59	15.00	2.90	13:40	15.70	2.30	16:26	15.00	2.80
10:00	15.00	3.00	13:41	15.70	2.30	16:27	15.00	2.70
10:01	15.00	3.00	13:42	15.70	2.40	16:28	15.00	2.70
10:02	15.10	3.00	13:43	15.60	2.30	16:29	15.00	2.70
10:03	15.10	3.00	13:44	15.70	2.30	16:30	15.00	2.80
10:04	15.10	3.10	13:45	15.70	2.30	16:31	15.00	2.70
10:05	15.10	3.10	13:52	15.70	2.20	16:32	15.00	2.70
10:06	15.10	3.10	13:53	15.70	2.30	16:33	15.00	2.80
10:07	15.10	3.10	13:54	15.70	2.30	16:34	15.00	2.80
10:08	15.10	3.10	13:55	15.70	2.30	16:35	15.00	2.80
10:09	15.10	3.10	13:56	15.70	2.30	16:36	15.00	2.70
10:10	15.10	3.10	13:57	15.60	2.30	16:37	15.00	2.80
10:11	15.10	3.10	13:58	15.60	2.30	16:38	15.00	2.70
10:12	15.10	3.10	13:59	15.60	2.30	16:39	15.00	2.70
10:13	15.10	3.10	14:00	15.60	2.30	16:40	15.00	2.80
10:14	15.10	3.10	14:01	15.60	2.30	16:41	15.00	2.80
10:15	15.10	3.10	14:02	15.60	2.30	16:42	15.00	2.80
10:16	15.10	3.10	14:03	15.60	2.30	16:43	15.00	2.70
10:17	15.10	3.10	14:04	15.70	2.30	16:44	15.00	2.80
10:18	15.10	3.10	14:05	15.70	2.40	16:45	15.00	2.80
10:19	15.10	3.10	14:06	15.70	2.30	16:46	15.00	2.80
10:20	15.10	3.10	14:07	15.70	2.30	16:47	15.00	2.70
10:21	15.10	3.10	14:08	15.70	2.40	16:48	15.00	2.80
10:22	15.10	3.10	14:09	15.70	2.30	16:49	15.00	2.80
10:23	15.10	3.10	14:10	15.60	2.30	16:50	15.00	2.80
10:24	15.10	3.10	14:11	15.70	2.30	16:51	15.00	2.80
10:25	15.10	3.10	14:12	15.70	2.30	16:52	15.00	2.80
10:26	15.10	3.10	14:13	15.60	2.30	16:53	15.00	2.80
10:27	15.10	3.10	14:14	15.70	2.30	16:54	15.00	2.80
10:28	15.10	3.10	14:15	15.60	2.30	16:55	15.00	2.80
10:29	15.10	3.10	14:16	15.60	2.30	16:56	15.00	2.80
10:35	15.10	3.00	14:17	15.60	2.30	16:57	15.00	2.80
10:36	15.10	3.00	14:18	15.60	2.30	16:58	15.00	2.80
10:37	15.10	3.00	14:19	15.60	2.30	17:03	14.90	2.40
10:38	15.10	3.00	14:20	15.70	2.30	17:04	14.90	2.60
10:39	15.10	3.00	14:21	15.70	2.40	17:05	14.90	2.70
10:40	15.10	3.00	14:22	15.60	2.40	17:06	14.90	2.70
10:41	15.10	3.00	14:23	15.70	2.30	17:07	15.00	2.60
10:42	15.10	3.10	14:24	15.80	2.40	17:08	15.00	2.70
10:43	15.10	3.10	14:25	15.70	2.30	17:09	14.90	2.70
10:44	15.10	3.00	14:26	15.70	2.30	17:10	14.90	2.70
10:45	15.10	3.10	14:27	15.70	2.30	17:11	14.90	2.70
10:46	15.10	3.10	14:28	15.70	2.40	17:12	15.00	2.70
10:47	15.10	3.10	14:29	15.70	2.40	17:13	14.90	2.70
10:48	15.10	3.10	14:30	15.70	2.30	17:14	14.90	2.70
10:49	15.10	3.00	14:31	15.70	2.40	17:15	14.90	2.70
10:50	15.10	3.10	14:32	15.70	2.30	17:16	14.90	2.70
10:51	15.10	3.10	14:42	15.90	2.20	17:17	14.90	2.70
10:52	15.10	3.10	14:43	15.80	2.20	17:18	14.90	2.70
10:53	15.10	3.10	14:44	15.70	2.20	17:19	14.90	2.70
10:54	15.10	3.10	14:45	15.70	2.20	17:20	14.90	2.70
10:55	15.10	3.10	14:46	15.70	2.20	17:21	14.90	2.70
10:56	15.10	3.10	14:47	15.70	2.30	17:22	14.90	2.70
10:57	15.10	3.10	14:48	15.70	2.30	17:23	14.90	2.70
10:58	15.10	3.10	14:49	15.70	2.30	17:24	14.90	2.70
10:59	15.10	3.10	14:50	15.70	2.30	17:25	14.90	2.70
11:00	15.10	3.10	14:51	15.70	2.30	17:26	14.90	2.70
11:01	15.10	3.10	14:52	15.70	2.30	17:27	14.90	2.70
11:02	15.10	3.10	14:53	15.70	2.30	17:28	14.90	2.70
11:03	15.10	3.10	14:54	15.70	2.30	17:29	14.90	2.70
11:04	15.10	3.10	14:55	15.70	2.30	17:30	14.90	2.70
11:05	15.10	3.10	14:56	15.70	2.30	17:31	14.90	2.70
11:06	15.10	3.10	14:57	15.70	2.40	17:32	14.90	2.70
11:07	15.10	3.10	14:58	15.70	2.30	17:33	14.90	2.70
11:08	15.10	3.10	14:59	15.70	2.30	17:34	14.90	2.70

Client: Middletown, LLC
Facility: Middletown
Test Location: Unit 13
Project #: M223610

Run 5			Run 6			Run 7		
Date:	9/11/2022		Date:	9/11/2022		Date:	9/11/2022	
Time	O2 % (dry)	CO2 % (dry)	Time	O2 % (dry)	CO2 % (dry)	Time	O2 % (dry)	CO2 % (dry)
11:09	15.10	3.10	15:00	15.70	2.30	17:35	14.90	2.70
11:10	15.10	3.10	15:01	15.70	2.30	17:36	14.90	2.70
11:11	15.10	3.10	15:02	15.70	2.30	17:37	14.90	2.70
11:12	15.10	3.10	15:03	15.70	2.30	17:38	14.90	2.70
11:13	15.10	3.10	15:04	15.70	2.30	17:39	14.90	2.70
11:14	15.10	3.10	15:05	15.70	2.30	17:40	15.00	2.70
11:15	15.10	3.10	15:06	15.70	2.30	17:41	15.00	2.70
11:16	15.10	3.10	15:07	15.70	2.30	17:42	15.00	2.70
11:17	15.10	3.10	15:08	15.70	2.30	17:43	15.00	2.70
11:18	15.10	3.10	15:09	15.70	2.30	17:44	15.00	2.70
11:19	15.10	3.10	15:10	15.70	2.30	17:45	15.00	2.70
11:24	15.00	2.90	15:11	15.70	2.30	17:46	15.00	2.70
11:25	15.10	3.00	15:12	15.70	2.30	17:47	15.00	2.70
11:26	15.10	3.00	15:13	15.70	2.30	17:52	14.90	2.40
11:27	15.10	3.00	15:14	15.70	2.30	17:53	14.90	2.60
11:28	15.10	3.00	15:15	15.70	2.30	17:54	14.90	2.60
11:29	15.10	3.00	15:16	15.70	2.30	17:55	15.00	2.60
11:30	15.10	3.00	15:17	15.70	2.30	17:56	15.00	2.60
11:31	15.10	3.00	15:18	15.90	2.30	17:57	15.00	2.90
11:32	15.10	3.00	15:19	15.70	2.30	17:58	15.00	2.90
11:33	15.10	3.00	15:20	15.70	2.30	17:59	14.90	3.00
11:34	15.10	3.00	15:21	15.70	2.30	18:00	14.90	2.90
11:35	15.10	3.00	15:22	15.70	2.30	18:01	14.90	2.90
11:36	15.10	3.00	15:23	15.70	2.30	18:02	14.90	2.90
11:37	15.10	3.00	15:32	15.90	2.20	18:03	14.90	3.00
11:38	15.10	3.00	15:33	15.80	2.20	18:04	14.90	2.90
11:39	15.00	3.00	15:34	15.60	2.20	18:05	14.90	3.00
11:40	15.00	3.00	15:35	15.70	2.20	18:06	14.90	2.90
11:41	15.00	3.00	15:36	15.70	2.20	18:07	14.90	3.00
11:42	15.00	3.00	15:37	15.60	2.20	18:08	14.90	3.00
11:43	15.00	3.00	15:38	15.50	2.30	18:09	14.90	2.90
11:44	15.00	3.00	15:39	15.60	2.30	18:10	14.90	3.00
11:45	15.10	3.00	15:40	15.50	2.30	18:11	14.90	3.00
11:46	15.10	3.00	15:41	15.50	2.30	18:12	14.90	3.00
11:47	15.10	3.00	15:42	15.50	2.30	18:13	14.90	3.00
11:48	15.10	3.00	15:43	15.50	2.30	18:14	14.90	3.00
11:49	15.10	3.00	15:44	15.50	2.30	18:15	14.90	3.00
11:50	15.10	3.00	15:45	15.60	2.30	18:16	14.90	3.00
11:51	15.10	3.00	15:46	15.60	2.30	18:17	14.90	3.00
11:52	15.10	3.00	15:47	15.70	2.30	18:18	14.90	3.00
11:53	15.10	3.00	15:48	15.60	2.30	18:19	15.00	3.00
11:54	15.10	3.00	15:49	15.70	2.30	18:20	14.90	3.00
11:55	15.10	3.00	15:50	15.70	2.30	18:21	15.00	3.00
11:56	15.10	3.00	15:51	15.70	2.30	18:22	15.00	3.00
11:57	15.10	3.00	15:52	15.70	2.30	18:23	15.00	3.00
11:58	15.10	3.00	15:53	15.70	2.30	18:24	15.00	3.00
11:59	15.10	3.00	15:54	15.70	2.30	18:25	15.00	3.00
12:00	15.10	3.00	15:55	15.70	2.30	18:26	15.00	3.00
12:01	15.10	3.00	15:56	15.70	2.30	18:27	15.00	3.00
12:02	15.10	3.00	15:57	15.60	2.30	18:28	15.00	3.00
12:03	15.10	3.00	15:58	15.60	2.30	18:29	15.00	3.00
12:04	15.10	2.90	15:59	15.70	2.30	18:30	15.00	3.00
12:05	15.10	3.00	16:00	15.70	2.30	18:31	15.00	3.00
12:06	15.10	2.90	16:01	15.70	2.30	18:32	15.00	3.00
12:07	15.10	2.90	16:02	15.80	2.30	18:33	15.00	3.00
12:08	15.00	2.90	16:03	15.80	2.30	18:34	15.00	3.00
12:12	15.10	2.30	16:04	15.70	2.30	18:35	15.00	3.00
12:13	15.00	2.80	16:05	15.70	2.30	18:36	15.00	3.00
12:14	15.10	2.90	16:06	15.70	2.30	18:41	14.90	2.80
12:15	15.10	2.90	16:07	15.70	2.30	18:42	15.00	2.90
12:16	15.10	2.90	16:08	15.70	2.30	18:43	15.00	2.90
12:17	15.00	2.90	16:09	15.70	2.30	18:44	15.00	2.90
12:18	15.00	2.90	16:10	15.70	2.30	18:45	15.00	2.90
12:19	15.00	2.90	16:11	15.70	2.30	18:46	15.00	2.90
12:20	15.00	2.80	16:12	15.70	2.30	18:47	15.00	2.80
12:21	15.00	2.90	16:13	15.70	2.30	18:48	15.00	2.90
12:22	15.00	2.90				18:49	15.00	2.90
12:23	15.00	2.80				18:50	15.00	2.90
12:24	15.00	2.90				18:51	15.00	2.90
12:25	15.00	2.80				18:52	15.00	2.90
12:26	15.00	2.80				18:53	15.00	2.90
12:27	15.00	2.80				18:54	15.00	2.90
12:28	15.00	2.90				18:55	15.00	2.90
12:29	15.00	2.80				18:56	15.00	2.90
12:30	15.00	2.90				18:57	15.00	2.90
12:31	15.00	2.90				18:58	15.00	2.90

Client: Middletown, LLC
Facility: Middletown
Test Location: Unit 13
Project #: M223610

Run 5			Run 6			Run 7		
Date:	9/11/2022		Date:	9/11/2022		Date:	9/11/2022	
<u>Time</u>	<u>O2 % (dry)</u>	<u>CO2 % (dry)</u>	<u>Time</u>	<u>O2 % (dry)</u>	<u>CO2 % (dry)</u>	<u>Time</u>	<u>O2 % (dry)</u>	<u>CO2 % (dry)</u>
12:32	15.00	2.90				18:59	15.00	2.90
12:33	15.00	2.90				19:00	15.00	2.90
12:34	15.00	2.90				19:01	15.00	2.90
12:35	15.00	2.90				19:02	15.00	2.90
12:36	15.00	2.90				19:03	15.00	2.90
12:37	15.00	2.90				19:04	15.00	2.90
12:38	15.00	2.90				19:05	15.00	2.90
12:39	15.00	2.90				19:06	15.00	2.90
12:40	15.00	2.90				19:07	15.00	2.90
12:41	15.00	2.90				19:08	15.00	2.90
12:42	15.00	2.90				19:09	15.00	3.00
12:43	15.00	2.90				19:10	15.00	3.00
12:44	15.00	2.90				19:11	15.00	2.90
12:45	15.00	2.90				19:12	15.00	2.90
12:46	15.00	2.90				19:13	15.00	2.90
12:47	15.00	2.90						
12:48	15.00	2.90						
12:49	15.00	2.90						
12:50	15.00	2.90						
12:51	15.00	2.90						
12:52	15.00	2.90						
Average	15.07	3.01	Average	15.68	2.30	Average	14.96	2.81
Min	15.00	2.90	Min	15.50	2.20	Min	14.90	2.40
Max	15.10	3.30	Max	15.90	2.40	Max	15.00	3.00

Appendix E - Plant Operating Data

Date/Time	UNIT13 LOADMW13 Value	UNIT13 HEATIN13 Value	UNIT13 GASFLW13 Value	UNIT13 CATEMP13 Value	UNIT13 WATERF13 Value
09/09/2022 09:00	50	506.6	4605.3	809.4	1.2
09/09/2022 09:01	50	507	4609.4	809	1.2
09/09/2022 09:02	50	506.8	4607.5	809	1.2
09/09/2022 09:03	50	506.6	4605.5	809	1.2
09/09/2022 09:04	50	507.1	4609.9	809.3	1.2
09/09/2022 09:05	50	506.8	4607.2	810	1.2
09/09/2022 09:06	50	507.1	4610.1	809.8	1.2
09/09/2022 09:07	50	507.1	4609.8	810	1.2
09/09/2022 09:08	50	506.9	4608.2	809.8	1.2
09/09/2022 09:09	50	506.7	4606.7	809.3	1.2
09/09/2022 09:10	50	506.8	4607.3	809.6	1.2
09/09/2022 09:11	50	507.1	4610.4	810	1.2
09/09/2022 09:12	50	506.8	4606.9	809.4	1.2
09/09/2022 09:13	50	506.9	4608	809.6	1.2
09/09/2022 09:14	50	507.1	4609.6	810	1.2
09/09/2022 09:15	50	506.9	4608	810	1.2
09/09/2022 09:16	50	506.8	4607.5	810	1.2
09/09/2022 09:17	50	507	4609.1	810	1.2
09/09/2022 09:18	50	507	4609.5	810	1.2
09/09/2022 09:19	50	506.9	4607.8	810	1.2
09/09/2022 09:20	50	507.1	4610.1	810	1.2
09/09/2022 09:21	50	507.2	4611.3	810	1.2
09/09/2022 09:22	50	506.7	4606.5	810	1.2
09/09/2022 09:23	50	506.8	4607.7	810	1.2
09/09/2022 09:24	50	507.2	4610.9	810	1.2
09/09/2022 09:25	50	507.1	4610.3	810.6	1.2
09/09/2022 09:26	50	507.1	4609.9	810.8	1.2
09/09/2022 09:27	50	506.7	4606.1	810	1.2
09/09/2022 09:28	50	507	4608.8	810	1.2
09/09/2022 09:29	50	506.9	4608.3	810	1.2
09/09/2022 09:30	50	506.9	4607.9	810	1.2
09/09/2022 09:31	50	506.8	4607.1	810	1.2
09/09/2022 09:32	50	506.8	4607.6	810	1.2
09/09/2022 09:33	50	507.1	4609.9	810.1	1.2
09/09/2022 09:34	50	506.9	4607.9	810	1.2
09/09/2022 09:35	50	507.2	4611	810.6	1.2
09/09/2022 09:36	50	506.7	4606.1	810.3	1.2
09/09/2022 09:37	50	506.6	4605.8	810.5	1.2
09/09/2022 09:38	50	507.2	4610.5	811	1.2
09/09/2022 09:39	50	507.1	4609.7	810.9	1.2
09/09/2022 09:40	50	506.6	4605.8	811	1.2
09/09/2022 09:41	50	507.2	4610.7	811	1.2
09/09/2022 09:42	50	506.9	4608.3	811	1.2
09/09/2022 09:43	50	507	4609.5	811	1.2
09/09/2022 09:44	50	507.1	4609.8	811	1.2
09/09/2022 09:45	50	506.9	4607.8	811	1.2
09/09/2022 09:46	50	507	4609.5	811	1.2
09/09/2022 09:47	50	506.9	4607.9	811	1.2
09/09/2022 09:48	50	507	4609.1	811	1.2
09/09/2022 09:49	50	507.3	4611.4	811	1.2
09/09/2022 09:50	50	507	4609.3	811	1.2
09/09/2022 09:51	50	507.1	4609.6	811	1.2
09/09/2022 09:52	50	507	4609.1	811	1.2
09/09/2022 09:53	50	507.1	4610.4	811	1.2
09/09/2022 09:54	50	506.9	4608	811	1.2
09/09/2022 09:55	50	507.3	4612.1	811.2	1.2
09/09/2022 09:56	50	507.4	4612.6	811.8	1.2
09/09/2022 09:57	50	507.1	4609.8	812	1.2
09/09/2022 09:58	50	507.1	4610.2	811.8	1.2

09/09/2022 09:59	50	507.3	4611.6	812	1.2
09/09/2022 10:00	50	507.4	4612.3	812	1.2
09/09/2022 10:01	50	507.2	4610.7	812	1.2
09/09/2022 10:02	50	507.5	4613.2	812	1.2
09/09/2022 10:03	50	507.3	4612	812	1.2
09/09/2022 10:04	50	507.3	4611.5	811.9	1.2
09/09/2022 10:05	50	507.5	4613.4	812	1.2
09/09/2022 10:06	50	507.5	4613.7	812	1.2
09/09/2022 10:07	50	507.4	4612.6	812.9	1.2
09/09/2022 10:08	50	507.1	4610.4	812.4	1.2
09/09/2022 10:09	50	507.1	4610.3	812.3	1.2
09/09/2022 10:10	50	507.4	4612.6	812.1	1.2
09/09/2022 10:11	50	507.3	4611.6	812.5	1.2
09/09/2022 10:12	50	507.5	4613.2	812.8	1.2
09/09/2022 10:13	50	507.4	4613.1	812	1.2
09/09/2022 10:14	50	507.5	4613.2	812.1	1.2
09/09/2022 10:15	50	507.7	4615.2	813	1.2
09/09/2022 10:16	50	507.6	4614.5	813	1.2
09/09/2022 10:17	50	507.5	4613.2	812.7	1.2
09/09/2022 10:18	50	508	4618	812.8	1.2
09/09/2022 10:19	50	507.7	4615.4	813	1.2
09/09/2022 10:20	50	507.6	4614.6	812.9	1.2
09/09/2022 10:21	50	507.7	4615.3	813	1.2
09/09/2022 10:22	50	507.5	4613.2	813	1.2
09/09/2022 10:23	50	507.4	4613	813	1.2
09/09/2022 10:24	50	507.6	4614.5	813.1	1.2
09/09/2022 10:25	50	507.7	4615	813.5	1.2
09/09/2022 10:26	50	507.3	4611.9	813	1.2
09/09/2022 10:27	50	507.4	4613	813	1.2
09/09/2022 10:28	50	507.6	4614.6	813	1.2
09/09/2022 10:29	50	507.3	4611.8	813	1.2
09/09/2022 10:30	50	507.8	4616.5	813	1.2
09/09/2022 10:31	50	507.5	4613.8	813	1.2
09/09/2022 10:32	50	507.5	4613.7	813	1.2
09/09/2022 10:33	50	508	4618.6	813	1.2
09/09/2022 10:34	50	507.9	4617	813	1.2
09/09/2022 10:35	50	508	4618	813.3	1.2
09/09/2022 10:36	50	507.8	4616	813	1.2
09/09/2022 10:37	50	507.8	4616.2	813.6	1.2
09/09/2022 10:38	50	507.6	4614.8	814	1.2
09/09/2022 10:39	50	507.6	4614.1	813.8	1.2
09/09/2022 10:40	50	507.7	4615.8	813.3	1.2
09/09/2022 10:41	50	507.7	4615.1	813.4	1.2
09/09/2022 10:42	50	507.6	4614.7	814	1.2
09/09/2022 10:43	50	507.7	4615.6	814	1.2
09/09/2022 10:44	50	507.9	4617.4	814	1.2
09/09/2022 10:45	50	507.9	4616.9	814	1.2
09/09/2022 10:46	50	508.3	4621.3	814	1.2
09/09/2022 10:47	50	508.5	4623	814	1.2
09/09/2022 10:48	50	508	4618.6	813.4	1.2
09/09/2022 10:49	50	508.4	4621.9	814	1.2
09/09/2022 10:50	50	507.9	4617.3	814	1.2
09/09/2022 10:51	50	508.5	4623	814.3	1.2
09/09/2022 10:52	50	508.1	4619.1	814.3	1.2
09/09/2022 10:53	50	508.4	4621.5	814	1.2
09/09/2022 10:54	50	508.3	4621.3	814	1.2
09/09/2022 10:55	50	508.2	4619.7	815	1.2
09/09/2022 10:56	50	508.3	4621.1	814.7	1.2
09/09/2022 10:57	50	508.3	4620.8	814.9	1.2
09/09/2022 10:58	50	508.3	4620.8	814	1.2
09/09/2022 10:59	50	508.2	4619.7	814.9	1.2

09/09/2022 11:00	50	508.1	4619.4	814.7	1.2
09/09/2022 11:01	50	508.2	4620	814.6	1.2
09/09/2022 11:02	50	508.2	4619.9	814.4	1.2
09/09/2022 11:03	50	508.8	4625.1	814.3	1.2
09/09/2022 11:04	50	508.3	4620.7	814.6	1.2
09/09/2022 11:05	50	508.5	4623.1	814	1.2
09/09/2022 11:06	50	508.2	4620.4	814	1.2
09/09/2022 11:07	50	508.3	4620.7	814	1.2
09/09/2022 11:08	50	507.9	4616.9	814	1.2
09/09/2022 11:09	50	508.4	4622.2	814.8	1.2
09/09/2022 11:10	50	508.5	4622.8	815.1	1.2
09/09/2022 11:11	50	508.3	4621	815	1.2
09/09/2022 11:12	50	508.8	4625.6	815.2	1.2
09/09/2022 11:13	50	508.7	4624.6	815	1.2
09/09/2022 11:14	50	508.2	4620	814.7	1.2
09/09/2022 11:15	50	508.7	4624.4	815	1.2
09/09/2022 11:16	50	508.8	4625.6	815	1.2
09/09/2022 11:17	50	508.6	4623.5	814.8	1.2
09/09/2022 11:18	50	508.5	4622.3	814.8	1.2
09/09/2022 11:19	50	508.5	4623	814.8	1.2
09/09/2022 11:20	50	508.4	4621.9	814.8	1.2
09/09/2022 11:21	50	508.1	4619.3	814.9	1.2
09/09/2022 11:22	50	508.5	4622.8	815	1.2
09/09/2022 11:23	50	508.3	4621.3	814.9	1.2
09/09/2022 11:24	50	508.7	4624.3	815	1.2
09/09/2022 11:25	50	508.4	4621.5	814.8	1.2
09/09/2022 11:26	50	508.1	4619.1	815	1.2
09/09/2022 11:27	50	508.5	4622.9	815	1.2
09/09/2022 11:28	50	508.5	4622.9	815	1.2
09/09/2022 11:29	50	508.3	4620.9	815	1.2
09/09/2022 11:30	50	508.5	4622.6	814.5	1.2
09/09/2022 11:31	50	508.6	4623.9	814.1	1.2
09/09/2022 11:32	50	508.7	4624.4	814.4	1.2
09/09/2022 11:33	50	508.6	4623.9	815	1.2
09/09/2022 11:34	50	508.8	4625.7	815	1.2
09/09/2022 11:35	50	508	4618.1	814.4	1.2
09/09/2022 11:36	50	508.8	4625.1	814.4	1.2
09/09/2022 11:37	50	508.4	4622	814	1.2
09/09/2022 11:38	50	508.7	4624.4	814.5	1.2
09/09/2022 11:39	50	508.2	4620.2	814.9	1.2
09/09/2022 11:40	50	508.3	4620.9	815	1.2
09/09/2022 11:41	50	508.3	4621.2	815	1.2
09/09/2022 11:42	50	508.2	4620.4	814.3	1.2
09/09/2022 11:43	50	508.1	4619.3	814.9	1.2
09/09/2022 11:44	50	508.2	4619.9	814.3	1.2
09/09/2022 11:45	50	508	4618.6	814.3	1.2
09/09/2022 11:46	50	508.5	4623.1	814.8	1.2
09/09/2022 11:47	50	508.2	4620.2	814.7	1.2
09/09/2022 11:48	50	508.3	4621.2	814.9	1.2
09/09/2022 11:49	50	508.5	4622.3	814.8	1.2
09/09/2022 11:50	50	508.3	4621	814.9	1.2
09/09/2022 11:51	50	508.7	4624.1	815	1.2
09/09/2022 11:52	50	508.7	4624.3	815	1.2
09/09/2022 11:53	50	508.9	4626.1	815	1.2
09/09/2022 11:54	50	508.3	4620.7	815	1.2
09/09/2022 11:55	50	508.6	4623.2	814.3	1.2
09/09/2022 11:56	50	508.3	4620.6	814	1.2
09/09/2022 11:57	50	508.3	4621.3	814	1.2
09/09/2022 11:58	50	508.5	4622.5	814.6	1.2
09/09/2022 11:59	50	508.5	4622.8	815	1.2
09/09/2022 12:00	50	508.7	4624.2	815	1.2

09/09/2022 12:01	50	508.5	4623.1	815	1.2
09/09/2022 12:02	50	509	4627.3	815	1.2
09/09/2022 12:03	50	508.6	4624	815	1.2
09/09/2022 12:04	50	508.6	4623.7	815	1.2
09/09/2022 12:05	50	508.5	4622.8	815.3	1.2
09/09/2022 12:06	50	508.5	4622.7	815.3	1.2
09/09/2022 12:07	50	508.9	4626.4	815.9	1.2
09/09/2022 12:08	50	508.6	4623.8	815.4	1.2
09/09/2022 12:09	50	508.6	4623.3	815.9	1.2
09/09/2022 12:10	50	508.6	4623.5	815.9	1.2
09/09/2022 12:11	50	508.9	4626	816	1.2
09/09/2022 12:12	50	508.7	4624.2	816	1.2
09/09/2022 12:13	50	508.7	4624.4	815.9	1.2
09/09/2022 12:14	50	508.2	4619.8	815.9	1.2
09/09/2022 12:15	50	508.4	4622.1	815	1.2
09/09/2022 12:16	50	508.5	4623	815.3	1.2
09/09/2022 12:17	50	508.6	4623.8	815.2	1.2
09/09/2022 12:18	50	508.5	4622.7	815	1.2
09/09/2022 12:19	50	508.6	4623.3	815	1.2
09/09/2022 12:20	50	508.5	4622.9	815	1.2
09/09/2022 12:21	50	508.4	4622	815.3	1.2
09/09/2022 12:22	50	508.3	4621.3	815.1	1.2
09/09/2022 12:23	50	508.8	4625.3	815	1.2
09/09/2022 12:24	50	508.5	4623	815.4	1.2
09/09/2022 12:25	50	508.4	4621.7	816	1.2
09/09/2022 12:26	50	508.4	4621.4	816	1.2
09/09/2022 12:27	50	508.7	4624.4	815.8	1.2
09/09/2022 12:28	50	508.6	4623.2	816	1.2
09/09/2022 12:29	50	508.5	4623.1	816.1	1.2
09/09/2022 12:30	50	508.7	4624.2	816	1.2
09/09/2022 12:31	50	508.5	4622.9	815.8	1.2
09/09/2022 12:32	50	508.7	4624.3	815.4	1.2
09/09/2022 12:33	50	508.7	4624.4	815.8	1.2
09/09/2022 12:34	50	508.8	4625.6	815.8	1.2
09/09/2022 12:35	50	508.5	4622.8	816	1.2
09/09/2022 12:36	50	508.5	4622.7	816	1.2
09/09/2022 12:37	50	508.9	4626.5	816	1.2
09/09/2022 12:38	50	508.6	4623.7	816	1.2

Grand Summaries

Avg: 50	Avg: 507.9	Avg: 4616.9	Avg: 813.3	Avg: 1.2
Sum: 10950	Sum: 111222.5	Sum: 1011111.5	Sum: 178102.4	Sum: 262.8
Min: 50	Min: 506.6	Min: 4605.3	Min: 809.0	Min: 1.2
Max: 50	Max: 509.0	Max: 4627.3	Max: 816.1	Max: 1.2
Count: 219	Count: 219	Count: 219	Count: 219	Count: 219

Date/Time	UNIT13 LOADMW13 Value	UNIT13 HEATIN13 Value	UNIT13 GASFLW13 Value	UNIT13 CATEMP13 Value	UNIT13 WATERF13 Value
09/10/2022 11:02	48	495	4499.6	787	1.2
09/10/2022 11:03	48	495	4500.3	787	1.2
09/10/2022 11:04	48	495.2	4502.1	786.9	1.2
09/10/2022 11:05	48	494.7	4497.7	787	1.2
09/10/2022 11:06	48	495	4500	787.2	1.2
09/10/2022 11:07	48	494.6	4496.4	788	1.2
09/10/2022 11:08	48	494.8	4498.2	788.5	1.2
09/10/2022 11:09	48	494.6	4496.3	788	1.2
09/10/2022 11:10	48	494.7	4496.9	788	1.2
09/10/2022 11:11	48	494.7	4497.7	788	1.2
09/10/2022 11:12	48	494.4	4494.7	788	1.2
09/10/2022 11:13	48	495	4499.8	788	1.2
09/10/2022 11:14	48	495	4499.7	788.3	1.2
09/10/2022 11:15	48	495.1	4500.7	788.7	1.2
09/10/2022 11:16	48	494.9	4498.9	789	1.2
09/10/2022 11:17	48	494.8	4498.6	789	1.2
09/10/2022 11:18	48	495	4499.6	789	1.2
09/10/2022 11:19	48	494.9	4499.2	789	1.2
09/10/2022 11:20	48	495	4499.7	789	1.2
09/10/2022 11:21	48	494.9	4499.4	789	1.2
09/10/2022 11:22	48	494.7	4497.4	789	1.2
09/10/2022 11:23	48	494.8	4498.6	789.6	1.2
09/10/2022 11:24	48	494.9	4499.3	789.8	1.2
09/10/2022 11:25	48	494.9	4498.8	790	1.2
09/10/2022 11:26	48	494.8	4498.2	790	1.2
09/10/2022 11:27	48	494.7	4497.4	790	1.2
09/10/2022 11:28	48	494.5	4495.7	790	1.2
09/10/2022 11:29	48	494.5	4495.7	789.8	1.2
09/10/2022 11:30	48	494.9	4499	789.9	1.2
09/10/2022 11:31	48	494.7	4497.6	790	1.2
09/10/2022 11:32	48	494.8	4498.3	790	1.2
09/10/2022 11:33	48	494.6	4496.4	790	1.2
09/10/2022 11:34	48	494.4	4494.6	790	1.2
09/10/2022 11:35	48	494.6	4496.4	790	1.2
09/10/2022 11:36	48	494.7	4496.9	790	1.2
09/10/2022 11:37	48	494.6	4496.6	790	1.2
09/10/2022 11:38	48	494.6	4496	790	1.2
09/10/2022 11:39	48	494.5	4495.9	790.3	1.2
09/10/2022 11:40	48	494.3	4493.8	790	1.2
09/10/2022 11:41	48	494.7	4497.4	790.1	1.2
09/10/2022 11:42	48	494.5	4495.1	790	1.2
09/10/2022 11:43	48	494.8	4497.8	790.6	1.2
09/10/2022 11:44	48	494.9	4499	790.3	1.2
09/10/2022 11:45	48	494.5	4495.9	790	1.2
09/10/2022 11:46	48	494.7	4497.2	790.4	1.2
09/10/2022 11:47	48	494.8	4498.1	790.8	1.2
09/10/2022 11:48	48	494.8	4498.4	790	1.2
09/10/2022 11:49	48	494.6	4496.2	790	1.2
09/10/2022 11:50	48	494.6	4496.2	790	1.2
09/10/2022 11:51	48	494.8	4498.3	790	1.2
09/10/2022 11:52	48	495	4500.1	790	1.2
09/10/2022 11:53	48	494.6	4496.1	790	1.2
09/10/2022 11:54	48	494.8	4498	790	1.2
09/10/2022 11:55	48	495.1	4501	791	1.2
09/10/2022 11:56	48	494.8	4498.1	791	1.2
09/10/2022 11:57	48	494.5	4495.8	791	1.2
09/10/2022 11:58	48	494.8	4497.9	791	1.2
09/10/2022 11:59	48	494.9	4499.2	791	1.2
09/10/2022 12:00	48	494.7	4497.1	790.3	1.2

09/10/2022 12:01	48	494.6	4496.4	790	1.2
09/10/2022 12:02	48	494.5	4495.9	790	1.2
09/10/2022 12:03	48	494.9	4499.4	790	1.2
09/10/2022 12:04	48	494.9	4498.9	790	1.2
09/10/2022 12:05	48	494.7	4497.2	790	1.2
09/10/2022 12:06	48	494.7	4497.4	790.4	1.2
09/10/2022 12:07	48	494.8	4498.2	790.1	1.2
09/10/2022 12:08	48	494.6	4496.7	790.7	1.2
09/10/2022 12:09	48	494.6	4496.3	791	1.2
09/10/2022 12:10	48	494.7	4497.4	791	1.2
09/10/2022 12:11	48	494.6	4496.2	791	1.2
09/10/2022 12:12	48	494.9	4498.8	791	1.2
09/10/2022 12:13	48	494.5	4495.7	791	1.2
09/10/2022 12:14	48	494.8	4497.9	791	1.2
09/10/2022 12:15	48	494.5	4495	791	1.2
09/10/2022 12:16	48	494.6	4496.1	791	1.2
09/10/2022 12:17	48	494.8	4497.8	791	1.2
09/10/2022 12:18	48	494.8	4498.1	791	1.2
09/10/2022 12:19	48	495	4499.6	791	1.2
09/10/2022 12:20	48	494.9	4499	791	1.2
09/10/2022 12:21	48	494.6	4496.6	790.7	1.2
09/10/2022 12:22	48	494.8	4497.9	790.9	1.2
09/10/2022 12:23	48	494.8	4497.9	791	1.2
09/10/2022 12:24	48	494.9	4498.8	791	1.2
09/10/2022 12:25	48	494.7	4497	791	1.2
09/10/2022 12:26	48	494.9	4499.5	791	1.2
09/10/2022 12:27	48	494.8	4498.5	791	1.2
09/10/2022 12:28	48	494.2	4493.1	791	1.2
09/10/2022 12:29	48	494.9	4499.1	791	1.2
09/10/2022 12:30	48	494.6	4496.5	790.8	1.2
09/10/2022 12:31	48	494.7	4497.7	790.2	1.2
09/10/2022 12:32	48	494.7	4497.3	791	1.2
09/10/2022 12:33	48	494.8	4498.6	791	1.2
09/10/2022 12:34	48	494.8	4498.1	791	1.2
09/10/2022 12:35	48	494.7	4497.4	791	1.2
09/10/2022 12:36	48	494.7	4497.2	791	1.2
09/10/2022 12:37	48	494.7	4497.2	790.8	1.2
09/10/2022 12:38	48	494.4	4494.8	791	1.2
09/10/2022 12:39	48	494.7	4497	791	1.2
09/10/2022 12:40	48	494.7	4497.6	791	1.2
09/10/2022 12:41	48	494.4	4494.4	791	1.2
09/10/2022 12:42	48	494.5	4495.5	791.6	1.2
09/10/2022 12:43	48	494.5	4495.2	791.2	1.2
09/10/2022 12:44	48	494.5	4495.4	792	1.2
09/10/2022 12:45	48	494.8	4497.9	791.4	1.2
09/10/2022 12:46	48	494.9	4498.9	791	1.2
09/10/2022 12:47	48	494.6	4496.2	791	1.2
09/10/2022 12:48	48	494.7	4497.5	791	1.2
09/10/2022 12:49	48	494.8	4498	791	1.2
09/10/2022 12:50	48	494.7	4497.1	791	1.2
09/10/2022 12:51	48	495	4500.2	791	1.2
09/10/2022 12:52	48	494.5	4495.6	791	1.2
09/10/2022 12:53	48	494.8	4498.2	791	1.2
09/10/2022 12:54	48	494.7	4497.5	790.8	1.2
09/10/2022 12:55	48	495	4499.6	790.5	1.2
09/10/2022 12:56	48	494.6	4496.6	791	1.2
09/10/2022 12:57	48	495	4500.3	791	1.2
09/10/2022 12:58	48	494.8	4498.5	791	1.2
09/10/2022 12:59	48	495	4500	791.1	1.2
09/10/2022 13:00	48	494.5	4495.2	791.6	1.2
09/10/2022 13:01	48	494.7	4497.1	791.9	1.2

09/10/2022 13:02	48	494.5	4495.8	791.3	1.2
09/10/2022 13:03	48	494.9	4499.1	791	1.2
09/10/2022 13:04	48	494.8	4498.1	791.3	1.2
09/10/2022 13:05	48	494.8	4497.8	791	1.2
09/10/2022 13:06	48	494.7	4497.3	791	1.2
09/10/2022 13:07	48	494.9	4498.7	791	1.2
09/10/2022 13:08	48	495.1	4501.1	791	1.2
09/10/2022 13:09	48	494.5	4495.8	791	1.2
09/10/2022 13:10	48	494.7	4497.4	791	1.2
09/10/2022 13:11	48	494.7	4497.5	791	1.2
09/10/2022 13:12	48	494.6	4496.5	791	1.2
09/10/2022 13:13	48	494.6	4496.2	791	1.2
09/10/2022 13:14	48	494.8	4498.2	791	1.2
09/10/2022 13:15	48	494.7	4497	791	1.2
09/10/2022 13:16	48	494.6	4496.4	791	1.2
09/10/2022 13:17	48	494.8	4498.1	791	1.2
09/10/2022 13:18	48	494.8	4497.9	791	1.2
09/10/2022 13:19	48	494.5	4495.2	791	1.2
09/10/2022 13:20	48	494.6	4496.8	791	1.2
09/10/2022 13:21	48	494.6	4496.5	791	1.2
09/10/2022 13:22	48	494.7	4497.2	791	1.2
09/10/2022 13:23	48	495	4500	791	1.2
09/10/2022 13:24	48	494.9	4498.8	791	1.2
09/10/2022 13:25	48	494.7	4497.7	791	1.2
09/10/2022 13:26	48	494.9	4498.7	791	1.2
09/10/2022 13:27	48	494.7	4497.5	791	1.2
09/10/2022 13:28	48	494.7	4497.7	790.9	1.2
09/10/2022 13:29	48	494.5	4495.9	790.7	1.2
09/10/2022 13:30	48	494.8	4498.5	791	1.2
09/10/2022 13:31	48	494.6	4496.2	791	1.2
09/10/2022 13:32	48	494.8	4497.8	790.6	1.2
09/10/2022 13:33	48	494.6	4496.3	791	1.2
09/10/2022 13:34	48	494.7	4497.1	791	1.2
09/10/2022 13:35	48	494.9	4499.4	791	1.2
09/10/2022 13:36	48	494.8	4497.9	791	1.2
09/10/2022 13:37	48	494.7	4497.2	791	1.2
09/10/2022 13:38	48	494.8	4497.9	791	1.2
09/10/2022 13:39	48	494.6	4496.4	791	1.2
09/10/2022 13:40	48	494.6	4496.1	791	1.2
09/10/2022 13:41	48	494.9	4499.5	791	1.2
09/10/2022 13:42	48	494.8	4498.1	791	1.2
09/10/2022 13:43	48	494.9	4498.9	791	1.2
09/10/2022 13:44	48	494.9	4498.9	791.4	1.2
09/10/2022 13:45	48	494.5	4495.2	791.4	1.2
09/10/2022 13:46	48	494.7	4497.1	791	1.2
09/10/2022 13:47	48	494.7	4497.4	791	1.2
09/10/2022 13:48	48	494.8	4498	791	1.2
09/10/2022 13:49	48	494.8	4498	791	1.2
09/10/2022 13:50	48	494.9	4499.3	791.3	1.2
09/10/2022 13:51	48	494.9	4498.7	791.9	1.2
09/10/2022 13:52	48	494.4	4494.9	792	1.2
09/10/2022 13:53	48	494.8	4498.2	791.2	1.2
09/10/2022 13:54	48	494.9	4498.7	791	1.2
09/10/2022 13:55	48	494.8	4498	791	1.2
09/10/2022 13:56	48	494.8	4498.4	791	1.2
09/10/2022 13:57	48	494.5	4495.8	791	1.2
09/10/2022 13:58	48	494.5	4495.8	791	1.2
09/10/2022 13:59	48	494.7	4496.9	791	1.2
09/10/2022 14:00	48	494.6	4496.4	791	1.2
09/10/2022 14:01	48	495	4500.4	791.3	1.2
09/10/2022 14:02	48	494.7	4497	791.2	1.2

09/10/2022 14:03	48	494.9	4499.3	791.5	1.2
09/10/2022 14:04	48	494.4	4494.8	791	1.2
09/10/2022 14:05	48	494.5	4495.9	791	1.2
09/10/2022 14:06	48	494.9	4499.3	791	1.2
09/10/2022 14:07	48	494.7	4497.4	791	1.2
09/10/2022 14:08	48	494.8	4497.8	791.7	1.2
09/10/2022 14:09	48	494.7	4497.5	792	1.2
09/10/2022 14:10	48	494.7	4497.3	792	1.2
09/10/2022 14:11	48	494.8	4498.5	792	1.2
09/10/2022 14:12	48	495	4500	792	1.2
09/10/2022 14:13	48	494.7	4497.4	792	1.2
09/10/2022 14:14	48	495	4499.7	792	1.2

Grand Summaries

Avg: 48	Avg: 494.7	Avg: 4497.6	Avg: 790.6	Avg: 1.2
Sum: 9264	Sum: 95484.0	Sum: 868037.9	Sum: 152577.9	Sum: 231.6
Min: 48	Min: 494.2	Min: 4493.1	Min: 786.9	Min: 1.2
Max: 48	Max: 495.2	Max: 4502.1	Max: 792.0	Max: 1.2
Count: 193	Count: 193	Count: 193	Count: 193	Count: 193

Date/Time	UNIT13 LOADMW13 Value	UNIT13 HEATIN13 Value	UNIT13 GASFLW13 Value	UNIT13 CATEMP13 Value	UNIT13 WATERF13 Value
09/10/2022 14:32	48	494.6	4496.5	792	1.2
09/10/2022 14:33	48	494.8	4497.8	792	1.2
09/10/2022 14:34	48	494.7	4497.1	792	1.2
09/10/2022 14:35	48	494.8	4497.8	791.9	1.2
09/10/2022 14:36	48	494.4	4494.6	791.5	1.2
09/10/2022 14:37	48	494.4	4494.3	791.3	1.2
09/10/2022 14:38	48	494.5	4495.5	791.1	1.2
09/10/2022 14:39	48	494.6	4496.2	791.3	1.2
09/10/2022 14:40	48	494.8	4498.2	792	1.2
09/10/2022 14:41	48	494.7	4497	792	1.2
09/10/2022 14:42	48	494.8	4498.1	792	1.2
09/10/2022 14:43	48	494.7	4497.7	792	1.2
09/10/2022 14:44	48	494.9	4498.8	792	1.2
09/10/2022 14:45	48	494.6	4496.2	792	1.2
09/10/2022 14:46	48	494.8	4498.1	792	1.2
09/10/2022 14:47	48	494.7	4497.4	792	1.2
09/10/2022 14:48	48	494.9	4498.7	792	1.2
09/10/2022 14:49	48	494.6	4496.2	792.6	1.2
09/10/2022 14:50	48	494.5	4495.5	792.6	1.2
09/10/2022 14:51	48	494.7	4497.2	792	1.2
09/10/2022 14:52	48	494.7	4497.3	792	1.2
09/10/2022 14:53	48	494.4	4494.4	792	1.2
09/10/2022 14:54	48	495	4499.8	792	1.2
09/10/2022 14:55	48	494.9	4498.8	792	1.2
09/10/2022 14:56	48	494.9	4499.5	792	1.2
09/10/2022 14:57	48	494.8	4498.2	792	1.2
09/10/2022 14:58	48	494.9	4499.5	792.2	1.2
09/10/2022 14:59	48	495	4500	793	1.2
09/10/2022 15:00	48	494.7	4497	793.6	1.2
09/10/2022 15:01	48	494.5	4495.9	794	1.2
09/10/2022 15:02	48	494.8	4497.8	793.4	1.2
09/10/2022 15:03	48	495.1	4500.6	793	1.2
09/10/2022 15:04	48	494.8	4498.2	793	1.2
09/10/2022 15:05	48	494.8	4498	793	1.2
09/10/2022 15:06	48	494.8	4498	793	1.2
09/10/2022 15:07	48	494.9	4498.7	792.9	1.2
09/10/2022 15:08	48	494.8	4498.2	792.8	1.2
09/10/2022 15:09	48	495.1	4500.7	792	1.2
09/10/2022 15:10	48	494.8	4498.5	792	1.2
09/10/2022 15:11	48	494.8	4498.2	792.1	1.2
09/10/2022 15:12	48	494.9	4499	793	1.2
09/10/2022 15:13	48	494.9	4498.8	793	1.2
09/10/2022 15:14	48	494.8	4497.8	792.8	1.2
09/10/2022 15:15	48	494.9	4498.7	792	1.2
09/10/2022 15:16	48	494.8	4498.3	792.8	1.2
09/10/2022 15:17	48	494.9	4499.3	792.2	1.2
09/10/2022 15:18	48	494.9	4498.7	792	1.2
09/10/2022 15:19	48	494.8	4498.5	792.3	1.2
09/10/2022 15:20	48	494.8	4497.9	792.3	1.2
09/10/2022 15:21	48	494.7	4497.6	792.2	1.2
09/10/2022 15:22	48	495	4500	793	1.2
09/10/2022 15:23	48	494.9	4498.8	793.7	1.2
09/10/2022 15:24	48	494.8	4498.1	793.5	1.2
09/10/2022 15:25	48	495	4500.3	793	1.2
09/10/2022 15:26	48	494.7	4497.7	793	1.2
09/10/2022 15:27	48	494.9	4499.2	793	1.2
09/10/2022 15:28	48	494.8	4498.4	793	1.2
09/10/2022 15:29	48	494.8	4498.1	793	1.2
09/10/2022 15:30	48	494.7	4497.5	793	1.2

09/10/2022 15:31	48	494.8	4498	793	1.2
09/10/2022 15:32	48	495	4499.9	793	1.2
09/10/2022 15:33	48	494.9	4499.1	793	1.2
09/10/2022 15:34	48	494.8	4498.2	793	1.2
09/10/2022 15:35	48	495.1	4500.8	792	1.2
09/10/2022 15:36	48	494.6	4496.3	792.3	1.2
09/10/2022 15:37	48	494.9	4499.4	793	1.2
09/10/2022 15:38	48	494.8	4498.5	793	1.2
09/10/2022 15:39	48	495	4500.3	792.9	1.2
09/10/2022 15:40	48	495	4499.9	793	1.2
09/10/2022 15:41	48	494.8	4497.8	793	1.2
09/10/2022 15:42	48	494.8	4498.5	792.8	1.2
09/10/2022 15:43	48	494.7	4497.4	793	1.2
09/10/2022 15:44	48	494.4	4494.1	793.2	1.2
09/10/2022 15:45	48	495	4500.3	793.4	1.2
09/10/2022 15:46	48	494.7	4497.5	794	1.2
09/10/2022 15:47	48	494.9	4499.1	794	1.2
09/10/2022 15:48	48	494.8	4498.3	794	1.2
09/10/2022 15:49	48	494.8	4498.3	793.8	1.2
09/10/2022 15:50	48	494.9	4498.9	793	1.2
09/10/2022 15:51	48	494.8	4498.1	793	1.2
09/10/2022 15:52	48	494.7	4497.6	793	1.2
09/10/2022 15:53	48	494.7	4497	793	1.2
09/10/2022 15:54	48	495.3	4502.3	793	1.2
09/10/2022 15:55	48	494.4	4494.4	792.1	1.2
09/10/2022 15:56	48	494.9	4498.9	793	1.2
09/10/2022 15:57	48	494.9	4498.8	793	1.2
09/10/2022 15:58	48	494.8	4498.3	793	1.2
09/10/2022 15:59	48	494.9	4499.5	793	1.2
09/10/2022 16:00	48	494.8	4498.3	793	1.2
09/10/2022 16:01	48	495.2	4501.9	793.3	1.2
09/10/2022 16:02	48	494.8	4498	793.3	1.2
09/10/2022 16:03	48	495	4499.6	793	1.2
09/10/2022 16:04	48	494.8	4498	793	1.2
09/10/2022 16:05	48	494.7	4497.2	793	1.2
09/10/2022 16:06	48	494.7	4497.2	793	1.2
09/10/2022 16:07	48	494.7	4497.7	793	1.2
09/10/2022 16:08	48	495.1	4500.8	793	1.2
09/10/2022 16:09	48	494.8	4498.5	793	1.2
09/10/2022 16:10	48	495.1	4500.5	793	1.2
09/10/2022 16:11	48	495.1	4501.3	793	1.2
09/10/2022 16:12	48	494.8	4498.2	793	1.2
09/10/2022 16:13	48	495.1	4500.5	793	1.2
09/10/2022 16:14	48	495.2	4502.2	793.5	1.2
09/10/2022 16:15	48	494.8	4498.1	794	1.2
09/10/2022 16:16	48	495	4500.2	793.9	1.2
09/10/2022 16:17	48	495	4499.6	793	1.2
09/10/2022 16:18	48	494.9	4499.3	793.7	1.2
09/10/2022 16:19	48	495.1	4501.1	794	1.2
09/10/2022 16:20	48	494.8	4498.4	794	1.2
09/10/2022 16:21	48	494.8	4498.3	794	1.2
09/10/2022 16:22	48	494.5	4495.6	794	1.2
09/10/2022 16:23	48	494.9	4498.7	793.7	1.2
09/10/2022 16:24	48	495.4	4503.5	793.8	1.2
09/10/2022 16:25	48	495	4499.6	794	1.2
09/10/2022 16:26	48	494.9	4499.3	794	1.2
09/10/2022 16:27	48	495	4499.8	794	1.2
09/10/2022 16:28	48	494.8	4497.8	794	1.2
09/10/2022 16:29	48	494.9	4499.5	794	1.2
09/10/2022 16:30	48	495.2	4501.5	793.6	1.2
09/10/2022 16:31	48	494.9	4498.9	793	1.2

09/10/2022 16:32	48	495.3	4503	793.5	1.2
09/10/2022 16:33	48	495.5	4504.5	793.2	1.2
09/10/2022 16:34	48	495.1	4500.8	793.1	1.2
09/10/2022 16:35	48	494.6	4496.3	793	1.2
09/10/2022 16:36	48	495	4499.7	793	1.2
09/10/2022 16:37	48	494.9	4499.5	793.8	1.2
09/10/2022 16:38	48	494.6	4496.6	793	1.2
09/10/2022 16:39	48	494.6	4496.5	793	1.2
09/10/2022 16:40	48	495	4499.8	793	1.2
09/10/2022 16:41	48	495.3	4502.6	793	1.2
09/10/2022 16:42	48	494.6	4496.7	793	1.2
09/10/2022 16:43	48	495.1	4501	792.5	1.2
09/10/2022 16:44	48	495.1	4501	792.3	1.2
09/10/2022 16:45	48	495.1	4501.2	793	1.2
09/10/2022 16:46	48	494.9	4499.5	793	1.2
09/10/2022 16:47	48	494.9	4499.3	793	1.2
09/10/2022 16:48	48	495.1	4500.9	793	1.2
09/10/2022 16:49	48	495.2	4501.8	792.3	1.2
09/10/2022 16:50	48	495.1	4500.6	792.2	1.2
09/10/2022 16:51	48	495.3	4502.8	792.8	1.2
09/10/2022 16:52	48	495.1	4500.7	792.7	1.2
09/10/2022 16:53	48	495	4500.1	793	1.2
09/10/2022 16:54	48	494.7	4497	792.2	1.2
09/10/2022 16:55	48	495.2	4502	792.8	1.2
09/10/2022 16:56	48	494.9	4499.5	793	1.2
09/10/2022 16:57	48	495.2	4501.4	793	1.2
09/10/2022 16:58	48	495.1	4500.5	793	1.2
09/10/2022 16:59	48	494.9	4499	792.7	1.2
09/10/2022 17:00	48	495.1	4500.6	792	1.2
09/10/2022 17:01	48	495.3	4502.6	792	1.2
09/10/2022 17:02	48	495.1	4501.3	792.2	1.2
09/10/2022 17:03	48	494.9	4499	792.8	1.2
09/10/2022 17:04	48	494.9	4499.3	792	1.2
09/10/2022 17:05	48	495	4499.9	792.1	1.2
09/10/2022 17:06	48	494.9	4499.3	793	1.2
09/10/2022 17:07	48	494.5	4495.5	792.7	1.2
09/10/2022 17:08	48	495	4499.8	792.1	1.2
09/10/2022 17:09	48	495	4499.8	792.6	1.2
09/10/2022 17:10	48	495.2	4501.4	792.6	1.2
09/10/2022 17:11	48	495.1	4501.1	792.1	1.2
09/10/2022 17:12	48	495.1	4500.7	792	1.2
09/10/2022 17:13	48	494.9	4499	792	1.2
09/10/2022 17:14	48	495.2	4501.4	792.1	1.2
09/10/2022 17:15	48	495.1	4501	792	1.2
09/10/2022 17:16	48	494.8	4498.6	792	1.2
09/10/2022 17:17	48	494.8	4498.2	792	1.2
09/10/2022 17:18	48	494.9	4499.4	792	1.2
09/10/2022 17:19	48	494.8	4497.9	792	1.2
09/10/2022 17:20	48	494.8	4498.6	792	1.2
09/10/2022 17:21	48	494.9	4499.5	792	1.2
09/10/2022 17:22	48	494.6	4496.5	792	1.2
09/10/2022 17:23	48	495.1	4501	792	1.2
09/10/2022 17:24	48	495	4500.1	792	1.2
09/10/2022 17:25	48	494.9	4499.5	792	1.2
09/10/2022 17:26	48	495	4500.2	792	1.2
09/10/2022 17:27	48	495	4500	792	1.2
09/10/2022 17:28	48	495.2	4501.7	792	1.2
09/10/2022 17:29	48	495.1	4500.5	792	1.2
09/10/2022 17:30	48	495.1	4501.2	791.8	1.2
09/10/2022 17:31	48	494.9	4499	792	1.2
09/10/2022 17:32	48	495.4	4503.7	791.5	1.2

09/10/2022 17:33	48	494.9	4499.4	791.9	1.2
09/10/2022 17:34	48	494.8	4498.2	791.1	1.2
09/10/2022 17:35	48	494.9	4499.2	791.2	1.2
09/10/2022 17:36	48	494.8	4498.5	791	1.2
09/10/2022 17:37	48	494.6	4496.7	791	1.2
09/10/2022 17:38	48	495.2	4501.5	791.3	1.2
09/10/2022 17:39	48	494.9	4499.1	791.3	1.2
09/10/2022 17:40	48	495.1	4501.3	791	1.2
09/10/2022 17:41	48	494.6	4496.2	791.3	1.2
09/10/2022 17:42	48	495.1	4500.5	792	1.2
09/10/2022 17:43	48	494.8	4498.1	791.8	1.2
09/10/2022 17:44	48	495.2	4501.9	791	1.2

Grand Summaries

Avg: 48	Avg: 494.9	Avg: 4499.0	Avg: 792.6	Avg: 1.2
Sum: 9264	Sum: 95513.8	Sum: 868305.7	Sum: 152979.0	Sum: 231.6
Min: 48	Min: 494.4	Min: 4494.1	Min: 791.0	Min: 1.2
Max: 48	Max: 495.5	Max: 4504.5	Max: 794.0	Max: 1.2
Count: 193	Count: 193	Count: 193	Count: 193	Count: 193

Date/Time	UNIT13 LOADMW13 Value	UNIT13 HEATIN13 Value	UNIT13 GASFLW13 Value	UNIT13 CATEMP13 Value	UNIT13 WATERF13 Value
09/11/2022 06:22	48	493.2	4483.8	786.3	1.2
09/11/2022 06:23	48	493.2	4483.6	786.1	1.2
09/11/2022 06:24	48	492.8	4480.1	786	1.2
09/11/2022 06:25	48	492.8	4480.3	786	1.2
09/11/2022 06:26	48	492.9	4481	786.4	1.2
09/11/2022 06:27	48	493	4481.4	786.8	1.2
09/11/2022 06:28	48	492.8	4479.7	786.6	1.2
09/11/2022 06:29	48	492.8	4480.2	786.2	1.2
09/11/2022 06:30	48	492.8	4480.2	787	1.2
09/11/2022 06:31	48	492.8	4479.6	787.3	1.2
09/11/2022 06:32	48	493.3	4484.1	788	1.2
09/11/2022 06:33	48	492.6	4478	788	1.2
09/11/2022 06:34	48	492.9	4480.9	788	1.2
09/11/2022 06:35	48	492.5	4477.2	787.6	1.2
09/11/2022 06:36	48	492.5	4477.5	788	1.2
09/11/2022 06:37	48	492.6	4478.5	788	1.2
09/11/2022 06:38	48	492.7	4479.1	788	1.2
09/11/2022 06:39	48	492.5	4477.2	788	1.2
09/11/2022 06:40	48	492.8	4479.6	788	1.2
09/11/2022 06:41	48	492.6	4478.4	788.2	1.2
09/11/2022 06:42	48	492.4	4476.6	788.2	1.2
09/11/2022 06:43	48	492.5	4477.5	788	1.2
09/11/2022 06:44	48	492.3	4475.8	788.5	1.2
09/11/2022 06:45	48	492.4	4476.3	788.6	1.2
09/11/2022 06:46	48	492.6	4478.5	788.7	1.2
09/11/2022 06:47	48	492.6	4478.6	789	1.2
09/11/2022 06:48	48	492.4	4476.1	788.4	1.2
09/11/2022 06:49	48	492.5	4476.9	788.1	1.2
09/11/2022 06:50	48	492.5	4477.3	789	1.2
09/11/2022 06:51	48	492.5	4477.7	789	1.2
09/11/2022 06:52	48	492.5	4477.3	789	1.2
09/11/2022 06:53	48	492.3	4475.8	788.5	1.2
09/11/2022 06:54	48	492.4	4476.3	789	1.2
09/11/2022 06:55	48	492.6	4478.3	789	1.2
09/11/2022 06:56	48	492.3	4475.4	789	1.2
09/11/2022 06:57	48	492.5	4476.9	789	1.2
09/11/2022 06:58	48	492.6	4478	789	1.2
09/11/2022 06:59	48	492.5	4477.1	789	1.2
09/11/2022 07:00	48	492.2	4474.1	789	1.2
09/11/2022 07:01	48	492.4	4476.1	789	1.2
09/11/2022 07:02	48	492	4472.5	789	1.2
09/11/2022 07:03	48	492.4	4476.2	789	1.2
09/11/2022 07:04	48	492.5	4477.2	789	1.2
09/11/2022 07:05	48	492.2	4474.2	789	1.2
09/11/2022 07:06	48	492.2	4474.5	789	1.2
09/11/2022 07:07	48	492.2	4474.3	789	1.2
09/11/2022 07:08	48	492.2	4474.3	788.9	1.2
09/11/2022 07:09	48	492.3	4475.3	789	1.2
09/11/2022 07:10	48	492.3	4475.9	789	1.2
09/11/2022 07:11	48	492.5	4477.2	789	1.2
09/11/2022 07:12	48	492.4	4476.6	789	1.2
09/11/2022 07:13	48	492.5	4477.1	789	1.2
09/11/2022 07:14	48	492.4	4476.5	789.1	1.2
09/11/2022 07:15	48	492.4	4476.8	789.8	1.2
09/11/2022 07:16	48	492.5	4477.3	790	1.2
09/11/2022 07:17	48	492.1	4474	790	1.2
09/11/2022 07:18	48	492.4	4476.4	789.9	1.2
09/11/2022 07:19	48	492.3	4475.4	790	1.2
09/11/2022 07:20	48	492.3	4475.7	790	1.2

09/11/2022 07:21	48	492.2	4474.6	790	1.2
09/11/2022 07:22	48	492.3	4475	790	1.2
09/11/2022 07:23	48	492.1	4473.3	790.2	1.2
09/11/2022 07:24	48	492.2	4474.7	790	1.2
09/11/2022 07:25	48	492.3	4475.2	790	1.2
09/11/2022 07:26	48	492.2	4474.4	790	1.2
09/11/2022 07:27	48	492.2	4474.9	790	1.2
09/11/2022 07:28	48	492.3	4475.5	790	1.2
09/11/2022 07:29	48	492.5	4477.4	790	1.2
09/11/2022 07:30	48	492.4	4476.6	789.8	1.2
09/11/2022 07:31	48	492.4	4476	789.9	1.2
09/11/2022 07:32	48	492.4	4476.4	790	1.2
09/11/2022 07:33	48	492.3	4475.9	790	1.2
09/11/2022 07:34	48	492.4	4476.3	790	1.2
09/11/2022 07:35	48	492.5	4477.4	790	1.2
09/11/2022 07:36	48	492.2	4474.2	790	1.2
09/11/2022 07:37	48	492.5	4477.3	790	1.2
09/11/2022 07:38	48	492.3	4475.9	790	1.2
09/11/2022 07:39	48	492.3	4475.5	790.3	1.2
09/11/2022 07:40	48	492.5	4477	790	1.2
09/11/2022 07:41	48	492.4	4476.2	790	1.2
09/11/2022 07:42	48	492.4	4476	790	1.2
09/11/2022 07:43	48	492.5	4477.5	790.4	1.2
09/11/2022 07:44	48	492.8	4479.9	790.1	1.2
09/11/2022 07:45	48	492.4	4476.1	790	1.2
09/11/2022 07:46	48	492.5	4477.4	789.8	1.2
09/11/2022 07:47	48	492.5	4477	790.2	1.2
09/11/2022 07:48	48	492.3	4475.9	790	1.2
09/11/2022 07:49	48	492.3	4475.8	790	1.2
09/11/2022 07:50	48	492.4	4476.5	790.3	1.2
09/11/2022 07:51	48	492.2	4474.7	790.2	1.2
09/11/2022 07:52	48	492.7	4478.7	790.5	1.2
09/11/2022 07:53	48	492.2	4474.4	791	1.2
09/11/2022 07:54	48	492	4472.4	790.8	1.2
09/11/2022 07:55	48	492.5	4477.1	791	1.2
09/11/2022 07:56	48	492.5	4477	791	1.2
09/11/2022 07:57	48	492.3	4475.4	791	1.2
09/11/2022 07:58	48	492.3	4475.9	790.6	1.2
09/11/2022 07:59	48	492.1	4473.8	790.3	1.2
09/11/2022 08:00	48	492.1	4473.7	790.5	1.2
09/11/2022 08:01	48	492.4	4476	790.3	1.2
09/11/2022 08:02	48	492.5	4477.2	790	1.2
09/11/2022 08:03	48	492.2	4474.8	790	1.2
09/11/2022 08:04	48	492.4	4476.5	790	1.2
09/11/2022 08:05	48	492.5	4477.3	790.8	1.2
09/11/2022 08:06	48	492.2	4474.4	791	1.2
09/11/2022 08:07	48	492.7	4479.2	791	1.2
09/11/2022 08:08	48	492.1	4473.6	791	1.2
09/11/2022 08:09	48	492.3	4475.2	791	1.2
09/11/2022 08:10	48	492.3	4475.3	791	1.2
09/11/2022 08:11	48	492.1	4473.6	791	1.2
09/11/2022 08:12	48	492.4	4476.1	791	1.2
09/11/2022 08:13	48	492.4	4476.3	791	1.2
09/11/2022 08:14	48	492.5	4477.1	791	1.2
09/11/2022 08:15	48	492.3	4475.1	791	1.2
09/11/2022 08:16	48	492.4	4476.3	791	1.2
09/11/2022 08:17	48	492.1	4473.5	791	1.2
09/11/2022 08:18	48	492.4	4476.1	791	1.2
09/11/2022 08:19	48	492.5	4477.1	791	1.2
09/11/2022 08:20	48	492.3	4475.8	791	1.2
09/11/2022 08:21	48	492.4	4476.5	791.1	1.2

09/11/2022 08:22	48	492.5	4476.9	791	1.2
09/11/2022 08:23	48	492.1	4473.4	791	1.2
09/11/2022 08:24	48	492.3	4475	791	1.2
09/11/2022 08:25	48	492.3	4475.9	791.3	1.2
09/11/2022 08:26	48	492.4	4476.2	791.4	1.2
09/11/2022 08:27	48	492.4	4476.6	791.3	1.2
09/11/2022 08:28	48	491.9	4472.2	792	1.2
09/11/2022 08:29	48	492.1	4473.3	792	1.2
09/11/2022 08:30	48	492.2	4474.3	792	1.2
09/11/2022 08:31	48	492.3	4475.5	791.4	1.2
09/11/2022 08:32	48	492.1	4473.2	791.4	1.2
09/11/2022 08:33	48	492.6	4478.2	792	1.2
09/11/2022 08:34	48	492.3	4475.7	792	1.2
09/11/2022 08:35	48	491.9	4471.4	791.5	1.2
09/11/2022 08:36	48	492.2	4474.6	791	1.2
09/11/2022 08:37	48	492.3	4475.3	791.8	1.2
09/11/2022 08:38	48	492.5	4477.3	791.2	1.2
09/11/2022 08:39	48	492.1	4473.6	791	1.2
09/11/2022 08:40	48	492	4472.7	791	1.2
09/11/2022 08:41	48	492.4	4476.5	791	1.2
09/11/2022 08:42	48	492.3	4475.6	791	1.2
09/11/2022 08:43	48	492.3	4475.8	791.2	1.2
09/11/2022 08:44	48	492.3	4475.2	792	1.2
09/11/2022 08:45	48	492.2	4474.7	791.3	1.2
09/11/2022 08:46	48	492	4472.3	791	1.2
09/11/2022 08:47	48	492.1	4473.4	791	1.2
09/11/2022 08:48	48	492.3	4475.7	791	1.2
09/11/2022 08:49	48	492.3	4475.6	791	1.2
09/11/2022 08:50	48	492.4	4476.6	791.4	1.2
09/11/2022 08:51	48	492.3	4475.2	791.3	1.2
09/11/2022 08:52	48	492.1	4473.4	791.5	1.2
09/11/2022 08:53	48	492.1	4473.9	791	1.2
09/11/2022 08:54	48	492.1	4473.4	791	1.2
09/11/2022 08:55	48	492	4472.6	791	1.2
09/11/2022 08:56	48	492.1	4473.3	791.3	1.2
09/11/2022 08:57	48	492.5	4477.5	792	1.2
09/11/2022 08:58	48	492.6	4477.8	792	1.2
09/11/2022 08:59	48	492.3	4475.9	792	1.2
09/11/2022 09:00	48	492.6	4477.9	792	1.2
09/11/2022 09:01	48	492.2	4474.6	792	1.2
09/11/2022 09:02	48	491.8	4471.3	792	1.2
09/11/2022 09:03	48	492.4	4476.6	792	1.2
09/11/2022 09:04	48	492.2	4474.2	792	1.2
09/11/2022 09:05	48	492.2	4474.6	792	1.2
09/11/2022 09:06	48	492.7	4478.9	792	1.2
09/11/2022 09:07	48	492.2	4474.3	792	1.2
09/11/2022 09:08	48	492.1	4473.7	792	1.2
09/11/2022 09:09	48	492.1	4473.5	792	1.2
09/11/2022 09:10	48	492.3	4475.5	792	1.2
09/11/2022 09:11	48	492	4472.7	792	1.2
09/11/2022 09:12	48	492.1	4473.7	792	1.2
09/11/2022 09:13	48	492.3	4475.1	792	1.2
09/11/2022 09:14	48	492.4	4476	792.1	1.2
09/11/2022 09:15	48	491.9	4472	792	1.2
09/11/2022 09:16	48	492.4	4476.4	792.4	1.2
09/11/2022 09:17	48	492.4	4476.2	793	1.2
09/11/2022 09:18	48	492.2	4474.1	793	1.2
09/11/2022 09:19	48	491.9	4471.5	793	1.2
09/11/2022 09:20	48	492.3	4475.2	793	1.2
09/11/2022 09:21	48	492.2	4474.8	793	1.2
09/11/2022 09:22	48	492.2	4474.5	793	1.2

09/11/2022 09:23	48	492.2	4474.4	793	1.2
09/11/2022 09:24	48	492.3	4475	793	1.2
09/11/2022 09:25	48	491.9	4472.1	793	1.2
09/11/2022 09:26	48	491.8	4470.8	793	1.2
09/11/2022 09:27	48	492.1	4473.6	793	1.2
09/11/2022 09:28	48	492.2	4474.8	793	1.2
09/11/2022 09:29	48	491.9	4471.8	793	1.2
09/11/2022 09:30	48	492.1	4473.8	792.9	1.2
09/11/2022 09:31	48	492.3	4475.9	792.7	1.2
09/11/2022 09:32	48	492.4	4476.4	792.2	1.2
09/11/2022 09:33	48	492.4	4476.7	792	1.2
09/11/2022 09:34	48	492.2	4474.1	792	1.2
09/11/2022 09:35	48	492.1	4474	792	1.2

Grand Summaries					
Avg: 48	Avg: 492.4	Avg: 4475.9	Avg: 790.4	Avg: 1.2	
Sum: 9312	Sum: 95516.7	Sum: 868328.7	Sum: 153330.9	Sum: 232.8	
Min: 48	Min: 491.8	Min: 4470.8	Min: 786.0	Min: 1.2	
Max: 48	Max: 493.3	Max: 4484.1	Max: 793.0	Max: 1.2	
Count: 194	Count: 194	Count: 194	Count: 194	Count: 194	

Date/Time	UNIT13 LOADMW13 Value	UNIT13 HEATIN13 Value	UNIT13 GASFLW13 Value	UNIT13 CATEMP13 Value	UNIT13 WATERF13 Value
09/11/2022 09:45	48	492.3	4475.6	793	1.2
09/11/2022 09:46	48	492	4472.3	793	1.2
09/11/2022 09:47	48	492.7	4479	793	1.2
09/11/2022 09:48	48	492.2	4474.1	793	1.2
09/11/2022 09:49	48	492.4	4476.5	793	1.2
09/11/2022 09:50	48	492.4	4476.7	792.8	1.2
09/11/2022 09:51	48	491.8	4471.2	792.7	1.2
09/11/2022 09:52	48	492.3	4475.4	792.7	1.2
09/11/2022 09:53	48	492.1	4473.2	793	1.2
09/11/2022 09:54	48	492.5	4476.9	792.3	1.2
09/11/2022 09:55	48	492.2	4474.8	792.8	1.2
09/11/2022 09:56	48	492.1	4473.8	792.5	1.2
09/11/2022 09:57	48	492.2	4474.9	792	1.2
09/11/2022 09:58	48	492.2	4474.5	792	1.2
09/11/2022 09:59	48	492.6	4478.1	792	1.2
09/11/2022 10:00	48	492.4	4476.1	792.3	1.2
09/11/2022 10:01	48	492.1	4473.5	792.8	1.2
09/11/2022 10:02	48	492.3	4475.1	792.8	1.2
09/11/2022 10:03	48	492.4	4476.8	792.6	1.2
09/11/2022 10:04	48	492	4473	792	1.2
09/11/2022 10:05	48	492.4	4476	792	1.2
09/11/2022 10:06	48	492.4	4476.4	792	1.2
09/11/2022 10:07	48	492.5	4477.6	792	1.2
09/11/2022 10:08	48	492.3	4475.8	792	1.2
09/11/2022 10:09	48	491.8	4470.8	792	1.2
09/11/2022 10:10	48	492.1	4473.6	792.6	1.2
09/11/2022 10:11	48	492.3	4475.9	793	1.2
09/11/2022 10:12	48	492.1	4473.7	793	1.2
09/11/2022 10:13	48	492.4	4476.1	793.4	1.2
09/11/2022 10:14	48	492.1	4473.7	794	1.2
09/11/2022 10:15	48	492.3	4475.5	793.4	1.2
09/11/2022 10:16	48	492.1	4473.5	793	1.2
09/11/2022 10:17	48	492.2	4474.2	793.4	1.2
09/11/2022 10:18	48	492.5	4476.9	794	1.2
09/11/2022 10:19	48	492	4472.4	793.8	1.2
09/11/2022 10:20	48	492.3	4475	793	1.2
09/11/2022 10:21	48	492.2	4474.8	793	1.2
09/11/2022 10:22	48	492.1	4473.7	793	1.2
09/11/2022 10:23	48	492.3	4475.3	793	1.2
09/11/2022 10:24	48	491.8	4471.3	793	1.2
09/11/2022 10:25	48	492.1	4474	793	1.2
09/11/2022 10:26	48	492.3	4475.2	793	1.2
09/11/2022 10:27	48	492.3	4475.2	793	1.2
09/11/2022 10:28	48	492.2	4474.9	793	1.2
09/11/2022 10:29	48	492.2	4474.3	793	1.2
09/11/2022 10:30	48	492	4472.5	793.2	1.2
09/11/2022 10:31	48	492.4	4476.4	793	1.2
09/11/2022 10:32	48	492.2	4474.2	793	1.2
09/11/2022 10:33	48	492.1	4474	793.1	1.2
09/11/2022 10:34	48	492.3	4475	793	1.2
09/11/2022 10:35	48	492.3	4475.8	793	1.2
09/11/2022 10:36	48	492.2	4474.1	793.4	1.2
09/11/2022 10:37	48	492.1	4473.3	794	1.2
09/11/2022 10:38	48	492.3	4475.9	793.6	1.2
09/11/2022 10:39	48	492.1	4474	793.9	1.2
09/11/2022 10:40	48	492.2	4474.3	793.8	1.2
09/11/2022 10:41	48	492.3	4475.1	793.8	1.2
09/11/2022 10:42	48	492.2	4474.5	793.8	1.2
09/11/2022 10:43	48	492.1	4473.2	793.8	1.2

09/11/2022 10:44	48	492.2	4474.1	793.8	1.2
09/11/2022 10:45	48	492.1	4473.8	793.3	1.2
09/11/2022 10:46	48	492.4	4476.3	793.9	1.2
09/11/2022 10:47	48	491.9	4472.1	794	1.2
09/11/2022 10:48	48	492.5	4477.2	794.4	1.2
09/11/2022 10:49	48	492.3	4475	794.5	1.2
09/11/2022 10:50	48	492.3	4475.8	794.6	1.2
09/11/2022 10:51	48	492	4473.1	794.7	1.2
09/11/2022 10:52	48	492.4	4476	794.9	1.2
09/11/2022 10:53	48	492.4	4476.6	794.8	1.2
09/11/2022 10:54	48	492.4	4476.6	794.8	1.2
09/11/2022 10:55	48	492.1	4474	794.9	1.2
09/11/2022 10:56	48	492.2	4474.6	795	1.2
09/11/2022 10:57	48	492.4	4476.8	794.8	1.2
09/11/2022 10:58	48	492.2	4474.3	795.5	1.2
09/11/2022 10:59	48	492.3	4475.9	795.8	1.2
09/11/2022 11:00	48	492.6	4478.3	795.6	1.2
09/11/2022 11:01	48	492.2	4474.8	795.4	1.2
09/11/2022 11:02	48	492.5	4477.6	795.8	1.2
09/11/2022 11:03	48	492.3	4475	796	1.2
09/11/2022 11:04	48	492.5	4477.5	796.3	1.2
09/11/2022 11:05	48	492.2	4474.2	796	1.2
09/11/2022 11:06	48	492.5	4477.2	795.7	1.2
09/11/2022 11:07	48	492.4	4476.2	795.7	1.2
09/11/2022 11:08	48	492.3	4475	795.6	1.2
09/11/2022 11:09	48	492.3	4475.8	795.9	1.2
09/11/2022 11:10	48	492.4	4476.4	795.9	1.2
09/11/2022 11:11	48	492.6	4478	795.2	1.2
09/11/2022 11:12	48	492.4	4476.7	795.4	1.2
09/11/2022 11:13	48	492.2	4474.1	795.8	1.2
09/11/2022 11:14	48	492.6	4478.2	795.3	1.2
09/11/2022 11:15	48	492.4	4476.7	795.2	1.2
09/11/2022 11:16	48	492.6	4478.1	795	1.2
09/11/2022 11:17	48	492.5	4477.4	795.3	1.2
09/11/2022 11:18	48	492.2	4474.2	795.3	1.2
09/11/2022 11:19	48	492.6	4478.6	794.9	1.2
09/11/2022 11:20	48	492.5	4477.2	794.5	1.2
09/11/2022 11:21	48	492.4	4476.7	794.8	1.2
09/11/2022 11:22	48	492.3	4475.3	795	1.2
09/11/2022 11:23	48	492.4	4476.4	794.9	1.2
09/11/2022 11:24	48	492.4	4476	794.8	1.2
09/11/2022 11:25	48	492.3	4475	794.8	1.2
09/11/2022 11:26	48	492.3	4475.8	795.1	1.2
09/11/2022 11:27	48	492.3	4475.4	795.9	1.2
09/11/2022 11:28	48	492.3	4475	795.2	1.2
09/11/2022 11:29	48	492.6	4478.6	795.8	1.2
09/11/2022 11:30	48	492.6	4477.8	796	1.2
09/11/2022 11:31	48	492.5	4477.1	795.9	1.2
09/11/2022 11:32	48	492.4	4476	796	1.2
09/11/2022 11:33	48	492.7	4479.5	795.7	1.2
09/11/2022 11:34	48	492.1	4473.6	795.1	1.2
09/11/2022 11:35	48	492.6	4478.4	795.8	1.2
09/11/2022 11:36	48	492.7	4479.4	796	1.2
09/11/2022 11:37	48	492.5	4477.4	795.8	1.2
09/11/2022 11:38	48	492.5	4477	795.8	1.2
09/11/2022 11:39	48	492.3	4475	795.8	1.2
09/11/2022 11:40	48	492.5	4477.4	795.8	1.2
09/11/2022 11:41	48	492.7	4479.5	795.8	1.2
09/11/2022 11:42	48	492.3	4475.5	796	1.2
09/11/2022 11:43	48	492.5	4476.9	795.9	1.2
09/11/2022 11:44	48	492.3	4475.8	795.8	1.2

09/11/2022 11:45	48	492.6	4477.9	795.9	1.2
09/11/2022 11:46	48	492.5	4477.6	795.8	1.2
09/11/2022 11:47	48	492.4	4476.7	796	1.2
09/11/2022 11:48	48	492.7	4479.4	795.8	1.2
09/11/2022 11:49	48	492.7	4478.7	796	1.2
09/11/2022 11:50	48	492.4	4476.2	796	1.2
09/11/2022 11:51	48	492.3	4475.9	796	1.2
09/11/2022 11:52	48	492.2	4474.5	795.9	1.2
09/11/2022 11:53	48	492.3	4475.9	795.8	1.2
09/11/2022 11:54	48	492.8	4479.9	796	1.2
09/11/2022 11:55	48	492.3	4475.1	796	1.2
09/11/2022 11:56	48	492.6	4478.5	796	1.2
09/11/2022 11:57	48	492.3	4475.2	796	1.2
09/11/2022 11:58	48	492.4	4476.1	795.8	1.2
09/11/2022 11:59	48	492.5	4477.3	796	1.2
09/11/2022 12:00	48	492.3	4475.3	796	1.2
09/11/2022 12:01	48	492.5	4477	795.7	1.2
09/11/2022 12:02	48	492.8	4479.6	796	1.2
09/11/2022 12:03	48	492.8	4480.2	796	1.2
09/11/2022 12:04	48	492.6	4477.8	796	1.2
09/11/2022 12:05	48	492.3	4475.4	796	1.2
09/11/2022 12:06	48	492.8	4479.6	796	1.2
09/11/2022 12:07	48	492.6	4478.1	796	1.2
09/11/2022 12:08	48	492.6	4477.9	796	1.2
09/11/2022 12:09	48	492.4	4476.6	796	1.2
09/11/2022 12:10	48	492.4	4476.2	796	1.2
09/11/2022 12:11	48	492.6	4477.8	796	1.2
09/11/2022 12:12	48	492.6	4478.4	796	1.2
09/11/2022 12:13	48	492.4	4476	796	1.2
09/11/2022 12:14	48	492.7	4478.7	796	1.2
09/11/2022 12:15	48	492.7	4478.7	796	1.2
09/11/2022 12:16	48	492.8	4479.9	796	1.2
09/11/2022 12:17	48	492.7	4479	796	1.2
09/11/2022 12:18	48	492.2	4474.8	796	1.2
09/11/2022 12:19	48	492.7	4479	796	1.2
09/11/2022 12:20	48	492.8	4480.2	796	1.2
09/11/2022 12:21	48	492.4	4476.1	796	1.2
09/11/2022 12:22	48	492.5	4477.5	796	1.2
09/11/2022 12:23	48	492.5	4477.4	796	1.2
09/11/2022 12:24	48	492.3	4475.4	796	1.2
09/11/2022 12:25	48	492.4	4476.7	796	1.2
09/11/2022 12:26	48	492.4	4476.3	796	1.2
09/11/2022 12:27	48	492.4	4476.6	796	1.2
09/11/2022 12:28	48	492.2	4474.7	796	1.2
09/11/2022 12:29	48	492.6	4478.4	796	1.2
09/11/2022 12:30	48	492.7	4479.3	796	1.2
09/11/2022 12:31	48	492.6	4477.8	796	1.2
09/11/2022 12:32	48	492.3	4475.3	796	1.2
09/11/2022 12:33	48	492.6	4477.8	796	1.2
09/11/2022 12:34	48	492.6	4477.8	796	1.2
09/11/2022 12:35	48	492.9	4480.9	796	1.2
09/11/2022 12:36	48	492.3	4475.1	796	1.2
09/11/2022 12:37	48	492.5	4477.7	796	1.2
09/11/2022 12:38	48	492.4	4476.6	796	1.2
09/11/2022 12:39	48	492.4	4476.7	796	1.2
09/11/2022 12:40	48	492.7	4479.2	796	1.2
09/11/2022 12:41	48	492.5	4477	796	1.2
09/11/2022 12:42	48	492.7	4479.3	796	1.2
09/11/2022 12:43	48	492.5	4477.4	796	1.2
09/11/2022 12:44	48	492.5	4477.4	796	1.2
09/11/2022 12:45	48	492.5	4477.5	796	1.2

09/11/2022 12:46	48	492.4	4476.8	796.8	1.2
09/11/2022 12:47	48	492.5	4477.6	796.3	1.2
09/11/2022 12:48	48	492.7	4479.2	796	1.2
09/11/2022 12:49	48	492.6	4477.9	796	1.2
09/11/2022 12:50	48	492.5	4477.6	796	1.2
09/11/2022 12:51	48	492.7	4479.3	796	1.2
09/11/2022 12:52	48	492.8	4479.6	796	1.2
09/11/2022 12:53	48	492.6	4477.8	796	1.2
09/11/2022 12:54	48	492.5	4477.5	796	1.2
09/11/2022 12:55	48	492.5	4477.6	796	1.2
09/11/2022 12:56	48	492.4	4476.2	796	1.2
09/11/2022 12:57	48	492.6	4477.8	796	1.2

Grand Summaries

Avg: 48	Avg: 492.4	Avg: 4476.3	Avg: 794.8	Avg: 1.2
Sum: 9264	Sum: 95031.2	Sum: 863917.4	Sum: 153405.1	Sum: 231.6
Min: 48	Min: 491.8	Min: 4470.8	Min: 792.0	Min: 1.2
Max: 48	Max: 492.9	Max: 4480.9	Max: 796.8	Max: 1.2
Count: 193	Count: 193	Count: 193	Count: 193	Count: 193

Date/Time	UNIT13 LOADMW13 Value	UNIT13 HEATIN13 Value	UNIT13 GASFLW13 Value	UNIT13 CATEMP13 Value	UNIT13 WATERF13 Value
09/11/2022 12:58	48	492.3	4475.1	796	1.2
09/11/2022 12:59	48	492.4	4476.7	796	1.2
09/11/2022 13:00	48	492.6	4477.9	796.1	1.2
09/11/2022 13:01	48	492.3	4475.6	796.5	1.2
09/11/2022 13:02	48	492.8	4479.8	797	1.2
09/11/2022 13:03	48	492.8	4479.9	797	1.2
09/11/2022 13:04	48	492.4	4476.5	796.4	1.2
09/11/2022 13:05	48	492.6	4478	796	1.2
09/11/2022 13:06	48	492.6	4477.8	796	1.2
09/11/2022 13:07	48	492.5	4477.6	796	1.2
09/11/2022 13:08	48	492.6	4477.8	796	1.2
09/11/2022 13:09	48	492.5	4477.7	796.7	1.2
09/11/2022 13:10	48	492.4	4476.4	796.8	1.2
09/11/2022 13:11	48	492.6	4477.8	796.4	1.2
09/11/2022 13:12	48	492.4	4476.4	796	1.2
09/11/2022 13:13	48	492.4	4476.1	796	1.2
09/11/2022 13:14	48	492.3	4475.9	796	1.2
09/11/2022 13:15	48	492.4	4476.2	796	1.2
09/11/2022 13:16	48	492.5	4477.5	796	1.2
09/11/2022 13:17	48	492.5	4477.4	796	1.2
09/11/2022 13:18	48	492.5	4477.1	796	1.2
09/11/2022 13:19	48	492.4	4476.8	796	1.2
09/11/2022 13:20	48	492.6	4478.3	796.8	1.2
09/11/2022 13:21	48	492.6	4478.5	797	1.2
09/11/2022 13:22	48	492.6	4477.9	797	1.2
09/11/2022 13:23	48	492.3	4475.4	797	1.2
09/11/2022 13:24	48	492.3	4475.7	796.2	1.2
09/11/2022 13:25	48	492.3	4475.5	796	1.2
09/11/2022 13:26	48	492.5	4477	796.1	1.2
09/11/2022 13:27	48	492.7	4478.8	796	1.2
09/11/2022 13:28	48	492.5	4477.1	796.5	1.2
09/11/2022 13:29	48	492.6	4478.3	796	1.2
09/11/2022 13:30	48	492.6	4478.6	796	1.2
09/11/2022 13:31	48	492.5	4477.5	796	1.2
09/11/2022 13:32	48	492.9	4481.2	796	1.2
09/11/2022 13:33	48	492.4	4476.8	796	1.2
09/11/2022 13:34	48	492.4	4476.8	796	1.2
09/11/2022 13:35	48	492.3	4475.6	796	1.2
09/11/2022 13:36	48	492.5	4477.3	796	1.2
09/11/2022 13:37	48	492.6	4478	796	1.2
09/11/2022 13:38	48	492.2	4474.9	796	1.2
09/11/2022 13:39	48	492.4	4476	796	1.2
09/11/2022 13:40	48	492.4	4476.1	796	1.2
09/11/2022 13:41	48	492.6	4478	796	1.2
09/11/2022 13:42	48	492.4	4476.6	796	1.2
09/11/2022 13:43	48	492.6	4478.5	796	1.2
09/11/2022 13:44	48	492.3	4475.1	796	1.2
09/11/2022 13:45	48	492.6	4478.5	796	1.2
09/11/2022 13:46	48	492.5	4477.1	796	1.2
09/11/2022 13:47	48	492.4	4476.3	796	1.2
09/11/2022 13:48	48	492.5	4477.4	796	1.2
09/11/2022 13:49	48	492.2	4474.9	796	1.2
09/11/2022 13:50	48	492.5	4477.5	796	1.2
09/11/2022 13:51	48	492.6	4478.1	796	1.2
09/11/2022 13:52	48	492.3	4475.9	796	1.2
09/11/2022 13:53	48	492.3	4475.2	796	1.2
09/11/2022 13:54	48	492.6	4477.8	796	1.2
09/11/2022 13:55	48	492.6	4478	796	1.2
09/11/2022 13:56	48	492.4	4476	796	1.2

09/11/2022 13:57	48	492.6	4477.8	796	1.2
09/11/2022 13:58	48	492.3	4475.8	796	1.2
09/11/2022 13:59	48	492.7	4478.7	796	1.2
09/11/2022 14:00	48	492.8	4479.8	796	1.2
09/11/2022 14:01	48	492.5	4477.7	796	1.2
09/11/2022 14:02	48	492.6	4478	796	1.2
09/11/2022 14:03	48	492.5	4477.7	796	1.2
09/11/2022 14:04	48	492.4	4476.3	796	1.2
09/11/2022 14:05	48	492.4	4476.8	796	1.2
09/11/2022 14:06	48	492.5	4477	796	1.2
09/11/2022 14:07	48	492.4	4476.2	796	1.2
09/11/2022 14:08	48	492.4	4476	796	1.2
09/11/2022 14:09	48	492.4	4476.3	796	1.2
09/11/2022 14:10	48	492.2	4474.5	796	1.2
09/11/2022 14:11	48	492.5	4477.6	796	1.2
09/11/2022 14:12	48	492.7	4479.3	796.3	1.2
09/11/2022 14:13	48	492.5	4477.5	796	1.2
09/11/2022 14:14	48	492.3	4475.3	796	1.2
09/11/2022 14:15	48	493	4481.7	796	1.2
09/11/2022 14:16	48	492.6	4478.2	796	1.2
09/11/2022 14:17	48	492.8	4479.7	796	1.2
09/11/2022 14:18	48	492.6	4478	796	1.2
09/11/2022 14:19	48	492.7	4478.8	796	1.2
09/11/2022 14:20	48	492.3	4475.5	796	1.2
09/11/2022 14:21	48	492.5	4477.4	796	1.2
09/11/2022 14:22	48	492.4	4476.5	796	1.2
09/11/2022 14:23	48	492.5	4476.9	796.2	1.2
09/11/2022 14:24	48	492.3	4475.8	796.2	1.2
09/11/2022 14:25	48	492.3	4475.7	797	1.2
09/11/2022 14:26	48	492.1	4473.3	797	1.2
09/11/2022 14:27	48	492.4	4476.7	797	1.2
09/11/2022 14:28	48	492.3	4475.2	797	1.2
09/11/2022 14:29	48	492.5	4477.7	797	1.2
09/11/2022 14:30	48	492.6	4478.4	797	1.2
09/11/2022 14:31	48	492.6	4478.1	796.9	1.2
09/11/2022 14:32	48	492.4	4476.6	796.8	1.2
09/11/2022 14:33	48	492.4	4476.5	796.8	1.2
09/11/2022 14:34	48	492.5	4477.7	797	1.2
09/11/2022 14:35	48	492.6	4478.1	797	1.2
09/11/2022 14:36	48	492.4	4476.5	797	1.2
09/11/2022 14:37	48	492.4	4476.6	797	1.2
09/11/2022 14:38	48	492.1	4474	797	1.2
09/11/2022 14:39	48	492.9	4480.5	797	1.2
09/11/2022 14:40	48	492.6	4478.6	797	1.2
09/11/2022 14:41	48	492.6	4478.1	797	1.2
09/11/2022 14:42	48	492.4	4476.5	797	1.2
09/11/2022 14:43	48	492.5	4477.7	797	1.2
09/11/2022 14:44	48	492.3	4475.9	797	1.2
09/11/2022 14:45	48	492.7	4478.7	797	1.2
09/11/2022 14:46	48	492.4	4476.6	797	1.2
09/11/2022 14:47	48	492.7	4478.8	797	1.2
09/11/2022 14:48	48	492.4	4476.8	797	1.2
09/11/2022 14:49	48	492.7	4478.9	797	1.2
09/11/2022 14:50	48	493.1	4482.8	797	1.2
09/11/2022 14:51	48	493	4481.5	797	1.2
09/11/2022 14:52	48	492.7	4478.7	797	1.2
09/11/2022 14:53	48	493.1	4483.1	797	1.2
09/11/2022 14:54	48	492.6	4478.5	797	1.2
09/11/2022 14:55	48	492.4	4476.4	797.1	1.2
09/11/2022 14:56	48	492.7	4478.8	797.4	1.2
09/11/2022 14:57	48	493.2	4483.2	797.4	1.2

09/11/2022 14:58	48	492.5	4477.4	797	1.2
09/11/2022 14:59	48	493.1	4483	797	1.2
09/11/2022 15:00	48	492.8	4479.7	797	1.2
09/11/2022 15:01	48	492.7	4478.7	797	1.2
09/11/2022 15:02	48	492.9	4480.8	797	1.2
09/11/2022 15:03	48	492.7	4479.5	797	1.2
09/11/2022 15:04	48	492.6	4478.6	797	1.2
09/11/2022 15:05	48	493	4482	797	1.2
09/11/2022 15:06	48	492.8	4479.7	797	1.2
09/11/2022 15:07	48	492.9	4481.2	797	1.2
09/11/2022 15:08	48	492.9	4480.6	797	1.2
09/11/2022 15:09	48	493.1	4482.9	797.8	1.2
09/11/2022 15:10	48	492.9	4480.8	797.6	1.2
09/11/2022 15:11	48	493	4481.8	798	1.2
09/11/2022 15:12	48	493.1	4482.4	797.3	1.2
09/11/2022 15:13	48	493	4482.2	797.8	1.2
09/11/2022 15:14	48	493	4482.1	797.4	1.2
09/11/2022 15:15	48	492.5	4477.5	797.8	1.2
09/11/2022 15:16	48	493.1	4482.5	797	1.2
09/11/2022 15:17	48	492.9	4480.5	797	1.2
09/11/2022 15:18	48	492.9	4480.5	797.1	1.2
09/11/2022 15:19	48	493.3	4484.1	797.3	1.2
09/11/2022 15:20	48	494.1	4491.4	793.6	1.2
09/11/2022 15:21	48	494.3	4493.6	793	1.2
09/11/2022 15:22	48	494.3	4493.7	793.3	1.2
09/11/2022 15:23	48	494.9	4498.8	793.7	1.2
09/11/2022 15:24	48	494.6	4496.7	794	1.2
09/11/2022 15:25	48	494.5	4495.7	794	1.2
09/11/2022 15:26	48	494.8	4497.9	794	1.2
09/11/2022 15:27	48	494.8	4498.1	794	1.2
09/11/2022 15:28	48	494.7	4497.3	794	1.2
09/11/2022 15:29	48	494.5	4495.6	794	1.2
09/11/2022 15:30	48	494.5	4495.1	794	1.2
09/11/2022 15:31	48	494.9	4499.2	794	1.2
09/11/2022 15:32	48	494.3	4493.4	794	1.2
09/11/2022 15:33	48	494.4	4494.2	794	1.2
09/11/2022 15:34	48	494.2	4493	794	1.2
09/11/2022 15:35	48	494.7	4497.1	794	1.2
09/11/2022 15:36	48	494.6	4496.7	794	1.2
09/11/2022 15:37	48	494.8	4498.6	794	1.2
09/11/2022 15:38	48	494.5	4495.4	794	1.2
09/11/2022 15:39	48	494.5	4495.4	794	1.2
09/11/2022 15:40	48	494.7	4497.6	794.1	1.2
09/11/2022 15:41	48	494.5	4495.4	794.7	1.2
09/11/2022 15:42	48	494.6	4496.2	794	1.2
09/11/2022 15:43	48	494.7	4497.2	794	1.2
09/11/2022 15:44	48	494.4	4494.8	794	1.2
09/11/2022 15:45	48	494.7	4497.6	794	1.2
09/11/2022 15:46	48	494.6	4496.2	794	1.2
09/11/2022 15:47	48	494.5	4495.9	794	1.2
09/11/2022 15:48	48	494.6	4496.2	794	1.2
09/11/2022 15:49	48	494.9	4499	794	1.2
09/11/2022 15:50	48	494.9	4498.7	794	1.2
09/11/2022 15:51	48	494.4	4494.7	794	1.2
09/11/2022 15:52	48	494.7	4496.9	794	1.2
09/11/2022 15:53	48	494.4	4494.3	794	1.2
09/11/2022 15:54	48	494.7	4497.3	794.1	1.2
09/11/2022 15:55	48	494.5	4495.1	794.1	1.2
09/11/2022 15:56	48	494.2	4492.9	794	1.2
09/11/2022 15:57	48	494.3	4493.7	794	1.2
09/11/2022 15:58	48	494.3	4493.2	794	1.2

09/11/2022 15:59	48	494.6	4496.2	794	1.2
09/11/2022 16:00	48	494.2	4493.1	794	1.2
09/11/2022 16:01	48	494.6	4496.8	794	1.2
09/11/2022 16:02	48	494.5	4495.1	793.9	1.2
09/11/2022 16:03	48	494.4	4494.2	793.5	1.2
09/11/2022 16:04	48	494.5	4495.2	793.1	1.2
09/11/2022 16:05	48	494.6	4496.8	793	1.2
09/11/2022 16:06	48	494.8	4498.5	793	1.2
09/11/2022 16:07	48	494.5	4495.6	793	1.2
09/11/2022 16:08	48	494.2	4492.6	792.9	1.2
09/11/2022 16:09	48	494.6	4496.3	792.4	1.2
09/11/2022 16:10	48	494.9	4498.8	792.8	1.2
09/11/2022 16:11	48	494.2	4493.1	792	1.2
09/11/2022 16:12	48	494.4	4494.3	792.1	1.2
09/11/2022 16:13	48	494.6	4496.1	792	1.2

Grand Summaries

Avg: 48	Avg: 493.1	Avg: 4482.9	Avg: 795.7	Avg: 1.2
Sum: 9408	Sum: 96650.2	Sum: 878639.2	Sum: 155963.0	Sum: 235.2
Min: 48	Min: 492.1	Min: 4473.3	Min: 792.0	Min: 1.2
Max: 48	Max: 494.9	Max: 4499.2	Max: 798.0	Max: 1.2
Count: 196	Count: 196	Count: 196	Count: 196	Count: 196

Date/Time	UNIT13 LOADMW13 Value	UNIT13 HEATIN13 Value	UNIT13 GASFLW13 Value	UNIT13 CATEMP13 Value	UNIT13 WATERF13 Value
09/11/2022 16:14	48	494.3	4493.8	792	1.2
09/11/2022 16:15	48	494.3	4493.7	792	1.2
09/11/2022 16:16	48	494.5	4495.9	792	1.2
09/11/2022 16:17	48	494.4	4494.1	791.8	1.2
09/11/2022 16:18	48	494.5	4495.9	792	1.2
09/11/2022 16:19	48	494.6	4496.4	792	1.2
09/11/2022 16:20	48	494.4	4494.5	792	1.2
09/11/2022 16:21	48	494.5	4495.8	792.1	1.2
09/11/2022 16:22	48	494.5	4495.1	793	1.2
09/11/2022 16:23	48	494.1	4492	793	1.2
09/11/2022 16:24	48	494.6	4496.5	793	1.2
09/11/2022 16:25	48	494.5	4495.9	793	1.2
09/11/2022 16:26	48	494.4	4494.7	793	1.2
09/11/2022 16:27	48	494.5	4495.4	793	1.2
09/11/2022 16:28	48	494.4	4494.1	793	1.2
09/11/2022 16:29	48	494.6	4496.6	793	1.2
09/11/2022 16:30	48	494.3	4493.6	793	1.2
09/11/2022 16:31	48	494.5	4495	793	1.2
09/11/2022 16:32	48	494.6	4496.8	792.6	1.2
09/11/2022 16:33	48	494.4	4494.9	792.1	1.2
09/11/2022 16:34	48	494.4	4494.3	792.7	1.2
09/11/2022 16:35	48	494.7	4497	793	1.2
09/11/2022 16:36	48	494.5	4495.5	793	1.2
09/11/2022 16:37	48	494.2	4492.7	793	1.2
09/11/2022 16:38	48	494.5	4495.6	792.5	1.2
09/11/2022 16:39	48	494.6	4496.3	792.8	1.2
09/11/2022 16:40	48	494.6	4496.2	793	1.2
09/11/2022 16:41	48	494.3	4494	793	1.2
09/11/2022 16:42	48	494.2	4492.9	793	1.2
09/11/2022 16:43	48	494.4	4494.4	793	1.2
09/11/2022 16:44	48	494.1	4492	793	1.2
09/11/2022 16:45	48	494.6	4496.2	793	1.2
09/11/2022 16:46	48	494.3	4493.2	793	1.2
09/11/2022 16:47	48	494.4	4494.5	793	1.2
09/11/2022 16:48	48	494.5	4495.4	793	1.2
09/11/2022 16:49	48	494.7	4497.3	793	1.2
09/11/2022 16:50	48	494.3	4493.2	793	1.2
09/11/2022 16:51	48	494.5	4495.8	793	1.2
09/11/2022 16:52	48	494.6	4496.2	793	1.2
09/11/2022 16:53	48	494.7	4496.9	793	1.2
09/11/2022 16:54	48	494.7	4496.9	793	1.2
09/11/2022 16:55	48	494.6	4496	793	1.2
09/11/2022 16:56	48	494.4	4494.3	793	1.2
09/11/2022 16:57	48	494.3	4493.8	793	1.2
09/11/2022 16:58	48	494.6	4496.8	793	1.2
09/11/2022 16:59	48	494.6	4496.3	793.1	1.2
09/11/2022 17:00	48	494.7	4497.4	793	1.2
09/11/2022 17:01	48	494.6	4496.3	793	1.2
09/11/2022 17:02	48	494.6	4496.2	793	1.2
09/11/2022 17:03	48	494.4	4494.8	793	1.2
09/11/2022 17:04	48	494.4	4494.9	793	1.2
09/11/2022 17:05	48	494.4	4494.5	793	1.2
09/11/2022 17:06	48	494.8	4497.8	793	1.2
09/11/2022 17:07	48	494.7	4497.3	793	1.2
09/11/2022 17:08	48	494.7	4497.7	793	1.2
09/11/2022 17:09	48	494.6	4496.8	793	1.2
09/11/2022 17:10	48	494.7	4497.1	793	1.2
09/11/2022 17:11	48	494.5	4495.1	793	1.2
09/11/2022 17:12	48	494.8	4498	793	1.2

09/11/2022 17:13	48	494.4	4494.4	793	1.2
09/11/2022 17:14	48	494.4	4494.9	793	1.2
09/11/2022 17:15	48	494.3	4493.6	793.1	1.2
09/11/2022 17:16	48	494.9	4499.3	793.8	1.2
09/11/2022 17:17	48	494.5	4495.2	793.5	1.2
09/11/2022 17:18	48	494.5	4495.6	793.1	1.2
09/11/2022 17:19	48	494.5	4495	793	1.2
09/11/2022 17:20	48	494.6	4496.7	793	1.2
09/11/2022 17:21	48	494.9	4498.8	793	1.2
09/11/2022 17:22	48	494.7	4497.5	793	1.2
09/11/2022 17:23	48	494.7	4497	793	1.2
09/11/2022 17:24	48	494.4	4494.3	793	1.2
09/11/2022 17:25	48	494.5	4495.6	793	1.2
09/11/2022 17:26	48	494.7	4497	793	1.2
09/11/2022 17:27	48	494.5	4495.8	793	1.2
09/11/2022 17:28	48	494.4	4494.3	793	1.2
09/11/2022 17:29	48	494.8	4498	793	1.2
09/11/2022 17:30	48	494.5	4495.2	793	1.2
09/11/2022 17:31	48	494	4490.6	793	1.2
09/11/2022 17:32	48	494.5	4495.2	793	1.2
09/11/2022 17:33	48	494.5	4495.2	793	1.2
09/11/2022 17:34	48	494.7	4497	793	1.2
09/11/2022 17:35	48	494.5	4495.7	793	1.2
09/11/2022 17:36	48	494.9	4498.7	793	1.2
09/11/2022 17:37	48	494.3	4493.7	793	1.2
09/11/2022 17:38	48	494.5	4495.8	793	1.2
09/11/2022 17:39	48	494.4	4494.2	793	1.2
09/11/2022 17:40	48	494.2	4493.1	793	1.2
09/11/2022 17:41	48	494.3	4493.5	793	1.2
09/11/2022 17:42	48	494.5	4495.5	793	1.2
09/11/2022 17:43	48	494.8	4497.8	792.5	1.2
09/11/2022 17:44	48	494.8	4498	793	1.2
09/11/2022 17:45	48	494.4	4494.6	793	1.2
09/11/2022 17:46	48	494.1	4492	793	1.2
09/11/2022 17:47	48	494.7	4496.9	792.8	1.2
09/11/2022 17:48	48	494.6	4496.2	792.8	1.2
09/11/2022 17:49	48	494.6	4496.3	793	1.2
09/11/2022 17:50	48	494.5	4495.5	793	1.2
09/11/2022 17:51	48	494.5	4495.7	793	1.2
09/11/2022 17:52	48	494.4	4494.2	793	1.2
09/11/2022 17:53	48	494.5	4495.5	793	1.2
09/11/2022 17:54	48	494.3	4494	793	1.2
09/11/2022 17:55	48	494.8	4498.5	793	1.2
09/11/2022 17:56	48	494.4	4494.3	793	1.2
09/11/2022 17:57	48	494.6	4496.5	793	1.2
09/11/2022 17:58	48	494.6	4496.2	793	1.2
09/11/2022 17:59	48	494.7	4497	793	1.2
09/11/2022 18:00	48	494.5	4495.2	793	1.2
09/11/2022 18:01	48	494.4	4494.8	793	1.2
09/11/2022 18:02	48	494.3	4494	793	1.2
09/11/2022 18:03	48	494.5	4495.4	793	1.2
09/11/2022 18:04	48	494.8	4498.1	793	1.2
09/11/2022 18:05	48	494.6	4496.2	793	1.2
09/11/2022 18:06	48	494.6	4496.7	793	1.2
09/11/2022 18:07	48	494.5	4495.3	793	1.2
09/11/2022 18:08	48	494.9	4499.5	793	1.2
09/11/2022 18:09	48	494.5	4495.8	793	1.2
09/11/2022 18:10	48	494.5	4495.2	793	1.2
09/11/2022 18:11	48	494.2	4492.9	793	1.2
09/11/2022 18:12	48	494.9	4499.3	793	1.2
09/11/2022 18:13	48	494.4	4494.3	793	1.2

09/11/2022 18:14	48	494.6	4496.4	793	1.2
09/11/2022 18:15	48	494.4	4494.2	792.6	1.2
09/11/2022 18:16	48	494.5	4495.3	792.8	1.2
09/11/2022 18:17	48	494.3	4493.2	792.7	1.2
09/11/2022 18:18	48	494.4	4494.6	792.3	1.2
09/11/2022 18:19	48	494.5	4495.9	792	1.2
09/11/2022 18:20	48	494.5	4495.9	792	1.2
09/11/2022 18:21	48	494.3	4493.8	792	1.2
09/11/2022 18:22	48	494.3	4493.6	792	1.2
09/11/2022 18:23	48	494.5	4495.1	792	1.2
09/11/2022 18:24	48	494.4	4494.9	792	1.2
09/11/2022 18:25	48	494.6	4496.8	792	1.2
09/11/2022 18:26	48	494.6	4496.4	792	1.2
09/11/2022 18:27	48	494.5	4495.2	792	1.2
09/11/2022 18:28	48	494.4	4494.2	792	1.2
09/11/2022 18:29	48	494.6	4496.5	791.8	1.2
09/11/2022 18:30	48	494.5	4495.4	791.3	1.2
09/11/2022 18:31	48	494.6	4496.6	791	1.2
09/11/2022 18:32	48	494.4	4494.4	791	1.2
09/11/2022 18:33	48	494.3	4494	791.5	1.2
09/11/2022 18:34	48	493.7	4488	795.1	1.2
09/11/2022 18:35	48	493.9	4489.6	794.9	1.2
09/11/2022 18:36	48	493.2	4483.9	795	1.2
09/11/2022 18:37	48	493.4	4485.3	794.5	1.2
09/11/2022 18:38	48	493.4	4485.3	794	1.2
09/11/2022 18:39	48	492.8	4480.1	794	1.2
09/11/2022 18:40	48	492.9	4480.9	793.7	1.2
09/11/2022 18:41	48	493	4482.2	794	1.2
09/11/2022 18:42	48	493.2	4483.6	794.1	1.2
09/11/2022 18:43	48	493	4482.2	794.3	1.2
09/11/2022 18:44	48	493	4481.9	794.5	1.2
09/11/2022 18:45	48	493.1	4482.7	794.5	1.2
09/11/2022 18:46	48	493.2	4483.2	794.1	1.2
09/11/2022 18:47	48	492.8	4479.6	794.5	1.2
09/11/2022 18:48	48	493.2	4483.9	794.7	1.2
09/11/2022 18:49	48	493	4481.7	794.3	1.2
09/11/2022 18:50	48	493	4481.9	794.8	1.2
09/11/2022 18:51	48	493	4482	794.6	1.2
09/11/2022 18:52	48	492.9	4480.8	794.8	1.2
09/11/2022 18:53	48	493.2	4484	794.9	1.2
09/11/2022 18:54	48	492.8	4479.7	795	1.2
09/11/2022 18:55	48	492.8	4480.3	794.9	1.2
09/11/2022 18:56	48	493.3	4484.2	794.9	1.2
09/11/2022 18:57	48	492.8	4480.2	794.7	1.2
09/11/2022 18:58	48	493	4481.4	794.1	1.2
09/11/2022 18:59	48	492.8	4479.8	794.1	1.2
09/11/2022 19:00	48	492.9	4481.3	793.9	1.2
09/11/2022 19:01	48	492.8	4480.2	794	1.2
09/11/2022 19:02	48	492.6	4478.3	794	1.2
09/11/2022 19:03	48	493	4482.1	794	1.2
09/11/2022 19:04	48	493.2	4483.2	794	1.2
09/11/2022 19:05	48	492.7	4479.1	794.5	1.2
09/11/2022 19:06	48	493.2	4484	794	1.2
09/11/2022 19:07	48	492.8	4480.3	794	1.2
09/11/2022 19:08	48	492.7	4479.5	793.9	1.2
09/11/2022 19:09	48	492.7	4479.5	793.4	1.2
09/11/2022 19:10	48	492.9	4480.5	793.9	1.2
09/11/2022 19:11	48	493.1	4482.7	794	1.2
09/11/2022 19:12	48	493.1	4482.8	794.5	1.2
09/11/2022 19:13	48	492.9	4481	794.2	1.2
09/11/2022 19:14	48	493	4481.6	794.3	1.2

09/11/2022 19:15	48	492.9	4481	794	1.2
09/11/2022 19:16	48	492.8	4480.2	794.2	1.2
09/11/2022 19:17	48	492.8	4479.9	794.3	1.2
09/11/2022 19:18	48	492.9	4480.7	794.8	1.2
09/11/2022 19:19	48	492.7	4478.8	794.5	1.2
09/11/2022 19:20	48	493	4481.7	794.6	1.2
09/11/2022 19:21	48	492.5	4477.7	794.2	1.2
09/11/2022 19:22	48	492.6	4478	794.5	1.2
09/11/2022 19:23	48	492.8	4480.1	794.6	1.2
09/11/2022 19:24	48	492.9	4480.9	794.1	1.2
09/11/2022 19:25	48	492.9	4481.2	794	1.2
09/11/2022 19:26	48	493	4481.5	794.2	1.2

Grand Summaries

Avg: 48	Avg: 494.1	Avg: 4491.7	Avg: 793.2	Avg: 1.2
Sum: 9264	Sum: 95358.5	Sum: 866895.2	Sum: 153089.9	Sum: 231.6
Min: 48	Min: 492.5	Min: 4477.7	Min: 791.0	Min: 1.2
Max: 48	Max: 494.9	Max: 4499.5	Max: 795.1	Max: 1.2
Count: 193	Count: 193	Count: 193	Count: 193	Count: 193

Appendix F - Field Data Sheets

Three Dimensional Volumetric Flow Rate Determination Field Data Sheet

Project Number: M223610 Date: 9-9-22
 Client: Middleton LLC GenComm Middleton ^{-BWH} Test Number: Site Acceptability
 Test Location: U13 Start Time: 6:43
 Source Condition: Natural Gas End Time: 7:17
 Test Engineer: SMCG Test Tech: RNS

Duct Diameter 12 ft
 Flue Area 113.10 ft²
 Port Length 10 "
 P_{bar} 30.0 "Hg CO₂ % 3.8
 Static -1.7 "H₂O O₂ % 14.7
 Static NA "Hg N₂ % 81.5
 P_s 29.88 "Hg Meter ID 3D-1
 Upstream Disturbance, Diameters 12.21
 Downstream Disturbance, Diameters 1.92
 Probe ID 3D-064
 Wet Bulb Temp NA
 Dry Bulb Temp NA
 B_{ws} .110
 Umbilical ID NA
 Leak Checks Passed @
 Pre ☒ Inches H₂O
 Post ☒ Inches H₂O

Sheet 1 of 2

Port/Point	P ₁ -P ₂	P ₄ -P ₅	Stack Temp.	Yaw Angle
1-1	1.2	.03	780	4.3
2	1.3	.03	781	6.9
3	1.2	.03	782	.4
4	1.1	.03	785	0
5	1.0	.04	783	8.1
6	.89	.04	783	8.3
7	.84	.03	783	8.1
8	.70	.03	782	8.3
9	.61	.03	782	7.3
10	.57	.03	780	7.0
2-1	1.1	.03	779	.4
2	.93	.04	787	8.1
3	.89	.03	790	4.4
4	.85	.03	779	2.4
5	.77	.03	779	2.6
6	.75	.03	780	3.2
7	.72	.03	780	2.8
8	.65	.03	779	1.4
9	.65	.03	778	6.0
10	.58	.03	779	3.2

SCFH _____

Three Dimensional Volumetric Flow Rate Determination Field Data Sheet

Project Number: M223610 Date: 9-9-22
 Client: Middleton LLC GenConn Middleton ^{BWH} Test Number: Site Acceptability
 Test Location: U13 Start Time: 6:43
 Source Condition: Natural Gas End Time: 7:17
 Test Engineer: SMCG Test Tech: RNS

Duct Diameter 12 ft
 Flue Area 113.10 ft²
 Port Length 10 "
 P_{bar} 30.8 "Hg CO₂ % 3.8
 Static -1.7 "H₂O O₂ % 14.7
 Static NA "Hg N₂ % 81.5
 P_s 29.88 "Hg Meter ID 3D-1
 Upstream Disturbance, Diameters 12,21
 Downstream Disturbance, Diameters 1.92
 Probe ID 3D-064
 Wet Bulb Temp NA
 Dry Bulb Temp NA
 B_{ws} 110
 Umbilical ID NA
 Leak Checks Passed @
 Pre ☒ Inches H₂O
 Post ☒ Inches H₂O

Sheet 2 of 2

Port/Point	P ₁ -P ₂	P ₄ -P ₅	Stack Temp.	Yaw Angle
3-1	1.1	.03	783	6.9
2	1.1	.03	785	9.2
3	.87	.03	787	8.8
4	.97	.03	787	9.6
5	1.1	.03	788	8.7
6	1.0	.03	789	7.5
7	1.0	.03	789	4.8
8	1.0	.03	789	10.4
9	.85	.03	788	9.2
10	.79	.03	788	9.8
4-1	1.2	.03	786	.7
2	1.3	.04	789	6.6
3	1.2	.04	790	7.6
4	.97	.04	790	4.9
5	.95	.03	790	5.8
6	.92	.03	790	5.0
7	.60	.03	789	9.6
8	.55	.03	788	4.9
9	.52	.03	788	.3
10	.52	.03	786	7.4

SCFH _____

Isokinetic Sampling Cover Sheet

Client:	GenConn Middleton, LLC	Pitot Tube Cp:	.840
Facility:	Middleton Plant	Probe Length (Feet):	6
Test Location:	Unit 13 / Unit 15	Probe Liner Material:	Glass
Project #:	M223610	Sample Plane:	Horiz. or Vert.
Test Method(s):	5/29	Port Length ("):	10
Test Engineer:	SMCG	Port Diameter ("):	6
Test Technician:	JVC/WJD	Port Type:	Flange
Upstream Diameters:	12.2	Duct Shape:	Circ. or Rect.
Downstream Diameters:	1.9	Diameter (Feet):	12
# of Ports Sampled:	4	Length (Feet):	-
# of Points per Port:	10	Width (Feet):	-
Source Condition:	Natural Gas / Fuel Oil	Duct Area (Sq. Feet):	113.097
Diluent Model/SN:	Ecom 707	Minutes per Point:	4.5
Mid Gas ID/concentration:	SG9158365 1%CO2 9.789 %O2 10.01	Total Traverse Points:	40
High Gas ID/concentration:	W13939 1%CO2 18.16 %O2 19.54	Test Length (Min.):	180
Moisture Balance ID:	10002 / S10-17	Train Type:	Anderson

R# 1 U13

R# 3 U15

R# ~~4~~

Meter ID:	CM13	CM7	CM7
Pitot ID:	120	120	120
Filter ID:	4367	4365	4304
Filter Pre-Weight (g):		0.45096	0.46425
Nozzle Diameter ("):	.271	.271	.271
Meter Cal Factor (Y):	0.988	0.997	0.997
Meter Orifice Setting (ΔH):	1.483	1.601	1.601
Nozzle Kit ID:	Q2	Q2	Q2
Individual Nozzle ID:			
Pre Pitot Leak Check:	0 @ 3.5 "H ₂ O	0 @ 3.7 "H ₂ O	0 @ 3.5 "H ₂ O
Post Pitot Leak Check:	0 @ 3.7 "H ₂ O	0 @ 3.5 "H ₂ O	@ "H ₂ O
Pre Nozzle Leak Check:	0 @ 10 "Hg	0 @ 10 "Hg	0 @ 10 "Hg
Post Nozzle Leak Check:	0 @ 10 "Hg	0 @ 10 "Hg	@ "Hg
Barometric Pressure, "Hg:	30.0	30.0	30.16
Static Pressure, "H ₂ O:	-1.7	-1.7	-1.7
CO ₂ %:	3.5	4.6	
O ₂ %:	14.7	14.6	

Comments:

Isokinetic Sampling Cover Sheet

Client:	GenConn Middleton, LLC	Pitot Tube Cp:	.840
Facility:	Middleton Plant	Probe Length (Feet):	6
Test Location:	U13	Probe Liner Material:	Glass
Project #:	M223610	Sample Plane:	<u>Hztl.</u> or Vert.
Test Method(s):	5/29	Port Length ("):	10
Test Engineer:	SMCG	Port Diameter ("):	6
Test Technician:	JVC/WJD	Port Type:	Flange
Upstream Diameters:	12.2	Duct Shape:	<u>Circ.</u> or Rect.
Downstream Diameters:	1.9	Diameter (Feet):	12
# of Ports Sampled:	4	Length (Feet):	-
# of Points per Port:	10	Width (Feet):	-
Source Condition:	Natural Gas	Duct Area (Sq. Feet):	113.097
Diluent Model/SN:	Ecom 707	Minutes per Point:	4.5
Mid Gas ID/concentration:	SG9158365 1%CO2 9.789%O2 10.01	Total Traverse Points:	40
High Gas ID/concentration:	LL13939 1%CO2 18.6%O2 19.54	Test Length (Min.):	180
Moisture Balance ID:	10008/S10-17	Train Type:	Anderson

	R# 2	R# 3	R# 4
Meter ID:	CM7	CM7	CM7
Pitot ID:	120	120	120
Filter ID:	4304	3430	4018
Filter Pre-Weight (g):	0.46425	0.44124	0.44938
Nozzle Diameter ("):	.271	.271	.271
Meter Cal Factor (Y):	0.997	0.997	0.997
Meter Orifice Setting (ΔH):	1.601	1.601	1.601
Nozzle Kit ID:	Q2	Q2	Q2
Individual Nozzle ID:			
Pre Pitot Leak Check:	0 @ 3.5 "H ₂ O	0 @ 3.6 "H ₂ O	0 @ 3.8 "H ₂ O
Post Pitot Leak Check:	0 @ 3.6 "H ₂ O	0 @ 3.8 "H ₂ O	0 @ 3.5 "H ₂ O
Pre Nozzle Leak Check:	0 @ 10 "Hg	0 @ 10 "Hg	0 @ 10 "Hg
Post Nozzle Leak Check:	0 @ 10 "Hg	0 @ 10 "Hg	0 @ 10 "Hg
Barometric Pressure, "Hg:	30.16	30.16	30.10
Static Pressure, "H ₂ O:	-1.7	-1.7	-1.7
CO ₂ %:	3.5	3.1	3.3
O ₂ %:	14.8	14.8	15.0

Comments:

Isokinetic Sampling Cover Sheet

Client:	GenConn Middleton, LLC	Pitot Tube Cp:	.840
Facility:	Middleton Plant	Probe Length (Feet):	6
Test Location:	U13	Probe Liner Material:	Glass
Project #:	M223610	Sample Plane:	<u>Hztl</u> or Vert.
Test Method(s):	5/29	Port Length ("):	10
Test Engineer:	SMEG	Port Diameter ("):	6
Test Technician:	JVC/WJD	Port Type:	Flange
Upstream Diameters:	12.2	Duct Shape:	<u>Circ</u> or Rect.
Downstream Diameters:	1.9	Diameter (Feet):	12
# of Ports Sampled:	4	Length (Feet):	-
# of Points per Port:	10	Width (Feet):	-
Source Condition:	Natural Gas	Duct Area (Sq. Feet):	113.097
Diluent Model/SN:	Ecom 707	Minutes per Point:	4.5
Mid Gas ID/concentration:	SG9158365 1%CO ₂ 9.789%O ₂ 10.01	Total Traverse Points:	40
High Gas ID/concentration:	LL13939 1%CO ₂ 18.65%O ₂ 19.54	Test Length (Min.):	180
Moisture Balance ID:		Train Type:	Anderson

	R# <u>5</u>	R# <u>7</u>	R#
Meter ID:	CM7	CM7	
Pitot ID:	120	120	
Filter ID:	4020		
Filter Pre-Weight (g):	0.45342		
Nozzle Diameter ("):	.271	.271	
Meter Cal Factor (Y):	0.997	0.997	
Meter Orifice Setting (ΔH):	1.601	1.601	
Nozzle Kit ID:	Q2	Q2	
Individual Nozzle ID:			
Pre Pitot Leak Check:	0 @ 3.5 "H ₂ O	0 @ 3.7 "H ₂ O	@ "H ₂ O
Post Pitot Leak Check:	0 @ 3.7 "H ₂ O	0 @ 3.6 "H ₂ O	@ "H ₂ O
Pre Nozzle Leak Check:	0 @ 10 "Hg	0 @ 10 "Hg	@ "Hg
Post Nozzle Leak Check:	0 @ 10 "Hg	0 @ 10 "Hg	@ "Hg
Barometric Pressure, "Hg:	30.10	30.10	
Static Pressure, "H ₂ O:	-1.7	-1.7	
CO ₂ %:	3.1	2.9	
O ₂ %:	14.9	14.8	

Comments:

Isokinetic Sampling Cover Sheet

Client:	Gen Conn Middleton LLC	Pitot Tube Cp:	0.840
Facility:	Middleton	Probe Length (Feet):	6 FT
Test Location:	CT-13	Probe Liner Material:	Quartz
Project #:	M223610	Sample Plane:	Horizontal or Vert.
Test Method(s):	29	Port Length ("):	10.00
Test Engineer:	RNS	Port Diameter ("):	6.00
Test Technician:	JC	Port Type:	Flange
Upstream Diameters:	12.20	Duct Shape:	Circular or Rect.
Downstream Diameters:	1.90	Diameter (Feet):	12
# of Ports Sampled:	4	Length (Feet):	
# of Points per Port:	10	Width (Feet):	
Source Condition:	Natural Gas	Duct Area (Sq. Feet):	113.097
Diluent Model/SN:	Ecom 482	Minutes per Point:	4.5
Mid Gas ID/concentration:	XL00104713 1%CO2 9.777 %O2 9.971	Total Traverse Points:	40
High Gas ID/concentration:	LL40840 1%CO2 18.72 %O2 19.49	Test Length (Min.):	180
Moisture Balance ID:		Train Type:	Anderson

R# 6

R#

R#

Meter ID:	CM23		
Pitot ID:	154		
Filter ID:			
Filter Pre-Weight (g):			
Nozzle Diameter ("):	0.268		
Meter Cal Factor (Y):	0.995		
Meter Orifice Setting (DH):	1.878		
Nozzle Kit ID:	Quartz		
Individual Nozzle ID:			
Pre Pitot Leak Check:	100 @ 3 "H2O	@ "H2O	@ "H2O
Post Pitot Leak Check:	100 @ 3 "H2O	@ "H2O	@ "H2O
Pre Nozzle Leak Check:	100 @ 15 "Hg	@ "Hg	@ "Hg
Post Nozzle Leak Check:	100 @ 15 "Hg	@ "Hg	@ "Hg
Barometric Pressure, "Hg:	30.10		
Static Pressure, "H2O:	-1.70		
CO2 %:	2.20		
O2 %:	16.0		

Comments:

Isokinetic Sampling Field Data Sheet

Project Number: M223610
Client: GenConn Middleton, LLC
Plant: Middleton

Date: 9-9-22
Test Location: U13
Test Method: 5/29

Test Number: 1
Operator: SMCG Test Tech: JVC/WJD
Page Number: 1 of 2

[illegible]

Isokinetic Sampling Field Data Sheet

Project Number: M223610
Client: GenConn Middleton, LLC
Plant: Middleton

Date: 9-9-22
Test Location: U13
Test Method: 5/29

Test Number: ①
Operator: SMCG Test Tech: SVC/WJD
Page Number: 3 of 3

[illegible]

0618

CARTLIN

IMPINGER WEIGHT SHEET

PLANT: GEN CONN - MIDDLETOWNScale ID Number S10-17UNIT NO: CT 13Scale Calibration Check Date: 9-9-22LOCATION: STACKScale Calibration Check (see QS-6.05C for procedure)
must be within $\pm 0.5g$ of certified massDATE: 9-9-22250 grams 250.0TEST NO: #1500 grams 500.0METHOD: 5/29750 grams 750.1WEIGHED/MEASURED BY: GA

	FINAL WEIGHT	INITIAL WEIGHT	IMPINGER	IMPINGER
Circle One:	MLS / GRAMS	MLS / GRAMS	GAIN	CONTENTS
IMPINGER 1	944.8	718.0		H ₂ O ₂ / HNO ₃
IMPINGER 2	877.1	766.9		H ₂ O ₂ / HNO ₃
IMPINGER 3	565.8	546.4		EMPTY
IMPINGER 4	637.0	632.1		KMNO ₄
IMPINGER 5	708	705.0		KMNO ₄
IMPINGER 6	883.1	846.2		SILICA
IMPINGER 7				
IMPINGER 8				

IMPINGERS 3732.7 3368.4 364.3
 FINAL TOTAL INITIAL TOTAL TOTAL IMPINGER GAIN

SILICA 883.1 846.2 36.9
 FINAL TOTAL INITIAL TOTAL TOTAL SILICA GAIN

Date: 9-10-22 Test Number: _____
 Test Location: ~~XXXX~~ U13 Operator: _____
 Test Method: 5/29 Page Number: _____

Date: 9-10-22
Test Location: ~~XXXX~~ U13
Test Method: 5/29

Test Number: 2
Operator: SMCG Test Tech: BVC/WJD
Page Number: 1 of 3

[illegible]

1100-1414

1432

IMPINGER WEIGHT SHEET

PLANT: GEN CONN - MIDDLE TOWNScale ID Number S10-17UNIT NO: CT 13Scale Calibration Check Date: 9-10-22LOCATION: STACKScale Calibration Check (see QS-6.05C for procedure)
must be within $\pm 0.5g$ of certified massDATE: 9-10-22250 grams 250.0TEST NO: #2500 grams 500.0METHOD: 5/29750 grams 750.1WEIGHED/MEASURED BY: GA

	FINAL WEIGHT	INITIAL WEIGHT	IMPINGER	IMPINGER
Circle One:	MLS / GRAMS	MLS / GRAMS	GAIN	CONTENTS
IMPINGER 1	<u>930.4</u>	<u>740.4</u>		<u>H2O2/HNO3</u>
IMPINGER 2	<u>865.3</u>	<u>763.8</u>		<u>H2O2/HNO3</u>
IMPINGER 3	<u>588.2</u>	<u>551.3</u>		<u>EMPTY</u>
IMPINGER 4	<u>603.8</u>	<u>592.8</u>		<u>KMNO4</u>
IMPINGER 5	<u>742.8</u>	<u>738.4</u>		<u>KMNO4</u>
IMPINGER 6	<u>853.7</u>	<u>838.3</u>		<u>SILICA</u>
IMPINGER 7				
IMPINGER 8				

IMPINGERS 3730.5 3387.2 343.3
FINAL TOTAL INITIAL TOTAL TOTAL IMPINGER GAIN

SILICA 853.7 838.3 15.4
FINAL TOTAL INITIAL TOTAL TOTAL SILICA GAIN

Isokinetic Sampling Field Data Sheet

Project Number: M223610
Client: GenConn Middleton, LLC
Plant: Middleton

Date: 9-10-22 Test Number: _____
 Test Location: U13 Operator: _____
 Test Method: 5/29 Page Number: _____

Test Number: 3
Operator: SMCG Test Tech: JVC/WJD
Page Number: 1 of 3

[illegible]

Test Number: 3
Operator: SMCG Test Tech: JVC/WJD
Page Number: 7 of 3

1432-1744

IMPINGER WEIGHT SHEET

PLANT: GENCONN - MIDDLETOWNScale ID Number S10-17UNIT NO: LT 13Scale Calibration Check Date: 9-10-22LOCATION: STACKScale Calibration Check (see QS-6.05C for procedure)
must be within $\pm 0.5g$ of certified massDATE: 9-10-22250 grams 250.0TEST NO: #3500 grams 500.0METHOD: 5/29750 grams 750.1 ★★WEIGHED/MEASURED BY: ④

	FINAL WEIGHT	INITIAL WEIGHT	IMPINGER	IMPINGER
Circle One:	MLS / GRAMS	MLS / GRAMS	GAIN	CONTENTS
IMPINGER 1	796.2	711.9		H ₂ O ₂ / HNO ₃
IMPINGER 2	916.6	754.4		H ₂ O ₂ / HNO ₃
IMPINGER 3	720.1	648.6		EMPTY
IMPINGER 4	794.7	756.9		KMNO ₄
IMPINGER 5	732.3	705.4		KMNO ₄
IMPINGER 6	896.4	857.1		SILICA
IMPINGER 7				
IMPINGER 8				

IMPINGERS 3959.9 3577.2 382.7
FINAL TOTAL INITIAL TOTAL TOTAL IMPINGER GAIN

SILICA 896.4 857.1 39.3
FINAL TOTAL INITIAL TOTAL TOTAL SILICA GAIN

Isokinetic Sampling Field Data Sheet

Project Number: M223610
Client: GenConn Middleton, LLC
Plant: Middleton

Date: 9-11-22
Test Location: U13
Test Method: 5/29

Test Number:
Operator:
Page Number

④
SMCG Test Tech: JVC/WJD
1 of 2

[illegible]

0622-937

IMPINGER WEIGHT SHEET

PLANT: GENCONN - MIDDLETOWNScale ID Number S10-17UNIT NO: LT #13Scale Calibration Check Date: 9-11-22LOCATION: STACKScale Calibration Check (see QS-6.05C for procedure)
must be within $\pm 0.5g$ of certified massDATE: 9-11-22250 grams 250.0TEST NO: #4500 grams 500.0METHOD: 5/29750 grams 750.1WEIGHED/MEASURED BY: [Signature]

	FINAL WEIGHT	INITIAL WEIGHT	IMPINGER	IMPINGER
Circle One:	MLS / GRAMS	MLS / GRAMS	GAIN	CONTENTS
IMPINGER 1	894.4	675.6		H ₂ O ₂ /HNO ₃
IMPINGER 2	839.5	710.5		H ₂ O ₂ /HNO ₃
IMPINGER 3	667.6	631.2		EMPTY
IMPINGER 4	725.2	710.1		KMNO ₄
IMPINGER 5	792.9	785.1		KMNO ₄
IMPINGER 6	897.3	865.7		SILICA
IMPINGER 7				
IMPINGER 8				

IMPINGERS 3919.6 3512.5 407.1
 FINAL TOTAL INITIAL TOTAL TOTAL IMPINGER GAIN

SILICA 897.3 865.7 31.6
 FINAL TOTAL INITIAL TOTAL TOTAL SILICA GAIN

Project Number: M223610
Client: GenConn Middleton, LLC
Plant: Middleton

Test Number:

Operator:

Page Number:

⑤

SMCG Test Tech: JVC/WJD

1 of 2

[illegible]

0945-1257

IMPINGER WEIGHT SHEET

PLANT: GENCONN - MIDDLETOWNScale ID Number S10-17UNIT NO: LT 13Scale Calibration Check Date: 9-11-22LOCATION: STACKScale Calibration Check (see QS-6.05C for procedure)
must be within $\pm 0.5g$ of certified massDATE: 9-11-22250 grams 250.0TEST NO: 5500 grams 500.0METHOD: 5/29750 grams 750.1WEIGHED/MEASURED BY: 4

	FINAL WEIGHT	INITIAL WEIGHT	IMPINGER	IMPINGER
Circle One:	MLS / GRAMS	MLS / GRAMS	GAIN	CONTENTS
IMPINGER 1	976.9	726.3		H ₂ O ₂ / HNO ₃
IMPINGER 2	879.1	769.0		H ₂ O ₂ / HNO ₃
IMPINGER 3	573.8	552.2		EMPTY
IMPINGER 4	651.8	643.3		KMNO ₄
IMPINGER 5	699.5	695.0		KMNO ₄
IMPINGER 6	883.1	849.3		SILICA
IMPINGER 7				
IMPINGER 8				

IMPINGERS 3781.1 3385.8 395.3
FINAL TOTAL INITIAL TOTAL TOTAL IMPINGER GAIN

SILICA 883.1 849.3 33.8
FINAL TOTAL INITIAL TOTAL TOTAL SILICA GAIN

Isokinetic Sampling Field Data Sheet

Project Number: M223610
 Client: Gen Conn Middletown
 Plant: Middletown

Date: 4-11-22
 Test Location: CT-13
 Test Method: 29

Test Number: #6
 Operator: RVS Test Tech: JL
 Page Number: 1 of 2

Port-Point #	Time	(ΔP)	K' = _____	Meter Volume (V _m) ft ³ , Actual	Stack Temp, °F	Meter Temp Inlet, °F	Meter Temp Outlet, °F	Pump Vacuum, "Hg	Probe Temp. °F	Filter Temp. °F	Impinger Outlet Well Temp. °F	K-Calcs (Optional)			
			Orifice Setting (ΔH)									K=	x		
															Square Root, ΔP
1-1	12:58	1.70	7.60	6.539	784	88	88	10	252	252	60				
1-2	13:02:30	1.50	3.20	11.310	784	88	87	10	251	253	58				
1-3	13:07:00	1.50	3.20	15.800	784	87	87	10	256	252	60				
1-4	13:11:30	1.30	2.80	20.270	785	87	87	10	255	252	62				
1-5	13:16:00	1.30	2.80	24.440	785	87	87	10	258	253	62				
1-6	13:20:30	1.30	2.80	28.600	783	88	87	10	252	251	63				
1-7	13:25:00	1.30	2.80	32.780	783	88	87	10	253	250	61				
1-8	13:29:30	1.20	2.60	36.960	784	89	88	10	256	251	63				
1-9	13:34:00	1.10	2.30	40.970	784	89	88	10	257	252	62				
1-10	13:38:30	1.00	2.10	44.800	784	89	88	10	253	252	62				
	13:43:00			48.482											
2-1	13:48:00	1.50	3.20	48.482	784	89	88	10	257	252	64				
2-2	13:52:30	1.30	2.80	52.970	784	90	89	10	252	250	63				
2-3	13:57:00	1.30	2.80	57.160	784	91	89	11	253	252	64				
2-4	14:01:30	1.30	2.80	61.350	784	91	89	11	254	253	65				
2-5	14:06:00	1.40	3.00	65.540	784	91	89	11	252	251	64				
2-6	14:10:30	1.30	2.80	69.890	784	92	89	11	251	251	63				
2-7	14:15:00	1.20	2.60	74.080	784	92	89	11	252	254	63				
2-8	14:19:30	1.20	2.60	78.110	784	92	89	11	253	255	63				
2-9	14:24:00	1.20	2.60	82.140	784	92	89	11	252	257	64				
2-10	14:28:30	1.10	2.40	86.170	784	92	89	11	250	252	64				
	14:33:00			90.035											
3-1	14:38:00	1.70	7.60	90.035	784	91	90	11	250	252	64				
3-2	14:42:30	1.70	3.60	94.830	784	92	90	11	249	253	60				
3-3	14:47:00	1.50	3.20	99.630	784	92	90	11	254	251	61				
3-4	14:51:30	1.20	2.60	104.140	784	92	90	11	253	254	62				
3-5	14:56:00	1.20	2.60	108.180	784	92	90	11	255	252	62				

Isokinetic Sampling Field Data Sheet

Project Number: m223610
Client: Gen Conn Middleton LLC
Plant: Middleton

Date: 9-11-22
Test Location: CT-13
Test Method: 29

Test Number: #6
Operator: RNS Test Tech: JL
Page Number: 3 of 2

[illegible]

1613

1614

IMPINGER WEIGHT SHEET

PLANT: GEN CONN - MIDDLETOWNScale ID Number S10-17UNIT NO: CT 13Scale Calibration Check Date: 9-11-22LOCATION: STACKScale Calibration Check (see QS-6.05C for procedure)
must be within $\pm 0.5g$ of certified massDATE: 9-11-22250 grams 250.0TEST NO: #6500 grams 500.0METHOD: 5129750 grams 750.1WEIGHED/MEASURED BY: GA

	FINAL WEIGHT		INITIAL WEIGHT		IMPINGER		IMPINGER
Circle One:	MLS / GRAMS		MLS / GRAMS		GAIN		CONTENTS
IMPINGER 1	933.9		721.7				H ₂ O ₂ /HNO ₃
IMPINGER 2	866.1		744.5				H ₂ O ₂ /HNO ₃
IMPINGER 3	665.9		646.4				EMPTY
IMPINGER 4	737.8		728.6				KMNO ₄
IMPINGER 5	756.0		748.8				KMNO ₄
IMPINGER 6	898.2		863.1				SILICA
IMPINGER 7							
IMPINGER 8							

IMPINGERS

FINAL TOTAL

INITIAL TOTAL

TOTAL IMPINGER GAIN

SILICA

FINAL TOTAL

INITIAL TOTAL

TOTAL SILICA GAIN

Date: 9-11-22 Test Number: _____
 Test Location: U13 Operator: _____
 Test Method: 5/29 Page Number: _____

Date: 9-11-22 Test Number: _____
 Test Location: U13 Operator: _____
 Test Method: 5/29 Page Number: _____

Page Number:

⑦
SMCG Test Tech: BVC/WSD
1 of 2

DS-005 M5 Isokinetic Field Data Sheet

Rev. 2.2

1/1/2021

Project No. M223610E

121 of 228

©Mostardi Platt

Combustion Turbine Unit 13

Date: 9-11-22 Test Number: _____
 Test Location: U13 Operator: _____
 Test Method: 5/29 Page Number: _____

Date: 9-11-22 Test Number: _____
 Test Location: U13 Operator: _____
 Test Method: 5/29 Page Number: _____

Page Number:

⑦
SMCG Test Tech: SVC/WSD
2 of 2

©Mostardi Platt

1614-1926

IMPINGER WEIGHT SHEET

PLANT: GENCONN - MIDDLETOWN

Scale ID Number 510-17

UNIT NO: LT #13

Scale Calibration Check Date: 9-11-22

LOCATION: STACK

Scale Calibration Check (see QS-6.05C for procedure)
must be within $\pm 0.5g$ of certified mass

DATE: 9-11-22

250 grams 250.0

TEST NO: #7

500 grams 300.0

METHOD: 5/29

750 grams 750.1

WEIGHED/MEASURED BY: [Signature]

	FINAL WEIGHT	INITIAL WEIGHT	IMPINGER	IMPINGER
Circle One:	MLS / GRAMS	MLS / GRAMS	GAIN	CONTENTS
IMPINGER 1	900.5	684.8		H ₂ O ₂ /HNO ₃
IMPINGER 2	834.1	701.7		H ₂ O ₂ /HNO ₃
IMPINGER 3	675.2	633.5		EMPTY
IMPINGER 4	742.1	726.6		KMNO ₄
IMPINGER 5	790.6	774.1		KMNO ₄
IMPINGER 6	891.9	866.0		SILICA
IMPINGER 7				
IMPINGER 8				

IMPINGERS 3942.5 3520.7 421.8
FINAL TOTAL INITIAL TOTAL TOTAL IMPINGER GAIN

SILICA 891.9 866.0 25.9
FINAL TOTAL INITIAL TOTAL TOTAL SILICA GAIN

Appendix G – QA/QC Data

Client: Middletown Power LLC
 Facility: Middletown Facility
 Project #: M223610
 Operating Condition: Normal

Test Location: Unit 13
 Date: 9/9/22
 Operator: J. Gross
 FTIR s/n: 484

Fuel Type	Natural Gas	
Probe Length:	6.0	ft
Sample Plane:	Horizontal	
Port Length:		in.
Port Size (diameter):	6	in.
Port Type:	Flange	
Duct Shape:	Circular	
Diameter:	12	ft
Duct Area:	113.10	Sq. Ft.
Upstream Diameters:	12.210	
Downstream Diameters:	1.920	

Type	Compound	Cylinder ID	Cylinder Value	Expiration Date
Zero Gas	Nitrogen	NA	NA	8/12/2030
Certified Transfer Standard	Ethylene	EB0091439	100.3	8/16/2030
Analyte Spike Gas	Formaldehyde	CC522694	1.09	12/13/2022
	N2O		102	
Analyte Spike Gas	SF6	CC504622	4.99	7/5/2024
	HCL		97.75	

Compounds Reported	Units for report
H2O%	%v
Formaldehyde	ppbv wet
N2O	ppbv wet
SF6	ppmv wet
HCl	ppmv wet

Client: Middletown Power LLC
 Facility: Middletown Facility
 Project #: M223610
 Operating Condition: Normal

Test Location: Unit 13
 Date: 9/9/2022
 Operator: J. Gross
 FTIR s/n: 484

Nitrogen (Zero) Direct to FTIR Max

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppbv wet
EQUILIBRATE_0000029.LAB	9/9/2022	06:30:46	0.3	-0.3	-4.0	-5.4
MDC A_0000031.LAB	9/9/2022	06:31:46	0.3	-0.3	-4.1	-11.8
MDC A_0000032.LAB	9/9/2022	06:31:46	0.3	-0.3	-4.1	-11.8
EQUILIBRATE_0000032.LAB	9/9/2022	06:32:04	0.3	-0.4	-4.1	-11.7

CTS, Direct to FTIR

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppbv wet	Recovery % Ethylene
CTS Direct_0000039.LAB	9/9/2022	06:33:42	0.3	-0.2	98.0	-7.8	97.7%
CTS Direct_0000040.LAB	9/9/2022	06:33:58	0.3	-0.5	98.0	-8.2	97.8%
CTS Direct_0000041.LAB	9/9/2022	06:34:14	0.3	-0.3	98.1	-4.8	97.8%
CTS Direct_0000042.LAB	9/9/2022	06:34:31	0.3	-0.1	98.1	-12.0	97.8%
CTS Direct_0000043.LAB	9/9/2022	06:34:47	0.3	-0.2	98.1	-9.1	97.8%
CTS Direct_0000044.LAB	9/9/2022	06:35:04	0.3	-0.2	98.1	-1.0	97.9%
CTS Direct_0000045.LAB	9/9/2022	06:35:20	0.3	-0.2	98.2	-13.4	97.9%
CTS Direct_0000046.LAB	9/9/2022	06:35:20	0.3	-0.2	98.2	-13.4	97.9%
Average					98.1		97.8%

Analyte Direct to FTIR

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppbv wet	Recovery % Formaldehyde
Cal Direct_0000052.LAB	9/9/2022	06:36:59	0.3	102.7	-4.1	579.91	53.2%
Cal Direct_0000053.LAB	9/9/2022	06:37:16	0.3	103.0	-4.1	586.39	53.8%
Cal Direct_0000054.LAB	9/9/2022	06:37:32	0.3	102.5	-4.1	599.31	55.0%
Cal Direct_0000055.LAB	9/9/2022	06:37:48	0.3	102.9	-4.2	605.85	55.6%
Cal Direct_0000056.LAB	9/9/2022	06:38:05	0.3	102.8	-4.2	619.24	56.8%
Cal Direct_0000057.LAB	9/9/2022	06:38:21	0.3	103.0	-4.1	623.96	57.2%
Cal Direct_0000058.LAB	9/9/2022	06:38:37	0.3	102.7	-4.1	625.01	57.3%
Cal Direct_0000059.LAB	9/9/2022	06:38:37	0.3	102.7	-4.1	625.01	57.3%
Average				102.8		608.09	55.8%

CTS, System Purge and Response Time Test

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppbv wet	Recovery % Ethylene	Response Time
System CTS Rise_0000067.LAB	9/9/2022	07:43:17	3.5	-0.8	0.4	324.4	0.4%	-
System CTS Rise_0000068.LAB	9/9/2022	07:43:24	2.6	-0.8	44.1	279.8	45.0%	8
System CTS Rise_0000069.LAB	9/9/2022	07:43:32	1.3	-0.5	93.8	169.5	95.6%	16
System CTS Rise_0000070.LAB	9/9/2022	07:43:40	1.1	-0.2	95.4	162.4	97.2%	24
System CTS Rise_0000071.LAB	9/9/2022	07:43:47	1.0	-0.8	96.9	170.3	98.8%	31
System CTS Rise_0000072.LAB	9/9/2022	07:43:55	0.9	-0.7	97.0	172.2	98.9%	39

Client: Middletown Power LLC
 Facility: Middletown Facility
 Project #: M223610
 Operating Condition: Normal

Test Location: Unit 13
 Date: 9/9/2022
 Operator: J. Gross
 FTIR s/n: 484

Zero Gas System Purge and Response Time Test

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppbv wet	Response Time
System Zero_0000099.LAB	9/9/2022	07:47:33	9.0	-12.0	32.7	684.5	-
System Zero_0000100.LAB	9/9/2022	07:47:41	5.8	-4.6	9.5	364.4	8
System Zero_0000101.LAB	9/9/2022	07:47:48	1.6	-1.0	-1.6	169.2	15
System Zero_0000102.LAB	9/9/2022	07:47:56	0.8	-0.4	-3.2	138.3	23
System Zero_0000103.LAB	9/9/2022	07:48:04	0.6	-0.7	-3.5	133.5	31
System Zero_0000104.LAB	9/9/2022	07:48:11	0.5	-0.6	-3.4	120.3	38
System Zero_0000105.LAB	9/9/2022	07:48:19	0.5	-0.4	-3.4	126.0	46
System Zero_0000106.LAB	9/9/2022	07:48:27	0.5	-0.9	-3.5	130.8	54

Native Effluent Prior to Analyte Spike

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppbv wet
Native_0000123.LAB	9/9/2022	07:54:26	9.8	-11.9	31.9	-19.7
Native_0000125.LAB	9/9/2022	07:54:42	9.8	-11.9	32.3	-9.9
Native_0000126.LAB	9/9/2022	07:54:58	9.8	-11.8	32.4	-13.7
			9.806			-14.4

Effluent Spike Using Analyte

Pre 1

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppbv wet	Dilution Factor	Recovery % Formaldehyde
Spike Cal_0000143.LAB	9/9/2022	07:59:22	8.5	6.7	26.2	50.2	0.065	193.5%
Spike Cal_0000144.LAB	9/9/2022	07:59:39	8.4	6.6	26.1	46.1	0.064	179.7%
Spike Cal_0000145.LAB	9/9/2022	07:59:55	8.4	7.0	26.0	42.8	0.068	152.3%
Spike Cal_0000146.LAB	9/9/2022	08:00:11	8.2	10.2	24.7	41.7	0.099	88.2%
Spike Cal_0000147.LAB	9/9/2022	08:00:28	8.1	9.8	24.7	40.5	0.096	89.7%
Spike Cal_0000148.LAB	9/9/2022	08:00:44	8.2	8.3	25.3	38.1	0.081	106.1%
Spike Cal_0000149.LAB	9/9/2022	08:01:01	8.2	8.2	25.3	39.2	0.080	111.3%
Spike Cal_0000150.LAB	9/9/2022	08:01:17	8.2	8.3	25.4	40.1	0.080	112.6%
				8.1				129.2%

Native Effluent Prior to Analyte Spike

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppbv wet
Test Run 1_0000234.LAB	9/9/2022	09:45:01	9.8	-9.2	28.1	4.7
Test Run 1_0000235.LAB	9/9/2022	09:46:01	9.8	-9.3	28.2	2.9
Test Run 1_0000236.LAB	9/9/2022	09:46:01	9.8	-9.3	28.2	2.9
			9.760			3.5

Effluent Spike Using Analyte

Post 1

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppbv wet	Dilution Factor	Recovery % Formaldehyde
Spike Cal_0000243.LAB	9/9/2022	09:47:57	8.4	7.0	23.1	50.7	0.068	113.8%
Spike Cal_0000244.LAB	9/9/2022	09:48:13	8.4	7.0	22.9	50.6	0.068	112.7%
Spike Cal_0000245.LAB	9/9/2022	09:48:30	8.4	6.8	23.3	46.2	0.067	105.5%
Spike Cal_0000246.LAB	9/9/2022	09:48:46	8.4	6.9	23.1	48.8	0.067	110.3%
Spike Cal_0000247.LAB	9/9/2022	09:49:02	8.4	7.2	23.0	37.0	0.070	80.6%
Spike Cal_0000248.LAB	9/9/2022	09:49:19	8.4	7.1	23.3	38.2	0.069	84.4%
Spike Cal_0000249.LAB	9/9/2022	09:49:35	8.4	6.9	23.3	42.9	0.068	96.7%
Spike Cal_0000250.LAB	9/9/2022	09:49:35	8.4	6.9	23.3	42.9	0.068	96.7%
				7.0				100.1%

Client: Middletown Power LLC
 Facility: Middletown Facility
 Project #: M223610
 Operating Condition: Normal

Test Location: Unit 13
 Date: 9/9/2022
 Operator: J. Gross
 FTIR s/n: 484

CTS, System Purge

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppbv wet	Recovery % Ethylene
Post Run 1 System CTS_0000254.LAB	9/9/2022	09:50:42	1.0	0.1	96.9	548.3	96.6%
Post Run 1 System CTS_0000255.LAB	9/9/2022	09:50:58	0.8	0.0	96.9	544.0	96.6%
Post Run 1 System CTS_0000256.LAB	9/9/2022	09:51:14	0.7	0.1	96.8	542.4	96.5%
Post Run 1 System CTS_0000257.LAB	9/9/2022	09:51:31	0.6	0.1	96.8	547.4	96.5%
Post Run 1 System CTS_0000258.LAB	9/9/2022	09:51:47	0.6	0.0	96.9	544.5	96.6%
Post Run 1 System CTS_0000259.LAB	9/9/2022	09:52:04	0.6	0.1	96.9	540.3	96.6%
Post Run 1 System CTS_0000260.LAB	9/9/2022	09:52:20	0.6	0.1	96.9	534.5	96.6%
Post Run 1 System CTS_0000261.LAB	9/9/2022	09:52:36	0.6	-0.2	96.9	537.9	96.6%

Native Effluent Prior to Analyte Spike

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppbv wet
Test Run 2_0000350.LAB	9/9/2022	11:08:31	9.7	-9.3	27.2	39.9
Test Run 2_0000351.LAB	9/9/2022	11:09:31	9.8	-9.3	27.3	46.9
Test Run 2_0000352.LAB	9/9/2022	11:09:31	9.8	-9.3	27.3	46.9
			9.754			44.6

Effluent Spike Using Analyte

Post 2

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppbv wet	Dilution Factor	Recovery % Formaldehyde
Spike Cal_0000363.LAB	9/9/2022	11:12:38	8.5	4.9	26.8	60.5	0.048	84.5%
Spike Cal_0000364.LAB	9/9/2022	11:12:54	8.4	5.0	25.8	63.0	0.048	87.7%
Spike Cal_0000365.LAB	9/9/2022	11:13:11	8.5	4.3	28.0	60.2	0.042	88.2%
Spike Cal_0000366.LAB	9/9/2022	11:13:27	8.4	4.9	26.8	58.7	0.047	82.3%
Spike Cal_0000367.LAB	9/9/2022	11:13:43	8.4	4.8	26.2	54.8	0.046	77.5%
Spike Cal_0000368.LAB	9/9/2022	11:14:00	8.4	5.0	25.8	46.2	0.048	64.2%
Spike Cal_0000369.LAB	9/9/2022	11:14:16	8.4	5.5	25.6	42.8	0.054	57.1%
Spike Cal_0000370.LAB	9/9/2022	11:14:32	8.4	5.2	25.4	43.1	0.051	58.8%
								75.1%

CTS, System Purge

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppbv wet	Recovery % Ethylene
Post Run 2 System CTS_0000376.LAB	9/9/2022	11:15:55	0.7	-0.1	96.8	567.9	96.5%
Post Run 2 System CTS_0000377.LAB	9/9/2022	11:16:12	0.6	-0.1	96.8	559.7	96.6%
Post Run 2 System CTS_0000378.LAB	9/9/2022	11:16:28	0.6	-0.3	96.9	564.5	96.6%
Post Run 2 System CTS_0000379.LAB	9/9/2022	11:16:44	0.6	-0.3	96.9	562.5	96.6%
Post Run 2 System CTS_0000380.LAB	9/9/2022	11:17:01	0.6	-0.2	96.9	562.3	96.6%
Post Run 2 System CTS_0000381.LAB	9/9/2022	11:17:17	0.6	-0.2	96.9	559.5	96.6%
Post Run 2 System CTS_0000382.LAB	9/9/2022	11:17:33	0.6	-0.2	97.0	559.0	96.7%
Post Run 2 System CTS_0000383.LAB	9/9/2022	11:17:50	0.5	-0.3	97.4	595.6	97.1%

Client: Middletown Power LLC
 Facility: Middletown Facility
 Project #: M223610
 Operating Condition: Normal

Test Location: Unit 13
 Date: 9/9/2022
 Operator: J. Gross
 FTIR s/n: 484

Native Effluent Prior to Analyte Spike

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppbv wet
Test Run 3_0000476.LAB	9/9/2022	12:41:46	9.7	-11.5	32.1	24.2
Test Run 3_0000477.LAB	9/9/2022	12:42:46	9.7	-11.5	31.8	32.3
Test Run 3_0000478.LAB	9/9/2022	12:42:46	9.7	-11.5	31.8	32.3
			9.733			29.6

Effluent Spike Using Analyte

Post 3

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppbv wet	Dilution Factor	Recovery % Formaldehyde
Spike Cal_0000529.LAB	9/9/2022	12:56:55	1.8	6.7	2.6	88.9	0.065	132.3%
Spike Cal_0000530.LAB	9/9/2022	12:57:11	1.8	7.1	2.4	73.9	0.069	106.5%
Spike Cal_0000531.LAB	9/9/2022	12:57:28	1.8	7.3	2.4	46.5	0.071	65.8%
Spike Cal_0000532.LAB	9/9/2022	12:57:44	1.8	7.3	1.9	44.8	0.071	63.6%
Spike Cal_0000533.LAB	9/9/2022	12:58:00	1.8	7.4	2.3	43.8	0.072	61.3%
Spike Cal_0000534.LAB	9/9/2022	12:58:17	1.8	7.4	1.9	35.2	0.072	49.4%
Spike Cal_0000535.LAB	9/9/2022	12:58:33	1.8	7.4	2.0	45.0	0.072	63.4%
Spike Cal_0000536.LAB	9/9/2022	12:58:50	1.8	7.6	1.7	57.7	0.074	79.6%
								77.7%

CTS, System Purge

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppbv wet	Recovery % Ethylene
System CTS_0000023.LAB	9/9/2022	13:37:39	0.4	-0.6	92.8	-30.5	92.5%
System CTS_0000024.LAB	9/9/2022	13:37:56	0.4	-0.4	92.8	-24.0	92.5%
System CTS_0000025.LAB	9/9/2022	13:38:12	0.4	-0.4	92.8	-31.9	92.5%
System CTS_0000026.LAB	9/9/2022	13:38:28	0.4	-0.6	92.8	-31.1	92.5%
System CTS_0000027.LAB	9/9/2022	13:38:45	0.4	-0.4	92.8	-36.3	92.5%
System CTS_0000028.LAB	9/9/2022	13:39:01	0.4	-0.7	92.8	-34.2	92.6%
System CTS_0000029.LAB	9/9/2022	13:39:17	0.4	-0.5	92.8	-41.9	92.6%
System CTS_0000030.LAB	9/9/2022	13:39:34	0.4	-0.4	92.8	-28.3	92.6%

Native Effluent Prior to Analyte Spike

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppmv wet
Test Run 1_0000159.LAB	9/10/2022	16:04:17	9.6	-14.1	38.2	90.3
Test Run 1_0000160.LAB	9/10/2022	16:05:17	9.6	-14.2	38.2	87.1
Test Run 1_0000161.LAB	9/10/2022	16:05:17	9.6	-14.2	38.2	87.1
			9.6			88.2

Effluent Spike Using Analyte

Post 4

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppmv wet	Dilution Factor	Recovery % Formaldehyde
Spike Cal_0000172.LAB	9/10/2022	16:08:56	8.1	5.5	31.2	112.3	0.053	96.9%
Spike Cal_0000173.LAB	9/10/2022	16:09:13	8.0	5.3	31.5	113.3	0.051	98.6%
Spike Cal_0000174.LAB	9/10/2022	16:09:29	8.0	5.6	31.0	120.7	0.055	103.6%
Spike Cal_0000175.LAB	9/10/2022	16:09:46	8.1	5.8	30.2	137.2	0.057	116.6%
Spike Cal_0000176.LAB	9/10/2022	16:10:02	8.0	5.5	30.8	120.2	0.053	103.8%
Spike Cal_0000177.LAB	9/10/2022	16:10:18	8.0	5.7	30.4	130.0	0.055	111.1%
Spike Cal_0000178.LAB	9/10/2022	16:10:35	8.0	6.0	30.4	135.4	0.058	114.2%
Spike Cal_0000179.LAB	9/10/2022	16:10:51	8.0	5.5	30.7	131.7	0.053	113.7%
								107.3%

Client: Middletown Power LLC
 Facility: Middletown Facility
 Project #: M223610
 Operating Condition: Normal

Test Location: Unit 13
 Date: 9/9/2022
 Operator: J. Gross
 FTIR s/n: 484

CTS, System Purge

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppmv wet	Recovery % Ethylene
Post Run 1 System CTS_0000184.LAB	9/10/2022	16:12:09	0.6	-0.2	96.6	813.7	96.35%
Post Run 1 System CTS_0000185.LAB	9/10/2022	16:12:25	0.6	-0.4	96.7	818.3	96.41%
Post Run 1 System CTS_0000186.LAB	9/10/2022	16:12:41	0.5	-0.5	96.8	818.1	96.48%
Post Run 1 System CTS_0000187.LAB	9/10/2022	16:12:58	0.5	-0.5	97.3	814.2	96.96%
Post Run 1 System CTS_0000188.LAB	9/10/2022	16:13:14	0.5	-0.3	97.3	823.2	96.96%
Post Run 1 System CTS_0000189.LAB	9/10/2022	16:13:30	0.5	-0.4	97.3	815.4	97.01%
Post Run 1 System CTS_0000190.LAB	9/10/2022	16:13:47	0.5	-0.4	97.3	817.1	97.00%
Post Run 1 System CTS_0000191.LAB	9/10/2022	16:14:03	0.5	-0.5	97.3	815.4	96.99%

Native Effluent Prior to Analyte Spike

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppmv wet
Test Run 2_0000262.LAB	9/10/2022	17:27:50	9.6	-14.7	39.5	41.6
Test Run 2_0000263.LAB	9/10/2022	17:28:50	9.6	-14.9	40.0	35.1
Test Run 2_0000264.LAB	9/10/2022	17:28:50	9.6	-14.9	40.0	35.1
			9.6			37.3

Effluent Spike Using Analyte

Post 5

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppmv wet	Dilution Factor	Recovery % Formaldehyde
Spike Cal_0000272.LAB	9/10/2022	17:36:28	8.1	4.6	32.2	90.8	0.045	144.46%
Spike Cal_0000273.LAB	9/10/2022	17:36:45	8.0	5.3	31.6	83.7	0.051	125.50%
Spike Cal_0000274.LAB	9/10/2022	17:37:01	8.0	5.4	31.8	80.0	0.052	119.10%
Spike Cal_0000275.LAB	9/10/2022	17:37:17	8.0	5.1	31.7	88.9	0.050	135.27%
Spike Cal_0000276.LAB	9/10/2022	17:37:34	8.0	5.2	31.8	80.5	0.050	121.79%
Spike Cal_0000277.LAB	9/10/2022	17:37:50	8.0	4.9	32.2	83.5	0.048	129.42%
Spike Cal_0000278.LAB	9/10/2022	17:38:06	8.0	5.3	31.8	82.6	0.051	124.27%
Spike Cal_0000279.LAB	9/10/2022	17:38:23	8.0	5.0	31.8	88.9	0.049	136.14%
								129.49%

CTS, System Purge

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppmv wet	Recovery % Ethylene
Post Run 2 System CTS_0000286.LAB	9/10/2022	17:40:02	0.7	-0.3	96.6	819.6	96.28%
Post Run 2 System CTS_0000287.LAB	9/10/2022	17:40:18	0.6	-0.1	96.6	824.5	96.32%
Post Run 2 System CTS_0000288.LAB	9/10/2022	17:40:35	0.6	-0.3	96.7	823.1	96.37%
Post Run 2 System CTS_0000289.LAB	9/10/2022	17:40:51	0.6	-0.4	96.7	822.9	96.39%
Post Run 2 System CTS_0000290.LAB	9/10/2022	17:41:07	0.5	-0.2	96.7	815.3	96.39%
Post Run 2 System CTS_0000291.LAB	9/10/2022	17:41:24	0.5	-0.2	97.2	820.4	96.90%
Post Run 2 System CTS_0000292.LAB	9/10/2022	17:41:40	0.5	-0.3	97.2	824.4	96.89%
Post Run 2 System CTS_0000293.LAB	9/10/2022	17:41:57	0.5	-0.3	97.2	822.8	96.88%
							96.55%

Native Effluent Prior to Analyte Spike

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppmv wet
Test Run 1_0000272.LAB	9/11/2022	07:49:43	9.2	-13.2	38.3	26.3
Test Run 1_0000273.LAB	9/11/2022	07:50:43	9.2	-13.3	38.3	28.0
Test Run 1_0000274.LAB	9/11/2022	07:50:43	9.2	-13.3	38.3	28.0
			9.2			27.5

Client: Middletown Power LLC
 Facility: Middletown Facility
 Project #: M223610
 Operating Condition: Normal

Test Location: Unit 13
 Date: 9/9/2022
 Operator: J. Gross
 FTIR s/n: 484

Effluent Spike Using Analyte

Post 6

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppmv wet	Dilution Factor	Recovery % Formaldehyde
Spike Cal_0000280.LAB	9/11/2022	07:52:56	7.7	5.4	31.0	94.8	0.053	162.87%
Spike Cal_0000281.LAB	9/11/2022	07:53:12	7.8	5.2	31.4	76.5	0.051	133.90%
Spike Cal_0000282.LAB	9/11/2022	07:53:29	7.8	5.8	31.0	76.0	0.057	125.88%
Spike Cal_0000283.LAB	9/11/2022	07:53:45	7.8	6.3	31.0	76.2	0.061	121.07%
Spike Cal_0000284.LAB	9/11/2022	07:54:01	7.8	5.9	31.4	76.0	0.058	124.58%
Spike Cal_0000285.LAB	9/11/2022	07:54:18	7.8	6.0	30.9	71.7	0.058	117.31%
Spike Cal_0000286.LAB	9/11/2022	07:54:34	7.8	6.1	31.0	67.0	0.060	107.79%
Spike Cal_0000287.LAB	9/11/2022	07:54:50	7.9	5.9	31.5	65.6	0.058	107.42%
								125.10%

CTS, System Purge

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppmv wet	Recovery % Ethylene
Post Run 1 System CTS_0000294.LAB	9/11/2022	07:56:32	1.1	0.3	95.8	592.9	95.48%
Post Run 1 System CTS_0000295.LAB	9/11/2022	07:56:48	0.9	0.2	97.1	592.9	96.76%
Post Run 1 System CTS_0000296.LAB	9/11/2022	07:57:05	0.8	0.2	97.0	585.5	96.69%
Post Run 1 System CTS_0000297.LAB	9/11/2022	07:57:21	0.8	0.1	97.0	586.7	96.66%
Post Run 1 System CTS_0000298.LAB	9/11/2022	07:57:37	0.7	0.1	96.9	586.1	96.65%
Post Run 1 System CTS_0000299.LAB	9/11/2022	07:57:54	0.7	0.2	96.9	583.7	96.65%
Post Run 1 System CTS_0000300.LAB	9/11/2022	07:58:10	0.7	0.1	96.9	588.0	96.61%
Post Run 1 System CTS_0000301.LAB	9/11/2022	07:58:26	0.7	0.3	96.9	589.2	96.61%
							96.51%

Native Effluent Prior to Analyte Spike

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppmv wet
Test Run 2_0000379.LAB	9/11/2022	09:15:26	9.4	-12.5	36.5	28.3
Test Run 2_0000380.LAB	9/11/2022	09:16:26	9.4	-12.4	36.7	24.8
Test Run 2_0000381.LAB	9/11/2022	09:16:26	9.4	-12.4	36.7	24.8
			9.4			26.0

Effluent Spike Using Analyte

Post 7

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppmv wet	Dilution Factor	Recovery % Formaldehyde
Spike Cal_0000393.LAB	9/11/2022	09:19:50	7.8	6.6	29.2	84.0	0.064	132.52%
Spike Cal_0000394.LAB	9/11/2022	09:20:07	7.8	6.9	29.3	83.9	0.068	128.46%
Spike Cal_0000395.LAB	9/11/2022	09:20:23	7.9	6.7	29.4	87.9	0.065	137.07%
Spike Cal_0000396.LAB	9/11/2022	09:20:39	7.9	6.7	29.3	81.8	0.065	127.94%
Spike Cal_0000397.LAB	9/11/2022	09:20:56	7.9	6.8	29.3	73.1	0.066	113.06%
Spike Cal_0000398.LAB	9/11/2022	09:21:12	7.9	6.7	29.2	76.0	0.065	118.59%
Spike Cal_0000399.LAB	9/11/2022	09:21:28	7.8	7.7	29.0	75.6	0.075	108.81%
Spike Cal_0000400.LAB	9/11/2022	09:21:28	7.8	7.7	29.0	75.6	0.075	108.81%
								121.91%

CTS, System Purge

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppmv wet	Recovery % Ethylene
Post Test System CTS_0000411.LAB	9/11/2022	09:24:33	0.6	0.3	96.8	598.6	96.46%
Post Test System CTS_0000412.LAB	9/11/2022	09:24:49	0.6	0.0	96.8	602.8	96.48%
Post Test System CTS_0000413.LAB	9/11/2022	09:25:06	0.6	0.5	96.8	595.0	96.50%
Post Test System CTS_0000414.LAB	9/11/2022	09:25:22	0.6	0.4	96.8	598.0	96.49%
Post Test System CTS_0000415.LAB	9/11/2022	09:25:38	0.6	0.2	96.8	603.8	96.51%
Post Test System CTS_0000416.LAB	9/11/2022	09:25:55	0.6	0.0	96.8	602.0	96.48%
Post Test System CTS_0000417.LAB	9/11/2022	09:26:11	0.5	0.1	96.8	609.4	96.51%
Post Test System CTS_0000418.LAB	9/11/2022	09:26:11	0.5	0.1	96.8	609.4	96.51%
							96.49%

Client: Middletown Power LLC
 Facility: Middletown Facility
 Project #: M223610
 Operating Condition: Normal

Test Location: Unit 13
 Date: 9/9/2022
 Operator: J. Gross
 FTIR s/n: 484

CTS, Direct Purge

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppbv wet	Recovery % Ethylene
Post Test CTS Direct_0000435.LAB	9/11/2022	09:40:32	0.3	0.0	97.9	567.8	97.6%
Post Test CTS Direct_0000436.LAB	9/11/2022	09:40:48	0.3	0.2	97.9	567.8	97.6%
Post Test CTS Direct_0000437.LAB	9/11/2022	09:41:05	0.3	0.4	98.0	557.2	97.7%
Post Test CTS Direct_0000438.LAB	9/11/2022	09:41:21	0.3	0.1	98.1	563.1	97.8%
Post Test CTS Direct_0000439.LAB	9/11/2022	09:41:37	0.3	0.1	98.0	565.1	97.7%
Post Test CTS Direct_0000440.LAB	9/11/2022	09:41:54	0.3	0.1	98.1	564.3	97.8%
Post Test CTS Direct_0000441.LAB	9/11/2022	09:42:10	0.3	0.1	98.1	563.1	97.8%
Post Test CTS Direct_0000442.LAB	9/11/2022	09:42:10	0.3	0.1	98.1	563.1	97.8%
		Average			98.0		

N2, Direct Purge

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppbv wet
Post Test Zero Direct_0000450.LAB	9/11/2022	09:46:30	0.3	0.2	-3.9	0.8
Post Test Zero Direct_0000451.LAB	9/11/2022	09:47:30	0.3	0.1	-4.0	0.3
Post Test Zero Direct_0000452.LAB	9/11/2022	09:47:30	0.3	0.1	-4.0	0.3

Client: Middletown Power LLC. **Test Location:** Unit 13
Facility: Middletown Facility **Date:** 9/9/2022
Project #: M223610 **Operator:** J. Gross
Operating Condition: Normal **FTIR s/n:** 484

Nitrogen (Zero) Direct to FTIR Max

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet
9/9/22	7:40:12	0.0	0.0	0.0	0.0
9/9/22	7:40:20	0.0	0.0	0.0	-0.1
9/9/22	7:40:28	0.0	0.0	-0.1	0.2
9/9/22	7:40:36	0.0	0.0	-0.1	0.1
9/9/22	7:40:43	0.0	0.0	0.2	0.0
9/9/22	7:40:51	0.0	0.0	0.0	0.0
9/9/22	7:40:59	0.0	0.0	0.0	0.0
9/9/22	7:41:07	0.0	0.0	0.0	0.3
9/9/22	7:41:15	0.0	0.0	0.0	0.0

CTS, Direct to FTIR

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Recovery % Ethylene
9/9/22	7:42:18	0.0	0.0	0.0	98.2	98.0%
9/9/22	7:42:26	0.0	0.0	0.0	98.1	97.9%
9/9/22	7:42:34	0.0	0.0	0.1	98.3	98.0%
9/9/22	7:42:42	0.0	0.0	0.1	98.6	98.3%
9/9/22	7:42:50	0.0	0.0	-0.1	98.5	98.2%
9/9/22	7:42:58	0.0	0.0	0.0	98.2	97.9%
9/9/22	7:43:05	0.0	0.0	0.0	98.3	98.0%
9/9/22	7:43:13	0.0	0.0	-0.1	98.4	98.1%
Average					98.3	98.0%

Analyte Direct to FTIR

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Recovery % HCl
9/9/22	7:48:18	0.0	5.5	95.3	2.6	97.5%
9/9/22	7:48:26	0.1	5.6	97.2	0.7	99.5%
9/9/22	7:48:34	0.1	5.7	97.2	5.3	99.4%
9/9/22	7:48:42	-0.1	5.7	95.2	3.1	97.4%
9/9/22	7:48:49	0.0	5.7	95.6	3.8	97.8%
9/9/22	7:48:57	0.0	5.8	96.9	2.9	99.2%
9/9/22	7:49:05	0.1	5.3	97.4	3.2	99.6%
9/9/22	7:49:13	0.0	5.8	95.6	1.6	97.8%
Average			5.6	96.3		98.5%

CTS, System Purge and Reponse Time Test

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Recovery % Ethylene	Response Time
9/9/22	8:42:49	3.5	0.0	-0.1	0.1	0.1%	-
9/9/22	8:42:57	2.7	0.0	-0.2	30.1	30.6%	8
9/9/22	8:43:04	1.1	0.0	-0.2	94.2	95.8%	16
9/9/22	8:43:12	0.8	0.0	0.0	97.3	98.9%	24
9/9/22	8:43:20	0.7	0.0	0.0	97.7	99.3%	32
9/9/22	8:43:28	0.6	0.0	-0.2	97.8	99.5%	40

Client: Middletown Power LLC. Test Location: Unit 13
Facility: Middletown Facility Date: 9/9/2022
Project #: M223610 Operator: J. Gross
Operating Condition: Normal FTIR s/n: 484

Zero Gas System Purge and Response Time Test

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Response Time
9/9/22	8:47:08	10.2	0.0	-0.4	0.4	-
9/9/22	8:47:16	4.2	0.0	-0.2	-0.2	8
9/9/22	8:47:24	0.9	0.0	-0.1	0.1	16
9/9/22	8:47:32	0.4	0.0	-0.2	0.4	24
9/9/22	8:47:40	0.3	0.0	0.1	-0.2	32
9/9/22	8:47:47	0.2	0.0	-0.1	-0.1	39
9/9/22	8:47:55	0.2	0.0	-0.2	0.2	47
9/9/22	8:48:03	0.2	0.0	0.0	0.1	55

Native Effluent Prior to Analyte Spike

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet
9/9/22	9:02:46	10.8	0.0	-0.3	0.7
9/9/22	9:02:54	10.8	0.0	-0.5	0.7
9/9/22	9:03:02	10.8	0.0	-0.5	0.3
		10.800	0.0	-0.4	

Effluent Spike Using Analyte

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Dilution Factor	Recovery % HCl
9/9/22	9:19:41	9.4	0.5	13.1	0.6	0.14	102.8%
9/9/22	9:19:49	9.6	0.4	9.0	0.6	0.09	104.3%
9/9/22	9:19:57	9.7	0.4	7.1	0.2	0.07	105.6%
9/9/22	9:20:05	9.7	0.4	6.0	0.2	0.06	106.9%
9/9/22	9:20:12	9.7	0.4	5.2	0.2	0.05	108.1%
9/9/22	9:20:20	9.7	0.4	4.4	0.4	0.05	109.9%
9/9/22	9:20:28	9.7	0.4	3.9	0.2	0.04	111.1%
9/9/22	9:20:36	9.8	0.4	3.5	0.7	0.04	112.8%
							107.7%

Native Effluent Prior to Analyte Spike

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet
9/9/22	10:42:59	10.9	0.0	-0.3	0.5
9/9/22	10:44:01	10.9	0.0	-0.3	0.4
9/9/22	10:45:04	10.9	0.0	-0.3	0.5
		10.886	0.0	-0.3	

Effluent Spike Using Analyte

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Dilution Factor	Recovery % HCl
9/9/22	11:01:49	9.4	0.5	9.9	0.3	0.10	103.9%
9/9/22	11:01:56	9.9	0.5	8.9	0.4	0.09	104.4%
9/9/22	11:02:04	10.0	0.5	7.2	0.5	0.07	105.6%
9/9/22	11:02:12	9.9	0.4	6.3	0.2	0.07	106.4%
9/9/22	11:02:20	9.8	0.4	6.8	0.2	0.07	106.0%
9/9/22	11:02:28	9.8	0.5	6.4	0.4	0.07	106.3%
9/9/22	11:02:36	9.7	0.4	6.2	-0.1	0.06	106.6%
9/9/22	11:02:44	9.8	0.4	5.7	0.5	0.06	107.3%
							105.8%

Client: Middletown Power LLC. Test Location: Unit 13
 Facility: Middletown Facility Date: 9/9/2022
 Project #: M223610 Operator: J. Gross
 Operating Condition: Normal FTIR s/n: 484

CTS, System Purge

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Recovery % Ethylene
9/9/22	10:50:48	0.3	0.0	0.1	98.1	97.8%
9/9/22	10:50:55	0.3	0.0	0.0	98.9	98.6%
9/9/22	10:51:03	0.3	0.0	0.0	97.7	97.4%
9/9/22	10:51:12	0.3	0.0	0.2	97.8	97.5%
9/9/22	10:51:19	0.3	0.0	0.0	97.9	97.6%
9/9/22	10:51:27	0.3	0.0	-0.1	98.0	97.7%
9/9/22	10:51:35	0.3	0.0	0.0	98.6	98.3%
9/9/22	10:51:43	0.3	0.0	0.0	98.1	97.8%

Native Effluent Prior to Analyte Spike

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet
9/9/22	12:06:59	10.9	0.0	-0.3	0.4
9/9/22	12:08:02	10.9	0.0	-0.3	0.4
9/9/22	12:09:05	10.9	0.0	-0.3	0.5
		10.925	0.0		

Effluent Spike Using Analyte

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Dilution Factor	Recovery % HCl
9/9/22	12:27:49	10.0	0.4	6.1	0.3	0.06	106.7%
9/9/22	12:27:57	10.1	0.3	5.6	0.5	0.06	107.4%
9/9/22	12:28:05	10.1	0.3	5.2	0.6	0.05	108.1%
9/9/22	12:28:13	10.1	0.3	4.9	0.7	0.05	108.6%
9/9/22	12:28:20	10.1	0.3	5.0	0.5	0.05	108.5%
9/9/22	12:28:28	10.1	0.3	4.9	0.3	0.05	108.7%
9/9/22	12:28:36	10.1	0.3	4.7	0.2	0.05	109.2%
9/9/22	12:28:44	10.1	0.3	4.5	0.6	0.05	109.6%
							108.3%

CTS, System Purge

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Recovery % Ethylene
9/9/22	12:14:59	0.6	0.0	-0.1	98.0	97.7%
9/9/22	12:15:07	0.5	0.0	0.0	98.3	98.0%
9/9/22	12:15:15	0.4	0.0	0.1	98.5	98.2%
9/9/22	12:15:23	0.3	0.0	0.1	98.0	97.7%
9/9/22	12:15:30	0.3	0.0	0.0	98.5	98.2%
9/9/22	12:15:38	0.3	0.0	0.1	98.2	97.9%
9/9/22	12:15:46	0.3	0.0	0.0	98.0	97.7%
9/9/22	12:15:54	0.3	0.0	0.1	97.7	97.4%

Client: Middletown Power LLC **Test Location:** Unit 13
Facility: Middletown Facility **Date:** 9/9/2022
Project #: M223610 **Operator:** J. Gross
Operating Condition: Normal **FTIR s/n:** 484

Native Effluent Prior to Analyte Spike

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet
9/9/22	13:40:11	10.9	0.0	-0.3	0.4
9/9/22	13:41:11	10.9	0.0	-0.3	0.4
9/9/22	13:42:12	10.9	0.0	-0.3	0.3
		10.904	0.0		

Effluent Spike Using Analyte

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Dilution Factor	Recovery % HCl
9/9/22	14:44:31	7.6	0.4	11.8	-0.1	0.12	103.1%
9/9/22	14:44:39	7.7	0.4	9.6	-0.1	0.10	104.0%
9/9/22	14:44:47	7.7	0.4	7.9	-0.1	0.08	105.0%
9/9/22	14:44:55	7.7	0.4	6.7	0.1	0.07	106.1%
9/9/22	14:45:03	7.7	0.4	5.5	0.0	0.06	107.6%
9/9/22	14:45:11	7.7	0.4	5.0	0.2	0.05	108.5%
9/9/22	14:45:18	7.6	0.4	4.3	0.4	0.04	110.1%
9/9/22	14:45:26	7.7	0.4	3.6	0.1	0.04	112.2%
							107.1%

CTS, System Purge

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Recovery % Ethylene
9/9/22	14:37:53	0.0	0.0	0.1	98.7	98.4%
9/9/22	14:38:01	0.0	0.0	0.3	98.4	98.1%
9/9/22	14:38:09	0.0	0.0	0.2	98.8	98.5%
9/9/22	14:38:17	0.0	0.0	0.2	98.9	98.6%
9/9/22	14:38:25	0.0	0.0	0.2	98.4	98.1%
9/9/22	14:38:33	0.0	0.0	0.3	99.1	98.8%
9/9/22	14:38:40	0.0	0.0	0.2	99.3	99.0%
9/9/22	14:38:48	0.0	0.0	0.2	98.8	98.5%

Native Effluent Prior to Analyte Spike

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet
9/10/22	17:03:11	11.0	0.0	-0.1	0.6
9/10/22	17:04:12	11.0	0.0	-0.1	0.5
9/10/22	17:05:13	11.0	0.0	-0.1	0.5
		11.0	0.0		

Client: Middletown Power LLC. **Test Location:** Unit 13
Facility: Middletown Facility **Date:** 9/9/2022
Project #: M223610 **Operator:** J. Gross
Operating Condition: Normal **FTIR s/n:** 484

Effluent Spike Using Analyte

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Dilution Factor	Recovery % SF6
9/10/22	17:18:49	9.9	0.4	14.7	0.5	0.15	50.8%
9/10/22	17:18:57	10.0	0.4	12.0	0.6	0.12	60.2%
9/10/22	17:19:05	10.0	0.4	10.2	0.4	0.11	71.2%
9/10/22	17:19:13	10.0	0.4	8.9	0.7	0.09	80.4%
9/10/22	17:19:20	10.0	0.4	7.9	0.3	0.08	89.7%
9/10/22	17:19:28	10.0	0.4	6.9	0.6	0.07	102.7%
9/10/22	17:19:36	10.0	0.4	6.2	0.5	0.06	114.8%
9/10/22	17:19:44	10.1	0.4	5.7	0.5	0.06	122.6%
							86.6%

CTS, System Purge

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Recovery % Ethylene
9/10/22	17:11:16	0.3	0.0	0.2	98.0	97.75%
9/10/22	17:11:24	0.3	0.0	0.3	98.6	98.32%
9/10/22	17:11:32	0.3	0.0	0.3	98.5	98.25%
9/10/22	17:11:40	0.2	0.0	0.2	98.4	98.09%
9/10/22	17:11:48	0.3	0.0	0.2	98.6	98.28%
9/10/22	17:11:56	0.2	0.0	0.3	98.5	98.22%
9/10/22	17:12:04	0.2	0.0	0.3	98.7	98.40%
9/10/22	17:12:11	0.2	0.0	0.3	98.6	98.26%

Native Effluent Prior to Analyte Spike

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet
9/10/22	18:26:08	10.9	0.0	-0.2	0.6
9/10/22	18:27:09	10.9	0.0	-0.2	0.6
9/10/22	18:28:10	11.0	0.0	-0.2	0.7
		10.9	0.0		

Effluent Spike Using Analyte

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Dilution Factor	Recovery % SF6
9/10/22	18:46:25	9.8	0.4	11.7	0.4	0.12	62.29%
9/10/22	18:46:32	9.8	0.5	9.7	0.5	0.10	79.57%
9/10/22	18:46:41	9.8	0.4	8.4	0.7	0.09	90.33%
9/10/22	18:46:48	9.8	0.4	7.5	0.2	0.08	102.95%
9/10/22	18:46:56	9.9	0.4	6.4	0.4	0.07	116.64%
9/10/22	18:47:04	9.9	0.4	5.7	0.5	0.06	131.14%
9/10/22	18:47:12	9.9	0.4	5.2	0.7	0.05	145.77%
9/10/22	18:47:20	9.9	0.4	4.7	0.7	0.05	163.42%
							111.51%

Client: Middletown Power LLC. Test Location: Unit 13
Facility: Middletown Facility Date: 9/9/2022
Project #: M223610 Operator: J. Gross
Operating Condition: Normal FTIR s/n: 484

CTS, System Purge

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Recovery % Ethylene
9/10/22	18:39:13	0.4	0.0	0.2	98.2	97.94%
9/10/22	18:39:21	0.3	0.0	0.2	98.8	98.47%
9/10/22	18:39:29	0.3	0.0	0.3	98.2	97.88%
9/10/22	18:39:36	0.3	0.0	0.2	99.2	98.86%
9/10/22	18:39:44	0.3	0.0	0.2	98.4	98.13%
9/10/22	18:39:52	0.3	0.0	0.4	98.0	97.68%
9/10/22	18:40:00	0.3	0.0	0.2	98.3	98.00%
9/10/22	18:40:08	0.3	0.0	0.1	99.0	98.68%
						98.20%

Native Effluent Prior to Analyte Spike

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet
9/11/22	8:47:59	10.5	0.0	0.0	0.5
9/11/22	8:49:00	10.5	0.0	-0.1	0.6
9/11/22	8:50:01	10.5	0.0	-0.1	0.6
		10.5	0.0		

Effluent Spike Using Analyte

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Dilution Factor	Recovery % SF6
9/11/22	9:03:14	9.3	0.5	11.3	0.4	0.12	69.72%
9/11/22	9:03:21	9.3	0.5	9.6	0.4	0.10	82.77%
9/11/22	9:03:29	9.4	0.5	8.4	0.6	0.09	93.26%
9/11/22	9:03:37	9.4	0.5	7.6	0.6	0.08	102.53%
9/11/22	9:03:45	9.4	0.5	6.8	0.5	0.07	114.35%
9/11/22	9:03:53	9.4	0.5	6.0	0.5	0.06	132.47%
9/11/22	9:04:01	9.4	0.5	5.5	0.7	0.06	143.91%
9/11/22	9:04:09	9.5	0.4	4.9	0.5	0.05	154.58%
							111.70%

CTS, System Purge

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Recovery % Ethylene
9/11/22	8:56:00	0.7	0.0	0.0	97.1	96.79%
9/11/22	8:56:08	0.6	0.0	0.1	97.7	97.39%
9/11/22	8:56:15	0.6	0.0	0.1	98.4	98.10%
9/11/22	8:56:23	0.5	0.0	0.0	98.1	97.81%
9/11/22	8:56:31	0.5	0.0	0.1	97.8	97.47%
9/11/22	8:56:39	0.5	0.0	0.0	98.2	97.88%
9/11/22	8:56:47	0.5	0.0	0.1	97.8	97.53%
9/11/22	8:56:55	0.5	0.0	0.1	97.8	97.55%
						97.57%

Native Effluent Prior to Analyte Spike

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet
9/11/22	10:13:46	10.7	0.0	0.0	0.6
9/11/22	10:14:46	10.6	0.0	0.4	0.5
9/11/22	10:15:48	10.8	0.0	0.3	0.6
		10.7	0.0		

Client: Middletown Power LLC. Test Location: Unit 13
 Facility: Middletown Facility Date: 9/9/2022
 Project #: M223610 Operator: J. Gross
 Operating Condition: Normal FTIR s/n: 484

Effluent Spike Using Analyte

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Dilution Factor	Recovery % SF6
9/11/22	10:30:39	9.5	0.4	14.0	0.3	0.15	50.28%
9/11/22	10:30:47	9.6	0.4	11.1	0.4	0.11	60.69%
9/11/22	10:30:54	9.6	0.4	9.1	0.5	0.09	73.94%
9/11/22	10:31:03	9.7	0.4	7.9	0.3	0.08	86.45%
9/11/22	10:31:10	9.7	0.4	6.9	0.4	0.07	96.48%
9/11/22	10:31:18	9.7	0.4	6.0	0.6	0.06	111.07%
9/11/22	10:31:26	9.7	0.4	5.5	0.6	0.06	118.53%
9/11/22	10:31:34	9.7	0.4	4.8	0.6	0.05	136.48%
							91.74%

CTS, System Purge

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Recovery % Ethylene
9/11/22	10:23:14	0.8	0.0	0.1	97.9	97.60%
9/11/22	10:23:22	0.7	0.0	0.0	97.4	97.14%
9/11/22	10:23:30	0.6	0.0	-0.1	98.0	97.69%
9/11/22	10:23:38	0.4	0.0	0.0	98.4	98.08%
9/11/22	10:23:46	0.3	0.0	0.0	97.8	97.47%
9/11/22	10:23:54	0.3	0.0	0.1	97.9	97.57%
9/11/22	10:24:01	0.3	0.0	0.1	97.8	97.51%
9/11/22	10:24:09	0.3	0.0	0.0	98.5	98.25%
						97.66%

CTS, Direct Purge

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Recovery % Ethylene
9/11/22	10:39:44	0.0	0.0	0.0	98.5	98.2%
9/11/22	10:39:51	0.0	0.0	0.0	98.7	98.4%
9/11/22	10:39:59	0.0	0.0	0.0	98.4	98.2%
9/11/22	10:40:07	0.0	0.0	0.0	98.5	98.2%
9/11/22	10:40:15	0.0	0.0	0.0	98.6	98.3%
9/11/22	10:40:23	0.0	0.0	0.1	98.9	98.6%
9/11/22	10:40:30	0.0	0.0	0.0	98.7	98.4%
9/11/22	10:40:38	0.0	0.0	0.0	98.6	98.3%
Average					98.6	

N2, Direct Purge

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet
9/11/22	10:50:36	0.0	0.0	0.0	0.0
9/11/22	10:52:36	0.0	0.0	0.0	0.0
9/11/22	10:54:35	0.0	0.0	0.0	0.0

301 Validation LOD Calculations

						Formaldehyde zero		
		HCl zero	H2O zero	HF zero	CO zero			
9/9/2022	7:39:17 AM	0.019857	0.021172	0.21888	0.782783	9/9/2022	07:53:26	-9.054
9/9/2022	7:39:25 AM	0.021079	0.014255	0.091327	0.244937	9/9/2022	07:53:42	-12.973
9/9/2022	7:39:33 AM	-0.024553	-0.010484	0.098611	0.124523	9/9/2022	07:53:58	-18.356
9/9/2022	7:39:41 AM	-0.020411	-0.008489	0.054756	0.106652	9/9/2022	07:53:58	-18.356
9/9/2022	7:39:49 AM	0.060563	-0.0072	0.0554	-0.074125			-14.685
9/9/2022	7:39:57 AM	0.030672	-0.006047	0.052457	-0.187681	9/9/2022	08:32:00	-14.232
9/9/2022	7:40:04 AM	0.134917	-0.012513	0.006577	0.215979	9/9/2022	08:33:00	-15.634
9/9/2022	7:40:12 AM	-0.038114	-0.006454	0.027426	0.195462			-14.933
9/9/2022	7:40:20 AM	-0.014853	-0.015441	0.066742	0.010579	9/9/2022	10:06:10	0.873
9/9/2022	7:40:28 AM	-0.072743	-0.010468	0.016282	0.050186	9/9/2022	10:06:27	-7.692
9/9/2022	7:40:36 AM	-0.067241	-0.017809	-0.029148	0.191705	9/9/2022	10:06:43	3.809
9/9/2022	7:40:43 AM	0.154642	-0.006104	0.003484	0.00847			-1.003
9/9/2022	7:40:51 AM	0.00402	-0.015615	0.042159	0.056017	9/9/2022	10:08:30	-14.158
9/9/2022	7:40:59 AM	0.024266	-0.003552	-0.008544	0.111248	9/9/2022	10:09:30	-3.214
9/9/2022	7:41:07 AM	-0.017799	-0.002327	-0.02465	0.219444			-8.686
9/9/2022	7:41:15 AM	0.036288	-0.010574	0.010225	0.060935	9/9/2022	11:33:52	-5.522
Average		0.014412	-0.006103	0.042624	0.132320	9/9/2022	11:34:09	-8.696
								-7.109
		HCl zero	H2O zero	HF zero	CO zero			
9/9/2022	8:45:42 AM	-0.057254	0.242758	-0.01966	0.846601	9/9/2022	12:55:08	10.716
9/9/2022	8:45:50 AM	-0.026031	0.178992	0.039526	0.864626	9/9/2022	12:55:24	3.426
9/9/2022	8:45:57 AM	0.071011	0.160589	0.023056	0.634884	9/9/2022	12:55:41	5.552
9/9/2022	8:46:05 AM	-0.007692	0.156574	0.003208	0.863715	9/9/2022	13:34:53	-2.423
9/9/2022	8:46:13 AM	-0.070622	0.155004	-0.031341	0.863864	9/9/2022	13:34:53	-2.423
9/9/2022	8:46:21 AM	-0.0353	0.116813	0.099583	0.510485			-2.423
9/9/2022	8:47:32 AM	-0.182679	0.391194	0.082078	0.798586	9/10/2022	14:23:41	1.210
9/9/2022	8:47:40 AM	0.093544	0.268015	0.038262	0.821724	9/10/2022	14:23:57	0.678
9/9/2022	8:47:47 AM	-0.121404	0.200965	-0.001195	0.926123	9/10/2022	14:24:14	0.495
9/9/2022	8:47:55 AM	-0.177554	0.189483	0.019653	0.831297	9/10/2022	14:24:14	-4.194
9/9/2022	8:48:03 AM	-0.047461	0.170742	0.079353	0.743828	9/10/2022	14:25:18	-4.194
Average		-0.051040	0.202830	0.030229	0.791430			-1.201
						9/10/2022	14:35:54	11.374
		HCl zero	H2O zero	HF zero	CO zero			
9/9/2022	10:53:15 AM	-0.09928	0.330187	-0.007382	0.997038	9/10/2022	14:36:11	12.512
9/9/2022	10:53:22 AM	0.070425	0.237531	0.059045	0.935274	9/10/2022	14:36:11	12.512
9/9/2022	10:53:31 AM	-0.139085	0.194459	-0.036472	0.889137	9/11/2022	06:23:37	-3.332
9/9/2022	10:53:38 AM	-0.067434	0.194809	0.08511	0.778995	9/11/2022	06:23:54	-14.334
9/9/2022	10:53:46 AM	0.060061	0.186419	0.055829	0.879141	9/11/2022	06:24:10	-28.397
9/9/2022	10:53:54 AM	-0.034854	0.174742	-0.040714	0.882657			-15.354
9/9/2022	10:54:02 AM	0.080514	0.170188	-0.064134	0.80799	9/11/2022	06:38:54	-7.083
9/9/2022	10:54:10 AM	0.130714	0.162514	0.030569	0.849473	9/11/2022	06:39:54	-10.860
9/9/2022	10:54:17 AM	0.058809	0.165262	0.074638	0.826085			-8.971
9/9/2022	10:54:25 AM	0.069492	0.160317	-0.015	0.693487	9/11/2022	08:11:23	-3.885
9/9/2022	10:54:33 AM	0.068639	0.159221	-0.009499	0.714664	9/11/2022	08:12:25	-3.885
9/9/2022	10:54:41 AM	-0.044691	0.135212	-0.01894	0.611885	9/11/2022	08:13:25	9.082
9/9/2022	10:54:49 AM	0.060446	0.133593	-0.040955	0.944846			0.437
9/9/2022	10:54:57 AM	0.08616	0.161685	-0.022915	0.815881			
9/9/2022	10:55:05 AM	0.081965	0.130661	0.037215	0.900843	Average		-4.603
9/9/2022	10:55:12 AM	0.084463	0.13266	0.045278	0.940685	Standard Deviation		8.3
9/9/2022	10:55:21 AM	0.02138	0.133945	0.050678	0.660077	MDL		24.9
Average		0.028690	0.174318	0.010727	0.831068			

		HCl zero	H2O zero	HF zero	CO zero
9/9/2022	12:18:18 PM	-0.025015	0.175117	-0.020428	0.88978
9/9/2022	12:18:27 PM	-0.034888	0.159699	0.050813	1.038367
9/9/2022	12:18:34 PM	0.168037	0.154643	-0.023597	0.933816
9/9/2022	12:18:42 PM	0.029125	0.151602	-0.072185	1.020861
9/9/2022	12:18:50 PM	0.146959	0.145225	0.005461	0.989868
9/9/2022	12:18:58 PM	0.049123	0.166138	0.090207	1.040354
9/9/2022	12:19:06 PM	-0.010569	0.155738	0.019371	0.827207
9/9/2022	12:19:13 PM	0.104643	0.141846	-0.006325	0.946075
9/9/2022	12:19:21 PM	-0.014629	0.145034	0.012492	1.062329
9/9/2022	12:19:29 PM	0.05917	0.141843	-0.035466	0.858752
	Average	0.047196	0.153689	0.002034	0.960741

		HCl zero	H2O zero	HF zero	CO zero
9/10/2022	5:11:09 PM	0.203788	0.33274	-0.010143	1.003981
9/10/2022	5:11:16 PM	0.220985	0.281466	0.012449	1.247798
9/10/2022	5:11:24 PM	0.311389	0.276387	0.046669	1.123048
9/10/2022	5:11:32 PM	0.332335	0.260298	-0.021512	1.153184
9/10/2022	5:11:40 PM	0.235093	0.242363	-0.006071	1.156645
9/10/2022	5:11:48 PM	0.22073	0.255776	0.045939	1.130648
9/10/2022	5:11:56 PM	0.297138	0.229146	0.003281	1.111207
9/10/2022	5:12:04 PM	0.28545	0.211661	-0.036068	0.991757
9/10/2022	5:12:11 PM	0.333374	0.187437	-0.048376	1.249371
	Average	0.271142	0.253030	-0.001537	1.129738

		HCl zero	H2O zero	HF zero	CO zero
9/10/2022	6:39:13 PM	0.206168	0.391515	-0.014342	1.208535
9/10/2022	6:39:21 PM	0.21271	0.343554	-0.015715	1.083103
9/10/2022	6:39:29 PM	0.282471	0.341858	0.043882	0.998768
9/10/2022	6:39:36 PM	0.198547	0.312303	0.063538	0.862835
9/10/2022	6:39:44 PM	0.229459	0.308686	-0.050117	1.343691
9/10/2022	6:39:52 PM	0.381004	0.293787	0.005448	1.176571
9/10/2022	6:40:00 PM	0.186305	0.273865	0.031556	1.075942
9/10/2022	6:40:08 PM	0.063235	0.264291	-0.08573	1.322999
	Average	0.219987	0.316232	-0.002685	1.134056

		HCl zero	H2O zero	HF zero	CO zero
9/11/2022	7:17:11 AM	-0.054533	0.947048	0.039004	1.560621
9/11/2022	7:17:19 AM	-0.02939	0.17099	0.01305	1.234801
9/11/2022	7:17:27 AM	0.158902	0.100119	0.065491	0.854353
9/11/2022	7:17:34 AM	-0.076769	0.076253	-0.013203	1.179777
9/11/2022	7:17:43 AM	0.078142	0.075022	-0.038857	1.27342
9/11/2022	7:17:50 AM	0.231261	0.055857	0.043633	1.106759
9/11/2022	7:17:58 AM	0.076103	0.057597	-0.015205	0.953204
9/11/2022	7:18:06 AM	0.069083	0.054834	0.033545	0.823749
9/11/2022	7:18:14 AM	0.077742	0.040283	0.055296	0.908688
9/11/2022	7:18:22 AM	0.158697	0.045279	0.024895	0.767168
	Average	0.068924	0.162328	0.020765	1.066254

		HCl zero	H2O zero	HF zero	CO zero
9/11/2022	8:55:44 AM	-0.058665	0.91976	-0.009879	1.217209
9/11/2022	8:55:52 AM	0.005862	0.848154	0.034783	1.151539
9/11/2022	8:56:00 AM	-0.032499	0.743684	-0.005394	1.313441
9/11/2022	8:56:08 AM	0.119547	0.623357	0.028302	1.152171
9/11/2022	8:56:15 AM	0.051703	0.568166	-0.055117	1.351146
9/11/2022	8:56:23 AM	0.00751	0.519578	-0.052979	1.388247
9/11/2022	8:56:31 AM	0.122686	0.49771	0.006684	1.19238
9/11/2022	8:56:39 AM	-0.010739	0.473447	0.000834	1.306497
9/11/2022	8:56:47 AM	0.102722	0.457545	-0.032423	1.162923
9/11/2022	8:56:55 AM	0.142776	0.45727	0.08624	1.213423
	Average	0.045090	0.610867	0.000105	1.244898
9/11/2022	10:22:43 AM	-0.120746	1.763679	0.024938	1.427817
9/11/2022	10:22:50 AM	-0.04468	1.237804	-0.0215	1.378295
9/11/2022	10:22:58 AM	-0.016494	1.061362	-0.006878	1.451244
9/11/2022	10:23:06 AM	-0.051086	0.945427	-0.073092	1.26761
9/11/2022	10:23:14 AM	0.101498	0.849845	-0.030637	1.211634
9/11/2022	10:23:22 AM	-0.009523	0.691596	-0.081581	1.326421
9/11/2022	10:23:30 AM	-0.06589	0.594908	-0.046178	1.043706
9/11/2022	10:23:38 AM	-0.014416	0.44079	0.0238	1.382303
9/11/2022	10:23:46 AM	0.03307	0.336327	-0.050785	1.264448
9/11/2022	10:23:54 AM	0.116393	0.316483	-0.021269	1.1497
9/11/2022	10:24:01 AM	0.055342	0.30952	0.060195	1.421428
9/11/2022	10:24:09 AM	0.010283	0.303509	-0.011836	1.325756
	Average	-0.000521	0.737604	-0.019569	1.304197
	Average of blanks	0.072	0.289	0.009	0.955
	Standard Deviation	0.099	0.223	0.018	0.333
	MDL	0.30	0.67	0.05	1.00

Appendix H - Calibration and Response Time Data

Client: Middletown, LLC
 Facility: Middletown
 Project #: M223610

Test Location: Unit 13
 Operator: SMOG
 Test Methods: 3A,5/29

Calibration Gases - Linearity

Type	Setting	Cylinder ID	Cylinder Value	Analyzer Response	Difference, % of Span	Expiration Date	Mid cylinder % of high cylinder
CO ₂ %	Zero	Zero Nitrogen	0	0.00	0.00%	N/A	
	Mid	SG9158365CAL	9.789	10.00	-1.13%	7/25/2030	52.49%
	High	LL13939	18.65	18.50	0.80%	3/19/2026	
O ₂ %	Zero	Zero Nitrogen	0	0.00	0.00%	N/A	
	Mid	SG9158365CAL	10.01	10.10	-0.46%	7/25/2030	51.23%
	High	LL13939	19.54	19.60	-0.31%	3/19/2026	

Calibration Gases - Linearity Day 2

Type	Setting	Cylinder ID	Cylinder Value	Analyzer Response	Difference, % of Span	Expiration Date	Mid cylinder % of high cylinder
CO ₂ %	Zero	Zero Nitrogen	0	0.00	0.00%	N/A	
	Mid	SG9158365CAL	9.789	10.00	-1.13%	7/25/2030	52.49%
	High	LL13939	18.65	18.60	0.27%	3/19/2026	
O ₂ %	Zero	Zero Nitrogen	0	0.10	-0.51%	N/A	
	Mid	SG9158365CAL	10.01	10.30	-1.48%	7/25/2030	51.23%
	High	LL13939	19.54	19.90	-1.84%	3/19/2026	

Analyzer Data

Type	Model/Serial #
CO ₂ %	Ecom707
O ₂ %	Ecom707

CO₂% Correction Data

	Source Condition	Start Time	End Time	Date	Cma	Precal	Postcal	Pre zero	Post zero	Co	Cm	C	Cgas	Span Bias	Span Drift	Zero Bias	Zero Drift
Run 1	Normal	9:00	12:38	9/9/2022	9.79	10.00	10.00	0.00	0.00	0.00	10.00	3.62	3.5	0.00	0.00	0.00	0.00
Run 2	Normal	11:02	14:14	9/10/2022	9.79	10.00	10.10	0.00	0.00	0.00	10.05	3.59	3.5	-0.54	0.54	0.00	0.00
Run 3	Normal	14:32	17:44	9/10/2022	9.79	10.10	9.80	0.00	0.00	0.00	9.95	3.15	3.1	1.07	-1.61	0.00	0.00
Run 4	Normal	6:22	9:35	9/11/2022	9.79	9.70	9.60	0.00	0.00	0.00	9.65	3.23	3.3	0.54	-0.54	0.00	0.00

O₂% Correction Data

	Source Condition	Start Time	End Time	Date	Cma	Precal	Postcal	Pre zero	Post zero	Co	Cm	C	Cgas	Span Bias	Span Drift	Zero Bias	Zero Drift
Run 1	Normal	9:00	12:38	9/9/2022	10.01	10.10	10.20	0.00	0.00	0.00	10.15	14.93	14.7	-0.51	0.51	0.00	0.00
Run 2	Normal	11:02	14:14	9/10/2022	10.01	10.30	10.30	0.10	0.00	0.05	10.30	15.23	14.8	0.00	0.00	0.51	-0.51
Run 3	Normal	14:32	17:44	9/10/2022	10.01	10.30	10.30	0.00	0.00	0.00	10.30	15.22	14.8	-1.02	0.00	0.00	0.00
Run 4	Normal	6:22	9:35	9/11/2022	10.01	10.00	10.10	0.10	0.00	0.05	10.05	15.04	15.0	-0.51	0.51	0.00	-0.51

Client: Middletown, LLC
 Facility: Middletown
 Project #: M223610

Test Location: Unit 13
 Operator: RNS
 Test Methods: 3A,5/29

Calibration Gases - Linearity

Type	Setting	Cylinder ID	Cylinder Value	Analyzer Response	Difference, % of Span	Expiration Date	Mid cylinder % of high cylinder
CO ₂ %	Zero	Zero Nitrogen	0	0.00	0.00%	N/A	
	Mid	SG9158365	9.789	9.70	0.48%	7/25/2030	52.49%
	High	LL13939	18.65	18.60	0.27%	3/19/2026	
O ₂ %	Zero	Zero Nitrogen	0	0.10	-0.51%	N/A	
	Mid	SG9158365	10.01	10.00	0.05%	7/25/2030	51.23%
	High	LL13939	19.54	19.30	1.23%	3/19/2026	

Calibration Gases - Linearity Pre Test 6

Type	Setting	Cylinder ID	Cylinder Value	Analyzer Response	Difference, % of Span	Expiration Date	Mid cylinder % of high cylinder
CO ₂ %	Zero	Zero Nitrogen	0	0.00	0.00%	N/A	
	Mid	XL001047B	9.777	9.90	-0.66%	7/25/2030	52.23%
	High	LL40840	18.72	18.60	0.64%	3/19/2026	
O ₂ %	Zero	Zero Nitrogen	0	0.00	0.00%	N/A	
	Mid	XL001047B	9.971	9.90	0.36%	7/25/2030	51.16%
	High	LL40840	19.49	19.50	-0.05%	3/19/2026	

Analyzer Data

Type	Model/Serial #
CO ₂ %	Ecom707
O ₂ %	Ecom707

CO₂ % Correction Data

	Source Condition	Start Time	End Time	Date	Cma	Precal	Postcal	Pre zero	Post zero	Co	Cm	C	Cgas	Span Bias	Span Drift	Zero Bias	Zero Drift
Run 5	Normal	9:45	12:57	9/11/2022	9.79	9.70	9.40	0.00	0.00	0.00	9.55	3.01	3.1	1.61	-1.61	0.00	0.00
Run 6	Normal	12:58	16:13	9/11/2022	9.78	9.90	9.70	0.00	0.00	0.00	9.80	2.30	2.3	0.00	-1.07	0.00	0.00
Run 7	Normal	16:14	19:26	9/11/2022	9.79	9.70	9.50	0.00	0.00	0.00	9.60	2.81	2.9	1.07	-1.07	0.00	0.00

O₂ % Correction Data

	Source Condition	Start Time	End Time	Date	Cma	Precal	Postcal	Pre zero	Post zero	Co	Cm	C	Cgas	Span Bias	Span Drift	Zero Bias	Zero Drift
Run 5	Normal	9:45	12:57	9/11/2022	10.01	10.00	10.20	0.10	0.00	0.05	10.10	15.07	15.0	-1.02	1.02	0.51	-0.51
Run 6	Normal	12:58	16:13	9/11/2022	9.97	9.97	9.90	0.00	0.00	0.00	9.94	15.68	15.7	0.51	-0.36	0.51	0.00
Run 7	Normal	16:14	19:26	9/11/2022	10.01	10.00	10.10	0.00	0.00	0.00	10.05	14.96	14.9	-0.51	0.51	0.51	0.00

Client: Middletown Power LLC
Facility: Middletown Facility
Fuel Type: Natural Gas
Diluent: O2 %
Correction Factor: 15

Location: Unit 13
Date: 9/9/22
Operator: J. Gross
Project #: M223610

O2 % (dry) Correction Data

Run #	Cma	Precal	Postcal	Pre zero	Post zero	Co	Cm	C	Cgas	Span Bias	Span Drift	Zero Bias	Zero Drift
1	12.06	12.00	12.10	0.00	0.00	0.00	12.05	14.80	14.8	0.48	0.48	0.00	0.00
2	12.06	12.10	12.10	0.00	0.00	0.00	12.10	14.80	14.8	0.48	0.00	0.00	0.00
3	12.06	12.10	12.20	0.00	0.00	0.00	12.15	14.82	14.7	0.00	0.48	0.00	0.00
4	12.06	12.20	12.20	0.00	0.00	0.00	12.20	15.00	14.8	0.00	0.00	0.00	0.00
5	12.06	12.20	12.20	0.00	0.00	0.00	12.20	15.04	14.9	0.00	0.00	0.00	0.00
6	12.06	12.20	12.20	0.00	0.00	0.00	12.20	15.03	14.9	0.00	0.00	0.00	0.00
7	12.06	12.20	12.20	0.00	0.00	0.00	12.20	15.01	14.8	0.00	0.00	0.00	0.00

CO ppmvw Correction Data

Run #	Cma	Precal	Postcal	Pre zero	Post zero	Co	Cm	C	Cgas	Span Bias	Span Drift	Zero Bias	Zero Drift
1	50.29	49.83	50.16	0.01	0.61	0.31	49.99	6.59	6.4	-0.33	0.37	-0.68	0.67
2	50.29	50.16	50.17	0.61	0.83	0.72	50.16	6.56	5.9	-0.33	0.02	-0.92	0.24
3	50.29	50.17	50.42	0.83	0.49	0.66	50.29	6.67	6.1	-0.62	1.23	-0.55	-0.37
4	50.29	50.42	50.47	0.49	0.70	0.60	50.45	8.44	7.9	-0.67	0.23	-0.77	0.23
5	50.29	50.47	50.59	0.70	0.71	0.70	50.53	8.46	7.8	-0.81	0.57	-0.78	0.01
6	50.29	50.59	50.64	0.71	0.86	0.78	50.62	7.73	7.0	-0.86	0.22	-0.95	0.17
7	50.29	50.64	50.32	0.86	0.81	0.84	50.48	7.76	7.0	-0.51	-1.51	-0.90	-0.05

Calibration Corrected Data

Run #	Run Date	Start Time	End Time	O2 % (dry)	CO2 % (dry)	CO ppmvw
1	9/9/22	08:45:00	09:44:01	14.8	23.8	6.4
2	9/9/22	10:10:30	11:09:31	14.8	23.8	5.9
3	9/9/22	11:40:45	12:39:46	14.7	23.7	6.1
4	9/10/22	15:05	16:04	14.8	23.1	7.9
5	9/10/22	16:28	17:27	14.9	23.1	7.8
6	9/11/22	6:50	7:49	14.9	22.8	7.0
7	9/11/22	8:15	9:14	14.8	22.9	7.0

Client: Middletown Power LLC
Facility: Middletown Facility
Project #: M223610
Test Location: Unit 13
Operating Condition: Normal
Date: 9/9/22

Linearity Cal/Pre 1 Cal

<u>Time</u>	<u>O2 % (dry)</u>		<u>CO ppmvw</u>
6:04	21.00		
6:04	21.00	ih	
6:05	21.00		
6:05	21.00		
6:05	0.70		
6:06	0.00		
6:06	0.00	iz	
6:06	0.00		
6:07	0.00		
6:07	0.00		
6:07	8.20		
6:08	12.10		
6:08	12.20		
6:08	12.20	im	
6:09	12.20		
6:59	0.30		
7:00	0.20		
7:00	0.10		
7:00	0.00		
7:01	0.00	z	
7:01	0.00		
7:01	0.40		
7:02	6.30		
7:02	9.10		
7:02	10.60		
7:03	11.30		
7:03	11.70		
7:03	11.90		
7:04	12.00	m	

7:52	89.74	
7:52	90.19	
7:52	90.28	
7:52	90.28	ih
7:52	90.50	
7:52	89.52	
7:52	89.73	
7:53	89.58	
7:40	0.01	
7:40	0.05	
7:40	0.19	
7:40	0.01	iz
7:40	0.06	
7:40	0.11	
7:41	0.22	
7:41	0.06	
7:53	49.75	
7:53	49.93	
7:53	49.72	
7:54	49.43	
7:54	49.53	
7:54	49.87	im
7:54	49.49	
7:54	49.70	

9:12	49.87	
9:13	50.09	
9:13	49.83	m
9:13	50.06	
9:13	50.12	
9:13	50.13	
9:13	50.06	
9:13	49.59	
8:47	6.89	
8:47	1.88	
8:47	0.94	
8:47	0.80	
8:47	0.82	
8:47	0.93	
8:47	0.83	
8:48	0.74	z

Client: Middletown Power LLC
 Facility: Middletown Facility
 Project #: M223610

Test Location: Unit 13
 Operating Condition: Normal
 Date: 9/9/22

Post 1/Pre 2

<u>Time</u>	<u>O2 % (dry)</u>	<u>CO ppmvw</u>
9:54	0.40	
9:54	0.20	
9:55	0.10	
9:55	0.00	
9:55	0.00	
9:56	0.00	z
9:56	0.00	
9:56	2.60	
9:57	7.40	
9:57	10.10	
9:57	11.30	
9:58	11.80	
9:58	12.00	
9:58	12.10	
9:59	12.10	m
9:59	12.20	
11:03		50.07
11:04		50.47
11:04		50.17
11:04		50.45
11:04		50.12
11:04		50.16
11:04		50.31
11:04		50.12
10:54		0.71
10:54		0.61
10:54		0.94
10:54		0.82
10:55		0.90
10:55		0.94
10:55		0.66

Post 2/Pre 3

<u>Time</u>	<u>O2 % (dry)</u>	<u>CO ppmvw</u>
11:19	0.20	
11:19	0.10	
11:19	0.00	
11:20	0.00	z
11:20	0.70	
11:20	6.20	
11:21	9.80	
11:21	11.20	
11:21	11.70	
11:22	12.00	
11:22	12.10	m
12:18		0.93
12:18		1.02
12:18		0.99
12:18		1.04
12:19		0.83
12:19		0.95
12:19		1.06
12:19		0.86
12:30		50.38
12:30		50.30
12:30		50.36
12:30		50.19
12:30		50.17
12:30		50.46
12:30		50.54
12:30		50.41

Post 3/Pre 4

<u>Time</u>	<u>O2 % (dry)</u>	<u>CO ppmvw</u>
13:25	0.20	
13:26	0.10	
13:26	0.00	
13:26	0.00	
13:27	0.00	z
13:27	0.00	
13:27	0.00	
13:28	1.80	
13:28	8.40	
13:28	10.70	
13:29	11.60	
13:29	12.00	
13:29	12.20	
13:30	12.20	m
13:30	12.30	
13:30	12.30	
13:31	12.30	
14:47		50.18
14:47		50.42
14:47		50.69
14:47		50.68
14:47		50.63
14:48		50.54
14:48		50.55
14:48		50.30
14:37		0.55
14:38		0.46
14:38		0.53
14:38		0.49
14:38		0.48
14:38		0.63

Post 4/Pre 5

16:12	0.20	
16:13	0.10	
16:13	0.10	
16:13	0.00	z
16:14	5.80	
16:14	5.50	
16:14	8.50	
16:15	10.70	
16:15	11.40	
16:15	11.90	
16:16	12.10	
16:16	12.20	m
17:20		50.47
17:20		50.76
17:20		50.78
17:21		50.99
17:21		51.26
17:21		51.10
17:21		51.29
17:21		50.94
17:17		0.88
17:17		0.87
17:17		0.70
17:17		0.70
17:17		1.07
17:18		0.83
17:18		0.73
17:18		0.75

Client: Middletown Power LLC
Facility: Middletown Facility
Project #: M223610

Test Location: Unit 13
Operating Condition: Normal
Date: 9/9/22

Post 5/Pre 6

<u>Time</u>	<u>O2 % (dry)</u>	<u>CO ppmvw</u>
17:40	0.10	
17:41	0.10	
17:41	0.00	z
17:41	0.00	
17:42	3.10	
17:42	7.50	
17:42	10.00	
17:43	11.40	
17:43	11.90	
17:43	12.10	
17:44	12.20	m
18:48		50.98
18:48		51.00
18:48		50.89
18:48		50.92
18:48		50.59
18:49		51.93
18:49		50.89
18:49		51.14
18:44		1.01
18:45		0.85
18:45		0.85
18:45		0.89
18:45		0.89
18:45		1.06
18:45		0.83
18:45		0.71
		z

Post 6/Pre 7

<u>Time</u>	<u>O2 % (dry)</u>	<u>CO ppmvw</u>
7:57	0.20	
7:57	0.10	
7:57	0.10	
7:58	0.00	z
7:58	2.80	
7:58	7.10	
7:59	9.70	
7:59	11.00	
7:59	11.60	
8:00	11.90	
8:00	12.10	
8:00	12.20	m
9:05		50.46
9:05		50.61
9:05		50.79
9:06		51.07
9:06		50.64
9:06		50.85
9:06		50.64
9:06		50.85
9:01		1.00
9:01		0.88
9:01		0.86
9:02		0.87
9:02		0.97
9:02		1.05
9:02		0.78
9:02		1.05

Post 7

<u>Time</u>	<u>O2 % (dry)</u>	<u>CO ppmvw</u>	
9:24	0.20		
9:25	0.10		
9:25	0.10		
9:25	0.00		z
9:26	1.90		
9:26	6.80		
9:26	9.60		
9:27	10.90		
9:27	11.50		
9:27	11.90		
9:28	12.10		
9:28	12.20		m
10:33		50.32	
10:33		50.32	m
10:33		50.95	
10:33		50.80	
10:33		51.06	
10:33		50.87	
10:33		50.85	
10:33		51.08	
10:29		0.90	
10:29		0.93	
10:29		0.81	z
10:29		0.90	
10:29		1.02	
10:29		0.91	
10:30		0.88	
10:30		0.95	

Client: Middletown, LLC
Facility: Middletown
Project #: Unit 13
Test Location: M223610

Linearity Cal/Pre Run 1 Cal
Date: 9/9/2022

<u>Time</u>	<u>O2 % (dry)</u>		<u>CO2 % (dry)</u>	
7:54	19.60		18.50	
7:54	19.60	ih	18.50	ih
7:54	19.60	h	18.50	h
7:54	19.60		18.50	
7:55	19.60		18.40	
7:55	19.60		18.40	
7:55	19.60		18.50	
7:55	19.60		18.40	
7:56	19.60		18.50	
7:56	19.60		18.40	
7:58	18.70		14.70	
7:58	1.10		1.10	
7:59	0.20		0.10	
7:59	0.10		0.00	
7:59	0.10		0.00	
7:59	0.10		0.00	
8:00	0.00	iz	0.00	iz
8:00	0.00	z	0.00	z
8:00	0.00		0.00	
8:00	9.80		7.90	
8:01	10.10		9.90	
8:01	10.10		10.00	
8:01	10.10		10.00	
8:01	10.10	im	10.00	im
8:02	10.10	m	10.00	m
8:02	10.10		10.00	
8:02	10.10		10.00	
8:02	10.10		10.00	
8:03	10.10		10.00	
8:03	10.10		10.10	
8:03	10.10		10.10	

Client: Middletown, LLC
Facility: Middletown
Project #: Unit 13
Test Location: M223610

Linearity Cal/Pre 1 Cal
Date: 9/10/2022

<u>Time</u>	<u>O2 % (dry)</u>		<u>CO2 % (dry)</u>	
7:14	0.20		0.00	
7:14	0.20		0.00	
7:14	0.10		0.00	
7:14	0.10	iz	0.00	iz
7:15	0.10	z	0.00	z
7:15	0.10		0.00	
7:15	12.60		7.50	
7:15	18.60		16.20	
7:16	19.60		17.80	
7:16	19.90		17.80	
7:16	19.90		18.00	
7:16	19.90		17.90	
7:17	19.90	ih	18.60	ih
7:17	19.90		18.70	
7:17	19.90		18.70	
7:17	19.90		18.70	
7:18	19.90	h	18.60	h
7:18	19.90		18.50	
7:18	19.90		18.70	
7:18	19.90		18.50	
7:19	19.90		18.30	
7:19	20.90		2.30	
7:19	21.00		2.00	
7:19	11.40		9.20	
7:20	10.40		9.90	
7:20	10.30	im	10.00	im
7:20	10.30	m	10.00	m
7:20	10.30		10.00	

Client: Middletown, LLC
 Facility: Middletown
 Project #: Unit 13
 Test Location: M223610

Linearity Cal/Pre 4 Cal
 Date: 9/11/2022

Time	O2 % (dry)		CO2 % (dry)	
5:37	19.30		18.90	
5:37	19.30		18.80	
5:38	19.30		18.90	
5:38	19.30	ih	18.60	ih
5:38	19.30	h	18.60	h
5:38	19.30		18.70	
5:39	10.20		6.60	
5:39	0.60		0.20	
5:39	0.20		0.00	
5:39	0.10	iz	0.00	iz
5:40	0.10	z	0.00	z
5:40	0.10		0.00	
5:40	0.10		0.00	
5:40	0.10		0.00	
5:41	0.10		0.00	
5:41	5.80		3.60	
5:41	9.70		8.30	
5:41	9.90		8.80	
5:42	9.90		8.90	
5:42	10.00		8.90	
5:42	10.00		9.30	
5:42	10.00		9.60	
5:43	10.00		9.70	
5:43	10.00		9.70	
5:43	10.00		9.70	
5:43	10.00		9.60	
5:44	10.00	im	9.70	im
5:44	10.00	m	9.70	m
5:44	10.00		9.60	

Client: Middletown, LLC
Facility: Middletown
Project #: Unit 13
Test Location: M223610

Linearity Cal/Pre 6 Cal
Date: 9/11/2022

<u>Time</u>	<u>O2 % (dry)</u>		<u>CO2 % (dry)</u>	
5:49	20.80		0.00	
5:49	20.80		0.00	
5:49	20.80		0.00	
5:50	20.80		0.00	
5:50	20.70		1.70	
5:50	19.50		12.30	
5:50	19.30		14.20	
5:51	19.30		14.40	
5:51	19.30		14.30	
5:51	19.30		14.30	
5:51	19.30		14.40	
5:52	19.20		18.50	
5:52	19.20		18.50	
5:52	19.20		18.40	
5:52	19.20		18.60	
5:53	19.50		18.60	
5:53	19.50	ih	18.60	ih
5:53	19.50	h	18.60	h
5:53	19.50		18.60	
5:54	19.60		17.80	
5:54	19.60		17.40	
5:54	0.00		0.00	
5:54	0.00		0.00	
5:55	0.00	iz	0.00	iz
5:55	0.00	z	0.00	z
5:55	0.00		0.00	
5:55	18.80		15.10	
5:56	18.10		14.30	
5:56	17.30		13.40	
5:56	16.50		12.40	
5:56	15.80		11.70	
5:57	15.10		11.10	
5:57	14.50		10.40	
5:57	9.90	im	9.90	im
5:57	9.97	m	9.90	m
8:54	9.97		9.90	

Client: Middletown, LLC
Facility: Middletown

Test Location: Unit 13
Project #: M223610

Post 1				Post 2/Pre 3				Post 3				Post 4/Pre 5				
Time	O2 % (dry)	CO2 % (dry)		Time	O2 % (dry)	CO2 % (dry)		Time	O2 % (dry)	CO2 % (dry)		Time	O2 % (dry)	CO2 % (dry)		
12:45	10.20	9.90		14:17	10.30	9.80		17:42	10.30	8.80		0:40	10:10	9.30		
12:45	10.20	10.00		14:17	10.30	10.10		17:42	10.30	9.10		0:40	10:10	9.40		
12:45	10.20	10.00		14:17	10.30	10.10	m	17:42	10.30	9.20		0:40	10:10	9.40		
12:46	10.20	m	10.00	14:18	10.30	10.00	m	17:42	10.30	9.10		0:40	10:10	9.60		
12:46	10.20	10.00		14:18	10.30	10.10		17:43	10.30	9.10		0:40	10:10	9.70		
12:46	10.20	10.00		14:18	10.30	10.00		17:43	10.30	9.60		0:40	10:10	m	9.60	m
12:46	0.60	0.90		14:18	1.90	2.50		17:43	10.30	9.50		0:40	10:10	9.60		
12:47	0.00	0.10		14:19	0.10	0.10		17:43	10.30	9.70		0:40	1.40	1.50		
12:47	0.00	0.00		14:19	0.00	0.00		17:44	10.30	9.60		0:40	0.10	0.00		
12:47	0.00	0.00		14:19	0.00	0.00	z	17:44	10.30	9.60		0:40	0.00	z	0.00	z
12:47	0.00	z	0.00	14:19	0.00	0.00		17:44	10.30	9.80		0:40	0.00	0.00		
12:48	0.00	0.00						17:44	10.30	m	9.80	m	0:40	0.00	0.00	
								17:45	10.30	9.80						
								17:45	10.30	9.80						
								17:45	0.60	0.80						
								17:45	0.00	0.00						
								17:46	0.00	z	0.00	z				
								17:46	0.00	0.00						

Client: Middletown, LLC
Facility: Middletown

Test Location: Unit 13
Project #: M223610

Post 5/Pre 7

<u>Time</u>	<u>O2 % (dry)</u>	<u>CO2 % (dry)</u>		
13:00	10.20	9.40		
13:00	10.20	9.50		
13:00	10.20	9.40	m	m
13:01	10.20	9.40		
13:01	10.20	9.40		
13:01	8.20	7.00		
13:01	0.20	0.10		
13:02	0.00	0.00		
13:02	0.00	0.00		
13:02	0.00	0.00	z	z
13:02	0.00	0.00		
13:03	0.00	0.00		

Post 6

<u>Time</u>	<u>O2 % (dry)</u>	<u>CO2 % (dry)</u>		
16:17	18.90	1.40		
16:17	16.70	1.90		
16:17	15.50	2.30		
16:18	14.60	3.30		
16:18	13.50	4.60		
16:18	12.50	5.90		
16:18	11.70	6.80		
16:19	11.20	7.50		
16:19	0.00	0.00		
16:19	0.00	0.00	z	z
16:19	0.00	0.00		
16:20	0.00	0.00		
16:20	10.00	8.60		
16:20	9.60	9.80		
16:20	9.60	10.00		
16:21	9.70	9.90		
16:21	9.80	9.70		
16:21	9.80	9.70		
16:21	9.90	9.70	m	m
16:22	9.90	9.70		

Post 7

<u>Time</u>	<u>O2 % (dry)</u>	<u>CO2 % (dry)</u>		
19:19	10.10	9.60		
19:19	10.10	9.60		
19:20	10.10	9.60		
19:20	10.10	9.50	m	m
19:20	10.10	9.50		
19:20	1.50	1.20		
19:21	0.10	0.00		
19:21	0.00	0.00		
19:21	0.00	0.00		
19:21	0.00	0.00	z	z
19:22	0.00	0.00		

MOSTARDI PLATT

Procedures for Method 5 and Flow Calibration

Nozzles

The nozzles are measured according to Method 5, Section 10.1

Dry Gas Meters

The test meters are calibrated according to Method 5, Section 10.3 and 16.1. and “Procedures for Calibrating and Using Dry Gas Volume Meters as Calibration Standards” by P.R. Westlin and R.T. Shigehara, March 10, 1978.

Analytical Balance

The accuracy of the analytical balance is checked with Class S, Stainless Steel Type 303 weights manufactured by F. Hopken and Son, Jersey City, New Jersey.

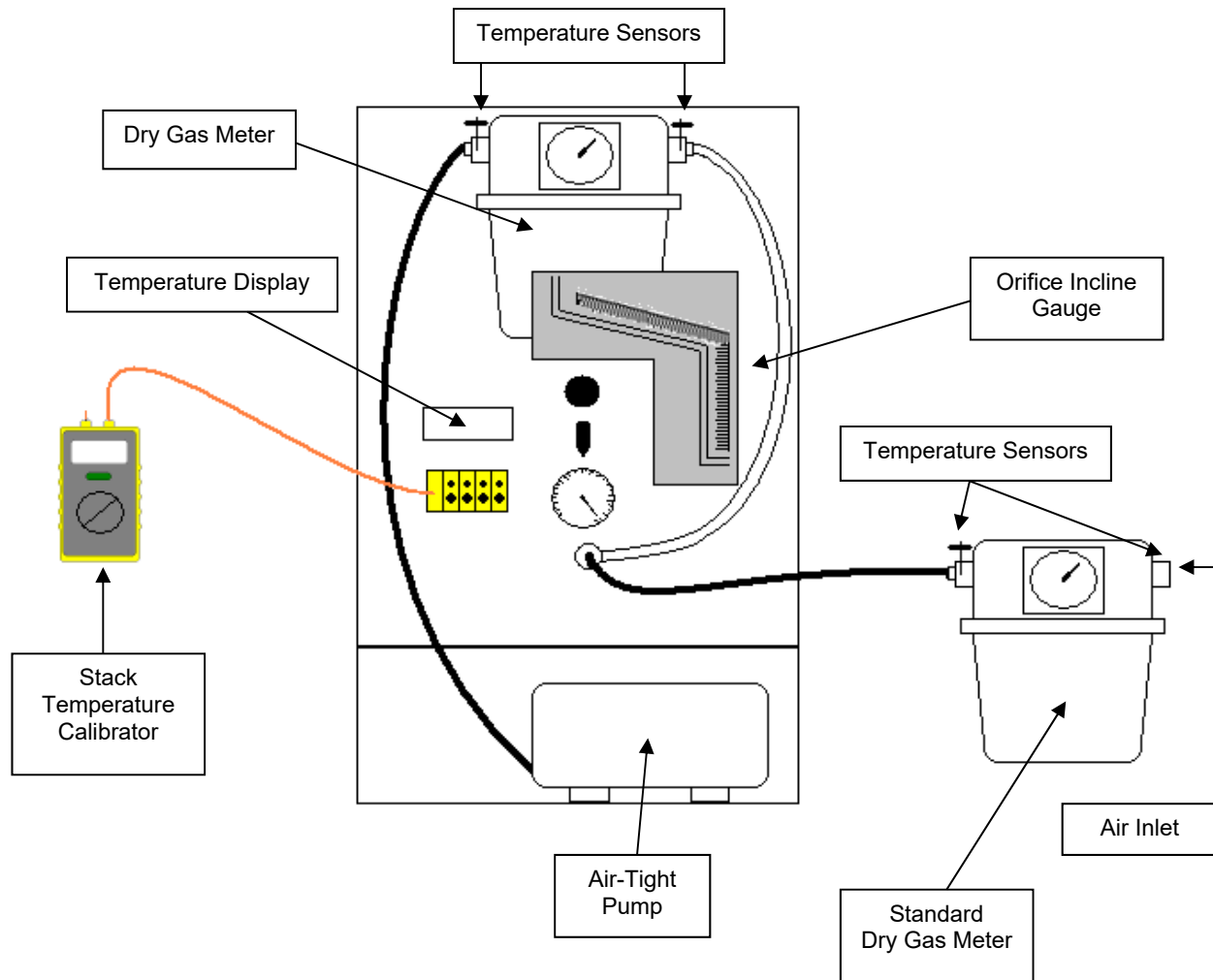
Temperature Sensing Devices

The potentiometer and thermocouples are calibrated utilizing a NIST traceable millivolt source.

Pitot Tubes

The pitot tubes utilized during this test program are manufactured according to the specification described and illustrated in the *Code of Federal Regulations*, Title 40, Part 60, Appendix A, Methods 1 and 2. The pitot tubes comply with the alignment specifications in Method 2, Section 10.1; and the pitot tube assemblies are in compliance with specifications in the same section.

Dry Gas Meter/Control Module Calibration Diagram



Meter Box Calibration

Dry Gas Meter Calibration Data

Dry Gas Meter No. CM7
 Standard Meter No. 366118
 Standard Meter (Y) 1.00880

Date: September 6, 2022
 Calibrated By: DWJ
 Barometric Pressure: 29.42

Run Number	Orifice Setting in H ₂ O Chg (H)	Standard Meter Gas Volume vr	Dry Gas Meter Gas Volume vd	Standard Meter Temp. F° tr	Dry Gas Meter Inlet Temp. F° tdi	Dry Gas Meter Outlet Temp. F° tdo	Dry Gas Meter Avg. Temp. F° td	Time Min	Time Sec	Y	Chg (H)
Final		42.650	28.407	72	75	74					
Initial		37.217	22.926	72	75	73					
Difference	1 0.20	5.433	5.481	72	75	74	74	20	6	1.004	1.543
Final		50.589	36.459	74	77	75					
Initial		43.071	28.836	72	75	74					
Difference	2 0.50	7.518	7.623	73	76	75	75	17	31	0.998	1.533
Final		61.824	47.857	74	77	76					
Initial		51.481	37.361	73	76	75					
Difference	3 0.70	10.343	10.496	74	77	76	76	20	48	0.997	1.599
Final		69.171	55.323	74	80	76					
Initial		62.964	49.005	73	78	76					
Difference	4 0.90	6.207	6.318	74	79	76	78	11	9	0.996	1.636
Final		75.721	61.994	74	80	76					
Initial		70.068	56.236	74	78	76					
Difference	5 1.20	5.653	5.758	74	79	76	78	8	42	0.994	1.604
Final		36.901	22.612	72	78	72					
Initial		31.678	17.304	71	74	72					
Difference	6 2.00	5.223	5.308	72	76	72	74	6	24	0.992	1.690

Average 0.997 1.601

Stack Temperature Sensor Calibration

Meter Box # : CM7 Name : DWJ

Ambient Temperature : 74.4 °F Date : September 6, 2022

Calibrator Model # : CL23A

Serial # : T-285668

Date Of Certification : May 18, 2022

Primary Standards Directly Traceable National Institute of Standards and Technology (NIST)

Reference Source Temperature (° F)	Test Thermometer Temperature (° F)	Temperature Difference %
0	0	0.0
250	249	0.1
600	595	0.5
1200	1198	0.1

$$\frac{(\text{Ref. Temp., } ^\circ\text{F} + 460) - (\text{Test Therm. Temp., } ^\circ\text{F} + 460)}{\text{Ref. Temp., } ^\circ\text{F} + 460} * 100 \leq 1.5 \%$$

Ref. Temp., °F + 460

Meter Box Calibration

Dry Gas Meter Calibration Data

Dry Gas Meter No. CM7
 Standard Meter No. 25125408
 Standard Meter (Y) 0.99140

Date: October 7, 2022
 Calibrated By: DWJ
 Barometric Pressure: 29.19

Run Number	Orifice Setting in H ₂ O Chg (H)	Standard Meter Gas Volume vr	Dry Gas Meter Gas Volume vd	Standard Meter Temp. F° tr	Dry Gas Meter Inlet Temp. F° tdi	Dry Gas Meter Outlet Temp. F° tdo	Dry Gas Meter Avg. Temp. F° td	Time Min	Time Sec	Y	Chg (H)
Final		47.668	70.179	65	70	69					
Initial		42.297	64.874	65	69	68					
Difference	1 0.20	5.371	5.305	65	70	69	69	20	15	1.011	1.645
Final		54.486	76.826	65	72	70					
Initial		49.114	71.505	65	70	69					
Difference	2 0.50	5.372	5.321	65	71	70	70	12	47	1.010	1.634
Final		61.021	83.311	66	73	70					
Initial		55.646	77.974	65	71	69					
Difference	3 0.70	5.375	5.337	66	72	70	71	10	51	1.007	1.648
Final		67.787	90.050	65	74	71					
Initial		62.270	84.554	65	72	70					
Difference	4 0.90	5.517	5.496	65	73	71	72	9	55	1.006	1.673
Final		74.290	96.549	65	75	71					
Initial		68.562	90.826	65	73	71					
Difference	5 1.20	5.728	5.723	65	74	71	73	9	2	1.003	1.715
Final		41.988	64.593	64	72	69					
Initial		36.673	59.293	64	69	68					
Difference	6 2.00	5.315	5.300	64	71	69	70	6	29	1.000	1.713

Average 1.006 1.671

Stack Temperature Sensor Calibration

Meter Box # : CM7 Name : DWJ

Ambient Temperature : 71.1 °F Date : October 7, 2022

Calibrator Model # : CL23A

Serial # : T-285668

Date Of Certification : May 18, 2022

Primary Standards Directly Traceable National Institute of Standards and Technology (NIST)

Reference Source Temperature (° F)	Test Thermometer Temperature (° F)	Temperature Difference %
0	-1	0.2
250	248	0.3
600	596	0.4
1200	1198	0.1

$$\frac{(\text{Ref. Temp., } ^\circ\text{F} + 460) - (\text{Test Therm. Temp., } ^\circ\text{F} + 460)}{\text{Ref. Temp., } ^\circ\text{F} + 460} * 100 \leq 1.5 \%$$

Ref. Temp., °F + 460

Meter Box Calibration

Dry Gas Meter Calibration Data

Dry Gas Meter No. CM23
 Standard Meter No. 366118
 Standard Meter (Y) 1.00880

Date: September 15, 2022
 Calibrated By: EMC
 Barometric Pressure: 29.38

Run Number	Orifice Setting in H ₂ O Chg (H)	Standard Meter Gas Volume vr	Dry Gas Meter Gas Volume vd	Standard Meter Temp. F° tr	Dry Gas Meter Inlet Temp. F° tdi	Dry Gas Meter Outlet Temp. F° tdo	Dry Gas Meter Avg. Temp. F° td	Time Min	Time Sec	Y	Chg (H)
Final		104.763	100.832	73	73	73					
Initial		97.150	93.262	72	72	72					
Difference	1 0.20	7.613	7.570	73	73	73	73	30	53	1.014	1.867
Final		116.824	112.774	74	74	74					
Initial		105.201	101.263	73	73	73					
Difference	2 0.50	11.623	11.511	74	74	74	74	28	55	1.017	1.759
Final		129.756	125.504	78	76	75					
Initial		117.293	113.230	75	75	74					
Difference	3 0.70	12.463	12.274	77	76	75	75	26	23	1.020	1.798
Final		143.459	138.920	84	77	76					
Initial		130.419	126.160	78	76	75					
Difference	4 0.90	13.040	12.760	81	77	76	76	24	27	1.019	1.841
Final		158.774	153.949	84	77	76					
Initial		144.958	140.382	84	77	76					
Difference	5 1.20	13.816	13.567	84	77	76	77	22	9	1.010	1.813
Final		96.981	93.089	72	72	72					
Initial		88.386	84.623	71	71	71					
Difference	6 2.00	8.595	8.466	72	72	72	72	11	16	1.019	1.946

Average **1.017** **1.837**

Stack Temperature Sensor Calibration

Meter Box # : CM23 Name : EMC

Ambient Temperature : 73.6 °F Date : September 15, 2022

Calibrator Model # : CL23A

Serial # : T-285668

Date Of Certification : May 18, 2022

Primary Standards Directly Traceable National Institute of Standards and Technology (NIST)

Reference Source Temperature (° F)	Test Thermometer Temperature (° F)	Temperature Difference %
0	-2	0.4
250	252	0.3
600	602	0.2
1200	1206	0.4

$$\frac{(\text{Ref. Temp., } ^\circ\text{F} + 460) - (\text{Test Therm. Temp., } ^\circ\text{F} + 460)}{\text{Ref. Temp., } ^\circ\text{F} + 460} * 100 \leq 1.5 \%$$

Ref. Temp., °F + 460

Meter Box Calibration

Dry Gas Meter Calibration Data

Dry Gas Meter No. CM23
 Standard Meter No. 25125408
 Standard Meter (Y) 0.99140

Date: October 14, 2022
 Calibrated By: SWM
 Barometric Pressure: 29.38

Run Number	Orifice Setting in H ₂ O Chg (H)	Standard Meter Gas Volume vr	Dry Gas Meter Gas Volume vd	Standard Meter Temp. F° tr	Dry Gas Meter Inlet Temp. F° tdi	Dry Gas Meter Outlet Temp. F° tdo	Dry Gas Meter Avg. Temp. F° td	Time Min	Time Sec	Y	Chg (H)
Final		81.725	84.791	79	82	81					
Initial		76.442	79.461	79	81	80					
Difference	1 0.20	5.283	5.330	79	82	81	81	21	4	0.986	1.884
Final		106.381	109.378	79	85	82					
Initial		100.334	103.403	79	84	82					
Difference	2 0.50	6.047	5.975	79	85	82	83	14	41	1.010	1.739
Final		100.133	103.208	79	84	82					
Initial		94.336	97.385	79	83	82					
Difference	3 0.70	5.797	5.823	79	84	82	83	12	13	0.992	1.836
Final		94.045	97.091	79	84	82					
Initial		88.214	91.259	79	82	81					
Difference	4 0.90	5.831	5.832	79	83	82	82	10	51	0.995	1.842
Final		87.907	90.956	79	83	82					
Initial		81.926	84.969	79	82	81					
Difference	5 1.20	5.981	5.987	79	83	82	82	9	55	0.993	1.951
Final		76.221	79.246	79	81	80					
Initial		70.268	73.325	79	80	80					
Difference	6 2.00	5.953	5.921	79	81	80	80	7	46	0.994	2.020

Average 0.995 1.878

Stack Temperature Sensor Calibration

Meter Box # : CM23 Name : SWM

Ambient Temperature : 72.8 °F Date : October 14, 2022

Calibrator Model # : CL23A

Serial # : T-285668

Date Of Certification : May 18, 2022

Primary Standards Directly Traceable National Institute of Standards and Technology (NIST)

Reference Source Temperature (° F)	Test Thermometer Temperature (° F)	Temperature Difference %
0	-2	0.4
250	252	0.3
600	602	0.2
1200	1206	0.4

$$\frac{(\text{Ref. Temp., } ^\circ\text{F} + 460) - (\text{Test Therm. Temp., } ^\circ\text{F} + 460)}{\text{Ref. Temp., } ^\circ\text{F} + 460} * 100 \leq 1.5 \%$$

Ref. Temp., °F + 460

S TYPE PITOT TUBE INSPECTION WORKSHEET

Pitot Tube No: 120

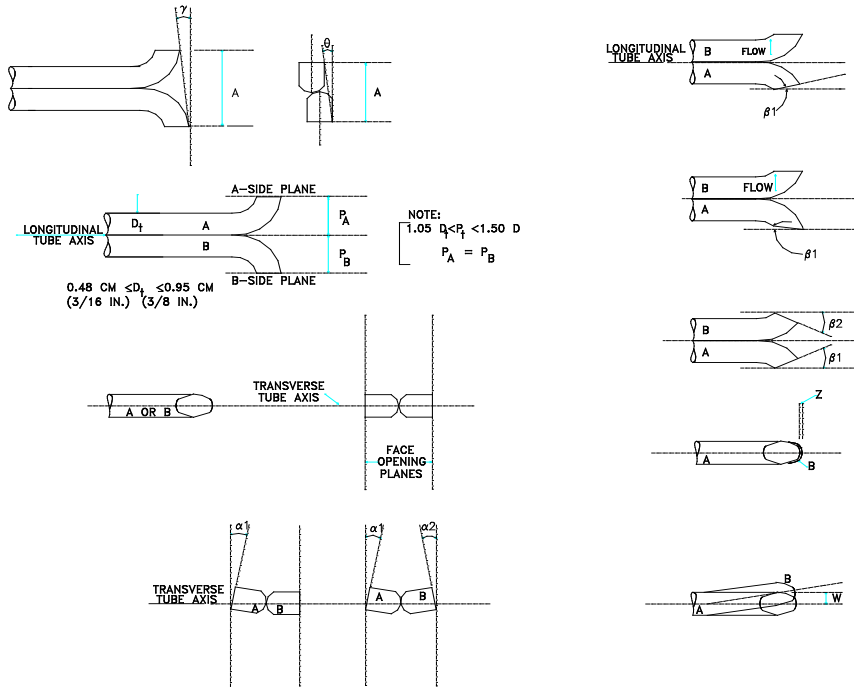
Date: 8/3/2022

Inspectors Name: PGR

Type of Probe: (circle one)

M2	M5	M17
	X	

Probe Length: 6 ft.



Pitot tube assembly level? x yes no

Pitot tube openings damaged? yes (explain below) x no

$$a_1 = \underline{1}^{\circ} (\leq 10^{\circ})$$

$$a_2 = \underline{0}^{\circ} (\leq 10^{\circ})$$

$$z = A \sin \gamma = \underline{0.050} \text{ (in.)}; (\leq 0.125 \text{ in.})$$

$$b_1 = \underline{0}^{\circ} (\leq 5^{\circ})$$

$$b_2 = \underline{0}^{\circ} (\leq 5^{\circ})$$

$$w = A \sin \theta = \underline{0.00000} \text{ (in.)}; (\leq 0.03125 \text{ in.})$$

$$\gamma = \underline{3}^{\circ} \quad \theta = \underline{0}^{\circ} \quad A = \underline{0.960} \text{ (in.)}$$

$$P_A = \underline{0.480} \text{ (in.)}, P_B = \underline{0.480} \text{ (in.)}, D_t = \underline{0.375} \text{ (in.)}$$

Calibration required? yes X no

S TYPE PITOT TUBE INSPECTION WORKSHEET

Pitot Tube No: 120

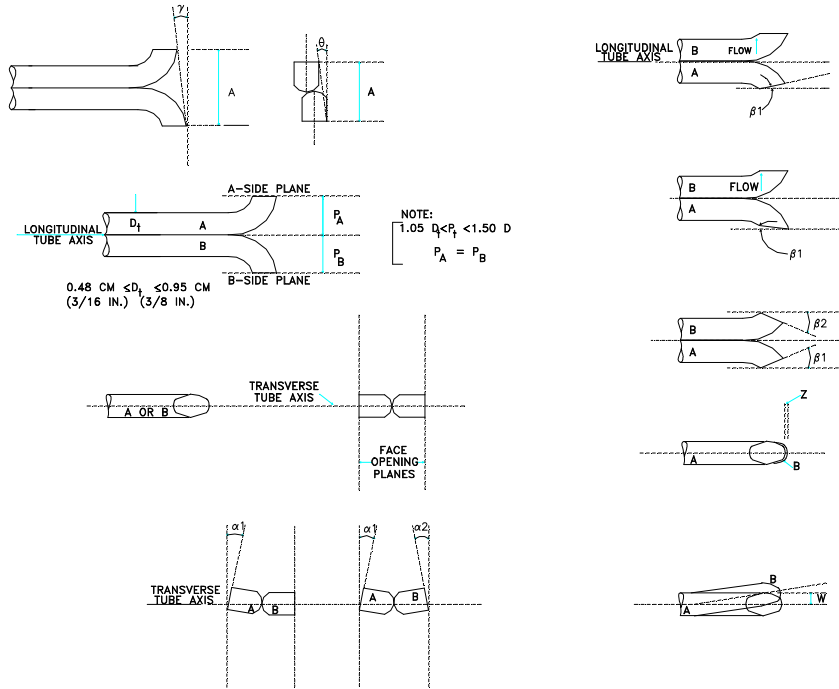
Date: 10/7/2022

Inspectors Name: PGR

Type of Probe: (circle one)

M2	M5	M17
	X	

Probe Length: 6 ft.



Pitot tube assembly level? X yes no

Pitot tube openings damaged? yes (explain below) X no

$a_1 = \underline{0}^\circ (\leq 10^\circ)$ $a_2 = \underline{1}^\circ (\leq 10^\circ)$ $z = A \sin \gamma = \underline{0.050}$ (in.); (≤ 0.125 in.)
 $b_1 = \underline{0}^\circ (\leq 5^\circ)$ $b_2 = \underline{0.5}^\circ (\leq 5^\circ)$ $w = A \sin \theta = \underline{0.00000}$ (in.); (≤ 0.03125 in.)
 $\gamma = \underline{3}^\circ$ $\theta = \underline{0}^\circ$ $A = \underline{0.955}$ (in.) $P_A = \underline{0.478}$ (in.), $P_B = \underline{0.478}$ (in.), $D_t = \underline{0.375}$ (in.)

Calibration required? yes X no

S TYPE PITOT TUBE INSPECTION WORKSHEET

Pitot Tube No: 154

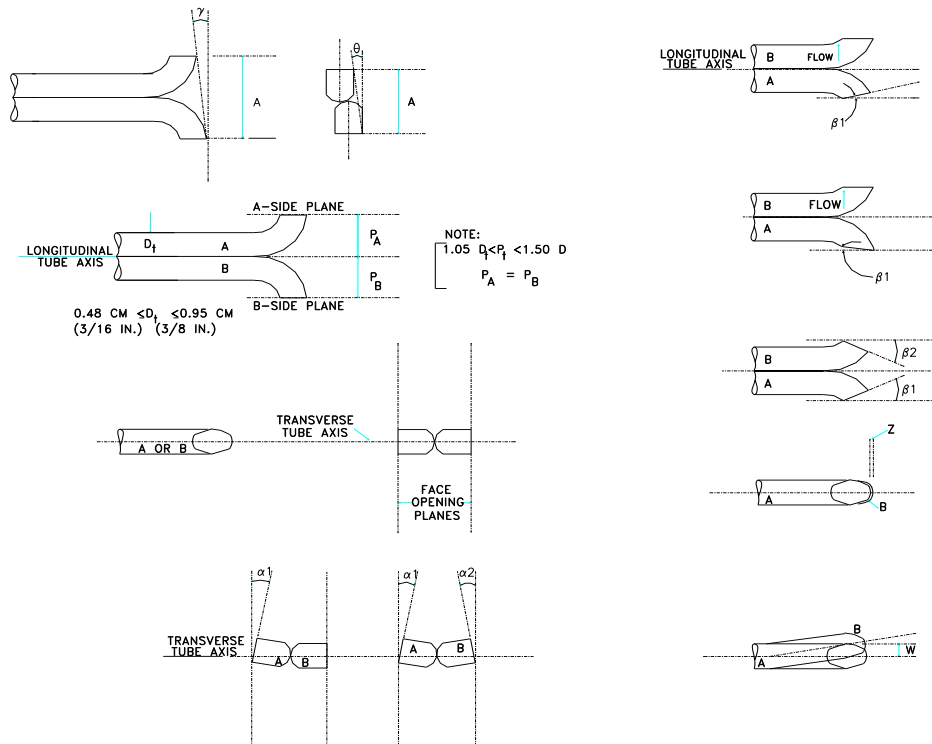
Date: 8/25/2022

Inspectors Name: JAM

Type of Probe: (circle one)

M2	M5	M17
	X	

Probe Length: 6 ft.



Pitot tube assembly level? X yes no

Pitot tube openings damaged? yes (explain below) X no

$a_1 =$ 1.5 ° ($\leq 10^\circ$)

$a_2 =$ 0.5 ° ($\leq 10^\circ$)

$z = A \sin \gamma =$ 0.020 (in.); (≤ 0.125 in.)

$b_1 =$ 1 ° ($\leq 5^\circ$)

$b_2 =$ 1 ° ($\leq 5^\circ$)

$w = A \sin \theta =$ 0.01014 (in.); (≤ 0.03125 in.)

$\gamma =$ 1 ° $\theta =$ 0.5 ° $A =$ 1.162 (in.)

$P_A =$ 0.581 (in.), $P_B =$ 0.581 (in.), $D_t =$ 0.375 (in.)

Calibration required? yes X no

S TYPE PITOT TUBE INSPECTION WORKSHEET

Pitot Tube No: 154

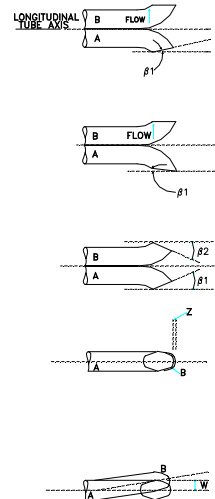
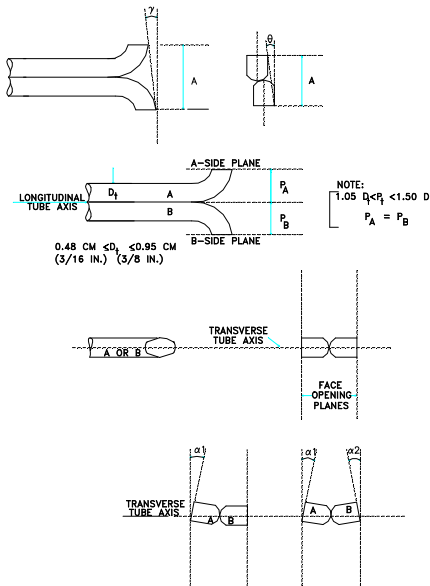
Date: 10/7/2022

Inspectors Name: JAM

Type of Probe: (circle one)

M2	M5	M17
	X	

Probe Length: 6 ft.



Pitot tube assembly level? X yes no

Pitot tube openings damaged? yes (explain below) X no

$$a_1 = \underline{1}^{\circ} (\leq 10^{\circ}) \quad a_2 = \underline{0.5}^{\circ} (\leq 10^{\circ}) \quad z = A \sin \gamma = \underline{0.010} \text{ (in.)}; (\leq 0.125 \text{ in.})$$

$$b_1 = \underline{1}^{\circ} (\leq 5^{\circ}) \quad b_2 = \underline{1.5}^{\circ} (\leq 5^{\circ}) \quad w = A \sin \theta = \underline{0.01012} \text{ (in.)}; (\leq 0.03125 \text{ in.})$$

$$\gamma = \underline{0.5}^{\circ} \quad \theta = \underline{0.5}^{\circ} \quad A = \underline{1.160} \text{ (in.)} \quad P_A = \underline{0.580} \text{ (in.)}, P_B = \underline{0.580} \text{ (in.)}, D_t = \underline{0.375} \text{ (in.)}$$

Calibration required? yes X no

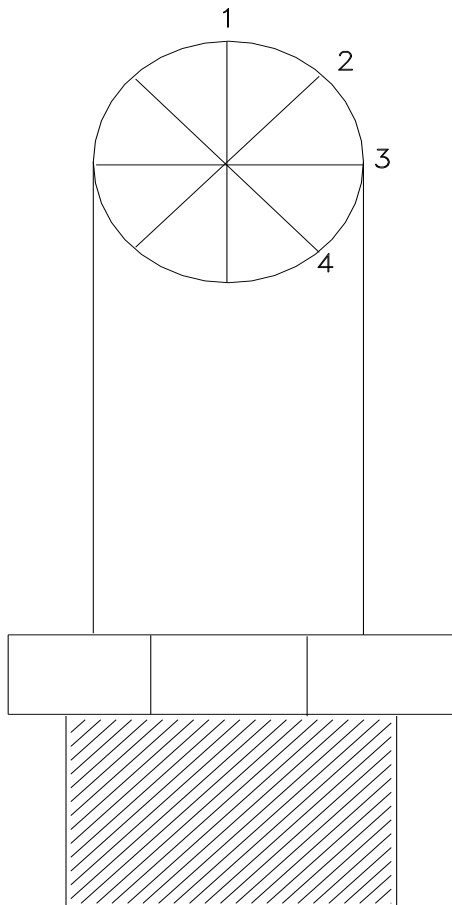
Nozzle Calibration

Date: 2/17/2015

Nozzle ID No.: 18

Analyst: AMS

Material/Type: Quartz



0.270 1

0.271 2

0.271 3

0.270 4

Average
<u>0.271</u>

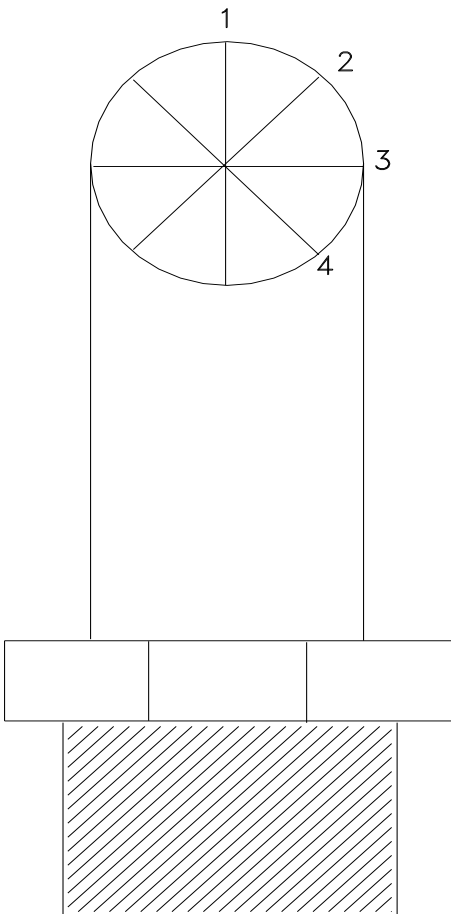
Nozzle Calibration

Date: 6/7/2017

Nozzle ID No.: 287

Analyst: MDK

Material/Type: Quartz



0.267 1

0.267 2

0.270 3

0.269 4

Valid Data

Average

0.268

Appendix I - Calibration Gas Cylinder Data

CERTIFICATE OF ANALYSIS

Grade of Product: CERTIFIED STANDARD-SPEC

Part Number:	X03NI99C15A0012	Reference Number:	160-402470862-1
Cylinder Number:	CC504622	Cylinder Volume:	144.0 CF
Laboratory:	124 - Plumsteadville - PA	Cylinder Pressure:	2015 PSIG
Analysis Date:	Jul 05, 2022	Valve Outlet:	330
Lot Number:	160-402470862-1		

Expiration Date: Jul 05, 2024

Product composition verified by direct comparison to calibration standards traceable to N.I.S.T. weights and/or N.I.S.T. Gas Mixture reference materials.

ANALYTICAL RESULTS

Component	Req Conc	Actual Concentration (Mole %)	Analytical Uncertainty
SULFUR HEXAFLUORIDE	5.000 PPM	4.990 PPM	+/-5%
HYDROGEN CHLORIDE	100.0 PPM	97.75 PPM	+/-2%
NITROGEN	Balance		



Signature on file

Approved for Release

CERTIFICATE OF ANALYSIS
Grade of Product: PRIMARY STANDARD

Part Number:	X02NI99P15AD524	Reference Number:	141-402518239-1
Cylinder Number:	EB0091439	Cylinder Volume:	140.0 CF
Laboratory:	124 - Stryker (SAP) - OH	Cylinder Pressure:	2015 PSIG
Analysis Date:	Aug 16, 2022	Valve Outlet:	350
Lot Number:	141-402518239-1		

Expiration Date: Aug 16, 2030

Primary Standard Gas Mixtures are traceable to N.I.S.T. weights and/or N.I.S.T. Gas Mixture reference materials.

ANALYTICAL RESULTS

Component	Req Conc	Actual Concentration (Mole %)	Analytical Uncertainty
ETHYLENE	100.0 PPM	100.3 PPM	+/- 1%
NITROGEN	Balance		



SPECGAS, INC.

CERTIFICATE

SPECGAS, Inc.
86 Vincent Circle
Warminster, PA. 18974
Tel. 215 443 2600
Fax. 215 443 2665
WWW.SPECGASINC.COM



ANALYTICAL REPORT-PRODUCT CERTIFICATION

SOLD TO: Red Ball Oxygen
PO Box 7316
Shreveport, LA. 71137-7316

SHIP TO: Mostardi Plant Denver CO
7002 West 48th Avenue Unit A
Denver, CO 80216

DATE: 6/13/22
PO#: 4008464

CERTIFIED STANDARD MIXTURE

CYLINDER #
CC522694

Component		Nominal	Actual
FORMALDEHYDE	CH ₂ O	1.00 ppm	1.09 ppm
NITROUS OXIDE	N ₂ O	100 ppm	102 ppm
NITROGEN	N ₂	Balance	Balance

FORMALDEHYDE

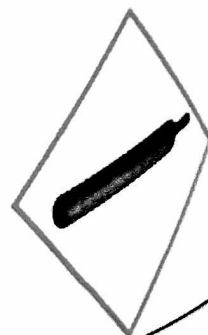
Blend Tolerance: +/- 20 %
Analytical Tolerance: +/- 5 %

NITROUS OXIDE

Blend Tolerance: +/- 5 %
Analytical Tolerance: +/- 2 %

N.I.S.T.: Mixture was blended on a high resolution Scale (Sartorius Combiacs 1, Serial # 29503041) Traceable to N.I.S.T. through test # 211106

4kg wt. (Serial #85424) Standards traceable to N.I.S.T. through weight & measures test # 2267372



Warning

Contains gas under pressure
May explode if heated
May displace oxygen and cause rapid suffocation

DATE

6/13/22

ANALYST

[Signature]

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number:	E03NI62E80A0014	Reference Number:	54-401150341-1
Cylinder Number:	LL13939	Cylinder Volume:	92.2 CF
Laboratory:	124 - Chicago (SAP) - IL	Cylinder Pressure:	2214 PSIG
PGVP Number:	B12018	Valve Outlet:	590
Gas Code:	CO2,O2,BALN	Certification Date:	Mar 19, 2018

Expiration Date: Mar 19, 2026

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
CARBON DIOXIDE	19.00 %	18.65 %	G1	+/- 0.8% NIST Traceable	03/19/2018
OXYGEN	19.00 %	19.54 %	G1	+/- 0.5% NIST Traceable	03/19/2018
NITROGEN	Balance				

CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	13060709	CC413602	16.939 % CARBON DIOXIDE/NITROGEN	+/- 0.6%	May 08, 2019
NTRM	09061418	CC273593	22.53 % OXYGEN/NITROGEN	+/- 0.4%	Mar 08, 2019

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
CO2-1 HORIBA VIA-510 V1E3H7P5	NDIR	Feb 20, 2018
O2-1 HORIBA MPA-510 3VUYL9NR	Paramagnetic	Mar 19, 2018

Triad Data Available Upon Request



[Signature]
Approved for Release

Page 1 of 54-401150341-1

CERTIFICATE OF ANALYSIS

Grade of Product: EPA PROTOCOL STANDARD

Part Number:	E03NI80E80A7767	Reference Number:	54-402496944-1
Cylinder Number:	XL001047B	Cylinder Volume:	87.0 CF
Laboratory:	124 - Chicago (SAP) - IL	Cylinder Pressure:	2214 PSIG
PGVP Number:	B12022	Valve Outlet:	590
Gas Code:	CO2,O2,BALN	Certification Date:	Jul 25, 2022

Expiration Date: Jul 25, 2030

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
CARBON DIOXIDE	10.00 %	9.777 %	G1	+/- 0.7% NIST Traceable	07/25/2022
OXYGEN	10.00 %	9.971 %	G1	+/- 0.4% NIST Traceable	07/25/2022
NITROGEN	Balance				

CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	190604-14	6162723Y	11.105 % CARBON DIOXIDE/NITROGEN	+/- 0.6%	Dec 04, 2025
NTRM	11060614	CC340418	14.93 % OXYGEN/NITROGEN	+/- 0.2%	Dec 13, 2022

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
CO2-1 HORIBA VIA-510 V1E3H7P5	NDIR	Jul 25, 2022
O2-1 HORIBA MPA-510 3VUYL9NR	Paramagnetic	Jul 13, 2022

Triad Data Available Upon Request



[Signature]

Approved for Release

CERTIFICATE OF ANALYSIS

Grade of Product: EPA PROTOCOL STANDARD

Part Number: E03NI62E80A0014	Reference Number: 54-402350121-1
Cylinder Number: LL40840	Cylinder Volume: 92.2 CF
Laboratory: 124 - Chicago (SAP) - IL	Cylinder Pressure: 2214 PSIG
PGVP Number: B12022	Valve Outlet: 590
Gas Code: CO2,O2,BALN	Certification Date: Feb 14, 2022

Expiration Date: Feb 14, 2030

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
CARBON DIOXIDE	19.00 %	18.72 %	G1	+/- 0.5% NIST Traceable	02/14/2022
OXYGEN	19.00 %	19.49 %	G1	+/- 0.3% NIST Traceable	02/14/2022
NITROGEN	Balance				

CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	06011803	K006379	23.04 % CARBON DIOXIDE/NITROGEN	+/- 0.5%	Jun 27, 2022
NTRM	150104-18	K026588	22.454 % OXYGEN/NITROGEN	+/- 0.2%	Mar 08, 2027

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
CO2-1 HORIBA VIA-510 V1E3H7P5	NDIR	Jan 20, 2022
O2-1 HORIBA MPA-510 3VUYL9NR	Paramagnetic	Jan 22, 2022

Triad Data Available Upon Request



Approved for Release

Appendix J – Laboratory Sample Analysis

Client: Middletown, LLC
Facility: Middletown
Project Number: M223610
Test Location: Unit 13
Test Method: 5/29
Filterable Analysis Date: 9/20/2022

Filter Drying Temp °F: 220
Analyst: JMG

Description	Sample Date	ID#	vol. (ml)	Initial Weight (grams)	Final Weight (grams)	Net Weight Gain (grams)
Filterable Particulate						
Run 1	9/9/2022					
Source Condition: Normal						
M5 Filter		4367		0.45084	0.45147	0.00063
Acetone Wash (M5 Pans)		2726	55 mL	21.43554	21.43671	0.00117
Acetone Blank						≤ 0.00025
Total Filterable Weight						0.00180
Filterable Particulate						
Run 2	9/10/2022					
Source Condition: Normal						
M5 Filter		4304		0.46425	0.46383	≤ 0.00015
Acetone Wash (M5 Pans)		2727	30 mL	21.44420	21.44524	0.00104
Acetone Blank						≤ 0.00025
Total Filterable Weight						≤ 0.00119
Filterable Particulate						
Run 3	9/10/2022					
Source Condition: Normal						
M5 Filter		3430		0.44124	0.43982	≤ 0.00015
Acetone Wash (M5 Pans)		2728	25 mL	21.38534	21.38594	0.00060
Acetone Blank						≤ 0.00025
Total Filterable Weight						≤ 0.00075
Filterable Particulate						
Run 4	9/11/2022					
Source Condition: Normal						
M5 Filter		4018		0.44938	0.44779	≤ 0.00015
Acetone Wash (M5 Pans)		2729	45 mL	21.37277	21.37338	0.00061
Acetone Blank						≤ 0.00025
Total Filterable Weight						≤ 0.00076
Reagent Blank Summary						
Acetone Wash (M5 Pans)		4206	100 mL	21.19370	21.19374	≤ 0.00025
RDL/MDL Summary						
Media	MDL, grams			RDL, grams		
M5 Filter	0.00005			0.00015		
Acetone Wash (M5 Pans)	0.00008			0.00025		
Sample Vials (M202)	0.00008			0.00025		

Maximum field train blank recovery value of 0.00200 used for condensable particulate matter blank correction

Client: Middletown, LLC
Facility: Middletown
Project Number: M223610
Test Location: Unit 13
Test Method: 5/29
Filterable Analysis Date: 9/20/2022

Filter Drying Temp °F: 220
Analyst: JMG

Description	Sample Date	ID#	vol. (ml)	Initial Weight (grams)	Final Weight (grams)	Net Weight Gain (grams)
Filterable Particulate						
Run 5	9/11/2022					
Source Condition: Normal						
M5 Filter		4019		0.45060	0.44869	≤ 0.00015
Acetone Wash (M5 Pans)		3812	40 mL	21.69056	21.69125	0.00069
Acetone Blank						≤ 0.00025
Total Filterable Weight						≤ 0.00084
Filterable Particulate						
Run 6	9/11/2022					
Source Condition: Normal						
M5 Filter		4023		0.45121	0.44949	≤ 0.00015
Acetone Wash (M5 Pans)		3813	40 mL	21.59204	21.59245	0.00041
Acetone Blank						≤ 0.00025
Total Filterable Weight						≤ 0.00056
Filterable Particulate						
Run 7	9/11/2022					
Source Condition: Normal						
M5 Filter		4020		0.45342	0.45197	≤ 0.00015
Acetone Wash (M5 Pans)		3814	40 mL	21.63439	21.63463	≤ 0.00025
Acetone Blank						≤ 0.00025
Total Filterable Weight						≤ 0.00040
Reagent Blank Summary						
Acetone Wash (M5 Pans)		4206	100 mL	21.19370	21.19374	≤ 0.00025
RDL/MDL Summary						
Media	MDL, grams			RDL, grams		
M5 Filter	0.00005			0.00015		
Acetone Wash (M5 Pans)	0.00008			0.00025		
Sample Vials (M202)	0.00008			0.00025		

Maximum field train blank recovery value of 0.00200 used for condensable particulate matter blank correction

C2R5321

Chain-of-Custody Form						
Project Number: M223610				Date Results Required:		
Client: GennConn Middleton, CT				TAT Required:		
Plant/Test Location: CT13 and CT15				Project Supervisor: C. Trezak		
PO#:						
Sample Number	Sample Date	Sample Point Identification	# of Conts	Sub Lab	Analysis Required	Volume, mls
001	9/9/22	CT13 Test 1-Filter, Ace PW and HNO3 PW	3	BV	M29*	98
002	9/9/22	CT13 Test 1-HNO3/H2O2 Impingers	1	BV	M29*	697
003	9/9/22	CT13 Test 1-KMnO4 and HCl Rinse	2	BV	M29-HG	348,214
004	9/10/22	CT13 Test 2-Filter, Ace PW and HNO3 PW	3	BV	M29*	98
005	9/10/22	CT13 Test 2-HNO3/H2O2 Impingers	1	BV	M29*	739
006	9/10/22	CT13 Test 2-KMnO4 and HCl Rinse	2	BV	M29-HG	393,213
007	9/10/22	CT13 Test 3-Filter, Ace PW and HNO3 PW	3	BV	M29*	98
008	9/10/22	CT13 Test 3-HNO3/H2O2 Impingers	1	BV	M29*	653
009	9/10/22	CT13 Test 3-KMnO4 and HCl Rinse	2	BV	M29-HG	470,215
010	9/11/22	CT13 Test 4-Filter, Ace PW and HNO3 PW	3	BV	M29*	98
011	9/11/22	CT13 Test 4-HNO3/H2O2 Impingers	1	BV	M29*	739
012	9/11/22	CT13 Test 4-KMnO4 and HCl Rinse	2	BV	M29-HG	420,223
013	9/11/22	CT13 Test 5-Filter, Ace PW and HNO3 PW	3	BV	M29*	97
014	9/11/22	CT13 Test 5-HNO3/H2O2 Impingers	1	BV	M29*	743
015	9/11/22	CT13 Test 5-KMnO4 and HCl Rinse	2	BV	M29-HG	430,217
016	9/11/22	CT13 Test 6-Filter, Ace PW and HNO3 PW	3	BV	M29*	97
017	9/11/22	CT13 Test 6-HNO3/H2O2 Impingers	1	BV	M29*	713
018	9/11/22	CT13 Test 6-KMnO4 and HCl Rinse	2	BV	M29-HG	427,224
019	9/11/22	CT13 Test 7-Filter, Ace PW and HNO3 PW	3	BV	M29*	46
020	9/11/22	CT13 Test 7-HNO3/H2O2 Impingers	1	BV	M29*	649
021	9/11/22	CT13 Test 7-KMnO4 and HCl Rinse	2	BV	M29-HG	420,236
022	9/9/22	CT15 Test 1-Filter, Ace PW and HNO3 PW	3	BV	M29*	101
023	9/9/22	CT15 Test 1-HNO3/H2O2 Impingers	1	BV	M29*	606



Your Project #: M223610
 Site#: MIDDLETOWN,CT
 Site Location: CT13 AND CT15
 Your C.O.C. #: 026-030

Attention: Data Reporting

Mostardi Platt
 888 Industrial Rd
 Elmhurst, IL
 USA 60126-1121

Report Date: 2022/10/06
 Report #: R7331165
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2R5321

Received: 2022/09/22, 14:11

Sample Matrix: Stack Sampling Train
 # Samples Received: 15

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Mercury 3C in HCl Rinse	15	2022/10/05	2022/10/05	BRL SOP-00104	EPA M29/M0060 m
Mercury 2B in HNO3/H2O2 Imp.	15	2022/10/05	2022/10/05	BRL SOP-00104	EPA M29/M0060 m
Mercury 3B in KMnO4/H2SO4 Imp.	15	2022/10/04	2022/10/05	BRL SOP-00104	EPA M29/M0060 m
Mercury 1B in Filter + Rinse (M29)	15	2022/09/29	2022/10/05	BRL SOP-00104	EPA 29 m
Metals B.H. in H2O2/HNO3 Imp.(6020B m)	15	2022/09/29	2022/10/05	BRL SOP-00103 / BRL SOP-00102	EPA M29/CARB 436 m
Metals F.H. in Filter + Rinses (6020B m)	15	2022/09/29	2022/10/05	BRL SOP-00103/ BRL SOP-00102	EPA M29/CARB 436 m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.



Your Project #: M223610
Site#: GENNCONN MIDDLETON,CT
Site Location: CT13 AND CT15
Your C.O.C. #: 026-030

Attention: Data Reporting

Mostardi Platt
888 Industrial Rd
Elmhurst, IL
USA 60126-1121

Report Date: 2022/10/06
Report #: R7331165
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2R5321

Received: 2022/09/22, 14:11

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769

=====

This report has been generated and distributed using a secure automated process.
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.

Total Cover Pages : 2
Page 2 of 17

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Project No. M223610
Combustion Turbine Unit 13

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

©Mostardi Platt

BUREAU
VERITAS

Bureau Veritas Job #: C2R5321

Report Date: 2022/10/06

Mostardi Platt

Client Project #: M223610

Site Location: CT13 AND CT15

EPA M29 MERCURY (STACK SAMPLING TRAIN)

Bureau Veritas ID		TUX083		TUX358	TUX358		TUX383		TUX384		
Sampling Date		2022/09/11		2022/09/09	2022/09/09		2022/09/10		2022/09/10		
COC Number		026-030		026-030	026-030		026-030		026-030		
	UNITS	M29- BLANK	RDL	M29-CT13- T1	M29-CT13- T1 Lab-Dup	RDL	M29-CT13- T2	RDL	M29-CT13- T3	RDL	QC Batch
1B Mercury (Hg)	ug	<0.015	0.015	<0.015	<0.015	0.015	<0.015	0.015	<0.015	0.015	8254436
2B Mercury (Hg)	ug	<0.15	0.15	<0.18	N/A	0.18	<0.34	0.34	<0.29	0.29	8266431
3B Mercury (Hg)	ug	<0.013	0.013	<0.02	N/A	0.02	<0.025	0.025	<0.028	0.028	8262443
3C Mercury (Hg)	ug	<0.015	0.015	0.032	N/A	0.015	0.025	0.015	0.022	0.013	8265578
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable											

Bureau Veritas ID		TUX385	TUX386		TUX387		TUX388		TUX389		
Sampling Date		2022/09/11	2022/09/11		2022/09/11		2022/09/11		2022/09/09		
COC Number		026-030	026-030		026-030		026-030		026-030		
	UNITS	M29-CT13- T4	M29-CT13- T5	RDL	M29-CT13- T6	RDL	M29-CT13- T7	RDL	M29-CT15- T1	RDL	QC Batch
1B Mercury (Hg)	ug	<0.015	<0.015	0.015	<0.015	0.015	<0.015	0.015	<0.015	0.015	8254436
2B Mercury (Hg)	ug	<0.34	<0.34	0.34	<0.33	0.33	<0.3	0.3	<0.27	0.27	8266431
3B Mercury (Hg)	ug	<0.025	<0.025	0.025	<0.025	0.025	<0.025	0.025	<0.023	0.023	8262443
3C Mercury (Hg)	ug	0.015	0.019	0.013	0.018	0.013	0.017	0.015	0.134	0.013	8265578
RDL = Reportable Detection Limit QC Batch = Quality Control Batch											

Bureau Veritas ID		TUX390		TUX391		TUX392		TUX393		
Sampling Date		2022/09/09		2022/09/09		2022/09/10		2022/09/10		
COC Number		026-030		026-030		026-030		026-030		
	UNITS	M29-CT15- T2	RDL	M29-CT15- T3	RDL	M29-CT15- T4	RDL	M29-CT15- T5	RDL	QC Batch
1B Mercury (Hg)	ug	<0.015	0.015	<0.015	0.015	<0.015	0.015	<0.015	0.015	8254436
2B Mercury (Hg)	ug	<0.28	0.28	<0.26	0.26	<0.28	0.28	<0.29	0.29	8266431
3B Mercury (Hg)	ug	<0.02	0.02	<0.025	0.025	<0.025	0.025	<0.025	0.025	8262443
3C Mercury (Hg)	ug	0.037	0.013	0.031	0.013	0.022	0.013	0.023	0.013	8265578
RDL = Reportable Detection Limit QC Batch = Quality Control Batch										



EPA M29 MERCURY (STACK SAMPLING TRAIN)

Bureau Veritas ID		TUX394		TUX395		
Sampling Date		2022/09/10		2022/09/11		
COC Number		026-030		026-030		
	UNITS	M29-CT15- T6	RDL	M29-CT15- T7	RDL	QC Batch
1B Mercury (Hg)	ug	<0.015	0.015	<0.015	0.015	8254436
2B Mercury (Hg)	ug	<0.24	0.24	<0.35	0.35	8266431
3B Mercury (Hg)	ug	<0.028	0.028	<0.025	0.025	8262443
3C Mercury (Hg)	ug	0.021	0.013	0.019	0.013	8265578
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						



ELEMENTS BY ICP/MS (STACK SAMPLING TRAIN)

Bureau Veritas ID		TUX083	TUX358	TUX358	TUX383	TUX384	TUX385		
Sampling Date		2022/09/11	2022/09/09	2022/09/09	2022/09/10	2022/09/10	2022/09/11		
COC Number		026-030	026-030	026-030	026-030	026-030	026-030		
	UNITS	M29- BLANK	M29-CT13- T1	M29-CT13- T1 Lab-Dup	M29-CT13- T2	M29-CT13- T3	M29-CT13- T4	RDL	QC Batch
Front Half Antimony (Sb)	ug	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	3.0	8254446
Front Half Arsenic (As)	ug	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	0.80	8254446
Front Half Beryllium (Be)	ug	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	0.18	8254446
Front Half Cadmium (Cd)	ug	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	0.18	8254446
Front Half Chromium (Cr)	ug	<3.0	<3.0	<3.0	9.5	8.3	4.0	3.0	8254446
Front Half Cobalt (Co)	ug	<0.18	<0.18	<0.18	0.85	0.37	0.19	0.18	8254446
Front Half Lead (Pb)	ug	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	0.60	8254446
Front Half Manganese (Mn)	ug	1.2	21.4	20.6	13.8	7.6	3.8	1.2	8254446
Front Half Nickel (Ni)	ug	2.6	3.5	3.3	35.4	24.5	8.5	1.0	8254446
Front Half Selenium (Se)	ug	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	8254446
Back Half Antimony (Sb)	ug	<0.40	0.41	0.42	<0.40	<0.40	<0.40	0.40	8254451
Back Half Arsenic (As)	ug	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	8254451
Back Half Beryllium (Be)	ug	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	0.090	8254451
Back Half Cadmium (Cd)	ug	<0.090	7.73	7.87	0.111	<0.090	0.110	0.090	8254451
Back Half Chromium (Cr)	ug	<1.5	<1.5	<1.5	<1.5	2.6	4.6	1.5	8254451
Back Half Cobalt (Co)	ug	<0.090	<0.090	<0.090	<0.090	0.109	<0.090	0.090	8254451
Back Half Lead (Pb)	ug	<0.30	0.64	0.62	1.72	0.57	0.96	0.30	8254451
Back Half Manganese (Mn)	ug	<0.60	1.66	1.65	12.0	174	48.8	0.60	8254451
Back Half Nickel (Ni)	ug	<0.50	2.32	2.43	1.39	1.80	2.25	0.50	8254451
Back Half Selenium (Se)	ug	<1.0	3.4	3.4	2.8	<1.0	<1.0	1.0	8254451
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									
Lab-Dup = Laboratory Initiated Duplicate									



ELEMENTS BY ICP/MS (STACK SAMPLING TRAIN)

Bureau Veritas ID		TUX386	TUX387	TUX388	TUX389	TUX390	TUX391		
Sampling Date		2022/09/11	2022/09/11	2022/09/11	2022/09/09	2022/09/09	2022/09/09		
COC Number		026-030	026-030	026-030	026-030	026-030	026-030		
	UNITS	M29-CT13- T5	M29-CT13- T6	M29-CT13- T7	M29-CT15- T1	M29-CT15- T2	M29-CT15- T3	RDL	QC Batch
Front Half Antimony (Sb)	ug	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	3.0	8254446
Front Half Arsenic (As)	ug	<0.80	<0.80	<0.80	<0.80	<0.80	<0.80	0.80	8254446
Front Half Beryllium (Be)	ug	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	0.18	8254446
Front Half Cadmium (Cd)	ug	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	0.18	8254446
Front Half Chromium (Cr)	ug	4.4	4.9	5.6	3.9	3.0	5.1	3.0	8254446
Front Half Cobalt (Co)	ug	<0.18	<0.18	<0.18	<0.18	0.21	0.60	0.18	8254446
Front Half Lead (Pb)	ug	<0.60	<0.60	<0.60	0.95	<0.60	<0.60	0.60	8254446
Front Half Manganese (Mn)	ug	4.9	3.2	3.2	62.3	62.8	14.2	1.2	8254446
Front Half Nickel (Ni)	ug	6.9	5.4	5.9	3.6	6.1	16.1	1.0	8254446
Front Half Selenium (Se)	ug	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	8254446
Back Half Antimony (Sb)	ug	<0.40	<0.40	<0.40	0.57	<0.40	<0.40	0.40	8254451
Back Half Arsenic (As)	ug	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	8254451
Back Half Beryllium (Be)	ug	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	0.090	8254451
Back Half Cadmium (Cd)	ug	0.107	<0.090	<0.090	8.03	7.88	7.38	0.090	8254451
Back Half Chromium (Cr)	ug	1.8	2.3	2.6	<1.5	<1.5	1.9	1.5	8254451
Back Half Cobalt (Co)	ug	0.094	0.718	<0.090	0.105	<0.090	<0.090	0.090	8254451
Back Half Lead (Pb)	ug	0.44	0.54	1.31	0.93	0.59	0.78	0.30	8254451
Back Half Manganese (Mn)	ug	67.0	60.8	119	11.2	1.52	2.75	0.60	8254451
Back Half Nickel (Ni)	ug	2.56	4.01	2.22	1.78	0.89	0.68	0.50	8254451
Back Half Selenium (Se)	ug	<1.0	1.6	1.6	54.4	7.0	5.4	1.0	8254451

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch



BUREAU
VERITAS

Bureau Veritas Job #: C2R5321

Report Date: 2022/10/06

Mostardi Platt

Client Project #: M223610

Site Location: CT13 AND CT15

TEST SUMMARY

Bureau Veritas ID: TUX083
Sample ID: M29- BLANK
Matrix: Stack Sampling Train

Collected: 2022/09/11
Shipped:
Received: 2022/09/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury 3C in HCl Rinse	CV/AA	8265578	2022/10/05	2022/10/05	Thuy Linh Nguyen
Mercury 2B in HNO ₃ /H ₂ O ₂ Imp.	CV/AA	8266431	2022/10/05	2022/10/05	Thuy Linh Nguyen
Mercury 3B in KMnO ₄ /H ₂ SO ₄ Imp.	CV/AA	8262443	2022/10/04	2022/10/05	Thuy Linh Nguyen
Mercury 1B in Filter + Rinse (M29)	CV/AA	8254436	2022/09/29	2022/10/05	Thuy Linh Nguyen
Metals B.H. in H ₂ O ₂ /HNO ₃ Imp.(6020B m)	ICP1/MS	8254451	2022/09/29	2022/10/05	Arefa Dabhad
Metals F.H. in Filter + Rinses (6020B m)	ICP1/MS	8254446	2022/09/29	2022/10/05	Arefa Dabhad

Bureau Veritas ID: TUX358
Sample ID: M29-CT13- T1
Matrix: Stack Sampling Train

Collected: 2022/09/09
Shipped:
Received: 2022/09/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury 3C in HCl Rinse	CV/AA	8265578	2022/10/05	2022/10/05	Thuy Linh Nguyen
Mercury 2B in HNO ₃ /H ₂ O ₂ Imp.	CV/AA	8266431	2022/10/05	2022/10/05	Thuy Linh Nguyen
Mercury 3B in KMnO ₄ /H ₂ SO ₄ Imp.	CV/AA	8262443	2022/10/04	2022/10/05	Thuy Linh Nguyen
Mercury 1B in Filter + Rinse (M29)	CV/AA	8254436	2022/09/29	2022/10/05	Thuy Linh Nguyen
Metals B.H. in H ₂ O ₂ /HNO ₃ Imp.(6020B m)	ICP1/MS	8254451	2022/09/29	2022/10/05	Arefa Dabhad
Metals F.H. in Filter + Rinses (6020B m)	ICP1/MS	8254446	2022/09/29	2022/10/05	Arefa Dabhad

Bureau Veritas ID: TUX358 Dup
Sample ID: M29-CT13- T1
Matrix: Stack Sampling Train

Collected: 2022/09/09
Shipped:
Received: 2022/09/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury 1B in Filter + Rinse (M29)	CV/AA	8254436	2022/09/29	2022/10/05	Thuy Linh Nguyen
Metals B.H. in H ₂ O ₂ /HNO ₃ Imp.(6020B m)	ICP1/MS	8254451	2022/09/29	2022/10/05	Arefa Dabhad
Metals F.H. in Filter + Rinses (6020B m)	ICP1/MS	8254446	2022/09/29	2022/10/05	Arefa Dabhad

Bureau Veritas ID: TUX383
Sample ID: M29-CT13- T2
Matrix: Stack Sampling Train

Collected: 2022/09/10
Shipped:
Received: 2022/09/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury 3C in HCl Rinse	CV/AA	8265578	2022/10/05	2022/10/05	Thuy Linh Nguyen
Mercury 2B in HNO ₃ /H ₂ O ₂ Imp.	CV/AA	8266431	2022/10/05	2022/10/05	Thuy Linh Nguyen
Mercury 3B in KMnO ₄ /H ₂ SO ₄ Imp.	CV/AA	8262443	2022/10/04	2022/10/05	Thuy Linh Nguyen
Mercury 1B in Filter + Rinse (M29)	CV/AA	8254436	2022/09/29	2022/10/05	Thuy Linh Nguyen
Metals B.H. in H ₂ O ₂ /HNO ₃ Imp.(6020B m)	ICP1/MS	8254451	2022/09/29	2022/10/05	Arefa Dabhad
Metals F.H. in Filter + Rinses (6020B m)	ICP1/MS	8254446	2022/09/29	2022/10/05	Arefa Dabhad



BUREAU
VERITAS

Bureau Veritas Job #: C2R5321

Report Date: 2022/10/06

Mostardi Platt

Client Project #: M223610

Site Location: CT13 AND CT15

TEST SUMMARY

Bureau Veritas ID: TUX384
Sample ID: M29-CT13- T3
Matrix: Stack Sampling Train

Collected: 2022/09/10
Shipped:
Received: 2022/09/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury 3C in HCl Rinse	CV/AA	8265578	2022/10/05	2022/10/05	Thuy Linh Nguyen
Mercury 2B in HNO ₃ /H ₂ O ₂ Imp.	CV/AA	8266431	2022/10/05	2022/10/05	Thuy Linh Nguyen
Mercury 3B in KMnO ₄ /H ₂ SO ₄ Imp.	CV/AA	8262443	2022/10/04	2022/10/05	Thuy Linh Nguyen
Mercury 1B in Filter + Rinse (M29)	CV/AA	8254436	2022/09/29	2022/10/05	Thuy Linh Nguyen
Metals B.H. in H ₂ O ₂ /HNO ₃ Imp.(6020B m)	ICP1/MS	8254451	2022/09/29	2022/10/05	Arefa Dabhad
Metals F.H. in Filter + Rinses (6020B m)	ICP1/MS	8254446	2022/09/29	2022/10/05	Arefa Dabhad

Bureau Veritas ID: TUX385
Sample ID: M29-CT13- T4
Matrix: Stack Sampling Train

Collected: 2022/09/11
Shipped:
Received: 2022/09/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury 3C in HCl Rinse	CV/AA	8265578	2022/10/05	2022/10/05	Thuy Linh Nguyen
Mercury 2B in HNO ₃ /H ₂ O ₂ Imp.	CV/AA	8266431	2022/10/05	2022/10/05	Thuy Linh Nguyen
Mercury 3B in KMnO ₄ /H ₂ SO ₄ Imp.	CV/AA	8262443	2022/10/04	2022/10/05	Thuy Linh Nguyen
Mercury 1B in Filter + Rinse (M29)	CV/AA	8254436	2022/09/29	2022/10/05	Thuy Linh Nguyen
Metals B.H. in H ₂ O ₂ /HNO ₃ Imp.(6020B m)	ICP1/MS	8254451	2022/09/29	2022/10/05	Arefa Dabhad
Metals F.H. in Filter + Rinses (6020B m)	ICP1/MS	8254446	2022/09/29	2022/10/05	Arefa Dabhad

Bureau Veritas ID: TUX386
Sample ID: M29-CT13- T5
Matrix: Stack Sampling Train

Collected: 2022/09/11
Shipped:
Received: 2022/09/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury 3C in HCl Rinse	CV/AA	8265578	2022/10/05	2022/10/05	Thuy Linh Nguyen
Mercury 2B in HNO ₃ /H ₂ O ₂ Imp.	CV/AA	8266431	2022/10/05	2022/10/05	Thuy Linh Nguyen
Mercury 3B in KMnO ₄ /H ₂ SO ₄ Imp.	CV/AA	8262443	2022/10/04	2022/10/05	Thuy Linh Nguyen
Mercury 1B in Filter + Rinse (M29)	CV/AA	8254436	2022/09/29	2022/10/05	Thuy Linh Nguyen
Metals B.H. in H ₂ O ₂ /HNO ₃ Imp.(6020B m)	ICP1/MS	8254451	2022/09/29	2022/10/05	Arefa Dabhad
Metals F.H. in Filter + Rinses (6020B m)	ICP1/MS	8254446	2022/09/29	2022/10/05	Arefa Dabhad

Bureau Veritas ID: TUX387
Sample ID: M29-CT13- T6
Matrix: Stack Sampling Train

Collected: 2022/09/11
Shipped:
Received: 2022/09/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury 3C in HCl Rinse	CV/AA	8265578	2022/10/05	2022/10/05	Thuy Linh Nguyen
Mercury 2B in HNO ₃ /H ₂ O ₂ Imp.	CV/AA	8266431	2022/10/05	2022/10/05	Thuy Linh Nguyen
Mercury 3B in KMnO ₄ /H ₂ SO ₄ Imp.	CV/AA	8262443	2022/10/04	2022/10/05	Thuy Linh Nguyen
Mercury 1B in Filter + Rinse (M29)	CV/AA	8254436	2022/09/29	2022/10/05	Thuy Linh Nguyen
Metals B.H. in H ₂ O ₂ /HNO ₃ Imp.(6020B m)	ICP1/MS	8254451	2022/09/29	2022/10/05	Arefa Dabhad
Metals F.H. in Filter + Rinses (6020B m)	ICP1/MS	8254446	2022/09/29	2022/10/05	Arefa Dabhad



BUREAU
VERITAS

Bureau Veritas Job #: C2R5321

Report Date: 2022/10/06

Mostardi Platt

Client Project #: M223610

Site Location: CT13 AND CT15

TEST SUMMARY

Bureau Veritas ID: TUX388
Sample ID: M29-CT13- T7
Matrix: Stack Sampling Train

Collected: 2022/09/11
Shipped:
Received: 2022/09/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury 3C in HCl Rinse	CV/AA	8265578	2022/10/05	2022/10/05	Thuy Linh Nguyen
Mercury 2B in HNO ₃ /H ₂ O ₂ Imp.	CV/AA	8266431	2022/10/05	2022/10/05	Thuy Linh Nguyen
Mercury 3B in KMnO ₄ /H ₂ SO ₄ Imp.	CV/AA	8262443	2022/10/04	2022/10/05	Thuy Linh Nguyen
Mercury 1B in Filter + Rinse (M29)	CV/AA	8254436	2022/09/29	2022/10/05	Thuy Linh Nguyen
Metals B.H. in H ₂ O ₂ /HNO ₃ Imp.(6020B m)	ICP1/MS	8254451	2022/09/29	2022/10/05	Arefa Dabhad
Metals F.H. in Filter + Rinses (6020B m)	ICP1/MS	8254446	2022/09/29	2022/10/05	Arefa Dabhad

Bureau Veritas ID: TUX389
Sample ID: M29-CT15- T1
Matrix: Stack Sampling Train

Collected: 2022/09/09
Shipped:
Received: 2022/09/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury 3C in HCl Rinse	CV/AA	8265578	2022/10/05	2022/10/05	Thuy Linh Nguyen
Mercury 2B in HNO ₃ /H ₂ O ₂ Imp.	CV/AA	8266431	2022/10/05	2022/10/05	Thuy Linh Nguyen
Mercury 3B in KMnO ₄ /H ₂ SO ₄ Imp.	CV/AA	8262443	2022/10/04	2022/10/05	Thuy Linh Nguyen
Mercury 1B in Filter + Rinse (M29)	CV/AA	8254436	2022/09/29	2022/10/05	Thuy Linh Nguyen
Metals B.H. in H ₂ O ₂ /HNO ₃ Imp.(6020B m)	ICP1/MS	8254451	2022/09/29	2022/10/05	Arefa Dabhad
Metals F.H. in Filter + Rinses (6020B m)	ICP1/MS	8254446	2022/09/29	2022/10/05	Arefa Dabhad

Bureau Veritas ID: TUX390
Sample ID: M29-CT15- T2
Matrix: Stack Sampling Train

Collected: 2022/09/09
Shipped:
Received: 2022/09/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury 3C in HCl Rinse	CV/AA	8265578	2022/10/05	2022/10/05	Thuy Linh Nguyen
Mercury 2B in HNO ₃ /H ₂ O ₂ Imp.	CV/AA	8266431	2022/10/05	2022/10/05	Thuy Linh Nguyen
Mercury 3B in KMnO ₄ /H ₂ SO ₄ Imp.	CV/AA	8262443	2022/10/04	2022/10/05	Thuy Linh Nguyen
Mercury 1B in Filter + Rinse (M29)	CV/AA	8254436	2022/09/29	2022/10/05	Thuy Linh Nguyen
Metals B.H. in H ₂ O ₂ /HNO ₃ Imp.(6020B m)	ICP1/MS	8254451	2022/09/29	2022/10/05	Arefa Dabhad
Metals F.H. in Filter + Rinses (6020B m)	ICP1/MS	8254446	2022/09/29	2022/10/05	Arefa Dabhad

Bureau Veritas ID: TUX391
Sample ID: M29-CT15- T3
Matrix: Stack Sampling Train

Collected: 2022/09/09
Shipped:
Received: 2022/09/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Mercury 3C in HCl Rinse	CV/AA	8265578	2022/10/05	2022/10/05	Thuy Linh Nguyen
Mercury 2B in HNO ₃ /H ₂ O ₂ Imp.	CV/AA	8266431	2022/10/05	2022/10/05	Thuy Linh Nguyen
Mercury 3B in KMnO ₄ /H ₂ SO ₄ Imp.	CV/AA	8262443	2022/10/04	2022/10/05	Thuy Linh Nguyen
Mercury 1B in Filter + Rinse (M29)	CV/AA	8254436	2022/09/29	2022/10/05	Thuy Linh Nguyen
Metals B.H. in H ₂ O ₂ /HNO ₃ Imp.(6020B m)	ICP1/MS	8254451	2022/09/29	2022/10/05	Arefa Dabhad
Metals F.H. in Filter + Rinses (6020B m)	ICP1/MS	8254446	2022/09/29	2022/10/05	Arefa Dabhad



BUREAU
VERITAS

Bureau Veritas Job #: C2R5321

Report Date: 2022/10/06

Mostardi Platt

Client Project #: M223610

Site Location: CT13 AND CT15

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
8254436	TLG	Reagent Blank	1B Mercury (Hg)	2022/10/05	<0.015		ug	
8254436	TLG	Matrix Spike(TUX358)	1B Mercury (Hg)	2022/10/05		98	%	75 - 125
8254436	TLG	Matrix Spike DUP(TUX358)	1B Mercury (Hg)	2022/10/05		99	%	75 - 125
8254436	TLG	MS/MSD RPD	1B Mercury (Hg)	2022/10/05	0.51		%	20
8254436	TLG	Spiked Blank	1B Mercury (Hg)	2022/10/05		96	%	90 - 110
8254436	TLG	Spiked Blank DUP	1B Mercury (Hg)	2022/10/05		97	%	90 - 110
8254436	TLG	RPD	1B Mercury (Hg)	2022/10/05	1.3		%	20
8254436	TLG	Method Blank	1B Mercury (Hg)	2022/10/05	<0.015		ug	
8254436	TLG	RPD - Sample/Sample Dup	1B Mercury (Hg)	2022/10/05	NC		%	20
8254446	ADA	Matrix Spike(TUX358)	Front Half Antimony (Sb)	2022/10/05		109	%	75 - 125
			Front Half Arsenic (As)	2022/10/05		98	%	75 - 125
			Front Half Beryllium (Be)	2022/10/05		101	%	75 - 125
			Front Half Cadmium (Cd)	2022/10/05		99	%	75 - 125
			Front Half Chromium (Cr)	2022/10/05		95	%	75 - 125
			Front Half Cobalt (Co)	2022/10/05		97	%	75 - 125
			Front Half Lead (Pb)	2022/10/05		102	%	75 - 125
			Front Half Manganese (Mn)	2022/10/05		97	%	75 - 125
			Front Half Nickel (Ni)	2022/10/05		96	%	75 - 125
			Front Half Selenium (Se)	2022/10/05		98	%	75 - 125
8254446	ADA	Matrix Spike DUP(TUX358)	Front Half Antimony (Sb)	2022/10/05		110	%	75 - 125
			Front Half Arsenic (As)	2022/10/05		99	%	75 - 125
			Front Half Beryllium (Be)	2022/10/05		105	%	75 - 125
			Front Half Cadmium (Cd)	2022/10/05		100	%	75 - 125
			Front Half Chromium (Cr)	2022/10/05		94	%	75 - 125
			Front Half Cobalt (Co)	2022/10/05		97	%	75 - 125
			Front Half Lead (Pb)	2022/10/05		98	%	75 - 125
			Front Half Manganese (Mn)	2022/10/05		98	%	75 - 125
			Front Half Nickel (Ni)	2022/10/05		96	%	75 - 125
			Front Half Selenium (Se)	2022/10/05		98	%	75 - 125
8254446	ADA	MS/MSD RPD	Front Half Antimony (Sb)	2022/10/05	0.65		%	20
			Front Half Arsenic (As)	2022/10/05	0.91		%	20
			Front Half Beryllium (Be)	2022/10/05	3.1		%	20
			Front Half Cadmium (Cd)	2022/10/05	1.7		%	20
			Front Half Chromium (Cr)	2022/10/05	0.45		%	20
			Front Half Cobalt (Co)	2022/10/05	0.76		%	20
			Front Half Lead (Pb)	2022/10/05	4.2		%	20
			Front Half Manganese (Mn)	2022/10/05	0.45		%	20
			Front Half Nickel (Ni)	2022/10/05	0.31		%	20
			Front Half Selenium (Se)	2022/10/05	0.56		%	20
8254446	ADA	Spiked Blank	Front Half Antimony (Sb)	2022/10/05		105	%	85 - 115
			Front Half Arsenic (As)	2022/10/05		100	%	85 - 115
			Front Half Beryllium (Be)	2022/10/05		106	%	85 - 115
			Front Half Cadmium (Cd)	2022/10/05		100	%	85 - 115
			Front Half Chromium (Cr)	2022/10/05		97	%	85 - 115
			Front Half Cobalt (Co)	2022/10/05		99	%	85 - 115
			Front Half Lead (Pb)	2022/10/05		103	%	85 - 115
			Front Half Manganese (Mn)	2022/10/05		99	%	85 - 115
			Front Half Nickel (Ni)	2022/10/05		98	%	85 - 115
			Front Half Selenium (Se)	2022/10/05		101	%	85 - 115
8254446	ADA	Spiked Blank DUP	Front Half Antimony (Sb)	2022/10/05		105	%	85 - 115
			Front Half Arsenic (As)	2022/10/05		99	%	85 - 115
			Front Half Beryllium (Be)	2022/10/05		104	%	85 - 115



BUREAU
VERITAS

Bureau Veritas Job #: C2R5321

Report Date: 2022/10/06

Mostardi Platt

Client Project #: M223610

Site Location: CT13 AND CT15

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits			
8254446	ADA	RPD	Front Half Cadmium (Cd)	2022/10/05		98	%	85 - 115			
			Front Half Chromium (Cr)	2022/10/05		95	%	85 - 115			
			Front Half Cobalt (Co)	2022/10/05		97	%	85 - 115			
			Front Half Lead (Pb)	2022/10/05		99	%	85 - 115			
			Front Half Manganese (Mn)	2022/10/05		98	%	85 - 115			
			Front Half Nickel (Ni)	2022/10/05		96	%	85 - 115			
			Front Half Selenium (Se)	2022/10/05		100	%	85 - 115			
			Front Half Antimony (Sb)	2022/10/05	0.28		%	20			
			Front Half Arsenic (As)	2022/10/05	1.5		%	20			
			Front Half Beryllium (Be)	2022/10/05	1.5		%	20			
			Front Half Cadmium (Cd)	2022/10/05	1.9		%	20			
			Front Half Chromium (Cr)	2022/10/05	1.9		%	20			
			Front Half Cobalt (Co)	2022/10/05	2.7		%	20			
			Front Half Lead (Pb)	2022/10/05	4.1		%	20			
			Front Half Manganese (Mn)	2022/10/05	0.97		%	20			
			Front Half Nickel (Ni)	2022/10/05	1.6		%	20			
			Front Half Selenium (Se)	2022/10/05	1.4		%	20			
8254446	ADA	Method Blank	Front Half Antimony (Sb)	2022/10/05	<3.0		ug				
			Front Half Arsenic (As)	2022/10/05	<0.80		ug				
			Front Half Beryllium (Be)	2022/10/05	<0.18		ug				
			Front Half Cadmium (Cd)	2022/10/05	<0.18		ug				
			Front Half Chromium (Cr)	2022/10/05	<3.0		ug				
			Front Half Cobalt (Co)	2022/10/05	<0.18		ug				
			Front Half Lead (Pb)	2022/10/05	<0.60		ug				
			Front Half Manganese (Mn)	2022/10/05	<1.2		ug				
			Front Half Nickel (Ni)	2022/10/05	<1.0		ug				
			Front Half Selenium (Se)	2022/10/05	<2.0		ug				
			8254446	ADA	RPD - Sample/Sample Dup	Front Half Antimony (Sb)	2022/10/05	NC		%	20
						Front Half Arsenic (As)	2022/10/05	NC		%	20
						Front Half Beryllium (Be)	2022/10/05	NC		%	20
						Front Half Cadmium (Cd)	2022/10/05	NC		%	20
						Front Half Chromium (Cr)	2022/10/05	NC		%	20
						Front Half Cobalt (Co)	2022/10/05	NC		%	20
						Front Half Lead (Pb)	2022/10/05	NC		%	20
Front Half Manganese (Mn)	2022/10/05	3.5					%	20			
Front Half Nickel (Ni)	2022/10/05	5.3					%	20			
Front Half Selenium (Se)	2022/10/05	NC					%	20			
8254451	ADA	Matrix Spike(TUX358)	Back Half Antimony (Sb)	2022/10/05		103	%	75 - 125			
			Back Half Arsenic (As)	2022/10/05		96	%	75 - 125			
			Back Half Beryllium (Be)	2022/10/05		101	%	75 - 125			
			Back Half Cadmium (Cd)	2022/10/05		96	%	75 - 125			
			Back Half Chromium (Cr)	2022/10/05		97	%	75 - 125			
			Back Half Cobalt (Co)	2022/10/05		100	%	75 - 125			
			Back Half Lead (Pb)	2022/10/05		100	%	75 - 125			
			Back Half Manganese (Mn)	2022/10/05		100	%	75 - 125			
			Back Half Nickel (Ni)	2022/10/05		97	%	75 - 125			
			Back Half Selenium (Se)	2022/10/05		94	%	75 - 125			
			8254451	ADA	Matrix Spike DUP(TUX358)	Back Half Antimony (Sb)	2022/10/05		104	%	75 - 125
						Back Half Arsenic (As)	2022/10/05		98	%	75 - 125
						Back Half Beryllium (Be)	2022/10/05		104	%	75 - 125
						Back Half Cadmium (Cd)	2022/10/05		97	%	75 - 125
						Back Half Chromium (Cr)	2022/10/05		98	%	75 - 125



BUREAU
VERITAS

Bureau Veritas Job #: C2R5321

Report Date: 2022/10/06

Mostardi Platt

Client Project #: M223610

Site Location: CT13 AND CT15

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
8254451	ADA	MS/MSD RPD	Back Half Cobalt (Co)	2022/10/05		101	%	75 - 125
			Back Half Lead (Pb)	2022/10/05		101	%	75 - 125
			Back Half Manganese (Mn)	2022/10/05		101	%	75 - 125
			Back Half Nickel (Ni)	2022/10/05		99	%	75 - 125
			Back Half Selenium (Se)	2022/10/05		94	%	75 - 125
			Back Half Antimony (Sb)	2022/10/05	0.83		%	20
			Back Half Arsenic (As)	2022/10/05	2.1		%	20
			Back Half Beryllium (Be)	2022/10/05	2.9		%	20
			Back Half Cadmium (Cd)	2022/10/05	0.92		%	20
			Back Half Chromium (Cr)	2022/10/05	1.2		%	20
			Back Half Cobalt (Co)	2022/10/05	0.91		%	20
			Back Half Lead (Pb)	2022/10/05	1.5		%	20
			Back Half Manganese (Mn)	2022/10/05	1.1		%	20
			Back Half Nickel (Ni)	2022/10/05	2.3		%	20
			Back Half Selenium (Se)	2022/10/05	0.23		%	20
8254451	ADA	Spiked Blank	Back Half Antimony (Sb)	2022/10/05		108	%	85 - 115
			Back Half Arsenic (As)	2022/10/05		105	%	85 - 115
			Back Half Beryllium (Be)	2022/10/05		106	%	85 - 115
			Back Half Cadmium (Cd)	2022/10/05		103	%	85 - 115
			Back Half Chromium (Cr)	2022/10/05		102	%	85 - 115
			Back Half Cobalt (Co)	2022/10/05		100	%	85 - 115
			Back Half Lead (Pb)	2022/10/05		101	%	85 - 115
			Back Half Manganese (Mn)	2022/10/05		107	%	85 - 115
			Back Half Nickel (Ni)	2022/10/05		105	%	85 - 115
			Back Half Selenium (Se)	2022/10/05		103	%	85 - 115
			Back Half Antimony (Sb)	2022/10/05		108	%	85 - 115
			Back Half Arsenic (As)	2022/10/05		101	%	85 - 115
			Back Half Beryllium (Be)	2022/10/05		105	%	85 - 115
			Back Half Cadmium (Cd)	2022/10/05		101	%	85 - 115
			Back Half Chromium (Cr)	2022/10/05		99	%	85 - 115
8254451	ADA	Spiked Blank DUP	Back Half Cobalt (Co)	2022/10/05		98	%	85 - 115
			Back Half Lead (Pb)	2022/10/05		103	%	85 - 115
			Back Half Manganese (Mn)	2022/10/05		104	%	85 - 115
			Back Half Nickel (Ni)	2022/10/05		102	%	85 - 115
			Back Half Selenium (Se)	2022/10/05		102	%	85 - 115
			Back Half Antimony (Sb)	2022/10/05	0.69		%	20
			Back Half Arsenic (As)	2022/10/05	3.1		%	20
			Back Half Beryllium (Be)	2022/10/05	1.4		%	20
			Back Half Cadmium (Cd)	2022/10/05	2.2		%	20
			Back Half Chromium (Cr)	2022/10/05	2.9		%	20
			Back Half Cobalt (Co)	2022/10/05	2.0		%	20
			Back Half Lead (Pb)	2022/10/05	1.5		%	20
			Back Half Manganese (Mn)	2022/10/05	2.7		%	20
			Back Half Nickel (Ni)	2022/10/05	2.6		%	20
			Back Half Selenium (Se)	2022/10/05	1.1		%	20
8254451	ADA	Method Blank	Back Half Antimony (Sb)	2022/10/05	<0.40		ug	
			Back Half Arsenic (As)	2022/10/05	<0.40		ug	
			Back Half Beryllium (Be)	2022/10/05	<0.090		ug	
			Back Half Cadmium (Cd)	2022/10/05	<0.090		ug	
			Back Half Chromium (Cr)	2022/10/05	<1.5		ug	
			Back Half Cobalt (Co)	2022/10/05	<0.090		ug	
			Back Half Lead (Pb)	2022/10/05	<0.30		ug	

BUREAU
VERITAS

Bureau Veritas Job #: C2R5321

Report Date: 2022/10/06

Mostardi Platt

Client Project #: M223610

Site Location: CT13 AND CT15

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
8254451	ADA	RPD - Sample/Sample Dup	Back Half Manganese (Mn)	2022/10/05	<0.60		ug	
			Back Half Nickel (Ni)	2022/10/05	<0.50		ug	
			Back Half Selenium (Se)	2022/10/05	<1.0		ug	
			Back Half Antimony (Sb)	2022/10/05	0.77		%	20
			Back Half Arsenic (As)	2022/10/05	NC		%	20
			Back Half Beryllium (Be)	2022/10/05	NC		%	20
			Back Half Cadmium (Cd)	2022/10/05	1.8		%	20
			Back Half Chromium (Cr)	2022/10/05	NC		%	20
			Back Half Cobalt (Co)	2022/10/05	NC		%	20
			Back Half Lead (Pb)	2022/10/05	2.4		%	20
			Back Half Manganese (Mn)	2022/10/05	0.68		%	20
			Back Half Nickel (Ni)	2022/10/05	4.6		%	20
			Back Half Selenium (Se)	2022/10/05	1.8		%	20
8262443	TLG	Reagent Blank	3B Mercury (Hg)	2022/10/05	<0.013		ug	
8262443	TLG	Matrix Spike	3B Mercury (Hg)	2022/10/05		89	%	75 - 125
8262443	TLG	Matrix Spike DUP	3B Mercury (Hg)	2022/10/05		89	%	75 - 125
8262443	TLG	MS/MSD RPD	3B Mercury (Hg)	2022/10/05	0.34		%	20
8262443	TLG	Spiked Blank	3B Mercury (Hg)	2022/10/05		100	%	90 - 110
8262443	TLG	Spiked Blank DUP	3B Mercury (Hg)	2022/10/05		98	%	90 - 110
8262443	TLG	RPD	3B Mercury (Hg)	2022/10/05	1.5		%	20
8262443	TLG	Method Blank	3B Mercury (Hg)	2022/10/05	<0.013		ug	
8262443	TLG	RPD - Sample/Sample Dup	3B Mercury (Hg)	2022/10/05	10		%	20
8265578	TLG	Reagent Blank	3C Mercury (Hg)	2022/10/05	<0.013		ug	
8265578	TLG	Matrix Spike	3C Mercury (Hg)	2022/10/05		77	%	75 - 125
8265578	TLG	Matrix Spike DUP	3C Mercury (Hg)	2022/10/05		78	%	75 - 125
8265578	TLG	MS/MSD RPD	3C Mercury (Hg)	2022/10/05	1.5		%	20
8265578	TLG	Spiked Blank	3C Mercury (Hg)	2022/10/05		99	%	90 - 110
8265578	TLG	Spiked Blank DUP	3C Mercury (Hg)	2022/10/05		98	%	90 - 110
8265578	TLG	RPD	3C Mercury (Hg)	2022/10/05	1.5		%	20
8265578	TLG	Method Blank	3C Mercury (Hg)	2022/10/05	<0.013		ug	
8265578	TLG	RPD - Sample/Sample Dup	3C Mercury (Hg)	2022/10/05	0.29		%	20
8266431	TLG	Matrix Spike	2B Mercury (Hg)	2022/10/05		96	%	75 - 125
8266431	TLG	Matrix Spike DUP	2B Mercury (Hg)	2022/10/05		98	%	75 - 125
8266431	TLG	MS/MSD RPD	2B Mercury (Hg)	2022/10/05	1.7		%	20
8266431	TLG	Spiked Blank	2B Mercury (Hg)	2022/10/05		100	%	90 - 110
8266431	TLG	Spiked Blank DUP	2B Mercury (Hg)	2022/10/05		99	%	90 - 110
8266431	TLG	RPD	2B Mercury (Hg)	2022/10/05	1.0		%	20
8266431	TLG	Method Blank	2B Mercury (Hg)	2022/10/05	<0.15		ug	
8266431	TLG	RPD - Sample/Sample Dup	2B Mercury (Hg)	2022/10/05	1.4		%	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Reagent Blank: A blank matrix containing all reagents used in the analytical procedure. Used to determine any analytical contamination.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).



BUREAU
VERITAS

Bureau Veritas Job #: C2R5321

Report Date: 2022/10/06

Mostardi Platt

Client Project #: M223610

Site Location: CT13 AND CT15

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Appendix K – Agency Correspondence



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

April 6, 2022

Mr. Robert Spooner
Environmental Supervisor
Middletown Power LLC
1866 River Road
Middletown, CT 06457

Dear Mr. Spooner,

Pursuant to section 114 of the Clean Air Act (CAA), 42 U.S.C. §7414(a), the U.S. Environmental Protection Agency (EPA) is collecting information related to hazardous air pollutant (HAP) and criteria pollutant emissions from stationary combustion turbines to inform its review under CAA section 112(d)(6) of the National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Stationary Combustion Turbines. As part of this effort, the EPA requires your assistance in providing information related to these emissions in order to support an effective rulemaking. Stationary combustion turbines are subject to the provisions of 40 CFR part 63, subpart YYYYY.

This section 114 request has two components: (1) an electronic survey; and (2) emissions testing that must be completed for your turbines as specified in Enclosure 1.

The first component is a survey that requests information on each stationary combustion turbine at the facilities listed in Enclosure 1. We are asking you to report information on processes, control devices, and control costs for each turbine. The request is a survey in Microsoft® Excel format. We request that you complete and return the survey by 3 months after receipt of this letter. Please download the spreadsheet and corresponding instruction document at: <https://www.epa.gov/stationary-sources-air-pollution/stationary-combustion-turbines-national-emission-standards>.

The second component of this section 114 request requires testing and reporting of emissions and other test data from turbines as specified in Enclosure 1 for specific HAP and criteria pollutants according to the testing procedures provided on the stationary combustion turbines website (<https://www.epa.gov/stationary-sources-air-pollution/stationary-combustion-turbines-national-emission-standards>). You must complete and submit test results no later than 9 months after receipt of this letter. Process and emissions testing data must be reported using the EPA Electronic Reporting Tool (ERT) where applicable.

Supplemental information is contained in the following additional enclosures:

Description	Enclosure #
EPA's Information Gathering Authority Under Section 114 of the Clean Air Act	Enclosure 2
Disclosure of Emissions Data Claimed as Confidential Under Sections 110 and 114(c) of the Clean Air Act	Enclosure 3
Summary of Procedures for Safeguarding Clean Air Act Confidential Business Information	Enclosure 4
Designation of RTI International as Authorized Representative	Enclosure 5

Please note that emissions data provided under section 114 of the CAA is not entitled to confidential treatment under 40 CFR part 2.¹ As you complete the survey, if you believe that providing any specific information would reveal a trade secret or compromise confidential business information (CBI), please identify this information clearly as CBI in your response. Please refer to Enclosure 4, the process survey instruction document, and/or the emissions test plan for more information. Clearly label any attachments submitted with your section 114 response that contain CBI. If only a portion of your response includes trade secrets, do not label your entire response as CBI. Facilities that claim large amounts of information to be CBI and/or trade secret(s), especially if other facilities report similar information without such claims, will likely be contacted by the EPA to validate these claims. Any information determined to be a trade secret will be protected by federal law (18 U.S.C. §1905). Please be aware that any information submitted in response to this request that is not claimed or determined to be confidential may be made available to the public without notifying you further (40 CFR part 2.203, September 1, 1976).

You are required to return all requested information to the EPA on or before the due dates specified in this letter. When you are ready to submit your data to the EPA, compile electronic copies of all *nonconfidential* requested files (including files that do not contain any Confidential Business Information (CBI) as well as files that have been redacted to remove CBI). Email the files to the following address:

Turbines.Survey@RTI.org

If you elect to submit your confidential information for a given component of this request electronically as described in Enclosure 4, create a separate submission containing all files associated with that component of this request (*i.e.*, all information claimed to be confidential and nonconfidential portions combined). Clearly mark the files and/or individual pages with the words "**Confidential Business Information**" and use the following email address:

Tiffany Purifoy, OAQPS DCO
ATTN: Project Stationary Combustion Turbines (Project #023)
oaqpscbi@epa.gov

Otherwise, to submit your confidential information for a given component of this request, please send a separate CD or DVD containing all files associated with that component of this

¹ For additional information on emission data, please see 40 C.F.R. §2.301 and Enclosure 4.

request (*i.e.*, all information claimed to be confidential and nonconfidential portions combined) or other confidential business information to Ms. Tiffany Purifoy of the EPA at one of the addresses below. Clearly mark the CD/DVD, flash drive/USB, and/or printed materials with the words "**Confidential Business Information**" and send either via U.S. Postal Service Express Mail, registered mail, or private courier to:

Ms. Tiffany Purifoy, Government Information Specialist (C404-02)
ATTN: Project Stationary Combustion Turbines (Project #023)
U.S. Environmental Protection Agency
Office of Air Quality Planning and Standards
Research Triangle Park, NC 27711

Please use the street address below if you are using FedEx for submitting your Confidential Business Information:

Tiffany Purifoy, OAQPS DCO
ATTN: Project Stationary Combustion Turbines (Project #023)
U.S. Environmental Protection Agency
Mail Code C404-02
109 T.W. Alexander Drive
Research Triangle Park, NC 27711

Please use the street address below for UPS for submitting your Confidential Business Information:

Tiffany Purifoy, OAQPS DCO
ATTN: Project Stationary Combustion Turbines (Project #023)
U.S. Environmental Protection Agency
Mail Code C404-02
4930 Old Page Road
Durham, NC 27703-8089

For the security of your data, the EPA recommends sending your data files as described in Section 6 of Enclosure 4 of your section 114 cover letter. If you prefer to compile the materials onto a CD, DVD, or USB flash drive to mail to the CBI office, the EPA recommends sending it via Registered U.S. Mail using either a return receipt request, Federal Express, or other method for which someone must provide a signature upon receipt.

This request is one step in an established public process for collecting foundational information as part of NESHAP reviews. The public and stakeholders will continue to have an opportunity to comment on the stationary combustion turbine NESHAP review in the future, including a formal notice-and-comment period on any proposed action.

If you have questions regarding this survey, please contact Melanie King in the EPA's Energy Strategies Group at 919-541-2469 or king.melanie@epa.gov.

Thank you for your assistance in this effort. The data will provide comprehensive information about the stationary combustion turbine source category, which will lead to more effective rulemaking.

Sincerely,

PENNY LASSITER

Digitally signed by PENNY
LASSITER
Date: 2022.04.05 12:30:59 -04'00'

Penny Lassiter
Division Director
Sector Policies and Programs Division

5 Enclosures

Enclosure 1

Table 1. Known Facilities with Stationary Combustion Turbines Subject to 40 CFR part 63, subpart YYYYY

Facility Name ¹	Street Address	City	State
Middletown Station	1866 River Road	Middletown	CT

- Information should be provided for the listed facilities as well as any additional facilities wholly owned by Middletown Power LLC that are not included on this list and have units subject to 40 CFR part 63, subpart YYYYY. If there is a facility on this list not wholly owned by Middletown Power LLC, please indicate that in the response letter. A completed survey is not required for that facility.

Table 2. Stationary Combustion Turbines Selected for Emissions Testing

Test Group	No. of Tests to Be Performed ¹	Fuel(s) To Be Used During Testing	General Unit Description	Facility Name	Select from These Unit ID(s) ²
A	4	2 Tests Using Natural Gas; 2 Tests Using Distillate Oil	Diffusion flame natural gas/fuel oil-fired stationary combustion turbines with oxidation catalyst constructed after January 14, 2003	Middletown Station	EU-8, EU-9, EU-10, and EU-11
B	1	Oil	Diffusion flame oil-fired stationary combustion turbine constructed on or before January 14, 2003	Middletown Station	EU-5

- If you are required to perform more than one test for a test group with only a single fuel type listed, you must perform the tests on different units within that test group. If you are required to test using two different fuels, you may elect to conduct each test on a different unit from the unit IDs provided or you may elect to conduct tests on the same unit(s) using multiple fuels.
- If this table is missing any stationary combustion turbines subject to 40 CFR part 63, subpart YYYYY, or if any of the stationary combustion turbines included in this table are misclassified (e.g., units are not in the appropriate test group or are not subject to subpart YYYYY), please contact Melanie King (see section 114 cover letter).

June 23, 2022

Penny Lassiter, Division Director
Sector Policies and Programs Director
U.S. Environmental Protection Agency
Mail Code D205-01
109 T.W. Alexander Drive
RTP, NC 27711

Reference: Middletown Power LLC
Section 114 request dated April 6th, 2022

Dear Ms. Lassiter,

Middletown Power LLC (MP) has received and reviewed the above referenced document. We appreciate the need for unit emissions data to support future rule making. However, we are concerned with the extensive stack testing proposed and the challenges completing the stack testing as requested.

The U.S. Environmental Protection Agency (EPA) has requested testing on two groups of Emission Units. The stationary combustion turbines selected for emissions testing are discussed below.

Test Group A

“Test Group A” is comprised of EU-8 through EU-11; vintage 2011 emission controlled 50 Mw GE LM6000 simple cycle gas turbines firing either natural gas or ultra-low sulfur distillate (ULSD) oil. These units serve the peaking market and see very little actual run time. Because of their peaking capacity and that gas supply must be arranged in advance, in practice they are virtually ULSD only units. As shown in Table 1 below, these units experience low run times overall, but the gas firing is extremely low. The Units only fire gas for the 5-year NOx correlation testing, as seen in 2016 and 2021. In all other years shown, the single-digit annual gas firing hours correspond to periodic operational readiness checks of the gas supply system and do not represent operation on gas for generation purposes.

Table 1

Hours of Operation on ULSD (Primary Fuel)										
Unit	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
EU-8	22.5	88.9	96.6	72.7	63.5	64.5	48.4	16.4	16.8	52.7
EU-9	21.9	78.6	82.8	76.4	50.9	46.0	37.2	27.7	34.2	47.0
EU-10	22.3	90.4	85.0	90.1	62.5	46.6	41.8	25.6	27.1	42.0
Eu-11	20.8	77.4	109.0	92.1	57.5	65.7	36.1	23.9	26.0	37.3

Hours of Operation on Natural Gas (Secondary Fuel 1)										
Unit	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
EU-8	0.0	0.0	6.5	0.5	26.0	3.3	2.4	0.8	3.8	17.6
EU-9	0.0	0.5	3.4	0.0	17.0	3.4	3.1	0.9	3.0	18.0
EU-10	0.0	0.4	3.0	0.5	20.0	4.4	2.2	0.8	4.3	19.0
Eu-11	0.0	0.4	0.2	0.0	25.7	4.6	2.3	1.5	1.0	16.4

Middletown Power LLC

C/O Eastern Generation LLC | 300 Atlantic Street, 5th Floor, Stamford, CT 06901

The estimated duration of the stack testing proposed by the EPA amounts to at least 40 hours of unit run time for each test (a “test” consists of seven (7) individual test runs). Coupling the test duration with unit startup and shutdown times, MP estimates that the total operating time to conduct these tests would exceed the annual run time experienced by any of these units in the last 4 years. Each test would involve a testing team and an operations crew for a full week of out-of-merit, i.e., uneconomic, operation.

Although this is a significant departure from normal operations, MP recognizes the value of this data for future rule making. MP proposes to complete two data-gathering stack tests, with each test comprising seven runs as requested. One of these tests would be while firing natural gas and one would be while firing ULSD. The week-long duration of these tests ensures that there will be varied data available due to differing weather, fuel composition and operational crews.

Because these units are identical, and operate very consistently with identical controls, MP submits that there is little value in multiple tests using the same fuel. Multiple tests on a single fuel would simply result in more emissions, costs and complications with no corresponding benefit in data quality or variability.

MP is currently scheduled to conduct formaldehyde testing required by 40 CFR Part 63, Subpart YYYY and will seek to combine the testing with that required by the referenced Section 114 request to minimize excess emissions. However, it is unlikely that MP will be able to complete all of the Section 114 requested testing during this already-scheduled formaldehyde testing and will likely have to schedule a separate deployment. The timing of that second deployment and reporting depends on consultant availability and unit status.

Test Group B

“Test Group B” is comprised of EU-5; a vintage 1966 uncontrolled 20 Mw Pratt and Whitney simple cycle gas turbine firing ULSD only. MP requests that this unit be removed from the stack testing program altogether.

This unit is not equipped with a stack adequate to allow testing in compliance with most of the required methods (i.e.; the test location does not meet Reference Method 1 requirements). This unit is equipped with a short square exhaust plenum, and to comply with the requested methods a stack extension of approximately 20 feet would have to be erected. Please see Figure 1 for engine and exhaust arrangement. This stack extension would be in proximity to overhead 345Kv transmission lines as well as the site high voltage equipment located in the switchyard. Scaffolding to support a testing platform would need erection, and the available ground area to support such a scaffold is restricted. If the stack extension were to be erected and a scaffold assembled to support the platform equipped to handle the required test probes it could place the workers in a hazardous work environment, positioned in proximity to the high voltage equipment. See Figure 2 for images of EU-5.

Additionally, as shown in Table 2, this is a peaking unit which sees very limited operation. The requested testing would far exceed the runtime experienced in the highest output year since 2014. MP believes that the duration of the requested stack testing is a significant departure from the normal operation of

this unit and may well compromise the unit's ability to support its peaking capacity duties during those times when power is suddenly necessary.

Table 2

Annual Hours of Operation								
Unit	2014	2015	2016	2017	2018	2019	2020	2021
EU-5	16.8	22.7	25.76	3.3	2.38	0.77	3.77	20.8

Summary

Middletown Power is willing to support the EPA in gathering actual unit emission data for future rule making, including operating outside of normal economics to support this important air quality policy effort. For the reasons detailed above, MP requests that EPA approve the reduced testing scope described herein. This will provide EPA with quality emissions data to support air quality analysis and rulemaking efforts, while also taking into consideration practical operational and physical realities at this site. Please respond to this correspondence as soon as possible so we may arrange support for this testing.

We would be happy to set up a meeting or a call to discuss this issue at your convenience. Please contact me at 860-982-0459 or rspooner@easterngen.com with questions or comments.

Sincerely,

A handwritten signature in blue ink, appearing to read "Robert Spooner".

Robert Spooner
Regional Environmental Manager

Figure 1

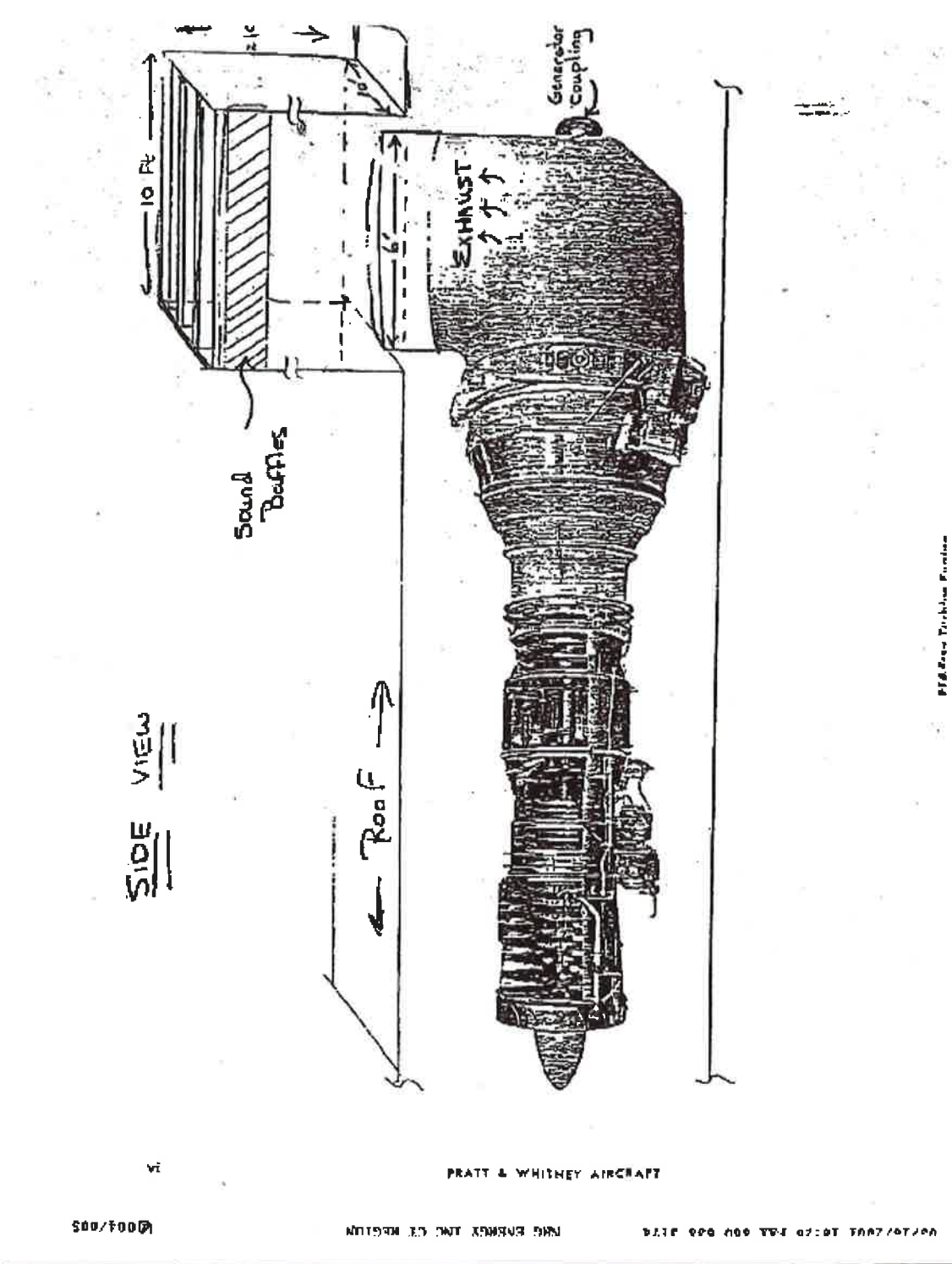


Figure 2

Looking east



Looking South



Middletown Power LLC

C/O Eastern Generation LLC | 300 Atlantic Street, 5th Floor, Stamford, CT 06901

Looking west



Middletown Power LLC

C/O Eastern Generation LLC | 300 Atlantic Street, 5th Floor, Stamford, CT 06901



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Research Triangle Park, NC 27711

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

July 11, 2022

Mr. Robert Spooner
Regional Environmental Manager
Middletown Power LLC
C/O Eastern Generation LLC
300 Atlantic Street, 5th Floor
Stamford, Connecticut 06901
rspooner@easterngen.com

Via Electronic Mail

Dear Mr. Spooner:

This letter is in response to your letter of June 23, 2022, regarding the U.S. Environmental Protection Agency (EPA)'s April 6, 2022, Clean Air Act (CAA) Section 114 Request for emission testing of combustion turbines at Middletown Power that are subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Combustion Turbines. In your letter, you discussed the challenges associated with the required testing and proposed reducing the number of tests that are required to be conducted.

EPA's original Section 114 Request required Middletown Power's dual fuel turbines (Test Group A) to conduct two tests while operating on natural gas and two while operating on ultra-low sulfur distillate (ULSD) oil. The Request also required one test to be conducted on the oil-fired turbine (Test Group B). In your letter, you indicated that the dual fuel turbines are peaking units that see very little actual runtime. The turbines are operated primarily on ULSD oil and very infrequently on natural gas. You indicated that the total operating time to conduct the tests required by the Section 114 Request would exceed the annual runtime experienced by any of the turbines in the last four years and proposed to reduce the number of tests required on the dual fuel units to one test while operating on natural gas and one test while operating on ULSD oil. According to your letter, the oil-fired turbine is also a peaking unit which sees very little operation, and is not equipped with a stack adequate to allow testing in accordance with the test procedures specified in the Section 114 Request. Construction of a testing platform and a 20-foot stack extension that would be in proximity to overhead transmission lines and other high voltage equipment would be required to meet the requirements of the test procedures.

Due to the concerns raised in your letter, EPA agrees with the request to reduce the number of tests on the dual fuel units to one test while operating on natural gas and one while operating on ULSD oil and to eliminate the requirement to test the oil-fired turbine. If you have further questions, please contact Melanie King at (919) 541-2469 or *king.melanie@epa.gov*.

Sincerely,

Penny Lassiter
Director
Sector Policies and Programs Division

Appendix L – Test Procedures, Methods, and Reporting Requirements for the Section 114 Request

STATIONARY COMBUSTION TURBINES EMISSIONS INFORMATION COLLECTION

Test Procedures, Methods and Reporting Requirements for the Section 114 Request for Stationary Combustion Turbines

This document provides an overview of the required testing, approved sampling and analysis methods, target pollutants and units of measure, and reporting requirements for stationary combustion turbines that are required to provide emission test data to the U.S. Environmental Protection Agency (EPA) under Clean Air Act (CAA) section 114 (42 U.S.C. 7414). The purpose for this testing is to gather data on air pollutant emissions from stationary combustion turbines in this source category to inform the EPA's decision-making process for regulation of these sources. All recipients must complete and submit test results no later than 9 months after receipt of this request. The document is organized as follows:

- 1.0 Testing Procedures and Methods**
- 2.0 How to Report Data**
- 3.0 How to Submit Data**
- 4.0 Contact Information for Questions on Test Plan and Reporting**

1.0 Testing Procedures and Methods

The EPA requires emissions and other test data for several pollutants, including specific hazardous air pollutants (HAP), criteria pollutants, and potential surrogate groups. If the EPA is requesting that you complete emissions testing, the cover letter of this CAA section 114 request will include a list of emissions sources selected for testing at your facility. For stationary combustion turbines as specified in Enclosure 1 of your section 114 cover letter, you must perform an emissions test for some combination of pollutants (*i.e.*, simultaneous measurements per group) and diluents according to the test protocols and test methods for air emissions presented in Section 1.1 of this document.

You may have conducted tests for some of these pollutants already. If you have conducted any of the requested groups of tests (*i.e.*, any complete set of tests required to be conducted simultaneously as described in Footnote 2 to Table 1) in the past 5 years, these test data may be submitted for this section 114 request according to the procedures in Section 2 and no additional testing for those pollutants is required, provided the test data you submit is representative of your operations and the previous testing met the testing requirements specified in this document (*e.g.*, test method, sample volume) and contains all required data elements.

Please refer to the Stationary Combustion Turbines website (<https://www.epa.gov/stationary-sources-air-pollution/stationary-combustion-turbines-national-emission-standards>) for additional

testing information. Please note that you do not have to submit a test plan to the EPA for approval prior to testing; however, we recommend that you prepare a test plan for your own use to assist in the planning of the test program and to verify that you address all of the testing and reporting requirements specified in this document. Please note that you also must report your process and emissions testing data using the EPA's Electronic Reporting Tool (ERT), where applicable. You are directed to the ERT website (<https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert>) for a more complete and interactive description of the ERT, list of methods currently supported by the ERT, and a link to download the ERT. Some of the emissions test methods listed in this document are supported in the ERT while others are not (e.g., U.S. EPA Method 320).

You must follow all of the procedures as specified in the test methods, including the quality assurance and quality control measures, and document the results in the ERT and in any test report provided to the EPA. For this program, you do not need to obtain audit materials from your state or local agency or from the EPA. You may apply any third-party audit materials you have on hand and document the results, but you are not required to do so.

If Enclosure 1 of your section 114 cover letter is missing any stationary combustion turbines subject to 40 CFR part 63, subpart YYYY, or if any of the stationary combustion turbines included in Enclosure 1 are misclassified (e.g., units are not in the appropriate test group or are not subject to subpart YYYY), please contact Melanie King (see Section 4.0 of this document). If a facility has units that are required to be tested according to your section 114 cover letter but you are unable to respond to an item exactly as requested and you are unable to test another similar unit, please explain why you cannot respond and/or provide any information you believe may be related in a submission to Melanie King (see Section 4.0 of this document) within **35 days** of postmark date of your section 114 cover letter. *NOTE:* The EPA reserves all of its enforcement rights provided by CAA section 113, including the right to bring a claim in the U.S. District Court to enforce the CAA section 114 obligation to comply with all the requests described in this document.

1.1 Stack Test Methods

You must follow the stack test method procedures described in this section for each stationary combustion turbine that you are required to test.

The owner/operator of the stationary combustion turbine must certify that the unit tested was operating in a normal and representative manner during the performance test. The owner/operator must also certify that it operated the air pollution control device (APCD), if any, on the unit tested in accordance with manufacturers' specifications and requirements for proper operation during the emissions testing.

1.1.1 Sample Location

You should collect emissions samples for the identified pollutants downstream of the last relevant APCD (*i.e.*, stack or other point representing the composition of the flue gases at the exit to the atmosphere), unless otherwise indicated. You must use U.S. EPA Method 1 or 1A of Appendix A-1 to 40 CFR Part 60, as applicable, to select the locations and number of traverse

points for sampling for the tests in this section. See <https://www.epa.gov/emc/method-1-samplevelocity-traverses> and <https://www.epa.gov/emc/method-1a-small-ducts> for copies of the methods and guidance information for sampling situations not meeting Method 1 criteria.

1.1.2 Emissions Measurement Methods

Table 1 summarizes the testing required to be performed for each type of stationary combustion turbine. When possible, testing for each of the pollutants listed in Table 1 should be conducted simultaneously for your stationary combustion turbine. However, if simultaneous testing is not possible, then you must at least conduct the tests for formaldehyde and carbon monoxide simultaneously and conduct the tests for filterable particulate matter (PM) and HAP metals testing simultaneously. It is not necessary to test the different pollutants in any particular order.

The primary reason for concurrent testing is to obtain a clear understanding about the overall HAP emissions profile from each emission process point. A second reason is to gather information that will help us evaluate the correlations of emissions of one pollutant to another pollutant, to potentially establish surrogate relationships. For example, the metal HAP tests and PM tests from the APCD or main stack are required to be done at the same time. Where a predictable relationship between metal HAP and PM exists, a surrogate relationship can be established for compliance purposes. ***Tests that are required to be concurrent under this test request that are not done in this manner may be considered invalid and may need to be repeated.***

Table 1 also presents a list of the test methods to use for completing the required tests. For copies of the U.S. EPA test methods and additional information, please refer to the EPA's Emission Measurement Center (EMC) website, <https://www.epa.gov/emc>.

Report all pollutant emission data as indicated in Table 1. Report the results of your emissions tests according to the directions provided in Section 2.0 of this document.

Unless otherwise specified, each pollutant emissions test should consist of at least seven test runs for the sampling duration and/or volume indicated for each specified unit.

Table 1. Summary of Test Methods¹

Pollutant²	Method	Alternative Procedure	Target Reported Units of Measure
Formaldehyde (50000)	U.S. EPA Method 320. Minimum sample time of 1 hour per run. Validate according to Section 13.0 of Method 320. ^{3,4}	ASTM D-6348-12e1 ^{3,4,5}	lb/hr, ppmvd, and ppmvd @ 15% O ₂
Carbon monoxide	U.S. EPA Method 10.* Minimum sample time of 1 hour per run.	CEMS ⁶ (if installed).	lb/hr, ppmvd, and ppmvd @ 15% O ₂
Acid gases (Hydrochloric acid and Hydrogen fluoride)	U.S. EPA Method 320. Minimum sample time of 1 hour per run. Validate according to Section 13.0 of Method 320. ^{3,4}	ASTM D-6348-12e1 ^{3,4,5}	lb/hr, ppmvd, and ppmvd @ 15% O ₂
Metals ⁷ and PM (filterable)	U.S. EPA Method 29.* Collect a minimum volume of 141 dscf (4 dscm) per run. Use inductively coupled (argon) plasma with mass spectrometry (ICAP/MS) for the analytical finish with the exception of mercury analysis, which should be conducted by cold vapor atomic absorption spectroscopy (CVAAS). Analyze front and back half samples separately. Report results for front half and back half analyses for individual metals separately. Determine filterable PM emissions according to section 8.3.1.1. Maintain a filter temperature of 248°F ± 25°F.	You may opt to conduct a separate EPA Method 5* test with a filter temperature of 248°F ± 25°F in lieu of measuring PM with the Method 29 train.	lb/hr and concentration (for metals, mg/dscm and mg/dscm @ 15% O ₂ and for PM, gr/dscf and gr/dscf @ 15% O ₂)
Gas flow rate	U.S. EPA Method 2*, 2A, 2B, 2C*, 2D, 2F, or 2G, as appropriate, simultaneous with each pollutant test run.		acfm, scfm, and dscfm
O ₂ /CO ₂	U.S. EPA Method 3A* or 3B, as appropriate, simultaneous with each pollutant test run.		percent volume, dry
Moisture	U.S. EPA Method 4* or Method 320, simultaneous with each pollutant test run.	ASTM D-6348-12e1 ⁴	percent volume

¹ lb/hr = pounds per hour; ppmvd = parts per million by volume, dry basis; % = percent; O₂ = oxygen; dscf = dry standard cubic feet; dscm = dry standard cubic meters; °F = degrees Fahrenheit; mg/dscm = milligrams per dry standard cubic meter; gr/dscf = grains per dry standard cubic foot; acfm = actual cubic feet per minute; scfm = standard cubic feet per minute; dscfm = dry standard cubic feet per minute.

² For each turbine, at a minimum, conduct simultaneous sampling for formaldehyde and carbon monoxide and simultaneous sampling for metals and PM

³ Method detection limit for FTIR measurements is considered to be the Minimum Analyte Uncertainty (MAU) and should be calculated per the method. Alternatively, if the FTIR measurements are performed according to ASTM D6348 the method detection limit is considered to be the Minimum Detection Concentration #3 (MDC#3) and should be calculated per the method.

⁴ For analyte spiking, you must use the analyte(s) of interest, the use of surrogate compound(s) is prohibited for the purpose of this section 114 request.

⁵ The test plan preparation and implementation in the Annexes to ASTM D6348-03, Sections A1 through A8 are mandatory; (2) For ASTM D6348-03 Annex A5 (Analyte Spiking Technique), the percent R must be determined for each target analyte (A5.8) and be within 30%; (3) The percent R value for each target analyte must be reported in the test report; and (4) the analytical accuracy of the algorithm (A7.6) must be documented and reported in the test report.

⁶ If you provide data from a plant Continuous Emissions Monitoring System (CEMS), your CEMS must be certified according to the appropriate performance specification in 40 CFR part 60 Appendix B, and you must perform the continuing quality assurance/control measures outlined in 40 CFR part 60 Appendix F.

⁷ Metals to be tested include antimony (Sb), arsenic (As), beryllium (Be), cadmium (Cd), chromium (Cr), cobalt (Co), lead (Pb), manganese (Mn), mercury (Hg), nickel (Ni), and selenium (Se).

* Methods supported by ERT.

During testing, you should monitor, record and report process data for each test run. For process data that you record during testing, make clear the correlation between emissions measurements and process data (e.g., identify Method 5, run 1 for the associated process data on the process data details tab of the ERT or be sure to enter the process data on the correct row of the Stationary Combustion Turbines Testing Supplement, as applicable; see Section 2.2 for more information on the Stationary Combustion Turbines Testing Supplement).

The process data to be documented during each test run (as applicable) include:

- Fuel type (e.g., natural gas, propane, fuel oil), and heat input (British thermal units per hour (Btu/hr)).
- Actual fuel feed rate during test (based on HHV) and permitted fuel feed rate (based on HHV) (MMBtu/hr). You must explain the procedure that you used (e.g., EPA Method 19) to determine the actual fuel feed rate and provide the calculation in the notes field for this data element in the Microsoft® Excel template that is used to report results to the EPA.
- Turbine load (percent).
- Emission unit operating temperature (°F).
- Operating parameters relevant for the APCD, including, for example, oxidation catalyst inlet temperature.

You must keep the following records for 3 years:

- Documentation that each emissions test was conducted in accordance with the enclosed sampling protocol; and
- The results of each emissions test.

1.2 Ensuring Data Quality of the Source Tests Performed

While in most cases we are not specifying numerical minimum detection levels for the tests to be performed, we have specified the testing conditions and methods required, including minimum test run sample volumes or times when appropriate, which we believe will provide data of a quality sufficient for decision making.

We remind source owners and testers of the CAA section 114(a)(1) requirement to provide information requested for the development of emissions standards using methods that provide data necessary for the decisions. This information includes data of quality sufficient to support those decisions. For the most part, we can identify test methods and procedures that will satisfy those decision-making needs (e.g., minimum sampling times). In other cases, we recognize that the source owner's or tester's selection of test procedures or equipment could bear significantly on the quality of the data. See Appendix A of this document for information regarding guidance for calculating and reporting values measured below method detection levels.

We believe that the CAA is clear that it is incumbent on the source owner/operator and the tester to apply methods and procedures that result in data quality necessary for our decisions, including providing for the lowest possible detection limits considering practical and reasonable limitations. For example, source owners/operators and testers should not automatically choose to

use low or medium quality equipment for testing (e.g., for cost reasons) if high quality equipment is reasonably available. We will review test reports in light of this expectation and will be particularly mindful of whether the testing procedures applied are representative of the highest reasonably expected capabilities (e.g., comparing reported minimum measurement detection levels between tests and testers).

On completion of your required tests, please provide a complete test report, including appendices. A complete test report includes the following information, at a minimum:

- General identification information for facility including a mailing address; the actual facility address; the owner or operator, responsible official, or an appropriate representative (where applicable) and an email address for this person; and the appropriate Federal Registry System (FRS) number for the facility);
- A brief process description, including a flow diagram clearly showing the turbine and the sampling site;
- A complete unit description, including the unit ID, the stationary combustion turbine subcategory, the appropriate source classification code (SCC), the latitude and longitude of the emission point being tested (decimal degrees to five decimal points), and the maximum permitted process rate (where applicable);
- Emissions control measures in use during the test, including:
 - APCD description and APCD ID (if applicable)
 - A description of any pollution prevention or other HAP emission reduction approaches being implemented during the test program;
- Any process data and control device monitoring data required in this document;
- Sampling site description; description of sampling and analysis procedures and any modifications to standard procedures; quality assurance procedures;
- Description of any deviations from the test methods or other anomalies that occurred with the process or APCD operations during the test;
- Run-by-run emission data in the units of measure specified in Table 1;
- Stack or exhaust gas flow rate (as determined using U.S. EPA Method 2 or alternatives) at the time of and during the emissions test, as appropriate;
- Example calculations of all applicable stack gas parameters, emission rates and analytical results, as applicable;
- Raw field sampling data sheets and notes;
- Laboratory data and analysis reports, including instrument calibrations and raw analytical data;
- Chain-of-custody documentation;
- Explanation of laboratory data qualifiers;
- Quality assurance and quality control activities performed;
- Identification information for the company conducting the performance test, including a contact person and his/her email address; and
- Any other information required by the test method, a relevant standard, or the Administrator.

If we believe that a source owner/operator or tester has failed to meet the requirement of the CAA to provide data of sufficient quality or quantity for our decisions, we can and will request

additional measurements that require the use of improved testing procedures. The permitted facility representative and the testing company representative must complete the Final Verification form of the ERT certifying that the report is accurate and complete.

2.0 How to Report Data

The method for reporting the results of any testing and monitoring requests depend on the type of tests and the type of methods used to complete the test requirements. This section discusses the requirements for reporting the data.

2.1 Reporting Stack Test Data within ERT

For testing conducted using one of the methods listed in Table 2, you must report your data using the EPA's ERT Version 6.0 or newer. ERT is a Microsoft Access® database application available at <https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert>. If you are not a registered owner of Microsoft Access®, you can install the runtime version of Microsoft Access® from the link on the ERT website in order to run the ERT Application. The ERT must be downloaded onto your computer prior to data entry. A series of Microsoft Excel®-based templates can be used to assist with the upload of the field sampling data. These templates are also available on the ERT website. After completing the data entry into the ERT, you will also need to attach supporting documentation to the Attachments module of the ERT. The supporting documentation should include: complete lab reports, chain of custodies, field data and sample/moisture recovery sheets, CEMS raw data, calibrations of equipment, gases and instruments, QA/QA data, audit sample results (if applicable), and field notes. If a full test report is attached in the ERT, any of the preceding supporting documentation included in the full test report does not need to also be individually attached. The ERT database file should be transmitted to EPA using one of the options described in Section 3.0 of this document.

The list of fields within the ERT with notes explaining whether the field is required or optional can be found on the Stationary Combustion Turbines website (<https://www.epa.gov/stationary-sources-air-pollution/stationary-combustion-turbines-national-emission-standards>).

Table 2: List of ICR Test Methods Supported by ERT

EPA Test Methods (40 CFR parts 60 and 61; EMC website, https://www.epa.gov/emc)
Methods 1 through 4 (testing locations, velocity, moisture, dilution gases)
Method 3A (O ₂ and CO ₂)
Method 5 (filterable PM)
Method 10 (Carbon Monoxide)
Method 29 (metals and filterable PM)

*For data entry purposes- if PM is collected by Method 29, the data entry is only performed once by selecting PM as a compound/analyte under Method 29.

2.2 *Reporting Other Test Data Not Listed in ERT*

At present, of the methods required by this request, only the methods shown in Table 2 are supported by the ERT. For testing you conducted using a method not currently supported by the ERT (including the use of a plant CEMS), you must report the results of this test in the Stationary Combustion Turbines Testing Supplement. The Stationary Combustion Turbines Testing Supplement can be downloaded from the Stationary Combustion Turbines website (<https://www.epa.gov/stationary-sources-air-pollution/stationary-combustion-turbines-national-emission-standards>).

You must report the results of each test on the appropriately labeled form corresponding to the specific tests requested at your emissions source. If you conducted testing at more than one source at a facility using methods not currently supported by the ERT, follow the instructions in the Stationary Combustion Turbines Testing Supplement, found on the Stationary Combustion Turbines website. For plant CEMS data used in lieu of EPA Method 10, the test run average is calculated as the average of the one-minute averages collected over the duration of the test run.

After completing the Stationary Combustion Turbines Testing Supplement, you must also submit an electronic copy of the emission test report (PDF format preferred) for air sampling. If the complete emission test report is attached to the ERT file containing the associated flow rate measurements, a second copy does not need to be submitted. Both the completed Stationary Combustion Turbines Testing Supplement and the emission test report(s) should be included as attachments to the ERT file for simultaneous tests done using methods supported by the ERT (at a minimum, EPA Methods 1 through 3) and transmitted to the EPA as described in Section 3.0 of this document. For plant CEMS data used in lieu of EPA Method 10, the one-minute averages during each of the seven test runs must be included as an attachment in the ERT and the test run averages reported in the testing supplement.

2.3 *Guidance for Calculating and Reporting Measurements Less Than In-Stack Method Detection Levels for Emissions Data Submitted in Response to CAA Section 114 Requests*

See Appendix A to this document for guidance on calculating and reporting measurements less than detection levels for emissions data collection programs.

3.0 *How to Submit Data*

As explained in the previous section, where applicable, you must report your data using the ERT. If the ERT does not support a particular pollutant or method, you must report your data using the data reporting tools we provide and include the additional file as an attachment to your ERT submittal. When you are ready to submit your data to the EPA, compile electronic copies of all ***nonconfidential**** requested files (including files that do not contain any Confidential Business Information (CBI) as well as files that have been redacted to remove CBI) and email the files to the address shown in your section 114 cover letter.

* **Please Note:** The EPA’s procedures for handling CBI are described in Enclosure 4 of the letter accompanying the section 114 request. If you claim that some of the information being submitted is CBI,¹ **DO NOT** use the method described above to submit your CBI. You must create a separate submission containing all files associated with this request (*i.e.*, all information claimed to be CBI and non-CBI portions combined). Clearly mark the materials submitted with the words “Confidential Business Information.” Send these files under separate cover **only** to Ms. Tiffany Purifoy at one of the CBI addresses shown in your section 114 cover letter.

For the security of your data, the EPA recommends sending your confidential files to the EPA’s CBI Office as described in Section 6 of Enclosure 4 of your section 114 cover letter. If you compile the materials onto a CD, DVD, or USB flash drive to mail to the CBI office, the EPA recommends sending it via **registered** U.S. Mail using **return receipt requested**, Federal Express, or other method for which someone must provide a signature upon receipt.

4.0 Contact Information for Questions on Test Plan and Reporting

For questions on how to report data using the ERT, contact:

Theresa Lowe
U.S. EPA
(919) 541-4786
lowe.theresa@epa.gov

For questions on the test methods, contact:

David Nash
U.S. EPA
(919) 541-9425
nash.david@epa.gov

OR

Ned Shappley
U.S. EPA
(919) 541-7903
shappley.ned@epa.gov

OR

Kevin McGinn
U.S. EPA
(919) 541-3796
mcginn.kevin@epa.gov

¹ Under CAA section 114(c), emissions data is not entitled to confidential treatment.

For other questions on the required testing in your section 114 cover letter or this document, including emissions sources selected for testing, contact:

Melanie King
U.S. EPA
(919) 541-2469
King.Melanie@epa.gov

Appendix A

Guidance for Calculating and Reporting Measurements Less Than In-Stack Method Detection Levels for Emissions Data Submitted in Response to Section 114 Requests

Please identify the status of measured values relative to detection levels in the Stationary Combustion Turbines Testing Supplement or in the ERT using the descriptions below. For each reported emissions value, insert the appropriate flag (BDL, DLL, or ADL) in the **Flag** line of the ERT or in the **Flag** column of the Stationary Combustion Turbines Testing Supplement for the row that corresponds to that run.

- **BDL** (below detection level) – all analytical values used to calculate and report an in-stack emissions value are less than the laboratory’s reported detection level(s);
- **DLL** (detection level limited) – at least one but not all values used to calculate and report an in-stack emissions value are less than the laboratory’s reported detection level(s); or
- **ADL** (above detection level) – all analytical values used to calculate and report an in-stack emissions value are greater than the laboratory’s reported detection level(s).

When reporting and calculating individual test run data:

- You must use the approach specified in the test method for calculation and determination of the analytical method detection level (MDL). If the method does not specify the approach and calculation of the MDL, you must determine the MDL in accordance with the procedures specified in Section 15 of Method 301 (located in Appendix A of 40 CFR part 63).
- For analytical data reported from the laboratory as above the MDL, include the ADL flag in the **Outlet Detect Flag** column of the Stationary Combustion Turbines Testing Supplement as appropriate or in the **Comments** line in the ERT.
- For analytical data reported from the lab as BDL, “non-detect” or “below detection level”:
 - Include a brief description of the procedures used to determine the analytical detection and in-stack detection level:
 - In the **Analytical Comments** column of the Stationary Combustion Turbines Testing Supplement; or
 - In the **Comments** line of Lab Data tab in the Run Data Details in the **ERT**.
 - Describe these procedures completely in the complete test report, including the measurements made, the standards used, and the statistical procedures applied.
 - Calculate the in-stack emissions rate for any analytical result reported as BDL using the relevant MDL, sampling volumes, and other relevant run-specific parameters (such as O₂ or flow rate). The reported value must assume that the analyte is present at the full MDL value.
 - Report the calculated emissions concentration or rate result:

- As a numerical value (*i.e.*, no brackets or < symbol) in the Stationary Combustion Turbines Testing Supplement, columns **Outlet Mass** and/or **Outlet Concentration** as appropriate; select the appropriate flag in the **Outlet Detect Flag** column as appropriate; or
 - As a numerical value in the **ERT** with the appropriate flag in the **Comments** line.
- Report as numerical values (*i.e.*, no brackets or < symbol) any analytical data measured above the MDL, including any data between the MDL and a laboratory-specific reporting or quantification level (*i.e.*, flag as ADL).
- For pollutant measurements composed of multiple components or fractions (*e.g.*, mercury and other metals sampling trains), when the result for the value for any component is measured below the MDL:
 - Calculate in-stack emissions rate or concentrations as outlined above for each component or fraction;
 - Sum the measured values and/or calculated values (using the MDL as outlined above) for all of the components or fractions; and
 - Report the sum of all components or fractions:
 - As a numerical value (*i.e.*, no brackets or < symbol) in the Stationary Combustion Turbines Testing Supplement; columns **Outlet Mass** and/or **Outlet Concentration** as appropriate and select the appropriate flag in the **Outlet Detect Flag** column as appropriate; or
 - As a numerical value in the **ERT** with the appropriate flag in the **Comments** line.
 - If all components or fractions are BDL, the appropriate flag is BDL. If the components or fractions are a mix of BDL, DLL, and ADL, then the appropriate flag is DLL. [Note: If all components or fractions are above the MDL, the appropriate flag is ADL.]
 - In addition to reporting the sum of the components or fractions, report the individual component or fraction values for each run if the Stationary Combustion Turbines Testing Supplement or ERT format allows. If the Stationary Combustion Turbines Testing Supplement or ERT format does not allow reporting of the individual components or fractions (*i.e.*, the format allows reporting only a single sum value):
 - For the Stationary Combustion Turbines Testing Supplement, for each applicable run, report the appropriate flag in the **Outlet Detect Flag** column and report the values for the measured or MDL value for each component or fraction as used in the calculations (*e.g.*, 0.036, [<0.069], 1.239, [<0.945] for a four-fraction sample) in the **Analytical Comments** column; or
 - For the **ERT**, next to the sum reported as above, report on the **Comments** line the appropriate flag and the measured or MDL value for each component or fraction as used in the calculations (*e.g.*, 0.036, [<0.069], 1.239, [<0.945] for a four-fraction sample).

- For measurements conducted using the instrumental test methods (*e.g.*, Methods 3A):
 - Record gaseous concentration values as measured including negative values and flag as ADL; do not report as BDL.
 - Calculate and report in-stack emissions rates using these measured values.
 - Include relevant information relative to calibration gas values or other technical qualifiers for measured values in the ***Comments*** line in the **ERT** or ***Method Comments*** line column of the Stationary Combustion Turbines Testing Supplement.

END OF THE REPORT