EMISSION TEST REPORT

of one

Fluidized Catalytic Cracking Regenerator (F-1603) (Emission Point No. AA-051)

at the

Chevron Product Company Refinery

located in

Pascagoula, Mississippi

Prepared for

CHEVRON PRODUCTS COMPANY

April 22, 2008

TRC Project No. 159733

EMISSION TEST REPORT

of one

Fluidized Catalytic Cracking Regenerator (F-1603) (Emission Point No. AA-051)

at the

Chevron Product Company Refinery

located in

Pascagoula, Mississippi

Prepared for

CHEVRON PRODUCTS COMPANY

April 22, 2008

TRC Project No. 159733

TABLE OF CONTENTS

INTRODUCTION 1
Table 1: Background Data 2

SUMMARY OF RESULTS 3
Table 2: Executive Summary EPN AA-051 (F-1603) 3

PROCESS DESCRIPTION 4

ANALYTICAL TECHNIQUE 5
Table 3: Analytical Instrumentation 5
Figure 1: Gaseous Sample System Diagram 6
Figure 2: Particulate Matter Sample System Diagram 7

QUALITY ASSURANCE ACTIVITIES 9

APPENDICES
A. Detailed Summary Results
B. Quality Assurance Activities
C. Example Calculations
D. Field and Laboratory Data Sheets
E. Unit Operational Data
F. TRC Datalog Files
G. Calibrations and Certifications

INTRODUCTION

Emission tests were conducted on one Fluidized Catalytic Cracking (FCC) Regenerator unit at Chevron Product's refinery in Pascagoula, Mississippi. The purpose of these tests was to determine the compliance status with regards to Mississippi Department of Environmental Quality (MDEQ) Permit No. 1280-00058 and Code of Federal Regulations (CFR), Title 40, Part 60, Section 106(b). TRC Air Measurements conducted these tests on April 22, 2008.

Quantities of particulate matter (PM), carbon dioxide (CO_2), oxygen (O_2), hydrogen cyanide (HCN), total volatile organic compounds (VOC), and percent opacity were measured in the exhaust stack of the unit. The emissions tests followed the procedures set forth in the 40CFR60, Appendix A, Methods 1, 2, 3A, 4, 5F, 9, 25A, and CTM-033. Table 1 summarizes the background information pertinent to these tests.

This report has been reviewed and approved for submittal to the U.S. EPA and MDEQ by the following representatives:

TRC Air Measurements

Chevron Products

TABLE 1
BACKGROUND DATA

Source Owner/Operator:	Chevron Products Company 250 Industrial Road Pascagoula, Mississippi 39581 Attn: Kristi Mitchum (228) 938-7678 TEL (228) 938-4682 FAX
Test Contractor:	TRC Air Measurements 9225 U.S. Hwy. 183 South Austin, Texas 78747 Attn: Jim Barufaldi (512) 243-0202 TEL ext 112 (512) 243-0222 FAX
Test Date:	April 22, 2008
Location:	Chevron Refinery in Pascagoula, Mississippi
Process Description:	This submittal addresses the emissions from one FCC Regenerator in the 16 plant section of this refinery.
Emission Point:	Emission Point No. AA-051 (F-1603)
Test Methods:	EPA Method 1 for traverse point layout EPA Method 2 for stack differential pressure EPA Method 3A for O_2 and CO_2 concentrations EPA Method 4 for stack gas moisture content EPA Method 5F for particulate matter sampling EPA Method 9 for Opacity EPA Method 25A for Volatile Organic Compounds EPA CTM-033 for Hydrogen Cyanide
Regulatory Applications:	40CFR60.106(b), MDEQ Permit # 1280-00058

SUMMARY OF RESULTS

Exhaust gas from one FCC Regenerator unit was tested to determine gaseous and non-sulfate particulate matter emissions. The testing was performed to show compliance with the regulations set forth in the MDEQ permit 1280-00058. TRC Air Measurements of Austin, Texas conducted this testing on April 22, 2008.

Table 2 provides the executive summary of results for the stack sampling of Unit F-1603. This table presents the gaseous mass emissions in pounds per hour (lbs/hr) and tons per year (tons/yr).

TABLE 2:
Executive Summary of Results

Pollutant	Emissions (lbs/hr)	Permit Limit (Lbs/hr)	Emissions (tons/yr)	Permit Limit (tons/yr)
VOC	**1.06**	**59.13**	**4.66**	**25.90**
HCN	**0.5**	**4.0**	**2.4**	**17.5**
PM	**10.34**	**111.00**	**45.30**	**121.50**
PM lbs/ton coke burn-off	**0.11**		**Permit Limit = 2.0**	
Opacity	**0%**		**Permit Limit = 30%**	

Data used to generate this table is supported by the documents presented in the appendices of this report. Appendix A contains the detailed summary of results. All documented quality assurance activities used to ensure accuracy are reported in Appendix B. Examples calculations representing the results are shown in Appendix C. Appendix D contains all field and laboratory data sheets, including documentation from Data Analysis Technologies, Inc regarding hydrogen cyanide testing. Appendix E includes the operational data for the unit during the test. TRC datalog files are included in appendix F. Appendix G contains the calibrations and certifications for any equipment or gas used during the tests.

PROCESS DESCRIPTION

Chevron Products Company owns and operates the Chevron Refinery in Pascagoula, Mississippi. Emission testing was conducted on a fluidized catalytic cracking unit (FCC) located at this facility.

The FCC unit converts heavy feed into C3/C4 olefins as feed for the Olefin Splitter Plant, a high quality cracked gasoline, light cycle oil used in diesel blending, and a bottoms product used as bunker or fuel oil. The main purpose of the fluid catalytic cracking operation is to increase the quantities of salable products such as C3/C4 olefins and gasoline that can be produced from a barrel of crude oil.

The fluid catalytic cracking process uses high temperatures and a catalyst to crack or break up the large, complex hydrocarbon molecules in the heavy vacuum gas oil feed into smaller, simpler molecules. The resulting mixture of hydrocarbons from the reactor can be termed a synthetic crude oil. This synthetic crude oil (reaction mix) is separated into the required products by fractional distillation in the FCC Main Fractionator & Gas Recovery Section.

The hot, circulating catalyst not only controls the cracking reactions, but also supplies much of the heat required for vaporization of the fresh gas oil feed, the recycle feed and for the cracking reactions. During the cracking reactions, coke is deposited on the catalyst particles. Burning coke off the catalyst regenerates the catalysts and also heats it to the required temperature.

ANALYTICAL TECHNIQUE

The sampling and analysis procedures used during these tests conformed in principle with those outlined in the 40CFR60, Appendix A, Methods 1, 2, 3A, 4, 5F, 9, 25A, and CTM-033. Table 3 lists the instruments and detection principles used for these analyses.

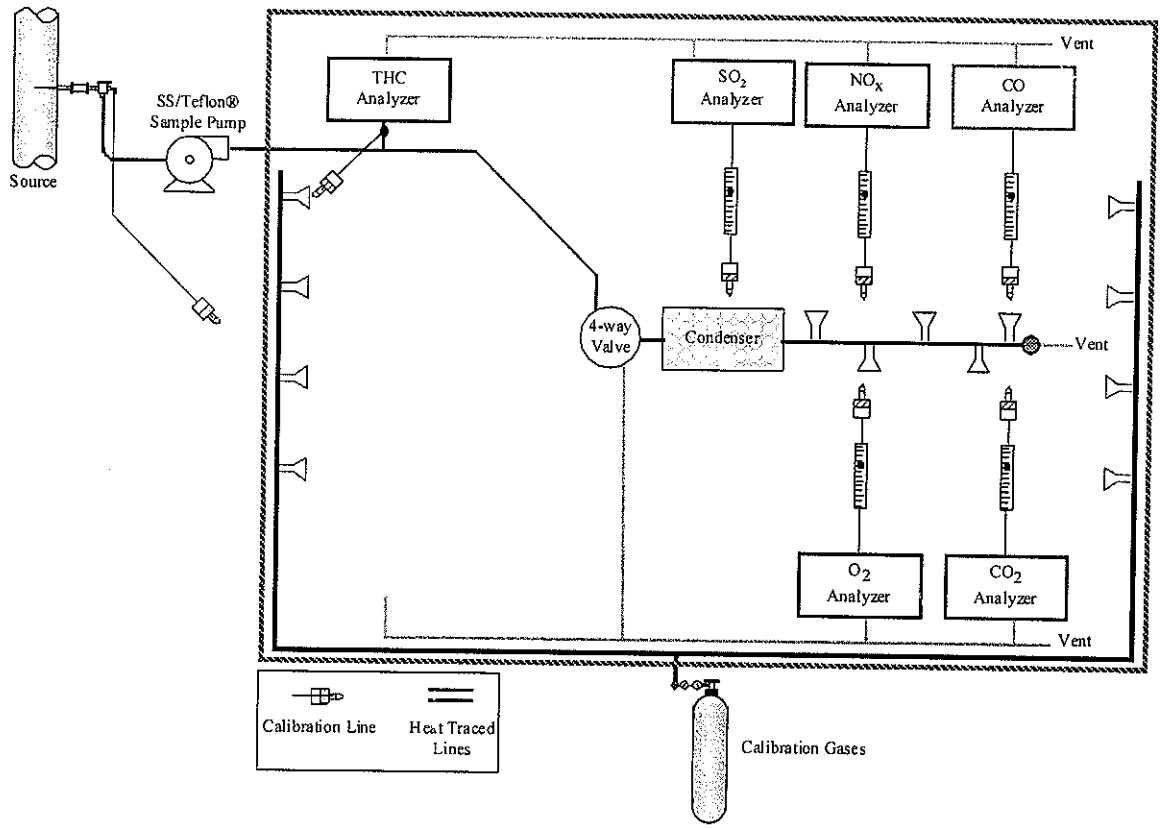
TABLE 3: ANALYTICAL INSTRUMENTATION

Parameter	Model and Manufacturer Serial Number	Range Capabilities (ppm or vol%)	Span Value(s) this Project (ppm or vol%)	Sensitivity (ppm or vol%)	Response Time (sec)	Detection Principle
O2 CO2	Servomex 1400 014206-2804 01415C-2821	0-5 0-25	0-25	0.01	15	Paramagnetic Cell Infrared Absorption
PM/PM10	AND HR 120	0-100 grams	n.a.	0.1 mg	n.a.	Analytical balance
VOC	CAI 300-HFD 4K06005	0-10	0<x<1	0.01	10	Continuous flame ionization detector
Temp.	Omega HH82	-256-2502 °F	0.1°F	n.a.	n.a.	chromel-alumel, K-type thermo-couple with digital thermometer.

The sampling and analysis system used to determine gaseous emission concentrations of VOC, CO_2 and O_2 is depicted in Figure 1. Stack gas entered the system through a stainless steel probe with a glass wool in-stack filter (i.e. filter and probe heated greater than 220 °F). The sample was transported via 3/8-inch heat-traced Teflon® tubing to ground level via a heated stainless steel/Teflon® diaphragm pump. A portion of the heated and wet sample was sent to the heated hydrocarbon analyzer. The remainder of the sample was then transported through a specially designed stainless steel minimum-contact condenser which dried the sample without removing the pollutants of interest. From there, the sample was directed into the sample manifold where the sample was partitioned to the analyzers through glass and stainless steel rotometers that control the flow of the sample.

Figure 1 shows that the sampling system was equipped with a separate path through which a calibration gas could be delivered to the probe and back through the entire sampling system. This allowed for convenient performance of system bias checks as required by the EPA testing methods.

FIGURE 1
SAMPLE SYSTEM DIAGRAM



The test matrix consisted of three sixty-minute test runs in accordance with the sampling procedures of 40CFR60.

EPA Method 1 was utilized for selection of the traverse. The stack configurations and sample port locations meet established EPA Method 1 criteria.

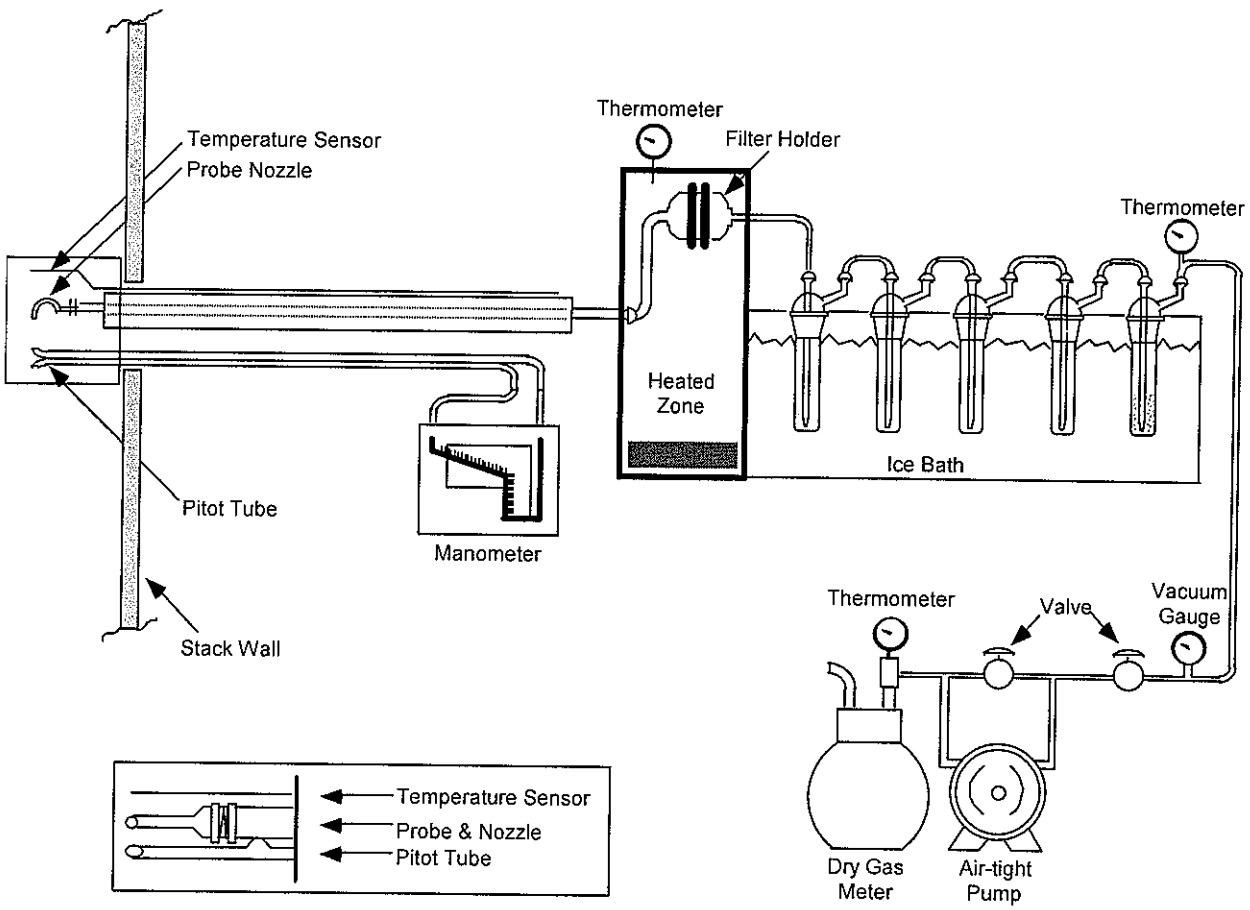
EPA Method 2 was followed to determine the stack differential pressure. Twelve traverse points were tracked throughout each test run. In addition to differential pressure, stack temperature was recorded.

The O_2 and CO_2 concentration measurements used in determination of stack gas molecular weight were measured in accordance with the procedures of EPA Method 3A. Instrumental analysis was used in lieu of the Orsat or Fyrite techniques. A paramagnetic O_2 analyzer and an infrared absorption CO_2 analyzer were utilized for these emission tests.

Moisture content of the stack gas was measured by EPA Method 4. This data, collected as part of the PM train, was used to calculate dry gas fraction and molecular weight of the stack gas.

Method 5F was performed to measure non-sulfate particulate matter. Figure 2 presents the sample system diagram for the particulate matter sample train. The gaseous sample was pulled through a stainless steel nozzle and heated glass probe to a heated glass fiber filter. This portion of the sample train constitutes the "front half" assembly. The nozzle was sized such that an isokinetic sampling rate (i.e. sampling at the same rate as the stack velocity) could be maintained. Following the filter, the sample was pulled through an impinger train to a dry gas meter and sample pump. The impingers were charged with deionized water. The PM emission rate results presented in this report provide the EPA "front half" analysis only.

FIGURE 2
PARTICULATE MATTER SAMPLE SYSTEM



The probe and nozzle were rinsed with deionized water following each test run. These rinses were saved and analyzed for weight gain. The weight gain of the water rinse plus the weight gain of the filter constitute the "front half" PM analysis. The impinger contents from each test run were saved after weighing the impingers for moisture content determination.

The front-half catch of all three test runs plus the water and filter blank were analyzed for non-sulfate particulate. All laboratory analysis was conducted by Atmospheric Analysis & Consulting, headed by Sucha Parmar. Information concerning this analysis is contained in Appendix D.

EPA Method 9 was performed in order to determine opacity of stack exhaust. Visual observations are made by a trained and certified reader to determine percent opacity.

Total hydrocarbon concentration (also reported as VOC) was measured using EPA method 25A. A continuous flame ionization detection analyzer, calibrated with methane standards, was used to determine THC concentration in ppm.

QUALITY ASSURANCE ACTIVITIES

A number of quality assurance activities were undertaken to ensure the accuracy of the test results. This section of the report and the documentation contained in Appendix B support each quality assurance activity that was performed.

Each instrument's response was checked and adjusted in the field prior to the collection of data via multi-point calibration. The instrument's linearity was checked by first adjusting the zero and span responses to zero (nitrogen or air) and an upscale calibration gas in the range of the expected concentrations. The instrument response was then challenged with other calibration gases of known concentration and accepted as being linear if the response of the other calibration gases agreed within $\pm$ 2 percent of range of the predicted values. The results of the calibration error checks are provided in Appendix B.

In addition to the initial linearity checks, the calibration error checks were repeated as required throughout the tests. Anytime an adjustment was made to an analyzer, the calibration error test was repeated. During typical emissions tests, adjustments to the analyzer will be due to one of three reasons. If the post test run calibration check showed that the analyzer drift was approaching the 3% allowable, the technician may have chosen to reset the analyzer back to the correct setting before continuing with the next test run. Anytime the analyzer drift exceeded 3%, recalibration of the analyzer was performed as required by the test method. Additionally, analyzer span settings could be changed during the tests to account for changing concentrations. Anytime an adjustment was made to an analyzer for any of these reasons, the calibration error check (and bias check) was repeated before continuing.

Before and after each test run, the analyzers were checked for zero and calibration bias. This allowed each test run to be bracketed by calibrations and documented the precision of the data just collected. Documentation of bias also allowed for the use of Equation 7E-5 for correction of the observed emission concentrations. Calibrations were made through the entire sample system (via the bias check valve) each time zero and span drift checks were made. The criterion for acceptable data is that the instrument drift is no more than 3 percent of the full-scale response or 5% provided that additional QA procedures are followed before proceeding with the next run. The quality assurance worksheets in Appendix B summarize all multipoint calibration checks and zero to span checks performed during the tests.

The use of Equation 7E-5 requires documentation of both the initial and final zero and calibration responses. When two consecutive test runs were conducted immediately after one another, the final drift for the previous run was used for the initial calibration response of the subsequent run. In cases where there was a sufficient delay between test runs to deem this strategy invalid, a separate initial calibration (i.e. bias check procedure) was conducted and the response from this calibration was used in Equation 7E-5.

The instrumental sampling systems were leak checked by demonstrating that a vacuum greater than 10" Hg could be held for at least 1 minute with a decline of less than 1" Hg. A leak test was conducted after a sample system was set up and before that system was dismantled. This test was conducted to ensure that ambient air had not diluted the sample. Any leakage detected prior to the tests was repaired and another leak check conducted before testing commenced. No leaks were found during the post-test leak checks.

The absence of leaks in the sampling system was also verified by system bias checks. The sampling system's integrity was tested by comparing the responses of each of the analyzers used to a calibration gas introduced via two paths. The first path was into the analyzer via the zero/span calibration manifold. The second path was to introduce a calibration gas into the sample system at the sample probe via the calibration line and switching valve. Any difference in the instrument responses by these two methods was attributed to sampling system bias or leakage. Bias checks were conducted prior to and upon completion of testing on all analyzers. The quality assurance data worksheets in Appendix B show that the analyzer responses via both sample paths agreed within acceptable limits in all cases.

Bias checks were also conducted at other times throughout the tests as required by the test method. Anytime adjustment to the analyzer or drifts in excess of 3% was recorded necessitated a repeat of the calibration error check, the bias check was also repeated.

The control gases used to calibrate the instruments were analyzed and certified by the compressed gas vendors to $\pm$ 1% accuracy or EPA Protocol 1 (EPA G1 certification). The gas calibration sheets as prepared by the vendor are contained in Appendix G.

The Method 5F dry gas meter was calibrated prior to testing in accordance with EPA methodology. A post-test calibration check was also conducted on this

meter. A standard dry gas meter traceable to NIST was used for these calibrations. Calibration certification documentation of the dry gas meter can be found in Appendix G. That documentation shows that the difference between the pre and post test calibrations differed by less than 5% as required by the regulations.

EPA Method 5F quality assurance activities began during preparation for these tests. All glassware was thoroughly washed, rinsed, dried, and stored with protection to prevent contamination. Pre-weighed filters were sealed against contamination and packed safely. De-ionized water was used for rinsing of the sampling train. A blank of the water were treated in the same manner as the samples and retained for evaporation and weighing for contaminants. A blank filter was also weighed after treating it in the same manner as the filters used during sampling.

Isokinetic sampling rates were achieved and the isokinetics were checked in the field at each traverse point as well as over the entire test run period. Isokinetics between 90% and 110% over the test run are required for Method 5F. The PM calculation spreadsheets of Appendix A show that the isokinetics were within acceptable limits in all cases.

TRC collected and reported the enclosed test data in accordance with the procedures and quality assurance activities described in this test report. TRC makes no warranty as to the suitability of the test methods. TRC assumes no liability relating to the interpretation and use of the test data.

APPENDIX A:
DETAILED SUMMARY OF RESULTS

Detailed Summary of Results
F-1603

Plant: **Chevron Pascagoula**
Location: Pascagoula, MS
Source: F-1603
Technicians: **JPB, MAB, DM**

Test Run Designation	Run 1	Run 2	Run 3		
Date	4/22/2008	4/22/2008	4/22/2008		
Start Time (24 hr)	10:28	12:56	15:28		
Stop Time (24 hr)	11:51	13:56	16:28		
Stack Gas Sampling Data					
Box No.	A2	4	A2		
Sample Time Length (min)	60	60	60		
Atmospheric Pressure (" Hg)	30.06	30.06	30.06		
Avg. Stack Temperature (°F)	565	567	574		
Avg. Meter Temperature (°F)	85.8	89.4	91.3		
Average $\sqrt{\Delta P}$	1.608	1.607	1.599		
Average ΔH	1.12	1.29	1.27		
Sample Volume at STP (DSCF)	34.342	35.468	34.840		
Moisture (% volume)	9.91	10.28	9.67		
Dry Gas Fraction (unitless)	0.901	0.897	0.903		
Molecular Weight (lb/lb-mole)	29.385	29.357	29.439		
Static Pressure (in. H2O)	0.10	0.10	0.10		
Stack Velocity (ft/min @ stack conditions)	7465	7470	7448		
Stack Flow, dry (DSCFH)	9.12E+06	9.08E+06	9.05E+06		
Stack Flow, wet (wetSCFH)	1.01E+07	1.01E+07	1.00E+07		
% Isokinetic	97.0	100.7	99.2		
Emissions Results				**Averages**	**Permit Limits**
O2 (%)	1.84	1.65	1.65	1.71	
CO2 (%)	16.07	16.20	16.24	16.17	
THC (ppmv)	2.90	2.46	2.26	2.54	
Calculated Mass Emissions					
THC (lbs/hr)	1.22	1.03	0.94	1.06	59.13
HCN (lbs/hr)	0.5	0.5	0.6	0.5	4.0
THC (tons/yr)	5.35	4.52	4.11	4.66	25.90
HCN (tons/yr)	2.4	2.2	2.5	2.4	17.5
Calculated Particulate Emissions					
Non-Sulfate Particulate Matter Collected (g)	0.0145	0.0169	0.0227	0.0180	
Non-Sulfate Particulate Matter Analysis (lb/dscf	9.31E-07	1.05E-06	1.44E-06	1.14E-06	
Non-Sulfate Particulate Matter Analysis (lb/hr)	8.49	9.53	13.00	10.34	111.00
Non-Sulfate Particulate Matter Analysis (tons/yr	37.20	41.75	56.94	45.30	121.50
Coke Born-Off (Mlbs/hr)	47.18	47.17	46.99	47.11	
Non-Sulfate PM Analysis (lb/ton coke burn-off)	0.09	0.10	0.14	0.11	2.0

Testing by TRC, Austin, Texas

Preliminary Velocity, Cyclonic Flow Check, Moisture, and K-Factor

Plant:	**Chevron Pascagoula**
Location:	Pascagoula, MS
Source:	F-1603
Technicians:	**JPB, DGM, CJ**

Preliminary Velocity and Moisture	
Date	4/22/2008
Start Time (24 hr)	8:45
Stop Time (24 hr)	9:00
Stack Moisture & Molecular Wt.	
CO2 (%)	16.70
O2 (%)	1.60
H2 (%)	0.00
Beginning Meter Reading (ft3)	883.100
Ending Meter Reading (ft3)	893.803
Beginning Impinger Wt (g)	2967.7
Ending Impinger Wt. (g)	2996.8
Dry Gas Meter Factor (Kd)	0.9863
Dry Gas Meter Temperature (°F begin)	76
Dry Gas Meter Temperature (°F end)	76
Atmospheric Pressure (in Hg, abs.)	30.08
ΔH during preliminary moisture (in. H2O)	1.74
Sample Volume at STP (DSCF)	10.499
Sample Volume at STP (liters)	297.33
Stack Gas Moisture (% volume)	11.56
Dry Gas Fraction	0.884
Stack Gas Molecular Wt. (lbs/lb-mole)	29.26

Nozzle Selection & K Factor Calculation	
Stack Velocity (DSFM)	3390.10
Target Sampling Rate(SCFM)(0.40-0.75)	0.7
Target Nozzle Area (Ft2)	0.00020648
Suggested Nozzle Number	6.2
Selected Nozzle Number	6
Nozzle measured diameter (in)	0.176
Actual Nozzle Area (ft2)	0.00016959
No. of M-5 Traverse Pts	12
Minutes per point (min.)	5
Sampling Time (min.) (>60 min)	60
Expected Total Sample Vol. (SCF)(>30 SCF)	34.50
Sampling Rate (SCFM) (using actual nozzle)	0.575
ΔH ("H2O)(@ sampling rate from Meter Box Calib Curve)	1
K-Factor (ΔH/ΔP)	**0.40**

Diameter 1	0.1780
Diameter 2	0.1750
Diameter 3	0.1760
Average Nozzle Diameter	***0.1763***

Velocity Pitot Tube Data	*Δp*	*Temp (°F)*	*Cyclonic (α)*
ΔP #1	2.1000	555	0
ΔP #2	2.4000	558	2
ΔP #3	2.4000	562	1
ΔP #4	2.8000	563	3
ΔP #5	2.5000	563	1
ΔP #6	2.6000	564	0
ΔP #7	2.500	565	1
ΔP #8	2.500	567	3
ΔP #9	2.200	565	0
ΔP #10	2.700	562	1
ΔP #11	2.800	552	1
ΔP #12	2.700	500	0

Pitot Tube Factor	0.84
Sum of Square Root of Vertical Component	19.02
Number of Traverse Points	12
Average Square Root of ΔP's	1.585
Average Temperature (°F)	556
Average Cyclonic Flow Angle	1
Static Pressure (in. H2O)	0.1
Absolute stack pressure (in. Hg)	30.087355
Stack Configuration (R or C)	C
Stack Diameter (if Circular) (in)	89.5
Stack Length (if Rectangular) (in)	
Stack Width (if Rectangular) (in)	
Stack Area (ft2)	43.689
Stack Velocity (ft/min @ stack conditions)	7337
Stack Flow,wet (ACFM)	320551
Stack Flow, dry (SCFH)	**8886630**
Stack Flow, wet (SCFH)	**10047744**
Stack Velocity (DSFM)	**3390.10**

Emissions testing performed by TRC-Cubix, Austin, Texas

Run 1 Point by Point Isokinetics

Plant:	**Chevron Pascagoula**
Location:	Pascagoula, MS
Source:	F-1603
Technicians:	**JPB, DGM, CJ**

Test Run Designation:	**Run 1**
Computerized Isokinetic Sampling Data Sheet	
K-factor	0.398
Nozzle Area (ft2)	0.00016959
Total Sample Time (min)	60
Number of Points	12
Time per Travese Point (min)	5
Pitot Tube Factor	0.84
Dry Gas Meter Factor (Kd)	0.9863
Preliminary values entered before test run	
Prelim Atmospheric Pressure (in Hg, abs.)	30.08
Prelim Static Pressure (in. H2O)	0.10
Perlim Stack Gas Moisture (% volume)	11.56
Prelim Dry Gas Fraction	0.8844
Prelim Stack Gas Molecular Wt. (lbs/lb-mole)	29.26

Final values to be entered upon completion of test run	
CO2 (%)	16.07
O2 (%)	1.65
H2 (%)	0.00
Beginning Impinger Wt (g)	2880.4
Ending Impinger Wt. (g)	2960.5
Sample Volume at STP (DSCF)	34.342
Sample Volume at STP (liters)	972.55
Stack Area (ft2)	43.69
Atmospheric Pressure (in Hg, abs.)	30.06
Static Pressure (in. H2O)	0.10
Stack Gas Moisture (% volume)	9.91
Dry Gas Fraction	0.9009
Stack Gas Molecular Wt. (lbs/lb-mole)	29.38

Impinger Wt.	#1 H2O	#2 H2O	#3 MT	#4 SiGel
Initial wt (g)	721.3	744.3	621.3	793.5
Final wt (g)	780.0	756.8	623.7	800.0
Wt. Gain (g)	58.7	12.5	2.4	6.5

Average Meter Box Readings	
Average DGM Temperature (°F)	85.8
Average Stack Temperature (°F)	565.3
Average Square Root of ΔP's	1.608
Average Measured ΔH	1.121
Final Flow Rate Results	
Absolute stack pressure (in. Hg)	30.067355
Stack Velocity (ft/min @ stack conditions)	7465
Stack Flow,wet (ACFM)	326144
Stack Flow, dry (SCFH)	9123464
Stack Flow, wet (SCFH)	10126601
Stack Velocity (DSFM)	3480
Final Isokinetic Results	
Percent of isokinetic sampling rate	**96.97**

	DGM		Date	DGM					Corrected			Stack Gas	Stack Gas		
	Observed	Target	4/22/2008	Temp.	DGM	DGM	Calculated	Measured	Volume			Temp	Velocity	% ISO	% ISO
	(ft3)	(ft3)	Time	Ave. (°F)	in (°F)	out (°F)	ΔH	ΔH	(ft3)	ΔP	√ΔP	(°F)	(ft/s)	Point	Total
Traverse Point No.	893.850		10:28												
Point 1	896.837	896.813	10:33	83	83	83	1.02	1.02	2.887	2.5000	1.5811	559	122.16	100.8	100.8
Point 2	899.789	899.794	10:41	84	84	84	1.03	1.03	2.848	2.5000	1.5811	567	122.64	99.8	100.3
Point 3	902.603	902.804	10:46	84	84	84	1.07	1.07	2.715	2.6000	1.6125	567	125.07	93.3	98.0
Point 4	905.437	905.557	10:51	84	84	84	1.03	1.03	2.734	2.5000	1.5811	569	122.76	95.9	97.5
Point 5	908.480	908.459	10:56	85	85	85	1.07	1.08	2.931	2.6000	1.6125	566	125.00	100.7	98.1
Point 6	911.429	911.623	11:01	86	86	86	1.15	1.20	2.836	2.8000	1.6733	565	129.66	93.8	97.4
Point 7	914.387	914.438	11:26	86	86	86	1.05	1.07	2.844	2.5500	1.5969	559	123.37	98.3	97.5
Point 8	917.327	917.421	11:31	86	86	86	1.07	1.10	2.826	2.6000	1.6125	562	124.76	96.9	97.4
Point 9	920.495	920.422	11:36	88	88	88	1.12	1.30	3.035	2.7000	1.6432	567	127.45	102.4	98.0
Point 10	923.528	923.583	11:41	87	87	87	1.11	1.25	2.911	2.7000	1.6432	568	127.51	98.2	98.0
Point 11	926.665	926.505	11:46	88	88	88	1.03	1.20	3.005	2.5000	1.5811	568	122.70	105.4	98.7
Point 12	929.579	929.649	11:51	89	89	89	1.03	1.10	2.786	2.5000	1.5811	567	122.64	97.7	98.6
Average Values				**85.8**			**1.1**	**1.1**	**2.9**	**2.5875**	**1.608**	**565.3**	**124.6**	**98.6**	

Emissions testing performed by TRC-Cubix, Austin, Texas

Run 2 Point by Point Isokinetics

Plant:	**Chevron Pascagoula**
Location:	Pascagoula, MS
Source:	F-1603
Technicians:	**JPB, DGM, CJ**

Test Run Designation:	**Run 2**
Computerized Isokinetic Sampling Data Sheet	
K-factor	0.398
Nozzle Area (ft2)	0.00016959
Total Sample Time (min)	60
Number of Points	12
Time per Travese Point (min)	5
Pitot Tube Factor	0.84
Dry Gas Meter Factor (Kd)	0.9863
Preliminary values entered before test run	
Prelim Atmospheric Pressure (in Hg, abs.)	30.08
Prelim Static Pressure (in. H2O)	0.10
Perlim Stack Gas Moisture (% volume)	10.71
Prelim Dry Gas Fraction	0.8929
Prelim Stack Gas Molecular Wt. (lbs/lb-mole)	29.29

Final values to be entered upon completion of test run	
CO2 (%)	16.20
O2 (%)	1.65
H2 (%)	0.00
Beginning Impinger Wt (g)	2882.5
Ending Impinger Wt. (g)	2968.7
Sample Volume at STP (DSCF)	35.468
Sample Volume at STP (filters)	1004.45
Stack Area (ft2)	43.69
Atmospheric Pressure (in Hg, abs.)	30.06
Static Pressure (in. H2O)	0.10
Stack Gas Moisture (% volume)	10.28
Dry Gas Fraction	0.8972
Stack Gas Molecular Wt. (lbs/lb-mole)	29.36

Impinger Wt.	#1 H2O	#2 H2O	#3 MT	#4 SiGel
Initial wt (g)	723.0	741.5	644.8	773.2
Final wt (g)	787.3	754.1	646.3	781.0
Wt. Gain (g)	64.3	12.6	1.5	7.8

Average Meter Box Readings	
Average DGM Temperature (°F)	89.4
Average Stack Temperature (°F)	567.2
Average Square Root of ΔP's	1.607
Average Measured ΔH	1.286
Final Flow Rate Results	
Absolute stack pressure (in. Hg)	30.067355
Stack Velocity (ft/min @ stack conditions)	7470
Stack Flow,wet (ACFM)	326344
Stack Flow, dry (SCFH)	9075011
Stack Flow, wet (SCFH)	10114712
Stack Velocity (DSFM)	3462
Final Isokinetic Results	
Percent of isokinetic sampling rate	**100.68**

	DGM		Date	DGM					Corrected			Stack Gas	Stack Gas		
	Observed	Target	4/22/2008	Temp.	DGM	DGM	Calculated	Measured	Volume			Temp	Velocity	% ISO	% ISO
	(ft3)	(ft3)	Time	Ave. (°F)	in (°F)	out (°F)	ΔH	ΔH	(ft3)	ΔP	√ΔP	(°F)	(ft/s)	Point	Total
Traverse Point No.	929.760		12:56												
Point 1	932.645	932.758	13:01	88	88	88	1.03	1.10	2.763	2.5000	1.5811	572	122.87	96.2	96.2
Point 2	935.731	935.800	13:06	88	88	88	1.07	1.20	2.956	2.6000	1.6125	509	121.42	97.8	97.1
Point 3	938.845	938.846	13:11	88	88	88	1.12	1.45	2.983	2.7000	1.6432	572	127.69	100.0	98.1
Point 4	941.720	941.843	13:16	88	88	88	1.03	1.25	2.754	2.5000	1.5811	572	122.87	95.9	97.5
Point 5	944.860	944.718	13:21	88	88	88	1.03	1.30	3.007	2.5000	1.5811	572	122.87	104.7	99.0
Point 6	948.054	947.923	13:26	89	89	89	1.08	1.40	3.054	2.6000	1.6125	572	125.31	104.3	99.8
Point 7	951.350	951.179	13:31	90	90	90	1.12	1.45	3.146	2.7000	1.6432	573	127.75	105.5	100.7
Point 8	954.525	954.417	13:36	90	90	90	1.08	1.27	3.030	2.6000	1.6125	573	125.37	103.5	101.0
Point 9	957.539	957.533	13:41	90	90	90	1.04	1.20	2.876	2.5000	1.5811	573	122.93	100.2	100.9
Point 10	960.563	960.552	13:46	91	91	91	1.04	1.20	2.881	2.5000	1.5811	573	122.93	100.4	100.9
Point 11	963.745	963.637	13:51	91	91	91	1.08	1.31	3.031	2.6000	1.6125	572	125.31	103.5	101.1
Point 12	966.888	966.881	13:56	92	92	92	1.12	1.30	2.989	2.7000	1.6432	573	127.75	100.2	101.0
Average Values				**89.4**			**1.1**	**1.3**		**2.5833**	**1.607**	**567.2**	**124.6**	**101.0**	

Emissions testing performed by TRC-Cubix, Austin, Texas

Run 3 Point by Point Isokinetics

Plant:	**Chevron Pascagoula**
Location:	Pascagoula, MS
Source:	F-1603
Technicians:	JPB, DGM, CJ

Test Run Designation:	**Run 3**
Computerized Isokinetic Sampling Data Sheet	
K-factor	0.398
Nozzle Area (ft2)	0.00016959
Total Sample Time (min)	60
Number of Points	12
Time per Travese Point (min)	5
Pitot Tube Factor	0.84
Dry Gas Meter Factor (Kd)	0.9863
Preliminary values entered before test run	
Prelim Atmospheric Pressure (in Hg, abs.)	30.08
Prelim Static Pressure (in. H2O)	0.10
Perlim Stack Gas Moisture (% volume)	10.71
Prelim Dry Gas Fraction	0.8929
Prelim Stack Gas Molecular Wt. (lbs/lb-mole)	29.29

Final values to be entered upon completion of test run	
CO2 (%)	16.24
O2 (%)	1.65
H2 (%)	0.00
Beginning Impinger Wt (g)	2871.1
Ending Impinger Wt. (g)	2950.2
Sample Volume at STP (DSCF)	34.840
Sample Volume at STP (liters)	986.66
Stack Area (ft2)	43.69
Atmospheric Pressure (in Hg, abs.)	30.06
Static Pressure (in. H2O)	0.10
Stack Gas Moisture (% volume)	9.67
Dry Gas Fraction	0.9033
Stack Gas Molecular Wt. (lbs/lb-mole)	29.44

Impinger Wt.	#1 H2O	#2 H2O	#3 MT	#4 SiGel
Initial wt (g)	727.4	738.6	623.7	781.4
Final wt (g)	660.7	873.5	626.5	789.5
Wt. Gain (g)	-66.7	134.9	2.8	8.1

Average Meter Box Readings	
Average DGM Temperature (°F)	91.3
Average Stack Temperature (°F)	574.1
Average Square Root of ΔP's	1.599
Average Measured ΔH	1.267
Final Flow Rate Results	
Absolute stack pressure (in. Hg)	30.067355
Stack Velocity (ft/min @ stack conditions)	7448
Stack Flow,wet (ACFM)	325409
Stack Flow, dry (SCFH)	9049716
Stack Flow, wet (SCFH)	10018272
Stack Velocity (DSFM)	3452
Final Isokinetic Results	
Percent of isokinetic sampling rate	**99.18**

	DGM Observed (ft3)	DGM Target (ft3)	Date 4/22/2008 Time	DGM Temp. Ave. (°F)	DGM in (°F)	DGM out (°F)	Calculated ΔH	Measured ΔH	Corrected Volume (ft3)	ΔP	√ΔP	Stack Gas Temp (°F)	Stack Gas Velocity (ft/s)	% ISO Point	% ISO Total
Traverse Point No.	971.642		15:28												
Point 1	974.720	974.660	15:33	91	91	91	1.04	1.20	2.932	2.5000	1.5811	570	122.75	102.0	102.0
Point 2	977.741	977.794	15:38	91	91	91	1.08	1.20	2.878	2.6000	1.6125	572	125.31	98.3	100.1
Point 3	980.800	980.812	15:43	91	91	91	1.08	1.20	2.914	2.6000	1.6125	574	125.43	99.6	99.9
Point 4	983.814	983.812	15:48	91	91	91	1.04	1.20	2.871	2.5000	1.5811	574	122.99	100.1	100.0
Point 5	986.952	986.947	15:53	92	92	92	1.12	1.30	2.984	2.7000	1.6432	575	127.88	100.1	100.0
Point 6	990.074	990.023	15:58	91	91	91	1.08	1.30	2.974	2.6000	1.6125	574	125.43	101.7	100.3
Point 7	993.075	993.084	16:03	91	91	91	1.04	1.30	2.859	2.5000	1.5811	575	123.05	99.7	100.2
Point 8	996.133	996.145	16:08	91	91	91	1.08	1.30	2.913	2.6000	1.6125	575	125.49	99.6	100.1
Point 9	999.122	999.143	16:13	91	91	91	1.04	1.30	2.847	2.5000	1.5811	575	123.05	99.3	100.0
Point 10	1002.155	1002.132	16:18	91	91	91	1.04	1.30	2.889	2.5000	1.5811	575	123.05	100.8	100.1
Point 11	1005.200	1005.171	16:23	92	92	92	1.04	1.30	2.895	2.5000	1.5811	575	123.05	101.0	100.2
Point 12	1008.236	1008.275	16:28	92	92	92	1.08	1.30	2.887	2.6000	1.6125	575	125.49	98.7	100.1
Average Values				**91.3**			**1.1**	**1.3**		**2.5583**	**1.599**	**574.1**	**124.4**	**100.1**	

Emissions testing performed by TRC-Cubix, Austin, Texas

APPENDIX B:
QUALITY ASSURANCE ACTIVITIES

159733 Chevron F-1603

Run 1 **4/22/2008** **10:28:00 AM** **11:28:00 AM**

Initial Calibration Error	Range	Low Gas	Mid Gas	High Gas	Zero Response	Low Response	Mid Response	High Response	Zero Cal Error	Low Cal Error	Mid Cal Error	High Cal Error
O2 (%)	20.90	4.48	10.00	20.90	-0.01	4.46	10.02	20.90	-0.03	-0.10	0.12	-0.01
CO2 (%)	19.96	4.48	10.08	19.96	0.00	4.47	10.12	20.04	0.01	-0.07	0.21	0.40
THC (ppmv)	10.00	2.52	5.01	10.08	-0.04	2.60	5.07	10.07	-0.40	0.80	0.57	-0.11

Thru the Probe Bias and Drift	Bias Gas Used	TTP Initial Zero	TTP Final Zero	TTP Initial Span	TTP Final Span	Zero Bias	Span Bias	Zero Drift	Span Drift
O2 (%)	4.48	-0.01	0.00	4.46	4.44	0.02	-0.19	-0.02	0.10
CO2 (%)	19.96	0.00	0.02	20.05	20.05	0.08	0.43	-0.11	0.03
THC (ppmv)	10.08	-0.03	-0.08	10.07	9.97	-0.39	-1.09	0.47	1.01

Test Run Results	Minimum	Maximum	Std. Dev.	Raw Results	Corrected Results
O2 (%)	1.50	14.59	1.29	1.82	1.84
CO2 (%)	5.10	16.41	1.10	16.14	16.07
THC (ppmv)	1.44	5.41	0.32	2.85	2.90

159733 Chevron F-1603

Run 2 **4/22/2008** **1:00:52 PM** **2:00:52 PM**

Initial Calibration Error	Range	Low Gas	Mid Gas	High Gas	Zero Response	Low Response	Mid Response	High Response	Zero Cal Error	Low Cal Error	Mid Cal Error	High Cal Error
O2 (%)	20.90	4.48	10.00	20.90	-0.01	4.46	10.02	20.90	-0.03	-0.10	0.12	-0.01
CO2 (%)	19.96	4.48	10.08	19.96	0.00	4.47	10.12	20.04	0.01	-0.07	0.21	0.40
THC (ppmv)	10.00	2.52	5.01	10.08	-0.04	2.60	5.07	10.07	-0.40	0.80	0.57	-0.11

Thru the Probe Bias and Drift	Bias Gas Used	TTP Initial Zero	TTP Final Zero	TTP Initial Span	TTP Final Span	Zero Bias	Span Bias	Zero Drift	Span Drift
O2 (%)	4.48	0.00	0.00	4.44	4.43	0.02	-0.22	0.00	0.04
CO2 (%)	19.96	0.02	-0.01	20.05	20.00	-0.06	0.22	0.14	0.21
THC (ppmv)	10.08	-0.08	-0.09	9.97	10.17	-0.46	0.86	0.07	-1.95

Test Run Results	Minimum	Maximum	Std. Dev.	Raw Results	Corrected Results
O2 (%)	1.48	1.81	0.07	1.63	1.65
CO2 (%)	16.12	16.38	0.06	16.25	16.20
THC (ppmv)	-9.60	8.70	2.64	2.39	2.46

159733 Chevron F-1603

Run 3 **4/22/2008** **2:47:26 PM** **3:47:26 PM**

Initial Calibration Error	Range	Low Gas	Mid Gas	High Gas	Zero Response	Low Response	Mid Response	High Response	Zero Cal Error	Low Cal Error	Mid Cal Error	High Cal Error
O2 (%)	20.90	4.48	10.00	20.90	-0.01	4.46	10.02	20.90	-0.03	-0.10	0.12	-0.01
CO2 (%)	19.96	4.48	10.08	19.96	0.00	4.47	10.12	20.04	0.01	-0.07	0.21	0.40
THC (ppmv)	10.00	2.52	5.01	10.08	-0.04	2.60	5.07	10.07	-0.40	0.80	0.57	-0.11

Thru the Probe Bias and Drift	Bias Gas Used	TTP Initial Zero	TTP Final Zero	TTP Initial Span	TTP Final Span	Zero Bias	Span Bias	Zero Drift	Span Drift
O2 (%)	4.48	0.00	0.00	4.43	4.42	0.01	-0.29	0.01	0.07
CO2 (%)	19.96	-0.01	0.03	20.00	19.99	0.14	0.14	-0.20	0.08
THC (ppmv)	10.08	-0.09	0.00	10.17	10.21	0.38	1.32	-0.84	-0.46

Test Run Results	Minimum	Maximum	Std. Dev.	Raw Results	Corrected Results
O2 (%)	1.37	1.89	0.12	1.63	1.65
CO2 (%)	16.07	16.47	0.09	16.27	16.24
THC (ppmv)	1.42	3.94	0.47	2.25	2.26

APPENDIX C:
EXAMPLE CALCULATIONS

Stack Moisture and Molecular Weight

Example for Run: **1603 PM-1**

Observed Measurements:

893.85	beginning DGM reading (ft3)
929.579	ending DGM reading (ft3)
2880.4	beginning impinger weight (g)
2960.5	ending impinger weight (g)
0.9863	Y, DGM factor (unitless)
545.8	Tm, ave. DGM temperature (R = F + 460)
30.06	P_{bar}, barometric pressure (in. Hg)
16.07	CO2 (%)
1.65	O2 (%)
1.12	dH, average

Constants/Conversions/Standards:

528	Tstd, EPA standard temperature (R)
29.92	Pstd, EPA standard pressure (in. Hg)
0.04715	water (ft3/g)
1.335	water (L/g)
28.3	conversion factor, (L/ft3)
13.6	conversion factor, (in H2O/in Hg)

Impinger Wt. Gain (IWG):

= ending impinger wt. (g) - beginning impinger wt. (g)

= 2960.5 - 2880.4

= 80.1 (g)

Volume Metered (Vm):

= ending DGM reading (ft3) - beginning DGM reading (ft3)

= 929.579 - 893.85

= 35.729 (ft3)

Standard Volume Metered (Vstd):

$$= \frac{(Vm)\ (Y)\ (Tstd)\ (P_{bar}+(dH/13.6)}{(Pstd)\ (Tm)}$$

$$= \frac{35.729 \times 0.9863 \times 528 \times 30.06 + \frac{1.12}{13.6}}{29.92 \times 545.8}$$

= 34.342 (SCF)

Moisture Content (Bws):

$$= \frac{IWG\ (g) \times 0.04715\ (ft3/g)}{(\ (IWG\ (g) \times 0.04715\ (ft3/g)\ ) + (\ Vstd\ (ft3)\ )\ )}$$

$$= \frac{3.7767}{(3.7767 + 34.342)}$$

= 0.099

= **9.9** **(%)**

Dry Gas Fraction:

= 1 - Bws

= 1 - 0.099

= 0.901

Molecular Wt. (Ms):

Compound	Total Percent	Molecular Weight	Moisture or Dry Fraction	Partial Mol. Wt.
H2O	n/a	18	0.099	1.783
O2	1.6	32	0.901	0.475
CO2	16.1	44	0.901	6.369
N2	82.3	28	0.901	20.757
				29.38 **(lb/lb-mole)**

Values may differ from Summary Tables due to rounding and truncation.

Stack Gas Flow Rate

Example for Run: **1603 PM-1**

Observed Measurements:

0.84	Cps, pitot tube factor (unitless)
30.06	Pb, barometric pressure (in. Hg)
1025.3	Ts(abs), ave. stack temperature (R, F + 460)
29.38	Ms, stack gas molecular wt. (lb/lb-mole)
0.10	Pg, stack static pressure (in. H2O)
43.6891	A, stack area (ft2)
12	Number of traverse Points
0.901	Fd, stack dry gas fraction

Constants/Conversions/Standards:

528	Tstd, EPA standard temperature (R)
29.92	Pstd, EPA standard pressure (in. Hg)
85.49	Kp, (ft/s) [(lb/lb-mole) (in. Hg) / (R)(in.H2O)]^0.5
5129.4	Kp, (ft/min) [(lb/lb-mole) (in. Hg) / (R)(in.H2O)]^0.5
60	conversion factor, (s/min)
60	conversion factor, (min/hr)
0.07355	conversion factor, (in Hg/in H2O)

Point#	dP	Point#	dP	Point#	dP
1	2.50	9	2.70	17	0.00
2	2.50	10	2.70	18	0.00
3	2.60	11	2.50	19	0.00
4	2.50	12	2.50	20	0.00
5	2.60	13	0.00	21	0.00
6	2.80	14	0.00	22	0.00
7	2.55	15	0.00	23	0.00
8	2.60	16	0.00	24	0.00

Absolute Stack Pressure (Ps): = Pb x (Pg x 0.07355)

30.06 + (0.1 x 0.07355)

= 30.07 (in. Hg)

Average Square Root of ∑dP (p1): = $\frac{19.300}{12}$

= 1.6083

Stack Velocity (Vs): = Kp x Cp x p1 x [Ts(abs) / (Ps x Ms)]^0.5

(ft/min) = 5129.4 x 0.84 x 1.6083 [1025.3 / (30.07 x 29.38)]^0.5

= 7465.1 (ft/min)

Stack Velocity (Vs): = Vs / 60 (s/min)

(ft/sec) = 7465.1 / 60

= 124.42 (ft/sec)

Stack Volumetric Flow (Qa): = Vs x A

= 7465.1 x 43.6891

= 326146 (ACFM)

Stack Volumetric Flow (Qd): = Qa x 60 (Tstd/Pstd) x (Ps/Ts(abs)) x Fd

= 326146 x 60 $\frac{\text{x } 528}{29.92}$ $\frac{\text{x } 30.07}{1025.3}$ x 0.901

= **9123502 DSCFH**

Values may differ from Summary Tables due to rounding and truncation.

Particulate Matter Emissions / Isokinetics

Example for Run: **1603 PM-1**

Observed Measurements:

34.342	Vstd, gaseous volume collected (DSCF)
9123464	Qd, stack volumetric flowrate (DSCFH)
0.01450	PMtotal, total PM catch (g)
0.000170	An, nozzle area (ft2)
0.901	Fd, dry gas fraction (unitless)
1.121	dH, average dH of DGM (in. H2O)
30.07	Ps, stack absolute pressure (in. Hg)
1025.3	Ts, ave. stack temperature (R, F + 460)
60	ts, sample time (min)
7465.1	Vs, stack gas velocity (ft/min)

Constants/Conversions/Standards:

528	Tstd, EPA standard temperature (R)
29.92	Pstd, EPA standard pressure (in. Hg)
453.6	conversion factor, (g/lb)
7000	conversion factor, (grains/lb)
2000	conversion factor, (lb/ton)
8760	conversion factor, (hr/year)

Total PM Conc. in Stack: *(lb/DSCF)*

= PMtotal / 454 / Vstd
= 0.0145 / 453.6 / 34.342
= **9.31E-07 (lb/DSCF)**

Note: Conc. in (lb/DSCF)

Total PM *(lbs/hr)*

= Total PM Conc. in Stack x Stack Flow Rate (DSCFH)
= 9.31E-07 x 9123464
= **8.49 (lbs/hour)**

Ave. Sampling Isokinetics (%):

$$= \frac{(Ts \times Vstd \times Pstd \times 100)}{(Tstd \times Vs \times ts \times An \times Ps \times Fd)}$$

$$= \frac{1025.3 \times 34.342 \times 29.92 \times 100}{528 \times 7465.1 \times 60 \times 0.000170 \times 30.07 \times 0.901}$$

= **97.0 (%)**

Values may differ from Summary Tables due to rounding and truncation.

APPENDIX D:
FIELD AND LABORATORY DATA SHEET

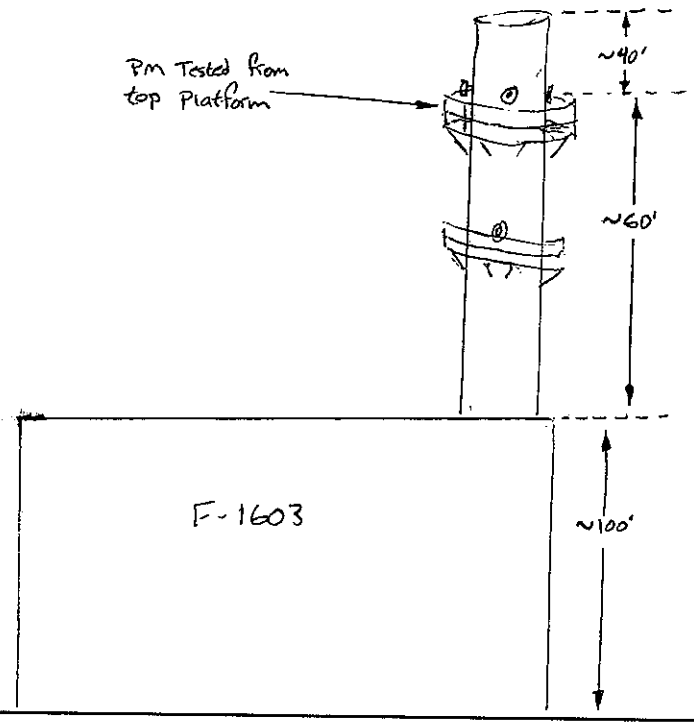
Circular Stack Sampling Traverse Point Layout
(EPA Method 1)

Date: 4/22/08
Plant: Chevron Pascagoula
Source: F-1603 PM
Technician(s): John Wood

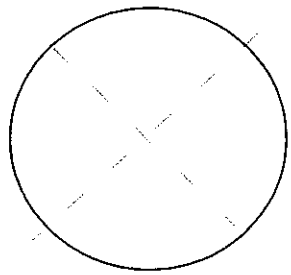
Port + Stack ID (in):	102.50
Port Extension (in):	13.00
Stack ID (in):	89.50
Stack Area (ft2):	43.689
Duct Diameters **upstream** from flow disturbance (A):	5.36
Duct Diameters **downstream** from flow disturbance (B):	8.04
Total Required Traverse Points:	12
No. of Traverse Points per Diameter:	6

Stack Diagram

(Draw side view showing major components, dimensions, upstream/downstream flow disturbances)



Stack cross section

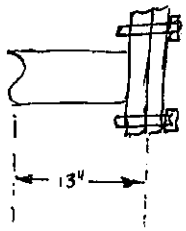


Draw traverse point layout above

Port Information and Location

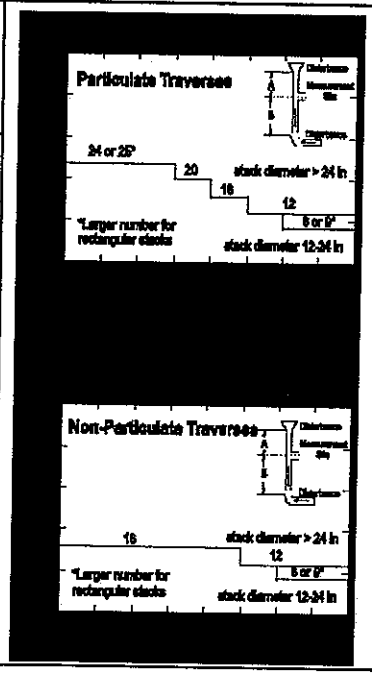
(draw diagram w/ port diameter, type of fitting, port extension, etc.

Ports are 150 lb Blind flange.



Traverse Point Number	Number of Traverse Points on a Diameter: 4	6	8	12	*Calculated Traverse Point	*Port Length Offset
	Percent distances (%)					
1	6.7	4.4	3.2	2.1	3.94	16.94
2	25.0	14.6	10.5	6.7	13.07	26.07
3	75.0	29.6	19.4	11.8	26.49	39.49
4	93.3	70.4	32.3	17.7	63.01	76.01
5		85.4	67.7	25.0	76.43	89.43
6		95.6	80.6	35.6	85.56	98.56
7			89.5	64.4		
8			96.8	75.0		
9				82.3		
10				88.2		
11				93.3		
12				97.9		

Stack diameters > 24 in shall have no traverse points located w/in 1 in of the stack wall
Stack diameters ≤ 24 in shall have no traverse points located w/in 0.5 in of the stack wall



Testing by TRC Air Measurements, Austin, Texas

TRC Air Measurements
ISOKENETIC SAMPLING DATA SHEET

Plant Name: **Chevron Pascagoula**
Date: 4/22/08
Source: **F-1603**
Technicians: JPB; DLM; CJ
Probe Working Length (ft): 8'
Nozzle Area (ft2): 0.00016959
Test Run#: 1 Box #: A2 Filter #: 70652

Stack Diameter (in): 89.5
Stack Moisture (%, est.): 11.5
Barometric Pres. (Pb, in. Hg): 30.06
Static Press (Pg, in H2O): 0.10
Pitot Tube Factor (Cp): 0.84
Total Sample Time (min): 60
K Factor: 0.348

Dry Gas Meter ID: 107089
Dry Gas Meter Factor (Y): 0.9863
Total # of Sample Points: 12
# of Sample Points per Port: 6

Meterbox Data:

Meter Reading (ft³, Start): 893.850 Time (Start): 10:28
Meter Reading (ft³, Stop): 929.579 Time (Stop): 11:51

Impinger #	1	2	3	4	5	6
Contents	0.1 N NaOH	0.1 N NaOH	Empty	SI Gel		
Initial Wt. (g)	721.3	744.3	621.3	793.5		
Final Wt. (g)	780.0	756.8	623.7	800.0		

Quality Assurance Leak Checks:

*Meterbox Leak Check: (one-minute leak rate)		leak (cfm)	in. Hg Vac.
	Pre-test	0.000	15
	Post-test	0.000	10
†Pitot Tube Leak Check (+/-)		in. H_2O	seconds
	Pre-test	3.0	15
	Post-test	3.0	15

point #	Clock time	DGM reading	ΔP " H_2O	ΔH " H_2O	Stack Temp °F	Probe Temp °F	Filter Temp °F	Last Impinger Temp °F	DGM in/out Temp °F	Line Vacuum " Hg
START	10:28	893.850	-----	-----	-----	-----	-----	-----	-----	-----
1	10:33	896.837	2.5	1.02	559	320	321	61	83	2.5
2	10:41	899.781	2.5	1.03	567	320	331	60	84	2.5
3	10:46	902.603	2.6	1.07	567	321	331	60	84	2.5
4	10:51	905.437	2.5	1.03	569	322	332	61	84	2.5
5	10:56	908.480	2.6	1.07	566	327	331	61	85	2.5
6	11:01	911.429	2.8	1.15	565	326	330	62	86	2.5
7	11:26	914.387	2.5	1.05	559	324	329	63	86	2.7
8	11:31	917.327	2.6	1.07	562	329	307	63	86	2.9
9	11:36	920.405	2.7	1.12	567	325	322	64	88	3.1
10	11:41	923.528	2.7	1.11	568	324	321	64	87	3.0
11	11:46	926.665	2.5	1.03	568	322	323	64	88	3.0
12	11:51	929.579	2.5	1.03	567	321	322	64	89	3.0

Totals or Avgs.

$\Delta H = \Delta P \times$ **K factor** $\times \frac{(T_{dgm} + 460)}{528}$

** meterbox leak check = less than 0.02 cfm at 15 in. Hg or greatest vacuum observed during test.*
† pitot tube leak check = hold 3 in. H_2O for at least 15 sec.

TRC Air Measurements
ISOKENETIC SAMPLING DATA SHEET

Plant Name: **Chevron Pascagoula**
Date: 4/22/08
Source: **F-1603**
Technicians: JPB; DGM; CJ
Probe Working Length (ft): 8'
Nozzle Area (ft2): 0.00016959
Test Run#: 2 Box #: 4 Filter #: 70653

Stack Diameter (in): 89.5
Stack Moisture (%, est.): 10
Barometric Pres. (Pb, in. Hg): 30.06
Static Press (Pg, in H2O): 0.10
Pitot Tube Factor (Cp): 0.84
Total Sample Time (min): 60
K Factor: 0.398

Dry Gas Meter ID: 107089
Dry Gas Meter Factor (Y): 0.9863
Total # of Sample Points: 12
# of Sample Points per Port: 6

Meterbox Data:

Meter Reading (ft³, Start): 929.760 Time (Start): 12:56
Meter Reading (ft³, Stop): 966.888 Time (Stop): 13:56

Impinger #	1	2	3	4	5	6
Contents	0.1 N NaOH	0.1 N NaOH	Empty	Sl Gel		
Initial Wt. (g)	723.0	741.5	644.8	773.2		
Final Wt. (g)	787.3	754.1	646.3	781.0		

Quality Assurance Leak Checks:

*Meterbox Leak Check: (one-minute leak rate)	leak (cfm)	in. Hg Vac.
Pre-test	0.000	15
Post-test	0.000	10

†Pitot Tube Leak Check (+/-)	in. H_2O	seconds
Pre-test	3.0	15
Post-test	3.0	15

point #	Clock time	DGM reading	ΔP " H_2O	ΔH " H_2O	Stack Temp °F	Probe Temp °F	Filter Temp °F	Last Impinger Temp °F	DGM in/out Temp °F	Line Vacuum " Hg
START	12:56	929.760	-----	-----	-----	-----	-----	-----	-----	-----
1	13:01	932.645	2.5	1.03	572	333	337	60	88	3.0
2	13:06	935.731	2.6	1.07	509	332	335	60	88	3.5
3	13:11	938.845	2.7	1.12	572	332	334	61	88	3.7
4	13:16	941.720	2.5	1.03	572	333	334	61	88	3.5
5	13:21	944.860	2.5	1.03	572	333	332	62	88	3.5
6	13:26	948.054	2.6	1.08	572	335	337	62	89	3.8
7	13:31	951.350	2.7	1.12	573	320	321	63	90	4.0
8	13:36	954.525	2.6	1.08	573	322	324	63	90	3.6
9	13:41	957.583	2.5	1.04	573	321	322	63	90	3.6
10	13:46	960.563	2.5	1.04	573	321	323	64	91	3.5
11	13:51	963.745	2.6	1.08	572	322	323	64	91	3.7
12	13:56	966.888	2.7	1.12	573	322	324	65	92	3.7

Totals or Avgs.

$$\Delta H = \Delta P \times \text{K factor} \times \frac{(T_{dgm} + 460)}{528}$$

* meterbox leak check = less than 0.02 cfm at 15 in. Hg or greatest vacuum observed during test.
† pitot tube leak check = hold 3 in. H_2O for at least 15 sec.

TRC Air Measurements
ISOKENETIC SAMPLING DATA SHEET

Plant Name: **Chevron Pascagoula**
Date: 4/22/08
Source: **F-1603**
Technicians: JPB; DCM; CJ
Probe Working Length (ft): 8'
Nozzle Area (ft2): 0.00016959
Test Run#: 3 Box #: A2 Filter #: 70665

Stack Diameter (in): 89.5
Stack Moisture (%, est.): 10
Barometric Pres. (Pb, in. Hg): 30.06
Static Press (Pg, in H2O): 0.10
Pitot Tube Factor (Cp): 0.84
Total Sample Time (min): 60
K Factor: 0.398

Dry Gas Meter ID: 107089
Dry Gas Meter Factor (Y): 0.9863
Total # of Sample Points: 12
# of Sample Points per Port: 6

Meterbox Data:

Meter Reading (ft³, Start): 971.642 Time (Start): 15:28
Meter Reading (ft³, Stop): 1008.236 Time (Stop): 16:28

Impinger #	1	2	3	4	5	6
Contents	0.1 N NaOH	0.1 N NaOH	Empty	Sl Gel		
Initial Wt. (g)	727.4	738.6	623.7	781.4		
Final Wt. (g)	660.7	873.5	626.5	789.5		

Quality Assurance Leak Checks:

*Meterbox Leak Check: (one-minute leak rate)	leak (cfm)	in. Hg Vac.
Pre-test	0.000	15
Post-test	0.000	10

†Pitot Tube Leak Check (+/-)	in. H_2O	seconds
Pre-test	3.0	15
Post-test	3.0	15

point #	Clock time	DGM reading	ΔP " H_2O	ΔH " H_2O	Stack Temp °F	Probe Temp °F	Filter Temp °F	Last Impinger Temp °F	DGM in/out Temp °F	Line Vacuum " Hg
START	15:28	971.642	-----	-----	-----	-----	-----	-----	-----	-----
1	15:33	974.720	2.5	1.04	570	321	324	60	91	3.5
2	15:38	977.741	2.6	1.08	572	323	325	60	91	3.5
3	15:43	980.800	2.6	1.08	574	323	325	61	91	3.6
4	15:48	983.814	2.5	1.04	574	322	323	61	91	3.5
5	15:53	986.952	2.7	1.12	575	324	324	62	92	4.0
6	15:58	990.084	2.6	1.08	574	323	324	62	91	3.5
7	16:03	993.075	2.5	1.04	575	323	323	63	91	3.6
8	16:08	996.133	2.6	1.08	575	324	323	64	91	3.6
9	16:13	999.122	2.5	1.04	575	322	321	64	91	3.5
10	16:18	1002.155	2.5	1.04	575	322	320	65	91	3.5
11	16:23	1005.200	2.5	1.04	575	321	322	65	92	3.5
12	16:28	1008.236	2.6	1.08	575	322	323	65	92	3.5

Totals or Avgs.

$\Delta H = \Delta P \times \text{K factor} \times \frac{(T_{dgm} + 460)}{528}$

* meterbox leak check = less than 0.02 cfm at 15 in. Hg or greatest vacuum observed during test.
† pitot tube leak check = hold 3 in. H_2O for at least 15 sec.

M-5 Filter Weighing Data Sheet

COMPANY: Chevron Pascagoula
PLANT:
DATE: 4/22/2008
ISSION POINT: F-1603

TARE WEIGHTS

Date:	12/2/2007	1/8/2008				
Time:	12:00	14:30				
Filter #	Weight #1 (g)	Weight #2 (g)	Weight #3 (g)	Weight #4 (g)	Final Avg. Wt.	Absolute Diff. (mg)
70666	0.3593	0.3594			0.3594	0.0001
70652	0.3568	0.3568			0.3568	0.0000
70653	0.3553	0.3554			0.3554	0.0001
70655	0.3550	0.3551			0.3551	0.0001
					0.0000	0.0000
					0.0000	0.0000
					0.0000	0.0000
					0.0000	0.0000
					0.0000	0.0000
					0.0000	0.0000
					0.0000	0.0000
					0.0000	0.0000
					0.0000	0.0000
					0.0000	0.0000
					0.0000	0.0000
					0.0000	0.0000

FINAL WEIGHTS

	Date:						
	Time:						
DESCRIPTION	Filter #	Weight #1 (g)	Weight #2 (g)	Weight #3 (g)	Weight #4 (g)	Final Avg. Wt.	Absolute Diff. (mg)
Blank	70666	0.3596	0.3596			0.3596	0.0000
Run 1	70652	0.3683	0.3683			0.3683	0.0000
Run 2	70653	0.3651	0.3651			0.3651	0.0000
Run 3	70655	0.3685	0.3685			0.3685	0.0000
						0.0000	0.0000
						0.0000	0.0000
						0.0000	0.0000
						0.0000	0.0000
						0.0000	0.0000
						0.0000	0.0000
						0.0000	0.0000
						0.0000	0.0000
						0.0000	0.0000
						0.0000	0.0000
						0.0000	0.0000
						0.0000	0.0000

Notes:

Atmospheric Analysis & Consulting, Inc.

CLIENT : TRC Environmental Corporation
AAC PROJECT NO. : 080222
REPORT DATE : 05/05/2008

On April 28, 2008 Atmospheric Analysis & Consulting, Inc. received four (4) Filters and four (4) liquids for Non-Sulfate Particulate Matter analysis by EPA method 5F. Upon receipt the samples were assigned unique Laboratory ID numbers as follows:

Client ID	Lab No.
F-1603 Blank Filter & Liquid	080222-32553,32557
F-1603 Run 1 Filter & Liquid	080222-32554,32558
F-1603 Run 2 Filter & Liquid	080222-32555,32559
F-1603 Run 3 Filter & Liquid	080222-32556,32560

EPA 5F Analysis – The filters were refluxed for 8 hours and then combined with their respective aqueous portions and allowed to normalize for one hour. An aliquot of the combined mixture was analyzed for Sulfate using a Dionex IC. The remaining portion was neutralized and evaporated to dryness, allowed to desiccate, and weighed for net weight gain.

No problems were encountered during receiving, preparation, and/ or analysis of these samples. The test results included in this report meet all requirements of the NELAC Standards and/or AAC SOP# AACI- EPA 5F.

I certify that this data is technically accurate, complete, and in compliance with the terms and conditions of the contract. Release of the data contained in this hardcopy data package and its electronic data deliverable submitted on diskette has been authorized by the Laboratory Director or his designee, as verified by the following signature.

If you have any questions or require further explanation of data results, please contact the undersigned.

Sucha S. Parmar, PhD
Technical Director

This report consists of 5 pages.

ACCREDITED IN ACCORDANCE WITH nelac Certificate#E87837

1534 Eastman Avenue • Suite A • Ventura, California 93003 (805) 650-1642 • FAX (805) 650-1644

Atmospheric Analysis & Consulting, Inc.

CLIENT	**: TRC Environmental Corporation**	**SAMPLING DATE**	**: 04/22/2008**
PROJECT NO	**: 080222**	**RECEIVING DATE**	**: 04/28/2008**
MATRIX	**: Filter & Liquid**	**ANALYSIS DATE**	**: 05/01 - 05/2008**
UNITS	**: mg/sample**	**REPORT DATE**	**: 05/05/2008**

EPA Method 5F

Client Sample ID	AAC ID	TNSPM(mg/sample)
F-1603 Blank Filter & Liquid	080222-32553,32557	4.3
F-1603 Run 1 Filter & Liquid	080222-32554,32558	18.8
F-1603 Run 2 Filter & Liquid	080222-32555,32559	21.2
F-1603 Run 3 Filter & Liquid	080222-32556,32560	27.0

TNSPM - Total non-sulfate particulate matter

Dr. Sucha Parmar
Technical Director

1534 Eastman Avenue • Suite A • Ventura, California 93003 (805) 650-1642 • FAX (805) 650-1644

Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report
EPA Method 5F

Analysis Date : 05/02/2008
Analyst : CF

Instrument ID : DIONEX IC

Calibration Verification of the 05/02/08 Calibration

Sample ID	Analyte	Theoretical Concentration (ug/mL)	Practical Concentration (ug/mL)	**Percent Recovery (%)***
Opening CV	Sulfate	50.00	49.11	**98**
Closing CV	Sulfate	50.00	49.15	**98**

* Must be 85-115%

Sucha Parmar, Ph.D.
Technical Director

1534 Eastman Avenue • Suite A • Ventura, California 93003 (805) 650-1642 • FAX (805) 650-1644

Atmospheric Analysis & Consulting, Inc.

QUALITY CONTROL/ASSURANCE REPORT

EPA Method 5F

Analysis Date : 05/02/2008
Analyst : CF

Instrument ID : DIONEX IC

Method Blank Analysis

Analyte	Concentration (ug/mL)	PQL (ug/mL)
Sulfate	<PQL	0.10

Laboratory Control Spike Analysis

Analyte	Theoretical Sample Concentration (ug/mL)	Theoretical Spike Concentration (ug/mL)	Lab Spike Concentration (ug/mL)	Duplicate Lab Spike Concentration (ug/mL)	Spike Recovery (%)*	Duplicate Spike Recovery (%)*	% RPD***
Sulfate	0.00	50.00	51.93	49.34	104	99	5.1

Matrix Spike Analysis (sample 080222-32554,58)

Analyte	Theoretical Sample Concentration (ug/mL)	Theoretical Spike Concentration (ug/mL)	Matrix Spike Concentration (ug/mL)	Duplicate Matrix Spike Concentration (ug/mL)	Spike Recovery (%)**	Duplicate Spike Recovery (%)**	% RPD***
Sulfate	0.64	25.00	22.98	23.73	89	92	3.3

* Must be 85-115%

** Must be 75-125%

*** Must be < 25%

Sucha Parmar, Ph.D.
Techncial Director

Chain of Custody Record

Report To: TRC Air Measurements
Lab Contact: Jim Barufaldi
9225 US HWY 183 South
Austin, TX 78747
Telephone: (512)243-0202

Bill To: TRC Air Measurements
Accounts Payable
9225 US HWY 183 South
Austin, TX 78747
P.O. No.: 2007371

080222

Sample Identification	Sample Description	Date Collected	Container Type	Required Analyses	Special Instructions/Conditions
F-1603 Blank	Filter	4/22/2008	Petri Dish	EPA Method 5 F	32553
F-1603 Run 1	Filter	4/22/2008	Petri Dish	EPA Method 5 F	32554
F-1603 Run 2	Filter	4/22/2008	Petri Dish	EPA Method 5 F	32555
F-1603 Run 3	Filter	4/22/2008	Petri Dish	EPA Method 5 F	32556
F-1603 Blank	DI H2O Probe Rinse	4/22/2008	250 mL Nalge	EPA Method 5 F	32557
F-1603 Run 1	DI H2O Probe Rinse	4/22/2008	250 mL Nalge	EPA Method 5 F	32558
F-1603 Run 2	DI H2O Probe Rinse	4/22/2008	250 mL Nalge	EPA Method 5 F	32559
F-1603 Run3	DI H2O Probe Rinse	4/22/2008	250 mL Nalge	EPA Method 5 F	32560

Turn around Time Required:
Normal Rush Report By: _____

Hazard Identification:

Relinquished by: Cody Sanford Date: 4/25/08
Affiliation: TRC Time: 11:55

Other Instructions:

Received by: [illegible] Date: 4/28/08
Affiliation: AM Time: 0945

TRC
9225 U.S. Hwy. 183 South, Austin, Texas 78747
PHONE: 512.243.0202
FAX: 512.243.0222

DAT Report™

Data Analysis Technologies, Inc.
7715 Corporate Blvd.
Plain City, OH 43064
800-733-8644

Sample Analysis Certificate

Client:	Atmospheric Analysis & Consulting, Inc	Date:	5/7/08
Address:	1534 Eastman Avenue Suite A Ventura, California 93003	Project ID:	0408045
		Sample Date:	4/22/08
		Date Received:	4/30/07
		Analysis Date	5/6/08
		Analyst:	JK

Attn:	Marcus Hueppe
Your Project:	080228
Sampled by:	Not Provided

Method: **CTM-033**
Analysis: HCN

Results: See attached summary table.

QC: See attached summary table.

Reviewed and approved for release by: _____ Date: 5/7/08
Ronald Mitchum Ph. D
President *DAT*

This report may not be reproduced, except in full, without written permission from *DAT* Labs.

Data Analysis Technologies, Inc
7715 Corporate Blvd
Plain City, OH 43064

Data Summary Table
HCN by CTM-033

Client:	**Atmospheric Analysis & Consulting**
Client Project#:	080228
DAT Project#:	0408045
Analysis Date:	5/6/2008

Client ID:	DAT ID:	Sample Vol mLs	HCN Total ug	*MDL ug*	Q
080228-32581 / F-1603 Run 1	0408045- 1	40	135	*1.2*	D
080228-32582 / F-1603 Run2	0408045- 2	40	127	*1.2*	D
080228-32583 / F-1603-Run 3	0408045- 3	40	147	*1.2*	D
080228-32584 / F-1603 Field Blk	0408045- 4	40	ND	*0.2*	

ND = Not detected at the detection limit shown.
MDL = Method Detection Limit
D = Value calculated from a dilution.
Sample volumes measured by the laboratory.

QC SUMMARY

Data Analysis Technologies, Inc
7715 Corporate Blvd
Plain City, OH 43064

QC Summary Table
HCN by CTM-033

Client: **Atmospheric Analysis & Consulting**
Client Project#: 080228
DAT Project#: 0408045
Analysis Date: 5/6/2008

Client ID:	DAT ID:	HCN ug/ml	*MDL ug/mL*	% Rec	% RPD
2nd Source QC	ICV	1.06		106	
Initial Cal Blank	ICB	ND	*0.006*		
Matrix Spike	0408045-1 5x MS	7.80		91	
Matrix Spike Duplicate	0408045-1 5x MSD	7.85		92	0.6
Lab Spike	0408045-LS	1.00		100	
2nd Source QC	CCV	1.10		110	
Continuing Cal Blank	CCB	ND	*0.006*		

ND = Not detected at the detection limit shown.
Lab Spike and 2nd Source QC concentration =1.0 ug/mL
MS/MSD spike concentration = 5.0 ug/mL

DOCUMENTATION

Chain of Custody Record

Page ____ of ____

Report To: Jim Barufaldi
Lab Contact:

Telephone: 512-243-0202

Bill To: TRC Solutions
9225 US HWY 183 S
Austin, TX 78747

P.O. No.: 080228

Sample Identification	Sample Description	Date Collected	Container Type	Required Analyses	Special Instructions/Conditions	
F-1603 Run 1	0.1 N NaOH	4/22/2008	40 mL Amber VOA	EPA Draft Method XHCN	analysis by IC	32581
F-1603 Run 2	0.1 N NaOH	4/22/2008	40 mL Amber VOA	EPA Draft Method XHCN	analysis by IC	32582
F-1603 Run 3	0.1 N NaOH	4/22/2008	40 mL Amber VOA	EPA Draft Method XHCN	analysis by IC	32583
Blank	0.1 N NaOH	4/22/2008	40 mL Amber VOA	EPA Draft Method XHCN	analysis by IC	32584

Turn around Time Required:
Normal | Rush | Report By: 5/12/2008

Hazard Identification:

Relinquished by: Cody Janysek
Affiliation: TRC
Date: 4/28/2008
Time: 17:00

Other Instructions:

Received by:
Affiliation:
Date: 4/29/08
Time: 1330

TRC
9225 U.S. Hwy. 183 South, Austin, Texas 78747
PHONE: 512.243.0202
FAX: 512.243.0222

ATMOSPHERIC ANALYSIS & CONSULTING, INC.
1534 Eastman Avenue, Suite A
Ventura, California 93003
Phone (805) 650-1642 Fax (805) 650-1644
E-mail: aacLab@earthlink.net

AAC Project No. 080228

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

Client Name: TRC
Project Name: F-1603
Project Mgr (Print Name): Marcus Hueppe
Project Number:
Sampler's Name (Print Name):
Sampler's Signature:

Analysis Requested

AAC Sample No.	Date Sampled	Time Sampled	Sample Type	Client Sample ID/Description	Type/No. of containers	EPA Draft Method XCN				
080228-32581	4/22/2008		Liquid	F-1603 Run 1	Vial 1	X				
080228-32582	4/22/2008		Liquid	F-1603 Run 2	Vial 1	X				
080228-32583	4/22/2008		Liquid	F-1603 Run 3	Vial 1	X				
080228-32584	4/22/2008		Liquid	Blank	Vial 1	X				

Send Report: AAC
1534 Eastman Ave SteA
Ventura, CA 93003
Attn: Marcus Hueppe
Phone #: 805-650-1652
Fax #:

Send Invoice to: AAC
1534 Eastman Ave SteA
Ventura, CA 93003
Attn: Dr. Sucha Parmar
P.O. #

Turn Around Time
24-Hr ____ 48-Hr ____
5 day ____ Normal ____
Other (Specify) see below

Special Intructions / remarks:
need report by 5/9/2008

Relinquished by (Signature)	Print name:	Date/Time	Received by (Signature)	Print Name
[signature]	Thien Tran	4/29/2008 13:34		
Relinquished by (Signature)	Print name:	Date/Time	Received by (Signature)	Print Name
			John Kattenbach 4/30/08	1500

DAT
7715 Corporate
Project Number:
04.30
5458
383 N
0
RT
FZ

FedEx Ship Manager - Print Your Label(s)

Page 1 of 1

Thien Tran
AAC
1534 EASTMAN AVENUE, SUITE A

VENTURA, CA 93003

FedEx Express

CLS126797/21/24

ActWgt: 3 LB
System#: 1251647/INET8010
Account#: S *********

Delivery Address Bar Code

SHIP TO: 8007338644 BILL SENDER

Dr Ron Mitchum
DAT Inc
7715 Corporate Blvd

Plain City, OH 43064

Ref # subbed samples 080228
Invoice #
PO #
Dept #

TRK# 0201 7989 3069 5458

WED - 30APR A2
STANDARD OVERNIGHT

NS CMHA

43064
OH-US
LCK

Laboratory Receiving Initials

0408045
5/1/2008 9:43:55 AM

DAT Labs Inc.
Sample Receipt Report

Client: Atmospheric Analysis + Consulting

Custodian Initial: JR Date: 4/30/08

Secondary Review: Initials: OK Date: 5/1/08

The client has been contacted.

____ Yes ✓ No

Upon receipt of samples, check if any of the following discrepancies have been noted.

	Discrepancy Type	*Specify applicable client ID or "all"*
	COC and samples do not match	
	No unique sample identifications	
	Samples received outside of the required temp criteria. **Receipt Temp:** 5.0 C	
	No preservation type was noted **Correction Factor:** +1.7 C	
	No date of collection stated **Corrected Temp:** 6.7 C	
	No time of collection stated	
	The sample collector was not named	
	Sample containers were not appropriate	
	Sample labels were destroyed or unreadable	
	Samples were received outside of holding time	
	There was not enough sample to perform the requested analysis.	
	Samples showed sign of damage or contamination.	
	Aqueous samples for volatile analysis: Headspace? Y N If Yes, list sample ID(s) in details:	
	Sample pH acidic basic neutral Check pH of aqueous samples if no preservation is noted on COC.	

Details: _____

Sample pH for nonvolatile aqueous samples and presence or absence of headspace (Y or N) for VOA aqueous samples shall be recorded at time of sample log-in.
Under no circumstances shall VOA vials be opened at time of sample receipt.

Other Discrepancies:

Sample ID	**Discrepancy**

[X] ***Upon receipt, the samples met all of DAT's acceptance criteria.*** ***DAT Project #*** 0408045

Effective 01/29/08

DATFRM1049 Revision 2

DAT SAMPLE RECEIVING

7715 Corporate Blvd. Plain City,OH 43064.

Project Number: 0408045

Date Received:	4/30/2008	**Carrier:**	FedEx
Client Name:	Atmospheric Analysis &	**Analysis:**	x-HCN/EPA Draft Metho
Tracking number:	789830695458	**Package Temp:**	6.7°C (ice packs)
Custody Seals ?:	No	**COC:** ✓	check if COC from client

Sample Information

Client ID:	Laboratory ID	Date	Matrix:	Container:	Comment:
F-1603 Run 1 080228-32581	0408045-1	4/22/2008	0.1N NaOH	VOA vial	
F-1603 Run 2 080228-32582	0408045-2	4/22/2008	0.1N NaOH	VOA vial	
F-1603 Run 3 080228-32583	0408045-3	4/22/2008	0.1N NaOH	VOA vial	
F-1603 Field Blank 080228-32584	0408045-4	4/22/2008	0.1N NaOH	VOA vial	

Laboratory Receiving Initials

0408045

5/1/2008 9:43:55 AM

APPENDIX E:
OPERATIONAL DATA

	16C0040	16C0030	16C0102	16C060	16FC225	16AC201A	16AI1006	16AI201
	Coke Burn MLB/HR	Corrected Total Air MMSCFH	Corrected FCC Feed MBPD	Cat Circulation TONS/MIN	Aqueous Ammonia Injection LBS/HR	Stack Opacity %	K1603 O2 Dry %	Flue Gas O2 %
22-Apr-08 00:00:00	47.23	8.68	88.62	50.77	70.71	2.69	1.66	1.39
22-Apr-08 00:01:00	47.21	8.66	88.59	50.76	70.90	2.50	1.66	1.36
22-Apr-08 00:02:00	47.44	8.68	88.55	50.90	70.87	2.56	1.60	1.32
22-Apr-08 00:03:00	47.60	8.70	88.57	51.09	70.89	2.09	1.55	1.30
22-Apr-08 00:04:00	47.66	8.70	88.55	51.27	70.82	2.47	1.57	1.28
22-Apr-08 00:05:00	47.89	8.73	88.53	51.36	70.80	2.62	1.48	1.24
22-Apr-08 00:06:00	47.88	8.74	88.54	51.32	70.90	2.03	1.54	1.26
22-Apr-08 00:07:00	47.65	8.69	88.55	51.09	70.76	2.92	1.53	1.26
22-Apr-08 00:08:00	47.95	8.73	88.56	51.35	70.30	2.99	1.48	1.23
22-Apr-08 00:09:00	47.99	8.74	88.61	51.46	68.11	2.29	1.46	1.23
22-Apr-08 00:10:00	47.70	8.70	88.61	51.20	66.00	2.38	1.51	1.25
22-Apr-08 00:11:00	47.66	8.71	88.62	51.01	65.84	2.96	1.58	1.30
22-Apr-08 00:12:00	47.62	8.69	88.62	51.05	65.75	2.89	1.55	1.27
22-Apr-08 00:13:00	47.57	8.70	88.59	51.09	65.72	2.95	1.57	1.29
22-Apr-08 00:14:00	47.59	8.73	88.56	50.97	65.65	2.53	1.67	1.36
22-Apr-08 00:15:00	47.71	8.76	88.58	50.97	65.18	2.70	1.65	1.38
22-Apr-08 00:16:00	47.43	8.73	88.59	50.62	63.67	3.06	1.69	1.43
22-Apr-08 00:17:00	47.15	8.72	88.58	50.39	72.99	8.69	1.77	1.50
22-Apr-08 00:18:00	47.01	8.74	88.57	50.19	97.89	17.28	1.93	1.59
22-Apr-08 00:19:00	46.93	8.74	88.58	50.17	82.07	4.77	1.95	1.62
22-Apr-08 00:20:00	46.89	8.74	88.58	50.04	80.70	3.02	2.02	1.66
22-Apr-08 00:21:00	47.05	8.73	88.57	50.31	79.75	2.41	1.89	1.56
22-Apr-08 00:22:00	47.32	8.73	88.57	50.70	76.42	1.72	1.82	1.48
22-Apr-08 00:23:00	47.49	8.74	88.58	50.88	74.21	1.99	1.73	1.42
22-Apr-08 00:24:00	47.25	8.69	88.57	50.74	73.73	2.21	1.68	1.40
22-Apr-08 00:25:00	47.33	8.70	88.58	50.84	73.82	2.03	1.68	1.40
22-Apr-08 00:26:00	47.53	8.72	88.59	51.07	73.79	2.31	1.68	1.37
22-Apr-08 00:27:00	47.60	8.72	88.58	51.09	73.71	2.63	1.66	1.33
22-Apr-08 00:28:00	47.81	8.74	88.54	51.31	73.69	2.43	1.64	1.31
22-Apr-08 00:29:00	47.79	8.72	88.56	51.33	72.45	2.18	1.55	1.27
22-Apr-08 00:30:00	47.85	8.72	88.57	51.55	68.47	1.96	1.52	1.24
22-Apr-08 00:31:00	48.14	8.78	88.55	51.68	68.16	2.07	1.53	1.27
22-Apr-08 00:32:00	48.06	8.78	88.59	51.59	68.15	2.61	1.55	1.28
22-Apr-08 00:33:00	47.77	8.73	88.62	51.36	68.16	2.73	1.55	1.30
22-Apr-08 00:34:00	47.63	8.71	88.64	51.14	68.09	2.39	1.55	1.30
22-Apr-08 00:35:00	47.49	8.71	88.65	51.06	67.31	2.85	1.60	1.35
22-Apr-08 00:36:00	47.68	8.76	88.63	50.98	64.92	3.19	1.65	1.38
22-Apr-08 00:37:00	47.78	8.78	88.62	51.06	64.72	3.74	1.63	1.38
22-Apr-08 00:38:00	47.52	8.74	88.60	50.86	64.73	4.03	1.67	1.42
22-Apr-08 00:39:00	47.27	8.71	88.60	50.77	64.84	3.03	1.70	1.43

	16C0040	16C0030	16C0102	16C060	16FC225	16AC201A	16AI1006	16AI201
	Coke Burn MLB/HR	Corrected Total Air MMSCFH	Corrected FCC Feed MBPD	Cat Circulation TONS/MIN	Aqueous Ammonia Injection LBS/HR	Stack Opacity %	K1603 O2 Dry %	Flue Gas O2 %
22-Apr-08 00:40:00	47.07	8.69	88.61	50.56	64.80	2.62	1.78	1.46
22-Apr-08 00:41:00	47.22	8.72	88.62	50.67	64.81	2.77	1.76	1.47
22-Apr-08 00:42:00	47.18	8.73	88.62	50.62	64.83	3.11	1.76	1.51
22-Apr-08 00:43:00	47.21	8.75	88.63	50.45	64.90	2.94	1.77	1.54
22-Apr-08 00:44:00	47.19	8.75	88.61	50.32	64.86	2.97	1.84	1.54
22-Apr-08 00:45:00	47.30	8.76	88.61	50.48	64.80	3.55	1.84	1.52
22-Apr-08 00:46:00	47.34	8.75	88.60	50.62	64.87	3.31	1.79	1.49
22-Apr-08 00:47:00	47.17	8.72	88.59	50.49	64.89	3.66	1.79	1.49
22-Apr-08 00:48:00	47.24	8.74	88.57	50.57	64.87	3.25	1.77	1.50
22-Apr-08 00:49:00	47.22	8.74	88.58	50.53	64.92	3.40	1.81	1.52
22-Apr-08 00:50:00	47.18	8.74	88.59	50.51	64.87	3.29	1.84	1.52
22-Apr-08 00:51:00	47.13	8.74	88.58	50.60	64.85	3.79	1.85	1.55
22-Apr-08 00:52:00	47.32	8.77	88.56	50.55	64.86	3.38	1.88	1.54
22-Apr-08 00:53:00	47.35	8.75	88.56	50.79	64.84	3.24	1.80	1.50
22-Apr-08 00:54:00	47.04	8.71	88.55	50.60	64.83	3.37	1.80	1.52
22-Apr-08 00:55:00	47.01	8.71	88.54	50.51	64.92	3.87	1.85	1.53
22-Apr-08 00:56:00	46.94	8.71	88.56	50.48	64.92	3.46	1.88	1.55
22-Apr-08 00:57:00	47.34	8.77	88.59	50.62	65.89	3.50	1.86	1.54
22-Apr-08 00:58:00	47.46	8.76	88.61	50.73	69.12	3.01	1.84	1.48
22-Apr-08 00:59:00	47.22	8.71	88.60	50.78	69.27	3.32	1.76	1.45
22-Apr-08 01:00:00	47.24	8.72	88.57	50.77	69.25	3.44	1.80	1.47
22-Apr-08 01:01:00	47.34	8.74	88.53	50.84	69.31	2.88	1.77	1.46
22-Apr-08 01:02:00	47.40	8.74	88.56	50.87	69.28	2.33	1.76	1.46
22-Apr-08 01:03:00	47.41	8.71	88.56	50.93	69.36	2.29	1.68	1.41
22-Apr-08 01:04:00	47.53	8.69	88.57	51.10	69.33	2.70	1.57	1.30
22-Apr-08 01:05:00	47.68	8.71	88.59	51.33	69.30	2.91	1.58	1.28
22-Apr-08 01:06:00	47.65	8.72	88.61	51.31	69.38	2.91	1.61	1.31
22-Apr-08 01:07:00	47.62	8.73	88.62	51.05	69.38	3.42	1.65	1.35
22-Apr-08 01:08:00	47.68	8.72	88.63	51.13	69.39	2.68	1.58	1.30
22-Apr-08 01:09:00	47.69	8.72	88.64	51.23	69.36	2.73	1.57	1.29
22-Apr-08 01:10:00	47.70	8.72	88.64	51.17	69.32	3.04	1.58	1.30
22-Apr-08 01:11:00	47.49	8.69	88.64	51.09	69.36	2.95	1.53	1.31
22-Apr-08 01:12:00	47.36	8.71	88.60	50.87	69.43	3.12	1.57	1.41
22-Apr-08 01:13:00	47.48	8.73	88.61	50.86	69.38	2.83	1.60	1.41
22-Apr-08 01:14:00	47.37	8.72	88.59	50.72	69.36	2.79	1.71	1.43
22-Apr-08 01:15:00	47.29	8.73	88.60	50.64	69.33	2.97	1.72	1.46
22-Apr-08 01:16:00	47.19	8.71	88.60	50.63	69.31	2.43	1.81	1.48
22-Apr-08 01:17:00	47.07	8.69	88.60	50.64	69.36	2.15	1.76	1.46
22-Apr-08 01:18:00	46.98	8.69	88.59	50.63	69.34	3.03	1.81	1.51
22-Apr-08 01:19:00	46.80	8.67	88.59	50.55	69.34	3.18	1.81	1.53

	16C0040	16C0030	16C0102	16C060	16FC225	16AC201A	16AI1006	16AI201
	Coke Burn MLB/HR	Corrected Total Air MMSCFH	Corrected FCC Feed MBPD	Cat Circulation TONS/MIN	Aqueous Ammonia Injection LBS/HR	Stack Opacity %	K1603 O2 Dry %	Flue Gas O2 %
22-Apr-08 01:20:00	46.82	8.67	88.60	50.51	69.34	2.96	1.82	1.52
22-Apr-08 01:21:00	46.87	8.66	88.61	50.56	69.32	2.88	1.80	1.49
22-Apr-08 01:22:00	46.95	8.67	88.62	50.51	68.84	2.98	1.74	1.47
22-Apr-08 01:23:00	47.23	8.70	88.61	50.78	67.26	2.72	1.76	1.44
22-Apr-08 01:24:00	47.10	8.64	88.61	50.75	66.72	2.70	1.64	1.36
22-Apr-08 01:25:00	47.32	8.66	88.62	50.76	65.10	2.75	1.61	1.33
22-Apr-08 01:26:00	47.82	8.71	88.59	51.20	63.81	3.23	1.50	1.23
22-Apr-08 01:27:00	47.73	8.69	88.59	51.28	63.69	3.52	1.48	1.22
22-Apr-08 01:28:00	47.62	8.68	88.61	51.21	63.74	3.50	1.47	1.25
22-Apr-08 01:29:00	47.77	8.71	88.58	51.37	63.78	3.15	1.48	1.26
22-Apr-08 01:30:00	47.64	8.72	88.56	51.23	63.80	3.22	1.55	1.30
22-Apr-08 01:31:00	47.50	8.70	88.57	51.12	63.84	2.44	1.61	1.34
22-Apr-08 01:32:00	47.49	8.70	88.56	50.96	63.84	2.87	1.58	1.33
22-Apr-08 01:33:00	47.59	8.71	88.55	51.04	63.76	3.15	1.58	1.31
22-Apr-08 01:34:00	47.59	8.70	88.55	51.27	63.78	2.74	1.55	1.30
22-Apr-08 01:35:00	47.48	8.71	88.57	51.08	63.71	2.97	1.63	1.35
22-Apr-08 01:36:00	47.40	8.72	88.59	50.79	63.72	2.84	1.72	1.40
22-Apr-08 01:37:00	47.17	8.70	88.59	50.74	63.68	2.80	1.71	1.45
22-Apr-08 01:38:00	47.13	8.70	88.59	50.53	63.72	3.07	1.77	1.48
22-Apr-08 01:39:00	47.50	8.76	88.60	50.72	63.71	2.91	1.73	1.46
22-Apr-08 01:40:00	47.37	8.75	88.60	50.71	63.72	2.80	1.76	1.47
22-Apr-08 01:41:00	47.22	8.72	88.63	50.60	63.78	2.99	1.79	1.48
22-Apr-08 01:42:00	47.23	8.71	88.61	50.66	63.72	2.81	1.78	1.45
22-Apr-08 01:43:00	47.24	8.71	88.62	50.71	63.70	3.66	1.78	1.45
22-Apr-08 01:44:00	47.13	8.69	88.59	50.54	63.67	3.95	1.77	1.46
22-Apr-08 01:45:00	47.29	8.70	88.58	50.65	63.66	3.81	1.70	1.41
22-Apr-08 01:46:00	47.42	8.73	88.61	50.91	63.65	3.87	1.71	1.43
22-Apr-08 01:47:00	47.07	8.67	88.62	50.69	63.68	3.54	1.70	1.41
22-Apr-08 01:48:00	47.00	8.67	88.61	50.72	63.57	3.47	1.77	1.45
22-Apr-08 01:49:00	47.28	8.72	88.61	50.80	63.52	3.57	1.77	1.47
22-Apr-08 01:50:00	47.52	8.75	88.64	51.00	63.62	3.64	1.73	1.44
22-Apr-08 01:51:00	47.46	8.74	88.67	51.05	64.20	3.46	1.70	1.43
22-Apr-08 01:52:00	47.15	8.69	88.65	50.80	65.99	3.73	1.71	1.44
22-Apr-08 01:53:00	47.04	8.67	88.65	50.68	66.20	2.87	1.76	1.45
22-Apr-08 01:54:00	47.10	8.68	88.65	50.75	66.82	3.32	1.75	1.43
22-Apr-08 01:55:00	47.39	8.72	88.64	50.95	68.72	3.48	1.74	1.42
22-Apr-08 01:56:00	47.46	8.72	88.60	51.02	68.95	3.28	1.67	1.39
22-Apr-08 01:57:00	47.40	8.70	88.60	50.95	68.96	2.51	1.66	1.37
22-Apr-08 01:58:00	47.45	8.69	88.60	51.08	68.99	2.96	1.64	1.34
22-Apr-08 01:59:00	47.81	8.72	88.60	51.47	69.00	2.65	1.54	1.26

	16C0040	16C0030	16C0102	16C060	16FC225	16AC201A	16AI1006	16AI201
	Coke Burn MLB/HR	Corrected Total Air MMSCFH	Corrected FCC Feed MBPD	Cat Circulation TONS/MIN	Aqueous Ammonia Injection LBS/HR	Stack Opacity %	K1603 O2 Dry %	Flue Gas O2 %
22-Apr-08 02:00:00	47.85	8.73	88.59	51.65	68.92	2.46	1.51	1.25
22-Apr-08 02:01:00	47.55	8.70	88.59	51.30	68.89	2.75	1.60	1.31
22-Apr-08 02:02:00	47.58	8.72	88.56	51.14	68.98	2.25	1.63	1.34
22-Apr-08 02:03:00	47.41	8.70	88.54	50.97	69.01	3.14	1.68	1.37
22-Apr-08 02:04:00	47.63	8.72	88.54	51.13	68.99	3.43	1.57	1.31
22-Apr-08 02:05:00	47.61	8.71	88.54	51.28	69.04	3.16	1.58	1.32
22-Apr-08 02:06:00	47.54	8.71	88.53	51.27	69.09	3.03	1.59	1.34
22-Apr-08 02:07:00	47.44	8.72	88.57	51.12	69.10	3.17	1.68	1.40
22-Apr-08 02:08:00	47.08	8.67	88.58	50.62	69.03	2.88	1.67	1.42
22-Apr-08 02:09:00	47.10	8.68	88.59	50.52	69.01	2.94	1.74	1.45
22-Apr-08 02:10:00	47.11	8.69	88.58	50.68	68.99	3.29	1.74	1.44
22-Apr-08 02:11:00	47.32	8.71	88.59	50.71	68.98	3.69	1.75	1.43
22-Apr-08 02:12:00	47.42	8.74	88.60	50.84	69.02	2.92	1.70	1.43
22-Apr-08 02:13:00	47.10	8.70	88.60	50.61	69.00	3.28	1.71	1.49
22-Apr-08 02:14:00	46.97	8.66	88.60	50.46	68.89	3.55	1.76	1.47
22-Apr-08 02:15:00	46.89	8.64	88.56	50.33	68.92	2.88	1.75	1.43
22-Apr-08 02:16:00	47.19	8.69	88.58	50.44	68.98	2.94	1.71	1.42
22-Apr-08 02:17:00	47.20	8.68	88.62	50.66	68.89	3.21	1.69	1.40
22-Apr-08 02:18:00	47.13	8.68	88.64	50.75	68.94	2.56	1.73	1.43
22-Apr-08 02:19:00	47.16	8.69	88.68	50.79	68.97	3.03	1.70	1.42
22-Apr-08 02:20:00	47.15	8.70	88.67	50.73	68.95	2.81	1.77	1.45
22-Apr-08 02:21:00	47.33	8.73	88.63	50.73	68.92	3.00	1.78	1.45
22-Apr-08 02:22:00	47.43	8.73	88.60	50.78	68.86	2.76	1.73	1.43
22-Apr-08 02:23:00	47.48	8.72	88.61	50.91	68.88	2.90	1.63	1.37
22-Apr-08 02:24:00	47.56	8.72	88.63	51.02	69.05	2.89	1.61	1.35
22-Apr-08 02:25:00	47.69	8.74	88.63	51.29	68.94	2.84	1.62	1.35
22-Apr-08 02:26:00	47.26	8.70	88.63	51.07	68.93	3.04	1.67	1.41
22-Apr-08 02:27:00	47.13	8.68	88.61	50.75	68.95	3.31	1.78	1.44
22-Apr-08 02:28:00	47.43	8.72	88.59	50.98	68.88	3.04	1.78	1.39
22-Apr-08 02:29:00	47.23	8.68	88.56	51.00	68.82	2.95	1.72	1.39
22-Apr-08 02:30:00	47.33	8.70	88.54	51.00	68.81	2.71	1.72	1.40
22-Apr-08 02:31:00	47.65	8.74	88.56	51.25	68.79	2.81	1.68	1.36
22-Apr-08 02:32:00	47.68	8.73	88.59	51.31	68.76	2.49	1.60	1.32
22-Apr-08 02:33:00	47.50	8.70	88.62	51.08	68.81	2.75	1.62	1.33
22-Apr-08 02:34:00	47.40	8.67	88.59	51.05	68.09	2.88	1.56	1.31
22-Apr-08 02:35:00	47.40	8.67	88.56	51.08	65.48	2.76	1.57	1.32
22-Apr-08 02:36:00	47.59	8.71	88.54	51.28	65.28	2.91	1.58	1.31
22-Apr-08 02:37:00	47.54	8.70	88.56	51.26	65.27	2.74	1.60	1.32
22-Apr-08 02:38:00	47.48	8.70	88.58	51.07	65.20	2.65	1.58	1.32
22-Apr-08 02:39:00	47.54	8.72	88.57	50.96	65.19	2.79	1.64	1.35

	16C0040	16C0030	16C0102	16C060	16FC225	16AC201A	16AI1006	16AI201
	Coke Burn MLB/HR	Corrected Total Air MMSCFH	Corrected FCC Feed MBPD	Cat Circulation TONS/MIN	Aqueous Ammonia Injection LBS/HR	Stack Opacity %	K1603 O2 Dry %	Flue Gas O2 %
22-Apr-08 02:40:00	47.71	8.75	88.57	50.96	65.23	3.21	1.64	1.35
22-Apr-08 02:41:00	47.68	8.74	88.58	51.01	65.19	3.14	1.61	1.34
22-Apr-08 02:42:00	47.60	8.72	88.59	50.97	65.15	2.76	1.64	1.33
22-Apr-08 02:43:00	47.65	8.72	88.61	51.16	65.20	3.13	1.63	1.32
22-Apr-08 02:44:00	47.41	8.70	88.61	51.08	65.21	3.41	1.62	1.35
22-Apr-08 02:45:00	47.22	8.70	88.58	50.84	65.21	3.50	1.74	1.44
22-Apr-08 02:46:00	47.14	8.70	88.57	50.56	65.28	2.95	1.77	1.45
22-Apr-08 02:47:00	47.38	8.73	88.57	50.63	65.26	2.48	1.78	1.45
22-Apr-08 02:48:00	47.59	8.75	88.57	50.88	65.26	2.71	1.69	1.40
22-Apr-08 02:49:00	47.41	8.71	88.58	50.92	65.27	3.24	1.65	1.38
22-Apr-08 02:50:00	47.11	8.66	88.62	50.83	65.49	2.88	1.63	1.38
22-Apr-08 02:51:00	47.02	8.66	88.61	50.78	66.28	3.20	1.69	1.42
22-Apr-08 02:52:00	47.06	8.67	88.59	50.76	66.43	2.91	1.71	1.43
22-Apr-08 02:53:00	47.15	8.69	88.59	50.75	66.94	3.00	1.72	1.43
22-Apr-08 02:54:00	47.33	8.72	88.57	50.92	68.81	3.49	1.75	1.43
22-Apr-08 02:55:00	47.42	8.73	88.59	50.97	68.90	3.37	1.70	1.42
22-Apr-08 02:56:00	47.42	8.73	88.57	50.86	68.91	3.12	1.70	1.43
22-Apr-08 02:57:00	47.42	8.74	88.57	50.82	68.94	2.98	1.72	1.43
22-Apr-08 02:58:00	47.33	8.72	88.56	50.92	68.90	3.08	1.72	1.43
22-Apr-08 02:59:00	47.32	8.70	88.52	50.88	68.86	2.57	1.70	1.40
22-Apr-08 03:00:00	47.53	8.73	88.53	50.96	68.88	3.13	1.67	1.39
22-Apr-08 03:01:00	47.54	8.72	88.53	51.16	68.90	2.14	1.64	1.36
22-Apr-08 03:02:00	47.51	8.69	88.58	51.24	68.82	2.42	1.59	1.32
22-Apr-08 03:03:00	47.39	8.67	88.63	51.16	68.89	2.68	1.59	1.30
22-Apr-08 03:04:00	47.54	8.69	88.66	51.19	68.87	2.87	1.59	1.30
22-Apr-08 03:05:00	47.82	8.73	88.63	51.32	68.91	2.68	1.55	1.27
22-Apr-08 03:06:00	47.57	8.69	88.63	51.27	68.80	2.93	1.54	1.28
22-Apr-08 03:07:00	47.36	8.67	88.66	51.16	68.88	3.08	1.59	1.32
22-Apr-08 03:08:00	47.40	8.70	88.66	51.03	68.87	3.07	1.66	1.37
22-Apr-08 03:09:00	47.46	8.69	88.64	51.04	68.79	2.52	1.60	1.35
22-Apr-08 03:10:00	47.46	8.68	88.63	51.08	68.79	2.83	1.54	1.31
22-Apr-08 03:11:00	47.54	8.71	88.63	51.04	68.92	2.56	1.63	1.33
22-Apr-08 03:12:00	47.74	8.76	88.66	51.13	68.28	2.87	1.58	1.35
22-Apr-08 03:13:00	47.60	8.77	88.64	50.92	66.49	3.18	1.61	1.44
22-Apr-08 03:14:00	47.24	8.73	88.60	50.65	66.35	3.49	1.76	1.49
22-Apr-08 03:15:00	47.11	8.73	88.60	50.60	66.29	3.24	1.85	1.54
22-Apr-08 03:16:00	47.10	8.71	88.61	50.45	66.31	3.50	1.81	1.52
22-Apr-08 03:17:00	47.21	8.72	88.61	50.46	66.30	3.07	1.78	1.50
22-Apr-08 03:18:00	47.04	8.69	88.60	50.39	66.29	3.51	1.78	1.49
22-Apr-08 03:19:00	47.06	8.69	88.61	50.39	66.37	3.75	1.77	1.47

	16C0040	16C0030	16C0102	16C060	16FC225	16AC201A	16AI1006	16AI201
	Coke Burn MLB/HR	Corrected Total Air MMSCFH	Corrected FCC Feed MBPD	Cat Circulation TONS/MIN	Aqueous Ammonia Injection LBS/HR	Stack Opacity %	K1603 O2 Dry %	Flue Gas O2 %
22-Apr-08 03:20:00	47.12	8.70	88.60	50.55	66.44	3.59	1.75	1.48
22-Apr-08 03:21:00	47.18	8.69	88.59	50.53	66.50	2.48	1.69	1.43
22-Apr-08 03:22:00	47.29	8.70	88.62	50.62	66.38	2.88	1.69	1.41
22-Apr-08 03:23:00	47.27	8.70	88.61	50.70	66.38	3.21	1.71	1.43
22-Apr-08 03:24:00	47.26	8.70	88.59	50.67	66.42	3.40	1.71	1.42
22-Apr-08 03:25:00	47.32	8.70	88.59	50.83	66.97	3.09	1.70	1.41
22-Apr-08 03:26:00	47.06	8.67	88.60	50.74	68.79	3.20	1.70	1.43
22-Apr-08 03:27:00	46.95	8.69	88.60	50.53	68.93	3.32	1.80	1.52
22-Apr-08 03:28:00	47.09	8.72	88.61	50.62	69.38	3.99	1.81	1.53
22-Apr-08 03:29:00	47.20	8.72	88.61	50.57	70.92	3.97	1.79	1.50
22-Apr-08 03:30:00	47.53	8.77	88.60	50.89	71.05	3.33	1.73	1.46
22-Apr-08 03:31:00	47.35	8.72	88.57	51.04	71.01	3.19	1.73	1.43
22-Apr-08 03:32:00	47.22	8.67	88.60	51.13	72.14	2.77	1.65	1.37
22-Apr-08 03:33:00	47.34	8.68	88.61	51.13	75.85	3.56	1.63	1.35
22-Apr-08 03:34:00	47.40	8.67	88.60	51.02	76.23	2.52	1.57	1.31
22-Apr-08 03:35:00	47.49	8.68	88.58	51.04	76.23	2.89	1.56	1.29
22-Apr-08 03:36:00	47.53	8.68	88.58	51.12	76.25	2.32	1.52	1.26
22-Apr-08 03:37:00	47.56	8.69	88.61	51.11	76.24	2.41	1.55	1.28
22-Apr-08 03:38:00	47.76	8.71	88.62	51.27	75.52	2.55	1.53	1.26
22-Apr-08 03:39:00	47.76	8.72	88.64	51.24	73.54	2.53	1.55	1.28
22-Apr-08 03:40:00	47.54	8.69	88.63	51.06	72.75	2.66	1.55	1.29
22-Apr-08 03:41:00	47.57	8.70	88.64	51.19	70.37	3.33	1.57	1.30
22-Apr-08 03:42:00	47.37	8.68	88.65	50.94	70.10	3.03	1.64	1.32
22-Apr-08 03:43:00	47.48	8.71	88.62	51.06	70.10	2.63	1.64	1.37
22-Apr-08 03:44:00	47.41	8.73	88.60	50.92	70.12	3.09	1.66	1.40
22-Apr-08 03:45:00	47.19	8.71	88.58	50.66	70.15	3.08	1.78	1.47
22-Apr-08 03:46:00	47.06	8.70	88.56	50.56	70.15	2.67	1.78	1.48
22-Apr-08 03:47:00	46.92	8.69	88.51	50.37	70.20	2.82	1.86	1.55
22-Apr-08 03:48:00	46.84	8.65	88.55	50.44	70.22	3.19	1.77	1.48
22-Apr-08 03:49:00	47.04	8.67	88.57	50.64	70.24	3.74	1.75	1.44
22-Apr-08 03:50:00	47.40	8.73	88.56	50.84	70.21	4.24	1.77	1.44
22-Apr-08 03:51:00	47.50	8.74	88.55	50.92	70.23	3.17	1.72	1.41
22-Apr-08 03:52:00	47.48	8.74	88.55	50.85	70.18	3.11	1.70	1.41
22-Apr-08 03:53:00	47.19	8.68	88.51	50.71	70.21	2.84	1.71	1.40
22-Apr-08 03:54:00	47.02	8.65	88.52	50.63	70.28	3.32	1.70	1.40
22-Apr-08 03:55:00	47.31	8.69	88.55	50.66	70.30	3.06	1.72	1.40
22-Apr-08 03:56:00	47.57	8.74	88.55	50.87	70.29	3.12	1.63	1.38
22-Apr-08 03:57:00	47.45	8.74	88.56	50.77	70.27	3.53	1.64	1.45
22-Apr-08 03:58:00	47.31	8.71	88.61	50.67	70.27	3.20	1.66	1.42
22-Apr-08 03:59:00	47.06	8.67	88.59	50.59	70.19	2.97	1.73	1.44

	16C0040	16C0030	16C0102	16C060	16FC225	16AC201A	16AI1006	16AI201
	Coke Burn MLB/HR	Corrected Total Air MMSCFH	Corrected FCC Feed MBPD	Cat Circulation TONS/MIN	Aqueous Ammonia Injection LBS/HR	Stack Opacity %	K1603 O2 Dry %	Flue Gas O2 %
22-Apr-08 04:00:00	47.19	8.70	88.59	50.61	70.18	2.75	1.73	1.44
22-Apr-08 04:01:00	47.36	8.72	88.59	50.71	70.24	2.45	1.72	1.43
22-Apr-08 04:02:00	46.99	8.68	88.60	50.54	70.22	2.65	1.73	1.48
22-Apr-08 04:03:00	46.93	8.70	88.60	50.36	70.20	2.65	1.82	1.54
22-Apr-08 04:04:00	46.97	8.72	88.58	50.26	70.18	3.48	1.90	1.58
22-Apr-08 04:05:00	47.04	8.74	88.60	50.23	70.22	3.37	1.90	1.59
22-Apr-08 04:06:00	47.14	8.75	88.62	50.41	72.21	3.05	1.91	1.58
22-Apr-08 04:07:00	47.06	8.71	88.61	50.60	78.69	3.43	1.87	1.52
22-Apr-08 04:08:00	47.27	8.72	88.59	50.68	78.86	3.26	1.81	1.47
22-Apr-08 04:09:00	47.60	8.74	88.60	51.18	77.18	2.97	1.67	1.39
22-Apr-08 04:10:00	47.43	8.71	88.60	51.16	76.96	3.31	1.67	1.38
22-Apr-08 04:11:00	47.21	8.67	88.61	50.97	76.87	3.27	1.68	1.38
22-Apr-08 04:12:00	47.65	8.71	88.59	51.28	76.01	2.27	1.70	1.31
22-Apr-08 04:13:00	47.87	8.72	88.58	51.64	74.14	2.32	1.67	1.24
22-Apr-08 04:14:00	47.72	8.70	88.58	51.50	73.01	2.47	1.53	1.24
22-Apr-08 04:15:00	47.59	8.67	88.57	51.30	69.91	2.32	1.46	1.23
22-Apr-08 04:16:00	47.58	8.68	88.55	51.37	69.60	2.50	1.51	1.25
22-Apr-08 04:17:00	47.68	8.72	88.54	51.43	69.58	2.83	1.59	1.31
22-Apr-08 04:18:00	47.89	8.75	88.54	51.57	69.57	2.45	1.58	1.30
22-Apr-08 04:19:00	47.68	8.72	88.57	51.42	69.64	2.53	1.58	1.30
22-Apr-08 04:20:00	47.32	8.65	88.59	51.25	69.53	2.71	1.56	1.30
22-Apr-08 04:21:00	47.44	8.69	88.59	51.42	69.51	2.61	1.59	1.32
22-Apr-08 04:22:00	47.76	8.74	88.56	51.69	69.48	2.71	1.63	1.33
22-Apr-08 04:23:00	47.76	8.73	88.58	51.62	69.49	2.48	1.56	1.30
22-Apr-08 04:24:00	47.70	8.71	88.57	51.53	69.45	2.69	1.55	1.29
22-Apr-08 04:25:00	47.66	8.71	88.58	51.63	69.57	2.85	1.55	1.29
22-Apr-08 04:26:00	47.65	8.71	88.62	51.45	69.59	2.92	1.53	1.30
22-Apr-08 04:27:00	47.79	8.75	88.66	51.45	69.52	2.90	1.52	1.32
22-Apr-08 04:28:00	47.73	8.76	88.63	51.42	69.59	2.71	1.55	1.38
22-Apr-08 04:29:00	47.50	8.71	88.61	51.33	69.45	2.45	1.67	1.36
22-Apr-08 04:30:00	47.45	8.70	88.63	51.25	69.42	2.37	1.64	1.34
22-Apr-08 04:31:00	47.53	8.71	88.63	51.14	69.43	2.53	1.63	1.35
22-Apr-08 04:32:00	47.63	8.73	88.64	51.17	69.47	2.40	1.60	1.34
22-Apr-08 04:33:00	47.63	8.76	88.61	51.29	69.49	2.53	1.68	1.40
22-Apr-08 04:34:00	47.42	8.74	88.60	51.09	68.59	2.72	1.74	1.44
22-Apr-08 04:35:00	47.44	8.76	88.63	51.04	65.62	2.60	1.76	1.47
22-Apr-08 04:36:00	47.21	8.73	88.62	50.85	65.39	2.94	1.80	1.51
22-Apr-08 04:37:00	47.26	8.74	88.62	50.83	65.48	3.11	1.78	1.51
22-Apr-08 04:38:00	47.49	8.78	88.61	51.04	65.39	3.13	1.82	1.50
22-Apr-08 04:39:00	47.33	8.72	88.62	50.99	65.41	3.20	1.75	1.44

	16C0040	16C0030	16C0102	16C060	16FC225	16AC201A	16AI1006	16AI201
	Coke Burn MLB/HR	Corrected Total Air MMSCFH	Corrected FCC Feed MBPD	Cat Circulation TONS/MIN	Aqueous Ammonia Injection LBS/HR	Stack Opacity %	K1603 O2 Dry %	Flue Gas O2 %
22-Apr-08 04:40:00	47.22	8.69	88.59	50.99	65.37	2.93	1.70	1.41
22-Apr-08 04:41:00	47.49	8.74	88.59	51.03	65.34	3.15	1.71	1.42
22-Apr-08 04:42:00	47.74	8.78	88.59	51.17	65.42	3.25	1.69	1.41
22-Apr-08 04:43:00	47.50	8.72	88.59	51.18	65.50	3.27	1.68	1.39
22-Apr-08 04:44:00	47.47	8.71	88.61	51.25	66.21	3.19	1.65	1.37
22-Apr-08 04:45:00	47.66	8.74	88.64	51.39	68.30	3.27	1.63	1.35
22-Apr-08 04:46:00	47.41	8.70	88.64	51.25	68.51	3.06	1.64	1.36
22-Apr-08 04:47:00	47.32	8.69	88.65	51.17	68.50	3.07	1.63	1.37
22-Apr-08 04:48:00	47.59	8.76	88.64	51.17	68.59	3.30	1.73	1.42
22-Apr-08 04:49:00	47.75	8.75	88.60	51.28	69.11	3.40	1.62	1.35
22-Apr-08 04:50:00	47.62	8.72	88.58	51.26	71.13	2.91	1.57	1.33
22-Apr-08 04:51:00	47.61	8.72	88.60	51.27	71.62	3.00	1.59	1.33
22-Apr-08 04:52:00	47.79	8.75	88.61	51.28	71.64	3.37	1.57	1.33
22-Apr-08 04:53:00	47.71	8.76	88.61	51.25	71.67	3.51	1.63	1.37
22-Apr-08 04:54:00	47.39	8.73	88.59	51.02	71.70	3.04	1.65	1.43
22-Apr-08 04:55:00	47.10	8.71	88.59	50.71	71.72	3.28	1.75	1.49
22-Apr-08 04:56:00	46.83	8.69	88.59	50.31	71.69	3.89	1.84	1.55
22-Apr-08 04:57:00	47.03	8.72	88.59	50.37	71.66	3.53	1.96	1.54
22-Apr-08 04:58:00	47.08	8.72	88.60	50.60	71.75	3.47	1.96	1.52
22-Apr-08 04:59:00	47.18	8.76	88.62	50.57	71.88	3.17	1.91	1.57
22-Apr-08 05:00:00	47.17	8.76	88.60	50.66	71.75	3.11	1.88	1.57
22-Apr-08 05:01:00	47.11	8.73	88.62	50.64	71.66	3.35	1.88	1.54
22-Apr-08 05:02:00	47.52	8.76	88.60	51.00	71.65	3.42	1.74	1.45
22-Apr-08 05:03:00	47.51	8.74	88.60	51.13	71.63	2.92	1.68	1.40
22-Apr-08 05:04:00	47.50	8.73	88.59	50.98	71.64	3.06	1.70	1.40
22-Apr-08 05:05:00	47.50	8.72	88.60	51.11	71.69	2.63	1.65	1.37
22-Apr-08 05:06:00	47.46	8.72	88.60	51.12	71.66	2.74	1.66	1.38
22-Apr-08 05:07:00	47.49	8.74	88.61	51.11	71.65	2.68	1.71	1.42
22-Apr-08 05:08:00	47.60	8.75	88.64	51.18	71.59	2.40	1.68	1.39
22-Apr-08 05:09:00	47.78	8.76	88.64	51.30	71.61	2.62	1.68	1.36
22-Apr-08 05:10:00	47.53	8.70	88.64	51.34	71.48	2.68	1.61	1.33
22-Apr-08 05:11:00	47.34	8.67	88.62	51.15	71.33	2.79	1.61	1.33
22-Apr-08 05:12:00	47.71	8.73	88.60	51.32	70.87	2.40	1.56	1.31
22-Apr-08 05:13:00	47.73	8.74	88.59	51.34	69.16	2.50	1.56	1.31
22-Apr-08 05:14:00	47.78	8.75	88.62	51.18	68.69	2.31	1.56	1.33
22-Apr-08 05:15:00	48.06	8.80	88.64	51.43	68.60	2.91	1.58	1.33
22-Apr-08 05:16:00	47.80	8.75	88.64	51.28	68.68	2.36	1.57	1.32
22-Apr-08 05:17:00	47.62	8.73	88.63	51.17	67.84	2.74	1.63	1.34
22-Apr-08 05:18:00	47.48	8.75	88.62	51.05	65.10	2.97	1.71	1.43
22-Apr-08 05:19:00	47.05	8.71	88.61	50.67	64.89	2.84	1.82	1.52

	16C0040	16C0030	16C0102	16C060	16FC225	16AC201A	16AI1006	16AI201
	Coke Burn MLB/HR	Corrected Total Air MMSCFH	Corrected FCC Feed MBPD	Cat Circulation TONS/MIN	Aqueous Ammonia Injection LBS/HR	Stack Opacity %	K1603 O2 Dry %	Flue Gas O2 %
22-Apr-08 05:20:00	47.04	8.71	88.60	50.44	64.95	2.82	1.83	1.53
22-Apr-08 05:21:00	47.15	8.74	88.64	50.49	64.92	2.68	1.83	1.54
22-Apr-08 05:22:00	47.31	8.77	88.62	50.60	64.89	2.93	1.86	1.55
22-Apr-08 05:23:00	47.45	8.78	88.60	50.67	64.89	2.80	1.77	1.52
22-Apr-08 05:24:00	47.65	8.84	88.60	50.82	65.56	2.74	1.87	1.56
22-Apr-08 05:25:00	47.68	8.85	88.62	50.89	67.65	3.35	1.88	1.57
22-Apr-08 05:26:00	47.34	8.79	88.61	50.73	68.20	3.95	1.87	1.57
22-Apr-08 05:27:00	47.09	8.77	88.61	50.64	69.81	4.11	1.89	1.62
22-Apr-08 05:28:00	46.92	8.76	88.66	50.48	71.45	3.14	1.90	1.67
22-Apr-08 05:29:00	47.03	8.77	88.64	50.47	71.49	2.65	1.94	1.64
22-Apr-08 05:30:00	47.19	8.81	88.60	50.55	71.40	3.28	2.03	1.68
22-Apr-08 05:31:00	47.30	8.80	88.57	50.62	71.34	3.60	1.97	1.62
22-Apr-08 05:32:00	47.57	8.81	88.54	50.85	71.38	3.28	1.86	1.53
22-Apr-08 05:33:00	47.65	8.79	88.54	50.99	71.81	3.48	1.75	1.47
22-Apr-08 05:34:00	47.60	8.78	88.51	51.05	73.61	3.82	1.74	1.45
22-Apr-08 05:35:00	47.80	8.81	88.54	51.36	74.85	2.61	1.72	1.45
22-Apr-08 05:36:00	47.74	8.80	88.58	51.41	74.92	2.46	1.70	1.45
22-Apr-08 05:37:00	47.57	8.80	88.60	51.11	74.96	3.11	1.77	1.50
22-Apr-08 05:38:00	47.67	8.81	88.60	51.14	74.93	2.91	1.77	1.49
22-Apr-08 05:39:00	47.59	8.80	88.60	51.05	74.92	2.99	1.83	1.51
22-Apr-08 05:40:00	47.46	8.78	88.60	50.97	75.00	3.20	1.80	1.51
22-Apr-08 05:41:00	47.53	8.80	88.58	51.02	74.92	3.24	1.80	1.52
22-Apr-08 05:42:00	47.65	8.83	88.56	50.98	74.83	3.32	1.87	1.54
22-Apr-08 05:43:00	47.66	8.85	88.56	50.98	74.87	2.83	1.89	1.57
22-Apr-08 05:44:00	47.28	8.80	88.57	50.77	74.83	2.66	1.94	1.62
22-Apr-08 05:45:00	46.90	8.76	88.58	50.38	74.90	3.37	1.99	1.69
22-Apr-08 05:46:00	46.81	8.76	88.61	50.10	74.92	3.52	2.05	1.71
22-Apr-08 05:47:00	46.99	8.79	88.64	50.34	74.75	2.92	2.06	1.69
22-Apr-08 05:48:00	46.90	8.76	88.65	50.37	74.78	3.00	2.04	1.69
22-Apr-08 05:49:00	47.01	8.76	88.65	50.49	74.69	2.94	1.97	1.65
22-Apr-08 05:50:00	47.20	8.77	88.64	50.79	74.64	2.64	1.92	1.60
22-Apr-08 05:51:00	47.37	8.78	88.62	50.91	74.62	2.79	1.85	1.55
22-Apr-08 05:52:00	47.51	8.78	88.64	50.99	74.58	2.55	1.83	1.50
22-Apr-08 05:53:00	47.55	8.77	88.63	51.06	74.60	2.75	1.79	1.46
22-Apr-08 05:54:00	47.52	8.78	88.65	51.13	74.58	2.48	1.79	1.47
22-Apr-08 05:55:00	47.38	8.78	88.63	51.00	74.49	2.76	1.86	1.53
22-Apr-08 05:56:00	47.36	8.77	88.62	50.88	74.52	3.40	1.82	1.52
22-Apr-08 05:57:00	47.56	8.80	88.59	50.91	74.48	3.15	1.80	1.51
22-Apr-08 05:58:00	47.64	8.79	88.56	51.07	74.47	3.00	1.80	1.47
22-Apr-08 05:59:00	47.64	8.80	88.58	51.14	74.39	2.76	1.77	1.48

	16C0040	16C0030	16C0102	16C060	16FC225	16AC201A	16AI1006	16AI201
	Coke Burn MLB/HR	Corrected Total Air MMSCFH	Corrected FCC Feed MBPD	Cat Circulation TONS/MIN	Aqueous Ammonia Injection LBS/HR	Stack Opacity %	K1603 O2 Dry %	Flue Gas O2 %
22-Apr-08 06:00:00	47.73	8.80	88.62	51.28	74.25	2.37	1.76	1.45
22-Apr-08 06:01:00	47.59	8.77	88.62	51.39	71.39	28.75	1.73	1.43
22-Apr-08 06:02:00	47.42	8.74	88.63	51.17	61.86	91.75	1.75	1.46
22-Apr-08 06:03:00	47.52	8.75	88.65	51.26	61.06	94.65	1.72	1.42
22-Apr-08 06:04:00	47.67	8.78	88.64	51.57	61.07	94.63	1.69	1.41
22-Apr-08 06:05:00	47.67	8.80	88.60	51.61	61.06	94.62	1.74	1.46
22-Apr-08 06:06:00	47.56	8.79	88.55	51.38	60.96	94.64	1.78	1.48
22-Apr-08 06:07:00	47.37	8.74	88.56	51.11	60.98	69.70	1.78	1.47
22-Apr-08 06:08:00	47.59	8.77	88.59	51.31	60.90	8.39	1.74	1.43
22-Apr-08 06:09:00	47.61	8.76	88.64	51.47	60.92	5.48	1.72	1.42
22-Apr-08 06:10:00	47.57	8.75	88.68	51.36	60.92	5.51	1.71	1.41
22-Apr-08 06:11:00	47.56	8.75	88.69	51.30	61.05	5.54	1.71	1.41
22-Apr-08 06:12:00	47.68	8.78	88.71	51.35	61.05	5.58	1.60	1.43
22-Apr-08 06:13:00	47.79	8.81	88.72	51.45	61.02	5.05	1.62	1.45
22-Apr-08 06:14:00	47.63	8.81	88.67	51.31	61.04	3.61	1.76	1.48
22-Apr-08 06:15:00	47.23	8.77	88.61	50.81	61.05	3.11	1.92	1.57
22-Apr-08 06:16:00	47.19	8.77	88.61	50.68	60.98	3.60	1.95	1.60
22-Apr-08 06:17:00	47.11	8.78	88.60	50.60	61.39	3.44	1.95	1.62
22-Apr-08 06:18:00	47.14	8.79	88.58	50.49	62.88	3.47	1.99	1.66
22-Apr-08 06:19:00	47.32	8.81	88.58	50.58	63.58	3.91	1.92	1.62
22-Apr-08 06:20:00	47.39	8.80	88.56	50.69	65.38	3.94	1.92	1.58
22-Apr-08 06:21:00	47.28	8.77	88.58	50.98	65.93	4.35	1.86	1.55
22-Apr-08 06:22:00	46.92	8.72	88.58	50.76	67.33	4.22	1.93	1.60
22-Apr-08 06:23:00	47.17	8.77	88.56	50.89	67.76	3.92	1.86	1.58
22-Apr-08 06:24:00	47.05	8.75	88.57	50.98	69.72	4.24	1.95	1.61
22-Apr-08 06:25:00	47.03	8.71	88.58	50.85	72.38	3.58	1.87	1.53
22-Apr-08 06:26:00	47.44	8.75	88.57	51.30	72.62	3.20	1.71	1.45
22-Apr-08 06:27:00	47.39	8.72	88.58	51.26	72.94	3.16	1.70	1.43
22-Apr-08 06:28:00	47.53	8.72	88.58	51.34	74.36	3.19	1.69	1.37
22-Apr-08 06:29:00	47.60	8.73	88.58	51.57	74.58	2.83	1.64	1.35
22-Apr-08 06:30:00	47.66	8.73	88.58	51.63	74.60	2.80	1.65	1.34
22-Apr-08 06:31:00	47.72	8.72	88.60	51.66	73.99	3.33	1.56	1.30
22-Apr-08 06:32:00	47.72	8.73	88.65	51.72	72.27	2.83	1.59	1.31
22-Apr-08 06:33:00	47.80	8.74	88.62	51.61	72.12	2.29	1.53	1.29
22-Apr-08 06:34:00	47.94	8.76	88.59	51.78	72.13	2.48	1.53	1.29
22-Apr-08 06:35:00	48.08	8.79	88.57	51.79	71.61	2.37	1.54	1.29
22-Apr-08 06:36:00	48.11	8.79	88.55	51.83	69.88	2.18	1.56	1.29
22-Apr-08 06:37:00	47.90	8.75	88.53	51.84	69.83	2.21	1.54	1.28
22-Apr-08 06:38:00	47.59	8.72	88.53	51.68	69.95	2.98	1.58	1.34
22-Apr-08 06:39:00	47.71	8.73	88.55	51.46	69.50	2.99	1.59	1.32

	16C0040	16C0030	16C0102	16C060	16FC225	16AC201A	16AI1006	16AI201
	Coke Burn MLB/HR	Corrected Total Air MMSCFH	Corrected FCC Feed MBPD	Cat Circulation TONS/MIN	Aqueous Ammonia Injection LBS/HR	Stack Opacity %	K1603 O2 Dry %	Flue Gas O2 %
22-Apr-08 06:40:00	47.81	8.77	88.56	51.55	67.56	3.18	1.64	1.34
22-Apr-08 06:41:00	47.42	8.74	88.57	51.17	67.37	3.11	1.66	1.43
22-Apr-08 06:42:00	47.34	8.76	88.57	50.80	67.42	3.43	1.69	1.52
22-Apr-08 06:43:00	47.33	8.77	88.56	50.68	67.50	3.61	1.73	1.53
22-Apr-08 06:44:00	46.94	8.72	88.56	50.59	67.43	3.06	1.88	1.57
22-Apr-08 06:45:00	46.83	8.70	88.58	50.40	67.45	3.11	1.92	1.58
22-Apr-08 06:46:00	47.08	8.74	88.58	50.48	67.48	3.14	1.87	1.56
22-Apr-08 06:47:00	47.16	8.75	88.57	50.75	67.49	2.66	1.90	1.57
22-Apr-08 06:48:00	47.16	8.74	88.54	50.79	67.92	3.27	1.88	1.54
22-Apr-08 06:49:00	47.32	8.74	88.57	50.94	69.60	2.99	1.79	1.49
22-Apr-08 06:50:00	47.22	8.72	88.61	50.91	70.23	2.71	1.77	1.47
22-Apr-08 06:51:00	47.09	8.70	88.63	50.88	70.29	3.25	1.79	1.47
22-Apr-08 06:52:00	46.84	8.65	88.62	50.62	70.38	3.92	1.78	1.48
22-Apr-08 06:53:00	46.81	8.63	88.63	50.64	70.37	2.68	1.74	1.45
22-Apr-08 06:54:00	46.87	8.62	88.65	50.86	70.29	2.59	1.68	1.41
22-Apr-08 06:55:00	47.00	8.63	88.66	50.89	70.29	2.99	1.69	1.39
22-Apr-08 06:56:00	47.41	8.68	88.63	51.15	70.32	2.83	1.57	1.33
22-Apr-08 06:57:00	47.72	8.72	88.61	51.46	70.37	3.35	1.57	1.30
22-Apr-08 06:58:00	47.65	8.70	88.60	51.53	70.38	3.21	1.57	1.29
22-Apr-08 06:59:00	47.70	8.69	88.57	51.52	70.33	2.21	1.53	1.24
22-Apr-08 07:00:00	47.90	8.70	88.57	51.82	70.33	2.57	1.43	1.18
22-Apr-08 07:01:00	47.87	8.68	88.60	51.96	70.30	2.71	1.39	1.15
22-Apr-08 07:02:00	48.25	8.74	88.64	52.22	70.29	2.72	1.38	1.13
22-Apr-08 07:03:00	48.24	8.75	88.63	52.15	69.58	2.76	1.39	1.15
22-Apr-08 07:04:00	48.14	8.75	88.61	51.89	67.47	2.82	1.45	1.20
22-Apr-08 07:05:00	48.23	8.76	88.64	51.87	66.56	2.35	1.42	1.19
22-Apr-08 07:06:00	47.82	8.71	88.65	51.64	69.78	7.88	1.44	1.21
22-Apr-08 07:07:00	47.34	8.68	88.64	51.11	87.25	17.81	1.57	1.34
22-Apr-08 07:08:00	47.44	8.73	88.68	50.97	81.95	5.94	1.73	1.43
22-Apr-08 07:09:00	47.48	8.77	88.67	50.93	78.28	3.64	1.71	1.46
22-Apr-08 07:10:00	47.29	8.77	88.65	50.52	75.81	3.09	1.85	1.55
22-Apr-08 07:11:00	47.34	8.78	88.65	50.53	75.66	2.74	1.85	1.56
22-Apr-08 07:12:00	47.07	8.77	88.63	50.36	75.70	2.45	1.89	1.62
22-Apr-08 07:13:00	46.60	8.73	88.61	49.90	75.63	2.61	1.94	1.72
22-Apr-08 07:14:00	46.42	8.71	88.59	49.73	75.65	3.06	2.10	1.76
22-Apr-08 07:15:00	46.48	8.69	88.60	49.91	74.54	2.67	2.04	1.71
22-Apr-08 07:16:00	46.48	8.67	88.62	50.04	70.81	2.47	1.96	1.65
22-Apr-08 07:17:00	46.68	8.68	88.62	50.11	70.50	2.97	1.96	1.62
22-Apr-08 07:18:00	46.75	8.69	88.60	50.30	70.50	2.65	1.85	1.58
22-Apr-08 07:19:00	46.81	8.74	88.58	50.37	70.50	2.46	2.00	1.66

	16C0040	16C0030	16C0102	16C060	16FC225	16AC201A	16AI1006	16AI201
	Coke Burn MLB/HR	Corrected Total Air MMSCFH	Corrected FCC Feed MBPD	Cat Circulation TONS/MIN	Aqueous Ammonia Injection LBS/HR	Stack Opacity %	K1603 O2 Dry %	Flue Gas O2 %
22-Apr-08 07:20:00	46.75	8.71	88.57	50.52	70.60	2.51	2.01	1.64
22-Apr-08 07:21:00	46.75	8.67	88.57	50.73	70.63	2.46	1.90	1.57
22-Apr-08 07:22:00	47.20	8.69	88.60	51.16	70.13	2.51	1.72	1.43
22-Apr-08 07:23:00	47.64	8.70	88.63	51.55	68.55	1.98	1.59	1.30
22-Apr-08 07:24:00	47.87	8.70	88.65	52.06	66.39	2.19	1.45	1.20
22-Apr-08 07:25:00	47.71	8.67	88.63	52.01	62.98	2.51	1.43	1.19
22-Apr-08 07:26:00	47.67	8.63	88.62	51.88	62.76	2.53	1.39	1.13
22-Apr-08 07:27:00	48.23	8.70	88.59	52.09	62.82	2.89	1.35	1.06
22-Apr-08 07:28:00	48.46	8.75	88.61	52.34	62.73	2.29	1.34	1.07
22-Apr-08 07:29:00	48.27	8.71	88.59	52.27	62.74	2.42	1.31	1.07
22-Apr-08 07:30:00	48.43	8.73	88.61	52.28	62.72	2.30	1.27	1.05
22-Apr-08 07:31:00	48.40	8.74	88.61	52.31	62.71	2.11	1.27	1.07
22-Apr-08 07:32:00	47.99	8.69	88.61	51.98	62.76	2.41	1.38	1.13
22-Apr-08 07:33:00	48.10	8.72	88.65	51.89	62.80	2.46	1.38	1.15
22-Apr-08 07:34:00	48.08	8.75	88.66	51.62	61.98	2.21	1.44	1.21
22-Apr-08 07:35:00	47.79	8.74	88.63	51.31	59.28	2.45	1.53	1.28
22-Apr-08 07:36:00	47.39	8.70	88.61	50.97	59.15	2.33	1.65	1.36
22-Apr-08 07:37:00	47.34	8.72	88.58	50.72	59.13	2.70	1.72	1.43
22-Apr-08 07:38:00	47.01	8.70	88.59	50.49	59.15	2.67	1.81	1.50
22-Apr-08 07:39:00	46.63	8.67	88.60	50.15	59.08	2.78	1.95	1.59
22-Apr-08 07:40:00	46.80	8.70	88.62	50.05	59.14	2.51	1.97	1.61
22-Apr-08 07:41:00	46.97	8.74	88.59	50.42	59.19	3.15	1.91	1.60
22-Apr-08 07:42:00	46.87	8.74	88.57	50.36	59.09	2.99	1.97	1.66
22-Apr-08 07:43:00	46.93	8.73	88.58	50.55	59.11	3.52	1.97	1.60
22-Apr-08 07:44:00	47.16	8.75	88.58	50.76	59.61	3.42	1.91	1.56
22-Apr-08 07:45:00	47.27	8.75	88.57	50.87	61.28	3.09	1.83	1.52
22-Apr-08 07:46:00	47.20	8.73	88.58	50.88	61.45	2.97	1.85	1.50
22-Apr-08 07:47:00	47.48	8.75	88.58	51.23	61.96	2.74	1.72	1.45
22-Apr-08 07:48:00	47.72	8.76	88.58	51.50	63.85	2.90	1.63	1.37
22-Apr-08 07:49:00	47.73	8.75	88.56	51.66	64.03	3.26	1.63	1.36
22-Apr-08 07:50:00	47.77	8.75	88.54	51.63	63.95	3.00	1.61	1.33
22-Apr-08 07:51:00	47.92	8.76	88.51	51.70	63.91	3.48	1.59	1.30
22-Apr-08 07:52:00	47.97	8.76	88.53	51.74	63.89	3.40	1.50	1.28
22-Apr-08 07:53:00	48.02	8.76	88.56	51.61	63.89	3.22	1.50	1.26
22-Apr-08 07:54:00	47.92	8.74	88.57	51.64	63.85	3.13	1.50	1.25
22-Apr-08 07:55:00	47.97	8.74	88.55	51.84	63.85	2.75	1.49	1.24
22-Apr-08 07:56:00	47.83	8.72	88.54	51.88	63.83	2.57	1.52	1.25
22-Apr-08 07:57:00	47.72	8.71	88.52	51.78	63.85	2.51	1.49	1.26
22-Apr-08 07:58:00	47.78	8.74	88.59	51.64	63.92	2.68	1.52	1.30
22-Apr-08 07:59:00	47.66	8.75	88.63	51.45	63.75	2.81	1.68	1.36

	16C0040	16C0030	16C0102	16C060	16FC225	16AC201A	16AI1006	16AI201
	Coke Burn MLB/HR	Corrected Total Air MMSCFH	Corrected FCC Feed MBPD	Cat Circulation TONS/MIN	Aqueous Ammonia Injection LBS/HR	Stack Opacity %	K1603 O2 Dry %	Flue Gas O2 %
22-Apr-08 08:00:00	47.42	8.73	88.66	51.14	63.19	2.70	1.73	1.41
22-Apr-08 08:01:00	47.11	8.71	88.65	50.86	61.41	2.51	1.81	1.48
22-Apr-08 08:02:00	46.80	8.68	88.65	50.66	61.18	2.59	1.86	1.54
22-Apr-08 08:03:00	46.90	8.70	88.65	50.65	61.19	3.13	1.93	1.57
22-Apr-08 08:04:00	47.27	8.75	88.64	50.69	61.21	3.33	1.85	1.53
22-Apr-08 08:05:00	47.44	8.79	88.60	50.73	61.23	2.87	1.84	1.52
22-Apr-08 08:06:00	47.64	8.83	88.56	50.93	61.21	3.19	1.87	1.55
22-Apr-08 08:07:00	47.43	8.81	88.58	50.90	61.26	3.42	1.87	1.57
22-Apr-08 08:08:00	47.05	8.75	88.57	50.59	61.24	3.35	1.89	1.59
22-Apr-08 08:09:00	47.34	8.79	88.54	50.71	61.20	2.96	1.91	1.57
22-Apr-08 08:10:00	47.32	8.77	88.52	50.83	61.21	2.81	1.87	1.54
22-Apr-08 08:11:00	47.08	8.73	88.57	50.73	61.18	3.32	1.87	1.55
22-Apr-08 08:12:00	47.11	8.72	88.59	50.81	61.14	2.94	1.88	1.53
22-Apr-08 08:13:00	47.27	8.75	88.56	50.87	61.14	2.33	1.87	1.51
22-Apr-08 08:14:00	47.46	8.77	88.57	50.93	61.17	2.47	1.80	1.49
22-Apr-08 08:15:00	47.26	8.71	88.57	50.91	61.22	2.61	1.70	1.44
22-Apr-08 08:16:00	47.33	8.72	88.59	51.06	61.16	2.46	1.74	1.42
22-Apr-08 08:17:00	47.63	8.75	88.60	51.28	61.17	2.65	1.67	1.38
22-Apr-08 08:18:00	47.73	8.75	88.59	51.45	61.18	2.47	1.61	1.33
22-Apr-08 08:19:00	47.81	8.76	88.56	51.57	61.15	2.92	1.64	1.34
22-Apr-08 08:20:00	47.86	8.75	88.56	51.67	61.21	2.94	1.58	1.31
22-Apr-08 08:21:00	47.69	8.70	88.54	51.68	61.25	2.56	1.52	1.26
22-Apr-08 08:22:00	47.95	8.73	88.56	51.88	61.25	2.93	1.46	1.22
22-Apr-08 08:23:00	48.05	8.74	88.58	51.91	61.33	2.98	1.45	1.20
22-Apr-08 08:24:00	47.91	8.73	88.59	51.70	61.37	2.68	1.50	1.23
22-Apr-08 08:25:00	47.76	8.72	88.63	51.47	61.35	2.65	1.54	1.27
22-Apr-08 08:26:00	47.50	8.71	88.64	51.26	61.43	2.20	1.55	1.33
22-Apr-08 08:27:00	47.13	8.69	88.58	50.83	61.50	2.60	1.62	1.45
22-Apr-08 08:28:00	47.06	8.69	88.56	50.77	61.52	2.88	1.68	1.47
22-Apr-08 08:29:00	47.10	8.72	88.60	50.70	61.51	3.36	1.86	1.52
22-Apr-08 08:30:00	47.14	8.72	88.61	50.71	61.56	3.09	1.82	1.51
22-Apr-08 08:31:00	47.28	8.71	88.61	50.83	61.63	2.90	1.74	1.45
22-Apr-08 08:32:00	47.23	8.69	88.62	50.95	61.69	2.36	1.69	1.40
22-Apr-08 08:33:00	47.16	8.69	88.63	50.78	61.71	2.84	1.75	1.44
22-Apr-08 08:34:00	47.46	8.74	88.63	51.03	61.71	2.63	1.68	1.42
22-Apr-08 08:35:00	47.27	8.71	88.63	50.91	61.76	2.45	1.72	1.44
22-Apr-08 08:36:00	47.24	8.71	88.62	50.75	61.77	2.63	1.76	1.44
22-Apr-08 08:37:00	47.17	8.67	88.61	50.74	61.77	2.67	1.71	1.41
22-Apr-08 08:38:00	47.10	8.66	88.61	50.71	61.82	2.27	1.66	1.41
22-Apr-08 08:39:00	47.12	8.68	88.61	50.76	61.88	2.65	1.73	1.44

	16C0040	16C0030	16C0102	16C060	16FC225	16AC201A	16AI1006	16AI201
	Coke Burn MLB/HR	Corrected Total Air MMSCFH	Corrected FCC Feed MBPD	Cat Circulation TONS/MIN	Aqueous Ammonia Injection LBS/HR	Stack Opacity %	K1603 O2 Dry %	Flue Gas O2 %
22-Apr-08 08:40:00	47.09	8.67	88.61	50.78	61.93	2.30	1.76	1.42
22-Apr-08 08:41:00	47.32	8.70	88.61	51.05	61.92	2.12	1.71	1.41
22-Apr-08 08:42:00	47.25	8.68	88.63	51.05	61.88	2.49	1.70	1.39
22-Apr-08 08:43:00	47.29	8.66	88.64	51.09	61.98	2.38	1.66	1.34
22-Apr-08 08:44:00	47.54	8.68	88.63	51.31	61.96	3.01	1.53	1.28
22-Apr-08 08:45:00	47.43	8.65	88.62	51.24	61.95	2.58	1.52	1.26
22-Apr-08 08:46:00	47.47	8.63	88.59	51.35	61.99	2.82	1.48	1.21
22-Apr-08 08:47:00	47.68	8.65	88.58	51.60	62.01	2.65	1.41	1.18
22-Apr-08 08:48:00	47.69	8.66	88.62	51.62	62.02	2.36	1.39	1.18
22-Apr-08 08:49:00	47.85	8.68	88.63	51.76	61.94	2.00	1.40	1.17
22-Apr-08 08:50:00	47.99	8.71	88.61	51.85	61.85	1.58	1.38	1.18
22-Apr-08 08:51:00	47.84	8.70	88.60	51.67	61.87	1.98	1.42	1.20
22-Apr-08 08:52:00	47.74	8.70	88.62	51.50	61.84	2.66	1.44	1.23
22-Apr-08 08:53:00	47.33	8.67	88.66	51.08	61.17	2.50	1.58	1.33
22-Apr-08 08:54:00	47.13	8.67	88.63	50.74	58.96	2.92	1.68	1.40
22-Apr-08 08:55:00	47.21	8.69	88.59	50.69	58.73	2.80	1.71	1.42
22-Apr-08 08:56:00	47.36	8.70	88.61	50.91	58.72	2.50	1.71	1.39
22-Apr-08 08:57:00	47.63	8.72	88.58	51.09	58.76	3.26	1.72	1.33
22-Apr-08 08:58:00	47.58	8.71	88.56	51.09	58.79	2.74	1.73	1.31
22-Apr-08 08:59:00	47.42	8.68	88.57	51.05	58.77	2.47	1.73	1.32
22-Apr-08 09:00:00	47.38	8.68	88.59	50.94	58.87	2.82	1.73	1.33
22-Apr-08 09:01:00	47.16	8.65	88.58	50.78	58.85	3.18	1.73	1.36
22-Apr-08 09:02:00	47.14	8.65	88.57	50.75	58.86	2.65	1.73	1.37
22-Apr-08 09:03:00	47.38	8.70	88.56	50.85	58.87	2.26	1.73	1.37
22-Apr-08 09:04:00	47.25	8.69	88.54	50.73	58.87	2.52	1.73	1.40
22-Apr-08 09:05:00	47.37	8.73	88.51	50.67	58.93	2.72	1.73	1.43
22-Apr-08 09:06:00	47.48	8.75	88.54	50.80	58.92	2.31	1.73	1.44
22-Apr-08 09:07:00	47.22	8.67	88.55	50.76	58.89	2.45	1.73	1.38
22-Apr-08 09:08:00	46.91	8.63	88.59	50.65	58.89	2.18	1.73	1.40
22-Apr-08 09:09:00	46.98	8.65	88.64	50.60	58.91	2.35	1.73	1.44
22-Apr-08 09:10:00	47.16	8.67	88.65	50.70	58.90	1.79	1.71	1.39
22-Apr-08 09:11:00	47.18	8.67	88.63	50.69	58.92	2.46	1.66	1.39
22-Apr-08 09:12:00	47.24	8.68	88.63	50.85	58.93	2.66	1.65	1.40
22-Apr-08 09:13:00	47.09	8.67	88.64	50.77	58.99	2.63	1.67	1.41
22-Apr-08 09:14:00	47.22	8.70	88.64	50.70	59.02	2.60	1.72	1.42
22-Apr-08 09:15:00	47.55	8.75	88.64	50.90	59.01	2.64	1.71	1.42
22-Apr-08 09:16:00	47.64	8.76	88.61	51.08	59.03	3.29	1.71	1.40
22-Apr-08 09:17:00	47.57	8.73	88.61	50.97	59.04	2.41	1.65	1.37
22-Apr-08 09:18:00	47.63	8.73	88.60	51.06	58.98	2.84	1.60	1.34
22-Apr-08 09:19:00	47.59	8.71	88.59	51.11	59.44	3.18	1.60	1.31

	16C0040	16C0030	16C0102	16C060	16FC225	16AC201A	16AI1006	16AI201
	Coke Burn MLB/HR	Corrected Total Air MMSCFH	Corrected FCC Feed MBPD	Cat Circulation TONS/MIN	Aqueous Ammonia Injection LBS/HR	Stack Opacity %	K1603 O2 Dry %	Flue Gas O2 %
22-Apr-08 09:20:00	47.28	8.67	88.57	51.10	60.85	2.25	1.59	1.34
22-Apr-08 09:21:00	47.18	8.66	88.58	50.94	60.97	2.90	1.63	1.38
22-Apr-08 09:22:00	47.32	8.69	88.61	50.80	60.98	3.37	1.64	1.37
22-Apr-08 09:23:00	47.20	8.68	88.62	50.62	60.99	3.40	1.71	1.41
22-Apr-08 09:24:00	46.93	8.64	88.62	50.54	61.00	2.48	1.69	1.42
22-Apr-08 09:25:00	46.84	8.63	88.60	50.46	61.03	2.35	1.71	1.43
22-Apr-08 09:26:00	47.29	8.73	88.58	50.80	61.01	2.70	1.77	1.47
22-Apr-08 09:27:00	47.24	8.72	88.59	50.70	61.06	3.01	1.75	1.47
22-Apr-08 09:28:00	47.11	8.69	88.56	50.61	61.09	2.84	1.75	1.44
22-Apr-08 09:29:00	47.26	8.69	88.54	50.75	61.09	2.57	1.74	1.42
22-Apr-08 09:30:00	47.40	8.70	88.54	50.87	61.15	2.44	1.66	1.37
22-Apr-08 09:31:00	47.23	8.68	88.57	50.86	61.09	2.40	1.67	1.39
22-Apr-08 09:32:00	46.86	8.62	88.58	50.69	61.12	2.71	1.65	1.40
22-Apr-08 09:33:00	46.68	8.58	88.59	50.54	61.20	2.13	1.67	1.41
22-Apr-08 09:34:00	46.96	8.64	88.60	50.68	61.23	2.40	1.68	1.41
22-Apr-08 09:35:00	47.19	8.67	88.63	50.85	61.28	2.44	1.68	1.39
22-Apr-08 09:36:00	47.24	8.66	88.65	50.89	62.50	2.79	1.64	1.35
22-Apr-08 09:37:00	47.44	8.67	88.63	51.21	65.77	2.38	1.58	1.31
22-Apr-08 09:38:00	47.49	8.66	88.59	51.28	63.84	2.64	1.48	1.25
22-Apr-08 09:39:00	47.77	8.72	88.60	51.44	63.49	2.57	1.50	1.26
22-Apr-08 09:40:00	47.78	8.72	88.61	51.36	63.50	2.02	1.53	1.27
22-Apr-08 09:41:00	47.69	8.71	88.60	51.49	62.92	1.68	1.51	1.27
22-Apr-08 09:42:00	47.54	8.69	88.62	51.45	60.72	2.21	1.49	1.30
22-Apr-08 09:43:00	47.26	8.65	88.63	51.21	59.54	2.05	1.51	1.33
22-Apr-08 09:44:00	47.40	8.68	88.61	51.13	59.43	1.77	1.60	1.33
22-Apr-08 09:45:00	47.58	8.70	88.63	51.30	59.43	2.37	1.58	1.31
22-Apr-08 09:46:00	47.32	8.67	88.64	51.32	59.44	2.60	1.60	1.35
22-Apr-08 09:47:00	47.19	8.65	88.61	51.13	59.44	1.99	1.64	1.34
22-Apr-08 09:48:00	47.45	8.68	88.60	51.08	59.55	2.41	1.56	1.29
22-Apr-08 09:49:00	47.63	8.72	88.57	51.13	59.53	2.46	1.59	1.32
22-Apr-08 09:50:00	47.30	8.68	88.54	50.97	59.44	2.34	1.63	1.35
22-Apr-08 09:51:00	46.96	8.64	88.56	50.74	59.40	2.32	1.69	1.42
22-Apr-08 09:52:00	46.95	8.66	88.58	50.78	59.49	2.56	1.77	1.46
22-Apr-08 09:53:00	46.91	8.66	88.57	50.73	59.56	2.39	1.75	1.47
22-Apr-08 09:54:00	46.82	8.66	88.59	50.58	59.57	2.29	1.80	1.49
22-Apr-08 09:55:00	46.72	8.64	88.61	50.38	59.61	2.07	1.83	1.51
22-Apr-08 09:56:00	46.73	8.64	88.62	50.44	59.56	2.05	1.82	1.49
22-Apr-08 09:57:00	46.80	8.65	88.64	50.43	59.58	2.58	1.89	1.49
22-Apr-08 09:58:00	47.08	8.69	88.64	50.57	59.71	3.18	1.88	1.47
22-Apr-08 09:59:00	47.05	8.67	88.62	50.66	59.73	3.20	1.77	1.45

	16C0040	16C0030	16C0102	16C060	16FC225	16AC201A	16AI1006	16AI201
	Coke Burn MLB/HR	Corrected Total Air MMSCFH	Corrected FCC Feed MBPD	Cat Circulation TONS/MIN	Aqueous Ammonia Injection LBS/HR	Stack Opacity %	K1603 O2 Dry %	Flue Gas O2 %
22-Apr-08 10:00:00	47.20	8.67	88.60	50.88	59.79	2.48	1.69	1.39
22-Apr-08 10:01:00	47.40	8.69	88.59	51.13	59.78	2.04	1.64	1.36
22-Apr-08 10:02:00	47.28	8.65	88.60	51.13	59.82	2.55	1.59	1.32
22-Apr-08 10:03:00	47.24	8.65	88.58	51.11	59.84	2.70	1.61	1.33
22-Apr-08 10:04:00	47.18	8.66	88.60	50.95	59.77	2.68	1.64	1.36
22-Apr-08 10:05:00	47.33	8.69	88.61	50.95	59.79	2.93	1.71	1.39
22-Apr-08 10:06:00	47.41	8.69	88.59	50.96	59.75	2.46	1.65	1.36
22-Apr-08 10:07:00	47.31	8.67	88.63	50.87	59.75	2.72	1.61	1.34
22-Apr-08 10:08:00	47.45	8.69	88.62	51.02	59.74	2.32	1.60	1.33
22-Apr-08 10:09:00	47.34	8.67	88.58	51.16	59.77	2.27	1.58	1.32
22-Apr-08 10:10:00	47.15	8.64	88.58	50.98	59.78	2.08	1.61	1.34
22-Apr-08 10:11:00	47.39	8.71	88.62	50.94	59.78	2.74	1.65	1.38
22-Apr-08 10:12:00	47.34	8.72	88.65	50.74	59.86	3.01	1.69	1.43
22-Apr-08 10:13:00	47.28	8.72	88.64	50.72	59.85	2.94	1.70	1.45
22-Apr-08 10:14:00	46.91	8.65	88.60	50.64	59.79	2.66	1.74	1.46
22-Apr-08 10:15:00	46.63	8.63	88.60	50.42	59.79	3.07	1.80	1.51
22-Apr-08 10:16:00	46.74	8.66	88.63	50.28	59.87	3.18	1.86	1.54
22-Apr-08 10:17:00	47.08	8.68	88.65	50.56	59.94	2.75	1.77	1.46
22-Apr-08 10:18:00	47.14	8.67	88.63	50.80	59.93	2.38	1.69	1.41
22-Apr-08 10:19:00	47.02	8.63	88.61	50.94	59.94	3.03	1.64	1.36
22-Apr-08 10:20:00	47.10	8.63	88.58	50.91	59.98	3.30	1.64	1.35
22-Apr-08 10:21:00	47.28	8.64	88.60	51.15	59.95	2.73	1.56	1.29
22-Apr-08 10:22:00	47.40	8.65	88.59	51.22	59.90	2.70	1.56	1.27
22-Apr-08 10:23:00	47.62	8.66	88.58	51.39	59.92	2.59	1.48	1.22
22-Apr-08 10:24:00	47.69	8.65	88.56	51.62	59.94	2.06	1.36	1.16
22-Apr-08 10:25:00	47.68	8.67	88.55	51.49	60.02	2.29	1.43	1.19
22-Apr-08 10:26:00	47.83	8.71	88.58	51.50	59.90	2.43	1.46	1.22
22-Apr-08 10:27:00	47.60	8.70	88.59	51.31	59.92	1.68	1.49	1.30
22-Apr-08 10:28:00	47.24	8.66	88.56	50.90	59.92	2.64	1.53	1.34
22-Apr-08 10:29:00	47.12	8.66	88.55	50.70	59.91	2.55	1.68	1.39
22-Apr-08 10:30:00	47.06	8.65	88.59	50.76	59.90	2.49	1.66	1.40
22-Apr-08 10:31:00	46.98	8.65	88.62	50.75	59.96	2.75	1.71	1.42
22-Apr-08 10:32:00	46.99	8.66	88.60	50.74	59.98	3.19	1.71	1.44
22-Apr-08 10:33:00	47.07	8.70	88.57	50.75	59.94	2.49	1.79	1.48
22-Apr-08 10:34:00	46.96	8.69	88.57	50.55	59.86	2.76	1.85	1.52
22-Apr-08 10:35:00	46.96	8.67	88.57	50.56	59.89	2.75	1.77	1.49
22-Apr-08 10:36:00	47.00	8.67	88.56	50.61	59.90	2.25	1.75	1.46
22-Apr-08 10:37:00	46.96	8.68	88.57	50.50	59.91	1.56	1.77	1.49
22-Apr-08 10:38:00	46.95	8.69	88.59	50.40	59.90	2.71	1.81	1.51
22-Apr-08 10:39:00	46.99	8.67	88.57	50.62	59.93	2.37	1.79	1.48

	16C0040	16C0030	16C0102	16C060	16FC225	16AC201A	16AI1006	16AI201
	Coke Burn MLB/HR	Corrected Total Air MMSCFH	Corrected FCC Feed MBPD	Cat Circulation TONS/MIN	Aqueous Ammonia Injection LBS/HR	Stack Opacity %	K1603 O2 Dry %	Flue Gas O2 %
22-Apr-08 10:40:00	47.11	8.66	88.57	50.90	59.89	2.50	1.67	1.40
22-Apr-08 10:41:00	47.15	8.67	88.59	50.94	59.89	2.45	1.70	1.41
22-Apr-08 10:42:00	47.19	8.66	88.60	50.91	59.86	2.32	1.72	1.37
22-Apr-08 10:43:00	47.23	8.65	88.60	51.05	59.83	2.53	1.70	1.33
22-Apr-08 10:44:00	47.26	8.67	88.57	51.24	59.83	2.78	1.62	1.35
22-Apr-08 10:45:00	47.25	8.69	88.58	51.16	59.79	2.86	1.67	1.40
22-Apr-08 10:46:00	47.30	8.70	88.59	51.02	59.84	2.52	1.71	1.41
22-Apr-08 10:47:00	47.28	8.69	88.56	50.98	59.85	2.74	1.69	1.40
22-Apr-08 10:48:00	47.37	8.71	88.55	51.14	59.85	2.51	1.68	1.40
22-Apr-08 10:49:00	47.24	8.69	88.54	50.96	59.86	1.82	1.71	1.41
22-Apr-08 10:50:00	47.27	8.69	88.59	50.79	59.88	2.37	1.68	1.38
22-Apr-08 10:51:00	47.25	8.69	88.63	50.83	59.79	2.81	1.68	1.40
22-Apr-08 10:52:00	47.08	8.67	88.61	50.81	59.82	2.60	1.69	1.42
22-Apr-08 10:53:00	47.00	8.67	88.60	50.73	59.85	2.99	1.73	1.44
22-Apr-08 10:54:00	47.49	8.74	88.58	50.93	59.92	2.65	1.75	1.43
22-Apr-08 10:55:00	47.84	8.78	88.58	51.41	59.94	2.85	1.67	1.37
22-Apr-08 10:56:00	47.51	8.74	88.60	51.34	59.95	2.89	1.70	1.40
22-Apr-08 10:57:00	47.17	8.69	88.62	50.99	59.96	1.70	1.75	1.43
22-Apr-08 10:58:00	47.04	8.67	88.62	50.73	60.01	2.31	1.75	1.44
22-Apr-08 10:59:00	47.15	8.68	88.62	50.72	59.98	2.21	1.72	1.42
22-Apr-08 11:00:00	47.36	8.70	88.59	50.83	60.00	2.37	1.69	1.39
22-Apr-08 11:01:00	47.27	8.68	88.56	51.02	60.00	2.65	1.68	1.37
22-Apr-08 11:02:00	47.05	8.63	88.58	50.87	60.03	2.73	1.63	1.36
22-Apr-08 11:03:00	47.32	8.69	88.61	51.01	59.98	2.75	1.67	1.38
22-Apr-08 11:04:00	47.15	8.67	88.58	50.90	59.95	2.25	1.69	1.40
22-Apr-08 11:05:00	47.12	8.65	88.60	50.94	59.95	2.03	1.67	1.37
22-Apr-08 11:06:00	47.23	8.69	88.62	50.91	59.93	2.50	1.69	1.40
22-Apr-08 11:07:00	47.18	8.68	88.65	50.85	60.01	2.04	1.71	1.41
22-Apr-08 11:08:00	47.15	8.66	88.63	50.91	62.62	1.64	1.68	1.38
22-Apr-08 11:09:00	47.07	8.65	88.62	50.75	70.80	1.90	1.69	1.39
22-Apr-08 11:10:00	47.24	8.68	88.61	50.74	69.53	2.08	1.68	1.39
22-Apr-08 11:11:00	47.44	8.69	88.61	50.90	66.78	2.14	1.60	1.34
22-Apr-08 11:12:00	47.34	8.69	88.60	51.03	64.76	2.12	1.62	1.36
22-Apr-08 11:13:00	47.12	8.67	88.59	50.88	63.44	1.61	1.65	1.42
22-Apr-08 11:14:00	47.00	8.66	88.57	50.68	63.22	2.08	1.74	1.44
22-Apr-08 11:15:00	47.26	8.69	88.56	50.69	63.23	2.09	1.67	1.41
22-Apr-08 11:16:00	47.34	8.70	88.52	50.83	62.39	1.95	1.62	1.40
22-Apr-08 11:17:00	47.03	8.68	88.55	50.72	59.42	2.14	1.74	1.46
22-Apr-08 11:18:00	47.16	8.70	88.57	50.71	59.27	2.21	1.78	1.46
22-Apr-08 11:19:00	47.29	8.68	88.57	50.84	59.23	2.21	1.67	1.39

	16C0040	16C0030	16C0102	16C060	16FC225	16AC201A	16AI1006	16AI201
	Coke Burn MLB/HR	Corrected Total Air MMSCFH	Corrected FCC Feed MBPD	Cat Circulation TONS/MIN	Aqueous Ammonia Injection LBS/HR	Stack Opacity %	K1603 O2 Dry %	Flue Gas O2 %
22-Apr-08 11:20:00	47.35	8.68	88.58	51.04	59.15	2.13	1.64	1.34
22-Apr-08 11:21:00	47.36	8.71	88.59	51.12	59.14	2.79	1.68	1.39
22-Apr-08 11:22:00	47.21	8.70	88.59	50.93	59.10	1.80	1.75	1.43
22-Apr-08 11:23:00	47.18	8.70	88.60	50.79	59.03	2.32	1.76	1.45
22-Apr-08 11:24:00	47.29	8.73	88.63	50.97	59.05	2.62	1.75	1.47
22-Apr-08 11:25:00	47.11	8.72	88.63	50.74	59.12	2.37	1.82	1.53
22-Apr-08 11:26:00	47.08	8.72	88.61	50.62	59.17	2.80	1.84	1.53
22-Apr-08 11:27:00	46.91	8.69	88.62	50.51	59.20	2.75	1.86	1.53
22-Apr-08 11:28:00	46.64	8.64	88.65	50.31	59.11	2.09	1.85	1.53
22-Apr-08 11:29:00	46.86	8.65	88.64	50.48	59.13	2.68	1.79	1.48
22-Apr-08 11:30:00	47.14	8.67	88.61	50.66	59.19	2.09	1.67	1.40
22-Apr-08 11:31:00	47.29	8.67	88.61	50.78	59.18	2.52	1.63	1.36
22-Apr-08 11:32:00	47.21	8.66	88.61	50.69	59.09	2.21	1.62	1.35
22-Apr-08 11:33:00	47.35	8.68	88.60	50.98	59.12	2.38	1.63	1.35
22-Apr-08 11:34:00	47.10	8.66	88.58	50.99	59.19	2.02	1.63	1.39
22-Apr-08 11:35:00	47.00	8.64	88.59	50.75	59.09	2.41	1.68	1.40
22-Apr-08 11:36:00	47.23	8.66	88.61	50.93	59.01	2.60	1.63	1.34
22-Apr-08 11:37:00	47.23	8.64	88.61	51.11	59.05	3.20	1.58	1.32
22-Apr-08 11:38:00	47.12	8.61	88.60	51.02	59.16	2.36	1.53	1.29
22-Apr-08 11:39:00	47.21	8.63	88.61	51.15	59.10	2.76	1.54	1.30
22-Apr-08 11:40:00	47.15	8.64	88.62	51.04	59.07	3.40	1.58	1.33
22-Apr-08 11:41:00	47.23	8.63	88.62	50.94	59.09	1.99	1.56	1.31
22-Apr-08 11:42:00	47.18	8.63	88.61	50.98	59.10	2.40	1.55	1.30
22-Apr-08 11:43:00	47.03	8.62	88.59	50.80	59.05	2.57	1.57	1.34
22-Apr-08 11:44:00	47.09	8.63	88.58	50.81	59.05	2.96	1.60	1.35
22-Apr-08 11:45:00	47.09	8.62	88.58	50.74	59.12	2.95	1.56	1.31
22-Apr-08 11:46:00	47.41	8.66	88.60	51.06	59.09	2.14	1.59	1.29
22-Apr-08 11:47:00	47.40	8.66	88.61	51.06	59.16	1.59	1.56	1.29
22-Apr-08 11:48:00	47.19	8.65	88.62	50.95	59.13	2.20	1.64	1.35
22-Apr-08 11:49:00	47.11	8.65	88.63	50.74	59.15	1.92	1.69	1.37
22-Apr-08 11:50:00	47.16	8.63	88.66	50.66	59.26	2.45	1.60	1.33
22-Apr-08 11:51:00	47.28	8.64	88.67	50.78	59.21	1.66	1.52	1.29
22-Apr-08 11:52:00	47.14	8.65	88.64	50.80	59.21	1.75	1.62	1.35
22-Apr-08 11:53:00	46.94	8.63	88.67	50.62	59.27	1.90	1.68	1.40
22-Apr-08 11:54:00	46.82	8.63	88.66	50.56	59.24	2.05	1.73	1.44
22-Apr-08 11:55:00	46.72	8.63	88.68	50.41	59.19	2.42	1.81	1.49
22-Apr-08 11:56:00	46.87	8.65	88.70	50.52	59.19	2.51	1.77	1.47
22-Apr-08 11:57:00	46.86	8.64	88.69	50.54	59.20	2.00	1.73	1.45
22-Apr-08 11:58:00	47.16	8.69	88.69	50.70	59.26	1.82	1.73	1.43
22-Apr-08 11:59:00	47.18	8.70	88.69	50.77	59.27	1.75	1.75	1.45

	16C0040	16C0030	16C0102	16C060	16FC225	16AC201A	16AI1006	16AI201
	Coke Burn MLB/HR	Corrected Total Air MMSCFH	Corrected FCC Feed MBPD	Cat Circulation TONS/MIN	Aqueous Ammonia Injection LBS/HR	Stack Opacity %	K1603 O2 Dry %	Flue Gas O2 %
22-Apr-08 12:00:00	46.98	8.67	88.68	50.58	59.19	2.33	1.81	1.47
22-Apr-08 12:01:00	46.86	8.62	88.66	50.71	59.18	2.90	1.73	1.41
22-Apr-08 12:02:00	46.97	8.61	88.65	50.81	59.21	3.00	1.63	1.35
22-Apr-08 12:03:00	47.26	8.66	88.65	51.16	59.93	2.23	1.64	1.35
22-Apr-08 12:04:00	47.00	8.60	88.60	50.98	62.38	2.42	1.61	1.32
22-Apr-08 12:05:00	46.93	8.60	88.60	50.97	62.61	3.39	1.62	1.33
22-Apr-08 12:06:00	47.00	8.61	88.61	51.03	62.59	2.36	1.62	1.34
22-Apr-08 12:07:00	47.27	8.65	88.63	51.14	62.62	2.02	1.61	1.32
22-Apr-08 12:08:00	47.69	8.71	88.64	51.26	62.49	2.87	1.57	1.28
22-Apr-08 12:09:00	47.79	8.72	88.61	51.37	62.47	3.10	1.54	1.27
22-Apr-08 12:10:00	47.67	8.68	88.61	51.29	62.38	2.31	1.47	1.22
22-Apr-08 12:11:00	47.76	8.68	88.63	51.53	62.44	2.60	1.41	1.19
22-Apr-08 12:12:00	47.69	8.70	88.63	51.59	62.42	2.26	1.47	1.26
22-Apr-08 12:13:00	47.61	8.71	88.59	51.42	62.45	3.12	1.50	1.31
22-Apr-08 12:14:00	47.55	8.71	88.58	51.21	62.46	2.46	1.60	1.32
22-Apr-08 12:15:00	47.29	8.67	88.58	50.95	62.52	2.21	1.63	1.35
22-Apr-08 12:16:00	47.16	8.67	88.59	50.69	62.54	2.58	1.65	1.39
22-Apr-08 12:17:00	47.21	8.71	88.60	50.54	62.47	2.33	1.75	1.45
22-Apr-08 12:18:00	46.98	8.68	88.63	50.55	62.42	1.98	1.82	1.47
22-Apr-08 12:19:00	46.83	8.66	88.64	50.51	62.43	2.90	1.80	1.51
22-Apr-08 12:20:00	47.01	8.70	88.63	50.61	62.33	2.60	1.82	1.53
22-Apr-08 12:21:00	47.12	8.71	88.66	50.65	62.21	2.24	1.77	1.49
22-Apr-08 12:22:00	47.07	8.70	88.65	50.71	62.23	2.31	1.78	1.49
22-Apr-08 12:23:00	46.97	8.66	88.67	50.64	61.44	2.09	1.79	1.47
22-Apr-08 12:24:00	47.16	8.67	88.64	50.83	58.74	2.13	1.68	1.40
22-Apr-08 12:25:00	47.22	8.67	88.60	51.01	58.52	2.62	1.66	1.36
22-Apr-08 12:26:00	47.14	8.64	88.65	51.03	58.50	2.64	1.62	1.35
22-Apr-08 12:27:00	47.18	8.66	88.65	51.07	58.47	2.59	1.57	1.37
22-Apr-08 12:28:00	47.25	8.66	88.64	51.04	58.48	2.55	1.56	1.35
22-Apr-08 12:29:00	47.47	8.67	88.65	51.27	58.50	2.49	1.54	1.29
22-Apr-08 12:30:00	47.59	8.69	88.66	51.34	58.51	2.70	1.54	1.28
22-Apr-08 12:31:00	47.62	8.68	88.64	51.36	58.46	2.83	1.48	1.25
22-Apr-08 12:32:00	47.61	8.68	88.60	51.30	58.39	2.61	1.50	1.24
22-Apr-08 12:33:00	47.84	8.71	88.59	51.50	58.40	2.28	1.52	1.23
22-Apr-08 12:34:00	47.64	8.70	88.60	51.36	58.45	2.60	1.53	1.26
22-Apr-08 12:35:00	47.36	8.68	88.59	50.94	58.46	2.69	1.61	1.33
22-Apr-08 12:36:00	47.25	8.69	88.61	50.88	58.43	2.69	1.69	1.39
22-Apr-08 12:37:00	47.06	8.66	88.60	50.85	58.51	3.20	1.72	1.43
22-Apr-08 12:38:00	46.91	8.63	88.59	50.74	58.46	2.79	1.67	1.41
22-Apr-08 12:39:00	46.81	8.62	88.61	50.79	59.90	3.11	1.72	1.43

	16C0040	16C0030	16C0102	16C060	16FC225	16AC201A	16AI1006	16AI201
	Coke Burn MLB/HR	Corrected Total Air MMSCFH	Corrected FCC Feed MBPD	Cat Circulation TONS/MIN	Aqueous Ammonia Injection LBS/HR	Stack Opacity %	K1603 O2 Dry %	Flue Gas O2 %
22-Apr-08 12:40:00	46.66	8.61	88.62	50.55	64.43	2.89	1.76	1.45
22-Apr-08 12:41:00	46.71	8.63	88.62	50.64	64.79	2.56	1.78	1.47
22-Apr-08 12:42:00	46.93	8.65	88.63	50.71	64.80	3.06	1.80	1.46
22-Apr-08 12:43:00	46.99	8.64	88.65	50.78	64.78	2.79	1.78	1.39
22-Apr-08 12:44:00	46.84	8.62	88.66	50.61	64.84	2.47	1.72	1.41
22-Apr-08 12:45:00	46.76	8.60	88.67	50.66	64.82	2.50	1.71	1.41
22-Apr-08 12:46:00	46.54	8.56	88.68	50.55	64.78	2.38	1.71	1.41
22-Apr-08 12:47:00	46.54	8.56	88.68	50.54	64.78	2.38	1.71	1.41
22-Apr-08 12:48:00	46.54	8.56	88.68	50.54	64.78	2.38	1.71	1.41
Incomplete data								
22-Apr-08 13:50:00	46.99	8.66	88.61	50.76	60.48	2.83	1.76	1.45
22-Apr-08 13:51:00	47.03	8.67	88.60	50.80	60.50	3.20	1.77	1.44
22-Apr-08 13:52:00	47.11	8.67	88.59	50.73	60.50	3.22	1.77	1.43
22-Apr-08 13:53:00	47.34	8.68	88.59	51.03	61.19	3.13	1.60	1.35
22-Apr-08 13:54:00	47.32	8.67	88.62	51.16	63.56	3.11	1.57	1.34
22-Apr-08 13:55:00	47.19	8.67	88.65	50.99	63.81	2.71	1.62	1.38
22-Apr-08 13:56:00	47.23	8.66	88.65	50.99	63.81	2.66	1.62	1.35
22-Apr-08 13:57:00	47.20	8.65	88.64	50.97	63.79	2.86	1.61	1.34
22-Apr-08 13:58:00	47.09	8.65	88.64	50.85	63.80	2.73	1.66	1.39
22-Apr-08 13:59:00	47.22	8.69	88.64	50.86	63.87	2.71	1.69	1.40
22-Apr-08 14:00:00	47.08	8.67	88.68	50.72	63.88	2.92	1.71	1.43
22-Apr-08 14:01:00	46.83	8.62	88.67	50.64	63.93	2.96	1.71	1.42
22-Apr-08 14:02:00	46.94	8.64	88.64	50.77	63.94	3.05	1.69	1.42
22-Apr-08 14:03:00	47.04	8.65	88.63	50.78	63.91	3.10	1.66	1.40
22-Apr-08 14:04:00	46.92	8.65	88.63	50.77	63.96	2.54	1.69	1.44
22-Apr-08 14:05:00	47.02	8.68	88.64	50.73	63.97	2.23	1.77	1.48
22-Apr-08 14:06:00	47.20	8.70	88.65	50.78	63.94	2.85	1.74	1.44
22-Apr-08 14:07:00	47.20	8.69	88.62	50.95	63.99	2.72	1.69	1.42
22-Apr-08 14:08:00	46.96	8.65	88.60	50.86	63.94	3.28	1.67	1.42
22-Apr-08 14:09:00	46.89	8.65	88.58	50.82	64.00	2.98	1.72	1.45
22-Apr-08 14:10:00	46.87	8.67	88.57	50.62	63.92	3.42	1.86	1.50
22-Apr-08 14:11:00	46.96	8.66	88.56	50.73	63.90	2.61	1.85	1.47
22-Apr-08 14:12:00	46.97	8.64	88.57	50.91	63.98	3.15	1.71	1.41
22-Apr-08 14:13:00	47.05	8.65	88.53	50.94	63.90	3.27	1.73	1.40
22-Apr-08 14:14:00	47.19	8.67	88.52	51.13	63.89	2.57	1.68	1.39
22-Apr-08 14:15:00	47.14	8.65	88.57	51.23	63.93	3.03	1.64	1.37
22-Apr-08 14:16:00	47.15	8.63	88.54	51.25	65.65	3.11	1.61	1.32
22-Apr-08 14:17:00	47.28	8.63	88.55	51.46	71.20	2.69	1.56	1.28
22-Apr-08 14:18:00	47.17	8.61	88.56	51.44	71.56	3.11	1.56	1.27
22-Apr-08 14:19:00	47.15	8.60	88.58	51.24	70.91	3.44	1.51	1.26

	16C0040	16C0030	16C0102	16C060	16FC225	16AC201A	16AI1006	16AI201
	Coke Burn MLB/HR	Corrected Total Air MMSCFH	Corrected FCC Feed MBPD	Cat Circulation TONS/MIN	Aqueous Ammonia Injection LBS/HR	Stack Opacity %	K1603 O2 Dry %	Flue Gas O2 %
22-Apr-08 14:20:00	47.45	8.65	88.59	51.53	68.69	2.91	1.48	1.25
22-Apr-08 14:21:00	47.38	8.65	88.60	51.47	67.75	2.75	1.52	1.28
22-Apr-08 14:22:00	47.35	8.65	88.61	51.39	65.38	2.70	1.53	1.29
22-Apr-08 14:23:00	47.47	8.68	88.64	51.31	65.24	2.92	1.57	1.31
22-Apr-08 14:24:00	47.26	8.66	88.60	51.22	64.43	3.08	1.60	1.33
22-Apr-08 14:25:00	47.02	8.63	88.57	51.08	61.82	2.69	1.61	1.36
22-Apr-08 14:26:00	47.10	8.66	88.58	51.05	61.62	2.87	1.63	1.40
22-Apr-08 14:27:00	47.13	8.68	88.63	50.96	61.62	3.02	1.69	1.43
22-Apr-08 14:28:00	46.81	8.66	88.63	50.72	61.55	3.16	1.79	1.50
22-Apr-08 14:29:00	46.57	8.64	88.58	50.46	61.51	3.13	1.84	1.56
22-Apr-08 14:30:00	46.72	8.69	88.55	50.52	61.54	2.72	1.90	1.59
22-Apr-08 14:31:00	46.49	8.65	88.56	50.50	61.51	3.00	1.94	1.61
22-Apr-08 14:32:00	46.46	8.64	88.58	50.34	61.43	3.03	1.96	1.61
22-Apr-08 14:33:00	46.72	8.66	88.60	50.48	61.47	3.03	1.82	1.53
22-Apr-08 14:34:00	46.79	8.67	88.62	50.61	61.47	3.27	1.85	1.53
22-Apr-08 14:35:00	47.03	8.69	88.61	50.72	61.44	3.94	1.83	1.49
22-Apr-08 14:36:00	47.11	8.67	88.58	50.92	61.89	3.91	1.75	1.42
22-Apr-08 14:37:00	47.19	8.67	88.55	51.00	63.39	3.69	1.69	1.39
22-Apr-08 14:38:00	47.12	8.68	88.55	51.10	63.94	3.41	1.71	1.43
22-Apr-08 14:39:00	46.88	8.65	88.54	51.01	64.64	2.92	1.74	1.47
22-Apr-08 14:40:00	46.84	8.65	88.58	51.01	66.88	3.58	1.77	1.48
22-Apr-08 14:41:00	46.92	8.65	88.62	50.92	67.13	3.30	1.77	1.45
22-Apr-08 14:42:00	47.09	8.66	88.62	51.12	67.13	2.89	1.71	1.41
22-Apr-08 14:43:00	46.94	8.64	88.64	51.06	67.83	2.87	1.69	1.41
22-Apr-08 14:44:00	46.92	8.66	88.64	50.93	70.18	3.45	1.80	1.47
22-Apr-08 14:45:00	46.86	8.64	88.62	50.87	72.26	3.38	1.73	1.43
22-Apr-08 14:46:00	47.03	8.67	88.61	50.93	77.38	3.41	1.77	1.45
22-Apr-08 14:47:00	47.20	8.68	88.63	51.21	74.89	3.11	1.71	1.40
22-Apr-08 14:48:00	46.93	8.62	88.65	51.20	73.84	2.68	1.67	1.38
22-Apr-08 14:49:00	46.82	8.61	88.63	51.07	71.05	2.55	1.71	1.40
22-Apr-08 14:50:00	46.91	8.62	88.61	51.03	70.87	2.92	1.66	1.39
22-Apr-08 14:51:00	47.06	8.64	88.60	51.00	70.90	2.94	1.65	1.37
22-Apr-08 14:52:00	47.19	8.66	88.60	51.10	70.65	2.66	1.63	1.37
22-Apr-08 14:53:00	47.13	8.63	88.57	51.09	69.28	2.10	1.59	1.33
22-Apr-08 14:54:00	47.00	8.61	88.59	51.10	66.95	2.08	1.56	1.32
22-Apr-08 14:55:00	47.00	8.63	88.59	51.02	66.79	2.66	1.56	1.37
22-Apr-08 14:56:00	47.05	8.69	88.63	50.87	66.83	2.60	1.60	1.44
22-Apr-08 14:57:00	46.71	8.65	88.65	50.55	66.78	2.60	1.81	1.50
22-Apr-08 14:58:00	46.64	8.63	88.63	50.49	66.82	2.68	1.82	1.51
22-Apr-08 14:59:00	46.73	8.64	88.64	50.59	66.82	3.14	1.80	1.51

	16C0040	16C0030	16C0102	16C060	16FC225	16AC201A	16AI1006	16AI201
	Coke Burn MLB/HR	Corrected Total Air MMSCFH	Corrected FCC Feed MBPD	Cat Circulation TONS/MIN	Aqueous Ammonia Injection LBS/HR	Stack Opacity %	K1603 O2 Dry %	Flue Gas O2 %
22-Apr-08 15:00:00	46.77	8.66	88.64	50.69	66.86	2.77	1.80	1.50
22-Apr-08 15:01:00	46.57	8.68	88.60	50.58	66.87	2.85	1.82	1.53
22-Apr-08 15:02:00	46.49	8.66	88.58	50.51	66.82	3.23	1.86	1.55
22-Apr-08 15:03:00	46.71	8.64	88.59	50.78	66.78	3.05	1.79	1.48
22-Apr-08 15:04:00	46.83	8.66	88.57	50.92	66.81	3.27	1.71	1.44
22-Apr-08 15:05:00	46.93	8.64	88.60	51.01	66.88	3.65	1.71	1.42
22-Apr-08 15:06:00	46.84	8.64	88.62	51.04	66.88	2.69	1.67	1.39
22-Apr-08 15:07:00	46.89	8.65	88.58	51.12	66.92	2.39	1.68	1.38
22-Apr-08 15:08:00	47.22	8.64	88.56	51.27	65.73	2.78	1.58	1.32
22-Apr-08 15:09:00	47.43	8.65	88.56	51.47	62.07	2.46	1.58	1.31
22-Apr-08 15:10:00	47.28	8.60	88.56	51.44	61.78	2.57	1.59	1.29
22-Apr-08 15:11:00	47.27	8.64	88.56	51.56	61.75	2.94	1.58	1.27
22-Apr-08 15:12:00	47.53	8.68	88.55	51.78	61.71	2.72	1.52	1.25
22-Apr-08 15:13:00	47.71	8.67	88.56	51.77	61.78	2.95	1.51	1.24
22-Apr-08 15:14:00	47.58	8.61	88.57	51.55	61.75	3.20	1.50	1.22
22-Apr-08 15:15:00	47.51	8.61	88.61	51.47	61.77	3.09	1.45	1.21
22-Apr-08 15:16:00	47.55	8.62	88.59	51.53	61.75	3.13	1.49	1.24
22-Apr-08 15:17:00	47.40	8.63	88.56	51.48	61.66	2.46	1.50	1.25
22-Apr-08 15:18:00	47.13	8.63	88.57	51.30	61.76	2.93	1.51	1.28
22-Apr-08 15:19:00	47.08	8.63	88.60	51.11	61.78	2.94	1.62	1.34
22-Apr-08 15:20:00	47.25	8.67	88.60	51.19	61.78	2.34	1.63	1.32
22-Apr-08 15:21:00	47.26	8.68	88.60	51.27	61.73	2.72	1.58	1.32
22-Apr-08 15:22:00	47.13	8.66	88.60	51.00	61.75	2.63	1.66	1.37
22-Apr-08 15:23:00	47.19	8.63	88.61	50.99	61.74	2.87	1.68	1.39
22-Apr-08 15:24:00	46.95	8.63	88.62	50.79	61.72	3.26	1.71	1.42
22-Apr-08 15:25:00	46.76	8.62	88.58	50.62	61.69	3.01	1.73	1.46
22-Apr-08 15:26:00	46.84	8.64	88.54	50.71	61.71	2.64	1.74	1.46
22-Apr-08 15:27:00	46.69	8.66	88.54	50.53	61.72	2.44	1.80	1.52
22-Apr-08 15:28:00	46.77	8.64	88.56	50.34	61.72	3.17	1.85	1.57
22-Apr-08 15:29:00	46.65	8.62	88.59	50.14	61.65	3.22	1.86	1.58
22-Apr-08 15:30:00	46.54	8.66	88.58	50.29	61.70	3.20	1.86	1.57
22-Apr-08 15:31:00	46.77	8.67	88.57	50.48	61.69	3.31	1.84	1.54
22-Apr-08 15:32:00	47.05	8.66	88.58	50.62	61.65	3.35	1.88	1.53
22-Apr-08 15:33:00	47.07	8.67	88.59	50.87	61.71	2.81	1.79	1.48
22-Apr-08 15:34:00	46.49	8.64	88.58	50.53	61.72	3.01	1.80	1.51
22-Apr-08 15:35:00	46.42	8.61	88.60	50.38	61.72	3.06	1.80	1.51
22-Apr-08 15:36:00	46.86	8.62	88.60	50.58	62.64	3.23	1.76	1.46
22-Apr-08 15:37:00	46.99	8.62	88.58	50.86	65.68	3.03	1.67	1.40
22-Apr-08 15:38:00	46.87	8.63	88.57	50.90	65.87	2.91	1.70	1.40
22-Apr-08 15:39:00	46.88	8.65	88.58	51.02	65.86	2.91	1.67	1.40

	16C0040	16C0030	16C0102	16C060	16FC225	16AC201A	16AI1006	16AI201
	Coke Burn MLB/HR	Corrected Total Air MMSCFH	Corrected FCC Feed MBPD	Cat Circulation TONS/MIN	Aqueous Ammonia Injection LBS/HR	Stack Opacity %	K1603 O2 Dry %	Flue Gas O2 %
22-Apr-08 15:40:00	46.92	8.66	88.59	50.92	65.86	2.71	1.70	1.42
22-Apr-08 15:41:00	47.02	8.68	88.60	50.98	65.82	3.20	1.70	1.40
22-Apr-08 15:42:00	47.05	8.63	88.57	50.95	65.84	3.25	1.64	1.36
22-Apr-08 15:43:00	47.20	8.64	88.58	51.10	65.79	2.99	1.60	1.33
22-Apr-08 15:44:00	47.30	8.66	88.59	51.15	65.84	2.58	1.59	1.30
22-Apr-08 15:45:00	47.23	8.62	88.60	51.19	65.79	3.18	1.58	1.29
22-Apr-08 15:46:00	47.32	8.64	88.58	51.30	65.75	3.02	1.58	1.29
22-Apr-08 15:47:00	47.43	8.70	88.58	51.38	65.78	2.62	1.59	1.31
22-Apr-08 15:48:00	47.28	8.67	88.60	51.33	65.72	2.81	1.52	1.28
22-Apr-08 15:49:00	47.26	8.63	88.63	51.24	65.73	2.71	1.57	1.30
22-Apr-08 15:50:00	47.53	8.69	88.63	51.31	65.71	2.60	1.57	1.31
22-Apr-08 15:51:00	47.46	8.68	88.62	51.34	65.63	2.63	1.57	1.31
22-Apr-08 15:52:00	47.22	8.65	88.61	51.30	64.64	2.35	1.59	1.33
22-Apr-08 15:53:00	47.02	8.64	88.64	51.01	61.72	2.33	1.55	1.33
22-Apr-08 15:54:00	46.78	8.66	88.65	50.78	61.48	2.76	1.69	1.43
22-Apr-08 15:55:00	46.76	8.65	88.63	50.53	61.41	2.87	1.75	1.46
22-Apr-08 15:56:00	46.97	8.60	88.61	50.65	61.42	2.36	1.76	1.47
22-Apr-08 15:57:00	47.07	8.62	88.61	50.87	61.38	2.22	1.79	1.48
22-Apr-08 15:58:00	46.96	8.67	88.62	50.86	61.32	2.49	1.78	1.47
22-Apr-08 15:59:00	46.70	8.71	88.62	50.63	61.41	3.23	1.77	1.48
22-Apr-08 16:00:00	46.77	8.66	88.65	50.50	61.42	3.42	1.82	1.53
22-Apr-08 16:01:00	46.72	8.63	88.63	50.47	61.38	2.99	1.86	1.55
22-Apr-08 16:02:00	46.71	8.65	88.62	50.39	61.35	2.77	1.90	1.57
22-Apr-08 16:03:00	46.75	8.66	88.62	50.35	61.33	3.57	1.90	1.59
22-Apr-08 16:04:00	46.57	8.66	88.62	50.20	61.29	3.59	1.99	1.65
22-Apr-08 16:05:00	46.70	8.67	88.59	50.37	61.31	3.55	1.91	1.60
22-Apr-08 16:06:00	46.56	8.67	88.59	50.35	61.26	3.31	1.96	1.60
22-Apr-08 16:07:00	46.60	8.65	88.62	50.37	61.33	3.13	1.88	1.52
22-Apr-08 16:08:00	46.82	8.67	88.65	50.67	61.37	3.07	1.73	1.45
22-Apr-08 16:09:00	47.00	8.69	88.65	50.80	61.33	3.28	1.72	1.43
22-Apr-08 16:10:00	47.04	8.68	88.65	51.02	61.35	2.70	1.73	1.36
22-Apr-08 16:11:00	47.04	8.67	88.66	51.16	61.40	2.88	1.72	1.35
22-Apr-08 16:12:00	47.07	8.66	88.64	51.15	61.40	3.50	1.67	1.39
22-Apr-08 16:13:00	47.17	8.62	88.64	51.23	61.37	3.50	1.70	1.42
22-Apr-08 16:14:00	47.10	8.65	88.65	51.20	61.84	2.68	1.71	1.42
22-Apr-08 16:15:00	47.00	8.65	88.65	51.06	63.58	2.74	1.67	1.39
22-Apr-08 16:16:00	47.28	8.62	88.62	51.20	63.79	2.62	1.63	1.36
22-Apr-08 16:17:00	47.45	8.66	88.62	51.20	63.77	2.51	1.67	1.36
22-Apr-08 16:18:00	47.63	8.70	88.63	51.35	63.76	2.40	1.61	1.33
22-Apr-08 16:19:00	47.35	8.69	88.66	51.36	63.74	2.87	1.57	1.32

	16C0040	16C0030	16C0102	16C060	16FC225	16AC201A	16AI1006	16AI201
	Coke Burn MLB/HR	Corrected Total Air MMSCFH	Corrected FCC Feed MBPD	Cat Circulation TONS/MIN	Aqueous Ammonia Injection LBS/HR	Stack Opacity %	K1603 O2 Dry %	Flue Gas O2 %
22-Apr-08 16:20:00	47.14	8.63	88.64	51.24	63.75	2.54	1.58	1.33
22-Apr-08 16:21:00	47.26	8.63	88.65	51.27	63.73	2.94	1.65	1.36
22-Apr-08 16:22:00	47.20	8.63	88.64	51.08	63.72	3.08	1.65	1.38
22-Apr-08 16:23:00	47.19	8.61	88.63	51.02	63.79	2.56	1.72	1.45
22-Apr-08 16:24:00	46.88	8.67	88.61	50.66	63.82	2.62	1.81	1.49
22-Apr-08 16:25:00	46.83	8.68	88.57	50.57	63.82	2.93	1.81	1.48
22-Apr-08 16:26:00	46.86	8.65	88.52	50.61	63.82	3.26	1.80	1.47
22-Apr-08 16:27:00	46.79	8.66	88.52	50.73	63.85	3.10	1.79	1.46
22-Apr-08 16:28:00	47.06	8.63	88.56	50.93	63.84	2.62	1.72	1.40
22-Apr-08 16:29:00	47.20	8.63	88.58	50.98	63.77	2.85	1.71	1.39
22-Apr-08 16:30:00	47.03	8.68	88.59	50.87	63.76	2.94	1.68	1.41
22-Apr-08 16:31:00	47.03	8.65	88.61	50.71	63.75	2.56	1.72	1.44
22-Apr-08 16:32:00	47.00	8.62	88.62	50.83	63.77	2.68	1.79	1.46
22-Apr-08 16:33:00	46.70	8.63	88.61	50.64	63.79	2.57	1.76	1.46
22-Apr-08 16:34:00	46.80	8.65	88.61	50.76	63.72	2.70	1.76	1.45
22-Apr-08 16:35:00	47.16	8.66	88.62	50.95	63.74	2.92	1.67	1.37
22-Apr-08 16:36:00	47.19	8.67	88.64	50.99	63.72	3.27	1.62	1.35
22-Apr-08 16:37:00	47.13	8.64	88.66	50.97	62.86	3.16	1.62	1.37
22-Apr-08 16:38:00	47.19	8.64	88.63	51.03	60.27	3.06	1.64	1.39
22-Apr-08 16:39:00	47.18	8.68	88.60	51.09	60.10	3.06	1.60	1.36
22-Apr-08 16:40:00	47.30	8.66	88.60	51.22	60.09	3.03	1.68	1.40
22-Apr-08 16:41:00	47.37	8.65	88.58	51.16	60.13	3.00	1.69	1.43
22-Apr-08 16:42:00	47.32	8.65	88.59	51.20	60.09	3.28	1.69	1.39
22-Apr-08 16:43:00	47.24	8.68	88.59	51.19	60.15	2.82	1.68	1.40
22-Apr-08 16:44:00	47.06	8.68	88.62	51.09	60.11	2.89	1.70	1.42
22-Apr-08 16:45:00	46.91	8.67	88.62	50.93	60.08	3.15	1.73	1.44
22-Apr-08 16:46:00	47.15	8.66	88.58	51.04	60.01	3.34	1.74	1.43
22-Apr-08 16:47:00	47.42	8.65	88.57	51.17	59.97	3.25	1.67	1.41
22-Apr-08 16:48:00	47.26	8.64	88.56	51.01	60.02	3.43	1.73	1.44
22-Apr-08 16:49:00	47.11	8.58	88.56	50.85	60.05	3.31	1.66	1.40
22-Apr-08 16:50:00	47.20	8.63	88.56	50.96	60.06	3.38	1.66	1.38
22-Apr-08 16:51:00	47.18	8.66	88.55	51.16	60.09	3.31	1.67	1.42
22-Apr-08 16:52:00	46.79	8.65	88.53	50.77	60.16	3.53	1.77	1.47
22-Apr-08 16:53:00	46.99	8.64	88.54	50.75	60.15	3.41	1.80	1.49
22-Apr-08 16:54:00	47.07	8.63	88.56	50.89	60.90	3.07	1.79	1.49
22-Apr-08 16:55:00	46.91	8.65	88.56	50.73	63.23	2.81	1.82	1.51
22-Apr-08 16:56:00	46.93	8.69	88.55	50.74	63.47	3.19	1.81	1.51
22-Apr-08 16:57:00	47.02	8.67	88.54	50.80	63.38	2.73	1.76	1.47
22-Apr-08 16:58:00	47.10	8.70	88.57	50.92	63.45	2.78	1.80	1.49
22-Apr-08 16:59:00	46.93	8.74	88.58	50.74	65.77	2.83	1.85	1.52

	16C0040	16C0030	16C0102	16C060	16FC225	16AC201A	16AI1006	16AI201
	Coke Burn MLB/HR	Corrected Total Air MMSCFH	Corrected FCC Feed MBPD	Cat Circulation TONS/MIN	Aqueous Ammonia Injection LBS/HR	Stack Opacity %	K1603 O2 Dry %	Flue Gas O2 %
22-Apr-08 17:00:00	46.66	8.66	88.61	50.58	72.65	2.89	1.86	1.52
22-Apr-08 17:01:00	46.68	8.62	88.64	50.54	71.26	3.05	1.81	1.49
22-Apr-08 17:02:00	47.02	8.64	88.63	50.74	70.42	3.26	1.75	1.47
22-Apr-08 17:03:00	46.85	8.66	88.62	50.69	67.86	3.23	1.75	1.48
22-Apr-08 17:04:00	46.73	8.66	88.63	50.56	67.64	2.99	1.82	1.52
22-Apr-08 17:05:00	46.76	8.69	88.67	50.60	66.92	3.04	1.79	1.48
22-Apr-08 17:06:00	46.95	8.68	88.67	50.82	64.76	3.06	1.72	1.42
22-Apr-08 17:07:00	47.25	8.65	88.64	51.09	64.56	2.69	1.68	1.38
22-Apr-08 17:08:00	47.07	8.60	88.60	51.04	64.48	2.72	1.70	1.41
22-Apr-08 17:09:00	47.03	8.60	88.59	51.03	64.48	3.02	1.72	1.44
22-Apr-08 17:10:00	46.98	8.66	88.59	51.13	64.40	3.01	1.71	1.45
22-Apr-08 17:11:00	46.89	8.63	88.60	50.92	64.42	2.94	1.70	1.41
22-Apr-08 17:12:00	47.30	8.60	88.60	51.18	64.49	2.83	1.63	1.33
22-Apr-08 17:13:00	47.34	8.63	88.61	51.26	64.36	2.37	1.58	1.33
22-Apr-08 17:14:00	47.44	8.64	88.62	51.38	63.78	2.40	1.58	1.32
22-Apr-08 17:15:00	47.31	8.63	88.60	51.38	61.54	2.42	1.57	1.31
22-Apr-08 17:16:00	47.22	8.65	88.59	51.20	60.52	2.77	1.54	1.29
22-Apr-08 17:17:00	47.42	8.65	88.55	51.45	60.48	3.13	1.57	1.30
22-Apr-08 17:18:00	47.27	8.64	88.54	51.39	60.49	3.04	1.58	1.29
22-Apr-08 17:19:00	47.15	8.65	88.56	51.31	60.49	2.89	1.60	1.31
22-Apr-08 17:20:00	47.29	8.63	88.56	51.36	60.52	2.39	1.57	1.31
22-Apr-08 17:21:00	47.16	8.63	88.55	51.07	60.47	2.54	1.57	1.33
22-Apr-08 17:22:00	47.22	8.63	88.54	51.06	60.41	2.72	1.65	1.36
22-Apr-08 17:23:00	47.30	8.65	88.54	51.25	60.47	2.95	1.59	1.34
22-Apr-08 17:24:00	47.12	8.65	88.55	51.13	60.45	3.05	1.62	1.37
22-Apr-08 17:25:00	47.05	8.65	88.57	51.12	60.46	2.94	1.60	1.41
22-Apr-08 17:26:00	47.03	8.66	88.59	50.97	60.39	3.53	1.62	1.41
22-Apr-08 17:27:00	46.96	8.65	88.61	50.94	60.40	3.52	1.74	1.43
22-Apr-08 17:28:00	46.58	8.62	88.62	50.62	60.83	3.59	1.80	1.49
22-Apr-08 17:29:00	46.41	8.64	88.61	50.35	62.09	3.45	1.89	1.53
22-Apr-08 17:30:00	46.63	8.68	88.60	50.61	62.44	3.44	1.79	1.45
22-Apr-08 17:31:00	46.80	8.68	88.58	50.88	62.46	3.35	1.69	1.40
22-Apr-08 17:32:00	47.01	8.65	88.59	50.87	62.46	3.23	1.70	1.41
22-Apr-08 17:33:00	47.02	8.61	88.61	50.92	62.38	3.61	1.70	1.41
22-Apr-08 17:34:00	46.94	8.63	88.60	50.88	62.42	2.74	1.70	1.41
22-Apr-08 17:35:00	47.00	8.67	88.59	50.93	64.14	3.16	1.68	1.40
22-Apr-08 17:36:00	47.03	8.68	88.58	51.07	69.73	2.88	1.68	1.41
22-Apr-08 17:37:00	47.08	8.64	88.59	51.10	69.84	2.05	1.73	1.42
22-Apr-08 17:38:00	46.96	8.63	88.58	51.00	68.12	1.82	1.74	1.43
22-Apr-08 17:39:00	46.93	8.65	88.59	51.06	66.37	2.58	1.72	1.40

	16C0040	16C0030	16C0102	16C060	16FC225	16AC201A	16AI1006	16AI201
	Coke Burn MLB/HR	Corrected Total Air MMSCFH	Corrected FCC Feed MBPD	Cat Circulation TONS/MIN	Aqueous Ammonia Injection LBS/HR	Stack Opacity %	K1603 O2 Dry %	Flue Gas O2 %
22-Apr-08 17:40:00	46.88	8.65	88.55	51.01	66.21	2.65	1.74	1.42
22-Apr-08 17:41:00	46.73	8.61	88.54	50.89	66.17	2.56	1.77	1.52
22-Apr-08 17:42:00	46.72	8.63	88.55	50.81	65.49	3.26	1.85	1.52
22-Apr-08 17:43:00	47.03	8.64	88.59	50.93	63.04	2.86	1.72	1.44
22-Apr-08 17:44:00	47.06	8.65	88.60	51.00	62.81	2.99	1.71	1.42
22-Apr-08 17:45:00	47.01	8.64	88.59	51.10	62.78	3.50	1.71	1.41
22-Apr-08 17:46:00	47.10	8.65	88.56	51.20	62.70	3.36	1.67	1.38
22-Apr-08 17:47:00	47.19	8.65	88.57	51.32	62.78	2.65	1.63	1.34
22-Apr-08 17:48:00	47.22	8.62	88.59	51.50	62.67	2.46	1.61	1.32
22-Apr-08 17:49:00	47.27	8.64	88.61	51.55	62.66	2.70	1.60	1.31
22-Apr-08 17:50:00	47.36	8.66	88.61	51.71	62.66	2.44	1.53	1.28
22-Apr-08 17:51:00	47.33	8.62	88.59	51.66	62.63	2.71	1.57	1.31
22-Apr-08 17:52:00	47.54	8.64	88.59	51.64	62.62	2.99	1.55	1.31
22-Apr-08 17:53:00	47.46	8.65	88.62	51.40	61.89	2.73	1.61	1.33
22-Apr-08 17:54:00	47.23	8.67	88.63	51.20	59.24	2.42	1.67	1.38
22-Apr-08 17:55:00	47.00	8.64	88.64	51.09	58.97	2.74	1.67	1.41
22-Apr-08 17:56:00	46.72	8.65	88.58	50.89	58.94	3.14	1.71	1.45
22-Apr-08 17:57:00	46.70	8.62	88.57	50.87	58.99	2.88	1.87	1.52
22-Apr-08 17:58:00	46.93	8.63	88.62	50.84	58.99	3.22	1.80	1.49
22-Apr-08 17:59:00	46.89	8.67	88.62	50.72	58.92	3.10	1.78	1.47

APPENDIX F:
TRC DATALOG FILES

Project Number	Client	Source	Run Number	Date	Time	O2 (%)	CO2 (%)	THC (ppmv)
159733	Chevron	F-1603		4/22/2008	8:59:45 AM	1.48	16.81	2.02
159733	Chevron	F-1603		4/22/2008	9:02:00 AM	1.55	16.77	1.73
159733	Chevron	F-1603		4/22/2008	9:03:00 AM	1.54	16.77	1.62
159733	Chevron	F-1603		4/22/2008	9:04:00 AM	1.59	16.72	1.52
159733	Chevron	F-1603		4/22/2008	9:05:00 AM	1.61	16.71	1.46
159733	Chevron	F-1603		4/22/2008	9:06:00 AM	1.64	16.67	1.39
159733	Chevron	F-1603		4/22/2008	9:07:00 AM	1.57	16.72	1.42
159733	Chevron	F-1603		4/22/2008	9:08:00 AM	1.58	16.75	1.40
159733	Chevron	F-1603		4/22/2008	9:09:00 AM	1.64	16.67	1.35
159733	Chevron	F-1603		4/22/2008	9:10:00 AM	1.58	16.70	1.38
159733	Chevron	F-1603		4/22/2008	9:11:00 AM	1.58	16.72	1.39
159733	Chevron	F-1603		4/22/2008	9:12:00 AM	1.57	16.73	1.65
159733	Chevron	F-1603		4/22/2008	9:13:00 AM	1.60	16.72	1.68
159733	Chevron	F-1603		4/22/2008	9:14:00 AM	1.60	16.71	1.49
159733	Chevron	F-1603		4/22/2008	9:15:00 AM	1.60	16.69	1.41
159733	Chevron	F-1603		4/22/2008	9:16:00 AM	1.57	16.73	1.37
159733	Chevron	F-1603		4/22/2008	9:17:00 AM	1.55	16.74	1.38
159733	Chevron	F-1603		4/22/2008	9:18:00 AM	1.54	16.76	1.53
159733	Chevron	F-1603		4/22/2008	9:19:00 AM	1.47	16.83	1.44
159733	Chevron	F-1603		4/22/2008	9:20:00 AM	1.49	16.83	1.37
159733	Chevron	F-1603		4/22/2008	9:21:00 AM	1.54	16.77	1.33
159733	Chevron	F-1603		4/22/2008	9:22:00 AM	1.53	16.79	1.23
159733	Chevron	F-1603		4/22/2008	9:23:00 AM	1.58	16.73	1.26
159733	Chevron	F-1603		4/22/2008	9:24:00 AM	1.61	16.72	1.19
159733	Chevron	F-1603		4/22/2008	9:25:00 AM	1.60	16.71	1.53
159733	Chevron	F-1603		4/22/2008	9:26:00 AM	1.64	16.68	1.44
159733	Chevron	F-1603		4/22/2008	9:27:00 AM	1.67	16.64	1.44
159733	Chevron	F-1603		4/22/2008	9:28:00 AM	1.62	16.69	1.31
159733	Chevron	F-1603		4/22/2008	9:29:00 AM	1.63	16.68	1.22
159733	Chevron	F-1603		4/22/2008	9:30:00 AM	1.55	16.75	1.24
159733	Chevron	F-1603		4/22/2008	9:31:00 AM	1.56	16.75	1.23
159733	Chevron	F-1603		4/22/2008	9:32:00 AM	1.58	16.73	1.16
159733	Chevron	F-1603		4/22/2008	9:33:00 AM	1.59	16.71	1.06
159733	Chevron	F-1603		4/22/2008	9:34:00 AM	1.58	16.72	0.92
159733	Chevron	F-1603		4/22/2008	9:35:00 AM	1.57	16.73	0.93
159733	Chevron	F-1603		4/22/2008	9:36:00 AM	1.53	16.76	0.89
159733	Chevron	F-1603		4/22/2008	9:37:00 AM	1.51	16.80	0.87
159733	Chevron	F-1603		4/22/2008	9:38:00 AM	1.42	16.88	1.24
159733	Chevron	F-1603		4/22/2008	9:39:00 AM	1.42	16.91	1.05
159733	Chevron	F-1603		4/22/2008	9:40:00 AM	1.43	16.89	1.04
159733	Chevron	F-1603		4/22/2008	9:41:00 AM	1.42	16.92	0.88
159733	Chevron	F-1603		4/22/2008	9:42:00 AM	1.40	16.87	-2.62
159733	Chevron	F-1603		4/22/2008	9:42:32 AM	0.04	0.19	-5.74
159733	Chevron	F-1603		4/22/2008	9:42:32 AM	-0.01	0.00	-0.01
159733	Chevron	F-1603		4/22/2008	9:42:32 AM	19.88	4.25	10.88
159733	Chevron	F-1603		4/22/2008	9:42:32 AM	19.91	4.26	10.83
159733	Chevron	F-1603		4/22/2008	9:47:00 AM	20.86	4.26	10.81
159733	Chevron	F-1603		4/22/2008	9:48:00 AM	20.92	4.26	10.78

Project Number	Client	Source	Run Number	Date	Time	O2 (%)	CO2 (%)	THC (ppmv)
159733	Chevron	F-1603		4/22/2008	9:49:00 AM	20.90	4.46	10.06
159733	Chevron	F-1603		4/22/2008	9:49:02 AM	10.03	10.10	5.63
159733	Chevron	F-1603		4/22/2008	9:49:02 AM	10.03	10.12	5.27
159733	Chevron	F-1603		4/22/2008	9:49:02 AM	4.64	19.77	5.00
159733	Chevron	F-1603		4/22/2008	9:49:02 AM	4.46	20.75	4.92
159733	Chevron	F-1603		4/22/2008	9:49:02 AM	4.46	20.05	4.95
159733	Chevron	F-1603		4/22/2008	9:49:02 AM	4.46	20.07	10.06
159733	Chevron	F-1603		4/22/2008	9:49:02 AM	4.45	20.09	9.78
159733	Chevron	F-1603		4/22/2008	9:49:02 AM	4.46	20.09	4.05
159733	Chevron	F-1603		4/22/2008	9:58:00 AM	4.45	20.09	4.46
159733	Chevron	F-1603		4/22/2008	9:59:00 AM	4.47	20.03	5.74
159733	Chevron	F-1603		4/22/2008	10:00:00 AM	1.62	16.33	2.23
159733	Chevron	F-1603		4/22/2008	10:01:00 AM	1.58	16.34	2.73
159733	Chevron	F-1603		4/22/2008	10:02:00 AM	1.53	16.38	2.67
159733	Chevron	F-1603		4/22/2008	10:03:00 AM	1.52	16.40	2.67
159733	Chevron	F-1603		4/22/2008	10:04:00 AM	1.54	16.40	2.93
159733	Chevron	F-1603		4/22/2008	10:05:00 AM	1.57	16.34	2.89
159733	Chevron	F-1603		4/22/2008	10:06:00 AM	1.55	16.37	2.78
159733	Chevron	F-1603		4/22/2008	10:07:00 AM	1.53	16.39	2.74
159733	Chevron	F-1603		4/22/2008	10:08:00 AM	1.50	16.40	2.70
159733	Chevron	F-1603		4/22/2008	10:09:00 AM	1.51	16.41	2.73
159733	Chevron	F-1603		4/22/2008	10:10:00 AM	1.52	16.39	2.64
159733	Chevron	F-1603		4/22/2008	10:11:00 AM	1.55	16.37	2.65
159733	Chevron	F-1603		4/22/2008	10:12:00 AM	1.62	16.32	2.62
159733	Chevron	F-1603		4/22/2008	10:13:00 AM	1.65	16.28	2.62
159733	Chevron	F-1603		4/22/2008	10:14:00 AM	1.65	16.28	2.61
159733	Chevron	F-1603		4/22/2008	10:15:00 AM	1.69	16.26	2.55
159733	Chevron	F-1603		4/22/2008	10:16:00 AM	1.77	16.19	2.83
159733	Chevron	F-1603		4/22/2008	10:17:00 AM	1.69	16.24	3.06
159733	Chevron	F-1603		4/22/2008	10:18:00 AM	1.64	16.28	2.97
159733	Chevron	F-1603		4/22/2008	10:19:00 AM	1.55	16.35	2.96
159733	Chevron	F-1603		4/22/2008	10:20:00 AM	1.55	16.35	2.90
159733	Chevron	F-1603		4/22/2008	10:21:00 AM	1.48	16.42	2.88
159733	Chevron	F-1603		4/22/2008	10:22:00 AM	1.46	16.44	2.81
159733	Chevron	F-1603		4/22/2008	10:23:00 AM	1.42	16.45	2.82
159733	Chevron	F-1603		4/22/2008	10:24:00 AM	1.32	16.56	2.76
159733	Chevron	F-1603		4/22/2008	10:25:00 AM	1.33	16.56	2.81
159733	Chevron	F-1603		4/22/2008	10:26:00 AM	1.36	16.54	2.75
159733	Chevron	F-1603		4/22/2008	10:27:00 AM	1.45	16.46	2.71
159733	Chevron	F-1603		4/22/2008	10:28:00 AM	1.50	16.41	2.64
159733	Chevron	F-1603	Run 1	4/22/2008	10:29:00 AM	1.57	16.36	2.92
159733	Chevron	F-1603	Run 1	4/22/2008	10:30:00 AM	1.60	16.34	2.97
159733	Chevron	F-1603	Run 1	4/22/2008	10:31:00 AM	1.61	16.32	2.92
159733	Chevron	F-1603	Run 1	4/22/2008	10:32:00 AM	1.62	16.30	2.87
159733	Chevron	F-1603	Run 1	4/22/2008	10:33:00 AM	1.67	16.28	2.91
159733	Chevron	F-1603	Run 1	4/22/2008	10:34:00 AM	1.72	16.24	2.87
159733	Chevron	F-1603	Run 1	4/22/2008	10:35:00 AM	1.71	16.24	2.81
159733	Chevron	F-1603	Run 1	4/22/2008	10:36:00 AM	1.67	16.28	2.78

Project Number	Client	Source	Run Number	Date	Time	O2 (%)	CO2 (%)	THC (ppmv)
159733	Chevron	F-1603	Run 1	4/22/2008	10:37:00 AM	1.68	16.26	2.75
159733	Chevron	F-1603	Run 1	4/22/2008	10:38:00 AM	1.72	16.23	2.77
159733	Chevron	F-1603	Run 1	4/22/2008	10:39:00 AM	1.71	16.23	2.75
159733	Chevron	F-1603	Run 1	4/22/2008	10:40:00 AM	1.61	16.30	2.75
159733	Chevron	F-1603	Run 1	4/22/2008	10:41:00 AM	1.62	16.31	2.84
159733	Chevron	F-1603	Run 1	4/22/2008	10:42:00 AM	1.59	16.33	3.10
159733	Chevron	F-1603	Run 1	4/22/2008	10:43:00 AM	1.53	16.37	3.17
159733	Chevron	F-1603	Run 1	4/22/2008	10:44:00 AM	1.52	16.39	3.08
159733	Chevron	F-1603	Run 1	4/22/2008	10:45:00 AM	1.58	16.35	3.00
159733	Chevron	F-1603	Run 1	4/22/2008	10:46:00 AM	1.60	16.33	2.88
159733	Chevron	F-1603	Run 1	4/22/2008	10:47:00 AM	1.58	16.32	2.85
159733	Chevron	F-1603	Run 1	4/22/2008	10:48:00 AM	1.59	16.33	2.80
159733	Chevron	F-1603	Run 1	4/22/2008	10:49:00 AM	1.61	16.32	2.77
159733	Chevron	F-1603	Run 1	4/22/2008	10:50:00 AM	1.58	16.34	2.76
159733	Chevron	F-1603	Run 1	4/22/2008	10:51:00 AM	1.59	16.35	2.73
159733	Chevron	F-1603	Run 1	4/22/2008	10:52:00 AM	1.61	16.31	2.73
159733	Chevron	F-1603	Run 1	4/22/2008	10:53:00 AM	1.63	16.31	2.73
159733	Chevron	F-1603	Run 1	4/22/2008	10:54:00 AM	1.64	16.29	2.82
159733	Chevron	F-1603	Run 1	4/22/2008	10:55:00 AM	1.57	16.34	3.09
159733	Chevron	F-1603	Run 1	4/22/2008	10:56:00 AM	1.58	16.34	3.10
159733	Chevron	F-1603	Run 1	4/22/2008	10:57:00 AM	1.63	16.31	3.01
159733	Chevron	F-1603	Run 1	4/22/2008	10:58:00 AM	1.64	16.29	2.93
159733	Chevron	F-1603	Run 1	4/22/2008	10:59:00 AM	1.63	16.31	2.87
159733	Chevron	F-1603	Run 1	4/22/2008	11:00:00 AM	1.59	16.33	2.81
159733	Chevron	F-1603	Run 1	4/22/2008	11:01:00 AM	1.57	16.35	2.80
159733	Chevron	F-1603	Run 1	4/22/2008	11:02:00 AM	1.54	16.37	2.78
159733	Chevron	F-1603	Run 1	4/22/2008	11:03:00 AM	1.55	16.38	2.75
159733	Chevron	F-1603	Run 1	4/22/2008	11:04:00 AM	1.59	16.34	2.66
159733	Chevron	F-1603	Run 1	4/22/2008	11:05:00 AM	1.56	16.36	2.65
159733	Chevron	F-1603	Run 1	4/22/2008	11:06:00 AM	1.57	16.36	2.60
159733	Chevron	F-1603	Run 1	4/22/2008	11:07:00 AM	1.60	16.32	2.64
159733	Chevron	F-1603	Run 1	4/22/2008	11:08:00 AM	1.57	16.34	2.98
159733	Chevron	F-1603	Run 1	4/22/2008	11:09:00 AM	1.57	16.35	2.95
159733	Chevron	F-1603	Run 1	4/22/2008	11:10:00 AM	1.60	16.34	2.91
159733	Chevron	F-1603	Run 1	4/22/2008	11:11:00 AM	1.54	16.38	2.85
159733	Chevron	F-1603	Run 1	4/22/2008	11:12:00 AM	1.51	16.39	2.77
159733	Chevron	F-1603	Run 1	4/22/2008	11:13:00 AM	1.60	16.35	2.68
159733	Chevron	F-1603	Run 1	4/22/2008	11:14:00 AM	1.65	16.30	2.69
159733	Chevron	F-1603	Run 1	4/22/2008	11:15:00 AM	1.62	16.30	2.65
159733	Chevron	F-1603	Run 1	4/22/2008	11:16:00 AM	1.59	16.34	2.72
159733	Chevron	F-1603	Run 1	4/22/2008	11:17:00 AM	3.29	15.70	5.32
159733	Chevron	F-1603	Run 1	4/22/2008	11:18:00 AM	8.23	10.24	1.61
159733	Chevron	F-1603	Run 1	4/22/2008	11:19:00 AM	2.55	15.52	2.32
159733	Chevron	F-1603	Run 1	4/22/2008	11:20:00 AM	1.67	16.26	2.82
159733	Chevron	F-1603	Run 1	4/22/2008	11:21:00 AM	1.62	16.32	3.04
159733	Chevron	F-1603	Run 1	4/22/2008	11:22:00 AM	1.65	16.29	2.99
159733	Chevron	F-1603	Run 1	4/22/2008	11:23:00 AM	1.65	16.29	3.01
159733	Chevron	F-1603	Run 1	4/22/2008	11:24:00 AM	1.67	16.28	2.98

Project Number	Client	Source	Run Number	Date	Time	O2 (%)	CO2 (%)	THC (ppmv)
159733	Chevron	F-1603	Run 1	4/22/2008	11:25:00 AM	1.76	16.21	2.91
159733	Chevron	F-1603	Run 1	4/22/2008	11:26:00 AM	1.77	16.20	2.86
159733	Chevron	F-1603	Run 1	4/22/2008	11:27:00 AM	1.77	16.20	2.87
159733	Chevron	F-1603	Run 1	4/22/2008	11:28:00 AM	1.78	16.17	2.76
159733	Chevron	F-1603		4/22/2008	11:29:00 AM	1.74	16.21	2.74
159733	Chevron	F-1603		4/22/2008	11:30:00 AM	0.00	0.07	-2.83
159733	Chevron	F-1603		4/22/2008	11:31:00 AM	0.00	0.00	-0.08
159733	Chevron	F-1603		4/22/2008	11:32:00 AM	0.00	-0.01	9.99
159733	Chevron	F-1603		4/22/2008	11:33:00 AM	4.44	19.94	9.99
159733	Chevron	F-1603		4/22/2008	11:34:00 AM	4.44	20.06	5.95
159733	Chevron	F-1603		4/22/2008	11:35:00 AM	1.64	16.28	2.98
159733	Chevron	F-1603		4/22/2008	11:36:00 AM	1.56	16.31	2.84
159733	Chevron	F-1603		4/22/2008	11:37:00 AM	1.53	16.35	2.66
159733	Chevron	F-1603		4/22/2008	11:38:00 AM	1.48	16.38	2.64
159733	Chevron	F-1603		4/22/2008	11:39:00 AM	1.47	16.40	2.54
159733	Chevron	F-1603		4/22/2008	11:40:00 AM	1.52	16.37	2.50
159733	Chevron	F-1603		4/22/2008	11:41:00 AM	1.52	16.37	2.49
159733	Chevron	F-1603		4/22/2008	11:42:00 AM	1.49	16.39	2.51
159733	Chevron	F-1603		4/22/2008	11:43:00 AM	1.53	16.37	2.53
159733	Chevron	F-1603		4/22/2008	11:44:00 AM	1.56	16.33	2.46
159733	Chevron	F-1603		4/22/2008	11:45:00 AM	1.51	16.36	2.46
159733	Chevron	F-1603		4/22/2008	11:46:00 AM	1.50	16.38	2.64
159733	Chevron	F-1603		4/22/2008	11:47:00 AM	1.46	16.40	2.77
159733	Chevron	F-1603		4/22/2008	11:48:00 AM	1.52	16.37	2.70
159733	Chevron	F-1603		4/22/2008	11:49:00 AM	1.57	16.33	2.62
159733	Chevron	F-1603		4/22/2008	11:50:00 AM	1.56	16.33	2.51
159733	Chevron	F-1603		4/22/2008	11:51:00 AM	1.48	16.41	2.46
159733	Chevron	F-1603		4/22/2008	11:52:00 AM	1.53	16.35	2.37
159733	Chevron	F-1603		4/22/2008	11:53:00 AM	1.59	16.31	2.29
159733	Chevron	F-1603		4/22/2008	11:54:00 AM	1.62	16.29	2.23
159733	Chevron	F-1603		4/22/2008	11:55:00 AM	1.70	16.22	2.08
159733	Chevron	F-1603		4/22/2008	11:56:00 AM	1.70	16.21	2.01
159733	Chevron	F-1603		4/22/2008	11:57:00 AM	1.68	16.22	1.97
159733	Chevron	F-1603		4/22/2008	11:58:00 AM	1.66	16.25	1.96
159733	Chevron	F-1603		4/22/2008	11:59:00 AM	1.65	16.25	3.45
159733	Chevron	F-1603		4/22/2008	12:00:00 PM	1.72	16.20	3.50
159733	Chevron	F-1603		4/22/2008	12:01:00 PM	1.65	16.24	3.40
159733	Chevron	F-1603		4/22/2008	12:02:00 PM	1.56	16.31	3.30
159733	Chevron	F-1603		4/22/2008	12:03:00 PM	1.56	16.31	3.23
159733	Chevron	F-1603		4/22/2008	12:04:00 PM	1.53	16.33	3.11
159733	Chevron	F-1603		4/22/2008	12:05:00 PM	1.53	16.35	3.02
159733	Chevron	F-1603		4/22/2008	12:06:00 PM	1.54	16.33	2.87
159733	Chevron	F-1603		4/22/2008	12:07:00 PM	1.54	16.32	2.76
159733	Chevron	F-1603		4/22/2008	12:08:00 PM	1.49	16.37	2.64
159733	Chevron	F-1603		4/22/2008	12:09:00 PM	1.49	16.38	2.59
159733	Chevron	F-1603		4/22/2008	12:10:00 PM	1.44	16.41	2.48
159733	Chevron	F-1603		4/22/2008	12:11:00 PM	1.37	16.48	2.48
159733	Chevron	F-1603		4/22/2008	12:12:00 PM	1.43	16.42	2.60

Project Number	Client	Source	Run Number	Date	Time	O2 (%)	CO2 (%)	THC (ppmv)
159733	Chevron	F-1603		4/22/2008	12:13:00 PM	1.50	16.39	2.65
159733	Chevron	F-1603		4/22/2008	12:14:00 PM	1.51	16.36	2.49
159733	Chevron	F-1603		4/22/2008	12:15:00 PM	1.54	16.33	2.48
159733	Chevron	F-1603		4/22/2008	12:16:00 PM	1.57	16.33	2.35
159733	Chevron	F-1603		4/22/2008	12:17:00 PM	1.65	16.25	2.27
159733	Chevron	F-1603		4/22/2008	12:18:00 PM	1.68	16.23	2.26
159733	Chevron	F-1603		4/22/2008	12:19:00 PM	1.72	16.20	2.21
159733	Chevron	F-1603		4/22/2008	12:20:00 PM	1.79	16.15	2.57
159733	Chevron	F-1603		4/22/2008	12:21:00 PM	1.74	16.17	2.55
159733	Chevron	F-1603		4/22/2008	12:22:00 PM	1.73	16.18	2.55
159733	Chevron	F-1603		4/22/2008	12:23:00 PM	1.72	16.17	2.55
159733	Chevron	F-1603		4/22/2008	12:24:00 PM	1.64	16.24	2.71
159733	Chevron	F-1603		4/22/2008	12:25:00 PM	1.59	16.28	3.00
159733	Chevron	F-1603		4/22/2008	12:26:00 PM	1.56	16.31	3.03
159733	Chevron	F-1603		4/22/2008	12:27:00 PM	1.57	16.31	3.02
159733	Chevron	F-1603		4/22/2008	12:28:00 PM	1.59	16.30	2.98
159733	Chevron	F-1603		4/22/2008	12:29:00 PM	1.49	16.35	2.90
159733	Chevron	F-1603		4/22/2008	12:30:00 PM	1.48	16.38	2.88
159733	Chevron	F-1603		4/22/2008	12:31:00 PM	1.46	16.39	2.87
159733	Chevron	F-1603		4/22/2008	12:32:00 PM	1.44	16.39	2.95
159733	Chevron	F-1603		4/22/2008	12:33:00 PM	1.41	16.42	2.99
159733	Chevron	F-1603		4/22/2008	12:34:00 PM	1.42	16.45	3.05
159733	Chevron	F-1603		4/22/2008	12:35:00 PM	1.50	16.36	2.95
159733	Chevron	F-1603		4/22/2008	12:36:00 PM	1.57	16.31	2.92
159733	Chevron	F-1603		4/22/2008	12:37:00 PM	1.65	16.26	3.01
159733	Chevron	F-1603		4/22/2008	12:38:00 PM	1.62	16.25	3.17
159733	Chevron	F-1603		4/22/2008	12:39:00 PM	1.63	16.26	3.15
159733	Chevron	F-1603		4/22/2008	12:40:00 PM	1.67	16.23	3.15
159733	Chevron	F-1603		4/22/2008	12:41:00 PM	1.69	16.21	3.15
159733	Chevron	F-1603		4/22/2008	12:42:00 PM	1.72	16.20	3.07
159733	Chevron	F-1603		4/22/2008	12:43:00 PM	1.61	16.27	3.02
159733	Chevron	F-1603		4/22/2008	12:44:00 PM	1.62	16.27	3.16
159733	Chevron	F-1603		4/22/2008	12:45:00 PM	1.63	16.26	3.08
159733	Chevron	F-1603		4/22/2008	12:46:00 PM	1.63	16.25	3.09
159733	Chevron	F-1603		4/22/2008	12:47:00 PM	1.65	16.24	3.04
159733	Chevron	F-1603		4/22/2008	12:48:00 PM	1.58	16.28	2.97
159733	Chevron	F-1603		4/22/2008	12:49:00 PM	1.54	16.32	2.88
159733	Chevron	F-1603		4/22/2008	12:50:00 PM	1.59	16.28	2.98
159733	Chevron	F-1603		4/22/2008	12:51:00 PM	1.69	16.23	2.98
159733	Chevron	F-1603		4/22/2008	12:52:00 PM	1.67	16.20	2.87
159733	Chevron	F-1603		4/22/2008	12:53:00 PM	1.60	16.26	2.70
159733	Chevron	F-1603		4/22/2008	12:54:00 PM	1.59	16.27	2.64
159733	Chevron	F-1603		4/22/2008	12:55:00 PM	1.58	16.29	2.49
159733	Chevron	F-1603		4/22/2008	12:56:00 PM	1.56	16.31	2.37
159733	Chevron	F-1603		4/22/2008	12:57:00 PM	1.55	16.32	2.25
159733	Chevron	F-1603		4/22/2008	12:58:00 PM	1.57	16.31	2.14
159733	Chevron	F-1603		4/22/2008	12:59:00 PM	1.61	16.27	1.98
159733	Chevron	F-1603		4/22/2008	1:00:00 PM	1.59	16.28	1.94

Project Number	Client	Source	Run Number	Date	Time	O2 (%)	CO2 (%)	THC (ppmv)
159733	Chevron	F-1603		4/22/2008	1:00:52 PM	1.55	16.31	2.66
159733	Chevron	F-1603	Run 2	4/22/2008	1:01:52 PM	1.53	16.34	2.58
159733	Chevron	F-1603	Run 2	4/22/2008	1:02:52 PM	1.51	16.36	2.72
159733	Chevron	F-1603	Run 2	4/22/2008	1:03:52 PM	1.52	16.34	2.95
159733	Chevron	F-1603	Run 2	4/22/2008	1:04:52 PM	1.61	16.28	3.11
159733	Chevron	F-1603	Run 2	4/22/2008	1:05:52 PM	1.66	16.25	2.91
159733	Chevron	F-1603	Run 2	4/22/2008	1:06:52 PM	1.66	16.25	2.79
159733	Chevron	F-1603	Run 2	4/22/2008	1:07:52 PM	1.71	16.21	2.84
159733	Chevron	F-1603	Run 2	4/22/2008	1:08:52 PM	1.75	16.17	2.95
159733	Chevron	F-1603	Run 2	4/22/2008	1:09:52 PM	1.73	16.17	2.99
159733	Chevron	F-1603	Run 2	4/22/2008	1:10:52 PM	1.74	16.16	3.68
159733	Chevron	F-1603	Run 2	4/22/2008	1:11:52 PM	1.71	16.20	3.11
159733	Chevron	F-1603	Run 2	4/22/2008	1:12:52 PM	1.70	16.19	8.06
159733	Chevron	F-1603	Run 2	4/22/2008	1:13:52 PM	1.61	16.26	4.27
159733	Chevron	F-1603	Run 2	4/22/2008	1:14:52 PM	1.61	16.28	7.46
159733	Chevron	F-1603	Run 2	4/22/2008	1:15:52 PM	1.65	16.24	4.24
159733	Chevron	F-1603	Run 2	4/22/2008	1:16:52 PM	1.60	16.29	4.11
159733	Chevron	F-1603	Run 2	4/22/2008	1:17:52 PM	1.59	16.28	7.43
159733	Chevron	F-1603	Run 2	4/22/2008	1:18:52 PM	1.58	16.31	5.99
159733	Chevron	F-1603	Run 2	4/22/2008	1:19:52 PM	1.68	16.24	3.09
159733	Chevron	F-1603	Run 2	4/22/2008	1:20:52 PM	1.67	16.22	2.30
159733	Chevron	F-1603	Run 2	4/22/2008	1:21:52 PM	1.65	16.23	3.96
159733	Chevron	F-1603	Run 2	4/22/2008	1:22:52 PM	1.72	16.18	3.13
159733	Chevron	F-1603	Run 2	4/22/2008	1:23:52 PM	1.70	16.21	3.00
159733	Chevron	F-1603	Run 2	4/22/2008	1:24:52 PM	1.75	16.17	2.09
159733	Chevron	F-1603	Run 2	4/22/2008	1:25:52 PM	1.75	16.15	2.15
159733	Chevron	F-1603	Run 2	4/22/2008	1:26:52 PM	1.78	16.14	1.57
159733	Chevron	F-1603	Run 2	4/22/2008	1:27:52 PM	1.73	16.16	-9.57
159733	Chevron	F-1603	Run 2	4/22/2008	1:28:52 PM	1.76	16.15	-9.56
159733	Chevron	F-1603	Run 2	4/22/2008	1:29:52 PM	1.73	16.17	2.60
159733	Chevron	F-1603	Run 2	4/22/2008	1:30:52 PM	1.64	16.24	2.46
159733	Chevron	F-1603	Run 2	4/22/2008	1:31:52 PM	1.67	16.23	2.15
159733	Chevron	F-1603	Run 2	4/22/2008	1:32:52 PM	1.57	16.30	2.82
159733	Chevron	F-1603	Run 2	4/22/2008	1:33:52 PM	1.63	16.26	2.82
159733	Chevron	F-1603	Run 2	4/22/2008	1:34:52 PM	1.52	16.33	2.17
159733	Chevron	F-1603	Run 2	4/22/2008	1:35:52 PM	1.53	16.33	2.04
159733	Chevron	F-1603	Run 2	4/22/2008	1:36:52 PM	1.50	16.35	2.07
159733	Chevron	F-1603	Run 2	4/22/2008	1:37:52 PM	1.53	16.34	2.00
159733	Chevron	F-1603	Run 2	4/22/2008	1:38:52 PM	1.56	16.32	2.02
159733	Chevron	F-1603	Run 2	4/22/2008	1:39:52 PM	1.57	16.30	2.16
159733	Chevron	F-1603	Run 2	4/22/2008	1:40:52 PM	1.58	16.29	2.05
159733	Chevron	F-1603	Run 2	4/22/2008	1:41:52 PM	1.60	16.28	2.37
159733	Chevron	F-1603	Run 2	4/22/2008	1:42:52 PM	1.59	16.29	2.09
159733	Chevron	F-1603	Run 2	4/22/2008	1:43:52 PM	1.60	16.28	2.43
159733	Chevron	F-1603	Run 2	4/22/2008	1:44:52 PM	1.58	16.28	1.91
159733	Chevron	F-1603	Run 2	4/22/2008	1:45:52 PM	1.61	16.28	1.80
159733	Chevron	F-1603	Run 2	4/22/2008	1:46:52 PM	1.60	16.26	1.96
159733	Chevron	F-1603	Run 2	4/22/2008	1:47:52 PM	1.60	16.28	1.86

Project Number	Client	Source	Run Number	Date	Time	O2 (%)	CO2 (%)	THC (ppmv)
159733	Chevron	F-1603	Run 2	4/22/2008	1:48:52 PM	1.66	16.23	2.15
159733	Chevron	F-1603	Run 2	4/22/2008	1:49:52 PM	1.64	16.25	2.00
159733	Chevron	F-1603	Run 2	4/22/2008	1:50:52 PM	1.71	16.20	1.82
159733	Chevron	F-1603	Run 2	4/22/2008	1:51:52 PM	1.71	16.19	1.61
159733	Chevron	F-1603	Run 2	4/22/2008	1:52:52 PM	1.67	16.22	2.21
159733	Chevron	F-1603	Run 2	4/22/2008	1:53:52 PM	1.70	16.21	2.28
159733	Chevron	F-1603	Run 2	4/22/2008	1:54:52 PM	1.60	16.26	2.41
159733	Chevron	F-1603	Run 2	4/22/2008	1:55:52 PM	1.53	16.31	2.59
159733	Chevron	F-1603	Run 2	4/22/2008	1:56:52 PM	1.59	16.29	2.19
159733	Chevron	F-1603	Run 2	4/22/2008	1:57:52 PM	1.56	16.29	2.18
159733	Chevron	F-1603	Run 2	4/22/2008	1:58:52 PM	1.53	16.32	2.09
159733	Chevron	F-1603	Run 2	4/22/2008	1:59:52 PM	1.57	16.31	2.14
159733	Chevron	F-1603	Run 2	4/22/2008	2:00:52 PM	1.59	16.27	2.00
159733	Chevron	F-1603		4/22/2008	2:01:52 PM	0.00	0.01	-1.00
159733	Chevron	F-1603		4/22/2008	2:02:52 PM	0.00	-0.01	-1.28
159733	Chevron	F-1603		4/22/2008	2:03:52 PM	-0.01	-0.01	-0.17
159733	Chevron	F-1603		4/22/2008	2:04:52 PM	0.00	0.01	-0.18
159733	Chevron	F-1603		4/22/2008	2:05:52 PM	4.42	19.98	8.97
159733	Chevron	F-1603		4/22/2008	2:06:52 PM	4.44	20.00	10.07
159733	Chevron	F-1603		4/22/2008	2:07:52 PM	4.40	19.99	-2.56
159733	Chevron	F-1603		4/22/2008	2:08:52 PM	1.67	16.24	4.02
159733	Chevron	F-1603		4/22/2008	2:09:52 PM	1.67	16.23	3.81
159733	Chevron	F-1603		4/22/2008	2:10:52 PM	1.66	16.24	3.91
159733	Chevron	F-1603		4/22/2008	2:11:52 PM	1.76	16.15	4.06
159733	Chevron	F-1603		4/22/2008	2:12:52 PM	1.75	16.16	4.30
159733	Chevron	F-1603		4/22/2008	2:13:52 PM	1.65	16.23	4.06
159733	Chevron	F-1603		4/22/2008	2:14:52 PM	1.65	16.22	3.71
159733	Chevron	F-1603		4/22/2008	2:15:52 PM	1.62	16.25	3.60
159733	Chevron	F-1603		4/22/2008	2:16:52 PM	1.61	16.27	3.28
159733	Chevron	F-1603		4/22/2008	2:17:52 PM	1.57	16.30	3.00
159733	Chevron	F-1603		4/22/2008	2:18:52 PM	1.51	16.34	2.91
159733	Chevron	F-1603		4/22/2008	2:19:52 PM	1.48	16.38	2.94
159733	Chevron	F-1603		4/22/2008	2:20:52 PM	1.48	16.36	2.98
159733	Chevron	F-1603		4/22/2008	2:21:52 PM	1.44	16.41	2.86
159733	Chevron	F-1603		4/22/2008	2:22:52 PM	1.47	16.38	2.90
159733	Chevron	F-1603		4/22/2008	2:23:52 PM	1.49	16.37	2.83
159733	Chevron	F-1603		4/22/2008	2:24:52 PM	1.51	16.36	2.74
159733	Chevron	F-1603		4/22/2008	2:25:52 PM	1.54	16.33	2.67
159733	Chevron	F-1603		4/22/2008	2:26:52 PM	1.56	16.32	2.67
159733	Chevron	F-1603		4/22/2008	2:27:52 PM	1.61	16.29	2.68
159733	Chevron	F-1603		4/22/2008	2:28:52 PM	1.64	16.26	2.63
159733	Chevron	F-1603		4/22/2008	2:29:52 PM	1.70	16.22	2.82
159733	Chevron	F-1603		4/22/2008	2:30:52 PM	1.80	16.14	3.23
159733	Chevron	F-1603		4/22/2008	2:31:52 PM	1.85	16.08	4.33
159733	Chevron	F-1603		4/22/2008	2:32:52 PM	1.86	16.08	6.35
159733	Chevron	F-1603		4/22/2008	2:33:52 PM	1.91	16.06	8.46
159733	Chevron	F-1603		4/22/2008	2:34:52 PM	1.80	16.12	10.18
159733	Chevron	F-1603		4/22/2008	2:35:52 PM	1.79	16.13	11.13

Project Number	Client	Source	Run Number	Date	Time	O2 (%)	CO2 (%)	THC (ppmv)
159733	Chevron	F-1603		4/22/2008	2:36:52 PM	1.77	16.15	11.58
159733	Chevron	F-1603		4/22/2008	2:37:52 PM	1.70	16.19	11.72
159733	Chevron	F-1603		4/22/2008	2:38:52 PM	1.62	16.26	11.76
159733	Chevron	F-1603		4/22/2008	2:39:52 PM	1.64	16.25	11.59
159733	Chevron	F-1603		4/22/2008	2:40:52 PM	1.69	16.21	11.47
159733	Chevron	F-1603		4/22/2008	2:41:52 PM	1.72	16.19	11.15
159733	Chevron	F-1603		4/22/2008	2:42:52 PM	1.71	16.19	10.92
159733	Chevron	F-1603		4/22/2008	2:43:52 PM	1.65	16.22	10.68
159733	Chevron	F-1603		4/22/2008	2:44:52 PM	1.62	16.26	10.49
159733	Chevron	F-1603		4/22/2008	2:45:52 PM	1.71	16.19	10.34
159733	Chevron	F-1603		4/22/2008	2:46:52 PM	1.67	16.23	4.03
159733	Chevron	F-1603		4/22/2008	2:47:24 PM	1.66	16.24	3.94
159733	Chevron	F-1603	Run 3	4/22/2008	2:48:24 PM	1.65	16.23	3.72
159733	Chevron	F-1603	Run 3	4/22/2008	2:49:24 PM	1.63	16.25	3.55
159733	Chevron	F-1603	Run 3	4/22/2008	2:50:24 PM	1.59	16.27	3.34
159733	Chevron	F-1603	Run 3	4/22/2008	2:51:24 PM	1.64	16.25	3.13
159733	Chevron	F-1603	Run 3	4/22/2008	2:52:24 PM	1.61	16.27	2.97
159733	Chevron	F-1603	Run 3	4/22/2008	2:53:24 PM	1.58	16.29	2.79
159733	Chevron	F-1603	Run 3	4/22/2008	2:54:24 PM	1.61	16.28	2.65
159733	Chevron	F-1603	Run 3	4/22/2008	2:55:24 PM	1.56	16.31	2.52
159733	Chevron	F-1603	Run 3	4/22/2008	2:56:24 PM	1.51	16.35	2.43
159733	Chevron	F-1603	Run 3	4/22/2008	2:57:24 PM	1.59	16.29	2.37
159733	Chevron	F-1603	Run 3	4/22/2008	2:58:24 PM	1.70	16.22	2.35
159733	Chevron	F-1603	Run 3	4/22/2008	2:59:24 PM	1.72	16.19	2.30
159733	Chevron	F-1603	Run 3	4/22/2008	3:00:24 PM	1.76	16.16	2.26
159733	Chevron	F-1603	Run 3	4/22/2008	3:01:24 PM	1.76	16.16	2.16
159733	Chevron	F-1603	Run 3	4/22/2008	3:02:24 PM	1.75	16.18	2.08
159733	Chevron	F-1603	Run 3	4/22/2008	3:03:24 PM	1.79	16.14	2.01
159733	Chevron	F-1603	Run 3	4/22/2008	3:04:24 PM	1.76	16.14	1.98
159733	Chevron	F-1603	Run 3	4/22/2008	3:05:24 PM	1.73	16.16	1.89
159733	Chevron	F-1603	Run 3	4/22/2008	3:06:24 PM	1.68	16.23	1.84
159733	Chevron	F-1603	Run 3	4/22/2008	3:07:24 PM	1.62	16.27	1.77
159733	Chevron	F-1603	Run 3	4/22/2008	3:08:24 PM	1.62	16.26	1.70
159733	Chevron	F-1603	Run 3	4/22/2008	3:09:24 PM	1.58	16.30	1.70
159733	Chevron	F-1603	Run 3	4/22/2008	3:10:24 PM	1.57	16.32	1.75
159733	Chevron	F-1603	Run 3	4/22/2008	3:11:24 PM	1.50	16.34	1.77
159733	Chevron	F-1603	Run 3	4/22/2008	3:12:24 PM	1.49	16.37	1.74
159733	Chevron	F-1603	Run 3	4/22/2008	3:13:24 PM	1.45	16.40	1.63
159733	Chevron	F-1603	Run 3	4/22/2008	3:14:24 PM	1.44	16.41	1.58
159733	Chevron	F-1603	Run 3	4/22/2008	3:15:24 PM	1.43	16.42	1.46
159733	Chevron	F-1603	Run 3	4/22/2008	3:16:24 PM	1.39	16.43	1.44
159733	Chevron	F-1603	Run 3	4/22/2008	3:17:24 PM	1.40	16.45	2.58
159733	Chevron	F-1603	Run 3	4/22/2008	3:18:24 PM	1.42	16.43	2.56
159733	Chevron	F-1603	Run 3	4/22/2008	3:19:24 PM	1.45	16.41	2.50
159733	Chevron	F-1603	Run 3	4/22/2008	3:20:24 PM	1.51	16.37	2.48
159733	Chevron	F-1603	Run 3	4/22/2008	3:21:24 PM	1.55	16.34	2.42
159733	Chevron	F-1603	Run 3	4/22/2008	3:22:24 PM	1.48	16.39	2.44
159733	Chevron	F-1603	Run 3	4/22/2008	3:23:24 PM	1.53	16.34	2.48

Project Number	Client	Source	Run Number	Date	Time	O2 (%)	CO2 (%)	THC (ppmv)
159733	Chevron	F-1603	Run 3	4/22/2008	3:24:24 PM	1.62	16.26	2.39
159733	Chevron	F-1603	Run 3	4/22/2008	3:25:24 PM	1.57	16.30	2.40
159733	Chevron	F-1603	Run 3	4/22/2008	3:26:24 PM	1.68	16.24	2.36
159733	Chevron	F-1603	Run 3	4/22/2008	3:27:24 PM	1.65	16.24	2.29
159733	Chevron	F-1603	Run 3	4/22/2008	3:28:24 PM	1.69	16.24	2.29
159733	Chevron	F-1603	Run 3	4/22/2008	3:29:24 PM	1.76	16.19	2.23
159733	Chevron	F-1603	Run 3	4/22/2008	3:30:24 PM	1.88	16.09	2.23
159733	Chevron	F-1603	Run 3	4/22/2008	3:31:24 PM	1.86	16.11	2.23
159733	Chevron	F-1603	Run 3	4/22/2008	3:32:24 PM	1.84	16.10	2.14
159733	Chevron	F-1603	Run 3	4/22/2008	3:33:24 PM	1.81	16.14	2.14
159733	Chevron	F-1603	Run 3	4/22/2008	3:34:24 PM	1.72	16.20	2.13
159733	Chevron	F-1603	Run 3	4/22/2008	3:35:24 PM	1.73	16.18	2.16
159733	Chevron	F-1603	Run 3	4/22/2008	3:36:24 PM	1.75	16.18	2.19
159733	Chevron	F-1603	Run 3	4/22/2008	3:37:24 PM	1.78	16.14	2.15
159733	Chevron	F-1603	Run 3	4/22/2008	3:38:24 PM	1.67	16.22	2.11
159733	Chevron	F-1603	Run 3	4/22/2008	3:39:24 PM	1.62	16.26	2.10
159733	Chevron	F-1603	Run 3	4/22/2008	3:40:24 PM	1.64	16.25	2.03
159733	Chevron	F-1603	Run 3	4/22/2008	3:41:24 PM	1.65	16.26	1.98
159733	Chevron	F-1603	Run 3	4/22/2008	3:42:24 PM	1.64	16.27	1.98
159733	Chevron	F-1603	Run 3	4/22/2008	3:43:24 PM	1.64	16.26	1.96
159733	Chevron	F-1603	Run 3	4/22/2008	3:44:24 PM	1.58	16.30	1.91
159733	Chevron	F-1603	Run 3	4/22/2008	3:45:24 PM	1.53	16.35	1.90
159733	Chevron	F-1603	Run 3	4/22/2008	3:46:24 PM	1.52	16.35	1.84
159733	Chevron	F-1603	Run 3	4/22/2008	3:47:24 PM	1.49	16.38	1.83
159733	Chevron	F-1603		4/22/2008	3:48:24 PM	1.52	16.38	1.90
159733	Chevron	F-1603		4/22/2008	3:49:24 PM	1.51	16.35	1.89
159733	Chevron	F-1603		4/22/2008	3:50:24 PM	0.00	0.04	0.08
159733	Chevron	F-1603		4/22/2008	3:51:24 PM	4.42	19.96	10.24
159733	Chevron	F-1603		4/22/2008	3:52:24 PM	1.52	16.37	4.44
159733	Chevron	F-1603		4/22/2008	3:53:24 PM	1.51	16.33	4.26
159733	Chevron	F-1603		4/22/2008	3:54:24 PM	1.53	16.31	4.18
159733	Chevron	F-1603		4/22/2008	3:55:24 PM	1.51	16.34	4.13
159733	Chevron	F-1603		4/22/2008	3:56:24 PM	1.66	16.24	4.00
159733	Chevron	F-1603		4/22/2008	3:57:24 PM	1.71	16.17	3.95
159733	Chevron	F-1603		4/22/2008	3:58:24 PM	1.71	16.18	3.95
159733	Chevron	F-1603		4/22/2008	3:59:24 PM	1.68	16.18	3.93
159733	Chevron	F-1603		4/22/2008	4:00:24 PM	1.69	16.19	3.90
159733	Chevron	F-1603		4/22/2008	4:01:24 PM	1.70	16.19	4.04
159733	Chevron	F-1603		4/22/2008	4:02:24 PM	1.75	16.16	4.05
159733	Chevron	F-1603		4/22/2008	4:03:24 PM	1.78	16.12	4.11
159733	Chevron	F-1603		4/22/2008	4:04:24 PM	1.78	16.13	4.11
159733	Chevron	F-1603		4/22/2008	4:05:24 PM	1.82	16.10	4.04
159733	Chevron	F-1603		4/22/2008	4:06:24 PM	1.93	16.00	3.91
159733	Chevron	F-1603		4/22/2008	4:07:24 PM	1.86	16.05	3.87
159733	Chevron	F-1603		4/22/2008	4:08:24 PM	1.83	16.08	3.91
159733	Chevron	F-1603		4/22/2008	4:09:24 PM	1.73	16.16	3.90
159733	Chevron	F-1603		4/22/2008	4:10:24 PM	1.68	16.21	3.87
159733	Chevron	F-1603		4/22/2008	4:11:24 PM	1.66	16.20	3.86

Project Number	Client	Source	Run Number	Date	Time	O2 (%)	CO2 (%)	THC (ppmv)
159733	Chevron	F-1603		4/22/2008	4:12:24 PM	1.56	16.29	3.78
159733	Chevron	F-1603		4/22/2008	4:13:24 PM	1.54	16.32	3.86
159733	Chevron	F-1603		4/22/2008	4:14:24 PM	1.57	16.29	3.92
159733	Chevron	F-1603		4/22/2008	4:15:24 PM	1.63	16.24	3.93
159733	Chevron	F-1603		4/22/2008	4:16:24 PM	1.61	16.24	3.93
159733	Chevron	F-1603		4/22/2008	4:17:24 PM	1.57	16.29	3.88
159733	Chevron	F-1603		4/22/2008	4:18:24 PM	1.53	16.32	3.82
159733	Chevron	F-1603		4/22/2008	4:19:24 PM	1.58	16.27	3.76
159733	Chevron	F-1603		4/22/2008	4:20:24 PM	1.56	16.31	3.73
159733	Chevron	F-1603		4/22/2008	4:21:24 PM	1.50	16.34	3.60
159733	Chevron	F-1603		4/22/2008	4:22:24 PM	1.52	16.33	3.53
159733	Chevron	F-1603		4/22/2008	4:23:24 PM	1.58	16.30	3.55
159733	Chevron	F-1603		4/22/2008	4:24:24 PM	1.57	16.29	3.49
159733	Chevron	F-1603		4/22/2008	4:25:24 PM	1.67	16.23	3.48
159733	Chevron	F-1603		4/22/2008	4:26:24 PM	1.70	16.18	3.56
159733	Chevron	F-1603		4/22/2008	4:27:24 PM	1.70	16.18	3.65
159733	Chevron	F-1603		4/22/2008	4:28:24 PM	1.72	16.17	3.67
159733	Chevron	F-1603		4/22/2008	4:29:24 PM	1.65	16.21	3.64
159733	Chevron	F-1603		4/22/2008	4:30:24 PM	1.63	16.23	3.56
159733	Chevron	F-1603		4/22/2008	4:31:24 PM	1.60	16.27	3.50
159733	Chevron	F-1603		4/22/2008	4:32:24 PM	1.64	16.25	3.50
159733	Chevron	F-1603		4/22/2008	4:33:24 PM	1.66	16.23	3.47
159733	Chevron	F-1603		4/22/2008	4:34:24 PM	1.69	16.20	3.45
159733	Chevron	F-1603		4/22/2008	4:35:24 PM	1.69	16.20	3.36
159733	Chevron	F-1603		4/22/2008	4:36:24 PM	1.64	16.22	3.38
159733	Chevron	F-1603		4/22/2008	4:37:24 PM	1.57	16.29	3.34
159733	Chevron	F-1603		4/22/2008	4:38:24 PM	1.57	16.30	3.29
159733	Chevron	F-1603		4/22/2008	4:39:24 PM	1.59	16.28	3.46
159733	Chevron	F-1603		4/22/2008	4:40:24 PM	1.61	16.26	3.58
159733	Chevron	F-1603		4/22/2008	4:41:24 PM	1.58	16.28	3.57
159733	Chevron	F-1603		4/22/2008	4:42:24 PM	1.60	16.27	3.44
159733	Chevron	F-1603		4/22/2008	4:43:24 PM	1.61	16.24	3.44
159733	Chevron	F-1603		4/22/2008	4:44:24 PM	1.60	16.27	3.43
159733	Chevron	F-1603		4/22/2008	4:45:24 PM	1.59	16.26	3.38
159733	Chevron	F-1603		4/22/2008	4:46:24 PM	1.61	16.26	3.27
159733	Chevron	F-1603		4/22/2008	4:47:24 PM	1.68	16.21	3.26
159733	Chevron	F-1603		4/22/2008	4:48:24 PM	1.68	16.23	3.82
159733	Chevron	F-1603		4/22/2008	4:49:24 PM	1.62	16.27	3.34
159733	Chevron	F-1603		4/22/2008	4:50:24 PM	1.67	16.25	3.30
159733	Chevron	F-1603		4/22/2008	4:51:24 PM	1.63	16.27	3.32
159733	Chevron	F-1603		4/22/2008	4:52:24 PM	1.59	16.29	3.42
159733	Chevron	F-1603		4/22/2008	4:53:24 PM	-0.01	0.04	-0.81
159733	Chevron	F-1603		4/22/2008	4:54:24 PM	-0.01	0.01	-0.96
159733	Chevron	F-1603		4/22/2008	4:55:24 PM	-0.01	0.00	-1.01
159733	Chevron	F-1603		4/22/2008	4:56:24 PM	4.38	19.96	9.28
159733	Chevron	F-1603		4/22/2008	4:57:24 PM	4.38	20.00	9.28
159733	Chevron	F-1603		4/22/2008	4:58:24 PM	4.44	20.02	14.25
159733	Chevron	F-1603		4/22/2008	4:59:24 PM	0.00	0.02	-1.04

APPENDIX G:
CALIBRATIONS AND CERTIFICATIONS

Meter Box: Orifice Full Calibration

Date:	4/28/2008
Prev. Calib. Date:	3/13/2008
Location:	TRC Austin
Technician:	CLJ
Meter Serial No:	107089
TRC Meter Box ID	T-3
Atm. Pressure (uncorr. In Hg):	29.480
Atm. Pressure (corr. In Hg):	29.483
Critical Vacuum + 2 in Hg:	16 in. Hg. (required minimum)
Prev. Calib Factor (Y):	0.9863

Reference Orifice Set		**Orifice (#)**	**K' Factor**
Manufacturer:	Apex Instruments	40	0.2398
Model:	LA 40-63	48	0.3524
Tested By:	SH	55	0.4635
		63	0.6026

Orifice Serial #	K' coefficient (see above)	dH (in. H2O)	Time (min)	Vol (initial) (cu ft)	Vol (final) (cu ft)	Vol. Total (cu ft)	Initial Temperatures Inlet (deg F)	Initial Temperatures Outlet (deg F)	Final Temperatures Inlet (deg F)	Final Temperatures Outlet (deg F)	Vacuum (in Hg)	Ambient Temperatures Initial (deg F)	Ambient Temperatures Final (deg F)
40	0.2398	0.28	26.5	8.900	17.289	8.389	69	69	71	71	18	71.0	72.0
48	0.3524	0.63	21	17.289	26.904	9.615	71	71	73	73	18	72.0	72.0
55	0.4635	1.1	18	26.904	37.902	10.998	73	73	75	75	18	72.0	73.0
63	0.6026	1.95	10	37.902	45.857	7.955	75	75	76	76	18	73.0	73.0

Meter Box Dry Gas Meter Volume Corrected Vm (std) (cu ft)	Meter Box Dry Gas Meter Volume Corrected Vm (std) (liters)	Meter Box Dry Gas Meter Flow Rate (CFM)	Critical Orifice Volume Corrected Vcr (std) (cu ft)	Critical Orifice Volume Corrected Vm (std) (liters)	Dry Gas Meter Calibration Factor (Y) Value (#)	Dry Gas Meter Calibration Factor (Y) Variation (#)	Orifice Calibration Factor (dH@) Value (in H2O)	Orifice Calibration Factor (dH@) Variation (in H2O)
8.24	233.27	0.317	8.13	230.12	0.987	-0.007	1.645	-0.07
9.41	266.59	0.458	9.46	267.87	1.005	0.011	1.703	-0.01
10.74	304.15	0.611	10.66	301.84	0.992	-0.001	1.708	0.00
7.76	219.84	0.796	7.70	217.91	0.991	-0.003	1.789	0.08

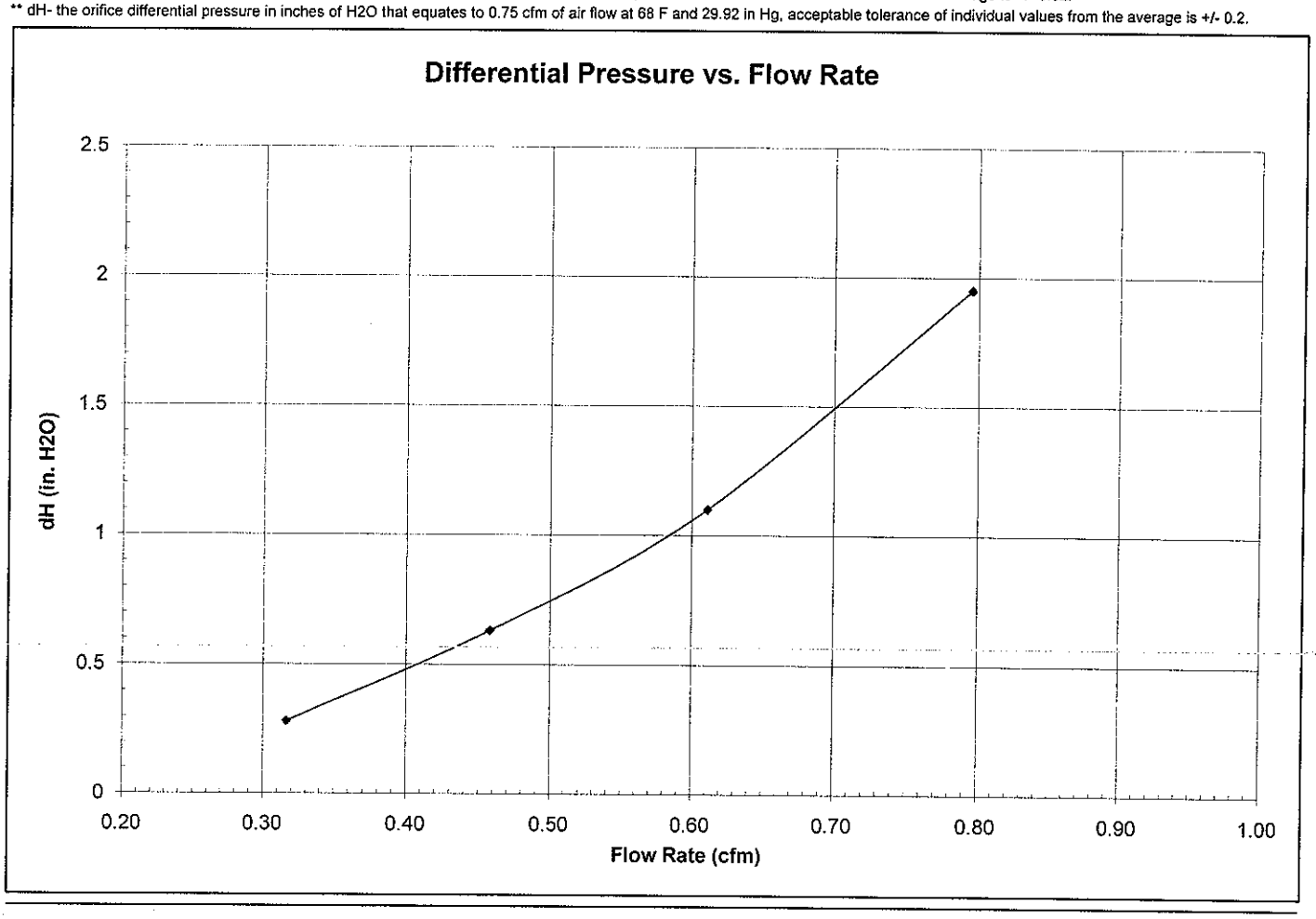
Meter Box

Calibration Test Results		**Pass/Fail**
*** Average Y:**	**0.9938**	***PASS***
Ave. Y w/in 5% of previous value:		*YES*
0.95 >= Y <= 1.05:		*PASS*
**** Average dH:**	**1.711**	***PASS***

Criteria:

* Y- ratio of the reading of the calibration meter (critical orifice) to the Meter Box DGM. Acceptable tolerance of individual values from the average is +/- 0.02.

** dH- the orifice differential pressure in inches of H2O that equates to 0.75 cfm of air flow at 68 F and 29.92 in Hg, acceptable tolerance of individual values from the average is +/- 0.2.



Meter Box: Orifice Full Calibration

Date:	3/13/2008
Prev. Calib. Date:	2/4/2008
Location:	South Austin, TX
Technician:	NTA
Meter Serial No:	107089.00
Cubix Meter Box ID	T-3
Atm. Pressure (corr. In	29.30 uncorrected: 29.30
Critical Vacuum + 2 in H	16 in. Hg. (required minimum)
Prev. Calib Factor (Y):	0.9803

Reference Orifice Set		Orifice (#)	K' Factor
Manufacturer:	Apex Instruments	40	0.2398
Model:	LA 40-73	48	0.3524
Tested By:	SM	55	0.4635
		63	0.6026

Orifice Serial #	K' coefficient (see above)	dH (in. H2O)	Time (min)	Vol (initial) (cu ft)	Vol (final) (cu ft)	Vol. Total (cu ft)	Initial Temperatures Inlet (deg F)	Initial Temperatures Outlet (deg F)	Final Temperatures Inlet (deg F)	Final Temperatures Outlet (deg F)	Vacuum (in Hg)	Ambient Temperatures Initial (deg F)	Ambient Temperatures Final (deg F)
40	0.2398	0.28	26.5	846.139	854.454	8.315	58	58	64	64	20	65.0	67.0
48	0.3524	0.63	21	854.454	864.149	9.695	64	64	67	67	18.5	67.0	68.0
55	0.4635	1.1	18	864.149	875.143	10.994	67	67	71	71	17.5	68.0	70.0
63	0.6026	1.95	10	875.143	883.098	7.955	71	71	72	72	16	70.0	70.0

Meter Box Dry Gas Meter Volume Corrected Vm (std) (cu ft)	Volume Corrected Vm (std) (liters)	Flow Rate (CFM)	Critical Orifice Volume Corrected Vcr (std) (cu ft)	Volume Corrected Vm (std) (liters)	Dry Gas Meter Calibration Factor (Y) Value (#)	Variation (#)	Orifice Calibration Factor (dH@) Value (in H2O)	Variation (in H2O)
8.25	233.75	0.314	8.12	229.89	0.983	-0.003	1.669	-0.05
9.55	270.44	0.462	9.44	267.34	0.989	0.002	1.733	-0.01
10.77	305.01	0.611	10.63	300.96	0.987	0.000	1.733	-0.01
7.77	220.13	0.795	7.67	217.17	0.987	0.000	1.810	0.07

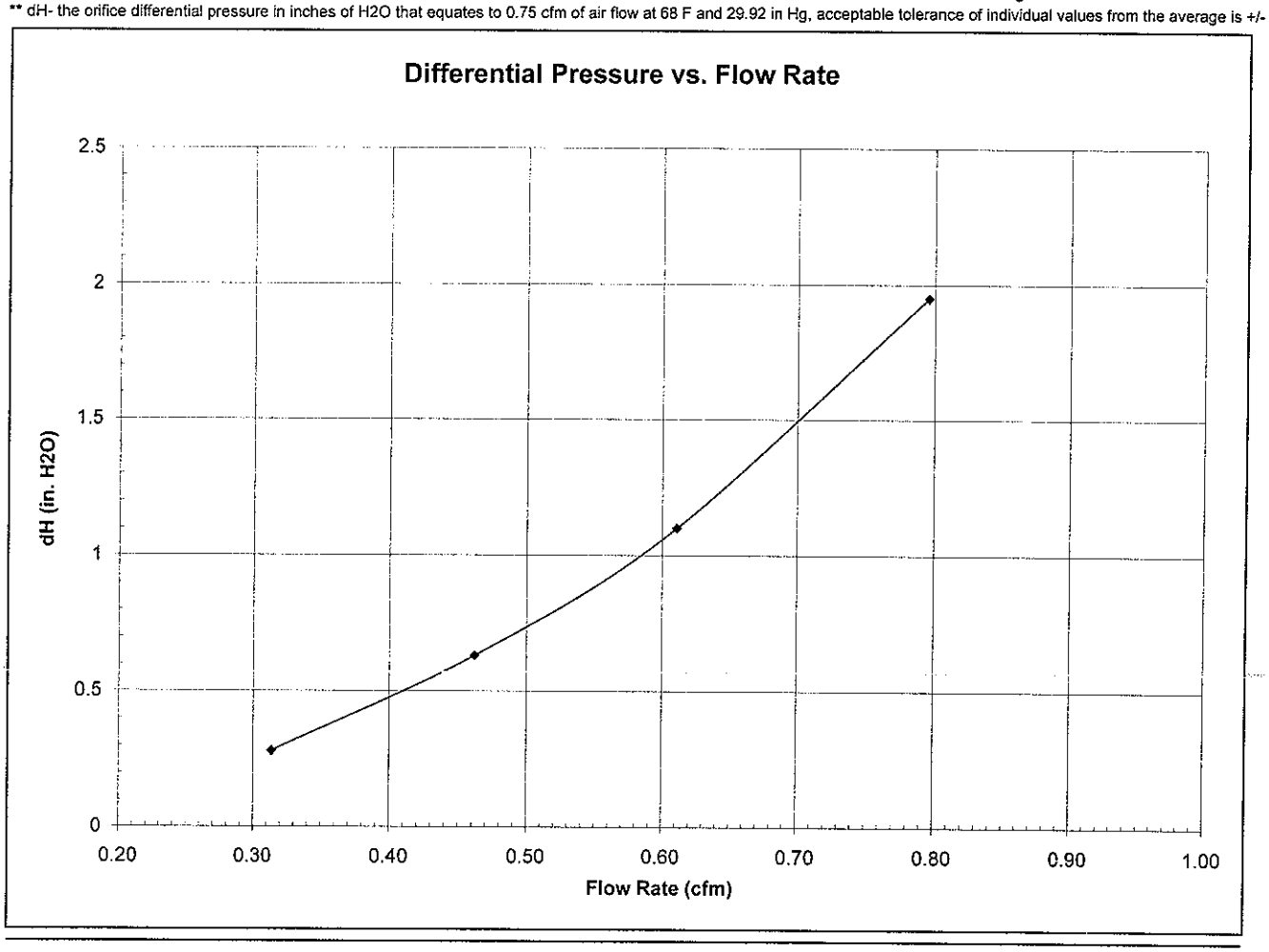
Meter Box

Calibration Test Results		**Pass/Fail**
*** Average Y:**	**0.9863**	***PASS***
Ave. Y w/in 5% of previous value:		*YES*
0.95 >= Y <= 1.05:		*PASS*
**** Average dH:**	**1.741**	***PASS***

Criteria:

* Y- ratio of the reading of the calibration meter (critical orifice) to the Meter Box DGM. Acceptable tolerance of individual values from the average is +/- 0.02.

** dH- the orifice differential pressure in inches of H2O that equates to 0.75 cfm of air flow at 68 F and 29.92 in Hg, acceptable tolerance of individual values from the average is +/- (



Spectra Gases Inc.

3434 Route 22 West, Branchburg, New Jersey 08876 USA

ISO 9001:2000

Shipped from: 80 Industrial Drive, Alpha, NJ 08865

CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: Cubix Corporation
SGI ORDER # : 0080723
ITEM# : 5
P.O.# : 2005891,T9JIM

CYLINDER # : CC-128336
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 590

CERTIFICATION DATE: 11/28/2005
EXPIRATION DATE: 11/28/2008

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Carbon Dioxide	11/28/2005	4.48 %	4.48 %	+/- 1%
Oxygen	11/28/2005	20.9 %	20.9 %	+/- 1%

BALANCE Nitrogen
PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Carbon Dioxide	GMIS-1	CC-85169	5.02 %
Oxygen	NTRM-82659x	CC-83894	22.8 %

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Carbon Dioxide	CAI-300	S03001	NDIR	10/28/2005
Oxygen	CAI-300	S03001	PM	11/22/2005

THIS STANDARD IS NIST TRACEABLE. IT WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: Cheryl L Patino
CHERYL PATINO

DATE: 11/28/2005

Tel: +1 908-252-9300 Fax: +1 908-252-0811
www.spectragases.com

Spectra Gases Inc.

3434 Route 22 West, Branchburg, New Jersey 08876 USA

ISO 9001:2000

Shipped from: 80 Industrial Drive, Alpha, NJ 08865

CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: TRC Air Measurements
SGI ORDER # : 0120191
ITEM# : 2
P.O.# : 2007219,T8JASON

CYLINDER # : CC-99107
CYLINDER PRES: 1900 PSIG
CGA OUTLET: 590
PRODUCT CODE: TRC 22

CERTIFICATION DATE: 12/17/2007
EXPIRATION DATE: 12/17/2010

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Carbon Dioxide	12/17/2007	10.08 %	10.08 %	+/- 1%
Oxygen	12/17/2007	10.00 %	10.00 %	+/- 1%

BALANCE Nitrogen
PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Carbon Dioxide	NTRM-82745x	CC-79933	20.0 %
Oxygen	NTRM-82659x	CC-237212	24.52 %

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Carbon Dioxide	CAI-300	S03001	NDIR	11/27/2007
Oxygen	CAI-300	S03001	PM	12/3/2007

THIS STANDARD IS NIST TRACEABLE. IT WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: Cody Hamlin
CODY HAMLIN

DATE: 12/17/2007

Tel: +1 908-252-9300 Fax: +1 908-252-0811
www.spectragases.com

Spectra Gases Inc.

3434 Route 22 West, Branchburg, New Jersey 08876 USA

ISO 9001:2000

Shipped from: 80 Industrial Drive, Alpha, NJ 08865

CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: TRC Air Measurements
SGI ORDER # : 0098071
ITEM# : 3
P.O.# : 2006448,T11TREY

CYLINDER # : CC-94603
CYLINDER PRES: 1800 PSIG
CGA OUTLET: 580

CERTIFICATION DATE: 10/24/2006
EXPIRATION DATE: 10/24/2009

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Carbon Dioxide	10/24/2006	19.96 %	19.96 %	+/- 1%
Oxygen	10/24/2006	4.48 %	4.48 %	+/- 1%

BALANCE Nitrogen
PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Carbon Dioxide	NTRM-82745x	CC-79947	20.0 %
Oxygen	GMIS-1	CC-106734	4.99 %

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Carbon Dioxide	CAI-300	S03001	NDIR	10/11/2006
Oxygen	Horiba MPA-510	570694081	PM	10/11/2006

THIS STANDARD IS NIST TRACEABLE. IT WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: _____ **DATE:** 10/24/2006
JAMES SCHMIDT

Tel: +1 908-252-9300 Fax: +1 908-252-0811
www.spectragases.com
Tel: +1 908-252-9300 Fax: +1 908-252-0811
www.spectragases.com

Spectra Gases Inc.

3434 Route 22 West, Branchburg, New Jersey 08876 USA

ISO 9001:2000

Shipped from: 80 Industrial Drive, Alpha, NJ 08865

CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: TRC Air Measurements
SGI ORDER # : 0120141
ITEM# : 2
P.O.# : 2007218,T10JEFF

CYLINDER # : CC-267256
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660
PRODUCT CODE: TRC 25

CERTIFICATION DATE: 12/17/2007
EXPIRATION DATE: 12/10/2009

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Carbon Monoxide	12/6/2007 12/17/2007	10.24 ppm 10.33 ppm	10.29 ppm	+/- 1%
Methane	12/17/2007	10.08 ppm	10.08 ppm	+/- 1%
Nitric Oxide	12/3/2007 12/10/2007	10.02 ppm 10.00 ppm	10.01 ppm	+/- 1%
NOx			10.01 ppm	Reference Value Only

BALANCE Nitrogen
PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Carbon Monoxide	GMIS-1	CC-127010	19.85 ppm
Methane	GMIS-1	CC-60213	24.9 ppm
Nitric Oxide	NTRM-82629	CC-162472	19.68 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Carbon Monoxide	Thermo 48C	48CTL-69941-364	GFC-IR	12/6/2007
Methane	H. Packard 6890	US00001434	GC - FID	12/17/2007
Nitric Oxide	Thermo 42C	42C-64942-345	Chemi	12/10/2007

THIS STANDARD IS NIST TRACEABLE. IT WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: Lou Lorenzetti
LOU LORENZETTI

DATE: 12/17/2007

Tel: +1 908-252-9300 Fax: +1 908-252-0811
www.spectragases.com

Spectra Gases Inc.

3434 Route 22 West, Branchburg, New Jersey 08876 USA

ISO 9001:2000

Shipped from: 80 Industrial Drive, Alpha, NJ 08865

CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: TRC Air Measurements
SGI ORDER # : 0120141
ITEM# : 3
P.O.# : 2007218,T10JEFF

CYLINDER # : CC-267374
CYLINDER PRES: 2000 PSIG
CGA OUTLET: 660
PRODUCT CODE: TRC 27

CERTIFICATION DATE: 12/17/2007
EXPIRATION DATE: 6/17/2008

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Carbon Monoxide	12/6/2007 12/17/2007	5.18 ppm 5.22 ppm	5.20 ppm	+/- 1%
Methane	12/17/2007	5.01 ppm	5.01 ppm	+/- 1%
Nitric Oxide	12/3/2007 12/10/2007	5.050 ppm 5.047 ppm	5.05 ppm	+/- 1%
NOx			5.05 ppm	Reference Value Only

BALANCE Nitrogen
PREVIOUS CERTIFICATION DATES: None

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Carbon Monoxide	GMIS-1	CC-127010	19.85 ppm
Methane	GMIS-1	CC-60213	24.9 ppm
Nitric Oxide	NTRM-82629	CC-162472	19.68 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Carbon Monoxide	Thermo 48C	48CTL-69941-364	GFC-IR	12/6/2007
Methane	H. Packard 6890	US00001434	GC - FID	12/17/2007
Nitric Oxide	Thermo 42C	42C-64942-345	Chemi	12/10/2007

THIS STANDARD IS NIST TRACEABLE. IT WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: Cody Hamlin
CODY HAMLIN

DATE: 12/17/2007

Tel: +1 908-252-9300 Fax: +1 908-252-0811
www.spectragases.com

Spectra Gases Inc.

3434 Route 22 West, Branchburg, New Jersey 08876 USA

ISO 9001:2000

Shipped from: 80 Industrial Drive, Alpha, NJ 08865

RECERTIFICATION OF ANALYSIS

EPA PROTOCOL MIXTURE

PROCEDURE # : G1

CUSTOMER: Cubix Corporation
SGI ORDER # : 0090966
ITEM# : 1
P.O.# : 2006253, T-10Jeff

CYLINDER # : CC-106704
CYLINDER PRES: 1900 PSIG
CGA OUTLET: 590

CERTIFICATION DATE: 6/12/2006
EXPIRATION DATE: 6/12/2009

CERTIFICATION HISTORY

COMPONENT	DATE OF ASSAY	MEAN CONCENTRATION	CERTIFIED CONCENTRATION	ANALYTICAL ACCURACY
Carbon Monoxide	12/5/2005 6/12/2006	2.570 ppm 2.591 ppm	2.58 ppm	+/- 2%
Methane	12/2/2005 6/12/2006	2.52 ppm 2.52 ppm	2.52 ppm	+/- 1%

BALANCE Air

PREVIOUS CERTIFICATION DATES: 12/5/2005 by Spectra Gases

REFERENCE STANDARDS

COMPONENT	SRM/NTRM#	CYLINDER#	CONCENTRATION
Carbon Monoxide	GMIS-1	CC-173091	5.05 ppm
Methane	GMIS-1	CC-79943	5.03 ppm

INSTRUMENTATION

COMPONENT	MAKE/MODEL	SERIAL #	DETECTOR	CALIBRATION DATE(S)
Carbon Monoxide	Thermo 48C	48CTL-69941-364	GFC-IR	5/31/2006
Methane	H. Packard 6890	US00001434	GC - FID	6/12/2006

THIS STANDARD IS NIST TRACEABLE. IT WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.
DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: Cheryl L Patino
CHERYL PATINO

DATE: 6/12/2006

Tel: +1 908-252-9300 Fax: +1 908-252-0811
www.spectragases.com