

**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 15
1866 River Road
Middletown, CT 06457
Report No. M223610F
September 9 through 11, 2022





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**Report Submittal Date
November 7, 2022**

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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	4
3.8 Method 10 and 320 Multigas – CO, H ₂ O, HCHO, and Acid Gases 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	37
Appendix E - Plant Operating Data	64
Appendix F - Field Data Sheets	93
Appendix G – QA/QC Data	119
Appendix H - Calibration and Response Time Data	133
Appendix I - Calibration Gas Cylinder Data	162
Appendix J – Laboratory Sample Analysis	169
Appendix K – Agency Correspondence	188
Appendix L – Test Procedures, Methods, and Reporting Requirements for the Section 114 Request	202

1.0 EXECUTIVE SUMMARY

Mostardi Platt performed an air emissions test program on Combustion Turbine Unit 15 for Middletown Power LLC, at its generating station located in Middletown, Connecticut. Testing was performed to determine the concentration of filterable particulate matter (PM), metallic hazardous air pollutants (MHAP), carbon monoxide (CO), formaldehyde (HCHO), hydrogen chloride (HCl) and hydrogen fluoride (HF) from the exhaust of combustion turbine (CT) unit 15 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 Ultra Low Sulfur Distillate (ULSD) fuel oil.

The purpose of this test program was to meet the requirement 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 Facility	Consolidated Asset Management Services 910 Louisiana Street, Suite 2400 Houston, TX 77002	Patrick Yough P: 347.937.0380 E: pyough@camsops.com
Test Consultants	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 15	HCHO	0.04	29.77	28.38	-	-
	CO	1.37	-	-	1.23	1.17
	HCl	≤ 0.01	-	-	≤ 0.33	≤ 0.31
	HF	≤ 0.01	-	-	≤ 0.12	≤ 0.10

FPM Test Results			
Test Location	Analyte	Emission Results	
CT Unit 15	FPM	0.0003 grains/dscf	0.0003 grains/dscf @ 15% O ₂

MHAP Test Results				
Test Location	Analyte	Emission Results		
		mg/dscm	mg/dscm @15% O ₂	lb/hr
CT Unit 15	Mercury (Hg)	≤ 8.04E-05	≤ 7.97E-5	≤ 7.70E-05
	Antimony (Sb)	≤ 7.63E-04	≤ 7.55E-04	≤ 7.31E-04
	Arsenic (As)	≤ 2.66E-04	≤ 2.63E-04	≤ 2.55E-04
	Beryllium (Be)	≤ 6.01E-05	≤ 5.95E-05	≤ 5.73E-05
	Cadmium (Cd)	≤ 9.93E-04	≤ 9.68E-04	≤ 9.33E-04
	Chromium (Cr)	≤ 1.58E-03	≤ 1.57E-03	≤ 1.51E-03
	Cobalt (Co)	≤ 1.10E-04	≤ 1.08E-04	≤ 1.14E-04
	Lead (Pb)	≤ 2.92E-04	≤ 2.88E-04	≤ 2.71E-04
	Manganese (Mn)	1.15E-02	1.14E-02	1.11E-02
	Nickel (Ni)	3.35E-03	3.32E-03	3.23E-03
	Selenium (Se)	≤ 3.11E-03	≤ 3.06E-03	≤ 2.96E-03

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 turbine (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 15	144.0"	146.5'	23'	FPM/Metals	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 glass-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.

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 Method 10 and 320 Multigas – CO, H₂O, HCHO, and Acid Gases 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 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 15											
Test No.	Date	Start Time	End Time	Flowrate, DSCFM	H2O% %w	O ₂ % dry	CO ₂ % dry	Formaldehyde ppbvw*	Formaldehyde ppbv dry	Formaldehyde ppbvd @ 15% O ₂	Formaldehyde lb/hr
1	09/09/22	15:35	16:34	253,839.0	6.45	14.73	31.90	25.00	26.72	25.55	0.03
2	09/09/22	17:30	18:29	253,608.0	8.61	14.74	30.82	25.00	27.36	26.22	0.03
3	09/09/22	18:55	19:54	251,123.0	8.58	14.74	30.74	25.00	27.35	26.20	0.03
4	09/10/22	08:35	09:34	254,934.0	8.58	14.69	31.00	25.00	27.35	25.98	0.03
5	09/10/22	09:57	10:56	261,596.0	8.57	14.69	31.00	32.83		34.13	0.04
6	09/10/22	11:20	12:19	254,216.0	8.56	14.69	30.90	30.02	32.83	31.18	0.04
7	09/10/22	12:43	13:42	262,224.0	8.59	14.69	31.10	28.26	30.91	29.37	0.04
Average				255,934.3	8.28	14.71	31.07	27.30	29.77	28.38	0.04

Middletown Power LLC Middletown Facility Unit 15							
Test No.	Date	Start Time	End Time	CO ppmvw*	CO ppmvd	CO ppmvd @ 15% O ₂	CO lb/hr
1	09/09/22	15:35	16:34	0.50	0.53	0.51	0.59
2	09/09/22	17:30	18:29	1.20	1.32	1.26	1.46
3	09/09/22	18:55	19:54	1.07	1.17	1.12	1.28
4	09/10/22	08:35	09:34	1.10	1.20	1.14	1.34
5	09/10/22	09:57	10:56	1.20	1.31	1.25	1.50
6	09/10/22	11:20	12:19	1.30	1.42	1.35	1.58
7	09/10/22	12:43	13:42	1.50	1.64	1.56	1.88
Average				1.12	1.23	1.17	1.37

Middletown Power LLC Middletown Facility Unit 15							
Test No.	Date	Start Time	End Time	HCl ppmvw*	HCl ppmvd	HCl ppmvd @ 15% O ₂	HCl lb/hr
1	09/09/22	15:35	16:34	0.30	0.32	0.31	0.01
2	09/09/22	17:30	18:29	0.32	0.35	0.33	0.01
3	09/09/22	18:55	19:54	0.30	0.33	0.31	0.01
4	09/10/22	08:35	09:34	0.30	0.33	0.31	0.01
5	09/10/22	09:57	10:56	0.30	0.33	0.31	0.01
6	09/09/22	11:20	12:19	0.30	0.33	0.31	0.01
7	09/10/22	12:43	13:42	0.30	0.33	0.31	0.01
Average				0.30	0.33	0.31	0.01

Middletown Power LLC Middletown Facility Unit 15							
Test No.	Date	Start Time	End Time	HF ppmvw*	HF ppmvd	HF ppmvd @ 15% O ₂	HF lb/hr
1	09/09/22	15:35	16:34	0.10	0.11	0.10	0.00
2	09/09/22	17:30	18:29	0.10	0.11	0.10	0.01
3	09/09/22	18:55	19:54	0.10	0.11	0.10	0.01
4	09/10/22	08:35	09:34	0.10	0.11	0.10	0.01
5	09/10/22	09:57	10:56	0.10	0.11	0.10	0.01
6	09/10/22	11:20	12:19	0.10	0.11	0.10	0.01
7	09/10/22	12:43	13:42	0.19	0.21	0.20	0.01
Average				0.11	0.12	0.10	0.01

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

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 15
 Test Method: 5/29

Source Condition	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
Date	9/9/22	9/9/22	9/9/22	9/10/22	9/10/22	9/10/22	9/11/22	
Start Time	9:00	14:07	17:24	7:40	11:30	15:25	6:22	
End Time	12:38	17:23	20:35	10:55	14:45	18:40	9:37	
	Run 1	Run 2	Run 3	Run 4	Run 5	Run 6	Run 7	Average
Stack Conditions								
Average Gas Temperature, °F	776.3	799.9	807.2	789.8	803.9	808.4	800.9	793.3
Flue Gas Moisture, percent by volume	8.5%	8.9%	8.4%	8.6%	8.8%	7.5%	9.1%	8.6%
Average Flue Pressure, in. Hg	29.88	29.88	29.88	30.04	30.04	29.98	29.98	29.92
Gas Sample Volume, dscf	156.58	157.806	160.455	158.089	162.732	156.107	163.018	158.233
Average Gas Velocity, ft/sec	95.894	97.998	97.108	96.897	100.833	97.153	101.317	96.974
Gas Volumetric Flow Rate, acfm	650,718	665,002	658,962	657,525	684,239	659,267	687,520	658,052
Gas Volumetric Flow Rate, dscfm	253,839	253,608	251,123	254,934	261,596	254,216	262,224	253,376
Gas Volumetric Flow Rate, scfm	277,502	278,270	274,159	278,844	286,953	274,933	288,438	277,194
Average %CO ₂ by volume, dry basis	4.5	4.5	4.6	4.5	4.5	4.5	3.4	4.5
Average %O ₂ by volume, dry basis	14.9	14.8	14.6	15.1	14.9	14.9	15.3	14.9
Isokinetic Variance	99.0	99.9	100.3	99.5	99.8	98.6	99.8	99.7
Standard Fuel Factor Fd, dscf/mmBtu	9,190.0	9,190.0	9,190.0	9,190.0	9,190.0	9,190.0	9,190.0	9,190.0
Filterable Particulate Matter (Method 5)								
grams collected	0.00270	0.00294	0.00292	0.00370	0.00263	0.00229	0.00242	0.0028
mg/dscm	0.609	0.658	0.643	0.827	0.571	0.518	0.524	0.6213
mg/wscm	0.557	0.599	0.589	0.755	0.521	0.479	0.477	0.5681
grains/acf	0.0001	0.0001	0.0001	0.0001	0.000	0.000	0.000	0.0001
grains/dscf	0.0003	0.0003	0.0003	0.0004	0.000	0.000	0.000	0.0003
grains/dscf @ 15% O ₂	0.0003	0.0003	0.0003	0.0004	0.000	0.000	0.000	0.0003
lb/hr	0.579	0.625	0.604	0.789	0.559	0.493	0.515	0.5949
lb/mmBtu (Standard Fd Factor)	0.0012	0.0013	0.0012	0.0017	0.0011	0.0010	0.0011	0.0012

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 15
 Test Method: 5/29

Source Condition	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Average
Date	9/9/22	9/9/22	9/9/22	9/10/22	9/10/22	9/10/22	9/11/22	
Start Time	9:00	14:07	17:24	7:40	11:30	15:25	6:22	
End Time	12:38	17:23	20:35	10:55	14:45	18:40	9:37	
	Run 1	Run 2	Run 3	Run 4	Run 5	Run 6	Run 7	
Stack Conditions								
Average Gas Temperature, °F	776.3	799.9	807.2	789.8	803.9	808.4	800.9	793.3
Flue Gas Moisture, percent by volume	8.5%	8.9%	8.4%	8.6%	8.8%	7.5%	9.1%	8.6%
Average Flue Pressure, in. Hg	29.88	29.88	29.88	30.04	30.04	29.98	29.98	29.92
Gas Sample Volume, dscf	156,580	157,806	160,455	158,089	162,732	156,107	163,018	158,233
Average Gas Velocity, ft/sec	95.894	97.998	97.108	96.897	100.833	97.153	101.317	96.974
Gas Volumetric Flow Rate, acfm	650,718	665,002	658,962	657,525	684,239	659,267	687,520	658,052
Gas Volumetric Flow Rate, dscfm	253,839	253,608	251,123	254,934	261,596	254,216	262,224	253,376
Gas Volumetric Flow Rate, scfm	277,502	278,270	274,159	278,844	286,953	274,933	288,438	277,194
Average %CO ₂ by volume, dry basis	4.5	4.5	4.6	4.5	4.5	4.5	3.4	4.5
Average %O ₂ by volume, dry basis	14.9	14.8	14.6	15.1	14.9	14.9	15.3	14.9
Isokinetic Variance	99.0	99.9	100.3	99.5	99.8	99.6	99.8	99.7
Standard Fuel Factor Fd, dscf/mmBtu	9,190.0	9,190.0	9,190.0	9,190.0	9190.0	9190.0	9190.0	9,190.0
Mercury (Hg) Emissions								
ug of sample collected	≤ 0.44	≤ 0.35	≤ 0.33	≤ 0.34	≤ 0.35	≤ 0.30	≤ 0.41	≤ 0.36
mg/dscm	≤ 1.00E-04	≤ 7.90E-05	≤ 7.50E-05	≤ 7.70E-05	≤ 7.70E-05	≤ 6.60E-05	≤ 8.90E-05	≤ 8.04E-05
mg/dscm @ 15% O ₂	≤ 9.83E-05	≤ 7.64E-05	≤ 7.02E-05	≤ 7.83E-05	≤ 7.57E-05	≤ 6.49E-05	≤ 9.38E-05	≤ 7.97E-05
lb/hr	≤ 9.50E-05	≤ 7.50E-05	≤ 6.90E-05	≤ 7.30E-05	≤ 7.50E-05	≤ 6.50E-05	≤ 8.70E-05	≤ 7.70E-05
lb/TBtu (Standard Fd Factor)	≤ 0.1992	≤ 0.1548	≤ 0.1387	≤ 0.1579	≤ 0.1531	≤ 0.1374	≤ 0.1897	≤ 0.1615
Antimony (Sb) Emissions								
ug of sample collected	≤ 3.57	≤ 3.40	≤ 3.40	≤ 3.50	≤ 3.40	≤ 3.40	≤ 3.40	≤ 3.44
mg/dscm	≤ 8.05E-04	≤ 7.67E-04	≤ 7.67E-04	≤ 7.89E-04	≤ 7.38E-04	≤ 7.38E-04	≤ 7.38E-04	≤ 7.63E-04
mg/dscm @ 15% O ₂	≤ 7.92E-04	≤ 7.42E-04	≤ 7.18E-04	≤ 8.03E-04	≤ 7.26E-04	≤ 7.26E-04	≤ 7.78E-04	≤ 7.55E-04
lb/hr	≤ 7.66E-04	≤ 7.23E-04	≤ 7.04E-04	≤ 7.47E-04	≤ 7.23E-04	≤ 7.32E-04	≤ 7.23E-04	≤ 7.31E-04
lb/TBtu (Standard Fd Factor)	≤ 1.6091	≤ 1.4956	≤ 1.4242	≤ 1.6163	≤ 1.4745	≤ 1.5371	≤ 1.5771	≤ 1.5334
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	≤ 2.71E-04	≤ 2.71E-04	≤ 2.71E-04	≤ 2.71E-04	≤ 2.60E-04	≤ 2.60E-04	≤ 2.60E-04	≤ 2.66E-04
mg/dscm @ 15% O ₂	≤ 2.66E-04	≤ 2.62E-04	≤ 2.54E-04	≤ 2.76E-04	≤ 2.56E-04	≤ 2.56E-04	≤ 2.74E-04	≤ 2.63E-04
lb/hr	≤ 2.57E-04	≤ 2.55E-04	≤ 2.48E-04	≤ 2.56E-04	≤ 2.55E-04	≤ 2.58E-04	≤ 2.55E-04	≤ 2.55E-04
lb/TBtu (Standard Fd Factor)	≤ 0.5409	≤ 0.5279	≤ 0.5027	≤ 0.5542	≤ 0.5204	≤ 0.5425	≤ 0.5566	≤ 0.5350
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	≤ 6.10E-05	≤ 6.10E-05	≤ 6.10E-05	≤ 6.10E-05	≤ 5.90E-05	≤ 5.90E-05	≤ 5.90E-05	≤ 6.01E-05
mg/dscm @ 15% O ₂	≤ 6.00E-05	≤ 5.90E-05	≤ 5.71E-05	≤ 6.21E-05	≤ 5.80E-05	≤ 5.80E-05	≤ 6.22E-05	≤ 5.95E-05
lb/hr	≤ 5.80E-05	≤ 5.70E-05	≤ 5.60E-05	≤ 5.80E-05	≤ 5.70E-05	≤ 5.80E-05	≤ 5.70E-05	≤ 5.73E-05
lb/TBtu (Standard Fd Factor)	≤ 0.1217	≤ 0.1188	≤ 0.1131	≤ 0.1247	≤ 0.1171	≤ 0.1221	≤ 0.1252	≤ 0.1204
Cadmium (Cd) Emissions								
ug of sample collected	≤ 8.21	≤ 8.06	≤ 7.56	≤ 6.17	≤ 0.27	≤ 0.30	≤ 0.27	≤ 4.41
mg/dscm	≤ 1.85E-03	≤ 1.82E-03	≤ 1.71E-03	≤ 1.39E-03	≤ 5.90E-05	≤ 6.40E-05	≤ 5.90E-05	≤ 9.93E-04
mg/dscm @ 15% O ₂	≤ 1.82E-03	≤ 1.76E-03	≤ 1.60E-03	≤ 1.42E-03	≤ 5.80E-05	≤ 6.29E-05	≤ 6.22E-05	≤ 9.68E-04
lb/hr	≤ 1.76E-03	≤ 1.71E-03	≤ 1.57E-03	≤ 1.32E-03	≤ 5.70E-05	≤ 6.40E-05	≤ 5.70E-05	≤ 9.33E-04
lb/TBtu (Standard Fd Factor)	≤ 3.7004	≤ 3.5455	≤ 3.1668	≤ 2.8494	≤ 0.1171	≤ 0.1343	≤ 0.1252	≤ 1.9484

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 15
 Test Method: 5/29

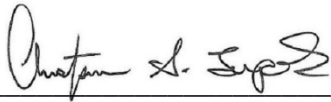
Source Condition	Normal	Normal	Normal	Normal	Normal	Normal	Normal	
Date	9/9/22	9/9/22	9/9/22	9/10/22	9/10/22	9/10/22	9/10/22	9/11/22
Start Time	9:00	14:07	17:24	7:40	11:30	15:25	6:22	
End Time	12:38	17:23	20:35	10:55	14:45	18:40	9:37	
	Run 1	Run 2	Run 3	Run 4	Run 5	Run 6	Run 7	Average
Stack Conditions								
Average Gas Temperature, °F	776.3	799.9	807.2	789.8	803.9	808.4	800.9	793.3
Flue Gas Moisture, percent by volume	8.5%	8.9%	8.4%	8.6%	8.8%	7.5%	9.1%	8.6%
Average Flue Pressure, in. Hg	29.88	29.88	29.88	30.04	30.04	29.98	29.98	29.92
Gas Sample Volume, dscf	156.580	157.806	160.455	158.089	162.732	156.107	163.018	158.233
Average Gas Velocity, ft/sec	95.894	97.998	97.108	96.897	100.833	97.153	101.317	96.974
Gas Volumetric Flow Rate, acfm	650,718	665,002	658,962	657,525	684,239	659,267	687,520	658,052
Gas Volumetric Flow Rate, dscfm	253,839	253,608	251,123	254,934	261,596	254,216	262,224	253,376
Gas Volumetric Flow Rate, scfm	277,502	278,270	274,159	278,844	286,953	274,933	288,438	277,194
Average %CO ₂ by volume, dry basis	4.5	4.5	4.6	4.5	4.5	4.5	3.4	4.5
Average %O ₂ by volume, dry basis	14.9	14.8	14.6	15.1	14.9	14.9	15.3	14.9
Isokinetic Variance	99.0	99.9	100.3	99.5	99.8	98.6	99.8	99.7
Standard Fuel Factor Fd, dscf/mmBtu	9,190.0	9,190.0	9,190.0	9,190.0	9190.0	9190.0	9190.0	9,190.0
Chromium (Cr) Emissions								
ug of sample collected	≤ 5.40	≤ 4.50	7.00	≤ 10.80	7.90	≤ 8.00	6.30	≤ 7.13
mg/dscm	≤ 1.22E-03	≤ 1.02E-03	1.58E-03	≤ 2.44E-03	1.71E-03	≤ 1.74E-03	1.37E-03	≤ 1.58E-03
mg/dscm @ 15% O ₂	≤ 1.20E-03	≤ 9.82E-04	1.48E-03	≤ 2.48E-03	1.69E-03	≤ 1.71E-03	1.44E-03	≤ 1.57E-03
lb/hr	≤ 1.20E-03	≤ 1.00E-03	1.40E-03	≤ 2.30E-03	1.70E-03	≤ 1.70E-03	1.30E-03	≤ 1.51E-03
lb/TBtu (Standard Fd Factor)	≤ 2.4339	≤ 1.9795	2.9322	≤ 4.9875	3.4261	≤ 3.6167	2.9222	≤ 3.1854
Cobalt (Co) Emissions								
ug of sample collected	≤ 0.29	≤ 0.30	≤ 0.69	≤ 0.90	≤ 0.50	≤ 0.50	≤ 0.27	≤ 0.49
mg/dscm	≤ 6.40E-05	≤ 6.80E-05	≤ 1.56E-04	≤ 2.03E-04	≤ 1.09E-04	≤ 1.09E-04	≤ 5.90E-05	≤ 1.10E-04
mg/dscm @ 15% O ₂	≤ 6.29E-05	≤ 6.58E-05	≤ 1.46E-04	≤ 2.07E-04	≤ 1.07E-04	≤ 1.07E-04	≤ 6.22E-05	≤ 1.08E-04
lb/hr	≤ 1.00E-04	≤ 1.00E-04	≤ 1.00E-04	≤ 2.00E-04	≤ 1.00E-04	≤ 1.00E-04	≤ 1.00E-04	≤ 1.14E-04
lb/TBtu (Standard Fd Factor)	≤ 0.1285	≤ 0.1320	≤ 0.2890	≤ 0.4156	≤ 0.22	≤ 0.2260	≤ 0.1252	≤ 0.2190
Lead (Pb) Emissions								
ug of sample collected	1.88	≤ 1.19	≤ 1.38	1.15	≤ 1.49	≤ 1.05	≤ 1.07	≤ 1.32
mg/dscm	4.24E-04	≤ 2.68E-04	≤ 3.11E-04	2.57E-04	≤ 3.23E-04	≤ 2.28E-04	≤ 2.32E-04	≤ 2.92E-04
mg/dscm @ 15% O ₂	4.17E-04	≤ 2.59E-04	≤ 2.91E-04	2.61E-04	≤ 3.18E-04	≤ 2.24E-04	≤ 2.44E-04	≤ 2.88E-04
lb/hr	4.00E-04	≤ 3.00E-04	≤ 3.00E-04	2.00E-04	≤ 3.00E-04	≤ 2.00E-04	≤ 2.00E-04	≤ 2.71E-04
lb/TBtu (Standard Fd Factor)	0.8473	≤ 0.5235	≤ 0.5781	0.5311	≤ 0.6462	≤ 0.4747	≤ 0.4963	≤ 0.5853
Manganese (Mn) Emissions								
ug of sample collected	73.50	64.32	16.95	85.94	68.00	31.10	23.50	51.90
mg/dscm	1.66E-02	1.45E-02	3.82E-03	1.92E-02	1.48E-02	6.75E-03	5.10E-03	1.15E-02
mg/dscm @ 15% O ₂	1.63E-02	1.40E-02	3.58E-03	1.95E-02	1.45E-02	6.64E-03	5.37E-03	1.14E-02
lb/hr	1.58E-02	1.37E-02	3.50E-03	1.83E-02	1.45E-02	6.70E-03	5.00E-03	1.11E-02
lb/TBtu (Standard Fd Factor)	33.1277	28.2934	7.1002	39.6878	29.4901	14.060	10.9002	23.2370
Nickel (Ni) Emissions								
ug of sample collected	5.38	6.99	16.78	29.60	19.66	17.73	9.97	15.16
mg/dscm	1.21E-03	1.58E-03	3.79E-03	6.61E-03	4.27E-03	3.85E-03	2.16E-03	3.35E-03
mg/dscm @ 15% O ₂	1.19E-03	1.53E-03	3.54E-03	6.73E-03	4.19E-03	3.78E-03	2.28E-03	3.32E-03
lb/hr	1.20E-03	1.50E-03	3.50E-03	6.30E-03	4.20E-03	3.80E-03	2.10E-03	3.23E-03
lb/TBtu (Standard Fd Factor)	2.4249	3.0748	7.0289	13.6695	8.5261	8.0154	4.6245	6.7663
Selenium (Se) Emissions								
ug of sample collected	≤ 56.40	≤ 9.00	≤ 7.40	≤ 11.40	≤ 5.90	≤ 4.10	≤ 3.00	≤ 13.89
mg/dscm	≤ 1.27E-02	≤ 2.03E-03	≤ 1.67E-03	≤ 2.55E-03	≤ 1.28E-03	≤ 8.90E-04	≤ 6.51E-04	≤ 3.11E-03
mg/dscm @ 15% O ₂	≤ 1.25E-02	≤ 1.96E-03	≤ 1.56E-03	≤ 2.59E-03	≤ 1.26E-03	≤ 8.75E-04	≤ 6.86E-04	≤ 3.06E-03
lb/hr	≤ 1.21E-02	≤ 1.90E-03	≤ 1.50E-03	≤ 2.40E-03	≤ 1.30E-03	≤ 9.00E-04	≤ 6.00E-04	≤ 2.96E-03
lb/TBtu (Standard Fd Factor)	≤ 25.4204	≤ 3.9590	≤ 3.0998	≤ 5.2646	≤ 2.5587	≤ 1.8535	≤ 1.3915	≤ 6.2211

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 and the Mostardi Platt Quality Manual, as applicable.

MOSTARDI PLATT



Christopher S. Trezak

Program Manager



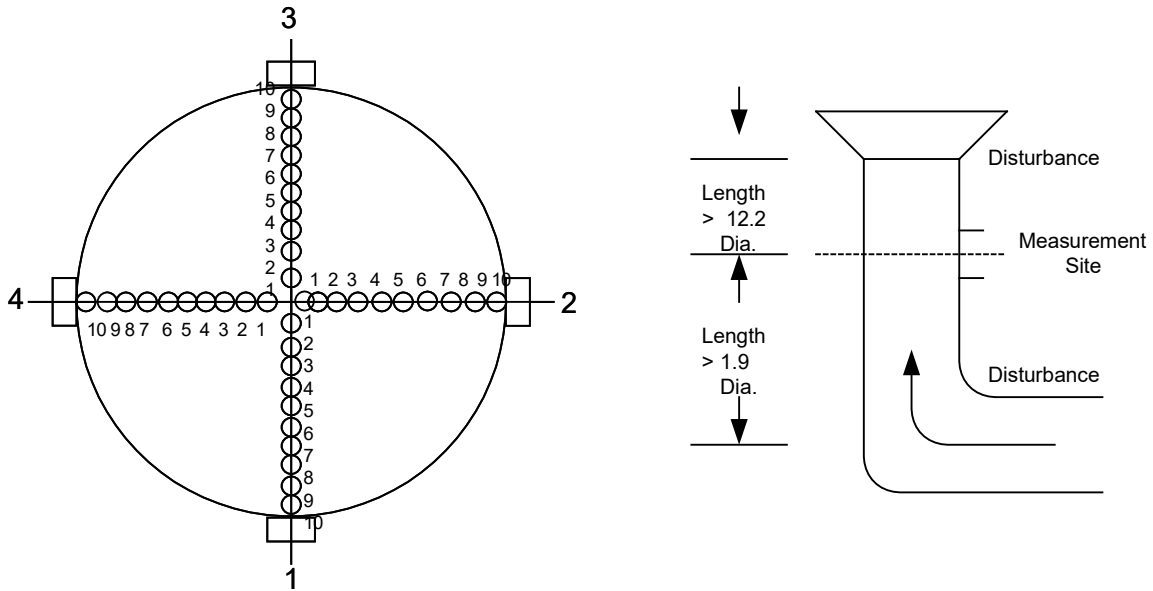
Eric L. Ehlers

Quality Assurance

APPENDICES

Appendix A - Test Section Diagrams

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



Job: Middletown Power LLC

Test Location: Unit 15

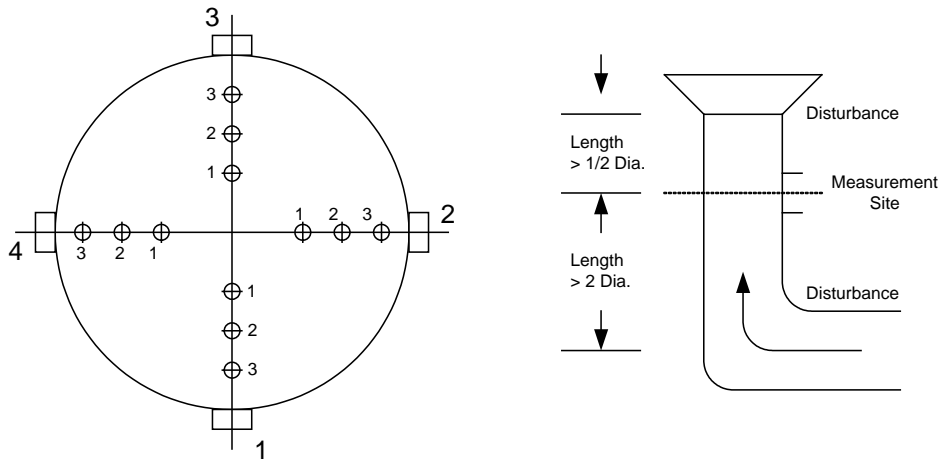
Duct Diameter: 12.0 Feet

Duct Area: 113.10 Square Feet

No. of Points : 40

No. of Ports: 4

EQUAL AREA TRAVERSE FOR ROUND DUCTS (Stratification Test)



Project: Middletown, LLC

Test Location: Unit 15

Stack Diameter: 144"

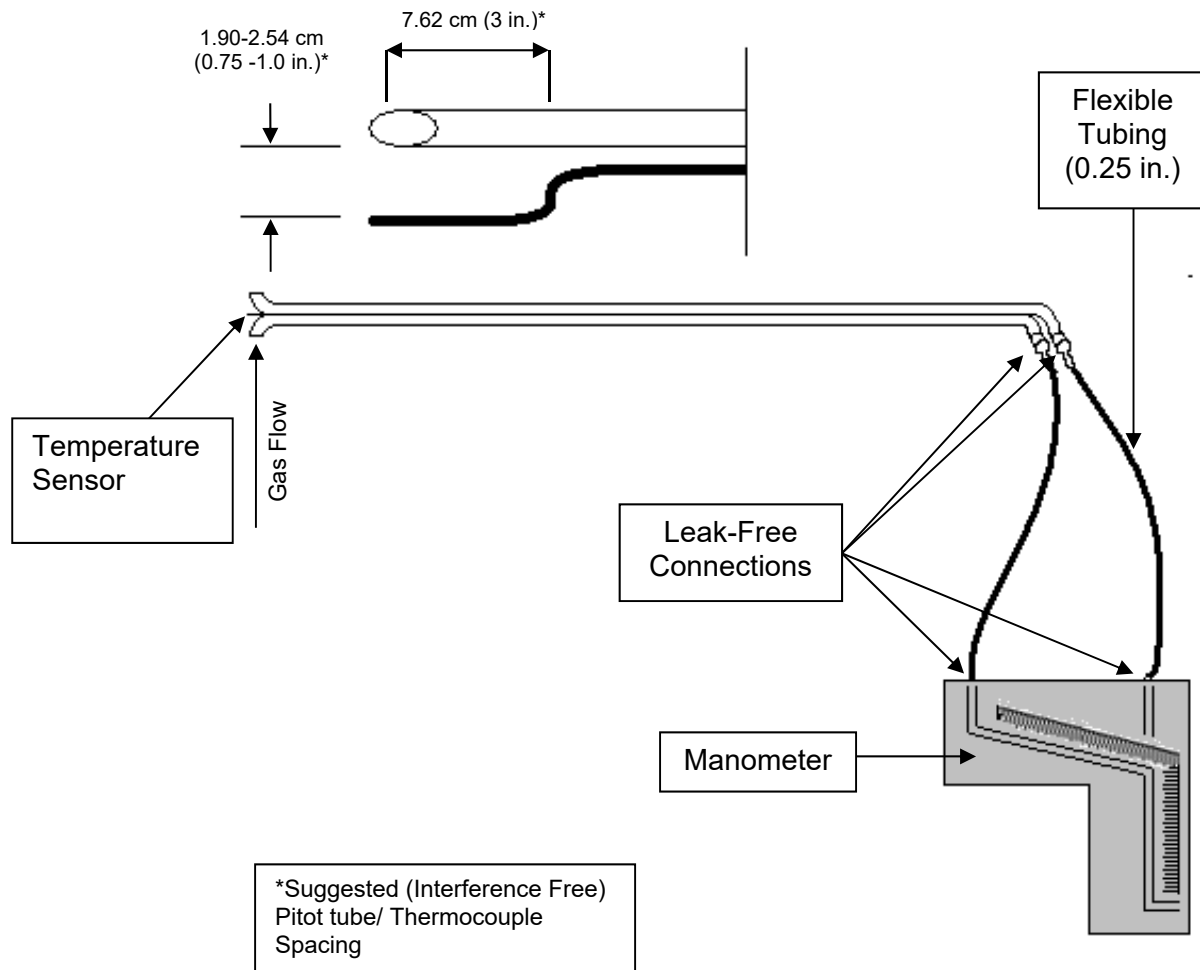
Stack Area: 113.1 Square Feet

No. Points Across Diameter: 6

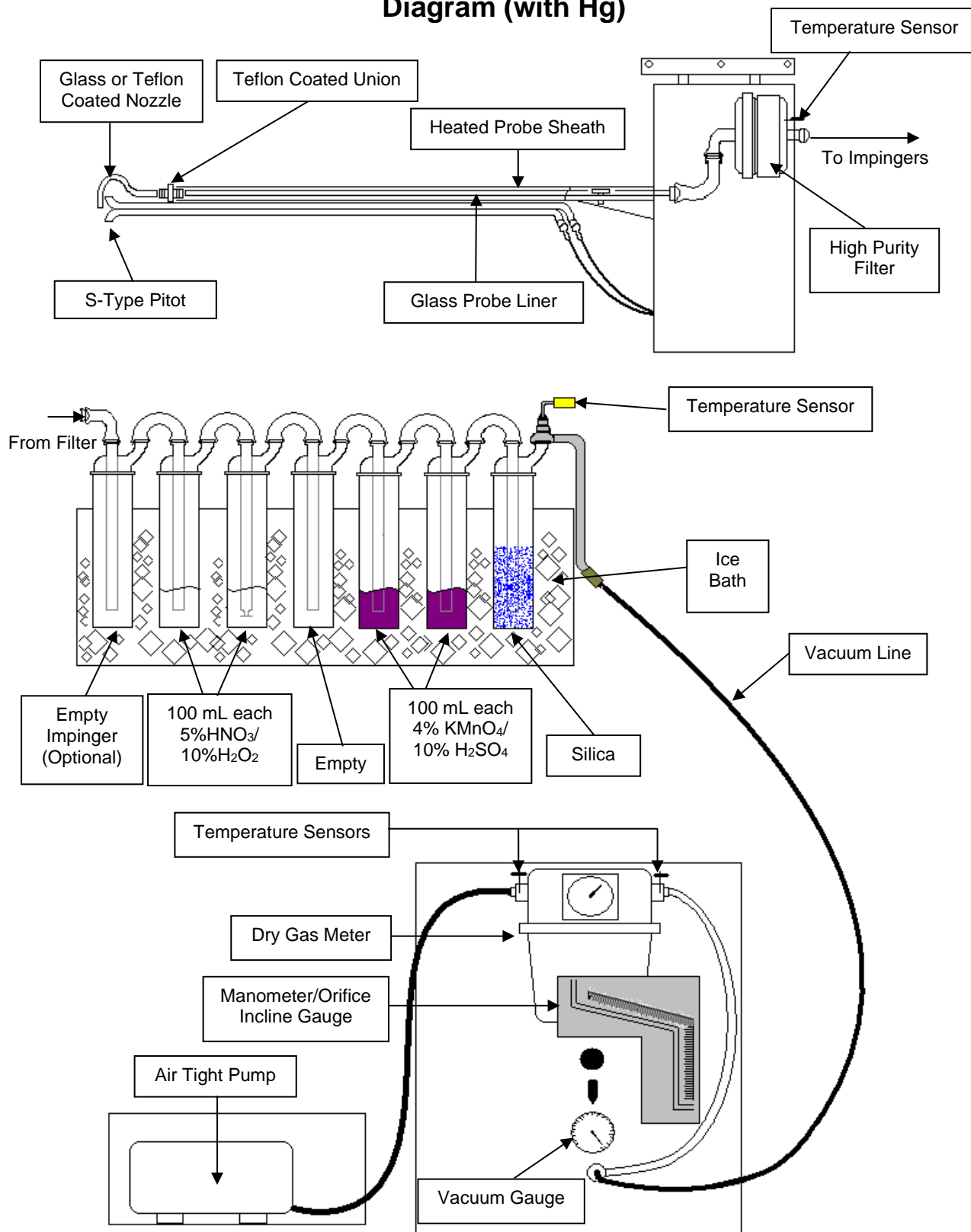
No. of Ports: 4

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)

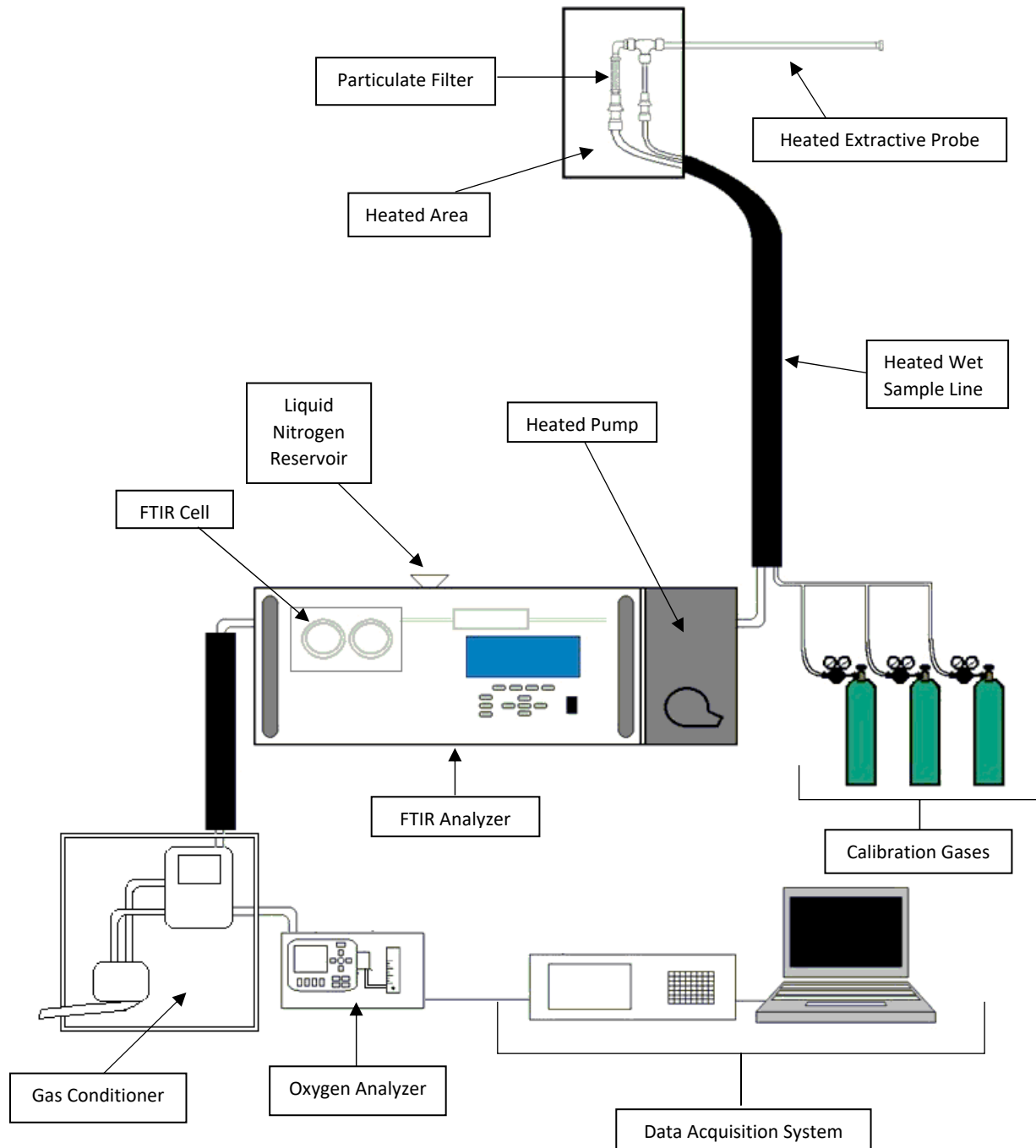


ATD-040 USEPA Method 5/29 (with Hg)

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 15
Date: 9/9/22

Sample Calculations

$$15.02 \% - 0.00 \% \quad \times \quad \frac{\text{O}_2 \% \text{ (dry)} \quad 9.971 \%}{10.09 \% - 0.00 \%} = 14.9 \%$$

$$4.54 \% - 0.00 \% \quad \times \quad \frac{\text{CO}_2 \% \text{ (dry)} \quad 9.777 \%}{9.90 \% - 0.00 \%} = 4.5 \%$$

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

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 15
Run: 1
Date: 9/9/2022
Method: 5/29
Source Condition: Normal

Dry Molecular Weight

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

$$\%CO_2 = \underline{4.5} \quad \%O_2 = \underline{14.9} \quad \%N_2 = \underline{80.6}$$

$$M_d = \underline{29.316}$$

Wet Molecular Weight

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

$$M_d = \underline{29.316} \quad B_{ws} = \underline{0.085}$$

$$M_s = \underline{28.351}$$

Meter Volume at Standard Conditions

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

$$Y = \underline{0.995} \quad V_m = \underline{162.626} \quad P_{\text{bar}} = \underline{30.00}$$

$$DH = \underline{2.71} \quad T_m = \underline{550.7}$$

$$V_m(\text{std}) = \underline{156.580}$$

Volume of Water Vapor Condensed

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

$$\text{Net } H_2O = \underline{309.9}$$

$$V_w(\text{std}) = \underline{14.596}$$

Moisture Content

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

$$V_w(\text{std}) = \underline{14.596} \quad V_m(\text{std}) = \underline{156.580}$$

$$B_{ws} = \underline{0.085}$$

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 15
 Run: 1
 Date: 9/9/2022
 Method: 5/29
 Source Condition: Normal

Average Duct Velocity

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

$$C_p = \frac{0.840}{29.88} \quad T_s (\text{avg}) = \frac{776.3}{28.351} \quad \sqrt{\text{DP (avg)}} = 1.105$$

$$V_s = 95.894$$

Volumetric Flow Rate (Actual Basis)

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

$$V_s = 95.894 \quad A = 113.097$$

$$Q = 650,718$$

Volumetric Flow Rate (Standard Basis)

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

$$Q = 650,718 \quad P_s = 29.88 \quad T_s (\text{avg}) = 776.3$$

$$Q_{\text{std}} = 277,502$$

Volumetric Flow Rate (Standard Dry Basis)

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

$$Q_{\text{std}} = 277,502 \quad B_{ws} = 0.085$$

$$Q_{\text{std(dry)}} = 253,839$$

Isokinetic Variation:

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

$$T_s = \frac{776.3}{0.0003917} \quad V_m(\text{std}) = \frac{156.580}{180} \quad V_s = \frac{95.894}{29.88}$$

$$B_{ws} = 0.085$$

$$\%ISO = 99.0$$

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 15
 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.

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

$$m_n (g) = \underline{0.00270} \quad Vm(std) = \underline{156.580}$$

$$Co = \underline{0.0003} \text{ gr/dscf}$$

PM Emission Rate:

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

$$Co = \underline{0.0003} \quad Qstd(dry) = \underline{253,839}$$

$$\text{Emission Rate lb/hr} = \underline{0.579} \text{ lb/hr}$$

$$F_d = \underline{9,190.0} \quad O_2\% = \underline{14.9}$$

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

$$\text{Emission Rate lb/mmBtu (F}_d \text{ Factor)} = \underline{0.0012}$$

$$F_c = \underline{9,190.0} \quad CO_2\% = \underline{4.5}$$

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

$$\text{Emission Rate lb/mmBtu (F}_c \text{ Factor)} = \underline{0.0012}$$

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

$$\text{Heat Input (mmBtu/hr)} = \underline{9,190.0}$$

$$\text{Emission Rate lb/mmBtu (Heat Input)} = \underline{0.0012}$$

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 15
 Run: 1
 Date: 9/9/2022
 Method: 5/29
 Source Condition: Normal

Dry Molecular Weight

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

$$\%CO_2 = \underline{4.5} \quad \%O_2 = \underline{14.9} \quad \%N_2 = \underline{80.6}$$

$$Md = \underline{29.316}$$

Wet Molecular Weight

$$Ms = Md \times (1 - Bws) + (18.0 \times Bws)$$

$$Md = \underline{29.316} \quad Bws = \underline{0.085}$$

$$Ms = \underline{28.351}$$

Meter Volume at Standard Conditions

$$Vm(std) = 17.647 \times Y \times Vm \times \frac{(Pbar + DH/13.6)}{Tm}$$

$$Y = \underline{0.995} \quad Vm = \underline{162.626} \quad Pbar = \underline{30.0}$$

$$DH = \underline{2.7} \quad Tm = \underline{550.7}$$

$$Vm(std) = \underline{156.580}$$

Volume of Water Vapor Condensed

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

$$\text{Net } H_2O = \underline{309.9}$$

$$Vw(std) = \underline{14.596}$$

Moisture Content

$$Bws = \frac{Vw(std)}{Vw(std) + Vm(std)}$$

$$Vw(std) = \underline{14.596} \quad Vm(std) = \underline{156.580}$$

$$Bws = \underline{0.085}$$

Average Duct Velocity

$$Vs = 85.49 \times Cp \times \text{Sqrt } DP \text{ (avg)} \times (Ts \text{ (avg)} + 460 / (Ps \times Ms))^{1/2}$$

$$Cp = \underline{0.840} \quad Ts \text{ (avg)} = \underline{776.3} \quad \text{Sqrt } DP \text{ (avg)} = \underline{1.105}$$

$$Ps = \underline{29.88} \quad Ms = \underline{28.351}$$

$$Vs = \underline{95.894}$$

Client: GenConn Middleton, LLC
 Facility: Middleton
 Test Location: Unit 15
 Run: 1
 Date: 9/9/2022
 Method: 5/29
 Source Condition: Normal

Volumetric Flow Rate (Actual Basis)

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

$$V_s = \underline{95.894} \quad A = \underline{113.097}$$

$$Q = \underline{650,718}$$

Volumetric Flow Rate (Standard Basis)

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

$$Q = \underline{650,718} \quad P_s = \underline{29.88} \quad T_s (avg) = \underline{776.3}$$

$$Q_{std} = \underline{277,502}$$

Volumetric Flow Rate (Standard Dry Basis)

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

$$Q_{std} = \underline{277,502} \quad Bws = \underline{0.085}$$

$$Q_{std(dry)} = \underline{253,839}$$

Isokinetic Variation:

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

$$\begin{array}{llll}
 T_s = \underline{776.3} & Vm(std) = \underline{156.580} & V_s = \underline{95.894} \\
 A_n = \underline{0.0003917} & \theta = \underline{180} & P_s = \underline{29.88} \\
 Bws = \underline{0.085} & &
 \end{array}$$

$$\%ISO = \underline{99.0}$$

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 15
 Run: 1
 Date: 9/9/2022
 Method: 5/29
 Source Condition: Normal

Mercury (Hg) Concentration:

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

$$\mu\text{g} = \underline{0.44} \quad \text{Vm(std)} = \underline{156.580}$$

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

Mercury (Hg) Emission Rate:

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

$$\text{lb of Mercury (Hg)} = \underline{9.74\text{E-}10} \quad \text{dscfm} = \underline{253,839}$$

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

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

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

$$F_d = \underline{9,190.0} \quad \text{O}_2\% = \underline{14.9}$$

$$\text{Emission Rate lb/Tbtu (F}_d \text{ Factor)} = \underline{0.1992}$$

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

$$\text{Heat Input (mmBtu/hr)} = \underline{9190.0}$$

$$\text{Emission Rate lb/Tbtu (Heat Input)} = \underline{70.5538}$$

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. $Q_{acfm} = v_s A (60_{\text{sec/min}})$
12. $Q_{sd} = (3600_{\text{sec/hr}}) (1 - B_{ws}) v_s \left(\frac{T_{std} P_s}{T_s P_{std}} \right) A$
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
 ig Condition: Normal

Test Location: Unit 15
 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	15:35:40	72701.13	25.0	14.90	4.27	1.00	0.30	0.10
9/9/22	15:36:40	71689.09	25.0	14.90	4.27	1.00	0.30	0.10
9/9/22	15:37:40	70722.09	25.0	14.90	4.28	1.00	0.30	0.10
9/9/22	15:38:40	69809.03	25.0	14.90	4.30	1.00	0.30	0.10
9/9/22	15:39:40	68983.30	25.0	14.90	4.30	1.00	0.30	0.10
9/9/22	15:40:40	68296.58	25.0	14.90	4.29	1.00	0.30	0.10
9/9/22	15:41:41	67749.61	25.0	14.90	4.29	1.00	0.30	0.10
9/9/22	15:42:40	67314.24	25.0	14.90	4.29	1.00	0.30	0.10
9/9/22	15:43:40	67010.84	25.0	14.90	4.30	1.00	0.30	0.10
9/9/22	15:44:41	66803.35	25.0	14.90	4.30	1.00	0.30	0.10
9/9/22	15:45:40	66690.21	25.0	14.90	4.30	1.00	0.30	0.10
9/9/22	15:46:41	66631.72	25.0	14.90	4.29	1.00	0.30	0.10
9/9/22	15:47:41	66583.06	25.0	14.90	4.30	1.00	0.30	0.10
9/9/22	15:48:41	66556.56	25.0	14.90	4.30	1.00	0.30	0.10
9/9/22	15:49:41	66529.96	25.0	14.90	4.30	1.00	0.30	0.10
9/9/22	15:50:41	66392.22	25.0	14.90	4.30	1.00	0.30	0.10
9/9/22	15:51:41	66077.18	25.0	14.90	4.30	1.00	0.30	0.10
9/9/22	15:52:41	65654.49	25.0	14.90	4.30	1.00	0.30	0.10
9/9/22	15:53:41	65253.97	25.0	14.90	4.30	1.00	0.30	0.10
9/9/22	15:54:41	64924.39	25.0	14.90	4.30	1.00	0.30	0.10
9/9/22	15:55:41	64694.10	25.0	14.90	4.31	1.00	0.30	0.10
9/9/22	15:56:41	64565.09	25.0	14.90	4.30	1.00	0.30	0.10
9/9/22	15:57:41	64469.35	25.0	14.90	4.31	1.00	0.30	0.10
9/9/22	15:58:41	64314.83	25.0	14.90	4.31	1.00	0.30	0.10
9/9/22	15:59:41	64149.83	25.0	14.90	4.31	1.00	0.30	0.10
9/9/22	16:00:41	64048.31	25.0	14.90	4.31	1.00	0.30	0.10
9/9/22	16:01:41	63963.48	25.0	14.90	4.32	1.00	0.30	0.10
9/9/22	16:02:41	63914.12	25.0	14.90	4.31	1.00	0.30	0.10
9/9/22	16:03:41	63896.69	25.0	14.90	4.31	1.00	0.30	0.10
9/9/22	16:04:41	63872.12	25.0	14.90	4.32	1.00	0.30	0.10
9/9/22	16:05:41	63819.59	25.0	14.90	4.31	1.00	0.30	0.10
9/9/22	16:06:41	63777.25	25.0	14.90	4.31	1.00	0.30	0.10
9/9/22	16:07:41	63739.34	25.0	14.90	4.32	1.00	0.30	0.10
9/9/22	16:08:41	63719.17	25.0	14.90	4.31	1.00	0.30	0.10
9/9/22	16:09:41	63642.10	25.0	14.90	4.31	1.00	0.30	0.10
9/9/22	16:10:41	63480.61	25.0	14.90	4.32	1.00	0.30	0.10
9/9/22	16:11:41	63324.28	25.0	14.90	4.32	1.00	0.30	0.10
9/9/22	16:12:41	63188.02	25.0	14.90	4.32	1.00	0.30	0.10
9/9/22	16:13:41	63058.73	25.0	14.90	4.34	1.00	0.30	0.10
9/9/22	16:14:41	62870.33	25.0	14.90	4.33	1.00	0.30	0.10
9/9/22	16:15:41	62639.42	25.0	14.90	4.33	1.00	0.30	0.10
9/9/22	16:16:41	62446.31	25.0	14.90	4.32	1.00	0.30	0.10
9/9/22	16:17:41	62296.41	25.0	14.90	4.33	1.00	0.30	0.10
9/9/22	16:18:41	62176.02	25.0	14.90	4.32	1.00	0.30	0.10
9/9/22	16:19:41	62041.38	25.0	14.90	4.32	1.00	0.30	0.10
9/9/22	16:20:41	61929.15	25.0	14.90	4.33	1.00	0.30	0.10
9/9/22	16:21:41	61809.14	25.0	14.90	4.33	1.00	0.30	0.10
9/9/22	16:22:41	61726.01	25.0	14.90	4.33	1.00	0.30	0.10
9/9/22	16:23:41	61707.78	25.0	14.90	4.33	1.00	0.30	0.10
9/9/22	16:24:41	61754.13	25.0	14.90	4.32	1.00	0.30	0.10
9/9/22	16:25:41	61777.28	25.0	14.90	4.32	1.00	0.30	0.10
9/9/22	16:26:41	61813.07	25.0	14.90	4.33	1.00	0.30	0.10
9/9/22	16:27:41	61869.14	25.0	14.90	4.33	1.00	0.30	0.10
9/9/22	16:28:41	61916.63	25.0	14.90	4.32	1.00	0.30	0.10
9/9/22	16:29:41	61932.76	25.0	14.90	4.33	1.00	0.30	0.10
9/9/22	16:30:41	61917.62	25.0	14.90	4.32	1.00	0.30	0.10
9/9/22	16:31:41	61891.06	25.0	14.90	4.33	1.00	0.30	0.10
9/9/22	16:32:41	61860.24	25.0	14.90	4.32	1.00	0.30	0.10
9/9/22	16:33:41	61845.28	25.0	14.90	4.33	1.00	0.30	0.10
9/9/22	16:34:41	61793.60	25.0	14.90	4.33	1.00	0.30	0.10
Average		6.4	25.0	14.9	4.3	1.0	0.3	0.1

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

Test Location: Unit 15
 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	17:30:03	86425.7	25.0	14.90	4.16	2.08	0.73	0.10
9/9/22	17:31:03	86227.3	25.0	14.90	4.17	2.18	0.52	0.10
9/9/22	17:32:03	86117.8	25.0	14.90	4.17	2.18	0.45	0.10
9/9/22	17:33:03	86130.5	25.0	14.90	4.17	2.11	0.44	0.10
9/9/22	17:34:03	86068.0	25.0	14.90	4.17	2.11	0.40	0.10
9/9/22	17:35:03	85995.8	25.0	14.90	4.17	2.11	0.34	0.10
9/9/22	17:36:03	85951.7	25.0	14.90	4.17	2.04	0.30	0.10
9/9/22	17:37:03	86030.5	25.0	14.90	4.18	2.01	0.30	0.10
9/9/22	17:38:03	86022.8	25.0	14.90	4.18	1.99	0.30	0.10
9/9/22	17:39:03	86009.5	25.0	14.90	4.17	1.97	0.30	0.10
9/9/22	17:40:03	86222.0	25.0	14.90	4.17	1.96	0.30	0.10
9/9/22	17:41:03	86249.6	25.0	14.90	4.17	1.95	0.30	0.10
9/9/22	17:42:03	86239.7	25.0	14.90	4.17	1.96	0.30	0.10
9/9/22	17:43:03	86106.6	25.0	14.90	4.17	2.02	0.30	0.10
9/9/22	17:44:03	86096.6	25.0	14.90	4.17	2.00	0.30	0.10
9/9/22	17:45:03	86164.2	25.0	14.90	4.18	1.97	0.30	0.10
9/9/22	17:46:03	86162.3	25.0	14.90	4.17	1.98	0.30	0.10
9/9/22	17:47:03	86225.6	25.0	14.90	4.17	1.97	0.30	0.10
9/9/22	17:48:03	86231.5	25.0	14.90	4.17	1.95	0.30	0.10
9/9/22	17:49:03	86033.6	25.0	14.90	4.16	1.85	0.30	0.10
9/9/22	17:50:04	86152.0	25.0	14.90	4.17	1.94	0.30	0.10
9/9/22	17:51:03	86089.9	25.0	14.90	4.17	1.89	0.30	0.10
9/9/22	17:52:03	86194.0	25.0	14.90	4.17	1.91	0.30	0.10
9/9/22	17:53:04	86072.9	25.0	14.90	4.16	1.94	0.30	0.10
9/9/22	17:54:04	86091.4	25.0	14.90	4.17	1.96	0.30	0.10
9/9/22	17:55:04	86092.7	25.0	14.90	4.16	1.85	0.30	0.10
9/9/22	17:56:04	86095.6	25.0	14.90	4.17	1.84	0.30	0.10
9/9/22	17:57:04	86112.2	25.0	14.90	4.17	1.88	0.30	0.10
9/9/22	17:58:04	86100.0	25.0	14.90	4.17	1.84	0.30	0.10
9/9/22	17:59:04	86061.9	25.0	14.90	4.16	1.85	0.30	0.10
9/9/22	18:00:04	86047.8	25.0	14.90	4.16	1.82	0.30	0.10
9/9/22	18:01:04	86121.7	25.0	15.00	4.16	1.84	0.30	0.10
9/9/22	18:02:04	86164.8	25.0	14.90	4.16	1.88	0.30	0.10
9/9/22	18:03:04	86082.6	25.0	14.90	4.16	1.88	0.30	0.10
9/9/22	18:04:04	86122.8	25.0	14.90	4.16	1.90	0.30	0.10
9/9/22	18:05:04	86158.0	25.0	14.90	4.16	1.83	0.30	0.10
9/9/22	18:06:04	86215.2	25.0	14.90	4.16	1.90	0.30	0.10
9/9/22	18:07:04	86254.3	25.0	14.90	4.17	1.85	0.30	0.10
9/9/22	18:08:04	86149.1	25.0	14.90	4.16	1.90	0.30	0.10
9/9/22	18:09:04	86162.2	25.0	14.90	4.17	1.87	0.30	0.10
9/9/22	18:10:04	86108.8	25.0	14.90	4.16	1.85	0.30	0.10
9/9/22	18:11:04	86111.0	25.0	14.90	4.16	1.85	0.30	0.10
9/9/22	18:12:04	86126.0	25.0	14.90	4.16	1.84	0.30	0.10
9/9/22	18:13:04	86177.4	25.0	14.90	4.17	1.81	0.30	0.10
9/9/22	18:14:04	86057.2	25.0	14.90	4.16	1.84	0.30	0.10
9/9/22	18:15:04	86068.8	25.0	14.90	4.16	1.83	0.30	0.10
9/9/22	18:16:04	86245.9	25.0	14.90	4.16	1.82	0.30	0.10
9/9/22	18:17:04	86236.9	25.0	15.00	4.17	1.77	0.30	0.10
9/9/22	18:18:04	86072.8	25.0	15.00	4.16	1.82	0.30	0.10
9/9/22	18:19:04	86123.4	25.0	15.00	4.16	1.77	0.30	0.10
9/9/22	18:20:04	86068.0	25.0	14.90	4.16	1.77	0.30	0.10
9/9/22	18:21:04	85992.5	25.0	15.00	4.17	1.81	0.30	0.10
9/9/22	18:22:04	85900.1	25.0	14.90	4.16	1.83	0.30	0.10
9/9/22	18:23:04	86126.6	25.0	14.90	4.16	1.78	0.30	0.10
9/9/22	18:24:04	86055.8	25.0	14.90	4.16	1.79	0.30	0.10
9/9/22	18:25:04	86121.7	25.0	14.90	4.16	1.74	0.30	0.10
9/9/22	18:26:04	85984.9	25.0	15.00	4.17	1.85	0.30	0.10
9/9/22	18:27:04	85950.8	25.0	15.00	4.16	1.82	0.30	0.10
9/9/22	18:28:04	85887.5	25.0	15.00	4.16	1.78	0.30	0.10
9/9/22	18:29:04	85948.7	25.0	15.00	4.16	1.82	0.30	0.10
Average		8.6	25.0	14.9	4.2	1.9	0.3	0.1

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

Test Location: Unit 15
 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	18:55:02	85573.06	25.0	15.00	4.15	1.76	0.30	0.10
9/9/22	18:56:02	85353.42	25.0	14.90	4.16	1.77	0.30	0.10
9/9/22	18:57:03	85393.59	25.0	14.90	4.15	1.82	0.30	0.10
9/9/22	18:58:03	85504.59	25.0	14.90	4.16	1.79	0.30	0.10
9/9/22	18:59:03	85540.04	25.0	14.90	4.15	1.83	0.30	0.10
9/9/22	19:00:03	85792.06	25.0	14.90	4.15	1.86	0.30	0.10
9/9/22	19:01:03	85750.48	25.0	14.90	4.15	1.90	0.30	0.10
9/9/22	19:02:03	85721.65	25.0	14.90	4.16	1.89	0.30	0.10
9/9/22	19:03:03	85589.40	25.0	14.90	4.15	1.89	0.30	0.10
9/9/22	19:04:03	85820.49	25.0	14.90	4.15	1.81	0.30	0.10
9/9/22	19:05:03	85807.48	25.0	14.90	4.15	1.87	0.30	0.10
9/9/22	19:06:03	85739.87	25.0	14.90	4.15	1.83	0.30	0.10
9/9/22	19:07:03	85814.95	25.0	14.90	4.16	1.85	0.30	0.10
9/9/22	19:08:03	85733.14	25.0	14.90	4.15	1.88	0.30	0.10
9/9/22	19:09:03	85746.16	25.0	14.90	4.14	1.82	0.30	0.10
9/9/22	19:10:03	85850.00	25.0	14.90	4.15	1.93	0.30	0.10
9/9/22	19:11:03	86013.75	25.0	14.90	4.14	1.86	0.30	0.10
9/9/22	19:12:03	85916.67	25.0	15.00	4.15	1.89	0.30	0.10
9/9/22	19:13:03	85918.32	25.0	15.00	4.15	1.89	0.30	0.10
9/9/22	19:14:03	85871.94	25.0	15.00	4.15	1.85	0.30	0.10
9/9/22	19:15:03	85845.63	25.0	15.00	4.15	1.91	0.30	0.10
9/9/22	19:16:03	85847.79	25.0	14.90	4.15	1.91	0.30	0.10
9/9/22	19:17:03	85985.47	25.0	14.90	4.15	1.83	0.30	0.10
9/9/22	19:18:03	85992.30	25.0	14.90	4.15	1.88	0.30	0.10
9/9/22	19:19:03	85838.22	25.0	14.90	4.15	1.90	0.30	0.10
9/9/22	19:20:03	85834.13	25.0	14.90	4.16	1.93	0.30	0.10
9/9/22	19:21:03	85853.96	25.0	14.90	4.15	1.95	0.30	0.10
9/9/22	19:22:03	85846.25	25.0	14.90	4.15	1.86	0.30	0.10
9/9/22	19:23:03	85727.88	25.0	14.90	4.15	1.91	0.30	0.10
9/9/22	19:24:03	85800.30	25.0	14.90	4.16	1.94	0.30	0.10
9/9/22	19:25:03	85931.43	25.0	14.90	4.16	1.92	0.30	0.10
9/9/22	19:26:03	85924.82	25.0	14.90	4.16	1.88	0.30	0.10
9/9/22	19:27:03	85894.64	25.0	14.90	4.16	1.86	0.30	0.10
9/9/22	19:28:03	85833.84	25.0	14.90	4.15	1.87	0.30	0.10
9/9/22	19:29:03	85761.10	25.0	15.00	4.16	1.85	0.30	0.10
9/9/22	19:30:03	85779.06	25.0	14.90	4.15	1.84	0.30	0.10
9/9/22	19:31:03	85971.46	25.0	14.90	4.16	1.83	0.30	0.10
9/9/22	19:32:03	86001.14	25.0	15.00	4.15	1.89	0.30	0.10
9/9/22	19:33:03	85949.97	25.0	14.90	4.15	1.84	0.30	0.10
9/9/22	19:34:03	85956.40	25.0	15.00	4.15	1.93	0.30	0.10
9/9/22	19:35:03	85967.81	25.0	14.90	4.16	1.89	0.30	0.10
9/9/22	19:36:03	86060.63	25.0	14.90	4.16	1.93	0.30	0.10
9/9/22	19:37:03	86066.29	25.0	14.90	4.15	1.87	0.30	0.10
9/9/22	19:38:03	85794.44	25.0	14.90	4.16	1.87	0.30	0.10
9/9/22	19:39:03	85949.56	25.0	14.90	4.16	1.92	0.30	0.10
9/9/22	19:40:03	85828.93	25.0	14.90	4.16	1.89	0.30	0.10
9/9/22	19:41:03	85866.30	25.0	14.90	4.15	1.89	0.30	0.10
9/9/22	19:42:03	85874.26	25.0	14.90	4.16	1.91	0.30	0.10
9/9/22	19:43:03	86034.13	25.0	14.90	4.16	1.84	0.30	0.10
9/9/22	19:44:03	85668.01	25.0	14.90	4.16	1.85	0.30	0.10
9/9/22	19:45:03	85851.64	25.0	14.90	4.16	1.90	0.30	0.10
9/9/22	19:46:03	85820.64	25.0	14.90	4.16	1.92	0.30	0.10
9/9/22	19:47:03	85761.31	25.0	14.90	4.17	1.88	0.30	0.10
9/9/22	19:48:03	85754.12	25.0	14.90	4.16	1.85	0.30	0.10
9/9/22	19:49:03	85709.10	25.0	14.90	4.16	1.93	0.30	0.10
9/9/22	19:50:03	85656.96	25.0	14.90	4.16	1.92	0.30	0.10
9/9/22	19:51:03	85649.37	25.0	14.90	4.16	1.91	0.30	0.10
9/9/22	19:52:03	85707.10	25.0	14.90	4.16	1.88	0.30	0.10
9/9/22	19:53:03	85682.13	25.0	14.90	4.17	1.88	0.30	0.10
9/9/22	19:54:03	85778.54	25.0	14.90	4.15	1.86	0.30	0.10
Average		8.6	25.0	14.9	4.2	1.9	0.3	0.1

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

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

Unit 15
 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	08:35:24	84617.36	25.0	14.80	4.18	2.03	0.30	0.10
9/10/22	08:36:24	84618.30	25.0	14.80	4.18	1.98	0.30	0.10
9/10/22	08:37:24	84780.71	25.0	14.80	4.18	2.04	0.30	0.10
9/10/22	08:38:24	84859.47	25.0	14.80	4.18	2.03	0.30	0.10
9/10/22	08:39:24	84977.69	25.0	14.80	4.17	1.97	0.30	0.10
9/10/22	08:40:24	85089.43	25.0	14.80	4.18	2.01	0.30	0.10
9/10/22	08:41:24	85452.62	25.0	14.80	4.17	2.02	0.30	0.10
9/10/22	08:42:24	85285.02	25.0	14.80	4.18	2.05	0.30	0.10
9/10/22	08:43:24	85254.01	25.0	14.80	4.17	2.00	0.30	0.10
9/10/22	08:44:25	85621.99	25.0	14.80	4.18	2.08	0.30	0.10
9/10/22	08:45:24	85443.33	25.0	14.80	4.18	2.04	0.30	0.10
9/10/22	08:46:25	85558.94	25.0	14.80	4.17	2.03	0.30	0.10
9/10/22	08:47:25	85527.99	25.0	14.80	4.18	2.07	0.30	0.10
9/10/22	08:48:25	85653.29	25.0	14.80	4.16	2.06	0.30	0.10
9/10/22	08:49:24	85507.88	25.0	14.80	4.17	1.99	0.30	0.10
9/10/22	08:50:24	85661.06	25.0	14.80	4.17	1.98	0.30	0.10
9/10/22	08:51:25	85806.62	25.0	14.80	4.17	2.03	0.30	0.10
9/10/22	08:52:25	85662.41	25.0	14.80	4.17	2.06	0.30	0.10
9/10/22	08:53:25	85528.19	25.0	14.80	4.18	2.00	0.30	0.10
9/10/22	08:54:25	85643.65	25.0	14.80	4.18	1.98	0.30	0.10
9/10/22	08:55:25	85756.64	25.0	14.80	4.17	2.06	0.30	0.10
9/10/22	08:56:25	85923.20	25.0	14.80	4.17	2.02	0.30	0.10
9/10/22	08:57:25	85874.31	25.0	14.80	4.18	2.05	0.30	0.10
9/10/22	08:58:25	85762.29	25.0	14.80	4.17	2.02	0.30	0.10
9/10/22	08:59:25	85884.92	25.0	14.80	4.18	2.05	0.30	0.10
9/10/22	09:00:25	85974.98	25.0	14.80	4.18	2.00	0.30	0.10
9/10/22	09:01:25	85902.32	25.0	14.80	4.17	1.96	0.30	0.10
9/10/22	09:02:25	85925.25	25.0	14.80	4.18	2.05	0.30	0.10
9/10/22	09:03:25	85933.01	25.0	14.80	4.18	2.00	0.30	0.10
9/10/22	09:04:25	85848.46	25.0	14.80	4.18	1.89	0.30	0.10
9/10/22	09:05:25	85885.79	25.0	14.80	4.18	1.88	0.30	0.10
9/10/22	09:06:25	85993.39	25.0	14.80	4.18	1.91	0.30	0.10
9/10/22	09:07:25	85916.16	25.0	14.80	4.17	1.93	0.30	0.10
9/10/22	09:08:25	86021.69	25.0	14.80	4.17	1.94	0.30	0.10
9/10/22	09:09:25	86173.19	25.0	14.80	4.17	1.95	0.30	0.10
9/10/22	09:10:25	86142.20	25.0	14.80	4.17	1.98	0.30	0.10
9/10/22	09:11:25	85998.89	25.0	14.80	4.17	1.90	0.30	0.10
9/10/22	09:12:25	86119.75	25.0	14.80	4.17	1.89	0.30	0.10
9/10/22	09:13:25	86090.31	25.0	14.80	4.18	1.94	0.30	0.10
9/10/22	09:14:25	86128.26	25.0	14.80	4.17	1.88	0.30	0.10
9/10/22	09:15:25	86168.91	25.0	14.80	4.18	1.92	0.30	0.10
9/10/22	09:16:25	85969.44	25.0	14.80	4.17	1.89	0.30	0.10
9/10/22	09:17:25	86028.59	25.0	14.80	4.17	1.89	0.30	0.10
9/10/22	09:18:25	86166.02	25.0	14.80	4.17	1.96	0.30	0.10
9/10/22	09:19:25	86001.17	25.0	14.80	4.17	1.95	0.30	0.10
9/10/22	09:20:25	86121.55	25.0	14.80	4.17	1.98	0.30	0.10
9/10/22	09:21:25	86051.69	25.0	14.80	4.17	1.86	0.30	0.10
9/10/22	09:22:25	86086.09	25.0	14.80	4.18	1.90	0.30	0.10
9/10/22	09:23:25	86056.85	25.0	14.80	4.18	1.85	0.30	0.10
9/10/22	09:24:25	86079.51	25.0	14.80	4.18	1.95	0.30	0.10
9/10/22	09:25:25	86063.75	25.0	14.80	4.18	1.93	0.30	0.10
9/10/22	09:26:25	85960.98	25.0	14.80	4.17	1.99	0.30	0.10
9/10/22	09:27:25	86066.18	25.0	14.80	4.17	1.98	0.30	0.10
9/10/22	09:28:25	86061.63	25.0	14.80	4.18	1.92	0.30	0.10
9/10/22	09:29:25	86012.14	25.0	14.80	4.17	1.91	0.30	0.10
9/10/22	09:30:25	85938.15	25.0	14.80	4.18	1.97	0.30	0.10
9/10/22	09:31:25	85846.12	25.0	14.80	4.18	1.93	0.30	0.10
9/10/22	09:32:25	85882.93	25.0	14.80	4.18	2.02	0.30	0.10
9/10/22	09:33:25	85983.42	25.0	14.80	4.17	1.95	0.30	0.10
9/10/22	09:34:25	85974.33	25.0	14.80	4.18	2.00	0.30	0.10
Average		8.6	25.0	14.8	4.2	2.0	0.3	0.1

Client:	Middletown Power LLC	Test Location:	Unit 15
Facility:	Middletown Facility	Date:	9/10/2022
Project #:	M223610	Operator:	J. Gross
ig Condition:	Normal	FTIR s/n:	484

Run 5

Date	Time	H2O% %v	Formaldehyde ppbv wet	O2 % dry	CO2 % dry	CO ppmvw	HCl ppmvw	HF ppmvw
9/10/22	09:57:55	85327.39	25.0	14.80	4.18	2.08	0.30	0.10
9/10/22	09:58:55	85284.72	25.0	14.80	4.18	2.15	0.30	0.10
9/10/22	09:59:55	85405.64	27.0	14.80	4.17	2.08	0.30	0.10
9/10/22	10:00:55	85579.16	33.7	14.80	4.17	2.11	0.30	0.10
9/10/22	10:01:55	85602.64	33.5	14.80	4.17	2.11	0.30	0.10
9/10/22	10:02:55	85600.57	33.7	14.80	4.17	2.06	0.30	0.10
9/10/22	10:03:55	85570.74	34.9	14.80	4.17	2.05	0.30	0.10
9/10/22	10:04:55	85598.14	35.5	14.80	4.17	2.19	0.30	0.10
9/10/22	10:05:55	85665.25	35.6	14.80	4.17	2.17	0.30	0.10
9/10/22	10:06:55	85735.60	35.2	14.80	4.16	2.07	0.30	0.10
9/10/22	10:07:55	85785.82	34.4	14.80	4.16	2.10	0.30	0.10
9/10/22	10:08:55	85782.03	33.2	14.80	4.17	2.03	0.30	0.10
9/10/22	10:09:55	85728.90	31.5	14.80	4.17	2.08	0.30	0.10
9/10/22	10:10:55	85859.82	28.2	14.80	4.17	1.96	0.30	0.10
9/10/22	10:11:55	85888.94	26.7	14.80	4.17	2.04	0.30	0.10
9/10/22	10:12:55	85810.11	25.0	14.80	4.17	2.08	0.30	0.10
9/10/22	10:13:55	85708.59	25.0	14.80	4.17	2.01	0.30	0.10
9/10/22	10:14:55	85618.11	25.0	14.80	4.17	1.95	0.30	0.10
9/10/22	10:15:55	85620.83	25.0	14.80	4.17	1.95	0.30	0.10
9/10/22	10:16:55	85690.50	25.0	14.80	4.17	1.97	0.30	0.10
9/10/22	10:17:55	85724.91	25.0	14.80	4.17	1.98	0.30	0.10
9/10/22	10:18:55	85594.47	25.0	14.80	4.17	1.94	0.30	0.10
9/10/22	10:19:55	85641.35	25.0	14.80	4.17	1.95	0.30	0.10
9/10/22	10:20:55	85793.58	25.0	14.80	4.17	1.94	0.30	0.10
9/10/22	10:21:55	85892.21	25.0	14.80	4.16	1.94	0.30	0.10
9/10/22	10:22:55	85851.77	25.0	14.80	4.16	1.94	0.30	0.10
9/10/22	10:23:55	85729.60	25.0	14.80	4.16	1.90	0.30	0.10
9/10/22	10:24:55	85705.32	25.0	14.80	4.17	1.88	0.30	0.10
9/10/22	10:25:55	85673.14	25.0	14.80	4.17	1.85	0.30	0.10
9/10/22	10:26:56	85654.86	25.0	14.80	4.16	1.95	0.30	0.10
9/10/22	10:27:56	85706.97	25.0	14.80	4.17	1.97	0.30	0.10
9/10/22	10:28:56	85800.52	25.0	14.80	4.16	1.95	0.30	0.10
9/10/22	10:29:55	85744.02	25.0	14.80	4.17	1.92	0.30	0.10
9/10/22	10:30:56	85745.65	25.0	14.80	4.17	1.90	0.30	0.10
9/10/22	10:31:56	85804.96	25.0	14.80	4.17	1.93	0.30	0.10
9/10/22	10:32:56	85826.97	25.0	14.80	4.16	1.90	0.30	0.10
9/10/22	10:33:56	85721.55	25.0	14.80	4.17	1.89	0.30	0.10
9/10/22	10:34:56	85681.21	26.7	14.80	4.16	1.82	0.30	0.10
9/10/22	10:35:56	85673.90	29.5	14.80	4.17	1.91	0.30	0.10
9/10/22	10:36:56	85830.95	27.3	14.80	4.18	2.05	0.30	0.10
9/10/22	10:37:56	85768.65	32.9	14.80	4.18	2.02	0.30	0.10
9/10/22	10:38:56	85738.10	34.9	14.80	4.19	1.93	0.30	0.10
9/10/22	10:39:56	85681.48	34.9	14.80	4.18	1.98	0.30	0.10
9/10/22	10:40:56	85671.29	32.9	14.80	4.19	1.99	0.30	0.10
9/10/22	10:41:56	85697.82	41.2	14.80	4.19	1.89	0.30	0.10
9/10/22	10:42:56	85662.14	41.3	14.80	4.18	1.97	0.30	0.10
9/10/22	10:43:56	85602.09	43.4	14.80	4.18	2.03	0.30	0.10
9/10/22	10:44:56	85543.49	45.5	14.80	4.19	1.96	0.30	0.10
9/10/22	10:45:56	85636.75	42.7	14.80	4.19	1.96	0.30	0.10
9/10/22	10:46:56	85598.06	45.7	14.80	4.19	2.08	0.30	0.10
9/10/22	10:47:56	85645.75	44.2	14.80	4.19	2.00	0.30	0.10
9/10/22	10:48:56	85553.20	46.9	14.80	4.19	2.03	0.30	0.10
9/10/22	10:49:56	85563.33	42.9	14.80	4.20	2.03	0.30	0.10
9/10/22	10:50:56	85600.86	46.8	14.80	4.19	2.06	0.30	0.10
9/10/22	10:51:56	85673.54	46.9	14.80	4.19	2.01	0.30	0.10
9/10/22	10:52:56	85648.37	45.4	14.80	4.19	2.03	0.30	0.10
9/10/22	10:53:56	85656.26	45.5	14.80	4.19	2.10	0.30	0.10
9/10/22	10:54:56	85613.65	46.5	14.80	4.19	2.12	0.30	0.10
9/10/22	10:55:56	85691.99	49.0	14.90	4.19	2.06	0.30	0.10
9/10/22	10:56:56	85641.80	53.9	14.90	4.19	2.02	0.30	0.10
Average		8.6	32.8	14.8	4.2	2.0	0.3	0.1

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

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

Unit 15
 9/10/2022
 J. Gross
 484

Run 6

Date	Time	H2O% %v	Formaldehyde ppbv wet	O2 % dry	CO2 % dry	CO ppmvw	HCl ppmvw	HF ppmvw
9/10/22	11:20:00	85220.74	25.0	14.90	4.18	1.97	0.30	0.10
9/10/22	11:21:00	85121.78	25.0	14.90	4.18	1.90	0.30	0.10
9/10/22	11:22:00	85210.64	25.0	14.90	4.18	1.94	0.30	0.10
9/10/22	11:23:00	85257.68	25.0	14.90	4.18	1.93	0.30	0.10
9/10/22	11:24:00	85473.54	25.0	14.90	4.18	1.95	0.30	0.10
9/10/22	11:25:00	85633.22	25.0	14.90	4.18	1.91	0.30	0.10
9/10/22	11:26:00	85659.18	25.0	14.90	4.18	1.98	0.30	0.10
9/10/22	11:27:00	85731.77	25.0	14.90	4.17	1.95	0.30	0.10
9/10/22	11:28:00	85552.99	25.0	14.90	4.17	1.93	0.30	0.10
9/10/22	11:29:00	85640.89	25.0	14.90	4.18	1.91	0.30	0.10
9/10/22	11:30:00	85595.44	25.0	14.90	4.18	1.92	0.30	0.10
9/10/22	11:31:00	85599.72	25.0	14.90	4.18	1.98	0.30	0.10
9/10/22	11:32:00	85648.18	25.0	14.90	4.18	1.96	0.30	0.10
9/10/22	11:33:00	85645.56	25.0	14.90	4.18	1.91	0.30	0.10
9/10/22	11:34:00	85738.44	25.0	14.90	4.18	1.92	0.30	0.10
9/10/22	11:35:00	85689.53	25.0	14.90	4.17	1.87	0.30	0.10
9/10/22	11:36:00	85753.54	25.0	14.90	4.17	1.96	0.30	0.10
9/10/22	11:37:00	85733.34	25.0	14.90	4.17	1.88	0.30	0.10
9/10/22	11:38:00	85571.34	25.0	14.90	4.18	1.96	0.30	0.10
9/10/22	11:39:00	85591.50	25.0	14.90	4.18	1.93	0.30	0.10
9/10/22	11:40:00	85609.09	25.0	14.90	4.18	1.92	0.30	0.10
9/10/22	11:41:00	85689.41	25.0	14.80	4.18	1.91	0.30	0.10
9/10/22	11:42:00	85667.98	25.0	14.80	4.18	1.92	0.30	0.10
9/10/22	11:43:00	85599.52	25.0	14.80	4.19	1.90	0.30	0.10
9/10/22	11:44:00	85563.47	25.0	14.80	4.18	1.91	0.30	0.10
9/10/22	11:45:00	85630.21	25.0	14.80	4.18	1.95	0.30	0.10
9/10/22	11:46:00	85559.65	25.0	14.80	4.18	1.94	0.30	0.10
9/10/22	11:47:00	85458.68	25.0	14.80	4.18	1.91	0.30	0.10
9/10/22	11:48:00	85691.56	25.0	14.80	4.19	1.86	0.30	0.10
9/10/22	11:49:00	85565.90	25.0	14.80	4.18	1.87	0.30	0.10
9/10/22	11:50:00	85631.83	25.0	14.80	4.19	1.87	0.30	0.10
9/10/22	11:51:00	85572.54	25.0	14.80	4.18	1.93	0.30	0.10
9/10/22	11:52:00	85716.62	25.0	14.80	4.18	1.95	0.30	0.10
9/10/22	11:53:00	85685.81	25.0	14.80	4.19	1.92	0.30	0.10
9/10/22	11:54:00	85538.79	25.0	14.80	4.18	1.87	0.30	0.10
9/10/22	11:55:00	85855.21	29.9	14.80	4.18	1.92	0.30	0.10
9/10/22	11:56:00	85801.92	25.0	14.80	4.18	1.99	0.30	0.10
9/10/22	11:57:00	85817.99	26.0	14.80	4.18	1.92	0.30	0.10
9/10/22	11:58:00	85858.67	25.0	14.80	4.18	1.92	0.30	0.10
9/10/22	11:59:00	85866.60	30.0	14.80	4.18	1.95	0.30	0.10
9/10/22	12:00:00	85878.56	30.0	14.80	4.18	1.91	0.30	0.10
9/10/22	12:01:00	85732.56	29.0	14.80	4.18	1.88	0.30	0.10
9/10/22	12:02:00	85651.27	30.7	14.80	4.19	1.94	0.30	0.10
9/10/22	12:03:00	85711.12	33.9	14.80	4.18	1.92	0.30	0.10
9/10/22	12:04:00	85614.35	35.0	14.80	4.19	1.91	0.30	0.10
9/10/22	12:05:00	85452.96	33.8	14.80	4.18	1.91	0.30	0.10
9/10/22	12:06:00	85652.48	36.8	14.90	4.18	1.96	0.30	0.10
9/10/22	12:07:00	85651.38	37.0	14.90	4.19	1.98	0.30	0.10
9/10/22	12:08:00	85592.03	36.2	14.90	4.19	2.00	0.30	0.10
9/10/22	12:09:00	85716.72	41.5	14.90	4.19	1.88	0.30	0.10
9/10/22	12:10:00	85628.01	41.8	14.90	4.19	1.94	0.30	0.10
9/10/22	12:11:00	85629.61	41.6	14.90	4.19	1.92	0.30	0.10
9/10/22	12:12:00	85682.85	41.1	14.90	4.19	1.94	0.30	0.10
9/10/22	12:13:00	85554.32	43.0	14.90	4.19	1.97	0.30	0.10
9/10/22	12:14:00	85669.99	44.7	14.90	4.19	2.00	0.30	0.10
9/10/22	12:15:01	85760.41	47.4	14.90	4.19	1.96	0.30	0.10
9/10/22	12:16:00	85681.47	48.0	14.90	4.19	1.96	0.30	0.10
9/10/22	12:17:00	85793.55	46.9	14.90	4.18	1.95	0.30	0.10
9/10/22	12:18:01	85769.90	46.4	14.90	4.18	1.97	0.30	0.10
9/10/22	12:19:01	85778.97	45.7	14.90	4.19	1.97	0.30	0.10
Average		8.6	30.0	14.9	4.2	1.9	0.3	0.1

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

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

Unit 15
 9/10/2022
 J. Gross
 484

Run 7

Date	Time	H2O% %v	Formaldehyde ppbv wet	O2 % dry	CO2 % dry	CO ppmvw	HCl ppmvw	HF ppmvw
9/10/22	12:43:57	85576.29	25.0	14.80	4.19	1.96	0.30	0.10
9/10/22	12:44:57	85631.04	25.0	14.80	4.20	1.99	0.30	0.10
9/10/22	12:45:57	85651.47	25.0	14.80	4.19	2.00	0.30	0.10
9/10/22	12:46:57	85598.99	25.0	14.80	4.19	2.00	0.30	0.10
9/10/22	12:47:57	85527.17	25.0	14.80	4.18	1.99	0.30	0.10
9/10/22	12:48:57	85611.69	25.0	14.80	4.19	2.01	0.30	0.10
9/10/22	12:49:57	85621.46	25.0	14.80	4.19	2.01	0.30	0.10
9/10/22	12:50:57	85611.42	25.0	14.80	4.19	2.05	0.30	0.10
9/10/22	12:51:57	85562.52	25.0	14.80	4.19	2.05	0.30	0.10
9/10/22	12:52:57	85739.48	25.0	14.80	4.20	2.06	0.30	0.10
9/10/22	12:53:57	85808.28	25.0	14.80	4.19	2.04	0.30	0.10
9/10/22	12:54:57	85728.70	25.0	14.80	4.19	2.07	0.30	0.10
9/10/22	12:55:57	85600.96	25.0	14.80	4.20	2.02	0.30	0.10
9/10/22	12:56:57	85718.46	25.0	14.80	4.19	1.97	0.30	0.10
9/10/22	12:57:57	85794.37	25.0	14.80	4.19	2.03	0.30	0.10
9/10/22	12:58:57	85848.98	25.0	14.80	4.19	2.09	0.30	0.10
9/10/22	12:59:57	85871.86	25.0	14.80	4.18	2.07	0.30	0.10
9/10/22	13:00:57	85874.92	25.0	14.80	4.18	2.04	0.30	0.10
9/10/22	13:01:57	85795.99	25.0	14.80	4.19	2.11	0.30	0.10
9/10/22	13:02:57	85937.69	25.0	14.80	4.18	2.08	0.30	0.10
9/10/22	13:03:57	85991.07	25.0	14.80	4.18	2.08	0.30	0.10
9/10/22	13:04:57	85840.23	25.0	14.80	4.19	2.05	0.30	0.10
9/10/22	13:05:57	85825.28	25.0	14.80	4.19	2.06	0.30	0.21
9/10/22	13:06:57	85905.90	25.0	14.80	4.19	1.98	0.30	0.21
9/10/22	13:07:57	85856.33	25.0	14.80	4.19	2.11	0.30	0.22
9/10/22	13:08:57	85816.36	25.0	14.80	4.19	2.07	0.30	0.23
9/10/22	13:09:57	86005.13	25.0	14.80	4.19	2.06	0.30	0.20
9/10/22	13:10:57	85839.06	25.0	14.80	4.19	2.10	0.30	0.23
9/10/22	13:11:57	85738.91	25.0	14.80	4.19	2.14	0.30	0.22
9/10/22	13:12:57	85741.47	25.0	14.80	4.19	2.08	0.30	0.23
9/10/22	13:13:57	85825.94	25.0	14.80	4.19	2.10	0.30	0.24
9/10/22	13:14:57	85822.47	25.0	14.80	4.19	2.11	0.30	0.22
9/10/22	13:15:57	85877.93	25.0	14.80	4.19	2.09	0.30	0.23
9/10/22	13:16:57	85776.92	25.0	14.80	4.19	2.11	0.30	0.21
9/10/22	13:17:57	86093.13	25.9	14.80	4.19	2.15	0.30	0.22
9/10/22	13:18:57	86107.32	26.8	14.80	4.18	2.11	0.30	0.21
9/10/22	13:19:57	86027.53	26.9	14.80	4.19	2.14	0.30	0.21
9/10/22	13:20:57	86036.32	28.7	14.80	4.19	2.13	0.30	0.26
9/10/22	13:21:57	85996.55	34.2	14.80	4.19	2.17	0.30	0.22
9/10/22	13:22:57	85995.23	35.4	14.80	4.18	2.16	0.30	0.24
9/10/22	13:23:57	85996.20	35.5	14.80	4.19	2.18	0.30	0.24
9/10/22	13:24:57	86020.94	35.4	14.80	4.19	2.24	0.30	0.25
9/10/22	13:25:57	85975.59	30.9	14.80	4.19	2.14	0.30	0.29
9/10/22	13:26:57	86031.89	39.4	14.80	4.19	2.16	0.30	0.24
9/10/22	13:27:57	86036.09	36.7	14.80	4.19	2.19	0.30	0.26
9/10/22	13:28:57	85971.50	34.4	14.80	4.19	2.19	0.30	0.26
9/10/22	13:29:57	86128.93	35.3	14.80	4.19	2.15	0.30	0.27
9/10/22	13:30:57	85923.84	37.0	14.80	4.19	2.10	0.30	0.27
9/10/22	13:31:57	85960.71	32.6	14.80	4.19	2.14	0.30	0.25
9/10/22	13:32:57	85831.69	34.9	14.80	4.19	2.09	0.30	0.25
9/10/22	13:33:57	85841.20	36.1	14.80	4.18	2.13	0.30	0.28
9/10/22	13:34:58	85913.61	33.8	14.80	4.19	2.17	0.30	0.25
9/10/22	13:35:57	85923.83	31.0	14.80	4.19	2.17	0.30	0.27
9/10/22	13:36:57	85988.15	30.0	14.80	4.18	2.21	0.30	0.24
9/10/22	13:37:57	86071.78	30.4	14.80	4.19	2.11	0.30	0.26
9/10/22	13:38:58	86160.77	30.9	14.80	4.19	2.11	0.30	0.28
9/10/22	13:39:57	86027.75	33.3	14.80	4.19	2.16	0.30	0.28
9/10/22	13:40:58	86014.26	31.4	14.80	4.19	2.15	0.30	0.26
9/10/22	13:41:58	86084.20	31.4	14.80	4.19	2.14	0.30	0.24
9/10/22	13:42:58	86122.45	27.0	14.80	4.19	2.06	0.30	0.27
Average		8.6	28.3	14.8	4.2	2.1	0.3	0.2

Compliance Stratification Test Results Summary
Middletown Power LLC
Middletown Facility
Unit 15
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	14:09	14.90	0.22	0.03
	2	34.52	14:11	14.90	0.22	0.03
	3	52.52	14:13	14.90	0.22	0.03
2	1	23.336	14:18	14.90	0.22	0.03
	2	34.52	14:20	14.80	0.45	0.07
	3	52.52	14:22	14.80	0.45	0.07
3	1	23.336	14:29	14.80	0.45	0.07
	2	34.52	14:31	14.80	0.45	0.07
	3	52.52	14:33	14.80	0.45	0.07
4	1	23.336	14:37	15.00	0.90	0.13
	2	34.52	14:39	14.90	0.22	0.03
	3	52.52	14:41	14.90	0.22	0.03
Average				14.87		

Client:	Middletown, LLC			
Facility:	Middletown			
Test Location:	Unit 15			
Project #:	M223610			
Test Method:	5/29			
Test Engineer:	RNS			
Test Technician:	JVC			
lb/mmBtu Emissions by:	Standard, O2 Based Fuel			
Type of Fuel Firing:	Oil			
	<u>Run 1</u>	<u>Run 2</u>	<u>Run 3</u>	<u>Run 4</u>
Standard Fuel Factor Fd, dscf/mmBtu:	9,190.0	9,190.0	9,190.0	9,190.0
Temp ID:	CM23	CM23	CM7	CM23
Meter ID:	CM23	CM23	CM7	CM23
Pitot ID:	154	154	120	154
Nozzle Diameter (Inches):	0.268	0.268	0.271	0.268
Meter Calibration Date:	8/5/2022	8/5/2022	9/6/2022	8/5/2022
Meter Calibration Factor (Y):	0.995	0.995	0.997	0.995
Meter Orifice Setting (Delta H):	1.878	1.878	1.601	1.878
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/482			
Moisture Balance ID:	1000g			
# of Runs	4			

Run 1 - Method 5/29

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 15
 Source Condition: Normal

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

DRY GAS METER CONDITIONS					STACK CONDITIONS		
	ΔH:	2.71	in. H ₂ O		Static Pressure	-1.70	in. H ₂ O
Meter Temperature, T _m :	90.7	°F			Flue Pressure (Ps):	29.88	in. Hg. abs.
Sqrt ΔP:	1.105	in. H ₂ O			Carbon Dioxide:	4.50	%
Stack Temperature, T _s :	776.3	°F			Oxygen:	14.90	%
Meter Volume, V _m :	162.626	ft ³			Nitrogen:	80.60	%
Meter Volume, V _{mstd} :	156.580	dscf			Gas Weight dry, M _d :	29.316	lb/lb mole
Meter Volume, V _{wstd} :	14.596	wscf			Gas Weight wet, M _s :	28.351	lb/lb mole
Isokinetic Variance:	99.0	%I			Excess Air:	---	%
Test Length:	180.00	in mins.			Gas Velocity, V _s :	95.894	fps
Nozzle Diameter:	0.268	in inches			Volumetric Flow:	650,718	acfm
Barometric Pressure:	30.00	in Hg			Volumetric Flow:	253,839	dscfm
					Volumetric Flow:	277,502	scfm

MOISTURE DETERMINATION

Initial Impinger Content:	3492.0	ml	Silica Initial Wt.	852.2	grams
Final Impinger Content:	3771.1	ml	Silica Final Wt.	883.0	grams
Impinger Difference:	279.1	ml	Silica Difference:	30.8	grams
Total Water Gain:	309.9		Moisture, Bws:	0.085	

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	Outlet °F	Probe Temp °F	Filter Exit Temp °F	Impinger Exit Temp °F
1-1	9:00:00	1.80	3.70	17.824	807	82	81	251	253	58
1-2	9:04:30	1.50	3.10	22.640	809	85	81	254	254	60
1-3	9:09:00	1.70	3.50	27.060	809	87	82	254	252	60
1-4	9:13:30	1.50	3.10	31.760	810	87	85	258	252	62
1-5	9:18:00	1.40	2.90	36.190	809	88	84	263	251	63
1-6	9:22:30	1.20	2.50	40.470	811	88	84	259	251	63
1-7	9:27:00	1.20	2.50	44.430	807	89	85	252	250	64
1-8	9:31:30	1.00	2.10	48.400	807	90	85	253	252	64
1-9	9:36:00	0.73	1.60	52.030	726	90	85	252	252	63
1-10	9:40:30	0.33	1.00	55.250	385	91	86	251	251	61
	9:45:00			57.803						
2-1	9:57:00	1.30	2.70	57.803	806	90	87	250	252	65
2-2	10:01:30	1.40	2.90	61.950	806	90	87	252	255	62
2-3	10:06:00	1.30	2.70	66.260	806	91	87	254	255	60
2-4	10:10:30	1.20	2.50	70.410	806	92	88	253	249	60
2-5	10:15:00	1.20	2.50	74.420	806	93	88	253	249	60
2-6	10:19:30	1.40	3.00	78.410	806	94	89	251	250	60
2-7	10:24:00	1.20	2.50	82.740	804	94	89	251	251	61
2-8	10:28:30	0.87	1.90	86.750	783	94	90	254	249	61
2-9	10:33:00	0.23	0.65	90.210	481	95	90	251	254	61
2-10	10:37:30	0.18	0.57	92.230	385	94	90	249	249	63
	10:42:00			94.146						
3-1	10:56:00	2.40	5.10	94.146	808	92	91	252	255	64
3-2	11:00:30	2.20	4.70	99.810	807	95	92	252	252	65
3-3	11:05:00	2.00	4.20	105.260	812	96	92	255	246	65
3-4	11:09:30	2.00	4.20	110.440	812	95	92	248	251	63
3-5	11:14:00	1.80	3.80	115.620	813	94	92	268	254	63
3-6	11:18:30	1.80	3.80	120.530	813	94	92	252	250	65
3-7	11:23:00	2.00	4.20	125.440	813	94	92	252	251	64
3-8	11:27:30	1.90	4.00	130.620	813	94	92	252	251	64
3-9	11:32:00	1.50	3.20	135.660	812	94	92	252	250	65
3-10	11:36:30	1.20	2.50	140.140	811	94	92	252	251	65
	11:41:00			144.162						
4-1	11:53:00	1.20	2.50	144.162	811	94	92	251	255	62
4-2	11:57:30	1.10	2.30	148.170	812	94	92	251	255	62
4-3	12:02:00	1.10	2.30	152.010	812	94	92	251	254	63
4-4	12:06:30	1.10	2.30	155.850	812	94	92	253	255	64
4-5	12:11:00	1.10	2.30	159.690	813	94	93	252	251	65
4-6	12:15:30	1.00	2.10	163.530	812	95	93	252	252	66
4-7	12:20:00	1.00	2.10	167.210	811	95	93	251	252	66
4-8	12:24:30	1.00	2.10	170.870	808	95	93	253	252	65
4-9	12:29:00	0.90	1.90	174.540	810	95	93	251	250	63
4-10	12:33:30	0.42	0.92	178.020	766	95	93	251	252	63
	12:38:00			180.450						

Total	3:00:00			162.626		92.3	89.2			
Average			2.71		776.3	90.7				
Min			0.57		385.0	81.0				
Max			5.10		813.0	96.0				

Impinger Weight Sheet - Run 1

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 15
 Project #: M223610
 Date: 9/9/2022
 Test Method: 5/29
 Weighed/Measured By: CT
 Balance ID: 1000g

Scale Calibration Check Date: 9/9/2022

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	<u>250.0</u>
500	<u>500.0</u>
750	<u>750.1</u>

IMPINGER	FINAL	INITIAL	GAIN
CONTENTS	MLS / GRAMS	MLS / GRAMS	MLS / GRAMS
HNO3/H2O2	826.0	703.6	122.4
HNO3/H2O2	842.7	731.5	111.2
Empty	596.2	570.0	26.2
KMnO4/H2SO4	721.2	711.1	10.1
KMnO4/H2SO4	785.0	775.8	9.2
Silica Gel	883.0	852.2	30.8

<u>3,771.1</u>	<u>3,492.0</u>	<u>279.1</u>
Liquid Final	Liquid Initial	Liquid Gain
<u>883.0</u>	<u>852.2</u>	<u>30.8</u>
Silica Final	Silica Initial	Silica Gain

Run 2 - Method 5/29

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 15
 Source Condition: Normal

Date: 9/9/22
 Start Time: 14:07
 End Time: 17:23

DRY GAS METER CONDITIONS					STACK CONDITIONS		
	ΔH:	2.67	In. H ₂ O		Static Pressure	-1.70	in. H ₂ O
Meter Temperature, T _m :	94.1	°F			Flue Pressure (Ps):	29.88	in. Hg. abs.
Sqrt ΔP:	1.118	In. H ₂ O			Carbon Dioxide:	4.50	%
Stack Temperature, T _s :	799.9	°F			Oxygen:	14.80	%
Meter Volume, V _m :	164.927	ft ³			Nitrogen:	80.7	%
Meter Volume, V _{mstd} :	157.806	dscf			Gas Weight dry, M _d :	29.312	lb/lb mole
Meter Volume, V _{wstd} :	15.345	wscf			Gas Weight wet, M _s :	28.309	lb/lb mole
Isokinetic Variance:	99.9	%I			Excess Air:	---	%
Test Length:	180.00	in mins.			Gas Velocity, V _s :	97.998	fps
Nozzle Diameter:	0.268	in inches			Volumetric Flow:	665,002	acfm
Barometric Pressure:	30.00	in Hg			Volumetric Flow:	253,608	dscfm
					Volumetric Flow:	278,270	scfm

MOISTURE DETERMINATION

Initial Impinger Content:	3541.9	ml	Silica Initial Wt.	854.7	grams
Final Impinger Content:	3825.1	ml	Silica Final Wt.	897.3	grams
Impinger Difference:	283.2	ml	Silica Difference:	42.6	grams
Total Water Gain:	325.8		Moisture, Bws:	0.089	

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	Outlet °F	Probe Temp °F	Filter Exit Temp °F	Impinger Exit Temp °F
1-1	14:07:00	1.20	2.50	81.345	809	95	94	253	250	62
1-2	14:11:30	1.20	2.50	85.370	807	95	94	255	250	60
1-3	14:16:00	1.30	2.70	89.400	810	95	94	254	253	61
1-4	14:20:30	1.20	2.50	93.590	810	95	94	253	253	62
1-5	14:25:00	1.10	2.30	97.610	810	95	94	253	253	62
1-6	14:29:30	1.10	2.30	101.460	811	95	94	251	251	63
1-7	14:34:00	1.00	2.10	105.320	810	95	94	254	251	64
1-8	14:38:30	1.10	2.30	108.990	811	95	94	253	251	65
1-9	14:43:00	1.10	2.30	112.850	811	95	94	252	251	65
1-10	14:47:30	1.00	2.10	116.690	810	95	94	253	253	65
	14:52:00			120.370						
2-1	14:57:00	1.30	2.80	120.370	803	95	94	249	249	67
2-2	15:01:30	1.40	3.00	124.580	810	95	94	253	254	67
2-3	15:06:00	1.30	2.70	128.920	811	95	94	252	254	62
2-4	15:10:30	1.20	2.50	133.100	811	95	94	252	249	63
2-5	15:15:00	1.20	2.50	137.130	811	95	94	253	252	62
2-6	15:19:30	1.20	2.50	141.150	810	95	94	252	251	61
2-7	15:24:00	1.20	2.50	145.170	811	95	94	252	251	60
2-8	15:28:30	1.10	2.30	149.190	809	96	94	253	251	59
2-9	15:33:00	1.30	2.80	153.050	810	96	94	254	250	59
2-10	15:37:30	1.00	2.10	157.240	808	96	94	252	253	60
	15:42:00			160.930						
3-1	15:47:00	1.30	2.70	160.930	810	95	94	256	252	61
3-2	15:51:30	1.30	2.70	165.120	810	95	94	254	247	56
3-3	15:56:00	1.20	2.50	169.310	810	95	94	254	250	57
3-4	16:00:30	1.20	2.50	173.330	811	95	94	252	252	56
3-5	16:05:00	1.20	2.50	177.350	811	96	94	252	253	56
3-6	16:09:30	1.30	2.70	181.380	811	96	94	252	253	57
3-7	16:14:00	1.30	2.70	185.580	811	96	94	252	251	56
3-8	16:18:30	1.20	2.50	189.770	811	96	94	253	252	57
3-9	16:23:00	1.10	2.30	193.790	810	96	94	253	250	58
3-10	16:27:30	0.73	1.50	197.640	810	96	94	251	253	58
	16:32:00			200.790						
4-1	16:38:00	2.00	4.20	200.790	810	94	93	252	250	56
4-2	16:42:30	1.80	3.80	205.980	811	93	93	255	252	56
4-3	16:47:00	1.90	4.00	210.890	810	93	93	250	253	58
4-4	16:51:30	1.90	4.00	215.940	810	93	92	251	252	59
4-5	16:56:00	1.80	3.80	220.980	810	93	92	253	253	59
4-6	17:00:30	1.40	3.00	225.890	810	93	92	251	248	60
4-7	17:05:00	1.30	2.70	230.230	811	93	92	254	253	60
4-8	17:09:30	1.20	2.50	234.400	811	93	92	253	251	61
4-9	17:14:00	1.00	2.10	238.410	811	93	92	252	251	62
4-10	17:18:30	0.90	2.80	242.060	404	92	91	253	251	60
	17:23:00			246.272						

Total	3:00:00			164.927		94.7	93.6			
Average			2.67		799.9		94.1			
Min			1.50		404.0		91.0			
Max			4.20		811.0		96.0			

Impinger Weight Sheet - Run 2

Client: Middletown, LLC Facility: Middletown Test Location: Unit 15 Project #: M223610 Date: 9/9/2022 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	867.3	713.5	153.8
HNO3/H2O2	840.6	740.2	100.4
Empty	659.9	643.5	16.4
KMnO4/H2SO4	727.3	720.4	6.9
KMnO4/H2SO4	730.0	724.3	5.7
Silica Gel	897.3	854.7	42.6

<u>3,825.1</u> Liquid Final	<u>3,541.9</u> Liquid Initial	<u>283.2</u> Liquid Gain
<u>897.3</u> Silica Final	<u>854.7</u> Silica Initial	<u>42.6</u> Silica Gain

Run 3 - Method 5/29

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 15
 Source Condition: Normal

Date: 9/9/22
 Start Time: 17:24
 End Time: 20:35

DRY GAS METER CONDITIONS					STACK CONDITIONS		
	ΔH:	2.07	In. H ₂ O		Static Pressure	-1.70	in. H ₂ O
Meter Temperature, T _m :	73.5	°F			Flue Pressure (Ps):	29.88	in. Hg. abs.
Sqrt ΔP:	1.106	In. H ₂ O			Carbon Dioxide:	4.60	%
Stack Temperature, T _s :	807.2	°F			Oxygen:	14.60	%
Meter Volume, V _m :	161.351	ft ³			Nitrogen:	80.8	%
Meter Volume, V _{mstd} :	160.455	dscf			Gas Weight dry, M _d :	29.320	lb/lb mole
Meter Volume, V _{wstd} :	14.719	wscf			Gas Weight wet, M _s :	28.369	lb/lb mole
Isokinetic Variance:	100.3	%I			Excess Air:	---	%
Test Length:	180.00	in mins.			Gas Velocity, V _s :	97.108	fps
Nozzle Diameter:	0.271	in inches			Volumetric Flow:	658,962	acfm
Barometric Pressure:	30.00	in Hg			Volumetric Flow:	251,123	dscfm
					Volumetric Flow:	274,159	scfm

MOISTURE DETERMINATION

Initial Impinger Content:	3421.5	ml	Silica Initial Wt.	754.1	grams
Final Impinger Content:	3695.9	ml	Silica Final Wt.	792.2	grams
Impinger Difference:	274.4	ml	Silica Difference:	38.1	grams
Total Water Gain:	312.5		Moisture, Bws:	0.084	

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	Outlet °F	Probe Temp °F	Filter Exit Temp °F	Impinger Exit Temp °F
1-1	17:24:00	1.40	2.38	62.228	808	76	79	242	248	68
1-2	17:28:30	1.30	2.20	66.589	809	76	78	262	252	66
1-3	17:33:00	1.30	2.20	70.767	809	75	78	257	252	64
1-4	17:37:30	1.20	2.03	74.953	808	76	77	256	250	62
1-5	17:42:00	1.30	2.20	78.952	808	76	76	256	250	58
1-6	17:46:30	1.20	2.03	83.144	807	76	76	256	250	58
1-7	17:51:00	1.10	1.86	87.144	807	76	76	261	250	59
1-8	17:55:30	1.10	1.86	90.986	808	76	75	263	250	59
1-9	18:00:00	1.00	1.69	94.831	807	76	75	258	251	60
1-10	18:04:30	1.00	1.69	98.492	807	76	75	255	250	60
	18:09:00			102.150						
2-1	18:12:00	1.70	2.87	102.150	807	74	73	253	254	63
2-2	18:16:30	1.50	2.53	106.923	807	74	73	256	252	60
2-3	18:21:00	1.40	2.36	111.377	807	74	73	256	251	60
2-4	18:25:30	1.40	2.36	115.703	807	73	73	258	252	61
2-5	18:30:00	1.40	2.36	120.016	807	73	73	254	252	61
2-6	18:34:30	1.20	2.02	124.331	807	73	72	259	251	61
2-7	18:39:00	1.30	2.19	128.307	807	72	72	265	250	62
2-8	18:43:30	1.10	1.85	132.448	807	73	72	263	250	62
2-9	18:48:00	1.10	1.85	136.270	807	72	72	256	252	63
2-10	18:52:30	1.00	1.68	140.082	807	72	72	252	250	63
	18:57:00			143.721						
3-1	19:01:00	1.30	2.18	143.721	807	72	71	252	250	64
3-2	19:05:30	1.30	2.19	147.878	807	73	71	255	252	59
3-3	19:10:00	1.20	2.02	152.026	807	73	70	260	250	57
3-4	19:14:30	1.20	2.02	156.007	807	73	70	264	254	57
3-5	19:19:00	1.20	2.02	159.988	807	73	71	268	253	58
3-6	19:23:30	1.10	1.85	163.964	807	73	71	265	250	58
3-7	19:28:00	1.20	2.02	167.777	807	74	71	258	251	59
3-8	19:32:30	1.10	1.85	171.769	807	74	71	252	254	59
3-9	19:37:00	1.00	1.68	175.572	807	75	71	252	250	59
3-10	19:41:30	1.00	1.69	179.236	806	75	71	250	250	60
	19:46:00			182.877						
4-1	19:50:00	1.40	2.36	182.877	807	74	71	255	254	65
4-2	19:54:30	1.30	2.19	187.194	807	74	71	257	250	60
4-3	19:59:00	1.40	2.36	191.357	807	75	71	256	252	61
4-4	20:03:30	1.20	2.02	195.665	807	75	71	260	253	61
4-5	20:08:00	1.30	2.19	199.652	807	75	71	259	253	61
4-6	20:12:30	1.20	2.02	203.806	807	74	70	262	251	62
4-7	20:17:00	1.20	2.02	207.788	807	74	70	264	252	62
4-8	20:21:30	1.20	2.02	211.774	807	75	70	254	252	62
4-9	20:26:00	1.20	2.02	215.764	807	76	70	252	250	63
4-10	20:30:30	1.10	1.86	219.748	807	77	71	252	252	63
	20:35:00			223.579						

Total	3:00:00			161.351		74.3	72.6			
Average			2.07		807.2		73.5			
Min			1.68		806.0		70.0			
Max			2.87		809.0		79.0			

Impinger Weight Sheet - Run 3

Client: Middletown, LLC Facility: Middletown Test Location: Unit 15 Project #: M223610 Date: 9/9/2022 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	849.1	707.2	141.9
HNO3/H2O2	739.4	641.4	98.0
Empty	641.5	619.8	21.7
KMnO4/H2SO4	707.0	697.1	9.9
KMnO4/H2SO4	758.9	756.0	2.9
Silica Gel	792.2	754.1	38.1

<u>3,695.9</u> Liquid Final	<u>3,421.5</u> Liquid Initial	<u>274.4</u> Liquid Gain
<u>792.2</u> Silica Final	<u>754.1</u> Silica Initial	<u>38.1</u> Silica Gain

Run 4 -Method 5/29

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 15
 Source Condition: Normal

Date: 9/10/22
 Start Time: 7:40
 End Time: 10:55

DRY GAS METER CONDITIONS					STACK CONDITIONS		
	ΔH:	2.63	In. H ₂ O		Static Pressure	-1.70	in. H ₂ O
Meter Temperature, Tm:	83.5	°F			Flue Pressure (Ps):	30.04	in. Hg. abs.
Sqrt ΔP:	1.114	In. H ₂ O			Carbon Dioxide:	4.50	%
Stack Temperature, Ts:	789.8	°F			Oxygen:	15.10	%
Meter Volume, Vm:	161.218	ft ³			Nitrogen:	80.4	%
Meter Volume, Vmstd:	158.089	dscf			Gas Weight dry, Md:	29.324	lb/lb mole
Meter Volume, Vwstd:	14.827	wscf			Gas Weight wet, Ms:	28.353	lb/lb mole
Isokinetic Variance:	99.5	%I			Excess Air:	---	%
Test Length:	180.00	in mins.			Gas Velocity, Vs:	96.897	fps
Nozzle Diameter:	0.268	in inches			Volumetric Flow:	657,525	acfm
Barometric Pressure:	30.16	in Hg			Volumetric Flow:	254,934	dscfm
					Volumetric Flow:	278,844	scfm

MOISTURE DETERMINATION

Initial Impinger Content:	3519.1	ml	Silica Initial Wt.	865.0	grams
Final Impinger Content:	3814.8	ml	Silica Final Wt.	884.1	grams
Impinger Difference:	295.7	ml	Silica Difference:	19.1	grams
Total Water Gain:	314.8		Moisture, Bws:	0.086	

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	7:40:00	1.60	3.20	47.196	795	67	65	257	256	58
1-2	7:44:30	1.40	2.90	51.620	798	72	66	249	257	61
1-3	7:49:00	1.40	2.90	55.770	800	74	67	250	255	63
1-4	7:53:30	1.30	2.70	59.940	801	76	68	252	252	64
1-5	7:58:00	1.20	2.50	63.960	803	77	70	252	253	64
1-6	8:02:30	1.20	2.50	67.830	804	78	71	252	252	64
1-7	8:07:00	1.20	2.50	71.710	804	79	72	251	252	64
1-8	8:11:30	1.20	2.50	75.590	805	80	73	254	252	65
1-9	8:16:00	1.10	2.30	79.490	804	81	75	252	252	66
1-10	8:20:30	0.80	2.00	83.220	565	82	77	250	251	67
	8:25:00			86.776						
2-1	8:30:00	1.20	2.50	86.776	804	82	83	251	250	63
2-2	8:34:30	1.40	2.90	90.710	805	84	79	253	254	61
2-3	8:39:00	1.30	2.70	94.950	806	86	80	253	252	64
2-4	8:43:30	1.20	2.50	99.050	807	87	82	252	256	64
2-5	8:48:00	1.20	2.50	102.990	807	88	83	252	252	65
2-6	8:52:30	1.20	2.50	106.950	807	88	83	252	251	64
2-7	8:57:00	1.30	2.70	110.900	807	89	84	252	252	63
2-8	9:01:30	1.20	2.50	115.020	807	90	85	252	252	64
2-9	9:06:00	1.00	2.10	118.990	807	89	85	252	253	64
2-10	9:10:30	0.85	2.20	122.620	570	89	86	251	251	65
	9:15:00			126.317						
3-1	9:20:00	1.50	3.10	126.317	805	87	86	250	249	66
3-2	9:24:30	1.40	3.00	130.750	807	87	86	254	252	65
3-3	9:29:00	1.30	2.70	135.030	807	87	86	252	254	65
3-4	9:33:30	1.30	2.70	139.150	808	87	86	252	252	64
3-5	9:38:00	1.20	2.50	143.270	809	87	86	252	251	61
3-6	9:42:30	1.20	2.50	147.230	808	88	86	252	250	63
3-7	9:47:00	1.20	2.50	151.190	809	88	87	251	251	64
3-8	9:51:30	1.20	2.50	155.150	809	88	86	253	251	65
3-9	9:56:00	1.10	2.30	159.110	809	88	86	253	251	65
3-10	10:00:30	0.90	2.20	162.900	630	88	86	255	252	66
	10:05:00			166.611						
4-1	10:10:00	1.70	3.60	166.611	807	89	86	251	251	64
4-2	10:14:30	1.80	3.80	171.330	808	88	87	254	254	64
4-3	10:19:00	1.60	3.30	176.180	808	89	87	252	252	64
4-4	10:23:30	1.40	2.90	180.770	809	89	87	252	252	65
4-5	10:28:00	1.30	2.70	185.070	809	90	88	252	253	65
4-6	10:32:30	1.20	2.50	189.200	807	90	88	252	251	66
4-7	10:37:00	1.30	2.70	193.180	809	90	88	252	250	66
4-8	10:41:30	1.20	2.50	197.310	810	91	88	251	252	66
4-9	10:46:00	1.10	2.30	201.300	810	91	88	253	252	66
4-10	10:50:30	0.83	1.70	205.100	809	91	88	252	252	66
	10:55:00			208.414						

Total	3:00:00			161.218		85.3	81.8			
Average			2.63		789.8		83.5			
Min			1.70		565.0		65.0			
Max			3.80		810.0		91.0			

Impinger Weight Sheet - Run 4

Client:	Middletown, LLC F	Scale Calibration Check Date:	9/9/2022
Facility:	Middletown	Scale Calibration Check (see QS-6.05C for procedure)	
Test Location:	Unit 15	must be within $\pm 0.5g$ of certified mass	
Project #:	M223610	<u>Certified Weight, grams</u>	<u>Result, grams</u>
Date:	9/10/2022	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	882.7	710.7	172.0
HNO3/H2O2	854.2	735.8	118.4
Empty	574.3	575.0	-0.7
KMnO4/H2SO4	786.8	781.8	5.0
KMnO4/H2SO4	716.8	715.8	1.0
Silica Gel	884.1	865.0	19.1

3,814.8	3,519.1	295.7
Liquid Final	Liquid Initial	Liquid Gain
884.1	865.0	19.1
Silica Final	Silica Initial	Silica Gain

Client:	Middletown, LLC
Facility:	Middletown
Test Location:	Unit 15
Project #:	M223610
Test Method:	5/29
Test Engineer:	RNS
Test Technician:	JVC
lb/mmBtu Emissions by:	Standard, O2 Based Fuel Oil
Type of Fuel Firing:	

	<u>Run 5</u>	<u>Run 6</u>	<u>Run 7</u>
Standard Fuel Factor Fd, dscf/mmBtu:	9,190.0	9,190.0	9,190.0
Temp ID:	CM23	CM23	CM23
Meter ID:	CM23	CM23	CM23
Pitot ID:	154	154	154
Nozzle Diameter (Inches):	0.268	0.268	0.268
Meter Calibration Date:	8/5/2022	8/5/2022	8/5/2022
Meter Calibration Factor (Y):	0.995	0.995	0.995
Meter Orifice Setting (Delta H):	1.878	1.878	1.878
Nozzle Kit ID Number and Material:		0	0
Pitot Tube Coefficient:		0.840	
Probe Length (Feet):		6.0	
Probe Liner Material:		Glass	
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/482	
Moisture Balance ID:		1000g	
# of Runs		3	

Run 5 - Method 5/29

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 15
 Source Condition: Normal

Date: 9/10/22
 Start Time: 11:30
 End Time: 14:45

DRY GAS METER CONDITIONS				STACK CONDITIONS			
ΔH:	2.86	in. H ₂ O		Static Pressure:	-1.70	in. H ₂ O	
Meter Temperature, Tm:	96.7	°F		Flue Pressure (Ps):	30.04	in. Hg. abs.	
Sgpt ΔP:	1.152	in. H ₂ O		Carbon Dioxide:	4.50	%	
Stack Temperature, Ts:	803.9	°F		Oxygen:	14.90	%	
Meter Volume, Vm:	169.881	ft ³		Nitrogen:	80.60	%	
Meter Volume, Vmsd:	162.732	dscf		Gas Weight dry, Md:	29.316	lb/lb mole	
Meter Volume, Vwsd:	15.774	wscf		Gas Weight wet, Ms:	28.316	lb/lb mole	
Isokinetic Variance:	99.8	%I		Excess Air:	---	%	
Test Length:	180.00	in mins.		Gas Velocity, Vs:	100.833	fps	
Nozzle Diameter:	0.268	in inches		Volumetric Flow:	684,239	acfm	
Barometric Pressure:	30.16	in Hg		Volumetric Flow:	261,596	dscfm	
				Volumetric Flow:	286,953	scfm	

MOISTURE DETERMINATION

Initial Impinger Content:	3452.1	ml	Silica Initial Wt.	767.2	grams
Final Impinger Content:	3740.8	ml	Silica Final Wt.	813.4	grams
Impinger Difference:	288.7	ml	Silica Difference:	46.2	grams

Total Water Gain: 334.9 Moisture, Bws: 0.088

Port- Point No.	Clock Time	Velocity Head up 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	11:30:00	1.40	2.90	8.908	808	92	91	255	252	58
1-2	11:34:30	1.30	2.70	13.220	809	94	91	251	244	60
1-3	11:39:00	1.30	2.70	17.390	809	95	92	252	259	60
1-4	11:43:30	1.30	2.70	21.560	809	96	92	255	257	62
1-5	11:48:00	1.20	2.50	25.730	810	96	92	257	254	62
1-6	11:52:30	1.20	2.50	29.740	810	96	93	256	250	63
1-7	11:57:00	1.30	2.70	33.760	810	96	93	256	251	62
1-8	12:01:30	1.20	2.50	37.930	810	96	93	253	252	62
1-9	12:06:00	1.20	2.50	41.950	809	96	93	252	251	62
1-10	12:10:30	0.98	2.10	45.960	804	96	93	252	251	62
	12:15:00			49.603						
2-1	12:20:00	1.30	2.80	49.603	809	96	94	249	257	63
2-2	12:24:30	1.40	3.00	53.790	809	96	94	252	253	63
2-3	12:29:00	1.30	2.80	58.130	809	96	94	252	252	63
2-4	12:33:30	1.30	2.80	62.310	810	96	94	254	250	64
2-5	12:38:00	1.30	2.80	64.500	810	97	94	253	253	64
2-6	12:42:30	1.40	3.00	70.680	811	98	95	252	252	65
2-7	12:47:00	1.20	2.50	75.020	810	98	95	252	251	65
2-8	12:51:30	1.20	2.50	79.050	810	98	95	252	252	65
2-9	12:56:00	1.10	2.30	83.080	809	99	96	253	252	66
2-10	13:00:30	1.00	2.10	86.940	809	99	96	251	252	66
	13:05:00			90.635						
3-1	13:10:00	1.70	3.60	90.635	809	97	97	254	251	62
3-2	13:14:30	1.50	3.20	95.440	809	98	98	252	253	62
3-3	13:19:00	1.60	3.40	99.950	810	98	96	252	253	64
3-4	13:23:30	1.40	3.00	104.610	809	99	97	253	253	66
3-5	13:28:00	1.30	2.80	108.970	810	99	97	252	252	65
3-6	13:32:30	1.20	2.60	113.180	810	100	97	252	252	65
3-7	13:37:00	1.20	2.60	117.220	811	100	97	252	251	65
3-8	13:41:30	1.20	2.60	121.260	811	100	97	252	251	66
3-9	13:46:00	1.00	2.10	125.300	811	100	97	252	249	66
3-10	13:50:30	0.83	2.20	128.990	583	100	98	252	251	66
	13:55:00			132.705						
4-1	14:00:00	2.00	4.30	132.705	809	100	98	249	252	62
4-2	14:04:30	1.80	3.80	137.920	808	100	98	251	254	64
4-3	14:09:00	2.10	4.50	142.880	809	100	98	253	253	63
4-4	14:13:30	2.00	4.30	148.240	810	100	98	254	252	65
4-5	14:18:00	1.80	3.80	153.470	810	100	98	252	251	65
4-6	14:22:30	1.30	2.80	158.420	811	99	98	252	251	66
4-7	14:27:00	1.30	2.80	162.630	810	99	98	252	252	66
4-8	14:31:30	1.20	2.60	166.840	810	99	98	252	252	60
4-9	14:36:00	1.30	2.80	170.880	810	100	98	252	252	60
4-10	14:40:30	1.00	2.10	175.090	810	100	98	252	252	64
	14:45:00			178.789						
Total	3:00:00			169.881		97.9	95.5			
Average			2.86		803.9	96.7				
Min			2.10		583.0	91.0				
Max			4.50		811.0	100.0				

Impinger Weight Sheet - Run 5

Client:	Middletown, LLC	Scale Calibration Check Date:	9/10/2022
Facility:	Middletown	<u>Scale Calibration Check (see QS-6.05C for procedure)</u>	
Test Location:	Unit 15	must be within $\pm 0.5g$ of certified mass	
Project #:	M223610	<u>Certified Weight, grams</u>	<u>Result, grams</u>
Date:	9/10/2022	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	850.6	712.6	138.0
HNO3/H2O2	751.0	645.4	105.6
Empty	648.6	624.8	23.8
KMnO4/H2SO4	783.3	771.1	12.2
KMnO4/H2SO4	707.3	698.2	9.1
Silica Gel	813.4	767.2	46.2

3,740.8	3,452.1	288.7
Liquid Final	Liquid Initial	Liquid Gain
813.4	767.2	46.2
Silica Final	Silica Initial	Silica Gain

Run 6 - Method 5/29

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 15
 Source Condition: Normal

Date: 9/10/22
 Start Time: 15:25
 End Time: 18:40

DRY GAS METER CONDITIONS				STACK CONDITIONS			
ΔH:	2.63	In. H ₂ O		Static Pressure:	-1.70	In. H ₂ O	
Meter Temperature, Tm:	95.0	°F		Flue Pressure (Ps):	29.98	In. Hg. abs.	
Sgrr ΔP:	1.110	In. H ₂ O		Carbon Dioxide:	4.50	%	
Stack Temperature, Ts:	808.4	°F		Oxygen:	14.90	%	
Meter Volume, Vm:	162.888	ft ³		Nitrogen:	80.6	%	
Meter Volume, Vmsd:	156.107	dscf		Gas Weight dry, Md:	29.316	lb/lb mole	
Meter Volume, Vwsd:	12.722	wscf		Gas Weight wet, Ms:	28.463	lb/lb mole	
Isokinetic Variance:	98.6	%I		Excess Air:	---	%	
Test Length:	180.00	in mins.		Gas Velocity, Vs:	97.153	fps	
Nozzle Diameter:	0.268	in inches		Volumetric Flow:	659,267	acfm	
Barometric Pressure:	30.10	in Hg		Volumetric Flow:	254,216	dscfm	
				Volumetric Flow:	274,933	scfm	

MOISTURE DETERMINATION

Initial Impinger Content:	3397.2	ml	Silica Initial Wt.	837.3	grams
Final Impinger Content:	3623.9	ml	Silica Final Wt.	880.7	grams
Impinger Difference:	226.7	ml	Silica Difference:	43.4	grams
Total Water Gain:	270.1		Moisture, Bws:	0.075	

Port- Point No.	Clock Time	Velocity Head up in. H ₂ O	Orifice ΔH in. H ₂ O	Actual Meter Vol. ft ³	Stack Temp °F	Meter Temp Inlet °F	Probe Outlet °F	Filter Exit Temp °F	Impinger Exit Temp °F
1-1	15:25:00	1.60	3.40	81.167	808	97	96	241	243
1-2	15:29:30	1.40	3.00	85.810	809	100	97	251	252
1-3	15:34:00	1.30	2.80	90.190	809	100	97	253	254
1-4	15:38:30	1.40	3.00	94.400	809	99	97	252	259
1-5	15:43:00	1.30	2.80	98.789	810	99	97	252	258
1-6	15:47:30	1.40	3.00	102.960	810	99	97	266	251
1-7	15:52:00	1.20	2.60	107.330	810	98	97	263	251
1-8	15:56:30	1.20	2.60	111.360	810	98	97	261	252
1-9	16:01:00	1.10	2.30	115.400	810	97	97	259	251
1-10	16:05:30	0.90	1.90	119.260	810	97	97	263	251
	16:10:00			122.750					
2-1	16:15:00	1.70	3.60	122.750	810	97	97	258	252
2-2	16:19:30	1.60	3.40	127.550	810	97	96	252	251
2-3	16:24:00	1.30	2.80	132.200	809	96	96	253	253
2-4	16:28:30	1.30	2.80	136.400	809	96	96	259	252
2-5	16:33:00	1.20	2.50	140.590	809	97	96	260	251
2-6	16:37:30	1.20	2.50	144.610	809	96	96	257	251
2-7	16:42:00	1.20	2.50	148.640	809	96	96	254	250
2-8	16:46:30	1.20	2.50	152.660	809	96	96	254	251
2-9	16:51:00	1.00	2.10	156.690	809	96	95	254	251
2-10	16:55:30	0.83	1.80	160.360	809	96	95	250	252
	17:00:00			163.712					
3-1	17:05:00	1.40	3.00	163.712	808	95	95	258	251
3-2	17:09:30	1.50	3.20	168.050	808	95	95	255	252
3-3	17:14:00	1.40	3.00	172.550	807	95	94	254	252
3-4	17:18:30	1.30	2.80	176.890	808	95	95	256	251
3-5	17:23:00	1.30	2.80	181.070	808	95	95	256	252
3-6	17:27:30	1.20	2.50	185.260	808	95	94	255	251
3-7	17:32:00	1.20	2.50	189.270	808	94	94	254	251
3-8	17:36:30	1.30	2.80	193.290	808	94	94	253	251
3-9	17:41:00	1.00	2.10	197.460	808	94	94	253	251
3-10	17:45:30	0.73	1.50	201.130	808	94	94	253	251
	17:50:00			204.260					
4-1	17:55:00	1.30	2.70	204.260	807	93	93	252	251
4-2	17:59:30	1.30	2.70	208.430	807	92	92	252	252
4-3	18:04:00	1.30	2.70	212.590	807	92	92	252	250
4-4	18:08:30	1.30	2.70	216.760	807	92	92	251	252
4-5	18:13:00	1.30	2.70	220.920	807	92	92	253	252
4-6	18:17:30	1.20	2.50	225.080	807	92	92	253	252
4-7	18:22:00	1.20	2.50	229.080	807	91	91	255	254
4-8	18:26:30	1.10	2.30	233.080	807	91	91	250	255
4-9	18:31:00	1.10	2.30	236.910	807	92	91	253	252
4-10	18:35:30	0.83	1.80	240.730	807	92	91	255	252
	18:40:00			244.055					
Total	3:00:00			162.888		95.3	94.7		
Average			2.63		808.4	95.0			
Min			1.50		807.0	91.0			
Max			3.60		810.0	100.0			

Impinger Weight Sheet - Run 6

Client:	Middletown, LLC	Scale Calibration Check Date:	9/10/2022
Facility:	Middletown	<u>Scale Calibration Check (see QS-6.05C for procedure)</u>	
Test Location:	Unit 15	must be within $\pm 0.5g$ of certified mass	
Project #:	M223610	<u>Certified Weight, grams</u>	<u>Result, grams</u>
Date:	9/10/2022	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	713.3	739.1	-25.8
HNO3/H2O2	885.8	757.2	128.6
Empty	616.6	551.6	65.0
KMnO4/H2SO4	683.4	639.4	44.0
KMnO4/H2SO4	724.8	709.9	14.9
Silica Gel	880.7	837.3	43.4

3,623.9	3,397.2	226.7
Liquid Final	Liquid Initial	Liquid Gain
880.7	837.3	43.4
Silica Final	Silica Initial	Silica Gain

Run 7 - Method 5/29

Client: Middletown, LLC
 Facility: Middletown
 Test Location: Unit 15
 Source Condition: Normal

Date: 9/11/22
 Start Time: 6:22
 End Time: 9:37

DRY GAS METER CONDITIONS				STACK CONDITIONS			
ΔH:	2.78	In. H ₂ O		Static Pressure:	-1.70	In. H ₂ O	
Meter Temperature, Tm:	75.9	°F		Flue Pressure (Ps):	29.98	In. Hg. abs.	
Sgpt ΔP:	1.154	In. H ₂ O		Carbon Dioxide:	3.40	%	
Stack Temperature, Ts:	800.9	°F		Oxygen:	15.30	%	
Meter Volume, Vm:	164.175	ft ³		Nitrogen:	81.3	%	
Meter Volume, Vmsd:	163.018	dscf		Gas Weight dry, Md:	29.156	lb/lb mole	
Meter Volume, Vwsd:	16.297	wscf		Gas Weight wet, Ms:	28.142	lb/lb mole	
Isokinetic Variance:	99.8	%		Excess Air:	---	%	
Test Length:	180.00	in mins.		Gas Velocity, Vs:	101.317	fps	
Nozzle Diameter:	0.268	in inches		Volumetric Flow:	687.520	acfm	
Barometric Pressure:	30.10	in Hg		Volumetric Flow:	262.224	dscfm	
				Volumetric Flow:	288.438	scfm	

MOISTURE DETERMINATION

Initial Impinger Content:	3438.6	ml	Silica Initial Wt.	762.2	grams
Final Impinger Content:	3749.6	ml	Silica Final Wt.	797.2	grams
Impinger Difference:	311.0	ml	Silica Difference:	35.0	grams
Total Water Gain:	346.0		Moisture, Bws:	0.091	

Port- Point No.	Clock Time	Velocity Head up 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	1.30	2.60	41.810	799	65	64	255	252	59
1-2	6:26:30	1.50	3.00	45.780	801	66	64	249	253	54
1-3	6:31:00	1.20	2.40	50.060	802	68	64	253	255	60
1-4	6:35:30	1.20	2.40	53.970	803	70	65	252	250	64
1-5	6:40:00	1.20	2.40	57.710	805	71	66	254	254	64
1-6	6:44:30	1.30	2.60	61.540	805	71	67	251	254	66
1-7	6:49:00	1.20	2.40	65.540	805	72	68	251	252	66
1-8	6:53:30	1.20	2.40	69.390	806	73	68	251	254	64
1-9	6:58:00	1.10	2.20	73.240	801	73	69	254	251	64
1-10	7:02:30	0.73	1.70	76.930	668	74	69	251	252	61
	7:07:00			80.122						
2-1	7:12:00	1.80	3.70	80.122	806	72	70	249	249	62
2-2	7:16:30	1.70	3.50	84.840	806	77	71	254	242	65
2-3	7:21:00	1.70	3.50	89.450	805	78	71	254	243	65
2-4	7:25:30	1.50	3.10	94.070	806	78	72	253	250	65
2-5	7:30:00	1.30	2.70	98.410	806	78	72	253	252	66
2-6	7:34:30	1.30	2.70	102.450	806	77	72	252	254	66
2-7	7:39:00	1.20	2.50	106.500	806	77	73	252	251	59
2-8	7:43:30	1.30	2.70	110.370	806	77	73	253	252	56
2-9	7:48:00	1.10	2.30	114.410	806	78	74	253	251	55
2-10	7:52:30	0.83	1.70	118.140	773	79	73	254	251	54
	7:57:00			121.417						
3-1	8:02:00	1.40	2.90	121.417	805	78	75	257	250	60
3-2	8:06:30	1.30	2.70	125.620	807	78	75	251	252	54
3-3	8:11:00	1.30	2.70	129.670	806	79	75	253	251	55
3-4	8:15:30	1.20	2.50	133.740	806	79	76	253	252	56
3-5	8:20:00	1.20	2.50	137.630	807	80	76	254	252	55
3-6	8:24:30	1.20	2.50	141.530	807	81	77	252	252	56
3-7	8:29:00	1.20	2.50	145.440	808	81	77	252	252	56
3-8	8:33:30	1.20	2.50	149.350	807	82	77	252	251	57
3-9	8:38:00	1.10	2.30	153.260	807	82	78	252	252	58
3-10	8:42:30	0.90	1.90	157.010	780	82	78	252	252	58
	8:47:00			160.445						
4-1	8:52:00	2.20	4.50	160.445	807	82	79	249	251	60
4-2	8:56:30	2.30	4.70	165.750	808	82	79	252	254	58
4-3	9:01:00	2.10	4.30	171.180	807	83	79	252	251	56
4-4	9:05:30	2.00	4.10	176.380	807	84	80	252	252	55
4-5	9:10:00	1.60	3.30	181.450	807	84	80	256	252	54
4-6	9:14:30	1.40	2.90	185.990	807	85	81	256	251	54
4-7	9:19:00	1.30	2.70	190.230	808	85	81	256	252	54
4-8	9:23:30	1.30	2.70	194.340	808	85	81	254	252	55
4-9	9:28:00	1.20	2.50	198.440	807	86	82	254	253	58
4-10	9:32:30	1.00	2.10	203.380	807	86	82	256	252	60
	9:37:00			205.985						
Total	3:00:00			164.175		78.0	73.8			
Average			2.78		800.9	75.9				
Min			1.70		668.0	64.0				
Max			4.70		808.0	86.0				

Impinger Weight Sheet - Run 7

Client:	Middletown, LLC	Scale Calibration Check Date:	9/10/2022
Facility:	Middletown	<u>Scale Calibration Check (see QS-6.05C for procedure)</u>	
Test Location:	Unit 15	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	824.3	708.5	115.8
HNO3/H2O2	787.7	651.6	136.1
Empty	656.7	624.7	32.0
KMnO4/H2SO4	754.7	736.4	18.3
KMnO4/H2SO4	726.2	717.4	8.8
Silica Gel	797.2	762.2	35.0

3,749.6	3,438.6	311.0
<u>Liquid Final</u>	<u>Liquid Initial</u>	<u>Liquid Gain</u>
797.2	762.2	35.0
<u>Silica Final</u>	<u>Silica Initial</u>	<u>Silica Gain</u>

Client: Middletown, LLC
Facility: Middletown
Test Location: Unit 15
Project #: M223610F

Run 1			Run 2			Run 3			Run 4		
Date: 9/9/2022			Date: 9/9/2022			Date: 9/9/2022			Date: 9/10/2022		
Time	O2 % (dry)	CO2 % (dry)	Time	O2 % (dry)	CO2 % (dry)	Time	O2 % (dry)	CO2 % (dry)	Time	O2 % (dry)	CO2 % (dry)
9.25	15.00	4.50	14.13	15.00	4.50	17.24	15.00	4.70	7.42	15.10	4.70
9.26	15.00	4.50	14.14	15.00	4.50	17.25	14.90	4.70	7.43	15.00	4.70
9.27	15.00	4.50	14.15	15.00	4.60	17.26	14.90	4.70	7.44	15.00	4.70
9.28	15.00	4.60	14.16	15.00	4.60	17.27	14.90	4.70	7.45	15.00	4.70
9.29	15.00	4.60	14.17	15.10	4.70	17.28	15.00	4.70	7.46	15.10	4.60
9.30	15.00	4.60	14.18	15.00	4.70	17.29	15.00	4.70	7.47	15.10	4.60
9.31	15.00	4.60	14.19	15.00	4.60	17.30	15.00	4.70	7.48	15.10	4.60
9.32	15.00	4.50	14.20	15.00	4.70	17.31	15.00	4.70	7.49	15.10	4.70
9.33	15.00	4.60	14.21	15.00	4.70	17.32	15.00	4.70	7.50	15.00	4.70
9.34	15.00	4.60	14.22	15.00	4.60	17.33	15.00	4.70	7.51	15.10	4.70
9.35	15.00	4.60	14.23	15.00	4.70	17.34	14.90	4.70	7.52	15.10	4.60
9.36	15.00	4.20	14.24	15.00	4.70	17.35	14.90	4.70	7.53	15.10	4.70
9.37	15.20	4.40	14.25	15.10	4.60	17.36	14.90	4.70	7.54	15.10	4.70
9.38	15.00	4.50	14.26	15.10	4.70	17.37	14.90	4.70	7.55	15.10	4.70
9.39	15.00	4.60	14.27	15.00	4.70	17.38	14.90	4.70	7.56	15.10	4.70
9.39	15.00	4.60	14.28	15.10	4.70	17.39	14.90	4.70	7.57	15.10	4.70
9.39	15.00	4.20	14.29	15.00	4.60	17.40	14.90	4.70	7.58	15.10	4.60
10.00	15.00	4.30	14.30	15.00	4.70	17.41	14.90	4.70	7.59	15.10	4.70
10.01	15.00	4.30	14.31	15.10	4.70	17.42	14.90	4.70	8.00	15.10	4.70
10.02	15.00	4.30	14.32	15.10	4.60	17.43	14.90	4.70	8.01	15.10	4.70
10.03	15.00	4.50	14.33	15.00	4.60	17.44	14.90	4.70	8.02	15.10	4.70
10.04	15.00	4.50	14.34	15.00	4.70	17.45	14.90	4.70	8.03	15.10	4.70
10.05	15.00	4.50	14.35	15.10	4.70	17.46	14.90	4.70	8.04	15.10	4.70
10.06	15.00	4.40	14.36	15.00	4.60	17.47	14.90	4.70	8.05	15.10	4.70
10.07	15.00	4.50	14.37	15.00	4.60	17.48	14.90	4.70	8.06	15.10	4.70
10.08	15.00	4.50	14.38	15.00	4.70	17.49	14.90	4.70	8.07	15.10	4.70
10.09	15.00	4.50	14.39	15.00	4.70	17.50	14.90	4.70	8.08	15.00	4.70
10.10	15.00	4.50	14.40	15.00	4.60	17.51	14.90	4.70	8.09	15.00	4.70
10.11	15.00	4.50	14.41	15.00	4.70	17.52	14.90	4.70	8.10	15.00	4.70
10.12	15.10	4.50	14.42	15.00	4.70	17.53	14.90	4.60	8.11	15.00	4.70
10.13	15.10	4.50	14.43	15.00	4.70	17.54	14.90	4.70	8.12	15.00	4.70
10.14	15.10	4.50	14.44	15.00	4.60	17.55	14.90	4.70	8.13	15.00	4.70
10.15	15.10	4.50	14.45	15.00	4.70	17.56	14.90	4.70	8.14	15.00	4.70
10.16	15.10	4.50	14.46	15.00	4.70	17.57	14.90	4.70	8.15	15.00	4.70
10.17	15.10	4.60	14.47	15.00	4.70	17.58	14.90	4.70	8.16	15.00	4.70
10.18	15.10	4.60	14.48	15.20	4.30	17.59	14.90	4.70	8.17	15.00	4.70
10.19	15.10	4.50	15.00	15.10	4.60	18.00	14.90	4.70	8.18	15.00	4.70
10.20	15.10	4.50	15.01	15.10	4.60	18.01	14.90	4.70	8.19	15.00	4.70
10.21	15.10	4.60	15.02	15.10	4.70	18.02	14.90	4.70	8.20	15.40	4.40
10.22	15.10	4.60	15.03	15.10	4.70	18.03	14.90	4.70	8.21	15.50	4.40
10.23	15.10	4.50	15.04	15.10	4.60	18.04	14.90	4.70	8.22	15.50	4.40
10.24	15.10	4.50	15.05	15.10	4.70	18.05	14.90	4.70	8.23	15.40	4.40
10.25	15.10	4.60	15.06	15.10	4.70	18.06	14.90	4.70	8.24	15.40	4.40
10.26	15.10	4.50	15.07	15.10	4.70	18.07	14.90	4.70	8.25	15.40	4.40
10.27	15.10	4.60	15.08	15.10	4.60	18.08	14.90	4.70	8.26	15.10	4.60
10.28	15.30	4.40	15.09	15.10	4.70	18.17	14.90	4.70	8.32	15.00	4.60
10.29	15.10	4.50	15.10	15.10	4.70	18.18	14.90	4.80	8.33	15.00	4.60
10.30	15.10	4.50	15.11	15.10	4.60	18.19	14.90	4.80	8.34	15.00	4.70
10.31	15.10	4.60	15.12	15.10	4.60	18.20	14.90	4.70	8.35	15.00	4.70
10.32	15.10	4.50	15.13	15.10	4.70	18.21	14.90	4.70	8.36	15.00	4.70
10.33	15.00	4.50	15.14	15.10	4.70	18.22	14.90	4.70	8.37	15.00	4.70
10.34	15.00	4.50	15.15	15.10	4.70	18.23	14.90	4.70	8.38	15.00	4.60
11.00	15.00	4.40	15.16	15.10	4.60	18.24	14.90	4.70	8.39	15.00	4.70
11.01	15.00	4.40	15.17	15.10	4.60	18.25	14.90	4.70	8.40	15.00	4.70
11.02	15.00	4.50	15.18	15.10	4.70	18.26	14.90	4.70	8.41	15.00	4.70
11.03	15.00	4.50	15.19	15.10	4.70	18.27	14.90	4.70	8.42	15.00	4.70
11.04	15.00	4.50	15.20	15.10	4.60	18.28	14.90	4.70	8.43	15.00	4.70
11.05	15.00	4.60	15.21	15.10	4.60	18.29	14.90	4.70	8.44	15.00	4.70
11.06	15.00	4.50	15.22	15.10	4.70	18.30	14.90	4.70	8.45	15.00	4.70
11.07	15.00	4.50	15.23	15.10	4.70	18.31	14.90	4.70	8.46	15.00	4.70
11.08	15.00	4.50	15.24	15.10	4.60	18.32	14.90	4.70	8.47	15.00	4.70
11.09	15.00	4.50	15.25	15.10	4.70	18.33	14.90	4.70	8.48	15.00	4.60
11.10	15.00	4.60	15.26	15.10	4.70	18.34	14.90	4.70	8.49	15.00	4.60
11.11	15.00	4.60	15.27	15.10	4.70	18.35	14.90	4.70	8.50	15.00	4.60
11.12	15.00	4.60	15.28	15.10	4.60	18.36	14.90	4.70	8.51	15.00	4.60
11.13	15.00	4.50	15.29	15.10	4.70	18.37	14.90	4.70	8.52	15.00	4.60
11.14	15.00	4.50	15.30	15.10	4.60	18.38	14.90	4.70	8.53	15.00	4.60
11.15	15.00	4.60	15.31	15.10	4.70	18.39	14.90	4.70	8.54	15.00	4.60
11.16	15.00	4.60	15.32	15.10	4.70	18.40	14.90	4.70	8.55	15.00	4.60
11.17	15.00	4.60	15.33	15.10	4.70	18.41	14.90	4.70	8.56	14.90	4.60
11.18	15.00	4.60	15.34	15.10	4.70	18.42	14.90	4.70	8.57	14.90	4.60
11.19	15.00	4.50	15.35	15.10	4.60	18.43	14.90	4.70	8.58	14.90	4.60
11.20	15.00	4.60	15.36	15.10	4.70	18.44	14.90	4.70	8.59	14.90	4.60
11.21	15.00	4.50	15.37	15.10	4.60	18.45	14.90	4.70	8.60	14.90	4.60
11.22	15.00	4.60	15.38	15.10	4.60	18.46	14.90	4.70	9.01	14.90	4.60
11.23	15.00	4.60	15.39	15.10	4.70	18.47	14.90	4.70	9.02	14.90	4.60
11.24	15.00	4.60	15.40	15.10	4.70	18.48	14.90	4.70	9.03	14.90	4.60
11.25	15.00	4.50	15.41	15.10	4.70	18.49	14.90	4.70	9.04	14.90	4.60
11.26	15.00	4.60	15.42	15.10	4.40	18.50	14.90	4.70	9.05	14.90	4.60
11.27	15.00	4.60	15.43	15.10	4.60	18.51	14.90	4.70	9.06	14.90	4.60
11.28	15.00	4.60	15.44	15.10	4.60	18.52	14.90	4.70	9.07	14.90	4.60
11.29	15.00	4.60	15.45	15.10	4.60	18.53	14.90	4.80	9.08	15.90	3.90
11.30	15.00	4.50	15.46	15.10	4.40	18.54	14.90	4.80	9.09	15.70	4.00
11.31	15.00	4.60	15.47	15.50	4.30	18.55	14.90	4.70	9.10	15.50	4.10
11.32	15.00	4.60	15.53	15.50	4.30	18.56	14.90	4.70	9.11	14.90	4.60
11.33	15.00	4.60	15.55	15.50	4.30	18.57	14.90	4.70	9.12	14.90	4.60
11.34	15.00	4.60	15.56	15.40	4.30	19.02	14.90	4.70	9.13	14.90	4.60
11.35	15.00	4.60	15.57	15.40	4.30	19.03	14.90	4.70	9.14	14.90	4.60
11.36	15.00	4.60	15.58	15.40	4.30	19.04	14.90	4.70	9.15	14.90	4.60
11.37	15.00	4.60	15.59	15.40	4.30	19.05	14.90	4.70	9.21	15.00	4.60
11.38	15.00	4.60	16.00	15.40	4.30	19.06	14.90	4.70	9.22	15.00	4.60
11.39	15.00	4.60	16.01	15.40	4.30	19.07	14.90	4.80	9.23	15.00	4.60
11.40	15.00	4.50	16.02	15.30	4.30	19.08	14.90	4.80	9.24	15.00	4.60
11.41	15.00	4.40	16.03	15.30	4.30	19.09	14.90	4.70	9.25	15.00	4.70
12.04	15.00	4.20	16.04	15.30	4.30	19.10	14.90	4.70	9.26	15.00	4.70
12.05	14.90	4.40	16.05	15.30	4.30	19.11	14.90	4.70	9.27	15.00	4.70
12.06	14.90	4.70	16.06	15.30	4.30	19.12	14.90	4.70	9.28	15.00	4.70
12.07	15.00	4.50	16.07	15.30	4.30	19.13	14.90	4.70	9.29	15.00	4.70
12.08	15.00	4.60	16.08	15.30	4.30	19.14	14.90	4.70	9.30	15.00	4.60
12.09	15.00	4.60	16.09	15.30	4.30	19.15	14.90	4.70	9.31	15.00	

Client: Middletown, LLC
Facility: Middletown
Test Location: Unit 15
Project #: M223610

Run 5			Run 6			Run 7		
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)
1130	15.10	4.80	1129	15.00	4.80	624	15.30	3.60
1134	15.10	4.80	1529	15.00	4.50	625	15.30	3.60
1135	15.10	4.80	1530	15.00	4.50	626	15.30	3.50
1136	15.10	4.80	1531	15.00	4.60	627	15.30	3.50
1137	14.99	4.80	1532	15.00	4.60	628	15.20	3.50
1138	14.99	4.40	1533	15.00	4.60	629	15.20	3.40
1139	14.90	4.40	1534	15.00	4.60	630	15.20	3.40
1140	15.10	4.60	1535	15.00	4.60	631	15.20	3.40
1141	15.10	4.60	1536	15.00	4.50	632	15.30	3.40
1142	15.10	4.60	1537	15.00	4.60	633	15.30	3.40
1143	15.10	4.80	1538	15.00	4.60	634	15.10	3.30
1144	14.99	4.80	1539	15.00	4.80	635	15.80	3.40
1145	14.90	4.40	1540	15.00	4.20	636	15.40	3.40
1146	14.90	4.40	1541	15.20	4.40	637	15.30	3.40
1147	15.10	4.60	1542	15.00	4.50	638	15.30	3.40
1148	15.10	4.60	1543	15.00	4.60	639	15.30	3.30
1149	15.10	4.60	1544	15.00	4.20	640	15.20	3.30
1150	15.10	4.80	1545	15.00	4.30	641	15.40	3.20
1151	14.89	4.80	1546	15.00	4.30	642	15.30	3.20
1152	14.90	4.40	1547	15.00	4.60	643	15.30	3.20
1153	14.90	4.40	1548	15.00	4.50	644	15.30	3.20
1154	15.10	4.60	1549	15.00	4.50	645	15.30	3.20
1155	15.10	4.60	1550	15.00	4.50	646	15.30	3.30
1156	15.10	4.60	1551	15.00	4.40	647	15.30	3.30
1157	15.10	4.80	1552	15.00	4.50	648	15.30	3.30
1158	14.99	4.80	1553	15.10	4.50	649	15.20	3.30
1159	14.90	4.40	1554	15.00	4.50	650	15.20	3.30
1200	14.90	4.40	1555	15.00	4.50	651	15.20	3.30
1201	15.10	4.60	1556	15.00	4.50	652	15.20	3.30
1202	15.10	4.80	1557	15.10	4.50	653	15.30	3.30
1203	15.10	4.60	1558	15.10	4.50	654	15.40	3.30
1204	15.10	4.80	1559	15.10	4.50	655	15.30	3.30
1205	14.99	4.80	1560	15.10	4.50	656	15.30	3.30
1206	14.90	4.40	1601	15.10	4.50	657	15.30	3.30
1207	14.90	4.40	1602	15.10	4.60	658	15.30	3.30
1208	15.10	4.80	1603	15.10	4.50	659	15.20	3.30
1209	15.10	4.80	1604	15.10	4.50	700	15.30	3.30
1210	15.10	4.80	1605	15.10	4.50	701	15.30	3.30
1211	15.10	4.80	1606	15.10	4.40	702	15.30	3.30
1212	14.99	4.80	1607	15.10	4.60	703	15.30	3.30
1213	14.90	4.40	1619	15.10	4.50	704	15.30	3.30
1214	15.10	4.60	1620	15.10	4.50	705	15.30	3.30
1222	15.10	4.60	1621	15.10	4.60	706	15.30	3.30
1223	15.10	4.80	1622	15.10	4.50	707	15.30	3.30
1224	15.10	4.60	1623	15.10	4.60	713	15.30	3.30
1225	15.10	4.80	1624	15.30	4.40	714	15.30	3.30
1226	14.99	4.80	1625	15.10	4.50	715	15.30	3.30
1227	14.90	4.40	1626	15.10	4.50	716	15.30	3.30
1228	14.90	4.40	1627	15.10	4.50	717	15.30	3.30
1229	15.10	4.60	1628	15.10	4.60	718	15.40	3.30
1230	15.10	4.60	1629	15.00	4.20	719	15.30	3.30
1231	15.10	4.60	1630	15.00	4.30	720	15.40	3.30
1232	15.10	4.80	1631	15.00	4.40	721	15.30	3.30
1233	14.99	4.80	1632	15.00	4.50	722	14.40	3.70
1234	14.90	4.40	1633	15.00	4.50	723	14.90	3.60
1235	14.90	4.40	1634	15.00	4.50	724	15.00	3.60
1236	15.10	4.60	1635	15.00	4.50	725	15.10	3.60
1237	15.10	4.60	1636	15.20	4.60	726	15.20	3.60
1238	15.10	4.60	1637	15.00	4.50	727	15.10	3.80
1239	15.10	4.80	1638	15.00	4.50	728	15.20	3.80
1240	14.99	4.80	1639	15.00	4.50	729	15.20	3.70
1241	14.90	4.40	1640	15.00	4.50	730	15.00	3.90
1242	14.90	4.40	1641	15.00	4.60	731	15.10	3.90
1243	15.10	4.60	1642	15.00	4.60	732	15.20	3.90
1244	15.10	4.60	1643	15.00	4.60	733	15.10	3.80
1245	15.10	4.60	1644	15.00	4.50	734	15.20	3.80
1246	15.10	4.60	1645	15.10	4.50	735	15.20	3.70
1247	14.99	4.80	1646	15.00	4.60	736	15.20	3.70
1248	14.90	4.40	1647	15.00	4.60	737	15.30	3.70
1249	14.90	4.40	1648	15.00	4.60	738	15.40	3.60
1250	15.10	4.60	1649	15.00	4.60	739	15.30	3.60
1251	15.10	4.60	1650	15.00	4.50	740	15.30	3.60
1252	15.10	4.60	1651	15.00	4.60	741	15.30	3.50
1253	15.10	4.80	1652	15.00	4.50	742	15.30	3.50
1254	14.99	4.80	1653	15.00	4.60	743	15.20	3.50
1255	14.90	4.40	1654	15.00	4.60	744	15.20	3.40
1256	14.90	4.40	1655	15.00	4.60	745	15.20	3.40
1257	15.10	4.80	1656	15.00	4.50	746	15.20	3.40
1258	15.10	4.60	1657	15.00	4.60	747	15.30	3.40
1259	15.10	4.80	1658	15.00	4.60	748	15.30	3.40
1300	15.10	4.80	1659	15.00	4.60	749	15.10	3.40
1301	14.99	4.80	1707	15.00	4.60	750	15.80	3.40
1302	14.90	4.40	1708	15.00	4.50	751	15.40	3.40
1303	14.90	4.40	1709	15.00	4.60	752	15.30	3.40
1314	15.10	4.80	1710	15.00	4.60	753	15.30	3.40
1315	15.10	4.60	1711	15.00	4.60	754	15.30	3.30
1316	15.10	4.60	1712	15.00	4.60	755	15.20	3.30
1317	15.10	4.80	1713	15.00	4.60	756	15.40	3.30
1318	14.99	4.80	1714	15.00	4.60	807	15.30	3.20
1319	14.90	4.40	1715	15.00	4.60	808	15.30	3.20
1320	14.90	4.40	1716	15.00	4.60	809	15.30	3.20
1321	15.10	4.60	1717	15.00	4.50	810	15.30	3.20
1322	15.10	4.60	1718	15.00	4.50	811	15.30	3.30
1323	15.10	4.80	1719	15.00	4.60	812	15.30	3.30
1324	15.10	4.80	1720	15.00	4.20	813	15.30	3.30
1325	14.99	4.80	1721	14.90	4.40	814	15.20	3.30
1326	14.90	4.40	1722	14.90	4.50	815	15.20	3.30
1327	14.90	4.40	1723	15.00	4.50	816	15.20	3.30
1328	15.10	4.60	1724	15.00	4.60	817	15.20	3.30
1329	15.10	4.60	1725	15.00	4.60	818	15.30	3.30
1330	14.99	4.80	1726	15.00	4.60	819	15.30	3.30
1331	15.10	4.80	1727	15.00	4.60	820	15.30	3.30
1332	14.99	4.80	1728	15.00	4.60	821	15.30	3.30
1333	14.90	4.40	1729	15.00	4.60	822	15.30	3.30
1334	14.90	4.40	1730	15.00	4.50	823	15.30	3.30
1335	15.10	4.60	1731	15.00	4.60	824	15.20	3.30
1336	15.10	4.60	1732	14.90	4.60	825	15.30	3.30
1337	15.10	4.60	1733	14.90	4.60	826	15.30	3.30
1338	15.10	4.80	1734	15.00	4.70	827	15.30	3.30
1339	14.99	4.80	1735	15.00	4.60	828	15.30	3.30
1340	14.90	4.40	1736	15.00	4.60	829	15.30	3.30
1341	14.90	4.40	1737	14.90	4.60	830	15.30	3.30
1342	15.10	4.60	1738	14.90	4.70	831	15.30	3.30
1343	15.10	4.60	1739	14.90	4.60	832	15.30	3.30
1344	15.10	4.60	1740	14.90	4.70	833	15.30	3.30
1345	15.10	4.80	1741	14.90	4.70	834	15.30	3.30
1346	14.99	4.80	1742	14.90	4.60	835	15.30	3.30
1347	14.90	4.40	1743	14.90	4.70	836	15.30	3.30
1348	14.90	4.40	1744	14.90	4.70	837	15.30	3.30
1349	15.10	4.60	1745	14.90	4.60	838	15.40	3.30
1350	15.10	4.60	1746	15.30	4.30	839	15.30	3.30
1351	15.10	4.60	1747	15.00	4.70	840	15.40	3.30
1352	15.10	4.80	1748	15.00	4.60	841	15.30	3.30
1353	14.99	4.80	1749	15.00	4.60	857	15.40	3.10
1354	14.90	4.40	1750	15.10	4.60	858	15.40	3.10
1403	14.90	4.40	1758	15.20	4.60	859	15.20	3.20
1404	15.10	4.60	1759	15.10	4.60	900	15.30	3.20
1405	15.10	4.60	1800	15.20	4.50	901	15.40	3.30
1406	15.10	4.60	1801	15.20	4.60	902	15.40	3.30
1407	15.10	4.80	1802	15.20	4.60	903	15.40	3.30
1408	14.99	4.80	1803	15.30	4.60	904	15.40	3.30
1409	14.90	4.40	1804	15.40	4.60	905	15.30	3.30
1410	14.90	4.40	1805	15.30	4.50	906	15.30	3.30
1411	15.10	4.60	1806	15.30	4.60	907	15.30	3.30
1412	15.10	4.60	1807	15.30	4.60	908	15.30	3.30
1413	15.10	4.60	1808	15.30	4.60	909	15.30	3.30
1414	15.10	4.80	1809	15.20	4.60	910	15.30	3.30
1415	14.99	4.80	1810	15.20	4.			

Appendix E - Plant Operating Data

Date/Time	UNIT15 LOADMW15 Value	UNIT15 HEATIN15 Value	UNIT15 OILFLW15 Value	UNIT15 CATEMP15 Value	UNIT15 WATERF15 Value
09/09/2022 09:00	48	456.4	3405.5	815	1
09/09/2022 09:01	48	456.4	3405	815	1
09/09/2022 09:02	48	456.9	3408.8	815.1	1
09/09/2022 09:03	48	456.6	3406.4	815.1	1
09/09/2022 09:04	48	456.4	3405.2	815.2	1
09/09/2022 09:05	48	456.6	3407	815	1
09/09/2022 09:06	48	456.3	3404.2	815	1
09/09/2022 09:07	48	456.9	3409.3	815	1
09/09/2022 09:08	48	457.4	3412.7	815	1
09/09/2022 09:09	48	457.7	3414.6	815	1
09/09/2022 09:10	48	457.5	3413.6	815	1
09/09/2022 09:11	48	457.1	3410.3	815	1
09/09/2022 09:12	48	457.3	3411.6	815.9	1
09/09/2022 09:13	48	457.4	3412.8	815.6	1
09/09/2022 09:14	48	457.1	3410.7	815.3	1
09/09/2022 09:15	48	456.8	3408.4	815	1
09/09/2022 09:16	48	457.2	3411	815	1
09/09/2022 09:17	48	456.9	3408.7	815.3	1
09/09/2022 09:18	48	457.1	3410.8	815.4	1
09/09/2022 09:19	48	456.9	3408.9	815.4	1
09/09/2022 09:20	48	456.4	3404.9	815.7	1
09/09/2022 09:21	48	456.4	3405.3	815	1
09/09/2022 09:22	48	456.6	3406.4	815.4	1
09/09/2022 09:23	48	456.5	3405.8	815.2	1
09/09/2022 09:24	48	457	3409.8	815	1
09/09/2022 09:25	48	457.3	3412.2	815	1
09/09/2022 09:26	48	456.5	3406.2	815	1
09/09/2022 09:27	48	457.9	3416.5	815.3	1
09/09/2022 09:28	48	457.2	3411.4	815	1
09/09/2022 09:29	48	457.3	3411.6	815	1
09/09/2022 09:30	48	456.7	3407.8	815	1
09/09/2022 09:31	48	456.6	3406.8	815	1
09/09/2022 09:32	48	456.7	3407.3	815	1
09/09/2022 09:33	48	456.9	3408.7	815.4	1
09/09/2022 09:34	48	456.9	3408.9	815.9	1
09/09/2022 09:35	48	458.8	3423.4	816.3	1
09/09/2022 09:36	48	457.5	3413.4	816.3	1
09/09/2022 09:37	48	456.9	3409.3	816	1
09/09/2022 09:38	48	457.3	3412.2	815.8	1
09/09/2022 09:39	48	457.2	3410.9	815.7	1
09/09/2022 09:40	48	457.7	3415	815.9	1
09/09/2022 09:41	48	457.1	3410.4	816	1
09/09/2022 09:42	48	456.8	3407.9	815.5	1
09/09/2022 09:43	48	456.6	3406.7	815.8	1
09/09/2022 09:44	48	457.8	3415.5	815	1
09/09/2022 09:45	48	457.8	3415.4	815.3	1
09/09/2022 09:46	48	457.3	3412.3	815.3	1
09/09/2022 09:47	48	457.8	3415.5	815.6	1
09/09/2022 09:48	48	457.8	3415.5	815	1
09/09/2022 09:49	48	456.8	3408.3	815	1
09/09/2022 09:50	48	457.3	3411.8	815	1
09/09/2022 09:51	48	456.7	3407.2	815	1
09/09/2022 09:52	48	456.9	3409.3	815.1	1
09/09/2022 09:53	48	456.3	3404.8	815.5	1
09/09/2022 09:54	48	456.7	3407.6	816	1
09/09/2022 09:55	48	456.7	3407.5	816	1
09/09/2022 09:56	48	456.4	3405	816	1
09/09/2022 09:57	48	457.9	3416.7	816	1

09/09/2022 09:58	48	457.2	3411.5	816	1
09/09/2022 09:59	48	457.6	3414.1	816	1
09/09/2022 10:00	48	456.3	3404.4	815.8	1
09/09/2022 10:01	48	457.2	3411	815.8	1
09/09/2022 10:02	48	457	3409.8	815.6	1
09/09/2022 10:03	48	457.3	3412.1	816	1
09/09/2022 10:04	48	457.4	3413	816	1
09/09/2022 10:05	48	457.4	3412.3	816	1
09/09/2022 10:06	48	457.6	3413.9	816	1
09/09/2022 10:07	48	457.4	3412.8	816	1
09/09/2022 10:08	48	457.8	3415.5	816	1
09/09/2022 10:09	48	457.5	3413.2	815.1	1
09/09/2022 10:10	48	457.8	3415.6	815.2	1
09/09/2022 10:11	48	457.2	3411.5	816	1
09/09/2022 10:12	48	457.5	3413.2	815.3	1
09/09/2022 10:13	48	457.5	3413.5	815.6	1
09/09/2022 10:14	48	457.3	3412	816	1
09/09/2022 10:15	48	457.6	3414.5	816	1
09/09/2022 10:16	48	458	3417	816	1
09/09/2022 10:17	48	457.7	3414.8	816	1
09/09/2022 10:18	48	457.8	3415.4	816	1
09/09/2022 10:19	48	457.6	3414.5	815.8	1
09/09/2022 10:20	48	456.9	3408.6	816	1
09/09/2022 10:21	48	457.1	3410.8	816	1
09/09/2022 10:22	48	457.4	3412.9	816	1
09/09/2022 10:23	48	456.7	3407.5	816	1
09/09/2022 10:24	48	457.1	3410.7	816	1
09/09/2022 10:25	48	457.3	3411.8	816	1
09/09/2022 10:26	48	457.3	3412.2	815.8	1
09/09/2022 10:27	48	456.6	3407	816	1
09/09/2022 10:28	48	457	3409.4	816	1
09/09/2022 10:29	48	456.9	3408.9	816	1
09/09/2022 10:30	48	457.1	3410.3	816	1
09/09/2022 10:31	48	456.8	3408.5	816	1
09/09/2022 10:32	48	457.1	3410.8	816	1
09/09/2022 10:33	48	457.8	3415.4	816	1
09/09/2022 10:34	48	458	3417.1	815.7	1
09/09/2022 10:35	48	458.4	3420.1	815.4	1
09/09/2022 10:36	48	458.4	3420	815.4	1
09/09/2022 10:37	48	457.6	3414.3	815.4	1
09/09/2022 10:38	48	458.1	3417.6	816	1
09/09/2022 10:39	48	457.8	3415.7	815.7	1
09/09/2022 10:40	48	458.2	3418.8	816	1
09/09/2022 10:41	48	457.9	3416.2	816	1
09/09/2022 10:42	48	458	3417.4	816	1
09/09/2022 10:43	48	458.1	3418	816	1
09/09/2022 10:44	48	457.5	3413.7	816	1
09/09/2022 10:45	48	459.5	3428.4	817.1	1
09/09/2022 10:46	48	459.3	3426.9	817.5	1
09/09/2022 10:47	48	457.8	3415.7	817.7	1
09/09/2022 10:48	48	460.9	3438.5	818	1
09/09/2022 10:49	48	459.4	3427.3	818.7	1
09/09/2022 10:50	48	458.4	3420.2	818.3	1
09/09/2022 10:51	48	459.9	3431.7	817.8	1
09/09/2022 10:52	48	460.2	3433.9	817.6	1
09/09/2022 10:53	48	461.7	3444.4	818.7	1
09/09/2022 10:54	48	459.3	3426.6	817.8	1
09/09/2022 10:55	48	458.9	3424.1	818	1
09/09/2022 10:56	48	459.6	3429.2	817.3	1
09/09/2022 10:57	48	457.9	3416.4	817.1	1

09/09/2022 10:58	48	460	3432.4	817.5	1
09/09/2022 10:59	48	459	3424.5	817.2	1
09/09/2022 11:00	48	457.8	3415.8	817.4	1
09/09/2022 11:01	48	459.2	3426.1	817.5	1
09/09/2022 11:02	48	458.7	3422.2	817	1
09/09/2022 11:03	48	458.2	3418.8	816.8	1
09/09/2022 11:04	48	459.2	3425.8	817	1
09/09/2022 11:05	48	458.7	3422.2	817	1
09/09/2022 11:06	48	458.5	3421	817	1
09/09/2022 11:07	48	458.1	3417.6	817	1
09/09/2022 11:08	48	458.3	3419.4	816.4	1
09/09/2022 11:09	48	459.6	3429.2	817.4	1
09/09/2022 11:10	48	457.6	3413.9	817	1
09/09/2022 11:11	48	458	3417	816.7	1
09/09/2022 11:12	48	460.5	3436	817.8	1
09/09/2022 11:13	48	460.7	3437.4	818	1
09/09/2022 11:14	48	459.1	3425.6	817.8	1
09/09/2022 11:15	48	460	3431.9	816.9	1
09/09/2022 11:16	48	460	3432.1	817.6	1
09/09/2022 11:17	48	459.3	3426.7	817.8	1
09/09/2022 11:18	48	459.5	3428.1	817.7	1
09/09/2022 11:19	48	459.2	3426.4	817.3	1
09/09/2022 11:20	48	458.2	3418.7	817.6	1
09/09/2022 11:21	48	457.5	3413.4	817.7	1
09/09/2022 11:22	48	458.7	3422.1	817.5	1
09/09/2022 11:23	48	459	3424.9	817.4	1
09/09/2022 11:24	48	457.6	3413.9	817.4	1
09/09/2022 11:25	48	457.2	3411.2	817.3	1
09/09/2022 11:26	48	459.5	3428.3	817	1
09/09/2022 11:27	48	459.6	3428.9	817	1
09/09/2022 11:28	48	457.9	3416.3	816.4	1
09/09/2022 11:29	48	458.1	3417.6	816.8	1
09/09/2022 11:30	48	458.9	3424	816.8	1
09/09/2022 11:31	48	458.4	3420.5	816.4	1
09/09/2022 11:32	48	457.7	3414.8	816.5	1
09/09/2022 11:33	48	457.9	3416.5	816.5	1
09/09/2022 11:34	48	457.7	3414.6	816.8	1
09/09/2022 11:35	48	458.5	3420.9	816.8	1
09/09/2022 11:36	48	457.1	3410.7	816.6	1
09/09/2022 11:37	48	457.4	3412.7	816.5	1
09/09/2022 11:38	48	457.5	3413.6	816.8	1
09/09/2022 11:39	48	459.6	3429.4	817.1	1
09/09/2022 11:40	48	458.2	3418.6	816.9	1
09/09/2022 11:41	48	458.2	3418.6	817.5	1
09/09/2022 11:42	48	458.9	3424	817.4	1
09/09/2022 11:43	48	459.8	3430.7	817.5	1
09/09/2022 11:44	48	458.8	3423	817.3	1
09/09/2022 11:45	48	458.5	3420.5	817.5	1
09/09/2022 11:46	48	458.9	3424.2	817.6	1
09/09/2022 11:47	48	459.8	3430.5	817.6	1
09/09/2022 11:48	48	458.8	3423.2	817.1	1
09/09/2022 11:49	48	458.1	3417.8	817.3	1
09/09/2022 11:50	48	458.3	3419.4	817.4	1
09/09/2022 11:51	48	459.7	3430	817.5	1
09/09/2022 11:52	48	459.4	3427.5	817.2	1
09/09/2022 11:53	48	458.5	3420.7	817.3	1
09/09/2022 11:54	48	458.2	3418.3	817.7	1
09/09/2022 11:55	48	458.9	3424	817.2	1
09/09/2022 11:56	48	459.5	3428.2	817.3	1
09/09/2022 11:57	48	458.4	3420.2	817.3	1

09/09/2022 11:58	48	458.1	3417.9	817.6	1
09/09/2022 11:59	48	457.7	3414.7	817.6	1
09/09/2022 12:00	48	459.1	3425.4	817.7	1
09/09/2022 12:01	48	458.9	3423.9	817.3	1
09/09/2022 12:02	48	458.1	3417.7	817.3	1
09/09/2022 12:03	48	458	3417.1	817.6	1
09/09/2022 12:04	48	459.8	3430.9	817.6	1
09/09/2022 12:05	48	458.7	3422.3	817.4	1
09/09/2022 12:06	48	458.5	3420.8	817.6	1
09/09/2022 12:07	48	459.3	3426.6	817.9	1
09/09/2022 12:08	48	458.9	3423.7	817.6	1
09/09/2022 12:09	48	458.4	3420.4	817.5	1
09/09/2022 12:10	48	458	3417.1	817.6	1
09/09/2022 12:11	48	458.9	3424.2	817.8	1
09/09/2022 12:12	48	459.3	3426.8	817	1
09/09/2022 12:13	48	459.1	3425.7	816.5	1
09/09/2022 12:14	48	459.2	3425.9	816.8	1
09/09/2022 12:15	48	459.3	3426.8	816.8	1
09/09/2022 12:16	48	458.9	3423.6	816.8	1
09/09/2022 12:17	48	458.8	3423.2	816.8	1
09/09/2022 12:18	48	457.9	3416.4	816.9	1
09/09/2022 12:19	48	457.4	3412.5	817.1	1
09/09/2022 12:20	48	458	3417	817.6	1
09/09/2022 12:21	48	457.9	3416.2	817.5	1
09/09/2022 12:22	48	458.4	3420	817.5	1
09/09/2022 12:23	48	457.7	3415.2	817.4	1
09/09/2022 12:24	47	457.1	3410.5	817.4	1
09/09/2022 12:25	48	457.1	3410.8	817.6	1
09/09/2022 12:26	48	457.4	3412.8	817.5	1
09/09/2022 12:27	48	457.2	3411.3	817.3	1
09/09/2022 12:28	48	457.9	3416.7	817.4	1
09/09/2022 12:29	48	459.5	3428.3	817.7	1
09/09/2022 12:30	48	459.3	3427	817.4	1
09/09/2022 12:31	48	458	3417.2	817.3	1
09/09/2022 12:32	48	458.3	3419.4	817.2	1
09/09/2022 12:33	48	459.3	3427.1	817	1
09/09/2022 12:34	48	458.8	3423.2	816.7	1
09/09/2022 12:35	48	458.1	3418.2	816.6	1
09/09/2022 12:36	48	457.8	3415.7	816.7	1
09/09/2022 12:37	48	457.9	3416.8	816.7	1
09/09/2022 12:38	48	458	3416.9	816.9	1

Grand Summaries					
	Avg: 48	Avg: 458.0	Avg: 3417.0	Avg: 816.5	Avg: 1.0
	Sum: 10511	Sum: 100297.6	Sum: 748325.7	Sum: 178807.0	Sum: 219.0
	Min: 47	Min: 456.3	Min: 3404.2	Min: 815.0	Min: 1.0
	Max: 48	Max: 461.7	Max: 3444.4	Max: 818.7	Max: 1.0
	Count: 219	Count: 219	Count: 219	Count: 219	Count: 219

Date/Time	UNIT15 LOADMW15 Value	UNIT15 HEATIN15 Value	UNIT15 OILFLW15 Value	UNIT15 CATEMP15 Value	UNIT15 WATERF15 Value
09/09/2022 14:07	48	459.4	3427.5	816	1
09/09/2022 14:08	48	458.8	3422.8	816	1
09/09/2022 14:09	48	459.3	3426.9	816	1
09/09/2022 14:10	48	458.9	3423.7	816	1
09/09/2022 14:11	48	459	3424.9	816	1
09/09/2022 14:12	48	458.8	3423.1	816	1
09/09/2022 14:13	48	458.9	3423.6	816	1
09/09/2022 14:14	48	458.3	3419.3	816	1
09/09/2022 14:15	48	458.7	3422.4	816	1
09/09/2022 14:16	48	458.6	3421.9	816	1
09/09/2022 14:17	48	459.1	3425.3	816	1
09/09/2022 14:18	48	458.5	3421	816	1
09/09/2022 14:19	48	458.9	3423.7	816	1
09/09/2022 14:20	48	458.6	3421.6	816	1
09/09/2022 14:21	48	458.9	3424.1	816	1
09/09/2022 14:22	48	459.4	3427.6	816	1
09/09/2022 14:23	48	459	3424.7	816	1
09/09/2022 14:24	48	458.7	3422.1	816	1
09/09/2022 14:25	48	458.6	3421.4	816	1
09/09/2022 14:26	48	458.8	3422.8	816	1
09/09/2022 14:27	48	458.7	3422.1	816	1
09/09/2022 14:28	48	458.4	3420	816.5	1
09/09/2022 14:29	48	458.3	3419.5	816.1	1
09/09/2022 14:30	48	458.8	3423.3	816.3	1
09/09/2022 14:31	48	458.2	3419	817	1
09/09/2022 14:32	48	458.3	3419	817	1
09/09/2022 14:33	48	458.7	3422	817	1
09/09/2022 14:34	48	458.4	3420.5	816.3	1
09/09/2022 14:35	48	458.9	3423.9	816	1
09/09/2022 14:36	48	458.3	3419.4	816.1	1
09/09/2022 14:37	48	458.6	3421.6	816	1
09/09/2022 14:38	48	458.6	3421.3	816	1
09/09/2022 14:39	48	458.9	3423.5	816	1
09/09/2022 14:40	48	458.6	3421.6	816.8	1
09/09/2022 14:41	48	458.7	3422.5	817	1
09/09/2022 14:42	48	459	3424.9	817	1
09/09/2022 14:43	48	458.1	3418.2	817	1
09/09/2022 14:44	48	458.1	3418.2	817	1
09/09/2022 14:45	48	458.2	3418.5	817	1
09/09/2022 14:46	48	458.3	3419.3	816.5	1
09/09/2022 14:47	48	458.8	3423.3	816	1
09/09/2022 14:48	48	458.9	3424	816	1
09/09/2022 14:49	48	459.3	3426.7	816	1
09/09/2022 14:50	48	458.6	3421.4	816	1
09/09/2022 14:51	48	459	3424.4	816	1
09/09/2022 14:52	48	458.9	3423.9	816	1
09/09/2022 14:53	48	458.9	3423.6	816	1
09/09/2022 14:54	48	458.2	3418.4	816	1
09/09/2022 14:55	48	458	3417.2	816	1
09/09/2022 14:56	48	458.3	3419.4	816.9	1
09/09/2022 14:57	48	458.1	3417.8	817	1
09/09/2022 14:58	48	458.1	3417.9	817	1
09/09/2022 14:59	48	457.8	3415.9	817	1
09/09/2022 15:00	48	458.6	3421.4	816	1
09/09/2022 15:01	48	457.8	3415.6	816.5	1
09/09/2022 15:02	48	457.8	3415.3	816.9	1
09/09/2022 15:03	48	457.9	3416.2	817	1
09/09/2022 15:04	48	457.4	3413	817	1

09/09/2022 15:05	47	457.5	3413.4	817	1
09/09/2022 15:06	48	457.3	3412.2	817	1
09/09/2022 15:07	48	458.1	3417.7	817	1
09/09/2022 15:08	48	458	3417.5	816.5	1
09/09/2022 15:09	48	457.9	3416.3	816	1
09/09/2022 15:10	48	457.8	3415.3	816	1
09/09/2022 15:11	47	457	3409.9	816	1
09/09/2022 15:12	47	457.2	3411.3	816	1
09/09/2022 15:13	47	456.5	3405.7	816	1
09/09/2022 15:14	47	457	3409.4	816	1
09/09/2022 15:15	47	456.9	3409.1	816	1
09/09/2022 15:16	47	457.5	3413.4	816	1
09/09/2022 15:17	47	457.2	3411.2	816	1
09/09/2022 15:18	47	457.5	3413.2	816	1
09/09/2022 15:19	48	457.4	3412.4	816	1
09/09/2022 15:20	48	457.9	3416.4	816	1
09/09/2022 15:21	47	457.6	3414.2	816	1
09/09/2022 15:22	48	458.2	3418.9	816	1
09/09/2022 15:23	48	458	3417.2	816	1
09/09/2022 15:24	48	458.4	3420.3	816	1
09/09/2022 15:25	48	457.6	3413.9	816	1
09/09/2022 15:26	48	457.6	3414.5	816	1
09/09/2022 15:27	48	458.3	3419.2	816	1
09/09/2022 15:28	48	458.3	3419.5	816	1
09/09/2022 15:29	48	458.1	3418	816	1
09/09/2022 15:30	48	458.4	3419.9	816	1
09/09/2022 15:31	48	458	3417	816	1
09/09/2022 15:32	47	457.5	3413.7	816	1
09/09/2022 15:33	47	457.1	3410.4	816.5	1
09/09/2022 15:34	47	456.4	3405.4	817	1
09/09/2022 15:35	47	457.5	3413.2	817	1
09/09/2022 15:36	47	457.2	3411.4	817	1
09/09/2022 15:37	48	457.7	3415.1	817	1
09/09/2022 15:38	48	458.1	3417.9	817	1
09/09/2022 15:39	48	458.5	3420.7	816.1	1
09/09/2022 15:40	48	458.3	3419.1	816	1
09/09/2022 15:41	48	458.2	3418.9	816.7	1
09/09/2022 15:42	48	458.2	3418.7	816.1	1
09/09/2022 15:43	48	458.4	3419.8	816.2	1
09/09/2022 15:44	48	458	3417.1	816.6	1
09/09/2022 15:45	48	458.6	3421.7	816	1
09/09/2022 15:46	48	458.2	3418.5	816	1
09/09/2022 15:47	48	458.4	3419.8	816	1
09/09/2022 15:48	48	458.2	3418.5	816	1
09/09/2022 15:49	47	458	3417.5	816	1
09/09/2022 15:50	48	458.1	3417.6	816	1
09/09/2022 15:51	48	457.9	3416.4	816	1
09/09/2022 15:52	48	457.6	3414.3	816	1
09/09/2022 15:53	48	457.8	3415.4	816	1
09/09/2022 15:54	47	457.1	3410.3	816	1
09/09/2022 15:55	47	457.4	3412.6	816	1
09/09/2022 15:56	47	457.3	3411.7	816	1
09/09/2022 15:57	47	457	3409.8	816	1
09/09/2022 15:58	48	457.8	3415.3	816.3	1
09/09/2022 15:59	47	456.9	3408.9	816	1
09/09/2022 16:00	47	457.2	3410.9	816	1
09/09/2022 16:01	47	457	3409.4	816	1
09/09/2022 16:02	47	457.8	3415.7	816.3	1
09/09/2022 16:03	47	457.2	3411.5	816.2	1
09/09/2022 16:04	47	456.7	3407.6	816.3	1

09/09/2022 16:05	47	457.5	3413.2	816	1
09/09/2022 16:06	47	457.7	3415	816	1
09/09/2022 16:07	47	457.2	3410.9	816	1
09/09/2022 16:08	48	457.7	3414.9	816	1
09/09/2022 16:09	48	457.6	3414.5	816	1
09/09/2022 16:10	48	457.6	3414.1	816	1
09/09/2022 16:11	48	457.9	3416.1	816	1
09/09/2022 16:12	48	458.8	3422.8	816	1
09/09/2022 16:13	48	458	3417.3	816	1
09/09/2022 16:14	48	458.1	3418.1	816	1
09/09/2022 16:15	47	457.4	3412.5	816	1
09/09/2022 16:16	48	457.7	3415.2	816	1
09/09/2022 16:17	48	458.1	3417.9	816	1
09/09/2022 16:18	48	458.2	3419	816	1
09/09/2022 16:19	48	458.3	3419.5	816	1
09/09/2022 16:20	47	457.4	3412.4	816	1
09/09/2022 16:21	47	457.8	3415.3	816	1
09/09/2022 16:22	48	457.9	3416.7	816	1
09/09/2022 16:23	48	457.2	3411.1	816	1
09/09/2022 16:24	47	457.3	3412.3	816.2	1
09/09/2022 16:25	48	457.9	3416.5	816	1
09/09/2022 16:26	48	457.6	3414	816.3	1
09/09/2022 16:27	47	457	3410	816.3	1
09/09/2022 16:28	48	457.6	3414.1	816.2	1
09/09/2022 16:29	48	457.7	3414.7	816	1
09/09/2022 16:30	48	458.2	3418.6	816	1
09/09/2022 16:31	48	458.1	3417.8	816	1
09/09/2022 16:32	48	457.8	3415.5	816	1
09/09/2022 16:33	48	457.7	3415.1	816	1
09/09/2022 16:34	48	457.4	3412.6	816	1
09/09/2022 16:35	47	457.3	3412.2	816	1
09/09/2022 16:36	48	456.9	3408.6	816	1
09/09/2022 16:37	48	457.5	3413.7	816	1
09/09/2022 16:38	48	457.9	3416.5	816	1
09/09/2022 16:39	48	458.8	3423.3	816	1
09/09/2022 16:40	48	458.2	3418.9	816	1
09/09/2022 16:41	48	457.8	3415.6	816	1
09/09/2022 16:42	48	458.4	3420.4	816.1	1
09/09/2022 16:43	48	458.3	3419.6	816	1
09/09/2022 16:44	48	458.7	3422	816	1
09/09/2022 16:45	47	458.2	3418.6	816	1
09/09/2022 16:46	48	457.9	3416.3	816	1
09/09/2022 16:47	47	457.7	3414.8	816	1
09/09/2022 16:48	48	458.1	3417.6	816	1
09/09/2022 16:49	48	458.2	3418.8	816	1
09/09/2022 16:50	48	458.9	3423.7	816	1
09/09/2022 16:51	48	458	3417.2	816	1
09/09/2022 16:52	48	457.8	3415.4	816	1
09/09/2022 16:53	48	458.6	3421.3	815.7	1
09/09/2022 16:54	48	457.9	3416.1	815.6	1
09/09/2022 16:55	48	457.2	3411	815	1
09/09/2022 16:56	48	458.1	3417.6	815.7	1
09/09/2022 16:57	48	458.1	3418	815	1
09/09/2022 16:58	48	458.1	3417.7	815	1
09/09/2022 16:59	48	457.8	3415.5	815.3	1
09/09/2022 17:00	48	457.7	3415	815	1
09/09/2022 17:01	48	457.5	3413.2	815.8	1
09/09/2022 17:02	48	457.1	3410.4	815.3	1
09/09/2022 17:03	48	457.3	3412	815	1
09/09/2022 17:04	48	457.9	3416.1	815	1

09/09/2022 17:05	48	457.7	3414.8	815.8	1
09/09/2022 17:06	48	457.4	3412.6	815.5	1
09/09/2022 17:07	48	457.7	3415.2	815.8	1
09/09/2022 17:08	48	457.8	3415.7	816	1
09/09/2022 17:09	48	457.3	3411.6	815.9	1
09/09/2022 17:10	48	457.5	3413.3	815.8	1
09/09/2022 17:11	47	457.3	3412	815.8	1
09/09/2022 17:12	48	458.1	3418	815.5	1
09/09/2022 17:13	48	457.4	3413	815.6	1
09/09/2022 17:14	48	458	3417	815	1
09/09/2022 17:15	48	458.2	3418.3	815	1
09/09/2022 17:16	48	458.1	3417.9	815	1
09/09/2022 17:17	48	458.2	3418.5	815	1
09/09/2022 17:18	48	458.3	3419	815	1
09/09/2022 17:19	48	458.7	3422.1	815	1
09/09/2022 17:20	48	458.2	3418.6	815	1
09/09/2022 17:21	48	458.6	3421.6	815	1
09/09/2022 17:22	48	458.1	3418.1	815	1
09/09/2022 17:23	48	458.4	3419.9	815.4	1

Grand Summaries					
Avg: 48	Avg: 458.0	Avg: 3417.2	Avg: 816.1	Avg: 1.0	
Sum: 9418	Sum: 90229.5	Sum: 673197.9	Sum: 160762.3	Sum: 197.0	
Min: 47	Min: 456.4	Min: 3405.4	Min: 815.0	Min: 1.0	
Max: 48	Max: 459.4	Max: 3427.6	Max: 817.0	Max: 1.0	
Count: 197	Count: 197	Count: 197	Count: 197	Count: 197	

Date/Time	UNIT15 LOADMW15 Value	UNIT15 HEATIN15 Value	UNIT15 OILFLW15 Value	UNIT15 CATEMP15 Value	UNIT15 WATERF15 Value
09/09/2022 17:24	48	458.4	3420	816	1
09/09/2022 17:25	48	458.6	3421.7	816	1
09/09/2022 17:26	48	458.2	3418.5	816	1
09/09/2022 17:27	48	457.4	3412.7	816	1
09/09/2022 17:28	48	457.1	3410.2	816	1
09/09/2022 17:29	48	457.5	3413.7	816	1
09/09/2022 17:30	48	457.4	3412.8	816	1
09/09/2022 17:31	48	458.4	3420.5	816	1
09/09/2022 17:32	48	458.2	3418.5	815.4	1
09/09/2022 17:33	48	458.3	3419.7	815.7	1
09/09/2022 17:34	48	458.6	3421.7	815	1
09/09/2022 17:35	48	458.6	3421.9	815.4	1
09/09/2022 17:36	48	458.9	3424	815	1
09/09/2022 17:37	48	458.7	3422.5	815	1
09/09/2022 17:38	48	457.1	3410.5	815	1
09/09/2022 17:39	48	458.3	3419.7	815	1
09/09/2022 17:40	48	458.6	3421.5	815	1
09/09/2022 17:41	48	458	3416.8	815	1
09/09/2022 17:42	48	458.2	3418.8	815	1
09/09/2022 17:43	48	458.6	3421.3	815	1
09/09/2022 17:44	48	458.2	3418.5	815	1
09/09/2022 17:45	48	457.5	3413.6	815	1
09/09/2022 17:46	48	458.2	3418.9	815	1
09/09/2022 17:47	48	458.1	3417.7	815	1
09/09/2022 17:48	48	457.7	3415	815	1
09/09/2022 17:49	48	457.9	3416.1	815	1
09/09/2022 17:50	48	457.2	3411	815	1
09/09/2022 17:51	48	457.5	3413.1	815	1
09/09/2022 17:52	48	457.3	3411.8	815	1
09/09/2022 17:53	48	457.1	3410.2	815	1
09/09/2022 17:54	48	457.3	3412.3	815	1
09/09/2022 17:55	47	457.2	3411.4	815	1
09/09/2022 17:56	48	457.6	3414.2	815	1
09/09/2022 17:57	48	457.9	3416.4	815	1
09/09/2022 17:58	47	457	3409.9	815	1
09/09/2022 17:59	48	457.7	3414.7	815	1
09/09/2022 18:00	48	457	3409.9	815	1
09/09/2022 18:01	48	457.5	3413.6	815	1
09/09/2022 18:02	47	457.4	3412.4	815	1
09/09/2022 18:03	47	457.2	3410.8	814.8	1
09/09/2022 18:04	47	457.7	3414.6	815	1
09/09/2022 18:05	48	457.2	3411.2	815	1
09/09/2022 18:06	48	457.8	3415.9	815	1
09/09/2022 18:07	48	456.9	3408.6	815	1
09/09/2022 18:08	48	458	3417.1	815	1
09/09/2022 18:09	48	457.4	3412.4	815	1
09/09/2022 18:10	48	457.8	3415.3	815	1
09/09/2022 18:11	48	457.7	3414.6	814.7	1
09/09/2022 18:12	48	458.2	3418.9	815	1
09/09/2022 18:13	48	457.7	3414.7	815	1
09/09/2022 18:14	48	457.1	3410.2	814.9	1
09/09/2022 18:15	48	457.4	3412.6	815	1
09/09/2022 18:16	48	457.6	3414.5	815	1
09/09/2022 18:17	48	457.1	3410.6	815	1
09/09/2022 18:18	48	457.7	3414.8	815	1
09/09/2022 18:19	48	458.3	3419.1	815	1
09/09/2022 18:20	48	458.2	3418.5	815	1
09/09/2022 18:21	48	457.6	3414.4	814.6	1

09/09/2022 18:22	48	457.9	3416.3	815	1
09/09/2022 18:23	47	457.3	3412.2	814.7	1
09/09/2022 18:24	48	458	3416.9	814	1
09/09/2022 18:25	48	458.4	3419.8	814	1
09/09/2022 18:26	48	458.4	3420	814	1
09/09/2022 18:27	48	458.3	3419.2	814	1
09/09/2022 18:28	48	458.6	3421.8	814	1
09/09/2022 18:29	48	457.6	3414.4	814	1
09/09/2022 18:30	48	457.7	3415.1	814	1
09/09/2022 18:31	48	456.7	3407.6	814.3	1
09/09/2022 18:32	48	457.4	3413	814.4	1
09/09/2022 18:33	48	457.3	3411.8	815	1
09/09/2022 18:34	48	457.7	3415.2	815	1
09/09/2022 18:35	47	457.3	3412	815	1
09/09/2022 18:36	48	457.2	3411.1	815	1
09/09/2022 18:37	48	457.7	3415.2	815	1
09/09/2022 18:38	48	458.2	3418.6	815	1
09/09/2022 18:39	48	457.5	3413.4	814.8	1
09/09/2022 18:40	48	457.8	3415.8	815	1
09/09/2022 18:41	48	458.4	3420.1	815	1
09/09/2022 18:42	48	458.2	3418.6	814.9	1
09/09/2022 18:43	48	457.3	3411.8	814.8	1
09/09/2022 18:44	48	458.1	3417.8	814.7	1
09/09/2022 18:45	48	457.6	3414	814.7	1
09/09/2022 18:46	48	457.9	3416.5	815	1
09/09/2022 18:47	48	458	3417	815	1
09/09/2022 18:48	48	458.5	3420.9	815	1
09/09/2022 18:49	48	458.2	3418.5	814.9	1
09/09/2022 18:50	48	458.4	3420.4	814.1	1
09/09/2022 18:51	48	458.1	3417.8	814	1
09/09/2022 18:52	48	458.6	3421.3	814.5	1
09/09/2022 18:53	48	458.3	3419.6	815	1
09/09/2022 18:54	48	457.5	3413.6	815	1
09/09/2022 18:55	48	457.3	3412.3	814.8	1
09/09/2022 18:56	48	457.7	3414.8	815	1
09/09/2022 18:57	48	457.7	3415.2	815	1
09/09/2022 18:58	48	457.7	3415.2	815	1
09/09/2022 18:59	48	458.2	3418.3	814.4	1
09/09/2022 19:00	48	458.5	3421	814	1
09/09/2022 19:01	48	457.8	3415.8	814	1
09/09/2022 19:02	48	456.8	3408.1	814.3	1
09/09/2022 19:03	48	456.8	3407.9	814.4	1
09/09/2022 19:04	48	457.5	3413.2	814.2	1
09/09/2022 19:05	48	457.3	3412.2	814.2	1
09/09/2022 19:06	48	457.4	3412.8	814.4	1
09/09/2022 19:07	48	457.5	3413.5	814	1
09/09/2022 19:08	48	457.2	3411.1	814	1
09/09/2022 19:09	48	457.8	3415.6	814	1
09/09/2022 19:10	47	457	3409.9	814	1
09/09/2022 19:11	48	457.1	3410.6	814	1
09/09/2022 19:12	48	457	3409.4	814.1	1
09/09/2022 19:13	48	457.1	3410.3	814	1
09/09/2022 19:14	48	457.4	3412.8	814	1
09/09/2022 19:15	48	457.7	3414.9	814	1
09/09/2022 19:16	48	457.7	3415	814.1	1
09/09/2022 19:17	48	458.2	3418.9	814.8	1
09/09/2022 19:18	48	457.7	3415.1	814.4	1
09/09/2022 19:19	48	457.4	3413	814.4	1
09/09/2022 19:20	48	458	3417.1	814.6	1
09/09/2022 19:21	48	457.4	3412.8	814.3	1

09/09/2022 19:22	48	457.5	3413.2	814.5	1
09/09/2022 19:23	48	457.2	3411.1	814.3	1
09/09/2022 19:24	48	457.3	3411.9	814.5	1
09/09/2022 19:25	48	457.4	3412.9	814.7	1
09/09/2022 19:26	48	457.4	3412.9	814.8	1
09/09/2022 19:27	48	457.4	3412.7	814.8	1
09/09/2022 19:28	48	458	3417	814.4	1
09/09/2022 19:29	48	457.6	3414.5	814	1
09/09/2022 19:30	48	457.7	3414.8	814.3	1
09/09/2022 19:31	48	457.6	3414.5	814	1
09/09/2022 19:32	48	457.3	3411.9	814.8	1
09/09/2022 19:33	48	457.8	3415.3	815	1
09/09/2022 19:34	48	457.2	3411	815	1
09/09/2022 19:35	48	458	3416.9	815	1
09/09/2022 19:36	48	457.8	3415.4	815	1
09/09/2022 19:37	48	456.6	3407	814.4	1
09/09/2022 19:38	48	457.4	3412.4	814.6	1
09/09/2022 19:39	48	457.5	3413.5	814.6	1
09/09/2022 19:40	48	457.4	3412.6	814.5	1
09/09/2022 19:41	48	458.1	3418.1	814	1
09/09/2022 19:42	48	458.3	3419.1	814.7	1
09/09/2022 19:43	48	457.2	3411.3	814.3	1
09/09/2022 19:44	48	457.6	3414	814.7	1
09/09/2022 19:45	48	458.6	3421.4	814.8	1
09/09/2022 19:46	48	458.6	3421.6	814.1	1
09/09/2022 19:47	48	458.1	3417.8	814	1
09/09/2022 19:48	48	458.6	3421.3	814	1
09/09/2022 19:49	48	459	3424.3	814	1
09/09/2022 19:50	48	458.4	3419.8	814	1
09/09/2022 19:51	47	456.5	3405.6	814.3	1
09/09/2022 19:52	48	457.3	3412.3	814.4	1
09/09/2022 19:53	48	456.6	3407.1	814.4	1
09/09/2022 19:54	48	457.4	3412.7	814.4	1
09/09/2022 19:55	48	456.7	3407.6	814.8	1
09/09/2022 19:56	48	458	3416.9	815	1
09/09/2022 19:57	48	457.2	3410.9	815	1
09/09/2022 19:58	48	457.3	3411.8	814.8	1
09/09/2022 19:59	48	457.3	3411.6	815	1
09/09/2022 20:00	48	457.3	3411.6	815	1
09/09/2022 20:01	48	457.5	3413.4	815	1
09/09/2022 20:02	48	457.8	3415.4	814.9	1
09/09/2022 20:03	48	457.6	3414.4	814.7	1
09/09/2022 20:04	47	457.1	3410.5	814.8	1
09/09/2022 20:05	48	457.9	3416.4	814.8	1
09/09/2022 20:06	48	458.2	3418.3	814	1
09/09/2022 20:07	48	458.4	3420.3	814	1
09/09/2022 20:08	48	457.7	3415.1	814	1
09/09/2022 20:09	48	458.5	3421	814	1
09/09/2022 20:10	48	458.1	3417.6	814.1	1
09/09/2022 20:11	48	457.7	3415	815	1
09/09/2022 20:12	48	458.1	3417.7	815	1
09/09/2022 20:13	48	457.7	3415	815	1
09/09/2022 20:14	48	457.3	3412.1	814.6	1
09/09/2022 20:15	48	457.6	3413.9	814.8	1
09/09/2022 20:16	48	458.2	3418.3	815	1
09/09/2022 20:17	48	458.2	3418.6	815	1
09/09/2022 20:18	48	458.2	3418.6	815	1
09/09/2022 20:19	48	458	3417.2	814.9	1
09/09/2022 20:20	48	458.1	3417.7	814.4	1
09/09/2022 20:21	48	457.9	3416.8	814	1

09/09/2022 20:22	48	457.1	3410.4	814.2	1
09/09/2022 20:23	48	457.4	3412.8	814.3	1
09/09/2022 20:24	48	456.6	3406.5	814.3	1
09/09/2022 20:25	48	457.9	3416.1	814	1
09/09/2022 20:26	48	457.7	3415.1	814	1
09/09/2022 20:27	48	457.4	3412.5	813.8	1
09/09/2022 20:28	48	456.8	3408.2	814	1
09/09/2022 20:29	48	457.9	3416.1	814	1
09/09/2022 20:30	48	457.2	3411.3	814	1
09/09/2022 20:31	48	456.9	3409.1	814.1	1
09/09/2022 20:32	48	457.3	3412.3	813.8	1
09/09/2022 20:33	48	457.8	3415.5	814	1
09/09/2022 20:34	48	457.2	3411.1	814	1
09/09/2022 20:35	48	457.1	3410.4	814	1

Grand Summaries					
Avg: 48	Avg: 457.7	Avg: 3414.9	Avg: 814.7	Avg: 1.0	
Sum: 9206	Sum: 87878.3	Sum: 655659.6	Sum: 156418.1	Sum: 192.0	
Min: 47	Min: 456.5	Min: 3405.6	Min: 813.8	Min: 1.0	
Max: 48	Max: 459.0	Max: 3424.3	Max: 816.0	Max: 1.0	
Count: 192	Count: 192	Count: 192	Count: 192	Count: 192	

Date/Time	UNIT15 LOADMW15 Value	UNIT15 HEATIN15 Value	UNIT15 OILFLW15 Value	UNIT15 CATEMP15 Value	UNIT15 WATERF15 Value
09/10/2022 07:40	48	457.7	3414.7	810	1
09/10/2022 07:41	48	457.8	3415.8	810	1
09/10/2022 07:42	48	458	3416.8	810.4	1
09/10/2022 07:43	48	457.8	3415.3	811	1
09/10/2022 07:44	48	458.1	3418	811.3	1
09/10/2022 07:45	48	458.1	3417.9	812	1
09/10/2022 07:46	48	458.3	3419.4	812	1
09/10/2022 07:47	48	458.2	3418.6	812	1
09/10/2022 07:48	48	457.7	3414.6	812	1
09/10/2022 07:49	48	458.1	3418	812	1
09/10/2022 07:50	48	458.1	3417.8	812	1
09/10/2022 07:51	48	457.9	3416.6	812	1
09/10/2022 07:52	48	457.7	3414.7	812	1
09/10/2022 07:53	48	457.8	3416	812	1
09/10/2022 07:54	48	458.3	3419.4	812	1
09/10/2022 07:55	48	458.3	3419.2	812	1
09/10/2022 07:56	48	457.9	3416.1	812.5	1
09/10/2022 07:57	48	458	3417.1	813	1
09/10/2022 07:58	48	457.8	3415.4	812.9	1
09/10/2022 07:59	48	457.7	3414.8	813	1
09/10/2022 08:00	48	458	3417.3	812.8	1
09/10/2022 08:01	48	458.2	3418.8	813	1
09/10/2022 08:02	48	457.8	3415.6	813	1
09/10/2022 08:03	48	458.3	3419	813	1
09/10/2022 08:04	48	457.6	3414.1	813	1
09/10/2022 08:05	48	457.8	3415.6	813	1
09/10/2022 08:06	48	458.2	3418.6	813	1
09/10/2022 08:07	48	458.3	3419.7	813	1
09/10/2022 08:08	48	457.7	3414.9	813.1	1
09/10/2022 08:09	48	457.5	3413.8	813	1
09/10/2022 08:10	48	457.5	3413.6	813	1
09/10/2022 08:11	48	457.2	3411.3	813	1
09/10/2022 08:12	48	457.4	3412.4	813	1
09/10/2022 08:13	48	457.8	3415.8	813	1
09/10/2022 08:14	48	457.8	3415.4	813	1
09/10/2022 08:15	48	457.9	3416.5	813	1
09/10/2022 08:16	48	458.4	3420.4	813	1
09/10/2022 08:17	48	458.2	3418.8	813	1
09/10/2022 08:18	48	458.3	3419.5	813	1
09/10/2022 08:19	48	458	3417.5	813	1
09/10/2022 08:20	48	457.4	3412.7	813	1
09/10/2022 08:21	48	457.7	3415.3	813.6	1
09/10/2022 08:22	48	457.7	3414.9	813	1
09/10/2022 08:23	48	457.4	3412.9	813	1
09/10/2022 08:24	48	457.6	3413.8	813.5	1
09/10/2022 08:25	48	458	3417.1	813.8	1
09/10/2022 08:26	48	457.6	3414.5	814	1
09/10/2022 08:27	48	458	3417.2	813.6	1
09/10/2022 08:28	48	457.4	3413	813	1
09/10/2022 08:29	48	457.7	3414.8	813	1
09/10/2022 08:30	48	457.7	3414.8	813.2	1
09/10/2022 08:31	48	458.2	3419	813	1
09/10/2022 08:32	48	457.9	3416.5	813.3	1
09/10/2022 08:33	48	457.7	3415.2	813	1
09/10/2022 08:34	48	457.8	3415.7	813	1
09/10/2022 08:35	48	458.1	3418	813.1	1
09/10/2022 08:36	48	457.5	3413.3	814	1
09/10/2022 08:37	48	457.5	3413.1	814	1

09/10/2022 08:38	48	457.7	3415.1	813.9	1
09/10/2022 08:39	48	458.4	3420.1	813.4	1
09/10/2022 08:40	48	458.1	3418	813	1
09/10/2022 08:41	48	458.1	3417.9	813	1
09/10/2022 08:42	48	458.4	3419.9	813	1
09/10/2022 08:43	48	457.7	3414.6	813	1
09/10/2022 08:44	48	457.2	3411.4	813.2	1
09/10/2022 08:45	48	457.9	3416.1	813.5	1
09/10/2022 08:46	48	458.2	3418.9	813	1
09/10/2022 08:47	48	457.7	3414.8	813.2	1
09/10/2022 08:48	48	458	3417.3	813.6	1
09/10/2022 08:49	48	457.6	3414.1	813.6	1
09/10/2022 08:50	48	457.7	3414.7	814	1
09/10/2022 08:51	48	457.7	3415.1	814	1
09/10/2022 08:52	48	457.7	3414.9	814	1
09/10/2022 08:53	48	458.1	3417.9	814	1
09/10/2022 08:54	48	457.7	3414.9	814	1
09/10/2022 08:55	48	458	3417.3	813.8	1
09/10/2022 08:56	48	457.9	3416.3	813.9	1
09/10/2022 08:57	48	458.2	3418.6	814	1
09/10/2022 08:58	48	458.4	3420	813.5	1
09/10/2022 08:59	48	458.2	3418.8	813.7	1
09/10/2022 09:00	48	457.9	3416.5	814	1
09/10/2022 09:01	48	458.2	3418.5	814	1
09/10/2022 09:02	48	457.6	3414.1	813.8	1
09/10/2022 09:03	48	458.3	3419.6	814	1
09/10/2022 09:04	48	458.5	3420.7	814	1
09/10/2022 09:05	48	458.7	3422.5	813.8	1
09/10/2022 09:06	48	458.1	3418	813	1
09/10/2022 09:07	48	457.9	3416.6	813	1
09/10/2022 09:08	48	457.7	3414.6	813	1
09/10/2022 09:09	48	457.8	3415.8	813	1
09/10/2022 09:10	48	458.1	3417.9	813.5	1
09/10/2022 09:11	48	457.9	3416.2	813.6	1
09/10/2022 09:12	48	457.1	3410.2	813.3	1
09/10/2022 09:13	48	457.1	3410.5	813.3	1
09/10/2022 09:14	48	457.9	3416.5	813	1
09/10/2022 09:15	48	458.4	3420.4	813	1
09/10/2022 09:16	48	457.9	3416.5	813	1
09/10/2022 09:17	48	457.7	3414.8	813	1
09/10/2022 09:18	48	458.1	3418	813	1
09/10/2022 09:19	48	457.4	3412.9	813.5	1
09/10/2022 09:20	48	457.3	3412.3	813.7	1
09/10/2022 09:21	48	457.5	3413.2	813	1
09/10/2022 09:22	48	457.8	3415.7	813	1
09/10/2022 09:23	48	457.9	3416.2	813	1
09/10/2022 09:24	48	458	3416.9	813	1
09/10/2022 09:25	48	457.6	3413.8	813	1
09/10/2022 09:26	48	458	3417.5	813	1
09/10/2022 09:27	48	458.1	3418	813	1
09/10/2022 09:28	48	457.8	3416	813	1
09/10/2022 09:29	48	458.3	3419.3	813	1
09/10/2022 09:30	48	458.3	3419.6	813	1
09/10/2022 09:31	48	458.3	3419.2	813	1
09/10/2022 09:32	48	458.1	3418	813.4	1
09/10/2022 09:33	48	457.8	3415.8	813.3	1
09/10/2022 09:34	48	457.9	3416.7	813	1
09/10/2022 09:35	48	458.3	3419.4	813	1
09/10/2022 09:36	48	458	3417.4	813	1
09/10/2022 09:37	48	458.5	3421	813	1

09/10/2022 09:38	48	458.1	3418	813.5	1
09/10/2022 09:39	48	457.9	3416.2	813.7	1
09/10/2022 09:40	48	458.1	3417.9	814	1
09/10/2022 09:41	48	458.3	3419.3	813.8	1
09/10/2022 09:42	48	457.9	3416.4	813.8	1
09/10/2022 09:43	48	458	3417.4	813.3	1
09/10/2022 09:44	48	458.1	3418.2	813.4	1
09/10/2022 09:45	48	458.4	3419.9	813.1	1
09/10/2022 09:46	48	458.4	3420.3	813.8	1
09/10/2022 09:47	48	458.5	3420.8	814	1
09/10/2022 09:48	48	458.3	3419.1	814	1
09/10/2022 09:49	48	458.2	3418.8	814	1
09/10/2022 09:50	48	457.8	3415.9	814	1
09/10/2022 09:51	48	458	3417	814	1
09/10/2022 09:52	48	458.3	3419.5	814	1
09/10/2022 09:53	48	458.7	3422.6	814	1
09/10/2022 09:54	48	458.2	3418.7	814	1
09/10/2022 09:55	48	458.1	3417.9	814	1
09/10/2022 09:56	48	458.8	3423	814	1
09/10/2022 09:57	48	458.6	3421.8	813.9	1
09/10/2022 09:58	48	458.7	3422.4	814	1
09/10/2022 09:59	48	458.9	3423.8	814	1
09/10/2022 10:00	48	458.6	3421.9	813.7	1
09/10/2022 10:01	48	458.9	3423.7	814	1
09/10/2022 10:02	48	458.6	3421.9	814	1
09/10/2022 10:03	48	458.4	3420.4	814	1
09/10/2022 10:04	48	458.8	3423	814	1
09/10/2022 10:05	48	458.6	3421.6	814	1
09/10/2022 10:06	48	458.7	3422.4	814	1
09/10/2022 10:07	48	459.1	3425.7	814	1
09/10/2022 10:08	48	459	3424.7	814	1
09/10/2022 10:09	48	458.8	3422.8	814	1
09/10/2022 10:10	48	458.6	3421.8	814.3	1
09/10/2022 10:11	48	459.1	3425.1	814	1
09/10/2022 10:12	48	459.3	3427.2	814	1
09/10/2022 10:13	48	459.7	3429.9	814	1
09/10/2022 10:14	48	459.6	3429.1	814	1
09/10/2022 10:15	48	459.2	3426	814	1
09/10/2022 10:16	48	459	3424.5	814	1
09/10/2022 10:17	48	458.9	3423.5	814	1
09/10/2022 10:18	48	459.3	3426.8	814	1
09/10/2022 10:19	48	459.3	3426.9	814	1
09/10/2022 10:20	48	458.8	3423.5	814.5	1
09/10/2022 10:21	48	459	3424.3	815	1
09/10/2022 10:22	48	458.6	3421.5	815	1
09/10/2022 10:23	48	459.1	3425.7	814.9	1
09/10/2022 10:24	48	459.6	3428.9	815	1
09/10/2022 10:25	48	459.2	3426.2	814.3	1
09/10/2022 10:26	48	459.4	3428	814.7	1
09/10/2022 10:27	48	459.5	3428.3	815	1
09/10/2022 10:28	48	458.7	3422.4	815	1
09/10/2022 10:29	48	459	3424.8	815	1
09/10/2022 10:30	48	459.2	3425.8	815	1
09/10/2022 10:31	48	458.9	3424.2	815	1
09/10/2022 10:32	48	459.3	3427	815	1
09/10/2022 10:33	48	459.3	3426.7	815	1
09/10/2022 10:34	48	459.3	3427	815	1
09/10/2022 10:35	48	459.2	3425.8	815	1
09/10/2022 10:36	48	459.4	3427.3	815	1
09/10/2022 10:37	48	459.6	3429.3	815	1

09/10/2022 10:38	48	459.2	3426	815	1
09/10/2022 10:39	48	459.1	3425.7	815	1
09/10/2022 10:40	48	459.3	3427	815	1
09/10/2022 10:41	48	459.5	3428.4	815	1
09/10/2022 10:42	48	459.6	3429.5	815	1
09/10/2022 10:43	48	460	3432.4	814.9	1
09/10/2022 10:44	48	459.8	3430.8	815	1
09/10/2022 10:45	48	459.4	3427.6	815	1
09/10/2022 10:46	48	459.3	3426.8	814.7	1
09/10/2022 10:47	48	459.9	3431.3	814.2	1
09/10/2022 10:48	48	459.8	3430.4	814.2	1
09/10/2022 10:49	48	459.5	3428.4	814.4	1
09/10/2022 10:50	48	459.1	3425.6	815	1
09/10/2022 10:51	48	459.3	3427.2	815	1
09/10/2022 10:52	48	459.5	3428.3	815	1
09/10/2022 10:53	48	460.1	3432.5	815	1
09/10/2022 10:54	48	459.7	3429.9	815	1
09/10/2022 10:55	48	459.3	3427.2	815	1

Grand Summaries					
Avg: 48	Avg: 458.3	Avg: 3419.6	Avg: 813.6	Avg: 1.0	
Sum: 9408	Sum: 89830.8	Sum: 670235.6	Sum: 159457.7	Sum: 196.0	
Min: 48	Min: 457.1	Min: 3410.2	Min: 810.0	Min: 1.0	
Max: 48	Max: 460.1	Max: 3432.5	Max: 815.0	Max: 1.0	
Count: 196	Count: 196	Count: 196	Count: 196	Count: 196	

Date/Time	UNIT15 LOADMW15 Value	UNIT15 HEATIN15 Value	UNIT15 OILFLW15 Value	UNIT15 CATEMP15 Value	UNIT15 WATERF15 Value
09/10/2022 11:30	48	459.9	3431.2	815	1
09/10/2022 11:31	48	459.9	3431.7	815	1
09/10/2022 11:32	48	459.7	3429.7	815	1
09/10/2022 11:33	48	460.2	3433.3	815	1
09/10/2022 11:34	48	459.7	3430.2	815	1
09/10/2022 11:35	48	459.7	3430.1	815	1
09/10/2022 11:36	48	460.3	3434.5	815	1
09/10/2022 11:37	48	459.9	3431.7	815	1
09/10/2022 11:38	48	460.2	3433.7	815	1
09/10/2022 11:39	48	460.1	3433.1	815	1
09/10/2022 11:40	48	460	3432.3	815	1
09/10/2022 11:41	48	460.5	3435.9	815	1
09/10/2022 11:42	48	460.5	3435.6	815	1
09/10/2022 11:43	48	460.5	3435.5	815	1
09/10/2022 11:44	48	460.3	3434.7	815	1
09/10/2022 11:45	48	459.8	3431	815	1
09/10/2022 11:46	48	460	3432.2	815	1
09/10/2022 11:47	48	459.8	3430.6	815	1
09/10/2022 11:48	48	459.6	3429	815	1
09/10/2022 11:49	48	459.6	3429.2	815	1
09/10/2022 11:50	48	459.8	3430.4	815	1
09/10/2022 11:51	48	460	3431.9	815	1
09/10/2022 11:52	48	459	3424.9	815	1
09/10/2022 11:53	48	459.4	3427.5	815	1
09/10/2022 11:54	48	459.5	3428.5	815	1
09/10/2022 11:55	48	459.2	3426.5	815	1
09/10/2022 11:56	48	459.4	3427.5	815	1
09/10/2022 11:57	48	459.4	3427.5	815	1
09/10/2022 11:58	48	459.6	3429.4	815	1
09/10/2022 11:59	48	460.1	3433.1	815	1
09/10/2022 12:00	48	459.3	3426.6	815	1
09/10/2022 12:01	48	460.3	3434.1	815	1
09/10/2022 12:02	48	460.7	3437.6	815	1
09/10/2022 12:03	48	460.9	3438.7	815	1
09/10/2022 12:04	48	460.5	3436.1	815	1
09/10/2022 12:05	48	460.4	3435.3	815	1
09/10/2022 12:06	48	460.2	3433.8	815	1
09/10/2022 12:07	48	460.8	3438.3	815	1
09/10/2022 12:08	48	460.1	3432.8	815	1
09/10/2022 12:09	48	459.9	3431.7	815	1
09/10/2022 12:10	48	460.2	3433.6	815	1
09/10/2022 12:11	48	459.7	3429.5	815	1
09/10/2022 12:12	48	460.7	3437.1	815	1
09/10/2022 12:13	48	460.3	3434.2	815	1
09/10/2022 12:14	48	459.7	3429.7	815	1
09/10/2022 12:15	48	460.4	3435.1	815	1
09/10/2022 12:16	48	460.3	3434	815	1
09/10/2022 12:17	48	460.1	3433.1	815	1
09/10/2022 12:18	48	460	3432.4	815	1
09/10/2022 12:19	48	460	3432	815	1
09/10/2022 12:20	48	458.8	3422.9	815.1	1
09/10/2022 12:21	48	459.8	3430.8	815	1
09/10/2022 12:22	48	459.1	3425.5	815	1
09/10/2022 12:23	48	459.5	3428.6	815	1
09/10/2022 12:24	48	459.6	3429.4	815	1
09/10/2022 12:25	48	459.8	3430.3	815	1
09/10/2022 12:26	48	460.1	3432.9	815	1
09/10/2022 12:27	48	459.8	3430.4	815	1

09/10/2022 12:28	48	459.8	3430.3	815	1
09/10/2022 12:29	48	460.5	3435.8	815	1
09/10/2022 12:30	48	460.3	3434.5	815	1
09/10/2022 12:31	48	460.1	3433	815	1
09/10/2022 12:32	48	460.7	3437	815	1
09/10/2022 12:33	48	460.6	3436.5	815	1
09/10/2022 12:34	48	460.5	3435.9	815	1
09/10/2022 12:35	48	460.7	3437.1	815	1
09/10/2022 12:36	48	460.5	3435.7	815	1
09/10/2022 12:37	48	460	3432.2	815	1
09/10/2022 12:38	48	459.7	3429.8	815.2	1
09/10/2022 12:39	48	458.6	3422	815	1
09/10/2022 12:40	48	459.8	3430.8	815	1
09/10/2022 12:41	48	459.8	3430.8	815.6	1
09/10/2022 12:42	48	460.6	3436.7	815.4	1
09/10/2022 12:43	48	460.4	3434.9	816	1
09/10/2022 12:44	48	460.5	3435.5	816	1
09/10/2022 12:45	48	460.2	3433.6	815.6	1
09/10/2022 12:46	48	460.5	3436	815	1
09/10/2022 12:47	48	460.6	3436.5	815	1
09/10/2022 12:48	48	460.5	3435.7	815	1
09/10/2022 12:49	48	460.4	3435.3	815.8	1
09/10/2022 12:50	48	460.5	3435.7	815.5	1
09/10/2022 12:51	48	460.9	3438.8	815	1
09/10/2022 12:52	48	460.5	3435.8	815	1
09/10/2022 12:53	48	460.9	3438.5	815	1
09/10/2022 12:54	48	460.3	3434.6	815	1
09/10/2022 12:55	48	460.7	3437.2	815	1
09/10/2022 12:56	48	460.8	3438	815	1
09/10/2022 12:57	48	460.3	3434.1	815.1	1
09/10/2022 12:58	48	460.5	3435.9	815.6	1
09/10/2022 12:59	48	460.4	3435.4	815.9	1
09/10/2022 13:00	48	460.8	3437.9	816	1
09/10/2022 13:01	48	459.6	3428.8	815.8	1
09/10/2022 13:02	48	460.3	3434.4	816	1
09/10/2022 13:03	48	460.4	3434.8	815.7	1
09/10/2022 13:04	48	460.6	3436.5	815.8	1
09/10/2022 13:05	48	460.8	3438.2	815.8	1
09/10/2022 13:06	48	460.5	3435.6	815.7	1
09/10/2022 13:07	48	460.9	3438.5	815	1
09/10/2022 13:08	48	460.4	3434.9	815	1
09/10/2022 13:09	48	460.3	3434.7	815	1
09/10/2022 13:10	48	461.1	3439.9	815	1
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09/10/2022 13:12	48	460.9	3438.5	815	1
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09/10/2022 13:16	48	459.6	3429.2	815	1
09/10/2022 13:17	48	460	3432.3	815	1
09/10/2022 13:18	48	460.7	3437.3	816	1
09/10/2022 13:19	48	460.8	3437.9	816	1
09/10/2022 13:20	48	460.2	3433.2	815.8	1
09/10/2022 13:21	48	460.2	3433.7	815.1	1
09/10/2022 13:22	48	460.1	3433	815	1
09/10/2022 13:23	48	460	3432.4	815	1
09/10/2022 13:24	48	459.9	3431.7	815	1
09/10/2022 13:25	48	460.9	3438.5	815.3	1
09/10/2022 13:26	48	459.5	3428.2	815.8	1
09/10/2022 13:27	48	459.8	3430.7	815.8	1

09/10/2022 13:28	48	460.8	3438.2	815.9	1
09/10/2022 13:29	48	461.3	3441.4	816	1
09/10/2022 13:30	48	460.7	3437.2	816	1
09/10/2022 13:31	48	460	3432.3	815.9	1
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09/10/2022 13:36	48	460.5	3435.6	815.2	1
09/10/2022 13:37	48	459.7	3429.9	816	1
09/10/2022 13:38	48	460.4	3435	815.3	1
09/10/2022 13:39	48	460.5	3435.5	815.8	1
09/10/2022 13:40	48	459.8	3430.7	815.8	1
09/10/2022 13:41	48	460.4	3435.4	816	1
09/10/2022 13:42	48	460	3432	816	1
09/10/2022 13:43	48	460.4	3435.3	816	1
09/10/2022 13:44	48	460.3	3434	816	1
09/10/2022 13:45	48	459.9	3431.7	815.9	1
09/10/2022 13:46	48	459.9	3431.6	815.7	1
09/10/2022 13:47	48	460.5	3436	816	1
09/10/2022 13:48	48	461	3439.9	815.9	1
09/10/2022 13:49	48	460.7	3437.2	816	1
09/10/2022 13:50	48	460.4	3435.4	815.9	1
09/10/2022 13:51	48	459.9	3431.5	816	1
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09/10/2022 13:53	48	460.6	3436.9	815.8	1
09/10/2022 13:54	48	461	3439.4	815.6	1
09/10/2022 13:55	48	460.8	3438.1	815	1
09/10/2022 13:56	48	460.8	3438.3	815	1
09/10/2022 13:57	48	460.8	3437.7	815.6	1
09/10/2022 13:58	48	460.6	3436.4	815.3	1
09/10/2022 13:59	48	460.4	3435.4	815.1	1
09/10/2022 14:00	48	460	3432.1	815.8	1
09/10/2022 14:01	48	460.4	3435.2	816	1
09/10/2022 14:02	48	460.7	3437.5	816	1
09/10/2022 14:03	48	459.5	3428.4	815.7	1
09/10/2022 14:04	48	460.4	3435.2	816	1
09/10/2022 14:05	48	460.9	3438.6	815.5	1
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09/10/2022 14:09	48	460.2	3433.5	815.3	1
09/10/2022 14:10	48	459.6	3428.8	815.4	1
09/10/2022 14:11	48	460.4	3434.9	816	1
09/10/2022 14:12	48	460.2	3433.9	815.7	1
09/10/2022 14:13	48	460.5	3435.9	815.3	1
09/10/2022 14:14	48	459.7	3430.2	815.8	1
09/10/2022 14:15	48	460.7	3437.1	816	1
09/10/2022 14:16	48	460.6	3436.7	815.4	1
09/10/2022 14:17	48	459.4	3428	816	1
09/10/2022 14:18	48	460	3432	816	1
09/10/2022 14:19	48	460.8	3437.7	816	1
09/10/2022 14:20	48	460.3	3434.5	815.3	1
09/10/2022 14:21	48	460.8	3438.4	815.8	1
09/10/2022 14:22	48	460.5	3435.6	815.3	1
09/10/2022 14:23	48	459.8	3430.3	816	1
09/10/2022 14:24	48	459.8	3430.3	816	1
09/10/2022 14:25	48	460.2	3433.7	816	1
09/10/2022 14:26	48	459.6	3429	815.8	1
09/10/2022 14:27	48	460.4	3435.1	815.3	1

09/10/2022 14:28	48	460.7	3437	815.3	1
09/10/2022 14:29	48	459.9	3431.6	815.8	1
09/10/2022 14:30	48	459.8	3430.7	816	1
09/10/2022 14:31	48	459.6	3429	816	1
09/10/2022 14:32	48	459.8	3430.3	816	1
09/10/2022 14:33	48	460.5	3435.8	816	1
09/10/2022 14:34	48	459.8	3430.3	816	1
09/10/2022 14:35	48	459.8	3430.5	816	1
09/10/2022 14:36	48	460.4	3435.3	815.7	1
09/10/2022 14:37	48	460	3432.5	816	1
09/10/2022 14:38	48	459.1	3425.5	815.3	1
09/10/2022 14:39	48	460.3	3434	815.6	1
09/10/2022 14:40	48	460	3431.8	815.5	1
09/10/2022 14:41	48	460.4	3435	816	1
09/10/2022 14:42	48	460.4	3434.9	815.3	1
09/10/2022 14:43	48	459.4	3427.8	815.5	1
09/10/2022 14:44	48	460.5	3436.2	815	1
09/10/2022 14:45	48	460.4	3435.3	815.3	1

Grand Summaries

Avg: 48	Avg: 460.2	Avg: 3433.7	Avg: 815.4	Avg: 1.0
Sum: 9408	Sum: 90202.5	Sum: 673011.7	Sum: 159809.1	Sum: 196.0
Min: 48	Min: 458.6	Min: 3422.0	Min: 815.0	Min: 1.0
Max: 48	Max: 461.4	Max: 3442.5	Max: 816.0	Max: 1.0
Count: 196	Count: 196	Count: 196	Count: 196	Count: 196

Date/Time	UNIT15 LOADMW15 Value	UNIT15 HEATIN15 Value	UNIT15 OILFLW15 Value	UNIT15 CATEMP15 Value	UNIT15 WATERF15 Value
09/10/2022 15:25	48	460.7	3437.7	815	1
09/10/2022 15:26	48	459.7	3429.5	815.2	1
09/10/2022 15:27	48	460.4	3434.9	815.8	1
09/10/2022 15:28	48	460	3431.8	815.3	1
09/10/2022 15:29	48	461.4	3442.7	815.3	1
09/10/2022 15:30	48	459.7	3429.8	815.6	1
09/10/2022 15:31	48	459.8	3430.3	815.4	1
09/10/2022 15:32	48	459.7	3430.1	815.8	1
09/10/2022 15:33	48	461	3439.7	815	1
09/10/2022 15:34	48	461.2	3440.8	815.4	1
09/10/2022 15:35	48	461.4	3442.2	815.8	1
09/10/2022 15:36	48	460.1	3433	815.8	1
09/10/2022 15:37	48	460.3	3434.6	816	1
09/10/2022 15:38	48	461	3439.6	815.8	1
09/10/2022 15:39	48	459.9	3431.6	816	1
09/10/2022 15:40	48	460.3	3434.2	816	1
09/10/2022 15:41	48	460	3432	816	1
09/10/2022 15:42	48	459.7	3430	816	1
09/10/2022 15:43	48	459.7	3430	816	1
09/10/2022 15:44	48	460.2	3433.4	816	1
09/10/2022 15:45	48	460.6	3436.9	816	1
09/10/2022 15:46	48	460.2	3433.4	816	1
09/10/2022 15:47	48	460.8	3437.7	816	1
09/10/2022 15:48	48	460.6	3436.7	816	1
09/10/2022 15:49	48	461.3	3441.6	815.8	1
09/10/2022 15:50	48	461.3	3441.5	816	1
09/10/2022 15:51	48	460.9	3438.9	816	1
09/10/2022 15:52	48	461.6	3444.3	816	1
09/10/2022 15:53	48	461.1	3440.6	816	1
09/10/2022 15:54	48	461	3439.3	816	1
09/10/2022 15:55	48	460.3	3434.6	816	1
09/10/2022 15:56	48	460.3	3434.6	815.7	1
09/10/2022 15:57	48	459.3	3426.7	816	1
09/10/2022 15:58	48	459.3	3427.2	816	1
09/10/2022 15:59	48	460.2	3433.8	816	1
09/10/2022 16:00	48	460.8	3438.1	816	1
09/10/2022 16:01	48	460.4	3435.2	816	1
09/10/2022 16:02	48	460.6	3436.4	816	1
09/10/2022 16:03	48	460.4	3435	816	1
09/10/2022 16:04	48	460.4	3435	816	1
09/10/2022 16:05	48	460.5	3435.6	816	1
09/10/2022 16:06	48	460.8	3438.1	815.8	1
09/10/2022 16:07	48	460.9	3438.7	815	1
09/10/2022 16:08	48	460.8	3437.9	815.3	1
09/10/2022 16:09	48	459.8	3430.3	815.3	1
09/10/2022 16:10	48	460.8	3438.3	815.1	1
09/10/2022 16:11	48	459.8	3430.9	815.2	1
09/10/2022 16:12	48	459.5	3428.2	815.3	1
09/10/2022 16:13	48	460.8	3438	815.3	1
09/10/2022 16:14	48	459.4	3427.9	815.4	1
09/10/2022 16:15	48	460.6	3436.9	815	1
09/10/2022 16:16	48	459.6	3429.4	815	1
09/10/2022 16:17	48	461	3439.5	815	1
09/10/2022 16:18	48	459.5	3428.2	815	1
09/10/2022 16:19	48	459.9	3431.2	815	1
09/10/2022 16:20	47	458.6	3421.6	815	1
09/10/2022 16:21	47	458	3416.8	815	1
09/10/2022 16:22	47	458.7	3422.6	815	1

09/10/2022 16:23	48	459.2	3426.3	815	1
09/10/2022 16:24	48	459.3	3427.1	815	1
09/10/2022 16:25	48	459.4	3427.7	815	1
09/10/2022 16:26	48	458.8	3423.3	815	1
09/10/2022 16:27	48	459.6	3429.4	815	1
09/10/2022 16:28	48	460	3432.3	815	1
09/10/2022 16:29	48	460.3	3434.1	814.8	1
09/10/2022 16:30	48	460.1	3433	814.8	1
09/10/2022 16:31	48	460.6	3436.7	814	1
09/10/2022 16:32	48	460.5	3436.2	814.9	1
09/10/2022 16:33	48	459.3	3427	814.4	1
09/10/2022 16:34	48	459.3	3427.1	814.8	1
09/10/2022 16:35	48	460.4	3434.7	814.1	1
09/10/2022 16:36	48	458.9	3423.6	814.6	1
09/10/2022 16:37	48	459.8	3430.8	814.2	1
09/10/2022 16:38	48	459.2	3425.9	814.3	1
09/10/2022 16:39	48	459.5	3428.1	814.3	1
09/10/2022 16:40	48	459	3424.4	814.5	1
09/10/2022 16:41	48	460.8	3438.2	814	1
09/10/2022 16:42	48	460.3	3434	814.2	1
09/10/2022 16:43	48	459.3	3427.3	814.3	1
09/10/2022 16:44	48	459.1	3425	814.3	1
09/10/2022 16:45	48	459.1	3425.3	814.3	1
09/10/2022 16:46	48	460.1	3432.7	814.3	1
09/10/2022 16:47	48	458.9	3423.9	814	1
09/10/2022 16:48	47	458.5	3421.2	814.6	1
09/10/2022 16:49	47	458.4	3419.9	814.6	1
09/10/2022 16:50	48	458.8	3423.3	814.2	1
09/10/2022 16:51	48	458.4	3420	814	1
09/10/2022 16:52	47	458.4	3420.1	814	1
09/10/2022 16:53	48	458.5	3420.9	814	1
09/10/2022 16:54	48	459.1	3425.2	814	1
09/10/2022 16:55	48	458.1	3417.6	814	1
09/10/2022 16:56	48	458.7	3422.4	814	1
09/10/2022 16:57	48	459	3424.8	814	1
09/10/2022 16:58	48	458.9	3423.9	814	1
09/10/2022 16:59	48	458.7	3422.7	814	1
09/10/2022 17:00	47	458.7	3422.6	814	1
09/10/2022 17:01	48	459.4	3427.4	814	1
09/10/2022 17:02	48	459.3	3427	813.7	1
09/10/2022 17:03	48	459.6	3428.8	813	1
09/10/2022 17:04	48	460	3431.9	813.8	1
09/10/2022 17:05	48	459.1	3425.2	813.9	1
09/10/2022 17:06	48	459.8	3430.7	813.8	1
09/10/2022 17:07	47	458.6	3421.4	813.6	1
09/10/2022 17:08	48	459	3424.3	813.2	1
09/10/2022 17:09	48	458.7	3422.4	813.8	1
09/10/2022 17:10	47	458.1	3417.6	813.7	1
09/10/2022 17:11	48	458.4	3420.1	814	1
09/10/2022 17:12	48	459	3424.4	813.7	1
09/10/2022 17:13	47	458.3	3419.2	813	1
09/10/2022 17:14	47	458.7	3422.2	813	1
09/10/2022 17:15	47	458.1	3418.3	813	1
09/10/2022 17:16	48	458.1	3418.1	813	1
09/10/2022 17:17	48	459.2	3425.8	813	1
09/10/2022 17:18	48	459.1	3425.6	813.1	1
09/10/2022 17:19	48	459.6	3429.1	813.4	1
09/10/2022 17:20	48	459.1	3425	813.3	1
09/10/2022 17:21	48	460.4	3435	813	1
09/10/2022 17:22	48	460.1	3432.7	813.3	1

09/10/2022 17:23	48	458.6	3421.6	813.8	1
09/10/2022 17:24	48	459.2	3425.9	813.7	1
09/10/2022 17:25	47	458.8	3422.8	813.4	1
09/10/2022 17:26	48	458.4	3419.9	813.8	1
09/10/2022 17:27	47	458.4	3420.2	813.6	1
09/10/2022 17:28	48	459.4	3427.9	813.7	1
09/10/2022 17:29	47	458.1	3418.2	813.3	1
09/10/2022 17:30	48	459.3	3426.9	813.3	1
09/10/2022 17:31	48	458.1	3417.9	813.1	1
09/10/2022 17:32	48	458.6	3421.9	813.8	1
09/10/2022 17:33	48	459.7	3429.5	813.6	1
09/10/2022 17:34	47	457.9	3416.6	813.7	1
09/10/2022 17:35	48	458.7	3422.3	813.4	1
09/10/2022 17:36	48	458.5	3420.9	813.6	1
09/10/2022 17:37	48	459.3	3426.9	813.5	1
09/10/2022 17:38	47	457.8	3416	813.4	1
09/10/2022 17:39	47	458	3417.3	813.5	1
09/10/2022 17:40	47	458.7	3422.3	813.8	1
09/10/2022 17:41	48	459.3	3427.1	813	1
09/10/2022 17:42	47	458	3416.8	813.2	1
09/10/2022 17:43	47	458.7	3422.4	813	1
09/10/2022 17:44	48	459.2	3426.5	813	1
09/10/2022 17:45	47	457.9	3416.8	813	1
09/10/2022 17:46	48	459.1	3425.5	813	1
09/10/2022 17:47	48	458.3	3419.7	813	1
09/10/2022 17:48	47	458.4	3420.1	813	1
09/10/2022 17:49	48	459.3	3426.7	813	1
09/10/2022 17:50	48	458.1	3417.7	812.6	1
09/10/2022 17:51	48	457.9	3416.7	812.8	1
09/10/2022 17:52	48	458.3	3419.3	812.3	1
09/10/2022 17:53	47	458.3	3419.2	812.8	1
09/10/2022 17:54	47	458.1	3417.9	812.8	1
09/10/2022 17:55	48	458.2	3419	812.3	1
09/10/2022 17:56	47	457.7	3414.6	812	1
09/10/2022 17:57	47	458.5	3421.1	812.3	1
09/10/2022 17:58	47	458	3417.1	812.3	1
09/10/2022 17:59	48	458	3416.9	812	1
09/10/2022 18:00	47	457.9	3416.2	812	1
09/10/2022 18:01	48	458	3417.3	812.5	1
09/10/2022 18:02	47	457.6	3414.2	813	1
09/10/2022 18:03	47	457.8	3415.5	812.8	1
09/10/2022 18:04	48	457.9	3416.7	812.8	1
09/10/2022 18:05	48	458.5	3421	812.6	1
09/10/2022 18:06	48	458.8	3423.1	813	1
09/10/2022 18:07	48	458	3417.3	812.6	1
09/10/2022 18:08	47	457.6	3414	812.3	1
09/10/2022 18:09	47	458	3417.2	812.4	1
09/10/2022 18:10	47	457.8	3416	813	1
09/10/2022 18:11	47	457.3	3412.2	813	1
09/10/2022 18:12	47	456.9	3408.7	812.8	1
09/10/2022 18:13	47	457.1	3410.6	812.9	1
09/10/2022 18:14	47	457.6	3414.2	812.6	1
09/10/2022 18:15	47	457	3409.7	812.3	1
09/10/2022 18:16	47	457.2	3411.4	812.3	1
09/10/2022 18:17	48	457.8	3415.6	812	1
09/10/2022 18:18	48	458.5	3421.1	812.8	1
09/10/2022 18:19	48	458.7	3422.5	813	1
09/10/2022 18:20	47	457.8	3416	813	1
09/10/2022 18:21	48	458	3417.4	813	1
09/10/2022 18:22	47	458.1	3417.6	813	1

09/10/2022 18:23	48	458.2	3418.4	813	1
09/10/2022 18:24	48	458.8	3423.5	812.8	1
09/10/2022 18:25	48	459.4	3427.6	813	1
09/10/2022 18:26	48	459.3	3426.5	813	1
09/10/2022 18:27	48	458.2	3418.7	812.8	1
09/10/2022 18:28	48	459.4	3427.4	812.8	1
09/10/2022 18:29	47	458.1	3417.6	812.3	1
09/10/2022 18:30	48	458.6	3421.3	812.6	1
09/10/2022 18:31	48	458.5	3421.1	812.9	1
09/10/2022 18:32	48	459.8	3430.4	812.8	1
09/10/2022 18:33	48	458.4	3420.2	813	1
09/10/2022 18:34	48	458.3	3419.4	813	1
09/10/2022 18:35	48	458.3	3419.4	813.1	1
09/10/2022 18:36	48	459.7	3430.1	813.4	1
09/10/2022 18:37	48	458.5	3421.2	813.3	1
09/10/2022 18:38	47	458.4	3420.1	813.4	1
09/10/2022 18:39	48	457.9	3416.5	813.3	1
09/10/2022 18:40	47	458	3416.8	813.3	1

Grand Summaries

Avg: 48	Avg: 459.2	Avg: 3426.0	Avg: 814.1	Avg: 1.0
Sum: 9363	Sum: 89999.8	Sum: 671494.2	Sum: 159559.1	Sum: 196.0
Min: 47	Min: 456.9	Min: 3408.7	Min: 812.0	Min: 1.0
Max: 48	Max: 461.6	Max: 3444.3	Max: 816.0	Max: 1.0
Count: 196	Count: 196	Count: 196	Count: 196	Count: 196

Date/Time	UNIT15 LOADMW15 Value	UNIT15 HEATIN15 Value	UNIT15 OILFLW15 Value	UNIT15 CATEMP15 Value	UNIT15 WATERF15 Value
09/11/2022 06:22	48	456.8	3408.5	811	1
09/11/2022 06:23	48	457	3409.7	811	1
09/11/2022 06:24	48	456.8	3408.2	811	1
09/11/2022 06:25	48	457.2	3411.3	811	1
09/11/2022 06:26	48	457.1	3410.7	811	1
09/11/2022 06:27	48	457.2	3411.2	811.5	1
09/11/2022 06:28	48	457.2	3411.3	811.9	1
09/11/2022 06:29	48	456.8	3408.4	812	1
09/11/2022 06:30	48	457.1	3410.6	812	1
09/11/2022 06:31	48	456.4	3405.4	812	1
09/11/2022 06:32	48	457.3	3411.8	812	1
09/11/2022 06:33	48	457.2	3410.9	812	1
09/11/2022 06:34	48	457.4	3413	812	1
09/11/2022 06:35	48	457.1	3410.3	812	1
09/11/2022 06:36	48	456.9	3408.8	812	1
09/11/2022 06:37	48	456.6	3406.7	812	1
09/11/2022 06:38	48	456.9	3408.8	812	1
09/11/2022 06:39	48	456.7	3407.5	812	1
09/11/2022 06:40	48	457	3409.3	812	1
09/11/2022 06:41	48	456.3	3404.7	812	1
09/11/2022 06:42	48	456.6	3406.5	812	1
09/11/2022 06:43	48	456.7	3407.3	812	1
09/11/2022 06:44	48	456.5	3405.8	812	1
09/11/2022 06:45	48	456.6	3406.8	812	1
09/11/2022 06:46	48	456.9	3408.9	812	1
09/11/2022 06:47	48	457.1	3410.1	812	1
09/11/2022 06:48	48	457	3409.7	812	1
09/11/2022 06:49	48	457.1	3410.4	812	1
09/11/2022 06:50	48	456.9	3409.3	812	1
09/11/2022 06:51	48	456.7	3407.1	812	1
09/11/2022 06:52	48	456.6	3407	812	1
09/11/2022 06:53	48	456.6	3406.8	812	1
09/11/2022 06:54	48	456.6	3406.9	812	1
09/11/2022 06:55	48	456.4	3405.4	812	1
09/11/2022 06:56	48	456.2	3404.1	812	1
09/11/2022 06:57	48	456.4	3405.1	812	1
09/11/2022 06:58	48	456.2	3403.5	812	1
09/11/2022 06:59	48	456.4	3405.1	812	1
09/11/2022 07:00	48	456.7	3407.3	812	1
09/11/2022 07:01	48	456.2	3403.9	812	1
09/11/2022 07:02	48	456.4	3405.5	812	1
09/11/2022 07:03	48	456.6	3406.7	812	1
09/11/2022 07:04	48	456.5	3406.1	812	1
09/11/2022 07:05	48	456.5	3405.6	812	1
09/11/2022 07:06	48	456.4	3405	812	1
09/11/2022 07:07	48	456.6	3406.8	812	1
09/11/2022 07:08	48	456.3	3404.8	812	1
09/11/2022 07:09	48	456.7	3407.2	812	1
09/11/2022 07:10	48	456.5	3405.9	812	1
09/11/2022 07:11	48	456.4	3405.1	812	1
09/11/2022 07:12	48	456.1	3403.3	812	1
09/11/2022 07:13	47	456.4	3405.3	812	1
09/11/2022 07:14	48	456.1	3403	812	1
09/11/2022 07:15	48	456.3	3404.7	812	1
09/11/2022 07:16	48	456.1	3402.6	812	1
09/11/2022 07:17	48	456.3	3404.2	812	1
09/11/2022 07:18	48	456.5	3406.1	812	1
09/11/2022 07:19	48	456.3	3404.1	812	1

09/11/2022 07:20	48	456.5	3405.8	812	1
09/11/2022 07:21	48	456.8	3408.1	812	1
09/11/2022 07:22	47	456.7	3407.4	812	1
09/11/2022 07:23	48	456.6	3406.6	812	1
09/11/2022 07:24	48	456.9	3408.6	812	1
09/11/2022 07:25	48	456.6	3406.4	812	1
09/11/2022 07:26	48	456.8	3407.9	812	1
09/11/2022 07:27	48	456.7	3407.3	812	1
09/11/2022 07:28	48	457.3	3412.2	812.1	1
09/11/2022 07:29	48	457.2	3410.9	812.6	1
09/11/2022 07:30	48	457.5	3413.5	813	1
09/11/2022 07:31	48	457.1	3410.5	813	1
09/11/2022 07:32	48	457.2	3411.5	813	1
09/11/2022 07:33	48	457.5	3413.8	813	1
09/11/2022 07:34	48	457.5	3413.1	813	1
09/11/2022 07:35	48	457.2	3411.5	812.1	1
09/11/2022 07:36	48	457.4	3412.8	812	1
09/11/2022 07:37	48	457.3	3411.7	812.2	1
09/11/2022 07:38	48	457.1	3410.1	812.4	1
09/11/2022 07:39	48	457.4	3412.6	813	1
09/11/2022 07:40	48	457.3	3412.2	812.8	1
09/11/2022 07:41	48	456.9	3409	812.8	1
09/11/2022 07:42	48	456.8	3408.1	812.8	1
09/11/2022 07:43	48	456.8	3407.9	813	1
09/11/2022 07:44	48	456.3	3404.5	813	1
09/11/2022 07:45	48	456.6	3406.4	813	1
09/11/2022 07:46	48	456.5	3405.8	813	1
09/11/2022 07:47	48	456.3	3404.1	813	1
09/11/2022 07:48	48	456.1	3403.3	812.8	1
09/11/2022 07:49	48	456.5	3406	813	1
09/11/2022 07:50	48	456.6	3406.6	813	1
09/11/2022 07:51	48	456.7	3407.8	812.8	1
09/11/2022 07:52	48	457.2	3411.1	812.8	1
09/11/2022 07:53	48	456.5	3406	812.1	1
09/11/2022 07:54	48	456.6	3407.1	812.6	1
09/11/2022 07:55	48	456.3	3404.7	813	1
09/11/2022 07:56	48	456.9	3408.8	812.8	1
09/11/2022 07:57	48	456.5	3406.2	812.2	1
09/11/2022 07:58	48	456.6	3406.7	812.6	1
09/11/2022 07:59	48	456.9	3409.2	813	1
09/11/2022 08:00	48	456.6	3406.8	813	1
09/11/2022 08:01	48	457	3409.7	812.6	1
09/11/2022 08:02	48	457	3410	812.4	1
09/11/2022 08:03	48	456.8	3408.2	812.8	1
09/11/2022 08:04	48	456.5	3406.3	812.7	1
09/11/2022 08:05	48	455.9	3401.4	813	1
09/11/2022 08:06	48	456.1	3402.9	812.8	1
09/11/2022 08:07	48	455.7	3399.8	812.8	1
09/11/2022 08:08	48	455.9	3401.8	813	1
09/11/2022 08:09	47	455.9	3401.7	813	1
09/11/2022 08:10	48	456	3402.2	812.9	1
09/11/2022 08:11	48	456.8	3408.2	813	1
09/11/2022 08:12	48	456.4	3405	812.7	1
09/11/2022 08:13	48	456.7	3407.7	813	1
09/11/2022 08:14	48	456.5	3406.2	813	1
09/11/2022 08:15	48	457	3409.6	812.5	1
09/11/2022 08:16	48	456.6	3406.7	812.9	1
09/11/2022 08:17	48	457.2	3411.1	813	1
09/11/2022 08:18	48	457	3409.3	813	1
09/11/2022 08:19	48	456.5	3406.1	813	1

09/11/2022 08:20	48	457	3409.3	813	1
09/11/2022 08:21	48	457.1	3410.2	813	1
09/11/2022 08:22	48	457	3409.7	813	1
09/11/2022 08:23	48	457.2	3411.2	813	1
09/11/2022 08:24	48	457.2	3411.5	813	1
09/11/2022 08:25	48	457.1	3410.5	813	1
09/11/2022 08:26	48	457.2	3410.9	813	1
09/11/2022 08:27	48	457.4	3412.9	813	1
09/11/2022 08:28	48	457.2	3411.4	813	1
09/11/2022 08:29	48	456.9	3409.1	813	1
09/11/2022 08:30	48	457.1	3410.2	813	1
09/11/2022 08:31	48	457.3	3411.6	813	1
09/11/2022 08:32	48	457	3410	813	1
09/11/2022 08:33	48	457.2	3411.2	813	1
09/11/2022 08:34	48	457.2	3410.8	813	1
09/11/2022 08:35	48	457.2	3410.8	813	1
09/11/2022 08:36	48	457.2	3411.1	813	1
09/11/2022 08:37	48	457.1	3410.7	813	1
09/11/2022 08:38	48	457.4	3412.5	813	1
09/11/2022 08:39	48	457.5	3413.3	813	1
09/11/2022 08:40	48	457.1	3410.6	813	1
09/11/2022 08:41	48	457.1	3410.2	813	1
09/11/2022 08:42	48	456.4	3405.6	813	1
09/11/2022 08:43	48	456.7	3407.7	813	1
09/11/2022 08:44	48	456.8	3408.5	813	1
09/11/2022 08:45	48	456.8	3408.5	813	1
09/11/2022 08:46	48	456.4	3405.1	813	1
09/11/2022 08:47	48	456.7	3407.3	813	1
09/11/2022 08:48	48	456.4	3405.4	813	1
09/11/2022 08:49	48	456.6	3406.8	813	1
09/11/2022 08:50	48	456.6	3406.5	813	1
09/11/2022 08:51	47	456.6	3406.4	813	1
09/11/2022 08:52	48	456.1	3402.6	813	1
09/11/2022 08:53	48	456.4	3405.3	813	1
09/11/2022 08:54	48	456.8	3408.6	813	1
09/11/2022 08:55	48	456.7	3407.4	813	1
09/11/2022 08:56	48	456.8	3408.5	813	1
09/11/2022 08:57	48	457	3409.4	813.4	1
09/11/2022 08:58	48	457.4	3412.8	813	1
09/11/2022 08:59	48	457.2	3411.3	813	1
09/11/2022 09:00	48	456.7	3407.3	813	1
09/11/2022 09:01	48	456.8	3408.1	813	1
09/11/2022 09:02	48	457.2	3411	813	1
09/11/2022 09:03	48	457	3409.6	813	1
09/11/2022 09:04	48	457	3409.9	813	1
09/11/2022 09:05	48	457.5	3413.5	813	1
09/11/2022 09:06	48	457.2	3411.2	813	1
09/11/2022 09:07	48	456.7	3407.6	813	1
09/11/2022 09:08	48	456.7	3407.3	813	1
09/11/2022 09:09	48	456.9	3408.7	813.1	1
09/11/2022 09:10	48	456.5	3405.8	814	1
09/11/2022 09:11	48	456.2	3403.5	813.9	1
09/11/2022 09:12	48	457	3409.7	813	1
09/11/2022 09:13	48	456.9	3409.1	813	1
09/11/2022 09:14	48	457.1	3410.4	813	1
09/11/2022 09:15	48	457	3410	813	1
09/11/2022 09:16	48	457	3409.6	813	1
09/11/2022 09:17	48	457.3	3411.6	813	1
09/11/2022 09:18	48	457.2	3411.3	813	1
09/11/2022 09:19	48	456.5	3406.1	813.3	1

09/11/2022 09:20	48	456.7	3407.1	813.8	1
09/11/2022 09:21	48	456.5	3406	813.2	1
09/11/2022 09:22	48	456.2	3403.7	813	1
09/11/2022 09:23	47	456.5	3406.1	813	1
09/11/2022 09:24	48	456.4	3405	813	1
09/11/2022 09:25	48	456.7	3407.8	813	1
09/11/2022 09:26	48	456.9	3409.1	813	1
09/11/2022 09:27	48	456.6	3406.5	813	1
09/11/2022 09:28	48	457.3	3412	813	1
09/11/2022 09:29	48	457	3409.9	813	1
09/11/2022 09:30	48	456.9	3408.9	813	1
09/11/2022 09:31	48	456.9	3408.8	813	1
09/11/2022 09:32	48	456.9	3408.7	813	1
09/11/2022 09:33	48	456.5	3406.1	813	1
09/11/2022 09:34	48	456.5	3405.7	813	1
09/11/2022 09:35	48	456.9	3408.7	813	1
09/11/2022 09:36	48	457.1	3410.3	813	1
09/11/2022 09:37	48	456.9	3409.1	813	1

Grand Summaries

Avg: 48	Avg: 456.8	Avg: 3408.0	Avg: 812.6	Avg: 1.0
Sum: 9403	Sum: 89528.6	Sum: 667974.8	Sum: 159268.7	Sum: 196.0
Min: 47	Min: 455.7	Min: 3399.8	Min: 811.0	Min: 1.0
Max: 48	Max: 457.5	Max: 3413.8	Max: 814.0	Max: 1.0
Count: 196	Count: 196	Count: 196	Count: 196	Count: 196

Appendix F - Field Data Sheets

Three Dimensional Volumetric Flow Rate Determination Field Data Sheet

Project Number: M223610
 Client: Middleton LLC
 Test Location: U15
 Source Condition: Fuel Oil
 Test Engineer: SMCG

Date: 9-9-22
 Test Number: Site Acceptability
 Start Time: 6:00
 End Time: 6:40
 Test Tech: RNS

Duct Diameter 12 ft

Flue Area 113.10 ft²

Port Length 10 "

P_{bar} 30.0 "Hg

Static -1.7 "H₂O

Static NA "Hg

P_s 29.88 "Hg

CO₂ % 3.8

O₂ % 14.7

N₂ % 81.5

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	1.3	.03	776	7.8
2	1.3	.03	778	6.8
3	1.3	.03	780	5.6
4	1.2	.03	782	10.1
5	1.1	.03	783	8.5
6	.79	.03	774	6.8
7	.69	.03	782	6.6
8	1.0	.02	766	2.4
9	.72	.02	781	1.3
10	.45	.02	751	9.8
2-1	1.1	.02	792	11.1
2	.93	.03	793	10.7
3	.90	.03	794	6.6
4	.92	.03	793	7.6
5	.97	.03	797	8.2
6	.98	.03	798	11.8
7	.95	.03	799	6.4
8	.90	.03	799	10.2
9	.76	.03	769	6.4
10	.56	.03	762	7.5

SCFH _____

Three Dimensional Volumetric Flow Rate Determination Field Data Sheet

Project Number: M223610
 Client: Middleton
 Test Location: LLC
 Source Condition: Fuel Oil
 Test Engineer: SMCC

Date: 9-9-22
 Test Number: Site Acceptability
 Start Time: 6:00
 End Time: 6:40
 Test Tech: RNS

Duct Diameter 12 ft
 Flue Area 113.10 ft²
 Port Length 10 "
 P_{bar} 30.0 "Hg
 Static 1.7 "H₂O
 Static NA "Hg
 P_s 29.88 "Hg

CO₂ % 3.8
 O₂ % 14.7
 N₂ % 81.5
 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	798	4.4
2	1.1	.03	798	4.3
3	.98	.03	798	4.5
4	.92	.03	798	3.7
5	.88	.03	798	1.2
6	.90	.03	798	1.5
7	.85	.03	798	.8
8	.86	.03	787	1.2
9	.53	.03	794	2.0
10	.58	.03	792	.2
4-1	1.3	.02	801	8.3
2	1.2	.03	804	5.6
3	1.2	.03	806	7.4
4	1.0	.03	806	9.2
5	.90	.03	806	8.9
6	.71	.03	806	5.4
7	.67	.03	805	8.3
8	.51	.03	803	7.5
9	.47	.03	803	6.4
10	.47	.03	800	7.1

SCFH _____

Isokinetic Sampling Cover Sheet

Client:	Gen Conn Middleton LLC	Pitot Tube Cp:	0.840
Facility:	Middletown	Probe Length (Feet):	6.0
Test Location:	Unit 15	Probe Liner Material:	Quartz
Project #:	M223610	Sample Plane:	Hztl 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:	12.2	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:	Fuel Oil	Duct Area (Sq. Feet):	113.097
Diluent Model/SN:	Ecom 482	Minutes per Point:	4.5
Mid Gas ID/concentration:	X20010473 1%CO2 9.777 %O2 9.971	Total Traverse Points:	40
High Gas ID/concentration:	LL40840 1%CO2 11.72 %O2 14.49	Test Length (Min.):	180
Moisture Balance ID:		Train Type:	Anderson

	R# 1	R# 2	R# 4
Meter ID:	CM 23	CM 23	CM 23
Pitot ID:	154	154	154
Filter ID:			
Filter Pre-Weight (g):			
Nozzle Diameter ("):	0.268	0.268	0.268
Meter Cal Factor (Y):	0.995	0.995	0.995
Meter Orifice Setting (DH):	1.876	1.876	1.876
Nozzle Kit ID:	Quartz	Quartz	Quartz
Individual Nozzle ID:			
Pre Pitot Leak Check:	100 @ 3 "H2O	100 @ 3 "H2O	100 @ 3 "H2O
Post Pitot Leak Check:	100 @ 3 "H2O	100 @ 3 "H2O	100 @ 3 "H2O
Pre Nozzle Leak Check:	100 @ 15 "Hg	100 @ 15 "Hg	100 @ 15 "Hg
Post Nozzle Leak Check:	100 @ 15 "Hg	100 @ 15 "Hg	100 @ 15 "Hg
Barometric Pressure, "Hg:	30.00	30.00	30.16
Static Pressure, "H2O:	-1.70	-1.70	-1.70
CO2 %:	4.5	4.40	4.60
O2 %:	14.90	14.80	14.7

Comments:

Isokinetic Sampling Field Data Sheet

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

Date: 9-9-22
 Test Location: Unit 15
 Test Method: 29

Test Number: #1
 Operator: RMS Test Tech: TC
 Page Number: 1 of 2

Port-Point #	Time	(ΔP)	K ¹ = K ¹ x ΔP Orifice Setting (ΔH)	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)			
												K=	x	Theoretical Meter Volume, (V _m) ft ³ , per point	Theoretical Meter Volume, (V _m) ft ³ , total
1-1	9:00	1.80	3.70	17.824	807	82	81	7	251	253	58				
1-2	9:4:30	1.50	3.10	22.640	809	85	81	7	254	254	60				
1-3	9:09	1.70	3.50	27.060	809	87	82	7	254	252	60				
1-4	9:13:30	1.50	3.10	31.760	810	87	85	7	258	252	62				
1-5	9:18:00	1.40	2.40	36.190	809	88	84	7	263	251	63				
1-6	9:22:30	1.20	2.50	40.470	811	88	84	7	259	251	63				
1-7	9:27	1.20	2.50	44.430	807	89	85	9	252	250	64				
1-8	9:31:30	1.00	2.10	48.460	807	90	85	9	253	252	64				
1-9	9:36	0.73	1.60	52.030	726	90	85	7	252	252	63				
1-10	9:40:30	0.33	1.00	55.250	785	91	86	7	251	251	61				
1-11	9:45			57.803											
2-1	9:57	1.30	2.70	57.803	806	90	87	7	250	252	65				
2-2	10:01:30	1.40	2.40	61.950	806	90	87	9	252	255	62				
2-3	10:06	1.30	2.70	66.260	806	91	87	9	254	255	60				
2-4	10:10:30	1.20	2.50	70.410	806	92	88	9	253	249	60				
2-5	10:15	1.20	2.50	74.420	806	93	88	9	253	249	60				
2-6	10:19:30	1.40	3.00	78.410	806	94	89	10	251	250	60				
2-7	10:24	1.20	2.50	82.740	804	94	89	10	251	251	61				
2-8	10:28:30	0.87	1.90	86.750	783	94	90	10	254	249	61				
2-9	10:33:00	0.23	0.65	90.210	481	95	90	5	251	254	61				
2-10	10:37:30	0.18	0.57	92.230	785	94	90	4	249	249	63				
	10:42			94.146											
3-1	10:56	2.40	5.10	94.146	808	92	91	10	252	255	64				
3-2	11:00:30	2.20	4.70	99.810	807	95	92	10	252	252	65				
3-3	11:05	2.00	4.20	105.260	812	96	92	10	255	246	65				
3-4	11:09:30	2.00	4.20	110.440	812	95	92	10	248	251	63				
3-5	11:14	1.80	3.80	115.620	813	94	92	10	268	254	63				

Project Number:	<u>M23610</u>	Date:	<u>9-9-22</u>	Test Number:	<u>#1</u>
Client:	<u>6th Tenn Middle Tenn LLC</u>	Test Location:	<u>Unit 15</u>	Operator:	<u>RVS</u> Test Tech: <u>JC</u>
Plant:	<u>Middle Tenn</u>	Test Method:	<u>29</u>	Page Number:	<u>2</u> of <u>2</u>

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IMPINGER WEIGHT SHEET

PLANT: GENCONN - MIDDLETOWN

Scale ID Number 510-17

UNIT NO: CT 15

Scale Calibration Check Date: 9-9-22

LOCATION: STACK

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

DATE: 9-9-22

250 grams 250.0

TEST NO: 41

500 grams 500.0

METHOD: 5/29

750 grams 750.1

WEIGHED/MEASURED BY: GA

	FINAL WEIGHT	INITIAL WEIGHT	IMPINGER	IMPINGER
Circle One:	MLS / GRAMS	MLS / GRAMS	GAIN	CONTENTS
IMPINGER 1	826.0	703.6		H ₂ O ₂ /HNO ₃
IMPINGER 2	842.7	731.5		H ₂ O ₂ /HNO ₃
IMPINGER 3	546.2	570.0		EMPTY
IMPINGER 4	721.2	711.1		KMNO ₄
IMPINGER 5	785.0	775.8		KMNO ₄
IMPINGER 6	883.0	852.2		SILICA
IMPINGER 7				
IMPINGER 8				

IMPINGERS 3771.1 3492.0 279.1
FINAL TOTAL INITIAL TOTAL TOTAL IMPINGER GAIN

SILICA 883.0 852.2 30.8
FINAL TOTAL INITIAL TOTAL TOTAL SILICA GAIN

Isokinetic Sampling Field Data Sheet

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

Date: 9-9-22
 Test Location: Unit 15
 Test Method: 29

Test Number: #2
 Operator: RNS Test Tech: TC
 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	14:07	1.20	2.50	81.345	809	95	94	7	253	250	62				
1-2	14:11:30	1.20	2.50	85.370	807	95	94	7	255	250	60				
1-3	14:16:00	1.20	2.70	89.400	810	95	94	7	254	253	61				
1-4	14:20:30	1.20	2.50	93.590	810	95	94	8	253	253	62				
1-5	14:25	1.10	2.30	97.610	810	95	94	8	253	253	62				
1-6	14:29:30	1.10	2.30	101.460	811	95	94	8	251	251	63				
1-7	14:34	1.00	2.10	105.320	810	95	94	8	254	251	64				
1-8	14:38:30	1.10	2.30	108.990	811	95	94	8	253	251	65				
1-9	14:43	1.10	2.30	112.850	811	95	94	9	252	251	65				
1-10	14:47:30	1.00	2.10	116.690	810	95	94	9	253	253	65				
	14:52:00			120.370											
2-1	14:57:00	1.30	2.80	120.370	807	95	94	9	249	249	67				
2-2	15:01:30	1.40	3.00	124.580	810	95	94	9	253	254	67				
2-3	15:06	1.30	2.70	128.920	811	95	94	10	252	254	62				
2-4	15:10:10	1.20	2.50	133.100	811	95	94	10	252	249	63				
2-5	15:15	1.20	2.50	137.130	811	95	94	10	253	252	62				
2-6	15:19:30	1.20	2.50	141.150	810	95	94	10	252	251	61				
2-7	15:24:00	1.20	2.50	145.170	811	95	94	10	252	251	60				
2-8	15:28:10	1.10	2.30	149.190	809	96	94	10	253	251	59				
2-9	15:33	1.30	2.80	153.050	810	96	94	10	254	250	59				
2-10	15:37:30	1.00	2.10	157.240	808	96	94	10	252	253	60				
2-11	15:42:00			160.930											
3-1	15:47:00	1.70	2.70	160.930	810	95	94	10	256	252	61				
3-2	15:51:30	1.30	2.70	165.120	810	95	94	10	254	247	56				
3-3	15:56	1.20	2.50	169.310	810	95	94	10	254	250	57				
3-4	16:00:30	1.20	2.50	173.330	811	95	94	10	252	252	56				
3-5	16:05:00	1.20	2.50	177.350	811	96	94	10	252	253	56				

Isokinetic Sampling Field Data Sheet

Project Number: 11223610
Client: Gen Loan Middleton
Plant: Middleton LLC

Date: 9-9-22
Test Location: Unit 15
Test Method: 29

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

[illegible]

IMPINGER WEIGHT SHEET

PLANT: GENCONN - MIDDLETOWN

Scale ID Number SID-17

UNIT NO: CT 15

Scale Calibration Check Date: 9-9-22

LOCATION: STACK

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

DATE: 9-9-22

250 grams 250.0

TEST NO: #2

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	867.3	713.5		H ₂ O ₂ /HNO ₃
IMPINGER 2	840.6	740.2		H ₂ O ₂ /HNO ₃
IMPINGER 3	659.9	643.5		EMPTY
IMPINGER 4	727.3	720.4		KMNO ₄
IMPINGER 5	730.0	724.3		KMNO ₄
IMPINGER 6	847.3	854.7		SILICA
IMPINGER 7				
IMPINGER 8				

IMPINGERS FINAL TOTAL INITIAL TOTAL TOTAL IMPINGER GAIN

SILICA FINAL TOTAL INITIAL TOTAL TOTAL SILICA GAIN

Isokinetic Sampling Field Data Sheet

Project Number: M223610

Date: 9-9-22

Test Number: 3

Client: GenConn Middleton, LLC

Test Location: U15

Operator: SMCG

Test Tech: JVC/WJD

Plant: Middleton

Test Method: 5/29

Page Number: 2 of 2

Port-Point #	Time	ΔP	K' = K' x ΔP Orifice Setting (ΔH)	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)			
												Square Root, ΔP	K=	x	Theoretical Meter Volume, (V_m) ft ³ , per point
3-1	19:01	1.3	2.18	143.721	807	72	71	12.0	252	250	64				
2	19:05:30	1.3	2.19	147.878	807	73	71	12.0	255	252	59				147.862
3	19:10	1.2	2.02	152.026	807	73	70	11.5	260	250	57				152.008
4	19:14:30	1.2	2.02	156.007	807	73	70	11.5	264	254	57				155.986
5	19:19	1.2	2.02	159.988	807	73	71	11.5	268	253	58				159.965
6	19:23:30	1.1	1.85	163.964	807	73	71	11.0	265	250	58				163.948
7	19:28	1.2	2.02	167.777	807	74	71	11.5	258	251	59				167.761
8	19:32:30	1.1	1.85	171.769	807	74	71	11.0	252	254	59				171.747
9	19:37	1.0	1.68	175.572	807	75	71	10.5	252	250	59				175.564
10	19:41:30	1.0	1.69	179.236	806	75	71	10.5	250	250	60				179.206
	19:46			182.877											182.850
4-1	19:50	1.4	2.36	182.877	807	74	71	12.5	255	254	65				
2	19:54:30	1.3	2.19	187.194	807	74	71	12.0	257	250	60				187.183
3	19:59	1.4	2.36	191.357	807	75	71	12.5	256	252	61				191.332
4	20:03:30	1.2	2.02	195.665	807	75	71	12.0	260	253	61				195.642
5	20:08	1.3	2.19	199.652	807	75	71	12.0	259	253	61				199.632
6	20:12:30	1.2	2.02	203.806	807	74	70	12.8	262	251	62				203.785
7	20:17	1.2	2.02	207.788	807	74	70	12.8	264	252	62				207.767
8	20:21:30	1.2	2.02	211.774	807	75	70	12.8	254	252	62				211.750
9	20:26	1.2	2.02	215.764	807	76	70	12.0	252	250	63				215.736
10	20:30:30	1.1	1.86	219.748	807	77	71	11.5	252	252	63				219.727
	20:35			223.579											223.554

IMPINGER WEIGHT SHEET

PLANT: GEN CONN - MIDDLETOWNScale ID Number S10-17UNIT NO: CT ~~15~~ 15Scale 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: #3500 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	849.1	707.2		H ₂ O ₂ / HNO ₃
IMPINGER 2	739.4	641.4		H ₂ O ₂ / HNO ₃
IMPINGER 3	641.5	619.8		EMPTY
IMPINGER 4	707.0	697.1		KMNO ₄
IMPINGER 5	758.9	756.0		KMNO ₄
IMPINGER 6	792.2	754.1		SILICA
IMPINGER 7				
IMPINGER 8				

IMPINGERS 3695.9 3421.5 274.4
FINAL TOTAL INITIAL TOTAL TOTAL IMPINGER GAIN

SILICA 792.2 754.1 38.1
FINAL TOTAL INITIAL TOTAL TOTAL SILICA GAIN

Isokinetic Sampling Field Data Sheet

Project Number: M223610
 Client: Gen John Middleton
 Plant: Middleton

Date: 9-10-22
 Test Location: CT 15
 Test Method: 29

Test Number: #4
 Operator: RVS Test Tech: JC
 Page Number: 1 of 2

Port-Point #	Time	(ΔP)	K' = K' x ΔP Orifice Setting (ΔH)	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)			
												K=	x	Theoretical Meter Volume, (V _m) ft ³ , per point	Theoretical Meter Volume, (V _m) ft ³ , total
												Square Root, ΔP	Meter Rate, Cubic Feet/ Min.		
1-1	7:40	1.60	3.20	47.196	795	67	65	8	257	256	58				
1-2	7:44:30	1.40	2.90	51.620	798	72	66	8	249	257	61				
1-3	7:49	1.40	2.90	55.770	800	74	67	8	250	255	63				
1-4	7:53:30	1.30	2.70	59.940	801	76	68	8	252	252	64				
1-5	7:58	1.20	2.50	63.960	803	77	70	9	252	253	64				
1-6	8:02:30	1.20	2.50	67.830	804	78	71	9	252	252	64				
1-7	8:07	1.20	2.50	71.710	804	79	72	10	251	252	64				
1-8	8:11:30	1.20	2.50	75.590	805	80	73	10	254	252	65				
1-9	8:16	1.10	2.30	79.490	804	81	75	10	252	252	66				
1-10	8:20:30	0.80	2.00	83.220	565	82	77	10	250	251	67				
	8:25			86.776											
2-1	8:30	1.20	2.50	86.776	804	82	83	10	251	250	67				
2-2	8:34:30	1.40	2.90	90.710	805	84	79	10	253	254	61				
2-3	8:39	1.30	2.70	94.950	806	86	80	10	253	252	64				
2-4	8:43:30	1.20	2.50	99.050	807	87	82	10	252	256	64				
2-5	8:48:00	1.20	2.50	102.990	807	88	87	10	252	252	65				
2-6	8:52:30	1.20	2.50	106.950	807	88	83	10	252	251	64				
2-7	8:57:00	1.30	2.70	110.900	807	89	84	10	252	252	63				
2-8	9:01:30	1.20	2.50	115.020	807	90	85	10	252	252	64				
2-9	9:06:00	1.00	2.10	118.990	807	89	85	10	252	253	64				
2-10	9:10:30	0.85	2.20	122.620	570	89	86	10	251	251	65				
	9:15:00			126.717											
3-1	9:20:00	1.50	3.10	126.717	805	87	86	10	250	249	66				
3-2	9:24:30	1.40	3.00	130.750	807	87	86	11	254	252	65				
3-3	9:29:00	1.30	2.70	135.030	807	87	86	11	252	254	65				
3-4	9:33:30	1.30	2.70	139.150	808	87	86	11	252	252	64				
3-5	9:38:00	1.20	2.50	143.270	809	87	86	11	252	251	61				

Isokinetic Sampling Field Data Sheet

Project Number: 11223610
Client: Gen Conn Middleton
Plant: Middleton

Date: 9-10-22
Test Location: CT 15
Test Method: 29

Test Number: 154
Operator: R/M Test Tech: JL
Page Number: 2 of 2

[illegible]

240-1055

IMPINGER WEIGHT SHEET

PLANT: GENCONN - MIDDLETOWN

Scale ID Number 510-17

UNIT NO: CT 15

Scale Calibration Check Date: _____

LOCATION: STACK

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

DATE: 9-10-22

250 grams 250.0

TEST NO: RUN #4

500 grams 500.0

METHOD: 5/29

750 grams 750.1

WEIGHED/MEASURED BY: GA

	FINAL WEIGHT	INITIAL WEIGHT	IMPINGER	IMPINGER
Circle One:	MLS / GRAMS	MLS / GRAMS	GAIN	CONTENTS
IMPINGER 1	882.7	710.7		H ₂ O ₂ / HNO ₃
IMPINGER 2	854.2	735.8		H ₂ O ₂ / HNO ₃
IMPINGER 3	574.3	575.0		EMPTY
IMPINGER 4	786.2	781.8		KMNO ₄
IMPINGER 5	716.8	715.8		KMNO ₄
IMPINGER 6	884.1	805.0		SILICA
IMPINGER 7				
IMPINGER 8				

IMPINGERS
 FINAL TOTAL INITIAL TOTAL TOTAL IMPINGER GAIN

SILICA
 FINAL TOTAL INITIAL TOTAL TOTAL SILICA GAIN

Isokinetic Sampling Cover Sheet

Client:	Gen Conn Middleton LLC	Pitot Tube Cp:	0.840
Facility:	Middle Ton	Probe Length (Feet):	6.5
Test Location:	GT 15	Probe Liner Material:	Glass 0.012
Project #:	M223610	Sample Plane:	Hztl or Vert.
Test Method(s):	29	Port Length ("):	
Test Engineer:	RMS	Port Diameter ("):	
Test Technician:	JL	Port Type:	
Upstream Diameters:		Duct Shape:	Circ. or Rect.
Downstream Diameters:		Diameter (Feet):	
# of Ports Sampled:		Length (Feet):	
# of Points per Port:		Width (Feet):	
Source Condition:	Fuel oil	Duct Area (Sq. Feet):	
Diluent Model/SN:		Minutes per Point:	
Mid Gas ID/concentration:	/%CO ₂ %O ₂	Total Traverse Points:	
High Gas ID/concentration:	/%CO ₂ %O ₂	Test Length (Min.):	
Moisture Balance ID:		Train Type:	

	R# 5	R# 6	R# 7
Meter ID:	CM23	CM23	CM23
Pitot ID:	154	154	154
Filter ID:			
Filter Pre-Weight (g):			
Nozzle Diameter ("):	0.268	0.268	0.268
Meter Cal Factor (Y):	0.995	0.995	0.995
Meter Orifice Setting (DH):	1.876	1.876	1.876
Nozzle Kit ID:			
Individual Nozzle ID:			
Pre Pitot Leak Check:	100 @ 3 "H ₂ O	100 @ 3 "H ₂ O	100 @ 3 "H ₂ O
Post Pitot Leak Check:	100 @ 3 "H ₂ O	100 @ 3 "H ₂ O	100 @ 3 "H ₂ O
Pre Nozzle Leak Check:	100 @ 15 "Hg	100 @ 15 "Hg	100 @ 15 "Hg
Post Nozzle Leak Check:	100 @ 15 "Hg	100 @ 15 "Hg	100 @ 15 "Hg
Barometric Pressure, "Hg:	30.16	30.16	30.10
Static Pressure, "H ₂ O:	-1.70	-1.70	-1.70
CO ₂ %:	4.1	4.50	3.40
O ₂ %:	14.9	14.90	15.10

Comments:

Isokinetic Sampling Field Data Sheet

Project Number: M223610
 Client: Grumman Middleton LLC
 Plant: Middleton

Date: 9-10-22
 Test Location: CT 15
 Test Method: 29

Test Number: #5
 Operator: RVS Test Tech: JL
 Page Number: 1 of 2

Port-Point #	Time	(ΔP)	K' = K' x ΔP Orifice Setting (ΔH)	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)			
												K=	x	Theoretical Meter Volume, (V _m) ft ³ , per point	Theoretical Meter Volume, (V _m) ft ³ , total
1-1	11:30	1.40	2.40	8.908	808	92	91	9	255	252	58				
1-2	11:34:30	1.30	2.70	13.220	809	94	91	9	251	244	60				
1-3	11:39	1.70	2.70	17.890	809	95	92	9	252	259	60				
1-4	11:43:30	1.30	2.70	21.560	809	96	92	9	255	257	62				
1-5	11:48:00	1.20	2.50	25.730	810	96	92	9	257	254	62				
1-6	11:52:30	1.20	2.50	29.740	810	96	93	9	256	250	63				
1-7	11:57:00	1.30	2.70	33.760	810	96	93	10	256	251	62				
1-8	12:01:30	1.20	2.50	37.930	810	96	93	10	253	252	62				
1-9	12:06	1.20	2.50	41.950	809	96	93	10	252	251	62				
1-10	12:10:30	0.98	2.10	45.960	809	96	93	10	252	251	62				
	12:15:00			49.603											
2-1	12:20:00	1.30	2.80	49.603	809	96	94	10	249	257	63				
2-2	12:24:30	1.40	3.00	53.790	809	96	94	10	252	253	63				
2-3	12:29:00	1.30	2.80	58.130	809	96	94	10	252	252	63				
2-4	12:33:30	1.30	2.80	62.310	810	96	94	10	254	250	64				
2-5	12:38:00	1.30	2.80	64.500	810	97	94	10	253	253	64				
2-6	12:42:30	1.40	3.00	70.680	811	98	95	10	252	252	65				
2-7	12:47:00	1.20	2.50	75.020	810	98	95	10	252	251	65				
2-8	12:51:30	1.20	2.50	79.050	810	98	95	10	252	252	65				
2-9	12:56:00	1.10	2.30	83.080	809	99	96	10	253	252	66				
2-10	13:00:30	1.00	2.10	86.940	809	99	96	10	251	252	66				
	13:05:00			90.635											
3-1	13:10:00	1.70	3.60	90.635	809	97	97	11	254	251	62				
3-2	13:14:30	1.50	3.20	95.440	809	98	98	11	252	251	62				
3-3	13:19:00	1.60	3.40	99.950	810	98	96	11	252	253	64				
3-4	13:23:30	1.40	3.00	104.610	809	99	97	11	253	253	66				
3-5	13:28:00	1.30	2.80	108.970	810	99	97	11	252	252	65				

Isokinetic Sampling Field Data Sheet

Project Number: 11 223 610

Date: 9-10-22

Test Number: # 5

Client: Gen Conn Middleton LLC

Test Location: CT 15

Operator: RNC Test Tech: JL

Plant: Middleton

Test Method: 29

Page Number: 2 of 2[illegible]

1130

1130 - 1445

IMPINGER WEIGHT SHEET

PLANT: GEN CONN - MIDDLETOWNScale ID Number SID-17UNIT NO: CT 415Scale 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: 45500 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	850.6	712.6		H ₂ O ₂ / HNO ₃
IMPINGER 2	751.0	645.4		H ₂ O ₂ / HNO ₃
IMPINGER 3	648.6	624.8		EMPTY
IMPINGER 4	783.3	771.1		KMNO ₄
IMPINGER 5	707.3	698.2		KMNO ₄
IMPINGER 6	813.4	767.2		SILICA
IMPINGER 7				
IMPINGER 8				

IMPINGERS

FINAL TOTAL

INITIAL TOTAL

TOTAL IMPINGER GAIN

SILICA

FINAL TOTAL

INITIAL TOTAL

TOTAL SILICA GAIN

Isokinetic Sampling Field Data Sheet

Project Number: M223610
 Client: Gen Conn Middle Ton LLC
 Plant: Middle Ton

Date: 9-10-22
 Test Location: CT-15
 Test Method: 29

Test Number: #6
 Operator: RNS 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	15:25	1.60	3.40	81.167	809	97	96	8	241	243	56				
1-2	15:29:30	1.40	3.00	85.810	809	100	97	8	251	252	58				
1-3	15:34	1.30	2.80	90.190	809	100	97	8	253	254	58				
1-4	15:38:30	1.40	3.00	94.400	809	99	97	8	252	259	60				
1-5	15:43:00	1.30	2.80	98.760	810	99	97	9	252	258	62				
1-6	15:47:30	1.40	3.00	102.960	810	99	97	9	260	251	63				
1-7	15:52:00	1.20	2.60	107.370	810	98	97	9	263	251	63				
1-8	15:56:30	1.20	2.60	111.360	810	98	97	9	261	252	63				
1-9	16:01:00	1.10	2.30	115.400	810	97	97	9	259	251	64				
1-10	16:05:30	0.90	1.90	119.260	810	97	97	9	263	251	64				
	16:10:00			122.750											
2-1	16:15:00	1.70	3.60	122.750	810	97	97	10	258	252	60				
2-2	16:19:30	1.60	3.40	127.550	810	97	96	10	252	251	60				
2-3	16:24:00	1.30	2.80	132.200	809	96	96	10	253	253	60				
2-4	16:28:30	1.30	2.80	136.400	809	96	96	10	259	252	63				
2-5	16:33:00	1.20	2.50	140.590	809	97	96	10	260	251	63				
2-6	16:37:30	1.20	2.50	144.610	809	96	96	10	257	251	61				
2-7	16:42:00	1.20	2.50	148.640	809	96	96	10	254	250	60				
2-8	16:46:30	1.20	2.50	152.660	809	96	96	10	254	251	62				
2-9	16:51:00	1.00	2.10	156.690	809	96	95	10	254	251	62				
2-10	16:55:30	0.83	1.80	160.760	809	96	95	10	250	252	64				
	17:00			163.712											
3-1	17:05:00	1.40	3.00	163.712	808	95	95	11	258	251	64				
3-2	17:09:30	1.50	3.20	168.050	808	95	95	11	255	252	64				
3-3	17:14:00	1.40	3.00	172.550	807	95	94	11	254	252	64				
3-4	17:18:30	1.30	2.80	176.890	808	95	95	11	256	252	65				
3-5	17:23:00	1.30	2.80	181.070	808	95	95	11	256	252	65				

Isokinetic Sampling Field Data Sheet

Project Number: M 223 610

Date: 9-10-22

Test Number: # 6

Client: Gen Conn Middleton LLC

Test Location: CT-15

Operator: RVS Test Tech: TC

Plant: Middletown

Test Method: 29

Page Number: 2 of 2

[illegible]

1525-1840

IMPINGER WEIGHT SHEET

PLANT: GEN CONN - MIDDLETOWNScale ID Number S10-17UNIT NO: CT 15Scale 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: RUN 6500 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	713.3		739.1				H ₂ O ₂ / HNO ₃
IMPINGER 2	885.8		757.2				H ₂ O ₂ / HNO ₃
IMPINGER 3	616.6		551.6				EMPTY
IMPINGER 4	683.4		639.4				KMNO ₄
IMPINGER 5	724.8		709.9				KMNO ₄
IMPINGER 6	860.7		637.3				SILICA
IMPINGER 7							
IMPINGER 8							

IMPINGERS

FINAL TOTAL

INITIAL TOTAL

TOTAL IMPINGER GAIN

SILICA

FINAL TOTAL

INITIAL TOTAL

TOTAL SILICA GAIN

Isokinetic Sampling Field Data Sheet

Project Number: M223610

Date: 9-11-22

Test Number: #7

Client: Gen Conn Middleton LLC

Test Location: Unit CT-15

Operator: RMS Test Tech: JL

Plant: Middleton

Test Method: 29

Page Number: 1 of 2

Port-Point #	Time	(ΔP)	K¹ = _____	Meter Volume (V _m) ft³, 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)									K¹ x ΔP	Square Root, ΔP	K=	x _____	Theoretical Meter Volume, (V _m) ft³, per point	Theoretical Meter Volume, (V _m) ft³, total
														Meter Rate, Cubic Feet/ Min.			
1-1	6:22	1.30	2.60	41.810	799	65	64	10	255	252	59						
1-2	6:26:30	1.50	3.00	45.780	801	66	64	10	249	253	54						
1-3	6:31:00	1.20	2.40	50.060	802	68	64	10	253	255	60						
1-4	6:35:30	1.20	2.40	53.870	803	70	65	10	252	250	64						
1-5	6:40:00	1.20	2.40	57.710	805	71	66	10	254	254	64						
1-6	6:44:30	1.30	2.60	61.540	805	71	67	10	251	254	66						
1-7	6:49:00	1.20	2.40	65.540	805	72	68	10	251	252	66						
1-8	6:53:30	1.20	2.40	69.390	806	73	68	10	251	254	64						
1-9	6:58:00	1.10	2.20	73.240	801	73	69	10	254	251	64						
1-10	7:02:30	0.73	1.70	76.930	668	74	69	10	251	252	61						
	7:07:00			80.122													
2-1	7:12:00	1.80	3.70	80.122	806	72	70	10	249	249	62						
2-2	7:16:30	1.70	3.50	84.840	806	77	71	10	254	242	65						
2-3	7:21:00	1.70	3.50	89.450	805	78	71	10	254	243	65						
2-4	7:25:30	1.50	3.10	94.070	806	78	72	10	253	250	65						
2-5	7:30:00	1.30	2.70	98.410	806	78	72	10	253	252	66						
2-6	7:34:30	1.30	2.70	102.450	806	77	72	11	252	254	66						
2-7	7:39:00	1.20	2.50	106.500	806	77	73	11	252	251	59						
2-8	7:43:30	1.30	2.70	110.370	806	77	73	11	253	252	56						
2-9	7:48:00	1.10	2.30	114.410	806	78	74	11	253	251	55						
2-10	7:52:30	0.83	1.70	118.140	773	79	73	11	254	251	54						
	7:57:00			121.417													
3-1	8:02:00	1.40	2.90	121.417	805	78	75	11	257	250	60						
3-2	8:06:30	1.30	2.70	125.620	807	78	75	11	251	252	54						
3-3	8:11:00	1.30	2.70	129.670	806	79	75	11	253	251	55						
3-4	8:15:30	1.20	2.50	133.740	806	79	76	11	253	252	56						
3-5	8:20:00	1.20	2.50	137.630	807	80	76	11	254	252	55						

Isokinetic Sampling Field Data Sheet

Project Number: M223610

Date: 9-11-22

Test Number: # 7

Client: Gen Conn Middleton

Test Location: CT-15

Operator: RMS Test Tech: TC

Plant: Middleton

Test Method: 29

Page Number: 2 of 2[illegible]

0622-935

IMPINGER WEIGHT SHEET

PLANT: GEN CONN - MIDDLETOWN Scale ID Number S10-17
UNIT NO: CT 15 Scale Calibration Check Date: 9-11-22
LOCATION: STACK Scale Calibration Check (see QS-6.05C for procedure)
DATE: 9-11-22 must be within $\pm 0.5g$ of certified mass
TEST NO: #7 250 grams 250.0
METHOD: 5129 500 grams 500.0
WEIGHED/MEASURED BY: GA 750 grams 750.1

	FINAL WEIGHT	INITIAL WEIGHT	IMPINGER	IMPINGER
Circle One:	MLS / GRAMS	MLS / GRAMS	GAIN	CONTENTS
IMPINGER 1	824.3	708.5		H2O2/HNO3
IMPINGER 2	787.7	651.6		H2O2/HNO3
IMPINGER 3	656.7	624.7		EMPTY
IMPINGER 4	754.7	736.7		KMNO4
IMPINGER 5	726.2	717.4		KMNO4
IMPINGER 6	797.2	762.2		SILICA
IMPINGER 7				
IMPINGER 8				

IMPINGERS
 FINAL TOTAL INITIAL TOTAL TOTAL IMPINGER GAIN

SILICA
 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 15
Date: 9/9/22
Operator: J. Gross
FTIR s/n: 484

Fuel Type	Fuel Oil	
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 15
 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
MDC A_0000044.LAB	9/9/2022	14:47:41	0.4	-0.5	-4.0	147.4
MDC A_0000045.LAB	9/9/2022	14:48:41	0.3	-0.5	-4.1	144.6
MDC A_0000046.LAB	9/9/2022	14:49:41	0.3	-0.4	-4.1	145.5
MDC A_0000047.LAB	9/9/2022	14:49:41	0.3	-0.4	-4.1	145.5
	9/9/2022	14:49:59	0.3	-0.4	-4.1	147.9

CTS, Direct to FTIR

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppbv wet	Recovery % Ethylene
CTS Direct_0000058.LAB	9/9/2022	14:52:43	0.3	-0.3	99.1	149.4	98.8%
CTS Direct_0000059.LAB	9/9/2022	14:52:59	0.3	-0.6	99.4	143.7	99.1%
CTS Direct_0000060.LAB	9/9/2022	14:53:15	0.3	-0.1	99.5	140.3	99.2%
CTS Direct_0000061.LAB	9/9/2022	14:53:32	0.3	-0.6	99.6	139.6	99.3%
CTS Direct_0000062.LAB	9/9/2022	14:53:48	0.3	-0.4	99.7	149.4	99.4%
CTS Direct_0000063.LAB	9/9/2022	14:54:05	0.3	-0.5	99.7	148.6	99.4%
CTS Direct_0000064.LAB	9/9/2022	14:54:21	0.3	-0.4	99.8	148.5	99.5%
CTS Direct_0000065.LAB	9/9/2022	14:54:21	0.3	-0.4	99.8	148.5	99.5%
Average					99.6		99.3%

Analyte Direct to FTIR

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppmv wet	Recovery % Formaldehyde
Cal Direct_0000069.LAB	9/9/2022	14:55:34	0.3	101.6	-3.0	773.60	71.0%
Cal Direct_0000070.LAB	9/9/2022	14:55:50	0.3	102.4	-3.6	746.27	68.5%
Cal Direct_0000071.LAB	9/9/2022	14:56:07	0.3	102.6	-3.8	731.35	67.1%
Cal Direct_0000072.LAB	9/9/2022	14:56:23	0.3	102.6	-3.9	741.26	68.0%
Cal Direct_0000073.LAB	9/9/2022	14:56:40	0.3	102.4	-3.9	730.72	67.0%
Cal Direct_0000074.LAB	9/9/2022	14:56:56	0.3	102.4	-4.0	740.88	68.0%
Cal Direct_0000075.LAB	9/9/2022	14:57:12	0.3	102.6	-4.0	739.99	67.9%
Cal Direct_0000076.LAB	9/9/2022	14:57:29	0.3	102.5	-3.9	739.28	67.8%
Average				102.4		742.92	68.2%

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_0000084.LAB	9/9/2022	15:14:01	8.7	0.0	1.1	-10.6	1.2%	-
System CTS Rise_0000085.LAB	9/9/2022	15:14:08	6.0	-1.6	33.8	1044.2	34.0%	8
System CTS Rise_0000086.LAB	9/9/2022	15:14:16	1.9	-0.4	94.1	28.8	94.4%	16
System CTS Rise_0000087.LAB	9/9/2022	15:14:24	1.3	-0.4	94.7	-22.8	95.1%	24
System CTS Rise_0000088.LAB	9/9/2022	15:14:31	1.0	-0.5	96.1	-0.6	96.5%	31
System CTS Rise_0000089.LAB	9/9/2022	15:14:39	0.9	-0.2	96.0	0.6	96.4%	39

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_0000100.LAB	9/9/2022	15:16:19	0.5	-0.6	95.9	-4.7	-
System Zero_0000102.LAB	9/9/2022	15:16:27	4.3	-0.3	43.1	26.6	8
System Zero_0000103.LAB	9/9/2022	15:16:35	8.1	-0.1	1.8	4.4	16
System Zero_0000104.LAB	9/9/2022	15:16:42	8.4	0.0	1.0	-9.2	23
System Zero_0000105.LAB	9/9/2022	15:16:50	8.4	-0.3	1.0	-8.1	31
System Zero_0000106.LAB	9/9/2022	15:16:57	8.5	-0.3	1.0	-11.8	38
System Zero_0000107.LAB	9/9/2022	15:17:05	7.7	-0.2	12.1	-3.9	46
System Zero_0000108.LAB	9/9/2022	15:17:13	1.7	-0.5	17.0	-21.5	54

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

Test Location: Unit 15
 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
Native_0000123.LAB	9/9/2022	15:20:58	8.6	-0.3	1.1	-14.9
Native_0000124.LAB	9/9/2022	15:21:14	8.6	-0.5	1.1	-11.8
Native_0000125.LAB	9/9/2022	15:21:30	8.6	-0.2	1.1	-17.2
			8.637			-14.6

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_0000132.LAB	9/9/2022	15:23:13	8.1	6.3	0.1	42.8	0.06	133.1%
Spike Cal_0000133.LAB	9/9/2022	15:23:29	8.1	6.2	0.0	41.8	0.06	135.6%
Spike Cal_0000134.LAB	9/9/2022	15:23:46	8.1	6.4	0.0	36.7	0.06	113.0%
Spike Cal_0000135.LAB	9/9/2022	15:24:02	8.1	6.1	0.0	37.1	0.06	120.6%
Spike Cal_0000136.LAB	9/9/2022	15:24:18	8.1	6.2	0.0	32.3	0.06	104.7%
Spike Cal_0000137.LAB	9/9/2022	15:24:35	8.1	6.3	0.1	33.5	0.06	105.1%
Spike Cal_0000138.LAB	9/9/2022	15:24:51	8.1	6.3	0.0	39.0	0.06	122.0%
Spike Cal_0000139.LAB	9/9/2022	15:24:51	8.1	6.3	0.0	29.0	0.06	90.7%
			6.3					115.6%

Native Effluent Prior to Analyte Spike

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppbv wet
Test Run 1_0000210.LAB	9/9/2022	16:35:42	6.2	-0.2	-0.2	-7.3
Test Run 1_0000211.LAB	9/9/2022	16:36:41	6.2	-0.1	-0.3	-5.9
Test Run 1_0000212.LAB	9/9/2022	16:36:41	6.2	-0.1	-0.3	-5.9
			6.163			-6.4

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_0000262.LAB	9/9/2022	16:50:06	5.7	8.0	-1.2	40.6	0.08	77.6%
Spike Cal_0000263.LAB	9/9/2022	16:50:22	5.7	8.4	-1.2	50.1	0.08	91.0%
Spike Cal_0000264.LAB	9/9/2022	16:50:38	5.7	8.4	-1.2	47.3	0.08	86.3%
Spike Cal_0000265.LAB	9/9/2022	16:50:55	5.7	8.3	-1.4	48.9	0.08	90.5%
Spike Cal_0000266.LAB	9/9/2022	16:51:11	5.7	8.2	-1.3	42.5	0.08	79.2%
Spike Cal_0000267.LAB	9/9/2022	16:51:28	5.7	8.3	-1.4	38.8	0.08	71.4%
Spike Cal_0000268.LAB	9/9/2022	16:51:44	5.7	8.2	-1.4	39.5	0.08	73.4%
Spike Cal_0000269.LAB	9/9/2022	16:51:44	5.7	8.2	-1.4	39.5	0.08	73.4%
			8.2					80.4%

CTS, System Purge

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppbv wet	Recovery % Ethylene
Post Run 1 System CTS_0000240.LAB	9/9/2022	16:44:15	5.9	-0.6	88.5	-0.5	88.2%
Post Run 1 System CTS_0000241.LAB	9/9/2022	16:44:32	5.9	-0.7	88.5	11.8	88.2%
Post Run 1 System CTS_0000242.LAB	9/9/2022	16:44:48	5.9	-0.6	88.5	7.5	88.2%
Post Run 1 System CTS_0000243.LAB	9/9/2022	16:45:05	5.9	-0.7	88.5	7.9	88.3%
Post Run 1 System CTS_0000244.LAB	9/9/2022	16:45:21	5.9	-0.8	88.5	12.1	88.3%
Post Run 1 System CTS_0000245.LAB	9/9/2022	16:45:37	5.8	-0.9	88.5	-0.7	88.3%
Post Run 1 System CTS_0000246.LAB	9/9/2022	16:45:54	5.8	-0.6	88.6	0.6	88.3%
Post Run 1 System CTS_0000247.LAB	9/9/2022	16:45:54	5.8	-0.6	88.6	0.6	88.3%

Native Effluent Prior to Analyte Spike

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppbv wet
Test Run 2_0000349.LAB	9/9/2022	18:29:04	8.6	-0.3	0.8	-190.8
Test Run 2_0000350.LAB	9/9/2022	18:30:04	8.6	-0.1	0.8	-195.4
Test Run 2_0000351.LAB	9/9/2022	18:30:04	8.6	-0.1	0.8	-195.4
			8.593			-193.8

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_0000362.LAB	9/9/2022	18:33:11	7.7	10.2	-1.1	-124.7	0.10	123.8%
Spike Cal_0000363.LAB	9/9/2022	18:33:27	7.8	8.8	-0.9	-138.0	0.09	122.0%
Spike Cal_0000364.LAB	9/9/2022	18:33:44	7.9	8.9	-0.9	-145.3	0.09	129.4%
Spike Cal_0000365.LAB	9/9/2022	18:34:00	7.9	8.7	-0.8	-146.5	0.08	127.9%
Spike Cal_0000366.LAB	9/9/2022	18:34:16	7.9	8.8	-0.8	-142.6	0.09	125.4%
Spike Cal_0000367.LAB	9/9/2022	18:34:33	7.9	8.6	-0.9	-152.4	0.08	132.6%
Spike Cal_0000368.LAB	9/9/2022	18:34:49	7.9	8.8	-0.9	-152.7	0.09	134.3%
Spike Cal_0000369.LAB	9/9/2022	18:35:06	7.9	8.7	-0.8	-155.2	0.09	136.3%
								129.0%

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

Test Location: Unit 15
 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 2 System CTS_0000376.LAB	9/9/2022	18:36:45	0.6	-0.3	95.6	-202.2	95.3%
Post Run 2 System CTS_0000377.LAB	9/9/2022	18:37:01	0.5	-0.6	96.1	72.0	95.9%
Post Run 2 System CTS_0000378.LAB	9/9/2022	18:37:17	0.5	-0.2	96.2	65.5	95.9%
Post Run 2 System CTS_0000379.LAB	9/9/2022	18:37:34	0.5	-0.6	96.2	65.0	95.9%
Post Run 2 System CTS_0000380.LAB	9/9/2022	18:37:50	0.5	-0.7	96.2	65.4	95.9%
Post Run 2 System CTS_0000381.LAB	9/9/2022	18:38:07	0.5	-0.6	96.2	63.6	95.9%
Post Run 2 System CTS_0000382.LAB	9/9/2022	18:38:23	0.5	-0.4	96.2	65.2	95.9%
Post Run 2 System CTS_0000383.LAB	9/9/2022	18:38:23	0.5	-0.4	96.2	65.2	95.9%

Native Effluent Prior to Analyte Spike

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppbv wet
Test Run 3_0000462.LAB	9/9/2022	19:55:04	8.6	1.1	-1.2	-31.3
Test Run 3_0000463.LAB	9/9/2022	19:56:04	8.6	1.1	-1.2	-33.2
Test Run 3_0000464.LAB	9/9/2022	19:56:04	8.6	1.1	-1.2	-33.2
			8.589			-32.5

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_0000473.LAB	9/9/2022	19:59:19	7.9	8.8	-2.6	35.0	0.09	103.6%
Spike Cal_0000474.LAB	9/9/2022	19:59:35	8.0	8.3	-2.6	36.7	0.08	120.7%
Spike Cal_0000475.LAB	9/9/2022	19:59:52	8.0	8.4	-2.5	37.2	0.08	119.2%
Spike Cal_0000476.LAB	9/9/2022	20:00:08	8.0	8.2	-2.6	33.9	0.08	115.1%
Spike Cal_0000477.LAB	9/9/2022	20:00:24	8.0	8.3	-2.5	28.7	0.08	94.6%
Spike Cal_0000478.LAB	9/9/2022	20:00:41	8.0	8.5	-2.5	23.9	0.08	74.4%
Spike Cal_0000479.LAB	9/9/2022	20:00:57	8.0	8.4	-2.5	23.2	0.08	74.2%
Spike Cal_0000480.LAB	9/9/2022	20:01:13	8.0	8.4	-2.6	22.2	0.08	72.2%
								96.7%

CTS, System Purge

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppbv wet	Recovery % Ethylene
Post Test System CTS_0000485.LAB	9/9/2022	20:02:22	0.7	-0.1	95.2	-56.3	94.9%
Post Test System CTS_0000486.LAB	9/9/2022	20:02:39	0.6	-0.5	95.4	-56.4	95.2%
Post Test System CTS_0000487.LAB	9/9/2022	20:02:55	0.6	-0.2	95.5	-50.3	95.2%
Post Test System CTS_0000488.LAB	9/9/2022	20:03:11	0.5	-0.3	95.6	-50.4	95.3%
Post Test System CTS_0000489.LAB	9/9/2022	20:03:28	0.5	-0.2	95.6	-45.1	95.3%
Post Test System CTS_0000490.LAB	9/9/2022	20:03:44	0.5	-0.1	96.1	189.9	95.8%
Post Test System CTS_0000491.LAB	9/9/2022	20:04:00	0.5	-0.1	96.1	196.1	95.8%
Post Test System CTS_0000492.LAB	9/9/2022	20:04:17	0.5	-0.2	96.1	186.4	95.8%

Native Effluent Prior to Analyte Spike

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppmv wet
Test Run 1_0000221.LAB	9/10/2022	09:34:25	8.6	1.1	0.0	-33.7
Test Run 1_0000222.LAB	9/10/2022	09:35:25	8.6	1.1	0.0	-28.4
Test Run 1_0000223.LAB	9/10/2022	09:35:25	8.6	1.1	0.0	-28.4
			8.6			-30.2

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_0000231.LAB	9/10/2022	09:37:37	7.9	8.8	-1.7	46.5	0.09	128.9%
Spike Cal_0000232.LAB	9/10/2022	09:37:54	7.9	8.4	-1.7	36.1	0.08	108.9%
Spike Cal_0000233.LAB	9/10/2022	09:38:10	7.9	8.3	-1.6	36.8	0.08	114.0%
Spike Cal_0000234.LAB	9/10/2022	09:38:26	7.9	8.3	-1.6	37.7	0.08	115.7%
Spike Cal_0000235.LAB	9/10/2022	09:38:43	7.9	8.4	-1.6	35.2	0.08	106.6%
Spike Cal_0000236.LAB	9/10/2022	09:38:59	7.9	8.3	-1.6	31.7	0.08	97.3%
Spike Cal_0000237.LAB	9/10/2022	09:39:15	7.9	8.6	-1.7	24.0	0.08	69.2%
Spike Cal_0000238.LAB	9/10/2022	09:39:32	7.9	8.4	-1.6	23.5	0.08	70.6%
								101.4%

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

Test Location: Unit 15
 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_0000245.LAB	9/10/2022	09:41:15	1.2	0.4	95.5	-29.2	95.24%
Post Run 1 System CTS_0000246.LAB	9/10/2022	09:41:32	1.0	0.0	96.9	-6.7	96.65%
Post Run 1 System CTS_0000247.LAB	9/10/2022	09:41:48	0.9	-0.2	96.9	-10.9	96.57%
Post Run 1 System CTS_0000248.LAB	9/10/2022	09:42:05	0.9	0.0	96.9	-10.7	96.58%
Post Run 1 System CTS_0000249.LAB	9/10/2022	09:42:21	0.8	0.0	96.9	-3.0	96.56%
Post Run 1 System CTS_0000250.LAB	9/10/2022	09:42:38	0.7	0.2	96.8	-10.2	96.50%
Post Run 1 System CTS_0000251.LAB	9/10/2022	09:42:54	0.7	-0.2	96.8	-0.1	96.53%
Post Run 1 System CTS_0000252.LAB	9/10/2022	09:43:10	0.6	0.0	96.8	-7.6	96.52%

Native Effluent Prior to Analyte Spike

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppmv wet
Test Run 2_0000322.LAB	9/10/2022	10:56:56	8.6	1.6	-1.7	53.9
Test Run 2_0000323.LAB	9/10/2022	10:57:56	8.6	1.7	-1.7	53.8
Test Run 2_0000324.LAB	9/10/2022	10:57:56	8.6	1.7	-1.7	53.8
			8.6			53.9

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_0000336.LAB	9/10/2022	11:01:31	7.9	8.9	-2.9	99.7	0.09	87.61%
Spike Cal_0000337.LAB	9/10/2022	11:01:47	7.9	8.8	-2.9	101.4	0.09	89.50%
Spike Cal_0000338.LAB	9/10/2022	11:02:04	8.0	8.9	-2.9	96.8	0.09	85.05%
Spike Cal_0000339.LAB	9/10/2022	11:02:20	8.0	8.9	-2.9	98.8	0.09	86.94%
Spike Cal_0000340.LAB	9/10/2022	11:02:36	8.0	8.8	-2.9	100.5	0.09	88.70%
Spike Cal_0000341.LAB	9/10/2022	11:02:53	8.0	9.0	-2.9	103.1	0.09	90.32%
Spike Cal_0000342.LAB	9/10/2022	11:03:09	8.0	8.7	-2.9	92.6	0.09	82.19%
Spike Cal_0000343.LAB	9/10/2022	11:03:09	8.0	8.7	-2.9	92.6	0.09	82.19%
								86.56%

CTS, System Purge

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppmv wet	Recovery % Ethylene
Post Run 2 System CTS_0000349.LAB	9/10/2022	11:04:48	0.5	0.0	97.2	219.7	96.91%
Post Run 2 System CTS_0000350.LAB	9/10/2022	11:05:05	0.5	0.1	97.2	220.8	96.92%
Post Run 2 System CTS_0000351.LAB	9/10/2022	11:05:21	0.4	-0.1	97.3	222.0	97.00%
Post Run 2 System CTS_0000352.LAB	9/10/2022	11:05:38	0.4	0.0	97.3	223.6	97.02%
Post Run 2 System CTS_0000353.LAB	9/10/2022	11:05:54	0.4	-0.1	97.3	226.0	97.02%
Post Run 2 System CTS_0000354.LAB	9/10/2022	11:06:10	0.4	0.1	97.4	220.9	97.07%
Post Run 2 System CTS_0000355.LAB	9/10/2022	11:06:27	0.4	-0.4	97.4	216.9	97.10%
Post Run 2 System CTS_0000356.LAB	9/10/2022	11:06:27	0.4	-0.4	97.4	216.9	97.10%

Native Effluent Prior to Analyte Spike

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppmv wet
Test Run 3_0000425.LAB	9/10/2022	12:20:00	8.6	0.5	0.0	47.3
Test Run 3_0000426.LAB	9/10/2022	12:21:01	8.6	0.5	0.0	50.2
Test Run 3_0000427.LAB	9/10/2022	12:21:01	8.6	0.5	0.0	50.2
			8.6			49.2

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_0000434.LAB	9/10/2022	12:23:28	7.7	9.6	-1.7	149.9	0.09	131.39%
Spike Cal_0000435.LAB	9/10/2022	12:23:44	7.8	9.2	-1.5	134.9	0.09	120.58%
Spike Cal_0000436.LAB	9/10/2022	12:24:01	7.8	9.1	-1.4	124.2	0.09	111.95%
Spike Cal_0000437.LAB	9/10/2022	12:24:17	7.9	9.0	-1.4	114.4	0.09	103.52%
Spike Cal_0000438.LAB	9/10/2022	12:24:34	7.9	9.1	-1.4	107.1	0.09	96.65%
Spike Cal_0000439.LAB	9/10/2022	12:24:50	7.9	8.8	-1.4	105.4	0.09	96.71%
Spike Cal_0000440.LAB	9/10/2022	12:25:06	7.9	8.8	-1.4	111.1	0.09	101.92%
Spike Cal_0000441.LAB	9/10/2022	12:25:22	7.9	9.0	-1.3	98.3	0.09	89.19%
								106.49%

CTS, System Purge

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppmv wet	Recovery % Ethylene
Post Run 2 System CTS_0000450.LAB	9/10/2022	12:27:35	0.5	-0.2	97.4	231.3	97.08%
Post Run 2 System CTS_0000451.LAB	9/10/2022	12:27:51	0.5	-0.4	97.4	236.3	97.11%
Post Run 2 System CTS_0000452.LAB	9/10/2022	12:28:07	0.4	-0.3	97.5	232.6	97.17%
Post Run 2 System CTS_0000453.LAB	9/10/2022	12:28:24	0.4	-0.3	97.5	227.6	97.17%
Post Run 2 System CTS_0000454.LAB	9/10/2022	12:28:40	0.4	-0.5	97.4	230.9	97.16%
Post Run 2 System CTS_0000455.LAB	9/10/2022	12:28:56	0.4	-0.3	97.5	230.7	97.17%
Post Run 2 System CTS_0000456.LAB	9/10/2022	12:29:13	0.4	-0.3	97.5	234.0	97.18%
Post Run 2 System CTS_0000457.LAB	9/10/2022	12:29:29	0.4	-0.6	97.5	233.2	97.20%

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

Test Location: Unit 15
 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 ppmv wet
Test Run 3_0000527.LAB	9/10/2022	13:41:58	8.6	-0.3	1.3	31.4
Test Run 3_0000528.LAB	9/10/2022	13:42:58	8.6	-0.4	1.3	27.0
Test Run 3_0000529.LAB	9/10/2022	13:42:58	8.6	-0.4	1.3	27.0
			8.6			28.5

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_0000536.LAB	9/10/2022	13:45:07	7.7	9.6	-0.5	156.3	0.09	163.69%
Spike Cal_0000537.LAB	9/10/2022	13:45:24	7.8	8.9	-0.2	123.1	0.09	135.66%
Spike Cal_0000538.LAB	9/10/2022	13:45:40	7.9	8.4	-0.3	111.6	0.08	127.72%
Spike Cal_0000539.LAB	9/10/2022	13:45:57	7.8	8.5	-0.3	89.5	0.08	101.94%
Spike Cal_0000540.LAB	9/10/2022	13:46:13	7.9	8.8	-0.3	86.6	0.09	96.61%
Spike Cal_0000541.LAB	9/10/2022	13:46:29	7.9	8.6	-0.2	87.6	0.08	98.89%
Spike Cal_0000542.LAB	9/10/2022	13:46:46	7.9	8.4	-0.2	83.2	0.08	95.66%
Spike Cal_0000543.LAB	9/10/2022	13:47:02	7.9	8.6	-0.2	76.7	0.08	86.91%
								113.38%

CTS, System Purge

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppmv wet	Recovery % Ethylene
Post Test System CTS_0000555.LAB	9/10/2022	13:49:53	0.5	-0.3	97.3	246.0	96.96%
Post Test System CTS_0000556.LAB	9/10/2022	13:50:10	0.5	-0.4	97.3	240.0	97.03%
Post Test System CTS_0000557.LAB	9/10/2022	13:50:26	0.4	-0.4	97.3	232.7	97.02%
Post Test System CTS_0000558.LAB	9/10/2022	13:50:43	0.4	-0.4	97.3	236.4	97.05%
Post Test System CTS_0000559.LAB	9/10/2022	13:50:59	0.4	-0.5	97.3	235.2	97.04%
Post Test System CTS_0000560.LAB	9/10/2022	13:51:15	0.4	-0.4	97.4	244.3	97.06%
Post Test System CTS_0000561.LAB	9/10/2022	13:51:31	0.4	-0.4	97.4	245.5	97.09%
Post Test System CTS_0000562.LAB	9/10/2022	13:51:48	0.4	-0.6	97.4	239.3	97.07%

CTS, Direct Purge

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppbv wet	Recovery % Ethylene
Post Test CTS Direct_0000582.LAB	9/10/2022	14:04:25	0.3	-0.2	97.6	144.3	97.3%
Post Test CTS Direct_0000583.LAB	9/10/2022	14:04:42	0.3	-0.1	97.6	134.0	97.3%
Post Test CTS Direct_0000584.LAB	9/10/2022	14:04:58	0.3	-0.3	97.6	146.3	97.3%
Post Test CTS Direct_0000585.LAB	9/10/2022	14:05:14	0.3	-0.3	97.6	139.5	97.3%
Post Test CTS Direct_0000586.LAB	9/10/2022	14:05:31	0.3	-0.2	97.6	148.9	97.4%
Post Test CTS Direct_0000587.LAB	9/10/2022	14:05:47	0.3	-0.3	97.7	143.3	97.4%
Post Test CTS Direct_0000588.LAB	9/10/2022	14:06:03	0.4	-0.4	97.5	148.6	97.3%
Post Test CTS Direct_0000589.LAB	9/10/2022	14:06:20	0.4	-0.2	97.5	141.4	97.2%
		Average			97.6		

N2, Direct Purge

Spectrum	Date	Time	H2O% %v	N2O ppbv wet	Ethylene ppmv wet	Formaldehyde ppbv wet
Post Test Zero Direct_0000597.LAB	9/10/2022	14:16:09	0.3	-0.4	-3.8	-3.3
Post Test Zero Direct_0000598.LAB	9/10/2022	14:17:09	0.3	-0.3	-3.9	-2.6
Post Test Zero Direct_0000599.LAB	9/10/2022	14:17:09	0.3	-0.3	-3.9	-2.6

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

Test Location: Unit 15
Date: 9/9/2022
Operator: J. Gross
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	15:58:36	0.0	0.0	0.0	0.0
9/9/22	15:58:44	0.0	0.0	0.0	0.1
9/9/22	15:58:52	0.0	0.0	0.0	0.2
9/9/22	15:58:59	0.0	0.0	0.0	-0.1
9/9/22	15:59:07	0.0	0.0	-0.1	-0.2
9/9/22	15:59:15	0.0	0.0	0.0	0.2
9/9/22	15:59:23	0.0	0.0	0.1	0.0
9/9/22	15:59:31	0.0	0.0	0.1	-0.1
9/9/22	15:59:39	0.0	0.0	0.1	0.1

CTS, Direct to FTIR

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Recovery % Ethylene
9/9/22	16:00:48	0.0	0.0	0.0	98.2	97.9%
9/9/22	16:00:56	0.0	0.0	0.0	98.4	98.1%
9/9/22	16:01:04	0.0	0.0	0.0	98.3	98.0%
9/9/22	16:01:12	0.0	0.0	0.1	98.6	98.3%
9/9/22	16:01:20	0.0	0.0	0.1	98.4	98.1%
9/9/22	16:01:28	0.0	0.0	0.1	98.4	98.1%
9/9/22	16:01:36	0.0	0.0	0.0	98.5	98.2%
9/9/22	16:01:44	0.0	0.0	0.0	98.3	98.0%
Average					98.4	98.1%

Analyte Direct to FTIR

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Recovery % HCl
9/9/22	16:02:57	0.0	5.2	85.8	0.1	87.7%
9/9/22	16:03:05	0.0	5.4	90.6	1.2	92.7%
9/9/22	16:03:13	0.1	5.4	94.1	0.7	96.3%
9/9/22	16:03:21	0.0	5.6	92.8	1.1	95.0%
9/9/22	16:03:29	0.0	5.5	95.6	2.3	97.8%
9/9/22	16:03:37	0.0	5.5	93.8	4.7	95.9%
9/9/22	16:03:44	0.0	5.6	94.0	1.2	96.2%
9/9/22	16:03:52	0.1	5.5	96.2	2.9	98.4%
Average			5.5	92.9		95.0%

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	16:13:35	9.0	0.0	-0.3	0.0	0.0%	-
9/9/22	16:13:43	5.3	0.0	-0.3	37.3	37.9%	8
9/9/22	16:13:51	1.4	0.0	0.0	96.1	97.7%	16
9/9/22	16:13:58	0.9	0.0	-0.1	98.1	99.7%	24
9/9/22	16:14:06	0.6	0.0	0.0	98.5	100.1%	32
9/9/22	16:14:14	0.5	0.0	0.0	98.7	100.3%	39

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

Test Location: Unit 15
Date: 9/9/2022
Operator: J. Gross
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	16:16:34	8.8	0.0	-0.2	0.4	-
9/9/22	16:16:42	5.2	0.0	-0.2	25.6	8
9/9/22	16:16:50	0.6	0.0	0.0	2.8	16
9/9/22	16:16:57	0.2	0.0	0.1	0.4	24
9/9/22	16:17:05	0.2	0.0	0.0	0.2	32
9/9/22	16:17:13	0.2	0.0	-0.1	0.3	39
9/9/22	16:17:21	0.1	0.0	0.0	-0.1	47
9/9/22	16:17:29	0.1	0.0	0.1	-0.2	55

Native Effluent Prior to Analyte Spike

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet
9/9/22	16:12:56	8.9	0.0	-0.2	0.2
9/9/22	16:13:03	8.9	0.0	-0.3	0.3
9/9/22	16:13:11	9.0	0.0	-0.3	0.3
		8.938	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	16:27:43	7.9	0.5	7.8	-0.1	0.08	103.1%
9/9/22	16:27:50	8.0	0.5	7.2	0.3	0.08	103.4%
9/9/22	16:27:58	8.0	0.5	6.9	0.1	0.07	103.6%
9/9/22	16:28:06	8.0	0.5	6.0	0.1	0.06	104.2%
9/9/22	16:28:14	8.0	0.5	6.7	0.0	0.07	103.7%
9/9/22	16:28:22	8.0	0.5	6.3	0.2	0.07	104.0%
9/9/22	16:28:30	8.0	0.5	6.1	0.1	0.07	104.1%
9/9/22	16:28:37	8.0	0.5	6.0	-0.1	0.06	104.2%
							103.8%

Native Effluent Prior to Analyte Spike

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet
9/9/22	17:34:15	6.4	0.0	-0.2	0.2
9/9/22	17:35:16	6.4	0.0	-0.2	0.0
9/9/22	17:36:17	6.3	0.0	-0.2	0.3
		6.348	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	18:10:32	8.6	0.3	7.6	0.3	0.08	103.2%
9/9/22	18:10:40	8.6	0.3	7.3	0.5	0.08	103.3%
9/9/22	18:10:47	8.6	0.3	7.0	0.1	0.08	103.5%
9/9/22	18:10:55	8.6	0.3	6.7	0.3	0.07	103.7%
9/9/22	18:11:03	8.6	0.3	6.5	0.0	0.07	103.9%
9/9/22	18:11:11	8.5	0.3	6.1	0.1	0.07	104.1%
9/9/22	18:11:19	8.6	0.3	5.9	0.1	0.06	104.2%
9/9/22	18:11:27	8.5	0.3	5.8	0.2	0.06	104.4%
							103.8%

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

Test Location: Unit 15
Date: 9/9/2022
Operator: J. Gross
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	17:43:45	5.9	0.0	-0.1	92.3	92.0%
9/9/22	17:43:53	6.0	0.0	-0.3	92.6	92.3%
9/9/22	17:44:01	6.0	0.0	-0.3	92.5	92.2%
9/9/22	17:44:09	6.0	0.0	-0.2	92.5	92.3%
9/9/22	17:44:17	5.9	0.0	-0.1	92.5	92.3%
9/9/22	17:44:25	5.9	0.0	-0.3	92.4	92.1%
9/9/22	17:44:32	5.9	0.0	-0.1	92.8	92.5%
9/9/22	17:44:40	5.9	0.0	-0.2	92.4	92.2%

Native Effluent Prior to Analyte Spike

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet
9/9/22	19:27:19	9.0	0.0	-0.2	0.2
9/9/22	19:28:19	9.0	0.0	-0.2	0.2
9/9/22	19:29:20	9.0	0.0	-0.3	0.2
		8.965	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	19:43:37	8.0	0.5	7.5	0.0	0.08	103.2%
9/9/22	19:43:46	8.1	0.4	6.4	0.3	0.07	103.9%
9/9/22	19:43:53	8.1	0.4	6.6	0.2	0.07	103.7%
9/9/22	19:44:01	8.1	0.4	5.1	0.2	0.05	105.1%
9/9/22	19:44:09	8.1	0.4	5.6	0.0	0.06	104.5%
9/9/22	19:44:17	8.1	0.4	5.1	0.1	0.06	105.0%
9/9/22	19:44:25	8.1	0.4	5.2	0.4	0.06	104.9%
9/9/22	19:44:32	8.1	0.4	4.9	0.3	0.05	105.3%
							104.4%

CTS, System Purge

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Recovery % Ethylene
9/9/22	19:35:59	0.3	0.0	0.0	98.0	97.7%
9/9/22	19:36:07	0.2	0.0	0.1	97.8	97.5%
9/9/22	19:36:15	0.2	0.0	0.1	98.6	98.3%
9/9/22	19:36:22	0.2	0.0	0.3	98.2	97.9%
9/9/22	19:36:30	0.1	0.0	0.3	98.4	98.1%
9/9/22	19:36:38	0.1	0.0	0.3	98.0	97.7%
9/9/22	19:36:46	0.1	0.0	0.3	97.8	97.5%
9/9/22	19:36:54	0.1	0.0	0.2	98.5	98.2%

Native Effluent Prior to Analyte Spike

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet
9/9/22	20:54:00	9.0	0.0	-0.3	0.1
9/9/22	20:55:01	9.0	0.0	-0.3	0.2
9/9/22	20:56:02	9.0	0.0	-0.2	0.1
		8.997	0.0		

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

Test Location: Unit 15
Date: 9/9/2022
Operator: J. Gross
FTIR s/n: 484

Effluent Spike Using Analyte

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Dilution Factor	Recovery % HCl
9/9/22	21:10:18	7.9	0.5	26.2	0.0	0.28	100.7%
9/9/22	21:10:26	8.0	0.5	18.6	0.1	0.20	101.1%
9/9/22	21:10:34	8.0	0.5	14.8	0.2	0.16	101.5%
9/9/22	21:10:42	8.1	0.5	12.2	0.3	0.13	101.9%
9/9/22	21:10:49	8.1	0.5	10.3	0.2	0.11	102.3%
9/9/22	21:10:57	8.1	0.5	8.7	0.5	0.09	102.8%
9/9/22	21:11:05	8.1	0.5	7.2	0.2	0.08	103.4%
9/9/22	21:11:13	8.1	0.5	6.5	0.3	0.07	103.8%
							102.2%

CTS, System Purge

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Recovery % Ethylene
9/9/22	21:02:00	0.3	0.0	0.1	98.1	97.8%
9/9/22	21:02:08	0.2	0.0	0.2	98.6	98.3%
9/9/22	21:02:16	0.2	0.0	0.1	98.5	98.2%
9/9/22	21:02:24	0.2	0.0	0.3	97.7	97.4%
9/9/22	21:02:32	0.2	0.0	0.3	98.0	97.7%
9/9/22	21:02:40	0.2	0.0	0.2	98.0	97.7%
9/9/22	21:02:48	0.2	0.0	0.1	98.1	97.8%
9/9/22	21:02:55	0.2	0.0	0.3	97.5	97.2%

Native Effluent Prior to Analyte Spike

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet
9/10/22	10:33:13	9.0	0.0	-0.3	0.2
9/10/22	10:34:14	9.0	0.0	-0.3	0.3
9/10/22	10:35:14	9.0	0.0	-0.3	0.3
		9.0	0.0		

Effluent Spike Using Analyte

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Dilution Factor	Recovery % HCl
9/10/22	10:47:45	7.9	0.4	20.0	0.3	0.22	101.0%
9/10/22	10:47:53	8.0	0.4	14.0	0.1	0.15	101.6%
9/10/22	10:48:01	8.0	0.4	10.8	0.1	0.12	102.2%
9/10/22	10:48:09	8.1	0.4	8.9	0.4	0.10	102.7%
9/10/22	10:48:17	8.1	0.4	6.9	0.3	0.07	103.6%
9/10/22	10:48:25	8.2	0.4	5.9	0.4	0.06	104.3%
9/10/22	10:48:32	8.2	0.4	4.9	0.1	0.05	105.3%
9/10/22	10:48:40	8.2	0.4	4.1	0.5	0.04	106.4%
							103.4%

CTS, System Purge

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Recovery % Ethylene
9/10/22	10:40:51	0.8	0.0	0.1	97.9	97.66%
9/10/22	10:40:59	0.7	0.0	0.1	98.0	97.73%
9/10/22	10:41:07	0.6	0.0	0.0	97.8	97.50%
9/10/22	10:41:15	0.6	0.0	0.1	98.1	97.76%
9/10/22	10:41:22	0.6	0.0	0.1	97.8	97.51%
9/10/22	10:41:30	0.6	0.0	0.2	97.6	97.36%
9/10/22	10:41:39	0.6	0.0	0.0	97.8	97.47%
9/10/22	10:41:46	0.6	0.0	0.1	97.8	97.48%

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

Test Location: Unit 15
Date: 9/9/2022
Operator: J. Gross
FTIR s/n: 484

Native Effluent Prior to Analyte Spike

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet
9/10/22	11:55:33	9.0	0.0	-0.2	0.2
9/10/22	11:56:34	9.0	0.0	-0.3	0.1
9/10/22	11:57:35	9.0	0.0	-0.2	0.1
		9.0	0.0		

Effluent Spike Using Analyte

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Dilution Factor	Recovery % HCl
9/10/22	12:11:19	7.9	0.5	25.2	0.2	0.27	100.8%
9/10/22	12:11:27	8.0	0.4	16.8	0.1	0.18	101.3%
9/10/22	12:11:35	8.1	0.4	12.6	0.0	0.14	101.8%
9/10/22	12:11:43	8.1	0.4	10.2	0.2	0.11	102.3%
9/10/22	12:11:51	8.1	0.4	8.4	0.1	0.09	102.9%
9/10/22	12:11:58	8.1	0.4	7.1	0.2	0.08	103.5%
9/10/22	12:12:07	8.1	0.4	6.0	0.3	0.06	104.2%
9/10/22	12:12:14	8.2	0.4	5.1	0.2	0.05	105.0%
							102.71%

CTS, System Purge

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Recovery % Ethylene
9/10/22	12:03:44	0.3	0.0	0.2	97.5	97.23%
9/10/22	12:03:52	0.2	0.0	0.1	98.2	97.92%
9/10/22	12:04:00	0.2	0.0	0.1	98.1	97.86%
9/10/22	12:04:08	0.2	0.0	0.1	98.2	97.89%
9/10/22	12:04:16	0.2	0.0	0.1	98.2	97.92%
9/10/22	12:04:24	0.2	0.0	0.2	97.9	97.63%
9/10/22	12:04:32	0.2	0.0	0.3	98.5	98.20%
9/10/22	12:04:39	0.1	0.0	0.1	98.3	97.99%

Native Effluent Prior to Analyte Spike

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet
9/10/22	13:18:26	9.0	0.0	-0.3	0.2
9/10/22	13:19:27	9.0	0.0	-0.3	0.3
9/10/22	13:20:28	9.0	0.0	-0.2	0.2
		9.0	0.0		

Effluent Spike Using Analyte

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Dilution Factor	Recovery % HCl
9/10/22	13:33:50	8.0	0.4	23.3	0.3	0.25	100.8%
9/10/22	13:33:58	8.1	0.4	15.3	0.5	0.16	101.4%
9/10/22	13:34:06	8.2	0.4	11.4	0.1	0.12	102.0%
9/10/22	13:34:14	8.2	0.4	9.1	-0.1	0.10	102.6%
9/10/22	13:34:22	8.2	0.4	7.2	0.3	0.08	103.4%
9/10/22	13:34:29	8.2	0.4	6.1	0.2	0.07	104.1%
9/10/22	13:34:37	8.2	0.4	5.0	0.2	0.05	105.1%
9/10/22	13:34:45	8.2	0.4	4.5	0.2	0.05	105.8%
							103.18%

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

Test Location: Unit 15
Date: 9/9/2022
Operator: J. Gross
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	13:26:13	0.4	0.0	0.1	98.3	97.98%
9/10/22	13:26:21	0.3	0.0	0.2	98.0	97.69%
9/10/22	13:26:29	0.2	0.0	0.1	98.3	98.02%
9/10/22	13:26:37	0.2	0.0	0.1	98.3	97.96%
9/10/22	13:26:45	0.2	0.0	0.3	98.4	98.14%
9/10/22	13:26:53	0.2	0.0	0.1	98.5	98.21%
9/10/22	13:27:01	0.2	0.0	0.2	97.5	97.21%
9/10/22	13:27:09	0.2	0.0	0.3	98.3	97.99%

Native Effluent Prior to Analyte Spike

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet
9/10/22	14:40:10	9.0	0.0	-0.2	0.3
9/10/22	14:41:11	9.0	0.0	-0.2	0.2
9/10/22	14:42:11	9.0	0.0	-0.3	0.2
		9.0	0.0		

Effluent Spike Using Analyte

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Dilution Factor	Recovery % HCl
9/10/22	14:55:54	8.0	0.5	16.5	0.4	0.18	101.3%
9/10/22	14:56:02	8.1	0.4	12.1	0.3	0.13	101.9%
9/10/22	14:56:10	8.1	0.4	9.3	0.1	0.10	102.5%
9/10/22	14:56:18	8.1	0.4	7.6	0.1	0.08	103.2%
9/10/22	14:56:26	8.1	0.4	6.3	0.2	0.07	104.0%
9/10/22	14:56:34	8.1	0.4	5.4	0.2	0.06	104.7%
9/10/22	14:56:42	8.1	0.4	4.5	-0.1	0.05	105.7%
9/10/22	14:56:49	8.1	0.4	3.7	-0.1	0.04	107.2%
							103.83%

CTS, System Purge

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Recovery % Ethylene
9/10/22	14:48:44	0.2	0.0	0.1	98.6	98.28%
9/10/22	14:48:52	0.2	0.0	0.1	98.2	97.86%
9/10/22	14:49:00	0.2	0.0	0.3	98.3	97.97%
9/10/22	14:49:08	0.2	0.0	0.3	99.0	98.68%
9/10/22	14:49:15	0.2	0.0	0.4	99.1	98.80%
9/10/22	14:49:23	0.1	0.0	0.4	98.6	98.32%
9/10/22	14:49:31	0.1	0.0	0.3	98.5	98.20%
9/10/22	14:49:39	0.1	0.0	0.1	98.9	98.59%

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

Test Location: Unit 15
Date: 9/9/2022
Operator: J. Gross
FTIR s/n: 484

CTS, Direct Purge

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet	Recovery % Ethylene
9/10/22	15:02:37	0.0	0.0	0.3	98.1	97.8%
9/10/22	15:02:45	0.0	0.0	0.3	98.7	98.4%
9/10/22	15:02:52	0.0	0.0	0.1	98.5	98.2%
9/10/22	15:03:00	0.0	0.0	0.2	98.6	98.3%
9/10/22	15:03:08	0.0	0.0	0.4	98.6	98.3%
9/10/22	15:03:16	0.0	0.0	0.3	98.7	98.4%
9/10/22	15:03:24	0.0	0.0	0.2	98.4	98.1%
9/10/22	15:03:32	0.0	0.0	0.1	98.6	98.3%
Average					98.5	

N2, Direct Purge

Date	Time	H2O% %v	SF6 ppmv wet	HCl ppmv wet	Ethylene ppmv wet
9/10/22	15:09:04	0.0	0.0	0.2	0.1
9/10/22	15:11:04	0.0	0.0	0.2	0.1
9/10/22	15:13:04	0.0	0.0	0.2	0.1

Appendix H - Calibration and Response Time Data

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

Test Location: Unit 15
Date: 9/9/22
Operator: J. Gross

Probe Length: 6.0 ft
Sample Plane: Horizontal
Port Length: 0.00 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
Number of Ports Sampled: 1
Number of Points per Port: 3
Total Number of Traverse Points: 3

Type	Setting	Cylinder ID	Cylinder Value	Analyzer Response	Difference, % of Span	Expiration Date
O2 % (dry)	Zero	Zero Nitrogen	0	0.00	0.00%	NA
	Mid	CC198065	12.06	12.20	-0.67%	7/13/2030
	High	CC425753	20.97	21.00	-0.14%	6/28/2029
CO ppmvw	Zero	Zero Nitrogen	0	0.07	-0.35%	NA
	Mid	CC160205	50.29	50.33	-0.04%	5/15/2030
	High	CC127753	90.26	91.43	-1.29%	3/8/2030

Response Time Data

Type	RM Analyzer Make/Model	RM Analyzer s/n	Analyzer Span	RM Gas Span
O2 % (dry)	Ecom/1440	2040	25	20.97
CO ppmvw	Multigas/2030		500	90.26
HCl	Multigas/2030		N/A	N/A
HF	Multigas/2030		N/A	N/A

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 15
 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		
6:05	21.00	ih	
6:05	21.00		
6:05	0.70		
6:06	0.00		
6:06	0.00		
6:06	0.00	iz	
6:07	0.00		
6:07	0.00		
6:07	8.20		
6:08	12.10		
6:08	12.20	im	
6:08	12.20		
6:09	12.20		
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		
16:08			91.65
16:08			91.68
16:08			91.82
16:08		ih	91.43
16:08			91.70
16:08			91.77
16:09			91.52
16:09			91.25
16:10			50.37
16:10			50.15
16:10			50.21
16:10		im	50.33
16:10			50.20
16:10			50.22
16:10			49.97
16:10			50.01
15:58			0.06
15:58			0.14
15:58			0.15
15:59			0.17
15:59			0.19
15:59		iz	0.07
15:59			0.19
15:59			0.10
16:30			49.91
16:30			49.97
16:30			50.00
16:30			50.05
16:30			50.08
16:30			49.90
16:30		m	50.42
16:31			50.13
16:16			0.16
16:16			0.62
16:17			0.36
16:17			0.35
16:17		z	0.28
16:17			0.31
16:17			0.45
16:17			0.43

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

Test Location: Unit 15
Operating Condition: Normal
Date: 9/9/22

Post 1/Pre 2

Time	O2 % (dry)	CO ppmvw
17:15	0.30	
17:15	0.20	
17:15	0.10	
17:16	0.00	z
17:16	0.20	
17:16	0.80	
17:17	4.40	
17:17	8.10	
17:17	10.20	
17:18	11.20	
17:18	11.80	
17:18	12.10	
17:19	12.20	m
18:12		49.83
18:12		50.22
18:12		50.19
18:12		50.06
18:12		50.17
18:13		50.35
18:13		49.88
18:13		50.15
18:15		0.84
18:15		0.78
18:15		0.77
18:15		0.73
18:15		0.80
18:15		0.76
18:15		0.94
18:16		0.81

Post 2/Pre 3

Time	O2 % (dry)	CO ppmvw
18:37	0.30	
18:37	0.20	
18:38	0.00	z
18:38	0.60	
18:38	5.60	
18:39	9.10	
18:39	10.60	
18:39	11.50	
18:40	11.90	
18:40	12.10	
18:40	12.20	m
19:45		50.86
19:45		50.41
19:46		50.60
19:46		50.48
19:46		50.93
19:46		50.47
19:46		50.90
19:46		50.42
19:41		0.99
19:41		0.92
19:41		1.02
19:41		0.69
19:41		1.04
19:41		1.12
19:42		1.00
19:42		0.95

Post 3/Pre 4

Time	O2 % (dry)	CO ppmvw
20:03	0.30	
20:03	0.20	
20:04	0.10	
20:04	0.00	z
20:04	3.00	
20:05	7.60	
20:05	9.90	
20:05	11.10	
20:06	11.80	
20:06	12.00	
20:06	12.20	m
20:07	12.30	
20:07	12.30	
21:12		50.81
21:12		50.80
21:13		50.72
21:13		50.70
21:13		50.68
21:13		50.42
21:13		50.61
21:13		50.54
21:08		1.28
21:08		0.95
21:08		1.26
21:08		1.16
21:08		1.23
21:08		1.31
21:08		1.01
21:08		0.96

Post 4/Pre 5

9:42	0.20	
9:42	0.10	
9:42	0.00	z
9:43	2.30	
9:43	6.80	
9:43	9.40	
9:44	10.80	
9:44	11.50	
9:44	11.90	
9:45	12.00	
9:45	12.10	m
10:50		50.55
10:51		50.85
10:51		50.69
10:51		50.97
10:51		50.99
10:51		50.78
10:51		50.79
10:51		51.00
10:46		0.94
10:46		0.94
10:46		0.80
10:46		0.90
10:47		1.10
10:47		0.85
10:47		1.04
10:47		0.81

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

Test Location: Unit 15
 Operating Condition: Normal
 Date: 9/9/22

Post 5/Pre 6

<u>Time</u>	<u>O2 % (dry)</u>	<u>CO ppmvw</u>
11:05	0.20	
11:05	0.10	
11:05	0.00	z
11:06	0.00	
11:06	4.40	
11:06	8.40	
11:07	10.20	
11:07	11.30	
11:07	11.80	
11:08	12.00	
11:08	12.10	
11:08	12.20	m
12:13		50.25
12:13		50.49
12:13		50.72
12:13		50.75
12:13		50.60
12:13		50.78
12:14		50.94
12:14		50.38
12:09		0.95
12:09		0.85
12:09		0.88
12:10		0.82
12:10		0.92
12:10		0.88
12:10		0.85
12:10		0.93

Post 6/Pre 7

<u>Time</u>	<u>O2 % (dry)</u>	<u>CO ppmvw</u>
12:27	0.20	
12:28	0.10	
12:28	0.10	
12:28	0.00	z
12:29	2.00	
12:29	6.50	
12:29	9.50	
12:30	10.80	
12:30	11.60	
12:30	11.90	
12:31	12.10	
12:31	12.20	m
13:36		50.88
13:36		50.90
13:36		50.67
13:36		50.50
13:37		51.00
13:37		50.54
13:37		50.96
13:37		50.75
13:32		0.95
13:32		0.83
13:32		0.95
13:32		0.98
13:32		1.02
13:32		0.56
13:33		0.89
13:33		0.68

Post 7

<u>Time</u>	<u>O2 % (dry)</u>	<u>CO ppmvw</u>
13:50	0.20	
13:50	0.10	
13:51	0.10	
13:51	0.00	z
13:51	3.30	
13:52	7.40	
13:52	9.90	
13:52	11.00	
13:53	11.70	
13:53	12.00	
13:53	12.10	m
14:58		50.85
14:58		51.22
14:58		51.03
14:58		50.97
14:58		50.92
14:58		51.04
14:58		51.34
14:59		51.00
14:54		1.07
14:54		0.82
14:54		0.94
14:54		0.99
14:55		1.00
14:55		0.85
14:55		0.72
14:55		0.87

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

Test Location: Unit 15
 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	XL001047B	9.777	9.90	-0.66%	7/25/2030	52.23%
	High	LL40840	18.72	18.70	0.11%	3/19/2026	
O ₂ %	Zero	Zero Nitrogen	0	0.00	0.00%	N/A	
	Mid	XL001047B	9.971	9.97	0.00%	7/25/2030	51.16%
	High	LL40840	19.49	19.50	-0.05%	3/19/2026	

Analyzer Data

Type	Model/Serial #
CO ₂ %	Ecom/482
O ₂ %	Ecom/482

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	9.78	9.80	10.00	0.00	0.00	0.00	9.90	4.54	4.5	-0.53	1.07	0.00	0.00
Run 2	Normal	14:07	17:23	9/9/2022	9.78	10.00	9.80	0.00	0.00	0.00	9.90	4.53	4.5	0.53	-1.07	0.00	0.00
Run 3	Normal	17:24	20:35	9/9/2022	9.79	10.00	10.10	0.00	0.000	0.00	10.05	4.70	4.6	-1.07	0.53	0.00	0.00
Run 4	Normal	7:40	10:55	9/10/2022	9.78	9.90	9.7	0.00	0.00	0.00	9.90	4.56	4.5	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 1	Normal	9:00	12:38	9/9/2022	9.97	9.97	10.20	0.00	0.00	0.00	10.09	15.02	14.9	-1.17	1.18	0.00	0.00
Run 2	Normal	14:07	17:23	9/9/2022	9.97	10.20	10.30	0.00	0.10	0.05	10.25	15.20	14.8	-1.69	0.51	-0.51	0.51
Run 3	Normal	17:24	20:35	9/9/2022	10.01	10.10	10.20	0.00	0.00	0.00	10.15	14.85	14.6	-1.17	0.51	0.00	0.00
Run 4	Normal	7:40	10:55	9/10/2022	9.97	9.97	10.3	0.00	0.1	0.00	9.97	15.13	15.1	-1.69	1.69	-0.51	0.51

Client: Middletown, LLC
Facility: Middletown
Project #: Unit 15
Test Location: M223610

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

<u>Time</u>	<u>O2 % (dry)</u>		<u>CO2 % (dry)</u>	
8:45	21.00		0.00	
8:46	21.00		0.00	
8:46	20.10		8.80	
8:46	19.70		12.60	
8:46	19.70		13.20	
8:47	19.70		13.10	
8:47	19.70		13.10	
8:47	19.70		13.40	
8:47	19.70		13.30	
8:48	19.70		13.40	
8:48	19.70		13.40	
8:48	19.70		19.00	
8:48	19.70		19.00	
8:49	19.50	ih	18.70	ih
8:49	19.50	h	18.70	h
8:49	19.50		18.70	
8:49	19.50		18.70	
8:50	19.70		16.30	
8:50	1.70		0.80	
8:50	0.00		0.00	
8:50	0.00		0.00	
8:51	0.00	iz	0.00	iz
8:51	0.00	z	0.00	z
8:51	0.00		0.00	
8:51	0.00		0.00	
8:52	1.90		0.50	
8:52	9.80		7.10	
8:52	10.10		8.40	
8:52	10.10		8.50	
8:53	10.10		8.50	
8:53	10.10		8.50	
8:53	10.10		8.50	
8:53	10.10		8.50	
8:54	9.97	im	9.90	im
8:54	9.97	m	9.80	m
8:54	9.97		9.90	

Client: Middletown, LLC
Facility: Middletown

Test Location: Unit 15
Project #: M223610

Post 1/Pre 2

Time	O2 % (dry)	CO2 % (dry)
13:29	21.00	0.00
13:29	11.60	5.80
13:29	10.30	9.50
13:30	10.20	10.00
13:30	10.20	10.20
13:30	10.20	10.10
13:30	10.20	10.10
13:31	10.20	10.30
13:31	10.20	10.30
13:31	10.20	10.30
13:32	10.20	10.30
13:32	10.20	10.40
13:32	10.20	10.30
13:32	10.20	10.40
13:33	10.20	10.40
13:33	10.20	10.30
13:33	10.20	10.30
13:33	10.20	10.30
13:34	1.60	2.00
13:34	0.00	0.00
13:34	0.00	0.00
13:34	0.00	0.00

Post 2/Pre 3

Time	O2 % (dry)	CO2 % (dry)
17:24	20.10	0.90
17:24	10.70	8.30
17:25	10.30	9.70
17:25	10.30	9.80
17:25	2.80	2.80
17:26	0.20	0.20
17:26	0.10	0.00
17:27	0.10	0.00

Post 3

Time	O2 % (dry)	CO2 % (dry)
20:35	10.20	9.90
20:35	10.20	10.10
20:36	10.20	10.10
20:36	10.20	10.10
20:37	10.10	10.10
20:37	10.10	10.10
20:37	10.10	10.10
20:38	10.10	10.10
20:38	1.80	1.80
20:39	0.10	0.10
20:39	0.00	0.00
20:40	0.00	0.00
20:40	0.00	0.00

Post 4

Time	O2 % (dry)	CO2 % (dry)
10:56	20.1	0.9
10:56	10.7	8.3
10:56	10.3	9.7
10:57	10.3	9.8
10:57	2.8	2.8
10:58	0.2	0.2
10:58	0.1	0
10:59	0.1	0

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

Test Location: Unit 15
 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	XL001047B	9.777	9.90	-0.66%	7/25/2030	52.23%
	High	LL40840	18.72	18.60	0.64%	2/14/2030	
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%	2/14/2030	

Analyzer Data

Type	Model/Serial #
CO ₂ %	Ecom/482
O ₂ %	Ecom/482

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	11:30	14:45	9/10/2022	9.78	9.90	10.00	0.00	0.00	0.00	9.95	4.60	4.5	-0.53	0.53	0.00	0.00
Run 6	Normal	15:25	18:40	9/10/2022	9.78	10.00	9.80	0.00	0.00	0.00	9.90	4.54	4.5	0.53	-1.07	0.00	0.00
Run 7	Normal	6:22	9:37	9/11/2022	9.78	9.80	9.80	0.00	0.00	0.00	9.80	3.37	3.4	0.53	0.00	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	11:30	14:45	9/10/2022	9.97	9.97	10.20	0.00	0.00	0.00	10.09	15.03	14.9	-1.54	1.18	0.00	0.00
Run 6	Normal	15:25	18:40	9/10/2022	9.97	10.20	10.00	0.00	0.10	0.05	10.10	15.07	14.9	-0.51	-1.03	-0.51	0.51
Run 7	Normal	6:22	9:37	9/11/2022	9.97	10.00	10.00	0.10	0.00	0.05	10.00	15.30	15.3	-0.51	0.00	0.00	-0.51

Client: Middletown, LLC
Facility: Middletown
Project #: Unit 15
Test Location: M223610

Linearity Cal/Pre Run 5 Cal
Date: 9/10/2022

<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
5:58	9.97		9.90	

Client: Middletown, LLC
Facility: Middletown
Project #: Unit 15
Test Location: M223610

Linearity Cal/Pre 7 Cal
Date: 9/11/2022

<u>Time</u>	<u>O2 % (dry)</u>		<u>CO2 % (dry)</u>	
5:49	20.80		1.70	
5:49	20.80		12.30	
5:50	20.80		14.20	
5:50	20.80		14.40	
5:50	20.70		14.30	
5:51	19.50		14.30	
5:51	19.30		14.40	
5:52	19.30		18.50	
5:52	19.30		18.50	
5:53	19.30		18.40	
5:53	19.30		18.60	
5:53	19.20		18.40	
5:54	19.20		18.60	
5:54	19.20		18.30	
5:55	19.20		18.30	
5:55	19.20		17.80	
5:56	19.30		17.40	
5:56	19.40		16.30	
5:57	19.50		16.10	
5:58	19.60		16.60	
5:58	19.60		16.30	
5:59	19.60		15.90	
5:59	19.60	ih	18.40	ih
6:00	19.60	h	18.60	h
6:00	19.50		13.40	
6:01	19.30		12.40	
6:01	18.80		11.70	
6:01	18.10		11.10	
6:02	17.30		10.40	
6:02	16.50		9.90	
6:02	15.80		9.60	
6:03	15.10		9.90	
6:03	14.50		9.60	
6:04	14.00		9.90	
6:04	13.50		9.60	
6:05	0.00	iz	0.00	iz
6:05	0.00	z	0.00	z
6:06	0.00		0.00	
6:06	18.80		12.20	
6:07	18.10		13.50	
6:07	17.30		13.50	
6:08	16.50		13.50	
6:08	15.80		11.00	
6:09	15.10		10.20	
6:09	14.50		9.60	
6:09	9.90	im	9.90	im
6:10	9.80	m	9.90	m
6:10	9.80		9.60	

Client: Middletown, LLC
Facility: Middletown

Test Location: Unit 15
Project #: M223610

Post 5/Pre 6				Post 6/Pre 7				Post 7				
Time	O2 % (dry)	CO2 % (dry)		Time	O2 % (dry)	CO2 % (dry)		Time	O2 % (dry)	CO2 % (dry)		
14:49	21.00	0.00		18:43	20.10	0.90		9:45	20.00	0.70		
14:50	11.60	5.80		18:43	10.70	8.30		9:45	19.80	0.80		
14:50	10.30	9.50		18:44	10.00	9.70		9:46	18.10	1.80		
14:51	10.20	m	10.00	m	18:44	10.00	9.80	m	9:46	16.50	2.70	
14:51	10.20	10.20		18:45	2.80	2.80		9:46	15.40	3.30		
14:51	10.20	10.10		18:45	0.20	0.20		9:46	14.50	4.20		
14:52	10.20	10.10		18:46	0.10	0.00		9:47	13.70	5.00		
14:52	10.20	10.30		18:46	0.10	z	0.00	z	9:47	12.80	5.90	
14:53	10.20	10.30						9:47	12.10	6.60		
14:53	1.60	2.00						9:47	11.60	7.00		
14:54	0.00	0.00						9:48	11.20	7.40		
14:54	0.00	z	0.00	z				9:48	10.90	7.60		
14:55	0.00	0.00						9:48	10.60	7.90		
								9:48	10.00	9.80		
								9:49	10.00	m	9.80	m
								9:49	10.00	9.80		
								9:49	10.00	9.80		
								9:49	10.10	8.40		
								9:50	0.00	0.00		
								9:50	0.00	z	0.00	z
								9:50	0.00	0.00		

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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.

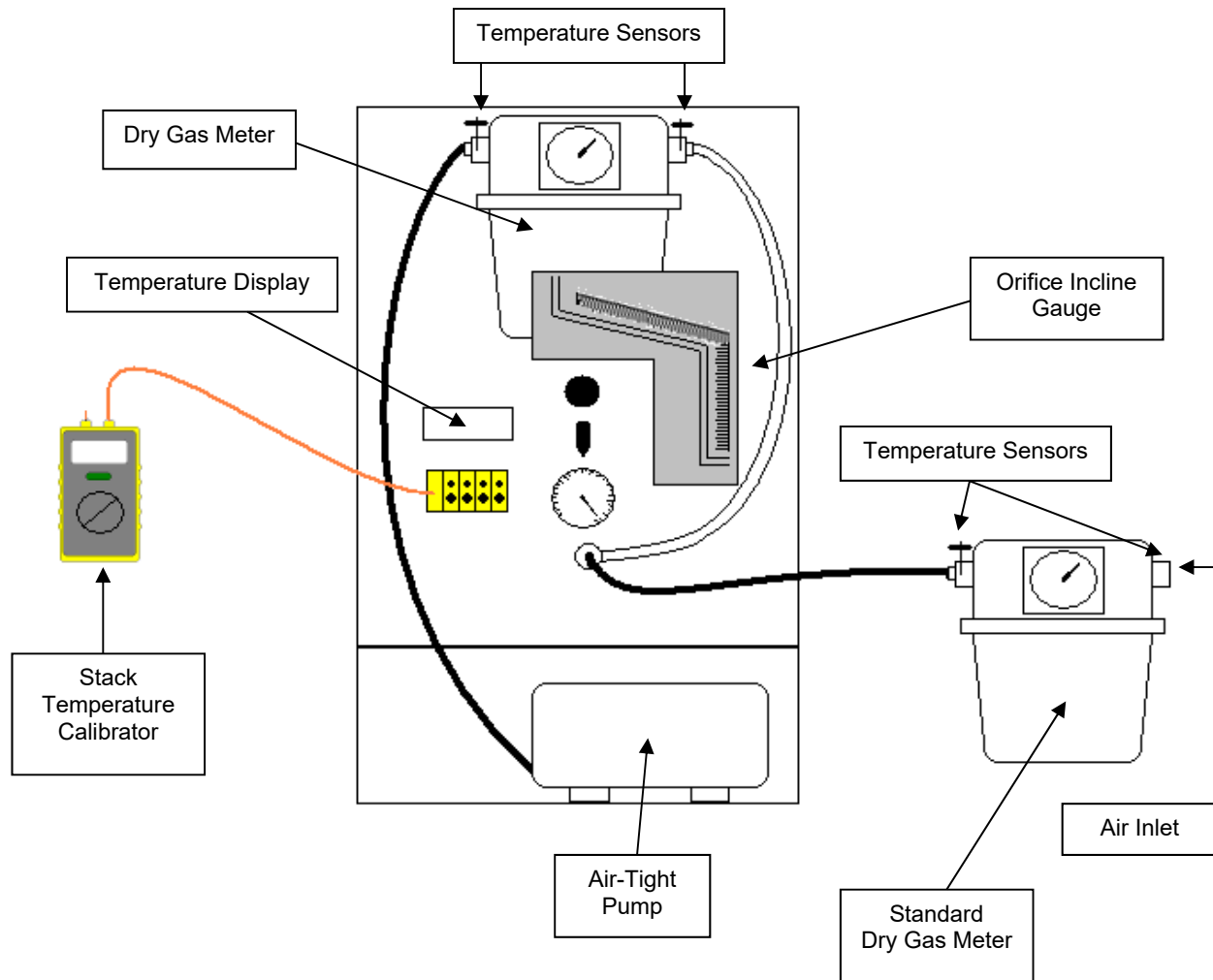
Temperature Sensing Devices

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

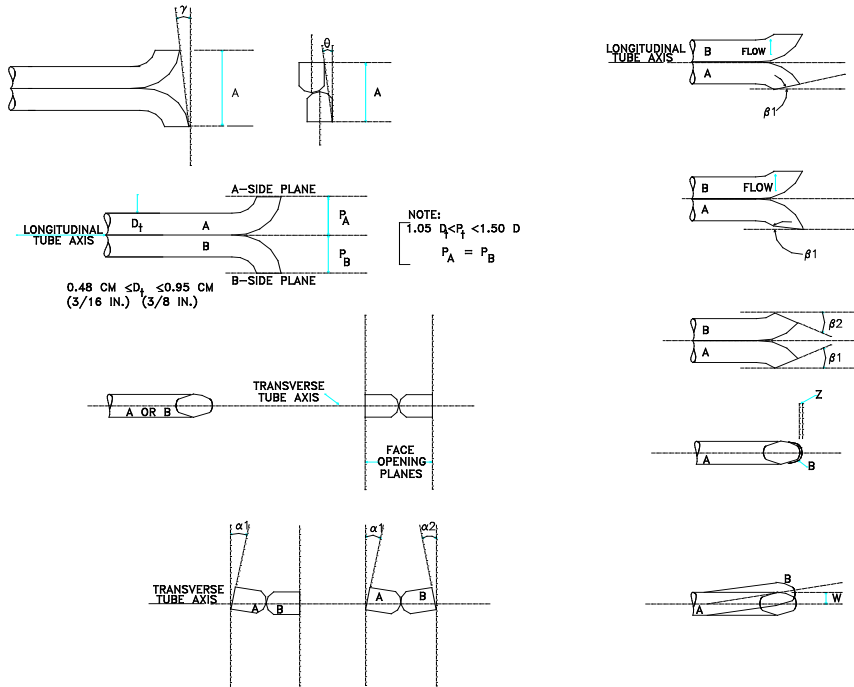
Date: 8/3/2022

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

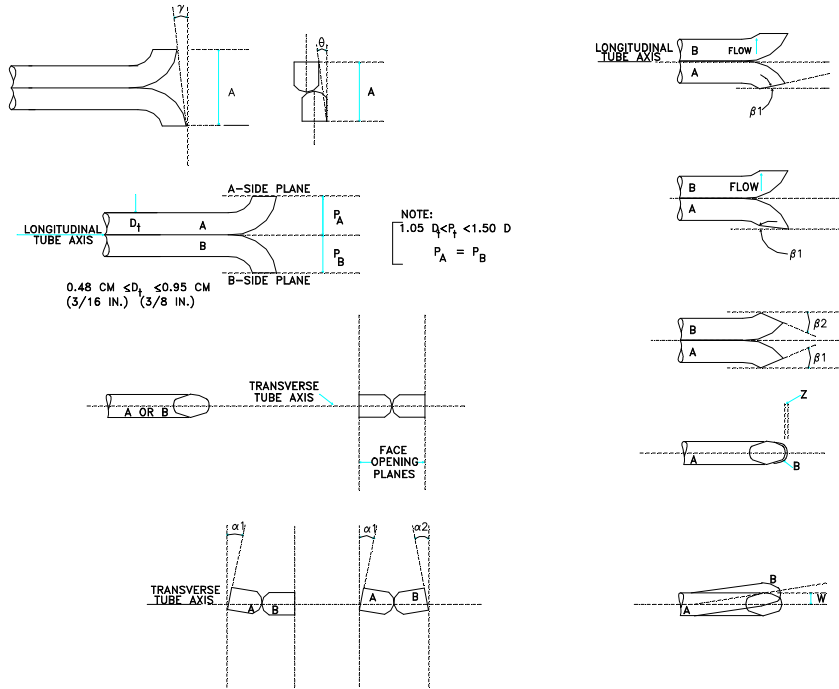
Date: 10/7/2022

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

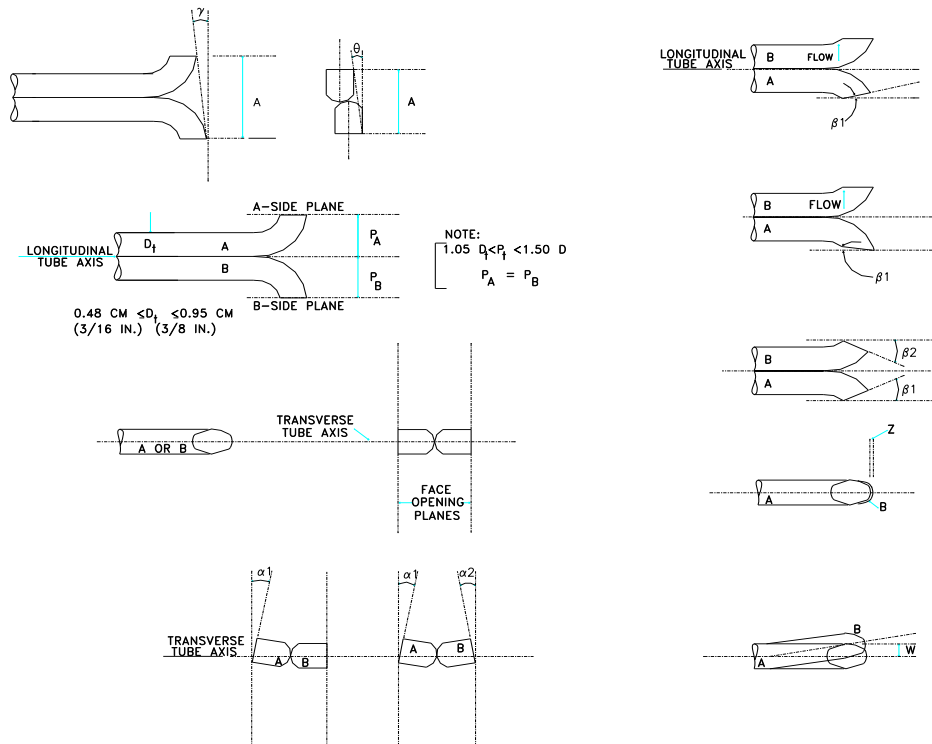
Date: 8/25/2022

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

$a_1 = \underline{1.5}^\circ (\leq 10^\circ)$

$a_2 = \underline{0.5}^\circ (\leq 10^\circ)$

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

$b_1 = \underline{1}^\circ (\leq 5^\circ)$

$b_2 = \underline{1}^\circ (\leq 5^\circ)$

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

$\gamma = \underline{1}^\circ$ $\theta = \underline{0.5}^\circ$ $A = \underline{1.162}$ (in.)

$P_A = \underline{0.581}$ (in.), $P_B = \underline{0.581}$ (in.), $D_t = \underline{0.375}$ (in.)

Calibration required? yes X no

S TYPE PITOT TUBE INSPECTION WORKSHEET

Pitot Tube No: 154

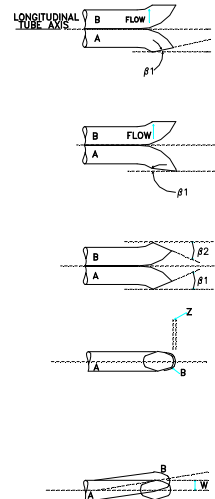
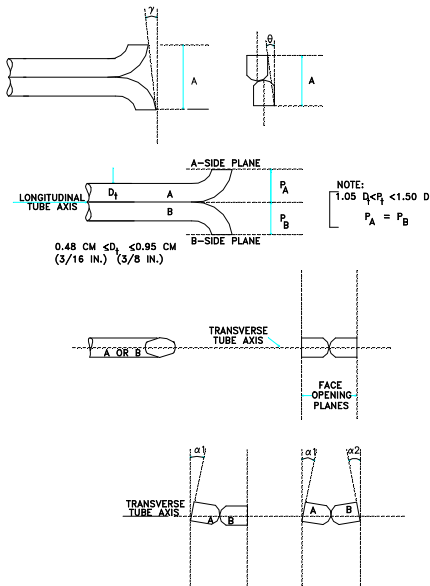
Date: 10/7/2022

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

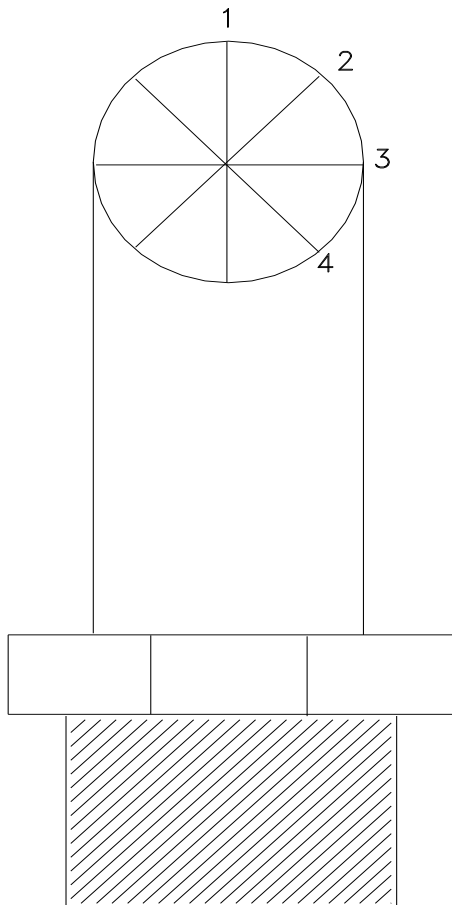
Nozzle Calibration

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>

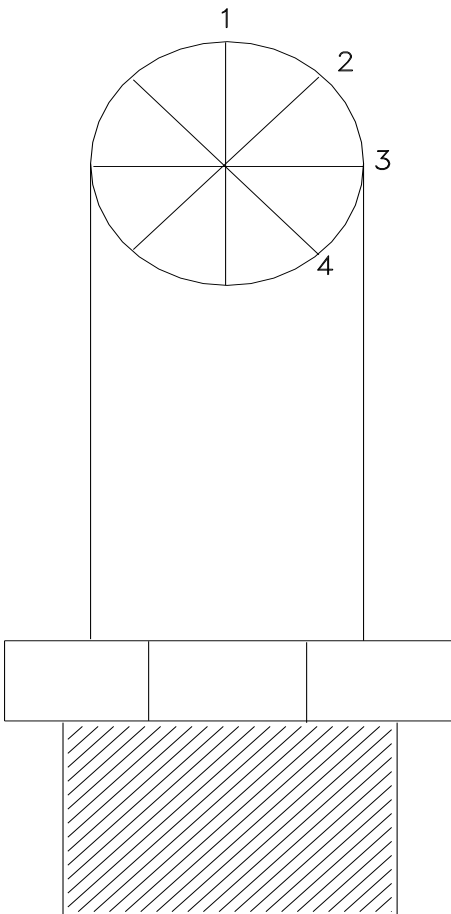
Nozzle Calibration

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

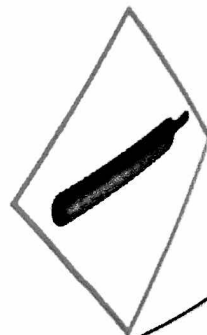
Blend Tolerance: +/- 20 %
Analytical Tolerance: +/- 5 %

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

6/13/22
DATE

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



Alban Kuran

Approved for Release

Page 1 of 1

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.

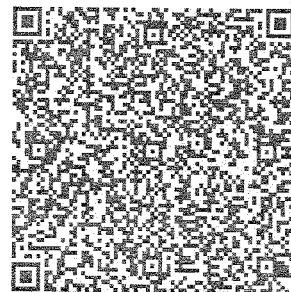
Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

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 15
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		4294		0.45099	0.45332	0.00233
Acetone Wash (M5 Pans)		3815	80 mL	21.66058	21.66095	0.00037
Acetone Blank						≤ 0.00025
Total Filterable Weight						0.00270
Filterable Particulate						
Run 2	9/9/2022					
Source Condition: Normal						
M5 Filter		4363		0.45186	0.45455	0.00269
Acetone Wash (M5 Pans)		4154	65 mL	21.36507	21.36524	≤ 0.00025
Acetone Blank						≤ 0.00025
Total Filterable Weight						≤ 0.00294
Filterable Particulate						
Run 3	9/9/2022					
Source Condition: Normal						
M5 Filter		4365		0.45096	0.45362	0.00266
Acetone Wash (M5 Pans)		4155	60 mL	21.32127	21.32153	0.00026
Acetone Blank						≤ 0.00025
Total Filterable Weight						0.00292
Filterable Particulate						
Run 4	9/10/2022					
Source Condition: Normal						
M5 Filter		4364		0.45095	0.45398	0.00303
Acetone Wash (M5 Pans)		4156	35 mL	21.39770	21.39837	0.00067
Acetone Blank						≤ 0.00025
Total Filterable Weight						0.00370
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 15
 Test Method: 5/29
 Filterable Analysis Date: 9/20/2022

Filter Drying Temp °F: Ambient-Des. 24 hrs
 Analyst: JMG

Description	Sample Date	ID#	vol. (ml)	Initial Weight (grams)	Final Weight (grams)	Net Weight Gain (grams)
Filterable Particulate						
Run 5	9/10/2022					
Source Condition: Normal						
M5 Filter		4303		0.45812	0.46011	0.00199
Acetone Wash (M5 Pans)		4157	30 mL	21.40025	21.40089	0.00064
Acetone Blank						≤ 0.00025
Total Filterable Weight						0.00263
Filterable Particulate						
Run 6	9/10/2022					
Source Condition: Normal						
M5 Filter		4305		0.45461	0.45636	0.00175
Acetone Wash (M5 Pans)		4239	35 mL	20.93516	20.93570	0.00054
Acetone Blank						≤ 0.00025
Total Filterable Weight						0.00229
Filterable Particulate						
Run 7	9/11/2022					
Source Condition: Normal						
M5 Filter		4301		0.45687	0.45874	0.00187
Acetone Wash (M5 Pans)		4240	50 mL	21.11508	21.11563	0.00055
Acetone Blank						≤ 0.00025
Total Filterable Weight						0.00242
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

Chain-of-Custody Form						
Project Number: M223610				Date Results Required:		
Client: Middletown, 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
022	9/9/22	CT15 Test 1-Filter, Ace PW and HNO3 PW	3	BV	M29*	
023	9/9/22	CT15 Test 1-HNO3/H2O2 Impingers	1	BV	M29*	
024	9/9/22	CT15 Test 1-KMnO4 and HCl Rinse	2	BV	M29-HG	
025	9/9/22	CT15 Test 2-Filter, Ace PW and HNO3 PW	3	BV	M29*	
026	9/9/22	CT15 Test 2-HNO3/H2O2 Impingers	1	BV	M29*	
027	9/9/22	CT15 Test 2-KMnO4 and HCl Rinse	2	BV	M29-HG	
028	9/9/22	CT15 Test 3-Filter, Ace PW and HNO3 PW	3	BV	M29*	
029	9/9/22	CT15 Test 3-HNO3/H2O2 Impingers	1	BV	M29*	
030	9/9/22	CT15 Test 3-KMnO4 and HCl Rinse	2	BV	M29-HG	
031	9/10/22	CT15 Test 4-Filter, Ace PW and HNO3 PW	3	BV	M29*	
032	9/10/22	CT15 Test 4-HNO3/H2O2 Impingers	1	BV	M29*	
033	9/10/22	CT15 Test 4-KMnO4 and HCl Rinse	2	BV	M29-HG	
034	9/10/22	CT15 Test 5-Filter, Ace PW and HNO3 PW	3	BV	M29*	
035	9/10/22	CT15 Test 5-HNO3/H2O2 Impingers	1	BV	M29*	
036	9/10/22	CT15 Test 5-KMnO4 and HCl Rinse	2	BV	M29-HG	
037	9/10/22	CT15 Test 6-Filter, Ace PW and HNO3 PW	3	BV	M29*	
038	9/10/22	CT15 Test 6-HNO3/H2O2 Impingers	1	BV	M29*	
039	9/10/22	CT15 Test 6-KMnO4 and HCl Rinse	2	BV	M29-HG	
040	9/11/22	CT15 Test 7-Filter, Ace PW and HNO3 PW	3	BV	M29*	
041	9/11/22	CT15 Test 7-HNO3/H2O2 Impingers	1	BV	M29*	
042	9/11/22	CT15 Test 7-KMnO4 and HCl Rinse	2	BV	M29-HG	
043	9/11/22	Filter Blanks	1	BV	M29*	
044	9/11/22	HNO3 Nitric Reagent Blank	1	BV	M29*	

045	9/11/22	HNO3/H2O2 Reagent Blank	1	BV	M29*	
046	9/11/22	KMnO4 and HCl Reagent Blank	1	BV	M29*	
047						
Delivered to Lab by: Date/Time:		Received by: Date/Time:		Processed by: Date/Time:		

Laboratory Notes: * antimony (Sb), arsenic (As), beryllium (Be), cadmium (Cd), chromium (Cr), cobalt (Co), lead (Pb), manganese (Mn), mercury (Hg), nickel (Ni), and selenium (Se).



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	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
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.

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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

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Total Cover Pages : 2
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Project No. M223610
Combustion Turbine Unit 15

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

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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										



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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		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						



BUREAU
VERITAS

Bureau Veritas Job #: C2R5321
Report Date: 2022/10/06

Mostardi Platt
Client Project #: M223610
Site Location: CT13 AND CT15

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	
			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
			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,



Robert Spooner
Regional Environmental Manager

Figure 1

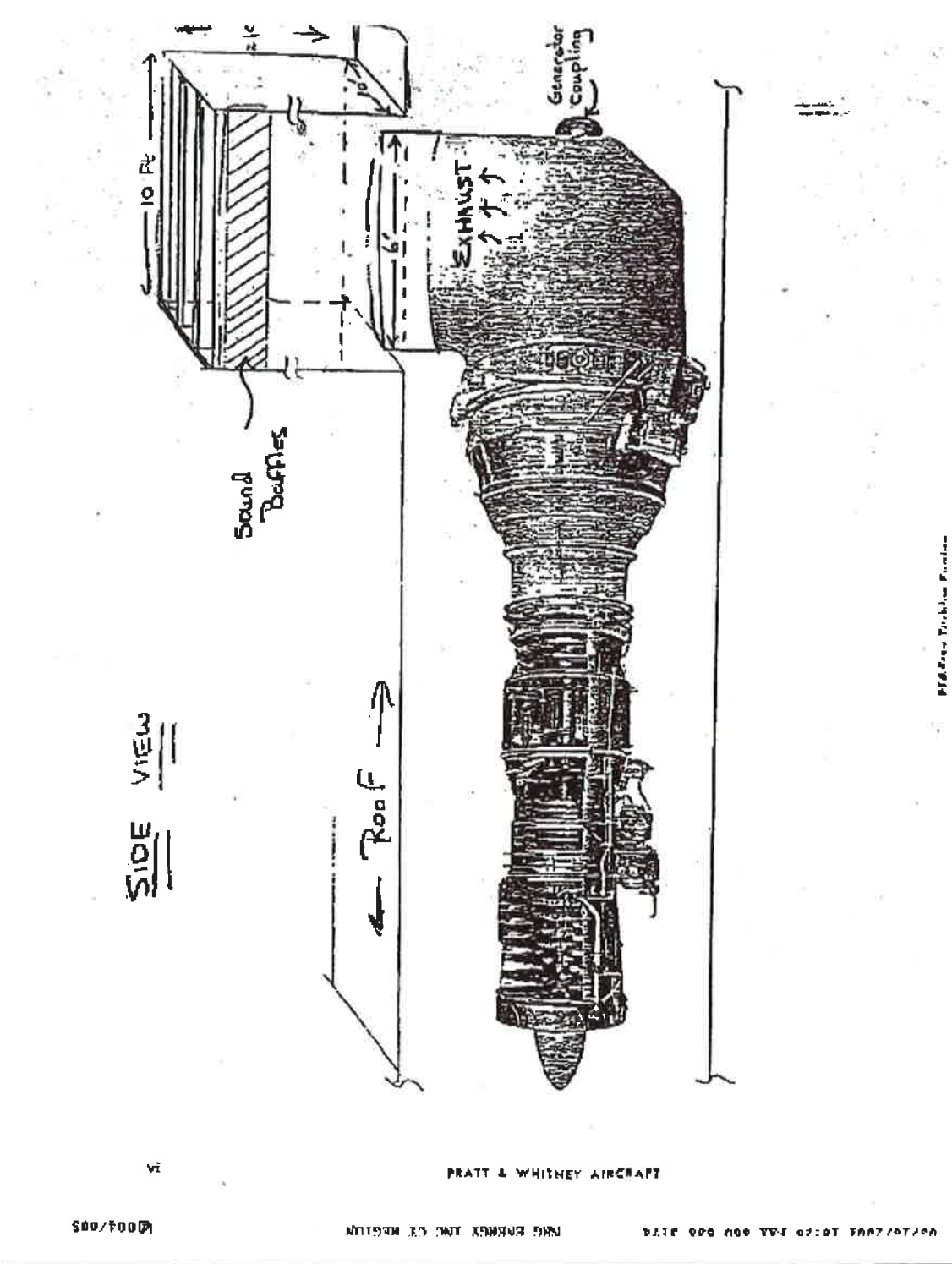


Figure 2

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