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REPORT ON MEASUREMENT SERVICES

Performed for:
AIR PRODUCTS AND CHEMICALS, INC.
DETROIT HYDROGEN PLANT

HYDROGEN PLANT HEATER STACK

Client Reference No: 4503676698
CleanAir Project No: 12915
Revision 0: April 28, 2016

To the best of our knowledge, the data presented in this report are accurate, complete, error free and representative of the actual emissions during the test program. Clean Air Engineering operates in conformance with the requirements of ASTM D7036-04 Standard Practice for Competence of Air Emission Testing Bodies.

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REVISION HISTORY

REPORT ON MEASUREMENT SERVICES

DRAFT REPORT REVISION HISTORY

Revision:	Date	Pages	Comments
D0a	04/21/16	All	Draft version of original document.

FINAL REPORT REVISION HISTORY

Revision:	Date	Pages	Comments
0	04/28/16	All	Final version of original document.

PROJECT OVERVIEW

INTRODUCTION

Air Products and Chemicals, Inc. (Air Products) contracted Clean Air Engineering (CleanAir) to perform emission compliance measurements at the Detroit Hydrogen Plant in Detroit, Michigan.

All testing was conducted in accordance with the regulations set-forth by the United States Environmental Protection Agency (USEPA) and the Michigan Department of Environmental Quality (DEQ). The permit limits are referenced in Michigan Department of Environmental Quality, Air Quality Division Permit to Install No. 63-08D, issued May 12, 2014.

Key Project Participants

Individuals responsible for coordinating and conducting the test program were:

J. Creitz – Air Products and Chemicals, Inc.
S. Young – Air Products and Chemicals, Inc.
M. Dziadosz – DEQ
A. Obuchowski – CleanAir
M. Cendana – CleanAir

Test Program Parameters

The testing was performed at the Hydrogen (H_2) Plant Heater Stack on March 15 through 18, 2016, and included the following emissions measurements:

- particulate matter (PM), assumed equivalent to filterable particulate matter (FPM) only
- total particulate matter less than 10 microns (µm) in diameter (Total PM_{10}), assumed equivalent to the sum of the following constituents:
  - FPM
  - condensable particulate matter (CPM)
- sulfuric acid (H_2SO_4)
- volatile organic compounds (VOC), assumed equivalent to total hydrocarbons (THC) minus the following constituents:
  - methane (CH_4)
  - ethane (C_2H_6)
- nitrogen oxides (NO_X)
- carbon monoxide (CO)
- flue gas composition (e.g., O_2, CO_2, H_2O)
- flue gas flow rate (Q_a)

TEST PROGRAM SYNOPSIS

Test Schedule

The on-site schedule followed during the test program is outlined in Table 1-1.

Table 1-1:
Schedule of Activities

Run Number	Location	Method	Analyte	Date	Start Time	End Time
1	H_2 Plant Heater Stack	USEPA Method 25A/18	VOC	03/15/16	15:01	16:01
2	H_2 Plant Heater Stack	USEPA Method 25A/18	VOC	03/15/16	16:11	17:11
3	H_2 Plant Heater Stack	USEPA Method 25A/18	VOC	03/16/16	08:39	10:14
4	H_2 Plant Heater Stack	USEPA Method 25A/18	VOC	03/16/16	10:27	11:27
1	H_2 Plant Heater Stack	USEPA Method 5/202	FPM/CPM	03/15/16	15:18	17:28
2	H_2 Plant Heater Stack	USEPA Method 5/202	FPM/CPM	03/16/16	09:37	12:28
3	H_2 Plant Heater Stack	USEPA Method 5/202	FPM/CPM	03/17/16	08:23	10:47
4	H_2 Plant Heater Stack	USEPA Method 5/202	FPM/CPM	03/18/16	08:05	10:19
0	H_2 Plant Heater Stack	Draft ASTM CCM	Sulfuric Acid	03/18/16	12:35	13:35
1	H_2 Plant Heater Stack	Draft ASTM CCM	Sulfuric Acid	03/18/16	14:30	15:30
2	H_2 Plant Heater Stack	Draft ASTM CCM	Sulfuric Acid	03/18/16	16:14	17:14
3	H_2 Plant Heater Stack	Draft ASTM CCM	Sulfuric Acid	03/18/16	18:00	19:00
1	H_2 Plant Heater Stack	USEPA Methods 3A/7E/10	O_2/NOx/CO	03/18/16	12:36	12:57
2	H_2 Plant Heater Stack	USEPA Methods 3A/7E/10	O_2/NOx/CO	03/18/16	13:09	13:30
3	H_2 Plant Heater Stack	USEPA Methods 3A/7E/10	O_2/NOx/CO	03/18/16	13:57	14:18
4	H_2 Plant Heater Stack	USEPA Methods 3A/7E/10	O_2/NOx/CO	03/18/16	14:30	14:51
5	H_2 Plant Heater Stack	USEPA Methods 3A/7E/10	O_2/NOx/CO	03/18/16	15:05	15:26
6	H_2 Plant Heater Stack	USEPA Methods 3A/7E/10	O_2/NOx/CO	03/18/16	15:36	15:57
7	H_2 Plant Heater Stack	USEPA Methods 3A/7E/10	O_2/NOx/CO	03/18/16	16:14	16:35
8	H_2 Plant Heater Stack	USEPA Methods 3A/7E/10	O_2/NOx/CO	03/18/16	16:46	17:07
9	H_2 Plant Heater Stack	USEPA Methods 3A/7E/10	O_2/NOx/CO	03/18/16	17:17	17:38
10	H_2 Plant Heater Stack	USEPA Methods 3A/7E/10	O_2/NOx/CO	03/18/16	17:57	18:18
1	H_2 Plant Heater Stack	USEPA Method 2	Velocity & Flow Rate	03/18/16	12:35	12:53
2	H_2 Plant Heater Stack	USEPA Method 2	Velocity & Flow Rate	03/18/16	13:10	13:21
3	H_2 Plant Heater Stack	USEPA Method 2	Velocity & Flow Rate	03/18/16	13:57	14:05
4	H_2 Plant Heater Stack	USEPA Method 2	Velocity & Flow Rate	03/18/16	14:32	14:41
5	H_2 Plant Heater Stack	USEPA Method 2	Velocity & Flow Rate	03/18/16	15:05	15:15
6	H_2 Plant Heater Stack	USEPA Method 2	Velocity & Flow Rate	03/18/16	15:38	15:48
7	H_2 Plant Heater Stack	USEPA Method 2	Velocity & Flow Rate	03/18/16	16:14	16:20
8	H_2 Plant Heater Stack	USEPA Method 2	Velocity & Flow Rate	03/18/16	16:45	16:56
9	H_2 Plant Heater Stack	USEPA Method 2	Velocity & Flow Rate	03/18/16	17:17	17:27
10	H_2 Plant Heater Stack	USEPA Method 2	Velocity & Flow Rate	03/18/16	18:00	18:09

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Results Summary

Table 1-2 and Table 1-3 summarize the results of the test program. A more detailed presentation of the test conditions and results of analysis are shown on pages 2-1 through 2-15.

Table 1-2:
Summary of Emission Compliance Test Results

Source Constituent	(Units)	Sampling Method	Average Emission	Permit Limit[1]
H_2 Plant Heater Stack				
PM	(lb/MMBtu)	USEPA M-5	0.00068	0.0034
PM	(Ton/yr)	USEPA M-5	1.78	6.86
PM_{10}	(lb/MMBtu)	USEPA M-5 / 202	0.0024	0.010
H_2SO_4	(lb/MMBtu)	Draft ASTM CCM	0.00011	N/A
VOC	(lb/MMBtu)	USEPA M-25A / 18	< 0.000779	0.0055
NO_X	(lb/MMBtu)	USEPA M-7E	0.0073	0.013
NO_X	(ppmdv @ 0% O_2)	USEPA M-7E	6.0	60
CO	(Ton/yr)	USEPA M-10	< 1.1	13

[1] Permit limits obtained from MDEQ Permit to Install No. 63-08D.

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Table 1-3:
Summary of RATA Results

Source Constituent (Units)	Reference Method (USEPA)	Relative Accuracy[1]	Units	Applicable Specification	Specification Limit[2]
H_2 Plant Heater Stack					
Flow rate (dscfh)	M-2	12.3	% of RM	PS6	20% of RM
O_2 (% dv)	M-3A	0.1	%dv	PS3	± 1.0% dv
H_2O (% wv)	M-4	11.4	% of RM	N/A	N/A
NOx (ppmdv)	M-7E	2.2	% of RM	PS2	20% of RM
NOx (lb/MMBtu)	M-7E	13.8	% of RM	PS2	20% of RM
NOx (ppmdv @ 0%O2)	M-7E	1.9	% of RM	PS2	20% of RM
CO (ppmdv)	M-10	0.4	ppmdv	PS4A[3]	± 5 ppmdv
CO (lb/hr)	M-10	0.4	% of Std.	PS4A[3]	5% of Standard[4]

[1] Relative Accuracy is expressed in terms of comparison to the reference method (% RM) or applicable emission standard (% Std.), equivalent to the permit limit in Table 1-2. The specific expression used depends on the specification limit.

[2] Specification limits obtained from 40 CFR 60, Appendix B, Performance Specifications, unless otherwise noted.

[3] For any sources emitting less than 200 ppmv of CO, PS4A applies. The PS4A RA limit is either < 10% of RM, <5% of Standard, or ± 5 ppmv (abs. average difference plus 2.5 x confidence coefficient).

[4] CO Standard = 13 Ton/yr = 56.9 lb/hr (assuming 8,760 operating hours/year)

PROJECT OVERVIEW

Discussion of Test Program

FPM and CPM Testing – USEPA Method 5/202

For this test program, the PM emission rate is assumed equivalent to FPM emission rate. The PM_{10} emission rate is assumed equivalent to the sum of FPM and CPM emission rates (units of lb/hr, Ton/yr, or lb/MMBtu for all constituents).

The analytical procedures in EPA Method 202 include an ammonium titration of the inorganic sample fractions with pH less than 7.0 to neutralize acids with hygroscopic properties such as H_2SO_4 that may be present in the sample. This step speeds up the sample desiccation process and allows the samples to come to a constant weight prior to weighing. The weight of ammonium added to the sample as a result of the titration is subtracted from the analytical result.

The laboratory performing the gravimetric analysis (Clean Air Analytical Services) has determined that only samples with an initial pH less than 4.5 require a significant amount of ammonium neutralization, resulting in a correction in excess of 0.5 mg. Based on this observation, the laboratory has altered their procedures to read that a sample must have a pH lower than 4.5 in order to be titrated.

Since none of the inorganic sample fractions collected during this test program had a pH less than 4.5, they were not titrated per Clean Air Analytical Services' modified procedure. The sample fraction was observed to come to a constant weight without having to titrate the sample.

Four test runs were performed for a duration of 120 minutes each. Following Run 2, the wind gusts became a safety concern, and the test crew was removed from the test location. The Run 2 sampling train remained on the stack and was retrieved the following day which disallowed a prompt sample train purge and recovery following sampling. Run 2 velocity, flow and moisture measurements are shown in the appendices of the report, but no laboratory analysis was performed. Run 4 was performed to constitute three valid runs.

The final results for each parameter were expressed as the average of three valid runs (Runs 1, 3 and 4) and were below the permit limits for both PM and PM_{10}.

H_2SO_4 Testing – Draft ASTM Controlled Condensation Method

Prior to the first official test run, a 60-minute sample conditioning run was performed on March 18, 2016, in order to minimize the absorption capacity of the front-half components of the sample train (upstream of the H_2SO_4-collection portion of the sample train). The conditioning run was recovered in the same manner as the official test runs, but is not included in the results.

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Three 60-minute test runs were performed on March 18, 1016. The final result was expressed as the average of three valid runs (Runs 1, 2 and 3).

VOC Testing – USEPA Method 25A and Method 18

Four 60-minute Method 25A test runs for THC were performed concurrently with four 60-minute Method 18 bag collections for CH_4 and C_2H_6 on March 15 and 16, 2016. Run 3 was paused during the test run for approximately 35 minutes because of equipment trouble shooting on a separate sample train. Run 3 was not used in the final results because of the discontinuation in operation. The final results for each parameter were expressed as the average of three valid runs (Run 1, 2 and 4).

VOC emission rate is normally equivalent to THC emission rate, minus CH_4 and C_2H_6 emission rate (units of lb/hr, Ton/yr, or lb/MMBtu for all constituents). For CH_4 and C_2H_6, a non-detectable result was obtained for all runs, so no correction was made to the THC results. Therefore, VOC emissions are equivalent to THC emissions.

Flow Rate, Moisture, O_2, NO_X, and CO RATA Testing – USEPA Methods 2, 3A, 4, 7E and 10; Performance Specifications 2, 3, 4A and 6

Minute-average data points for O_2, CO_2, NO_X and CO (dry basis) were collected over a period of 21 minutes for each relative accuracy test audit (RATA) reference method (RM) run.

The average result for each RM run was calculated and compared to the average result from the facility continuous emissions monitoring system (CEMS) over identical time intervals in order to calculate relative accuracy (RA).

- For O_2 (%dv), RA is expressed as the average absolute difference between the RM and facility CEMS runs. The final result was below the limit of ± 1.0% dv set by PS3.
- For NO_X (ppmdv) concentration, RA is expressed as the percent difference between RM and facility CEMS runs. The final result was below the limit of 20% of the RM set by PS2.
- For NO_X (lb/MMBtu) diluent, RA is expressed as the percent difference between RM and facility CEMS runs. The final result was below the limit of 20% of the RM set by PS2.
- For NO_X (ppmdv @ 0% O_2) diluent, RA is expressed as the percent difference between RM and facility CEMS runs. The final result was below the limit of 20% of the RM set by PS2.

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- For CO (ppmdv) concentration, the RA limit is expressed as the average absolute difference between the RM and facility CEMS runs, plus 2.5 times the confidence coefficient. The final result was below the limit of ± 5 ppmdv set by PS4A, which is applicable to sources that emit less than 200 ppmv of CO.
- For CO (lb/hr) diluent, RA is expressed as the percent difference between RM and facility CEMs runs. The final result was below the limit of 5% of the standard (permit limit listed in Table 1-3) set by PS4A.
- CO_2 data was collected only as supplemental information.

Facility flow rate CEMS were evaluated using Method 2 as the reference method. A complete flow and temperature traverse was performed during each 21-minute RATA run, converted to units of dry standard cubic feet per hour (dscfh) and then compared to facility CEMS results over the corresponding 21-minute intervals.

For flow rate, RA is expressed as the percent difference between RM and facility CEMS data. The final results were below the limit of 20% of the RM set by PS6.

Moisture data was used to convert flow rate from dry basis to wet basis and was obtained from concurrently operated Draft ASTM CCM test runs:

- For RATA Runs 1, 2 and 3, H_2O data was obtained from Draft ASTM CCM Run 0.
- For RATA Runs 4, 5 and 6, H_2O data was obtained from Draft ASTM CCM Run 1.
- For RATA Runs 7, 8 and 9, H_2O data was obtained from Draft ASTM CCM Run 2.
- For RATA Run 10, H_2O data was obtained from Draft ASTM CCM Run 3.

NO_X and CO results from the RATA were converted from units of dry volume-based concentration (ppmdv) to mass-based emission rate units (lb/hr, Ton/yr, and lb/MMBtu) to demonstrate compliance with permit limits. The final results for each parameter were expressed as the average of all 10 RATA runs. The final results were below the permit limits.

Calculation of Final Results

Emission results in units of dry volume-based concentration (lb/dscf, ppmdv) were converted to units of lb/MMBtu by first calculating mass-based emissions in units of lb/hr, and then applying the total heat input to the unit over each test interval (MMBtu/hr). Heat input data was provided by Air Products. Flow rates used in calculating lb/hr emissions were obtained in the following manner:

- For Method 5/202, flow rate measurements are incorporated into the sampling procedures.
- For Method 18/25A, flow rate measurements from the most nearly concurrent Method 5/202 test runs were used.
- For Draft ASTM CCM, two flow rate measurements, per Method 2 specifications, was performed concurrently with each test run. An average of the two flow measurements was used with the exception of Run 3, which only used the final flow measurement, Run 10.
- For Method 7E/10, a flow rate measurement, per Method 2 specifications, was performed concurrently with each test run.

General Considerations

All run times listed throughout this report correspond to the plant time utilized by Air Products. Plant time is the time of the Air Products CEMS and data acquisition systems. The plant time is 60 minutes earlier than actual Eastern Time.

End of Section 1 – Project Overview

RESULTS

Table 2-1:
FPM, CPM and Total PM_{10} Emissions (USEPA M-5/202)

Run No.		1	3	4	Average
Date (2016)		Mar 15	Mar 17	Mar 18	
Start Time (approx.)		15:18	08:23	08:05	
Stop Time (approx.)		17:28	10:47	10:19	
Process Conditions					
P_1	Hydrogen production (Mscf/day)	59.8	58.0	59.5	**59.1**
P_2	Aqueous NH3 feed to SCR (lb/hr)	36.0	36.5	37.9	**36.8**
P_3	SCR Inlet temperature (°F)	642.5	633.4	640.7	**638.9**
H_I	Actual heat input (MMBtu/hr)	592.7	591.6	605.3	**596.5**
Cap	Capacity factor (hours/year)	8,760	8,760	8,760	**8,760**
Gas Conditions					
O_2	Oxygen (dry volume %)	3.2	3.3	3.9	**3.5**
CO_2	Carbon dioxide (dry volume %)	18.5	18.5	17.7	**18.2**
T_s	Sample temperature (°F)	322	317	320	**320**
B_w	Actual water vapor in gas (% by volume)	15.4	14.9	14.2	**14.8**
Gas Flow Rate					
Q_a	Volumetric flow rate, actual (acfm)	229,000	225,000	227,000	**227,000**
Q_s	Volumetric flow rate, standard (scfm)	151,000	148,000	150,000	**149,000**
Q_{std}	Volumetric flow rate, dry standard (dscfm)	127,000	126,000	129,000	**127,000**
Sampling Data					
V_{msd}	Volume metered, standard (dscf)	81.35	79.40	81.77	**80.84**
%I	Isokinetic sampling (%)	102.9	101.8	102.4	**102.3**
Laboratory Data					
m_n	Total FPM (g)	0.00161	0.00281	0.00144	
m_{CPM}	Total CPM (g)	0.00468	0.00518	0.00504	
m_{Part}	Total particulate (expressed as PM-10) (g)	0.00630	0.00799	0.00648	
n_{MDL}	Number of non-detectable fractions	N/A	N/A	N/A	
DLC	Detection level classification	ADL	ADL	ADL	
FPM Results					
C_{sd}	Particulate Concentration (lb/dscf)	4.37E-08	7.80E-08	3.88E-08	**5.35E-08**
$E_{lb/hr}$	Particulate Rate (lb/hr)	0.334	0.588	0.300	**0.407**
$E_{T/yr}$	Particulate Rate (Ton/yr)	1.46	2.58	1.31	**1.78**
E_{HI}	Particulate Rate - Heat Input-based (lb/MMBtu)	5.63E-04	9.94E-04	4.95E-04	**6.84E-04**
CPM Results					
C_{sd}	Particulate Concentration (lb/dscf)	1.27E-07	1.44E-07	1.36E-07	**1.36E-07**
$E_{lb/hr}$	Particulate Rate (lb/hr)	0.971	1.08	1.05	**1.03**
$E_{T/yr}$	Particulate Rate (Ton/yr)	4.25	4.75	4.59	**4.53**
E_{HI}	Particulate Rate - Heat Input-based (lb/MMBtu)	1.64E-03	1.83E-03	1.73E-03	**1.73E-03**
Total Particulate (as PM10) Results					
C_{sd}	Particulate Concentration (lb/dscf)	1.71E-07	2.22E-07	1.75E-07	**1.89E-07**
$E_{lb/hr}$	Particulate Rate (lb/hr)	1.30	1.67	1.35	**1.44**
$E_{T/yr}$	Particulate Rate (Ton/yr)	5.71	7.32	5.91	**6.31**
E_{HI}	Particulate Rate - Heat Input-based (lb/MMBtu)	2.20E-03	2.83E-03	2.23E-03	**2.42E-03**

Average includes 3 runs.

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Detection level classifications are defined as follows:

ADL = Above Detection Level - all fractions are above detection limit

DLL = Detection Level Limited - some fractions are below detection limit

BDL = Below Detection Limit - all fractions are below detection limit

RESULTS

Table 2-2:
Uncertainty Analysis – FPM, CPM and Total PM_{10} (USEPA M-5/202)

		FPM Results (lb/MMBtu)		CPM Results (lb/MMBtu)		Total PM (as PM10) Results (lb/MMBtu)
Method		**5**		**202**		**5/202**
Run No.	**1**	0.0006	**1**	0.0016	**1**	0.0022
	3	0.0010	**3**	0.0018	**3**	0.0028
	4	0.0005	**4**	0.0017	**4**	0.0022
SD		0.0003		0.0001		0.0004
AVG		**0.0007**		**0.0017**		**0.0024**
RSD		39.5%		5.6%		14.6%
N		3		3		3
SE		0.0002		0.0001		0.0002
RSE		22.8%		3.2%		8.4%
P		95.0%		95.0%		95.0%
TINV		4.303		4.303		4.303
CI +		0.0014		0.0020		0.0033
AVG		**0.0007**		**0.0017**		**0.0024**
CI -		0.0000		0.0015		0.0015
TB +		0.0028		0.0025		0.0051

AVG (average) is the mean value of the runs; N is the number of individual runs.

SD (standard deviation) and RSD (relative standard deviation) are measures of the variability of individual runs.

SE (standard error) and RSE (relative standard error) are measures of the variability of the average of the runs.

P (probability) is the confidence level associated with the two-tailed Student's t-distribution.

TINV (t-value) is the value of the Student's t-distrubution as a function of P (probability) and N-1 (degrees of freedom).

CI (confidence interval) indicates that if the test is conducted again under the same conditions, the average would be expected to fall within the interval (CI- to CI+) about 95% of the time.

TB+ (upper tolerance bound) is the value below which 95% of future runs are expected to fall (assuming testing at the same conditions).

RESULTS

Table 2-3:
H_2SO_4 Emissions (Draft ASTM CCM)

Run No.		1	2	3	Average
Date (2016)		Mar 18	Mar 18	Mar 18	
Start Time (approx.)		14:30	16:14	18:00	
Stop Time (approx.)		15:30	17:14	19:00	
Process Conditions					
P_1	Hydrogen production (Mscf/day)	59.0	57.8	58.0	**58.3**
P_2	Aqueous NH_3 feed to SCR (lb/hr)	37.2	36.0	36.2	**36.5**
P_3	SCR Inlet temperature (°F)	638.6	633.2	634.4	**635.4**
H_i	Actual heat input (MMBtu/hr)	600.2	590.0	594.2	**594.8**
Cap	Capacity factor (hours/year)	8,760	8,760	8,760	**8,760**
Gas Conditions					
O_2	Oxygen (dry volume %)	3.9	3.5	3.5	**3.6**
CO_2	Carbon dioxide (dry volume %)	17.8	18.4	18.4	**18.2**
T_s	Sample temperature (°F)	329	327	328	**328**
B_w	Actual water vapor in gas (% by volume)	16.05	15.61	15.99	**15.88**
Gas Flow Rate					
Q_{std}	Volumetric flow rate, dry standard (dscfm)[1]	119,000	119,000	120,000	**119,000**
Sampling Data					
V_{mstd}	Volume metered, standard (dscf)	25.36	25.30	25.47	**25.37**
Laboratory Data (Ion Chromatography)					
m_n	Total H2SO4 collected (mg)	0.0760	0.1345	0.1095	
Sulfuric Acid Vapor (H2SO4) Results					
C_{sd}	H2SO4 Concentration (lb/dscf)	6.61E-09	1.17E-08	9.48E-09	**9.27E-09**
C_{sd}	H2SO4 Concentration (ppmdv)	0.0260	0.0461	0.0373	**0.0364**
$E_{lb/hr}$	H2SO4 Rate (lb/hr)	0.0472	0.0836	0.0680	**0.0663**
$E_{T/yr}$	H2SO4 Rate (Ton/yr)	0.207	0.366	0.298	**0.290**
E_{Hi}	H2SO4 Rate - Heat Input-based (lb/MMBtu)	7.87E-05	1.42E-04	1.14E-04	**1.12E-04**

Average includes 3 runs.

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[1] Flow rate obtained from the average of the concurrently operated Method 2 test run(s).

RESULTS

Table 2-4:
Uncertainty Analysis – H_2SO_4 (Draft ASTM CCM)

		H2SO4 Results (ppmdv)		H2SO4 Results (lb/MMBtu)
Method		**CCM**		**CCM**
Run No.	**1**	0.0260	**1**	7.87E-05
	2	0.0461	**2**	1.42E-04
	3	0.0373	**3**	1.14E-04
SD		0.0101		3.16E-05
AVG		**0.0364**		**1.12E-04**
RSD		27.6%		28.3%
N		3		3
SE		0.0058		1.82E-05
RSE		16.0%		16.3%
P		95.0%		95.0%
TINV		4.303		4.303
CI +		0.0615		1.90E-04
AVG		**0.0364**		**1.12E-04**
CI -		0.0114		3.31E-05
TB +		0.114		3.53E-04

AVG (average) is the mean value of the runs; N is the number of individual runs.

SD (standard deviation) and RSD (relative standard deviation) are measures of the variability of individual runs.

SE (standard error) and RSE (relative standard error) are measures of the variability of the average of the runs.

P (probability) is the confidence level associated with the two-tailed Student's t-distribution.

TINV (t-value) is the value of the Student's t-distrubution as a function of P (probability) and N-1 (degrees of freedom).

CI (confidence interval) indicates that if the test is conducted again under the same conditions, the average would be expected to fall within the interval (CI- to CI+) about 95% of the time.

TB+ (upper tolerance bound) is the value below which 95% of future runs are expected to fall (assuming testing at the same conditions).

RESULTS

Table 2-5:
THC, CH_4, C_2H_6, and VOC Emissions (USEPA M-25A/18)

Run No.		1	2	3*	4	Average
Date (2016)		Mar 15	Mar 15	Mar 16	Mar 16	
Start Time (approx.)		15:01	16:11	08:39	10:27	
Stop Time (approx.)		16:01	17:11	10:14	11:27	
Process Conditions						
P_1	Hydrogen Production (Mscf/day)	59.8	57.1	56.0	55.8	**57.6**
P_2	Aqueous NH_3 feed to SCR (lb/hr)	36.0	35.5	32.3	32.4	**34.6**
P_3	SCR Inlet Temperature	642.5	634.1	625.8	624.7	**633.8**
H_I	Actual heat input (MMBtu/hr)	588.5	581.0	571.8	571.6	**580.4**
Cap	Capacity factor (hours/year)	8,760	8,760	8,760	8,760	**8,760**
Gas Conditions						
O_2	Oxygen (dry volume %)	3.1	3.3	3.2	3.2	**3.2**
CO_2	Carbon dioxide (dry volume %)	18.6	18.3	18.7	18.7	**18.6**
B_w	Actual water vapor in gas (% by volume)[1]	15.4	15.4	15.3	15.3	**15.3**
Gas Flow Rate[2]						
Q_{std}	Volumetric flow rate, dry standard (dscfm)	127,000	127,000	118,000	118,000	**124,000**
THC Results[3]						
C_{sd}	Concentration (ppmdv as C_3H_8)	<0.531	<0.531	<0.530	<0.530	**<0.530**
C_{sd}	Concentration (lb/dscf)	<6.07E-08	<6.07E-08	<6.06E-08	<6.06E-08	**<6.07E-08**
$E_{lb/hr}$	Emission Rate (lb/hr)	< 0.464	< 0.464	< 0.429	< 0.429	**< 0.452**
$E_{T/yr}$	Emission Rate (Ton/yr)	< 2.03	< 2.03	< 1.88	< 1.88	**< 1.98**
E_{HI}	Emission Rate - Heat input-based (lb/MMBtu)	<7.89E-04	<7.99E-04	<7.50E-04	<7.50E-04	**<7.79E-04**
Methane Results[4]						
C_{sd}	Concentration (ppmdv)	<0.134	<0.134	<0.134	<0.134	**<0.134**
C_{sd}	Concentration (lb/dscf)	<5.58E-09	<5.58E-09	<5.58E-09	<5.58E-09	**<5.58E-09**
$E_{lb/hr}$	Emission Rate (lb/hr)	< 0.0427	< 0.0427	< 0.0394	< 0.0394	**< 0.0416**
$E_{T/yr}$	Emission Rate (Ton/yr)	< 0.187	< 0.187	< 0.173	< 0.173	**< 0.182**
E_{HI}	Emission Rate - Heat input-based (lb/MMBtu)	<7.25E-05	<7.34E-05	<6.90E-05	<6.90E-05	**<7.16E-05**
Ethane Results[4]						
C_{sd}	Concentration (ppmdv)	<0.107	<0.107	<0.107	<0.107	**<0.107**
C_{sd}	Concentration (lb/dscf)	<8.34E-09	<8.34E-09	<8.34E-09	<8.34E-09	**<8.34E-09**
$E_{lb/hr}$	Emission Rate (lb/hr)	< 0.0638	< 0.0638	< 0.0590	< 0.0590	**< 0.0622**
$E_{T/yr}$	Emission Rate (Ton/yr)	< 0.279	< 0.279	< 0.258	< 0.258	**< 0.272**
E_{HI}	Emission Rate - Heat input-based (lb/MMBtu)	<1.08E-04	<1.10E-04	<1.03E-04	<1.03E-04	**<1.07E-04**
VOC Results						
$E_{lb/hr}$	Emission Rate (lb/hr)	< 0.464	< 0.464	< 0.429	< 0.429	**< 0.452**
$E_{T/yr}$	Emission Rate (Ton/yr)	< 2.03	< 2.03	< 1.88	< 1.88	**< 1.98**
E_{HI}	Emission Rate - Heat input-based (lb/MMBtu)	<7.89E-04	<7.99E-04	<7.50E-04	<7.50E-04	**<7.79E-04**

Average includes 3 runs. * indicates run not included in average.

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[1] Moisture data used for ppmwv to ppmdv correction obtained from nearly-concurrent M-5/202 runs.

[2] Flow data used in lb/hr calculations was obtained from nearly-concurrent Method 5/202 runs .

[3] For THC, '<' indicates a measured response below the detection limit (assumed to be 1% of the instrument calibration span).

[4] For methane and ethane, '<' indicates a measured response below the analytical detection limit determined by the laboratory.

RESULTS

Table 2-6:
NO_X and CO Emissions (USEPA M-7E/10)

Run No.		1	2	3	4	5	6
Date (2016)		Mar 18	Mar 18	Mar 18	Mar 18	Mar 18	Mar 18
Start Time (approx.)		12:36	13:09	13:57	14:30	15:05	15:36
Stop Time (approx.)		12:57	13:30	14:18	14:51	15:26	15:57
Process Conditions							
P_1	Hydrogen Production (Mscf/day)	58.5	58.5	58.5	58.5	58.5	58.5
P_2	Aqueous NH_3 feed to SCR (lb/hr)	36.7	36.7	36.7	36.7	36.7	36.7
P_3	SCR Inlet Temperature	635.9	635.9	635.9	635.9	635.9	635.9
H_i	Actual heat input (MMBtu/hr)	594.5	594.5	594.5	594.5	594.5	594.5
Cap	Capacity factor (hours/year)	8,760	8,760	8,760	8,760	8,760	8,760
Gas Conditions							
O_2	Oxygen (dry volume %)	3.17	3.21	3.23	3.24	3.27	3.26
CO_2	Carbon dioxide (dry volume %)	18.4	18.4	18.4	18.4	18.3	18.4
B_w	Actual water vapor in gas (% by volume)[1]	13.0	13.0	13.0	16.0	16.0	16.0
Gas Flow Rate[2]							
Q_{std}	Volumetric flow rate, dry standard (dscfm)	120,666	122,475	121,765	118,568	119,537	117,755
Nitrogen Oxides Results							
C_{sd}	Concentration (ppmdv)	5.11	5.38	5.06	4.90	5.15	4.69
C_{sd-x}	Concentration @ 0% O_2 (ppmdv)	6.03	6.36	5.99	5.80	6.11	5.55
C_{sd}	Concentration (lb/dscf)	6.11E-07	6.42E-07	6.04E-07	5.85E-07	6.15E-07	5.60E-07
$E_{lb/hr}$	Emission Rate (lb/hr)	4.42	4.72	4.41	4.16	4.41	3.95
$E_{T/yr}$	Emission Rate (Ton/yr)	19.4	20.7	19.3	18.2	19.3	17.3
E_{Hi}	Emission Rate - Heat input-based (lb/MMBtu)	7.44E-03	7.94E-03	7.42E-03	7.00E-03	7.42E-03	6.65E-03
Carbon Monoxide Results[3]							
C_{sd}	Concentration (ppmdv)	<0.478	<0.478	<0.478	<0.478	<0.478	<0.478
C_{sd-x}	Concentration @ 0% O_2 (ppmdv)	< 0.563	< 0.565	< 0.565	< 0.566	< 0.567	< 0.566
C_{sd}	Concentration (lb/dscf)	<3.47E-08	<3.47E-08	<3.47E-08	<3.47E-08	<3.47E-08	<3.47E-08
$E_{lb/hr}$	Emission Rate (lb/hr)	< 0.252	< 0.255	< 0.254	< 0.247	< 0.249	< 0.246
$E_{T/yr}$	Emission Rate (Ton/yr)	< 1.102	< 1.118	< 1.112	< 1.083	< 1.092	< 1.075
E_{Hi}	Emission Rate - Heat input-based (lb/MMBtu)	<4.23E-04	<4.30E-04	<4.27E-04	<4.16E-04	<4.19E-04	<4.13E-04

[1] Moisture data obtained from nearly-concurrent Draft ASTM CCM runs.

[2] Flow data used in lb/hr calculations was obtained from nearly-concurrent Method 2 runs.

[3] For CO, '<' indicates a measured response below the detection limit (assumed to be 1% of the instrument calibration span).

RESULTS

Table 2-6 (Continued):
NO_X and CO Emissions (USEPA M-7E/10)

Run No.		7	8	9	10	Average
Date (2016)		Mar 18	Mar 18	Mar 18	Mar 18	
Start Time (approx.)		16:14	16:46	17:17	17:57	
Stop Time (approx.)		16:35	17:07	17:38	18:18	
Process Conditions						
P_1	Hydrogen Production (Mscf/day)	58.5	58.5	58.5	58.5	**58.5**
P_2	Aqueous NH_3 feed to SCR (lb/hr)	36.7	36.7	36.7	36.7	**36.7**
P_3	SCR Inlet Temperature	635.9	635.9	635.9	635.9	**635.9**
H_i	Actual heat input (MMBtu/hr)	594.5	594.5	594.5	594.5	**594.5**
Cap	Capacity factor (hours/year)	8,760	8,760	8,760	8,760	**8,760**
Gas Conditions						
O_2	Oxygen (dry volume %)	3.29	3.30	3.24	3.25	**3.25**
CO_2	Carbon dioxide (dry volume %)	18.4	18.3	18.3	18.3	**18.4**
B_w	Actual water vapor in gas (% by volume)[1]	15.6	15.6	15.6	16.0	**15.0**
Gas Flow Rate[2]						
Q_{std}	Volumetric flow rate, dry standard (dscfm)	119,687	117,947	118,612	119,576	**120,000**
Nitrogen Oxides Results						
C_{sd}	Concentration (ppmdv)	4.76	5.08	5.06	5.12	**5.03**
C_{sd-x}	Concentration @ 0% O_2 (ppmdv)	5.65	6.03	5.99	6.06	**5.96**
C_{sd}	Concentration (lb/dscf)	5.69E-07	6.06E-07	6.04E-07	6.11E-07	**6.01E-07**
$E_{lb/hr}$	Emission Rate (lb/hr)	4.08	4.29	4.30	4.39	**4.31**
$E_{T/yr}$	Emission Rate (Ton/yr)	17.9	18.8	18.8	19.2	**18.9**
E_{Hi}	Emission Rate - Heat input-based (lb/MMBtu)	6.87E-03	7.22E-03	7.23E-03	7.38E-03	**7.26E-03**
Carbon Monoxide Results[3]						
C_{sd}	Concentration (ppmdv)	<0.478	<0.478	<0.478	<0.478	**<0.478**
C_{sd-x}	Concentration @ 0% O_2 (ppmdv)	< 0.567	< 0.567	< 0.566	< 0.566	**<0.566**
C_{sd}	Concentration (lb/dscf)	<3.47E-08	<3.47E-08	<3.47E-08	<3.47E-08	**<3.47E-08**
$E_{lb/hr}$	Emission Rate (lb/hr)	< 0.250	< 0.246	< 0.247	< 0.249	**< 0.249**
$E_{T/yr}$	Emission Rate (Ton/yr)	< 1.093	< 1.077	< 1.083	< 1.092	**< 1.093**
E_{Hi}	Emission Rate - Heat input-based (lb/MMBtu)	<4.20E-04	<4.14E-04	<4.16E-04	<4.19E-04	**<4.20E-04**

Average includes 10 runs.

[1] Moisture data obtained from nearly-concurrent Draft ASTM CCM runs.

[2] Flow data used in lb/hr calculations was obtained from nearly-concurrent Method 2 runs.

[3] For CO, '<' indicates a measured response below the detection limit (assumed to be 1% of the instrument calibration span).

RESULTS

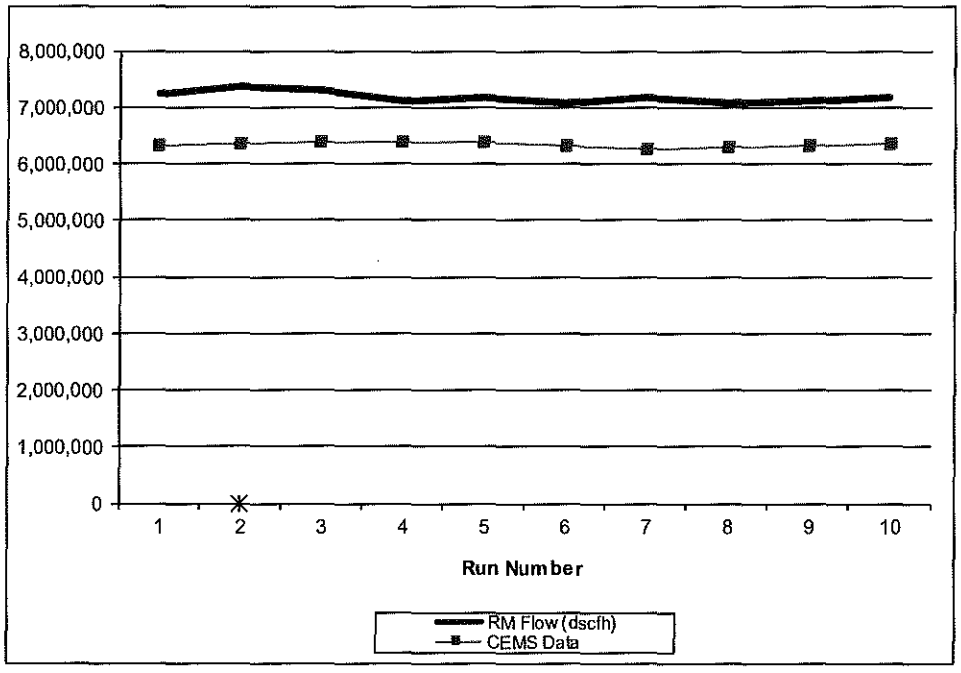
Table 2-7:
Dry Standard Flow Rate RATA (USEPA M-2 / PS6)

Run No.	Start Time	Date (2016)	RM Flow (dscfh)	CEMS Data	Difference	Difference Percent
1	12:36	Mar 18	7,239,973	6,326,032	913,941	12.6%
2 *	13:09	Mar 18	7,348,479	6,350,470	998,009	13.6%
3	13:57	Mar 18	7,305,904	6,377,463	928,441	12.7%
4	14:30	Mar 18	7,114,089	6,385,676	728,413	10.2%
5	15:05	Mar 18	7,172,209	6,391,806	780,402	10.9%
6	15:36	Mar 18	7,065,282	6,308,943	756,339	10.7%
7	16:14	Mar 18	7,181,198	6,271,290	909,909	12.7%
8	16:46	Mar 18	7,076,810	6,292,113	784,697	11.1%
9	17:17	Mar 18	7,116,696	6,329,823	786,873	11.1%
10	17:57	Mar 18	7,174,539	6,339,291	835,248	11.6%
Average			**7,160,744**	**6,335,826**	**824,918**	**11.5%**

Relative Accuracy Test Audit Results

Standard Deviation of Differences	75,030	
Confidence Coefficient (CC)	57,673	
t-Value for 9 Data Sets	2.306	
		Limit
Relative Accuracy (as % of RM)	**12.3%**	**20.0%**

RM = Reference Method (CleanAir Data) 041316 143237
CEMS = Continuous Emissions Monitoring System (Air Products Data)
RATA calculations are based on 9 of 10 runs. * indicates the excluded run.



RESULTS

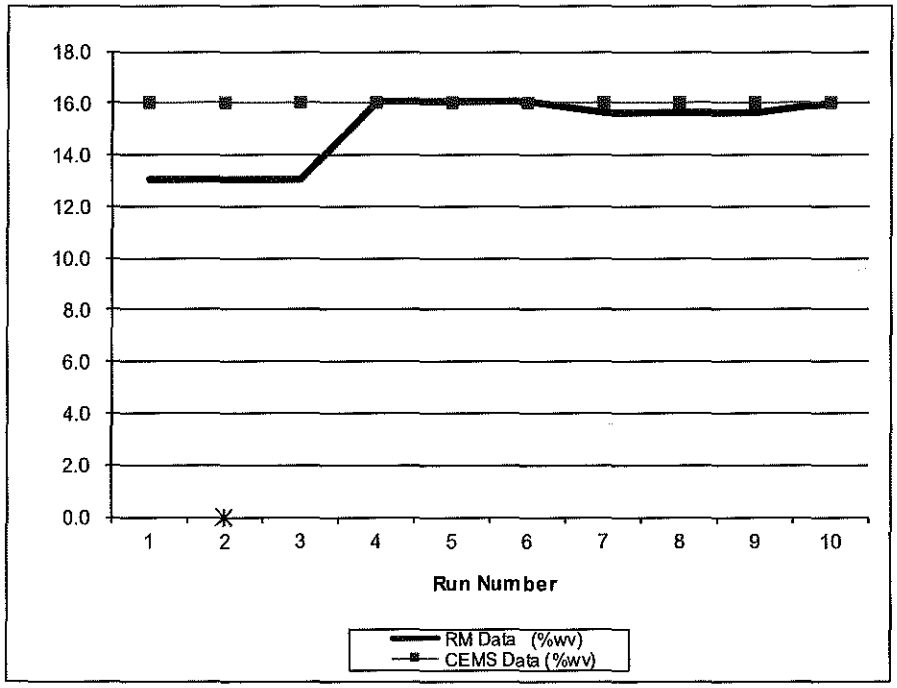
Table 2-8:
H_2O Concentration RATA

Run No.	Start Time	Date (2016)	RM Data (%wv)	CEMS Data (%wv)	Difference (%wv)	Difference Percent
1	12:36	Mar 18	13.0	16.0	-3.0	-22.6%
2 *	13:09	Mar 18	13.0	16.0	-3.0	-22.6%
3	13:57	Mar 18	13.0	16.0	-3.0	-22.6%
4	14:30	Mar 18	16.0	16.0	0.0	0.3%
5	15:05	Mar 18	16.0	16.0	0.0	0.3%
6	15:36	Mar 18	16.0	16.0	0.0	0.3%
7	16:14	Mar 18	15.6	16.0	-0.4	-2.5%
8	16:46	Mar 18	15.6	16.0	-0.4	-2.5%
9	17:17	Mar 18	15.6	16.0	-0.4	-2.5%
10	17:57	Mar 18	16.0	16.0	0.0	-0.1%
Average			**15.2**	**16.0**	**-0.8**	**-5.1%**

Relative Accuracy Test Audit Results

Standard Deviation of Differences	1.250269
Confidence Coefficient (CC)	0.961040
t-Value for 9 Data Sets	2.306
Relative Accuracy (as % of RM)	**11.4%**

RM = Reference Method (CleanAir Data) 041316 163038
CEMS = Continuous Emissions Monitoring System (Air Products Data)
RATA calculations are based on 9 of 10 runs. * indicates the excluded run.



RESULTS

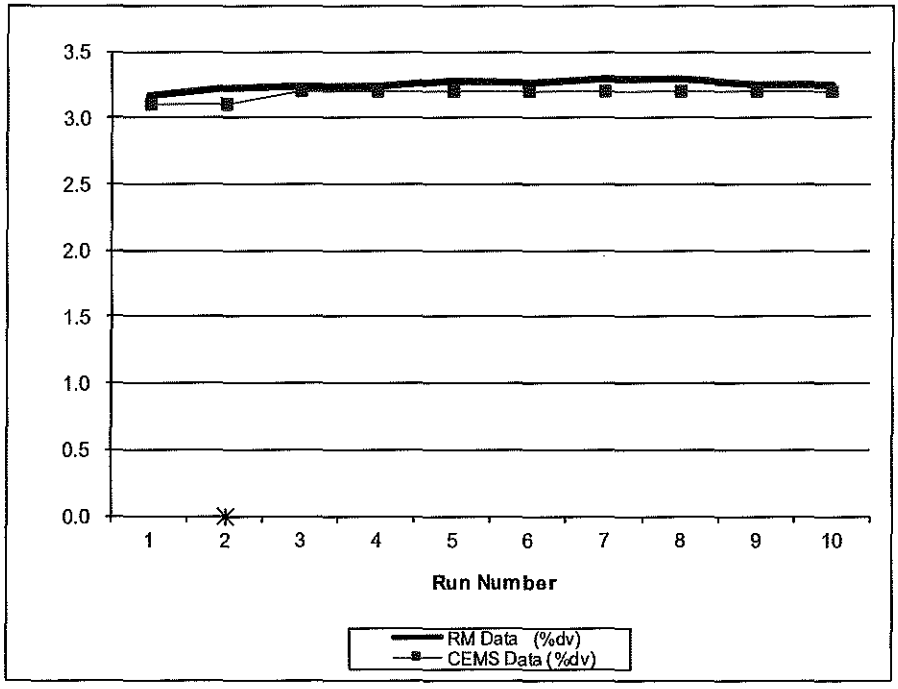
Table 2-9:
O_2 (%dv) RATA (USEPA M-3A / PS3)

Run No.	Start Time	Date (2016)	RM Data (%dv)	CEMS Data (%dv)	Difference (%dv)	Difference Percent
1	12:36	Mar 18	3.2	3.1	0.1	2.1%
2 *	13:09	Mar 18	3.2	3.1	0.1	3.6%
3	13:57	Mar 18	3.2	3.2	0.0	1.0%
4	14:30	Mar 18	3.2	3.2	0.0	1.2%
5	15:05	Mar 18	3.3	3.2	0.1	2.2%
6	15:36	Mar 18	3.3	3.2	0.1	1.9%
7	16:14	Mar 18	3.3	3.2	0.1	2.7%
8	16:46	Mar 18	3.3	3.2	0.1	2.9%
9	17:17	Mar 18	3.2	3.2	0.0	1.4%
10	17:57	Mar 18	3.3	3.2	0.1	1.7%
Average			**3.3**	**3.2**	**0.1**	**1.9%**

Relative Accuracy Test Audit Results

Standard Deviation of Differences	0.021584	
Confidence Coefficient (CC)	0.016591	
t-Value for 9 Data Sets	2.306	
		Limit
Avg. Abs. Diff. (%dv)	**0.062**	**1.0**

RM = Reference Method (CleanAir Data) 041316 163038
CEMS = Continuous Emissions Monitoring System (Air Products Data)
RATA calculations are based on 9 of 10 runs. * indicates the excluded run.



RESULTS

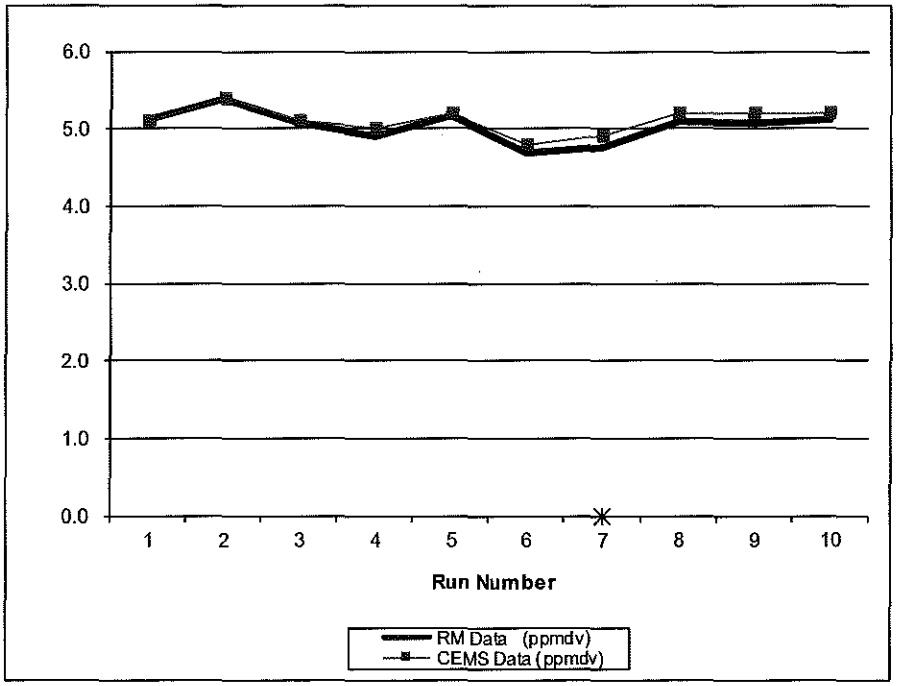
Table 2-10:
NO_X (ppmdv) Concentration RATA (EPA 7E / PS2)

Run No.	Start Time	Date (2016)	RM Data (ppmdv)	CEMS Data (ppmdv)	Difference (ppmdv)	Difference Percent
1	12:36	Mar 18	5.1	5.1	0.0	0.3%
2	13:09	Mar 18	5.4	5.4	0.0	-0.4%
3	13:57	Mar 18	5.1	5.1	0.0	-0.8%
4	14:30	Mar 18	4.9	5.0	-0.1	-2.0%
5	15:05	Mar 18	5.2	5.2	0.0	-0.9%
6	15:36	Mar 18	4.7	4.8	-0.1	-2.4%
7 *	16:14	Mar 18	4.8	4.9	-0.1	-2.9%
8	16:46	Mar 18	5.1	5.2	-0.1	-2.4%
9	17:17	Mar 18	5.1	5.2	-0.1	-2.8%
10	17:57	Mar 18	5.1	5.2	-0.1	-1.6%
Average			**5.1**	**5.1**	**-0.1**	**-1.4%**

Relative Accuracy Test Audit Results

Standard Deviation of Differences	0.051573	
Confidence Coefficient (CC)	0.039643	
t-Value for 9 Data Sets	2.306	
		Limit
Relative Accuracy (as % of RM)	**2.2%**	**20.0%**

RM = Reference Method (CleanAir Data) 041316 163038
CEMS = Continuous Emissions Monitoring System (Air Products Data)
RATA calculations are based on 9 of 10 runs. * indicates the excluded run.



RESULTS

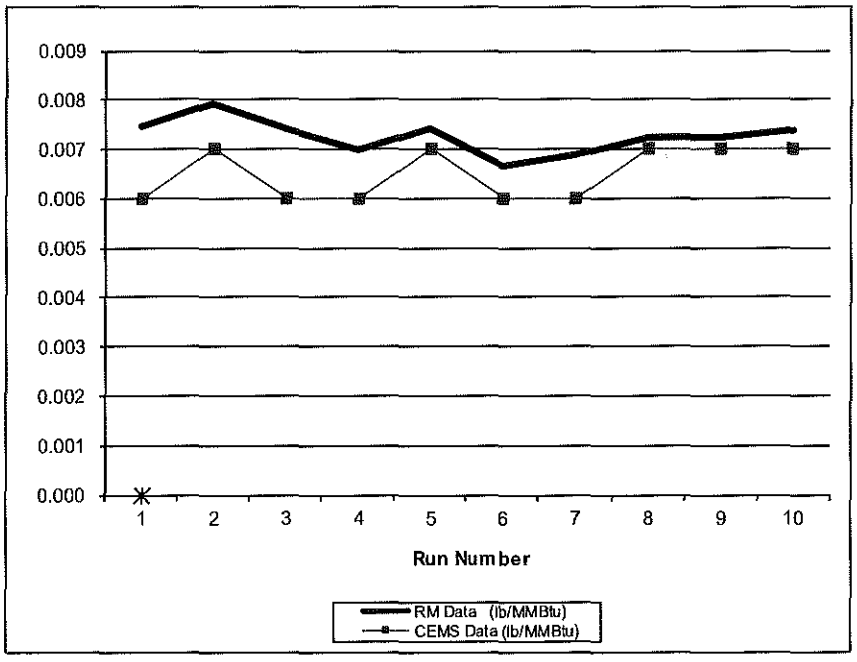
Table 2-11:
NO_X (lb/MMBtu) Emission Rate RATA (USEPA M-7E / PS2)

Run No.	Start Time	Date (2016)	RM Data (lb/MMBtu)	CEMS Data (lb/MMBtu)	Difference (lb/MMBtu)	Difference Percent
1 *	12:36	Mar 18	0.007	0.006	0.001	19.3%
2	13:09	Mar 18	0.008	0.007	0.001	11.8%
3	13:57	Mar 18	0.007	0.006	0.001	19.2%
4	14:30	Mar 18	0.007	0.006	0.001	14.3%
5	15:05	Mar 18	0.007	0.007	0.000	5.7%
6	15:36	Mar 18	0.007	0.006	0.001	9.8%
7	16:14	Mar 18	0.007	0.006	0.001	12.7%
8	16:46	Mar 18	0.007	0.007	0.000	3.0%
9	17:17	Mar 18	0.007	0.007	0.000	3.2%
10	17:57	Mar 18	0.007	0.007	0.000	5.1%
	Average		**0.007**	**0.007**	**0.001**	**9.4%**

Relative Accuracy Test Audit Results

Standard Deviation of Differences	0.000408	
Confidence Coefficient (CC)	0.000314	
t-Value for 9 Data Sets	2.306	
		Limit
Relative Accuracy (as % of RM)	**13.8%**	**20.0%**
Relative Accuracy (as % of Appl. Std.)	**7.7%**	**10.0%**
Appl. Std. = 0.013 lb/MMBtu		

RM = Reference Method (CleanAir Data) 042516 154653
CEMS = Continuous Emissions Monitoring System (Air Products Data)
RATA calculations are based on 9 of 10 runs. * indicates the excluded run.



RESULTS

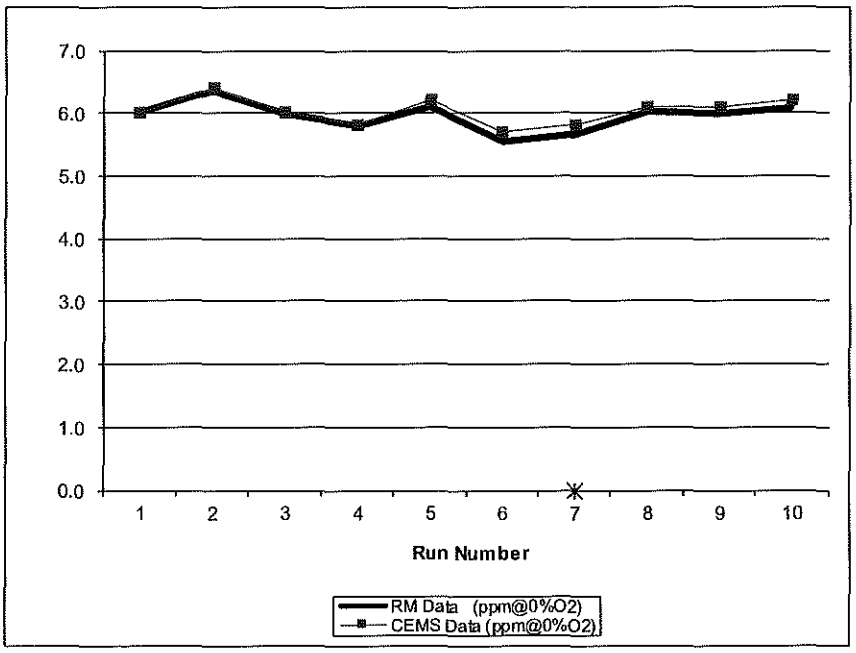
Table 2-12:
NO_X (ppmdv @ 0% O_2) Emission Rate RATA (USEPA M-7E / PS2)

Run No.	Start Time	Date (2016)	RM Data (ppm@0%O2)	CEMS Data (ppm@0%O2)	Difference (ppm@0%O2)	Difference Percent
1	12:36	Mar 18	6.0	6.0	0.03	0.5%
2	13:09	Mar 18	6.4	6.4	-0.04	-0.7%
3	13:57	Mar 18	6.0	6.0	-0.01	-0.2%
4	14:30	Mar 18	5.8	5.8	0.00	0.0%
5	15:05	Mar 18	6.1	6.2	-0.09	-1.5%
6	15:36	Mar 18	5.6	5.7	-0.15	-2.6%
7 *	16:14	Mar 18	5.7	5.8	-0.15	-2.6%
8	16:46	Mar 18	6.0	6.1	-0.07	-1.2%
9	17:17	Mar 18	6.0	6.1	-0.11	-1.8%
10	17:57	Mar 18	6.1	6.2	-0.14	-2.2%
Average			**6.0**	**6.1**	**-0.06**	**-1.1%**

Relative Accuracy Test Audit Results

Standard Deviation of Differences	0.061054	
Confidence Coefficient (CC)	0.046930	
t-Value for 9 Data Sets	2.306	
		Limit
Relative Accuracy (as % of RM)	**1.9%**	**20.0%**
Relative Accuracy (as % of Appl. Std.)	**0.2%**	**10.0%**
Appl. Std. = 60 ppm@0%O2		

RM = Reference Method (CleanAir Data) 041316 163038
CEMS = Continuous Emissions Monitoring System (Air Products Data)
RATA calculations are based on 9 of 10 runs. * indicates the excluded run.



RESULTS

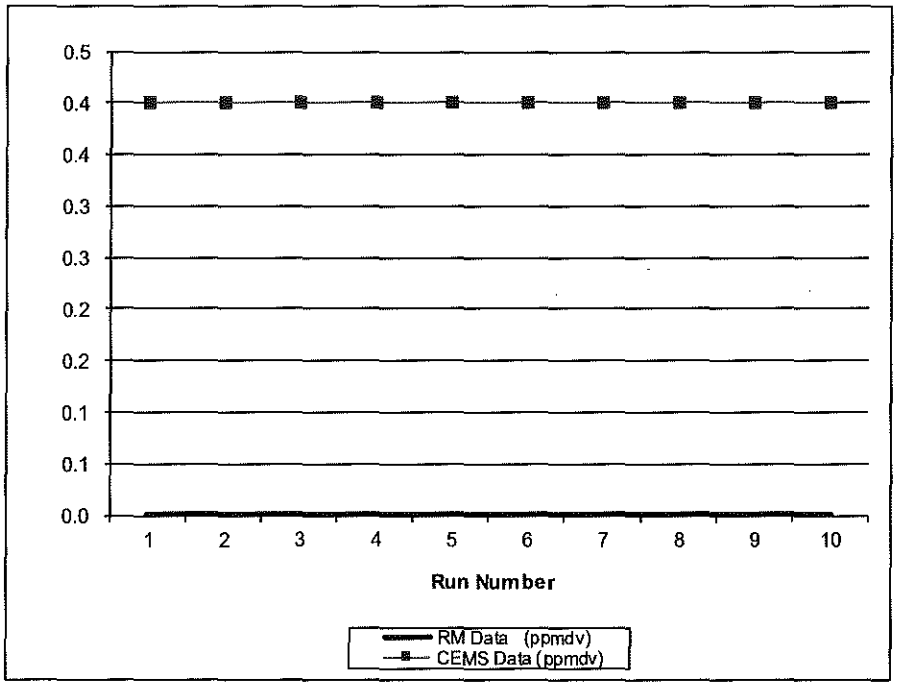
Table 2-13:
CO (ppmdv) Concentration RATA (USEPA M-10 / PS4A)

Run No.	Start Time	Date (2016)	RM Data (ppmdv)	CEMS Data (ppmdv)	Difference (ppmdv)
1	12:36	Mar 18	0.0	0.4	-0.4
2	13:09	Mar 18	0.0	0.4	-0.4
3	13:57	Mar 18	0.0	0.4	-0.4
4	14:30	Mar 18	0.0	0.4	-0.4
5	15:05	Mar 18	0.0	0.4	-0.4
6	15:36	Mar 18	0.0	0.4	-0.4
7	16:14	Mar 18	0.0	0.4	-0.4
8	16:46	Mar 18	0.0	0.4	-0.4
9	17:17	Mar 18	0.0	0.4	-0.4
10	17:57	Mar 18	0.0	0.4	-0.4
Average			**0.0**	**0.4**	**-0.4**

Relative Accuracy Test Audit Results

Standard Deviation of Differences	0.000	
Confidence Coefficient (CC)	0.000	
t-Value for 10 Data Sets	2.262	
		Limit
Avg. Abs. Diff. + CC (ppmdv)	**0.4**	**5.0**

RM = Reference Method (CleanAir Data) 041316 163038
CEMS = Continuous Emissions Monitoring System (Air Products Data)
RATA calculations are based on all 10 runs.



RESULTS

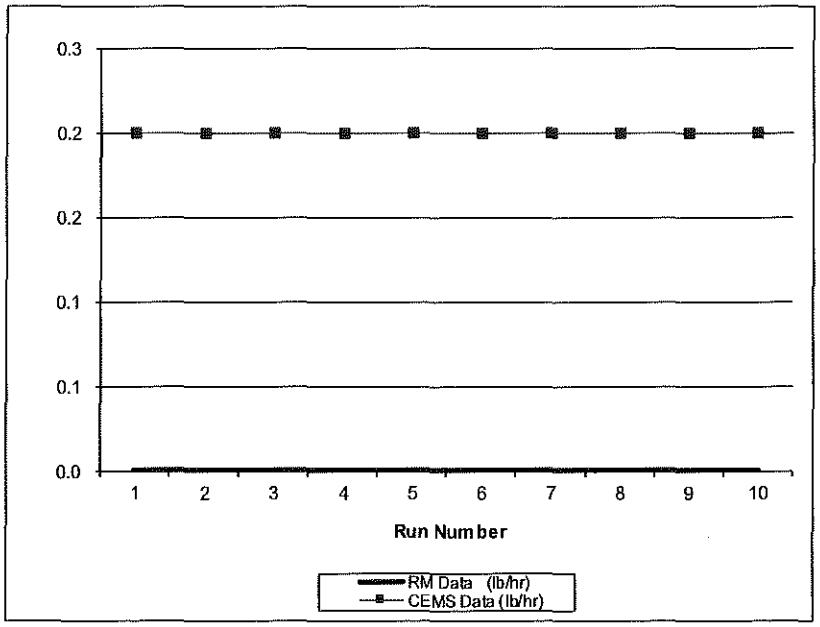
Table 2-14:
CO (lb/hr) Emission Rate RATA (USEPA M-10 / PS4A)

Run No.	Start Time	Date (2016)	RM Data (lb/hr)	CEMS Data (lb/hr)	Difference (lb/hr)
1	12:36	Mar 18	0.0	0.2	-0.2
2	13:09	Mar 18	0.0	0.2	-0.2
3	13:57	Mar 18	0.0	0.2	-0.2
4	14:30	Mar 18	0.0	0.2	-0.2
5	15:05	Mar 18	0.0	0.2	-0.2
6	15:36	Mar 18	0.0	0.2	-0.2
7	16:14	Mar 18	0.0	0.2	-0.2
8	16:46	Mar 18	0.0	0.2	-0.2
9	17:17	Mar 18	0.0	0.2	-0.2
10	17:57	Mar 18	0.0	0.2	-0.2
	Average		**0.0**	**0.2**	**-0.2**

Relative Accuracy Test Audit Results

Standard Deviation of Differences	0.000	
Confidence Coefficient (CC)	0.000	
t-Value for 10 Data Sets	2.262	
		Limit
Relative Accuracy (as % of Appl. Std.)	**0.4%**	**5.0%**
Appl. Std. = 56.94 lb/hr		

RM = Reference Method (CleanAir Data) 041316 150107
CEMS = Continuous Emissions Monitoring System (Air Products Data)
RATA calculations are based on all 10 runs.



End of Section 2 – Results