

**RESULTS OF THE JANUARY 2010
EMISSIONS TESTING OF
SEWAGE SLUDGE INCINERATOR #1**

**City Of Greensboro-Thomas Z. Osborne POTW
McLeansville, North Carolina**

Submitted to:
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Submitted by:
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Submittal Date: March 17, 2010

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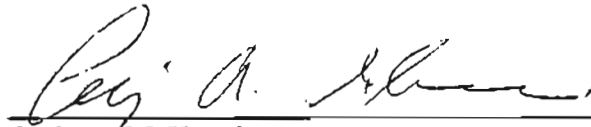
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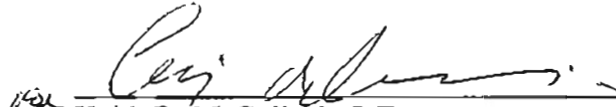
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This document, entitled "Results of the January 2010 Emissions Testing of Sewage Sludge Incinerator #1," has been prepared under the supervision of Craig McKenzie at the request of and for the exclusive use of City of Greensboro – Thomas Z. Osborne POTW, located in McLeansville, North Carolina. It has been prepared in accordance with accepted quality control practices, and it has been reviewed by the undersigned.

GEL ENGINEERING, LLC.
A Member Of The GEL Group, Inc.



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Principal

3/17/2010

Date

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EMISSIONS TESTING OF
SEWAGE SLUDGE INCINERATOR #1**

**City of Greensboro-Thomas Z. Osborne POTW
McLeansville, North Carolina**

1.0 INTRODUCTION

Emissions testing of Sewage Sludge Incinerator #1 (Emission Source ID No. ES-1) located at the City of Greensboro-Thomas Z. Osborne POTW (City of Greensboro) facility in McLeansville, North Carolina was performed by GEL Engineering, LLC (GEL) personnel on January 19-21, 2010. The primary purpose of this testing event was to provide information requested by the U.S. Environmental Protection Agency (EPA) as outlined in a Section 114 letter for the Sewage Sludge Incineration (SSI) category. Information collected from this testing event will be used to develop a SSI Maximum Achievable Control Technology (MACT) standard. All emissions data associated with the Section 114 testing will be submitted to the EPA via EPA's Electronic Reporting Tool (ERT).

Testing was performed by Mr. Sean Huber, Mr. Craig McKenzie, Mr. Kirk Alexander, and Mr. Gregg Szymkowicz of GEL. Mr. Craig McKenzie of GEL served as Project Manager, and the client representative for the stationary source sampling at City of Greensboro was Mr. Don Howard. The testing was conducted in accordance with the Site-Specific Test Plan submitted to NCDENR on December 11, 2009.

2.0 SUMMARY OF TEST RESULTS

Three tests runs measuring the target parameters detailed in Enclosure 1 of the Section 114 letter were performed on ES-1 exhaust stack. During the entire duration of testing, ES-1 was operating at normal process rates and utilizing #2 fuel oil as the fuel. The target parameters and USEPA methodologies are as follows:

<u>Parameter</u>	<u>USEPA Method(s)</u>
Gas Flow Rates and Temperature	1 & 2
Dry Molecular Weight	3A
Moisture Content	4
Particulate Matter (PM)/ Metals*	5/29
Sulfur Dioxide (SO ₂)	6C
Nitrogen Oxides (NO _x)	7E
Opacity	9

Carbon Monoxide (CO)	10
Dioxins / Furans, PAH, & PCB	23
Volatile Organic Compounds (THC)	25A
HCL/ HF	26A
PM-2.5/ Condensables	OTM-27/OTM-28

*Note: Metals targeted during this testing event were; antimony, arsenic, beryllium, cadmium, total chromium, cobalt, lead, manganese, mercury, nickel, phosphorus, and selenium.

The ERT Report, analytical data, field data sheets, PM data sheet, instrument analyzer tabulated data, instrument analyzer calibration data, Certificates of Analysis, equipment calibration data, and process data are presented in Appendices I through IX, respectively.

3.0 PROCESS DESCRIPTION AND OPERATION

The City of Greensboro operates a fluidized bed sewage sludge incinerator, which can be fired with fuel oil. The process design rate of the incinerator is 6,500 pounds of dry sludge per hour, with an 8.61 million Btu per hour rated auxiliary heat input.

4.0 SAMPLING METHODS AND ANALYTICAL PROCEDURES

Sampling methods and analytical procedures recommended by the USEPA were used during this test program. Laboratory and calibration procedures described in EPA Quality Assurance Handbook for Air Pollution Control Systems, Vol. III, (EPA/600/R-94/038c), and the QA/QC procedures specified in EPA Reference Methods 1-5, 6C, 7E, 9, 10, 23, 26A, 29, and 25A were followed during execution of the test program. The sampling and analytical methodologies are described below.

4.1 Stack Sampling Locations

EPA Method 1 was followed to determine the number and location of the sampling points used for velocity measurements during the test program. As specified by Method 1, an appropriate number of sampling points were selected. The EPA Method 1 field data sheets are included in Appendix III.

4.2 Velocity and Volumetric Flow Rates

EPA Method 2 was used to determine the stack gas velocity and volumetric flow rate of the stack exhaust for each test run. The velocity measurements were conducted using the same Method 5 probe employed for sampling particulate matter. As specified by Method 2, the calculated mean of the velocity measurements performed at the sampling points was used to calculate the volumetric flow rate. The temperature of the stack was measured using a calibrated

Type K Thermocouple positioned on the probe. This stack has been found to be absent of cyclonic flow during prior testing.

4.3 Dry Molecular Weight

The dry molecular weight was determined in accordance with the guidance provided in EPA Method 3A. Testing was conducted utilizing a California Analytical Instruments Model 100F galvanic cell analyzer to measure oxygen (O₂) and a Servomex Model 1440D non-dispersive infrared (NDIR) analyzer to measure carbon dioxide (CO₂).

4.4 Moisture Content

EPA Method 4 was used to determine the moisture content of the stack gas. Following the protocol given in Method 4, the volume of the condensed water vapor collected in the impingers was measured using a graduated cylinder, and the silica gel was weighed before and after sample collection. The difference in the two weights of the silica gel, the volume of condensed water vapor captured in the impingers, and the volume of air sampled with the impinger train were used to calculate the moisture content of the stack gas.

4.5 Emissions Determinations

Three test runs at the exhaust of the source were conducted using USEPA methodologies. The analytical methodology employed for each analyte is described below.

4.5.1 Particulate Matter & Metals

Three four-hour test runs were conducted using EPA Methods 5 and 29 to determine the emission rates for PM and the target metals. Emissions were collected isokinetically through a heated sampling probe onto heated high purity quartz fiber filters. The sampling train was equipped with a glass nozzle, a glass probe liner, a quartz fiber filter, two impingers charged with nitric acid and hydrogen peroxide solution (5% HNO₃/10% H₂O₂), an empty impinger, two impingers charged with potassium permanganate/sulfuric acid solution (4% KMnO₄/10% H₂SO₄) and an impinger charged with silica gel. The sample train components, including the nozzle, probe, and filter housing, were rinsed and scrubbed with acetone until clean after each test run. The acetone rinse from each run was collected and analyzed with the collected filter to determine particulate emissions. After completion of the acetone rinse, the sample train components including the nozzle, probe, and filter housing were rinsed and scrubbed with the appropriate rinse solutions until clean for metals analysis. The impinger solutions, the rinse solutions, and the filters collected from each run and a field blank was then submitted to the

laboratory, digested, and analyzed to determine metals emissions. Recovery of moisture train and probe rinses were performed in the field while filter recovery and filter bell rinses were performed at GEL.

4.5.2 Hydrogen Chloride and Hydrogen Fluoride

Three two-hour test runs of the exhaust of ES-1 were conducted using EPA Method 26A to measure HCl and HF. The sampling train was equipped with a glass probe liner, a Teflon filter, two impingers charged with sulfuric acid (0.1N H₂SO₄), one empty impinger, and an impinger charged with silica gel. The samples were delivered to the laboratory where the concentration of hydrogen chloride and hydrogen fluoride in the impinger absorbing solutions were measured by ion chromatography (IC).

4.5.3 Polychlorinated Dibenzo-p-dioxins/furans, PAH, & PCB

Three four-hour test runs were conducted at the exhaust of ES-1 using EPA Method 23 to determine the emission rates for Polychlorinated Dibenzo-p-dioxins/furans (PCDD/PCDF), PAHs, & PCBs. The sampling train was equipped with a glass nozzle, a glass probe liner, a quartz fiber filter, a condenser and XAD-2 trap, an empty impinger, two impingers charged with de-ionized water, an empty impinger, and an impinger charged with silica gel. The PCDD/PCDF, PAHs, & PCBs emissions were collected isokinetically through a heated sampling probe onto the heated filter, and XAD trap. After completion of each sampling run, the sample train components including the nozzle, probe, filter housing, connecting lines, and condenser were rinsed and scrubbed with the appropriate rinse solutions until clean. The rinse solutions, the XAD traps, the filters collected from each run and a field blank were submitted to the laboratory, digested, and analyzed to determine PCDD/PCDF, PAHs, & PCBs emissions.

4.5.4 PM 2.5 and Condensables

A total of three, 4-hour test runs using EPA Methods OTM-27 & OTM-28 were conducted at the exhaust of ES-1 to determine the emissions of PM_{2.5} and condensable particulate, respectively. Each sampling train was equipped with a cyclone designed to provide PM cut sizes at approximately 2.5 microns. This is accomplished by sampling at a known rate through the cyclones using a stainless steel nozzle of predetermined size. The assembly of the OTM-28 train is as follows: A Method 23 type condenser, a dry drop out impinger, a dry Smith-Greenburg impinger, then to a Teflon-coated filter, a standard impinger charged with deionized water, one empty standard impinger, and one impinger charged with silica gel were then placed behind the

probe. PM_{2.5} emissions were collected isokinetically through the nozzle and cyclone assemblies onto a quartz filter. The sample train components, including the nozzle, catch cups, and filter housing, were rinsed and scrubbed until clean after each test run. The rinses and the filter were then analyzed gravimetrically to determine the weight gain of each fraction. Immediately upon completion of each run, the OTM-28 train was purged with nitrogen as per the method. The train was then rinsed with ultra pure deionized water and then with acetone and methylene chloride. The analysis of the samples was performed in accordance to OTM-28.

4.5.5 Opacity Observations

Three test runs were conducted on the exhaust of the source, using EPA Method 9 to determine the opacity emissions from the incinerator. During each run, opacity measurements were recorded every 15 seconds by certified GEL test personnel. At no time during the visual observations were any emissions seen. The overall average of the observations are 0%. The field data sheets are included in Appendix III.

4.5.6 Sulfur Dioxide

Six 4-hour test runs for SO₂ were conducted in accordance with EPA Method 6C using an Western Research Ametek Model 921-CE UV fluorescent analyzer and recorded for processing by a computerized data acquisition system. During testing, a gas sample was pulled continuously from the stack through a heated probe and filter via a Teflon sample line to a gas conditioner to remove moisture. The gas sample then passed through a Teflon sample line to the gas analyzer, and was finally exhausted to the atmosphere. The gas analyzer was calibrated before and after each test run with EPA Protocol 1 calibration gases. The gas analyzer was calibrated before and after each test run with EPA Protocol gases.

Method 6C calibration gases were generated using an Environics Gas Dilution System in accordance with EPA Method 205. As specified by Method 205, a high-level calibration gas was used as the supply gas and a mid-level calibration gas was used as an independent check of the dilution system.

4.5.7 Nitrogen Oxide

Six 4-hour test runs were conducted using EPA Method 7E to determine the concentration of NO_x in the stack gas. NO_x concentrations were measured with an API Model 200-AH chemiluminescent analyzer and recorded for processing by a computerized data acquisition system. During testing, a gas sample was pulled

continuously from the stack through a heated probe and filter via a Teflon sample line to a gas conditioner to remove moisture. The gas sample then passed through a Teflon sample line to the gas analyzer, and was finally exhausted to the atmosphere. The gas analyzer was calibrated before and after each test run with EPA Protocol 1 calibration gases.

Method 7E calibration gases were generated using an Environics Gas Dilution System in accordance with EPA Method 205. As specified by Method 205, a high-level calibration gas was used as the supply gas and a mid-level calibration gas was used as an independent check of the dilution system. The NO_x data and instrument calibration data are included in appendices V and the ERT report, respectively.

4.5.8 Carbon Monoxide

Six 4-hour test runs were conducted using EPA Method 10 to determine the concentration of CO in the stack gas. CO concentrations were measured with a California Analytix analyzer and recorded for processing by a computerized data acquisition system. During testing, a gas sample was pulled continuously from the stack through a heated probe and filter via a Teflon sample line to a gas conditioner to remove moisture. The gas sample then passed through a Teflon sample line to the gas analyzer, and was finally exhausted to the atmosphere. The gas analyzer was calibrated before and after each test run with EPA Protocol 1 calibration gases.

Method 10 calibration gases were generated using an Environics Gas Dilution System in accordance with EPA Method 205. As specified by Method 205, a high-level calibration gas was used as the supply gas and a mid-level calibration gas was used as an independent check of the dilution system. The CO data and instrument calibration data are included in appendices V and ERT report, respectively.

4.5.9 Volatile Organic Compounds

Six 4-hour test runs were conducted using EPA Method 25A to determine the concentration of VOCs present in the stack gases of each source. Hydrocarbon emissions were collected through a heated sampling line and analyzed by a JUM Model 109A flame ionization detector (FID). Output from the FID was recorded every 60 seconds using the Genie™ data acquisition system. The FID analyzer was calibrated before and after each test run with EPA Protocol 1 calibration gas (propane).

Method 25A calibration gases were generated using an Environics Gas Dilution System in accordance with EPA Method 205. As specified by Method 205, a high-level calibration gas was

used as the supply gas and a mid-level calibration gas was used as an independent check of the dilution system. Dilutions from the high-level supply gas were prepared and checked against the FID instrument response. The VOC data and instrument calibration data are included in appendices V and ERT report, respectively.

5.0 CALIBRATION PROCEDURES

5.1 Nozzles

Each nozzle is purchased from a stack testing equipment supplier and inspected and calibrated before putting it into field use. Thereafter, it is inspected prior to use and if damaged, the nozzle is not used. In the event the nozzle is damaged, GEL will attempt to repair the nozzle. If unable to repair the nozzle properly, it is returned to the manufacturer for repair. A set of three measurements is made prior to use and must be within 0.002 inches. Nozzles are checked prior and after each source test.

5.2 Pitot Tubes

All pitot tubes used by GEL are purchased along with the probe assembly from a stack testing equipment supplier. Prior to being used, the pitot tubes are calibrated as per Method 2. If a type "S" pitot tube is constructed properly it will have a C_p (pitot coefficient) of 0.84. Pitot tubes are checked before each source test and receive a complete calibration once per year.

5.3. Dry Gas Meter

Complete dry gas meter calibrations are performed annually. After a source test, a single point calibration is conducted at the average orifice meter (DH) and maximum vacuum readings encountered during the test. If the dry gas meter calibration factor differs from the annual calibration by more than ± 0.02 , it is repaired and given another annual calibration.

5.4 Thermocouples

Each new thermocouple purchased by GEL is checked and calibrated prior to use. After each source test, all temperature-sensing devices used receive a one-point calibration check as per Method 2.

5.5 Balance

GEL technicians utilize an Ohaus Model E12140 serial no. G2391121320091P balance. The serial number for the calibration weight set is 39325. A copy of the calibration log will be provided upon request.

5.6 Barometer

GEL utilizes the National Weather Service to determine the current Barometric Pressure. This is obtained either by telephone or using the Internet.

APPENDIX I

ERT REPORT

**Final Test Report
for**

City of Greensboro ICR Section 114 Testing

Based on information and belief formed after reasonable inquiry, I certify that the statements and information in this test report are true, accurate, and complete.

I have reviewed all testing details and results in this test report and hereby certify that the test report is authentic and accurate.

Permitted Facility Representative / Date

Name: Don Howard
Title: Water Reclamation Manager
Company: City of Greensboro - Thomas Z. Osbor
Sign Date: 3/17/2010

Testing Company Representative / Date

Name: Craig McKenzie
Title: Senior Project Manager
Company: GEL Engineering, LLC
Sign Date: 3/17/2010

City of Greensboro ICR Section 114 Testing

3/17/2010

Facility Information:

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 McLeansville NC 27301

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 2040 Savage Road
 Charleston SC 29407

Contact: Craig McKenzie
 Phone: 843-769-7378
 Fax: 843-769-7197
 Email: cam2@gel.com

Industry/SCC/NAIS AFS #: FRS #:

Air Permit Number:

04489R20

Permitted Source ID/Name:

ES-1 Sewage Sludge Incinerator

Permitted Maximum Process Rate: Max. Normal Operation Process Rate: Target Process Test Rate

6,500 pounds of dry sludge per hour

6,500 pounds of dry sludge per

SCC / Description 50100516 Waste Disposal - Solid Waste Disposal - Government - Other Incineration - Sludge: Fluidized Bed

The following state and federal regulations that apply to the proposed testing:

Regulation Description	Compound	Limit	Unit
NA		0	

Description of the source (Including control equipment). Please see the attachments for source or process flow diagram:

Sampling Location Information:

Location	Round Duct Diam.	Rect. Duct Length /Width	Equiv. Diam	Distance from upstream dist.	Distance from downstream dist.	Number of Traverse Ports	Min.Travers Points
stk exhaust	23	0 0	0	105	72	2	12

Test Parameter Information:

Location	Target Parameter	Test Method	Number of Test Runs	Test Run Duration	Sample Points	Comments
stk exhaust	Carbon Monoxide	Method 10	3	240	0	
stk exhaust	2,3,7,8-TCDD	Method 23	3	240	0	
stk exhaust	1,2,3,7,8-PeCDD	Method 23	3	240	0	
stk exhaust	1,2,3,4,7,8-HxCDD	Method 23	3	240	0	

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stk exhaust	1,2,3,6,7,8-HxCDD	Method 23	3	240	0	
stk exhaust	1,2,3,7,8,9-HxCDD	Method 23	3	240	0	
stk exhaust	1,2,3,4,6,7,8-HpCDD	Method 23	3	240	0	
stk exhaust	OCDD	Method 23	3	240	0	
stk exhaust	2,3,7,8-TCDF	Method 23	3	240	0	
stk exhaust	1,2,3,7,8-PeCDF	Method 23	3	240	0	
stk exhaust	2,3,4,7,8-PeCDF	Method 23	3	240	0	
stk exhaust	1,2,3,4,7,8-HxCDF	Method 23	3	240	0	
stk exhaust	1,2,3,6,7,8-HxCDF	Method 23	3	240	0	
stk exhaust	2,3,4,6,7,8-HxCDF	Method 23	3	240	0	
stk exhaust	1,2,3,7,8,9-HxCDF	Method 23	3	240	0	
stk exhaust	1,2,3,4,6,7,8-HpCDF	Method 23	3	240	0	
stk exhaust	1,2,3,4,7,8,9-HpCDF	Method 23	3	240	0	
stk exhaust	OCDF	Method 23	3	240	0	
stk exhaust	Total Furans	Method 23	3	240	0	
stk exhaust	Total PCBs	Method 23	3	240	0	
stk exhaust	Naphthalene**	Method 23	3	240	0	
stk exhaust	2-Methylnaphthalene	Method 23	3	240	0	
stk exhaust	Acenaphthylene**	Method 23	3	240	0	
stk exhaust	Acenaphthene**	Method 23	3	240	0	
stk exhaust	Fluorene**	Method 23	3	240	0	
stk exhaust	Phenanthrene**	Method 23	3	240	0	
stk exhaust	Anthracene**	Method 23	3	240	0	
stk exhaust	Fluoranthene**	Method 23	3	240	0	
stk exhaust	Pyrene**	Method 23	3	240	0	
stk exhaust	Benzo(a)anthracene*	Method 23	3	240	0	
stk exhaust	Chrysene*	Method 23	3	240	0	
stk exhaust	Benzo(b)fluoranthene*	Method 23	3	240	0	
stk exhaust	Benzo(k)fluoranthene*	Method 23	3	240	0	
stk exhaust	Benzo(e)pyrene	Method 23	3	240	0	
stk exhaust	Benzo(a)pyrene*	Method 23	3	240	0	
stk exhaust	Perylene	Method 23	3	240	0	
stk exhaust	Indeno(1,2,3-cd)pyrene*	Method 23	3	240	0	
stk exhaust	Benzo(ghi)perylene**	Method 23	3	240	0	
stk exhaust	Total organic compounds (TOC) as Propane	Method 25A	3	240	0	
stk exhaust	Hydrogen Fluoride	Method 26	3	120	0	
stk exhaust	Hydrogen Chloride	Method 26	3	120	0	
stk exhaust	Filterable PM2.5	OTM - 27	3	120	0	

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stk exhaust	Inorganic (Aqueous) Condensable Part.	OTM - 28	3	120	0	
stk exhaust	Organic Condensible Particulate	OTM - 28	3	120	0	
stk exhaust	Nickel	Method 29	3	240	0	
stk exhaust	Antimony	Method 29	3	240	0	
stk exhaust	Arsenic	Method 29	3	240	0	
stk exhaust	Beryllium	Method 29	3	240	0	
stk exhaust	Cadmium	Method 29	3	240	0	
stk exhaust	Chromium	Method 29	3	240	0	
stk exhaust	Cobalt	Method 29	3	240	0	
stk exhaust	Manganese	Method 29	3	240	0	
stk exhaust	Mercury	Method 29	3	240	0	
stk exhaust	Phosphorus (yellow or white)	Method 29	3	240	0	
stk exhaust	Selenium	Method 29	3	240	0	
stk exhaust	Lead	Method 29	3	240	0	
stk exhaust	O2	Method 3A O2	3	240	0	
stk exhaust	Co2	Method 3A CO2	3	240	0	
stk exhaust	Filterable Particulate	Method 5	3	240	0	
stk exhaust	Sulfur Dioxide	Method 6C	3	240	0	
stk exhaust	Nitrogen oxides (NOx)	Method 7E	3	240	0	

The following describes any modifications and/or deviations to the applicable test methods. If alternative methods were requested, see the attachments for documentation of request AND approval, including dates.

NA

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Sampling / Stack Data Results Summary

Location stk exhaust - Method 10

				<u>Average</u>
Run Number	1	2	3	
Test Date	1/19/2010	1/19/2010	1/20/2010	
Run Start Time	10:30:00 AM	3:22:00 AM	8:55:00 AM	
Run Finish Time	2:33:00 AM	7:26:00 PM	1:00:00 PM	
Carbon Dioxide, %	10.27	9.78	8	9.350
Oxygen, %	8.08	9.64	11.74	9.820
Dry Volumetric Flow Rate, dry scfm	9983	10267	10567	10,272.333
F-Factor, dscfm/MMBtu @ %O ₂	9190	9190	9190	9,190.000
Moisture, %	3.8	4.1	4.5	4.133
Fuel Type	Oil	Oil	Oil	
Fw	10320	10320	10320	10,320.000
Fc	1420	1420	1420	1,420.000

Location stk exhaust - Method 23

				<u>Average</u>
Run Number	1	2	3	
Test Date	1/19/2010	1/19/2010	1/20/2010	
Run Start Time	10:30:00 AM	3:22:00 PM	8:55:00 AM	
Run Finish Time	2:10:00 PM	7:02:00 PM	12:35:00 PM	
Net Run Time, minutes	240	240	240	
Dry Gas Meter Volume Sampled, dscf	165.374	172.313	148.218	161.968
Moisture Content of Stack Gas, %	2.75	3.46	4.54	3.583
Carbon Dioxide, %	10.27	9.78	8	9.350
Oxygen, %	8.08	9.64	11.74	9.820
Average Stack Gas Temperature, °F	84.33	85.83	86.00	85.387
Dry Volumetric Flow Rate, dry scfm	10,055.3	10,407.2	10,426.5	10,296.333
Actual Wet Volumetric Flue Gas Flow Rate, acfm	10,971.1	11,466.1	11,589.0	11,342.067
Percent Isokinetic of Sampling Rate, %	100.4	101.1	102.3	101.267
F-Factor, dscfm/MMBtu @ %O ₂	9190	9190	9190	9,190.000
Fw	10320	10320	10320	10,320.000
Fc	1420	1420	1420	1,420.000

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Location stk exhaust - Method 25A

				<u>Average</u>
Run Number	1	2	3	
Test Date	1/19/2010	1/19/2010	1/20/2010	
Run Start Time	10:30:00 AM	3:22:00 PM	8:55:00 AM	
Run Finish Time	2:33:00 PM	7:26:00 PM	1:00:00 PM	
Carbon Dioxide, %	10.27	9.78	8	9.350
Oxygen, %	8.08	9.64	11.74	9.820
Dry Volumetric Flow Rate, dry scfm	9983	10267	10567	10,272.333
F-Factor, dscfm/MMBtu @ %O ₂	9190	9190	9190	9,190.000
Moisture, %	3.8	4.1	4.5	4.133
Fuel Type	Oil	Oil	Oil	
Fw	10320	10320	10320	10,320.000
Fc	1420	1420	1420	1,420.000

Location stk exhaust - Method 26

				<u>Average</u>
Run Number	1	2	3	
Test Date	1/20/2010	1/20/2010	1/21/2010	
Run Start Time	2:00:00 PM	4:30:00 PM	9:15:00 AM	
Run Finish Time	3:50:00 PM	6:20:00 PM	11:05:00 PM	
Net Run Time, minutes	120	120	120	
Dry Gas Meter Volume Sampled, dscf	73.907	73.115	71.857	72.960
Moisture Content of Stack Gas, %	3.51	4.41	4.38	4.100
Carbon Dioxide, %	10.69	11.06	9.66	10.470
Oxygen, %	8.44	8.17	9.39	8.667
Average Stack Gas Temperature, °F	85.00	88.33	85.50	86.277
Dry Volumetric Flow Rate, dry scfm	10,433.8	10,284.6	10,153.2	10,290.533
Actual Wet Volumetric Flue Gas Flow Rate, acfm	11,480.0	11,492.1	11,270.5	11,414.200
Percent Isokinetic of Sampling Rate, %	102.0	102.3	101.9	102.067
F-Factor, dscfm/MMBtu @ %O ₂	9190	9190	9190	9,190.000
Fw	10320	10320	10320	10,320.000
Fc	1420	1420	1420	1,420.000

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Location stk exhaust - Method 29

				<u>Average</u>
Run Number	1	2	3	
Test Date	1/19/2010	1/19/2010	1/20/2010	
Run Start Time	10:30:00 AM	3:22:00 PM	8:55:00 AM	
Run Finish Time	2:10:00 PM	7:02:00 PM	12:35:00 PM	
Net Run Time, minutes	240	240	240	
Dry Gas Meter Volume Sampled, dscf	165.625	170.221	148.966	161.604
Moisture Content of Stack Gas, %	3.76	4.12	4.51	4.130
Carbon Dioxide, %	10.27	9.78	8	9.350
Oxygen, %	8.08	9.64	11.74	9.820
Average Stack Gas Temperature, °F	84.92	86.42	85.92	85.753
Dry Volumetric Flow Rate, dry scfm	9,967.0	10,251.6	10,558.4	10,259.000
Actual Wet Volumetric Flue Gas Flow Rate, acfm	10,997.0	11,384.8	11,732.7	11,371.500
Percent Isokinetic of Sampling Rate, %	101.5	101.4	101.5	101.467
F-Factor, dscfm/MMBtu @ %O2	9190	9190	9190	9,190.000
Fw	10320	10320	10320	10,320.000
Fc	1420	1420	1420	1,420.000

Location stk exhaust - Method 3A CO2

				<u>Average</u>
Run Number	1	2	3	
Test Date	1/19/2010	1/19/2010	1/20/2010	
Run Start Time	10:30:00 AM	3:22:00 PM	8:55:00 AM	
Run Finish Time	2:33:00 PM	7:26:00 PM	1:00:00 PM	
Carbon Dioxide, %	10.27	9.78	8	9.350
Oxygen, %	8.08	9.64	11.74	9.820
Dry Volumetric Flow Rate, dry scfm	9983	10267	10567	10,272.333
F-Factor, dscfm/MMBtu @ %O2	9190	9190	9190	9,190.000
Moisture, %	3.8	4.1	4.5	4.133
Fuel Type	Oil	Oil	Oil	
Fw	10320	10320	10320	10,320.000
Fc	1420	1420	1420	1,420.000

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Location stk exhaust - Method 3A O2

				<u>Average</u>
Run Number	1	2	3	
Test Date	1/19/2010	1/19/2010	1/20/2010	
Run Start Time	10:30:00 AM	3:22:00 PM	8:55:00 AM	
Run Finish Time	2:33:00 PM	7:26:00 PM	1:00:00 PM	
Carbon Dioxide, %	10.27	9.78	8	9.350
Oxygen, %	8.08	9.64	11.74	9.820
Dry Volumetric Flow Rate, dry scfm	9983	10267	10567	10,272.333
F-Factor, dscfm/MMBtu @ %O2	9190	9190	9190	9,190.000
Moisture, %	3.8	4.1	4.5	4.133
Fuel Type	Oil	Oil	Oil	
Fw	10320	10320	10320	10,320.000
Fc	1420	1420	1420	1,420.000

Location stk exhaust - Method 5

				<u>Average</u>
Run Number	1	2	3	
Test Date	1/19/2010	1/19/2010	1/20/2010	
Run Start Time	10:30:00 AM	3:22:00 PM	8:55:00 AM	
Run Finish Time	2:10:00 PM	7:02:00 PM	12:35:00 PM	
Net Run Time, minutes	240	240	240	
Dry Gas Meter Volume Sampled, dscf	165.625	170.221	148.966	161.604
Moisture Content of Stack Gas, %	3.76	4.12	4.51	4.130
Carbon Dioxide, %	10.27	9.78	8	9.350
Oxygen, %	8.08	9.64	11.74	9.820
Average Stack Gas Temperature, °F	84.92	86.42	85.92	85.753
Dry Volumetric Flow Rate, dry scfm	9,967.0	10,251.6	10,558.4	10,259.000
Actual Wet Volumetric Flue Gas Flow Rate, acfm	10,997.0	11,384.8	11,732.7	11,371.500
Percent Isokinetic of Sampling Rate, %	101.5	101.4	101.5	101.467
F-Factor, dscfm/MMBtu @ %O2	9190	9190	9190	9,190.000
Fw	10320	10320	10320	10,320.000
Fc	1420	1420	1420	1,420.000

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Location stk exhaust - Method 6C

				<u>Average</u>
Run Number	1	2	3	
Test Date	1/19/2010	1/19/2010	1/20/2010	
Run Start Time	10:30:00 AM	3:22:00 PM	8:55:00 AM	
Run Finish Time	2:33:00 PM	7:26:00 PM	1:00:00 PM	
Carbon Dioxide, %	10.27	9.78	8	9.350
Oxygen, %	8.08	9.64	11.74	9.820
Dry Volumetric Flow Rate, dry scfm	9983	10267	10567	10,272.333
F-Factor, dscfm/MMBtu @ %O₂	9190	9190	9190	9,190.000
Moisture, %	3.8	4.1	4.5	4.133
Fuel Type	Oil	Oil	Oil	
Fw	10320	10320	10320	10,320.000
Fc	1420	1420	1420	1,420.000

Location stk exhaust - Method 7E

				<u>Average</u>
Run Number	1	2	3	
Test Date	1/19/2010	1/19/2010	1/20/2010	
Run Start Time	10:30:00 AM	3:22:00 PM	8:55:00 AM	
Run Finish Time	2:33:00 PM	7:26:00 PM	1:00:00 PM	
Carbon Dioxide, %	10.27	9.78	8	9.350
Oxygen, %	8.08	9.64	11.74	9.820
Dry Volumetric Flow Rate, dry scfm	9983	10267	10567	10,272.333
F-Factor, dscfm/MMBtu @ %O₂	9190	9190	9190	9,190.000
Moisture, %	3.8	4.1	4.5	4.133
Fuel Type	Oil	Oil	Oil	
Fw	10320	10320	10320	10,320.000
Fc	1420	1420	1420	1,420.000

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Location stk exhaust - OTM - 27

				Average
Run Number	1	2	3	
Test Date	1/20/2010	1/20/2010	1/21/2010	
Run Start Time	2:00:00 PM	4:30:00 PM	9:15:00 AM	
Run Finish Time	3:50:00 PM	6:20:00 PM	11:05:00 AM	
Net Run Time, minutes	119.5	119.25	119.25	
Dry Gas Meter Volume Sampled, dscf	39.851	39.821	39.821	39.831
Moisture Content of Stack Gas, %	3.16	3.54	3.14	3.280
Carbon Dioxide, %	10.69	11.06	11.5	11.083
Oxygen, %	8.4	8.2	8	8.200
Average Stack Gas Temperature, °F	85.33	85.58	85.58	85.497
Dry Volumetric Flow Rate, dry scfm	10,430.6	10,356.6	10,380.7	10,389.300
Actual Wet Volumetric Flue Gas Flow Rate, acfm	11,441.9	11,410.8	11,390.0	11,414.233
Percent Isokinetic of Sampling Rate, %	91.4	92.2	92.0	91.867
F-Factor, dscfm/MMBtu @ %O ₂	9190	9190	9190	9,190.000
Fw	10320	10320	10320	10,320.000
Fc	1420	1420	1420	1,420.000

Location stk exhaust - OTM - 28

				Average
Run Number	1	2	3	
Test Date	1/20/2010	1/20/2010	1/21/2010	
Run Start Time	2:00:00 PM	4:30:00 PM	9:15:00 AM	
Run Finish Time	3:50:00 PM	6:20:00 PM	11:05:00 AM	
Net Run Time, minutes	119.5	119.25	119.25	
Dry Gas Meter Volume Sampled, dscf	39.851	39.827	39.821	39.833
Moisture Content of Stack Gas, %	3.16	3.54	3.14	3.280
Carbon Dioxide, %	10.69	11.06	11.5	11.083
Oxygen, %	8.4	8.2	8	8.200
Average Stack Gas Temperature, °F	85.33	85.58	85.58	85.497
Dry Volumetric Flow Rate, dry scfm	10,430.6	10,356.6	10,380.7	10,389.300
Actual Wet Volumetric Flue Gas Flow Rate, acfm	11,441.9	11,410.8	11,390.0	11,414.233
Percent Isokinetic of Sampling Rate, %	91.4	92.2	92.0	91.867
F-Factor, dscfm/MMBtu @ %O ₂	9190	9190	9190	9,190.000
Fw	10320	10320	10320	10,320.000
Fc	1420	1420	1420	1,420.000

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Emissions Summary

Location: stk exhaust - Method 10

Compound: Carbon Monoxide

				Average
Run	1	2	3	
ppm	6.24E+00	1.28E+01	7.65E+00	8.897
ppm@7%O2	6.77E+00	1.58E+01	1.16E+01	11.390

Location: stk exhaust - Method 23

Compound: 2,3,3',4,4',5,5'-HpCB

				Average
RunNumber	1	2	3	
Mass_mg	0.0000000687	0.0000000596	0.0000000761	0.000
mg/dscm	1.47E-09	1.22E-09	1.81E-09	0.000
mg/dscm@7%O2	1.59E-09	1.51E-09	2.75E-09	0.000
ng/dscm	1.47E-03	1.22E-03	1.81E-03	0.002
ng/dscm@7%O2	1.59E-03	1.51E-03	2.75E-03	0.002

Compound: 2,3,3',4,4',5'-HxCB

				Average
RunNumber	1	2	3	
Mass_mg	0.0000000812	0.0000000579	0.0000000832	0.000
mg/dscm	1.73E-08	1.19E-08	1.98E-08	0.000
mg/dscm@7%O2	1.88E-08	1.47E-08	3.00E-08	0.000
ng/dscm	1.73E-02	1.19E-02	1.98E-02	0.016
ng/dscm@7%O2	1.88E-02	1.47E-02	3.00E-02	0.021

Compound: 2,3,3',4,4',5-HxCB

				Average
RunNumber	1	2	3	
Mass_mg	0.0000000812	0.0000000579	0.0000000832	0.000
mg/dscm	1.73E-08	1.19E-08	1.98E-08	0.000
mg/dscm@7%O2	1.88E-08	1.47E-08	3.00E-08	0.000
ng/dscm	1.73E-02	1.19E-02	1.98E-02	0.016
ng/dscm@7%O2	1.88E-02	1.47E-02	3.00E-02	0.021

Compound: 2,3,3',4,4'-PeCB

				Average
RunNumber	1	2	3	
Mass_mg	0.000000409	0.000000265	0.000000424	0.000
mg/dscm	8.74E-08	5.43E-08	1.01E-07	0.000
mg/dscm@7%O2	9.48E-08	6.70E-08	1.53E-07	0.000
ng/dscm	8.74E-02	5.43E-02	1.01E-01	0.081
ng/dscm@7%O2	9.48E-02	6.70E-02	1.53E-01	0.105

Compound: 2,3',4,4',5,5'-HxCB

				Average
RunNumber	1	2	3	
Mass_mg	0.0000000391	0.0000000262	0.0000000424	0.000
mg/dscm	8.35E-09	5.37E-09	1.01E-08	0.000
mg/dscm@7%O2	9.05E-09	6.63E-09	1.53E-08	0.000
ng/dscm	8.35E-03	5.37E-03	1.01E-02	0.008

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ng/dscm@7%O2	9.05E-03	6.63E-03	1.53E-02	0.010
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Compound: 2,3,4,4',5-PeCB

				Average
RunNumber	1	2	3	
Mass_mg	0.0000000252	0.00000000578	0.0000000235	0.000
mg/dscm	5.38E-09	1.18E-09	5.60E-09	0.000
mg/dscm@7%O2	5.83E-09	1.46E-09	8.50E-09	0.000
ng/dscm	5.38E-03	1.18E-03	5.60E-03	0.004
ng/dscm@7%O2	5.83E-03	1.46E-03	8.50E-03	0.005

Compound: 2,3',4,4',5-PeCB

				Average
RunNumber	1	2	3	
Mass_mg	0.00000112	0.000000719	0.0000011	0.000
mg/dscm	2.39E-07	1.47E-07	2.62E-07	0.000
mg/dscm@7%O2	2.59E-07	1.81E-07	3.98E-07	0.000
ng/dscm	2.39E-01	1.47E-01	2.62E-01	0.216
ng/dscm@7%O2	2.59E-01	1.81E-01	3.98E-01	0.279

Compound: 2,3,4,4',5-PeCB

				Average
RunNumber	1	2	3	
Mass_mg	0.000000032	0.00000000523	0.0000000253	0.000
mg/dscm	6.83E-09	1.07E-09	6.03E-09	0.000
mg/dscm@7%O2	7.41E-09	1.32E-09	9.15E-09	0.000
ng/dscm	6.83E-03	1.07E-03	6.03E-03	0.005
ng/dscm@7%O2	7.41E-03	1.32E-03	9.15E-03	0.006

Compound: 3,3',4,4',5,5'-HxCB

				Average
RunNumber	1	2	3	
Mass_mg	0.00000000881	0.00000000637	0.00000000645	0.000
mg/dscm	1.88E-09	1.31E-09	1.54E-09	0.000
mg/dscm@7%O2	2.04E-09	1.62E-09	2.34E-09	0.000
ng/dscm	1.88E-03	1.31E-03	1.54E-03	0.002
ng/dscm@7%O2	2.04E-03	1.62E-03	2.34E-03	0.002

Compound: 3,3',4,4',5-PeCB

				Average
RunNumber	1	2	3	
Mass_mg	0.00000000882	0.00000000734	0.00000000768	0.000
mg/dscm	1.88E-09	1.50E-09	1.83E-09	0.000
mg/dscm@7%O2	2.04E-09	1.85E-09	2.78E-09	0.000
ng/dscm	1.88E-03	1.50E-03	1.83E-03	0.002
ng/dscm@7%O2	2.04E-03	1.85E-03	2.78E-03	0.002

Compound: 3,3',4,4'-TCB

				Average
RunNumber	1	2	3	
Mass_mg	0.000000026	0.000000165	0.000000028	0.000
mg/dscm	5.55E-08	3.38E-08	6.67E-08	0.000
mg/dscm@7%O2	6.02E-08	4.17E-08	1.01E-07	0.000
ng/dscm	5.55E-02	3.38E-02	6.67E-02	0.052

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ng/dscm@7%O2	6.02E-02	4.17E-02	1.01E-01	0.068
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Compound: 3,4,4',5-TCB

				Average
RunNumber	1	2	3	
Mass_mg	0.0000000184	0.00000000576	0.0000000178	0.000
mg/dscm	3.93E-09	1.18E-09	4.24E-09	0.000
mg/dscm@7%O2	4.26E-09	1.46E-09	6.43E-09	0.000
ng/dscm	3.93E-03	1.18E-03	4.24E-03	0.003
ng/dscm@7%O2	4.26E-03	1.46E-03	6.43E-03	0.004

Compound: Dibenzo(a,h)anthracene*

				Average
RunNumber	1	2	3	
Mass_mg	0.00000182	0.00000672	0.00000443	0.000
mg/dscm	3.89E-07	1.38E-06	1.06E-06	0.000
mg/dscm@7%O2	4.22E-07	1.70E-06	1.61E-06	0.000
ng/dscm	3.89E-01	1.38E+00	1.06E+00	0.943
ng/dscm@7%O2	4.22E-01	1.70E+00	1.61E+00	1.244

Compound: Total HpCDD

				Average
RunNumber	1	2	3	
Mass_mg	0.0000000001	0.0000000123	0.0000000001	0.000
mg/dscm	2.14E-11	2.52E-09	2.38E-11	0.000
mg/dscm@7%O2	2.32E-11	3.11E-09	3.61E-11	0.000
ng/dscm	2.14E-05	2.52E-03	2.38E-05	0.001
ng/dscm@7%O2	2.32E-05	3.11E-03	3.61E-05	0.001

Compound: Total HpCDF

				Average
RunNumber	1	2	3	
Mass_mg	0.0000000001	0.0000000001	0.0000000001	0.000
mg/dscm	2.14E-11	2.05E-11	2.38E-11	0.000
mg/dscm@7%O2	2.32E-11	2.53E-11	3.61E-11	0.000
ng/dscm	2.14E-05	2.05E-05	2.38E-05	0.000
ng/dscm@7%O2	2.32E-05	2.53E-05	3.61E-05	0.000

Compound: Total HxCDD

				Average
RunNumber	1	2	3	
Mass_mg	0.0000000001	0.00000000863	0.00000000346	0.000
mg/dscm	2.14E-11	1.77E-09	8.25E-10	0.000
mg/dscm@7%O2	2.32E-11	2.18E-09	1.25E-09	0.000
ng/dscm	2.14E-05	1.77E-03	8.25E-04	0.001
ng/dscm@7%O2	2.32E-05	2.18E-03	1.25E-03	0.001

Compound: Total HxCDF

				Average
RunNumber	1	2	3	
Mass_mg	0.0000000001	0.0000000001	0.0000000001	0.000
mg/dscm	2.14E-11	2.05E-11	2.38E-11	0.000
mg/dscm@7%O2	2.32E-11	2.53E-11	3.61E-11	0.000
ng/dscm	2.14E-05	2.05E-05	2.38E-05	0.000

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ng/dscm@7%O2	2.32E-05	2.53E-05	3.61E-05	0.000
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Compound: Total PeCDD

				Average
RunNumber	1	2	3	
Mass_mg	0.0000000001	0.0000000001	0.0000000001	0.000
mg/dscm	2.14E-11	2.05E-11	2.38E-11	0.000
mg/dscm@7%O2	2.32E-11	2.53E-11	3.61E-11	0.000
ng/dscm	2.14E-05	2.05E-05	2.38E-05	0.000
ng/dscm@7%O2	2.32E-05	2.53E-05	3.61E-05	0.000

Compound: Total PeCDF

				Average
RunNumber	1	2	3	
Mass_mg	0.0000000001	0.0000000001	0.0000000001	0.000
mg/dscm	2.14E-11	2.05E-11	2.38E-11	0.000
mg/dscm@7%O2	2.32E-11	2.53E-11	3.61E-11	0.000
ng/dscm	2.14E-05	2.05E-05	2.38E-05	0.000
ng/dscm@7%O2	2.32E-05	2.53E-05	3.61E-05	0.000

Compound: Total TCDD

				Average
RunNumber	1	2	3	
Mass_mg	0.0000000066	0.00000000601	0.0000000001	0.000
mg/dscm	1.41E-09	1.23E-09	2.38E-11	0.000
mg/dscm@7%O2	1.53E-09	1.52E-09	3.61E-11	0.000
ng/dscm	1.41E-03	1.23E-03	2.38E-05	0.001
ng/dscm@7%O2	1.53E-03	1.52E-03	3.61E-05	0.001

Compound: Total TCDF

				Average
RunNumber	1	2	3	
Mass_mg	0.000000008	0.0000000354	0.0000000474	0.000
mg/dscm	1.71E-08	7.26E-09	1.13E-08	0.000
mg/dscm@7%O2	1.85E-08	8.96E-09	1.71E-08	0.000
ng/dscm	1.71E-02	7.26E-03	1.13E-02	0.012
ng/dscm@7%O2	1.85E-02	8.96E-03	1.71E-02	0.015

Compound: Total TEQ Dioxans

				Average
RunNumber	1	2	3	
Mass_mg	0.000000005	0.0000000049	0.00000000414	0.000
mg/dscm	1.07E-09	1.00E-09	9.87E-10	0.000
mg/dscm@7%O2	1.16E-09	1.23E-09	1.50E-09	0.000
ng/dscm	1.07E-03	1.00E-03	9.87E-04	0.001
ng/dscm@7%O2	1.16E-03	1.23E-03	1.50E-03	0.001

Location: stk exhaust - Method 25A

Compound: Total organic compounds (TOC) as

				Average
Run	1	2	3	
ppm	8.43E-01	3.90E-01	4.44E-01	0.559
ppm@7%O2	9.14E-01	4.81E-01	6.74E-01	0.690

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Location: stk exhaust - Method 26

Compound: Hydrogen Chloride

				Average
RunNumber	1	2	3	
Mass_mg	0.101	0.106	0.154	0.120
mg/dscm	4.83E-02	5.12E-02	7.57E-02	0.058
mg/dscm@7%O2	5.39E-02	5.59E-02	9.14E-02	0.067

Compound: Hydrogen Fluoride

				Average
RunNumber	1	2	3	
Mass_mg	0.103	0.108	0.158	0.123
mg/dscm	4.92E-02	5.22E-02	7.77E-02	0.060
mg/dscm@7%O2	5.49E-02	5.70E-02	9.38E-02	0.069

Location: stk exhaust - Method 29

Compound: Antimony

				Average
RunNumber	1	2	3	
Mass_mg	0.000895	0.000573	0.000839	0.001
mg/dscm	1.91E-04	1.19E-04	1.99E-04	0.000
mg/dscm@7%O2	2.07E-04	1.47E-04	3.02E-04	0.000
ng/dscm	1.91E+02	1.19E+02	1.99E+02	169.667
ng/dscm@7%O2	2.07E+02	1.47E+02	3.02E+02	218.667

Compound: Arsenic

				Average
RunNumber	1	2	3	
Mass_mg	0.002049	0.002156	0.002222	0.002
mg/dscm	4.37E-04	4.47E-04	5.27E-04	0.000
mg/dscm@7%O2	4.74E-04	5.52E-04	8.00E-04	0.001
ng/dscm	4.37E+02	4.47E+02	5.27E+02	470.333
ng/dscm@7%O2	4.74E+02	5.52E+02	8.00E+02	608.667

Compound: Beryllium

				Average
RunNumber	1	2	3	
Mass_mg	0.000075	0.000075	0.000075	0.000
mg/dscm	1.60E-05	1.56E-05	1.78E-05	0.000
mg/dscm@7%O2	1.73E-05	1.93E-05	2.70E-05	0.000
ng/dscm	1.60E+01	1.56E+01	1.78E+01	16.467
ng/dscm@7%O2	1.73E+01	1.93E+01	2.70E+01	21.200

Compound: Cadmium

				Average
RunNumber	1	2	3	
Mass_mg	0.000542	0.000611	0.00067	0.001
mg/dscm	1.16E-04	1.27E-04	1.59E-04	0.000
mg/dscm@7%O2	1.26E-04	1.57E-04	2.41E-04	0.000
ng/dscm	1.16E+02	1.27E+02	1.59E+02	134.000
ng/dscm@7%O2	1.26E+02	1.57E+02	2.41E+02	174.667

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Compound: Chromium

				Average
RunNumber	1	2	3	
Mass_mg	0.00921	0.00462	0.01085	0.008
mg/dscm	1.96E-03	9.59E-04	2.57E-03	0.002
mg/dscm@7%O2	2.13E-03	1.18E-03	3.90E-03	0.002
ng/dscm	1.96E+03	9.59E+02	2.57E+03	1,829.667
ng/dscm@7%O2	2.13E+03	1.18E+03	3.90E+03	2,403.333

Compound: Cobalt

				Average
RunNumber	1	2	3	
Mass_mg	0.001094	0.000601	0.000547	0.001
mg/dscm	2.33E-04	1.25E-04	1.30E-04	0.000
mg/dscm@7%O2	2.53E-04	1.54E-04	1.97E-04	0.000
ng/dscm	2.33E+02	1.25E+02	1.30E+02	162.667
ng/dscm@7%O2	2.53E+02	1.54E+02	1.97E+02	201.333

Compound: Lead

				Average
RunNumber	1	2	3	
Mass_mg	0.001197	0.001368	0.000868	0.001
mg/dscm	2.55E-04	2.84E-04	2.06E-04	0.000
mg/dscm@7%O2	2.76E-04	3.51E-04	3.13E-04	0.000
ng/dscm	2.55E+02	2.84E+02	2.06E+02	248.333
ng/dscm@7%O2	2.76E+02	3.51E+02	3.13E+02	313.333

Compound: Manganese

				Average
RunNumber	1	2	3	
Mass_mg	0.00588	0.00594	0.00525	0.006
mg/dscm	1.25E-03	1.23E-03	1.24E-03	0.001
mg/dscm@7%O2	1.36E-03	1.52E-03	1.88E-03	0.002
ng/dscm	1.25E+03	1.23E+03	1.24E+03	1,240.000
ng/dscm@7%O2	1.36E+03	1.52E+03	1.88E+03	1,586.667

Compound: Mercury

				Average
RunNumber	1	2	3	
Mass_mg	0.149	0.173	0.124	0.149
mg/dscm	3.18E-02	3.59E-02	2.94E-02	0.032
mg/dscm@7%O2	3.45E-02	4.43E-02	4.46E-02	0.041
ng/dscm	3.18E+04	3.59E+04	2.94E+04	32,366.667
ng/dscm@7%O2	3.45E+04	4.43E+04	4.46E+04	41,133.333

Compound: Nickel

				Average
RunNumber	1	2	3	
Mass_mg	0.006211	0.020673	0.01227	0.013
mg/dscm	1.32E-03	4.29E-03	2.91E-03	0.003
mg/dscm@7%O2	1.43E-03	5.30E-03	4.42E-03	0.004
ng/dscm	1.32E+03	4.29E+03	2.91E+03	2,840.000
ng/dscm@7%O2	1.43E+03	5.30E+03	4.42E+03	3,716.667

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Compound: Phosphorus (yellow or white)

				Average
RunNumber	1	2	3	
Mass_mg	0.0326	0.0423	0.0354	0.037
mg/dscm	6.95E-03	8.78E-03	8.39E-03	0.008
mg/dscm@7%O2	7.54E-03	1.08E-02	1.27E-02	0.010
ng/dscm	6.95E+03	8.78E+03	8.39E+03	8,040.000
ng/dscm@7%O2	7.54E+03	1.08E+04	1.27E+04	10,346.667

Compound: Selenium

				Average
RunNumber	1	2	3	
Mass_mg	0.02014	0.01961	0.01899	0.020
mg/dscm	4.29E-03	4.07E-03	4.50E-03	0.004
mg/dscm@7%O2	4.65E-03	5.02E-03	6.83E-03	0.006
ng/dscm	4.29E+03	4.07E+03	4.50E+03	4,286.667
ng/dscm@7%O2	4.65E+03	5.02E+03	6.83E+03	5,500.000

Location: stk exhaust - Method 5**Compound:** Filterable Particulate

				Average
RunNumber	1	2	3	
Mass_mg	8.2	7.2	11.1	8.833
mg/dscm	1.75E+00	1.49E+00	2.63E+00	1.957
mg/dscm@7%O2	1.90E+00	1.84E+00	3.99E+00	2.577

Location: stk exhaust - Method 6C**Compound:** Sulfur Dioxide

				Average
Run	1	2	3	
ppm	4.46E+00	3.80E+00	8.83E+00	5.697
ppm@7%O2	4.84E+00	4.69E+00	1.34E+01	7.643

Location: stk exhaust - Method 7E**Compound:** Nitrogen oxides (NOx)

				Average
Run	1	2	3	
ppm	1.23E+01	1.37E+01	9.53E+00	11.843
ppm@7%O2	1.33E+01	1.69E+01	1.45E+01	14.900

Location: stk exhaust - OTM - 27**Compound:** Filterable PM2.5

				Average
RunNumber	1	2	3	
Mass_mg	0.5	3	3.4	2.300
mg/dscm	4.43E-01	2.66E+00	3.02E+00	2.041
mg/dscm@7%O2	4.93E-01	2.91E+00	3.25E+00	2.218

Location: stk exhaust - OTM - 28

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Compound: Inorganic (Aqueous) Condensible Pa				
				Average
RunNumber	1	2	3	
Mass_mg	3.6	3.2	3.7	3.500
mg/dscm	3.19E+00	2.84E+00	3.28E+00	3.103
mg/dscm@7%O2	3.55E+00	3.11E+00	3.53E+00	3.397
Compound: Organic Condensible Particulate				
				Average
RunNumber	1	2	3	
Mass_mg	4.3	4.7	8.2	5.733
mg/dscm	3.81E+00	4.17E+00	7.27E+00	5.083
mg/dscm@7%O2	4.24E+00	4.56E+00	7.83E+00	5.543

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Process Run Data

Run	Name	Value	UOM	Target Value	Comments
1	Sludge Feed Rate	4939	of dry sludge	6500	
1	Dried Sludge Fed	0	Tons/hr	0	

APCD Run Data

Run	Name	Value	UOM	Target Value	Comments
1	NA	0		0	

Process Lab Run Data

Run	Name	Value	UOM	Comments
1	TSS	6	mg/l	
1	TDS	0.5	mg/l	
2	TSS	6.53	mg/l	
2	TDS	0.517	mg/l	
3	TSS	3.7	mg/l	
3	TDS	0	mg/l	

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Sampling / Stack Data Results Detail

Location stk exhaust - Method 10

				Average
Run Number	1	2	3	
Test Date	1/19/2010	1/19/2010	1/20/2010	
Run Start Time	10:30:00 AM	3:22:00 AM	8:55:00 AM	
Run Finish Time	2:33:00 AM	7:26:00 PM	1:00:00 PM	
Carbon Dioxide, %	10.27	9.78	8	9.350
Oxygen, %	8.08	9.64	11.74	9.820
Fuel Factor	1.25	1.15	1.15	
Dry Volumetric Flow Rate, dry scfm	9983	10267	10567	10,272.333
F-Factor, dscfm/MMBtu @ %O2	9190	9190	9190	9,190.000
Moisture, %	3.8	4.1	4.5	4.133
Analyzer Make	California Analytics	California Analytics	California Analytics	#Error
Analyzer Model	3300A	3300A	3300A	#Error
Analyzer Serial Number	N3P125OT	N3P125OT	N3P125OT	#Error
Operating Range	50	50	50	50.000
Operating Units	ppm	ppm	ppm	
No. Readings/Avg.	60	60	60	60.000
Calibration Set	1	1	1	1.000
Calibration Pre Zero Cylinder ID	A4456	A4456	A4456	
Calibration Pre Zero Cylinder Instrument Response	0.65	1	1	0.883
Calibration Pre Zero Cylinder Bias	0.5	-0.33	-0.33	-0.053
Calibration Pre Zero Cylinder Drift	0	0	0	0.000
Calibration Pre High Cylinder ID	ALM041068C	ALM041068 C	ALM041068 C	
Calibration Pre High Cylinder Instrument Response	50.05	49.22	50.01	49.760
Calibration Pre High Cylinder Bias	-0.3	-1.96	-0.38	-0.880
Calibration Pre High Cylinder Drift	0	0	0	0.000
Calibration Post Zero Cylinder ID	A4456	A4456	A4456	
Calibration Post Zero Cylinder Instrument Response	1.8	1.1	1.7	1.533
Calibration Post Zero Cylinder Bias	2.8	1.4	2.6	2.267
Calibration Post Zero Cylinder Drift	2.3	1.73	2.93	2.320
Calibration Post High Cylinder ID	ALM041068C	ALM041068 C	ALM041068 C	
Calibration Post High Cylinder Instrument Response	50.33	48.95	49.96	49.747
Calibration Post High Cylinder Bias	0.26	-2.5	-0.48	-0.907
Calibration Post High Cylinder Drift	0.56	0.54	0.1	0.400
Cavg	7.34	13.37	8.8	9.837
Cavg Units	ppmvd	ppmvd	ppmvd	
Cgas	6.2405	12.8163	7.6545	8.904
Cgas Units	ppmvd	ppmvd	ppmvd	
Fuel Type	Oil	Oil	Oil	
Fw	10320	10320	10320	10,320.000
Fc	1420	1420	1420	1,420.000
Cgasw	0	0	0	0.000
Cgasw Units				

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Location stk exhaust - Method 23

				<u>Average</u>
Run Number	1	2	3	
Test Date	1/19/2010	1/19/2010	1/20/2010	
Run Start Time	10:30:00 AM	3:22:00 PM	8:55:00 AM	
Run Finish Time	2:10:00 PM	7:02:00 PM	12:35:00 PM	
Net Traversing Points	12	12	12	
Net Run Time, minutes	240	240	240	
Nozzle Diameter, inches	0.19	0.19	0.175	0.185
Pitot Tube Coefficient	0.84	0.84	0.84	0.840
Dry Gas Meter Calibration Factor	0.999	0.999	0.999	0.999
Barometric Pressure, inches of Mercury	29	29	29	29.000
Average Orifice Meter Differential, inches H2O	1.61	1.77	1.27	1.550
Dry Gas Meter Volume Sampled, cubic feet	175.090	184.880	156.050	172.007
Average Dry Gas Meter Temperature, °F	83.50	91.00	80.00	84.833
Dry Gas Meter Volume Sampled, dscf	165.374	172.313	148.218	161.968
Total Moisture Liquid collected, g	99.4	131.1	149.8	126.767
Volume of Water Vapor, standard cubic feet	4.68	6.17	7.05	5.967
Moisture Content of Stack Gas, %	2.75	3.46	4.54	3.583
Moisture Saturation at Stack Gas Temperature, %	4.09	4.29	4.31	4.230
Dry Mole Fraction	0.9725	0.9654	0.9569	0.965
Carbon Dioxide, %	10.27	9.78	8	9.350
Oxygen, %	8.08	9.64	11.74	9.820
Carbon Monoxide & Nitrogen, %	81.65	80.58	80.26	80.830
Fuel Factor	1.25	1.15	1.15	
Dry Molecular Weight, lb/lb-Mole	29.97	29.95	29.75	29.890
Wet Molecular weight, lb/lb-Mole	29.64	29.54	29.28	29.487
Flue Gas Static Pressure, inches of H2O	1	1.1	1.2	1.100
Absolute Flue Gas Pressure, inches of Mercury	29.07	29.08	29.09	29.080
Average Stack Gas Temperature, °F	84.33	85.83	86.00	85.387
Average Velocity Head, inches of H2O	1.233	1.339	1.356	1.309
Average Stack Gas Velocity, feet/second	63.38	66.24	66.95	65.523
Stack Cross-Sectional Area, square feet	2.885	2.885	2.885	2.885
Dry Volumetric Flow Rate, dry scfm	10,055.3	10,407.2	10,426.5	10,296.333
Actual Wet Volumetric Flue Gas Flow Rate, acfm	10,971.1	11,466.1	11,589.0	11,342.067
Percent Isokinetic of Sampling Rate, %	100.4	101.1	102.3	101.267
Percent Excess Air, %	60.0	82.9	124.3	89.067
F-Factor, dscfm/MMBtu @ %O2	9190	9190	9190	9,190.000
Round Duct Diameter, inches	23	23	23	
Rectangular Duct Width, inches	0	0	0	
Rectangular Duct Length, inches	0	0	0	
Fw	10320	10320	10320	10,320.000
Fc	1420	1420	1420	1,420.000

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Location stk exhaust - Method 25A

				Average
Run Number	1	2	3	
Test Date	1/19/2010	1/19/2010	1/20/2010	
Run Start Time	10:30:00 AM	3:22:00 PM	8:55:00 AM	
Run Finish Time	2:33:00 PM	7:26:00 PM	1:00:00 PM	
Carbon Dioxide, %	10.27	9.78	8	9.350
Oxygen, %	8.08	9.64	11.74	9.820
Fuel Factor	1.25	1.15	1.15	
Dry Volumetric Flow Rate, dry scfm	9983	10267	10567	10,272.333
F-Factor, dscfm/MMBtu @ %O2	9190	9190	9190	9,190.000
Moisture, %	3.8	4.1	4.5	4.133
Analyzer Make	JUM	JUM	JUM	#Error
Analyzer Model	109A	109A	109A	#Error
Analyzer Serial Number	16626192	16626192	16626192	16,626,192.000
Operating Range	10	10	10	10.000
Operating Units	ppm	ppm	ppm	
No. Readings/Avg.	60	60	60	60.000
Calibration Set	7	7	7	7.000
Calibration Pre Zero Cylinder ID	A4456	A4456	A4456	
Calibration Pre Zero Cylinder Instrument Response	0.03	0.1	0.02	0.050
Calibration Pre Zero Cylinder Bias	0.3	1	0.2	0.500
Calibration Pre Zero Cylinder Drift	0	0	0	0.000
Calibration Pre High Cylinder ID	ALM029335	ALM029335	ALM029335	
Calibration Pre High Cylinder Instrument Response	9.94	9.99	9.94	9.957
Calibration Pre High Cylinder Bias	-0.2	0.1	-0.4	-0.167
Calibration Pre High Cylinder Drift	0	0	0	0.000
Calibration Post Zero Cylinder ID	A4456	A4456	A4456	
Calibration Post Zero Cylinder Instrument Response	0.1	0.1	0.1	0.100
Calibration Post Zero Cylinder Bias	1	0.7	1	0.900
Calibration Post Zero Cylinder Drift	0.6	0.3	0.9	0.600
Calibration Post High Cylinder ID	ALM029335	ALM029335	ALM029335	
Calibration Post High Cylinder Instrument Response	9.99	9.93	9.95	9.957
Calibration Post High Cylinder Bias	0.1	-0.5	-0.3	-0.233
Calibration Post High Cylinder Drift	0.3	0.6	0.2	0.367
Cavg	0.87	0.47	0.48	0.607
Cavg Units	ppmvw	ppmvw	ppmvw	
Cgas	0.8427	0.3901	0.4436	0.559
Cgas Units	ppmvd	ppmvd	ppmvd	
Fuel Type	Oil	Oil	Oil	
Fw	10320	10320	10320	10,320.000
Fc	1420	1420	1420	1,420.000
Cgasw	0.8106919191	0.374127789	0.423611532	0.536
	91919	046653	62519	
Cgasw Units	ppmvw	ppmvw	ppmvw	

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Location stk exhaust - Method 26

				Average
Run Number	1	2	3	
Test Date	1/20/2010	1/20/2010	1/21/2010	
Run Start Time	2:00:00 PM	4:30:00 PM	9:15:00 AM	
Run Finish Time	3:50:00 PM	6:20:00 PM	11:05:00 PM	
Net Traversing Points	12	12	12	
Net Run Time, minutes	120	120	120	
Nozzle Diameter, inches	0.175	0.175	0.175	0.175
Pitot Tube Coefficient	0.84	0.84	0.84	0.840
Dry Gas Meter Calibration Factor	0.999	0.999	0.999	0.999
Barometric Pressure, inches of Mercury	29	29	29	29.000
Average Orifice Meter Differential, inches H2O	1.26	1.25	1.17	1.227
Dry Gas Meter Volume Sampled, cubic feet	77.850	77.470	73.420	76.247
Average Dry Gas Meter Temperature, °F	80.25	83.42	63.92	75.863
Dry Gas Meter Volume Sampled, dscf	73.907	73.115	71.857	72.960
Total Moisture Liquid collected, g	57.1	71.5	69.9	66.167
Volume of Water Vapor, standard cubic feet	2.69	3.37	3.29	3.117
Moisture Content of Stack Gas, %	3.51	4.41	4.38	4.100
Moisture Saturation at Stack Gas Temperature, %	4.17	4.64	4.24	4.350
Dry Mole Fraction	0.9649	0.9559	0.9576	0.959
Carbon Dioxide, %	10.69	11.06	9.66	10.470
Oxygen, %	8.44	8.17	9.39	8.667
Carbon Monoxide & Nitrogen, %	80.87	80.77	80.95	80.863
Fuel Factor	1.17	1.15	1.19	
Dry Molecular Weight, lb/lb-Mole	30.05	30.10	29.92	30.023
Wet Molecular weight, lb/lb-Mole	29.63	29.57	29.44	29.547
Flue Gas Static Pressure, inches of H2O	1.2	1.2	1.1	1.167
Absolute Flue Gas Pressure, inches of Mercury	29.09	29.09	29.08	29.087
Average Stack Gas Temperature, °F	85.00	88.33	85.50	86.277
Average Velocity Head, inches of H2O	1.349	1.341	1.290	1.327
Average Stack Gas Velocity, feet/second	66.32	66.39	65.11	65.940
Stack Cross-Sectional Area, square feet	2.885	2.885	2.885	2.885
Dry Volumetric Flow Rate, dry scfm	10,433.8	10,284.6	10,153.2	10,290.533
Actual Wet Volumetric Flue Gas Flow Rate, acfm	11,480.0	11,492.1	11,270.5	11,414.200
Percent Isokinetic of Sampling Rate, %	102.0	102.3	101.9	102.067
Percent Excess Air, %	65.4	62.1	78.4	68.633
F-Factor, dscfm/MMBtu @ %O2	9190	9190	9190	9,190.000
Round Duct Diameter, inches	23	23	23	
Rectangular Duct Width, inches	0	0	0	
Rectangular Duct Length, inches	0	0	0	
Fw	10320	10320	10320	10,320.000
Fc	1420	1420	1420	1,420.000

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Location stk exhaust - Method 29

				Average
Run Number	1	2	3	
Test Date	1/19/2010	1/19/2010	1/20/2010	
Run Start Time	10:30:00 AM	3:22:00 PM	8:55:00 AM	
Run Finish Time	2:10:00 PM	7:02:00 PM	12:35:00 PM	
Net Traversing Points	12	12	12	
Net Run Time, minutes	240	240	240	
Nozzle Diameter, inches	0.19	0.19	0.175	0.185
Pitot Tube Coefficient	0.84	0.84	0.84	0.840
Dry Gas Meter Calibration Factor	0.9806	0.9806	0.9806	0.981
Barometric Pressure, inches of Mercury	29	29	29	29.000
Average Orifice Meter Differential, inches H2O	1.74	1.88	1.40	1.673
Dry Gas Meter Volume Sampled, cubic feet	177.520	185.420	158.790	173.910
Average Dry Gas Meter Temperature, °F	80.25	89.25	76.83	82.110
Dry Gas Meter Volume Sampled, dscf	165.625	170.221	148.966	161.604
Total Moisture Liquid collected, g	137.4	155.2	149.6	147.400
Volume of Water Vapor, standard cubic feet	6.47	7.31	7.04	6.940
Moisture Content of Stack Gas, %	3.76	4.12	4.51	4.130
Moisture Saturation at Stack Gas Temperature, %	4.16	4.37	4.30	4.277
Dry Mole Fraction	0.9624	0.9588	0.957	0.959
Carbon Dioxide, %	10.27	9.78	8	9.350
Oxygen, %	8.08	9.64	11.74	9.820
Carbon Monoxide & Nitrogen, %	81.65	80.58	80.26	80.830
Fuel Factor	1.25	1.15	1.15	
Dry Molecular Weight, lb/lb-Mole	29.97	29.95	29.75	29.890
Wet Molecular weight, lb/lb-Mole	29.52	29.46	29.28	29.420
Flue Gas Static Pressure, inches of H2O	1.1	1.1	1.2	1.133
Absolute Flue Gas Pressure, inches of Mercury	29.08	29.08	29.09	29.083
Average Stack Gas Temperature, °F	84.92	86.42	85.92	85.753
Average Velocity Head, inches of H2O	1.233	1.315	1.390	1.313
Average Stack Gas Velocity, feet/second	63.53	65.77	67.78	65.693
Stack Cross-Sectional Area, square feet	2.885	2.885	2.885	2.885
Dry Volumetric Flow Rate, dry scfm	9,967.0	10,251.6	10,558.4	10,259.000
Actual Wet Volumetric Flue Gas Flow Rate, acfm	10,997.0	11,384.8	11,732.7	11,371.500
Percent Isokinetic of Sampling Rate, %	101.5	101.4	101.5	101.467
Percent Excess Air, %	60.0	82.9	124.3	89.067
F-Factor, dscfm/MMBtu @ %O2	9190	9190	9190	9,190.000
Round Duct Diameter, inches	23	23	23	
Rectangular Duct Width, inches	0	0	0	
Rectangular Duct Length, inches	0	0	0	
Fw	10320	10320	10320	10,320.000
Fc	1420	1420	1420	1,420.000

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Location stk exhaust - Method 3A CO2

				Average
Run Number	1	2	3	
Test Date	1/19/2010	1/19/2010	1/20/2010	
Run Start Time	10:30:00 AM	3:22:00 PM	8:55:00 AM	
Run Finish Time	2:33:00 PM	7:26:00 PM	1:00:00 PM	
Carbon Dioxide, %	10.27	9.78	8	9.350
Oxygen, %	8.08	9.64	11.74	9.820
Fuel Factor	1.25	1.15	1.15	
Dry Volumetric Flow Rate, dry scfm	9983	10267	10567	10,272.333
F-Factor, dscfm/MMBtu @ %O2	9190	9190	9190	9,190.000
Moisture, %	3.8	4.1	4.5	4.133
Analyzer Make	Servomex	Sevomex	Servomex	#Error
Analyzer Model	100	100	100	100.000
Analyzer Serial Number				#Num!
Operating Range	20	20	20	20.000
Operating Units	%	%	%	
No. Readings/Avg.	60	60	60	60.000
Calibration Set	8	8	8	8.000
Calibration Pre Zero Cylinder ID	A4456	A4456	A4456	
Calibration Pre Zero Cylinder Instrument Response	0.01	0	0	0.003
Calibration Pre Zero Cylinder Bias	0.05	0	0	0.017
Calibration Pre Zero Cylinder Drift	0	0	0	0.000
Calibration Pre High Cylinder ID	ALM041068	ALM041068	ALM041068	
Calibration Pre High Cylinder Instrument Response	19.97	19.99	19.99	19.983
Calibration Pre High Cylinder Bias	-0.05	0.05	0.05	0.017
Calibration Pre High Cylinder Drift	0	0	0	0.000
Calibration Post Zero Cylinder ID	A4456	A4456	A4456	
Calibration Post Zero Cylinder Instrument Response	0	0.01	0.01	0.007
Calibration Post Zero Cylinder Bias	0	0.05	0.05	0.033
Calibration Post Zero Cylinder Drift	0.05	0.05	0.05	0.050
Calibration Post High Cylinder ID	ALM041068	ALM041068	ALM041068	
Calibration Post High Cylinder Instrument Response	19.99	19.99	19.98	19.987
Calibration Post High Cylinder Bias	0.05	0.05	0	0.033
Calibration Post High Cylinder Drift	0.1	0	0.05	0.050
Cavg	10.27	9.78	8	9.350
Cavg Units	%vd	%vd	%vd	
Cgas	10.2778	9.7823	8.003	9.354
Cgas Units	%vd	%vd	%vd	
Fuel Type	Oil	Oil	Oil	
Fw	10320	10320	10320	10,320.000
Fc	1420	1420	1420	1,420.000
Cgasw	0	0	0	0.000
Cgasw Units				

City of Greensboro ICR Section 114 Testing

3/17/2010

Location stk exhaust - Method 3A O2

				Average
Run Number	1	2	3	
Test Date	1/19/2010	1/19/2010	1/20/2010	
Run Start Time	10:30:00 AM	3:22:00 PM	8:55:00 AM	
Run Finish Time	2:33:00 PM	7:26:00 PM	1:00:00 PM	
Carbon Dioxide, %	10.27	9.78	8	9.350
Oxygen, %	8.08	9.64	11.74	9.820
Fuel Factor	1.25	1.15	1.15	
Dry Volumetric Flow Rate, dry scfm	9983	10267	10567	10,272.333
F-Factor, dscfm/MMBtu @ %O2	9190	9190	9190	9,190.000
Moisture, %	3.8	4.1	4.5	4.133
Analyzer Make	California Analytics	California Analytics	California Analytics	#Error
Analyzer Model	100F	100F	100F	#Error
Analyzer Serial Number	4G06009	4G06009	4G06009	#Error
Operating Range	21	21	21	21.000
Operating Units	%	%	%	
No. Readings/Avg.	60	60	60	60.000
Calibration Set	10	10	10	10.000
Calibration Pre Zero Cylinder ID	A4456	A4456	A4456	
Calibration Pre Zero Cylinder Instrument Response	0.03	0.01	0	0.013
Calibration Pre Zero Cylinder Bias	0.1	0	-0.05	0.017
Calibration Pre Zero Cylinder Drift	0	0	0	0.000
Calibration Pre High Cylinder ID	CC204980	CC204980	CC204980	
Calibration Pre High Cylinder Instrument Response	20.89	20.88	20.88	20.883
Calibration Pre High Cylinder Bias	4.29	4.24	4.24	4.257
Calibration Pre High Cylinder Drift	0	0	0	0.000
Calibration Post Zero Cylinder ID	A4456	A4456	A4456	
Calibration Post Zero Cylinder Instrument Response	0.01	0.01	0	0.007
Calibration Post Zero Cylinder Bias	0	0	-0.05	-0.017
Calibration Post Zero Cylinder Drift	0.1	0	0	0.033
Calibration Post High Cylinder ID	CC204980	CC204980	CC204980	
Calibration Post High Cylinder Instrument Response	20.89	20.89	20.89	20.890
Calibration Post High Cylinder Bias	4.29	4.29	4.29	4.290
Calibration Post High Cylinder Drift	0	4.999999999 99998E-02	4.999999999 99998E-02	0.033
Cavg	8.08	9.64	11.74	9.820
Cavg Units	%vd	%vd	%vd	
Cgas	8.0716	9.6415	11.7484	9.821
Cgas Units	%vd	%vd	%vd	
Fuel Type	Oil	Oil	Oil	
Fw	10320	10320	10320	10,320.000
Fc	1420	1420	1420	1,420.000
Cgasw	0	0	0	0.000
Cgasw Units				

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3/17/2010

Location stk exhaust - Method 5

				Average
Run Number	1	2	3	
Test Date	1/19/2010	1/19/2010	1/20/2010	
Run Start Time	10:30:00 AM	3:22:00 PM	8:55:00 AM	
Run Finish Time	2:10:00 PM	7:02:00 PM	12:35:00 PM	
Net Traversing Points	12	13	12	
Net Run Time, minutes	240	240	240	
Nozzle Diameter, inches	0.19	0.19	0.175	0.185
Pitot Tube Coefficient	0.84	0.84	0.84	0.840
Dry Gas Meter Calibration Factor	0.9806	0.9806	0.9806	0.981
Barometric Pressure, inches of Mercury	29	29	29	29.000
Average Orifice Meter Differential, inches H ₂ O	1.74	1.88	1.40	1.673
Dry Gas Meter Volume Sampled, cubic feet	177.520	185.420	158.790	173.910
Average Dry Gas Meter Temperature, °F	80.25	89.25	76.83	82.110
Dry Gas Meter Volume Sampled, dscf	165.625	170.221	148.966	161.604
Total Moisture Liquid collected, g	137.4	155.2	149.6	147.400
Volume of Water Vapor, standard cubic feet	6.47	7.31	7.04	6.940
Moisture Content of Stack Gas, %	3.76	4.12	4.51	4.130
Moisture Saturation at Stack Gas Temperature, %	4.16	4.37	4.30	4.277
Dry Mole Fraction	0.9624	0.9588	0.957	0.959
Carbon Dioxide, %	10.27	9.78	8	9.350
Oxygen, %	8.08	9.64	11.74	9.820
Carbon Monoxide & Nitrogen, %	81.65	80.58	80.26	80.830
Fuel Factor	1.25	1.15	1.15	
Dry Molecular Weight, lb/lb-Mole	29.97	29.95	29.75	29.890
Wet Molecular weight, lb/lb-Mole	29.52	29.46	29.28	29.420
Flue Gas Static Pressure, inches of H ₂ O	1.1	1.1	1.2	1.133
Absolute Flue Gas Pressure, inches of Mercury	29.08	29.08	29.09	29.083
Average Stack Gas Temperature, °F	84.92	86.42	85.92	85.753
Average Velocity Head, inches of H ₂ O	1.233	1.315	1.390	1.313
Average Stack Gas Velocity, feet/second	63.53	65.77	67.78	65.693
Stack Cross-Sectional Area, square feet	2.885	2.885	2.885	2.885
Dry Volumetric Flow Rate, dry scfm	9,967.0	10,251.6	10,558.4	10,259.000
Actual Wet Volumetric Flue Gas Flow Rate, acfm	10,997.0	11,384.8	11,732.7	11,371.500
Percent Isokinetic of Sampling Rate, %	101.5	101.4	101.5	101.467
Percent Excess Air, %	60.0	82.9	124.3	89.067
F-Factor, dscfm/MMBtu @ %O ₂	9190	9190	9190	9,190.000
Round Duct Diameter, inches	23	23	23	
Rectangular Duct Width, inches	0	0	0	
Rectangular Duct Length, inches	0	0	0	
Fw	10320	10320	10320	10,320.000
Fc	1420	1420	1420	1,420.000

City of Greensboro ICR Section 114 Testing

3/17/2010

Location stk exhaust - Method 6C

				Average
Run Number	1	2	3	
Test Date	1/19/2010	1/19/2010	1/20/2010	
Run Start Time	10:30:00 AM	3:22:00 PM	8:55:00 AM	
Run Finish Time	2:33:00 PM	7:26:00 PM	1:00:00 PM	
Carbon Dioxide, %	10.27	9.78	8	9.350
Oxygen, %	8.08	9.64	11.74	9.820
Fuel Factor	1.04	1.15	1.15	
Dry Volumetric Flow Rate, dry scfm	9983	10267	10567	10,272.333
F-Factor, dscfm/MMBtu @ %O2	9190	9190	9190	9,190.000
Moisture, %	3.8	4.1	4.5	4.133
Analyzer Make	Teledyne	Teledyne	Teledyne	#Error
Analyzer Model	100AH	100AH	100AH	#Error
Analyzer Serial Number	059	059	059	59.000
Operating Range	13	13	13	13.000
Operating Units	ppm	ppm	ppm	
No. Readings/Avg.	60	60	60	60.000
Calibration Set	5	5	5	5.000
Calibration Pre Zero Cylinder ID	A4456	A4456	A4456	
Calibration Pre Zero Cylinder Instrument Response	0.1	0.3	0.2	0.200
Calibration Pre Zero Cylinder Bias	0	1.54	0.77	0.770
Calibration Pre Zero Cylinder Drift	0	0	0	0.000
Calibration Pre High Cylinder ID	ALM041068G	ALM041068G	ALM041068G	
Calibration Pre High Cylinder Instrument Response	12.77	12.73	12.76	12.753
Calibration Pre High Cylinder Bias	0.23	0.08	0.31	0.207
Calibration Pre High Cylinder Drift	0	0	0	0.000
Calibration Post Zero Cylinder ID	A4456	A4456	A4456	
Calibration Post Zero Cylinder Instrument Response	0.3	0.2	0.3	0.267
Calibration Post Zero Cylinder Bias	1.54	0.77	1.54	1.283
Calibration Post Zero Cylinder Drift	1.15	0.77	0.77	0.897
Calibration Post High Cylinder ID	ALM041068G	ALM041068G	ALM041068G	
Calibration Post High Cylinder Instrument Response	12.73	12.76	12.75	12.747
Calibration Post High Cylinder Bias	0.08	0.31	0.23	0.207
Calibration Post High Cylinder Drift	0.15	0.23	0.08	0.153
Cavg	4.59	3.97	8.91	5.823
Cavg Units	ppmvd	ppmvd	ppmvd	
Cgas	4.4635	3.7959	8.8297	5.696
Cgas Units	ppmvd	ppmvd	ppmvd	
Fuel Type	Oil	Oil	Oil	
Fw	10320	10320	10320	10,320.000
Fc	1420	1420	1420	1,420.000
Cgasw	0	0	0	0.000
Cgasw Units				

City of Greensboro ICR Section 114 Testing

3/17/2010

Location stk exhaust - Method 7E

				Average
Run Number	1	2	3	
Test Date	1/19/2010	1/19/2010	1/20/2010	
Run Start Time	10:30:00 AM	3:22:00 PM	8:55:00 AM	
Run Finish Time	2:33:00 PM	7:26:00 PM	1:00:00 PM	
Carbon Dioxide, %	10.27	9.78	8	9.350
Oxygen, %	8.08	9.64	11.74	9.820
Fuel Factor	1.25	1.15	1.15	
Dry Volumetric Flow Rate, dry scfm	9983	10267	10567	10,272.333
F-Factor, dscfm/MMBtu @ %O2	9190	9190	9190	9,190.000
Moisture, %	3.8	4.1	4.5	4.133
Analyzer Make	Teledyne	Teledyne	Teledyne	#Error
Analyzer Model	200EH	200EH	200EH	#Error
Analyzer Serial Number	182	182	182	182.000
Operating Range	125	125	125	125.000
Operating Units	ppm	ppm	ppm	
No. Readings/Avg.	60	60	60	60.000
Calibration Set	6	6	6	6.000
Calibration Pre Zero Cylinder ID	A4456	A4456	A4456	
Calibration Pre Zero Cylinder Instrument Response	0.8	0.3	0.24	0.447
Calibration Pre Zero Cylinder Bias	0.2	-0.2	-0.25	-0.083
Calibration Pre Zero Cylinder Drift	0	0	0	0.000
Calibration Pre High Cylinder ID	ALM041068E	ALM041068E	ALM041068E	
Calibration Pre High Cylinder Instrument Response	124.7	124.4	124.5	124.533
Calibration Pre High Cylinder Bias	0.4	0.4	0.24	0.347
Calibration Pre High Cylinder Drift	0	0	0	0.000
Calibration Post Zero Cylinder ID	A4456	A4456	A4456	
Calibration Post Zero Cylinder Instrument Response	0.3	0.24	0.4	0.313
Calibration Post Zero Cylinder Bias	-0.2	-0.25	-0.12	-0.190
Calibration Post Zero Cylinder Drift	0.16	0.05	0.13	0.113
Calibration Post High Cylinder ID	ALM041068E	ALM041068E	ALM041068E	
Calibration Post High Cylinder Instrument Response	124.4	124.5	125.3	124.733
Calibration Post High Cylinder Bias	0.4	0.24	0.88	0.507
Calibration Post High Cylinder Drift	0.4	0.16	0.64	0.400
Cavg	12.82	13.92	9.86	12.200
Cavg Units	ppmvd	ppmvd	ppmvd	
Cgas	12.3046	13.6687	9.5339	11.836
Cgas Units	ppmvd	ppmvd	ppmvd	
Fuel Type	Oil	Oil	Oil	
Fw	10320	10320	10320	10,320.000
Fc	1420	1420	1420	1,420.000
Cgasw	0	0	0	0.000
Cgasw Units				

City of Greensboro ICR Section 114 Testing

3/17/2010

Location stk exhaust - OTM - 27

				Average
Run Number	1	2	3	
Test Date	1/20/2010	1/20/2010	1/21/2010	
Run Start Time	2:00:00 PM	4:30:00 PM	9:15:00 AM	
Run Finish Time	3:50:00 PM	6:20:00 PM	11:05:00 AM	
Net Traversing Points	12	12	12	
Net Run Time, minutes	119.5	119.25	119.25	
Nozzle Diameter, inches	0.136	0.136	0.136	0.136
Pitot Tube Coefficient	0.84	0.84	0.84	0.840
Dry Gas Meter Calibration Factor	0.981	0.981	0.981	0.981
Barometric Pressure, inches of Mercury	29	29	29	29.000
Average Orifice Meter Differential, inches H ₂ O	0.25	0.25	0.25	0.250
Dry Gas Meter Volume Sampled, cubic feet	42.751	41.428	41.428	41.869
Average Dry Gas Meter Temperature, °F	78.92	62.63	62.63	68.060
Dry Gas Meter Volume Sampled, dscf	39.851	39.821	39.821	39.831
Total Moisture Liquid collected, g	27.6	31	27.5	28.700
Volume of Water Vapor, standard cubic feet	1.30	1.46	1.29	1.350
Moisture Content of Stack Gas, %	3.16	3.54	3.14	3.280
Moisture Saturation at Stack Gas Temperature, %	4.22	4.25	4.25	4.240
Dry Mole Fraction	0.9684	0.9646	0.9686	0.967
Carbon Dioxide, %	10.69	11.06	11.5	11.083
Oxygen, %	8.4	8.2	8	8.200
Carbon Monoxide & Nitrogen, %	80.91	80.74	80.5	80.717
Fuel Factor	1.17	1.15	1.12	
Dry Molecular Weight, lb/lb-Mole	30.05	30.10	30.16	30.103
Wet Molecular weight, lb/lb-Mole	29.67	29.67	29.78	29.707
Flue Gas Static Pressure, inches of H ₂ O	1.2	1.2	1.2	1.200
Absolute Flue Gas Pressure, inches of Mercury	29.09	29.09	29.09	29.090
Average Stack Gas Temperature, °F	85.33	85.58	85.58	85.497
Average Velocity Head, inches of H ₂ O	1.341	1.333	1.333	1.336
Average Stack Gas Velocity, feet/second	66.10	65.92	65.80	65.940
Stack Cross-Sectional Area, square feet	2.885	2.885	2.885	2.885
Dry Volumetric Flow Rate, dry scfm	10,430.6	10,356.6	10,380.7	10,389.300
Actual Wet Volumetric Flue Gas Flow Rate, acfm	11,441.9	11,410.8	11,390.0	11,414.233
Percent Isokinetic of Sampling Rate, %	91.4	92.2	92.0	91.867
Percent Excess Air, %	64.8	62.5	60.4	62.567
F-Factor, dscfm/MMBtu @ %O ₂	9190	9190	9190	9,190.000
Round Duct Diameter, inches	23	23	23	
Rectangular Duct Width, inches	0	0	0	
Rectangular Duct Length, inches	0	0	0	
Fw	10320	10320	10320	10,320.000
Fc	1420	1420	1420	1,420.000

City of Greensboro ICR Section 114 Testing

3/17/2010

Location stk exhaust - OTM - 28

				Average
Run Number	1	2	3	
Test Date	1/20/2010	1/20/2010	1/21/2010	
Run Start Time	2:00:00 PM	4:30:00 PM	9:15:00 AM	
Run Finish Time	3:50:00 PM	6:20:00 PM	11:05:00 AM	
Net Traversing Points	12	12	12	
Net Run Time, minutes	119.5	119.25	119.25	
Nozzle Diameter, inches	0.136	0.136	0.136	0.136
Pitot Tube Coefficient	0.84	0.84	0.84	0.840
Dry Gas Meter Calibration Factor	0.981	0.981	0.981	0.981
Barometric Pressure, inches of Mercury	29	29	29	29.000
Average Orifice Meter Differential, inches H2O	0.25	0.25	0.25	0.250
Dry Gas Meter Volume Sampled, cubic feet	42.751	41.434	41.428	41.871
Average Dry Gas Meter Temperature, °F	78.92	62.63	62.63	68.060
Dry Gas Meter Volume Sampled, dscf	39.851	39.827	39.821	39.833
Total Moisture Liquid collected, g	27.6	31	27.5	28.700
Volume of Water Vapor, standard cubic feet	1.30	1.46	1.29	1.350
Moisture Content of Stack Gas, %	3.16	3.54	3.14	3.280
Moisture Saturation at Stack Gas Temperature, %	4.22	4.25	4.25	4.240
Dry Mole Fraction	0.9684	0.9646	0.9686	0.967
Carbon Dioxide, %	10.69	11.06	11.5	11.083
Oxygen, %	8.4	8.2	8	8.200
Carbon Monoxide & Nitrogen, %	80.91	80.74	80.5	80.717
Fuel Factor	1.17	1.15	1.12	
Dry Molecular Weight, lb/lb-Mole	30.05	30.10	30.16	30.103
Wet Molecular weight, lb/lb-Mole	29.67	29.67	29.78	29.707
Flue Gas Static Pressure, inches of H2O	1.2	1.2	1.2	1.200
Absolute Flue Gas Pressure, inches of Mercury	29.09	29.09	29.09	29.090
Average Stack Gas Temperature, °F	85.33	85.58	85.58	85.497
Average Velocity Head, inches of H2O	1.341	1.333	1.333	1.336
Average Stack Gas Velocity, feet/second	66.10	65.92	65.80	65.940
Stack Cross-Sectional Area, square feet	2.885	2.885	2.885	2.885
Dry Volumetric Flow Rate, dry scfm	10,430.6	10,356.6	10,380.7	10,389.300
Actual Wet Volumetric Flue Gas Flow Rate, acfm	11,441.9	11,410.8	11,390.0	11,414.233
Percent Isokinetic of Sampling Rate, %	91.4	92.2	92.0	91.867
Percent Excess Air, %	64.8	62.5	60.4	62.567
F-Factor, dscfm/MMBtu @ %O2	9190	9190	9190	9,190.000
Round Duct Diameter, inches	23	23	23	
Rectangular Duct Width, inches	0	0	0	
Rectangular Duct Length, inches	0	0	0	
Fw	10320	10320	10320	10,320.000
Fc	1420	1420	1420	1,420.000

APPENDIX III

FIELD DATA SHEETS

Method 1 Data Sheet

Plant	City of Greensboro	Date	1/18/2010
City/State	McLeansville, N.C.	Job Number	crbg00109
Sampling Location	Incinerator Exhaust	Technician	CAM

Ports		Diameters (in.)	
Number of Ports Available	2	Distance from far wall to outside of port	26
Number of Ports Used	2	Nipple length and/or wall thickness	3.0
Port Inside Diameter	3.0	Depth of Stack or Duct	23.0
		Stack or Duct width (if rectangular)	

	Distance (in.)	Diameters	Equivalent Diameter (if rectangular)
Upstream from disturbance		8.0	$D_e = \frac{2(\text{Depth})(\text{Width})}{(\text{Depth} + \text{Width})} =$
Downstream from disturbance		6.0	

ROUND STACK OR DUCT

	4	6	8	10	12	14	16	18	20	22	24
1	6.7	4.4	3.2	2.6	2.1	1.8	1.5	1.4	1.3	1.1	1.1
2	25.0	14.6	10.5	8.2	6.7	5.7	4.3	4.4	3.9	3.5	3.2
3	75.0	29.4	19.4	14.6	11.5	9.9	8.5	7.5	6.7	6.0	5.5
4	93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.8
5		85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6		95.8	80.6	65.8	35.5	26.9	22.0	18.8	16.5	14.5	13.2
7			89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8			96.4	85.4	75.0	63.4	37.5	29.5	25.0	21.8	19.4
9				91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10				97.4	88.2	78.9	71.7	61.8	38.8	31.5	27.2
11					93.3	85.4	78.0	70.4	61.2	39.3	32.3
12					97.9	90.1	83.1	76.4	69.4	60.7	39.8
13						94.3	87.5	81.2	75.0	68.5	60.2
14						98.3	91.5	85.4	79.6	73.8	67.7
15							95.1	89.1	83.5	78.2	72.8
16							98.4	92.5	87.1	82.0	77.0
17								95.6	90.3	85.4	80.6
18								98.6	93.3	88.4	83.9
19									96.1	91.3	86.8
20									96.7	94.0	89.5
21										96.5	92.1
22										98.9	94.5
23											96.8
24											98.9

SQUARE STACK OR DUCT

	2	3	4	5	6	7	8	9	10	11	12
1	25.0	16.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2
2	75.0	50.0	37.5	30.0	25.0	21.4	18.8	16.7	15.0	13.6	12.5
3		83.3	62.5	50.0	41.7	35.7	31.3	27.8	25.0	22.7	20.8
4			87.5	70.0	58.3	50.0	43.8	38.9	35.0	31.8	29.2
5				90.0	75.0	64.3	55.3	50.0	45.0	40.9	37.5
6					91.7	78.5	68.8	61.1	55.0	50.0	45.8
7						92.9	81.3	72.2	65.0	59.1	54.2
8							93.8	83.3	75.0	68.2	62.5
9								94.4	85.0	77.3	70.8
10									95.0	86.4	79.1
11										95.5	87.4
12											95.7

Point	Percent of Duct	Distance from Inside Wall	Distance from Outside of Port
1	4.4	1.01	4.01
2	14.6	3.36	6.36
3	29.4	6.76	9.76
4	70.4	16.19	19.19
5	85.4	19.64	22.64
6	95.8	22.03	25.03
7			
8			
9			
10			
11			
12			

Decimal to Fraction Conversion Table

Decimal Inches	Fraction	Decimal Inches Range	Use These Fraction Inches
		0.0000-0.0625	0
0.125	1/8	0.0625-0.1875	1/8
0.250	1/4	0.1875-0.3125	1/4
0.375	3/8	0.3125-0.4375	3/8
0.500	1/2	0.4375-0.5625	1/2
0.625	5/8	0.5625-0.6875	5/8
0.750	3/4	0.6875-0.8125	3/4
0.875	7/8	0.8125-0.9375	7/8
		0.9375-1.0000	1

EPA Method 5 Data Sheet

MB6
→

Plant	City of Greensboro				Date	1/19/90					
City/State	Greensboro, NC				Run Number	Run					
Sampling Location	Incinerator Exhaust				Time Start	10:30 AM					
Condition of Source	Normal				Time Stop	2:33 PM					
Method	5/29				Job Number	CGRB00109C					
Operator	GMS				Observer						
Assistant	SAH				Agency						
LINE	Sample Point	Clock Time [Time] Minutes	Dry Gas Meter Reading [Vmi] Cubic Feet	Pilot Reading In. H ₂ O [ΔP] [Red]	Orifice Setting In. H ₂ O [ΔH] [Yellow]	Gas Temperatures °F					Gauge Vacuum In. Hg
						Stack [T _s] [1]	Probe [2]	Filter [3]	Impinger [4]	Meter [T _m] [6]	
1	A1	0	374.333	1.2	1.66	84	255	251	61	68	1
2	A2	20	388.6	1.2	1.66	84	254	250	52	70	2
3	A3	40	402.9	1.2	1.69	84	252	251	53	78	2
4	A4	60	417.5	1.3	1.85	83	253	251	52	82	2
5	A5	80	432.7	1.3	1.85	83	254	254	51	83	2
6	A6	100	447.9	1.2	1.70	86	251	251	52	83	2
7	B1	120	462.6	1.2	1.70	87	253	252	54	83	2
8	B2	140	477.3	1.2	1.70	87	254	254	56	83	3
9	B3	160	491.8	1.2	1.70	86	253	251	52	83	3
10	B4	180	506.0	1.3	1.84	85	254	251	53	83	4
11	B5	200	521.5	1.3	1.84	86	253	252	45	84	5
12	B6	220	537.0	1.2	1.71	84	254	257	46	83	5
13		240	551.845								
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
Avg				1.233	1.742	84.9				80.3	
				Avg. $\sqrt{\Delta P}$	1.110						

Method 5 Back Datasheet

Equipment Checks		Run Time		Filter Box	
	TEST NUMBER	Time per Point	20	Type of Box (Lg/Sm)	LG
✓	Pilot Pretest (Visual, leakcheck)	Total Run Time	240	Type of Filter	Quartz
✓	Pilot Post test (Visual, leakcheck)	Pressures		Filter Holder Number	NA
✓	Nozzle, Pretest (Visual)	Barometer Number	NA	Filter Number	
✓	Nozzle, Post test (Visual)	Pbar at Site	29.00		
✓	ORSAT System (leakcheck)	Static Stack Pressure	+ 1.0		
✓	Method 1 Data Sheet	Meter Box		Probe	
✓	Cyclonic Flow Data Sheet	Meter Box Number	MB 6	Probe Number	P507
✓	Stack Dimensions	ΔH of DGM	1.9485	Pilot Type	S
✓	Assumed Moisture (%): 4 Sktr 4	Gamma of DGM	0.9806	Pilot Coefficient	.84
Molecular Weight of Stack Gas		Pilot Tube Leak Check (Pretest)		Pilot Tube Leak Check (Post Test)	
✗	Source is Ambient; M=29	Post Test LC	Side	A	B
	Orsat Performed	Pressure Tap (in. H2O)	>= 3.0	>= 3.0	>= 3.0
		Stable for 15 sec (Y/N)	Y	Y	Y
Nozzle Size		System Leakcheck (Pretest)		System Leakcheck (Post test)	
	Pretest	Beginning DGM		Beginning DGM	
1	.190	End DGM		End DGM	
2	.190	Leakrate		0.007	
3	.190	Vacuum (In. Hg)		14	
Avg		Pass/Fail		Pass/Fail	
Impinger Control Numbers					
	Reagent	Control Number	Initial Weight	Final Weight	Weight Difference
1	HNO3/H2O2		312.4	395.8	
2	KMNO4		220.0	245.0	
3					
4					
SG	Silica Gel		2536	782.6	
ORSAT Data					
Sample Time	Analysis Time	%CO2 Reading (A)	%O2 Reading (B)	%CO (If Taken) (C)	%N2 (100-A-B-C)
	Average				
Thermocouple Calibrations					
	Number	Temp °F	Difference	Correction	
	NIST Thermometer	57			
	Ts (1) Stack	57			
	Tp (2) Probe	58			
	Tf (3) Filter Box	58			
	Ti (4) Impinger Exit	58			
	Spare (5)	58			
	Tm (In) (6)	58			
	Tm (Out) (7)	58			
Nomenclature / Notes					
Pbar - Barometric Pressure; in. Hg			STACK DIAGRAM		
MB - Meterbox					
SSP - Static Stack Pressure, in. H2O					
Ta - Ambient Temperature					
Tf - Filter Box Temperature					
Tm - Meter Temperature					
Tp - Probe Temperature					
Ts - Stack Temperature					
(Y/N) - Yes or No					
QA/QC Check					
Completeness	Legibility	Accuracy	Specifications	Reasonableness	
Technician Signature			Team Leader Signature		

EPA Method 5 Data Sheet

Plant	City of Greensboro				Date	1/19/10					
City/State	Greensboro, NC				Run Number	RW2					
Sampling Location	Incinerator Exhaust				Time Start	3:22					
Condition of Source	Normal				Time Stop	7:26					
Method	5/29				Job Number	CGRB00109C					
Operator	GMS				Observer						
Assistant	SAH				Agency						
LINE	Sample Point	Clock Time (Time) Minutes	Dry Gas Meter Reading (V/m) Cubic Feet	Pitot Reading In. H ₂ O (ΔP) (Red)	Orifice Setting In. H ₂ O (ΔH) (Yellow)	Gas Temperatures °F					Gauge Vacuum In. Hg
						Stack (T _s) (1)	Probe (T _p) (2)	Filter (T _f) (3)	Impinger (T _i) (4)	Meter (T _m) (5)	
1	A1	0	556.253	1.3	1.82	88	255	256	58	79	1
2	A2	20	571.4	1.3	1.84	88	255	254	53	85	2
3	A3	40	586.6	1.4	2.00	86	254	255	52	87	2
4	A4	60	602.5	1.4	1.98	91	253	251	44	88	2
5	A5	80	618.1	1.5	2.15	84	250	254	47	88	2
6	A6	100	634.2	1.5	2.16	85	250	249	48	91	2
7	B1	120	651.1	1.3	1.86	86	254	257	48	89	2
8	B2	140	667.0	1.2	1.72	88	255	254	49	93	2
9	B3	160	681.8	1.2	1.74	82	255	253	48	93	2
10	B4	180	696.8	1.3	1.88	85	254	253	49	93	2
11	B5	200	712.5	1.2	1.73	85	226	255	49	93	2
12	B6	220	727.5	1.2	1.72	89	228	253	48	92	2
13		240	747.671								
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
Avg				1.317	1.883	86.4				89.3	
				Avg $\sqrt{\Delta P}$	1.146						

Method 5 Back Datasheet

Equipment Checks		Run Time		Filter Box	
2	TEST NUMBER	Time per Point	20	Type of Box (Lg/Sm)	LG
✓	Pilot Pretest (Visual, leakcheck)	Total Run Time	240	Type of Filter	Quartz
✓	Pilot Post test (Visual, leakcheck)	Pressures		Filter Holder Number	NA
✓	Nozzle, Pretest (Visual)	Barometer Number	NA	Filter Number	
✓	Nozzle, Post test (Visual)	Pbar at Site	29.00		
✓	ORSAT System (leakcheck)	Static Stack Pressure	1.1		
✓	Method 1 Data Sheet	Meter Box		Probe	
✓	Cyclonic Flow Data Sheet	Meter Box Number	MB6	Probe Number	P 507
✓	Stack Dimensions:	ΔH of DGM	1.485	Pilot Type	S
✓	Assumed Moisture (%):	Gamma of DGM	0.9806	Pilot Coefficient	.84
Molecular Weight of Stack Gas		Pilot Tube Leak Check (Pretest)		Pilot Tube Leak Check (Post Test)	
✓	Source is Ambient; Mdw=29	Post Test LC	Side A B	Post Test LC	Side A B
	Orsat Performed	Pressure Tap (in. H2O)	>= 3.0 >= 3.0	Pressure Tap (in. H2O)	>= 3.0 >= 3.0
		Stable for 15 sec (Y/N)	Y Y	Stable for 15 sec (Y/N)	Y Y
Nozzle Size		System Leakcheck (Pretest)		System Leakcheck (Post test)	
	Pretest Post Test	Beginning DGM		Beginning DGM	
1	.190	End DGM		End DGM	
2	.190	Leakrate		Leakrate .005	
3	.190	Vaccum (in. Hg)		Vaccum (in. Hg) 9	
Avg		Pass/Fail		Pass/Fail Pass	
Impinger Control Numbers					
	Reagent	Control Number	Initial Weight	Final Weight	Weight Difference
1	HNO3/H2O2		313.7	424.4	
2	KMNO4		200.0	212.5	
3					
4					
SG	Silica Gel		305.4	331.4	
ORSAT Data					
Sample Time	Analysis Time	%CO2 Reading (A)	%O2 Reading (B)	%CO (If Taken) (C)	%N2 (100-A-B-C) Molecular Weight Mw = O2(.32)-CO2(.48) - N2(.28)
	Average				
Thermocouple Calibrations					
	Number	Temp °F	Difference	Correction	
	NIST Thermometer				
	Ts (1) Stack				
	Tp (2) Probe				
	Tf (3) Filter Box				
	Ti (4) Impinger Exit				
	Spare (5)				
	Tm (In) (6)				
	Tm (Out) (7)				
Nomenclature / Notes					
Pbar - Barometric Pressure; in. Hg MB - Meterbox SSP - Static Stack Pressure, in. H2O Ta - Ambient Temperature Tf - Filter Box Temperature Tm - Meter Temperature Tp - Probe Temperature Ts - Stack Temperature (Y/N) - Yes or No					
QA/QC Check					
Completeness	Legibility	Accuracy	Specifications	Reasonableness	
Technician Signature			Team Leader Signature		

EPA Method 5 Data Sheet

Plant	City of Greensboro					Date	1/20/10					
City/State	Greensboro, NC					Run Number	Run 3					
Sampling Location	Incinerator Exhaust					Time Start	8:55 AM					
Condition of Source	Normal					Time Stop	1:00 PM					
Method	5/29					Job Number	CGRB00109C					
Operator	GMS					Observer						
Assistant	SAH					Agency						
L I N E	Sample Point	Clock Time (Time) Minutes	Dry Gas Meter Reading (Vml) Cubic Feet	Pitot Reading in. H ₂ O (ΔP) (Red)	Orifice Setting in. H ₂ O (ΔH) (Yellow)	Gas Temperatures °F					Gauge Vacuum in. Hg	
						Stack T _{st} (1)	Probe T ₂ (2)	Filter T ₃ (3)	Impinger T ₄ (4)	Meter T _m (5)		
1	A1	0	742.053	1.5	1.48	84	255	250	60	63	1	
2	A2	20	755.	1.4	1.39	85	251	254	42	68	5	
3	A3	40	768.6	1.5	1.50	86	250	255	48	73	5	
4	A4	60	782.3	1.5	1.51	87	251	254	44	76	5	
5	A5	80	795.1	1.4	1.41	88	255	254	45	78	5	
6	A6	100	809.2	1.4	1.42	86	255	255	45	79	5	
7	B1	120	822.6	1.5	1.52	85	255	254	51	79	5	
8	B2	140	836.4	1.3	1.32	86	252	253	50	80	6	
9	B3	160	849.3	1.2	1.22	87	255	255	50	81	6	
10	B4	180	861.6	1.3	1.32	86	255	254	51	82	6	
11	B5	200	874.6	1.3	1.32	85	255	254	51	81	6	
12	B6	220	887.8	1.4	1.42	86	255	255	53	82	6	
13		240	900.843									
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
Avg				1.392	1.408	85.9				76.8		

Avg. $\sqrt{\Delta P}$ 1.179

Method 5 Back Datasheet

Equipment Checks		Run Time		Filter Box		
3	TEST NUMBER	Time per Point	20	Type of Box (Lg/Sm)	LC	
✓	Pilot Pretest (Visual, leakcheck)	Total Run Time	240	Type of Filter	Quartz	
✓	Pilot Post test (Visual, leakcheck)	Pressures		Filter Holder Number	NA	
✓	Nozzle, Pretest (Visual)	Barometer Number	NA	Filter Number		
✓	Nozzle, Post test (Visual)	Pbar at Site	29.00			
✓	ORSAT System (leakcheck)	Static Stack Pressure	1.2			
✓	Method 1 Data Sheet	Meter Box		Probe		
✓	Cyclonic Flow Data Sheet	Meter Box Number	MB6	Probe Number	P-504	
✓	Stack Dimensions:	ΔH of DGM	1.9485	Pilot Type	S	
✓	Assumed Moisture (%):	Gamma of DGM	0.9806	Pilot Coefficient	84	
Molecular Weight of Stack Gas		Pilot Tube Leak Check (Pretest)		Pilot Tube Leak Check (Post Test)		
X	Source is Ambient; M=29	Post Test LC	Side A B	Post Test LC	Side A B	
	Orsat Performed	Pressure Tap (in. H2O)	>= 3.0 >= 3.0	Pressure Tap (in. H2O)	>= 3.0 >= 3.0	
		Stable for 15 sec (Y/N)	Y Y	Stable for 15 sec (Y/N)		
Nozzle Size		System Leakcheck (Pretest)		System Leakcheck (Post test)		
	Pretest Post Test	Beginning DGM		Beginning DGM		
1	.125	End DGM		End DGM		
2	.125	Leakrate		Leakrate .405		
3	.125	Vacuum (In. Hg)		Vacuum (In. Hg) 7		
Avg		Pass/Fail		Pass/Fail		
Impinger Control Numbers						
	Reagent	Control Number	Initial Weight	Final Weight	Weight Difference	Weight Total
1	HNO3/H2O2		295.1	404.9		
2	KMNO4		200.0	215.0		
3						
4						
SG	Silica Gel		300.6	325.4		
ORSAT Data						
Sample Time	Analysis Time	%CO2 Reading (A)	%O2 Reading (B)	%CO (If Taken) (C)	%N2 (100-A-B-C)	Molecular Weight Mw = O2(.32)+CO2(.48)+ N2(.28)
	Average					
Thermocouple Calibrations						
	Number	Temp °F	Difference	Correction		
	NIST Thermometer					
	Ts (1) Stack					
	Tp (2) Probe					
	Tf (3) Filter Box					
	Ti (4) Impinger Exit					
	Spere (5)					
	Tm (In) (6)					
	Tm (Out) (7)					
Nomenclature / Notes						
<p>Pbar - Barometric Pressure; in. Hg</p> <p>MB - Meterbox</p> <p>SSP - Static Stack Pressure, in. H2O</p> <p>Ta - Ambient Temperature</p> <p>Tf - Filter Box Temperature</p> <p>Tm - Meter Temperature</p> <p>Tp - Probe Temperature</p> <p>Ts - Stack Temperature</p> <p>(Y/N) - Yes or No</p>						
STACK DIAGRAM						
QA/QC Check						
Completeness	Legibility	Accuracy	Specifications	Reasonableness		
Technician Signature			Team Leader Signature			

EPA Method 5 Data Sheet

Plant	City of Greensboro				Date	1/20/10					
City/State	Greensboro, NC				Run Number	Run 3					
Sampling Location	Incinerator Exhaust				Time Start	8:55 AM					
Condition of Source	Normal				Time Stop	1:00 PM					
Method	23				Job Number	CGRB00109C					
Operator	GMS				Observer						
Assistant	SAH				Agency						
LINE	Sample Point	Clock Time (Time) Minutes	Dry Gas Meter Reading (V/m) Cubic Feet	Pilot Reading In. H ₂ O (ΔP) (Red)	Orifice Setting In. H ₂ O (ΔH) (Yellow)	Gas Temperatures °F					Gauge Vacuum In. Hg
						Stack (Ts) (1)	Probe (2)	Filter (3)	Impinger (4)	Meter (Tm) (5)	
1	A1	0	595.737	1.5	1.35	85	250	250	58	60	1
2	A2	20	608.9	1.5	1.38	83	254	251	39	69	3
3	A3	40	622.4	1.5	1.39	85	251	251	40	75	3
4	A4	60	635.5	1.4	1.29	88	255	253	43	76	4
5	A5	80	648.5	1.4	1.31	87	249	251	44	83	4
6	A6	100	661.8	1.5	1.41	86	249	250	45	84	4
7	B1	120	674.5	1.3	1.22	86	254	236	45	83	4
8	B2	140	688.	1.2	1.13	86	250	250	48	86	6
9	B3	160	700.5	1.2	1.13	87	251	250	50	86	6
10	B4	180	712.8	1.3	1.22	87	250	252	50	87	6
11	B5	200	725.7	1.2	1.13	86	251	253	51	85	6
12	B6	220	737.8	1.3	1.22	86	250	251	53	86	6
13		240	754.785								
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
Avg				1.358	1.265	86.0				80.0	
Avg. $\sqrt{\Delta P}$			1.164								

Method 5 Back Datasheet

Equipment Checks		Run Time		Filter Box	
9	TEST NUMBER	Time per Point	20	Type of Box (Lg/Sm)	LC
✓	Pilot Pretest (Visual, leakcheck)	Total Run Time	240	Type of Filter	Quartz
✓	Pilot Post test (Visual, leakcheck)	Pressures		Filter Holder Number	NA
✓	Nozzle, Pretest (Visual)	Barometer Number	NA	Filter Number	
✓	Nozzle, Post test (Visual)	Pbar at Site	29.46		
✓	ORSAT System (leakcheck)	Static Stack Pressure	1.2		
✓	Method 1 Data Sheet	Meter Box		Probe	
✓	Cyclonic Flow Data Sheet	Meter Box Number	MB	Probe Number	P-807
✓	Stack Dimensions:	DH of DGM	1.7912	Pilot Type	S
✓	Assumed Moisture (%):	Gamma of DGM	0.9990	Pilot Coefficient	84
Molecular Weight of Stack Gas		Pilot Tube Leak Check (Pretest)		Pilot Tube Leak Check (Post Test)	
✓	Source is Ambient; Md=29	Post Test LC	Side A B	Post Test LC	Side A B
	Orsat Performed	Pressure Tap (in. H2O)	>= 3.0 >= 3.0	Pressure Tap (in. H2O)	>= 3.0 >= 3.0
		Stable for 15 sec (Y/N)	Y Y	Stable for 15 sec (Y/N)	
Nozzle Size		System Leakcheck (Pretest)		System Leakcheck (Post test)	
	Pretest Post Test	Beginning DGM		Beginning DGM	
1	1.75	End DGM		End DGM	
2	1.75	Leakrate	0.012	Leakrate	0.010
3	1.75	Vacuum (in. Hg)	18	Vacuum (in. Hg)	15
Avg		Pass/Fail	Pass	Pass/Fail	Pass
Impinger Control Numbers					
	Reagent	Control Number	Initial Weight	Final Weight	Weight Difference
1	ANALYST				
2	ANALYST				
3					
4					
SG	Silica Gel				
ORSAT Data					
Sample Time	Analysis Time	%CO2 Reading (A)	%O2 Reading (B)	%CO (If Taken) (C)	%N2 (100-A-B-C)
	Average				
Thermocouple Calibrations					
	Number	Temp °F	Difference	Correction	
NIST Thermometer					
Ts (1)	Stack				
Tp (2)	Probe				
Tf (3)	Filter Box				
Ti (4)	Impinger Exit				
Spare (5)					
Tm (In) (6)					
Tm (Out) (7)					
Nomenclature / Notes					
Pbar - Barometric Pressure; in. Hg			STACK DIAGRAM		
MB - Meterbox					
SSP - Static Stack Pressure, in. H2O					
Ta - Ambient Temperature					
Tf - Filter Box Temperature					
Tm - Meter Temperature					
Tp - Probe Temperature					
Ts - Stack Temperature					
(Y/N) - Yes or No					
QA/QC Check					
Completeness	Legibility	Accuracy	Specifications	Reasonableness	
Technician Signature			Team Leader Signature		

EPA Method 5 Data Sheet

Plant	City of Greensboro				Date	1/19/10					
City/State	Greensboro, NC				Run Number	Run 12					
Sampling Location	Incinerator Exhaust				Time Start	3:22 PM					
Condition of Source	Normal				Time Stop	7:26 PM					
Method	23				Job Number	CGRB00109C					
Operator	GMS				Observer						
Assistant	SAH				Agency						
L T N E	Sample Point	Clock Time (Time Minutes)	Dry Gas Meter Reading (Vml) Cubic Feet	Pitot Reading in. H ₂ O (ΔP) (Red)	Orifice Setting in. H ₂ O (ΔH) (Yellow)	Gas Temperatures °F					Gauge Vacuum in. Hg
						Stack (T ₁) (1)	Probe (T ₂) (2)	Filter (T ₃) (3)	Impinger (T ₄) (4)	Meter (T _m) (5)	
1	A1	0	410.520	1.3	1.66	88	253	251	57	76	2
2	A2	20	425.3	1.4	1.82	86	240	252	50	81	2
3	A3	40	440.6	1.4	1.84	86	248	251	47	88	4
4	A4	60	456.4	1.4	1.83	89	250	253	46	88	5
5	A5	80	472.1	1.5	1.97	85	250	251	47	88	6
6	A6	100	488.4	1.6	2.13	84	250	250	47	94	6
7	B1	120	505.2	1.3	1.72	86	237	235	51	92	6
8	B2	140	520.4	1.2	1.60	88	250	249	52	97	6
9	B3	160	535.1	1.2	1.62	81	255	252	50	97	6
10	B4	180	550.8	1.2	1.61	85	250	253	45	98	6
11	B5	200	564.7	1.3	1.74	87	250	251	48	97	6
12	B6	220	580.9	1.3	1.73	88	251	250	45	96	6
13		240	595.403								
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
Avg				1.342	1.773	85.8				91.0	

Avg. $\sqrt{\Delta P}$ 1.157

Method 5 Back Datasheet

Equipment Checks		Run Time		Filter Box	
2	TEST NUMBER	Time per Point	20	Type of Box (Lg/Sm)	LG
✓	Pilot Pretest (Visual, leakcheck)	Total Run Time	240	Type of Filter	Quartz
✓	Pilot Post test (Visual, leakcheck)	Pressures		Filter Holder Number	NA
✓	Nozzle, Pretest (Visual)	Barometer Number	NA	Filter Number	
✓	Nozzle, Post test (Visual)	Pbar at Site	29.00		
✓	ORSAT System (leakcheck)	Static Stack Pressure	+ 1.1		
✓	Method 1 Data Sheet	Meter Box		Probe	
✓	Cyclonic Flow Data Sheet	Meter Box Number	MB5	Probe Number	P-504
✓	Stack Dimensions:	ΔH @ of DGM	1.7912	Pilot Type	S
✓	Assumed Moisture (%): 4	Gamma of DGM	0.9990	Pilot Coefficient	.84
Molecular Weight of Stack Gas		Pilot Tube Leak Check (Pretest)		Pilot Tube Leak Check (Post Test)	
X	Source is Ambient; Mw=29	Post Test LC	Side	A	B
	Orsat Performed	Pressure Tap (in. H2O)	>= 3.0	>= 3.0	Pressure Tap (in. H2O)
		Stable for 15 sec (Y/N)	Y	Y	Stable for 15 sec (Y/N)
Nozzle Size		System Leakcheck (Pretest)		System Leakcheck (Post test)	
	Pretest	Beginning DGM		Beginning DGM	
1	.190	End DGM		End DGM	
2	.190	Leakrate		Leakrate	
3	.190	Vacuum (in. Hg)		Vacuum (in. Hg)	
Avg		Pass/Fail		Pass/Fail	
Impinger Control Numbers					
	Reagent	Control Number	Initial Weight	Final Weight	Weight Difference
1	UNUSABLE				
2	UNUSABLE				
3					
4					
SG	Silica Gel				
ORSAT Data					
Sample Time	Analysis Time	%CO2 Reading (A)	%O2 Reading (B)	%CO (If Taken) (C)	%N2 (100-A-B-C)
	Average				
Thermocouple Calibrations					
	Number	Temp °F	Difference	Correction	
	NIST Thermometer				
	Ts (1)	Stack			
	Tp (2)	Probe			
	Tf (3)	Filter Box	500 Run 1		
	Ti (4)	Impinger Exit			
	Spare (5)				
	Tm (In) (6)				
	Tm (Out) (7)				
Nomenclature / Notes					
<p>Pbar - Barometric Pressure; in. Hg</p> <p>MB - Meterbox</p> <p>SSP - Static Stack Pressure, in. H2O</p> <p>Ta - Ambient Temperature</p> <p>Tf - Filter Box Temperature</p> <p>Tm - Meter Temperature</p> <p>Tp - Probe Temperature</p> <p>Ts - Stack Temperature</p> <p>(Y/N) - Yes or No</p>					
STACK DIAGRAM					
QA/QC Check					
Completeness	Legibility	Accuracy	Specifications	Reasonableness	
Technician Signature			Team Leader Signature		

EPA Method 5 Data Sheet

Plant	City of Greensboro				Date	1/19/10					
City/State	Greensboro, NC				Run Number	Run 1					
Sampling Location	Incinerator Exhaust				Time Start	10:30 am					
Condition of Source	Normal				Time Stop	2:33 pm					
Method	23				Job Number	CGRB00109C					
Operator	GMS				Observer						
Assistant	SAH				Agency						
LINE	Sample Point	Clock Time (Time) Minutes	Dry Gas Meter Reading (Vn) Cubic Feet	Pilot Reading in. H ₂ O [ΔP] [Red]	Orifice Setting in. H ₂ O [ΔH] [Yellow]	Gas Temperatures °F					Gauge Vacuum in. Hg
						Stack [T _s] [1]	Probe [2]	Filter [3]	Impinger [4]	Meter [T _m] [5]	
1	A1	0	234.928	1.2	1.54	83	240	250	60	74	1
2	A2	20	249.1	1.2	1.55	84	250	254	56	78	1
3	A3	40	283.4	1.3	1.72	83	251	254	54	88	2
4	A4	60	278.5	1.2	1.59	82	254	253	53	88	2
5	A5	80	293.0	1.2	1.58	83	254	255	52	88	2
6	A6	100	307.6	1.3	1.70	86	254	251	53	85	2
7	B1	120	322.6	1.2	1.56	87	253	252	54	84	3
8	B2	140	332.0	1.2	1.56	86	251	254	54	84	3
9	B3	160	351.4	1.2	1.56	85	252	254	53	83	3
10	B4	180	365.7	1.3	1.70	84	253	250	52	83	3
11	B5	200	380.4	1.3	1.70	84	253	250	53	84	3
12	B6	220	395.7	1.2	1.56	85	250	250	56	83	3
13		240	410.018								
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
Avg				1.233	1.616	84.3				83.5	
				Avg. $\sqrt{\Delta P}$	1.110						

MBS
← pf

Method 5 Back Datasheet

Equipment Checks		Run Time		Filter Box	
✓	TEST NUMBER	Time per Point	20	Type of Box (Lg/Sim)	LG
✓	Pilot Pretest (Visual, leakcheck)	Total Run Time	240	Type of Filter	Quartz
✓	Pilot Post test (Visual, leakcheck)	Pressures		Filter Holder Number	NA
✓	Nozzle, Pretest (Visual)	Barometer Number	NA	Filter Number	
✓	Nozzle, Post test (Visual)	Pbar at Site	29.02		
✓	ORSAT System (leakcheck)	Static Stack Pressure	1.0		
✓	Method 1 Data Sheet	Meter Box		Probe	
✓	Cyclonic Flow Data Sheet	Meter Box Number	MB 5	Probe Number	P504
✓	Stack Dimensions	ΔH of DGM	1.7912	Pilot Type	S
✓	Assumed Moisture (%): 4	Gamma of DGM	0.9990	Pilot Coefficient	.84
Molecular Weight of Stack Gas		Pilot Tube Leak Check (Pretest)		Pilot Tube Leak Check (Post Test)	
✓	Source is Ambient; M5-29 3	Post Test LC	Side	A	B
	Orsat Performed	Pressure Tap (in. H2O)	>= 3.0	>= 3.0	>= 3.0
		Stable for 15 sec (Y/N)	Y	Y	Y
Nozzle Size		System Leakcheck (Pretest)		System Leakcheck (Post test)	
	Pretest	Post Test	Beginning DGM	Beginning DGM	
1	.190		End DGM	End DGM	
2	.190		Leakrate	Leakrate	0.018
3	.190		Vacuum (in. Hg)	Vacuum (in. Hg)	12
Avg			Pass/Fail	Pass/Fail	Pass
Impinger Control Numbers					
	Reagent	Control Number	Initial Weight	Final Weight	Weight Difference
1	Ammonia				
2	Ammonia				
3					
4					
SG	Silica Gel				
ORSAT Data					
Sample Time	Analysis Time	%CO2 Reading (A)	%O2 Reading (B)	%CO (If Taken) (C)	%N2 (100-A-B-C)
	Average				
Thermocouple Calibrations					
	Number	Temp °F	Difference	Correction	
	NIST Thermometer	58			
	Ts (1) Stack	58			
	Tp (2) Probe	57			
	Tf (3) Filter Box	58			
	Tf (4) Impinger Exit	59			
	Spare (5)	5			
	Tm (In) (6)	58			
	Tm (Out) (7)	59			
Nomenclature / Notes					
Pbar - Barometric Pressure; in. Hg			STACK DIAGRAM		
MB - Meterbox					
SSP - Static Stack Pressure, in. H2O					
Ta - Ambient Temperature					
Tf - Filter Box Temperature					
Tm - Meter Temperature					
Tp - Probe Temperature					
Ts - Stack Temperature					
(Y/N) - Yes or No					
QA/QC Check					
Completeness	Legibility	Accuracy	Specifications	Reasonableness	
Technician Signature			Team Leader Signature		

EPA Method 5 Data Sheet

Plant		City of Greensboro			Date		1/21/10				
City/State		Greensboro, NC			Run Number		Run 3				
Sampling Location		Incinerator Exhaust			Time Start		9:15 AM				
Condition of Source		Normal			Time Stop		1:18 PM				
Method		26A			Job Number		CGRB00109C				
Operator		GMS			Observer						
Assistant		SAH			Agency						
LINE	Sample Point	Clock Time [Time] Minutes	Dry Gas Meter Reading [Vm] Cubic Feet	Pitot Reading In. H ₂ O [ΔP] [Red]	Orifice Setting In. H ₂ O [ΔH] [Yellow]	Gas Temperatures °F					Gauge Vacuum In. Hg
						Stack [Tst] [1]	Probe [2]	Filter [3]	Impinger [4]	Meter [Tm] [6]	
1	A1	0	910.330	1.1	.98	85	245	252	34	58	1
2	A2	10	916.1	1.3	1.16	85	250	251	34	57	1
3	A3	20	922.2	1.3	1.16	86	251	251	34	57	1
4	A4	30	928.2	1.2	1.07	86	251	251	35	57	1
5	A5	40	934.1	1.3	1.16	85	251	251	35	58	1
6	A6	50	940.1	1.4	1.26	84	251	251	35	60	1
7	B1	60	946.4	1.3	1.17	85	250	250	35	63	1
8	B2	70	952.5	1.3	1.18	86	250	250	36	66	2
9	B3	80	958.6	1.4	1.28	87	250	250	36	69	2
10	B4	90	965.1	1.4	1.29	86	250	251	38	73	3
11	B5	100	971.5	1.3	1.20	85	250	251	34	75	3
12	B6	110	977.8	1.2	1.11	86	250	250	39	76	3
13		120	983.945								
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
Avg				1.292	1.168	85.5				63.9	
		Avg. $\sqrt{\Delta P}$		1.136							

Method 5 Back Datasheet

Equipment Checks		Run Time		Filter Box		
3	TEST NUMBER	Time per Point	10	Type of Box (Lg/Sm)	LG	
✓	Pilot Pretest (Visual, leakcheck)	Total Run Time	120	Type of Filter	Quartz	
✓	Pilot Post test (Visual, leakcheck)	Pressures		Filter Holder Number	NA	
✓	Nozzle, Pretest (Visual)	Barometer Number	NA	Filter Number		
✓	Nozzle, Post test (Visual)	Psat at Site	29.00			
✓	ORSAT System (leakcheck)	Static Stack Pressure	1.1			
✓	Method 1 Data Sheet	Meter Box		Probe		
✓	Cyclonic Flow Data Sheet	Meter Box Number	MB5	Probe Number	P504	
✓	Stack Dimensions:	ΔH of DGM	1.7912	Pilot Type	S	
✓	Assumed Moisture (%):	Gamma of DGM	0.9996	Pilot Coefficient	.84	
Molecular Weight of Stack Gas		Pilot Tube Leak Check (Pretest)		Pilot Tube Leak Check (Post Test)		
✓	Source is Ambient; Md=29	Post Test LC	Side A B	Post Test LC	Side A B	
	Orsat Performed	Pressure Tap (in. H2O)	>= 3.0 >= 3.0	Pressure Tap (in. H2O)	>= 3.0 >= 3.0	
		Stable for 15 sec (Y/N)	Y Y	Stable for 15 sec (Y/N)	Y Y	
Nozzle Size		System Leakcheck (Pretest)		System Leakcheck (Post test)		
	Pretest	Post Test	Beginning DGM	Beginning DGM		
1	.175		End DGM	End DGM		
2	.175		Leakrate	0.008	Leakrate 0.005	
3	.175		Vacuum (in. Hg)	15	Vacuum (in. Hg) 10	
Avg			Pass/Fail	Pass	Pass	
Impinger Control Numbers						
	Reagent	Control Number	Initial Weight	Final Weight	Weight Difference	Weight Total
1	1N H2SO4					
2						
3						
4						
SG	Silica Gel					
ORSAT Data						
Sample Time	Analysis Time	%CO2 Reading (A)	%O2 Reading (B)	%CO (If Taken) (C)	%N2 (100-A-B-C)	Molecular Weight Mw = O2(.32)+CO2(.48) + N2(.28)
	Average					
Thermocouple Calibrations						
	Number	Temp °F	Difference	Correction		
	NIST Thermometer					
	Ts (1) Stack					
	Tp (2) Probe					
	Tf (3) Filter Box					
	Ti (4) Impinger Exit					
	Spare (5)					
	Tm (In) (6)					
	Tm (Out) (7)					
Nomenclature / Notes						
Pbar - Barometric Pressure, in. Hg			STACK DIAGRAM			
MB - Meterbox						
SSP - Static Stack Pressure, in. H2O						
Ta - Ambient Temperature						
Tf - Filter Box Temperature						
Tm - Meter Temperature						
Tp - Probe Temperature						
Ts - Stack Temperature						
(Y/N) -Yes or No						
QA/QC Check						
Completeness	Legibility	Accuracy	Specifications	Reasonableness		
Technician Signature			Team Leader Signature			

EPA Method 5 Data Sheet

Plant	City of Greensboro				Date	1/20/10					
City/State	Greensboro, NC				Run Number	Run 2					
Sampling Location	Incinerator Exhaust				Time Start	4:30 PM					
Condition of Source	Normal				Time Stop	6:34 PM					
Method	26A				Job Number	CGRB00109C					
Operator	GMS				Observer						
Assistant	SAH				Agency						
LINE	Sample Point	Clock Time (Time) Minutes	Dry Gas Meter Reading (V _m) Cubic Feet	Pilot Reading In. H ₂ O (ΔP) [Red]	Orifice Setting In. H ₂ O (ΔH) [Yellow]	Gas Temperatures °F					Gauge Vacuum In. Hg
						Stack (T _s) (1)	Probe (2)	Filter (3)	Impinger (4)	Meter (T _m) (6)	
1	A1	0	832.148	1.3	1.19	88	251	251	49	73	1
2	A2	10	838.4	1.4	1.29	88	251	254	48	75	1
3	A3	20	844.9	1.3	1.20	87	252	253	48	76	1
4	A4	30	851.2	1.2	1.11	86	254	254	47	76	2
5	A5	40	857.2	1.3	1.20	87	253	251	48	77	2
6	A6	50	863.5	1.3	1.21	90	253	254	47	83	2
7	B1	60	869.8	1.4	1.31	89	251	253	49	86	2
8	B2	70	876.4	1.5	1.41	90	254	252	48	89	2
9	B3	80	883.3	1.4	1.32	90	253	254	49	91	2
10	B4	90	889.9	1.4	1.32	90	251	254	50	91	2
11	B5	100	896.6	1.3	1.23	88	252	251	50	72	2
12	B6	110	903.0	1.3	1.24	87	253	254	51	92	2
13		120	909.621								
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
Avg				1.342	1.253	88.3				83.4	
				Avg. $\sqrt{\Delta P}$	1.158						

Method 5 Back Datasheet

Equipment Checks		Run Time		Filter Box	
2	TEST NUMBER	Time per Point	10	Type of Box (Lg/Sm)	LG
✓	Pilot Pretest (Visual, leakcheck)	Total Run Time	120	Type of Filter	Quartz
✓	Pilot Post test (Visual, leakcheck)	Pressures		Filter Holder Number	NA
✓	Nozzle, Pretest (Visual)	Barometer Number	NA	Filter Number	
✓	Nozzle, Post test (Visual)	Pbar at Site	29.00		
✓	ORSAT System (leakcheck)	Static Stack Pressure	1-2		
✓	Method 1 Data Sheet	Meter Box		Probe	
✓	Cyclonic Flow Data Sheet	Meter Box Number	MB-5	Probe Number	P-504
✓	Stack Dimensions:	ΔH of DGM	1.7912	Pilot Type	S
✓	Assumed Moisture (%):	Gamma of DGM	0.9990	Pilot Coefficient	.84
Molecular Weight of Stack Gas		Pilot Tube Leak Check (Pretest)		Pilot Tube Leak Check (Post Test)	
2	Source is Ambient; Md=29	Post Test LC	Side	A	B
	Orsat Performed	Pressure Tap (in. H ₂ O)	>= 3.0	>= 3.0	>= 3.0
		Stable for 15 sec (Y/N)	Y	Y	Y
Nozzle Size		System Leakcheck (Pretest)		System Leakcheck (Post test)	
	Pretest	Post Test	Beginning DGM	Beginning DGM	
1	.175		End DGM	End DGM	
2	.177		Leakrate	0.008	0.009
3	.175		Vacuum (in. Hg)	15	14
Avg			Pass/Fail	Pass	Pass
Impinger Control Numbers					
	Reagent	Control Number	Initial Weight	Final Weight	Weight Difference
1	1N H ₂ SO ₄				
2					
3					
4					
SG	Silica Gel				
ORSAT Data					
Sample Time	Analysis Time	%CO ₂ Reading (A)	%O ₂ Reading (B)	%CO (If Taken) (C)	%N ₂ (100-A-B-C)
	Average				
Thermocouple Calibrations					
	Number	Temp °F	Difference	Correction	
	NIST Thermometer				
	Ts (1) Stack				
	Tp (2) Probe				
	Tf (3) Filter Box				
	Ti (4) Impinger Exit				
	Spare (5)				
	Tm (In) (6)				
	Tm (Out) (7)				
Nomenclature / Notes					
Pbar - Barometric Pressure; in. Hg			STACK DIAGRAM		
MB - Meterbox					
SSP - Static Stack Pressure, in. H ₂ O					
Ts - Ambient Temperature					
Tf - Filter Box Temperature					
Tm - Meter Temperature					
Tp - Probe Temperature					
Ts - Stack Temperature					
(Y/N) - Yes or No					
QA/QC Check					
Completeness	Legibility	Accuracy	Specifications	Reasonableness	
Technician Signature			Team Leader Signature		

EPA Method 5 Data Sheet

Plant	City of Greensboro				Date	1/30/10					
City/State	Greensboro, NC				Run Number	Run 1					
Sampling Location	Incinerator Exhaust				Time Start	2:00 pm					
Condition of Source	Normal				Time Stop	4:03 pm					
Method	26A				Job Number	CGRB00109C					
Operator	GMS				Observer						
Assistant	SAH				Agency						
LINE	Sample Point	Clock Time (Minutes)	Dry Gas Meter Reading (V/m) Cubic Feet	Pilot Reading In. H ₂ O (ΔP) (Red)	Orifice Setting In. H ₂ O (ΔH) (Yellow)	Gas Temperatures °F					Gauge Vacuum In. Hg
						Stack (T _s) (1)	Probe (2)	Filter (3)	Impinger (4)	Meter (T _m) (5)	
1	A1	0	753.765	1.2	1.11	83	251	250	58	74	1
2	A2	10	759.8	1.3	1.21	85	255	250	57	77	1
3	A3	20	766.1	1.4	1.30	84	253	250	55	78	1
4	A4	30	772.6	1.3	1.21	85	252	251	50	80	1
5	A5	40	778.9	1.4	1.31	85	253	251	54	82	1
6	A6	50	785.5	1.3	1.22	84	254	253	53	83	2
7	B1	60	791.9	1.3	1.22	84	254	252	54	83	2
8	B2	70	798.3	1.4	1.32	85	250	250	52	84	2
9	B3	80	804.9	1.4	1.31	86	251	254	54	83	2
10	B4	90	811.5	1.3	1.21	86	250	254	56	81	2
11	B5	100	817.8	1.4	1.30	87	251	251	49	79	2
12	B6	110	824.4	1.5	1.40	86	252	252	51	79	2
13		120	831.618								
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
Avg				1.350	1.260	85				80.3	
			Avg. $\sqrt{\Delta P}$	1.161							

Method 5 Back Datasheet

Equipment Checks		Run Time		Filter Box	
1	TEST NUMBER	Time per Point	10	Type of Box (Lg/Sm)	LG
✓	Pilot Pretest (Visual, leakcheck)	Total Run Time	120	Type of Filter	Quartz
✓	Pilot Post test (Visual, leakcheck)	Pressures		Filter Holder Number	NA
✓	Nozzle, Pretest (Visual)	Barometer Number	NA	Filter Number	
✓	Nozzle, Post test (Visual)	Pbar at Site	29.01		
✓	ORSAT System (leakcheck)	Static Stack Pressure	1.2		
✓	Method 1 Data Sheet	Meter Box		Probe	
✓	Cyclonic Flow Data Sheet	Meter Box Number	MB5	Probe Number	P-504
✓	Stack Dimensions:	ΔH@ of DGM	1.7912	Pilot Type	S
✓	Assumed Moisture (%): 4	Gamma of DGM	0.9990	Pilot Coefficient	.84
Molecular Weight of Stack Gas		Pilot Tube Leak Check (Pretest)		Pilot Tube Leak Check (Post Test)	
✓	Source Is Ambient; Md=29	Post Test LC	Side	A	B
	Orsat Performed	Pressure Tap (in. H2O)	>= 3.0	>= 3.0	>= 3.0
		Stable for 15 sec (Y/N)	Y	Y	Y
Nozzle Size		System Leakcheck (Pretest)		System Leakcheck (Post test)	
	Pretest	Beginning DGM		Beginning DGM	
1	.175	End DGM		End DGM	
2	.175	Leakrate		.008	
3	.175	Vacuum (In. Hg)		1.0	
Avg		Pass/Fail		Pass	
Impinger Control Numbers					
	Reagent	Control Number	Initial Weight	Final Weight	Weight Difference
1	1/1N H2SO4				
2					
3					
4					
SG	Silica Gel				
ORSAT Data					
Sample Time	Analysis Time	%CO2 Reading (A)	%O2 Reading (B)	%CO (If Taken) (C)	%N2 (100-A-B-C)
	Average				
Thermocouple Calibrations					
	Number	Temp °F	Difference	Correction	
	NIST Thermometer				
	Ts (1)	Stack			
	Tp (2)	Probe			
	Tf (3)	Filter Box			
	Ti (4)	Impinger Exit			
	Spare (5)				
	Tm (In) (6)				
	Tm (Out) (7)				
Nomenclature / Notes					
Pbar - Barometric Pressure; in. Hg MB - Meterbox SSP - Static Stack Pressure, in. H2O Ta - Ambient Temperature Tf - Filter Box Temperature Tm - Meter Temperature Tp - Probe Temperature Ts - Stack Temperature (Y/N) -Yes or No			STACK DIAGRAM		
QA/QC Check					
Completeness	Legibility	Accuracy	Specifications	Reasonableness	
Technician Signature			Team Leader Signature		

**EPA
VISIBLE EMISSION OBSERVATION FORM 1**

Method Used (Circle One)		
Method 9	X	203A 203B Other: _____
Company Name: City of Greensboro		
Facility Name: _____		
Street Address: _____		
City: Greensboro	State: NC	Zip: _____
Process: Incinerator Exhaust	Unit# 1	Operating Mode: Normal
Control Equipment: Incinerator	Operating Mode: Normal	
Describe Emission point: <div align="center">Top of Stack</div>		
Height of Emiss. Pt. Start: _____ End: _____ 125' 125'	Ht. of Emiss. Pt. Ref. to Observer Start: _____ End: _____ 100' 100'	
Distance to Emiss. Pt. Start: _____ End: _____ 100' 100'	Direction to Emiss. Pt. (Degrees) Start: _____ End: _____ 50 50	
Vertical Angle to Obs. Pt. Start: 50 End: 50	Direction to Observer Start: East End: East	
Distance & Direction to Observation Pt. From Emiss. Pt. Start: 100' East End: 100' East		
Describe Emission: Start: clear End: clear		
Emission Color: Start: _____ End: _____ Clear Clear	Water Droplet Plume Attached <input type="radio"/> Detached <input type="radio"/> None X	
Describe Plume Background: Start: SKY End: SKY		
Background Color: blue/white blue/white	Sky Conditions: Start: partly cloudy End: partly cloudy	
Wind Speed: Start: 5MPH End: 5MPH	Wind Direction: Start: north End: north	
Ambient Temp. Start: 54 End: 55	Wet Bulb Temp: NA	RH Percent: NA
<div style="display: flex; justify-content: space-between;"> <div> <p>Source Layout Sketch</p> </div> <div> <p>Draw North Arrow</p> <p><input type="checkbox"/> TN <input type="checkbox"/> JLN</p> </div> </div>		

Page: 1 of 6					
Observation Date: 1/19/2010				Time Zone: EST	
Start Time: 10:35				End Time: 11:05	
Sec. →	0	15	30	45	Comments
Min. ↓					
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	
Overall average =				0	
Greatest 6 Min. Average =				0	
Observer's Name (Print): <div align="center">Gregg Szymkowicz</div>					
Observer's Signature: 				Date: 1/19/2010	
Organization: GEL Engineering					
Certified By: ETA				Date: 12/9/2009	

**EPA
VISIBLE EMISSION OBSERVATION FORM 1**

Method Used (Circle One)		
Method 9 X 203A 203B Other: _____		
Company Name: City of Greensboro		
Facility Name:		
Street Address:		
City: Greensboro	State: NC	Zip:
Process: Incinerator Exhaust	Unit# 1	Operating Mode: Normal
Control Equipment: Incinerator	Operating Mode: Normal	
Describe Emission point: <div style="text-align: center;">Top of Stack</div>		
Height of Emiss. Pt. Start: 125' End: 125'	Ht. of Emiss. Pt. Ref. to Observer Start: 100' End: 100'	
Distance to Emiss. Pt. Start: 100' End: 100'	Direction to Emiss. Pt. (Degrees) Start: 50 End: 50	
Vertical Angle to Obs. Pt. Start: 50 End: 50	Direction to Observer Start: East End: East	
Distance & Direction to Observation Pt. From Emiss. Pt. Start: 100' East End: 100' East		
Describe Emission: Start: clear End: clear		
Emission Color: Start: Clear End: Clear	Water Droplet Plume Attached <input type="radio"/> Detached <input type="radio"/> None <input checked="" type="radio"/> X	
Describe Plume Background: Start: SKY End: SKY		
Background Color: blue/white blue/white	Sky Conditions: Start: partly cloudy End: partly cloudy	
Wind Speed: Start: 5MPH End: 5MPH	Wind Direction: Start: north End: north	
Ambient Temp. Start: 55 End: 57	Wet Bulb Temp: NA	RH Percent: NA
<div style="text-align: center;">Source layout Sketch</div> <p>The sketch shows an 'Observation Point' (X) and an 'Observer's Position' (dot). A dashed line indicates the 'Sun Location Line'. A 140-degree angle is marked between the observer's position and the sun location line. A legend indicates 'Order North Arrow' with 'IN' and 'MIN' options, and 'Wind' direction with an arrow.</p>		

Page: 2 of 6					
Observation Date: 1/19/2010				Time Zone: EST	
Start Time: 11:05				End Time: 11:35	
Sec. →	0	15	30	45	Comments
Min. ↓					
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	
Overall average =					0
Greatest 6 Min. Average =					0
Observer's Name (Print): Gregg Szymkowicz					
Observer's Signature: 				Date: 1/19/2010	
Organization: GEL Engineering					
Certified By: ETA				Date: 12/9/2009	

**EPA
VISIBLE EMISSION OBSERVATION FORM 1**

Method Used (Circle One) Method 9 X 203A 203B Other: _____		
Company Name: City of Greensboro		
Facility Name:		
Street Address:		
City: Greensboro	State: NC	Zip:
Process: Incinerator Exhaust	Unit# 1	Operating Mode: Normal
Control Equipment: Incinerator	Operating Mode: Normal	
Describe Emission point: <div align="center">Top of Stack</div>		
Height of Emiss. Pt. Start: 125' End: 125'	Ht. of Emiss. Pt. Ref. to Observer Start: 100' End: 100'	
Distance to Emiss. Pt. Start: 100' End: 100'	Direction to Emiss. Pt. (Degrees) Start: 50 End: 50	
Vertical Angle to Obs. Pt. Start: 50 End: 50	Direction to Observer Start: East End: East	
Distance & Direction to Observation Pt. From Emiss. Pt. Start: 100' East End: 100' East		
Describe Emission: Start: clear End: clear		
Emission Color: Start: Clear End: Clear	Water Droplet Plume Attached <input type="radio"/> Detached <input type="radio"/> None <input checked="" type="radio"/> X	
Describe Plume Background: Start: SKY End: SKY		
Background Color: blue/white blue/white	Sky Conditions: Start: partly cloudy End: partly cloudy	
Wind Speed: Start: 5MPH End: 5MPH	Wind Direction: Start: north End: north	
Ambient Temp. Start: 57 End: 58	Wet Bulb Temp: NA	RH Percent: NA
<div style="display: flex; justify-content: space-between;"> <div> <p>Source Layout Sketch</p> </div> <div> <p>Draw North Arrow</p> <p><input type="checkbox"/> TN <input type="checkbox"/> JMN</p> </div> </div>		

Page: 3 of 6					
Observation Date: 1/19/2010			Time Zone: EST		
Start Time: 11:35			End Time: 12:05		
Sec. →	0	15	30	45	Comments
Min. ↓					
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	
Overall average =					0
Greatest 6 Min. Average =					0
Observer's Name (Print): Gregg Szymkowlcz					
Observer's Signature: 				Date: 1/19/2010	
Organization: GEL Engineering					
Certified By: ETA				Date: 12/9/2009	

**EPA
VISIBLE EMISSION OBSERVATION FORM 1**

Method Used (Circle One) Method 9 X 203A 203B Other: _____			
Company Name: City of Greensboro			
Facility Name:			
Street Address:			
City: Greensboro	State: NC	Zip:	
Process: Incinerator Exhaust	Unit# 1	Operating Mode: Normal	
Control Equipment: Incinerator		Operating Mode: Normal	
Describe Emission point: <div align="center">Top of Stack</div>			
Height of Emiss. Pt. Start: 125' End: 125'		Ht. of Emiss. Pt. Ref. to Observer Start: 100' End: 100'	
Distance to Emiss. Pt. Start: 100' End: 100'		Direction to Emiss. Pt. (Degrees) Start: 50 End: 50	
Vertical Angle to Obs. Pt. Start: 50 End: 50		Direction to Observer Start: East End: East	
Distance & Direction to Observation Pt. From Emiss. Pt. Start: 100' East End: 100' East			
Describe Emission: Start: clear End: clear			
Emission Color: Start: Clear End: Clear		Water Droplet Plume Attached <input type="radio"/> Detached <input type="radio"/> None <input checked="" type="radio"/>	
Describe Plume Background: Start: SKY End: SKY			
Background Color: blue/white blue/white		Sky Conditions: Start: partly cloudy End: partly cloudy	
Wind Speed: Start: 5MPH End: 5MPH		Wind Direction: Start: north End: north	
Ambient Temp. Start: 58 End: 59		Wet Bulb Temp: NA	RH Percent: NA
<div style="display: flex; justify-content: space-between;"> <div> <p>Source layout Sketch</p> </div> <div> <p>Draw North Arrow</p> <p><input type="checkbox"/> TN <input type="checkbox"/> MIN</p> </div> </div>			

Page: 4 of 6					
Observation Date: 1/19/2010			Time Zone: EST		
Start Time: 12:05			End Time: 12:35		
Sec.→	0	15	30	45	Comments
Min.↓					
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	
Overall average =					0
Greatest 5 Min. Average =					0
Observer's Name (Print): <div align="center">Gregg Szymkowicz</div>					
Observer's Signature: 				Date: 1/19/2010	
Organization: GEL Engineering					
Certified By: ETA				Date: 12/9/2009	

**EPA
VISIBLE EMISSION OBSERVATION FORM 1**

Method Used (Circle One)		
Method 9 X 203A 203B Other: _____		
Company Name: City of Greensboro		
Facility Name:		
Street Address:		
City: Greensboro	State: NC	Zip:
Process: Incinerator Exhaust	Unit# 1	Operating Mode: Normal
Control Equipment: Incinerator	Operating Mode: Normal	
Describe Emission point: <div align="center">Top of Stack</div>		
Height of Emiss. Pt. Start: End: 125' 125'	Ht. of Emiss. Pt. Ref. to Observer Start: End: 100' 100'	
Distance to Emiss. Pt. Start: End: 100' 100'	Direction to Emiss. Pt. (Degrees) Start: End: 50 50	
Vertical Angle to Obs .Pt. Start: 50 End: 50	Direction to Observer Start: East End: East	
Distance & Direction to Observation Pt. From Emiss. Pt. Start: 100' East End: 100' East		
Describe Emission: Start: clear End: clear		
Emission Color: Start: End: Clear Clear	Water Droplet Plume Attached <input type="radio"/> Detached <input type="radio"/> None X	
Describe Plume Background: Start: SKY End: SKY		
Background Color: blue/white blue/white	Sky Conditions: Start: partly cloudy End: partly cloudy	
Wind Speed: Start: 5MPH End: 5MPH	Wind Direction: Start: north End: north	
Ambient Temp. Start: 59 End: 59	Wet Bulb Temp: NA	RH Percent: NA
<div style="display: flex; justify-content: space-between;"> <div> <p>Source Layout Sketch</p> </div> <div> <p>Draw North Arrow <input type="checkbox"/> TN <input type="checkbox"/> MN</p> </div> </div>		

Page: 5 of 6					
Observation Date: 1/19/2010				Time Zone: EST	
Start Time: 12:35				End Time: 13:05	
Sec. →	0	15	30	45	Comments
Min. ↓					
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	
Overall average =				0	
Greatest 6 Min. Average =				0	
Observer's Name (Print): Gregg Szymkowicz					
Observer's Signature: 				Date: 1/19/2010	
Organization: GEL Engineering					
Certified By: ETA				Date: 12/9/2009	

**EPA
VISIBLE EMISSION OBSERVATION FORM 1**

Method Used (Circle One) Method 9 X 203A 203B Other: _____		
Company Name: City of Greensboro		
Facility Name: _____		
Street Address: _____		
City: Greensboro	State: NC	Zip: _____
Process: Incinerator Exhaust	Unit# 1	Operating Mode: Normal
Control Equipment: Incinerator	Operating Mode: Normal	
Describe Emission point: <div align="center">Top of Stack</div>		
Height of Emiss. Pt. Start: 125' End: 125'	Ht. of Emiss. Pt. Ref. to Observer Start: 100' End: 100'	
Distance to Emiss. Pt. Start: 100' End: 100'	Direction to Emiss. Pt. (Degrees) Start: 50 End: 50	
Vertical Angle to Obs. Pt. Start: 50 End: 50	Direction to Observer Start: East End: East	
Distance & Direction to Observation Pt. From Emiss. Pt. Start: 100' East End: 100' East		
Describe Emission: Start: clear End: clear		
Emission Color: Start: Clear End: Clear	Water Droplet Plume Attached <input type="radio"/> Detached <input type="radio"/> None <input checked="" type="radio"/> X	
Describe Plume Background: Start: SKY End: SKY		
Background Color: blue/white blue/white	Sky Conditions: Start: partly cloudy End: partly cloudy	
Wind Speed: Start: 5MPH End: 5MPH	Wind Direction: Start: north End: north	
Ambient Temp. Start: 59 End: 61	Wet Bulb Temp: NA	RH Percent: NA
<div style="display: flex; justify-content: space-between;"> <div> <p>Source Layout Station</p> </div> <div> <p>Draw North Arrow</p> <p><input type="checkbox"/> TN <input type="checkbox"/> MIN</p> </div> </div>		

Page: 6 of 6					
Observation Date: 1/19/2010				Time Zone: EST	
Start Time: 13:05				End Time: 13:35	
Sec. →	0	15	30	45	Comments
Min. ↓					
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	
Overall average =				0	
Greatest 6 Min. Average =				0	
Observer's Name (Print): Gregg Szymkowicz					
Observer's Signature: 				Date: 1/19/2010	
Organization: GEL Engineering					
Certified By: ETA				Date: 12/9/2009	

APPENDIX IV

PARTICULATE MATTER DATA SHEETS

GEL Engineering, LLC

EPA Method 5 - Particulate Matter Determination City Of Greensboro					
Source	Boiler #2				
Run Number	1	2	3		
Filter Number	10-Q04	10-Q05	10-Q01		
Post Weight, g	9.1339	9.1308	9.1834		
2nd Post Weight, g	9.1335	9.1304	9.1829		
Initial Weight, g	9.1295	9.1249	9.1762		
2nd Initial Weight, g	9.1293	9.1253	9.1766		
Average Post, g	9.1337	9.1306	9.18315		
Average Initial, g	9.1294	9.1251	9.1764		
Net Filter Catch, g	0.0043	0.0055	0.0068		

Pan Number	PQ-647	PQ-648	PQ-649		
Post Weight, g	3.7031	3.6892	3.6876		
2nd Post Weight, g	3.7028	3.6888	3.6872		
Initial Weight, g	3.6988	3.687	3.6829		
2nd Initial Weight, g	3.6993	3.6875	3.6833		
Average Post, g	3.70295	3.689	3.6874		
Average Initial, g	3.69905	3.68725	3.6831		
Acetone Blank, g	0.000	0.000	0.000		
Net Front Rinse, g	0.0039	0.00175	0.0043		

Total Particulate, g	0.0082	0.0072	0.0111		
----------------------	--------	--------	--------	--	--

Laboratory Data			
	Initial	2nd Weight	Post
Date of Analysis	8/16/09	8/17/09	9/14/09
Time	2:00 PM	10:15 AM	1:15 PM
Tech.	SH	SH	GMS
Lab Temp.	81	77	78
Rel. Humidity	51	51	53

Blank Acetone Analysis			
Pan Number	1		Post Weight, g
Volume	145		2nd Post, g
Tech.	SH		Initial Weight, g
Senior Review	CAM		2nd Initial, g

APPENDIX V

INSTRUMENT ANALYZER TABULATED DATA

Thomas Z. Osborne (City of Greensboro) 1/19/2010

Section 114 Testing - ES #1

RUN 1

Time	O2 (%)	CO2 (%)	CO ppm	O2 Therm	THC ppm	SO2 ppm	NOx ppm
11:22 AM	7.82	10.83	13.6	7.27	0.7	6.3	19.6
11:23 AM	7.74	10.74	13.1	7.22	0.8	6.2	19.9
11:24 AM	7.81	10.65	15.1	7.39	0.7	6.1	19.9
11:25 AM	7.61	10.22	14	8.15	0.7	6	12.8
11:26 AM	7.71	10.08	9.3	8.53	0.7	5.8	18.1
11:27 AM	7.66	10.05	10.1	8.64	0.7	5.7	16
11:28 AM	8.07	10.6	7.3	8.81	0.7	5.6	15.4
11:29 AM	7.83	10.16	9.9	9.44	0.7	5.5	14.9
11:30 AM	8.14	10.15	8.9	9.96	0.8	5.5	14
11:31 AM	8.32	10	11.7	10.23	0.8	5.4	13.3
11:32 AM	8.17	10.07	13.2	10.48	0.8	4.8	12.8
11:33 AM	8.12	10.04	9.2	10.61	0.8	4.7	12.7
11:34 AM	8.01	10.12	10.8	10.82	0.8	4.6	12.5
11:35 AM	7.88	10.16	9.1	10.93	0.8	4.6	12.3
11:36 AM	7.89	10.17	11.2	10.97	0.8	4.5	12.6
11:37 AM	7.91	10.17	11.8	11.08	0.8	4.4	12.6
11:38 AM	8.09	10.06	12.7	11.23	0.8	4.4	12.3
11:39 AM	8.12	10.06	8.5	11.43	0.9	4.3	12
11:40 AM	8.24	9.99	8.4	11.59	0.9	4.3	12.1
11:41 AM	8.21	10.03	9.1	11.74	0.9	4.2	12.2
11:42 AM	8.15	10.11	11.7	11.76	0.9	4.7	12
11:43 AM	8.07	10.18	13	11.73	0.9	4.6	12.1
11:44 AM	8.2	10.08	10.3	11.82	0.9	4.5	12.3
11:45 AM	8.23	10.09	7.9	12.05	0.9	4.4	12.4
11:46 AM	8.18	10.15	13.6	12.07	0.9	4.3	12.6
11:47 AM	8.17	10.17	13	12.14	0.9	4.2	12.8
11:48 AM	8.24	10.13	12.6	12.2	1	4.2	12.4
11:49 AM	8.31	10.1	16	12.39	1	4.2	12.1
11:50 AM	8.35	10.07	9	12.49	1	4.0	12
11:51 AM	8.42	10.03	12.2	12.65	1	4.0	12.2
11:52 AM	8.37	10.09	7.3	12.73	1	4.0	12.4
11:53 AM	8.45	10.04	10.7	12.82	1	4.0	12
11:54 AM	8.32	10.16	8.4	12.86	1	4.0	12
11:55 AM	8.37	10.12	19.8	12.89	1	3.8	12.3
11:56 AM	8.47	10.05	18	13.07	1	3.8	12.2
11:57 AM	7.6	10.89	19.3	13.19	1.1	3.8	12
11:58 AM	8.25	10.24	13.9	12.96	1	3.8	12.5
11:59 AM	7.47	10.21	16	15.09	1	3.9	12.8
12:00 PM	8.75	10.01	11.1	14.85	1	3.8	13.3
12:01 PM	8.46	10.28	6.4	15.51	1	3.9	13.0
12:02 PM	8.35	10.4	6.3	15.5	1	3.9	12.7
12:03 PM	8.71	10.07	9.2	15.52	1	3.9	12.7
12:04 PM	8.52	10.29	5.7	15.95	1	4.0	12.8
12:05 PM	8.43	10.36	8.4	15.71	1	3.9	12.5
12:06 PM	8.22	10.55	9.7	15.72	1	4.0	12.3
12:07 PM	8.87	10.42	6.4	15.99	1	4.0	12.3
12:08 PM	8.75	10.1	4.9	16.3	1	4.0	12.1
12:09 PM	8.5	10.36	2.5	16.29	1	4.1	11.6

12:10 PM	8.57	10.27	3.7	16.04	1	4.0	11.8
12:11 PM	8.34	10.52	5.7	16.38	1	4.0	11.9
12:12 PM	8.03	10.79	3.3	16.04	1	4.0	12.3
12:13 PM	8.53	10.36	6.2	16.23	1	4.1	12.6
12:14 PM	7.89	10.91	5.9	16.1	1	4.1	12.8
12:15 PM	8.34	10.55	6.9	16.25	1	4.0	12.4
12:16 PM	7.75	10.47	6.2	16.05	1	4.1	12.3
12:17 PM	8.25	10.68	3.9	16.48	1	4.1	12.0
12:18 PM	7.93	10.87	5.4	16.04	1	4.2	12.3
12:19 PM	7.88	10.46	2.6	16.69	1	4.2	11.9
12:20 PM	8.04	10.79	1.9	16.1	1	4.2	12.1
12:21 PM	7.47	10.45	3.4	16.64	1	4.2	11.8
12:22 PM	8.06	10.82	4.8	16.22	1	4.3	11.9
12:23 PM	7.65	10.22	3.2	16.47	1	4.3	12.0
12:24 PM	7.57	10.24	3.5	16.58	1	4.4	11.9
12:25 PM	7.7	10.04	4.7	16.44	1	4.4	11.7
12:26 PM	8.12	10.26	2.8	16.43	1	4.4	11.6
12:27 PM	8.15	10.15	3.9	16.46	1	4.5	11.7
12:28 PM	7.94	10.29	2.9	16.5	1	4.5	11.6
12:29 PM	7.87	10.26	3.9	16.3	1	4.6	11.6
12:30 PM	7.81	10.25	4.1	16.38	1	4.5	11.9
12:31 PM	8.12	10.27	3.6	16.39	1	4.6	11.9
12:32 PM	8.03	10.27	1.4	16.32	1	4.7	12.1
12:33 PM	7.92	10.31	2.2	16.37	0.9	4.7	12.0
12:34 PM	7.81	10.33	1.8	16.32	0.9	4.8	12.0
12:35 PM	8.38	10.3	3.3	16.33	0.8	4.7	11.9
12:36 PM	8.21	10.39	5	16.3	0.8	4.8	12.0
12:37 PM	8.08	10.44	6.8	16.23	0.7	4.9	12.3
12:38 PM	8	10.44	4.9	16.2	0.7	4.9	12.5
12:39 PM	7.97	10.39	5.7	16.21	0.7	5.0	12.4
12:40 PM	7.96	10.33	4.4	16.32	1.1	5.0	12.6
12:41 PM	7.87	10.34	4.2	16.36	1	5.1	12.8
12:42 PM	7.79	10.34	3.4	16.34	1	5.1	13.1
12:43 PM	7.89	10.4	2.5	16.34	0.9	5.2	13.2
12:44 PM	8.27	9.78	4.9	16.21	0.8	5.3	13.4
12:45 PM	8.25	10.41	3	16.51	0.8	5.2	13.4
12:46 PM	8.43	10.23	4.9	16.61	0.7	5.3	13.2
12:47 PM	8.48	10.1	2.6	16.65	0.7	5.4	13.6
12:48 PM	8.35	10.12	3.9	16.53	0.6	5.1	13.6
12:49 PM	8.28	10.12	2.8	16.67	0.6	5.1	13.7
12:50 PM	8.23	10.12	3.9	16.72	0.5	5.1	13.7
12:51 PM	8.1	10.14	3.6	16.67	0.5	5.1	13.2
12:52 PM	8.05	10.12	2.4	16.67	0.5	5.0	12.8
12:53 PM	7.99	10.1	3.3	16.68	0.5	5.0	12.5
12:54 PM	7.8	10.19	3.5	16.67	0.5	5.0	12.7
12:55 PM	7.72	10.19	3	16.57	0.8	4.9	12.8
12:56 PM	7.64	10.2	3.1	16.62	0.7	4.9	12.9
12:57 PM	7.51	10.24	4.1	16.55	0.6	4.9	13.0
12:58 PM	7.46	10.21	7.3	16.57	0.5	4.8	13.3
12:59 PM	7.59	10.21	4.3	16.61	0.5	4.8	13.1
1:00 PM	7.42	10.1	7.4	16.65	1.1	4.8	12.9
Average	8.08	10.27	7.34	14.32	0.87	4.59	12.82

Thomas Z. Osborne (City of Greensboro) 1/19/2010

Section 114 Testing - ES #1

RUN 2

Time	O2 (%)	CO2 (%)	CO ppm	O2 Therm	THC ppm	SO2 ppm	NOx ppm
1:44 PM	9.8	9.54	18.3	9.48	0.62	3.4	14.1
1:45 PM	10.16	9.19	12.9	9.94	0.55	3.4	15.1
1:46 PM	10.79	8.57	9.4	10.32	0.49	3.3	17.2
1:47 PM	11.05	8.35	10.9	10.96	0.47	3.3	18.4
1:48 PM	11.62	7.85	10.7	11.23	0.46	3.3	17.9
1:49 PM	11.49	7.99	13.8	11.62	0.45	3.3	16.8
1:50 PM	11.39	8.14	8.7	11.57	0.45	3.2	19.4
1:51 PM	11.21	8.22	11.7	11.05	0.43	3.2	17.7
1:52 PM	11.17	8.23	10.4	11.34	0.42	3.2	18.3
1:53 PM	10.82	8.56	12.2	10.93	0.39	3.3	18.8
1:54 PM	11.34	8.14	7.8	11.18	0.38	3.2	20.3
1:55 PM	10.12	9.26	14.1	10.59	0.37	3.3	14.3
1:56 PM	9.76	9.58	18.7	9.91	0.36	3.3	13.1
1:57 PM	9.56	9.76	14.2	9.6	0.34	3.3	13.9
1:58 PM	9.52	9.79	16.2	9.49	0.32	3.2	14.6
1:59 PM	9.52	9.8	13	9.53	0.3	3.2	14.7
2:00 PM	9.49	9.82	11.5	9.47	0.29	3.2	15.5
2:01 PM	9.74	9.61	18.6	9.63	0.27	3.2	15
2:02 PM	9.51	9.84	12.2	9.6	0.25	3.2	14.2
2:03 PM	9.48	9.88	9.2	9.47	0.24	3.3	14.5
2:04 PM	9.62	9.73	13.7	9.55	0.24	3.3	14.6
2:05 PM	9.64	9.72	11.2	9.63	0.24	3.3	14.1
2:06 PM	9.69	9.69	13.8	9.68	0.23	3.2	13.7
2:07 PM	9.5	9.88	8.3	9.63	0.24	3.2	13.8
2:08 PM	9.44	9.94	11.4	9.43	0.26	3.3	13.7
2:09 PM	9.33	10.04	10.2	9.38	0.3	3.3	13.8
2:10 PM	9.38	9.99	10.2	9.36	0.32	3.2	14
2:11 PM	9.43	9.95	12.5	9.41	0.35	3.2	13.5
2:12 PM	9.43	9.96	7.8	9.41	0.38	3.2	13.1
2:13 PM	9.48	9.91	9.7	9.4	0.4	3.2	13.1
2:14 PM	9.64	9.77	6.7	9.61	0.41	3.3	13.2
2:15 PM	9.48	9.92	6.4	9.53	0.43	3.3	13.2
2:16 PM	9.32	10.08	6.2	9.37	0.45	3.3	13.4
2:17 PM	9.22	10.15	7.8	9.19	0.47	3.3	14
2:18 PM	9.16	10.24	7.7	9.19	0.49	3.3	14.6
2:19 PM	9.04	10.32	7.9	9.04	0.51	3.3	14.7
2:20 PM	8.99	10.38	11.1	8.95	0.52	3.3	14.4
2:21 PM	9	10.35	12.6	8.93	0.54	3.4	15.1
2:22 PM	9.07	10.32	13.7	9	0.56	3.4	15.3
2:23 PM	9.1	10.29	9.2	8.99	0.57	3.4	15.3
2:24 PM	8.98	10.4	14.8	8.97	0.59	3.4	14.6
2:25 PM	8.97	10.41	8.1	8.88	0.58	3.4	14.5
2:26 PM	8.94	10.44	12.7	8.87	0.6	3.5	14.8
2:27 PM	8.8	10.56	7.9	8.82	0.61	3.5	15.5
2:28 PM	8.92	10.46	19.4	8.78	0.62	3.5	15.6
2:29 PM	8.84	10.54	19.6	8.76	0.61	3.5	15.1
2:30 PM	8.74	10.63	10.7	8.71	0.59	3.6	15.5
2:31 PM	8.78	10.57	12.4	8.68	0.58	3.6	16.4

2:32 PM	8.73	10.62	23.2	8.65	0.58	3.6	16.4
2:33 PM	8.8	10.56	21.2	8.72	0.58	3.6	16.3
2:34 PM	8.84	10.52	18.5	8.76	0.6	3.6	15.7
2:35 PM	8.88	10.48	11.4	8.79	0.61	3.6	16.6
2:36 PM	8.97	10.4	14.5	8.87	0.62	3.6	16.6
2:37 PM	8.87	10.51	9	8.87	0.63	3.6	16.4
2:38 PM	8.77	10.58	10.6	8.76	0.64	3.6	16.4
2:39 PM	8.96	10.42	17.9	8.86	0.65	3.6	16
2:40 PM	8.97	10.43	12.3	8.83	0.67	3.7	16.6
2:41 PM	8.92	10.48	16.6	8.89	0.66	3.7	16.4
2:42 PM	8.95	10.43	10.1	8.82	0.63	3.7	16.4
2:43 PM	9.03	10.37	14.9	8.95	0.61	3.7	16
2:44 PM	9	10.39	10.4	8.94	0.6	3.7	15.7
2:45 PM	9.05	10.35	9.9	8.98	0.6	3.7	16.1
2:46 PM	9.06	10.33	18.6	8.98	0.6	3.7	15.7
2:47 PM	8.63	10.73	13.1	8.85	0.62	3.8	15.4
2:48 PM	9.26	10.13	15.8	8.89	0.62	3.8	15.2
2:49 PM	9	10.39	12.1	9.05	0.63	3.8	15.4
2:50 PM	8.93	10.43	16.8	8.91	0.64	3.9	14.3
2:51 PM	8.93	10.45	13.8	8.89	0.63	3.9	14
2:52 PM	8.77	10.65	16.2	8.79	0.61	3.9	14.2
2:53 PM	8.98	10.32	16.1	8.63	0.57	3.9	13.8
2:54 PM	9.04	10.36	11.7	9.11	0.58	3.9	13.8
2:55 PM	9.11	10.27	14	9	0.59	3.9	13.9
2:56 PM	9.15	10.27	10.6	9.11	0.54	3.9	14.2
2:57 PM	9.07	10.33	10.8	9.06	0.49	4	13.8
2:58 PM	8.98	10.41	11.1	9	0.49	4	13.6
2:59 PM	8.91	10.48	11.5	8.88	0.47	4	13.6
3:00 PM	8.69	10.64	11.5	8.69	0.48	4	14.1
3:01 PM	9.01	10.37	12.9	8.89	0.46	4	14.1
3:02 PM	8.67	10.68	11.5	8.78	0.47	4	14
3:03 PM	8.67	10.64	19.9	8.57	0.48	4.1	14
3:04 PM	8.71	10.64	19.4	8.66	0.51	4.1	13.9
3:05 PM	8.7	10.65	13.5	8.65	0.5	4.1	14.1
3:06 PM	8.59	10.73	16.4	8.6	0.49	4.1	13.8
3:07 PM	8.66	10.66	14.2	8.56	0.48	4.1	14.2
3:08 PM	8.55	10.76	20.5	8.56	0.49	4.1	13.8
3:09 PM	8.3	10.99	14.5	8.38	0.51	4.2	14.6
3:10 PM	8.85	10.47	27	8.55	0.51	4.2	15
3:11 PM	8.53	10.77	19.2	8.71	0.53	4.2	14.7
3:12 PM	8.53	10.75	27.1	8.45	0.54	4.2	14.5
3:13 PM	8.71	10.62	14.4	8.61	0.54	4.2	15
3:14 PM	8.75	10.59	20.4	8.69	0.53	4.2	15
3:15 PM	8.72	10.62	12.7	8.71	0.52	4.2	15
3:16 PM	8.46	10.87	12.1	8.69	0.53	4.2	15.3
3:17 PM	8.96	10.38	12.6	8.53	0.53	4.2	17.6
3:18 PM	8.81	10.55	14.5	8.98	0.54	4.2	14.4
3:19 PM	8.45	10.83	17.9	8.49	0.56	4.2	14.8
3:20 PM	8.43	10.85	22.4	8.42	0.58	4.2	15.6
3:21 PM	8.51	10.79	23.3	8.43	0.57	4.2	15.8
3:22 PM	8.43	10.85	14.5	8.39	0.55	4.2	15.7
3:23 PM	8.38	10.89	18.4	8.42	0.54	4.3	15.7

3:24 PM	8.99	10.39	25.5	8.64	0.53	4.3	15.4
3:25 PM	8.77	10.55	10.4	8.86	0.54	4.3	16.1
3:26 PM	8.64	10.63	17.2	8.66	0.54	4.3	16.3
3:27 PM	8.7	10.58	24.6	8.66	0.56	4.3	15.6
3:28 PM	8.8	10.5	16.7	8.7	0.56	4.3	15.1
3:29 PM	8.92	10.4	19.3	8.85	0.54	4.3	14.8
3:30 PM	8.92	10.41	18.6	8.88	0.52	4.3	15.5
3:31 PM	8.95	10.38	14.5	8.9	0.46	4.3	15.6
3:32 PM	8.54	10.73	18.2	8.9	0.46	4.4	15.3
3:33 PM	9.06	10.31	17.9	8.65	0.46	4.4	14.7
3:34 PM	9.67	9.85	15.5	9.05	0.44	4.4	15.3
3:35 PM	10.66	8.97	19.6	10.27	0.35	4.4	14.4
3:36 PM	10.74	8.8	14.5	10.77	0.32	4.4	13.5
3:37 PM	10.79	8.75	11.1	10.68	0.3	4.4	12.2
3:38 PM	10.8	8.75	7.9	10.69	0.29	4.4	12.1
3:39 PM	10.85	8.7	13.5	10.76	0.31	4.4	11.8
3:40 PM	10.79	8.77	8.5	10.76	0.34	4.4	11.5
3:41 PM	10.93	8.66	8.9	10.86	0.36	4.4	11.4
3:42 PM	10.77	8.79	12.2	10.73	0.36	4.4	11.2
3:43 PM	10.75	8.81	9.3	10.67	0.35	4.4	11.3
3:44 PM	10.63	8.92	9.7	10.6	0.35	4.4	11.6
3:45 PM	10.68	8.86	16.8	10.53	0.36	4.4	11.6
3:46 PM	10.63	8.9	11.2	10.63	0.38	4.4	12
3:47 PM	10.81	8.74	14.9	10.65	0.4	4.4	11.3
3:48 PM	10.65	8.88	5	10.69	0.42	4.4	11.2
3:49 PM	11.14	8.51	5.6	10.76	0.43	4.4	11.7
3:50 PM	10.88	8.68	9.3	10.91	0.43	4.4	11.4
3:51 PM	10.76	8.79	6.7	10.77	0.42	4.4	10.7
3:52 PM	10.65	8.89	11	10.62	0.41	4.4	10.1
3:53 PM	10.6	8.93	8.8	10.48	0.4	4.4	10.4
3:54 PM	10.53	9.01	8.6	10.57	0.41	4.4	10.5
3:55 PM	10.53	9	13.7	10.45	0.42	4.4	10.2
3:56 PM	10.58	8.93	8.7	10.41	0.44	4.4	10.6
3:57 PM	10.73	8.82	11.5	10.63	0.46	4.5	10.6
3:58 PM	10.78	8.76	8.6	10.66	0.47	4.5	10
3:59 PM	10.62	8.94	6.1	10.67	0.47	4.5	10.1
4:00 PM	10.53	9	11	10.44	0.45	4.5	10.9
4:01 PM	10.45	9.1	13.5	10.46	0.44	4.5	11.2
4:02 PM	10.12	9.39	12.6	10.27	0.44	4.5	10.8
4:03 PM	10.41	9.11	11.6	10.23	0.44	4.5	10.8
4:04 PM	10.22	9.29	12.1	10.16	0.46	4.5	10.8
4:05 PM	10.41	9.09	21.5	10.22	0.48	4.5	10.9
4:06 PM	10.69	8.84	16.5	10.5	0.49	4.5	10.9
4:07 PM	10.68	8.85	8.9	10.63	0.5	4.5	10.9
4:08 PM	10.6	8.95	9.5	10.6	0.48	4.5	10.7
4:09 PM	10.62	8.92	5.8	10.51	0.46	4.5	11.1
4:10 PM	10.54	9.01	8.7	10.52	0.44	4.5	11.4
4:11 PM	10.35	9.19	8.5	10.41	0.43	4.5	11.1
4:12 PM	9.9	9.55	13.5	10.11	0.57	4.5	11.5
4:13 PM	9.96	9.58	25	9.89	0.78	4.6	12.4
4:14 PM	10.06	9.42	14.4	9.89	0.79	4.6	12.8
4:15 PM	10.22	9.29	16.8	10.12	0.64	4.6	12.3

4:16 PM	10.28	9.23	14	10.22	0.46	4.6	12.1
4:17 PM	10.37	9.14	11.4	10.24	0.39	4.6	12.3
4:18 PM	10.4	9.13	16.7	10.35	0.34	4.6	12.4
4:19 PM	10.39	9.16	11.8	10.35	0.3	4.7	12.4
4:20 PM	10.42	9.08	11.2	10.23	0.26	4.7	12
4:21 PM	10.32	9.19	11	10.38	0.26	4.7	11.4
4:22 PM	10.35	9.21	15.8	10.3	0.25	4.7	11.3
4:23 PM	10.3	9.2	15.1	10.17	0.23	4.7	11.5
4:24 PM	10.39	9.1	13.5	10.3	0.23	4.7	11.8
4:25 PM	10.62	8.91	12.8	10.46	0.22	4.8	11.4
4:26 PM	10.71	8.85	17.3	10.62	0.23	4.8	10.6
4:27 PM	10.69	8.85	9.9	10.58	0.23	4.8	10.4
Average	9.64	9.78	13.37	9.58	0.47	3.97	13.92

Thomas Z. Osborne (City of Greensboro) 1/19/2010

Section 114 Testing - ES #1

RUN 3

Time	O2 (%)	CO2 (%)	CO ppm	O2 Therm	THC ppm	SO2 ppm	NOx ppm
4:41 PM	6.89	12.18	19.8	6.94	0.41	6.1	13.3
4:42 PM	6.95	12.11	9.7	6.88	0.5	7.4	13.8
4:43 PM	7.12	11.96	16	7.04	0.42	8.2	13.8
4:44 PM	7.39	11.73	11	7.27	0.43	8.7	13.8
4:45 PM	7.43	11.72	10.8	7.44	0.36	8.9	14.1
4:46 PM	7.27	11.87	7.4	7.34	0.49	9.1	14.6
4:47 PM	7.23	11.91	11.3	7.26	0.44	9.2	14.7
4:48 PM	7.03	12.07	9.8	7.11	0.48	9.3	14.4
4:49 PM	6.93	12.18	11.4	7	0.47	9.4	14.5
4:50 PM	6.79	12.29	9.5	6.86	0.53	9.6	14.3
4:51 PM	6.86	12.23	14	6.82	0.48	9.8	14.7
4:52 PM	6.87	12.22	10.9	6.87	0.4	10	15.4
4:53 PM	6.96	12.13	7.8	6.91	0.35	10.2	15.6
4:54 PM	7.09	12.04	6.4	7.06	0.43	10.3	15.6
4:55 PM	6.85	12.24	13.1	6.99	0.47	10.4	15.6
4:56 PM	6.72	12.37	12.6	6.81	0.58	10.5	15.9
4:57 PM	6.59	12.47	19.2	6.69	0.61	10.7	16.3
4:58 PM	6.38	12.66	19.7	6.51	0.81	10.9	17
4:59 PM	6.44	12.6	29	6.42	0.71	11.1	17.5
5:00 PM	6.59	12.46	24.5	6.48	0.74	11.3	17.8
5:01 PM	6.78	12.3	26.7	6.72	0.51	11.5	17.8
5:02 PM	6.97	12.11	15.1	6.85	0.53	11.7	17.6
5:03 PM	7.26	11.86	15.4	7.13	0.35	11.8	17.1
5:04 PM	7.27	11.86	6.7	7.3	0.37	11.8	16.6
5:05 PM	7.3	11.84	8.2	7.29	0.34	11.8	16.4
5:06 PM	7.24	11.9	6.5	7.33	0.33	11.8	16.3
5:07 PM	6.88	12.25	6.5	7.08	0.42	11.7	15.8
5:08 PM	6.58	12.49	10.7	6.74	0.51	11.7	15.6
5:09 PM	6.54	12.51	16.6	6.53	0.76	11.8	16.1
5:10 PM	6.68	12.38	28.4	6.61	0.65	11.9	16.9
5:11 PM	6.97	12.12	21.9	6.83	0.45	12	17.3
5:12 PM	7.27	11.86	11.4	7.12	0.47	12.1	16.8
5:13 PM	7.53	11.62	12.1	7.42	0.39	12.2	15.5
5:14 PM	7.62	11.54	8.8	7.59	0.65	12.1	14.5
5:15 PM	7.61	11.57	7.7	7.65	0.39	12.1	13.8
5:16 PM	7.44	11.73	8.2	7.52	0.42	12.1	13.1
5:17 PM	7.1	12.03	13.9	7.27	0.56	12	13.1
5:18 PM	6.99	12.14	19.3	7.05	0.46	12	13.9
5:19 PM	6.9	12.2	14.7	6.96	0.49	12	14.1
5:20 PM	7.05	12.04	14.9	6.98	0.51	12	14
5:21 PM	7.46	11.67	16.8	7.27	0.39	12	13.9
5:22 PM	7.69	11.47	8.9	7.58	0.35	11.9	13
5:23 PM	7.63	11.56	9.8	7.71	0.51	11.9	12.3
5:24 PM	7.45	11.71	12.7	7.55	0.55	11.8	12.2
5:25 PM	7.48	11.65	11	7.42	0.32	11.8	12.2
5:26 PM	7.62	11.5	9.3	7.53	-0.78	11.8	11.9
5:27 PM	8.11	11.12	10.7	7.9	-2.04	11.7	11.9
5:28 PM	7.99	11.21	13.5	8.07	-1.99	11.7	12.1

5:29 PM	8.14	11.06	10.4	8.02	-1.97	11.6	12.2
5:30 PM	10.27	8.83	9.7	8.46	-1.97	11.6	11.3
5:31 PM	13.16	6.19	5.9	12.07	-1.96	11.5	7.3
5:32 PM	13.65	6.36	4	13.42	-1.96	11.5	7.2
5:33 PM	13.79	6.31	3.6	13.71	-1.96	11.5	7.1
5:34 PM	13.61	6.48	4.8	13.57	-1.96	11.5	7.1
5:35 PM	13.6	6.46	4.5	13.56	-1.96	11.4	7.2
5:36 PM	13.57	6.44	7.6	13.49	-1.96	11.3	7.2
5:37 PM	13.52	6.48	8.5	13.47	-1.96	11.2	7.3
5:38 PM	13.35	6.64	6.4	13.33	-1.96	11.1	7.6
5:39 PM	13.25	6.72	8.3	13.21	-1.96	11	7.9
5:40 PM	13.13	6.8	9.4	13.03	-1.96	10.9	7.9
5:41 PM	13.47	6.5	11.2	13.26	-1.97	10.8	7.9
5:42 PM	13.61	6.38	8.3	13.43	-1.96	10.6	8
5:43 PM	13.58	6.42	5.7	13.44	-1.96	10.5	7.9
5:44 PM	13.45	6.55	7.2	13.41	-1.96	10.4	7.6
5:45 PM	13.43	6.55	7.5	13.28	-1.96	10.4	7.9
5:46 PM	13.31	6.67	11.8	13.3	-1.96	10.3	8.2
5:47 PM	13.19	6.76	14.8	13.15	-1.96	10.2	8.4
5:48 PM	13.29	6.67	14.1	13.16	-1.96	10.1	8.4
5:49 PM	13.5	6.46	10.9	13.25	-1.96	10	8.3
5:50 PM	13.44	6.53	7	13.34	-1.96	9.9	8.3
5:51 PM	13.67	6.34	8.1	13.47	-1.96	9.8	8.4
5:52 PM	13.74	6.24	6.7	13.52	-1.96	9.7	8.2
5:53 PM	13.88	5.99	3.4	13.59	-1.96	9.6	9.1
5:54 PM	14.76	5.38	6.6	14.34	-1.96	9.6	10.7
5:55 PM	14.31	5.75	3.5	14.32	-1.96	9.5	10.5
5:56 PM	14.09	5.94	2.7	14.06	-1.96	9.4	9.1
5:57 PM	13.98	6.03	6.5	13.89	-1.96	9.3	8.2
5:58 PM	14	6	4.6	13.82	-1.96	9.3	8.7
5:59 PM	13.98	6.03	4.2	13.92	-1.96	9.2	8.7
6:00 PM	14.04	5.97	6.8	13.83	-1.96	9.1	8.3
6:01 PM	14.08	5.94	2.9	13.92	-1.96	9	8.3
6:02 PM	14.11	5.91	2.7	13.98	-1.96	9	8.3
6:03 PM	14.14	5.85	3.2	13.95	-1.97	8.9	9.8
6:04 PM	14.3	5.78	4.5	14.17	-1.96	8.8	11
6:05 PM	14.31	5.71	7.2	13.96	-1.96	8.8	9.7
6:06 PM	15.14	4.92	4.8	14.54	-1.96	8.7	9.2
6:07 PM	15.66	4.52	1.3	15.29	-1.96	8.7	8.2
6:08 PM	16	4.21	0.9	15.64	-1.96	8.6	6.3
6:09 PM	15.84	4.41	2	15.84	-1.96	8.6	5.5
6:10 PM	15.24	4.94	2	15.4	-1.96	8.5	5.4
6:11 PM	14.58	5.55	1.8	14.78	-1.96	8.5	5.6
6:12 PM	14.01	6.06	3.9	14.15	-1.97	8.4	6.1
6:13 PM	13.62	6.39	14.3	13.63	-1.96	8.4	6.7
6:14 PM	13.64	6.37	12.1	13.46	-1.97	8.3	7.2
6:15 PM	13.54	6.46	12.6	13.44	-1.96	8.3	7.6
6:16 PM	13.34	6.63	23.8	13.27	-1.97	8.2	7.9
6:17 PM	13.29	6.69	30.9	13.18	-1.96	8.2	8.1
6:18 PM	13.23	6.73	18.5	13.07	-1.96	8.2	8.1
6:19 PM	13.31	6.66	17.7	13.12	-1.96	8.1	8
6:20 PM	13.46	6.52	20.6	13.25	-1.96	8.1	7.8

6:21 PM	13.54	6.45	7.9	13.39	-1.96	8	7.4
6:22 PM	13.6	6.39	7.5	13.44	-1.96	8	7
6:23 PM	13.54	6.46	3.9	13.43	-1.96	7.9	6.9
6:24 PM	13.44	6.55	5	13.37	-1.96	7.9	7.1
6:25 PM	13.39	6.6	6.8	13.3	-1.96	7.9	7.3
6:26 PM	13.33	6.64	4.4	13.2	-1.96	7.8	7.5
6:27 PM	13.32	6.67	8.1	13.22	-1.96	7.8	7.7
6:28 PM	13.34	6.66	8.2	13.14	-1.96	7.7	7.8
6:29 PM	13.42	6.56	5.3	13.22	-1.96	7.7	8.1
6:30 PM	13.49	6.51	4.2	13.32	-1.96	7.7	8.1
6:31 PM	13.5	6.5	6.1	13.38	-1.96	7.6	7.8
6:32 PM	13.53	6.48	4.2	13.34	-1.96	7.6	7.7
6:33 PM	13.5	6.51	3.8	13.37	-1.96	7.6	8
6:34 PM	13.34	6.65	5.7	13.28	-1.96	7.5	8.1
6:35 PM	13.24	6.76	10.3	13.17	-1.96	7.5	8.3
6:36 PM	13.04	6.93	8.3	12.97	-1.96	7.5	8.6
6:37 PM	13.03	6.92	12.8	12.89	-1.96	7.4	8.3
6:38 PM	13.06	6.89	10.5	12.89	-1.96	7.4	8.5
6:39 PM	13.31	6.66	20.4	13.07	-1.96	7.4	8.4
6:40 PM	13.45	6.54	3.4	13.27	-1.96	7.4	8.4
6:41 PM	13.39	6.59	3.1	13.28	-1.96	7.3	8.2
6:42 PM	13.41	6.59	3.2	13.32	-1.96	7.3	8.3
6:43 PM	13.42	6.57	4.4	13.28	-1.96	7.3	8.4
6:44 PM	13.34	6.65	6.7	13.27	-1.96	7.3	8.5
6:45 PM	13.3	6.68	5.3	13.17	-1.96	7.2	8.5
6:46 PM	13.18	6.79	3.5	13.13	-1.96	7.2	9.1
6:47 PM	13.17	6.8	8.5	13.01	-1.96	7.2	9.1
6:48 PM	13.15	6.82	6.9	13.05	-1.96	7.2	8.9
6:49 PM	13.3	6.68	4.9	13.05	-1.96	7.1	8.8
6:50 PM	13.38	6.64	6.2	13.22	-1.96	7.1	8.6
6:51 PM	13.41	6.59	3.3	13.24	-1.96	7.1	8.2
6:52 PM	13.43	6.58	4.8	13.28	-1.96	7.1	7.8
6:53 PM	13.34	6.65	5	13.21	-1.97	7	7.9
6:54 PM	13.3	6.71	5.4	13.24	-1.96	7	8.3
6:55 PM	13.17	6.82	5.4	13.09	-1.96	7	8.5
6:56 PM	13.08	6.9	10.6	12.97	-1.96	7	8.6
6:57 PM	13.07	6.89	8.7	12.9	-1.96	7	8.6
6:58 PM	13.12	6.86	7.8	12.96	-1.97	6.9	8.4
6:59 PM	13.09	6.87	6.8	12.96	-1.96	6.9	8.2
7:00 PM	13.31	6.66	6.9	13.08	-1.96	6.9	7.9
7:01 PM	13.36	6.63	5.2	13.17	-1.96	6.9	7.7
7:02 PM	13.38	6.62	7.5	13.27	-1.96	6.8	7.9
7:03 PM	13.44	6.55	6.1	13.23	-1.96	6.8	8.2
7:04 PM	13.41	6.62	4	13.32	-1.96	6.8	8.2
7:05 PM	13.31	6.69	6.8	13.22	-1.96	6.8	7.6
7:06 PM	13.1	6.85	8.6	13.02	-1.96	6.8	7.7
7:07 PM	13.22	6.76	12.1	13.05	-1.96	6.7	8
7:08 PM	13.28	6.7	9.4	13.11	-1.96	6.7	7.9
7:09 PM	13.42	6.58	7.2	13.19	-1.96	6.7	7.9
7:10 PM	13.57	6.43	8.9	13.36	-1.96	6.7	7.7
7:11 PM	13.63	6.39	7.4	13.43	-1.96	6.7	7.4
7:12 PM	13.65	6.37	3	13.51	-1.96	6.7	7.4

7:13 PM	13.67	6.36	3.5	13.53	-1.96	6.7	7.1
7:14 PM	13.77	6.26	4.5	13.56	-1.96	6.6	6.7
7:15 PM	13.53	6.5	2.9	13.51	-1.96	6.6	6.7
7:16 PM	13.32	6.68	6.1	13.32	-1.96	6.6	6.9
7:17 PM	13.29	6.71	6	13.2	-1.96	6.6	7
7:18 PM	13.31	6.66	8.6	13.13	-1.96	6.6	7.2
7:19 PM	13.33	6.65	6.6	13.23	-1.96	6.6	7.1
7:20 PM	13.45	6.54	6.9	13.23	-1.96	6.5	7
7:21 PM	13.47	6.52	4.5	13.38	-1.96	6.5	7
7:22 PM	13.47	6.52	4.5	13.41	-1.96	6.5	6.9
7:23 PM	13.52	6.47	8	13.37	-1.96	6.5	7
7:24 PM	13.45	6.55	4.1	13.4	-1.96	6.5	7.2
7:25 PM	13.44	6.56	4.5	13.35	-1.96	6.5	7.2
7:26 PM	13.47	6.53	6.9	13.29	-1.96	6.5	7.4
7:27 PM	13.38	6.61	3.7	13.35	-1.96	6.4	7.5
7:28 PM	13.28	6.74	4.1	13.24	-1.96	6.4	7.1
7:29 PM	13.37	6.6	5.3	13.12	-1.96	6.4	7.1
7:30 PM	13.18	6.74	4.6	13.16	-1.96	6.4	7.2
7:31 PM	13.42	6.62	4.2	13.25	-1.96	6.4	7.1
7:32 PM	13.34	6.67	6.1	13.25	-1.96	6.4	7.3
7:33 PM	15.21	4.58	4.5	13.12	-1.96	6.4	7.5
Average	11.74	8.00	8.80	11.62	0.48	8.91	9.86

Thomas Z. Osborne (City of Greensboro) 1/20/2010

Section 114 Testing - ES #1

RUN 4

Time	O2 (%)	CO2 (%)	CO ppm	O2 Therm	THC ppm	SO2 ppm	NOx ppm
8:36 AM	8.58	11.55	5.2	8.19	0.55	7.4	27
8:37 AM	8.66	11.31	3	8.82	0.55	7.8	26.5
8:38 AM	8.68	10.95	3.9	8.69	0.55	7.6	26.9
8:39 AM	8.69	10.51	5	8.72	0.55	7.3	27.9
8:40 AM	8.76	10.45	4.6	8.82	0.55	6.7	28.2
8:41 AM	8.76	10.44	2.8	8.81	0.55	6.2	27.8
8:42 AM	8.83	10.38	3.1	8.84	0.55	5.8	26.6
8:43 AM	8.64	10.55	3.3	8.76	0.55	5.5	27.8
8:44 AM	8.58	10.58	4.1	8.62	0.55	5.1	28.5
8:45 AM	8.6	10.59	4	8.61	0.55	4.8	28.3
8:46 AM	8.62	10.55	3.6	8.56	0.55	4.6	29.7
8:47 AM	8.65	10.53	5.2	8.7	0.55	4.3	28.6
8:48 AM	8.53	10.64	4.9	8.58	0.55	4.1	28.4
8:49 AM	8.4	10.74	7.4	8.43	0.55	3.9	26.3
8:50 AM	8.45	10.7	9.7	8.45	0.55	3.8	24.9
8:51 AM	8.48	10.66	5.4	8.42	0.55	3.6	24
8:52 AM	8.51	10.62	8.8	8.49	0.55	3.5	27.5
8:53 AM	8.51	10.65	4.5	8.49	0.55	3.4	26.1
8:54 AM	8.52	10.65	5.2	8.49	0.55	3.3	28.2
8:55 AM	8.52	10.63	7.1	8.48	0.55	3.2	26.4
8:56 AM	8.49	10.67	4.4	8.49	0.55	3.1	24.8
8:57 AM	8.39	10.74	5.3	8.41	0.55	3	25.8
8:58 AM	8.37	10.75	10.1	8.34	0.55	2.9	25.5
8:59 AM	8.36	10.77	6.4	8.32	0.55	2.8	31.5
9:00 AM	8.29	10.82	10.3	8.27	0.55	2.8	26
9:01 AM	8.32	10.79	5.3	8.25	0.55	2.7	30.6
9:02 AM	8.33	10.79	6.5	8.32	0.55	2.6	25.6
9:03 AM	8.24	10.86	6.7	8.24	0.55	2.6	28.1
9:04 AM	8.29	10.81	10.3	8.22	0.55	2.5	24.4
9:05 AM	8.36	10.73	8.8	8.23	0.55	2.5	24.3
9:06 AM	8.43	10.7	5.5	8.39	0.55	2.4	25.2
9:07 AM	8.46	10.67	7.6	8.37	0.55	2.4	25.3
9:08 AM	8.44	10.71	8.3	8.43	0.55	2.3	25.2
9:09 AM	8.41	10.73	4.7	8.36	0.55	2.3	27.7
9:10 AM	8.34	10.78	5.8	8.3	0.55	2.2	26.3
9:11 AM	8.3	10.81	8.4	8.28	0.55	2.2	29.8
9:12 AM	8.25	10.86	7.6	8.21	0.55	2.2	24.7
9:13 AM	8.5	10.61	5.9	8.27	0.55	2.1	29.6
9:14 AM	8.45	10.7	4.1	8.5	0.55	2.1	28.9
9:15 AM	8.6	10.54	9.1	8.41	0.55	2	26.1
9:16 AM	8.5	10.68	5.4	8.53	0.55	2	28.6
9:17 AM	8.37	10.74	5.2	8.32	0.55	2	30.7
9:18 AM	8.48	10.67	5.9	8.38	0.55	2	27.2
9:19 AM	8.39	10.76	6.6	8.37	0.55	1.9	27.6
9:20 AM	8.22	10.88	5.6	8.23	0.55	1.9	27.5
9:21 AM	8.36	10.76	7.8	8.22	0.55	1.9	26.9
9:22 AM	8.33	10.8	5.1	8.29	0.55	1.9	28.6
9:23 AM	8.36	10.77	9.2	8.26	0.55	1.8	25.1

9:24 AM	8.21	10.89	5.2	8.22	0.55	1.8	29.8
9:25 AM	8.13	10.97	8	8.13	0.55	1.8	26.2
9:26 AM	7.98	11.09	7.3	7.97	0.55	1.8	30.7
9:27 AM	7.97	11.08	16	7.88	0.55	1.7	25.4
9:28 AM	7.8	11.23	11.6	7.84	0.55	1.7	29
9:29 AM	7.91	11.13	8.1	7.78	0.55	1.7	27.4
9:30 AM	8.07	10.99	13	7.85	0.55	1.7	26.1
9:31 AM	8.35	10.77	7.3	8.17	0.55	1.7	28.5
9:32 AM	8.31	10.81	6.2	8.28	0.55	1.7	27
9:33 AM	8.47	10.68	12	8.3	0.55	1.6	29
9:34 AM	8.44	10.71	4.5	8.38	0.55	1.6	29.3
9:35 AM	8.28	10.87	6.2	8.32	0.55	1.6	30.9
9:36 AM	8.02	11.06	8.8	8.05	0.55	1.6	26.7
9:37 AM	7.89	11.17	12.2	7.88	0.55	1.6	28.6
9:38 AM	7.84	11.18	17.6	7.76	0.55	1.6	26.3
9:39 AM	7.86	11.17	12.8	7.75	0.55	1.5	26.2
9:40 AM	8.02	11.04	14.5	7.86	0.55	1.5	26.2
9:41 AM	8.32	10.79	11.5	8.08	0.55	1.5	30.2
9:42 AM	8.58	10.59	5.7	8.39	0.55	1.5	27.3
9:43 AM	8.67	10.52	3	8.52	0.55	1.5	30.8
9:44 AM	8.55	10.64	5.6	8.59	0.55	1.5	27.4
9:45 AM	8.38	10.79	6.9	8.35	0.55	1.5	25.5
9:46 AM	8.05	11.06	8.9	8.15	0.55	1.5	31.1
9:47 AM	7.55	11.49	10	7.79	0.55	1.5	24.5
9:48 AM	7.1	11.88	25.5	7.2	0.55	1.4	27
9:49 AM	7.61	11.29	23.1	7.06	0.55	1.4	26
9:50 AM	9.29	9.9	13.8	8.37	0.55	1.4	23.9
9:51 AM	9.74	9.64	2.8	9.6	0.55	1.4	24.3
9:52 AM	8.99	10.32	3.2	9.37	0.55	1.4	22.2
9:53 AM	8.24	10.91	4.2	8.49	0.55	1.4	27.4
9:54 AM	7.9	11.16	11.7	7.96	0.55	1.4	25.1
9:55 AM	7.71	11.31	13.6	7.75	0.55	1.4	24.7
9:56 AM	7.64	11.35	25.1	7.59	0.55	1.4	24.7
9:57 AM	7.65	11.34	18.9	7.62	0.55	1.4	24.3
9:58 AM	7.33	11.65	12.3	7.47	0.55	1.4	23.8
9:59 AM	7.02	11.89	21.1	7.11	0.55	1.4	23.9
10:00 AM	7.48	11.4	28.6	7.07	0.55	1.3	24.7
10:01 AM	8.46	10.64	15.5	8.04	0.56	1.3	23.2
10:02 AM	8.19	10.91	7.5	8.4	0.55	1.3	22.2
10:03 AM	7.96	11.07	9.6	8.03	0.55	1.3	22.6
10:04 AM	7.87	11.13	11.9	7.86	0.55	1.3	23
10:05 AM	8.16	10.89	9.7	7.98	0.55	1.3	23.3
10:06 AM	8.36	10.73	7	8.26	0.55	1.3	22.7
10:07 AM	8.46	10.67	5.9	8.39	0.55	1.3	21.8
10:08 AM	8.34	10.77	6.7	8.39	0.55	1.3	20.9
10:09 AM	8.15	10.93	8.2	8.25	0.55	1.3	21.1
10:10 AM	7.97	11.08	10.7	8.03	0.55	1.3	21.5
10:11 AM	7.88	11.15	9.8	7.89	0.55	1.3	22.1
10:12 AM	7.86	11.15	8.9	7.78	0.55	1.3	21.8
10:13 AM	8.02	11.01	11.9	7.93	0.55	1.3	21.6
10:14 AM	8.26	10.82	9.9	8.06	0.55	1.3	21.5
10:15 AM	8.53	10.6	8.7	8.39	0.55	1.3	20.8

10:16 AM	8.79	10.39	7.6	8.61	0.55	1.3	20
10:17 AM	8.93	10.29	7.1	8.83	0.55	1.3	22.8
10:18 AM	9.05	10.17	4.4	8.93	0.55	1.3	21.8
10:19 AM	8.99	10.24	7.9	9.01	0.55	1.3	20
10:20 AM	8.88	10.34	4	8.9	0.55	1.3	24.1
10:21 AM	8.73	10.48	4.7	8.78	0.55	1.3	19.4
10:22 AM	8.55	10.63	3.3	8.62	0.55	1.2	24.7
10:23 AM	8.5	10.65	7.8	8.43	0.56	1.2	20.9
10:24 AM	8.57	10.58	9.7	8.48	0.56	1.2	24
10:25 AM	8.8	10.4	4.2	8.63	0.55	1.2	22.8
10:26 AM	8.78	10.43	7	8.76	0.55	1.2	19
10:27 AM	8.86	10.34	3.8	8.74	0.55	1.2	20.2
10:28 AM	8.91	10.31	5.1	8.85	0.55	1.2	20.8
10:29 AM	8.95	10.28	3.1	8.86	0.55	1.2	21
10:30 AM	8.79	10.44	3.6	8.87	0.55	1.2	23.3
10:31 AM	8.64	10.56	5.8	8.66	0.55	1.2	19.8
10:32 AM	8.39	10.75	4.3	8.44	0.56	1.2	20
10:33 AM	8.52	10.63	8.5	8.38	0.55	1.2	20.5
10:34 AM	8.58	10.6	6.4	8.57	0.56	1.2	20.2
10:35 AM	8.35	10.79	6.4	8.4	0.56	1.2	20.1
10:36 AM	8.23	10.88	10.6	8.24	0.56	1.2	20.5
10:37 AM	8.24	10.88	9.3	8.16	0.55	1.2	20.5
10:38 AM	8.27	10.84	9.3	8.19	0.56	1.2	20.3
10:39 AM	8.44	10.69	10.4	8.32	0.56	1.2	19.6
10:40 AM	8.49	10.66	7.9	8.46	0.56	1.2	23
10:41 AM	8.38	10.76	6.3	8.39	0.56	1.2	19.5
10:42 AM	8.37	10.76	9.2	8.31	0.56	1.2	19
10:43 AM	8.32	10.8	7.4	8.32	0.56	1.2	19
10:44 AM	8.3	10.82	11.5	8.25	0.56	1.2	18.6
10:45 AM	8.28	10.83	8.5	8.27	0.56	1.2	18.4
10:46 AM	8.35	10.77	10	8.24	0.55	1.2	18.8
10:47 AM	8.55	10.61	7.4	8.42	0.56	1.2	19
10:48 AM	8.55	10.61	7.9	8.53	0.56	1.2	21.7
10:49 AM	8.52	10.63	4.6	8.49	0.56	1.2	18.4
10:50 AM	8.58	10.58	4.8	8.48	0.56	1.2	18.4
10:51 AM	8.47	10.69	5.4	8.53	0.56	1.2	19.3
10:52 AM	8.35	10.77	4.4	8.36	0.56	1.2	19.9
10:53 AM	8.2	10.9	6.2	8.29	0.56	1.2	20.4
10:54 AM	8.35	10.75	6.3	8.16	0.56	1.2	21
10:55 AM	8.58	10.58	6.6	8.47	0.56	1.2	21.1
10:56 AM	8.58	10.58	4.4	8.54	0.56	1.2	20
10:57 AM	8.66	10.51	4	8.59	0.56	1.2	21
10:58 AM	8.65	10.51	4.4	8.64	0.56	1.2	22.7
10:59 AM	8.61	10.55	4.9	8.59	0.56	1.2	22.2
11:00 AM	8.64	10.53	5	8.6	0.56	1.2	21.2
11:01 AM	8.53	10.62	4.2	8.55	0.56	1.2	20.1
11:02 AM	8.59	10.57	5.3	8.55	0.56	1.2	20.1
11:03 AM	8.55	10.61	3.5	8.53	0.56	1.2	20.7
11:04 AM	8.39	10.74	4.9	8.47	0.56	1.2	20.2
11:05 AM	8.39	10.73	5.8	8.34	0.56	1.2	20.2
11:06 AM	8.39	10.74	6.4	8.37	0.56	1.2	19.8
11:07 AM	8.55	10.6	4.5	8.41	0.56	1.2	19.3

11:08 AM	8.45	10.69	3.5	8.49	0.56	1.2	19.7
11:09 AM	8.38	10.75	7.1	8.38	0.56	1.2	20.8
11:10 AM	8.36	10.75	8	8.31	0.56	1.2	21.2
11:11 AM	8.41	10.72	5.9	8.36	0.56	1.2	20.7
11:12 AM	8.45	10.68	4.4	8.38	0.56	1.2	20.5
11:13 AM	8.46	10.68	4.6	8.45	0.56	1.2	21
11:14 AM	8.62	10.53	4	8.49	0.56	1.2	20.6
11:15 AM	8.67	10.51	3.7	8.59	0.56	1.2	20.4
11:16 AM	8.72	10.47	3	8.69	0.56	1.2	20.6
11:17 AM	8.67	10.5	3	8.66	0.56	1.2	21
11:18 AM	8.65	10.53	4.6	8.61	0.56	1.2	20.8
11:19 AM	8.58	10.59	4.3	8.6	0.56	1.2	20
11:20 AM	8.65	10.51	5.9	8.56	0.56	1.2	19.8
11:21 AM	8.72	10.46	4.4	8.65	0.56	1.2	20
11:22 AM	8.74	10.46	3.6	8.72	0.56	1.2	20.3
11:23 AM	8.68	10.49	3	8.65	0.56	1.2	20.5
11:24 AM	8.57	10.6	4.2	8.61	0.56	1.2	20.4
11:25 AM	8.52	10.64	4.2	8.49	0.56	1.2	21.1
11:26 AM	8.58	10.58	3.8	8.51	0.56	1.2	21.7
11:27 AM	8.6	10.56	3.5	8.53	0.56	1.2	21.4
11:28 AM	8.53	10.63	4.9	8.56	0.56	1.2	20.9
11:29 AM	8.56	10.59	4.3	8.49	0.56	1.2	21.2
11:30 AM	8.6	10.56	4.2	8.55	0.56	1.2	21.1
11:31 AM	8.7	10.48	4.3	8.65	0.56	1.2	20.5
11:32 AM	8.69	10.5	4.6	8.65	0.56	1.2	20.3
11:33 AM	8.66	10.51	3.5	8.62	0.56	1.2	20.9
11:34 AM	8.62	10.57	3.7	8.65	0.56	1.2	21.5
11:35 AM	8.37	10.77	3.6	8.44	0.56	1.2	21.8
11:36 AM	8.26	10.85	6.1	8.26	0.56	1.2	21.6
11:37 AM	8.12	10.96	4.6	8.17	0.56	1.2	21.4
11:38 AM	8.09	10.98	6	8.06	0.56	1.2	21.7
11:39 AM	8.04	11.01	6.6	8.07	0.56	1.2	22
11:40 AM	7.93	11.1	6.5	7.94	0.56	1.2	22.5
11:41 AM	7.95	11.08	7.5	7.91	0.56	1.2	23.4
11:42 AM	7.97	11.06	7	7.94	0.56	1.2	24.2
11:43 AM	7.88	11.13	8.6	7.91	0.56	1.2	24.4
11:44 AM	7.96	11.06	11	7.89	0.56	1.3	23.6
11:45 AM	8.16	10.91	5.9	8.04	0.56	1.3	22.3
11:46 AM	8.21	10.87	6.7	8.16	0.56	1.3	22.2
11:47 AM	8.24	10.84	6.4	8.21	0.56	1.3	22.5
11:48 AM	8.33	10.76	5.3	8.25	0.56	1.3	22.9
11:49 AM	8.44	10.68	3.6	8.39	0.56	1.3	23.1
11:50 AM	8.44	10.68	3.8	8.43	0.56	1.3	23.5
11:51 AM	8.43	10.7	3.4	8.44	0.56	1.3	23.8
11:52 AM	8.29	10.8	5.1	8.31	0.56	1.3	24
11:53 AM	8.33	10.77	7	8.28	0.56	1.3	24.6
11:54 AM	8.33	10.78	8.2	8.34	0.56	1.3	26.3
11:55 AM	8.38	10.74	5.3	8.3	0.56	1.3	26.2
11:56 AM	8.38	10.73	4.9	8.34	0.56	1.3	28.5
11:57 AM	8.54	10.6	6.5	8.42	0.56	1.3	26.3
11:58 AM	8.59	10.57	3.5	8.54	0.56	1.3	26
11:59 AM	8.48	10.67	3.8	8.5	0.56	1.3	27.8

12:00 PM	8.57	10.6	7.1	8.45	0.56	1.3	24.5
12:01 PM	8.45	10.69	3.5	8.42	0.56	1.3	25.3
12:02 PM	8.32	10.8	4.6	8.33	0.56	1.3	30.1
12:03 PM	8.41	10.71	4.7	8.3	0.56	1.3	28.1
12:04 PM	8.38	10.74	3.9	8.34	0.56	1.3	26.1
12:05 PM	8.28	10.85	3.7	8.33	0.56	1.3	27.5
12:06 PM	8.32	10.79	9	8.22	0.56	1.4	25
12:07 PM	8.37	10.74	4.6	8.28	0.56	1.4	26.3
12:08 PM	8.37	10.76	4.4	8.38	0.56	1.4	29.6
12:09 PM	8.39	10.73	7.3	8.3	0.56	1.4	27.8
12:10 PM	8.34	10.79	4	8.35	0.56	1.4	27.2
12:11 PM	8.23	10.87	4.1	8.21	0.56	1.4	28.6
12:12 PM	8.33	10.78	5.5	8.24	0.56	1.4	27.8
12:13 PM	8.39	10.74	4.5	8.32	0.56	1.4	25.1
12:14 PM	8.32	10.79	3.3	8.32	0.56	1.4	27.3
12:15 PM	8.33	10.79	5	8.28	0.56	1.4	31.9
12:16 PM	8.38	10.73	6.8	8.26	0.56	1.4	28.9
12:17 PM	8.46	10.67	3.9	8.38	0.56	1.4	27.1
12:18 PM	8.65	10.52	3.8	8.52	0.56	1.4	30.6
12:19 PM	8.56	10.61	3.9	8.57	0.56	1.4	27.5
12:20 PM	8.5	10.64	5.1	8.47	0.56	1.4	26.7
12:21 PM	8.47	10.68	3.9	8.43	0.56	1.4	30.5
12:22 PM	8.49	10.66	5.4	8.45	0.56	1.4	29.1
12:23 PM	8.51	10.63	5.8	8.42	0.56	1.4	29
12:24 PM	8.38	10.74	4.4	8.42	0.56	1.4	31.6
12:25 PM	9.14	10.04	7.2	8.53	0.56	1.4	24.5
12:26 PM	9.59	9.74	1.7	9.48	0.56	1.4	27.6
12:27 PM	9.14	10.15	2	9.35	0.56	1.4	26.4
12:28 PM	8.6	10.59	1.4	8.81	0.56	1.4	27.1
12:29 PM	8.32	10.81	5.2	8.37	0.56	1.4	26.2
12:30 PM	8.29	10.81	6	8.25	0.56	1.4	27.9
12:31 PM	8.31	10.8	6.5	8.29	0.56	1.5	29.6
12:32 PM	8.5	10.62	5.2	8.31	0.56	1.5	26
12:33 PM	8.44	10.7	3.5	8.48	0.56	1.5	30.3
12:34 PM	8.46	10.67	5.8	8.39	0.56	1.5	26.8
12:35 PM	8.39	10.73	2.8	8.37	0.56	1.5	28.5
12:36 PM	8.29	10.82	4.5	8.34	0.56	1.5	30.4
12:37 PM	8.12	10.96	8.1	8.17	0.56	1.5	27.5
12:38 PM	8.3	10.75	5.7	8	0.56	1.5	28.9
12:39 PM	9.3	9.94	5.5	8.81	0.56	1.5	27
12:40 PM	9	10.26	1.4	9.22	0.56	1.5	28.7
12:41 PM	8.29	10.84	2.1	8.62	0.56	1.5	31.8
12:42 PM	8.19	10.89	8.5	8.12	0.56	1.5	27.6
12:43 PM	8.13	10.94	5.4	8.12	0.56	1.5	27.3
12:44 PM	8.22	10.87	7.3	8.13	0.56	1.5	29.6
12:45 PM	8.31	10.79	9.1	8.23	0.56	1.5	27.4
12:46 PM	8.33	10.77	5.7	8.27	0.56	1.5	26
12:47 PM	8.35	10.76	6	8.31	0.56	1.5	25.5
12:48 PM	8.53	10.6	5.3	8.36	0.56	1.5	25.5
12:49 PM	8.42	10.72	3.5	8.49	0.56	1.5	26
12:50 PM	8.49	10.64	4.5	8.4	0.56	1.5	25.2
12:51 PM	8.53	10.62	4.7	8.45	0.56	1.6	24.9

12:52 PM	8.53	10.61	3.3	8.47	0.56	1.6	25
12:53 PM	8.49	10.65	5.4	8.48	0.56	1.6	23.8
12:54 PM	8.35	10.77	5.4	8.43	0.56	1.6	24.9
12:55 PM	8.24	10.85	8.6	8.21	0.56	1.6	23.2
12:56 PM	7.97	11.06	5.7	8.11	0.56	1.6	23
12:57 PM	8.01	11	8.9	7.9	0.56	1.6	27.6
12:58 PM	8.64	10.5	9	8.27	0.56	1.6	24.4
12:59 PM	8.43	10.7	3.7	8.54	0.56	1.6	27.1
1:00 PM	8.25	10.83	5.2	8.33	0.56	1.6	26.9
1:01 PM	8.25	10.83	6.5	8.21	0.56	1.6	26.1
1:02 PM	8.23	10.85	5.8	8.19	0.56	1.6	24.7
1:03 PM	8.26	10.83	7.2	8.26	0.56	1.6	23.6
1:04 PM	8.26	10.79	5.6	8.17	0.56	1.6	23.3
1:05 PM	8.39	10.71	5.1	8.33	0.56	1.6	23.3
1:06 PM	8.42	10.68	8	8.37	0.56	1.6	23.7
1:07 PM	8.49	10.63	6	8.42	0.56	1.6	25.2
1:08 PM	8.47	10.65	4	8.46	0.56	1.7	25.3
1:09 PM	8.45	10.66	4.6	8.42	0.56	1.7	24.2
1:10 PM	8.44	10.67	5.3	8.4	0.56	1.7	27.2
1:11 PM	8.44	10.66	8	8.46	0.56	1.7	25.3
1:12 PM	8.5	10.62	5.2	8.42	0.56	1.7	23.7
1:13 PM	8.48	10.63	3.9	8.41	0.56	1.7	23.4
1:14 PM	8.57	10.56	5.3	8.54	0.56	1.7	29.4
1:15 PM	8.68	10.45	5.9	8.56	0.56	1.7	24.2
1:16 PM	8.75	10.41	3.7	8.69	0.56	1.7	23.1
1:17 PM	8.79	10.37	3.1	8.73	0.56	1.7	24.5
1:18 PM	8.71	10.45	3.3	8.77	0.56	1.7	24.7
1:19 PM	8.71	10.43	2.7	8.62	0.56	1.7	24.4
1:20 PM	8.69	10.45	3.2	8.72	0.56	1.7	24.5
1:21 PM	8.72	10.44	5.6	8.67	0.56	1.7	24.1
1:22 PM	8.56	10.57	3.4	8.64	0.56	1.7	24
1:23 PM	8.51	10.59	5.3	8.46	0.56	1.7	22.5
1:24 PM	8.67	10.46	4	8.57	0.56	1.7	25.9
1:25 PM	8.85	10.32	4.4	8.72	0.56	1.7	23.9
1:26 PM	8.8	10.36	2.5	8.79	0.56	1.7	21.7
1:27 PM	8.78	10.39	3.7	8.76	0.56	1.7	24.6
1:28 PM	8.7	10.45	4.7	8.74	0.56	1.7	24.7
1:29 PM	8.56	10.55	3.3	8.58	0.56	1.7	26.3
1:30 PM	8.55	10.56	4	8.55	0.56	1.7	24
1:31 PM	8.67	10.46	5.3	8.56	0.56	1.7	23.1
1:32 PM	8.67	10.46	3	8.6	0.56	1.7	21.9
1:33 PM	8.76	10.39	2.9	8.68	0.56	1.7	24.2
1:34 PM	8.95	10.22	4.7	8.83	0.56	1.7	21.6
1:35 PM	8.86	10.32	2.3	8.91	0.56	1.7	21.9
1:36 PM	8.84	10.32	2.4	8.8	0.56	1.7	24.3
1:37 PM	8.84	10.33	2.9	8.84	0.56	1.7	24.9
1:38 PM	8.76	10.4	3.4	8.75	0.56	1.7	23.8
1:39 PM	8.65	10.49	3.2	8.68	0.56	1.7	24.1
1:40 PM	8.4	10.7	3.7	8.53	0.56	1.7	24.3
1:41 PM	8.41	10.68	7.2	8.32	0.56	1.7	24.1
1:42 PM	8.36	10.73	4.6	8.37	0.56	1.7	22.7
1:43 PM	8.21	10.85	5.4	8.25	0.56	1.7	23.4

1:44 PM	8.36	10.71	5.5	8.22	0.56	1.7	22.6
1:45 PM	8.56	10.55	4.4	8.44	0.56	1.7	22.5
1:46 PM	8.81	10.34	4.2	8.69	0.56	1.7	22.2
1:47 PM	8.87	10.3	3.6	8.8	0.56	1.7	22.1
1:48 PM	8.89	10.27	2.7	8.85	0.56	1.7	22.4
1:49 PM	8.99	10.21	3.1	8.89	0.56	1.7	26.3
1:50 PM	8.8	10.37	2.2	8.88	0.56	1.8	35.1
1:51 PM	8.68	10.47	4.1	8.73	0.56	1.8	32.5
1:52 PM	8.57	10.56	5.8	8.58	0.56	1.8	26.5
1:53 PM	8.48	10.63	5.4	8.52	0.56	1.8	26.3
1:54 PM	8.32	10.76	4.5	8.37	0.56	1.8	29.1
1:55 PM	8.44	10.64	4.6	8.32	0.56	1.8	30.2
1:56 PM	8.58	10.53	5	8.47	0.56	1.8	29.1
1:57 PM	8.86	10.29	2.8	8.68	0.56	1.8	27.9
1:58 PM	8.89	10.28	3.1	8.86	0.56	1.8	26.8
1:59 PM	8.94	10.24	2.6	8.86	0.56	1.8	28.7
2:00 PM	8.99	10.2	2.1	8.96	0.56	1.8	28.5
2:01 PM	8.83	10.36	2.1	8.9	0.56	1.8	27.4
2:02 PM	8.62	10.5	2.6	8.7	0.56	1.8	29.7
2:03 PM	8.56	10.56	3.7	8.56	0.56	1.8	30.3
2:04 PM	8.58	10.54	4.2	8.55	0.56	1.8	30.5
Average	8.44	10.69	6.19	8.40	0.56	1.73	24.72

Thomas Z. Osborne (City of Greensboro) 1/20/2010
Section 114 Testing - ES #1

RUN 5

Time	O2 (%)	CO2 (%)	CO ppm	O2 Therm	THC ppm	SO2 ppm	NOx ppm
2:27 PM	8.08	11.05	6.1	8.06	0.56	7.4	27.4
2:28 PM	8.04	11.07	9.7	7.89	0.56	7.5	27.9
2:29 PM	8.19	10.96	6.2	7.92	0.56	7.4	29.4
2:30 PM	8.45	10.74	8.6	8.11	0.56	7.4	27.1
2:31 PM	8.67	10.57	5.6	8.41	0.56	7.3	28.7
2:32 PM	9.03	10.27	2.6	8.65	0.56	7.1	28.5
2:33 PM	9.16	10.17	2.3	8.9	0.56	6.9	28.8
2:34 PM	9.2	10.16	2	9.02	0.56	6.6	28
2:35 PM	9.23	10.13	1.3	9.01	0.56	6.4	31.9
2:36 PM	9.21	10.16	1.9	9.03	0.56	6.2	28.5
2:37 PM	8.9	10.45	2.3	8.95	0.56	6	29.8
2:38 PM	8.38	10.85	3.6	8.48	0.56	5.9	28.8
2:39 PM	8.06	11.11	4.6	8.04	0.56	5.8	28
2:40 PM	8	11.12	9.2	7.79	0.56	5.7	27.7
2:41 PM	8.06	11.08	7.8	7.86	0.56	5.7	28.6
2:42 PM	8.25	10.94	9	7.97	0.56	5.6	27.7
2:43 PM	8.36	10.83	6.1	8.08	0.56	5.6	27.2
2:44 PM	8.69	10.57	6.9	8.34	0.56	5.6	26.9
2:45 PM	8.88	10.43	1.6	8.58	0.56	5.5	28.7
2:46 PM	9.08	10.25	2.3	8.76	0.56	5.5	29.2
2:47 PM	9.33	10.05	2	9	0.56	5.4	28.9
2:48 PM	9.42	9.99	1.7	9.19	0.56	5.3	26.8
2:49 PM	8.95	10.43	1.4	9.04	0.56	5.2	28.6
2:50 PM	8.47	10.8	2.8	8.47	0.56	5.1	28.7
2:51 PM	8.18	11.03	3.9	8.12	0.56	5.1	31.2
2:52 PM	8.05	11.1	7.6	7.87	0.56	5	25.6
2:53 PM	8.21	10.98	13.5	7.91	0.56	5	23.5
2:54 PM	8.61	10.64	7	8.17	0.56	5	27.5
2:55 PM	8.7	10.59	5.8	8.51	0.56	5	25.6
2:56 PM	9.01	10.31	3.6	8.59	0.56	5	24.6
2:57 PM	9.36	10.02	4.1	8.94	0.56	5	24.3
2:58 PM	9.48	9.94	2.4	9.24	0.56	4.9	25.1
2:59 PM	9.54	9.9	1.6	9.25	0.56	4.9	26.2
3:00 PM	9.61	9.84	2	9.34	0.56	4.8	26.9
3:01 PM	9.16	10.26	2.3	9.3	0.56	4.8	27.1
3:02 PM	8.54	10.76	3	8.63	0.56	4.7	26.6
3:03 PM	8.11	11.09	9.8	8.06	0.56	4.7	25.5
3:04 PM	8.04	11.12	7.6	7.88	0.56	4.7	28.9
3:05 PM	8.13	11.04	13.1	7.85	0.56	4.7	23.2
3:06 PM	8.32	10.89	17	8.05	0.56	4.7	29
3:07 PM	8.54	10.7	4.7	8.21	0.56	4.7	26.2
3:08 PM	8.84	10.46	7.8	8.45	0.56	4.7	24.2
3:09 PM	9	10.35	2.6	8.72	0.56	4.7	25.5
3:10 PM	9.03	10.31	2.9	8.77	0.56	4.7	28.4
3:11 PM	9.27	10.1	2.7	8.94	0.56	4.6	27.5
3:12 PM	9.38	10.04	1.9	9.15	0.56	4.6	25.1
3:13 PM	8.98	10.39	2.7	9.04	0.56	4.6	24.9
3:14 PM	8.33	10.92	3.1	8.47	0.56	4.5	28.3

3:15 PM	8.04	11.13	9	7.95	0.56	4.5	23.9
3:16 PM	7.95	11.19	11.7	7.81	0.56	4.5	26.8
3:17 PM	7.92	11.2	9.5	7.71	0.56	4.5	25.4
3:18 PM	8.09	11.06	15.3	7.8	0.56	4.5	23.2
3:19 PM	8.17	11.01	9.7	7.97	0.56	4.5	23.2
3:20 PM	8.31	10.9	11.8	8.02	0.56	4.5	23.1
3:21 PM	8.49	10.75	6.7	8.19	0.56	4.6	24
3:22 PM	8.72	10.57	6.4	8.45	0.56	4.6	23.8
3:23 PM	8.83	10.47	3.8	8.52	0.56	4.5	23.1
3:24 PM	9.09	10.28	5.3	8.82	0.56	4.5	23.8
3:25 PM	8.51	10.79	4.3	8.66	0.56	4.5	23.9
3:26 PM	7.82	11.35	5.7	8.02	0.56	4.5	24.7
3:27 PM	7.47	11.62	16	7.39	0.56	4.5	24.5
3:28 PM	7.53	11.55	23.6	7.28	0.56	4.5	23.3
3:29 PM	7.8	11.3	17.7	7.44	0.56	4.6	22.9
3:30 PM	7.86	11.26	13.3	7.68	0.56	4.6	25.9
3:31 PM	8.05	11.11	14.7	7.75	0.56	4.6	21.9
3:32 PM	8.18	10.99	9.1	7.93	0.56	4.6	25.4
3:33 PM	8.48	10.74	8.2	8.11	0.56	4.6	23.8
3:34 PM	8.69	10.59	5.5	8.42	0.56	4.7	23.5
3:35 PM	9	10.33	5.5	8.63	0.56	4.7	22.5
3:36 PM	9.37	10.01	3.5	8.98	0.56	4.6	21.6
3:37 PM	9.42	10.01	1.9	9.27	0.56	4.6	23.7
3:38 PM	8.96	10.4	4.5	9.06	0.56	4.6	20.5
3:39 PM	8.23	11.02	4.7	8.46	0.56	4.6	26
3:40 PM	7.41	11.7	10.4	7.65	0.56	4.6	25.6
3:41 PM	7.02	12	27.9	7.01	0.56	4.6	24.3
3:42 PM	8	11.08	41	7.14	0.56	4.6	23.3
3:43 PM	8.31	10.92	12.8	8.18	0.56	4.7	20.6
3:44 PM	7.94	11.21	8.5	7.95	0.56	4.7	22.4
3:45 PM	7.84	11.26	13	7.69	0.56	4.7	21.7
3:46 PM	8.06	11.09	9.1	7.76	0.56	4.7	21.4
3:47 PM	8.23	10.95	11.9	7.96	0.56	4.7	23.3
3:48 PM	8.58	10.65	7.9	8.22	0.56	4.8	19.3
3:49 PM	8.78	10.52	6.3	8.54	0.56	4.8	21.1
3:50 PM	8.87	10.43	6.3	8.63	0.56	4.8	16.8
3:51 PM	9.04	10.31	4.6	8.79	0.56	4.8	18.4
3:52 PM	8.85	10.49	4.6	8.81	0.56	4.8	18
3:53 PM	8.11	11.12	4.7	8.37	0.56	4.7	18.2
3:54 PM	7.59	11.53	10.5	7.61	0.56	4.7	18.5
3:55 PM	7.32	11.75	24.2	7.28	0.56	4.8	19.2
3:56 PM	7.21	11.84	31.8	7.08	0.56	4.8	19.3
3:57 PM	7.44	11.61	44	7.1	0.56	4.8	20.4
3:58 PM	7.77	11.31	25.8	7.41	0.56	4.9	19.7
3:59 PM	8.1	11.06	11.6	7.78	0.56	4.9	17.5
4:00 PM	8.17	11.01	11.2	7.98	0.56	5	16.2
4:01 PM	8.44	10.79	10.8	8.11	0.56	5	16.3
4:02 PM	8.71	10.56	8.6	8.4	0.56	5	16.4
4:03 PM	8.94	10.36	7.2	8.64	0.56	5	15.6
4:04 PM	8.98	10.36	6.8	8.85	0.56	5	15.5
4:05 PM	8.79	10.52	7.6	8.71	0.56	5	14.8
4:06 PM	8.59	10.67	5.4	8.53	0.56	5	15.2

4:07 PM	8.5	10.74	9.4	8.38	0.56	5	14.9
4:08 PM	8.41	10.82	6	8.28	0.56	5	15.1
4:09 PM	8.36	10.84	12.7	8.23	0.56	5	14.9
4:10 PM	8.29	10.9	9.9	8.17	0.56	5	15.3
4:11 PM	8.42	10.79	12.2	8.22	0.56	5	15
4:12 PM	8.37	10.84	5.9	8.22	0.56	5	14.8
4:13 PM	8.5	10.72	11.1	8.25	0.56	5	15
4:14 PM	8.52	10.71	7.5	8.37	0.56	5	15.4
4:15 PM	8.84	10.44	6.5	8.49	0.56	5	15
4:16 PM	9.07	10.26	7.7	8.85	0.56	5	14.3
4:17 PM	8.7	10.68	3.8	8.79	0.56	5	14
4:18 PM	8.03	11.11	8.6	8.2	0.56	5	14.6
4:19 PM	7.92	11.19	9.3	7.74	0.56	5	15.4
4:20 PM	7.96	11.2	15	7.79	0.56	5	15.3
4:21 PM	7.84	11.26	13.8	7.7	0.56	5	15.1
4:22 PM	8.17	10.99	19.4	7.88	0.56	4.9	14.8
4:23 PM	8.37	10.84	10.8	8.08	0.56	4.9	14.5
4:24 PM	8.33	10.86	10.7	8.27	0.56	4.9	14.3
4:25 PM	8.42	10.8	12.3	8.16	0.56	4.9	14.2
4:26 PM	8.54	10.69	7.9	8.33	0.56	4.9	14.2
4:27 PM	8.63	10.62	5.5	8.42	0.56	4.8	14.1
4:28 PM	8.78	10.49	5.6	8.51	0.56	4.8	14
4:29 PM	8.58	10.71	5.1	8.62	0.56	4.8	13.7
4:30 PM	7.94	11.21	6.6	8.09	0.55	4.8	14.4
4:31 PM	7.56	11.52	17.6	7.55	0.56	4.8	14.5
4:32 PM	7.43	11.63	19.6	7.29	0.56	4.7	14.8
4:33 PM	7.23	11.83	37.3	7.17	0.56	4.7	15.5
4:34 PM	7.11	11.92	39	6.95	0.56	4.7	15.9
4:35 PM	7.08	11.94	39	6.92	0.56	4.7	15.9
4:36 PM	7.2	11.82	52.3	6.93	0.56	4.7	15.9
4:37 PM	7.49	11.58	41.1	7.16	0.56	4.7	15.5
4:38 PM	7.66	11.42	35.8	7.36	0.56	4.7	14.8
4:39 PM	7.93	11.19	18.6	7.58	0.56	4.7	14.9
4:40 PM	8.21	10.97	16.3	7.85	0.56	4.7	14.7
4:41 PM	8.48	10.76	8.9	8.1	0.56	4.7	14.3
4:42 PM	8.62	10.66	9.1	8.38	0.56	4.7	14.3
4:43 PM	8.84	10.47	10.1	8.5	0.56	4.7	13.6
4:44 PM	8.74	10.58	5.7	8.61	0.56	4.7	13.3
4:45 PM	8.58	10.7	6.6	8.47	0.56	4.6	13
4:46 PM	8.44	10.81	6.3	8.31	0.56	4.6	13.5
4:47 PM	8.21	10.99	10	8.15	0.56	4.6	14.1
4:48 PM	8.2	10.99	14.6	7.99	0.56	4.6	14.6
4:49 PM	8.17	11.01	12.1	8.01	0.56	4.6	14.5
4:50 PM	8.14	11.04	10.5	7.97	0.56	4.6	14.1
4:51 PM	8.2	10.99	7.6	7.98	0.56	4.6	13.2
4:52 PM	8.28	10.93	8.7	8.04	0.56	4.6	13
4:53 PM	8.18	11.01	11.3	8.08	0.56	4.6	13.2
4:54 PM	8.25	10.96	15.1	8	0.56	4.6	13.7
4:55 PM	8.33	10.89	14	8.08	0.56	4.6	13.7
4:56 PM	8.39	10.84	9.7	8.18	0.56	4.6	13
4:57 PM	8.56	10.69	11.2	8.24	0.56	4.6	12.4
4:58 PM	8.72	10.57	9.4	8.44	0.56	4.6	11.9

4:59 PM	8.78	10.52	5.2	8.56	0.56	4.5	12.5
5:00 PM	8.86	10.47	7.2	8.63	0.56	4.5	12.9
5:01 PM	8.93	10.4	6.2	8.72	0.56	4.5	13.3
5:02 PM	8.95	10.39	7.7	8.76	0.56	4.5	12.9
5:03 PM	9	10.34	3.7	8.75	0.56	4.5	12.7
5:04 PM	12.66	6.55	6.3	9.04	0.56	4.5	13.2
5:05 PM	21.13	0.11	1.6	17.7	0.56	4.5	2.3
5:06 PM	21.05	0.65	0	20.68	0.56	4.5	0.1
5:07 PM	8.27	11.68	3.1	14.89	0.56	4.4	7.5
5:08 PM	7.4	11.87	9.2	7.2	0.55	4.4	15.2
5:09 PM	7.32	11.92	11.1	7.09	0.56	4.4	15.1
5:10 PM	7.1	12.12	12.5	7.04	0.56	4.4	15.3
5:11 PM	6.72	12.43	28.9	6.67	0.56	4.5	16.1
5:12 PM	6.46	12.63	43.2	6.38	0.56	4.5	17.3
5:13 PM	6.34	12.71	31.6	6.18	0.56	4.5	18.2
5:14 PM	6.37	12.7	33.7	6.16	0.56	4.5	17.7
5:15 PM	6.48	12.58	44.7	6.2	0.56	4.6	17.5
5:16 PM	6.68	12.4	44.2	6.39	0.56	4.6	17.7
5:17 PM	6.81	12.3	33.3	6.58	0.56	4.6	17.7
5:18 PM	6.9	12.22	23.7	6.66	0.56	4.6	17.1
5:19 PM	7.11	12.03	27.2	6.79	0.56	4.6	16.5
5:20 PM	7.22	11.95	17.1	6.99	0.56	4.6	15.6
5:21 PM	7.34	11.84	12.9	7.06	0.56	4.6	15.5
5:22 PM	7.48	11.72	15.6	7.18	0.56	4.6	15.2
5:23 PM	7.6	11.61	8.1	7.35	0.56	4.5	14.9
5:24 PM	7.77	11.48	10.4	7.46	0.56	4.5	14.4
5:25 PM	7.69	11.55	10.2	7.51	0.56	4.5	14.3
5:26 PM	7.51	11.73	13.4	7.42	0.56	4.5	14.1
5:27 PM	7.62	11.59	11.9	7.3	0.56	4.5	14.4
5:28 PM	7.76	11.47	9.9	7.48	0.56	4.5	14.3
5:29 PM	7.79	11.45	8.4	7.6	0.56	4.5	14.8
5:30 PM	7.63	11.6	5.4	7.51	0.56	4.5	17.4
5:31 PM	7.65	11.58	9.2	7.44	0.56	4.4	16
5:32 PM	7.72	11.53	8.3	7.51	0.56	4.4	14.9
5:33 PM	7.56	11.66	9.5	7.42	0.56	4.4	14.4
5:34 PM	7.65	11.57	13.4	7.37	0.56	4.4	14.3
5:35 PM	7.73	11.5	8.6	7.48	0.56	4.4	14.1
5:36 PM	7.9	11.34	10.2	7.6	0.56	4.4	13.8
5:37 PM	8.02	11.25	9.6	7.75	0.56	4.4	13.6
5:38 PM	7.94	11.31	7.9	7.76	0.56	4.4	13.5
5:39 PM	7.8	11.44	4.8	7.64	0.56	4.4	14.2
5:40 PM	7.67	11.57	6.9	7.55	0.56	4.3	14.8
5:41 PM	7.29	11.93	12.6	7.33	0.56	4.3	15
5:42 PM	6.88	12.25	14	6.86	0.56	4.3	15.1
5:43 PM	6.68	12.42	19.8	6.61	0.56	4.3	16
5:44 PM	6.75	12.33	24.6	6.44	0.56	4.3	17
5:45 PM	7.05	12.08	36.8	6.71	0.56	4.3	17.5
5:46 PM	7.19	11.96	19.2	6.95	0.56	4.3	17.1
5:47 PM	7.51	11.67	12	7.15	0.56	4.3	16
5:48 PM	7.71	11.51	11.3	7.42	0.56	4.3	14.9
5:49 PM	7.87	11.36	13.3	7.56	0.56	4.3	14.5
5:50 PM	7.95	11.3	5.1	7.71	0.56	4.3	14.9

5:51 PM	8.12	11.17	6.9	7.81	0.56	4.3	15.5
5:52 PM	8.15	11.15	4	7.92	0.56	4.3	15.9
5:53 PM	8.05	11.24	3.4	7.85	0.56	4.3	15.9
5:54 PM	8.15	11.16	4.3	7.87	0.56	4.3	15.8
5:55 PM	8.13	11.17	3.7	7.93	0.56	4.3	16.3
5:56 PM	8.16	11.14	2.8	7.86	0.56	4.2	16.7
5:57 PM	8.25	11.07	4.2	8	0.56	4.2	17
5:58 PM	8.3	11.04	6	8.05	0.56	4.2	16.5
5:59 PM	8.06	11.25	4.2	8	0.56	4.2	16.1
6:00 PM	7.79	11.47	6.2	7.72	0.56	4.2	15.7
6:01 PM	7.09	12.11	7.9	7.25	0.56	4.2	16.9
6:02 PM	6.9	12.24	22.4	6.83	0.56	4.2	18.1
6:03 PM	6.69	12.39	26.5	6.58	0.56	4.2	19.2
6:04 PM	6.64	12.44	26.1	6.53	0.56	4.2	19.6
6:05 PM	6.82	12.26	36.3	6.54	0.56	4.2	19
6:06 PM	7	12.11	22.7	6.77	0.56	4.2	18.6
6:07 PM	7	12.12	16.9	6.88	0.56	4.2	18.5
6:08 PM	7.23	11.9	25.7	6.97	0.56	4.2	18.3
6:09 PM	7.31	11.84	14.6	7.11	0.56	4.2	17
6:10 PM	7.42	11.73	11.1	7.21	0.56	4.2	19.3
6:11 PM	7.51	11.68	16	7.39	0.56	4.2	18.4
6:12 PM	7.55	11.61	13.6	7.34	0.56	4.2	17.4
6:13 PM	7.46	11.71	6.6	7.4	0.56	4.2	17.3
6:14 PM	7.42	11.75	12.5	7.31	0.56	4.2	17.2
6:15 PM	7.46	11.71	14	7.29	0.56	4.2	17.3
6:16 PM	7.28	11.87	10.2	7.23	0.56	4.2	17.7
6:17 PM	7.36	11.77	10	7.21	0.56	4.2	17.8
6:18 PM	7.44	11.72	17.6	7.29	0.56	4.2	18.1
6:19 PM	7.31	11.83	13.1	7.24	0.56	4.2	17.8
6:20 PM	7.23	11.88	11.9	7.12	0.56	4.2	17.9
6:21 PM	7.44	11.71	22.4	7.24	0.56	4.2	17.6
6:22 PM	7.45	11.69	6.1	7.31	0.56	4.1	17.7
6:23 PM	7.64	11.52	8.8	7.39	0.56	4.1	17.1
6:24 PM	7.59	11.58	4.9	7.52	0.56	4.1	17.1
6:25 PM	7.76	11.42	7.9	7.54	0.56	4.1	17
6:26 PM	7.82	11.37	4.8	7.66	0.56	4.1	16.8
6:27 PM	7.93	11.26	6	7.7	0.56	4.1	16.4
6:28 PM	8.07	11.17	3.9	7.93	0.56	4.1	16.8
6:29 PM	8.03	11.2	3.7	7.9	0.56	4.1	16.9
6:30 PM	7.89	11.34	6.2	7.89	0.56	4.1	16.6
6:31 PM	7.65	11.54	6.6	7.61	0.56	4.1	17.3
6:32 PM	7.42	11.76	10.7	7.45	0.56	4.1	17.4
6:33 PM	7.01	12.14	9.5	7.1	0.56	4.1	17.3
6:34 PM	6.59	12.48	19.1	6.65	0.56	4.1	17.8
6:35 PM	6.5	12.53	24.7	6.38	0.56	4.1	18.8
6:36 PM	6.58	12.46	49.9	6.42	0.55	4.1	19
6:37 PM	6.87	12.19	26.1	6.53	0.56	4.1	19.2
Average	8.17	11.06	11.67	7.99	0.56	4.72	18.92

APPENDIX VI

CERTIFICATES OF ANALYSIS

**CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS****Customer & Order Information:**

PRAXAIR CHARLESTON
3800 ASHLEY PHOSPHATE RD
CHARLESTON SC 29418

Doc Number: 00000002196

Order Number: 112535400 - 2

Customer P. O. Number:

Customer Reference Number: LB138

Fill Date: 7/23/2008

Part Number: NI CO19CNS2E-AS

Lot Number: NA

Cylinder Style & Outlet: AS 660

Cylinder Pressure & Volume: 2000 psi 140 cu ft

Certified Concentration:

Expiration Date:	8/6/2010		
Cylinder Number:	GC238912	Analytical Uncertainty:	
195 ppm	NITRIC OXIDE	± 1 %	
197.5 ppm	SULFUR DIOXIDE	± 1 %	
198 ppm	CARBON MONOXIDE	± 1 %	
19.39 %	CARBON DIOXIDE	± 1 %	
Balance	NITROGEN		

NOx ppm: 195

(NOx Values for Reference Only)

Certification Information: Certification Date: 8/6/2008 Term: 24 Months Expiration Date: 8/6/2010

1. This cylinder was certified according to the 1997 EPA Traceability Protocol, document #EPA-300/R-97/121, using procedure G1

2. Do not use this standard if pressure is less than 150 PSIG.

Analytical Data: (R=Reference Standard, Z=Zero Gas, C=Gas Candidate)**1. Component: NITRIC OXIDE**

Requested Concentration: 200 ppm
Certified Concentration: 195 ppm
Instrument Used: TECO MODEL 42C 42CHL-7533-304
Analytical Method: CHEMILUMINESCENCE
Last Multipoint Calibration: 7/14/2008

Reference Standard Type: GMS
Ref. Std. Cylinder #: SA1604
Ref. Std. Conc: 497.2 PPM
Ref. Std. Traceable to SRM #: SRM1686b

First Analysis Data: Date: 7/28/2008
Z: 0 R: 495 C: 195.8 Conc: 196.5
R: 485 Z: 0 C: 194.7 Conc: 195.4
Z: 0 C: 194.5 R: 496 Conc: 195.2
UOM: PPM Mean Test Assay: 195.7 PPM

Second Analysis Data: Date: 8/6/2008
Z: 0 R: 498 C: 194.9 Conc: 195.1
R: 486 Z: 0 C: 194.8 Conc: 194.8
Z: 0 C: 195.2 R: 496 Conc: 195.4
UOM: PPM Mean Test Assay: 195.1 PPM

2. Component: SULFUR DIOXIDE

Requested Concentration: 200 ppm
Certified Concentration: 197.5 ppm
Instrument Used: SIEMENS ULTRAMAT 6E S/N J2-36
Analytical Method: NON-DISPERSIVE INFRARED
Last Multipoint Calibration: 7/11/2008

Reference Standard Type: GMS
Ref. Std. Cylinder #: CC115618
Ref. Std. Conc: 200.8 PPM
Ref. Std. Traceable to SRM #: 1693a

First Analysis Data: Date: 7/28/2008
Z: 0 R: 199.7 C: 196.5 Conc: 197.8
R: 199.5 Z: 0 C: 196.1 Conc: 197.4
Z: 0 C: 196.2 R: 199.3 Conc: 197.5
UOM: PPM Mean Test Assay: 197.5 PPM

Second Analysis Data: Date: 8/5/2008
Z: 0 R: 200.6 C: 197.2 Conc: 197.2
R: 200.6 Z: 0 C: 197.5 Conc: 197.5
Z: 0 C: 197.6 R: 200.9 Conc: 197.6
UOM: PPM Mean Test Assay: 197.5 PPM

3. Component: CARBON MONOXIDE

Requested Concentration: 200 ppm
Certified Concentration: 198 ppm
Instrument Used: HORIBA VA 3011 S/N 4383858001
Analytical Method: NON-DISPERSIVE INFRARED
Last Multipoint Calibration: 7/11/2008

Reference Standard Type: GMS
Ref. Std. Cylinder #: ALFS15555
Ref. Std. Conc: 342 PPM
Ref. Std. Traceable to SRM #: 2636a

First Analysis Data: Date: 7/28/2008
Z: 0 R: 338 C: 198 Conc: 198.3
R: 338 Z: 0 C: 198 Conc: 198.3
Z: 0 C: 196 R: 338 Conc: 198.3
UOM: PPM Mean Test Assay: 198.3 PPM

Second Analysis Data: Date: 8/5/2008
Z: 0 R: 350 C: 203 Conc: 198.4
R: 350 Z: 0 C: 203 Conc: 198.4
Z: 0 C: 203 R: 350 Conc: 198.4
UOM: PPM Mean Test Assay: 198.4 PPM

Information contained herein has been prepared at your request by qualified experts within GTS-Welco, Inc. While we believe that the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability of GTS-Welco, Inc., arising out of the use of the information contained herein exceed the fee established for providing such information.



DocNumber: 00000010330

Praxair
5700 South Alameda Street
Los Angeles, CA 90058
Telephone: (323) 585-2154
Facsimile: (714) 542-6689

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS**Customer & Order Information:**

CONWAY SOUTHERN PRO

Praxair Order Number: 07795028-00

Customer P. O. Number: 02146674

Customer Reference Number: WA993

Fill Date:

Part Number: NI CD18CNS1E-AS

Lot Number: 109028505

Cylinder Style & Outlet: AS 660

Cylinder Pressure & Volume: 1700 psi 121 cu ft

Certified Concentration:

Expiration Date:	11/14/2010		
Cylinder Number:	CC 111207		Analytical Uncertainty:
2782	ppm	NITRIC OXIDE	± 2 %
2816	ppm	SULFUR DIOXIDE	± 2 %
4584	ppm	CARBON MONOXIDE	± 2 %
19.16	%	CARBON DIOXIDE	± 2 %
Balance		NITROGEN	

NOx ppm = 2807 ppm

NOX Values for Reference Only

Certification Information: Certification Date: 11/14/2008 Term: 24 Months Expiration Date: 11/14/2010

This cylinder was certified according to the 1997 EPA Traceability Protocol, Document #EPA-600/R-97/121, using Procedure G1

Do Not Use this Standard if Pressure is less than 150 PSIG

This cylinder was previously certified on 10/5/06 as [NO] = 2797 ppm; [SO2] = 2824 ppm; [CO] = 4600 ppm; [CO2] = 19.16 %. Nitric oxide analyzed on 11/14/08 using GMIS - 2410 ppm NO/N2.

Analytical Data:

(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)

1. Component: NITRIC OXIDE

Requested Concentration: 2800 ppm
Certified Concentration: 2782 ppm
Instrument Used: Thermo Env. 421 SN 421-44979-273
Analytical Method: Chemtronic Science
Last Multipoint Calibration: 10/19/2008

Reference Standard Type: GMIS
Ref. Std. Cylinder #: CC 189240
Ref. Std. Conc: 2869 ppm
Ref. Std. Traceable to SRM #: vs. 2831
SRM Sample #: 47-E-29
SRM Cylinder #: CAL014349

First Analysis Data:		Date: 11/14/2008	
Z: 0	R: 2398	C: 2748	Conc: 2762
R: 2403	Z: 0	C: 2759	Conc: 2767
Z: 0	C: 2764	R: 2402	Conc: 2773
UOM: ppm	Mean Test Assay: 2767 ppm		

Second Analysis Data:		Date:	
Z: 0	R: 0	C: 0	Conc: 0
R: 0	Z: 0	C: 0	Conc: 0
Z: 0	C: 0	R: 0	Conc: 0
UOM:	Mean Test Assay: 0		

2. Component: SULFUR DIOXIDE

Requested Concentration: 2800 ppm
Certified Concentration: 2818 ppm
Instrument Used: Siemens Ultramat SE SN C1-009
Analytical Method: NDIR
Last Multipoint Calibration: 10/12/2008

Reference Standard Type: GMIS
Ref. Std. Cylinder #: CC 121070
Ref. Std. Conc: 2548 ppm
Ref. Std. Traceable to SRM #: 1684a
SRM Sample #: 91-45-B
SRM Cylinder #: FF 18312

First Analysis Data:		Date: 11/14/2008	
Z: 0	R: 2545	C: 2800	Conc: 2803
R: 2545	Z: 0	C: 2805	Conc: 2808
Z: 0	C: 2800	R: 2540	Conc: 2806
UOM: ppm	Mean Test Assay: 2807 ppm		

Second Analysis Data:		Date:	
Z: 0	R: 0	C: 0	Conc: 0
R: 0	Z: 0	C: 0	Conc: 0
Z: 0	C: 0	R: 0	Conc: 0
UOM: ppm	Mean Test Assay: 0 ppm		

3. Component: CARBON MONOXIDE

Requested Concentration: 4500 ppm
Certified Concentration: 4534 ppm
Instrument Used: Siemens Ultramat SE SN A12-729
Analytical Method: NDIR
Last Multipoint Calibration: 10/14/2008

Reference Standard Type: GMIS
Ref. Std. Cylinder #: CC 199032
Ref. Std. Conc: 0.501 %
Ref. Std. Traceable to SRM #: vs. 2842a
SRM Sample #: 54-34-B
SRM Cylinder #: FF24740

First Analysis Data:		Date: 11/14/2008	
Z: 0	R: 0.501	C: 0.458	Conc: 4580
R: 0.502	Z: 0	C: 0.458	Conc: 4571
Z: 0	C: 0.458	R: 0.502	Conc: 4571
UOM: ppm	Mean Test Assay: 4567 ppm		

Second Analysis Data:		Date:	
Z: 0	R: 0	C: 0	Conc: 0
R: 0	Z: 0	C: 0	Conc: 0
Z: 0	C: 0	R: 0	Conc: 0
UOM: ppm	Mean Test Assay: 0 ppm		

Information contained herein has been prepared at your request by qualified experts within Praxair Distribution, Inc. While we believe that the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability of Praxair Distribution, Inc., arising out of the use of the information contained herein exceed the fee established for providing such information.



Praxair
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Los Angeles, CA 90058
Telephone: (323) 585-2154
Facsimile: (714) 542-6689

DocNumber: 00000010330

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

4. Component: CARBON DIOXIDE

Requested Concentration: 19 %
Certified Concentration: 19.16 %
Instrument Used: Siemens Ultramat 5E SNA12-730
Analytical Method: NDIR
Last Multipoint Calibration: 10/14/2008

First Analysis Data:				Date:	10/14/2008
Z: 0	R: 17.98	C: 19.14	Conc: 19.14		
R: 17.98	Z: 0	C: 19.14	Conc: 19.16		
Z: 0	C: 19.14	R: 17.98	Conc: 19.14		
UOM: %	Mean Test Assay:			19.15 %	

Analyzed by:

Ben McCauley

Reference Standard Type: GAS
Ref. Std. Cylinder #: ND 18893
Ref. Std. Conc: 17.98 %
Ref. Std. Traceable to SRM #: vs. 2745
SRM Sample #: 9-8-09
SRM Cylinder #: CAL010768

Second Analysis Data:				Date:	
Z: 0	R: 0	C: 0	Conc: 0		
R: 0	Z: 0	C: 0	Conc: 0		
Z: 0	C: 0	R: 0	Conc: 0		
UOM: %	Mean Test Assay:			0 %	

Certified by:

Peter Ngo

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P. O. Box 12013
Research Triangle Park, N.C. 27709
Phone 919/544-3772

CERTIFICATE OF CONFORMANCE

CUSTOMER: National Welders
Charleston, S.C.

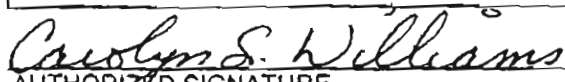
REFERENCE #: 88-99487
CYLINDER #: K211433
ORDER #: 5077475
DATE REPORTED: 8/31/2005

MATERIAL SUBMITTED: *AIR, ACCURATE GRADE

INFORMATION REQUESTED: RATIO ANALYSIS

* AIR IS DEFINED AS, OXYGEN = 19.5-23.5% WITH A BALANCE OF NITROGEN

COMPONENT	SPECIFICATION	CONCENTRATION	METHOD
SO ₂	0.1 PPM	< 0.10 PPM	ULTRAVIOLET ANALYZER
NOX	0.1 PPM	< 0.10 PPM	CHEMILUMINESCENT
CO	0.5 PPM	< 0.50 PPM	GAS CHROMATOGRAPH
CO ₂	1 PPM	< 1.00 PPM	GAS CHROMATOGRAPH
THC	0.1 PPM	< 0.10 PPM	FID
H ₂ O	5 PPM	< 5.00 PPM	MOISTURE ANALYZER
OXYGEN	20.5% - 21.5%	20.5% - 21.5%	OXYGEN ANALYZER
NITROGEN	BALANCE		


AUTHORIZED SIGNATURE

"THIS REPORT STATED ACCURATELY THE RESULTS OF THE INVESTIGATION MADE UPON THE MATERIAL SUBMITTED TO THE ANALYTICAL LABORATORY. EVERY EFFORT HAS BEEN MADE TO DETERMINE OBJECTIVELY THE INFORMATION REQUESTED. HOWEVER, IN CONNECTION WITH ITS RENDERING OF THIS REPORT, NATIONAL SPECIALTY GASES SHALL HAVE NO LIABILITY IN EXCESS OF THE ESTABLISHED CHARGE FOR THE SERVICE."

NSG020149J

**AIR LIQUIDE**Scott Specialty Gases
Air Liquide America Specialty Gases LLC**RATA CLASS****Dual-Analyzed Calibration Standard**

6141 EASTON ROAD, BLDG 1, PLUMSTEADVILLE, PA 18949-0310

Phone: 800-331-4953

Fax: 215-766-7226

CERTIFICATE OF ACCURACY: EPA Protocol GasAssay LaboratorySCOTT SPECIALTY GASES
6141 EASTON ROAD, BLDG 1
PLUMSTEADVILLE, PA 18949-0310P.O. No.: 70007-30120
Project No.: 01-80460-001Customer

GENERAL ENGINEERING LABS

2040 SAVAGE ROAD
CHARLESTON SC 29407**ANALYTICAL INFORMATION**

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: ALM017747 Certification Date: 24Apr2008 Exp. Date: 24Apr2011
Cylinder Pressure***: 2000 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ANALYTICAL	
		ACCURACY**	TRACEABILITY
CARBON DIOXIDE	19.0 %	+/- 1%	Direct NIST and NMI
OXYGEN	20.0 %	+/- 1%	Direct NIST and NMI
NITROGEN	BALANCE		

*** Do not use when cylinder pressure is below 150 psig.

** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1875	04Jul2008	K001509	13.93 %	CARBON DIOXIDE
NTRM 2350	01May2009	K016983	23.48 %	OXYGEN

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
MTI/M200/170927	11Apr2008	GC-TCD
MTI/M200/170927	14Apr2008	GC-TCD

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

First Triad Analysis Second Triad Analysis Calibration Curve

CARBON DIOXIDE

Date: 24Apr2008 Response Unit: AREA

Z1=0.00000 R1=639864.0 T1=881123.0

R2=839978.0 Z2=0.00000 T2=880804.0

Z3=0.00000 T3=881197.0 R3=839840.0

Avg. Concentration: 19.00 %

Concentration = A + Bx + Cx² + Dx³ + Ex⁴

r = .9999977 1675

Constants: A = -1.81233E-02

B = 2.18229E-05 C =

D = E =

OXYGEN

Date: 24Apr2008 Response Unit: AREA

Z1=0.00000 R1=597854.0 T1=515074.0

R2=597989.0 Z2=0.00000 T2=514658.0

Z3=0.00000 T3=516036.0 R3=597808.0

Avg. Concentration: 20.00 %

Concentration = A + Bx + Cx² + Dx³ + Ex⁴

r = .9999938 2350

Constants: A = -1.2734E-02

B = 3.8917E-05 C =

D = E =

APPROVED BY:

JOHN C. FITZ



HiQ® Certificate.

EPA Protocol

Performed according to EPA-600/R-97/121, Procedure G1

Notice: This Cylinder is not to be used when pressure is under 150 psig.

Manufactured and certified at:

Linde Gas USA LLC
Maumee Specialty Gas Plant
6421 Monclova Road
MAUMEE OH 43537
419-893-7226

Produced for customer:

LINDE CHARLESTON INTERBRANCH
4301 ARCO LN
NORTH CHARLESTON SC 29418
USA
843-554-6261

Material:	4004		Blend Tolerance:	5 % Relative
EPA PROPANE/N2 100-999 PPM		A31	Blend Type:	EPA Protocol
Production #:	100137119		Cyl. Pressure:	2000 psig
Lot #:	02499E7290ZD		Balance Gas:	Nitrogen
Cylinder #:	CC10326		CGA:	350
Expiration Date:	6/6/2010		Analytical Accuracy:	1.00 % Relative
Shelf Life:	36 months		Confidence:	95 %

CAS #	Certified Component	Requested Concentration	Concentration and Uncertainty	Date of Certification
74-98-6	Propane	850 to 999	930 +/- 9 ppm	06/06/2007
7727-37-9	Nitrogen		Balance	06/06/2007

CAS #	Reference Standard	Cylinder/Standard #	Concentration	Expiry Date
74-98-6	Propane	CC73695 , GMIS	1003.5 ppm	09/21/2007
74-98-6	Propane	CC149359 , GMIS	508.1 ppm	09/22/2008

Instrument	Serial #	Analytical Principle	Calibration Date
Horiba FIA-510	56847471	Flame Ionization	05/24/2007

All analyses are performed under controlled environmental conditions. This product is manufactured using equipment which has been calibrated with NIST traceable, or equivalent, standards, weights, or equipment.

Analytical report approved by Roy Yoder

Roy Yoder

HiQ
Certificate

APPENDIX VII

EQUIPMENT CALIBRATION DATA

DRY GAS METER ANNUAL CALIBRATION USING CRITICAL ORIFICES

DATE: 11/12/2009 UNIT ID #: M8 5 BAROMETRIC PRESSURE (In Hg): INITIAL 29.56 FINAL 29.50 AVG (Pbar) 29.53
 GM SERIAL #: 8840695 CRITICAL ORIFICE SET SERIAL #: 1302 TECHNICIAN: GMS

IF Y (VAR) EXCEEDS 0.02 OR
 DH@ (VAR) EXCEEDS 0.2
 ORIFICE SHOULD BE RECALIBRATE

ORIFICE #	UN	K' FACTOR (AVG)	TESTED VACUUM (In Hg)	DGM READINGS (FT3)			TEMPERATURES °F					ELAPSED TIME (MIN)	DGM DH (In H2O)	(1) Vm (STD)	(2) Ver (STD)	(3) Y	Y (VAR)	(4) DH@	DH@ (VAR)		
				INITIAL	FINAL	NET (Vm)	AMBIENT	DGM INLET	DGM OUTLET	DGM AVG											
#12 Brass	1	0.3026	20	55.724	59.649	3.925	55	59	59	57	57	58	10.00	0.49	3.9542	3.9388	0.9961	-0.0029	1.7938	0.003	
	2	0.3026	20	59.649	63.572	3.923	55	59	58	57	57	58	10.00	0.49	3.9522	3.9388	0.9966	-0.0024	1.7938	0.003	
	3	0.3026	20	63.572	67.517	3.945	56	58	58	57	57	58	10.00	0.49	3.9744	3.9349	0.9901	-0.0089	1.7972	0.006	
														AVG =		0.9943			1.7949		
#17 Brass	1	0.4317	18	67.525	73.147	5.622	55	57	57	57	57	57	10.00	0.98	5.6817	5.6192	0.9890	-0.0100	1.7704	-0.021	
	2	0.4317	18	73.147	78.772	5.625	55	57	58	57	57	57	10.00	0.98	5.6848	5.6192	0.9885	-0.0105	1.7703	-0.021	
	3	0.4317	18	78.772	84.400	5.628	56	58	58	57	57	58	10.00	0.98	5.6768	5.6137	0.9889	-0.0101	1.7704	-0.021	
														AVG =		0.9888			1.7704		
#23 Brass	1	0.6172	16	99.012	107.676	8.664	55	55	56	55	55	55	11.00	2.00	8.8124	8.8371	1.0028	0.0038	1.7835	-0.008	
	2	0.6172	16	107.676	116.386	8.710	55	56	57	55	56	56	11.00	2.00	8.8420	8.8371	0.9994	0.0004	1.7802	-0.011	
	3	0.6172	16	116.386	126.683	10.297	55	57	58	56	56	57	13.00	2.00	10.4328	10.4438	1.0011	0.0021	1.7765	-0.015	
														AVG =		1.0011			1.7801		
#29 Brass	1	0.7602	14	26.717	36.364	9.647	55	57	60	56	56	57	10.00	3.10	9.8008	9.8951	1.0096	0.0106	1.8251	0.034	
	2	0.7602	14	36.364	46.023	9.659	55	60	62	56	57	59	10.00	3.10	9.7752	9.8951	1.0123	0.0133	1.8179	0.027	
	3	0.7602	14	46.023	55.690	9.667	55	62	62	57	57	60	10.00	3.10	9.7645	9.8951	1.0134	0.0144	1.8145	0.023	
														AVG =		1.0118			1.8192		

USING THE CRITICAL ORIFICES AS CALIBRATION STANDARDS:
 The following equations are used to calculate the standard volumes of air passed through the DGM, Vm (std), and the critical orifice, Ver (std), and the DGM calibration factor, Y. These equations are automatically calculated in the spreadsheet above.

AVG DRY GAS METER CALIBRATION FACTOR, Y = 0.9990
 Meter Critical Orifice, DH@ = 1.7912

$$(1) Vm(std) = (K1) \left(\frac{P_{bar} + DH}{T_m} \right)$$

Net volume of gas sample passed through DGM, corrected to standard conditions
 K1 = 17.64 °R/in. Hg (English), 0.3858 oK/mm Hg (Metric)
 Tm = Absolute DGM avg. temperature (°R - English, °K - Metric)

$$(2) Ver(std) = (K') \left(\frac{P_{bar}(D)}{\sqrt{T_m}} \right)$$

Volume of gas sample passed through the critical orifice, corrected to standard conditions
 Tamb = Absolute ambient temperature (°R - English, °K - Metric)
 K' = Average K' factor from Critical Orifice Calibration

$$(3) Y = \frac{Ver(std)}{Vm(std)} \quad \text{DGM calibration factor}$$

$$(4) \Delta H@ = \frac{(0.019)(\Delta H)(T_m^2 R)(D)^2}{(P_{bar}(Y) Vm)^2} \quad \text{Meter Orifice Check}$$

QA/QC CHECK

Completeness ☒ Legibility ☒ Accuracy ☒ Specifications ☒ Reasonableness ☒

Checked by: [Signature] 11/12/09
 Personnel (Signature/Date)

[Signature]
 Team Leader (Signature/Date)



Environmental Supply Company, Inc.

Quality Source Sampling Systems & Accessories

DRY GAS METER CALIBRATION REPORT

MB6

Customer: Gel Engineering

Date: 11/18/2009

Console Serial # 1635

Console Part # C-5000 SF

DGM Type S-275

DGM # 13858008

Reference Meter S/N 15962156

Barometric Pressure, P_b : 29.80 in. Hg

Tested at: 0.00 in. Hg - Vacuum

RUN	1	2	3	Units
Orifice Manometer Setting, ΔH	2.00	0.75	6.00	in. H ₂ O
Elapsed Time	14	22	8	min.

Reference Meter

Final Volume Reading	457.291	468.245	478.940	ft ³
Initial Volume Reading	446.810	457.576	468.600	ft ³
Total Gas Volume, V_w	10.481	10.669	10.340	ft ³
Temperature, Initial	67.00	67.00	68.00	°F
Temperature, Final	67.00	68.00	68.00	°F
Avg Temperature, T_w	67.00	67.50	68.00	°F

Dry Gas Meter

Final Volume Reading	325.627	336.838	347.595	ft ³
Initial Volume Reading	315.000	325.948	337.200	ft ³
Total Gas Volume, V_m	10.627	10.890	10.395	ft ³
Average Temperature, Initial	67.00	68.00	69.00	°F
Average Temperature, Final	68.00	69.00	69.50	°F
Avg Temperature, T_m	67.50	68.50	69.25	°F
ΔH (a)	2.0152	1.8010	2.0293	Avg. ΔH (a) 1.9485
ΔH (a) Tolerance Check	OK	OK	OK	
Gamma, Y	0.9814	0.9788	0.9815	Avg. Y 0.9806
Gamma Tolerance Check	OK	OK	OK	

Calibration Performed By:

William A. Ballard

$$\Delta H_{(a)} = \frac{0.0319 \Delta H}{P_b (T_m + 460)} \left[\frac{(T_w + 460) \theta}{V_w} \right]^2$$

$$Y = \frac{V_w P_b (T_m + 460)}{V_m (P_b + \Delta H / 13.6) (T_w + 460)}$$

Post Test Meter Box Calibration

Date		2/25/2010	Meter Box Number			MB5	Orifice Number		17
Meter Part		6840695	Critical Orifice Set Serial			1302	Technician		SAH
Run Number	K' Factor (Avg)	Tested Vacuum (in Hg)	Dry Gas Meter Readings (cubic feet)			Ambient	TEMPERATURES °F		DGM AVG
			Initial	Final	Net (Vm)		DGM		
							Initial	Final	
1	0.4399	15	528.222	533.758	5.536	45	41	43	42
2	0.4399	15	533.758	539.303	5.545	46	43	45	44
3	0.4399	15	539.303	544.848	5.545	46	45	46	45.5
Run Number	Elapsed Time (min)	Barometric Pressure (in. Hg)			DGM DH (in H2O)	Vm (std)	Vcr (std)	Y	Average Y
		Initial	Final	Avg					
1	10.0	29.85	29.85	29.85	0.96	5.8205	5.8432	1.0039	
2	10.0	29.85	29.85	29.85	0.96	5.8068	5.8374	1.0053	
3	10.0	29.85	29.85	29.85	0.96	5.7896	5.8374	1.0083	1.0058

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QA/QC CHECK

Completeness ___ Legibility ___ Accuracy ___ Specifications Reasonableness

Checked by : Sam Ham 3/2/10 Mark Plade 3/2/10
 Personnel (Signature/Date) Team Leader (Signature/Date)

Post Test Meter Box Calibration

Date		3/2/2010	UNIT ID #			MB6	Orifice Number		17
DGM SERIAL #		13858008	Critical Orifice Set Serial			1302	Technician		SAH
Run Number	K' Factor (Avg)	Tested Vacuum (in Hg)	Dry Gas Meter Readings (cubic feet)			Ambient	TEMPERATURES °F		DGM AVG
			Initial	Final	Net (Vm)		DGM		
							Initial	Final	
1	0.4399	19	916.721	922.249	5.528	52	50	53	51.5
2	0.4399	19	922.249	927.827	5.578	52	53	55	54
3	0.4399	19	927.827	933.436	5.609	52	55	56	55.5
Run Number	Elapsed Time (min) θ	Barometric Pressure (in. Hg)			DGM DH (in H2O)	Vm (std)	Vcr (std)	Y	Average Y
		Initial	Final	Avg					
1	10.0	29.41	29.41	29.41	1.10	5.6222	5.7176	1.0170	
2	10.0	29.41	29.41	29.41	1.10	5.6455	5.7176	1.0128	
3	10.0	29.41	29.41	29.41	1.10	5.6603	5.7176	1.0101	1.0133

General Engineering & Environmental, LLC

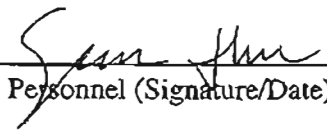
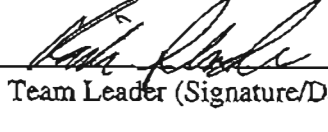
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QA/QC CHECK

Completeness ☐ Legibility ☐ Accuracy ☐ Specifications ☐ Reasonableness ☐

Checked by :  3/2/10  3-2-10
 Personnel (Signature/Date) Team Leader (Signature/Date)

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Pitot Tube Calibration

S-Type

Pitot Number		P-S04	Date	1/12/2010
GEL Test Personnel		GMS		
Calibration Data				
Dimension	Figure	Description	Measurement (inches/degrees)	Acceptable Limits (inches)
Dt	1	Tubing Outside Diameter	0.373	0.189 to 0.375
PA	1	Base to Opening Plane Distance	0.445	1.05 Dt < PA < 1.50Dt*
PB	1	Base to Opening Plane Distance	0.445	1.05 Dt < PB < 1.50Dt*
W	2	Pitot Tube Face Opening to Center Plane of Pitot	0.000	<0.031
X	3	Pitot Tube Opening to Nozzle	1.000	>0.749
Y	4	Pitot Tube Opening to Sample Probe	3.200	>2.999
Z	4	Pitot Tube Opening to Thermocouple	1.150	>.749
$\alpha 1$	5	Angle to Center	0	<10°
$\alpha 2$	5	Angle to Center	1	<10°
$\beta 1$	6	Angle of Opening	3	<5°
$\beta 2$	6	Angle of Opening	3	<5°
Δ (Z)	7 (8)	Offset of Pitot Openings	0.069	Z < 0.126 inches
Post Test Pitot Check				
Is Pitot tube damaged? (if Yes, repair and recalibrate) (Yes/No)			Yes	No X
Technician Signature		Date		Job Number CRBG00109

In accordance with (IAW) EPA 40 CFR 60, Appendix A, Method 2, 4. Calibration, 4.1 Type S Pilot Tube

QA/QC CHECK

Completeness ____ Legibility ____ Accuracy ____ Specifications ____ Reasonableness ____

Checked by : _____

Personnel (Signature/Date) Team Leader (Signature/Date)

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Pitot Tube Calibration

S-Type

Pitot Number	P-501	Date	1/15/2010	
GEL Test Personnel	GMS			
Calibration Data				
Dimension	Figure	Description	Measurement (inches/degrees)	Acceptable Limits (inches)
Dt	1	Tubing Outside Diameter	0.371	0.189 to 0.375
PA	1	Base to Opening Plane Distance	0.471	1.05 Dt < PA < 1.50Dt*
PB	1	Base to Opening Plane Distance	0.475	1.05 Dt < PB < 1.50Dt*
W	2	Pitot Tube Face Opening to Center Plane of Pitot	0.000	<0.031
X	3	Pitot Tube Opening to Nozzle	0.876	>0.749
Y	4	Pitot Tube Opening to Sample Probe	3.250	>2.999
Z	4	Pitot Tube Opening to Thermocouple	0.825	>.749
$\alpha 1$	5	Angle to Center	0	<10°
$\alpha 2$	5	Angle to Center	0	<10°
$\beta 1$	6	Angle of Opening	0	<5°
$\beta 2$	6	Angle of Opening	0	<5°
Δ (Z)	7 (8)	Offset of Pitot Openings	0.000	Z < 0.126 inches
Post Test Pitot Check				
Is Pitot tube damaged? (if Yes, repair and recalibrate) (Yes/No)			Yes	No X
Technician Signature		Date		Job Number CRBG00109

In accordance with (IAW) EPA 40 CFR 60, Appendix A, Method 2, 4. Calibration, 4.1 Type S Pitot Tube

QA/QC CHECK

Completeness ____ **Legibility** ____ **Accuracy** ____ **Specifications** ____ **Reasonableness** ____

Checked by : _____

Personnel (Signature/Date)

Team Leader (Signature/Date)

Gas Dilution System Check Method 205 Data Sheet

Client	Thomas Z. Osbourne POTW	Date	1/(19-20)/10					
Plant Site	Greensboro, NC	Project Number	CRBG-00110C					
Source	Sewage Sludge Inc #1	Gas Dilution System	EnviroNics 2020					
Test Method	EPA Method 205	Observer						
GEL Personnel	AKA	Agency	NCDENR					
Original Gas								
Type of Gas	O2 EPA Protocol	Analyzer	CAI 100F					
Concentration	20.00%	Operating Range	0-25%					
Calibration Requirements								
Directions								
(1) The Gas Dilution System (GDS) must be evaluated at the test site with an analyzer or monitor to be used during the test. (2) The operator may choose a precalibrated instrument with a high level of precision and accuracy for the purposes of the test. (3) This method is not meant to replace the calibration requirements of test methods. (4) All of the calibration requirements of the applicable test method must be met. (5) Prepare five gas dilutions that will be used in the field test using the high level supply gas. (Divider Mode) (6) Calculate the predicted concentration for each of five dilutions based on the flow rates through the GDS and the certified concentration of the high level supply gas. (Done automatically by instrument) (7) Introduce each of the gases from below into the analyzer or monitor one at a time and determine the instrument response for each of the five dilutions. (8) Repeat the procedure three (3) times, i.e., until three (3) injections are made at each dilution level. (9) Calculate the average instrument response for each triplicate injection at each dilution. No single injection shall differ by more than 2% from the average instrument response for that dilution. The average response shall differ by no more than 2% from the predicted dilution value. (10) Introduce a known supply gas directly into the analyzer, bypassing the gas dilution system.								
GDS Dilution Value	Predicted Response	Trial 1	Trial 2	Trial 3	Average	Greatest Difference from Average	All Trials Within 2 Percent of Average	Average Within 2 Percent of Predicted
17.50	same	17.53	17.50	17.49	17.51	0.02	OK	OK
15.00		15.02	15.04	15.04	15.03	0.01	OK	OK
10.00		10.02	10.01	10.01	10.01	0.01	OK	OK
7.50		7.49	7.49	7.50	7.49	0.01	OK	OK
2.00		2.00	1.99	2.00	2.00	0.01	OK	OK
GDS vs. Protocol Gas								
Directions								
(1) Introduce Protocol gas directly to the analyzer, bypassing the gas dilution system. (2) Introduce a gas mixture from the GDS to the measurement device of similar concentration. (3) The difference between the certified (protocol) concentration and the gas mixture and the instrument response shall be less than 2 percent.								
Value of Protocol Gas	Value of Diluted Gas Mixture	Instrument Response to Protocol Gas	Instrument Response to Gas Mixture	Allowable (2 percent of protocol gas)				Check (within 2%)
10.00	10.00	9.94	10.02	0.20				OK

APPENDIX VIII

PROCESS DATA

Summary of Charge Rate During Section 114 Emissions Testing

Thomas Z. Osborne - POTW (City Of Greensboro)

Date	Start	End	Pollutant	Sludge Charge Rate (dry tons/hr)
1/19/10	10:30 AM	2:33 PM	PM, CO, NO _x , SO ₂ , Hg, VOCs, metals, D/F, PCBs, PAH	4715 dry lbs / hr = 2.36 dry tons / hr.
1/19/10	3:22 PM	7:26 PM	PM, CO, NO _x , SO ₂ , Hg, VOCs, metals, D/F, PCBs, PAH	4782 dry lbs / hr = 2.39 dry tons / hr.
1/20/10	8:55 AM	1:00 PM	PM, CO, NO _x , SO ₂ , Hg, VOCs, metals, D/F, PCBs, PAH	4785 dry lbs / hr = 2.39 dry tons / hr.
1/20/10	2:00 PM	4:03 PM	HCL/HF, PM, OTM-28	5116 dry lbs / hr = 2.56 dry tons / hr.
1/20/10	4:30 PM	6:34 PM	HCL/HF, PM, OTM-28	5444 dry lbs / hr = 2.72 dry tons / hr.
1/21/10	9:15 AM	11:18 AM	HCL/HF, PM, OTM-28	4793 dry lbs / hr = 2.40 dry tons / hr.