SFI

SUPERIOR FABRICATION, INC.

Summary:
Superior Fabrication, Inc. contracted Air Hygiene Inc. to conduct performance testing on Combustion Device on model SCD-36. The unit was tested on October 4th through 7th, 2016 at the Elk City Facility in Elk City, Oklahoma. The flare unit was re-tested to satisfy the specifications as described in United States Code of Federal Regulations Title 40, Part 60, Subpart OOOO (40 CFR 60, Subpart OOOO).

Testing Methods:
The production flare model was tested according to EPA source emissions test method

- Method 1 – Sample and Velocity Traverse for Stationary Sources
- Method 2 – Determination of Stack Gas Velocity and Volumetric Flow Rate
- Method 2A – Direct Measurement of Gas Volume Through Pipes and Small Ducts
- Method 3C – Determination of Carbon Dioxide, Methane, Nitrogen and Oxygen from stationary Sources
- Method 4 – Determination of Moisture Content in Stack Gas
- Method 10 – Determination of Carbon Monoxide Emission from Stationary Sources
- Method 22 – Visual Determination of Fugitive Emissions from Material Sources and Smoke Emission from Flares
- Method 25A – Determination of Total Gaseous Organic Concentration Using Flame Ionization Analyzer
- ASTM D1945-03 – Standard Test Method for Analysis of Natural Gas by Gas Chromatography
- ASTM D3588-98 – Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels

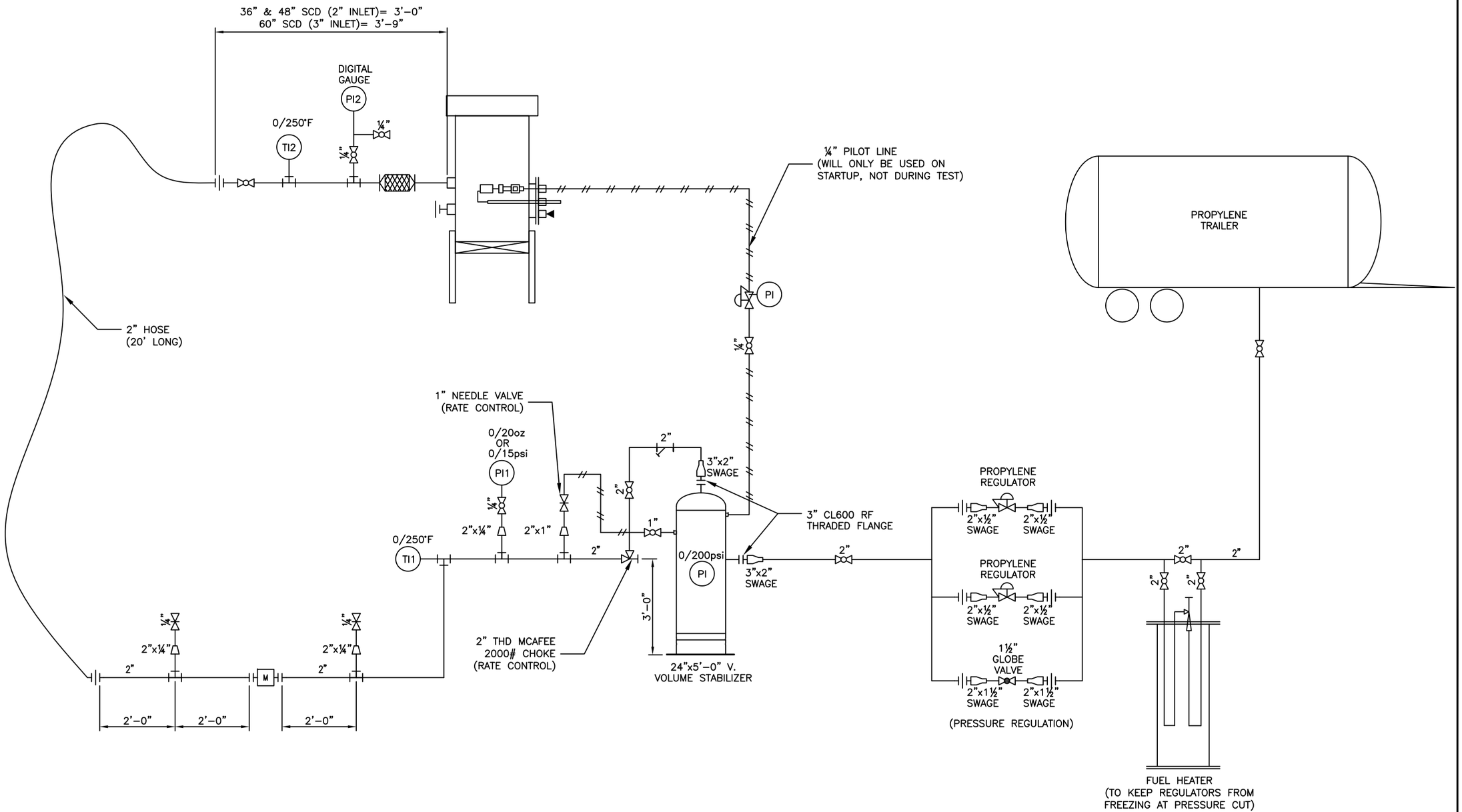
Requirement Specification:
In accordance to 40 CFR 60 Subpart OOOO, §60.5413(d)(12)(i) through (vi), this report contains the following information.

- A full schematic and dimensions of the flare unit are presented in page 3
- The maximum net Heat Input Rating of the SCD-36 is 3.17MMBtu/hr
- The inlet gas fuel range for 0% (min. rate) and 100% (max. rate) are 6.48MSCFD, and 29.86MSCFD, respectively
- Air/Stream injection/assist is not applicable for SCD-36
- The test parameter ranges below, as applicable to this unit
    - Fuel gas delivery pressure and temperature – See Air Hygiene report Appendix B
    - Fuel gas moisture range – >2ppm
    - Purge gas usage range – Not applicable
    - Condensate liquid fuel separation range – No liquid in the gas
    - Combustion temperature range – See Air Hygiene report Appendix B
    - Excess combustion air range – See Table 2.1 - 2.4
    - Flame arrestor – See blue print of the production flare unit on page 3

- Burner manifold pressure – 0.09psi min and 1.67psi max
- Pilot flame indicator – See blue print of the production flare unit on page 3
- Pilot flame fuel usage – Not Applicable
- Tip velocity range – 1.39ft/sec – 6.75ft/sec
- Momentum flux ratio – Not Applicable
- Exit temperature range – See Air Hygiene report Appendix B
- Weather condition - See Air Hygiene report Appendix B

Specified Testing Conclusion for Model SCD-36:

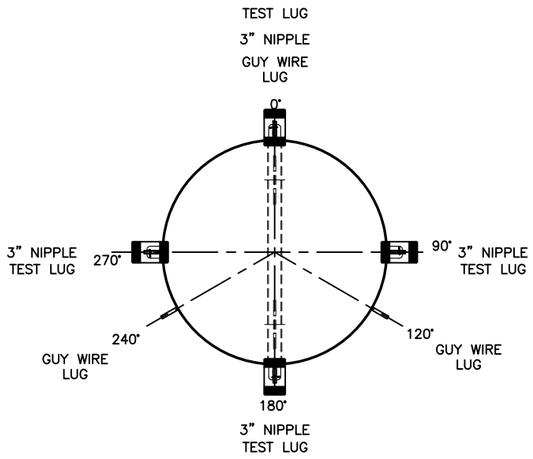
- The device was tested with no visible emission
- The device was tested with less than 10 ppmvw average as propane corrected to 3 percent carbon dioxide
- The device was tested with less than 10 ppmvd average as carbon monoxide corrected to 3 percent carbon dioxide
- The device was tested with higher than 150 percent excess air
- The device was tested with higher than 95 percent destruction efficiency for VOC

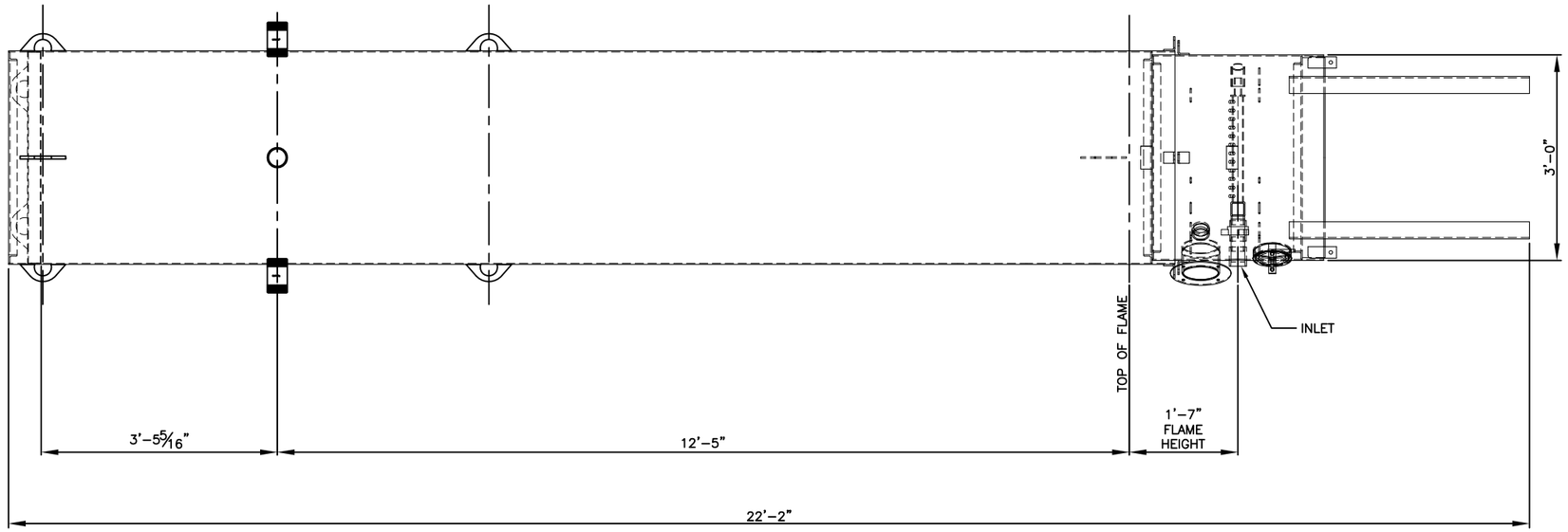


NO.	DATE	BY:	CKD	APD	DESCRIPTION

DRAWN: A. YOW	SFI SUPERIOR FABRICATION, INC. ELK CITY, OKLAHOMA, USA	DRAWING NO: SCD TEST
DATE: 2016-08-30		
CHKD: NONE	DWG. SCALE: NONE PLOT SCALE: 1:1 CUSTOMER: STANDARD	REVISION NO. 0
BOM YES ■ NO □	SCD TEST P&ID	AAY 2016-09-26-1356

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NO.	DATE	BY:	CKD	APD	DESCRIPTION

DRAWN: A. YOW
DATE: 2016-08-19
CHK'D: NONE
BOM YES ■ NO □

SUPERIOR FABRICATION, INC.
ELK CITY, OKLAHOMA, USA
DWG. SCALE: SCALE 1:12 PLOT SCALE: 1 DRAWING: STANDARD
36" SCD FOR FLARE TEST

DRAWING NO: 36" TEST
REVISION NO.
MAY 2016-08-19-1512

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AIR HYGIENE, INC.

Testing Solutions for a Better World

STACK EMISSIONS STUDY
EPA 40 CFR PART 60 SUBPART OOOO
FOR THE
COMBUSTION DEVICE SCD-36 MODEL
PREPARED FOR
SUPERIOR FABRICATION, INC.
AT THE
ELK CITY FACILITY
ELK CITY, OKLAHOMA
OCTOBER 4-7, 2016



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OCTOBER 4-7, 2016

Prepared and Reviewed by:

Michael Stockwell, QSTI
Sr. Project Manager

Aaron Blum
Test Manager

I, _____
Min Sum Lee, QSTI
Project Manager
certify that this testing was conducted and this report was created in conformance with the requirements of ASTM D7036

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Stack Emissions Study
Combustion Device SCD-36 Model
Superior Fabrication, INC.
Elk City Facility
Elk City, Oklahoma
October 4-7, 2016

1.0 INTRODUCTION

Air Hygiene International, Inc. (Air Hygiene) has completed the Stack Emissions Study for carbon monoxide (CO), total hydrocarbons (THC), flow, visible emission (VE), moisture (H_2O), carbon dioxide (CO_2), and oxygen (O_2) from the exhaust of the Combustion Device SCD-36 Model for Superior Fabrication, INC. at the Elk City Facility near Elk City, Oklahoma. This report details the background, results, process description, and the sampling/analysis methodology of the stack sampling survey conducted on October 4-7, 2016.

1.1 TEST PURPOSE AND OBJECTIVES

The purpose of the test was to conduct compliance emission test to document levels of selected pollutants at four ramp-up ramp-down test loads (0-30-0%, 30-70-30%, 70-100-70%, and 90-100%). The information will be used to confirm compliance with United States Code of Federal Regulations (CFR), Title 40 (40 CFR), Part 60 (40 CFR 60), Subpart OOOO. The specific objective was to determine the emission concentration of CO, THC, flow, visual emission, H_2O, CO_2, and O_2 from the exhaust of Superior Fabrication, INC.'s Combustion Device SCD-36 Model.

1.2 SUMMARY OF TEST PROGRAM

The following list details pertinent information related to this specific project:

1.2.1 Participating Organizations
- Environment Protection Agency (EPA)
- Superior Fabrication, INC.
- Air Hygiene

1.2.2 Industry
- Natural Gas Transport and Processing

1.2.3 Air Permit and Federal Requirements
- 40 CFR 60, Subpart OOOO

1.2.4 Plant Location
- Elk City Facility near Elk City, Oklahoma
  - 801 S. Eastern , Elk City, OK 73644

1.2.5 Equipment Tested
- Combustion Device SCD-36 Model

1.2.6 Emission Points
- For all gases, three sample points in the exhaust duct from the Combustion Device SCD-36 Model, determined according 40 CFR 60 Subpart OOOO
- For all moisture, flow and fixed gas testing, 20 sampling points in the exhaust duct from the Combustion Device SCD-36 Model
- For visual emission, one sample visual observation point from the exit of the exhaust duct to the atmosphere from the Combustion Device SCD-36 Model

1.2.7 Emission Parameters Measured

- CO
- THC
- Flow
- Visual Emission
- H_2O
- CO_2
- O_2

1.2.8 Dates of Emission Test

- October 4-7, 2016

1.2.9 Federal and State Certifications

- Stack Testing Accreditation Council AETB Certificate No. 3796.02
- International Standard ISO/IEC 17025:2005 Certificate No. 3796.01

1.3 KEY PERSONNEL

Superior Fabrication, INC.:	Adam Yow	580-243-5693
Superior Fabrication, INC.	Mark Axtell	405-820-7060
Air Hygiene:	Min Sum Lee (mlee@airhyiene.com)	918-307-8865
Air Hygiene:	Brian Brown	918-307-8865
Air Hygiene:	Taylor Williams	918-307-8865

2.0 SUMMARY OF TEST RESULTS

Results from the sampling conducted on Superior Fabrication, INC.'s Combustion Device SCD-36 Model located at the Elk City Facility on October 4-7, 2016 are summarized in the following table and relate only to the items tested.

TABLE 2.1
SCD-36 0-30-0 LOAD DATA SUMMARY

Parameter	0-30-0 Load, Run - SCD-36 R1	0-30-0 Load, Run - SCD-36 R2	0-30-0 Load, Run - SCD-36 R3	Average
Date (mm/dd/yy)	10/05/16	10/06/16	10/06/16	--
Start Time (hh:mm:ss)	12:07:27	13:17:27	14:43:27	--
End Time (hh:mm:ss)	13:17:27	14:27:27	15:53:27	--
Run Duration (min / run)	70	71	71	71
Bar. Pressure (in. Hg)	27.85	27.86	27.83	27.85
Amb. Temp. (°F)	80	83	88	84
Rel. Humidity (%)	28	54	51	44
Spec. Humidity (lb water / lb air)	0.006527	0.013959	0.015611	0.012032
Wind Speed (mph)	6.0	10.0	8.0	8.0
Wind Direction (--)	W	S	SE	--
Inlet Gas Canister Pressure Start (inHg)	-28.02	-19.73	-11.33	-19.69
Inlet Gas Canister Pressure Stop (inHg)	-19.73	-11.33	-0.71	-10.59
Gross Fuel Heating Value (Btu/ft3)	2,550	2,550	2,550	2,550
Stack Flow (M2) (dscfh)	49,698	46,561	49,483	48,581
Stack Moisture (Method 4)	4.7	5.3	5.1	5.1
Gross Fuel Heating Value (Btu/ft^3)	2,550.1	2,550.1	2,550.1	2,550.10
Average Inlet Fuel Flowrate (SCFH)	309.5	312.9	309.6	310.68
Average Inlet Mass Fuel Flowrate (lb/hr)	36.0	36.3	36.0	36.08
% Excess Air	372.7	285.4	316.7	324.93
CO_2 (%) - Modified method 3C	3.65	3.99	3.66	3.77
O_2 (%) - Modified Method 3C	16.60	15.70	16.10	16.13
N_2 (%) - Modified Method 3C	79.75	80.31	80.24	80.10
Visual Emission (mm:ss)	0:00	0:00	0:00	0:00
CO (ppmvd)	8.95	1.97	1.21	4.04
CO (ppm@3%CO_2)	7.36	1.48	0.99	3.28
THC (ppmvw)	0.28	0.08	0.00	0.12
THC (ppm@3%CO_2)	0.23	0.06	0.00	0.10
THC (lb/hr)	0.00	0.00	0.00	0.00
VOC Destruction Efficiency (%)	99.995	99.999	99.999	99.998

TABLE 2.2
SCD-36 70-100-70 LOAD DATA SUMMARY

Parameter	70-100-70 Load, Run - SCD-36 R7	70-100-70 Load, Run - SCD-36 R8	70-100-70 Load, Run - SCD-36 R9	Average
Date (mm/dd/yy)	10/05/16	10/06/16	10/06/16	--
Start Time (hh:mm:ss)	17:05:27	7:55:27	9:25:27	--
End Time (hh:mm:ss)	18:15:27	9:05:27	10:35:27	--
Run Duration (min / run)	71	71	71	71
Bar. Pressure (in. Hg)	27.79	27.85	27.86	27.83
Amb. Temp. (°F)	87	70	72	76
Rel. Humidity (%)	18	83	76	59
Spec. Humidity (lb water / lb air)	0.005229	0.014019	0.013728	0.010992
Wind Speed (mph)	7.0	5.0	4.0	5.3
Wind Direction (--)	W	S	S	--
Inlet Gas Canister Pressure Start (inHg)	-28.04	-18.82	-10.33	--
Inlet Gas Canister Pressure Stop (inHg)	-18.82	-10.33	0.11	--
Gross Fuel Heating Value (Btu/ft3)	2,555	2,555	2,555	2,555
Stack Flow (M2) (dscfh)	76,295	84,431	88,937	83,221
Stack Moisture (Method 4)	6.5	7.4	7.1	7.0
Gross Fuel Heating Value (Btu/ft^3)	2,555.0	2,555.0	2,555.0	2,555.00
Average Inlet Fuel Flowrate (SCFH)	1,020.3	1,099.2	1,068.0	1,062.52
Average Inlet Mass Fuel Flowrate (lb/hr)	118.0	127.7	113.5	119.71
% Excess Air	279.9	238.3	239.1	252.45
CO_2 (%) - Modified method 3C	4.26	4.34	4.42	4.34
O_2 (%) - Modified Method 3C	15.60	15.00	15.00	15.20
N_2 (%) - Modified Method 3C	80.20	80.66	80.58	80.48
Visual Emission (mm:ss)	0:00	0:00	0:00	0:00
CO (ppmvd)	1.65	2.10	0.90	1.55
CO (ppm@3%CO_2)	1.16	1.45	0.61	1.08
THC (ppmvw)	0.18	0.28	0.00	0.15
THC (ppm@3%CO_2)	0.13	0.19	0.00	0.10
THC (lb/hr)	0.00	0.00	0.00	0.00
VOC Destruction Efficiency (%)	99.999	99.998	99.999	99.998

TABLE 2.3
SCD-36 70-100-70 LOAD DATA SUMMARY

Parameter	70-100-70 Load, Run - SCD-36 R4	70-100-70 Load, Run - SCD-36 R5	70-100-70 Load, Run - SCD-36 R6	Average
Date (mm/dd/yy)	10/06/16	10/07/16	10/07/16	--
Start Time (hh:mm:ss)	16:13:27	7:55:07	9:21:07	--
End Time (hh:mm:ss)	17:23:27	9:05:07	10:31:07	--
Run Duration (min / run)	71	71	71	71
Bar. Pressure (in. Hg)	27.82	28.22	28.25	28.10
Amb. Temp. (°F)	86	49	52	62
Rel. Humidity (%)	52	53	60	55
Spec. Humidity (lb water / lb air)	0.014927	0.004108	0.005202	0.008079
Wind Speed (mph)	8.0	5.0	6.0	6.3
Wind Direction (--)	SW	W	W	--
Inlet Gas Canister Pressure Start (inHg)	-28.12	-19.38	-11.44	--
Inlet Gas Canister Pressure Stop (inHg)	-19.38	-11.44	-0.91	--
Gross Fuel Heating Value (Btu/ft3)	2,555	2,555	2,555	2,555
Stack Flow (M2) (dscfh)	67,128	49,494	55,427	57,350
Stack Moisture (Method 4)	4.9	5.0	4.9	5.0
Gross Fuel Heating Value (Btu/ft^3)	2,554.8	2,554.8	2,554.8	2,554.80
Average Inlet Fuel Flowrate (SCFH)	649.6	707.8	668.7	675.37
Average Inlet Mass Fuel Flowrate (lb/hr)	75.5	81.7	77.7	78.28
% Excess Air	223.1	245.3	234.6	234.34
CO_2 (%) - Modified method 3C	4.66	4.39	4.52	4.52
O_2 (%) - Modified Method 3C	14.70	15.10	14.90	14.90
N_2 (%) - Modified Method 3C	80.64	80.51	80.50	80.55
Visual Emission (mm:ss)	0:00	0:00	0:00	0:00
CO (ppmvd)	0.40	2.19	1.34	1.31
CO (ppm@3%CO_2)	0.26	1.50	0.89	0.88
THC (ppmvw)	0.00	0.21	0.03	0.08
THC (ppm@3%CO_2)	0.00	0.15	0.02	0.05
THC (lb/hr)	0.00	0.00	0.00	0.00
VOC Destruction Efficiency (%)	99.999	99.998	99.999	99.999

TABLE 2.4
SCD-36 90-100 LOAD DATA SUMMARY

Parameter	90-100 Load, Run - SCD-36 R10	90-100 Load, Run - SCD-36 R11	90-100 Load, Run - SCD-36 R12	Average
Date (mm/dd/yy)	10/04/16	10/04/16	10/04/16	--
Start Time (hh:mm:ss)	8:02:13	9:27:13	10:52:00	--
End Time (hh:mm:ss)	9:12:13	10:37:13	12:02:13	--
Run Duration (min / run)	71	71	71	71
Bar. Pressure (in. Hg)	27.68	27.69	27.69	27.69
Amb. Temp. (°F)	69	69	81	73
Rel. Humidity (%)	80	78	70	76
Spec. Humidity (lb water / lb air)	0.013053	0.012781	0.017246	0.014360
Wind Speed (mph)	8.0	10.0	9.0	9.0
Wind Direction (--)	S	S	S	--
Inlet Gas Canister Pressure Start (inHg)	-27.93	-20.06	-10.71	--
Inlet Gas Canister Pressure Stop (inHg)	-20.06	-10.71	-0.19	--
Gross Fuel Heating Value (Btu/ft3)	2,546	2,546	2,546	2,546
Stack Flow (M2) (dscfh)	86,689	84,652	82,021	84,454
Stack Moisture (Method 4)	6.6	6.4	6.7	6.6
Gross Fuel Heating Value (Btu/ft^3)	2,546.2	2,546.2	2,546.2	2,546.20
Average Inlet Fuel Flowrate (SCFH)	1,212.0	1,190.2	1,164.6	1,188.96
Average Inlet Mass Fuel Flowrate (lb/hr)	140.8	138.2	135.3	138.09
% Excess Air	253.8	304.1	289.7	282.54
CO_2 (%) - Modified method 3C	4.54	4.07	4.22	4.28
O_2 (%) - Modified Method 3C	15.20	15.90	15.70	15.60
N_2 (%) - Modified Method 3C	80.26	80.03	80.00	80.10
Visual Emission (mm:ss)	0:00	0:00	0:00	0.00
CO (ppmvd)	6.28	3.51	3.31	4.37
CO (ppm@3%CO_2)	4.15	2.59	2.36	3.03
THC (ppmvw)	0.75	0.00	0.05	0.27
THC (ppm@3%CO_2)	0.49	0.00	0.03	0.18
THC (lb/hr)	0.01	0.00	0.00	0.00
VOC Destruction Efficiency (%)	99.995	99.999	99.999	99.998

The results of all measured pollutant emissions were below the required limits. All testing was performed without any real or apparent errors. All testing was conducted according to the requirement of 40 CFR 60.5413 and 40 CFR 60.5412 without any alterations.

3.0 SOURCE OPERATION

3.1 PROCESS DESCRIPTION

Superior Fabrication, Inc. (SFI) owns and operates the Elk City Facility located at in Elk City, Oklahoma. SFI designs and manufactures a wide range of well head production equipment, emission control devices, miscellaneous pressure vessels, and provides field services and technical support for these and other oil field requirements. The interests of this test protocol are three Combustion Flares.

3.2 SAMPLING LOCATION

The sample ports were located approximately 15.25 feet above grade level on the exhaust system. The stack had a 33 inches inner diameter and was equipped with four, 3 inch ports oriented at 90 degrees. The ports were 5.6 duct diameters downstream from the flare tip and 1.4 duct diameters upstream from the stack exit to the atmosphere. THC and CO samples for gaseous emissions were continuously drawn from the exhaust system at one sample port with three sampling points located at 16.7 percent, 50 percent, and 83.3 percent of the stack diameter. All visual emission observation was made by viewing the point where the exhaust system exited to the atmosphere at the top of the exhaust stack. All fuel sampling was continuously drawn from the fuel supply system with silonite-coated stainless steel evacuated canister from a tap located at 8 pipe diameter, 24 inches upstream of the fuel monitoring system. All flow, fixed gases and moisture sampling was continuously drawn from the exhaust system at two ports with 24 points across the stack according to Method 1.

4.0 SAMPLING AND ANALYTICAL PROCEDURES

4.1 TEST METHODS

The emission test on the Combustion Device SCD-36 Model at the Elk City Facility was performed following United States Environmental Protection Agency (EPA) methods described by the Code of Federal Regulations (CFR). Table 4.1 outlines the specific methods performed on October 4-7, 2016.

TABLE 4.1
SUMMARY OF SAMPLING METHODS

Pollutant or Parameter	Sampling Method	Analysis Method
Sample Point Location	EPA Method 1	Equal Area Method
Stack Flow Rate	EPA Method 2	S-Type Pitot Tube
Fuel Flow Rate	EPA Method 2A	Volume Displacement
CO_2, O_2, Methane	EPA Method 3C	Gas Chromatograph-TCD
Stack Moisture Content	EPA Method 4	Gravimetric Analysis
Carbon Monoxide	EPA Method 10	Nondispersive Infrared Analyzer
Visual Emission	EPA Method 22	Visual Observation

Pollutant or Parameter	Sampling Method	Analysis Method
Total Hydrocarbons	EPA Method 25a	Flame Ionization Detector
Fuel Content Analysis	ASTM D 1945-03, ASTM D 3588-98	Gas Chromatograph

4.2 INSTRUMENT CONFIGURATION AND OPERATIONS FOR GAS ANALYSIS

The sampling and analysis procedures used during these tests conform with the methods outlined in the Code of Federal Regulations (CFR), Title 40, Part 60, Appendix A, Methods 1, 2, 2a, 3c 4, 10, 22, 25a, ASTM D1945-03, and ASTM D3588-98 .

Figure 4.1 depicts the sample system used for the real-time gas analyzer tests. The gas sample was continuously pulled through the probe and transported, via heat-traced Teflon® tubing, to a stainless steel minimum-contact condenser designed to dry the sample. Transportation of the sample, through Teflon® tubing, continued into the sample manifold within the mobile laboratory via a stainless steel/Teflon® diaphragm pump. From the manifold, the sample was partitioned to the real-time analyzers through rotameters that controlled the flow rate of the sample. Exhaust samples were routed to the wet based analyzer prior to gas conditioning.

Figure 4.1 shows that the sample system was also equipped with a separate path through which a calibration gas could be delivered to the probe and back through the entire sampling system. This allowed for convenient performance of system bias checks as required by the testing methods.

All instruments were housed in an air-conditioned, trailer-mounted mobile laboratory. Gaseous calibration standards were provided in aluminum cylinders with the concentrations certified by the vendor. EPA Protocol No. 1 was used to determine the cylinder concentrations where applicable (i.e. NOx calibration gases).

Table 4.2 provides a description of the analyzers used for the instrument portion of the tests. All data from the continuous monitoring instruments were recorded on a Logic Beach Portable Data Logging System which retrieves calibrated electronic data from each instrument every one second and reports an average of the collected data every 30 seconds. Data records can be found in Appendix A and B of this report.

Figure 4.2 represents the sample system used for moisture and flow testing. An inconel probe with an inconel 3/8 inches tubing, pitots tube and thermocouple were inserted into the sample ports of the stack to extract gas measurements from the emission stream through a glass impinger train. Flow rates were monitored with oil filled manometers and total sample volumes were measured with a dry gas meter. Tedlar bags were collected at the exit of this train.

Three test runs for each of the firing rate at 0-30-0 percent, 30-70-30 percent, 70-100-70 percent, and 90-100 percent (ramp up, ramp down) of approximately 65 minutes each were conducted on the Combustion Device SCD-36 Model for CO, THC, CO_2, and O_2.

Figure 4.3 represents the inlet sampling system in accordance with Method 2A, 40 CFR part 60 to measure inlet gas flow rate, pressure and temperature. Fuel sample was collected at 24 inches upstream from gas flow meter.

The stack gas analysis for O_2 and CO_2 concentrations was performed in accordance with procedures set forth in EPA Method 3C. The sample were collected in a tedlar bag and analyzed by GC-TCD at an offsite laboratory.

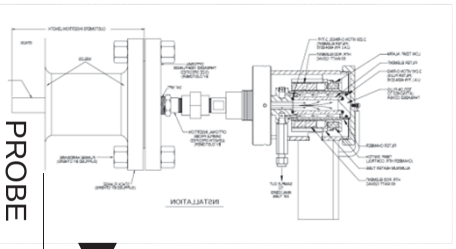
CO emission concentrations were quantified in accordance with procedures set forth in EPA Method 10. A continuous nondispersive infrared (NDIR) analyzer was used for this purpose.

THC emission concentrations were quantified in accordance with procedures set forth in EPA Method 25a. A continuous flame ionization (FID) analyzer was used for this purpose.

TABLE 4.2
ANALYTICAL INSTRUMENTATION

Parameter	Manufacturer and Model	Range	Sensitivity	Detection Principle
CO	THERMO 48i	User may select up to 10,000 ppm	0.1 ppm	Infrared absorption, gas filter correlation detector, microprocessor based linearization.
THC	THERMO 51	User may select up to 10,000 ppm	0.1 ppm	Flame Ionization Detector

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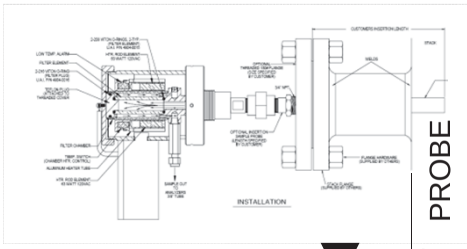
PROBE

HEATED PROBE FILTER

LEGEND

- Heated Teflon Tubing (pre-conditioned sample)
- Unheated Teflon Tubing (conditioned sample)
- Diluted Calibration Gas
- Calibration Gas
- Electronic Input/Output

HEATED PROBE FILTER



PROBE

PROCESS INLET OR 2ND STACK

dual line heated sample umbilical

TEST TRAILER EXTERIOR

TEST TRAILER INTERIOR

DATA RECORDER



COMPUTER



GAS CONDITIONER

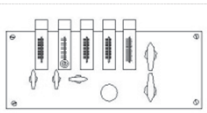


STACK EXHAUST

dual line heated sample umbilical

MOBILE SECONDARY ANALYZERS

MANIFOLD





GAS DILUTER

THC, VOC



HOT/WET ANALYZERS

COLD/DRY ANALYZERS

O_2, CO_2, NOx, CO, SO_2



COLD/DRY ANALYZERS HOT/WET



O_2, CO_2, NOx, CO, SO_2



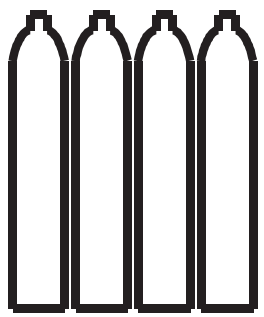
THC, VOC



CONDITIONER

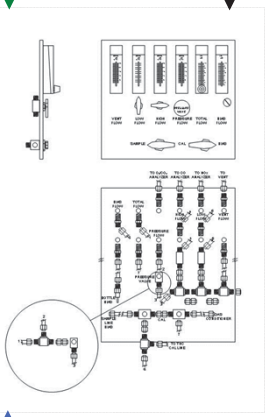
VENT

CALIBRATION/ BIAS GAS BOTTLES



VENT

FIXED PRIMARY ANALYZERS



FLOW CONTROL MANIFOLD



FTIR

Shown fully equipped. Some labs may not contain these features and others may contain additional features specific to certain scopes.

AIR HYGIENE

Figure 4.1
EMISSIONS TESTING LAB

1600 W Tacoma Street
Broken Arrow, Oklahoma 74012
www.airhygiene.com
(888) 461-8778

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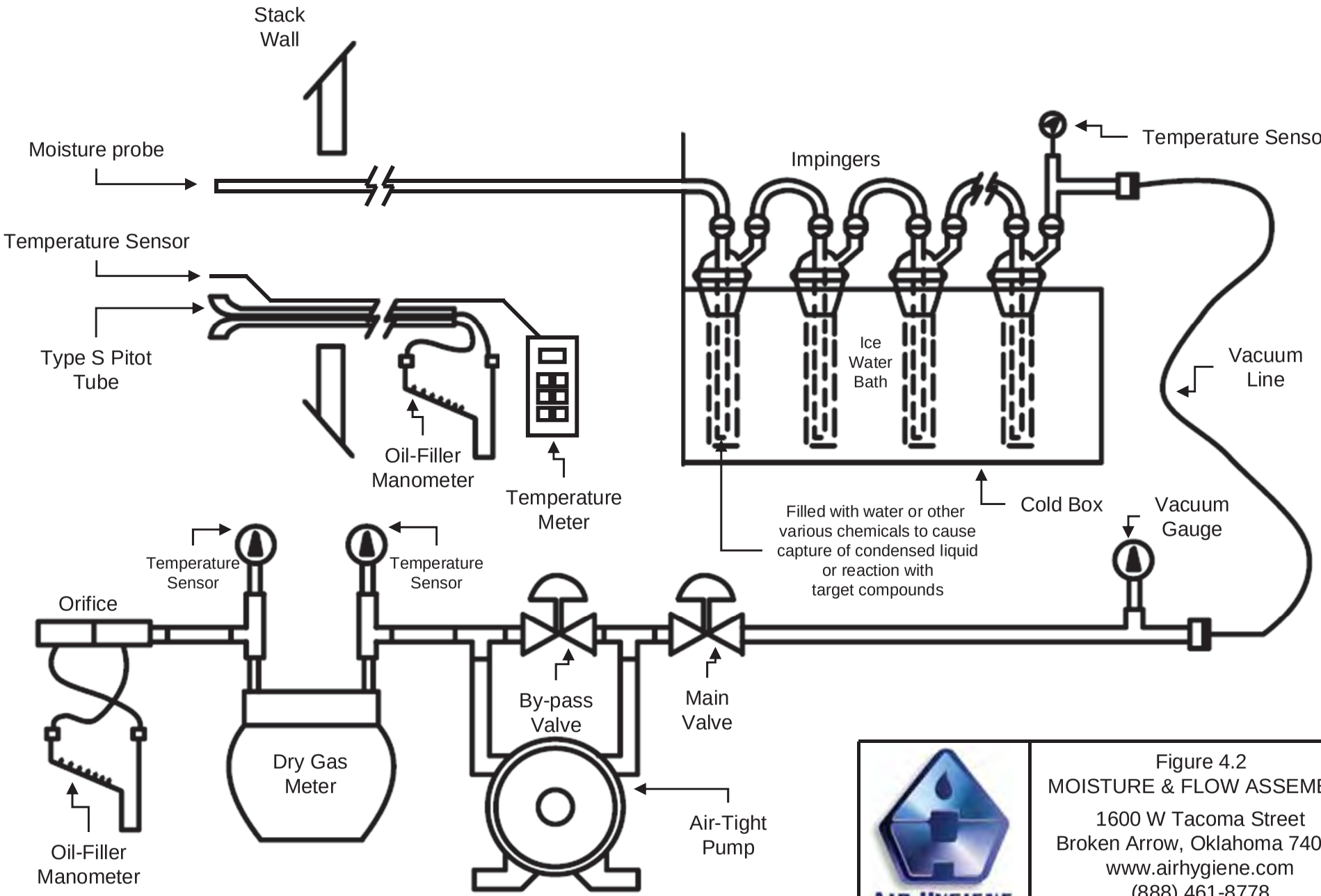
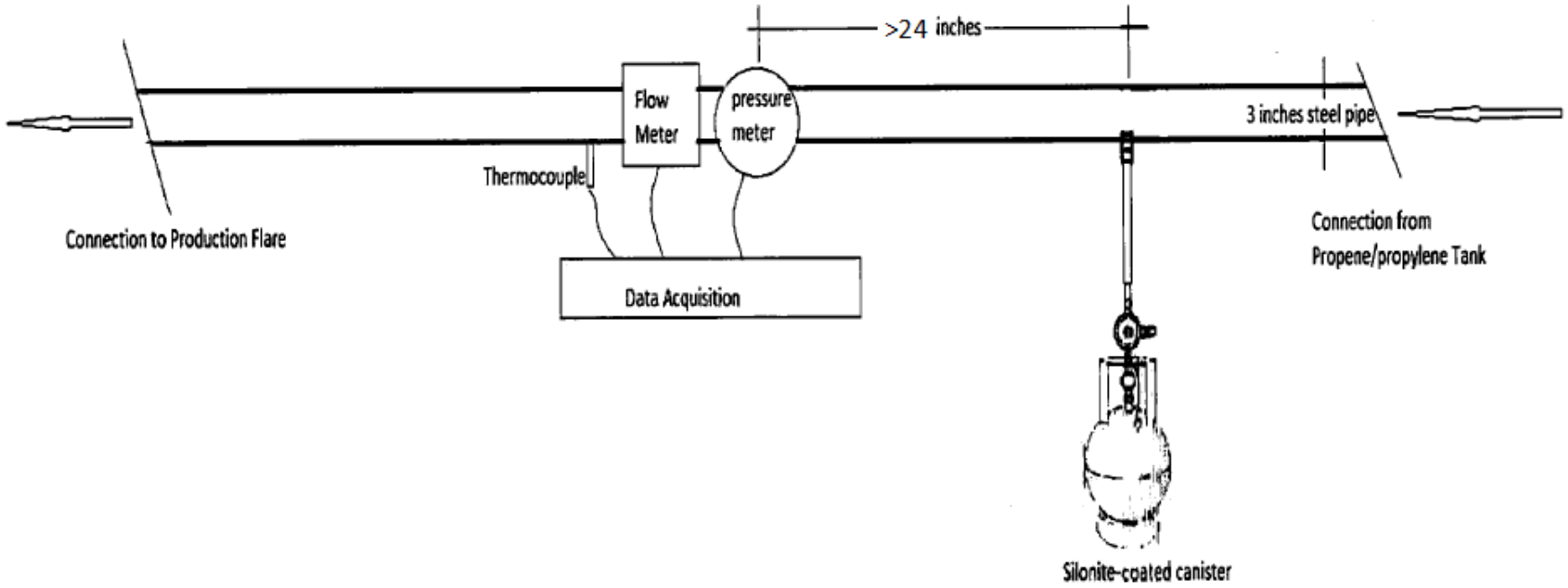


Figure 4.2
MOISTURE & FLOW ASSEMBLY

1600 W Tacoma Street
Broken Arrow, Oklahoma 74012
www.airhygiene.com
(888) 461-8778



AIR HYGIENE

Figure 4.3

FUEL SAMPLING SETUP

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Broken Arrow, Oklahoma 74012

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(888) 461-8778

APPENDIX A

TEST RESULTS AND CALCULATIONS

TABLE A.1:
EMISSIONS TESTING SCHEDULE

Unit	Load	Test Type	Run	Date	Start	Stop	Time Sync
SCD-36	90-100	CO,THC & Fuel Sampling	SCD-36 R10	10/04/16	8:02:13	9:12:13	CST
SCD-36	90-100	CO,THC & Fuel Sampling	SCD-36 R11	10/04/16	9:27:13	10:37:13	CST
SCD-36	90-100	CO,THC & Fuel Sampling	SCD-36 R12	10/04/16	10:52:00	12:02:13	CST
SCD-36	0-30-0	CO,THC & Fuel Sampling	SCD-36 R1	10/05/16	12:07:27	13:17:27	CST
SCD-36	0-30-0	CO,THC & Fuel Sampling	SCD-36 R2	10/06/16	13:17:27	14:27:27	CST
SCD-36	0-30-0	CO,THC & Fuel Sampling	SCD-36 R3	10/06/16	14:43:27	15:53:27	CST
SCD-36	70-100-70	CO,THC & Fuel Sampling	SCD-36 R7	10/05/16	17:05:27	18:15:27	CST
SCD-36	70-100-70	CO,THC & Fuel Sampling	SCD-36 R8	10/06/16	7:55:27	9:05:27	CST
SCD-36	70-100-70	CO,THC & Fuel Sampling	SCD-36 R9	10/06/16	9:25:27	10:35:27	CST
SCD-36	70-100-70	CO,THC & Fuel Sampling	SCD-36 R4	10/06/16	16:13:27	17:23:27	CST
SCD-36	70-100-70	CO,THC & Fuel Sampling	SCD-36 R5	10/07/16	7:55:07	9:05:07	CST
SCD-36	70-100-70	CO,THC & Fuel Sampling	SCD-36 R6	10/07/16	9:21:07	10:31:07	CST
SCD-36	90-100	Fixed Gas & Moisture	90-100%-1	10/04/16	8:02	9:12	CST
SCD-36	90-100	Fixed Gas & Moisture	90-100%-2	10/04/16	9:27	10:36	CST
SCD-36	90-100	Fixed Gas & Moisture	90-100%-3	10/04/16	10:52	12:02	CST
SCD-36	0-30-0	Fixed Gas & Moisture	0-30-0%-1	10/05/16	12:07	13:17	CST
SCD-36	0-30-0	Fixed Gas & Moisture	0-30-0%-2	10/06/16	13:17	14:27	CST
SCD-36	0-30-0	Fixed Gas & Moisture	0-30-0%-3	10/06/16	14:43	15:53	CST
SCD-36	70-100-70	Fixed Gas & Moisture	70-100-70%-1	10/05/16	17:05	18:15	CST
SCD-36	70-100-70	Fixed Gas & Moisture	70-100-70%-2	10/06/16	7:55	9:05	CST
SCD-36	70-100-70	Fixed Gas & Moisture	70-100-70%-3	10/06/16	9:25	10:35	CST
SCD-36	30-70-30	Fixed Gas & Moisture	30-70-30%-1	10/06/16	16:13	17:23	CST
SCD-36	30-70-30	Fixed Gas & Moisture	30-70-30%-2	10/07/16	7:55	9:05	CST
EC48-2S	30-70-30	Fixed Gas & Moisture	30-70-30%-3	10/07/16	9:21	8:52	CST

EXAMPLE CALCULATIONS (INFORMATION)

Specific Humidity (RH_{sp})

Note: RHsp (gr/lb) calculated using temperature, relative humidity, and barometric pressure with psychrometric chart, psychrometric calculator, or built in psychrometric algorithm.

$$RH_{sp}(lb/lb) = \left[\left(\frac{gr}{lb}\right) \times \frac{lb}{7000\,gr}\right]$$

RH_{sp}= 91.37 gr / lb x 1 lb / 7000 gr = 0.013053 lb H_2O / lb Air

EXAMPLE CALCULATIONS (CALIBRATION)

Calibration Error and Estimated Point, RM 25A, THC Analyzer

RM 25A, (12-17-09), 8.4 Calibration Error Test. Immediately prior to the test series (within 2 hours of the start of the test), introduce zero gas and high-level calibration gas at the calibration valve assembly. Adjust the analyzer output to the appropriate levels, if necessary. Calculate the predicted response for the low-level and mid-level gases based on a linear response line between the zero and high-level response. Then introduce low-level and mid-level calibration gases successively to the measurement system. ... These differences must be less than 5 percent of the respective calibration gas value. (calc for THC analyzer mid gas, if applicable)

$$E_P = \frac{C_{Dir(H)} - C_{Dir(Z)}}{C_{V(H)} - C_{V(Z)}} \times C_{Dir(M)} + C_{Dir(Z)}$$

Eq. of a line y=mx+b

E_p = (8.45 ppm - -0.05 ppm) / (8.43 ppm - 0.00 ppm) x 5.01 ppm + -0.05 = 5.00 ppm

$$ACE = \left(\frac{C_{Dir} - C_V}{CS}\right) \times 100$$

Eq. 7E-1

ACE_{THC} = (5.06 ppm - 5.00 ppm) / 5.01 ppm x 100 = 1.14 %

EXAMPLE CALCULATIONS (BIAS, DRIFT, AND CORRECTED RAW AVERAGE)

System Bias

RM 7E, (12-17-09), 12.3 System Bias. For non-dilution systems, use Equation 7E-2 to calculate the system bias separately for the low-level and upscale calibration gases. (calc for THC analyzer upscale gas, Run 1 initial bias, if applicable)

$$SB = \left(\frac{C_S - C_{Dir}}{CS}\right) \times 100$$

Eq. 7E-2

SB = (3.04 ppm - 3.01 ppm) / 10.00 ppm x 100 = 0.30 %

Drift Assessment

RM 7E, (12-17-09), 12.5 Drift Assessment. Use Equation 7E-4 to separately calculate the low-level and upscale drift over each test run. (calc for THC analyzer upscale drift, Run 1, if applicable)

$$D = \left|SB_{final} - SB_i\right|$$

Eq. 7E-4

D = | 0.80 % - 0.30 % | = 0.50 %

Alternative Drift and Bias

RM 7E, (12-17-09), 13.2 / 13.3 System Bias and Drift. Alternatively, the results are acceptable if |Cs – Cdir| is ≤ 0.5 ppmv or if |Cs – Cv| is ≤ 0.5 ppmv (as applicable). (calc for THC analyzer initial upscale, Run 1, if applicable)

$$SB/D_{Alt} = \left|C_S - C_{Dir}\right|$$

Eq. Section 13.2 and 13.3

SB / D_{Alt} = | 3.04 ppm - 3.01 ppm | = 0.03 ppm

Bias Adjusted Average

RM 7E, (12-17-09), 12.6 Effluent Gas Concentration. For each test run, calculate Cavg, the arithmetic average of all valid THC concentration values (e.g., 1-minute averages). Then adjust the value of Cavg for bias, using Equation 7E-5b. (calc for THC analyzer, Run 1, if applicable)

$$C_{Gas} = \left(C_{Avg} - C_O\right) \times \left(\frac{C_{MA}}{C_M - C_O}\right)$$

Eq. 7E-5b

C_{Gas} = (0.75 ppm - -0.02 ppm) x (3.00 ppm / 3.07 ppm - -0.02 ppm) = 0.75 ppm

Note: Lack of significant figures may cause rounding errors between actual calculations and example calculations.

EXAMPLE CALCULATIONS (RUNS)

Diluent-Corrected Pollutant Concentration, CO_2 Based

Calculate the CO_2 corrected pollutant concentration, as follows: (calc for THC gas, Run 1, if applicable)

Uinsg Method 3C fixed gas analysis

$$C_{adj} = 0.80 \text{ ppm} \times \left(\frac{3.00\ \%}{4.31\ \%} \right) = 0.56 \text{ ppm@3\%CO}_2$$

EXAMPLE CALCULATIONS (RUNS)

Emissions Rate (lb/hr)

Calculation for pound per hour emission rate. Calculate, as follows: (calc for THC gas Run 1, if applicable)

$$E_{lb/hr} = \frac{C_{Gas}}{10^6} \times \frac{Q_S \times MW}{G}$$

$$E_{lb/hr} = \frac{0.80 \text{ ppm}}{10^6 \text{ ppm/part}} \times \frac{84{,}652 \text{ SCFH} \times 44.00 \text{ lb/lb-mol}}{385.23 \text{ SCF/lb-mol}} = \frac{0.008 \text{ lb}}{\text{hr}}$$

VOC Destruction Efficiency

Calculation for VOC destructtion Efficiency. Calculate, as follows: (calc for run 1, if applicable)

$$DE\% = \frac{140.771 \text{ lb/hr} - 0.008 \text{ lb/hr}}{140.771 \text{ lb/hr}} \times 100 = 99.995\ \%$$

Note: Lack of significant figures may cause rounding errors between actual calculations and example calculations.

RM 7E, (08-15-06), 12.1 Nomenclature. The terms used in the equations are defined as follows:

ACE = Analyzer calibration error, percent of calibration span.
B_{WS} = Moisture content of sample gas as measured by Method 4 or other approved method, percent/100.
C_{Avg} = Average unadjusted gas concentration indicated by data recorder for the test run.
C_D = Pollutant concentration adjusted to dry conditions.
C_{Dir} = Measured concentration of a calibration gas (low, mid, or high) when introduced in direct calibration mode.
C_{Gas} = Average effluent gas concentration adjusted for bias.
C_M = Average of initial and final system calibration bias (or 2-point system calibration error) check responses for the upscale calibration gas.
C_{MA} = Actual concentration of the upscale calibration gas, ppmv.
C_O = Average of the initial and final system calibration bias (or 2-point system calibration error) check responses from the low-level (or zero) calibration gas.
C_S = Measured concentration of a calibration gas (low, mid, or high) when introduced in system calibration mode.
C_{SS} = Concentration of NOx measured in the spiked sample.
C_{Spike} = Concentration of NOx in the undiluted spike gas.
C_{Calc} = Calculated concentration of NOx in the spike gas diluted in the sample.
C_V = Manufacturer certified concentration of a calibration gas (low, mid, or high).
C_W = Pollutant concentration measured under moist sample conditions, wet basis.
CS = Calibration span.
D = Drift assessment, percent of calibration span.
E_p = The predicted response for the low-level and mid-level gases based on a linear response line between the zero and high-level response.
Eff_{NO2} = NO_2 to NO converter efficiency, percent.
H = High calibration gas, designator.
L = Low calibration gas, designator.
M = Mid calibration gas, designator.
NOFinal = The average NO concentration observed with the analyzer in the NO mode during the converter efficiency test in Section 16.2.2.
NOxCorr = The NOx concentration corrected for the converter efficiency.
NOxFinal = The final NOx concentration observed during the converter efficiency test in Section 16.2.2.
NOxPeak = The highest NOx concentration observed during the converter efficiency test in Section 16.2.2.
Q_{Spike} = Flow rate of spike gas introduced in system calibration mode, L/min.
Q_{Total} = Total sample flow rate during the spike test, L/min.
R = Spike recovery, percent.
SB = System bias, percent of calibration span.
SB_i = Pre-run system bias, percent of calibration span.
SB_f = Post-run system bias, percent of calibration span.
SB / D_{Alt} = Alternative absolute difference criteria to pass bias and/or drift checks.
SCE = System calibration error, percent of calibration span.
SCE_i = Pre-run system calibration error, percent of calibration span.
SCE_{final} = Post-run system calibration error, percent of calibration span.
Z = Zero calibration gas, designator.

40CFR60.355(b)(1), (09-20-06), Nomenclature. The terms used in the equations are defined as follows:

P_r = reference combustor inlet absolute pressure at 101.3 kilopascals ambient pressure, mm Hg
P_o = observed combustor inlet absolute pressure at test, mm Hg
H_o = observed humidity of ambient air, g H_2O/g air
e = transcendental constant, 2.718
T_a = ambient temperature, K

RM 19, (07-29-06), 12.1 Nomenclature. The terms used in the equations are defined as follows:

AdjFactor = Percent oxygen or carbon dioxide adjustment applied to a target pollutant
B_{wa} = Moisture fraction of ambient air, percent.
Btu = British thermal unit
$\%_C$ = Concentration of carbon from an ultimate analysis of fuel, weight percent.
$\%_{CO2d}$,$\%_{CO2w}$ = Concentration of carbon dioxide on a dry and wet basis, respectively, percent.
CIP / CDP = Combustor inlet pressure / compressor discharge pressure (mm Hg); note, some manufactures reference as PCD.
E = Pollutant emission rate, ng/J (lb/million Btu).
E_a = Average pollutant rate for the specified performance test period, ng/J (lb/million Btu).
E_{ao}, E_{ai} = Average pollutant rate of the control device, outlet and inlet, respectively, for the performance test period, ng/J (lb/million Btu).
E_{bi} = Pollutant rate from the steam generating unit, ng/J (lb/million Btu).
E_{bo} = Pollutant emission rate from the steam generating unit, ng/J (lb/million Btu).
E_{ci} = Pollutant rate in combined effluent, ng/J (lb/million Btu).
E_{co} = Pollutant emission rate in combined effluent, ng/J (lb/million Btu).
E_d = Average pollutant rate for each sampling period (e.g.,24-hr Method 6B sample or 24-hr fuel sample) or for each fuel lot (e.g., amount of fuel bunkered), ng/J (lb/million Btu).
E_{di} = Average inlet SO_2 rate for each sampling period d, ng/J (lb/million Btu).
E_g = Pollutant rate from gas turbine, ng/J (lb/million Btu).
E_{ga} = Daily geometric average pollutant rate, ng/J (lbs/million Btu) or ppm corrected to 7 percent O_2.
E_{jo},E_{ji} = Matched pair hourly arithmetic average pollutant rate, outlet and inlet, respectively, ng/J (lb/million Btu) or ppm corrected to 7 percent O_2.
E_h = Hourly average pollutant, ng/J (lb/million Btu).
E_{hj} = Hourly arithmetic average pollutant rate for hour "j," ng/J (lb/million Btu) or ppm corrected to 7 percent O_2.
EXP = Natural logarithmic base (2.718) raised to the value enclosed by brackets.
Fc = Ratio of the volume of carbon dioxide produced to the gross calorific value of the fuel from Method 19
F_d, F_w, F_c = Volumes of combustion components per unit of heat content, scm/J (scf/million Btu).
ft^3 = cubic feet
G = ideal gas conversion factor
(385.23 SCF/lb-mol at 68 deg F & 14.696 psia)
GCM = gross Btu per SCF (constant, compound based)
GCV = Gross calorific value of the fuel consistent with the ultimate analysis, kJ/kg (Btu/lb).
GCV_p, GCV_r = Gross calorific value for the product and raw fuel lots, respectively, dry basis, kJ/kg (Btu/lb).
$\%_H$ = Concentration of hydrogen from an ultimate analysis of fuel, weight percent.
H_b = Heat input rate to the steam generating unit from fuels fired in the steam generating unit, J/hr (million Btu/hr).
H_g = Heat input rate to gas turbine from all fuels fired in the gas turbine, J/hr (million Btu/hr).
$\%_{H2O}$ = Concentration of water from an ultimate analysis of fuel, weight percent.
H_r = Total numbers of hours in the performance test period (e.g., 720 hours for 30-day performance test period).
K = volume of combustion component per pound of component (constant)
K = Conversion factor, 10^{-5} (kJ/J)/(%) [10^6 Btu/million Btu].
K_c = (9.57 scm/kg)/% [(1.53 scf/lb)/%].
K_{cc} = (2.0 scm/kg)/% [(0.321 scf/lb)/%].
K_{hd} = (22.7 scm/kg)/% [(3.64 scf/lb)/%].
K_{hw} = (34.74 scm/kg)/% [(5.57 scf/lb)/%].
K_n = (0.86 scm/kg)/% [(0.14 scf/lb)/%].
K_o = (2.85 scm/kg)/% [(0.46 scf/lb)/%].
K_s = (3.54 scm/kg)/% [(0.57 scf/lb)/%].
K_{sulfur} = $2x10^4$ Btu/wt%-MMBtu
K_w = (1.30 scm/kg)/% [(0.21 scf/lb)/%].
lb = pound
ln = Natural log of indicated value.
L_p,L_r = Weight of the product and raw fuel lots, respectively, metric ton (ton).
$\%_N$ = Concentration of nitrogen from an ultimate analysis of fuel, weight percent.
$M_{\%}$ = mole percent
mol = mole
MW = molecular weight (lb/lb-mol)
MW_{AIR} = molecular weight of air (28.9625 lb/lb-mole)[1]
NCM = net Btu per SCF (constant based on compound)
$\%_O$ = Concentration of oxygen from an ultimate analysis of fuel, weight percent.
$\%_{O2d}$, $\%_{O2w}$ = Concentration of oxygen on a dry and wet basis, respectively, percent.
P_B = barometirc pressure, in Hg
P_s = Potential SO2 emissions, percent.
$\%_S$ = Sulfur content of as-fired fuel lot, dry basis, weight percent.
S_e = Standard deviation of the hourly average pollutant rates for each performance test period, ng/J (lb/million Btu).
$\%_{Sf}$ = Concentration of sulfur from an ultimate analysis of fuel, weight percent.
S(wt%) = weight percent of sulfur, per lab analysis by appropriate ASTM standard
S_i = Standard deviation of the hourly average inlet pollutant rates for each performance test period, ng/J (lb/million Btu).
S_o = Standard deviation of the hourly average emission rates for each performance test period, ng/J (lb/million Btu).
$\%S_p$, $\%S_r$ = Sulfur content of the product and raw fuel lots respectively, dry basis, weight percent.
SCF = standard cubic feet
SH = specific humidity, pounds of water per pound of air
$t_{0.95}$ = Values shown in Table 19-3 for the indicated number of data points n.
T_{amb} = ambient temperature, ^oF
W/D Factor = 1.0236 = conv. at 14.696 psia and
68 deg F (ref. Civil Eng. Ref. Manual, 7th Ed.)
X_{CO2}=CO_2 Correction factor, percent.
X_k = Fraction of total heat input from each type of fuel k.

Calculations, Formulas, and Constants

The following information supports the spreadsheets for this testing project.

Given Data:

Ideal Gas Conversion Factor = 385.23 SCF/lb-mol at 68 deg F & 14.696 psia

Fuel Heating Value is based upon Air Hygiene's fuel gas calculation sheet. All calculations are based upon a correction to 68 deg F & 14.696 psia

High Heating Values (HHV) are used for the Fuel Heating Value, F-Factor, and Fuel Flow Data per EPA requirements.

ASTM D 3588

Molecular Weight of NOx (lb/lb-mole) =	46.01
Molecular Weight of CO (lb/lb-mole) =	28.00
Molecular Weight of SO_2 (lb/lb-mole) =	64.00
Molecular Weight of THC (propane) (lb/lb-mole) =	44.00
Molecular Weight of VOC (methane) (lb/lb-mole) =	16.00
Molecular Weight of NH_3 (lb/lb-mole) =	17.03
Molecular Weight of HCHO (lb/lb-mole) =	30.03

40CFR60, App. A., RM 19, Table 19-1

Conversion Constant for NOx =	0.0000001194351
Conversion Constant for CO =	0.0000000726839
Conversion Constant for SO_2 =	0.0000001661345
Conversion Constant for THC =	0.0000001142175
Conversion Constant for VOC (methane) =	0.0000000415336
Conversion Constant for NH_3 =	0.0000000442074
Conversion Constant for HCHO =	0.0000000779534

NOTE: units are lb/ppm*ft^3

Formulas:

1. Corrected Raw Average (C_{Gas}), 40CFR60, App. A, RM 7E, Eq. 7E-5 (08/15/06)

$$C_{Gas} = (C_{Avg} - C_O) \times \left(\frac{C_{MA}}{C_M - C_O} \right)$$

2. Correction to % O_2, 40CFR60, App. A, RM 20, Eq. 20-5 (11/26/02)

$$C_{adj} = C_{Gas(Target)} \times \left(\frac{20.9\% - AdjFactor}{20.9\% - C_{Gas(O2)}} \right)$$

3. Correction to % O_2 and ISO Conditions

$$C_{ISO} = C_{Adj} \times \sqrt{\frac{P_r}{P_o}} \times e^{(19 \times (H_O - 0.00633))} \times \left(\frac{288}{T_a} \right)^{1.53}$$

4. Method 19 stack exhaust flow (scfh)

$$Q_S = \left(\frac{FFactor \times Q_f \times HHV}{1{,}000{,}000} \right) \times \left(\frac{20.9\%}{20.9\% - C_{Gas(O2)}} \right)$$

5. Emission Rate in lb/hr

$$E_{lb/hr} = \frac{C_{Gas}}{10^6} \times \frac{Q_S \times MW}{G}$$

6. Emission Rate in tons per year

$$E_{ton/yr} = \frac{E_{lb/hr} \times hr_{year}}{2000}$$

7. Emission Concentration in lb/MMBtu (O_2 based)

$$E_{lb/MMBtu} = \frac{C_{Gas} \times F_d Factor \times Conv_C \times 20.9\%}{20.9\% - C_{Gas(O2)}}$$

8. Emission Concentration in g/hp*hr

$$E_{g/hp \cdot hr} = \frac{E_{lb/hr} \times 453.6}{mw \times 1314.022} \text{ or } \frac{E_{lb/hr} \times 453.6}{hp}$$

EXAMPLE CALCULATIONS (Reference Method 1 - Circular Stack)

Diameter of Stack (in.)

$$D(in.) = L_{fw} - L_{nw}$$

D (in.) = 39.00 in. - 6.00 in. = 33.00 in.

Area of Stack (ft^2)

$$A_s(ft^2) = \pi \times \left(\frac{D}{2 \times 12}\right)^2$$

A_s (ft^2) = 3.14 x ($\frac{33.00 \text{ in.}}{2 \times 12 \text{in./ft}}$)^2 = 5.94 ft^2

Stack Diameters Downstream

$$B_D(dia.) = \frac{B}{D}$$

B_D (dia.) = $\frac{183.00 \text{ in.}}{33.00 \text{ in.}}$ = 5.55 diameters

Stack Diameters Upstream

$$A_D(dia.) = \frac{A}{D}$$

A_D (dia.) = $\frac{47.00 \text{ in.}}{33.00 \text{ in.}}$ = 1.42 diameters

EXAMPLE CALCULATIONS (Reference Method 3C) [Values from Run 1 test]

Carbon Monoxide Concentration (%)

$$\%CO = \frac{ppmCO}{10{,}000}$$

%CO (%) = $\frac{0.00 \text{ ppm}}{10{,}000 \text{ ppm/\%}}$ = 0.0000 %

Nitrogen Concentration (%)

$$\%N_2 = 100 - \%CO_2 - \%O_2 - \%CO$$

$\%N_2$ (%) = 100 - 3.65 % - 16.60 % - 0.00 / 10,000 % = 79.75 %

Stack Dry Molecular Weight (lb/lb-mole)

$$M_d(lb/lb-mol) = \sum\left(\frac{MW_{comp}}{100} \times \%component\right)$$

M_d (lb/lb-mol) = ($\frac{44 \text{ lb/lb-mol}}{100}$ x 3.65 %) +

($\frac{32 \text{ lb/lb-mol}}{100}$ x 16.60 %) + ($\frac{28 \text{ lb/lb-mol}}{100}$ x [$\frac{0.00}{10{,}000}$ + 79.75]) = $\frac{29.25 \text{ lb}}{\text{lb-mol}}$

Stack Wet Molecular Weight (lb/lb-mole)

$$M_S(lb/lb-mol) = \left[M_d \times \left(1 - \frac{B_{WS}}{100}\right)\right] + \left[MW_{H_2O} \times \frac{B_{WS}}{100}\right]$$

M_S (lb/lb-mol) = { $\frac{29.25 \text{ lb}}{\text{lb-mol}}$ x (1 - $\frac{4.72 \text{ \%}}{100}$) } + { $\frac{18 \text{ lb}}{\text{lb-mol}}$ x $\frac{4.72 \text{ \%}}{100}$ } = $\frac{28.72 \text{ lb}}{\text{lb-mol}}$

Average Excess Air (%)

$$\%EA_{avg}(\%) = \frac{100 \times \left[(\%O_2)_{avg} - (0.5 \times (\%CO)_{avg})\right]}{(0.264 \times (N_2)_{avg}) - \left[(\%O_2)_{avg} - (0.5 \times (\%CO)_{avg})\right]}$$

$(\%EA)_{AVG}$ = $\frac{100 \text{ x } \{ \quad 16.60 \text{ \% - (0.5 x } 0.000 \text{ \%) } \}}{(\ 0.264 \text{ x } \ 79.75 \text{ \%}) - \{ \ 16.60 \text{ \% - (0.5 x } 0.000 \text{ \%)} \}}$ = 372.70 %

Note: Lack of significant figures may cause rounding errors between actual calculations and example calculations.

EXAMPLE CALCULATIONS (Reference Method 2) [Values from Run 1 test]

Absolute Stack Pressure (in. Hg)

$$P_S(in.Hg) = P_b + \frac{P_{static}}{13.6}$$

P_s (in. Hg) = 27.85 in. Hg + $\frac{0.00 \text{ in. } H_2O}{13.6 \text{ in. } H_2O/\text{in. Hg}}$ = 27.85 in. Hg

Average Stack Gas Velocity (ft/sec)

$$v_s(ft/\sec) = K_p \times C_p \times \left(\sqrt{\Delta p}\right)_{avg} \times \sqrt{\frac{(t_s)_{avg} + T_u}{P_s \times M_s}}$$

v_{sl} (ft/sec) =

$$\left(\frac{85.49 \text{ ft (lb/lb-mol)(in. Hg)}}{\sec \quad (^oR)(\text{in. } H_2O)}\right)^{1/2} \times 0.84 \times 0.08 \text{ in.} H_2O^{1/2} \times \sqrt{\frac{1099.71 + 460\ ^oR}{27.85 \text{ in. Hg} \times 28.72 \text{ lb/lb-mol}}} = \frac{7.7 \text{ ft}}{\sec}$$

Average Stack Dry Standard Flow Rate (dscfh)

$$Q_{sd}(dscfh) = \frac{60 \times 60 \times \left(1 - \frac{B_{ws}}{100}\right) \times v_s \times A_s \times T_{std} \times P_s}{(t_s + T_u) \times P_{std}}$$

Q_{sd} (dscf/hr) = $\frac{3600 \text{ sec}}{\text{hr}}$ x (1 - $\frac{4.72\ \%}{100}$) x $\frac{7.74 \text{ ft}}{\sec}$ x 5.94 ft^2 x $\frac{68.00 + 460\ ^oR}{1,099.71 + 460\ ^oR}$ x $\frac{27.85 \text{ in. Hg}}{29.92 \text{ in. Hg}}$ = $\frac{49,698.44 \text{ dscf}}{\text{hr}}$

Average Stack Wet Flow Rate (acfm)

$$Q_{aw}(acfm) = 60 \times v_s \times A_s$$

Q_{aw} (acf/min) = $\frac{60 \text{ sec}}{\text{min}}$ x $\frac{7.74 \text{ ft}}{\sec}$ x 5.94 ft^2 = $\frac{2,758.97 \text{ acf}}{\text{min}}$

Average Stack Wet Standard Flow Rate (ascfh)

$$Q_{sw}(ascfh) = \frac{60 \times Q_{aw} \times T_{std} \times P_s}{(t_s + T_u) \times P_{std}}$$

Q_{sw} (ascf/hr) = $\frac{60 \text{ min}}{\text{hr}}$ x $\frac{2,758.97 \text{ acf}}{\text{min}}$ x $\frac{68.00 + 460\ ^oR}{1,099.71 + 460\ ^oR}$ x $\frac{27.85 \text{ in. Hg}}{29.92 \text{ in. Hg}}$ = $\frac{52,161.81 \text{ ascf}}{\text{hr}}$

Note: Lack of significant figures may cause rounding errors between actual calculations and example calculations.

EXAMPLE CALCULATIONS (Reference Method 4) [Values from Run 1 test]

Water Volume Weighed (scf)

$$V_{wsg\,(std)}(scf) = W_t \times K_5$$

$V_{wsg(std)}$ = 50.30 g x 0.04715 ft^3/g = 2.370 scf

Standard Meter Volume (dscf)

$$V_{m(std)}(dscf) = \frac{K_1 \times Y \times V_m \times \left(P_b + \frac{\Delta H_{avg}}{13.6}\right)}{(t_m)_{avg} + T_u}$$

$$V_{m(std)} = \frac{\frac{17.65\ ^\circ R}{in.\ Hg} \times 0.99 \times 52.08\ dcf \times \left(27.85\ in.\ Hg + \frac{1.60\ in.\ H_2O}{13.6\ in.\ H_2O / in.\ Hg}\right)}{71.29\ ^\circ F + 460\ ^\circ R} = 47.85\ dscf$$

Calculated Moisture Content (%)

$$B_{ws(calc)}(\%) = 100 \times \frac{V_{wsg(std)}}{V_{wsg(std)} + V_{m(std)}}$$

$$B_{ws(calc)} = 100 \times \frac{2.37\ dscf}{2.37\ dscf + 47.85\ dscf} = 4.72\ \%$$

Saturated Moisture Content (%)

$$B_{ws(svp)}(\%) = 100 \times \frac{10^{\left(6.691 - \frac{3144}{t_{s(avg)} + 390.86}\right)}}{P_b + \frac{P_{static}}{13.6}} \leq 100$$

$$B_{ws(svp)} = 100 \times \frac{10^{\left(6.691 - \frac{3144}{1099.71\ ^\circ F + 390.86}\right)}}{27.85\ in.\ Hg + \frac{0.00\ in.\ H_2O}{13.6\ in.\ H_2O / in.\ Hg}} \leq 100 = 100.00\ \%$$

Note: Lack of significant figures may cause rounding errors between actual calculations and example calculations.

Nomenclature

- %CO = carbon monoxide concentration (%)
- $\%CO_2$ = carbon dioxide concentration (%)
- $\%N_2$ = nitrogen concentration (%)
- $\%O_2$ = oxygen concentration (%)
- $\%O_{2,wet}$ = Oxygen content of gas stream, % by volume of wet gas. (Note: The oxygen percentage used in Method 201A, Equation 3 is on a wet gas basis. That means that since oxygen is typically measured on a dry gas basis, the measured percent O2 must be multiplied by the quantity (1 - B_{ws}) to convert to the actual volume fraction. Therefore, $\%O_{2,wet} = (1 - B_{ws}) * \%O_{2,\ dry}$)
- $(\%EA)_{avg}$ = average excess air (%)
- $(F_o)_{avg}$ = average calculated fuel factor
- $[(\Delta p)^{0.5}]_{avg}$ = Average of square roots of the velocity pressures measured during the preliminary traverse, inches W.C.
- μ = Gas viscosity, micropoise
- 12.0 = Constant calculated as 60 percent of 20.5 square inch cross-sectional area of combined cyclone head, square inches
- 17.03 = mg/milliequivalents for ammonium ion
- 22.4 = liters of ideal gas per mol of substance at 0^oC and 1 atm (ref. Civil Engineering Reference Manual, 7th ed. - Michael R. Lindeburg)
- 5.02×10^4 = constant derived from the molecular weight and correcting standard temperature and pressure (ref. Bay Area Air Quality Management District, Source Test Procedure ST-1B, Ammonia Integrated Sampling, Adopted January 20, 1982, Regulation 7-303)
- A = distance upstream (in.)
- A_D = stack diameters upstream (dia.)
- An = Area of nozzle, square feet
- A_s = area of stack (ft^2)
- B = distance downstream (in.)
- B_D = stack diameters downstream (dia.)
- b_f = Average blockage factor calculated in Equation 26, dimensionless
- B_{wm} = meter moisture content (%)
- B_{ws} = stack moisture content (%)
- C = Cunningham correction factor for particle diameter, Dp, and calculated using the actual stack gas temperature, dimensionless
- C_1 = -150.3162 (micropoise)
- C_2 = 18.0614 (micropoise/$K^{0.5}$) = 13.4622 (micropoise/$R^{0.5}$)
- $C_3 = 1.19183 \times 10^6$ (micropoise/K^2) = 3.86153×10^6 (micropoise/R^2)
- C_4 = 0.591123 (micropoise)
- C_5 = 91.9723 (micropoise)
- $C_6 = 4.91705 \times 10^{-5}$ (micropoise/K^2) = 1.51761×10^{-5} (micropoise/R^2)
- C_a = Acetone blank concentration, mg/mg
- C_b = Concentration of NH3 ion in the back half of train (breakthrough)
- C_f = Concentration of NH3 ion in the front half of train (main catch)
- C_{fPM10} = Conc. of filterable PM_{10}, gr/dscf
- $C_{fPM2.5}$ = Conc. of filterable $PM_{2.5}$, gr/dscf
- C_k = K Factor Constant, 849.8

Nomenclature

- C_n = nozzle diameter constant, 0.03575
- C_p' = Coefficient for the pitot used in the preliminary traverse, dimensionless
- C_p = Pitot coefficient for the combined cyclone pitot, dimensionless
- C_{cpm} = Concentration of the condensable PM in the stack gas, dry basis, corrected to standard conditions, milligrams/dry standard cubic foot.
- C_r = Re-estimated Cunningham correction factor for particle diameter equivalent to the actual cut size diameter and calculated using the actual stack gas temperature, dimensionless
- D_{50} = Particle cut diameter, micrometers
- $D_{50(N+1)}$ = D_{50} value for cyclone IV calculated during the N+1 iterative step, micrometers
- D_{50-1} = Re-calculated particle cut diameters based on re-estimated C_r, micrometers
- D_{50LL} = Cut diameter for cyclone I corresponding to the 2.25 micrometer cut diameter for cyclone IV, micrometer
- D_{50N} = D_{50} value for cyclone IV calculated during the Nth iterative step, micrometers
- D_{50T} = Cyclone I cut diameter corresponding to the middle of the overlap zone shown in Method 201A, Figure 10 of Section 17, micrometers
- D_e = equivalent stack diameter (in.)
- ΔH@ = ΔH @ 0.75 scfm (in. H2O)
- ΔH_{avg} = average orifice pressure (in. H_2O)
- D_n = Inner diameter of sampling nozzle mounted on Cyclone I, inches
- D_{na} = actual nozzle diameter (in.)
- D_p = Physical particle size, micrometers
- Δp = velocity head (in. H_2O)
- Δp_1 = velocity head at first current traverse point (in. H_2O)
- $\Delta p'_1$ = velocity head at first preliminary traverse point (in. H_2O)
- Δp_{avg} = average pitot tube differential pressure (in. H_2O)
- Δp_n = velocity head at subsequent current traverse point (in. H_2O)
- Δp_{RM2} = method 2 velocity head (in. H_2O)
- D_s = diameter of stack (in.)
- F_d = fuel f-factor (dscf/MMBtu)
- f_{O2} = stack gas fraction of O_2, by volume, dry basis
- I = Percent isokinetic sampling, dimensionless
- K_1 = standard volume correction, 17.65^oR/in. Hg
- K_4 = isokinetic conversion constant, 0.0945min•in.Hg/sec•^oR
- K_5 = water mass to std water vapor, 0.04715 ft^3/g
- K_p = 85.49, ((ft/sec)/(pounds/mole -^oR))
- L = length of stack (in.)
- L_{fw} = distance to far wall of stack (in.)
- L_{nw} = distance to near wall of stack (in.) [reference]
- $m_{\#x}$ = weight measurements (g)
- M_1 = Milligrams of PM collected on the filter, less than or equal to 2.5 micrometers
- M_2 = Milligrams of PM recovered from Container #2 (acetone blank corrected), greater than 10 micrometers
- M_3 = Milligrams of PM recovered from Container #3 (acetone blank corrected), less than or equal to 10 and greater than 2.5 micrometers

Nomenclature

- M_4 = Milligrams of PM recovered from Container #4 (acetone blank corrected), less than or equal to 2.5 micrometers
- m_a = Mass of residue of acetone after evaporation, mg
- m_c = Mass of the NH4+ added to sample to form ammonium sulfate, mg
- m_{cpm} = Mass of the total condensable PM, mg
- M_d = Molecular weight of dry gas, pounds/pound mole
- m_{fb} = Mass of total CPM in field train recovery blank, mg
- m_{fx} = final weight, avg of last two measurements (g)
- mg = Milligram
- mg/L = Milligram per liter
- m_i = Mass of inorganic CPM, mg
- m_{ib} = Mass of inorganic CPM in field train recovery blank, mg
- M_n = total particulates (mg)
- m_o = Mass of organic CPM, mg
- m_{ob} = Mass of organic CPM in field train blank, mg
- m_r = Mass of dried sample from inorganic fraction, mg
- m_{tx} = tare weight (g)
- MW = molecular weight (lb/lb-mole)
- M_w = Molecular weight of wet gas, pounds/pound mole
- N = Normality of ammonium hydroxide titrant
- N_a = null angle (deg.)
- N_{re} = Reynolds number, dimensionless
- N_{tp} = Number of iterative steps or total traverse points
- P_b = P_{bar} = barometric pressure (in. Hg)
- P_{bar} = barometric pressure (in. Hg)
- ppmCO = carbon monoxide concentration (ppm)
- ppmv = Parts per million by volume
- ppmw = Parts per million by weight
- P_s = absolute stack pressure (in. Hg)
- P_{static} = static pressure (in. H_2O)
- P_{std} = standard pressure, 29.92 in. Hg
- Θ = total sampling time (min)
- Q_{aw} = average stack wet flow rate (ascf/min)
- Q_I = Sampling rate for cyclone I to achieve specified D_{50}
- Q_m = estimated orifice flow rate, 0.750 acfm, else Vm/Q from previous run
- Q_s = Sampling rate for cyclone I to achieve specified D_{50}
- $Q_{s(std)}$ = total cyclone flow rate at standard conditions (dscf/min)
- Q_{sd} = dry standard stack flow rate (dscfm)
- Q_{sST} = Dry gas sampling rate through the sampling assembly, dscfm
- Q_{sw} = wet standard stack flow rate (ascfm)
- R_{max} = Nozzle/stack velocity ratio parameter, dimensionless
- R_{min} = Nozzle/stack velocity ratio parameter, dimensionless
- t_1 = Sampling time at point 1, min
- t_m = average gas meter temperature (^oF)

Nomenclature

- t_m = average meter temperature (^oF)
- T_m = Meter box and orifice gas temperature, ^oR
- t_n = Sampling time at point n, min
- t_r = Total projected run time, min
- T_s = Absolute stack gas temperature, ^oR
- T_{std} = standard temperature, 68^{o}F, 528^{o}R
- T_u = absolute temperature offset, 460^{o}R
- V_a = Volume of acetone blank, ml
- V_{aw} = Volume of acetone used in sample recovery wash, ml
- V_b = Volume of aliquot taken for IC analysis, ml
- V_c = Quantity of water captured in impingers and silica gel, ml
- V_f = final impinger volume (ml)
- V_i = initial impinger volume (ml)
- V_{ic} = Volume of impinger contents sample, ml
- V_m = Dry gas meter volume sampled, acf
- $V_{m(std)}$ = standard meter volume (dscf)
- v_{max} = Maximum gas velocity calculated from Equations 18 or 19, ft/sec
- v_{max} = maximum nozzle velocity (ft/sec)
- V_{mf} = final dry gas meter reading (dcf)
- V_{mi} = initial dry gas meter reading (dcf)
- v_{min} = Minimum gas velocity calculated from Method 201A, Equations 16 or 17, ft/sec
- V_{ms} = Dry gas meter volume sampled, corrected to standard conditions, dscf
- v_n = Sample gas velocity in the nozzle, ft/sec
- v_{org} = organics wash volume (ml)
- V_p = Volume of water added during train purge
- v_s = average stack gas velocity (ft/sec)
- v_{sl} = local velocity (ft/sec)
- V_t = total impinger volume (ml) = ;(V_f-V_i)
- V_t = Volume of NH4OH titrant, ml
- $V_{w(std)}$ = volume of water vapor in gas sample at standard conditions (scf)
- v_x = blank volume (ml)
- W = width of stack (in.)
- $W_{2,3,4}$ = Weight of PM recovered from Containers #2, #3, and #4, mg
- W_a = Weight of blank residue in acetone used to recover samples, mg
- W_f = final impinger weight (g)
- W_i = initial impinger weight (g)
- W_t = total impinger weight (g) = ;(W_f-W_i)
- w_x = blank weight of solids (g)
- Y = meter calibration factor (a.k.a gamma)
- Z = Ratio between estimated cyclone IV D_{50} values, dimensionless
- γ = Dry gas meter gamma value, dimensionless
- ΔH = Meter box orifice pressure drop, inches W.C.
- ΔH@ = Pressure drop across orifice at flow rate of 0.75 scfm at standard conditions, inches W.C. (Note: Specific to each orifice and meter box.)

Nomenclature

- Δp_1 = Velocity pressure measured at point 1, inches W.C.
- Δp_{avg} = Average velocity pressure, inches W.C.
- Δp_m = Observed velocity pressure using S-type pitot tube in preliminary traverse, inches W.C.
- Δp_{max} = Maximum velocity pressure, inches W.C.
- Δp_{min} = Minimum velocity pressure, inches W.C.
- Δp_n = Velocity pressure measured at point n during the test run, inches W.C.
- Δp_s = Velocity pressure calculated in Method 201a, Equation 25, inches W.C.
- Δp_{s1} = Velocity pressure adjusted for combined cyclone pitot tube, inches W.C.
- Δp_{s2} = Velocity pressure corrected for blockage, inches W.C.
- θ = Total run time, min
- ρ_a = Density of acetone, mg/ml (see label on bottle)
- Σ_n = total number of sampling points

APPENDIX B

EMISSION DATA RECORDS

Superior Fabrication, INC

Air Permit # :	40 CFR 60 Sub Part OOOO
Plant Name or Location:	Elk City Plant
Date:	October 4, 2016
Project Number:	sfi-16-elkcity.ok-comp#1
Manufacturer & Equipment:	SCD-36
Test Load:	Multiple
Tester(s) / Test Unit(s):	MSL/DA/TW/JB

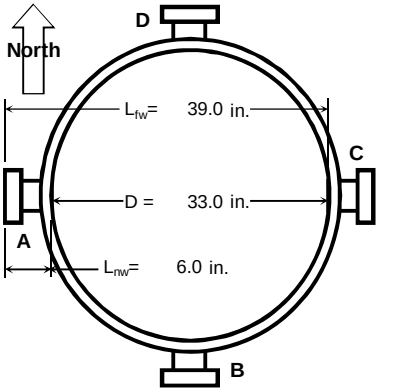
		RUN											
	UNITS	**SCD-36 R10**	**SCD-36 R11**	**SCD-36 R12**	**SCD-36 R1**	**SCD-36 R2**	**SCD-36 R3**	**SCD-36 R7**	**SCD-36 R8**	**SCD-36 R9**	**SCD-36 R4**	**SCD-36 R5**	**SCD-36 R6**
Start Time	hh:mm:ss	08:02:13	09:27:13	10:52:00	12:07:27	13:17:27	14:43:27	17:05:27	07:55:27	09:25:27	16:13:27	07:55:07	09:21:07
End Time	hh:mm:ss	09:12:13	10:37:13	12:02:13	13:17:27	14:27:27	15:53:27	18:15:27	09:05:27	10:35:27	17:23:27	09:05:07	10:31:07
Bar. Pressure	in. Hg	27.68	27.69	27.69	27.85	27.86	27.83	27.79	27.85	27.86	27.82	28.22	28.25
Amb. Temp.	°F	69	69	81	80	83	88	87	70	72	86	49	52
Rel. Humidity	%	80	78	70	28	54	51	18	83	76	52	53	60
Spec. Humidity	lb water / lb air	0.013053	0.012781	0.017246	0.006527	0.013959	0.015611	0.005229	0.014019	0.013728	0.014927	0.004108	0.005202
Date	mm/dd/yy	10/04/16	10/04/16	10/04/16	10/05/16	10/06/16	10/06/16	10/05/16	10/06/16	10/06/16	10/06/16	10/07/16	10/07/16
Unit Number		SCD-36	SCD-36	SCD-36	SCD-36	SCD-36	SCD-36	SCD-36	SCD-36	SCD-36	SCD-36	SCD-36	SCD-36
Load Designator	%	90-100	90-100	90-100	0-30-0	0-30-0	0-30-0	70-100-70	70-100-70	70-100-70	70-100-70	70-100-70	70-100-70
Gross Fuel Heating Value	Btu/ft3	2,546	2,546	2,546	2,550	2,550	2,550	2,555	2,555	2,555	2,555	2,555	2,555
Stack Flow (M2)	dscfh	86,689	84,652	82,021	49,698	46,561	49,483	76,295	84,431	88,937	67,128	49,494	55,427
Stack Moisture	Method 4	6.63	6.37	6.73	4.72	5.32	5.14	6.54	7.44	7.08	4.89	5.03	4.93
Wind Speed	mph	8	10	9	6	10	8	7	5	4	8	5	6
Wind Direction	--	S	S	S	W	S	SE	W	S	S	SW	W	W
CO_2 - Method 3C	%	4.54	4.07	4.22	3.65	3.99	3.66	4.26	4.34	4.42	4.66	4.39	4.52
O_2 - Method 3C	%	15.20	15.90	15.70	16.60	15.70	16.10	15.60	15.00	15.00	14.70	15.10	14.90
N_2 -Method 3C	%	80.26	80.03	80.00	79.75	80.31	80.24	80.20	80.66	80.58	80.64	80.51	80.50
Excess Air	%	253.81	304.14	289.67	372.70	285.36	316.72	279.93	238.31	239.12	223.10	245.34	234.57

METHOD 1 - ISOKINETIC TRAVERSE FOR A CIRCULAR SOURCE

Company	Superior Fabrication Inc.	**Date**	10/04/16
Plant Name	Elk City Facilty	**Project #**	sfi-elkcity.ok-comp#1
Equipment	SCD-36	**# of Ports Available**	2
Location	Ports	**# of Ports Used**	2

Circular Stack or Duct Diameter			
Distance to Far Wall of Stack	(L_{fw})	39.00	in.
Distance to Near Wall of Stack	(L_{nw})	6.00	in.
Diameter of Stack	(D)	33.00	in.
Area of Stack	(A_s)	5.94	ft^2

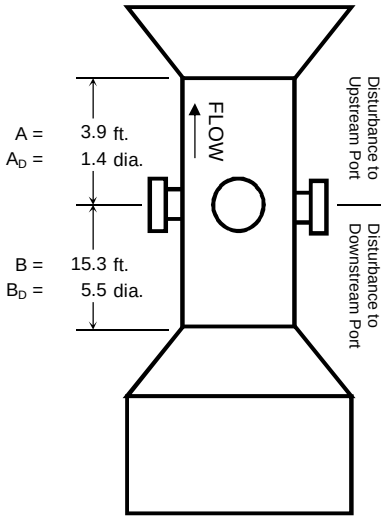
Distance from Disturbances to Port			
Distance Upstream	(A)	47.00	in.
Diameters Upstream	(A_D)	1.42	diameters
Distance Downstream	(B)	183.00	in.
Diameters Downstream	(B_D)	5.55	diameters



Number of Traverse Points Required					
Diameters to Flow Disturbance		**Minimum Number of[1] Traverse Points**		Minimum Number of Traverse Points	
Down (B_D)	**Up (A_D)**	**Particulate**	Velocity	Comp Stratification	
Stream	**Stream**	**Points**	Points	Criteria	Points
2.00-4.99	0.50-1.24	24	16	RM 7E 8.1.2	12 RM1 pts
5.00-5.99	1.25-1.49	20	16	OOOO Req.	3 points
6.00-6.99	1.50-1.74	16	12		
7.00-7.99	1.75-1.99	12	12		
>= 8.00	>=2.00	8 or 12[2]	8 or 12[2]	Minimum Number of	
Upstream Spec		20	16	Traverse Points	
Downstream Spec		20	16	RATA Stratification	
Traverse Pts Required		20	16	Criteria	Points
				Part75/60	12 RM1 pts
				75 abrv (a)	3 points
				75 abrv (b)	6 points

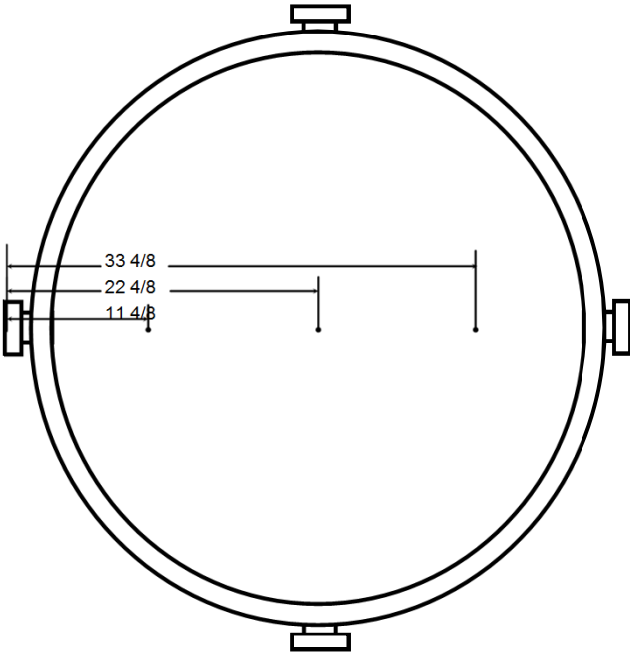
[1] Check Minimum Number of Points for the Upstream and Downstream conditions, then use the largest.

[2] 8 for Circular Stacks 12 to 24 inches
12 for Circular Stacks over 24 inches



Number of Traverse Points Used				
2	**Ports by**	3	**Pts / port**	**Gas Sampling**
1	**Pts Used**	3	**Required**	

Traverse Point Locations			
Traverse Point Number	**Percent of Stack Diameter**	**Distance from Inside Wall**	**Distance Including Reference Length**
	%	in.	in.
1	16.7%	5 4/8	11 4/8
2	50.0%	16 4/8	22 4/8
3	83.3%	27 4/8	33 4/8
4			
5			
6			
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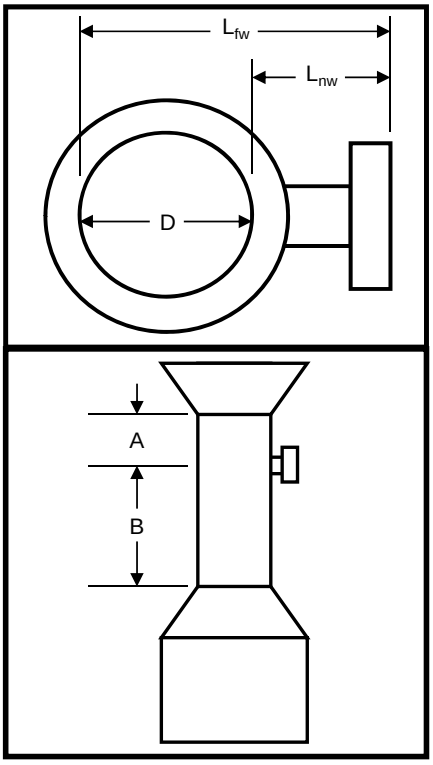


METHOD 1 - SAMPLE AND VELOCITY TRAVERSES FOR CIRCULAR SOURCES

Plant Name	Elk City Facilty	**Date**	10/04/16
Sampling Location	SCD-36	**Stack Type**	Circular
Operator	MJ/BL	**Ports Available**	2
Project #	sfi-elkcity.ok-comp#1	**Ports Used**	2
Stack Size	Large (>24 inch diameter)	**Port ID (inches)**	3.00

Circular Stack or Duct Diameter			
Distance to Far Wall of Stack	(L_{fw})	39.00	in
Distance to Near Wall of Stack	(L_{nw})	6.00	in
Diameter of Stack	(D)	33.00	in
Area of Stack	(A_s)	5.94	ft^2

Distance from Port to Disturbances			
Distance Upstream	(A)	47.00	in
Diameters Upstream	(A_D)	1.42	diameters
Distance Downstream	(B)	183.00	in
Diameters Downstream	(B_D)	5.55	diameters



Number of Traverse Points Required			
Diameters to Flow Disturbance		**Minimum Number of[1] Traverse Points**	
Down Stream	**Up Stream**	**Particulate Points**	**Velocity Points**
2.00-4.99	0.50-1.24	24	16
5.00-5.99	1.25-1.49	20	16
6.00-6.99	1.50-1.74	16	12
7.00-7.99	1.75-1.99	12	12
>= 8.00	>=2.00	8 or 12[2]	8 or 12[2]
Upstream Spec		20	16
Downstream Spec		20	16
Traverse Pts Required		20	16

[1] Check Minimum Number of Points for the Upstream and Downstream conditions, then use the largest.

[2] 8 for Circular Stacks 12 to 24 inches
12 for Circular Stacks over 24 inches

◉ Method 1 Trav

○ 12 Point PM Trav (M201a ONLY)

○ Velocity

Number of Traverse Points Used			
2	**Ports by**	12	**Across**
24	**Pts Used**	20	**Required**

Location of Traverse Points in Circular Stacks									
Traverse Point	(Fraction of Stack Dimension from Inside Wall to Traverse Point)								
	Number of Traverse Points Across the Stack								
Number	2	4	6	8	10	12	14	16	18
1	.146	.067	.044	.032	.026	.021	.018	.016	.014
2	.854	.250	.146	.105	.082	.067	.057	.049	.044
3		.750	.296	.194	.146	.118	.099	.085	.075
4		.933	.704	.323	.226	.177	.146	.125	.109
5			.854	.677	.342	.250	.201	.169	.146
6			.956	.806	.658	.356	.269	.220	.188
7				.895	.774	.644	.366	.283	.236
8				.968	.854	.750	.634	.375	.296
9					.918	.823	.731	.625	.382
10					.974	.882	.799	.717	.618
11						.933	.854	.780	.704
12						.979	.901	.831	.764

Traverse Point Number	**Fraction of Stack Diameter**	**Distance from Inside Wall**	**Distance Including Reference Length**
		in	in
1	0.021	6/8	6 6/8
2	0.067	2 2/8	8 2/8
3	0.118	3 7/8	9 7/8
4	0.177	5 7/8	11 7/8
5	0.250	8 2/8	14 2/8
6	0.356	11 6/8	17 6/8
7	0.644	21 2/8	27 2/8
8	0.750	24 6/8	30 6/8
9	0.823	27 1/8	33 1/8
10	0.882	29 1/8	35 1/8
11	0.933	30 6/8	36 6/8
12	0.979	32 2/8	38 2/8

EMISSION DATA RECORDS

0-30-0% RAMP-UP, RAMP-DOWN UNIT OPERATION DATA

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE

Source Information	
Plant Name	Elk City Facilty
Sampling Location	SCD-36
Fuel Type	Gas, Propene

Test Information			
Project #		sfi-elkcity.ok-comp#1	
Operator		MJ/BL	
Date for Preliminary Run	(mm/dd/yy)	10/04/16	
Standard Temperature		68	°F
Standard Pressure		29.92	in Hg
Required Sample Vol.	RM4, 8.1.1.2	21	scf
Run Duration	≤0.75 cfm	65	minutes
Unit Number		SCD-36	
Base Run Number		0-30-0%	
Number of Ports Available		2	
Number of Ports Used		2	
Port Inside Diameter		3.00	in
Stack Shape		Circular	

Test Equipment Information					
Run		**1**	**2**	**3**	
Test Date	(mm/dd/yy)	10/05/16	10/06/16	10/06/16	
Load	% or w/DB	0-30-0	0-30-0	0-30-0	
Meter Box Number	from ACS	SAMP-CP-0011	SAMP-CP-0011	SAMP-CP-0011	
Meter Calibration Factor	(Y)	0.989	0.989	0.989	
Orifice Meter Coefficient	($\Delta H_@$)	1.585	1.585	1.585	in H_2O
Pitot Identification	from ACS	9-7-16-1	9-7-16-1	9-7-16-1	
Pitot Tube Coefficient	(C_p)	0.840	0.840	0.840	
Probe Number	from ACS	SAMP-PF-0003	SAMP-SP-0001	SAMP-SP-0001	
Probe Length		60.0	60.0	60.0	in
(SS, Glass ….) Liner Material	from list	inconel	inconel	inconel	
Impinger Case Number	from ACS	SAMP-BC-0032	SAMP-BC-0032	SAMP-BC-0032	

Testing Company Information	
Company Name	Air Hygiene International, Inc. (Tulsa, Oklahoma)
Address	1600 W Tacoma Street
City, State Zip	Broken Arrow, Oklahoma 74012
Project Manager	Min Sum Lee
Phone Number	(918) 307-8865
Fax Number	(918) 307-9131

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] - RESULTS

Plant Name	Elk City Facilty
Sampling Location	SCD-36
Project #	sfi-elkcity.ok-comp#1

Historical Data	**0-30-0%-1**	**0-30-0%-2**	**0-30-0%-3**	**Average**	**Units**
Run Start Time	12:07	13:17	14:43		hh:mm
Run Stop Time	13:17	14:27	15:53		hh:mm
Test Date	10/05/16	10/06/16	10/06/16		mm/dd/yy
Meter Calibration Factor	0.989	0.989	0.989		
Pitot Tube Coefficient	0.840	0.840	0.840		
Initial Meter Volume	389.790	692.300	742.360		ft^3
Final Meter Volume	441.870	742.240	791.800		ft^3
Total Meter Volume	52.080	49.940	49.440	50.487	ft^3
Total Sampling Time	65.00	65.00	65.00	65.00	min
Average Meter Temperature	71.29	72.19	73.54	72.34	°F
Average Stack Temperature	1099.71	1102.54	1121.00	1107.75	°F
Barometric Pressure	27.85	27.86	29.83	28.51	in Hg
Stack Static Pressure	0.00	0.00	0.00	0.00	in H_2O
Absolute Stack Pressure	27.85	27.86	29.83	28.51	in Hg
Average Orifice Pressure Drop	1.60	1.50	1.50	1.53	in H_2O
Absolute Meter Pressure	27.97	27.98	29.95	28.63	in Hg
Avg Square Root Pitot Pressure	0.08	0.07	0.08	0.08	$\sqrt{(in\ H_2O)}$
Moisture Content Data	**0-30-0%-1**	**0-30-0%-2**	**0-30-0%-3**	**Average**	**Units**
Impinger Water Weight Gain	38.40	44.30	39.30	40.67	g
Silica Gel Weight Gain	11.90	10.30	16.30	12.83	g
Total Water Volume Collected	50.39	54.70	55.70	53.60	ml
Standard Water Vapor Volume	2.37	2.57	2.62	2.52	scf
Standard Meter Volume	47.8	45.8	48.4	47.4	dscf
Calculated Stack Moisture	4.72	5.32	5.14	5.06	%
Saturated Stack Moisture	100.00	100.00	100.00	100.00	%
Reported Stack Moisture Content	4.72	5.32	5.14	5.06	%
Method 3C Gas Analysis Data	**0-30-0%-1**	**0-30-0%-2**	**0-30-0%-3**	**Average**	**Units**
Carbon Dioxide Content	3.7	4.0	3.7	3.8	%
Oxygen Content	16.6	15.7	16.1	16.1	%
Nitrogen Content	79.8	80.3	80.2	80.1	%
Stack Dry Molecular Weight	29.25	29.27	29.23	29.25	lb/lb-mole
Stack Wet Molecular Weight	28.72	28.67	28.65	28.68	lb/lb-mole
Percent Excess Air	372.7	285.4	316.7	324.9	%
Volumetric Flow Rate Data	**0-30-0%-1**	**0-30-0%-2**	**0-30-0%-3**	**Average**	**Units**
Average Stack Gas Velocity	7.74	7.31	7.33	7.46	ft/sec
Stack Cross-Sectional Area	5.94	5.94	5.94	5.94	ft^2
Actual Stack Flow Rate	2,759	2,605	2,611	2,658	acfm
Wet Standard Stack Flow Rate	52	49	52	51	wkscfh
Dry Standard Stack Flow Rate	49,698	46,561	49,483	48,581	dscfh

METHOD 3C - DETERMINATION OF DRY MOLECULAR WEIGHT BY ANALYZER

Plant Name	Elk City Facilty	**Preliminary Date**	10/04/16		
Sampling Location	SCD-36	**Operator**	MJ/BL		
Project #	sfi-elkcity.ok-comp#1	**# of Ports Used**	2		
Fuel Type	Gas, Propene	**Min. Fuel Factor**	N/A	**Max. Fuel Factor**	N/A

Gas Analysis Data									
Run Number	0-30-0%-1		**Date**	10/05/16	**Run Start Time**	12:07		**Run Stop Time**	13:17
Sample Analysis Time	**CO_2 Conc.**	**O_2 Conc.**	**Methane Conc.**	**N_2 Conc.**	**Dry Molecular Weight**	**Calculated Fuel Factor**		**Excess Air**	**Fuel Factor in Range**
	($\%CO_2$)	($\%O_2$)	(ppmCO)	($\%N_2$)	(M_d)	$(F_o)_{avg}$		$(\%EA)_{avg}$	
hh:mm	%	%	ppm	%	lb/lb-mole			%	
01:10	3.7	16.6	0.0	79.8	29.25	1.178		372.7	N/A

Gas Analysis Data									
Run Number	0-30-0%-2		**Date**	10/06/16	**Run Start Time**	13:17		**Run Stop Time**	14:27
Sample Analysis Time	**CO_2 Conc.**	**O_2 Conc.**	**Methane Conc.**	**N_2 Conc.**	**Dry Molecular Weight**	**Calculated Fuel Factor**		**Excess Air**	**Fuel Factor in Range**
	($\%CO_2$)	($\%O_2$)	(ppmCO)	($\%N_2$)	(M_d)	$(F_o)_{avg}$		$(\%EA)_{avg}$	
hh:mm	%	%	ppm	%	lb/lb-mole			%	
01:10	4.0	15.7	0.0	80.3	29.27	1.303		285.4	N/A

Gas Analysis Data									
Run Number	0-30-0%-3		**Date**	10/06/16	**Run Start Time**	14:43		**Run Stop Time**	15:53
Sample Analysis Time	**CO_2 Conc.**	**O_2 Conc.**	**Methane Conc.**	**N_2 Conc.**	**Dry Molecular Weight**	**Calculated Fuel Factor**		**Excess Air**	**Fuel Factor in Range**
	($\%CO_2$)	($\%O_2$)	(ppmCO)	($\%N_2$)	(M_d)	$(F_o)_{avg}$		$(\%EA)_{avg}$	
hh:mm	%	%	ppm	%	lb/lb-mole			%	
01:10	3.7	16.1	0.0	80.2	29.23	1.311		316.7	N/A

METHOD 4 - DETERMINATION OF MOISTURE CONTENT IN STACK GASES

Plant Name	Elk City Facilty	**Preliminary Date**	10/04/16
Sampling Location	SCD-36	**Operator**	MJ/BL
Project #	sfi-elkcity.ok-comp#1	**Ports Used**	2

Scale Daily Calibration					
Scale Number	SAMP-SC-0027	**Standard**	**Result**	**Difference**	**Pass/Fail**
Date		(g)	(g)	(g)	(± 0.5 g)
Test Day 1	10/05/16	500	499.5	-0.5	Pass
Test Day 2	10/06/16	500	500.2	0.2	Pass

Moisture Content Data									
Run Number	0-30-0%-1		**Date**	10/05/16	**Start Time**	12:07	**Stop Time**	13:17	
Meter Box Number	SAMP-CP-0011				**Meter Cal Factor**	(Y)	0.989		
Total Meter Volume	(V_m)	52.080	dcf		**Barometric Pressure**	(P_b)	27.85	in Hg	
Average Stack Temp	$(t_s)_{avg}$	1100	°F		**Stack Static Pressure**	(P_{static})	0.00	in H_2O	
Average Meter Temp	$(t_m)_{avg}$	71	°F		**Avg Orifice Pressure**	$(\Delta H)_{avg}$	1.60	in H_2O	
	Impinger 1	**Impinger 2**	**Impinger 3**	**Impinger 4**	**Impinger 5**	**Impinger 6**	**Impinger 7**	**Impinger 8**	
	(g)	(g)	(g)	(g)					
Contents	H_2O	H_2O	-	Sil Gel					
Final Value (V_f),(W_f)	786.00	695.10	583.50	867.80					
Initial Value (V_i),(W_i)	752.20	691.70	582.30	855.90					
Net Value (V_n),(W_n)	33.8	3.4	1.2	11.9					
Results									
Total Weight	(W_t)	50.30	g		**Water Vol Weighed**	($V_{wsg(std)}$)	2.372	scf	
Std Meter Volume	($V_{m(std)}$)	47.848	dscf		**Sat. Moisture Content**	($B_{ws(svp)}$)	100.00	%	
Calc Moisture Content	($B_{ws(calc)}$)	4.72	%		**Final Moisture Content**	(B_{ws})	4.72	%	

Moisture Content Data									
Run Number	0-30-0%-2		**Date**	10/06/16	**Start Time**	13:17	**Stop Time**	14:27	
Meter Box Number	SAMP-CP-0011				**Meter Cal Factor**	(Y)	0.989		
Total Meter Volume	(V_m)	49.940	dcf		**Barometric Pressure**	(P_b)	27.86	in Hg	
Average Stack Temp	$(t_s)_{avg}$	1103	°F		**Stack Static Pressure**	(P_{static})	0.00	in H_2O	
Average Meter Temp	$(t_m)_{avg}$	72	°F		**Avg Orifice Pressure**	$(\Delta H)_{avg}$	1.50	in H_2O	
	Impinger 1	**Impinger 2**	**Impinger 3**	**Impinger 4**	**Impinger 5**	**Impinger 6**	**Impinger 7**	**Impinger 8**	
	(g)	(g)	(g)	(g)					
Contents	H_2O	H_2O	-	Sil Gel					
Final Value (V_f),(W_f)	808.30	724.60	587.60	829.00					
Initial Value (V_i),(W_i)	774.90	720.40	580.90	818.70					
Net Value (V_n),(W_n)	33.4	4.2	6.7	10.3					
Results									
Total Weight	(W_t)	54.60	g		**Water Vol Weighed**	($V_{wsg(std)}$)	2.574	scf	
Std Meter Volume	($V_{m(std)}$)	45.809	dscf		**Sat. Moisture Content**	($B_{ws(svp)}$)	100.00	%	
Calc Moisture Content	($B_{ws(calc)}$)	5.32	%		**Final Moisture Content**	(B_{ws})	5.32	%	

Moisture Content Data									
Run Number	0-30-0%-3		**Date**	10/06/16	**Start Time**	14:43	**Stop Time**	15:53	
Meter Box Number	SAMP-CP-0011				**Meter Cal Factor**	(Y)	0.989		
Total Meter Volume	(V_m)	49.440	dcf		**Barometric Pressure**	(P_b)	29.83	in Hg	
Average Stack Temp	$(t_s)_{avg}$	1121	°F		**Stack Static Pressure**	(P_{static})	0.00	in H_2O	
Average Meter Temp	$(t_m)_{avg}$	74	°F		**Avg Orifice Pressure**	$(\Delta H)_{avg}$	1.50	in H_2O	
	Impinger 1	**Impinger 2**	**Impinger 3**	**Impinger 4**	**Impinger 5**	**Impinger 6**	**Impinger 7**	**Impinger 8**	
	(g)	(g)	(g)	(g)					
Contents	H_2O	H_2O	-	Sil Gel					
Final Value (V_f),(W_f)	841.00	728.20	587.20	825.30					
Initial Value (V_i),(W_i)	808.90	724.60	583.60	809.00					
Net Value (V_n),(W_n)	32.1	3.6	3.6	16.3					
Results									
Total Weight	(W_t)	55.60	g		**Water Vol Weighed**	($V_{wsg(std)}$)	2.622	scf	
Std Meter Volume	($V_{m(std)}$)	48.421	dscf		**Sat. Moisture Content**	($B_{ws(svp)}$)	100.00	%	
Calc Moisture Content	($B_{ws(calc)}$)	5.14	%		**Final Moisture Content**	(B_{ws})	5.14	%	

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE ISOKINETIC SAMPLING DATA

Plant Name	Elk City Facilty
Sampling Location	SCD-36
Project #	sfi-elkcity.ok-comp#1

Date	10/05/16
Operator	MJ/BL
Run Number	0-30-0%-1

Ideal Nozzle Diameter and IsoKinetic Factor Setup			
Pitot Coefficient	(C_p)	0.840	
Average Stack Temp	(t_s)	1099.7	°F
Average Meter Temp	(t_m)	71.3	
Orifice Meter Coefficient	($\Delta H@$)	1.585	in H_2O
Square Root ΔP	($\Delta p^{1/2}_{avg}$)	0.08	in H_2O
Stack Moisture Content	(B_{ws})	4.72	%
Stack Dry Molecular Weight	(M_d)	29.25	lb/lb-mole
Estimated Orifice Flow Rate	(Q_m)	0.75	acfm
ΔP to ΔH Isokinetic Factor	(K)		

Leak Checks					
Train	**Pre**	0.000	ft³/min@	15.0	in Hg
PASS	**Post**	0.000	ft³/min@	15.0	in Hg
Pitot	**Pre (+)**	0.2	in H_2O for	20.0	sec
< 3.0	**Pre (-)**	0.2	in H_2O for	20.0	sec
	Post (+)	0.2	in H_2O for	15.0	sec
	Post (-)	0.2	in H_2O for	15.0	sec

Sampling Equipment			
Meter Box Number	SAMP-CP-0011		
Meter Cal Factor	(Y)	0.989	
Low Flow Meter	SAMP-MN-0001		
Average Nozzle Diameter	(D_{na})		in
Suggested Nozzle Diameter	(D_{ni})	0.4925	in
Probe Number	SAMP-PF-0003		in
Probe Length	60		in
Liner Material	inconel		
Sample Case / Oven Number			
Impinger Case Number	SAMP-BC-0032		

Pressures			
Barometric Pressure	(P_b)	27.85	in Hg
Stack Static Pressure	(P_{static})	0.00	in H_2O
Absolute Stack Pressure	(P_s)	27.85	in Hg
Absolute Meter Pressure	(P_m)	27.97	in Hg

Nozzle Measurements				
Pre				**PASS**
Post				**PASS**

Run Time			
Start	12:07	**End**	13:17

Weights	**Imp 1**	**Imp 2**	**Imp 3**	**Imp 4**	**Imp 5**	**Imp 6**	**Imp 7**	**Imp 8**
Pre	752.2	691.7	582.3	855.9				
Post	786.0	695.1	583.5	867.8				

Wash Volumes					ml
					ml

Traverse Point #	**Sampling Time (Θ)**	**Timer Time**	**Dry Gas Meter Reading (V_m)**	**Velocity Head (Δp)**	**Desired Orifice ΔH (ΔH_d)**	**Actual Orifice ΔH (ΔH_a)**	**Stack Temp (t_s)**	**Snorkel Temp (248±25°F)**	**Filter Temp**	**Impinger Exit Temp (≤68°F)**	**Cond. Temp (≤---°F)**	**CPM Filter Temp (--±--°F)**	**Meter Inlet Temp (t_{mi})**	**Meter Outlet Temp (t_{mo})**	**Pump Vacuum**	**Square Root ΔP ($\Delta p^{1/2}$)**	**Local Stack Velocity (v_s)$_l$**	**Cumul. Meter Volume (V_m)$_{std}$**	**Cumul. Percent IsoKinetic (I)**	**Est-Run Meter Volume (V_m)$_{std}$**
	min	hh:mm:ss	ft³	in H_2O	in H_2O	in H_2O	°F	°F	°F	°F	°F	°F	°F	°F	in Hg	√(in H_2O)	ft/sec	dscf	%	dscf
A-1	0.0	00:00:00	389.790	0.005	1.585	1.60	1056	255		46			67	69	13.0	0.07	6.99	1.119		26.846
A-2	2.7	00:02:43	391.000	0.005	1.585	1.60	979	257		46			67	69	13.0	0.07	6.81	4.031		48.368
A-3	5.4	00:05:25	394.150	0.005	1.585	1.60	1049	256		42			69	68	13.0	0.07	6.97	6.026		48.205
A-4	8.1	00:08:07	396.310	0.015	1.585	1.60	1080	254		42			69	70	13.0	0.12	12.20	7.998		47.990
A-5	10.8	00:10:50	398.450	0.015	1.585	1.60	1101	252		45			69	70	13.0	0.12	12.29	10.017		48.083
A-6	13.5	00:13:33	400.640	0.005	1.585	1.60	1117	251		45			72	69	13.0	0.07	7.13	12.023		48.092
A-7	16.3	00:16:15	402.820	0.005	1.585	1.60	1125	250		46			69	72	13.0	0.07	7.15	13.983		47.941
A-8	19.0	00:18:58	404.950	0.005	1.585	1.60	1098	251		46			69	72	13.0	0.07	7.09	16.026		48.077
A-9	21.7	00:21:40	407.170	0.005	1.585	1.60	1039	252		46			69	72	13.0	0.07	6.95	18.013		48.035
A-10	24.4	00:24:22	409.330	0.005	1.585	1.60	1040	252		46			69	72	13.0	0.07	6.95	20.019		48.045
A-11	27.1	00:27:05	411.510	0.005	1.585	1.60	1036	252		46			69	72	13.0	0.07	6.94	22.006		48.014
A-12	29.8	00:29:47	413.670	0.005	1.585	1.60	1096	252		46			69	72	13.0	0.07	7.08	24.030		48.061
B-1	32.5	00:32:30	415.870	0.005	1.585	1.60	1077	253		48			73	71	13.0	0.07	7.04	26.031		48.057
B-2	35.2	00:35:12	418.050	0.005	1.585	1.60	1122	254		49			74	71	13.0	0.07	7.14	28.011		48.018
B-3	37.9	00:37:55	420.210	0.005	1.585	1.60	1136	253		49			74	71	13.0	0.07	7.17	29.981		47.970
B-4	40.6	00:40:37	422.360	0.015	1.585	1.60	1154	252		49			75	71	13.0	0.12	12.49	31.978		47.967
B-5	43.3	00:43:20	424.540	0.005	1.585	1.60	1149	252		50			75	71	13.0	0.07	7.20	33.965		47.951
B-6	46.0	00:46:03	426.710	0.005	1.585	1.60	1149	252		50			75	71	13.0	0.07	7.20	35.907		47.875
B-7	48.8	00:48:45	428.830	0.005	1.585	1.60	1149	252		50			75	71	13.0	0.07	7.20	37.903		47.878
B-8	51.5	00:51:28	431.010	0.005	1.585	1.60	1089	252		50			75	71	13.0	0.07	7.07	39.909		47.890
B-9	54.2	00:54:10	433.200	0.005	1.585	1.60	1124	252		50			75	71	13.0	0.07	7.15	41.878		47.860
B-10	56.9	00:56:53	435.350	0.005	1.585	1.60	1136	252		50			75	71	13.0	0.07	7.17	43.865		47.853
B-11	59.6	00:59:35	437.520	0.005	1.585	1.60	1140	252		50			75	71	13.0	0.07	7.18	45.861		47.855
B-12	62.3	01:02:18	439.700	0.005	1.585	1.60	1152	252		50			75	71	13.0	0.07	7.21	47.849		47.849
Last Pt	65.0	01:05:00	441.870																	
Final Val	65.0	01:05:00	441.870											**Max Vac**	13.0	**Final Values**		47.849		
Average Values				0.01		1.60	1100	253		47			72	71		0.08	7.74			
													71							

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE ISOKINETIC SAMPLING DATA

Plant Name	Elk City Facilty
Sampling Location	SCD-36
Project #	sfi-elkcity.ok-comp#1

Date	10/06/16
Operator	MJ/BL
Run Number	0-30-0%-2

Ideal Nozzle Diameter and IsoKinetic Factor Setup			
Pitot Coefficient	(C_p)	0.840	
Average Stack Temp	(t_s)	1102.5	°F
Average Meter Temp	(t_m)	72.2	
Orifice Meter Coefficient	($\Delta H@$)	1.585	in H_2O
Square Root ΔP	($\Delta p^{1/2}_{avg}$)	0.07	in H_2O
Stack Moisture Content	(B_{ws})	5.32	%
Stack Dry Molecular Weight	(M_d)	29.27	lb/lb-mole
Estimated Orifice Flow Rate	(Q_m)	0.74	acfm
ΔP to ΔH Isokinetic Factor	(K)		

Leak Checks					
Train	**Pre**	0.000	ft³/min@	15.0	in Hg
PASS	**Post**	0.000	ft³/min@	15.0	in Hg
Pitot	**Pre (+)**	0.2	in H_2O for	20.0	sec
< 3.0	**Pre (-)**	0.2	in H_2O for	20.0	sec
	Post (+)	0.2	in H_2O for	15.0	sec
	Post (-)	0.2	in H_2O for	15.0	sec

Sampling Equipment			
Meter Box Number	SAMP-CP-0011		
Meter Cal Factor	(Y)	0.989	
Low Flow Meter	SAMP-MN-0001		
Average Nozzle Diameter	(D_{na})		in
Suggested Nozzle Diameter	(D_{ni})	0.4946	in
Probe Number	SAMP-SP-0001		in
Probe Length	60		in
Liner Material	inconel		
Sample Case / Oven Number			
Impinger Case Number	SAMP-BC-0032		

Pressures			
Barometric Pressure	(P_b)	27.86	in Hg
Stack Static Pressure	(P_{static})	0.00	in H_2O
Absolute Stack Pressure	(P_s)	27.86	in Hg
Absolute Meter Pressure	(P_m)	27.98	in Hg

Nozzle Measurements				
Pre				**PASS**
Post				**PASS**

Run Time			
Start	13:17	**End**	14:27

Weights	**Imp 1**	**Imp 2**	**Imp 3**	**Imp 4**	**Imp 5**	**Imp 6**	**Imp 7**	**Imp 8**
Pre	774.9	720.4	580.9	818.7				
Post	808.3	724.6	587.6	829.0				

Wash Volumes					ml
					ml

Traverse Point #	**Sampling Time (Θ)**	**Timer Time**	**Dry Gas Meter Reading (V_m)**	**Velocity Head (Δp)**	**Desired Orifice ΔH (ΔH_d)**	**Actual Orifice ΔH (ΔH_a)**	**Stack Temp (t_s)**	**Snorkel Temp (248±25°F)**	**Filter Temp**	**Impinger Exit Temp (≤68°F)**	**Cond. Temp (≤---°F)**	**CPM Filter Temp (--±--°F)**	**Meter Inlet Temp (t_{mi})**	**Meter Outlet Temp (t_{mo})**	**Pump Vacuum**	**Square Root ΔP ($\Delta p^{1/2}$)**	**Local Stack Velocity (v_s)$_l$**	**Cumul. Meter Volume (V_m)$_{std}$**	**Cumul. Percent IsoKinetic (I)**	**Est-Run Meter Volume (V_m)$_{std}$**
	min	hh:mm:ss	ft³	in H_2O	in H_2O	in H_2O	°F	°F	°F	°F	°F	°F	°F	°F	in Hg	√(in H_2O)	ft/sec	dscf	%	dscf
A-1	0.0	00:00:00	692.300	0.005	1.585	1.50	980	253		47			71	70	12.0	0.07	6.82	2.052		49.249
A-2	2.7	00:02:43	694.530	0.015	1.585	1.50	984	259		47			71	70	12.0	0.12	11.83	3.911		46.930
A-3	5.4	00:05:25	696.550	0.005	1.585	1.50	1004	258		47			71	70	12.0	0.07	6.87	5.806		46.451
A-4	8.1	00:08:07	698.610	0.005	1.585	1.50	1079	256		47			71	70	12.0	0.07	7.05	7.730		46.378
A-5	10.8	00:10:50	700.700	0.005	1.585	1.50	1112	253		47			71	70	12.0	0.07	7.12	9.625		46.201
A-6	13.5	00:13:33	702.760	0.005	1.585	1.50	1139	250		52			74	70	12.0	0.07	7.18	11.543		46.172
A-7	16.3	00:16:15	704.850	0.005	1.585	1.50	1153	250		52			74	70	12.0	0.07	7.22	13.433		46.057
A-8	19.0	00:18:58	706.910	0.005	1.585	1.50	1147	250		52			74	70	12.0	0.07	7.20	16.223		48.668
A-9	21.7	00:21:40	709.950	0.005	1.585	1.50	1069	251		52			74	70	12.0	0.07	7.03	17.278		46.075
A-10	24.4	00:24:22	711.100	0.005	1.585	1.50	1080	252		52			74	70	12.0	0.07	7.05	19.187		46.048
A-11	27.1	00:27:05	713.180	0.005	1.585	1.50	1004	252		52			74	70	12.0	0.07	6.87	21.068		45.966
A-12	29.8	00:29:47	715.230	0.005	1.585	1.50	1068	252		52			74	70	12.0	0.07	7.02	23.288		46.577
B-1	32.5	00:32:30	717.650	0.005	1.585	1.50	1118	252		57			74	71	12.0	0.07	7.14	24.957		46.074
B-2	35.2	00:35:12	719.470	0.005	1.585	1.50	1130	252		57			74	71	12.0	0.07	7.16	26.845		46.020
B-3	37.9	00:37:55	721.530	0.005	1.585	1.50	1129	252		57			74	71	12.0	0.07	7.16	28.706		45.930
B-4	40.6	00:40:37	723.560	0.005	1.585	1.50	1156	252		57			74	71	12.0	0.07	7.22	30.595		45.892
B-5	43.3	00:43:20	725.620	0.005	1.585	1.50	1178	252		57			74	71	12.0	0.07	7.27	32.502		45.885
B-6	46.0	00:46:03	727.700	0.005	1.585	1.50	1188	252		57			74	71	12.0	0.07	7.29	34.381		45.841
B-7	48.8	00:48:45	729.750	0.005	1.585	1.50	1177	252		57			74	71	12.0	0.07	7.27	36.306		45.860
B-8	51.5	00:51:28	731.850	0.005	1.585	1.50	1148	252		57			74	71	12.0	0.07	7.21	38.213		45.855
B-9	54.2	00:54:10	733.930	0.005	1.585	1.50	1090	252		58			76	72	12.0	0.07	7.07	40.114		45.845
B-10	56.9	00:56:53	736.010	0.005	1.585	1.50	1117	252		58			76	72	12.0	0.07	7.14	42.034		45.855
B-11	59.6	00:59:35	738.110	0.005	1.585	1.50	1106	252		58			76	72	12.0	0.07	7.11	43.808		45.712
B-12	62.3	01:02:18	740.050	0.005	1.585	1.50	1105	252		58			76	72	12.0	0.07	7.11	45.810		45.810
Last Pt	65.0	01:05:00	742.240																	
Final Val	65.0	01:05:00	742.240											**Max Vac**	12.0	**Final Values**		45.810		
Average Values				0.01		1.50	1103	253		54			74	71		0.07	7.31			
													72							

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE ISOKINETIC SAMPLING DATA

Plant Name	Elk City Facilty
Sampling Location	SCD-36
Project #	sfi-elkcity.ok-comp#1

Date	10/06/16
Operator	MJ/BL
Run Number	0-30-0%-3

Ideal Nozzle Diameter and IsoKinetic Factor Setup			
Pitot Coefficient	(C_p)	0.840	
Average Stack Temp	(t_s)	1121.0	°F
Average Meter Temp	(t_m)	73.5	
Orifice Meter Coefficient	($\Delta H@$)	1.585	in H_2O
Square Root ΔP	($\Delta p^{1/2}_{avg}$)	0.08	in H_2O
Stack Moisture Content	(B_{ws})	5.14	%
Stack Dry Molecular Weight	(M_d)	29.23	lb/lb-mole
Estimated Orifice Flow Rate	(Q_m)	0.70	acfm
ΔP to ΔH Isokinetic Factor	(K)		

Leak Checks					
Train	**Pre**	0.000	ft³/min@	15.0	in Hg
PASS	**Post**	0.000	ft³/min@	15.0	in Hg
Pitot	**Pre (+)**	0.2	in H_2O for	18.0	sec
< 3.0	**Pre (-)**	0.2	in H_2O for	20.0	sec
	Post (+)	0.2	in H_2O for	15.0	sec
	Post (-)	0.2	in H_2O for	15.0	sec

Sampling Equipment			
Meter Box Number	SAMP-CP-0011		
Meter Cal Factor	(Y)	0.989	
Low Flow Meter	SAMP-MN-0001		
Average Nozzle Diameter	(D_{na})		in
Suggested Nozzle Diameter	(D_{ni})	0.4894	in
Probe Number	SAMP-SP-0001		in
Probe Length	60		in
Liner Material	inconel		
Sample Case / Oven Number			
Impinger Case Number	SAMP-BC-0032		

Pressures			
Barometric Pressure	(P_b)	29.83	in Hg
Stack Static Pressure	(P_{static})	0.00	in H_2O
Absolute Stack Pressure	(P_s)	29.83	in Hg
Absolute Meter Pressure	(P_m)	29.95	in Hg

Nozzle Measurements				
Pre				**PASS**
Post				**PASS**

Run Time			
Start	14:43	**End**	15:53

Weights	**Imp 1**	**Imp 2**	**Imp 3**	**Imp 4**	**Imp 5**	**Imp 6**	**Imp 7**	**Imp 8**
Pre	808.9	724.6	583.6	809.0				
Post	841.0	728.2	587.2	825.3				

Wash Volumes					ml
					ml

Traverse Point #	**Sampling Time (Θ)**	**Timer Time**	**Dry Gas Meter Reading (V_m)**	**Velocity Head (Δp)**	**Desired Orifice ΔH (ΔH_d)**	**Actual Orifice ΔH (ΔH_a)**	**Stack Temp (t_s)**	**Snorkel Temp (248±25°F)**	**Filter Temp**	**Impinger Exit Temp (≤68°F)**	**Cond. Temp (≤---°F)**	**CPM Filter Temp (--±--°F)**	**Meter Inlet Temp (t_{mi})**	**Meter Outlet Temp (t_{mo})**	**Pump Vacuum**	**Square Root ΔP ($\Delta p^{1/2}$)**	**Local Stack Velocity (v_s)$_l$**	**Cumul. Meter Volume (V_m)$_{std}$**	**Cumul. Percent IsoKinetic (I)**	**Est-Run Meter Volume (V_m)$_{std}$**
	min	hh:mm:ss	ft³	in H_2O	in H_2O	in H_2O	°F	°F	°F	°F	°F	°F	°F	°F	in Hg	√(in H_2O)	ft/sec	dscf	%	dscf
A-1	0.0	00:00:00	742.360	0.005	1.585	1.50	1115	257		56			71	73	12.0	0.07	6.89	2.043		49.033
A-2	2.7	00:02:43	744.440	0.005	1.585	1.50	1128	258		57			71	73	12.0	0.07	6.92	4.027		48.326
A-3	5.4	00:05:25	746.460	0.005	1.585	1.50	1146	256		57			71	73	12.0	0.07	6.96	6.041		48.326
A-4	8.1	00:08:07	748.510	0.005	1.585	1.50	1146	255		57			71	73	12.0	0.07	6.96	8.064		48.385
A-5	10.8	00:10:50	750.570	0.005	1.585	1.50	1158	252		57			71	73	12.0	0.07	6.99	10.097		48.467
A-6	13.5	00:13:33	752.640	0.005	1.585	1.50	1165	251		57			71	73	12.0	0.07	7.00	12.091		48.365
A-7	16.3	00:16:15	754.670	0.005	1.585	1.50	1157	251		57			71	73	12.0	0.07	6.98	14.095		48.326
A-8	19.0	00:18:58	756.710	0.005	1.585	1.50	1097	252		57			71	73	12.0	0.07	6.85	16.158		48.473
A-9	21.7	00:21:40	758.810	0.015	1.585	1.50	1076	252		57			71	72	12.0	0.12	11.79	18.212		48.567
A-10	24.4	00:24:22	760.900	0.005	1.585	1.50	1070	252		57			77	72	12.0	0.07	6.79	20.275		48.661
A-11	27.1	00:27:05	763.010	0.005	1.585	1.50	1061	252		59			77	72	12.0	0.07	6.77	22.387		48.844
A-12	29.8	00:29:47	765.170	0.005	1.585	1.50	1093	252		59			77	72	12.0	0.07	6.84	24.362		48.724
B-1	32.5	00:32:30	767.190	0.005	1.585	1.50	1082	252		58			77	72	12.0	0.07	6.82	26.278		48.513
B-2	35.2	00:35:12	769.150	0.005	1.585	1.50	1100	252		58			77	72	12.0	0.07	6.86	28.292		48.500
B-3	37.9	00:37:55	771.210	0.005	1.585	1.50	1121	253		58			77	72	12.0	0.07	6.91	30.306		48.489
B-4	40.6	00:40:37	773.270	0.005	1.585	1.50	1149	253		58			77	72	12.0	0.07	6.97	32.300		48.450
B-5	43.3	00:43:20	775.310	0.005	1.585	1.50	1166	253		57			77	72	12.0	0.07	7.00	34.314		48.443
B-6	46.0	00:46:03	777.370	0.015	1.585	1.50	1160	252		57			77	72	12.0	0.12	12.11	36.309		48.411
B-7	48.8	00:48:45	779.410	0.005	1.585	1.50	1165	252		57			77	72	12.0	0.07	7.00	38.342		48.432
B-8	51.5	00:51:28	781.490	0.005	1.585	1.50	1143	252		57			77	72	12.0	0.07	6.95	40.356		48.427
B-9	54.2	00:54:10	783.550	0.005	1.585	1.50	1113	252		57			77	72	12.0	0.07	6.89	42.370		48.423
B-10	56.9	00:56:53	785.610	0.005	1.585	1.50	1080	252		57			77	72	12.0	0.07	6.82	44.403		48.440
B-11	59.6	00:59:35	787.690	0.005	1.585	1.50	1108	252		57			77	72	12.0	0.07	6.88	46.417		48.435
B-12	62.3	01:02:18	789.750	0.005	1.585	1.50	1105	252		57			77	72	12.0	0.07	6.87	48.421		48.421
Last Pt	65.0	01:05:00	791.800																	
Final Val	65.0	01:05:00	791.800											**Max Vac**	12.0	**Final Values**		48.421		
Average Values				0.01		1.50	1121	253		57			75	72		0.08	7.33			
													74							

Superior Fabrication, INC
October 5, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	4.7	%
Stack Exhaust Flow (M2)	49,698	SCFH

Weather Data

Barometric Pressure	27.85	in. Hg
Relative Humidity	28	%
Ambient Temperature	80	^{o}F
Specific Humidity	0.006527	lb H_2O / lb air

0-30-0 Load, Run - SCD-36 R1

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
A1	10/05/16 12:07:27	18660	16.38	7.58	0.73	3.25	0.06	88.30	270.00
	10/05/16 12:07:57	18690	16.45	7.53	0.70	3.21	0.06	88.30	270.00
	10/05/16 12:08:27	18720	16.46	7.74	0.62	3.19	0.07	88.30	270.00
	10/05/16 12:08:57	18750	16.44	7.78	0.58	3.20	0.07	88.30	270.00
	10/05/16 12:09:27	18780	16.40	7.93	0.59	3.22	0.07	88.40	265.00
	10/05/16 12:09:57	18810	16.42	7.96	0.57	3.22	0.07	88.40	265.00
	10/05/16 12:10:27	18840	16.42	8.10	0.56	3.23	0.09	88.40	293.00
	10/05/16 12:10:57	18870	16.24	8.19	0.50	3.32	0.09	88.40	293.00
	10/05/16 12:11:27	18900	15.96	7.60	0.45	3.49	0.10	88.50	321.00
	10/05/16 12:11:57	18930	15.51	6.30	0.40	3.81	0.10	88.50	321.00
	10/05/16 12:12:27	18960	15.55	4.70	0.38	3.80	0.10	88.40	323.00
	10/05/16 12:12:57	18990	15.66	4.38	0.41	3.71	0.10	88.40	323.00
	10/05/16 12:13:27	19020	15.47	4.42	0.35	3.84	0.10	88.30	321.00
	10/05/16 12:13:57	19050	15.59	4.06	0.29	3.78	0.10	88.30	321.00
	10/05/16 12:14:27	19080	15.60	4.27	0.29	3.75	0.10	88.30	321.00
	10/05/16 12:14:57	19110	15.59	4.47	0.30	3.77	0.10	88.30	321.00
	10/05/16 12:15:27	19140	15.56	4.39	0.31	3.77	0.11	88.30	323.00
	10/05/16 12:15:57	19170	15.54	4.27	0.33	3.80	0.11	88.30	323.00
	10/05/16 12:16:27	19200	15.56	4.12	0.32	3.77	0.11	88.40	323.00
	10/05/16 12:16:57	19230	15.45	4.06	0.30	3.84	0.11	88.40	323.00
	10/05/16 12:17:27	19260	15.46	3.86	0.29	3.84	0.10	88.50	323.00
	10/05/16 12:17:57	19290	15.41	3.70	0.28	3.87	0.10	88.50	323.00
	10/05/16 12:18:27	19320	15.64	3.75	0.30	3.73	0.10	88.50	321.00
	10/05/16 12:18:57	19350	15.52	3.93	0.30	3.78	0.10	88.50	321.00
	10/05/16 12:19:27	19380	15.46	3.85	0.22	3.84	0.10	88.50	323.00
	10/05/16 12:19:57	19410	15.40	3.63	0.27	3.86	0.10	88.50	323.00
	10/05/16 12:20:27	19440	15.43	3.45	0.26	3.85	0.11	88.60	323.00
	10/05/16 12:20:57	19470	15.48	3.40	0.23	3.82	0.11	88.60	323.00
	10/05/16 12:21:27	19500	15.53	3.50	0.23	3.79	0.10	88.60	323.00
	10/05/16 12:21:57	19530	15.48	3.41	0.29	3.83	0.10	88.60	323.00
	10/05/16 12:22:27	19560	15.51	3.31	0.33	3.83	0.11	88.70	320.00
	10/05/16 12:22:57	19590	15.55	3.26	0.30	3.81	0.11	88.70	320.00
	10/05/16 12:23:27	19620	15.59	3.28	0.24	3.79	0.10	88.80	318.00
	10/05/16 12:23:57	19650	15.54	3.21	0.25	3.81	0.10	88.80	318.00
	10/05/16 12:24:27	19680	15.72	3.15	0.28	3.70	0.08	89.10	290.00
	10/05/16 12:24:57	19710	15.97	3.53	0.32	3.55	0.08	89.10	290.00
	10/05/16 12:25:27	19740	16.10	4.37	0.32	3.44	0.08	89.60	289.00
	10/05/16 12:25:57	19770	16.11	4.94	0.32	3.45	0.08	89.60	289.00
	10/05/16 12:26:27	19800	16.02	5.00	0.25	3.50	0.08	90.10	289.00
	10/05/16 12:26:57	19830	16.00	4.69	0.30	3.51	0.08	90.10	289.00
	10/05/16 12:27:27	19860	16.07	4.63	0.32	3.46	0.08	90.40	289.00
A2	10/05/16 12:27:57	19890	16.17	4.68	0.32	3.41	0.08	90.40	289.00
	10/05/16 12:28:27	19920	16.13	4.78	0.32	3.42	0.09	90.60	289.00
	10/05/16 12:28:57	19950	16.12	4.68	0.29	3.44	0.09	90.60	289.00
	10/05/16 12:29:27	19980	16.12	4.59	0.30	3.44	0.10	90.70	309.00
	10/05/16 12:29:57	20010	16.01	4.52	0.24	3.50	0.10	90.70	309.00
	10/05/16 12:30:27	20040	15.73	4.00	0.22	3.68	0.11	90.60	325.00
	10/05/16 12:30:57	20070	15.51	3.08	0.19	3.83	0.11	90.60	325.00
	10/05/16 12:31:27	20100	15.49	2.40	0.21	3.84	0.10	90.40	324.00
	10/05/16 12:31:57	20130	15.53	2.20	0.22	3.83	0.10	90.40	324.00
	10/05/16 12:32:27	20160	15.45	2.14	0.24	3.88	0.10	90.30	324.00
	10/05/16 12:32:57	20190	15.47	2.06	0.23	3.87	0.10	90.30	324.00
	10/05/16 12:33:27	20220	15.51	1.98	0.23	3.83	0.11	90.30	325.00
	10/05/16 12:33:57	20250	15.54	1.99	0.20	3.82	0.11	90.30	325.00
	10/05/16 12:34:27	20280	15.61	2.04	0.20	3.77	0.11	90.40	325.00
	10/05/16 12:34:57	20310	15.51	2.12	0.21	3.84	0.11	90.40	325.00
	10/05/16 12:35:27	20340	15.52	2.03	0.22	3.83	0.11	90.50	322.00
	10/05/16 12:35:57	20370	15.49	1.99	0.24	3.85	0.11	90.50	322.00
	10/05/16 12:36:27	20400	15.55	2.01	0.23	3.81	0.11	90.60	324.00
	10/05/16 12:36:57	20430	15.53	2.09	0.22	3.83	0.11	90.60	324.00

Superior Fabrication, INC
October 5, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	4.7	%
Stack Exhaust Flow (M2)	49,698	SCFH

Weather Data

Barometric Pressure	27.85	in. Hg
Relative Humidity	28	%
Ambient Temperature	80	^{o}F
Specific Humidity	0.006527	lb H_2O / lb air

0-30-0 Load, Run - SCD-36 R1

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
	10/05/16 12:37:27	20460	15.54	2.09	0.22	3.81	0.10	90.70	322.00
	10/05/16 12:37:57	20490	15.50	2.18	0.25	3.84	0.10	90.70	322.00
	10/05/16 12:38:27	20520	15.55	2.20	0.23	3.82	0.11	90.80	324.00
	10/05/16 12:38:57	20550	15.66	2.27	0.22	3.75	0.11	90.80	324.00
	10/05/16 12:39:27	20580	15.64	2.34	0.21	3.75	0.11	91.00	324.00
	10/05/16 12:39:57	20610	15.60	2.39	0.23	3.80	0.11	91.00	324.00
	10/05/16 12:40:27	20640	15.66	2.46	0.23	3.74	0.11	91.10	324.00
	10/05/16 12:40:57	20670	15.55	2.61	0.23	3.82	0.11	91.10	324.00
	10/05/16 12:41:27	20700	15.61	2.85	0.23	3.78	0.08	91.40	288.00
	10/05/16 12:41:57	20730	16.03	3.43	0.23	3.53	0.08	91.40	288.00
	10/05/16 12:42:27	20760	16.31	4.69	0.32	3.31	0.08	91.60	286.00
	10/05/16 12:42:57	20790	16.08	5.69	0.31	3.44	0.08	91.60	286.00
	10/05/16 12:43:27	20820	16.02	5.92	0.29	3.51	0.08	91.80	283.00
	10/05/16 12:43:57	20850	16.06	6.34	0.33	3.47	0.08	91.80	283.00
	10/05/16 12:44:27	20880	16.13	7.95	0.35	3.43	0.07	92.00	285.00
	10/05/16 12:44:57	20910	16.15	11.27	0.40	3.40	0.07	92.00	285.00
	10/05/16 12:45:27	20940	16.04	15.09	0.38	3.49	0.09	92.20	288.00
	10/05/16 12:45:57	20970	16.05	18.61	0.34	3.48	0.09	92.20	288.00
	10/05/16 12:46:27	21000	16.11	21.28	0.33	3.45	0.10	92.30	311.00
	10/05/16 12:46:57	21030	16.07	22.99	0.32	3.44	0.10	92.30	311.00
	10/05/16 12:47:27	21060	15.68	24.59	0.30	3.72	0.11	92.40	321.00
A3	10/05/16 12:47:57	21090	15.75	26.88	0.32	3.68	0.11	92.40	321.00
	10/05/16 12:48:27	21120	15.68	28.98	0.27	3.72	0.10	92.40	321.00
	10/05/16 12:48:57	21150	15.67	29.68	0.23	3.73	0.10	92.40	321.00
	10/05/16 12:49:27	21180	15.65	29.07	0.20	3.75	0.10	92.50	318.00
	10/05/16 12:49:57	21210	15.66	28.18	0.24	3.74	0.10	92.50	318.00
	10/05/16 12:50:27	21240	15.76	27.09	0.24	3.69	0.11	92.60	321.00
	10/05/16 12:50:57	21270	15.84	25.81	0.25	3.61	0.11	92.60	321.00
	10/05/16 12:51:27	21300	15.78	25.66	0.28	3.66	0.10	92.80	320.00
	10/05/16 12:51:57	21330	15.79	29.21	0.28	3.66	0.10	92.80	320.00
	10/05/16 12:52:27	21360	15.77	33.06	0.23	3.66	0.10	92.90	320.00
	10/05/16 12:52:57	21390	15.80	33.82	0.22	3.65	0.10	92.90	320.00
	10/05/16 12:53:27	21420	15.76	32.46	0.23	3.67	0.09	93.00	320.00
	10/05/16 12:53:57	21450	15.84	30.25	0.27	3.62	0.09	93.00	320.00
	10/05/16 12:54:27	21480	15.81	26.69	0.23	3.65	0.10	93.10	318.00
	10/05/16 12:54:57	21510	15.75	21.79	0.21	3.67	0.10	93.10	318.00
	10/05/16 12:55:27	21540	15.83	17.59	0.23	3.62	0.10	93.20	323.00
	10/05/16 12:55:57	21570	15.79	14.75	0.22	3.63	0.10	93.20	323.00
	10/05/16 12:56:27	21600	15.74	13.08	0.23	3.68	0.10	93.40	320.00
	10/05/16 12:56:57	21630	15.75	11.88	0.22	3.67	0.10	93.40	320.00
	10/05/16 12:57:27	21660	15.72	11.12	0.22	3.70	0.10	93.50	320.00
	10/05/16 12:57:57	21690	15.82	10.56	0.23	3.64	0.10	93.50	320.00
	10/05/16 12:58:27	21720	15.76	10.05	0.22	3.67	0.10	93.60	322.00
	10/05/16 12:58:57	21750	15.81	9.45	0.21	3.64	0.10	93.60	322.00
	10/05/16 12:59:27	21780	15.78	8.77	0.19	3.67	0.08	93.90	282.00
	10/05/16 12:59:57	21810	16.18	8.47	0.23	3.41	0.08	93.90	282.00
	10/05/16 13:00:27	21840	16.28	8.63	0.22	3.32	0.09	94.10	287.00
	10/05/16 13:00:57	21870	16.23	8.37	0.24	3.36	0.09	94.10	287.00
	10/05/16 13:01:27	21900	16.34	7.77	0.22	3.28	0.08	94.30	287.00
	10/05/16 13:01:57	21930	16.31	7.18	0.23	3.28	0.08	94.30	287.00
	10/05/16 13:02:27	21960	16.17	6.71	0.22	3.38	0.07	94.50	284.00
	10/05/16 13:02:57	21990	16.20	6.26	0.21	3.37	0.07	94.50	284.00
	10/05/16 13:03:27	22020	16.23	6.20	0.20	3.37	0.08	94.60	287.00
	10/05/16 13:03:57	22050	16.26	6.79	0.20	3.33	0.08	94.60	287.00
	10/05/16 13:04:27	22080	16.23	7.46	0.20	3.34	0.09	94.60	317.00
	10/05/16 13:04:57	22110	15.86	7.96	0.20	3.60	0.09	94.60	317.00
	10/05/16 13:05:27	22140	15.79	8.19	0.26	3.64	0.10	94.50	319.00
	10/05/16 13:05:57	22170	15.77	8.94	0.29	3.67	0.10	94.50	319.00
	10/05/16 13:06:27	22200	15.82	10.19	0.30	3.63	0.09	94.50	319.00
	10/05/16 13:06:57	22230	15.74	11.29	0.29	3.67	0.09	94.50	319.00

Superior Fabrication, INC
October 5, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	4.7	%
Stack Exhaust Flow (M2)	49,698	SCFH

Weather Data

Barometric Pressure	27.85	in. Hg
Relative Humidity	28	%
Ambient Temperature	80	°F
Specific Humidity	0.006527	lb H_2O / lb air

0-30-0 Load, Run - SCD-36 R1

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. °F	Fuel Flow SCFH
10/05/16 13:07:27	22260	15.70	12.18	0.21	3.71	0.10	94.60	317.00
10/05/16 13:07:57	22290	15.72	12.47	0.20	3.69	0.10	94.60	317.00
10/05/16 13:08:27	22320	15.73	12.16	0.21	3.69	0.10	94.70	317.00
10/05/16 13:08:57	22350	15.67	11.15	0.27	3.72	0.10	94.70	317.00
10/05/16 13:09:27	22380	15.64	9.84	0.24	3.75	0.09	94.80	322.00
10/05/16 13:09:57	22410	15.84	9.64	0.31	3.64	0.09	94.80	322.00
10/05/16 13:10:27	22440	15.84	10.26	0.41	3.63	0.10	94.80	317.00
10/05/16 13:10:57	22470	15.70	10.41	0.34	3.71	0.10	94.80	317.00
10/05/16 13:11:27	22500	15.66	10.13	0.31	3.73	0.10	95.00	317.00
10/05/16 13:11:57	22530	15.74	9.59	0.30	3.68	0.10	95.00	317.00
10/05/16 13:12:27	22560	15.72	8.67	0.59	3.70	0.09	95.00	319.00
10/05/16 13:12:57	22590	15.83	7.96	0.44	3.64	0.09	95.00	319.00
10/05/16 13:13:27	22620	15.74	7.40	0.23	3.69	0.09	95.10	319.00
10/05/16 13:13:57	22650	15.63	6.31	0.19	3.75	0.09	95.10	319.00
10/05/16 13:14:27	22680	15.68	5.37	0.19	3.72	0.10	95.20	314.00
10/05/16 13:14:57	22710	15.69	5.16	0.21	3.72	0.10	95.20	314.00
10/05/16 13:15:27	22740	15.66	5.00	0.23	3.74	0.07	95.20	291.00
10/05/16 13:15:57	22770	15.81	5.01	0.22	3.65	0.07	95.20	291.00
10/05/16 13:16:27	22800	16.08	5.28	0.23	3.46	0.07	95.40	281.00
10/05/16 13:16:57	22830	16.17	5.57	0.20	3.39	0.07	95.40	281.00
10/05/16 13:17:27	22860	16.20	5.70	0.19	3.37	0.08	95.50	286.00
RAW AVERAGE		**15.81**	**8.91**	**0.29**	**3.63**	**0.09**	**91.63**	**309.55**

		O_2	CO	THC	CO_2	Press. Trans	Temp. Trans.	F-Flow Trans.
	Serial Number:	INSTO2-0011	INST-CO-0022	INST-TH-0002	INST-C2-0013	1434717	1434717	1434717
						(in. H_2O)	(°F)	(SCFH)
	Initial Zero	0.02	-0.02	0.03	0.05	1434717	1434717	1434717
	Final Zero	-0.01	-0.01	-0.04	0.02			
	Avg. Zero	0.01	-0.02	-0.01	0.04			
Bias								
	Initial UpScale	12.04	9.41	2.95	8.80			
	Final UpScale	11.96	9.38	2.97	8.83			
	Avg. UpScale	12.00	9.40	2.96	8.82			
Upscale Cal Gas		11.90	9.44	3.00	8.95			

EMISSIONS DATA	O_2	CO	THC	CO_2
Corrected Raw Average (ppm/% dry basis)	15.68	8.95	0.29	3.67
Corrected Raw Average (ppm/% wet basis)	14.94	8.53	0.28	3.49
Emission Rate (lb/hr)	N/A	0.03	0.00	N/A

Superior Fabrication, INC
October 6, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	5.3	%
Stack Exhaust Flow (M2)	46,561	SCFH

Weather Data

Barometric Pressure	27.86	in. Hg
Relative Humidity	54	%
Ambient Temperature	83	^{o}F
Specific Humidity	0.013959	lb H_2O / lb air

0-30-0 Load, Run - SCD-36 R2

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
A1	10/06/16 13:17:27	109260	15.94	8.03	0.34	3.53	0.07	88.00	280.00
	10/06/16 13:17:57	109290	16.05	7.40	0.34	3.45	0.07	88.00	280.00
	10/06/16 13:18:27	109320	15.87	7.27	0.30	3.58	0.07	87.80	278.00
	10/06/16 13:18:57	109350	15.90	7.07	0.30	3.56	0.07	87.80	278.00
	10/06/16 13:19:27	109380	15.87	6.79	0.24	3.58	0.08	87.70	280.00
	10/06/16 13:19:57	109410	15.83	6.42	0.23	3.61	0.08	87.70	280.00
	10/06/16 13:20:27	109440	15.92	6.34	0.24	3.56	0.08	87.50	301.00
	10/06/16 13:20:57	109470	15.97	6.68	0.23	3.50	0.08	87.50	301.00
	10/06/16 13:21:27	109500	15.69	6.89	0.22	3.67	0.10	87.20	321.00
	10/06/16 13:21:57	109530	15.38	5.48	0.16	3.91	0.10	87.20	321.00
	10/06/16 13:22:27	109560	15.22	3.95	0.14	4.00	0.11	87.00	327.00
	10/06/16 13:22:57	109590	15.24	3.25	0.22	3.99	0.11	87.00	327.00
	10/06/16 13:23:27	109620	15.23	3.17	0.19	3.99	0.10	86.80	327.00
	10/06/16 13:23:57	109650	15.12	3.08	0.12	4.06	0.10	86.80	327.00
	10/06/16 13:24:27	109680	15.14	2.74	0.13	4.05	0.11	86.70	327.00
	10/06/16 13:24:57	109710	15.18	2.71	0.13	4.03	0.11	86.70	327.00
	10/06/16 13:25:27	109740	15.23	2.85	0.12	3.99	0.11	86.50	329.00
	10/06/16 13:25:57	109770	15.16	2.78	0.12	4.04	0.11	86.50	329.00
	10/06/16 13:26:27	109800	15.11	2.57	0.13	4.08	0.10	86.40	327.00
	10/06/16 13:26:57	109830	15.26	2.63	0.13	3.97	0.10	86.40	327.00
	10/06/16 13:27:27	109860	15.17	2.69	0.12	4.04	0.10	86.40	329.00
	10/06/16 13:27:57	109890	15.11	2.53	0.11	4.05	0.10	86.40	329.00
	10/06/16 13:28:27	109920	15.11	2.29	0.11	4.08	0.11	86.40	327.00
	10/06/16 13:28:57	109950	15.08	2.17	0.13	4.10	0.11	86.40	327.00
	10/06/16 13:29:27	109980	15.17	2.12	0.10	4.04	0.11	86.40	327.00
	10/06/16 13:29:57	110010	15.10	2.23	0.08	4.08	0.11	86.40	327.00
	10/06/16 13:30:27	110040	15.14	2.11	0.12	4.06	0.12	86.40	327.00
	10/06/16 13:30:57	110070	15.09	1.99	0.07	4.08	0.12	86.40	327.00
	10/06/16 13:31:27	110100	15.04	1.88	0.05	4.11	0.11	86.40	327.00
	10/06/16 13:31:57	110130	15.02	1.71	0.02	4.13	0.11	86.40	327.00
	10/06/16 13:32:27	110160	15.14	1.69	0.02	4.05	0.12	86.40	327.00
	10/06/16 13:32:57	110190	15.12	1.80	0.06	4.06	0.12	86.40	327.00
	10/06/16 13:33:27	110220	15.04	1.76	0.04	4.12	0.11	86.30	327.00
	10/06/16 13:33:57	110250	15.13	1.65	0.03	4.06	0.11	86.30	327.00
	10/06/16 13:34:27	110280	15.18	1.72	0.07	4.03	0.10	86.30	299.00
	10/06/16 13:34:57	110310	15.41	1.92	0.08	3.90	0.10	86.30	299.00
	10/06/16 13:35:27	110340	15.62	2.54	0.08	3.74	0.10	86.50	289.00
	10/06/16 13:35:57	110370	15.60	3.12	0.04	3.76	0.10	86.50	289.00
	10/06/16 13:36:27	110400	15.60	3.31	0.04	3.75	0.10	86.60	289.00
	10/06/16 13:36:57	110430	15.68	3.35	0.02	3.71	0.10	86.60	289.00
	10/06/16 13:37:27	110460	15.58	3.31	0.02	3.77	0.09	86.60	291.00
A2	10/06/16 13:37:57	110490	15.61	3.13	0.00	3.76	0.09	86.60	291.00
	10/06/16 13:38:27	110520	15.65	3.08	0.02	3.73	0.11	86.60	307.00
	10/06/16 13:38:57	110550	15.66	3.23	0.02	3.73	0.11	86.60	307.00
	10/06/16 13:39:27	110580	15.26	3.12	0.03	3.95	0.12	86.30	325.00
	10/06/16 13:39:57	110610	15.17	2.18	0.01	4.04	0.12	86.30	325.00
	10/06/16 13:40:27	110640	15.18	1.57	0.02	4.02	0.12	86.20	322.00
	10/06/16 13:40:57	110670	15.06	1.48	0.03	4.07	0.12	86.20	322.00
	10/06/16 13:41:27	110700	15.12	1.32	0.04	4.03	0.12	86.10	322.00
	10/06/16 13:41:57	110730	15.07	1.29	0.02	4.08	0.12	86.10	322.00
	10/06/16 13:42:27	110760	15.08	1.29	0.02	4.07	0.10	86.00	322.00
	10/06/16 13:42:57	110790	15.14	1.31	0.02	4.03	0.10	86.00	322.00
	10/06/16 13:43:27	110820	15.03	1.32	0.03	4.10	0.11	86.10	322.00
	10/06/16 13:43:57	110850	15.17	1.23	0.01	4.02	0.11	86.10	322.00
	10/06/16 13:44:27	110880	15.13	1.34	0.01	4.03	0.12	86.20	322.00
	10/06/16 13:44:57	110910	15.08	1.32	0.02	4.07	0.12	86.20	322.00
	10/06/16 13:45:27	110940	15.11	1.25	0.04	4.05	0.11	86.30	322.00
	10/06/16 13:45:57	110970	15.14	1.25	0.03	4.03	0.11	86.30	322.00
	10/06/16 13:46:27	111000	15.14	1.16	0.04	4.05	0.11	86.40	322.00
	10/06/16 13:46:57	111030	15.16	1.13	0.04	4.04	0.11	86.40	322.00

Superior Fabrication, INC
October 6, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	5.3	%
Stack Exhaust Flow (M2)	46,561	SCFH

Weather Data

Barometric Pressure	27.86	in. Hg
Relative Humidity	54	%
Ambient Temperature	83	^{o}F
Specific Humidity	0.013959	lb H_2O / lb air

0-30-0 Load, Run - SCD-36 R2

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
	10/06/16 13:47:27	111060	15.05	1.05	0.03	4.11	0.11	86.40	322.00
	10/06/16 13:47:57	111090	15.16	0.99	0.00	4.04	0.11	86.40	322.00
	10/06/16 13:48:27	111120	15.05	0.99	0.02	4.11	0.12	86.40	322.00
	10/06/16 13:48:57	111150	15.21	1.01	0.03	4.02	0.12	86.40	322.00
	10/06/16 13:49:27	111180	15.15	1.11	0.03	4.04	0.12	86.50	322.00
	10/06/16 13:49:57	111210	15.21	1.09	0.03	4.01	0.12	86.50	322.00
	10/06/16 13:50:27	111240	15.11	1.07	0.02	4.07	0.11	86.50	322.00
	10/06/16 13:50:57	111270	15.15	1.01	0.02	4.05	0.11	86.50	322.00
	10/06/16 13:51:27	111300	15.21	0.97	0.02	4.02	0.10	86.50	296.00
	10/06/16 13:51:57	111330	15.45	1.10	0.01	3.87	0.10	86.50	296.00
	10/06/16 13:52:27	111360	15.74	1.57	0.01	3.68	0.10	86.80	291.00
	10/06/16 13:52:57	111390	15.62	2.03	0.04	3.74	0.10	86.80	291.00
	10/06/16 13:53:27	111420	15.61	2.06	0.04	3.76	0.09	87.00	294.00
	10/06/16 13:53:57	111450	15.56	2.01	0.04	3.78	0.09	87.00	294.00
	10/06/16 13:54:27	111480	15.52	1.93	0.04	3.81	0.09	87.20	293.00
	10/06/16 13:54:57	111510	15.53	1.82	0.04	3.81	0.09	87.20	293.00
	10/06/16 13:55:27	111540	15.66	1.94	0.05	3.73	0.10	87.60	291.00
	10/06/16 13:55:57	111570	15.64	2.05	0.03	3.73	0.10	87.60	291.00
	10/06/16 13:56:27	111600	15.64	2.06	0.03	3.74	0.09	88.00	293.00
	10/06/16 13:56:57	111630	15.81	1.98	0.02	3.62	0.09	88.00	293.00
	10/06/16 13:57:27	111660	15.79	2.14	0.03	3.62	0.11	88.10	303.00
A3	10/06/16 13:57:57	111690	15.61	2.13	0.04	3.75	0.11	88.10	303.00
	10/06/16 13:58:27	111720	15.50	1.87	0.03	3.83	0.11	88.10	323.00
	10/06/16 13:58:57	111750	15.42	1.59	0.00	3.87	0.11	88.10	323.00
	10/06/16 13:59:27	111780	15.16	1.27	0.04	4.03	0.12	88.10	324.00
	10/06/16 13:59:57	111810	15.13	0.96	0.02	4.06	0.12	88.10	324.00
	10/06/16 14:00:27	111840	15.17	0.81	-0.04	4.04	0.12	87.90	324.00
	10/06/16 14:00:57	111870	15.22	0.85	0.00	4.01	0.12	87.90	324.00
	10/06/16 14:01:27	111900	15.24	0.84	0.03	3.99	0.11	87.70	324.00
	10/06/16 14:01:57	111930	15.28	0.91	0.00	3.97	0.11	87.70	324.00
	10/06/16 14:02:27	111960	15.25	0.92	0.00	3.98	0.12	87.60	324.00
	10/06/16 14:02:57	111990	15.21	0.89	0.00	4.02	0.12	87.60	324.00
	10/06/16 14:03:27	112020	15.10	0.85	0.00	4.08	0.12	87.50	324.00
	10/06/16 14:03:57	112050	15.05	0.73	-0.06	4.11	0.12	87.50	324.00
	10/06/16 14:04:27	112080	15.16	0.69	-0.06	4.05	0.12	87.60	326.00
	10/06/16 14:04:57	112110	15.10	0.72	-0.07	4.08	0.12	87.60	326.00
	10/06/16 14:05:27	112140	15.14	0.71	-0.03	4.07	0.12	87.80	326.00
	10/06/16 14:05:57	112170	15.15	0.70	-0.10	4.05	0.12	87.80	326.00
	10/06/16 14:06:27	112200	15.17	0.69	-0.08	4.04	0.11	87.80	326.00
	10/06/16 14:06:57	112230	15.18	0.71	-0.08	4.05	0.11	87.80	326.00
	10/06/16 14:07:27	112260	15.18	0.76	-0.09	4.03	0.13	87.90	324.00
	10/06/16 14:07:57	112290	15.17	0.72	-0.05	4.04	0.13	87.90	324.00
	10/06/16 14:08:27	112320	15.20	0.76	-0.05	4.02	0.10	88.10	306.00
	10/06/16 14:08:57	112350	15.25	0.76	-0.04	4.00	0.10	88.10	306.00
	10/06/16 14:09:27	112380	15.45	0.79	-0.05	3.90	0.10	88.20	290.00
	10/06/16 14:09:57	112410	15.83	1.22	-0.02	3.61	0.10	88.20	290.00
	10/06/16 14:10:27	112440	15.79	1.70	-0.06	3.65	0.09	88.40	290.00
	10/06/16 14:10:57	112470	15.80	1.82	-0.05	3.63	0.09	88.40	290.00
	10/06/16 14:11:27	112500	15.68	1.85	-0.02	3.70	0.09	88.50	290.00
	10/06/16 14:11:57	112530	15.64	1.69	-0.03	3.74	0.09	88.50	290.00
	10/06/16 14:12:27	112560	15.70	1.65	-0.05	3.69	0.10	88.70	290.00
	10/06/16 14:12:57	112590	15.69	1.72	-0.05	3.71	0.10	88.70	290.00
	10/06/16 14:13:27	112620	15.74	1.74	-0.05	3.66	0.10	88.90	290.00
	10/06/16 14:13:57	112650	15.69	1.77	-0.06	3.70	0.10	88.90	290.00
	10/06/16 14:14:27	112680	15.68	1.70	-0.05	3.70	0.12	89.10	313.00
	10/06/16 14:14:57	112710	15.56	1.62	-0.05	3.76	0.12	89.10	313.00
	10/06/16 14:15:27	112740	15.18	1.37	-0.06	4.02	0.11	89.30	325.00
	10/06/16 14:15:57	112770	15.12	0.97	-0.01	4.07	0.11	89.30	325.00
	10/06/16 14:16:27	112800	15.22	0.73	-0.05	4.01	0.11	89.40	323.00
	10/06/16 14:16:57	112830	15.19	0.75	-0.06	4.02	0.11	89.40	323.00

Superior Fabrication, INC
October 6, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	5.3	%
Stack Exhaust Flow (M2)	46,561	SCFH

Weather Data

Barometric Pressure	27.86	in. Hg
Relative Humidity	54	%
Ambient Temperature	83	°F
Specific Humidity	0.013959	lb H_2O / lb air

0-30-0 Load, Run - SCD-36 R2

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. °F	Fuel Flow SCFH
10/06/16 14:17:27	112860	15.23	0.74	-0.06	4.00	0.11	89.60	320.00
10/06/16 14:17:57	112890	15.20	0.75	-0.06	4.01	0.11	89.60	320.00
10/06/16 14:18:27	112920	15.32	0.74	-0.06	3.94	0.11	89.70	322.00
10/06/16 14:18:57	112950	15.38	0.91	-0.08	3.91	0.11	89.70	322.00
10/06/16 14:19:27	112980	15.44	0.98	-0.08	3.87	0.12	89.70	325.00
10/06/16 14:19:57	113010	15.34	1.11	-0.05	3.92	0.12	89.70	325.00
10/06/16 14:20:27	113040	15.30	1.02	-0.08	3.96	0.11	89.70	323.00
10/06/16 14:20:57	113070	15.28	0.89	-0.07	3.97	0.11	89.70	323.00
10/06/16 14:21:27	113100	15.26	0.89	-0.05	3.99	0.12	89.80	323.00
10/06/16 14:21:57	113130	15.18	0.80	-0.09	4.03	0.12	89.80	323.00
10/06/16 14:22:27	113160	15.12	0.79	-0.07	4.05	0.12	90.00	325.00
10/06/16 14:22:57	113190	15.12	0.69	-0.06	4.07	0.12	90.00	325.00
10/06/16 14:23:27	113220	15.25	0.66	-0.07	4.00	0.11	90.20	325.00
10/06/16 14:23:57	113250	15.45	0.88	-0.06	3.86	0.11	90.20	325.00
10/06/16 14:24:27	113280	15.43	1.09	-0.06	3.87	0.12	90.30	320.00
10/06/16 14:24:57	113310	15.27	0.98	-0.09	3.96	0.12	90.30	320.00
10/06/16 14:25:27	113340	15.33	0.85	-0.08	3.93	0.08	90.40	292.00
10/06/16 14:25:57	113370	15.67	0.95	-0.09	3.72	0.08	90.40	292.00
10/06/16 14:26:27	113400	15.92	1.47	-0.08	3.54	0.09	90.60	289.00
10/06/16 14:26:57	113430	15.97	1.97	-0.07	3.49	0.09	90.60	289.00
10/06/16 14:27:27	113460	15.85	2.02	-0.07	3.59	0.09	90.80	291.00
RAW AVERAGE		**15.36**	**1.96**	**0.03**	**3.91**	**0.11**	**87.62**	**312.94**

		O_2	CO	THC	CO_2	Press. Trans	Temp. Trans.	F-Flow Trans.
	Serial Number:	INSTO2-0011	INST-CO-0022	INST-TH-0002	INST-C2-0013	1434717	1434717	1434717
		(%)	(ppmvd)	(ppmvw)	(%)	(in. H_2O)	(°F)	(SCFH)
Bias	Initial Zero	-0.02	-0.01	-0.06	0.03			
	Final Zero	-0.03	0.01	-0.05	0.01			
	Avg. Zero	-0.03	0.00	-0.06	0.02			
	Initial UpScale	11.93	9.41	3.06	8.87			
	Final UpScale	11.89	9.41	3.00	8.85			
	Avg. UpScale	11.91	9.41	3.03	8.86			
Upscale Cal Gas		11.90	9.44	3.00	8.95			

EMISSIONS DATA	O_2	CO	THC	CO_2
Corrected Raw Average (ppm/% dry basis)	15.34	1.97	0.08	3.94
Corrected Raw Average (ppm/% wet basis)	14.52	1.87	0.08	3.73
Emission Rate (lb/hr)	N/A	0.01	0.00	N/A

Superior Fabrication, INC
October 6, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	5.1	%
Stack Exhaust Flow (M2)	49,483	SCFH

Weather Data

Barometric Pressure	27.83	in. Hg
Relative Humidity	51	%
Ambient Temperature	88	^{o}F
Specific Humidity	0.015611	lb H_2O / lb air

0-30-0 Load, Run - SCD-36 R3

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
A1	10/06/16 14:43:27	114420	15.82	1.89	-0.08	3.61	0.09	91.60	291.00
	10/06/16 14:43:57	114450	15.95	1.93	-0.06	3.51	0.09	91.60	291.00
	10/06/16 14:44:27	114480	15.79	2.02	-0.05	3.62	0.09	91.70	289.00
	10/06/16 14:44:57	114510	15.81	1.86	-0.06	3.60	0.09	91.70	289.00
	10/06/16 14:45:27	114540	15.82	1.89	-0.05	3.61	0.09	91.80	291.00
	10/06/16 14:45:57	114570	15.77	1.91	-0.06	3.63	0.09	91.80	291.00
	10/06/16 14:46:27	114600	15.78	1.84	-0.07	3.63	0.10	91.80	304.00
	10/06/16 14:46:57	114630	15.69	1.76	-0.08	3.68	0.10	91.80	304.00
	10/06/16 14:47:27	114660	15.50	1.58	-0.09	3.82	0.10	91.70	321.00
	10/06/16 14:47:57	114690	15.48	1.38	-0.06	3.82	0.10	91.70	321.00
	10/06/16 14:48:27	114720	15.53	1.28	-0.06	3.80	0.10	91.60	319.00
	10/06/16 14:48:57	114750	15.59	1.32	-0.06	3.76	0.10	91.60	319.00
	10/06/16 14:49:27	114780	15.55	1.36	-0.07	3.79	0.10	91.50	319.00
	10/06/16 14:49:57	114810	15.44	1.28	-0.08	3.85	0.10	91.50	319.00
	10/06/16 14:50:27	114840	15.54	1.21	-0.06	3.79	0.10	91.60	319.00
	10/06/16 14:50:57	114870	15.44	1.23	-0.06	3.85	0.10	91.60	319.00
	10/06/16 14:51:27	114900	15.43	1.18	-0.06	3.86	0.10	91.70	319.00
	10/06/16 14:51:57	114930	15.50	1.12	-0.06	3.83	0.10	91.70	319.00
	10/06/16 14:52:27	114960	15.49	1.22	-0.06	3.82	0.10	91.90	319.00
	10/06/16 14:52:57	114990	15.40	1.15	-0.05	3.89	0.10	91.90	319.00
	10/06/16 14:53:27	115020	15.30	1.05	-0.06	3.94	0.10	92.00	318.00
	10/06/16 14:53:57	115050	15.33	0.91	-0.07	3.93	0.10	92.00	318.00
	10/06/16 14:54:27	115080	15.41	0.94	-0.07	3.88	0.11	92.20	319.00
	10/06/16 14:54:57	115110	15.36	0.98	-0.07	3.91	0.11	92.20	319.00
	10/06/16 14:55:27	115140	15.35	0.99	-0.06	3.91	0.11	92.40	318.00
	10/06/16 14:55:57	115170	15.26	0.92	-0.06	3.97	0.11	92.40	318.00
	10/06/16 14:56:27	115200	15.32	0.88	-0.06	3.94	0.10	92.50	318.00
	10/06/16 14:56:57	115230	15.36	0.89	-0.07	3.92	0.10	92.50	318.00
	10/06/16 14:57:27	115260	15.51	1.00	-0.05	3.81	0.10	92.60	320.00
	10/06/16 14:57:57	115290	15.53	1.16	-0.08	3.80	0.10	92.60	320.00
	10/06/16 14:58:27	115320	15.47	1.22	-0.08	3.82	0.10	92.60	318.00
	10/06/16 14:58:57	115350	15.49	1.22	-0.06	3.82	0.10	92.60	318.00
	10/06/16 14:59:27	115380	15.44	1.12	-0.05	3.85	0.10	92.50	318.00
	10/06/16 14:59:57	115410	15.40	1.09	-0.09	3.87	0.10	92.50	318.00
	10/06/16 15:00:27	115440	15.34	1.02	-0.10	3.90	0.10	92.50	296.00
	10/06/16 15:00:57	115470	15.56	0.96	-0.05	3.79	0.10	92.50	296.00
	10/06/16 15:01:27	115500	15.81	1.23	-0.05	3.61	0.08	92.70	285.00
	10/06/16 15:01:57	115530	15.89	1.62	-0.06	3.55	0.08	92.70	285.00
	10/06/16 15:02:27	115560	15.88	1.89	-0.07	3.55	0.08	92.90	288.00
	10/06/16 15:02:57	115590	15.91	1.88	-0.06	3.52	0.08	92.90	288.00
	10/06/16 15:03:27	115620	15.85	1.99	-0.07	3.56	0.08	93.00	285.00
A2	10/06/16 15:03:57	115650	15.95	1.98	-0.07	3.50	0.08	93.00	285.00
	10/06/16 15:04:27	115680	15.91	1.99	-0.06	3.51	0.09	93.00	288.00
	10/06/16 15:04:57	115710	15.90	1.99	-0.07	3.53	0.09	93.00	288.00
	10/06/16 15:05:27	115740	16.04	2.06	-0.05	3.44	0.08	93.00	300.00
	10/06/16 15:05:57	115770	15.99	2.32	-0.08	3.47	0.08	93.00	300.00
	10/06/16 15:06:27	115800	15.77	2.28	-0.09	3.58	0.11	92.80	323.00
	10/06/16 15:06:57	115830	15.38	1.84	-0.07	3.87	0.11	92.80	323.00
	10/06/16 15:07:27	115860	15.38	1.28	-0.08	3.87	0.10	92.60	318.00
	10/06/16 15:07:57	115890	15.43	1.09	-0.07	3.84	0.10	92.60	318.00
	10/06/16 15:08:27	115920	15.39	1.08	-0.06	3.88	0.11	92.50	318.00
	10/06/16 15:08:57	115950	15.35	1.02	-0.06	3.90	0.11	92.50	318.00
	10/06/16 15:09:27	115980	15.33	1.02	-0.06	3.90	0.10	92.60	320.00
	10/06/16 15:09:57	116010	15.28	0.98	-0.07	3.93	0.10	92.60	320.00
	10/06/16 15:10:27	116040	15.24	0.92	-0.07	3.97	0.10	92.60	318.00
	10/06/16 15:10:57	116070	15.32	0.89	-0.09	3.92	0.10	92.60	318.00
	10/06/16 15:11:27	116100	15.35	0.89	-0.09	3.89	0.10	92.70	318.00
	10/06/16 15:11:57	116130	15.21	0.95	-0.07	3.97	0.10	92.70	318.00
	10/06/16 15:12:27	116160	15.27	0.82	-0.08	3.96	0.10	92.80	318.00
	10/06/16 15:12:57	116190	15.36	0.86	-0.08	3.90	0.10	92.80	318.00

Superior Fabrication, INC
October 6, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	5.1	%
Stack Exhaust Flow (M2)	49,483	SCFH

Weather Data

Barometric Pressure	27.83	in. Hg
Relative Humidity	51	%
Ambient Temperature	88	^{o}F
Specific Humidity	0.015611	lb H_2O / lb air

0-30-0 Load, Run - SCD-36 R3

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
	10/06/16 15:13:27	116220	15.41	0.99	-0.08	3.85	0.10	92.80	320.00
	10/06/16 15:13:57	116250	15.36	1.02	-0.06	3.88	0.10	92.80	320.00
	10/06/16 15:14:27	116280	15.36	1.02	-0.06	3.91	0.09	92.80	320.00
	10/06/16 15:14:57	116310	15.31	0.88	-0.05	3.92	0.09	92.80	320.00
	10/06/16 15:15:27	116340	15.35	0.86	-0.06	3.91	0.09	92.90	320.00
	10/06/16 15:15:57	116370	15.38	0.92	-0.07	3.86	0.09	92.90	320.00
	10/06/16 15:16:27	116400	15.41	0.98	-0.07	3.86	0.10	92.90	318.00
	10/06/16 15:16:57	116430	15.43	0.99	-0.07	3.85	0.10	92.90	318.00
	10/06/16 15:17:27	116460	15.35	0.99	-0.06	3.89	0.09	92.60	303.00
	10/06/16 15:17:57	116490	15.30	0.95	-0.05	3.93	0.09	92.60	303.00
	10/06/16 15:18:27	116520	15.52	0.96	-0.08	3.79	0.07	92.30	288.00
	10/06/16 15:18:57	116550	15.66	1.13	-0.09	3.71	0.07	92.30	288.00
	10/06/16 15:19:27	116580	15.83	1.50	-0.09	3.57	0.09	92.20	286.00
	10/06/16 15:19:57	116610	15.90	1.73	-0.07	3.53	0.09	92.20	286.00
	10/06/16 15:20:27	116640	15.89	1.81	-0.06	3.54	0.08	92.20	288.00
	10/06/16 15:20:57	116670	15.86	1.87	-0.05	3.55	0.08	92.20	288.00
	10/06/16 15:21:27	116700	15.80	1.89	-0.06	3.60	0.09	92.10	288.00
	10/06/16 15:21:57	116730	15.85	1.81	-0.06	3.56	0.09	92.10	288.00
	10/06/16 15:22:27	116760	15.78	1.77	-0.06	3.61	0.08	92.20	285.00
	10/06/16 15:22:57	116790	15.86	1.72	-0.07	3.55	0.08	92.20	285.00
	10/06/16 15:23:27	116820	15.81	1.82	-0.07	3.59	0.11	92.30	323.00
A3	10/06/16 15:23:57	116850	15.50	1.73	-0.06	3.76	0.11	92.30	323.00
	10/06/16 15:24:27	116880	15.25	1.27	-0.06	3.96	0.11	92.10	323.00
	10/06/16 15:24:57	116910	15.28	0.94	-0.06	3.93	0.11	92.10	323.00
	10/06/16 15:25:27	116940	15.32	0.92	-0.07	3.92	0.10	92.00	318.00
	10/06/16 15:25:57	116970	15.27	0.89	-0.08	3.94	0.10	92.00	318.00
	10/06/16 15:26:27	117000	15.29	0.84	-0.06	3.92	0.11	91.90	324.00
	10/06/16 15:26:57	117030	15.34	0.79	-0.06	3.90	0.11	91.90	324.00
	10/06/16 15:27:27	117060	15.36	0.89	-0.06	3.89	0.11	92.10	324.00
	10/06/16 15:27:57	117090	15.28	0.87	-0.09	3.93	0.11	92.10	324.00
	10/06/16 15:28:27	117120	15.21	0.81	-0.09	3.98	0.10	92.30	318.00
	10/06/16 15:28:57	117150	15.21	0.81	-0.10	3.97	0.10	92.30	318.00
	10/06/16 15:29:27	117180	15.27	0.72	-0.09	3.94	0.11	92.50	318.00
	10/06/16 15:29:57	117210	15.28	0.79	-0.05	3.94	0.11	92.50	318.00
	10/06/16 15:30:27	117240	15.24	0.79	-0.06	3.94	0.10	92.70	320.00
	10/06/16 15:30:57	117270	15.22	0.80	-0.08	3.98	0.10	92.70	320.00
	10/06/16 15:31:27	117300	15.28	0.79	-0.07	3.93	0.09	93.00	320.00
	10/06/16 15:31:57	117330	15.35	0.82	-0.05	3.90	0.09	93.00	320.00
	10/06/16 15:32:27	117360	15.31	0.85	-0.06	3.90	0.10	93.20	320.00
	10/06/16 15:32:57	117390	15.22	0.80	-0.06	3.97	0.10	93.20	320.00
	10/06/16 15:33:27	117420	15.22	0.75	-0.06	3.97	0.10	93.40	323.00
	10/06/16 15:33:57	117450	15.18	0.78	-0.06	3.99	0.10	93.40	323.00
	10/06/16 15:34:27	117480	15.17	0.71	-0.06	4.00	0.11	93.60	310.00
	10/06/16 15:34:57	117510	15.25	0.71	-0.06	3.94	0.11	93.60	310.00
	10/06/16 15:35:27	117540	15.47	0.79	-0.06	3.82	0.07	93.70	294.00
	10/06/16 15:35:57	117570	15.62	1.01	-0.07	3.71	0.07	93.70	294.00
	10/06/16 15:36:27	117600	15.78	1.30	-0.06	3.60	0.09	93.80	292.00
	10/06/16 15:36:57	117630	15.72	1.49	-0.05	3.63	0.09	93.80	292.00
	10/06/16 15:37:27	117660	15.78	1.48	-0.06	3.60	0.08	93.80	292.00
	10/06/16 15:37:57	117690	15.75	1.48	-0.09	3.62	0.08	93.80	292.00
	10/06/16 15:38:27	117720	15.79	1.56	-0.09	3.59	0.09	93.80	290.00
	10/06/16 15:38:57	117750	15.82	1.60	-0.08	3.55	0.09	93.80	290.00
	10/06/16 15:39:27	117780	15.85	1.69	-0.08	3.55	0.09	93.70	292.00
	10/06/16 15:39:57	117810	15.80	1.72	-0.09	3.58	0.09	93.70	292.00
	10/06/16 15:40:27	117840	15.78	1.72	-0.08	3.61	0.10	93.50	320.00
	10/06/16 15:40:57	117870	15.45	1.67	-0.06	3.78	0.10	93.50	320.00
	10/06/16 15:41:27	117900	15.34	1.31	-0.07	3.90	0.11	93.40	318.00
	10/06/16 15:41:57	117930	15.35	1.03	-0.06	3.87	0.11	93.40	318.00
	10/06/16 15:42:27	117960	15.34	0.95	-0.06	3.89	0.11	93.10	320.00
	10/06/16 15:42:57	117990	15.33	0.92	-0.06	3.89	0.11	93.10	320.00

Superior Fabrication, INC
October 6, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	5.1	%
Stack Exhaust Flow (M2)	49,483	SCFH

Weather Data

Barometric Pressure	27.83	in. Hg
Relative Humidity	51	%
Ambient Temperature	88	°F
Specific Humidity	0.015611	lb H_2O / lb air

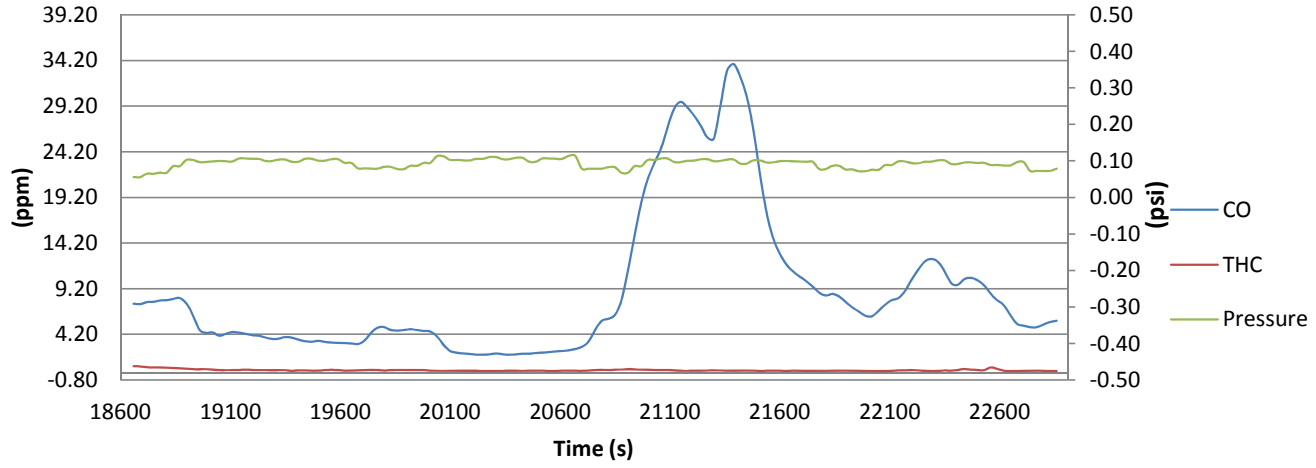
0-30-0 Load, Run - SCD-36 R3

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. °F	Fuel Flow SCFH
10/06/16 15:43:27	118020	15.31	0.91	-0.06	3.91	0.10	92.80	320.00
10/06/16 15:43:57	118050	15.37	0.89	-0.08	3.87	0.10	92.80	320.00
10/06/16 15:44:27	118080	15.27	0.88	-0.09	3.93	0.10	92.60	318.00
10/06/16 15:44:57	118110	15.39	0.88	-0.07	3.85	0.10	92.60	318.00
10/06/16 15:45:27	118140	15.35	0.90	-0.07	3.89	0.10	92.40	321.00
10/06/16 15:45:57	118170	15.37	0.94	-0.06	3.87	0.10	92.40	321.00
10/06/16 15:46:27	118200	15.38	0.91	-0.05	3.87	0.09	92.20	318.00
10/06/16 15:46:57	118230	15.36	0.92	-0.06	3.86	0.09	92.20	318.00
10/06/16 15:47:27	118260	15.27	0.87	-0.06	3.94	0.10	92.10	318.00
10/06/16 15:47:57	118290	15.32	0.82	-0.06	3.91	0.10	92.10	318.00
10/06/16 15:48:27	118320	15.37	0.91	-0.06	3.87	0.10	92.20	318.00
10/06/16 15:48:57	118350	15.30	0.92	-0.05	3.91	0.10	92.20	318.00
10/06/16 15:49:27	118380	15.35	0.91	-0.05	3.88	0.09	92.40	318.00
10/06/16 15:49:57	118410	15.31	0.87	-0.09	3.90	0.09	92.40	318.00
10/06/16 15:50:27	118440	15.32	0.79	-0.10	3.90	0.10	92.50	303.00
10/06/16 15:50:57	118470	15.36	0.82	-0.05	3.88	0.10	92.50	303.00
10/06/16 15:51:27	118500	15.74	0.95	-0.06	3.65	0.08	92.50	288.00
10/06/16 15:51:57	118530	15.79	1.35	-0.07	3.59	0.08	92.50	288.00
10/06/16 15:52:27	118560	15.81	1.58	-0.06	3.59	0.09	92.60	288.00
10/06/16 15:52:57	118590	15.95	1.63	-0.06	3.48	0.09	92.60	288.00
10/06/16 15:53:27	118620	15.85	1.76	-0.07	3.55	0.08	92.40	288.00
RAW AVERAGE		**15.50**	**1.22**	**-0.07**	**3.79**	**0.10**	**92.55**	**309.56**

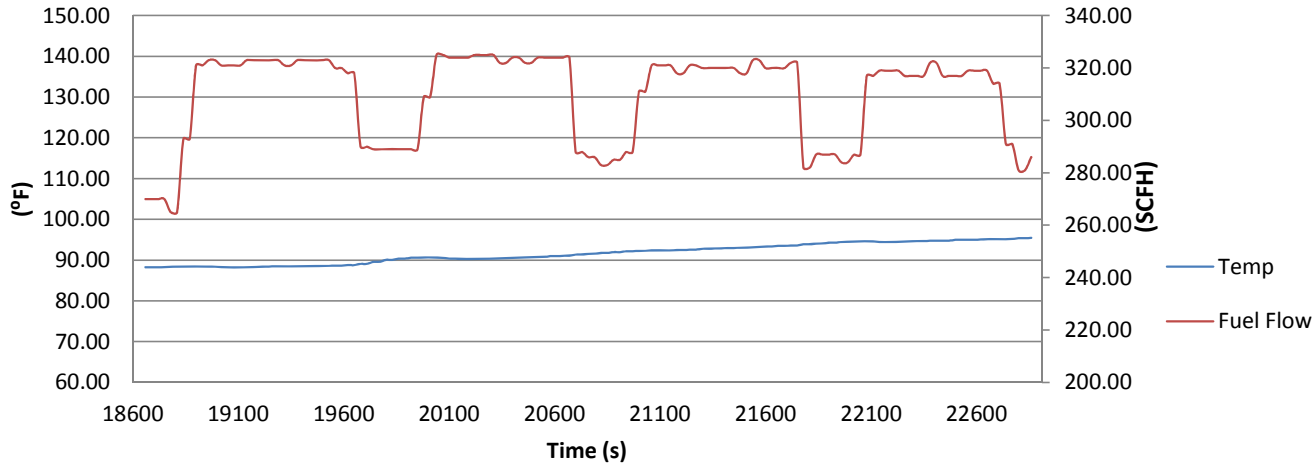
		O_2	CO	THC	CO_2	Press. Trans	Temp. Trans.	F-Flow Trans.
	Serial Number:	INSTO2-0011	INST-CO-0022	INST-TH-0002	INST-C2-0013	1434717	1434717	1434717
		(%)	(ppmvd)	(ppmvw)	(%)	(in. H_2O)	(°F)	(SCFH)
Bias	Initial Zero	-0.03	0.01	-0.05	0.01			
	Final Zero	-0.01	0.04	-0.07	0.03			
	Avg. Zero	-0.02	0.03	-0.06	0.02			
	Initial UpScale	11.89	9.41	3.00	8.85			
	Final UpScale	11.88	9.32	3.00	8.84			
	Avg. UpScale	11.89	9.37	3.00	8.85			
Upscale Cal Gas		11.90	9.44	3.00	8.95			

EMISSIONS DATA	O_2	CO	THC	CO_2
Corrected Raw Average (ppm/% dry basis)	15.52	1.21	-0.01	3.83
Corrected Raw Average (ppm/% wet basis)	14.72	1.15	0.00	3.63
Emission Rate (lb/hr)	N/A	0.00	0.00	N/A

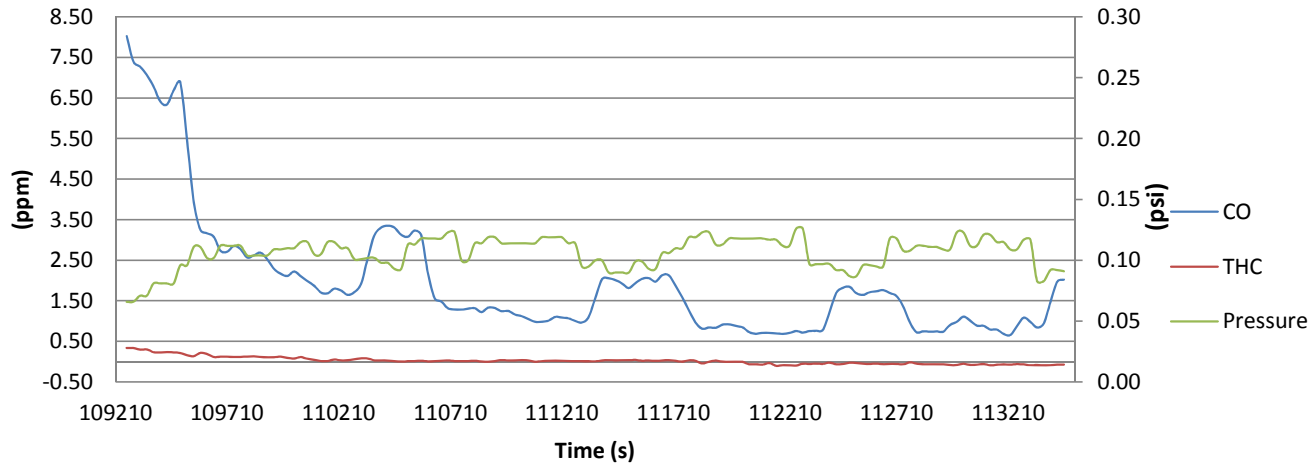
SCD-36 R1



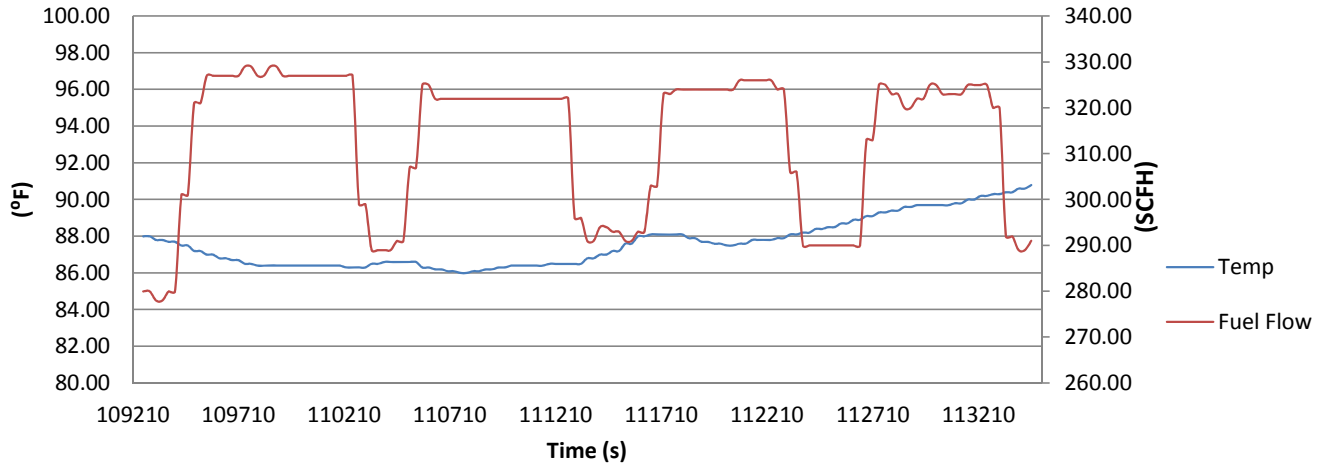
SCD-36 R1



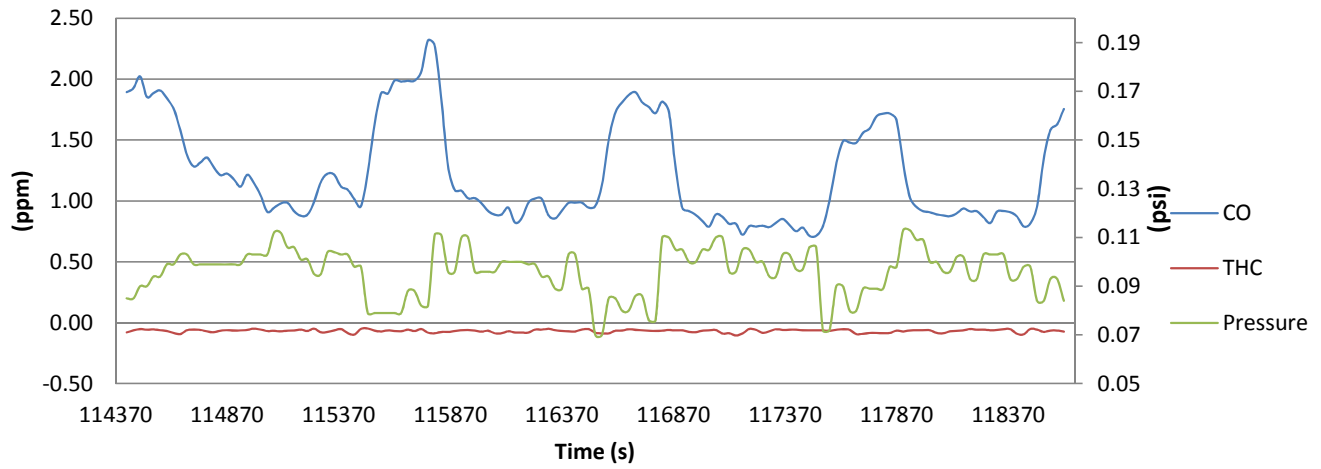
SCD-36 R2



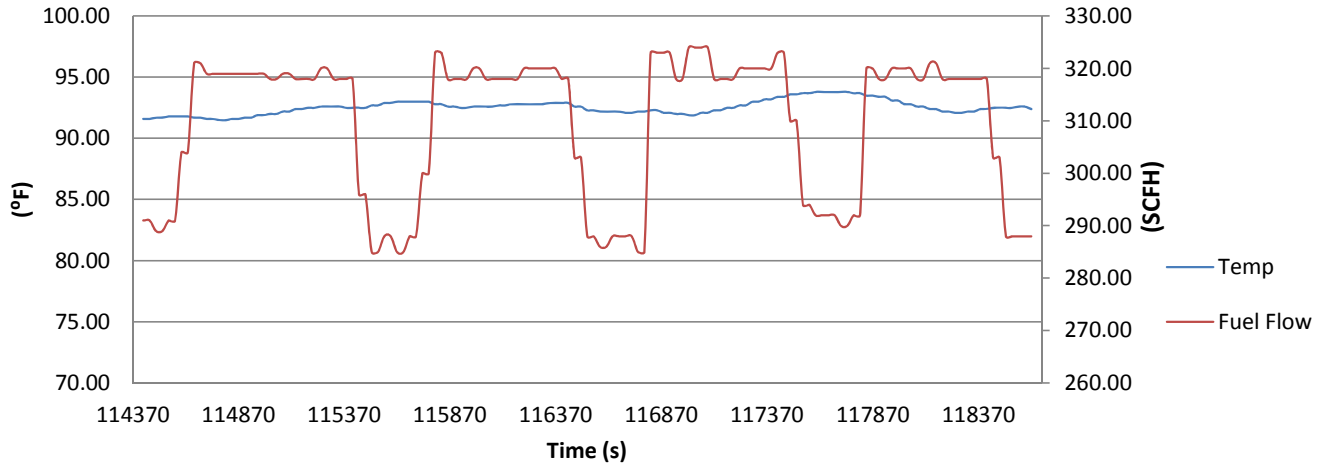
SCD-36 R2

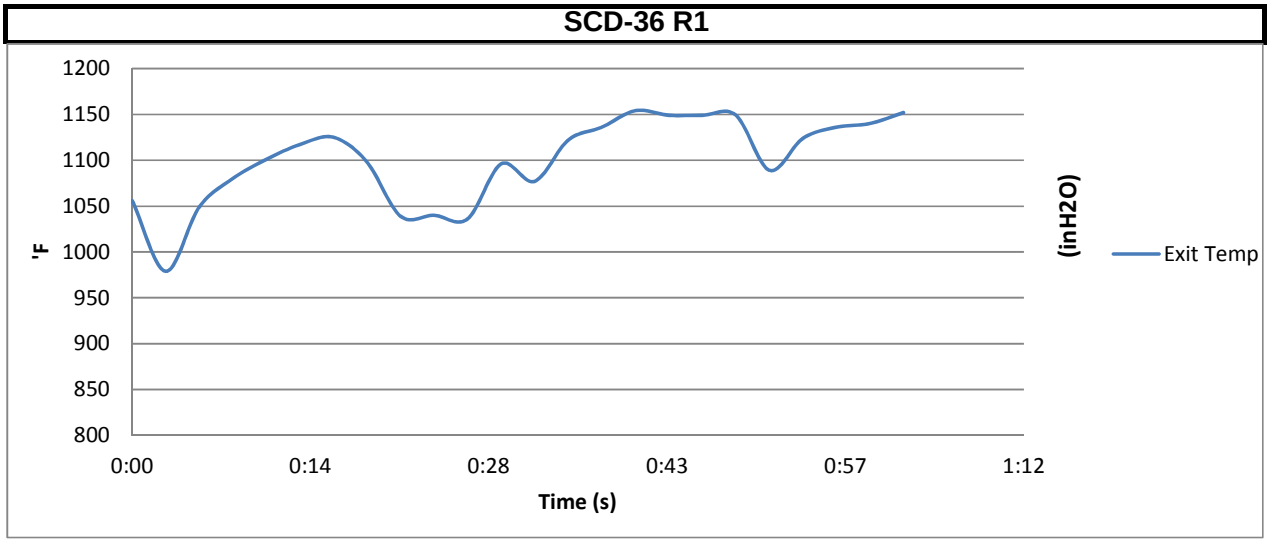


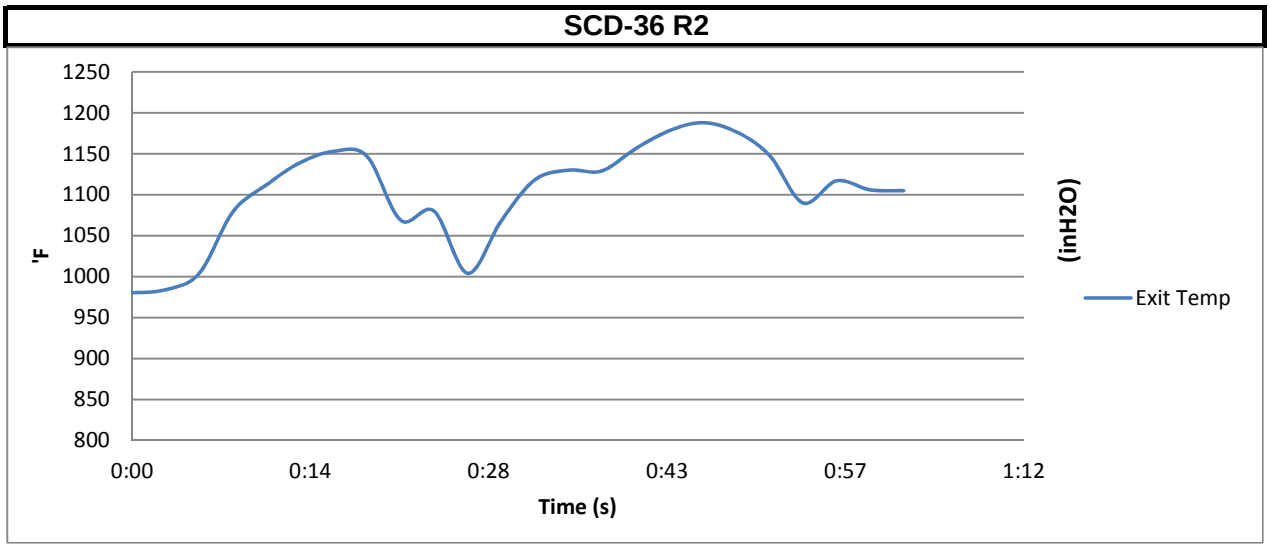
SCD-36 R3

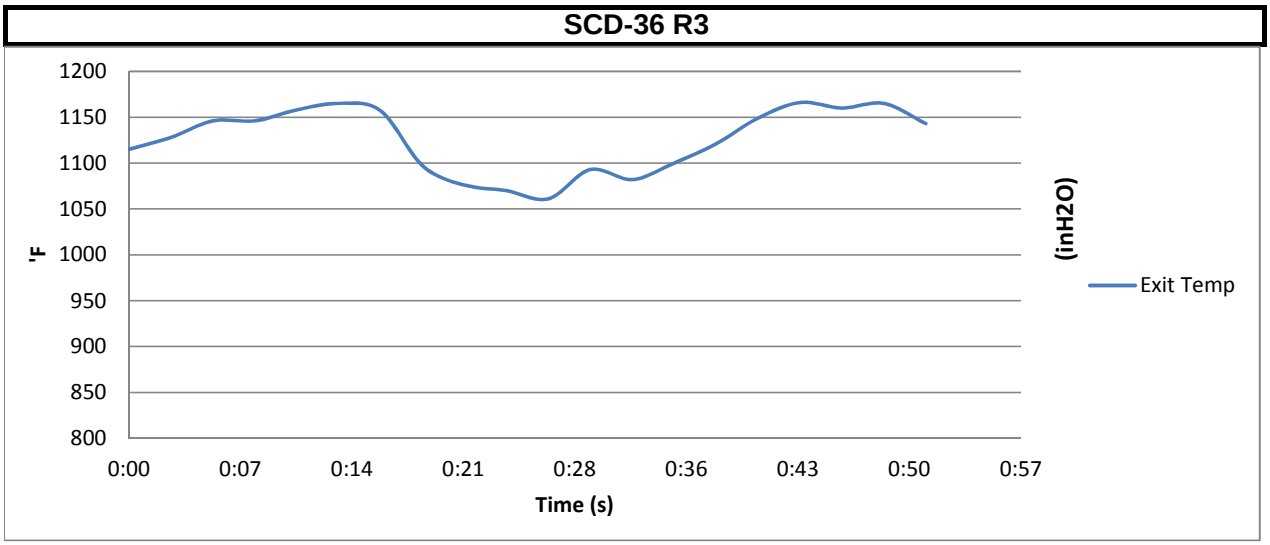


SCD-36 R3




SCD-36 R1
1200
1150
1100
1050
1000
950
900
850
800
'F
0:00
0:14
0:28
0:43
0:57
1:12
Time (s)
(inH2O)
Exit Temp


SCD-36 R2
1250
1200
1150
1100
1050
1000
950
900
850
800
'F
0:00
0:14
0:28
0:43
0:57
1:12
Time (s)
(inH2O)
Exit Temp


SCD-36 R3
1200
1150
1100
1050
1000
950
900
850
800
'F
0:00
0:07
0:14
0:21
0:28
0:36
0:43
0:50
0:57
Time (s)
(inH2O)
Exit Temp

EMISSION DATA RECORDS

30-70-30% RAMP-UP, RAMP-DOWN UNIT OPERATION DATA

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE

Source Information	
Plant Name	Elk City Facilty
Sampling Location	SCD-36
Fuel Type	Gas, Propene

Test Information			
Project #		sfi-elkcity.ok-comp#1	
Operator		MJ/BL	
Date for Preliminary Run	(mm/dd/yy)	10/04/16	
Standard Temperature		68	°F
Standard Pressure		29.92	in Hg
Required Sample Vol.	RM4, 8.1.1.2	21	scf
Run Duration	≤0.75 cfm	65	minutes
Unit Number		SCD-36	
Base Run Number		30-70-30%	
Number of Ports Available		2	
Number of Ports Used		2	
Port Inside Diameter		3.00	in
Stack Shape		Circular	

Test Equipment Information					
Run		**4**	**5**	**6**	
Test Date	(mm/dd/yy)	10/06/16	10/07/16	10/07/16	
Load	% or w/DB	30-70-30	30-70-30	30-70-30	
Meter Box Number	from ACS	SAMP-CP-0011	SAMP-CP-0011	SAMP-CP-0011	
Meter Calibration Factor	(Y)	0.989	0.989	0.989	
Orifice Meter Coefficient	($\Delta H_@$)	1.585	1.585	1.585	in H_2O
Pitot Identification	from ACS	9-7-16-1	9-7-16-1	9-7-16-1	
Pitot Tube Coefficient	(C_p)	0.840	0.840	0.840	
Probe Number	from ACS	SAMP-PF-0003	SAMP-SP-0001	SAMP-SP-0001	
Probe Length		60.0	60.0	60.0	in
(SS, Glass ….) Liner Material	from list	inconel	inconel	inconel	
Impinger Case Number	from ACS	SAMP-BC-0032	SAMP-BC-0032	SAMP-BC-0032	

Testing Company Information	
Company Name	Air Hygiene International, Inc. (Tulsa, Oklahoma)
Address	1600 W Tacoma Street
City, State Zip	Broken Arrow, Oklahoma 74012
Project Manager	Min Sum Lee
Phone Number	(918) 307-8865
Fax Number	(918) 307-9131

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] - RESULTS

Plant Name	Elk City Facilty
Sampling Location	SCD-36
Project #	sfi-elkcity.ok-comp#1

Historical Data	**30-70-30%-4**	**30-70-30%-5**	**30-70-30%-6**	**Average**	**Units**
Run Start Time	16:13	07:55	09:21		hh:mm
Run Stop Time	17:23	09:05	08:52		hh:mm
Test Date	10/06/16	10/07/16	10/07/16		mm/dd/yy
Meter Calibration Factor	0.989	0.989	0.989		
Pitot Tube Coefficient	0.840	0.840	0.840		
Initial Meter Volume	792.080	841.190	890.730		ft^3
Final Meter Volume	840.980	890.290	939.710		ft^3
Total Meter Volume	48.900	49.100	48.980	48.993	ft^3
Total Sampling Time	65.00	65.00	65.00	65.00	min
Average Meter Temperature	72.65	59.31	61.56	64.51	°F
Average Stack Temperature	1487.54	1446.38	1366.08	1433.33	°F
Barometric Pressure	27.82	28.22	28.22	28.09	in Hg
Stack Static Pressure	0.00	0.00	0.00	0.00	in H_2O
Absolute Stack Pressure	27.82	28.22	28.22	28.09	in Hg
Average Orifice Pressure Drop	1.50	1.50	1.50	1.50	in H_2O
Absolute Meter Pressure	27.94	28.34	28.34	28.20	in Hg
Avg Square Root Pitot Pressure	0.12	0.08	0.09	0.10	$\sqrt{(in\ H_2O)}$
Moisture Content Data	**30-70-30%-4**	**30-70-30%-5**	**30-70-30%-6**	**Average**	**Units**
Impinger Water Weight Gain	36.00	42.60	42.10	40.23	g
Silica Gel Weight Gain	12.80	9.90	9.00	10.57	g
Total Water Volume Collected	48.89	52.59	51.19	50.89	ml
Standard Water Vapor Volume	2.30	2.48	2.41	2.40	scf
Standard Meter Volume	44.8	46.7	46.4	46.0	dscf
Calculated Stack Moisture	4.89	5.03	4.93	4.95	%
Saturated Stack Moisture	100.00	100.00	100.00	100.00	%
Reported Stack Moisture Content	4.89	5.03	4.93	4.95	%
Method 3C Gas Analysis Data	**30-70-30%-4**	**30-70-30%-5**	**30-70-30%-6**	**Average**	**Units**
Carbon Dioxide Content	4.7	4.4	4.5	4.5	%
Oxygen Content	14.7	15.1	14.9	14.9	%
Nitrogen Content	80.6	80.5	80.5	80.6	%
Stack Dry Molecular Weight	29.33	29.31	29.30	29.31	lb/lb-mole
Stack Wet Molecular Weight	28.78	28.74	28.74	28.75	lb/lb-mole
Percent Excess Air	223.1	245.3	234.6	234.3	%
Volumetric Flow Rate Data	**30-70-30%-4**	**30-70-30%-5**	**30-70-30%-6**	**Average**	**Units**
Average Stack Gas Velocity	13.09	9.22	10.00	10.77	ft/sec
Stack Cross-Sectional Area	5.94	5.94	5.94	5.94	ft^2
Actual Stack Flow Rate	4,666	3,287	3,563	3,839	acfm
Wet Standard Stack Flow Rate	71	52	58	60	wkscfh
Dry Standard Stack Flow Rate	67,128	48,928	55,427	57,161	dscfh

METHOD 3C - DETERMINATION OF DRY MOLECULAR WEIGHT BY ANALYZER

Plant Name	Elk City Facilty	**Preliminary Date**	10/04/16		
Sampling Location	SCD-36	**Operator**	MJ/BL		
Project #	sfi-elkcity.ok-comp#1	**# of Ports Used**	2		
Fuel Type	Gas, Propene	**Min. Fuel Factor**	N/A	**Max. Fuel Factor**	N/A

Gas Analysis Data

Run Number	30-70-30%-4		**Date**	10/06/16	**Run Start Time**	16:13	**Run Stop Time**	17:23
Sample Analysis Time	**CO_2 Conc.**	**O_2 Conc.**	**Methane Conc.**	**N_2 Conc.**	**Dry Molecular Weight**	**Calculated Fuel Factor**	**Excess Air**	**Fuel Factor in Range**
	($\%CO_2$)	($\%O_2$)	(ppmCO)	($\%N_2$)	(M_d)	$(F_o)_{avg}$	$(\%EA)_{avg}$	
hh:mm	%	%	ppm	%	lb/lb-mole		%	
01:10	4.7	14.7	0.0	80.6	29.33	1.330	223.1	N/A

Gas Analysis Data

Run Number	30-70-30%-5		**Date**	10/07/16	**Run Start Time**	07:55	**Run Stop Time**	09:05
Sample Analysis Time	**CO_2 Conc.**	**O_2 Conc.**	**Methane Conc.**	**N_2 Conc.**	**Dry Molecular Weight**	**Calculated Fuel Factor**	**Excess Air**	**Fuel Factor in Range**
	($\%CO_2$)	($\%O_2$)	(ppmCO)	($\%N_2$)	(M_d)	$(F_o)_{avg}$	$(\%EA)_{avg}$	
hh:mm	%	%	ppm	%	lb/lb-mole		%	
01:10	4.4	15.1	0.0	80.5	29.31	1.321	245.3	N/A

Gas Analysis Data

Run Number	30-70-30%-6		**Date**	10/07/16	**Run Start Time**	09:21	**Run Stop Time**	08:52
Sample Analysis Time	**CO_2 Conc.**	**O_2 Conc.**	**Methane Conc.**	**N_2 Conc.**	**Dry Molecular Weight**	**Calculated Fuel Factor**	**Excess Air**	**Fuel Factor in Range**
	($\%CO_2$)	($\%O_2$)	(ppmCO)	($\%N_2$)	(M_d)	$(F_o)_{avg}$	$(\%EA)_{avg}$	
hh:mm	%	%	ppm	%	lb/lb-mole		%	
23:31	4.5	14.9	0.0	80.5	29.30	1.327	234.6	N/A

METHOD 4 - DETERMINATION OF MOISTURE CONTENT IN STACK GASES

Plant Name	Elk City Facilty	**Preliminary Date**	10/04/16
Sampling Location	SCD-36	**Operator**	MJ/BL
Project #	sfi-elkcity.ok-comp#1	**Ports Used**	2

Scale Daily Calibration					
Scale Number	SAMP-SC-0027	**Standard**	**Result**	**Difference**	**Pass/Fail**
Date		(g)	(g)	(g)	(± 0.5 g)
Test Day 1	10/06/16	500	500.2	-0.5	Pass
Test Day 2	10/07/16	500	499.6	0.2	Pass

Moisture Content Data									
Run Number		30-70-30%-4		**Date**	10/06/16	**Start Time**	16:13	**Stop Time**	17:23
Meter Box Number		SAMP-CP-0011				**Meter Cal Factor**	(Y)	0.989	
Total Meter Volume	(V_m)	48.900	dcf			**Barometric Pressure**	(P_b)	27.82	in Hg
Average Stack Temp	(t_s)$_{avg}$	1488	°F			**Stack Static Pressure**	(P_{static})	0.00	in H_2O
Average Meter Temp	(t_m)$_{avg}$	73	°F			**Avg Orifice Pressure**	(ΔH)$_{avg}$	1.50	in H_2O
		Impinger 1	**Impinger 2**	**Impinger 3**	**Impinger 4**	**Impinger 5**	**Impinger 6**	**Impinger 7**	**Impinger 8**
		(g)	(g)	(g)	(g)				
Contents		H_2O	H_2O	-	Sil Gel				
Final Value	(V_f),(W_f)	810.20	693.20	584.80	805.10				
Initial Value	(V_i),(W_i)	782.20	688.50	581.50	792.30				
Net Value	(V_n),(W_n)	28.0	4.7	3.3	12.8				
Results									
Total Weight	(W_t)	48.80	g			**Water Vol Weighed**	($V_{wsg(std)}$)	2.301	scf
Std Meter Volume	($V_{m(std)}$)	44.752	dscf			**Sat. Moisture Content**	($B_{ws(svp)}$)	100.00	%
Calc Moisture Content	($B_{ws(calc)}$)	4.89	%			**Final Moisture Content**	(B_{ws})	4.89	%

Moisture Content Data									
Run Number		30-70-30%-5		**Date**	10/07/16	**Start Time**	07:55	**Stop Time**	09:05
Meter Box Number		SAMP-CP-0011				**Meter Cal Factor**	(Y)	0.989	
Total Meter Volume	(V_m)	49.100	dcf			**Barometric Pressure**	(P_b)	28.22	in Hg
Average Stack Temp	(t_s)$_{avg}$	1446	°F			**Stack Static Pressure**	(P_{static})	0.00	in H_2O
Average Meter Temp	(t_m)$_{avg}$	59	°F			**Avg Orifice Pressure**	(ΔH)$_{avg}$	1.50	in H_2O
		Impinger 1	**Impinger 2**	**Impinger 3**	**Impinger 4**	**Impinger 5**	**Impinger 6**	**Impinger 7**	**Impinger 8**
		(g)	(g)	(g)	(g)				
Contents		H_2O	H_2O	-	Sil Gel				
Final Value	(V_f),(W_f)	847.30	696.70	586.80	815.00				
Initial Value	(V_i),(W_i)	810.20	693.20	584.80	805.10				
Net Value	(V_n),(W_n)	37.1	3.5	2.0	9.9				
Results									
Total Weight	(W_t)	52.50	g			**Water Vol Weighed**	($V_{wsg(std)}$)	2.475	scf
Std Meter Volume	($V_{m(std)}$)	46.749	dscf			**Sat. Moisture Content**	($B_{ws(svp)}$)	100.00	%
Calc Moisture Content	($B_{ws(calc)}$)	5.03	%			**Final Moisture Content**	(B_{ws})	5.03	%

Moisture Content Data									
Run Number		30-70-30%-6		**Date**	10/07/16	**Start Time**	09:21	**Stop Time**	08:52
Meter Box Number		SAMP-CP-0011				**Meter Cal Factor**	(Y)	0.989	
Total Meter Volume	(V_m)	48.980	dcf			**Barometric Pressure**	(P_b)	28.22	in Hg
Average Stack Temp	(t_s)$_{avg}$	1366	°F			**Stack Static Pressure**	(P_{static})	0.00	in H_2O
Average Meter Temp	(t_m)$_{avg}$	62	°F			**Avg Orifice Pressure**	(ΔH)$_{avg}$	1.50	in H_2O
		Impinger 1	**Impinger 2**	**Impinger 3**	**Impinger 4**	**Impinger 5**	**Impinger 6**	**Impinger 7**	**Impinger 8**
		(g)	(g)	(g)	(g)				
Contents		H_2O	H_2O	-	Sil Gel				
Final Value	(V_f),(W_f)	768.10	701.80	590.00	824.00				
Initial Value	(V_i),(W_i)	734.30	696.70	586.80	815.00				
Net Value	(V_n),(W_n)	33.8	5.1	3.2	9.0				
Results									
Total Weight	(W_t)	51.10	g			**Water Vol Weighed**	($V_{wsg(std)}$)	2.409	scf
Std Meter Volume	($V_{m(std)}$)	46.434	dscf			**Sat. Moisture Content**	($B_{ws(svp)}$)	100.00	%
Calc Moisture Content	($B_{ws(calc)}$)	4.93	%			**Final Moisture Content**	(B_{ws})	4.93	%

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE ISOKINETIC SAMPLING DATA

Plant Name	Elk City Facilty
Sampling Location	SCD-36
Project #	sfi-elkcity.ok-comp#1

Date	10/06/16
Operator	MJ/BL
Run Number	30-70-30%-4

Ideal Nozzle Diameter and IsoKinetic Factor Setup			
Pitot Coefficient	(C_p)	0.840	
Average Stack Temp	(t_s)	1487.5	°F
Average Meter Temp	(t_m)	72.6	
Orifice Meter Coefficient	($\Delta H@$)	1.585	in H_2O
Square Root ΔP	($\Delta p^{1/2}_{avg}$)	0.12	in H_2O
Stack Moisture Content	(B_{ws})	4.89	%
Stack Dry Molecular Weight	(M_d)	29.33	lb/lb-mole
Estimated Orifice Flow Rate	(Q_m)	0.75	acfm
ΔP to ΔH Isokinetic Factor	(K)		

Leak Checks					
Train	**Pre**	0.000	ft³/min@	15.0	in Hg
PASS	**Post**	0.000	ft³/min@	15.0	in Hg
Pitot	**Pre (+)**	0.2	in H_2O for	20.0	sec
< 3.0	**Pre (-)**	0.2	in H_2O for	20.0	sec
	Post (+)	0.2	in H_2O for	15.0	sec
	Post (-)	0.2	in H_2O for	15.0	sec

Sampling Equipment			
Meter Box Number	SAMP-CP-0011		
Meter Cal Factor	(Y)	0.989	
Low Flow Meter	SAMP-MN-0001		
Average Nozzle Diameter	(D_{na})		in
Suggested Nozzle Diameter	(D_{ni})	0.4689	in
Probe Number	SAMP-PF-0003		in
Probe Length	60		in
Liner Material	inconel		
Sample Case / Oven Number			
Impinger Case Number	SAMP-BC-0032		

Pressures			
Barometric Pressure	(P_b)	27.82	in Hg
Stack Static Pressure	(P_{static})	0.00	in H_2O
Absolute Stack Pressure	(P_s)	27.82	in Hg
Absolute Meter Pressure	(P_m)	27.94	in Hg

Nozzle Measurements				
Pre				**PASS**
Post				**PASS**

Run Time			
Start	16:13	**End**	17:23

Weights	**Imp 1**	**Imp 2**	**Imp 3**	**Imp 4**	**Imp 5**	**Imp 6**	**Imp 7**	**Imp 8**
Pre	782.2	688.5	581.5	792.3				
Post	810.2	693.2	584.8	805.1				

Wash Volumes					ml
					ml

Traverse Point #	**Sampling Time (Θ)**	**Timer Time**	**Dry Gas Meter Reading (V_m)**	**Velocity Head (Δp)**	**Desired Orifice ΔH (ΔH_d)**	**Actual Orifice ΔH (ΔH_a)**	**Stack Temp (t_s)**	**Snorkel Temp (248±25°F)**	**Filter Temp**	**Impinger Exit Temp (≤68°F)**	**Cond. Temp (≤---°F)**	**CPM Filter Temp (--±--°F)**	**Meter Inlet Temp (t_{mi})**	**Meter Outlet Temp (t_{mo})**	**Pump Vacuum**	**Square Root ΔP ($\Delta p^{1/2}$)**	**Local Stack Velocity (v_s)$_l$**	**Cumul. Meter Volume (V_m)$_{std}$**	**Cumul. Percent IsoKinetic (I)**	**Est-Run Meter Volume (V_m)$_{std}$**
	min	hh:mm:ss	ft³	in H_2O	in H_2O	in H_2O	°F	°F	°F	°F	°F	°F	°F	°F	in Hg	√(in H_2O)	ft/sec	dscf	%	dscf
A-1	0.0	00:00:00	792.080	0.010	1.585	1.50	1147	256		52			70	71	12.0	0.10	10.17	1.865		44.768
A-2	2.7	00:02:43	794.110	0.010	1.585	1.50	1187	256		52			70	71	12.0	0.10	10.30	3.721		44.658
A-3	5.4	00:05:25	796.130	0.010	1.585	1.50	1293	257		52			70	71	12.0	0.10	10.63	5.559		44.474
A-4	8.1	00:08:07	798.130	0.010	1.585	1.50	1498	252		52			70	71	12.0	0.10	11.23	7.415		44.492
A-5	10.8	00:10:50	800.150	0.010	1.585	1.50	1559	253		52			70	71	12.0	0.10	11.40	9.308		44.680
A-6	13.5	00:13:33	802.210	0.010	1.585	1.50	1602	251		52			70	71	12.0	0.10	11.52	11.201		44.805
A-7	16.3	00:16:15	804.270	0.015	1.585	1.50	1626	251		58			71	71	12.0	0.12	14.20	31.416		107.711
A-8	19.0	00:18:58	826.290	0.015	1.585	1.50	1557	251		56			71	76	12.0	0.12	13.96	15.545		46.634
A-9	21.7	00:21:40	808.920	0.015	1.585	1.50	1256	251		56			71	76	12.0	0.12	12.88	16.851		44.937
A-10	24.4	00:24:22	810.350	0.015	1.585	1.50	1490	251		56			71	76	12.0	0.12	13.73	18.679		44.829
A-11	27.1	00:27:05	812.350	0.015	1.585	1.50	1606	251		56			71	76	12.0	0.12	14.13	20.515		44.761
A-12	29.8	00:29:47	814.360	0.015	1.585	1.50	1640	251		56			71	76	12.0	0.12	14.24	22.461		44.923
B-1	32.5	00:32:30	816.490	0.015	1.585	1.50	1537	250		56			71	76	12.0	0.12	13.89	24.307		44.875
B-2	35.2	00:35:12	818.510	0.015	1.585	1.50	1365	253		56			71	76	12.0	0.12	13.28	26.226		44.959
B-3	37.9	00:37:55	820.610	0.015	1.585	1.50	1301	253		56			71	76	12.0	0.12	13.04	28.017		44.827
B-4	40.6	00:40:37	822.570	0.015	1.585	1.50	1564	252		56			71	76	12.0	0.12	13.98	29.917		44.876
B-5	43.3	00:43:20	824.650	0.015	1.585	1.50	1616	252		56			71	76	12.0	0.12	14.16	31.754		44.829
B-6	46.0	00:46:03	826.660	0.015	1.585	1.50	1626	252		56			71	76	12.0	0.12	14.20	33.627		44.836
B-7	48.8	00:48:45	828.710	0.015	1.585	1.50	1661	252		56			71	76	12.0	0.12	14.31	35.555		44.912
B-8	51.5	00:51:28	830.820	0.015	1.585	1.50	1355	252		56			71	76	12.0	0.12	13.24	37.465		44.958
B-9	54.2	00:54:10	832.910	0.015	1.585	1.50	1327	252		56			71	76	12.0	0.12	13.14	39.329		44.947
B-10	56.9	00:56:53	834.950	0.015	1.585	1.50	1601	252		56			71	76	12.0	0.12	14.11	41.119		44.858
B-11	59.6	00:59:35	836.910	0.015	1.585	1.50	1628	251		56			71	76	12.0	0.12	14.20	43.011		44.881
B-12	62.3	01:02:18	838.980	0.015	1.585	1.50	1659	251		56			71	76	12.0	0.12	14.31	44.838		44.838
Last Pt	65.0	01:05:00	840.980																	
Final Val	65.0	01:05:00	840.980											**Max Vac**	12.0	**Final Values**		44.838		
Average Values				0.01		1.50	1488	252		55			71	75		0.12	13.09			
													73							

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE ISOKINETIC SAMPLING DATA

Plant Name	Elk City Facilty
Sampling Location	SCD-36
Project #	sfi-elkcity.ok-comp#1

Date	10/07/16
Operator	MJ/BL
Run Number	30-70-30%-5

Ideal Nozzle Diameter and IsoKinetic Factor Setup			
Pitot Coefficient	(C_p)	0.840	
Average Stack Temp	(t_s)	1446.4	°F
Average Meter Temp	(t_m)	59.3	
Orifice Meter Coefficient	($\Delta H@$)	1.585	in H_2O
Square Root ΔP	($\Delta p^{1/2}_{avg}$)	0.08	in H_2O
Stack Moisture Content	(B_{ws})	5.03	%
Stack Dry Molecular Weight	(M_d)	29.31	lb/lb-mole
Estimated Orifice Flow Rate	(Q_m)	0.69	acfm
ΔP to ΔH Isokinetic Factor	(K)		

Leak Checks					
Train	**Pre**	0.000	ft³/min@	15.0	in Hg
PASS	**Post**	0.000	ft³/min@	15.0	in Hg
Pitot	**Pre (+)**	0.2	in H_2O for	20.0	sec
< 3.0	**Pre (-)**	0.2	in H_2O for	20.0	sec
	Post (+)	0.2	in H_2O for	15.0	sec
	Post (-)	0.2	in H_2O for	15.0	sec

Sampling Equipment			
Meter Box Number	SAMP-CP-0011		
Meter Cal Factor	(Y)	0.989	
Low Flow Meter	SAMP-MN-0001		
Average Nozzle Diameter	(D_{na})		in
Suggested Nozzle Diameter	(D_{ni})	0.4935	in
Probe Number	SAMP-SP-0001		in
Probe Length	60		in
Liner Material	inconel		
Sample Case / Oven Number			
Impinger Case Number	SAMP-BC-0032		

Pressures			
Barometric Pressure	(P_b)	28.22	in Hg
Stack Static Pressure	(P_{static})	0.00	in H_2O
Absolute Stack Pressure	(P_s)	28.22	in Hg
Absolute Meter Pressure	(P_m)	28.34	in Hg

Nozzle Measurements				
Pre				**PASS**
Post				**PASS**

Run Time			
Start	07:55	**End**	09:05

Weights	**Imp 1**	**Imp 2**	**Imp 3**	**Imp 4**	**Imp 5**	**Imp 6**	**Imp 7**	**Imp 8**
Pre	810.2	693.2	584.8	805.1				
Post	847.3	696.7	586.8	815.0				

Wash Volumes					ml
					ml

Traverse Point #	**Sampling Time (Θ)**	**Timer Time**	**Dry Gas Meter Reading (V_m)**	**Velocity Head (Δp)**	**Desired Orifice ΔH (ΔH_d)**	**Actual Orifice ΔH (ΔH_a)**	**Stack Temp (t_s)**	**Snorkel Temp (248±25°F)**	**Filter Temp**	**Impinger Exit Temp (≤68°F)**	**Cond. Temp (≤---°F)**	**CPM Filter Temp (--±--°F)**	**Meter Inlet Temp (t_{mi})**	**Meter Outlet Temp (t_{mo})**	**Pump Vacuum**	**Square Root ΔP ($\Delta p^{1/2}$)**	**Local Stack Velocity (v_s)$_l$**	**Cumul. Meter Volume (V_m)$_{std}$**	**Cumul. Percent IsoKinetic (I)**	**Est-Run Meter Volume (V_m)$_{std}$**
	min	hh:mm:ss	ft³	in H_2O	in H_2O	in H_2O	°F	°F	°F	°F	°F	°F	°F	°F	in Hg	√(in H_2O)	ft/sec	dscf	%	dscf
A-1	0.0	00:00:00	841.190	0.005	1.585	1.50	1152	252		45			57	56	12.0	0.07	7.16	2.020		48.478
A-2	2.7	00:02:43	843.300	0.005	1.585	1.50	1120	258		45			57	56	12.0	0.07	7.09	4.270		51.235
A-3	5.4	00:05:25	845.650	0.005	1.585	1.50	1291	259		45			57	56	12.0	0.07	7.46	6.136		49.090
A-4	8.1	00:08:07	847.600	0.005	1.585	1.50	1549	254		45			57	56	12.0	0.07	7.99	8.223		49.339
A-5	10.8	00:10:50	849.780	0.015	1.585	1.50	1567	252		45			60	57	12.0	0.12	13.90	10.045		48.214
A-6	13.5	00:13:33	851.690	0.005	1.585	1.50	1588	250		45			60	57	12.0	0.07	8.07	12.009		48.036
A-7	16.3	00:16:15	853.750	0.005	1.585	1.50	1610	250		45			60	57	12.0	0.07	8.11	13.916		47.713
A-8	19.0	00:18:58	855.750	0.005	1.585	1.50	1429	251		45			60	57	12.0	0.07	7.75	15.881		47.642
A-9	21.7	00:21:40	857.810	0.005	1.585	1.50	1250	251		45			60	57	12.0	0.07	7.37	17.788		47.435
A-10	24.4	00:24:22	859.810	0.005	1.585	1.50	1260	252		45			60	57	12.0	0.07	7.40	19.733		47.360
A-11	27.1	00:27:05	861.850	0.005	1.585	1.50	1569	252		45			60	57	12.0	0.07	8.03	21.621		47.174
A-12	29.8	00:29:47	863.830	0.015	1.585	1.50	1598	252		45			60	57	12.0	0.12	14.01	23.605		47.210
B-1	32.5	00:32:30	865.910	0.015	1.585	1.50	1389	251		45			60	57	12.0	0.12	13.28	25.550		47.170
B-2	35.2	00:35:12	867.950	0.005	1.585	1.50	1281	251		45			60	62	12.0	0.07	7.44	28.075		48.128
B-3	37.9	00:37:55	870.610	0.005	1.585	1.50	1437	253		50			60	62	12.0	0.07	7.77	29.413		47.061
B-4	40.6	00:40:37	872.020	0.005	1.585	1.50	1569	252		50			60	62	12.0	0.07	8.03	31.339		47.009
B-5	43.3	00:43:20	874.050	0.005	1.585	1.50	1590	252		50			60	62	12.0	0.07	8.07	33.266		46.964
B-6	46.0	00:46:03	876.080	0.015	1.585	1.50	1637	252		50			60	62	12.0	0.12	14.14	35.193		46.923
B-7	48.8	00:48:45	878.110	0.005	1.585	1.50	1537	252		50			60	62	12.0	0.07	7.97	37.129		46.899
B-8	51.5	00:51:28	880.150	0.015	1.585	1.50	1260	252		50			60	62	12.0	0.12	12.81	39.084		46.900
B-9	54.2	00:54:10	882.210	0.005	1.585	1.50	1414	252		50			60	62	12.0	0.07	7.72	41.020		46.880
B-10	56.9	00:56:53	884.250	0.015	1.585	1.50	1560	252		50			60	62	12.0	0.12	13.88	42.927		46.830
B-11	59.6	00:59:35	886.260	0.005	1.585	1.50	1556	252		50			60	62	12.0	0.07	8.01	44.835		46.784
B-12	62.3	01:02:18	888.270	0.005	1.585	1.50	1500	252		50			60	62	12.0	0.07	7.89	46.752		46.752
Last Pt	65.0	01:05:00	890.290																	
Final Val	65.0	01:05:00	890.290											**Max Vac**	12.0	**Final Values**		46.752		
Average Values				0.01		1.50	1446	252		47			60	59		0.08	9.22			
													59							

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE ISOKINETIC SAMPLING DATA

Plant Name	Elk City Facilty
Sampling Location	SCD-36
Project #	sfi-elkcity.ok-comp#1

Date	10/07/16
Operator	MJ/BL
Run Number	30-70-30%-6

Ideal Nozzle Diameter and IsoKinetic Factor Setup			
Pitot Coefficient	(C_p)	0.840	
Average Stack Temp	(t_s)	1366.1	°F
Average Meter Temp	(t_m)	61.6	
Orifice Meter Coefficient	($\Delta H@$)	1.585	in H_2O
Square Root ΔP	($\Delta p^{1/2}_{avg}$)	0.09	in H_2O
Stack Moisture Content	(B_{ws})	4.93	%
Stack Dry Molecular Weight	(M_d)	29.30	lb/lb-mole
Estimated Orifice Flow Rate	(Q_m)	0.72	acfm
ΔP to ΔH Isokinetic Factor	(K)		

Leak Checks					
Train	**Pre**	0.000	ft³/min@	15.0	in Hg
PASS	**Post**	0.000	ft³/min@	15.0	in Hg
Pitot	**Pre (+)**	0.2	in H_2O for	20.0	sec
< 3.0	**Pre (-)**	0.2	in H_2O for	20.0	sec
	Post (+)	0.2	in H_2O for	15.0	sec
	Post (-)	0.2	in H_2O for	15.0	sec

Sampling Equipment			
Meter Box Number	SAMP-CP-0011		
Meter Cal Factor	(Y)	0.989	
Low Flow Meter	SAMP-MN-0001		
Average Nozzle Diameter	(D_{na})		in
Suggested Nozzle Diameter	(D_{ni})	0.4854	in
Probe Number	SAMP-SP-0001		in
Probe Length	60		in
Liner Material	inconel		
Sample Case / Oven Number			
Impinger Case Number	SAMP-BC-0032		

Pressures			
Barometric Pressure	(P_b)	28.22	in Hg
Stack Static Pressure	(P_{static})	0.00	in H_2O
Absolute Stack Pressure	(P_s)	28.22	in Hg
Absolute Meter Pressure	(P_m)	28.34	in Hg

Nozzle Measurements				
Pre				**PASS**
Post				**PASS**

Run Time			
Start	09:21	**End**	08:52

Weights	**Imp 1**	**Imp 2**	**Imp 3**	**Imp 4**	**Imp 5**	**Imp 6**	**Imp 7**	**Imp 8**
Pre	734.3	696.7	586.8	815.0				
Post	768.1	701.8	590.0	824.0				

Wash Volumes					ml
					ml

Traverse Point #	**Sampling Time (Θ)**	**Timer Time**	**Dry Gas Meter Reading (V_m)**	**Velocity Head (Δp)**	**Desired Orifice ΔH (ΔH_d)**	**Actual Orifice ΔH (ΔH_a)**	**Stack Temp (t_s)**	**Snorkel Temp (248±25°F)**	**Filter Temp**	**Impinger Exit Temp (≤68°F)**	**Cond. Temp (≤---°F)**	**CPM Filter Temp (--±--°F)**	**Meter Inlet Temp (t_{mi})**	**Meter Outlet Temp (t_{mo})**	**Pump Vacuum**	**Square Root ΔP ($\Delta p^{1/2}$)**	**Local Stack Velocity (v_s)$_l$**	**Cumul. Meter Volume (V_m)$_{std}$**	**Cumul. Percent IsoKinetic (I)**	**Est-Run Meter Volume (V_m)$_{std}$**
	min	hh:mm:ss	ft³	in H_2O	in H_2O	in H_2O	°F	°F	°F	°F	°F	°F	°F	°F	in Hg	√(in H_2O)	ft/sec	dscf	%	dscf
A-1	0.0	00:00:00	890.730	0.005	1.585	1.50	1036	257		50			59	60	12.0	0.07	6.90	1.675		40.203
A-2	2.7	00:02:43	892.490	0.005	1.585	1.50	1045	258		50			59	60	12.0	0.07	6.92	3.598		43.173
A-3	5.4	00:05:25	894.510	0.005	1.585	1.50	1204	255		50			59	60	12.0	0.07	7.27	5.539		44.315
A-4	8.1	00:08:07	896.550	0.010	1.585	1.50	1405	250		50			59	60	12.0	0.10	10.89	7.567		45.400
A-5	10.8	00:10:50	898.680	0.010	1.585	1.50	1524	249		50			59	60	12.0	0.10	11.23	9.442		45.320
A-6	13.5	00:13:33	900.650	0.010	1.585	1.50	1553	249		50			59	60	12.0	0.10	11.31	11.393		45.571
A-7	16.3	00:16:15	902.700	0.005	1.585	1.50	1604	253		50			59	60	12.0	0.07	8.10	13.315		45.653
A-8	19.0	00:18:58	904.720	0.010	1.585	1.50	1320	254		50			59	60	12.0	0.10	10.64	15.247		45.742
A-9	21.7	00:21:40	906.750	0.010	1.585	1.50	1072	253		50			59	60	12.0	0.10	9.87	17.180		45.812
A-10	24.4	00:24:22	908.780	0.010	1.585	1.50	1101	253		52			61	63	12.0	0.10	9.96	19.102		45.846
A-11	27.1	00:27:05	910.810	0.010	1.585	1.50	1101	253		52			61	63	12.0	0.10	9.96	21.148		46.142
A-12	29.8	00:29:47	912.970	0.010	1.585	1.50	1308	252		52			61	63	12.0	0.10	10.60	23.081		46.161
B-1	32.5	00:32:30	915.010	0.005	1.585	1.50	1314	253		52			61	63	12.0	0.07	7.51	25.013		46.178
B-2	35.2	00:35:12	917.050	0.005	1.585	1.50	1222	253		52			61	63	12.0	0.07	7.31	27.097		46.452
B-3	37.9	00:37:55	919.250	0.010	1.585	1.50	1179	253		52			61	63	12.0	0.10	10.21	28.934		46.295
B-4	40.6	00:40:37	921.190	0.010	1.585	1.50	1537	253		52			61	63	12.0	0.10	11.27	30.886		46.329
B-5	43.3	00:43:20	923.250	0.010	1.585	1.50	1568	252		53			64	63	12.0	0.10	11.36	32.831		46.350
B-6	46.0	00:46:03	925.310	0.010	1.585	1.50	1614	252		53			64	63	12.0	0.10	11.48	34.758		46.344
B-7	48.8	00:48:45	927.350	0.010	1.585	1.50	1601	252		53			64	63	12.0	0.10	11.45	36.704		46.363
B-8	51.5	00:51:28	929.410	0.010	1.585	1.50	1261	252		53			64	63	12.0	0.10	10.46	38.687		46.425
B-9	54.2	00:54:10	931.510	0.010	1.585	1.50	1375	252		53			64	63	12.0	0.10	10.80	40.624		46.427
B-10	56.9	00:56:53	933.560	0.010	1.585	1.50	1589	252		53			64	63	12.0	0.10	11.41	42.560		46.429
B-11	59.6	00:59:35	935.610	0.010	1.585	1.50	1633	252		53			64	63	12.0	0.10	11.54	44.524		46.460
B-12	62.3	01:02:18	937.690	0.010	1.585	1.50	1620	252		53			64	63	12.0	0.10	11.50	46.432		46.432
Last Pt	65.0	01:05:00	939.710																	
Final Val	65.0	01:05:00	939.710											**Max Vac**	12.0	**Final Values**		46.432		
Average Values				0.01		1.50	1366	253		52			61	62		0.09	10.00			
													62							

Superior Fabrication, INC
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	4.9	%
Stack Exhaust Flow (M2)	67,128	SCFH

Weather Data

Barometric Pressure	27.82	in. Hg
Relative Humidity	52	%
Ambient Temperature	86	^{o}F
Specific Humidity	0.014927	lb H_2O / lb air

70-100-70 Load, Run - SCD-36 R4

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
A1	10/06/16 16:13:27	119820	15.32	1.11	-0.07	3.90	0.11	89.70	320.00
	10/06/16 16:13:57	119850	15.36	0.98	-0.06	3.88	0.11	89.70	320.00
	10/06/16 16:14:27	119880	15.37	0.99	-0.07	3.88	0.11	89.50	323.00
	10/06/16 16:14:57	119910	15.42	1.01	-0.05	3.83	0.11	89.50	323.00
	10/06/16 16:15:27	119940	15.41	1.01	-0.05	3.87	0.11	89.30	320.00
	10/06/16 16:15:57	119970	15.45	1.02	-0.07	3.81	0.11	89.30	320.00
	10/06/16 16:16:27	120000	15.44	1.02	-0.08	3.83	0.40	89.10	618.00
	10/06/16 16:16:57	120030	15.46	1.04	-0.10	3.85	0.40	89.10	618.00
	10/06/16 16:17:27	120060	14.81	1.75	-0.09	4.11	0.56	88.70	768.00
	10/06/16 16:17:57	120090	13.88	1.25	-0.06	4.83	0.56	88.70	768.00
	10/06/16 16:18:27	120120	13.79	0.13	-0.07	4.87	0.57	88.40	767.00
	10/06/16 16:18:57	120150	13.48	-0.09	-0.06	5.06	0.57	88.40	767.00
	10/06/16 16:19:27	120180	13.63	-0.09	-0.06	4.99	0.58	88.40	767.00
	10/06/16 16:19:57	120210	13.86	-0.01	-0.06	4.83	0.58	88.40	767.00
	10/06/16 16:20:27	120240	13.97	0.01	-0.06	4.70	0.59	88.40	767.00
	10/06/16 16:20:57	120270	13.88	-0.01	-0.06	4.79	0.59	88.40	767.00
	10/06/16 16:21:27	120300	13.89	0.07	-0.06	4.81	0.59	88.50	765.00
	10/06/16 16:21:57	120330	13.78	0.05	-0.06	4.85	0.59	88.50	765.00
	10/06/16 16:22:27	120360	13.63	0.11	-0.08	4.95	0.60	88.60	768.00
	10/06/16 16:22:57	120390	13.91	0.11	-0.08	4.80	0.60	88.60	768.00
	10/06/16 16:23:27	120420	14.02	0.11	-0.07	4.67	0.61	88.70	768.00
	10/06/16 16:23:57	120450	13.39	0.11	-0.07	5.09	0.61	88.70	768.00
	10/06/16 16:24:27	120480	13.35	0.12	-0.07	5.16	0.61	88.80	766.00
	10/06/16 16:24:57	120510	13.33	0.12	-0.06	5.14	0.61	88.80	766.00
	10/06/16 16:25:27	120540	13.72	0.12	-0.05	4.95	0.62	88.90	769.00
	10/06/16 16:25:57	120570	13.90	0.11	-0.06	4.75	0.62	88.90	769.00
	10/06/16 16:26:27	120600	14.25	0.12	-0.06	4.59	0.62	89.00	768.00
	10/06/16 16:26:57	120630	13.91	0.08	-0.06	4.76	0.62	89.00	768.00
	10/06/16 16:27:27	120660	14.19	0.04	-0.07	4.62	0.64	89.10	766.00
	10/06/16 16:27:57	120690	14.20	-0.02	-0.07	4.58	0.64	89.10	766.00
	10/06/16 16:28:27	120720	14.34	-0.03	-0.07	4.50	0.63	89.10	769.00
	10/06/16 16:28:57	120750	14.29	0.00	-0.08	4.53	0.63	89.10	769.00
	10/06/16 16:29:27	120780	14.49	-0.01	-0.08	4.40	0.63	89.20	768.00
	10/06/16 16:29:57	120810	14.24	0.01	-0.08	4.56	0.63	89.20	768.00
	10/06/16 16:30:27	120840	13.86	0.01	-0.06	4.81	0.64	89.30	769.00
	10/06/16 16:30:57	120870	13.98	0.02	-0.06	4.69	0.64	89.30	769.00
	10/06/16 16:31:27	120900	14.03	0.02	-0.06	4.81	0.14	89.30	349.00
	10/06/16 16:31:57	120930	14.16	-0.01	-0.06	4.62	0.14	89.30	349.00
	10/06/16 16:32:27	120960	15.19	0.04	-0.05	4.00	0.13	89.30	326.00
	10/06/16 16:32:57	120990	15.33	0.16	-0.06	3.88	0.13	89.30	326.00
	10/06/16 16:33:27	121020	15.38	0.29	-0.07	3.86	0.13	89.20	328.00
	10/06/16 16:33:57	121050	15.29	0.30	-0.07	3.92	0.13	89.20	328.00
A2	10/06/16 16:34:27	121080	15.45	0.35	-0.06	3.81	0.13	89.10	331.00
	10/06/16 16:34:57	121110	15.29	0.38	-0.07	3.90	0.13	89.10	331.00
	10/06/16 16:35:27	121140	15.36	0.38	-0.07	3.88	0.47	88.80	654.00
	10/06/16 16:35:57	121170	14.31	0.36	-0.06	4.51	0.47	88.80	654.00
	10/06/16 16:36:27	121200	14.05	0.22	-0.07	4.64	0.63	88.10	775.00
	10/06/16 16:36:57	121230	13.90	0.06	-0.07	4.84	0.63	88.10	775.00
	10/06/16 16:37:27	121260	13.97	-0.01	-0.07	4.79	0.64	87.70	779.00
	10/06/16 16:37:57	121290	14.06	-0.10	-0.08	4.71	0.64	87.70	779.00
	10/06/16 16:38:27	121320	14.31	-0.09	-0.09	4.53	0.63	87.20	785.00
	10/06/16 16:38:57	121350	14.15	-0.09	-0.06	4.63	0.63	87.20	785.00
	10/06/16 16:39:27	121380	14.11	-0.09	-0.05	4.67	0.64	86.90	788.00
	10/06/16 16:39:57	121410	13.89	-0.09	-0.07	4.81	0.64	86.90	788.00
	10/06/16 16:40:27	121440	13.95	-0.08	-0.07	4.77	0.65	86.60	784.00
	10/06/16 16:40:57	121470	13.88	-0.08	-0.06	4.78	0.65	86.60	784.00
	10/06/16 16:41:27	121500	13.73	-0.07	-0.05	4.91	0.64	86.30	784.00
	10/06/16 16:41:57	121530	13.95	-0.01	-0.06	4.76	0.64	86.30	784.00
	10/06/16 16:42:27	121560	14.17	-0.02	-0.06	4.61	0.65	86.00	785.00
	10/06/16 16:42:57	121590	14.07	0.02	-0.06	4.66	0.65	86.00	785.00
	10/06/16 16:43:27	121620	13.79	0.02	-0.07	4.88	0.65	85.80	780.00

Superior Fabrication, INC
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	4.9	%
Stack Exhaust Flow (M2)	67,128	SCFH

Weather Data

Barometric Pressure	27.82	in. Hg
Relative Humidity	52	%
Ambient Temperature	86	^{o}F
Specific Humidity	0.014927	lb H_2O / lb air

70-100-70 Load, Run - SCD-36 R4

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
	10/06/16 16:43:57	121650	13.91	0.01	-0.09	4.79	0.65	85.80	780.00
	10/06/16 16:44:27	121680	13.85	0.01	-0.08	4.81	0.66	85.50	786.00
	10/06/16 16:44:57	121710	13.89	0.01	-0.06	4.80	0.66	85.50	786.00
	10/06/16 16:45:27	121740	13.92	0.10	-0.07	4.77	0.66	85.30	784.00
	10/06/16 16:45:57	121770	13.93	0.09	-0.06	4.77	0.66	85.30	784.00
	10/06/16 16:46:27	121800	13.65	0.08	-0.06	4.87	0.67	85.00	784.00
	10/06/16 16:46:57	121830	13.89	0.21	-0.06	4.87	0.67	85.00	784.00
	10/06/16 16:47:27	121860	13.78	0.22	-0.09	4.75	0.13	84.80	331.00
	10/06/16 16:47:57	121890	14.37	0.23	-0.08	4.65	0.13	84.80	331.00
	10/06/16 16:48:27	121920	15.47	0.27	-0.06	3.79	0.14	84.70	331.00
	10/06/16 16:48:57	121950	15.44	0.40	-0.06	3.81	0.14	84.70	331.00
	10/06/16 16:49:27	121980	15.43	0.43	-0.06	3.81	0.14	84.50	326.00
	10/06/16 16:49:57	122010	15.39	0.48	-0.09	3.85	0.14	84.50	326.00
	10/06/16 16:50:27	122040	15.45	0.50	-0.09	3.81	0.13	84.30	329.00
	10/06/16 16:50:57	122070	15.48	0.60	-0.05	3.81	0.13	84.30	329.00
	10/06/16 16:51:27	122100	15.49	0.64	-0.05	3.77	0.14	84.10	327.00
	10/06/16 16:51:57	122130	15.45	0.71	-0.06	3.81	0.14	84.10	327.00
	10/06/16 16:52:27	122160	15.52	0.72	-0.05	3.76	0.52	83.90	701.00
	10/06/16 16:52:57	122190	14.08	0.69	-0.07	4.69	0.52	83.90	701.00
	10/06/16 16:53:27	122220	14.44	0.55	-0.06	4.40	0.63	83.40	777.00
	10/06/16 16:53:57	122250	13.83	0.35	-0.07	4.88	0.63	83.40	777.00
A3	10/06/16 16:54:27	122280	13.95	0.22	-0.06	4.75	0.63	83.10	777.00
	10/06/16 16:54:57	122310	14.02	0.13	-0.06	4.73	0.63	83.10	777.00
	10/06/16 16:55:27	122340	14.18	0.12	-0.06	4.62	0.63	82.80	778.00
	10/06/16 16:55:57	122370	14.12	0.11	-0.07	4.67	0.63	82.80	778.00
	10/06/16 16:56:27	122400	14.29	0.03	-0.06	4.53	0.64	82.60	773.00
	10/06/16 16:56:57	122430	14.01	0.07	-0.06	4.72	0.64	82.60	773.00
	10/06/16 16:57:27	122460	14.00	0.13	-0.05	4.74	0.60	82.20	772.00
	10/06/16 16:57:57	122490	13.93	0.11	-0.07	4.79	0.60	82.20	772.00
	10/06/16 16:58:27	122520	13.92	0.19	-0.06	4.79	0.63	82.20	774.00
	10/06/16 16:58:57	122550	14.13	0.22	-0.07	4.59	0.63	82.20	774.00
	10/06/16 16:59:27	122580	14.13	0.22	-0.06	4.68	0.64	82.00	777.00
	10/06/16 16:59:57	122610	13.96	0.20	-0.06	4.72	0.64	82.00	777.00
	10/06/16 17:00:27	122640	13.99	0.21	-0.07	4.75	0.64	81.80	774.00
	10/06/16 17:00:57	122670	14.13	0.22	-0.06	4.62	0.64	81.80	774.00
	10/06/16 17:01:27	122700	13.96	0.21	-0.06	4.73	0.65	81.50	778.00
	10/06/16 17:01:57	122730	14.04	0.20	-0.05	4.68	0.65	81.50	778.00
	10/06/16 17:02:27	122760	13.88	0.19	-0.05	4.79	0.65	81.30	776.00
	10/06/16 17:02:57	122790	13.85	0.24	-0.08	4.83	0.65	81.30	776.00
	10/06/16 17:03:27	122820	13.86	0.32	-0.09	4.81	0.65	81.10	776.00
	10/06/16 17:03:57	122850	13.90	0.31	-0.09	4.75	0.65	81.10	776.00
	10/06/16 17:04:27	122880	14.10	0.37	-0.09	4.70	0.47	80.70	635.00
	10/06/16 17:04:57	122910	13.82	0.38	-0.08	4.86	0.47	80.70	635.00
	10/06/16 17:05:27	122940	14.97	0.36	-0.09	4.19	0.17	80.40	391.00
	10/06/16 17:05:57	122970	14.15	0.57	-0.07	4.54	0.17	80.40	391.00
	10/06/16 17:06:27	123000	14.94	0.51	-0.05	4.19	0.14	80.00	332.00
	10/06/16 17:06:57	123030	15.52	0.45	-0.04	3.77	0.14	80.00	332.00
	10/06/16 17:07:27	123060	15.58	0.55	-0.05	3.74	0.14	79.50	337.00
	10/06/16 17:07:57	123090	15.62	0.67	-0.06	3.69	0.14	79.50	337.00
	10/06/16 17:08:27	123120	15.53	0.80	-0.05	3.77	0.15	78.90	333.00
	10/06/16 17:08:57	123150	15.50	0.78	-0.08	3.78	0.15	78.90	333.00
	10/06/16 17:09:27	123180	15.48	0.78	-0.06	3.79	0.30	78.00	488.00
	10/06/16 17:09:57	123210	15.54	0.79	-0.08	3.76	0.30	78.00	488.00
	10/06/16 17:10:27	123240	14.27	0.87	-0.10	4.39	0.65	76.90	809.00
	10/06/16 17:10:57	123270	13.69	0.68	-0.09	5.06	0.65	76.90	809.00
	10/06/16 17:11:27	123300	13.97	0.47	-0.08	4.81	0.66	75.80	797.00
	10/06/16 17:11:57	123330	13.84	0.29	-0.06	4.85	0.66	75.80	797.00
	10/06/16 17:12:27	123360	14.08	0.20	-0.05	4.73	0.67	75.00	802.00
	10/06/16 17:12:57	123390	14.17	0.17	-0.09	4.60	0.67	75.00	802.00
	10/06/16 17:13:27	123420	14.04	0.13	-0.09	4.72	0.67	74.50	803.00
	10/06/16 17:13:57	123450	14.04	0.11	-0.08	4.68	0.67	74.50	803.00

Superior Fabrication, INC
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	4.9	%
Stack Exhaust Flow (M2)	67,128	SCFH

Weather Data

Barometric Pressure	27.82	in. Hg
Relative Humidity	52	%
Ambient Temperature	86	^{o}F
Specific Humidity	0.014927	lb H_2O / lb air

70-100-70 Load, Run - SCD-36 R4

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
10/06/16 17:14:27	123480	14.05	0.13	-0.08	4.70	0.67	73.90	804.00
10/06/16 17:14:57	123510	13.76	0.09	-0.09	4.89	0.67	73.90	804.00
10/06/16 17:15:27	123540	14.08	0.09	-0.09	4.67	0.68	73.60	805.00
10/06/16 17:15:57	123570	13.99	0.09	-0.06	4.74	0.68	73.60	805.00
10/06/16 17:16:27	123600	13.66	0.11	-0.06	4.98	0.68	73.30	805.00
10/06/16 17:16:57	123630	14.14	0.19	-0.06	4.62	0.68	73.30	805.00
10/06/16 17:17:27	123660	13.80	0.23	-0.06	4.86	0.69	73.00	801.00
10/06/16 17:17:57	123690	14.03	0.22	-0.06	4.73	0.69	73.00	801.00
10/06/16 17:18:27	123720	14.17	0.22	-0.08	4.63	0.69	72.80	806.00
10/06/16 17:18:57	123750	14.06	0.26	-0.08	4.69	0.69	72.80	806.00
10/06/16 17:19:27	123780	14.22	0.31	-0.07	4.59	0.69	72.60	804.00
10/06/16 17:19:57	123810	14.35	0.43	0.01	4.49	0.69	72.60	804.00
10/06/16 17:20:27	123840	14.15	1.20	0.02	4.63	0.39	72.20	603.00
10/06/16 17:20:57	123870	14.27	3.05	0.13	4.52	0.39	72.20	603.00
10/06/16 17:21:27	123900	15.02	5.89	0.03	4.06	0.15	72.30	334.00
10/06/16 17:21:57	123930	15.06	3.18	-0.06	4.03	0.15	72.30	334.00
10/06/16 17:22:27	123960	15.43	1.21	0.22	3.80	0.16	72.20	337.00
10/06/16 17:22:57	123990	15.39	0.90	0.25	3.81	0.16	72.20	337.00
10/06/16 17:23:27	124020	15.34	0.88	0.23	3.86	0.15	72.00	337.00
RAW AVERAGE		**14.37**	**0.38**	**-0.06**	**4.50**	**0.49**	**83.39**	**649.64**

		O_2	CO	THC	CO_2	Press. Trans	Temp. Trans.	F-Flow Trans.
	Serial Number:	INSTO2-0011	INST-CO-0022	INST-TH-0002	INST-C2-0013	1434717	1434717	1434717
		(%)	(ppmvd)	(ppmvw)	(%)	(in. H_2O)	(^{o}F)	(SCFH)
Bias	Initial Zero	-0.02	-0.01	-0.06	0.03			
	Final Zero	-0.04	-0.03	-0.05	0.02			
	Avg. Zero	-0.03	-0.02	-0.06	0.03			
	Initial UpScale	11.93	9.41	3.06	8.87			
	Final UpScale	11.87	9.31	2.95	8.85			
	Avg. UpScale	11.90	9.36	3.01	8.86			
Upscale Cal Gas		11.90	9.44	3.00	8.95			

EMISSIONS DATA	O_2	CO	THC	CO_2
Corrected Raw Average (ppm/% dry basis)	14.36	0.40	0.00	4.53
Corrected Raw Average (ppm/% wet basis)	13.66	0.39	0.00	4.31
Emission Rate (lb/hr)	N/A	0.00	0.00	N/A

Superior Fabrication, INC
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	5.0	%
Stack Exhaust Flow (M2)	49,494	SCFH

Weather Data

Barometric Pressure	28.22	in. Hg
Relative Humidity	53	%
Ambient Temperature	49	^{o}F
Specific Humidity	0.004108	lb H_2O / lb air

70-100-70 Load, Run - SCD-36 R5

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
A1	10/07/16 07:55:07	2820	16.20	3.71	0.64	3.37	0.15	39.00	359.00
	10/07/16 07:55:37	2850	16.10	3.39	0.42	3.43	0.15	39.00	359.00
	10/07/16 07:56:07	2880	16.24	3.35	0.33	3.33	0.15	39.10	359.00
	10/07/16 07:56:37	2910	16.09	3.71	0.30	3.42	0.15	39.10	359.00
	10/07/16 07:57:07	2940	15.97	3.30	0.31	3.52	0.30	39.10	518.00
	10/07/16 07:57:37	2970	16.05	2.89	0.25	3.44	0.30	39.10	518.00
	10/07/16 07:58:07	3000	16.11	2.92	0.27	3.41	0.67	38.90	855.00
	10/07/16 07:58:37	3030	16.12	5.35	0.34	3.31	0.67	38.90	855.00
	10/07/16 07:59:07	3060	14.57	7.01	0.19	4.37	0.70	38.60	863.00
	10/07/16 07:59:37	3090	14.55	2.66	0.17	4.39	0.70	38.60	863.00
	10/07/16 08:00:07	3120	14.49	0.79	0.16	4.44	0.71	38.40	861.00
	10/07/16 08:00:37	3150	14.68	0.78	0.21	4.30	0.71	38.40	861.00
	10/07/16 08:01:07	3180	14.71	1.02	0.20	4.31	0.72	38.30	859.00
	10/07/16 08:01:37	3210	14.39	1.43	0.19	4.44	0.72	38.30	859.00
	10/07/16 08:02:07	3240	14.71	1.93	0.20	4.34	0.73	38.30	859.00
	10/07/16 08:02:37	3270	14.66	2.39	0.19	4.32	0.73	38.30	859.00
	10/07/16 08:03:07	3300	14.50	2.72	0.16	4.41	0.73	38.20	859.00
	10/07/16 08:03:37	3330	14.50	2.96	0.14	4.43	0.73	38.20	859.00
	10/07/16 08:04:07	3360	14.85	2.98	0.12	4.19	0.73	38.20	857.00
	10/07/16 08:04:37	3390	14.91	2.90	0.17	4.18	0.73	38.20	857.00
	10/07/16 08:05:07	3420	14.61	2.78	0.17	4.36	0.75	38.20	858.00
	10/07/16 08:05:37	3450	14.65	2.83	0.15	4.30	0.75	38.20	858.00
	10/07/16 08:06:07	3480	14.71	2.89	0.16	4.30	0.75	38.20	861.00
	10/07/16 08:06:37	3510	14.56	2.88	0.15	4.38	0.75	38.20	861.00
	10/07/16 08:07:07	3540	14.68	2.89	0.15	4.32	0.74	38.20	857.00
	10/07/16 08:07:37	3570	14.41	2.89	0.16	4.47	0.74	38.20	857.00
	10/07/16 08:08:07	3600	14.18	2.99	0.17	4.65	0.75	38.20	855.00
	10/07/16 08:08:37	3630	14.64	3.09	0.15	4.41	0.75	38.20	855.00
	10/07/16 08:09:07	3660	14.70	3.00	0.15	4.41	0.75	38.30	861.00
	10/07/16 08:09:37	3690	14.75	2.92	0.15	4.37	0.75	38.30	861.00
	10/07/16 08:10:07	3720	14.76	2.88	0.15	4.36	0.75	38.30	858.00
	10/07/16 08:10:37	3750	14.76	2.77	0.16	4.28	0.75	38.30	858.00
	10/07/16 08:11:07	3780	14.81	2.64	0.16	4.23	0.61	38.40	778.00
	10/07/16 08:11:37	3810	14.66	2.54	0.17	4.33	0.61	38.40	778.00
	10/07/16 08:12:07	3840	14.76	2.51	0.17	4.29	0.16	38.60	354.00
	10/07/16 08:12:37	3870	13.87	2.49	0.15	4.84	0.16	38.60	354.00
	10/07/16 08:13:07	3900	15.62	2.52	0.15	3.82	0.17	38.80	368.00
	10/07/16 08:13:37	3930	16.15	2.45	0.16	3.40	0.17	38.80	368.00
	10/07/16 08:14:07	3960	16.03	2.41	0.16	3.47	0.17	39.00	371.00
	10/07/16 08:14:37	3990	16.04	2.48	0.15	3.48	0.17	39.00	371.00
	10/07/16 08:15:07	4020	16.11	2.50	0.15	3.43	0.17	39.10	371.00
	10/07/16 08:15:37	4050	16.10	2.58	0.15	3.46	0.17	39.10	371.00
A2	10/07/16 08:16:07	4080	16.07	2.62	0.15	3.43	0.17	39.20	371.00
	10/07/16 08:16:37	4110	15.96	2.45	0.15	3.54	0.17	39.20	371.00
	10/07/16 08:17:07	4140	16.00	2.20	0.15	3.50	0.50	39.20	695.00
	10/07/16 08:17:37	4170	16.02	2.21	0.15	3.50	0.50	39.20	695.00
	10/07/16 08:18:07	4200	15.87	2.34	0.16	3.58	0.70	39.10	845.00
	10/07/16 08:18:37	4230	14.98	3.42	0.16	4.11	0.70	39.10	845.00
	10/07/16 08:19:07	4260	14.58	2.60	0.16	4.39	0.73	39.00	864.00
	10/07/16 08:19:37	4290	14.33	1.57	0.16	4.59	0.73	39.00	864.00
	10/07/16 08:20:07	4320	14.69	1.36	0.17	4.36	0.73	38.90	861.00
	10/07/16 08:20:37	4350	14.51	1.29	0.15	4.45	0.73	38.90	861.00
	10/07/16 08:21:07	4380	14.52	1.22	0.15	4.44	0.75	38.90	862.00
	10/07/16 08:21:37	4410	14.65	1.19	0.15	4.40	0.75	38.90	862.00
	10/07/16 08:22:07	4440	14.84	1.19	0.15	4.24	0.74	39.00	859.00
	10/07/16 08:22:37	4470	14.38	1.19	0.15	4.51	0.74	39.00	859.00
	10/07/16 08:23:07	4500	14.71	1.20	0.14	4.37	0.75	39.00	862.00
	10/07/16 08:23:37	4530	14.85	1.32	0.15	4.24	0.75	39.00	862.00
	10/07/16 08:24:07	4560	14.78	1.34	0.15	4.26	0.75	39.10	859.00
	10/07/16 08:24:37	4590	14.70	1.41	0.09	4.35	0.75	39.10	859.00
	10/07/16 08:25:07	4620	14.95	1.45	0.11	4.20	0.76	39.20	859.00

Superior Fabrication, INC
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	5.0	%
Stack Exhaust Flow (M2)	49,494	SCFH

Weather Data

Barometric Pressure	28.22	in. Hg
Relative Humidity	53	%
Ambient Temperature	49	^{o}F
Specific Humidity	0.004108	lb H_2O / lb air

70-100-70 Load, Run - SCD-36 R5

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
	10/07/16 08:25:37	4650	14.51	1.49	0.14	4.44	0.76	39.20	859.00
	10/07/16 08:26:07	4680	14.70	1.52	0.14	4.33	0.76	39.20	859.00
	10/07/16 08:26:37	4710	14.54	1.60	0.15	4.43	0.76	39.20	859.00
	10/07/16 08:27:07	4740	14.56	1.66	0.14	4.43	0.75	39.30	859.00
	10/07/16 08:27:37	4770	14.69	1.68	0.14	4.34	0.75	39.30	859.00
	10/07/16 08:28:07	4800	14.48	1.70	0.17	4.47	0.27	39.40	513.00
	10/07/16 08:28:37	4830	14.59	1.78	0.17	4.43	0.27	39.40	513.00
	10/07/16 08:29:07	4860	14.73	1.75	0.15	4.41	0.18	39.60	362.00
	10/07/16 08:29:37	4890	15.40	1.95	0.16	3.86	0.18	39.60	362.00
	10/07/16 08:30:07	4920	15.95	2.04	0.15	3.65	0.17	39.80	359.00
	10/07/16 08:30:37	4950	16.06	2.15	0.15	3.55	0.17	39.80	359.00
	10/07/16 08:31:07	4980	16.07	2.36	0.15	3.52	0.16	40.00	359.00
	10/07/16 08:31:37	5010	16.12	2.47	0.17	3.49	0.16	40.00	359.00
	10/07/16 08:32:07	5040	16.14	2.49	0.17	3.47	0.16	40.10	364.00
	10/07/16 08:32:37	5070	16.12	2.48	0.18	3.47	0.16	40.10	364.00
	10/07/16 08:33:07	5100	16.11	2.52	0.17	3.46	0.65	40.10	795.00
	10/07/16 08:33:37	5130	16.15	2.44	0.19	3.49	0.65	40.10	795.00
	10/07/16 08:34:07	5160	15.74	3.49	0.17	3.64	0.73	39.90	856.00
	10/07/16 08:34:37	5190	15.09	3.84	0.15	4.15	0.73	39.90	856.00
	10/07/16 08:35:07	5220	14.50	2.24	0.15	4.49	0.73	39.80	857.00
	10/07/16 08:35:37	5250	14.11	1.61	0.17	4.77	0.73	39.80	857.00
A3	10/07/16 08:36:07	5280	14.54	1.66	0.20	4.56	0.73	39.80	857.00
	10/07/16 08:36:37	5310	14.78	1.68	0.18	4.33	0.73	39.80	857.00
	10/07/16 08:37:07	5340	14.94	1.50	0.19	4.27	0.74	39.90	857.00
	10/07/16 08:37:37	5370	14.90	1.40	0.20	4.26	0.74	39.90	857.00
	10/07/16 08:38:07	5400	14.27	1.37	0.19	4.67	0.74	39.90	852.00
	10/07/16 08:38:37	5430	14.51	1.39	0.21	4.54	0.74	39.90	852.00
	10/07/16 08:39:07	5460	14.67	1.47	0.21	4.39	0.75	40.00	855.00
	10/07/16 08:39:37	5490	14.36	1.39	0.20	4.65	0.75	40.00	855.00
	10/07/16 08:40:07	5520	14.88	1.48	0.21	4.28	0.75	40.10	855.00
	10/07/16 08:40:37	5550	14.89	1.57	0.21	4.28	0.75	40.10	855.00
	10/07/16 08:41:07	5580	14.33	1.68	0.20	4.60	0.75	40.20	855.00
	10/07/16 08:41:37	5610	14.43	1.83	0.21	4.57	0.75	40.20	855.00
	10/07/16 08:42:07	5640	14.37	1.92	0.22	4.62	0.75	40.30	857.00
	10/07/16 08:42:37	5670	14.50	1.89	0.20	4.50	0.75	40.30	857.00
	10/07/16 08:43:07	5700	14.29	1.86	0.20	4.66	0.76	40.30	858.00
	10/07/16 08:43:37	5730	14.06	1.89	0.21	4.79	0.76	40.30	858.00
	10/07/16 08:44:07	5760	14.22	1.98	0.20	4.70	0.76	40.40	858.00
	10/07/16 08:44:37	5790	14.13	1.99	0.19	4.79	0.76	40.40	858.00
	10/07/16 08:45:07	5820	14.28	1.99	0.17	4.65	0.77	40.50	858.00
	10/07/16 08:45:37	5850	14.37	2.07	0.20	4.61	0.77	40.50	858.00
	10/07/16 08:46:07	5880	14.09	2.09	0.22	4.78	0.59	40.50	735.00
	10/07/16 08:46:37	5910	14.27	2.01	0.21	4.69	0.59	40.50	735.00
	10/07/16 08:47:07	5940	14.37	2.00	0.20	4.61	0.17	40.70	361.00
	10/07/16 08:47:37	5970	14.20	2.01	0.20	4.74	0.17	40.70	361.00
	10/07/16 08:48:07	6000	15.88	2.09	0.22	3.69	0.18	40.90	370.00
	10/07/16 08:48:37	6030	16.11	2.17	0.21	3.50	0.18	40.90	370.00
	10/07/16 08:49:07	6060	16.12	2.28	0.22	3.47	0.17	41.10	369.00
	10/07/16 08:49:37	6090	16.03	2.42	0.21	3.54	0.17	41.10	369.00
	10/07/16 08:50:07	6120	15.96	2.46	0.21	3.59	0.17	41.10	369.00
	10/07/16 08:50:37	6150	16.02	2.39	0.21	3.56	0.17	41.10	369.00
	10/07/16 08:51:07	6180	16.03	2.38	0.24	3.54	0.40	41.20	572.00
	10/07/16 08:51:37	6210	16.17	2.40	0.28	3.45	0.40	41.20	572.00
	10/07/16 08:52:07	6240	15.91	2.53	0.29	3.57	0.73	41.00	855.00
	10/07/16 08:52:37	6270	15.02	2.74	0.40	4.15	0.73	41.00	855.00
	10/07/16 08:53:07	6300	14.33	2.58	0.34	4.64	0.73	40.80	855.00
	10/07/16 08:53:37	6330	14.18	1.85	0.30	4.77	0.73	40.80	855.00
	10/07/16 08:54:07	6360	14.60	1.70	0.30	4.46	0.74	40.70	850.00
	10/07/16 08:54:37	6390	14.16	1.70	0.32	4.75	0.74	40.70	850.00
	10/07/16 08:55:07	6420	14.23	1.69	0.31	4.73	0.74	40.80	850.00
	10/07/16 08:55:37	6450	14.48	1.60	0.31	4.51	0.74	40.80	850.00

Superior Fabrication, INC
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	5.0	%
Stack Exhaust Flow (M2)	49,494	SCFH

Weather Data

Barometric Pressure	28.22	in. Hg
Relative Humidity	53	%
Ambient Temperature	49	^{o}F
Specific Humidity	0.004108	lb H_2O / lb air

70-100-70 Load, Run - SCD-36 R5

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
10/07/16 08:56:07	6480	13.90	1.51	0.26	4.91	0.75	40.80	853.00
10/07/16 08:56:37	6510	14.13	1.49	0.26	4.81	0.75	40.80	853.00
10/07/16 08:57:07	6540	14.39	1.51	0.29	4.58	0.74	40.80	853.00
10/07/16 08:57:37	6570	14.13	1.75	0.32	4.78	0.74	40.80	853.00
10/07/16 08:58:07	6600	14.57	2.09	0.30	4.48	0.75	40.90	853.00
10/07/16 08:58:37	6630	14.30	1.78	0.28	4.63	0.75	40.90	853.00
10/07/16 08:59:07	6660	14.32	1.59	0.29	4.68	0.75	41.00	850.00
10/07/16 08:59:37	6690	14.36	1.55	0.30	4.62	0.75	41.00	850.00
10/07/16 09:00:07	6720	14.71	1.56	0.28	4.37	0.75	41.10	853.00
10/07/16 09:00:37	6750	14.48	1.59	0.26	4.54	0.75	41.10	853.00
10/07/16 09:01:07	6780	14.55	1.68	0.32	4.46	0.75	41.10	856.00
10/07/16 09:01:37	6810	14.52	1.69	0.30	4.51	0.75	41.10	856.00
10/07/16 09:02:07	6840	14.41	1.68	0.29	4.59	0.17	41.30	364.00
10/07/16 09:02:37	6870	14.72	1.70	0.29	4.39	0.17	41.30	364.00
10/07/16 09:03:07	6900	15.74	1.70	0.30	3.80	0.18	41.50	364.00
10/07/16 09:03:37	6930	16.36	1.86	0.30	3.32	0.18	41.50	364.00
10/07/16 09:04:07	6960	16.14	2.14	0.27	3.46	0.16	41.60	363.00
10/07/16 09:04:37	6990	15.96	2.19	0.29	3.59	0.16	41.60	363.00
10/07/16 09:05:07	7020	16.16	2.19	0.35	3.47	0.16	41.70	360.00
RAW AVERAGE		**14.99**	**2.18**	**0.21**	**4.18**	**0.56**	**39.69**	**707.77**

		O_2	CO	THC	CO_2	Press. Trans	Temp. Trans.	F-Flow Trans.
	Serial Number:	INSTO2-0011	INST-CO-0022	INST-TH-0002	INST-C2-0013	1434717	1434717	1434717
		(%)	(ppmvd)	(ppmvw)	(%)	(in. H_2O)	(^{o}F)	(SCFH)
Bias	Initial Zero	0.03	-0.03	0.01	0.01			
	Final Zero	-0.02	0.03	-0.04	0.01			
	Avg. Zero	0.01	0.00	-0.02	0.01			
	Initial UpScale	12.07	9.38	2.98	8.82			
	Final UpScale	12.01	9.37	2.98	8.84			
	Avg. UpScale	12.04	9.38	2.98	8.83			
Upscale Cal Gas		11.90	9.44	3.00	8.95			

EMISSIONS DATA	O_2	CO	THC	CO_2
Corrected Raw Average (ppm/% dry basis)	14.82	2.19	0.22	4.23
Corrected Raw Average (ppm/% wet basis)	14.07	2.08	0.21	4.01
Emission Rate (lb/hr)	N/A	0.01	0.00	N/A

Superior Fabrication, INC
October 7, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	4.9	%
Stack Exhaust Flow (M2)	55,427	SCFH

Weather Data

Barometric Pressure	28.25	in. Hg
Relative Humidity	60	%
Ambient Temperature	52	^{o}F
Specific Humidity	0.005202	lb H_2O / lb air

70-100-70 Load, Run - SCD-36 R6

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
A1	10/07/16 09:21:07	7980	16.82	6.00	-0.05	3.03	0.14	42.20	351.00
	10/07/16 09:21:37	8010	16.90	5.63	-0.04	2.94	0.14	42.20	351.00
	10/07/16 09:22:07	8040	16.74	6.02	-0.04	3.06	0.14	42.20	351.00
	10/07/16 09:22:37	8070	16.93	6.04	-0.03	2.93	0.14	42.20	351.00
	10/07/16 09:23:07	8100	16.90	6.61	-0.03	2.93	0.14	42.20	351.00
	10/07/16 09:23:37	8130	16.67	6.63	-0.04	3.11	0.14	42.20	351.00
	10/07/16 09:24:07	8160	16.66	5.62	-0.04	3.14	0.14	42.20	354.00
	10/07/16 09:24:37	8190	16.62	5.12	-0.03	3.13	0.14	42.20	354.00
	10/07/16 09:25:07	8220	16.44	4.72	-0.05	3.29	0.58	42.10	782.00
	10/07/16 09:25:37	8250	16.43	3.97	-0.03	3.28	0.58	42.10	782.00
	10/07/16 09:26:07	8280	15.36	3.74	-0.03	3.90	0.66	41.80	846.00
	10/07/16 09:26:37	8310	14.80	3.47	-0.03	4.35	0.66	41.80	846.00
	10/07/16 09:27:07	8340	14.79	2.13	-0.03	4.33	0.69	41.60	848.00
	10/07/16 09:27:37	8370	14.13	1.31	-0.04	4.70	0.69	41.60	848.00
	10/07/16 09:28:07	8400	14.10	0.87	-0.04	4.93	0.69	41.50	846.00
	10/07/16 09:28:37	8430	14.79	0.68	-0.04	4.40	0.69	41.50	846.00
	10/07/16 09:29:07	8460	14.61	0.69	-0.04	4.47	0.70	41.40	847.00
	10/07/16 09:29:37	8490	14.77	0.65	-0.03	4.41	0.70	41.40	847.00
	10/07/16 09:30:07	8520	14.63	0.64	-0.04	4.49	0.71	41.40	847.00
	10/07/16 09:30:37	8550	14.78	0.50	-0.04	4.35	0.71	41.40	847.00
	10/07/16 09:31:07	8580	14.90	0.49	-0.04	4.28	0.72	41.50	845.00
	10/07/16 09:31:37	8610	14.38	0.55	-0.04	4.58	0.72	41.50	845.00
	10/07/16 09:32:07	8640	14.66	0.49	-0.03	4.47	0.72	41.50	845.00
	10/07/16 09:32:37	8670	14.75	0.50	-0.05	4.36	0.72	41.50	845.00
	10/07/16 09:33:07	8700	14.53	0.58	-0.05	4.53	0.73	41.60	845.00
	10/07/16 09:33:37	8730	14.80	0.49	-0.03	4.32	0.73	41.60	845.00
	10/07/16 09:34:07	8760	14.82	0.52	-0.03	4.33	0.73	41.70	845.00
	10/07/16 09:34:37	8790	14.67	0.50	-0.04	4.44	0.73	41.70	845.00
	10/07/16 09:35:07	8820	14.65	0.42	-0.04	4.44	0.73	41.80	845.00
	10/07/16 09:35:37	8850	14.82	0.40	-0.04	4.31	0.73	41.80	845.00
	10/07/16 09:36:07	8880	14.57	0.39	-0.04	4.48	0.73	41.90	842.00
	10/07/16 09:36:37	8910	14.64	0.38	-0.04	4.46	0.73	41.90	842.00
	10/07/16 09:37:07	8940	14.22	0.38	-0.04	4.70	0.74	42.00	845.00
	10/07/16 09:37:37	8970	14.91	0.42	-0.05	4.31	0.74	42.00	845.00
	10/07/16 09:38:07	9000	14.79	0.51	-0.04	4.33	0.38	42.10	570.00
	10/07/16 09:38:37	9030	14.60	0.43	-0.03	4.45	0.38	42.10	570.00
	10/07/16 09:39:07	9060	14.95	0.40	-0.03	4.27	0.17	42.40	363.00
	10/07/16 09:39:37	9090	15.93	0.56	-0.04	3.68	0.17	42.40	363.00
	10/07/16 09:40:07	9120	16.04	0.85	-0.05	3.54	0.17	42.50	368.00
	10/07/16 09:40:37	9150	16.09	1.18	-0.03	3.53	0.17	42.50	368.00
	10/07/16 09:41:07	9180	16.21	1.43	-0.03	3.44	0.17	42.70	363.00
A2	10/07/16 09:41:37	9210	16.17	1.70	-0.03	3.46	0.17	42.70	363.00
	10/07/16 09:42:07	9240	16.30	1.84	-0.02	3.40	0.17	42.80	365.00
	10/07/16 09:42:37	9270	16.40	2.20	-0.04	3.28	0.17	42.80	365.00
	10/07/16 09:43:07	9300	16.16	2.43	-0.04	3.47	0.21	43.00	410.00
	10/07/16 09:43:37	9330	16.08	2.03	-0.04	3.52	0.21	43.00	410.00
	10/07/16 09:44:07	9360	16.28	2.07	-0.03	3.40	0.71	42.90	853.00
	10/07/16 09:44:37	9390	15.81	2.27	-0.03	3.71	0.71	42.90	853.00
	10/07/16 09:45:07	9420	15.07	2.59	-0.03	4.07	0.70	42.80	838.00
	10/07/16 09:45:37	9450	14.89	1.97	-0.03	4.31	0.70	42.80	838.00
	10/07/16 09:46:07	9480	14.78	1.00	-0.03	4.33	0.71	42.80	836.00
	10/07/16 09:46:37	9510	14.50	0.76	-0.04	4.55	0.71	42.80	836.00
	10/07/16 09:47:07	9540	14.45	0.60	-0.04	4.53	0.70	42.80	839.00
	10/07/16 09:47:37	9570	14.30	0.50	-0.05	4.72	0.70	42.80	839.00
	10/07/16 09:48:07	9600	15.01	0.49	-0.05	4.22	0.71	42.80	833.00
	10/07/16 09:48:37	9630	14.88	0.51	-0.02	4.26	0.71	42.80	833.00
	10/07/16 09:49:07	9660	14.73	0.42	-0.03	4.39	0.71	42.90	836.00
	10/07/16 09:49:37	9690	14.92	0.38	-0.03	4.27	0.71	42.90	836.00
	10/07/16 09:50:07	9720	14.88	0.38	-0.03	4.28	0.71	43.00	833.00
	10/07/16 09:50:37	9750	14.72	0.36	-0.04	4.38	0.71	43.00	833.00

Superior Fabrication, INC
October 7, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	4.9	%
Stack Exhaust Flow (M2)	55,427	SCFH

Weather Data

Barometric Pressure	28.25	in. Hg
Relative Humidity	60	%
Ambient Temperature	52	^{o}F
Specific Humidity	0.005202	lb H_2O / lb air

70-100-70 Load, Run - SCD-36 R6

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
	10/07/16 09:51:07	9780	14.50	0.29	-0.04	4.52	0.73	43.00	834.00
	10/07/16 09:51:37	9810	14.71	0.29	-0.04	4.41	0.73	43.00	834.00
	10/07/16 09:52:07	9840	14.72	0.29	-0.04	4.36	0.72	43.20	833.00
	10/07/16 09:52:37	9870	14.92	0.31	-0.04	4.28	0.72	43.20	833.00
	10/07/16 09:53:07	9900	14.51	0.31	-0.04	4.54	0.73	43.30	833.00
	10/07/16 09:53:37	9930	14.61	0.30	-0.04	4.46	0.73	43.30	833.00
	10/07/16 09:54:07	9960	14.75	0.30	0.21	4.40	0.72	43.40	836.00
	10/07/16 09:54:37	9990	14.99	0.35	0.00	4.21	0.72	43.40	836.00
	10/07/16 09:55:07	10020	14.59	0.36	-0.04	4.45	0.23	43.60	435.00
	10/07/16 09:55:37	10050	15.02	0.38	-0.03	4.26	0.23	43.60	435.00
	10/07/16 09:56:07	10080	14.53	0.39	-0.02	4.53	0.17	43.80	354.00
	10/07/16 09:56:37	10110	16.00	0.47	-0.03	3.62	0.17	43.80	354.00
	10/07/16 09:57:07	10140	16.14	0.85	-0.04	3.50	0.17	44.00	356.00
	10/07/16 09:57:37	10170	16.33	1.17	-0.03	3.37	0.17	44.00	356.00
	10/07/16 09:58:07	10200	16.18	1.49	-0.03	3.45	0.17	44.10	356.00
	10/07/16 09:58:37	10230	16.12	1.62	-0.03	3.52	0.17	44.10	356.00
	10/07/16 09:59:07	10260	16.18	1.58	0.30	3.49	0.16	44.20	356.00
	10/07/16 09:59:37	10290	16.27	1.82	0.31	3.41	0.16	44.20	356.00
	10/07/16 10:00:07	10320	16.20	2.05	-0.02	3.47	0.16	44.30	361.00
	10/07/16 10:00:37	10350	16.36	2.04	-0.03	3.34	0.16	44.30	361.00
	10/07/16 10:01:07	10380	16.32	2.36	-0.02	3.37	0.16	44.40	361.00
A3	10/07/16 10:01:37	10410	16.39	2.67	-0.04	3.33	0.16	44.40	361.00
	10/07/16 10:02:07	10440	16.30	2.73	-0.03	3.40	0.40	44.50	574.00
	10/07/16 10:02:37	10470	16.31	2.67	0.47	3.37	0.40	44.50	574.00
	10/07/16 10:03:07	10500	16.98	3.35	1.06	2.97	0.71	44.30	845.00
	10/07/16 10:03:37	10530	15.72	8.01	0.37	3.63	0.71	44.30	845.00
	10/07/16 10:04:07	10560	14.92	6.00	-0.01	4.27	0.72	44.10	852.00
	10/07/16 10:04:37	10590	14.31	1.70	-0.04	4.69	0.72	44.10	852.00
	10/07/16 10:05:07	10620	14.63	0.71	-0.04	4.51	0.73	44.00	849.00
	10/07/16 10:05:37	10650	14.81	0.62	-0.04	4.39	0.73	44.00	849.00
	10/07/16 10:06:07	10680	14.90	0.52	-0.04	4.37	0.74	44.00	850.00
	10/07/16 10:06:37	10710	14.90	0.51	-0.04	4.34	0.74	44.00	850.00
	10/07/16 10:07:07	10740	14.72	0.44	-0.04	4.45	0.74	44.00	850.00
	10/07/16 10:07:37	10770	14.96	0.39	-0.04	4.35	0.74	44.00	850.00
	10/07/16 10:08:07	10800	14.96	0.31	-0.04	4.32	0.73	44.10	850.00
	10/07/16 10:08:37	10830	15.12	0.28	-0.03	4.22	0.73	44.10	850.00
	10/07/16 10:09:07	10860	14.85	0.28	-0.03	4.38	0.75	44.20	850.00
	10/07/16 10:09:37	10890	14.71	0.27	-0.04	4.45	0.75	44.20	850.00
	10/07/16 10:10:07	10920	14.61	0.20	-0.04	4.56	0.75	44.30	844.00
	10/07/16 10:10:37	10950	14.70	0.19	-0.03	4.54	0.75	44.30	844.00
	10/07/16 10:11:07	10980	14.47	0.18	-0.03	4.60	0.75	44.40	847.00
	10/07/16 10:11:37	11010	14.70	0.22	-0.03	4.54	0.75	44.40	847.00
	10/07/16 10:12:07	11040	15.01	0.22	-0.02	4.33	0.74	44.50	847.00
	10/07/16 10:12:37	11070	14.92	0.30	-0.03	4.33	0.74	44.50	847.00
	10/07/16 10:13:07	11100	14.92	0.31	-0.03	4.36	0.17	44.70	364.00
	10/07/16 10:13:37	11130	13.65	0.32	-0.02	5.10	0.17	44.70	364.00
	10/07/16 10:14:07	11160	14.56	0.32	-0.02	4.81	0.16	44.90	355.00
	10/07/16 10:14:37	11190	16.05	0.53	-0.03	3.64	0.16	44.90	355.00
	10/07/16 10:15:07	11220	16.34	0.86	-0.03	3.39	0.17	45.10	355.00
	10/07/16 10:15:37	11250	16.21	1.11	-0.04	3.46	0.17	45.10	355.00
	10/07/16 10:16:07	11280	16.13	1.28	-0.04	3.50	0.16	45.30	358.00
	10/07/16 10:16:37	11310	16.23	1.40	-0.04	3.44	0.16	45.30	358.00
	10/07/16 10:17:07	11340	16.24	1.61	-0.04	3.43	0.16	45.40	358.00
	10/07/16 10:17:37	11370	16.22	1.73	-0.03	3.43	0.16	45.40	358.00
	10/07/16 10:18:07	11400	16.18	1.86	-0.03	3.47	0.63	45.50	785.00
	10/07/16 10:18:37	11430	16.19	1.87	-0.04	3.45	0.63	45.50	785.00
	10/07/16 10:19:07	11460	15.18	1.83	-0.05	4.01	0.73	45.30	853.00
	10/07/16 10:19:37	11490	14.75	1.39	-0.03	4.42	0.73	45.30	853.00
	10/07/16 10:20:07	11520	14.89	0.90	-0.02	4.30	0.73	45.30	853.00
	10/07/16 10:20:37	11550	15.08	0.66	-0.03	4.23	0.73	45.30	853.00

Superior Fabrication, INC
October 7, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	4.9	%
Stack Exhaust Flow (M2)	55,427	SCFH

Weather Data

Barometric Pressure	28.25	in. Hg
Relative Humidity	60	%
Ambient Temperature	52	^{o}F
Specific Humidity	0.005202	lb H_2O / lb air

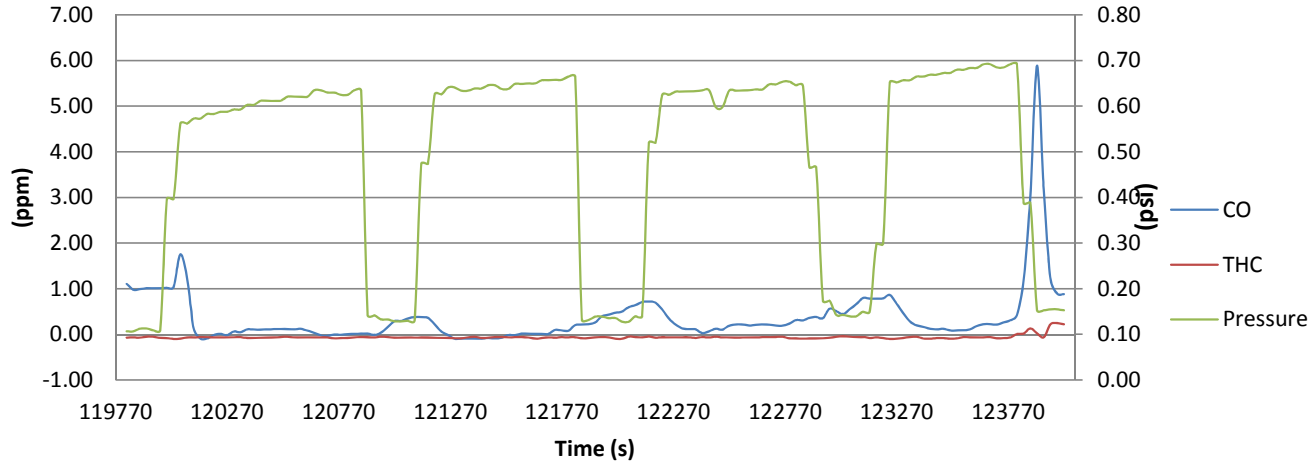
70-100-70 Load, Run - SCD-36 R6

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
10/07/16 10:21:07	11580	14.69	0.62	-0.03	4.43	0.74	45.30	851.00
10/07/16 10:21:37	11610	14.92	0.53	-0.03	4.38	0.74	45.30	851.00
10/07/16 10:22:07	11640	14.68	0.49	-0.03	4.48	0.74	45.40	851.00
10/07/16 10:22:37	11670	14.27	0.49	-0.02	4.76	0.74	45.40	851.00
10/07/16 10:23:07	11700	14.93	0.39	-0.03	4.39	0.75	45.40	848.00
10/07/16 10:23:37	11730	14.97	0.38	-0.03	4.31	0.75	45.40	848.00
10/07/16 10:24:07	11760	14.61	0.31	-0.03	4.55	0.74	45.50	851.00
10/07/16 10:24:37	11790	14.52	0.29	-0.02	4.58	0.74	45.50	851.00
10/07/16 10:25:07	11820	14.47	0.29	-0.02	4.68	0.75	45.60	848.00
10/07/16 10:25:37	11850	14.96	0.30	-0.04	4.34	0.75	45.60	848.00
10/07/16 10:26:07	11880	14.81	0.29	-0.04	4.43	0.75	45.70	848.00
10/07/16 10:26:37	11910	14.89	0.28	-0.03	4.33	0.75	45.70	848.00
10/07/16 10:27:07	11940	14.90	0.28	-0.03	4.35	0.75	45.80	848.00
10/07/16 10:27:37	11970	14.63	0.30	-0.04	4.52	0.75	45.80	848.00
10/07/16 10:28:07	12000	15.03	0.30	-0.04	4.28	0.21	45.90	416.00
10/07/16 10:28:37	12030	14.91	0.32	-0.04	4.34	0.21	45.90	416.00
10/07/16 10:29:07	12060	15.18	0.33	-0.04	4.21	0.17	46.20	352.00
10/07/16 10:29:37	12090	16.19	0.51	-0.03	3.49	0.17	46.20	352.00
10/07/16 10:30:07	12120	16.29	0.87	-0.03	3.41	0.17	46.40	357.00
10/07/16 10:30:37	12150	16.17	1.18	-0.04	3.48	0.17	46.40	357.00
10/07/16 10:31:07	12180	16.20	1.38	-0.04	3.45	0.17	46.50	355.00
RAW AVERAGE		**15.28**	**1.33**	**-0.01**	**4.06**	**0.52**	**43.63**	**668.70**

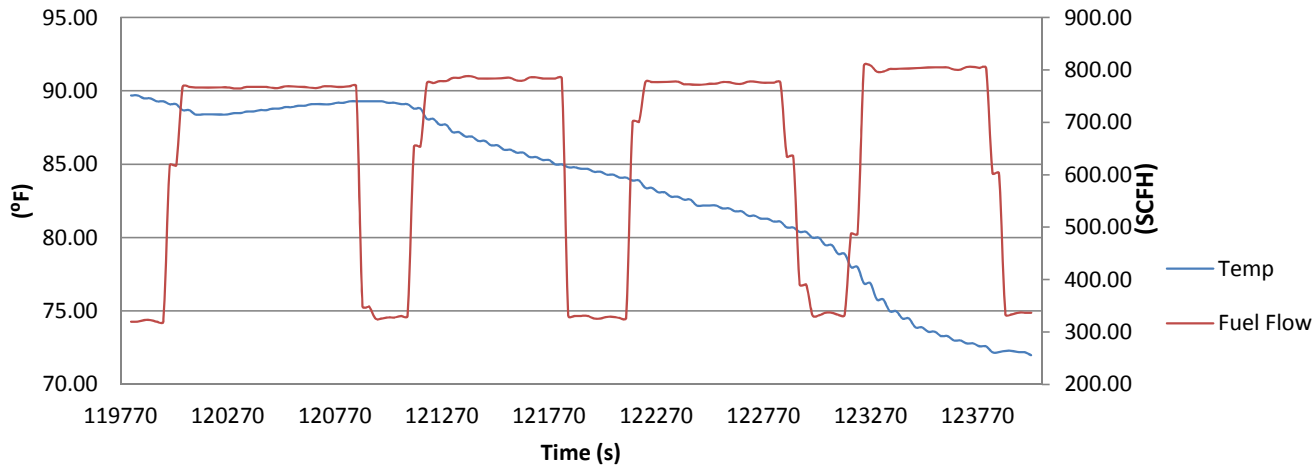
		O_2	CO	THC	CO_2	Press. Trans	Temp. Trans.	F-Flow Trans.
	Serial Number:	INSTO2-0011	INST-CO-0022	INST-TH-0002	INST-C2-0013	1434717	1434717	1434717
		(%)	(ppmvd)	(ppmvw)	(%)	(in. H_2O)	(^{o}F)	(SCFH)
Bias	Initial Zero	-0.02	0.03	-0.04	0.01			
	Final Zero	-0.03	-0.02	-0.04	-0.01			
	Avg. Zero	-0.03	0.01	-0.04	0.00			
	Initial UpScale	12.01	9.37	2.98	8.84			
	Final UpScale	12.02	9.32	2.98	8.88			
	Avg. UpScale	12.02	9.35	2.98	8.86			
Upscale Cal Gas		11.90	9.44	3.00	8.95			

EMISSIONS DATA	O_2	CO	THC	CO_2
Corrected Raw Average (ppm/% dry basis)	15.13	1.34	0.03	4.10
Corrected Raw Average (ppm/% wet basis)	14.39	1.27	0.03	3.90
Emission Rate (lb/hr)	N/A	0.01	0.00	N/A

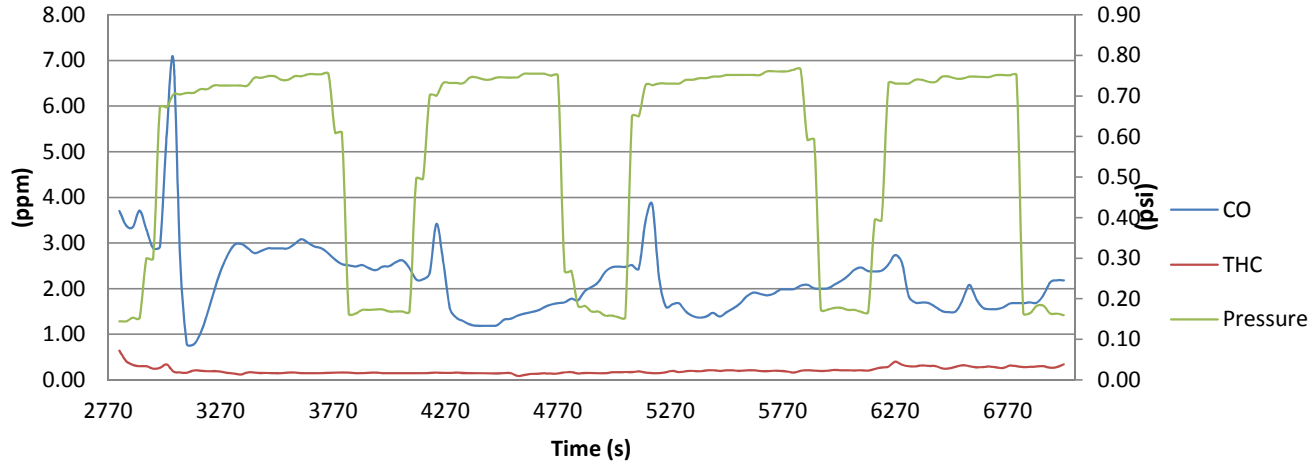
SCD-36 R4



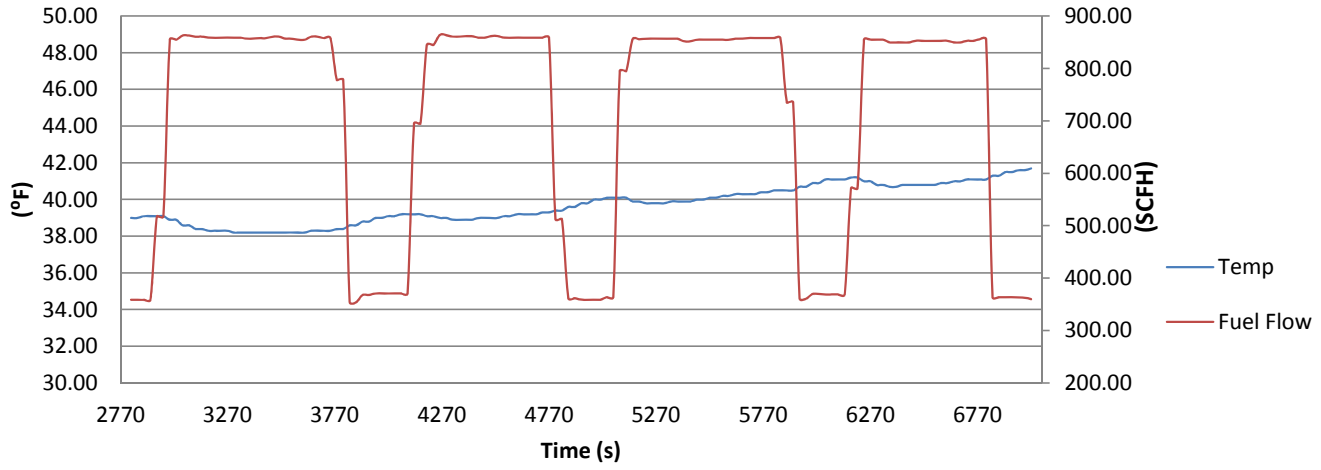
SCD-36 R4



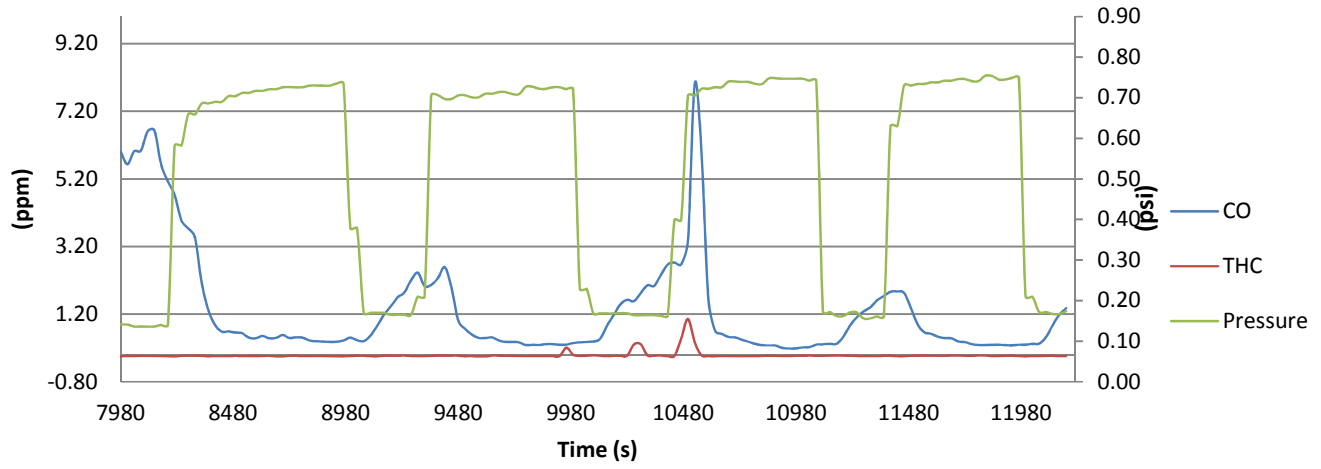
SCD-36 R5



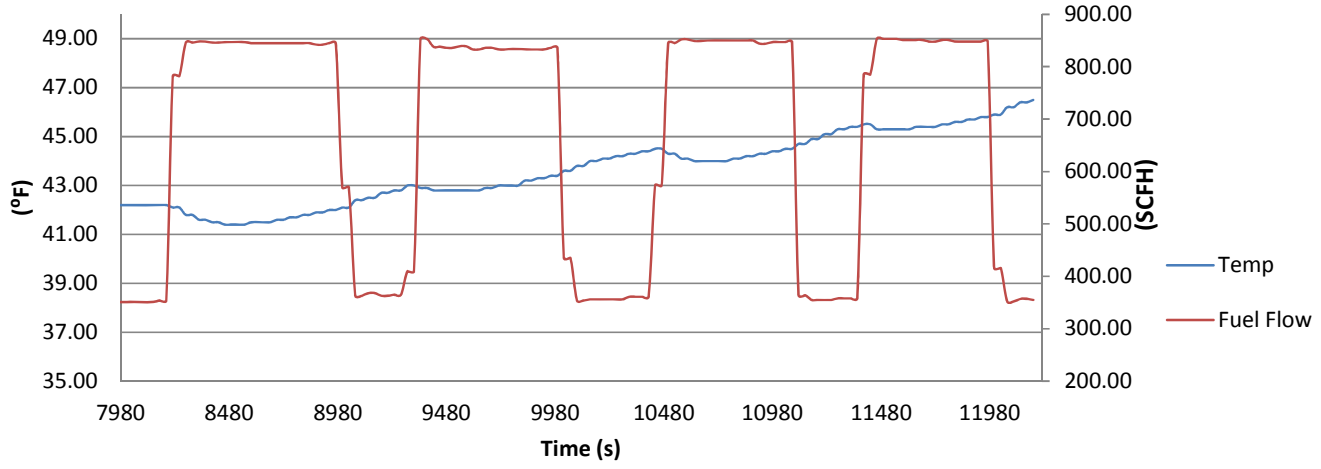
SCD-36 R5

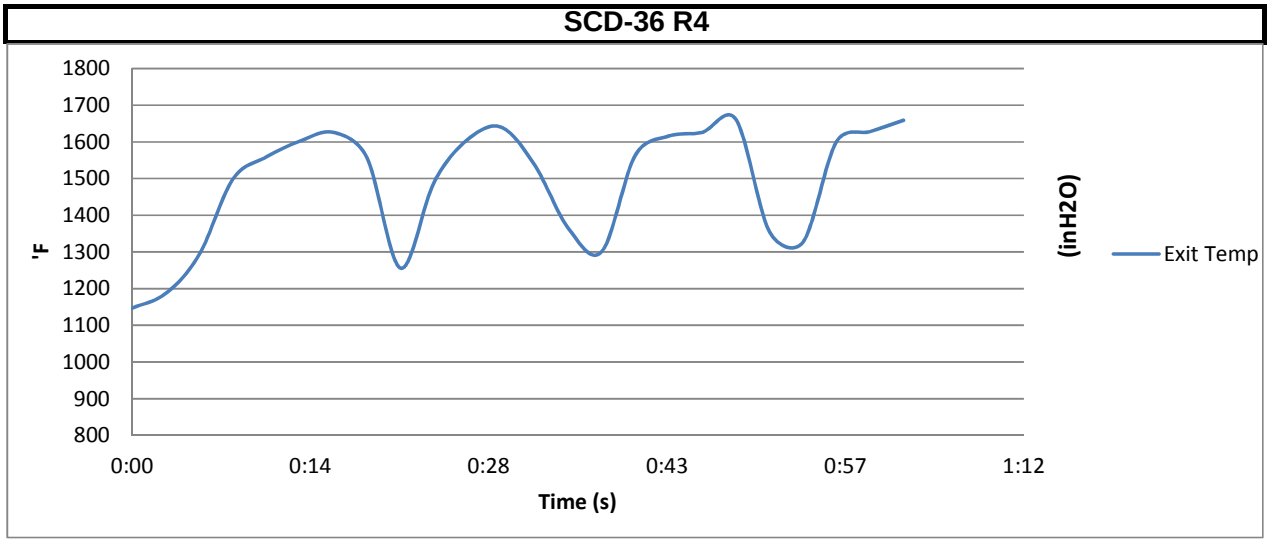


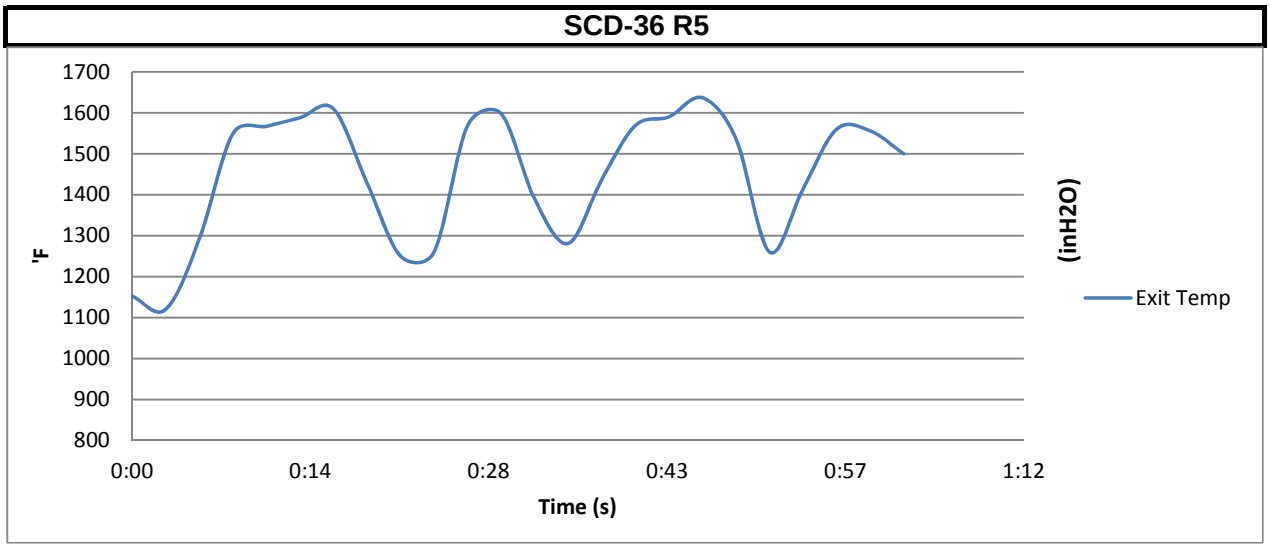
SCD-36 R6

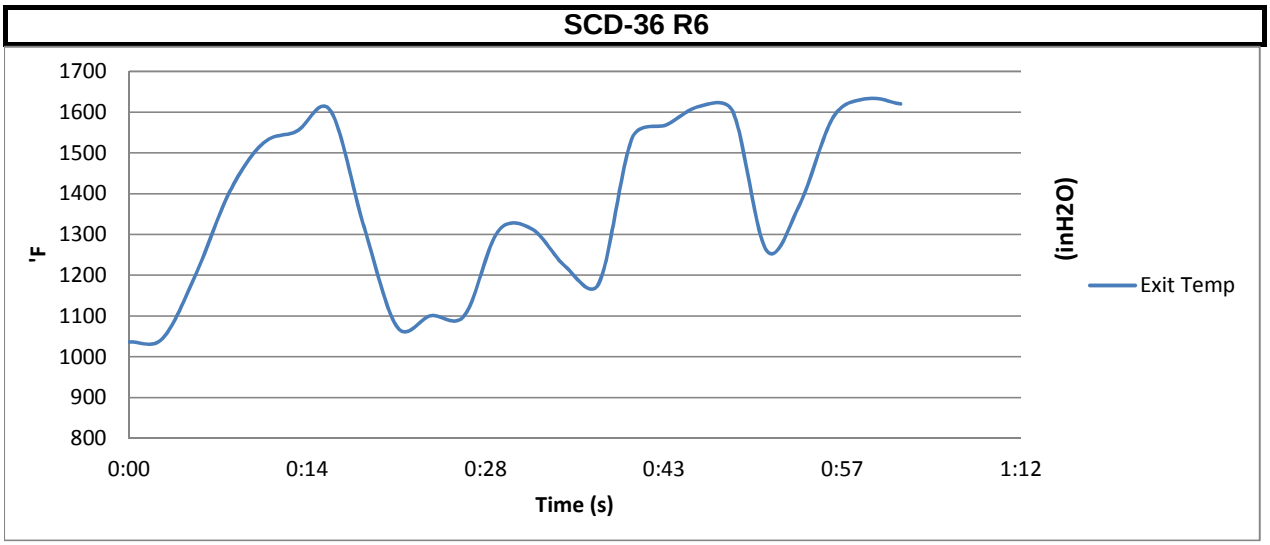


SCD-36 R6




SCD-36 R4
1800
1700
1600
1500
1400
1300
1200
1100
1000
900
800
'F
0:00
0:14
0:28
0:43
0:57
1:12
Time (s)
(inH2O)
Exit Temp


SCD-36 R5
1700
1600
1500
1400
1300
1200
1100
1000
900
800
'F
0:00
0:14
0:28
0:43
0:57
1:12
Time (s)
(inH2O)
Exit Temp


SCD-36 R6
1700
1600
1500
1400
1300
1200
1100
1000
900
800
'F
0:00
0:14
0:28
0:43
0:57
1:12
Time (s)
(inH2O)
Exit Temp

EMISSION DATA RECORDS

70-100-70% RAMP-UP, RAMP-DOWN UNIT OPERATION DATA

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE

Source Information	
Plant Name	Elk City Facilty
Sampling Location	SCD-36
Fuel Type	Gas, Propene

Test Information			
Project #		sfi-elkcity.ok-comp#1	
Operator		MJ/BL	
Date for Preliminary Run	(mm/dd/yy)	10/04/16	
Standard Temperature		68	°F
Standard Pressure		29.92	in Hg
Required Sample Vol.	RM4, 8.1.1.2	21	scf
Run Duration	≤0.75 cfm	65	minutes
Unit Number		SCD-36	
Base Run Number		70-100-70%	
Number of Ports Available		2	
Number of Ports Used		2	
Port Inside Diameter		3.00	in
Stack Shape		Circular	

Test Equipment Information					
Run		**7**	**8**	**9**	
Test Date	(mm/dd/yy)	10/05/16	10/06/16	10/06/16	
Load	% or w/DB	70-100-70	70-100-70	70-100-70	
Meter Box Number	from ACS	SAMP-CP-0011	SAMP-CP-0011	SAMP-CP-0011	
Meter Calibration Factor	(Y)	0.989	0.989	0.989	
Orifice Meter Coefficient	($\Delta H_@$)	1.585	1.585	1.585	in H_2O
Pitot Identification	from ACS	9-7-16-1	9-7-16-1	9-7-16-1	
Pitot Tube Coefficient	(C_p)	0.840	0.840	0.840	
Probe Number	from ACS	SAMP-PF-0003	SAMP-SP-0001	SAMP-SP-0001	
Probe Length		60.0	60.0	60.0	in
(SS, Glass ….) Liner Material	from list	inconel	inconel	inconel	
Impinger Case Number	from ACS	SAMP-BC-0032	SAMP-BC-0032	SAMP-BC-0032	

Testing Company Information	
Company Name	Air Hygiene International, Inc. (Tulsa, Oklahoma)
Address	1600 W Tacoma Street
City, State Zip	Broken Arrow, Oklahoma 74012
Project Manager	Min Sum Lee
Phone Number	(918) 307-8865
Fax Number	(918) 307-9131

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] - RESULTS

Plant Name	Elk City Facilty
Sampling Location	SCD-36
Project #	sfi-elkcity.ok-comp#1

Historical Data	70-100-70%-7	70-100-70%-8	70-100-70%-9	**Average**	**Units**
Run Start Time	17:05	07:55	09:25		hh:mm
Run Stop Time	18:15	09:05	10:35		hh:mm
Test Date	10/05/16	10/06/16	10/06/16		mm/dd/yy
Meter Calibration Factor	0.989	0.989	0.989		
Pitot Tube Coefficient	0.840	0.840	0.840		
Initial Meter Volume	524.230	575.770	625.650		ft^3
Final Meter Volume	575.690	625.550	675.580		ft^3
Total Meter Volume	51.460	49.780	49.930	50.390	ft^3
Total Sampling Time	65.00	65.00	65.00	65.00	min
Average Meter Temperature	70.42	67.02	69.96	69.13	°F
Average Stack Temperature	1724.67	1731.92	1668.96	1708.51	°F
Barometric Pressure	27.79	27.85	27.86	27.83	in Hg
Stack Static Pressure	0.00	0.00	0.00	0.00	in H_2O
Absolute Stack Pressure	27.79	27.85	27.86	27.83	in Hg
Average Orifice Pressure Drop	1.60	1.60	1.60	1.60	in H_2O
Absolute Meter Pressure	27.91	27.97	27.98	27.95	in Hg
Avg Square Root Pitot Pressure	0.14	0.16	0.16	0.16	$\sqrt{(in\ H_2O)}$
Moisture Content Data	70-100-70%-7	70-100-70%-8	70-100-70%-9	**Average**	**Units**
Impinger Water Weight Gain	51.90	69.50	60.50	60.63	g
Silica Gel Weight Gain	18.20	9.10	13.80	13.70	g
Total Water Volume Collected	70.23	78.74	74.43	74.47	ml
Standard Water Vapor Volume	3.31	3.71	3.50	3.50	scf
Standard Meter Volume	47.3	46.1	46.0	46.5	dscf
Calculated Stack Moisture	6.54	7.44	7.08	7.02	%
Saturated Stack Moisture	100.00	100.00	100.00	100.00	%
Reported Stack Moisture Content	6.54	7.44	7.08	7.02	%
Method 3C Gas Analysis Data	70-100-70%-7	70-100-70%-8	70-100-70%-9	**Average**	**Units**
Carbon Dioxide Content	4.3	4.3	4.4	4.3	%
Oxygen Content	15.6	15.0	15.0	15.2	%
Nitrogen Content	80.2	80.7	80.6	80.5	%
Stack Dry Molecular Weight	29.32	29.29	29.31	29.31	lb/lb-mole
Stack Wet Molecular Weight	28.58	28.45	28.51	28.51	lb/lb-mole
Percent Excess Air	279.9	238.3	239.1	252.5	%
Volumetric Flow Rate Data	70-100-70%-7	70-100-70%-8	70-100-70%-9	**Average**	**Units**
Average Stack Gas Velocity	17.01	19.03	19.38	18.47	ft/sec
Stack Cross-Sectional Area	5.94	5.94	5.94	5.94	ft^2
Actual Stack Flow Rate	6,061	6,780	6,907	6,583	acfm
Wet Standard Stack Flow Rate	82	91	96	90	wkscfh
Dry Standard Stack Flow Rate	76,295	84,431	88,937	83,221	dscfh

METHOD 3C - DETERMINATION OF DRY MOLECULAR WEIGHT BY ANALYZER

Plant Name	Elk City Facilty	**Preliminary Date**	10/04/16		
Sampling Location	SCD-36	**Operator**	MJ/BL		
Project #	sfi-elkcity.ok-comp#1	**# of Ports Used**	2		
Fuel Type	Gas, Propene	**Min. Fuel Factor**	N/A	**Max. Fuel Factor**	N/A

Gas Analysis Data

Run Number	70-100-70%-7		**Date**	10/05/16	**Run Start Time**	17:05	**Run Stop Time**	18:15
Sample Analysis Time	**CO_2 Conc.**	**O_2 Conc.**	**Methane Conc.**	**N_2 Conc.**	**Dry Molecular Weight**	**Calculated Fuel Factor**	**Excess Air**	**Fuel Factor in Range**
	($\%CO_2$)	($\%O_2$)	(ppmCO)	($\%N_2$)	(M_d)	$(F_o)_{avg}$	$(\%EA)_{avg}$	
hh:mm	%	%	ppm	%	lb/lb-mole		%	
01:10	4.3	15.6	0.0	80.2	29.32	1.244	279.9	N/A

Gas Analysis Data

Run Number	70-100-70%-8		**Date**	10/06/16	**Run Start Time**	07:55	**Run Stop Time**	09:05
Sample Analysis Time	**CO_2 Conc.**	**O_2 Conc.**	**Methane Conc.**	**N_2 Conc.**	**Dry Molecular Weight**	**Calculated Fuel Factor**	**Excess Air**	**Fuel Factor in Range**
	($\%CO_2$)	($\%O_2$)	(ppmCO)	($\%N_2$)	(M_d)	$(F_o)_{avg}$	$(\%EA)_{avg}$	
hh:mm	%	%	ppm	%	lb/lb-mole		%	
01:10	4.3	15.0	0.0	80.7	29.29	1.359	238.3	N/A

Gas Analysis Data

Run Number	70-100-70%-9		**Date**	10/06/16	**Run Start Time**	09:25	**Run Stop Time**	10:35
Sample Analysis Time	**CO_2 Conc.**	**O_2 Conc.**	**Methane Conc.**	**N_2 Conc.**	**Dry Molecular Weight**	**Calculated Fuel Factor**	**Excess Air**	**Fuel Factor in Range**
	($\%CO_2$)	($\%O_2$)	(ppmCO)	($\%N_2$)	(M_d)	$(F_o)_{avg}$	$(\%EA)_{avg}$	
hh:mm	%	%	ppm	%	lb/lb-mole		%	
01:10	4.4	15.0	0.0	80.6	29.31	1.335	239.1	N/A

METHOD 4 - DETERMINATION OF MOISTURE CONTENT IN STACK GASES

Plant Name	Elk City Facilty	**Preliminary Date**	10/04/16
Sampling Location	SCD-36	**Operator**	MJ/BL
Project #	sfi-elkcity.ok-comp#1	**Ports Used**	2

Scale Daily Calibration					
Scale Number	SAMP-SC-0027	**Standard**	**Result**	**Difference**	**Pass/Fail**
Date		(g)	(g)	(g)	(± 0.5 g)
Test Day 1	10/05/16	500	499.5	-0.5	Pass
Test Day 2	10/06/16	500	500.2	0.2	Pass

Moisture Content Data									
Run Number		70-100-70%-7		**Date**	10/05/16	**Start Time**	17:05	**Stop Time**	18:15
Meter Box Number		SAMP-CP-0011				**Meter Cal Factor**	(Y)	0.989	
Total Meter Volume	(V_m)	51.460	dcf			**Barometric Pressure**	(P_b)	27.79	in Hg
Average Stack Temp	(t_s)$_{avg}$	1725	°F			**Stack Static Pressure**	(P_{static})	0.00	in H_2O
Average Meter Temp	(t_m)$_{avg}$	70	°F			**Avg Orifice Pressure**	(ΔH)$_{avg}$	1.60	in H_2O
		Impinger 1	**Impinger 2**	**Impinger 3**	**Impinger 4**	**Impinger 5**	**Impinger 6**	**Impinger 7**	**Impinger 8**
		(g)	(g)	(g)	(g)				
Contents		H_2O	H_2O	-	Sil Gel				
Final Value	(V_f),(W_f)	796.40	705.80	588.00	830.40				
Initial Value	(V_i),(W_i)	753.30	701.00	584.00	812.20				
Net Value	(V_n),(W_n)	43.1	4.8	4.0	18.2				
Results									
Total Weight	(W_t)	70.10	g			**Water Vol Weighed**	($V_{wsg(std)}$)	3.305	scf
Std Meter Volume	($V_{m(std)}$)	47.255	dscf			**Sat. Moisture Content**	($B_{ws(svp)}$)	100.00	%
Calc Moisture Content	($B_{ws(calc)}$)	6.54	%			**Final Moisture Content**	(B_{ws})	6.54	%

Moisture Content Data									
Run Number		70-100-70%-8		**Date**	10/06/16	**Start Time**	07:55	**Stop Time**	09:05
Meter Box Number		SAMP-CP-0011				**Meter Cal Factor**	(Y)	0.989	
Total Meter Volume	(V_m)	49.780	dcf			**Barometric Pressure**	(P_b)	27.85	in Hg
Average Stack Temp	(t_s)$_{avg}$	1732	°F			**Stack Static Pressure**	(P_{static})	0.00	in H_2O
Average Meter Temp	(t_m)$_{avg}$	67	°F			**Avg Orifice Pressure**	(ΔH)$_{avg}$	1.60	in H_2O
		Impinger 1	**Impinger 2**	**Impinger 3**	**Impinger 4**	**Impinger 5**	**Impinger 6**	**Impinger 7**	**Impinger 8**
		(g)	(g)	(g)	(g)				
Contents		H_2O	H_2O	-	Sil Gel				
Final Value	(V_f),(W_f)	851.10	712.10	591.50	839.50				
Initial Value	(V_i),(W_i)	791.40	705.80	588.00	830.40				
Net Value	(V_n),(W_n)	59.7	6.3	3.5	9.1				
Results									
Total Weight	(W_t)	78.60	g			**Water Vol Weighed**	($V_{wsg(std)}$)	3.706	scf
Std Meter Volume	($V_{m(std)}$)	46.105	dscf			**Sat. Moisture Content**	($B_{ws(svp)}$)	100.00	%
Calc Moisture Content	($B_{ws(calc)}$)	7.44	%			**Final Moisture Content**	(B_{ws})	7.44	%

Moisture Content Data									
Run Number		70-100-70%-9		**Date**	10/06/16	**Start Time**	09:25	**Stop Time**	10:35
Meter Box Number		SAMP-CP-0011				**Meter Cal Factor**	(Y)	0.989	
Total Meter Volume	(V_m)	49.930	dcf			**Barometric Pressure**	(P_b)	27.86	in Hg
Average Stack Temp	(t_s)$_{avg}$	1669	°F			**Stack Static Pressure**	(P_{static})	0.00	in H_2O
Average Meter Temp	(t_m)$_{avg}$	70	°F			**Avg Orifice Pressure**	(ΔH)$_{avg}$	1.60	in H_2O
		Impinger 1	**Impinger 2**	**Impinger 3**	**Impinger 4**	**Impinger 5**	**Impinger 6**	**Impinger 7**	**Impinger 8**
		(g)	(g)	(g)	(g)				
Contents		H_2O	H_2O	-	Sil Gel				
Final Value	(V_f),(W_f)	761.70	719.10	595.90	813.60				
Initial Value	(V_i),(W_i)	712.60	712.10	591.50	799.80				
Net Value	(V_n),(W_n)	49.1	7.0	4.4	13.8				
Results									
Total Weight	(W_t)	74.30	g			**Water Vol Weighed**	($V_{wsg(std)}$)	3.503	scf
Std Meter Volume	($V_{m(std)}$)	46.004	dscf			**Sat. Moisture Content**	($B_{ws(svp)}$)	100.00	%
Calc Moisture Content	($B_{ws(calc)}$)	7.08	%			**Final Moisture Content**	(B_{ws})	7.08	%

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE ISOKINETIC SAMPLING DATA

Plant Name	Elk City Facilty
Sampling Location	SCD-36
Project #	sfi-elkcity.ok-comp#1

Date	10/05/16
Operator	MJ/BL
Run Number	70-100-70%-7

Ideal Nozzle Diameter and IsoKinetic Factor Setup			
Pitot Coefficient	(C_p)	0.840	
Average Stack Temp	(t_s)	1724.7	°F
Average Meter Temp	(t_m)	70.4	
Orifice Meter Coefficient	($\Delta H@$)	1.585	in H_2O
Square Root ΔP	($\Delta p^{1/2}_{avg}$)	0.14	in H_2O
Stack Moisture Content	(B_{ws})	6.54	%
Stack Dry Molecular Weight	(M_d)	29.32	lb/lb-mole
Estimated Orifice Flow Rate	(Q_m)	0.75	acfm
ΔP to ΔH Isokinetic Factor	(K)		

Leak Checks					
Train	**Pre**	0.000	ft³/min@	15.0	in Hg
PASS	**Post**	0.000	ft³/min@	15.0	in Hg
Pitot	**Pre (+)**	0.2	in H_2O for	20.0	sec
< 3.0	**Pre (-)**	0.2	in H_2O for	20.0	sec
	Post (+)	0.2	in H_2O for	15.0	sec
	Post (-)	0.2	in H_2O for	15.0	sec

Sampling Equipment			
Meter Box Number	SAMP-CP-0011		
Meter Cal Factor	(Y)	0.989	
Low Flow Meter	SAMP-MN-0001		
Average Nozzle Diameter	(D_{na})		in
Suggested Nozzle Diameter	(D_{ni})	0.4590	in
Probe Number	SAMP-PF-0003		in
Probe Length	60		in
Liner Material	inconel		
Sample Case / Oven Number			
Impinger Case Number	SAMP-BC-0032		

Pressures			
Barometric Pressure	(P_b)	27.79	in Hg
Stack Static Pressure	(P_{static})	0.00	in H_2O
Absolute Stack Pressure	(P_s)	27.79	in Hg
Absolute Meter Pressure	(P_m)	27.91	in Hg

Nozzle Measurements				
Pre				**PASS**
Post				**PASS**

Run Time			
Start	17:05	**End**	18:15

Weights	**Imp 1**	**Imp 2**	**Imp 3**	**Imp 4**	**Imp 5**	**Imp 6**	**Imp 7**	**Imp 8**
Pre	753.3	701.0	584.0	812.2				
Post	796.4	705.8	588.0	830.4				

Wash Volumes					ml
					ml

Traverse Point #	**Sampling Time (Θ)**	**Timer Time**	**Dry Gas Meter Reading (V_m)**	**Velocity Head (Δp)**	**Desired Orifice ΔH (ΔH_d)**	**Actual Orifice ΔH (ΔH_a)**	**Stack Temp (t_s)**	**Snorkel Temp (248±25°F)**	**Filter Temp**	**Impinger Exit Temp (≤68°F)**	**Cond. Temp (≤---°F)**	**CPM Filter Temp (--±--°F)**	**Meter Inlet Temp (t_{mi})**	**Meter Outlet Temp (t_{mo})**	**Pump Vacuum**	**Square Root ΔP ($\Delta p^{1/2}$)**	**Local Stack Velocity (v_s)$_l$**	**Cumul. Meter Volume (V_m)$_{std}$**	**Cumul. Percent IsoKinetic (I)**	**Est-Run Meter Volume (V_m)$_{std}$**
	min	hh:mm:ss	ft³	in H_2O	in H_2O	in H_2O	°F	°F	°F	°F	°F	°F	°F	°F	in Hg	√(in H_2O)	ft/sec	dscf	%	dscf
A-1	0.0	00:00:00	524.230	0.020	1.585	1.60	1618	257		54			69	68	13.0	0.14	16.43	0.995		23.888
A-2	2.7	00:02:43	525.310	0.020	1.585	1.60	1615	257		54			69	68	13.0	0.14	16.41	3.898		46.781
A-3	5.4	00:05:25	528.460	0.020	1.585	1.60	1861	255		54			70	68	13.0	0.14	17.36	5.786		46.287
A-4	8.1	00:08:07	530.510	0.020	1.585	1.60	1804	254		53			70	68	13.0	0.14	17.15	7.756		46.538
A-5	10.8	00:10:50	532.650	0.025	1.585	1.60	1799	253		53			70	68	13.0	0.16	19.15	9.708		46.600
A-6	13.5	00:13:33	534.770	0.025	1.585	1.60	1800	255		53			72	68	13.0	0.16	19.15	11.712		46.847
A-7	16.3	00:16:15	536.950	0.020	1.585	1.60	1641	251		55			74	67	13.0	0.14	16.52	13.015		44.624
A-8	19.0	00:18:58	538.370	0.020	1.585	1.60	1560	251		58			74	68	13.0	0.14	16.20	15.620		46.861
A-9	21.7	00:21:40	541.210	0.020	1.585	1.60	1727	251		58			74	68	13.0	0.14	16.85	17.583		46.889
A-10	24.4	00:24:22	543.350	0.020	1.585	1.60	1792	251		58			74	68	13.0	0.14	17.10	19.446		46.669
A-11	27.1	00:27:05	545.380	0.020	1.585	1.60	1841	251		58			74	68	13.0	0.14	17.29	21.509		46.930
A-12	29.8	00:29:47	547.630	0.020	1.585	1.60	1839	251		58			74	68	13.0	0.14	17.28	23.527		47.055
B-1	32.5	00:32:30	549.830	0.020	1.585	1.60	1620	252		58			71	68	13.0	0.14	16.43	25.606		47.273
B-2	35.2	00:35:12	552.090	0.020	1.585	1.60	1561	254		57			73	69	13.0	0.14	16.20	27.496		47.136
B-3	37.9	00:37:55	554.150	0.020	1.585	1.60	1711	254		57			73	69	13.0	0.14	16.79	29.440		47.105
B-4	40.6	00:40:37	556.270	0.020	1.585	1.60	1776	253		57			73	69	13.0	0.14	17.04	31.422		47.133
B-5	43.3	00:43:20	558.430	0.020	1.585	1.60	1794	253		57			73	69	13.0	0.14	17.11	33.476		47.261
B-6	46.0	00:46:03	560.670	0.020	1.585	1.60	1803	252		57			73	69	13.0	0.14	17.14	35.439		47.253
B-7	48.8	00:48:45	562.810	0.020	1.585	1.60	1815	252		57			73	69	13.0	0.14	17.19	37.457		47.315
B-8	51.5	00:51:28	565.010	0.020	1.585	1.60	1618	252		57			73	69	13.0	0.14	16.43	39.356		47.227
B-9	54.2	00:54:10	567.080	0.020	1.585	1.60	1540	252		57			73	69	13.0	0.14	16.12	41.347		47.253
B-10	56.9	00:56:53	569.250	0.020	1.585	1.60	1735	252		57			73	69	13.0	0.14	16.88	43.328		47.267
B-11	59.6	00:59:35	571.410	0.020	1.585	1.60	1752	252		57			73	69	13.0	0.14	16.95	45.291		47.260
B-12	62.3	01:02:18	573.550	0.020	1.585	1.60	1770	252		57			73	69	13.0	0.14	17.02	47.254		47.254
Last Pt	65.0	01:05:00	575.690																	
Final Val	65.0	01:05:00	575.690											**Max Vac**	13.0	**Final Values**		47.254		
Average Values				0.02		1.60	1725	253		56			72	68		0.14	17.01			
													70							

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE ISOKINETIC SAMPLING DATA

Plant Name	Elk City Facilty
Sampling Location	SCD-36
Project #	sfi-elkcity.ok-comp#1

Date	10/06/16
Operator	MJ/BL
Run Number	70-100-70%-8

Ideal Nozzle Diameter and IsoKinetic Factor Setup			
Pitot Coefficient	(C_p)	0.840	
Average Stack Temp	(t_s)	1731.9	°F
Average Meter Temp	(t_m)	67.0	
Orifice Meter Coefficient	($\Delta H@$)	1.585	in H_2O
Square Root ΔP	($\Delta p^{1/2}_{avg}$)	0.16	in H_2O
Stack Moisture Content	(B_{ws})	7.44	%
Stack Dry Molecular Weight	(M_d)	29.29	lb/lb-mole
Estimated Orifice Flow Rate	(Q_m)	0.73	acfm
ΔP to ΔH Isokinetic Factor	(K)		

Leak Checks					
Train	**Pre**	0.000	ft³/min@	15.0	in Hg
PASS	**Post**	0.000	ft³/min@	15.0	in Hg
Pitot	**Pre (+)**	0.2	in H_2O for	20.0	sec
< 3.0	**Pre (-)**	0.2	in H_2O for	20.0	sec
	Post (+)	0.2	in H_2O for	15.0	sec
	Post (-)	0.2	in H_2O for	15.0	sec

Sampling Equipment			
Meter Box Number	SAMP-CP-0011		
Meter Cal Factor	(Y)	0.989	
Low Flow Meter	SAMP-MN-0001		
Average Nozzle Diameter	(D_{na})		in
Suggested Nozzle Diameter	(D_{ni})	0.4413	in
Probe Number	SAMP-SP-0001		in
Probe Length	60		in
Liner Material	inconel		
Sample Case / Oven Number			
Impinger Case Number	SAMP-BC-0032		

Pressures			
Barometric Pressure	(P_b)	27.85	in Hg
Stack Static Pressure	(P_{static})	0.00	in H_2O
Absolute Stack Pressure	(P_s)	27.85	in Hg
Absolute Meter Pressure	(P_m)	27.97	in Hg

Nozzle Measurements				
Pre				**PASS**
Post				**PASS**

Run Time			
Start	07:55	**End**	09:05

Weights	**Imp 1**	**Imp 2**	**Imp 3**	**Imp 4**	**Imp 5**	**Imp 6**	**Imp 7**	**Imp 8**
Pre	791.4	705.8	588.0	830.4				
Post	851.1	712.1	591.5	839.5				

Wash Volumes					ml
					ml

Traverse Point #	**Sampling Time (Θ)**	**Timer Time**	**Dry Gas Meter Reading (V_m)**	**Velocity Head (Δp)**	**Desired Orifice ΔH (ΔH_d)**	**Actual Orifice ΔH (ΔH_a)**	**Stack Temp (t_s)**	**Snorkel Temp (248±25°F)**	**Filter Temp**	**Impinger Exit Temp (≤68°F)**	**Cond. Temp (≤---°F)**	**CPM Filter Temp (--±--°F)**	**Meter Inlet Temp (t_{mi})**	**Meter Outlet Temp (t_{mo})**	**Pump Vacuum**	**Square Root ΔP ($\Delta p^{1/2}$)**	**Local Stack Velocity (v_s)$_l$**	**Cumul. Meter Volume (V_m)$_{std}$**	**Cumul. Percent IsoKinetic (I)**	**Est-Run Meter Volume (V_m)$_{std}$**
	min	hh:mm:ss	ft³	in H_2O	in H_2O	in H_2O	°F	°F	°F	°F	°F	°F	°F	°F	in Hg	√(in H_2O)	ft/sec	dscf	%	dscf
A-1	0.0	00:00:00	575.770	0.020	1.585	1.60	1644	257		49			64	66	13.0	0.14	16.55	2.083		49.983
A-2	2.7	00:02:43	578.010	0.020	1.585	1.60	1656	258		49			64	66	13.0	0.14	16.60	4.026		48.310
A-3	5.4	00:05:25	580.100	0.020	1.585	1.60	1718	258		49			64	66	13.0	0.14	16.84	5.932		47.454
A-4	8.1	00:08:07	582.150	0.025	1.585	1.60	1751	255		49			64	66	13.0	0.16	18.97	7.903		47.417
A-5	10.8	00:10:50	584.270	0.030	1.585	1.60	1773	252		49			66	65	13.0	0.17	20.88	9.826		47.163
A-6	13.5	00:13:33	586.340	0.035	1.585	1.60	1852	250		49			66	65	13.0	0.19	22.95	11.702		46.808
A-7	16.3	00:16:15	588.360	0.035	1.585	1.60	1853	250		49			66	65	13.0	0.19	22.95	13.671		46.872
A-8	19.0	00:18:58	590.480	0.030	1.585	1.60	1749	251		49			66	65	13.0	0.17	20.77	15.575		46.726
A-9	21.7	00:21:40	592.530	0.030	1.585	1.60	1632	252		49			66	65	13.0	0.17	20.21	17.452		46.538
A-10	24.4	00:24:22	594.550	0.030	1.585	1.60	1631	252		49			69	65	13.0	0.17	20.20	19.434		46.641
A-11	27.1	00:27:05	596.690	0.020	1.585	1.60	1787	252		49			69	65	13.0	0.14	17.10	21.305		46.483
A-12	29.8	00:29:47	598.710	0.020	1.585	1.60	1724	251		49			69	65	13.0	0.14	16.86	23.250		46.499
B-1	32.5	00:32:30	600.810	0.020	1.585	1.60	1651	254		49			67	65	13.0	0.14	16.58	25.171		46.469
B-2	35.2	00:35:12	602.880	0.025	1.585	1.60	1595	253		49			67	65	13.0	0.16	18.28	27.054		46.379
B-3	37.9	00:37:55	604.910	0.025	1.585	1.60	1687	253		49			67	65	13.0	0.16	18.69	29.087		46.539
B-4	40.6	00:40:37	607.100	0.030	1.585	1.60	1806	252		49			67	65	13.0	0.17	21.03	30.878		46.317
B-5	43.3	00:43:20	609.030	0.030	1.585	1.60	1818	252		51			72	67	13.0	0.17	21.09	32.795		46.299
B-6	46.0	00:46:03	611.110	0.035	1.585	1.60	1819	252		51			72	67	13.0	0.19	22.78	34.666		46.222
B-7	48.8	00:48:45	613.140	0.030	1.585	1.60	1836	251		51			72	67	13.0	0.17	21.17	36.547		46.165
B-8	51.5	00:51:28	615.180	0.025	1.585	1.60	1710	251		51			72	67	13.0	0.16	18.79	38.465		46.157
B-9	54.2	00:54:10	617.260	0.020	1.585	1.60	1594	252		51			72	67	13.0	0.14	16.35	40.391		46.161
B-10	56.9	00:56:53	619.350	0.02	1.585	1.60	1732	252		51			72	67	13.0	0.14	16.89	42.272		46.115
B-11	59.6	00:59:35	621.390	0.02	1.585	1.60	1774	252		51			72	67	13.0	0.14	17.05	44.198		46.120
B-12	62.3	01:02:18	623.480	0.02	1.585	1.60	1774	252		51			72	67	13.0	0.14	17.05	46.107		46.107
Last Pt	65.0	01:05:00	625.550																	
Final Val	65.0	01:05:00	625.550											**Max Vac**	13.0	**Final Values**		46.107		
Average Values				0.03		1.60	1732	253		50			68	66		0.16	19.03			
													67							

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE ISOKINETIC SAMPLING DATA

Plant Name	Elk City Facilty
Sampling Location	SCD-36
Project #	sfi-elkcity.ok-comp#1

Date	10/06/16
Operator	MJ/BL
Run Number	70-100-70%-9

Ideal Nozzle Diameter and IsoKinetic Factor Setup			
Pitot Coefficient	(C_p)	0.840	
Average Stack Temp	(t_s)	1669.0	°F
Average Meter Temp	(t_m)	70.0	
Orifice Meter Coefficient	($\Delta H@$)	1.585	in H_2O
Square Root ΔP	($\Delta p^{1/2}_{avg}$)	0.16	in H_2O
Stack Moisture Content	(B_{ws})	7.08	%
Stack Dry Molecular Weight	(M_d)	29.31	lb/lb-mole
Estimated Orifice Flow Rate	(Q_m)	0.71	acfm
ΔP to ΔH Isokinetic Factor	(K)		

Leak Checks					
Train	**Pre**	0.000	ft³/min@	15.0	in Hg
PASS	**Post**	0.000	ft³/min@	15.0	in Hg
Pitot	**Pre (+)**	0.2	in H_2O for	20.0	sec
< 3.0	**Pre (-)**	0.2	in H_2O for	20.0	sec
	Post (+)	0.2	in H_2O for	15.0	sec
	Post (-)	0.2	in H_2O for	15.0	sec

Sampling Equipment			
Meter Box Number	SAMP-CP-0011		
Meter Cal Factor	(Y)	0.989	
Low Flow Meter	SAMP-MN-0001		
Average Nozzle Diameter	(D_{na})		in
Suggested Nozzle Diameter	(D_{ni})	0.4281	in
Probe Number	SAMP-SP-0001		in
Probe Length	60		in
Liner Material	inconel		
Sample Case / Oven Number			
Impinger Case Number	SAMP-BC-0032		

Pressures			
Barometric Pressure	(P_b)	27.86	in Hg
Stack Static Pressure	(P_{static})	0.00	in H_2O
Absolute Stack Pressure	(P_s)	27.86	in Hg
Absolute Meter Pressure	(P_m)	27.98	in Hg

Nozzle Measurements				
Pre				**PASS**
Post				**PASS**

Run Time			
Start	09:25	**End**	10:35

Weights	**Imp 1**	**Imp 2**	**Imp 3**	**Imp 4**	**Imp 5**	**Imp 6**	**Imp 7**	**Imp 8**
Pre	712.6	712.1	591.5	799.8				
Post	761.7	719.1	595.9	813.6				

Wash Volumes					ml
					ml

Traverse Point #	**Sampling Time (Θ)**	**Timer Time**	**Dry Gas Meter Reading (V_m)**	**Velocity Head (Δp)**	**Desired Orifice ΔH (ΔH_d)**	**Actual Orifice ΔH (ΔH_a)**	**Stack Temp (t_s)**	**Snorkel Temp (248±25°F)**	**Filter Temp**	**Impinger Exit Temp (≤68°F)**	**Cond. Temp (≤---°F)**	**CPM Filter Temp (--±--°F)**	**Meter Inlet Temp (t_{mi})**	**Meter Outlet Temp (t_{mo})**	**Pump Vacuum**	**Square Root ΔP ($\Delta p^{1/2}$)**	**Local Stack Velocity (v_s)$_l$**	**Cumul. Meter Volume (V_m)$_{std}$**	**Cumul. Percent IsoKinetic (I)**	**Est-Run Meter Volume (V_m)$_{std}$**
	min	hh:mm:ss	ft³	in H_2O	in H_2O	in H_2O	°F	°F	°F	°F	°F	°F	°F	°F	in Hg	√(in H_2O)	ft/sec	dscf	%	dscf
A-1	0.0	00:00:00	625.650	0.025	1.585	1.60	1471	257		48			66	67	13.0	0.16	17.70	1.966		47.188
A-2	2.7	00:02:43	627.770	0.025	1.585	1.60	1466	258		48			66	67	13.0	0.16	17.68	3.858		46.297
A-3	5.4	00:05:25	629.810	0.025	1.585	1.60	1468	258		48			66	67	13.0	0.16	17.69	5.759		46.075
A-4	8.1	00:08:07	631.860	0.030	1.585	1.60	1736	256		48			66	67	13.0	0.17	20.68	7.679		46.075
A-5	10.8	00:10:50	633.930	0.035	1.585	1.60	1770	252		52			70	67	13.0	0.19	22.51	9.545		45.818
A-6	13.5	00:13:33	635.950	0.030	1.585	1.60	1797	251		52			70	67	13.0	0.17	20.97	11.449		45.795
A-7	16.3	00:16:15	638.010	0.030	1.585	1.60	1816	250		52			70	67	13.0	0.17	21.06	13.407		45.968
A-8	19.0	00:18:58	640.130	0.030	1.585	1.60	1803	251		52			70	67	13.0	0.17	21.00	15.329		45.988
A-9	21.7	00:21:40	642.210	0.025	1.585	1.60	1522	251		52			73	67	13.0	0.16	17.94	17.255		46.013
A-10	24.4	00:24:22	644.300	0.020	1.585	1.60	1469	252		52			73	67	13.0	0.14	15.83	19.217		46.121
A-11	27.1	00:27:05	646.430	0.020	1.585	1.60	1681	252		52			73	69	13.0	0.14	16.67	21.075		45.981
A-12	29.8	00:29:47	648.450	0.020	1.585	1.60	1725	252		52			73	69	13.0	0.14	16.84	23.088		46.177
B-1	32.5	00:32:30	650.640	0.025	1.585	1.60	1530	253		52			73	69	13.0	0.16	17.97	24.964		46.088
B-2	35.2	00:35:12	652.680	0.025	1.585	1.60	1483	253		52			73	69	13.0	0.16	17.76	26.859		46.044
B-3	37.9	00:37:55	654.740	0.025	1.585	1.60	1740	253		52			74	69	13.0	0.16	18.90	28.816		46.105
B-4	40.6	00:40:37	656.870	0.025	1.585	1.60	1766	253		52			74	69	13.0	0.16	19.01	30.708		46.062
B-5	43.3	00:43:20	658.930	0.030	1.585	1.60	1765	252		52			74	69	13.0	0.17	20.82	32.619		46.050
B-6	46.0	00:46:03	661.010	0.035	1.585	1.60	1802	252		54			74	69	13.0	0.19	22.67	34.484		45.979
B-7	48.8	00:48:45	663.040	0.030	1.585	1.60	1827	252		54			74	69	13.0	0.17	21.11	36.367		45.938
B-8	51.5	00:51:28	665.090	0.030	1.585	1.60	1879	252		54			74	69	13.0	0.17	21.35	38.260		45.912
B-9	54.2	00:54:10	667.150	0.030	1.585	1.60	1595	252		54			74	69	13.0	0.17	20.01	40.189		45.930
B-10	56.9	00:56:53	669.250	0.03	1.585	1.60	1761	252		54			74	69	13.0	0.17	20.80	42.174		46.008
B-11	59.6	00:59:35	671.410	0.03	1.585	1.60	1546	252		54			74	69	13.0	0.17	19.77	44.149		46.068
B-12	62.3	01:02:18	673.560	0.03	1.585	1.60	1637	252		54			74	69	13.0	0.16	18.45	46.005		46.005
Last Pt	65.0	01:05:00	675.580																	
Final Val	65.0	01:05:00	675.580											**Max Vac**	13.0	**Final Values**		46.005		
Average Values				0.03		1.60	1669	253		52			72	68		0.16	19.38			
													70							

Superior Fabrication, INC
October 5, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	6.5	%
Stack Exhaust Flow (M2)	76,295	SCFH

Weather Data

Barometric Pressure	27.79	in. Hg
Relative Humidity	18	%
Ambient Temperature	87	^{o}F
Specific Humidity	0.005229	lb H_2O / lb air

70-100-70 Load, Run - SCD-36 R7

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
A1	10/05/16 17:05:27	36540	14.81	0.28	0.17	4.24	0.60	94.40	770.00
	10/05/16 17:05:57	36570	14.98	0.37	0.16	4.11	0.60	94.40	770.00
	10/05/16 17:06:27	36600	14.80	0.40	0.22	4.28	0.62	94.20	771.00
	10/05/16 17:06:57	36630	14.81	0.25	0.18	4.21	0.62	94.20	771.00
	10/05/16 17:07:27	36660	14.76	0.20	0.17	4.26	0.62	94.20	769.00
	10/05/16 17:07:57	36690	14.50	0.14	0.19	4.43	0.62	94.20	769.00
	10/05/16 17:08:27	36720	14.73	0.15	0.20	4.29	0.61	94.10	771.00
	10/05/16 17:08:57	36750	14.65	0.19	0.19	4.32	0.61	94.10	771.00
	10/05/16 17:09:27	36780	14.84	0.19	0.12	4.21	0.62	94.10	771.00
	10/05/16 17:09:57	36810	14.87	0.23	0.20	4.20	0.62	94.10	771.00
	10/05/16 17:10:27	36840	14.82	0.31	0.18	4.18	1.29	94.10	1,131.00
	10/05/16 17:10:57	36870	12.73	0.29	0.12	5.45	1.29	94.10	1,131.00
	10/05/16 17:11:27	36900	11.03	0.16	0.11	6.90	1.37	94.30	1,152.00
	10/05/16 17:11:57	36930	11.47	0.24	0.11	6.57	1.37	94.30	1,152.00
	10/05/16 17:12:27	36960	13.36	0.82	0.09	5.11	1.38	94.60	1,158.00
	10/05/16 17:12:57	36990	13.62	1.72	0.15	4.86	1.38	94.60	1,158.00
	10/05/16 17:13:27	37020	14.25	2.29	0.13	4.51	1.39	94.90	1,160.00
	10/05/16 17:13:57	37050	14.34	2.50	0.17	4.42	1.39	94.90	1,160.00
	10/05/16 17:14:27	37080	14.57	2.42	0.09	4.28	1.38	95.20	1,160.00
	10/05/16 17:14:57	37110	14.51	2.28	0.13	4.32	1.38	95.20	1,160.00
	10/05/16 17:15:27	37140	14.56	2.12	0.15	4.29	1.38	95.40	1,161.00
	10/05/16 17:15:57	37170	14.54	1.88	0.14	4.30	1.38	95.40	1,161.00
	10/05/16 17:16:27	37200	14.70	1.77	0.14	4.22	1.37	95.70	1,158.00
	10/05/16 17:16:57	37230	14.61	1.65	0.14	4.26	1.37	95.70	1,158.00
	10/05/16 17:17:27	37260	14.53	1.55	0.15	4.32	1.37	95.90	1,157.00
	10/05/16 17:17:57	37290	14.70	1.49	0.15	4.21	1.37	95.90	1,157.00
	10/05/16 17:18:27	37320	14.65	1.41	0.19	4.24	1.38	96.10	1,158.00
	10/05/16 17:18:57	37350	14.32	1.36	0.15	4.45	1.38	96.10	1,158.00
	10/05/16 17:19:27	37380	14.21	1.31	0.14	4.57	1.37	96.20	1,157.00
	10/05/16 17:19:57	37410	14.59	1.26	0.19	4.28	1.37	96.20	1,157.00
	10/05/16 17:20:27	37440	14.26	1.28	0.15	4.47	1.38	96.40	1,157.00
	10/05/16 17:20:57	37470	14.54	1.23	0.17	4.35	1.38	96.40	1,157.00
	10/05/16 17:21:27	37500	14.62	1.19	0.21	4.24	0.92	96.50	934.00
	10/05/16 17:21:57	37530	14.49	1.22	0.23	4.30	0.92	96.50	934.00
	10/05/16 17:22:27	37560	14.43	1.28	0.22	4.49	0.63	96.40	769.00
	10/05/16 17:22:57	37590	15.13	1.47	0.21	4.00	0.63	96.40	769.00
	10/05/16 17:23:27	37620	15.26	1.76	0.22	3.92	0.61	96.20	768.00
	10/05/16 17:23:57	37650	15.37	2.04	0.21	3.84	0.61	96.20	768.00
	10/05/16 17:24:27	37680	15.34	2.06	0.18	3.90	0.61	95.90	769.00
	10/05/16 17:24:57	37710	15.45	1.90	0.18	3.82	0.61	95.90	769.00
	10/05/16 17:25:27	37740	15.59	1.81	0.21	3.75	0.61	95.70	764.00
A2	10/05/16 17:25:57	37770	15.71	1.70	0.22	3.64	0.61	95.70	764.00
	10/05/16 17:26:27	37800	15.51	1.57	0.23	3.78	0.75	95.60	852.00
	10/05/16 17:26:57	37830	15.32	1.39	0.20	3.89	0.75	95.60	852.00
	10/05/16 17:27:27	37860	15.16	1.20	0.23	4.00	1.31	95.50	1,148.00
	10/05/16 17:27:57	37890	14.61	0.94	0.23	4.28	1.31	95.50	1,148.00
	10/05/16 17:28:27	37920	14.16	0.63	0.18	4.60	1.33	95.50	1,155.00
	10/05/16 17:28:57	37950	14.24	0.52	0.19	4.56	1.33	95.50	1,155.00
	10/05/16 17:29:27	37980	14.29	0.50	0.19	4.50	1.34	95.60	1,153.00
	10/05/16 17:29:57	38010	14.20	0.61	0.18	4.54	1.34	95.60	1,153.00
	10/05/16 17:30:27	38040	14.23	0.69	0.16	4.53	1.34	95.80	1,155.00
	10/05/16 17:30:57	38070	14.09	0.69	0.16	4.60	1.34	95.80	1,155.00
	10/05/16 17:31:27	38100	14.01	0.69	0.18	4.69	1.36	96.00	1,153.00
	10/05/16 17:31:57	38130	13.98	0.81	0.14	4.65	1.36	96.00	1,153.00
	10/05/16 17:32:27	38160	13.84	0.82	0.13	4.83	1.37	96.00	1,154.00
	10/05/16 17:32:57	38190	13.38	0.79	0.14	5.01	1.37	96.00	1,154.00
	10/05/16 17:33:27	38220	13.79	0.82	0.15	4.83	1.37	96.00	1,154.00
	10/05/16 17:33:57	38250	13.82	0.89	0.13	4.80	1.37	96.00	1,154.00
	10/05/16 17:34:27	38280	13.74	0.98	0.12	4.80	1.37	96.00	1,154.00
	10/05/16 17:34:57	38310	13.98	0.99	0.13	4.67	1.37	96.00	1,154.00

Superior Fabrication, INC
October 5, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	6.5	%
Stack Exhaust Flow (M2)	76,295	SCFH

Weather Data

Barometric Pressure	27.79	in. Hg
Relative Humidity	18	%
Ambient Temperature	87	^{o}F
Specific Humidity	0.005229	lb H_2O / lb air

70-100-70 Load, Run - SCD-36 R7

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
	10/05/16 17:35:27	38340	13.62	1.08	0.12	4.91	1.37	96.00	1,154.00
	10/05/16 17:35:57	38370	13.92	1.16	0.14	4.75	1.37	96.00	1,154.00
	10/05/16 17:36:27	38400	14.23	1.19	0.16	4.52	1.38	96.00	1,155.00
	10/05/16 17:36:57	38430	13.97	1.22	0.17	4.68	1.38	96.00	1,155.00
	10/05/16 17:37:27	38460	14.03	1.29	0.13	4.65	1.38	96.10	1,154.00
	10/05/16 17:37:57	38490	14.01	1.32	0.13	4.67	1.38	96.10	1,154.00
	10/05/16 17:38:27	38520	13.88	1.35	0.15	4.74	1.23	96.10	1,093.00
	10/05/16 17:38:57	38550	14.03	1.41	0.13	4.66	1.23	96.10	1,093.00
	10/05/16 17:39:27	38580	14.27	1.41	0.14	4.52	0.63	96.20	769.00
	10/05/16 17:39:57	38610	15.32	1.48	0.18	3.91	0.63	96.20	769.00
	10/05/16 17:40:27	38640	15.54	1.55	0.15	3.76	0.62	95.90	767.00
	10/05/16 17:40:57	38670	15.85	1.73	0.21	3.53	0.62	95.90	767.00
	10/05/16 17:41:27	38700	15.42	1.85	0.19	3.83	0.62	95.70	769.00
	10/05/16 17:41:57	38730	15.45	1.83	0.23	3.82	0.62	95.70	769.00
	10/05/16 17:42:27	38760	15.34	1.83	0.17	3.89	0.62	95.40	769.00
	10/05/16 17:42:57	38790	15.44	1.73	0.15	3.83	0.62	95.40	769.00
	10/05/16 17:43:27	38820	15.58	1.73	0.21	3.76	0.85	95.30	904.00
	10/05/16 17:43:57	38850	15.66	1.69	0.19	3.69	0.85	95.30	904.00
	10/05/16 17:44:27	38880	15.17	1.66	0.18	3.96	1.34	95.20	1,156.00
	10/05/16 17:44:57	38910	14.41	1.31	0.16	4.45	1.34	95.20	1,156.00
	10/05/16 17:45:27	38940	14.28	1.07	0.18	4.54	1.34	95.30	1,154.00
A3	10/05/16 17:45:57	38970	14.23	0.99	0.23	4.54	1.34	95.30	1,154.00
	10/05/16 17:46:27	39000	14.28	1.12	0.22	4.53	1.35	95.40	1,154.00
	10/05/16 17:46:57	39030	14.43	1.25	0.17	4.40	1.35	95.40	1,154.00
	10/05/16 17:47:27	39060	14.38	1.35	0.16	4.43	1.35	95.60	1,153.00
	10/05/16 17:47:57	39090	14.34	1.48	0.12	4.47	1.35	95.60	1,153.00
	10/05/16 17:48:27	39120	14.38	1.51	0.14	4.43	1.35	95.70	1,154.00
	10/05/16 17:48:57	39150	14.20	1.58	0.18	4.54	1.35	95.70	1,154.00
	10/05/16 17:49:27	39180	14.37	1.66	0.17	4.45	1.36	95.90	1,154.00
	10/05/16 17:49:57	39210	14.49	1.72	0.15	4.37	1.36	95.90	1,154.00
	10/05/16 17:50:27	39240	14.47	1.72	0.13	4.38	1.36	96.10	1,153.00
	10/05/16 17:50:57	39270	14.41	1.72	0.15	4.41	1.36	96.10	1,153.00
	10/05/16 17:51:27	39300	14.51	1.79	0.18	4.36	1.36	96.20	1,153.00
	10/05/16 17:51:57	39330	14.27	1.79	0.19	4.51	1.36	96.20	1,153.00
	10/05/16 17:52:27	39360	14.50	1.78	0.11	4.35	1.35	96.40	1,152.00
	10/05/16 17:52:57	39390	14.49	1.82	0.14	4.35	1.35	96.40	1,152.00
	10/05/16 17:53:27	39420	14.51	1.89	0.12	4.35	1.36	96.50	1,152.00
	10/05/16 17:53:57	39450	14.44	1.95	0.12	4.40	1.36	96.50	1,152.00
	10/05/16 17:54:27	39480	14.49	2.01	0.12	4.36	1.36	96.60	1,153.00
	10/05/16 17:54:57	39510	14.18	2.02	0.14	4.53	1.36	96.60	1,153.00
	10/05/16 17:55:27	39540	14.06	2.02	0.14	4.61	1.37	96.60	1,153.00
	10/05/16 17:55:57	39570	14.03	2.12	0.15	4.69	1.37	96.60	1,153.00
	10/05/16 17:56:27	39600	14.26	2.19	0.13	4.53	1.14	96.60	1,044.00
	10/05/16 17:56:57	39630	14.20	2.19	0.14	4.53	1.14	96.60	1,044.00
	10/05/16 17:57:27	39660	14.60	2.29	0.13	4.32	0.62	96.40	768.00
	10/05/16 17:57:57	39690	15.31	2.48	0.16	3.92	0.62	96.40	768.00
	10/05/16 17:58:27	39720	15.67	2.71	0.15	3.67	0.63	96.30	774.00
	10/05/16 17:58:57	39750	15.52	2.98	0.13	3.76	0.63	96.30	774.00
	10/05/16 17:59:27	39780	15.32	3.14	0.12	3.92	0.63	95.90	775.00
	10/05/16 17:59:57	39810	15.64	3.19	0.11	3.72	0.63	95.90	775.00
	10/05/16 18:00:27	39840	15.62	3.09	0.10	3.73	0.61	95.60	774.00
	10/05/16 18:00:57	39870	15.70	2.96	0.09	3.66	0.61	95.60	774.00
	10/05/16 18:01:27	39900	15.63	2.83	0.10	3.72	0.62	95.30	775.00
	10/05/16 18:01:57	39930	15.66	2.68	0.13	3.70	0.62	95.30	775.00
	10/05/16 18:02:27	39960	15.65	2.55	0.12	3.70	0.91	95.00	927.00
	10/05/16 18:02:57	39990	15.77	2.40	0.10	3.61	0.91	95.00	927.00
	10/05/16 18:03:27	40020	15.20	2.29	0.11	3.94	1.31	94.90	1,147.00
	10/05/16 18:03:57	40050	14.70	2.01	0.12	4.29	1.31	94.90	1,147.00
	10/05/16 18:04:27	40080	14.85	1.84	0.12	4.21	1.31	95.00	1,152.00
	10/05/16 18:04:57	40110	14.63	1.70	0.13	4.29	1.31	95.00	1,152.00

Superior Fabrication, INC
October 5, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	6.5	%
Stack Exhaust Flow (M2)	76,295	SCFH

Weather Data

Barometric Pressure	27.79	in. Hg
Relative Humidity	18	%
Ambient Temperature	87	^{o}F
Specific Humidity	0.005229	lb H_2O / lb air

70-100-70 Load, Run - SCD-36 R7

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
10/05/16 18:05:27	40140	14.76	1.70	0.15	4.25	1.31	95.10	1,152.00
10/05/16 18:05:57	40170	14.77	1.77	0.11	4.23	1.31	95.10	1,152.00
10/05/16 18:06:27	40200	14.79	1.80	0.12	4.20	1.32	95.20	1,149.00
10/05/16 18:06:57	40230	14.66	1.91	0.13	4.30	1.32	95.20	1,149.00
10/05/16 18:07:27	40260	14.56	1.98	0.15	4.32	1.33	95.30	1,150.00
10/05/16 18:07:57	40290	14.80	2.11	0.15	4.20	1.33	95.30	1,150.00
10/05/16 18:08:27	40320	14.44	2.15	0.13	4.42	1.34	95.30	1,153.00
10/05/16 18:08:57	40350	14.74	2.28	0.11	4.22	1.34	95.30	1,153.00
10/05/16 18:09:27	40380	14.66	2.32	0.11	4.26	1.33	95.40	1,147.00
10/05/16 18:09:57	40410	14.74	2.36	0.16	4.21	1.33	95.40	1,147.00
10/05/16 18:10:27	40440	14.70	2.46	0.14	4.26	1.34	95.40	1,148.00
10/05/16 18:10:57	40470	14.67	2.48	0.12	4.27	1.34	95.40	1,148.00
10/05/16 18:11:27	40500	14.60	2.59	0.13	4.30	1.34	95.50	1,147.00
10/05/16 18:11:57	40530	14.78	2.69	0.14	4.22	1.34	95.50	1,147.00
10/05/16 18:12:27	40560	14.73	2.72	0.12	4.22	0.63	95.50	778.00
10/05/16 18:12:57	40590	15.40	2.75	0.10	3.85	0.63	95.50	778.00
10/05/16 18:13:27	40620	15.59	3.02	0.08	3.74	0.63	95.20	784.00
10/05/16 18:13:57	40650	15.49	3.51	0.14	3.78	0.63	95.20	784.00
10/05/16 18:14:27	40680	15.58	3.81	0.15	3.75	0.63	94.90	781.00
10/05/16 18:14:57	40710	15.68	3.75	0.13	3.66	0.63	94.90	781.00
10/05/16 18:15:27	40740	15.34	3.65	0.15	3.88	0.63	94.50	782.00
RAW AVERAGE		**14.63**	**1.64**	**0.15**	**4.30**	**1.10**	**95.57**	**1,020.34**

		O_2	CO	THC	CO_2	Press. Trans	Temp. Trans.	F-Flow Trans.
	Serial Number:	INSTO2-0011	INST-CO-0022	INST-TH-0002	INST-C2-0013	1434717	1434717	1434717
		(%)	(ppmvd)	(ppmvw)	(%)	(in. H_2O)	(^{o}F)	(SCFH)
Bias	Initial Zero	-0.01	-0.01	-0.04	0.02			
	Final Zero	-0.02	0.01	-0.03	0.02			
	Avg. Zero	-0.02	0.00	-0.04	0.02			
	Initial UpScale	11.96	9.38	2.97	8.83			
	Final UpScale	11.92	9.40	2.95	8.84			
	Avg. UpScale	11.94	9.39	2.96	8.84			
Upscale Cal Gas		11.90	9.44	3.00	8.95			

EMISSIONS DATA	O_2	CO	THC	CO_2
Corrected Raw Average (ppm/% dry basis)	14.58	1.65	0.19	4.35
Corrected Raw Average (ppm/% wet basis)	13.63	1.54	0.18	4.06
Emission Rate (lb/hr)	N/A	0.01	0.00	N/A

Superior Fabrication, INC
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	7.4	%
Stack Exhaust Flow (M2)	84,431	SCFH

Weather Data

Barometric Pressure	27.85	in. Hg
Relative Humidity	83	%
Ambient Temperature	70	^{o}F
Specific Humidity	0.014019	lb H_2O / lb air

70-100-70 Load, Run - SCD-36 R8

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
A1	10/06/16 07:55:27	89940	15.48	2.79	0.22	3.75	0.666	62.8	823
	10/06/16 07:55:57	89970	15.32	2.60	0.20	3.86	0.666	62.8	823
	10/06/16 07:56:27	90000	15.44	2.42	0.20	3.81	0.667	62.8	826
	10/06/16 07:56:57	90030	15.55	2.32	0.23	3.75	0.667	62.8	826
	10/06/16 07:57:27	90060	15.64	2.39	0.23	3.67	0.635	62.9	811
	10/06/16 07:57:57	90090	15.58	2.36	0.21	3.67	0.635	62.9	811
	10/06/16 07:58:27	90120	15.33	2.19	0.23	3.81	1.493	62.9	1270
	10/06/16 07:58:57	90150	13.87	1.96	0.21	4.72	1.493	62.9	1270
	10/06/16 07:59:27	90180	13.76	1.81	0.21	4.90	1.442	62.9	1234
	10/06/16 07:59:57	90210	14.21	1.75	0.23	4.49	1.442	62.9	1234
	10/06/16 08:00:27	90240	14.13	1.92	0.23	4.51	1.451	62.9	1238
	10/06/16 08:00:57	90270	14.28	2.13	0.21	4.48	1.451	62.9	1238
	10/06/16 08:01:27	90300	14.53	2.41	0.23	4.24	1.46	62.9	1241
	10/06/16 08:01:57	90330	14.33	2.65	0.22	4.38	1.46	62.9	1241
	10/06/16 08:02:27	90360	14.03	2.80	0.22	4.54	1.474	63	1239
	10/06/16 08:02:57	90390	14.18	2.86	0.19	4.48	1.474	63	1239
	10/06/16 08:03:27	90420	14.50	2.91	0.19	4.28	1.478	63	1237
	10/06/16 08:03:57	90450	14.43	2.95	0.22	4.31	1.478	63	1237
	10/06/16 08:04:27	90480	14.26	3.05	0.22	4.44	1.497	63.1	1241
	10/06/16 08:04:57	90510	13.82	3.12	0.24	4.67	1.497	63.1	1241
	10/06/16 08:05:27	90540	13.52	3.28	0.22	4.98	1.497	63.1	1244
	10/06/16 08:05:57	90570	14.11	3.47	0.23	4.59	1.497	63.1	1244
	10/06/16 08:06:27	90600	14.50	3.70	0.23	4.29	1.511	63.2	1245
	10/06/16 08:06:57	90630	14.11	3.79	0.23	4.53	1.511	63.2	1245
	10/06/16 08:07:27	90660	13.81	4.01	0.22	4.76	1.51	63.2	1245
	10/06/16 08:07:57	90690	14.26	4.53	0.22	4.47	1.51	63.2	1245
	10/06/16 08:08:27	90720	14.27	4.56	0.22	4.45	1.515	63.3	1245
	10/06/16 08:08:57	90750	14.35	4.24	0.23	4.40	1.515	63.3	1245
	10/06/16 08:09:27	90780	14.19	3.97	0.21	4.50	1.51	63.3	1241
	10/06/16 08:09:57	90810	14.11	3.70	0.20	4.60	1.51	63.3	1241
	10/06/16 08:10:27	90840	14.52	3.59	0.20	4.30	1.501	63.4	1243
	10/06/16 08:10:57	90870	14.46	3.59	0.23	4.37	1.501	63.4	1243
	10/06/16 08:11:27	90900	14.51	3.58	0.21	4.30	1.118	63.4	1036
	10/06/16 08:11:57	90930	14.34	3.60	0.22	4.41	1.118	63.4	1036
	10/06/16 08:12:27	90960	14.43	3.51	0.22	4.46	0.697	63.5	827
	10/06/16 08:12:57	90990	15.10	3.68	0.24	3.99	0.697	63.5	827
	10/06/16 08:13:27	91020	15.01	4.36	0.22	4.03	0.693	63.6	826
	10/06/16 08:13:57	91050	15.29	5.04	0.20	3.92	0.693	63.6	826
	10/06/16 08:14:27	91080	15.13	5.17	0.20	3.99	0.683	63.7	820
	10/06/16 08:14:57	91110	15.20	5.06	0.22	3.95	0.683	63.7	820
	10/06/16 08:15:27	91140	15.08	4.86	0.22	4.04	0.679	63.8	817
A2	10/06/16 08:15:57	91170	15.17	4.56	0.25	3.96	0.679	63.8	817
	10/06/16 08:16:27	91200	15.14	4.18	0.22	4.01	0.674	63.9	819
	10/06/16 08:16:57	91230	15.18	3.87	0.22	3.97	0.674	63.9	819
	10/06/16 08:17:27	91260	14.98	3.62	0.27	4.08	1.398	63.9	1202
	10/06/16 08:17:57	91290	14.54	3.36	0.23	4.36	1.398	63.9	1202
	10/06/16 08:18:27	91320	14.45	2.91	0.23	4.41	1.449	63.9	1226
	10/06/16 08:18:57	91350	14.21	2.45	0.22	4.57	1.449	63.9	1226
	10/06/16 08:19:27	91380	14.12	2.21	0.21	4.57	1.453	63.9	1227
	10/06/16 08:19:57	91410	14.30	2.14	0.23	4.48	1.453	63.9	1227
	10/06/16 08:20:27	91440	14.52	2.08	0.23	4.33	1.444	64	1223
	10/06/16 08:20:57	91470	14.26	2.14	0.22	4.52	1.444	64	1223
	10/06/16 08:21:27	91500	14.64	2.10	0.22	4.27	1.453	64.1	1226
	10/06/16 08:21:57	91530	14.55	2.12	0.19	4.29	1.453	64.1	1226
	10/06/16 08:22:27	91560	14.48	2.09	0.13	4.37	1.458	64.1	1224
	10/06/16 08:22:57	91590	14.54	2.07	0.18	4.35	1.458	64.1	1224
	10/06/16 08:23:27	91620	14.67	1.99	0.22	4.20	1.462	64.3	1221
	10/06/16 08:23:57	91650	14.34	1.91	0.20	4.48	1.462	64.3	1221
	10/06/16 08:24:27	91680	14.51	1.86	0.19	4.35	1.448	64.4	1219
	10/06/16 08:24:57	91710	14.39	1.77	0.22	4.43	1.448	64.4	1219
	10/06/16 08:25:27	91740	14.70	1.71	0.24	4.25	1.462	64.5	1226

Superior Fabrication, INC
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	7.4	%
Stack Exhaust Flow (M2)	84,431	SCFH

Weather Data

Barometric Pressure	27.85	in. Hg
Relative Humidity	83	%
Ambient Temperature	70	^{o}F
Specific Humidity	0.014019	lb H_2O / lb air

70-100-70 Load, Run - SCD-36 R8

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
	10/06/16 08:25:57	91770	14.48	1.68	0.23	4.33	1.462	64.5	1226
	10/06/16 08:26:27	91800	14.03	1.60	0.23	4.68	1.457	64.6	1222
	10/06/16 08:26:57	91830	13.98	1.61	0.23	4.67	1.457	64.6	1222
	10/06/16 08:27:27	91860	13.82	1.60	0.23	4.83	1.471	64.7	1221
	10/06/16 08:27:57	91890	13.68	1.60	0.22	4.91	1.471	64.7	1221
	10/06/16 08:28:27	91920	13.81	1.59	0.22	4.84	0.898	64.8	963
	10/06/16 08:28:57	91950	14.04	1.55	0.24	4.67	0.898	64.8	963
	10/06/16 08:29:27	91980	14.70	1.63	0.27	4.27	0.68	64.9	815
	10/06/16 08:29:57	92010	15.22	1.98	0.30	3.95	0.68	64.9	815
	10/06/16 08:30:27	92040	15.15	2.58	0.32	4.03	0.685	65.1	824
	10/06/16 08:30:57	92070	15.25	2.94	0.31	3.93	0.685	65.1	824
	10/06/16 08:31:27	92100	15.16	3.05	0.32	4.00	0.68	65.1	823
	10/06/16 08:31:57	92130	14.98	2.98	0.29	4.10	0.68	65.1	823
	10/06/16 08:32:27	92160	15.27	2.87	0.30	3.96	0.675	65.2	823
	10/06/16 08:32:57	92190	15.13	2.73	0.32	4.02	0.675	65.2	823
	10/06/16 08:33:27	92220	15.20	2.64	0.35	4.00	1.054	65.2	1025
	10/06/16 08:33:57	92250	15.14	2.51	0.31	4.03	1.054	65.2	1025
	10/06/16 08:34:27	92280	14.14	2.41	0.30	4.56	1.418	65.2	1215
	10/06/16 08:34:57	92310	14.04	2.00	0.34	4.77	1.418	65.2	1215
	10/06/16 08:35:27	92340	13.95	1.33	0.34	4.77	1.432	65.3	1222
A3	10/06/16 08:35:57	92370	14.24	1.00	0.31	4.60	1.432	65.3	1222
	10/06/16 08:36:27	92400	14.23	0.93	0.31	4.54	1.431	65.5	1221
	10/06/16 08:36:57	92430	13.97	0.90	0.31	4.74	1.431	65.5	1221
	10/06/16 08:37:27	92460	14.16	0.98	0.30	4.67	1.44	65.6	1222
	10/06/16 08:37:57	92490	14.37	0.98	0.32	4.45	1.44	65.6	1222
	10/06/16 08:38:27	92520	14.31	0.99	0.33	4.51	1.445	65.7	1219
	10/06/16 08:38:57	92550	14.13	1.01	0.33	4.62	1.445	65.7	1219
	10/06/16 08:39:27	92580	14.02	1.01	0.33	4.75	1.449	65.8	1222
	10/06/16 08:39:57	92610	14.36	0.96	0.32	4.43	1.449	65.8	1222
	10/06/16 08:40:27	92640	14.29	0.91	0.29	4.56	1.444	65.9	1218
	10/06/16 08:40:57	92670	14.41	0.88	0.23	4.44	1.444	65.9	1218
	10/06/16 08:41:27	92700	14.20	0.88	0.25	4.58	1.453	66.1	1219
	10/06/16 08:41:57	92730	14.22	0.92	0.33	4.57	1.453	66.1	1219
	10/06/16 08:42:27	92760	14.38	0.92	0.33	4.48	1.453	66.3	1221
	10/06/16 08:42:57	92790	14.02	0.92	0.23	4.72	1.453	66.3	1221
	10/06/16 08:43:27	92820	14.35	0.92	0.26	4.50	1.448	66.4	1220
	10/06/16 08:43:57	92850	14.41	0.92	0.32	4.44	1.448	66.4	1220
	10/06/16 08:44:27	92880	14.06	0.91	0.29	4.65	1.452	66.6	1220
	10/06/16 08:44:57	92910	14.04	0.89	0.31	4.73	1.452	66.6	1220
	10/06/16 08:45:27	92940	13.95	0.89	0.32	4.74	1.452	66.7	1220
	10/06/16 08:45:57	92970	14.43	0.96	0.33	4.47	1.452	66.7	1220
	10/06/16 08:46:27	93000	14.24	1.00	0.31	4.53	1.147	66.8	1074
	10/06/16 08:46:57	93030	14.24	1.01	0.30	4.57	1.147	66.8	1074
	10/06/16 08:47:27	93060	13.32	1.02	0.27	5.24	0.694	66.9	821
	10/06/16 08:47:57	93090	14.79	1.09	0.31	4.22	0.694	66.9	821
	10/06/16 08:48:27	93120	14.64	1.43	0.33	4.35	0.689	67	818
	10/06/16 08:48:57	93150	14.81	1.77	0.32	4.24	0.689	67	818
	10/06/16 08:49:27	93180	14.61	1.97	0.33	4.35	0.693	67	816
	10/06/16 08:49:57	93210	14.79	2.05	0.32	4.24	0.693	67	816
	10/06/16 08:50:27	93240	14.51	2.07	0.32	4.45	0.683	67.1	818
	10/06/16 08:50:57	93270	14.72	1.98	0.29	4.30	0.683	67.1	818
	10/06/16 08:51:27	93300	14.53	1.90	0.22	4.42	0.822	67.1	892
	10/06/16 08:51:57	93330	14.78	1.88	0.33	4.27	0.822	67.1	892
	10/06/16 08:52:27	93360	15.13	1.85	0.33	4.07	1.44	67.1	1221
	10/06/16 08:52:57	93390	14.27	1.85	0.29	4.52	1.44	67.1	1221
	10/06/16 08:53:27	93420	13.64	1.39	0.26	4.98	1.449	67.2	1224
	10/06/16 08:53:57	93450	13.81	1.07	0.24	4.92	1.449	67.2	1224
	10/06/16 08:54:27	93480	14.19	0.92	0.30	4.66	1.458	67.4	1228
	10/06/16 08:54:57	93510	14.04	0.88	0.30	4.64	1.458	67.4	1228
	10/06/16 08:55:27	93540	13.17	0.93	0.25	5.28	1.462	67.5	1228
	10/06/16 08:55:57	93570	13.35	0.91	0.23	5.20	1.462	67.5	1228

Superior Fabrication, INC
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	7.4	%
Stack Exhaust Flow (M2)	84,431	SCFH

Weather Data

Barometric Pressure	27.85	in. Hg
Relative Humidity	83	%
Ambient Temperature	70	^{o}F
Specific Humidity	0.014019	lb H_2O / lb air

70-100-70 Load, Run - SCD-36 R8

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
10/06/16 08:56:27	93600	13.19	0.93	0.25	5.24	1.48	67.7	1231
10/06/16 08:56:57	93630	13.24	0.93	0.30	5.27	1.48	67.7	1231
10/06/16 08:57:27	93660	13.61	1.00	0.34	4.96	1.471	67.8	1230
10/06/16 08:57:57	93690	13.61	1.01	0.33	5.03	1.471	67.8	1230
10/06/16 08:58:27	93720	13.94	1.01	0.30	4.75	1.47	68	1227
10/06/16 08:58:57	93750	14.05	0.99	0.33	4.71	1.47	68	1227
10/06/16 08:59:27	93780	13.55	1.01	0.34	5.03	1.474	68.1	1230
10/06/16 08:59:57	93810	13.69	1.03	0.33	4.93	1.474	68.1	1230
10/06/16 09:00:27	93840	13.46	1.06	0.27	5.08	1.474	68.3	1227
10/06/16 09:00:57	93870	13.47	1.12	0.26	5.06	1.474	68.3	1227
10/06/16 09:01:27	93900	13.53	1.12	0.29	5.06	1.478	68.5	1229
10/06/16 09:01:57	93930	13.54	1.11	0.30	5.00	1.478	68.5	1229
10/06/16 09:02:27	93960	13.92	1.15	0.26	4.79	0.687	68.6	824
10/06/16 09:02:57	93990	14.64	1.11	0.30	4.41	0.687	68.6	824
10/06/16 09:03:27	94020	15.17	1.28	0.32	3.99	0.682	68.7	815
10/06/16 09:03:57	94050	15.22	1.66	0.32	4.01	0.682	68.7	815
10/06/16 09:04:27	94080	15.30	1.99	0.32	3.92	0.663	68.7	817
10/06/16 09:04:57	94110	15.13	2.19	0.32	4.04	0.663	68.7	817
RAW AVERAGE		**14.41**	**2.14**	**0.26**	**4.44**	**1.21**	**65.22**	**1,099.21**

		O_2	CO	THC	CO_2	Press. Trans	Temp. Trans.	F-Flow Trans.
	Serial Number:	INSTO2-0011	INST-CO-0022	INST-TH-0002	INST-C2-0013	1434717	1434717	1434717
		(%)	(ppmvd)	(ppmvw)	(%)	(in. H_2O)	(^{o}F)	(SCFH)
Bias	Initial Zero	-0.04	0.06	-0.01	-0.01			
	Final Zero	-0.02	0.05	-0.05	0.01			
	Avg. Zero	-0.03	0.06	-0.03	0.00			
	Initial UpScale	11.97	9.41	2.94	8.81			
	Final UpScale	11.91	9.41	2.93	8.88			
	Avg. UpScale	11.94	9.41	2.94	8.85			
Upscale Cal Gas		11.90	9.44	3.00	8.95			

EMISSIONS DATA	O_2	CO	THC	CO_2
Corrected Raw Average (ppm/% dry basis)	14.35	2.10	0.30	4.50
Corrected Raw Average (ppm/% wet basis)	13.29	1.94	0.28	4.16
Emission Rate (lb/hr)	N/A	0.01	0.00	N/A

Superior Fabrication, INC
October 6, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	7.1	%
Stack Exhaust Flow (M2)	88,937	SCFH

Weather Data

Barometric Pressure	27.86	in. Hg
Relative Humidity	76	%
Ambient Temperature	72	^{o}F
Specific Humidity	0.013728	lb H_2O / lb air

70-100-70 Load, Run - SCD-36 R9

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
A1	10/06/16 09:25:27	95340	15.46	2.33	-0.01	3.80	0.64	69.60	812.00
	10/06/16 09:25:57	95370	15.09	2.39	-0.03	4.08	0.64	69.60	812.00
	10/06/16 09:26:27	95400	15.20	1.75	-0.05	4.04	0.64	69.60	814.00
	10/06/16 09:26:57	95430	15.48	1.54	-0.06	3.84	0.64	69.60	814.00
	10/06/16 09:27:27	95460	15.31	1.83	-0.06	3.96	0.64	69.70	811.00
	10/06/16 09:27:57	95490	15.53	2.15	-0.06	3.79	0.64	69.70	811.00
	10/06/16 09:28:27	95520	15.97	2.51	-0.04	3.81	0.63	69.80	811.00
	10/06/16 09:28:57	95550	15.73	2.82	-0.05	3.76	0.63	69.80	811.00
	10/06/16 09:29:27	95580	15.43	2.65	-0.05	3.89	1.16	69.70	1,104.00
	10/06/16 09:29:57	95610	15.40	2.43	-0.07	3.91	1.16	69.70	1,104.00
	10/06/16 09:30:27	95640	14.15	2.05	-0.07	4.65	1.36	69.80	1,214.00
	10/06/16 09:30:57	95670	13.80	0.71	-0.07	5.04	1.36	69.80	1,214.00
	10/06/16 09:31:27	95700	14.06	0.18	-0.06	4.77	1.38	70.00	1,215.00
	10/06/16 09:31:57	95730	14.13	0.17	-0.06	4.72	1.38	70.00	1,215.00
	10/06/16 09:32:27	95760	13.54	0.29	-0.07	5.18	1.39	70.20	1,218.00
	10/06/16 09:32:57	95790	13.68	0.36	-0.06	4.97	1.39	70.20	1,218.00
	10/06/16 09:33:27	95820	13.66	0.49	-0.07	5.00	1.40	70.30	1,216.00
	10/06/16 09:33:57	95850	13.84	0.60	-0.08	4.86	1.40	70.30	1,216.00
	10/06/16 09:34:27	95880	13.97	0.64	-0.08	4.84	1.38	70.40	1,217.00
	10/06/16 09:34:57	95910	14.38	0.72	-0.05	4.49	1.38	70.40	1,217.00
	10/06/16 09:35:27	95940	14.49	0.72	-0.05	4.43	1.39	70.70	1,214.00
	10/06/16 09:35:57	95970	14.03	0.71	-0.07	4.71	1.39	70.70	1,214.00
	10/06/16 09:36:27	96000	14.31	0.70	-0.05	4.54	1.41	70.80	1,215.00
	10/06/16 09:36:57	96030	13.58	0.71	-0.06	4.99	1.41	70.80	1,215.00
	10/06/16 09:37:27	96060	13.98	0.72	-0.05	4.81	1.41	71.10	1,215.00
	10/06/16 09:37:57	96090	13.82	0.69	-0.09	4.84	1.41	71.10	1,215.00
	10/06/16 09:38:27	96120	13.20	0.69	-0.10	5.28	1.42	71.20	1,212.00
	10/06/16 09:38:57	96150	13.18	0.72	-0.06	5.28	1.42	71.20	1,212.00
	10/06/16 09:39:27	96180	13.07	0.81	-0.06	5.32	1.43	71.40	1,219.00
	10/06/16 09:39:57	96210	12.96	1.06	-0.08	5.49	1.43	71.40	1,219.00
	10/06/16 09:40:27	96240	13.04	1.31	-0.07	5.39	1.42	71.50	1,215.00
	10/06/16 09:40:57	96270	13.31	1.60	-0.08	5.25	1.42	71.50	1,215.00
	10/06/16 09:41:27	96300	13.33	1.78	-0.05	5.17	1.42	71.60	1,218.00
	10/06/16 09:41:57	96330	14.05	1.73	-0.06	4.75	1.42	71.60	1,218.00
	10/06/16 09:42:27	96360	14.08	1.37	-0.06	4.70	1.11	71.80	1,059.00
	10/06/16 09:42:57	96390	13.57	1.03	-0.07	5.00	1.11	71.80	1,059.00
	10/06/16 09:43:27	96420	14.12	0.92	-0.06	4.78	0.66	71.90	814.00
	10/06/16 09:43:57	96450	15.11	0.94	-0.06	4.07	0.66	71.90	814.00
	10/06/16 09:44:27	96480	14.90	1.17	-0.07	4.17	0.67	72.00	817.00
	10/06/16 09:44:57	96510	14.96	1.49	-0.08	4.16	0.67	72.00	817.00
	10/06/16 09:45:27	96540	14.87	1.87	-0.09	4.21	0.67	72.00	815.00
A2	10/06/16 09:45:57	96570	14.87	1.93	-0.09	4.24	0.67	72.00	815.00
	10/06/16 09:46:27	96600	14.94	1.83	-0.08	4.17	0.66	72.00	811.00
	10/06/16 09:46:57	96630	15.07	1.82	-0.07	4.12	0.66	72.00	811.00
	10/06/16 09:47:27	96660	15.09	1.82	-0.09	4.11	0.80	72.00	896.00
	10/06/16 09:47:57	96690	14.99	1.77	-0.06	4.14	0.80	72.00	896.00
	10/06/16 09:48:27	96720	15.32	1.91	-0.06	3.94	1.29	72.00	1,164.00
	10/06/16 09:48:57	96750	14.63	2.07	-0.05	4.34	1.29	72.00	1,164.00
	10/06/16 09:49:27	96780	13.93	1.19	-0.04	4.78	1.37	72.10	1,204.00
	10/06/16 09:49:57	96810	13.31	0.64	-0.06	5.27	1.37	72.10	1,204.00
	10/06/16 09:50:27	96840	13.96	0.42	-0.05	4.87	1.37	72.20	1,204.00
	10/06/16 09:50:57	96870	13.93	0.32	-0.06	4.79	1.37	72.20	1,204.00
	10/06/16 09:51:27	96900	13.81	0.31	-0.06	4.88	1.37	72.30	1,204.00
	10/06/16 09:51:57	96930	13.75	0.31	-0.06	4.97	1.37	72.30	1,204.00
	10/06/16 09:52:27	96960	14.18	0.37	-0.06	4.68	1.38	72.40	1,201.00
	10/06/16 09:52:57	96990	13.92	0.36	-0.07	4.82	1.38	72.40	1,201.00
	10/06/16 09:53:27	97020	14.01	0.41	-0.07	4.77	1.38	72.50	1,201.00
	10/06/16 09:53:57	97050	14.08	0.38	-0.07	4.73	1.38	72.50	1,201.00
	10/06/16 09:54:27	97080	13.88	0.39	-0.07	4.87	1.38	72.60	1,201.00
	10/06/16 09:54:57	97110	14.30	0.41	-0.05	4.58	1.38	72.60	1,201.00

Superior Fabrication, INC
October 6, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	7.1	%
Stack Exhaust Flow (M2)	88,937	SCFH

Weather Data

Barometric Pressure	27.86	in. Hg
Relative Humidity	76	%
Ambient Temperature	72	^{o}F
Specific Humidity	0.013728	lb H_2O / lb air

70-100-70 Load, Run - SCD-36 R9

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
	10/06/16 09:55:27	97140	13.92	0.42	-0.05	4.83	1.39	72.70	1,204.00
	10/06/16 09:55:57	97170	13.48	0.38	-0.07	5.11	1.39	72.70	1,204.00
	10/06/16 09:56:27	97200	13.83	0.38	-0.07	4.87	1.40	72.90	1,201.00
	10/06/16 09:56:57	97230	14.20	0.39	-0.09	4.67	1.40	72.90	1,201.00
	10/06/16 09:57:27	97260	14.10	0.39	-0.08	4.69	1.39	73.00	1,200.00
	10/06/16 09:57:57	97290	13.84	0.39	-0.05	4.86	1.39	73.00	1,200.00
	10/06/16 09:58:27	97320	14.20	0.39	-0.05	4.67	1.04	73.20	1,014.00
	10/06/16 09:58:57	97350	14.44	0.41	-0.08	4.49	1.04	73.20	1,014.00
	10/06/16 09:59:27	97380	14.95	0.41	-0.08	4.20	0.66	73.30	802.00
	10/06/16 09:59:57	97410	15.18	0.61	-0.06	4.06	0.66	73.30	802.00
	10/06/16 10:00:27	97440	15.35	1.08	-0.07	3.94	0.66	73.30	812.00
	10/06/16 10:00:57	97470	15.14	1.56	-0.09	4.07	0.66	73.30	812.00
	10/06/16 10:01:27	97500	14.99	1.88	-0.09	4.14	0.66	73.30	809.00
	10/06/16 10:01:57	97530	15.48	1.93	-0.05	3.86	0.66	73.30	809.00
	10/06/16 10:02:27	97560	15.60	1.86	-0.05	3.75	0.65	73.30	811.00
	10/06/16 10:02:57	97590	15.31	1.86	-0.09	3.96	0.65	73.30	811.00
	10/06/16 10:03:27	97620	15.76	1.98	-0.08	3.70	0.65	73.30	812.00
	10/06/16 10:03:57	97650	15.75	2.75	-0.08	3.64	0.65	73.30	812.00
	10/06/16 10:04:27	97680	15.37	2.94	-0.08	3.91	0.89	73.40	941.00
	10/06/16 10:04:57	97710	15.61	2.40	-0.08	3.79	0.89	73.40	941.00
	10/06/16 10:05:27	97740	14.59	2.46	-0.07	4.35	1.37	73.40	1,207.00
A3	10/06/16 10:05:57	97770	14.33	1.40	-0.08	4.57	1.37	73.40	1,207.00
	10/06/16 10:06:27	97800	13.90	0.53	-0.08	4.84	1.37	73.50	1,203.00
	10/06/16 10:06:57	97830	14.01	0.29	-0.08	4.81	1.37	73.50	1,203.00
	10/06/16 10:07:27	97860	14.13	0.22	-0.08	4.70	1.36	73.60	1,203.00
	10/06/16 10:07:57	97890	13.63	0.22	-0.08	5.04	1.36	73.60	1,203.00
	10/06/16 10:08:27	97920	14.15	0.21	-0.07	4.66	1.38	73.70	1,198.00
	10/06/16 10:08:57	97950	13.62	0.28	-0.05	5.05	1.38	73.70	1,198.00
	10/06/16 10:09:27	97980	13.01	0.32	-0.06	5.47	1.39	73.80	1,204.00
	10/06/16 10:09:57	98010	13.93	0.28	-0.09	4.83	1.39	73.80	1,204.00
	10/06/16 10:10:27	98040	14.11	0.29	-0.08	4.72	1.39	73.80	1,204.00
	10/06/16 10:10:57	98070	13.95	0.32	-0.05	4.77	1.39	73.80	1,204.00
	10/06/16 10:11:27	98100	14.16	0.33	-0.07	4.73	1.39	74.00	1,198.00
	10/06/16 10:11:57	98130	14.52	0.29	-0.09	4.39	1.39	74.00	1,198.00
	10/06/16 10:12:27	98160	13.72	0.30	-0.09	4.91	1.40	74.10	1,199.00
	10/06/16 10:12:57	98190	13.64	0.31	-0.09	5.08	1.40	74.10	1,199.00
	10/06/16 10:13:27	98220	13.98	0.30	-0.09	4.78	1.40	74.20	1,198.00
	10/06/16 10:13:57	98250	14.41	0.29	-0.06	4.50	1.40	74.20	1,198.00
	10/06/16 10:14:27	98280	14.26	0.28	-0.05	4.59	1.41	74.40	1,202.00
	10/06/16 10:14:57	98310	14.31	0.29	-0.06	4.60	1.41	74.40	1,202.00
	10/06/16 10:15:27	98340	13.90	0.28	-0.06	4.73	1.40	74.60	1,198.00
	10/06/16 10:15:57	98370	13.78	0.28	-0.09	4.96	1.40	74.60	1,198.00
	10/06/16 10:16:27	98400	13.52	0.29	-0.08	5.08	1.40	74.70	1,203.00
	10/06/16 10:16:57	98430	14.07	0.29	-0.08	4.75	1.40	74.70	1,203.00
	10/06/16 10:17:27	98460	13.92	0.33	-0.08	4.83	0.72	74.80	840.00
	10/06/16 10:17:57	98490	13.98	0.28	-0.06	4.77	0.72	74.80	840.00
	10/06/16 10:18:27	98520	15.19	0.41	-0.04	4.10	0.67	74.90	808.00
	10/06/16 10:18:57	98550	15.52	0.64	-0.02	3.83	0.67	74.90	808.00
	10/06/16 10:19:27	98580	15.49	0.94	-0.06	3.82	0.67	74.90	813.00
	10/06/16 10:19:57	98610	15.43	1.31	-0.05	3.88	0.67	74.90	813.00
	10/06/16 10:20:27	98640	15.33	1.54	-0.02	3.90	0.68	75.00	813.00
	10/06/16 10:20:57	98670	15.43	1.75	-0.02	3.86	0.68	75.00	813.00
	10/06/16 10:21:27	98700	15.06	1.70	-0.03	4.12	0.68	75.00	813.00
	10/06/16 10:21:57	98730	15.50	1.39	0.04	3.82	0.68	75.00	813.00
	10/06/16 10:22:27	98760	15.10	1.29	-0.03	4.09	0.97	75.00	975.00
	10/06/16 10:22:57	98790	14.99	1.28	-0.03	4.13	0.97	75.00	975.00
	10/06/16 10:23:27	98820	14.39	1.16	-0.06	4.50	1.40	75.10	1,205.00
	10/06/16 10:23:57	98850	13.64	0.89	-0.08	5.02	1.40	75.10	1,205.00
	10/06/16 10:24:27	98880	13.83	0.59	-0.07	4.94	1.40	75.20	1,205.00
	10/06/16 10:24:57	98910	13.84	0.36	-0.07	4.86	1.40	75.20	1,205.00

Superior Fabrication, INC
October 6, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	7.1	%
Stack Exhaust Flow (M2)	88,937	SCFH

Weather Data

Barometric Pressure	27.86	in. Hg
Relative Humidity	76	%
Ambient Temperature	72	°F
Specific Humidity	0.013728	lb H_2O / lb air

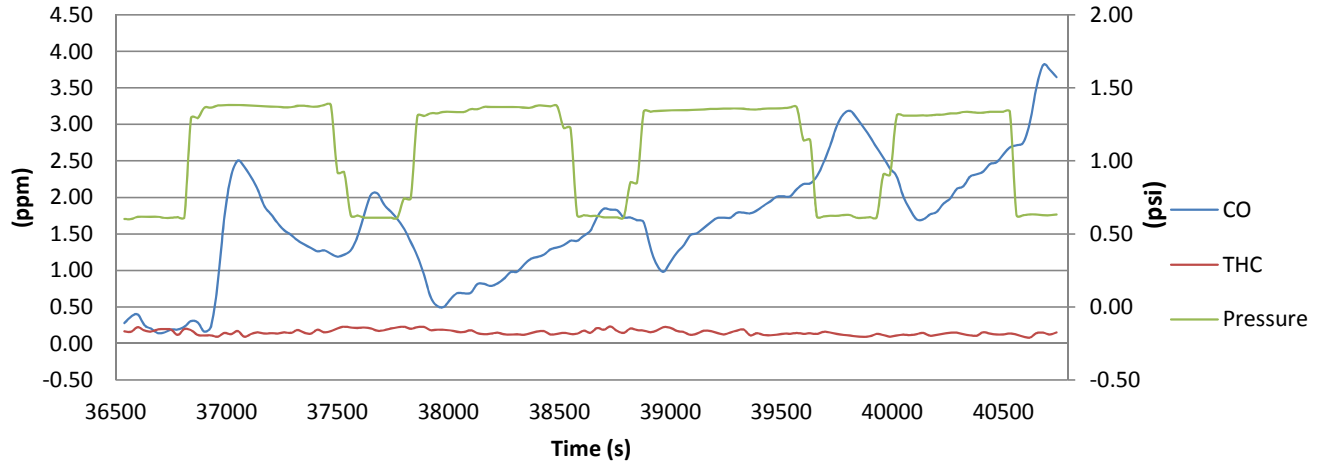
70-100-70 Load, Run - SCD-36 R9

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. °F	Fuel Flow SCFH
10/06/16 10:25:27	98940	13.91	0.29	-0.07	4.83	1.40	75.40	1,207.00
10/06/16 10:25:57	98970	13.35	0.28	-0.07	5.19	1.40	75.40	1,207.00
10/06/16 10:26:27	99000	13.96	0.28	-0.06	4.86	1.40	75.60	1,204.00
10/06/16 10:26:57	99030	13.91	0.35	-0.05	4.85	1.40	75.60	1,204.00
10/06/16 10:27:27	99060	14.10	0.32	-0.06	4.70	1.40	75.70	1,207.00
10/06/16 10:27:57	99090	14.02	0.32	-0.08	4.69	1.40	75.70	1,207.00
10/06/16 10:28:27	99120	13.40	0.32	-0.08	5.25	1.41	75.90	1,207.00
10/06/16 10:28:57	99150	13.21	0.31	-0.06	5.28	1.41	75.90	1,207.00
10/06/16 10:29:27	99180	13.75	0.30	-0.06	4.91	1.42	76.00	1,207.00
10/06/16 10:29:57	99210	13.13	0.28	-0.05	5.36	1.42	76.00	1,207.00
10/06/16 10:30:27	99240	13.38	0.25	-0.06	5.21	1.42	76.20	1,206.00
10/06/16 10:30:57	99270	13.53	0.32	-0.06	5.07	1.42	76.20	1,206.00
10/06/16 10:31:27	99300	13.45	0.31	-0.05	5.14	1.42	76.40	1,206.00
10/06/16 10:31:57	99330	13.69	0.32	-0.07	4.98	1.42	76.40	1,206.00
10/06/16 10:32:27	99360	14.19	0.31	-0.06	4.68	0.69	76.50	811.00
10/06/16 10:32:57	99390	13.83	0.29	-0.06	4.94	0.69	76.50	811.00
10/06/16 10:33:27	99420	15.08	0.34	-0.06	4.09	0.67	76.50	805.00
10/06/16 10:33:57	99450	14.79	0.62	-0.06	4.29	0.67	76.50	805.00
10/06/16 10:34:27	99480	14.82	0.91	-0.06	4.23	0.68	76.60	805.00
10/06/16 10:34:57	99510	14.75	1.08	-0.09	4.32	0.68	76.60	805.00
10/06/16 10:35:27	99540	15.01	1.12	-0.09	4.18	0.67	76.60	805.00
RAW AVERAGE		**14.32**	**0.92**	**-0.06**	**4.58**	**1.14**	**73.10**	**1,067.99**

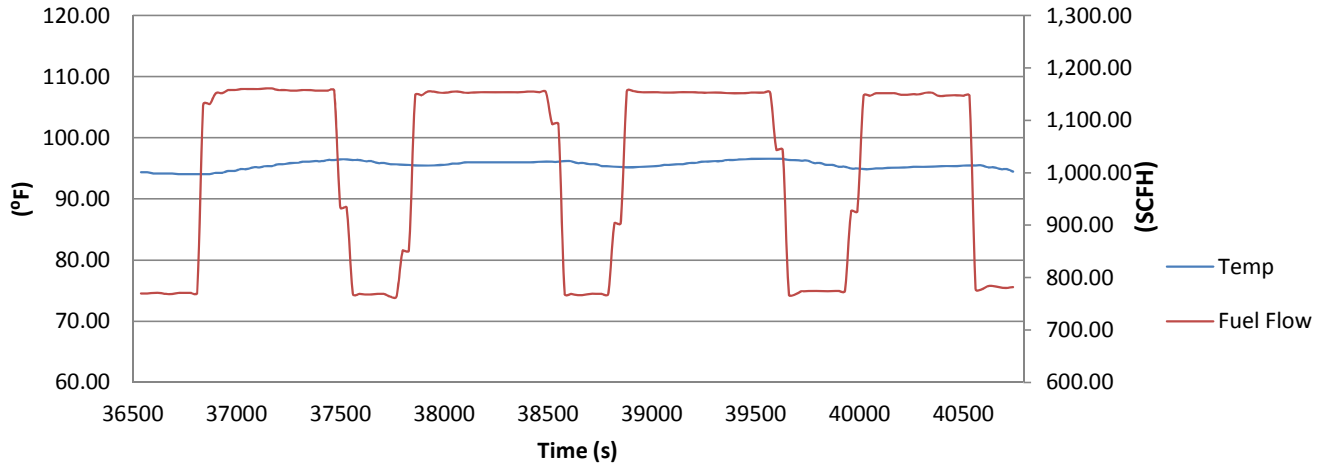
		O_2	CO	THC	CO_2	Press. Trans	Temp. Trans.	F-Flow Trans.
	Serial Number:	INSTO2-0011	INST-CO-0022	INST-TH-0002	INST-C2-0013	1434717	1434717	1434717
		(%)	(ppmvd)	(ppmvw)	(%)	(in. H_2O)	(°F)	(SCFH)
Bias	Initial Zero	-0.02	0.05	-0.05	0.01			
	Final Zero	-0.02	-0.01	-0.06	0.03			
	Avg. Zero	-0.02	0.02	-0.06	0.02			
	Initial UpScale	11.97	9.41	2.94	8.81			
	Final UpScale	11.93	9.41	3.06	8.87			
	Avg. UpScale	11.95	9.41	3.00	8.84			
Upscale Cal Gas		11.90	9.44	3.00	8.95			

EMISSIONS DATA	O_2	CO	THC	CO_2
Corrected Raw Average (ppm/% dry basis)	14.26	0.90	-0.01	4.63
Corrected Raw Average (ppm/% wet basis)	13.25	0.84	0.00	4.30
Emission Rate (lb/hr)	N/A	0.01	0.00	N/A

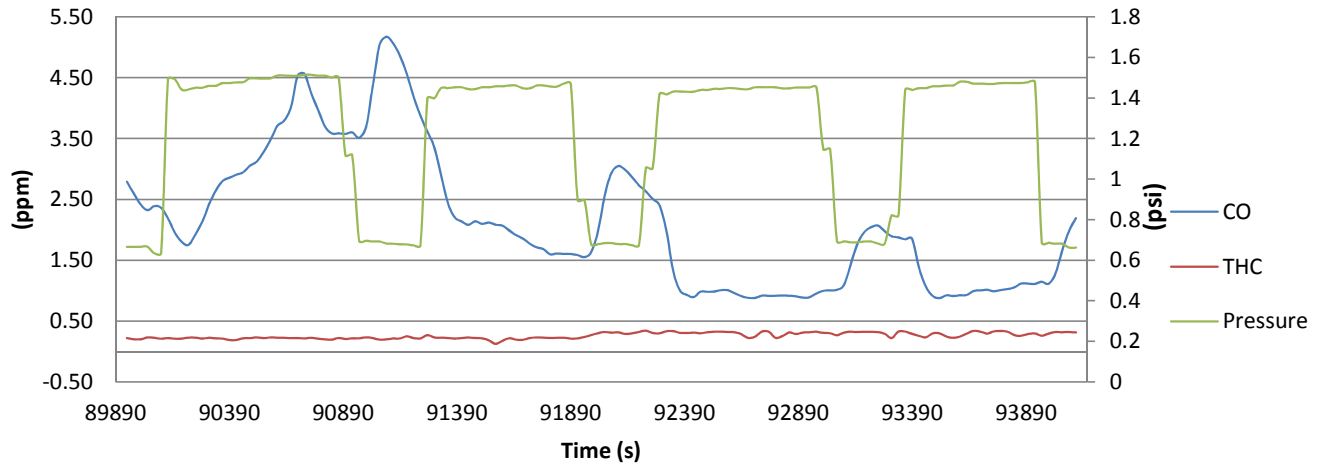
SCD-36 R7



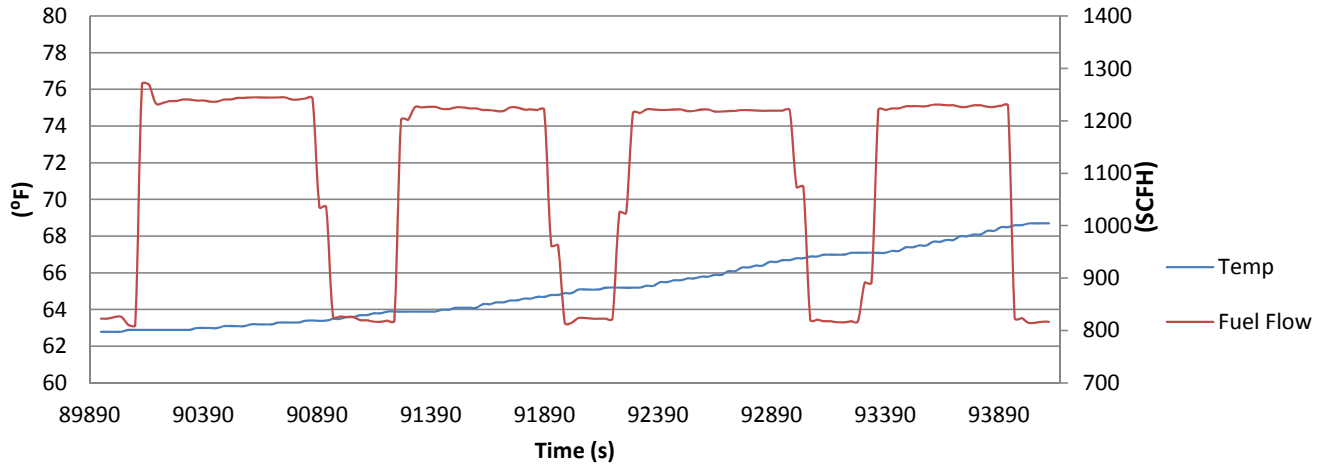
SCD-36 R7



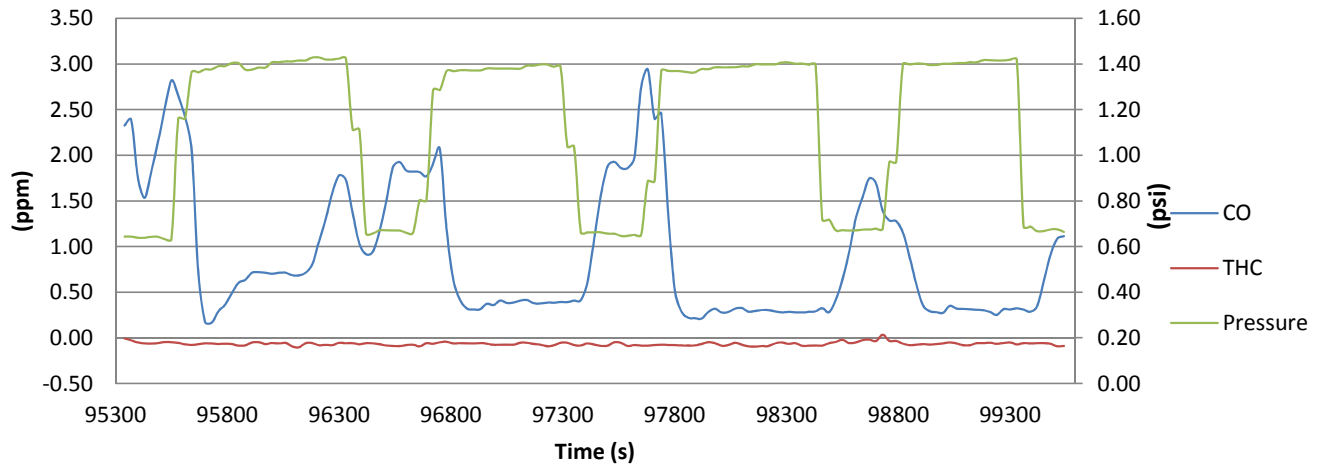
SCD-36 R8



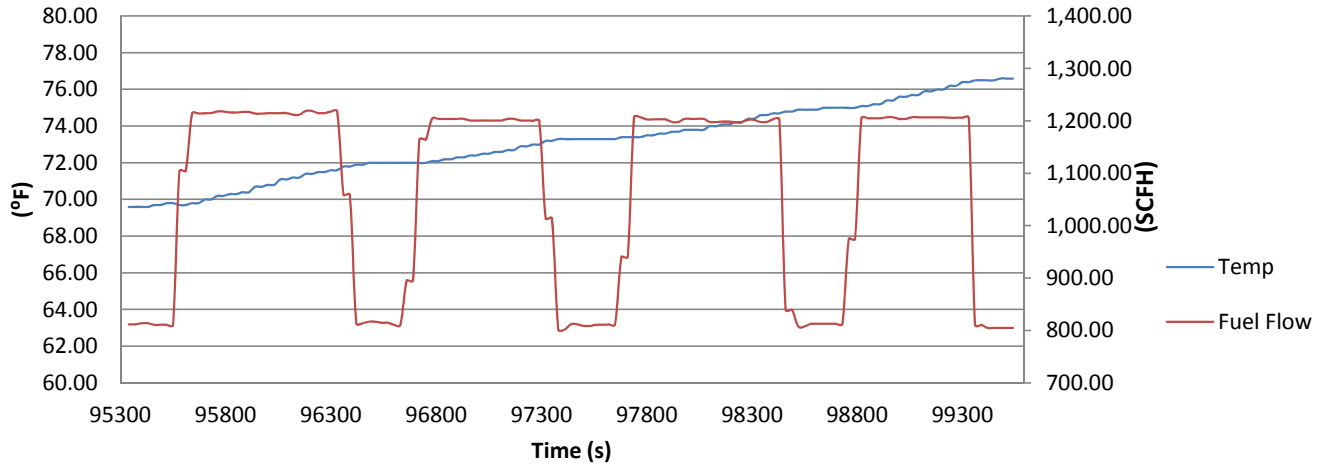
SCD-36 R8

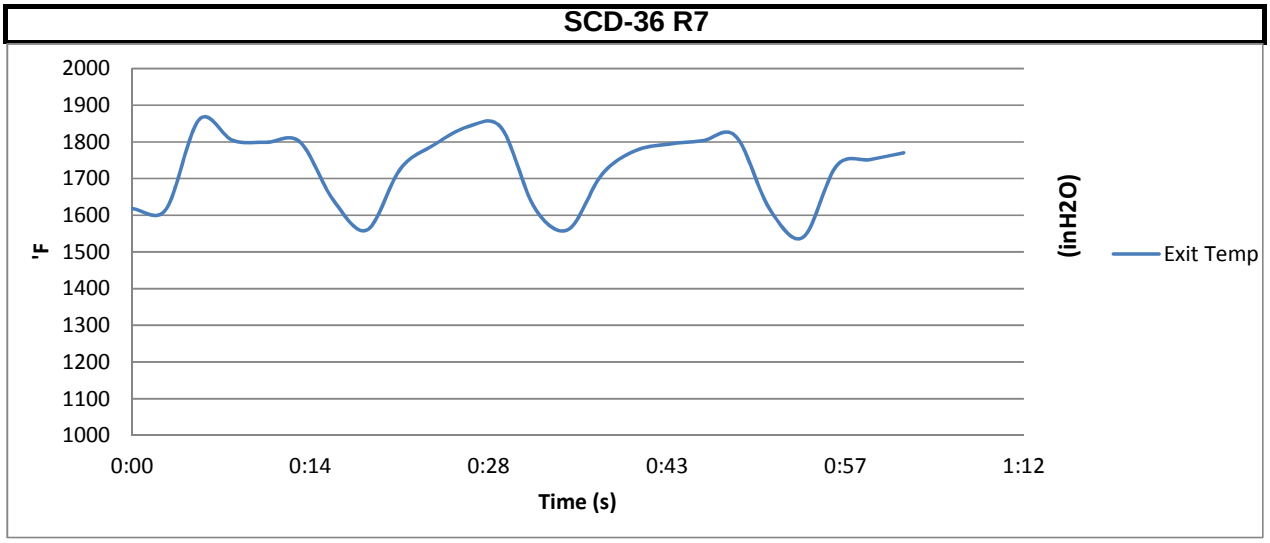


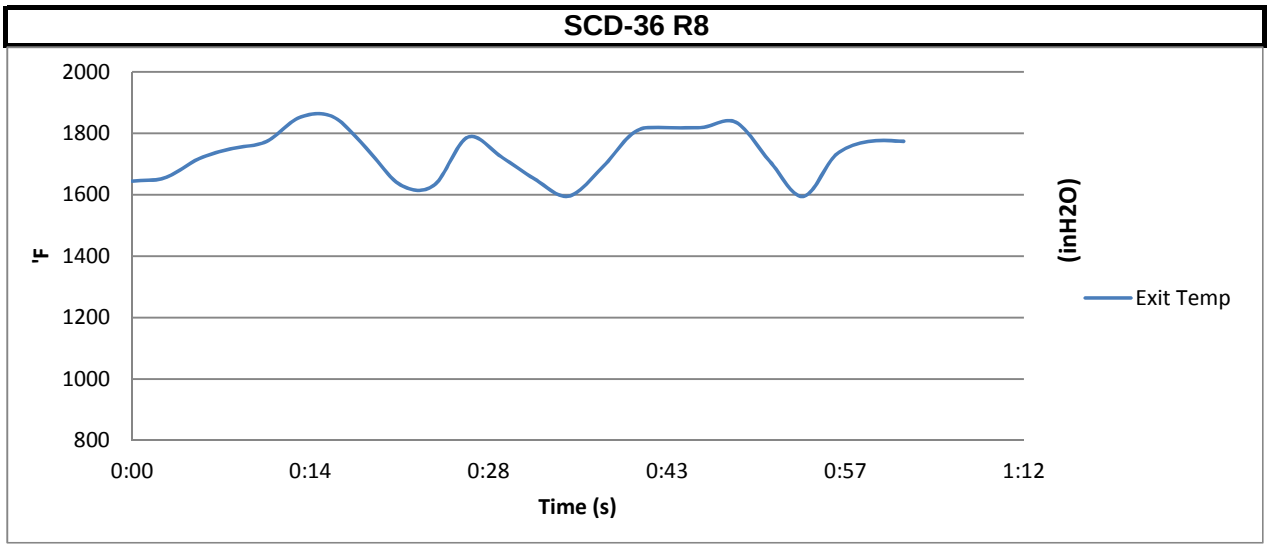
SCD-36 R9

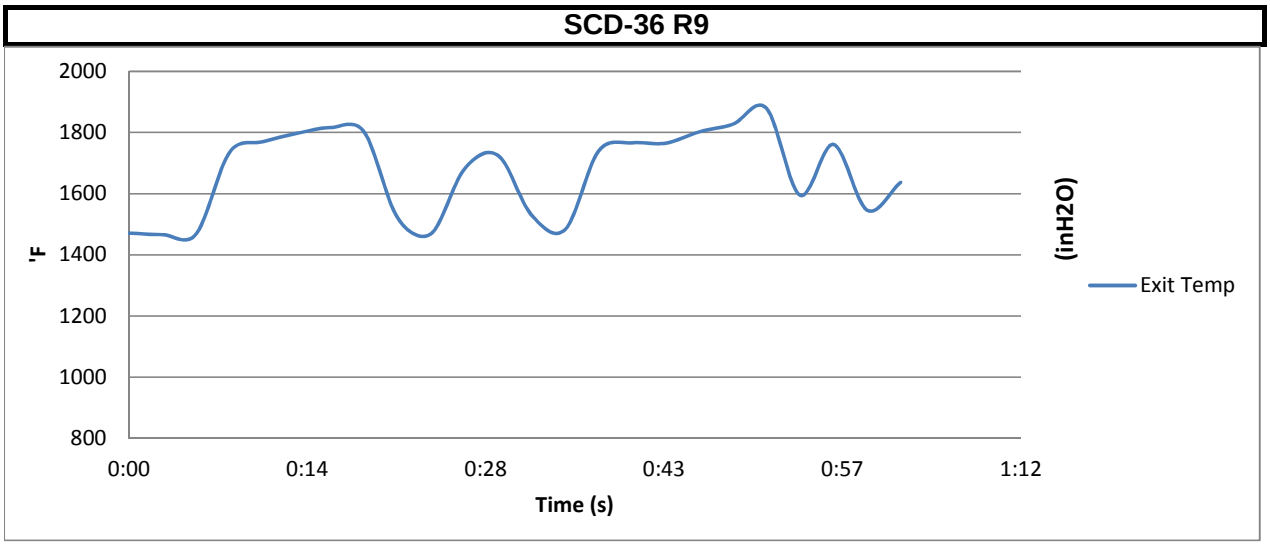


SCD-36 R9




SCD-36 R7
2000
1900
1800
1700
1600
1500
1400
1300
1200
1100
1000
'F
0:00
0:14
0:28
0:43
0:57
1:12
Time (s)
(inH2O)
Exit Temp


SCD-36 R8
2000
1800
1600
1400
1200
1000
800
'F
0:00
0:14
0:28
0:43
0:57
1:12
Time (s)
(inH2O)
Exit Temp


SCD-36 R9
2000
1800
1600
1400
1200
1000
800
'F
0:00
0:14
0:28
0:43
0:57
1:12
Time (s)
(inH2O)
Exit Temp

EMISSION DATA RECORDS

90-100% FIXED RATE UNIT OPERATION DATA

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE

Source Information	
Plant Name	Elk City Facilty
Sampling Location	SCD-36
Fuel Type	Gas, Propene

Test Information			
Project #		sfi-elkcity.ok-comp#1	
Operator		MJ/BL	
Date for Preliminary Run	(mm/dd/yy)	10/04/16	
Standard Temperature		68	°F
Standard Pressure		29.92	in Hg
Required Sample Vol.	RM4, 8.1.1.2	21	scf
Run Duration	≤0.75 cfm	65	minutes
Unit Number		SCD-36	
Base Run Number		90-100%	
Number of Ports Available		2	
Number of Ports Used		2	
Port Inside Diameter		3.00	in
Stack Shape		Circular	

Test Equipment Information					
Run		**1**	**2**	**3**	
Test Date	(mm/dd/yy)	10/04/16	10/04/16	10/04/16	
Load	% or w/DB	90-100	90-100	90-100	
Meter Box Number	from ACS	SAMP-CP-0011	SAMP-CP-0011	SAMP-CP-0011	
Meter Calibration Factor	(Y)	0.989	0.989	0.989	
Orifice Meter Coefficient	($\Delta H_@$)	1.585	1.585	1.585	in H_2O
Pitot Identification	from ACS	9-7-16-1	9-7-16-1	9-7-16-1	
Pitot Tube Coefficient	(C_p)	0.840	0.840	0.840	
Probe Number	from ACS	SAMP-PF-0003	SAMP-SP-0001	SAMP-SP-0001	
Probe Length		60.0	60.0	60.0	in
(SS, Glass ….) Liner Material	from list	inconel	inconel	inconel	
Impinger Case Number	from ACS	SAMP-BC-0032	SAMP-BC-0032	SAMP-BC-0032	

Testing Company Information	
Company Name	Air Hygiene International, Inc. (Tulsa, Oklahoma)
Address	1600 W Tacoma Street
City, State Zip	Broken Arrow, Oklahoma 74012
Project Manager	Min Sum Lee
Phone Number	(918) 307-8865
Fax Number	(918) 307-9131

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] - RESULTS

Plant Name	Elk City Facilty
Sampling Location	SCD-36
Project #	sfi-elkcity.ok-comp#1

Historical Data	**90-100%-1**	**90-100%-2**	**90-100%-3**	**Average**	**Units**
Run Start Time	08:02	09:27	10:52		hh:mm
Run Stop Time	09:12	10:36	12:02		hh:mm
Test Date	10/04/16	10/04/16	10/04/16		mm/dd/yy
Meter Calibration Factor	0.989	0.989	0.989		
Pitot Tube Coefficient	0.840	0.840	0.840		
Initial Meter Volume	152.230	202.630	253.740		ft^3
Final Meter Volume	202.510	253.660	303.080		ft^3
Total Meter Volume	50.280	51.030	49.340	50.217	ft^3
Total Sampling Time	65.00	65.00	65.00	65.00	min
Average Meter Temperature	76.17	70.52	71.63	72.77	°F
Average Stack Temperature	1525.29	1561.17	1551.25	1545.90	°F
Barometric Pressure	27.68	27.69	27.69	27.69	in Hg
Stack Static Pressure	27.68	0.00	0.00	9.23	in H_2O
Absolute Stack Pressure	29.72	27.69	27.69	28.37	in Hg
Average Orifice Pressure Drop	1.60	1.60	1.60	1.60	in H_2O
Absolute Meter Pressure	27.80	27.81	27.81	27.80	in Hg
Avg Square Root Pitot Pressure	0.15	0.15	0.15	0.15	$\sqrt{(in\ H_2O)}$
Moisture Content Data	**90-100%-1**	**90-100%-2**	**90-100%-3**	**Average**	**Units**
Impinger Water Weight Gain	53.30	56.40	59.80	56.50	g
Silica Gel Weight Gain	15.20	11.00	9.10	11.77	g
Total Water Volume Collected	68.62	67.52	69.02	68.39	ml
Standard Water Vapor Volume	3.23	3.18	3.25	3.22	scf
Standard Meter Volume	45.5	46.7	45.0	45.7	dscf
Calculated Stack Moisture	6.63	6.37	6.73	6.58	%
Saturated Stack Moisture	100.00	100.00	100.00	100.00	%
Reported Stack Moisture Content	6.63	6.37	6.73	6.58	%
Method 3C Gas Analysis Data	**90-100%-1**	**90-100%-2**	**90-100%-3**	**Average**	**Units**
Carbon Dioxide Content	4.5	4.1	4.2	4.3	%
Oxygen Content	15.2	15.9	15.7	15.6	%
Nitrogen Content	80.3	80.0	80.0	80.1	%
Stack Dry Molecular Weight	29.33	29.29	29.28	29.30	lb/lb-mole
Stack Wet Molecular Weight	28.58	28.57	28.52	28.56	lb/lb-mole
Percent Excess Air	253.8	304.1	289.7	282.5	%
Volumetric Flow Rate Data	**90-100%-1**	**90-100%-2**	**90-100%-3**	**Average**	**Units**
Average Stack Gas Velocity	16.44	17.49	16.93	16.95	ft/sec
Stack Cross-Sectional Area	5.94	5.94	5.94	5.94	ft^2
Actual Stack Flow Rate	5,858	6,233	6,032	6,041	acfm
Wet Standard Stack Flow Rate	93	90	88	90	wkscfh
Dry Standard Stack Flow Rate	86,689	84,652	82,021	84,454	dscfh

METHOD 3C - DETERMINATION OF DRY MOLECULAR WEIGHT BY ANALYZER

Plant Name	Elk City Facilty	**Preliminary Date**	10/04/16		
Sampling Location	SCD-36	**Operator**	MJ/BL		
Project #	sfi-elkcity.ok-comp#1	**# of Ports Used**	2		
Fuel Type	Gas, Propene	**Min. Fuel Factor**	N/A	**Max. Fuel Factor**	N/A

Gas Analysis Data									
Run Number	90-100%-1		**Date**	10/04/16	**Run Start Time**	08:02		**Run Stop Time**	09:12
Sample Analysis Time	**CO_2 Conc.**	**O_2 Conc.**	**Methane Conc.**	**N_2 Conc.**	**Dry Molecular Weight**	**Calculated Fuel Factor**		**Excess Air**	**Fuel Factor in Range**
	($\%CO_2$)	($\%O_2$)	(ppmCO)	($\%N_2$)	(M_d)	$(F_o)_{avg}$		$(\%EA)_{avg}$	
hh:mm	%	%	ppm	%	lb/lb-mole			%	
01:10	4.5	15.2	0.0	80.3	29.33	1.256		253.8	N/A

Gas Analysis Data									
Run Number	90-100%-2		**Date**	10/04/16	**Run Start Time**	09:27		**Run Stop Time**	10:36
Sample Analysis Time	**CO_2 Conc.**	**O_2 Conc.**	**Methane Conc.**	**N_2 Conc.**	**Dry Molecular Weight**	**Calculated Fuel Factor**		**Excess Air**	**Fuel Factor in Range**
	($\%CO_2$)	($\%O_2$)	(ppmCO)	($\%N_2$)	(M_d)	$(F_o)_{avg}$		$(\%EA)_{avg}$	
hh:mm	%	%	ppm	%	lb/lb-mole			%	
01:09	4.1	15.9	0.0	80.0	29.29	1.229		304.1	N/A

Gas Analysis Data									
Run Number	90-100%-3		**Date**	10/04/16	**Run Start Time**	10:52		**Run Stop Time**	12:02
Sample Analysis Time	**CO_2 Conc.**	**O_2 Conc.**	**Methane Conc.**	**N_2 Conc.**	**Dry Molecular Weight**	**Calculated Fuel Factor**		**Excess Air**	**Fuel Factor in Range**
	($\%CO_2$)	($\%O_2$)	(ppmCO)	($\%N_2$)	(M_d)	$(F_o)_{avg}$		$(\%EA)_{avg}$	
hh:mm	%	%	ppm	%	lb/lb-mole			%	
01:10	4.2	15.7	0.0	80.0	29.28	1.232		289.7	N/A

METHOD 4 - DETERMINATION OF MOISTURE CONTENT IN STACK GASES

Plant Name	Elk City Facilty	**Preliminary Date**	10/04/16
Sampling Location	SCD-36	**Operator**	MJ/BL
Project #	sfi-elkcity.ok-comp#1	**Ports Used**	2

Scale Daily Calibration					
Scale Number	SAMP-SC-0027	**Standard**	**Result**	**Difference**	**Pass/Fail**
Date		(g)	(g)	(g)	(± 0.5 g)
Test Day 1	10/04/16	500	500.1	-0.5	Pass

Moisture Content Data									
Run Number		90-100%-1		**Date**	10/04/16	**Start Time**	08:02	**Stop Time**	09:12
Meter Box Number		SAMP-CP-0011				**Meter Cal Factor**	(Y)	0.989	
Total Meter Volume	(V_m)	50.280	dcf			**Barometric Pressure**	(P_b)	27.68	in Hg
Average Stack Temp	(t_s)$_{avg}$	1525	°F			**Stack Static Pressure**	(P_{static})	27.68	in H_2O
Average Meter Temp	(t_m)$_{avg}$	76	°F			**Avg Orifice Pressure**	(ΔH)$_{avg}$	1.60	in H_2O
		Impinger 1	**Impinger 2**	**Impinger 3**	**Impinger 4**	**Impinger 5**	**Impinger 6**	**Impinger 7**	**Impinger 8**
		(g)	(g)	(g)	(g)				
Contents		H_2O	H_2O	-	Sil Gel				
Final Value	(V_f),(W_f)	755.00	725.70	585.50	824.40				
Initial Value	(V_i),(W_i)	718.10	715.90	578.90	809.20				
Net Value	(V_n),(W_n)	36.9	9.8	6.6	15.2				
Results									
Total Weight	(W_t)	68.50	g			**Water Vol Weighed**	($V_{wsg(std)}$)	3.230	scf
Std Meter Volume	($V_{m(std)}$)	45.496	dscf			**Sat. Moisture Content**	($B_{ws(svp)}$)	100.00	%
Calc Moisture Content	($B_{ws(calc)}$)	6.63	%			**Final Moisture Content**	(B_{ws})	6.63	%

Moisture Content Data									
Run Number		90-100%-2		**Date**	10/04/16	**Start Time**	09:27	**Stop Time**	10:36
Meter Box Number		SAMP-CP-0011				**Meter Cal Factor**	(Y)	0.989	
Total Meter Volume	(V_m)	51.030	dcf			**Barometric Pressure**	(P_b)	27.69	in Hg
Average Stack Temp	(t_s)$_{avg}$	1561	°F			**Stack Static Pressure**	(P_{static})	0.00	in H_2O
Average Meter Temp	(t_m)$_{avg}$	71	°F			**Avg Orifice Pressure**	(ΔH)$_{avg}$	1.60	in H_2O
		Impinger 1	**Impinger 2**	**Impinger 3**	**Impinger 4**	**Impinger 5**	**Impinger 6**	**Impinger 7**	**Impinger 8**
		(g)	(g)	(g)	(g)				
Contents		H_2O	H_2O	-	Sil Gel				
Final Value	(V_f),(W_f)	799.50	732.90	590.20	535.40				
Initial Value	(V_i),(W_i)	755.00	725.70	585.50	524.40				
Net Value	(V_n),(W_n)	44.5	7.2	4.7	11.0				
Results									
Total Weight	(W_t)	67.40	g			**Water Vol Weighed**	($V_{wsg(std)}$)	3.178	scf
Std Meter Volume	($V_{m(std)}$)	46.683	dscf			**Sat. Moisture Content**	($B_{ws(svp)}$)	100.00	%
Calc Moisture Content	($B_{ws(calc)}$)	6.37	%			**Final Moisture Content**	(B_{ws})	6.37	%

Moisture Content Data									
Run Number		90-100%-3		**Date**	10/04/16	**Start Time**	10:52	**Stop Time**	12:02
Meter Box Number		SAMP-CP-0011				**Meter Cal Factor**	(Y)	0.989	
Total Meter Volume	(V_m)	49.340	dcf			**Barometric Pressure**	(P_b)	27.69	in Hg
Average Stack Temp	(t_s)$_{avg}$	1551	°F			**Stack Static Pressure**	(P_{static})	0.00	in H_2O
Average Meter Temp	(t_m)$_{avg}$	72	°F			**Avg Orifice Pressure**	(ΔH)$_{avg}$	1.60	in H_2O
		Impinger 1	**Impinger 2**	**Impinger 3**	**Impinger 4**	**Impinger 5**	**Impinger 6**	**Impinger 7**	**Impinger 8**
		(g)	(g)	(g)	(g)				
Contents		H_2O	H_2O	-	Sil Gel				
Final Value	(V_f),(W_f)	841.90	732.90	593.90	844.50				
Initial Value	(V_i),(W_i)	789.50	729.20	590.20	835.40				
Net Value	(V_n),(W_n)	52.4	3.7	3.7	9.1				
Results									
Total Weight	(W_t)	68.90	g			**Water Vol Weighed**	($V_{wsg(std)}$)	3.249	scf
Std Meter Volume	($V_{m(std)}$)	45.043	dscf			**Sat. Moisture Content**	($B_{ws(svp)}$)	100.00	%
Calc Moisture Content	($B_{ws(calc)}$)	6.73	%			**Final Moisture Content**	(B_{ws})	6.73	%

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE ISOKINETIC SAMPLING DATA

Plant Name	Elk City Facilty
Sampling Location	SCD-36
Project #	sfi-elkcity.ok-comp#1

Date	10/04/16
Operator	MJ/BL
Run Number	90-100%-1

Ideal Nozzle Diameter and IsoKinetic Factor Setup			
Pitot Coefficient	(C_p)	0.840	
Average Stack Temp	(t_s)	1525.3	°F
Average Meter Temp	(t_m)	76.2	
Orifice Meter Coefficient	($\Delta H@$)	1.585	in H_2O
Square Root ΔP	($\Delta p^{1/2}_{avg}$)	0.15	in H_2O
Stack Moisture Content	(B_{ws})	6.63	%
Stack Dry Molecular Weight	(M_d)	29.33	lb/lb-mole
Estimated Orifice Flow Rate	(Q_m)	0.75	acfm
ΔP to ΔH Isokinetic Factor	(K)		

Leak Checks					
Train	**Pre**	0.000	ft³/min@	15.0	in Hg
PASS	**Post**	0.000	ft³/min@	15.0	in Hg
Pitot	**Pre (+)**	0.2	in H_2O for	20.0	sec
< 3.0	**Pre (-)**	0.2	in H_2O for	20.0	sec
	Post (+)	0.2	in H_2O for	15.0	sec
	Post (-)	0.2	in H_2O for	15.0	sec

Sampling Equipment			
Meter Box Number	SAMP-CP-0011		
Meter Cal Factor	(Y)	0.989	
Low Flow Meter	SAMP-MN-0001		
Average Nozzle Diameter	(D_{na})		in
Suggested Nozzle Diameter	(D_{ni})	0.4324	in
Probe Number	SAMP-PF-0003		in
Probe Length	60		in
Liner Material	inconel		
Sample Case / Oven Number			
Impinger Case Number	SAMP-BC-0032		

Pressures			
Barometric Pressure	(P_b)	27.68	in Hg
Stack Static Pressure	(P_{static})	27.68	in H_2O
Absolute Stack Pressure	(P_s)	29.72	in Hg
Absolute Meter Pressure	(P_m)	27.80	in Hg

Nozzle Measurements				
Pre				**PASS**
Post				**PASS**

Run Time			
Start	08:02	**End**	09:12

Weights	**Imp 1**	**Imp 2**	**Imp 3**	**Imp 4**	**Imp 5**	**Imp 6**	**Imp 7**	**Imp 8**
Pre	718.1	715.9	578.9	809.2				
Post	755.0	725.7	585.5	524.4				

Wash Volumes					ml
					ml

Traverse Point #	**Sampling Time (Θ)**	**Timer Time**	**Dry Gas Meter Reading (V_m)**	**Velocity Head (Δp)**	**Desired Orifice ΔH (ΔH_d)**	**Actual Orifice ΔH (ΔH_a)**	**Stack Temp (t_s)**	**Snorkel Temp (248±25°F)**	**Filter Temp**	**Impinger Exit Temp (≤68°F)**	**Cond. Temp (≤---°F)**	**CPM Filter Temp (--±--°F)**	**Meter Inlet Temp (t_{mi})**	**Meter Outlet Temp (t_{mo})**	**Pump Vacuum**	**Square Root ΔP ($\Delta p^{1/2}$)**	**Local Stack Velocity (v_s)$_l$**	**Cumul. Meter Volume (V_m)$_{std}$**	**Cumul. Percent IsoKinetic (I)**	**Est-Run Meter Volume (V_m)$_{std}$**
	min	hh:mm:ss	ft³	in H_2O	in H_2O	in H_2O	°F	°F	°F	°F	°F	°F	°F	°F	in Hg	√(in H_2O)	ft/sec	dscf	%	dscf
A-1	0.0	00:00:00	152.230	0.020	1.585	1.60	1483	255		60			71	70	13.0	0.14	15.36	2.231		53.554
A-2	2.7	00:02:43	154.670	0.020	1.585	1.60	1498	258		57			71	71	13.0	0.14	15.42	4.369		52.432
A-3	5.4	00:05:25	157.010	0.020	1.585	1.60	1508	257		58			71	71	13.0	0.14	15.46	5.996		47.965
A-4	8.1	00:08:07	158.790	0.020	1.585	1.60	1516	254		62			75	71	13.0	0.14	15.49	7.944		47.661
A-5	10.8	00:10:50	160.930	0.020	1.585	1.60	1534	252		68			75	71	13.0	0.14	15.56	9.837		47.217
A-6	13.5	00:13:33	163.010	0.025	1.585	1.60	1583	250		67			75	71	13.0	0.16	17.61	11.666		46.666
A-7	16.3	00:16:15	165.020	0.025	1.585	1.60	1560	250		64			75	72	13.0	0.16	17.51	13.549		46.453
A-8	19.0	00:18:58	167.090	0.025	1.585	1.60	1578	251		62			76	72	13.0	0.16	17.59	15.420		46.261
A-9	21.7	00:21:40	169.150	0.030	1.585	1.60	1642	252		61			76	72	13.0	0.17	19.57	17.301		46.136
A-10	24.4	00:24:22	171.220	0.025	1.585	1.60	1641	252		60			76	73	13.0	0.16	17.86	19.207		46.097
A-11	27.1	00:27:05	173.320	0.020	1.585	1.60	1447	252		60			76	73	13.0	0.14	15.22	21.140		46.125
A-12	29.8	00:29:47	175.450	0.020	1.585	1.60	1348	252		60			76	73	13.0	0.14	14.82	22.756		45.512
B-1	32.5	00:32:30	177.230	0.020	1.585	1.60	1406	252		60			76	73	13.0	0.14	15.05	24.635		45.480
B-2	35.2	00:35:12	179.300	0.020	1.585	1.60	1536	252		60			75	74	13.0	0.14	15.57	26.505		45.437
B-3	37.9	00:37:55	181.360	0.030	1.585	1.60	1572	254		60			76	75	13.0	0.17	19.24	28.462		45.539
B-4	40.6	00:40:37	183.520	0.025	1.585	1.60	1560	254		58			77	75	13.0	0.16	17.51	30.362		45.544
B-5	43.3	00:43:20	185.620	0.025	1.585	1.60	1524	252		58			78	76	13.0	0.16	17.35	32.278		45.569
B-6	46.0	00:46:03	187.740	0.020	1.585	1.60	1540	251		59			78	76	13.0	0.14	15.58	34.166		45.555
B-7	48.8	00:48:45	189.830	0.020	1.585	1.60	1524	251		59			78	76	13.0	0.14	15.52	36.135		45.645
B-8	51.5	00:51:28	192.010	0.020	1.585	1.60	1506	252		59			79	76	13.0	0.14	15.45	37.977		45.572
B-9	54.2	00:54:10	194.050	0.020	1.585	1.60	1560	252		60			79	76	13.0	0.14	15.66	39.963		45.671
B-10	56.9	00:56:53	196.250	0.025	1.585	1.60	1548	252		61			79	76	13.0	0.16	17.46	41.876		45.683
B-11	59.6	00:59:35	198.370	0.025	1.585	1.60	1547	252		61			80	76	13.0	0.16	17.45	43.788		45.692
B-12	62.3	01:02:18	200.490	0.020	1.585	1.60	1446	252		61			80	76	13.0	0.14	15.21	45.609		45.609
Last Pt	65.0	01:05:00	202.510																	
Final Val	65.0	01:05:00	202.510												13.0	**Final Values**		45.609		
Average Values				0.02		1.60	1525	253		61			76			0.15	16.44			
													76							

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE ISOKINETIC SAMPLING DATA

Plant Name	Elk City Facilty
Sampling Location	SCD-36
Project #	sfi-elkcity.ok-comp#1

Date	10/04/16
Operator	MJ/BL
Run Number	90-100%-2

Ideal Nozzle Diameter and IsoKinetic Factor Setup			
Pitot Coefficient	(C_p)	0.840	
Average Stack Temp	(t_s)	1561.2	°F
Average Meter Temp	(t_m)	70.5	
Orifice Meter Coefficient	($\Delta H@$)	1.585	in H_2O
Square Root ΔP	($\Delta p^{1/2}_{avg}$)	0.15	in H_2O
Stack Moisture Content	(B_{ws})	6.37	%
Stack Dry Molecular Weight	(M_d)	29.29	lb/lb-mole
Estimated Orifice Flow Rate	(Q_m)	0.70	acfm
ΔP to ΔH Isokinetic Factor	(K)		

Leak Checks					
Train	**Pre**	0.000	ft³/min@	15.0	in Hg
PASS	**Post**	0.000	ft³/min@	15.0	in Hg
Pitot	**Pre (+)**	0.2	in H_2O for	20.0	sec
< 3.0	**Pre (-)**	0.2	in H_2O for	20.0	sec
	Post (+)	0.2	in H_2O for	15.0	sec
	Post (-)	0.2	in H_2O for	15.0	sec

Sampling Equipment			
Meter Box Number	SAMP-CP-0011		
Meter Cal Factor	(Y)	0.989	
Low Flow Meter	SAMP-MN-0001		
Average Nozzle Diameter	(D_{na})		in
Suggested Nozzle Diameter	(D_{ni})	0.4274	in
Probe Number	SAMP-SP-0001		in
Probe Length	60		in
Liner Material	inconel		
Sample Case / Oven Number			
Impinger Case Number	SAMP-BC-0032		

Pressures			
Barometric Pressure	(P_b)	27.69	in Hg
Stack Static Pressure	(P_{static})	0.00	in H_2O
Absolute Stack Pressure	(P_s)	27.69	in Hg
Absolute Meter Pressure	(P_m)	27.81	in Hg

Nozzle Measurements				
Pre				**PASS**
Post				**PASS**

Run Time			
Start	09:27	**End**	10:36

Weights	**Imp 1**	**Imp 2**	**Imp 3**	**Imp 4**	**Imp 5**	**Imp 6**	**Imp 7**	**Imp 8**
Pre	755.0	725.7	585.5	524.4				
Post	799.5	732.9	590.2	835.4				

Wash Volumes					ml
					ml

Traverse Point #	**Sampling Time (Θ)**	**Timer Time**	**Dry Gas Meter Reading (V_m)**	**Velocity Head (Δp)**	**Desired Orifice ΔH (ΔH_d)**	**Actual Orifice ΔH (ΔH_a)**	**Stack Temp (t_s)**	**Snorkel Temp (248±25°F)**	**Filter Temp**	**Impinger Exit Temp (≤68°F)**	**Cond. Temp (≤---°F)**	**CPM Filter Temp (--±--°F)**	**Meter Inlet Temp (t_{mi})**	**Meter Outlet Temp (t_{mo})**	**Pump Vacuum**	**Square Root ΔP ($\Delta p^{1/2}$)**	**Local Stack Velocity (v_s)$_l$**	**Cumul. Meter Volume (V_m)$_{std}$**	**Cumul. Percent IsoKinetic (I)**	**Est-Run Meter Volume (V_m)$_{std}$**
	min	hh:mm:ss	ft³	in H_2O	in H_2O	in H_2O	°F	°F	°F	°F	°F	°F	°F	°F	in Hg	√(in H_2O)	ft/sec	dscf	%	dscf
A-1	0.0	00:00:00	202.630	0.020	1.585	1.60	1524	257		55			67	74	13.0	0.14	16.08	1.628		39.082
A-2	2.7	00:02:43	204.410	0.020	1.585	1.60	1542	257		54			69	72	13.0	0.14	16.16	3.989		47.865
A-3	5.4	00:05:25	206.990	0.020	1.585	1.60	1562	256		54			69	72	13.0	0.14	16.24	5.956		47.645
A-4	8.1	00:08:07	209.140	0.025	1.585	1.60	1573	255		54			69	72	13.0	0.16	18.20	7.977		47.865
A-5	10.8	00:10:50	211.350	0.030	1.585	1.60	1570	253		54			69	72	13.0	0.17	19.93	9.807		47.074
A-6	13.5	00:13:33	213.350	0.030	1.585	1.60	1531	252		53			69	71	13.0	0.17	19.73	11.565		46.261
A-7	16.3	00:16:15	215.270	0.025	1.585	1.60	1539	251		53			69	71	13.0	0.16	18.05	13.800		47.313
A-8	19.0	00:18:58	217.710	0.025	1.585	1.60	1554	251		52			69	71	13.0	0.16	18.12	15.539		46.618
A-9	21.7	00:21:40	219.610	0.025	1.585	1.60	1544	251		52			69	71	13.0	0.16	18.07	17.151		45.736
A-10	24.4	00:24:22	221.370	0.025	1.585	1.60	1551	252		52			69	71	13.0	0.16	18.10	19.642		47.140
A-11	27.1	00:27:05	224.090	0.025	1.585	1.60	1532	252		52			69	72	13.0	0.16	18.02	21.600		47.126
A-12	29.8	00:29:47	226.230	0.025	1.585	1.60	1533	252		52			69	72	13.0	0.16	18.02	23.512		47.023
B-1	32.5	00:32:30	228.320	0.020	1.585	1.60	1522	254		51			68	71	13.0	0.14	16.08	25.556		47.180
B-2	35.2	00:35:12	230.550	0.020	1.585	1.60	1536	252		51			69	72	13.0	0.14	16.13	27.431		47.025
B-3	37.9	00:37:55	232.600	0.020	1.585	1.60	1540	254		51			69	72	13.0	0.14	16.15	29.361		46.978
B-4	40.6	00:40:37	234.710	0.020	1.585	1.60	1548	253		51			69	72	13.0	0.14	16.18	31.273		46.910
B-5	43.3	00:43:20	236.800	0.020	1.585	1.60	1552	252		52			68	74	13.0	0.14	16.20	33.238		46.925
B-6	46.0	00:46:03	238.950	0.020	1.585	1.60	1556	252		52			68	74	13.0	0.14	16.21	35.130		46.841
B-7	48.8	00:48:45	241.020	0.025	1.585	1.60	1567	252		52			68	74	13.0	0.16	18.18	37.050		46.800
B-8	51.5	00:51:28	243.120	0.025	1.585	1.60	1618	252		52			68	74	13.0	0.16	18.40	38.960		46.752
B-9	54.2	00:54:10	245.210	0.030	1.585	1.60	1639	252		52			68	74	13.0	0.17	20.26	40.898		46.740
B-10	56.9	00:56:53	247.330	0.025	1.585	1.60	1625	252		52			68	74	13.0	0.16	18.43	43.009		46.919
B-11	59.6	00:59:35	249.640	0.020	1.585	1.60	1604	252		52			68	74	13.0	0.14	16.40	44.691		46.634
B-12	62.3	01:02:18	251.480	0.020	1.585	1.60	1606	252		52			68	74	13.0	0.14	16.41	46.683		46.683
Last Pt	65.0	01:05:00	253.660																	
Final Val	65.0	01:05:00	253.660											**Max Vac**	13.0	**Final Values**		46.683		
Average Values				0.02		1.60	1561	253		52			69	73		0.15	17.49			
													71							

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE ISOKINETIC SAMPLING DATA

Plant Name	Elk City Facilty
Sampling Location	SCD-36
Project #	sfi-elkcity.ok-comp#1

Date	10/04/16
Operator	MJ/BL
Run Number	90-100%-3

Ideal Nozzle Diameter and IsoKinetic Factor Setup			
Pitot Coefficient	(C_p)	0.840	
Average Stack Temp	(t_s)	1551.3	°F
Average Meter Temp	(t_m)	71.6	
Orifice Meter Coefficient	($\Delta H@$)	1.585	in H_2O
Square Root ΔP	($\Delta p^{1/2}_{avg}$)	0.15	in H_2O
Stack Moisture Content	(B_{ws})	6.73	%
Stack Dry Molecular Weight	(M_d)	29.28	lb/lb-mole
Estimated Orifice Flow Rate	(Q_m)	0.72	acfm
ΔP to ΔH Isokinetic Factor	(K)		

Leak Checks					
Train	**Pre**	0.000	ft³/min@	15.0	in Hg
PASS	**Post**	0.000	ft³/min@	15.0	in Hg
Pitot	**Pre (+)**	0.2	in H_2O for	20.0	sec
< 3.0	**Pre (-)**	0.2	in H_2O for	20.0	sec
	Post (+)	0.2	in H_2O for	15.0	sec
	Post (-)	0.2	in H_2O for	15.0	sec

Sampling Equipment			
Meter Box Number	SAMP-CP-0011		
Meter Cal Factor	(Y)	0.989	
Low Flow Meter	SAMP-MN-0001		
Average Nozzle Diameter	(D_{na})		in
Suggested Nozzle Diameter	(D_{ni})	0.4352	in
Probe Number	SAMP-SP-0001		in
Probe Length	60		in
Liner Material	inconel		
Sample Case / Oven Number			
Impinger Case Number	SAMP-BC-0032		

Pressures			
Barometric Pressure	(P_b)	27.69	in Hg
Stack Static Pressure	(P_{static})	0.00	in H_2O
Absolute Stack Pressure	(P_s)	27.69	in Hg
Absolute Meter Pressure	(P_m)	27.81	in Hg

Nozzle Measurements				
Pre				**PASS**
Post				**PASS**

Run Time			
Start	10:52	**End**	12:02

Weights	**Imp 1**	**Imp 2**	**Imp 3**	**Imp 4**	**Imp 5**	**Imp 6**	**Imp 7**	**Imp 8**
Pre	799.5	732.9	590.2	835.4				
Post	841.9	739.2	593.9	844.5				

Wash Volumes					ml
					ml

Traverse Point #	**Sampling Time (Θ)**	**Timer Time**	**Dry Gas Meter Reading (V_m)**	**Velocity Head (Δp)**	**Desired Orifice ΔH (ΔH_d)**	**Actual Orifice ΔH (ΔH_a)**	**Stack Temp (t_s)**	**Snorkel Temp (248±25°F)**	**Filter Temp**	**Impinger Exit Temp (≤68°F)**	**Cond. Temp (≤---°F)**	**CPM Filter Temp (--±--°F)**	**Meter Inlet Temp (t_{mi})**	**Meter Outlet Temp (t_{mo})**	**Pump Vacuum**	**Square Root ΔP ($\Delta p^{1/2}$)**	**Local Stack Velocity (v_s)$_l$**	**Cumul. Meter Volume (V_m)$_{std}$**	**Cumul. Percent IsoKinetic (I)**	**Est-Run Meter Volume (V_m)$_{std}$**
	min	hh:mm:ss	ft³	in H_2O	in H_2O	in H_2O	°F	°F	°F	°F	°F	°F	°F	°F	in Hg	√(in H_2O)	ft/sec	dscf	%	dscf
A-1	0.0	00:00:00	253.740	0.020	1.585	1.60	1507	255		51			72	70	13.0	0.14	16.03	2.029		48.697
A-2	2.7	00:02:43	255.960	0.020	1.585	1.60	1498	257		51			72	70	13.0	0.14	15.99	3.784		45.407
A-3	5.4	00:05:25	257.880	0.020	1.585	1.60	1508	254		51			72	70	13.0	0.14	16.03	5.648		45.187
A-4	8.1	00:08:07	259.920	0.020	1.585	1.60	1506	253		51			72	70	13.0	0.14	16.02	7.540		45.242
A-5	10.8	00:10:50	261.990	0.020	1.585	1.60	1502	251		54			75	71	13.0	0.14	16.01	8.761		42.050
A-6	13.5	00:13:33	263.330	0.020	1.585	1.60	1491	251		54			75	71	13.0	0.14	15.96	11.301		45.204
A-7	16.3	00:16:15	266.120	0.020	1.585	1.60	1521	251		54			75	71	13.0	0.14	16.08	13.186		45.208
A-8	19.0	00:18:58	268.190	0.025	1.585	1.60	1585	251		54			76	72	13.0	0.16	18.27	15.122		45.365
A-9	21.7	00:21:40	270.320	0.025	1.585	1.60	1605	252		54			76	72	13.0	0.16	18.36	16.876		45.002
A-10	24.4	00:24:22	272.250	0.025	1.585	1.60	1567	252		54			76	72	13.0	0.16	18.19	18.748		44.995
A-11	27.1	00:27:05	274.310	0.025	1.585	1.60	1574	252		54			76	72	13.0	0.16	18.22	20.575		44.890
A-12	29.8	00:29:47	276.320	0.025	1.585	1.60	1559	252		54			76	72	13.0	0.16	18.15	22.592		45.185
B-1	32.5	00:32:30	278.540	0.020	1.585	1.60	1570	255		57			70	73	13.0	0.14	16.28	24.428		45.097
B-2	35.2	00:35:12	280.550	0.025	1.585	1.60	1587	254		57			70	73	13.0	0.16	18.28	26.318		45.116
B-3	37.9	00:37:55	282.620	0.025	1.585	1.60	1574	253		57			70	73	13.0	0.16	18.22	28.172		45.075
B-4	40.6	00:40:37	284.650	0.020	1.585	1.60	1586	252		57			70	73	13.0	0.14	16.35	30.062		45.093
B-5	43.3	00:43:20	286.720	0.020	1.585	1.60	1534	251		51			70	70	13.0	0.14	16.14	31.939		45.090
B-6	46.0	00:46:03	288.770	0.020	1.585	1.60	1566	251		51			70	70	13.0	0.14	16.27	33.816		45.088
B-7	48.8	00:48:45	290.820	0.020	1.585	1.60	1581	252		51			70	70	13.0	0.14	16.33	35.657		45.040
B-8	51.5	00:51:28	292.830	0.020	1.585	1.60	1570	252		51			70	70	13.0	0.14	16.28	37.561		45.074
B-9	54.2	00:54:10	294.910	0.020	1.585	1.60	1571	252		51			70	70	13.0	0.14	16.29	39.429		45.062
B-10	56.9	00:56:53	296.950	0.020	1.585	1.60	1570	252		51			70	70	13.0	0.14	16.28	41.352		45.112
B-11	59.6	00:59:35	299.050	0.025	1.585	1.60	1556	252		51			70	70	13.0	0.16	18.14	43.220		45.100
B-12	62.3	01:02:18	301.090	0.025	1.585	1.60	1542	252		51			70	70	13.0	0.16	18.08	45.043		45.043
Last Pt	65.0	01:05:00	303.080																	
Final Val	65.0	01:05:00	303.080											**Max Vac**	13.0	**Final Values**		45.043		
Average Values				0.02		1.60	1551	252		53			72	71		0.15	16.93			
													72							

Superior Fabrication, INC
October 4, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	6.6	%
Stack Exhaust Flow (M2)	84,652	SCFH

Weather Data

Barometric Pressure	27.68	in. Hg
Relative Humidity	80	%
Ambient Temperature	69	^{o}F
Specific Humidity	0.013053	lb H_2O / lb air

90-100 Load, Run - SCD-36 R10

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
A1	10/04/16 08:02:13	4770	13.86	5.59	0.86	4.90	1.05	58.80	1,081.00
	10/04/16 08:02:43	4800	14.00	5.65	0.81	4.81	1.05	58.80	1,081.00
	10/04/16 08:03:13	4830	14.12	5.58	0.79	4.71	1.06	58.90	1,084.00
	10/04/16 08:03:43	4860	13.73	5.42	0.78	4.96	1.06	58.90	1,084.00
	10/04/16 08:04:13	4890	13.95	5.48	0.75	4.84	1.07	59.00	1,085.00
	10/04/16 08:04:43	4920	13.76	5.60	0.86	4.92	1.07	59.00	1,085.00
	10/04/16 08:05:13	4950	13.84	5.62	0.78	4.90	1.05	59.10	1,080.00
	10/04/16 08:05:43	4980	13.89	5.63	0.78	4.84	1.05	59.10	1,080.00
	10/04/16 08:06:13	5010	13.89	5.62	0.72	4.85	1.06	59.20	1,084.00
	10/04/16 08:06:43	5040	13.44	5.52	0.72	5.10	1.06	59.20	1,084.00
	10/04/16 08:07:13	5070	13.39	5.57	0.79	5.19	1.07	59.30	1,087.00
	10/04/16 08:07:43	5100	13.77	5.84	0.78	4.92	1.07	59.30	1,087.00
	10/04/16 08:08:13	5130	13.81	6.00	0.79	4.91	1.06	59.40	1,084.00
	10/04/16 08:08:43	5160	13.66	6.02	0.72	4.99	1.06	59.40	1,084.00
	10/04/16 08:09:13	5190	13.84	5.88	0.72	4.84	1.06	59.40	1,083.00
	10/04/16 08:09:43	5220	13.65	5.82	0.73	5.04	1.06	59.40	1,083.00
	10/04/16 08:10:13	5250	13.93	5.87	0.79	4.81	1.06	59.50	1,084.00
	10/04/16 08:10:43	5280	13.63	5.85	0.80	4.97	1.06	59.50	1,084.00
	10/04/16 08:11:13	5310	13.66	5.79	0.80	5.04	1.19	59.60	1,139.00
	10/04/16 08:11:43	5340	13.58	5.80	0.70	5.00	1.19	59.60	1,139.00
	10/04/16 08:12:13	5370	13.37	5.94	0.79	5.12	1.37	59.70	1,230.00
	10/04/16 08:12:43	5400	12.75	6.30	0.79	5.64	1.37	59.70	1,230.00
	10/04/16 08:13:13	5430	12.90	6.83	1.00	5.45	1.39	59.80	1,237.00
	10/04/16 08:13:43	5460	12.79	7.24	0.88	5.51	1.39	59.80	1,237.00
	10/04/16 08:14:13	5490	12.71	7.40	0.91	5.60	1.39	60.00	1,237.00
	10/04/16 08:14:43	5520	13.62	7.41	1.04	5.07	1.39	60.00	1,237.00
	10/04/16 08:15:13	5550	14.92	7.05	0.77	4.10	1.37	60.10	1,235.00
	10/04/16 08:15:43	5580	14.59	6.50	0.80	4.30	1.37	60.10	1,235.00
	10/04/16 08:16:13	5610	15.30	6.50	0.78	3.97	1.37	60.20	1,237.00
	10/04/16 08:16:43	5640	15.29	6.55	0.70	3.90	1.37	60.20	1,237.00
	10/04/16 08:17:13	5670	14.96	6.56	0.73	4.13	1.36	60.30	1,236.00
	10/04/16 08:17:43	5700	14.89	6.61	0.73	4.13	1.36	60.30	1,236.00
	10/04/16 08:18:13	5730	14.91	6.91	0.66	4.14	1.37	60.40	1,240.00
	10/04/16 08:18:43	5760	14.71	7.10	0.65	4.33	1.37	60.40	1,240.00
	10/04/16 08:19:13	5790	15.57	7.06	0.72	3.76	1.37	60.50	1,242.00
	10/04/16 08:19:43	5820	15.53	6.82	0.71	3.73	1.37	60.50	1,242.00
	10/04/16 08:20:13	5850	15.59	6.80	0.74	3.73	1.36	60.60	1,244.00
	10/04/16 08:20:43	5880	15.43	6.98	0.79	3.81	1.36	60.60	1,244.00
	10/04/16 08:21:13	5910	15.55	7.09	0.78	3.78	1.36	60.70	1,238.00
	10/04/16 08:21:43	5940	15.55	6.96	0.72	3.76	1.36	60.70	1,238.00
	10/04/16 08:22:13	5970	14.55	6.73	0.73	4.36	1.36	60.80	1,238.00
A2	10/04/16 08:22:43	6000	14.48	6.85	0.75	4.38	1.36	60.80	1,238.00
	10/04/16 08:23:13	6030	14.85	6.99	0.83	4.29	1.36	60.90	1,235.00
	10/04/16 08:23:43	6060	14.87	6.90	0.87	4.18	1.36	60.90	1,235.00
	10/04/16 08:24:13	6090	14.28	6.95	0.87	4.55	1.36	61.10	1,237.00
	10/04/16 08:24:43	6120	15.02	7.07	0.85	4.10	1.36	61.10	1,237.00
	10/04/16 08:25:13	6150	14.79	6.84	0.75	4.27	1.35	61.20	1,234.00
	10/04/16 08:25:43	6180	15.36	6.68	0.78	3.88	1.35	61.20	1,234.00
	10/04/16 08:26:13	6210	15.28	6.51	0.82	3.95	1.35	61.30	1,233.00
	10/04/16 08:26:43	6240	15.44	6.46	0.81	3.83	1.35	61.30	1,233.00
	10/04/16 08:27:13	6270	15.13	6.54	0.73	4.07	1.35	61.40	1,233.00
	10/04/16 08:27:43	6300	15.17	6.54	0.72	3.98	1.35	61.40	1,233.00
	10/04/16 08:28:13	6330	14.86	6.42	0.68	4.21	1.35	61.50	1,236.00
	10/04/16 08:28:43	6360	15.53	6.39	0.69	3.74	1.35	61.50	1,236.00
	10/04/16 08:29:13	6390	14.53	6.32	0.72	4.39	1.35	61.60	1,235.00
	10/04/16 08:29:43	6420	15.01	6.36	0.72	4.11	1.35	61.60	1,235.00
	10/04/16 08:30:13	6450	14.76	6.40	0.72	4.23	1.35	61.70	1,235.00
	10/04/16 08:30:43	6480	15.38	6.45	0.75	3.95	1.35	61.70	1,235.00
	10/04/16 08:31:13	6510	15.26	6.40	0.72	3.93	1.35	61.80	1,235.00
	10/04/16 08:31:43	6540	15.67	6.39	0.71	3.73	1.35	61.80	1,235.00

Superior Fabrication, INC
October 4, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	6.6	%
Stack Exhaust Flow (M2)	84,652	SCFH

Weather Data

Barometric Pressure	27.68	in. Hg
Relative Humidity	80	%
Ambient Temperature	69	^{o}F
Specific Humidity	0.013053	lb H_2O / lb air

90-100 Load, Run - SCD-36 R10

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
	10/04/16 08:32:13	6570	15.21	6.42	0.71	3.97	1.33	61.80	1,227.00
	10/04/16 08:32:43	6600	15.08	6.42	0.72	4.11	1.33	61.80	1,227.00
	10/04/16 08:33:13	6630	15.50	6.34	0.84	3.82	1.33	61.90	1,227.00
	10/04/16 08:33:43	6660	15.97	6.38	0.79	3.49	1.33	61.90	1,227.00
	10/04/16 08:34:13	6690	15.41	6.28	0.73	3.83	1.33	61.90	1,227.00
	10/04/16 08:34:43	6720	15.36	6.17	0.73	3.86	1.33	61.90	1,227.00
	10/04/16 08:35:13	6750	15.56	6.31	0.73	3.79	1.33	62.00	1,227.00
	10/04/16 08:35:43	6780	15.43	6.17	0.80	3.84	1.33	62.00	1,227.00
	10/04/16 08:36:13	6810	15.50	6.10	0.78	3.77	1.34	62.10	1,227.00
	10/04/16 08:36:43	6840	14.86	6.28	0.70	4.26	1.34	62.10	1,227.00
	10/04/16 08:37:13	6870	15.01	6.39	0.70	4.14	1.33	62.10	1,229.00
	10/04/16 08:37:43	6900	14.56	6.32	0.70	4.39	1.33	62.10	1,229.00
	10/04/16 08:38:13	6930	15.16	6.30	0.73	4.09	1.33	62.20	1,227.00
	10/04/16 08:38:43	6960	15.64	6.17	0.76	3.75	1.33	62.20	1,227.00
	10/04/16 08:39:13	6990	15.41	6.02	0.74	3.76	1.33	62.30	1,226.00
	10/04/16 08:39:43	7020	14.92	6.17	0.74	4.24	1.33	62.30	1,226.00
	10/04/16 08:40:13	7050	15.04	6.20	0.73	4.09	1.34	62.40	1,229.00
	10/04/16 08:40:43	7080	14.99	6.07	0.72	4.16	1.34	62.40	1,229.00
	10/04/16 08:41:13	7110	15.19	6.03	0.69	4.01	1.33	62.40	1,229.00
	10/04/16 08:41:43	7140	15.28	6.12	0.71	3.98	1.33	62.40	1,229.00
	10/04/16 08:42:13	7170	15.22	6.12	0.70	3.98	1.33	62.50	1,229.00
A3	10/04/16 08:42:43	7200	14.80	6.21	0.69	4.20	1.33	62.50	1,229.00
	10/04/16 08:43:13	7230	15.07	6.36	0.75	4.19	1.34	62.60	1,226.00
	10/04/16 08:43:43	7260	15.66	6.27	0.77	3.68	1.34	62.60	1,226.00
	10/04/16 08:44:13	7290	14.99	6.22	0.73	4.05	1.33	62.60	1,225.00
	10/04/16 08:44:43	7320	14.71	6.45	0.72	4.36	1.33	62.60	1,225.00
	10/04/16 08:45:13	7350	14.76	6.48	0.70	4.32	1.33	62.70	1,228.00
	10/04/16 08:45:43	7380	15.28	6.26	0.69	3.92	1.33	62.70	1,228.00
	10/04/16 08:46:13	7410	14.64	6.20	0.74	4.37	1.34	62.80	1,228.00
	10/04/16 08:46:43	7440	14.73	6.29	0.76	4.33	1.34	62.80	1,228.00
	10/04/16 08:47:13	7470	15.25	6.31	0.72	3.99	1.33	62.90	1,231.00
	10/04/16 08:47:43	7500	14.70	6.31	0.72	4.25	1.33	62.90	1,231.00
	10/04/16 08:48:13	7530	14.77	6.31	0.76	4.31	1.34	63.00	1,231.00
	10/04/16 08:48:43	7560	14.99	6.23	0.75	4.14	1.34	63.00	1,231.00
	10/04/16 08:49:13	7590	14.76	6.29	0.69	4.31	1.35	63.10	1,232.00
	10/04/16 08:49:43	7620	14.58	6.45	0.71	4.38	1.35	63.10	1,232.00
	10/04/16 08:50:13	7650	15.48	6.33	0.81	3.83	1.34	63.10	1,231.00
	10/04/16 08:50:43	7680	15.36	6.15	0.76	3.89	1.34	63.10	1,231.00
	10/04/16 08:51:13	7710	15.65	6.22	0.75	3.73	1.35	63.10	1,231.00
	10/04/16 08:51:43	7740	15.20	6.28	0.78	4.00	1.35	63.10	1,231.00
	10/04/16 08:52:13	7770	14.78	6.40	0.70	4.26	1.34	63.30	1,230.00
	10/04/16 08:52:43	7800	14.52	6.49	0.70	4.43	1.34	63.30	1,230.00
	10/04/16 08:53:13	7830	14.88	6.46	0.72	4.20	1.35	63.30	1,231.00
	10/04/16 08:53:43	7860	15.08	6.27	0.78	4.01	1.35	63.30	1,231.00
	10/04/16 08:54:13	7890	14.98	6.30	0.75	4.23	1.35	63.30	1,234.00
	10/04/16 08:54:43	7920	15.05	6.27	0.69	4.10	1.35	63.30	1,234.00
	10/04/16 08:55:13	7950	15.26	6.14	0.77	3.93	1.34	63.50	1,233.00
	10/04/16 08:55:43	7980	15.21	6.12	0.72	4.02	1.34	63.50	1,233.00
	10/04/16 08:56:13	8010	15.24	6.10	0.73	3.97	1.34	63.50	1,233.00
	10/04/16 08:56:43	8040	15.50	5.98	0.81	3.80	1.34	63.50	1,233.00
	10/04/16 08:57:13	8070	14.56	6.01	0.75	4.37	1.34	63.50	1,233.00
	10/04/16 08:57:43	8100	14.81	6.24	0.72	4.21	1.34	63.50	1,233.00
	10/04/16 08:58:13	8130	14.77	6.40	0.72	4.35	1.35	63.60	1,230.00
	10/04/16 08:58:43	8160	14.87	6.35	0.71	4.08	1.35	63.60	1,230.00
	10/04/16 08:59:13	8190	14.26	6.35	0.75	4.72	1.36	63.70	1,234.00
	10/04/16 08:59:43	8220	14.59	6.40	0.76	4.38	1.36	63.70	1,234.00
	10/04/16 09:00:13	8250	14.90	6.26	0.73	4.21	1.35	63.70	1,233.00
	10/04/16 09:00:43	8280	15.46	6.15	0.78	3.88	1.35	63.70	1,233.00
	10/04/16 09:01:13	8310	15.80	5.95	0.79	3.58	1.34	63.80	1,232.00
	10/04/16 09:01:43	8340	15.20	5.90	0.72	3.97	1.34	63.80	1,232.00

Superior Fabrication, INC
October 4, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	6.6	%
Stack Exhaust Flow (M2)	84,652	SCFH

Weather Data

Barometric Pressure	27.68	in. Hg
Relative Humidity	80	%
Ambient Temperature	69	^{o}F
Specific Humidity	0.013053	lb H_2O / lb air

90-100 Load, Run - SCD-36 R10

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
10/04/16 09:02:13	8370	15.20	6.01	0.72	4.04	1.34	63.90	1,232.00
10/04/16 09:02:43	8400	14.98	5.93	0.75	4.12	1.34	63.90	1,232.00
10/04/16 09:03:13	8430	15.14	5.88	0.73	4.02	1.36	63.90	1,230.00
10/04/16 09:03:43	8460	14.71	5.79	0.72	4.30	1.36	63.90	1,230.00
10/04/16 09:04:13	8490	15.24	5.79	0.74	4.02	1.35	64.00	1,232.00
10/04/16 09:04:43	8520	14.65	5.81	0.74	4.30	1.35	64.00	1,232.00
10/04/16 09:05:13	8550	14.48	6.07	0.70	4.48	1.35	64.00	1,229.00
10/04/16 09:05:43	8580	15.15	6.22	0.72	4.04	1.35	64.00	1,229.00
10/04/16 09:06:13	8610	14.64	6.09	0.73	4.34	1.36	64.10	1,233.00
10/04/16 09:06:43	8640	15.06	6.07	0.83	4.12	1.36	64.10	1,233.00
10/04/16 09:07:13	8670	15.15	5.94	0.74	4.01	1.35	64.10	1,232.00
10/04/16 09:07:43	8700	15.20	5.92	0.72	4.02	1.35	64.10	1,232.00
10/04/16 09:08:13	8730	14.95	5.89	0.71	4.13	1.35	64.20	1,235.00
10/04/16 09:08:43	8760	14.72	5.84	0.75	4.24	1.35	64.20	1,235.00
10/04/16 09:09:13	8790	15.19	5.91	0.72	4.07	1.36	64.30	1,235.00
10/04/16 09:09:43	8820	15.32	5.84	0.70	3.91	1.36	64.30	1,235.00
10/04/16 09:10:13	8850	14.98	5.72	0.72	4.19	1.34	64.30	1,231.00
10/04/16 09:10:43	8880	15.04	5.72	0.78	4.08	1.34	64.30	1,231.00
10/04/16 09:11:13	8910	14.74	5.67	0.69	4.32	1.35	64.40	1,234.00
10/04/16 09:11:43	8940	14.84	5.62	0.67	4.17	1.35	64.40	1,234.00
10/04/16 09:12:13	8970	15.36	5.60	0.70	3.95	1.36	64.50	1,235.00
RAW AVERAGE		**14.80**	**6.25**	**0.75**	**4.25**	**1.31**	**61.93**	**1,212.04**

		O_2	CO	THC	CO_2	Press. Trans	Temp. Trans.	F-Flow Trans.
	Serial Number:	INSTO2-0011	INST-CO-0022	INST-TH-0002	INST-C2-0013	1434717	1434717	1434717
		(%)	(ppmvd)	(ppmvw)	(%)	(in. H_2O)	(^{o}F)	(SCFH)
Bias	Initial Zero	0.07	-0.01	0.03	-0.05			
	Final Zero	0.06	0.03	-0.06	-0.05			
	Avg. Zero	0.07	0.01	-0.02	-0.05			
	Initial UpScale	12.01	9.42	3.04	8.87			
	Final UpScale	11.98	9.37	3.09	8.92			
	Avg. UpScale	12.00	9.40	3.07	8.90			
Upscale Cal Gas		11.90	9.44	3.00	8.95			

EMISSIONS DATA	O_2	CO	THC	CO_2
Corrected Raw Average (ppm/% dry basis)	14.70	6.28	0.80	4.31
Corrected Raw Average (ppm/% wet basis)	13.72	5.86	0.75	4.02
Emission Rate (lb/hr)	N/A	0.04	0.01	N/A

Superior Fabrication, INC
October 4, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	6.4	%
Stack Exhaust Flow (M2)	82,021	SCFH

Weather Data

Barometric Pressure	27.69	in. Hg
Relative Humidity	78	%
Ambient Temperature	69	^{o}F
Specific Humidity	0.012781	lb H_2O / lb air

90-100 Load, Run - SCD-36 R11

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
A1	10/04/16 09:27:13	9870	13.48	1.05	-0.05	5.13	1.06	66.00	1,073.00
	10/04/16 09:27:43	9900	13.97	0.88	-0.06	4.88	1.06	66.00	1,073.00
	10/04/16 09:28:13	9930	13.93	0.91	-0.07	4.88	1.07	66.10	1,070.00
	10/04/16 09:28:43	9960	14.08	1.01	-0.05	4.76	1.07	66.10	1,070.00
	10/04/16 09:29:13	9990	13.94	1.12	-0.06	4.86	1.06	66.30	1,072.00
	10/04/16 09:29:43	10020	13.75	1.02	-0.06	4.97	1.06	66.30	1,072.00
	10/04/16 09:30:13	10050	13.69	0.98	-0.08	5.06	1.06	66.40	1,072.00
	10/04/16 09:30:43	10080	14.11	1.02	-0.07	4.77	1.06	66.40	1,072.00
	10/04/16 09:31:13	10110	13.89	1.11	-0.06	4.90	1.06	66.50	1,071.00
	10/04/16 09:31:43	10140	13.90	1.09	-0.07	4.86	1.06	66.50	1,071.00
	10/04/16 09:32:13	10170	13.79	1.02	-0.06	4.99	1.07	66.60	1,075.00
	10/04/16 09:32:43	10200	13.81	1.07	-0.05	4.96	1.07	66.60	1,075.00
	10/04/16 09:33:13	10230	13.73	1.12	-0.07	5.01	1.06	66.70	1,071.00
	10/04/16 09:33:43	10260	14.06	1.14	-0.06	4.82	1.06	66.70	1,071.00
	10/04/16 09:34:13	10290	13.97	1.22	-0.07	4.84	1.06	66.90	1,071.00
	10/04/16 09:34:43	10320	13.94	1.22	-0.07	4.87	1.06	66.90	1,071.00
	10/04/16 09:35:13	10350	14.05	1.19	-0.05	4.81	1.06	67.00	1,071.00
	10/04/16 09:35:43	10380	14.00	1.12	-0.05	4.83	1.06	67.00	1,071.00
	10/04/16 09:36:13	10410	14.04	1.12	-0.06	4.82	1.07	67.20	1,071.00
	10/04/16 09:36:43	10440	14.13	1.15	-0.06	4.74	1.07	67.20	1,071.00
	10/04/16 09:37:13	10470	14.11	1.12	-0.08	4.74	1.30	67.30	1,192.00
	10/04/16 09:37:43	10500	14.56	1.19	-0.09	4.47	1.30	67.30	1,192.00
	10/04/16 09:38:13	10530	14.86	2.53	-0.06	4.24	1.31	67.50	1,210.00
	10/04/16 09:38:43	10560	15.23	3.63	0.00	4.04	1.31	67.50	1,210.00
	10/04/16 09:39:13	10590	15.83	4.46	-0.02	3.56	1.32	67.60	1,213.00
	10/04/16 09:39:43	10620	15.64	4.23	-0.02	3.76	1.32	67.60	1,213.00
	10/04/16 09:40:13	10650	15.21	3.56	-0.06	3.88	1.32	67.70	1,216.00
	10/04/16 09:40:43	10680	14.59	3.07	-0.07	4.46	1.32	67.70	1,216.00
	10/04/16 09:41:13	10710	15.21	2.38	-0.05	4.04	1.32	67.80	1,215.00
	10/04/16 09:41:43	10740	15.41	2.74	-0.08	3.86	1.32	67.80	1,215.00
	10/04/16 09:42:13	10770	15.40	3.28	-0.06	3.86	1.32	67.80	1,212.00
	10/04/16 09:42:43	10800	15.22	3.30	-0.08	4.05	1.32	67.80	1,212.00
	10/04/16 09:43:13	10830	15.02	3.09	-0.05	4.19	1.32	67.90	1,215.00
	10/04/16 09:43:43	10860	15.44	3.13	-0.05	3.84	1.32	67.90	1,215.00
	10/04/16 09:44:13	10890	15.24	3.66	-0.07	4.00	1.32	68.00	1,212.00
	10/04/16 09:44:43	10920	14.98	4.08	-0.09	4.17	1.32	68.00	1,212.00
	10/04/16 09:45:13	10950	15.25	3.93	-0.10	3.99	1.32	68.10	1,212.00
	10/04/16 09:45:43	10980	15.80	4.16	-0.08	3.69	1.32	68.10	1,212.00
	10/04/16 09:46:13	11010	15.22	4.91	-0.06	3.96	1.32	68.20	1,214.00
	10/04/16 09:46:43	11040	15.49	5.12	-0.07	3.87	1.32	68.20	1,214.00
	10/04/16 09:47:13	11070	15.04	5.39	-0.09	4.13	1.31	68.20	1,211.00
A2	10/04/16 09:47:43	11100	15.49	5.39	-0.09	3.85	1.31	68.20	1,211.00
	10/04/16 09:48:13	11130	15.17	5.62	-0.07	4.05	1.31	68.30	1,214.00
	10/04/16 09:48:43	11160	15.11	5.31	-0.07	4.05	1.31	68.30	1,214.00
	10/04/16 09:49:13	11190	14.81	4.31	-0.06	4.28	1.31	68.40	1,216.00
	10/04/16 09:49:43	11220	14.97	3.61	-0.05	4.21	1.31	68.40	1,216.00
	10/04/16 09:50:13	11250	15.41	3.12	-0.07	3.90	1.32	68.50	1,216.00
	10/04/16 09:50:43	11280	15.30	3.21	-0.09	3.95	1.32	68.50	1,216.00
	10/04/16 09:51:13	11310	14.53	3.24	-0.08	4.40	1.32	68.50	1,217.00
	10/04/16 09:51:43	11340	15.15	2.96	-0.09	4.10	1.32	68.50	1,217.00
	10/04/16 09:52:13	11370	15.38	3.24	-0.07	3.93	1.32	68.70	1,219.00
	10/04/16 09:52:43	11400	15.25	3.58	-0.10	3.98	1.32	68.70	1,219.00
	10/04/16 09:53:13	11430	14.78	3.62	-0.05	4.26	1.31	68.80	1,221.00
	10/04/16 09:53:43	11460	14.63	3.65	-0.05	4.42	1.31	68.80	1,221.00
	10/04/16 09:54:13	11490	14.95	3.72	-0.04	4.26	1.29	68.90	1,210.00
	10/04/16 09:54:43	11520	14.83	4.34	-0.05	4.27	1.29	68.90	1,210.00
	10/04/16 09:55:13	11550	15.48	4.38	-0.05	3.89	1.30	69.00	1,214.00
	10/04/16 09:55:43	11580	15.17	4.19	0.01	4.01	1.30	69.00	1,214.00
	10/04/16 09:56:13	11610	15.45	4.08	-0.04	3.88	1.30	69.00	1,213.00
	10/04/16 09:56:43	11640	15.07	4.14	-0.07	4.10	1.30	69.00	1,213.00

Superior Fabrication, INC
October 4, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	6.4	%
Stack Exhaust Flow (M2)	82,021	SCFH

Weather Data

Barometric Pressure	27.69	in. Hg
Relative Humidity	78	%
Ambient Temperature	69	^{o}F
Specific Humidity	0.012781	lb H_2O / lb air

90-100 Load, Run - SCD-36 R11

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
	10/04/16 09:57:13	11670	14.92	3.96	-0.09	4.22	1.30	69.10	1,213.00
	10/04/16 09:57:43	11700	13.92	3.63	-0.08	4.87	1.30	69.10	1,213.00
	10/04/16 09:58:13	11730	14.61	3.35	-0.06	4.38	1.31	69.20	1,217.00
	10/04/16 09:58:43	11760	14.89	3.43	-0.05	4.27	1.31	69.20	1,217.00
	10/04/16 09:59:13	11790	14.18	3.49	-0.06	4.63	1.33	69.30	1,221.00
	10/04/16 09:59:43	11820	13.40	3.36	-0.06	5.21	1.33	69.30	1,221.00
	10/04/16 10:00:13	11850	13.71	3.70	-0.07	4.97	1.31	69.40	1,208.00
	10/04/16 10:00:43	11880	13.47	4.06	-0.04	5.31	1.31	69.40	1,208.00
	10/04/16 10:01:13	11910	13.85	3.95	-0.06	4.89	1.32	69.40	1,211.00
	10/04/16 10:01:43	11940	14.67	3.93	-0.06	4.42	1.32	69.40	1,211.00
	10/04/16 10:02:13	11970	14.29	4.20	-0.07	4.62	1.31	69.50	1,208.00
	10/04/16 10:02:43	12000	14.05	3.97	-0.05	4.73	1.31	69.50	1,208.00
	10/04/16 10:03:13	12030	13.23	3.50	-0.05	5.42	1.32	69.60	1,211.00
	10/04/16 10:03:43	12060	13.94	3.23	-0.07	4.85	1.32	69.60	1,211.00
	10/04/16 10:04:13	12090	14.43	3.42	-0.05	4.56	1.31	69.70	1,207.00
	10/04/16 10:04:43	12120	14.22	3.76	-0.03	4.65	1.31	69.70	1,207.00
	10/04/16 10:05:13	12150	13.19	3.62	-0.08	5.44	1.31	69.80	1,213.00
	10/04/16 10:05:43	12180	14.16	3.38	-0.07	4.65	1.31	69.80	1,213.00
	10/04/16 10:06:13	12210	13.73	3.76	-0.06	5.05	1.31	69.90	1,210.00
	10/04/16 10:06:43	12240	13.62	3.79	-0.06	5.06	1.31	69.90	1,210.00
	10/04/16 10:07:13	12270	13.58	3.75	-0.06	5.14	1.31	70.00	1,212.00
A3	10/04/16 10:07:43	12300	14.08	3.94	-0.06	4.82	1.31	70.00	1,212.00
	10/04/16 10:08:13	12330	13.63	4.18	-0.05	5.00	1.31	70.10	1,212.00
	10/04/16 10:08:43	12360	13.62	3.94	-0.05	5.12	1.31	70.10	1,212.00
	10/04/16 10:09:13	12390	13.46	3.64	-0.06	5.16	1.31	70.10	1,212.00
	10/04/16 10:09:43	12420	13.79	3.45	-0.06	5.03	1.31	70.10	1,212.00
	10/04/16 10:10:13	12450	13.90	3.50	-0.05	4.88	1.31	70.10	1,212.00
	10/04/16 10:10:43	12480	14.02	3.70	-0.06	4.85	1.31	70.10	1,212.00
	10/04/16 10:11:13	12510	13.94	3.74	-0.06	4.84	1.31	70.10	1,212.00
	10/04/16 10:11:43	12540	13.08	3.69	-0.06	5.47	1.31	70.10	1,212.00
	10/04/16 10:12:13	12570	13.39	3.54	-0.06	5.27	1.32	70.20	1,213.00
	10/04/16 10:12:43	12600	14.55	3.51	-0.05	4.49	1.32	70.20	1,213.00
	10/04/16 10:13:13	12630	14.29	3.82	-0.06	4.64	1.32	70.20	1,212.00
	10/04/16 10:13:43	12660	13.84	4.07	-0.06	4.93	1.32	70.20	1,212.00
	10/04/16 10:14:13	12690	13.86	3.90	-0.06	4.87	1.31	70.30	1,212.00
	10/04/16 10:14:43	12720	13.77	3.87	-0.05	5.09	1.31	70.30	1,212.00
	10/04/16 10:15:13	12750	13.68	3.98	-0.06	4.98	1.32	70.40	1,212.00
	10/04/16 10:15:43	12780	14.23	3.90	-0.05	4.77	1.32	70.40	1,212.00
	10/04/16 10:16:13	12810	14.23	3.81	-0.09	4.66	1.32	70.50	1,212.00
	10/04/16 10:16:43	12840	13.78	3.79	-0.08	4.99	1.32	70.50	1,212.00
	10/04/16 10:17:13	12870	13.82	3.82	-0.06	4.94	1.31	70.50	1,211.00
	10/04/16 10:17:43	12900	13.65	3.92	-0.02	5.11	1.31	70.50	1,211.00
	10/04/16 10:18:13	12930	14.45	3.82	-0.06	4.56	1.32	70.50	1,211.00
	10/04/16 10:18:43	12960	14.37	3.82	-0.06	4.54	1.32	70.50	1,211.00
	10/04/16 10:19:13	12990	13.57	3.88	-0.06	5.14	1.32	70.60	1,212.00
	10/04/16 10:19:43	13020	13.05	3.69	-0.06	5.54	1.32	70.60	1,212.00
	10/04/16 10:20:13	13050	14.38	3.50	-0.07	4.54	1.32	70.60	1,211.00
	10/04/16 10:20:43	13080	13.81	3.61	-0.08	4.96	1.32	70.60	1,211.00
	10/04/16 10:21:13	13110	13.70	3.69	-0.06	5.09	1.32	70.60	1,212.00
	10/04/16 10:21:43	13140	14.18	3.62	-0.05	4.72	1.32	70.60	1,212.00
	10/04/16 10:22:13	13170	14.25	3.88	-0.04	4.70	1.29	70.70	1,201.00
	10/04/16 10:22:43	13200	14.03	3.97	-0.05	4.86	1.29	70.70	1,201.00
	10/04/16 10:23:13	13230	13.77	3.93	-0.05	5.02	1.30	70.70	1,201.00
	10/04/16 10:23:43	13260	14.10	4.01	-0.05	4.75	1.30	70.70	1,201.00
	10/04/16 10:24:13	13290	13.74	3.97	-0.04	4.96	1.30	70.80	1,204.00
	10/04/16 10:24:43	13320	13.36	3.92	-0.06	5.33	1.30	70.80	1,204.00
	10/04/16 10:25:13	13350	14.06	3.85	0.00	4.89	1.29	70.80	1,203.00
	10/04/16 10:25:43	13380	13.86	4.09	0.05	4.91	1.29	70.80	1,203.00
	10/04/16 10:26:13	13410	14.83	4.30	0.08	4.34	1.29	70.90	1,200.00
	10/04/16 10:26:43	13440	14.86	4.65	0.06	4.22	1.29	70.90	1,200.00

Superior Fabrication, INC
October 4, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	6.4	%
Stack Exhaust Flow (M2)	82,021	SCFH

Weather Data

Barometric Pressure	27.69	in. Hg
Relative Humidity	78	%
Ambient Temperature	69	°F
Specific Humidity	0.012781	lb H_2O / lb air

90-100 Load, Run - SCD-36 R11

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. °F	Fuel Flow SCFH
10/04/16 10:27:13	13470	14.04	4.73	0.04	4.80	1.30	70.90	1,201.00
10/04/16 10:27:43	13500	14.36	4.60	-0.05	4.68	1.30	70.90	1,201.00
10/04/16 10:28:13	13530	14.35	4.68	-0.06	4.47	1.30	71.00	1,204.00
10/04/16 10:28:43	13560	14.22	4.69	-0.05	4.82	1.30	71.00	1,204.00
10/04/16 10:29:13	13590	14.23	4.65	-0.09	4.65	1.29	71.10	1,202.00
10/04/16 10:29:43	13620	14.92	4.56	-0.09	4.28	1.29	71.10	1,202.00
10/04/16 10:30:13	13650	14.61	4.58	-0.06	4.41	1.28	71.10	1,202.00
10/04/16 10:30:43	13680	14.29	4.50	-0.06	4.57	1.28	71.10	1,202.00
10/04/16 10:31:13	13710	13.95	4.49	-0.08	4.90	1.30	71.20	1,203.00
10/04/16 10:31:43	13740	14.21	4.37	-0.07	4.71	1.30	71.20	1,203.00
10/04/16 10:32:13	13770	14.57	4.40	-0.06	4.54	1.30	71.30	1,202.00
10/04/16 10:32:43	13800	14.24	4.51	-0.06	4.67	1.30	71.30	1,202.00
10/04/16 10:33:13	13830	14.21	4.75	-0.05	4.66	1.30	71.50	1,205.00
10/04/16 10:33:43	13860	14.01	4.69	-0.05	4.88	1.30	71.50	1,205.00
10/04/16 10:34:13	13890	14.43	4.10	-0.05	4.57	1.29	71.60	1,205.00
10/04/16 10:34:43	13920	14.59	3.89	-0.05	4.46	1.29	71.60	1,205.00
10/04/16 10:35:13	13950	14.41	4.01	-0.10	4.56	1.29	71.70	1,201.00
10/04/16 10:35:43	13980	14.24	4.21	-0.10	4.69	1.29	71.70	1,201.00
10/04/16 10:36:13	14010	14.74	4.22	-0.06	4.38	1.29	71.90	1,200.00
10/04/16 10:36:43	14040	14.54	4.33	-0.06	4.48	1.29	71.90	1,200.00
10/04/16 10:37:13	14070	14.48	4.39	-0.06	4.52	1.30	72.00	1,204.00
RAW AVERAGE		**14.35**	**3.48**	**-0.06**	**4.61**	**1.27**	**69.26**	**1,190.24**

		O_2	CO	THC	CO_2	Press. Trans	Temp. Trans.	F-Flow Trans.
	Serial Number:	INSTO2-0011	INST-CO-0022	INST-TH-0002	INST-C2-0013	1434717	1434717	1434717
						(in. H_2O)	(°F)	(SCFH)
Bias	Initial Zero	0.06	0.03	-0.06	-0.05			
	Final Zero	0.08	-0.05	-0.05	0.02			
	Avg. Zero	0.07	-0.01	-0.06	-0.02			
	Initial UpScale	11.98	9.37	3.09	8.92			
	Final UpScale	11.97	9.39	2.99	8.95			
	Avg. UpScale	11.98	9.38	3.04	8.94			
Upscale Cal Gas		11.90	9.44	3.00	8.95			

EMISSIONS DATA	O_2	CO	THC	CO_2
Corrected Raw Average (ppm/% dry basis)	14.27	3.51	0.00	4.62
Corrected Raw Average (ppm/% wet basis)	13.36	3.29	0.00	4.33
Emission Rate (lb/hr)	N/A	0.02	0.00	N/A

Superior Fabrication, INC
October 4, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	6.7	%
Stack Exhaust Flow (M2)	49,698	SCFH

Weather Data

Barometric Pressure	27.69	in. Hg
Relative Humidity	70	%
Ambient Temperature	81	^{o}F
Specific Humidity	0.017246	lb H_2O / lb air

90-100 Load, Run - SCD-36 R12

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
A1	10/04/16 10:52:13	14970	13.05	0.93	0.12	5.49	1.02	73.80	1,049.00
	10/04/16 10:52:43	15000	12.70	0.92	0.04	5.78	1.02	73.80	1,049.00
	10/04/16 10:53:13	15030	12.83	0.89	0.05	5.64	1.02	74.20	1,051.00
	10/04/16 10:53:43	15060	12.54	0.83	0.10	5.93	1.02	74.20	1,051.00
	10/04/16 10:54:13	15090	12.40	0.86	0.09	5.97	1.03	74.70	1,050.00
	10/04/16 10:54:43	15120	12.44	0.86	0.10	6.00	1.03	74.70	1,050.00
	10/04/16 10:55:13	15150	12.94	0.89	0.09	5.60	1.02	75.00	1,051.00
	10/04/16 10:55:43	15180	12.65	1.19	0.11	5.81	1.02	75.00	1,051.00
	10/04/16 10:56:13	15210	12.36	1.27	0.13	6.01	1.02	75.30	1,048.00
	10/04/16 10:56:43	15240	12.28	1.10	0.07	6.14	1.02	75.30	1,048.00
	10/04/16 10:57:13	15270	12.30	1.09	0.01	6.08	1.02	75.40	1,048.00
	10/04/16 10:57:43	15300	12.18	1.06	0.00	6.15	1.02	75.40	1,048.00
	10/04/16 10:58:13	15330	12.24	1.06	0.05	6.18	1.01	75.40	1,045.00
	10/04/16 10:58:43	15360	12.01	1.02	0.06	6.29	1.01	75.40	1,045.00
	10/04/16 10:59:13	15390	12.29	1.02	0.02	6.12	1.01	75.40	1,048.00
	10/04/16 10:59:43	15420	12.24	1.06	0.01	6.16	1.01	75.40	1,048.00
	10/04/16 11:00:13	15450	12.10	0.97	0.02	6.20	1.01	75.40	1,047.00
	10/04/16 11:00:43	15480	12.30	0.84	0.02	6.13	1.01	75.40	1,047.00
	10/04/16 11:01:13	15510	12.53	0.83	0.02	5.91	1.01	75.30	1,047.00
	10/04/16 11:01:43	15540	12.44	0.98	0.05	5.97	1.01	75.30	1,047.00
	10/04/16 11:02:13	15570	12.61	0.99	0.05	5.85	1.25	75.20	1,179.00
	10/04/16 11:02:43	15600	14.38	1.68	0.07	4.69	1.25	75.20	1,179.00
	10/04/16 11:03:13	15630	14.88	4.14	0.09	4.32	1.27	75.20	1,192.00
	10/04/16 11:03:43	15660	14.30	5.93	0.11	4.59	1.27	75.20	1,192.00
	10/04/16 11:04:13	15690	14.72	4.56	0.12	4.40	1.26	75.30	1,191.00
	10/04/16 11:04:43	15720	15.16	4.51	0.11	4.10	1.26	75.30	1,191.00
	10/04/16 11:05:13	15750	15.01	5.64	0.08	4.17	1.26	75.60	1,190.00
	10/04/16 11:05:43	15780	15.20	5.73	0.09	4.04	1.26	75.60	1,190.00
	10/04/16 11:06:13	15810	14.68	5.79	0.09	4.39	1.25	75.90	1,189.00
	10/04/16 11:06:43	15840	14.49	5.17	0.09	4.52	1.25	75.90	1,189.00
	10/04/16 11:07:13	15870	13.50	4.46	0.07	5.21	1.26	76.20	1,192.00
	10/04/16 11:07:43	15900	14.57	3.40	0.11	4.48	1.26	76.20	1,192.00
	10/04/16 11:08:13	15930	14.72	4.11	0.12	4.37	1.27	76.40	1,189.00
	10/04/16 11:08:43	15960	14.49	4.11	0.12	4.54	1.27	76.40	1,189.00
	10/04/16 11:09:13	15990	14.37	3.74	0.12	4.59	1.27	76.70	1,191.00
	10/04/16 11:09:43	16020	14.64	3.58	0.13	4.42	1.27	76.70	1,191.00
	10/04/16 11:10:13	16050	14.46	3.71	0.05	4.49	1.27	76.90	1,190.00
	10/04/16 11:10:43	16080	14.23	3.98	0.03	4.81	1.27	76.90	1,190.00
	10/04/16 11:11:13	16110	14.59	3.66	-0.04	4.44	1.26	77.10	1,192.00
	10/04/16 11:11:43	16140	14.57	3.73	-0.02	4.50	1.26	77.10	1,192.00
	10/04/16 11:12:13	16170	14.97	3.92	-0.01	4.23	1.27	77.30	1,190.00
A2	10/04/16 11:12:43	16200	14.49	4.22	-0.05	4.51	1.27	77.30	1,190.00
	10/04/16 11:13:13	16230	14.49	3.79	-0.02	4.54	1.26	77.50	1,185.00
	10/04/16 11:13:43	16260	14.61	3.56	0.03	4.47	1.26	77.50	1,185.00
	10/04/16 11:14:13	16290	14.17	3.86	0.05	4.67	1.27	77.60	1,192.00
	10/04/16 11:14:43	16320	13.80	3.62	0.00	4.99	1.27	77.60	1,192.00
	10/04/16 11:15:13	16350	14.60	3.37	0.01	4.50	1.27	77.70	1,194.00
	10/04/16 11:15:43	16380	14.43	3.83	0.02	4.57	1.27	77.70	1,194.00
	10/04/16 11:16:13	16410	14.85	3.93	0.02	4.32	1.26	77.80	1,191.00
	10/04/16 11:16:43	16440	15.17	3.86	0.01	4.07	1.26	77.80	1,191.00
	10/04/16 11:17:13	16470	14.76	3.89	0.00	4.33	1.26	78.10	1,187.00
	10/04/16 11:17:43	16500	14.77	3.59	0.02	4.32	1.26	78.10	1,187.00
	10/04/16 11:18:13	16530	14.42	2.99	0.02	4.58	1.26	78.20	1,190.00
	10/04/16 11:18:43	16560	14.86	2.75	-0.02	4.28	1.26	78.20	1,190.00
	10/04/16 11:19:13	16590	14.87	3.23	-0.05	4.25	1.22	78.40	1,188.00
	10/04/16 11:19:43	16620	14.76	3.56	-0.05	4.31	1.22	78.40	1,188.00
	10/04/16 11:20:13	16650	14.79	3.55	-0.05	4.40	1.26	78.60	1,189.00
	10/04/16 11:20:43	16680	14.87	4.23	-0.06	4.25	1.26	78.60	1,189.00
	10/04/16 11:21:13	16710	15.13	4.62	-0.06	4.15	1.26	78.70	1,188.00
	10/04/16 11:21:43	16740	15.33	4.58	-0.06	3.98	1.26	78.70	1,188.00

Superior Fabrication, INC
October 4, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	6.7	%
Stack Exhaust Flow (M2)	49,698	SCFH

Weather Data

Barometric Pressure	27.69	in. Hg
Relative Humidity	70	%
Ambient Temperature	81	°F
Specific Humidity	0.017246	lb H_2O / lb air

90-100 Load, Run - SCD-36 R12

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. °F	Fuel Flow SCFH
	10/04/16 11:22:13	16770	15.19	4.30	-0.06	4.04	1.26	78.90	1,188.00
	10/04/16 11:22:43	16800	14.77	4.15	-0.02	4.31	1.26	78.90	1,188.00
	10/04/16 11:23:13	16830	15.13	3.75	-0.05	4.12	1.25	79.10	1,187.00
	10/04/16 11:23:43	16860	14.78	3.72	-0.05	4.38	1.25	79.10	1,187.00
	10/04/16 11:24:13	16890	15.23	4.11	-0.06	3.98	1.26	79.30	1,185.00
	10/04/16 11:24:43	16920	13.76	4.21	-0.06	5.00	1.26	79.30	1,185.00
	10/04/16 11:25:13	16950	14.16	2.56	-0.08	4.76	1.26	79.40	1,187.00
	10/04/16 11:25:43	16980	14.43	2.40	-0.08	4.59	1.26	79.40	1,187.00
	10/04/16 11:26:13	17010	14.97	3.03	0.04	4.16	1.25	79.60	1,186.00
	10/04/16 11:26:43	17040	14.02	3.74	0.60	4.86	1.25	79.60	1,186.00
	10/04/16 11:27:13	17070	14.28	6.41	0.96	4.63	1.25	79.70	1,185.00
	10/04/16 11:27:43	17100	13.93	7.93	0.07	4.85	1.25	79.70	1,185.00
	10/04/16 11:28:13	17130	14.67	5.39	0.07	4.42	1.24	79.90	1,185.00
	10/04/16 11:28:43	17160	14.60	4.06	0.09	4.49	1.24	79.90	1,185.00
	10/04/16 11:29:13	17190	15.16	4.03	0.04	4.05	1.25	80.00	1,185.00
	10/04/16 11:29:43	17220	13.80	4.02	-0.02	4.97	1.25	80.00	1,185.00
	10/04/16 11:30:13	17250	14.01	3.02	-0.01	4.84	1.26	80.10	1,185.00
	10/04/16 11:30:43	17280	13.94	2.95	-0.07	4.87	1.26	80.10	1,185.00
	10/04/16 11:31:13	17310	14.13	3.30	-0.06	4.82	1.26	80.20	1,185.00
	10/04/16 11:31:43	17340	14.04	3.88	-0.07	4.79	1.26	80.20	1,185.00
	10/04/16 11:32:13	17370	14.17	3.27	-0.04	4.71	1.24	80.30	1,178.00
A3	10/04/16 11:32:43	17400	13.89	2.72	-0.04	4.99	1.24	80.30	1,178.00
	10/04/16 11:33:13	17430	14.47	3.00	0.01	4.51	1.25	80.30	1,185.00
	10/04/16 11:33:43	17460	14.04	3.42	-0.03	4.77	1.25	80.30	1,185.00
	10/04/16 11:34:13	17490	14.20	3.10	-0.04	4.77	1.24	80.40	1,178.00
	10/04/16 11:34:43	17520	14.64	3.71	-0.03	4.42	1.24	80.40	1,178.00
	10/04/16 11:35:13	17550	14.09	4.61	-0.07	4.81	1.24	80.50	1,180.00
	10/04/16 11:35:43	17580	14.11	3.99	-0.04	4.78	1.24	80.50	1,180.00
	10/04/16 11:36:13	17610	14.00	3.47	-0.09	4.81	1.24	80.60	1,177.00
	10/04/16 11:36:43	17640	13.82	3.29	-0.07	5.00	1.24	80.60	1,177.00
	10/04/16 11:37:13	17670	13.42	2.95	-0.06	5.23	1.23	80.60	1,179.00
	10/04/16 11:37:43	17700	13.79	2.67	-0.05	5.04	1.23	80.60	1,179.00
	10/04/16 11:38:13	17730	14.44	3.08	-0.02	4.59	1.24	80.70	1,177.00
	10/04/16 11:38:43	17760	14.63	3.97	-0.03	4.40	1.24	80.70	1,177.00
	10/04/16 11:39:13	17790	14.14	4.47	-0.04	4.70	1.24	80.70	1,180.00
	10/04/16 11:39:43	17820	13.99	3.93	-0.05	4.91	1.24	80.70	1,180.00
	10/04/16 11:40:13	17850	14.82	3.61	-0.05	4.32	1.24	80.80	1,177.00
	10/04/16 11:40:43	17880	14.04	4.00	-0.05	4.78	1.24	80.80	1,177.00
	10/04/16 11:41:13	17910	14.25	3.84	-0.09	4.73	1.23	80.90	1,176.00
	10/04/16 11:41:43	17940	13.40	3.57	-0.08	5.15	1.23	80.90	1,176.00
	10/04/16 11:42:13	17970	13.84	2.80	-0.09	4.99	1.25	81.00	1,180.00
	10/04/16 11:42:43	18000	13.36	2.54	-0.09	5.30	1.25	81.00	1,180.00
	10/04/16 11:43:13	18030	14.18	2.46	-0.06	4.78	1.25	81.00	1,177.00
	10/04/16 11:43:43	18060	14.34	2.76	-0.06	4.58	1.25	81.00	1,177.00
	10/04/16 11:44:13	18090	13.29	2.91	-0.09	5.37	1.25	81.10	1,177.00
	10/04/16 11:44:43	18120	13.51	2.51	-0.09	5.11	1.25	81.10	1,177.00
	10/04/16 11:45:13	18150	13.48	2.31	-0.07	5.27	1.26	81.20	1,180.00
	10/04/16 11:45:43	18180	13.87	2.58	-0.08	4.97	1.26	81.20	1,180.00
	10/04/16 11:46:13	18210	13.97	2.98	-0.07	4.86	1.26	81.30	1,178.00
	10/04/16 11:46:43	18240	13.76	2.98	-0.06	5.01	1.26	81.30	1,178.00
	10/04/16 11:47:13	18270	13.87	2.72	-0.06	4.99	1.25	81.40	1,182.00
	10/04/16 11:47:43	18300	14.08	2.80	-0.05	4.82	1.25	81.40	1,182.00
	10/04/16 11:48:13	18330	14.18	3.03	-0.09	4.65	1.24	81.50	1,181.00
	10/04/16 11:48:43	18360	14.40	3.35	-0.08	4.60	1.24	81.50	1,181.00
	10/04/16 11:49:13	18390	14.24	4.15	-0.06	4.74	1.24	81.60	1,181.00
	10/04/16 11:49:43	18420	14.32	3.88	-0.05	4.62	1.24	81.60	1,181.00
	10/04/16 11:50:13	18450	14.58	3.68	-0.08	4.39	1.25	81.80	1,181.00
	10/04/16 11:50:43	18480	14.50	3.90	-0.09	4.60	1.25	81.80	1,181.00
	10/04/16 11:51:13	18510	14.06	4.28	-0.08	4.78	1.25	81.90	1,178.00
	10/04/16 11:51:43	18540	14.20	3.97	-0.09	4.70	1.25	81.90	1,178.00

Superior Fabrication, INC
October 4, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	6.7	%
Stack Exhaust Flow (M2)	49,698	SCFH

Weather Data

Barometric Pressure	27.69	in. Hg
Relative Humidity	70	%
Ambient Temperature	81	°F
Specific Humidity	0.017246	lb H_2O / lb air

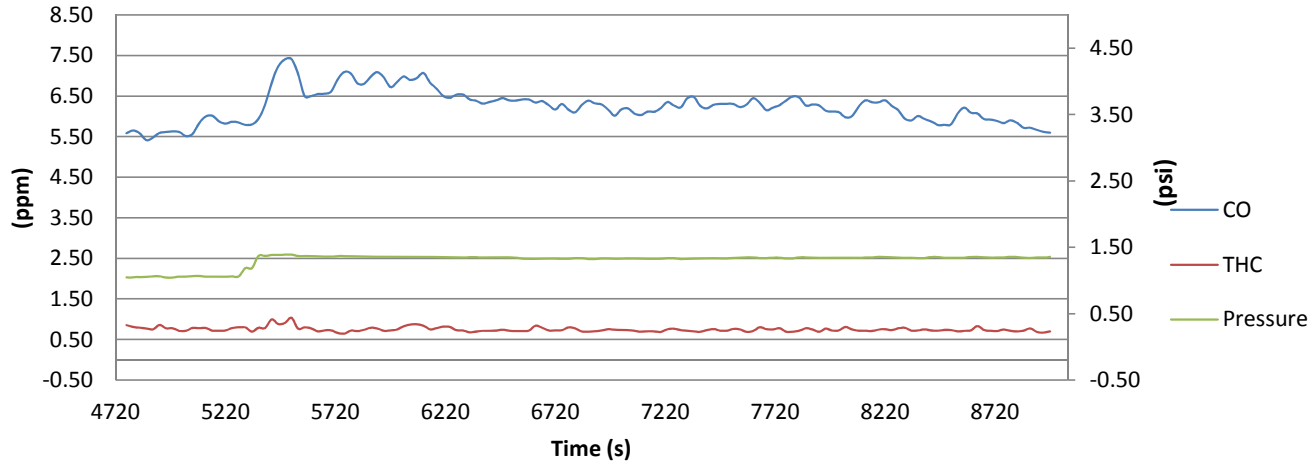
90-100 Load, Run - SCD-36 R12

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. °F	Fuel Flow SCFH
10/04/16 11:52:13	18570	14.11	3.68	-0.06	4.78	1.25	82.00	1,181.00
10/04/16 11:52:43	18600	14.02	3.78	-0.07	4.81	1.25	82.00	1,181.00
10/04/16 11:53:13	18630	13.44	3.69	-0.07	5.22	1.26	82.10	1,181.00
10/04/16 11:53:43	18660	13.94	2.90	-0.07	4.99	1.26	82.10	1,181.00
10/04/16 11:54:13	18690	13.70	2.70	-0.07	5.02	1.26	82.20	1,181.00
10/04/16 11:54:43	18720	13.63	2.71	-0.06	5.13	1.26	82.20	1,181.00
10/04/16 11:55:13	18750	14.80	2.61	-0.07	4.33	1.25	82.30	1,180.00
10/04/16 11:55:43	18780	14.38	3.58	-0.04	4.52	1.25	82.30	1,180.00
10/04/16 11:56:13	18810	13.65	3.76	-0.08	5.14	1.25	82.40	1,185.00
10/04/16 11:56:43	18840	14.69	2.96	-0.09	4.41	1.25	82.40	1,185.00
10/04/16 11:57:13	18870	14.32	3.11	-0.05	4.65	1.25	82.70	1,179.00
10/04/16 11:57:43	18900	14.56	3.23	-0.06	4.43	1.25	82.70	1,179.00
10/04/16 11:58:13	18930	13.71	3.19	-0.06	5.08	1.24	82.90	1,178.00
10/04/16 11:58:43	18960	14.58	2.94	-0.05	4.47	1.24	82.90	1,178.00
10/04/16 11:59:13	18990	14.36	3.25	-0.04	4.60	1.25	83.00	1,178.00
10/04/16 11:59:43	19020	14.88	3.31	-0.04	4.29	1.25	83.00	1,178.00
10/04/16 12:00:13	19050	14.90	3.71	-0.03	4.25	1.24	83.20	1,180.00
10/04/16 12:00:43	19080	14.38	3.78	-0.03	4.59	1.24	83.20	1,180.00
10/04/16 12:01:13	19110	14.63	3.96	-0.04	4.44	1.24	83.40	1,180.00
10/04/16 12:01:43	19140	14.00	4.09	-0.07	4.82	1.24	83.40	1,180.00
10/04/16 12:02:13	19170	14.27	3.65	-0.04	4.65	1.24	83.60	1,176.00
RAW AVERAGE		**14.06**	**3.28**	**0.00**	**4.82**	**1.22**	**79.07**	**1,164.60**

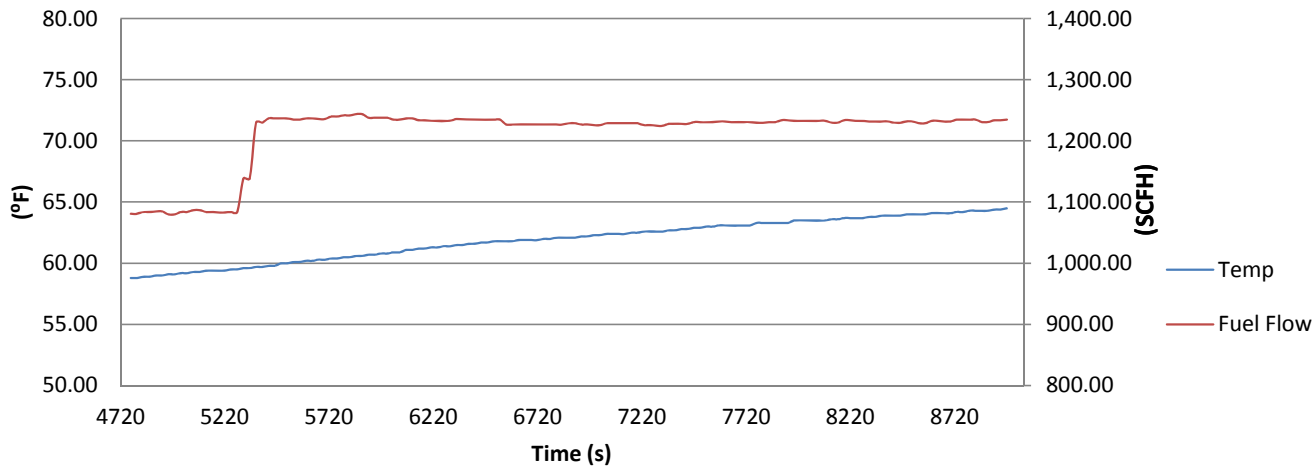
		O_2	CO	THC	CO_2	Press. Trans	Temp. Trans.	F-Flow Trans.
	Serial Number:	INSTO2-0011	INST-CO-0022	INST-TH-0002	INST-C2-0013	1434717	1434717	1434717
		(%)	(ppmvd)	(ppmvw)	(%)	(in. H_2O)	(°F)	(SCFH)
Bias	Initial Zero	0.08	-0.05	-0.05	0.02			
	Final Zero	0.07	-0.02	-0.05	-0.02			
	Avg. Zero	0.08	-0.04	-0.05	0.00			
	Initial UpScale	11.97	9.39	2.99	8.95			
	Final UpScale	11.96	9.41	3.02	8.94			
	Avg. UpScale	11.97	9.40	3.01	8.95			
Upscale Cal Gas		11.90	9.44	3.00	8.95			

EMISSIONS DATA	O_2	CO	THC	CO_2
Corrected Raw Average (ppm/% dry basis)	14.00	3.31	0.05	4.83
Corrected Raw Average (ppm/% wet basis)	13.05	3.09	0.05	4.50
Emission Rate (lb/hr)	N/A	0.01	0.00	N/A

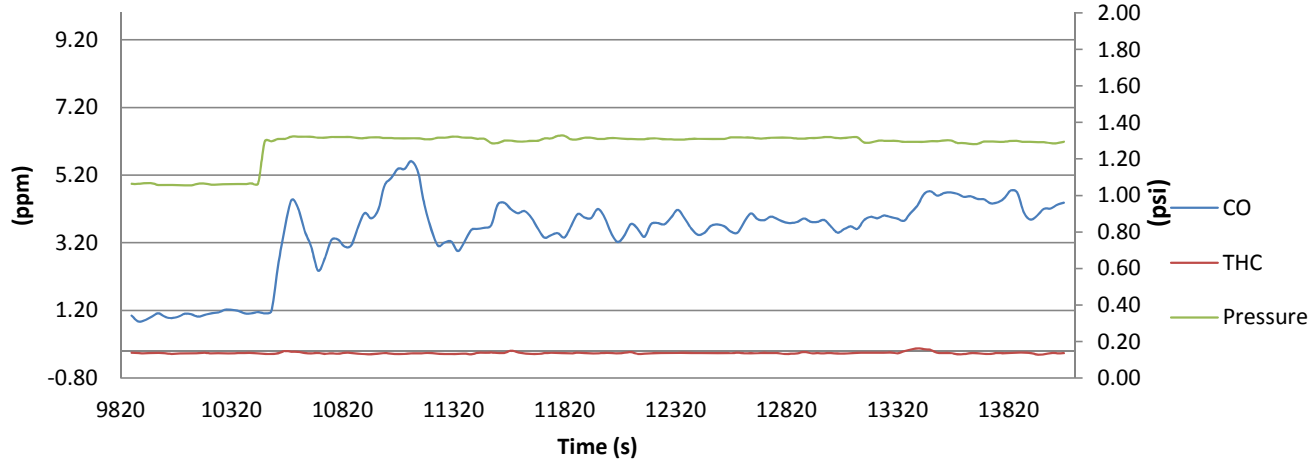
SCD-36 R10



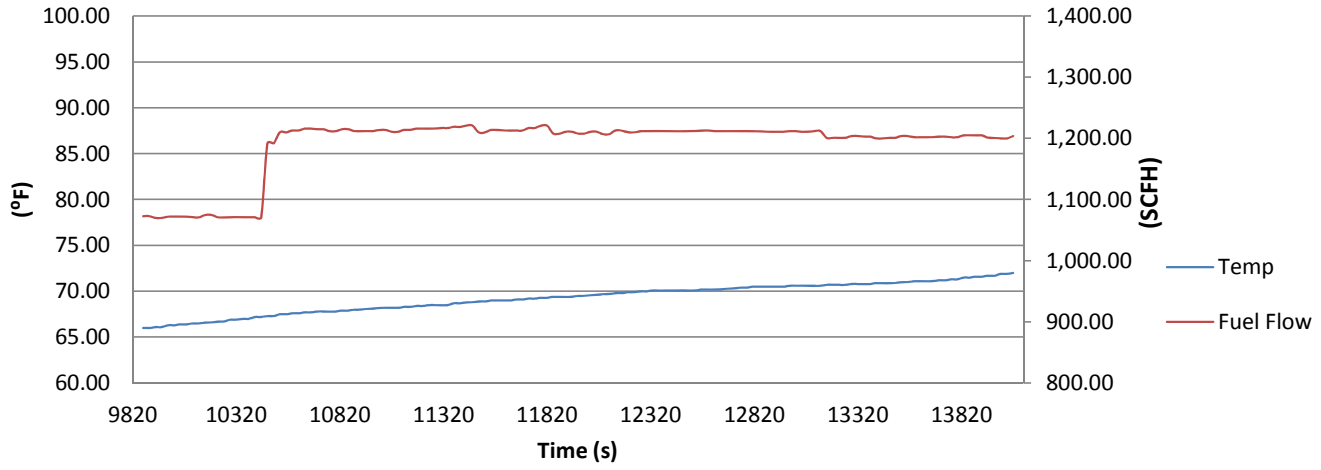
SCD-36 R10



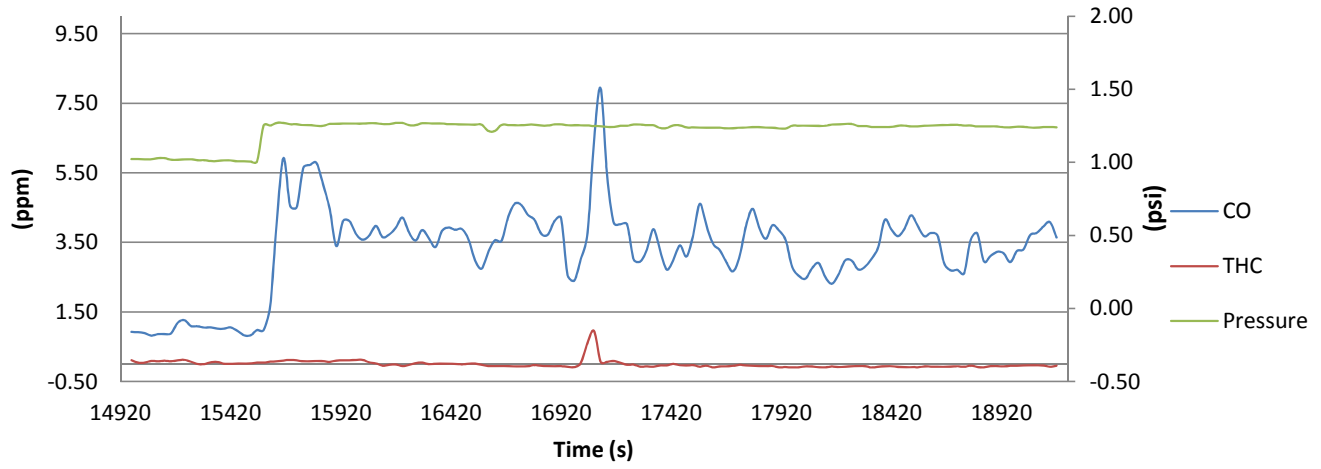
SCD-36 R11



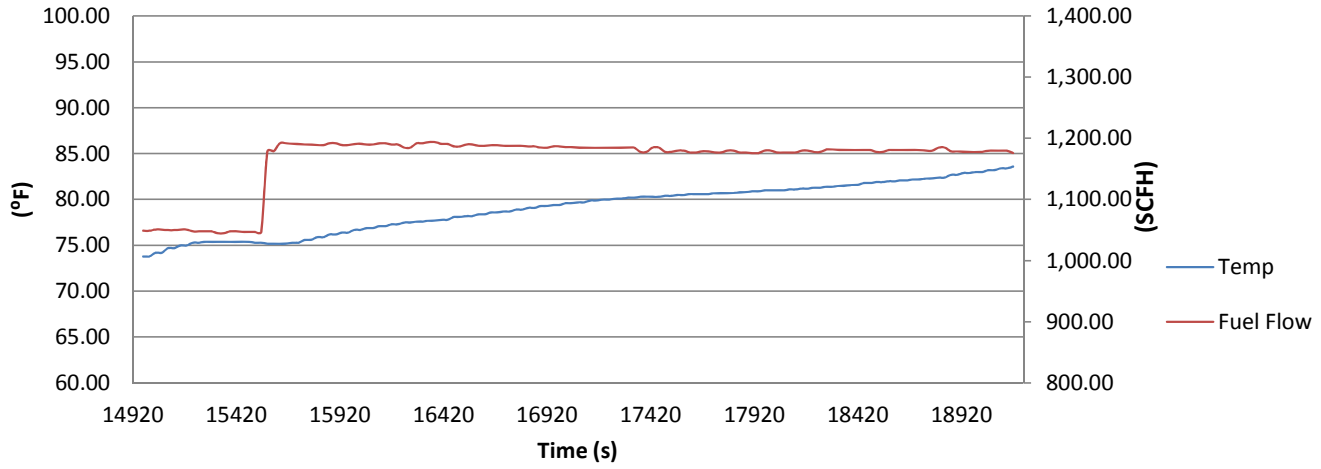
SCD-36 R11



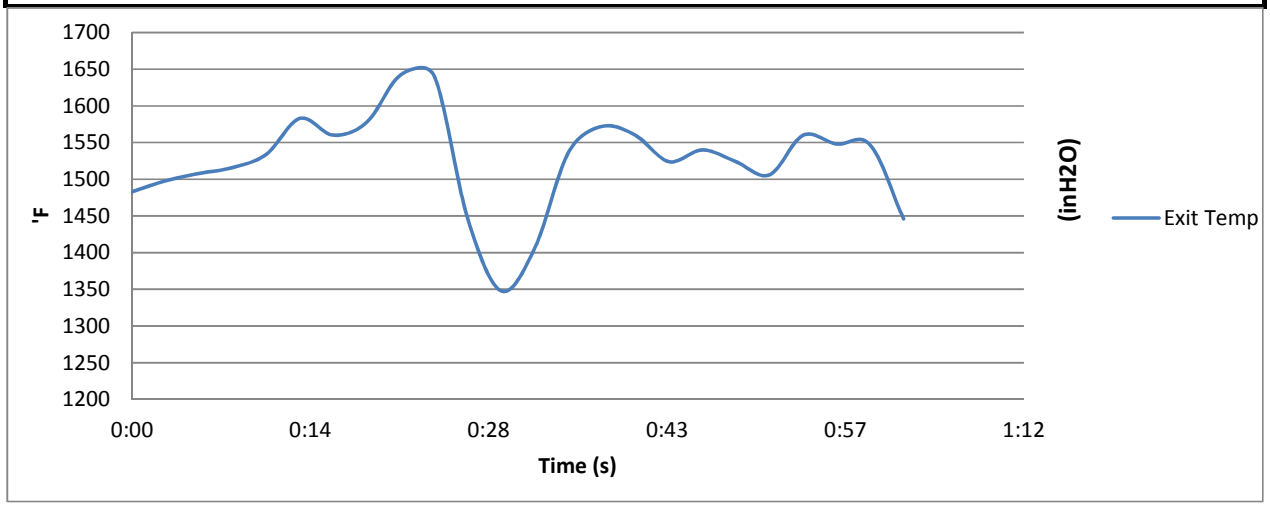
SCD-36 R12



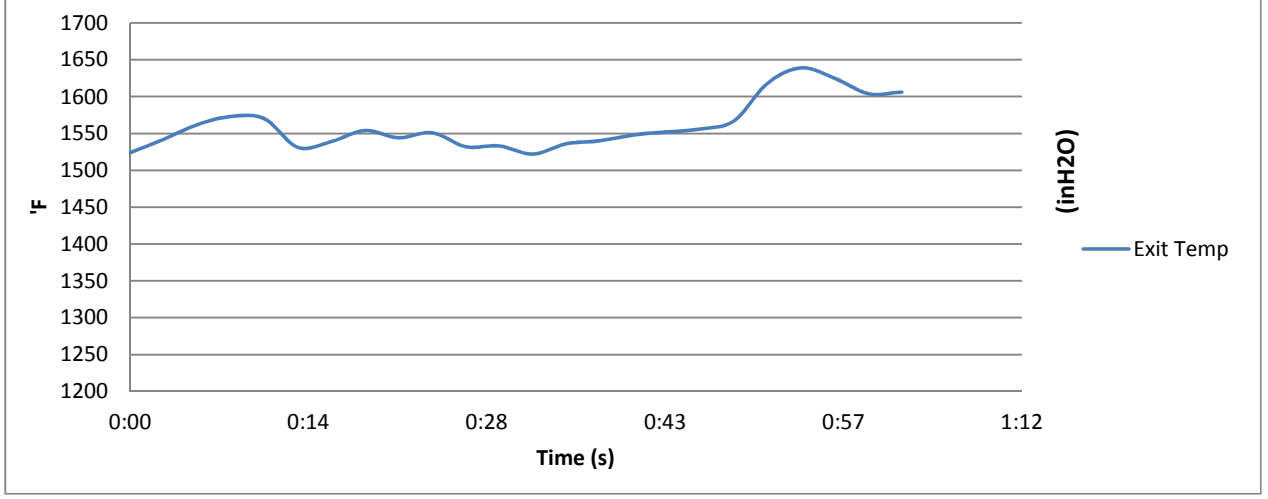
SCD-36 R12



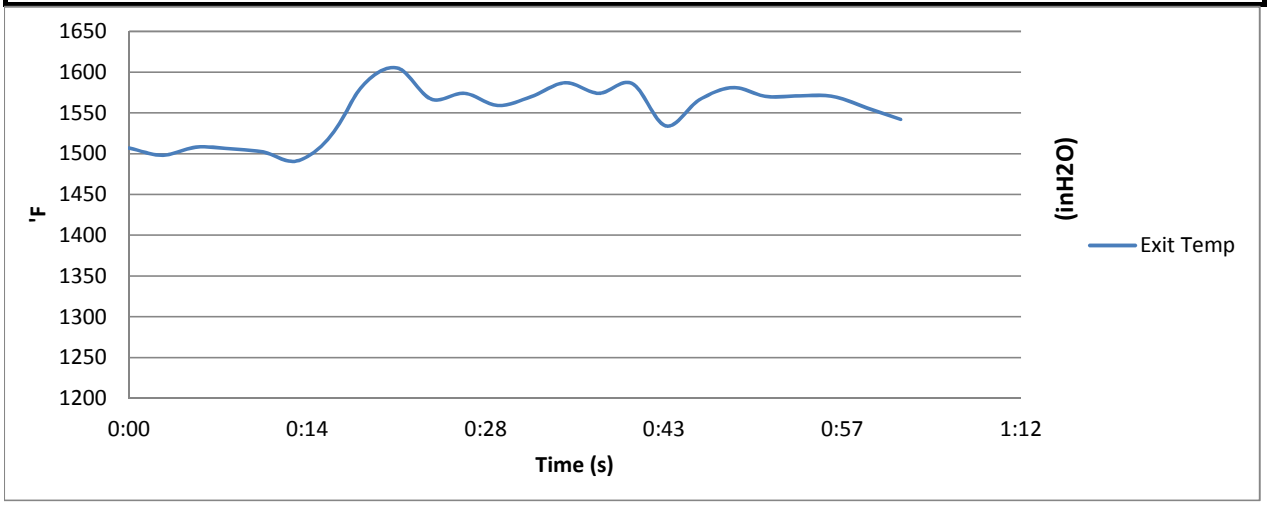
SCD-36 R10



SCD-36 R11



SCD-36 R12



EMISSION DATA RECORDS

VISUAL EMISSION RECORD

Run 1
0-30-0

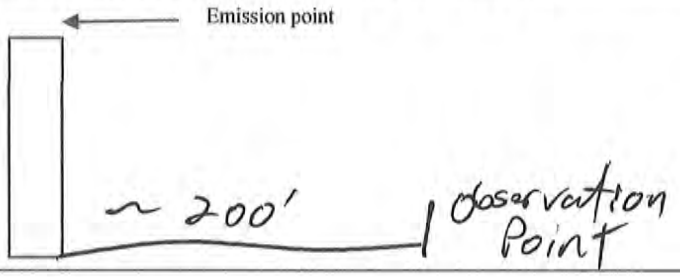
METHOD 22
FUGITIVE OR SMOKE EMISSION
INSPECTION FORM

AIR HYGIENE

COMPANY: Superior Fabrication Inc **LOCATION:** Elk City **COMPANY REP:** Adam Yow	**OBSERVER:** Bryan Brown **AFFILIATION:** Air Hygiene Inc **DATE:** 10/5/16
SKY CONDITIONS: Clear **PRECIPITATION:** None	**WIND DIRECTION:** W **WIND SPEED:** 6 MPH
INDUSTRY: Fabrication	**PROCESS UNIT:** SCD-36

SKETCH PROCESS UNIT: INDICATE OBSERVER POSITION RELATIVE TO SOURCE; INDICATE POTENTIAL EMISSION POINTS AND/OR ACTUAL EMISSION POINTS.

Hum 28.1
Temp 80
Baro 27.85



OBSERVATIONS

CLOCK TIME	OBSERVATION PERIOD DURACTION (MIN:SEC)	ACCUMULATION EMISSION TIME (MIN:SEC)	OBSERVATION LOCATION
12:07	20:00	00:00	SW of Stack
12:27	5:00	Break	
12:32	20:00	00:00	
12:52	5:00	Break	
12:57	20:00	00:00	
13:17			

SIGNATURE


10.5.2016 12:15

Run 2
0-30-0

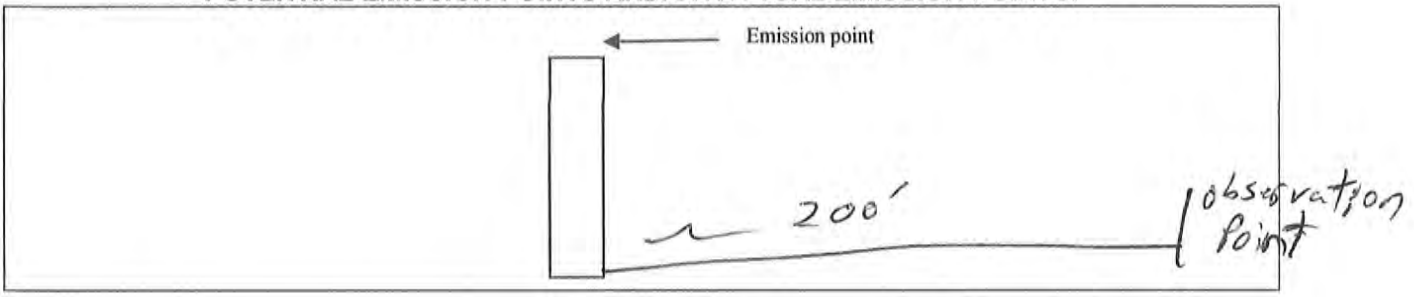
METHOD 22
FUGITIVE OR SMOKE EMISSION
INSPECTION FORM

AIR HYGIENE

COMPANY: Superior Fabrication Inc **LOCATION:** Elk City **COMPANY REP:** Adam Yow	**OBSERVER:** Bryan Brown **AFFILIATION:** Air Hygiene Inc **DATE:** 10/6/16
SKY CONDITIONS: Cloudy **PRECIPITATION:** none	**WIND DIRECTION:** S **WIND SPEED:** 10
INDUSTRY: Fabrication	**PROCESS UNIT:** SCD-36

Temp 83
Hum. 53.7
Baro 27.86

SKETCH PROCESS UNIT: INDICATE OBSERVER POSITION RELATIVE TO SOURCE; INDICATE POTENTIAL EMISSION POINTS AND/OR ACTUAL EMISSION POINTS.



OBSERVATIONS

CLOCK TIME	OBSERVATION PERIOD DURACTION (MIN:SEC)	ACCUMULATION EMISSION TIME (MIN:SEC)	OBSERVATION LOCATION
13:17	20:00	00:00	S/E of Stack
13:37	5:00	Break	
13:42	20:00	00:00	
14:02	5:00	Break	
14:07	20:00	00:00	
14:27			

BB
SIGNATURE


10.6.2016 13:23

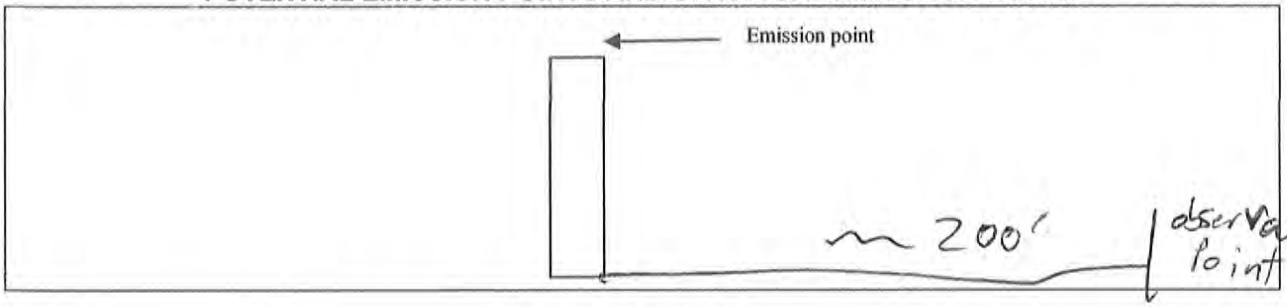
Run 3
0-30-0

METHOD 22
FUGITIVE OR SMOKE EMISSION
INSPECTION FORM

AIR HYGIENE

COMPANY: Superior Fabrication Inc **LOCATION:** Elk City **COMPANY REP:** Adam Yow	**OBSERVER:** Bryan Brown **AFFILIATION:** Air Hygiene Inc **DATE:** 10/6/16
SKY CONDITIONS: Broken **PRECIPITATION:** None	**WIND DIRECTION:** S/E **WIND SPEED:** 8
INDUSTRY: Fabrication	**PROCESS UNIT:** SCD-36

SKETCH PROCESS UNIT: INDICATE OBSERVER POSITION RELATIVE TO SOURCE; INDICATE POTENTIAL EMISSION POINTS AND/OR ACTUAL EMISSION POINTS.



Temp 86
Humi 51%
Baro 27.83

OBSERVATIONS

CLOCK TIME	OBSERVATION PERIOD DURACTION (MIN:SEC)	ACCUMULATION EMISSION TIME (MIN:SEC)	OBSERVATION LOCATION
14:43	20:00	00:00	S/E of Stack
15:03	5:00	Break	
15:08	20:00	00:00	
15:28	5:00	Break	
15:33	20:00	00:00	
15:53			

SIGNATURE


10.6.2016 14:48

Run #4

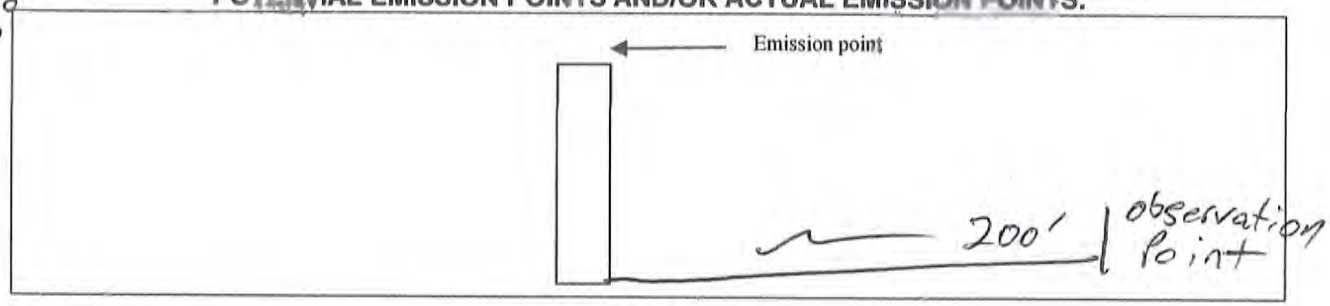
METHOD 22
FUGITIVE OR SMOKE EMISSION
INSPECTION FORM

AIR HYGIENE

COMPANY: Superior Fabrication Inc **LOCATION:** Elk City **COMPANY REP:** Adam Yow	**OBSERVER:** Bryan Brown **AFFILIATION:** Air Hygiene Inc **DATE:** 10/6/16
SKY CONDITIONS: Broken **PRECIPITATION:** None	**WIND DIRECTION:** SW **WIND SPEED:** 8
INDUSTRY: Fabrication	**PROCESS UNIT:** SCD-36

SKETCH PROCESS UNIT: INDICATE OBSERVER POSITION RELATIVE TO SOURCE; INDICATE POTENTIAL EMISSION POINTS AND/OR ACTUAL EMISSION POINTS.

Temp 86°
Hum 52%
Baro 27.82



OBSERVATIONS

CLOCK TIME	OBSERVATION PERIOD DURACTION (MIN:SEC)	ACCUMULATION EMISSION TIME (MIN:SEC)	OBSERVATION LOCATION
16:13	20:00	00:00	W/ Stack
16:33	5:00	Break	
16:38	20:00	00:00	
16:58	5:00	Break	
17:03	20:00	00:00	
17:23			

BB
SIGNATURE


10.6.2016 16:17

5

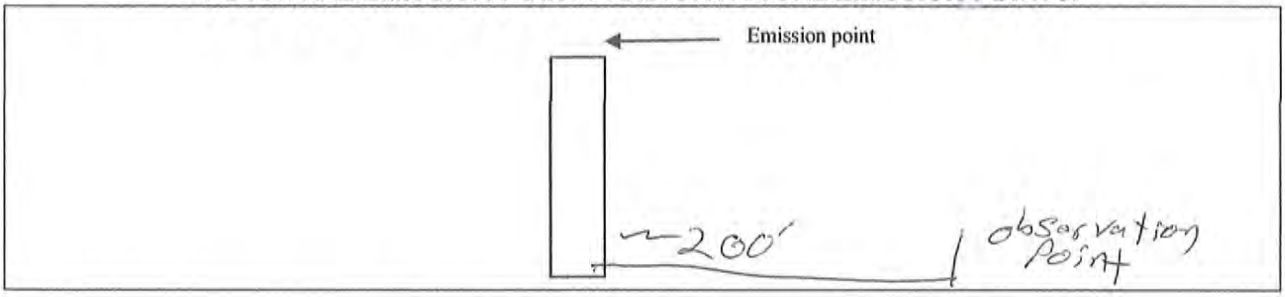
METHOD 22
FUGITIVE OR SMOKE EMISSION
INSPECTION FORM

AIR HYGIENE

COMPANY: Superior Fabrication Inc **LOCATION:** Elk City **COMPANY REP:** Adam Yow	**OBSERVER:** Bryan Brown **AFFILIATION:** Air Hygiene Inc **DATE:** 10/7/16
SKY CONDITIONS: Clear **PRECIPITATION:** none	**WIND DIRECTION:** 4.7 **WIND SPEED:** W
INDUSTRY: Fabrication	**PROCESS UNIT:** SCD-36

Temp 49
Hum 53.0
Baro 28.22

SKETCH PROCESS UNIT: INDICATE OBSERVER POSITION RELATIVE TO SOURCE; INDICATE POTENTIAL EMISSION POINTS AND/OR ACTUAL EMISSION POINTS.



OBSERVATIONS

CLOCK TIME	OBSERVATION PERIOD DURACTION (MIN:SEC)	ACCUMULATION EMISSION TIME (MIN:SEC)	OBSERVATION LOCATION
07:55	20:00	00:00	N/E of Stack
08:15	5:00	Break	
08:20	20:00	00:00	
08:40	5:00	Break	
08:45	20:00	00:00	
09:05			

BB
SIGNATURE
10/7/16


10.7.2016 07:59

Run 6

METHOD 22
FUGITIVE OR SMOKE EMISSION
INSPECTION FORM

AIR HYGIENE

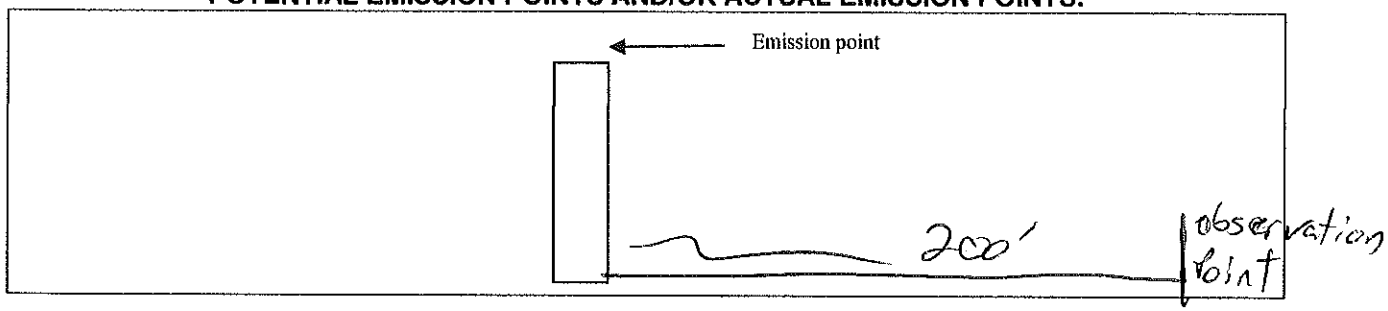
COMPANY: Superior Fabrication Inc **LOCATION:** Elk City **COMPANY REP:** Adam Yow	**OBSERVER:** Bryan Brown **AFFILIATION:** Air Hygiene Inc **DATE:** 10/4/16
SKY CONDITIONS: Clear **PRECIPITATION:** none	**WIND DIRECTION:** S **WIND SPEED:** 4
INDUSTRY: Fabrication	**PROCESS UNIT:** SCD-36

SKETCH PROCESS UNIT: INDICATE OBSERVER POSITION RELATIVE TO SOURCE; INDICATE POTENTIAL EMISSION POINTS AND/OR ACTUAL EMISSION POINTS.

Temp 52°

Hum 60%

Baro 28.25



OBSERVATIONS

CLOCK TIME	OBSERVATION PERIOD DURACTION (MIN:SEC)	ACCUMULATION EMISSION TIME (MIN:SEC)	OBSERVATION LOCATION
09:21	20:00	00:00	N/E of Stack
09:41	5:00	Break	
09:46	20:00	00:00	
10:06	5:00	Break	
10:11	20:00	00:00	
10:31			

SIGNATURE


10.7.2016 09:27

Run 7

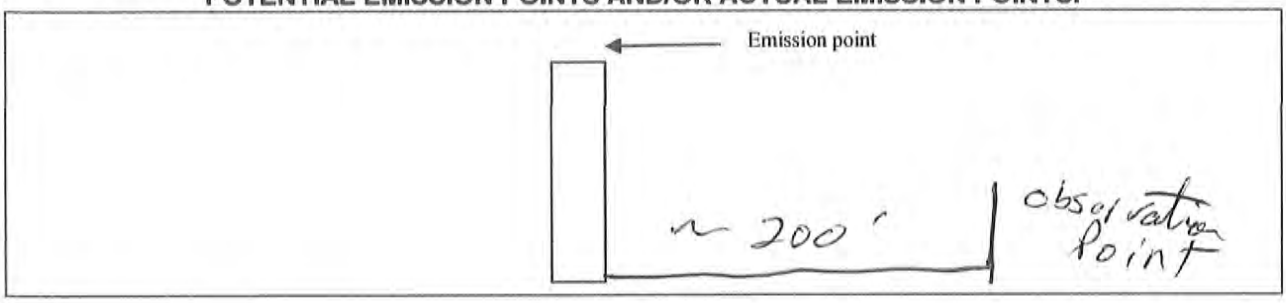
METHOD 22
FUGITIVE OR SMOKE EMISSION
INSPECTION FORM

AIR HYGIENE

COMPANY: Superior Fabrication Inc **LOCATION:** Elk City **COMPANY REP:** Adam Yow	**OBSERVER:** Bryan Brown **AFFILIATION:** Air Hygiene Inc **DATE:** 10/5/16
SKY CONDITIONS: Clear **PRECIPITATION:** None	**WIND DIRECTION:** W **WIND SPEED:** 7 mph
INDUSTRY: Fabrication	**PROCESS UNIT:** SCD-36

SKETCH PROCESS UNIT: INDICATE OBSERVER POSITION RELATIVE TO SOURCE; INDICATE POTENTIAL EMISSION POINTS AND/OR ACTUAL EMISSION POINTS.

Temp 87,
Hum 17.9
Baro 27.79



OBSERVATIONS

CLOCK TIME	OBSERVATION PERIOD DURACTION (MIN:SEC)	ACCUMULATION EMISSION TIME (MIN:SEC)	OBSERVATION LOCATION
17:05	20:00	00:00	W/W of Stack
17:25	5:00	Break	
17:30	20:00	00:00	
17:50	5:00	Break	
17:55 ~~17:55~~	20:00	00:00	
10/5 BB 18:15			

BB

SIGNATURE


10.5.2016 17:33

Run 8
70-100-70

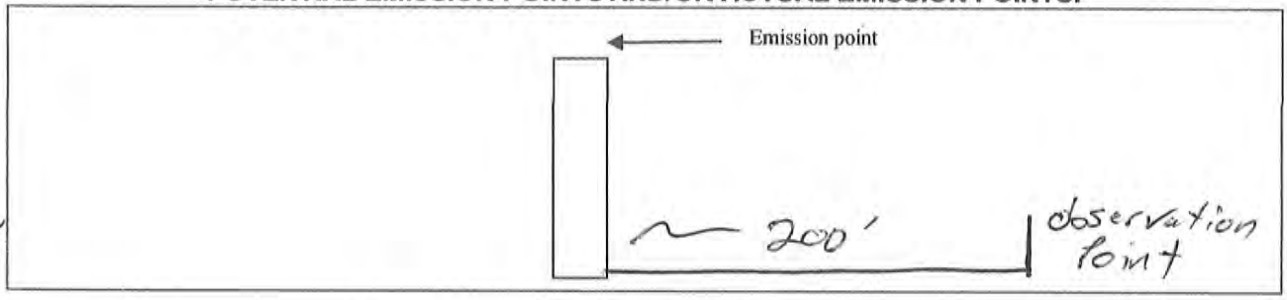
METHOD 22
FUGITIVE OR SMOKE EMISSION
INSPECTION FORM

AIR HYGIENE

COMPANY: Superior Fabrication Inc **LOCATION:** Elk City **COMPANY REP:** Adam Yow	**OBSERVER:** Bryan Brown **AFFILIATION:** Air Hygiene Inc **DATE:** 10-6-16
SKY CONDITIONS: Broken **PRECIPITATION:** None	**WIND DIRECTION:** S **WIND SPEED:** 5mph
INDUSTRY: Fabrication	**PROCESS UNIT:** SCD-36

SKETCH PROCESS UNIT: INDICATE OBSERVER POSITION RELATIVE TO SOURCE; INDICATE POTENTIAL EMISSION POINTS AND/OR ACTUAL EMISSION POINTS.

Temp 70
Hum. 83%
360 27 N65



OBSERVATIONS

CLOCK TIME	OBSERVATION PERIOD DURACTION (MIN:SEC)	ACCUMULATION EMISSION TIME (MIN:SEC)	OBSERVATION LOCATION
07:55	20:00	00:00	East of Stack
08:15	Break 5:00	Break	
08:20	20:00	BB 10/6 00:00	
08:40	Break 3:00	Break	
08:45	20:00	00:00	
09:05			

BB

SIGNATURE


10.6.2016 08:39

Run 9

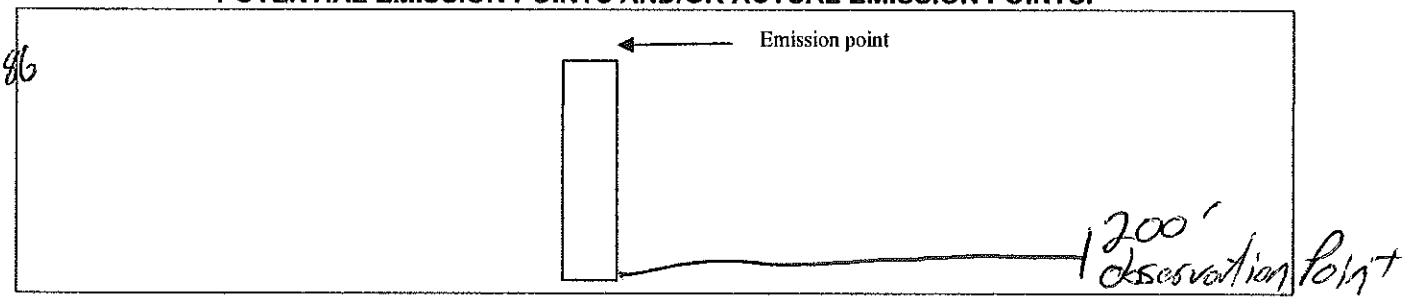
METHOD 22
FUGITIVE OR SMOKE EMISSION
INSPECTION FORM

AIR HYGIENE

COMPANY: Superior Fabrication Inc **LOCATION:** Elk City **COMPANY REP:** Adam Yow	**OBSERVER:** Bryan Brown **AFFILIATION:** Air Hygiene Inc **DATE:** 10-06-16
SKY CONDITIONS: Broken **PRECIPITATION:** None	**WIND DIRECTION:** S **WIND SPEED:** 4 mph
INDUSTRY: Fabrication	**PROCESS UNIT:** SCD-36

Temp 76°
Hum 72%
Baro: 27.86

SKETCH PROCESS UNIT: INDICATE OBSERVER POSITION RELATIVE TO SOURCE; INDICATE POTENTIAL EMISSION POINTS AND/OR ACTUAL EMISSION POINTS.



OBSERVATIONS

CLOCK TIME	OBSERVATION PERIOD DURACTION (MIN:SEC)	ACCUMULATION EMISSION TIME (MIN:SEC)	OBSERVATION LOCATION
09:25	20:00	00:00	E of Stack
09:45	5:00	Break	
09:50	20:00	00:00	
10:10	5:00	Break	
10:15	20:00	00:00	
10:35			

SIGNATURE


10.6.2016 09:31

Run 10
90-100%

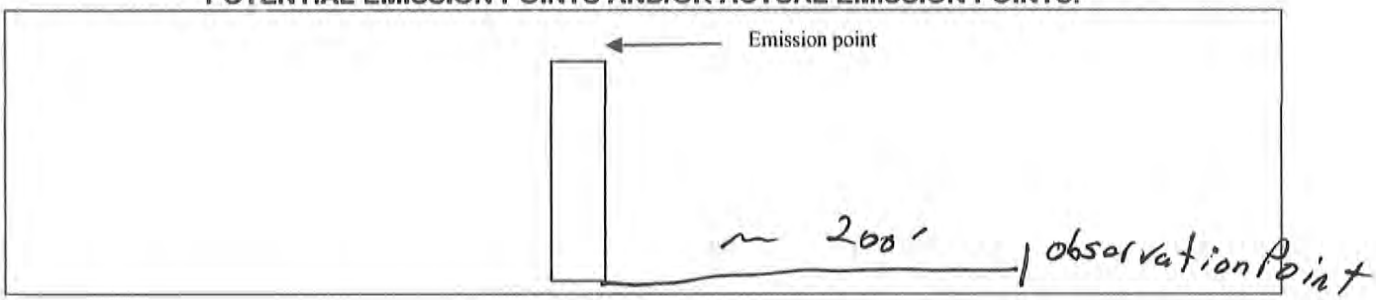
Hum. 79.6
Temp 69.7
Bar 0.27.65

METHOD 22
FUGITIVE OR SMOKE EMISSION
INSPECTION FORM

AIR HYGIENE

COMPANY: Superior Fabrication Inc **LOCATION:** Elk City **COMPANY REP:** Adam Yow	**OBSERVER:** Bryan Brown **AFFILIATION:** Air Hygiene Inc **DATE:** October 4th 2016
SKY CONDITIONS: Clear **PRECIPITATION:** None	**WIND DIRECTION:** South **WIND SPEED:** 7.6mph
INDUSTRY: Fabrication	**PROCESS UNIT:** SCD-36

SKETCH PROCESS UNIT: INDICATE OBSERVER POSITION RELATIVE TO SOURCE; INDICATE POTENTIAL EMISSION POINTS AND/OR ACTUAL EMISSION POINTS.



OBSERVATIONS

CLOCK TIME	OBSERVATION PERIOD DURACTION (MIN:SEC)	ACCUMULATION EMISSION TIME (MIN:SEC)	OBSERVATION LOCATION
08:02	20:00	00:00	SW of stack
08:22	5 min Break	Break	SW of Stack
08:27	20:00	00:00	SW of Stack
08:47	5 min	Break	SW of Stack
08:52	20:00	00:00	S/W of Stack
09:12	5 min	Break	S/W of Stack
End Time 09:17	BB 10/4		

BB
SIGNATURE


10.4.2016 08:15

Run 11
90-100%

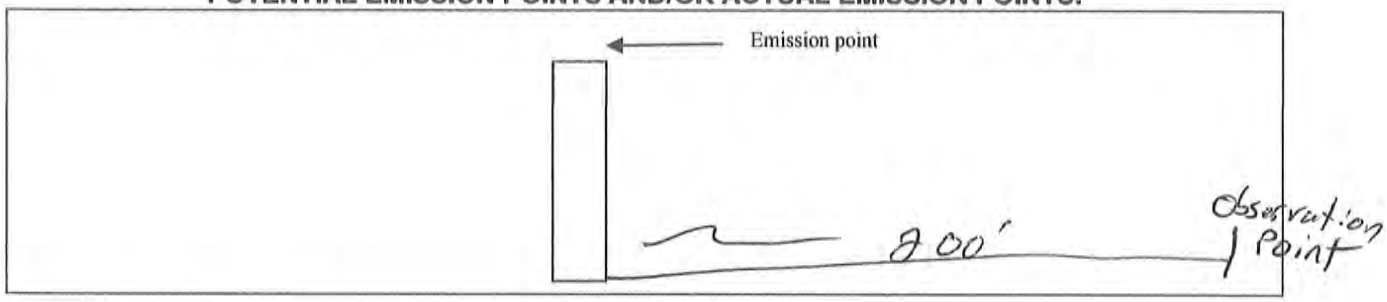
Hum. 78.8%
Temp: 68.5°
Bro: 27.69

METHOD 22
FUGITIVE OR SMOKE EMISSION
INSPECTION FORM

AIR HYGIENE

COMPANY: Superior Fabrication Inc **LOCATION:** Elk City **COMPANY REP:** Adam Yow	**OBSERVER:** Bryan Brown **AFFILIATION:** Air Hygiene Inc **DATE:** October 4th 2016
SKY CONDITIONS: Broken **PRECIPITATION:** None	**WIND DIRECTION:** South **WIND SPEED:** 9.9
INDUSTRY: Fabrication	**PROCESS UNIT:** SCD-36

SKETCH PROCESS UNIT: INDICATE OBSERVER POSITION RELATIVE TO SOURCE; INDICATE POTENTIAL EMISSION POINTS AND/OR ACTUAL EMISSION POINTS.



OBSERVATIONS

CLOCK TIME	OBSERVATION PERIOD DURACTION (MIN:SEC)	ACCUMULATION EMISSION TIME (MIN:SEC)	OBSERVATION LOCATION
09:27	20:00	00:00 None	SW of Stack
09:47	5min	Break	
09:52	20.00	00:00	
10:12	5min	Break	
10:17	20:00	00:00	
~~10:32~~ 10:37 BB 10:4			

SIGNATURE


10.4.2016 09:31

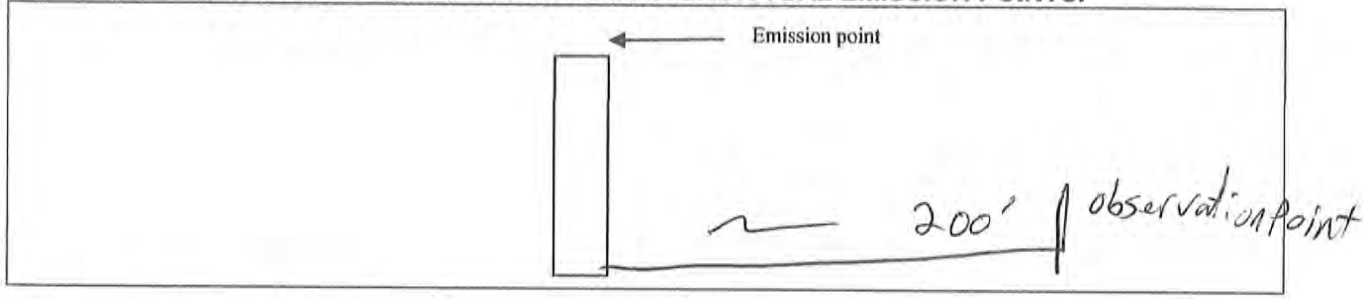
Run 12
90-100%

METHOD 22
FUGITIVE OR SMOKE EMISSION
INSPECTION FORM

AIR HYGIENE

COMPANY: Superior Fabrication Inc **LOCATION:** Elk City **COMPANY REP:** Adam Yow	**OBSERVER:** Bryan Brown **AFFILIATION:** Air Hygiene Inc **DATE:** 10/4/16
SKY CONDITIONS: Broken **PRECIPITATION:** None	**WIND DIRECTION:** South **WIND SPEED:** 9.3
INDUSTRY: Fabrication	**PROCESS UNIT:** SCD-36

SKETCH PROCESS UNIT: INDICATE OBSERVER POSITION RELATIVE TO SOURCE; INDICATE POTENTIAL EMISSION POINTS AND/OR ACTUAL EMISSION POINTS.



OBSERVATIONS

CLOCK TIME	OBSERVATION PERIOD DURACTION (MIN:SEC)	ACCUMULATION EMISSION TIME (MIN:SEC)	OBSERVATION LOCATION
10:52	20:00	00:00	SW of Stack
11:12	5 min	Break	
11:17	20:00	00:00	
11:37	5 min	Break	
11:42	20:00	00:00	
12:02			

B Brown
SIGNATURE


10.4.2016 11:02

APPENDIX C

CALIBRATION GAS CERTIFICATIONS

Air Liquide America
Specialty Gases LLC

1290 COMBERMERE STREET, TROY, MI 48083 Phone: 248-589-2950 Fax: 248-589-2134

RATA CLASS

Guaranteed +/- 1% Accuracy

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A22014
AIR LIQUIDE AMERICA SPECIALTY GASES LLC
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.:
Document # : 54692590-005
Folio #:AH095

Customer
AIR HYGIENE
MIKE SCOTT
1600 WEST TACOMA ST
BROKEN ARROW OK 74012
US

ANALYTICAL INFORMATION Gas Type : CO2,O2,BALN

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1. EPA/600/R-12/531; May 2012. Do not use this standard if pressure is less than 100 psig.

Cylinder Number: CC67536
Cylinder Pressure: 2000 PSIG
Certification Date: 17Apr2014
Exp. Date: 18Apr2022
Batch No: TRO0107482

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY (ABSOLUTE / RELATIVE)
OXYGEN	21.1 %	0.08 % / 0.4 %
CARBON DIOXIDE	18.4 %	0.1 % / 0.8 %
NITROGEN	BALANCE	

TRACEABILITY

REFERENCE STANDARD

COMPONENT	CONCENTRATION	UNCERTAINTY	CYLINDER	TYPE/SRM SAMPLE	EXP. DATE
OXYGEN	23.2000 %	0.0900 %	K024582	NTRM 2350	04Jan2018
CARBON DIOXIDE	23.0400 %	0.1200 %	K026052	NTRM 2300	17Aug2016

ANALYTICAL METHOD

1st Analysis: 17Apr2014

COMPONENT	INSTRUMENT	ANALYTICAL/PRINCIPLE	CALIBRATED	CONCENTRATION
OXYGEN	CAI/110P/V03018	PARAMAGNETIC	14Apr2014	21.10 %
CARBON DIOXIDE	PIR/2000/609015	NDIR	21Mar2014	18.40 %

Special Notes: AH095 LIST ITEM AH095 ON CERTS AND TAGS

APPROVED BY: _____
JEFF CROTEAU

Assay Laboratory: Red Ball TGS
555 Craig Kennedy Way
Shreveport, LA 71107
800-551-8150

EPA PROTOCOL GAS CERTIFICATE OF ANALYSIS

Cylinder Number:	EB0060530	**Certification Date**:	09/01/2016
Product ID Number:	124606	**Expiration Date:**	08/30/2024
Cylinder Pressure:	1900 PSIG	**MFG Facility:**	RBTGS-Shreveport-LA
COA #	EB0060530.20160824-0	**Lot Number:**	EB0060530.20160824
Customer PO. NO.:		**Tracking Number:**	082996545
Customer:		**Previous Certification Dates:**	

This calibration standard has been certified per the May 2012 EPA Traceability Protocol, Document EPA-600/R-12/531, using procedure G1.

Do Not Use This Cylinder Below 100 psig (0.7 Megapascal).

Certified Concentration(s)

Component	Concentration	Uncertainty	Analytical Principle	Assayed On
Carbon Dioxide	**8.95 %**	±0.03 %	FTIR	09/01/2016
Oxygen	**11.9 %**	±0.1 %	MPA	08/30/2016
Nitrogen	Balance			

Analytical Measurement Data Available Online.

Reference Standard(s)

Serial Number	Lot	Expiration	Type	Balance	Component	Concentration	Uncertainty(%)	NIST Reference
EB0055387	EB0055387.20140228G	10/07/2022	GMIS	N2	O2	23.79 %	0.505	071001
EB0060686	EB0060686.20141114	01/21/2023	GMIS	N2	CO2	9.48 %	0.741	101001
EB0032246	LD131022.115903.1G	10/07/2022	GMIS	N2	O2	11.97 %	0.527	071001

Analytical Instrumentation

Component	Analytical Principle	Make	Model	Serial	MPC Date
O2	MPA	Horiba	VA-3013	H0000P11	08/25/2016
CO2	FTIR	MKS	MKS 2031DJG2EKVS13T	017146467	08/24/2016

Red Ball Technical Gas Service
PGVP Vendor ID # G12016
Information and Ordering
800-551-8150
Fax (318-425-6309)

PJLA Calibration and Testing
Accreditation #62754

Brandon Theus
Analytical Chemist

This is to certify the gases referenced have been calibrated/tested, and verified to meet the defined specifications. This calibration/test was performed using Gases or Scales that are traceable through National Institute of Standards and Technology (NIST) to the International System of Units (SI). The basis of compliance stated is a comparison of the measurement parameters to the specified or required calibration/testing process. The expanded uncertainties use a coverage factor of k=2 to approximate the 95% confidence level of the measurement, unless otherwise noted. This calibration certificate applies only to the item described and shall not be reproduced other than in full, without written approval from Red Ball Technical Gas Services. If not included, the uncertainty of calibrations are available upon request and were taken into account when determining pass or fail.

Assay Laboratory: Red Ball TGS
555 Craig Kennedy Way
Shreveport, LA 71107
800-551-8150

EPA PROTOCOL GAS CERTIFICATE OF ANALYSIS

Cylinder Number:	EB0085244	**Certification Date:**	07/29/2016
Product ID Number:	125780	**Expiration Date:**	07/29/2019
Cylinder Pressure:	1900 PSIG	**MFG Facility:**	RBTGS-Shreveport-LA
COA #	EB0085244.20160711-0	**Lot Number:**	EB0085244.20160711
Customer PO. NO.:		**Tracking Number:**	083080470
Customer:		**Previous Certification Dates:**	

This calibration standard has been certified per the May 2012 EPA Traceability Protocol, Document EPA-600/R-12/531, using procedure G1.

Do Not Use This Cylinder Below 100 psig (0.7 Megapascal).

Certified Concentration(s)

Component	Concentration	Uncertainty	Analytical Principle	Assayed On
Carbon Monoxide	**18.3 PPM**	±0.13 PPM	FTIR	07/19/2016
Nitric Oxide	**18.30 PPM**	±0.09 PPM	Chemiluminescence	07/15/2016, 07/22/2016, 07/29/2016
Total Oxides of Nitrogen	18.40 PPM			
Nitrogen	Balance			

Analytical Measurement Data Available Online.

Reference Standard(s)

Serial Number	Lot	Expiration	Type	Balance	Component	Concentration	Uncertainty(%)	NIST Reference
CC133318	021003	11/05/2017	NTRM	N2	CO	988 PPM	0.9109	021003
EB0042058	EB0042058.20150710g	10/21/2023	GMIS	N2	NO	63.48 PPM	1.053	121001
EB0053156	EB0053156.20150713g	11/28/2023	GMIS	N2	NO	32.74 PPM	1.059	121001

Analytical Instrumentation

Component	Analytical Principle	Make	Model	Serial	MPC Date
NO	Chemiluminescence	Thermo	T42C	42C-68400-360	06/29/2016
CO	FTIR	MKS	MKS 2031DJG2EKVS13T	017146467	07/18/2016

Red Ball Technical Gas Service
PGVP Vendor ID # G12016
Information and Ordering
800-551-8150
Fax (318-425-6309)

Accreditation #62754

Fred Holt
Analyst

This is to certify the gases referenced have been calibrated/tested, and verified to meet the defined specifications. This calibration/test was performed using Gases or Scales that are traceable through National Institute of Standards and Technology (NIST) to the International System of Units (SI). The basis of compliance stated is a comparison of the measurement parameters to the specified or required calibration/testing process. The expanded uncertainties use a coverage factor of k=2 to approximate the 95% confidence level of the measurement, unless otherwise noted. This calibration certificate applies only to the item described and shall not be reproduced other than in full, without written approval from Red Ball Technical Gas Services. If not included, the uncertainty of calibrations are available upon request and were taken into account when determining pass or fail.

Version 02-E, Revised on 2016-04-27

Assay Laboratory: Red Ball TGS
555 Craig Kennedy Way
Shreveport, LA 71107
800-551-8150

EPA PROTOCOL GAS CERTIFICATE OF ANALYSIS

Cylinder Number:	EB0078754	**Certification Date:**	03/31/2016
Product ID Number:	124737	**Expiration Date:**	03/31/2019
Cylinder Pressure:	1900 PSIG	**MFG Facility:**	RBTGS-Shreveport-LA
COA #	EB0078754.20160311-0	**Lot Number:**	EB0078754.20160311
Customer PO. NO.:		**Tracking Number:**	084270557
Customer:		**Previous Certification Dates:**	

This calibration standard has been certified per the May 2012 EPA Traceability Protocol, Document EPA-600/R-12/531, using procedure G1.

Do Not Use This Cylinder Below 100 psig (0.7 Megapascal).

Certified Concentration(s)

Component	Concentration	Uncertainty	Analytical Principle	Assayed On
Carbon Monoxide	**9.44 PPM**	±0.03 PPM	FTIR	03/15/2016
Nitric Oxide	**9.09 PPM**	±0.02 PPM	Chemiluminescence	03/23/2016, 03/31/2016
Total Oxides of Nitrogen	9.25 PPM			
Nitrogen	Balance			

Analytical Measurement Data Available Online.

Reference Standard(s)

Serial Number	Lot	Expiration	Type	Balance	Component	Concentration	Uncertainty(%)	NIST Reference
CAL016513	49-H-67	09/08/2017	SRM	N2	NO	10.01 PPM	0.999	2628a
EB0006931	EB0006931.20150713g	10/22/2018	GMIS	N2	NO	14.95 PPM	1.095	121001
EB0046586	EB0046586.20150713g	11/29/2019	GMIS	N2	NO	9.96 PPM	1.158	121001
EB0059463	EB0059463.20150710g	10/21/2023	GMIS	N2	NO	63.52 PPM	1.053	121001
EB0013666	GC1102091256	07/27/2019	GMIS	N2	CO	11.8 PPM	1.038	091002

Analytical Instrumentation

Component	Analytical Principle	Make	Model	Serial	MPC Date
CO	FTIR	MKS	MKS 2031DJG2EKVS13T	017146467	03/14/2016
NO	Chemiluminescence	Thermo	T42C	42C-68400-360	02/25/2016
NO	Chemiluminescence	Thermo	T42C	42C-68400-360	03/17/2016

Red Ball Technical Gas Service
PGVP Vendor ID # G12016
Information and Ordering
800-551-8150
Fax (318-425-6309)

Accreditation #62754

LaMeka Dennis
Assistant Operations Manager

Airgas
an Air Liquide company

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number:	E02AI99E15A1937	Reference Number:	54-124515187-2
Cylinder Number:	CC156074	Cylinder Volume:	146.2 CF
Laboratory:	ASG - Chicago - IL	Cylinder Pressure:	2015 PSIG
PGVP Number:	B12015	Valve Outlet:	590
Gas Code:	PPN,BALA	Certification Date:	Sep 25, 2015

Expiration Date: Sep 25, 2023

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

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

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
PROPANE	8.500 PPM	8.428 PPM	G1	+/- 1.2% NIST Traceable	09/25/2015
AIR	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	10061408	CC314698	9.93 PPM PROPANE/AIR	+/- 0.6%	Jul 20, 2016

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHR0801332	FTIR	Aug 27, 2015

Triad Data Available Upon Request

Signature on file

Approved for Release

AIR LIQUIDE Air Liquide America Specialty Gases LLC

Scott

RATA CLASS

Guaranteed +/- 1% Accuracy

1290 COMBERMERE STREET, TROY, MI 48083 Phone: 248-589-2950 Fax: 248-589-2134

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A22014
AIR LIQUIDE AMERICA SPECIALTY GASES LLC
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: MAX
Document # : 54740879-001

Customer
AIR HYGIENE
MAX CORBIN
1600 W TACOMA
BROKEN ARROW OK 74012
US

ANALYTICAL INFORMATION Gas Type : PPN,BALA

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1. EPA/600/R-12/531; May 2012. Do not use this standard if pressure is less than 100 psig.

Cylinder Number: ALM010279
Cylinder Pressure: 1950 PSIG
Certification Date: 21Apr2014
Exp. Date: 22Apr2022
Batch No: TRO0107817

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY (ABSOLUTE / RELATIVE)
PROPANE	5.01 PPM	0.03 PPM / 0.7 %
AIR	BALANCE	

TRACEABILITY

REFERENCE STANDARD

COMPONENT	CONCENTRATION	UNCERTAINTY	CYLINDER	TYPE/SRM SAMPLE	EXP. DATE
PROPANE	9.6000 PPM	0.0600 PPM	K012629	9 PPM C3H	24Feb2016

ANALYTICAL METHOD

1st Analysis: 21Apr2014

COMPONENT	INSTRUMENT	ANALYTICAL/PRINCIPLE	CALIBRATED	CONCENTRATION
PROPANE	HORIBA/FIA-220/G05000JAS	FLAME IONIZATION	17Apr2014	5.010 PPM

APPROVED BY: ROBERT LESNIAK

AIR LIQUIDE
Air Liquide America Specialty Gases LLC
Intertek
8832 DICE ROAD, Santa Fe Springs, CA 90670 Phone: 562-945-1383 Fax: 562-464-5262

RATA CLASS
Guaranteed +/- 1% Accuracy

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Customer
AIR HYGIENE
AIR HYGIENE-1
1600 W TACOMA ST
BROKEN ARROW, OK 74012-1483
US

Assay Laboratory - PGVP Vendor ID: A52015
AIR LIQUIDE AMERICA SPECIALTY GASES LLC
8832 DICE ROAD
SANTA FE SPRINGS, CA 90670-2516

Lot No. : 401-42611
P.O. No: Verbal
Folio #: 3ppm Propane/Air
Sales Order #: 133582

ANALYTICAL INFORMATION

Gas Type: PPN,BALA

This certification was performed according to EPA Traceabilty Protocol for Assay & Certification of Gaseous Calibration Standards; Procedure G1. EPA/600/R-12/531; May 2012. Do not use this standard if pressure is less than 100 psig.

Cylinder Number: ALM066568
Cylinder Pressure: 2000 PSIG

Certification Date: 10-Aug-2015

Exp. Date: 11-Aug-2023

Component Name	Concentration (Mole)	Accuracy (Absolute / Relative)
PROPANE	3.00 PPM	0.03 PPM , 1.0 %
AIR	BALANCE	

TRACEABILITY

Analytical Traceability
Reference Standard

Component	Concentration	Uncertainty	Cylinder	NIST Type Sample	EXP. DATE
PROPANE	2.95 PPM	0.03 PPM	ALM023477	NTRM 1665	3-Aug-2017

ANALYTICAL METHOD

1st Analysis: 10-Aug-2015

COMPONENT	INSTRUMENT	ANALYTICAL PRINCIPLE	CALIBRATED	CONCENTRATION
PROPANE	MKS FTIR 2031 SN 10387278	FTIR	08/10/15	3.003 PPM

APPROVED BY:

APPENDIX D

QUALITY ASSURANCE AND QUALITY CONTROL DATA

QA/QC PROGRAM

AIR HYGIENE ensures the quality and validity of its emission measurement and reporting procedures through a rigorous quality assurance (QA) program. The program is developed and administered by an internal QA team and encompasses six major areas:

1. Field Qualifications
2. QA reviews of reports, laboratory work, and field testing;
3. Equipment calibration and maintenance;
4. Chain-of-custody;
5. Training; and
6. Knowledge of current test methods

Field Qualifications

Air Hygiene personnel are required to gain and maintain competence with testing methods and techniques according to their job titles and the roles they play during field testing events. Qualifications for each job description include:

Staff Technician - An entry level position with responsibility to test on the stack by performing duties that include: keep trucks and trailers stocked and clean, travel to and from job site, be the "hands of the test" on the stack; stay on a stack during the sample test, set up and tear down equipment on-site, perform maintenance on equipment in the shop and on-site.

Test Technician or Specialist - Acts as the "hands of the test" on the stack by performing duties that include: stay on a stack during the sample test, migrate to the testing trailer and learn the different analyzers and testing methods used on site, set up and tear down testing equipment on site, learn the system for testing from Testing Managers and Project Managers, travel to and from job site; including driving responsibilities under DOT requirements, follow directions of Testing Managers and Project Managers, learn the proper way to conduct on-site test of stationary stacks

Test Manager or Engineer - Directs and coordinates all aspects of a successful test by performing the following duties personally or through subordinate supervisors including: operating analyzers and consoles during testing along with QA/QC procedures, supervise set up and tear down of equipment on site, writing, reviewing, and revising final test reports, working with the client or state personnel while on the job site, managing pre-test checklists and onsite testing procedures, diagnose and repair any problems that may arise with the equipment, safely operate a man life and drive a truck with or without a trailer, act as crew leader in the field, write protocols and reports, maintain project log of services performed on the job, verify all equipment needed for a job was loaded on the trailer. Test Managers must hold as least one QSTI certificate.

Project Manager - Directs and coordinates all aspects of a successful test by performing the following duties personally or through subordinate supervisors including: operating analyzers and consoles during testing along with QA/QC procedures, supervise set up and tear down of equipment on site, writing, reviewing, and revising final test reports, working with the client or state personnel while on the job site, managing pre-test checklists and onsite testing procedures, diagnose and repair any problems that may arise with the equipment, safely operate a man life and drive a truck with or without a trailer, act as crew leader in the field, write protocols and reports, maintain project log of services performed on the job, verify all equipment needed for a job was loaded on the trailer. Project Managers typically hold QSTI certificates in Groups 1 through 4.

QA Reviews

Air Hygiene's review procedure includes review of each source test report, along with laboratory and fieldwork, by the QA Team. The most important review is the one that takes place before a test program begins. The QA Team works closely with technical division personnel to prepare and review test protocols. Test protocol review includes selection of appropriate test procedures, evaluation of interferences or other restrictions that might preclude use of standard test procedures, and evaluation and/or development of alternate procedures.

Equipment Calibration and Maintenance

The equipment used to conduct the emission measurements is maintained according to the manufacturer's instructions to ensure proper operation. In addition to the maintenance program, calibrations are carried out on each measurement device according to the schedule outlined by the Environmental Protection Agency. Quality control checks are also conducted in the field for each test program. In conformance with ASTM D7036 Section 15.3.15, all metering and monitoring equipment meets or exceeds the uncertainty criteria contained in the method language that pertains to that equipment.

Chain-of-Custody

Air Hygiene maintains full chain-of-custody documentation on all samples and data sheets. In addition to normal documentation of changes between field sample custodians, laboratory personnel, and field test personnel, Air Hygiene documents every individual who handles any test component in the field (e.g., probe wash, impinger loading and recovery, filter loading and recovery, etc.). Samples are stored in a locked area to which only Air Hygiene personnel have access. Field data sheets are secured at Air Hygiene's offices upon return from the field.

Training

Personnel's training is essential to ensure quality testing. Air Hygiene has formal and informal training programs, which include:

1. Attendance at EPA-sponsored training courses
2. Enrollment in EPA correspondence courses
3 A requirement for all technicians to read and understand Air Hygiene's QA manual
4. In-house training and QA meetings on a regular basis
5. Maintenance of training records

Knowledge of Current Test Methods

With the constant updating of standard test methods and the wide variety of emerging test procedures, it is essential that any qualified source tester keep abreast of new developments. Air Hygiene subscribes to services, which provide updates on EPA reference methods, rules, and regulations. Additionally, source test personnel regularly attend and present papers at testing and emission-related seminars and conferences. Air Hygiene personnel maintain membership in the Air and Waste Management Association and the American Industrial Hygiene Association.

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COMBUSTION TESTING QUALITY ASSURANCE ACTIVITIES

In conformance with ASTM D7036 Section 15.3.11 and 13, all testing was performed without any real or apparent errors, with the exception of those that would be listed in Section 2.0 of this report. In addition, all testing was conducted according to the approved testing protocol, test methods, Air Hygiene Quality Manual, or ASTM D7036, with the exception of specifics noted in Section 2.0 of this report. A number of quality assurance activities were undertaken before, during, and after this testing project. This section of the report combined with the documentation in Appendix C describes each of those activities.

Each instrument's response was checked and adjusted in the field prior to the collection of data via multi-point calibration. The instrument's linearity was checked by adjusting its zero and span responses to zero nitrogen and an upscale calibration gas in the range of the expected concentrations. The instrument response was then challenged with other calibration gases of known concentration and accepted as being linear if the response of the other calibration gases agreed within plus or minus two percent of the range of predicted values. NO_2 to NO conversion was checked via direct connect with an EPA Protocol certified concentration of NO_2 in a balance of air or nitrogen. Conversion was verified to be between 90 and 110 percent.

After each test run, the analyzers were checked for zero and span drift. This allowed each test run to be bracketed by calibrations and documents the precision of the data just collected. The criterion for acceptable data is that the instrument drift is no more than three percent of the full-scale response. The quality assurance worksheets in the following pages summarize all multipoint calibration checks and zero to span checks performed during the tests. These worksheets (as prepared from the data records of Appendix A) show that no drifts in excess of three percent occurred in the zero to span checks following each test run.

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

The absence of leaks in the sampling system was also verified by a sampling system bias check. The sampling system's integrity was tested by comparing the responses of the analyzers to the calibration gases introduced via two paths. The first path was directly into the analyzer and the second path via the sample system at the sample probe. Any difference in the instrument responses by these two methods was attributed to sampling system bias or leakage. The criterion for acceptance is agreement within five percent of the span of the analyzer.

The control gases used to calibrate the instruments were analyzed and certified by the compressed gas vendors to plus or minus one percent accuracy for all gases. EPA Protocol No. 1 was used, where applicable to assign the concentration values traceable to the National Institute of Standards and Technology (NIST), Standard Reference Materials (SRM's). The gas calibration sheets as prepared by the vendor are contained in Appendix C.

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

INSTRUMENTAL ANALYSIS
QUALITY ASSURANCE DATA

Date: October 4-7, 2016
Company: Superior Fabrication, INC.
Location: Elk City, Oklahoma
Techs: BB/DA

Sample System Leak Check

Date	Sample System	Leak Rate (l/min)
October 4-7, 2016	1	0

Accredited Laboratory

A2LA has accredited

AIR HYGIENE INTERNATIONAL, INC.

Broken Arrow, OK

for technical competence in the field of

Environmental Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets the requirements of any additional program requirements in the Environmental field. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009*).

Presented this 20th day of July 2015

President & CEO
For the Accreditation Council
Certificate Number 3796.01
Valid to August 31, 2017

For the tests to which this accreditation applies, please refer to the laboratory's Environmental Scope of Accreditation.

STAC
STACK TESTING ACCREDITATION COUNCIL

A2LA
American Association for Laboratory Accreditation

Accredited Air Emission Testing Body

A2LA has accredited

AIR HYGIENE INTERNATIONAL, INC.

Broken Arrow, OK

In recognition of the successful completion of the joint A2LA and Stack Testing Accreditation Council (STAC) evaluation process, this laboratory is accredited to perform testing activities in compliance with ASTM D7036 - Standard Practice for Competence of Air Emission Testing Bodies.



Presented this 20th day of July 2015.

President & CEO

Certificate Number 3796.02
Valid to August 31, 2017

This accreditation program is not included under the A2LA ILAC Recognition Arrangement.

SOURCE EVALUATION SOCIETY

Qualified Source Testing Individual

LET IT BE KNOWN THAT

MIN S. LEE

HAS SUCCESSFULLY PASSED A COMPREHENSIVE EXAMINATION AND SATISFIED EXPERIENCE REQUIREMENTS IN ACCORDANCE WITH THE GUIDELINES ISSUED BY THE SES QUALIFIED SOURCE TEST INDIVIDUAL REVIEW BOARD FOR

GASEOUS POLLUTANTS INSTRUMENTAL SAMPLING METHODS

ISSUED THIS 31st DAY OF JULY 2012 AND EFFECTIVE UNTIL JULY 30TH, 2017

Peter R. Westlin, QSTI/QSTO Review Board

Peter S. Pakalnis, QSTI/QSTO Review Board

LeRoy Owens, QSTI/QSTO Review Board

C. David Bagwell, QSTI/QSTO Review Board

Karen D. Kajiya-Mills , QSTI/QSTO Review Board

Glenn C. England, QSTI/QSTO Review Board

APPLICATION NO. 2012-717

TYPE S PITOT TUBE INSPECTION DATA

Date: September 7, 2016 Pitot Number: 9-7-16-1

Pitot tube assembly level? yes x no

Pitot tube opening damage? yes no x
If yes explain below.

$\alpha 1$ 0 (<10 °) $\alpha 2$ 1 (<10°)

$\beta 1$ = 1 (< 5°) $\beta 2$ 0 (< 5°)

γ = 0 ° θ = 0 ° A = 0.747 cm (in)

Z = A SINE γ = 0.000 cm (in) Where Z is <0.32 cm (<1/8 in)

W = A SINE θ = 0.000 cm (in) Where W is <0.08 cm (<1/32 in)

Pa = 0.374 cm, in Pb = 0.374 cm, in

P = Pa + Pb / 2 = 0.374 cm, in

Dt = 0.250 cm , in P/Dt = 1.494 Where P / Dþ $\geq$ 1.05 and $\leq$ 1.50

Comments: Client: Air Hygiene

Type of Probe and Effective length: 6' C-276 High Temp Flare Probe

Cp = 0.84

WEATHER STATION CALIBRATION SHEET
Temperature, Barometric Pressure, and Relative Humidity Periodic Calibration
Air Hygiene Asset ID: samp-we-0025

Filename: Z:\Shared\QAQC\Calibrations\Weather Stations\2016\[Weather Station Calibration_samp-we-0025.xlsm]112013
Make: Kestrel
Model #: 4000
Serial #: 688693
NIST ID 4698
NIST S/N A026334
Cal Due 9/24/2016

ASTM Temp (deg F)	Thermo. (deg F)	± deg F	ASTM Barometer (in. Hg)	Barometric (in. Hg)	± in. Hg
79.70	81.00	1.30	29.33	29.34	0.01

Sean Barnes _____ 01/06/16
(signature) *(date)*

ASTM Temp (deg F)	Thermo. (deg F)	± deg F	ASTM Barometer (in. Hg)	Barometric (in. Hg)	± in. Hg
79.60	80.80	1.20	29.33	29.33	0.00

Sean Barnes _____ 01/06/16
(signature) *(date)*

ASTM Temp (deg F)	Thermo. (deg F)	± deg F	ASTM Barometer (in. Hg)	Barometric (in. Hg)	± in. Hg
79.70	81.00	1.30	29.33	29.34	0.01

Sean Barnes _____ 01/06/16
(signature) *(date)*

ASTM Temp (deg F)	Thermo. (deg F)	± deg F	ASTM Barometer (in. Hg)	Barometric (in. Hg)	± in. Hg
79.70	81.10	1.40	29.33	29.35	0.02

Sean Barnes _____ 01/06/16
(signature) *(date)*

Note: Calibrated against NIST Traceable Barometer and Thermometer (SAMP-WE-0028).

Standard for Calibration of Individual Thermocouples

EMC, ALT-011: After each test run series, check the accuracy (and, hence, the calibration) of each thermocouple system at ambient temperature, or any other temperature, within the range specified by the manufacturer, using a reference thermometer (either ASTM reference thermometer or a thermometer that has been calibrated against an ASTM reference thermometer). The temperatures of the thermocouple and reference thermometers shall **agree to within ±2F**.

Standard of Calibration for Barometers

40 CFR Part 60, Appendix A, Method 5, Section:
6.0____Equipment and Supplies, 6.1____Sample Collection., 6.1.2____Barometer. Mercury, aneroid, or other barometer capable of measuring atmospheric pressure to within 2.5 mm Hg (0.1 in.).
10.0____Calibration and Standardization, 10.6____Barometer. Calibrate against a mercury barometer.

Field Balance Weight Verfication
Annual 500g Field Balance Stock Weight vs. 500g ISO 17025 Traceable Weight
Air Hygiene Asset ID: samp-sc-0027

Filename: Z:\Shared\QAQC\Calibrations\Field Balance Weights\[samp-sc-0027_210-100316.xlsm]Balance
Make: Ohaus
Model #: Scout Pro SP2001-US
Serial #: B228113237
Field Weight #: sc-0027
Trailer #: 210

NIST ID LABS-WT-0005
NIST S/N 1000128090
Cal Due 9/29/2016

ISO 17025 Certfified Weight (g)	Field Balance Weight (g)	± g
500.00	500.20	0.20

must be <0.5

Sean Barnes _____ 10/13/16 _____

(signature) *(date)*

ISO 17025 Certfified Weight (g)	Field Balance Weight (g)	± g
500.00	500.20	0.20

must be <0.5

Sean Barnes _____ 10/13/16 _____

(signature) *(date)*

ISO 17025 Certfified Weight (g)	Field Balance Weight (g)	± g
500.00	500.20	0.20

must be <0.5

Sean Barnes _____ 10/13/16 _____

(signature) *(date)*

Note: Calibrated against ISO 17025 Certified weight LABS-WT-0005

EPA Method 4 - Section 10.3, EPA Method 5 - Section 10.7, EPA Method 202 - Section 10.3: Field Balance Calibration Check. Check the calibration of the balance used to weigh impingers with a weight that is at least 500g or within 50g of a loaded impinger. The weight must be ASTM E617-13 "Standard Specification for Laboratory Weights and Precision Mass Standards" Class 6 (or better). Daily before used, the field balance must meausure within ±0.5g of the certified mass. If the daily balance calibration check fails, perform corrective measures and repeat the check before using balance.

ISO 17025 Certified 500g Weight is certified annually. Certified weight is used to verify Class 6 or better weight that accompanies each field balance on the balance it will be used. Acceptance critieria is certified weight must be within ±0.5g of Class 6 or better weight.

METERING SYSTEM DRY GAS METER CALIBRATION SHEET
EPA Reference Method
Metering System Pre-Test Calibration
Air Hygiene Assett ID: samp-cp-0011

Filename: Z:\Shared\QAQC\Calibrations\PM-Equipment\M-5 Consoles\Calibration Sheet v4.1\Current\[SAMP-CP-0011 Calibration 4-7-16.xls]Original (5 point)
Make: Thermo Environmental
Model #: MST-C1
Serial #: 90695

Date: 04/07/16
Barometric Pressure: 29.40 (in. Hg)
Theoretical Critical Vacuum: 13.87 (in. Hg)

DRY GAS METER READINGS

ΔH	Time	Volume			Initial Temperature	
		Initial	Final	Total	Inlet	Outlet
(in. H2O)	(min)	(ft³)	(ft³)	(ft³)	(°F)	(°F)
0.25	17.00	311.230	316.550	5.320	73.0	69.0
0.52	12.00	316.550	321.930	5.380	73.0	70.0
0.99	10.00	321.930	327.850	5.920	75.0	71.0
1.70	10.00	327.850	335.860	8.010	76.0	71.0
3.10	10.00	335.860	346.370	10.510	78.0	72.0

Final Temperature		Orifice	K' Orifice	Actual	Ambient Temperature		
Inlet	Outlet	Serial#	Coefficient	Vacuum	Initial	Final	Average
(°F)	(°F)	(number)	(see above)	(in. Hg)	(°F)	(°F)	(°F)
74.0	70.0	40	0.2354	16.0	71.4	71.6	71.5
76.0	70.0	48	0.3359	16.0	71.6	71.7	71.7
78.0	71.0	55	0.4542	16.0	71.9	72.3	72.1
78.0	72.0	63	0.5991	16.0	72.1	72.1	72.1
80.0	72.0	73	0.8065	15.0	72.3	72.1	72.2

RESULTS

DRY GAS METER		ORIFICE		
VOLUME CORRECTED Vm(std) (ft³)	VOLUME CORRECTED Vm(std) (liters)	VOLUME CORRECTED Vcr(std) (ft³)	VOLUME CORRECTED Vcr(std) (liters)	VOLUME NOMINAL Vcr (ft³)
5.194	147.10	5.103	144.5	5.230
5.249	148.65	5.140	145.6	5.269
5.766	163.30	5.789	163.9	5.939
7.809	221.14	7.636	216.2	7.834
10.258	290.49	10.278	291.1	10.547

DRY GAS METER CALIBRATION FACTOR Y		ORIFICE CALIBRATION FACTOR ΔH@		
Variation (number)	Value (number)	Value (in. H2O)	Value (mm H2O)	Variation (in. H2O)
-0.007	0.982	1.529	38.84	-0.056
-0.010	0.979	1.561	39.65	-0.024
0.015	1.004	1.624	41.24	0.039
-0.011	0.978	1.601	40.66	0.016
0.013	1.002	1.610	40.89	0.025
AVERAGE:	**0.989**	**1.585**	40.25	**PASSED**

Notes:

For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter,acceptable tolerance of individual values from the average is +/- 0.02. For Orifice Calibration Factor dH@, the orifice differential pressure in inches of H_20 that equates to 0.75 cfm of air at 68 °F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +/- 0.2. For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above. The Critical Orifice Coefficient, K', must be entered in English units, (ft)^3*(deg R)^0.5/((in.Hg)*(min)).

SIGNATURE: Craig McCarty

DATE: 04/07/16 04/07/16

METERING SYSTEM THERMOCOUPLE CALIBRATION SHEET
EPA Reference Method
Metering System Pre-Test Calibration
Air Hygiene Assett ID: samp-cp-0011

Filename: Z:\Shared\QAQC\Calibrations\PM-Equipment\M-5 Consoles\Calibration Sheet v4.1\Current\[SAMP-CP-0011 Calibration 4-7-16.xls]Original (5 point)

Make: Thermo Environmental
Model #: MST-C1
Serial #: 90695

Date: 04/07/16
Barometric Pressure: 29.40 (in. Hg)
Temperature (ASTM cal): 71.00 (°F)

Thermocouple	100 (°F)		600 (°F)		1200 (°F)	
	Reading	% Error	Reading	% Error	Reading	% Error
Stack	100.00	0.00	601.00	0.17	1203.00	0.25
Probe	100.00	0.00	601.00	0.17	1203.00	0.25
Filter	100.00	0.00	601.00	0.17	1203.00	0.25
Dryer	100.00	0.00	601.00	0.17	1203.00	0.25
Aux.	100.00	0.00	601.00	0.17	1203.00	0.25

Note: Calibrated against an ALTEK Thermocouple Source Series 22, direct temperature output calibrated to ASTM and IPTS standards as outlined in ALTEK Data Sheet 22.

Thermocouple	71.00 (°F)	
	Reading	(±°F)
DGM In	72.0	1.00
DGM Out	70.0	1.00

Note: Calibrated against ASTM Reference Thermometer.

SIGNATURE: Craig McCarty DATE: 04/07/16 04/07/16

Standard for Calibration of Console Thermocouple Systems

40 CFR, Part 60
Appendix A, Method 5
10.3.2 The temperature data recorded in the field shall be considered valid. If, during calibration, the absolute temperature measured with the sensor being calibrated and the reference sensor **agree within 1.5 percent**, the temperature data taken in the field shall be considered valid.

Standard for Calibration of Individual Thermocouples

EMC, ALT-011: After each test run series, check the accuracy (and, hence, the calibration) of each thermocouple system at ambient temperature, or any other temperature, within the range specified by the manufacturer, using a reference thermometer (either ASTM reference thermometer or a thermometer that has been calibrated against an ASTM reference thermometer). The temperatures of the thermocouple and reference thermometers shall **agree to within ±2°F**.

PROBE (STACK), HOTBOX (FILTER), AND GOOSENECK (EXIT) THERMOCOUPLE CALIBRATION SHEET
EPA Reference Method
Metering System Pre-Test Calibration

Air Hygiene Assett ID(s): **Probe:** samp-hp-0039 **Hotbox:** samp-bh-0012 **Gooseneck:** samp-ad-0028

Filename: Z:\Shared\QAQC\Calibrations\PM-Equipment\M-5 Consoles\Calibration Sheet v4.1\Current\[SAMP-CP-0011 Calibration 4-7-16.xls]Original (5 point)

Barometric Pressure: 29.40

Thermo-couples		Temps (°F)	Signature		Date	
Stack	Ref	71.20	Craig McCarty		04/07/16	04/07/16
	Read	72.00				
	±°F	0.80				
Filter	Ref	71.20	Craig McCarty		04/07/16	04/07/16
	Read	71.00				
	±°F	0.20				
Exit	Ref	71.20	Craig McCarty		04/07/16	04/07/16
	Read	72.00				
	±°F	0.80				

Note: Calibrated against ASTM Reference Thermometer.

Standard for Calibration of Individual Thermocouples

EMC, ALT-011: After each test run series, check the accuracy (and, hence, the calibration) of each thermocouple system at ambient temperature, or any other temperature, within the range specified by the manufacturer, using a reference thermometer (either ASTM reference thermometer or a thermometer that has been calibrated against an ASTM reference thermometer). The temperatures of the thermocouple and reference thermometers shall **agree to within ±2°F**.

METERING SYSTEM DRY GAS METER CALIBRATION SHEET
EPA Reference Method
Metering System Post-Test Calibration
Air Hygiene Assett ID: samp-cp-0011

Filename: Z:\Shared\QAQC\Calibrations\PM-Equipment\M-5 Consoles\Calibration Sheet v4.1\Current\[SAMP-CP-0011 Calibration 4-7-16.xls]10-17-16 (3 point)
Make: Thermo Environmental
Model #: MST-C1
Serial #: 90695
Date: 10/17/16
Barometric Pressure: 28.82 (in. Hg)
Theoretical Critical Vacuum: 13.59 (in. Hg)

DRY GAS METER READINGS

ΔH (in. H2O)	Time (min)	Volume Initial (ft³)	Volume Final (ft³)	Volume Total (ft³)	Initial Temperature Inlet (°F)	Initial Temperature Outlet (°F)
1.70	10.00	781.450	789.460	8.010	82.0	76.0
1.70	10.00	789.460	797.460	8.000	81.0	75.0
1.70	10.00	797.460	805.480	8.020	81.0	76.0

Final Temperature Inlet (°F)	Final Temperature Outlet (°F)	Orifice Serial# (number)	K' Orifice Coefficient (see above)	Actual Vacuum (in. Hg)	Ambient Temperature Initial (°F)	Ambient Temperature Final (°F)	Ambient Temperature Average (°F)
81.0	75.0	63	0.5991	16.0	72.3	72.2	72.3
81.0	76.0	63	0.5991	16.0	72.2	72.2	72.2
82.0	76.0	63	0.5991	16.0	72.2	72.2	72.2

RESULTS

DRY GAS METER VOLUME CORRECTED Vm(std) (ft³)	DRY GAS METER VOLUME CORRECTED Vm(std) (liters)	ORIFICE VOLUME CORRECTED Vcr(std) (ft³)	ORIFICE VOLUME CORRECTED Vcr(std) (liters)	ORIFICE VOLUME NOMINAL Vcr (ft³)
7.595	215.09	7.484	211.9	7.835
7.589	214.92	7.484	212.0	7.835
7.601	215.25	7.484	212.0	7.835

DRY GAS METER CALIBRATION FACTOR Y Variation (number)	DRY GAS METER CALIBRATION FACTOR Y Value (number)	ORIFICE CALIBRATION FACTOR ΔH@ Value (in. H2O)	ORIFICE CALIBRATION FACTOR ΔH@ Value (mm H2O)	ORIFICE CALIBRATION FACTOR ΔH@ Variation (in. H2O)
0.000	0.985	1.621	41.18	0.001
0.001	0.986	1.621	41.18	0.000
-0.001	0.985	1.620	41.14	-0.001
AVERAGE:	**0.985**	**1.621**	41.17	**PASSED**
LAST 5-PT:	**0.989**	**1.585**	**PASSED**	5-PT Date:
% DIFF:	**0.4%**	**2.3%**		04/07/16

40 CFR - CHAPTER I - PART 60
Appendix A, Method 5
10.3.2 Calibration After Use
After each field use, the calibration of the metering system shall be checked by performing three calibration runs at a single, intermediate orifice setting (based on the previous field test)....Calculate the average value of the DGM calibration factor. If the value has changed by more than 5 percent, recalibrate the meter over the full range of orifice settings, as detailed in Section 10.3.1.

10.3.3 Acceptable Variation in Calibration
If the DGM coefficient values obtained before and after a test series differ by more than 5 percent, the test series shall either be voided, or calculations for the test series shall be performed using whichever meter coefficient value (i.e., before or after) gives the lower value of total sample volume.

Notes: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter,acceptable tolerance of individual values from the average is +/- 0.02. For Orifice Calibration Factor dH@, the orifice differential pressure in inches of H_20 that equates to 0.75 cfm of air at 68 °F and 29.92 inches of Hg, acceptable tolerance of individual values from the average is +/- 0.2. For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above. The Critical Orifice Coefficient, K', must be entered in English units, (ft)^3*(deg R)^0.5/((in.Hg)*(min)).

SIGNATURE: Craig McCarty DATE: 10/17/16 10/17/16

METERING SYSTEM THERMOCOUPLE CALIBRATION SHEET
EPA Reference Method
Metering System Post-Test Calibration
Air Hygiene Assett ID: samp-cp-0011

Filename: Z:\Shared\QAQC\Calibrations\PM-Equipment\M-5 Consoles\Calibration Sheet v4.1\Current\[SAMP-CP-0011 Calibration 4-7-16.xls]10-17-16 (3 point)

Make: Thermo Environmental
Model #: MST-C1
Serial #: 90695

Date: 10/17/16
Barometric Pressure: 28.82 (in. Hg)
Temperature (ASTM cal): 72.30 (°F)

Thermocouple	100 (°F)		600 (°F)		1200 (°F)	
	Reading	% Error	Reading	% Error	Reading	% Error
Stack	99.00	0.50	600.00	0.00	1202.00	0.17
Probe	99.00	0.50	600.00	0.00	1202.00	0.17
Filter	99.00	0.50	600.00	0.00	1201.00	0.08
Dryer	99.00	0.50	600.00	0.00	1202.00	0.17
Aux.	99.00	0.50	600.00	0.00	1202.00	0.17

Note: Calibrated against an ALTEK Thermocouple Source Series 22, direct temperature output calibrated to ASTM and IPTS standards as outlined in ALTEK Data Sheet 22.

Thermocouple	72.30 (°F)	
	Reading	(±°F)
DGM In	74.0	1.70
DGM Out	72.0	0.30

Note: Calibrated against ASTM Reference Thermometer.

SIGNATURE: Craig McCarty DATE: 10/17/16 10/17/16

Standard for Calibration of Console Thermocouple Systems

40 CFR, Part 60
Appendix A, Method 5
10.3.2 The temperature data recorded in the field shall be considered valid. If, during calibration, the absolute temperature measured with the sensor being calibrated and the reference sensor **agree within 1.5 percent**, the temperature data taken in the field shall be considered valid.

Standard for Calibration of Individual Thermocouples

EMC, ALT-011: After each test run series, check the accuracy (and, hence, the calibration) of each thermocouple system at ambient temperature, or any other temperature, within the range specified by the manufacturer, using a reference thermometer (either ASTM reference thermometer or a thermometer that has been calibrated against an ASTM reference thermometer). The temperatures of the thermocouple and reference thermometers shall **agree to within ±2°F**.

PROBE (STACK), HOTBOX (FILTER), AND GOOSENECK (EXIT) THERMOCOUPLE CALIBRATION SHEET
EPA Reference Method
Metering System Post-Test Calibration

Air Hygiene Assett ID(s): **Probe:** samp-hp-0039 **Hotbox:** samp-bh-0012 **Gooseneck:** samp-ad-0028

Filename: Z:\Shared\QAQC\Calibrations\PM-Equipment\M-5 Consoles\Calibration Sheet v4.1\Current\[SAMP-CP-0011 Calibration 4-7-16.xls]10-17-16 (3 point)

Barometric Pressure: 28.82

Thermo-couples		Temps (°F)	Signature		Date	
Stack	Ref	72.20	Craig McCarty		10/17/16	10/17/16
	Read	73.00				
	±°F	0.80				
Filter	Ref	72.20	Craig McCarty		10/17/16	10/17/16
	Read	73.00				
	±°F	0.80				
Exit	Ref	72.20	Craig McCarty		10/17/16	10/17/16
	Read	73.00				
	±°F	0.80				

Note: Calibrated against ASTM Reference Thermometer.

Standard for Calibration of Individual Thermocouples

EMC, ALT-011: After each test run series, check the accuracy (and, hence, the calibration) of each thermocouple system at ambient temperature, or any other temperature, within the range specified by the manufacturer, using a reference thermometer (either ASTM reference thermometer or a thermometer that has been calibrated against an ASTM reference thermometer). The temperatures of the thermocouple and reference thermometers shall **agree to within ±2°F**.

GE Oil & Gas
Dresser Inc.
16240 Port Northwest Drive, Suite 100
Houston, TX 77041
USA
T +1 800 521 1114 +1 832 590 2303
F +1 800 335 5224 +1 832 590 2494

Customer Information
Name : KOONS GAS MEASUREMENT (GAS)
PO No. : 4490
Badge No. : NONE

Date Printed : 07 14 2016
Bill of Material 055215-012
Model : 3M175
Serial No. : 1633266
Accessory S/N: UC385309
Sales Order No. 217579-1
Spec. Req. No:
Prover Used : 50 cu. ft. (A)
WME :

Unit Description

3M175 SERIES B3 ROOTS METER, COUNTER VERSION

MIN STATIC TEST PRESSURE	MIN LEAK TEST PRESSURE	MAX ALLOWABLE OPER PRESSURE
350 psig	219 psig	175 psig

TC Acc at (deg F)	Accuracy	Proof	% Error

This meter has been tested and successfully passed a Shell Pressure Test and Leak Test at the above conditions.

P R O V E R T E S T D A T A

Test Point	Flow Rate Dis Vol	% Rated Capacity	Meter Accuracy	ERROR +/- %	Diff Pressure	TC Meter Accuracy	TC Meter Proof %	ERROR +/- %
1	3036.4	101.2	100.19	0.19	1.13			
2	299.4	10.0	99.74	-0.26	0.04			

Above data has been determined from tests performed with air at atmospheric pressure and ambient temperature, using positive displacement bell or piston provers or sonic nozzle provers dimensionally traceable to the United States National Institute of Standards and Technology (NIST) and/or traceable to the Netherlands Measurement Institute (NMI) for volumetric flow rate.

TC instrument accuracy has been determined from test performed in liquid baths at the temperatures show above using calibrated measurement instruments whose accuracy is traceable to NIST. TC Meter Accuracy (TC Meter Proof) of both meter and instrument in conjunction is calculated using TC accuracy (TC proof) at 60 degree F.

NMi accredited laboratory no: CE-085

This meter conforms to purchaser specifications.

Test date 13-July-16 by Ray, Taylor

STATION 1	4
STATION 2	2
STATION 3	29
STATION 4	29
STATION 5	wm

GE Oil & Gas
Dresser Inc.
16240 Port Northwest Drive, Suite 100
Houston, TX 77041
USA
T +1 800 521 1114 +1 832 590 2303
F +1 800 335 5224 +1 832 590 2494

Customer Information
Name : KOONS GAS MEASUREMENT (GAS)
PO No. : 4424
Badge No. : NONE

Date Printed : 09 15 2016
Bill of Material 057474-100
Model : 8C175
Serial No. : 1631359
Accessory S/N: 1606041954
Sales Order No. 217120-1
Spec. Req. No:
Prover Used : 50 cu. ft. (A)
WME :

Unit Description

8C175 SERIES B ROOTS METER WITH IMC/W2-PTZ+LOG, MSC SINGLE PULSE OUTPUT CIRCULAR CONNECTOR,180 GAUGE, INTERNAL PRESSURE AND INTERNAL TEMPERATURE CONNECTIONS

MIN STATIC TEST PRESSURE	MIN LEAK TEST PRESSURE	MAX ALLOWABLE OPER PRESSURE
350 psig	219 psig	175 psig

TC Acc at (deg F)	Accuracy	Proof	% Error

This meter has been tested and successfully passed a Shell Pressure Test and Leak Test at the above conditions.

P R O V E R T E S T D A T A

Test Point	Flow Rate Dis Vol	% Rated Capacity	Meter Accuracy	ERROR +/- %	Diff Pressure	TC Meter Accuracy	TC Meter Proof %	ERROR +/- %
1	786.0	98.3	100.49	0.49	0.31			
2	79.9	10.0	100.01	0.01	0.02			

Above data has been determined from tests performed with air at atmospheric pressure and ambient temperature, using positive displacement bell or piston provers dimensionally traceable to the United States National Institute of Standards and Technology (NIST) and traceable to NMi- Netherlands Measurement Institute for volumetric flow rate.

TC instrument accuracy has been determined from test performed in liquid baths at the temperatures show above using calibrated measurement instruments whose accuracy is traceable to NIST. TC Meter Accuracy (TC Meter Proof) of both meter and instrument in conjunction is calculated using TC accuracy (TC proof) at 60 degree F.

NMi accredited laboratory no: CE-085

This meter conforms to purchaser specifications.

Test date 18-July-16 by Ray, Taylor

Dresser Roots Meters
and Instruments
Dresser, Inc
16240 Port Northwest
Houston, TX 77041
Tel: 832-590-2300

Calibration Certificate

Corrector Serial No 03/15/145887
Transducer Serial No. 50587-016
PCB Serial No. 566032350

Transducer: 12bar G
Date: 12/03/2015

Test Equipment

Envio. Chamber: LE0061
Druck 1: 51501570

PRT Simulator: RIG_C
Druck 2: 0624/98-02

Calibration Points

Temperatures: 60.00°C, 35.00°C, 10.00°C, -15.00°C, -40.00°C
Pressures: 0.000bar , 3.000bar , 6.000bar , 9.000bar , 12.000bar

Pressure Checks

Applied Pressure	Ambient @60.0°C		Ambient @35.0°C		Ambient @10.0°C		Ambient @-15.0°C		Ambient @-40.0°C	
	PTZ Reading	Deviation %	PTZ Reading	Deviation %	PTZ Reading	Deviation %	PTZ Reading	Deviation %	PTZ Reading	Deviation %
0.000Bar	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3.000Bar	3.004	0.030	2.998	-0.019	3.000	0.001	2.999	-0.005	3.000	-0.001
6.000Bar	6.004	0.030	5.994	-0.053	6.000	-0.001	5.999	-0.008	6.000	-0.000
9.000Bar	9.012	0.102	9.000	0.002	9.000	-0.000	8.999	-0.009	8.996	-0.033
12.000Bar	12.043	0.356	12.013	0.109	12.008	0.069	12.004	0.034	11.999	-0.005

Errors are shown as %RDG at or above 20% of range, otherwise errors are displayed as %FS

Temperature Checks

Nominal Temperature	Ambient @60°C		Ambient @35°C		Ambient @10°C		Ambient @-15°C		Ambient @-40°C	
	PTZ Reading	Diff. °C	PTZ Reading	Diff. °C	PTZ Reading	Diff. °C	PTZ Reading	Diff. °C	PTZ Reading	Diff. °C
-40.0°C	-39.99	0.01	-40.01	-0.01	-40.02	-0.02	-40.05	-0.05	-40.09	-0.09
10.0°C	10.01	0.01	10.02	0.02	9.97	-0.03	9.95	-0.05	9.91	-0.09
60.0°C	59.99	-0.01	59.99	-0.01	59.97	-0.03	59.94	-0.06	59.91	-0.09

Note 1: Accuracy limits of the Micro Series Corrector readings are better than 0.7% of reading for 20% to 100% pressure range over the full temperature range of -40.0°C to 60.0°C (-40.0°F to 140.0°F).

Note 2: All pressure Measurements used in the calibration and check procedures have certificates issued in accordance with the conditions of accreditation granted by the National Measurement Accreditation Service. NMAS has assessed the measuring capability of the laboratory issuing the certificate and its traceability to British national standards and to the units of measurement realised at the corresponding laboratory (National Physical Laboratory).

Certified By M Burnett

Date 3-11-15

Volume Certification

Instrument

Type:	IMC/W2
Firmware:	1.95
Serial Number:	03/15/145887

Configuration

Meter Type:	Series B, Imperial
Meter Size:	3M
Pulse Outputs:	Single

Test Conditions

Test Date:	03-14-2015	Time: 07:35:16
Fixture:	11	
Temperature:	71.1 °F.	
Line Pressure:	0.07 psi G	PASS
Battery:	6.04 Volts	PASS
Flow Rate:	3000 cfh	
Test Volume:	100.0 cu.ft. (uncorrected)	
Correction Factor:	0.98299	

Results: **PASS**

VOLUME (CU.FT.)

	Uncorrected	Corrected
Initial:	-0.0063	-0.0061
Final:	99.9875	98.2942
Accumulated:	99.9938	98.3003
Calculated:	100.0000	98.2993
Error:	-0.01 %	0.00 %

	HF (Unc.)	Corrected (Prove)
Comms Pulses:	PASS	PASS

PULSE OUTPUTS

	Uncorrected	Corrected	Fault
Multiplier:	1.0	1.0	-
Expected (±1):	100	98	-
Received (Ch.A):	100	98	-
Error:	0	0	-
Min. Width (msec):	187.33	187.33	499.86
Result:	PASS	PASS	PASS

This test performs a check of the configuration, volume input, and pulse outputs of the instrument. The volume input is driven at a precise flow rate for a precise number of revolutions. The test is performed at ambient temperature and pressure.

Operator: DBJ

DRIFT AND BIAS CHECK				
90-100 Load, Run - SCD-36 R10	O_2	CO	THC	CO_2
Raw Average	14.80	6.25	0.75	4.25
Corrected Average	14.70	6.28	0.80	4.31
Initial Zero	0.07	-0.01	0.03	-0.05
Final Zero	0.06	0.03	-0.06	-0.05
Avg. Zero	0.07	0.01	-0.02	-0.05
Initial UpScale	12.01	9.42	3.04	8.87
Final UpScale	11.98	9.37	3.09	8.92
Avg. UpScale	12.00	9.40	3.07	8.90
Sys Resp (Zero)	0.06	0.02	-0.05	-0.05
Sys Resp (Upscale)	11.96	9.41	3.01	8.84
Upscale Cal Gas	11.90	9.44	3.00	8.95
Initial Zero Bias	0.05%	-0.16%	0.80%	0.00%
Final Zero Bias	0.00%	0.05%	-0.10%	0.00%
Zero Drift	0.05%	0.22%	0.90%	0.00%
Initial Upscale Bias	0.24%	0.05%	0.30%	0.16%
Final Upscale Bias	0.09%	-0.22%	0.80%	0.43%
Upscale Drift	0.14%	0.27%	0.50%	0.27%
Alternative Specification Abs Diff **Initial Zero**	0.01	0.03	--	0.00
Alternative Specification Abs Diff **Final Zero**	0.00	0.01	--	0.00
Alternative Specification Abs Diff **Initial Upscale**	0.05	0.01	--	0.03
Alternative Specification Abs Diff **Final Upscale**	0.02	0.04	--	0.08
Calibration Span	21.10	18.30	10.00	18.40
3% of Cal. Span (drift)	0.63	0.55	0.30	0.55
5% of Cal. Span (bias)	1.06	0.92	0.50	0.92

DRIFT AND BIAS CHECK				
90-100 Load, Run - SCD-36 R11	O_2	CO	THC	CO_2
Raw Average	14.35	3.48	-0.06	4.61
Corrected Average	14.27	3.51	0.00	4.62
Initial Zero	0.06	0.03	-0.06	-0.05
Final Zero	0.08	-0.05	-0.05	0.02
Avg. Zero	0.07	-0.01	-0.06	-0.02
Initial UpScale	11.98	9.37	3.09	8.92
Final UpScale	11.97	9.39	2.99	8.95
Avg. UpScale	11.98	9.38	3.04	8.94
Sys Resp (Zero)	0.06	0.02	-0.05	-0.05
Sys Resp (Upscale)	11.96	9.41	3.01	8.84
Upscale Cal Gas	11.90	9.44	3.00	8.95
Initial Zero Bias	0.00%	0.05%	-0.10%	0.00%
Final Zero Bias	0.09%	-0.38%	0.00%	0.38%
Zero Drift	0.09%	0.44%	0.10%	0.38%
Initial Upscale Bias	0.09%	-0.22%	0.80%	0.43%
Final Upscale Bias	0.05%	-0.11%	-0.20%	0.60%
Upscale Drift	0.05%	0.11%	1.00%	0.16%
Alternative Specification Abs Diff **Initial Zero**	0.00	0.01	--	0.00
Alternative Specification Abs Diff **Final Zero**	0.02	0.07	--	0.07
Alternative Specification Abs Diff **Initial Upscale**	0.02	0.04	--	0.08
Alternative Specification Abs Diff **Final Upscale**	0.01	0.02	--	0.11
Calibration Span	21.10	18.30	10.00	18.40
3% of Cal. Span (drift)	0.63	0.55	0.30	0.55
5% of Cal. Span (bias)	1.06	0.92	0.50	0.92

DRIFT AND BIAS CHECK				
90-100 Load, Run - SCD-36 R12	O_2	CO	THC	CO_2
Raw Average	14.06	3.28	0.00	4.82
Corrected Average	14.00	3.31	0.05	4.83
Initial Zero	0.08	-0.05	-0.05	0.02
Final Zero	0.07	-0.02	-0.05	-0.02
Avg. Zero	0.08	-0.04	-0.05	0.00
Initial UpScale	11.97	9.39	2.99	8.95
Final UpScale	11.96	9.41	3.02	8.94
Avg. UpScale	11.97	9.40	3.01	8.95
Sys Resp (Zero)	0.06	0.02	-0.05	-0.05
Sys Resp (Upscale)	11.96	9.41	3.01	8.84
Upscale Cal Gas	11.90	9.44	3.00	8.95
Initial Zero Bias	0.09%	-0.38%	0.00%	0.38%
Final Zero Bias	0.05%	-0.22%	0.00%	0.16%
Zero Drift	0.05%	0.16%	0.00%	0.22%
Initial Upscale Bias	0.05%	-0.11%	-0.20%	0.60%
Final Upscale Bias	0.00%	0.00%	0.10%	0.54%
Upscale Drift	0.05%	0.11%	0.30%	0.05%
Alternative Specification Abs Diff **Initial Zero**	0.02	0.07	--	0.07
Alternative Specification Abs Diff **Final Zero**	0.01	0.04	--	0.03
Alternative Specification Abs Diff **Initial Upscale**	0.01	0.02	--	0.11
Alternative Specification Abs Diff **Final Upscale**	0.00	0.00	--	0.10
Calibration Span	21.10	18.30	10.00	18.40
3% of Cal. Span (drift)	0.63	0.55	0.30	0.55
5% of Cal. Span (bias)	1.06	0.92	0.50	0.92

DRIFT AND BIAS CHECK				
0-30-0 Load, Run - SCD-36 R1	O_2	CO	THC	CO_2
Raw Average	15.81	8.91	0.29	3.63
Corrected Average	15.68	8.95	0.29	3.67
Initial Zero	0.02	-0.02	0.03	0.05
Final Zero	-0.01	-0.01	-0.04	0.02
Avg. Zero	0.01	-0.02	-0.01	0.04
Initial UpScale	12.04	9.41	2.95	8.80
Final UpScale	11.96	9.38	2.97	8.83
Avg. UpScale	12.00	9.40	2.96	8.82
Sys Resp (Zero)	-0.02	0.02	-0.04	-0.01
Sys Resp (Upscale)	11.98	9.39	3.07	8.83
Upscale Cal Gas	11.90	9.44	3.00	8.95
Initial Zero Bias	0.19%	-0.22%	0.70%	0.33%
Final Zero Bias	0.05%	-0.16%	0.00%	0.16%
Zero Drift	0.14%	0.05%	0.70%	0.16%
Initial Upscale Bias	0.28%	0.11%	-1.20%	-0.16%
Final Upscale Bias	-0.09%	-0.05%	-1.00%	0.00%
Upscale Drift	0.38%	0.16%	0.20%	0.16%
Alternative Specification Abs Diff **Initial Zero**	0.04	0.04	--	0.06
Alternative Specification Abs Diff **Final Zero**	0.01	0.03	--	0.03
Alternative Specification Abs Diff **Initial Upscale**	0.06	0.02	--	0.03
Alternative Specification Abs Diff **Final Upscale**	0.02	0.01	--	0.00
Calibration Span	21.10	18.30	10.00	18.40
3% of Cal. Span (drift)	0.63	0.55	0.30	0.55
5% of Cal. Span (bias)	1.06	0.92	0.50	0.92

DRIFT AND BIAS CHECK				
0-30-0 Load, Run - SCD-36 R2	O_2	CO	THC	CO_2
Raw Average	15.36	1.96	0.03	3.91
Corrected Average	15.34	1.97	0.08	3.94
Initial Zero	-0.02	-0.01	-0.06	0.03
Final Zero	-0.03	0.01	-0.05	0.01
Avg. Zero	-0.03	0.00	-0.06	0.02
Initial UpScale	11.93	9.41	3.06	8.87
Final UpScale	11.89	9.41	3.00	8.85
Avg. UpScale	11.91	9.41	3.03	8.86
Sys Resp (Zero)	-0.05	-0.05	-0.04	-0.02
Sys Resp (Upscale)	11.92	9.39	2.89	8.83
Upscale Cal Gas	11.90	9.44	3.00	8.95
Initial Zero Bias	0.14%	0.22%	-0.20%	0.27%
Final Zero Bias	0.09%	0.33%	-0.10%	0.16%
Zero Drift	0.05%	0.11%	0.10%	0.11%
Initial Upscale Bias	0.05%	0.11%	1.70%	0.22%
Final Upscale Bias	-0.14%	0.11%	1.10%	0.11%
Upscale Drift	0.19%	0.00%	0.60%	0.11%
Alternative Specification Abs Diff **Initial Zero**	0.03	0.04	--	0.05
Alternative Specification Abs Diff **Final Zero**	0.02	0.06	--	0.03
Alternative Specification Abs Diff **Initial Upscale**	0.01	0.02	--	0.04
Alternative Specification Abs Diff **Final Upscale**	0.03	0.02	--	0.02
Calibration Span	21.10	18.30	10.00	18.40
3% of Cal. Span (drift)	0.63	0.55	0.30	0.55
5% of Cal. Span (bias)	1.06	0.92	0.50	0.92

DRIFT AND BIAS CHECK				
0-30-0 Load, Run - SCD-36 R3	O_2	CO	THC	CO_2
Raw Average	15.50	1.22	-0.07	3.79
Corrected Average	15.52	1.21	-0.01	3.83
Initial Zero	-0.03	0.01	-0.05	0.01
Final Zero	-0.01	0.04	-0.07	0.03
Avg. Zero	-0.02	0.03	-0.06	0.02
Initial UpScale	11.89	9.41	3.00	8.85
Final UpScale	11.88	9.32	3.00	8.84
Avg. UpScale	11.89	9.37	3.00	8.85
Sys Resp (Zero)	-0.05	-0.05	-0.04	-0.02
Sys Resp (Upscale)	11.92	9.39	2.89	8.83
Upscale Cal Gas	11.90	9.44	3.00	8.95
Initial Zero Bias	0.09%	0.33%	-0.10%	0.16%
Final Zero Bias	0.19%	0.49%	-0.30%	0.27%
Zero Drift	0.09%	0.16%	0.20%	0.11%
Initial Upscale Bias	-0.14%	0.11%	1.10%	0.11%
Final Upscale Bias	-0.19%	-0.38%	1.10%	0.05%
Upscale Drift	0.05%	0.49%	0.00%	0.05%
Alternative Specification Abs Diff **Initial Zero**	0.02	0.06	--	0.03
Alternative Specification Abs Diff **Final Zero**	0.04	0.09	--	0.05
Alternative Specification Abs Diff **Initial Upscale**	0.03	0.02	--	0.02
Alternative Specification Abs Diff **Final Upscale**	0.04	0.07	--	0.01
Calibration Span	21.10	18.30	10.00	18.40
3% of Cal. Span (drift)	0.63	0.55	0.30	0.55
5% of Cal. Span (bias)	1.06	0.92	0.50	0.92

DRIFT AND BIAS CHECK				
70-100-70 Load, Run - SCD-36 R7	O_2	CO	THC	CO_2
Raw Average	14.63	1.64	0.15	4.30
Corrected Average	14.58	1.65	0.19	4.35
Initial Zero	-0.01	-0.01	-0.04	0.02
Final Zero	-0.02	0.01	-0.03	0.02
Avg. Zero	-0.02	0.00	-0.04	0.02
Initial UpScale	11.96	9.38	2.97	8.83
Final UpScale	11.92	9.40	2.95	8.84
Avg. UpScale	11.94	9.39	2.96	8.84
Sys Resp (Zero)	-0.02	0.02	-0.04	-0.01
Sys Resp (Upscale)	11.98	9.39	3.07	8.83
Upscale Cal Gas	11.90	9.44	3.00	8.95
Initial Zero Bias	0.05%	-0.16%	0.00%	0.16%
Final Zero Bias	0.00%	-0.05%	0.10%	0.16%
Zero Drift	0.05%	0.11%	0.10%	0.00%
Initial Upscale Bias	-0.09%	-0.05%	-1.00%	0.00%
Final Upscale Bias	-0.28%	0.05%	-1.20%	0.05%
Upscale Drift	0.19%	0.11%	0.20%	0.05%
Alternative Specification Abs Diff **Initial Zero**	0.01	0.03	--	0.03
Alternative Specification Abs Diff **Final Zero**	0.00	0.01	--	0.03
Alternative Specification Abs Diff **Initial Upscale**	0.02	0.01	--	0.00
Alternative Specification Abs Diff **Final Upscale**	0.06	0.01	--	0.01
Calibration Span	21.10	18.30	10.00	18.40
3% of Cal. Span (drift)	0.63	0.55	0.30	0.55
5% of Cal. Span (bias)	1.06	0.92	0.50	0.92

DRIFT AND BIAS CHECK				
70-100-70 Load, Run - SCD-36 R8	O_2	CO	THC	CO_2
Raw Average	14.41	2.14	0.26	4.44
Corrected Average	14.35	2.10	0.30	4.50
Initial Zero	-0.04	0.06	-0.01	-0.01
Final Zero	-0.02	0.05	-0.05	0.01
Avg. Zero	-0.03	0.06	-0.03	0.00
Initial UpScale	11.97	9.41	2.94	8.81
Final UpScale	11.91	9.41	2.93	8.88
Avg. UpScale	11.94	9.41	2.94	8.85
Sys Resp (Zero)	-0.05	-0.05	-0.04	-0.02
Sys Resp (Upscale)	11.92	9.39	2.89	8.83
Upscale Cal Gas	11.90	9.44	3.00	8.95
Initial Zero Bias	0.05%	0.60%	0.30%	0.05%
Final Zero Bias	0.14%	0.55%	-0.10%	0.16%
Zero Drift	0.09%	0.05%	0.40%	0.11%
Initial Upscale Bias	0.24%	0.11%	0.50%	-0.11%
Final Upscale Bias	-0.05%	0.11%	0.40%	0.27%
Upscale Drift	0.28%	0.00%	0.10%	0.38%
Alternative Specification Abs Diff **Initial Zero**	0.01	0.11	--	0.01
Alternative Specification Abs Diff **Final Zero**	0.03	0.10	--	0.03
Alternative Specification Abs Diff **Initial Upscale**	0.05	0.02	--	0.02
Alternative Specification Abs Diff **Final Upscale**	0.01	0.02	--	0.05
Calibration Span	21.10	18.30	10.00	18.40
3% of Cal. Span (drift)	0.63	0.55	0.30	0.55
5% of Cal. Span (bias)	1.06	0.92	0.50	0.92

DRIFT AND BIAS CHECK				
70-100-70 Load, Run - SCD-36 R9	O_2	CO	THC	CO_2
Raw Average	14.32	0.92	-0.06	4.58
Corrected Average	14.26	0.90	-0.01	4.63
Initial Zero	-0.02	0.05	-0.05	0.01
Final Zero	-0.02	-0.01	-0.06	0.03
Avg. Zero	-0.02	0.02	-0.06	0.02
Initial UpScale	11.97	9.41	2.94	8.81
Final UpScale	11.93	9.41	3.06	8.87
Avg. UpScale	11.95	9.41	3.00	8.84
Sys Resp (Zero)	-0.05	-0.05	-0.04	-0.02
Sys Resp (Upscale)	11.92	9.39	2.89	8.83
Upscale Cal Gas	11.90	9.44	3.00	8.95
Initial Zero Bias	0.14%	0.55%	-0.10%	0.16%
Final Zero Bias	0.14%	0.22%	-0.20%	0.27%
Zero Drift	0.00%	0.33%	0.10%	0.11%
Initial Upscale Bias	0.24%	0.11%	0.50%	-0.11%
Final Upscale Bias	0.05%	0.11%	1.70%	0.22%
Upscale Drift	0.19%	0.00%	1.20%	0.33%
Alternative Specification Abs Diff **Initial Zero**	0.03	0.10	--	0.03
Alternative Specification Abs Diff **Final Zero**	0.03	0.04	--	0.05
Alternative Specification Abs Diff **Initial Upscale**	0.05	0.02	--	0.02
Alternative Specification Abs Diff **Final Upscale**	0.01	0.02	--	0.04
Calibration Span	21.10	18.30	10.00	18.40
3% of Cal. Span (drift)	0.63	0.55	0.30	0.55
5% of Cal. Span (bias)	1.06	0.92	0.50	0.92

DRIFT AND BIAS CHECK				
70-100-70 Load, Run - SCD-36 R4	O_2	CO	THC	CO_2
Raw Average	14.37	0.38	-0.06	4.50
Corrected Average	14.36	0.40	0.00	4.53
Initial Zero	-0.02	-0.01	-0.06	0.03
Final Zero	-0.04	-0.03	-0.05	0.02
Avg. Zero	-0.03	-0.02	-0.06	0.03
Initial UpScale	11.93	9.41	3.06	8.87
Final UpScale	11.87	9.31	2.95	8.85
Avg. UpScale	11.90	9.36	3.01	8.86
Sys Resp (Zero)	-0.05	-0.05	-0.04	-0.02
Sys Resp (Upscale)	11.92	9.39	2.89	8.83
Upscale Cal Gas	11.90	9.44	3.00	8.95
Initial Zero Bias	0.14%	0.22%	-0.20%	0.27%
Final Zero Bias	0.05%	0.11%	-0.10%	0.22%
Zero Drift	0.09%	0.11%	0.10%	0.05%
Initial Upscale Bias	0.05%	0.11%	1.70%	0.22%
Final Upscale Bias	-0.24%	-0.44%	0.60%	0.11%
Upscale Drift	0.28%	0.55%	1.10%	0.11%
Alternative Specification Abs Diff **Initial Zero**	0.03	0.04	--	0.05
Alternative Specification Abs Diff **Final Zero**	0.01	0.02	--	0.04
Alternative Specification Abs Diff **Initial Upscale**	0.01	0.02	--	0.04
Alternative Specification Abs Diff **Final Upscale**	0.05	0.08	--	0.02
Calibration Span	21.10	18.30	10.00	18.40
3% of Cal. Span (drift)	0.63	0.55	0.30	0.55
5% of Cal. Span (bias)	1.06	0.92	0.50	0.92

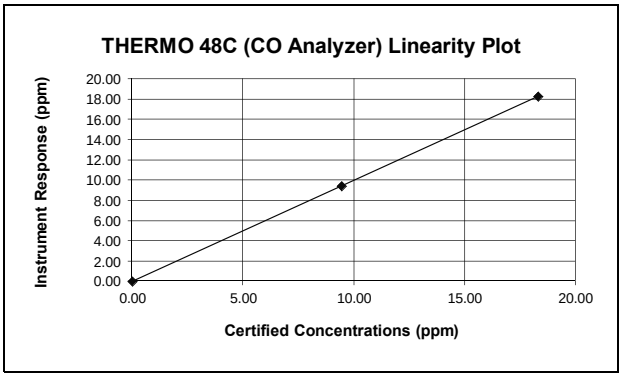
DRIFT AND BIAS CHECK				
70-100-70 Load, Run - SCD-36 R5	O_2	CO	THC	CO_2
Raw Average	14.99	2.18	0.21	4.18
Corrected Average	14.82	2.19	0.22	4.23
Initial Zero	0.03	-0.03	0.01	0.01
Final Zero	-0.02	0.03	-0.04	0.01
Avg. Zero	0.01	0.00	-0.02	0.01
Initial UpScale	12.07	9.38	2.98	8.82
Final UpScale	12.01	9.37	2.98	8.84
Avg. UpScale	12.04	9.38	2.98	8.83
Sys Resp (Zero)	-0.02	0.01	-0.05	0.06
Sys Resp (Upscale)	12.04	9.31	3.04	8.89
Upscale Cal Gas	11.90	9.44	3.00	8.95
Initial Zero Bias	0.24%	-0.22%	0.60%	-0.27%
Final Zero Bias	0.00%	0.11%	0.10%	-0.27%
Zero Drift	0.24%	0.33%	0.50%	0.00%
Initial Upscale Bias	0.14%	0.38%	-0.60%	-0.38%
Final Upscale Bias	-0.14%	0.33%	-0.60%	-0.27%
Upscale Drift	0.28%	0.05%	0.00%	0.11%
Alternative Specification Abs Diff **Initial Zero**	0.05	0.04	--	0.05
Alternative Specification Abs Diff **Final Zero**	0.00	0.02	--	0.05
Alternative Specification Abs Diff **Initial Upscale**	0.03	0.07	--	0.07
Alternative Specification Abs Diff **Final Upscale**	0.03	0.06	--	0.05
Calibration Span	21.10	18.30	10.00	18.40
3% of Cal. Span (drift)	0.63	0.55	0.30	0.55
5% of Cal. Span (bias)	1.06	0.92	0.50	0.92

DRIFT AND BIAS CHECK				
70-100-70 Load, Run - SCD-36 R6	O_2	CO	THC	CO_2
Raw Average	15.28	1.33	-0.01	4.06
Corrected Average	15.13	1.34	0.03	4.10
Initial Zero	-0.02	0.03	-0.04	0.01
Final Zero	-0.03	-0.02	-0.04	-0.01
Avg. Zero	-0.03	0.01	-0.04	0.00
Initial UpScale	12.01	9.37	2.98	8.84
Final UpScale	12.02	9.32	2.98	8.88
Avg. UpScale	12.02	9.35	2.98	8.86
Sys Resp (Zero)	-0.02	0.01	-0.05	0.06
Sys Resp (Upscale)	12.04	9.31	3.04	8.89
Upscale Cal Gas	11.90	9.44	3.00	8.95
Initial Zero Bias	0.00%	0.11%	0.10%	-0.27%
Final Zero Bias	-0.05%	-0.16%	0.10%	-0.38%
Zero Drift	0.05%	0.27%	0.00%	0.11%
Initial Upscale Bias	-0.14%	0.33%	-0.60%	-0.27%
Final Upscale Bias	-0.09%	0.05%	-0.60%	-0.05%
Upscale Drift	0.05%	0.27%	0.00%	0.22%
Alternative Specification Abs Diff **Initial Zero**	0.00	0.02	--	0.05
Alternative Specification Abs Diff **Final Zero**	0.01	0.03	--	0.07
Alternative Specification Abs Diff **Initial Upscale**	0.03	0.06	--	0.05
Alternative Specification Abs Diff **Final Upscale**	0.02	0.01	--	0.01
Calibration Span	21.10	18.30	10.00	18.40
3% of Cal. Span (drift)	0.63	0.55	0.30	0.55
5% of Cal. Span (bias)	1.06	0.92	0.50	0.92

Calibration Date: October 4, 2016
Client: Superior Fabrication, INC

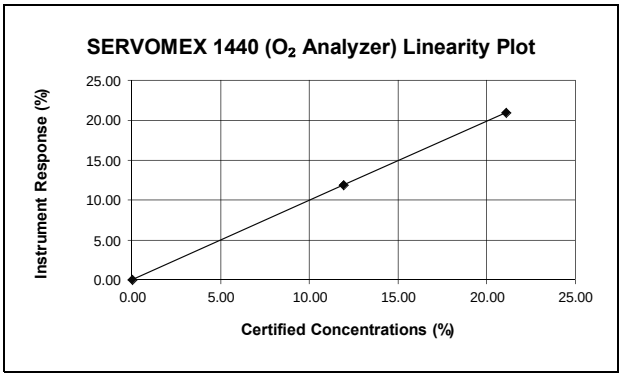
CO Span (ppm) = 18.30

THERMO 48C (CO Analyzer)				
Certified Concentration (ppm)	**Instrument Response (ppm)**	**Calibration Error (%)**	**Absolute Conc. (ppm)**	**Pass or Fail (±2%, ≤0.5ppm)**
0.00	0.02	0.11	0.02	YES (%)
9.44	9.41	-0.16	0.03	YES (%)
18.30	18.29	-0.05	0.01	YES (%)
Linearity = 1.002				



O_2 Span (%) = 21.10

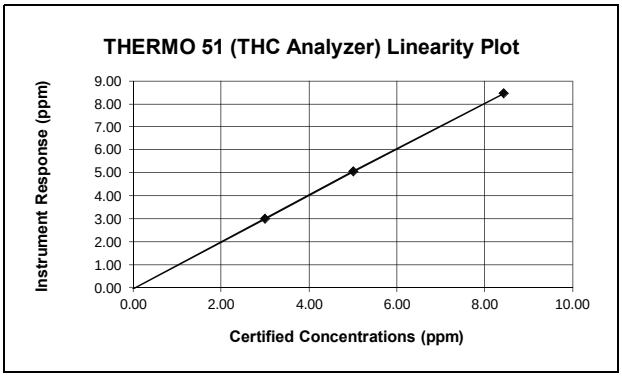
SERVOMEX 1440 (O_2 Analyzer)				
Certified Concentration (%)	**Instrument Response (%)**	**Calibration Error (%)**	**Absolute Conc. (%)**	**Pass or Fail (±2%, ≤0.5%)**
0.00	0.06	0.28	0.06	YES (%)
11.90	11.96	0.28	0.06	YES (%)
21.10	20.99	-0.52	0.11	YES (%)
Linearity = 1.008				



THC Range (ppm) = 10

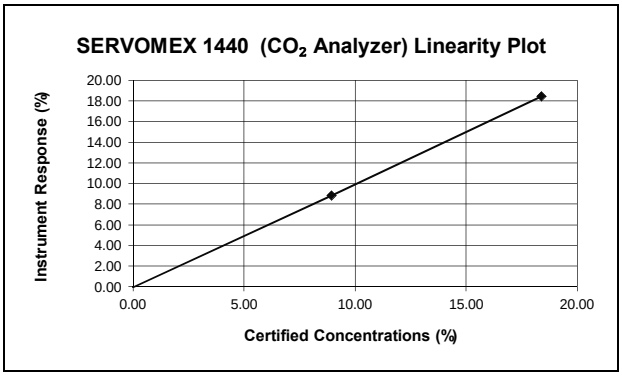
THERMO 51 (THC Analyzer)				
Certified Concentration (ppm)	**Instrument Response (ppm)**	**Calibration Error (%)**	**Estimated Point (ppm)**	**Pass or Fail (±2,5%)[1]**
0.00	-0.05	-0.50	N/A	YES
3.00	3.01	1.15	2.98	YES
5.01	5.06	1.14	5.00	YES
8.43	8.45	0.22	N/A	YES
Linearity = 0.999				

[1]-zero/high based on 2% of span,low/mid based on 5% of concentration



CO_2 Span (%) = 18.40

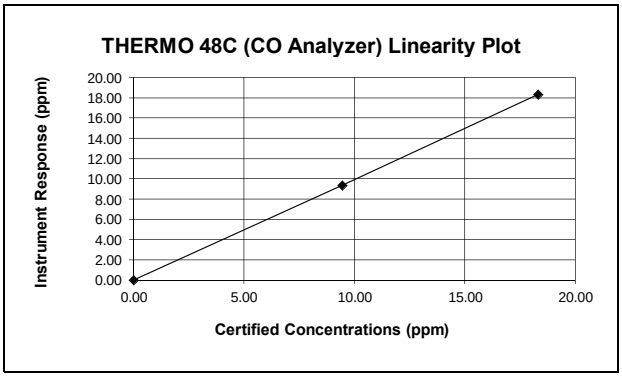
SERVOMEX 1440 (CO_2 Analyzer)				
Certified Concentration (%)	**Instrument Response (%)**	**Calibration Error (%)**	**Absolute Conc. (%)**	**Pass or Fail (±2%, ≤0.5%)**
0.00	-0.05	-0.27	0.05	YES (%)
8.95	8.84	-0.60	0.11	YES (%)
18.40	18.43	0.16	0.03	YES (%)
Linearity = 0.996				



Calibration Date: October 5, 2016
Client: Superior Fabrication, INC

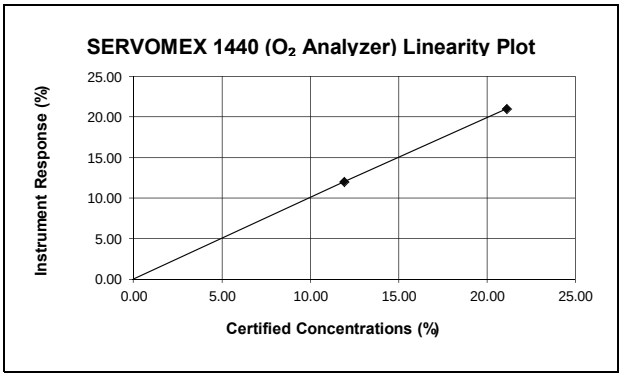
CO Span (ppm) = 18.30

THERMO 48C (CO Analyzer)				
Certified Concentration (ppm)	**Instrument Response (ppm)**	**Calibration Error (%)**	**Absolute Conc. (ppm)**	**Pass or Fail (±2%, ≤0.5ppm)**
0.00	0.02	0.11	0.02	YES (%)
9.44	9.39	-0.27	0.05	YES (%)
18.30	18.32	0.11	0.02	YES (%)
Linearity = 1.000				



O2 Span (%) = 21.10

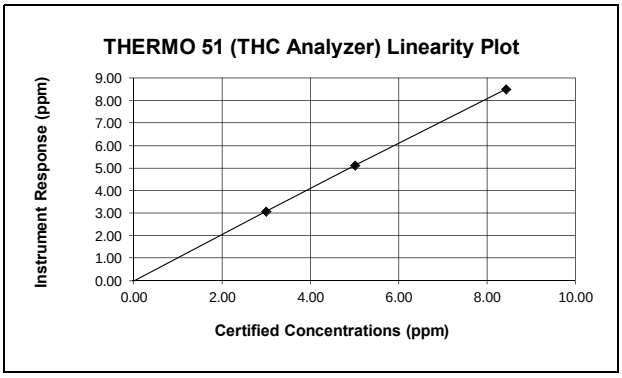
SERVOMEX 1440 (O_2 Analyzer)				
Certified Concentration (%)	**Instrument Response (%)**	**Calibration Error (%)**	**Absolute Conc. (%)**	**Pass or Fail (±2%, ≤0.5%)**
0.00	-0.02	-0.09	0.02	YES (%)
11.90	11.98	0.38	0.08	YES (%)
21.10	21.05	-0.24	0.05	YES (%)
Linearity = 1.001				



THC Range (ppm) = 10

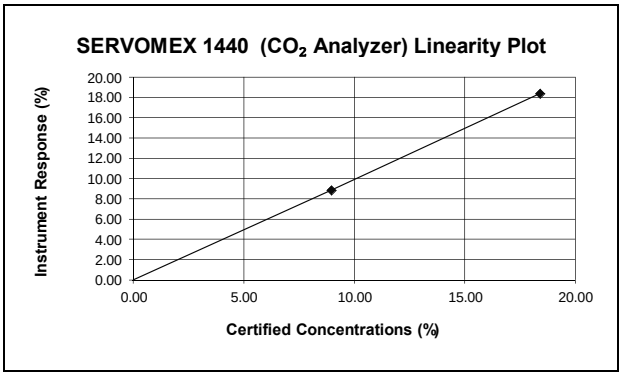
THERMO 51 (THC Analyzer)				
Certified Concentration (ppm)	**Instrument Response (ppm)**	**Calibration Error (%)**	**Estimated Point (ppm)**	**Pass or Fail (±2,5%)[1]**
0.00	-0.04	-0.40	N/A	YES
3.00	3.07	2.36	3.00	YES
5.01	5.11	1.49	5.04	YES
8.43	8.50	0.70	N/A	YES
Linearity = 1.001				

[1]-zero/high based on 2% of span,low/mid based on 5% of concentration



CO2 Span (%) = 18.40

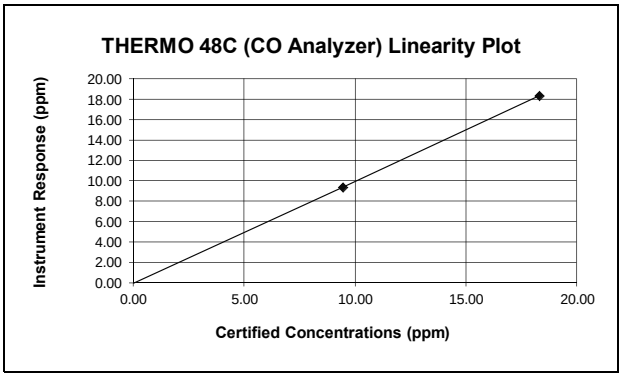
SERVOMEX 1440 (CO_2 Analyzer)				
Certified Concentration (%)	**Instrument Response (%)**	**Calibration Error (%)**	**Absolute Conc. (%)**	**Pass or Fail (±2%, ≤0.5%)**
0.00	-0.01	-0.05	0.01	YES (%)
8.95	8.83	-0.65	0.12	YES (%)
18.40	18.42	0.11	0.02	YES (%)
Linearity = 0.998				



Calibration Date: October 6, 2016
Client: Superior Fabrication, INC

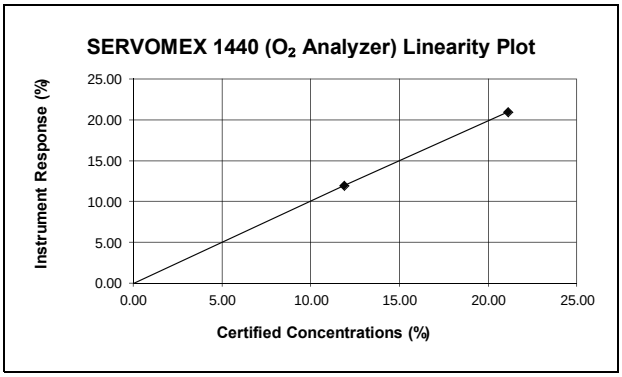
CO Span (ppm) = 18.30

THERMO 48C (CO Analyzer)				
Certified Concentration (ppm)	**Instrument Response (ppm)**	**Calibration Error (%)**	**Absolute Conc. (ppm)**	**Pass or Fail (±2%, ≤0.5ppm)**
0.00	-0.05	-0.27	0.05	YES (%)
9.44	9.39	-0.27	0.05	YES (%)
18.30	18.33	0.16	0.03	YES (%)
Linearity = 0.996				



O2 Span (%) = 21.10

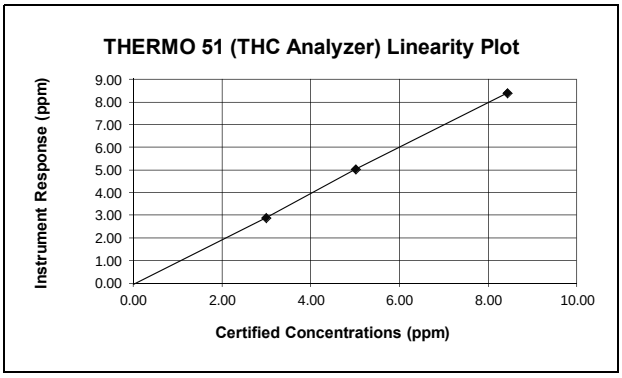
SERVOMEX 1440 (O_2 Analyzer)				
Certified Concentration (%)	**Instrument Response (%)**	**Calibration Error (%)**	**Absolute Conc. (%)**	**Pass or Fail (±2%, ≤0.5%)**
0.00	-0.05	-0.24	0.05	YES (%)
11.90	11.92	0.09	0.02	YES (%)
21.10	21.00	-0.47	0.10	YES (%)
Linearity = 1.002				



THC Range (ppm) = 10

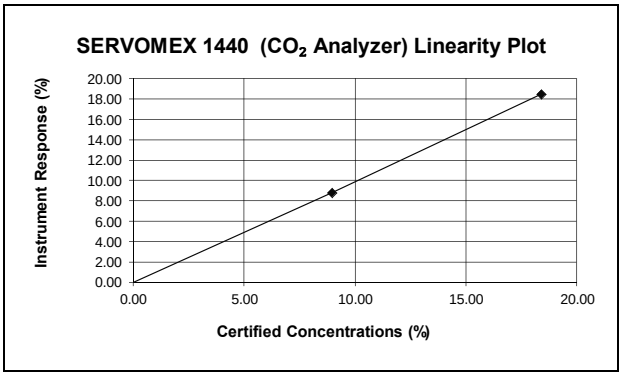
THERMO 51 (THC Analyzer)				
Certified Concentration (ppm)	**Instrument Response (ppm)**	**Calibration Error (%)**	**Estimated Point (ppm)**	**Pass or Fail (±2,5%)[1]**
0.00	-0.04	-0.40	N/A	YES
3.00	2.89	-2.45	2.96	YES
5.01	5.02	0.88	4.98	YES
8.43	8.40	-0.30	N/A	YES
Linearity = 0.988				

[1]-zero/high based on 2% of span,low/mid based on 5% of concentration



CO2 Span (%) = 18.40

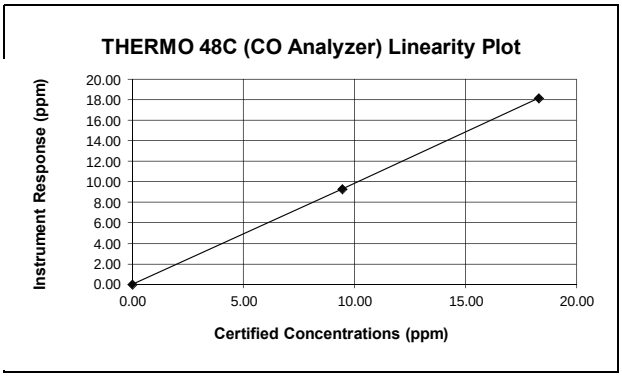
SERVOMEX 1440 (CO_2 Analyzer)				
Certified Concentration (%)	**Instrument Response (%)**	**Calibration Error (%)**	**Absolute Conc. (%)**	**Pass or Fail (±2%, ≤0.5%)**
0.00	-0.02	-0.11	0.02	YES (%)
8.95	8.83	-0.65	0.12	YES (%)
18.40	18.48	0.43	0.08	YES (%)
Linearity = 0.994				



Calibration Date: October 7, 2016
Client: Superior Fabrication, INC

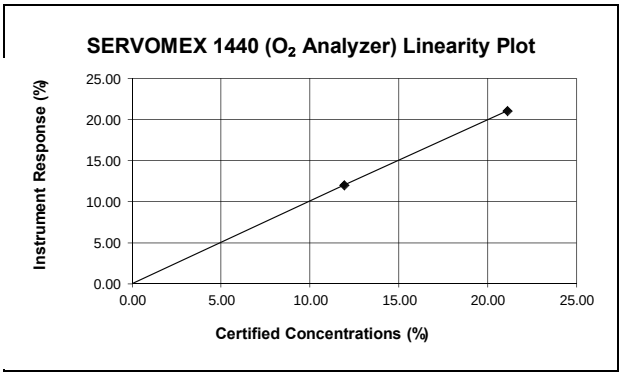
CO Span (ppm) = 18.30

THERMO 48C (CO Analyzer)				
Certified Concentration (ppm)	Instrument Response (ppm)	Calibration Error (%)	Absolute Conc. (ppm)	Pass or Fail (±2%, ≤0.5ppm)
0.00	0.01	0.05	0.01	YES (%)
9.44	9.31	-0.71	0.13	YES (%)
18.30	18.18	-0.66	0.12	YES (%)
Linearity = 1.007				



O2 Span (%) = 21.10

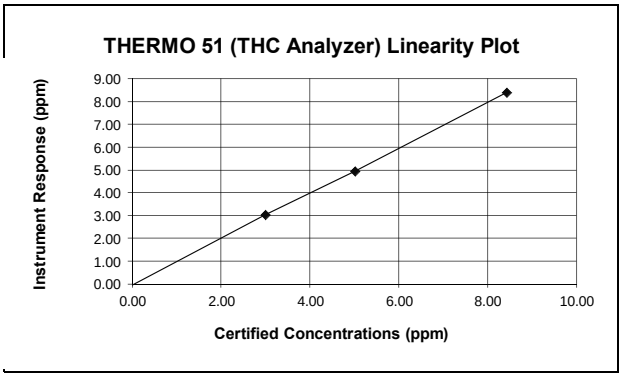
SERVOMEX 1440 (O_2 Analyzer)				
Certified Concentration (%)	Instrument Response (%)	Calibration Error (%)	Absolute Conc. (%)	Pass or Fail (±2%, ≤0.5%)
0.00	-0.02	-0.09	0.02	YES (%)
11.90	12.04	0.66	0.14	YES (%)
21.10	21.10	0.00	0.00	YES (%)
Linearity = 0.998				



THC Range (ppm) = 10

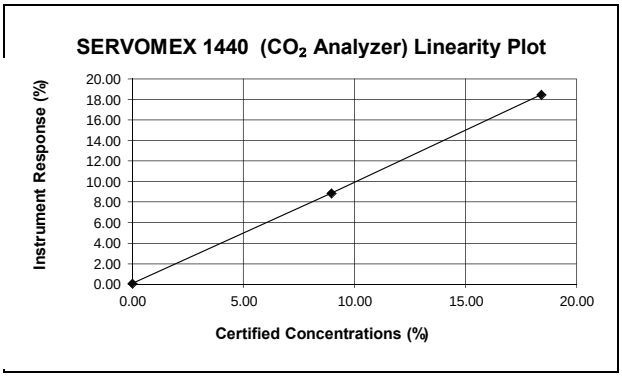
THERMO 51 (THC Analyzer)				
Certified Concentration (ppm)	Instrument Response (ppm)	Calibration Error (%)	Estimated Point (ppm)	Pass or Fail (±2,5%)[1]
0.00	-0.05	-0.50	N/A	YES
3.00	3.04	2.88	2.95	YES
5.01	4.95	-0.32	4.97	YES
8.43	8.39	-0.40	N/A	YES
Linearity = 1.012				

[1]-zero/high based on 2% of span,low/mid based on 5% of concentration



CO2 Span (%) = 18.40

SERVOMEX 1440 (CO_2 Analyzer)				
Certified Concentration (%)	Instrument Response (%)	Calibration Error (%)	Absolute Conc. (%)	Pass or Fail (±2%, ≤0.5%)
0.00	0.06	0.33	0.06	YES (%)
8.95	8.89	-0.33	0.06	YES (%)
18.40	18.47	0.38	0.07	YES (%)
Linearity = 0.999				



APPENDIX E

FUEL ANALYSIS RECORDS

Sample Date 8/16/2016 **Truck/Trailer No.:**

Property	Result	Specification
Methane, PPM Wgt.	BDL	Note (1)
Ethane, PPM Wgt.	19	Note (1)
Ethylene, PPM Wgt.	BDL	100 max.
Propane, Wgt. %	0.44	0.5 max.
Propylene, Wgt. %	99.55	99.5 min.
Total Saturated C4's, PPM Mole	BDL	Note (1)
Propadiene, PPM Wgt.	BDL	5 max.
Methyl Acetylene, PPM Wgt.	BDL	7 max.
Acetylene, PPM Wgt.	BDL	3 max.
Total Butadienes, PPM Wgt.	BDL	10 max.
Total Butenes, PPM Wgt.	BDL	100 max.
1-Butyne, PPM Wgt.	BDL	7 max.
2-Butyne, PPM Wgt.	BDL	7 max.
Cyclopropane, PPM Wgt.	BDL	1 max.
3-Methyl 1-Butene, PPM Wgt.	BDL	1 max.
Total > C5, PPM Wgt.	BDL	20 max.
Carbon Monoxide, PPM Wgt.	BDL	0.033 max.
Carbon Dioxide, PPM Wgt.	0.3	2 max.
Carbonyl Sulfide, PPM Wgt.	BDL	0.043 max.
Hydrogen Sulfide, PPM Wgt.	BDL	1 max.
Total Sulfur, PPM Wgt.	BDL	1 max.
Arsine, PPM Wgt.	BDL	0.056 max.
Phosphine, PPM Wgt.	BDL	0.1 max.
Methanol, PPM Wgt.	0.01	4 max.
2-Propanol, PPM Wgt.	BDL	7 max.
Water, PPM Wgt.	0.05	2 max.
Hydrogen, PPM Wgt.	BDL	1 max.
Oxygen, PPM Wgt.*	BDL	2 max.
Nitrogen, PPM Wgt.	BDL	Note (1)
Ammonia, PPM Wgt.	BDL	0.2 max.

JED

REF ID# CY35029 by/for Robert D. Freeman

SOURCE Tank 5 Laboratory Manager

Note (1) Total Non-Propane Inerts = 1000 Wt. ppm max

revised 09/09/13

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www.alsglobal.com

LABORATORY REPORT

October 31, 2016

Min Lee
Air Hygiene, Incorporated
1600 West Tacoma Street
Broken Arrow, OK 74012

RE: SFI flare testing / SFI-elkcity.ok-comp#1

Dear Min:

Enclosed are the results of the samples submitted to our laboratory on October 14, 2016. For your reference, these analyses have been assigned our service request number P1604860.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Kelly Horiuchi at 4:49 pm, Oct 31, 2016

Kelly Horiuchi
Laboratory Director

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

Client: Air Hygiene, Incorporated
Project: SFI flare testing / SFI-elkcity.ok-comp#1

Service Request No: P1604860

CASE NARRATIVE

The samples were received intact under chain of custody on October 14, 2016 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Benzene Analysis

The samples were analyzed per ASTM D1945-03 for benzene using a gas chromatograph equipped with a flame ionization detector (FID). This procedure is described in laboratory SOP VOA-TO3C1C6. This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP, LLC scope of accreditation.

BTU and CHONS Analysis

The results for BTU and CHONS were generated according to ASTM D 3588-98. The following analyses were performed and used to calculate the BTU and CHONS results. This method is not included on the laboratory's NELAP, DoD-ELAP, or AIHA-LAP, LLC scope of accreditation.

C2 through C6 Hydrocarbon Analysis

The samples were analyzed according to ASTM D1945-03 for C2 through >C6 hydrocarbons using a gas chromatograph equipped with a flame ionization detector (FID). This method is included on the laboratory's DoD-ELAP scope of accreditation, however it is not part of the NELAP or AIHA-LAP, LLC accreditation.

Fixed Gases Analysis

The samples were also analyzed for fixed gases (hydrogen, oxygen/argon, nitrogen, carbon monoxide, methane and carbon dioxide) according to ASTM D1945-03 (single injection) using a gas chromatograph equipped with a thermal conductivity detector (TCD). This method is included on the laboratory's DoD-ELAP scope of accreditation, however it is not part of the NELAP or AIHA-LAP, LLC accreditation.

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Client: Air Hygiene, Incorporated
Project: SFI flare testing / SFI-elkcity.ok-comp#1

Service Request No: P1604860

Hydrogen Sulfide Analysis

The samples were also analyzed for hydrogen sulfide per ASTM D 5504-12 using a gas chromatograph equipped with a sulfur chemiluminescence detector (SCD). Method ASTM D 5504-12 is included on the laboratory's NELAP scope of accreditation, however it is not part of the DoD-ELAP or AIHA-LAP, LLC accreditation.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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F: +1 805 526 7270
www.alsglobal.com

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
AIHA-LAP, LLC	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2014025
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	977273
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-003
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-16-7
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA016272016-6
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: Air Hygiene, Incorporated
Service Request: P1604860
Project ID: SFI flare testing / SFI-elkcity.ok-comp#1

Date Received: 10/14/2016
Time Received: 09:35

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-3 Modified - C1C6+ Can	3C Modified - Fxd Gases Can	ASTM D5504-01 - H2S Can
SFI-90-100%-can-SCD-36	P1604860-001	Air	10/4/2016	12:25	SSC00108	-1.00	5.38	X	X	X
SFI-0-30-0%-can-SCD-36	P1604860-002	Air	10/6/2016	14:08	SSC00397	-1.48	5.16	X	X	X
SFI-70-100-70%-can-SCD-36	P1604860-003	Air	10/6/2016	11:14	SSC00149	-0.55	5.47	X	X	X
SFI-30-70-30%-can-SCD-36	P1604860-004	Air	10/7/2016	10:44	SSC00188	-0.26	5.54	X	X	X

Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10-Day-Standard

ALS Project No. P160 4860

Company Name & Address (Reporting Information)	Superior Fabrication Inc
Project Name	Sf1 Flare testing
Project Number	Sf1-elk city.ok-comp#1
Project Manager	Min Sum Lee
P.O. # / Billing Information	1600 w Tacoma st. Broken Arrow, Ok, 74012
Phone	918 5655379
Fax	
Email Address for Result Reporting	mlee@airhygiene.com, Lab@airhygiene.com
Sampler (Print & Sign)	Min Sum Lee

ALS Contact:

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	Analysis Method: ASTM 1945-03	Analysis Method: ASTM 3588-98	Comments e.g. Actual Preservative or specific instructions
Sf1-90-100%-can-SCD-36	1	10/4/16	12:25	SSC00108	OA02106	-27.93	-0.19		X	X	
Sf1-0-30-0%-can-SCD-36	2	10/6/16	14:08	SSC00397	OA00721	-28.02	-0.71		X	X	
Sf1-70-100-70%-can-SCD-36	3	10/6/16	11:14	SSC00149	OA00639	-28.04	0.11		X	X	
Sf1-30-70-30%-can-SCD-36	4	10/7/16	10:44	SSC00188	OA00610	-28.12	-0.91		X	X	

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Report Tier Levels - please select

Tier I - Results (Default if not specified) ____ Tier III (Results + QC & Calibration Summaries) ____
Tier II (Results + QC Summaries) ____ Tier IV (Date Validation Package) 15% Surcharge ____

EDD required YES / No
Type: ____ Units: ____

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date: 10/7/16	Time: 10:48	Received by: (Signature)	Date: 10/14/16	Time: 0930		
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:	Cooler / Blank	

ALS Environmental
Sample Acceptance Check Form

Client: Air Hygiene, Incorporated Work order: P1604860

Project: SFI flare testing / SFI-elkcity.ok-comp#1

Sample(s) received on: 10/14/16 Date opened: 10/14/16 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were **custody seals** on outside of cooler/Box/Container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1604860-001.01	6.0 L Silonite Can					
P1604860-002.01	6.0 L Silonite Can					
P1604860-003.01	6.0 L Silonite Can					
P1604860-004.01	6.0 L Silonite Can					

Explain any discrepancies: (include lab sample ID numbers): _____

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Project ID: **SFI flare testing / SFI-elkcity.ok-comp#1** ALS Project ID: P1604860

Benzene

Test Code: ASTM D1945-03
Instrument ID: HP5890 II/GC8/FID
Analyst: Adam McAfee
Sampling Media: 6.0 L Silonite Canister(s)
Test Notes:

Date(s) Collected: 10/4 - 10/7/16
Date Received: 10/14/16
Date Analyzed: 10/19/16

Client Sample ID	ALS Sample ID	Canister Dilution Factor	Injection Volume ml(s)	Result ppmV	MRL ppmV	Data Qualifier
SFI-90-100%-can-SCD-36	P1604860-001	1.47	0.050	ND	18	
SFI-0-30-0%-can-SCD-36	P1604860-002	1.50	0.050	ND	18	
SFI-70-100-70%-can-SCD-36	P1604860-003	1.43	0.050	ND	17	
SFI-30-70-30%-can-SCD-36	P1604860-004	1.40	0.050	ND	17	
Method Blank	P161019-MB	1.00	1.0	ND	0.60	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **Air Hygiene, Incorporated**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1604860
Client Project ID: **SFI flare testing / SFI-elkcity.ok-comp#1** ALS Sample ID: P161019-LCS

Test Code: ASTM D1945-03 Date Collected: NA
Instrument ID: HP5890 II/GC8/FID Date Received: NA
Analyst: Adam McAfee Date Analyzed: 10/19/16
Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: NA ml(s)
Test Notes:

Compound	Spike Amount ppmV	**Result ppmV**	**% Recovery**	ALS Acceptance Limits	Data Qualifier
Benzene	1,100	**1,090**	**99**	50-150	

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **SFI-90-100%-can-SCD-36** ALS Project ID: P1604860
Client Project ID: **SFI flare testing / SFI-elkcity.ok-comp#1** ALS Sample ID: P1604860-001

Test Code: ASTM D3588-98
Analyst: Mike Conejo/Adam McAfee Date Collected: 10/4/16
Sample Type: 6.0 L Silonite Canister Date Received: 10/14/16
Test Notes:
Container ID: SSC00108

Initial Pressure (psig): -1.00 Final Pressure (psig): 5.38

Canister Dilution Factor: 1.47

Components	Result Volume %	Result Weight %	Data Qualifier
Hydrogen	< 0.01	< 0.01	
Oxygen	**0.10**	**0.08**	
Nitrogen	**0.43**	**0.28**	
Carbon Monoxide	< 0.01	< 0.01	
Methane	< 0.01	< 0.01	
Carbon Dioxide	< 0.01	< 0.01	
Hydrogen Sulfide	< 0.01	< 0.01	
C2 as Ethane	< 0.01	< 0.01	
C3 as Propane	**99.45**	**99.63**	
C4 as n-Butane	< 0.01	< 0.01	
C5 as n-Pentane	< 0.01	< 0.01	
C6 as n-Hexane	< 0.01	< 0.01	
> C6 as n-Hexane	< 0.01	< 0.01	
TOTALS	**99.99**	**99.99**	

Components	Mole %	Weight %
Carbon	**27.25**	**81.43**
Hydrogen	**72.66**	**18.22**
Oxygen	< 0.10	< 0.10
Nitrogen	< 0.10	**0.28**
Sulfur	< 0.10	< 0.10

Specific Gravity (Air = 1)		**1.5196**
Specific Volume	ft3/lb	**8.62**
Gross Heating Value (Dry Gas @ 60 F, 14.696 psia)	BTU/ft3	**2,546.2**
Net Heating Value (Dry Gas @ 60 F, 14.696 psia)	BTU/ft3	**2,342.6**
Gross Heating Value (Water Saturated at 0.25636 psia)	BTU/ft3	**2,458.7**
Net Heating Value (Water Saturated at 0.25636 psia)	BTU/ft3	**2,262.1**
Gross Heating Value (Dry Gas @ 60 F, 14.696 psia)	BTU/lb	**21,954.4**
Net Heating Value (Dry Gas @ 60 F, 14.696 psia)	BTU/lb	**20,198.8**
Compressibility Factor "Z" (60 F, 14.696 psia)		**0.9828**

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **SFI-0-30-0%-can-SCD-36** ALS Project ID: P1604860
Client Project ID: **SFI flare testing / SFI-elkcity.ok-comp#1** ALS Sample ID: P1604860-002

Test Code: ASTM D3588-98
Analyst: Mike Conejo/Adam McAfee Date Collected: 10/6/16
Sample Type: 6.0 L Silonite Canister Date Received: 10/14/16
Test Notes:
Container ID: SSC00397

Initial Pressure (psig): -1.48 Final Pressure (psig): 5.16

Canister Dilution Factor: 1.50

Components	Result Volume %	Result Weight %	Data Qualifier
Hydrogen	< 0.01	< 0.01	
Oxygen	**0.08**	**0.06**	
Nitrogen	**0.31**	**0.20**	
Carbon Monoxide	< 0.01	< 0.01	
Methane	< 0.01	< 0.01	
Carbon Dioxide	< 0.01	< 0.01	
Hydrogen Sulfide	< 0.01	< 0.01	
C2 as Ethane	< 0.01	< 0.01	
C3 as Propane	**99.60**	**99.73**	
C4 as n-Butane	< 0.01	< 0.01	
C5 as n-Pentane	< 0.01	< 0.01	
C6 as n-Hexane	< 0.01	< 0.01	
> C6 as n-Hexane	< 0.01	< 0.01	
TOTALS	**99.99**	**99.99**	

Components	Mole %	Weight %
Carbon	**27.25**	**81.51**
Hydrogen	**72.68**	**18.24**
Oxygen	< 0.10	< 0.10
Nitrogen	< 0.10	**0.20**
Sulfur	< 0.10	< 0.10

Specific Gravity (Air = 1)		**1.5204**
Specific Volume	ft3/lb	**8.62**
Gross Heating Value (Dry Gas @ 60 F, 14.696 psia)	BTU/ft3	**2,550.1**
Net Heating Value (Dry Gas @ 60 F, 14.696 psia)	BTU/ft3	**2,346.2**
Gross Heating Value (Water Saturated at 0.25636 psia)	BTU/ft3	**2,462.3**
Net Heating Value (Water Saturated at 0.25636 psia)	BTU/ft3	**2,265.4**
Gross Heating Value (Dry Gas @ 60 F, 14.696 psia)	BTU/lb	**21,976.5**
Net Heating Value (Dry Gas @ 60 F, 14.696 psia)	BTU/lb	**20,219.1**
Compressibility Factor "Z" (60 F, 14.696 psia)		**0.9827**

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **SFI-70-100-70%-can-SCD-36** ALS Project ID: P1604860
Client Project ID: **SFI flare testing / SFI-elkcity.ok-comp#1** ALS Sample ID: P1604860-003

Test Code: ASTM D3588-98
Analyst: Mike Conejo/Adam McAfee Date Collected: 10/6/16
Sample Type: 6.0 L Silonite Canister Date Received: 10/14/16
Test Notes:
Container ID: SSC00149

Initial Pressure (psig): -0.55 Final Pressure (psig): 5.47

Canister Dilution Factor: 1.43

Components	Result Volume %	Result Weight %	Data Qualifier
Hydrogen	< 0.01	< 0.01	
Oxygen	**0.04**	**0.03**	
Nitrogen	**0.16**	**0.10**	
Carbon Monoxide	< 0.01	< 0.01	
Methane	< 0.01	< 0.01	
Carbon Dioxide	< 0.01	< 0.01	
Hydrogen Sulfide	< 0.01	< 0.01	
C2 as Ethane	< 0.01	< 0.01	
C3 as Propane	**99.78**	**99.85**	
C4 as n-Butane	< 0.01	< 0.01	
C5 as n-Pentane	< 0.01	< 0.01	
C6 as n-Hexane	< 0.01	< 0.01	
> C6 as n-Hexane	< 0.01	< 0.01	
TOTALS	**99.99**	**99.99**	

Components	Mole %	Weight %
Carbon	**27.26**	**81.61**
Hydrogen	**72.70**	**18.26**
Oxygen	< 0.10	< 0.10
Nitrogen	< 0.10	**0.10**
Sulfur	< 0.10	< 0.10

Specific Gravity (Air = 1)		**1.5214**
Specific Volume	ft3/lb	**8.61**
Gross Heating Value (Dry Gas @ 60 F, 14.696 psia)	BTU/ft3	**2,555.0**
Net Heating Value (Dry Gas @ 60 F, 14.696 psia)	BTU/ft3	**2,350.7**
Gross Heating Value (Water Saturated at 0.25636 psia)	BTU/ft3	**2,467.0**
Net Heating Value (Water Saturated at 0.25636 psia)	BTU/ft3	**2,269.8**
Gross Heating Value (Dry Gas @ 60 F, 14.696 psia)	BTU/lb	**22,004.6**
Net Heating Value (Dry Gas @ 60 F, 14.696 psia)	BTU/lb	**20,245.0**
Compressibility Factor "Z" (60 F, 14.696 psia)		**0.9827**

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **SFI-30-70-30%-can-SCD-36** ALS Project ID: P1604860
Client Project ID: **SFI flare testing / SFI-elkcity.ok-comp#1** ALS Sample ID: P1604860-004

Test Code: ASTM D3588-98
Analyst: Mike Conejo/Adam McAfee Date Collected: 10/7/16
Sample Type: 6.0 L Silonite Canister Date Received: 10/14/16
Test Notes:
Container ID: SSC00188

Initial Pressure (psig): -0.26 Final Pressure (psig): 5.54

Canister Dilution Factor: 1.40

Components	Result Volume %	Result Weight %	Data Qualifier
Hydrogen	< 0.01	< 0.01	
Oxygen	**0.04**	**0.03**	
Nitrogen	**0.17**	**0.11**	
Carbon Monoxide	< 0.01	< 0.01	
Methane	< 0.01	< 0.01	
Carbon Dioxide	< 0.01	< 0.01	
Hydrogen Sulfide	< 0.01	< 0.01	
C2 as Ethane	< 0.01	< 0.01	
C3 as Propane	**99.77**	**99.85**	
C4 as n-Butane	< 0.01	< 0.01	
C5 as n-Pentane	< 0.01	< 0.01	
C6 as n-Hexane	< 0.01	< 0.01	
> C6 as n-Hexane	< 0.01	< 0.01	
TOTALS	**99.99**	**99.99**	

Components	Mole %	Weight %
Carbon	**27.26**	**81.60**
Hydrogen	**72.70**	**18.26**
Oxygen	< 0.10	< 0.10
Nitrogen	< 0.10	**0.11**
Sulfur	< 0.10	< 0.10

Specific Gravity (Air = 1)		**1.5213**
Specific Volume	ft3/lb	**8.61**
Gross Heating Value (Dry Gas @ 60 F, 14.696 psia)	BTU/ft3	**2,554.8**
Net Heating Value (Dry Gas @ 60 F, 14.696 psia)	BTU/ft3	**2,350.5**
Gross Heating Value (Water Saturated at 0.25636 psia)	BTU/ft3	**2,466.8**
Net Heating Value (Water Saturated at 0.25636 psia)	BTU/ft3	**2,269.6**
Gross Heating Value (Dry Gas @ 60 F, 14.696 psia)	BTU/lb	**22,003.3**
Net Heating Value (Dry Gas @ 60 F, 14.696 psia)	BTU/lb	**20,243.8**
Compressibility Factor "Z" (60 F, 14.696 psia)		**0.9827**

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **SFI-90-100%-can-SCD-36**
Client Project ID: **SFI flare testing / SFI-elkcity.ok-comp#1**

ALS Project ID: P1604860
ALS Sample ID: P1604860-001

Test Code: ASTM D1945-03
Instrument ID: HP5890 II/GC8/FID
Analyst: Adam McAfee
Sampling Media: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00108

Date Collected: 10/4/16
Date Received: 10/14/16
Date Analyzed: 10/19/16
Volume(s) Analyzed: 0.050 ml(s)

Initial Pressure (psig): -1.00 Final Pressure (psig): 5.38

Canister Dilution Factor: 1.47

Compound	Result ppmV	MRL ppmV	Data Qualifier
Methane	ND	15	
C_2 as Ethane	**37**	15	
C_3 as Propane	**990,000**	15	
C_4 as n-Butane	**18**	15	
C_5 as n-Pentane	ND	15	
C_6 as n-Hexane	ND	15	
C_6+ as n-Hexane	ND	29	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **SFI-0-30-0%-can-SCD-36**
Client Project ID: **SFI flare testing / SFI-elkcity.ok-comp#1**

ALS Project ID: P1604860
ALS Sample ID: P1604860-002

Test Code: ASTM D1945-03
Instrument ID: HP5890 II/GC8/FID
Analyst: Adam McAfee
Sampling Media: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00397

Date Collected: 10/6/16
Date Received: 10/14/16
Date Analyzed: 10/19/16
Volume(s) Analyzed: 0.050 ml(s)

Initial Pressure (psig): -1.48 Final Pressure (psig): 5.16

Canister Dilution Factor: 1.50

Compound	Result ppmV	MRL ppmV	Data Qualifier
Methane	ND	15	
C_2 as Ethane	**34**	15	
C_3 as Propane	**1,000,000**	15	
C_4 as n-Butane	**17**	15	
C_5 as n-Pentane	ND	15	
C_6 as n-Hexane	ND	15	
C_6+ as n-Hexane	ND	30	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **SFI-70-100-70%-can-SCD-36**
Client Project ID: **SFI flare testing / SFI-elkcity.ok-comp#1**

ALS Project ID: P1604860
ALS Sample ID: P1604860-003

Test Code: ASTM D1945-03
Instrument ID: HP5890 II/GC8/FID
Analyst: Adam McAfee
Sampling Media: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00149

Date Collected: 10/6/16
Date Received: 10/14/16
Date Analyzed: 10/19/16
Volume(s) Analyzed: 0.050 ml(s)

Initial Pressure (psig): -0.55 Final Pressure (psig): 5.47

Canister Dilution Factor: 1.43

Compound	Result ppmV	MRL ppmV	Data Qualifier
Methane	ND	14	
C_2 as Ethane	**34**	14	
C_3 as Propane	**1,000,000**	14	
C_4 as n-Butane	**17**	14	
C_5 as n-Pentane	ND	14	
C_6 as n-Hexane	ND	14	
C_6+ as n-Hexane	ND	29	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **SFI-30-70-30%-can-SCD-36**
Client Project ID: **SFI flare testing / SFI-elkcity.ok-comp#1**

ALS Project ID: P1604860
ALS Sample ID: P1604860-004

Test Code: ASTM D1945-03
Instrument ID: HP5890 II/GC8/FID
Analyst: Adam McAfee
Sampling Media: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00188

Date Collected: 10/7/16
Date Received: 10/14/16
Date Analyzed: 10/19/16
Volume(s) Analyzed: 0.050 ml(s)

Initial Pressure (psig): -0.26 Final Pressure (psig): 5.54

Canister Dilution Factor: 1.40

Compound	Result ppmV	MRL ppmV	Data Qualifier
Methane	ND	14	
C_2 as Ethane	**33**	14	
C_3 as Propane	**1,000,000**	14	
C_4 as n-Butane	ND	14	
C_5 as n-Pentane	ND	14	
C_6 as n-Hexane	ND	14	
C_6+ as n-Hexane	ND	28	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **Method Blank** ALS Project ID: P1604860
Client Project ID: **SFI flare testing / SFI-elkcity.ok-comp#1** ALS Sample ID: P161019-MB

Test Code: ASTM D1945-03 Date Collected: NA
Instrument ID: HP5890 II/GC8/FID Date Received: NA
Analyst: Adam McAfee Date Analyzed: 10/19/16
Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: 1.0 ml(s)
Test Notes:

Compound	Result ppmV	MRL ppmV	Data Qualifier
Methane	ND	0.50	
C_2 as Ethane	ND	0.50	
C_3 as Propane	ND	0.50	
C_4 as n-Butane	ND	0.50	
C_5 as n-Pentane	ND	0.50	
C_6 as n-Hexane	ND	0.50	
C_6+ as n-Hexane	ND	1.0	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **Air Hygiene, Incorporated**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1604860
Client Project ID: **SFI flare testing / SFI-elkcity.ok-comp#1** ALS Sample ID: P161019-LCS

Test Code: ASTM D1945-03 Date Collected: NA
Instrument ID: HP5890 II/GC8/FID Date Received: NA
Analyst: Adam McAfee Date Analyzed: 10/19/16
Sampling Media: 6.0 L Silonite Canister Volume(s) Analyzed: NA ml(s)
Test Notes:

Compound	Spike Amount ppmV	**Result ppmV**	**% Recovery**	ALS Acceptance Limits	Data Qualifier
Methane	1,010	**996**	**99**	79-107	
Ethane	1,020	**1,020**	**100**	85-117	
Propane	1,040	**1,100**	**106**	85-116	
n-Butane	1,010	**1,070**	**106**	84-114	
n-Pentane	1,000	**1,020**	**102**	85-124	
n-Hexane	1,010	**1,110**	**110**	84-132	

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **SFI-90-100%-can-SCD-36**
Client Project ID: **SFI flare testing / SFI-elkcity.ok-comp#1**

ALS Project ID: P1604860
ALS Sample ID: P1604860-001

Test Code: ASTM D1945-03
Instrument ID: HP5890 II/GC1/TCD
Analyst: Adam McAfee
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00108

Date Collected: 10/4/16
Date Received: 10/14/16
Date Analyzed: 10/19/16
Volume(s) Analyzed: 0.10 ml(s)

Initial Pressure (psig): -1.00 Final Pressure (psig): 5.38

Canister Dilution Factor: 1.47

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
1333-74-0	Hydrogen	ND	0.15	
7782-44-7	Oxygen*	ND	0.15	
7727-37-9	**Nitrogen**	**0.432**	0.15	
630-08-0	Carbon Monoxide	ND	0.15	
124-38-9	Carbon Dioxide	ND	0.15	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
* = The oxygen result may include argon due to coelution. Ambient air includes 0.93% argon.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **SFI-0-30-0%-can-SCD-36**
Client Project ID: **SFI flare testing / SFI-elkcity.ok-comp#1**

ALS Project ID: P1604860
ALS Sample ID: P1604860-002

Test Code: ASTM D1945-03
Instrument ID: HP5890 II/GC1/TCD
Analyst: Adam McAfee
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00397

Date Collected: 10/6/16
Date Received: 10/14/16
Date Analyzed: 10/19/16
Volume(s) Analyzed: 0.10 ml(s)

Initial Pressure (psig): -1.48 Final Pressure (psig): 5.16

Canister Dilution Factor: 1.50

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
1333-74-0	Hydrogen	ND	0.15	
7782-44-7	Oxygen*	ND	0.15	
7727-37-9	**Nitrogen**	**0.309**	0.15	
630-08-0	Carbon Monoxide	ND	0.15	
124-38-9	Carbon Dioxide	ND	0.15	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
* = The oxygen result may include argon due to coelution. Ambient air includes 0.93% argon.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **SFI-70-100-70%-can-SCD-36**
Client Project ID: **SFI flare testing / SFI-elkcity.ok-comp#1**

ALS Project ID: P1604860
ALS Sample ID: P1604860-003

Test Code: ASTM D1945-03
Instrument ID: HP5890 II/GC1/TCD
Analyst: Adam McAfee
Sample Type: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00149

Date Collected: 10/6/16
Date Received: 10/14/16
Date Analyzed: 10/19/16
Volume(s) Analyzed: 0.10 ml(s)

Initial Pressure (psig): -0.55 Final Pressure (psig): 5.47

Canister Dilution Factor: 1.43

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
1333-74-0	Hydrogen	ND	0.14	
7782-44-7	Oxygen*	ND	0.14	
7727-37-9	**Nitrogen**	**0.162**	0.14	
630-08-0	Carbon Monoxide	ND	0.14	
124-38-9	Carbon Dioxide	ND	0.14	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
* = The oxygen result may include argon due to coelution. Ambient air includes 0.93% argon.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **SFI-30-70-30%-can-SCD-36** ALS Project ID: P1604860
Client Project ID: **SFI flare testing / SFI-elkcity.ok-comp#1** ALS Sample ID: P1604860-004

Test Code: ASTM D1945-03 Date Collected: 10/7/16
Instrument ID: HP5890 II/GC1/TCD Date Received: 10/14/16
Analyst: Adam McAfee Date Analyzed: 10/19/16
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.10 ml(s)
Test Notes:
Container ID: SSC00188

Initial Pressure (psig): -0.26 Final Pressure (psig): 5.54

Canister Dilution Factor: 1.40

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
1333-74-0	Hydrogen	ND	0.14	
7782-44-7	Oxygen*	ND	0.14	
7727-37-9	**Nitrogen**	**0.175**	0.14	
630-08-0	Carbon Monoxide	ND	0.14	
124-38-9	Carbon Dioxide	ND	0.14	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
* = The oxygen result may include argon due to coelution. Ambient air includes 0.93% argon.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **Method Blank** ALS Project ID: P1604860
Client Project ID: **SFI flare testing / SFI-elkcity.ok-comp#1** ALS Sample ID: P161019-MB

Test Code: ASTM D1945-03 Date Collected: NA
Instrument ID: HP5890 II/GC1/TCD Date Received: NA
Analyst: Adam McAfee Date Analyzed: 10/19/16
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
1333-74-0	Hydrogen	ND	0.10	
7782-44-7	Oxygen*	ND	0.10	
7727-37-9	Nitrogen	ND	0.10	
630-08-0	Carbon Monoxide	ND	0.10	
124-38-9	Carbon Dioxide	ND	0.10	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
* = The oxygen result may include argon due to coelution. Ambient air includes 0.93% argon.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **Air Hygiene, Incorporated**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1604860
Client Project ID: **SFI flare testing / SFI-elkcity.ok-comp#1** ALS Sample ID: P161019-LCS

Test Code: ASTM D1945-03 Date Collected: NA
Instrument ID: HP5890 II/GC1/TCD Date Received: NA
Analyst: Adam McAfee Date Analyzed: 10/19/16
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: NA ml(s)
Test Notes:

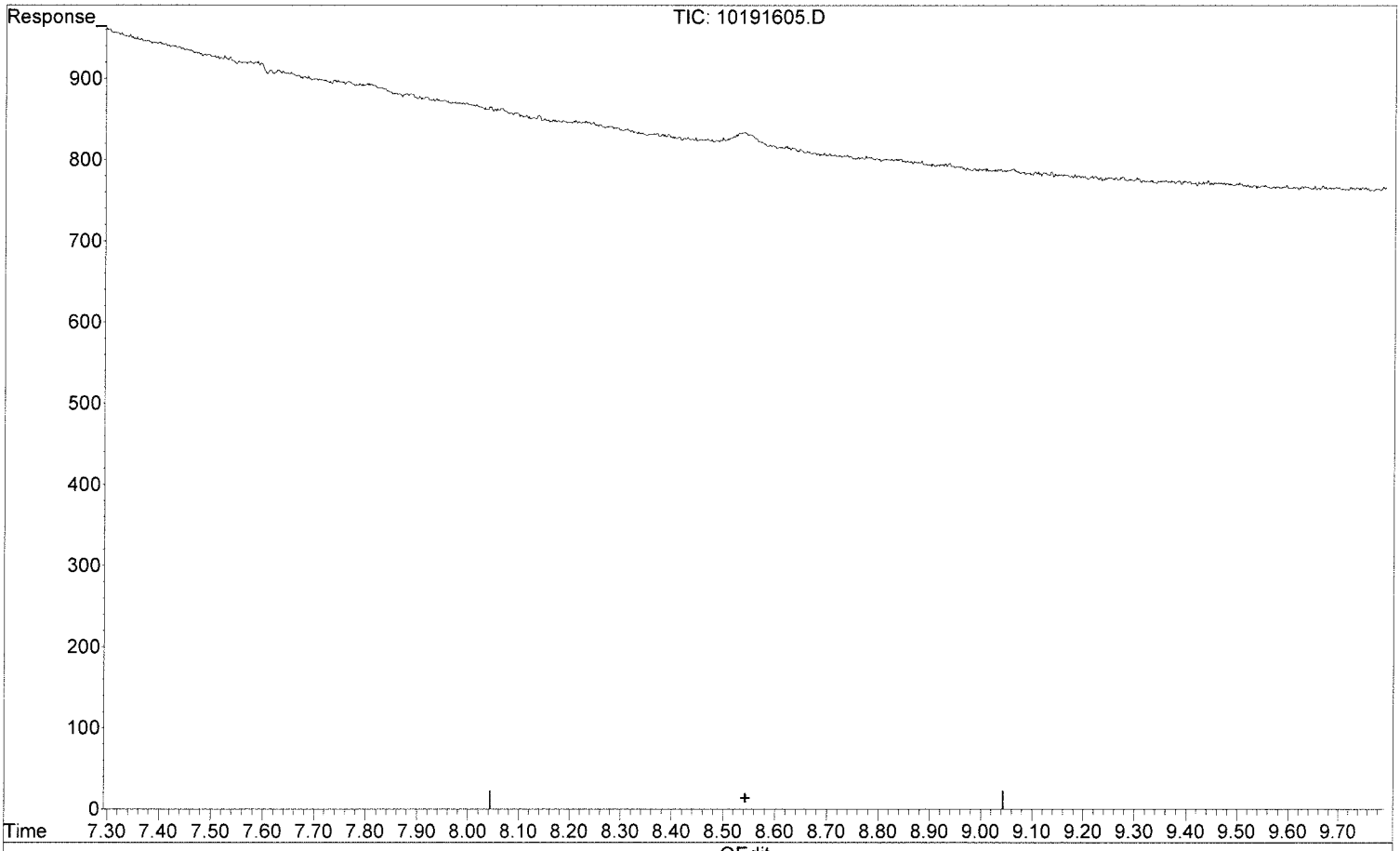
CAS #	Compound	Spike Amount ppmV	Result ppmV	% Recovery	ALS Acceptance Limits	Data Qualifier
1333-74-0	Hydrogen	50,000	**50,100**	**100**	94-105	
7782-44-7	Oxygen*	50,000	**52,000**	**104**	97-108	
7727-37-9	Nitrogen	50,000	**52,000**	**104**	89-113	
630-08-0	Carbon Monoxide	50,000	**51,300**	**103**	98-108	
124-38-9	Carbon Dioxide	50,000	**49,200**	**98**	94-104	

* = The oxygen result may include argon due to coelution. Ambient air includes 0.93% argon.

Data Path : I:\GC08\DATA\TO_3M\2016_10\19B\
Data File : 10191605.D
Signal(s) : FID2B.CH
Acq On : 19-Oct-2016, 12:58:14
Operator : amf
Sample : 4860-001 0.05ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 20 12:09:51 2016
Quant Method : I:\GC08\METHODS\BE100316.M
Quant Title : Benzene by GC/FID#8
QLast Update : Mon Oct 03 13:23:14 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(1) Benzene (T)

8.544min 0.000 ppm

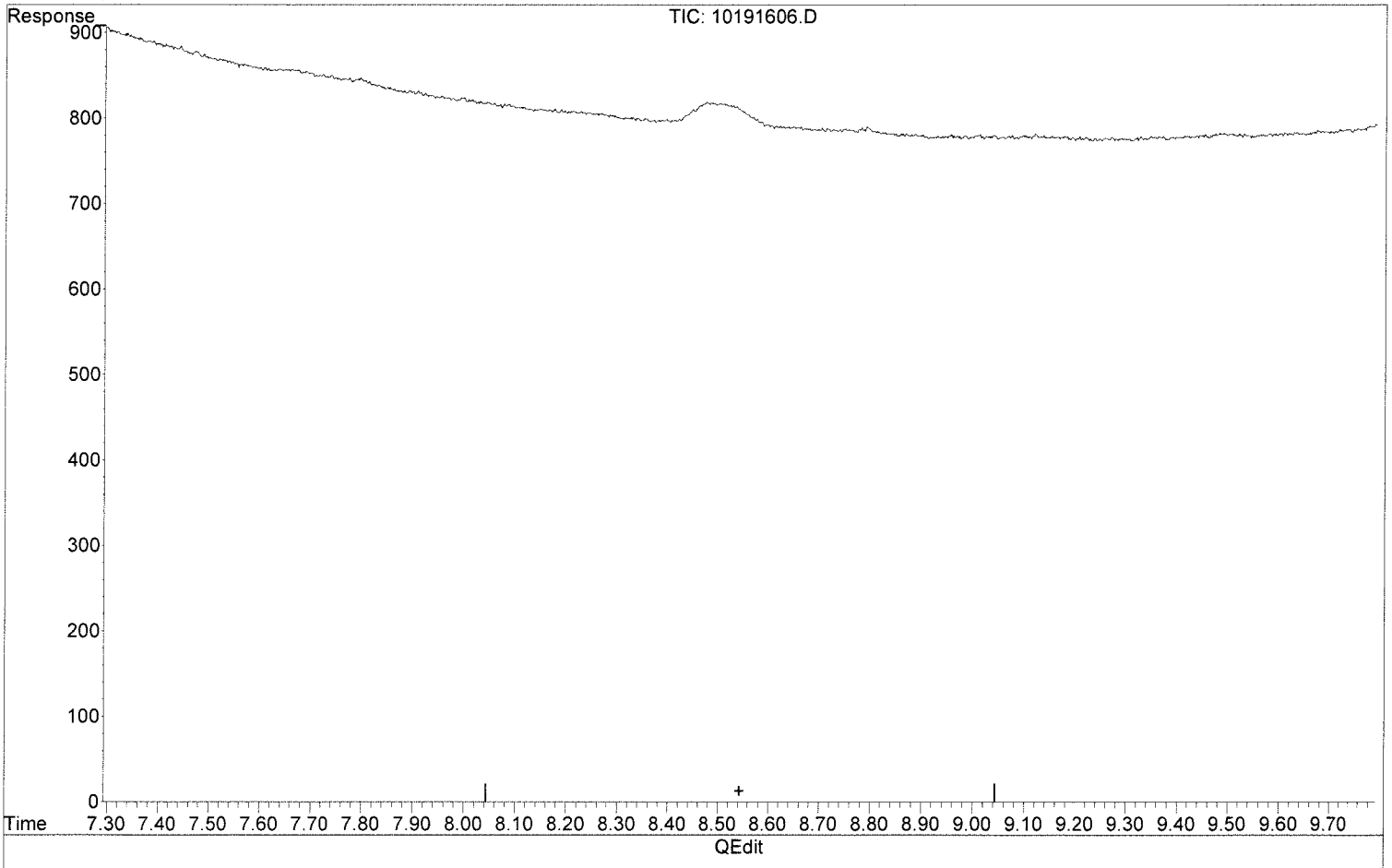
response 0

(+) = Expected Retention Time

Data Path : I:\GC08\DATA\TO_3M\2016_10\19B\
Data File : 10191606.D
Signal(s) : FID2B.CH
Acq On : 19-Oct-2016, 13:34:36
Operator : amf
Sample : 4860-002 0.05ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 20 12:10:18 2016
Quant Method : I:\GC08\METHODS\BE100316.M
Quant Title : Benzene by GC/FID#8
QLast Update : Mon Oct 03 13:23:14 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(1) Benzene (T)

8.544min 0.000 ppm

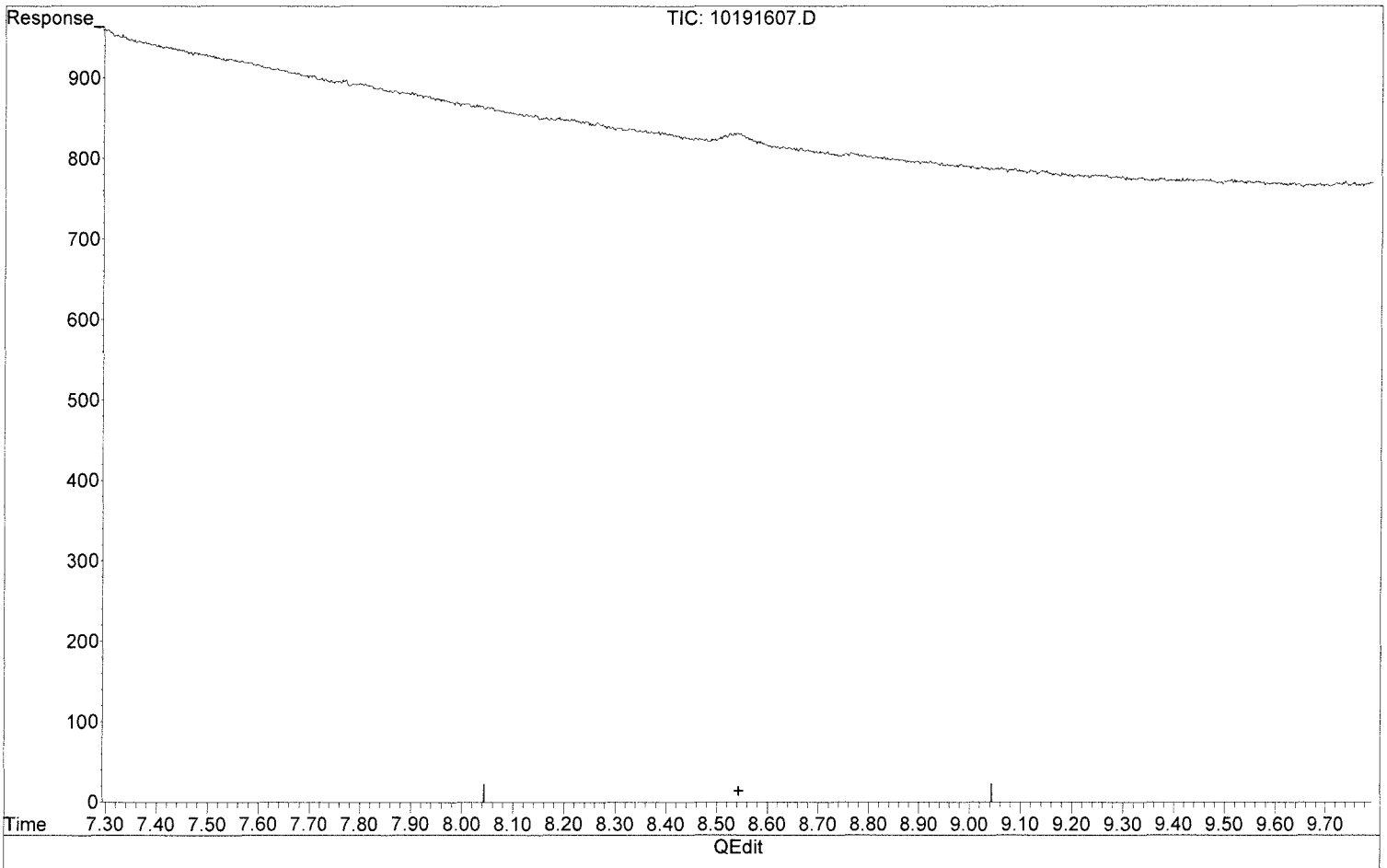
response 0

(+) = Expected Retention Time

Data Path : I:\GC08\DATA\TO_3M\2016_10\19B\
Data File : 10191607.D
Signal(s) : FID2B.CH
Acq On : 19-Oct-2016, 13:57:27
Operator : amf
Sample : 4860-003 0.05ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 20 12:10:40 2016
Quant Method : I:\GC08\METHODS\BE100316.M
Quant Title : Benzene by GC/FID#8
QLast Update : Mon Oct 03 13:23:14 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(1) Benzene (T)

8.544min 0.000 ppm

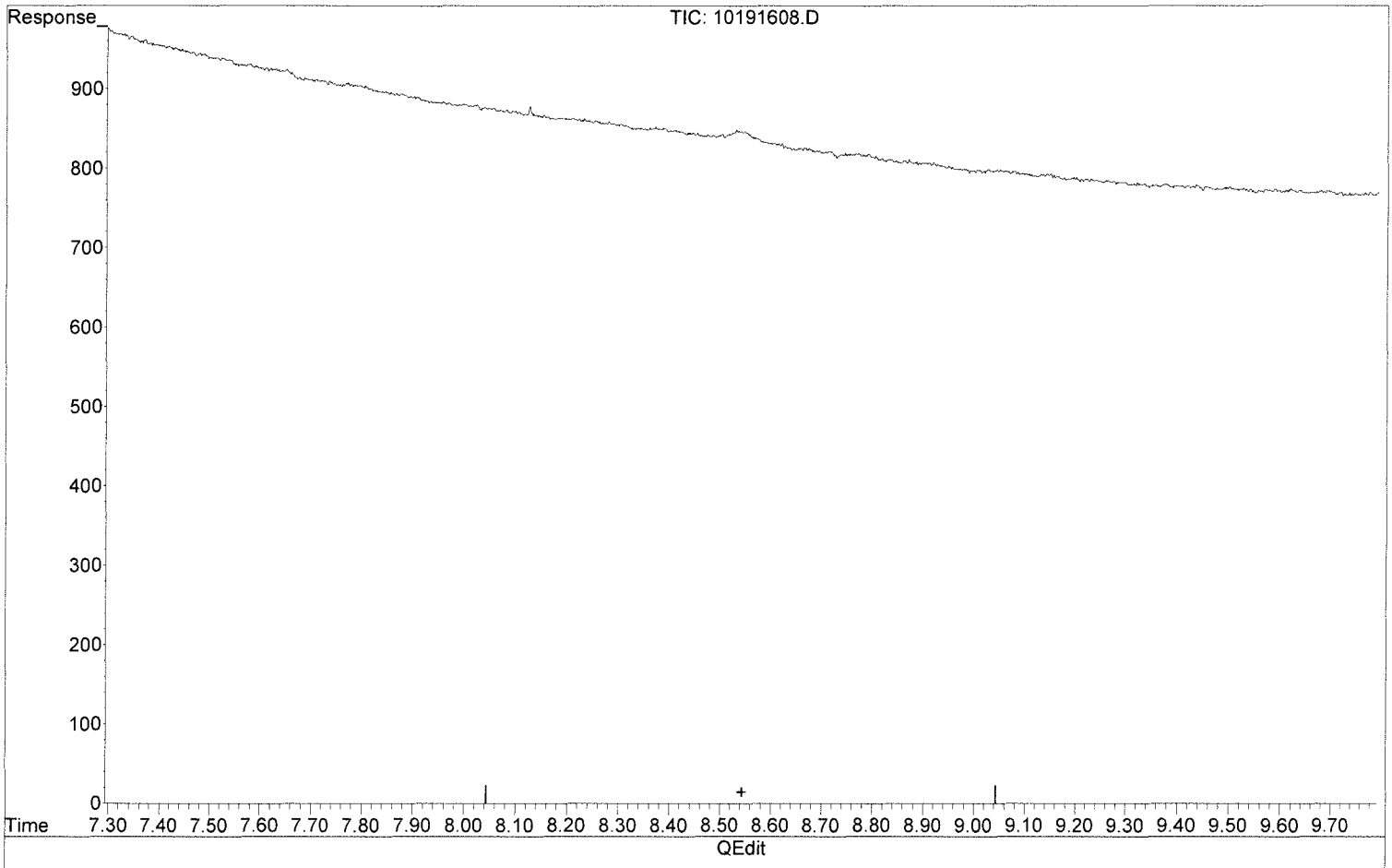
response 0

(+) = Expected Retention Time

Data Path : I:\GC08\DATA\TO_3M\2016_10\19B\
Data File : 10191608.D
Signal(s) : FID2B.CH
Acq On : 19-Oct-2016, 14:20:20
Operator : amf
Sample : 4860-004 0.05ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 20 12:10:56 2016
Quant Method : I:\GC08\METHODS\BE100316.M
Quant Title : Benzene by GC/FID#8
QLast Update : Mon Oct 03 13:23:14 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(1) Benzene (T)

8.544min 0.000 ppm

response 0

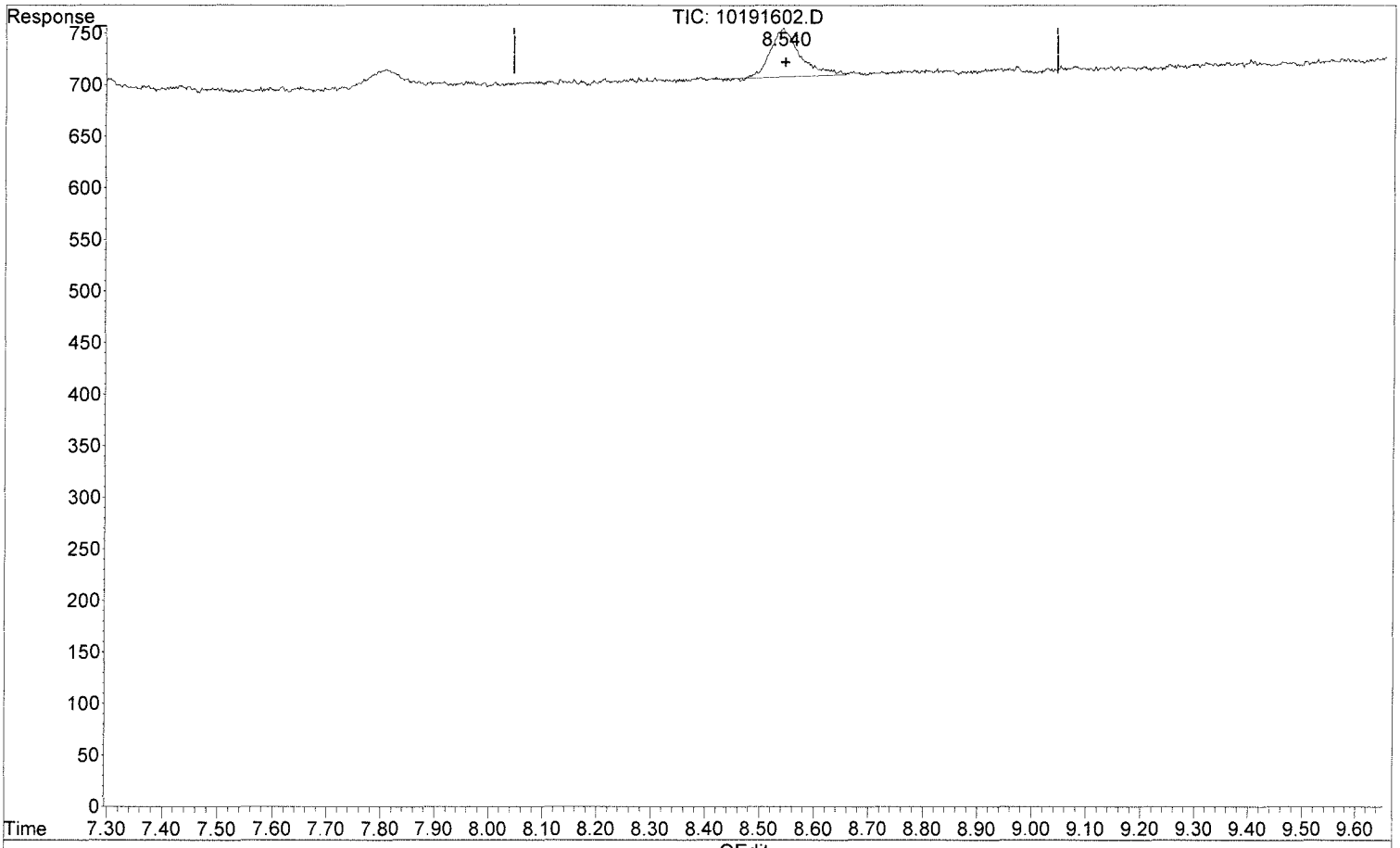
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : I:\GC08\DATA\TO_3M\2016_10\19B\
Data File : 10191602.D
Signal(s) : FID2B.CH
Acq On : 19-Oct-2016, 10:26:23
Operator : amf
Sample : mb 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 19 10:32:08 2016
Quant Method : I:\GC08\METHODS\BE100316.M
Quant Title : Benzene by GC/FID#8
QLast Update : Mon Oct 03 13:23:14 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(1) Benzene (T)

8.540min 0.016 ppm

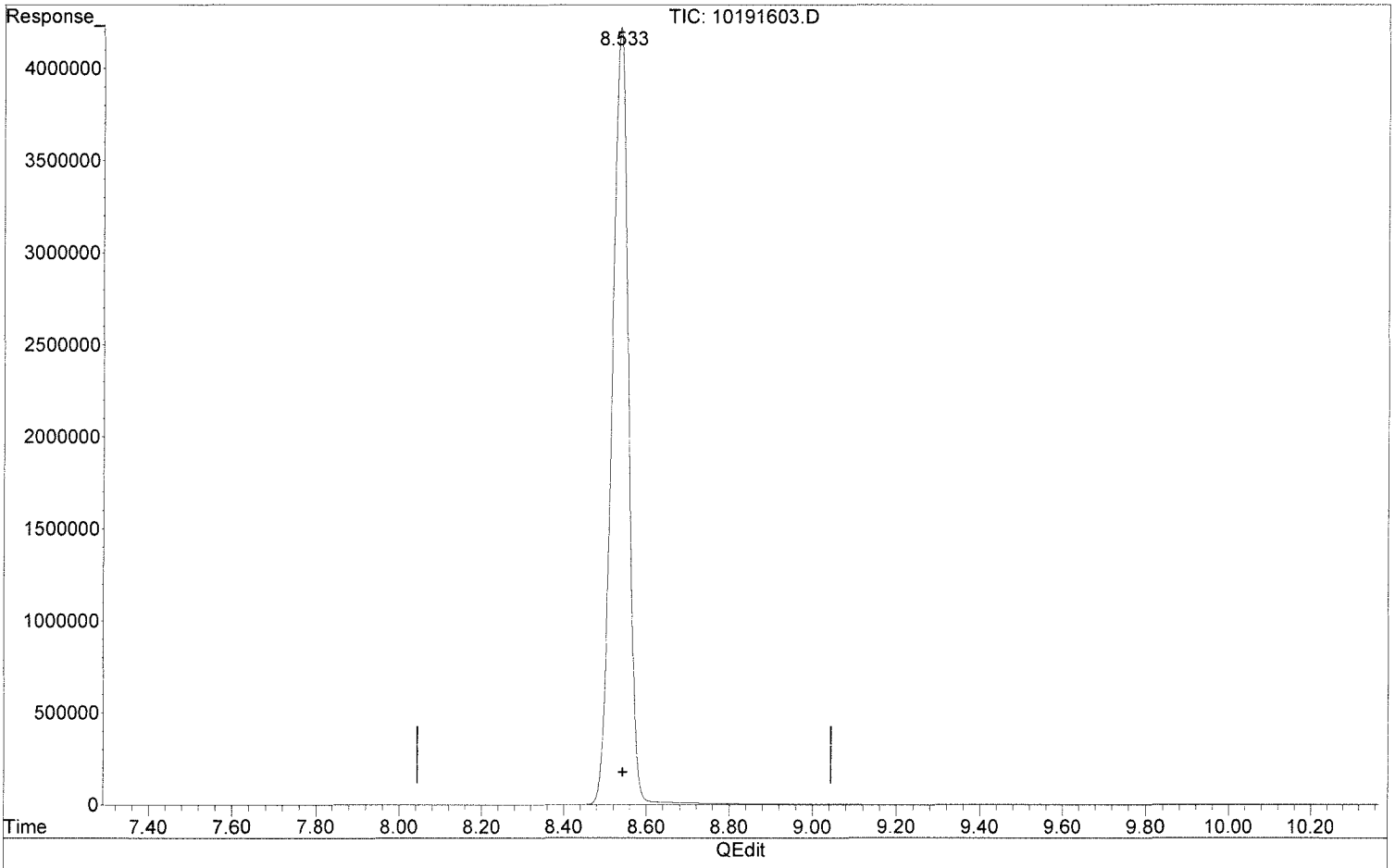
response 1675

(+) = Expected Retention Time

Data Path : I:\GC08\DATA\TO_3M\2016_10\19B\
Data File : 10191603.D
Signal(s) : FID2B.CH
Acq On : 19-Oct-2016, 10:39:37
Operator : amf
Sample : lcs s30-10191602
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 19 10:53:57 2016
Quant Method : I:\GC08\METHODS\BE100316.M
Quant Title : Benzene by GC/FID#8
QLast Update : Mon Oct 03 13:23:14 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(1) Benzene (T)

8.534min 1086.026 ppm

response 117133626

(+) = Expected Retention Time

Response Factor Report HP5890

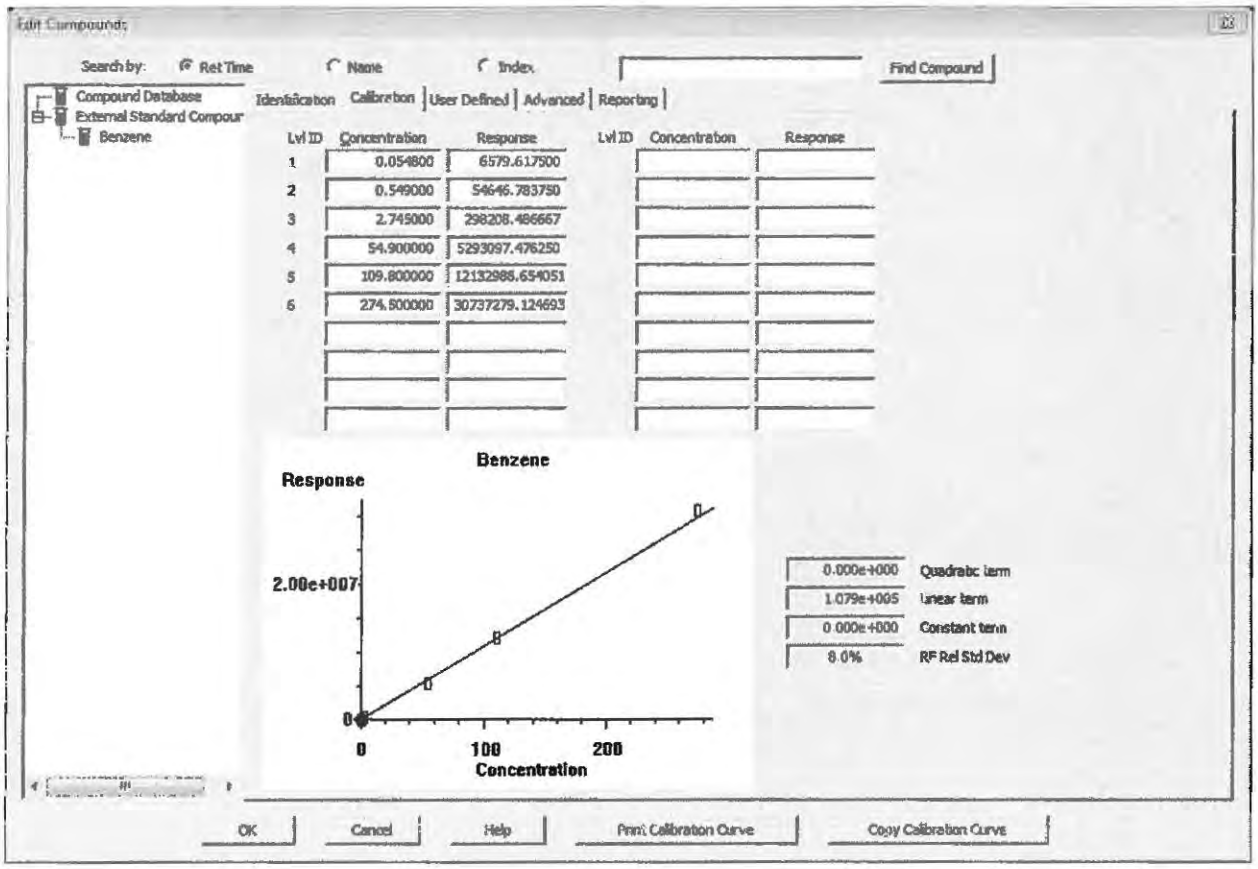
Method Path : I:\GC08\METHODS\
Method File : BE100316.M
Title : Benzene by GC/FID#8
Last Update : Mon Oct 03 13:23:14 2016
Response Via : Initial Calibration

Calibration Files
1 =10031602.D 2 =04011505.D 3 =10031604.D
4 =10031605.D 5 =10031606.D 6 =10031607.D

	Compound	1	2	3	4	5	6	Avg		%RSD
1) T	Benzene	1.201	0.995	1.086	0.964	1.105	1.120	1.079	E5	8.02

(#) = Out of Range

BE100316.M Mon Oct 03 16:53:25 2016


Edit Compounds
Search by:
Ret Time
Name
Index
Find Compound
Compound Database
External Standard Compour
Benzene
Identification
Calibration
User Defined
Advanced
Reporting
Lvl ID
Concentration
Response
1
0.054800
6579.617500
2
0.549000
54646.783750
3
2.745000
298208.486667
4
54.900000
5293097.476250
5
109.800000
12132988.654051
6
274.500000
30737279.124693
Benzene
Response
2.00e+007
0
0
100
200
Concentration
0.000e+000
Quadratic term
1.079e+005
Linear term
0.000e+000
Constant term
0.0%
RF Rel Std Dev
OK
Cancel
Help
Print Calibration Curve
Copy Calibration Curve

Calibration Status Report HP5890

Method Path : I:\GC08\METHODS\
Method File : BE100316.M
Title : Benzene by GC/FID#8
Last Update : Mon Oct 03 13:23:14 2016
Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	0	0	I:\GC08\DATA\TO_3M\2016_10\03B\10031602.D
2	2	1	0	I:\GC08\DATA\TO_3M\2016_10\03B\10031603.D
3	3	3	0	I:\GC08\DATA\TO_3M\2016_10\03B\10031604.D
4	4	55	0	I:\GC08\DATA\TO_3M\2016_10\03B\10031605.D
5	5	110	0	I:\GC08\DATA\TO_3M\2016_10\03B\10031606.D
6	6	275	0	I:\GC08\DATA\TO_3M\2016_10\03B\10031607.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Oct 03 10:21 2016	Oct 03 10:20 2016	03-Oct-2016, 10:09:08
2	2	Oct 03 12:00 2016	Oct 03 11:59 2016	03-Oct-2016, 11:50:23
3	3	Oct 03 12:27 2016	Oct 03 12:26 2016	03-Oct-2016, 12:15:59
4	4	Oct 03 12:40 2016	Oct 03 12:39 2016	03-Oct-2016, 12:29:07
5	5	Oct 03 12:54 2016	Oct 03 12:54 2016	03-Oct-2016, 12:41:31
6	6	Oct 03 13:23 2016	Oct 03 13:23 2016	03-Oct-2016, 13:11:34

BE100316.M Mon Oct 03 16:53:15 2016

Quantitation Report (QT Reviewed)

Data Path : I:\GC08\DATA\TO_3M\2016_10\03B\
Data File : 10031602.D
Signal(s) : FID2B.CH
Acq On : 03-Oct-2016, 10:09:08
Operator : amf
Sample : s30-10031603 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 03 13:24:42 2016
Quant Method : I:\GC08\METHODS\BE100316.M
Quant Title : Benzene by GC/FID#8
QLast Update : Mon Oct 03 13:23:14 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units
Target Compounds			
1) T Benzene	8.540	6580	0.061 ppm

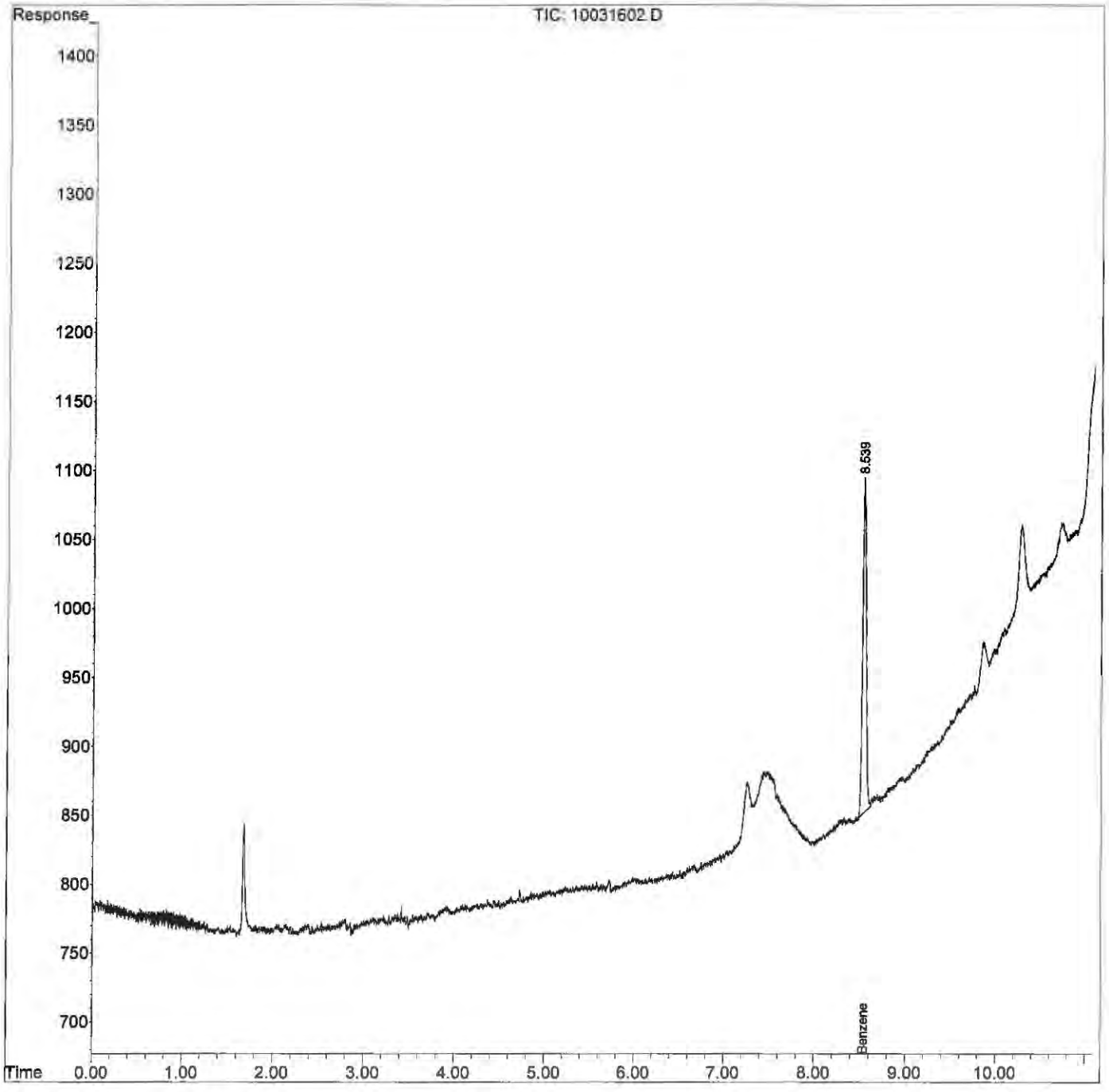
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\GC08\DATA\TO_3M\2016_10\03B\
Data File : 10031602.D
Signal(s) : FID2B.CH
Acq On : 03-Oct-2016, 10:09:08
Operator : amf
Sample : s30-10031603 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 03 13:24:42 2016
Quant Method : I:\GC08\METHODS\BE100316.M
Quant Title : Benzene by GC/FID#8
QLast Update : Mon Oct 03 13:23:14 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC08\DATA\TO_3M\2016_10\03B\
Data File : 10031603.D
Signal(s) : FID2B.CH
Acq On : 03-Oct-2016, 11:50:23
Operator : amf
Sample : s30-10031602 0.05ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 03 13:24:49 2016
Quant Method : I:\GC08\METHODS\BE100316.M
Quant Title : Benzene by GC/FID#8
QLast Update : Mon Oct 03 13:23:14 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

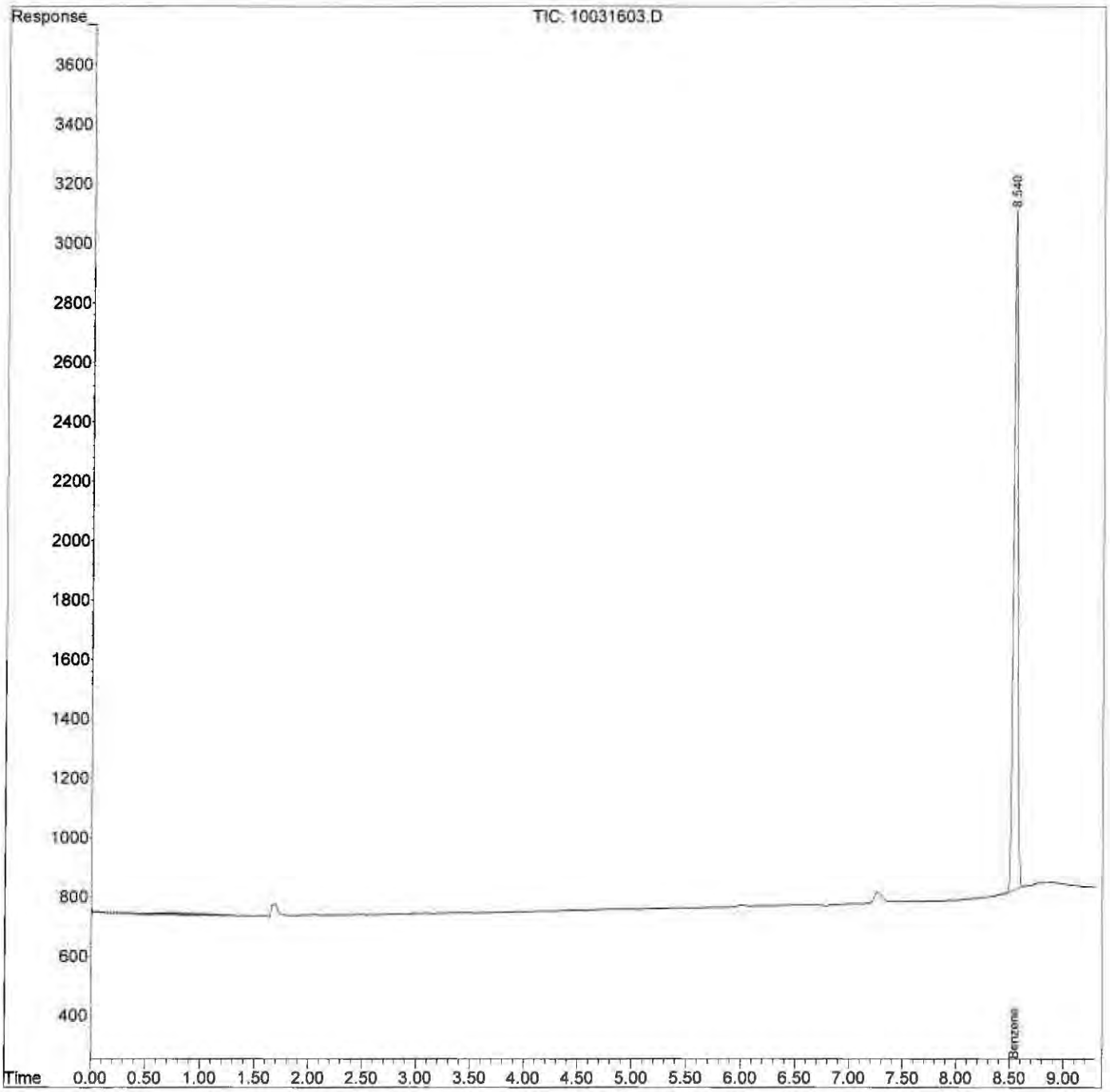
Compound	R.T.	Response	Conc Units
Target Compounds			
1) T Benzene	8.541	61946	0.574 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC08\DATA\TO_3M\2016_10\03B\
Data File : 10031603.D
Signal(s) : FID2B.CH
Acq On : 03-Oct-2016, 11:50:23
Operator : amf
Sample : s30-10031602 0.05ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 03 13:24:49 2016
Quant Method : I:\GC08\METHODS\BE100316.M
Quant Title : Benzene by GC/FID#8
QLast Update : Mon Oct 03 13:23:14 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC08\DATA\TO_3M\2016_10\03B\
Data File : 10031604.D
Signal(s) : FID2B.CH
Acq On : 03-Oct-2016, 12:15:59
Operator : amf
Sample : s30-10031602 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 03 13:24:56 2016
Quant Method : I:\GC08\METHODS\BE100316.M
Quant Title : Benzene by GC/FID#8
QLast Update : Mon Oct 03 13:23:14 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

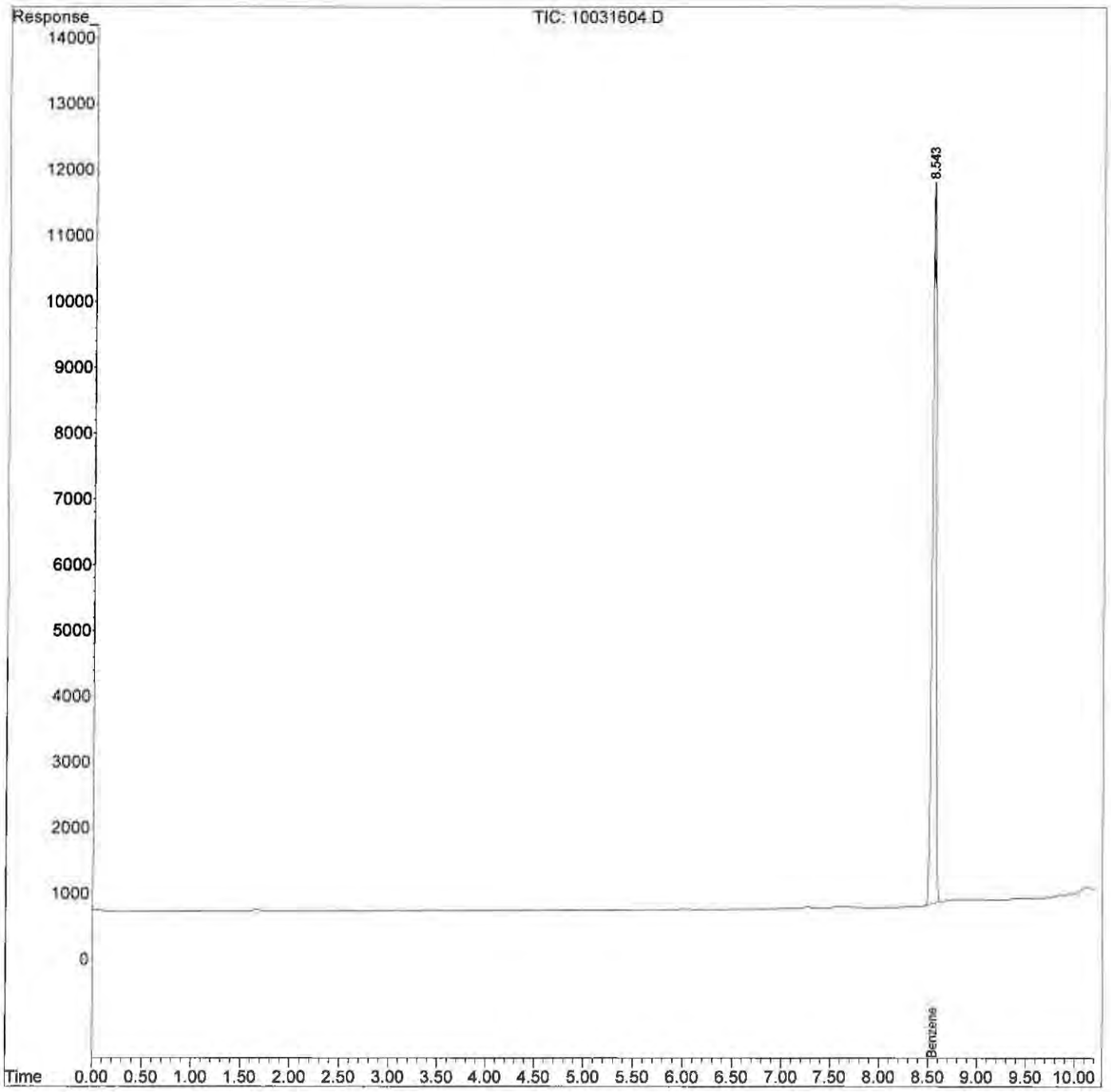
Compound	R.T.	Response	Conc Units
Target Compounds			
1) T Benzene	8.543	298208	2.765 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC08\DATA\TO_3M\2016_10\03B\
Data File : 10031604.D
Signal(s) : FID2B.CH
Acq On : 03-Oct-2016, 12:15:59
Operator : amf
Sample : s30-10031602 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 03 13:24:56 2016
Quant Method : I:\GC08\METHODS\BE100316.M
Quant Title : Benzene by GC/FID#8
QLast Update : Mon Oct 03 13:23:14 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC08\DATA\TO_3M\2016_10\03B\
Data File : 10031605.D
Signal(s) : FID2B.CH
Acq On : 03-Oct-2016, 12:29:07
Operator : amf
Sample : s30-10031601 0.05ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 03 13:25:04 2016
Quant Method : I:\GC08\METHODS\BE100316.M
Quant Title : Benzene by GC/FID#8
QLast Update : Mon Oct 03 13:23:14 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

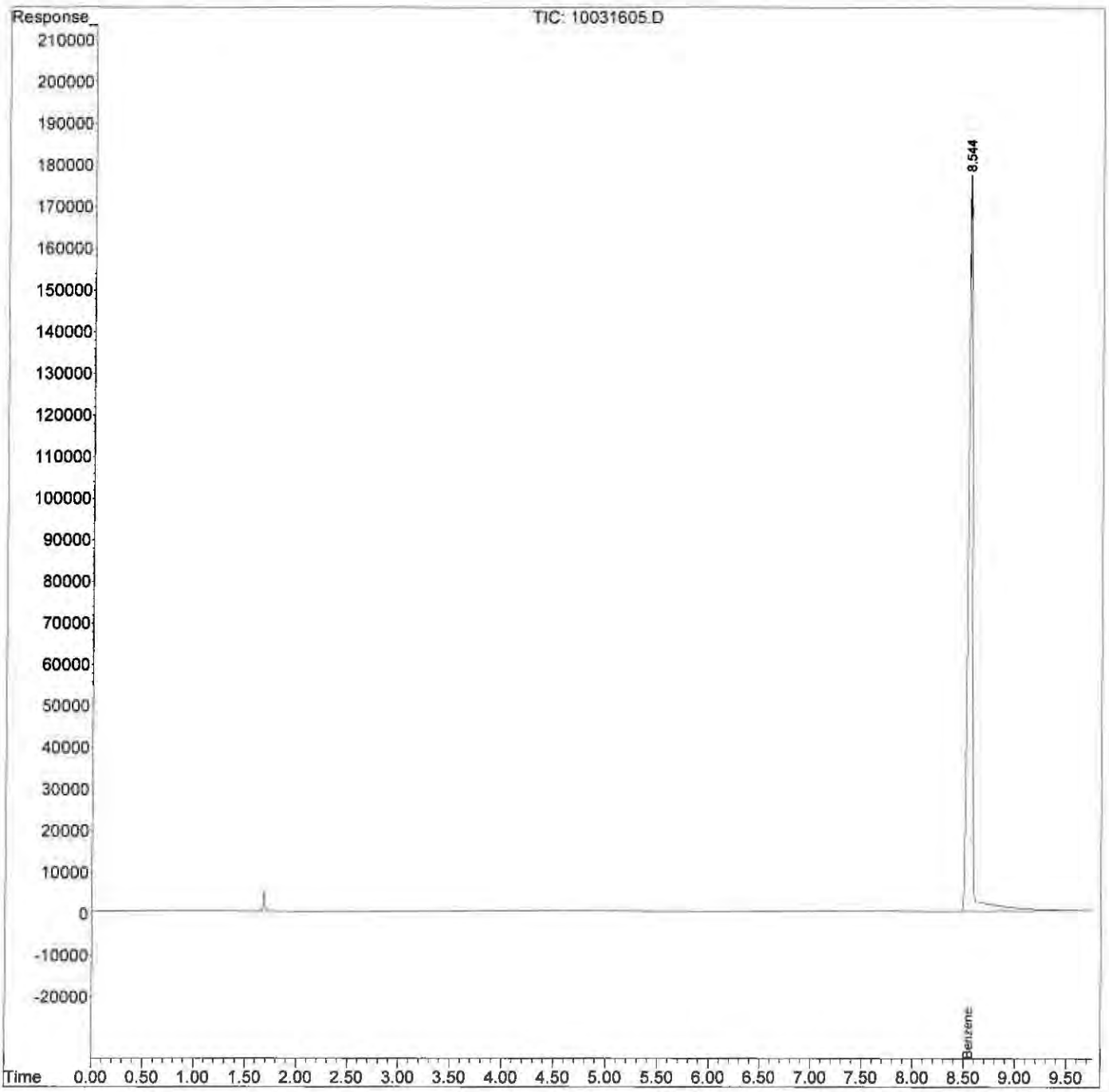
Compound	R.T.	Response	Conc Units
Target Compounds			
1) T Benzene	8.544	5293097	49.076 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC08\DATA\TO_3M\2016_10\03B\
Data File : 10031605.D
Signal(s) : FID2B.CH
Acq On : 03-Oct-2016, 12:29:07
Operator : amf
Sample : s30-10031601 0.05ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 03 13:25:04 2016
Quant Method : I:\GC08\METHODS\BE100316.M
Quant Title : Benzene by GC/FID#8
QLast Update : Mon Oct 03 13:23:14 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC08\DATA\TO_3M\2016_10\03B\
Data File : 10031606.D
Signal(s) : FID2B.CH
Acq On : 03-Oct-2016, 12:41:31
Operator : amf
Sample : s30-10031601 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 03 13:25:15 2016
Quant Method : I:\GC08\METHODS\BE100316.M
Quant Title : Benzene by GC/FID#8
QLast Update : Mon Oct 03 13:23:14 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

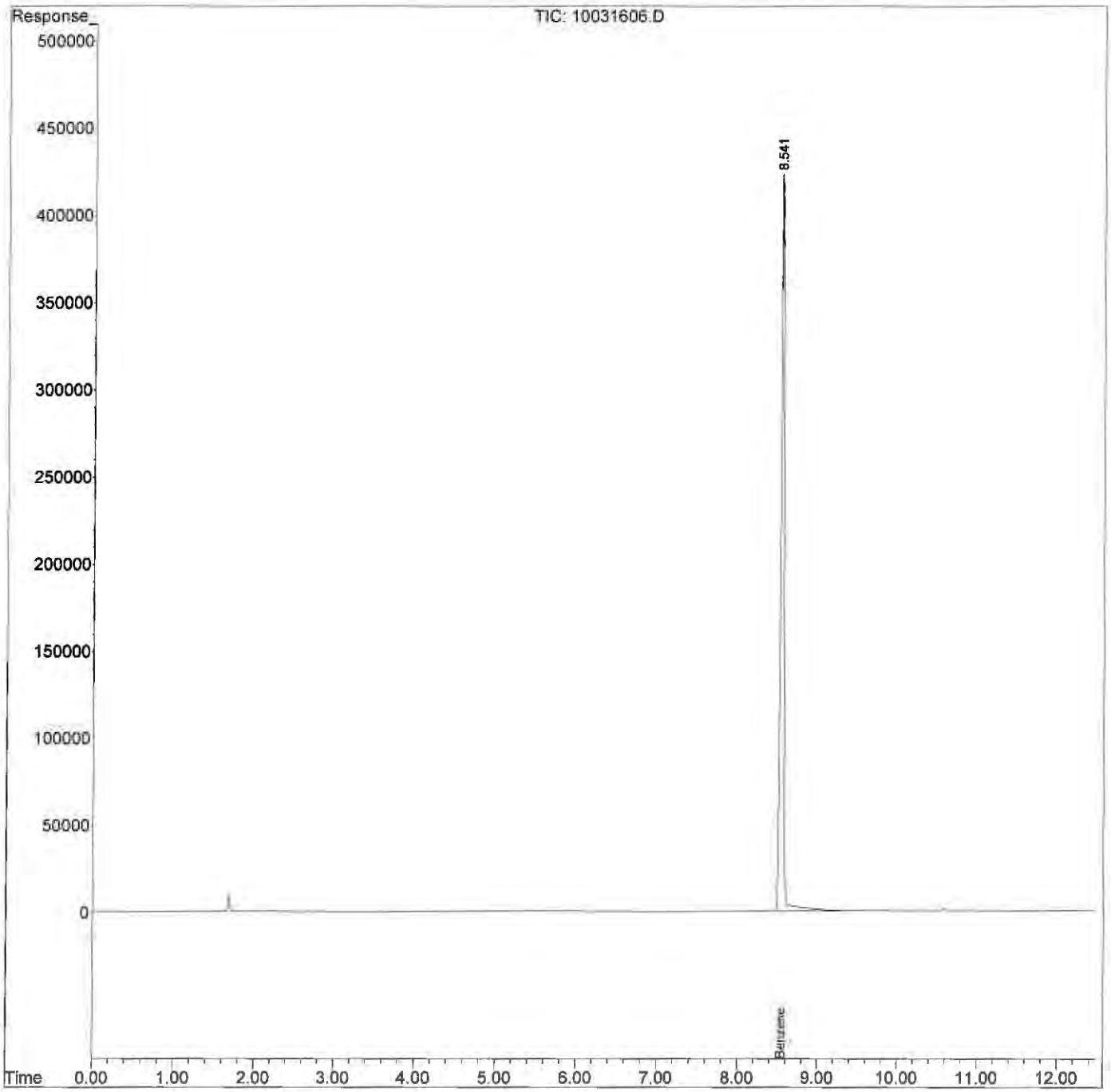
Compound	R.T.	Response	Conc Units
Target Compounds			
1) T Benzene	8.542	12132989	112.493 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC08\DATA\TO_3M\2016_10\03B\
Data File : 10031606.D
Signal(s) : FID2B.CH
Acq On : 03-Oct-2016, 12:41:31
Operator : amf
Sample : s30-10031601 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 03 13:25:15 2016
Quant Method : I:\GC08\METHODS\BE100316.M
Quant Title : Benzene by GC/FID#8
QLast Update : Mon Oct 03 13:23:14 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC08\DATA\TO_3M\2016_10\03B\
Data File : 10031607.D
Signal(s) : FID2B.CH
Acq On : 03-Oct-2016, 13:11:34
Operator : amf
Sample : s30-10031601 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 03 13:25:24 2016
Quant Method : I:\GC08\METHODS\BE100316.M
Quant Title : Benzene by GC/FID#8
QLast Update : Mon Oct 03 13:23:14 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units
Target Compounds			
1) T Benzene	8.543	30737279	284.986 ppm

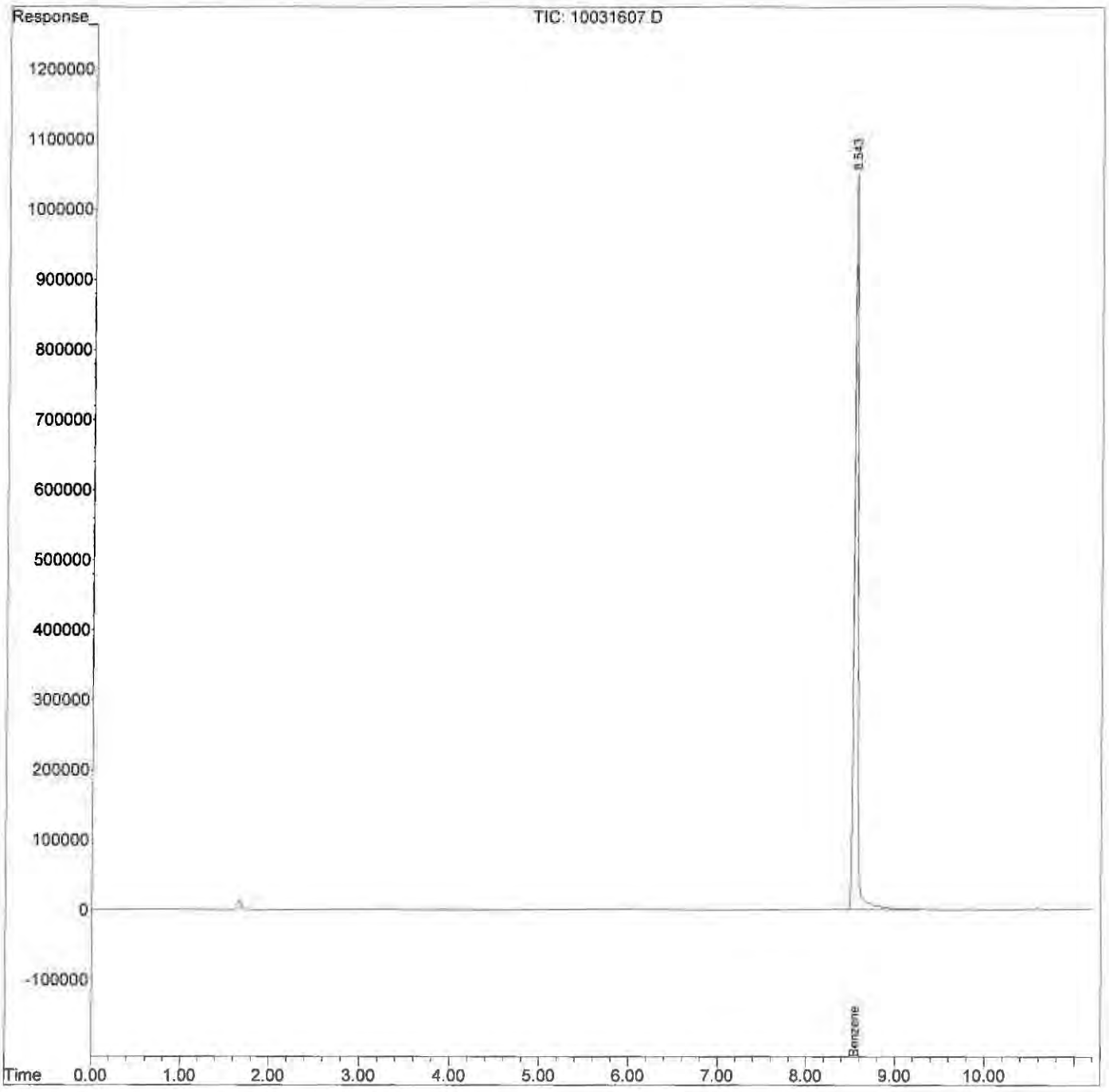
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\GC08\DATA\TO_3M\2016_10\03B\
Data File : 10031607.D
Signal(s) : FID2B.CH
Acq On : 03-Oct-2016, 13:11:34
Operator : amf
Sample : s30-10031601 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 03 13:25:24 2016
Quant Method : I:\GC08\METHODS\BE100316.M
Quant Title : Benzene by GC/FID#8
QLast Update : Mon Oct 03 13:23:14 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC08\DATA\TO_3M\2016_10\03B\
Data File : 10031608.D
Signal(s) : FID2B.CH
Acq On : 03-Oct-2016, 14:56:18
Operator : amf
Sample : ~~CCV~~ s30-10031604
Misc : ICV
ALS Vial : 1 Sample Multiplier: 1
AM 10/12/16

Integration File: autoint1.e
Quant Time: Oct 03 15:08:28 2016
Quant Method : I:\GC08\METHODS\BE100316.M
Quant Title : Benzene by GC/FID#8
QLast Update : Mon Oct 03 13:23:14 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units
Target Compounds			
1) T Benzene	8.534	108105893	1002.324 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

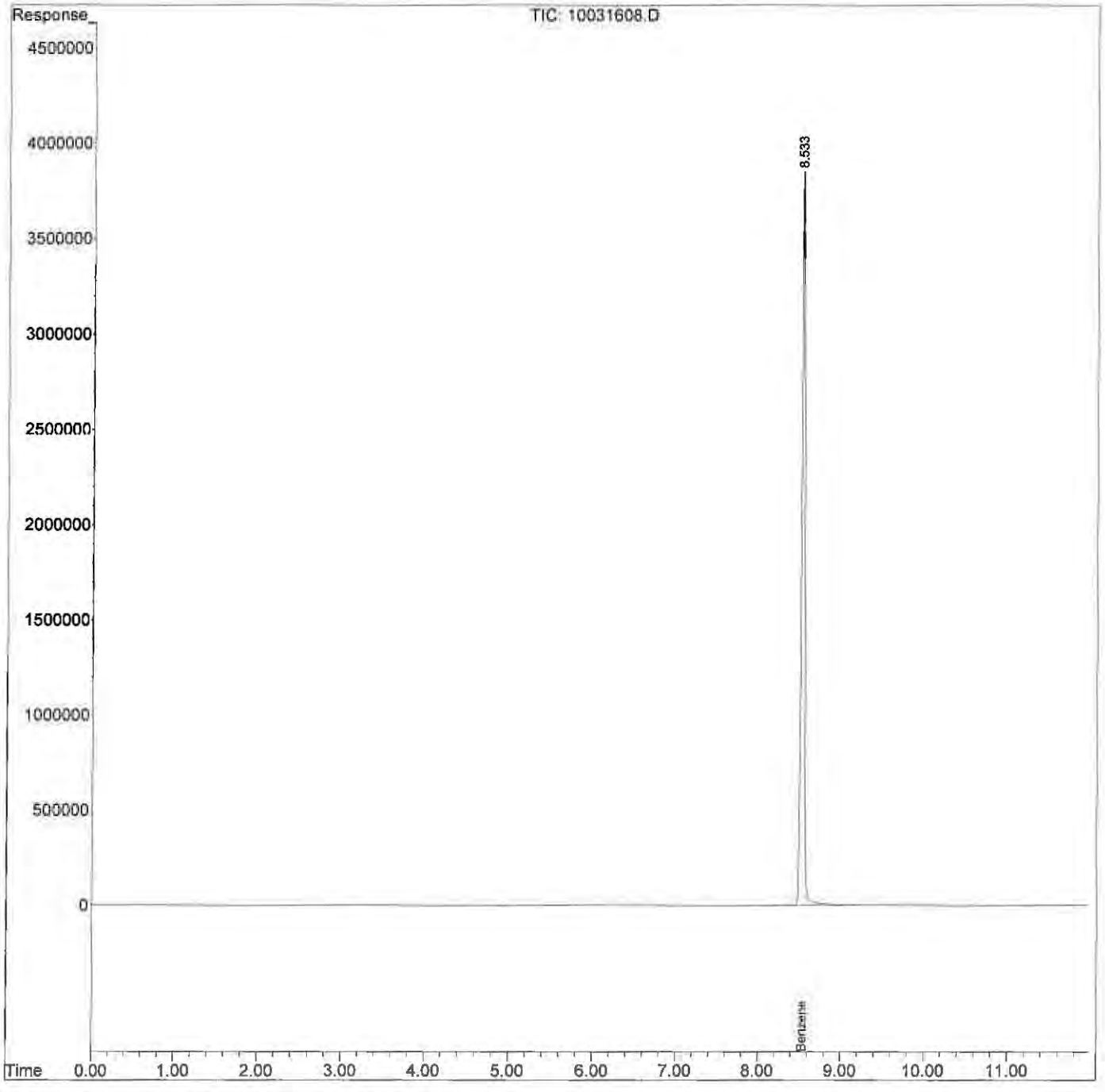
Quantitation Report (QT Reviewed)

Data Path : I:\GC08\DATA\TO_3M\2016_10\03B\
Data File : 10031608.D
Signal(s) : FID2B.CH
Acq On : 03-Oct-2016, 14:56:18
Operator : amf
Sample : ~~CCV~~ s30-10031604
Misc : ~~ICV~~
ALS Vial : 1 Sample Multiplier: 1

10/12/16

Integration File: autoint1.e
Quant Time: Oct 03 15:08:28 2016
Quant Method : I:\GC08\METHODS\BE100316.M
Quant Title : Benzene by GC/FID#8
QLast Update : Mon Oct 03 13:23:14 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



ALS Environmental

REPORT SUMMARY

Method : VOA-TO3C1C6
Client : Air Hygiene, Incorporated
Analyst : amf

ALS Service Request P1604860
Instrument : Instrument 8 / FID #8
Date Acquired : 10/19/2016

SAMPLE RESULT SUMMARIES (ppm)

Sample ID	Inject. Vol(ml)	Dilution DF	Benzene
std s30-10191601	1.0	1.0	1087.6
ACTUAL			1098.0
%Difference			0.9%
lcs s30-10191602	1.0	1.0	1086.00
ACTUAL			1098.0
%Recovery			98.9%
lcsd s30-10191602	1.0	1.0	1078.40
ACTUAL			1098.0
%Recovery			98.2%
%RPD			0.7%
mb 1ml	1.0	1.0	0.04
4860-001 0.05m	0.1	1.0	0.00
4860-002 0.05m	0.1	1.0	0.00
4860-003 0.05m	0.1	1.0	0.00
4860-004 0.05m	0.1	1.0	0.00
std s30-10191601	1.0	1.0	1048.3
ACTUAL			1098.0
%Difference			4.5%

FINAL SAMPLE RESULT SUMMARIES (ppm)

Sample ID	Pi	Pf	Benzene
MRL			0.06
mb 1ml	0.00	0.00	ND
4860-001 0.05m	-1.00	5.38	ND
4860-002 0.05m	-1.48	5.16	ND
4860-003 0.05m	-0.55	5.47	ND
4860-004 0.05m	-0.26	5.54	ND

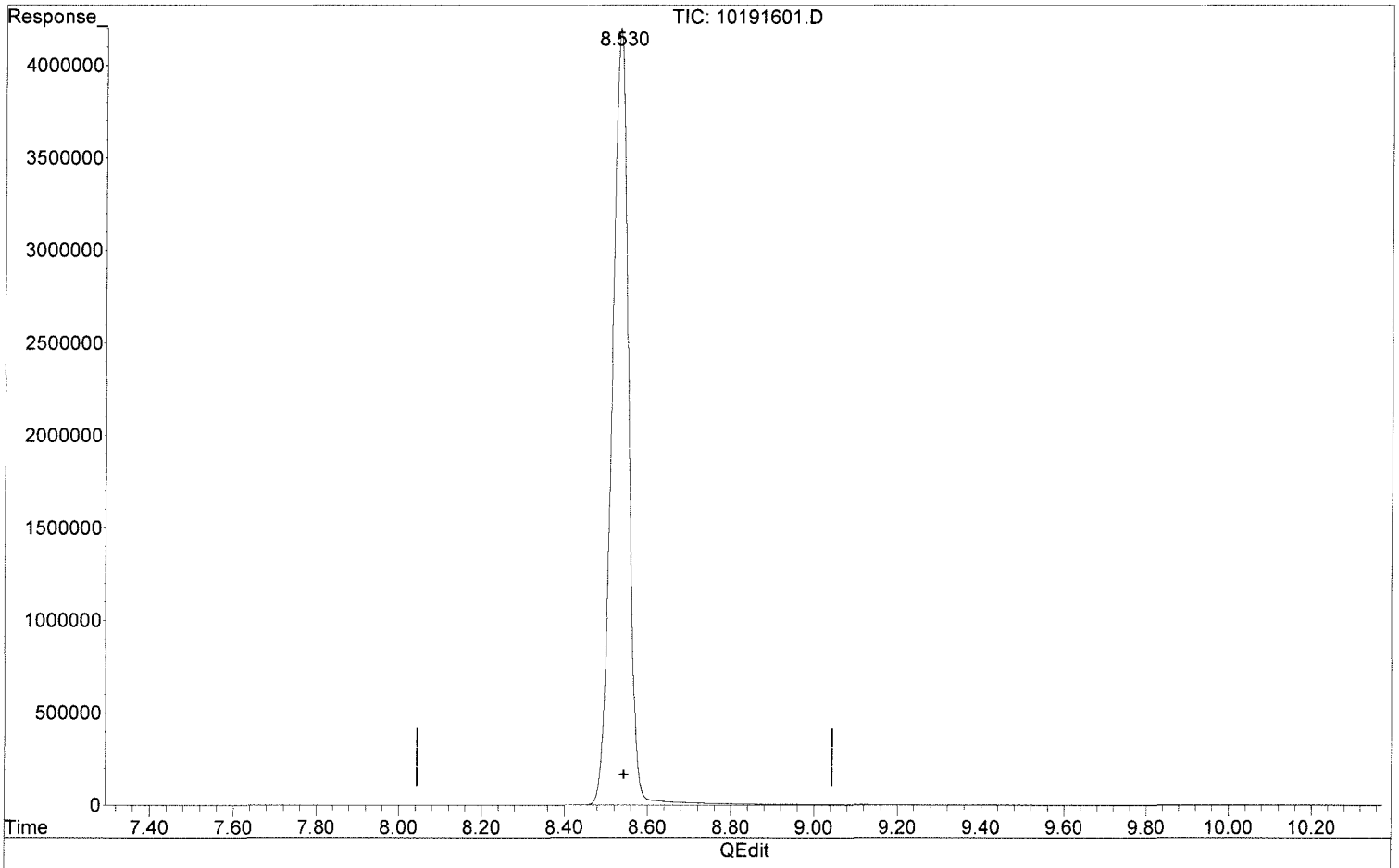
TGNMO-HC RESULT SUMMARIES (as ppm Methane)

Sample ID	PiPf DF	NMOHC as Methane	NMOHC as Hexane	Total HC	Fixed Gases %
MRL(ppm Methane)	1.0	1.00	0.17	%	
mb 1ml	1.00	0.000	0.000	0.00	100.00
4860-001 0.05m	1.47	0.00	0.00	0.00	100.00
4860-002 0.05m	1.50	0.00	0.00	0.00	100.00
4860-003 0.05m	1.43	0.00	0.00	0.00	100.00
4860-004 0.05m	1.40	0.00	0.00	0.00	100.00

Data Path : I:\GC08\DATA\TO_3M\2016_10\19B\
Data File : 10191601.D
Signal(s) : FID2B.CH
Acq On : 19-Oct-2016, 09:45:14
Operator : amf
Sample : s30-10191601
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 19 09:54:37 2016
Quant Method : I:\GC08\METHODS\BE100316.M
Quant Title : Benzene by GC/FID#8
QLast Update : Mon Oct 03 13:23:14 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(1) Benzene (T)

8.531min 1087.650 ppm

response 117308771

10/20/16

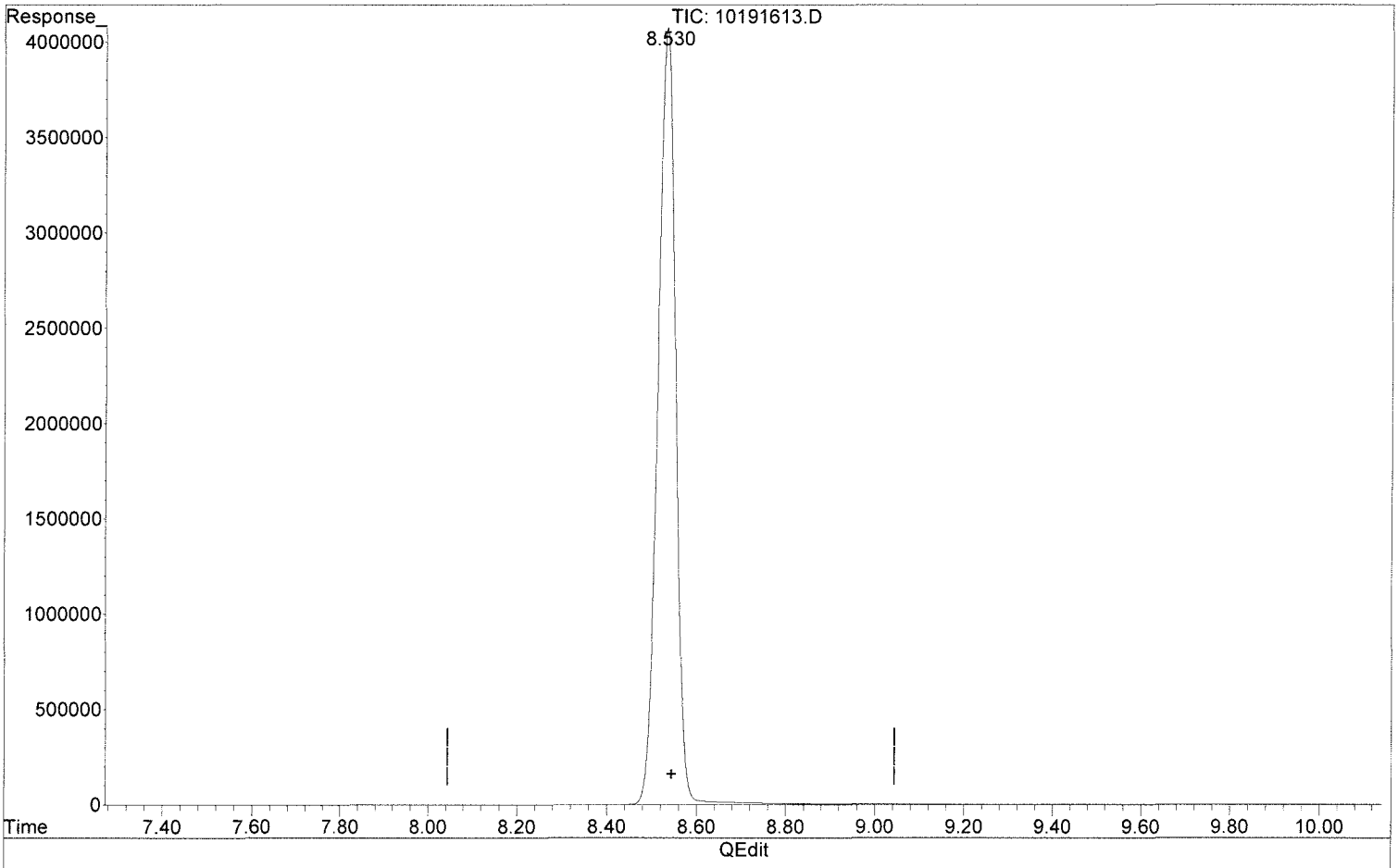
11/2/16

(+) = Expected Retention Time

Data Path : I:\GC08\DATA\TO_3M\2016_10\19B\
Data File : 10191613.D
Signal(s) : FID2B.CH
Acq On : 19-Oct-2016, 17:05:08
Operator : amf
Sample : std s30-10191601
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 19 17:10:48 2016
Quant Method : I:\GC08\METHODS\BE100316.M
Quant Title : Benzene by GC/FID#8
QLast Update : Mon Oct 03 13:23:14 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(1) Benzene (T)

8.531min 1048.370 ppm

response 113072163

(+) = Expected Retention Time

Injection Log

Directory: I:\GC08\DATA\TO_3M\2016_10\03B\

	Sample ID	Date/Time	Acquisition Method	File Name	Misc Info	Operator	Comments
	s30-10031603 0.5ml	03-Oct-16, 09:42:34	TO3.M	10031601.D		amf	
	s30-10031603 0.5ml	03-Oct-16, 10:09:08	TO3.M	10031602.D		amf	
	s30-10031602 0.05ml	03-Oct-16, 11:50:23	TO3.M	10031603.D		amf	
	s30-10031602 0.25ml	03-Oct-16, 12:15:59	TO3.M	10031604.D		amf	
	s30-10031601 0.05ml	03-Oct-16, 12:29:07	TO3.M	10031605.D		amf	
	s30-10031601 0.1ml	03-Oct-16, 12:41:31	TO3.M	10031606.D		amf	
	s30-10031601 0.25ml	03-Oct-16, 13:11:34	TO3.M	10031607.D		amf	
	~~CCV~~ s30-10031604	03-Oct-16, 14:56:18	TO3.M	10031608.D		amf	
	CCV 10/2/16						

Injection Log

Directory: I:\GC08\DATA\TO_3M\2016_10\19B\

	Sample ID	Date/Time	Acquisition Method	File Name	Misc Info	Operator	Comments
	s30-10191601	19-Oct-16, 09:45:14	TO3.M	10191601.D		amf	
	mb 1ml	19-Oct-16, 10:26:23	TO3.M	10191602.D		amf	
	lcs s30-10191602	19-Oct-16, 10:39:37	TO3.M	10191603.D		amf	
	lcsds30-10191602	19-Oct-16, 11:02:50	TO3.M	10191604.D		amf	
	4860-001 0.05ml	19-Oct-16, 12:58:14	TO3.M	10191605.D		amf	
	4860-002 0.05ml	19-Oct-16, 13:34:36	TO3.M	10191606.D		amf	
	4860-003 0.05ml	19-Oct-16, 13:57:27	TO3.M	10191607.D		amf	
	4860-004 0.05ml	19-Oct-16, 14:20:20	TO3.M	10191608.D		amf	
	4901-001 0.05ml	19-Oct-16, 14:43:22	TO3.M	10191609.D		amf	
	4901-002 0.05ml	19-Oct-16, 15:06:18	TO3.M	10191610.D		amf	
	4901-003 0.05ml	19-Oct-16, 16:06:54	TO3.M	10191611.D		amf	
	4901-004 0.05ml	19-Oct-16, 16:29:49	TO3.M	10191612.D		amf	
	std s30-10191601	19-Oct-16, 17:05:08	TO3.M	10191613.D		amf	

Quantitation Report (QT Reviewed)

Data Path : I:\GC08\DATA\TO_3M\2016_10\19\
Data File : 10191609.D
Signal(s) : FID2B.CH
Acq On : 19-Oct-2016, 12:58:14
Operator : amf
Sample : 4860-001 0.05ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 20 11:40:47 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 09:01:46 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

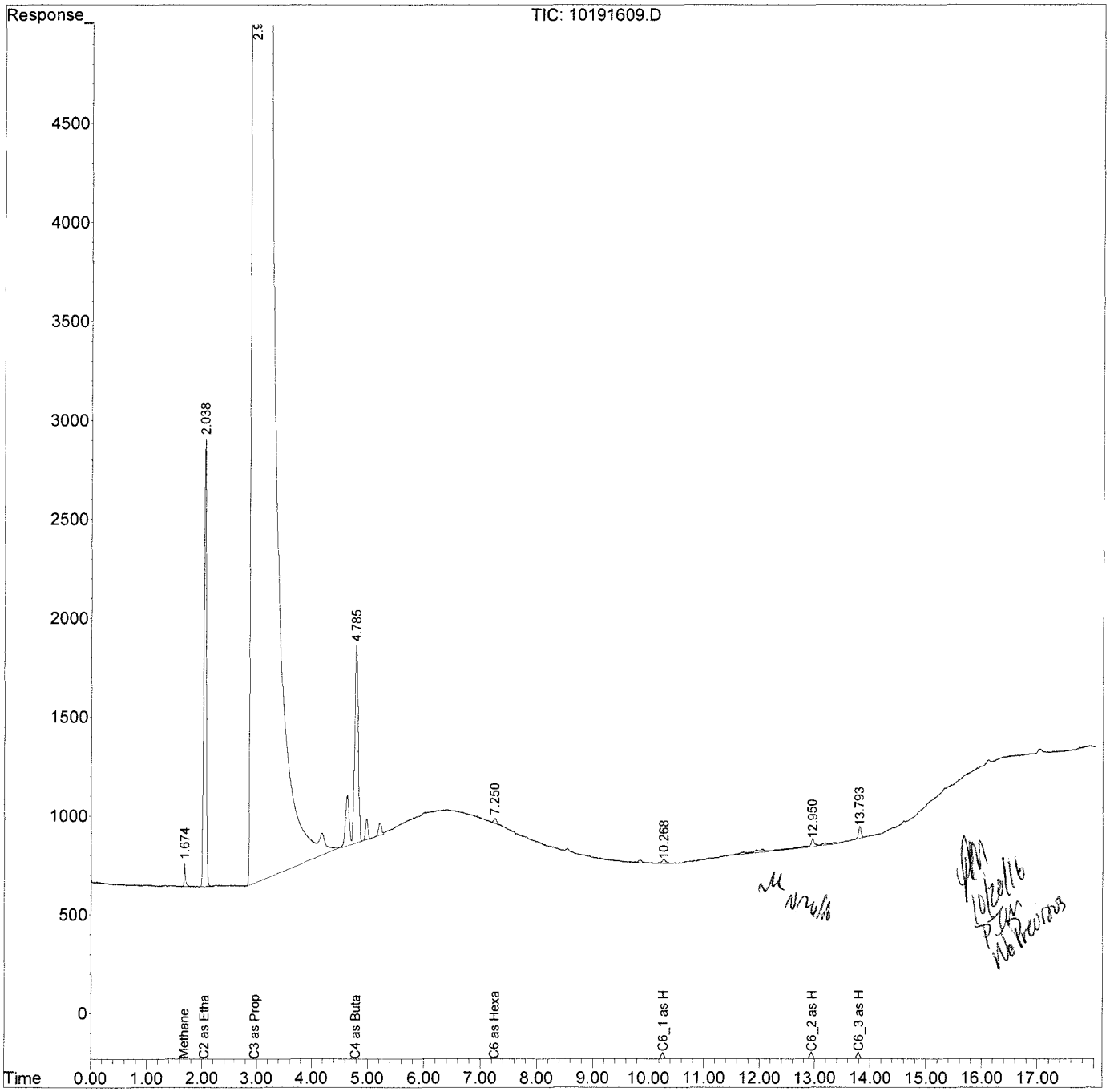
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Methane	1.676	1840	0.084	ppm	
2)	C2 as Ethane	2.038	65132	1.647	ppm	
3)	C3 as Propane	2.965f	2506594509	44236.382	ppm	m
4)	C4 as Butane	4.785	58241	0.775	ppm	m
5)	C5 as Pentane	0.000	0	N.D.	ppm	d
6)	C6 as Hexane	7.250f	1019	0.010	ppm	m
7)	>C6_1 as Hexane	10.268f	1875	0.018	ppm	m
8)	>C6_2 as Hexane	12.950f	7238	0.070	ppm	m
9)	>C6_3 as Hexane	13.793f	1977	0.019	ppm	m

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC08\DATA\TO_3M\2016_10\19\
Data File : 10191609.D
Signal(s) : FID2B.CH
Acq On : 19-Oct-2016, 12:58:14
Operator : amf
Sample : 4860-001 0.05ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 20 11:40:47 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 09:01:46 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC08\DATA\TO_3M\2016_10\19\
Data File : 10191610.D
Signal(s) : FID2B.CH
Acq On : 19-Oct-2016, 13:34:36
Operator : amf
Sample : 4860-002 0.05ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 20 11:47:52 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 09:01:46 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

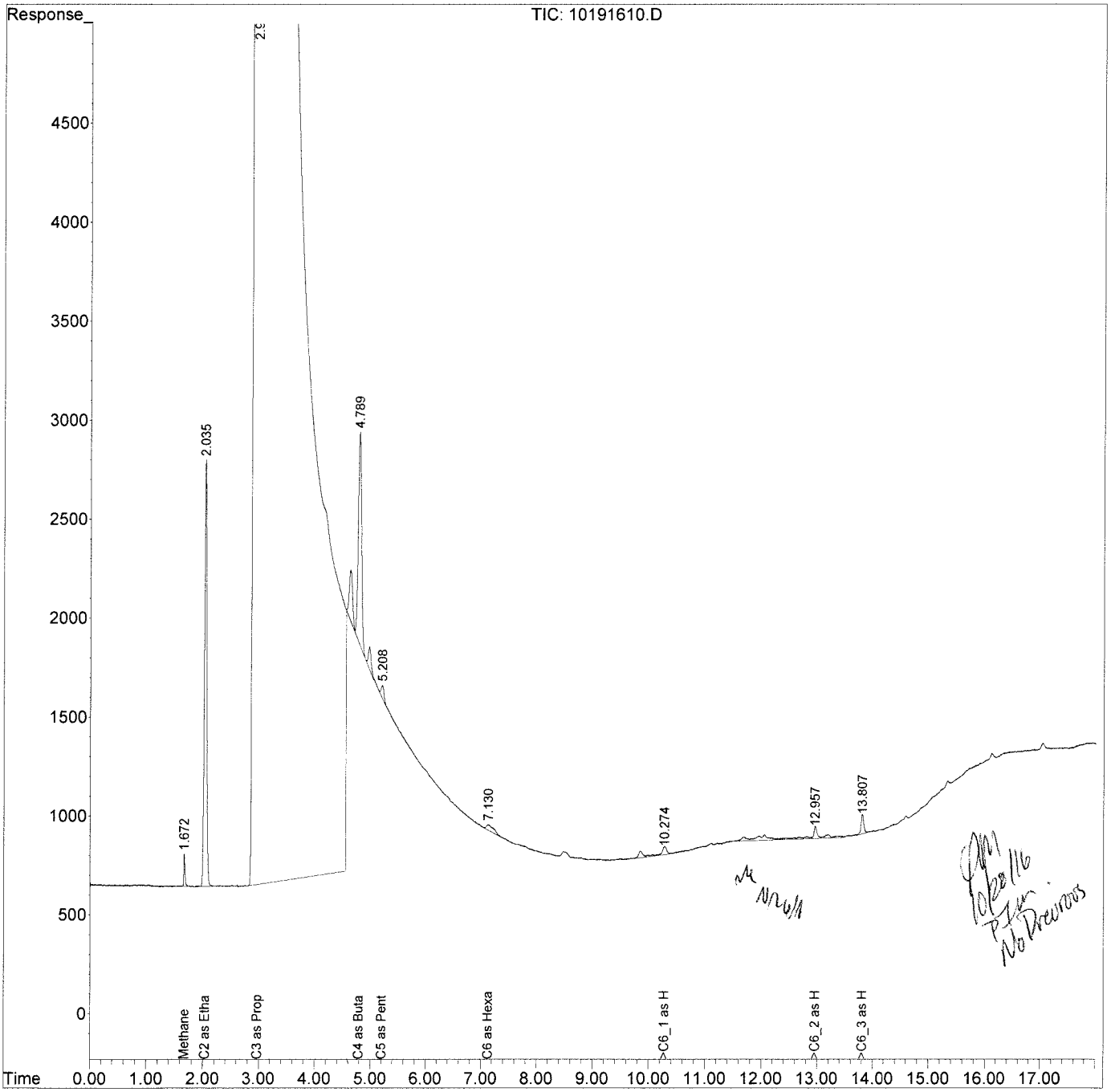
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Methane	1.673	2398	0.109	ppm	
2)	C2 as Ethane	2.036	63282	1.601	ppm	
3)	C3 as Propane	2.967	2668769518	47098.446	ppm	m
4)	C4 as Butane	4.789	59156	0.787	ppm	m
5)	C5 as Pentane	5.208f	2518	0.027	ppm	m
6)	C6 as Hexane	7.130f	2801	0.027	ppm	m
7)	>C6_1 as Hexane	10.274f	4648	0.045	ppm	m
8)	>C6_2 as Hexane	12.957f	11727	0.113	ppm	m
9)	>C6_3 as Hexane	13.807f	3429	0.033	ppm	m

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC08\DATA\TO_3M\2016_10\19\
Data File : 10191610.D
Signal(s) : FID2B.CH
Acq On : 19-Oct-2016, 13:34:36
Operator : amf
Sample : 4860-002 0.05ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 20 11:47:52 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 09:01:46 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC08\DATA\TO_3M\2016_10\19\
Data File : 10191611.D
Signal(s) : FID2B.CH
Acq On : 19-Oct-2016, 13:57:27
Operator : amf
Sample : 4860-003 0.05ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 20 11:51:06 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 09:01:46 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

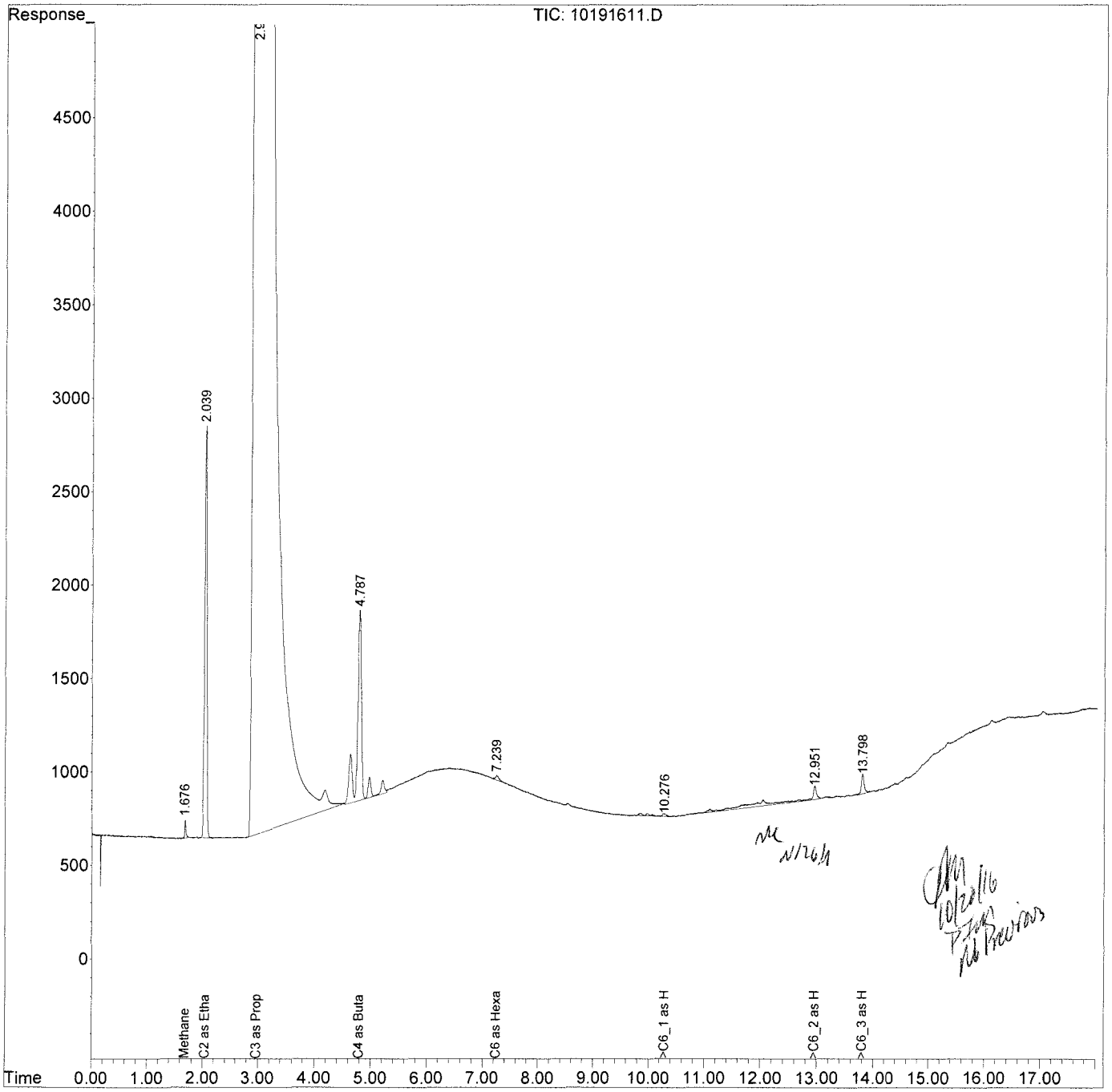
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Methane	1.678	1433	0.065	ppm	
2)	C2 as Ethane	2.040	63207	1.599	ppm	
3)	C3 as Propane	2.967	2629257788	46401.143	ppm	m
4)	C4 as Butane	4.787	60840	0.810	ppm	m
5)	C5 as Pentane	0.000	0	N.D.	ppm	d
6)	C6 as Hexane	7.239f	1184	0.011	ppm	m
7)	>C6_1 as Hexane	10.276f	2061	0.020	ppm	m
8)	>C6_2 as Hexane	12.951f	13726	0.132	ppm	m
9)	>C6_3 as Hexane	13.798f	3993	0.038	ppm	m

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC08\DATA\TO_3M\2016_10\19\
Data File : 10191611.D
Signal(s) : FID2B.CH
Acq On : 19-Oct-2016, 13:57:27
Operator : amf
Sample : 4860-003 0.05ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 20 11:51:06 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 09:01:46 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC08\DATA\TO_3M\2016_10\19\
Data File : 10191612.D
Signal(s) : FID2B.CH
Acq On : 19-Oct-2016, 14:20:20
Operator : amf
Sample : 4860-004 0.05ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 20 11:53:23 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 09:01:46 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

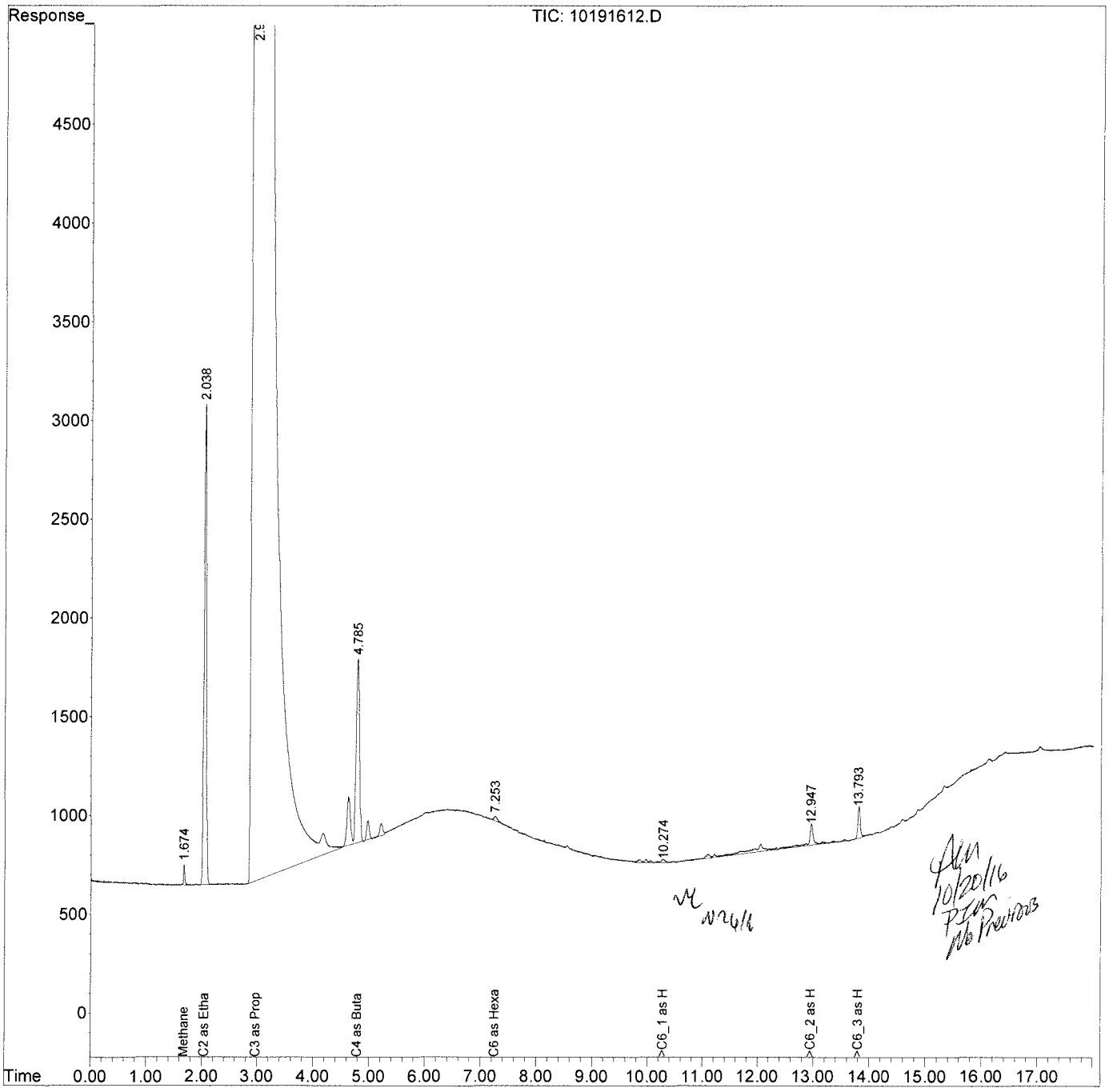
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Methane	1.675	1528	0.070	ppm	
2)	C2 as Ethane	2.039	69560	1.759	ppm	
3)	C3 as Propane	2.969	2976262965	52525.091	ppm	m
4)	C4 as Butane	4.785	54578	0.726	ppm	m
5)	C5 as Pentane	0.000	0	N.D.	ppm	d
6)	C6 as Hexane	7.253f	949	0.009	ppm	m
7)	>C6_1 as Hexane	10.274f	2370	0.023	ppm	m
8)	>C6_2 as Hexane	12.947f	15149	0.146	ppm	m
9)	>C6_3 as Hexane	13.793f	5339	0.051	ppm	m

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC08\DATA\TO_3M\2016_10\19\
Data File : 10191612.D
Signal(s) : FID2B.CH
Acq On : 19-Oct-2016, 14:20:20
Operator : amf
Sample : 4860-004 0.05ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 20 11:53:23 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 09:01:46 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC08\DATA\TO_3M\2016_10\19\
Data File : 10191602.D
Signal(s) : FID2B.CH
Acq On : 19-Oct-2016, 08:56:55
Operator : amf
Sample : mb 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 19 09:14:06 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 09:01:46 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

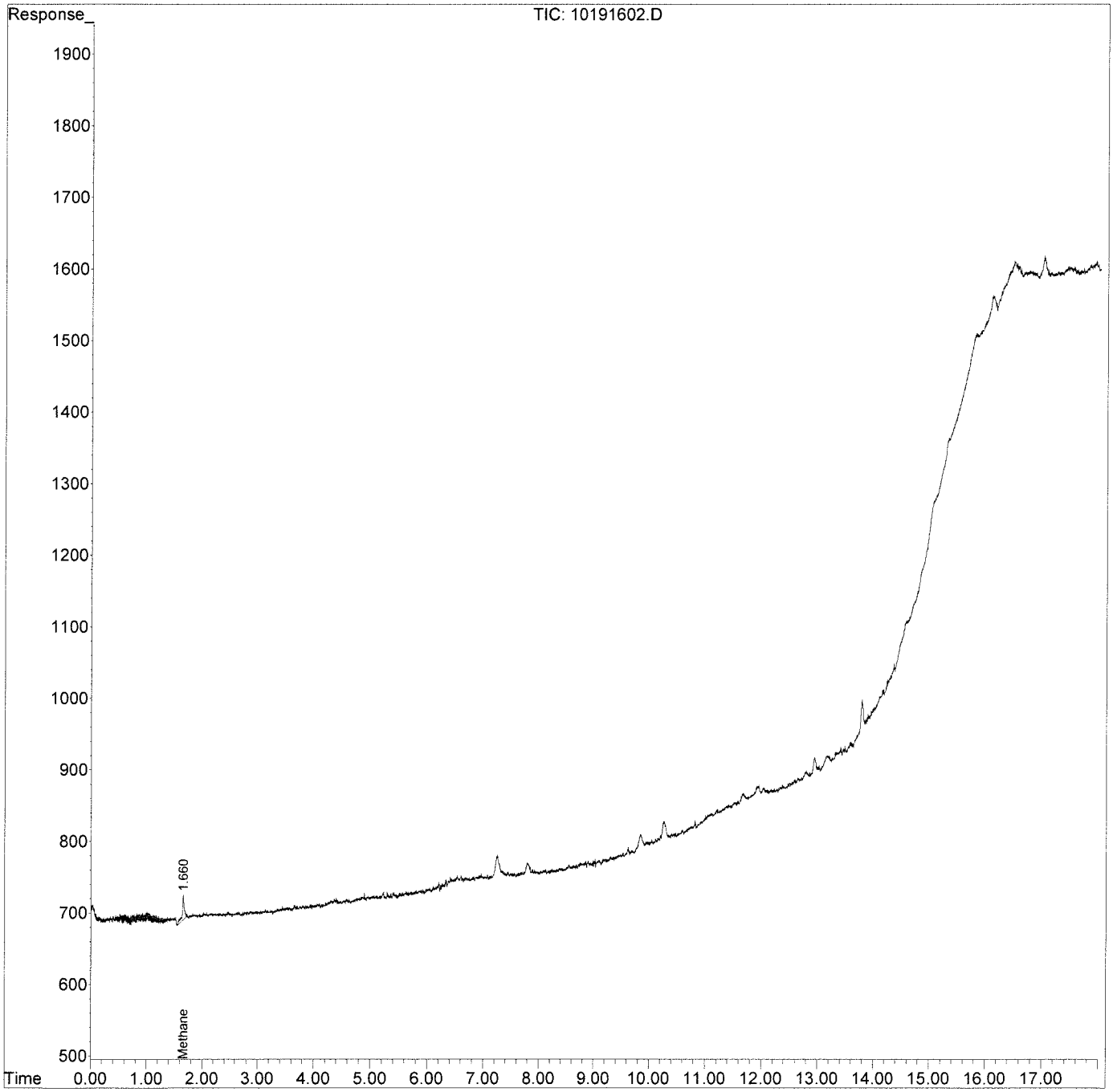
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Methane	1.662	816	0.037	ppm	
2)	C2 as Ethane	0.000	0	N.D.	ppm	
3)	C3 as Propane	0.000	0	N.D.	ppm	
4)	C4 as Butane	0.000	0	N.D.	ppm	
5)	C5 as Pentane	0.000	0	N.D.	ppm	
6)	C6 as Hexane	0.000	0	N.D.	ppm	
7)	>C6_1 as Hexane	0.000	0	N.D.	ppm	
8)	>C6_2 as Hexane	0.000	0	N.D.	ppm	d
9)	>C6_3 as Hexane	0.000	0	N.D.	ppm	d

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC08\DATA\TO_3M\2016_10\19\
Data File : 10191602.D
Signal(s) : FID2B.CH
Acq On : 19-Oct-2016, 08:56:55
Operator : amf
Sample : mb 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 19 09:14:06 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 09:01:46 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC08\DATA\TO_3M\2016_10\19\
Data File : 10191603.D
Signal(s) : FID2B.CH
Acq On : 19-Oct-2016, 09:20:05
Operator : amf
Sample : lcs s30-08011601
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 19 09:24:42 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 09:01:46 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Methane	1.651	10922488	497.993	ppm
2)	C2 as Ethane	2.017	20204489	511.018	ppm
3)	C3 as Propane	3.066	31063695	548.212	ppm
4)	C4 as Butane	4.777	40252564	535.705	ppm
5)	C5 as Pentane	6.381	48629177	511.957	ppm
6)	C6 as Hexane	7.788	57492484	552.604	ppm
7)	>C6_1 as Hexane	0.000	0	N.D.	ppm
8)	>C6_2 as Hexane	0.000	0	N.D.	ppm
9)	>C6_3 as Hexane	0.000	0	N.D.	ppm

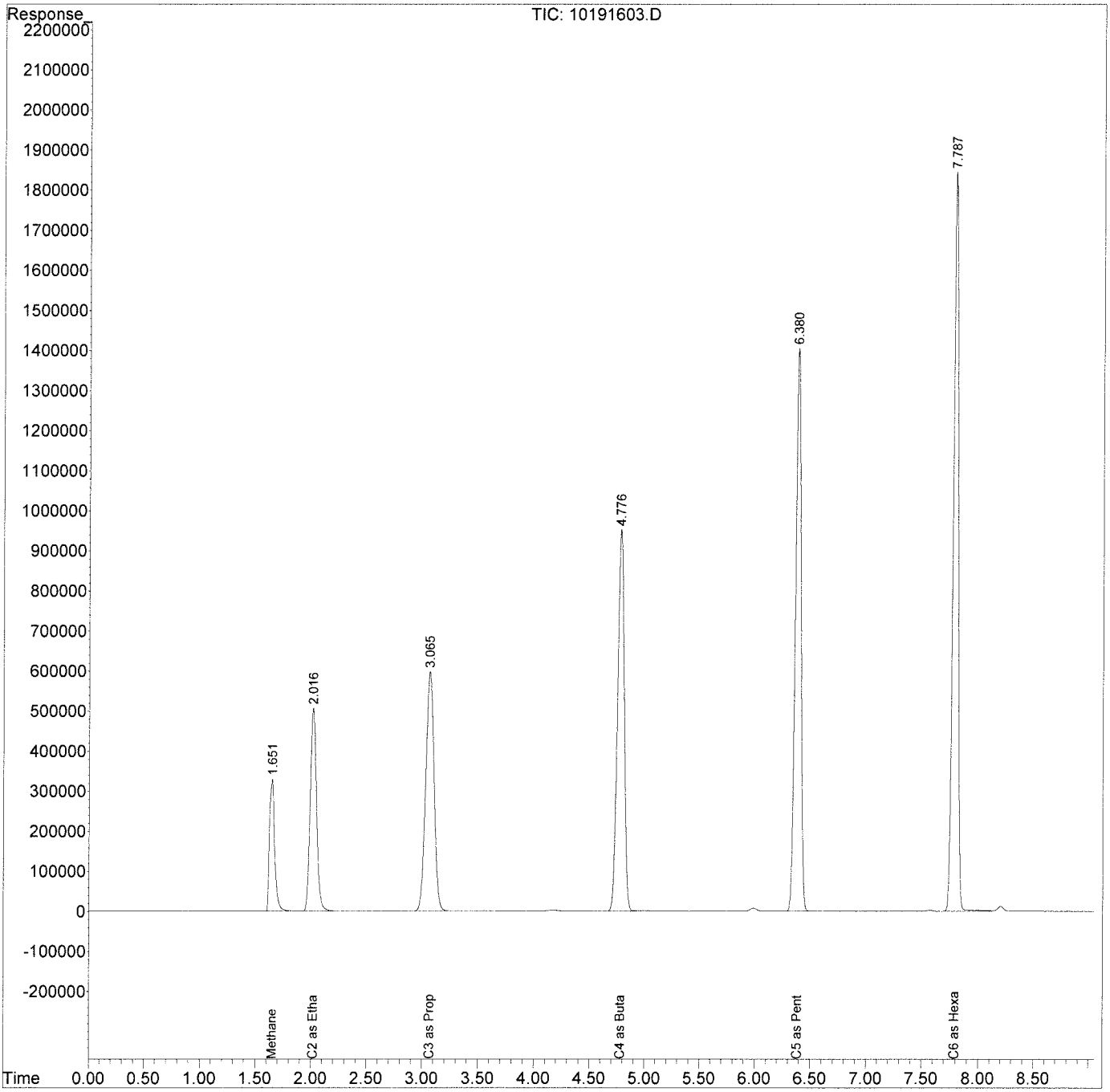
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\GC08\DATA\TO_3M\2016_10\19\
Data File : 10191603.D
Signal(s) : FID2B.CH
Acq On : 19-Oct-2016, 09:20:05
Operator : amf
Sample : lcs s30-08011601
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 19 09:24:42 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 09:01:46 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Response Factor Report HP5890

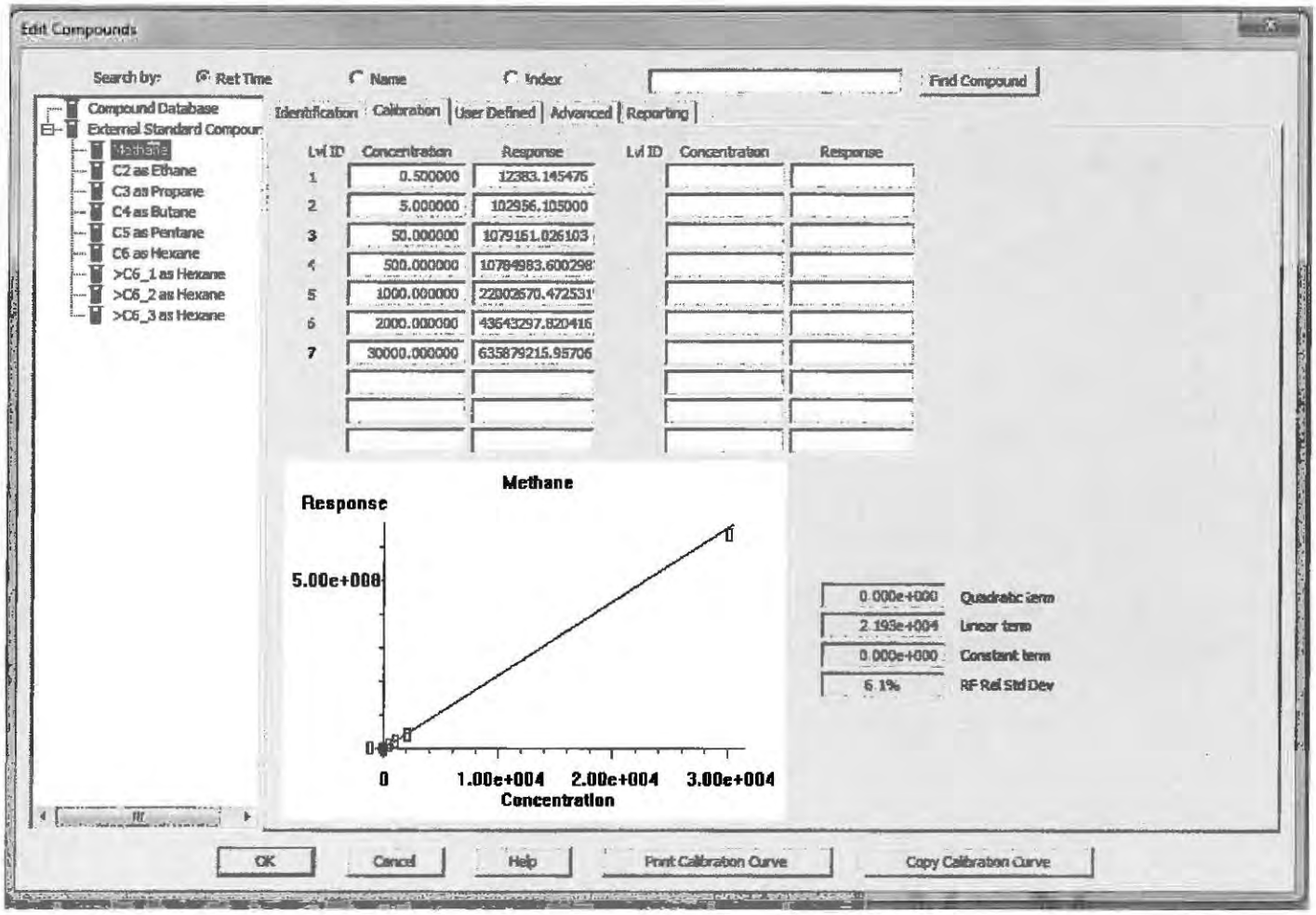
Method Path : I:\GC08\METHODS\
Method File : TF042116.M
Title : VOA-TO3C1C6
Last Update : Fri Apr 22 09:01:46 2016
Response Via : Initial Calibration

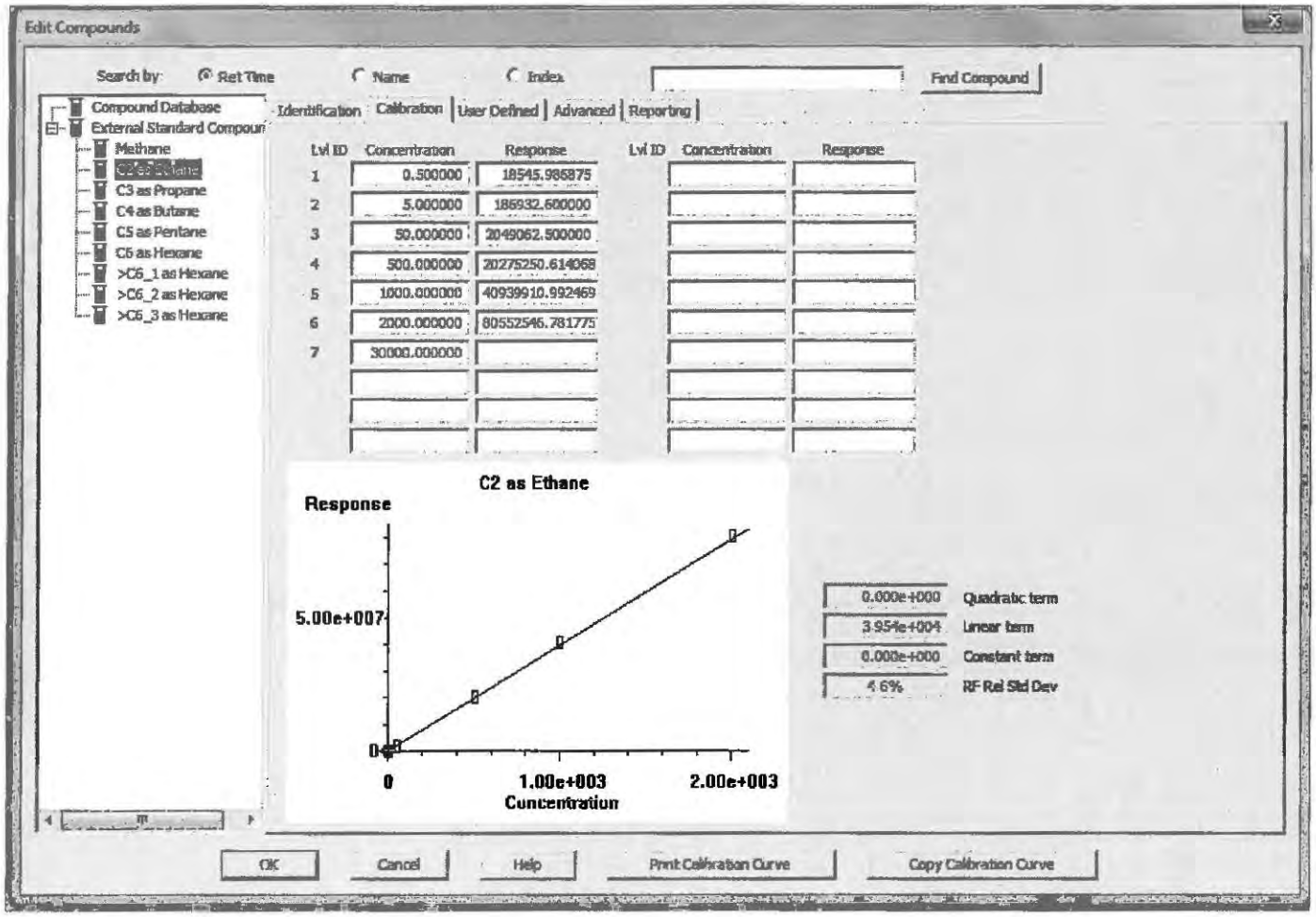
Calibration Files
1 =04211630.D 2 =04211631.D 3 =04211633.D
4 =04211634.D 5 =04211635.D 6 =04211636.D

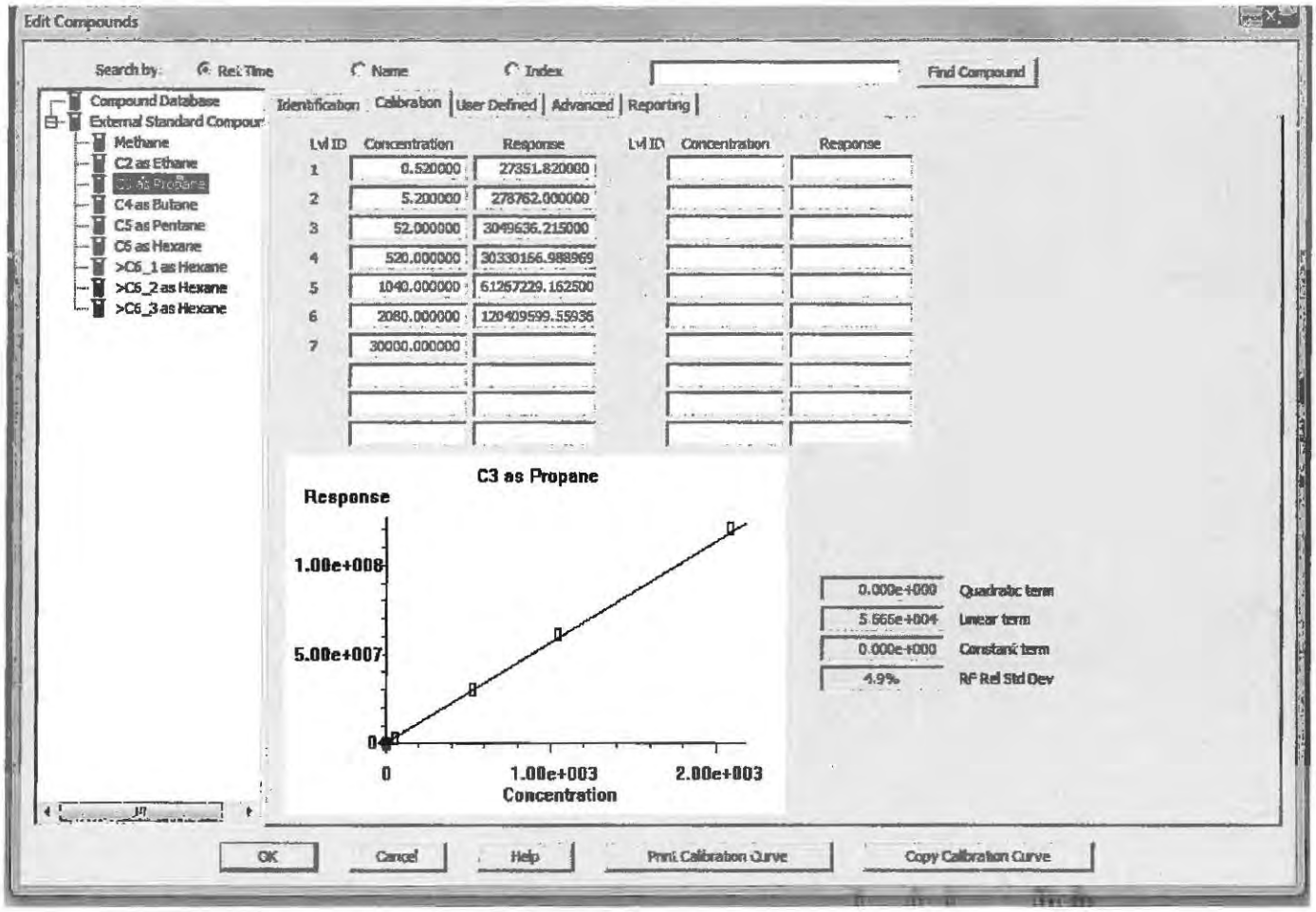
		Compound	1	2	3	4	5	6	Avg		%RSD
1)	T	Methane	2.477	2.059	2.158	2.157	2.200	2.182	2.193	E4	6.07
2)	T	C2 as Ethane	3.709	3.739	4.098	4.055	4.094	4.028	3.954	E4	4.56
3)	T	C3 as Propane	5.260	5.361	5.865	5.833	5.891	5.789	5.666	E4	4.94
4)	T	C4 as Butane	6.902	7.139	7.688	7.767	7.857	7.731	7.514	E4	5.23
5)	T	C5 as Pentane	0.857	0.911	0.941	0.989	1.005	0.996	0.950	E5	6.14
6)	T	C6 as Hexane	0.871	1.020	0.962	1.108	1.134	1.146	1.040	E5	10.53
7)	T	>C6_1 as Hexane	0.871	1.020	0.962	1.108	1.134	1.146	1.040	E5	10.53
8)	T	>C6_2 as Hexane	0.871	1.020	0.962	1.108	1.134	1.146	1.040	E5	10.53
9)	T	>C6_3 as Hexane	0.871	1.020	0.962	1.108	1.134	1.146	1.040	E5	10.53

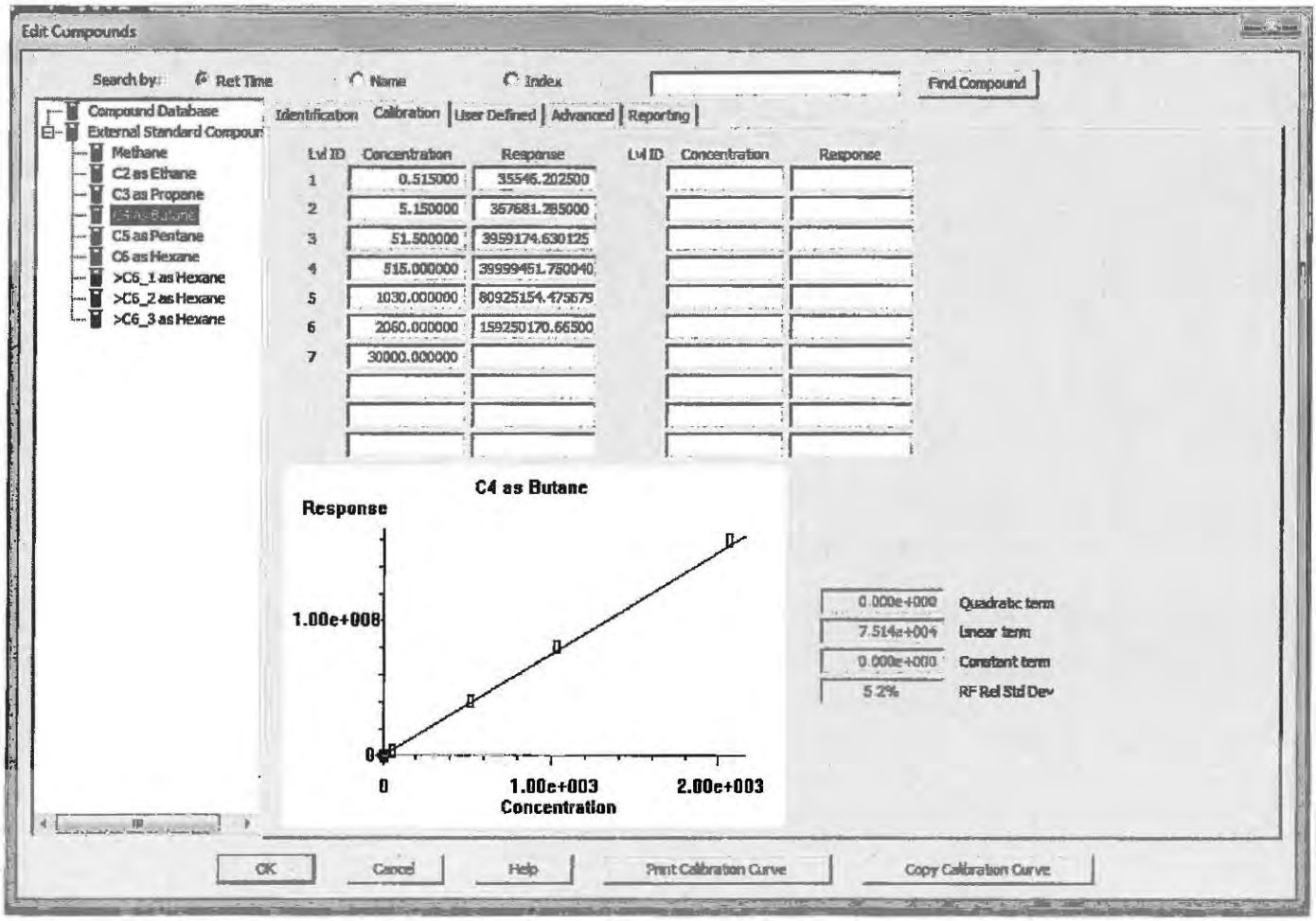
(#) = Out of Range ### Number of calibration levels exceeded format ###

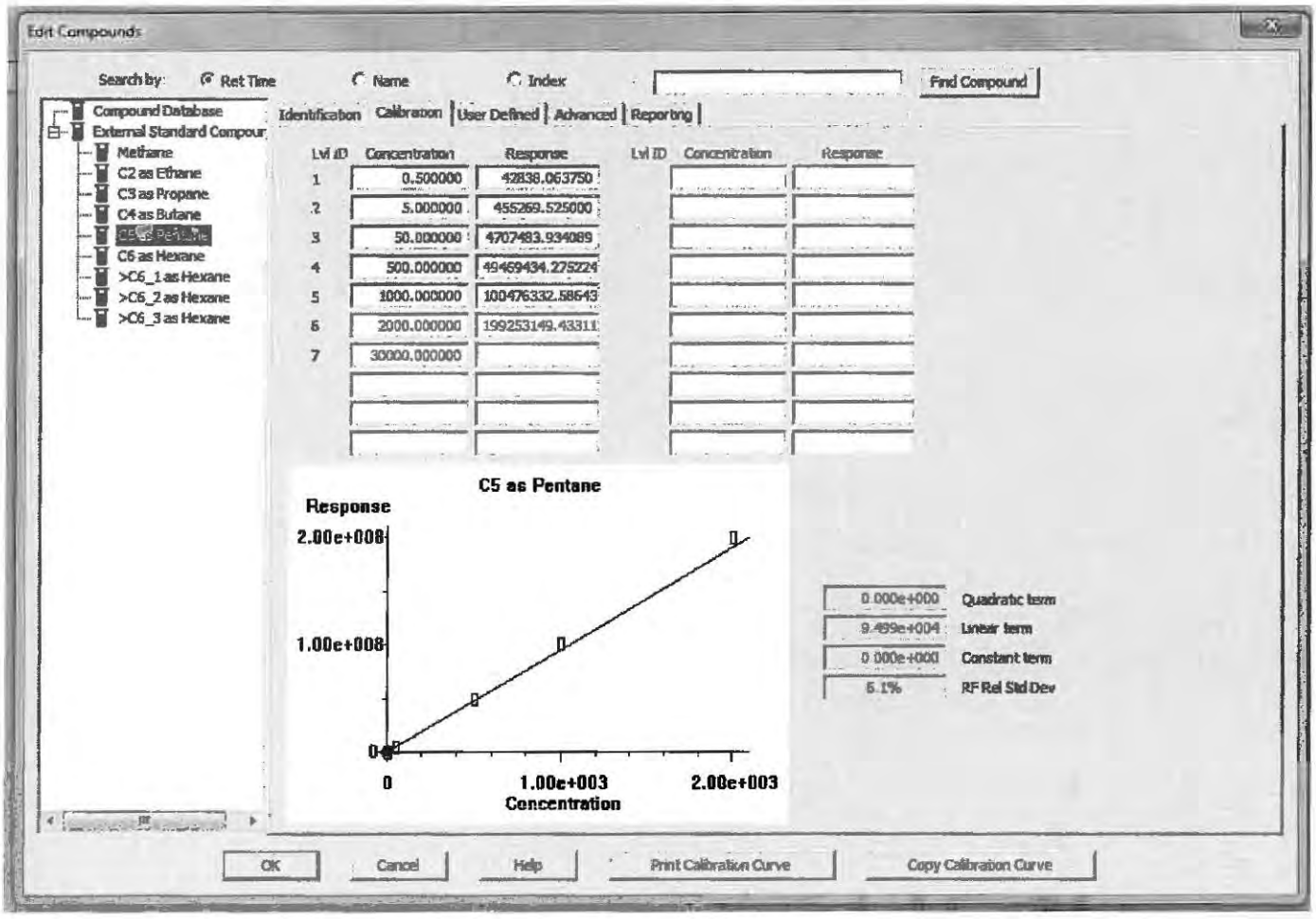
TF042116.M Fri Apr 22 09:01:57 2016

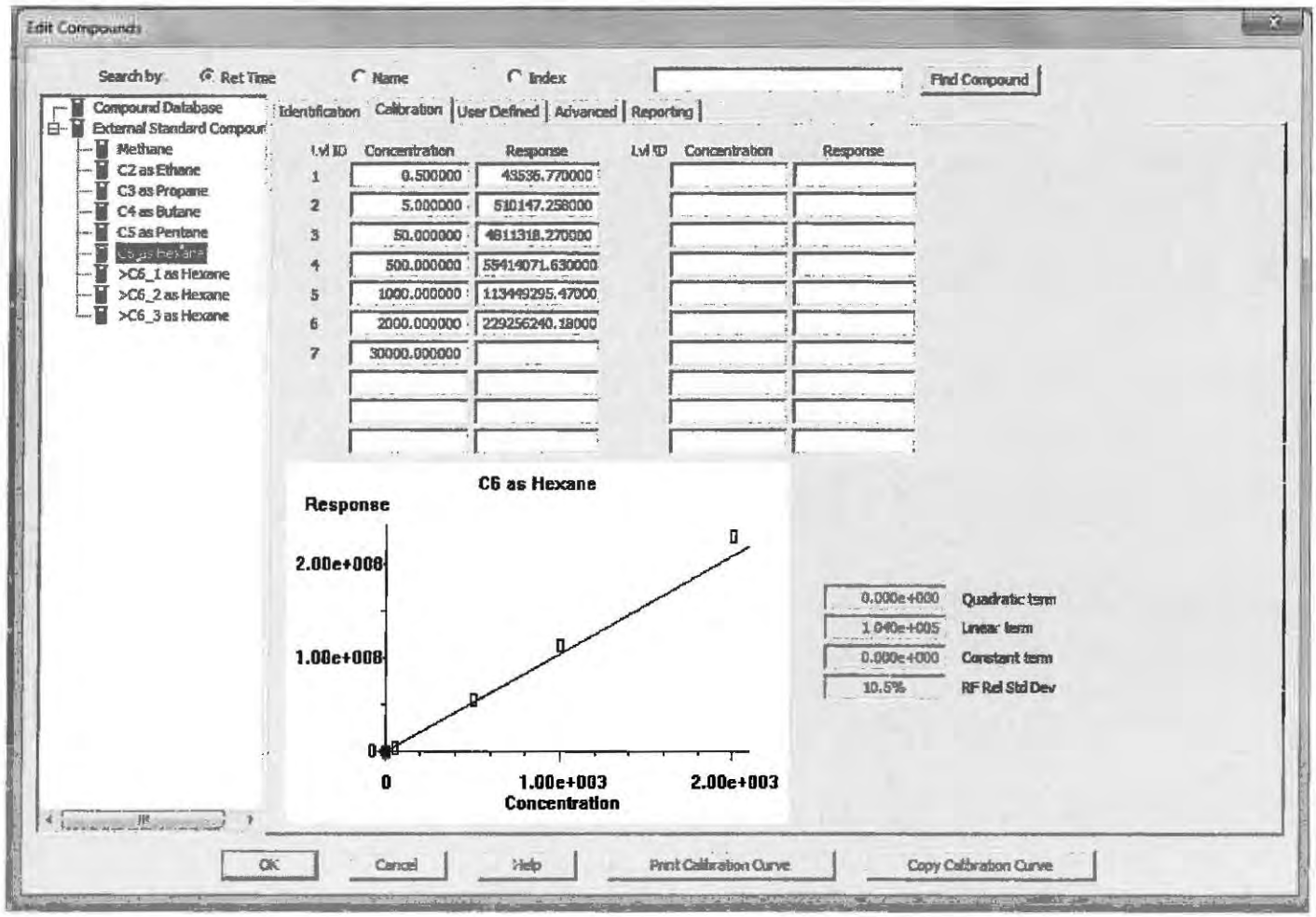

Edit Compounds
Search by:
Ret Time
Name
Index
Find Compound
Compound Database
External Standard Compour
Methane
C2 as Ethane
C3 as Propane
C4 as Butane
C5 as Pentane
C6 as Hexane
>C6_1 as Hexane
>C6_2 as Hexane
>C6_3 as Hexane
Identification
Calibration
User Defined
Advanced
Reporting
Lvl ID
Concentration
Response
1 0.500000 12383.145475
2 5.000000 102956.105000
3 50.000000 1079161.026103
4 500.000000 10784983.600298
5 1000.000000 22302670.472531
6 2000.000000 43643297.820416
7 30000.000000 635879215.95706
Methane
Response
5.00e+008
0
0
1.00e+004
2.00e+004
3.00e+004
Concentration
0.000e+000 Quadratic term
2.193e+004 Linear term
0.000e+000 Constant term
6.1% RF Rel Std Dev
OK
Cancel
Help
Print Calibration Curve
Copy Calibration Curve


Edit Compounds
Search by:
Ret Time
Name
Index
Find Compound
Compound Database
External Standard Compoun
Methane
C3 as Propane
C4 as Butane
C5 as Pentane
C6 as Hexane
>C6_1 as Hexane
>C6_2 as Hexane
>C6_3 as Hexane
Identification
Calibration
User Defined
Advanced
Reporting
Lvl ID
Concentration
Response
1 0.500000 18545.986875
2 5.000000 186932.600000
3 50.000000 2049062.500000
4 500.000000 20275250.614068
5 1000.000000 40939910.992469
6 2000.000000 80552546.781775
7 30000.000000
C2 as Ethane
Response
5.00e+007
0
0
1.00e+003
2.00e+003
Concentration
0.000e+000 Quadratic term
3.954e+004 Linear term
0.000e+000 Constant term
4.6% RF Rel Std Dev
OK
Cancel
Help
Print Calibration Curve
Copy Calibration Curve


Edit Compounds
Search by:
Rel. Time
Name
Index
Find Compound
Compound Database
External Standard Compour
Methane
C2 as Ethane
C3 as Propane
C4 as Butane
C5 as Pentane
C6 as Hexane
>C6_1 as Hexane
>C6_2 as Hexane
>C6_3 as Hexane
Identification
Calibration
User Defined
Advanced
Reporting
Lvl ID
Concentration
Response
1 0.520000 27351.820000
2 5.200000 278762.000000
3 52.000000 3049636.215000
4 520.000000 30330166.988969
5 1040.000000 61257229.162500
6 2080.000000 120409599.55936
7 30000.000000
C3 as Propane
Response
1.00e+008
5.00e+007
0
0
1.00e+003
2.00e+003
Concentration
0.000e+000 Quadratic term
5.666e+004 Linear term
0.000e+000 Constant term
4.9% RF Rel Std Dev
OK
Cancel
Help
Print Calibration Curve
Copy Calibration Curve


Edit Compounds
Search by:
Ret Time
Name
Index
Find Compound
Compound Database
External Standard Compoun
Methane
C2 as Ethane
C3 as Propane
C4 as Butane
C5 as Pentane
C6 as Hexane
>C6_1 as Hexane
>C6_2 as Hexane
>C6_3 as Hexane
Identification
Calibration
User Defined
Advanced
Reporting
Lvl ID
Concentration
Response
1 0.515000 35546.202500
2 5.150000 357681.285000
3 51.500000 3959174.630125
4 515.000000 39999451.750040
5 1030.000000 80925154.475679
6 2060.000000 159250170.66500
7 30000.000000
C4 as Butane
Response
1.00e+008
0
0
1.00e+003
2.00e+003
Concentration
0.000e+000 Quadratic term
7.514e+004 Linear term
0.000e+000 Constant term
5.2% RF Rel Std Dev
OK
Cancel
Help
Print Calibration Curve
Copy Calibration Curve


Edit Compounds
Search by:
Ret Time
Name
Index
Find Compound
Compound Database
External Standard Compour
Methane
C2 as Ethane
C3 as Propane
C4 as Butane
C5 as Pentane
C6 as Hexane
>C6_1 as Hexane
>C6_2 as Hexane
>C6_3 as Hexane
Identification
Calibration
User Defined
Advanced
Reporting
Lvl ID
Concentration
Response
1 0.500000 42838.063750
2 5.000000 455269.525000
3 50.000000 4707483.934089
4 500.000000 49469434.275224
5 1000.000000 100476332.58643
6 2000.000000 199253149.43311
7 30000.000000
C5 as Pentane
Response
2.00e+008
1.00e+008
0
0
1.00e+003
2.00e+003
Concentration
0.000e+000 Quadratic term
9.499e+004 Linear term
0.000e+000 Constant term
6.1% RF Rel Std Dev
OK
Cancel
Help
Print Calibration Curve
Copy Calibration Curve


Edit Compounds
Search by: Ret Time
Name
Index
Find Compound
Compound Database
External Standard Compour
Methane
C2 as Ethane
C3 as Propane
C4 as Butane
C5 as Pentane
C6 as Hexane
>C6_1 as Hexane
>C6_2 as Hexane
>C6_3 as Hexane
Identification
Calibration
User Defined
Advanced
Reporting
Lvl ID
Concentration
Response
1 0.500000 43536.770000
2 5.000000 510147.258000
3 50.000000 4811318.270000
4 500.000000 55414071.630000
5 1000.000000 113449295.47000
6 2000.000000 229256240.18000
7 30000.000000
C6 as Hexane
Response
2.00e+008
1.00e+008
0
0
1.00e+003
2.00e+003
Concentration
0.000e+000 Quadratic term
1.040e+005 Linear term
0.000e+000 Constant term
10.5% RF Rel Std Dev
OK
Cancel
Help
Print Calibration Curve
Copy Calibration Curve

Calibration Status Report HP5890

Method Path : I:\GC08\METHODS\
Method File : TF042116.M
Title : VOA-TO3C1C6
Last Update : Fri Apr 22 08:50:30 2016
Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	1	0	J:\GC08\DATA\TO_3M\2016_04\21\04211630.D
2	2	5	0	J:\GC08\DATA\TO_3M\2016_04\21\04211631.D
3	3	50	0	J:\GC08\DATA\TO_3M\2016_04\21\04211633.D
4	4	500	0	J:\GC08\DATA\TO_3M\2016_04\21\04211634.D
5	5	1000	0	J:\GC08\DATA\TO_3M\2016_04\21\04211635.D
6	6	2000	0	J:\GC08\DATA\TO_3M\2016_04\21\04211636.D
7	7	30000	0	J:\GC08\DATA\TO_3M\2016_04\21\04211637.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Apr 22 08:41 2016	Apr 22 08:40 2016	21-Apr-2016, 16:45:35
2	2	Apr 22 08:43 2016	Apr 22 08:43 2016	21-Apr-2016, 16:57:19
3	3	Apr 22 08:46 2016	Apr 22 08:46 2016	21-Apr-2016, 17:44:30
4	4	Apr 22 08:47 2016	Apr 22 08:46 2016	21-Apr-2016, 17:57:49
5	5	Apr 22 08:48 2016	Apr 22 08:47 2016	21-Apr-2016, 18:22:30
6	6	Apr 22 08:48 2016	Apr 22 08:48 2016	21-Apr-2016, 18:46:21
7	7	Apr 22 08:50 2016	Apr 22 08:49 2016	21-Apr-2016, 18:58:10

TF042116.M Fri Apr 22 08:59:21 2016

Quantitation Report (QT Reviewed)

Data Path : J:\GC08\DATA\TO_3M\2016_04\21\
Data File : 04211637.D
Signal(s) : FID2B.CH
Acq On : 21-Apr-2016, 18:58:10
Operator : amf
Sample : 3C std s30-04081603 0.75ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Apr 22 08:49:31 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 08:48:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

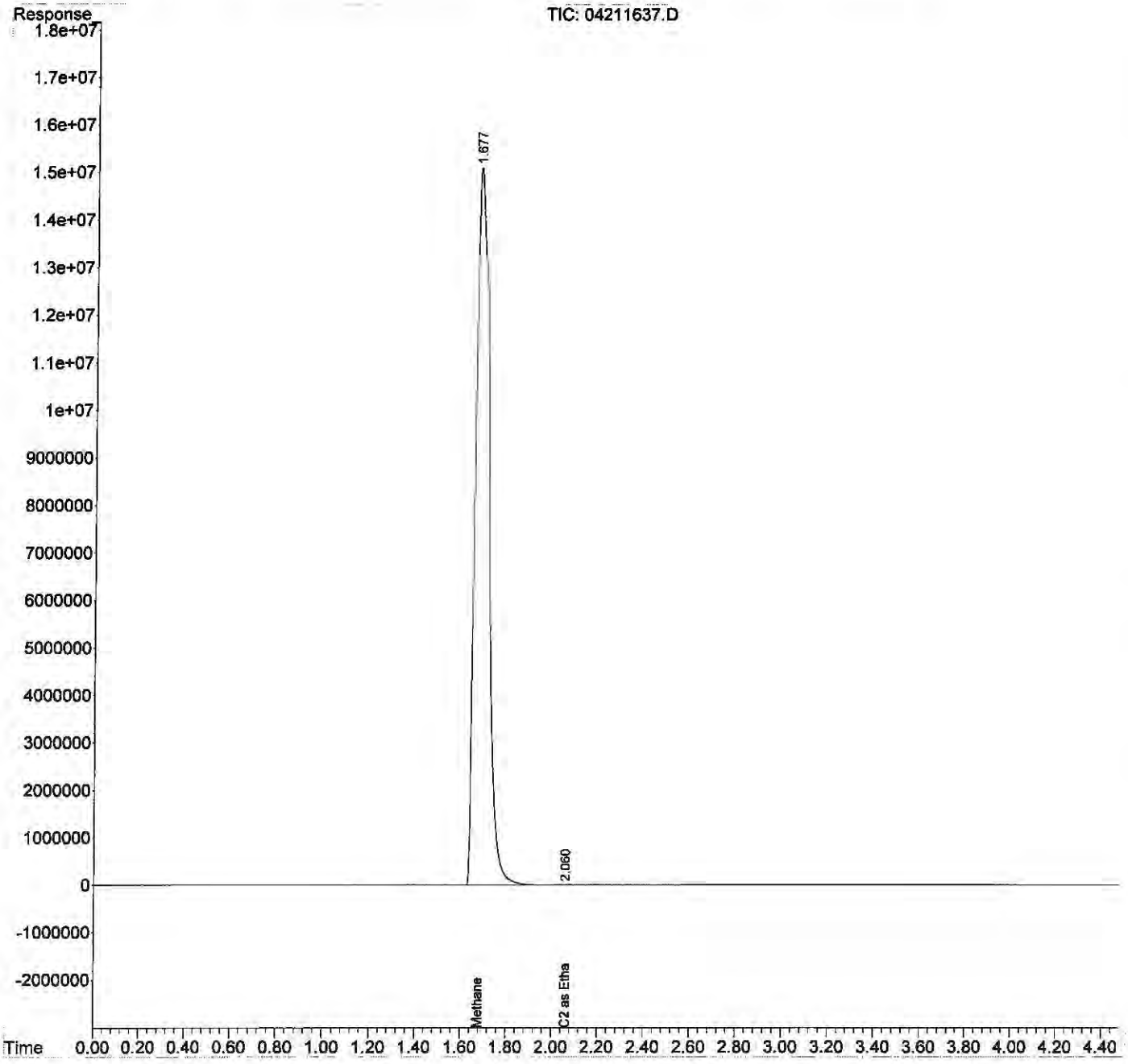
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1) T	Methane	1.679	635879216	29164.446	ppm
2) T	C2 as Ethane	2.060	31606	0.799	ppm
3) T	C3 as Propane	0.000	0	N.D.	ppm
4) T	C4 as Butane	0.000	0	N.D.	ppm
5) T	C5 as Pentane	0.000	0	N.D.	ppm
6) T	C6 as Hexane	0.000	0	N.D.	ppm
7) T	>C6_1 as Hexane	0.000	0	N.D.	ppm
8) T	>C6_2 as Hexane	0.000	0	N.D.	ppm
9) T	>C6_3 as Hexane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC08\DATA\TO_3M\2016_04\21\
Data File : 04211637.D
Signal(s) : FID2B.CH
Acq On : 21-Apr-2016, 18:58:10
Operator : amf
Sample : 3C std s30-04081603 0.75ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Apr 22 08:49:31 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 08:48:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC08\DATA\TO_3M\2016_04\21\
Data File : 04211630.D
Signal(s) : FID2B.CH
Acq On : 21-Apr-2016, 16:45:35
Operator : amf
Sample : std s30-04211601 0.05ml(x100)
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Apr 22 08:40:36 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 08:25:17 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc Units
Target Compounds				
1) T	Methane	1.725	12383	0.645 ppm
2) T	C2 as Ethane	2.099	18546	0.553 ppm
3) T	C3 as Propane	3.154	27352	0.564 ppm
4) T	C4 as Butane	4.872	35546	0.546 ppm
5) T	C5 as Pentane	6.482	42838	0.517 ppm
6) T	C6 as Hexane	7.893	43537	0.518 ppm
7) T	>C6_1 as Hexane	0.000	0	N.D. ppm
8) T	>C6_2 as Hexane	0.000	0	N.D. ppm
9) T	>C6_3 as Hexane	0.000	0	N.D. ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

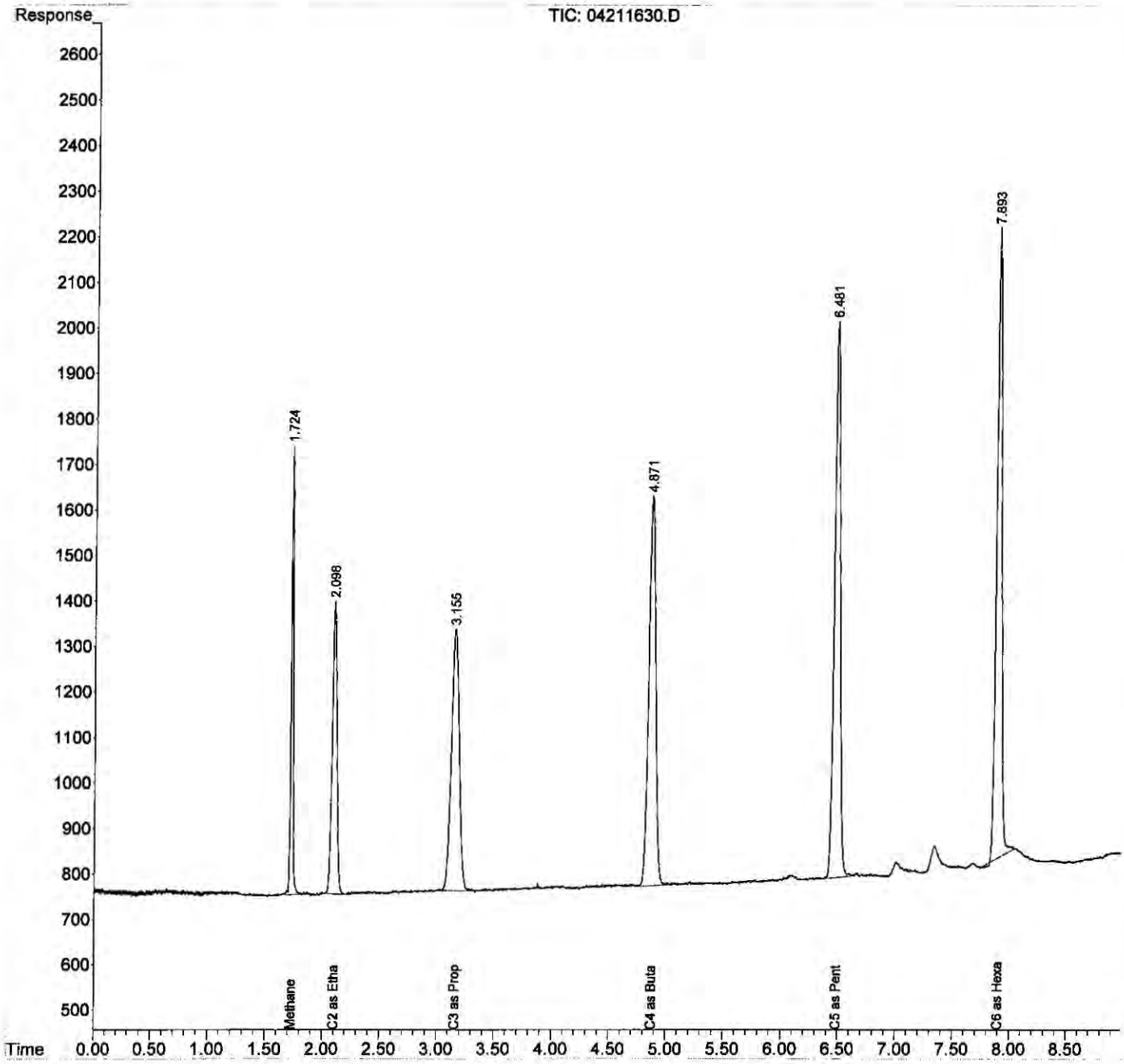
4/22/16

Quantitation Report (QT Reviewed)

Data Path : J:\GC08\DATA\TO_3M\2016_04\21\
Data File : 04211630.D
Signal(s) : FID2B.CH
Acq On : 21-Apr-2016, 16:45:35
Operator : amf
Sample : std s30-04211601 0.05ml(x100)
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Apr 22 08:40:36 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 08:25:17 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC08\DATA\TO_3M\2016_04\21\
Data File : 04211631.D
Signal(s) : FID2B.CH
Acq On : 21-Apr-2016, 16:57:19
Operator : amf
Sample : std s30-04211601 0.5ml(x100)
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Apr 22 08:43:02 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 08:41:09 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

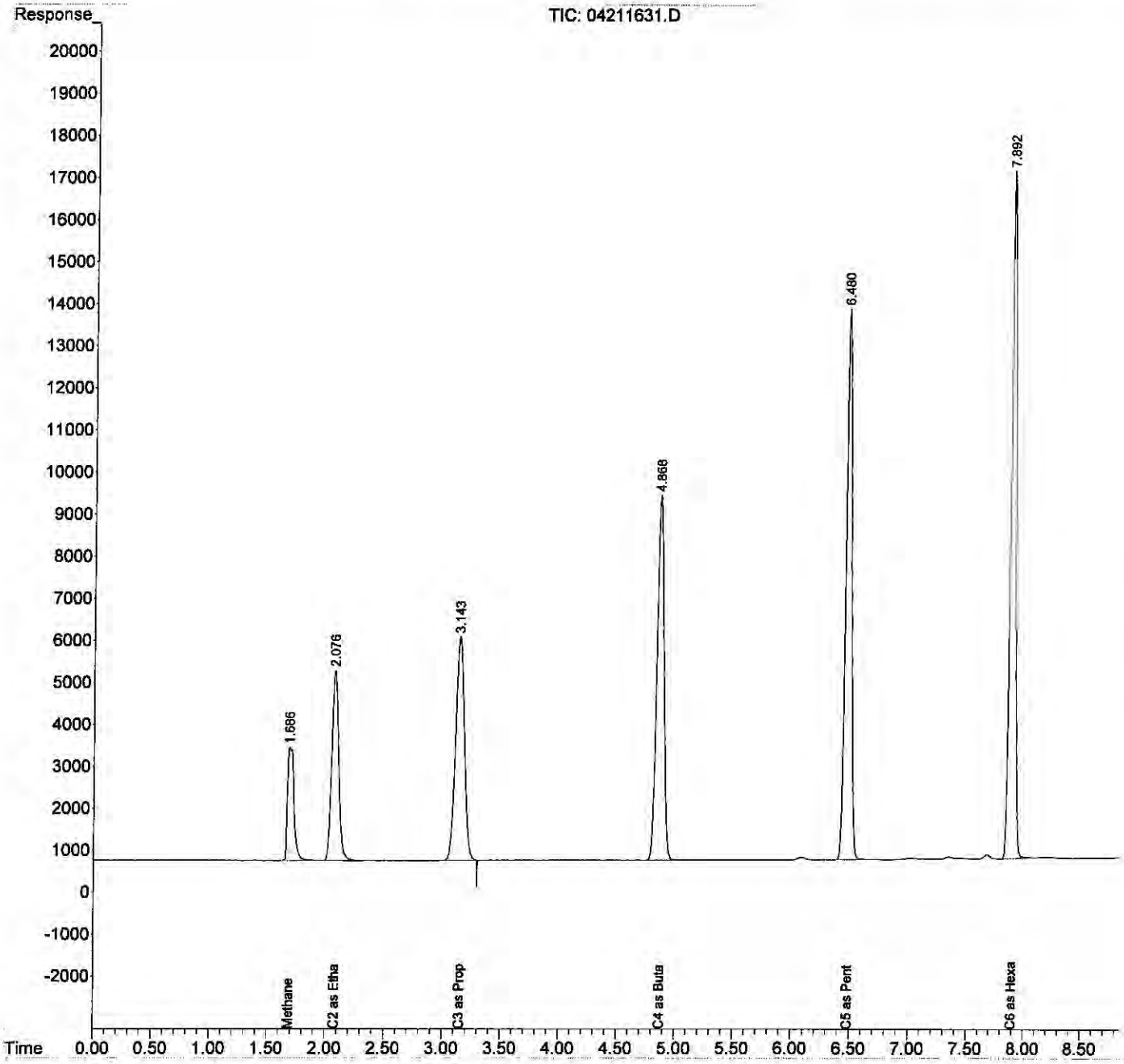
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1) T	Methane	1.690	102956	5.363	ppm	
2) T	C2 as Ethane	2.077	186933	5.501	ppm	
3) T	C3 as Propane	3.143	278762	5.725	ppm	m
4) T	C4 as Butane	4.868	367681	5.628	ppm	
5) T	C5 as Pentane	6.480	455270	5.496	ppm	
6) T	C6 as Hexane	7.892	510147	5.979	ppm	
7) T	>C6_1 as Hexane	0.000	0	N.D.	ppm	
8) T	>C6_2 as Hexane	0.000	0	N.D.	ppm	
9) T	>C6_3 as Hexane	0.000	0	N.D.	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC08\DATA\TO_3M\2016_04\21\
Data File : 04211631.D
Signal(s) : FID2B.CH
Acq On : 21-Apr-2016, 16:57:19
Operator : amf
Sample : std s30-04211601 0.5ml(x100)
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Apr 22 08:43:02 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 08:41:09 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

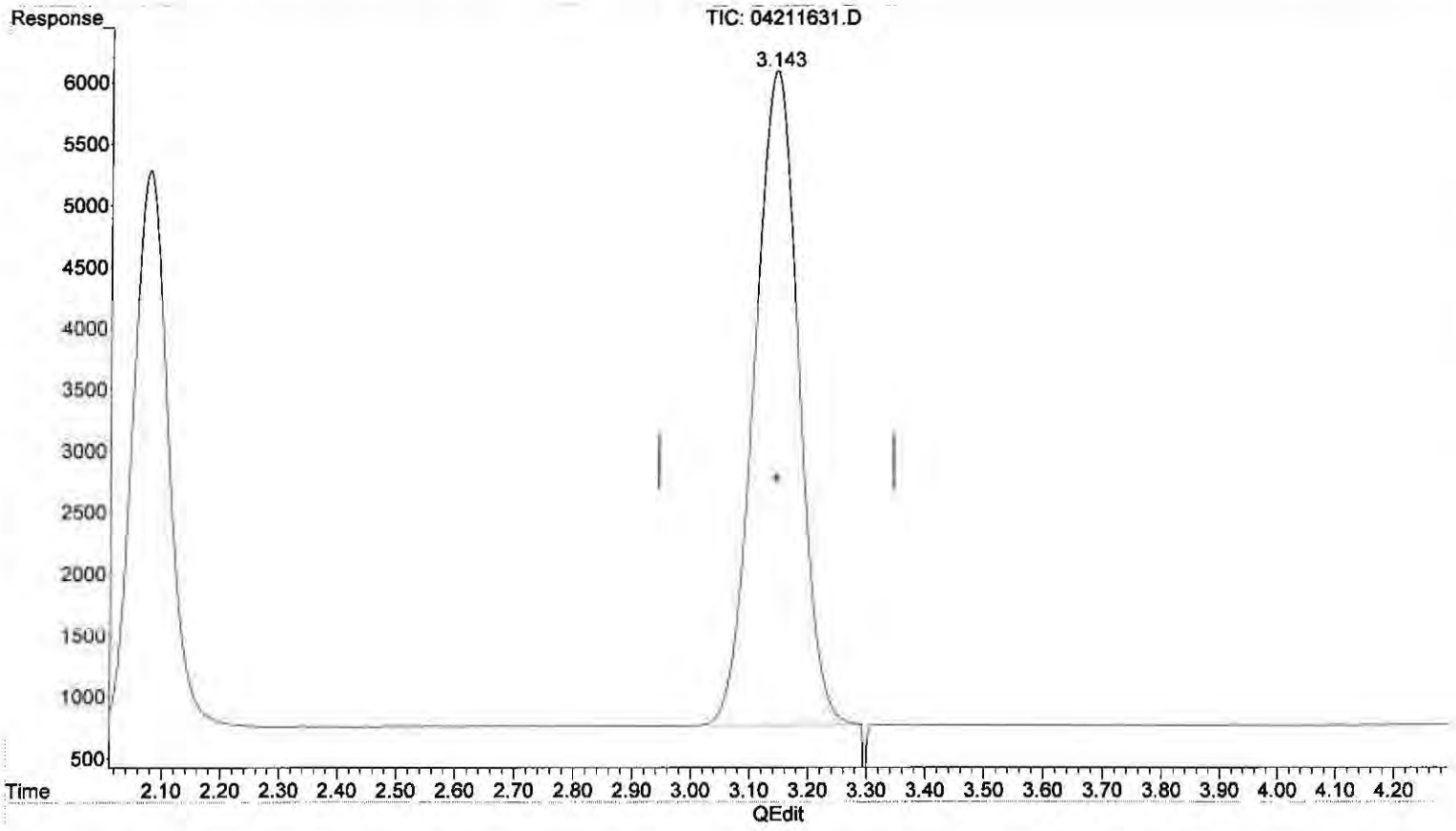


Quantitation Report (Qedit)

Data Path : J:\GC08\DATA\TO_3M\2016_04\21\
Data File : 04211631.D
Signal(s) : FID2B.CH
Acq On : 21-Apr-2016, 16:57:19
Operator : amf
Sample : std s30-04211601 0.5ml(x100)
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Apr 22 08:43:02 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 08:41:09 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(3) C3 as Propane (T)
3.143min 5.725 ppm m
response 278762

MC 4/22/16
No previous
BL
WW 4/22/16

(+) = Expected Retention Time
TF042116.M Fri Apr 22 08:53:03 2016

Quantitation Report (QT Reviewed)

Data Path : J:\GC08\DATA\TO_3M\2016_04\21\
Data File : 04211633.D
Signal(s) : FID2B.CH
Acq On : 21-Apr-2016, 17:44:30
Operator : amf
Sample : std s30-10041501 0.05ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Apr 22 08:46:14 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 08:43:29 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1) T	Methane	1.728	1079161	51.087	ppm
2) T	C2 as Ethane	2.101	2049062	53.728	ppm
3) T	C3 as Propane	3.156	3049636	55.984	ppm
4) T	C4 as Butane	4.873	3959175	54.285	ppm
5) T	C5 as Pentane	6.482	4707484	50.825	ppm
6) T	C6 as Hexane	7.894	4811318	49.469	ppm
7) T	>C6_1 as Hexane	0.000	0	N.D.	ppm
8) T	>C6_2 as Hexane	0.000	0	N.D.	ppm
9) T	>C6_3 as Hexane	0.000	0	N.D.	ppm

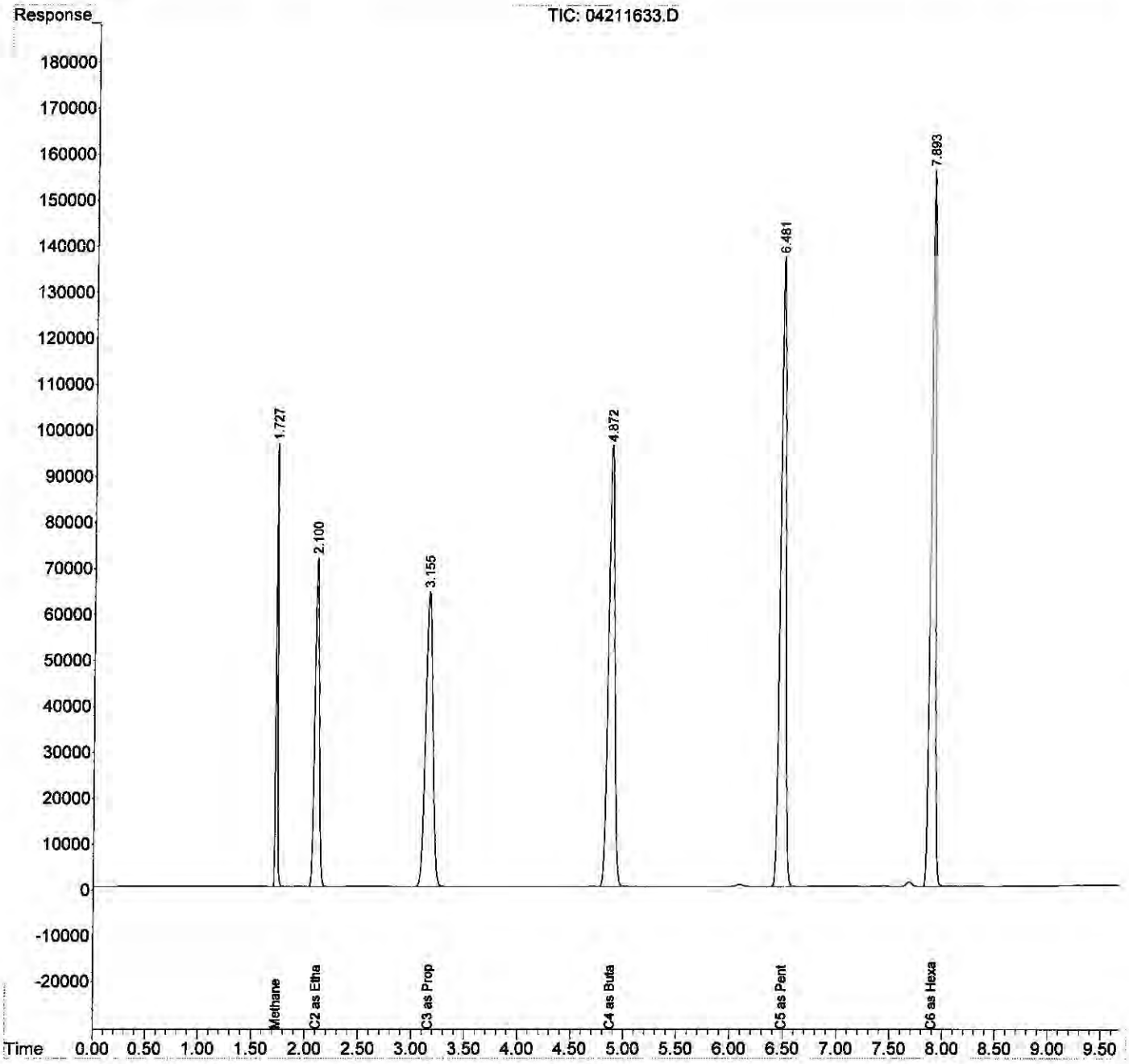
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC08\DATA\TO_3M\2016_04\21\
Data File : 04211633.D
Signal(s) : FID2B.CH
Acq On : 21-Apr-2016, 17:44:30
Operator : amf
Sample : std s30-10041501 0.05ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Apr 22 08:46:14 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 08:43:29 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC08\DATA\TO_3M\2016_04\21\
Data File : 04211634.D
Signal(s) : FID2B.CH
Acq On : 21-Apr-2016, 17:57:49
Operator : amf
Sample : std s30-10041501 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Apr 22 08:46:55 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 08:46:34 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1) T	Methane	1.705	10784984	502.697	ppm
2) T	C2 as Ethane	2.077	20275251	518.598	ppm
3) T	C3 as Propane	3.144	30330167	542.143	ppm
4) T	C4 as Butane	4.869	39999452	534.106	ppm
5) T	C5 as Pentane	6.482	49469434	523.449	ppm
6) T	C6 as Hexane	7.894	55414072	562.603	ppm
7) T	>C6_1 as Hexane	0.000	0	N.D.	ppm
8) T	>C6_2 as Hexane	0.000	0	N.D.	ppm
9) T	>C6_3 as Hexane	0.000	0	N.D.	ppm

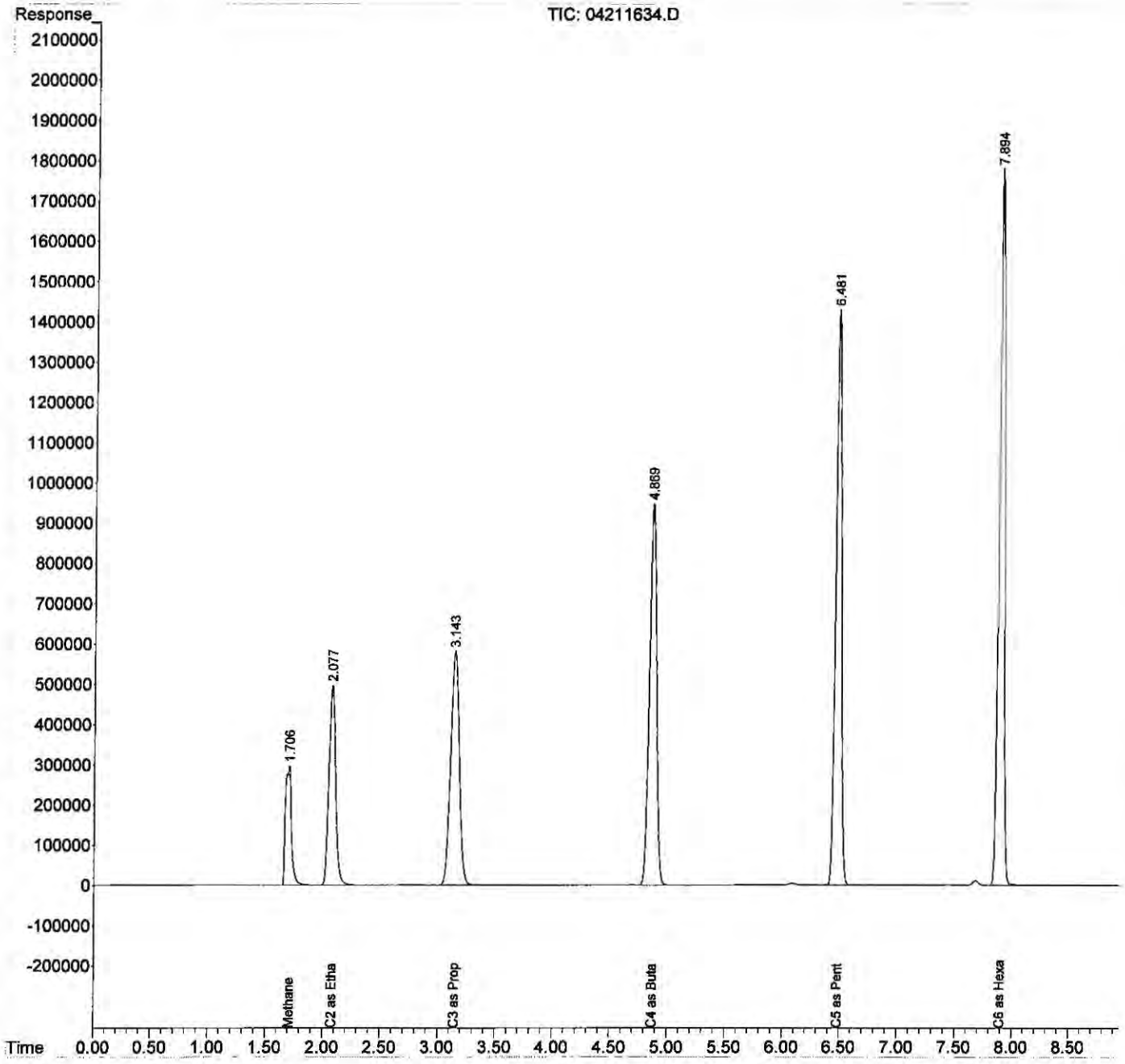
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC08\DATA\TO_3M\2016_04\21\
Data File : 04211634.D
Signal(s) : FID2B.CH
Acq On : 21-Apr-2016, 17:57:49
Operator : amf
Sample : std s30-10041501 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Apr 22 08:46:55 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 08:46:34 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC08\DATA\TO_3M\2016_04\21\
Data File : 04211635.D
Signal(s) : FID2B.CH
Acq On : 21-Apr-2016, 18:22:30
Operator : amf
Sample : std s30-10041501 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Apr 22 08:47:58 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 08:47:52 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1) T	Methane	1.659	22002670	1021.692	ppm
2) T	C2 as Ethane	2.055	40939911	1041.857	ppm
3) T	C3 as Propane	3.134	61267229	1089.893	ppm
4) T	C4 as Butane	4.867	80925154	1078.700	ppm
5) T	C5 as Pentane	6.481	100476333	1060.635	ppm
6) T	C6 as Hexane	7.895	113449295	1130.523	ppm
7) T	>C6_1 as Hexane	0.000	0	N.D.	ppm
8) T	>C6_2 as Hexane	0.000	0	N.D.	ppm
9) T	>C6_3 as Hexane	0.000	0	N.D.	ppm

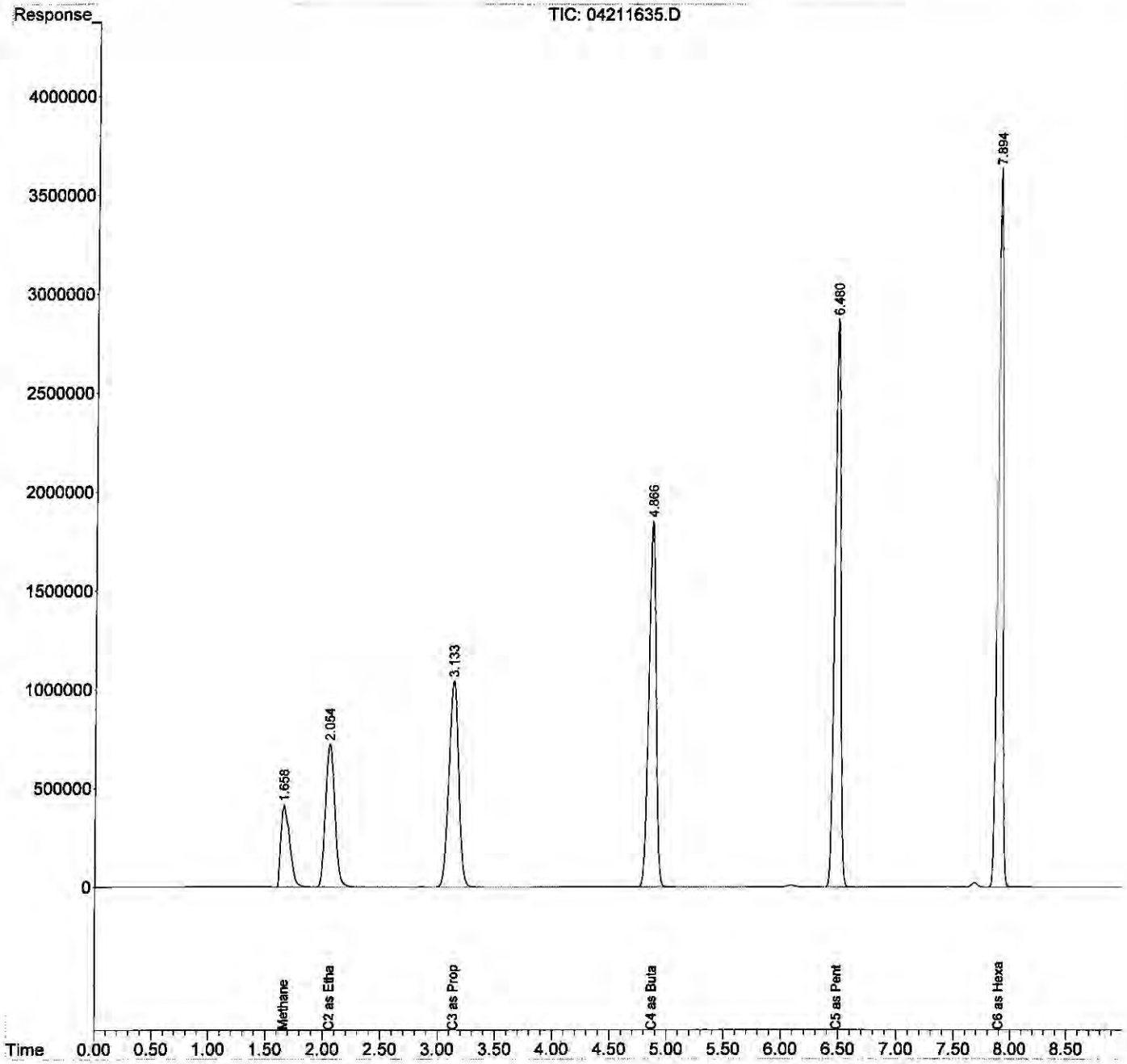
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC08\DATA\TO_3M\2016_04\21\
Data File : 04211635.D
Signal(s) : FID2B.CH
Acq On : 21-Apr-2016, 18:22:30
Operator : amf
Sample : std s30-10041501 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Apr 22 08:47:58 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 08:47:52 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC08\DATA\TO_3M\2016_04\21\
Data File : 04211636.D
Signal(s) : FID2B.CH
Acq On : 21-Apr-2016, 18:46:21
Operator : amf
Sample : std s30-10041501 2ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Apr 22 08:48:35 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 08:48:16 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1) T	Methane	1.644	43643298	2011.697	ppm
2) T	C2 as Ethane	2.034	80552547	2035.967	ppm
3) T	C3 as Propane	3.121	120409600	2126.901	ppm
4) T	C4 as Butane	4.863	159250171	2114.540	ppm
5) T	C5 as Pentane	6.480	199253149	2096.400	ppm
6) T	C6 as Hexane	7.895	229256240	2244.813	ppm
7) T	>C6_1 as Hexane	0.000	0	N.D.	ppm
8) T	>C6_2 as Hexane	0.000	0	N.D.	ppm
9) T	>C6_3 as Hexane	0.000	0	N.D.	ppm

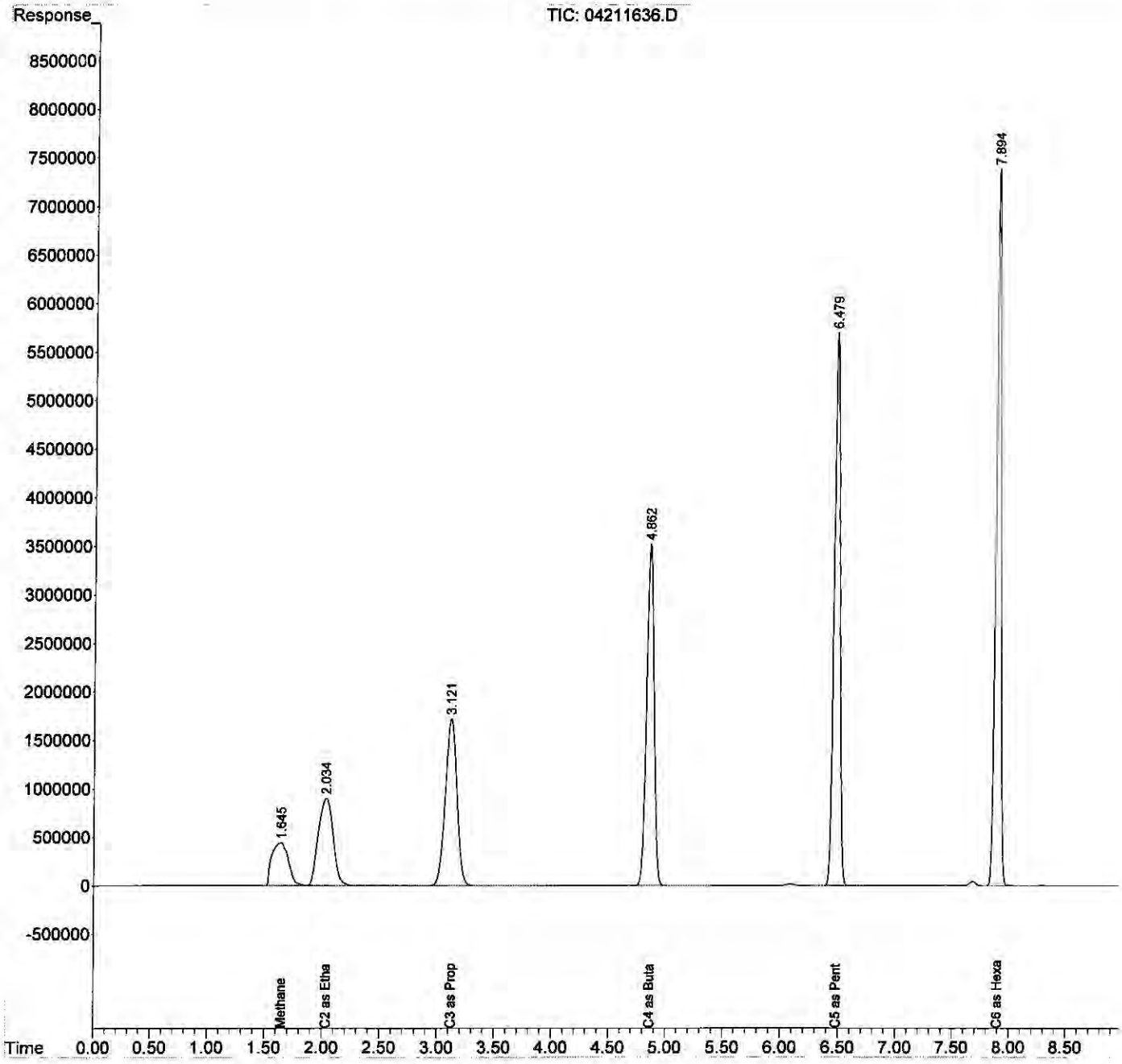
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC08\DATA\TO_3M\2016_04\21\
Data File : 04211636.D
Signal(s) : FID2B.CH
Acq On : 21-Apr-2016, 18:46:21
Operator : amf
Sample : std s30-10041501 2ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Apr 22 08:48:35 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 08:48:16 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC08\DATA\TO_3M\2016_04\22\
Data File : 04221604.D
Signal(s) : FID2B.CH
Acq On : 22-Apr-2016, 10:18:19
Operator : amf
Sample : ICV s30-12281501
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Apr 22 10:30:21 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 09:01:46 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						O/O Recovery
1) T	Methane	1.699	10911181	497.478	ppm	99.50
2) T	C2 as Ethane	2.071	20172372	510.206	ppm	102.04
3) T	C3 as Propane	3.134	30219396	533.312	ppm	106.66
4) T	C4 as Butane	4.859	39436863	524.850	ppm	104.97
5) T	C5 as Pentane	6.471	47617725	501.308	ppm	100.26
6) T	C6 as Hexane	7.884	52732688	506.854	ppm	101.37
7) T	>C6_1 as Hexane	0.000	0	N.D.	ppm	
8) T	>C6_2 as Hexane	0.000	0	N.D.	ppm	
9) T	>C6_3 as Hexane	0.000	0	N.D.	ppm	

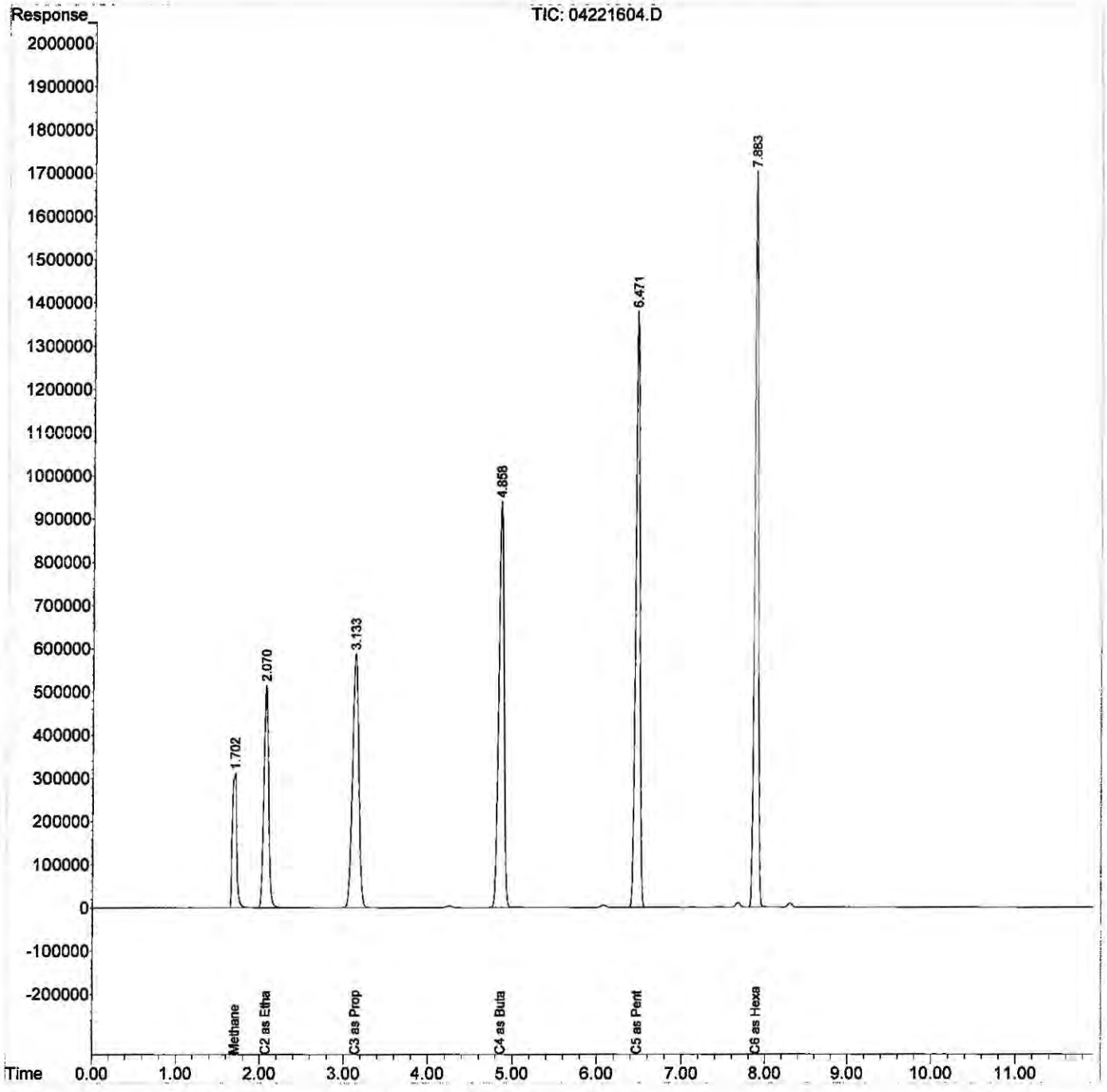
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\GC08\DATA\TO_3M\2016_04\22\
Data File : 04221604.D
Signal(s) : FID2B.CH
Acq On : 22-Apr-2016, 10:18:19
Operator : amf
Sample : ICV s30-12281501
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Apr 22 10:30:21 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 09:01:46 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



ALS Environmental

REPORT SUMMARY

Method : VOA-TO3C1C6
Client : Air Hygiene, Incorporated
Analyst : amf

ALS Service Request P1604860
Instrument : Instrument 8 / FID #8
Date Acquired : 10/19/2016

SAMPLE RESULT SUMMARIES (ppm)

Sample ID	Inject. Vol(ml)	Dilution DF	Methane	C2 as Ethane	C3 as Propane	C4 as n-Butane	C5 as n-Pentane	C6 as n-Hexane	>C6#1 as n-Hexane	>C6#2 as n-Hexane	>C6#3 as n-Hexane
std s30-05021602	0.5	1.0	994.1	1019.7	1065.3	1053.6	1013.8	1006.0	0.0	0.0	0.0
ACTUAL			1000.0	1000.0	1000.0	1000.0	1000.0	1000.0			
%Difference			0.6%	2.0%	6.5%	5.4%	1.4%	0.6%			
lcs s30-08011601	0.5	1.0	995.98	1022.04	1096.42	1071.42	1023.92	1105.20			
ACTUAL			1010.0	1020.0	1040.0	1010.0	1000.0	1010.0			
%Recovery			98.6%	100.2%	105.4%	106.1%	102.4%	109.4%			
lcsds30-08011601	0.5	1.0	1009.88	1038.94	1117.78	1100.44	1052.84	1140.92			
ACTUAL			1010.0	1020.0	1040.0	1010.0	1000.0	1010.0			
%Recovery			100.0%	101.9%	107.5%	109.0%	105.3%	113.0%			
%RPD			1.4%	1.6%	1.9%	2.7%	2.8%	3.2%			
mb 1ml	1.0	1.0	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4860-001 0.05m	0.1	1.0	0.08	1.65	44236.38	0.78	0.00	0.01	0.02	0.07	0.02
4860-002 0.05m	0.1	1.0	0.11	1.60	47098.45	0.79	0.03	0.03	0.04	0.11	0.03
4860-003 0.05m	0.1	1.0	0.07	1.60	46401.14	0.81	0.00	0.01	0.02	0.13	0.04
4860-004 0.05m	0.1	1.0	0.07	1.76	52525.09	0.73	0.00	0.01	0.02	0.15	0.05
std s30-05021602	0.5	1.0	1011.2	1041.9	1088.0	1075.0	1035.1	1028.3			
ACTUAL			1000.0	1000.0	1040.0	1030.0	1000.0	1000.0			
%Difference			1.1%	4.2%	4.6%	4.4%	3.5%	2.8%			

FINAL SAMPLE RESULT SUMMARIES (ppm)

Sample ID	Pi	Pf	Methane	C2 as Ethane	C3 as Propane	C4 as n-Butane	C5 as n-Pentane	C6 as n-Hexane	>C6 as n-Hexane
MRL			0.50	0.50	0.50	0.50	0.50	0.50	1.00
mb 1ml	0.00	0.00	ND	ND	ND	ND	ND	ND	ND
4860-001 0.05m	-1.00	5.38	ND	48.37	1296739.43	22.86	ND	ND	ND
4860-002 0.05m	-1.48	5.16	ND	48.07	1415091.10	23.74	ND	ND	ND
4860-003 0.05m	-0.55	5.47	ND	45.61	1322842.39	23.09	ND	ND	ND
4860-004 0.05m	-0.26	5.54	ND	49.34	1472448.51	20.46	ND	ND	ND

TGNMO-HC RESULT SUMMARIES (as ppm Methane)

Sample ID	PiPf DF	NMOHC as Methane	NMOHC as Hexane	Total HC	Fixed Gases %
MRL(ppm Methane)	1.0	1.00	0.17	%	
mb 1ml	1.00	0.000	0.000	0.00	100.00
4860-001 0.05m	1.47	3890406.49	648401.08	129.68	-29.68
4860-002 0.05m	1.50	4245464.39	707577.40	141.52	-41.52
4860-003 0.05m	1.43	3968710.78	661451.80	132.29	-32.29
4860-004 0.05m	1.40	4417526.05	736254.34	147.25	-47.25

Quantitation Report (QT Reviewed)

Data Path : I:\GC08\DATA\TO_3M\2016_10\19\
Data File : 10191601.D
Signal(s) : FID2B.CH
Acq On : 19-Oct-2016, 08:31:30
Operator : amf
Sample : std s30-05021602
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 19 08:45:58 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 09:01:46 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Methane	1.649	10901574	497.040	ppm	
2)	C2 as Ethane	2.013	20157629	509.833	ppm	
3)	C3 as Propane	3.063	30182107	532.654	ppm	
4)	C4 as Butane	4.777	39585294	526.825	ppm	
5)	C5 as Pentane	6.381	48150089	506.913	ppm	
6)	C6 as Hexane	7.788	52330567	502.989	ppm	
7)	>C6_1 as Hexane	0.000	0	N.D.	ppm	
8)	>C6_2 as Hexane	0.000	0	N.D.	ppm	d
9)	>C6_3 as Hexane	0.000	0	N.D.	ppm	d

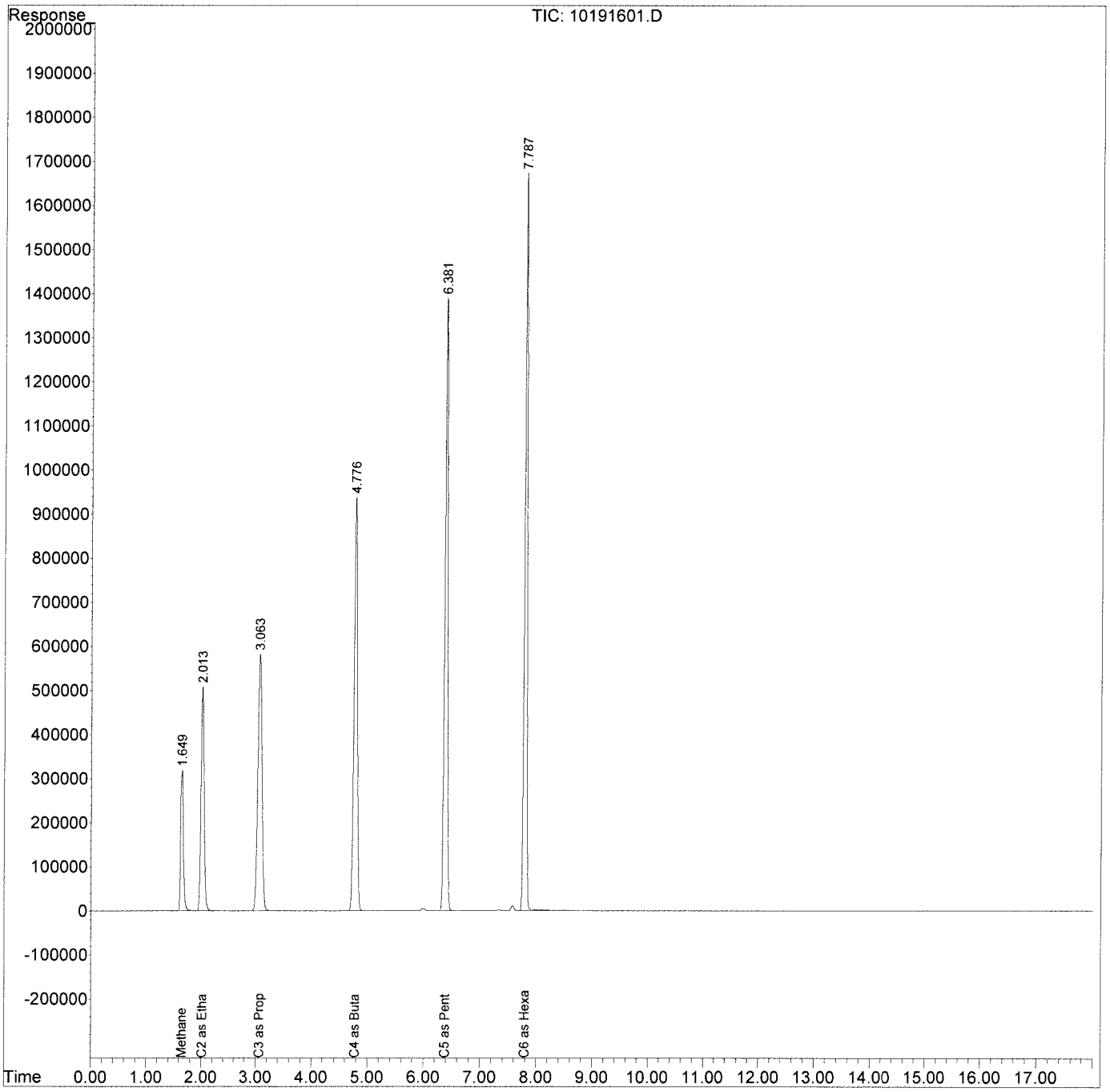
(f)=RT Delta > 1/2 Window (m)=manual int.

10/20/16

Data Path : I:\GC08\DATA\TO_3M\2016_10\19\
Data File : 10191601.D
Signal(s) : FID2B.CH
Acq On : 19-Oct-2016, 08:31:30
Operator : amf
Sample : std s30-05021602
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 19 08:45:58 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 09:01:46 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : I:\GC08\DATA\TO_3M\2016_10\19\
Data File : 10191615.D
Signal(s) : FID2B.CH
Acq On : 19-Oct-2016, 15:54:29
Operator : amf
Sample : std s30-05021602
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 19 15:59:42 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 09:01:46 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

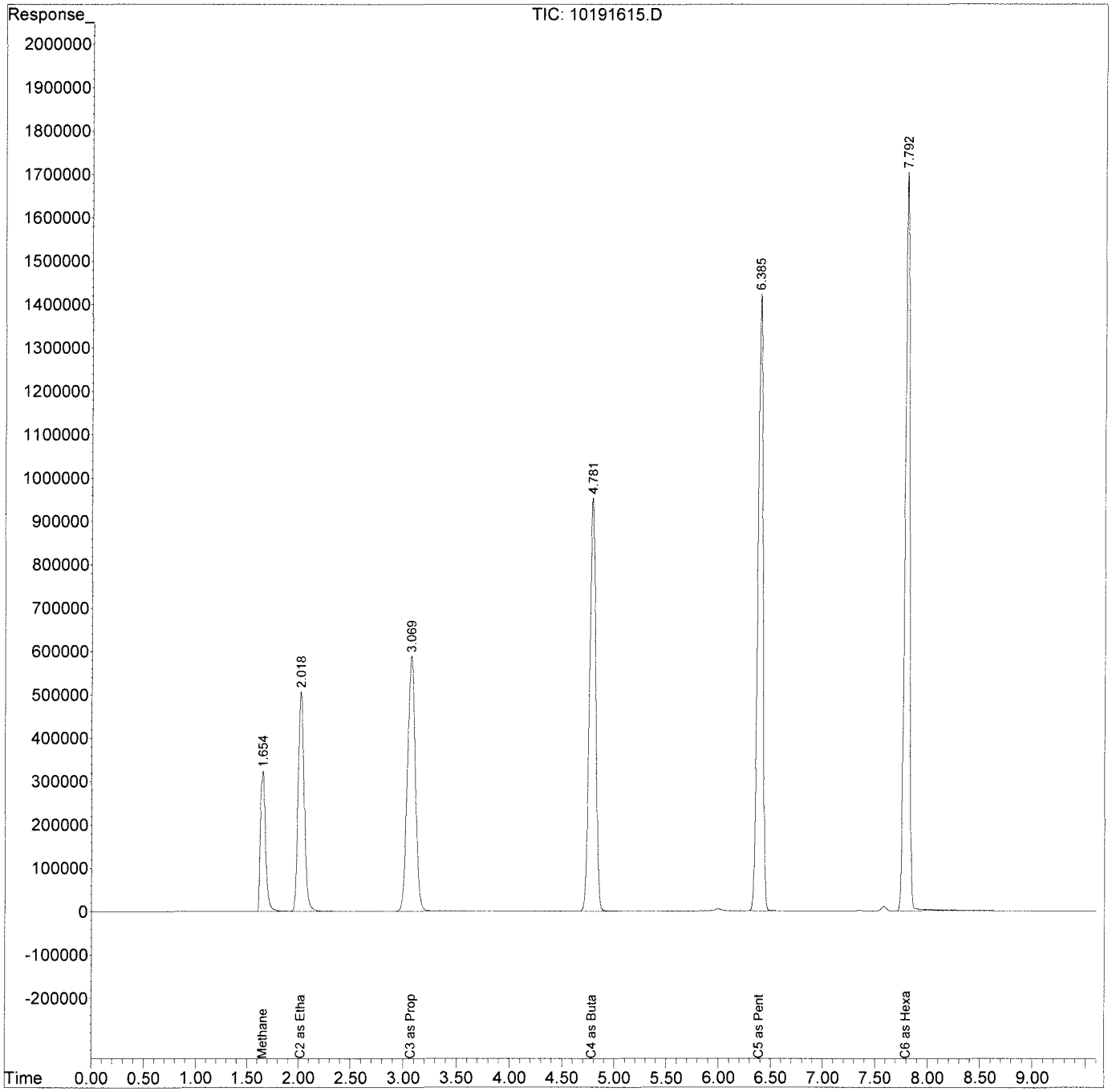
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Methane	1.654	11089562	505.611	ppm
2)	C2 as Ethane	2.019	20596773	520.940	ppm
3)	C3 as Propane	3.069	30823627	543.975	ppm
4)	C4 as Butane	4.782	40388691	537.517	ppm
5)	C5 as Pentane	6.386	49162203	517.568	ppm
6)	C6 as Hexane	7.793	53493107	514.163	ppm
7)	>C6_1 as Hexane	0.000	0	N.D.	ppm
8)	>C6_2 as Hexane	0.000	0	N.D.	ppm
9)	>C6_3 as Hexane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC08\DATA\TO_3M\2016_10\19\
Data File : 10191615.D
Signal(s) : FID2B.CH
Acq On : 19-Oct-2016, 15:54:29
Operator : amf
Sample : std s30-05021602
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 19 15:59:42 2016
Quant Method : I:\GC08\METHODS\TF042116.M
Quant Title : VOA-TO3C1C6
QLast Update : Fri Apr 22 09:01:46 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Injection Log

Directory: I:\GC08\DATA\TO_3M\2016_04\21

Line	Vial	FileName	Multiplier	SampleName	Misc Info
1	1	04211601.d	1.	std s30-10041501	
2	1	04211602.d	1.	mb 1ml	
3	1	04211603.d	1.	lcs s30-12281501	
4	1	04211604.d	1.	lcsds30-12281501	
5	1	04211605.d	1.	lcs s30-06171501	
6	1	04211606.d	1.	lcsds30-06171501	
7	1	04211607.d	1.	2076-001 1ml	
8	1	04211608.d	1.	2076-002 1ml	
9	1	04211609.d	1.	2076-003 1ml	
10	1	04211610.d	1.	2076-004 1ml	
11	1	04211611.d	1.	2076-005 1ml	
12	1	04211612.d	1.	2076-006 1ml	
13	1	04211613.d	1.	2076-007 1ml	
14	1	04211614.d	1.	2076-008 1ml	
15	1	04211615.d	1.	2076-009 1ml	
16	1	04211616.d	1.	2076-010 1ml	
17	1	04211617.d	1.	std s30-10041501	
18	1	04211618.d	1.	2076-011 1ml	
19	1	04211619.d	1.	2076-012 1ml	
20	1	04211620.d	1.	2076-013 1ml	
21	1	04211621.d	1.	2076-014 1ml	
22	1	04211622.d	1.	2069-001 0.1ml	
23	1	04211623.d	1.	2069-002 0.1ml	
24	1	04211624.d	1.	2072-001 0.1ml	
25	1	04211625.d	1.	2072-003 0.1ml	
26	1	04211626.d	1.	2073-004 0.1ml	
27	1	04211627.d	1.	std s30-10041501	
28	1	04211628.d	1.	std x100	
29	1	04211629.d	1.	std x100 0.05ml	
30	1	04211630.d	1.	std s30-04211601 0.05ml(x100)	
31	1	04211631.d	1.	std s30-04211601 0.5ml(x100)	
32	1	04211632.d	1.	xstd 0.05ml	
33	1	04211633.d	1.	std s30-10041501 0.05ml	
34	1	04211634.d	1.	std s30-10041501 0.5ml	
35	1	04211635.d	1.	std s30-10041501 1ml	
36	1	04211636.d	1.	std s30-10041501 2ml	
37	1	04211637.d	1.	3C std s30-04081603 0.75ml	

Injection Log

Directory: I:\GC08\DATA\TO_3M\2016_04\22

Line	Vial	FileName	Multiplier	SampleName	Misc Info
1	1	04221601.d	1.	std s30-10041501	
2	1	04221602.d	1.	std s30-10041501	
3	1	04221603.d	1.	mb 1ml	
4	1	04221604.d	1.	lcs s30-12281501	
5	1	04221605.d	1.	lcsds30-12281501	
6	1	04221606.d	1.	lcs s30-06171501	
7	1	04221607.d	1.	lcsds30-06171501	
8	1	04221608.d	1.	2090-001 1ml	
9	1	04221609.d	1.	2090-002 1ml	
10	1	04221610.d	1.	2090-003 1ml	
11	1	04221611.d	1.	2090-004 1ml	
12	1	04221612.d	1.	2090-005 1ml	
13	1	04221613.d	1.	2090-006 1ml	
14	1	04221614.d	1.	2090-007 1ml	
15	1	04221615.d	1.	2090-008 1ml	
16	1	04221616.d	1.	2090-009 1ml	
17	1	04221617.d	1.	2090-010 1ml	
18	1	04221618.d	1.	std s30-10041501	
19	1	04221619.d	1.	2090-011 1ml	
20	1	04221620.d	1.	2090-012 1ml	
21	1	04221621.d	1.	2090-013 1ml	
22	1	04221622.d	1.	2092-001 0.1ml	
23	1	04221623.d	1.	2092-002 0.1ml	
24	1	04221624.d	1.	2092-003 0.1ml	
25	1	04221625.d	1.	2092-004 0.1ml	
26	1	04221626.d	1.	std s30-10041501	
27	1	04221627.d	1.	mb 1ml	
28	1	04221628.d	1.	lcs s30-12281501	
29	1	04221629.d	1.	lcsds30-12281501	
30	1	04221630.d	1.	2094-001 1ml	
31	1	04221631.d	1.	2094-002 1ml	
32	1	04221632.d	1.	2094-003 1ml	
33	1	04221633.d	1.	std s30-10041501	

Injection Log

Directory: I:\GC08\DATA\TO_3M\2016_10\19\

	Sample ID	Date/Time	Acquisition Method	File Name	Misc Info	Operator	Comments
	std s30-05021602	19-Oct-16, 08:31:30	TO3.M	10191601.D		amf	
	mb 1ml	19-Oct-16, 08:56:55	TO3.M	10191602.D		amf	
	lcs s30-08011601	19-Oct-16, 09:20:05	TO3.M	10191603.D		amf	
	lcsds30-08011601	19-Oct-16, 09:31:49	TO3.M	10191604.D		amf	
	QC SSC00297	19-Oct-16, 11:26:16	TO3.M	10191605.D		amf	
	QC SC00903	19-Oct-16, 11:49:19	TO3.M	10191606.D		amf	
	4919-001 0.1ml	19-Oct-16, 12:12:16	TO3.M	10191607.D		amf	
	4920-001 0.1ml	19-Oct-16, 12:35:09	TO3.M	10191608.D		amf	
	4860-001 0.05ml	19-Oct-16, 12:58:14	TO3.M	10191609.D		amf	
	4860-002 0.05ml	19-Oct-16, 13:34:36	TO3.M	10191610.D		amf	
	4860-003 0.05ml	19-Oct-16, 13:57:27	TO3.M	10191611.D		amf	
	4860-004 0.05ml	19-Oct-16, 14:20:20	TO3.M	10191612.D		amf	
	4901-001 0.05ml	19-Oct-16, 14:43:22	TO3.M	10191613.D		amf	
	4901-002 0.05ml	19-Oct-16, 15:06:18	TO3.M	10191614.D		amf	
	std s30-05021602	19-Oct-16, 15:54:29	TO3.M	10191615.D		amf	
	4901-003 0.05ml	19-Oct-16, 16:06:54	TO3.M	10191616.D		amf	
	4901-004 0.05ml	19-Oct-16, 16:29:49	TO3.M	10191617.D		amf	
	std s30-05021602	19-Oct-16, 16:52:50	TO3.M	10191618.D		amf	

Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191614.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 2:37 pm
Operator : amf
Sample : 4860-001
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 20 14:18:37 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

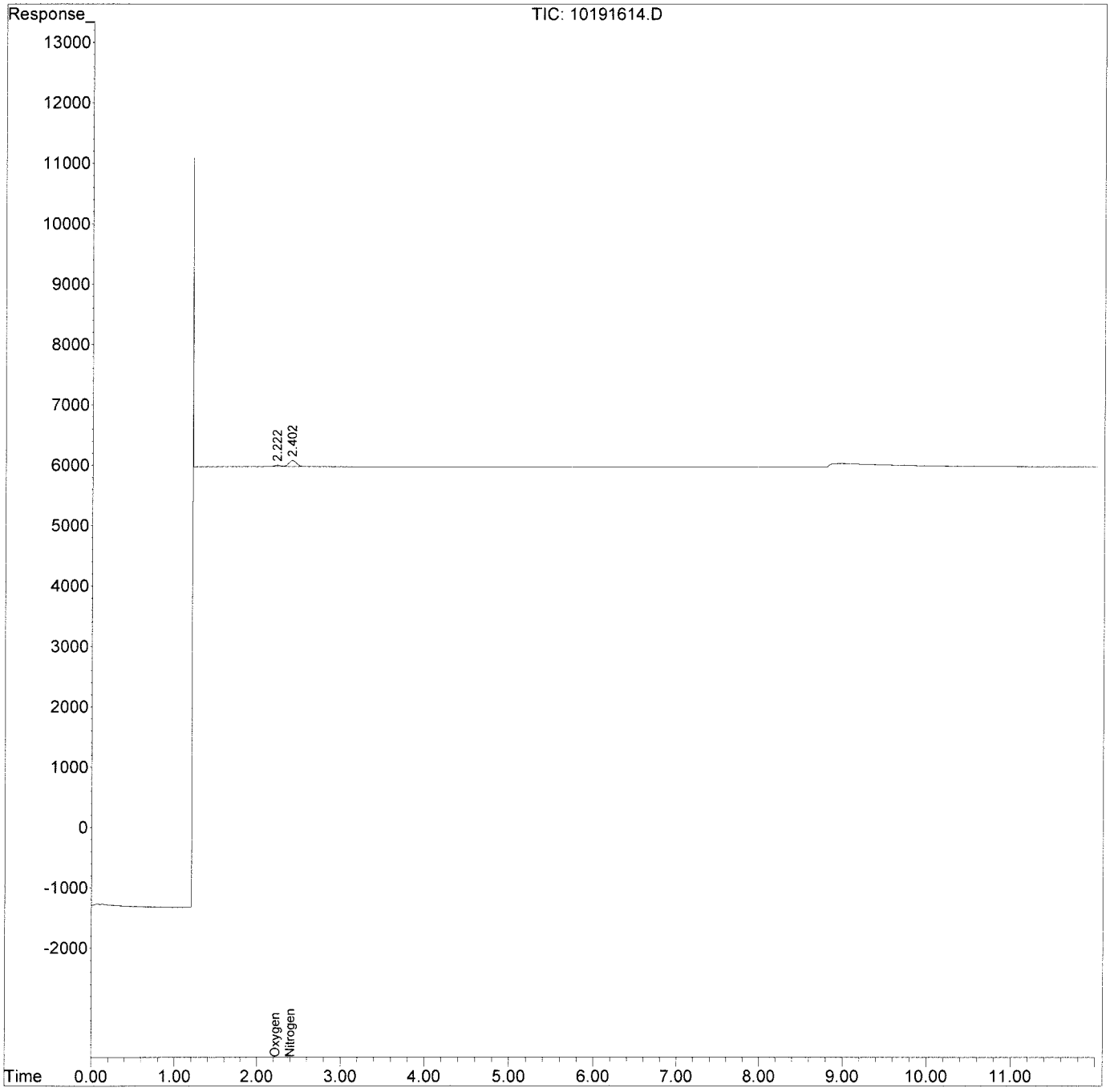
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.000	0	N.D.	ppm	
2)	Oxygen	2.222	1393	920.563	ppm	m
3)	Nitrogen	2.402	6744	3846.796	ppm	m
4)	Carbon Monoxide	0.000	0	N.D.	ppm	
5)	Methane	0.000	0	N.D.	ppm	
6)	Carbon Dioxide	0.000	0	N.D.	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191614.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 2:37 pm
Operator : amf
Sample : 4860-001
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 20 14:18:37 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

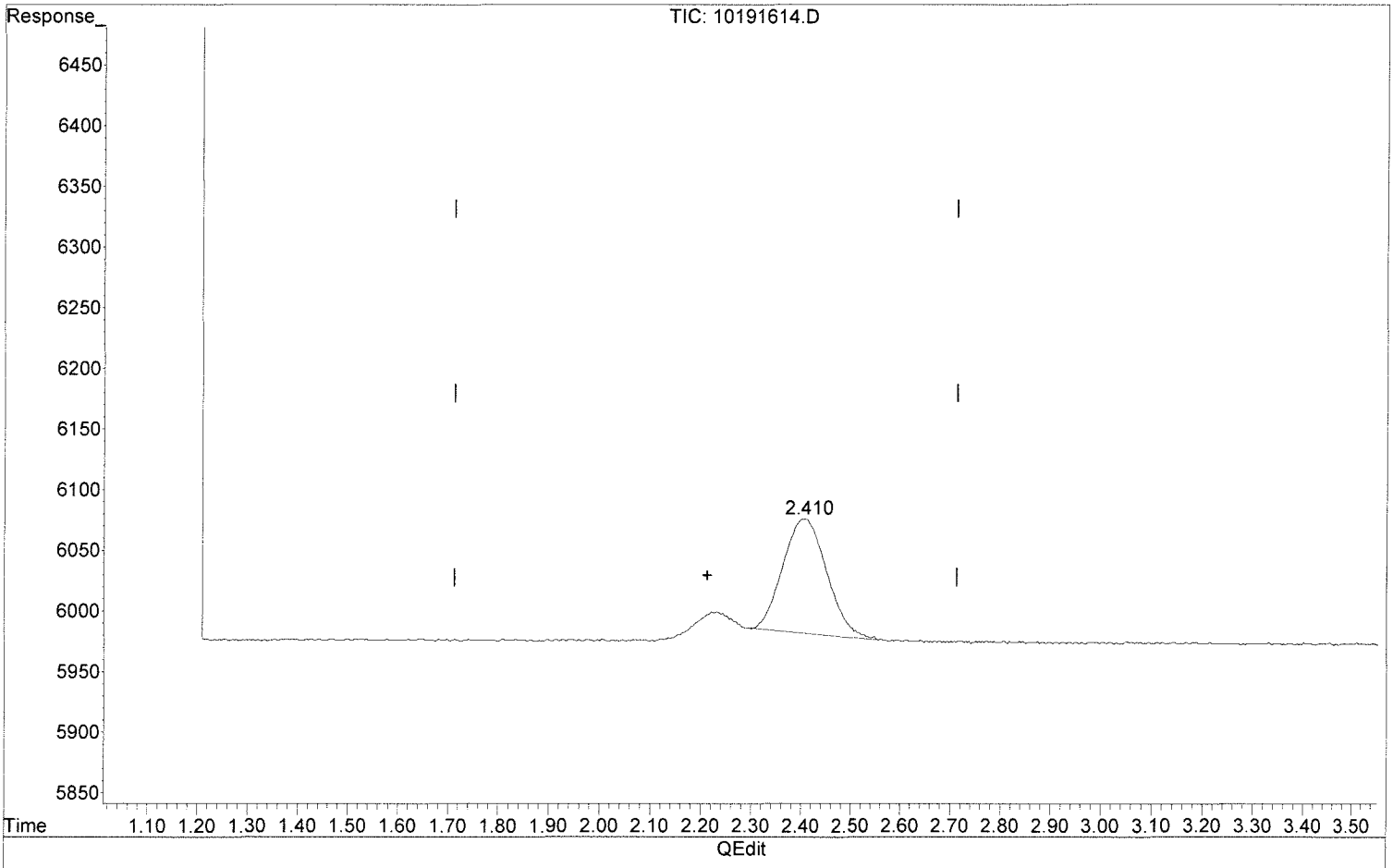
Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191614.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 2:37 pm
Operator : amf
Sample : 4860-001
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 20 14:18:00 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(2) Oxygen

2.412min 3832.835 ppm

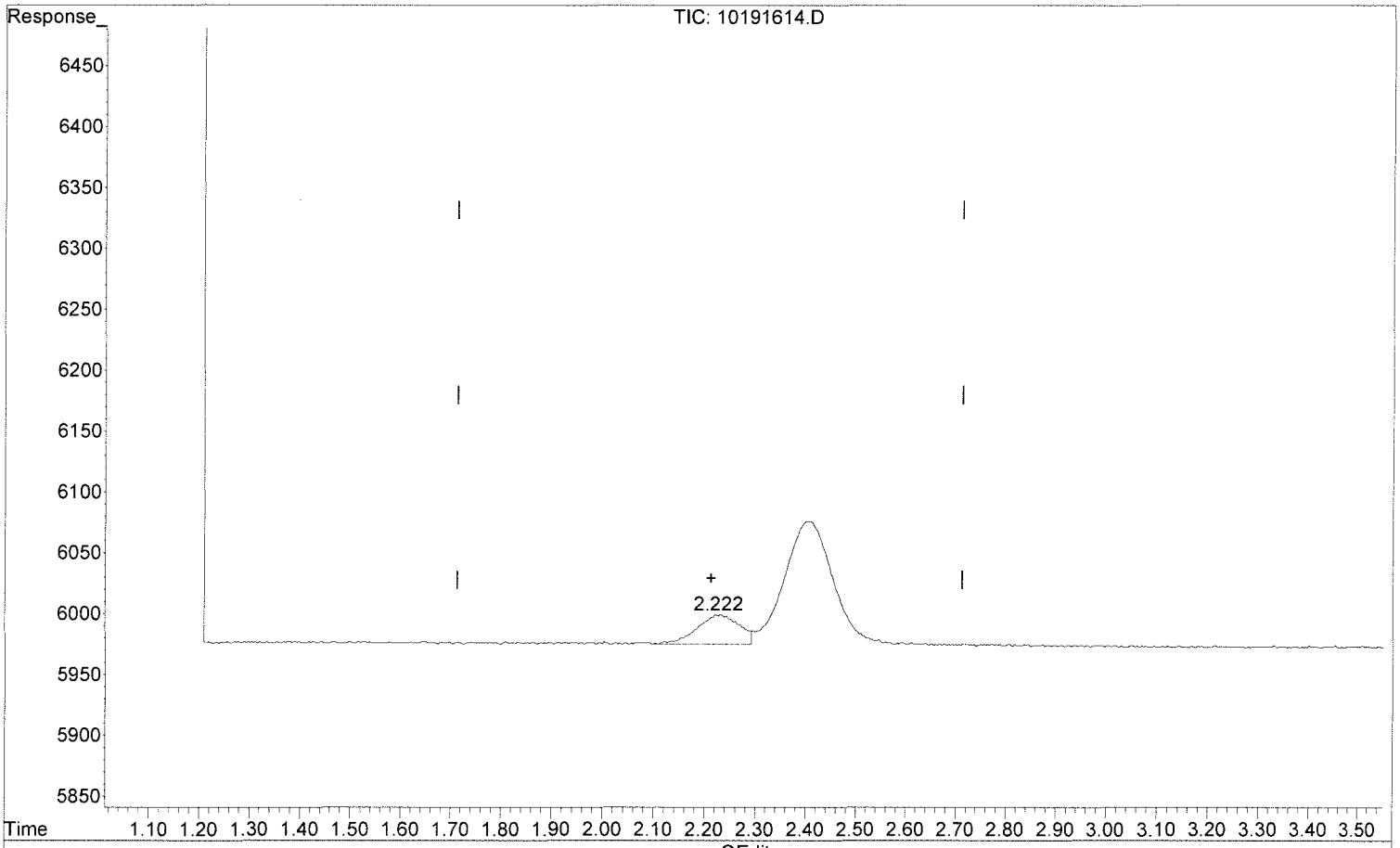
response 5800

(+) = Expected Retention Time

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191614.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 2:37 pm
Operator : amf
Sample : 4860-001
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 20 14:18:00 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(2) Oxygen

2.222min 920.563 ppm m

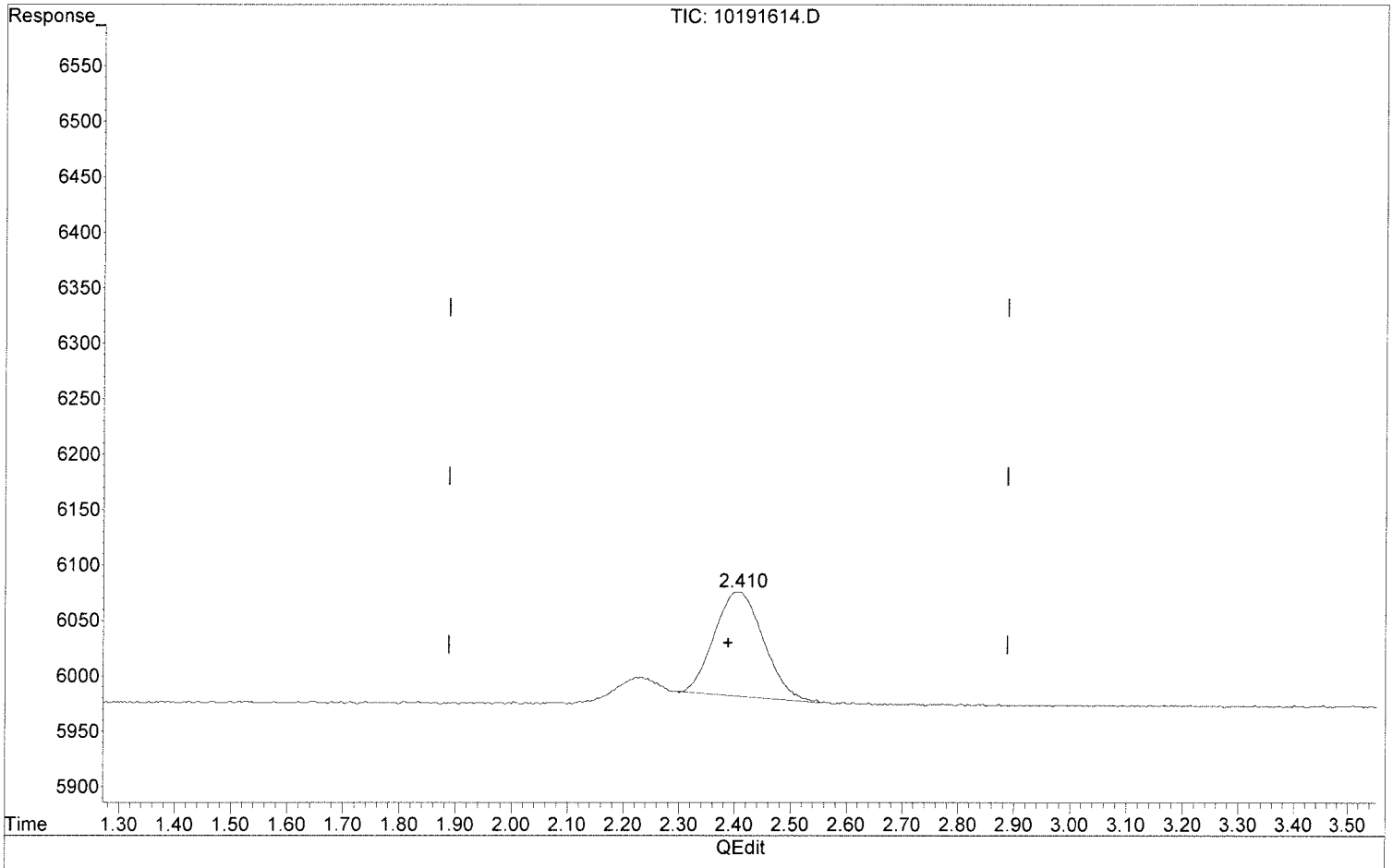
response 1393

(+) = Expected Retention Time

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191614.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 2:37 pm
Operator : amf
Sample : 4860-001
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 20 14:18:00 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(3) Nitrogen

2.412min 3308.260 ppm

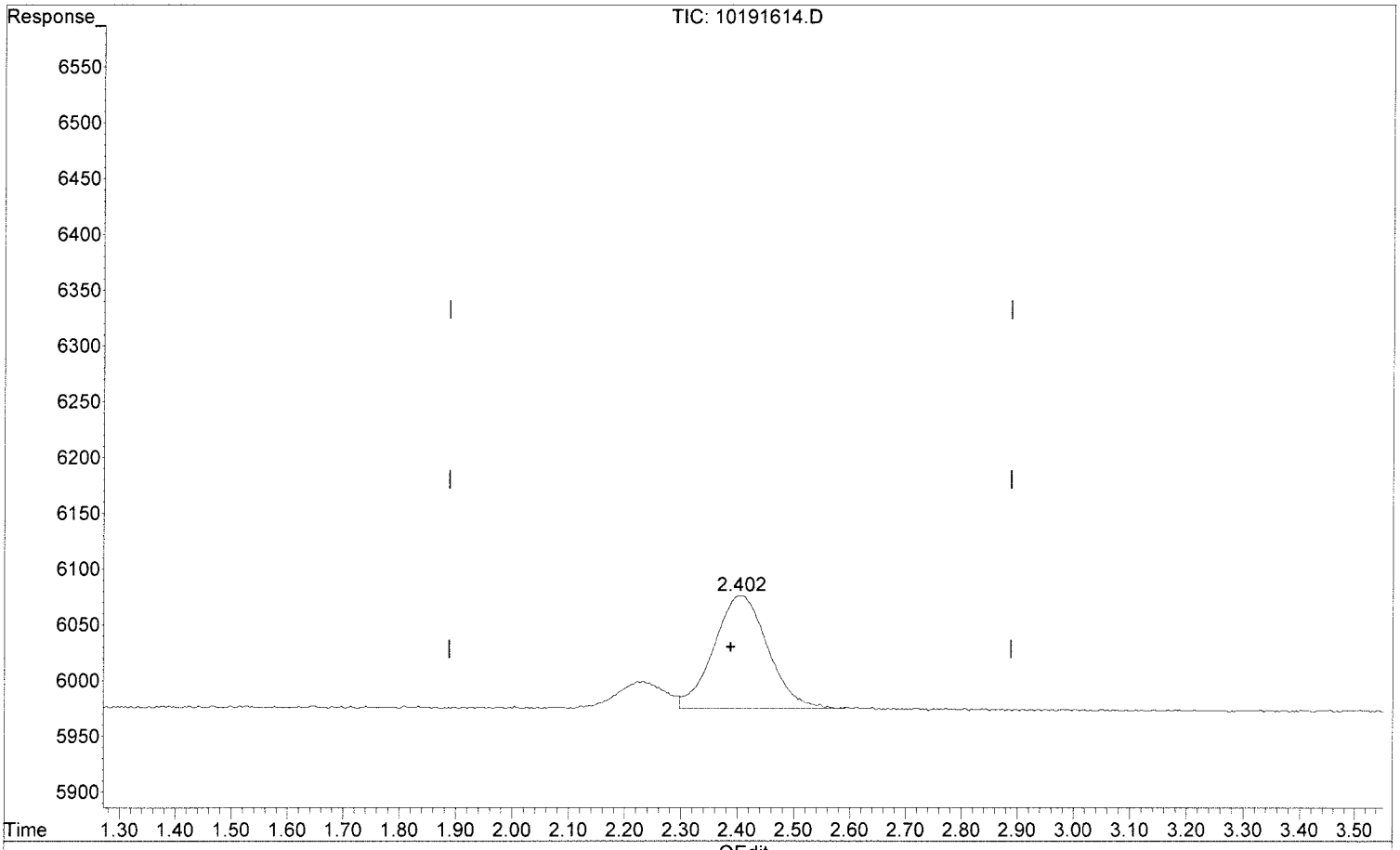
response 5800

(+) = Expected Retention Time

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191614.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 2:37 pm
Operator : amf
Sample : 4860-001
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 20 14:18:00 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(3) Nitrogen

2.402min 3846.796 ppm m

response 6744

(+) = Expected Retention Time

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191615.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 2:53 pm
Operator : amf
Sample : 4860-002
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 20 14:19:26 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

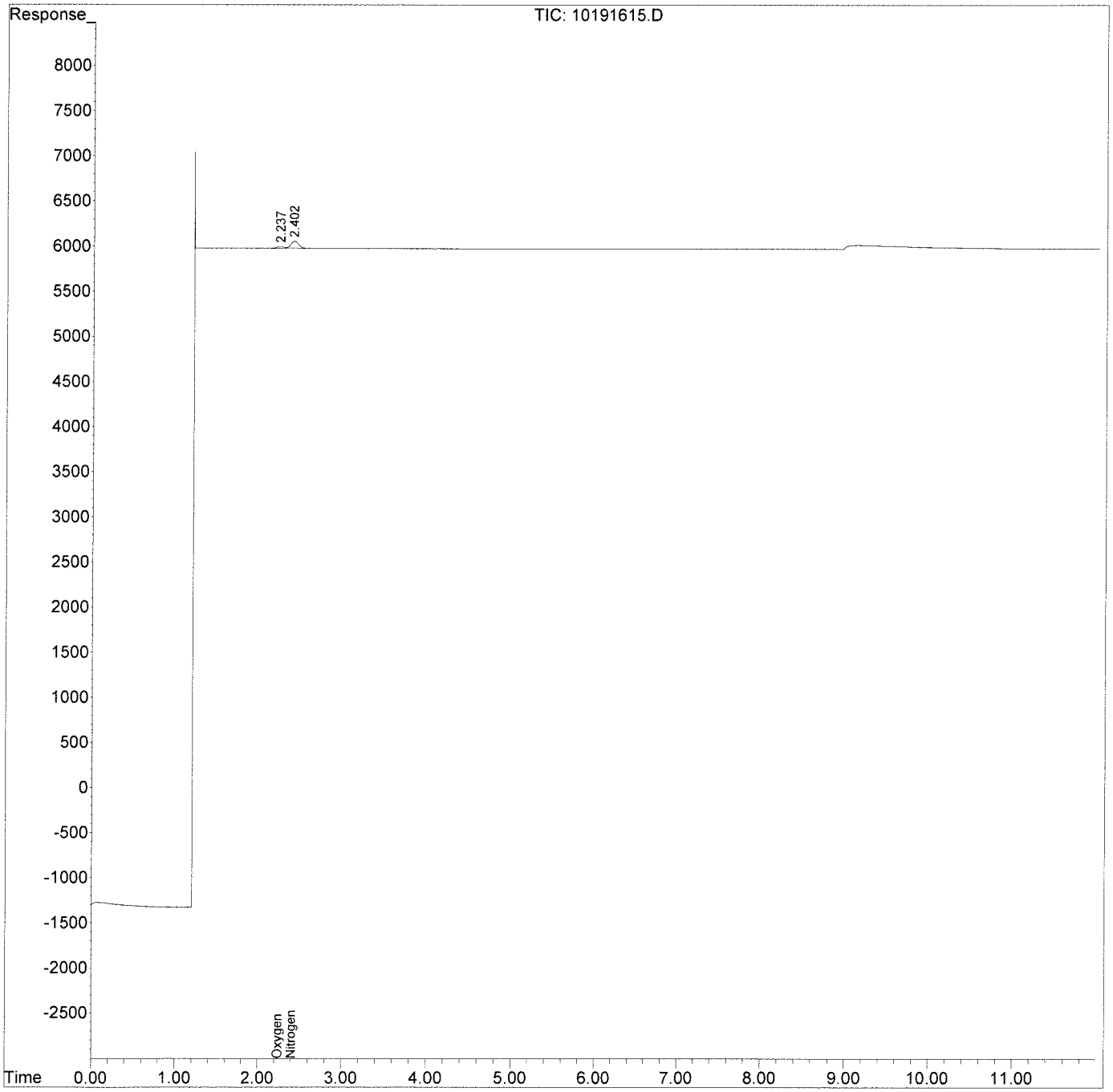
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.000	0	N.D.	ppm	
2)	Oxygen	2.237	1141	754.154	ppm	m
3)	Nitrogen	2.402	5128	2924.907	ppm	m
4)	Carbon Monoxide	0.000	0	N.D.	ppm	
5)	Methane	0.000	0	N.D.	ppm	
6)	Carbon Dioxide	0.000	0	N.D.	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191615.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 2:53 pm
Operator : amf
Sample : 4860-002
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 20 14:19:26 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

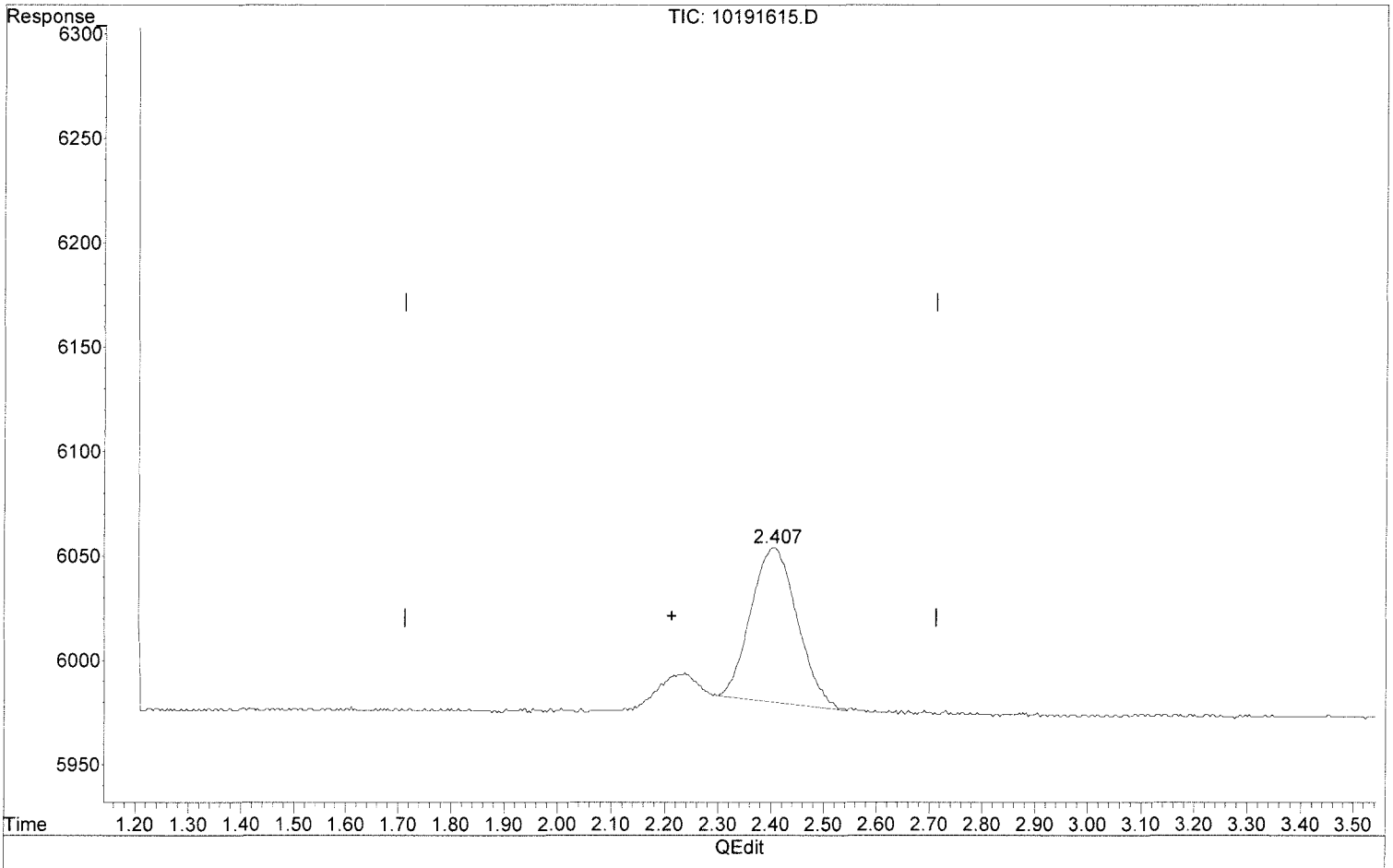
Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191615.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 2:53 pm
Operator : amf
Sample : 4860-002
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 20 14:18:52 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(2) Oxygen

2.406min 2945.703 ppm

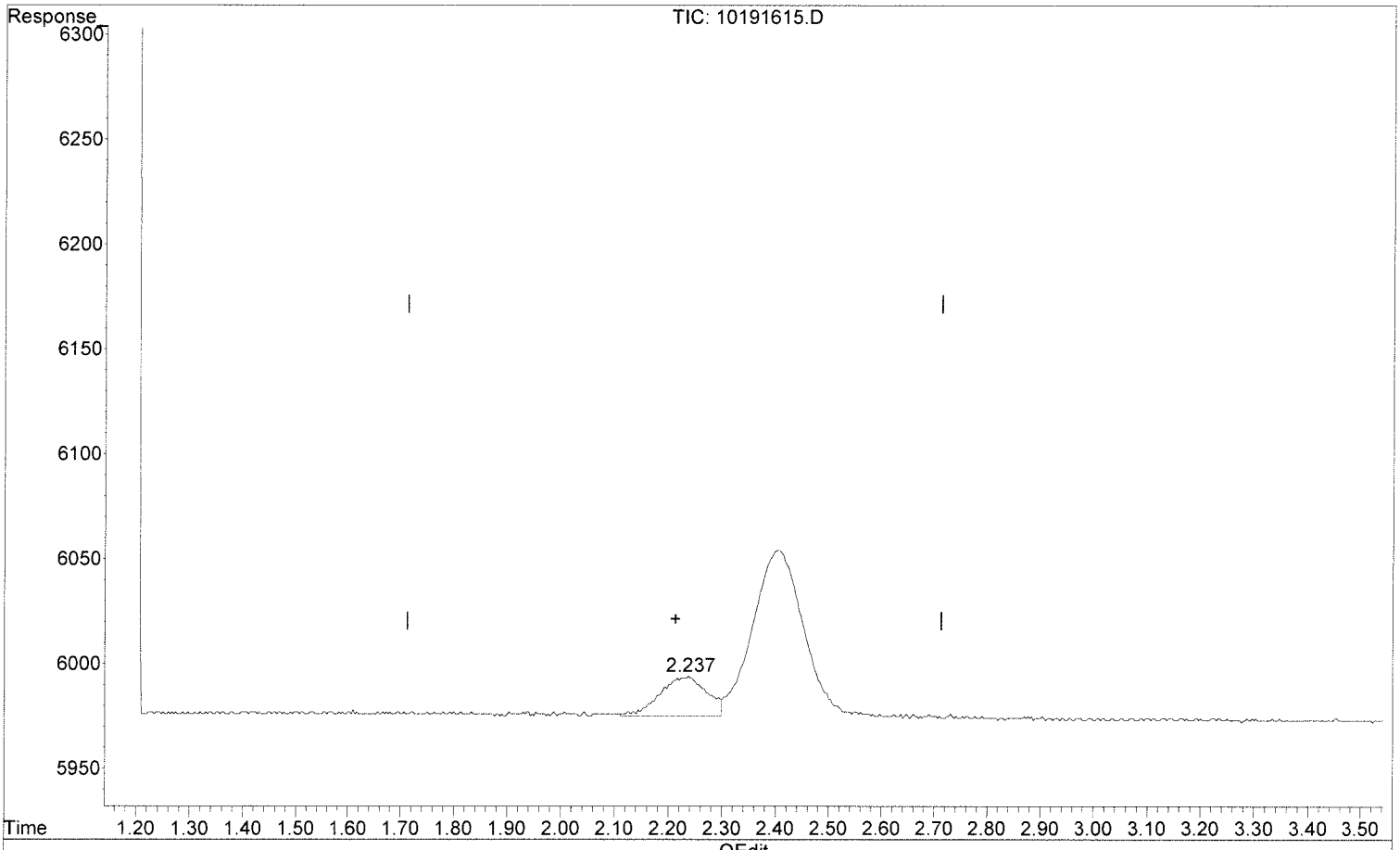
response 4458

(+) = Expected Retention Time

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191615.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 2:53 pm
Operator : amf
Sample : 4860-002
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 20 14:18:52 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(2) Oxygen

2.237min 754.154 ppm m

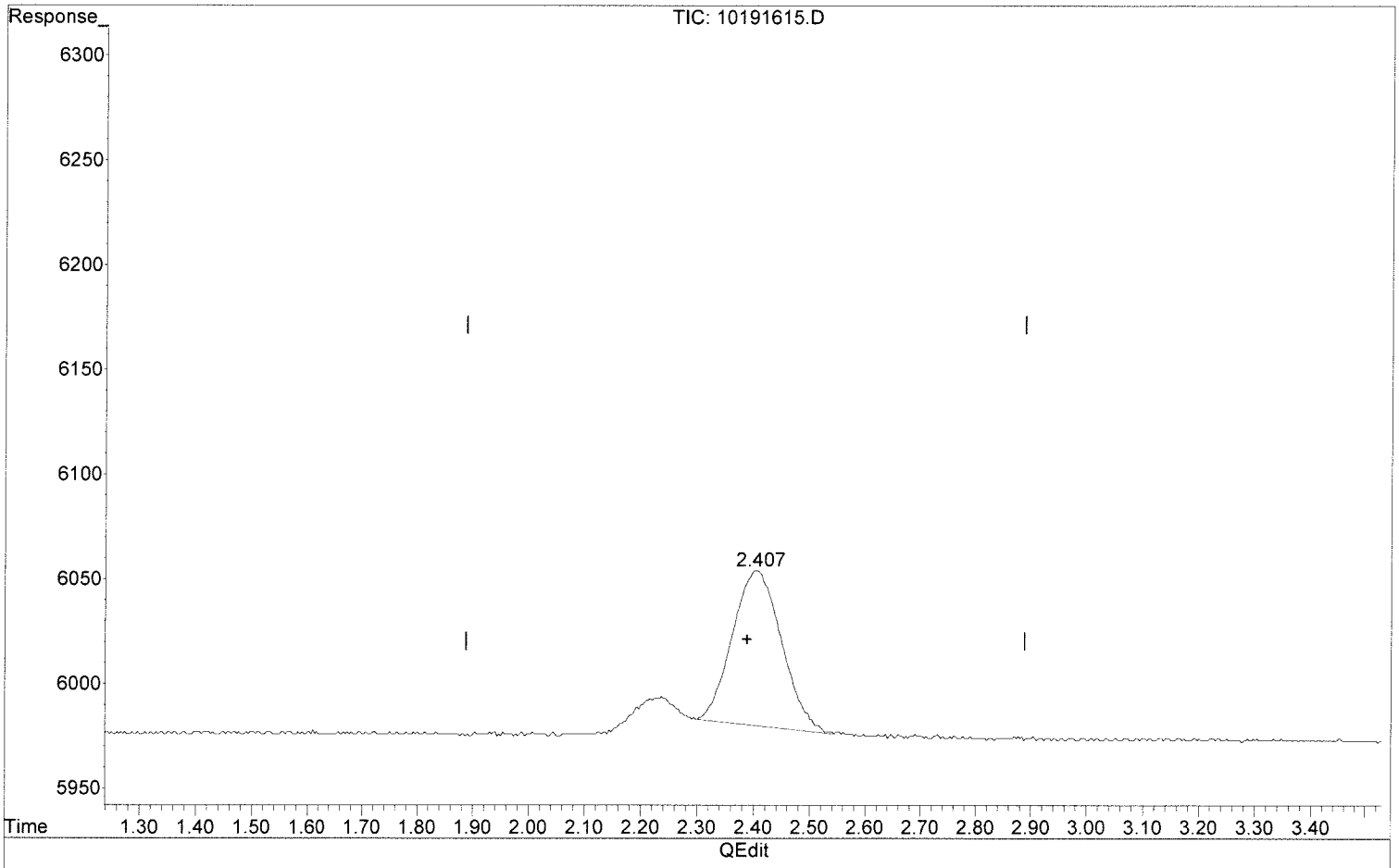
response 1141

(+) = Expected Retention Time

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191615.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 2:53 pm
Operator : amf
Sample : 4860-002
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 20 14:18:52 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(3) Nitrogen

2.406min 2542.544 ppm

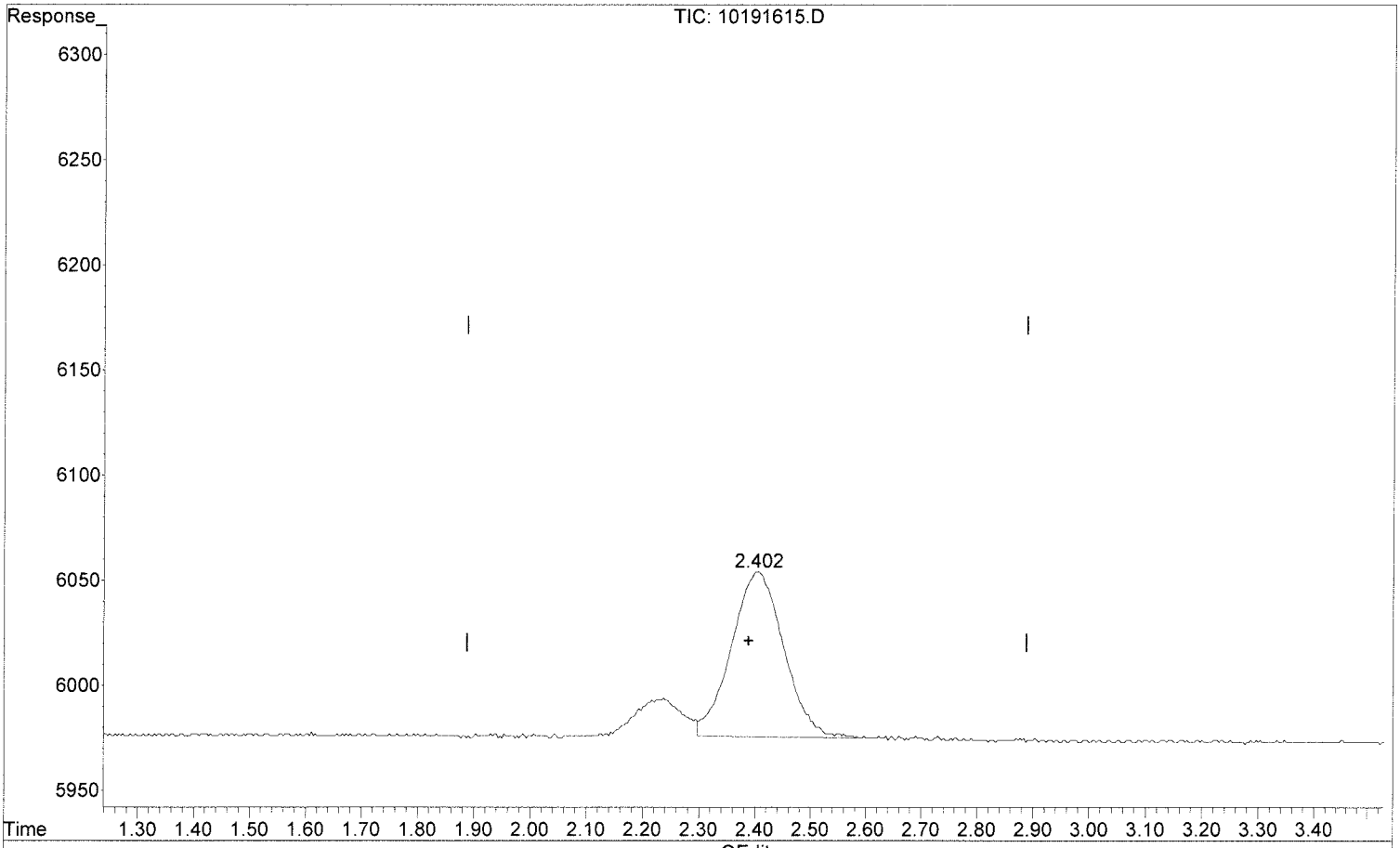
response 4458

(+) = Expected Retention Time

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191615.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 2:53 pm
Operator : amf
Sample : 4860-002
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 20 14:18:52 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(3) Nitrogen

2.402min 2924.907 ppm m

response 5128

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191617.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 3:21 pm
Operator : amf
Sample : 4860-003
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 20 14:20:20 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

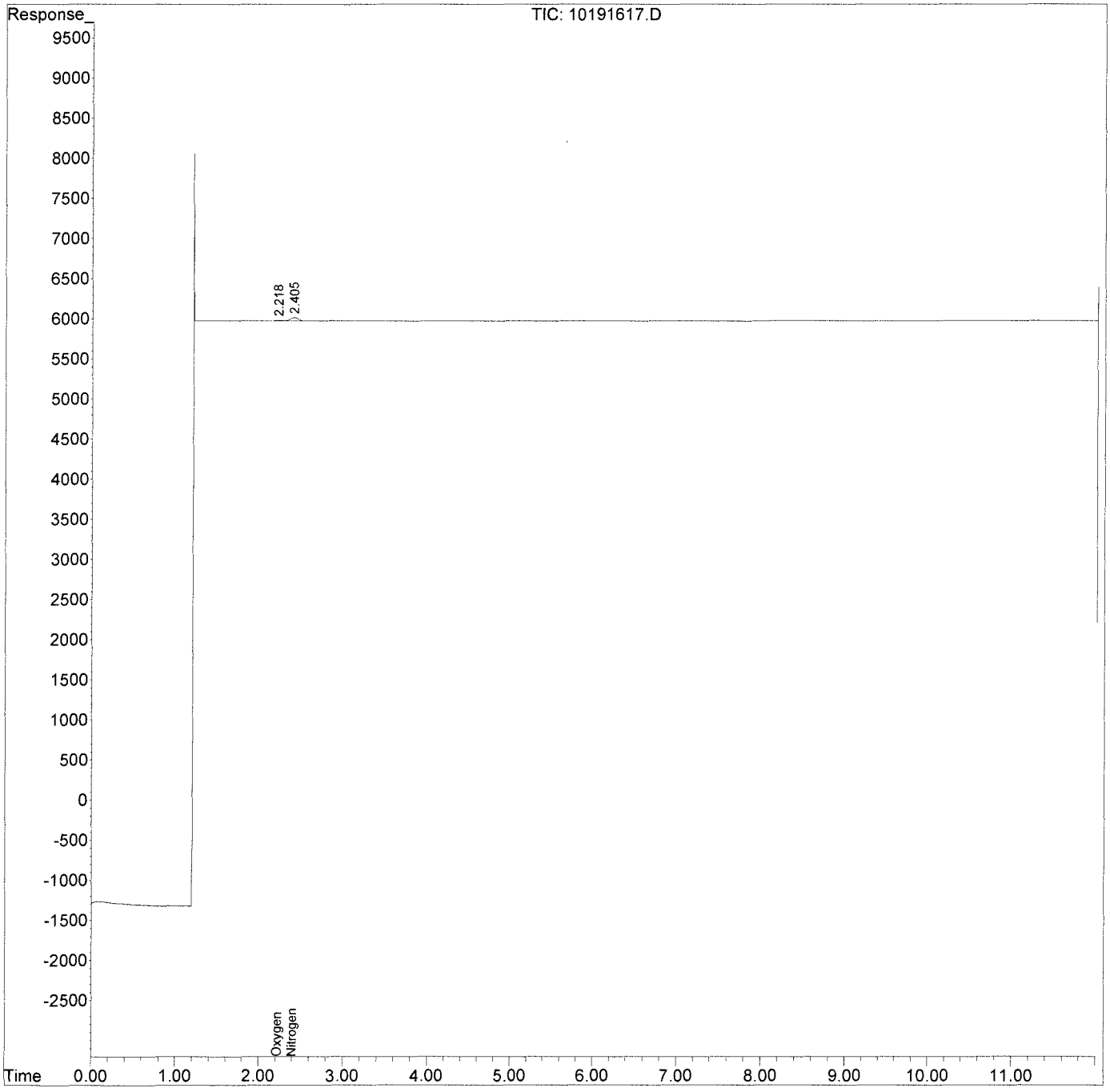
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.000	0	N.D.	ppm	
2)	Oxygen	2.218	574	379.272	ppm	m
3)	Nitrogen	2.405	2645	1508.513	ppm	m
4)	Carbon Monoxide	0.000	0	N.D.	ppm	
5)	Methane	0.000	0	N.D.	ppm	
6)	Carbon Dioxide	0.000	0	N.D.	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191617.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 3:21 pm
Operator : amf
Sample : 4860-003
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 20 14:20:20 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

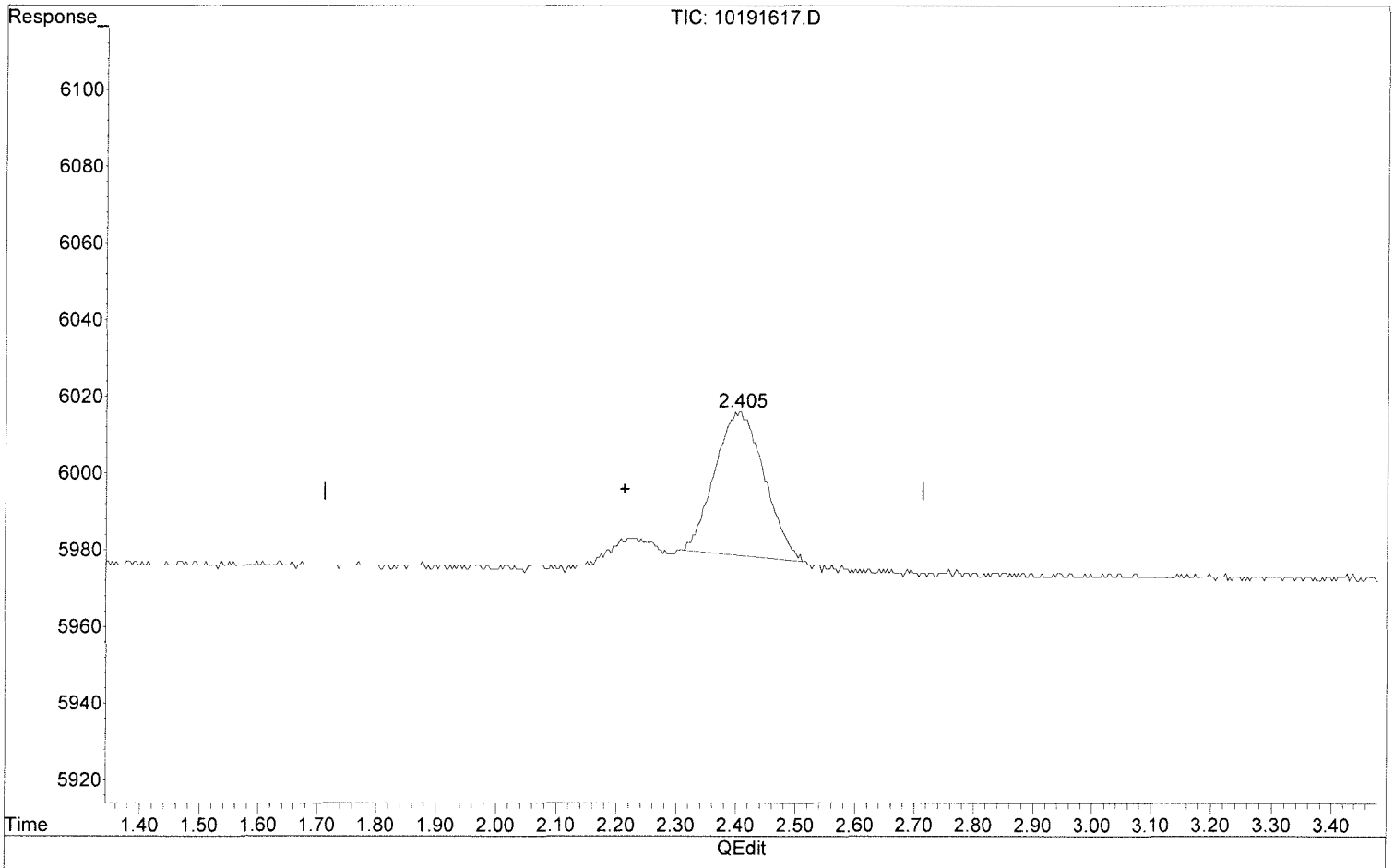
Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191617.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 3:21 pm
Operator : amf
Sample : 4860-003
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 20 14:19:51 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(2) Oxygen

2.407min 1420.064 ppm

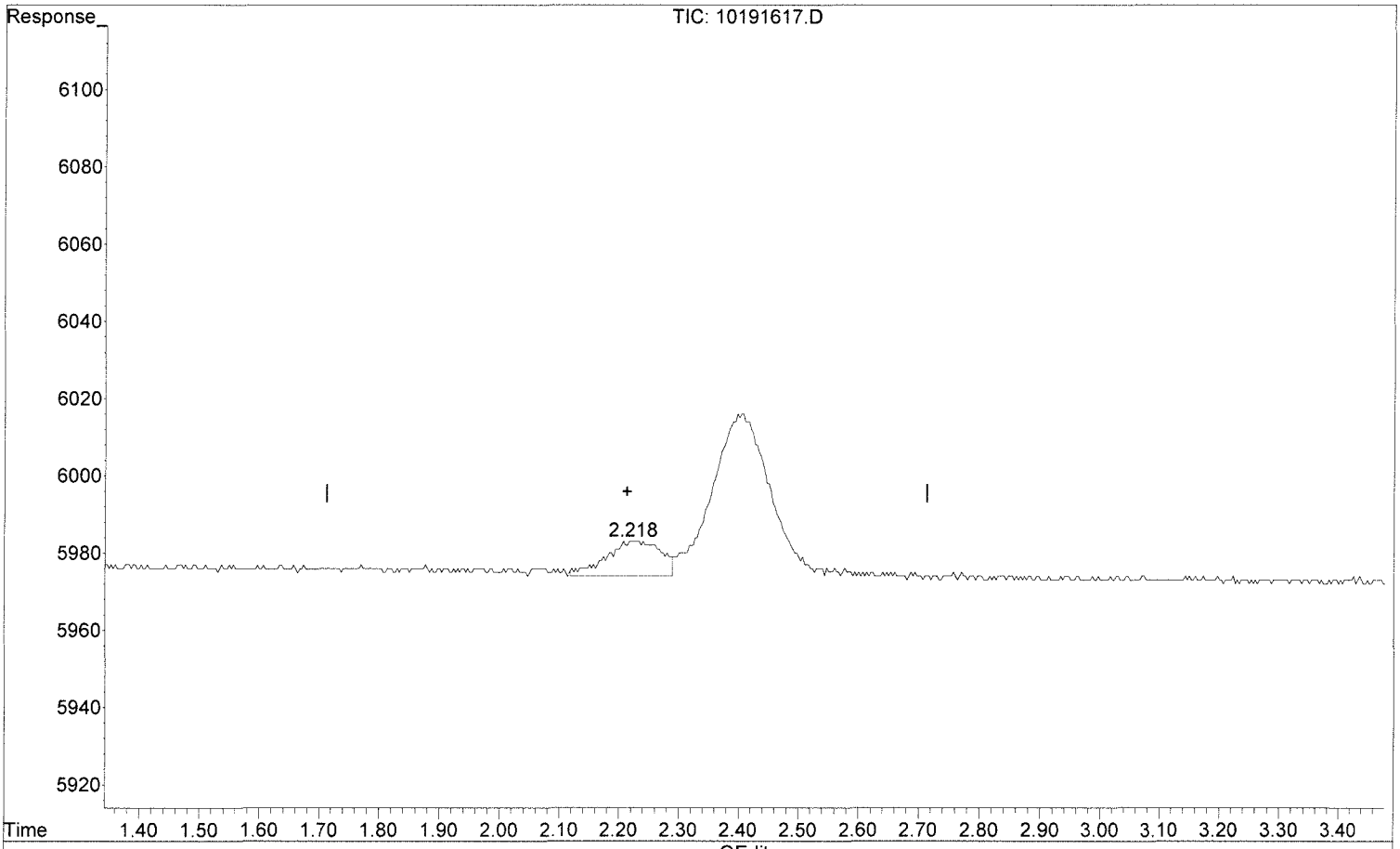
response 2149

(+) = Expected Retention Time

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191617.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 3:21 pm
Operator : amf
Sample : 4860-003
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 20 14:19:51 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(2) Oxygen

2.218min 379.272 ppm m

response 574

10/24/16

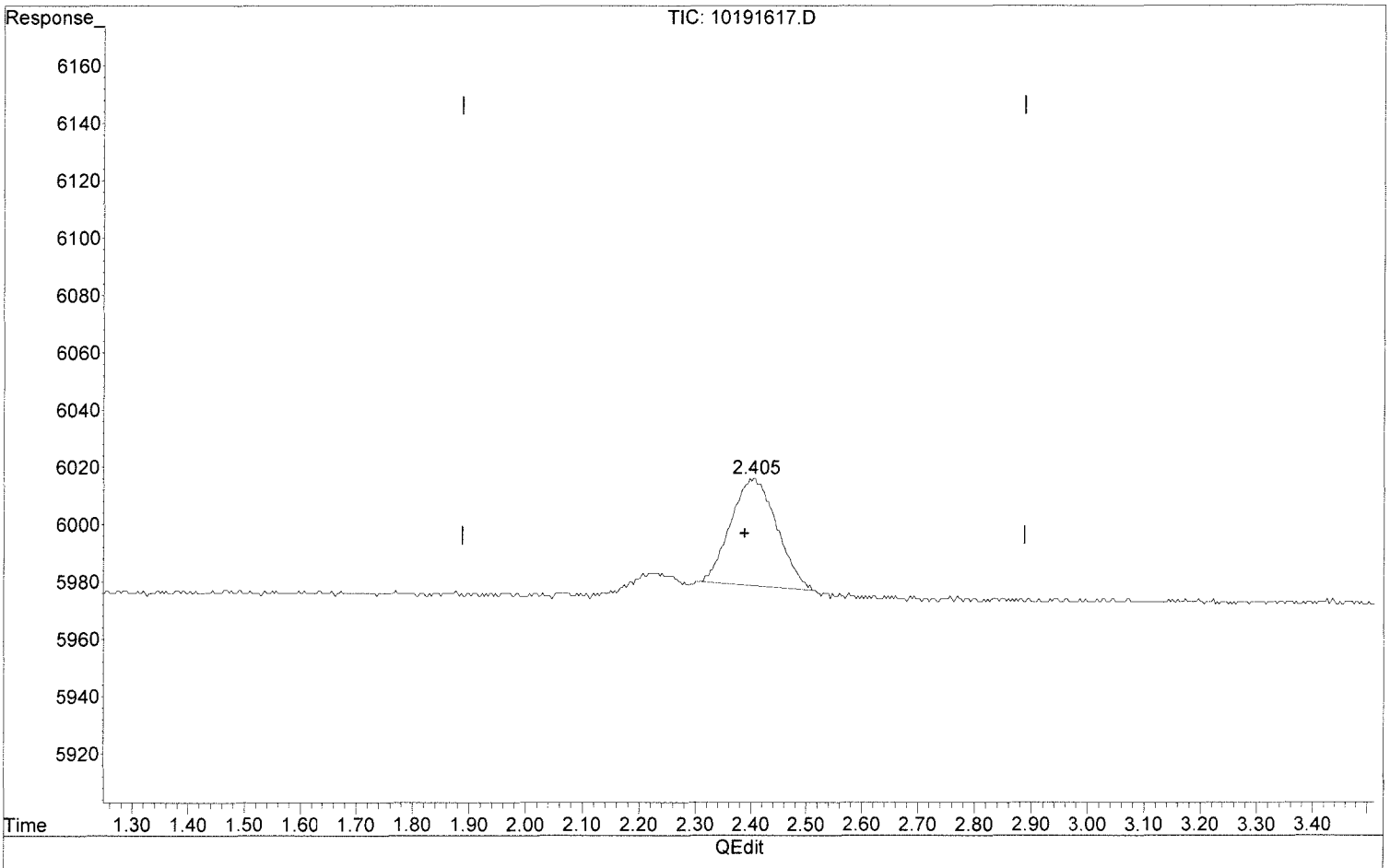
10/20/16 WP

(+) = Expected Retention Time

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191617.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 3:21 pm
Operator : amf
Sample : 4860-003
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 20 14:19:51 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(3) Nitrogen

2.407min 1225.709 ppm

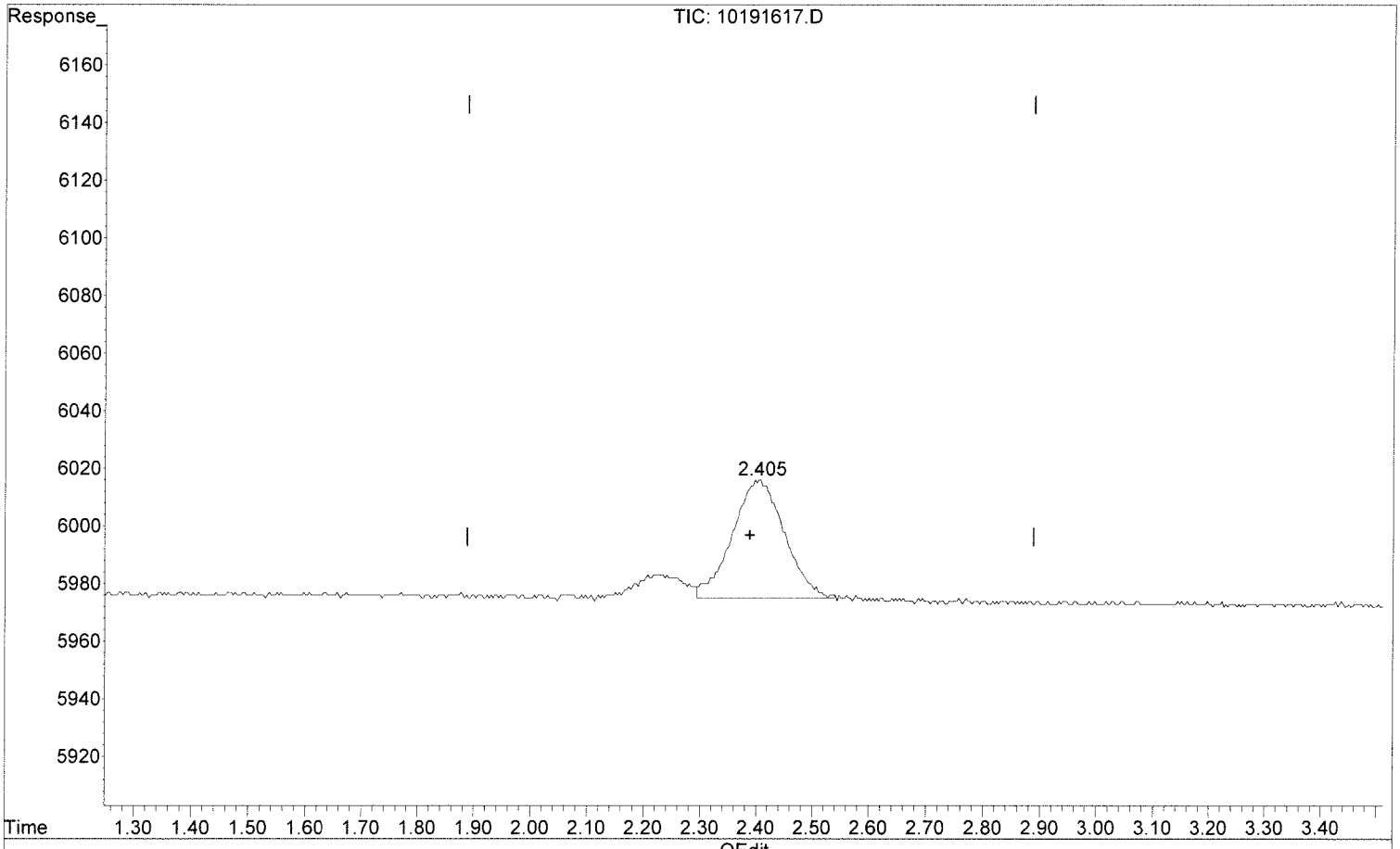
response 2149

(+) = Expected Retention Time

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191617.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 3:21 pm
Operator : amf
Sample : 4860-003
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 20 14:19:51 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(3) Nitrogen

2.405min 1508.513 ppm m

response 2645

(+) = Expected Retention Time

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191618.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 3:37 pm
Operator : amf
Sample : 4860-004
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 20 14:21:02 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

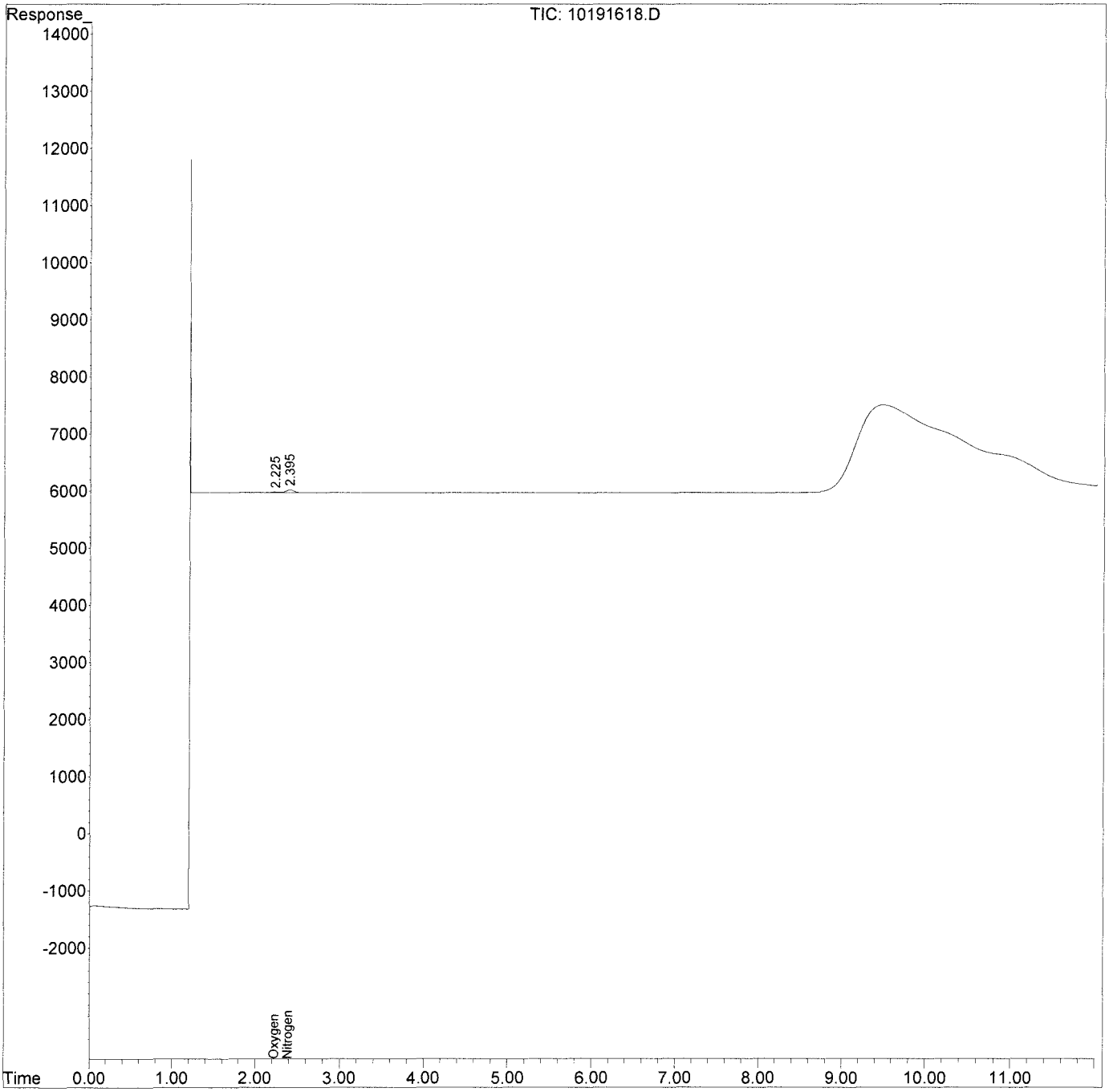
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.000	0	N.D.	ppm	
2)	Oxygen	2.225	599	395.571	ppm	m
3)	Nitrogen	2.395	3226	1840.308	ppm	m
4)	Carbon Monoxide	0.000	0	N.D.	ppm	
5)	Methane	0.000	0	N.D.	ppm	
6)	Carbon Dioxide	0.000	0	N.D.	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191618.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 3:37 pm
Operator : amf
Sample : 4860-004
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 20 14:21:02 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

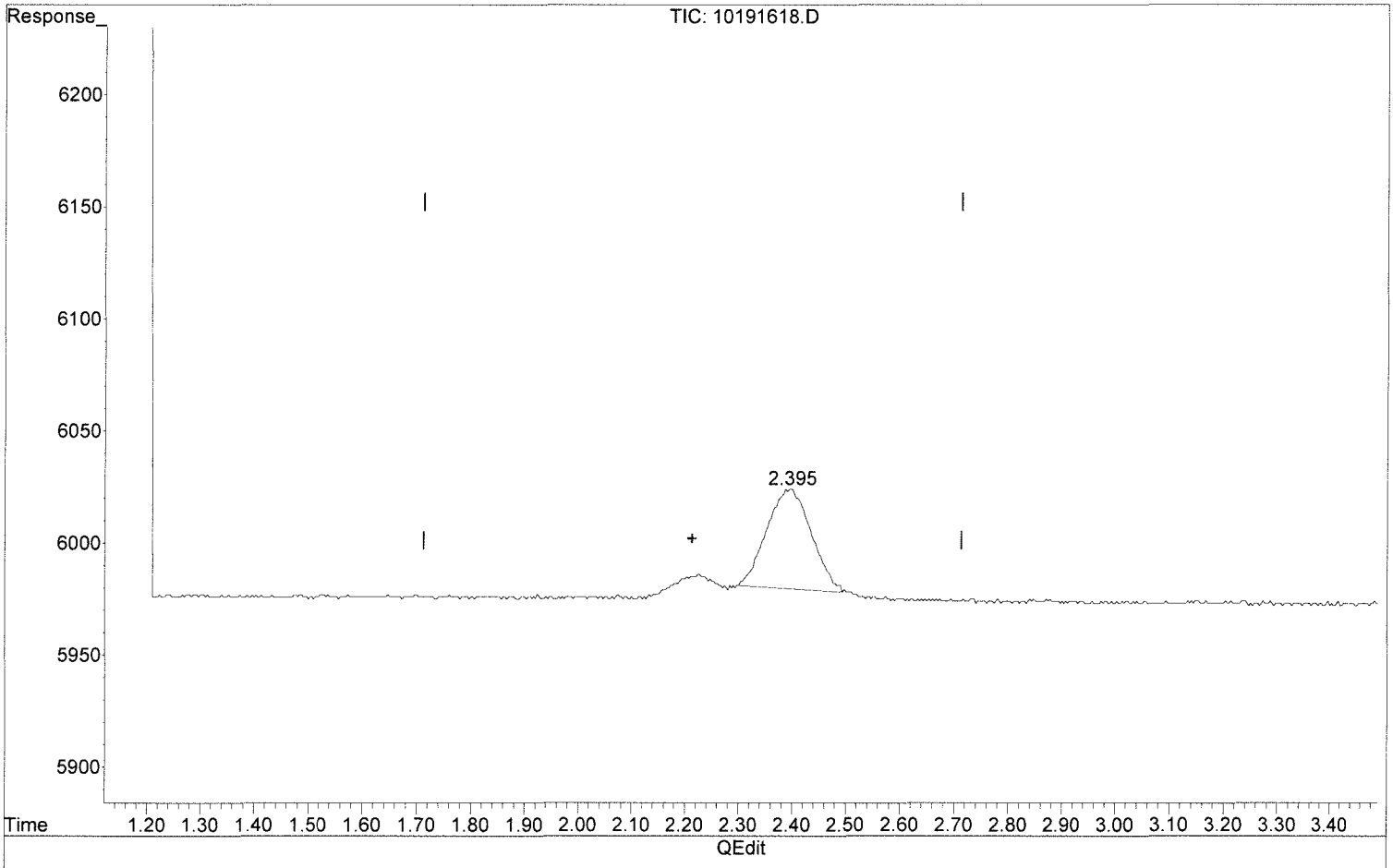


Quantitation Report (Qedit)

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191618.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 3:37 pm
Operator : amf
Sample : 4860-004
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 20 14:20:37 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(2) Oxygen

2.398min 1684.231 ppm

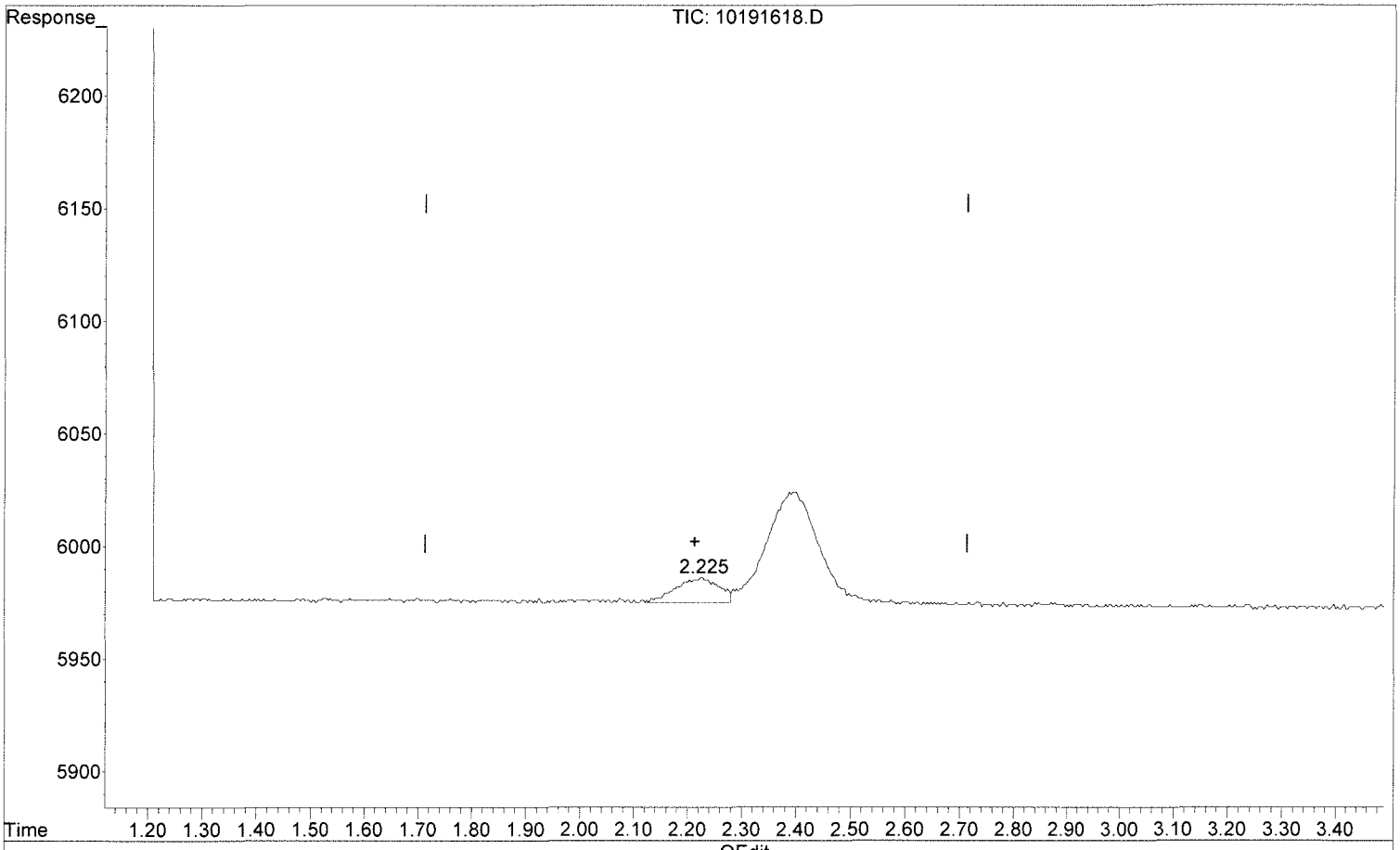
response 2549

(+) = Expected Retention Time

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191618.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 3:37 pm
Operator : amf
Sample : 4860-004
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 20 14:20:37 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(2) Oxygen

2.225min 395.571 ppm m

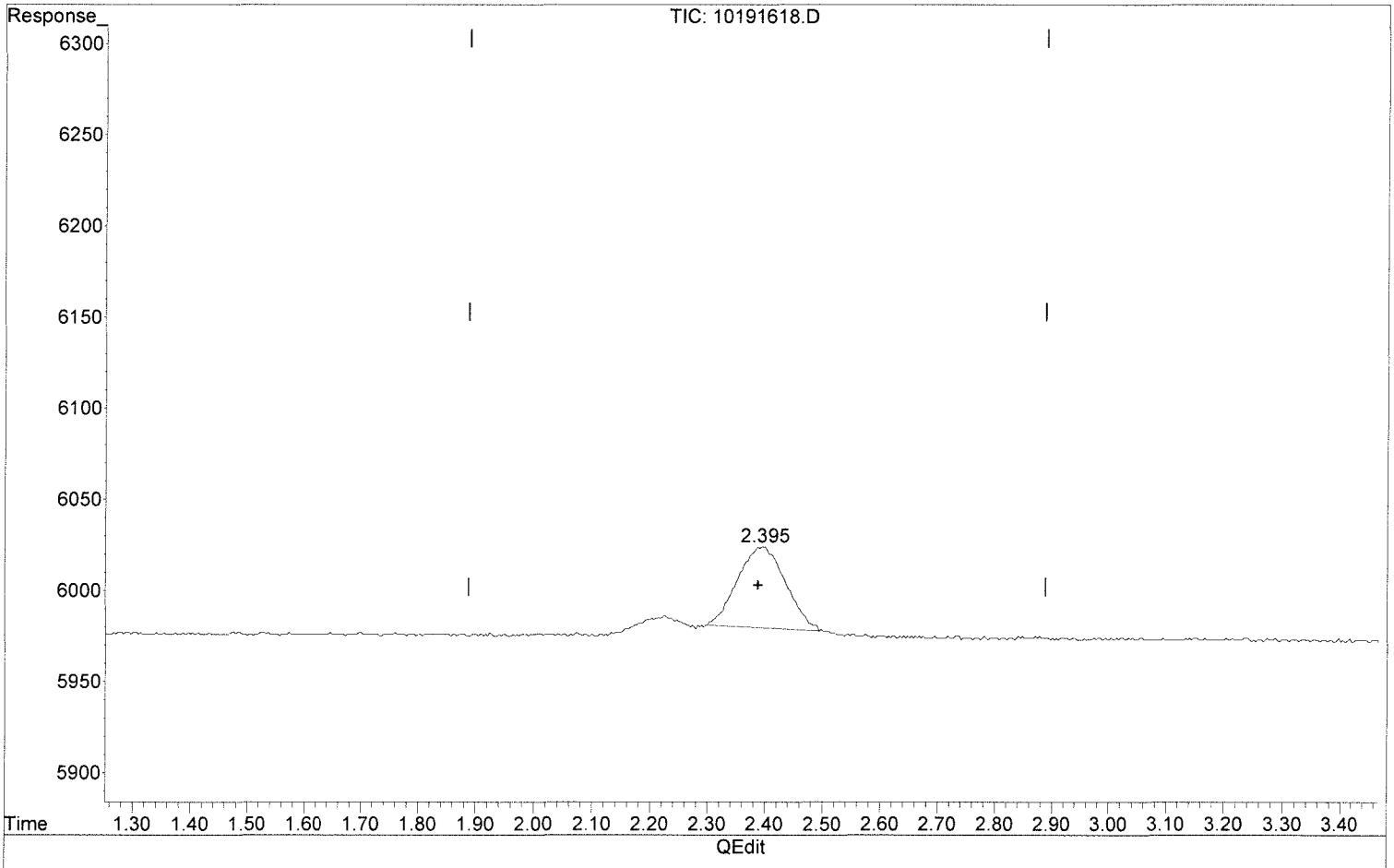
response 599

(+) = Expected Retention Time

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191618.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 3:37 pm
Operator : amf
Sample : 4860-004
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 20 14:20:37 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(3) Nitrogen

2.398min 1453.721 ppm

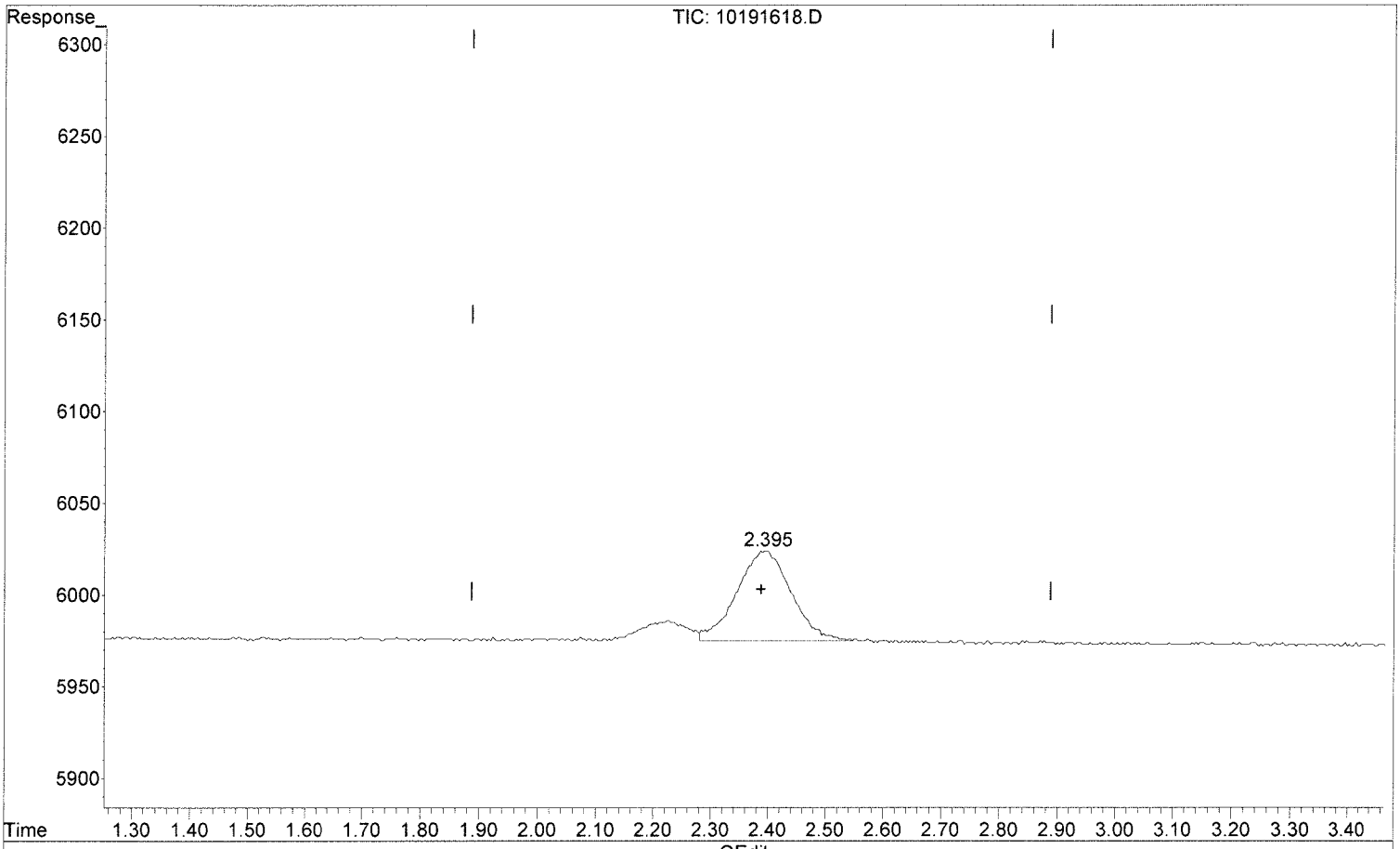
response 2549

(+) = Expected Retention Time

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191618.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 3:37 pm
Operator : amf
Sample : 4860-004
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 20 14:20:37 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(3) Nitrogen

2.395min 1840.308 ppm m

response 3226

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191602.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 8:39 am
Operator : amf
Sample : mb
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 19 09:28:35 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

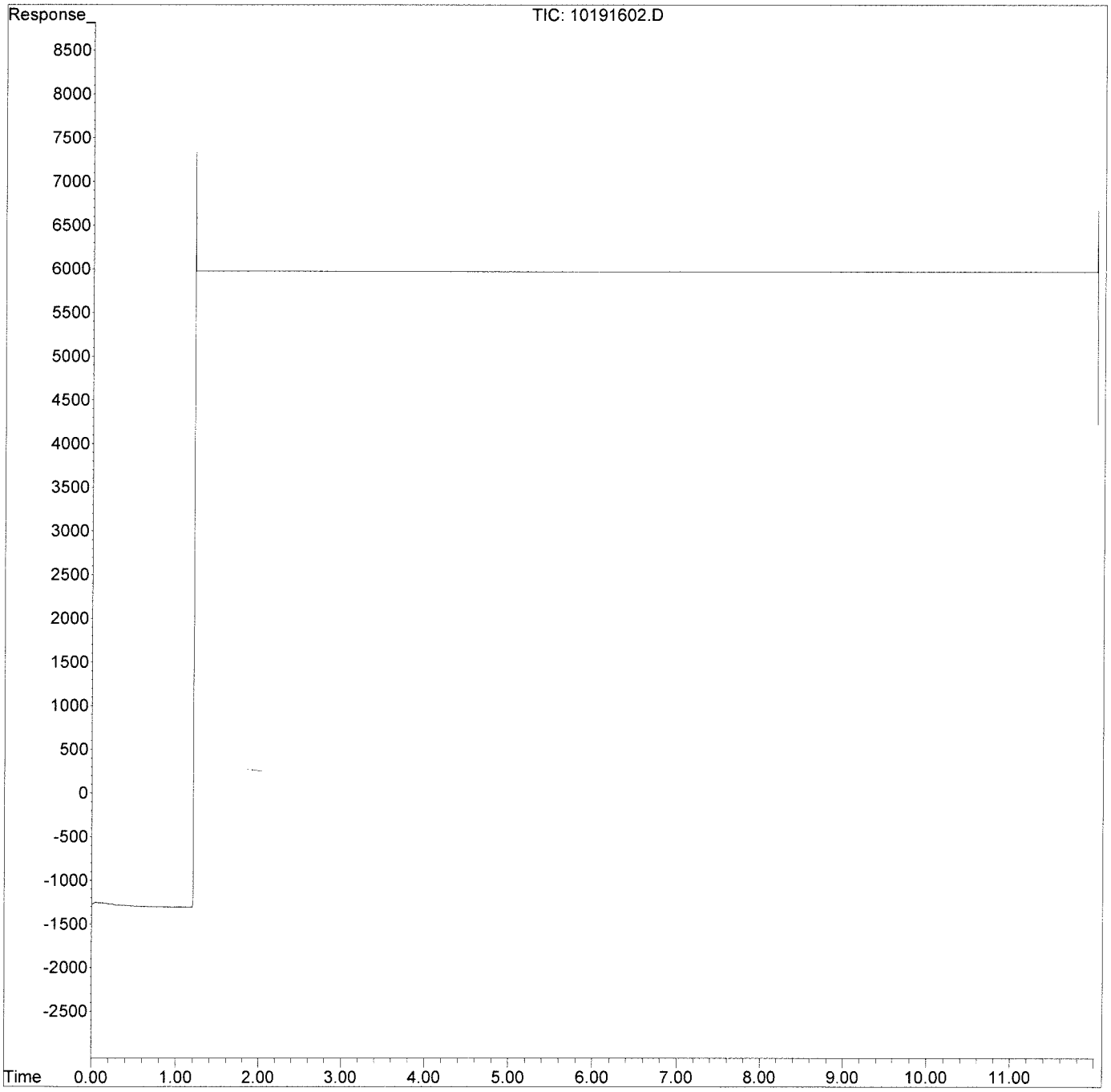
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	0.000	0	N.D.	ppm
3)	Nitrogen	0.000	0	N.D.	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191602.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 8:39 am
Operator : amf
Sample : mb
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 19 09:28:35 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191604.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 9:28 am
Operator : amf
Sample : lcs s11-07281601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 19 09:39:37 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

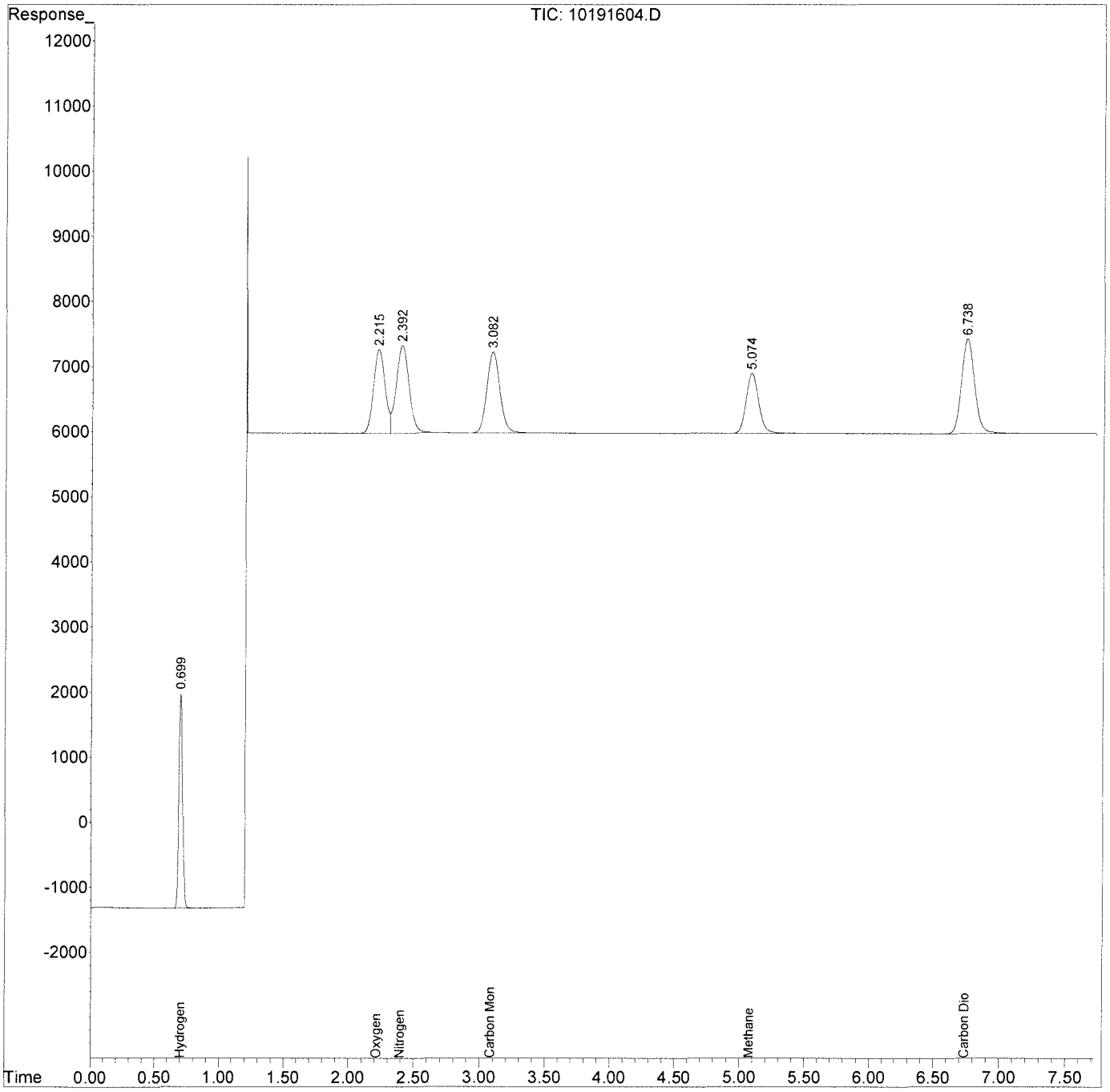
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.701	65947	50058.412	ppm
2)	Oxygen	2.216	78734	52028.860	ppm
3)	Nitrogen	2.394	91151	51990.611	ppm
4)	Carbon Monoxide	3.083	87083	51305.400	ppm
5)	Methane	5.076	62318	49503.835	ppm
6)	Carbon Dioxide	6.739	99912	49234.560	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191604.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 9:28 am
Operator : amf
Sample : lcs s11-07281601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 19 09:39:37 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Response Factor Report GC01_FXG

Method Path : I:\GC01\METHODS\
Method File : 3C012416.M
Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
Last Update : Sun Jan 24 22:12:55 2016
Response Via : Initial Calibration

Calibration Files
0.1 =01241627.D 0.5 =01241628.D 1 =01241629.D
4 =01241631.D 16 =01241632.D CO2 =01241633.D

	Compound	0.1	0.5	1	4	16	CO2	Avg	%RSD
1)	Hydrogen	1.295	1.311	1.271	1.247	1.260		1.317 E1	7.72
2)	Oxygen	1.471	1.599	1.556	1.522	1.454		1.513 E1	3.72
3)	Nitrogen	1.968	1.935	1.742	1.703	1.632		1.753 E1	9.60
4)	Carbon Monoxide	1.656	1.801	1.725	1.689	1.616		1.697 E1	4.15
5)	Methane	1.200	1.368	1.293	1.263	1.198		1.259 E1	5.14
6)	Carbon Dioxide	2.060	2.178	2.092	2.038	1.929	1.879	2.029 E1	5.38

(#) = Out of Range ### Number of calibration levels exceeded format ###

Calibration Status Report GC01_FXG

Method Path : I:\GC01\METHODS\
Method File : 3C012416.M
Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
Last Update : Sun Jan 24 22:12:55 2016
Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	0.1	100	0	J:\GC01\DATA\FXG\2016_01\24\01241627.D
2	0.5	500	0	J:\GC01\DATA\FXG\2016_01\24\01241628.D
3	1	1000	0	J:\GC01\DATA\FXG\2016_01\24\01241629.D
4	4	4000	0	J:\GC01\DATA\FXG\2016_01\24\01241631.D
5	16	16667	0	J:\GC01\DATA\FXG\2016_01\24\01241632.D
6	CO2	99800	0	J:\GC01\DATA\FXG\2016_01\24\01241633.D
7	CH4	99000	0	J:\GC01\DATA\FXG\2016_01\24\01241634.D
8	H2	42020	0	J:\GC01\DATA\FXG\2016_01\24\01241635.D
9	n2	100000	0	J:\GC01\DATA\FXG\2016_01\24\01241637.D
10	o2	100000	0	J:\GC01\DATA\FXG\2016_01\24\01241639.D

#	ID	Update Time	Quant Time	Acquisition Time
1	0.1	Jan 24 19:51 2016	Jan 24 19:50 2016	24 Jan 2016 16:38
2	0.5	Jan 24 19:52 2016	Jan 24 19:51 2016	24 Jan 2016 17:24
3	1	Jan 24 19:53 2016	Jan 24 19:52 2016	24 Jan 2016 17:40
4	4	Jan 24 21:18 2016	Jan 24 19:55 2016	24 Jan 2016 18:16
5	16	Jan 24 19:57 2016	Jan 24 19:57 2016	24 Jan 2016 18:33
6	CO2	Jan 24 20:00 2016	Jan 24 19:58 2016	24 Jan 2016 19:02
7	CH4	Jan 24 20:36 2016	Jan 24 20:36 2016	24 Jan 2016 20:04
8	H2	Jan 24 20:56 2016	Jan 24 20:56 2016	24 Jan 2016 20:39
9	n2	Jan 24 21:35 2016	Jan 24 21:35 2016	24 Jan 2016 21:19
10	o2	Jan 24 22:12 2016	Jan 24 22:12 2016	24 Jan 2016 21:56

3C012416.M Sun Feb 07 17:55:16 2016

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241627.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 16:38
Operator : WH
Sample : std 0.1% S11-12041504
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 19:50:44 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 19:47:27 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.712	1295	1008.184	ppm	
2)	Oxygen	2.227	1471	938.454	ppm	m
3)	Nitrogen	2.403	1968	997.840	ppm	m
4)	Carbon Monoxide	3.111	1656	1000.000	ppm	
5)	Methane	5.087	1200	1000.000	ppm	
6)	Carbon Dioxide	6.744	2060	1000.000	ppm	

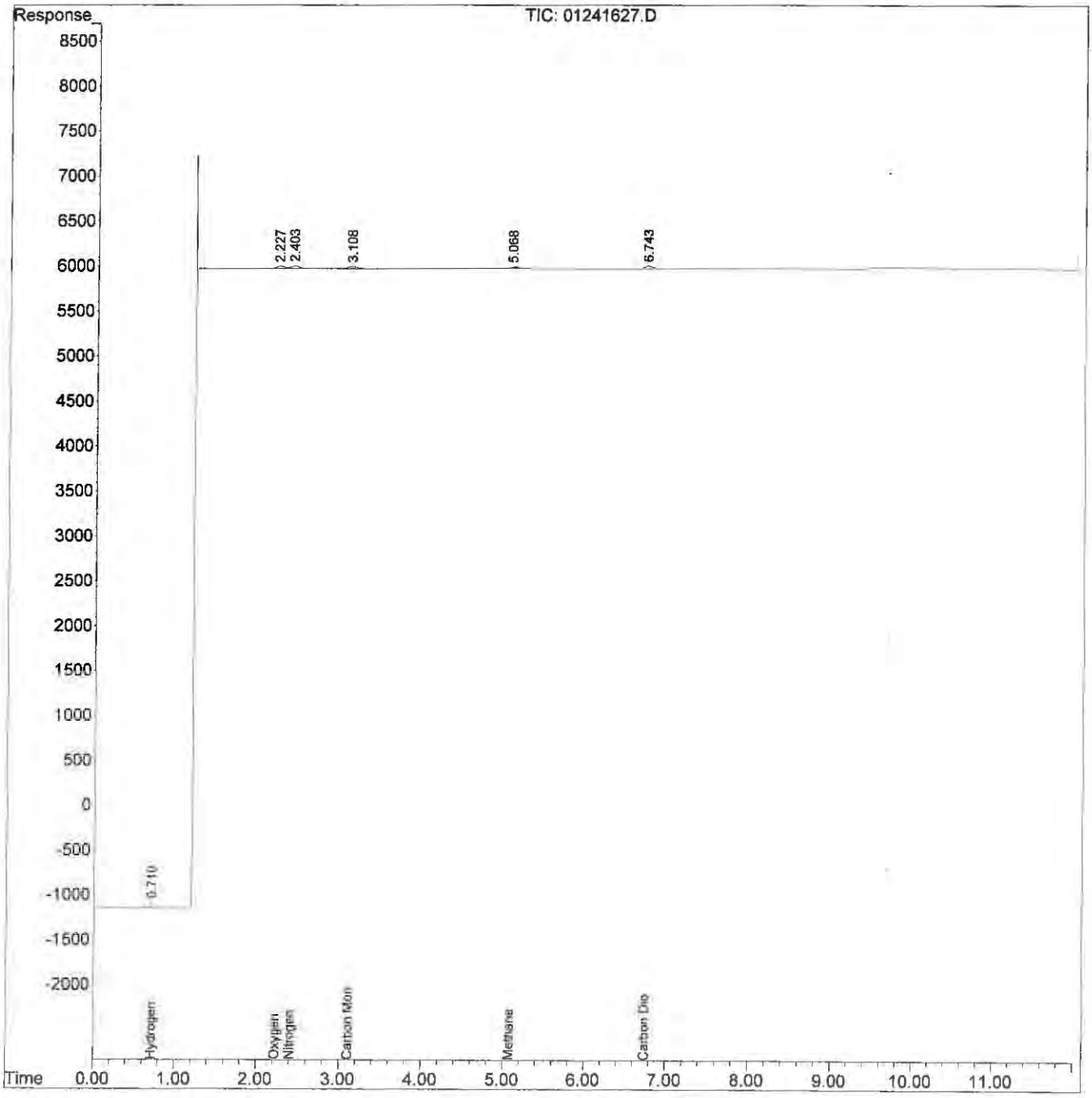
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241627.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 16:38
Operator : WH
Sample : std 0.1% S11-12041504
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 19:50:44 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 19:47:27 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

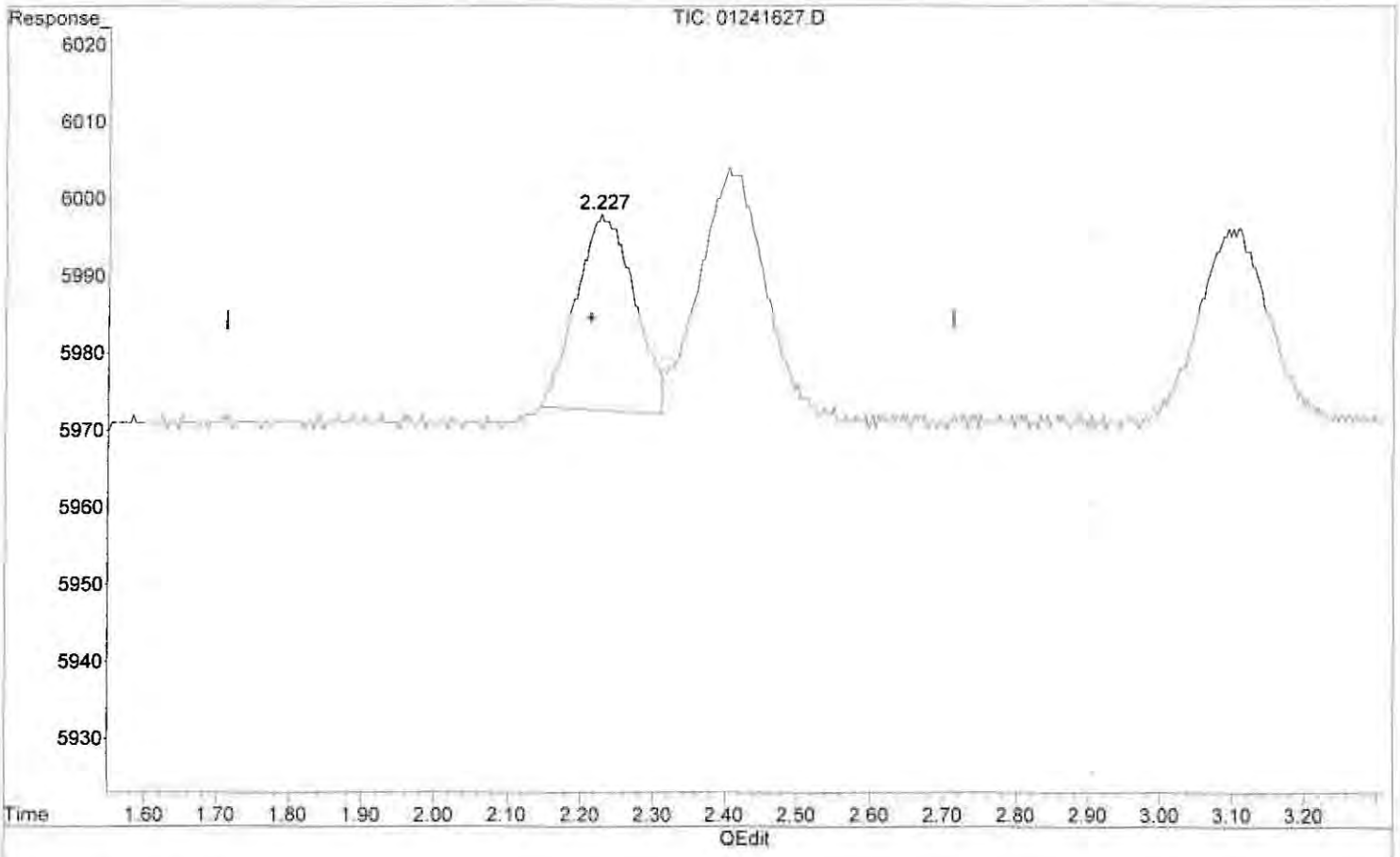


Quantitation Report (Qedit)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241627.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 16:38
Operator : WH
Sample : std 0.1% S11-12041504
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 19:49:57 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 19:47:27 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(2) Oxygen

2.229min 876.764 ppm

response 1374

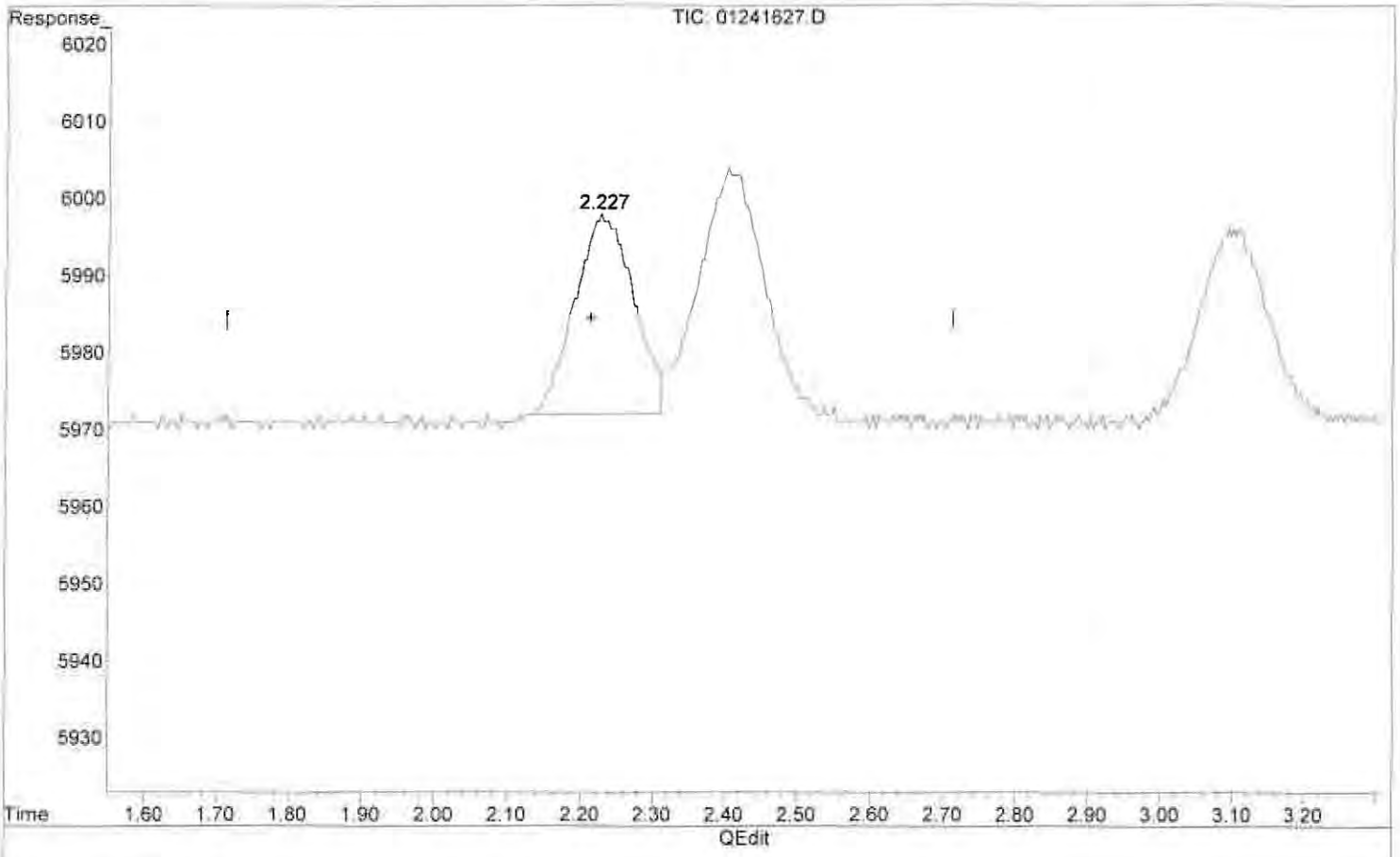
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241627.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 16:38
Operator : WH
Sample : std 0.1% S11-12041504
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 19:49:57 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 19:47:27 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(2) Oxygen

2.227min 938.454 ppm m

response 1471

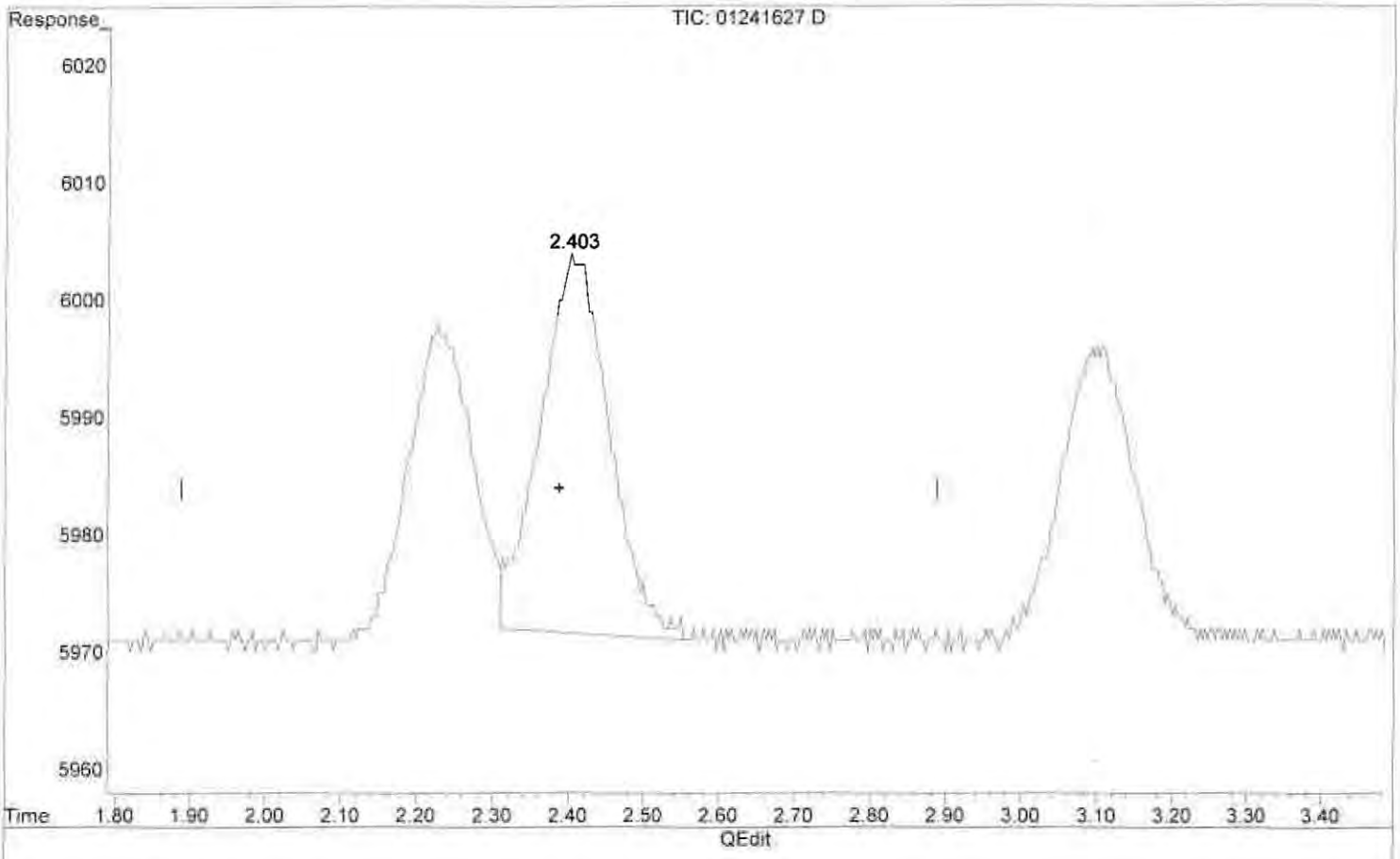
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241627.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 16:38
Operator : WH
Sample : std 0.1% S11-12041504
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 19:49:57 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 19:47:27 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(3) Nitrogen

2.417min 1033.747 ppm

response 2039

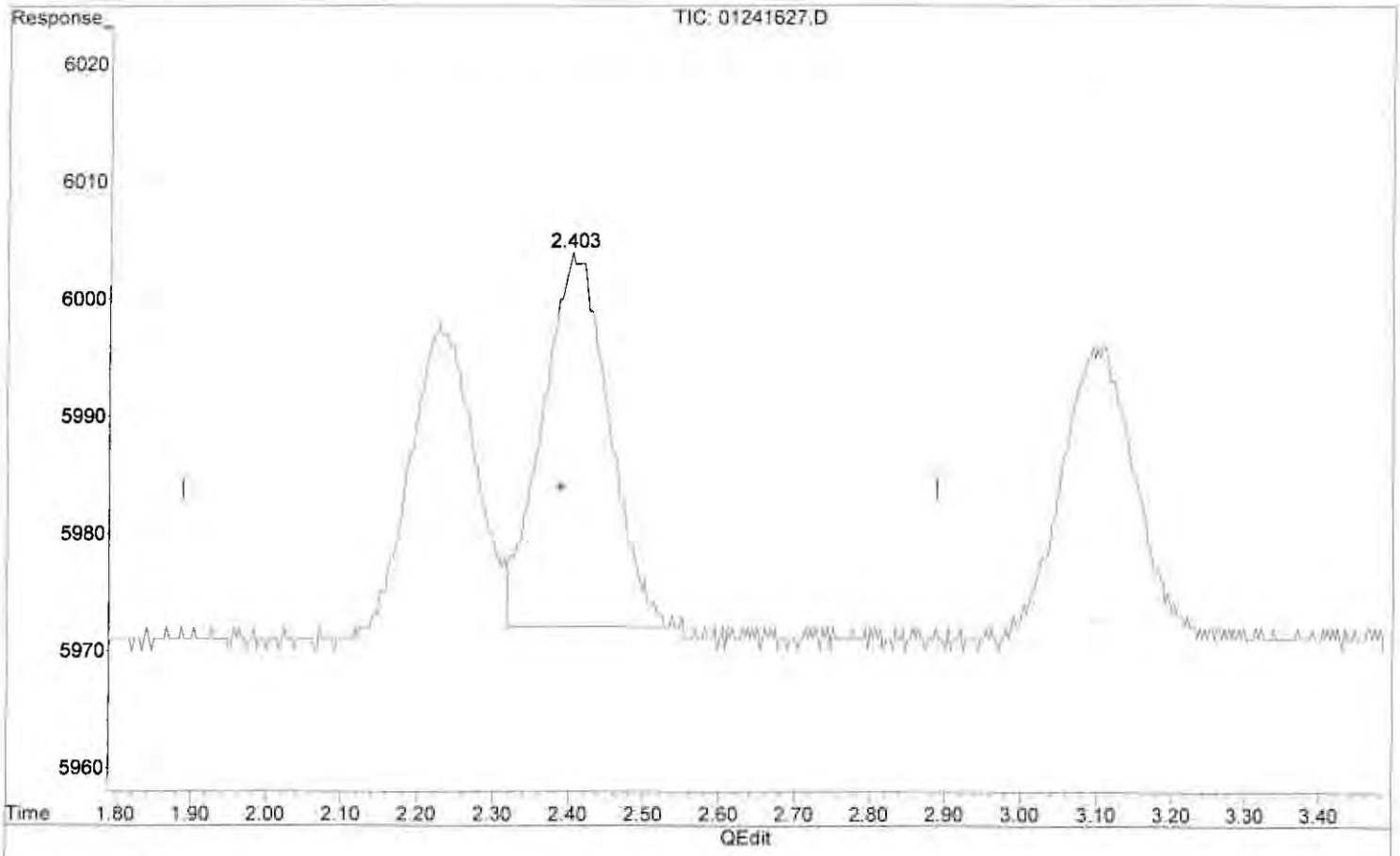
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241627.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 16:38
Operator : WH
Sample : std 0.1% S11-12041504
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 19:49:57 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 19:47:27 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(3) Nitrogen

2.403min 997.840 ppm m

response 1968

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241628.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 17:24
Operator : WH
Sample : std 0.5% S11-12041503
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 19:51:53 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 19:51:09 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.702	6556	5060.912	ppm
2)	Oxygen	2.216	7996	5436.317	ppm
3)	Nitrogen	2.394	9673	4915.911	ppm
4)	Carbon Monoxide	3.085	9006	5437.603	ppm
5)	Methane	5.072	6838	5699.991	ppm
6)	Carbon Dioxide	6.739	10890	5286.885	ppm

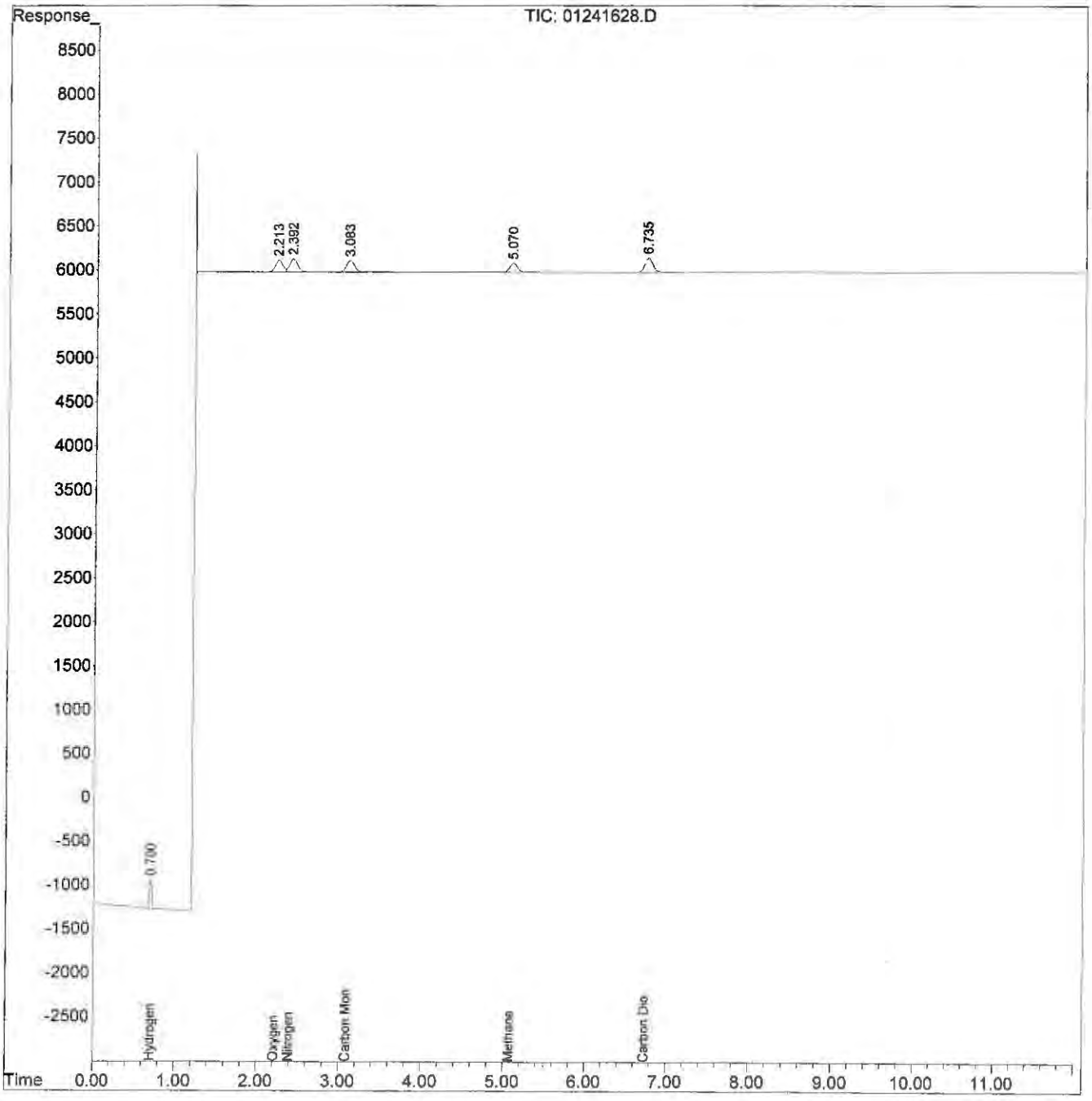
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241628.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 17:24
Operator : WH
Sample : std 0.5% S11-12041503
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 19:51:53 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 19:51:09 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241629.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 17:40
Operator : WH
Sample : std 1% S11-12041502
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 19:52:57 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 19:52:26 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc Units
Target Compounds				
1)	Hydrogen	0.702	12714	9754.784 ppm
2)	Oxygen	2.205	15559	10136.011 ppm
3)	Nitrogen	2.380	17417	8926.254 ppm
4)	Carbon Monoxide	3.070	17245	9976.228 ppm
5)	Methane	5.066	12928	10072.291 ppm
6)	Carbon Dioxide	6.734	20915	9870.566 ppm

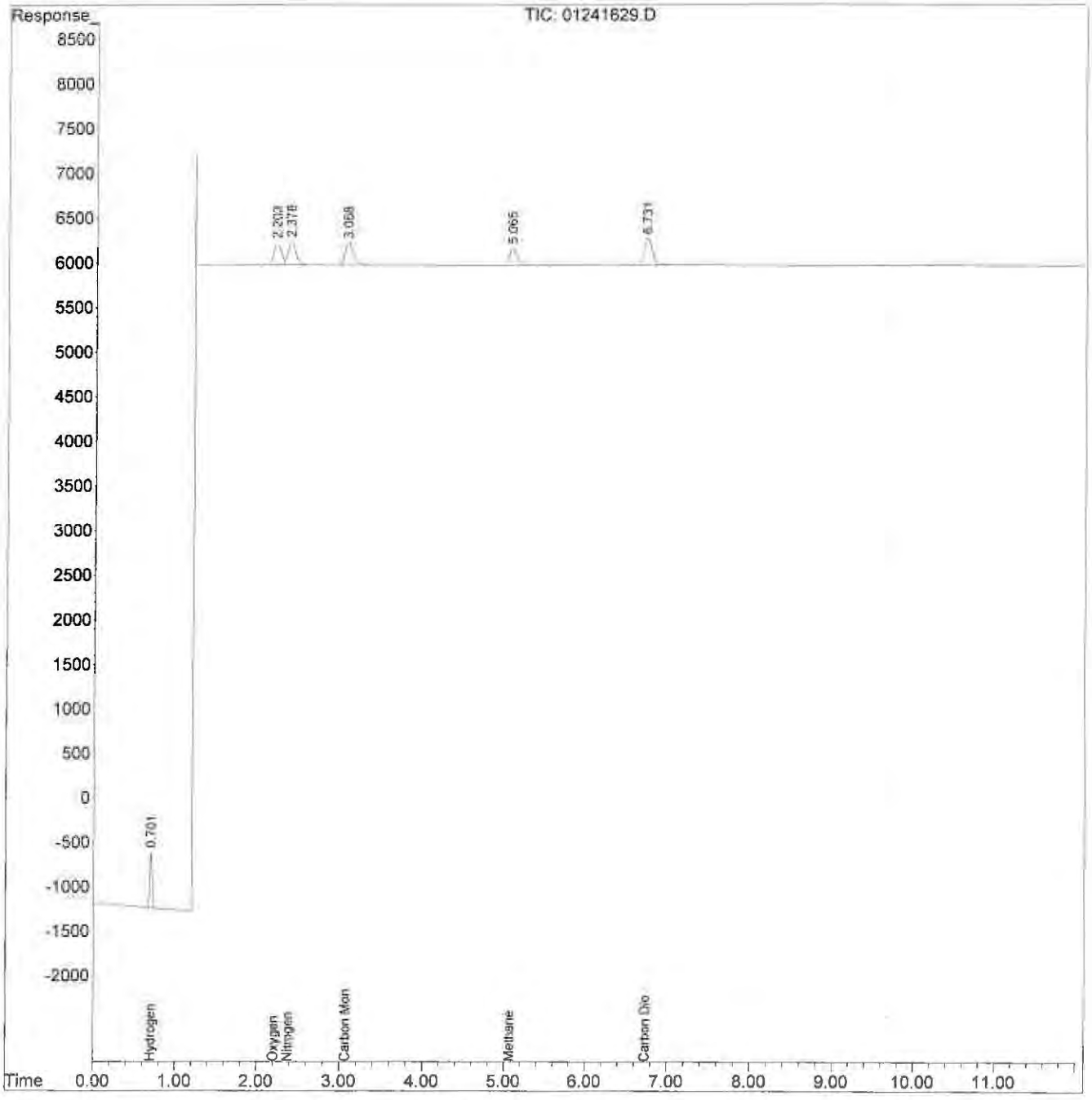
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241629.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 17:40
Operator : WH
Sample : std 1% S11-12041502
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 19:52:57 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 19:52:26 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241631.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 18:16
Operator : WH
Sample : std 4% S11-12041501
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 19:55:30 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 19:54:31 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.710	49891	38867.951	ppm
2)	Oxygen	2.225	60887	39358.143	ppm
3)	Nitrogen	2.402	68113	36714.941	ppm
4)	Carbon Monoxide	3.089	67550	39160.311	ppm
5)	Methane	5.075	50534	39329.825	ppm
6)	Carbon Dioxide	6.737	81525	38955.184	ppm

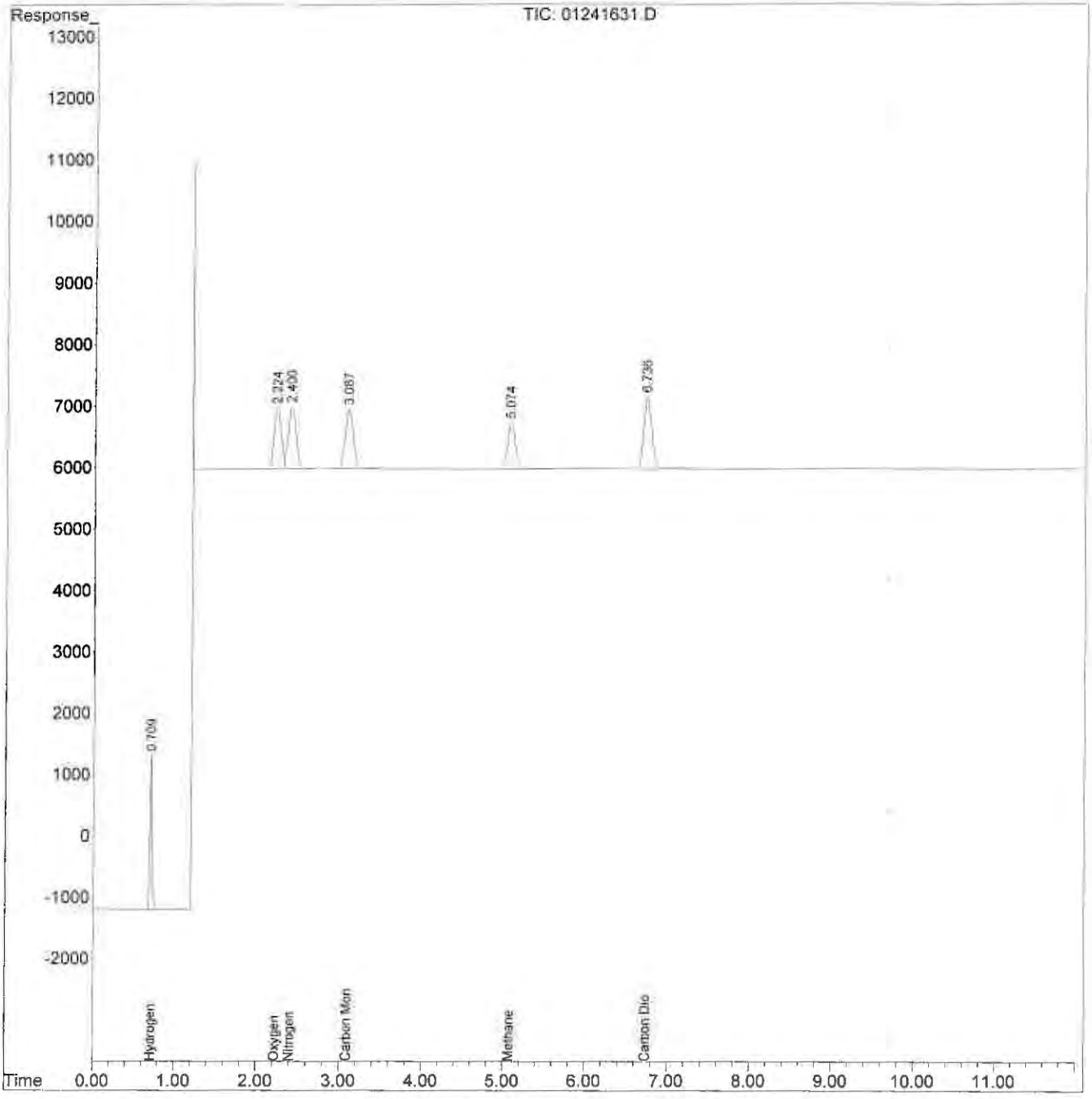
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241631.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 18:16
Operator : WH
Sample : std 4% S11-12041501
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 19:55:30 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 19:54:31 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (Not Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241632.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 18:33
Operator : WH
Sample : std 16.66% S11-12031501
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 19:57:29 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 19:54:31 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.704	209940	163554.818	ppm
2)	Oxygen	2.201	242272	156607.855	ppm
3)	Nitrogen	2.379	271989	146611.136	ppm
4)	Carbon Monoxide	3.067	269360	156155.237	ppm
5)	Methane	5.058	199750	155461.848	ppm
6)	Carbon Dioxide	6.719	321532	153637.732	ppm

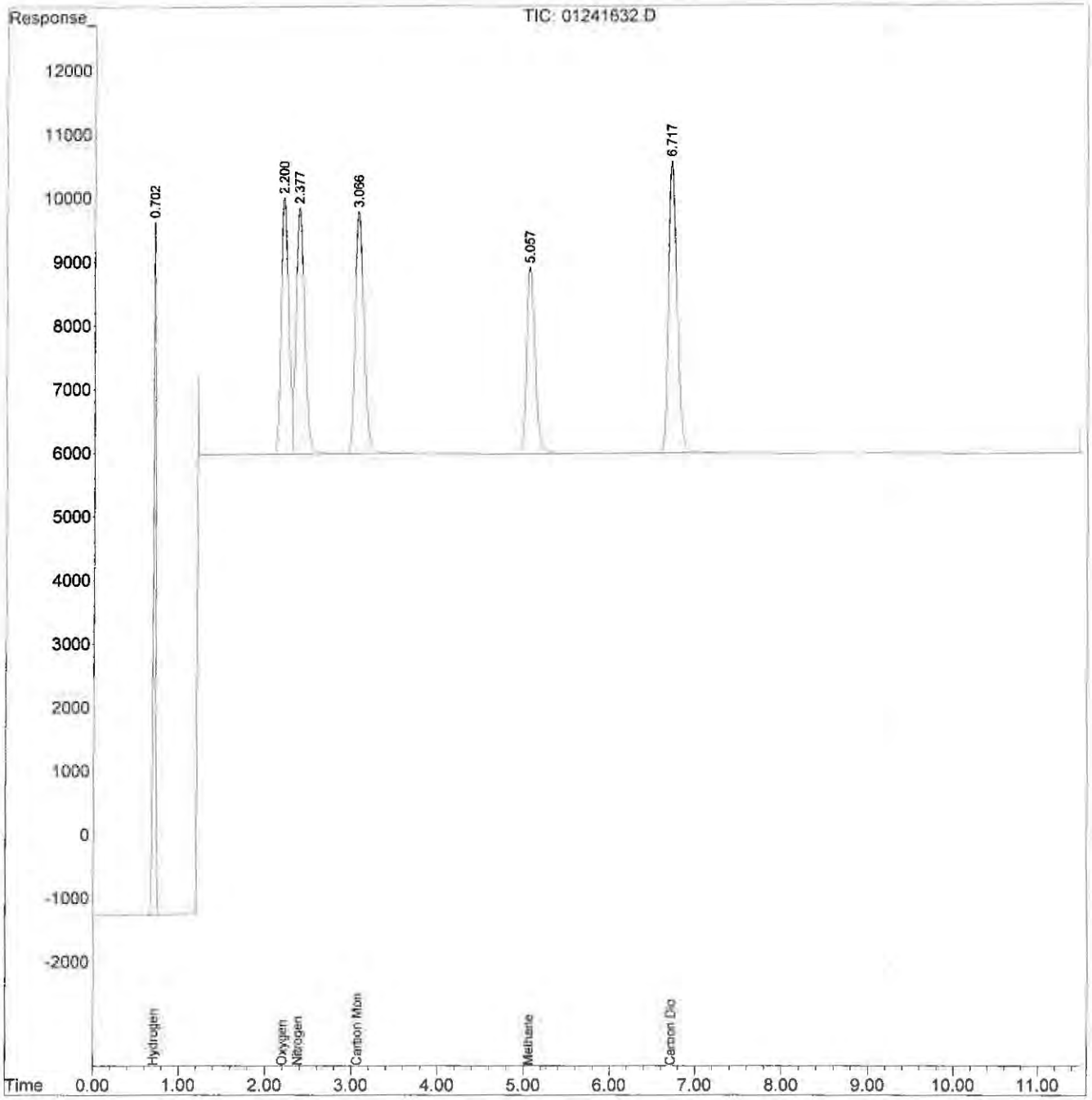
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (Not Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241632.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 18:33
Operator : WH
Sample : std 16.66% S11-12031501
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 19:57:29 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 19:54:31 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241633.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 19:02
Operator : WH
Sample : std co2
Misc : S17-02131201
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 19:58:39 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 19:57:50 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.000	0	N.D.	ppm	
2)	Oxygen	0.000	0	N.D.	ppm	d
3)	Nitrogen	0.000	0	N.D.	ppm	d
4)	Carbon Monoxide	0.000	0	N.D.	ppm	
5)	Methane	0.000	0	N.D.	ppm	
6)	Carbon Dioxide	6.651	1875387	910352.314	ppm	

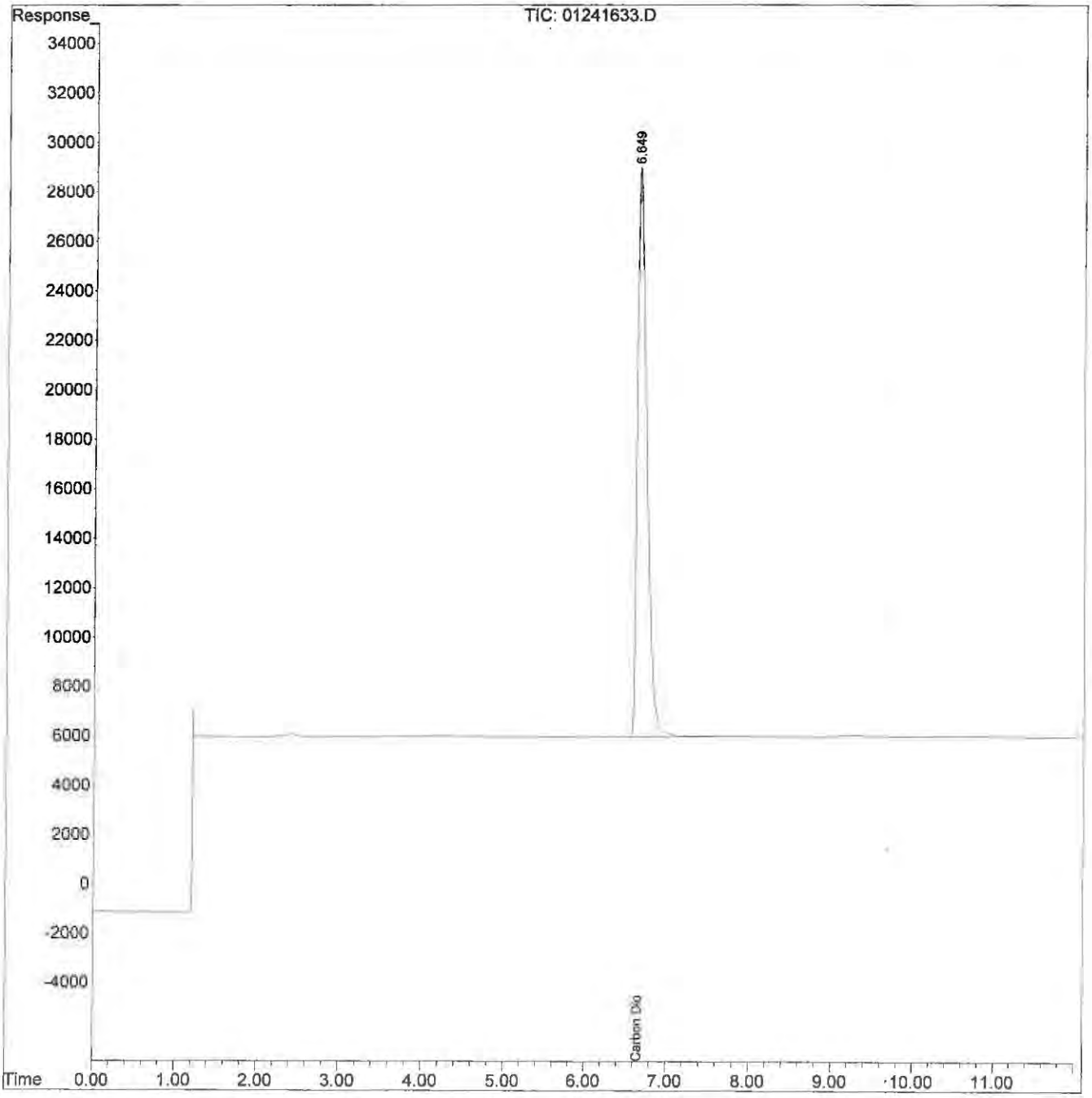
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241633.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 19:02
Operator : WH
Sample : std co2
Misc : S17-02131201
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 19:58:39 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 19:57:50 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241634.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 20:04
Operator : WH
Sample : std ch4
Misc : S30-11301401
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 20:36:02 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 20:00:56 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc Units
Target Compounds				
1)	Hydrogen	0.000	0	N.D. ppm
2)	Oxygen	0.000	0	N.D. ppm
3)	Nitrogen	0.000	0	N.D. ppm
4)	Carbon Monoxide	0.000	0	N.D. ppm
5)	Methane	4.976	1219046	961698.203 ppm
6)	Carbon Dioxide	0.000	0	N.D. ppm d

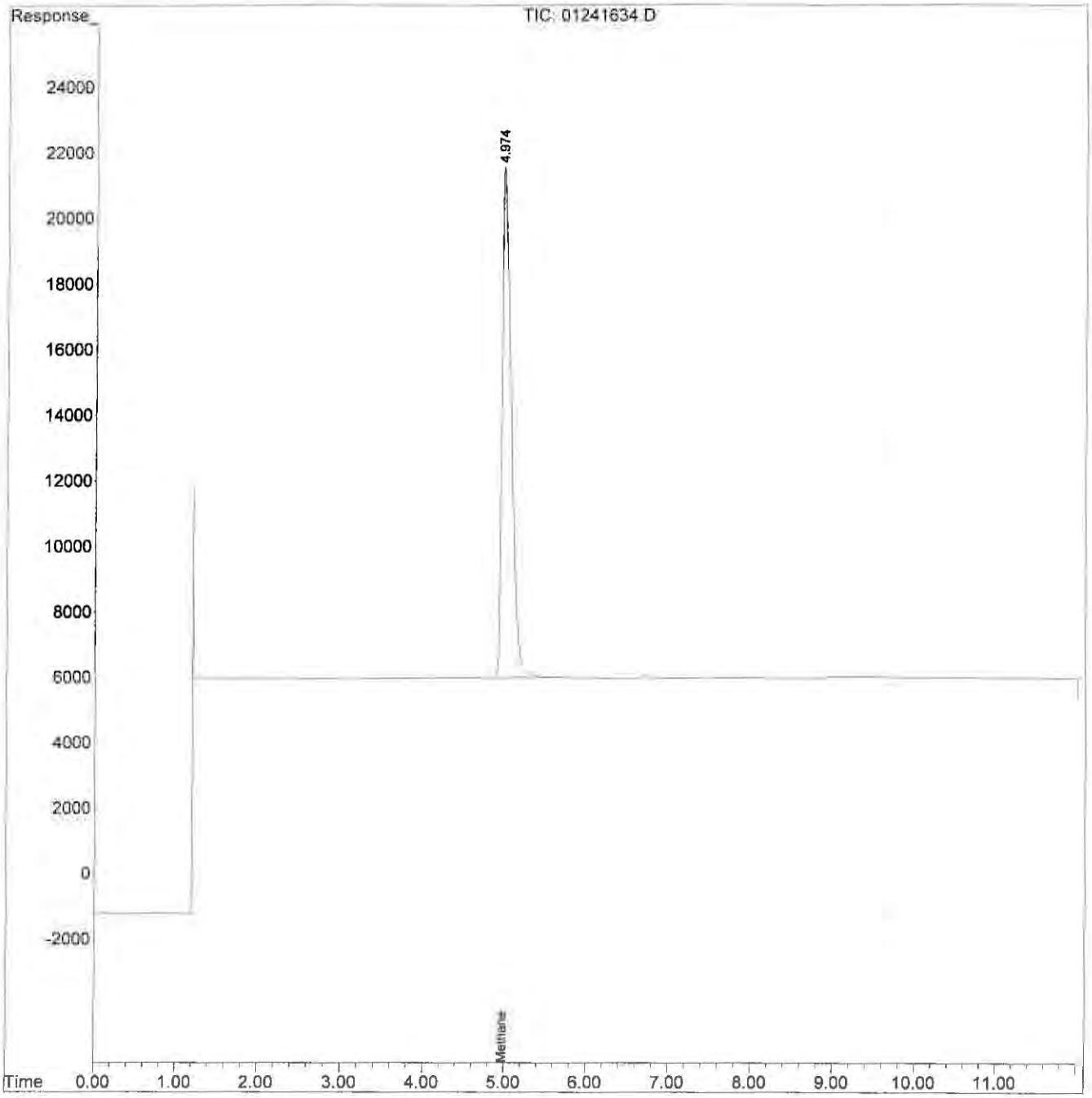
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241634.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 20:04
Operator : WH
Sample : std ch4
Misc : S30-11301401
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 20:36:02 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 20:00:56 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241635.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 20:39
Operator : WH
Sample : std h2
Misc : small loop of S11-12021501
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 20:56:25 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 20:37:18 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.686	638516	499304.194	ppm	
2)	Oxygen	0.000	0	N.D.	ppm	
3)	Nitrogen	0.000	0	N.D.	ppm	
4)	Carbon Monoxide	0.000	0	N.D.	ppm	
5)	Methane	0.000	0	N.D.	ppm	d
6)	Carbon Dioxide	0.000	0	N.D.	ppm	

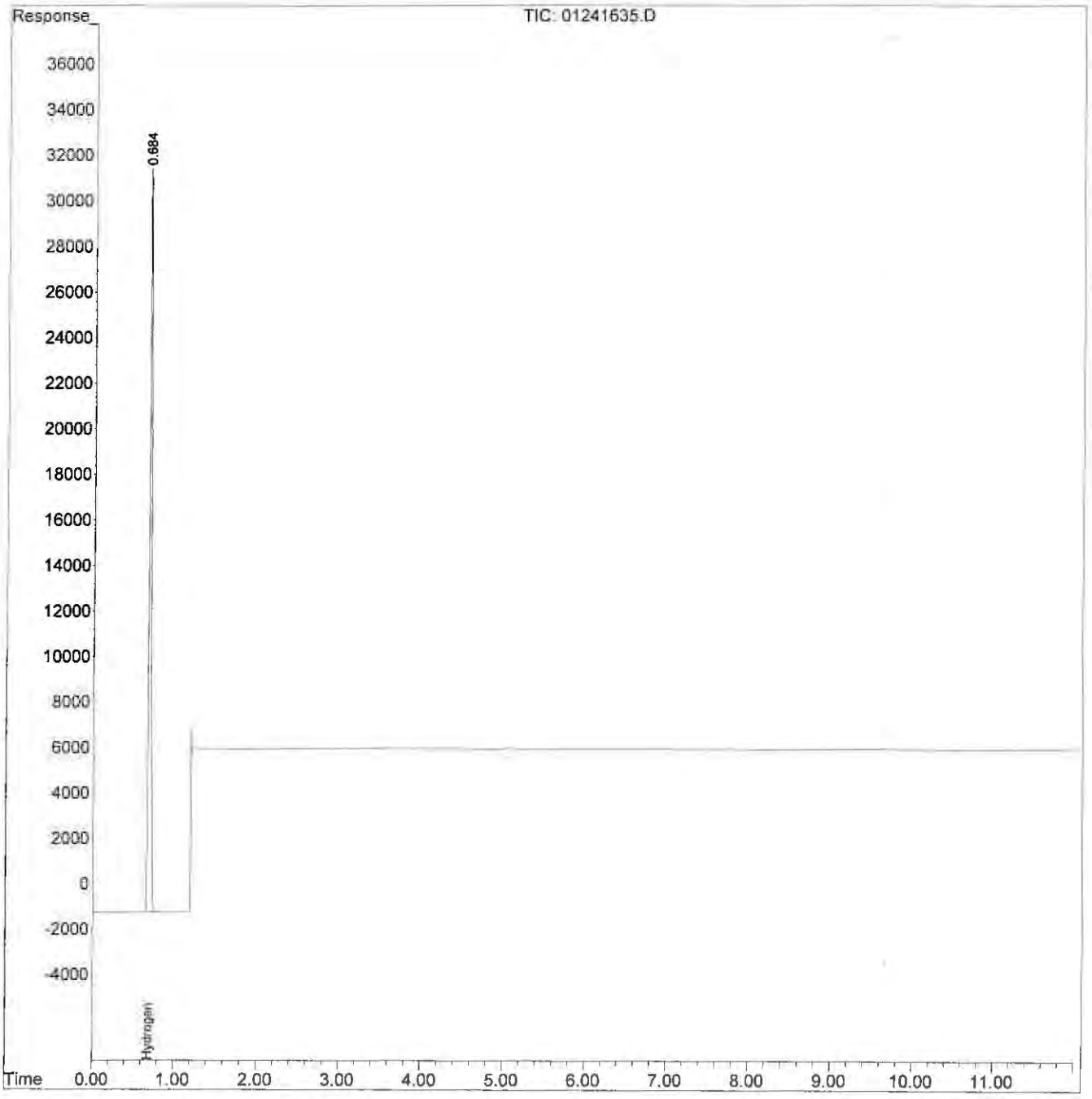
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241635.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 20:39
Operator : WH
Sample : std h2
Misc : small loop of S11-12021501
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 20:56:25 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 20:37:18 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241637.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 21:19
Operator : WH
Sample : STD N2
Misc : S11-12021502
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 21:35:15 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 21:18:19 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc Units
Target Compounds				
1)	Hydrogen	0.000	0	N.D. ppm d
2)	Oxygen	0.000	0	N.D. ppm d
3)	Nitrogen	2.293	1540603	857917.729 ppm
4)	Carbon Monoxide	0.000	0	N.D. ppm
5)	Methane	0.000	0	N.D. ppm d
6)	Carbon Dioxide	0.000	0	N.D. ppm

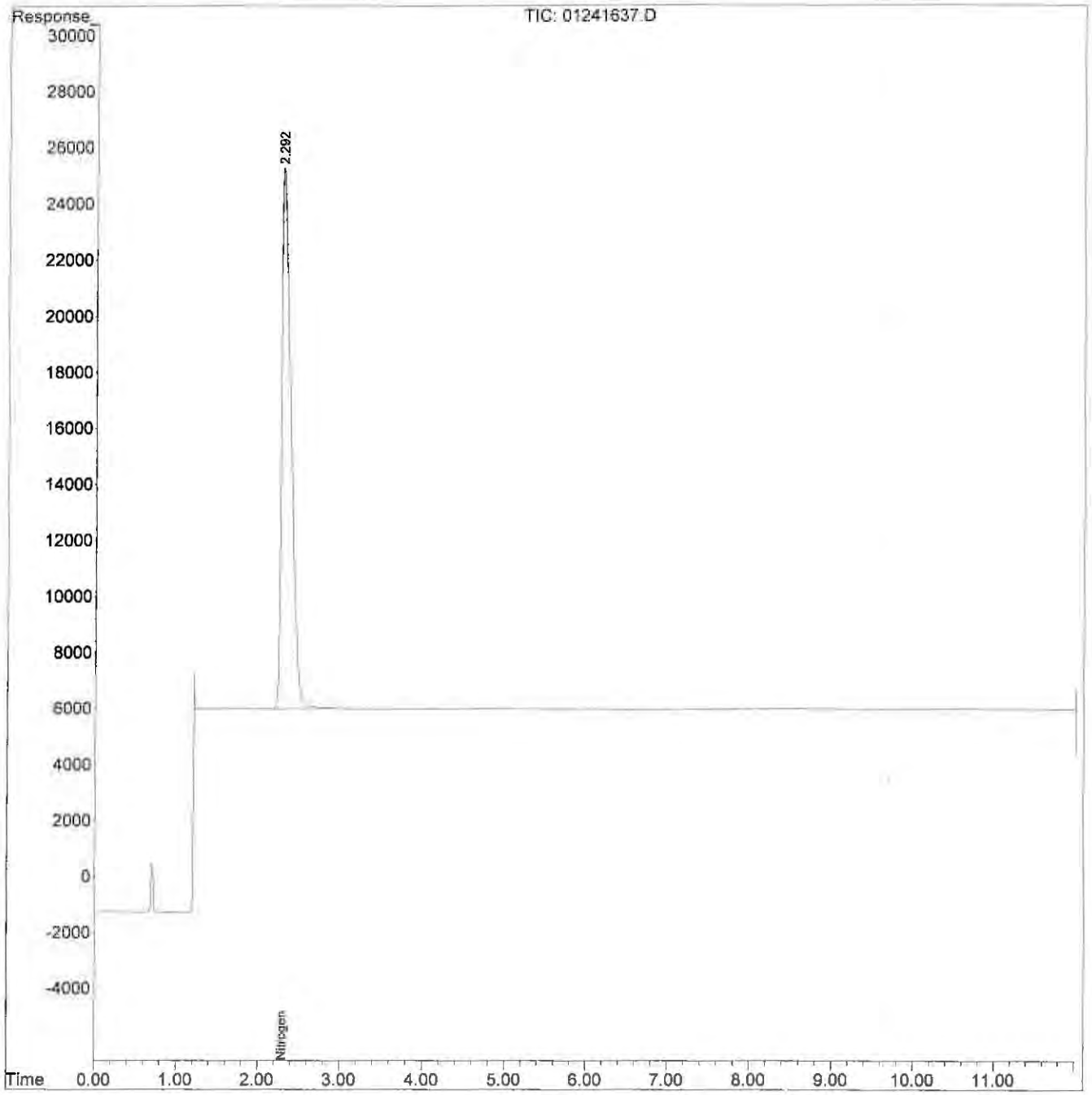
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241637.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 21:19
Operator : WH
Sample : STD N2
Misc : S11-12021502
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 21:35:15 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 21:18:19 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241639.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 21:56
Operator : WH
Sample : STD O2
Misc : s11-12021503
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 22:12:05 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 21:54:52 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc Units
Target Compounds				
1)	Hydrogen	0.000	0	N.D. ppm
2)	Oxygen	2.117	1478054	974822.367 ppm
3)	Nitrogen	0.000	0	N.D. ppm
4)	Carbon Monoxide	0.000	0	N.D. ppm
5)	Methane	0.000	0	N.D. ppm
6)	Carbon Dioxide	0.000	0	N.D. ppm

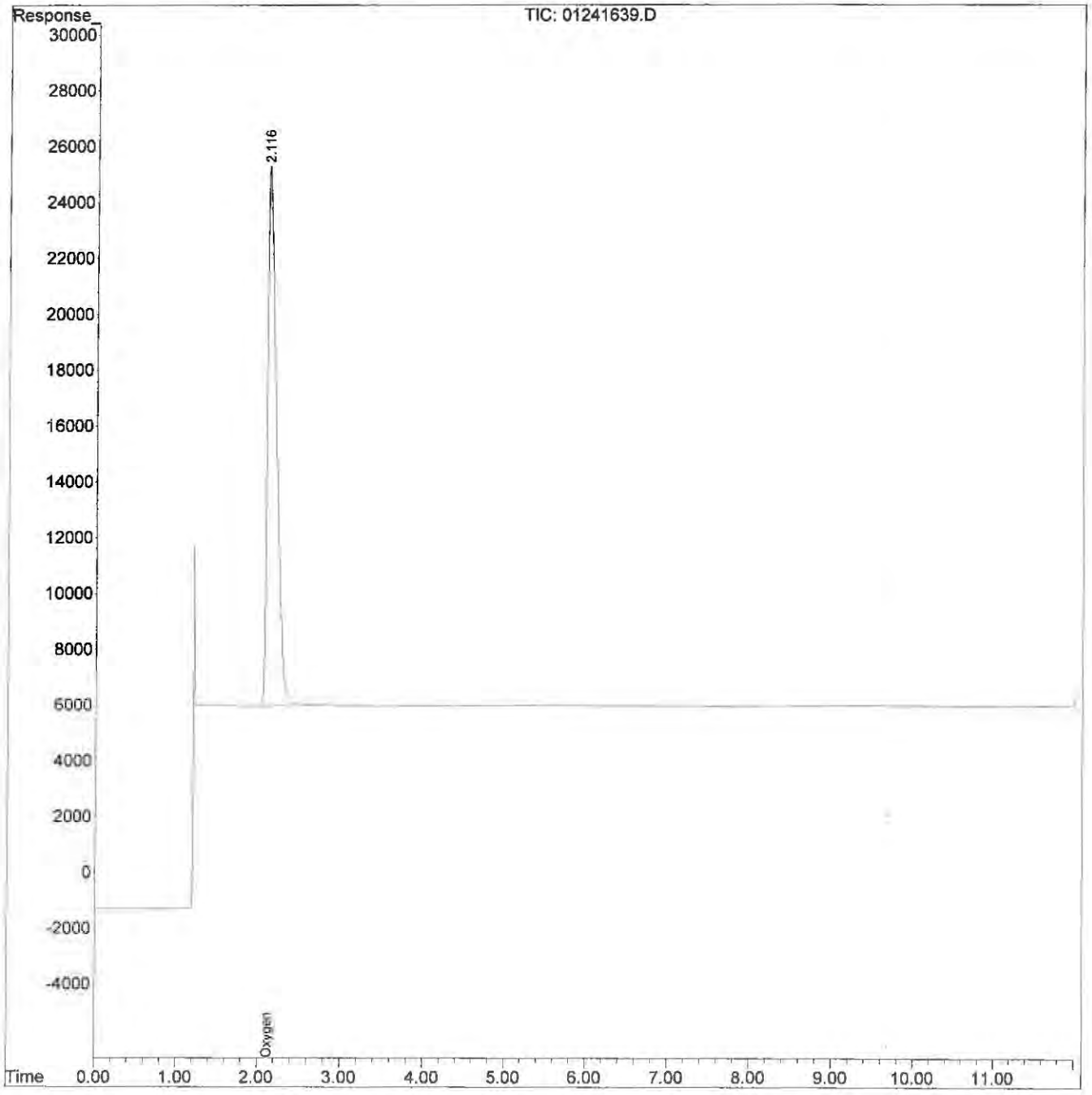
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241639.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 21:56
Operator : WH
Sample : STD O2
Misc : s11-12021503
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 22:12:05 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 21:54:52 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241640.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 22:13
Operator : WH
Sample : icv math
Misc : S30-01211601
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 22:32:48 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.702	49998	37951.830	ppm
2)	Oxygen	2.212	59532	39339.676	ppm
3)	Nitrogen	2.387	85443	48734.916	ppm
4)	Carbon Monoxide	3.074	82976	48885.688	ppm
5)	Methane	5.066	50003	39721.416	ppm
6)	Carbon Dioxide	6.728	95530	47075.322	ppm

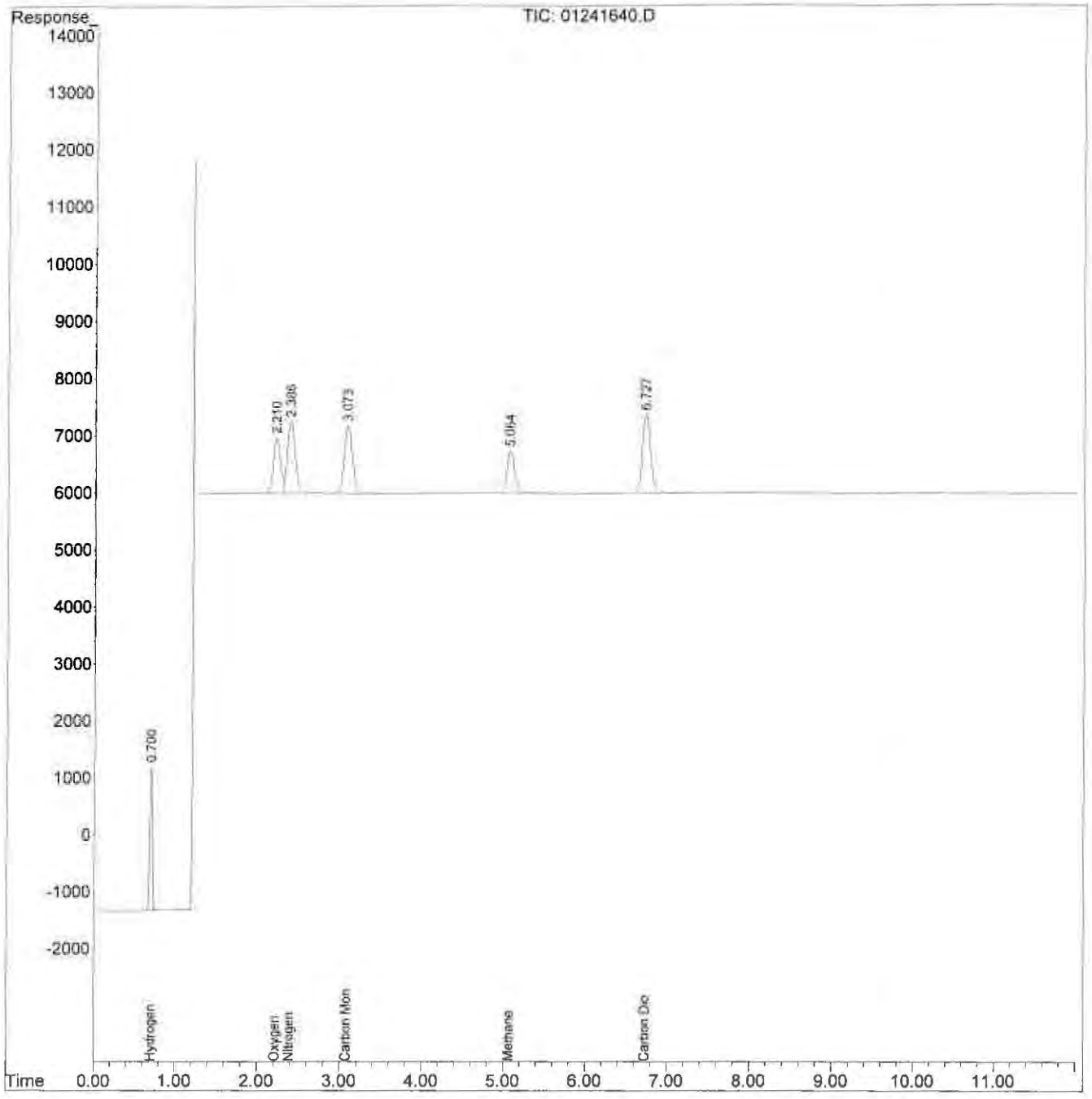
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241640.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 22:13
Operator : WH
Sample : icv math
Misc : S30-01211601
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 22:32:48 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241641.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 22:32
Operator : WH
Sample : icv scott
Misc : S30-12281502
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 22:48:42 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	Actual ppm	R.T.	Response	Conc	Units	% Recovery
Target Compounds							
1)	Hydrogen	39900	0.706	49672	37704.490	ppm	94.5 %
2)	Oxygen	24900	2.219	37333	24670.381	ppm	99.1 %
3)	Nitrogen	50000	2.393	84889	48418.601	ppm	96.8 %
4)	Carbon Monoxide	50000	3.079	83785	49362.383	ppm	98.7 %
5)	Methane	40100	5.068	50643	40229.211	ppm	100.3 %
6)	Carbon Dioxide	50000	6.729	97009	47803.956	ppm	95.6 %

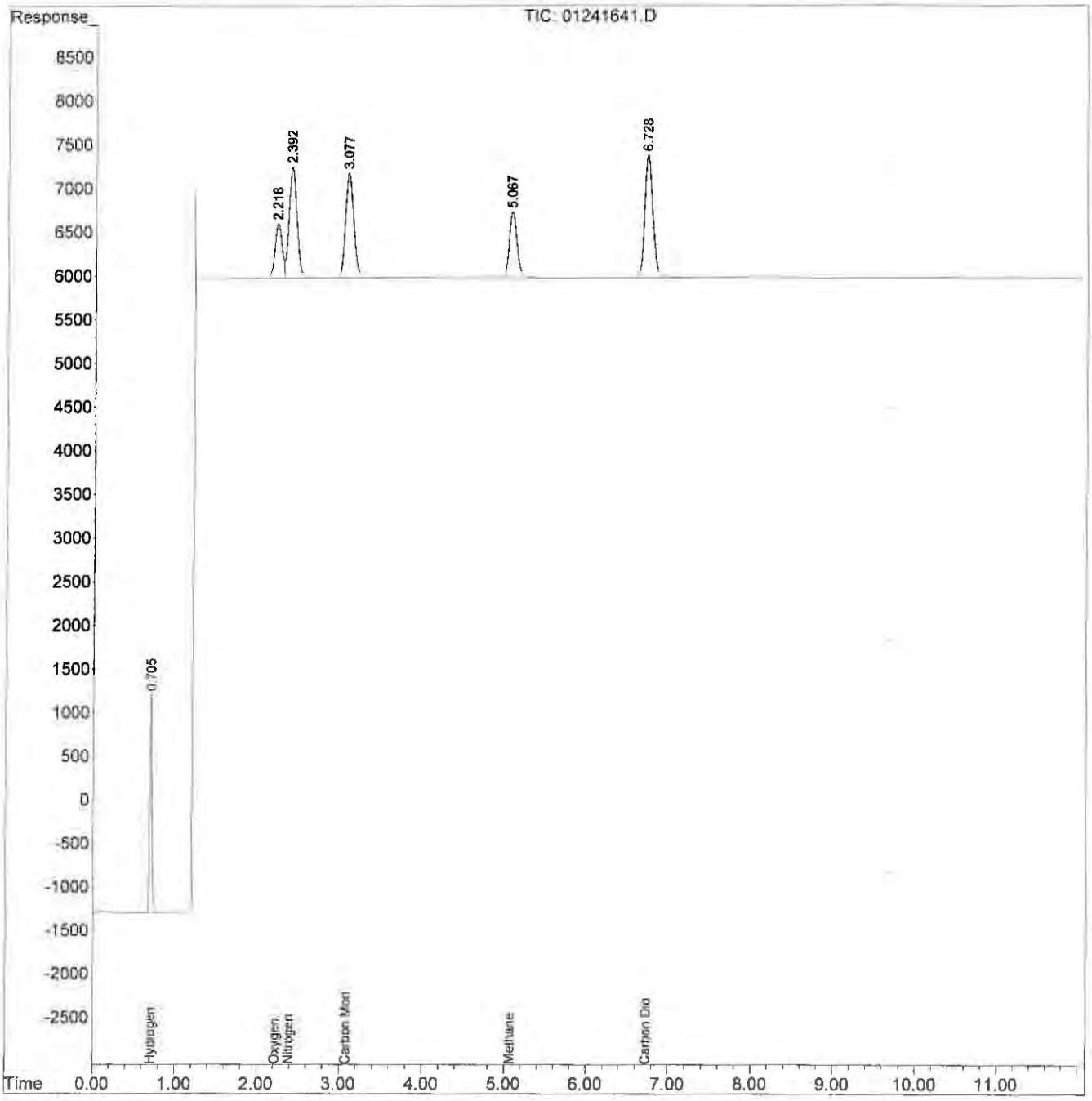
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_01\24\
Data File : 01241641.D
Signal(s) : TCD1A.CH
Acq On : 24 Jan 2016 22:32
Operator : WH
Sample : icv scott
Misc : S30-12281502
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Jan 24 22:48:42 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Modified EPA Method 3C Daily QC Summary

Client : Air Hygiene, Incorporated
Analyst : amf
Method Name : EPA 3C, ASTM D 1946-90, VOA-EPA3C

Instrument :
Date Analyzed : 10/19/2016

RT Summaries and QC Check (minutes)

Sample ID	Hydrogen	Oxygen	Nitrogen	Carbon Monoxide	Methane	Carbon Dioxide	File ID	Time
ICAL Mean RT	**0.708**	**2.188**	**2.368**	**3.076**	**5.045**	**6.707**		
RT Windows (+/- min)	**0.072**	**0.133**	**0.146**	**0.034**	**0.130**	**0.145**		
std s30-10051601	0.707	2.221	2.397	3.085	5.077	6.739	10191601.D	08:22
+/- 0.33min of ICAL Mean RT	Pass	Pass	Pass	Pass	Pass	Pass		
mb							10191602.D	08:39
lab air		2.168 Pass	2.305 Pass			6.749 Pass	10191603.D	09:11
lcs s11-07281601	0.701 Pass	2.216 Pass	2.394 Pass	3.083 Pass	5.076 Pass	6.739 Pass	10191604.D	09:28
lcsd s11-07281601	0.710 Pass	2.224 Pass	2.400 Pass	3.088 Pass	5.079 Pass	6.740 Pass	10191605.D	09:40
4860-001		2.222 Pass	2.402 Pass				10191614.D	14:37
4860-002		2.237 Pass	2.402 Pass				10191615.D	14:53
4860-003		2.218 Pass	2.405 Pass				10191617.D	15:21
4860-004		2.225 Pass	2.395 Pass				10191618.D	15:37
std s30-10051601	0.712 Pass	2.230 Pass	2.406 Pass	3.094 Pass	5.082 Pass	6.741 Pass	10191619.D	16:36

Continuing Calibration Standards Summary (ppm)

Sample ID	Hydrogen	Oxygen	Nitrogen	Carbon Monoxide	Methane	Carbon Dioxide	File ID	Time
ACTUAL	40000.0	40000.0	50000.0	50000.0	40000.0	50000.0		
CCV Criteria (+/- %D)	**15.0%**	**10.0%**	**10.0%**	**10.0%**	**10.0%**	**10.0%**		
std s30-10051601	40915.4 2.3%	41388.3 3.5%	51170.4 2.3%	52293.7 4.6%	42195.8 5.5%	50455.0 0.9%	10191601.D	08:22
std s30-10051601	40360.1 0.9%	40526.8 1.3%	49885.3 0.2%	51143.3 2.3%	41377.1 3.4%	49141.2 1.7%	10191619.D	16:36
	#####	#####	#####	#####	#####	#####		
	#####	#####	#####	#####	#####	#####		

Lab Dup Summary (ppm, without DF correction and nomalization)

Sample ID	Hydrogen	Oxygen	Nitrogen	Carbon Monoxide	Methane	Carbon Dioxide	File ID	Time

LCS / LCS Dup Summary (ppm, without DF correction)

Sample ID	Hydrogen	Oxygen	Nitrogen	Carbon Monoxide	Methane	Carbon Dioxide	File ID	Time
LCS Actual Conc. (ppm)	50000.0	50000.0	50000.0	50000.0	50000.0	50000.0		
LCS Criteria (% Range)	**94%-105%**	**97%-108%**	**89%-113%**	**98%-108%**	**94%-111%**	**94%-104%**		
lcs s11-07281601	50058.4	52028.9	51990.6	51305.4	49503.8	49234.6	10191604.D	09:28
LCS % Recovery	100% Pass	104% Pass	104% Pass	103% Pass	99% Pass	98% Pass		
lcsd s11-07281601	50794.3	52260.2	51385.1	52090.1	50299.4	49940.9	10191605.D	09:40
LCS % Recovery	102% Pass	105% Pass	103% Pass	104% Pass	101% Pass	100% Pass		
Duplicate % RPD	1.5%	0.4%	1.2%	1.5%	1.6%	1.4%		
Duplicate Criteria % RPD	**3%** Pass	**3%** Pass	**7%** Pass	**3%** Pass	**3%** Pass	**3%** Pass		

Lab Air QC Summary

Sample ID	Hydrogen	Oxygen	Nitrogen	Carbon Monoxid	Methane	Carbon Dioxide	Lab Air Criteria Total (90%-110%)
lab air		221363.5	796205.2			489.1	101.8% Pass
Lab Air Normalized (%)		21.74%	78.20%			0.05%	100.0%

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191601.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 8:22 am
Operator : amf
Sample : std s30-10051601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 19 08:38:38 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.707	53902	40915.363	ppm
2)	Oxygen	2.221	62632	41388.313	ppm
3)	Nitrogen	2.397	89713	51170.421	ppm
4)	Carbon Monoxide	3.085	88760	52293.717	ppm
5)	Methane	5.077	53118	42195.810	ppm
6)	Carbon Dioxide	6.739	102388	50454.976	ppm

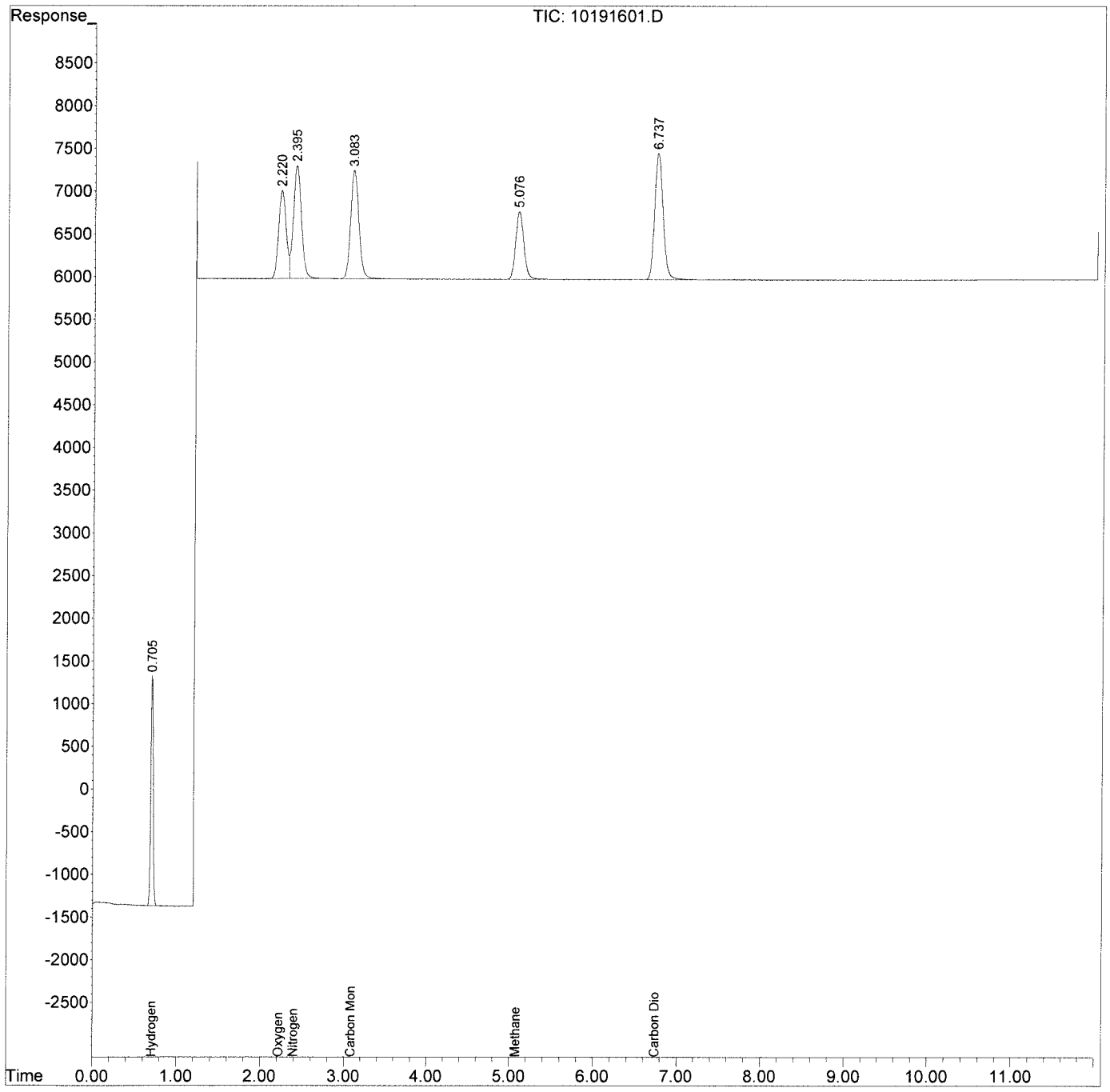
(f)=RT Delta > 1/2 Window (m)=manual int.



Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191601.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 8:22 am
Operator : amf
Sample : std s30-10051601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 19 08:38:38 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191616.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 3:09 pm
Operator : amf
Sample : std s30-10051601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 19 15:21:59 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

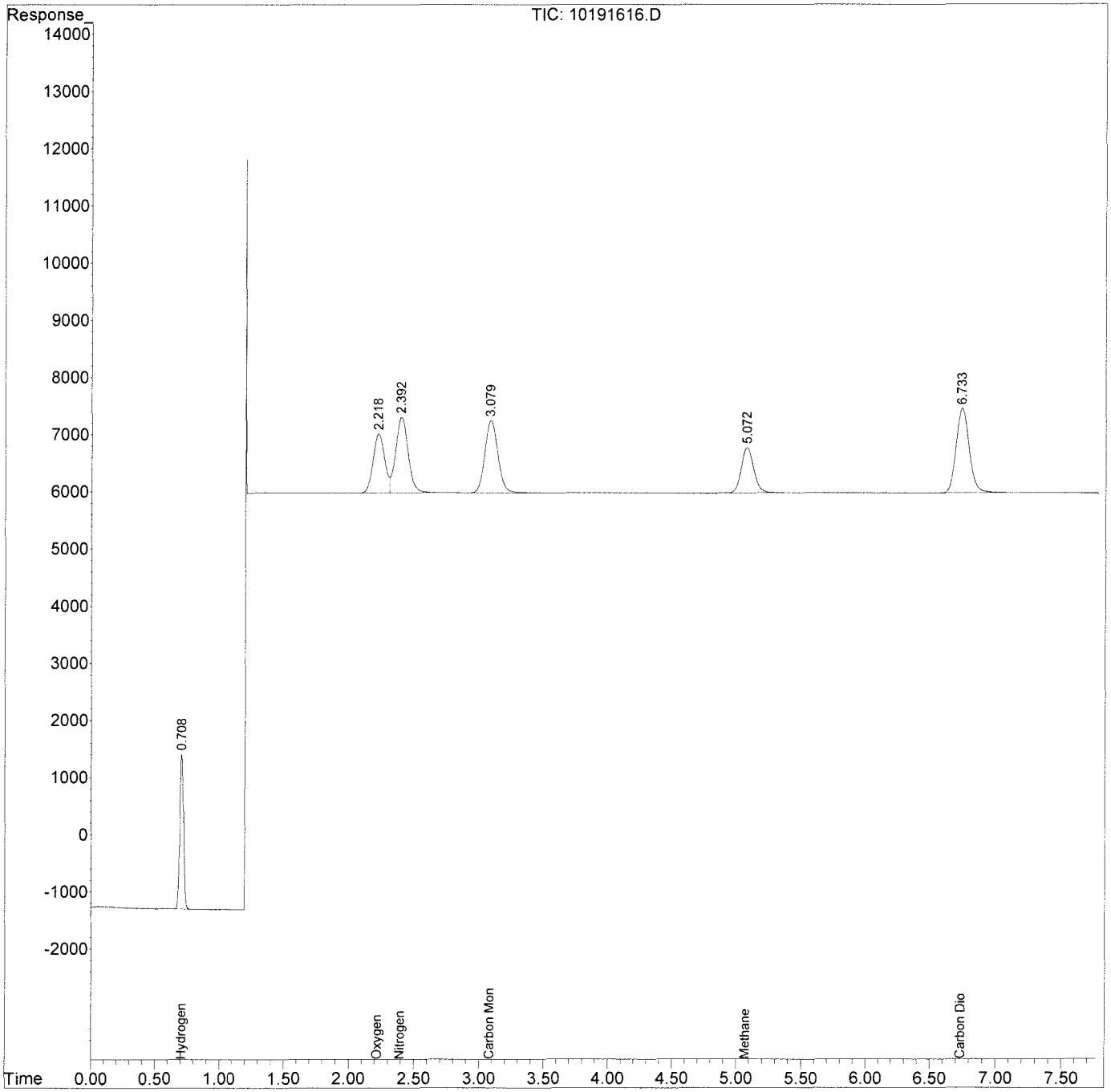
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.709	54078	41048.671	ppm
2)	Oxygen	2.219	62670	41413.690	ppm
3)	Nitrogen	2.394	89193	50873.474	ppm
4)	Carbon Monoxide	3.081	88315	52031.142	ppm
5)	Methane	5.072	53013	42112.305	ppm
6)	Carbon Dioxide	6.734	101774	50152.042	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191616.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 3:09 pm
Operator : amf
Sample : std s30-10051601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 19 15:21:59 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191619.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 4:36 pm
Operator : amf
Sample : std s30-10051601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 19 16:48:56 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

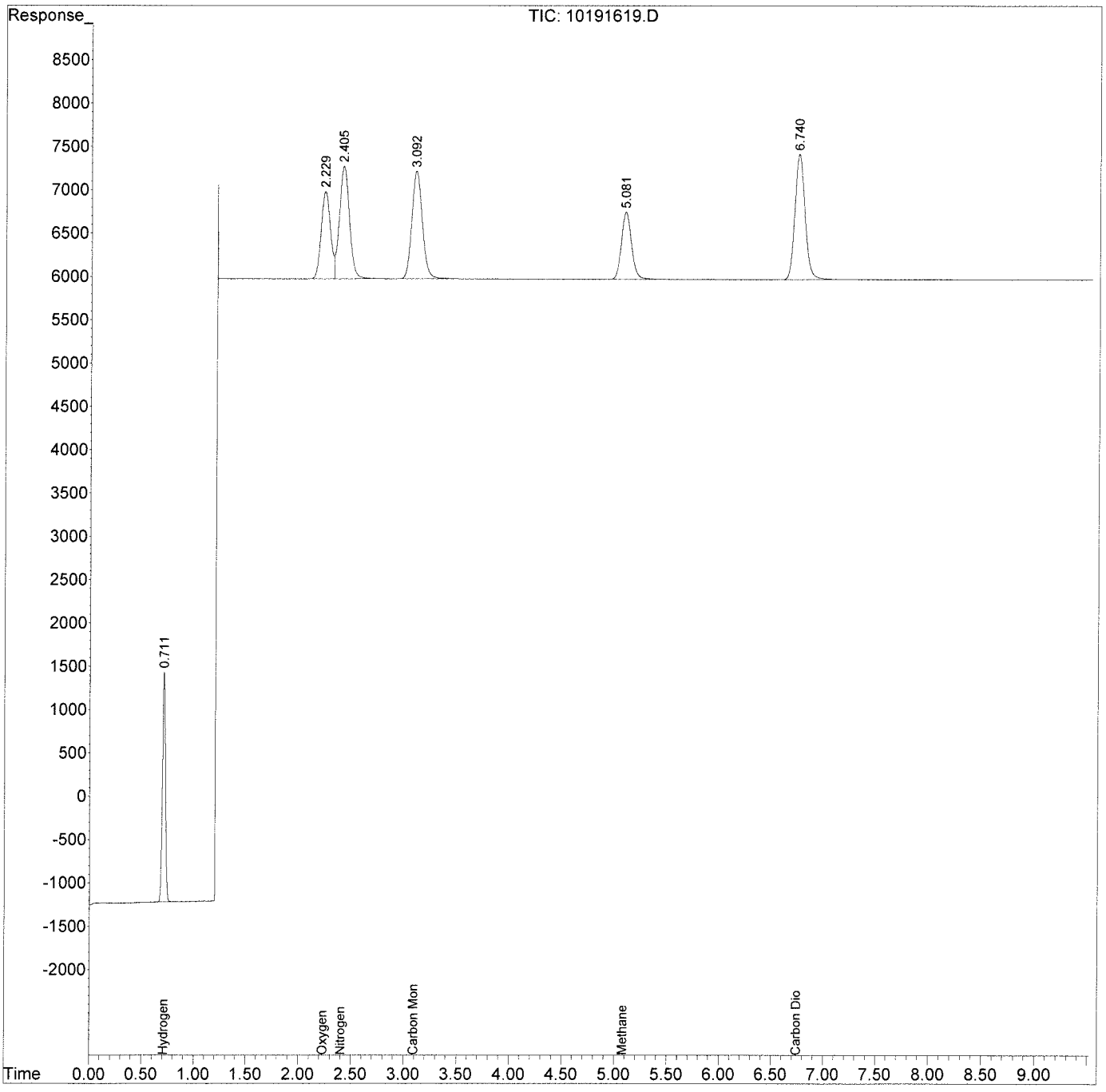
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.712	53171	40360.132	ppm
2)	Oxygen	2.230	61328	40526.842	ppm
3)	Nitrogen	2.406	87460	49885.295	ppm
4)	Carbon Monoxide	3.094	86808	51143.304	ppm
5)	Methane	5.082	52088	41377.105	ppm
6)	Carbon Dioxide	6.741	99722	49141.239	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_10\19\
Data File : 10191619.D
Signal(s) : TCD1A.CH
Acq On : 19 Oct 2016 4:36 pm
Operator : amf
Sample : std s30-10051601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 19 16:48:56 2016
Quant Method : I:\GC01\METHODS\3C012416.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Sun Jan 24 22:12:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Injection Log

Directory: J:\GC01\DATA\FXG\2016_01\24

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	1	01241601.d	10.	std		24 Jan 2016 08:26
2	1	01241602.d	10.	mb		24 Jan 2016 08:41
3	1	01241603.d	10.	lab air		24 Jan 2016 08:57
4	1	01241604.d	10.	lcs		24 Jan 2016 09:14
5	1	01241605.d	10.	lcsd		24 Jan 2016 09:30
6	1	01241606.d	10.	0205-001		24 Jan 2016 09:46
7	1	01241607.d	10.	0205-002		24 Jan 2016 10:00
8	1	01241608.d	10.	0205-003		24 Jan 2016 10:16
9	1	01241609.d	10.	0205-004		24 Jan 2016 10:30
10	1	01241610.d	10.	0205-005		24 Jan 2016 10:45
11	1	01241611.d	10.	0205-006		24 Jan 2016 11:00
12	1	01241612.d	10.	0205-007		24 Jan 2016 11:22
13	1	01241613.d	10.	0205-008		24 Jan 2016 11:39
14	1	01241614.d	10.	0205-009		24 Jan 2016 11:55
15	1	01241615.d	10.	0205-010		24 Jan 2016 12:15
16	1	01241616.d	10.	std		24 Jan 2016 12:30
17	1	01241617.d	10.	0205-011		24 Jan 2016 12:46
18	1	01241618.d	10.	0205-012		24 Jan 2016 13:01
19	1	01241619.d	10.	0205-013		24 Jan 2016 13:16
20	1	01241620.d	10.	0205-014		24 Jan 2016 13:38
21	1	01241621.d	10.	std		24 Jan 2016 13:58
22	1	01241622.d	10.	wait		24 Jan 2016 14:32
23	1	01241623.d	10.	test		24 Jan 2016 15:15
24	1	01241624.d	10.	test		24 Jan 2016 15:35
25	1	01241625.d	10.	loq		24 Jan 2016 15:53
26	1	01241626.d	10.	loq		24 Jan 2016 16:08
27	1	01241627.d	10.	std 0.1% S11-12041504		24 Jan 2016 16:38
28	1	01241628.d	10.	std 0.5% S11-12041503		24 Jan 2016 17:24
29	1	01241629.d	10.	std 1% S11-12041502		24 Jan 2016 17:40
30	1	01241630.d	10.	std 4% S11-12041501		24 Jan 2016 17:57
31	1	01241631.d	10.	std 4% S11-12041501		24 Jan 2016 18:16
32	1	01241632.d	10.	std 16.66% S11-12031501		24 Jan 2016 18:33
33	1	01241633.d	10.	std co2	S17-02131201	24 Jan 2016 19:02
34	1	01241634.d	10.	std ch4	S30-11301401	24 Jan 2016 20:04
35	1	01241635.d	10.	std h2	small loop of S11...	24 Jan 2016 20:39
36	1	01241636.d	10.	lab air		24 Jan 2016 20:58
37	1	01241637.d	10.	STD N2	S11-12021502	24 Jan 2016 21:19
38	1	01241638.d	10.	o2		24 Jan 2016 21:38
39	1	01241639.d	10.	STD O2	s11-12021503	24 Jan 2016 21:56
40	1	01241640.d	10.	icv math	S30-01211601	24 Jan 2016 22:13
41	1	01241641.d	10.	icv scott	S30-12281502	24 Jan 2016 22:32
42	1	01241642.d	10.	mb		24 Jan 2016 22:48

Injection Log

Directory: I:\GC01\DATA\FXG\2016_10\19\

	Sample ID	Date/Time	Acquisition Method	File Name	Misc Info	Operator	Comments
	std s30-10051601	19 Oct 116 8:22 am	MFXGS25C.M	10191601.D		amf	
	mb	19 Oct 116 8:39 am	MFXGS25C.M	10191602.D		amf	
	lab air	19 Oct 116 9:11 am	MFXGS25C.M	10191603.D		amf	
	lcs s11-07281601	19 Oct 116 9:28 am	MFXGS25C.M	10191604.D		amf	
	lcsd s11-07281601	19 Oct 116 9:40 am	MFXGS25C.M	10191605.D		amf	
	4919-001	19 Oct 116 9:56 am	MFXGS25C.M	10191606.D		amf	
	4920-001	19 Oct 116 10:12 am	MFXGS25C.M	10191607.D		amf	
	4783-001	19 Oct 116 12:33 pm	MFXGS25C.M	10191608.D		amf	
	4783-004	19 Oct 116 12:49 pm	MFXGS25C.M	10191609.D		amf	
	4783-005	19 Oct 116 1:30 pm	MFXGS25C.M	10191610.D		amf	
	4783-006	19 Oct 116 1:46 pm	MFXGS25C.M	10191611.D		amf	
	4783-002	19 Oct 116 2:04 pm	MFXGS25C.M	10191612.D		amf	
	4783-003	19 Oct 116 2:20 pm	MFXGS25C.M	10191613.D		amf	
	4860-001	19 Oct 116 2:37 pm	MFXGS25C.M	10191614.D		amf	
	4860-002	19 Oct 116 2:53 pm	MFXGS25C.M	10191615.D		amf	
	std s30-10051601	19 Oct 116 3:09 pm	MFXGS25C.M	10191616.D		amf	
	4860-003	19 Oct 116 3:21 pm	MFXGS25C.M	10191617.D		amf	
	4860-004	19 Oct 116 3:37 pm	MFXGS25C.M	10191618.D		amf	
	std s30-10051601	19 Oct 116 4:36 pm	MFXGS25C.M	10191619.D		amf	

Data Path : J:\GC13\DATA\SCD\2016_10\18\
Data File : 10181607.D
Signal(s) : AIB1B.CH
Acq On : 18 Oct 2016 8:37 am
Operator : MC
Sample : 4860-001 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 18 14:34:51 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

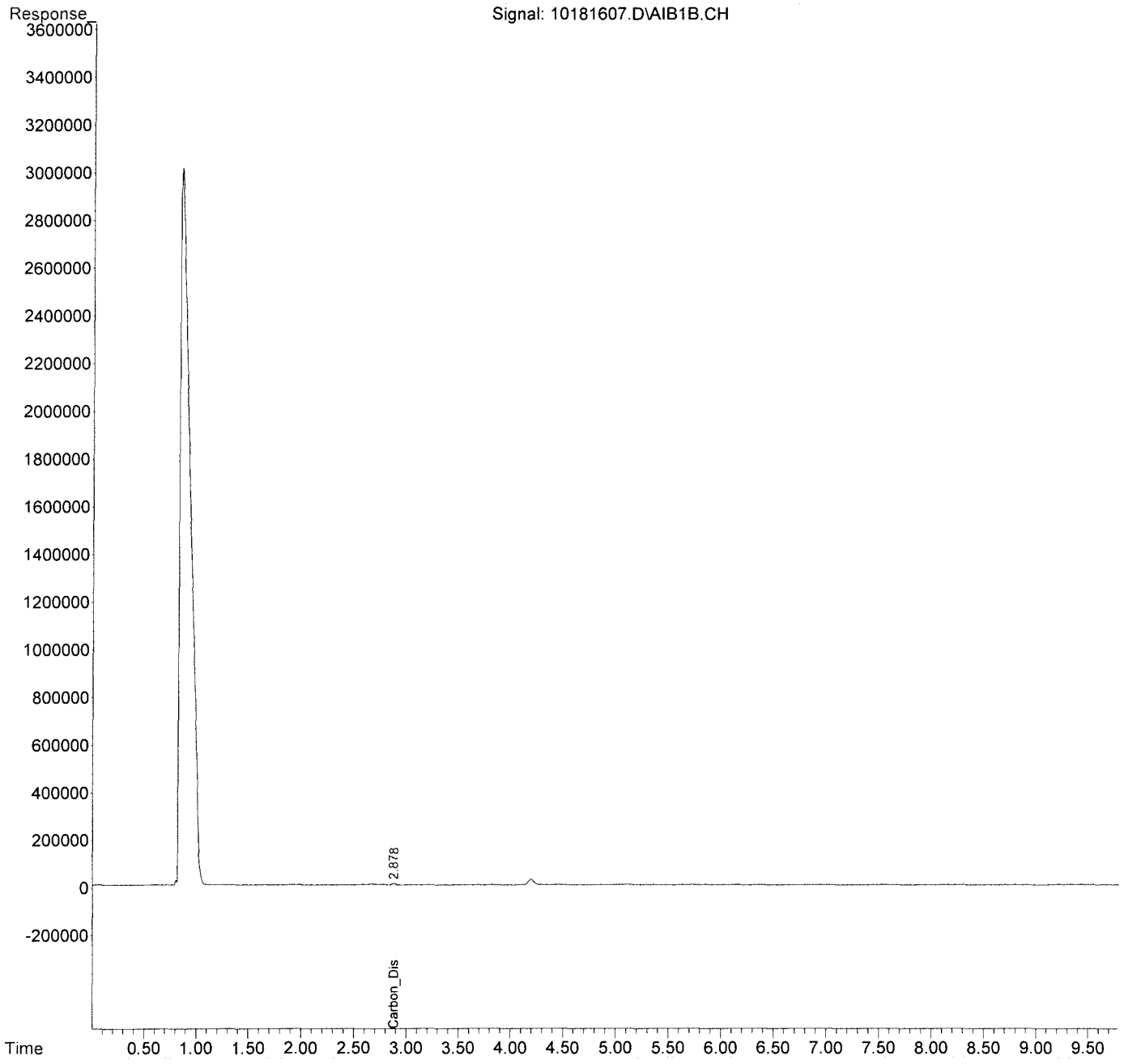
		Compound	R.T.	Response	Conc	Units	
Target Compounds							
1)	Z	Hydrogen_Sulfide	0.000	0	N.D.	ppb	d
2)	W	Carbonyl_Sulfide	0.000	0	N.D.	ppb	
3)	T	Methyl_Mercaptan	0.000	0	N.D.	ppb	
4)	T	Ethyl_Mercaptan	0.000	0	N.D.	ppb	
5)	T	Dimethyl_Sulfide	0.000	0	N.D.	ppb	
6)	T	Carbon_Disulfide	2.880	290581	2.166	ppb	
7)	T	2-Propyl_Mercaptan	0.000	0	N.D.	ppb	
8)	T	t-Butyl_Mercaptan	0.000	0	N.D.	ppb	
9)	T	Propyl_Mercaptan	0.000	0	N.D.	ppb	
10)	T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb	
11)	T	Thiophene	0.000	0	N.D.	ppb	
12)	T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb	
13)	T	Diethyl_Sulfide	0.000	0	N.D.	ppb	
14)	t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb	
15)	t	Dimethyl_Disulfide	0.000	0	N.D.	ppb	
16)	T	2-Methyl_Thiophene	0.000	0	N.D.	ppb	
17)	t	3-Methyl_Thiophene	0.000	0	N.D.	ppb	
18)	T	Tetrahydrothiophene	0.000	0	N.D.	ppb	
19)	t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb	
20)	T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb	
21)	T	Diethyl_Disulfide	0.000	0	N.D.	ppb	
22)	T	Methyltrisulfide	0.000	0	N.D.	ppb	

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC13\DATA\SCD\2016_10\18\
Data File : 10181607.D
Signal(s) : AIB1B.CH
Acq On : 18 Oct 2016 8:37 am
Operator : MC
Sample : 4860-001 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 18 14:34:51 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_10\18\
Data File : 10181608.D
Signal(s) : AIB1B.CH
Acq On : 18 Oct 2016 8:51 am
Operator : MC
Sample : 4860-002 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 18 14:35:05 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

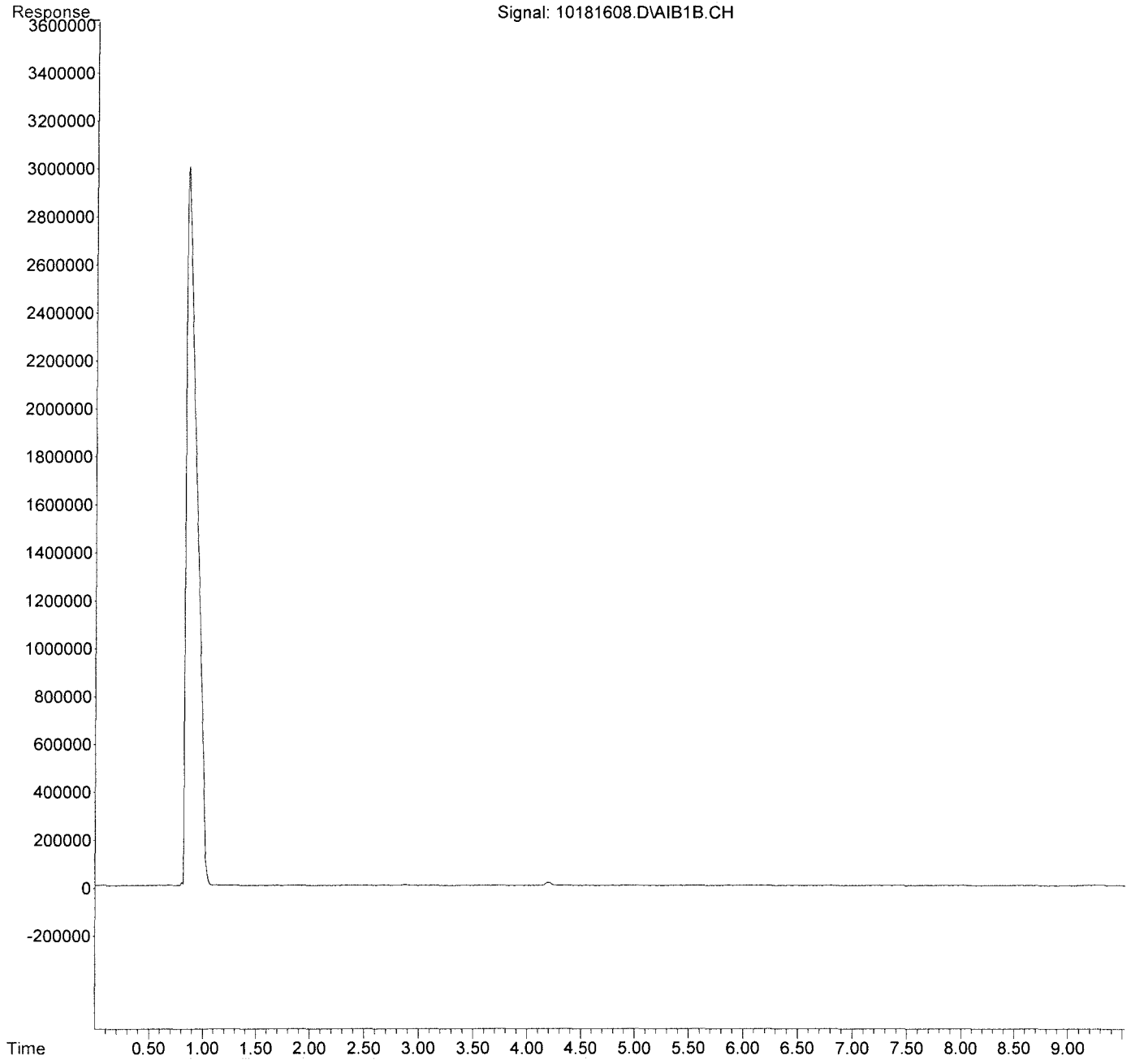
		Compound	R.T.	Response	Conc	Units	
Target Compounds							
1)	Z	Hydrogen_Sulfide	0.000	0	N.D.	ppb	d
2)	W	Carbonyl_Sulfide	0.000	0	N.D.	ppb	
3)	T	Methyl_Mercaptan	0.000	0	N.D.	ppb	
4)	T	Ethyl_Mercaptan	0.000	0	N.D.	ppb	
5)	T	Dimethyl_Sulfide	0.000	0	N.D.	ppb	
6)	T	Carbon_Disulfide	0.000	0	N.D.	ppb	
7)	T	2-Propyl_Mercaptan	0.000	0	N.D.	ppb	
8)	T	t-Butyl_Mercaptan	0.000	0	N.D.	ppb	
9)	T	Propyl_Mercaptan	0.000	0	N.D.	ppb	
10)	T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb	
11)	T	Thiophene	0.000	0	N.D.	ppb	
12)	T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb	
13)	T	Diethyl_Sulfide	0.000	0	N.D.	ppb	
14)	t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb	
15)	t	Dimethyl_Disulfide	0.000	0	N.D.	ppb	
16)	T	2-Methyl_Thiophene	0.000	0	N.D.	ppb	
17)	t	3-Methyl_Thiophene	0.000	0	N.D.	ppb	
18)	T	Tetrahydrothiophene	0.000	0	N.D.	ppb	
19)	t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb	
20)	T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb	
21)	T	Diethyl_Disulfide	0.000	0	N.D.	ppb	
22)	T	Methyltrisulfide	0.000	0	N.D.	ppb	

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC13\DATA\SCD\2016_10\18\
Data File : 10181608.D
Signal(s) : AIB1B.CH
Acq On : 18 Oct 2016 8:51 am
Operator : MC
Sample : 4860-002 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 18 14:35:05 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : J:\GC13\DATA\SCD\2016_10\18\
Data File : 10181609.D
Signal(s) : AIB1B.CH
Acq On : 18 Oct 2016 9:04 am
Operator : MC
Sample : 4860-003 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 18 14:35:19 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

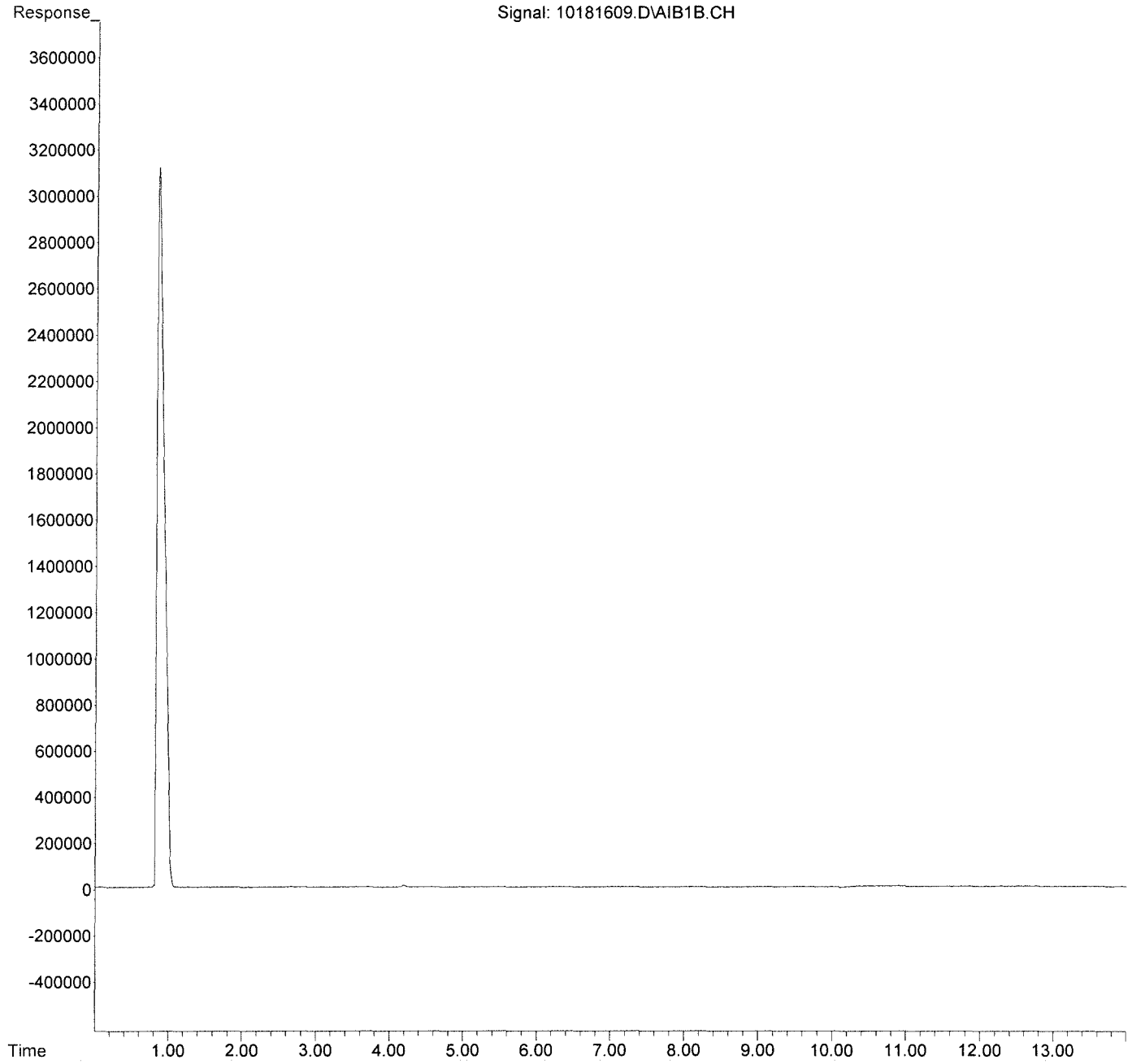
		Compound	R.T.	Response	Conc	Units	
Target Compounds							
1)	Z	Hydrogen_Sulfide	0.000	0	N.D.	ppb	d
2)	W	Carbonyl_Sulfide	0.000	0	N.D.	ppb	
3)	T	Methyl_Mercaptan	0.000	0	N.D.	ppb	
4)	T	Ethyl_Mercaptan	0.000	0	N.D.	ppb	
5)	T	Dimethyl_Sulfide	0.000	0	N.D.	ppb	
6)	T	Carbon_Disulfide	0.000	0	N.D.	ppb	
7)	T	2-Propyl_Mercaptan	0.000	0	N.D.	ppb	
8)	T	t-Butyl_Mercaptan	0.000	0	N.D.	ppb	
9)	T	Propyl_Mercaptan	0.000	0	N.D.	ppb	
10)	T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb	
11)	T	Thiophene	0.000	0	N.D.	ppb	
12)	T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb	
13)	T	Diethyl_Sulfide	0.000	0	N.D.	ppb	
14)	t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb	
15)	t	Dimethyl_Disulfide	0.000	0	N.D.	ppb	
16)	T	2-Methyl_Thiophene	0.000	0	N.D.	ppb	
17)	t	3-Methyl_Thiophene	0.000	0	N.D.	ppb	
18)	T	Tetrahydrothiophene	0.000	0	N.D.	ppb	
19)	t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb	
20)	T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb	
21)	T	Diethyl_Disulfide	0.000	0	N.D.	ppb	
22)	T	Methyltrisulfide	0.000	0	N.D.	ppb	

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC13\DATA\SCD\2016_10\18\
Data File : 10181609.D
Signal(s) : AIB1B.CH
Acq On : 18 Oct 2016 9:04 am
Operator : MC
Sample : 4860-003 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 18 14:35:19 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : J:\GC13\DATA\SCD\2016_10\18\
Data File : 10181610.D
Signal(s) : AIB1B.CH
Acq On : 18 Oct 2016 9:24 am
Operator : MC
Sample : 4860-004 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 18 14:35:32 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

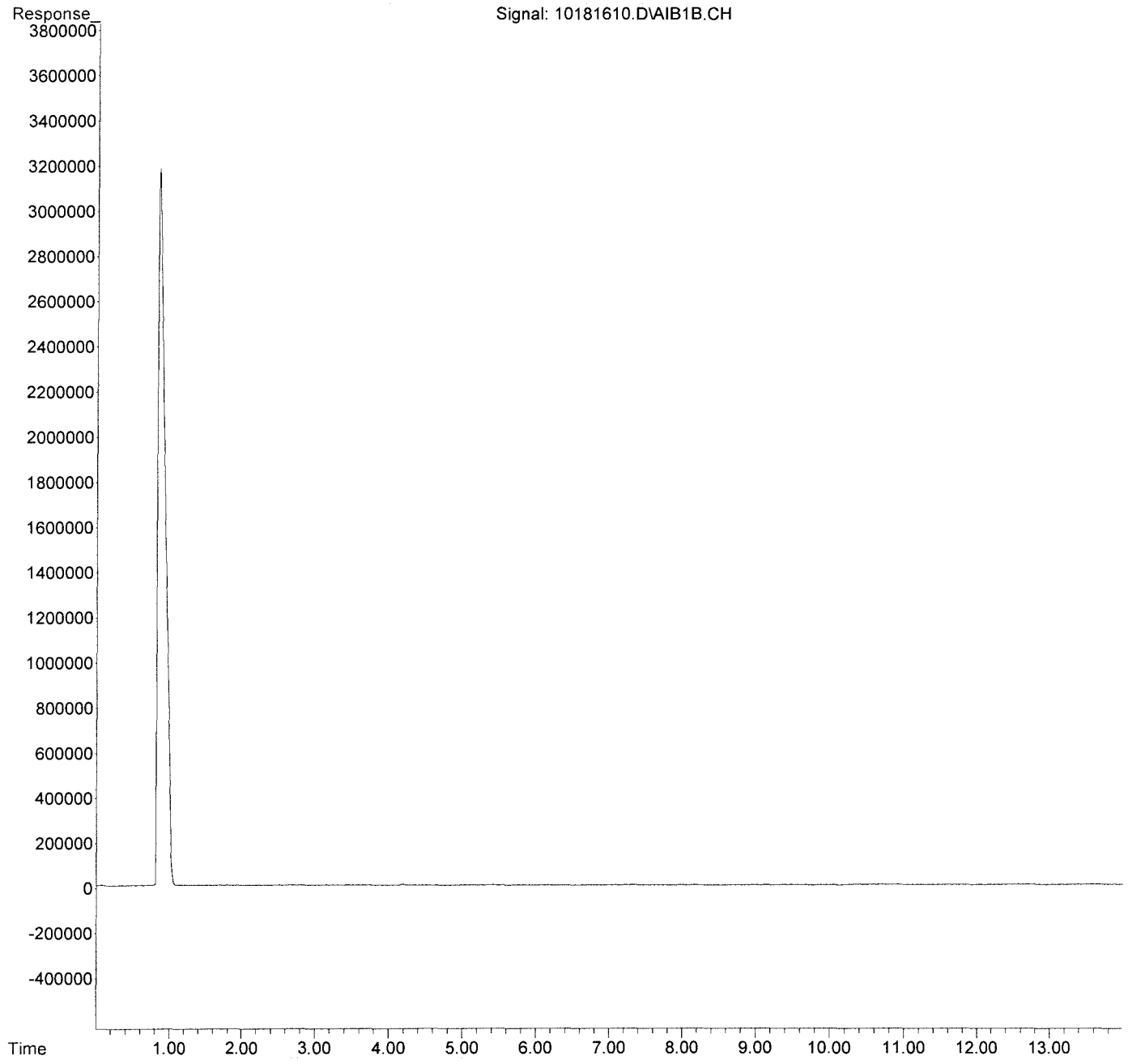
		Compound	R.T.	Response	Conc	Units	
Target Compounds							
1)	Z	Hydrogen_Sulfide	0.000	0	N.D.	ppb	d
2)	W	Carbonyl_Sulfide	0.000	0	N.D.	ppb	
3)	T	Methyl_Mercaptan	0.000	0	N.D.	ppb	
4)	T	Ethyl_Mercaptan	0.000	0	N.D.	ppb	
5)	T	Dimethyl_Sulfide	0.000	0	N.D.	ppb	
6)	T	Carbon_Disulfide	0.000	0	N.D.	ppb	
7)	T	2-Propyl_Mercaptan	0.000	0	N.D.	ppb	
8)	T	t-Butyl_Mercaptan	0.000	0	N.D.	ppb	
9)	T	Propyl_Mercaptan	0.000	0	N.D.	ppb	
10)	T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb	
11)	T	Thiophene	0.000	0	N.D.	ppb	
12)	T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb	
13)	T	Diethyl_Sulfide	0.000	0	N.D.	ppb	
14)	t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb	
15)	t	Dimethyl_Disulfide	0.000	0	N.D.	ppb	
16)	T	2-Methyl_Thiophene	0.000	0	N.D.	ppb	
17)	t	3-Methyl_Thiophene	0.000	0	N.D.	ppb	
18)	T	Tetrahydrothiophene	0.000	0	N.D.	ppb	
19)	t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb	
20)	T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb	
21)	T	Diethyl_Disulfide	0.000	0	N.D.	ppb	
22)	T	Methyltrisulfide	0.000	0	N.D.	ppb	

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC13\DATA\SCD\2016_10\18\
Data File : 10181610.D
Signal(s) : AIB1B.CH
Acq On : 18 Oct 2016 9:24 am
Operator : MC
Sample : 4860-004 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 18 14:35:32 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : J:\GC13\DATA\SCD\2016_10\18\
Data File : 10181606.D
Signal(s) : AIB1B.CH
Acq On : 18 Oct 2016 8:22 am
Operator : MC
Sample : mb 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 18 14:34:33 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

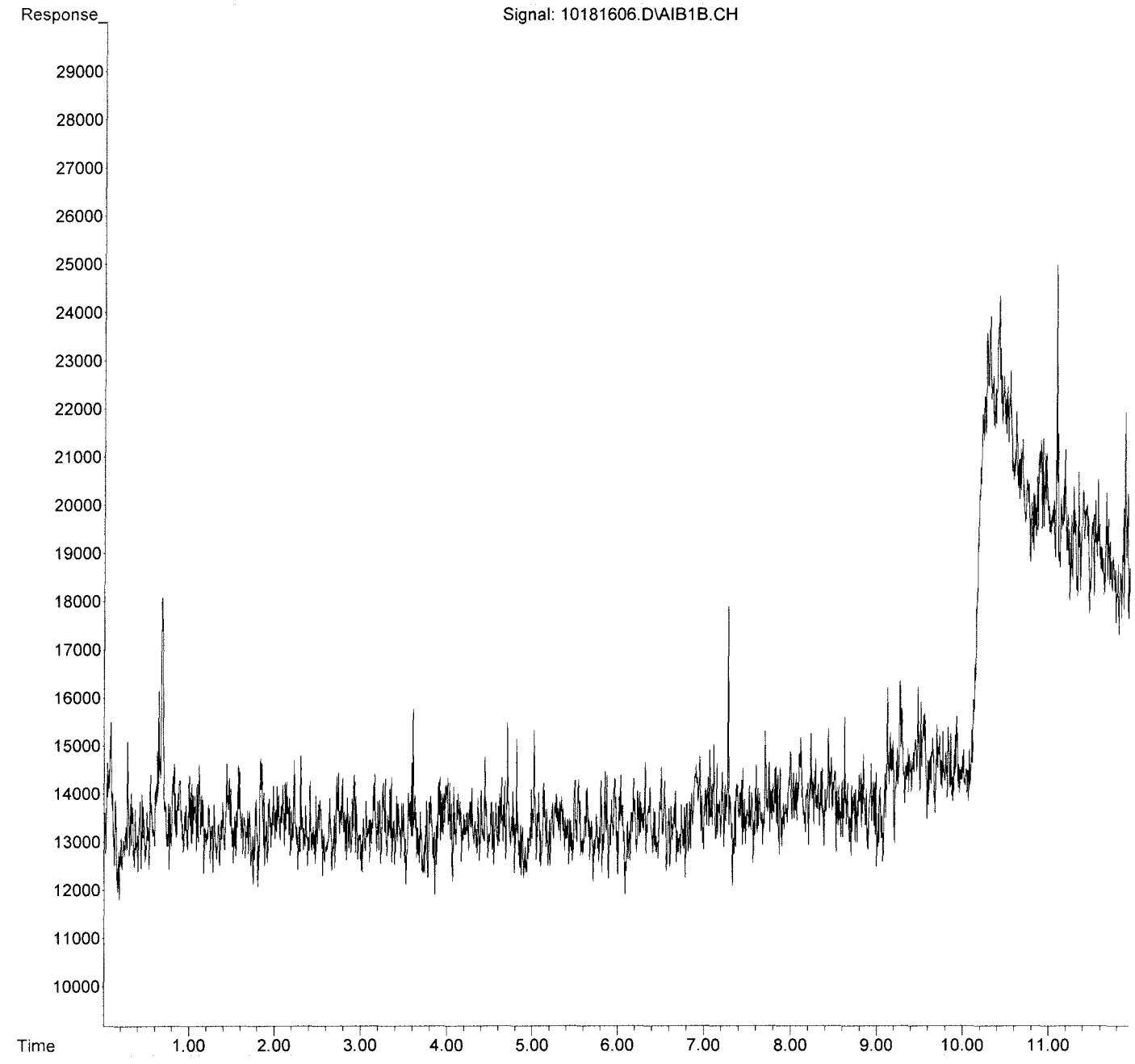
		Compound	R.T.	Response	Conc	Units
Target Compounds						
1)	Z	Hydrogen_Sulfide	0.000	0	N.D.	ppb
2)	W	Carbonyl_Sulfide	0.000	0	N.D.	ppb
3)	T	Methyl_Mercaptan	0.000	0	N.D.	ppb
4)	T	Ethyl_Mercaptan	0.000	0	N.D.	ppb
5)	T	Dimethyl_Sulfide	0.000	0	N.D.	ppb
6)	T	Carbon_Disulfide	0.000	0	N.D.	ppb
7)	T	2-Propyl_Mercaptan	0.000	0	N.D.	ppb
8)	T	t-Butyl_Mercaptan	0.000	0	N.D.	ppb
9)	T	Propyl_Mercaptan	0.000	0	N.D.	ppb
10)	T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb
11)	T	Thiophene	0.000	0	N.D.	ppb
12)	T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb
13)	T	Diethyl_Sulfide	0.000	0	N.D.	ppb
14)	t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb
15)	t	Dimethyl_Disulfide	0.000	0	N.D.	ppb
16)	T	2-Methyl_Thiophene	0.000	0	N.D.	ppb
17)	t	3-Methyl_Thiophene	0.000	0	N.D.	ppb
18)	T	Tetrahydrothiophene	0.000	0	N.D.	ppb
19)	t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb
20)	T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb
21)	T	Diethyl_Disulfide	0.000	0	N.D.	ppb
22)	T	Methyltrisulfide	0.000	0	N.D.	ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC13\DATA\SCD\2016_10\18\
Data File : 10181606.D
Signal(s) : AIB1B.CH
Acq On : 18 Oct 2016 8:22 am
Operator : MC
Sample : mb 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 18 14:34:33 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : J:\GC13\DATA\SCD\2016_10\18\
Data File : 10181603.D
Signal(s) : AIB1B.CH
Acq On : 18 Oct 2016 7:55 am
Operator : MC
Sample : lcs s30-10171602
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 18 14:33:42 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

		Compound	R.T.	Response	Conc	Units
Target Compounds						
1)	Z	Hydrogen_Sulfide	0.839	67245419	1076.494	ppb
2)	W	Carbonyl_Sulfide	0.972	80731456	1152.610	ppb
3)	T	Methyl_Mercaptan	1.680	75646166	1127.888	ppb
4)	T	Ethyl_Mercaptan	0.000	0	N.D.	ppb
5)	T	Dimethyl_Sulfide	0.000	0	N.D.	ppb
6)	T	Carbon_Disulfide	0.000	0	N.D.	ppb
7)	T	2-Propyl_Mercaptan	0.000	0	N.D.	ppb
8)	T	t-Butyl_Mercaptan	0.000	0	N.D.	ppb
9)	T	Propyl_Mercaptan	0.000	0	N.D.	ppb
10)	T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb
11)	T	Thiophene	0.000	0	N.D.	ppb
12)	T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb
13)	T	Diethyl_Sulfide	0.000	0	N.D.	ppb
14)	t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb
15)	t	Dimethyl_Disulfide	0.000	0	N.D.	ppb
16)	T	2-Methyl_Thiophene	0.000	0	N.D.	ppb
17)	t	3-Methyl_Thiophene	0.000	0	N.D.	ppb
18)	T	Tetrahydrothiophene	0.000	0	N.D.	ppb
19)	t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb
20)	T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb
21)	T	Diethyl_Disulfide	0.000	0	N.D.	ppb
22)	T	Methyltrisulfide	0.000	0	N.D.	ppb

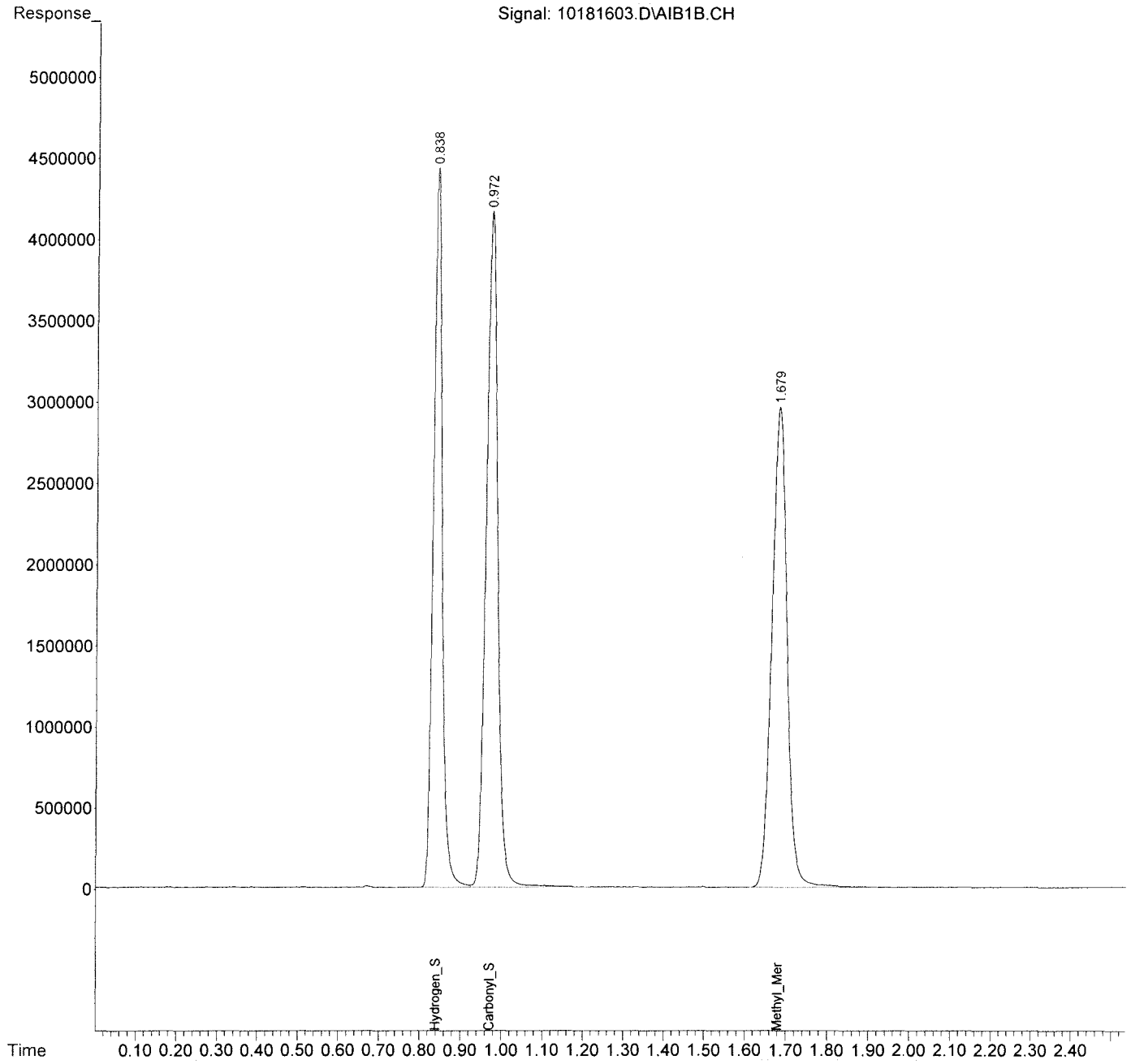
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_10\18\
Data File : 10181603.D
Signal(s) : AIB1B.CH
Acq On : 18 Oct 2016 7:55 am
Operator : MC
Sample : lcs s30-10171602
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 18 14:33:42 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Response Factor Report HP G1530A

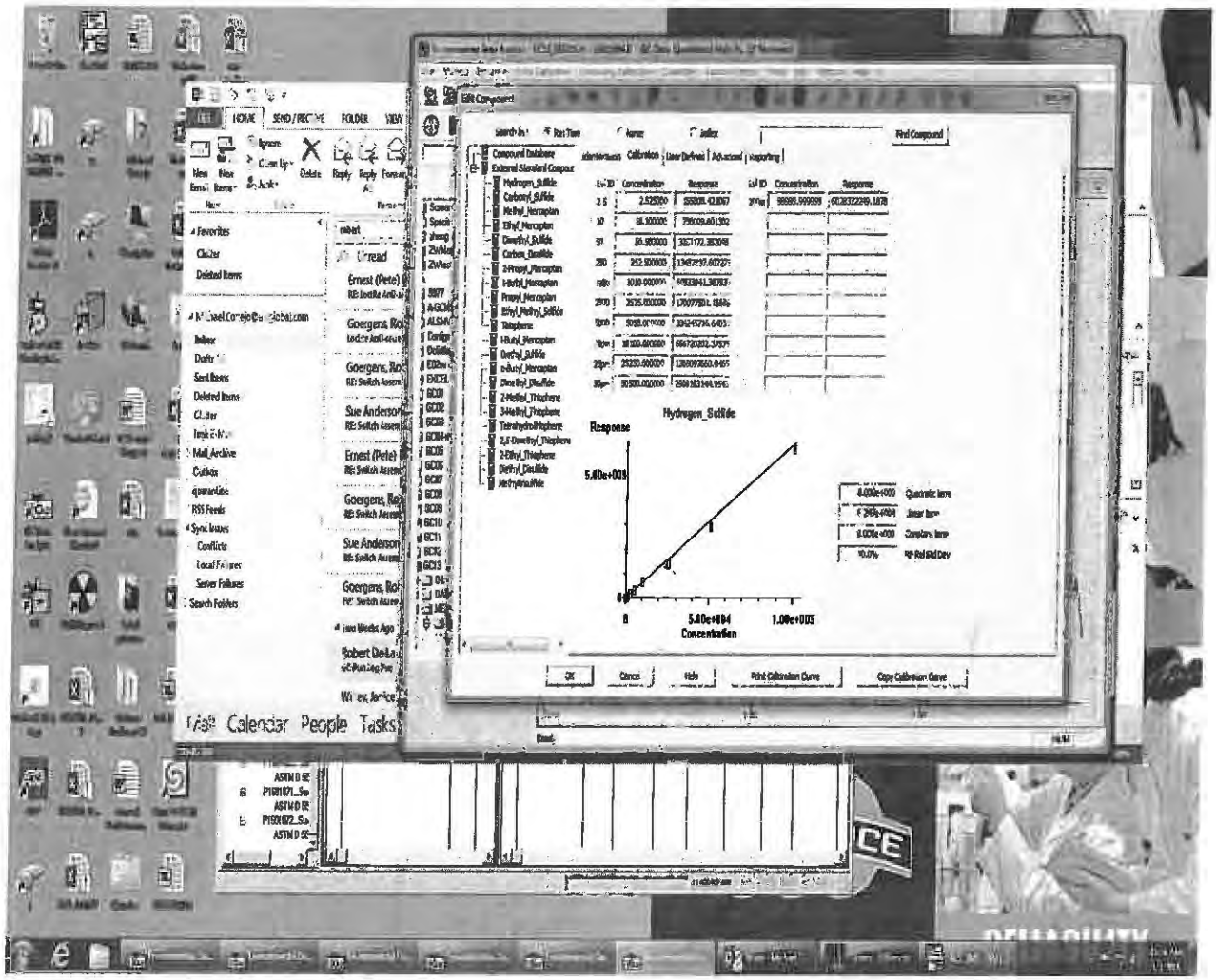
Method Path : J:\GC13\METHODS\
Method File : GC13_030216.M
Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
Last Update : Tue May 03 15:14:01 2016
Response Via : Initial Calibration

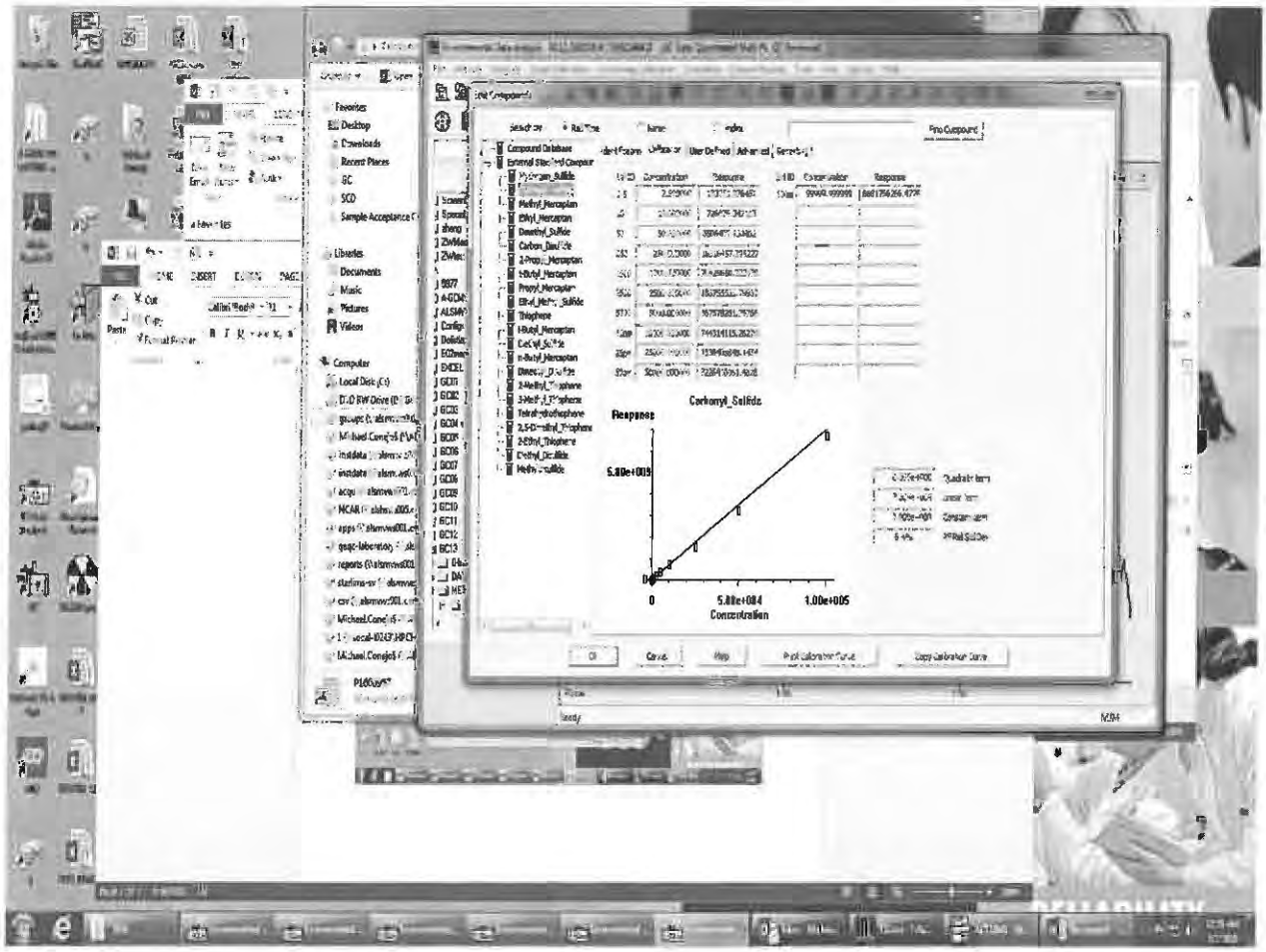
Calibration Files
2.5 =03021604.D 10 =03021605.D 50 =03021606.D
250 =03021607.D 1000 =03021608.D 2500 =03021609.D

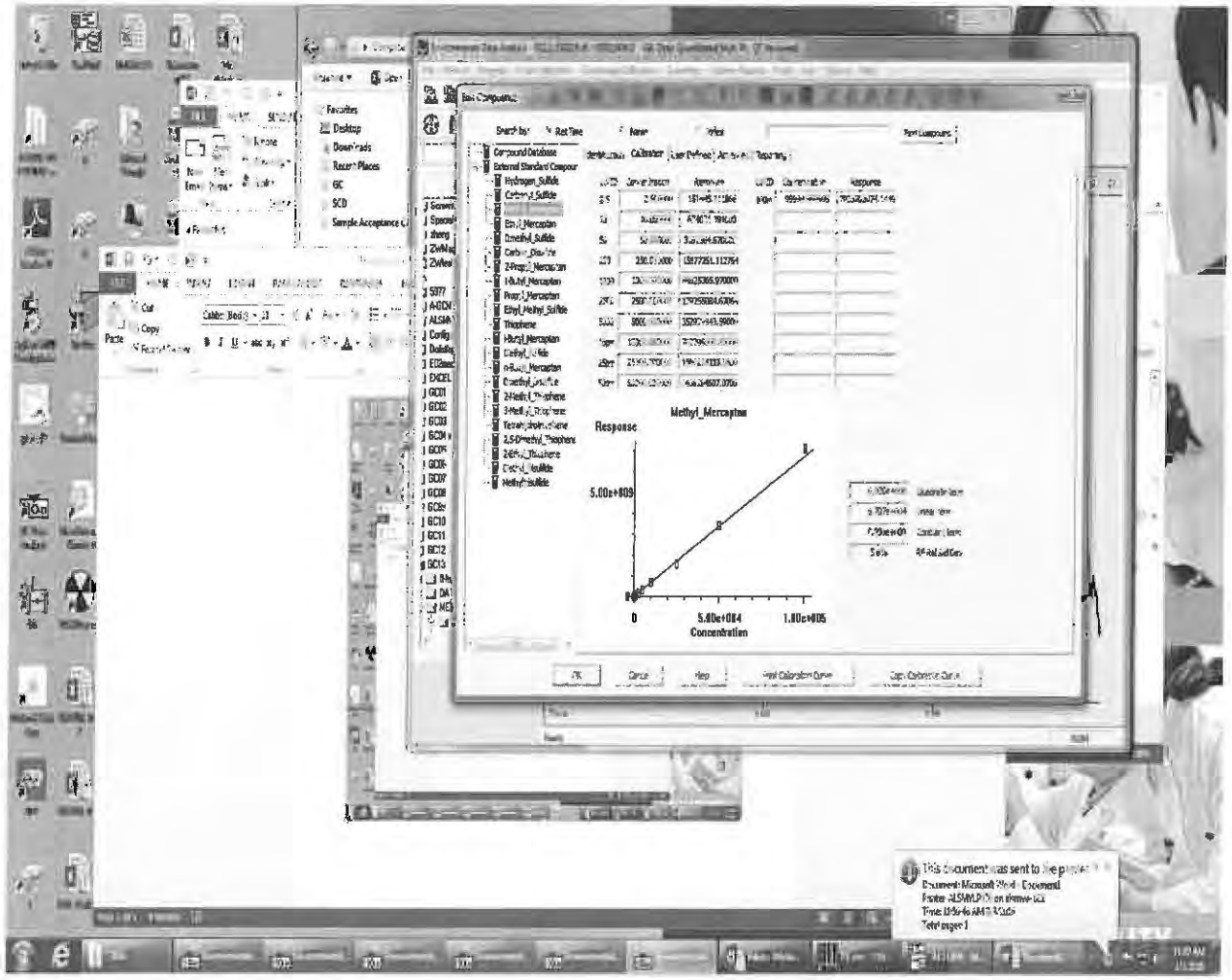
		Compound	2.5	10	50	250	1000	2500	Avg		%RSD
1)	Z	Hydrogen_Sulfide	6.139	7.485	6.511	5.330	6.032	6.736	6.247	E4	9.97
2)	W	Carbonyl_Sulfide	7.330	7.261	7.013	6.727	7.083	7.550	7.004	E4	6.38
3)	T	Methyl_Mercaptan	6.058	6.748	6.363	6.351	6.863	7.170	6.707	E4	5.78
4)	T	Ethyl_Mercaptan	6.058	6.748	6.363	6.351	6.863	7.170	6.707	E4	5.78
5)	T	Dimethyl_Sulfide	6.058	6.748	6.363	6.351	6.863	7.170	6.707	E4	5.78
6)	T	Carbon_Disulfide	1.212	1.350	1.273	1.270	1.373	1.434	1.341	E5	5.78
7)	T	2-Propyl_Merc...	6.058	6.748	6.363	6.351	6.863	7.170	6.707	E4	5.78
8)	T	t-Butyl_Merca...	6.058	6.748	6.363	6.351	6.863	7.170	6.707	E4	5.78
9)	T	Propyl_Mercaptan	6.058	6.748	6.363	6.351	6.863	7.170	6.707	E4	5.78
10)	T	Ethyl_Methyl_...	6.058	6.748	6.363	6.351	6.863	7.170	6.707	E4	5.78
11)	T	Thiophene	6.058	6.748	6.363	6.351	6.863	7.170	6.707	E4	5.78
12)	T	i-Butyl_Merca...	6.058	6.748	6.363	6.351	6.863	7.170	6.707	E4	5.78
13)	T	Diethyl_Sulfide	6.058	6.748	6.363	6.351	6.863	7.170	6.707	E4	5.78
14)	t	n-Butyl_Merca...	6.058	6.748	6.363	6.351	6.863	7.170	6.707	E4	5.78
15)	t	Dimethyl_Disu...	1.212	1.350	1.273	1.270	1.373	1.434	1.341	E5	5.78
16)	T	2-Methyl_Thio...	6.058	6.748	6.363	6.351	6.863	7.170	6.707	E4	5.78
17)	t	3-Methyl_Thio...	6.058	6.748	6.363	6.351	6.863	7.170	6.707	E4	5.78
18)	T	Tetrahydrothi...	6.058	6.748	6.363	6.351	6.863	7.170	6.707	E4	5.78
19)	t	2,5-Dimethyl_...	6.058	6.748	6.363	6.351	6.863	7.170	6.707	E4	5.78
20)	T	2-Ethyl_Thiop...	6.058	6.748	6.363	6.351	6.863	7.170	6.707	E4	5.78
21)	T	Diethyl_Disul...	1.212	1.350	1.273	1.270	1.373	1.434	1.341	E5	5.78
22)	T	Methyltrisulfide	1.212	1.350	1.273	1.270	1.373	1.434	1.341	E5	5.78

(#) = Out of Range ### Number of calibration levels exceeded format ###

GC13_030216.M Tue May 03 15:29:12 2016


Hydrogen_Sulfide
Response
Concentration
OK
Close
Help
Print Calibration Curve
Copy Calibration Curve
Find Compound


Carbonyl_Sulfide
Response
5.00e+005
0
5.00e+004
1.00e+005
Concentration


Methyl_Mercaptan
Response
5.00e+009
0
5.00e+004
1.00e+005
Concentration

Calibration Status Report HP G1530A

Method Path : J:\GC13\METHODS\
Method File : GC13_030216.M
Title : 20 Sulfurs
Last Update : Wed Mar 02 12:32:01 2016
Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	2.5	3	0	J:\GC13\DATA\SCD\2016_03\02\03021604.D
2	10	10	0	J:\GC13\DATA\SCD\2016_03\02\03021605.D
3	50	50	0	J:\GC13\DATA\SCD\2016_03\02\03021606.D
4	250	250	0	J:\GC13\DATA\SCD\2016_03\02\03021607.D
5	1000	1000	0	J:\GC13\DATA\SCD\2016_03\02\03021608.D
6	2500	2500	0	J:\GC13\DATA\SCD\2016_03\02\03021609.D
7	5000	5000	0	J:\GC13\DATA\SCD\2016_03\02\03021610.D
8	10pm	10000	0	J:\GC13\DATA\SCD\2016_03\02\03021611.D
9	25pm	25000	0	J:\GC13\DATA\SCD\2016_03\02\03021612.D
10	50pm	50000	0	J:\GC13\DATA\SCD\2016_03\02\03021613.D
11	100m	100000	0	J:\GC13\DATA\SCD\2016_03\02\03021614.D

#	ID	Update Time	Quant Time	Acquisition Time
1	2.5	Mar 02 11:50 2016	Mar 02 11:47 2016	02 Mar 2016 11:27
2	10	Mar 02 11:51 2016	Mar 02 11:48 2016	02 Mar 2016 11:36
3	50	Mar 02 11:52 2016	Mar 02 11:52 2016	02 Mar 2016 11:41
4	250	Mar 02 11:54 2016	Mar 02 11:52 2016	02 Mar 2016 11:45
5	1000	Mar 02 11:55 2016	Mar 02 11:54 2016	02 Mar 2016 11:49
6	2500	Mar 02 11:58 2016	Mar 02 11:57 2016	02 Mar 2016 11:53
7	5000	Mar 02 12:01 2016	Mar 02 12:01 2016	02 Mar 2016 11:57
8	10pm	Mar 02 12:05 2016	Mar 02 12:05 2016	02 Mar 2016 12:00
9	25pm	Mar 02 12:09 2016	Mar 02 12:09 2016	02 Mar 2016 12:04
10	50pm	Mar 02 12:14 2016	Mar 02 12:14 2016	02 Mar 2016 12:08
11	100m	Mar 02 12:20 2016	Mar 02 12:20 2016	02 Mar 2016 12:13

GC13_030216.M Thu Mar 03 11:45:28 2016

Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021604.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:27 am
Operator : MC
Sample : 2.5ppb S11-0302160225ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 11:47:52 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Feb 17 15:56:38 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

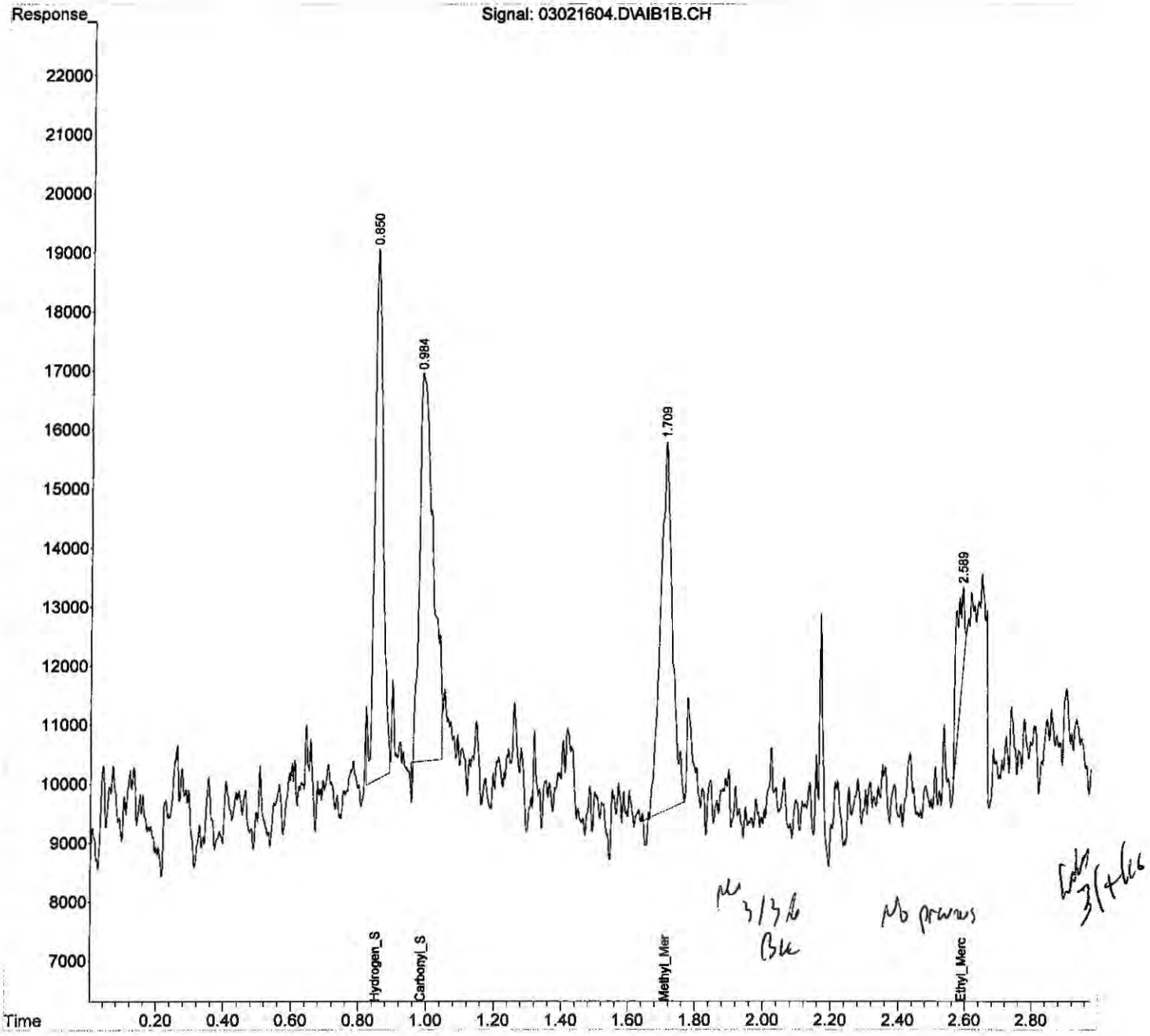
		Compound	R.T.	Response	Conc	Units	
Target Compounds							
1)	Z	Hydrogen_Sulfide	0.850	155008	1.495	ppb	m
2)	W	Carbonyl_Sulfide	0.984	183251	1.573	ppb	m
3)	T	Methyl_Mercaptan	1.710	151445	1.414	ppb	
4)	T	Ethyl_Mercaptan	2.590f	29959	0.280	ppb	
5)	T	Dimethyl_Sulfide	0.000	0	N.D.	ppb	
6)	T	Carbon_Disulfide	0.000	0	N.D.	ppb	
7)	T	2-Propyl_Mercaptan	0.000	0	N.D.	ppb	
8)	T	t-Butyl_Mercaptan	0.000	0	N.D.	ppb	
9)	T	Propyl_Mercaptan	0.000	0	N.D.	ppb	
10)	T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb	
11)	T	Thiophene	0.000	0	N.D.	ppb	
12)	T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb	
13)	T	Diethyl_Sulfide	0.000	0	N.D.	ppb	
14)	t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb	
15)	t	Dimethyl_Disulfide	0.000	0	N.D.	ppb	
16)	T	2-Methyl_Thiophene	0.000	0	N.D.	ppb	
17)	t	3-Methyl_Thiophene	0.000	0	N.D.	ppb	
18)	T	Tetrahydrothiophene	0.000	0	N.D.	ppb	
19)	t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb	
20)	T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb	
21)	T	Diethyl_Disulfide	0.000	0	N.D.	ppb	
22)	T	Methyltrisulfide	0.000	0	N.D.	ppb	

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021604.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:27 am
Operator : MC
Sample : 2.5ppb S11-0302160225ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 11:47:52 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Feb 17 15:56:38 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021605.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:36 am
Operator : MC
Sample : 10ppb S11-03021602 100ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 11:48:48 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Feb 17 15:56:38 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

		Compound	R.T.	Response	Conc	Units	
Target Compounds							
1)	Z	Hydrogen_Sulfide	0.851	756010	7.289	ppb	m
2)	W	Carbonyl_Sulfide	0.986	726076	6.234	ppb	m
3)	T	Methyl_Mercaptan	1.706	674831	6.301	ppb	m
4)	T	Ethyl_Mercaptan	0.000	0	N.D.	ppb	
5)	T	Dimethyl_Sulfide	2.788f	43131	0.403	ppb	
6)	T	Carbon_Disulfide	0.000	0	N.D.	ppb	
7)	T	2-Propyl_Mercaptan	0.000	0	N.D.	ppb	
8)	T	t-Butyl_Mercaptan	0.000	0	N.D.	ppb	
9)	T	Propyl_Mercaptan	0.000	0	N.D.	ppb	
10)	T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb	
11)	T	Thiophene	0.000	0	N.D.	ppb	
12)	T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb	
13)	T	Diethyl_Sulfide	0.000	0	N.D.	ppb	
14)	t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb	
15)	t	Dimethyl_Disulfide	0.000	0	N.D.	ppb	
16)	T	2-Methyl_Thiophene	0.000	0	N.D.	ppb	
17)	t	3-Methyl_Thiophene	0.000	0	N.D.	ppb	
18)	T	Tetrahydrothiophene	0.000	0	N.D.	ppb	
19)	t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb	
20)	T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb	
21)	T	Diethyl_Disulfide	0.000	0	N.D.	ppb	
22)	T	Methyltrisulfide	0.000	0	N.D.	ppb	

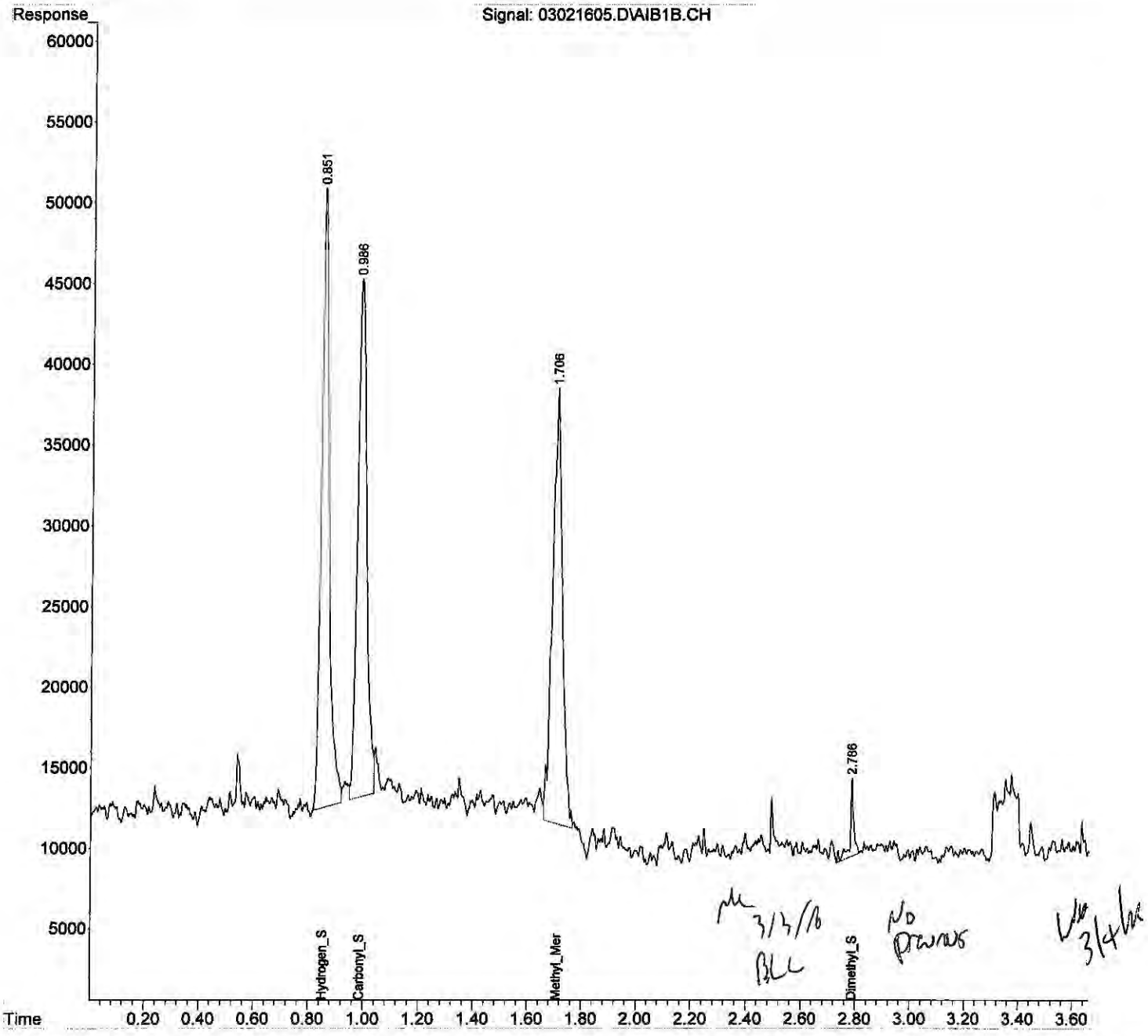
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021605.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:36 am
Operator : MC
Sample : 10ppb S11-03021602 100ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 11:48:48 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Feb 17 15:56:38 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



3/3/16 BLL

NO Drawns

3/4/16

Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021606.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:41 am
Operator : MC
Sample : 50ppb S11-03021602 500ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 11:52:08 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 11:51:20 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

		Compound	R.T.	Response	Conc	Units	
Target Compounds							
1)	Z	Hydrogen_Sulfide	0.848	3288172	47.792	ppb	
2)	W	Carbonyl_Sulfide	0.982	3506410	48.063	ppb	
3)	T	Methyl_Mercaptan	1.701	3181365	49.685	ppb	m
4)	T	Ethyl_Mercaptan	0.000	0	N.D.	ppb	
5)	T	Dimethyl_Sulfide	2.692	186087	43.145	ppb	
6)	T	Carbon_Disulfide	0.000	0	N.D.	ppb	
7)	T	2-Propyl_Mercaptan	0.000	0	N.D.	ppb	
8)	T	t-Butyl_Mercaptan	0.000	0	N.D.	ppb	
9)	T	Propyl_Mercaptan	0.000	0	N.D.	ppb	
10)	T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb	
11)	T	Thiophene	0.000	0	N.D.	ppb	
12)	T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb	
13)	T	Diethyl_Sulfide	0.000	0	N.D.	ppb	
14)	t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb	
15)	t	Dimethyl_Disulfide	0.000	0	N.D.	ppb	
16)	T	2-Methyl_Thiophene	0.000	0	N.D.	ppb	
17)	t	3-Methyl_Thiophene	0.000	0	N.D.	ppb	
18)	T	Tetrahydrothiophene	0.000	0	N.D.	ppb	
19)	t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb	
20)	T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb	
21)	T	Diethyl_Disulfide	0.000	0	N.D.	ppb	
22)	T	Methyltrisulfide	0.000	0	N.D.	ppb	

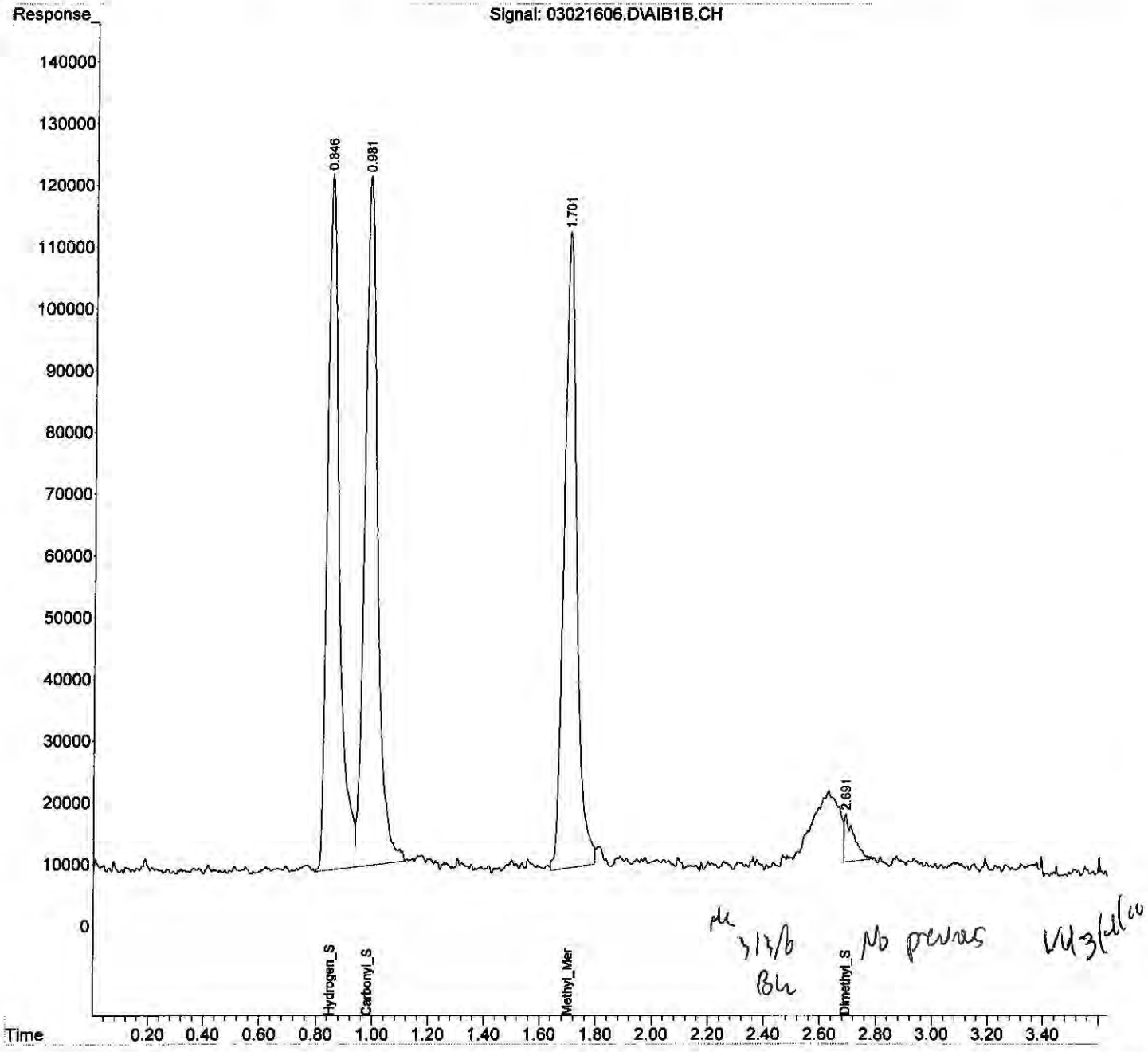
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021606.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:41 am
Operator : MC
Sample : 50ppb S11-03021602 500ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 11:52:08 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 11:51:20 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



pk 3/3/16 No peaks VM3/4/16
Blk

Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021607.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:45 am
Operator : MC
Sample : 250ppbS11- 03021601 25ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 11:52:33 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 11:52:22 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1) Z	Hydrogen_Sulfide	0.851	13457888	198.525	ppb
2) W	Carbonyl_Sulfide	0.986	16816957	233.530	ppb
3) T	Methyl_Mercaptan	1.704	15877251	248.485	ppb
4) T	Ethyl_Mercaptan	0.000	0	N.D.	ppb
5) T	Dimethyl_Sulfide	0.000	0	N.D.	ppb
6) T	Carbon_Disulfide	0.000	0	N.D.	ppb
7) T	2-Propyl_Mercaptan	0.000	0	N.D.	ppb
8) T	t-Butyl_Mercaptan	0.000	0	N.D.	ppb
9) T	Propyl_Mercaptan	0.000	0	N.D.	ppb
10) T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb
11) T	Thiophene	0.000	0	N.D.	ppb
12) T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb
13) T	Diethyl_Sulfide	0.000	0	N.D.	ppb
14) t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb
15) t	Dimethyl_Disulfide	0.000	0	N.D.	ppb
16) T	2-Methyl_Thiophene	0.000	0	N.D.	ppb
17) t	3-Methyl_Thiophene	0.000	0	N.D.	ppb
18) T	Tetrahydrothiophene	0.000	0	N.D.	ppb
19) t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb
20) T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb
21) T	Diethyl_Disulfide	0.000	0	N.D.	ppb
22) T	Methyltrisulfide	0.000	0	N.D.	ppb

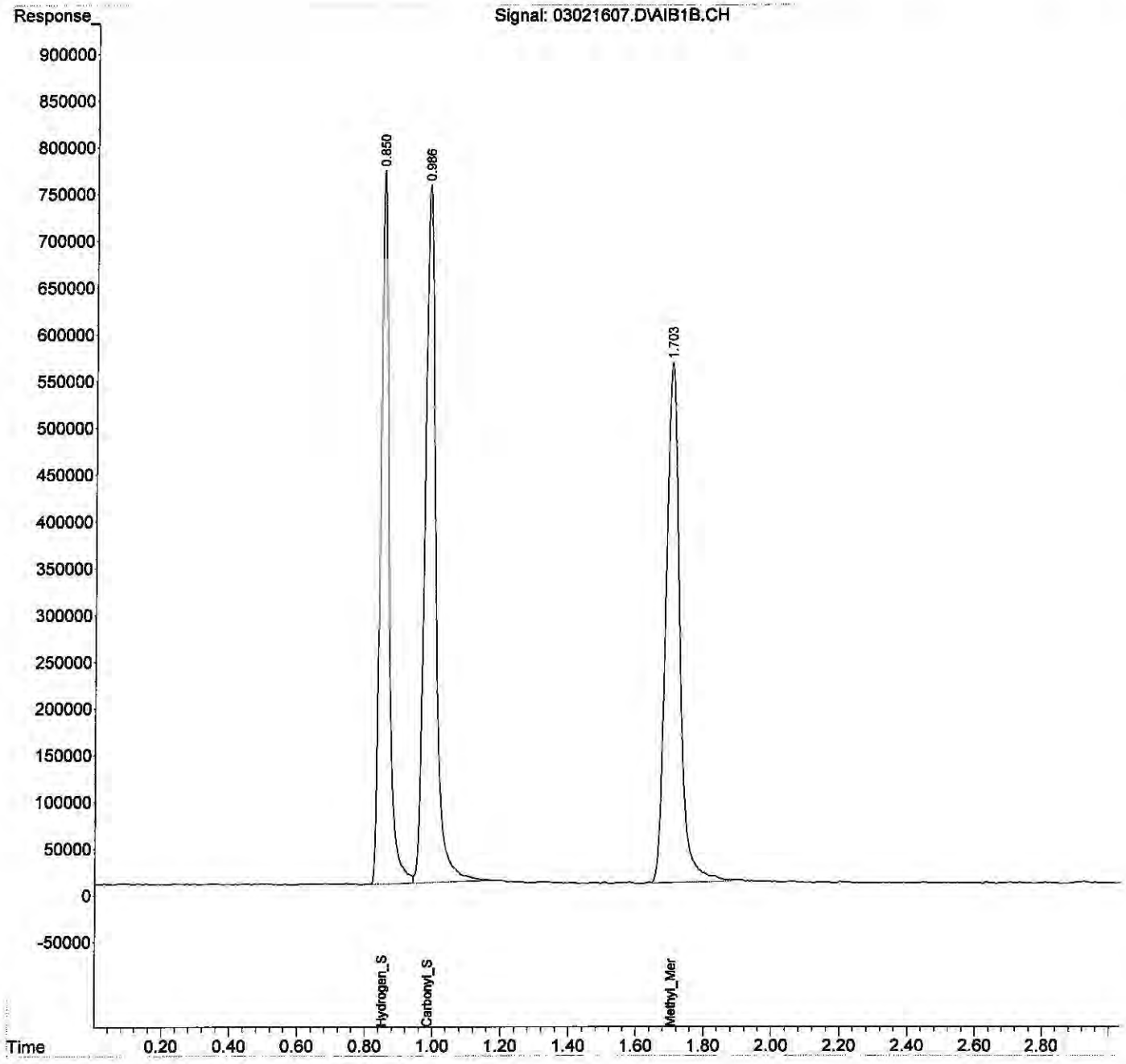
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021607.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:45 am
Operator : MC
Sample : 250ppbS11- 03021601 25ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 11:52:33 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 11:52:22 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021608.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:49 am
Operator : MC
Sample : 1000ppb S11-03021601 100ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 13:51:20 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:32:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

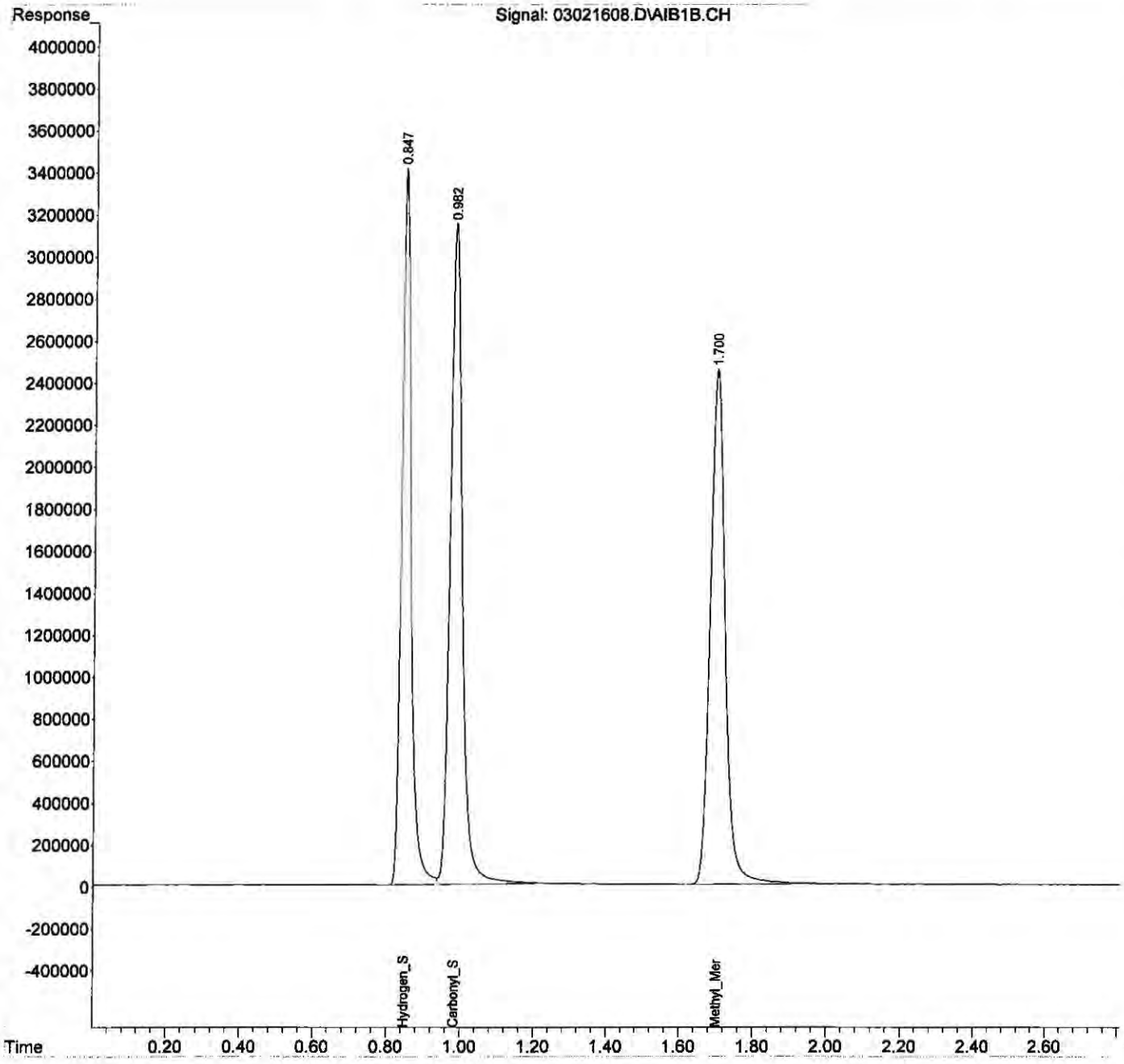
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1) Z	Hydrogen_Sulfide	0.848	60923941	966.480	ppb
2) W	Carbonyl_Sulfide	0.983	70829650	1011.241	ppb
3) T	Methyl_Mercaptan	1.701	68625366	1023.207	ppb
4) T	Ethyl_Mercaptan	0.000	0	N.D.	ppb
5) T	Dimethyl_Sulfide	0.000	0	N.D.	ppb
6) T	Carbon_Disulfide	0.000	0	N.D.	ppb
7) T	2-Propyl_Mercaptan	0.000	0	N.D.	ppb
8) T	t-Butyl_Mercaptan	0.000	0	N.D.	ppb
9) T	Propyl_Mercaptan	0.000	0	N.D.	ppb
10) T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb
11) T	Thiophene	0.000	0	N.D.	ppb
12) T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb
13) T	Diethyl_Sulfide	0.000	0	N.D.	ppb
14) t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb
15) t	Dimethyl_Disulfide	0.000	0	N.D.	ppb
16) T	2-Methyl_Thiophene	0.000	0	N.D.	ppb
17) t	3-Methyl_Thiophene	0.000	0	N.D.	ppb
18) T	Tetrahydrothiophene	0.000	0	N.D.	ppb
19) t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb
20) T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb
21) T	Diethyl_Disulfide	0.000	0	N.D.	ppb
22) T	Methyltrisulfide	0.000	0	N.D.	ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021608.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:49 am
Operator : MC
Sample : 1000ppb S11-03021601 100ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 13:51:20 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:32:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021609.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:53 am
Operator : MC
Sample : 2500ppb S11-03021601 250ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 13:52:48 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:32:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

		Compound	R.T.	Response	Conc	Units
Target Compounds						
1)	Z	Hydrogen_Sulfide	0.845	170077501	2698.061	ppb
2)	W	Carbonyl_Sulfide	0.981	188755506	2694.879	ppb
3)	T	Methyl_Mercaptan	1.700	179255085	2672.701	ppb
4)	T	Ethyl_Mercaptan	0.000	0	N.D.	ppb
5)	T	Dimethyl_Sulfide	0.000	0	N.D.	ppb
6)	T	Carbon_Disulfide	2.908	542676	8.091	ppb
7)	T	2-Propyl_Mercaptan	0.000	0	N.D.	ppb
8)	T	t-Butyl_Mercaptan	0.000	0	N.D.	ppb
9)	T	Propyl_Mercaptan	0.000	0	N.D.	ppb
10)	T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb
11)	T	Thiophene	0.000	0	N.D.	ppb
12)	T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb
13)	T	Diethyl_Sulfide	0.000	0	N.D.	ppb
14)	t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb
15)	t	Dimethyl_Disulfide	0.000	0	N.D.	ppb
16)	T	2-Methyl_Thiophene	0.000	0	N.D.	ppb
17)	t	3-Methyl_Thiophene	0.000	0	N.D.	ppb
18)	T	Tetrahydrothiophene	0.000	0	N.D.	ppb
19)	t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb
20)	T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb
21)	T	Diethyl_Disulfide	0.000	0	N.D.	ppb
22)	T	Methyltrisulfide	0.000	0	N.D.	ppb

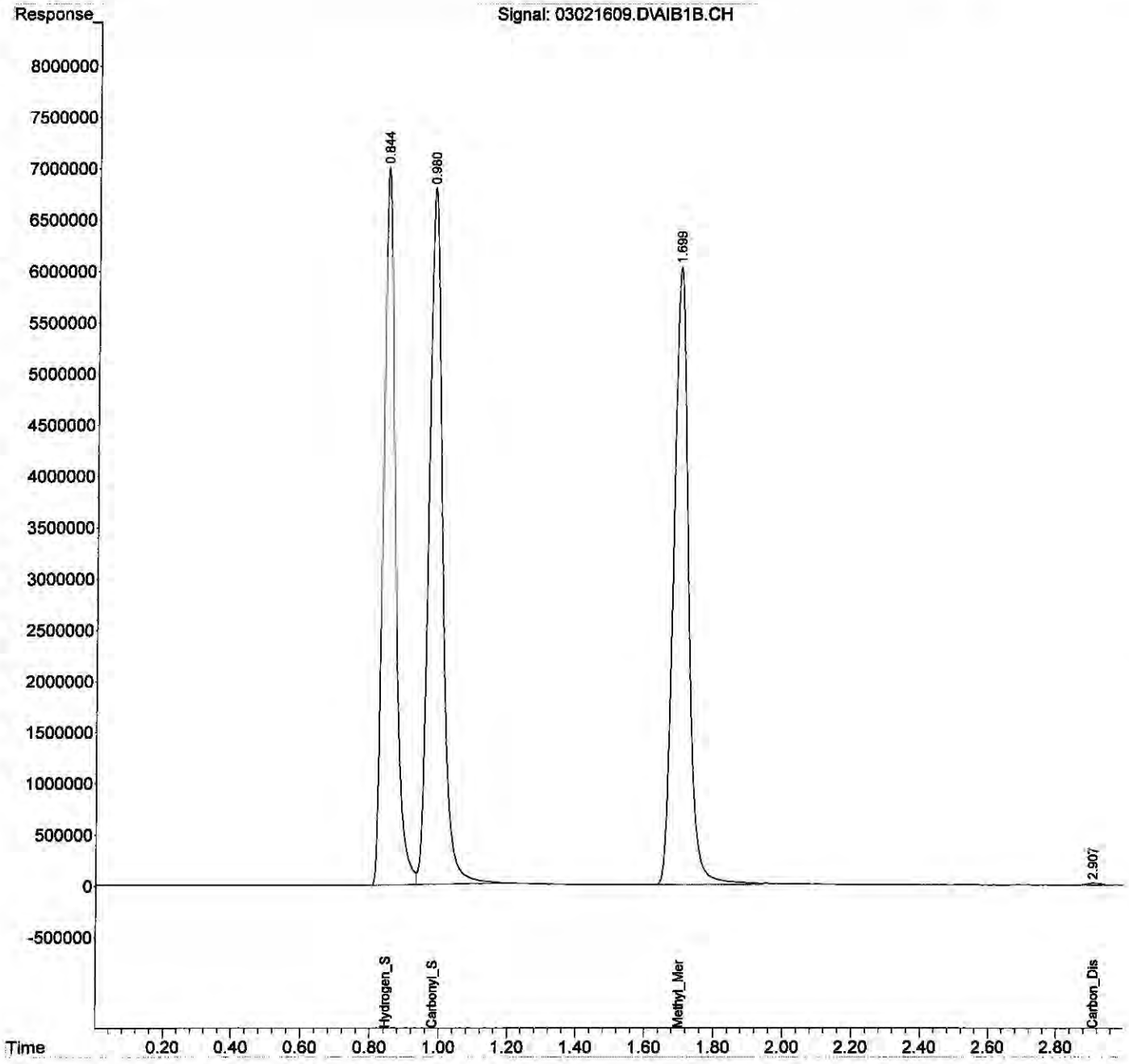
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021609.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:53 am
Operator : MC
Sample : 2500ppb S11-03021601 250ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 13:52:48 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:32:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021610.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:57 am
Operator : MC
Sample : 5000ppb S11-03021601 500ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 12:01:12 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 11:58:08 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

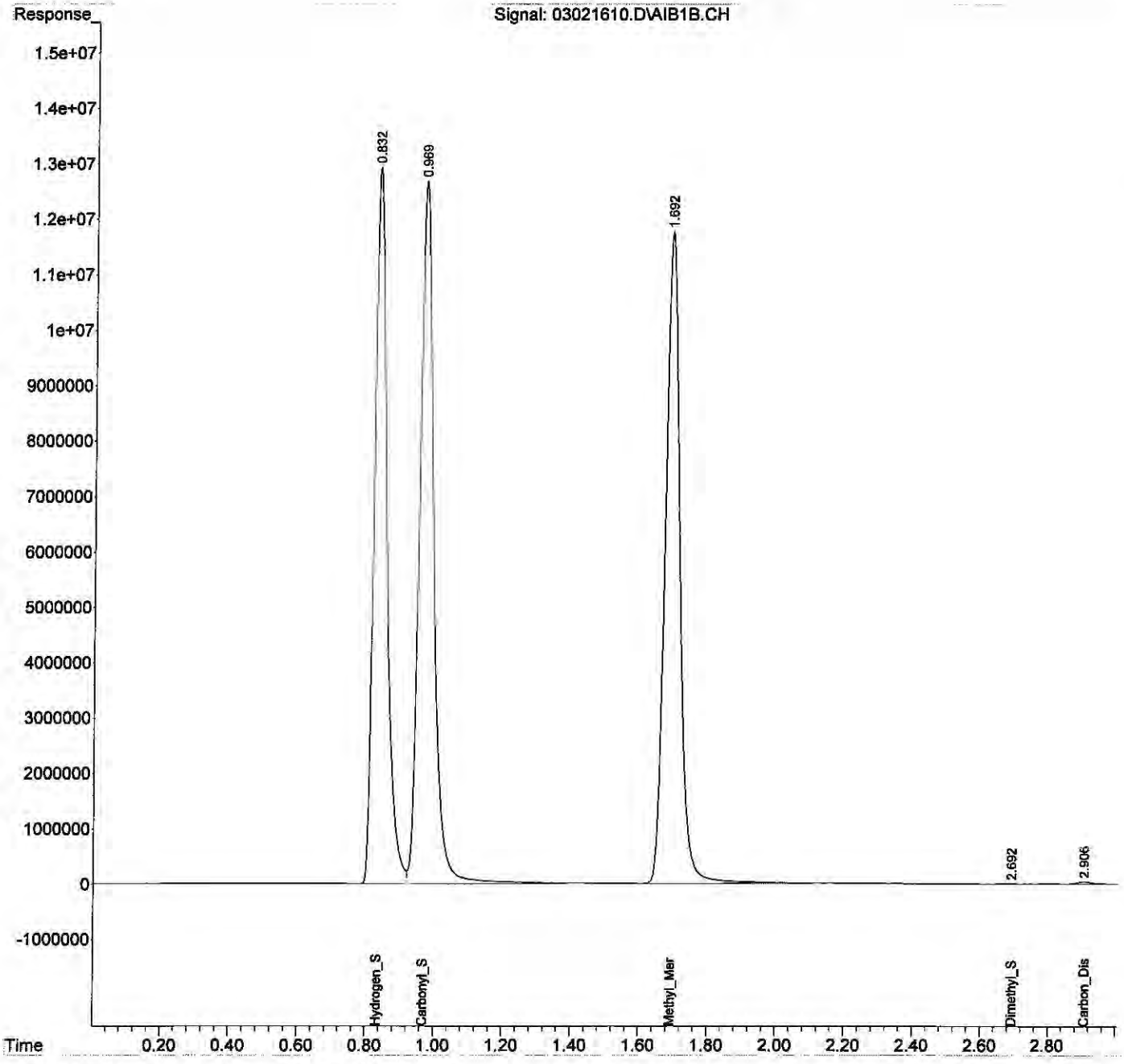
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1) Z	Hydrogen_Sulfide	0.833	334245717	5193.454	ppb
2) W	Carbonyl_Sulfide	0.970	367578252	5133.345	ppb
3) T	Methyl_Mercaptan	1.692	352979844	5354.603	ppb
4) T	Ethyl_Mercaptan	0.000	0	N.D.	ppb
5) T	Dimethyl_Sulfide	2.692	216055	53.780	ppb
6) T	Carbon_Disulfide	2.907	1134685	5227.264	ppb
7) T	2-Propyl_Mercaptan	0.000	0	N.D.	ppb
8) T	t-Butyl_Mercaptan	0.000	0	N.D.	ppb
9) T	Propyl_Mercaptan	0.000	0	N.D.	ppb
10) T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb
11) T	Thiophene	0.000	0	N.D.	ppb
12) T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb
13) T	Diethyl_Sulfide	0.000	0	N.D.	ppb
14) t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb
15) t	Dimethyl_Disulfide	0.000	0	N.D.	ppb
16) T	2-Methyl_Thiophene	0.000	0	N.D.	ppb
17) t	3-Methyl_Thiophene	0.000	0	N.D.	ppb
18) T	Tetrahydrothiophene	0.000	0	N.D.	ppb
19) t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb
20) T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb
21) T	Diethyl_Disulfide	0.000	0	N.D.	ppb
22) T	Methyltrisulfide	0.000	0	N.D.	ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021610.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 11:57 am
Operator : MC
Sample : 5000ppb S11-03021601 500ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 12:01:12 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 11:58:08 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021611.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 12:00 pm
Operator : MC
Sample : 10ppm S11-03021601 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 12:05:10 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:01:28 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

		Compound	R.T.	Response	Conc	Units
Target Compounds						
1)	Z	Hydrogen_Sulfide	0.848	666720202	10302.442	ppb
2)	W	Carbonyl_Sulfide	0.984	744314115	10355.127	ppb
3)	T	Methyl_Mercaptan	1.704	702296001	10546.774	ppb
4)	T	Ethyl_Mercaptan	0.000	0	N.D.	ppb
5)	T	Dimethyl_Sulfide	2.693	226440	84.095	ppb
6)	T	Carbon_Disulfide	2.913	2223163	10014.082	ppb
7)	T	2-Propyl_Mercaptan	0.000	0	N.D.	ppb
8)	T	t-Butyl_Mercaptan	0.000	0	N.D.	ppb
9)	T	Propyl_Mercaptan	0.000	0	N.D.	ppb
10)	T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb
11)	T	Thiophene	0.000	0	N.D.	ppb
12)	T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb
13)	T	Diethyl_Sulfide	0.000	0	N.D.	ppb
14)	t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb
15)	t	Dimethyl_Disulfide	0.000	0	N.D.	ppb
16)	T	2-Methyl_Thiophene	0.000	0	N.D.	ppb
17)	t	3-Methyl_Thiophene	0.000	0	N.D.	ppb
18)	T	Tetrahydrothiophene	0.000	0	N.D.	ppb
19)	t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb
20)	T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb
21)	T	Diethyl_Disulfide	0.000	0	N.D.	ppb
22)	T	Methyltrisulfide	0.000	0	N.D.	ppb

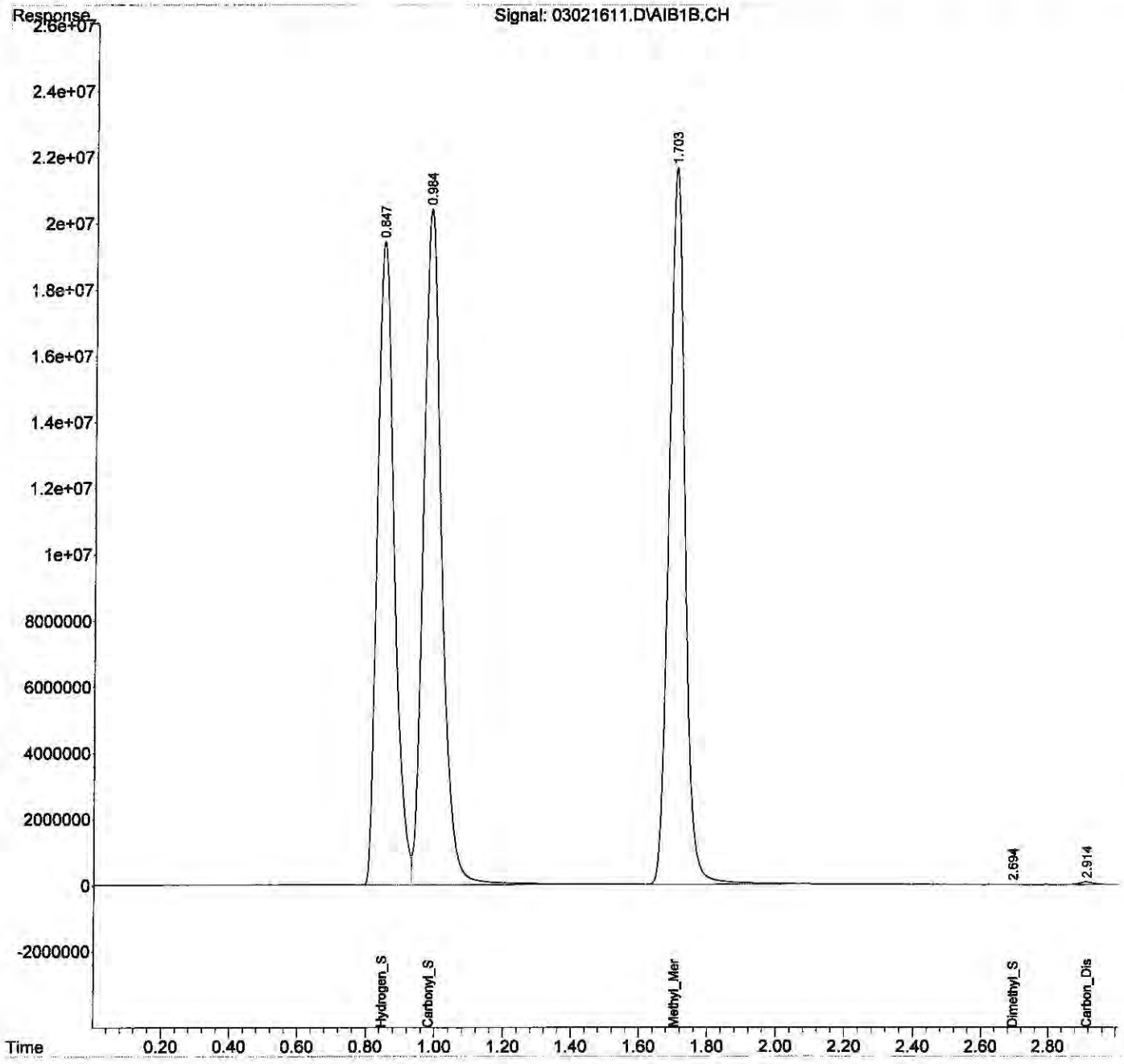
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021611.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 12:00 pm
Operator : MC
Sample : 10ppm S11-03021601 1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 12:05:10 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:01:28 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_03\02\
Data File : 03021612.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 12:04 pm
Operator : MC
Sample : 25ppm S30-11031401 25ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 13:09:09 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:07:47 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

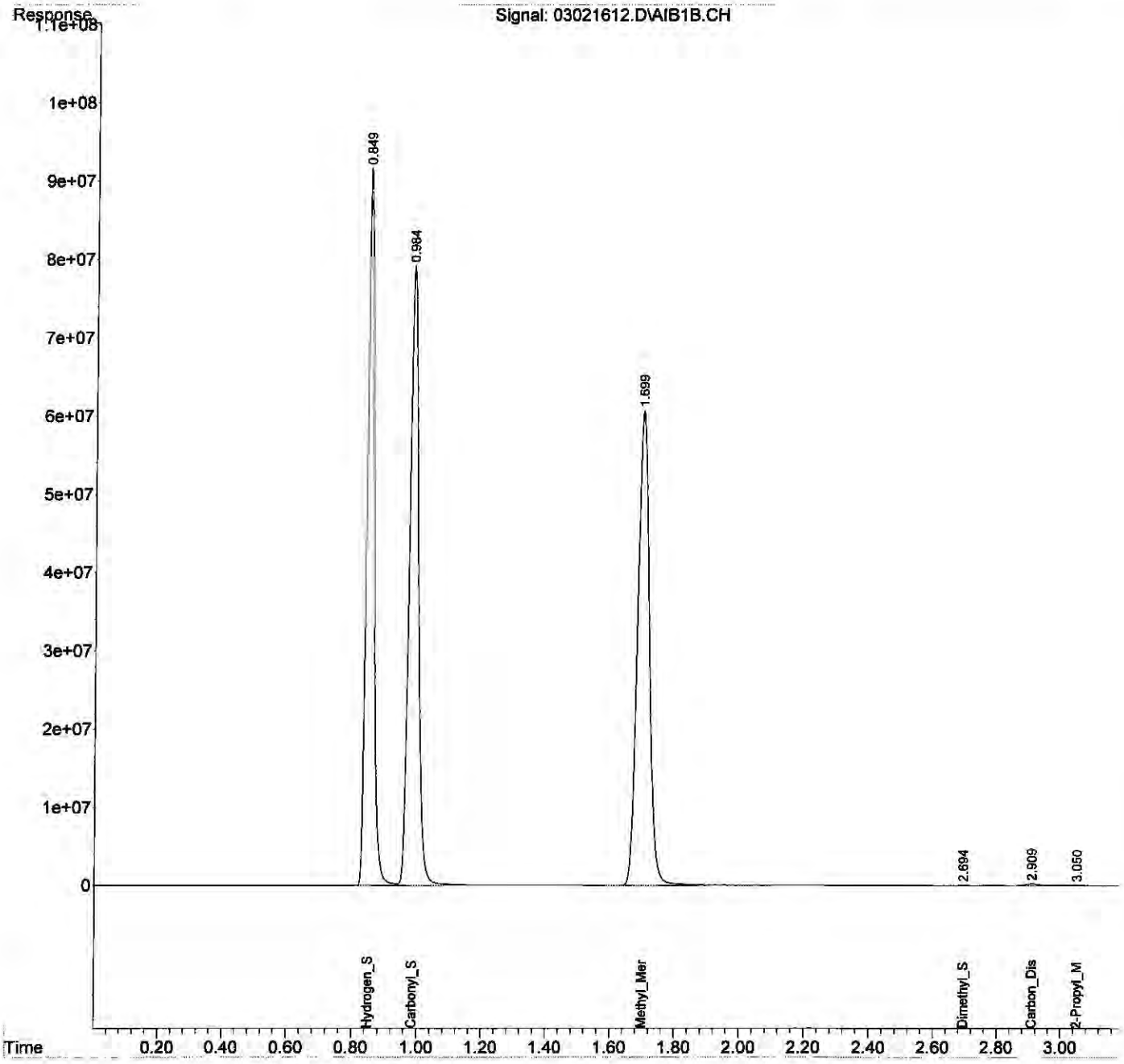
		Compound	R.T.	Response	Conc	Units
Target Compounds						
1)	Z	Hydrogen_Sulfide	0.850	1386097660	21337.898	ppb
2)	W	Carbonyl_Sulfide	0.985	1538408848	21308.229	ppb
3)	T	Methyl_Mercaptan	1.700	1560233333	23271.845	ppb
4)	T	Ethyl_Mercaptan	0.000	0	N.D.	ppb
5)	T	Dimethyl_Sulfide	2.694	419001	6.917	ppb
6)	T	Carbon_Disulfide	2.909	5845671	96.498	ppb
7)	T	2-Propyl_Mercaptan	3.051f	797865	13.171	ppb
8)	T	t-Butyl_Mercaptan	0.000	0	N.D.	ppb
9)	T	Propyl_Mercaptan	0.000	0	N.D.	ppb
10)	T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb
11)	T	Thiophene	0.000	0	N.D.	ppb
12)	T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb
13)	T	Diethyl_Sulfide	0.000	0	N.D.	ppb
14)	t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb
15)	t	Dimethyl_Disulfide	0.000	0	N.D.	ppb
16)	T	2-Methyl_Thiophene	0.000	0	N.D.	ppb
17)	t	3-Methyl_Thiophene	0.000	0	N.D.	ppb
18)	T	Tetrahydrothiophene	0.000	0	N.D.	ppb
19)	t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb
20)	T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb
21)	T	Diethyl_Disulfide	0.000	0	N.D.	ppb
22)	T	Methyltrisulfide	0.000	0	N.D.	ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC13\DATA\SCD\2016_03\02\
Data File : 03021612.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 12:04 pm
Operator : MC
Sample : 25ppm S30-11031401 25ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 13:09:09 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:07:47 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_03\02\
Data File : 03021613.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 12:08 pm
Operator : MC
Sample : 50ppm S30-11031401 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 13:14:19 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:12:30 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

		Compound	R.T.	Response	Conc	Units	
Target Compounds							
1)	Z	Hydrogen_Sulfide	0.849	2900163145	45384.439	ppb	
2)	W	Carbonyl_Sulfide	0.984	3226410061	45433.908	ppb	
3)	T	Methyl_Mercaptan	1.700	3408294607	51230.307	ppb	
4)	T	Ethyl_Mercaptan	0.000	0	N.D.	ppb	
5)	T	Dimethyl_Sulfide	0.000	0	N.D.	ppb	d
6)	T	Carbon_Disulfide	0.000	0	N.D.	ppb	d
7)	T	2-Propyl_Mercaptan	0.000	0	N.D.	ppb	
8)	T	t-Butyl_Mercaptan	0.000	0	N.D.	ppb	
9)	T	Propyl_Mercaptan	0.000	0	N.D.	ppb	
10)	T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb	
11)	T	Thiophene	0.000	0	N.D.	ppb	
12)	T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb	
13)	T	Diethyl_Sulfide	0.000	0	N.D.	ppb	
14)	t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb	
15)	t	Dimethyl_Disulfide	0.000	0	N.D.	ppb	
16)	T	2-Methyl_Thiophene	0.000	0	N.D.	ppb	
17)	t	3-Methyl_Thiophene	0.000	0	N.D.	ppb	
18)	T	Tetrahydrothiophene	0.000	0	N.D.	ppb	
19)	t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb	
20)	T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb	
21)	T	Diethyl_Disulfide	0.000	0	N.D.	ppb	
22)	T	Methyltrisulfide	0.000	0	N.D.	ppb	

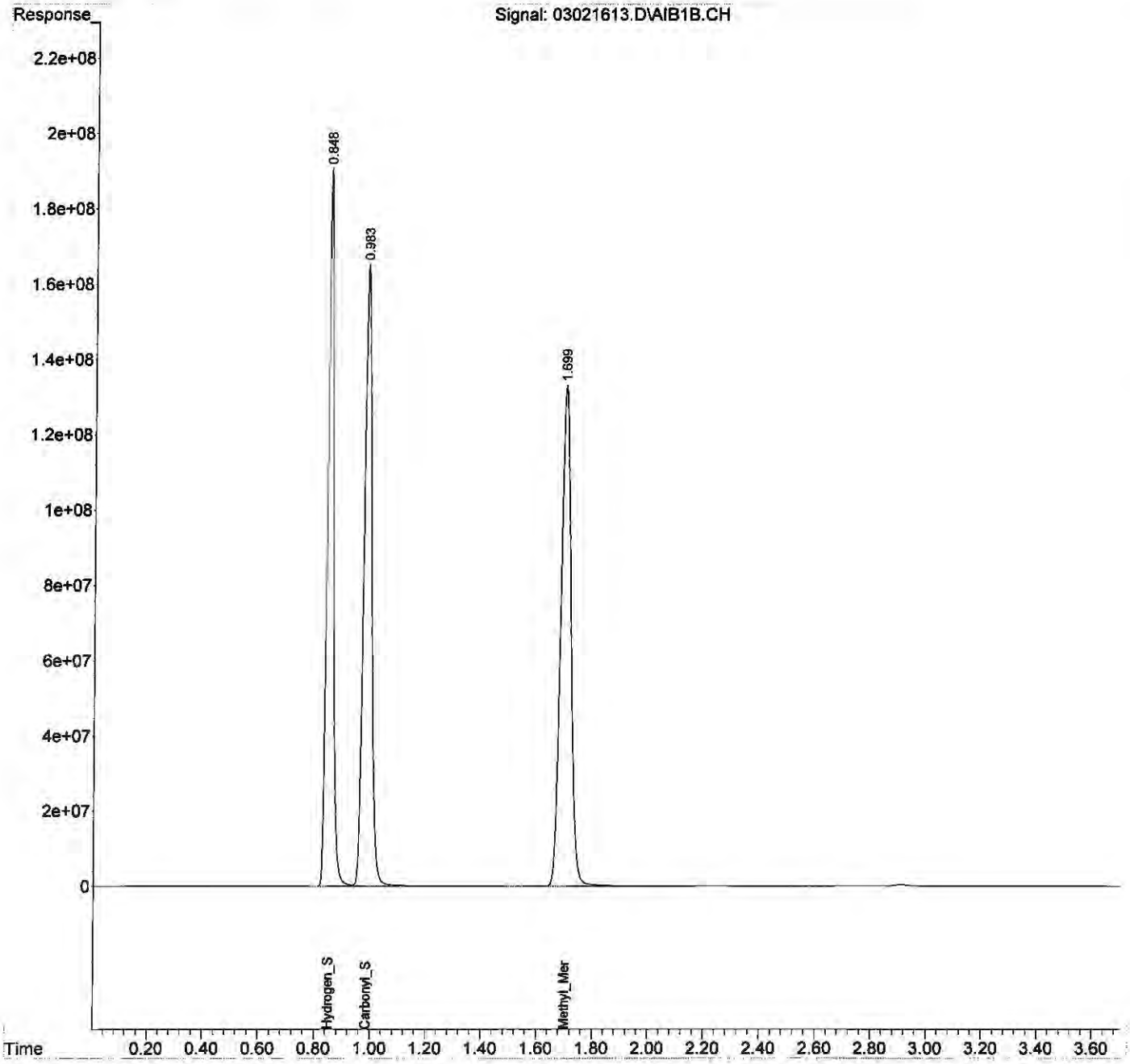
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_03\02\
Data File : 03021613.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 12:08 pm
Operator : MC
Sample : 50ppm S30-11031401 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 13:14:19 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:12:30 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_03\02\
Data File : 03021614.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 12:13 pm
Operator : MC
Sample : 100ppm S30-11031401 100ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 13:20:21 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:17:56 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

		Compound	R.T.	Response	Conc	Units	
Target Compounds							
1)	Z	Hydrogen_Sulfide	0.846	6028372249	95216.507	ppb	
2)	W	Carbonyl_Sulfide	0.981	6681756266	94958.849	ppb	
3)	T	Methyl_Mercaptan	1.698	7083203074	106206.771	ppb	
4)	T	Ethyl_Mercaptan	0.000	0	N.D.	ppb	d
5)	T	Dimethyl_Sulfide	0.000	0	N.D.	ppb	d
6)	T	Carbon_Disulfide	0.000	0	N.D.	ppb	d
7)	T	2-Propyl_Mercaptan	0.000	0	N.D.	ppb	d
8)	T	t-Butyl_Mercaptan	0.000	0	N.D.	ppb	d
9)	T	Propyl_Mercaptan	0.000	0	N.D.	ppb	d
10)	T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb	d
11)	T	Thiophene	0.000	0	N.D.	ppb	
12)	T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb	
13)	T	Diethyl_Sulfide	0.000	0	N.D.	ppb	
14)	t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb	
15)	t	Dimethyl_Disulfide	0.000	0	N.D.	ppb	
16)	T	2-Methyl_Thiophene	0.000	0	N.D.	ppb	
17)	t	3-Methyl_Thiophene	0.000	0	N.D.	ppb	
18)	T	Tetrahydrothiophene	0.000	0	N.D.	ppb	
19)	t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb	
20)	T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb	
21)	T	Diethyl_Disulfide	0.000	0	N.D.	ppb	
22)	T	Methyltrisulfide	0.000	0	N.D.	ppb	

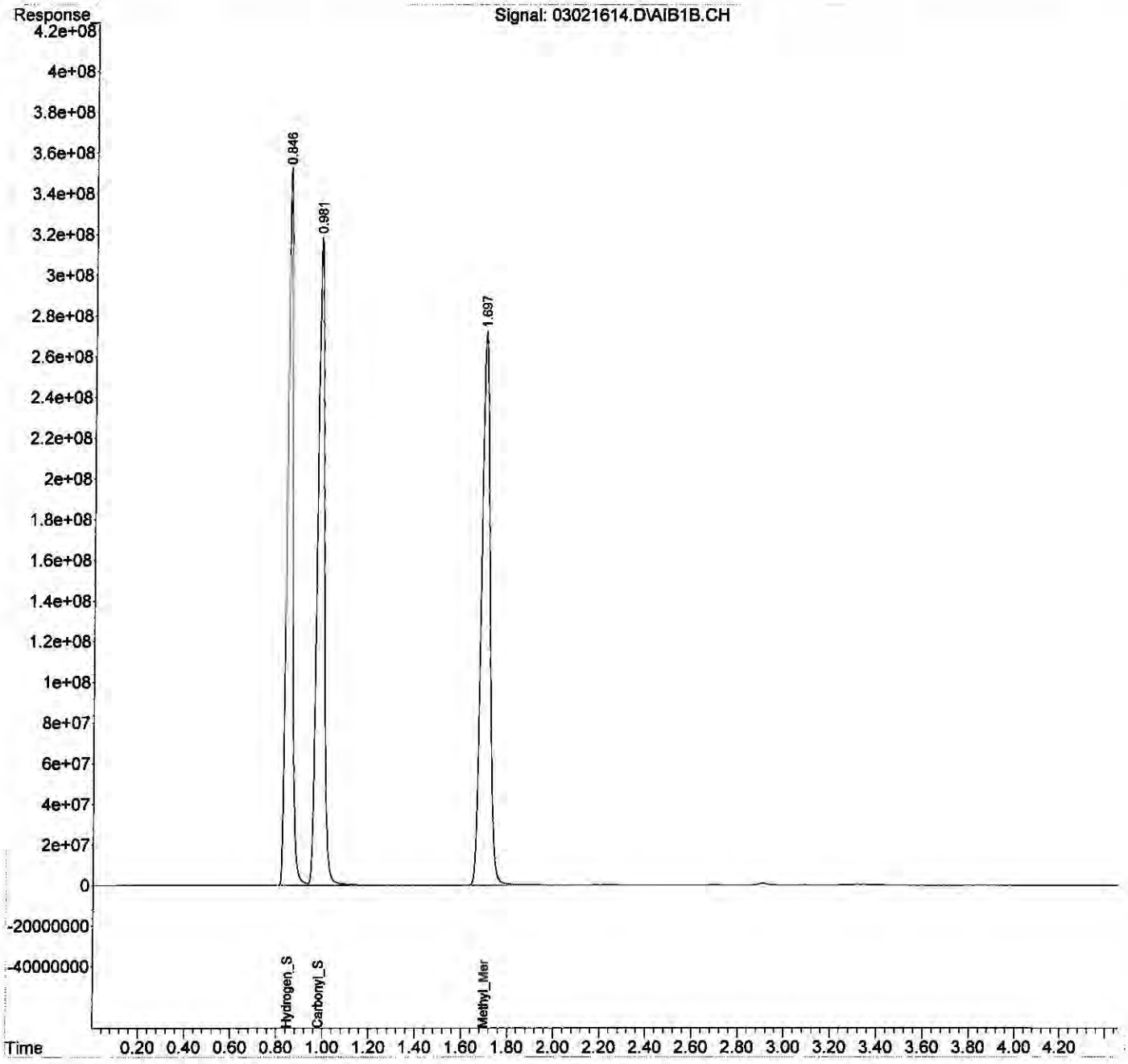
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_03\02\
Data File : 03021614.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 12:13 pm
Operator : MC
Sample : 100ppm S30-11031401 100ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 13:20:21 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:17:56 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021615.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 12:19 pm
Operator : MC
Sample : RT
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 12:36:15 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:32:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

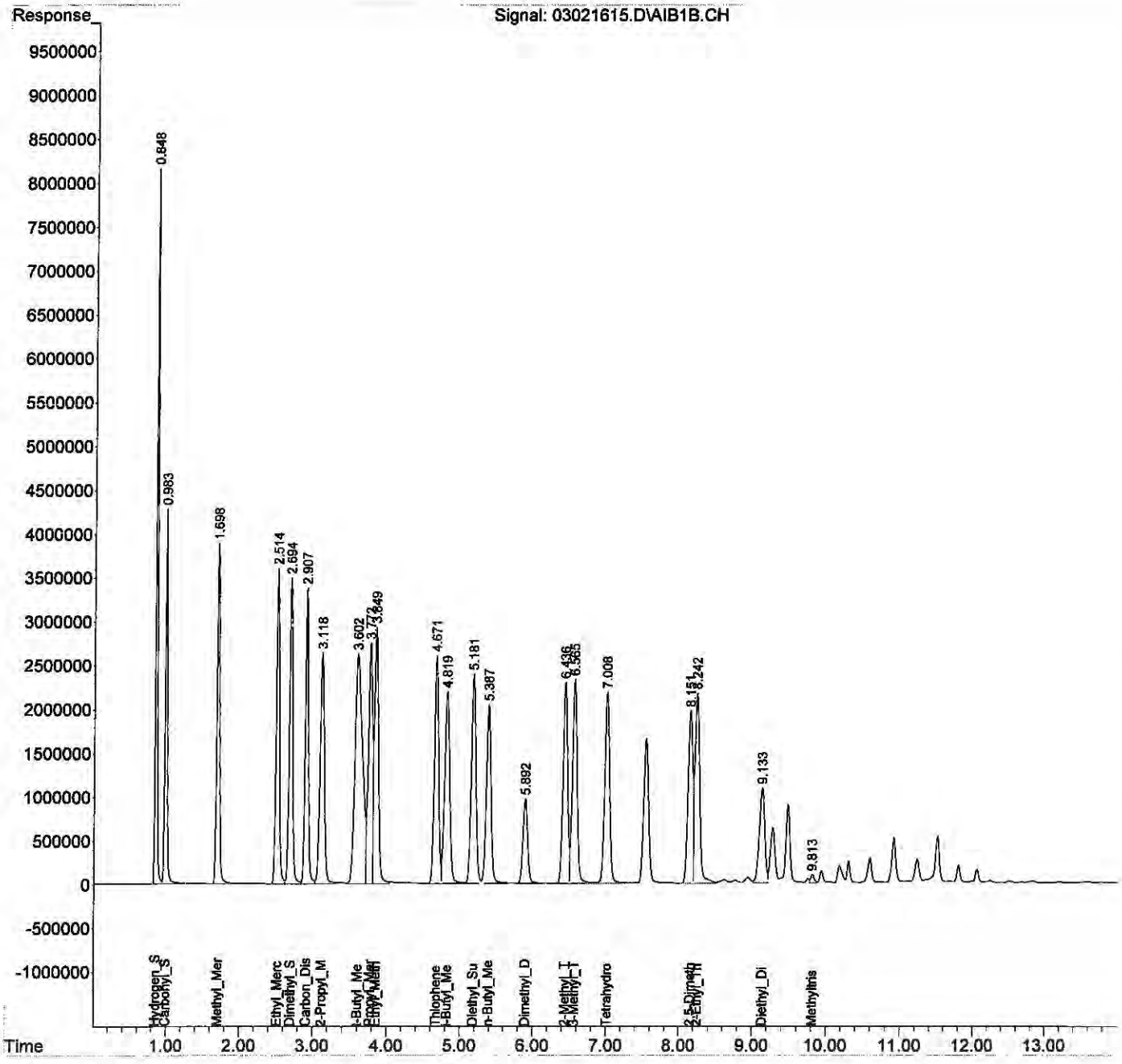
		Compound	R.T.	Response	Conc	Units
Target Compounds						
1)	Z	Hydrogen_Sulfide	0.848	126924093	2013.488	ppb
2)	W	Carbonyl_Sulfide	0.984	87210398	1245.111	ppb
3)	T	Methyl_Mercaptan	1.699	102751642	1532.031	ppb
4)	T	Ethyl_Mercaptan	2.515	108203445	1613.318	ppb
5)	T	Dimethyl_Sulfide	2.694	109139117	1627.269	ppb
6)	T	Carbon_Disulfide	2.907	98408921	1467.281	ppb
7)	T	2-Propyl_Mercaptan	3.118	106586789	1589.214	ppb
8)	T	t-Butyl_Mercaptan	3.603	184963068	2757.807	ppb
9)	T	Propyl_Mercaptan	3.773	105570874	1574.066	ppb
10)	T	Ethyl_Methyl_Sulfide	3.850	115614352	1723.815	ppb
11)	T	Thiophene	4.672	103435859	1542.233	ppb
12)	T	i-Butyl_Mercaptan	4.819	105396675	1571.469	ppb
13)	T	Diethyl_Sulfide	5.181	104879434	1563.757	ppb
14)	t	n-Butyl_Mercaptan	5.388	90781991	1353.563	ppb
15)	t	Dimethyl_Disulfide	5.893	43091567	642.497	ppb
16)	T	2-Methyl_Thiophene	6.437	99140705	1478.192	ppb
17)	t	3-Methyl_Thiophene	6.565	104393401	1556.510	ppb
18)	T	Tetrahydrothiophene	7.008	102172387	1523.395	ppb
19)	t	2,5-Dimethyl_Thiophene	8.152	86643711	1291.861	ppb
20)	T	2-Ethyl_Thiophene	8.242	101961782	1520.255	ppb
21)	T	Diethyl_Disulfide	9.133	55832635	832.467	ppb
22)	T	Methyltrisulfide	9.816	3148495	46.944	ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021615.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 12:19 pm
Operator : MC
Sample : RT
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 12:36:15 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:32:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021616.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 12:38 pm
Operator : MC
Sample : ICV S30-02241602
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 12:43:52 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:32:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

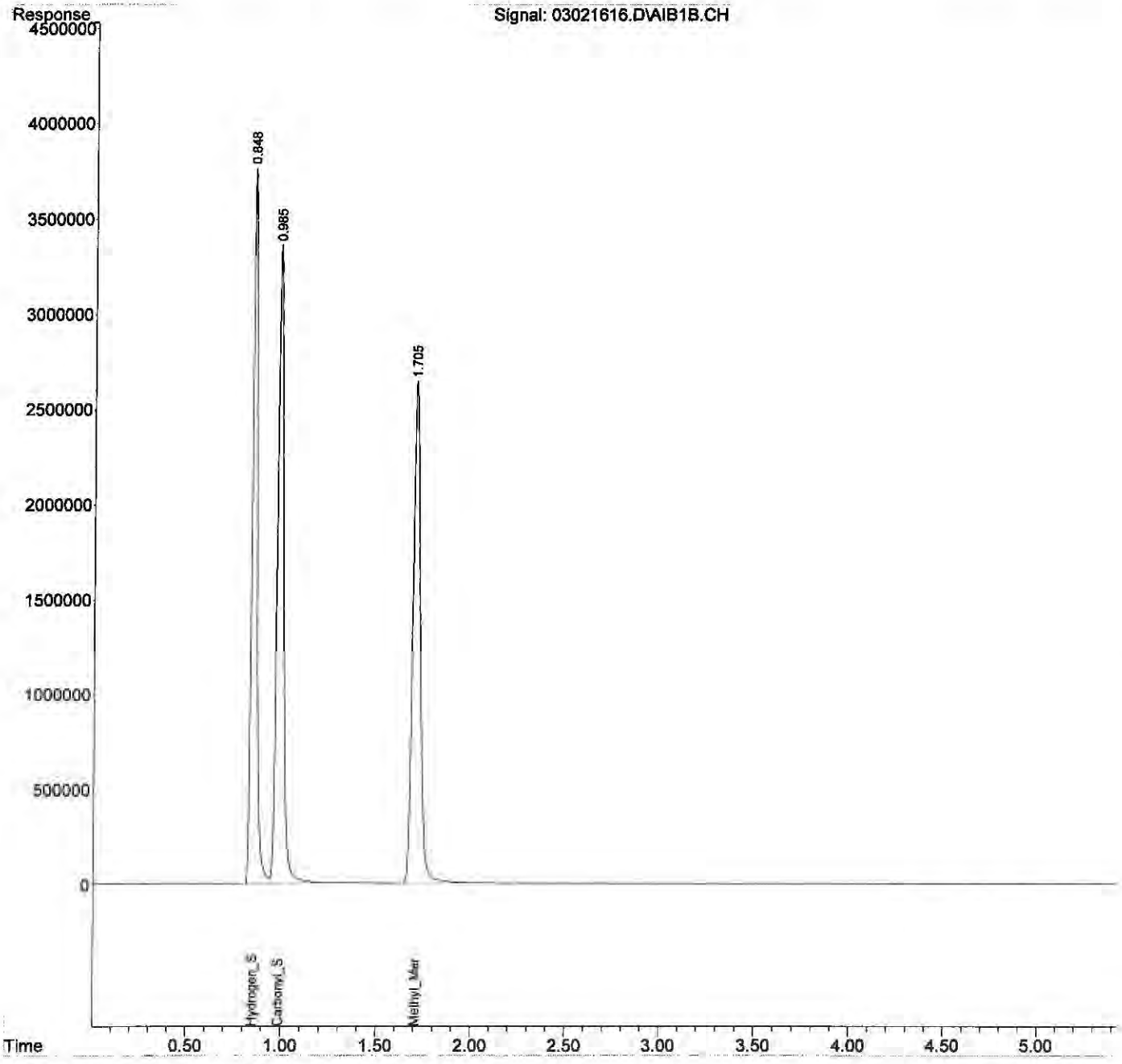
		Compound	R.T.	Response	Conc	Units	
Target Compounds							%R
1)	Z	Hydrogen_Sulfide	0.849	69423216	1101.310	ppb	110.14%
2)	W	Carbonyl_Sulfide	0.985	75695693	1080.714	ppb	108.08%
3)	T	Methyl_Mercaptan	1.706	73290985	1092.772	ppb	109.27%
4)	T	Ethyl_Mercaptan	0.000	0	N.D.	ppb	
5)	T	Dimethyl_Sulfide	0.000	0	N.D.	ppb	
6)	T	Carbon_Disulfide	0.000	0	N.D.	ppb	
7)	T	2-Propyl_Mercaptan	0.000	0	N.D.	ppb	
8)	T	t-Butyl_Mercaptan	0.000	0	N.D.	ppb	
9)	T	Propyl_Mercaptan	0.000	0	N.D.	ppb	
10)	T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb	
11)	T	Thiophene	0.000	0	N.D.	ppb	
12)	T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb	
13)	T	Diethyl_Sulfide	0.000	0	N.D.	ppb	
14)	t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb	
15)	t	Dimethyl_Disulfide	0.000	0	N.D.	ppb	
16)	T	2-Methyl_Thiophene	0.000	0	N.D.	ppb	
17)	t	3-Methyl_Thiophene	0.000	0	N.D.	ppb	
18)	T	Tetrahydrothiophene	0.000	0	N.D.	ppb	
19)	t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb	
20)	T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb	
21)	T	Diethyl_Disulfide	0.000	0	N.D.	ppb	
22)	T	Methyltrisulfide	0.000	0	N.D.	ppb	

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC13\DATA\SCD\2016_03\02\
Data File : 03021616.D
Signal(s) : AIB1B.CH
Acq On : 02 Mar 2016 12:38 pm
Operator : MC
Sample : ICV S30-02241602
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Mar 02 12:43:52 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : 20 Sulfurs
QLast Update : Wed Mar 02 12:32:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



ALS Environmental

REPORT SUMMARY

Method : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
Client : Air Hygiene, Incorporated
Analyst : MC

Service Request : P1604860
Instrument : GC13
Date Acquired : 10/18/16

Compounds	MDL	RL	MB QC		Dry Wall QC		Lab Dup			Continuing Calibration Standards Summary (ppbv)											
			MB					dup	%RSD	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff	ppbv	% Diff
Sample Information :	ppb	ppb	mb 1ml				0	0		std s30-10171601		std s30-10171601									
Inj. Vol. (ml)	1.0	1.0	1.00		1.0	1.0	1.0	1.0		0.10		0.10		0.10		0.10		0.10		0.10	
Dilution	1.0	1.0	1.00		1.0	1.0	1.0	1.0													
PI:	1.0	1.0	1.0		1.0	1.0	1.0	1.0													
PI:	1.0	1.0	1.0		1.0	1.0	1.0	1.0													
PIPf DF:	1.0	1.0	1.0		1.0	1.0	1.0	1.0													
Hydrogen_Sulfide	1.900	5.000	ND	P						1195.43	18.4%	1192.074	18.0%								
Carbonyl_Sulfide	1.700	5.000	ND	P						1238.12	23.8%	1206.507	20.7%								
Methyl_Mercaptan	1.200	5.000	ND	P						1240.05	24.0%	1187.641	18.8%								
Ethyl_Mercaptan	1.200	5.000	ND	P																	
Dimethyl_Sulfide	1.200	5.000	ND	P						7:52 AM		10:37 AM									
Carbon_Disulfide	0.600	2.500	ND	P						10181602.D		10181614.D									
2-Propyl_Mercaptan	1.200	5.000	ND	P																	
t-Butyl_Mercaptan	1.200	5.000	ND	P																	
Propyl_Mercaptan	1.200	5.000	ND	P																	
Ethyl_Methyl_Sulfide	1.200	5.000	ND	P																	
Thiophene	1.200	5.000	ND	P																	
i-Butyl_Mercaptan	1.200	5.000	ND	P																	
Diethyl_Sulfide	1.200	5.000	ND	P																	
n-Butyl_Mercaptan	1.200	5.000	ND	P																	
Dimethyl_Disulfide	0.600	2.500	ND	P																	
2-Methylthiophene	1.200	5.000	ND	P																	
3-Methylthiophene	1.200	5.000	ND	P																	
Tetrahydrothiophene	1.200	5.000	ND	P																	
2,5-Dimethylthiophene	1.200	5.000	ND	P																	
2-Ethylthiophene	1.200	5.000	ND	P																	
Diethyl_Disulfide	0.600	2.500	ND	P																	
Methyltrisulfide	0.600	2.500	ND	P																	
Acqisition Time			8:22 AM																		
DataFile			10181606.D																		

LCS / LCS Dup Summary (ppbv)

	ppbv	%R		ppbv	% R	%RPD	Actual
Hydrogen_Sulfide	1076.49	107.6%		1086.92	108.7%	0.96%	1000.00
Carbonyl_Sulfide	1152.61	115.3%		1168.56	116.9%	1.37%	1000.00
Methyl_Mercaptan	1127.89	112.8%		1138.69	113.9%	0.95%	1000.00
Acqisition Time	7:55 AM			7:58 AM			
DataFile	10181603.D			10181604.D			

Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_10\18\
Data File : 10181602.D
Signal(s) : AIB1B.CH
Acq On : 18 Oct 2016 7:52 am
Operator : MC
Sample : std s30-10171601
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 18 07:50:01 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

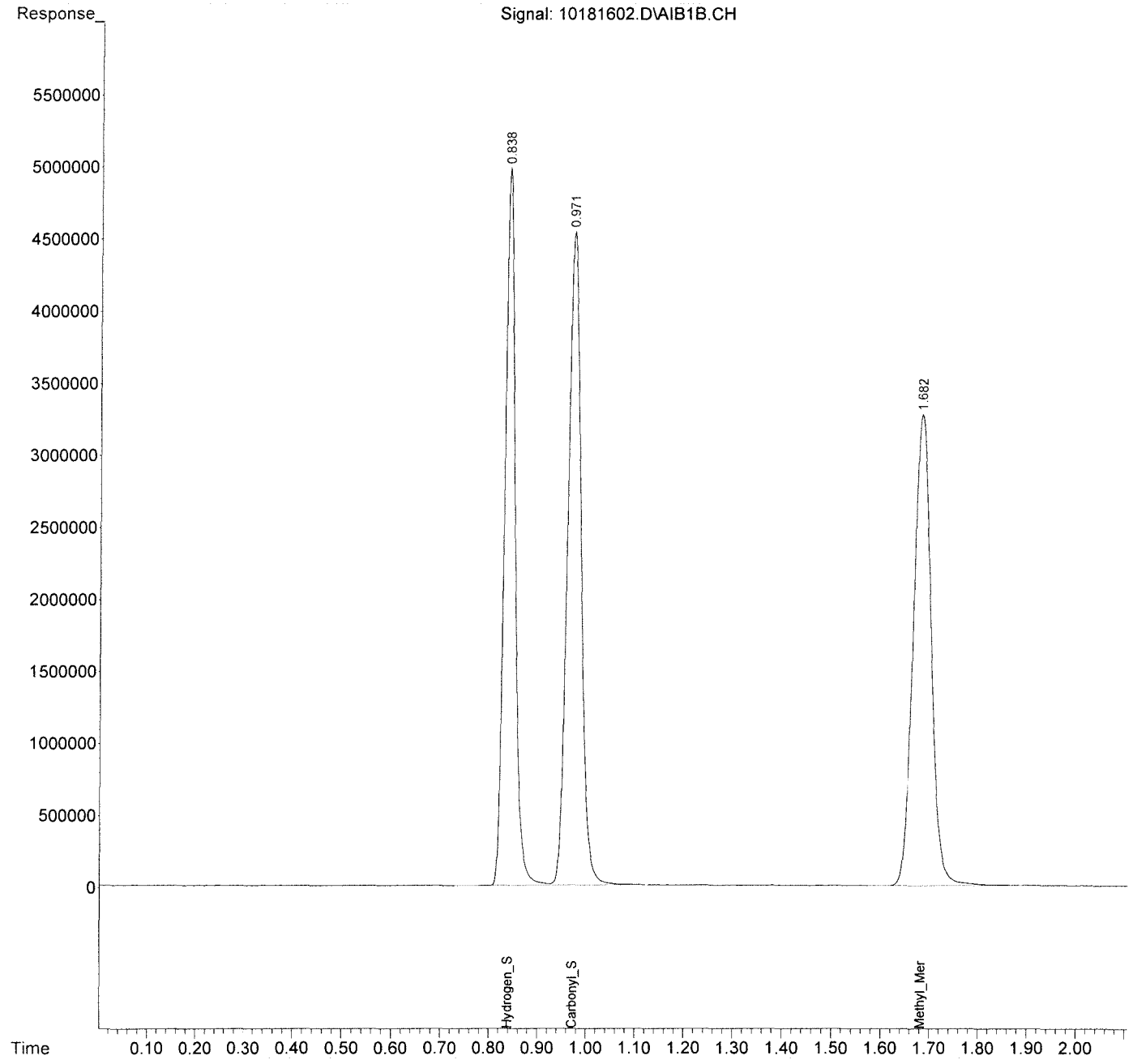
		Compound	R.T.	Response	Conc	Units
Target Compounds						
1)	Z	Hydrogen_Sulfide	0.839	74674684	1195.425	ppb
2)	W	Carbonyl_Sulfide	0.972	86720441	1238.116	ppb
3)	T	Methyl_Mercaptan	1.682	83169070	1240.054	ppb
4)	T	Ethyl_Mercaptan	0.000	0	N.D.	ppb
5)	T	Dimethyl_Sulfide	0.000	0	N.D.	ppb
6)	T	Carbon_Disulfide	0.000	0	N.D.	ppb
7)	T	2-Propyl_Mercaptan	0.000	0	N.D.	ppb
8)	T	t-Butyl_Mercaptan	0.000	0	N.D.	ppb
9)	T	Propyl_Mercaptan	0.000	0	N.D.	ppb
10)	T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb
11)	T	Thiophene	0.000	0	N.D.	ppb
12)	T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb
13)	T	Diethyl_Sulfide	0.000	0	N.D.	ppb
14)	t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb
15)	t	Dimethyl_Disulfide	0.000	0	N.D.	ppb
16)	T	2-Methyl_Thiophene	0.000	0	N.D.	ppb
17)	t	3-Methyl_Thiophene	0.000	0	N.D.	ppb
18)	T	Tetrahydrothiophene	0.000	0	N.D.	ppb
19)	t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb
20)	T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb
21)	T	Diethyl_Disulfide	0.000	0	N.D.	ppb
22)	T	Methyltrisulfide	0.000	0	N.D.	ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC13\DATA\SCD\2016_10\18\
Data File : 10181602.D
Signal(s) : AIB1B.CH
Acq On : 18 Oct 2016 7:52 am
Operator : MC
Sample : std s30-10171601
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 18 07:50:01 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC13\DATA\SCD\2016_10\18\
Data File : 10181614.D
Signal(s) : AIB1B.CH
Acq On : 18 Oct 2016 10:37 am
Operator : MC
Sample : std s30-10171601
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 18 10:35:16 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

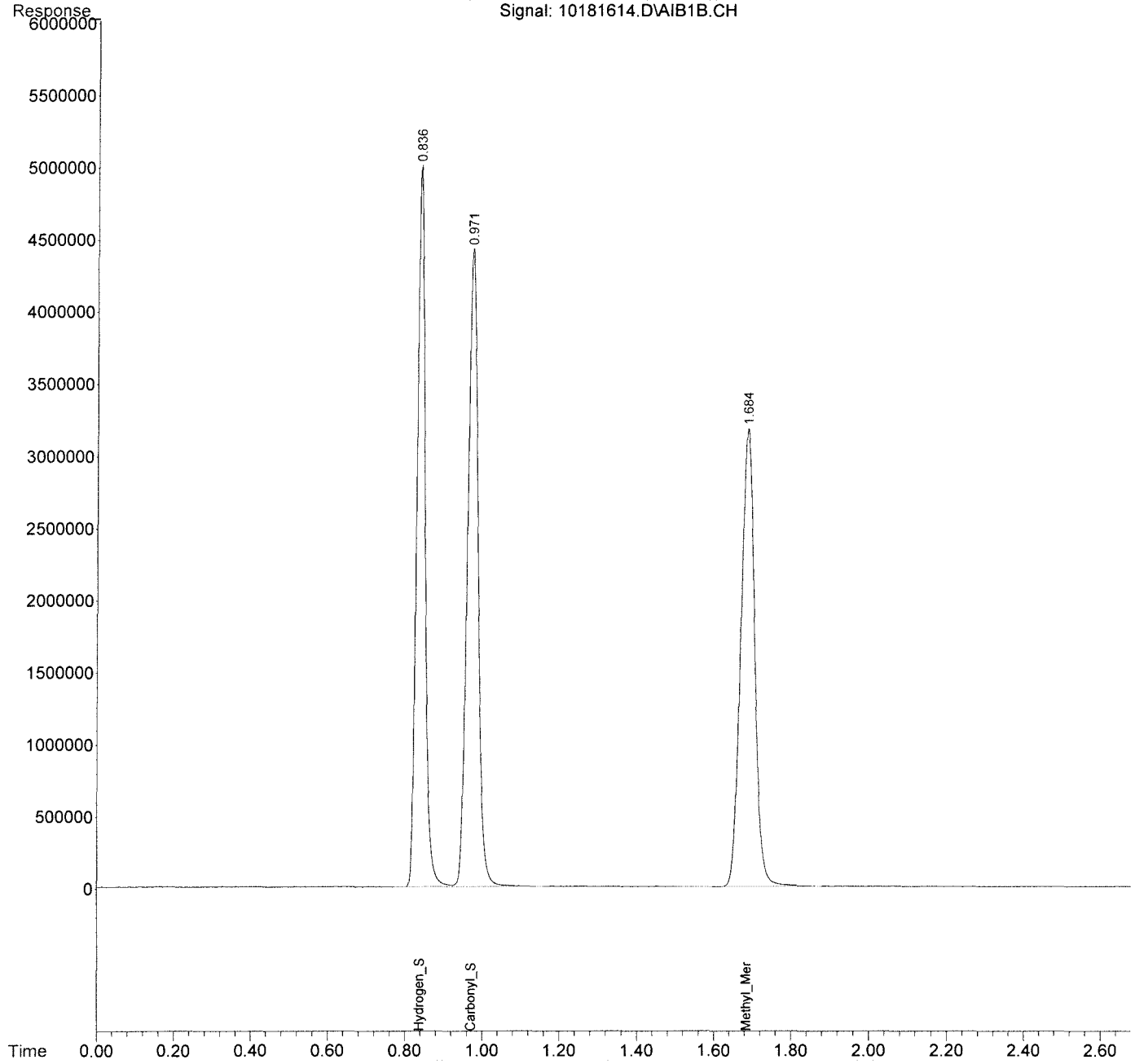
		Compound	R.T.	Response	Conc	Units
Target Compounds						
1)	Z	Hydrogen_Sulfide	0.837	74465353	1192.074	ppb
2)	W	Carbonyl_Sulfide	0.972	84506488	1206.507	ppb
3)	T	Methyl_Mercaptan	1.685	79653735	1187.641	ppb
4)	T	Ethyl_Mercaptan	0.000	0	N.D.	ppb
5)	T	Dimethyl_Sulfide	0.000	0	N.D.	ppb
6)	T	Carbon_Disulfide	0.000	0	N.D.	ppb
7)	T	2-Propyl_Mercaptan	0.000	0	N.D.	ppb
8)	T	t-Butyl_Mercaptan	0.000	0	N.D.	ppb
9)	T	Propyl_Mercaptan	0.000	0	N.D.	ppb
10)	T	Ethyl_Methyl_Sulfide	0.000	0	N.D.	ppb
11)	T	Thiophene	0.000	0	N.D.	ppb
12)	T	i-Butyl_Mercaptan	0.000	0	N.D.	ppb
13)	T	Diethyl_Sulfide	0.000	0	N.D.	ppb
14)	t	n-Butyl_Mercaptan	0.000	0	N.D.	ppb
15)	t	Dimethyl_Disulfide	0.000	0	N.D.	ppb
16)	T	2-Methyl_Thiophene	0.000	0	N.D.	ppb
17)	t	3-Methyl_Thiophene	0.000	0	N.D.	ppb
18)	T	Tetrahydrothiophene	0.000	0	N.D.	ppb
19)	t	2,5-Dimethyl_Thiophene	0.000	0	N.D.	ppb
20)	T	2-Ethyl_Thiophene	0.000	0	N.D.	ppb
21)	T	Diethyl_Disulfide	0.000	0	N.D.	ppb
22)	T	Methyltrisulfide	0.000	0	N.D.	ppb

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC13\DATA\SCD\2016_10\18\
Data File : 10181614.D
Signal(s) : AIB1B.CH
Acq On : 18 Oct 2016 10:37 am
Operator : MC
Sample : std s30-10171601
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 18 10:35:16 2016
Quant Method : J:\GC13\METHODS\GC13_030216.M
Quant Title : ASTM D5504, VOA-S307M_SCD, VOA SH2O_SCD
QLast Update : Tue May 03 15:14:01 2016
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :



Injection Log

Directory: I:\GC13\DATA\SCD\2016_03\02\

	Sample ID	Date/Time	Acquisition Method	File Name	Misc Info	Operator	Comments
	Rt	3/2/16 10:29	GC13_SCD.M	03021601.D		MC	
	Rt	3/2/16 10:52	GC13_SCD.M	03021602.D		MC	
	Blank	3/2/16 11:22	GC13_SCD.M	03021603.D		MC	
	2.5ppb S11-0302160225ul	3/2/16 11:27	GC13_SCD.M	03021604.D		MC	
	10ppb S11-03021602 100ul	3/2/16 11:36	GC13_SCD.M	03021605.D		MC	
	50ppb S11-03021602 500ul	3/2/16 11:41	GC13_SCD.M	03021606.D		MC	
	250ppbS11-03021601 25ul	3/2/16 11:45	GC13_SCD.M	03021607.D		MC	
	1000ppb S11-03021601 100ul	3/2/16 11:49	GC13_SCD.M	03021608.D		MC	
	2500ppb S11-03021601 250ul	3/2/16 11:53	GC13_SCD.M	03021609.D		MC	
	5000ppb S11-03021601 500ul	3/2/16 11:57	GC13_SCD.M	03021610.D		MC	
	10ppm S11-03021601 1ml	3/2/16 12:00	GC13_SCD.M	03021611.D		MC	
	25ppm S30-11031401 25ul	3/2/16 12:04	GC13_SCD.M	03021612.D		MC	
	50ppm S30-11031401 50ul	3/2/16 12:08	GC13_SCD.M	03021613.D		MC	
	100ppm S30-11031401 100ul	3/2/16 12:13	GC13_SCD.M	03021614.D		MC	
	RT	3/2/16 12:19	GC13_SCD.M	03021615.D		MC	
	ICV S30-02241602	3/2/16 12:38	GC13_SCD.M	03021616.D		MC	
	MB 1ml N2	3/2/16 12:49	GC13_SCD.M	03021617.D		MC	
	2.5ppb MDL-1	3/2/16 13:07	GC13_SCD.M	03021618.D		MC	
	2.5ppb MDL-2	3/2/16 13:10	GC13_SCD.M	03021619.D		MC	
	2.5ppb MDL-3	3/2/16 13:14	GC13_SCD.M	03021620.D		MC	
	2.5ppb MDL-4	3/2/16 13:17	GC13_SCD.M	03021621.D		MC	
	2.5ppb MDL-5	3/2/16 13:20	GC13_SCD.M	03021622.D		MC	
	2.5ppb MDL-6	3/2/16 13:24	GC13_SCD.M	03021623.D		MC	
	baseline drop	3/2/16 13:27	GC13_SCD.M	03021624.D		MC	
	2.5ppb MDL-7	3/2/16 13:30	GC13_SCD.M	03021625.D		MC	
	2.5ppb MDL-9	3/2/16 13:34	GC13_SCD.M	03021626.D		MC	
	2.0ppb LOD	3/2/16 13:37	GC13_SCD.M	03021627.D		MC	
	1.5ppb LOD	3/2/16 13:41	GC13_SCD.M	03021628.D		MC	
	CCV S30-02241601	3/2/16 13:45	GC13_SCD.M	03021629.D		MC	
	S11-02171603	3/2/16 13:49	GC13_SCD.M	03021630.D		MC	
	S11-02171604	3/2/16 13:52	GC13_SCD.M	03021631.D		MC	

Injection Log

Directory: I:\GC13\DATA\SCD\2016_10\18\

	Sample ID	Date/Time	Acquisition Method	File Name	Misc Info	Operator	Comments
1	std s30-10171601	10/18/16 7:49	GC13_SCD.M	10181601.D		MC	Fail
2	std s30-10171601	10/18/16 7:52	GC13_SCD.M	10181602.D		MC	Pass
	lcs s30-10171602	10/18/16 7:55	GC13_SCD.M	10181603.D		MC	
	lcsd s30-10171602	10/18/16 7:58	GC13_SCD.M	10181604.D		MC	
	rt	10/18/16 8:03	GC13_SCD.M	10181605.D		MC	
	mb 1ml	10/18/16 8:22	GC13_SCD.M	10181606.D		MC	
	4860-001 1ml	10/18/16 8:37	GC13_SCD.M	10181607.D		MC	
	4860-002 1ml	10/18/16 8:51	GC13_SCD.M	10181608.D		MC	
	4860-003 1ml	10/18/16 9:04	GC13_SCD.M	10181609.D		MC	
	4860-004 1ml	10/18/16 9:24	GC13_SCD.M	10181610.D		MC	
	4891-003 1ml	10/18/16 9:42	GC13_SCD.M	10181611.D		MC	
	QC AS01148 1ml	10/18/16 10:01	GC13_SCD.M	10181612.D		MC	
	QC AS01039 1ml	10/18/16 10:20	GC13_SCD.M	10181613.D		MC	
#VALUE!	std s30-10171601	10/18/16 10:37	GC13_SCD.M	10181614.D		MC	Pass
	QC 1BV07480 1ml	10/18/16 10:56	GC13_SCD.M	10181615.D		MC	
	QC 1BV07474 1ml	10/18/16 11:09	GC13_SCD.M	10181616.D		MC	
	QC 1BV07467 1ml	10/18/16 11:22	GC13_SCD.M	10181617.D		MC	
	QC 1BV07470 1ml	10/18/16 11:40	GC13_SCD.M	10181618.D		MC	
	QC 1BV07425 1ml	10/18/16 11:52	GC13_SCD.M	10181619.D		MC	
	QC 1BV07459 1ml	10/18/16 12:06	GC13_SCD.M	10181620.D		MC	
	QC 1BV07458 1ml	10/18/16 12:23	GC13_SCD.M	10181621.D		MC	
	QC 1BV07476 1ml	10/18/16 12:35	GC13_SCD.M	10181622.D		MC	
	QC 1BV07471 1ml	10/18/16 12:52	GC13_SCD.M	10181623.D		MC	
	QC 1BV07472 1ml	10/18/16 13:48	GC13_SCD.M	10181624.D		MC	
	QC 1BV07463 1ml	10/18/16 14:07	GC13_SCD.M	10181625.D		MC	
	QC 1BV07639 1ml	10/18/16 14:21	GC13_SCD.M	10181626.D		MC	

APPENDIX F

METHOD 3C RESULTS

LABORATORY REPORT

October 25, 2016

Min Lee
Air Hygiene, Incorporated
1600 West Tacoma Street
Broken Arrow, OK 74012

RE: sfi-16-elkcity.ok-comp#1

Dear Min:

Enclosed are the results of the samples submitted to our laboratory on October 8, 2016. For your reference, these analyses have been assigned our service request number P1604754.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental



By Kelly Horiuchi at 5:30 pm, Oct 25, 2016

Kelly Horiuchi
Laboratory Director

Client: Air Hygiene, Incorporated Service Request No: P1604754
Project: sfi-16-elkcity.ok-comp#1

CASE NARRATIVE

The samples were received intact under chain of custody on October 8, 2016 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Fixed Gases Analysis

The samples were analyzed for fixed gases (oxygen, nitrogen, methane and carbon dioxide) according to modified EPA Method 3C (triplicate injection) using a gas chromatograph equipped with a thermal conductivity detector (TCD). This procedure is described in laboratory SOP VOA-EPA3C. This method is included on the laboratory's DoD-ELAP scope of accreditation, however it is not part of the NELAP or AIHA-LAP, LLC accreditation.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
AIHA-LAP, LLC	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2014025
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	977273
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-003
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-16-7
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA016272016-6
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: Air Hygiene, Incorporated
Service Request: P1604754
Project ID: sfi-16-elkcity.ok-comp#1

Date Received: 10/8/2016
Time Received: 08:55

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	3C Modified - Fxd Gases Bag 2X
R8-70-100-70%-SCD-36	P1604754-001	Air	10/6/2016	09:11	X
R9-70-100-70%-SCD-36	P1604754-003	Air	10/6/2016	10:40	X
R2-0-30-0%-SCD-36	P1604754-005	Air	10/6/2016	14:30	X
R3-0-30-0%-SCD-36	P1604754-007	Air	10/6/2016	15:56	X
R4-30-70-30%-SCD-36	P1604754-009	Air	10/6/2016	17:30	X
R5-30-70-30%-SCD-36	P1604754-011	Air	10/7/2016	09:09	X
R6-30-70-30%-SCD-36	P1604754-013	Air	10/7/2016	10:35	X
R10-90-100%-SCD-60	P1604754-015	Air	10/7/2016	14:15	X

P1604754

SAMPLE DESCRIPTION AND CHAIN OF CUSTODY RECORD

Air Hygiene International, Inc.
1600 W Tacoma Street
Broken Arrow, Oklahoma 74012
(888) 461-8778
www.airhygiene.com

Project Number:	sfi-elkcity.ok-comp#1	Laboratory Analysis Requested:	3C
Person Taking Samples:	BL/MJ		

Sample Number	Location	Date	Time	Volume	Analysis Method			
					O_2	CO_2	N_2	Methane
R8-70-100-70%-SCD-36	Elk City Facility	10/6/2016	9:11	10	x	x	x	x
R8-70-100-70%-SCD-36-Backup	Elk City Facility	10/6/2016	9:11	5	x	x	x	x
R9-70-100-70%-SCD-36	Elk City Facility	10/6/2016	10:40	10	x	x	x	x
R9-70-100-70%-SCD-36-Backup	Elk City Facility	10/6/2016	10:40	5	x	x	x	x
R2-0-30-0%-SCD-36	Elk City Facility	10/6/2016	14:30	10	x	x	x	x
R2-0-30-0%-SCD-36-Backup	Elk City Facility	10/6/2016	14:30	5	x	x	x	x
R3-0-30-0%-SCD-36	Elk City Facility	10/6/2016	15:56	10	x	x	x	x
R3-0-30-0%-SCD-36-Backup	Elk City Facility	10/6/2016	15:56	5	x	x	x	x
R4-30-70-30%SCD-36	Elk City Facility	10/6/2016	17:30	10	x	x	x	x
R4-30-70-30%SCD-36-Backup	Elk City Facility	10/6/2016	17:30	5	x	x	x	x
R5-30-70-30%SCD-36	Elk City Facility	10/7/2016	9:09	10	x	x	x	x
R5-30-70-30%SCD-36-Backup	Elk City Facility	10/7/2016	9:09	5	x	x	x	x
R6-30-70-30%SCD-36	Elk City Facility	10/7/2016	10:35	6	x	x	x	x
R6-30-70-30%SCD-36-Backup	Elk City Facility	10/7/2016	10:35	5	x	x	x	x

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
	10/7/16	10:48	Kelly Hnew	10/8/16	855am

i-COC

ALS Environmental
Sample Acceptance Check Form

Client: Air Hygiene, Incorporated Work order: P1604754

Project: sfi-16-elkcity.ok-comp#1

Sample(s) received on: 10/8/16 Date opened: 10/8/16 by: KHORIUCHI

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were **custody seals** on outside of cooler/Box/Container?	☐	☐	☒
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1604754-001.01	10 L Tedlar Bag					
P1604754-002.01	5.0 L Tedlar Bag					
P1604754-003.01	10 L Tedlar Bag					
P1604754-004.01	5.0 L Tedlar Bag					
P1604754-005.01	10 L Tedlar Bag					
P1604754-006.01	5.0 L Tedlar Bag					
P1604754-007.01	10 L Tedlar Bag					
P1604754-008.01	5.0 L Tedlar Bag					
P1604754-009.01	10 L Tedlar Bag					
P1604754-010.01	5.0 L Tedlar Bag					
P1604754-011.01	10 L Tedlar Bag					
P1604754-012.01	5.0 L Tedlar Bag					
P1604754-013.01	10 L Tedlar Bag					
P1604754-014.01	5.0 L Tedlar Bag					
P1604754-015.01	10 L Tedlar Bag					

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS Environmental
Sample Acceptance Check Form

Client: Air Hygiene, Incorporated Work order: P1604754

Project: sfi-16-elkcity.ok-comp#1

Sample(s) received on: 10/8/16 Date opened: 10/8/16 by: KHORIUCHI

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1604754-016.01	5.0 L Tedlar Bag					

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **R8-70-100-70%-SCD-36**
Client Project ID: **sfi-16-elkcity.ok-comp#1**

ALS Project ID: P1604754
ALS Sample ID: P1604754-001

Test Code: EPA Method 3C Modified
Instrument ID: Agilent 7890A/GC20/FID
Analyst: Mike Conejo
Sample Type: 10 L Tedlar Bag
Test Notes:

Date Collected: 10/6/16
Date Received: 10/8/16
Date Analyzed: 10/8/16
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
7782-44-7	**Oxygen***	**15.0**	0.10	
7727-37-9	**Nitrogen**	**80.7**	0.10	
74-82-8	Methane	ND	0.10	
124-38-9	**Carbon Dioxide**	**4.34**	0.10	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
* = The oxygen result may include argon due to coelution. Ambient air includes 0.93% argon.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **R9-70-100-70%-SCD-36**
Client Project ID: **sfi-16-elkcity.ok-comp#1**

ALS Project ID: P1604754
ALS Sample ID: P1604754-003

Test Code: EPA Method 3C Modified
Instrument ID: Agilent 7890A/GC20/FID
Analyst: Mike Conejo
Sample Type: 10 L Tedlar Bag
Test Notes:

Date Collected: 10/6/16
Date Received: 10/8/16
Date Analyzed: 10/8/16
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
7782-44-7	**Oxygen***	**15.0**	0.10	
7727-37-9	**Nitrogen**	**80.6**	0.10	
74-82-8	Methane	ND	0.10	
124-38-9	**Carbon Dioxide**	**4.42**	0.10	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
* = The oxygen result may include argon due to coelution. Ambient air includes 0.93% argon.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **R2-0-30-0%-SCD-36**
Client Project ID: **sfi-16-elkcity.ok-comp#1**

ALS Project ID: P1604754
ALS Sample ID: P1604754-005

Test Code: EPA Method 3C Modified
Instrument ID: Agilent 7890A/GC20/FID
Analyst: Mike Conejo
Sample Type: 10 L Tedlar Bag
Test Notes:

Date Collected: 10/6/16
Date Received: 10/8/16
Date Analyzed: 10/8/16
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
7782-44-7	**Oxygen***	**15.7**	0.10	
7727-37-9	**Nitrogen**	**80.3**	0.10	
74-82-8	Methane	ND	0.10	
124-38-9	**Carbon Dioxide**	**3.99**	0.10	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
* = The oxygen result may include argon due to coelution. Ambient air includes 0.93% argon.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **R3-0-30-0%-SCD-36**
Client Project ID: **sfi-16-elkcity.ok-comp#1**

ALS Project ID: P1604754
ALS Sample ID: P1604754-007

Test Code: EPA Method 3C Modified
Instrument ID: Agilent 7890A/GC20/FID
Analyst: Mike Conejo
Sample Type: 10 L Tedlar Bag
Test Notes:

Date Collected: 10/6/16
Date Received: 10/8/16
Date Analyzed: 10/8/16
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
7782-44-7	**Oxygen***	**16.1**	0.10	
7727-37-9	**Nitrogen**	**80.2**	0.10	
74-82-8	Methane	ND	0.10	
124-38-9	**Carbon Dioxide**	**3.66**	0.10	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
* = The oxygen result may include argon due to coelution. Ambient air includes 0.93% argon.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **R4-30-70-30%-SCD-36**
Client Project ID: **sfi-16-elkcity.ok-comp#1**

ALS Project ID: P1604754
ALS Sample ID: P1604754-009

Test Code: EPA Method 3C Modified
Instrument ID: Agilent 7890A/GC20/FID
Analyst: Mike Conejo
Sample Type: 10 L Tedlar Bag
Test Notes:

Date Collected: 10/6/16
Date Received: 10/8/16
Date Analyzed: 10/8/16
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
7782-44-7	**Oxygen***	**14.7**	0.10	
7727-37-9	**Nitrogen**	**80.6**	0.10	
74-82-8	Methane	ND	0.10	
124-38-9	**Carbon Dioxide**	**4.66**	0.10	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
* = The oxygen result may include argon due to coelution. Ambient air includes 0.93% argon.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **R5-30-70-30%-SCD-36**
Client Project ID: **sfi-16-elkcity.ok-comp#1**

ALS Project ID: P1604754
ALS Sample ID: P1604754-011

Test Code: EPA Method 3C Modified
Instrument ID: Agilent 7890A/GC20/FID
Analyst: Mike Conejo
Sample Type: 10 L Tedlar Bag
Test Notes:

Date Collected: 10/7/16
Date Received: 10/8/16
Date Analyzed: 10/8/16
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
7782-44-7	**Oxygen***	**15.1**	0.10	
7727-37-9	**Nitrogen**	**80.5**	0.10	
74-82-8	Methane	ND	0.10	
124-38-9	**Carbon Dioxide**	**4.39**	0.10	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
* = The oxygen result may include argon due to coelution. Ambient air includes 0.93% argon.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **R6-30-70-30%-SCD-36**
Client Project ID: **sfi-16-elkcity.ok-comp#1**

ALS Project ID: P1604754
ALS Sample ID: P1604754-013

Test Code: EPA Method 3C Modified
Instrument ID: Agilent 7890A/GC20/FID
Analyst: Mike Conejo
Sample Type: 10 L Tedlar Bag
Test Notes:

Date Collected: 10/7/16
Date Received: 10/8/16
Date Analyzed: 10/8/16
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
7782-44-7	**Oxygen***	**14.9**	0.10	
7727-37-9	**Nitrogen**	**80.5**	0.10	
74-82-8	Methane	ND	0.10	
124-38-9	**Carbon Dioxide**	**4.52**	0.10	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
* = The oxygen result may include argon due to coelution. Ambient air includes 0.93% argon.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **Method Blank** ALS Project ID: P1604754
Client Project ID: **sfi-16-elkcity.ok-comp#1** ALS Sample ID: P161008-MB

Test Code: EPA Method 3C Modified Date Collected: NA
Instrument ID: Agilent 7890A/GC20/FID Date Received: NA
Analyst: Mike Conejo Date Analyzed: 10/08/16
Sample Type: 10 L Tedlar Bag Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
7782-44-7	Oxygen*	ND	0.10	
7727-37-9	Nitrogen	ND	0.10	
74-82-8	Methane	ND	0.10	
124-38-9	Carbon Dioxide	ND	0.10	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
* = The oxygen result may include argon due to coelution. Ambient air includes 0.93% argon.

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081608.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 10:20 am
Operator : MC
Sample : 4754-001
Misc :
ALS Vial : 8 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 10:32:35 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

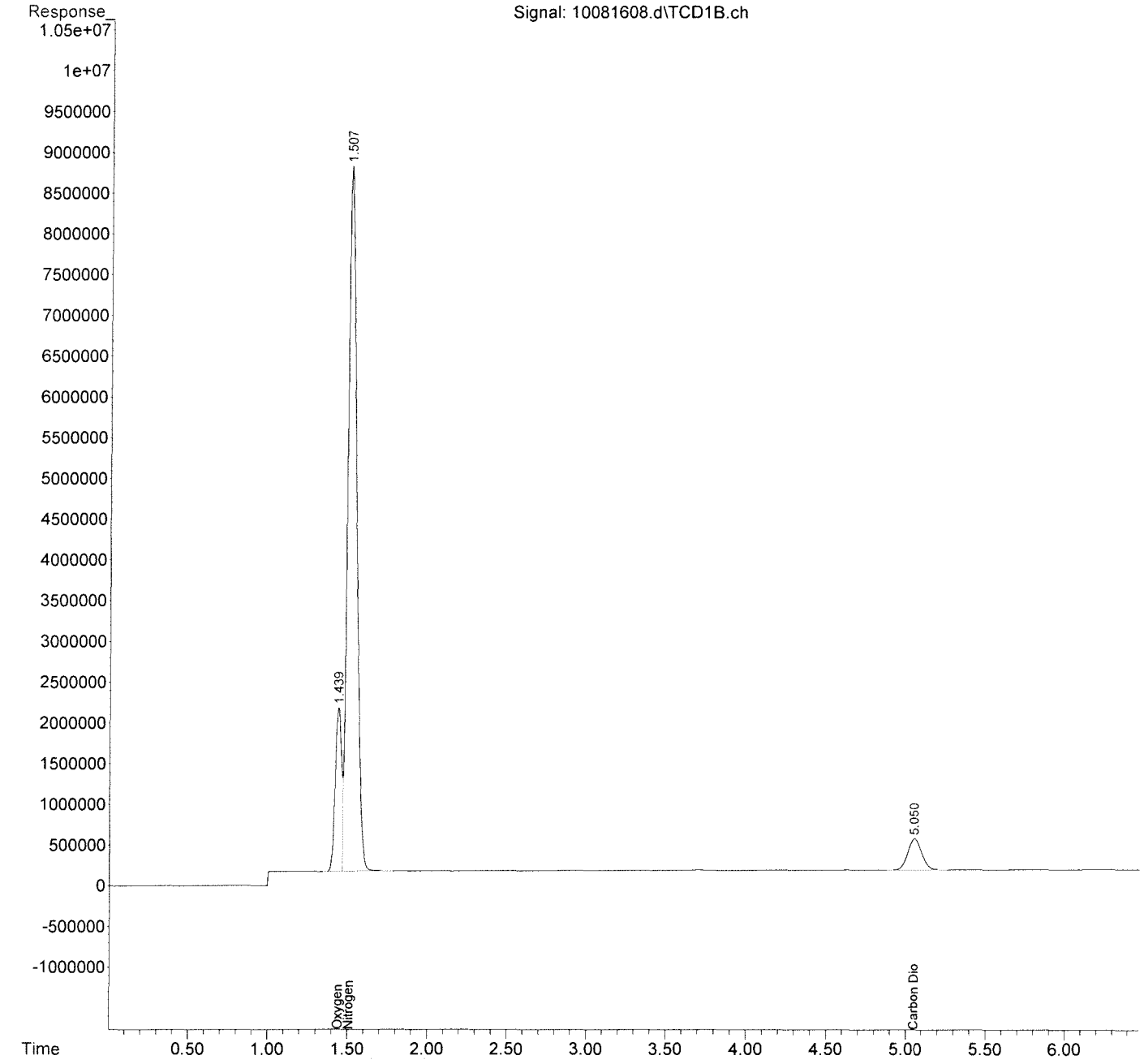
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	1.440	54578930	92068.849	ppm
3)	Nitrogen	1.508	328024240	495914.604	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	5.051	24053748	26646.829	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081608.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 10:20 am
Operator : MC
Sample : 4754-001
Misc :
ALS Vial : 8 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 10:32:35 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081609.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 10:29 am
Operator : MC
Sample : 4754-001
Misc :
ALS Vial : 9 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 10:36:59 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

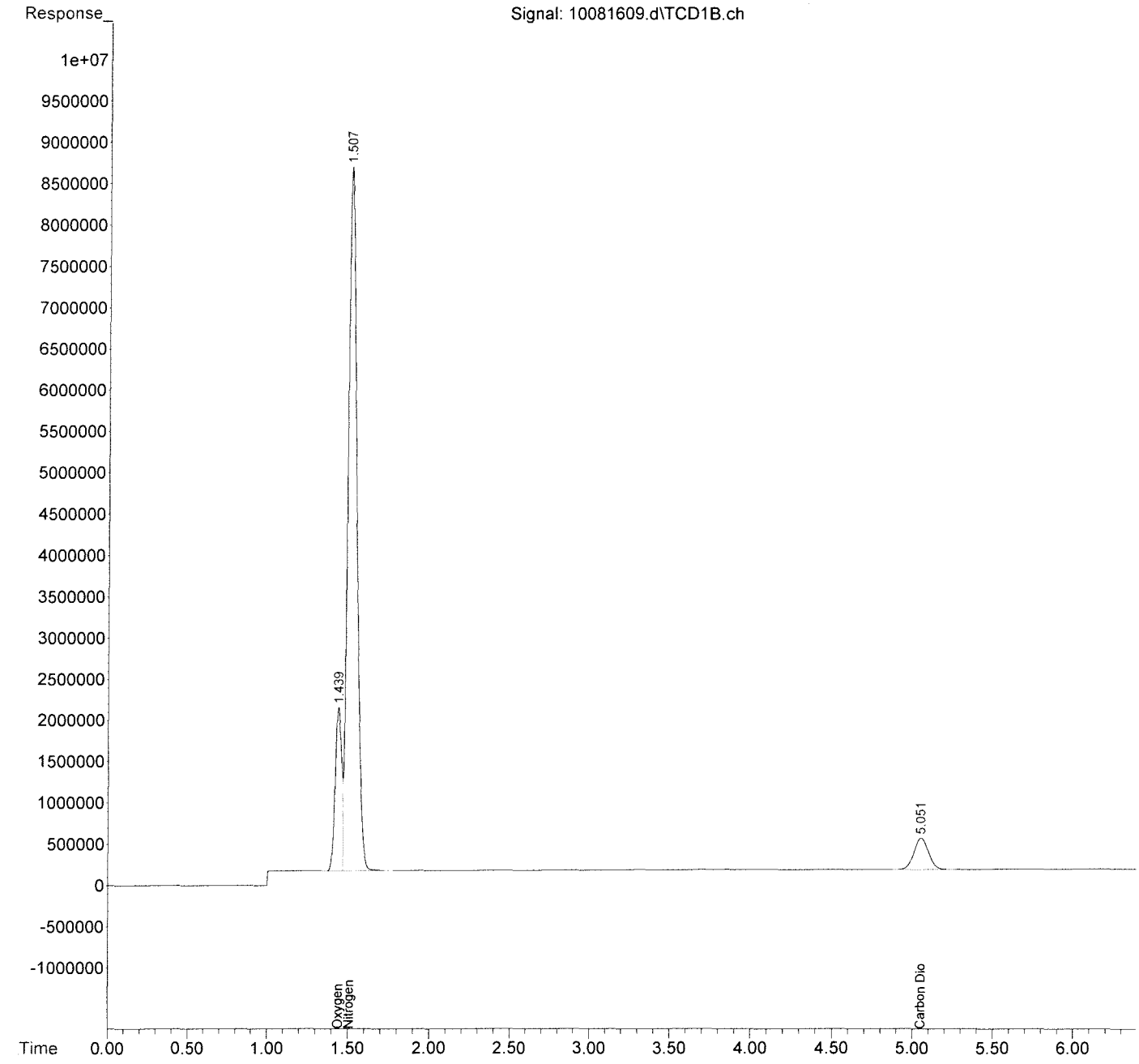
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	1.439	53738581	90651.269	ppm
3)	Nitrogen	1.508	322499373	487561.984	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	5.051	23703840	26259.199	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081609.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 10:29 am
Operator : MC
Sample : 4754-001
Misc :
ALS Vial : 9 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 10:36:59 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081610.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 10:39 am
Operator : MC
Sample : 4754-001
Misc :
ALS Vial : 10 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 10:45:57 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

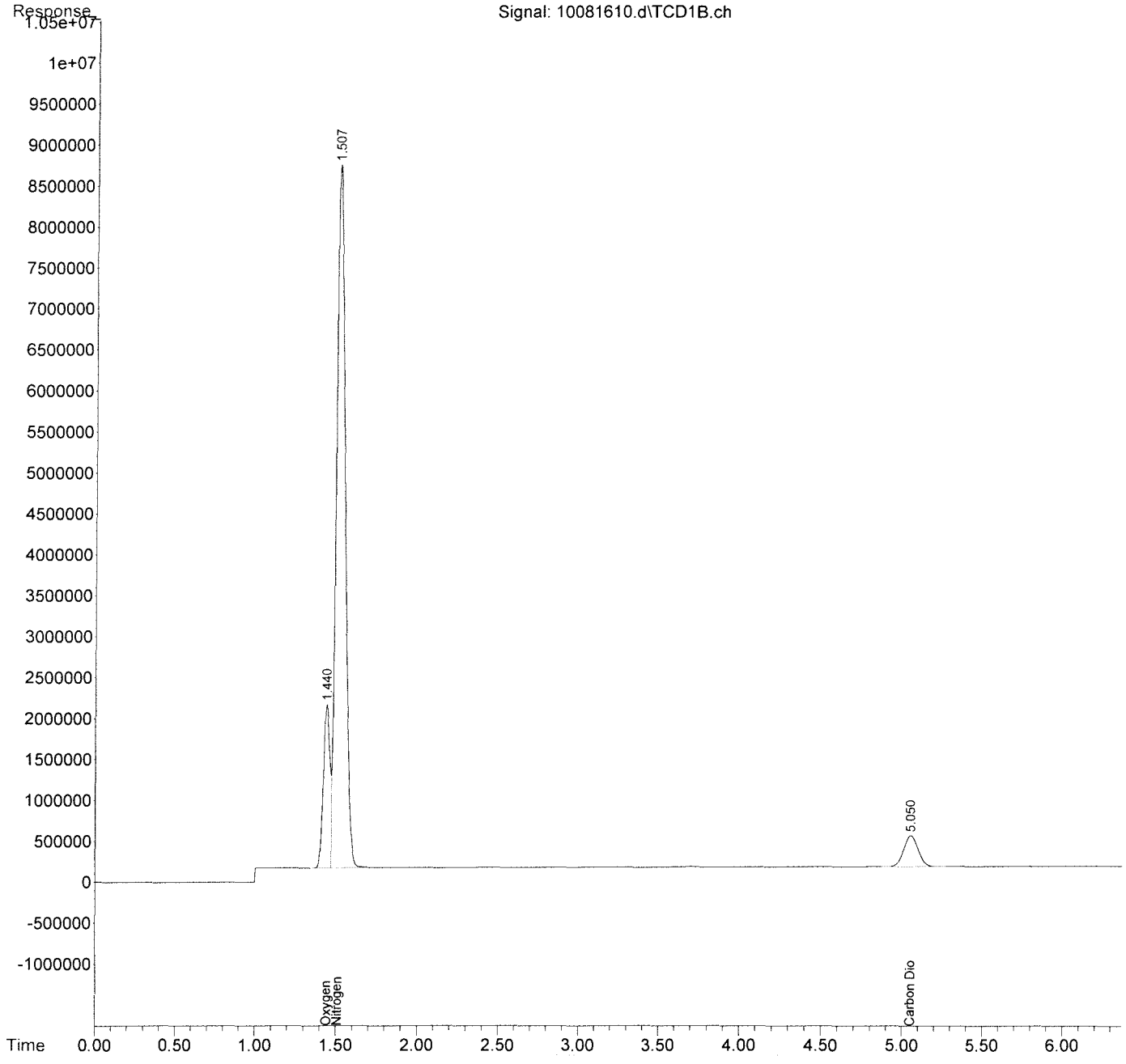
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.000	0	N.D.	ppm	d
2)	Oxygen	1.440	54110067	91277.927	ppm	
3)	Nitrogen	1.508	324949522	491266.175	ppm	
4)	Carbon Monoxide	0.000	0	N.D.	ppm	
5)	Methane	0.000	0	N.D.	ppm	
6)	Carbon Dioxide	5.051	23886000	26460.996	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081610.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 10:39 am
Operator : MC
Sample : 4754-001
Misc :
ALS Vial : 10 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 10:45:57 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081611.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 10:48 am
Operator : MC
Sample : 4754-003
Misc :
ALS Vial : 11 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 10:55:41 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc Units
Target Compounds				
1)	Hydrogen	0.000	0	N.D. ppm
2)	Oxygen	1.440	53645238	90493.810 ppm
3)	Nitrogen	1.508	321018505	485323.173 ppm
4)	Carbon Monoxide	0.000	0	N.D. ppm
5)	Methane	0.000	0	N.D. ppm
6)	Carbon Dioxide	5.052	23995428	26582.221 ppm

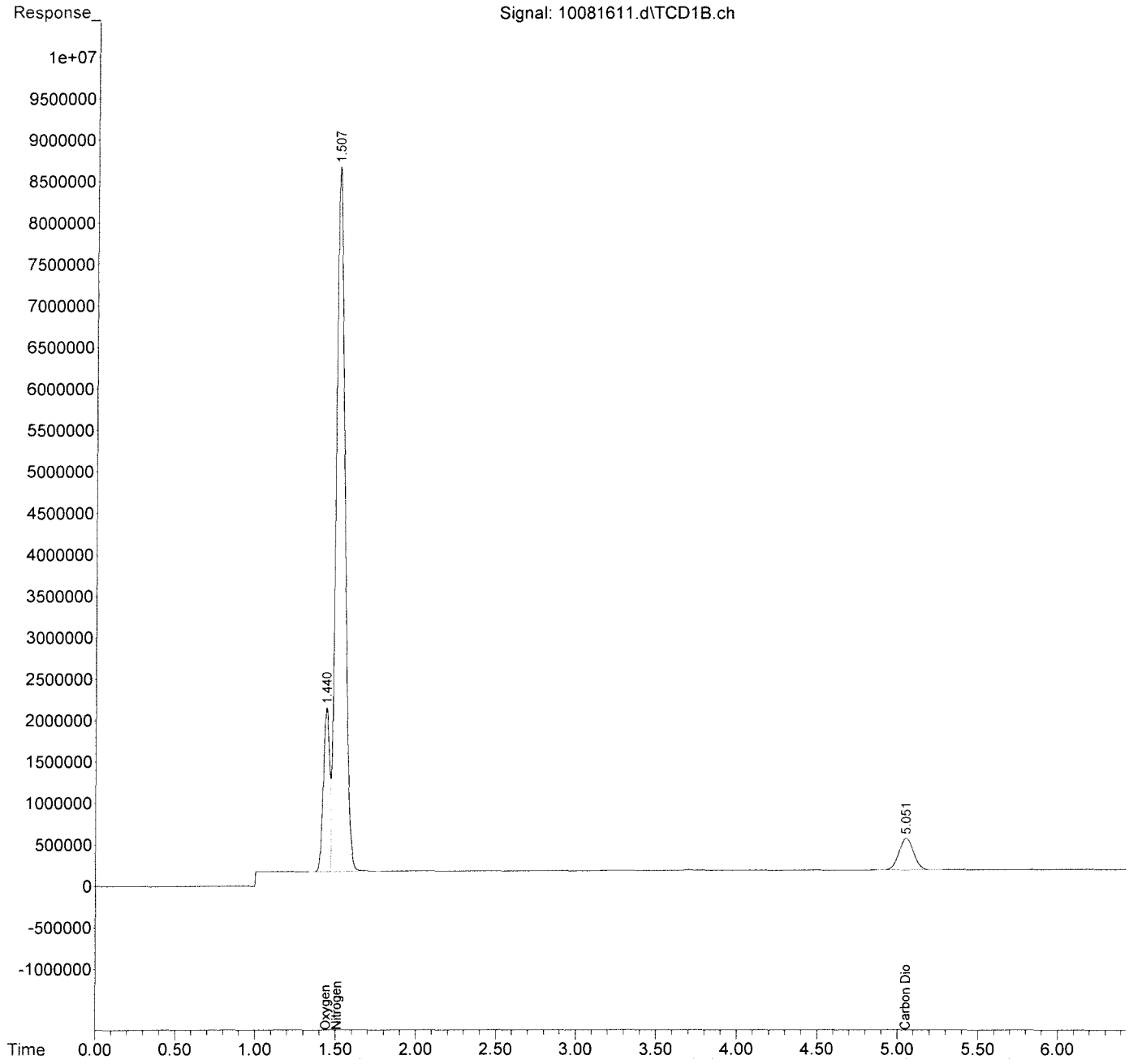
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081611.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 10:48 am
Operator : MC
Sample : 4754-003
Misc :
ALS Vial : 11 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 10:55:41 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081612.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 10:58 am
Operator : MC
Sample : 4754-003
Misc :
ALS Vial : 12 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 11:05:09 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

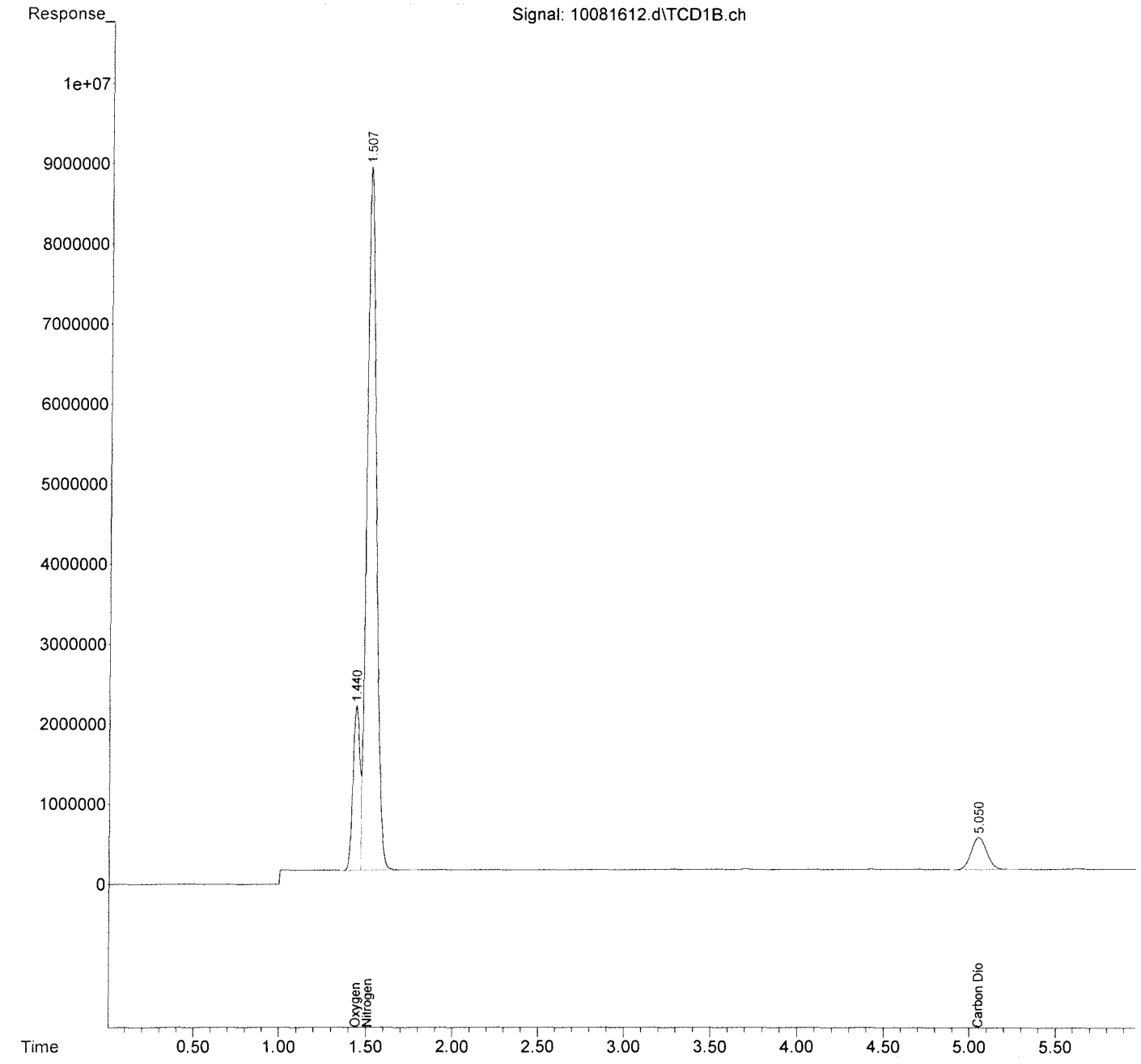
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	1.440	55621985	93828.371	ppm
3)	Nitrogen	1.508	333424657	504079.080	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	5.051	24958977	27649.644	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081612.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 10:58 am
Operator : MC
Sample : 4754-003
Misc :
ALS Vial : 12 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 11:05:09 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081613.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 11:07 am
Operator : MC
Sample : 4754-003
Misc :
ALS Vial : 13 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 11:15:23 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

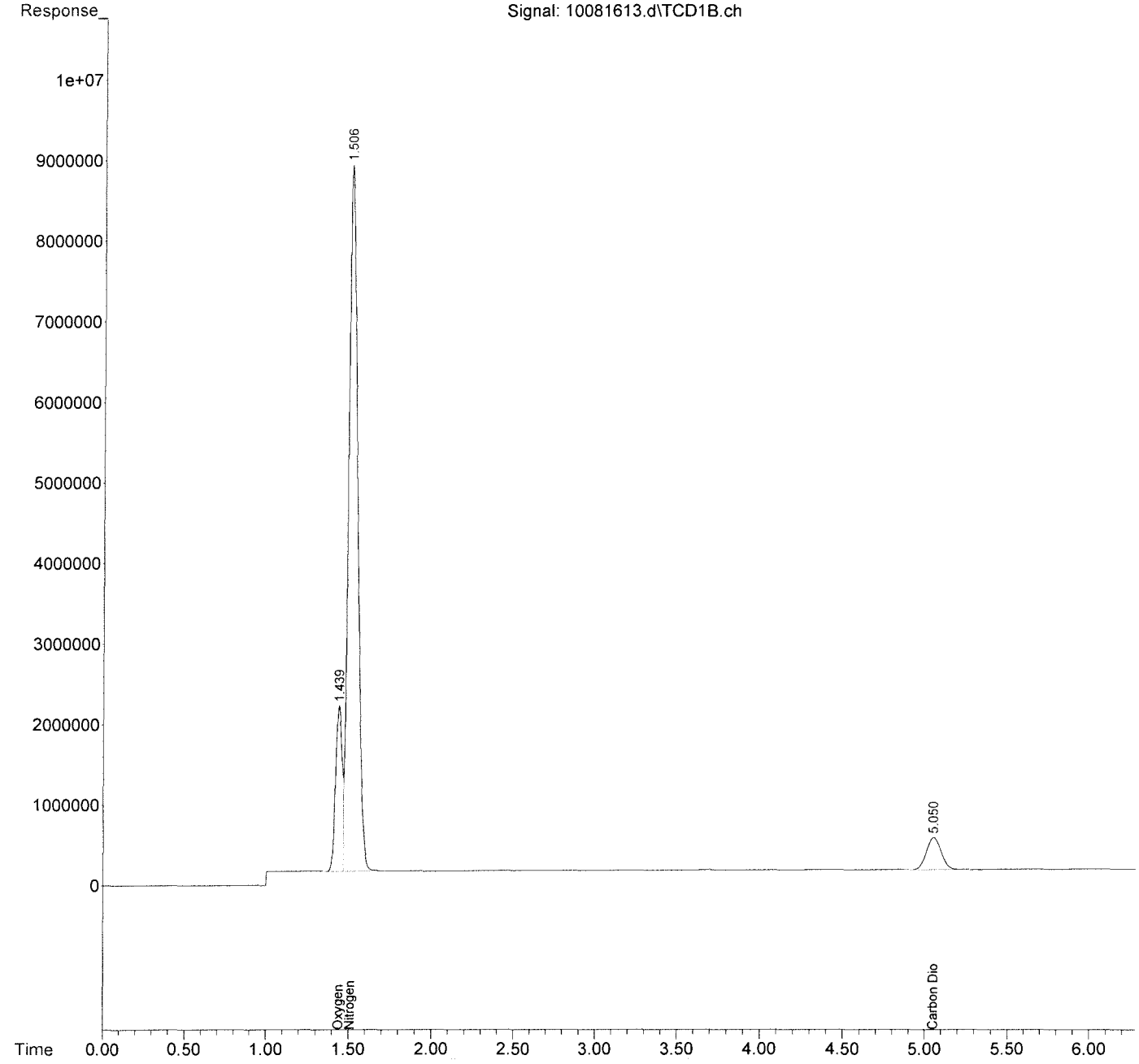
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	1.439	55639728	93858.302	ppm
3)	Nitrogen	1.507	333013685	503457.763	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	5.051	24953549	27643.631	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081613.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 11:07 am
Operator : MC
Sample : 4754-003
Misc :
ALS Vial : 13 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 11:15:23 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081614.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 11:17 am
Operator : MC
Sample : 4754-005
Misc :
ALS Vial : 14 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 11:28:14 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

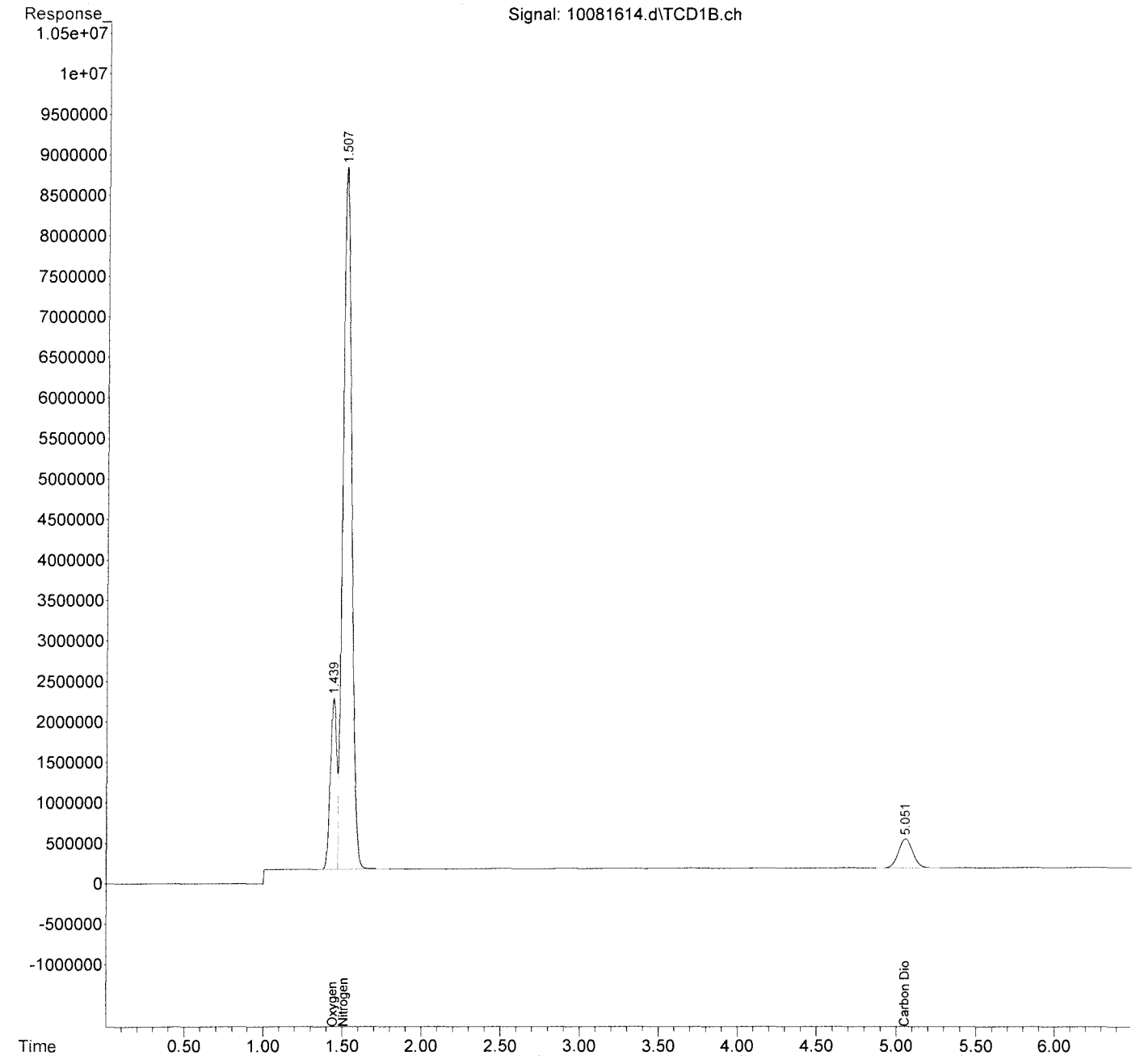
	Compound	R.T.	Response	Conc Units
Target Compounds				
1)	Hydrogen	0.000	0	N.D. ppm
2)	Oxygen	1.440	57521548	97032.733 ppm
3)	Nitrogen	1.508	329371425	497951.310 ppm
4)	Carbon Monoxide	0.000	0	N.D. ppm
5)	Methane	0.000	0	N.D. ppm
6)	Carbon Dioxide	5.051	22316808	24722.639 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081614.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 11:17 am
Operator : MC
Sample : 4754-005
Misc :
ALS Vial : 14 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 11:28:14 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081615.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 11:27 am
Operator : MC
Sample : 4754-005
Misc :
ALS Vial : 15 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 11:33:14 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

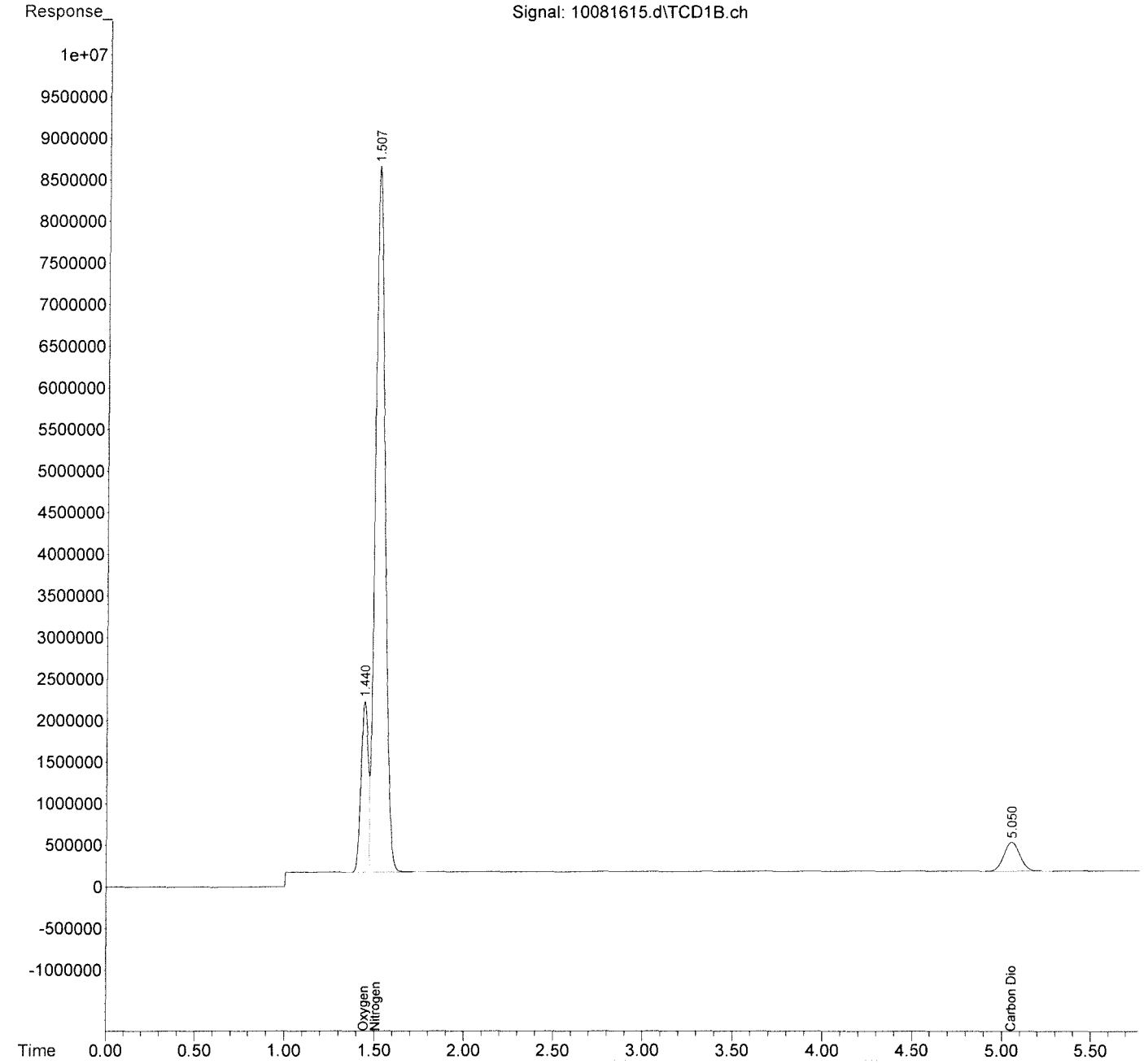
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	1.440	56154371	94726.450	ppm
3)	Nitrogen	1.509	321326080	485788.172	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	5.051	21807558	24158.490	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081615.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 11:27 am
Operator : MC
Sample : 4754-005
Misc :
ALS Vial : 15 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 11:33:14 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081616.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 11:36 am
Operator : MC
Sample : 4754-005
Misc :
ALS Vial : 16 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 11:43:54 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

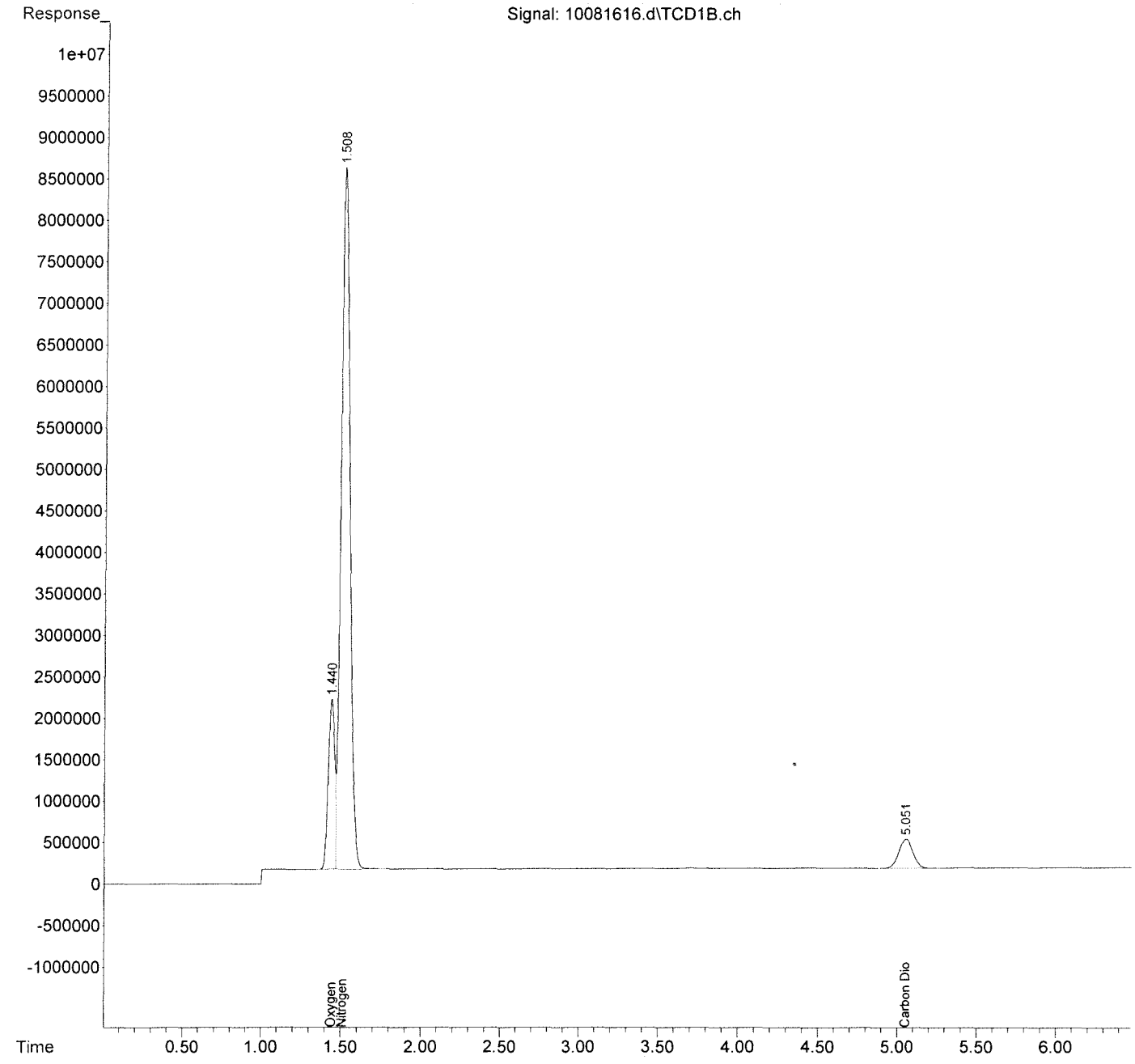
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.000	0	N.D.	ppm	d
2)	Oxygen	1.440	56016296	94493.532	ppm	
3)	Nitrogen	1.509	320481188	484510.845	ppm	
4)	Carbon Monoxide	0.000	0	N.D.	ppm	
5)	Methane	0.000	0	N.D.	ppm	
6)	Carbon Dioxide	5.051	21750577	24095.368	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081616.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 11:36 am
Operator : MC
Sample : 4754-005
Misc :
ALS Vial : 16 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 11:43:54 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081617.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 11:46 am
Operator : MC
Sample : 4754-007
Misc :
ALS Vial : 17 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 12:04:28 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

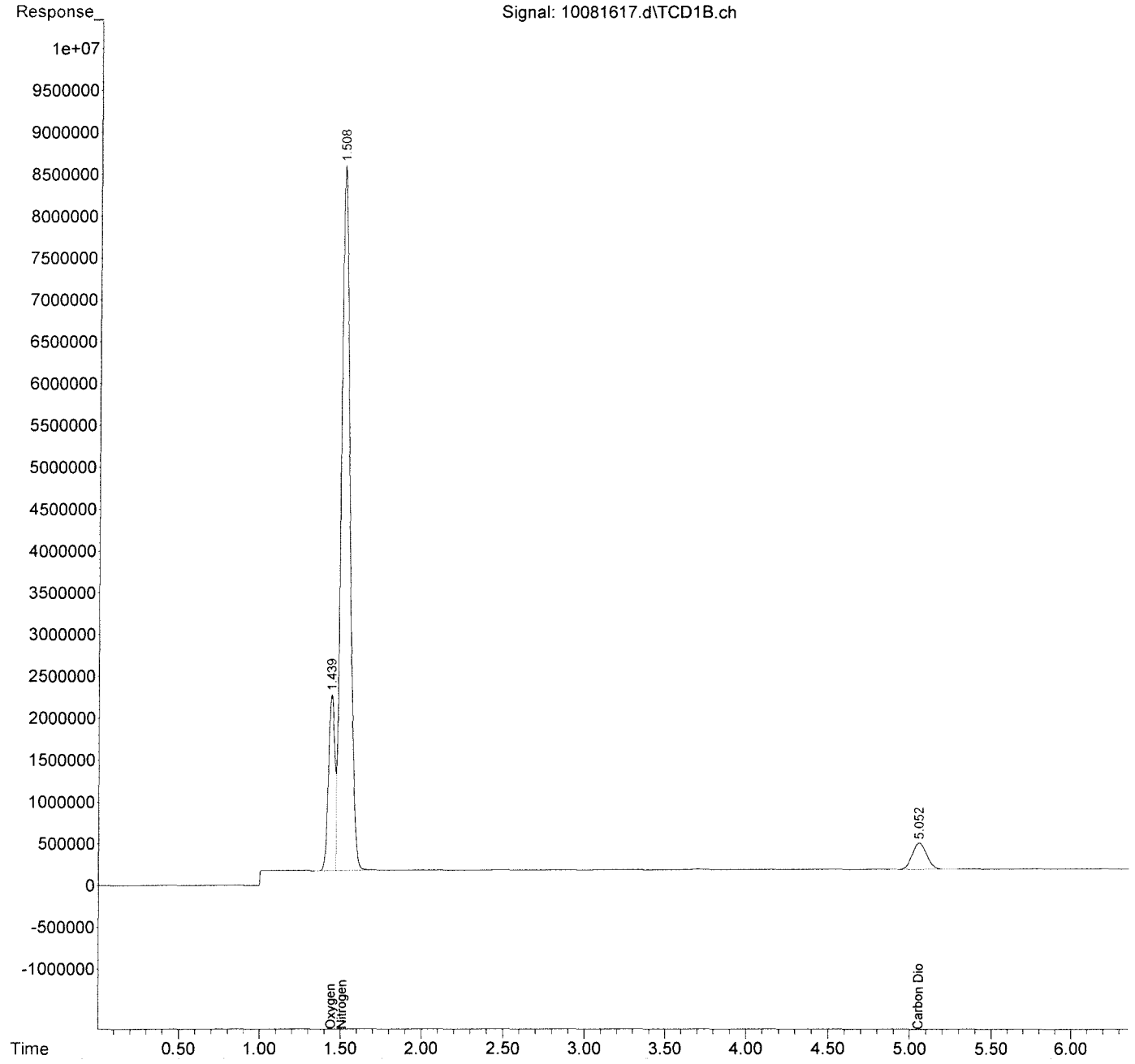
	Compound	R.T.	Response	Conc Units
Target Compounds				
1)	Hydrogen	0.000	0	N.D. ppm d
2)	Oxygen	1.440	57537783	97060.120 ppm
3)	Nitrogen	1.509	318613646	481687.451 ppm
4)	Carbon Monoxide	0.000	0	N.D. ppm
5)	Methane	0.000	0	N.D. ppm
6)	Carbon Dioxide	5.052	19823621	21960.678 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081617.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 11:46 am
Operator : MC
Sample : 4754-007
Misc :
ALS Vial : 17 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 12:04:28 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081618.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 11:56 am
Operator : MC
Sample : 4754-007
Misc :
ALS Vial : 18 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 12:04:41 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

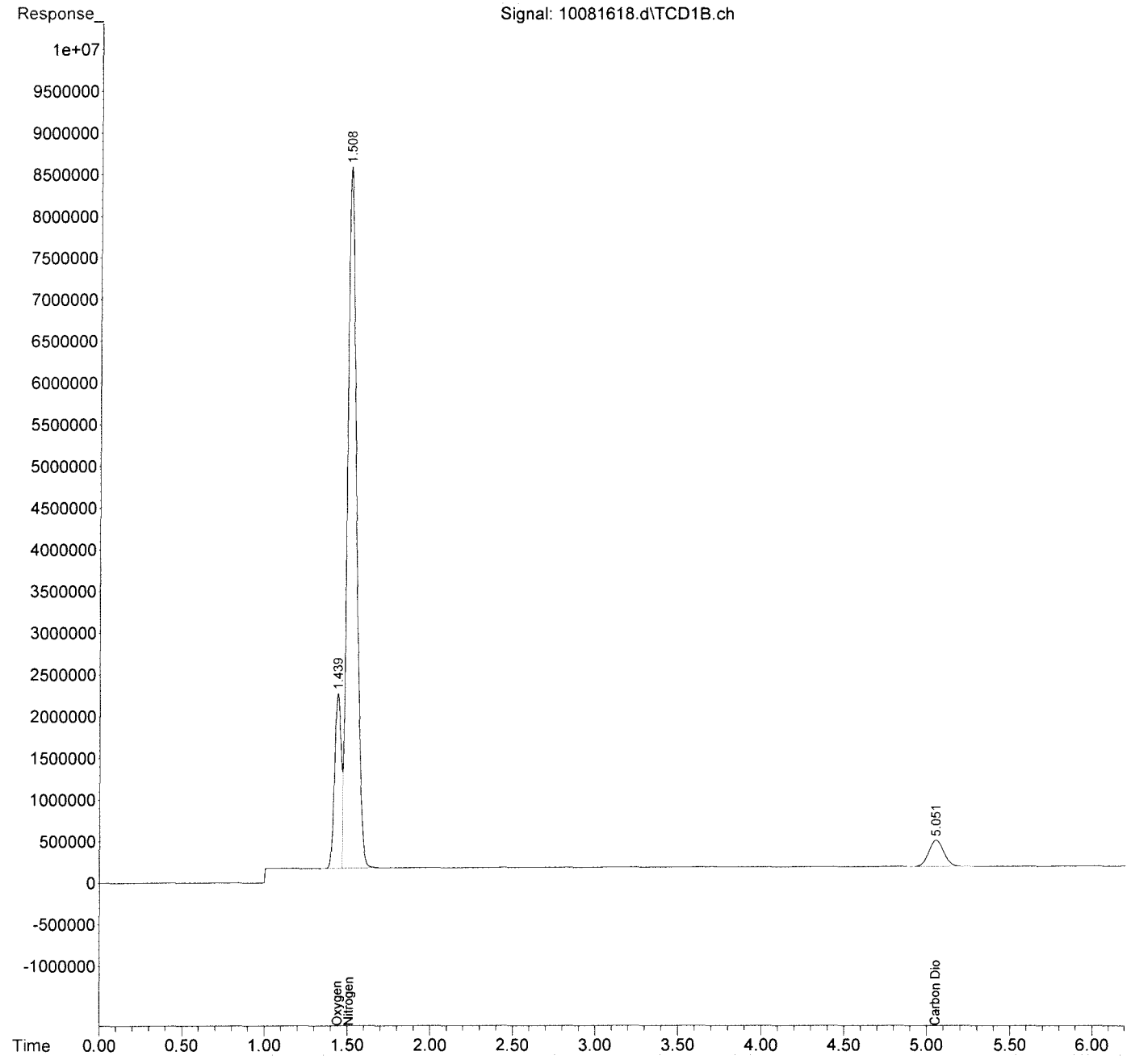
	Compound	R.T.	Response	Conc Units
Target Compounds				
1)	Hydrogen	0.000	0	N.D. ppm
2)	Oxygen	1.440	57407776	96840.810 ppm
3)	Nitrogen	1.509	318162422	481005.281 ppm
4)	Carbon Monoxide	0.000	0	N.D. ppm
5)	Methane	0.000	0	N.D. ppm
6)	Carbon Dioxide	5.052	19805130	21940.194 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081618.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 11:56 am
Operator : MC
Sample : 4754-007
Misc :
ALS Vial : 18 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 12:04:41 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081619.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 12:06 pm
Operator : MC
Sample : 4754-007
Misc :
ALS Vial : 19 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 12:13:16 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

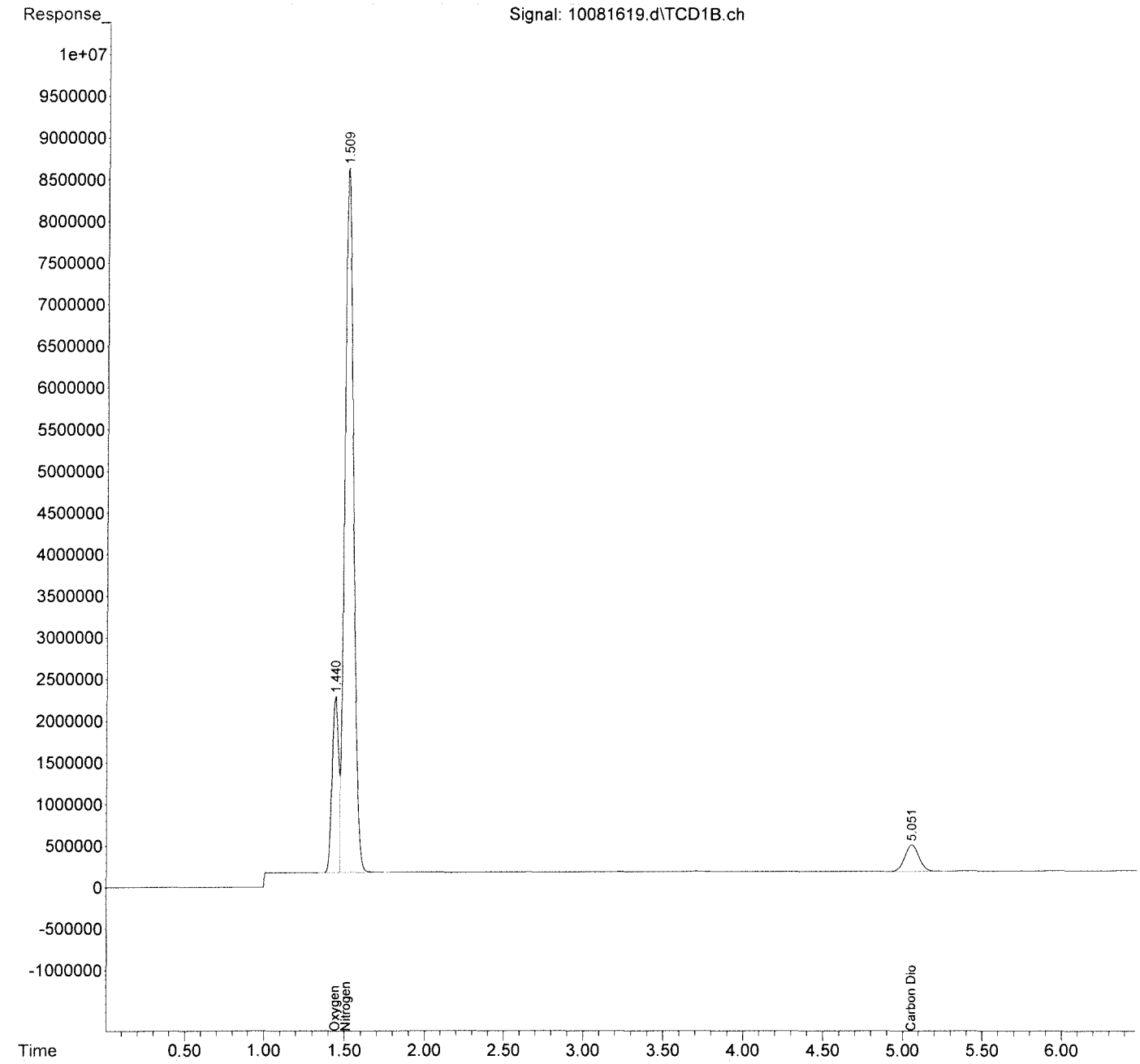
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	1.441	57782667	97473.213	ppm
3)	Nitrogen	1.509	320136881	483990.313	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	5.052	19934175	22083.151	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081619.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 12:06 pm
Operator : MC
Sample : 4754-007
Misc :
ALS Vial : 19 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 12:13:16 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081620.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 12:16 pm
Operator : MC
Sample : 4754-009
Misc :
ALS Vial : 20 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 12:35:07 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

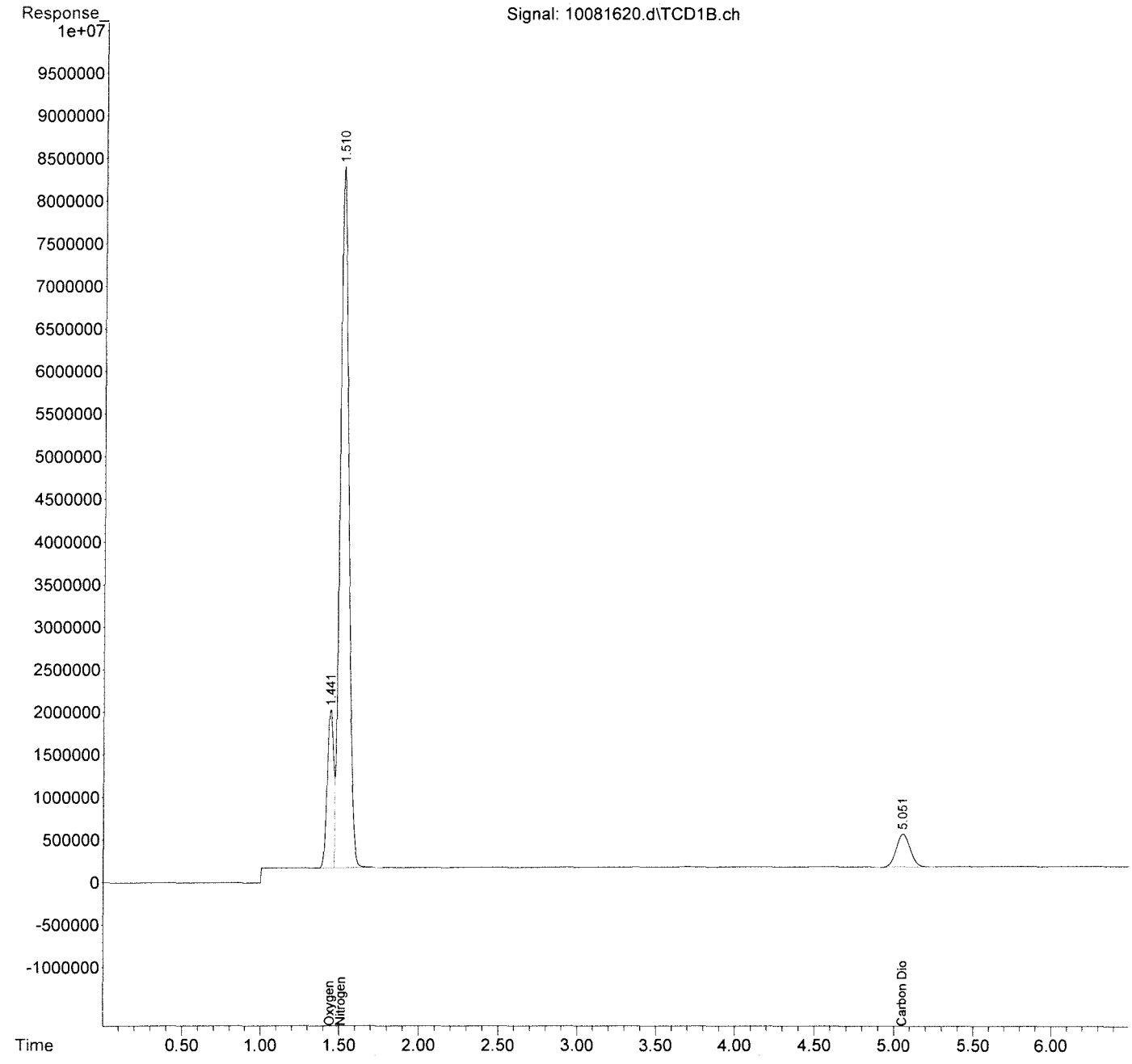
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	1.442	50579004	85321.400	ppm
3)	Nitrogen	1.510	309155095	467387.797	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	5.052	24322991	26945.097	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081620.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 12:16 pm
Operator : MC
Sample : 4754-009
Misc :
ALS Vial : 20 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 12:35:07 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081621.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 12:26 pm
Operator : MC
Sample : 4754-009
Misc :
ALS Vial : 21 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 12:35:23 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

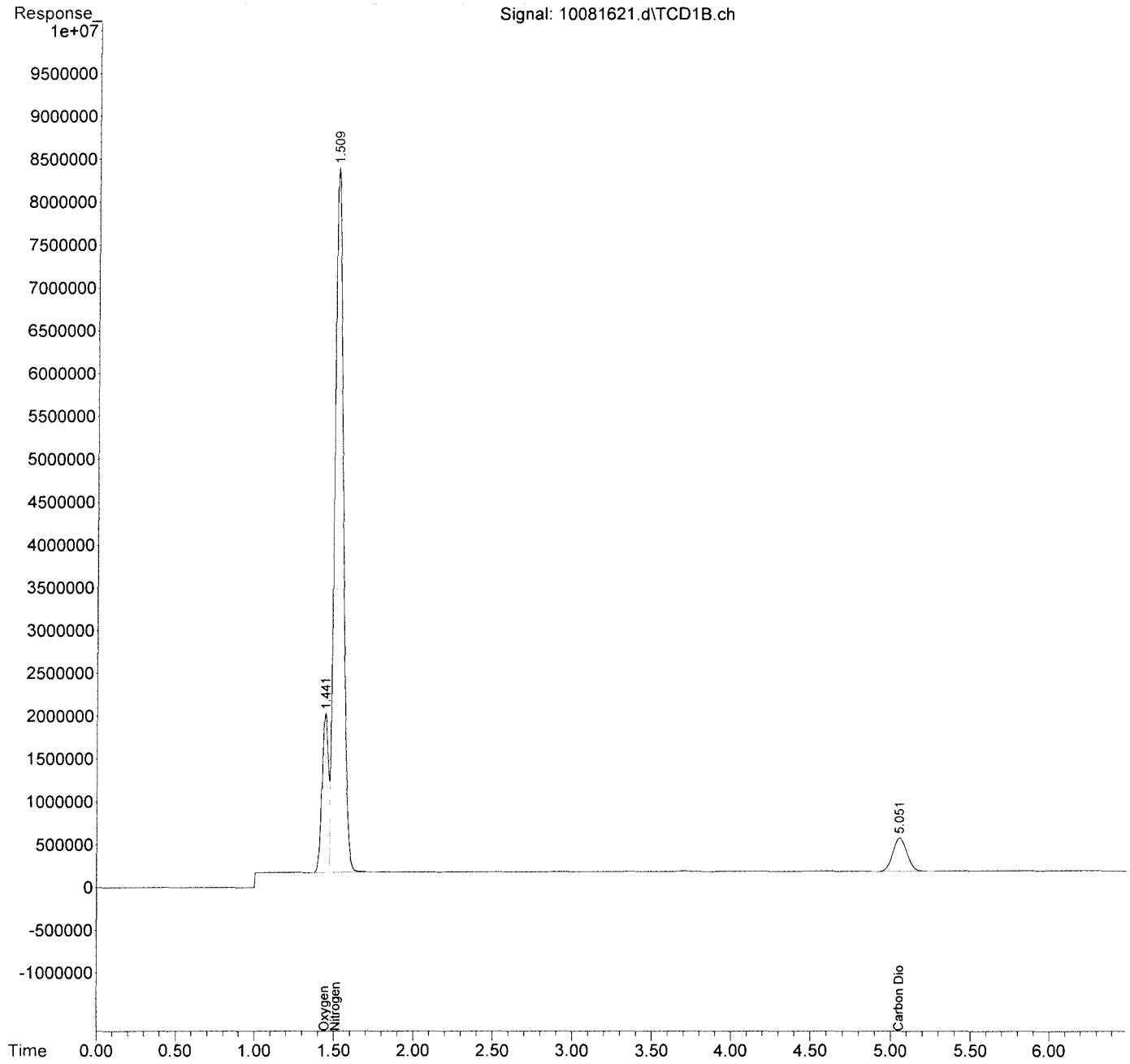
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.000	0	N.D.	ppm	d
2)	Oxygen	1.442	50608953	85371.920	ppm	
3)	Nitrogen	1.510	309370466	467713.400	ppm	
4)	Carbon Monoxide	0.000	0	N.D.	ppm	
5)	Methane	0.000	0	N.D.	ppm	
6)	Carbon Dioxide	5.051	24391044	27020.485	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081621.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 12:26 pm
Operator : MC
Sample : 4754-009
Misc :
ALS Vial : 21 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 12:35:23 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081622.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 12:35 pm
Operator : MC
Sample : 4754-009
Misc :
ALS Vial : 22 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 12:44:14 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

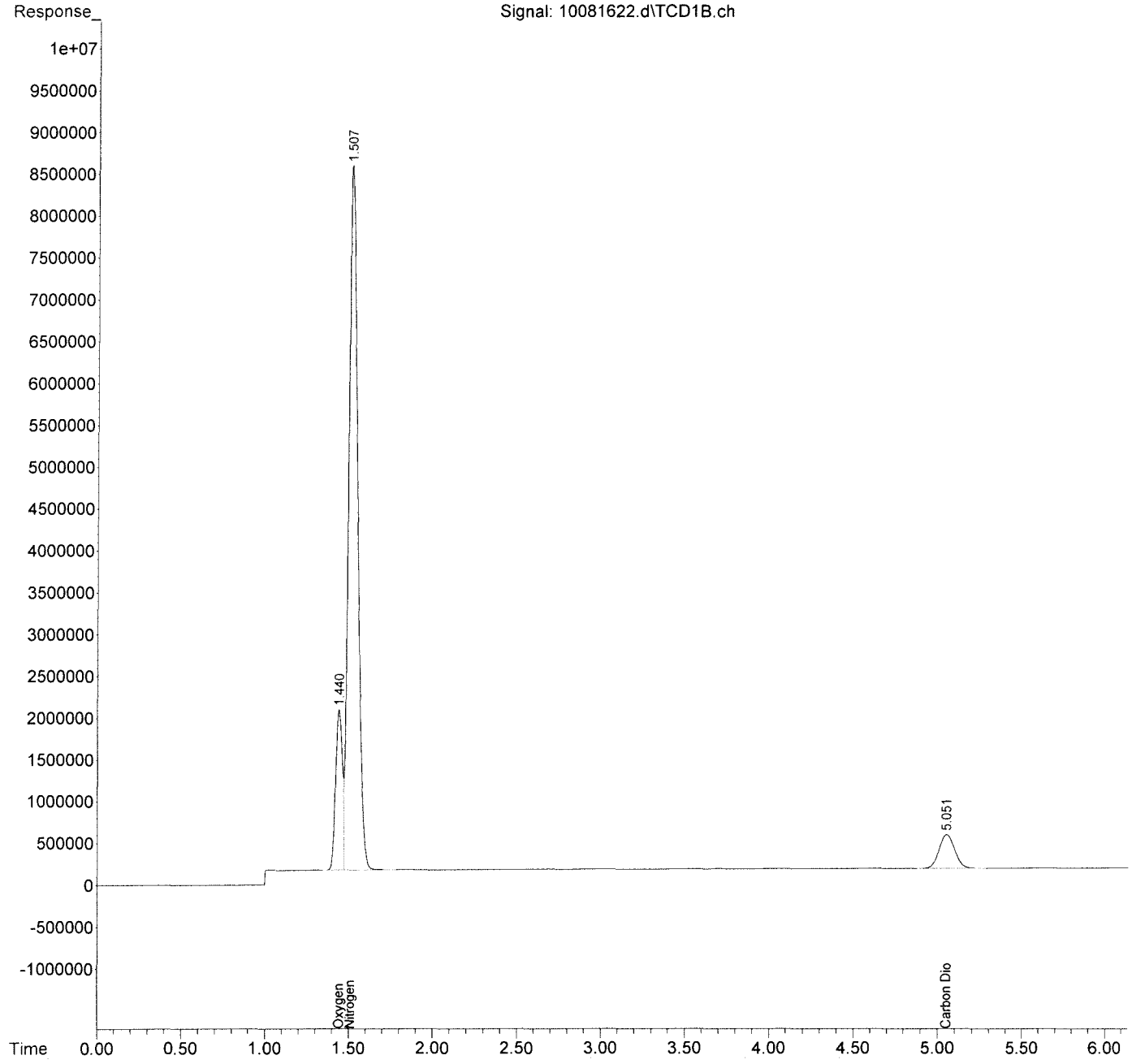
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.000	0	N.D.	ppm	d
2)	Oxygen	1.441	52074974	87844.941	ppm	
3)	Nitrogen	1.509	318100380	480911.484	ppm	
4)	Carbon Monoxide	0.000	0	N.D.	ppm	
5)	Methane	0.000	0	N.D.	ppm	
6)	Carbon Dioxide	5.052	25107392	27814.059	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081622.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 12:35 pm
Operator : MC
Sample : 4754-009
Misc :
ALS Vial : 22 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 12:44:14 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081623.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 12:44 pm
Operator : MC
Sample : 4754-011
Misc :
ALS Vial : 23 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 12:54:53 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

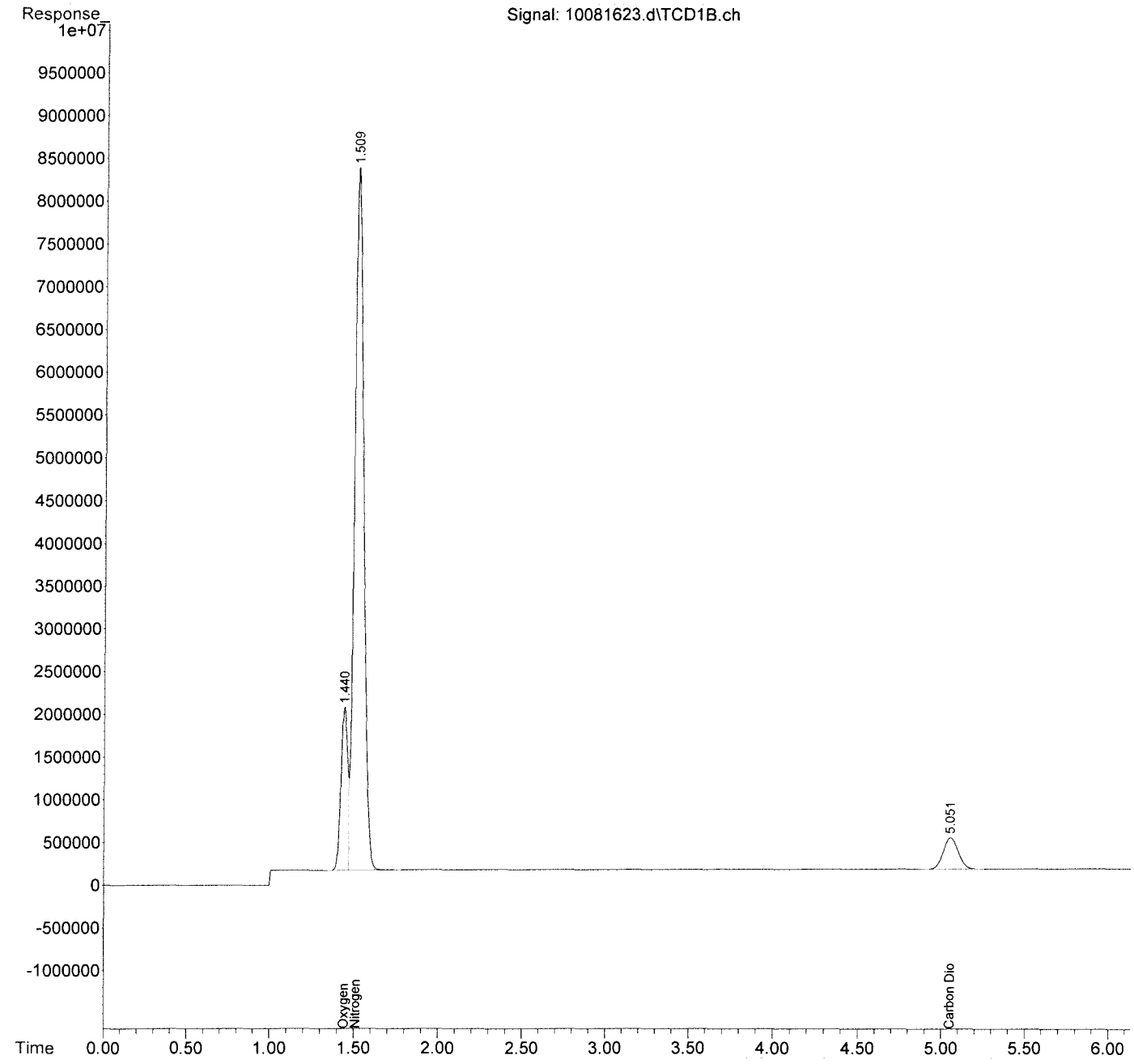
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	1.441	51984799	87692.826	ppm
3)	Nitrogen	1.510	309330524	467653.015	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	5.051	23002001	25481.699	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081623.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 12:44 pm
Operator : MC
Sample : 4754-011
Misc :
ALS Vial : 23 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 12:54:53 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081624.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 12:54 pm
Operator : MC
Sample : 4754-011
Misc :
ALS Vial : 24 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 13:06:21 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	1.441	52877355	89198.472	ppm
3)	Nitrogen	1.510	315104234	476381.843	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	5.052	23486798	26018.759	ppm

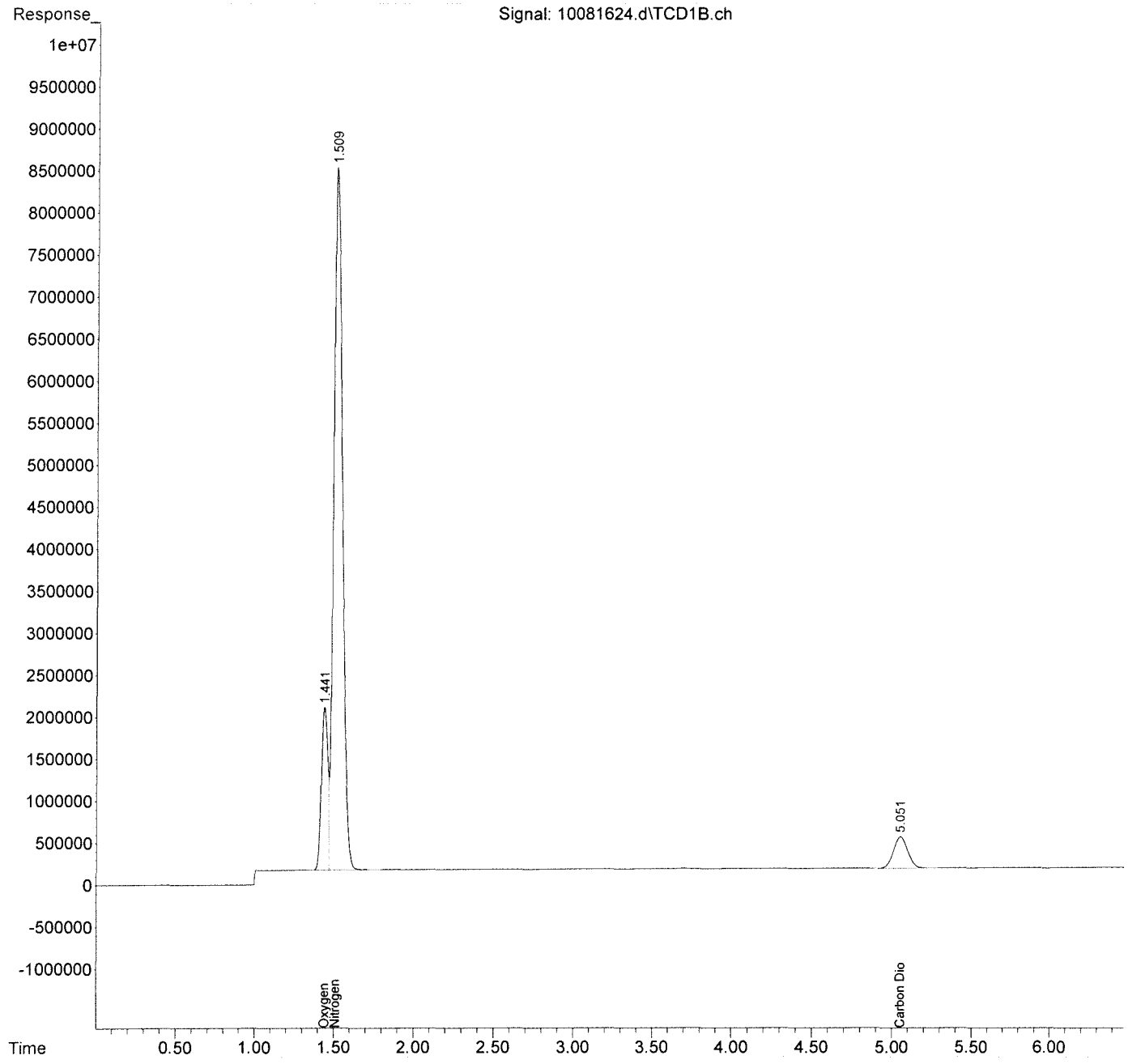
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081624.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 12:54 pm
Operator : MC
Sample : 4754-011
Misc :
ALS Vial : 24 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 13:06:21 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081625.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 1:04 pm
Operator : MC
Sample : 4754-011
Misc :
ALS Vial : 25 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 13:10:46 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc Units
Target Compounds				
1)	Hydrogen	0.000	0	N.D. ppm d
2)	Oxygen	1.441	53098546	89571.599 ppm
3)	Nitrogen	1.510	316378600	478308.457 ppm
4)	Carbon Monoxide	0.000	0	N.D. ppm
5)	Methane	0.000	0	N.D. ppm
6)	Carbon Dioxide	5.052	23590409	26133.540 ppm

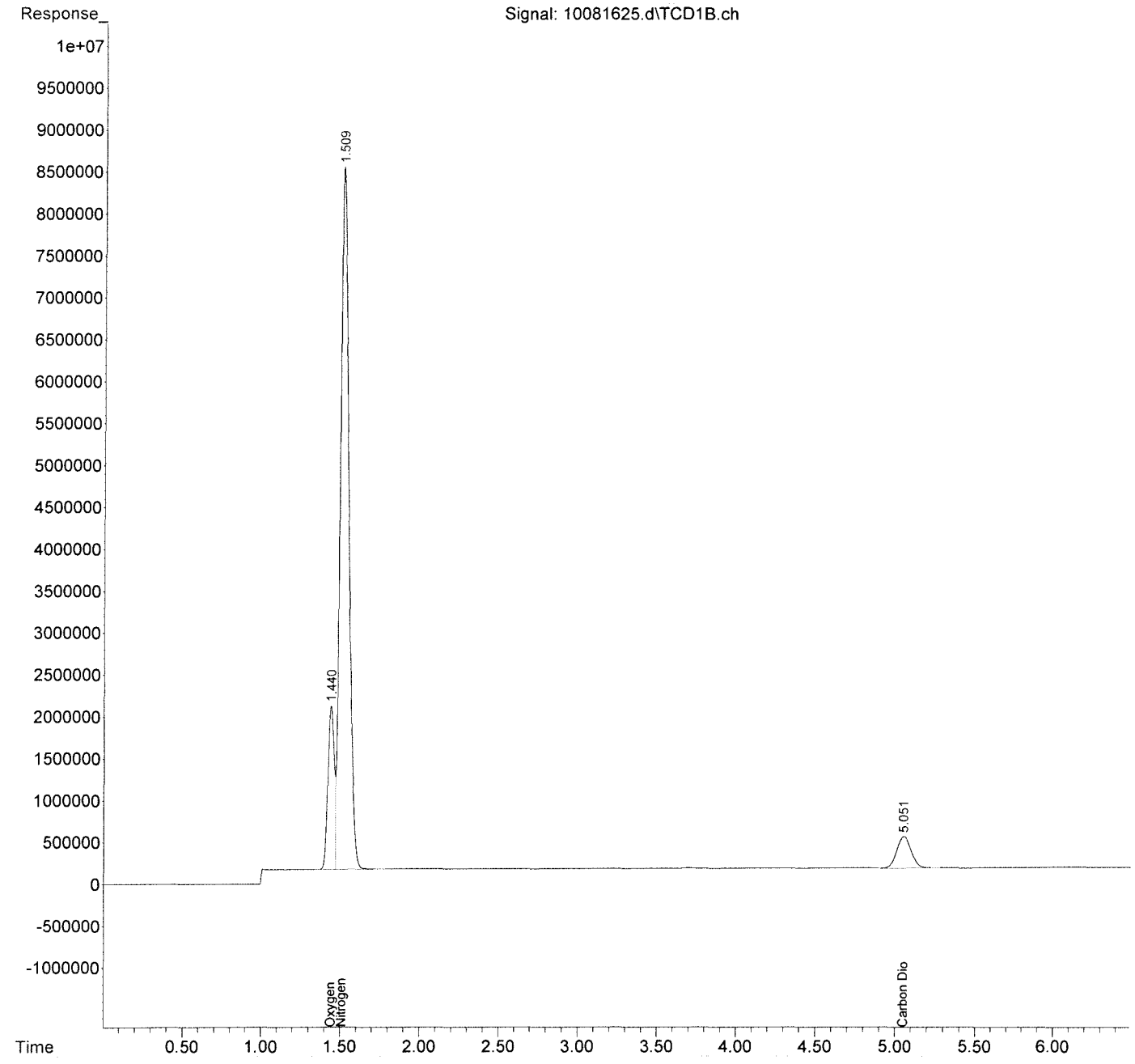
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081625.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 1:04 pm
Operator : MC
Sample : 4754-011
Misc :
ALS Vial : 25 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 13:10:46 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081626.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 1:14 pm
Operator : MC
Sample : 4754-013
Misc :
ALS Vial : 26 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 13:20:12 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

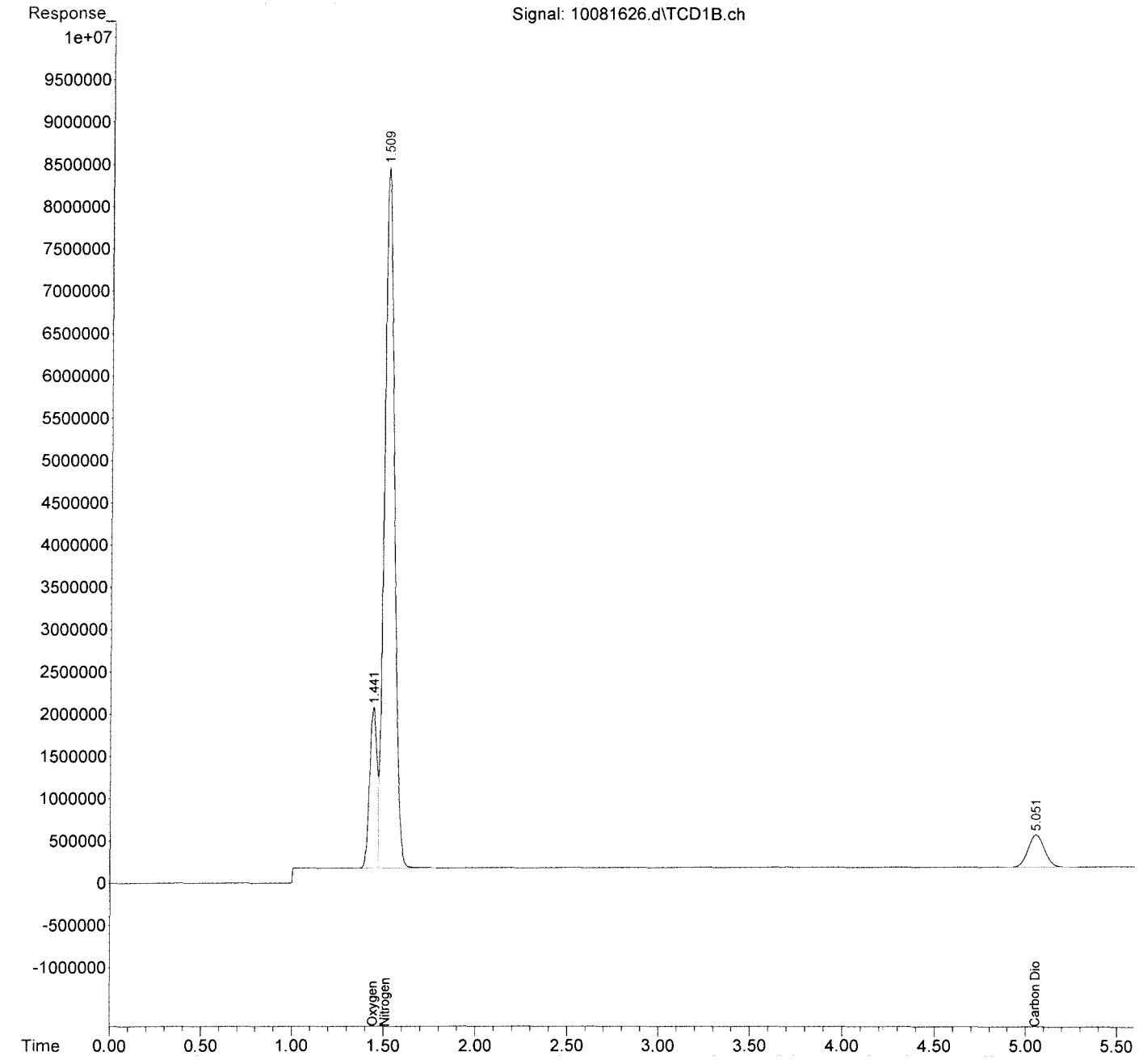
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.000	0	N.D.	ppm	d
2)	Oxygen	1.441	51841553	87451.185	ppm	
3)	Nitrogen	1.510	312365800	472241.815	ppm	
4)	Carbon Monoxide	0.000	0	N.D.	ppm	
5)	Methane	0.000	0	N.D.	ppm	
6)	Carbon Dioxide	5.052	23926625	26506.001	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081626.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 1:14 pm
Operator : MC
Sample : 4754-013
Misc :
ALS Vial : 26 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 13:20:12 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081627.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 1:22 pm
Operator : MC
Sample : 4754-013
Misc :
ALS Vial : 27 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 13:29:30 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

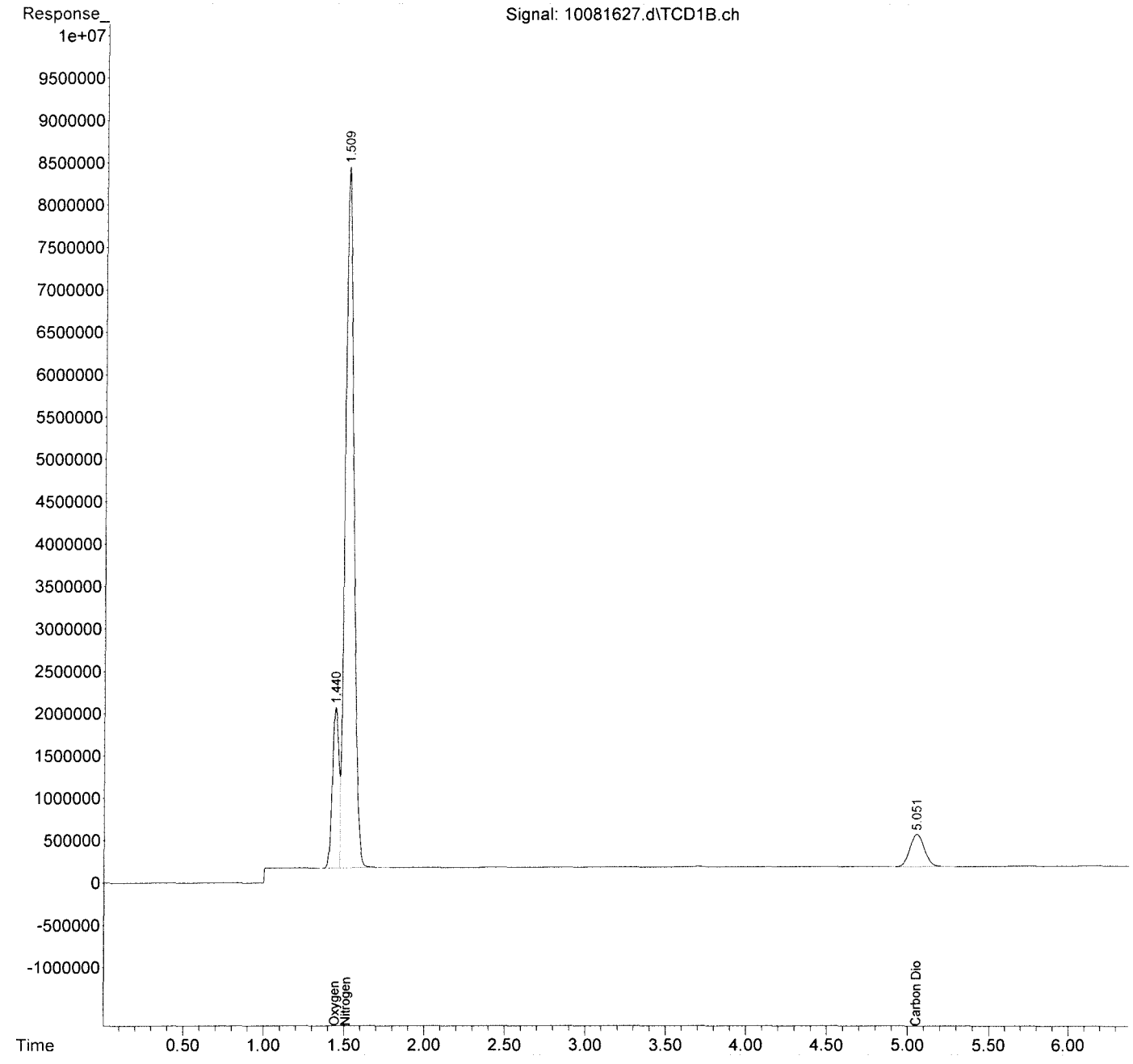
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	1.441	51715821	87239.089	ppm
3)	Nitrogen	1.510	311333748	470681.535	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	5.051	23866561	26439.462	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081627.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 1:22 pm
Operator : MC
Sample : 4754-013
Misc :
ALS Vial : 27 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 13:29:30 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081628.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 1:32 pm
Operator : MC
Sample : 4754-013
Misc :
ALS Vial : 28 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 13:38:30 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

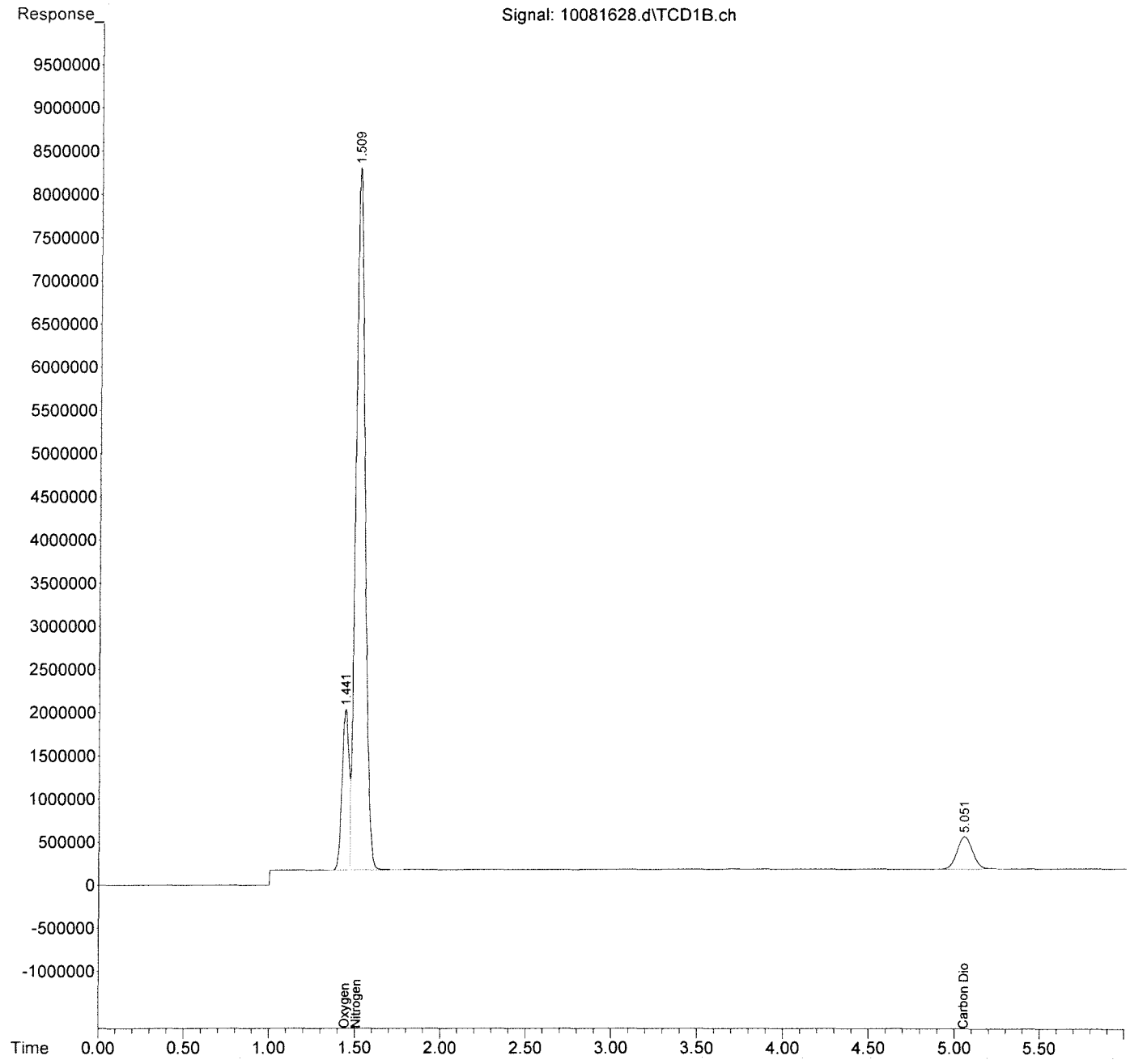
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	1.441	50778187	85657.400	ppm
3)	Nitrogen	1.510	305430035	461756.166	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	5.052	23415273	25939.524	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081628.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 1:32 pm
Operator : MC
Sample : 4754-013
Misc :
ALS Vial : 28 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 13:38:30 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081629.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 1:40 pm
Operator : MC
Sample : 4754-015
Misc :
ALS Vial : 29 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 13:46:45 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

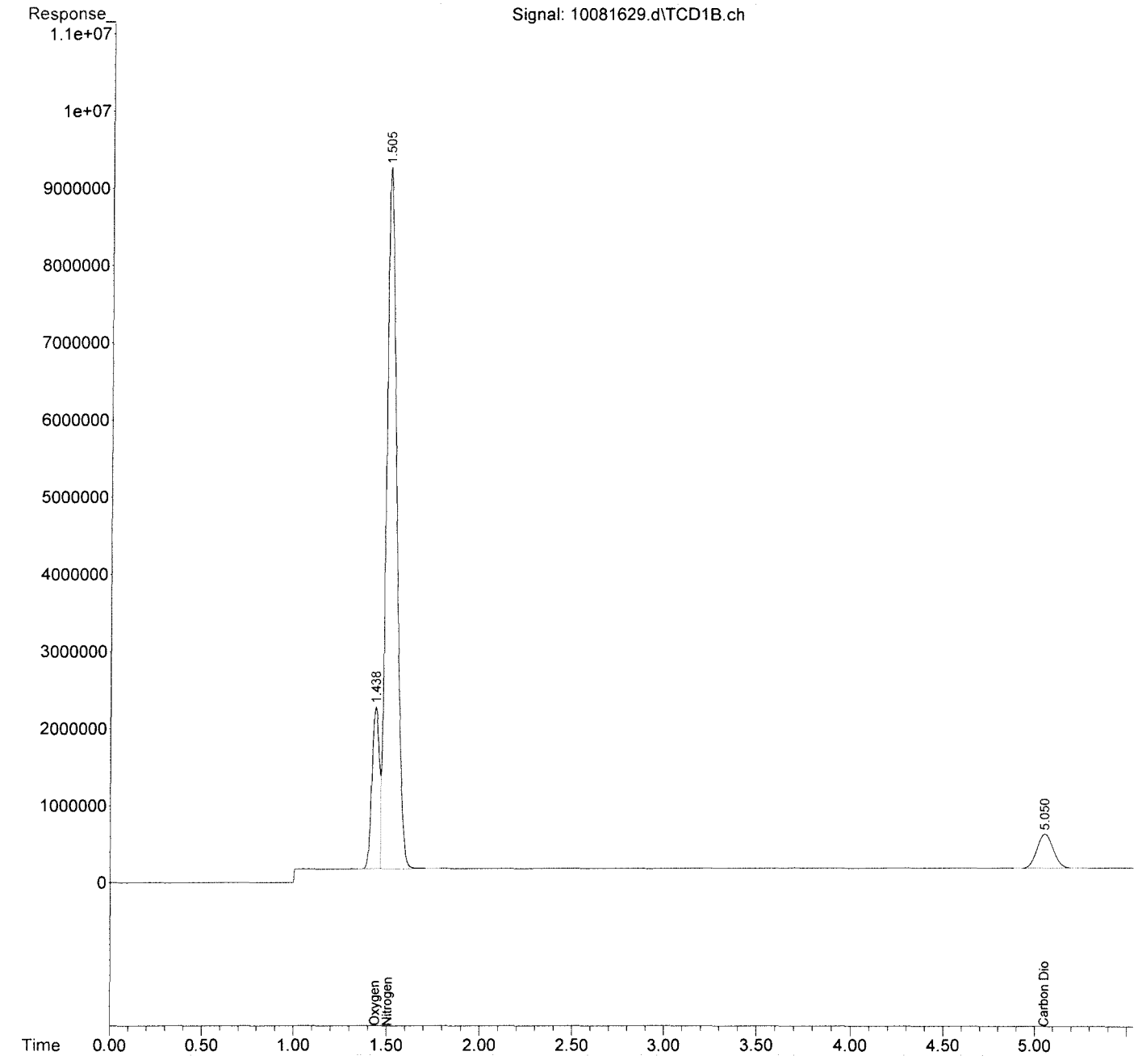
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	1.439	56367998	95086.816	ppm
3)	Nitrogen	1.506	348084279	526241.834	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	5.051	27983255	30999.950	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081629.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 1:40 pm
Operator : MC
Sample : 4754-015
Misc :
ALS Vial : 29 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 13:46:45 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081630.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 1:48 pm
Operator : MC
Sample : 4754-015
Misc :
ALS Vial : 30 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 13:54:37 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

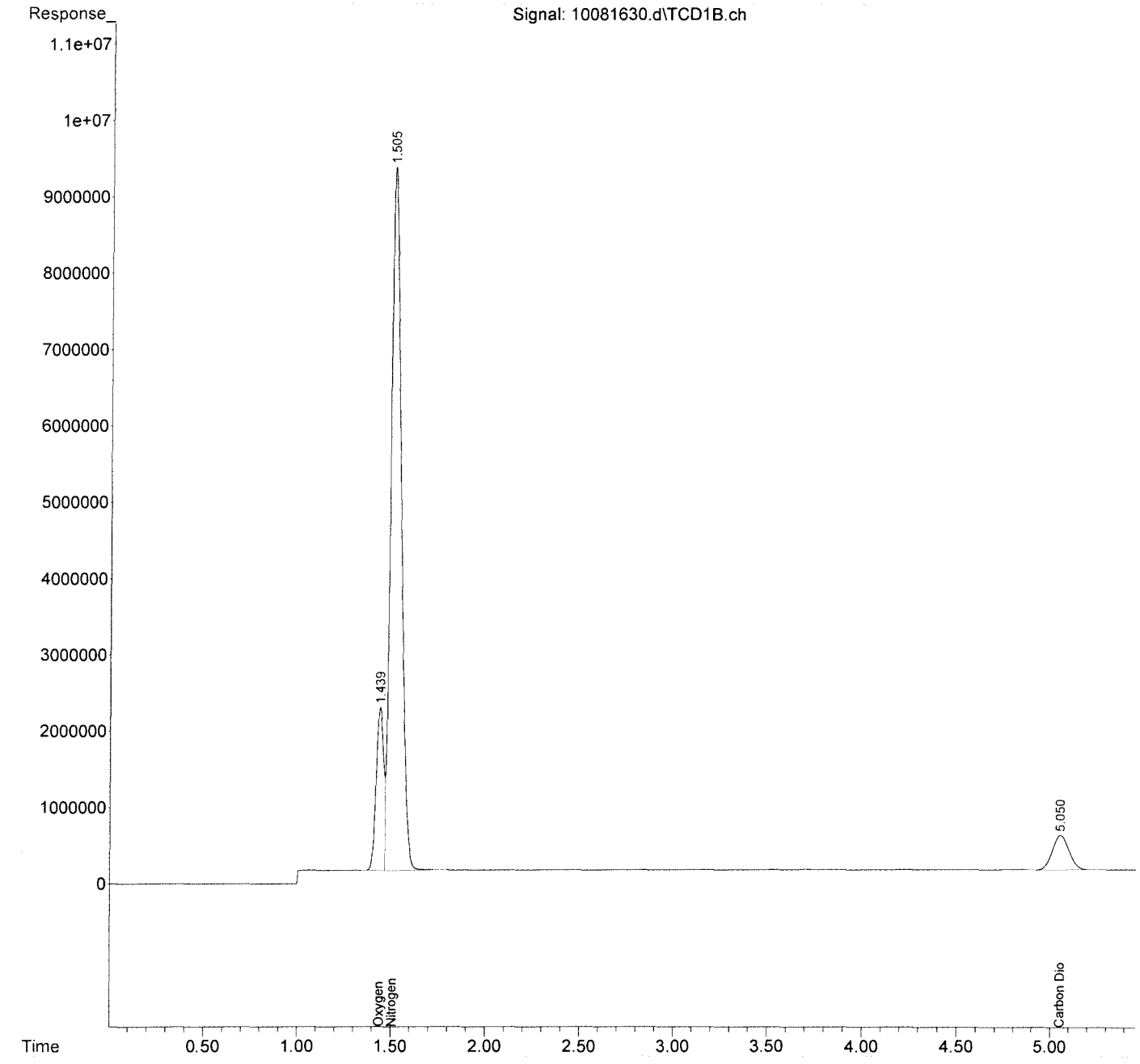
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	1.439	57130851	96373.668	ppm
3)	Nitrogen	1.506	353131722	533872.674	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	5.051	28411502	31474.364	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081630.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 1:48 pm
Operator : MC
Sample : 4754-015
Misc :
ALS Vial : 30 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 13:54:37 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081631.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 1:56 pm
Operator : MC
Sample : 4754-015
Misc :
ALS Vial : 31 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 14:03:29 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

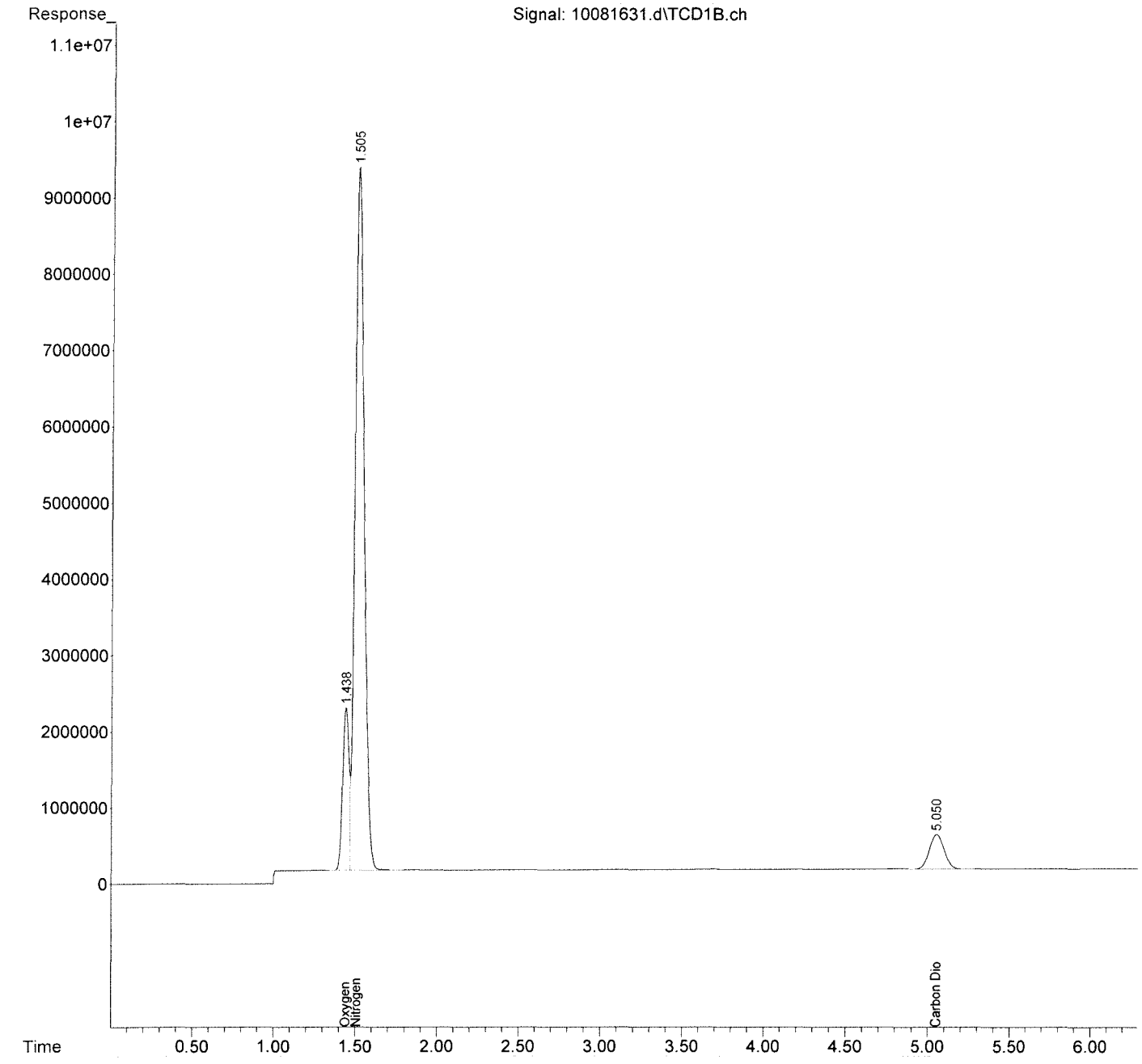
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	1.439	57146692	96400.390	ppm
3)	Nitrogen	1.506	353117805	533851.635	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	5.051	28408437	31470.969	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081631.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 1:56 pm
Operator : MC
Sample : 4754-015
Misc :
ALS Vial : 31 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 14:03:29 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081605.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 9:50 am
Operator : MC
Sample : mb
Misc :
ALS Vial : 5 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 10:32:15 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

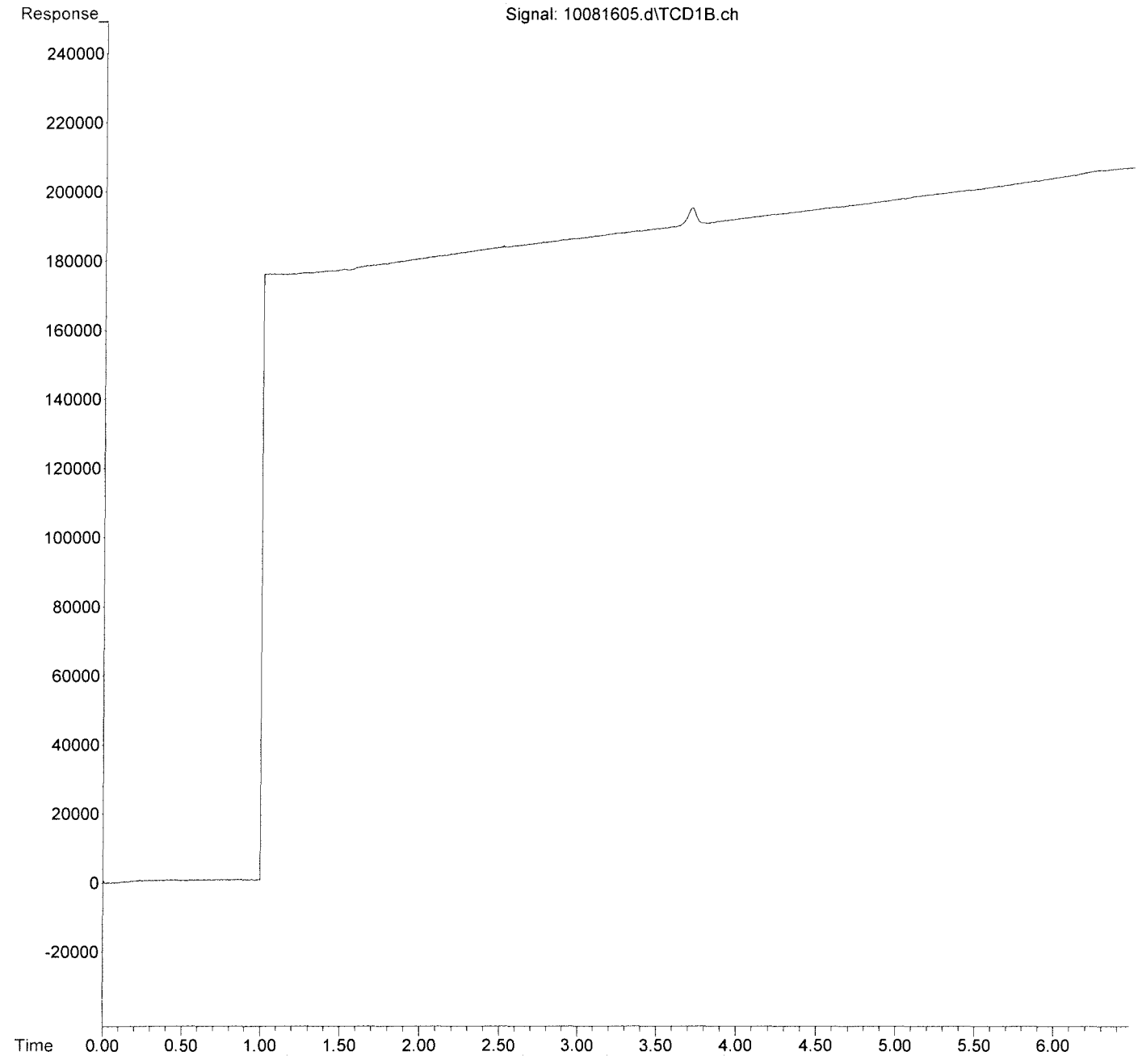
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	0.000	0	N.D.	ppm
3)	Nitrogen	0.000	0	N.D.	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081605.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 9:50 am
Operator : MC
Sample : mb
Misc :
ALS Vial : 5 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 10:32:15 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Response Factor Report GC20

Method Path : J:\GC20\METHODS\
Method File : trip08172016.M
Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
Last Update : Wed Aug 17 16:09:17 2016
Response Via : Initial Calibration

Calibration Files
1 =08171603.d 2 =08171604.d 3 =08171605.d
4 =08171606.d 5 =08171607.d 6 =08171608.d

	Compound	1	2	3	4	5	6	Avg		%RSD
1)	Hydrogen	1.263	1.216	1.311	1.267	1.276	1.374	1.369	E2	6.11
2)	Oxygen	5.995	5.787	5.931	5.805	5.617	5.572	5.744	E3	3.05
3)	Nitrogen	7.068	6.958	7.066	6.558	6.254	6.223	6.615	E3	6.51
4)	Carbon Monoxide	6.543	6.215	6.435	6.191	6.176	6.154	6.389	E3	3.22
5)	Methane	4.972	4.788	4.972	4.791	4.772	4.736	5.090	E3	8.01
6)	Carbon Dioxide	0.892	0.856	0.870	0.846	0.845	0.841	0.903	E4	8.07

(#) = Out of Range ### Number of calibration levels exceeded format ###

trip08172016.M Thu Aug 18 08:36:14 2016

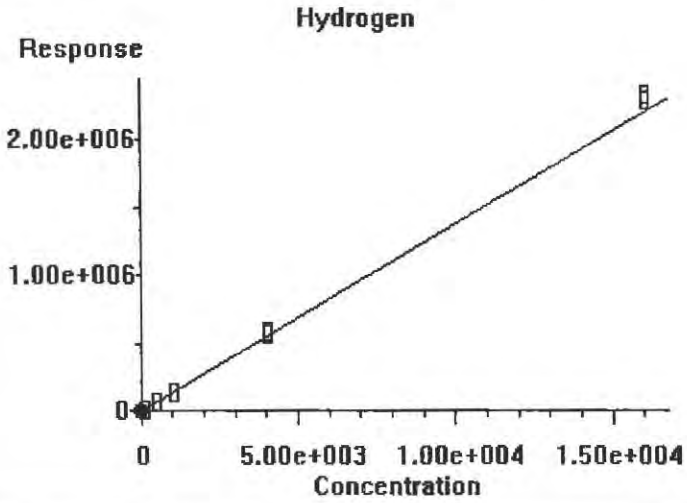
Edit Compounds

Search by: Ret Time Name Index Find Compound

- Compound Database
- External Standard Compour
  - Hydrogen
  - Oxygen
  - Nitrogen
  - Carbon Monoxide
  - Methane
  - Carbon Dioxide

Identification | Calibration | User Defined | Advanced | Reporting

Lvl ID	Concentration	Response	Lvl ID	Concentration	Response
1	100.000000	12632.882850	11	4000.000000	582047.701516
2	100.000000	12158.345400	12	4000.000000	584213.441000
3	100.000000	13114.025350	13	16000.000000	2298591.027391
4	500.000000	68333.202400	14	16000.000000	2289656.882538
5	500.000000	63821.192207	15	16000.000000	2323872.957738
6	500.000000	68721.641600	16	99999.000000	
7	1000.000000	139987.300362	17	99999.000000	
8	1000.000000	133581.640900	18	99999.000000	
9	1000.000000	140992.792779			
10	4000.000000	580729.821200			



0.000e+000	Quadratic term
1.359e-003	Linear term
0.000e+000	Constant term
6.1%	RF Rel Std Dev

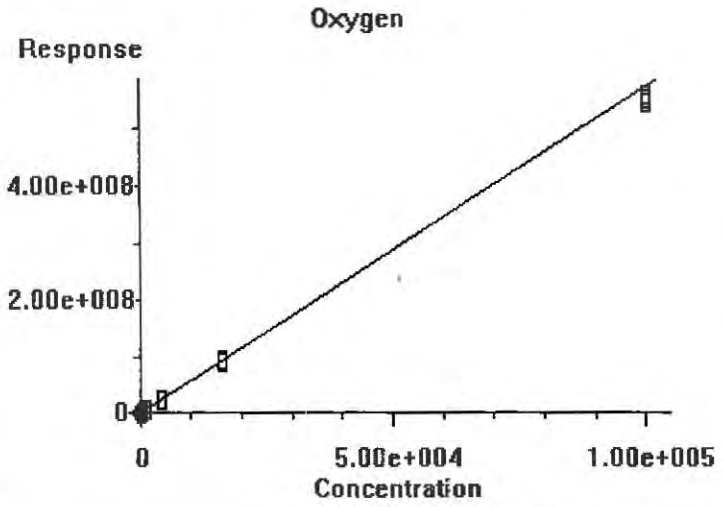
Edit Compounds

Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compour
  - Hydrogen
  - Oxygen
  - Nitrogen
  - Carbon Monoxide
  - Methane
  - Carbon Dioxide

Identification | Calibration | User Defined | Advanced | Reporting

Lvl ID	Concentration	Response	Lvl ID	Concentration	Response
1	100.000000	599487.494103	11	4000.000000	23826598.302138
2	100.000000	578670.977752	12	4000.000000	23862517.416454
3	100.000000	593092.952739	13	16000.000000	92172159.210664
4	500.000000	2902297.311542	14	16000.000000	92464939.459502
5	500.000000	2808317.269011	15	16000.000000	93438546.995218
6	500.000000	2736178.983668	16	99999.000000	559169599.50000
7	1000.000000	5641236.869851	17	99999.000000	547020814.73562
8	1000.000000	5511742.529597	18	99999.000000	554974689.16791
9	1000.000000	5643307.026994			
10	4000.000000	23935634.938654			



0.000e+000	Quadratic term
5.744e+003	Linear term
0.000e+000	Constant term
3.1%	RF Rel Std Dev

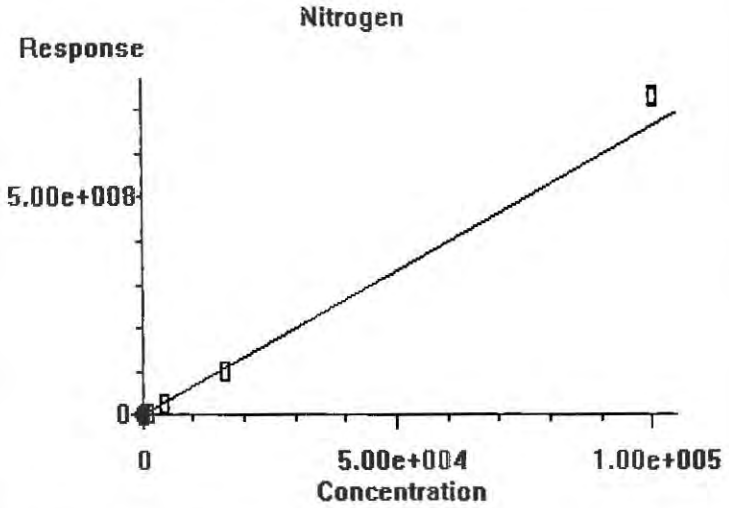
Edit Compounds

Search by: Ret Time Name Index Find Compound

- Compound Database
- External Standard Compour
  - Hydrogen
  - Oxygen
  - Nitrogen
  - Carbon Monoxide
  - Methane
  - Carbon Dioxide

Identification | Calibration | User Defined | Advanced | Reporting

Lvl ID	Concentration	Response	Lvl ID	Concentration	Response
1	100.000000	706803.440897	11	4000.000000	25956732.584528
2	100.000000	695841.470581	12	4000.000000	25991567.873546
3	100.000000	706599.015386	13	16000.000000	100943912.98433
4	500.000000	3279194.883874	14	16000.000000	101263114.73341
5	500.000000	3126903.101822	15	16000.000000	102307767.29478
6	500.000000	3111525.750290	16	99999.000000	732108094.01000
7	1000.000000	6229559.976399	17	99999.000000	729497758.06541
8	1000.000000	6056059.185403	18	99999.000000	730183971.82500
9	1000.000000	6192495.418423			
10	4000.000000	26073539.517180			



0.000e+000	Quadratic term
6.615e+003	Linear term
0.000e+000	Constant term
6.5%	RF Rel Std Dev

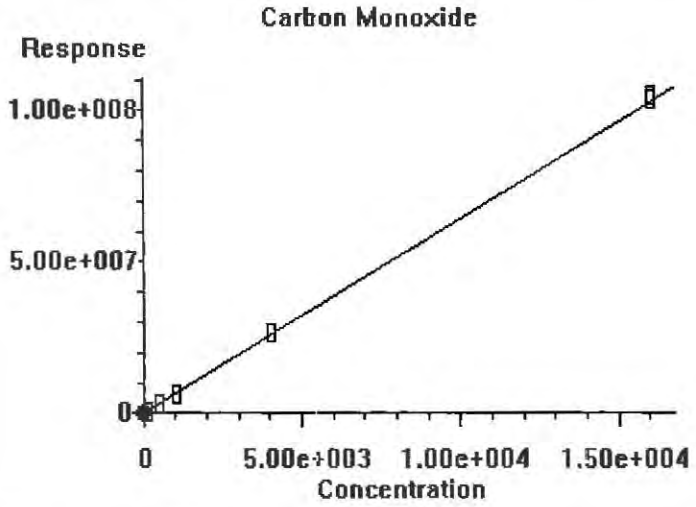
Edit Compounds

Search by: Ret Time Name Index Find Compound

- Compound Database
  - External Standard Compour
    - Hydrogen
    - Oxygen
    - Nitrogen
    - Carbon Monoxide
    - Methane
    - Carbon Dioxide

Identification | Calibration | User Defined | Advanced | Reporting

Lvl ID	Concentration	Response	Lvl ID	Concentration	Response
1	100.000000	654271.621875	11	4000.000000	26619277.899687
2	100.000000	621542.387500	12	4000.000000	26651663.501094
3	100.000000	643506.703437	13	16000.000000	103484436.83125
4	500.000000	3095393.077500	14	16000.000000	103800819.31781
5	500.000000	3087808.537500	15	16000.000000	104922838.63281
6	500.000000	3076916.732812	16	99999.000000	
7	1000.000000	6240771.374687	17	99999.000000	
8	1000.000000	6107195.350625	18	99999.000000	
9	1000.000000	6257030.244688			
10	4000.000000	26723290.426500			



0.000e+000	Quadratic term
6.589e+003	Linear term
0.000e+000	Constant term
3.2%	RF Rel Std Dev

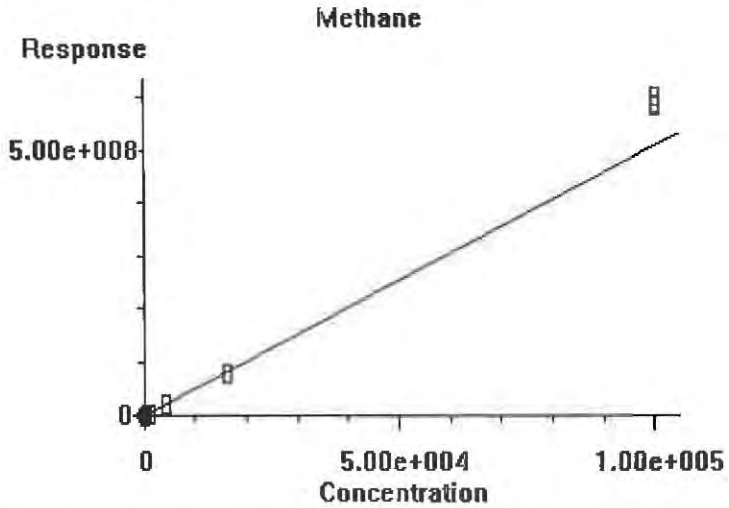
Edit Compounds

Search by: Ret Time Name Index Find Compound

- Compound Database
- External Standard Compour
  - Hydrogen
  - Oxygen
  - Nitrogen
  - Carbon Monoxide
  - Methane
  - Carbon Dioxide

Identification | Calibration | User Defined | Advanced | Reporting

Lvl ID	Concentration	Response	Lvl ID	Concentration	Response
1	100.000000	497237.645000	11	4000.000000	20516543.513750
2	100.000000	478795.408125	12	4000.000000	20570476.348889
3	100.000000	497158.898750	13	16000.000000	79878977.784792
4	500.000000	2395679.215000	14	16000.000000	80151028.112500
5	500.000000	2385753.487083	15	16000.000000	80982555.450833
6	500.000000	2367931.312083	16	99999.000000	586065212.67625
7	1000.000000	4808279.225000	17	99999.000000	587246388.09708
8	1000.000000	4716088.583125	18	99999.000000	602097414.76000
9	1000.000000	4820926.634306			
10	4000.000000	20612017.065000			



0.000e+000	Quadratic term
5.090e+002	Linear term
0.000e+000	Constant term
3.0%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

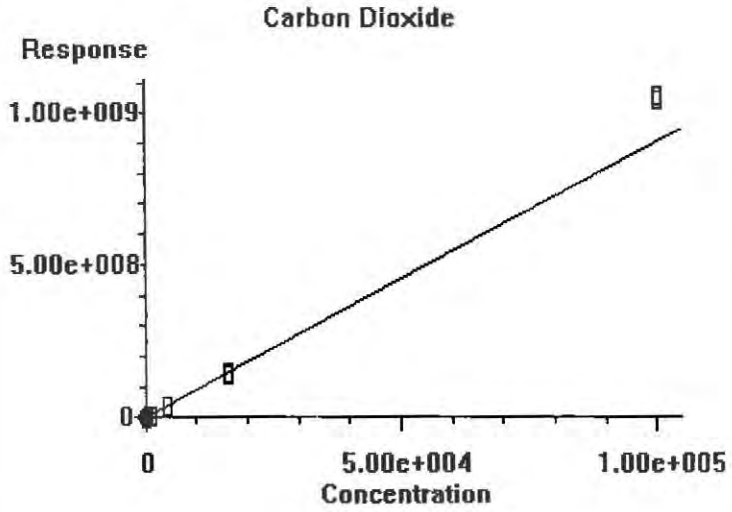
Edit Compounds

Search by: Ret Time Name Index Find Compound

- Compound Database
- External Standard Compour
  - Hydrogen
  - Oxygen
  - Nitrogen
  - Carbon Monoxide
  - Methane
  - Carbon Dioxide

Identification | Calibration | User Defined | Advanced | Reporting

Lvl ID	Concentration	Response	Lvl ID	Concentration	Response
1	100.000000	891863.635000	11	4000.000000	36414212.409286
2	100.000000	855704.788750	12	4000.000000	36463544.437500
3	100.000000	869983.886429	13	16000.000000	141358480.36375
4	500.000000	4229386.239286	14	16000.000000	142064571.20517
5	500.000000	4223314.759643	15	16000.000000	143593488.51964
6	500.000000	4206309.097143	16	99999.000000	1053756921.9100
7	1000.000000	8523011.010357	17	99999.000000	1054815939.6481
8	1000.000000	8358886.069286	18	99999.000000	1045180212.9950
9	1000.000000	8536304.023571			
10	4000.000000	36504154.463125			



0.000e+000	Quadratic term
9.027e+003	Linear term
0.000e+000	Constant term
8.13%	RF Rel Std Dev

Calibration Status Report GC20

Method Path : J:\GC20\METHODS\
Method File : trip08172016.M
Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
Last Update : Wed Aug 17 16:09:17 2016
Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	100	0	J:\GC20\DATA\3C\2016_08\17\08171603.d
2	2	100	0	J:\GC20\DATA\3C\2016_08\17\08171604.d
3	3	100	0	J:\GC20\DATA\3C\2016_08\17\08171605.d
4	4	500	0	J:\GC20\DATA\3C\2016_08\17\08171606.d
5	5	500	0	J:\GC20\DATA\3C\2016_08\17\08171607.d
6	6	500	0	J:\GC20\DATA\3C\2016_08\17\08171608.d
7	7	1000	0	J:\GC20\DATA\3C\2016_08\17\08171610.d
8	8	1000	0	J:\GC20\DATA\3C\2016_08\17\08171611.d
9	9	1000	0	J:\GC20\DATA\3C\2016_08\17\08171612.d
10	10	4000	0	J:\GC20\DATA\3C\2016_08\17\08171613.d
11	11	4000	0	J:\GC20\DATA\3C\2016_08\17\08171614.d
12	12	4000	0	J:\GC20\DATA\3C\2016_08\17\08171615.d
13	13	16000	0	J:\GC20\DATA\3C\2016_08\17\08171616.d
14	14	16000	0	J:\GC20\DATA\3C\2016_08\17\08171617.d
15	15	16000	0	J:\GC20\DATA\3C\2016_08\17\08171618.d
16	16	99999	0	J:\GC20\DATA\3C\2016_08\17\08171635.d
17	17	99999	0	J:\GC20\DATA\3C\2016_08\17\08171636.d
18	18	99999	0	J:\GC20\DATA\3C\2016_08\17\08171637.d

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Aug 17 08:43 2016	Aug 17 08:35 2016	17 Aug 2016 8:12 am
2	2	Aug 17 08:49 2016	Aug 17 08:37 2016	17 Aug 2016 8:22 am
3	3	Aug 17 08:49 2016	Aug 17 08:49 2016	17 Aug 2016 8:39 am
4	4	Aug 17 09:01 2016	Aug 17 09:01 2016	17 Aug 2016 8:52 am
5	5	Aug 17 09:13 2016	Aug 17 09:12 2016	17 Aug 2016 9:02 am
6	6	Aug 17 09:25 2016	Aug 17 09:25 2016	17 Aug 2016 9:14 am
7	7	Aug 17 10:09 2016	Aug 17 09:46 2016	17 Aug 2016 9:39 am
8	8	Aug 17 10:09 2016	Aug 17 10:00 2016	17 Aug 2016 9:52 am
9	9	Aug 17 10:10 2016	Aug 17 10:09 2016	17 Aug 2016 10:02 am
10	10	Aug 17 10:20 2016	Aug 17 10:19 2016	17 Aug 2016 10:12 am
11	11	Aug 17 10:30 2016	Aug 17 10:30 2016	17 Aug 2016 10:22 am
12	12	Aug 17 10:39 2016	Aug 17 10:39 2016	17 Aug 2016 10:31 am
13	13	Aug 17 10:52 2016	Aug 17 10:50 2016	17 Aug 2016 10:42 am
14	14	Aug 17 11:02 2016	Aug 17 11:02 2016	17 Aug 2016 10:55 am
15	15	Aug 17 12:23 2016	Aug 17 11:13 2016	17 Aug 2016 11:05 am
16	16	Aug 17 16:25 2016	Aug 17 16:25 2016	17 Aug 2016 4:14 pm
17	17	Aug 17 16:34 2016	Aug 17 16:34 2016	17 Aug 2016 4:27 pm
18	18	Aug 17 16:44 2016	Aug 17 16:44 2016	17 Aug 2016 4:37 pm

trip08172016.M Thu Aug 18 08:37:19 2016

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171603.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 8:12 am
Operator : MC
Sample : std s11-07191601 A
Misc :
ALS Vial : 3 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 08:35:54 2016
Quant Method : J:\GC20\METHODS\FG3C 05172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue May 17 15:46:05 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.693	12633	938.136	ppm	m
2)	Oxygen	1.454	599487	1084.193	ppm	
3)	Nitrogen	1.542	706803	1134.442	ppm	
4)	Carbon Monoxide	1.864	654272	1066.798	ppm	
5)	Methane	3.104	497238	1036.821	ppm	
6)	Carbon Dioxide	5.052	891864	1060.641	ppm	

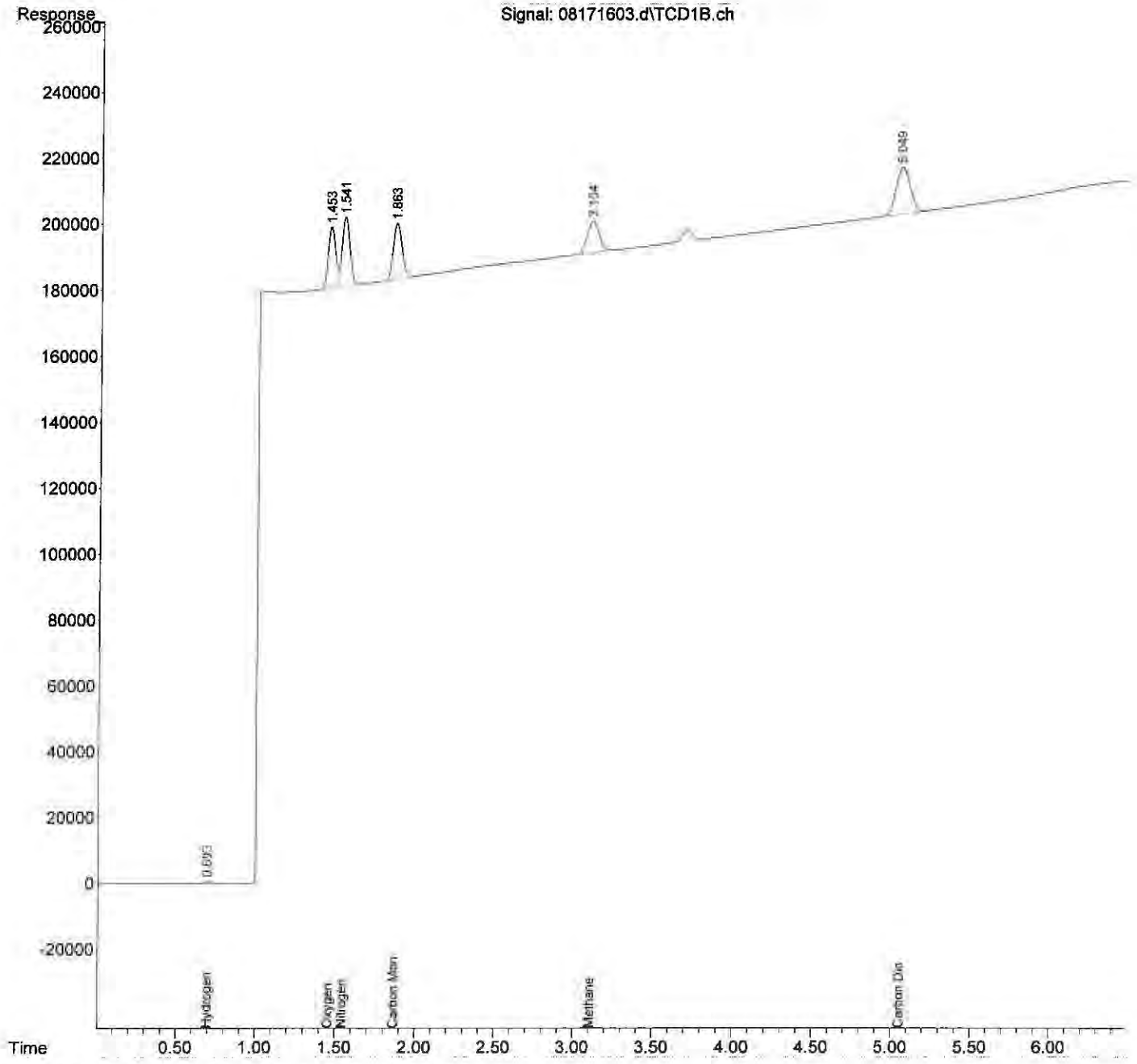
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171603.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 8:12 am
Operator : MC
Sample : std s11-07191601 A
Misc :
ALS Vial : 3 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 08:35:54 2016
Quant Method : J:\GC20\METHODS\FG3C 05172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue May 17 15:46:05 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

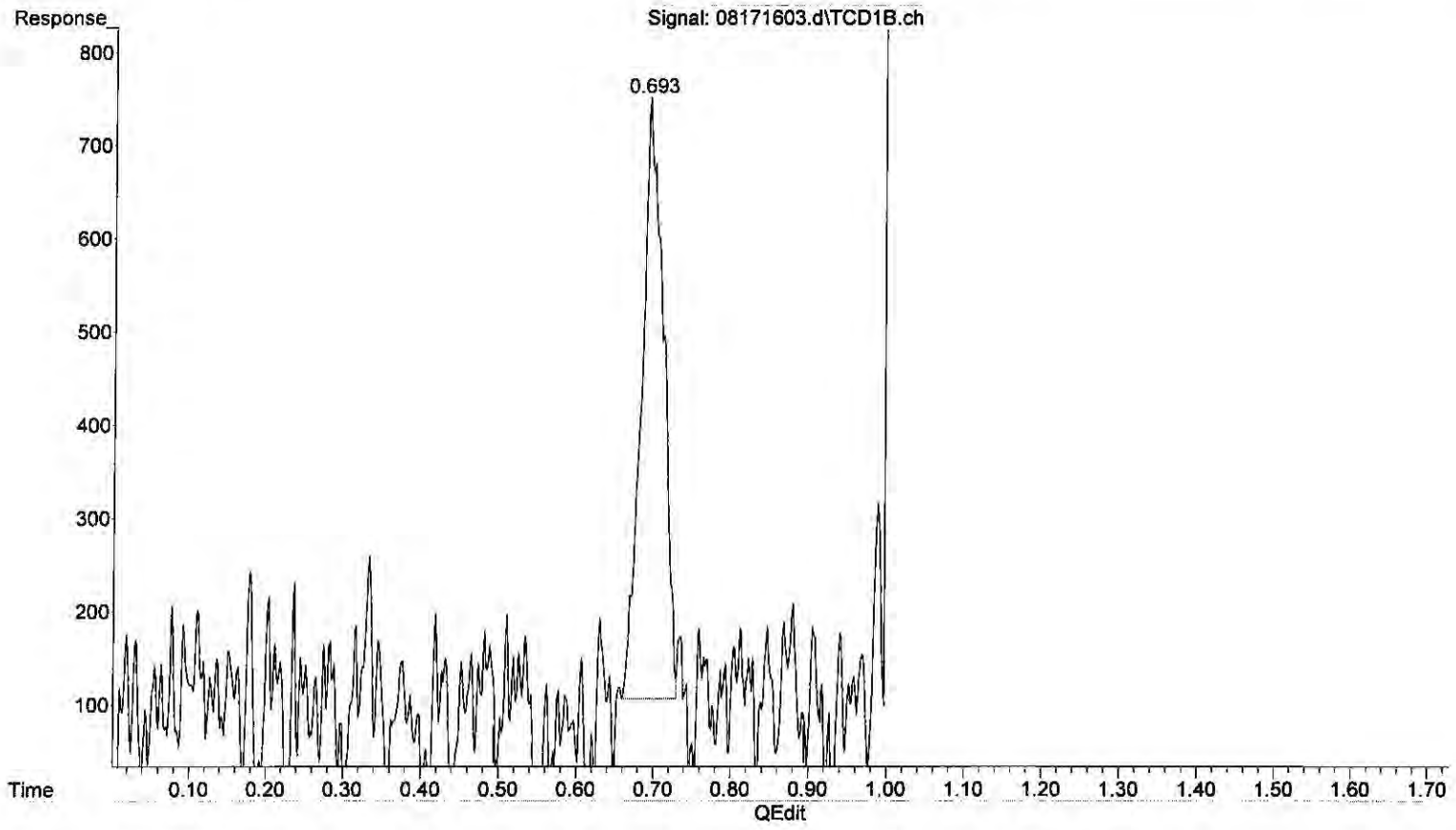


Quantitation Report (Qedit)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171603.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 8:12 am
Operator : MC
Sample : std s11-07191601 A
Misc :
ALS Vial : 3 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 08:35:54 2016
Quant Method : J:\GC20\METHODS\FG3C 05172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue May 17 15:46:05 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(1) Hydrogen

0.693min 938.136 ppm m

response 12633

MC 8/18/16

No prints

BLC

8/24/16

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171604.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 8:22 am
Operator : MC
Sample : std s11-07191601 B
Misc :
ALS Vial : 4 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 08:37:59 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 08:37:01 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.698	12158	922.186	ppm	m
2)	Oxygen	1.454	578671	1038.914	ppm	
3)	Nitrogen	1.542	695841	1114.835	ppm	
4)	Carbon Monoxide	1.865	621542	1003.463	ppm	
5)	Methane	3.101	478795	984.236	ppm	
6)	Carbon Dioxide	5.053	855705	1005.943	ppm	

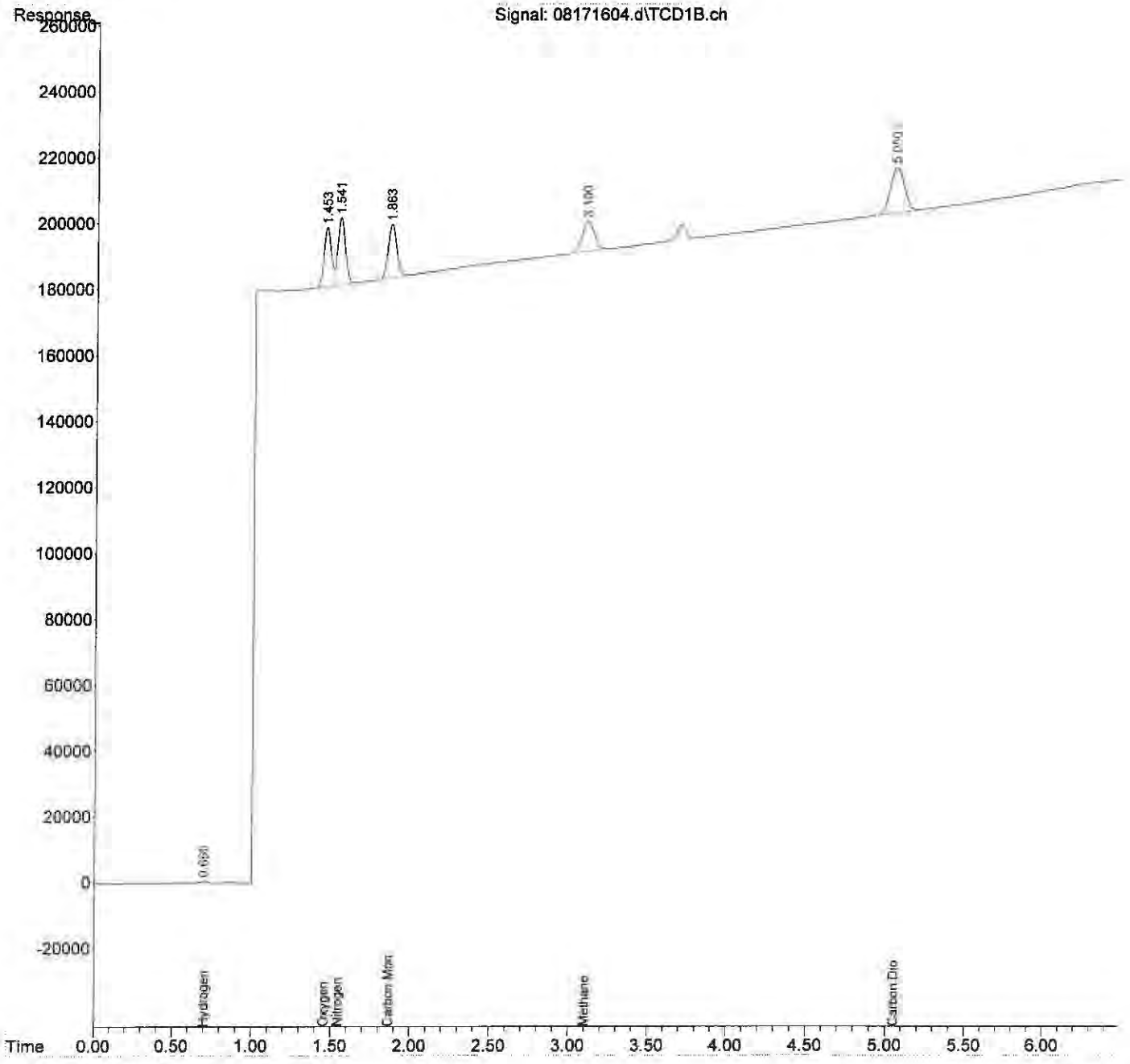
(f)=RT Delta > 1/2 Window (m)=manual int

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171604.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 8:22 am
Operator : MC
Sample : std s11-07191601 B
Misc :
ALS Vial : 4 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 08:37:59 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 08:37:01 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

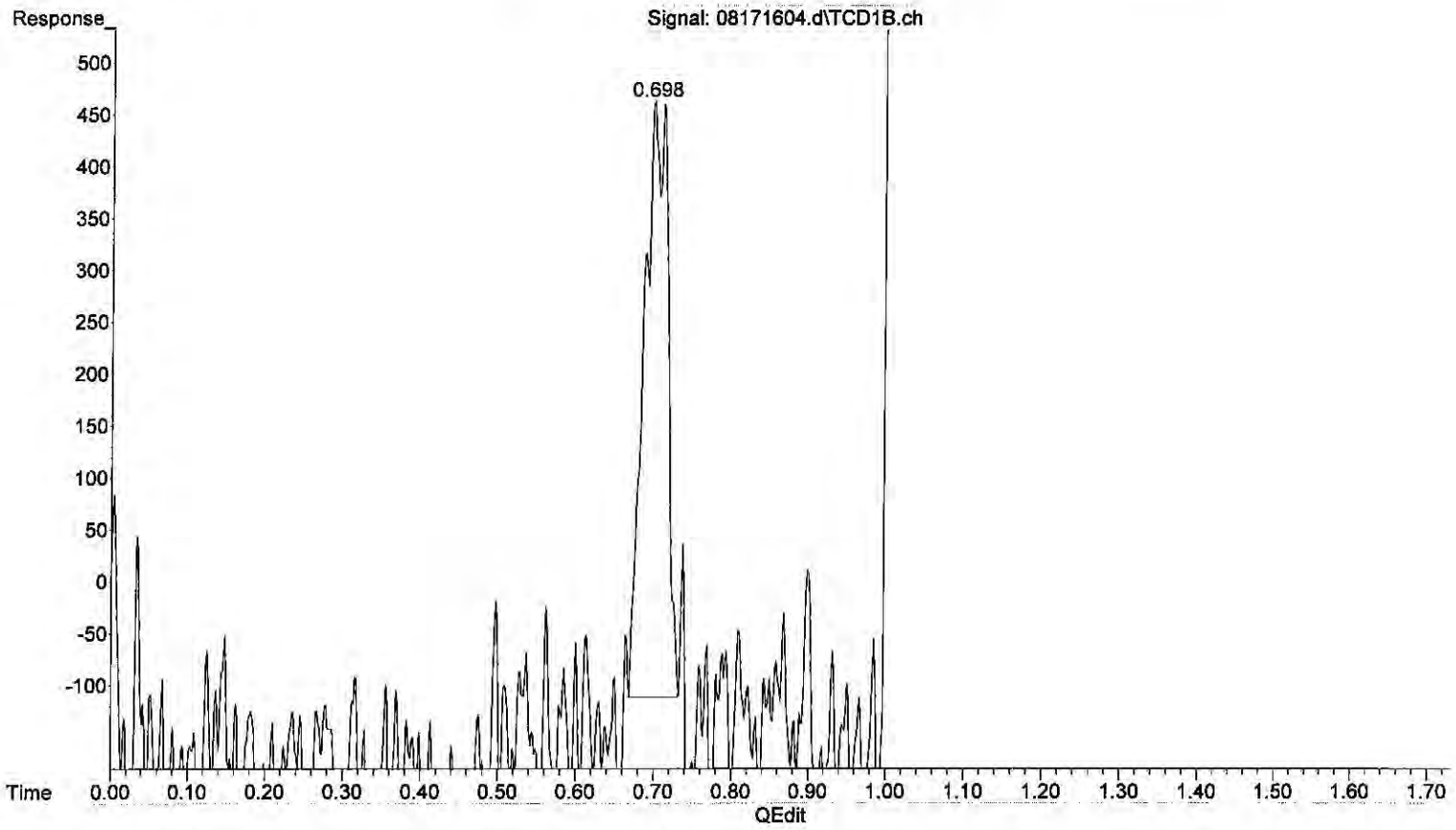


Quantitation Report (Qedit)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171604.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 8:22 am
Operator : MC
Sample : std s11-07191601 B
Misc :
ALS Vial : 4 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 08:37:59 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 08:37:01 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(1) Hydrogen
0.698min 922.186 ppm m
response 12158

8/18/16 ND Brwas 8/19/16

(+) = Expected Retention Time
trip08172016.M Wed Aug 17 17:13:10 2016

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171605.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 8:39 am
Operator : MC
Sample : std s11-07191601 C
Misc :
ALS Vial : 5 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 08:49:33 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 08:49:13 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

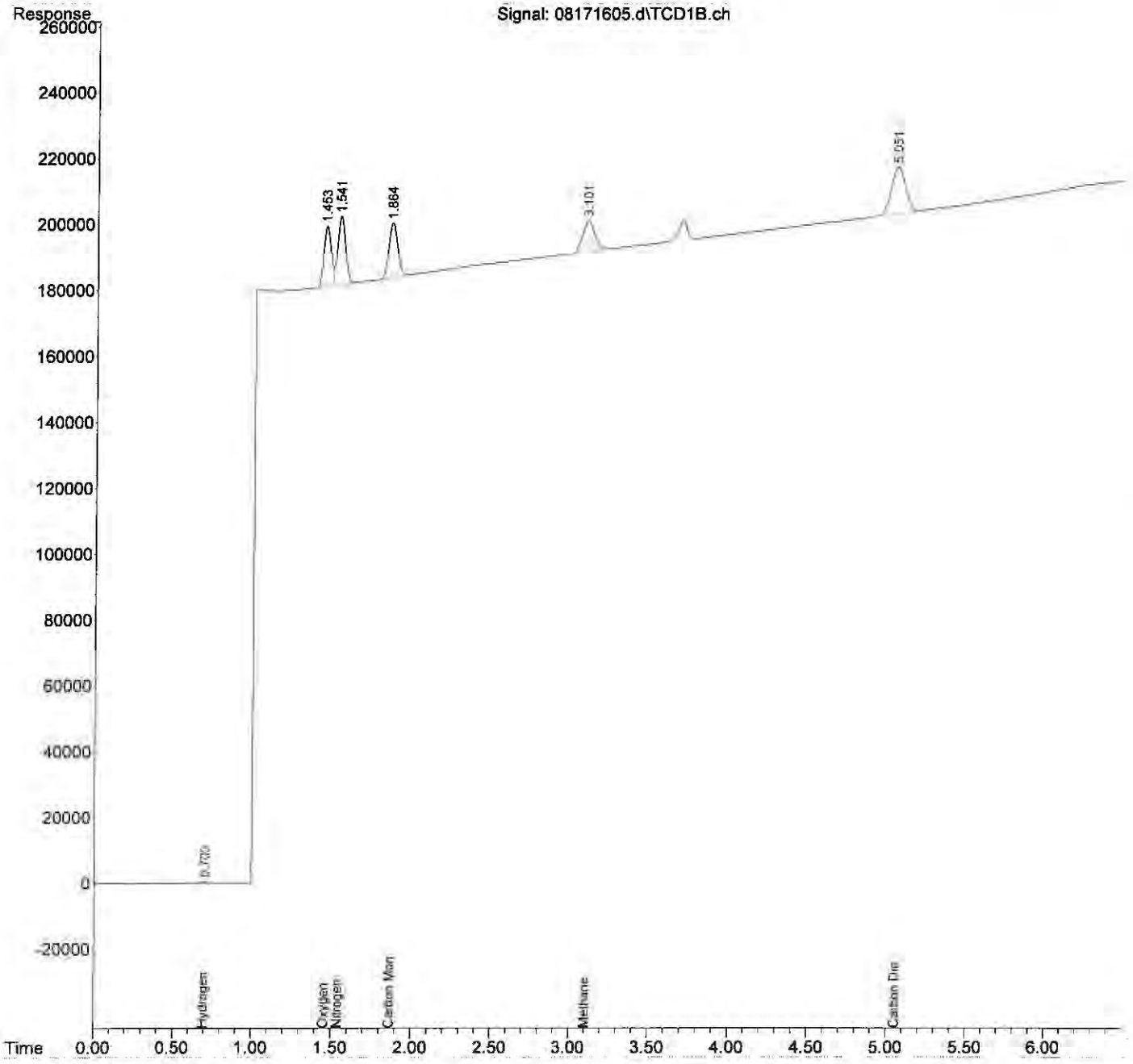
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.703	13114	1057.957	ppm	m
2)	Oxygen	1.454	593093	1006.814	ppm	
3)	Nitrogen	1.542	706599	1007.524	ppm	
4)	Carbon Monoxide	1.865	643507	1008.778	ppm	
5)	Methane	3.102	497159	1018.734	ppm	
6)	Carbon Dioxide	5.053	869984	995.651	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171605.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 8:39 am
Operator : MC
Sample : std s11-07191601 C
Misc :
ALS Vial : 5 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 08:49:33 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 08:49:13 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

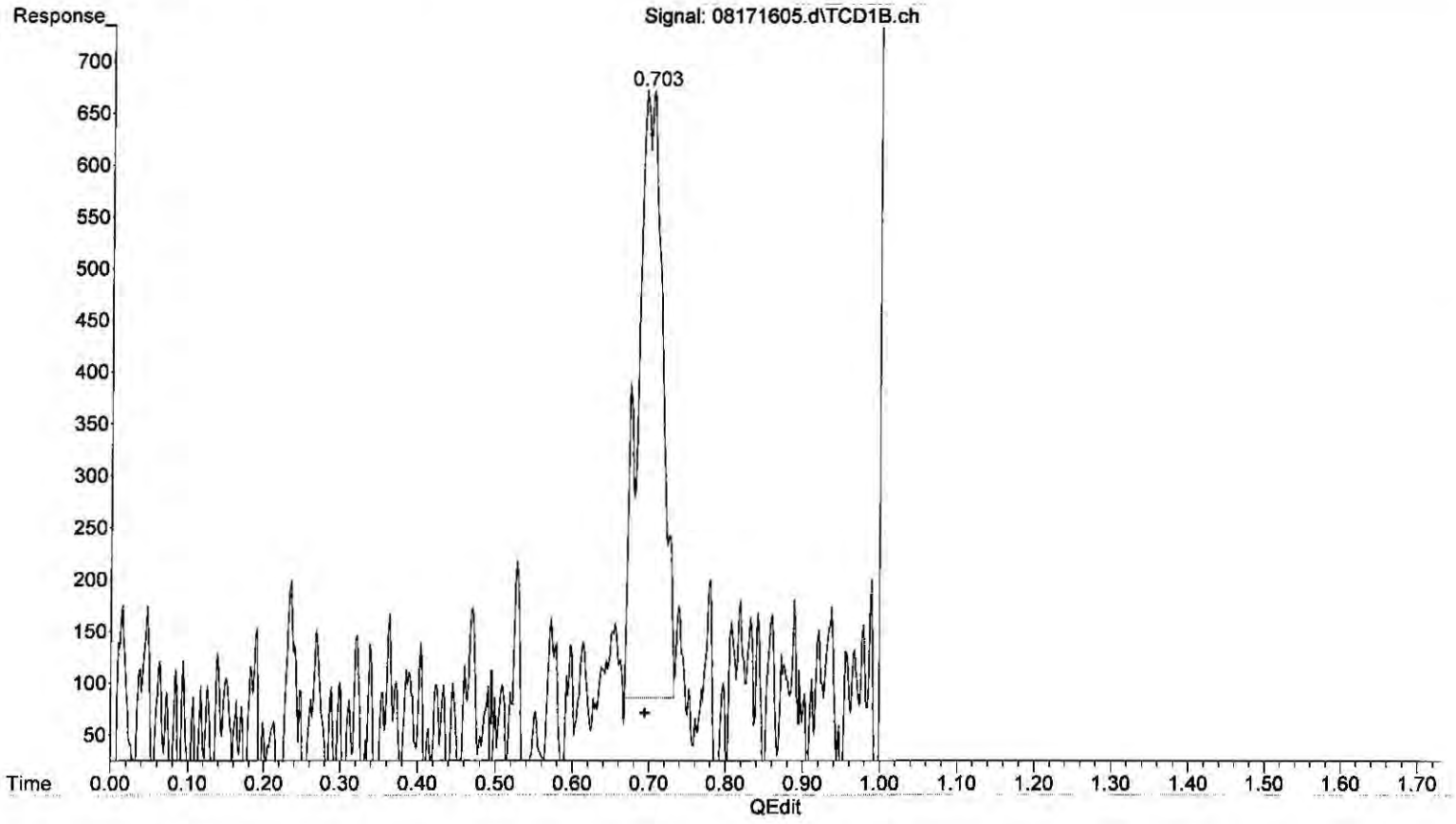


Quantitation Report (Qedit)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171605.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 8:39 am
Operator : MC
Sample : std s11-07191601 C
Misc :
ALS Vial : 5 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 08:49:33 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 08:49:13 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(1) Hydrogen

0.703min 1057.957 ppm m

response 13114

MC 8/17/16 No previous

BL

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171606.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 8:52 am
Operator : MC
Sample : std s11-12041503 A
Misc :
ALS Vial : 6 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 09:01:05 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 08:49:48 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.699	63333	5012.487	ppm	m
2)	Oxygen	1.453	2902297	4915.673	ppm	
3)	Nitrogen	1.542	3279195	4664.034	ppm	
4)	Carbon Monoxide	1.864	3095393	4838.263	ppm	
5)	Methane	3.101	2395679	4878.548	ppm	
6)	Carbon Dioxide	5.051	4229386	4847.337	ppm	

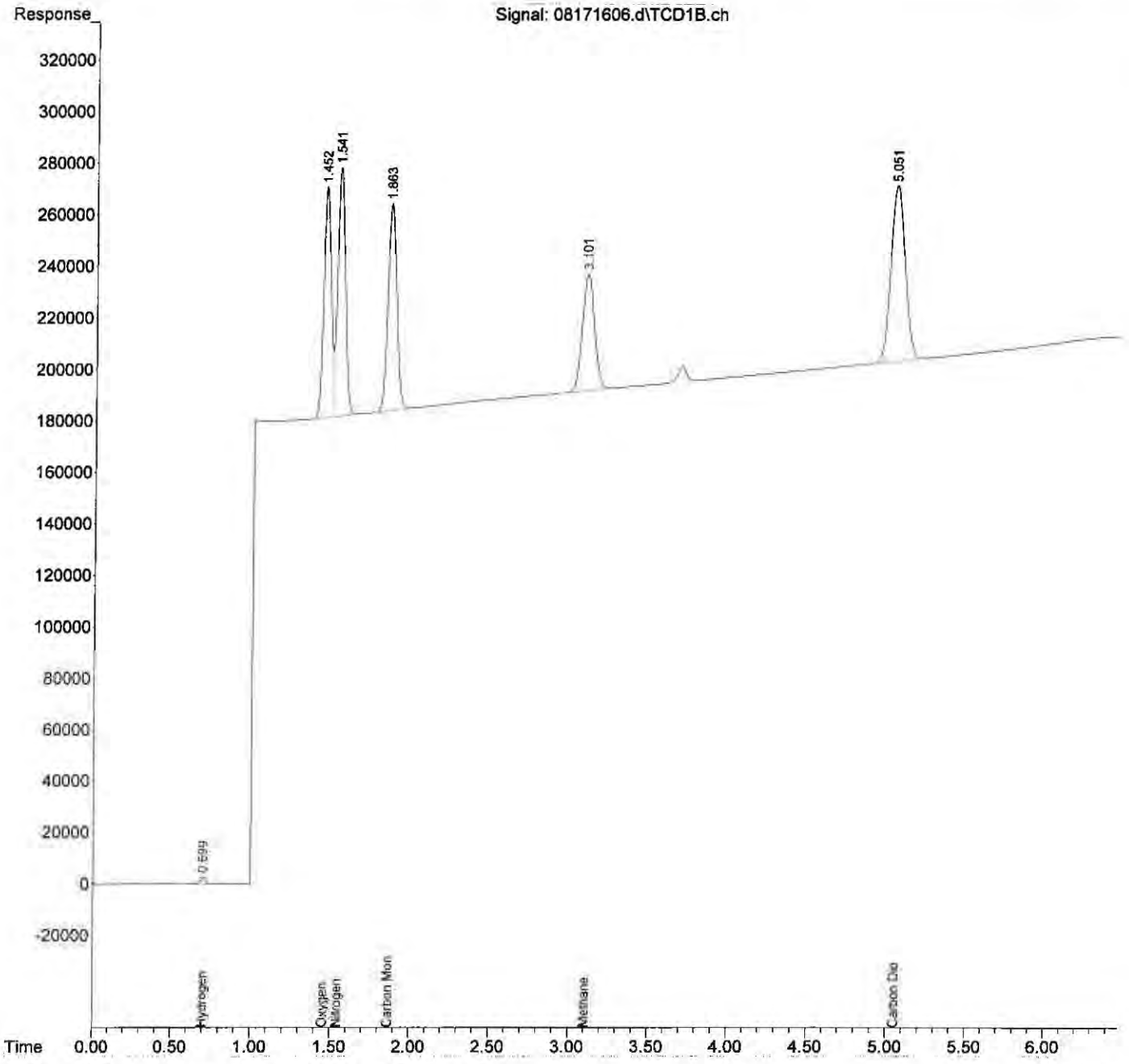
(f)=RT Delta > 1/2 Window (m)=manual int

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171606.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 8:52 am
Operator : MC
Sample : std s11-12041503 A
Misc :
ALS Vial : 6 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 09:01:05 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 08:49:48 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

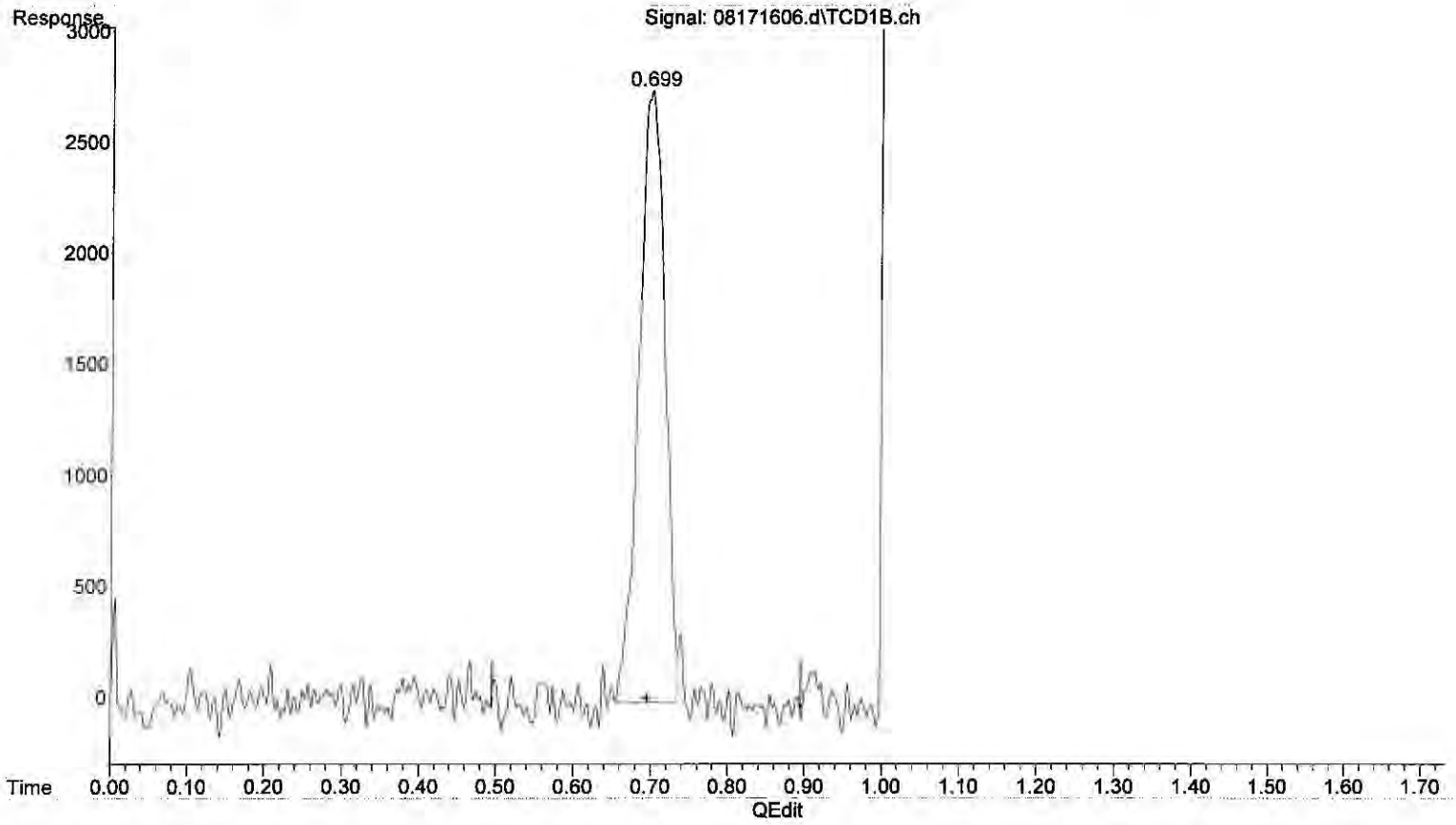


Quantitation Report (Qedit)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171606.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 8:52 am
Operator : MC
Sample : std s11-12041503 A
Misc :
ALS Vial : 6 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 09:01:05 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 08:49:48 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(1) Hydrogen

0.699min 5012.487 ppm m

response 63333

MC 8/18/16
pre
No previous

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171607.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 9:02 am
Operator : MC
Sample : std s11-12041503 B
Misc :
ALS Vial : 7 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 09:12:52 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 09:01:20 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.699	63821	5047.957	ppm	m
2)	Oxygen	1.454	2808317	4776.637	ppm	
3)	Nitrogen	1.542	3126903	4523.413	ppm	
4)	Carbon Monoxide	1.864	3087809	4865.757	ppm	
5)	Methane	3.102	2385753	4888.018	ppm	
6)	Carbon Dioxide	5.052	4223315	4877.610	ppm	

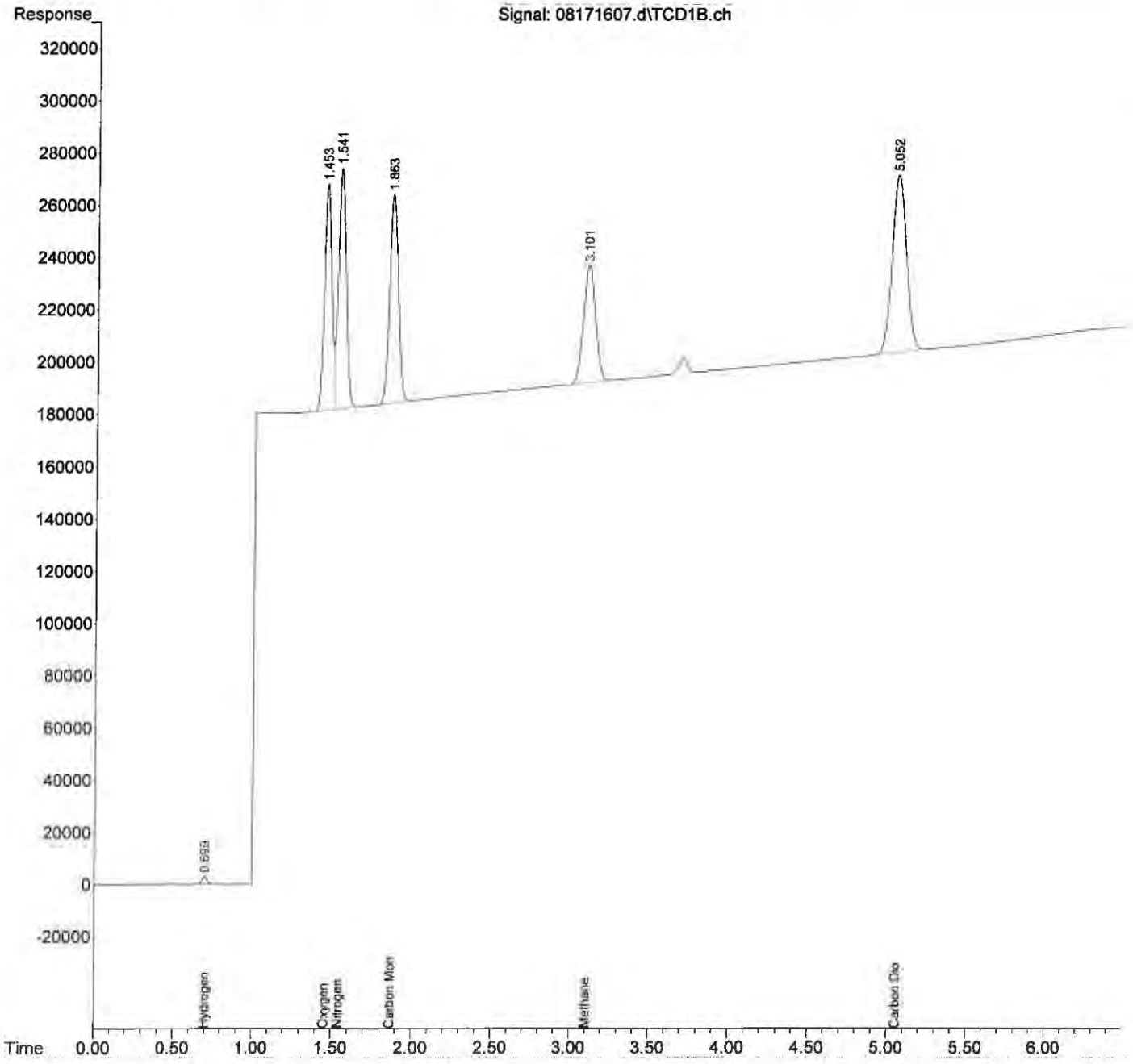
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171607.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 9:02 am
Operator : MC
Sample : std s11-12041503 B
Misc :
ALS Vial : 7 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 09:12:52 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 09:01:20 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

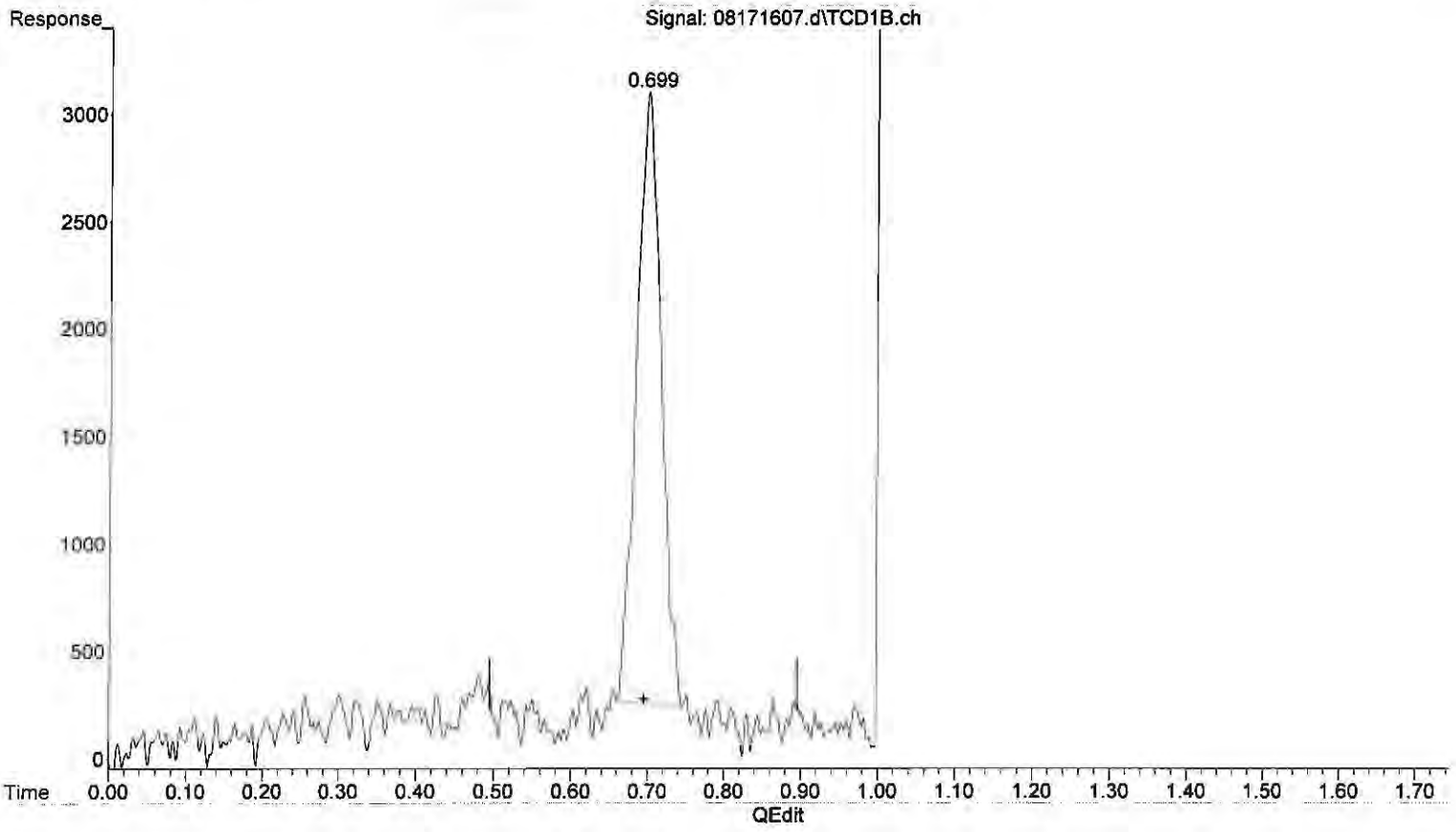


Quantitation Report (Qedit)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171607.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 9:02 am
Operator : MC
Sample : std s11-12041503 B
Misc :
ALS Vial : 7 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 09:12:52 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 09:01:20 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(1) Hydrogen

0.699min 5047.957 ppm m

response 63821

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171608.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 9:14 am
Operator : MC
Sample : std s11-12041503 C
Misc :
ALS Vial : 8 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 09:25:26 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 09:13:09 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

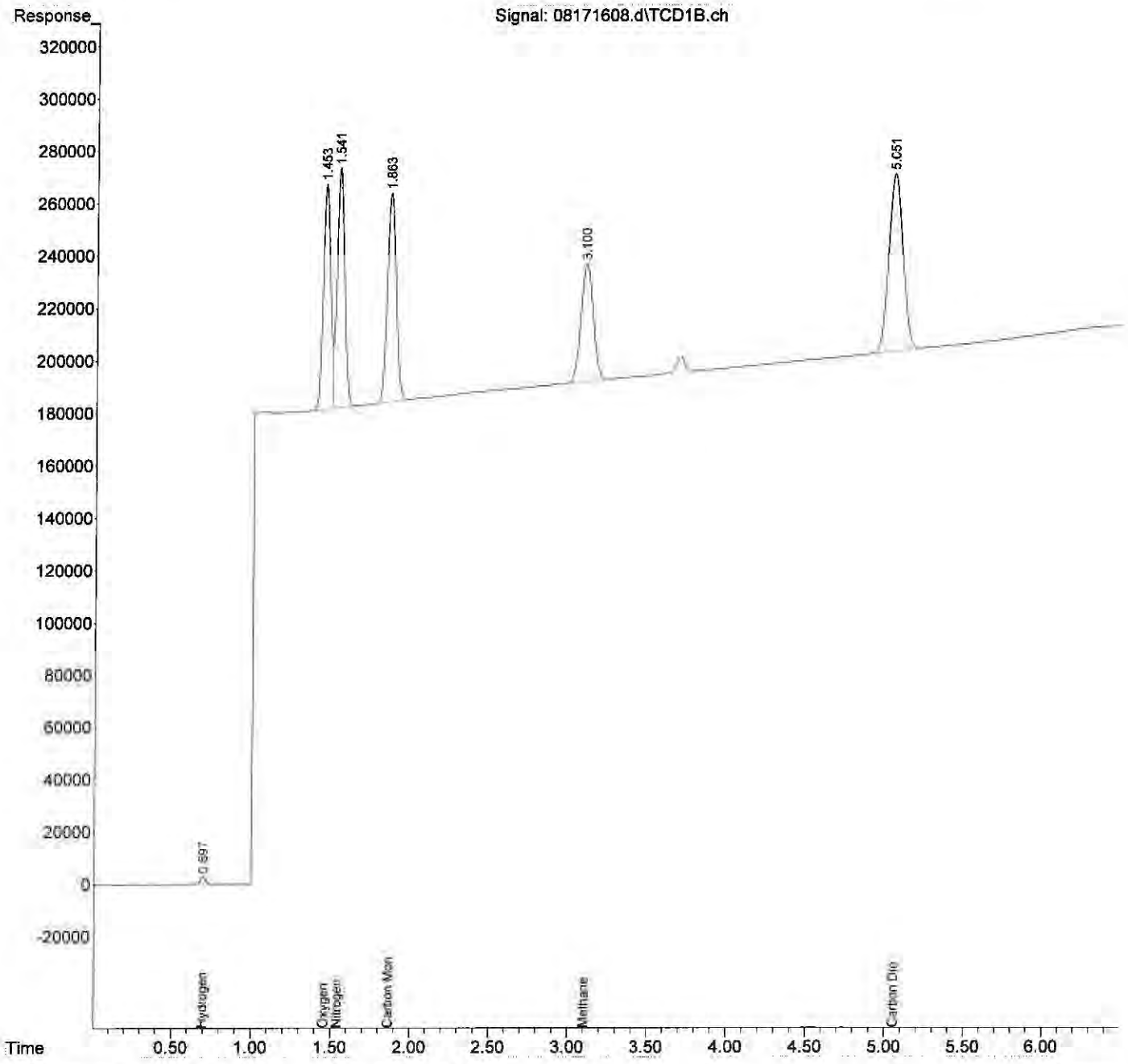
	Compound	R.T	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.697	68722	5425.153	ppm	m
2)	Oxygen	1.454	2786179	4781.704	ppm	
3)	Nitrogen	1.542	3111526	4588.644	ppm	
4)	Carbon Monoxide	1.864	3076917	4874.770	ppm	
5)	Methane	3.101	2367931	4873.333	ppm	
6)	Carbon Dioxide	5.052	4206309	4881.870	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171608.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 9:14 am
Operator : MC
Sample : std s11-12041503 C
Misc :
ALS Vial : 8 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 09:25:26 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 09:13:09 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

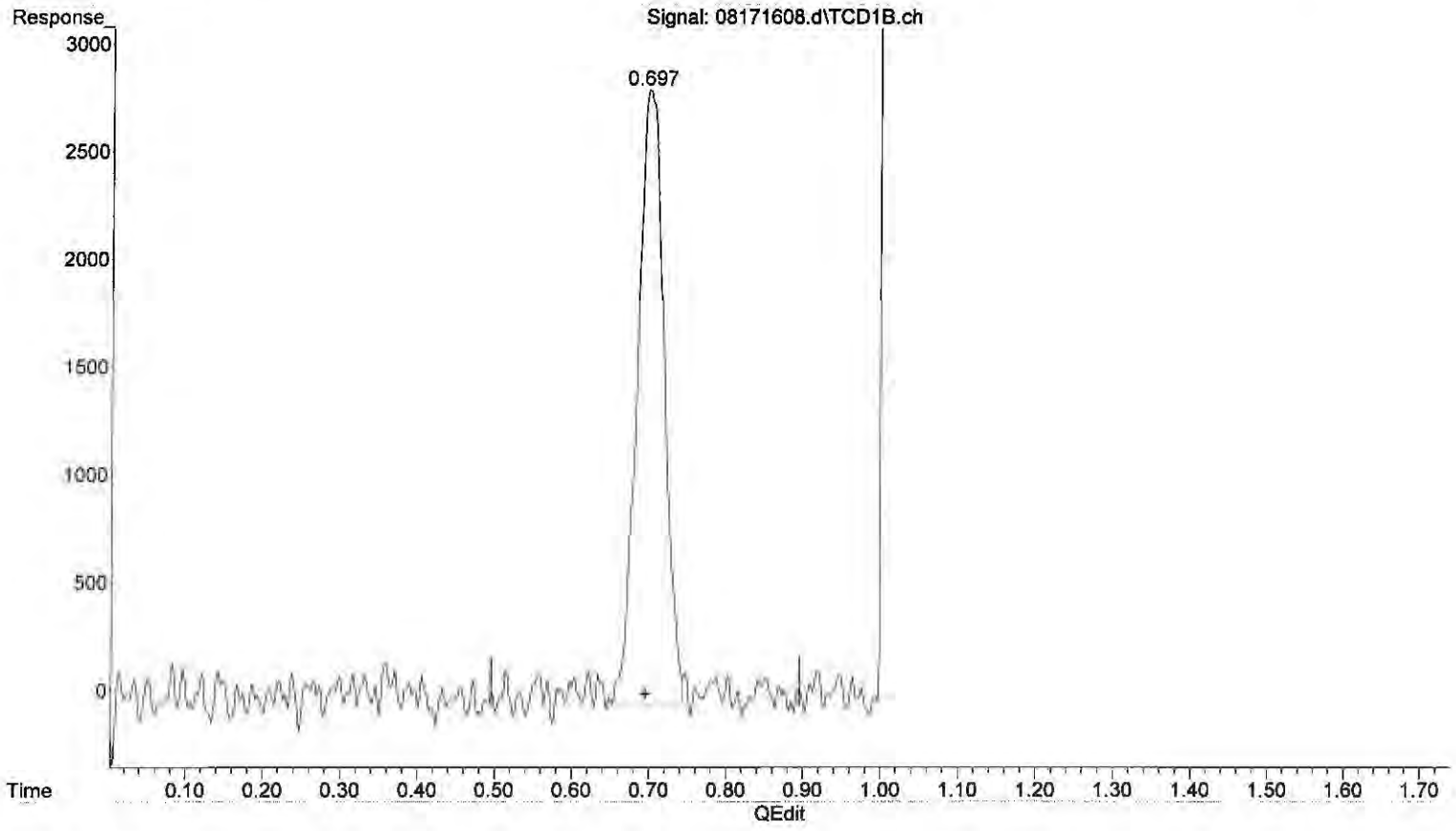


Quantitation Report (Qedit)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171608.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 9:14 am
Operator : MC
Sample : std s11-12041503 C
Misc :
ALS Vial : 8 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 09:25:26 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 09:13:09 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(1) Hydrogen

0.697min 5425.153 ppm m

response 68722

Me 8/18/17

BL

No previous

Cryptic

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171610.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 9:39 am
Operator : MC
Sample : std s11-12041502 A
Misc :
ALS Vial : 10 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 09:46:29 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 09:38:11 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.700	139987	10790.289	ppm
2)	Oxygen	1.453	5641237	9695.950	ppm
3)	Nitrogen	1.541	6229560	9165.921	ppm
4)	Carbon Monoxide	1.864	6240771	9941.480	ppm
5)	Methane	3.101	4808279	9949.447	ppm
6)	Carbon Dioxide	5.051	8523011	9956.802	ppm

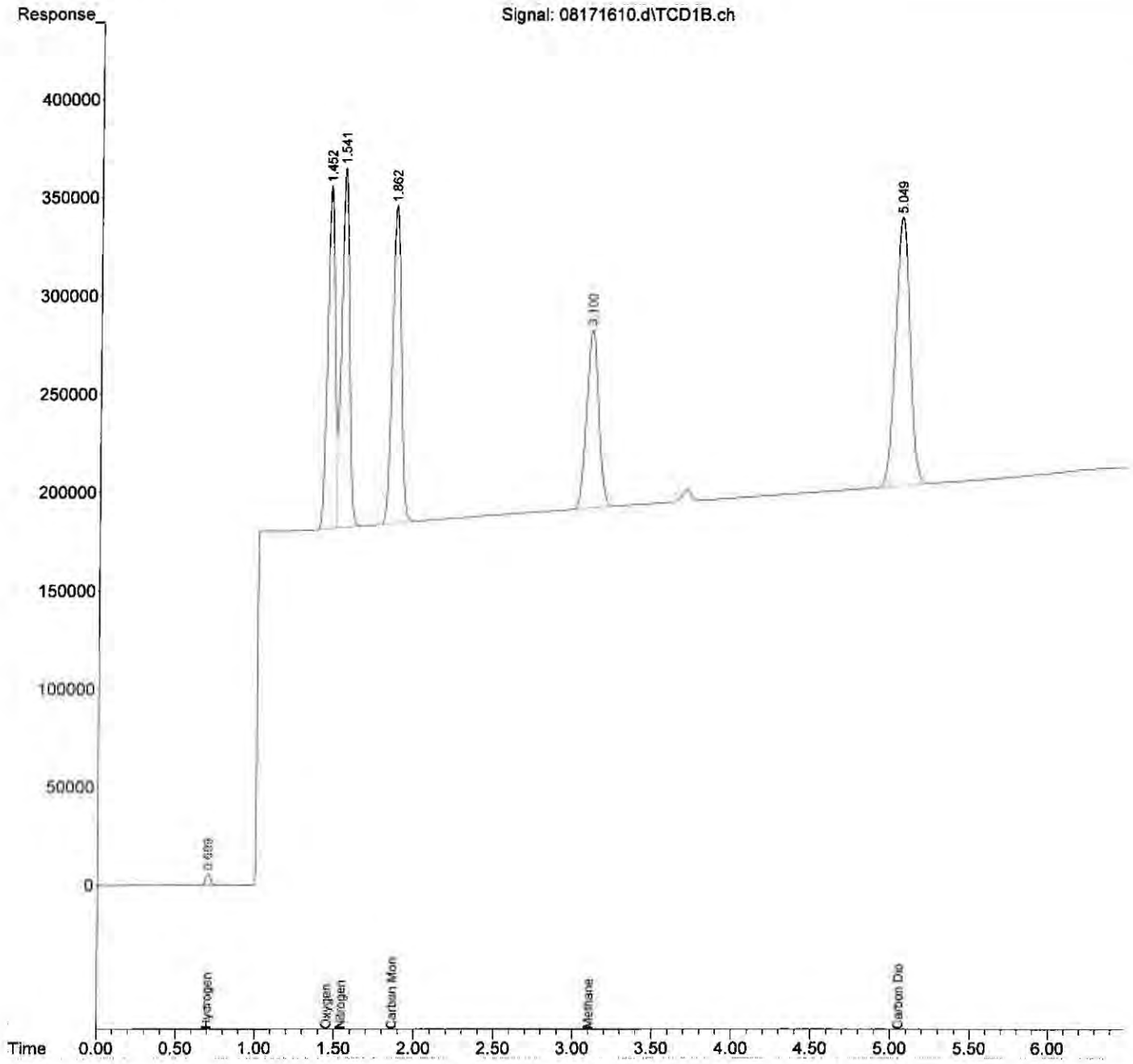
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171610.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 9:39 am
Operator : MC
Sample : std s11-12041502 A
Misc :
ALS Vial : 10 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 09:46:29 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 09:38:11 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171611.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 9:52 am
Operator : MC
Sample : std s11-12041502 B
Misc :
ALS Vial : 11 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 10:00:03 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 09:46:46 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.700	133582	10195.817	ppm	m
2)	Oxygen	1.453	5511743	9509.522	ppm	
3)	Nitrogen	1.542	6056059	9004.520	ppm	
4)	Carbon Monoxide	1.863	6107195	9735.817	ppm	
5)	Methane	3.101	4716089	9764.854	ppm	
6)	Carbon Dioxide	5.051	8358886	9770.343	ppm	

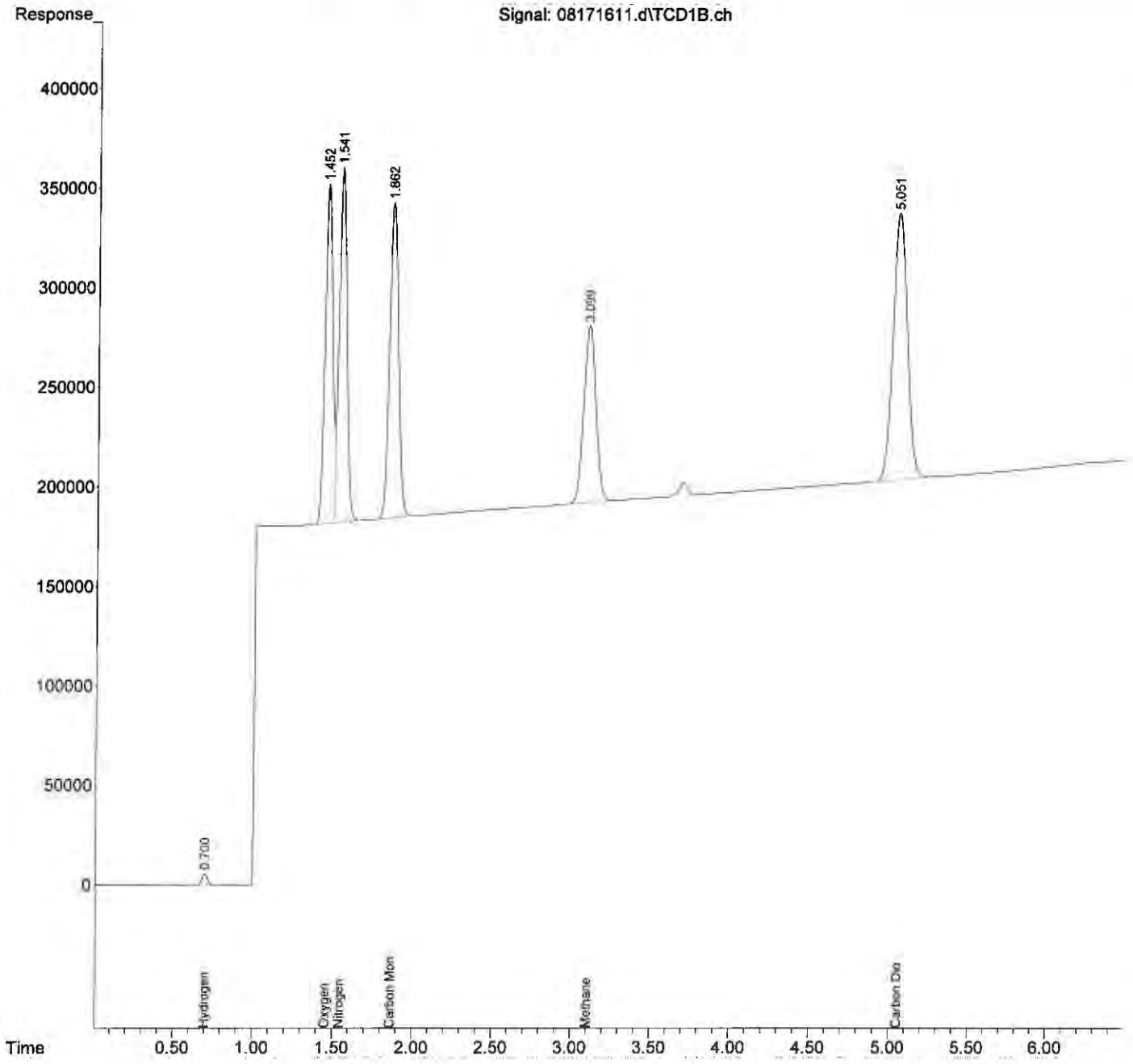
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171611.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 9:52 am
Operator : MC
Sample : std s11-12041502 B
Misc :
ALS Vial : 11 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 10:00:03 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 09:46:46 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

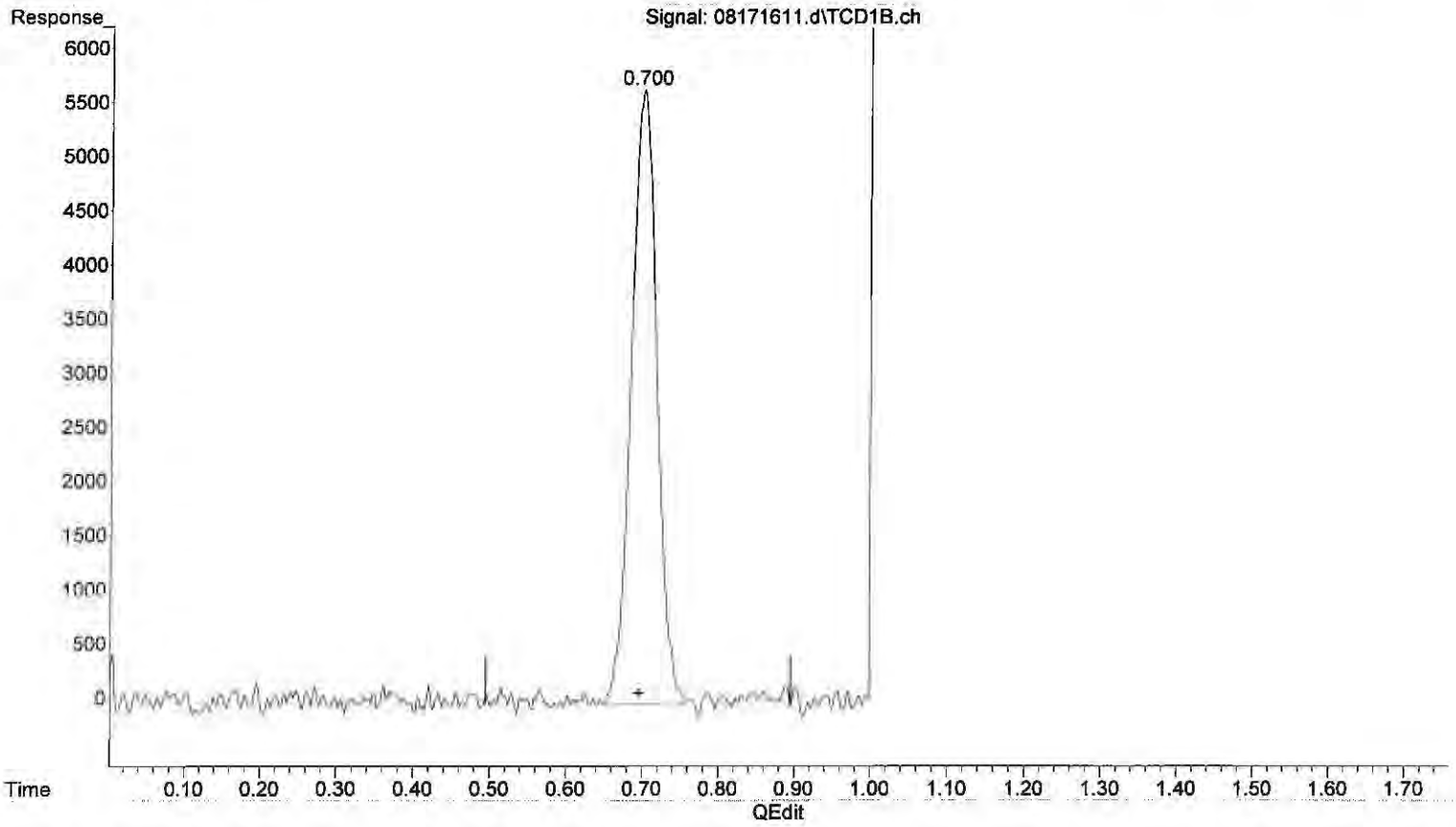


Quantitation Report (Qedit)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171611.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 9:52 am
Operator : MC
Sample : std s11-12041502 B
Misc :
ALS Vial : 11 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 10:00:03 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 09:46:46 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(1) Hydrogen

0.700min 10195.817 ppm m

response 133582

No previous MC 8/18/16

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171612.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 10:02 am
Operator : MC
Sample : std s11-12041502 C
Misc :
ALS Vial : 12 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 10:09:48 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 10:09:30 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc Units
Target Compounds				
1)	Hydrogen	0.699	140993	10772.355 ppm
2)	Oxygen	1.453	5643307	9886.889 ppm
3)	Nitrogen	1.542	6192495	9531.908 ppm
4)	Carbon Monoxide	1.864	6257030	10025.756 ppm
5)	Methane	3.101	4820927	10027.093 ppm
6)	Carbon Dioxide	5.051	8536304	10012.043 ppm

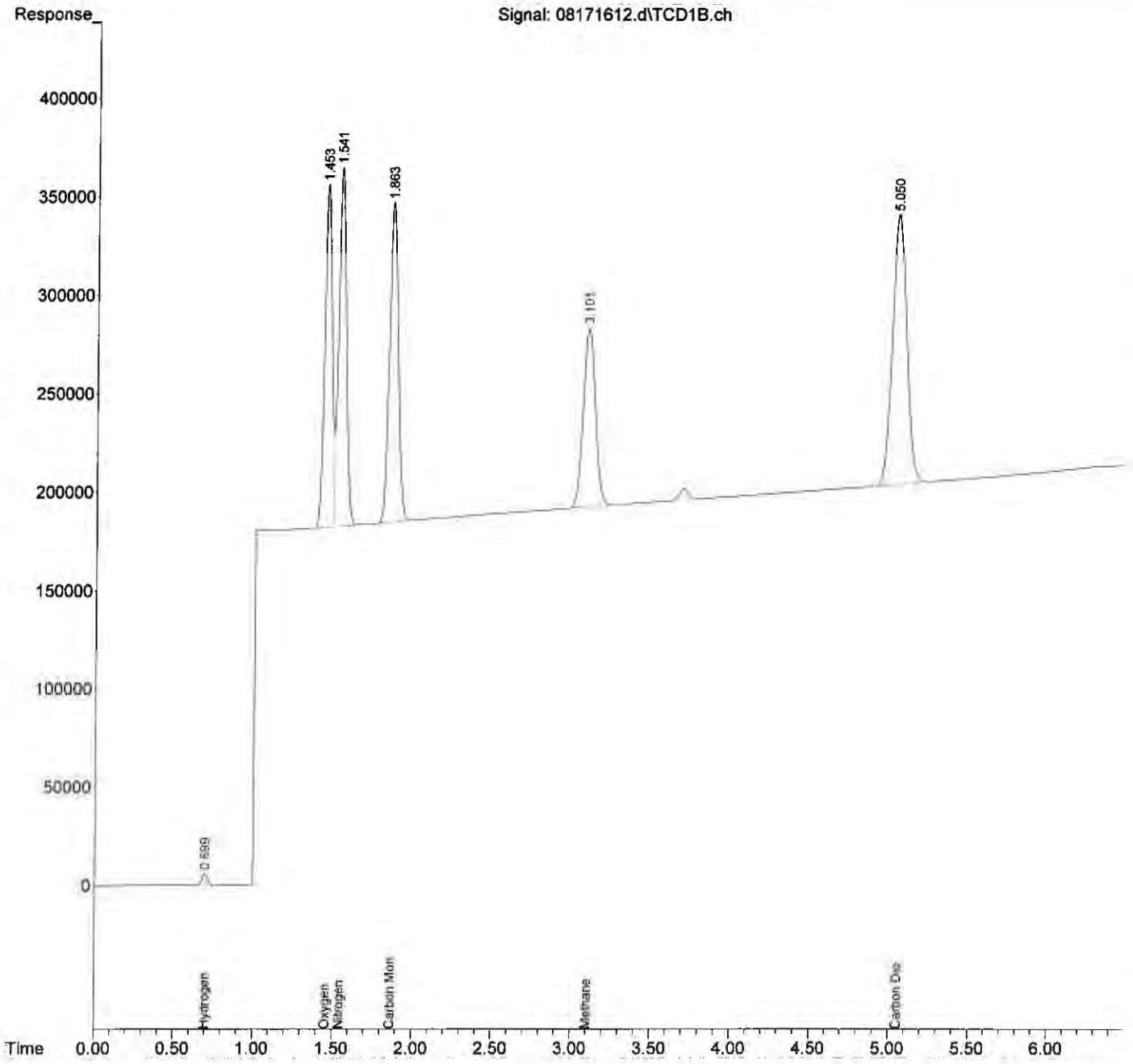
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171612.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 10:02 am
Operator : MC
Sample : std s11-12041502 C
Misc :
ALS Vial : 12 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 10:09:48 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 10:09:30 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171613.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 10:12 am
Operator : MC
Sample : std s11-12041501 A
Misc :
ALS Vial : 13 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 10:19:45 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 10:10:14 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.699	580730	44092.431	ppm	m
2)	Oxygen	1.451	23935635	41827.326	ppm	
3)	Nitrogen	1.539	26073540	40040.721	ppm	
4)	Carbon Monoxide	1.861	26728290	42713.294	ppm	
5)	Methane	3.098	20612017	42767.522	ppm	
6)	Carbon Dioxide	5.046	36504454	42716.505	ppm	

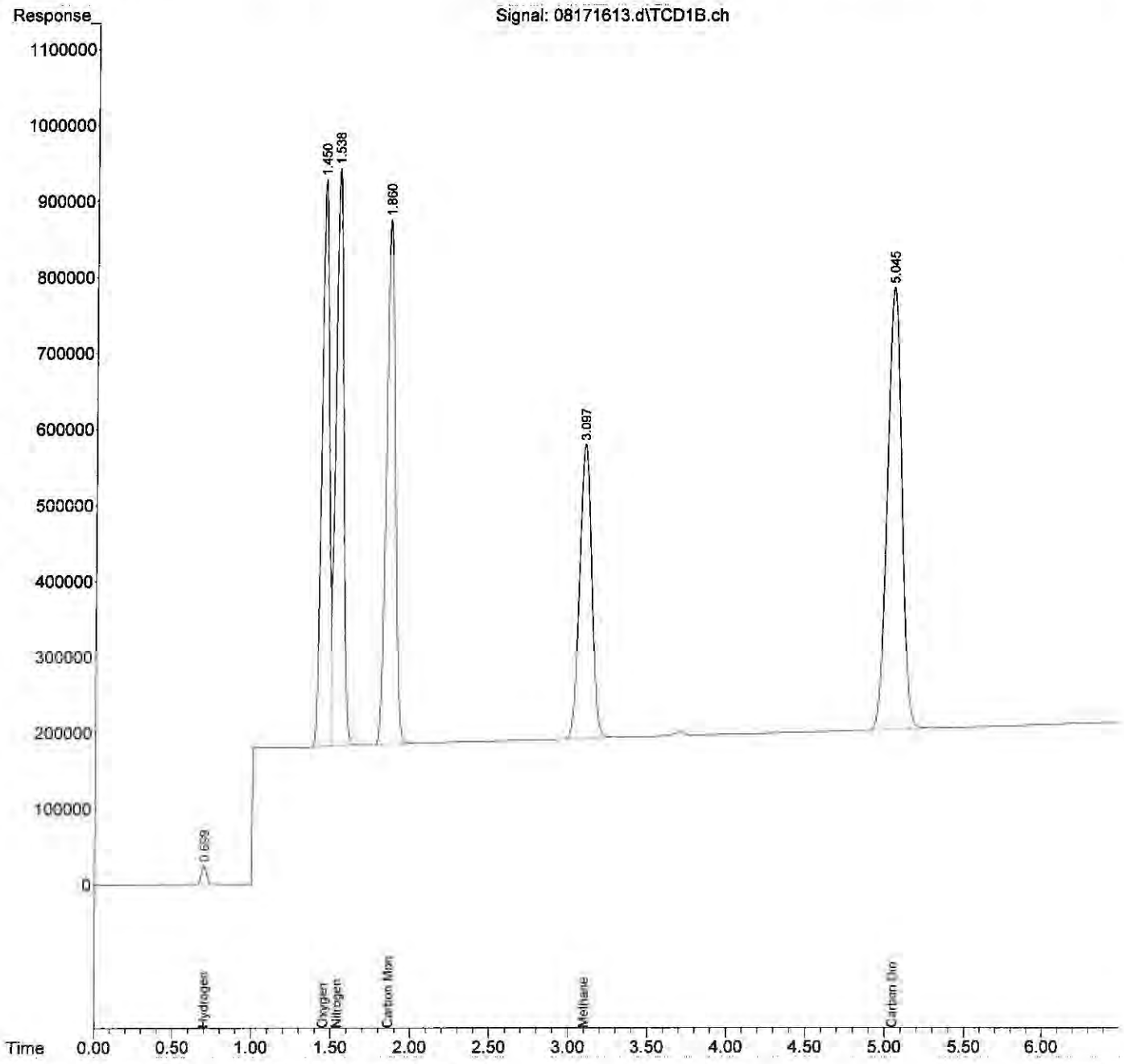
(f)=RT Delta > 1/2 Window (m)=manual int

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171613.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 10:12 am
Operator : MC
Sample : std s11-12041501 A
Misc :
ALS Vial : 13 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 10:19:45 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 10:10:14 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

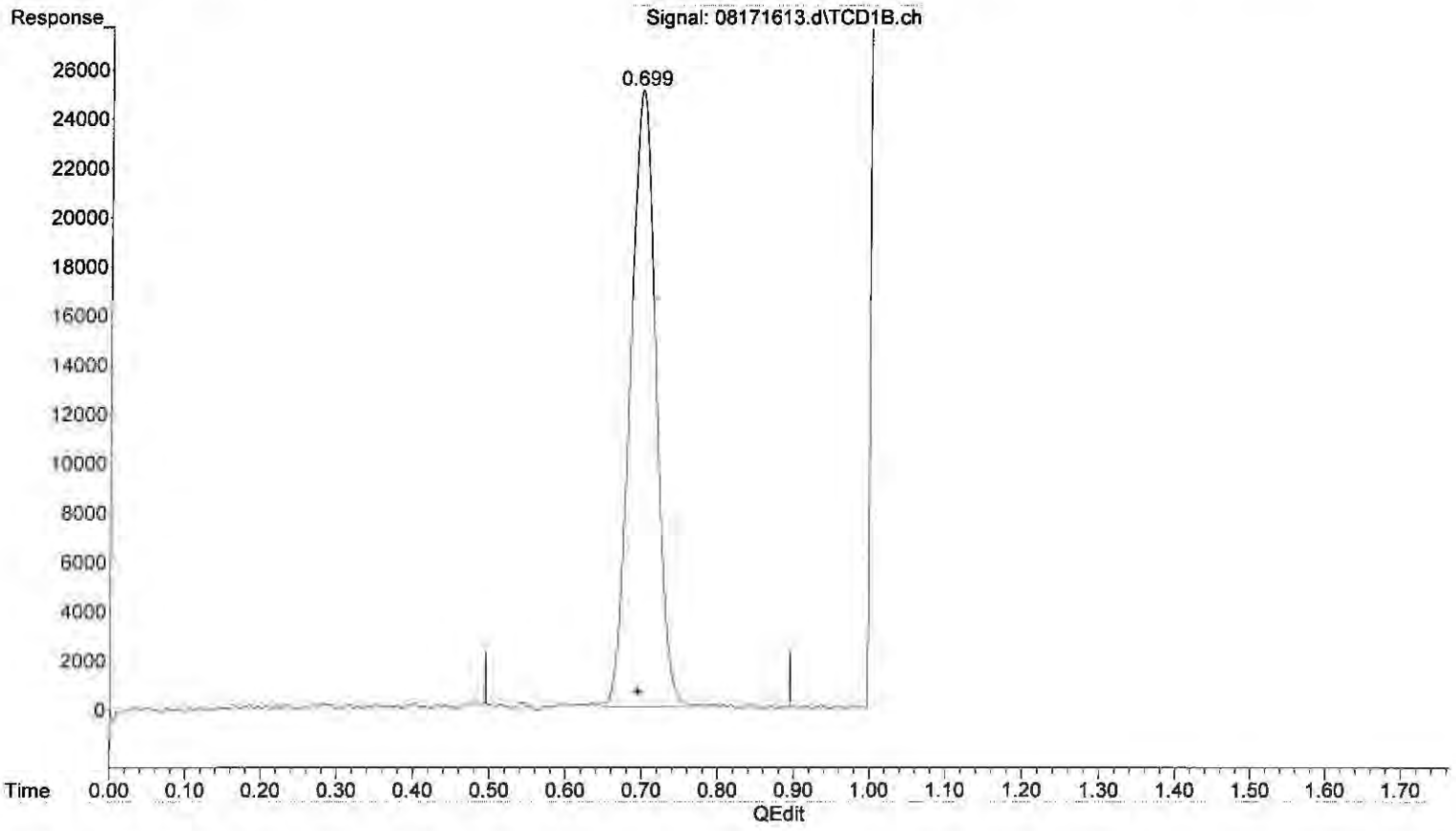


Quantitation Report (Qedit)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171613.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 10:12 am
Operator : MC
Sample : std s11-12041501 A
Misc :
ALS Vial : 13 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 10:19:45 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 10:10:14 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(1) Hydrogen

0.699min 44092.431 ppm m

response 580730

MC 8/18/16

BLL

No peaks

Log date

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171614.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 10:22 am
Operator : MC
Sample : std s11-12041501 B
Misc :
ALS Vial : 14 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 10:30:18 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 10:20:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.699	582048	43744.935	ppm
2)	Oxygen	1.451	23826599	41447.441	ppm
3)	Nitrogen	1.539	25956733	39857.285	ppm
4)	Carbon Monoxide	1.861	26619278	42252.478	ppm
5)	Methane	3.098	20516544	42276.919	ppm
6)	Carbon Dioxide	5.046	36414212	42323.476	ppm

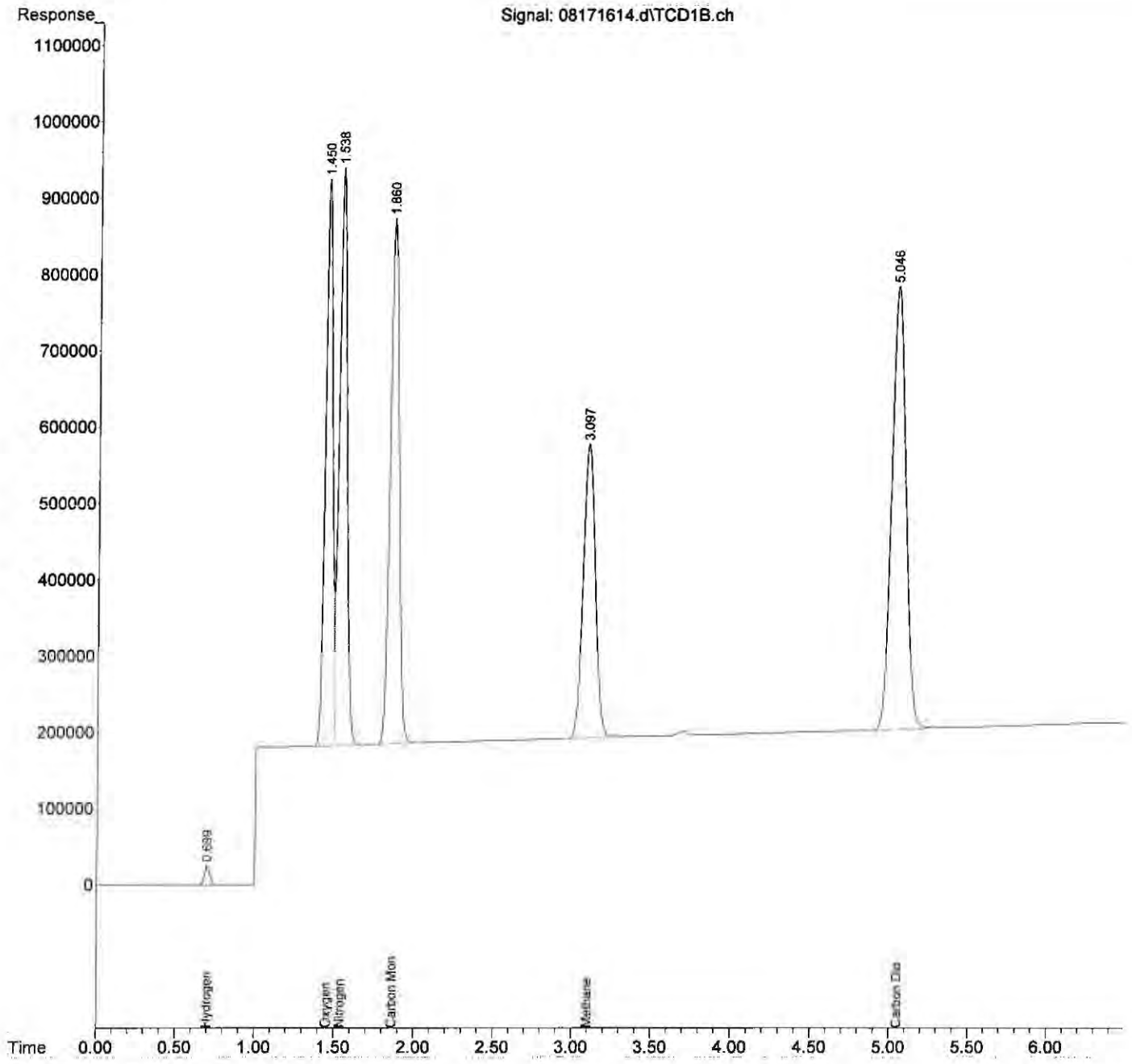
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171614.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 10:22 am
Operator : MC
Sample : std s11-12041501 B
Misc :
ALS Vial : 14 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 10:30:18 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 10:20:03 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171615.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 10:31 am
Operator : MC
Sample : std s11-12041501 C
Misc :
ALS Vial : 15 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 10:39:11 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 10:30:33 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.697	584213	43537.151	ppm	m
2)	Oxygen	1.450	23862517	41373.818	ppm	
3)	Nitrogen	1.538	25991568	39923.725	ppm	
4)	Carbon Monoxide	1.861	26651664	42088.421	ppm	
5)	Methane	3.098	20570476	42169.834	ppm	
6)	Carbon Dioxide	5.046	36463544	42158.192	ppm	

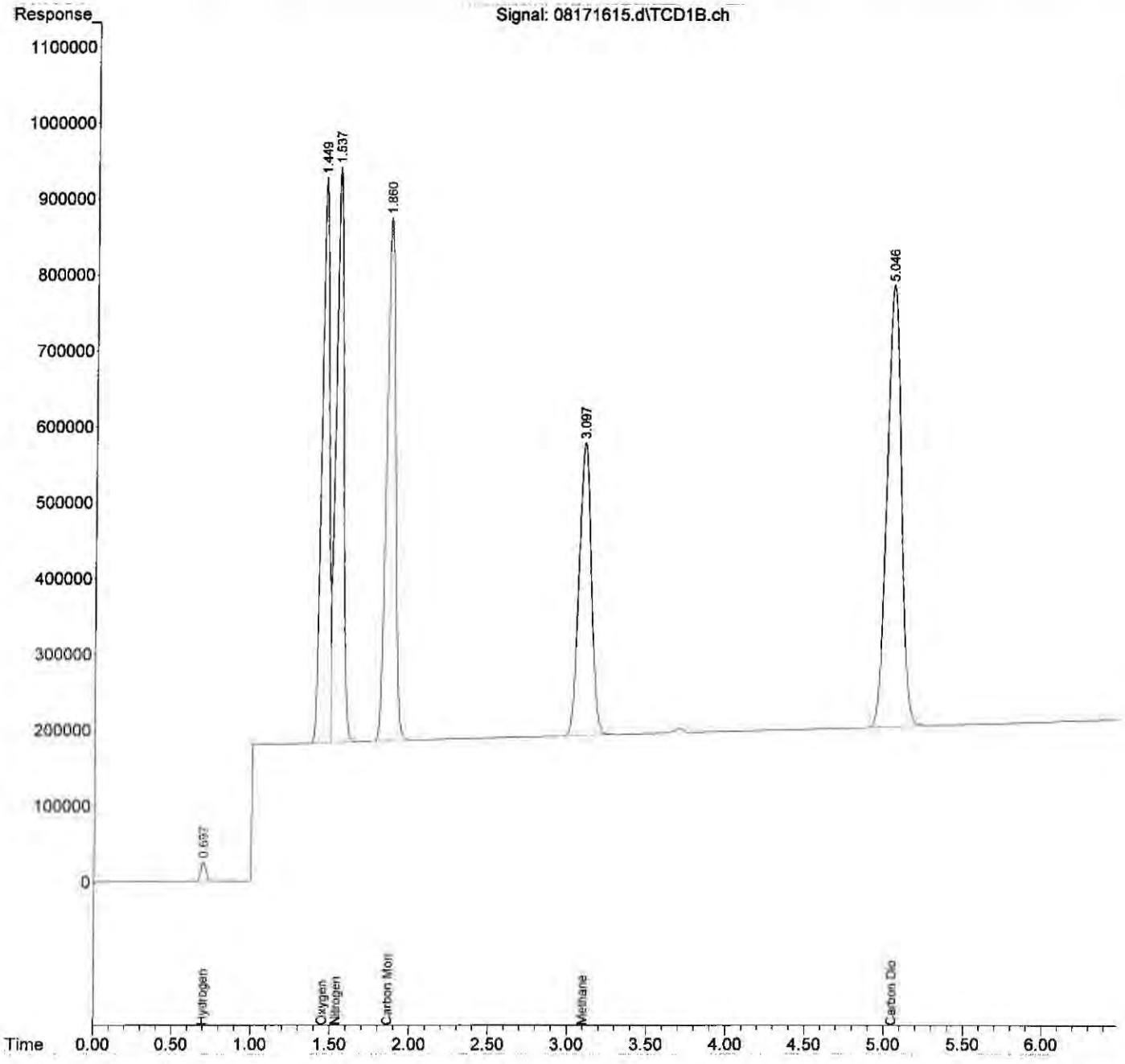
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171615.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 10:31 am
Operator : MC
Sample : std s11-12041501 C
Misc :
ALS Vial : 15 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 10:39:11 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 10:30:33 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

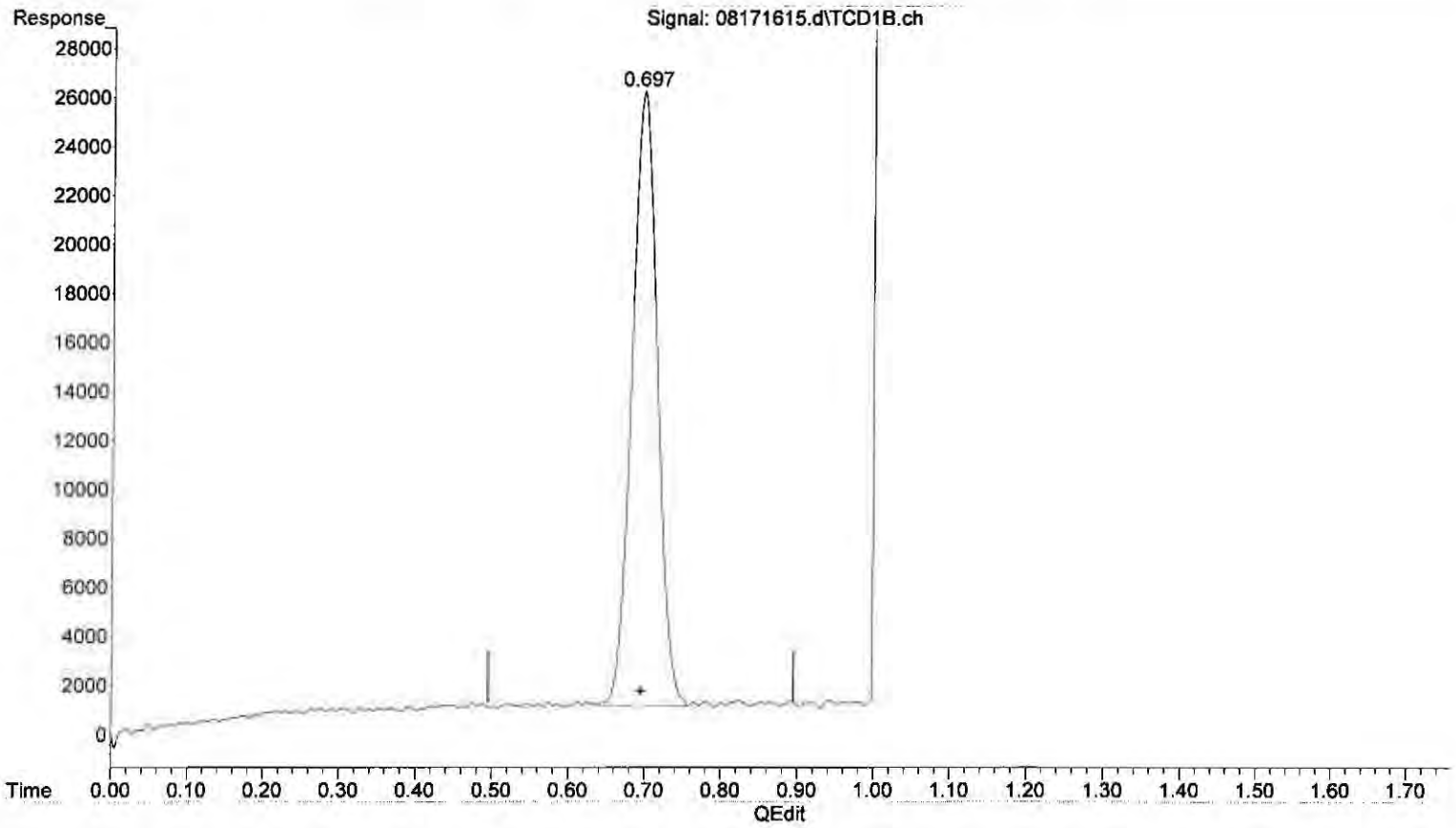


Quantitation Report (Qedit)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171615.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 10:31 am
Operator : MC
Sample : std s11-12041501 C
Misc :
ALS Vial : 15 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 10:39:11 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 10:30:33 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



(1) Hydrogen

0.697min 43537.151 ppm m

response 584213

MC 8/18/16

BL

No

Private

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171616.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 10:42 am
Operator : MC
Sample : std s11-12031501 A
Misc :
ALS Vial : 16 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 10:50:04 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 10:39:25 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

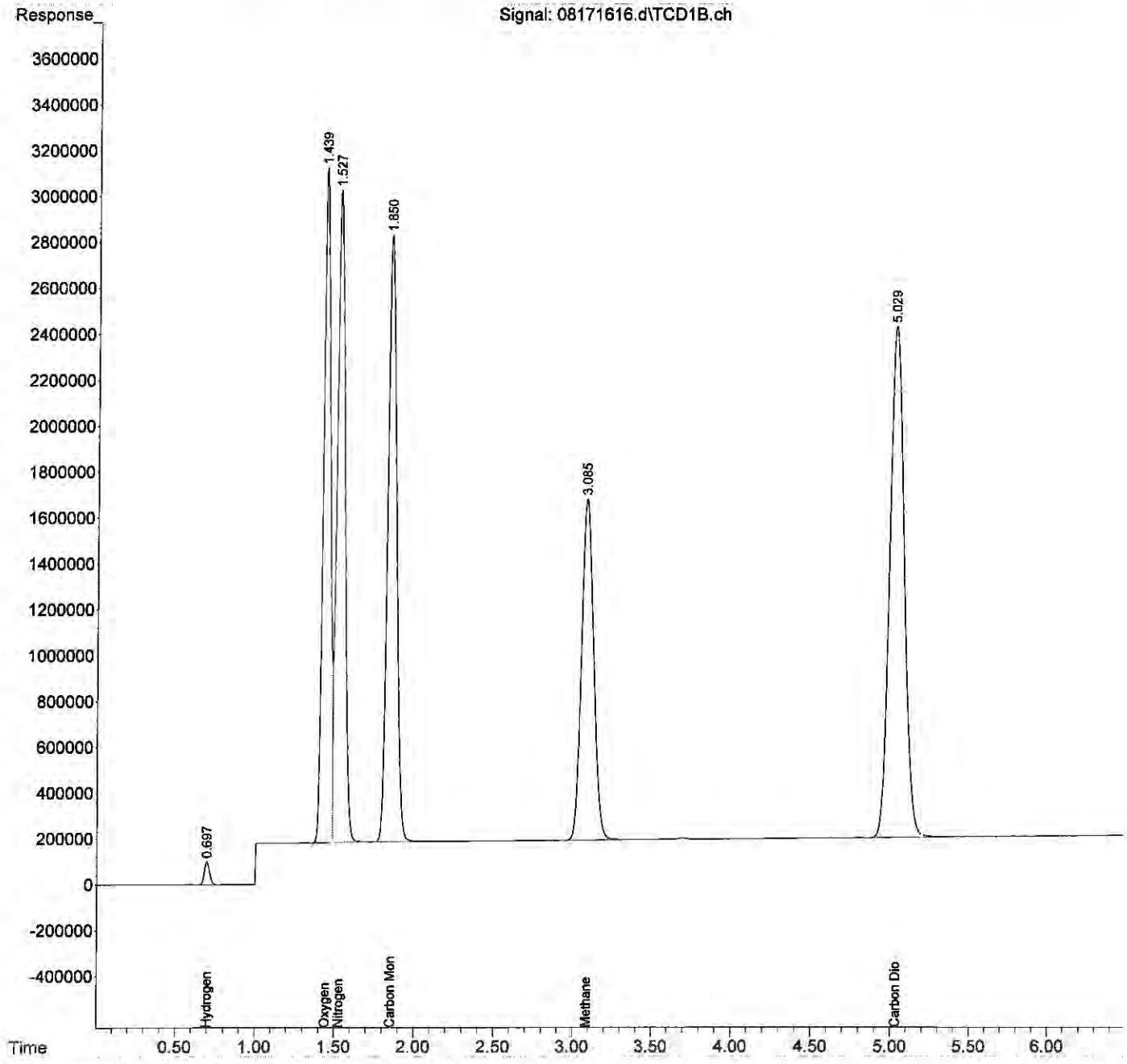
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.697	2288591	169304.321	ppm
2)	Oxygen	1.440	92172159	159355.800	ppm
3)	Nitrogen	1.528	100943913	155077.121	ppm
4)	Carbon Monoxide	1.851	103484437	162715.112	ppm
5)	Methane	3.086	79878978	163016.378	ppm
6)	Carbon Dioxide	5.030	141358480	162703.409	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171616.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 10:42 am
Operator : MC
Sample : std s11-12031501 A
Misc :
ALS Vial : 16 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 10:50:04 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 10:39:25 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171617.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 10:55 am
Operator : MC
Sample : std s11-12041501 B
Misc :
ALS Vial : 17 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 11:02:21 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 10:52:43 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.697	2289657	168628.854	ppm
2)	Oxygen	1.440	92464939	159911.512	ppm
3)	Nitrogen	1.528	101263115	155936.567	ppm
4)	Carbon Monoxide	1.850	103800819	162999.810	ppm
5)	Methane	3.085	80151028	163334.711	ppm
6)	Carbon Dioxide	5.030	142064571	163303.870	ppm

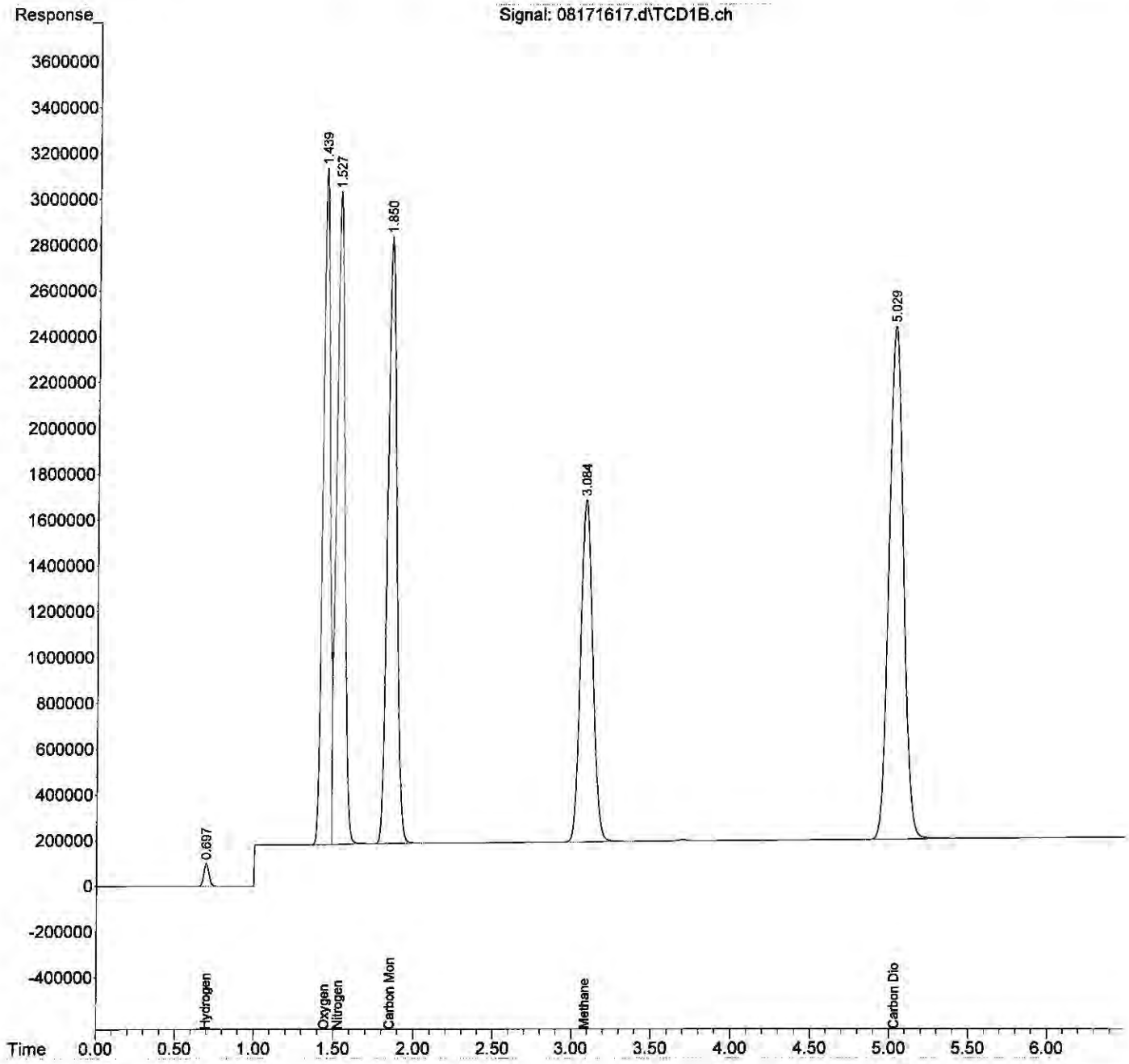
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171617.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 10:55 am
Operator : MC
Sample : std s11-12041501 B
Misc :
ALS Vial : 17 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 11:02:21 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 10:52:43 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171618.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 11:05 am
Operator : MC
Sample : std s11-12041501 C
Misc :
ALS Vial : 18 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 11:13:22 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 11:02:50 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.697	2323873	170492.039	ppm
2)	Oxygen	1.440	93438547	161601.681	ppm
3)	Nitrogen	1.528	102307767	157831.555	ppm
4)	Carbon Monoxide	1.850	104922839	164541.378	ppm
5)	Methane	3.085	80982555	164783.912	ppm
6)	Carbon Dioxide	5.030	143593489	164818.270	ppm

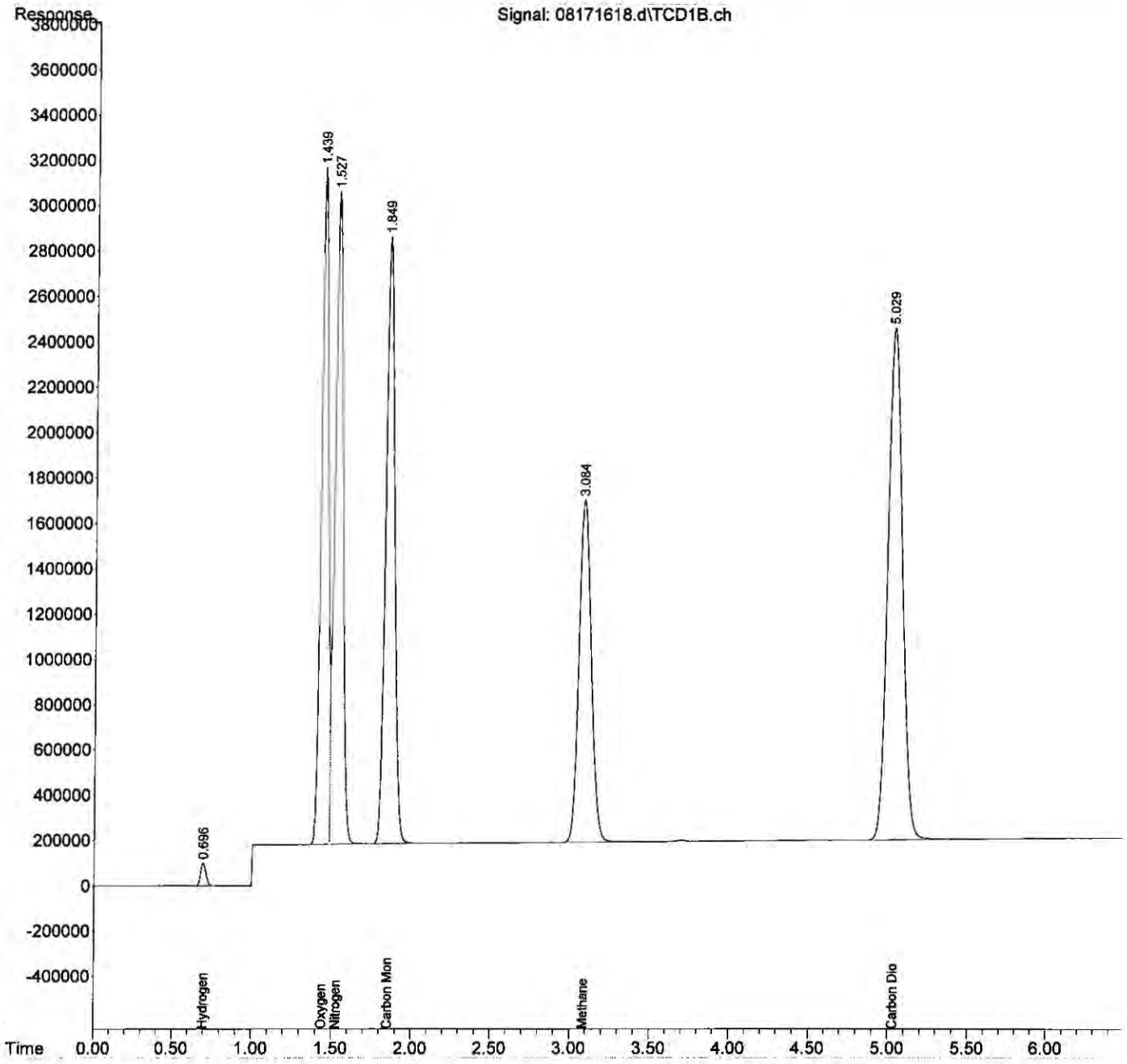
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171618.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 11:05 am
Operator : MC
Sample : std s11-12041501 C
Misc :
ALS Vial : 18 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 11:13:22 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 11:02:50 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171619.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 11:40 am
Operator : MC
Sample : std N2 a
Misc :
ALS Vial : 19 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 31 15:58:09 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 11:13:36 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.000	0	N.D.	ppm	
2)	Oxygen	0.000	0	N.D.	ppm	d
3)	Nitrogen	1.474	732108094	1130454.291	ppm	
4)	Carbon Monoxide	0.000	0	N.D.	ppm	
5)	Methane	0.000	0	N.D.	ppm	
6)	Carbon Dioxide	0.000	0	N.D.	ppm	

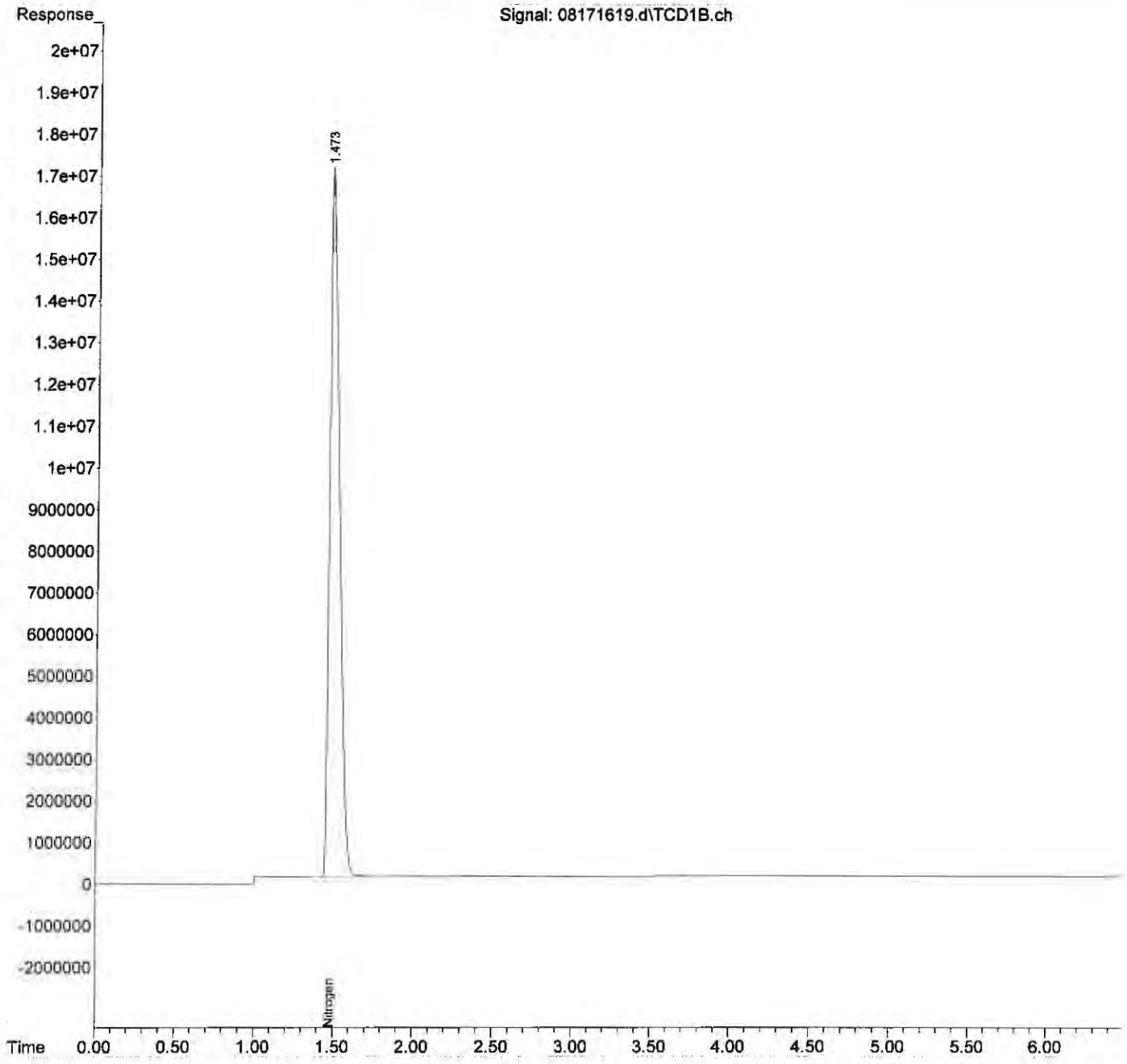
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171619.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 11:40 am
Operator : MC
Sample : std N2 a
Misc :
ALS Vial : 19 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 31 15:58:09 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 11:13:36 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171620.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 11:52 am
Operator : MC
Sample : std N2 b
Misc :
ALS Vial : 20 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 11:59:59 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 11:51:04 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	0.000	0	N.D.	ppm d
3)	Nitrogen	1.474	729497758	1117312.968	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	0.000	0	N.D.	ppm

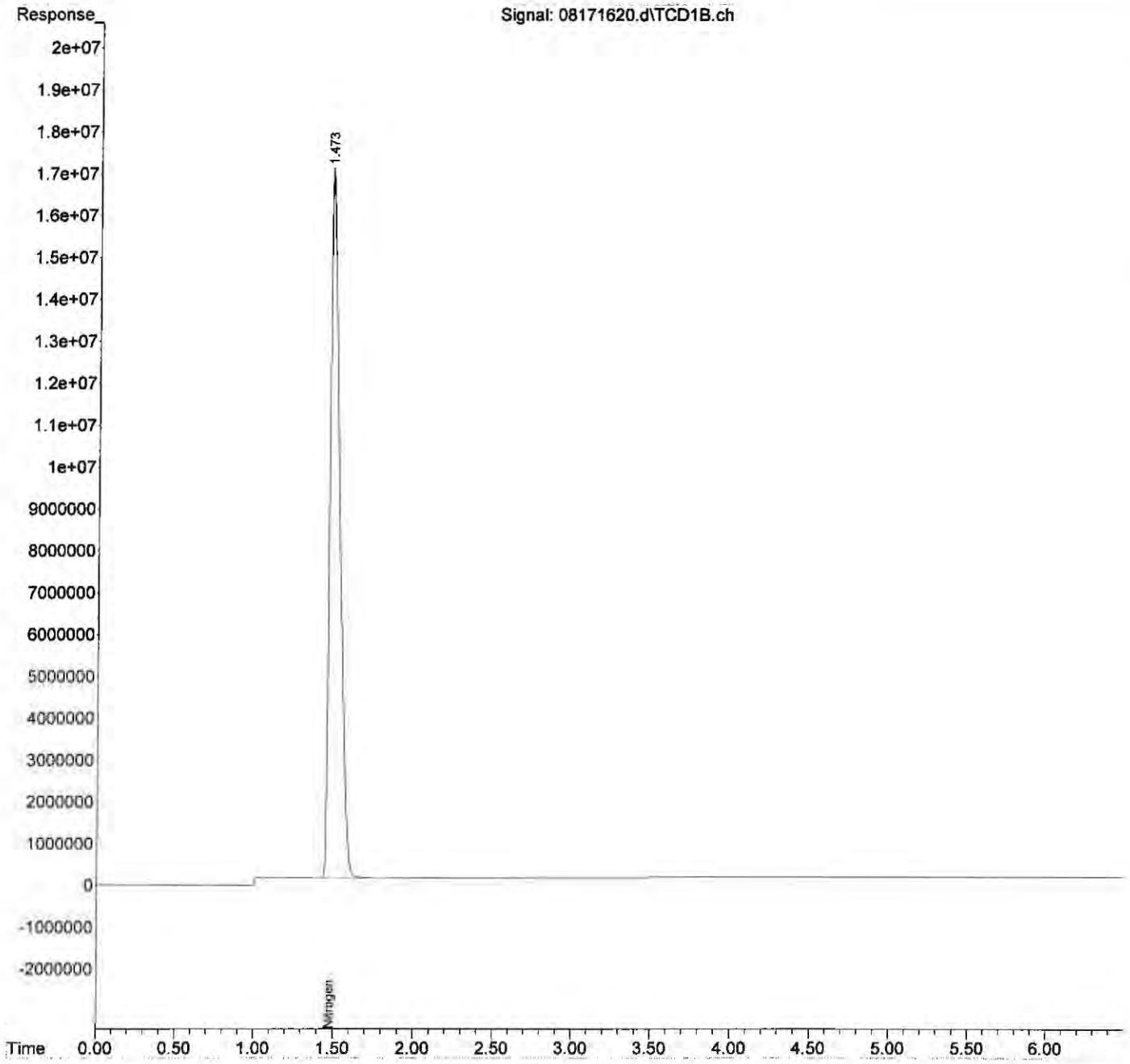
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171620.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 11:52 am
Operator : MC
Sample : std N2 b
Misc :
ALS Vial : 20 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 11:59:59 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 11:51:04 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171621.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 12:01 pm
Operator : MC
Sample : std N2 c
Misc :
ALS Vial : 21 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 12:09:09 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 11:51:04 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	0.000	0	N.D.	ppm d
3)	Nitrogen	1.474	730183972	1110698.589	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	0.000	0	N.D.	ppm

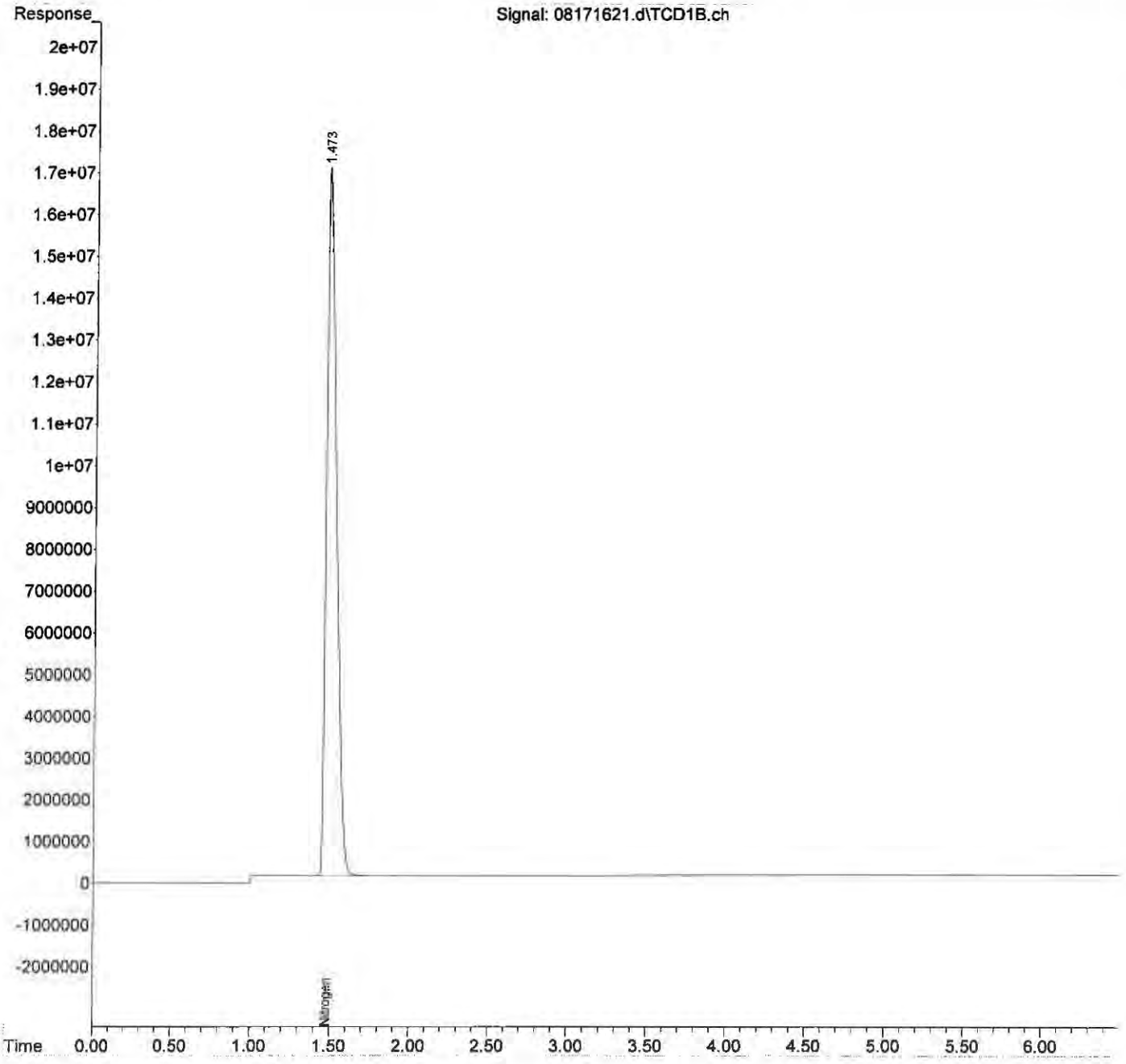
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171621.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 12:01 pm
Operator : MC
Sample : std N2 c
Misc :
ALS Vial : 21 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 12:09:09 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 11:51:04 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171625.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 12:50 pm
Operator : MC
Sample : std CO2 a
Misc :
ALS Vial : 25 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 12:57:45 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 11:51:04 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

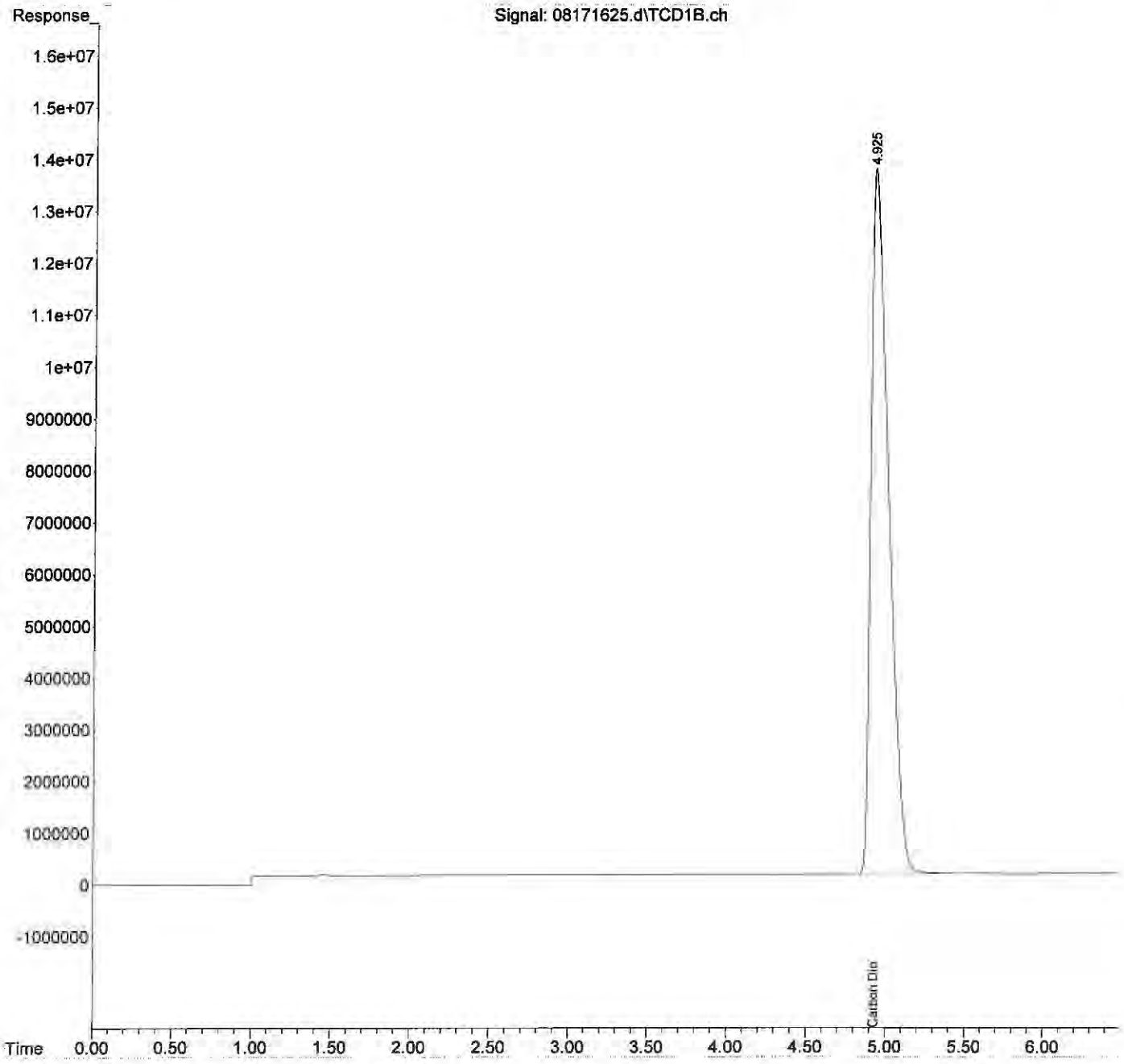
Compound	R.T.	Response	Conc	Units	
Target Compounds					
1) Hydrogen	0.000	0	N.D.	ppm	
2) Oxygen	0.000	0	N.D.	ppm	d
3) Nitrogen	0.000	0	N.D.	ppm	d
4) Carbon Monoxide	0.000	0	N.D.	ppm	
5) Methane	0.000	0	N.D.	ppm	
6) Carbon Dioxide	4.926	1053756922	1207091.032	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171625.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 12:50 pm
Operator : MC
Sample : std CO2 a
Misc :
ALS Vial : 25 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 12:57:45 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 11:51:04 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171626.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 1:28 pm
Operator : MC
Sample : std CO2 b
Misc :
ALS Vial : 26 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 13:58:05 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 11:51:04 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	0.000	0	N.D.	ppm
3)	Nitrogen	0.000	0	N.D.	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	4.925	1054815940	1192863.788	ppm

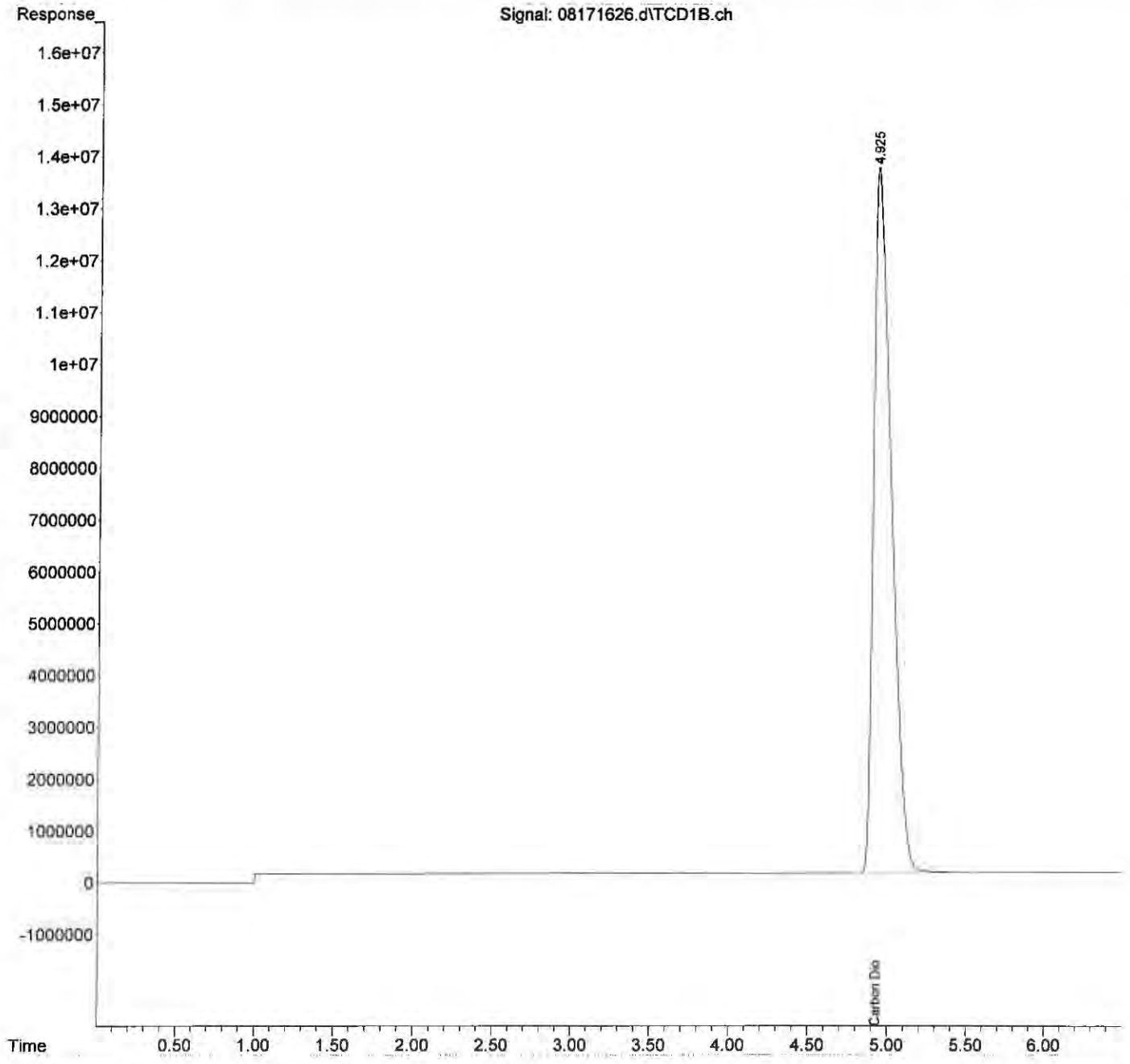
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171626.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 1:28 pm
Operator : MC
Sample : std CO2 b
Misc :
ALS Vial : 26 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 13:58:05 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 11:51:04 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171627.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 2:22 pm
Operator : MC
Sample : std CO2 c
Misc :
ALS Vial : 27 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 14:28:55 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 11:51:04 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

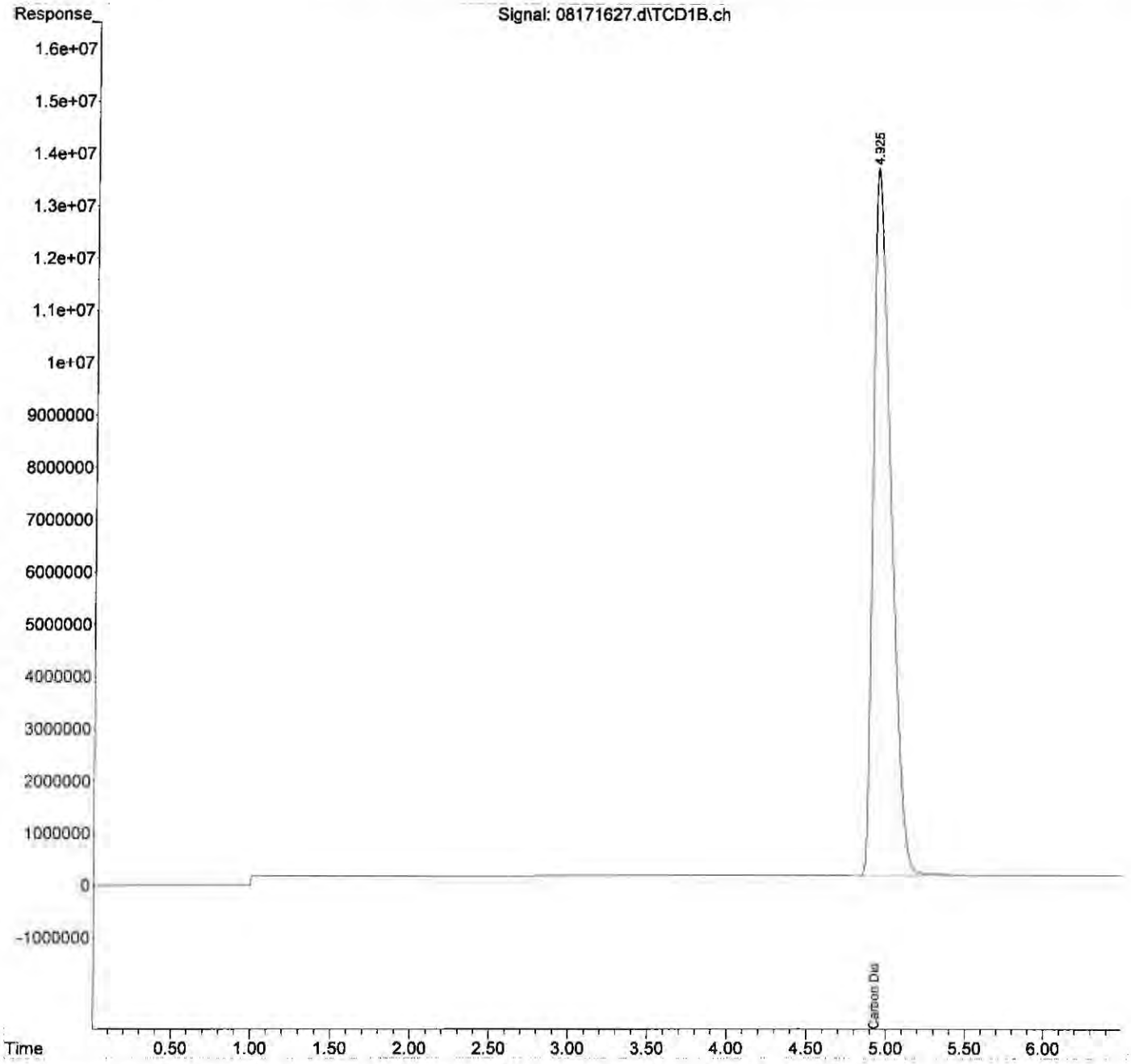
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	0.000	0	N.D.	ppm
3)	Nitrogen	0.000	0	N.D.	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	4.926	1045180213	1155845.185	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171627.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 2:22 pm
Operator : MC
Sample : std CO2 c
Misc :
ALS Vial : 27 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 14:28:55 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 11:51:04 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171630.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 2:53 pm
Operator : MC
Sample : std CH4 A
Misc :
ALS Vial : 30 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 15:01:17 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 11:51:04 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	0.000	0	N.D.	ppm
3)	Nitrogen	0.000	0	N.D.	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	3.001	586065213	1145210.971	ppm
6)	Carbon Dioxide	0.000	0	N.D.	ppm

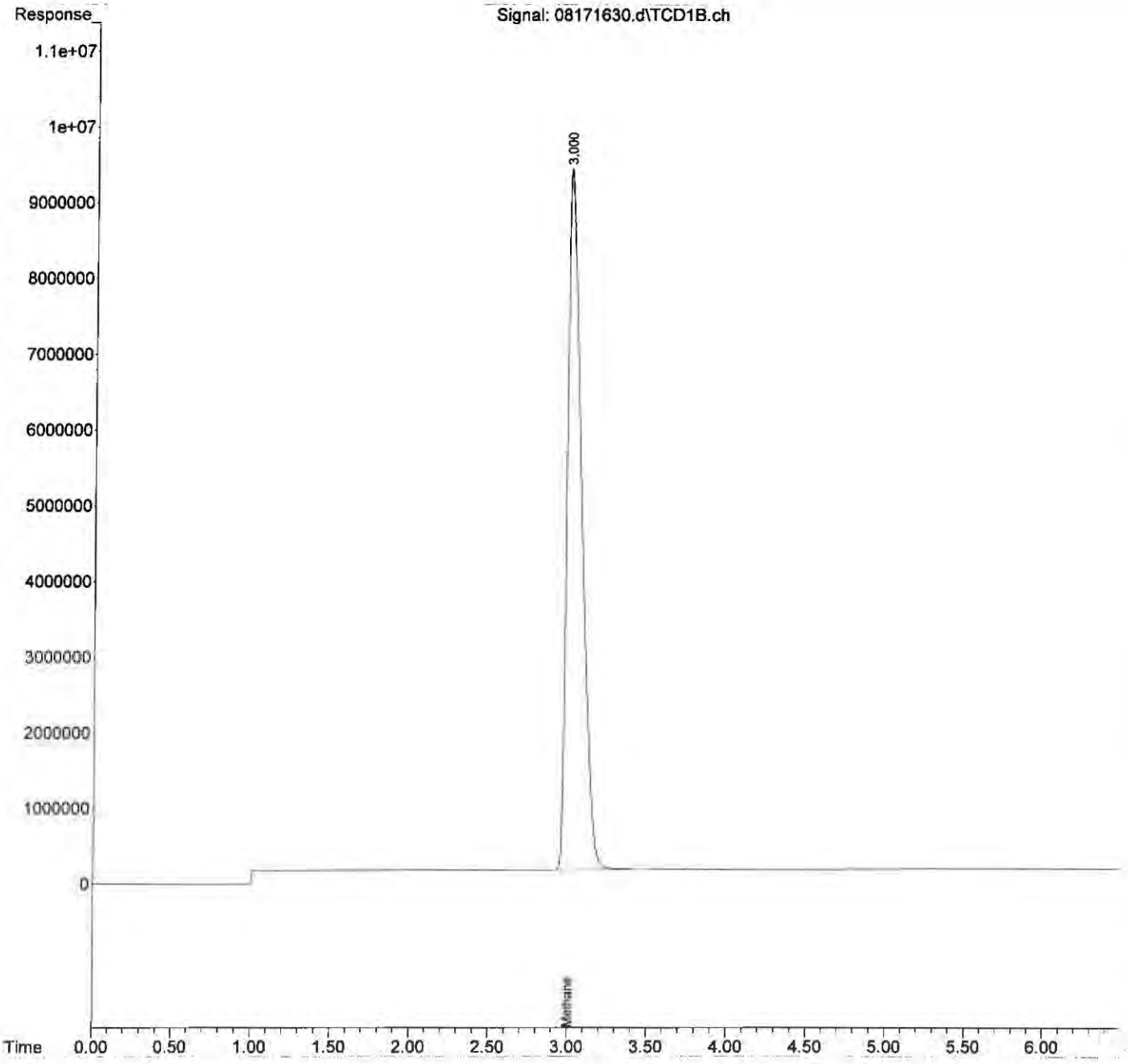
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171630.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 2:53 pm
Operator : MC
Sample : std CH4 A
Misc :
ALS Vial : 30 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 15:01:17 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 11:51:04 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171631.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 3:04 pm
Operator : MC
Sample : std CH4 B
Misc :
ALS Vial : 31 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 15:10:48 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 11:51:04 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	0.000	0	N.D.	ppm
3)	Nitrogen	0.000	0	N.D.	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	3.001	587246388	1157608.150	ppm
6)	Carbon Dioxide	0.000	0	N.D.	ppm

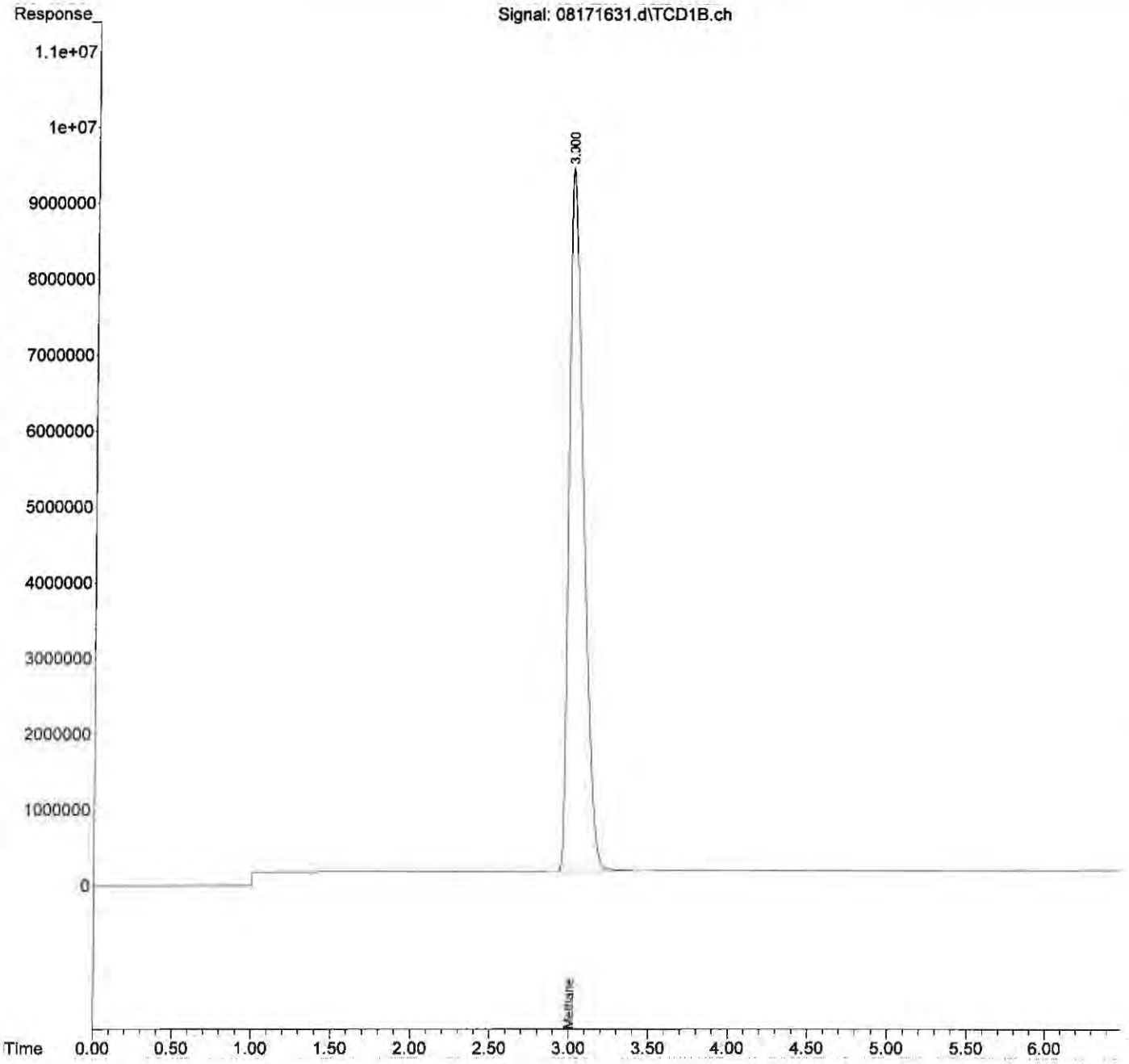
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171631.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 3:04 pm
Operator : MC
Sample : std CH4 B
Misc :
ALS Vial : 31 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 15:10:48 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 11:51:04 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171632.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 3:24 pm
Operator : MC
Sample : std CH4 C
Misc :
ALS Vial : 32 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 15:34:49 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 11:51:04 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	0.000	0	N.D.	ppm
3)	Nitrogen	0.000	0	N.D.	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	2.999	602097415	1195793.051	ppm
6)	Carbon Dioxide	0.000	0	N.D.	ppm

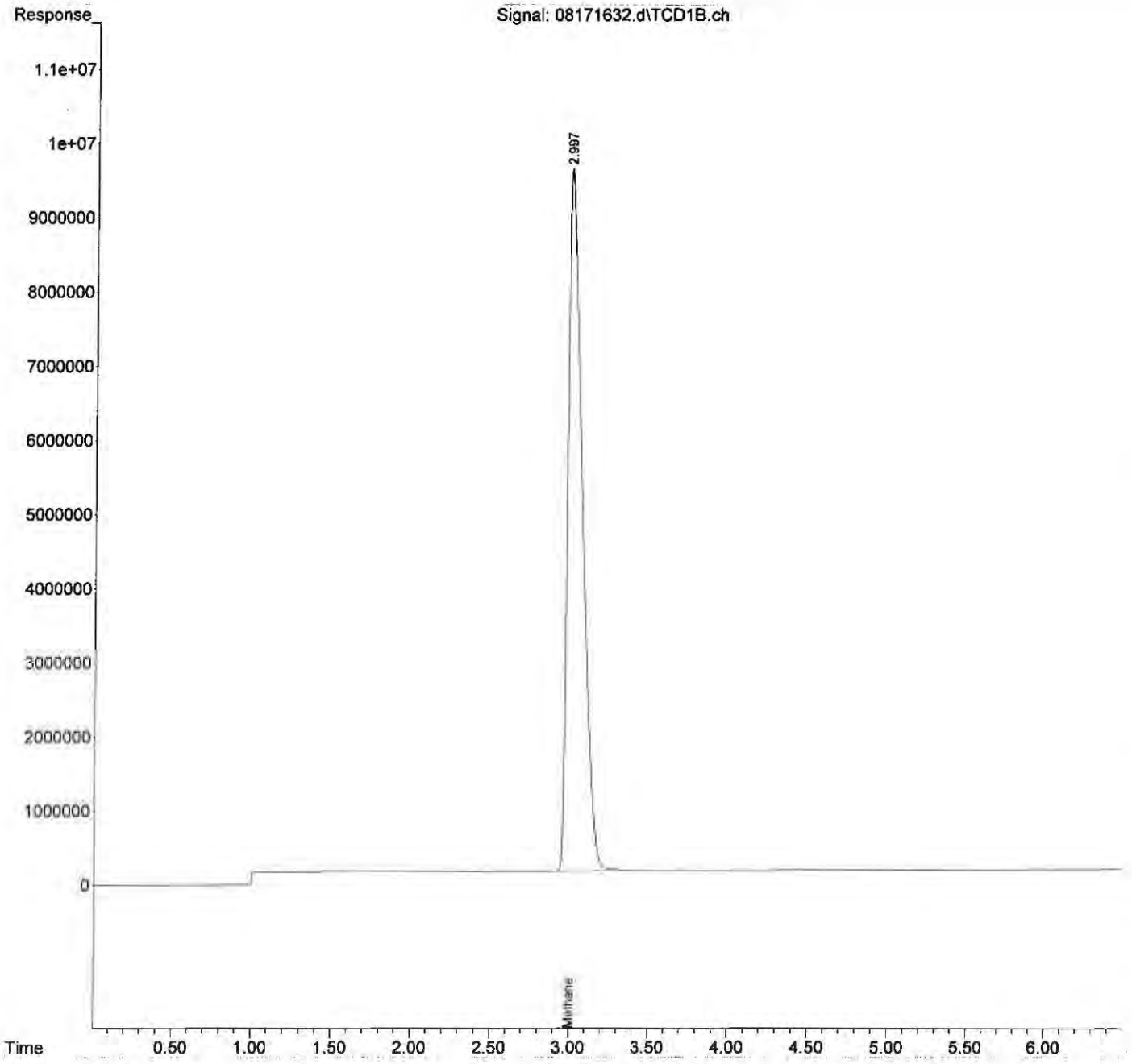
(f)=RT Delta > 1/2 Window (m)=manual int

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171632.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 3:24 pm
Operator : MC
Sample : std CH4 C
Misc :
ALS Vial : 32 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 15:34:49 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 11:51:04 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171635.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 4:14 pm
Operator : MC
Sample : std O2 A
Misc :
ALS Vial : 35 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 16:25:49 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:09:17 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

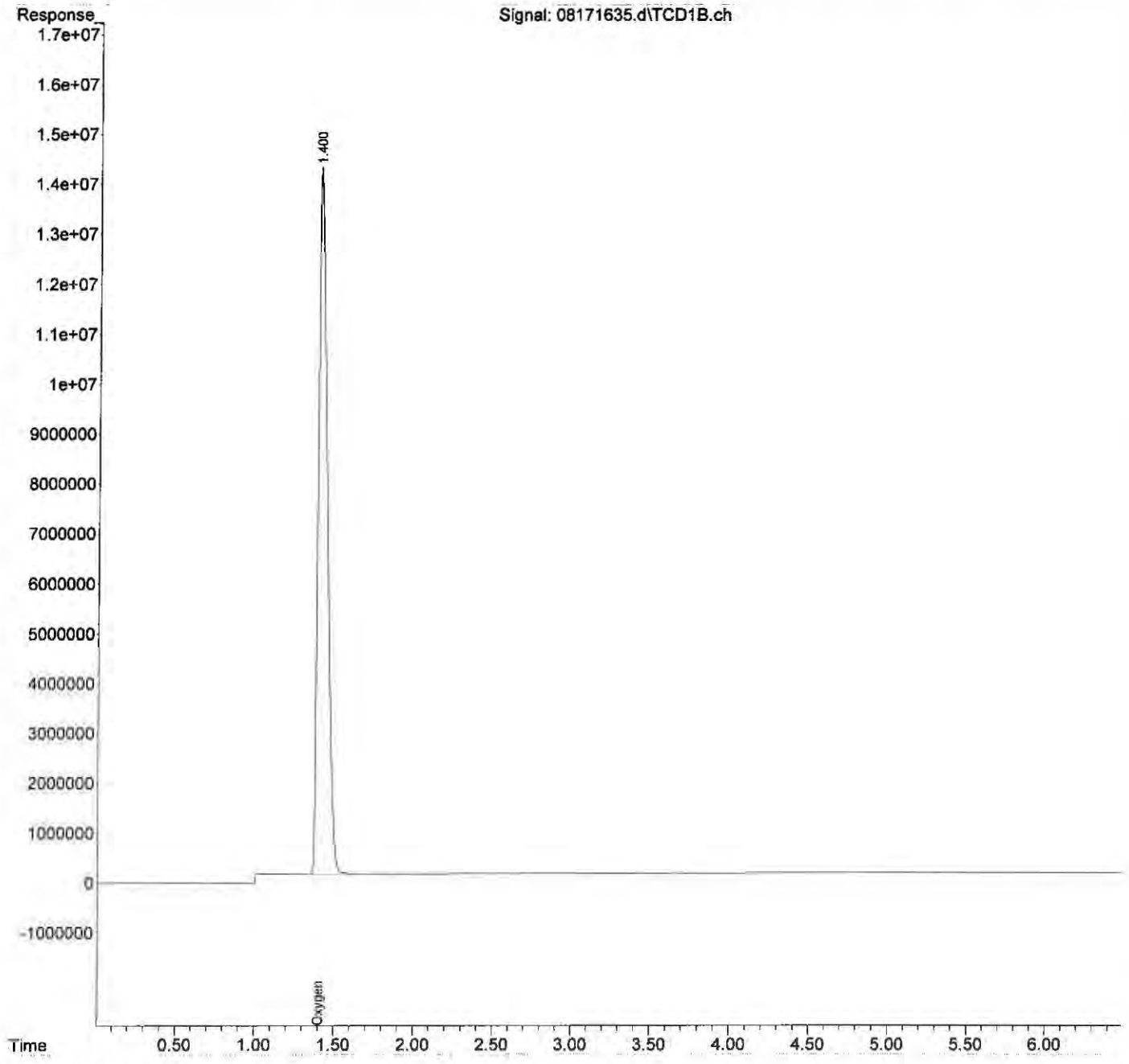
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.000	0	N.D.	ppm	
2)	Oxygen	1.401	559169599	960511.352	ppm	
3)	Nitrogen	0.000	0	N.D.	ppm	d
4)	Carbon Monoxide	0.000	0	N.D.	ppm	
5)	Methane	0.000	0	N.D.	ppm	
6)	Carbon Dioxide	0.000	0	N.D.	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171635.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 4:14 pm
Operator : MC
Sample : std O2 A
Misc :
ALS Vial : 35 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 16:25:49 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:09:17 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171636.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 4:27 pm
Operator : MC
Sample : std O2 B
Misc :
ALS Vial : 36 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 16:34:45 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:09:17 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.000	0	N.D.	ppm	
2)	Oxygen	1.402	547020815	943318.464	ppm	
3)	Nitrogen	0.000	0	N.D.	ppm	d
4)	Carbon Monoxide	0.000	0	N.D.	ppm	
5)	Methane	0.000	0	N.D.	ppm	
6)	Carbon Dioxide	0.000	0	N.D.	ppm	

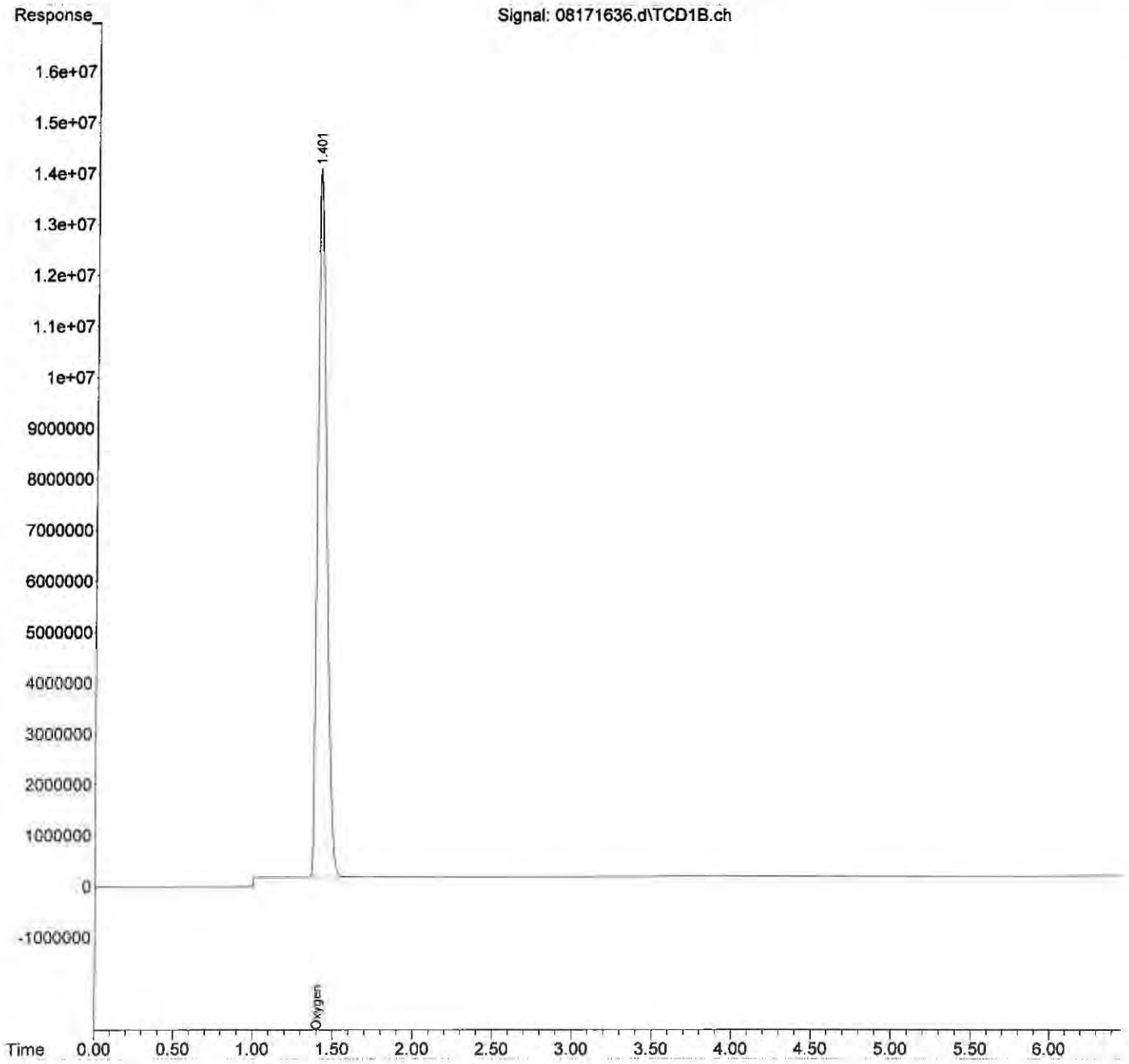
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171636.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 4:27 pm
Operator : MC
Sample : std O2 B
Misc :
ALS Vial : 36 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 16:34:45 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:09:17 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171637.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 4:37 pm
Operator : MC
Sample : std O2 C
Misc :
ALS Vial : 37 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 16:44:33 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:09:17 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

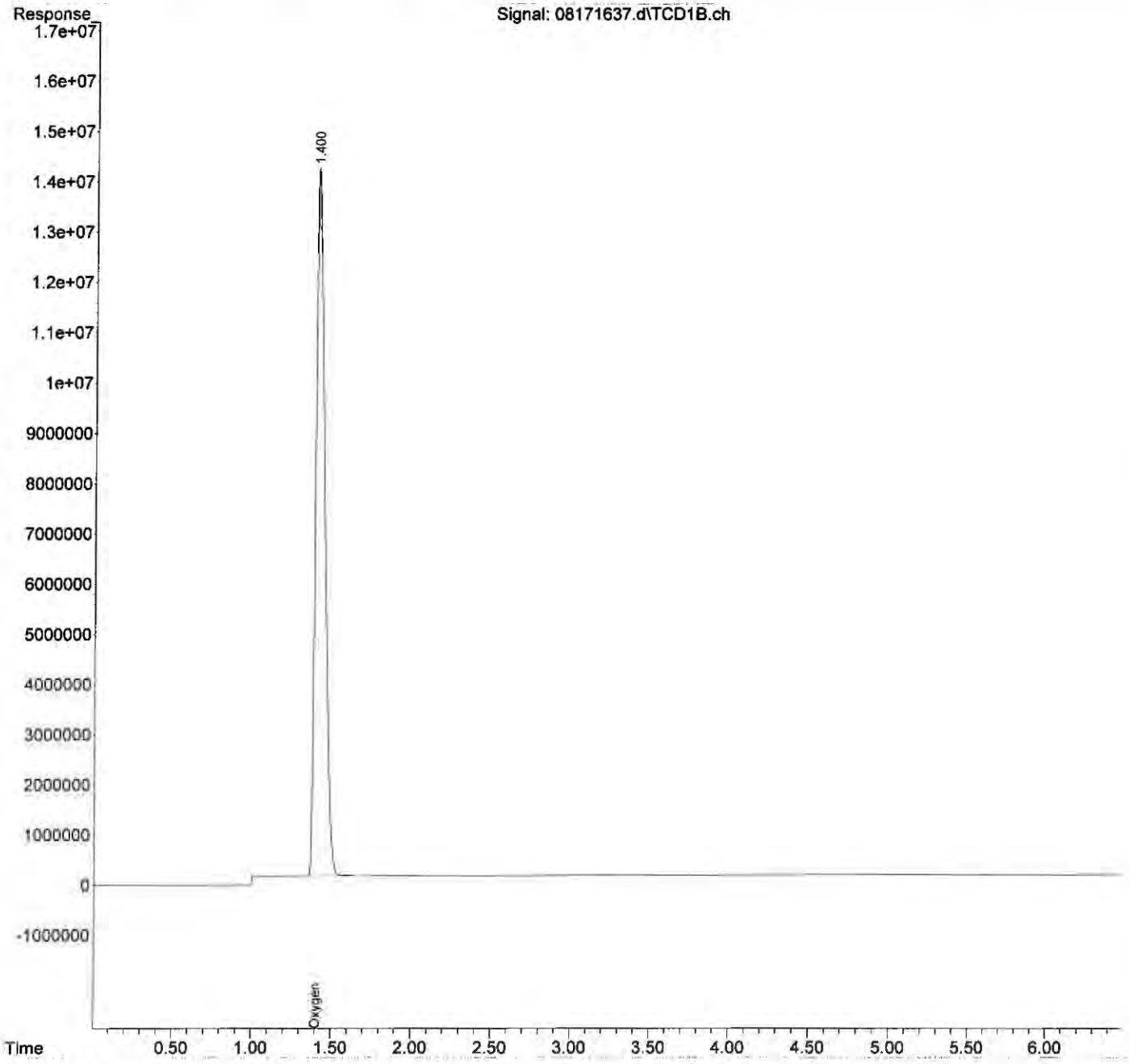
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.000	0	N.D.	ppm	
2)	Oxygen	1.401	554974689	961916.998	ppm	
3)	Nitrogen	0.000	0	N.D.	ppm	d
4)	Carbon Monoxide	0.000	0	N.D.	ppm	
5)	Methane	0.000	0	N.D.	ppm	
6)	Carbon Dioxide	0.000	0	N.D.	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171637.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 4:37 pm
Operator : MC
Sample : std O2 C
Misc :
ALS Vial : 37 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 16:44:33 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:09:17 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171638.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 4:55 pm
Operator : MC
Sample : ICV s30-07071601
Misc :
ALS Vial : 38 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 17:06:39 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:09:17 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units	Actual (ppm)	% Recovery
Target Compounds							
1)	Hydrogen	0.700	561161	40990.628	ppm	40000	102.5%
2)	Oxygen	1.452	14028775	24421.437	ppm	25000	97.7%
3)	Nitrogen	1.539	31651277	47851.129	ppm	50000	95.7%
4)	Carbon Monoxide	1.861	31576445	49425.073	ppm	50000	98.9%
5)	Methane	3.098	19787900	38876.773	ppm	40000	97.2%
6)	Carbon Dioxide	5.045	41558810	46038.999	ppm	50000	92.1%

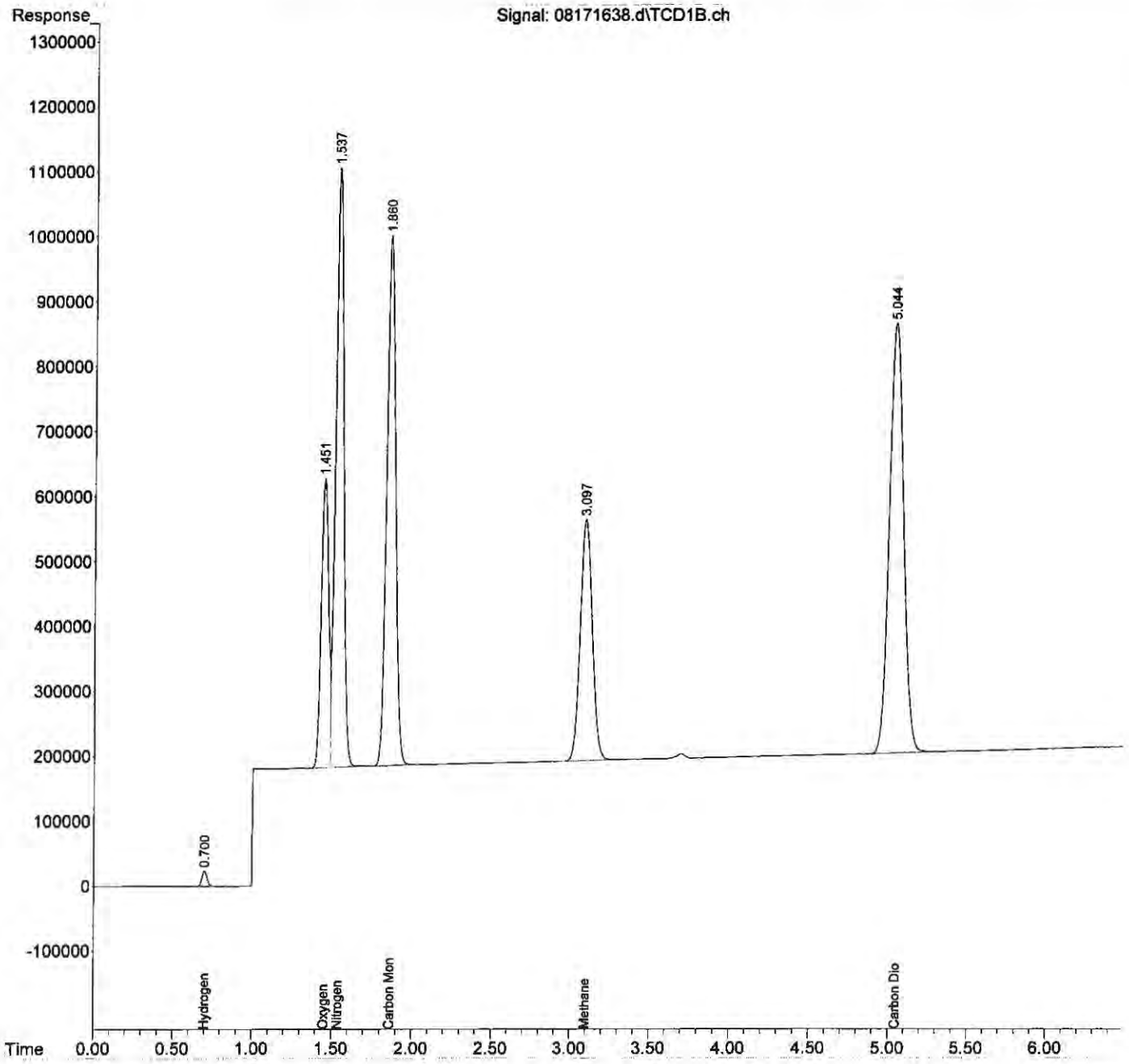
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_08\17\
Data File : 08171638.d
Signal(s) : TCD1B.ch
Acq On : 17 Aug 2016 4:55 pm
Operator : MC
Sample : ICV s30-07071601
Misc :
ALS Vial : 38 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 17 17:06:39 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:09:17 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



ALS

REPORT SUMMARYS FIXED GASES BY GC/TCD
CLIENT : Air Hygiene
Analyst : MC
PAI Job : P1604754

Printed : 10/8/2016
Instrument : GC #20 / TCD #20
Date analyzed : 10/8/2016
Sample amount : 100uL

Sample Result

Sample ID	Hydrogen	Oxygen	Nitrogen	Carbon Monoxide	Methane	Carbon Dioxide	Pi1	Pf1	Pi2	Pf2	BF
STANDARD	42577	39750	38777	41191	39851	39814					
ACTUAL	40000	40000	40000	40000	40000	40000					
% Difference	6.4%	0.6%	3.1%	3.0%	0.4%	0.5%					
Lab Air		202375	760944			384					
MB	ND	ND	ND	ND	ND	ND					
4754-001		92069	495915			26647					
4754-001		90651	487562			26259					
4754-001		91278	491266			26461					
% RSD		0.8%	0.9%		#DIV/0!	0.7%					
4754-003		90494	485323			26582					
4754-003		93828	504079			27650					
4754-003		93858	503458			27644					
% RSD		2.1%	2.1%		#DIV/0!	2.3%					
4754-005		97033	497951			24723					
4754-005		94726	485788			24158					
4754-005		94494	484511			24095					
% RSD		1.5%	1.5%		#DIV/0!	1.4%					
4754-007		97060	481687			21961					
4754-007		96841	481005			21940					
4754-007		97473	483990			22083					
% RSD		0.3%	0.3%		#DIV/0!	0.4%					
4754-009		85321	467388			26945					
4754-009		85372	467713			27020					
4754-009		87845	480911			27814					
% RSD		1.7%	1.6%		#DIV/0!	1.8%					
4754-011		87693	467653			25482					
4754-011		89198	476382			26019					
4754-011		89572	478308			26134					
% RSD		1.1%	1.2%		#DIV/0!	1.3%					

NM 10/11

HM 10/10/16

REPORT SUMMARYS FIXED GASES BY GC/TCD
CLIENT : Air Hygiene
Analyst : MC
PAI Job : P1604754

Printed : 10/8/2016
Instrument : GC #20 / TCD #20
Date analyzed : 10/8/2016
Sample amount : 100uL

STANDARD	43847	40802	39799	42265	40827	40816
ACTUAL	40000	40000	40000	40000	40000	40000
% Difference	9.6%	2.0%	0.5%	5.7%	2.1%	2.0%

Average Sample Result in ppm with the DILUTION FACTOR

Sample ID	Hydrogen	Oxygen	Nitrogen	Carbon Monoxide	Methane	Carbon Dioxide	Total(%)	D.F.
Lab Air		202375	760944			384	96.37	1.00
MB	ND	ND	ND	ND	ND	ND		1.00
4754-001		91333	491581			26456	60.94	1.00
4754-003		92727	497620			27292	61.76	1.00
4754-005		95418	489417			24325	60.92	1.00
4754-007		97125	482228			21995	60.13	1.00
4754-009		86179	472004			27260	58.54	1.00
4754-011		88821	474114			25878	58.88	1.00

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081604.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 9:41 am
Operator : MC
Sample : std s11-12041501
Misc :
ALS Vial : 4 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 09:47:49 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.698	582884	42577.436	ppm
2)	Oxygen	1.450	23564009	39749.976	ppm
3)	Nitrogen	1.539	25649316	38777.228	ppm
4)	Carbon Monoxide	1.861	26315863	41190.940	ppm
5)	Methane	3.099	20283716	39850.888	ppm
6)	Carbon Dioxide	5.048	35939824	39814.266	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

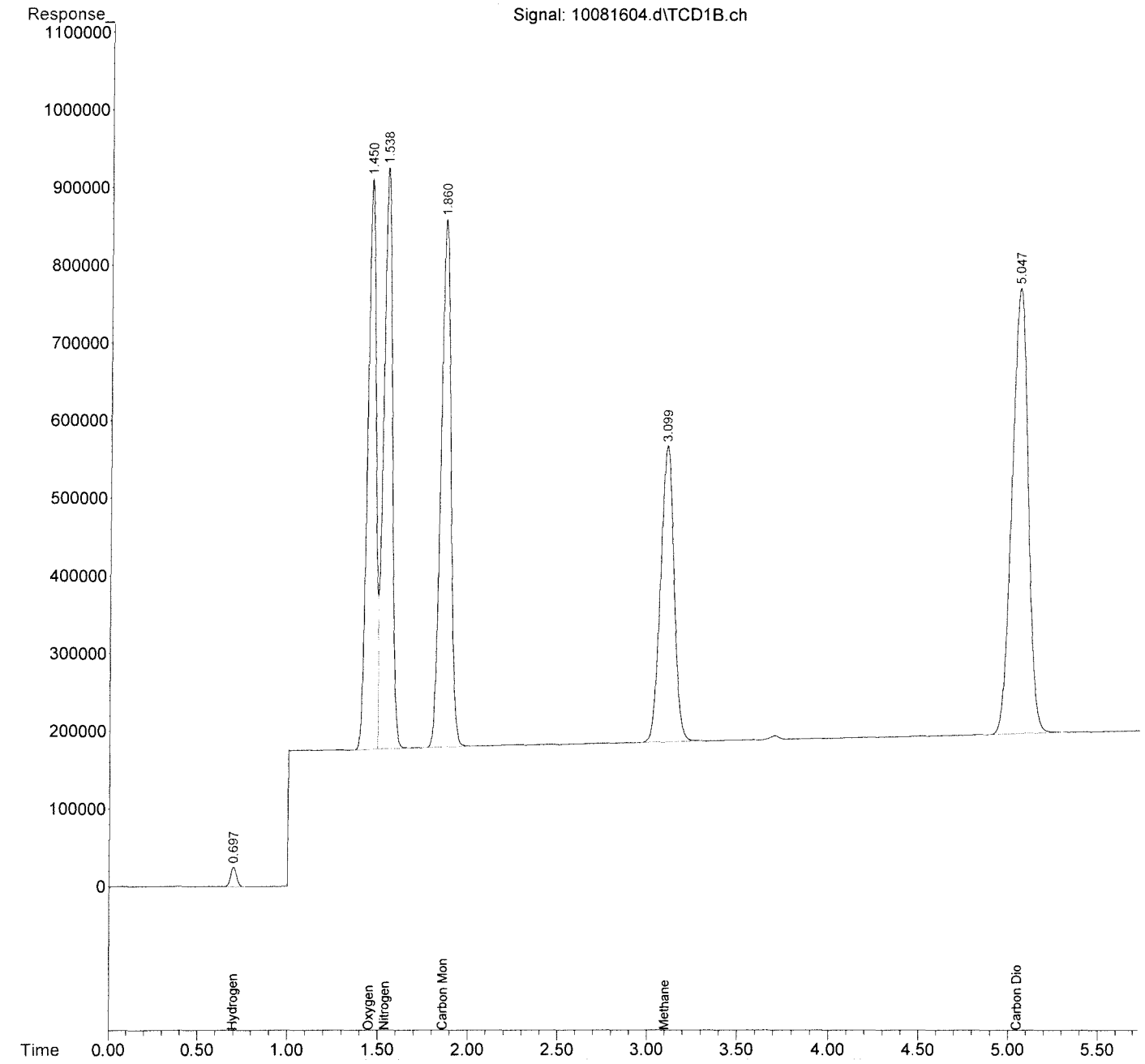
10/18/16

10/10/16

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081604.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 9:41 am
Operator : MC
Sample : std s11-12041501
Misc :
ALS Vial : 4 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 09:47:49 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081632.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 2:06 pm
Operator : MC
Sample : std s11-12041501
Misc :
ALS Vial : 32 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 14:12:06 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.699	600267	43847.150	ppm
2)	Oxygen	1.452	24187807	40802.257	ppm
3)	Nitrogen	1.540	26325202	39799.048	ppm
4)	Carbon Monoxide	1.863	27001964	42264.860	ppm
5)	Methane	3.101	20780532	40826.971	ppm
6)	Carbon Dioxide	5.050	36843846	40815.744	ppm

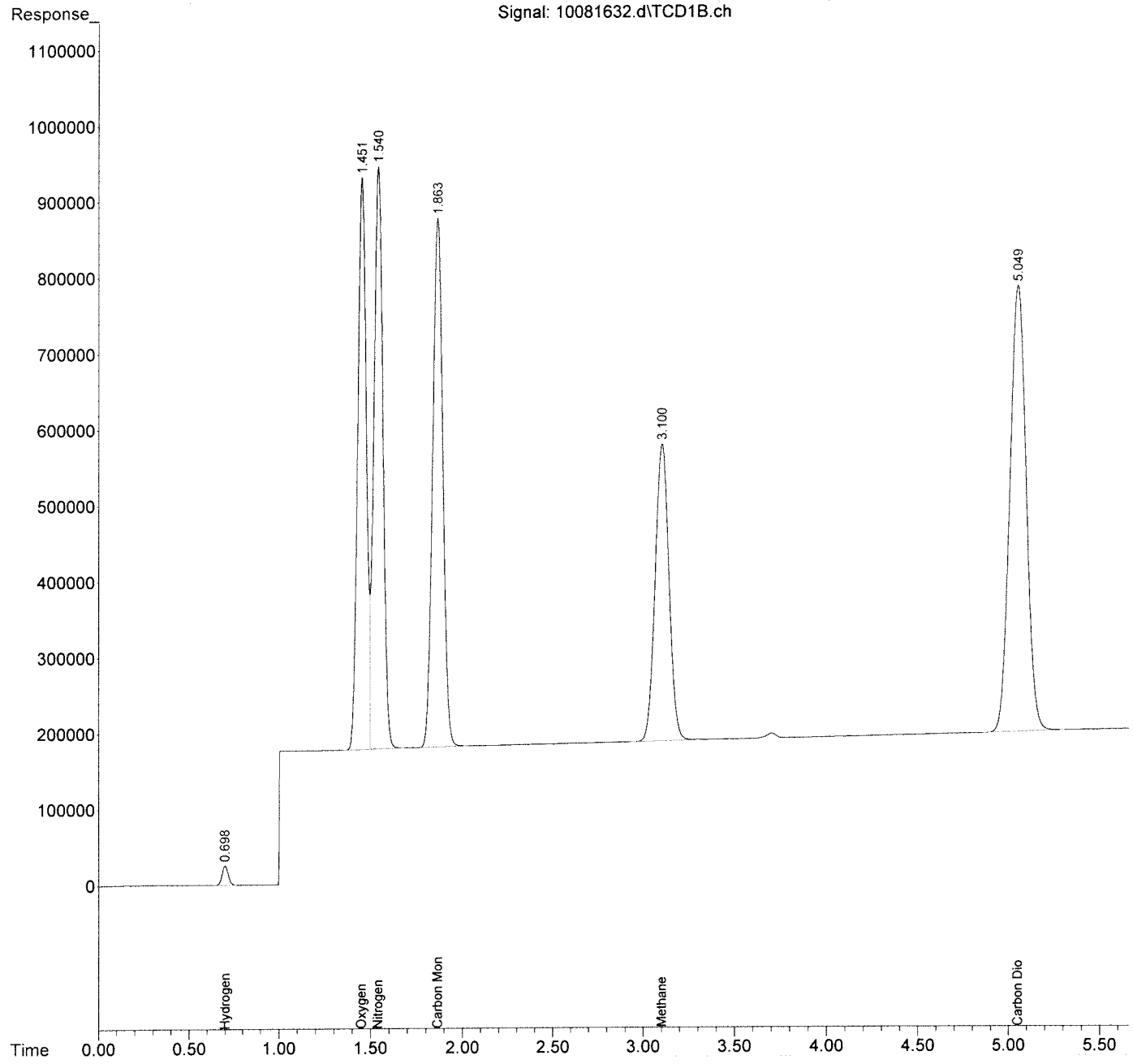
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC20\DATA\3C\2016_10\08\
Data File : 10081632.d
Signal(s) : TCD1B.ch
Acq On : 8 Oct 2016 2:06 pm
Operator : MC
Sample : std s11-12041501
Misc :
ALS Vial : 32 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 08 14:12:06 2016
Quant Method : J:\GC20\METHODS\trip08172016.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Wed Aug 17 16:44:41 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :



Injection Log

Directory: I:\GC20\DATA\3C\2016_08\17\

	Sample ID	Date/Time	Acquisition Method	File Name	Misc Info	Operator	Comments
	std s11-12041501	8/17/16 7:51	3C.M	08171601.D		MC	
	std 1	8/17/16 8:01	3C.M	08171602.D		MC	
	std s11-07191601 A	8/17/16 8:12	3C.M	08171603.D		MC	
	std s11-07191601 B	8/17/16 8:22	3C.M	08171604.D		MC	
	std s11-07191601 C	8/17/16 8:39	3C.M	08171605.D		MC	
	std s11-12041503 A	8/17/16 8:52	3C.M	08171606.D		MC	
	std s11-12041503 B	8/17/16 9:02	3C.M	08171607.D		MC	
	std s11-12041503 C	8/17/16 9:14	3C.M	08171608.D		MC	
	xstd a	8/17/16 9:27	3C.M	08171609.D		MC	
	std s11-12041502 A	8/17/16 9:39	3C.M	08171610.D		MC	
	std s11-12041502 B	8/17/16 9:52	3C.M	08171611.D		MC	
	std s11-12041502 C	8/17/16 10:02	3C.M	08171612.D		MC	
	std s11-12041501 A	8/17/16 10:12	3C.M	08171613.D		MC	
	std s11-12041501 B	8/17/16 10:22	3C.M	08171614.D		MC	
	std s11-12041501 C	8/17/16 10:31	3C.M	08171615.D		MC	
	std s11-12031501 A	8/17/16 10:42	3C.M	08171616.D		MC	
	std s11-12041501 B	8/17/16 10:55	3C.M	08171617.D		MC	
	std s11-12041501 C	8/17/16 11:05	3C.M	08171618.D		MC	
	std N2 a	8/17/16 11:40	3C.M	08171619.D		MC	
	std N2 b	8/17/16 11:52	3C.M	08171620.D		MC	
	std N2 c	8/17/16 12:01	3C.M	08171621.D		MC	
	O2 a	8/17/16 12:13	3C.M	08171622.D		MC	
	O2 b	8/17/16 12:25	3C.M	08171623.D		MC	
	O2 c	8/17/16 12:37	3C.M	08171624.D		MC	
	std CO2 a	8/17/16 12:50	3C.M	08171625.D		MC	
	std CO2 b	8/17/16 13:28	3C.M	08171626.D		MC	
	std CO2 c	8/17/16 14:22	3C.M	08171627.D		MC	
	xCH4 a	8/17/16 14:32	3C.M	08171628.D		MC	
	xCH4 b	8/17/16 14:42	3C.M	08171629.D		MC	
	std CH4 A	8/17/16 14:53	3C.M	08171630.D		MC	
	std CH4 B	8/17/16 15:04	3C.M	08171631.D		MC	
	std CH4 C	8/17/16 15:24	3C.M	08171632.D		MC	
	mb	8/17/16 15:40	3C.M	08171633.D		MC	
	lab air	8/17/16 15:50	3C.M	08171634.D		MC	
	std O2 A	8/17/16 16:14	3C.M	08171635.D		MC	
	std O2 B	8/17/16 16:27	3C.M	08171636.D		MC	
	std O2 C	8/17/16 16:37	3C.M	08171637.D		MC	
	ICV s30-07071601	8/17/16 16:55	3C.M	08171638.D		MC	

Injection Log

Directory: I:\GC20\DATA\3C\2016_10\08\

	Sample ID	Date/Time	Acquisition Method	File Name	Misc Info	Operator	Comments
	TEST	10/8/16 9:10	3C.M	10081601.D		MC	
	TEST	10/8/16 9:21	3C.M	10081602.D		MC	
	TEST	10/8/16 9:32	3C.M	10081603.D		MC	
#VALUE!	std s11-12041501	10/8/16 9:41	3C.M	10081604.D		MC	Pass
	mb	10/8/16 9:50	3C.M	10081605.D		MC	
#VALUE!	lab air	10/8/16 10:00	3C.M	10081606.D		MC	not used
	lab air	10/8/16 10:10	3C.M	10081607.D		MC	
	4754-001	10/8/16 10:20	3C.M	10081608.D		MC	
	4754-001	10/8/16 10:29	3C.M	10081609.D		MC	
	4754-001	10/8/16 10:39	3C.M	10081610.D		MC	
	4754-003	10/8/16 10:48	3C.M	10081611.D		MC	
	4754-003	10/8/16 10:58	3C.M	10081612.D		MC	
	4754-003	10/8/16 11:07	3C.M	10081613.D		MC	
	4754-005	10/8/16 11:17	3C.M	10081614.D		MC	
	4754-005	10/8/16 11:27	3C.M	10081615.D		MC	
	4754-005	10/8/16 11:36	3C.M	10081616.D		MC	
	4754-007	10/8/16 11:46	3C.M	10081617.D		MC	
	4754-007	10/8/16 11:56	3C.M	10081618.D		MC	
	4754-007	10/8/16 12:06	3C.M	10081619.D		MC	
	4754-009	10/8/16 12:16	3C.M	10081620.D		MC	
	4754-009	10/8/16 12:26	3C.M	10081621.D		MC	
	4754-009	10/8/16 12:35	3C.M	10081622.D		MC	
	4754-011	10/8/16 12:44	3C.M	10081623.D		MC	
	4754-011	10/8/16 12:54	3C.M	10081624.D		MC	
	4754-011	10/8/16 13:04	3C.M	10081625.D		MC	
	4754-013	10/8/16 13:14	3C.M	10081626.D		MC	
	4754-013	10/8/16 13:22	3C.M	10081627.D		MC	
	4754-013	10/8/16 13:32	3C.M	10081628.D		MC	
	4754-015	10/8/16 13:40	3C.M	10081629.D		MC	
	4754-015	10/8/16 13:48	3C.M	10081630.D		MC	
	4754-015	10/8/16 13:56	3C.M	10081631.D		MC	
#VALUE!	std s11-12041501	10/8/16 14:06	3C.M	10081632.D		MC	Pass

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LABORATORY REPORT

October 24, 2016

Min Lee
Air Hygiene, Incorporated
1600 West Tacoma Street
Broken Arrow, OK 74012

RE: sfi-16-elkcity.ok-comp#1

Dear Min:

Enclosed are the results of the samples submitted to our laboratory on October 7, 2016. For your reference, these analyses have been assigned our service request number P1604736.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Kelly Horiuchi at 5:11 pm, Oct 24, 2016

Kelly Horiuchi
Laboratory Director

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

Client: Air Hygiene, Incorporated
Project: sfi-16-elkcity.ok-comp#1

Service Request No: P1604736

CASE NARRATIVE

The samples were received intact under chain of custody on October 7, 2016 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Fixed Gases Analysis

The samples were analyzed for fixed gases (oxygen, nitrogen, methane and carbon dioxide) according to modified EPA Method 3C (triplicate injection) using a gas chromatograph equipped with a thermal conductivity detector (TCD). This procedure is described in laboratory SOP VOA-EPA3C. This method is included on the laboratory's DoD-ELAP scope of accreditation, however it is not part of the NELAP or AIHA-LAP, LLC accreditation.

The samples labeled "R11-90-100%-SCD-36" and "R12-90-100%-SCD-36" were received with insufficient hold time remaining to complete the analysis within the recommended limit. The analysis was performed as soon as possible after receipt by the laboratory and the data flagged to indicate the holding time exceedance.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
AIHA-LAP, LLC	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2014025
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	977273
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-003
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-16-7
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA016272016-6
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: Air Hygiene, Incorporated
Project ID: sfi-16-elkcity.ok-comp#1
Service Request: P1604736

Date Received: 10/7/2016
Time Received: 09:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	3C Modified - Fxd Gases Bag 2X
R10-90-100%-SCD-36	P1604736-001	Air	10/4/2016	09:15	X
R11-90-100%-SCD-36	P1604736-003	Air	10/4/2016	10:41	X
R12-90-100%-SCD-36	P1604736-005	Air	10/4/2016	12:08	X
R1-0-30-0%-SCD-36	P1604736-007	Air	10/5/2016	13:22	X
R7-70-100-70%-SCD-36	P1604736-009	Air	10/5/2016	18:20	X

P1C04736

SAMPLE DESCRIPTION AND CHAIN OF CUSTODY RECORD

Air Hygiene International, Inc.
1600 W Tacoma Street
Broken Arrow, Oklahoma 74012
(888) 461-8778
www.airhygiene.com

Project Number:	sfi-elkcity.ok-comp#1	Laboratory Analysis Requested:	3C
Person Taking Samples:	TW/MSL/RA		

	Sample Number	Location	Date	Time	Volume	Analysis Method			
						O_2	CO_2	Methane	N_2
(1)	R10-90-100%-SCD-36	Elk City Facility	10/4/2016	9:15	10	x	x	x	x
(2)	R10-90-100%-SCD-36-Backup	Elk City Facility	10/4/2016	9:15	5	x	x	x	x
(3)	R11-90-100%-SCD-36	Elk City Facility	10/4/2016	10:41	10	x	x	x	x
(4)	R11-90-100%-SCD-36-Backup	Elk City Facility	10/4/2016	10:41	5	x	x	x	x
(5)	R12-90-100%-SCD-36	Elk City Facility	10/4/2016	12:08	10	x	x	x	x
(6)	R12-90-100%-SCD-36-Backup	Elk City Facility	10/4/2016	12:08	5	x	x	x	x
(7)	R1-0-30-0%-SCD-36	Elk City Facility	10/5/2016	13:22	10	x	x	x	x
(8)	R1-0-30-0%-SCD-36-Backup	Elk City Facility	10/5/2016	13:22	5	x	x	x	x
(9)	R7-70-100-70%-SCD-36	Elk City Facility	10/5/2016	18:20	0	x	x	x	x
(10)	R7-70-100-70%-SCD-36-Backup	Elk City Facility	10/5/2016	18:20	5	x	x	x	x
					6	x	x	x	x

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
[signature]	10/5/16	18:30			
FEDEX			[signature]	10/7/16	0930

ALS Environmental
Sample Acceptance Check Form

Client: Air Hygiene, Incorporated Work order: P1604736

Project: sfi-16-elkcity.ok-comp#1

Sample(s) received on: 10/7/16 Date opened: 10/7/16 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were **custody seals** on outside of cooler/Box/Container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1604736-001.01	10 L Tedlar Bag					
P1604736-002.01	5.0 L Tedlar Bag					
P1604736-003.01	10 L Tedlar Bag					
P1604736-004.01	5.0 L Tedlar Bag					
P1604736-005.01	10 L Tedlar Bag					
P1604736-006.01	5.0 L Tedlar Bag					
P1604736-007.01	10 L Tedlar Bag					
P1604736-008.01	5.0 L Tedlar Bag					
P1604736-009.01	10 L Tedlar Bag					
P1604736-010.01	5.0 L Tedlar Bag					

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **R10-90-100%-SCD-36**
Client Project ID: **sfi-16-elkcity.ok-comp#1**

ALS Project ID: P1604736
ALS Sample ID: P1604736-001

Test Code: EPA Method 3C Modified
Instrument ID: HP5890 II/GC1/FID/TCD
Analyst: Adam McAfee
Sample Type: 10 L Tedlar Bag
Test Notes: **H3**

Date Collected: 10/4/16
Date Received: 10/7/16
Date Analyzed: 10/7/16
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
7782-44-7	**Oxygen***	**15.2**	0.10	
7727-37-9	**Nitrogen**	**80.3**	0.10	
74-82-8	Methane	ND	0.10	
124-38-9	**Carbon Dioxide**	**4.54**	0.10	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
* = The oxygen result may include argon due to coelution. Ambient air includes 0.93% argon.
H3 = Sample was received and analyzed past holding time.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **R11-90-100%-SCD-36**
Client Project ID: **sfi-16-elkcity.ok-comp#1**

ALS Project ID: P1604736
ALS Sample ID: P1604736-003

Test Code: EPA Method 3C Modified
Instrument ID: HP5890 II/GC1/FID/TCD
Analyst: Adam McAfee
Sample Type: 10 L Tedlar Bag
Test Notes: **H1**

Date Collected: 10/4/16
Date Received: 10/7/16
Date Analyzed: 10/7/16
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
7782-44-7	**Oxygen***	**15.9**	0.10	
7727-37-9	**Nitrogen**	**80.0**	0.10	
74-82-8	Methane	ND	0.10	
124-38-9	**Carbon Dioxide**	**4.07**	0.10	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
* = The oxygen result may include argon due to coelution. Ambient air includes 0.93% argon.
H1 = Sample analysis performed past holding time. See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **R12-90-100%-SCD-36**
Client Project ID: **sfi-16-elkcity.ok-comp#1**

ALS Project ID: P1604736
ALS Sample ID: P1604736-005

Test Code: EPA Method 3C Modified
Instrument ID: HP5890 II/GC1/FID/TCD
Analyst: Adam McAfee
Sample Type: 10 L Tedlar Bag
Test Notes: **H1**

Date Collected: 10/4/16
Date Received: 10/7/16
Date Analyzed: 10/7/16
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
7782-44-7	**Oxygen***	**15.7**	0.10	
7727-37-9	**Nitrogen**	**80.0**	0.10	
74-82-8	Methane	ND	0.10	
124-38-9	**Carbon Dioxide**	**4.22**	0.10	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
* = The oxygen result may include argon due to coelution. Ambient air includes 0.93% argon.
H1 = Sample analysis performed past holding time. See case narrative.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **R1-0-30-0%-SCD-36**
Client Project ID: **sfi-16-elkcity.ok-comp#1**

ALS Project ID: P1604736
ALS Sample ID: P1604736-007

Test Code: EPA Method 3C Modified
Instrument ID: HP5890 II/GC1/FID/TCD
Analyst: Adam McAfee
Sample Type: 10 L Tedlar Bag
Test Notes:

Date Collected: 10/5/16
Date Received: 10/7/16
Date Analyzed: 10/7/16
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
7782-44-7	**Oxygen***	**16.6**	0.10	
7727-37-9	**Nitrogen**	**79.8**	0.10	
74-82-8	Methane	ND	0.10	
124-38-9	**Carbon Dioxide**	**3.65**	0.10	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
* = The oxygen result may include argon due to coelution. Ambient air includes 0.93% argon.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **R7-70-100-70%-SCD-36**
Client Project ID: **sfi-16-elkcity.ok-comp#1**

ALS Project ID: P1604736
ALS Sample ID: P1604736-009

Test Code: EPA Method 3C Modified
Instrument ID: HP5890 II/GC1/FID/TCD
Analyst: Adam McAfee
Sample Type: 10 L Tedlar Bag
Test Notes:

Date Collected: 10/5/16
Date Received: 10/7/16
Date Analyzed: 10/7/16
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
7782-44-7	**Oxygen***	**15.6**	0.10	
7727-37-9	**Nitrogen**	**80.2**	0.10	
74-82-8	Methane	ND	0.10	
124-38-9	**Carbon Dioxide**	**4.26**	0.10	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
* = The oxygen result may include argon due to coelution. Ambient air includes 0.93% argon.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **Air Hygiene, Incorporated**
Client Sample ID: **Method Blank**
Client Project ID: **sfi-16-elkcity.ok-comp#1**

ALS Project ID: P1604736
ALS Sample ID: P161007-MB

Test Code: EPA Method 3C Modified
Instrument ID: HP5890 II/GC1/FID/TCD
Analyst: Adam McAfee
Sample Type: 10 L Tedlar Bag
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 10/07/16
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result %, v/v	MRL %, v/v	Data Qualifier
7782-44-7	Oxygen*	ND	0.10	
7727-37-9	Nitrogen	ND	0.10	
74-82-8	Methane	ND	0.10	
124-38-9	Carbon Dioxide	ND	0.10	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
* = The oxygen result may include argon due to coelution. Ambient air includes 0.93% argon.

Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071605.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 9:49 am
Operator : amf
Sample : 4736-001
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 10:33:49 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

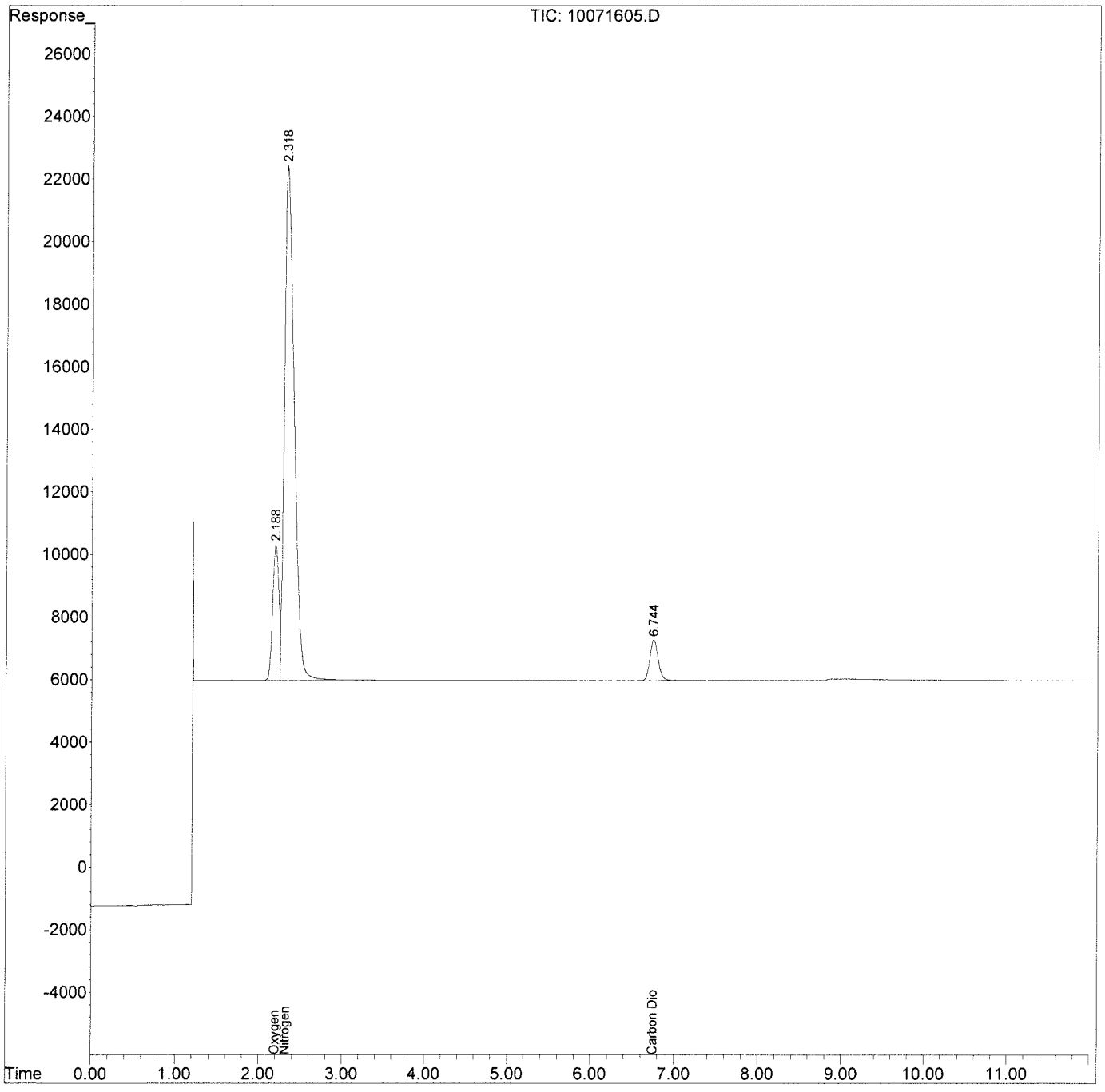
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	2.190	219652	142073.730	ppm
3)	Nitrogen	2.320	1325929	750300.208	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	6.746	88870	42371.006	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071605.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 9:49 am
Operator : amf
Sample : 4736-001
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 10:33:49 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071606.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 10:49 am
Operator : amf
Sample : 4736-001
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 11:09:19 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

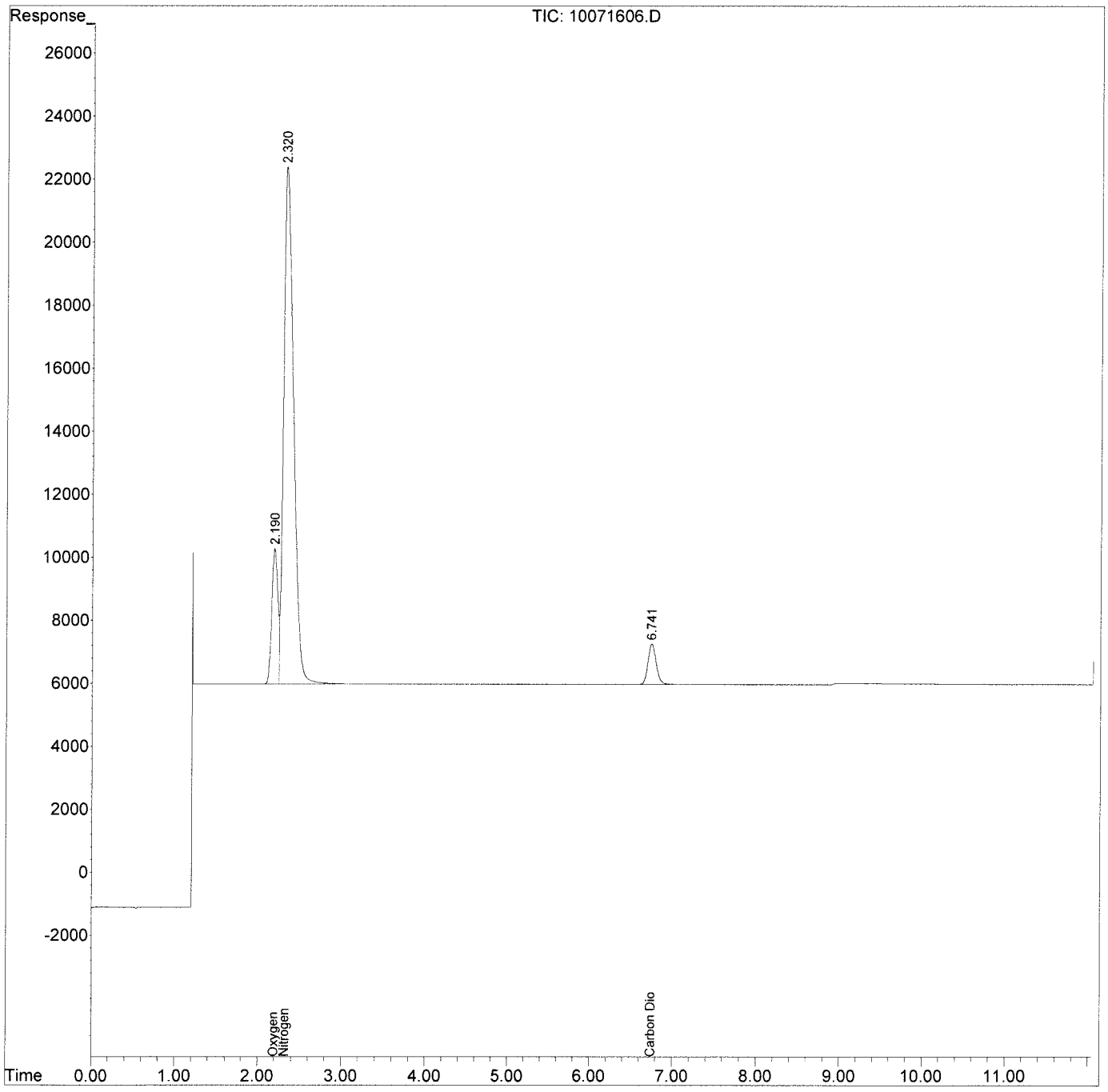
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	2.192	218329	141218.310	ppm
3)	Nitrogen	2.322	1318004	745815.606	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	6.743	88984	42425.372	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071606.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 10:49 am
Operator : amf
Sample : 4736-001
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 11:09:19 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071607.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 11:05 am
Operator : amf
Sample : 4736-001
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 11:26:23 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

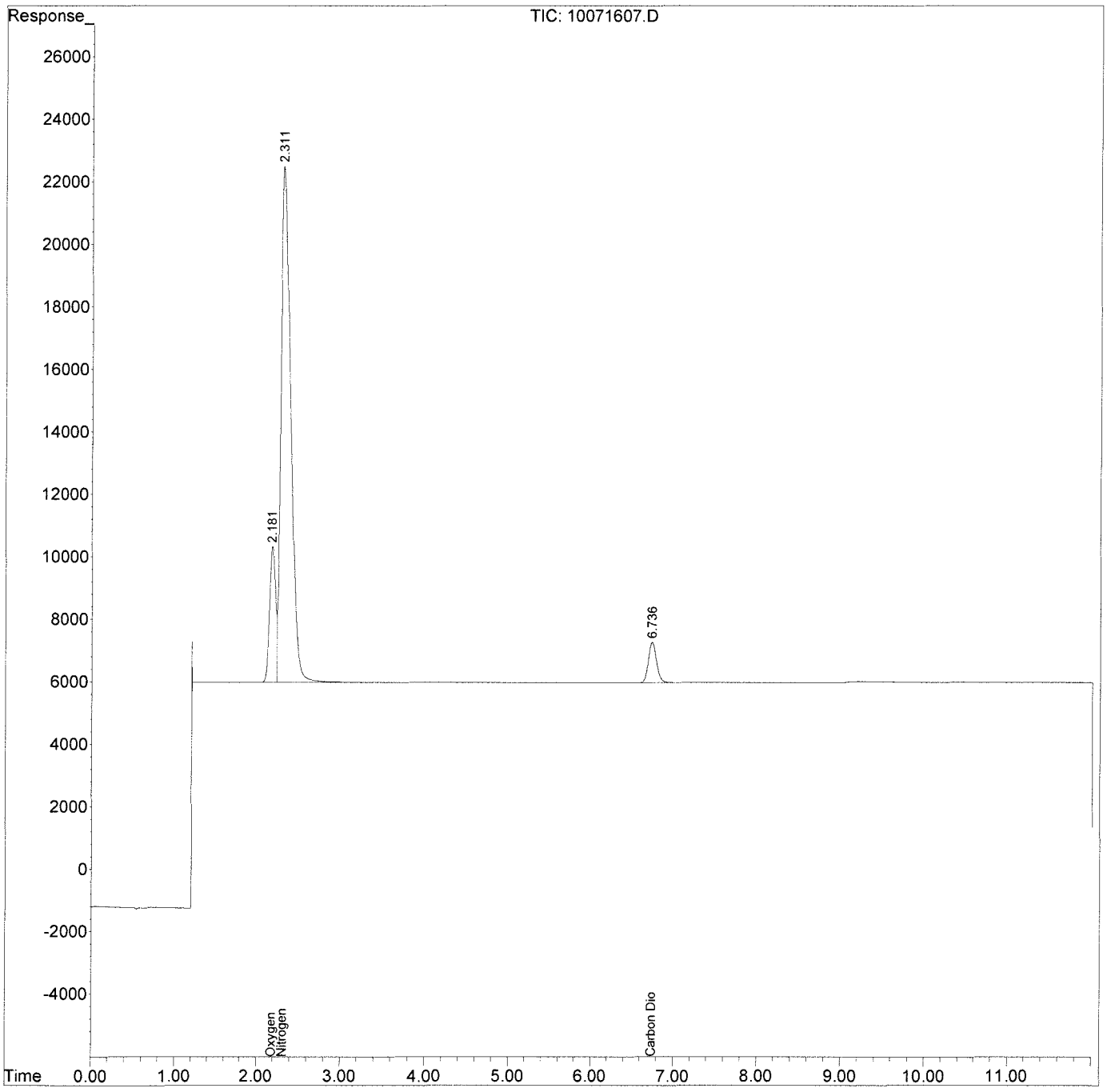
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	2.183	220093	142359.545	ppm
3)	Nitrogen	2.312	1331005	753172.358	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	6.737	89141	42500.291	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071607.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 11:05 am
Operator : amf
Sample : 4736-001
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 11:26:23 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071608.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 11:22 am
Operator : amf
Sample : 4736-003
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 11:53:55 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

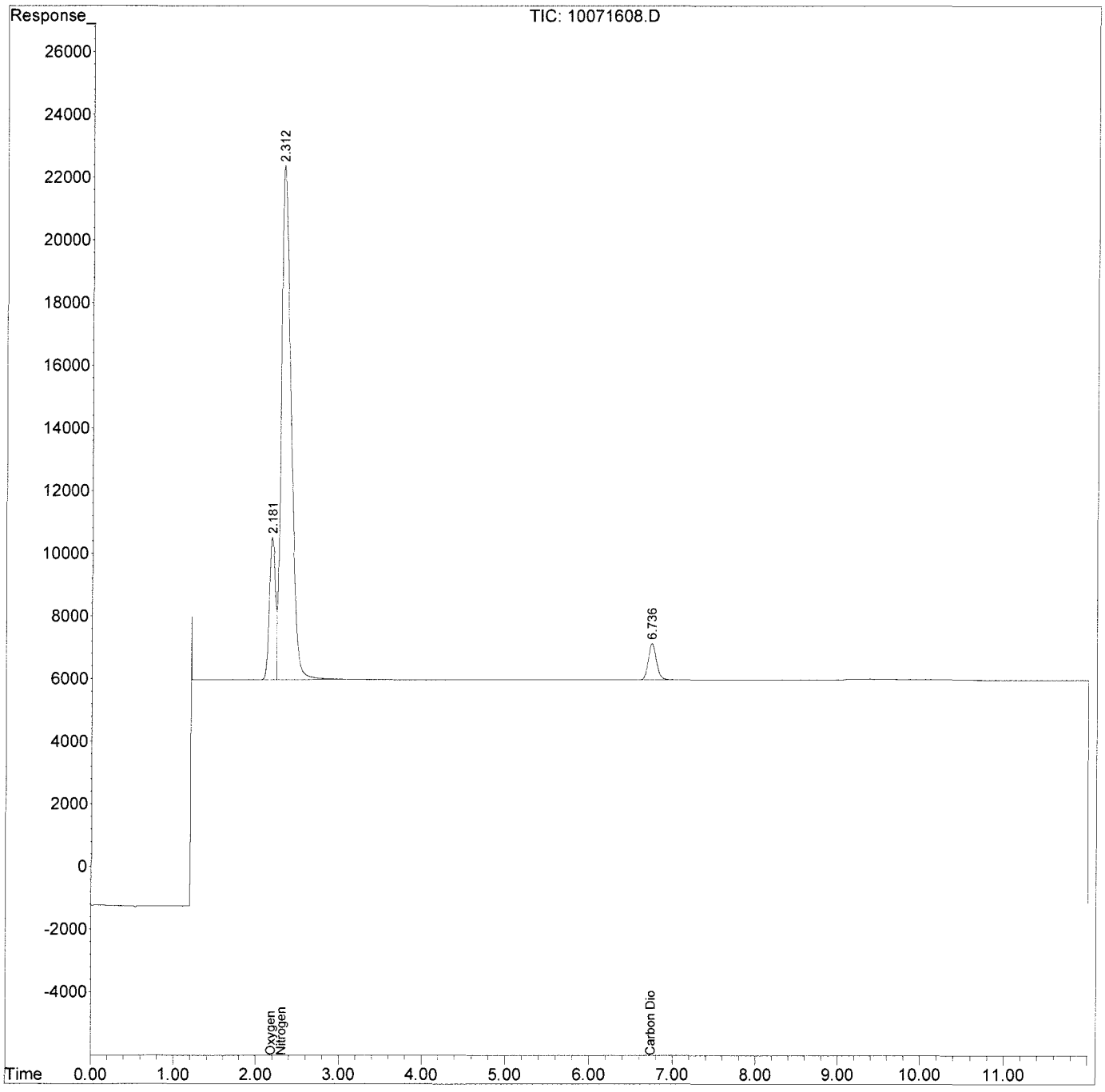
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.000	0	N.D.	ppm	d
2)	Oxygen	2.183	230303	148962.911	ppm	
3)	Nitrogen	2.313	1320849	747425.701	ppm	
4)	Carbon Monoxide	0.000	0	N.D.	ppm	
5)	Methane	0.000	0	N.D.	ppm	
6)	Carbon Dioxide	6.737	79744	38020.236	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071608.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 11:22 am
Operator : amf
Sample : 4736-003
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 11:53:55 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071609.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 11:38 am
Operator : amf
Sample : 4736-003
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 12:02:16 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

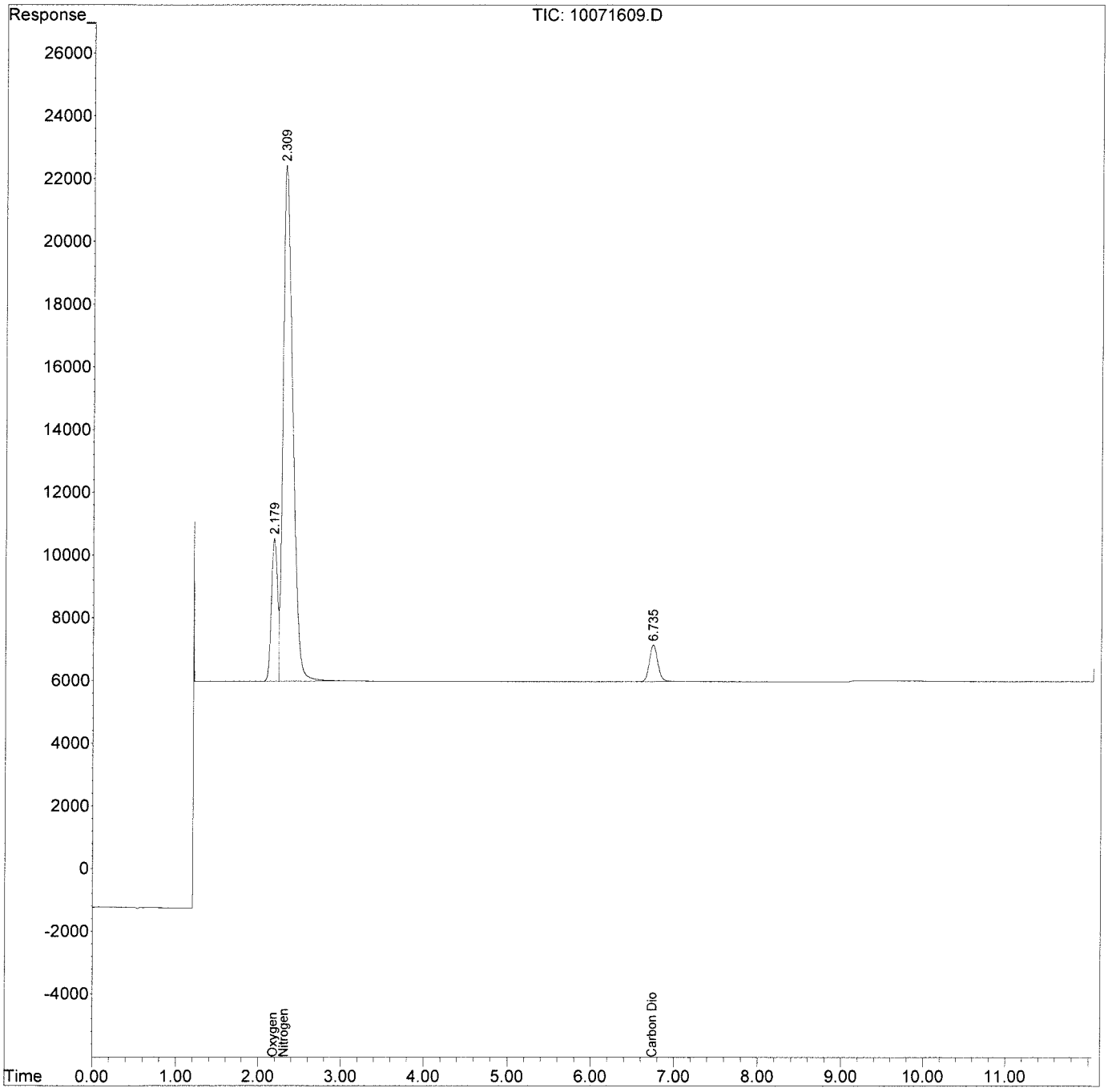
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	2.180	231443	149700.330	ppm
3)	Nitrogen	2.310	1327551	751217.808	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	6.737	80247	38259.747	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071609.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 11:38 am
Operator : amf
Sample : 4736-003
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 12:02:16 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071610.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 11:54 am
Operator : amf
Sample : 4736-003
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 13:11:47 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

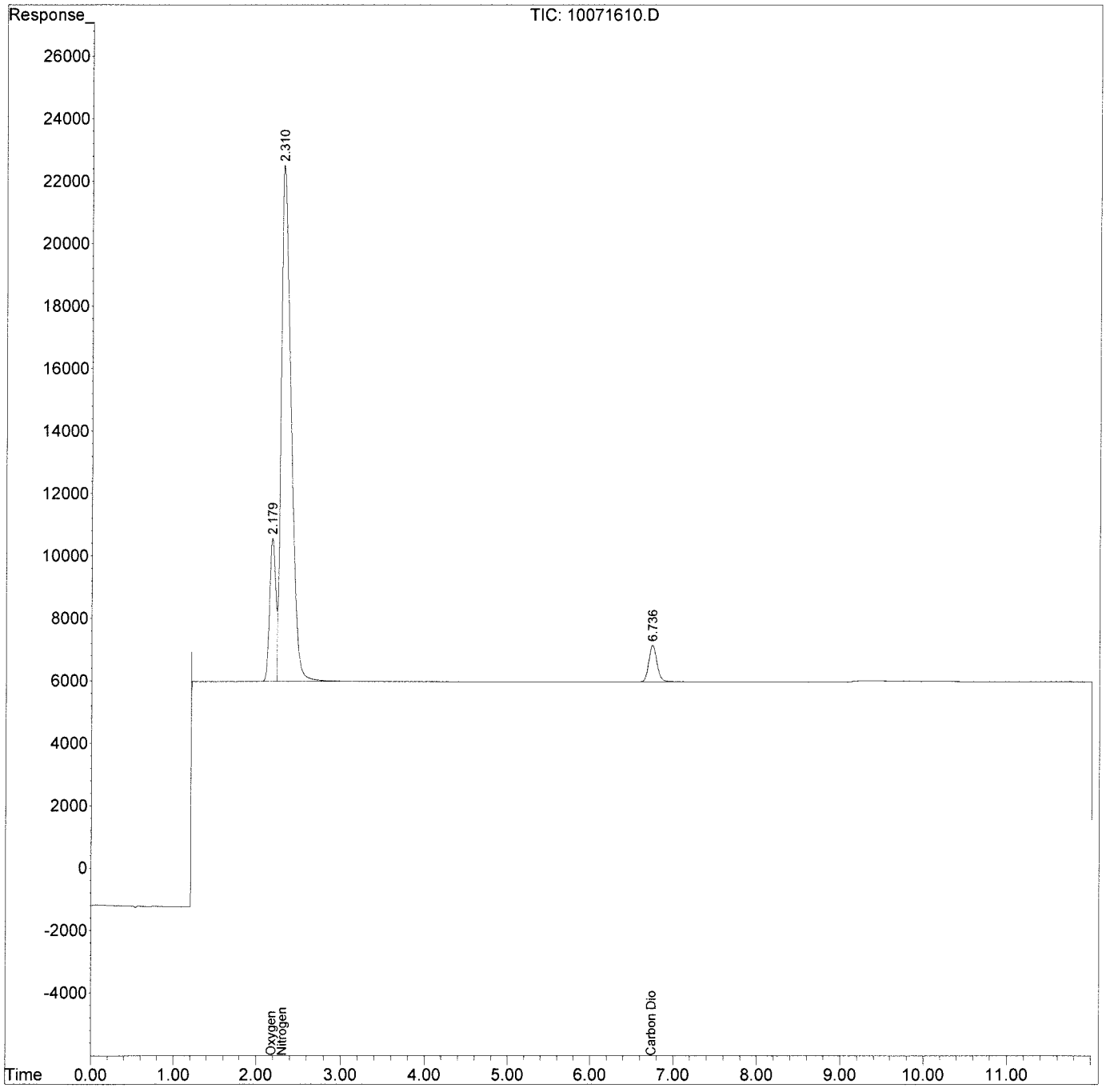
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	2.181	232809	150584.350	ppm
3)	Nitrogen	2.311	1335583	755762.872	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	6.738	80547	38402.933	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071610.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 11:54 am
Operator : amf
Sample : 4736-003
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 13:11:47 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071611.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 1:07 pm
Operator : amf
Sample : 4736-005
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 13:43:42 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

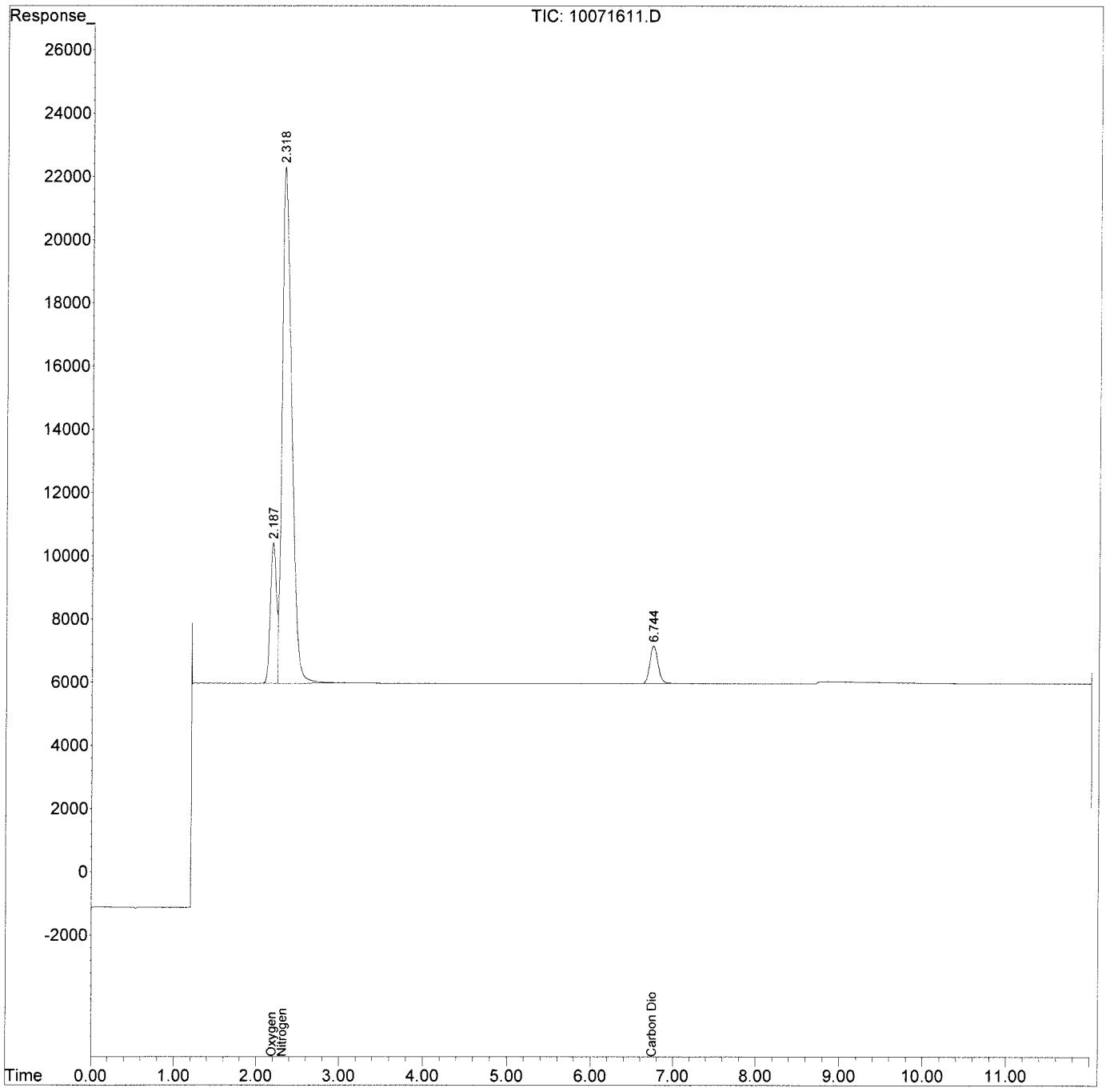
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	2.188	226295	146371.017	ppm
3)	Nitrogen	2.320	1314133	743625.312	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	6.746	82347	39261.287	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071611.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 1:07 pm
Operator : amf
Sample : 4736-005
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 13:43:42 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071612.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 1:24 pm
Operator : amf
Sample : 4736-005
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 13:43:55 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

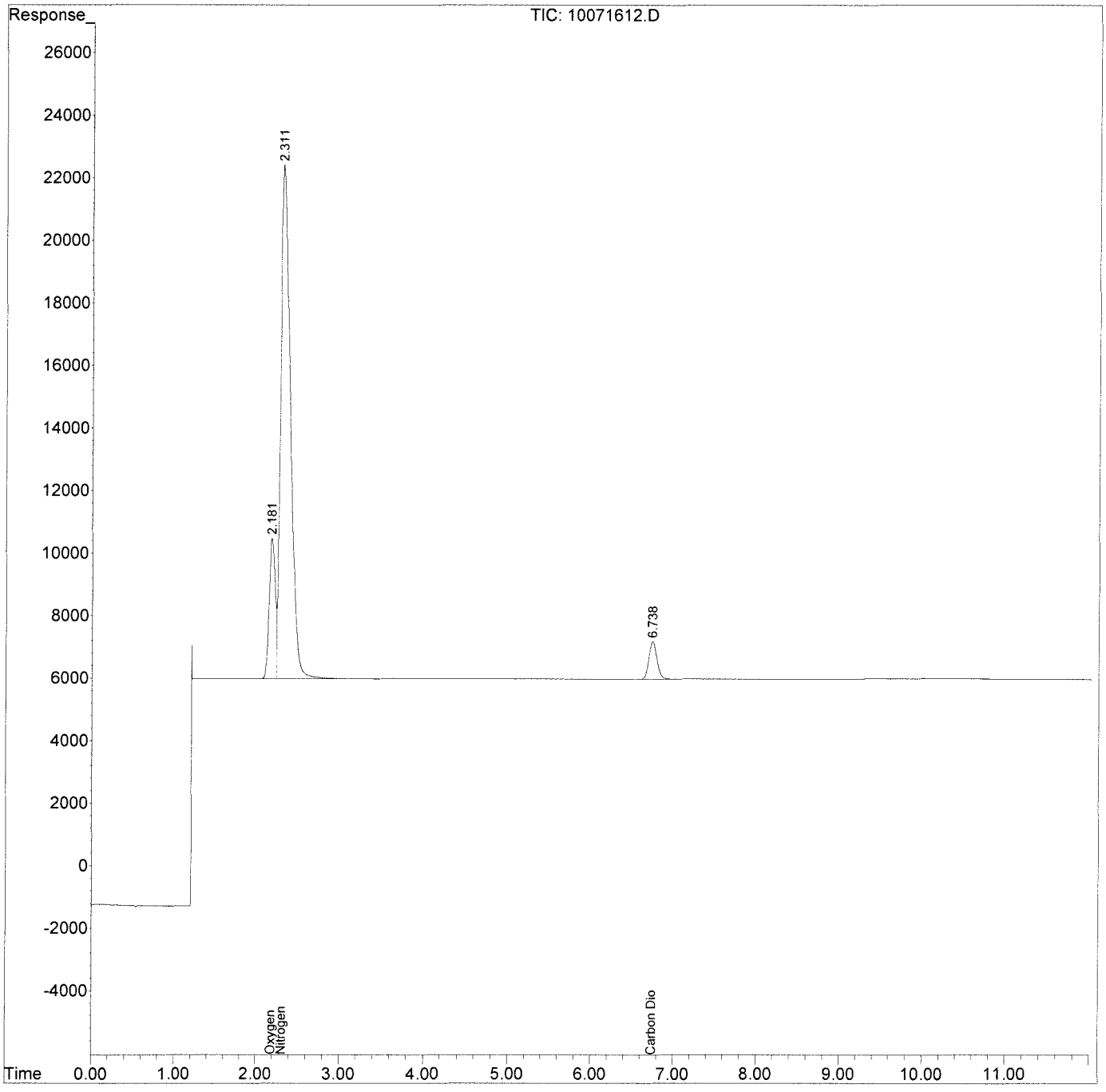
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	2.182	227616	147225.396	ppm
3)	Nitrogen	2.313	1324995	749771.700	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	6.740	82833	39492.911	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071612.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 1:24 pm
Operator : amf
Sample : 4736-005
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 13:43:55 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071613.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 1:40 pm
Operator : amf
Sample : 4736-005
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 13:59:52 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

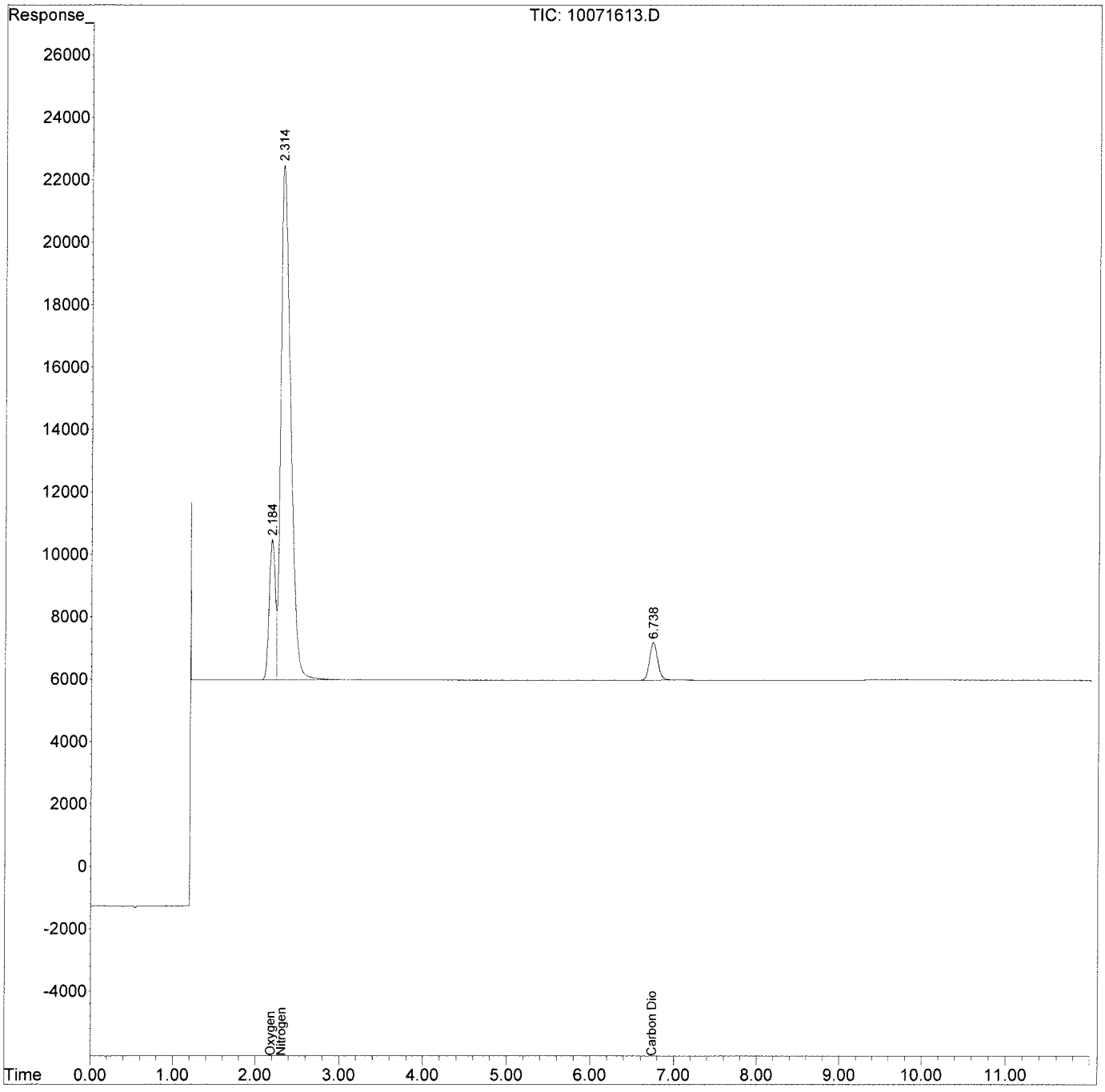
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	2.185	228276	147652.000	ppm
3)	Nitrogen	2.315	1329060	752071.846	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	6.739	82883	39516.656	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071613.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 1:40 pm
Operator : amf
Sample : 4736-005
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 13:59:52 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071614.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 1:57 pm
Operator : amf
Sample : 4736-007
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 14:16:46 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

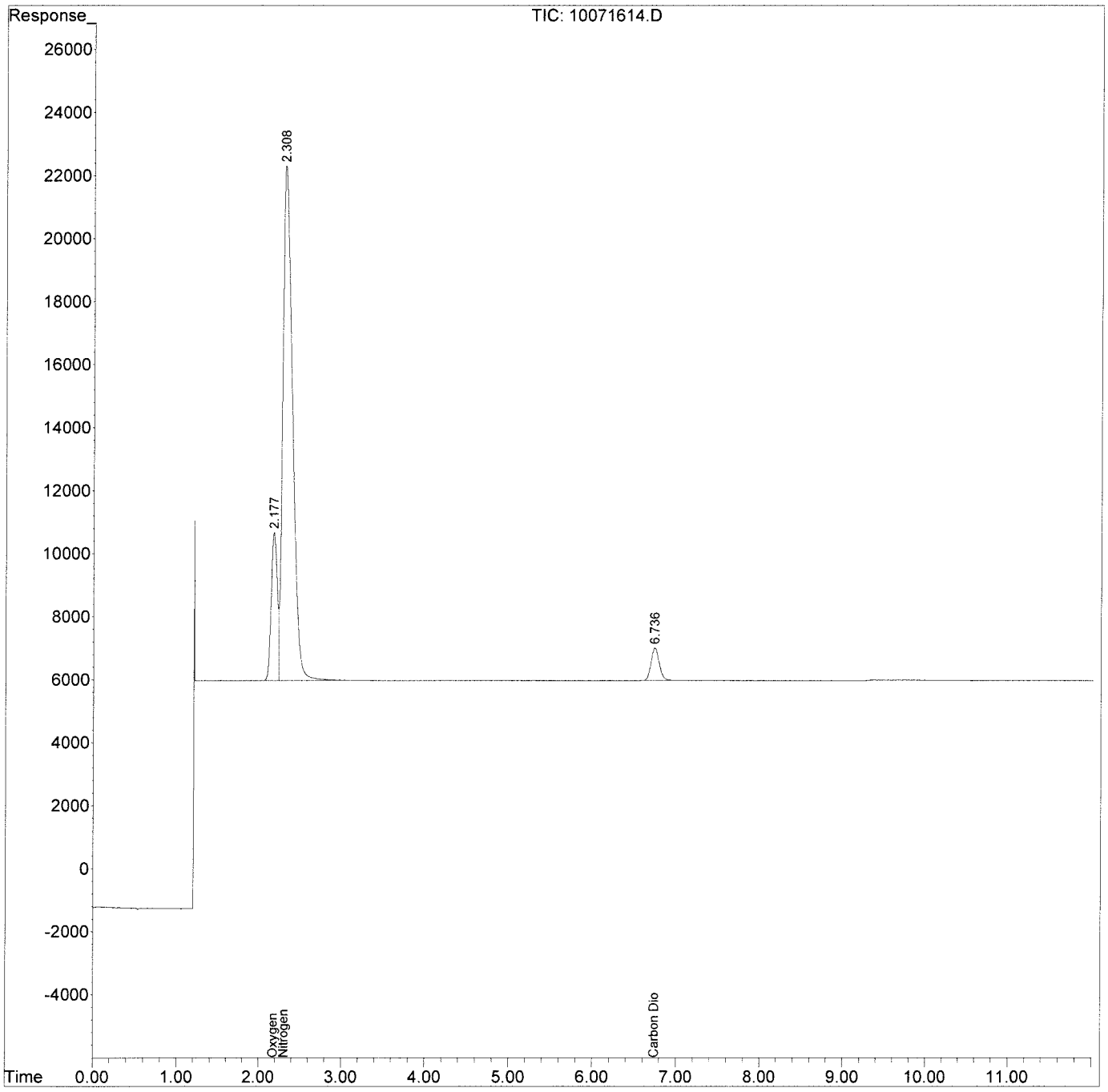
	Compound	R.T.	Response	Conc Units
Target Compounds				
1)	Hydrogen	0.000	0	N.D. ppm
2)	Oxygen	2.178	239616	154987.103 ppm
3)	Nitrogen	2.310	1318032	745831.224 ppm
4)	Carbon Monoxide	0.000	0	N.D. ppm
5)	Methane	0.000	0	N.D. ppm
6)	Carbon Dioxide	6.737	71635	34153.664 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071614.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 1:57 pm
Operator : amf
Sample : 4736-007
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 14:16:46 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071615.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 2:22 pm
Operator : amf
Sample : 4736-007
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 14:42:01 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

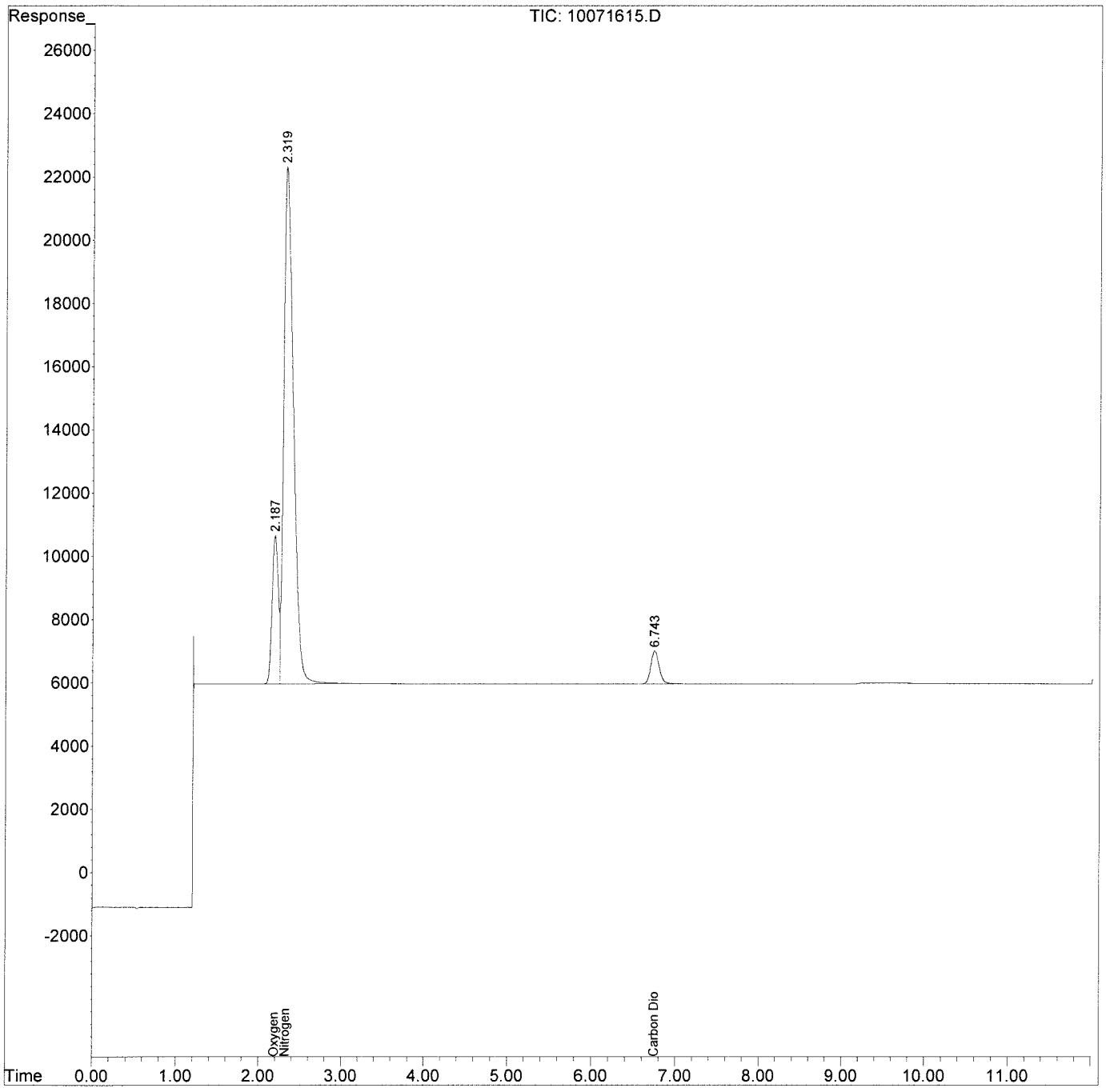
	Compound	R.T.	Response	Conc Units
Target Compounds				
1)	Hydrogen	0.000	0	N.D. ppm
2)	Oxygen	2.188	239772	155087.815 ppm
3)	Nitrogen	2.320	1316449	744935.536 ppm
4)	Carbon Monoxide	0.000	0	N.D. ppm
5)	Methane	0.000	0	N.D. ppm
6)	Carbon Dioxide	6.744	71555	34115.605 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071615.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 2:22 pm
Operator : amf
Sample : 4736-007
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 14:42:01 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071616.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 2:38 pm
Operator : amf
Sample : 4736-007
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 14:58:03 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

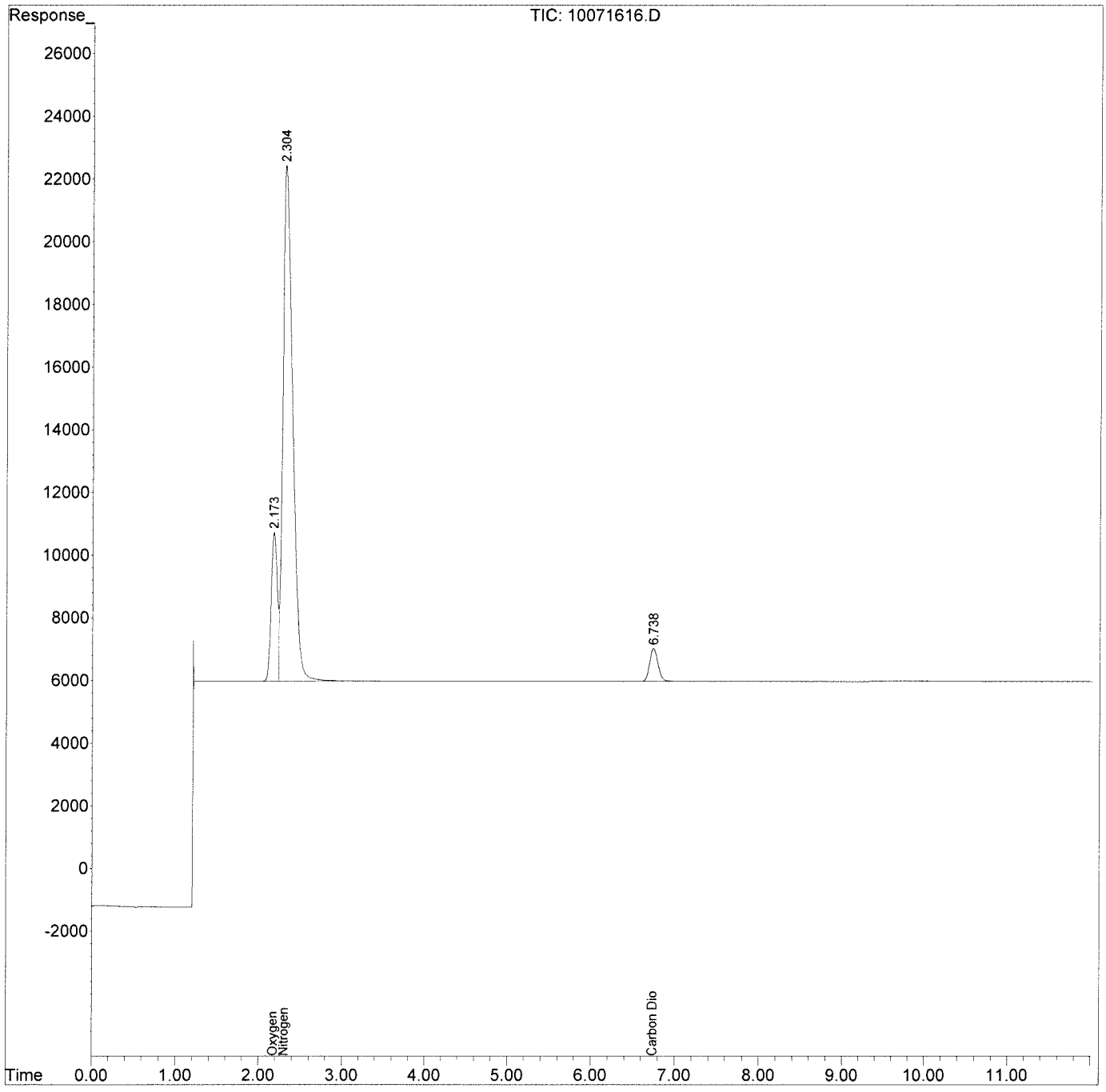
	Compound	R.T.	Response	Conc Units
Target Compounds				
1)	Hydrogen	0.000	0	N.D. ppm
2)	Oxygen	2.175	242066	156571.919 ppm
3)	Nitrogen	2.306	1331815	753630.524 ppm
4)	Carbon Monoxide	0.000	0	N.D. ppm
5)	Methane	0.000	0	N.D. ppm
6)	Carbon Dioxide	6.740	72140	34394.585 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071616.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 2:38 pm
Operator : amf
Sample : 4736-007
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 14:58:03 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071617.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 2:55 pm
Operator : amf
Sample : 4736-009
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 15:16:22 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

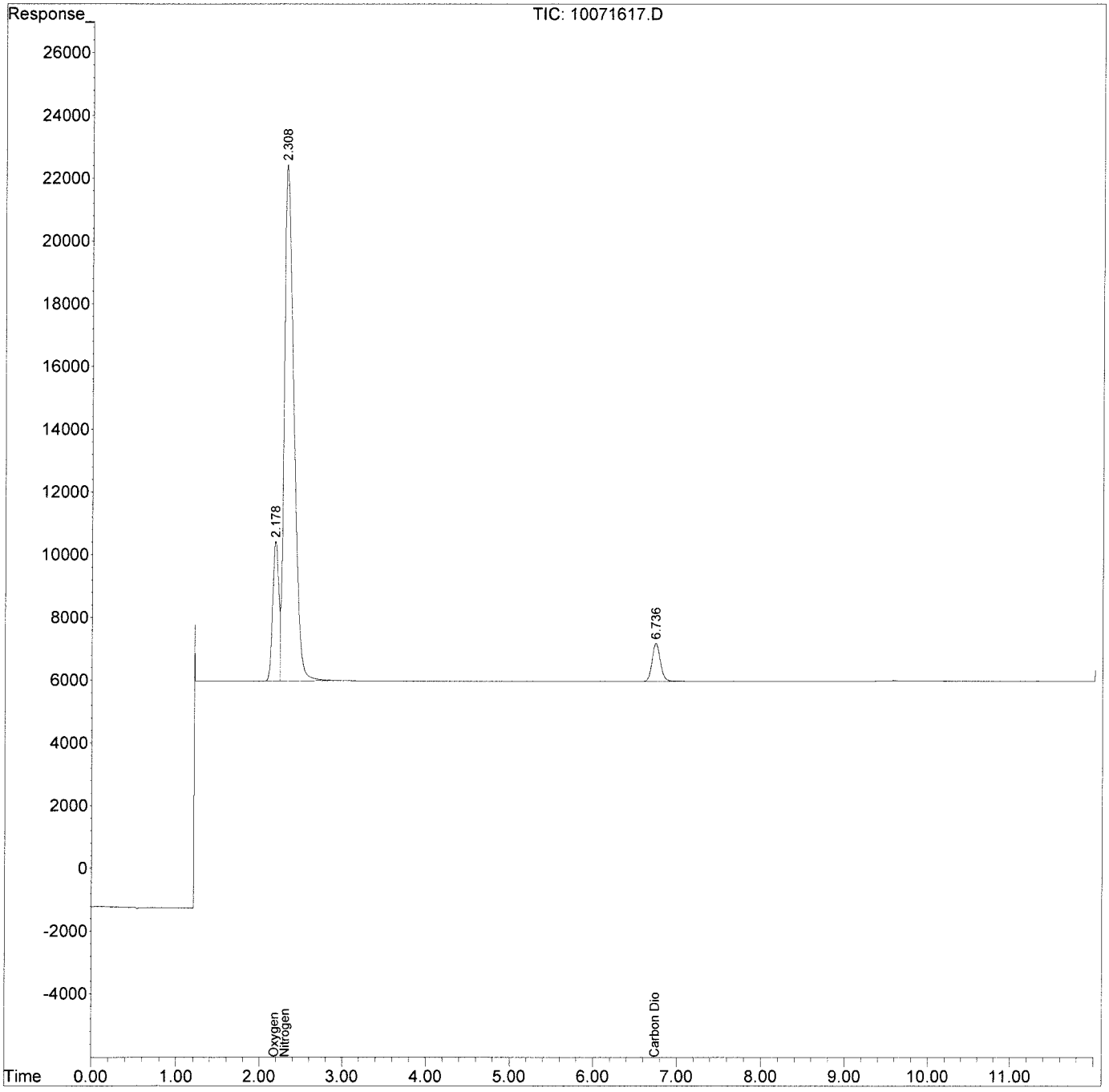
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	2.180	225282	145715.338	ppm
3)	Nitrogen	2.310	1326558	750655.914	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	6.738	83720	39915.477	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071617.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 2:55 pm
Operator : amf
Sample : 4736-009
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 15:16:22 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071618.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 3:11 pm
Operator : amf
Sample : 4736-009
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 15:31:10 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

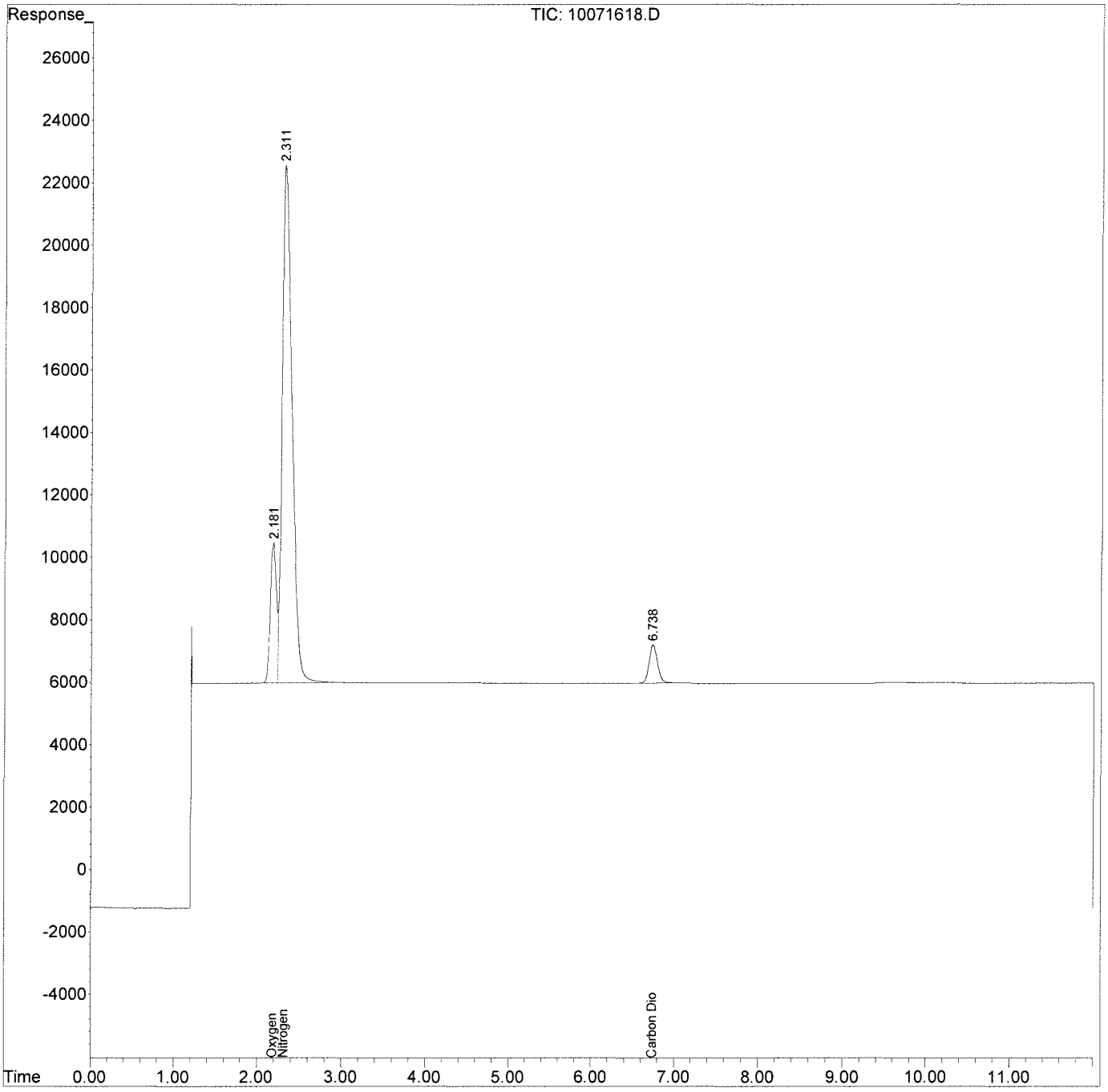
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	2.183	227298	147019.320	ppm
3)	Nitrogen	2.312	1335440	755681.986	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	6.739	84318	40200.589	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071618.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 3:11 pm
Operator : amf
Sample : 4736-009
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 15:31:10 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071619.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 3:27 pm
Operator : amf
Sample : 4736-009
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 15:54:10 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

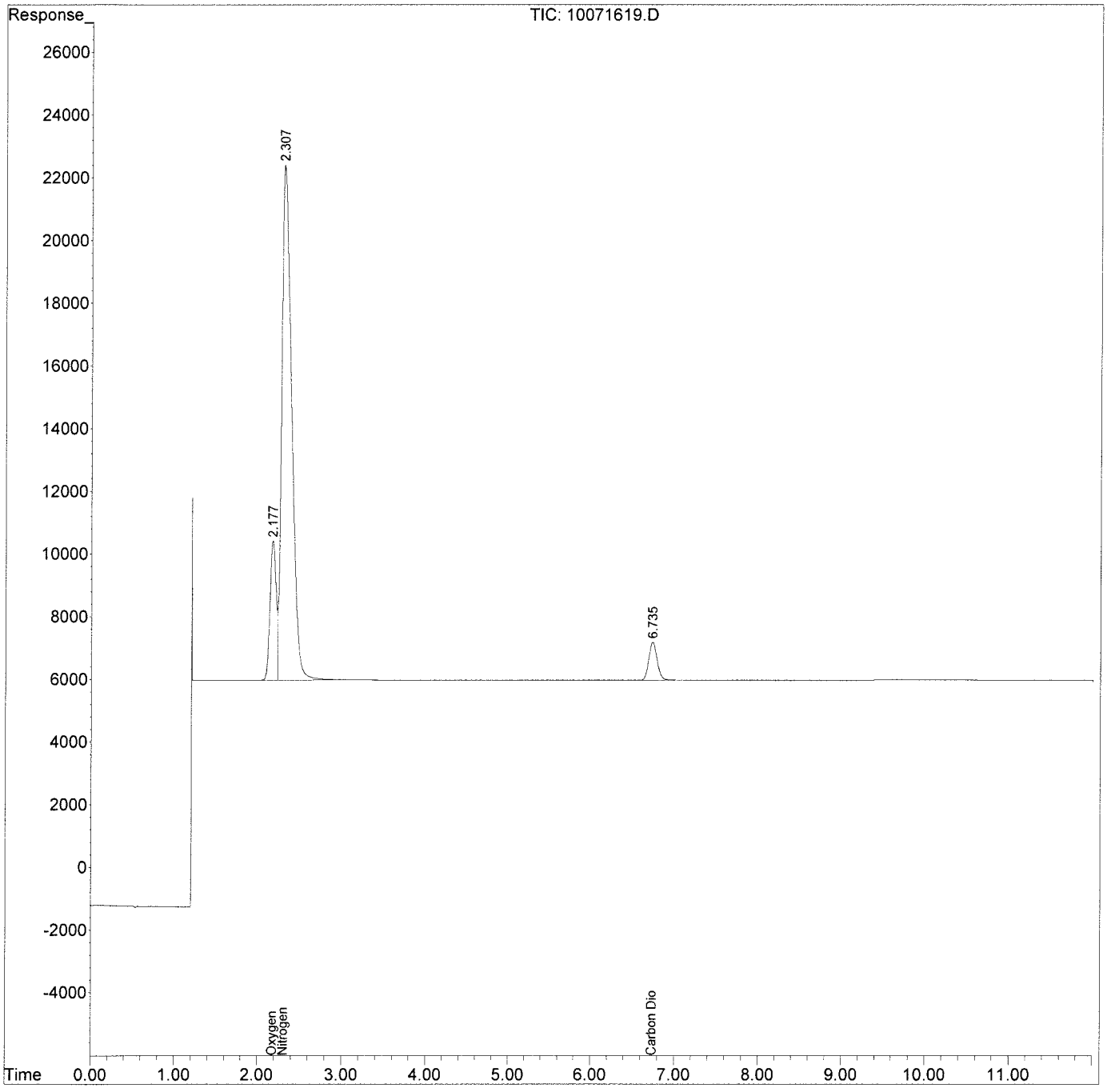
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	2.179	224771	145384.858	ppm
3)	Nitrogen	2.308	1323226	748770.633	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	6.737	83420	39772.557	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071619.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 3:27 pm
Operator : amf
Sample : 4736-009
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 15:54:10 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071602.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 8:41 am
Operator : amf
Sample : mb
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 09:51:15 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

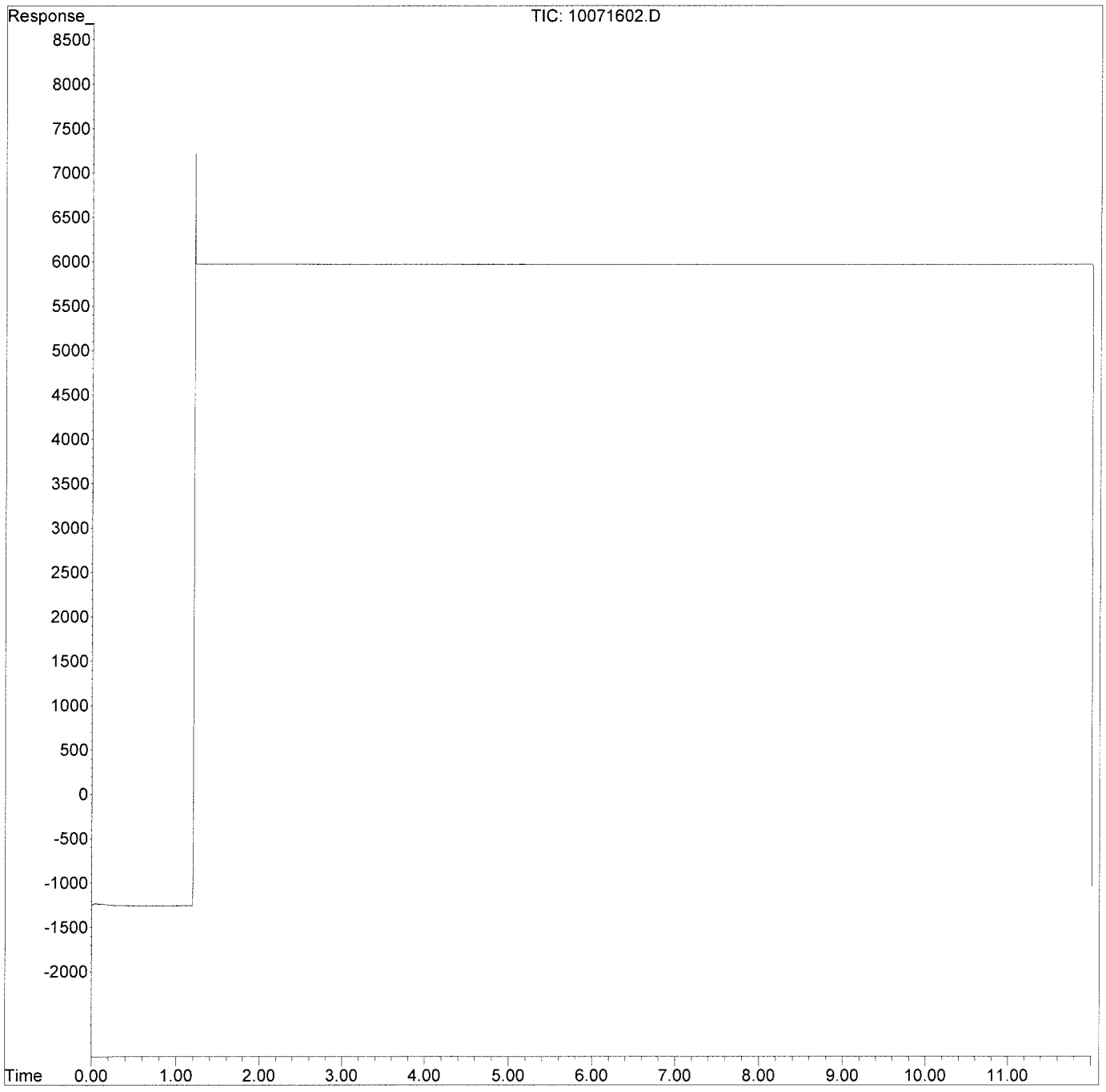
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	0.000	0	N.D.	ppm
3)	Nitrogen	0.000	0	N.D.	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071602.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 8:41 am
Operator : amf
Sample : mb
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 09:51:15 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Response Factor Report GC01_FXG

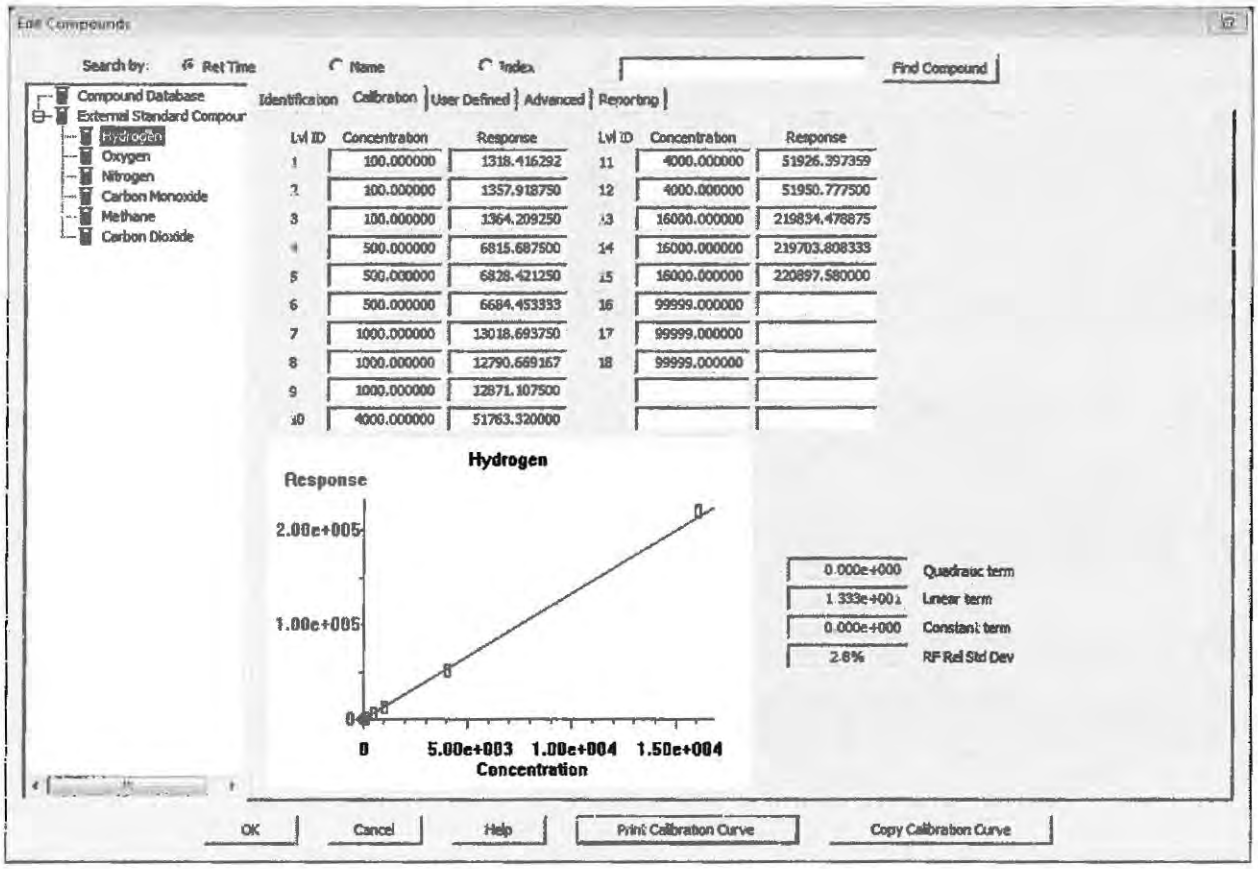
Method Path : I:\GC01\METHODS\
Method File : GC1_trip082216.M
Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
Last Update : Tue Aug 23 11:02:57 2016
Response Via : Initial Calibration

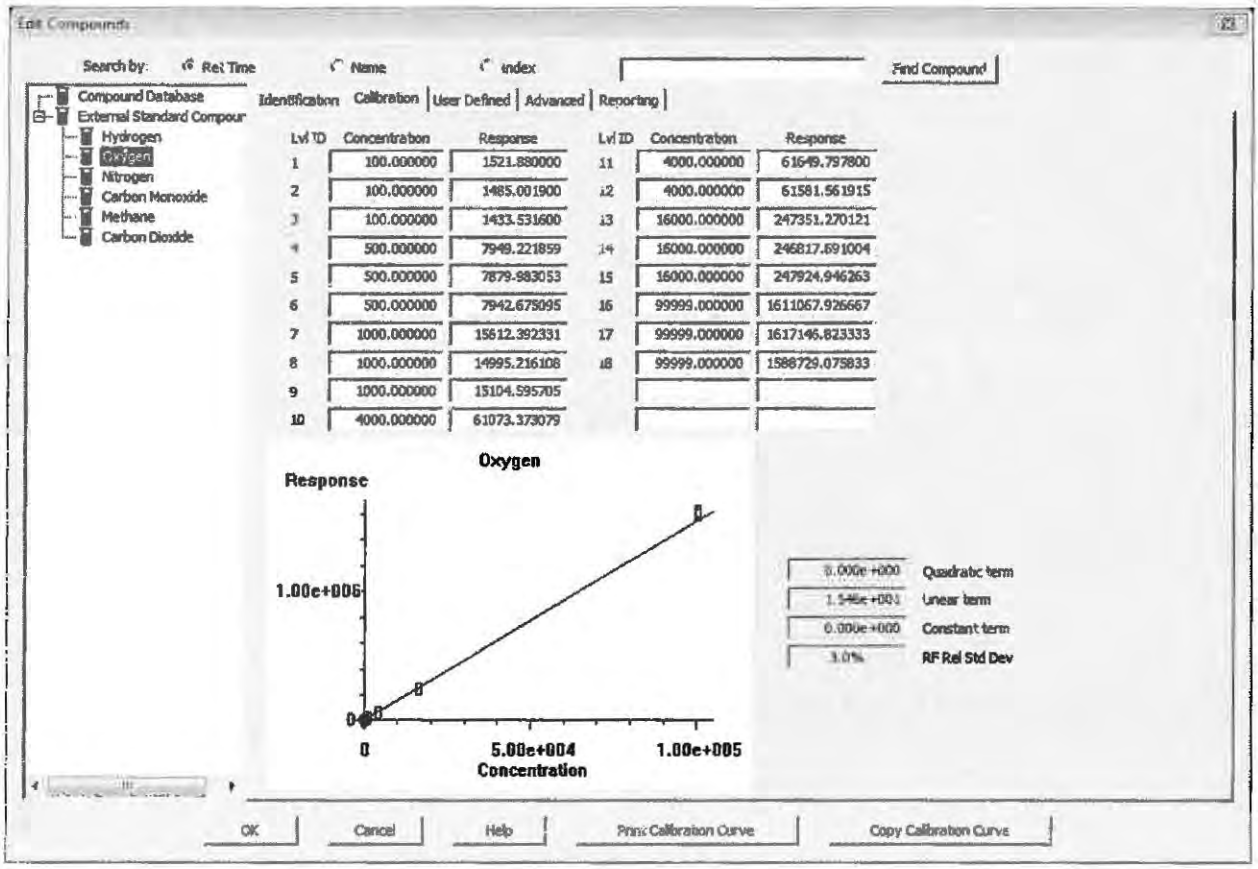
Calibration Files
1 =08221601.D 2 =08221602.D 3 =08221603.D
4 =08221604.D 5 =08221605.D 6 =08221606.D

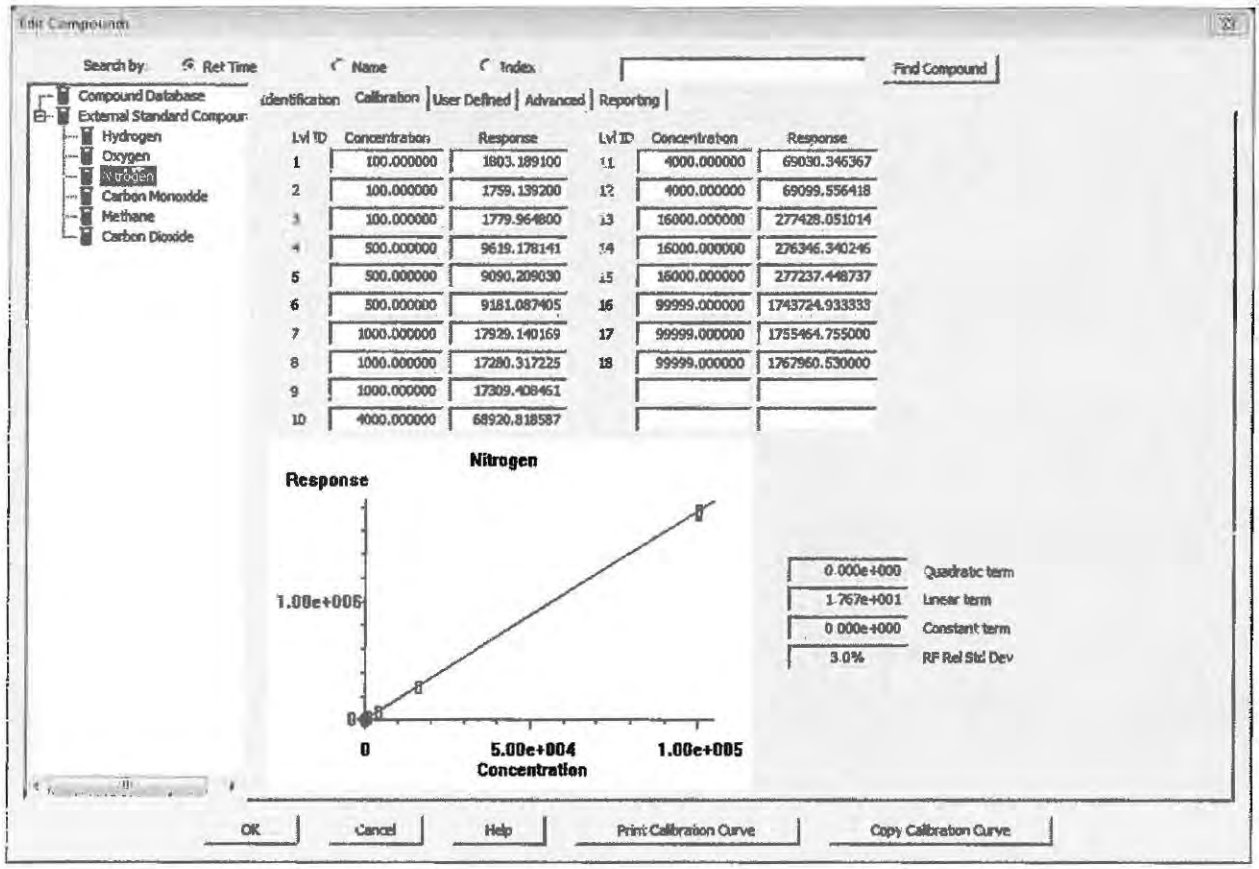
	Compound	1	2	3	4	5	6	Avg		%RSD
1)	Hydrogen	1.318	1.358	1.364	1.363	1.366	1.337	1.333	E1	2.78
2)	Oxygen	1.522	1.485	1.434	1.590	1.576	1.589	1.546	E1	3.01
3)	Nitrogen	1.803	1.759	1.780	1.924	1.818	1.836	1.767	E1	2.97
4)	Carbon Monoxide	1.653	1.676	1.610	1.844	1.851	1.826	1.735	E1	3.80
5)	Methane	1.240	1.288	1.372	1.359	1.347	1.373	1.307	E1	2.74
6)	Carbon Dioxide	1.988	2.145	2.152	2.236	2.239	2.197	2.097	E1	3.52

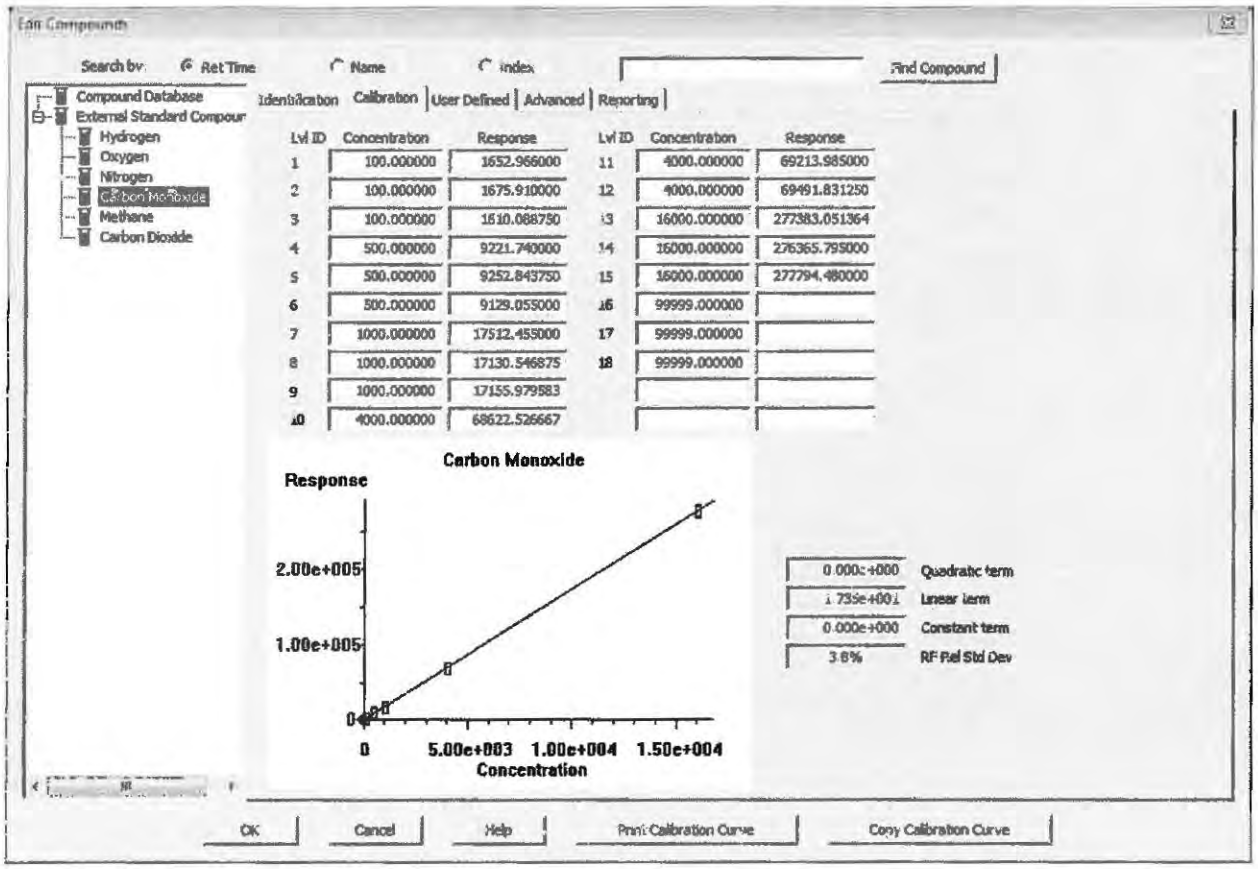
(#) = Out of Range ### Number of calibration levels exceeded format ###

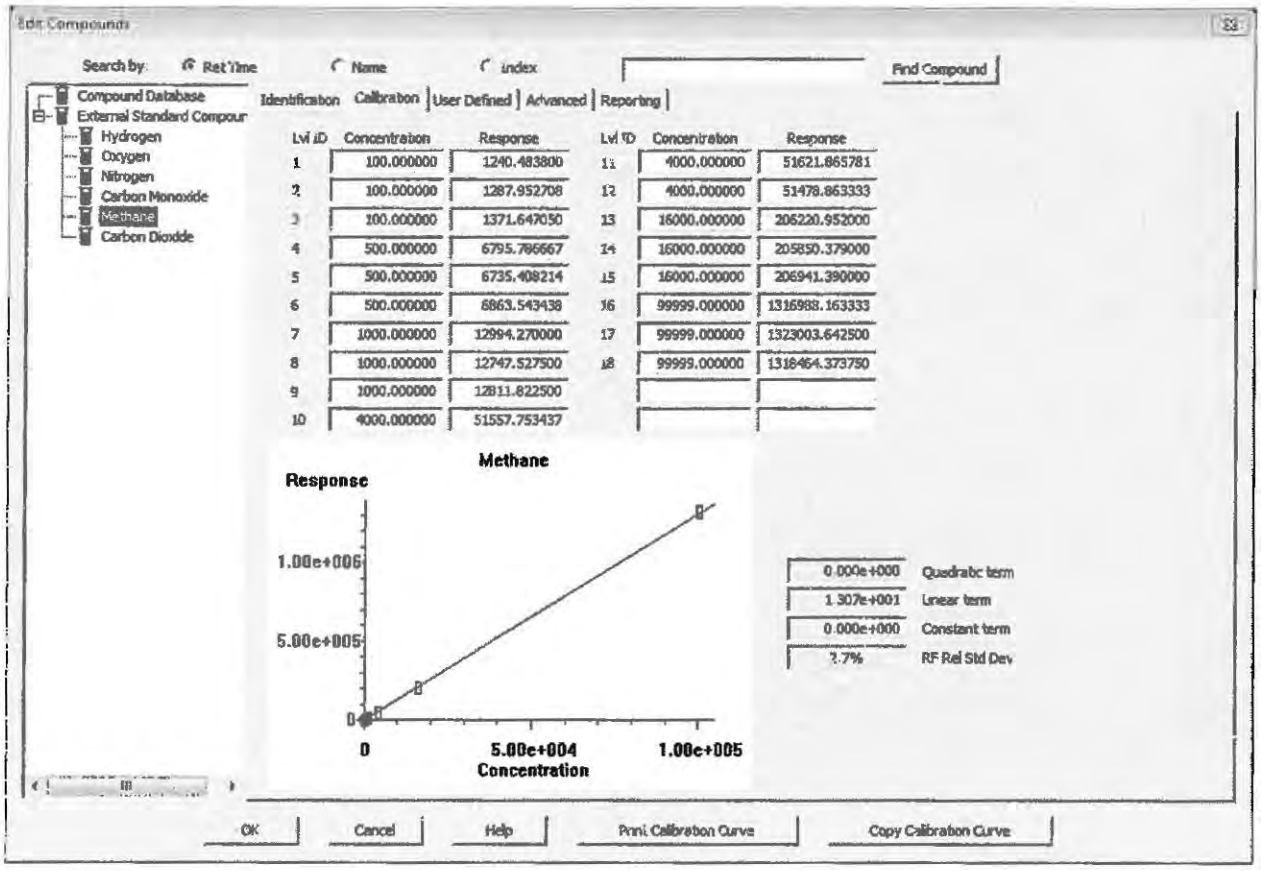
GC1_trip082216.M Tue Aug 23 12:46:23 2016

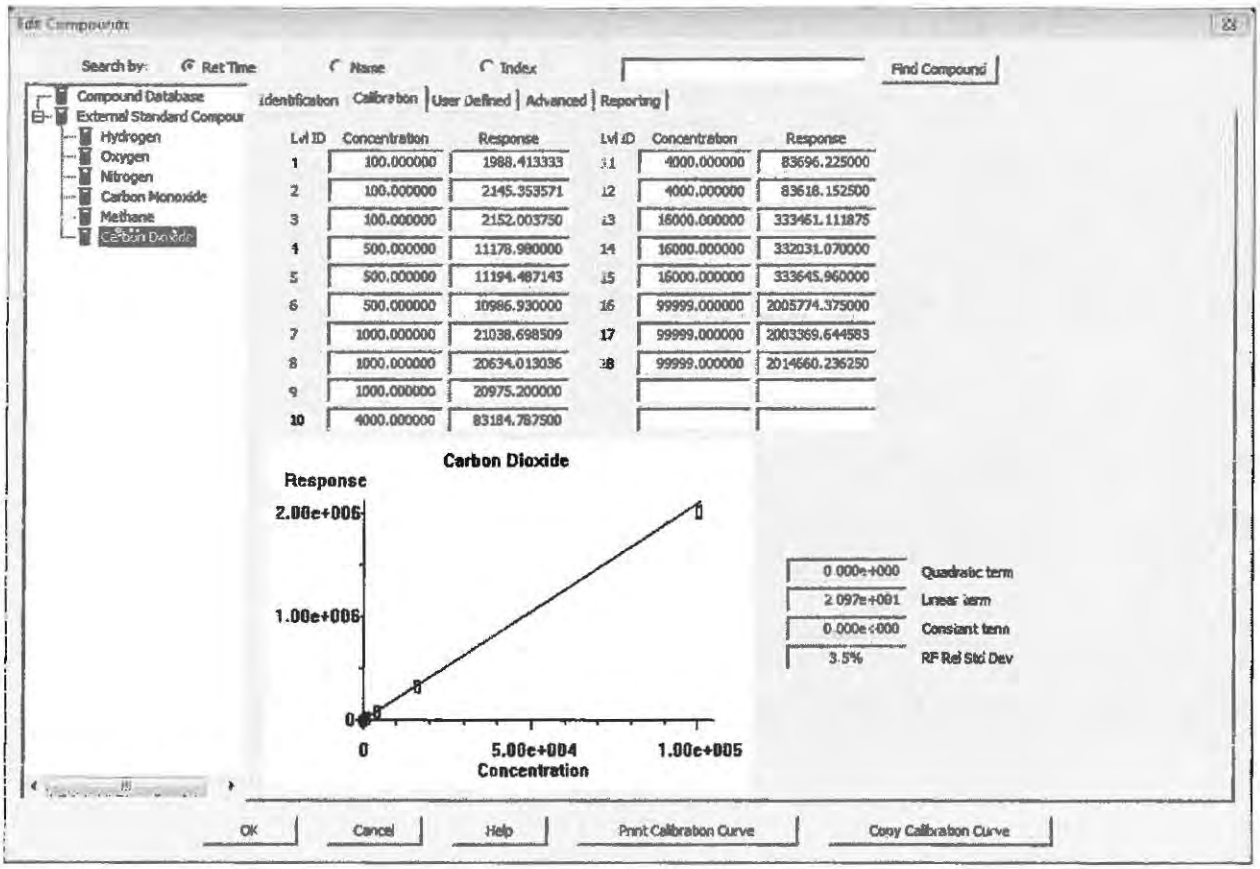

Edit Compounds
Search by:
Ret Time
Name
Index
Find Compound
Compound Database
External Standard Compour
Hydrogen
Oxygen
Nitrogen
Carbon Monoxide
Methane
Carbon Dioxide
Identification
Calibration
User Defined
Advanced
Reporting
Lvl ID
Concentration
Response
1 100.000000 1318.416292
2 100.000000 1357.918750
3 100.000000 1364.209250
4 500.000000 6815.687500
5 500.000000 6828.421250
6 500.000000 6684.453333
7 1000.000000 13018.693750
8 1000.000000 12790.669167
9 1000.000000 12871.107500
10 4000.000000 51763.320000
11 4000.000000 51926.397359
12 4000.000000 51950.777500
13 16000.000000 219834.478875
14 16000.000000 219703.808333
15 16000.000000 220897.580000
16 99999.000000
17 99999.000000
18 99999.000000
Hydrogen
Response
2.00e+005
1.00e+005
0
0
5.00e+003
1.00e+004
1.50e+004
Concentration
0.000e+000 Quadratic term
1.333e+001 Linear term
0.000e+000 Constant term
2.8% RF Rel Std Dev
OK
Cancel
Help
Print Calibration Curve
Copy Calibration Curve


Edit Compounds
Search by: Rel Time Name Index
Find Compound
Compound Database
External Standard Compour
Hydrogen
Oxygen
Nitrogen
Carbon Monoxide
Methane
Carbon Dioxide
Identification Calibration User Defined Advanced Reporting
Lvl ID Concentration Response
1 100.000000 1521.880000
2 100.000000 1485.001900
3 100.000000 1433.531600
4 500.000000 7949.221859
5 500.000000 7879.983053
6 500.000000 7942.678095
7 1000.000000 15812.392331
8 1000.000000 14995.216108
9 1000.000000 15104.595705
10 4000.000000 61073.373079
11 4000.000000 61649.797800
12 4000.000000 61581.561915
13 16000.000000 247351.270121
14 16000.000000 246817.691004
15 16000.000000 247924.946263
16 99999.000000 1611067.926667
17 99999.000000 1617146.823333
18 99999.000000 1588729.075833
Oxygen
Response
1.00e+006
0
0
5.00e+004
1.00e+005
Concentration
0.000e+000 Quadratic term
1.546e+001 Linear term
0.000e+000 Constant term
3.0% RF Rel Std Dev
OK
Cancel
Help
Print Calibration Curve
Copy Calibration Curve


Edit Compound
Search by: Ret Time Name Index
Find Compound
Compound Database
External Standard Compour
Hydrogen
Oxygen
Nitrogen
Carbon Monoxide
Methane
Carbon Dioxide
Identification Calibration User Defined Advanced Reporting
Lvl ID Concentration Response
1 100.000000 1803.189100
2 100.000000 1759.139200
3 100.000000 1779.964800
4 500.000000 9619.178141
5 500.000000 9090.209030
6 500.000000 9181.087405
7 1000.000000 17929.140169
8 1000.000000 17280.317225
9 1000.000000 17309.408461
10 4000.000000 68920.818587
11 4000.000000 69030.346367
12 4000.000000 69099.556418
13 16000.000000 277428.051014
14 16000.000000 276346.340246
15 16000.000000 277237.448737
16 99999.000000 1743724.933333
17 99999.000000 1755464.755000
18 99999.000000 1767960.530000
Nitrogen
Response
1.00e+006
0
0
5.00e+004
1.00e+005
Concentration
0.000e+000 Quadratic term
1.767e+001 Linear term
0.000e+000 Constant term
3.0% RF Rel Std Dev
OK
Cancel
Help
Print Calibration Curve
Copy Calibration Curve


Edit Compounds
Search by: Ret Time Name Index
Find Compound
Compound Database
External Standard Compour
Hydrogen
Oxygen
Nitrogen
Carbon Monoxide
Methane
Carbon Dioxide
Identification Calibration User Defined Advanced Reporting
Lvl ID Concentration Response
1 100.000000 1652.966000
2 100.000000 1675.910000
3 100.000000 1610.088750
4 500.000000 9221.740000
5 500.000000 9252.843750
6 500.000000 9129.055000
7 1000.000000 17512.455000
8 1000.000000 17130.546875
9 1000.000000 17155.979583
10 4000.000000 68622.526667
11 4000.000000 69213.985000
12 4000.000000 69491.831250
13 16000.000000 277383.051364
14 16000.000000 276365.795000
15 16000.000000 277794.480000
16 99999.000000
17 99999.000000
18 99999.000000
Carbon Monoxide
Response
2.00e+005
1.00e+005
0
0 5.00e+003 1.00e+004 1.50e+004
Concentration
0.000e+000 Quadratic term
1.735e+001 Linear term
0.000e+000 Constant term
3.8% RF Rel Std Dev
OK
Cancel
Help
Print Calibration Curve
Copy Calibration Curve


Edit Compounds
Search by: Ret Time Name Index
Find Compound
Compound Database
External Standard Compour
Hydrogen
Oxygen
Nitrogen
Carbon Monoxide
Methane
Carbon Dioxide
Identification Calibration User Defined Advanced Reporting
Lvl ID Concentration Response
1 100.000000 1240.483800
2 100.000000 1287.952708
3 100.000000 1371.647050
4 500.000000 6795.766667
5 500.000000 6735.408214
6 500.000000 6863.543438
7 1000.000000 12994.270000
8 1000.000000 12747.527500
9 1000.000000 12811.822500
10 4000.000000 51557.753437
11 4000.000000 51621.865781
12 4000.000000 51478.863333
13 16000.000000 206220.952000
14 16000.000000 205850.379000
15 16000.000000 206941.390000
16 99999.000000 1316988.163333
17 99999.000000 1323003.642500
18 99999.000000 1318464.373750
Methane
Response
1.00e+006
5.00e+005
0
0
5.00e+004
1.00e+005
Concentration
0.000e+000 Quadratic term
1.307e+001 Linear term
0.000e+000 Constant term
?.?% RF Rel Std Dev
OK
Cancel
Help
Print Calibration Curve
Copy Calibration Curve


Edit Compounds
Search by:
Ret Time
Name
Index
Find Compound
Compound Database
External Standard Compour
Hydrogen
Oxygen
Nitrogen
Carbon Monoxide
Methane
Carbon Dioxide
Identification
Calibration
User Defined
Advanced
Reporting
Lvl ID
Concentration
Response
1 100.000000 1988.413333
2 100.000000 2145.353571
3 100.000000 2152.003750
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5 500.000000 11194.487143
6 500.000000 10986.930000
7 1000.000000 21038.698509
8 1000.000000 20634.013036
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13 16000.000000 333461.111875
14 16000.000000 332031.070000
15 16000.000000 333645.960000
16 99999.000000 2005774.375000
17 99999.000000 2003369.644583
18 99999.000000 2014660.236250
Carbon Dioxide
Response
2.00e+005
1.00e+005
0
0
5.00e+004
1.00e+005
Concentration
0.000e+000
Quadratic term
2.097e+001
Linear term
0.000e+000
Constant term
3.5%
RF Rel Std Dev
OK
Cancel
Help
Print Calibration Curve
Copy Calibration Curve

Calibration Status Report GC01_FXG

Method Path : I:\GC01\METHODS\
Method File : GC1_trip082216.M
Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
Last Update : Tue Aug 23 11:02:57 2016
Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	100	0	I:\GC01\DATA\FXG\2016_08\22\08221601.D
2	2	100	0	I:\GC01\DATA\FXG\2016_08\22\08221602.D
3	3	100	0	I:\GC01\DATA\FXG\2016_08\22\08221603.D
4	4	500	0	I:\GC01\DATA\FXG\2016_08\22\08221604.D
5	5	500	0	I:\GC01\DATA\FXG\2016_08\22\08221605.D
6	6	500	0	I:\GC01\DATA\FXG\2016_08\22\08221606.D
7	7	1000	0	I:\GC01\DATA\FXG\2016_08\22\08221607.D
8	8	1000	0	I:\GC01\DATA\FXG\2016_08\22\08221608.D
9	9	1000	0	I:\GC01\DATA\FXG\2016_08\22\08221609.D
10	10	4000	0	I:\GC01\DATA\FXG\2016_08\22\08221610.D
11	11	4000	0	I:\GC01\DATA\FXG\2016_08\22\08221611.D
12	12	4000	0	I:\GC01\DATA\FXG\2016_08\22\08221612.D
13	13	16000	0	I:\GC01\DATA\FXG\2016_08\22\08221613.D
14	14	16000	0	I:\GC01\DATA\FXG\2016_08\22\08221614.D
15	15	16000	0	I:\GC01\DATA\FXG\2016_08\22\08221615.D
16	16	99999	0	I:\GC01\DATA\FXG\2016_08\23\08231604.D
17	17	99999	0	I:\GC01\DATA\FXG\2016_08\23\08231605.D
18	18	99999	0	I:\GC01\DATA\FXG\2016_08\23\08231606.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Aug 23 08:43 2016	Aug 22 10:43 2016	22 Aug 2016 8:59 am
2	2	Aug 23 08:43 2016	Aug 22 11:01 2016	22 Aug 2016 9:42 am
3	3	Aug 23 08:44 2016	Aug 22 11:06 2016	22 Aug 2016 10:06 am
4	4	Aug 23 08:44 2016	Aug 22 12:00 2016	22 Aug 2016 11:42 am
5	5	Aug 23 08:45 2016	Aug 22 12:18 2016	22 Aug 2016 11:54 am
6	6	Aug 23 08:45 2016	Aug 22 12:36 2016	22 Aug 2016 12:10 pm
7	7	Aug 23 08:46 2016	Aug 22 13:04 2016	22 Aug 2016 12:42 pm
8	8	Aug 23 08:46 2016	Aug 22 13:42 2016	22 Aug 2016 12:58 pm
9	9	Aug 23 08:46 2016	Aug 22 13:57 2016	22 Aug 2016 1:34 pm
10	10	Aug 23 08:47 2016	Aug 22 14:25 2016	22 Aug 2016 2:07 pm
11	11	Aug 23 08:47 2016	Aug 22 14:38 2016	22 Aug 2016 2:19 pm
12	12	Aug 23 08:48 2016	Aug 22 14:48 2016	22 Aug 2016 2:30 pm
13	13	Aug 23 08:48 2016	Aug 22 15:18 2016	22 Aug 2016 2:54 pm
14	14	Aug 23 08:48 2016	Aug 22 15:28 2016	22 Aug 2016 3:11 pm
15	15	Aug 23 08:49 2016	Aug 22 15:40 2016	22 Aug 2016 3:22 pm
16	16	Aug 23 10:21 2016	Aug 23 10:21 2016	23 Aug 2016 9:59 am
17	17	Aug 23 10:53 2016	Aug 23 10:52 2016	23 Aug 2016 10:25 am
18	18	Aug 23 11:02 2016	Aug 23 11:02 2016	23 Aug 2016 10:45 am

GC1_trip082216.M Tue Aug 23 12:47:00 2016

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221602.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 9:42 am
Operator : amf
Sample : std s11-07191601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 11:01:20 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.714	1358	1029.962	ppm	
2)	Oxygen	2.237	1485	975.768	ppm	m
3)	Nitrogen	2.402	1759	975.571	ppm	m
4)	Carbon Monoxide	3.108	1676	1013.881	ppm	m
5)	Methane	5.087	1288	1038.266	ppm	
6)	Carbon Dioxide	6.749	2145	1078.927	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int.

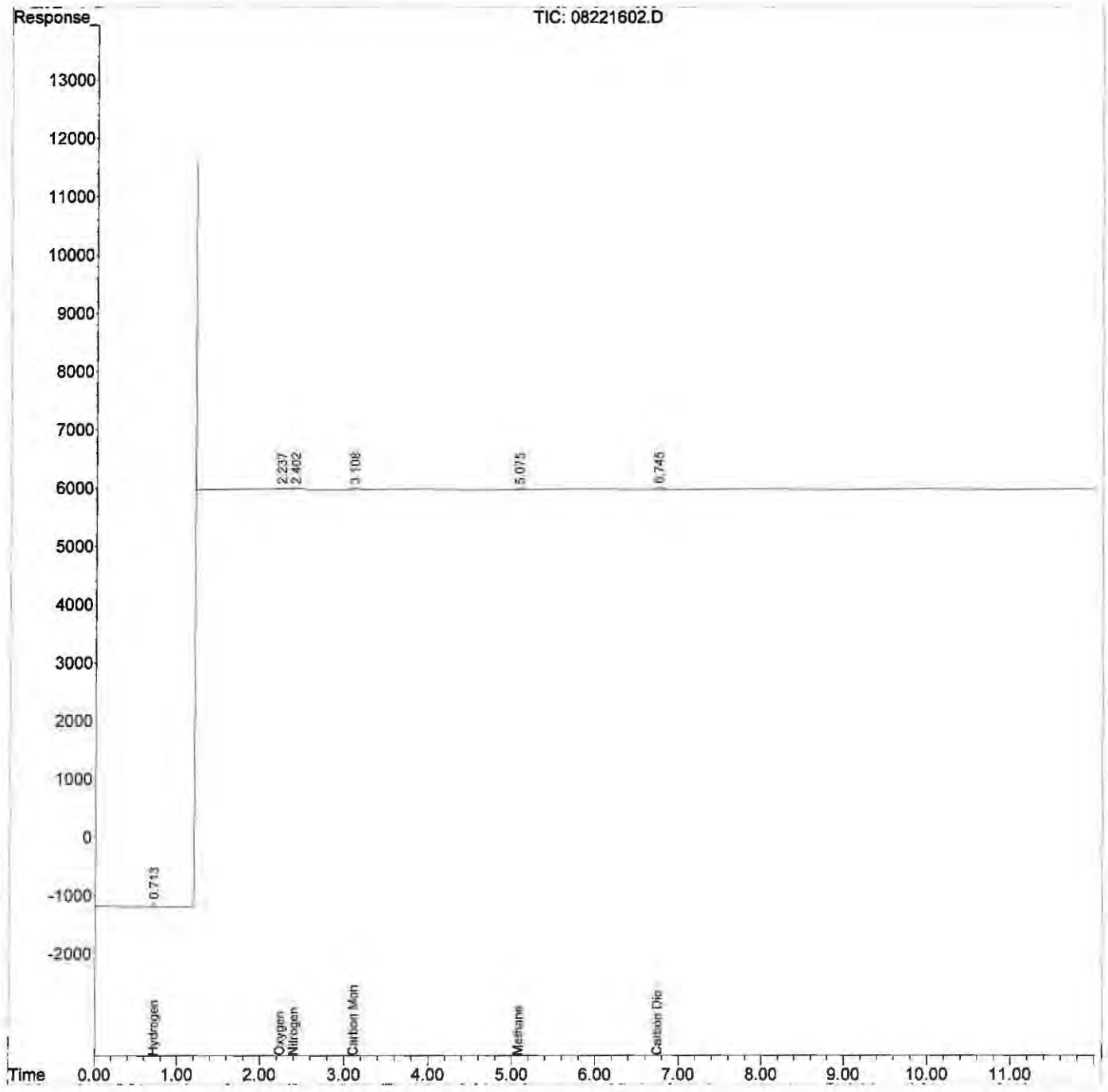
8/22/16

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221602.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 9:42 am
Operator : amf
Sample : std s11-07191601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 11:01:20 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

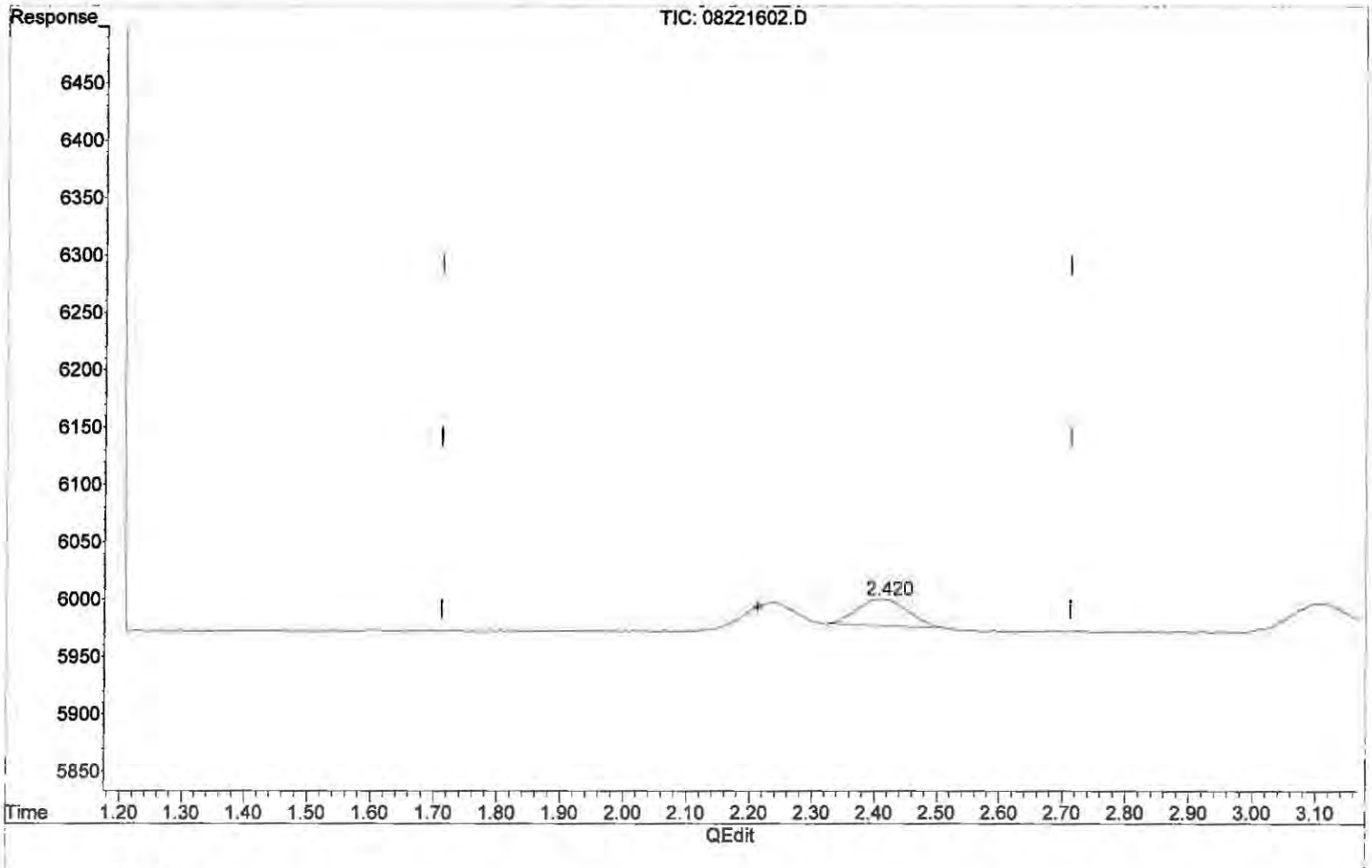
Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221602.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 9:42 am
Operator : amf
Sample : std s11-07191601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 10:59:02 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(2) Oxygen

2.420min 842.016 ppm

response 1281

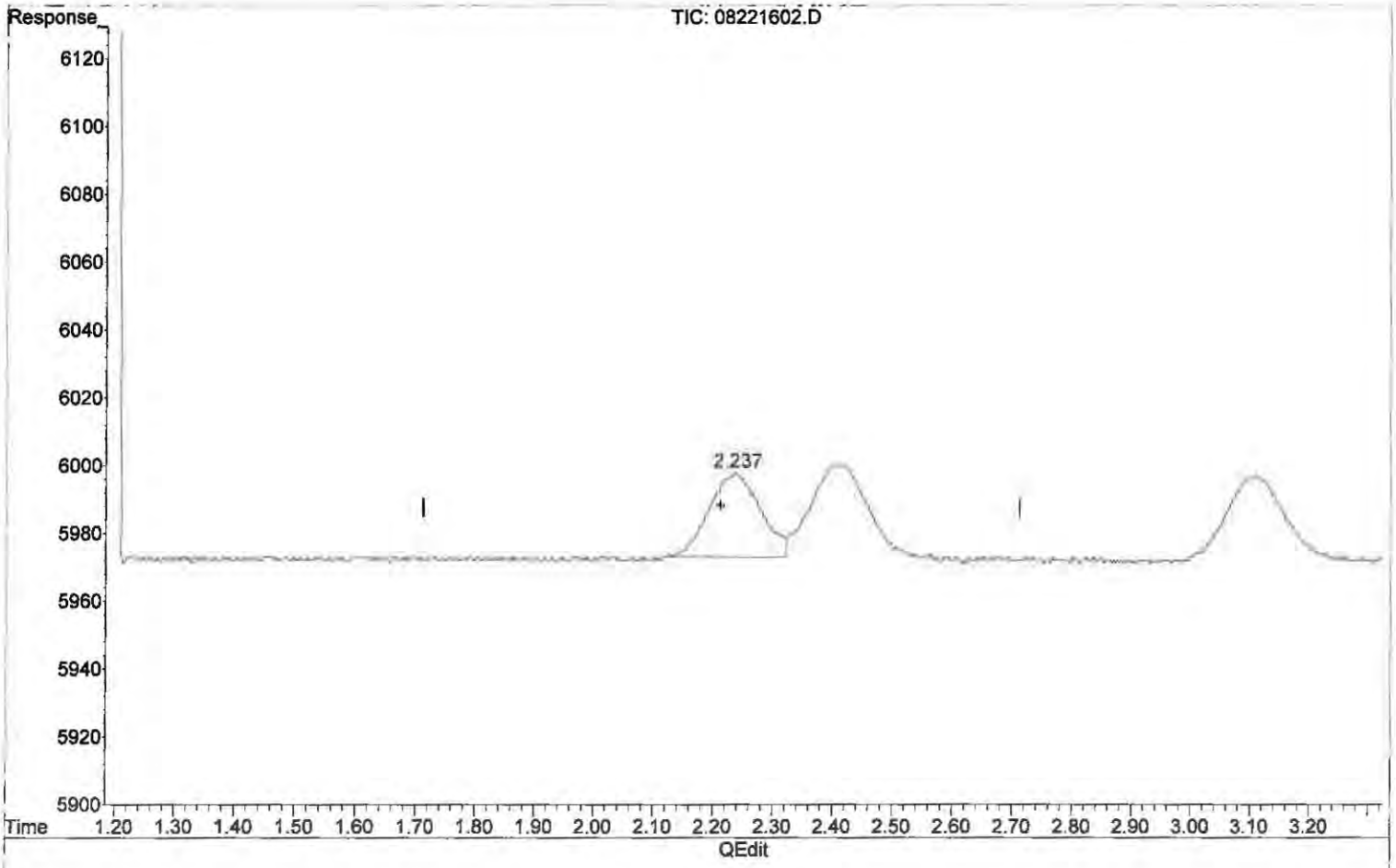
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : I:\GC01\DATA\FXG\2016_08\22\
Data File : 08221602.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 9:42 am
Operator : amf
Sample : std s11-07191601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 11:01:20 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(2) Oxygen

2.237min 975.768 ppm m

response 1485

8/29/16 BLC

8/26/16

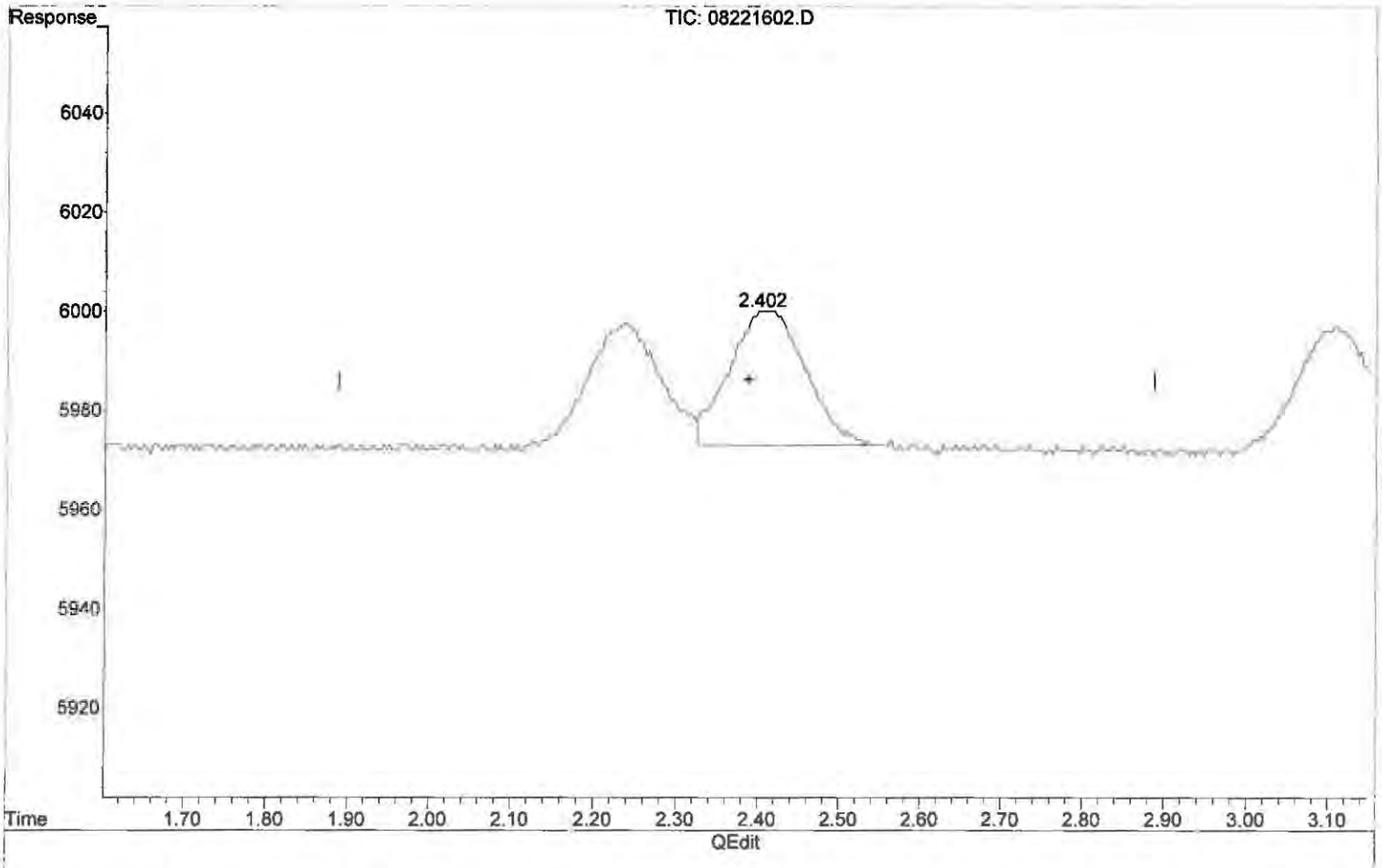
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221602.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 9:42 am
Operator : amf
Sample : std s11-07191601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 10:59:02 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(3) Nitrogen

2.402min 975.571 ppm m

response 1759

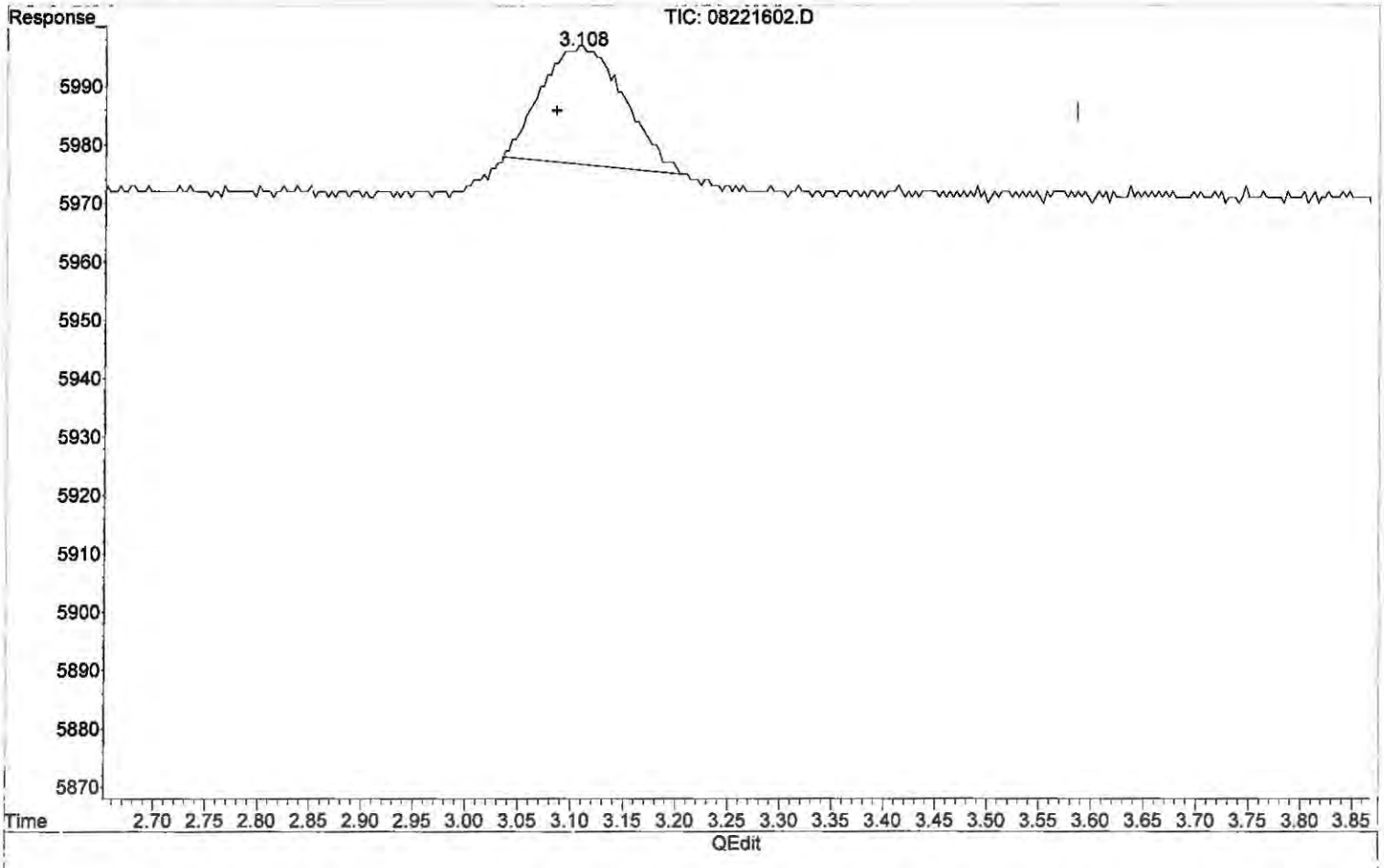
8/29/16
BLC
No Revisions

(+) = Expected Retention Time

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221602.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 9:42 am
Operator : amf
Sample : std s11-07191601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 10:59:02 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(4) Carbon Monoxide

3.111min 669.201 ppm

response 1106

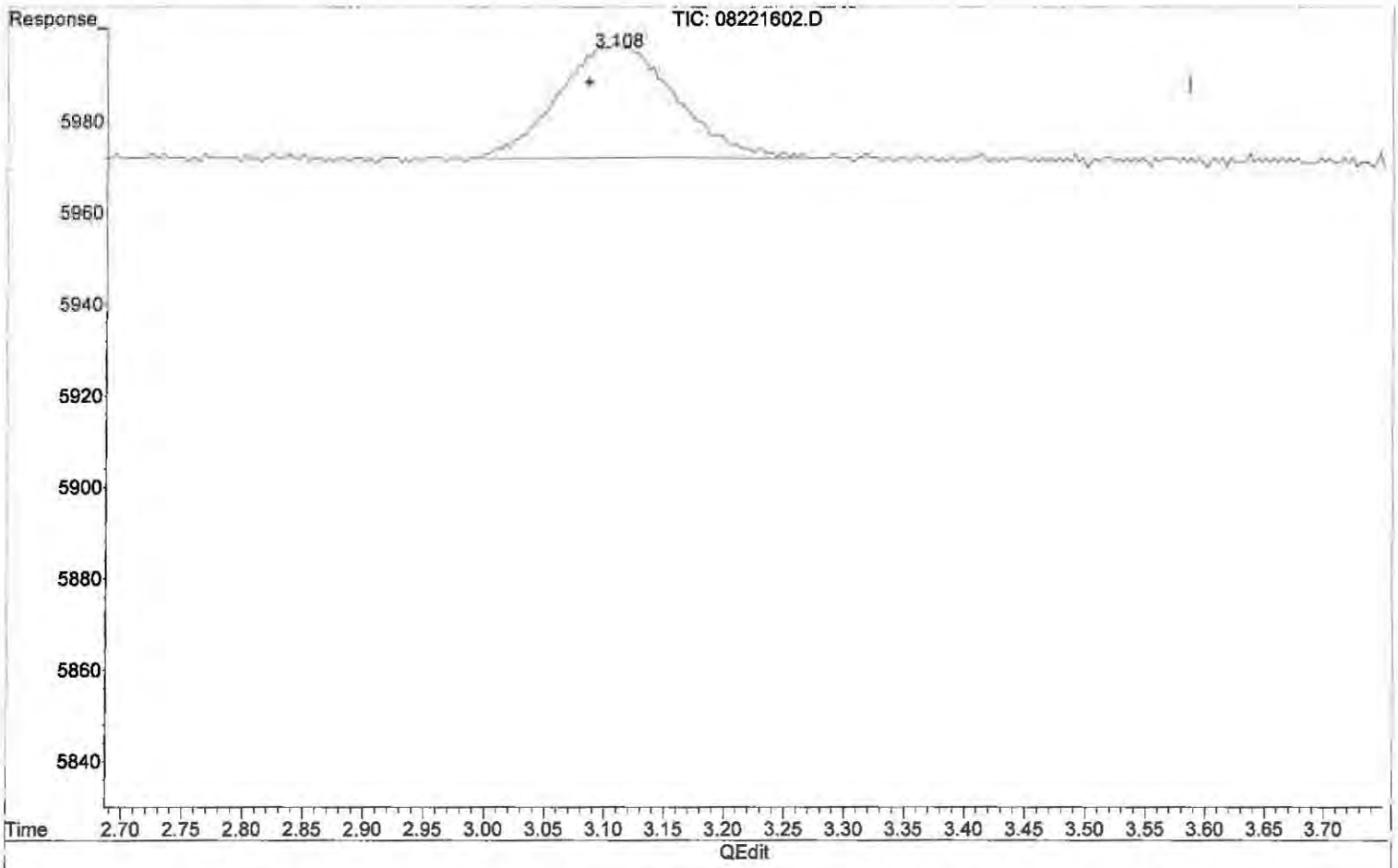
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : I:\GC01\DATA\FXG\2016_08\22\
Data File : 08221602.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 9:42 am
Operator : amf
Sample : std s11-07191601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 11:01:20 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(4) Carbon Monoxide

3.108min 1013.881 ppm m

response 1676

8/24/16 BLC

8/29/16

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221603.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 10:06 am
Operator : amf
Sample : std s11-07191601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 11:06:51 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

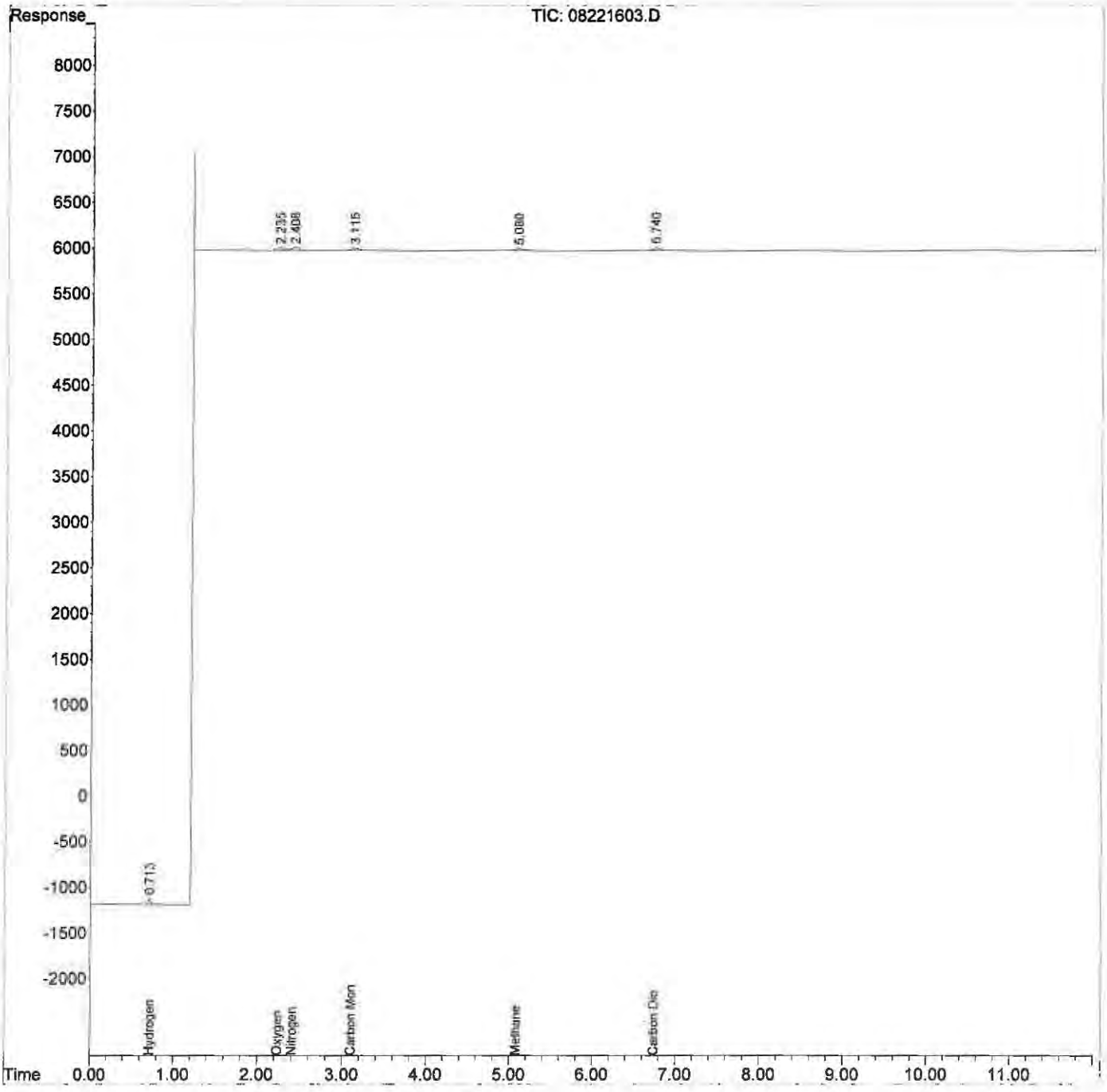
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.713	1364	1019.461	ppm	m
2)	Oxygen	2.235	1434	953.500	ppm	m
3)	Nitrogen	2.408	1780	999.327	ppm	m
4)	Carbon Monoxide	3.106	1610	967.347	ppm	
5)	Methane	5.080	1372	1084.976	ppm	m
6)	Carbon Dioxide	6.749	2152	1041.183	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221603.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 10:06 am
Operator : amf
Sample : std s11-07191601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 11:06:51 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

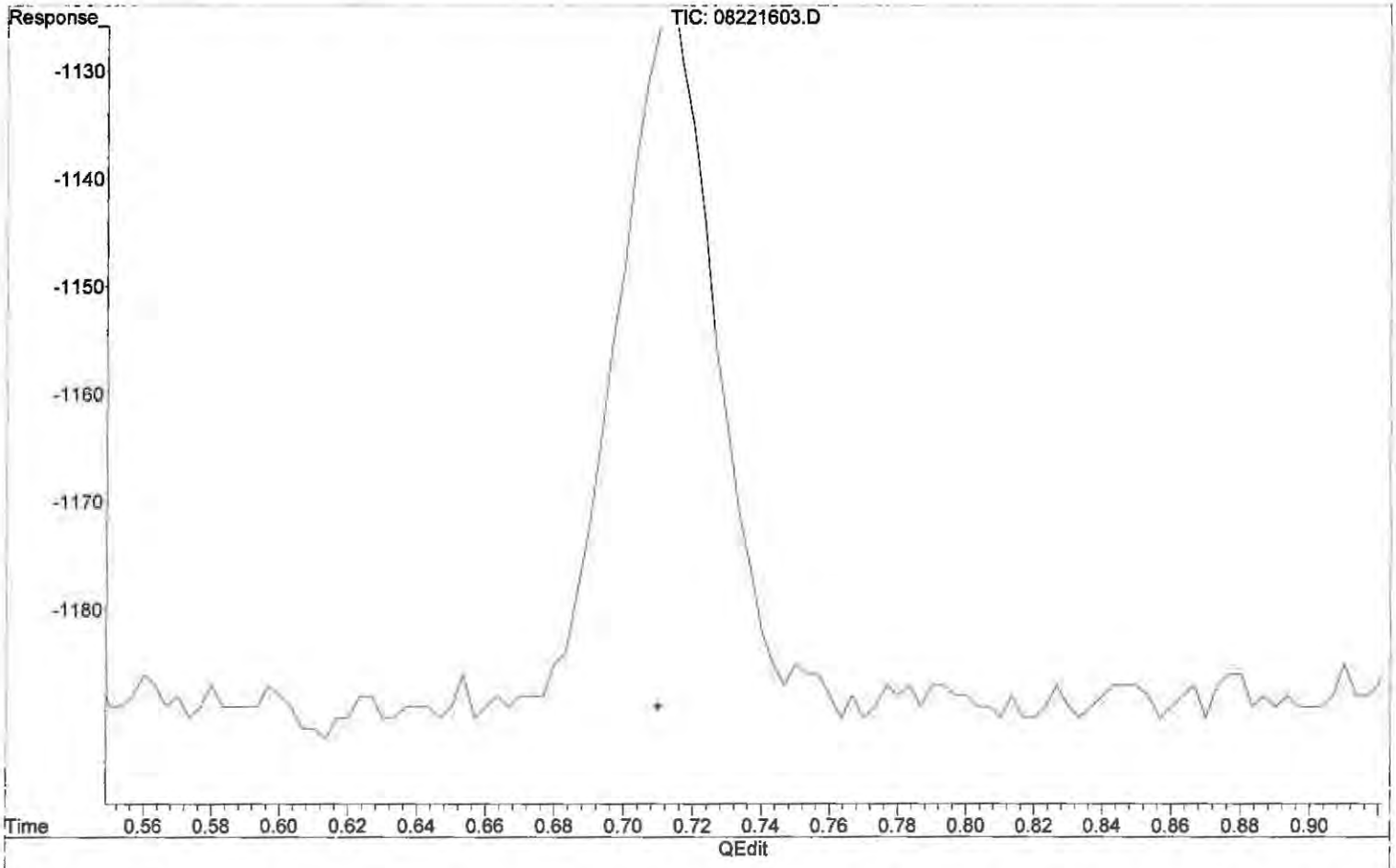


Quantitation Report (Qedit)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221603.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 10:06 am
Operator : amf
Sample : std s11-07191601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 11:02:47 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(1) Hydrogen

0.714min 987.772 ppm

response 1322

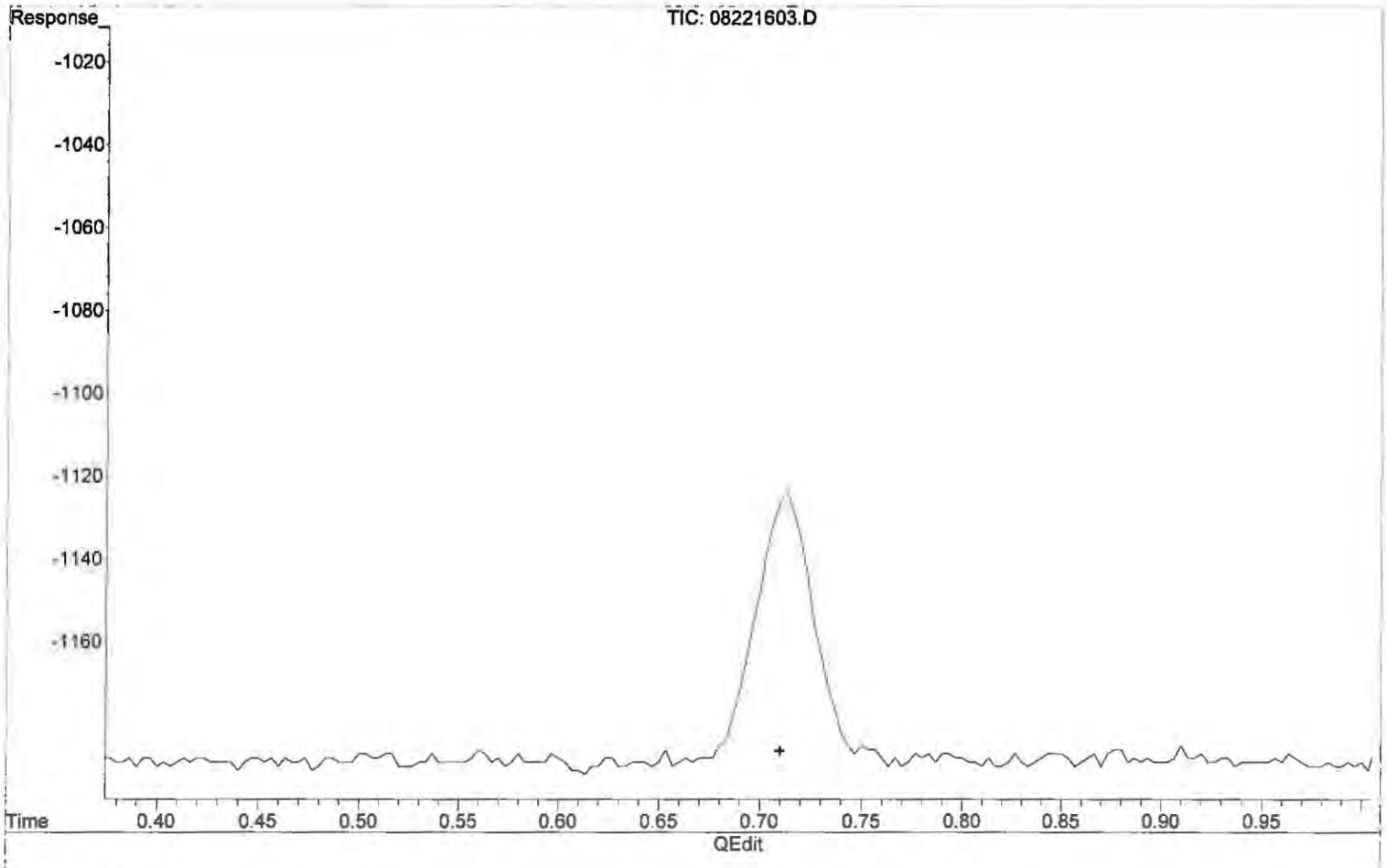
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221603.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 10:06 am
Operator : amf
Sample : std s11-07191601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 11:02:47 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(1) Hydrogen

0.713min 1019.461 ppm m

response 1364

8/22/16 BLC

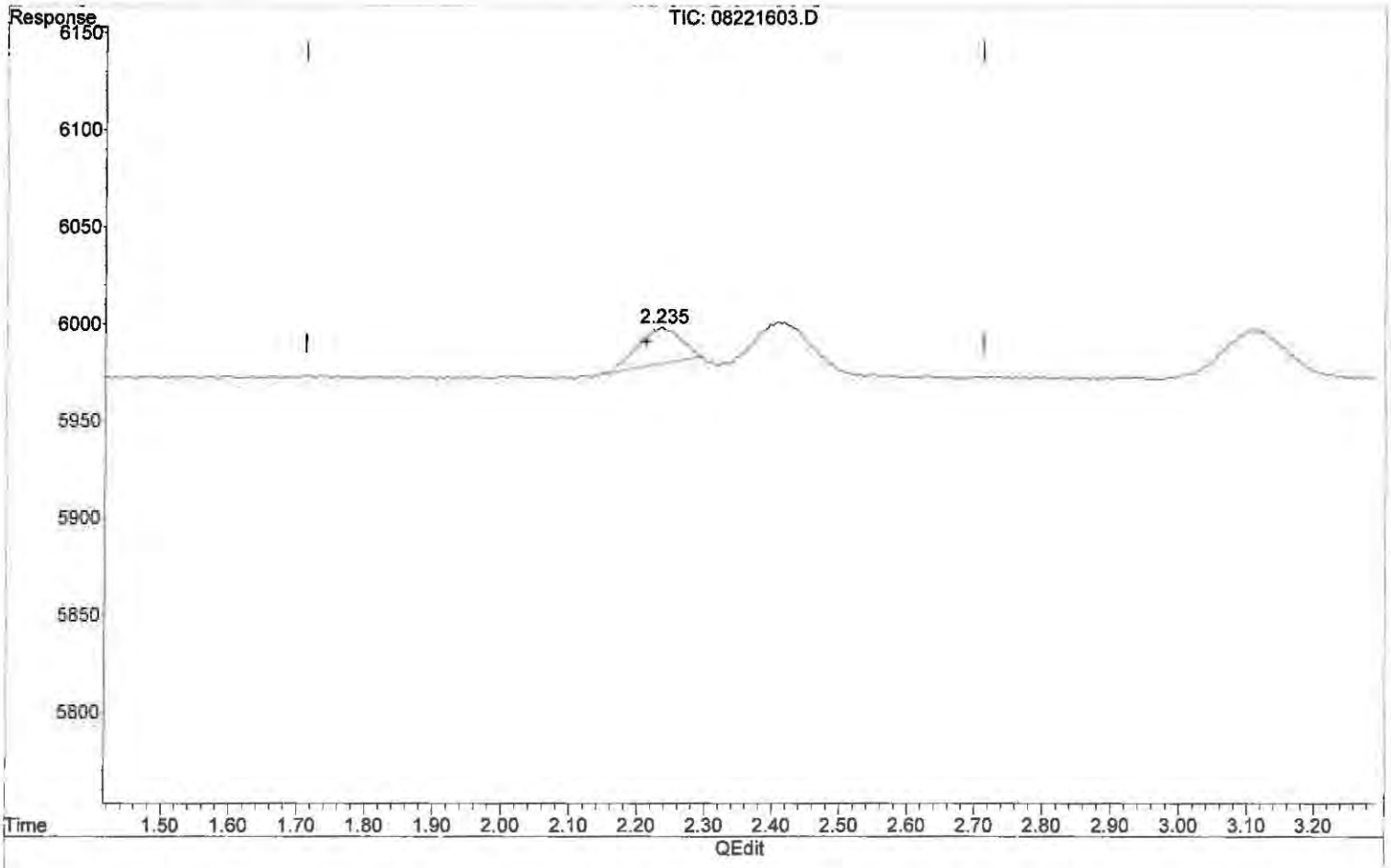
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221603.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 10:06 am
Operator : amf
Sample : std s11-07191601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 11:02:47 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(2) Oxygen

2.237min 537.065 ppm

response 807

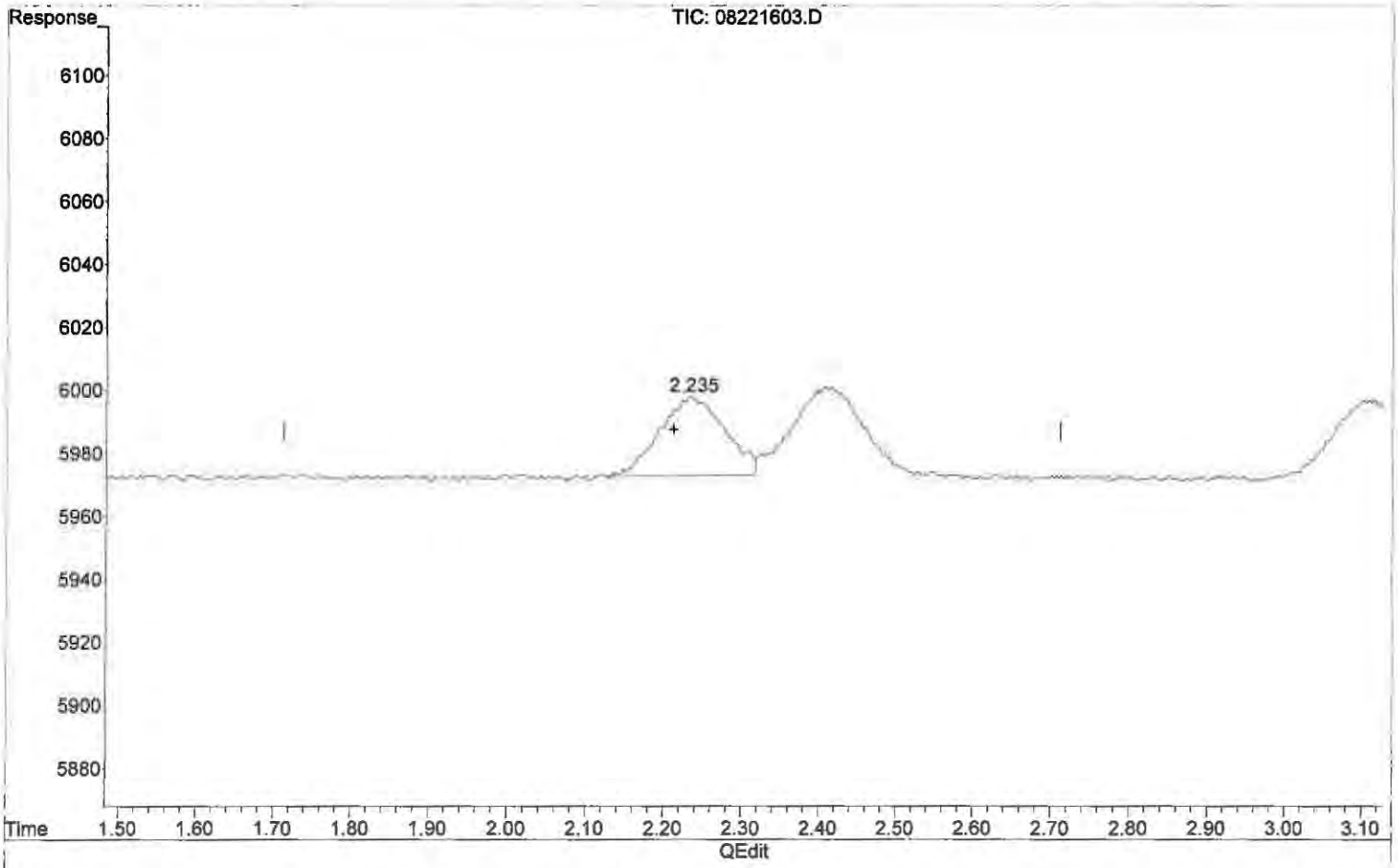
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221603.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 10:06 am
Operator : amf
Sample : std s11-07191601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 11:02:47 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(2) Oxygen

2.235min 953.500 ppm m

response 1434

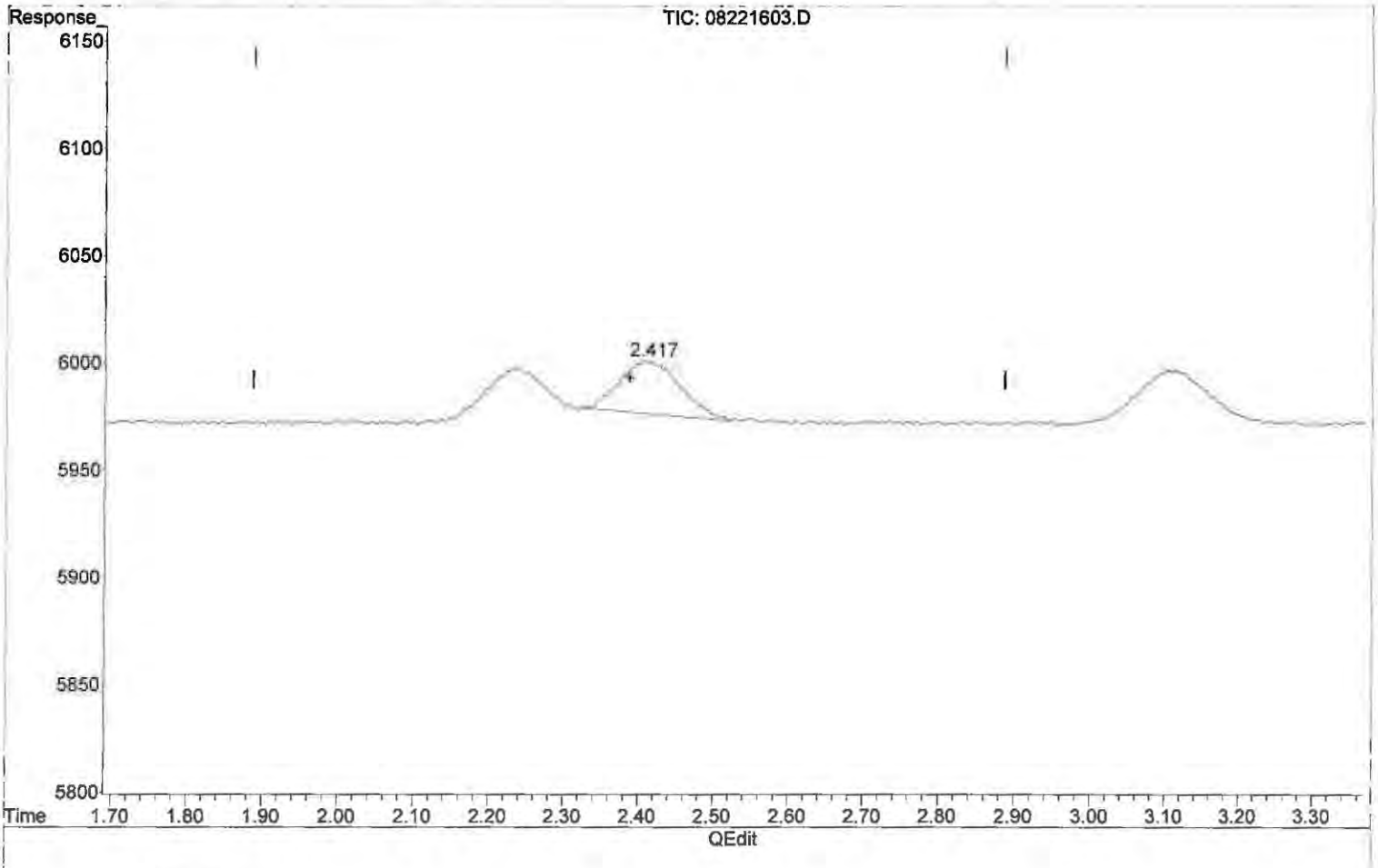
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221603.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 10:06 am
Operator : amf
Sample : std s11-07191601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 11:02:47 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(3) Nitrogen

2.412min 767.417 ppm

response 1367

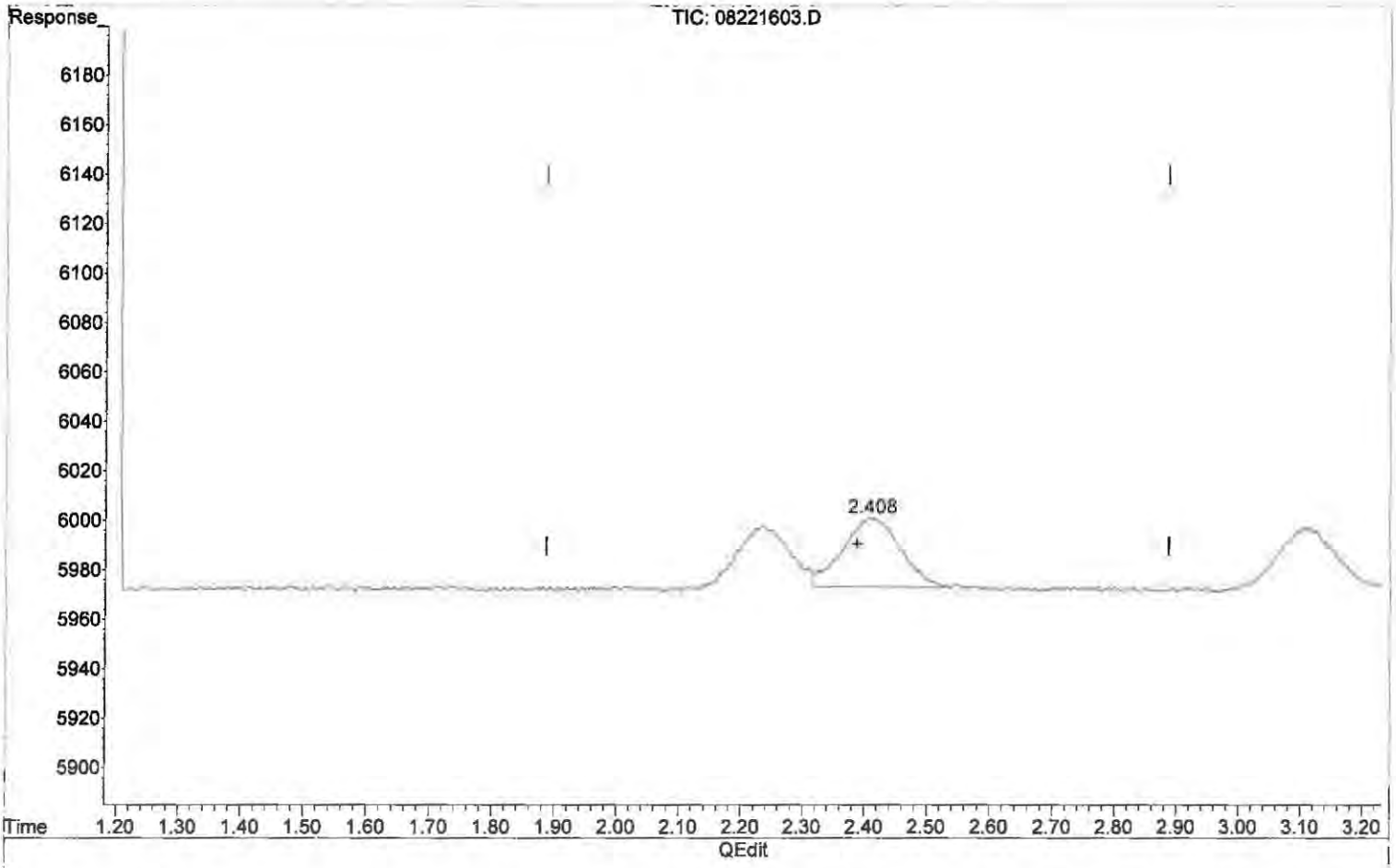
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221603.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 10:06 am
Operator : amf
Sample : std s11-07191601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 11:02:47 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(3) Nitrogen

2.408min 999.327 ppm m

response 1780

8/22/16 BLC

8/28/16

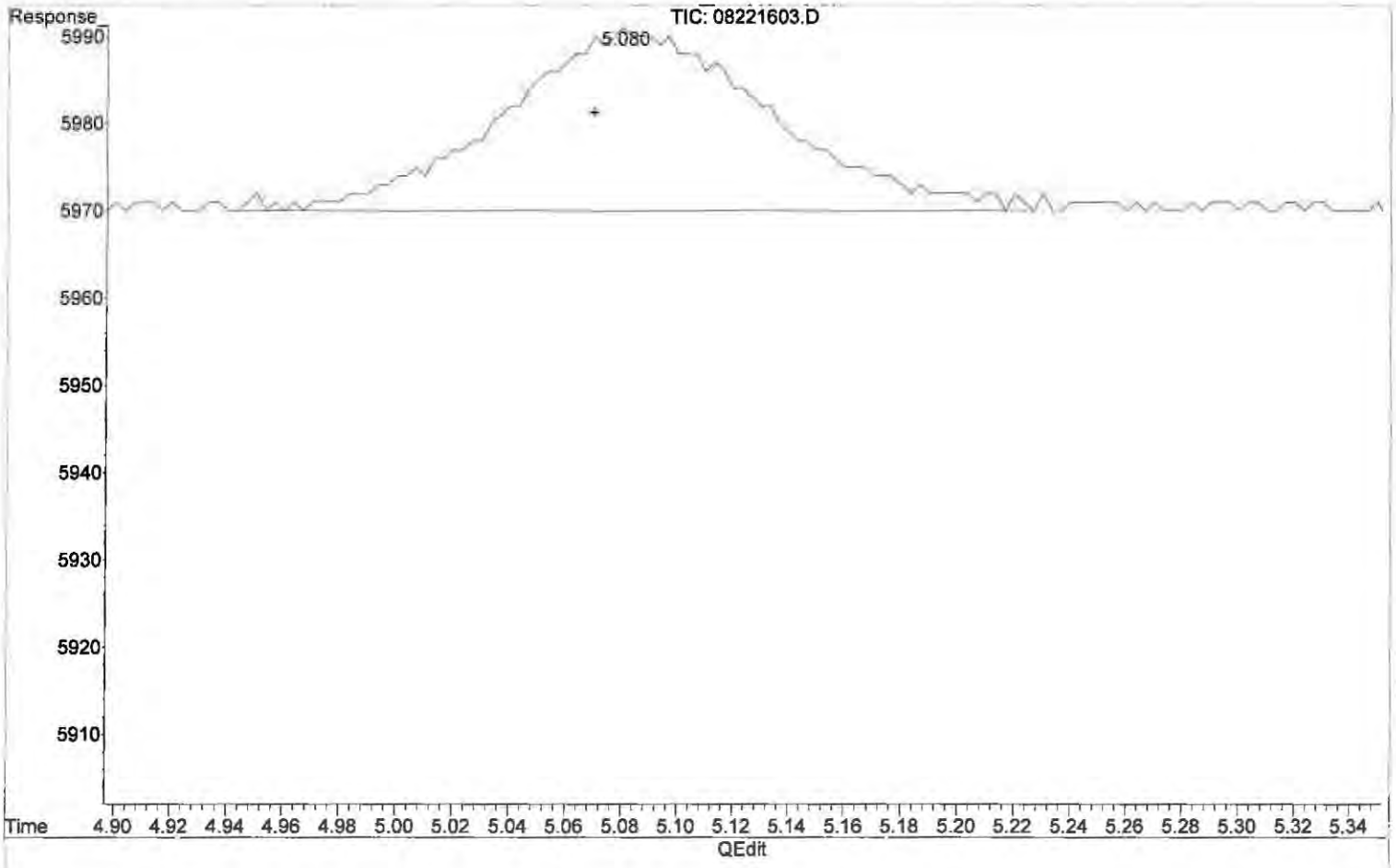
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221603.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 10:06 am
Operator : amf
Sample : std s11-07191601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 11:02:47 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(5) Methane

5.083min 1045.028 ppm

response 1321

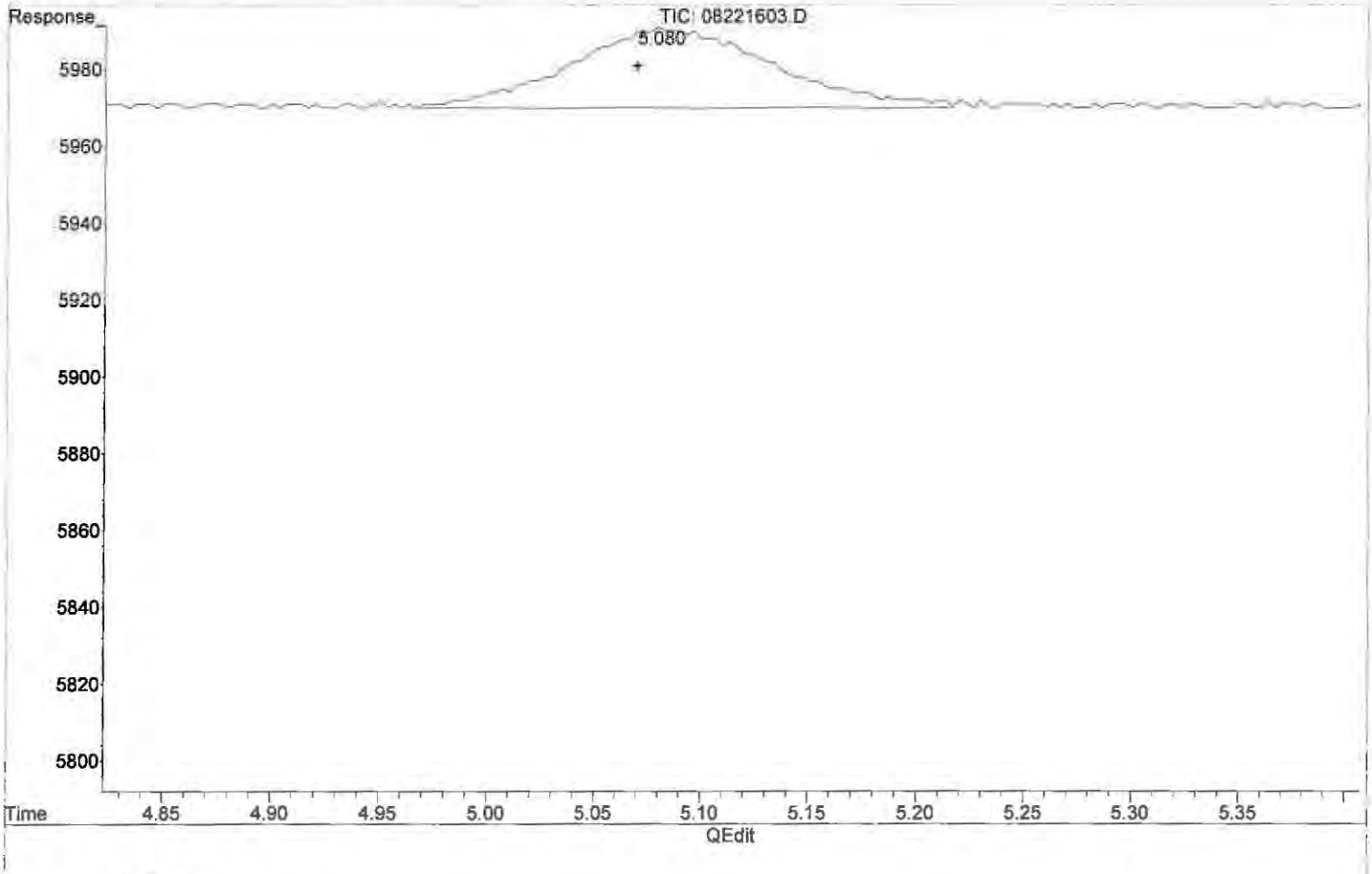
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221603.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 10:06 am
Operator : amf
Sample : std s11-07191601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 11:02:47 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



(5) Methane

5.080min 1084.976 ppm m

response 1372

8/22/16 BLC

8/23/16

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221604.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 11:42 am
Operator : amf
Sample : std s11-12041503
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 12:00:16 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.710	6816	5069.580	ppm
2)	Oxygen	2.234	7949	5211.853	ppm
3)	Nitrogen	2.407	9619	5141.082	ppm
4)	Carbon Monoxide	3.101	9222	5438.969	ppm
5)	Methane	5.083	6796	5087.540	ppm
6)	Carbon Dioxide	6.745	11179	5222.308	ppm

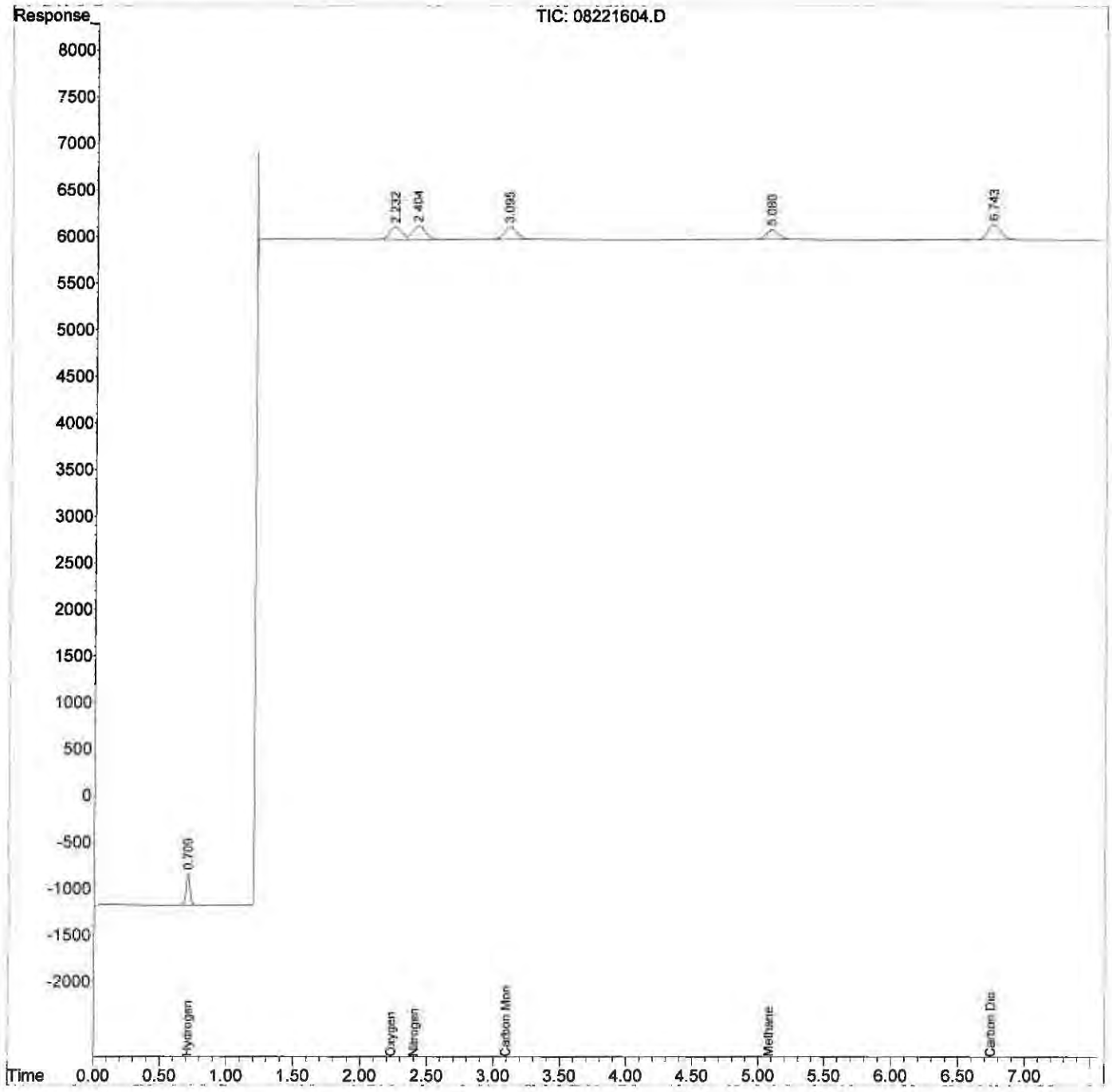
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221604.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 11:42 am
Operator : amf
Sample : std s11-12041503
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 12:00:16 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221605.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 11:54 am
Operator : amf
Sample : std s11-12041503
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 12:18:35 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

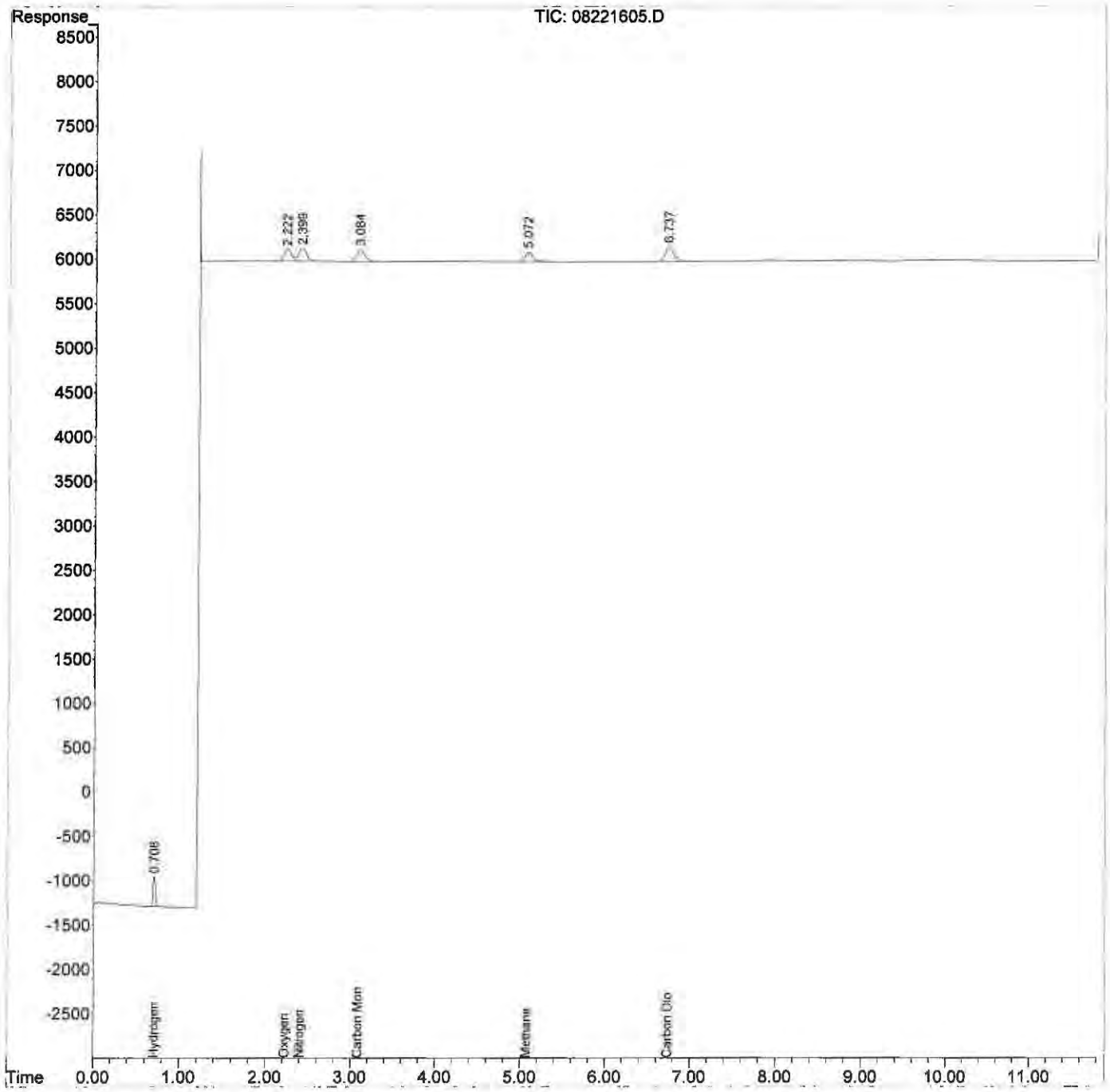
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.709	6828	5054.643	ppm
2)	Oxygen	2.224	7880	5226.963	ppm
3)	Nitrogen	2.401	9090	5004.155	ppm
4)	Carbon Monoxide	3.088	9253	5456.239	ppm
5)	Methane	5.075	6735	5122.723	ppm
6)	Carbon Dioxide	6.740	11194	5254.662	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221605.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 11:54 am
Operator : amf
Sample : std s11-12041503
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 12:18:35 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221606.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 12:10 pm
Operator : amf
Sample : std s11-12041503
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 12:36:24 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

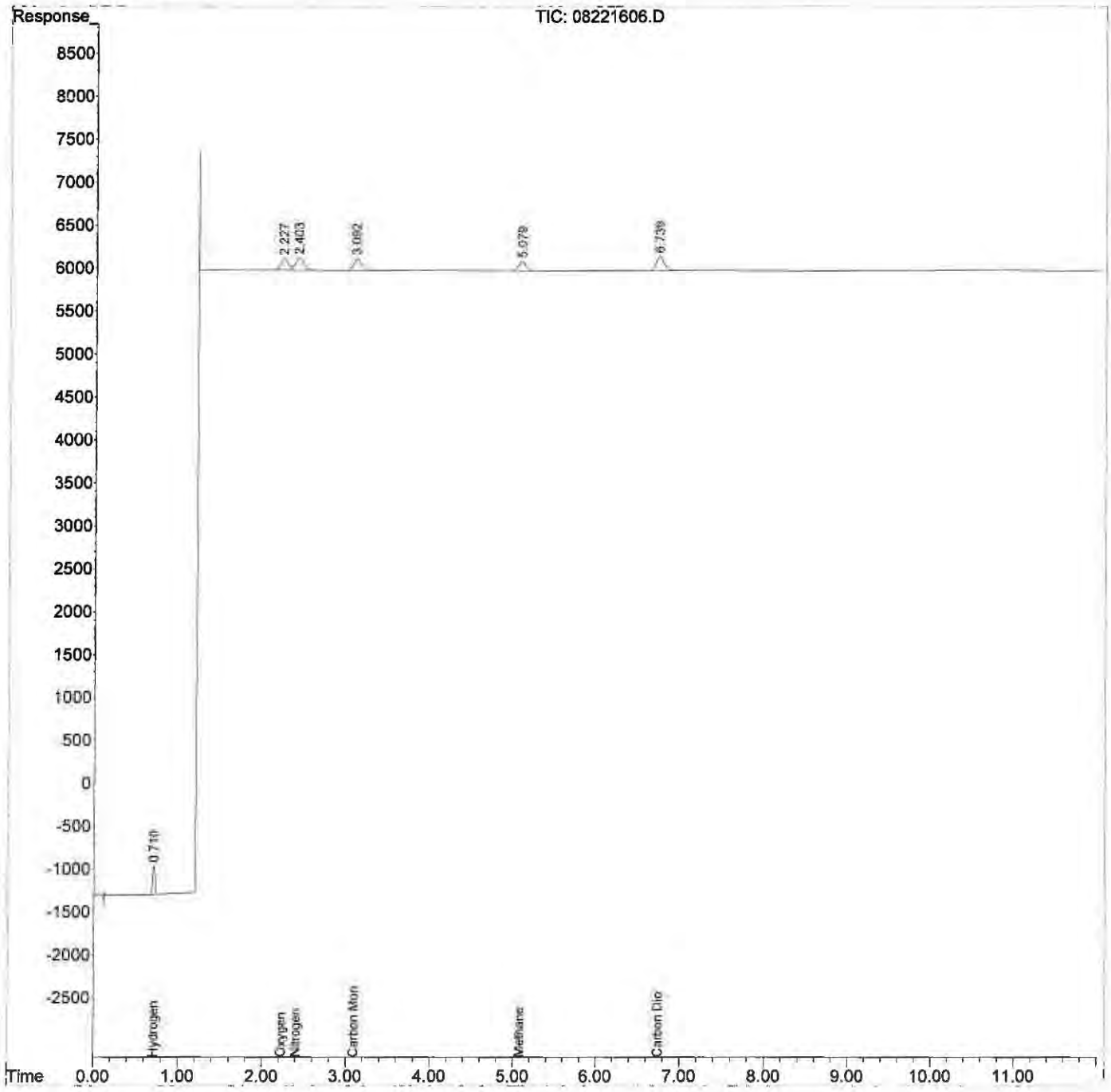
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.712	6684	4937.282	ppm
2)	Oxygen	2.229	7943	5221.147	ppm
3)	Nitrogen	2.405	9181	5053.344	ppm
4)	Carbon Monoxide	3.096	9129	5286.762	ppm
5)	Methane	5.079	6864	5194.678	ppm
6)	Carbon Dioxide	6.741	10987	5105.231	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221606.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 12:10 pm
Operator : amf
Sample : std s11-12041503
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 12:36:24 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221607.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 12:42 pm
Operator : amf
Sample : std s11-12041502
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 13:04:59 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

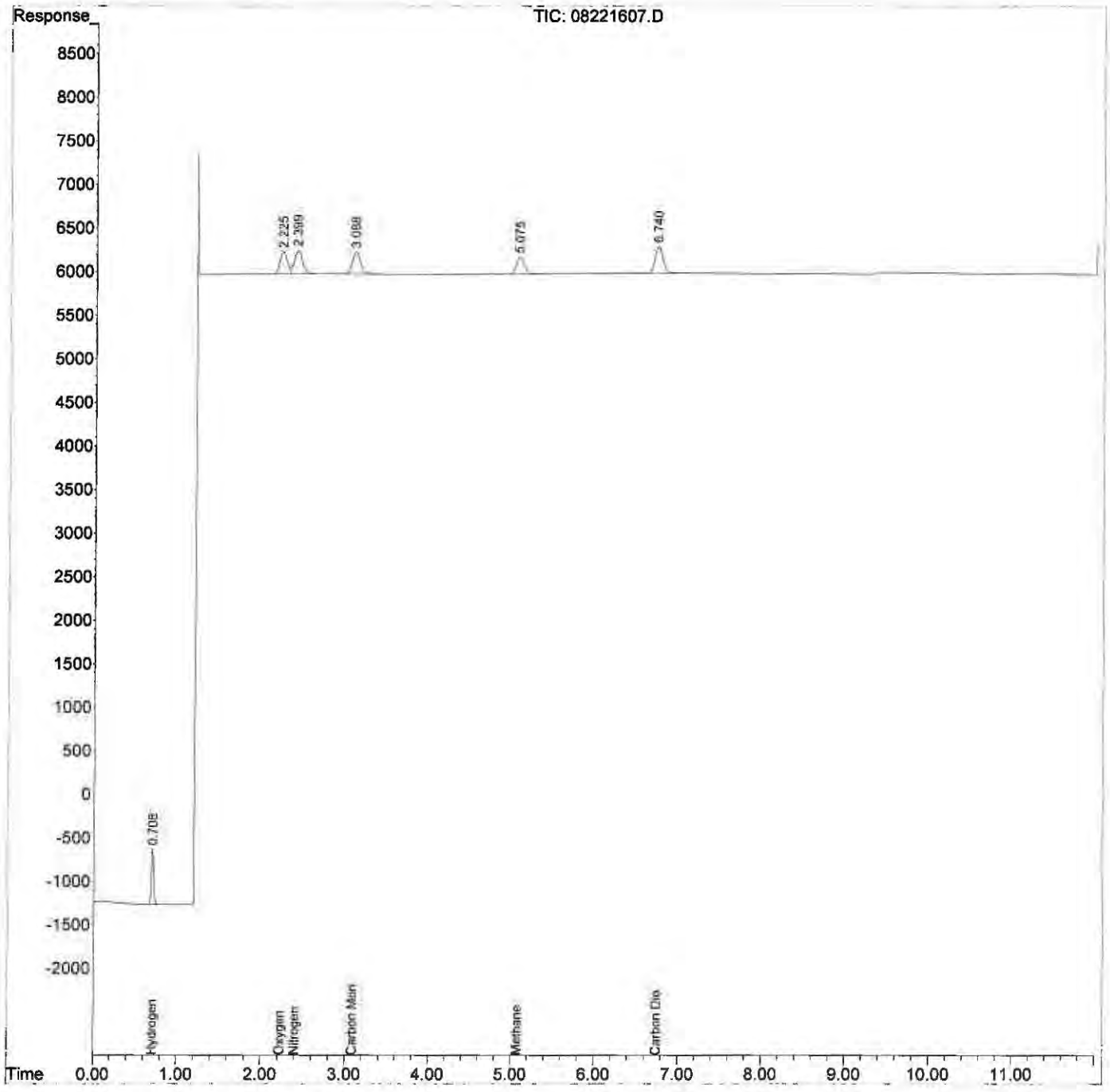
	Compound	R.T.	Response	Conc Units
Target Compounds				
1)	Hydrogen	0.710	13019	9636.034 ppm
2)	Oxygen	2.226	15612	10187.765 ppm
3)	Nitrogen	2.402	17929	9850.826 ppm
4)	Carbon Monoxide	3.090	17512	10045.681 ppm
5)	Methane	5.078	12994	9771.314 ppm
6)	Carbon Dioxide	6.741	21039	9741.754 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221607.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 12:42 pm
Operator : amf
Sample : std s11-12041502
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 13:04:59 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221608.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 12:58 pm
Operator : amf
Sample : std s11-12041502
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 13:42:55 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

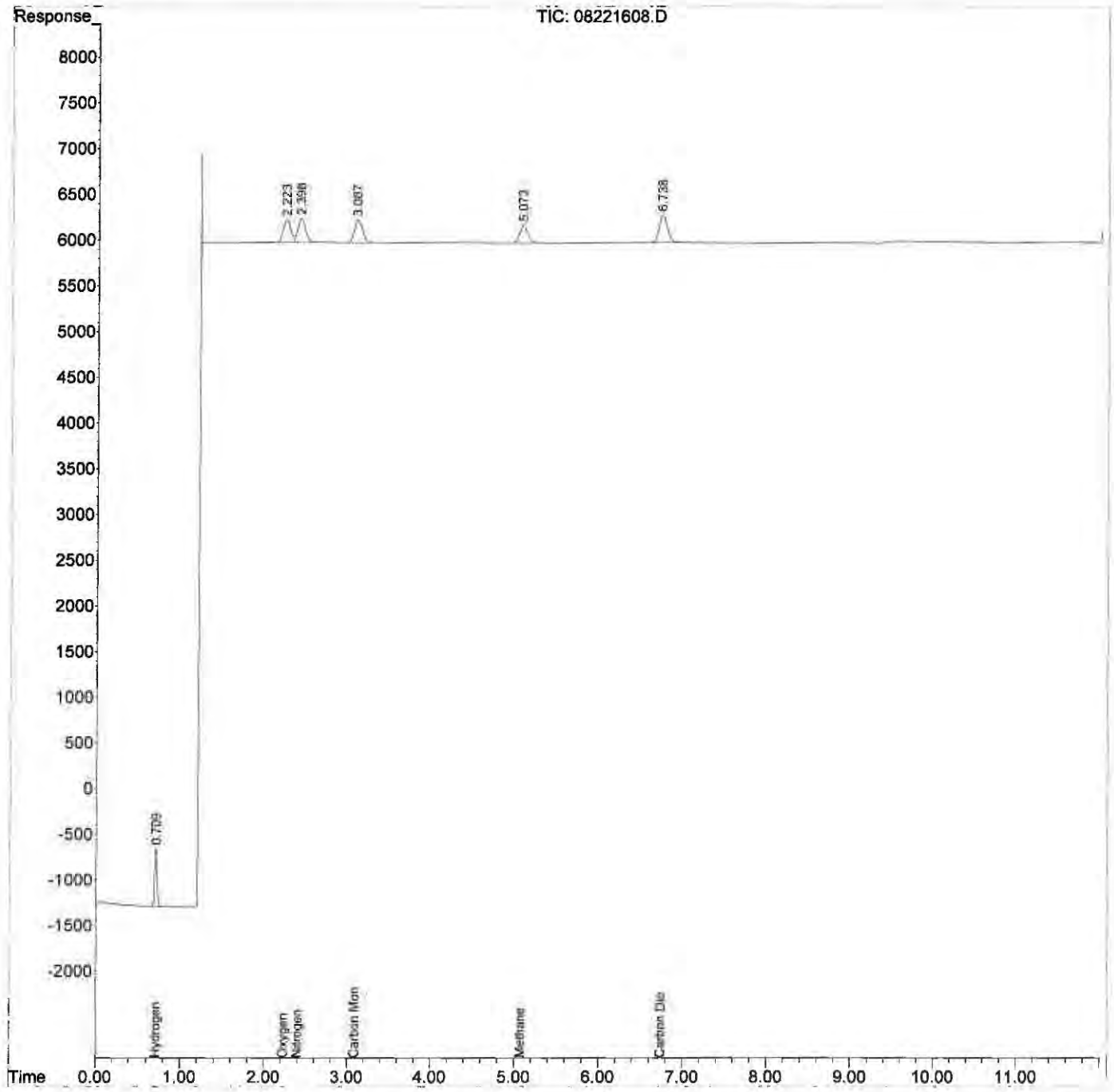
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.710	12791	9516.739	ppm
2)	Oxygen	2.225	14995	9758.854	ppm
3)	Nitrogen	2.401	17280	9514.619	ppm
4)	Carbon Monoxide	3.089	17131	9820.198	ppm
5)	Methane	5.075	12748	9617.190	ppm
6)	Carbon Dioxide	6.739	20634	9589.748	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221608.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 12:58 pm
Operator : amf
Sample : std s11-12041502
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 13:42:55 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221609.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 1:34 pm
Operator : amf
Sample : std s11-12041502
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 13:57:00 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.712	12871	9634.790	ppm
2)	Oxygen	2.235	15105	9859.758	ppm
3)	Nitrogen	2.412	17309	9588.814	ppm
4)	Carbon Monoxide	3.102	17156	9856.931	ppm
5)	Methane	5.086	12812	9712.170	ppm
6)	Carbon Dioxide	6.746	20975	9798.564	ppm

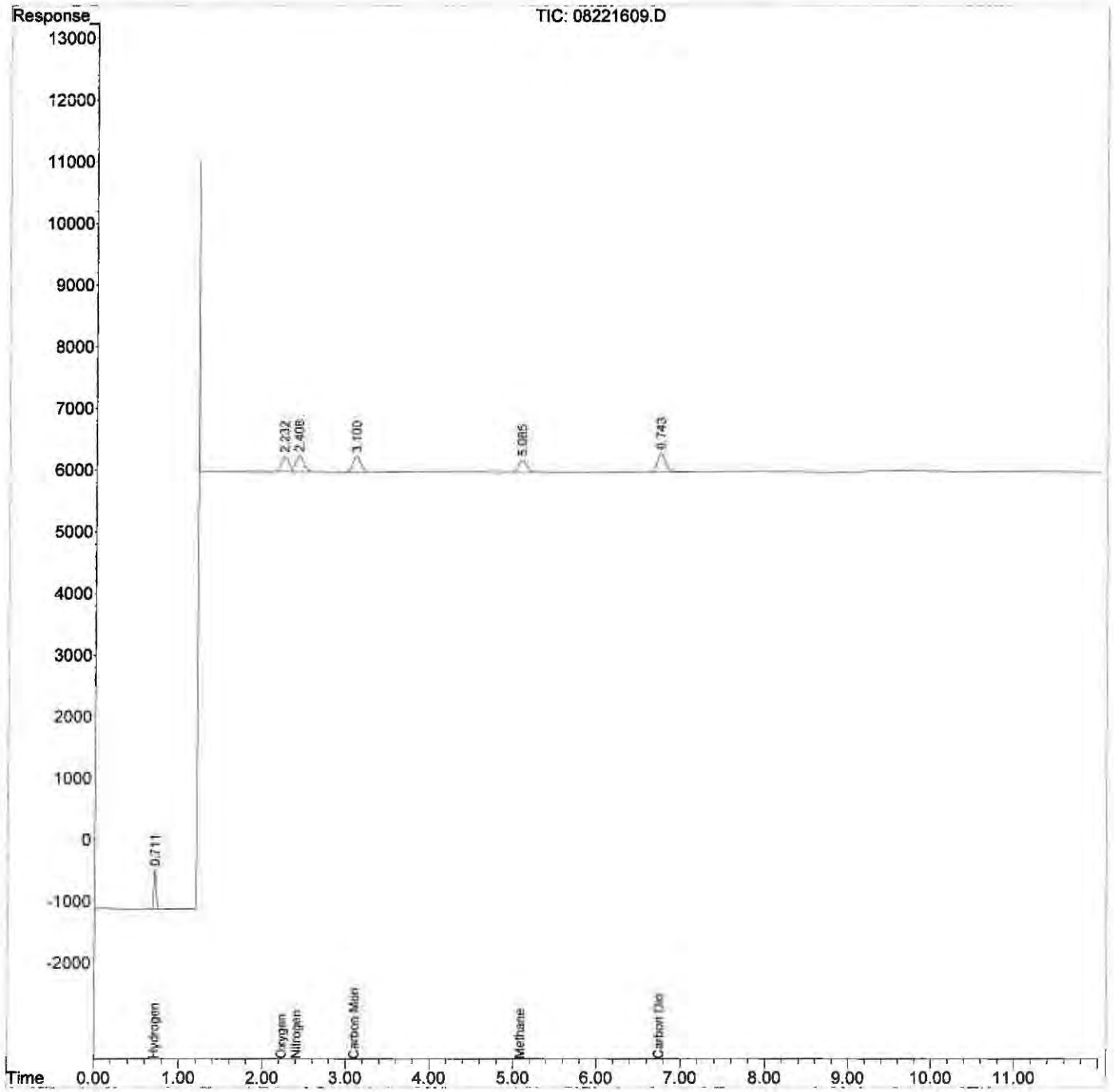
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221609.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 1:34 pm
Operator : amf
Sample : std s11-12041502
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 13:57:00 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221610.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 2:07 pm
Operator : amf
Sample : std s11-12041501
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 14:25:02 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

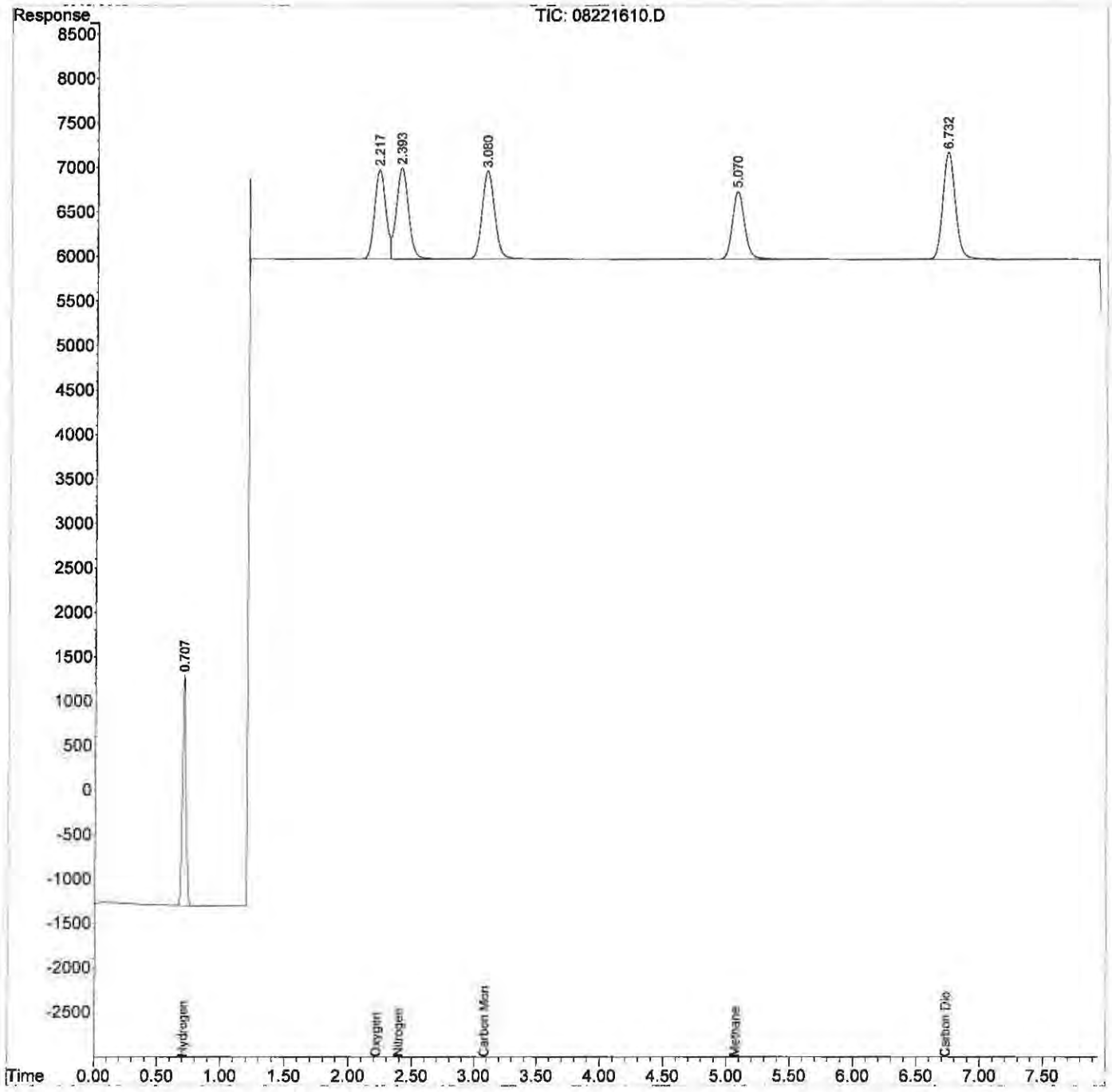
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.709	51763	38905.801	ppm
2)	Oxygen	2.219	61073	39928.807	ppm
3)	Nitrogen	2.395	68921	38354.986	ppm
4)	Carbon Monoxide	3.082	68623	39489.700	ppm
5)	Methane	5.072	51558	39209.427	ppm
6)	Carbon Dioxide	6.734	83185	38946.942	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221610.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 2:07 pm
Operator : amf
Sample : std s11-12041501
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 14:25:02 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221611.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 2:19 pm
Operator : amf
Sample : std s11-12041501
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 14:38:10 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.708	51926	39135.426	ppm
2)	Oxygen	2.219	61650	40312.840	ppm
3)	Nitrogen	2.395	69030	38574.578	ppm
4)	Carbon Monoxide	3.082	69214	39880.940	ppm
5)	Methane	5.072	51622	39335.929	ppm
6)	Carbon Dioxide	6.734	83696	39289.832	ppm

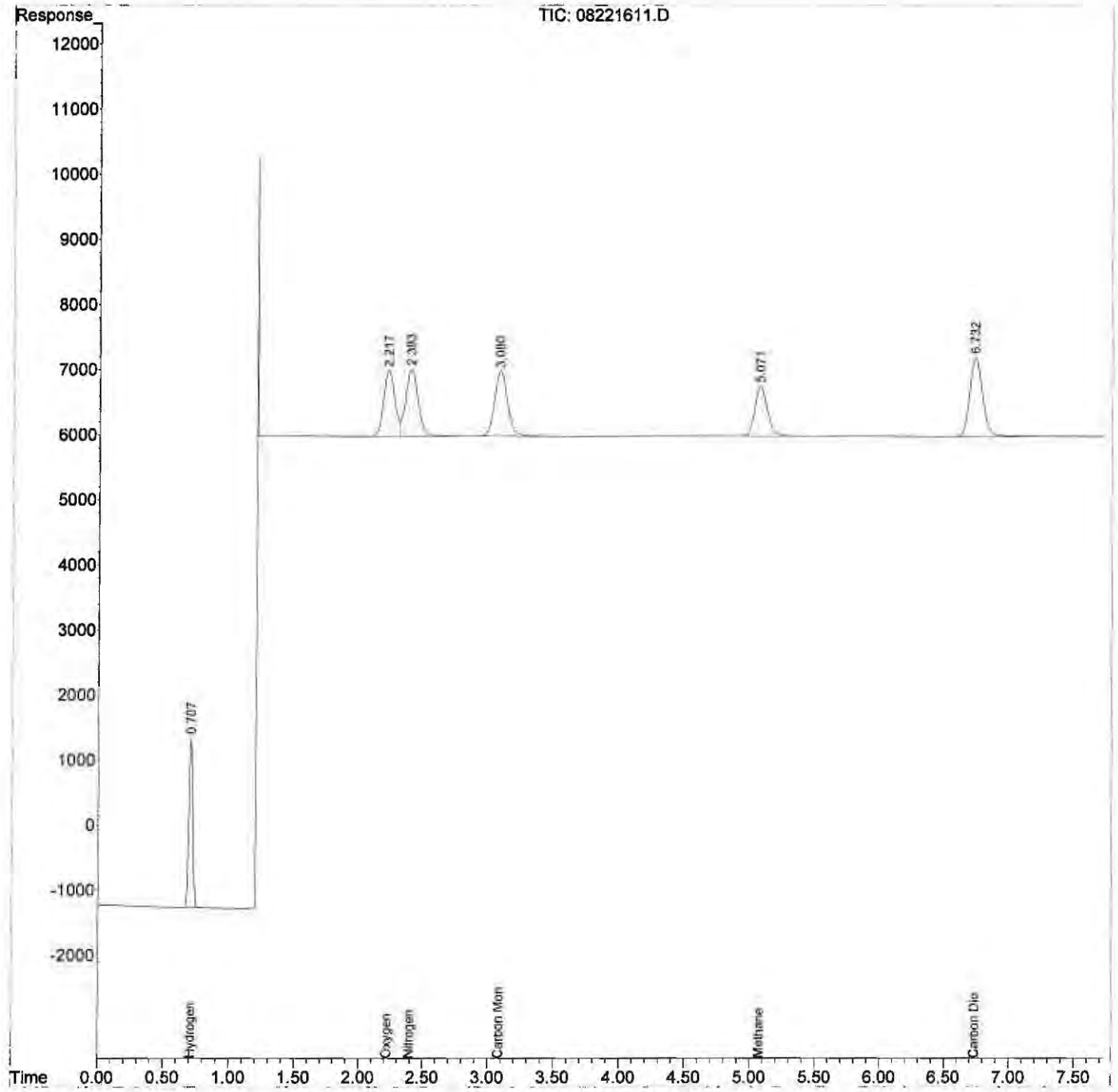
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221611.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 2:19 pm
Operator : amf
Sample : std s11-12041501
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 14:38:10 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221612.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 2:30 pm
Operator : amf
Sample : std s11-12041501
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 14:48:22 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.708	51951	39230.887	ppm
2)	Oxygen	2.218	61582	40239.610	ppm
3)	Nitrogen	2.394	69100	38738.751	ppm
4)	Carbon Monoxide	3.081	69492	40051.872	ppm
5)	Methane	5.071	51479	39286.254	ppm
6)	Carbon Dioxide	6.733	83618	39316.640	ppm

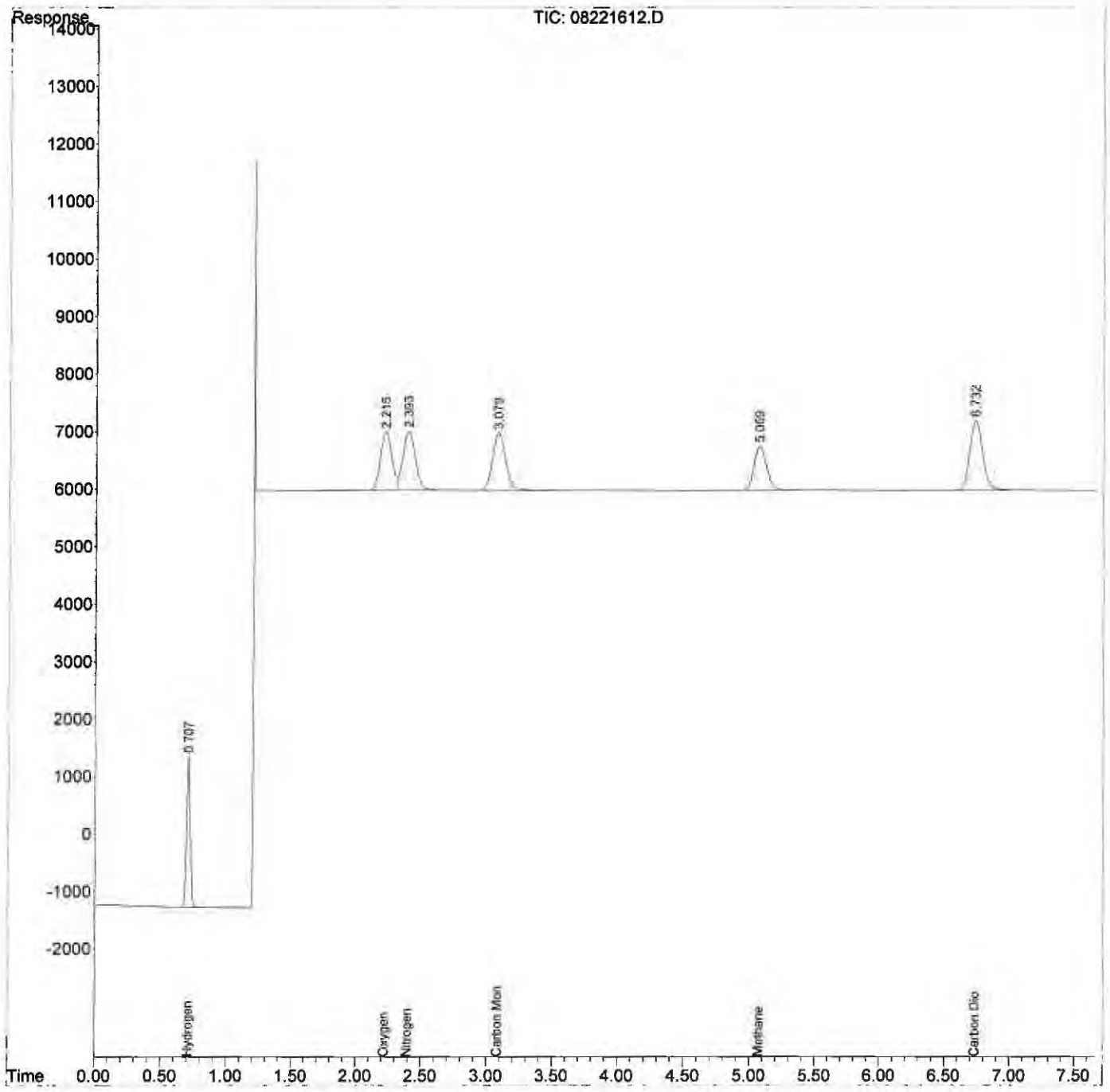
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221612.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 2:30 pm
Operator : amf
Sample : std s11-12041501
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 14:48:22 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221613.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 2:54 pm
Operator : amf
Sample : std s11-12031501
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 15:18:53 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.703	219834	166275.524	ppm
2)	Oxygen	2.198	247351	161547.583	ppm
3)	Nitrogen	2.375	277428	155942.102	ppm
4)	Carbon Monoxide	3.064	277383	159853.465	ppm
5)	Methane	5.059	206221	157612.524	ppm
6)	Carbon Dioxide	6.718	333461	157014.497	ppm

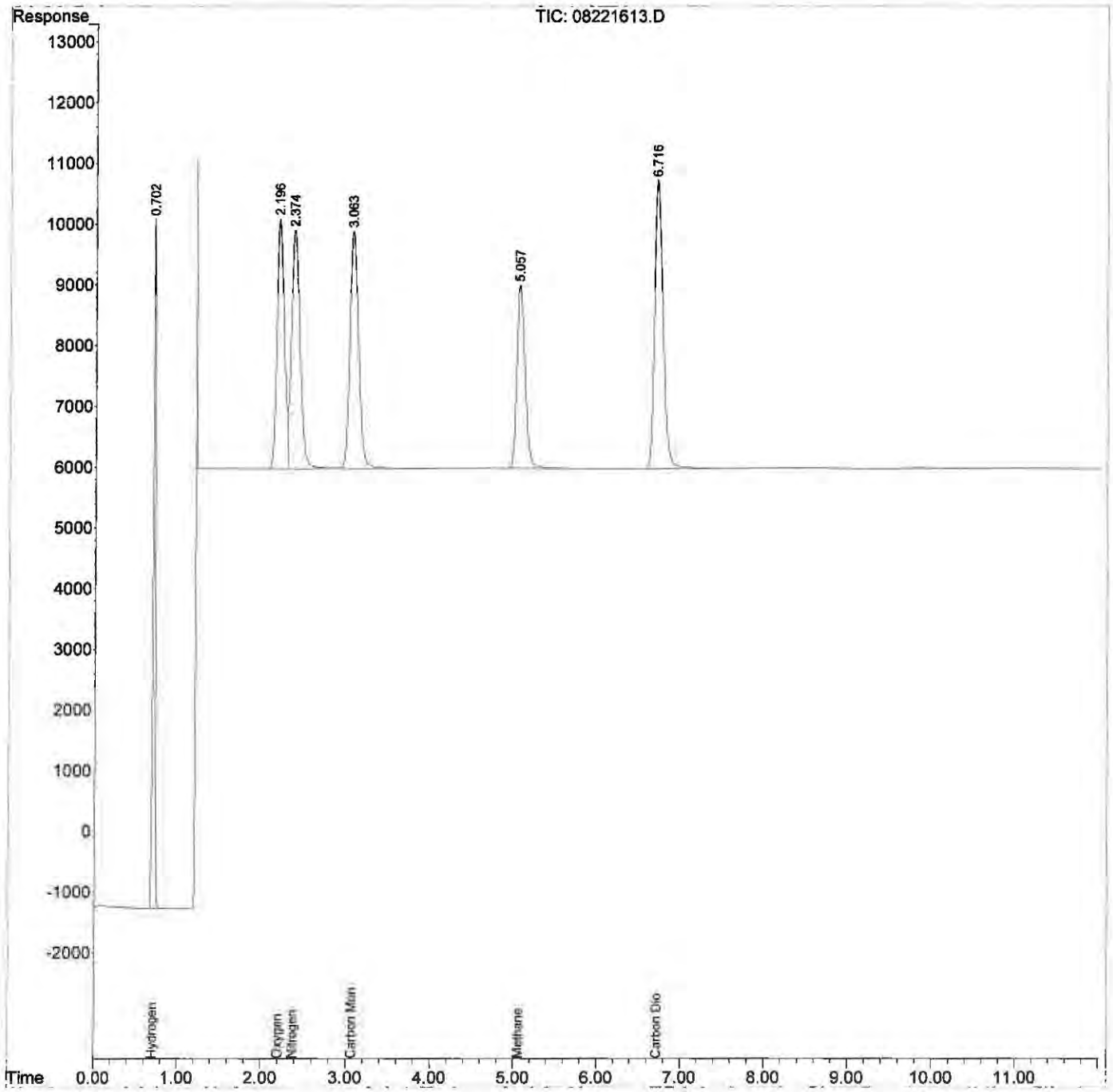
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221613.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 2:54 pm
Operator : amf
Sample : std s11-12031501
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 15:18:53 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221614.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 3:11 pm
Operator : amf
Sample : std s11-12031501
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 15:28:41 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.703	219704	165676.829	ppm
2)	Oxygen	2.200	246818	161079.250	ppm
3)	Nitrogen	2.378	276346	155637.709	ppm
4)	Carbon Monoxide	3.066	276366	159278.450	ppm
5)	Methane	5.060	205850	157510.093	ppm
6)	Carbon Dioxide	6.719	332031	156565.868	ppm

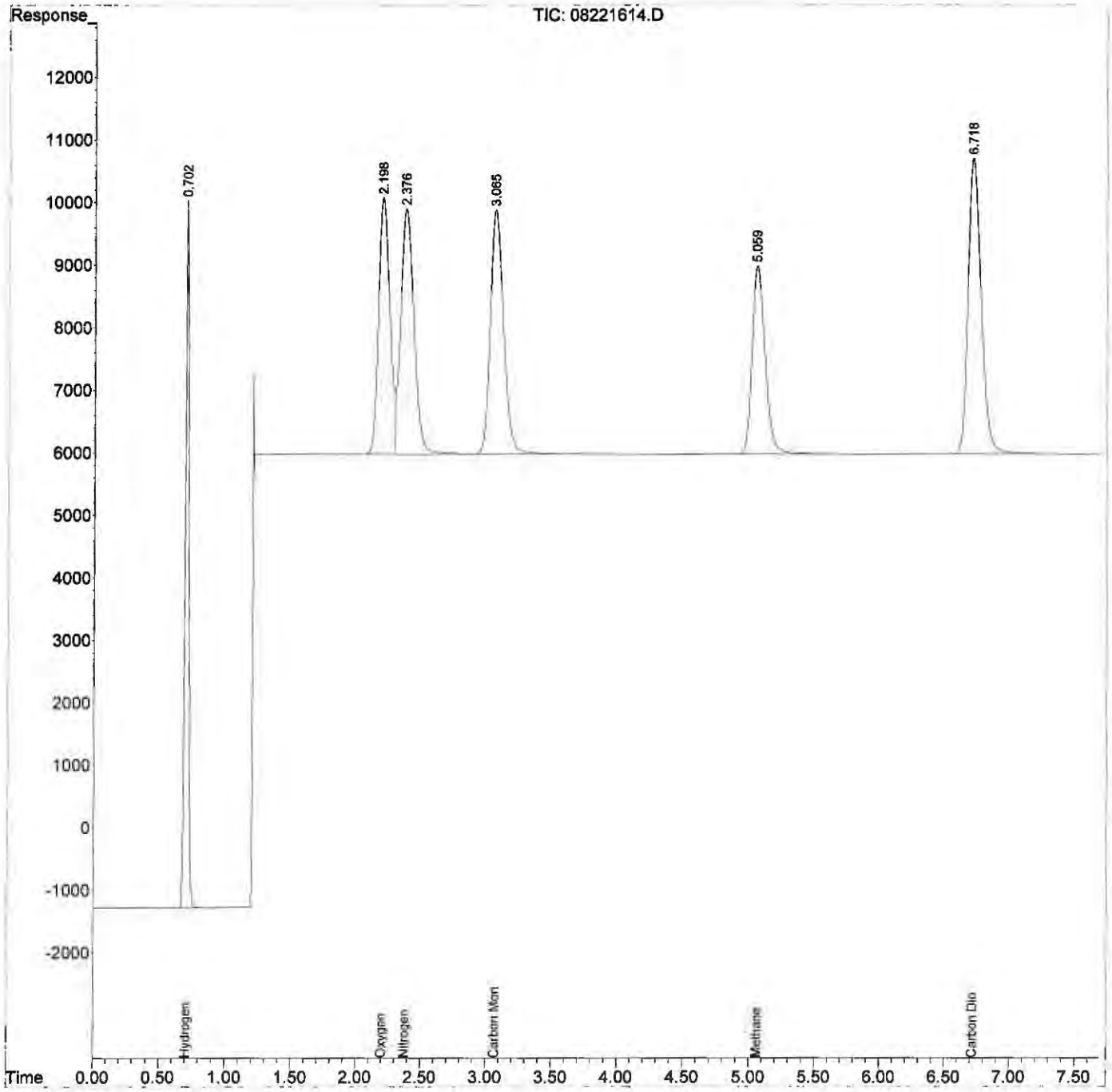
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221614.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 3:11 pm
Operator : amf
Sample : std s11-12031501
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 15:28:41 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221616.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 3:42 pm
Operator : amf
Sample : std s11-12021503
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 15:56:42 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	2.112	1611068	1050161.569	ppm
3)	Nitrogen	0.000	0	N.D.	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	0.000	0	N.D.	ppm

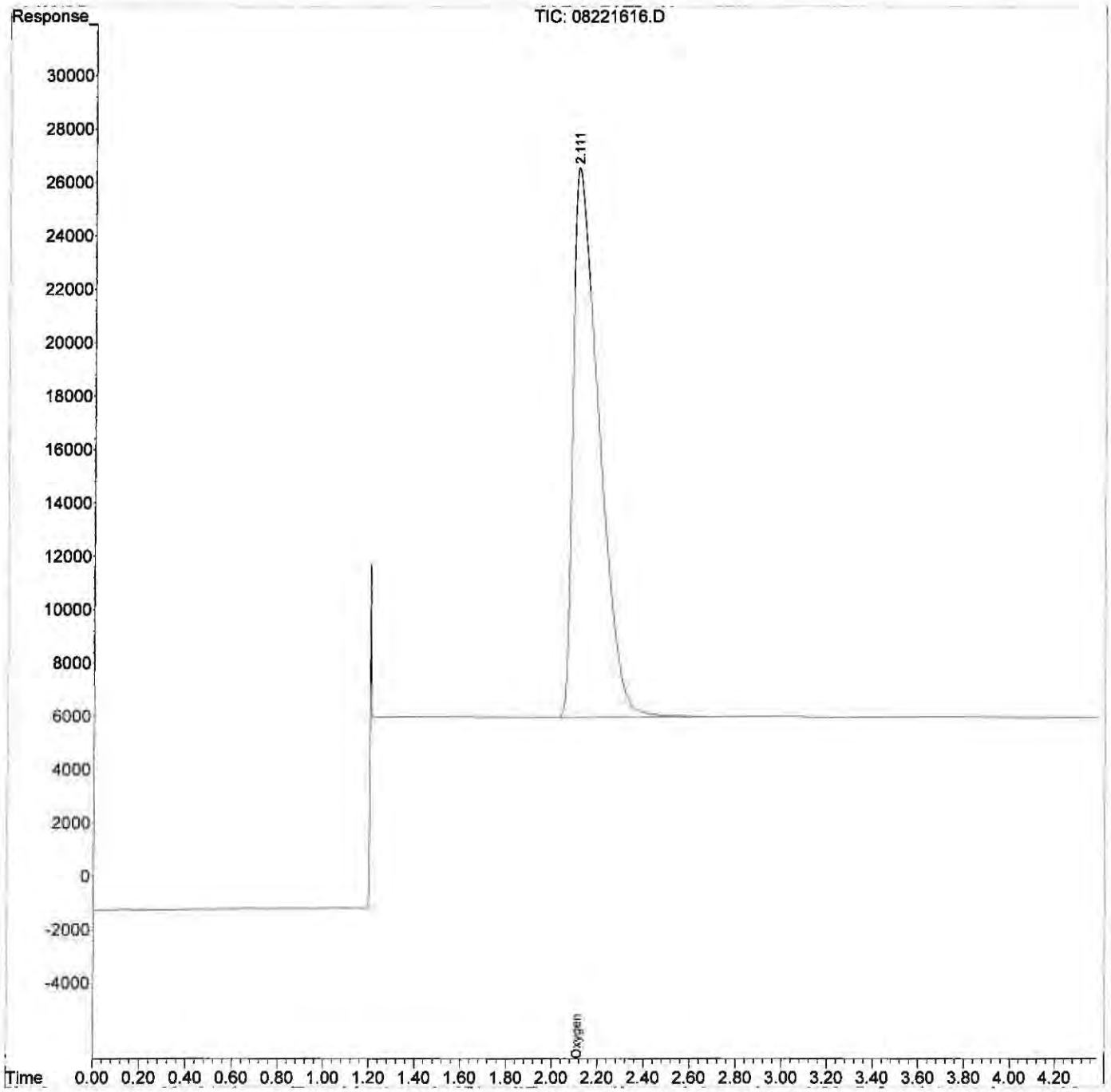
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221616.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 3:42 pm
Operator : amf
Sample : std s11-12021503
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 15:56:42 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221617.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 3:49 pm
Operator : amf
Sample : std s11-12021503
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 16:02:12 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	2.115	1617147	1050828.907	ppm
3)	Nitrogen	0.000	0	N.D.	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	0.000	0	N.D.	ppm

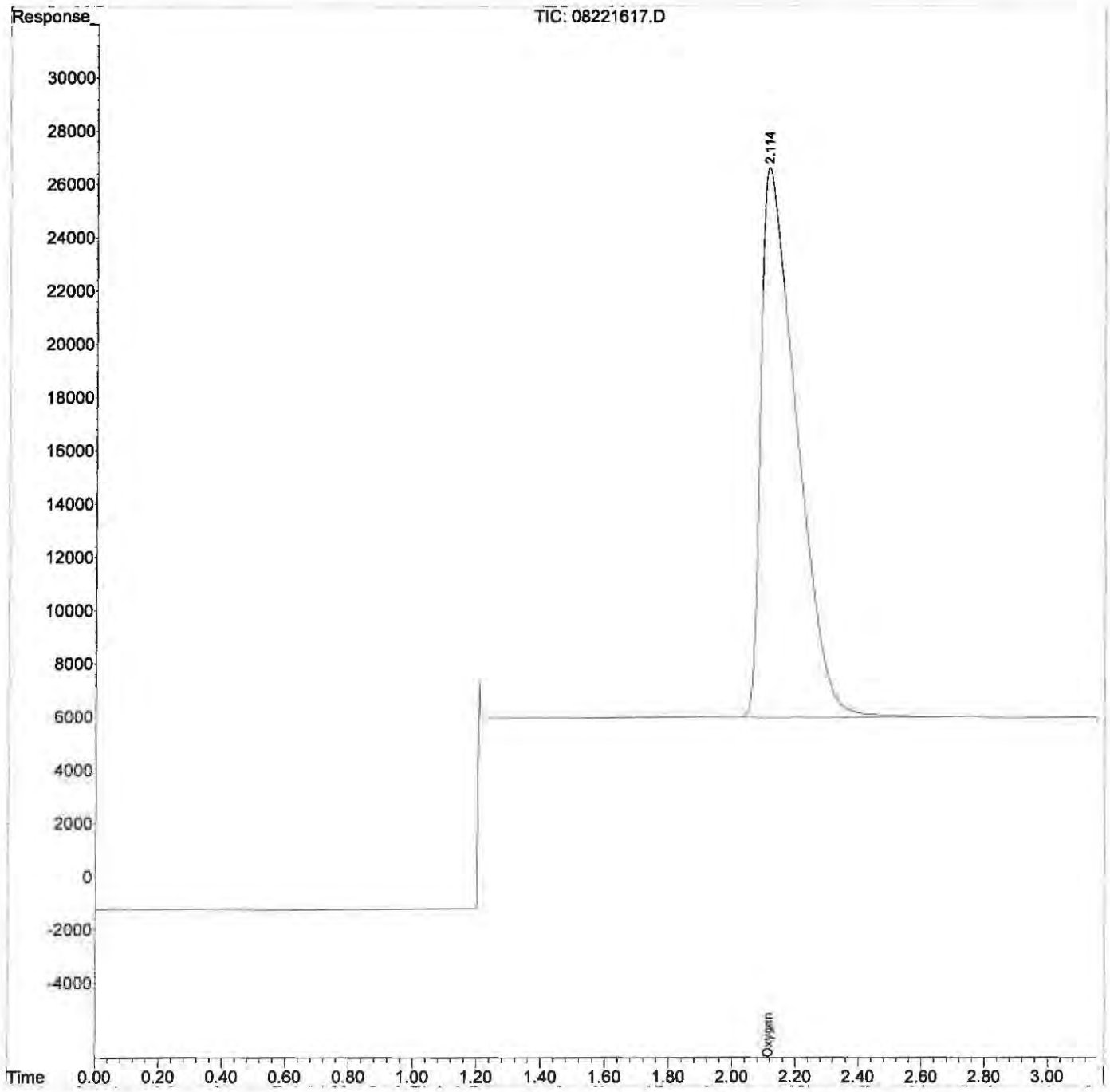
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221617.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 3:49 pm
Operator : amf
Sample : std s11-12021503
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 16:02:12 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221618.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 3:54 pm
Operator : amf
Sample : std s11-12021503
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 16:07:54 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	2.119	1588729	1029284.802	ppm
3)	Nitrogen	0.000	0	N.D.	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	0.000	0	N.D.	ppm

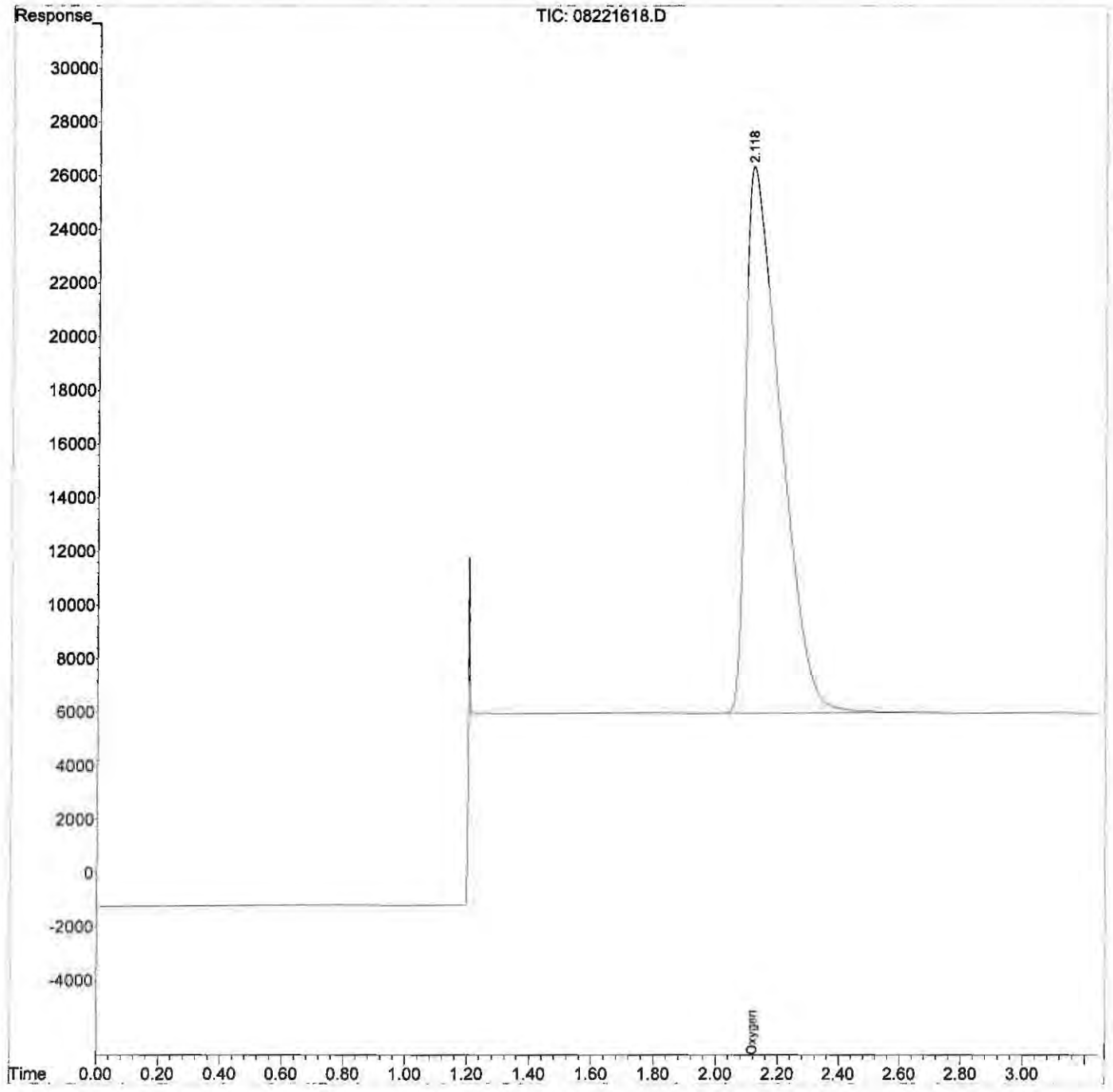
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221618.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 3:54 pm
Operator : amf
Sample : std s11-12021503
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 16:07:54 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221619.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 4:02 pm
Operator : amf
Sample : co2
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 16:20:27 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

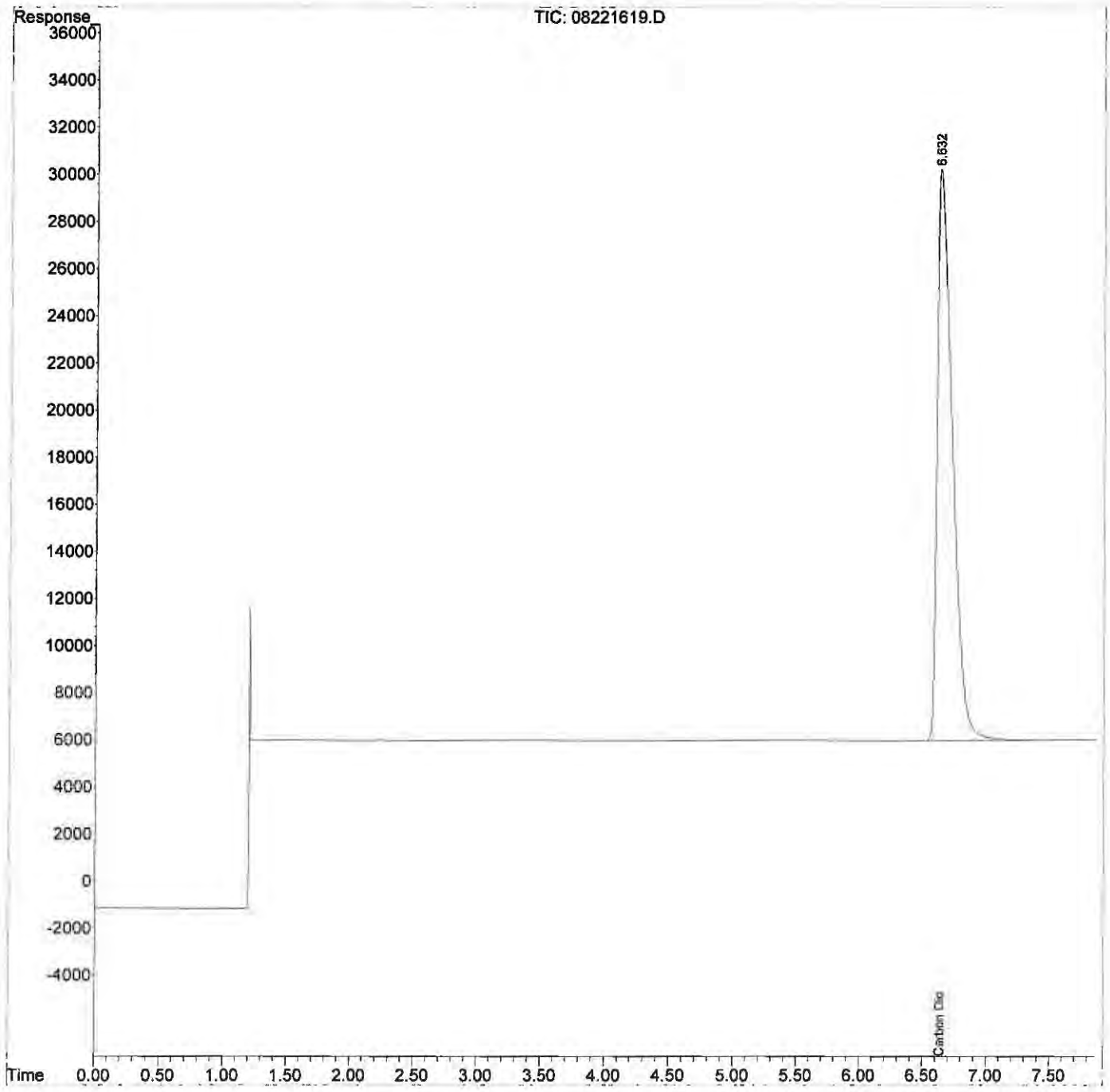
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	0.000	0	N.D.	ppm
3)	Nitrogen	0.000	0	N.D.	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	6.634	2005774	948215.193	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221619.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 4:02 pm
Operator : amf
Sample : co2
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 16:20:27 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221620.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 4:14 pm
Operator : amf
Sample : co2
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 16:32:40 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	0.000	0	N.D.	ppm
3)	Nitrogen	0.000	0	N.D.	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	6.630	2003370	950153.030	ppm

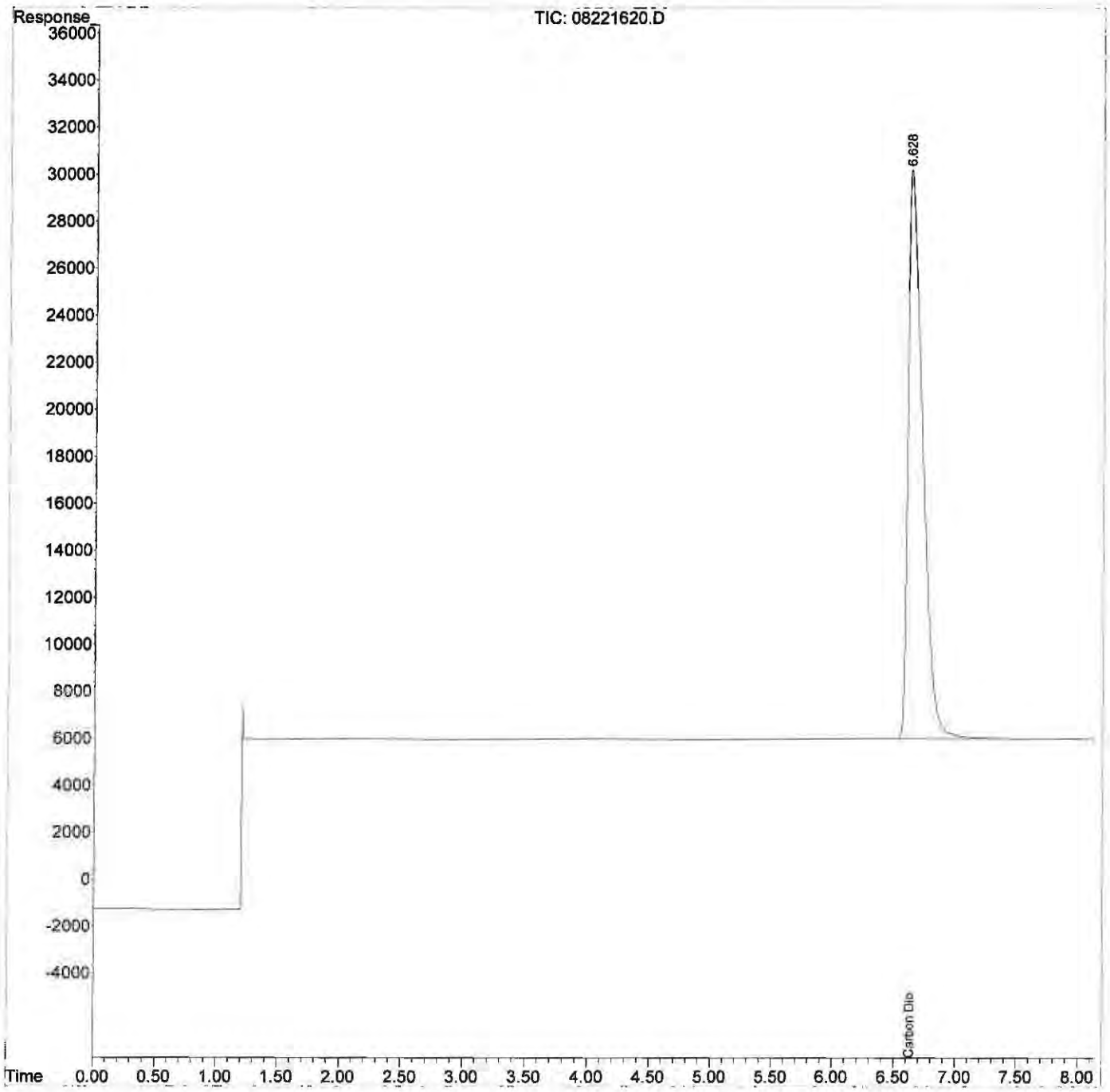
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221620.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 4:14 pm
Operator : amf
Sample : co2
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 16:32:40 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221621.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 4:26 pm
Operator : amf
Sample : co2
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 16:44:54 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	0.000	0	N.D.	ppm
3)	Nitrogen	0.000	0	N.D.	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	6.627	2014660	958317.321	ppm

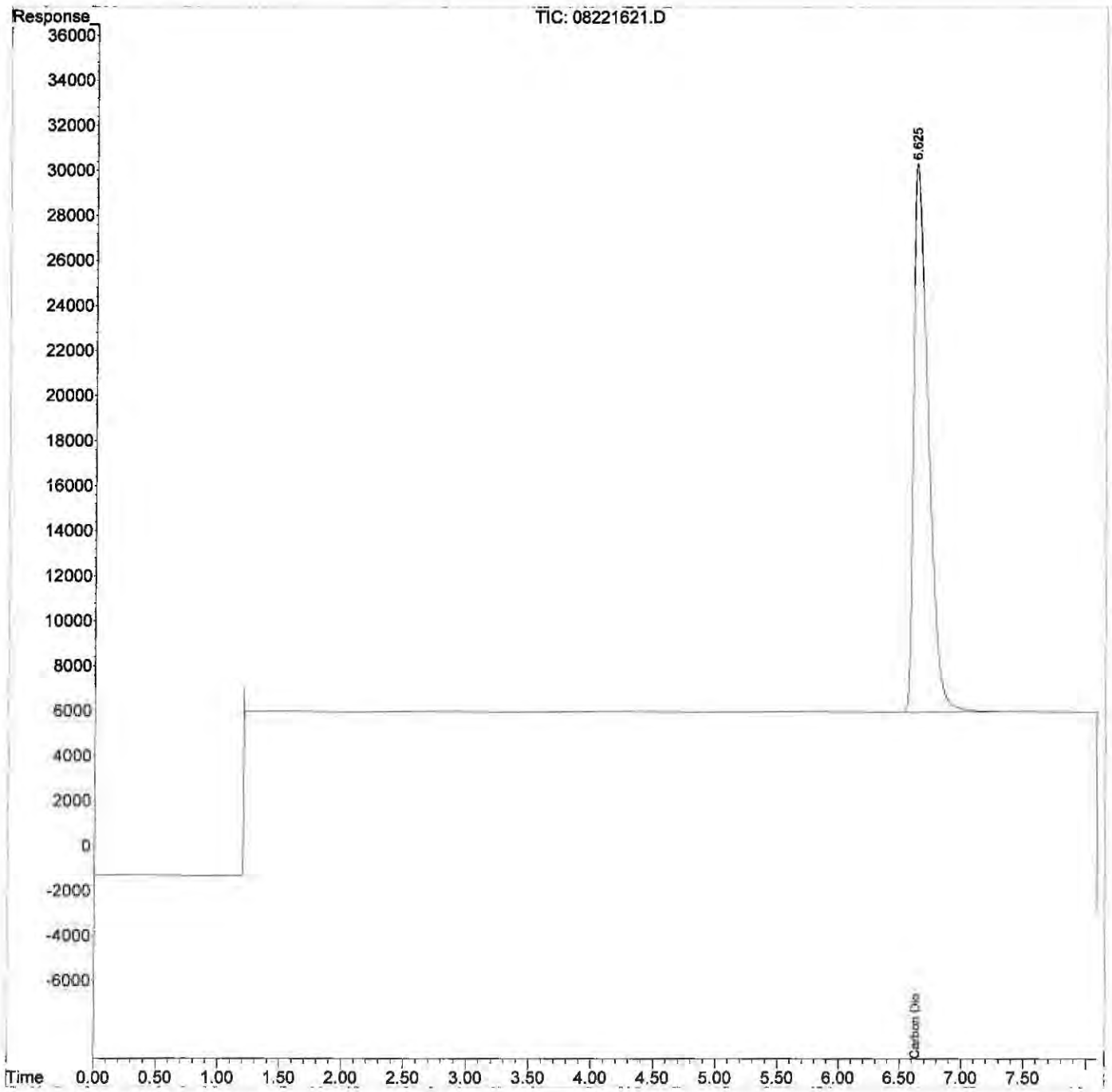
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : J:\GC01\DATA\FXG\2016_08\22\
Data File : 08221621.D
Signal(s) : TCD1A.CH
Acq On : 22 Aug 2016 4:26 pm
Operator : amf
Sample : co2
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 22 16:44:54 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Mon Aug 22 10:58:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_08\23\
Data File : 08231601.D
Signal(s) : TCD1A.CH
Acq On : 23 Aug 2016 8:56 am
Operator : amf
Sample : s11-12021502
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 23 09:10:40 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 08:53:31 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	0.000	0	N.D.	ppm d
3)	Nitrogen	2.292	1743725	985438.652	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	0.000	0	N.D.	ppm

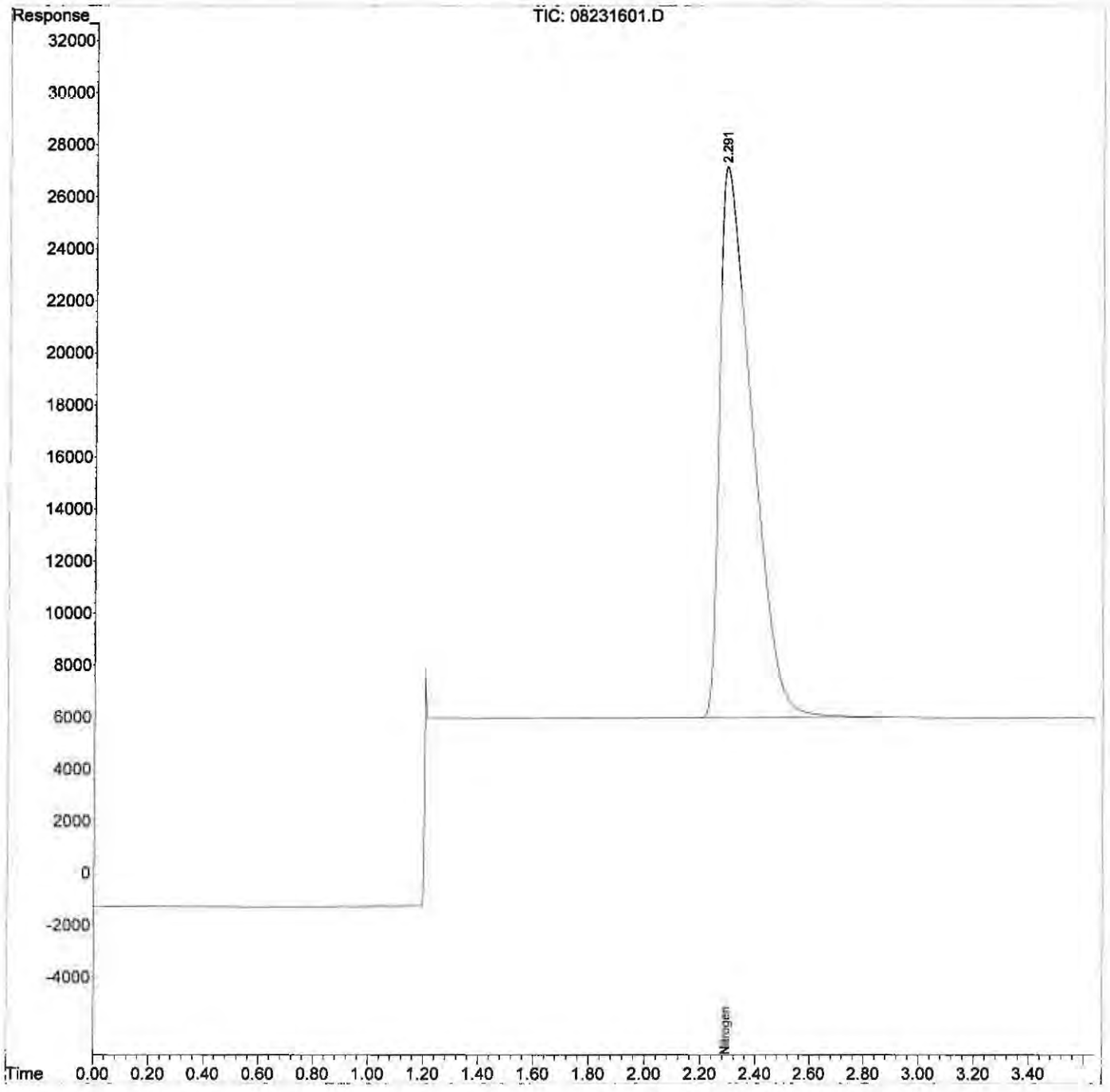
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_08\23\
Data File : 08231601.D
Signal(s) : TCD1A.CH
Acq On : 23 Aug 2016 8:56 am
Operator : amf
Sample : s11-12021502
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 23 09:10:40 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 08:53:31 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_08\23\
Data File : 08231602.D
Signal(s) : TCD1A.CH
Acq On : 23 Aug 2016 9:03 am
Operator : amf
Sample : s11-12021502
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 23 09:20:25 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 09:11:06 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.000	0	N.D.	ppm	
2)	Oxygen	0.000	0	N.D.	ppm	d
3)	Nitrogen	2.294	1755465	992976.308	ppm	
4)	Carbon Monoxide	0.000	0	N.D.	ppm	
5)	Methane	0.000	0	N.D.	ppm	
6)	Carbon Dioxide	0.000	0	N.D.	ppm	

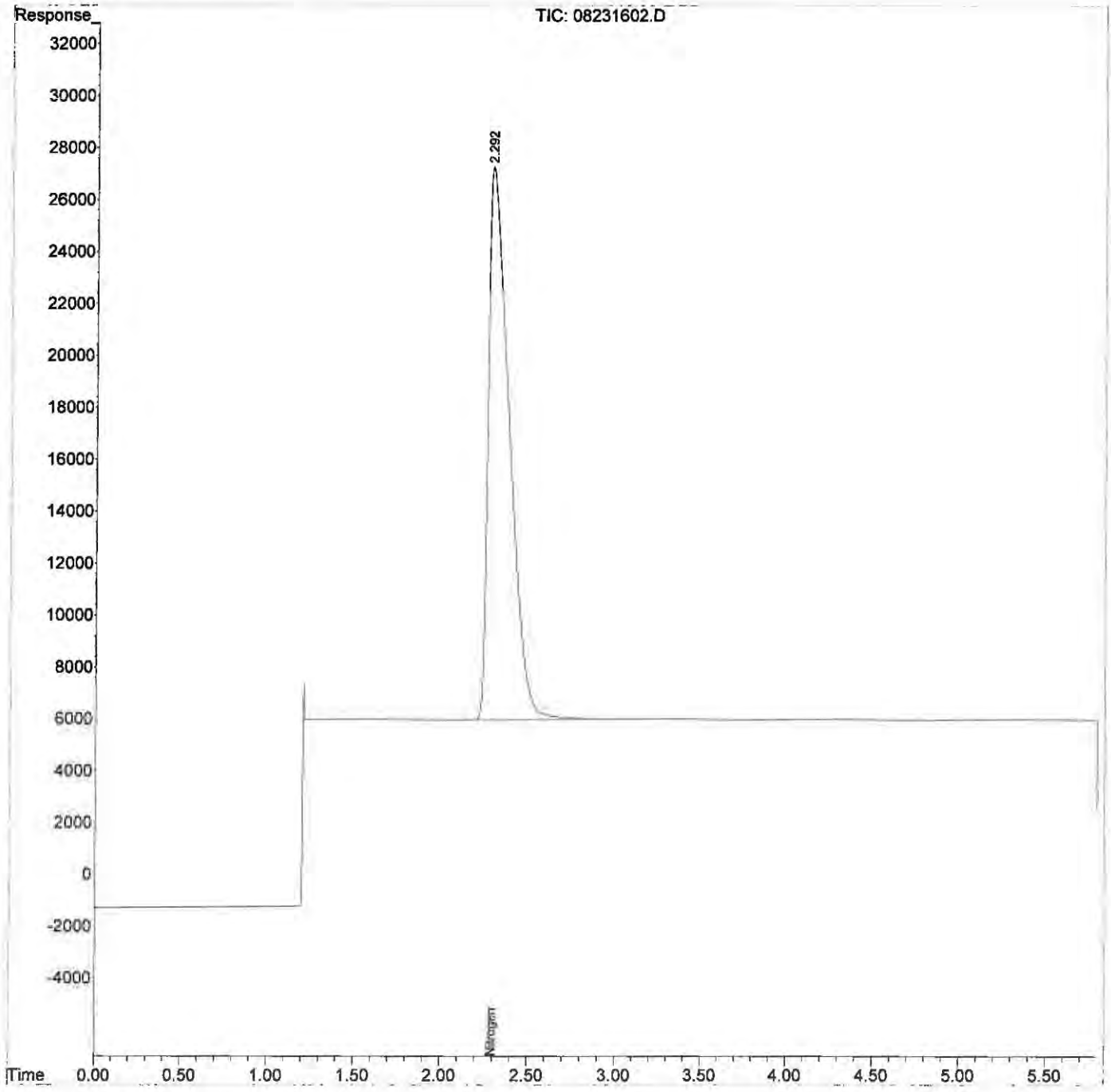
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_08\23\
Data File : 08231602.D
Signal(s) : TCD1A.CH
Acq On : 23 Aug 2016 9:03 am
Operator : amf
Sample : s11-12021502
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 23 09:20:25 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 09:11:06 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_08\23\
Data File : 08231603.D
Signal(s) : TCD1A.CH
Acq On : 23 Aug 2016 9:12 am
Operator : amf
Sample : s11-12021502
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 23 09:26:42 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 09:21:22 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

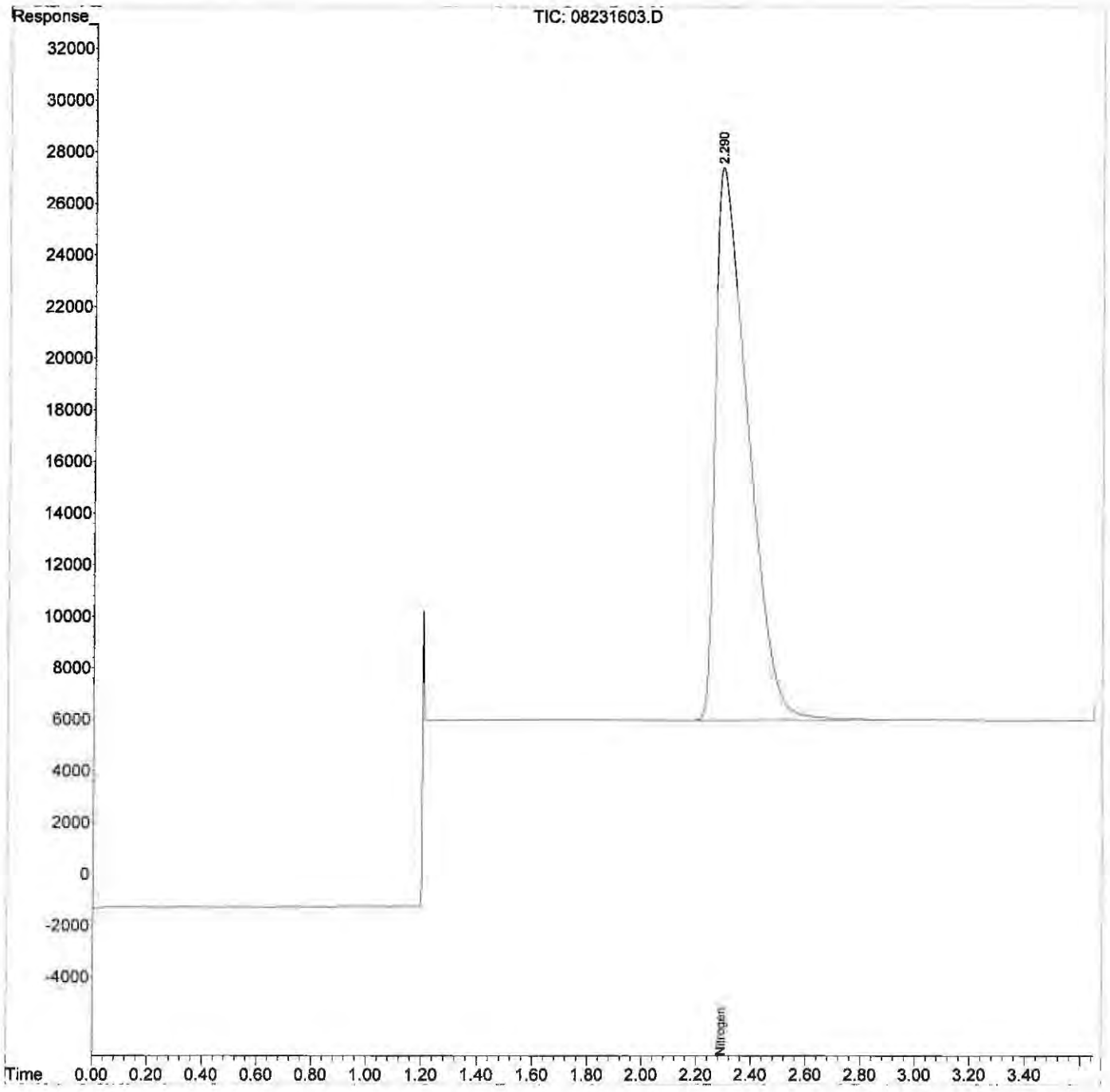
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	0.000	0	N.D.	ppm d
3)	Nitrogen	2.292	1767961	1000457.289	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	0.000	0	N.D.	ppm
6)	Carbon Dioxide	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_08\23\
Data File : 08231603.D
Signal(s) : TCD1A.CH
Acq On : 23 Aug 2016 9:12 am
Operator : amf
Sample : s11-12021502
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 23 09:26:42 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 09:21:22 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_08\23\
Data File : 08231604.D
Signal(s) : TCD1A.CH
Acq On : 23 Aug 2016 9:59 am
Operator : amf
Sample : ch4
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 23 10:21:06 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 09:26:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	0.000	0	N.D.	ppm
3)	Nitrogen	0.000	0	N.D.	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	4.972	1316988	1009460.431	ppm
6)	Carbon Dioxide	0.000	0	N.D.	ppm

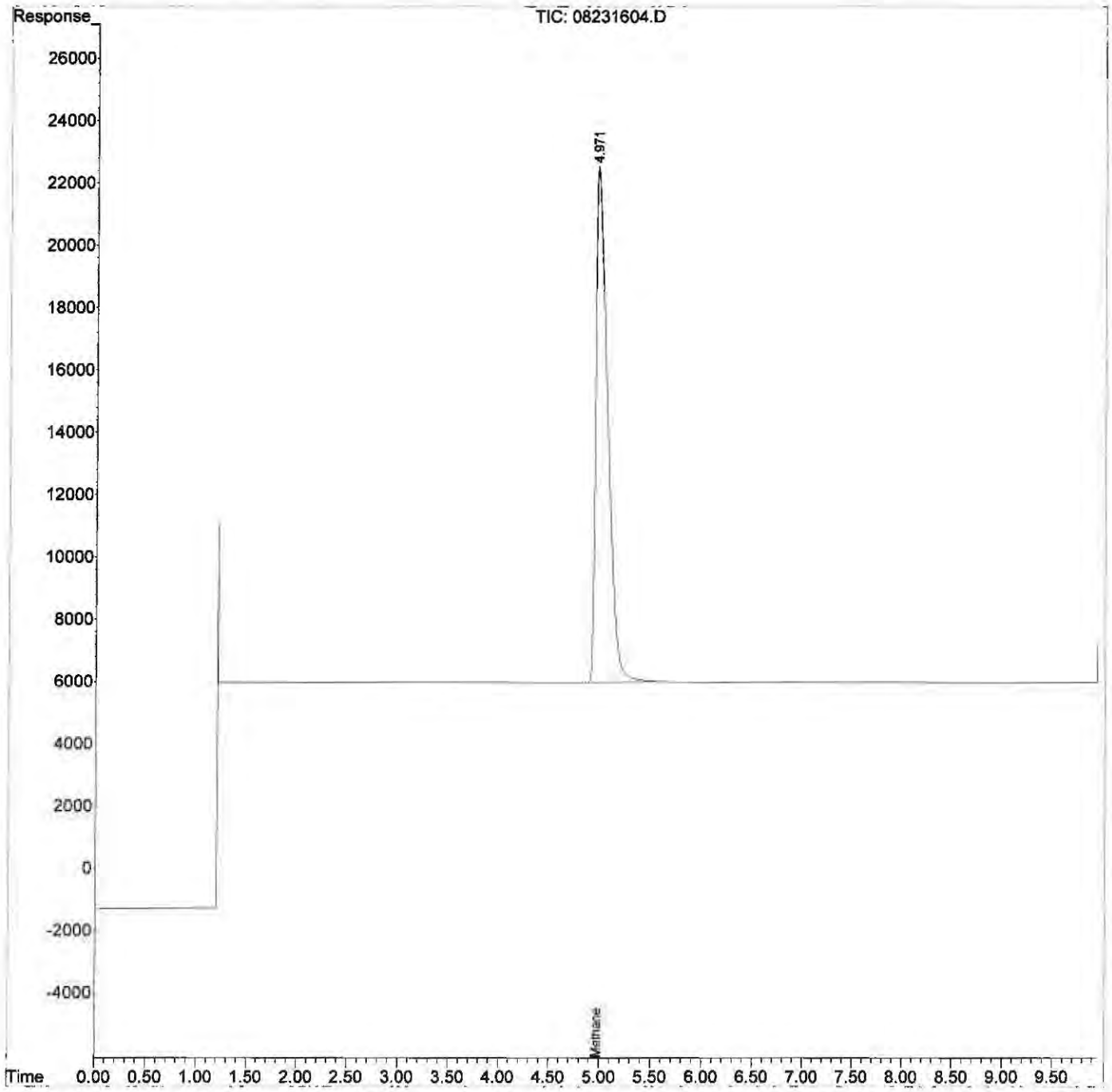
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_08\23\
Data File : 08231604.D
Signal(s) : TCD1A.CH
Acq On : 23 Aug 2016 9:59 am
Operator : amf
Sample : ch4
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 23 10:21:06 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 09:26:55 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_08\23\
Data File : 08231605.D
Signal(s) : TCD1A.CH
Acq On : 23 Aug 2016 10:25 am
Operator : amf
Sample : ch4
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 23 10:52:53 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 10:21:20 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	0.000	0	N.D.	ppm
3)	Nitrogen	0.000	0	N.D.	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	4.970	1323004	1013471.364	ppm
6)	Carbon Dioxide	0.000	0	N.D.	ppm

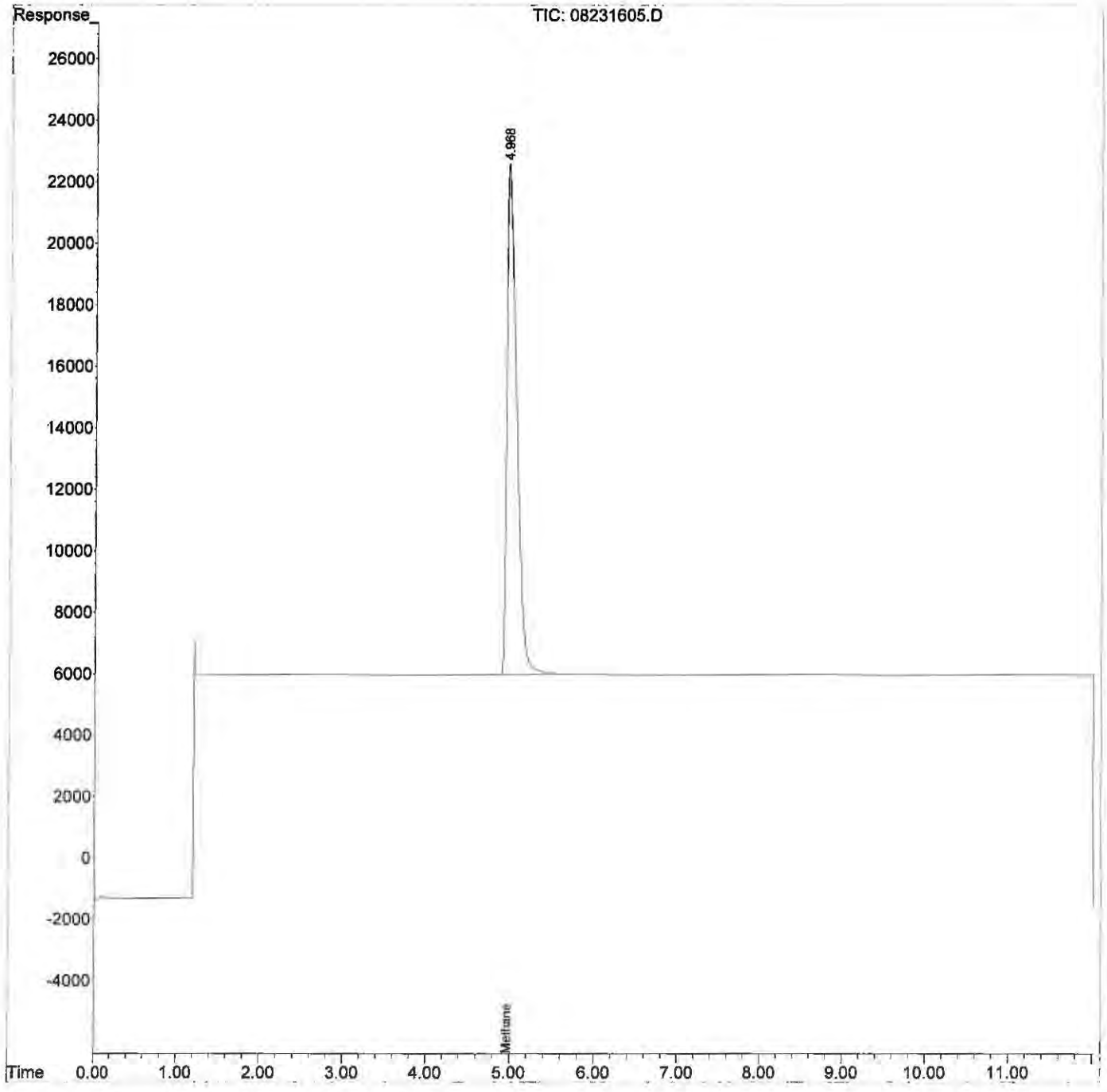
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_08\23\
Data File : 08231605.D
Signal(s) : TCD1A.CH
Acq On : 23 Aug 2016 10:25 am
Operator : amf
Sample : ch4
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 23 10:52:53 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 10:21:20 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_08\23\
Data File : 08231606.D
Signal(s) : TCD1A.CH
Acq On : 23 Aug 2016 10:45 am
Operator : amf
Sample : ch4
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 23 11:02:34 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 10:53:06 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

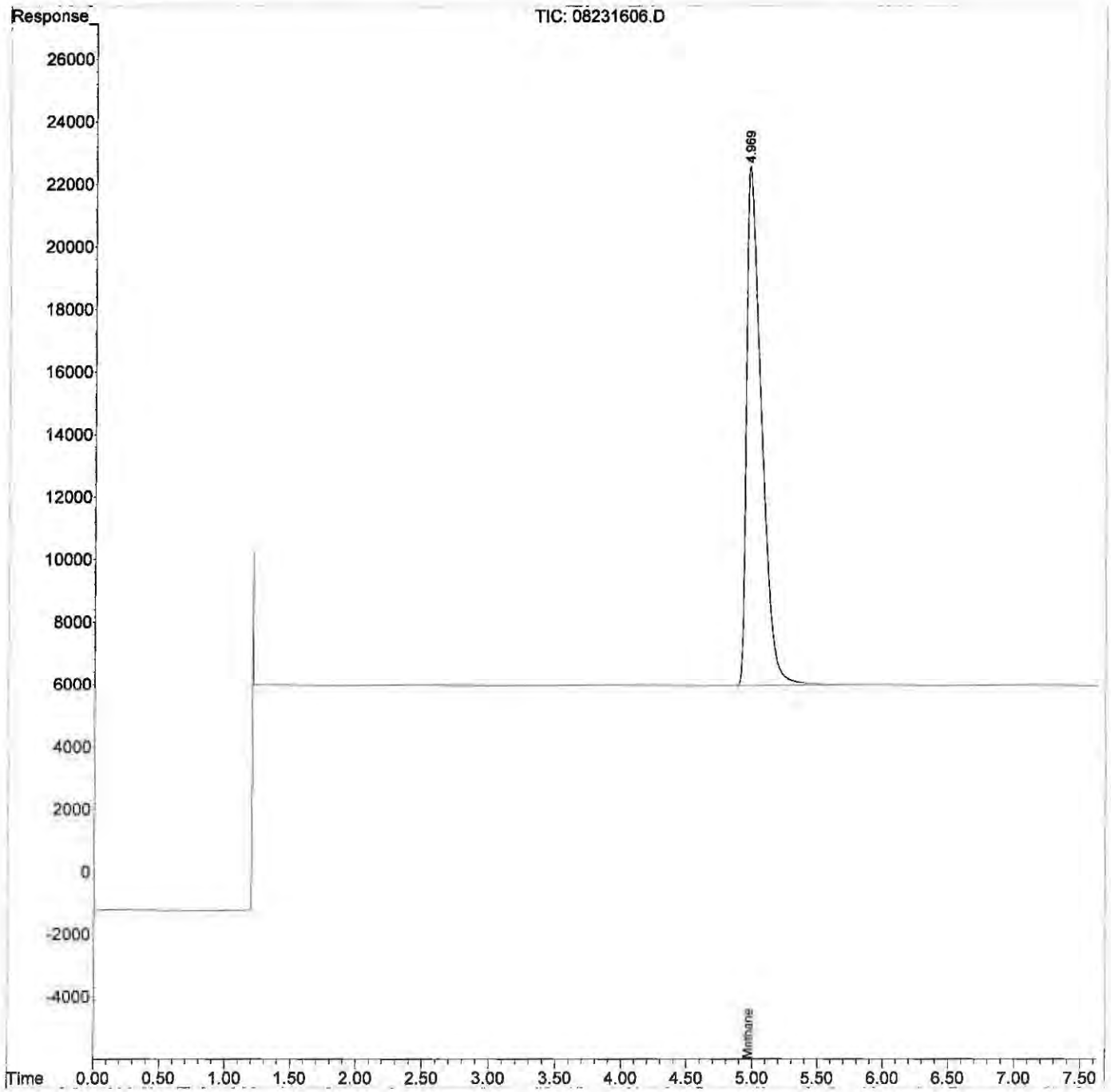
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.000	0	N.D.	ppm
2)	Oxygen	0.000	0	N.D.	ppm
3)	Nitrogen	0.000	0	N.D.	ppm
4)	Carbon Monoxide	0.000	0	N.D.	ppm
5)	Methane	4.971	1318464	1009193.790	ppm
6)	Carbon Dioxide	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_08\23\
Data File : 08231606.D
Signal(s) : TCD1A.CH
Acq On : 23 Aug 2016 10:45 am
Operator : amf
Sample : ch4
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Aug 23 11:02:34 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 10:53:06 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_08\23\
Data File : 08231609.D
Signal(s) : TCD1A.CH
Acq On : 23 Aug 2016 2:00 pm
Operator : amf
Sample : ICV s30-07271601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Sep 23 10:15:12 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

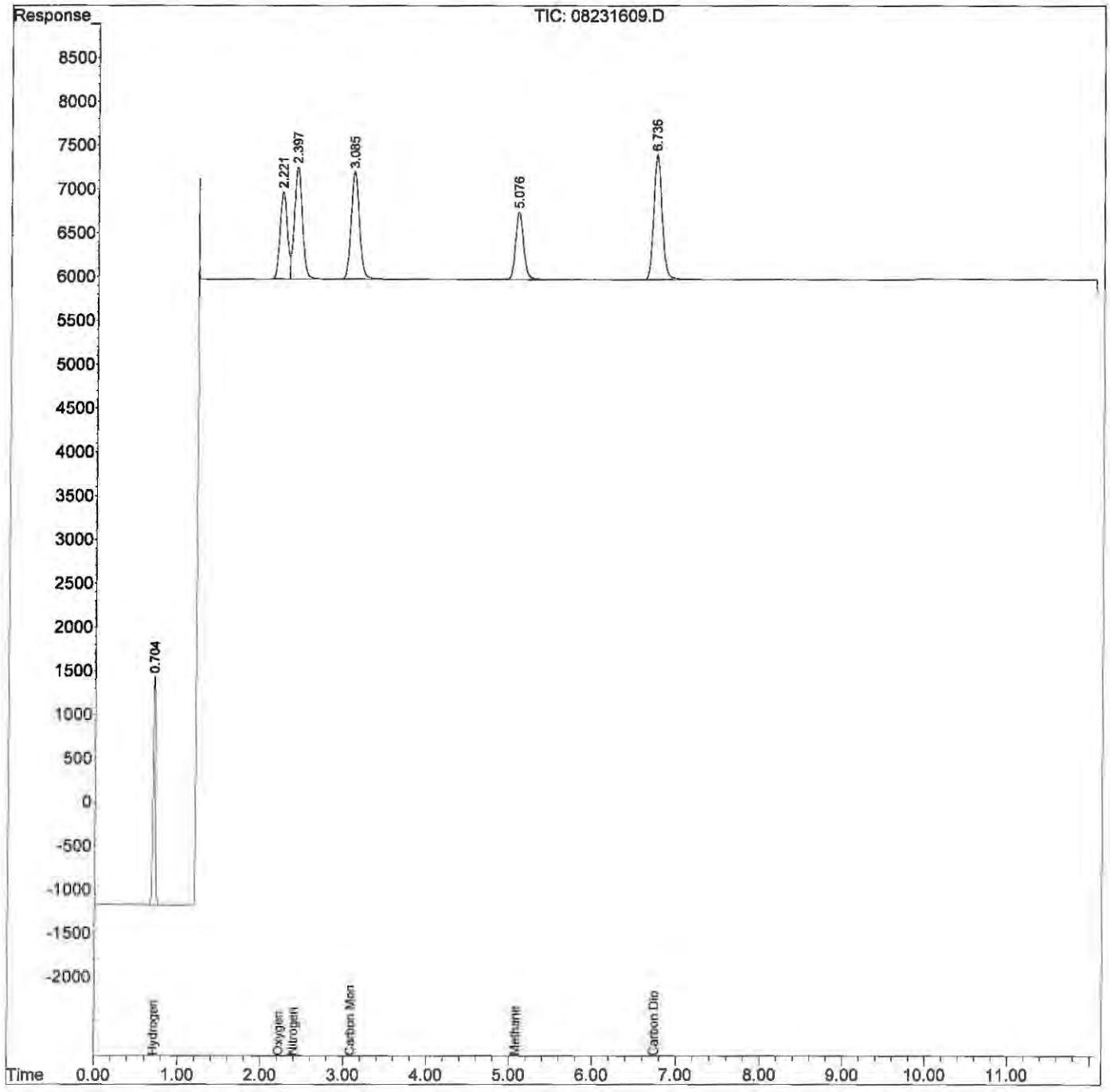
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Hydrogen	0.705	51930	38960.985	ppm	2,60 %
2)	Oxygen	2.222	60278	38988.977	ppm	2.53 %
3)	Nitrogen	2.398	86058	48697.524	ppm	2.06 %
4)	Carbon Monoxide	3.086	85978	49564.451	ppm	0,87 %
5)	Methane	5.077	52066	39832.238	ppm	0.42 %
6)	Carbon Dioxide	6.738	98746	47079.824	ppm	5,84 %

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_08\23\
Data File : 08231609.D
Signal(s) : TCD1A.CH
Acq On : 23 Aug 2016 2:00 pm
Operator : amf
Sample : ICV s30-07271601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Sep 23 10:15:12 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



ALS

REPORT SUMMARYS FIXED GASES BY GC/TCD
CLIENT : Air Hygiene
Analyst : amf
PAI Job : P1604736

Printed : 10/11/2016
Instrument : GC #1 / TCD #1
Date analyzed : 10/7/2016
Sample amount : 100uL

Sample Result

Sample ID	Hydrogen	Oxygen	Nitrogen	Carbon Monoxide	Methane	Carbon Dioxide	Pi1	Pf1	Pi2	Pf2	BF
std s30-10051601	39594	39284	49170	50000	39941	47424					
ACTUAL	40000	40000	50000	50000	40000	50000					
% Difference	1.0%	1.8%	1.7%		0.1%	5.2%					
Lab Air		219829	795055			373					
MB	ND	ND	ND	ND	ND	ND					
4736-001		142074	750300			42371					
4736-001		141218	745816			42425					
4736-001		142360	753172			42500					
% RSD		0.4%	0.5%			0.2%					
4736-003		148963	747426			38020					
4736-003		149700	751218			38260					
4736-003		150584	755763			38403					
% RSD		0.5%	0.6%			0.5%					
4736-005		146371	743625			39261					
4736-005		147225	749772			39493					
4736-005		147652	752072			39517					
% RSD		0.4%	0.6%			0.4%					
4736-007		154987	745831			34154					
4736-007		155088	744936			34116					
4736-007		156572	753631			34395					
% RSD		0.6%	0.6%			0.4%					
4736-009		145715	750656			39915					
4736-009		147019	755682			40201					
4736-009		145385	748771			39773					
% RSD		0.6%	0.5%			0.5%					
std s30-10051601	40059	39715	49441	50354	40086	47804					
ACTUAL	40000	40000	50000	50000	40000	50000					
% Difference	0.1%	0.7%	1.1%	0.7%	0.2%	4.4%					

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071601.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 8:24 am
Operator : amf
Sample : std s30-10151601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 11:40:24 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

	Compound	R.T.	Response	Conc Units
Target Compounds				
1)	Hydrogen	0.713	52774	39594.031 ppm
2)	Oxygen	2.233	60734	39283.773 ppm
3)	Nitrogen	2.409	86893	49170.065 ppm
4)	Carbon Monoxide	3.096	86733	49999.983 ppm
5)	Methane	5.086	52208	39941.437 ppm
6)	Carbon Dioxide	6.745	99469	47424.337 ppm

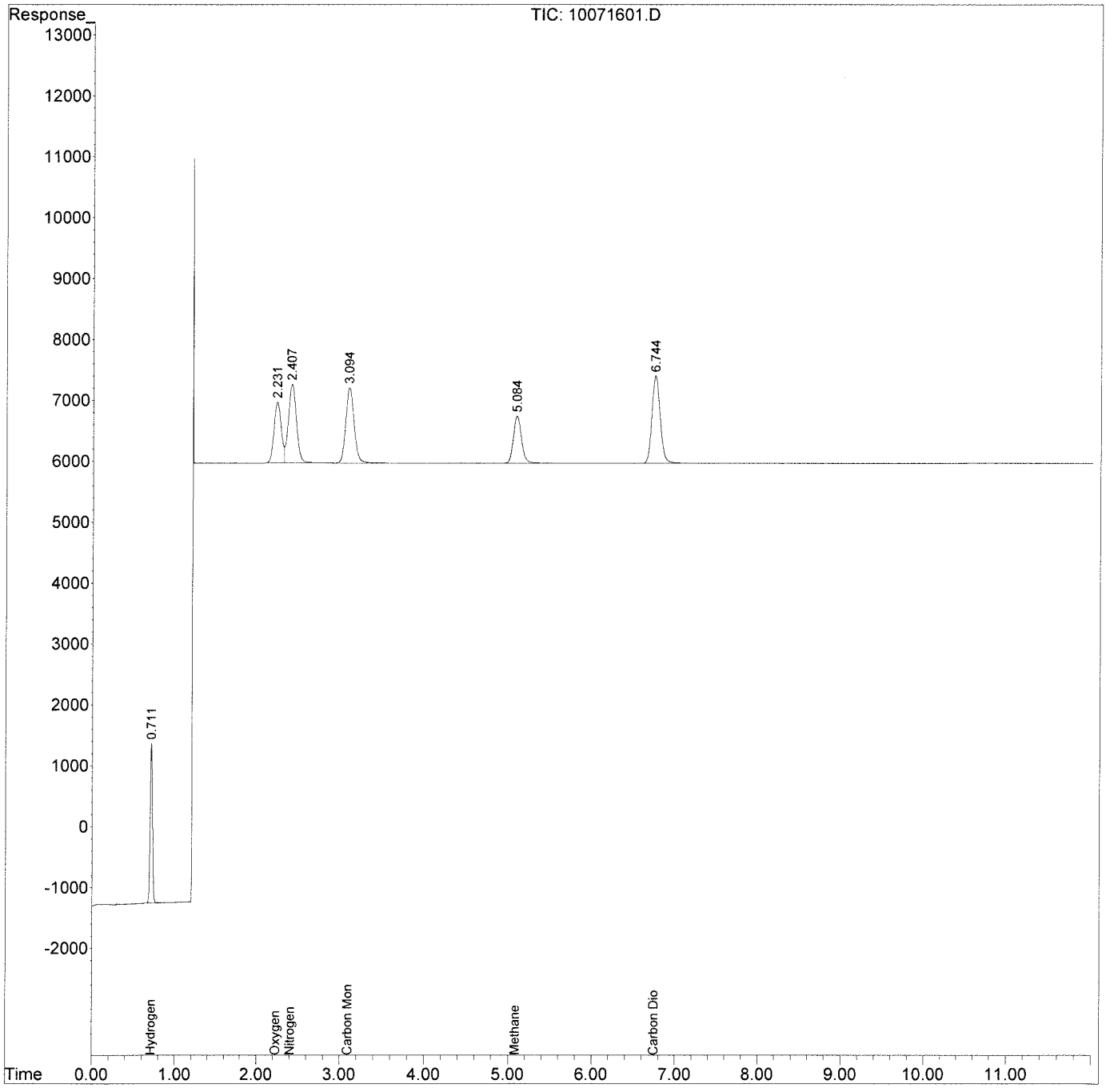
(f)=RT Delta > 1/2 Window (m)=manual int.

10/7/16

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071601.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 8:24 am
Operator : amf
Sample : std s30-10151601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 11:40:24 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Quantitation Report (QT Reviewed)

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071620.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 3:49 pm
Operator : amf
Sample : std s30-10051601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 16:20:19 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :

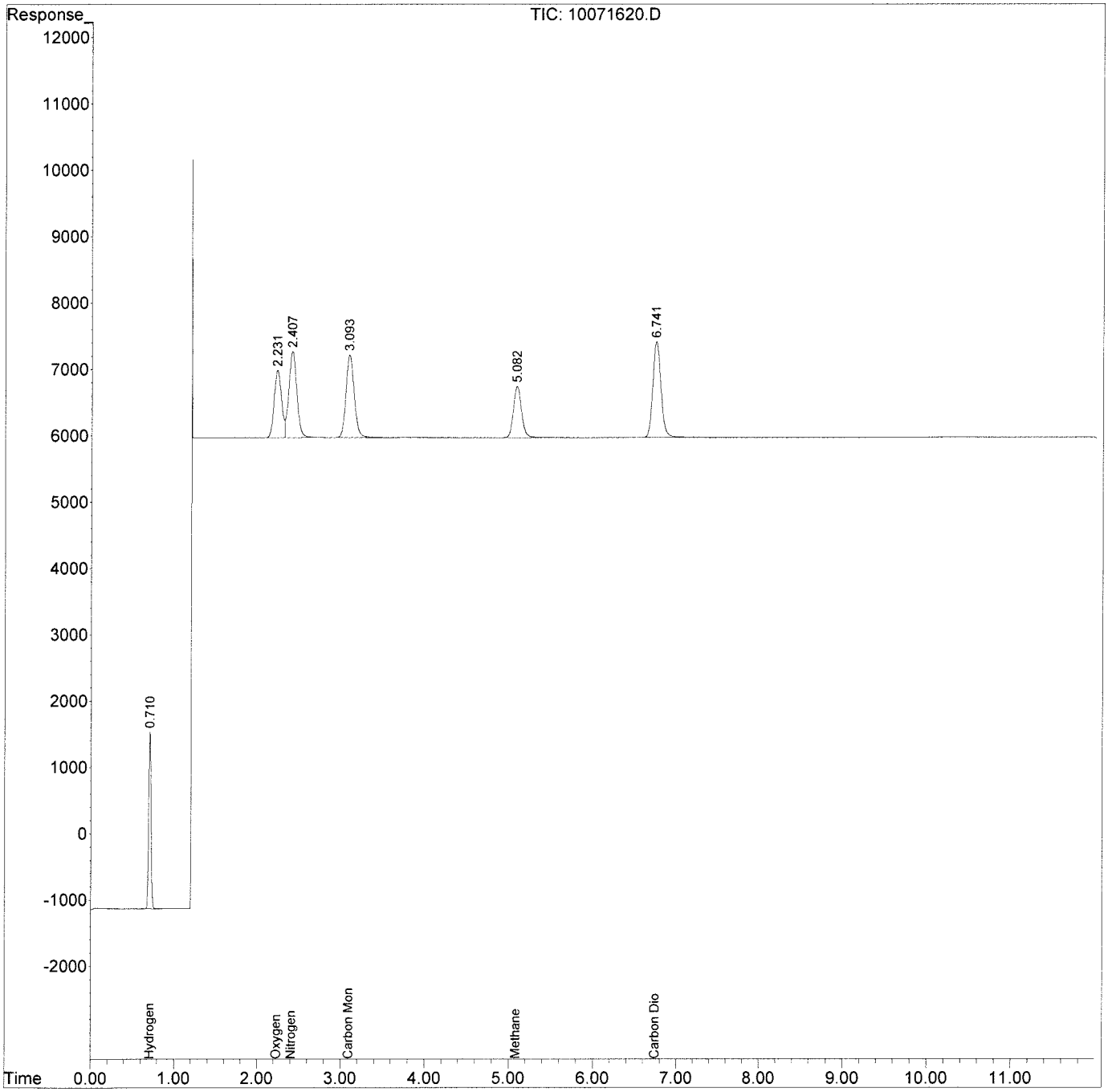
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Hydrogen	0.712	53393	40058.661	ppm
2)	Oxygen	2.232	61401	39714.992	ppm
3)	Nitrogen	2.408	87373	49441.357	ppm
4)	Carbon Monoxide	3.094	87348	50354.305	ppm
5)	Methane	5.083	52398	40086.293	ppm
6)	Carbon Dioxide	6.742	100266	47804.380	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC01\DATA\FXG\2016_10\07\
Data File : 10071620.D
Signal(s) : TCD1A.CH
Acq On : 7 Oct 2016 3:49 pm
Operator : amf
Sample : std s30-10051601
Misc :
ALS Vial : 1 Sample Multiplier: 10

Integration File: autoint1.e
Quant Time: Oct 07 16:20:19 2016
Quant Method : I:\GC01\METHODS\GC1_trip082216.M
Quant Title : EPA 3C, ASTM D 1946-90, VOA-EPA3C
QLast Update : Tue Aug 23 11:02:57 2016
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. : 100ul
Signal Phase : CarboSieve Packed Column
Signal Info :



Injection Log

Directory: I:\GC01\DATA\FXG\2016_08\22\

	Sample ID	Date/Time	Acquisition Method	File Name	Misc Info	Operator
	std s11-07191601	22 Aug 116 8:59 am	MFXGS25C.M	08221601.D		amf
	std s11-07191601	22 Aug 116 9:42 am	MFXGS25C.M	08221602.D		amf
	std s11-07191601	22 Aug 116 10:06 am	MFXGS25C.M	08221603.D		amf
	std s11-12041503	22 Aug 116 11:42 am	MFXGS25C.M	08221604.D		amf
	std s11-12041503	22 Aug 116 11:54 am	MFXGS25C.M	08221605.D		amf
	std s11-12041503	22 Aug 116 12:10 pm	MFXGS25C.M	08221606.D		amf
	std s11-12041502	22 Aug 116 12:42 pm	MFXGS25C.M	08221607.D		amf
	std s11-12041502	22 Aug 116 12:58 pm	MFXGS25C.M	08221608.D		amf
	std s11-12041502	22 Aug 116 1:34 pm	MFXGS25C.M	08221609.D		amf
	std s11-12041501	22 Aug 116 2:07 pm	MFXGS25C.M	08221610.D		amf
	std s11-12041501	22 Aug 116 2:19 pm	MFXGS25C.M	08221611.D		amf
	std s11-12041501	22 Aug 116 2:30 pm	MFXGS25C.M	08221612.D		amf
	std s11-12031501	22 Aug 116 2:54 pm	MFXGS25C.M	08221613.D		amf
	std s11-12031501	22 Aug 116 3:11 pm	MFXGS25C.M	08221614.D		amf
	std s11-12031501	22 Aug 116 3:22 pm	MFXGS25C.M	08221615.D		amf
	std s11-12021503	22 Aug 116 3:42 pm	MFXGS25C.M	08221616.D		amf
	std s11-12021503	22 Aug 116 3:49 pm	MFXGS25C.M	08221617.D		amf
	std s11-12021503	22 Aug 116 3:54 pm	MFXGS25C.M	08221618.D		amf
	co2	22 Aug 116 4:02 pm	MFXGS25C.M	08221619.D		amf
	co2	22 Aug 116 4:14 pm	MFXGS25C.M	08221620.D		amf
	co2	22 Aug 116 4:26 pm	MFXGS25C.M	08221621.D		amf

Injection Log

Directory: I:\GC01\DATA\FXG\2016_08\23\

	Sample ID	Date/Time	Acquisition Method	File Name	Misc Info	Operator
	s11-12021502	23 Aug 116 8:56 am	MFXGS25C.M	08231601.D		amf
	s11-12021502	23 Aug 116 9:03 am	MFXGS25C.M	08231602.D		amf
	s11-12021502	23 Aug 116 9:12 am	MFXGS25C.M	08231603.D		amf
	ch4	23 Aug 116 9:59 am	MFXGS25C.M	08231604.D		amf
	ch4	23 Aug 116 10:25 am	MFXGS25C.M	08231605.D		amf
	ch4	23 Aug 116 10:45 am	MFXGS25C.M	08231606.D		amf
	mb	23 Aug 116 10:57 am	MFXGS25C.M	08231607.D		amf
	lab air	23 Aug 116 11:14 am	MFXGS25C.M	08231608.D		amf
	ICV s30-07271601	23 Aug 116 2:00 pm	MF25VXXX.M	08231609.D		amf

Injection Log

Directory: I:\GC01\DATA\FXG\2016_10\07\

	Sample ID	Date/Time	Acquisition Method	File Name	Misc Info	Operator	Comments
	std s30-10151601	7 Oct 116 8:24 am	MFXGS25C.M	10071601.D		amf	
	mb	7 Oct 116 8:41 am	MFXGS25C.M	10071602.D		amf	
	lab air	7 Oct 116 9:17 am	MFXGS25C.M	10071603.D		amf	
	lcs s30-07281604	7 Oct 116 9:35 am	MFXGS25C.M	10071604.D		amf	
	4736-001	7 Oct 116 9:49 am	MFXGS25C.M	10071605.D		amf	
	4736-001	7 Oct 116 10:49 am	MF25VXXX.M	10071606.D		amf	
	4736-001	7 Oct 116 11:05 am	MFXGS25C.M	10071607.D		amf	
	4736-003	7 Oct 116 11:22 am	MFXGS25C.M	10071608.D		amf	
	4736-003	7 Oct 116 11:38 am	MF25VXXX.M	10071609.D		amf	
	4736-003	7 Oct 116 11:54 am	MFXGS25C.M	10071610.D		amf	
	4736-005	7 Oct 116 1:07 pm	MFXGS25C.M	10071611.D		amf	
	4736-005	7 Oct 116 1:24 pm	MFXGS25C.M	10071612.D		amf	
	4736-005	7 Oct 116 1:40 pm	MFXGS25C.M	10071613.D		amf	
	4736-007	7 Oct 116 1:57 pm	MFXGS25C.M	10071614.D		amf	
	4736-007	7 Oct 116 2:22 pm	MFXGS25C.M	10071615.D		amf	
	4736-007	7 Oct 116 2:38 pm	MFXGS25C.M	10071616.D		amf	
	4736-009	7 Oct 116 2:55 pm	MFXGS25C.M	10071617.D		amf	
	4736-009	7 Oct 116 3:11 pm	MFXGS25C.M	10071618.D		amf	
	4736-009	7 Oct 116 3:27 pm	MFXGS25C.M	10071619.D		amf	
	std s30-10051601	7 Oct 116 3:49 pm	MFXGS25C.M	10071620.D		amf	

APPENDIX G

FIELD DATA SHEET

MULTI LOAD TEST - FIELD DATA SHEET

AIR HYGIENE

Company:	Superior Fabrication
Location:	Elk City Plant
Date:	10/7/16
Unit Make and Model:	
Unit Number:	SCD-36
Serial Number:	
Data Recorded By:	MiL
Tested With AHI Unit(s):	Truck(s): 156 Trailer(s): 210
LDEQ Warmup/Cal Req:	On (Day/Time): 7242 Cal (Day/Time): 7:10

CYLINDER SERIAL NUMBERS		O_2	NOx	CO	THC	CO_2	SO_2
	Low				ALM066568		
	Mid	EB006530		EB007854	ALM010278	EB006530	
	High	CC67536		EB0085244	CC156074	CC67536	

Stack Dia. = _____
Measured By: _____
Measured With: _____

RUN INFORMATION	Low Load			Mid Load			Mid-High Load			High Load		
	___% #1	___% #2	___% #3	___% #1	30-70-30 % #2	30-70-30 % #3	___% #1	___% #2	___% #3	___% #1	___% #2	___% #3
Time Start (hh:mm:ss)					7:55:07	9:21:07						
Time Stop (hh:mm:ss)					9:05:07	10:31:07						
Rated MegaWatts (MW or hp)												
Actual MegaWatts (MW or hp)												
Barometric Pressure (in. Hg)					28.32	28.25						
Ambient Temperature (°F)					49	52						
Relative Humidity (%)					53	60						
Fuel Flow (lb/min)												
Fuel Flow (SCF/hr)=(lb/min)*21.7												
Specific Humidity (gr/lb)												
Specific Humidity (lb H_2O/lb air)=(gr/lb)/7000												
PCD (psi)												
PCD (mm Hg)=(psi÷14.24)*51.71493												
NOx Water Injection (gpm)												

CALIBRATION	O_2		CO		THC		CO_2	
	Conc.	Actual	Conc.	Actual	Conc.	Actual	Conc.	Actual
Zero Gas	0	-0.02	0	0.01	0	-0.01	0	0.06
Low Gas					3.00	3.04		
Mid Gas	11.9	12.04	9.44	9.46	5.01	4.95	8.95	8.89
High Gas	21.1	21.1	18.3	18.18	8.43	8.39	18.4	18.47

BIAS	O_2		CO		THC		CO_2	
	Zero	Mid	Zero	Mid	Zero	Mid	Zero	Mid
Initial Low Load Run #1	0.03	12.07	-0.03	9.38	0.01	2.98	0.01	8.82
Load 1 Run #1 / Load 1 Run #2	-0.02	12.01	0.03	9.37	-0.04	2.98	0.01	8.84
Load 1 Run #2 / Load 1 Run #3	-0.03	12.02	-0.02	9.32	-0.04	2.98	0.01	8.88
Load 1 Run #3 / Load 2 Run #1								
Load 2 Run #1 / Load 2 Run #2								
Load 2 Run #2 / Load 2 Run #3								
Load 2 Run #3 / Load 3 Run #1								
Load 3 Run #1 / Load 3 Run #2								
Load 3 Run #2 / Load 3 Run #3								
Load 3 Run #3 / Load 4 Run #1								
Load 4 Run #1 / Load 4 Run #2								
Load 4 Run #2 / Load 4 Run #3								
Load 4 Run #3 Final								
Bias Gas Actual Conc.								

MULTI LOAD TEST - FIELD DATA SHEET

AIR HYGIENE

Company:	Superior Fabrication
Location:	Elk City Plant
Date:	10/6/16
Unit Make and Model:	
Unit Number:	SCO-36
Serial Number:	
Data Recorded By:	M&L
Tested With AHI Unit(s):	Truck(s): 156 Trailer(s): 210
LDEQ Warmup/Cal Req:	On (Day/Time): > 24 Cal (Day/Time): 7:00

CYLINDER SERIAL NUMBERS		O_2	NOx	CO	THC	CO_2	SO_2
	Low				ALM066568		
	Mid	EB006530		EB007854	ALM010278	EB006530	
	High	CC67536		EB0085244	CC156074	CC67536	

Stack Dia. = _____
Measured By: _____
Measured With: _____

RUN INFORMATION	Low Load			Mid Load			Mid-High Load			High Load		
	% #1	20-40-60 % #2	0-30-0 % #3	30-70-30 % #1	10-70-30 % #2	30-70-30 % #3	% #1	70-90-70 % #2	70-90-70 % #3	% #1	% #2	% #3
Time Start (hh:mm:ss)		13:17:27	14:43:27	16:12:27				4:55:27	9:25:27			
Time Stop (hh:mm:ss)		14:27:27	15:53:27	17:23:27				9:05:27	10:35:27			
Rated MegaWatts (MW or hp)												
Actual MegaWatts (MW or hp)												
Barometric Pressure (in. Hg)		27.86	27.93	27.82				27.85	27.56			
Ambient Temperature (°F)		93	88	86				83	77			
Relative Humidity (%)		54	51	52				70	76			
Fuel Flow (lb/min)												
Fuel Flow (SCF/hr)=(lb/min)*21.7												
Specific Humidity (gr/lb)												
Specific Humidity (lb H_2O/lb air)=(gr/lb)/7000												
PCD (psi)												
PCD (mm Hg)=(psi+14.24)*51.71493												
NOx Water Injection (gpm)												

CALIBRATION	O_2		CO		THC		CO_2	
	Conc.	Actual	Conc.	Actual	Conc.	Actual	Conc.	Actual
Zero Gas	0	-0.05	0	0.02	0	-0.04	0	-0.02
Low Gas					3.00	2.89		
Mid Gas	11.9	11.92	9.46	9.39	5.01	5.02	8.95	8.83
High Gas	21.1	21.0	18.3	18.33	8.43	8.40	18.4	18.48

BIAS	O_2		CO		THC		CO_2	
	Zero	Mid	Zero	Mid	Zero	Mid	Zero	Mid
Initial Low Load Run #1	-0.04	11.97	0.06	9.41	-0.01	2.94	-0.01	8.81
Load 1 Run #1 / Load 1 Run #2	-0.02	11.91	0.05	9.41	-0.05	2.93	0.01	8.88
Load 1 Run #2 / Load 1 Run #3	-0.02	11.93	-0.01	9.41	-0.06	3.06	0.03	8.87
Load 1 Run #3 / Load 2 Run #1	-0.03	11.89	0.01	9.41	-0.05	3.00	0.01	8.85
Load 2 Run #1 / Load 2 Run #2	-0.01	11.88	0.04	9.32	-0.07	3.00	0.03	8.84
Load 2 Run #2 / Load 2 Run #3	-0.04	11.87	-0.03	9.31	-0.05	2.95	0.02	8.85
Load 2 Run #3 / Load 3 Run #1								
Load 3 Run #1 / Load 3 Run #2								
Load 3 Run #2 / Load 3 Run #3								
Load 3 Run #3 / Load 4 Run #1								
Load 4 Run #1 / Load 4 Run #2								
Load 4 Run #2 / Load 4 Run #3								
Load 4 Run #3 Final								
Bias Gas Actual Conc.								

MULTI LOAD TEST - FIELD DATA SHEET

AIR HYGIENE

Company:	Superior Fabrication
Location:	Elk City Plant
Date:	10/05/16
Unit Make and Model:	
Unit Number:	SCO-36
Serial Number:	
Data Recorded By:	MSL
Tested With AHI Unit(s):	Truck(s): 156 Trailer(s): 210
LDEQ Warmup/Cal Req:	On (Day/Time): >24hr Cal (Day/Time): 7:00am

CYLINDER SERIAL NUMBERS		O_2	NOx	CO	THC	CO_2	SO_2
	Low		/		ALM066518		
	Mid	EB006530	/	EB0079754	ALM010279	Same as	/
	High	CC67536	/	EB0035444	CC156074	O_2	

Stack Dia. = _____
Measured By: _____
Measured With: _____

RUN INFORMATION	Low Load			Mid Load			Mid-High Load			High Load		
	0-30-20 % #1	% #2	% #3	30-70-20 % #1	30-70-20 % #2	30-70-20 % #3	70-100-70 % #1	% #2	% #3	% #1	% #2	% #3
Time Start (hh:mm:ss)	12:07:27						17:05:27					
Time Stop (hh:mm:ss)	13:17:27						18:15:27					
Rated MegaWatts (MW or hp)							27.79					
Actual MegaWatts (MW or hp)							87					
Barometric Pressure (in. Hg)	27.85						18					
Ambient Temperature (°F)	80											
Relative Humidity (%)	28											
Fuel Flow (lb/min)												
Fuel Flow (SCF/hr)=(lb/min)*21.7												
Specific Humidity (gr/lb)												
Specific Humidity (lb H_2O/lb air)=(gr/lb)/7000												
PCD (psi)												
PCD (mm Hg)=(psi+14.24)*51.71493												
NOx Water Injection (gpm)												

CALIBRATION	O_2		CO		THC		CO_2	
	Conc.	Actual	Conc.	Actual	Conc.	Actual	Conc.	Actual
Zero Gas	0	-0.02	0	0.02	0	-0.04	0	-0.01
Low Gas					3.00	3.07		
Mid Gas	11.9	11.98	9.44	9.39	5.01	5.11	8.95	8.83
High Gas	21.1	21.05	18.30	18.32	8.43	8.46	18.4	18.42

BIAS	O_2		CO		THC		CO_2	
	Zero	Mid	Zero	Mid	Zero	Mid	Zero	Mid
Initial Low Load Run #1	0.02	12.04	-0.02	9.41	0.03	2.95	2.05	8.80
Load 1 Run #1 / Load 1 Run #2	-0.01	11.96	-0.01	9.38	-0.04	2.97	0.02	8.84
Load 1 Run #2 / Load 1 Run #3	-0.02	11.92	0.01	9.40	-0.03	2.95	0.02	8.84
Load 1 Run #3 / Load 2 Run #1								
Load 2 Run #1 / Load 2 Run #2								
Load 2 Run #2 / Load 2 Run #3								
Load 2 Run #3 / Load 3 Run #1								
Load 3 Run #1 / Load 3 Run #2								
Load 3 Run #2 / Load 3 Run #3								
Load 3 Run #3 / Load 4 Run #1								
Load 4 Run #1 / Load 4 Run #2								
Load 4 Run #2 / Load 4 Run #3								
Load 4 Run #3 Final								
Bias Gas Actual Conc.	_____		_____		_____		_____	

MULTI LOAD TEST - FIELD DATA SHEET

AIR HYGIENE

Company:	Superior Fabrication
Location:	Elk City Plant
Date:	10-4-16
Unit Make and Model:	
Unit Number:	SCO-36
Serial Number:	
Data Recorded By:	MJL
Tested With AHI Unit(s):	Truck(s): 156 Trailer(s): 210
LDEQ Warmup/Cal Req:	On (Day/Time): >24hr Cal (Day/Time): 6:30am

CYLINDER SERIAL NUMBERS		O_2	NOx	CO	THC	CO_2	SO_2
	Low				ALM061515		
	Mid	EB0060530		EB0078754	ALM010279	Same as	
	High	CC67576		EB0085244	CC156674	O2	

Stack Dia. = _____
Measured By: _____
Measured With: _____

RUN INFORMATION	Low Load			Mid-Load. Low			Mid-High Load			High Load		
	~~6:30a~~ % #1	10:00 % #2	% #3	10:30 % #1	% #2	% #3	% #1	% #2	% #3	10:00 % #1	9:10 % #2	9:10 % #3
Time Start (hh:mm:ss)	~~14:17:13~~	15:33:13		17:08:13						8:02:13	9:27:13	10:52:13
Time Stop (hh:mm:ss)	~~15:27:13~~	16:43:13		18:18:13						9:12:13	10:37:13	12:02:13
Rated MegaWatts (MW or hp)												
Actual MegaWatts (MW or hp)												
Barometric Pressure (in. Hg)	~~27.63~~	27.62		27.62						27.68	27.69	27.69
Ambient Temperature (°F)	~~89~~	84		88						69	69	81
Relative Humidity (%)	~~36.6~~	72.9		18						79.6	78	70
Fuel Flow (lb/min)												
Fuel Flow (SCF/hr)=(lb/min)*21.7												
Specific Humidity (gr/lb)												
Specific Humidity (lb H_2O/lb air)=(gr/lb)/7000												
PCD (psi)												
PCD (mm Hg)=(psi+14.24)*51.71493												
NOx Water Injection (gpm)												

CALIBRATION	O_2		CO		THC		CO_2	
	Conc.	Actual	Conc.	Actual	Conc.	Actual	Conc.	Actual
Zero Gas	0	0.06	0	0.02	0	-0.05	0	-0.05
Low Gas					3.50	3.01	~	
Mid Gas	11.9	11.96	9.44	9.41	5.01	5.06	8.95	8.84
High Gas	21.1	20.99	18.36	18.29	8.43	8.45	16.4	18.43

BIAS	O_2		CO		THC		CO_2	
	Zero	Mid	Zero	Mid	Zero	Mid	Zero	Mid
Initial Low Load Run #1 90-10%	0.07	12.01	-0.01	9.42	0.03	3.04	-0.05	8.87
Load 1 Run #1 / Load 1 Run #2 90-10%	0.06	11.98	0.03	9.37	-0.06	3.09	-0.05	8.92
Load 1 Run #2 / Load 1 Run #3 90-10%	0.08	11.97	-0.05	9.39	-0.05	2.99	0.02	8.95
Load 1 Run #3 / Load 2 Run #1	0.07	11.96	-0.02	9.41	-0.05	3.02	-0.02	8.94
Load 2 Run #1 / Load 2 Run #2								
Load 2 Run #2 / Load 2 Run #3								
Load 2 Run #3 / Load 3 Run #1								
Load 3 Run #1 / Load 3 Run #2								
Load 3 Run #2 / Load 3 Run #3								
Load 3 Run #3 / Load 4 Run #1								
Load 4 Run #1 / Load 4 Run #2								
Load 4 Run #2 / Load 4 Run #3								
Load 4 Run #3 Final								
Bias Gas Actual Conc.	_____		_____		_____		_____	

Sfl - 90-100% - can-SCD-36

- 28.93
- 20.06
- 10.71
- 0.19

Sfi-0-30-0%- can-SCD-36

- 28.02
- 19.73 10/5/16
- 11.33
- 0.71 10/6/16

Sfi ~~30-100~~-30%-can-SCD-36

- 28.04
- 18.82 10/5/16
- 10.33
- 0.11 10/6/16

Sfi- 30-~~100~~30%-can-SCD-36

- 28.12
- 19.38
- 11.44
- 0.98

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE ISOKINETIC SAMPLING DATA

Plant Name	Elk City Facility
Sampling Location	SCD-36 Stack
Project #	sfi-16-elkcity.ok-comp#1

Date	10/5
Operator	BL/MJ
Run Number	1

Leak Checks					
Train	Pre	0	ft³/min@	15	in Hg
	Post	0	ft³/min@	15	in Hg
Pitot	Pre (+)	0.2	in H_2O for	20	sec
	Pre (-)	0.2	in H_2O for	20	sec
	Post (+)	0.2	in H_2O for	15	sec
	Post (-)	0.2	in H_2O for	15	sec

Sampling Equipment		
Meter Box Number	SAMP-CP-0011	
Orifice Meter Coefficient		in H_2O

Pressures			
Barometric Pressure	(P_b)	27.85	in Hg

Run Time			
Start	12:07	End	13:17

Moisture Content Data					
		Impinger 1	Impinger 2	Impinger 3	Impinger 4
Initial Value	(Vf),(Wf)	752.2	691.7	582.3	855.9
Final Value	(Vi),(Wi)	786.0	695.1	583.5	861.8

Traverse Point #	Sampling Time (Θ)	Timer Time	Dry Gas Meter Reading (V_m)	Velocity Head (Δp)	Actual Orifice ΔH (ΔH_a)	Stack Temp (t_s)	Snorkel Temp (248±25°F)	Impinger Exit Temp (≤68°F)	Meter Inlet Temp (t_{mi})	Meter Outlet Temp (t_{mo})	Pump Vacuum
	min	hh:mm:ss	ft³	in H_2O	in H_2O	°F	°F	°F	°F	°F	in Hg
A-1	0.0	00:00:00	389.79	.005	1.6	1056	255	46	67	69	13
A-2	2.7	00:02:43	391.20	.005	1.6	979	257	46	67	69	13
A-3	5.4	00:05:25	394.15	.005	1.6	1049	256	42	69	68	13
A-4	8.1	00:08:07	396.31	.005	1.6	1080	254	42	69	70	13
A-5	10.8	00:10:50	398.45	.005	1.6	1101	252	45	69	70	13
A-6	13.5	00:13:33	400.64	.005	1.6	1117	251	45	72	69	13
A-7	16.3	00:16:15	402.87	.005	1.6	1125	250	46	69	72	13
A-8	19.0	00:18:56	404.95	.005	1.6	1098	251	46	69	72	13
A-9	21.7	00:21:40	407.17	.005	1.6	1039	252	46	69	72	13
A-10	24.4	00:24:22	409.37	.005	1.6	1040	252	46	69	72	13
A-11	27.1	00:27:05	411.51	.005	1.6	1076	252	46	69	72	13
A-12	29.8	00:29:47	413.87	.005	1.6	1096	252	46	69	72	13
B-1	32.5	00:32:30	415.87	.005	1.6	1077	253	48	73	71	13
B-2	35.2	00:35:12	418.05	.005	1.6	1122	254	49	74	71	13
B-3	37.9	00:37:55	420.21	.005	1.6	1136	253	49	74	71	13
B-4	40.6	00:40:37	422.26	.005	1.6	1154	252	49	74	71	13
B-5	43.3	00:43:20	424.54	.005	1.6	1149	252	50	75	71	13
B-6	46.0	00:46:03	426.71	.005	1.6	1142	252	50	75	71	13
B-7	48.8	00:48:45	428.83	.005	1.6	1149	252	50	75	71	13
B-8	51.5	00:51:28	431.01	.005	1.6	1059	252	50	75	71	13
B-9	54.2	00:54:10	433.20	.005	1.6	1124	252	50	75	71	13
B-10	56.9	00:56:53	435.35	.005	1.6	1136	252	50	75	71	13
B-11	59.6	00:59:35	437.52	.005	1.6	1140	252	50	75	71	13
B-12	62.3	01:02:18	439.70	.005	1.6	1152	252	50	75	71	13
Last Pt	65.0	01:05:00	441.87								
Final Val	65.0	01:05:00								Max Vac	
Average Values											

0-30-0%

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE ISOKINETIC SAMPLING DATA

Plant Name	Elk City Facility
Sampling Location	SCD-36 Stack
Project #	sfi-16-elkcity.ok-comp#1

Date	10/6
Operator	BL/MJ
Run Number	2

Leak Checks					
Train	Pre	0	ft³/min@	15	in Hg
	Post	0	ft³/min@	15	in Hg
Pitot	Pre (+)	0.02	in H_2O for	20	sec
	Pre (-)	0.2	in H_2O for	20	sec
	Post (+)	0.2	in H_2O for	15	sec
	Post (-)	0.2	in H_2O for	15	sec

Sampling Equipment		
Meter Box Number	SAMP-CP-0011	
Orifice Meter Coefficient		in H_2O

Pressures			
Barometric Pressure	(P_b)	27.86	in Hg

Run Time			
Start	13:17	End	14:24

Moisture Content Data					
		Impinger 1	Impinger 2	Impinger 3	Impinger 4
Initial Value	(Vi),(Wi)	774.0	720.4	580.9	818.7
Final Value	(Vi),(Wi)	808.3	724.6	568.6	829.0

Traverse Point #	Sampling Time (Θ)	Timer Time	Dry Gas Meter Reading (V_m)	Velocity Head (Δp)	Actual Orifice ΔH (ΔH@)	Stack Temp (t_s)	Snorkel Temp (240±25°F)	Impinger Exit Temp (≤68°F)	Meter Inlet Temp (t_{mi})	Meter Outlet Temp (t_{mo})	Pump Vacuum
	min	hh:mm:ss	ft³	in H_2O	in H_2O	°F	°F	°F	°F	°F	in Hg
A-1	0.0	00:00:00	692.20	1.5	.005	980	253	47	71	70	12
A-2	2.7	00:02:43	694.53	.005	1.5	984	259	47	71	70	12
A-3	5.4	00:05:25	696.55	.005	1.5	1004	258	47	71	70	12
A-4	8.1	00:08:07	698.61	.005	1.5	1079	256	47	71	70	12
A-5	10.8	00:10:50	700.70	.005	1.5	1112	253	47	71	70	12
A-6	13.5	00:13:33	702.76	.005	1.5	1139	250	52	74	70	12
A-7	16.3	00:16:15	704.85	.005	1.5	1153	250	52	74	70	12
A-8	19.0	00:18:59	706.91	.005	1.5	1147	250	52	74	70	12
A-9	21.7	00:21:40	709.95	.005	1.5	1069	251	52	74	70	12
A-10	24.4	00:24:22	711.10	.005	1.5	1080	252	52	74	70	12
A-11	27.1	00:27:05	713.18	.005	1.5	1004	252	52	74	70	12
A-12	29.8	00:29:47	715.23	.005	1.5	1068	252	52	74	70	12
B-1	32.5	00:32:30	717.45	.005	1.5	1118	252	57	74	71	12
B-2	35.2	00:35:12	719.47	.005	1.5	1130	253	57	74	71	12
B-3	37.9	00:37:55	721.53	.005	1.5	1129	253	57	74	71	12
B-4	40.6	00:40:37	723.56	.005	1.5	1156	252	57	74	71	12
B-5	43.3	00:43:20	725.62	.005	1.5	1178	252	57	74	71	12
B-6	46.0	00:46:03	727.70	.005	1.5	1188	252	57	74	71	12
B-7	48.8	00:48:45	729.75	.001	1.5	1177	252	57	74	71	12
B-8	51.5	00:51:28	731.85	.005	1.5	1148	252	57	74	71	12
B-9	54.2	00:54:10	733.93	.005	1.5	1090	252	58	76	72	12
B-10	56.9	00:56:53	736.01	.005	1.5	1117	252	58	76	72	12
B-11	59.6	00:59:35	738.11	.005	1.5	1106	252	56	76	72	12
B-12	62.3	01:02:18	740.05	.005	1.5	1105	252	58	76	72	12
Last Pt	65.0	01:05:00	742.24								
Final Val	65.0	01:05:00								Max Vac	
Average Values											

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE ISOKINETIC SAMPLING DATA

Plant Name	Elk City Facility
Sampling Location	SCD-36 Stack
Project #	s6-16-elkcity.ok-comp#1

Date	10/6
Operator	BL/MJ
Run Number	3

0-30-0 %

Leak Checks					
Train	Pre	0	ft³/min@	15	in Hg
	Post	0	ft³/min@	15	in Hg
Pitot	Pre (+)	0.2	in H_2O for	15	sec
	Pre (-)	0.2	in H_2O for	20	sec
	Post (+)	0.2	in H_2O for	15	sec
	Post (-)	0.2	in H_2O for	15	sec

Sampling Equipment		
Meter Box Number	SAMP-CP-0011	
Orifice Meter Coefficient		in H_2O

Pressures			
Barometric Pressure	(P_{bar})	27.83	in Hg

Run Time			
Start	14:43	End	15:57

Moisture Content Data					
		Impinger 1	Impinger 2	Impinger 3	Impinger 4
Initial Value	(Vi),(Wi)	838.8	724.6	587.6	609.0
Final Value	(Vi),(Wi)	841.0	729.2	587.2	585.3

Traverse Point #	Sampling Time (Θ)	Timer Time	Dry Gas Meter Reading (V_m)	Velocity Head (Δp)	Actual Orifice ΔH (ΔH_a)	Stack Temp (t_s)	Snorkel Temp (248±25°F)	Impinger Exit Temp (≤68°F)	Meter Inlet Temp (t_{mi})	Meter Outlet Temp (t_{mo})	Pump Vacuum
	min	hh:mm:ss	ft³	in H_2O	in H_2O	°F	°F	°F	°F	°F	in Hg
A-1	0.0	00:00:00	742.36	.005	1.5	1115	257	56	71	77	12
A-2	2.7	00:02:43	744.44	.005	1.5	1128	258	57	71	77	12
A-3	5.4	00:05:25	746.46	.005	1.5	1146	256	57	71	73	12
A-4	8.1	00:08:07	748.51	.005	1.5	1146	255	57	71	73	12
A-5	10.8	00:10:50	750.57	.005	1.5	1158	252	57	71	73	12
A-6	13.5	00:13:33	752.64	.005	1.5	1165	251	57	71	73	12
A-7	16.3	00:16:15	754.67	.005	1.5	1157	251	57	71	73	12
A-8	19.0	00:18:58	756.71	.005	1.5	1097	251	57	71	73	12
A-9	21.7	00:21:40	758.81	.005	1.5	1076	252	57	71	72	12
A-10	24.4	00:24:22	760.90	.005	1.5	1070	252	57	71	72	12
A-11	27.1	00:27:05	763.01	.005	0.5	1061	252	59	71	72	12
A-12	29.8	00:29:47	765.17	.005	1.5	1093	252	59	72	72	12
B-1	32.5	00:32:30	767.19	.005	1.5	1082	252	58	72	72	12
B-2	35.2	00:35:12	769.15	.005	1.5	1100	253	58	72	72	12
B-3	37.9	00:37:55	771.21	.005	1.5	1121	253	58	72	72	12
B-4	40.6	00:40:37	773.27	.005	1.5	1149	253	58	72	72	12
B-5	43.3	00:43:20	775.31	.005	1.5	1166	252	57	72	72	12
B-6	46.0	00:46:03	777.37	.005	1.5	1169	252	57	72	72	12
B-7	48.8	00:48:45	779.41	.005	1.5	1165	252	57	72	72	12
B-8	51.5	00:51:28	781.49	.005	1.5	1143	252	57	72	72	12
B-9	54.2	00:54:10	783.55	.005	1.5	1113	252	57	72	72	12
B-10	56.9	00:56:53	785.61	.005	1.5	1080	252	57	72	72	12
B-11	59.6	00:59:35	787.69	.005	1.5	1108	252	57	72	72	12
B-12	62.3	01:02:18	789.75	.005	1.5	1105	251	57	72	72	12
Last Pt	65.0	01:05:00	791.80								
Final Val	65.0	01:05:00								Max Vac	
Average Values											

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE ISOKINETIC SAMPLING DATA

Plant Name	Elk City Facility
Sampling Location	SCD-36 Stack
Project #	s6-16-elkcity.ok-comp#1

Date	10/6
Operator	BL/MJ
Run Number	4

Leak Checks					
Train	Pre	0	ft³/min@	15	in Hg
	Post	0	ft³/min@	15	in Hg
Pitot	Pre (+)	0.2	in H_2O for	20	sec
	Pre (-)	0.2	in H_2O for	20	sec
	Post (+)	0.2	in H_2O for	15	sec
	Post (-)	0.2	in H_2O for	15	sec

Sampling Equipment		
Meter Box Number	SAMP-CP-0011	
Orifice Meter Coefficient		in H_2O

Pressures			
Barometric Pressure	(P_b)	27.82	in Hg

Run Time			
Start	16:17	End	

30-70 %

Moisture Content Data					
		Impinger 1	Impinger 2	Impinger 3	Impinger 4
Initial Value	(Vf),(Wf)	792.7	688.5	581.5	992.1
Final Value	(Vi),(Wi)	815.2	692.2	584.8	805.1

Traverse Point #	Sampling Time (Θ)	Timer Time	Dry Gas Meter Reading (V_m)	Velocity Head (Δp)	Actual Orifice ΔH (ΔH_a)	Stack Temp (t_s)	Snorkel Temp (248±25°F)	Impinger Exit Temp (≤68°F)	Meter Inlet Temp (t_{mi})	Meter Outlet Temp (t_{mo})	Pump Vacuum
	min	hh:mm:ss	ft³	in H_2O	in H_2O	°F	°F	°F	°F	°F	in Hg
A-1	0.0	00:00:00	792.108	.01	1.5	1147	256	52	70	71	12
A-2	2.7	00:02:43	794.11	.01	1.5	1187	258	52	70	71	12
A-3	5.4	00:05:25	796.17	.01	1.5	1293	257	52	70	71	12
A-4	8.1	00:08:07	798.13	.01	1.5	1498	252	52	70	71	12
A-5	10.8	00:10:50	800.15	.01	1.5	1559	253	52	70	71	12
A-6	13.5	00:13:33	802.21	.01	1.5	1602	251	52	70	71	12
A-7	16.3	00:16:15	804.27	.015	1.5	1626	251	58	71	76	12
A-8	19.0	00:18:58	806.29	.015	1.5	1557	251	58	71	76	12
A-9	21.7	00:21:40	808.28	.015	1.5	1256	251	56	71	76	12
A-10	24.4	00:24:22	810.35	.015	1.5	1490	251	56	71	76	12
A-11	27.1	00:27:05	812.35	.015	1.5	1606	251	56	71	76	12
A-12	29.8	00:29:47	814.36	.015	1.5	1640	251	56	71	76	12
B-1	32.5	00:32:30	816.49	.015	1.5	1577	250	56	71	76	12
B-2	35.2	00:35:12	818.51	.015	1.5	1365	253	56	71	76	12
B-3	37.9	00:37:55	820.61	.015	1.5	1391	253	56	71	76	12
B-4	40.6	00:40:37	822.57	.015	1.5	1564	252	56	71	76	12
B-5	43.3	00:43:20	824.65	.015	1.5	1616	252	56	71	76	12
B-6	46.0	00:46:03	826.66	.015	1.5	1626	252	56	71	76	12
B-7	48.8	00:48:45	828.71	.015	1.5	1661	252	56	71	76	12
B-8	51.5	00:51:28	830.82	.015	1.5	1355	252	56	71	76	12
B-9	54.2	00:54:10	832.91	.015	1.5	1327	252	56	71	76	12
B-10	56.9	00:56:53	834.98	.015	1.5	1601	252	56	71	76	12
B-11	59.6	00:59:35	836.91	.015	1.5	1628	251	56	71	76	12
B-12	62.3	01:02:18	838.98	.015	1.5	1659	251	56	71	76	12
Last Pt	65.0	01:05:00	840.98								
Final Val	65.0	01:05:00								Max Vac	
Average Values											

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE ISOKINETIC SAMPLING DATA

Plant Name	Elk City Facility
Sampling Location	SCD-36 Stack
Project #	sfi-16-elkcity ok-comp#1

Date	10/7
Operator	BL/MJ
Run Number	5

Leak Checks					
Train	Pre	0	ft³/min@	15	in Hg
	Post	0	ft³/min@	15	in Hg
Pitot	Pre (+)	0.2	in H_2O for	20	sec
	Pre (-)	0.2	in H_2O for	20	sec
	Post (+)	0.2	in H_2O for	15	sec
	Post (-)	0.2	in H_2O for	15	sec

Sampling Equipment		
Meter Box Number	SAMP-CP-0011	
Orifice Meter Coefficient		in H_2O

Pressures			
Barometric Pressure	(P_b)	28.22	in Hg

30-70%

Run Time			
Start	7:55	End	9:05

Moisture Content Data					
		Impinger 1	Impinger 2	Impinger 3	Impinger 4
Initial Value	(Vf),(Wf)	610.2	693.2	584.8	605.1
Final Value	(Vi),(Wi)	847.7	696.7	586.8	615.0

Traverse Point #	Sampling Time (Θ)	Timer Time	Dry Gas Meter Reading (V_m)	Velocity Head (Δp)	Actual Orifice ΔH (ΔH@)	Stack Temp (t_s)	Snorkel Temp (248±25°F)	Impinger Exit Temp (≤68°F)	Meter Inlet Temp (t_{mi})	Meter Outlet Temp (t_{mo})	Pump Vacuum
	min	hh:mm:ss	ft³	in H_2O	in H_2O	°F	°F	°F	°F	°F	in Hg
A-1	0.0	00:00:00	841.19	.005	1.5	1652	252	045	57	56	12
A-2	2.7	00:02:43	843.30	.005	1.5	1120	258	45	57	56	12
A-3	5.4	00:05:25	845.65	.005	1.5	1291	259	45	57	56	12
A-4	8.1	00:08:07	847.60	.005	1.5	1549	254	45	57	56	12
A-5	10.8	00:10:50	849.78	.003	1.5	1567	252	45	60	57	12
A-6	13.5	00:13:33	851.69	.015	1.5	1588	250	45	60	57	12
A-7	16.3	00:16:15	853.75	.005	1.5	1610	250	45	60	57	12
A-8	19.0	00:18:58	855.75	.005	1.5	1429	251	45	60	57	12
A-9	21.7	00:21:40	857.81	.005	1.5	1250	251	45	60	57	12
A-10	24.4	00:24:22	859.81	.005	1.5	1260	252	45	60	57	12
A-11	27.1	00:27:05	861.85	.005	1.5	1569	252	45	60	57	12
A-12	29.8	00:29:47	863.93	.005	1.5	1598	252	45	60	57	12
B-1	32.5	00:32:30	865.91	.005	1.5	1789	251	45	60	57	12
B-2	35.2	00:35:12	868.05	.005	1.5	1281	251	45	60	57	12
B-3	37.9	00:37:55	870.01	.005	1.5	1437	253	50	60	62	12
B-4	40.6	00:40:37	872.02	.005	1.5	1569	252	50	60	62	12
B-5	43.3	00:43:20	874.05	.005	1.5	1590	252	50	60	62	12
B-6	46.0	00:46:03	876.08	.005	1.5	1677	252	50	60	62	12
B-7	48.8	00:48:45	878.11	.005	1.5	1577	252	50	60	62	12
B-8	51.5	00:51:28	880.15	.005	1.5	1260	252	50	60	62	12
B-9	54.2	00:54:10	882.21	.005	1.5	1414	252	50	60	62	12
B-10	56.9	00:56:53	884.25	.005	1.5	1560	252	50	60	62	12
B-11	59.6	00:59:35	886.26	.005	1.5	1556	252	50	60	62	12
B-12	62.3	01:02:18	888.27	.005	1.5	1509	252	50	60	62	12
Last Pt	65.0	01:05:00	890.29								
Final Val	65.0	01:05:00								Max Vac	
Average Values											

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE ISOKINETIC SAMPLING DATA

Plant Name	Elk City Facility
Sampling Location	SCD-36 Stack
Project #	s6-16-elkcity.ok-comp#1

Date	10/7
Operator	BL/MJ
Run Number	6

Leak Checks					
Train	Pre	0	ft³/min@	15	in Hg
	Post	0	ft³/min@	15	in Hg
Pitot	Pre (+)	0.2	in H_2O for	20	sec
	Pre (-)	0.2	in H_2O for	20	sec
	Post (+)	0.2	in H_2O for	15	sec
	Post (-)	0.2	in H_2O for	15	sec

Sampling Equipment		
Meter Box Number	SAMP-CP-0011	
Orifice Meter Coefficient		in H_2O

Pressures			
Barometric Pressure	(P_b)	24.25	in Hg

30-70%

Run Time			
Start	9:21	End	10:31

Moisture Content Data					
		Impinger 1	Impinger 2	Impinger 3	Impinger 4
Initial Value	(Vf),(Wf)	734.3	696.7	586.8	815.0
Final Value	(Vi),(Wi)	768.1	701.8	590.0	824.9

Traverse Point #	Sampling Time (Θ)	Timer Time	Dry Gas Meter Reading (V_m)	Velocity Head (Δp)	Actual Orifice ΔH (ΔH_a)	Stack Temp (t_s)	Snorkel Temp (248±25°F)	Impinger Exit Temp (≤68°F)	Meter Inlet Temp (t_{mi})	Meter Outlet Temp (t_{mo})	Pump Vacuum
	min	hh:mm:ss	ft³	in H_2O	in H_2O	°F	°F	°F	°F	°F	in Hg
A-1	0.0	00:00:00	890.37	.005	1.5	1076	257	50	59	60	12
A-2	2.7	00:02:43	892.49	.005	1.5	1045	258	50	59	60	12
A-3	5.4	00:05:25	894.51	.005	1.5	1294	255	50	59	60	12
A-4	8.1	00:08:07	896.55	.005	1.5	1405	250	50	59	60	12
A-5	10.8	00:10:50	898.68	.01	1.5	1524	249	50	59	60	12
A-6	13.5	00:13:33	900.65	.01	1.5	1553	249	50	59	60	12
A-7	16.3	00:16:15	902.70	.005	1.5	1604	253	50	59	60	12
A-8	19.0	00:18:58	904.72	.01	1.5	1320	254	50	59	60	12
A-9	21.7	00:21:40	906.75	.01	1.5	1072	253	50	59	60	12
A-10	24.4	00:24:22	908.78	.01	1.5	1101	253	52	61	63	12
A-11	27.1	00:27:05	910.81	.01	1.5	1101	253	52	61	63	12
A-12	29.8	00:29:47	912.97	.01	1.5	1508	252	52	61	63	12
B-1	32.5	00:32:30	915.01	.005	1.5	1314	253	52	61	63	12
B-2	35.2	00:35:12	917.05	.005	1.5	1222	253	52	61	63	12
B-3	37.9	00:37:55	919.25	.01	1.5	1179	253	52	61	63	12
B-4	40.6	00:40:37	921.19	.01	1.5	1337	253	52	61	63	12
B-5	43.3	00:43:20	923.25	.01	1.5	1568	252	53	64	63	12
B-6	46.0	00:46:03	925.31	.01	1.5	1614	252	53	64	63	12
B-7	48.8	00:48:45	927.35	.01	1.5	1601	252	53	64	63	12
B-8	51.5	00:51:28	929.41	.01	1.5	1261	252	53	64	63	12
B-9	54.2	00:54:10	931.51	.01	1.5	1375	252	53	64	63	12
B-10	56.9	00:56:53	933.58	.01	1.5	1589	252	53	64	63	12
B-11	59.6	00:59:35	935.61	.01	1.5	1633	252	53	64	63	12
B-12	62.3	01:02:18	937.69	.01	1.5	1670	252	53	64	63	12
Last Pt	65.0	01:05:00	939.71								
Final Val	65.0	01:05:00								Max Vac	
Average Values											

70-100%

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE ISOKINETIC SAMPLING DATA

Plant Name	Elk City Facility
Sampling Location	SCD-36 Stack
Project #	s8-16-elkcity.ok-comp#1

Date	10/5
Operator	BL/MJ
Run Number	7

Leak Checks					
Train	Pre	0	ft³/min@	15	in Hg
	Post	0	ft³/min@	15	in Hg
Pilot	Pre (+)	0.2	in H_2O for	20	sec
	Pre (-)	0.2	in H_2O for	26	sec
	Post (+)	0.2	in H_2O for	15	sec
	Post (-)	0.2	in H_2O for	15	sec

Sampling Equipment		
Meter Box Number	SAMP-CP-0011	
Orifice Meter Coefficient		in H_2O

Pressures			
Barometric Pressure	(P_b)	27.79	in Hg

Run Time			
Start	17:05	End	18:15

Moisture Content Data					
		Impinger 1	Impinger 2	Impinger 3	Impinger 4
Initial Value	(Vi),(Wi)	753.7	701.0	584.0	812.2
Final Value	(Vi),(Wi)	796.4	705.8	588.0	870.4

Traverse Point #	Sampling Time (Θ)	Timer Time	Dry Gas Meter Reading (V_m)	Velocity Head (Δp)	Actual Orifice ΔH (ΔH@)	Stack Temp (t_s)	Snorkel Temp (248±28°F)	Impinger Exit Temp (≤68°F)	Meter Inlet Temp (t_{mi})	Meter Outlet Temp (t_{mo})	Pump Vacuum
	min	hh:mm:ss	ft³	in H_2O	in H_2O	°F	°F	°F	°F	°F	in Hg
A-1	0.0	00:00:00	524.73	.02	1.6	1618	257	54	69	68	13
A-2	2.7	00:02:43	526.71	.02	1.6	1615	257	59	69	68	13
A-3	5.4	00:05:25	528.48	.02	1.6	1861	255	53	70	69	13
A-4	8.1	00:08:07	530.51	.02	1.6	1804	254	53	70	68	13
A-5	10.8	00:10:50	532.65	.025	1.6	1799	253	53	70	69	13
A-6	13.5	00:13:33	534.77	.025	1.6	1800	255	55	72	67	13
A-7	16.3	00:16:15	536.95	.02	1.6	1641	251	58	74	68	13
A-8	19.0	00:18:58	539.37	.02	1.6	1560	251	58	74	69	13
A-9	21.7	00:21:40	541.21	.02	1.6	1727	251	58	74	69	13
A-10	24.4	00:24:22	543.33	.02	1.6	1792	251	58	74	68	13
A-11	27.1	00:27:05	545.49	.02	1.6	1841	251	58	74	68	13
A-12	29.8	00:29:47	547.63	.02	1.6	1839	251	58	74	68	13
B-1	32.5	00:32:30	549.83	.02	1.6	1620	252	59	71	69	13
B-2	35.2	00:35:12	552.09	.02	1.6	1561	254	57	73	69	13
B-3	37.9	00:37:55	554.15	.02	1.6	1811	254	57	73	69	13
B-4	40.6	00:40:37	556.27	.02	1.6	1776	253	57	73	69	13
B-5	43.3	00:43:20	558.43	.02	1.6	1794	253	57	73	69	13
B-6	46.0	00:46:03	560.67	.02	1.6	1803	252	57	73	69	13
B-7	48.8	00:48:45	562.81	.02	1.6	1815	252	57	73	69	13
B-8	51.5	00:51:28	565.01	.02	1.6	1618	252	57	73	69	13
B-9	54.2	00:54:10	567.08	.02	1.6	1540	252	57	73	69	13
B-10	56.9	00:56:53	569.25	.02	1.6	1735	252	57	73	69	13
B-11	59.6	00:59:35	571.41	.02	1.6	1752	252	57	73	69	13
B-12	62.3	01:02:18	573.55	.02	1.6	1770	252	57	73	69	13
Last Pt	65.0	01:05:00	575.69								
Final Val	65.0	01:05:00								Max Vac	
Average Values											

70-100 %

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE ISOKINETIC SAMPLING DATA

Plant Name	Elk City Facility
Sampling Location	SCD-36 Stack
Project #	sfi-16-elkcity.ok-comp#1

Date	10/6
Operator	BL/MJ
Run Number	8

Leak Checks					
Train	Pre	0	ft³/min@	15	in Hg
	Post	0	ft³/min@	15	in Hg
Pitot	Pre (+)	0.2	in H_2O for	20	sec
	Pre (-)	0.2	in H_2O for	20	sec
	Post (+)	0.2	in H_2O for	15	sec
	Post (-)	0.2	in H_2O for	15	sec

Sampling Equipment		
Meter Box Number	SAMP-CP-0011	
Orifice Meter Coefficient		in H_2O

Pressures			
Barometric Pressure	(P_b)	27.65	in Hg

Run Time			
Start	7:55	End	9:05

Moisture Content Data					
		Impinger 1	Impinger 2	Impinger 3	Impinger 4
Initial Value	(Vi),(Wi)	796.4	705.8	587.0	830.4
Final Value	(Vi),(Wi)	851.1	712.1	591.5	839.5

Traverse Point #	Sampling Time (Θ)	Timer Time	Dry Gas Meter Reading (V_m)	Velocity Head (Δp)	Actual Orifice ΔH (ΔH_a)	Stack Temp (t_s)	Snorkel Temp (248±25°F)	Impinger Exit Temp (≤85°F)	Meter Inlet Temp (t_{mi})	Meter Outlet Temp (t_{mo})	Pump Vacuum
	min	hh:mm:ss	ft³	in H_2O	in H_2O	°F	°F	°F	°F	°F	in Hg
A-1	0.0	00:00:00	575.77	.02	1.6	1644	257	49	64	66	13
A-2	2.7	00:02:43	578.01	.02	1.6	1656	258	49	64	66	13
A-3	5.4	00:05:25	580.10	.02	1.6	1718	258	49	64	66	13
A-4	8.1	00:08:07	582.15	.025	1.6	1751	255	49	64	66	13
A-5	10.8	00:10:50	584.27	.03	1.6	1773	252	49	66	65	13
A-6	13.5	00:13:33	586.34	.035	1.6	1852	250	49	66	65	13
A-7	16.3	00:16:15	588.36	.035	1.6	1853	250	49	66	65	13
A-8	19.0	00:18:58	590.48	.03	1.6	1749	250	49	66	65	13
A-9	21.7	00:21:40	592.59	.03	1.6	1632	251	49	66	65	13
A-10	24.4	00:24:22	594.55	.03	1.6	1631	252	49	69	65	13
A-11	27.1	00:27:05	596.69	.02	1.6	1787	252	49	69	65	13
A-12	29.8	00:29:47	598.71	.02	1.6	1724	252	49	69	65	13
B-1	32.5	00:32:30	600.81	.02	1.6	1651	251	49	67	65	13
B-2	35.2	00:35:12	602.88	.025	1.6	1595	254	49	67	65	13
B-3	37.9	00:37:55	604.91	.025	1.6	1687	253	49	67	65	13
B-4	40.6	00:40:37	607.10	.03	1.6	1806	253	49	67	65	13
B-5	43.3	00:43:20	609.03	.03	1.6	1818	252	51	72	67	13
B-6	46.0	00:46:03	611.11	.035	1.6	1819	251	51	72	67	13
B-7	48.8	00:48:45	613.14	.03	1.6	1836	251	51	72	67	13
B-8	51.5	00:51:28	615.19	.025	1.6	1710	251	51	72	67	13
B-9	54.2	00:54:10	617.26	.02	1.6	1594	252	51	72	67	13
B-10	56.9	00:56:53	619.35	.02	1.6	1732	252	51	72	67	13
B-11	59.6	00:59:35	621.39	.02	1.6	1774	252	51	72	67	13
B-12	62.3	01:02:18	623.48	.02	1.6	1774	252	51	72	67	13
Last Pt	65.0	01:05:00	625.55								
Final Val	65.0	01:05:00								Max Vac	
Average Values											

70-100%

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE ISOKINETIC SAMPLING DATA

Plant Name	Elk City Facility
Sampling Location	SCD-36 Stack
Project #	sfi-16-elkcity.ok-comp#1

Date	10/6
Operator	BL/MJ
Run Number	9

Leak Checks					
Train	Pre	0	ft³/min@	15	in Hg
	Post	0	ft³/min@	15	in Hg
Pitot	Pre (+)	0.2	in H_2O for	20	sec
	Pre (-)	0.2	in H_2O for	20	sec
	Post (+)	0.2	in H_2O for	15	sec
	Post (-)	0.2	in H_2O for	15	sec

Sampling Equipment		
Meter Box Number	SAMP-CP-0011	
Orifice Meter Coefficient		in H_2O

Pressures			
Barometric Pressure	(P_b)	27.86	in Hg

Run Time			
Start	09:25	End	10:35

Moisture Content Data					
		Impinger 1	Impinger 2	Impinger 3	Impinger 4
Initial Value	(V_f),(W_f)	712.6	712.1	591.5	709.8
Final Value	(V_i),(W_i)	761.7	719.1	595.9	817.6

Traverse Point #	Sampling Time (Θ)	Timer Time	Dry Gas Meter Reading (V_m)	Velocity Head (Δp)	Actual Orifice ΔH (ΔH_a)	Stack Temp (T_s)	Snorkel Temp (248±25°F)	Impinger Exit Temp (≤85°F)	Meter Inlet Temp (T_{mi})	Meter Outlet Temp (T_{mo})	Pump Vacuum
	min	hh:mm:ss	ft³	in H_2O	in H_2O	°F	°F	°F	°F	°F	in Hg
A-1	0.0	00:00:00	625.65	.025	1.6	1471	257	48	66	67	13
A-2	2.7	00:02:43	627.77	.025	1.6	1466	258	48	66	67	13
A-3	5.4	00:05:25	629.81	.025	1.6	1468	258	48	66	67	13
A-4	8.1	00:08:07	631.86	.03	1.6	1736	256	48	66	67	13
A-5	10.8	00:10:50	633.93	.035	1.6	1770	252	52	70	67	13
A-6	13.5	00:13:33	635.98	.03	1.6	1797	251	52	70	67	13
A-7	16.3	00:16:15	638.03	.03	1.6	1816	250	52	70	67	13
A-8	19.0	00:18:58	640.13	.03	1.6	1803	251	52	70	67	13
A-9	21.7	00:21:40	642.21	.025	1.6	1522	251	52	78	67	13
A-10	24.4	00:24:22	644.30	.02	1.6	1469	252	52	78	67	13
A-11	27.1	00:27:05	646.43	.02	1.6	1681	252	52	77	69	13
A-12	29.8	00:29:47	648.45	.02	1.6	1725	252	52	73	69	13
B-1	32.5	00:32:30	650.64	.025	1.6	1530	252	52	73	69	13
B-2	35.2	00:35:12	652.68	.025	1.6	1483	254	52	73	69	13
B-3	37.9	00:37:55	654.74	.025	1.6	1840	253	54	74	69	13
B-4	40.6	00:40:37	656.87	.025	1.6	1766	253	54	74	69	13
B-5	43.3	00:43:20	658.93	.03	1.6	1765	252	54	74	69	13
B-6	46.0	00:46:03	661.01	.035	1.6	1822	252	54	74	69	13
B-7	48.8	00:48:45	663.04	.03	1.6	1827	252	54	74	69	13
B-8	51.5	00:51:28	665.09	.03	1.6	1879	252	54	74	69	13
B-9	54.2	00:54:10	667.15	.03	1.6	1595	252	54	74	69	13
B-10	56.9	00:56:53	669.25	.03	1.6	1761	252	54	74	69	13
B-11	59.6	00:59:35	671.41	.03	1.6	1546	252	54	74	69	13
B-12	62.3	01:02:18	673.56	.025	1.6	1637	252	54	74	69	13
Last Pt	65.0	01:05:00	675.58								
Final Val	65.0	01:05:00								Max Vac	
Average Values											

90-100%

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE ISOKINETIC SAMPLING DATA

Plant Name	Elk City Facility
Sampling Location	SCD-36 Stack
Project #	s6-16-elkcity,ok-comp#1

Date	10/4
Operator	BL/MJ
Run Number	#1 0

Leak Checks					
Train	Pre	0	ft³/min@	15	in Hg
	Post	0	ft³/min@	15	in Hg
Pitot	Pre (+)	0.2	in H_2O for	20	sec
	Pre (-)	0.15	in H_2O for	10	sec
	Post (+)	0.2	in H_2O for	15	sec
	Post (-)	0.2	in H_2O for	15	sec

Sampling Equipment		
Meter Box Number	SAMP-CP-0011	
Orifice Meter Coefficient		in H_2O

Pressures			
Barometric Pressure	(P_b)	27.68	in Hg

Run Time			
Start	8:02	End	9:12

Moisture Content Data					
		Impinger 1	Impinger 2	Impinger 3	Impinger 4
Initial Value	(Vf),(Wf)	718.1	715.9	578.9	809.2
Final Value	(Vi),(Wi)	755.0	725.7	585.5	824.4

Traverse Point #	Sampling Time (Θ)	Timer Time	Dry Gas Meter Reading (V_m)	Velocity Head (Δp)	Actual Orifice ΔH (ΔH_a)	Stack Temp (t_s)	Snorkel Temp (248±25°F)	Impinger Exit Temp (≤68°F)	Meter Inlet Temp (t_{mi})	Meter Outlet Temp (t_{mo})	Pump Vacuum
	min	hh:mm:ss	ft³	in H_2O	in H_2O	°F	°F	°F	°F	°F	in Hg
A-1	0.0	00:00:00	152.23	.02	1.6	1483	255	60	71	70	13
A-2	2.7	00:02:43	154.67	.02	1.6	1498	258	57	71	71	13
A-3	5.4	00:05:25	157.01	.02	1.6	1508	257	58	71	71	13
A-4	8.1	00:08:07	159.79	.02	1.6	1516	254	62	75	71	13
A-5	10.8	00:10:50	160.93	.02	1.6	1534	252	68	75	71	13
A-6	13.5	00:13:33	167.01	.025	1.6	1583	250	67	75	71	13
A-7	16.3	00:16:15	165.02	.025	1.6	1560	250	64	75	72	13
A-8	19.0	00:18:58	167.09	.025	1.6	1572	251	62	76	72	13
A-9	21.7	00:21:40	169.15	.030	1.6	1642	252	61	76	72	13
A-10	24.4	00:24:22	171.22	.025	1.6	1641	252	60	76	73	13
A-11	27.1	00:27:05	173.32	.02	1.6	1447	252	60	76	73	13
A-12	29.8	00:29:47	175.45	.02	1.6	1748	252	60	76	73	13
B-1	32.5	00:32:30	177.23	.02	1.6	1406	252	60	76	73	13
B-2	35.2	00:35:12	179.30	.02	1.6	1536	252	60	75	74	13
B-3	37.9	00:37:55	181.26	.03	1.6	1572	254	60	76	75	13
B-4	40.6	00:40:37	183.52	.025	1.6	1510	254	58	77	75	13
B-5	43.3	00:43:20	185.62	.025	1.6	1524	252	59	78	76	13
B-6	46.0	00:46:03	187.74	.02	1.6	1540	251	59	76	76	13
B-7	48.8	00:48:45	189.83	.02	1.6	1524	251	59	78	76	13
B-8	51.5	00:51:28	192.01	.02	1.6	1506	252	59	79	76	13
B-9	54.2	00:54:10	194.05	.02	1.6	1560	252	60	79	76	13
B-10	56.9	00:56:53	196.25	.025	1.6	1549	252	61	79	76	13
B-11	59.6	00:59:35	198.37	.025	1.6	1547	252	61	80	76	13
B-12	62.3	01:02:18	200.49	.02	1.6	1446	252	61	80	76	13
Last Pt	65.0	01:05:00	202.51								
Final Val	65.0	01:05:00								Max Vac	
Average Values											

90 - 100°/2

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE ISOKINETIC SAMPLING DATA

Plant Name	Elk City Facility
Sampling Location	SCD-36 Stack
Project #	sfi-16-elkcity.ok-comp#1

Date	10/4
Operator	BL/MJ
Run Number	11

Leak Checks					
Train	Pre	0	ft³/min@	15	in Hg
	Post	0	ft³/min@	15	in Hg
Pitot	Pre (+)	0.12	in H_2O for	20	sec
	Pre (-)	0.15	in H_2O for	20	sec
	Post (+)	0.17	in H_2O for	15	sec
	Post (-)	0.12	in H_2O for	15	sec

Sampling Equipment		
Meter Box Number	SAMP-CP-0011	
Orifice Meter Coefficient		in H_2O

Pressures			
Barometric Pressure	(P_b)	27.69	in Hg

Run Time			
Start	9:27	End	10:36

Moisture Content Data					
		Impinger 1	Impinger 2	Impinger 3	Impinger 4
Initial Value	(Vf),(Wf)	755.0	725.7	585.5	524.4
Final Value	(Vi),(Wi)	799.5	772.9	590.2	535.4

Traverse Point #	Sampling Time (Θ)	Timer Time	Dry Gas Meter Reading (V_m)	Velocity Head (Δp)	Actual Orifice ΔH (ΔH_a)	Stack Temp (t_s)	Snorkel Temp (248±25°F)	Impinger Exit Temp (≤68°F)	Meter Inlet Temp (t_{mi})	Meter Outlet Temp (t_{mo})	Pump Vacuum
	min	hh:mm:ss	ft³	in H_2O	in H_2O	°F	°F	°F	°F	°F	in Hg
A-1	0.0	00:00:00	202.69	.02	1.6	1526	257	55	67	74	13
A-2	2.7	00:02:43	204.41	.02	1.6	1542	257	54	69	72	13
A-3	5.4	00:05:25	206.09	.02	1.6	1562	256	54	69	72	13
A-4	8.1	00:08:07	209.14	.025	1.6	1573	255	54	69	72	13
A-5	10.8	00:10:50	211.35	.03	1.6	1570	253	54	69	72	13
A-6	13.5	00:13:33	213.75	.03	1.6	1521	252	53	69	71	13
A-7	16.3	00:16:15	215.29	.025	1.6	1579	251	53	69	71	13
A-8	19.0	00:18:58	717.71	.025	1.6	1554	251	52	69	71	13
A-9	21.7	00:21:40	719.01	.025	1.6	1544	251	52	69	71	13
A-10	24.4	00:24:22	221.37	.028	1.6	1551	252	52	69	71	13
A-11	27.1	00:27:05	224.00	.025	1.6	1532	252	52	69	72	13
A-12	29.8	00:29:47	226.23	.025	1.6	1593	252	52	69	72	13
B-1	32.5	00:32:30	228.32	.02	1.6	1522	254	51	68	71	13
B-2	35.2	00:35:12	230.55	.02	1.6	1536	252	51	69	72	13
B-3	37.9	00:37:55	232.64	.02	1.6	1540	254	51	69	72	13
B-4	40.6	00:40:37	234.71	.02	1.6	1548	253	51	69	72	13
B-5	43.3	00:43:20	236.80	.02	1.6	1552	252	52	68	74	13
B-6	46.0	00:46:03	238.95	.02	1.6	1556	252	52	68	74	13
B-7	48.8	00:48:45	241.02	.025	1.6	1567	252	52	68	74	13
B-8	51.5	00:51:28	243.12	.025	1.6	1615	252	52	66	74	13
B-9	54.2	00:54:10	245.21	.03	1.6	1639	252	52	68	74	13
B-10	56.9	00:56:53	247.39	.025	1.6	1625	252	52	68	74	13
B-11	59.6	00:59:35	248.64	.02	1.6	1604	252	52	68	74	13
B-12	62.3	01:02:18	251.48	.02	1.6	1606	252	52	68	74	13
Last Pt	65.0	01:05:00	253.66								
Final Val	65.0	01:05:00								Max Vac	
Average Values											

90-100%

METHOD 4 (MOISTURE) [MULTI POINT, NO VARIATION] SOURCE SAMPLING TITLE PAGE ISOKINETIC SAMPLING DATA

Plant Name	Elk City Facility
Sampling Location	SCD-36 Stack
Project #	s8-16-elkcity.ok-comp#1

Date	10/4
Operator	BL/MJ
Run Number	12

Leak Checks					
Train	Pre	0	ft³/min@	15	in Hg
	Post	0	ft³/min@	15	in Hg
Pitot	Pre (+)	0.2	in H_2O for	20	sec
	Pre (-)	0.2	in H_2O for	20	sec
	Post (+)	0.7	in H_2O for	15	sec
	Post (-)	0.2	in H_2O for	15	sec

Sampling Equipment		
Meter Box Number	SAMP-CP-0011	
Orifice Meter Coe[illegible]		in H_2O

Pressures			
Barometric Pressure	(P_b)	27.69	in Hg

Run Time			
Start	10:52	End	12:07

Moisture Content Data					
		Impinger 1	Impinger 2	Impinger 3	Impinger 4
Initial Value	(Vf),(Wf)	799.5	732.9	590.2	895.4
Final Value	(Vi),(Wi)	891.9	799.2	597.9	944.5

Traverse Point #	Sampling Time (Θ)	Timer Time	Dry Gas Meter Reading (V_m)	Velocity Head (Δp)	Actual Orifice ΔH (ΔH_a)	Stack Temp (t_s)	Snorkel Temp (248±25°F)	Impinger Exit Temp (≤68°F)	Meter Inlet Temp (t_{mi})	Meter Outlet Temp (t_{mo})	Pump Vacuum
	min	hh:mm:ss	ft³	in H_2O	in H_2O	°F	°F	°F	°F	°F	in Hg
251.71 A-1	0.0	00:00:00	~~251.706~~	.02	1.6	1507	253	51	72	70	13
A-2	2.7	00:02:43	255.96	.02	1.6	1498	258	51	72	70	13
A-3	5.4	00:05:25	257.48	.02	1.6	1509	257	51	72	70	13
A-4	8.1	00:08:07	259.92	.02	1.6	1506	254	51	72	70	13
A-5	10.8	00:10:50	261.99	.02	1.6	1502	253	54	75	71	13
A-6	13.5	00:13:33	262.33	.02	1.6	1491	251	54	75	71	13
A-7	16.3	00:16:15	266.12	.02	1.6	1521	251	54	75	71	13
A-8	19.0	00:18:58	269.19	.029	1.6	1585	251	54	76	72	13
A-9	21.7	00:21:40	270.92	.025	1.6	1605	251	54	76	72	13
A-10	24.4	00:24:22	272.25	.025	1.6	1567	252	54	76	72	13
A-11	27.1	00:27:05	274.31	.025	1.6	1574	252	54	76	72	13
A-12	29.8	00:29:47	276.32	.025	1.6	1559	252	54	76	72	13
B-1	32.5	00:32:30	278.54	.02	1.6	1570	252	57	70	73	13
B-2	35.2	00:35:12	280.55	.025	1.6	1587	255	57	70	73	13
B-3	37.9	00:37:55	282.63	.025	1.6	1574	254	57	70	73	13
B-4	40.6	00:40:37	284.65	.02	1.6	1586	253	57	70	73	13
B-5	43.3	00:43:20	286.72	.02	1.6	1574	252	51	70	70	13
B-6	46.0	00:46:03	288.77	.02	1.6	1566	251	51	70	70	13
B-7	48.8	00:48:45	290.82	.02	1.6	1581	251	51	70	70	13
B-8	51.5	00:51:28	292.83	.02	1.6	1570	252	51	70	70	13
B-9	54.2	00:54:10	294.91	.02	1.6	1571	252	51	70	70	13
B-10	56.9	00:56:53	296.95	.02	1.6	1570	252	51	70	70	13
B-11	59.6	00:59:35	299.03	.025	1.6	1586	252	51	70	70	13
B-12	62.3	01:02:18	301.09	.025	1.6	1562	252	51	70	70	13
Last Pt	65.0	01:05:00	303.05								
Final Val	65.0	01:05:00								Max Vac	
Average Values											

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end of report

From:	Adam Yow
To:	Mia, Marcia
Cc:	"Mark Axtell"; "Tim Rickel"; mlee@airhygiene.com; "Randy Morse"; "Jason Huckaby"; Garwood, Gerri
Subject:	RE: Superior Fabrication Inc. SCD-36 & SCD-60 OOOO Performance Test Results
Date:	Wednesday, February 01, 2017 4:12:36 PM
Attachments:	P&ID R1.pdf True-Lite with Overview.pdf Superior Fabrication Cover Letter-EPA response.pdf TRI-POINT Superior Customer Letter.pdf

---

Marcia,

Please see answers below and attachments regarding the SCD-36. I am waiting on some updated reports for the SCD-60 and will send them to you when I receive them.

On another note, Superior Fabrication, Inc. was recently purchased by Tri-Point, LLC. As a result of this change in ownership, our official name has recently changed from Superior Fabrication, Inc. to SFI Oil & Gas Production Systems, LLC (EIN 81-4276363). This name change took place after we did our testing so all of our reports have listed "Superior Fabrication, Inc." I have attached the letter that we sent to all of our customers about the buyout and name change. We are trying to keep the confusion down with the name change and let everyone know the our company and products are still the same.

Can you have our name changed to "SFI Oil & Gas Production Systems, LLC" on the "Performance Testing for Combustion Control Devices Manufacturers' Performance Test New Source Performance Standards (NSPS) OOOO and Maximum Achievable Control Technology HH/HHH" document on the website so it matches our new name?

Let me know if you have any questions.

Thank You,

Adam Yow | **Engineering**
P.O. Box 429
Elk City, OK 73648
580-243-7012 Office
adamyow@superiorfab.com

SFI
A Tri-Point Company

From: Mia, Marcia [mailto:Mia.Marcia@epa.gov]
Sent: Wednesday, January 11, 2017 1:05 PM
To: Adam Yow
Cc: Mark Axtell; 'Tim Rickel'; mlee@airhygiene.com; 'Randy Morse'; Jason Huckaby; Garwood, Gerri
Subject: Superior Fabrication Inc. SCD-36 & SCD-60 OOOO Performance Test Results

Adam,

We have completed our initial review of the SCD 36 and 60 performance tests. We have the following items, for which we need additional information or clarity, in order to complete our review.

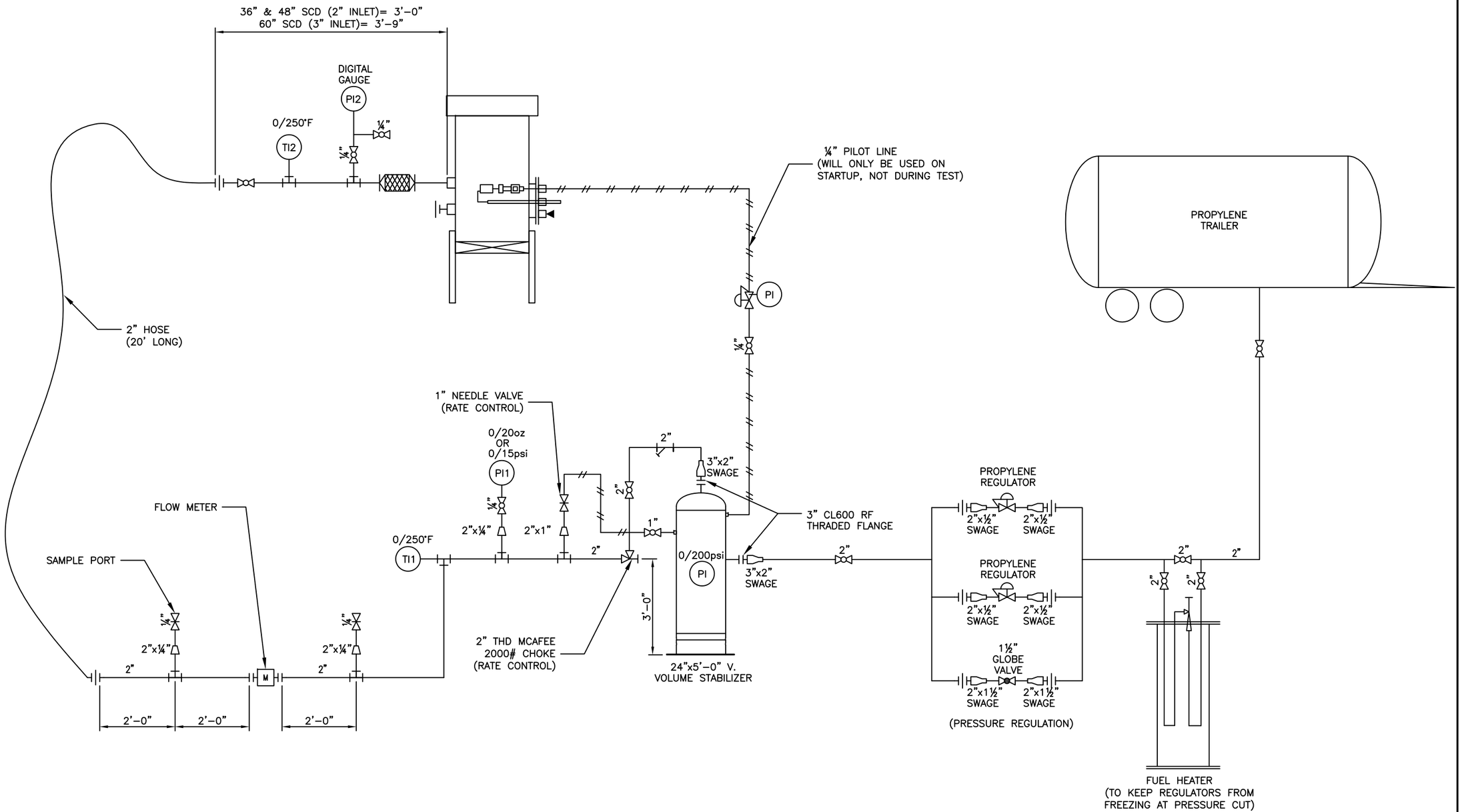
SCD-36

1. We noted some apparent typos in the report which is complicating our review. See Table 2.3 which is mislabeled. Also there are similar typos on pages 33, 64-72 and Table A.1. for the 30-70-30 and 70-100-70 runs. Please provide corrected pages and tables. ***[Adam Yow]*** The corrected documents are attached.
2. Section 60.5413(d)(4)(i) inlet fuel metering – Your report does not provide a key to the diagram components. The location of the sample port and flow meter location is not specified on the diagram. Please provide a key and locations of the sample port and inlet fuel meter location. ***[Adam Yow]*** The updated P&ID is attached.
3. Section 60.5413(d)(12)(v)(B) Fuel Gas Moisture Range – Your summary page report states that the fuel gas moisture range is >2ppm. The analysis from the supplier on page 180 has 0.05 ppm. Please reconcile the error. ***[Adam Yow]*** The corrected summary page is attached.
4. Section 60.5413(d)(12)(v)(I) pilot flame indicator – Please provide a description (manufacturer literature is acceptable) of the pilot indicator system.***[Adam Yow]*** Please see the attached document labeled "True-Lite with Overview"

SCD-60

1. Section 60.5413(d)(4)(i) inlet fuel metering – Your report does not provide a key to the diagram components. The location of the sample port and flow meter location is not specified on the diagram. Please provide a key and locations of the sample port and inlet fuel meter location.
2. Section 60.5413(d)(11)(i)(D) requires EA>150% - While your unit meets this requirement for all test conditions, we noted an anomaly for Run 7, in that the M3C results are significantly different for Run 7 (EA = 931% and O2 = 18.8%); compared to other runs (~200-270% EA and 14.1-15.4 % O2). Please provide an explanation.
3. Section 60.5413(d)(12)(v)(B) Fuel Gas Moisture Range – Your summary page report states that the fuel gas moisture range is >2ppm. The analysis from the supplier on page 180 has 0.05 ppm. Please reconcile the error.
4. Section 60.5413(d)(12)(v)(I) pilot flame indicator – Please provide a description (manufacturer literature is acceptable) of the pilot indicator system.
5. Section 60.5413(d)(12)(v)(O) requires the exit flow rate to be reported - We note an anomaly in that R4 (30-70-30) is the highest flow rate of any run at 390k dscfh, which is ~130-160k higher than the other 2 runs for this condition. Please provide an explanation.

Marcia B Mia
Office of Compliance/Air Branch
2227A WJCS
U.S. Environmental Protection Agency
202-564-7042



NO.	DATE	BY:	CKD	APD	DESCRIPTION

DRAWN: A. YOW	SFI SUPERIOR FABRICATION, INC. ELK CITY, OKLAHOMA, USA	DRAWING NO: SCD TEST
DATE: 2016-08-30		
CHKD: NONE	DWG. SCALE: NONE PLOT SCALE: 1:1 CUSTOMER: STANDARD	REVISION NO. 1
BOM YES ■ NO □	SCD TEST P&ID	AAY 2016-01-25-1000

THIS DRAWING MUST BE RETURNED UPON REQUEST. THIS DRAWING IS THE PROPERTY OF SUPERIOR FABRICATION AND IS LENT FOR CONFIDENTIAL USE ONLY. THE RECIPIENT PROMISES AND AGREES THAT IT SHALL NOT BE USED IN ANY WAY DETRIMENTAL TO THE INTEREST OF SUPERIOR FABRICATION, AND SHALL NOT BE REPRODUCED, COPY, LEND, OR OTHERWISE DISPOSE OF, DIRECTLY OR INDIRECTLY, WITHOUT THE WRITTEN PERMISSION OF SUPERIOR FABRICATION.

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SUPERIOR FABRICATION, INC.

True-Lite Igniter

Overview

The True-Lite Igniter is designed to provide a constant pilot flame on burner systems. During the ignition sequence, the igniter will attempt to light the pilot up to three times unless ignition is successful. After successful ignition, the True-Lite uses ionization to monitor the pilot flame. If the pilot goes out, the unit will attempt to reignite. SCADA connections are built in to give the end user the status of the pilot flame.

Installation

1.) Mount igniter unit on flush vertical surface and bolt securely.
2.) Cut and install conduit and connectors.
3.) Cut the igniter wire and ground wire to the length needed and run it inside the conduit. Attach the ground wire to the ground terminal bolt that is located on the bottom left corner of the enclosure. Connect the igniter wire with the rubber boot to the coil inside the unit.
4.) If using a solar panel, run the wire through the round pre-cut hole at the bottom of the unit and attach to the positive and negative solar terminals of the terminal block marked “Solar”. Shield the panel from sunlight until the battery is connected.
5.) If used, Install conduit for the Magnalatch Valve and run wires through conduit. Attach to the positive and negative terminals for the valve on the terminal block marked “Valve”.
6.) Connect electrode to the end of the igniter wire and attach the ground wire to the burner piping on the vessel. (Position electrode per sketch.) Do not ground the electrode by touching the tip of the electrode to the metal piping.
7.) Check wiring to ensure proper connection and connect the battery to test the unit.
Note: it is the installer’s/user’s responsibility to adhere to all Local, State and Federal codes for wiring and gas connections.

Start-Up

Operation

Caution: For safety, ensure flame arrestor is secure and in proper working order prior to lighting flame.
It is recommended to follow API RP-12N for testing the flame arrestor and accessories.

1.) Make sure the battery has a full charge and all the terminal connections are tight with no loose wiring. Keep the manual valves that control the pilot and main burner gas lines closed until ready to ignite.
2.) Open the valve and press the ignition button. A red LED indicator light will flash bright red while attempting to light. the igniter will fire up to 62 times during one-15 second cycle unless ignition is successful. Once the pilot is lit and in flame monitoring mode, the LED will flash dim red. If ignition fails, refer to trouble shooting guide.

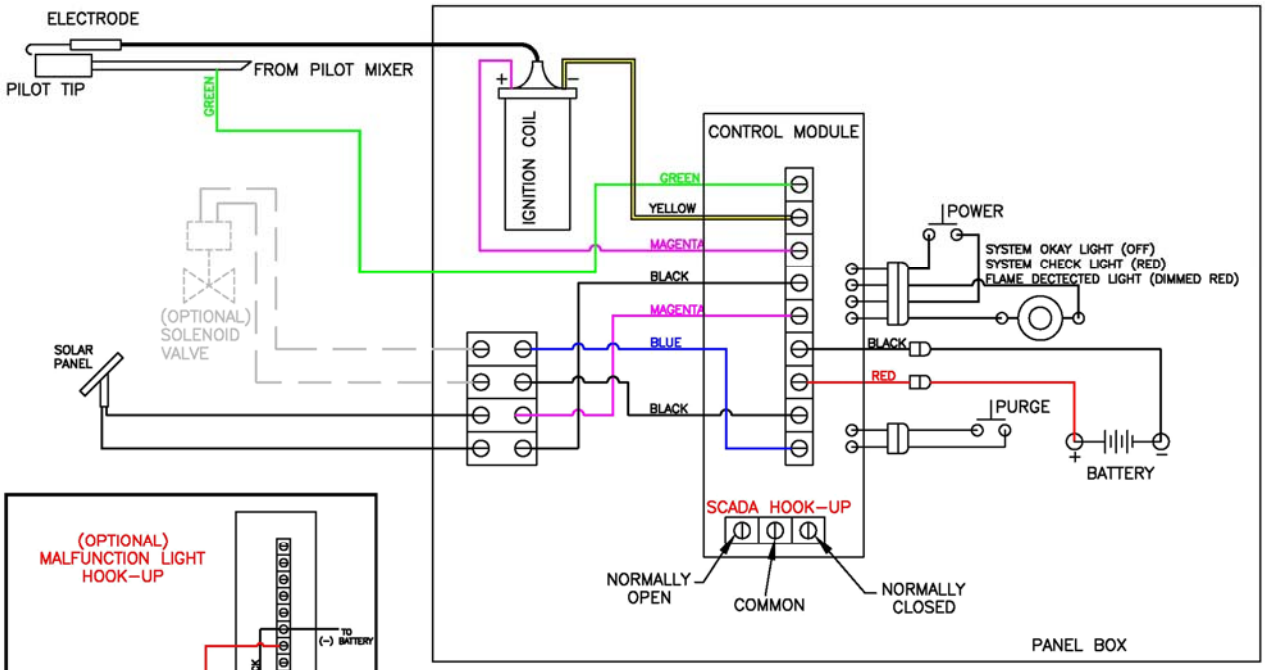
Shutdown

1.) Close the manual gas valves for the pilot and main burner. The unit will attempt to relight and will time out in 15 seconds, shutting down the system.

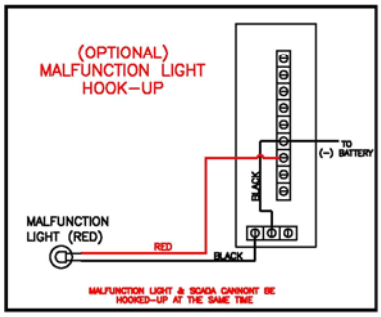


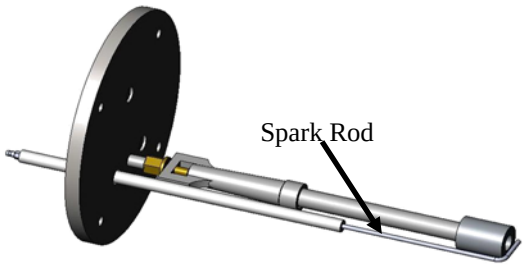
If in need of any further technical help, please contact:

Superior Fabrication, Inc.
801 S. Eastern
Elk City, OK 73644
Phone: (580) 243-5693
Fax: (580) 243-5507
Email: superiorfab@superiorfab.com



Schematic A





Pilot Assembly

Figure 3

NOTES:

1.) IGNITER INPUT VOLTAGE RANGE FOR 12VDC OPERATION: 10.5 VOLTS TO 14.5 VOLTS
2.) IGNITER INPUT VOLTAGE RANGE FOR 24VDC OPERATION: 20 VOLTS TO 32 VOLTS
3.) THE POWER SUPPLY MUST BE CAPABLE OF SUPPLYING A 7A PULSE FOR WHEN THE IGNITER IS IN SPARKING MODE
4.) MAXIMUM SOLAR PANEL INPUT IS 12V-12W & 1A
5.) SCADA INTERFACE NO AND NC CONNECTIONS RATED AT 0.5A @ 120VAC OR 2A @24VDC
6.) CURRNET DRAW IS 5-6A DURING IGNITE MODE AND 0.1A IN FLAME MONITORING MODE.

Troubleshooting

Problem	Cause	Remedy
1.) Nothing happens when pushing the ignition button.	a.) Loose connections at battery.	a.) Tighten all connections.
	b.) Bad battery, low voltage.	b.) Install new battery or charge existing battery and check solar charger.
2.) Igniter sparks but fails to light pilot.	a.) Pilot gas valve shut off.	a.) Turn gas valve on.
	b.) Air in gas line.	b.) Purge air with gas.
	c.) Plugged line, no gas.	c.) Clean out strainers, filters, orifices, etc., as needed and purge line.
3.) Igniter fails to spark.	a.) Improper placement of electrode.	a.) Reposition electrode according to sketch in installation instructions.
	b.) Improper ground.	b.) Check continuity in ground wire.
	c.) Loose or damaged wiring.	c.) Tighten or replace damaged wires.
	d.) Loose or damaged igniter cable.	d.) Check continuity of ignition cable, & tighten connections.
	e.) Wired incorrectly.	e.) Refer to schematic, correct as needed.
4.) Igniter lights pilot but continues to spark.	a.) Improper placement of electrode.	a.) Reposition electrode according to sketch in installation instructions.

Disclaimer:

This Guide is a reference for the installation of True-Lite Igniter. You should check with Federal, State, Local, and/or company specifications before doing any piping or electrical wiring.

SFI

SUPERIOR FABRICATION, INC.

Summary:
Superior Fabrication, Inc. contracted Air Hygiene Inc. to conduct performance testing on Combustion Device on model SCD-36. The unit was tested on October 4th through 7th, 2016 at the Elk City Facility in Elk City, Oklahoma. The flare unit was re-tested to satisfy the specifications as described in United States Code of Federal Regulations Title 40, Part 60, Subpart OOOO (40 CFR 60, Subpart OOOO).

Testing Methods:
The production flare model was tested according to EPA source emissions test method

- Method 1 – Sample and Velocity Traverse for Stationary Sources
- Method 2 – Determination of Stack Gas Velocity and Volumetric Flow Rate
- Method 2A – Direct Measurement of Gas Volume Through Pipes and Small Ducts
- Method 3C – Determination of Carbon Dioxide, Methane, Nitrogen and Oxygen from stationary Sources
- Method 4 – Determination of Moisture Content in Stack Gas
- Method 10 – Determination of Carbon Monoxide Emission from Stationary Sources
- Method 22 – Visual Determination of Fugitive Emissions from Material Sources and Smoke Emission from Flares
- Method 25A – Determination of Total Gaseous Organic Concentration Using Flame Ionization Analyzer
- ASTM D1945-03 – Standard Test Method for Analysis of Natural Gas by Gas Chromatography
- ASTM D3588-98 – Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels

Requirement Specification:
In accordance to 40 CFR 60 Subpart OOOO, §60.5413(d)(12)(i) through (vi), this report contains the following information.

- A full schematic and dimensions of the flare unit are presented in page 3
- The maximum net Heat Input Rating of the SCD-36 is 3.17MMBtu/hr
- The inlet gas fuel range for 0% (min. rate) and 100% (max. rate) are 6.48MSCFD, and 29.86MSCFD, respectively
- Air/Stream injection/assist is not applicable for SCD-36
- The test parameter ranges below, as applicable to this unit
    - Fuel gas delivery pressure and temperature – See Air Hygiene report Appendix B
    - Fuel gas moisture range – >0.05ppm
    - Purge gas usage range – Not applicable
    - Condensate liquid fuel separation range – No liquid in the gas
    - Combustion temperature range – See Air Hygiene report Appendix B
    - Excess combustion air range – See Table 2.1 - 2.4
    - Flame arrestor – See blue print of the production flare unit on page 3

January 16, 2017

Adam Yow
SFI Oil & Gas Production System
801 S Eastern
Elk City, OK 73644

Mr. Yow,

Please find the attached revisions in response to Ms. Marcia Mia's January 11th, 2017 email request.

SCD-36
Item #1
We noted some apparent typos in the report which is complicating our review. See Table 2.3 which is mislabeled. Also there are similar typos on pages 33, 64-72 and Table A.1 for the 30-70-30 and 70-100-70 runs. Please provide corrected pages and tables.

- All discrepancies have been revised and can be found in the attachment

If you have any questions, comments, or concerns please feel free to contact me at (918) 307-8865 office, (918) 565-5379 cell, or mlee@airhygiene.com.

Sincerely,

Min Sum Lee, QSTI
Project Manager
Air Hygiene Inc.
mlee@airhygiene.com
Office: (918) 307-8865

AIR HYGIENE, INC.

Testing Solutions for a Better World

STACK EMISSIONS STUDY
EPA 40 CFR PART 60 SUBPART OOOO
FOR THE
COMBUSTION DEVICE SCD-36 MODEL
PREPARED FOR
SUPERIOR FABRICATION, INC.
AT THE
ELK CITY FACILITY
ELK CITY, OKLAHOMA
OCTOBER 4-7, 2016



Corporate Headquarters
1600 W Tacoma Street
Broken Arrow, Oklahoma 74012

AIR HYGIENE, INC.

(918) 307-8865 or (888) 461-8778
www.airhygiene.com

Remote Testing Offices
Las Vegas, NV 89156
Ft. Worth, TX 76028
Humble, TX 77338
Shreveport, LA 71115
Miami, FL 33101
Pittsburgh, PA 15205

TABLE 2.3
SCD-36 30-70-30 LOAD DATA SUMMARY

Parameter	30-70-30 Load, Run - SCD-36 R4	30-70-30 Load, Run - SCD-36 R5	30-70-30 Load, Run - SCD-36 R6	Average
Date (mm/dd/yy)	10/06/16	10/07/16	10/07/16	--
Start Time (hh:mm:ss)	16:13:27	7:55:07	9:21:07	--
End Time (hh:mm:ss)	17:23:27	9:05:07	10:31:07	--
Run Duration (min / run)	71	71	71	71
Bar. Pressure (in. Hg)	27.82	28.22	28.25	28.10
Amb. Temp. (°F)	86	49	52	62
Rel. Humidity (%)	52	53	60	55
Spec. Humidity (lb water / lb air)	0.014927	0.004108	0.005202	0.008079
Wind Speed (mph)	8.0	5.0	6.0	6.3
Wind Direction (--)	SW	W	W	--
Inlet Gas Canister Pressure Start (inHg)	-28.12	-19.38	-11.44	--
Inlet Gas Canister Pressure Stop (inHg)	-19.38	-11.44	-0.91	--
Gross Fuel Heating Value (Btu/ft3)	2,555	2,555	2,555	2,555
Stack Flow (M2) (dscfh)	67,128	49,494	55,427	57,350
Stack Moisture (Method 4)	4.9	5.0	4.9	5.0
Gross Fuel Heating Value (Btu/ft^3)	2,554.8	2,554.8	2,554.8	2,554.80
Average Inlet Fuel Flowrate (SCFH)	649.6	707.8	668.7	675.37
Average Inlet Mass Fuel Flowrate (lb/hr)	75.5	81.7	77.7	78.28
% Excess Air	223.1	245.3	234.6	234.34
CO_2 (%) - Modified method 3C	4.66	4.39	4.52	4.52
O_2 (%) - Modified Method 3C	14.70	15.10	14.90	14.90
N_2 (%) - Modified Method 3C	80.64	80.51	80.50	80.55
Visual Emission (mm:ss)	0:00	0:00	0:00	0:00
CO (ppmvd)	0.40	2.19	1.34	1.31
CO (ppm@3%CO_2)	0.26	1.50	0.89	0.88
THC (ppmvw)	0.00	0.21	0.03	0.08
THC (ppm@3%CO_2)	0.00	0.15	0.02	0.05
THC (lb/hr)	0.00	0.00	0.00	0.00
VOC Destruction Efficiency (%)	99.999	99.998	99.999	99.999

TABLE A.1:
EMISSIONS TESTING SCHEDULE

Unit	Load	Test Type	Run	Date	Start	Stop	Time Sync
SCD-36	90-100	CO,THC & Fuel Sampling	SCD-36 R10	10/04/16	8:02:13	9:12:13	CST
SCD-36	90-100	CO,THC & Fuel Sampling	SCD-36 R11	10/04/16	9:27:13	10:37:13	CST
SCD-36	90-100	CO,THC & Fuel Sampling	SCD-36 R12	10/04/16	10:52:00	12:02:13	CST
SCD-36	0-30-0	CO,THC & Fuel Sampling	SCD-36 R1	10/05/16	12:07:27	13:17:27	CST
SCD-36	0-30-0	CO,THC & Fuel Sampling	SCD-36 R2	10/06/16	13:17:27	14:27:27	CST
SCD-36	0-30-0	CO,THC & Fuel Sampling	SCD-36 R3	10/06/16	14:43:27	15:53:27	CST
SCD-36	70-100-70	CO,THC & Fuel Sampling	SCD-36 R7	10/05/16	17:05:27	18:15:27	CST
SCD-36	70-100-70	CO,THC & Fuel Sampling	SCD-36 R8	10/06/16	7:55:27	9:05:27	CST
SCD-36	70-100-70	CO,THC & Fuel Sampling	SCD-36 R9	10/06/16	9:25:27	10:35:27	CST
SCD-36	30-70-30	CO,THC & Fuel Sampling	SCD-36 R4	10/06/16	16:13:27	17:23:27	CST
SCD-36	30-70-30	CO,THC & Fuel Sampling	SCD-36 R5	10/07/16	7:55:07	9:05:07	CST
SCD-36	30-70-30	CO,THC & Fuel Sampling	SCD-36 R6	10/07/16	9:21:07	10:31:07	CST
SCD-36	90-100	Fixed Gas & Moisture	90-100%-1	10/04/16	8:02	9:12	CST
SCD-36	90-100	Fixed Gas & Moisture	90-100%-2	10/04/16	9:27	10:36	CST
SCD-36	90-100	Fixed Gas & Moisture	90-100%-3	10/04/16	10:52	12:02	CST
SCD-36	0-30-0	Fixed Gas & Moisture	0-30-0%-1	10/05/16	12:07	13:17	CST
SCD-36	0-30-0	Fixed Gas & Moisture	0-30-0%-2	10/06/16	13:17	14:27	CST
SCD-36	0-30-0	Fixed Gas & Moisture	0-30-0%-3	10/06/16	14:43	15:53	CST
SCD-36	70-100-70	Fixed Gas & Moisture	70-100-70%-1	10/05/16	17:05	18:15	CST
SCD-36	70-100-70	Fixed Gas & Moisture	70-100-70%-2	10/06/16	7:55	9:05	CST
SCD-36	70-100-70	Fixed Gas & Moisture	70-100-70%-3	10/06/16	9:25	10:35	CST
SCD-36	30-70-30	Fixed Gas & Moisture	30-70-30%-1	10/06/16	16:13	17:23	CST
SCD-36	30-70-30	Fixed Gas & Moisture	30-70-30%-2	10/07/16	7:55	9:05	CST
EC48-2S	30-70-30	Fixed Gas & Moisture	30-70-30%-3	10/07/16	9:21	8:52	CST

Superior Fabrication, INC

Air Permit # :	40 CFR 60 Sub Part OOOO
Plant Name or Location:	Elk City Plant
Date:	October 4, 2016
Project Number:	sfi-16-elkcity.ok-comp#1
Manufacturer & Equipment:	SCD-36
Test Load:	Multiple
Tester(s) / Test Unit(s):	MSL/DA/TW/JB

		RUN											
	UNITS	**SCD-36 R10**	**SCD-36 R11**	**SCD-36 R12**	**SCD-36 R1**	**SCD-36 R2**	**SCD-36 R3**	**SCD-36 R7**	**SCD-36 R8**	**SCD-36 R9**	**SCD-36 R4**	**SCD-36 R5**	**SCD-36 R6**
Start Time	hh:mm:ss	08:02:13	09:27:13	10:52:00	12:07:27	13:17:27	14:43:27	17:05:27	07:55:27	09:25:27	16:13:27	07:55:07	09:21:07
End Time	hh:mm:ss	09:12:13	10:37:13	12:02:13	13:17:27	14:27:27	15:53:27	18:15:27	09:05:27	10:35:27	17:23:27	09:05:07	10:31:07
Bar. Pressure	in. Hg	27.68	27.69	27.69	27.85	27.86	27.83	27.79	27.85	27.86	27.82	28.22	28.25
Amb. Temp.	°F	69	69	81	80	83	88	87	70	72	86	49	52
Rel. Humidity	%	80	78	70	28	54	51	18	83	76	52	53	60
Spec. Humidity	lb water / lb air	0.013053	0.012781	0.017246	0.006527	0.013959	0.015611	0.005229	0.014019	0.013728	0.014927	0.004108	0.005202
Date	mm/dd/yy	10/04/16	10/04/16	10/04/16	10/05/16	10/06/16	10/06/16	10/05/16	10/06/16	10/06/16	10/06/16	10/07/16	10/07/16
Unit Number		SCD-36	SCD-36	SCD-36	SCD-36	SCD-36	SCD-36	SCD-36	SCD-36	SCD-36	SCD-36	SCD-36	SCD-36
Load Designator	%	90-100	90-100	90-100	0-30-0	0-30-0	0-30-0	70-100-70	70-100-70	70-100-70	30-70-30	30-70-30	30-70-30
Gross Fuel Heating Value	Btu/ft3	2,546	2,546	2,546	2,550	2,550	2,550	2,555	2,555	2,555	2,555	2,555	2,555
Stack Flow (M2)	dscfh	86,689	84,652	82,021	49,698	46,561	49,483	76,295	84,431	88,937	67,128	49,494	55,427
Stack Moisture	Method 4	6.63	6.37	6.73	4.72	5.32	5.14	6.54	7.44	7.08	4.89	5.03	4.93
Wind Speed	mph	8	10	9	6	10	8	7	5	4	8	5	6
Wind Direction	--	S	S	S	W	S	SE	W	S	S	SW	W	W
CO_2 - Method 3C	%	4.54	4.07	4.22	3.65	3.99	3.66	4.26	4.34	4.42	4.66	4.39	4.52
O_2 - Method 3C	%	15.20	15.90	15.70	16.60	15.70	16.10	15.60	15.00	15.00	14.70	15.10	14.90
N_2 -Method 3C	%	80.26	80.03	80.00	79.75	80.31	80.24	80.20	80.66	80.58	80.64	80.51	80.50
Excess Air	%	253.81	304.14	289.67	372.70	285.36	316.72	279.93	238.31	239.12	223.10	245.34	234.57

Superior Fabrication, INC
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	4.9	%
Stack Exhaust Flow (M2)	67,128	SCFH

Weather Data

Barometric Pressure	27.82	in. Hg
Relative Humidity	52	%
Ambient Temperature	86	^{o}F
Specific Humidity	0.014927	lb H_2O / lb air

30-70-30 Load, Run - SCD-36 R4

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
A1	10/06/16 16:13:27	119820	15.32	1.11	-0.07	3.90	0.11	89.70	320.00
	10/06/16 16:13:57	119850	15.36	0.98	-0.06	3.88	0.11	89.70	320.00
	10/06/16 16:14:27	119880	15.37	0.99	-0.07	3.88	0.11	89.50	323.00
	10/06/16 16:14:57	119910	15.42	1.01	-0.05	3.83	0.11	89.50	323.00
	10/06/16 16:15:27	119940	15.41	1.01	-0.05	3.87	0.11	89.30	320.00
	10/06/16 16:15:57	119970	15.45	1.02	-0.07	3.81	0.11	89.30	320.00
	10/06/16 16:16:27	120000	15.44	1.02	-0.08	3.83	0.40	89.10	618.00
	10/06/16 16:16:57	120030	15.46	1.04	-0.10	3.85	0.40	89.10	618.00
	10/06/16 16:17:27	120060	14.81	1.75	-0.09	4.11	0.56	88.70	768.00
	10/06/16 16:17:57	120090	13.88	1.25	-0.06	4.83	0.56	88.70	768.00
	10/06/16 16:18:27	120120	13.79	0.13	-0.07	4.87	0.57	88.40	767.00
	10/06/16 16:18:57	120150	13.48	-0.09	-0.06	5.06	0.57	88.40	767.00
	10/06/16 16:19:27	120180	13.63	-0.09	-0.06	4.99	0.58	88.40	767.00
	10/06/16 16:19:57	120210	13.86	-0.01	-0.06	4.83	0.58	88.40	767.00
	10/06/16 16:20:27	120240	13.97	0.01	-0.06	4.70	0.59	88.40	767.00
	10/06/16 16:20:57	120270	13.88	-0.01	-0.06	4.79	0.59	88.40	767.00
	10/06/16 16:21:27	120300	13.89	0.07	-0.06	4.81	0.59	88.50	765.00
	10/06/16 16:21:57	120330	13.78	0.05	-0.06	4.85	0.59	88.50	765.00
	10/06/16 16:22:27	120360	13.63	0.11	-0.08	4.95	0.60	88.60	768.00
	10/06/16 16:22:57	120390	13.91	0.11	-0.08	4.80	0.60	88.60	768.00
	10/06/16 16:23:27	120420	14.02	0.11	-0.07	4.67	0.61	88.70	768.00
	10/06/16 16:23:57	120450	13.39	0.11	-0.07	5.09	0.61	88.70	768.00
	10/06/16 16:24:27	120480	13.35	0.12	-0.07	5.16	0.61	88.80	766.00
	10/06/16 16:24:57	120510	13.33	0.12	-0.06	5.14	0.61	88.80	766.00
	10/06/16 16:25:27	120540	13.72	0.12	-0.05	4.95	0.62	88.90	769.00
	10/06/16 16:25:57	120570	13.90	0.11	-0.06	4.75	0.62	88.90	769.00
	10/06/16 16:26:27	120600	14.25	0.12	-0.06	4.59	0.62	89.00	768.00
	10/06/16 16:26:57	120630	13.91	0.08	-0.06	4.76	0.62	89.00	768.00
	10/06/16 16:27:27	120660	14.19	0.04	-0.07	4.62	0.64	89.10	766.00
	10/06/16 16:27:57	120690	14.20	-0.02	-0.07	4.58	0.64	89.10	766.00
	10/06/16 16:28:27	120720	14.34	-0.03	-0.07	4.50	0.63	89.10	769.00
	10/06/16 16:28:57	120750	14.29	0.00	-0.08	4.53	0.63	89.10	769.00
	10/06/16 16:29:27	120780	14.49	-0.01	-0.08	4.40	0.63	89.20	768.00
	10/06/16 16:29:57	120810	14.24	0.01	-0.08	4.56	0.63	89.20	768.00
	10/06/16 16:30:27	120840	13.86	0.01	-0.06	4.81	0.64	89.30	769.00
	10/06/16 16:30:57	120870	13.98	0.02	-0.06	4.69	0.64	89.30	769.00
	10/06/16 16:31:27	120900	14.03	0.02	-0.06	4.81	0.14	89.30	349.00
	10/06/16 16:31:57	120930	14.16	-0.01	-0.06	4.62	0.14	89.30	349.00
	10/06/16 16:32:27	120960	15.19	0.04	-0.05	4.00	0.13	89.30	326.00
	10/06/16 16:32:57	120990	15.33	0.16	-0.06	3.88	0.13	89.30	326.00
	10/06/16 16:33:27	121020	15.38	0.29	-0.07	3.86	0.13	89.20	328.00
	10/06/16 16:33:57	121050	15.29	0.30	-0.07	3.92	0.13	89.20	328.00
A2	10/06/16 16:34:27	121080	15.45	0.35	-0.06	3.81	0.13	89.10	331.00
	10/06/16 16:34:57	121110	15.29	0.38	-0.07	3.90	0.13	89.10	331.00
	10/06/16 16:35:27	121140	15.36	0.38	-0.07	3.88	0.47	88.80	654.00
	10/06/16 16:35:57	121170	14.31	0.36	-0.06	4.51	0.47	88.80	654.00
	10/06/16 16:36:27	121200	14.05	0.22	-0.07	4.64	0.63	88.10	775.00
	10/06/16 16:36:57	121230	13.90	0.06	-0.07	4.84	0.63	88.10	775.00
	10/06/16 16:37:27	121260	13.97	-0.01	-0.07	4.79	0.64	87.70	779.00
	10/06/16 16:37:57	121290	14.06	-0.10	-0.08	4.71	0.64	87.70	779.00
	10/06/16 16:38:27	121320	14.31	-0.09	-0.09	4.53	0.63	87.20	785.00
	10/06/16 16:38:57	121350	14.15	-0.09	-0.06	4.63	0.63	87.20	785.00
	10/06/16 16:39:27	121380	14.11	-0.09	-0.05	4.67	0.64	86.90	788.00
	10/06/16 16:39:57	121410	13.89	-0.09	-0.07	4.81	0.64	86.90	788.00
	10/06/16 16:40:27	121440	13.95	-0.08	-0.07	4.77	0.65	86.60	784.00
	10/06/16 16:40:57	121470	13.88	-0.08	-0.06	4.78	0.65	86.60	784.00
	10/06/16 16:41:27	121500	13.73	-0.07	-0.05	4.91	0.64	86.30	784.00
	10/06/16 16:41:57	121530	13.95	-0.01	-0.06	4.76	0.64	86.30	784.00
	10/06/16 16:42:27	121560	14.17	-0.02	-0.06	4.61	0.65	86.00	785.00
	10/06/16 16:42:57	121590	14.07	0.02	-0.06	4.66	0.65	86.00	785.00
	10/06/16 16:43:27	121620	13.79	0.02	-0.07	4.88	0.65	85.80	780.00

Superior Fabrication, INC
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	4.9	%
Stack Exhaust Flow (M2)	67,128	SCFH

Weather Data

Barometric Pressure	27.82	in. Hg
Relative Humidity	52	%
Ambient Temperature	86	^{o}F
Specific Humidity	0.014927	lb H_2O / lb air

30-70-30 Load, Run - SCD-36 R4

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
	10/06/16 16:43:57	121650	13.91	0.01	-0.09	4.79	0.65	85.80	780.00
	10/06/16 16:44:27	121680	13.85	0.01	-0.08	4.81	0.66	85.50	786.00
	10/06/16 16:44:57	121710	13.89	0.01	-0.06	4.80	0.66	85.50	786.00
	10/06/16 16:45:27	121740	13.92	0.10	-0.07	4.77	0.66	85.30	784.00
	10/06/16 16:45:57	121770	13.93	0.09	-0.06	4.77	0.66	85.30	784.00
	10/06/16 16:46:27	121800	13.65	0.08	-0.06	4.87	0.67	85.00	784.00
	10/06/16 16:46:57	121830	13.89	0.21	-0.06	4.87	0.67	85.00	784.00
	10/06/16 16:47:27	121860	13.78	0.22	-0.09	4.75	0.13	84.80	331.00
	10/06/16 16:47:57	121890	14.37	0.23	-0.08	4.65	0.13	84.80	331.00
	10/06/16 16:48:27	121920	15.47	0.27	-0.06	3.79	0.14	84.70	331.00
	10/06/16 16:48:57	121950	15.44	0.40	-0.06	3.81	0.14	84.70	331.00
	10/06/16 16:49:27	121980	15.43	0.43	-0.06	3.81	0.14	84.50	326.00
	10/06/16 16:49:57	122010	15.39	0.48	-0.09	3.85	0.14	84.50	326.00
	10/06/16 16:50:27	122040	15.45	0.50	-0.09	3.81	0.13	84.30	329.00
	10/06/16 16:50:57	122070	15.48	0.60	-0.05	3.81	0.13	84.30	329.00
	10/06/16 16:51:27	122100	15.49	0.64	-0.05	3.77	0.14	84.10	327.00
	10/06/16 16:51:57	122130	15.45	0.71	-0.06	3.81	0.14	84.10	327.00
	10/06/16 16:52:27	122160	15.52	0.72	-0.05	3.76	0.52	83.90	701.00
	10/06/16 16:52:57	122190	14.08	0.69	-0.07	4.69	0.52	83.90	701.00
	10/06/16 16:53:27	122220	14.44	0.55	-0.06	4.40	0.63	83.40	777.00
	10/06/16 16:53:57	122250	13.83	0.35	-0.07	4.88	0.63	83.40	777.00
A3	10/06/16 16:54:27	122280	13.95	0.22	-0.06	4.75	0.63	83.10	777.00
	10/06/16 16:54:57	122310	14.02	0.13	-0.06	4.73	0.63	83.10	777.00
	10/06/16 16:55:27	122340	14.18	0.12	-0.06	4.62	0.63	82.80	778.00
	10/06/16 16:55:57	122370	14.12	0.11	-0.07	4.67	0.63	82.80	778.00
	10/06/16 16:56:27	122400	14.29	0.03	-0.06	4.53	0.64	82.60	773.00
	10/06/16 16:56:57	122430	14.01	0.07	-0.06	4.72	0.64	82.60	773.00
	10/06/16 16:57:27	122460	14.00	0.13	-0.05	4.74	0.60	82.20	772.00
	10/06/16 16:57:57	122490	13.93	0.11	-0.07	4.79	0.60	82.20	772.00
	10/06/16 16:58:27	122520	13.92	0.19	-0.06	4.79	0.63	82.20	774.00
	10/06/16 16:58:57	122550	14.13	0.22	-0.07	4.59	0.63	82.20	774.00
	10/06/16 16:59:27	122580	14.13	0.22	-0.06	4.68	0.64	82.00	777.00
	10/06/16 16:59:57	122610	13.96	0.20	-0.06	4.72	0.64	82.00	777.00
	10/06/16 17:00:27	122640	13.99	0.21	-0.07	4.75	0.64	81.80	774.00
	10/06/16 17:00:57	122670	14.13	0.22	-0.06	4.62	0.64	81.80	774.00
	10/06/16 17:01:27	122700	13.96	0.21	-0.06	4.73	0.65	81.50	778.00
	10/06/16 17:01:57	122730	14.04	0.20	-0.05	4.68	0.65	81.50	778.00
	10/06/16 17:02:27	122760	13.88	0.19	-0.05	4.79	0.65	81.30	776.00
	10/06/16 17:02:57	122790	13.85	0.24	-0.08	4.83	0.65	81.30	776.00
	10/06/16 17:03:27	122820	13.86	0.32	-0.09	4.81	0.65	81.10	776.00
	10/06/16 17:03:57	122850	13.90	0.31	-0.09	4.75	0.65	81.10	776.00
	10/06/16 17:04:27	122880	14.10	0.37	-0.09	4.70	0.47	80.70	635.00
	10/06/16 17:04:57	122910	13.82	0.38	-0.08	4.86	0.47	80.70	635.00
	10/06/16 17:05:27	122940	14.97	0.36	-0.09	4.19	0.17	80.40	391.00
	10/06/16 17:05:57	122970	14.15	0.57	-0.07	4.54	0.17	80.40	391.00
	10/06/16 17:06:27	123000	14.94	0.51	-0.05	4.19	0.14	80.00	332.00
	10/06/16 17:06:57	123030	15.52	0.45	-0.04	3.77	0.14	80.00	332.00
	10/06/16 17:07:27	123060	15.58	0.55	-0.05	3.74	0.14	79.50	337.00
	10/06/16 17:07:57	123090	15.62	0.67	-0.06	3.69	0.14	79.50	337.00
	10/06/16 17:08:27	123120	15.53	0.80	-0.05	3.77	0.15	78.90	333.00
	10/06/16 17:08:57	123150	15.50	0.78	-0.08	3.78	0.15	78.90	333.00
	10/06/16 17:09:27	123180	15.48	0.78	-0.06	3.79	0.30	78.00	488.00
	10/06/16 17:09:57	123210	15.54	0.79	-0.08	3.76	0.30	78.00	488.00
	10/06/16 17:10:27	123240	14.27	0.87	-0.10	4.39	0.65	76.90	809.00
	10/06/16 17:10:57	123270	13.69	0.68	-0.09	5.06	0.65	76.90	809.00
	10/06/16 17:11:27	123300	13.97	0.47	-0.08	4.81	0.66	75.80	797.00
	10/06/16 17:11:57	123330	13.84	0.29	-0.06	4.85	0.66	75.80	797.00
	10/06/16 17:12:27	123360	14.08	0.20	-0.05	4.73	0.67	75.00	802.00
	10/06/16 17:12:57	123390	14.17	0.17	-0.09	4.60	0.67	75.00	802.00
	10/06/16 17:13:27	123420	14.04	0.13	-0.09	4.72	0.67	74.50	803.00
	10/06/16 17:13:57	123450	14.04	0.11	-0.08	4.68	0.67	74.50	803.00

Superior Fabrication, INC
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	4.9	%
Stack Exhaust Flow (M2)	67,128	SCFH

Weather Data

Barometric Pressure	27.82	in. Hg
Relative Humidity	52	%
Ambient Temperature	86	^{o}F
Specific Humidity	0.014927	lb H_2O / lb air

30-70-30 Load, Run - SCD-36 R4

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
10/06/16 17:14:27	123480	14.05	0.13	-0.08	4.70	0.67	73.90	804.00
10/06/16 17:14:57	123510	13.76	0.09	-0.09	4.89	0.67	73.90	804.00
10/06/16 17:15:27	123540	14.08	0.09	-0.09	4.67	0.68	73.60	805.00
10/06/16 17:15:57	123570	13.99	0.09	-0.06	4.74	0.68	73.60	805.00
10/06/16 17:16:27	123600	13.66	0.11	-0.06	4.98	0.68	73.30	805.00
10/06/16 17:16:57	123630	14.14	0.19	-0.06	4.62	0.68	73.30	805.00
10/06/16 17:17:27	123660	13.80	0.23	-0.06	4.86	0.69	73.00	801.00
10/06/16 17:17:57	123690	14.03	0.22	-0.06	4.73	0.69	73.00	801.00
10/06/16 17:18:27	123720	14.17	0.22	-0.08	4.63	0.69	72.80	806.00
10/06/16 17:18:57	123750	14.06	0.26	-0.08	4.69	0.69	72.80	806.00
10/06/16 17:19:27	123780	14.22	0.31	-0.07	4.59	0.69	72.60	804.00
10/06/16 17:19:57	123810	14.35	0.43	0.01	4.49	0.69	72.60	804.00
10/06/16 17:20:27	123840	14.15	1.20	0.02	4.63	0.39	72.20	603.00
10/06/16 17:20:57	123870	14.27	3.05	0.13	4.52	0.39	72.20	603.00
10/06/16 17:21:27	123900	15.02	5.89	0.03	4.06	0.15	72.30	334.00
10/06/16 17:21:57	123930	15.06	3.18	-0.06	4.03	0.15	72.30	334.00
10/06/16 17:22:27	123960	15.43	1.21	0.22	3.80	0.16	72.20	337.00
10/06/16 17:22:57	123990	15.39	0.90	0.25	3.81	0.16	72.20	337.00
10/06/16 17:23:27	124020	15.34	0.88	0.23	3.86	0.15	72.00	337.00
RAW AVERAGE		**14.37**	**0.38**	**-0.06**	**4.50**	**0.49**	**83.39**	**649.64**

		O_2	CO	THC	CO_2	Press. Trans	Temp. Trans.	F-Flow Trans.
	Serial Number:	INSTO2-0011	INST-CO-0022	INST-TH-0002	INST-C2-0013	1434717	1434717	1434717
		(%)	(ppmvd)	(ppmvw)	(%)	(in. H_2O)	(^{o}F)	(SCFH)
Bias	Initial Zero	-0.02	-0.01	-0.06	0.03			
	Final Zero	-0.04	-0.03	-0.05	0.02			
	Avg. Zero	-0.03	-0.02	-0.06	0.03			
	Initial UpScale	11.93	9.41	3.06	8.87			
	Final UpScale	11.87	9.31	2.95	8.85			
	Avg. UpScale	11.90	9.36	3.01	8.86			
Upscale Cal Gas		11.90	9.44	3.00	8.95			

EMISSIONS DATA	O_2	CO	THC	CO_2
Corrected Raw Average (ppm/% dry basis)	14.36	0.40	0.00	4.53
Corrected Raw Average (ppm/% wet basis)	13.66	0.39	0.00	4.31
Emission Rate (lb/hr)	N/A	0.00	0.00	N/A

Superior Fabrication, INC
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	5.0	%
Stack Exhaust Flow (M2)	49,494	SCFH

Weather Data

Barometric Pressure	28.22	in. Hg
Relative Humidity	53	%
Ambient Temperature	49	^{o}F
Specific Humidity	0.004108	lb H_2O / lb air

30-70-30 Load, Run - SCD-36 R5

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
A1	10/07/16 07:55:07	2820	16.20	3.71	0.64	3.37	0.15	39.00	359.00
	10/07/16 07:55:37	2850	16.10	3.39	0.42	3.43	0.15	39.00	359.00
	10/07/16 07:56:07	2880	16.24	3.35	0.33	3.33	0.15	39.10	359.00
	10/07/16 07:56:37	2910	16.09	3.71	0.30	3.42	0.15	39.10	359.00
	10/07/16 07:57:07	2940	15.97	3.30	0.31	3.52	0.30	39.10	518.00
	10/07/16 07:57:37	2970	16.05	2.89	0.25	3.44	0.30	39.10	518.00
	10/07/16 07:58:07	3000	16.11	2.92	0.27	3.41	0.67	38.90	855.00
	10/07/16 07:58:37	3030	16.12	5.35	0.34	3.31	0.67	38.90	855.00
	10/07/16 07:59:07	3060	14.57	7.01	0.19	4.37	0.70	38.60	863.00
	10/07/16 07:59:37	3090	14.55	2.66	0.17	4.39	0.70	38.60	863.00
	10/07/16 08:00:07	3120	14.49	0.79	0.16	4.44	0.71	38.40	861.00
	10/07/16 08:00:37	3150	14.68	0.78	0.21	4.30	0.71	38.40	861.00
	10/07/16 08:01:07	3180	14.71	1.02	0.20	4.31	0.72	38.30	859.00
	10/07/16 08:01:37	3210	14.39	1.43	0.19	4.44	0.72	38.30	859.00
	10/07/16 08:02:07	3240	14.71	1.93	0.20	4.34	0.73	38.30	859.00
	10/07/16 08:02:37	3270	14.66	2.39	0.19	4.32	0.73	38.30	859.00
	10/07/16 08:03:07	3300	14.50	2.72	0.16	4.41	0.73	38.20	859.00
	10/07/16 08:03:37	3330	14.50	2.96	0.14	4.43	0.73	38.20	859.00
	10/07/16 08:04:07	3360	14.85	2.98	0.12	4.19	0.73	38.20	857.00
	10/07/16 08:04:37	3390	14.91	2.90	0.17	4.18	0.73	38.20	857.00
	10/07/16 08:05:07	3420	14.61	2.78	0.17	4.36	0.75	38.20	858.00
	10/07/16 08:05:37	3450	14.65	2.83	0.15	4.30	0.75	38.20	858.00
	10/07/16 08:06:07	3480	14.71	2.89	0.16	4.30	0.75	38.20	861.00
	10/07/16 08:06:37	3510	14.56	2.88	0.15	4.38	0.75	38.20	861.00
	10/07/16 08:07:07	3540	14.68	2.89	0.15	4.32	0.74	38.20	857.00
	10/07/16 08:07:37	3570	14.41	2.89	0.16	4.47	0.74	38.20	857.00
	10/07/16 08:08:07	3600	14.18	2.99	0.17	4.65	0.75	38.20	855.00
	10/07/16 08:08:37	3630	14.64	3.09	0.15	4.41	0.75	38.20	855.00
	10/07/16 08:09:07	3660	14.70	3.00	0.15	4.41	0.75	38.30	861.00
	10/07/16 08:09:37	3690	14.75	2.92	0.15	4.37	0.75	38.30	861.00
	10/07/16 08:10:07	3720	14.76	2.88	0.15	4.36	0.75	38.30	858.00
	10/07/16 08:10:37	3750	14.76	2.77	0.16	4.28	0.75	38.30	858.00
	10/07/16 08:11:07	3780	14.81	2.64	0.16	4.23	0.61	38.40	778.00
	10/07/16 08:11:37	3810	14.66	2.54	0.17	4.33	0.61	38.40	778.00
	10/07/16 08:12:07	3840	14.76	2.51	0.17	4.29	0.16	38.60	354.00
	10/07/16 08:12:37	3870	13.87	2.49	0.15	4.84	0.16	38.60	354.00
	10/07/16 08:13:07	3900	15.62	2.52	0.15	3.82	0.17	38.80	368.00
	10/07/16 08:13:37	3930	16.15	2.45	0.16	3.40	0.17	38.80	368.00
	10/07/16 08:14:07	3960	16.03	2.41	0.16	3.47	0.17	39.00	371.00
	10/07/16 08:14:37	3990	16.04	2.48	0.15	3.48	0.17	39.00	371.00
	10/07/16 08:15:07	4020	16.11	2.50	0.15	3.43	0.17	39.10	371.00
	10/07/16 08:15:37	4050	16.10	2.58	0.15	3.46	0.17	39.10	371.00
A2	10/07/16 08:16:07	4080	16.07	2.62	0.15	3.43	0.17	39.20	371.00
	10/07/16 08:16:37	4110	15.96	2.45	0.15	3.54	0.17	39.20	371.00
	10/07/16 08:17:07	4140	16.00	2.20	0.15	3.50	0.50	39.20	695.00
	10/07/16 08:17:37	4170	16.02	2.21	0.15	3.50	0.50	39.20	695.00
	10/07/16 08:18:07	4200	15.87	2.34	0.16	3.58	0.70	39.10	845.00
	10/07/16 08:18:37	4230	14.98	3.42	0.16	4.11	0.70	39.10	845.00
	10/07/16 08:19:07	4260	14.58	2.60	0.16	4.39	0.73	39.00	864.00
	10/07/16 08:19:37	4290	14.33	1.57	0.16	4.59	0.73	39.00	864.00
	10/07/16 08:20:07	4320	14.69	1.36	0.17	4.36	0.73	38.90	861.00
	10/07/16 08:20:37	4350	14.51	1.29	0.15	4.45	0.73	38.90	861.00
	10/07/16 08:21:07	4380	14.52	1.22	0.15	4.44	0.75	38.90	862.00
	10/07/16 08:21:37	4410	14.65	1.19	0.15	4.40	0.75	38.90	862.00
	10/07/16 08:22:07	4440	14.84	1.19	0.15	4.24	0.74	39.00	859.00
	10/07/16 08:22:37	4470	14.38	1.19	0.15	4.51	0.74	39.00	859.00
	10/07/16 08:23:07	4500	14.71	1.20	0.14	4.37	0.75	39.00	862.00
	10/07/16 08:23:37	4530	14.85	1.32	0.15	4.24	0.75	39.00	862.00
	10/07/16 08:24:07	4560	14.78	1.34	0.15	4.26	0.75	39.10	859.00
	10/07/16 08:24:37	4590	14.70	1.41	0.09	4.35	0.75	39.10	859.00
	10/07/16 08:25:07	4620	14.95	1.45	0.11	4.20	0.76	39.20	859.00

Superior Fabrication, INC
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	5.0	%
Stack Exhaust Flow (M2)	49,494	SCFH

Weather Data

Barometric Pressure	28.22	in. Hg
Relative Humidity	53	%
Ambient Temperature	49	^{o}F
Specific Humidity	0.004108	lb H_2O / lb air

30-70-30 Load, Run - SCD-36 R5

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
	10/07/16 08:25:37	4650	14.51	1.49	0.14	4.44	0.76	39.20	859.00
	10/07/16 08:26:07	4680	14.70	1.52	0.14	4.33	0.76	39.20	859.00
	10/07/16 08:26:37	4710	14.54	1.60	0.15	4.43	0.76	39.20	859.00
	10/07/16 08:27:07	4740	14.56	1.66	0.14	4.43	0.75	39.30	859.00
	10/07/16 08:27:37	4770	14.69	1.68	0.14	4.34	0.75	39.30	859.00
	10/07/16 08:28:07	4800	14.48	1.70	0.17	4.47	0.27	39.40	513.00
	10/07/16 08:28:37	4830	14.59	1.78	0.17	4.43	0.27	39.40	513.00
	10/07/16 08:29:07	4860	14.73	1.75	0.15	4.41	0.18	39.60	362.00
	10/07/16 08:29:37	4890	15.40	1.95	0.16	3.86	0.18	39.60	362.00
	10/07/16 08:30:07	4920	15.95	2.04	0.15	3.65	0.17	39.80	359.00
	10/07/16 08:30:37	4950	16.06	2.15	0.15	3.55	0.17	39.80	359.00
	10/07/16 08:31:07	4980	16.07	2.36	0.15	3.52	0.16	40.00	359.00
	10/07/16 08:31:37	5010	16.12	2.47	0.17	3.49	0.16	40.00	359.00
	10/07/16 08:32:07	5040	16.14	2.49	0.17	3.47	0.16	40.10	364.00
	10/07/16 08:32:37	5070	16.12	2.48	0.18	3.47	0.16	40.10	364.00
	10/07/16 08:33:07	5100	16.11	2.52	0.17	3.46	0.65	40.10	795.00
	10/07/16 08:33:37	5130	16.15	2.44	0.19	3.49	0.65	40.10	795.00
	10/07/16 08:34:07	5160	15.74	3.49	0.17	3.64	0.73	39.90	856.00
	10/07/16 08:34:37	5190	15.09	3.84	0.15	4.15	0.73	39.90	856.00
	10/07/16 08:35:07	5220	14.50	2.24	0.15	4.49	0.73	39.80	857.00
	10/07/16 08:35:37	5250	14.11	1.61	0.17	4.77	0.73	39.80	857.00
A3	10/07/16 08:36:07	5280	14.54	1.66	0.20	4.56	0.73	39.80	857.00
	10/07/16 08:36:37	5310	14.78	1.68	0.18	4.33	0.73	39.80	857.00
	10/07/16 08:37:07	5340	14.94	1.50	0.19	4.27	0.74	39.90	857.00
	10/07/16 08:37:37	5370	14.90	1.40	0.20	4.26	0.74	39.90	857.00
	10/07/16 08:38:07	5400	14.27	1.37	0.19	4.67	0.74	39.90	852.00
	10/07/16 08:38:37	5430	14.51	1.39	0.21	4.54	0.74	39.90	852.00
	10/07/16 08:39:07	5460	14.67	1.47	0.21	4.39	0.75	40.00	855.00
	10/07/16 08:39:37	5490	14.36	1.39	0.20	4.65	0.75	40.00	855.00
	10/07/16 08:40:07	5520	14.88	1.48	0.21	4.28	0.75	40.10	855.00
	10/07/16 08:40:37	5550	14.89	1.57	0.21	4.28	0.75	40.10	855.00
	10/07/16 08:41:07	5580	14.33	1.68	0.20	4.60	0.75	40.20	855.00
	10/07/16 08:41:37	5610	14.43	1.83	0.21	4.57	0.75	40.20	855.00
	10/07/16 08:42:07	5640	14.37	1.92	0.22	4.62	0.75	40.30	857.00
	10/07/16 08:42:37	5670	14.50	1.89	0.20	4.50	0.75	40.30	857.00
	10/07/16 08:43:07	5700	14.29	1.86	0.20	4.66	0.76	40.30	858.00
	10/07/16 08:43:37	5730	14.06	1.89	0.21	4.79	0.76	40.30	858.00
	10/07/16 08:44:07	5760	14.22	1.98	0.20	4.70	0.76	40.40	858.00
	10/07/16 08:44:37	5790	14.13	1.99	0.19	4.79	0.76	40.40	858.00
	10/07/16 08:45:07	5820	14.28	1.99	0.17	4.65	0.77	40.50	858.00
	10/07/16 08:45:37	5850	14.37	2.07	0.20	4.61	0.77	40.50	858.00
	10/07/16 08:46:07	5880	14.09	2.09	0.22	4.78	0.59	40.50	735.00
	10/07/16 08:46:37	5910	14.27	2.01	0.21	4.69	0.59	40.50	735.00
	10/07/16 08:47:07	5940	14.37	2.00	0.20	4.61	0.17	40.70	361.00
	10/07/16 08:47:37	5970	14.20	2.01	0.20	4.74	0.17	40.70	361.00
	10/07/16 08:48:07	6000	15.88	2.09	0.22	3.69	0.18	40.90	370.00
	10/07/16 08:48:37	6030	16.11	2.17	0.21	3.50	0.18	40.90	370.00
	10/07/16 08:49:07	6060	16.12	2.28	0.22	3.47	0.17	41.10	369.00
	10/07/16 08:49:37	6090	16.03	2.42	0.21	3.54	0.17	41.10	369.00
	10/07/16 08:50:07	6120	15.96	2.46	0.21	3.59	0.17	41.10	369.00
	10/07/16 08:50:37	6150	16.02	2.39	0.21	3.56	0.17	41.10	369.00
	10/07/16 08:51:07	6180	16.03	2.38	0.24	3.54	0.40	41.20	572.00
	10/07/16 08:51:37	6210	16.17	2.40	0.28	3.45	0.40	41.20	572.00
	10/07/16 08:52:07	6240	15.91	2.53	0.29	3.57	0.73	41.00	855.00
	10/07/16 08:52:37	6270	15.02	2.74	0.40	4.15	0.73	41.00	855.00
	10/07/16 08:53:07	6300	14.33	2.58	0.34	4.64	0.73	40.80	855.00
	10/07/16 08:53:37	6330	14.18	1.85	0.30	4.77	0.73	40.80	855.00
	10/07/16 08:54:07	6360	14.60	1.70	0.30	4.46	0.74	40.70	850.00
	10/07/16 08:54:37	6390	14.16	1.70	0.32	4.75	0.74	40.70	850.00
	10/07/16 08:55:07	6420	14.23	1.69	0.31	4.73	0.74	40.80	850.00
	10/07/16 08:55:37	6450	14.48	1.60	0.31	4.51	0.74	40.80	850.00

Superior Fabrication, INC
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	5.0	%
Stack Exhaust Flow (M2)	49,494	SCFH

Weather Data

Barometric Pressure	28.22	in. Hg
Relative Humidity	53	%
Ambient Temperature	49	^{o}F
Specific Humidity	0.004108	lb H_2O / lb air

30-70-30 Load, Run - SCD-36 R5

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
10/07/16 08:56:07	6480	13.90	1.51	0.26	4.91	0.75	40.80	853.00
10/07/16 08:56:37	6510	14.13	1.49	0.26	4.81	0.75	40.80	853.00
10/07/16 08:57:07	6540	14.39	1.51	0.29	4.58	0.74	40.80	853.00
10/07/16 08:57:37	6570	14.13	1.75	0.32	4.78	0.74	40.80	853.00
10/07/16 08:58:07	6600	14.57	2.09	0.30	4.48	0.75	40.90	853.00
10/07/16 08:58:37	6630	14.30	1.78	0.28	4.63	0.75	40.90	853.00
10/07/16 08:59:07	6660	14.32	1.59	0.29	4.68	0.75	41.00	850.00
10/07/16 08:59:37	6690	14.36	1.55	0.30	4.62	0.75	41.00	850.00
10/07/16 09:00:07	6720	14.71	1.56	0.28	4.37	0.75	41.10	853.00
10/07/16 09:00:37	6750	14.48	1.59	0.26	4.54	0.75	41.10	853.00
10/07/16 09:01:07	6780	14.55	1.68	0.32	4.46	0.75	41.10	856.00
10/07/16 09:01:37	6810	14.52	1.69	0.30	4.51	0.75	41.10	856.00
10/07/16 09:02:07	6840	14.41	1.68	0.29	4.59	0.17	41.30	364.00
10/07/16 09:02:37	6870	14.72	1.70	0.29	4.39	0.17	41.30	364.00
10/07/16 09:03:07	6900	15.74	1.70	0.30	3.80	0.18	41.50	364.00
10/07/16 09:03:37	6930	16.36	1.86	0.30	3.32	0.18	41.50	364.00
10/07/16 09:04:07	6960	16.14	2.14	0.27	3.46	0.16	41.60	363.00
10/07/16 09:04:37	6990	15.96	2.19	0.29	3.59	0.16	41.60	363.00
10/07/16 09:05:07	7020	16.16	2.19	0.35	3.47	0.16	41.70	360.00
RAW AVERAGE		**14.99**	**2.18**	**0.21**	**4.18**	**0.56**	**39.69**	**707.77**

		O_2	CO	THC	CO_2	Press. Trans	Temp. Trans.	F-Flow Trans.
	Serial Number:	INSTO2-0011	INST-CO-0022	INST-TH-0002	INST-C2-0013	1434717	1434717	1434717
		(%)	(ppmvd)	(ppmvw)	(%)	(in. H_2O)	(^{o}F)	(SCFH)
Bias	Initial Zero	0.03	-0.03	0.01	0.01			
	Final Zero	-0.02	0.03	-0.04	0.01			
	Avg. Zero	0.01	0.00	-0.02	0.01			
	Initial UpScale	12.07	9.38	2.98	8.82			
	Final UpScale	12.01	9.37	2.98	8.84			
	Avg. UpScale	12.04	9.38	2.98	8.83			
Upscale Cal Gas		11.90	9.44	3.00	8.95			

EMISSIONS DATA	O_2	CO	THC	CO_2
Corrected Raw Average (ppm/% dry basis)	14.82	2.19	0.22	4.23
Corrected Raw Average (ppm/% wet basis)	14.07	2.08	0.21	4.01
Emission Rate (lb/hr)	N/A	0.01	0.00	N/A

Superior Fabrication, INC
October 7, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	4.9	%
Stack Exhaust Flow (M2)	55,427	SCFH

Weather Data

Barometric Pressure	28.25	in. Hg
Relative Humidity	60	%
Ambient Temperature	52	^{o}F
Specific Humidity	0.005202	lb H_2O / lb air

30-70-30 Load, Run - SCD-36 R6

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
A1	10/07/16 09:21:07	7980	16.82	6.00	-0.05	3.03	0.14	42.20	351.00
	10/07/16 09:21:37	8010	16.90	5.63	-0.04	2.94	0.14	42.20	351.00
	10/07/16 09:22:07	8040	16.74	6.02	-0.04	3.06	0.14	42.20	351.00
	10/07/16 09:22:37	8070	16.93	6.04	-0.03	2.93	0.14	42.20	351.00
	10/07/16 09:23:07	8100	16.90	6.61	-0.03	2.93	0.14	42.20	351.00
	10/07/16 09:23:37	8130	16.67	6.63	-0.04	3.11	0.14	42.20	351.00
	10/07/16 09:24:07	8160	16.66	5.62	-0.04	3.14	0.14	42.20	354.00
	10/07/16 09:24:37	8190	16.62	5.12	-0.03	3.13	0.14	42.20	354.00
	10/07/16 09:25:07	8220	16.44	4.72	-0.05	3.29	0.58	42.10	782.00
	10/07/16 09:25:37	8250	16.43	3.97	-0.03	3.28	0.58	42.10	782.00
	10/07/16 09:26:07	8280	15.36	3.74	-0.03	3.90	0.66	41.80	846.00
	10/07/16 09:26:37	8310	14.80	3.47	-0.03	4.35	0.66	41.80	846.00
	10/07/16 09:27:07	8340	14.79	2.13	-0.03	4.33	0.69	41.60	848.00
	10/07/16 09:27:37	8370	14.13	1.31	-0.04	4.70	0.69	41.60	848.00
	10/07/16 09:28:07	8400	14.10	0.87	-0.04	4.93	0.69	41.50	846.00
	10/07/16 09:28:37	8430	14.79	0.68	-0.04	4.40	0.69	41.50	846.00
	10/07/16 09:29:07	8460	14.61	0.69	-0.04	4.47	0.70	41.40	847.00
	10/07/16 09:29:37	8490	14.77	0.65	-0.03	4.41	0.70	41.40	847.00
	10/07/16 09:30:07	8520	14.63	0.64	-0.04	4.49	0.71	41.40	847.00
	10/07/16 09:30:37	8550	14.78	0.50	-0.04	4.35	0.71	41.40	847.00
	10/07/16 09:31:07	8580	14.90	0.49	-0.04	4.28	0.72	41.50	845.00
	10/07/16 09:31:37	8610	14.38	0.55	-0.04	4.58	0.72	41.50	845.00
	10/07/16 09:32:07	8640	14.66	0.49	-0.03	4.47	0.72	41.50	845.00
	10/07/16 09:32:37	8670	14.75	0.50	-0.05	4.36	0.72	41.50	845.00
	10/07/16 09:33:07	8700	14.53	0.58	-0.05	4.53	0.73	41.60	845.00
	10/07/16 09:33:37	8730	14.80	0.49	-0.03	4.32	0.73	41.60	845.00
	10/07/16 09:34:07	8760	14.82	0.52	-0.03	4.33	0.73	41.70	845.00
	10/07/16 09:34:37	8790	14.67	0.50	-0.04	4.44	0.73	41.70	845.00
	10/07/16 09:35:07	8820	14.65	0.42	-0.04	4.44	0.73	41.80	845.00
	10/07/16 09:35:37	8850	14.82	0.40	-0.04	4.31	0.73	41.80	845.00
	10/07/16 09:36:07	8880	14.57	0.39	-0.04	4.48	0.73	41.90	842.00
	10/07/16 09:36:37	8910	14.64	0.38	-0.04	4.46	0.73	41.90	842.00
	10/07/16 09:37:07	8940	14.22	0.38	-0.04	4.70	0.74	42.00	845.00
	10/07/16 09:37:37	8970	14.91	0.42	-0.05	4.31	0.74	42.00	845.00
	10/07/16 09:38:07	9000	14.79	0.51	-0.04	4.33	0.38	42.10	570.00
	10/07/16 09:38:37	9030	14.60	0.43	-0.03	4.45	0.38	42.10	570.00
	10/07/16 09:39:07	9060	14.95	0.40	-0.03	4.27	0.17	42.40	363.00
	10/07/16 09:39:37	9090	15.93	0.56	-0.04	3.68	0.17	42.40	363.00
	10/07/16 09:40:07	9120	16.04	0.85	-0.05	3.54	0.17	42.50	368.00
	10/07/16 09:40:37	9150	16.09	1.18	-0.03	3.53	0.17	42.50	368.00
	10/07/16 09:41:07	9180	16.21	1.43	-0.03	3.44	0.17	42.70	363.00
A2	10/07/16 09:41:37	9210	16.17	1.70	-0.03	3.46	0.17	42.70	363.00
	10/07/16 09:42:07	9240	16.30	1.84	-0.02	3.40	0.17	42.80	365.00
	10/07/16 09:42:37	9270	16.40	2.20	-0.04	3.28	0.17	42.80	365.00
	10/07/16 09:43:07	9300	16.16	2.43	-0.04	3.47	0.21	43.00	410.00
	10/07/16 09:43:37	9330	16.08	2.03	-0.04	3.52	0.21	43.00	410.00
	10/07/16 09:44:07	9360	16.28	2.07	-0.03	3.40	0.71	42.90	853.00
	10/07/16 09:44:37	9390	15.81	2.27	-0.03	3.71	0.71	42.90	853.00
	10/07/16 09:45:07	9420	15.07	2.59	-0.03	4.07	0.70	42.80	838.00
	10/07/16 09:45:37	9450	14.89	1.97	-0.03	4.31	0.70	42.80	838.00
	10/07/16 09:46:07	9480	14.78	1.00	-0.03	4.33	0.71	42.80	836.00
	10/07/16 09:46:37	9510	14.50	0.76	-0.04	4.55	0.71	42.80	836.00
	10/07/16 09:47:07	9540	14.45	0.60	-0.04	4.53	0.70	42.80	839.00
	10/07/16 09:47:37	9570	14.30	0.50	-0.05	4.72	0.70	42.80	839.00
	10/07/16 09:48:07	9600	15.01	0.49	-0.05	4.22	0.71	42.80	833.00
	10/07/16 09:48:37	9630	14.88	0.51	-0.02	4.26	0.71	42.80	833.00
	10/07/16 09:49:07	9660	14.73	0.42	-0.03	4.39	0.71	42.90	836.00
	10/07/16 09:49:37	9690	14.92	0.38	-0.03	4.27	0.71	42.90	836.00
	10/07/16 09:50:07	9720	14.88	0.38	-0.03	4.28	0.71	43.00	833.00
	10/07/16 09:50:37	9750	14.72	0.36	-0.04	4.38	0.71	43.00	833.00

Superior Fabrication, INC
October 7, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	4.9	%
Stack Exhaust Flow (M2)	55,427	SCFH

Weather Data

Barometric Pressure	28.25	in. Hg
Relative Humidity	60	%
Ambient Temperature	52	^{o}F
Specific Humidity	0.005202	lb H_2O / lb air

30-70-30 Load, Run - SCD-36 R6

	Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
	10/07/16 09:51:07	9780	14.50	0.29	-0.04	4.52	0.73	43.00	834.00
	10/07/16 09:51:37	9810	14.71	0.29	-0.04	4.41	0.73	43.00	834.00
	10/07/16 09:52:07	9840	14.72	0.29	-0.04	4.36	0.72	43.20	833.00
	10/07/16 09:52:37	9870	14.92	0.31	-0.04	4.28	0.72	43.20	833.00
	10/07/16 09:53:07	9900	14.51	0.31	-0.04	4.54	0.73	43.30	833.00
	10/07/16 09:53:37	9930	14.61	0.30	-0.04	4.46	0.73	43.30	833.00
	10/07/16 09:54:07	9960	14.75	0.30	0.21	4.40	0.72	43.40	836.00
	10/07/16 09:54:37	9990	14.99	0.35	0.00	4.21	0.72	43.40	836.00
	10/07/16 09:55:07	10020	14.59	0.36	-0.04	4.45	0.23	43.60	435.00
	10/07/16 09:55:37	10050	15.02	0.38	-0.03	4.26	0.23	43.60	435.00
	10/07/16 09:56:07	10080	14.53	0.39	-0.02	4.53	0.17	43.80	354.00
	10/07/16 09:56:37	10110	16.00	0.47	-0.03	3.62	0.17	43.80	354.00
	10/07/16 09:57:07	10140	16.14	0.85	-0.04	3.50	0.17	44.00	356.00
	10/07/16 09:57:37	10170	16.33	1.17	-0.03	3.37	0.17	44.00	356.00
	10/07/16 09:58:07	10200	16.18	1.49	-0.03	3.45	0.17	44.10	356.00
	10/07/16 09:58:37	10230	16.12	1.62	-0.03	3.52	0.17	44.10	356.00
	10/07/16 09:59:07	10260	16.18	1.58	0.30	3.49	0.16	44.20	356.00
	10/07/16 09:59:37	10290	16.27	1.82	0.31	3.41	0.16	44.20	356.00
	10/07/16 10:00:07	10320	16.20	2.05	-0.02	3.47	0.16	44.30	361.00
	10/07/16 10:00:37	10350	16.36	2.04	-0.03	3.34	0.16	44.30	361.00
	10/07/16 10:01:07	10380	16.32	2.36	-0.02	3.37	0.16	44.40	361.00
A3	10/07/16 10:01:37	10410	16.39	2.67	-0.04	3.33	0.16	44.40	361.00
	10/07/16 10:02:07	10440	16.30	2.73	-0.03	3.40	0.40	44.50	574.00
	10/07/16 10:02:37	10470	16.31	2.67	0.47	3.37	0.40	44.50	574.00
	10/07/16 10:03:07	10500	16.98	3.35	1.06	2.97	0.71	44.30	845.00
	10/07/16 10:03:37	10530	15.72	8.01	0.37	3.63	0.71	44.30	845.00
	10/07/16 10:04:07	10560	14.92	6.00	-0.01	4.27	0.72	44.10	852.00
	10/07/16 10:04:37	10590	14.31	1.70	-0.04	4.69	0.72	44.10	852.00
	10/07/16 10:05:07	10620	14.63	0.71	-0.04	4.51	0.73	44.00	849.00
	10/07/16 10:05:37	10650	14.81	0.62	-0.04	4.39	0.73	44.00	849.00
	10/07/16 10:06:07	10680	14.90	0.52	-0.04	4.37	0.74	44.00	850.00
	10/07/16 10:06:37	10710	14.90	0.51	-0.04	4.34	0.74	44.00	850.00
	10/07/16 10:07:07	10740	14.72	0.44	-0.04	4.45	0.74	44.00	850.00
	10/07/16 10:07:37	10770	14.96	0.39	-0.04	4.35	0.74	44.00	850.00
	10/07/16 10:08:07	10800	14.96	0.31	-0.04	4.32	0.73	44.10	850.00
	10/07/16 10:08:37	10830	15.12	0.28	-0.03	4.22	0.73	44.10	850.00
	10/07/16 10:09:07	10860	14.85	0.28	-0.03	4.38	0.75	44.20	850.00
	10/07/16 10:09:37	10890	14.71	0.27	-0.04	4.45	0.75	44.20	850.00
	10/07/16 10:10:07	10920	14.61	0.20	-0.04	4.56	0.75	44.30	844.00
	10/07/16 10:10:37	10950	14.70	0.19	-0.03	4.54	0.75	44.30	844.00
	10/07/16 10:11:07	10980	14.47	0.18	-0.03	4.60	0.75	44.40	847.00
	10/07/16 10:11:37	11010	14.70	0.22	-0.03	4.54	0.75	44.40	847.00
	10/07/16 10:12:07	11040	15.01	0.22	-0.02	4.33	0.74	44.50	847.00
	10/07/16 10:12:37	11070	14.92	0.30	-0.03	4.33	0.74	44.50	847.00
	10/07/16 10:13:07	11100	14.92	0.31	-0.03	4.36	0.17	44.70	364.00
	10/07/16 10:13:37	11130	13.65	0.32	-0.02	5.10	0.17	44.70	364.00
	10/07/16 10:14:07	11160	14.56	0.32	-0.02	4.81	0.16	44.90	355.00
	10/07/16 10:14:37	11190	16.05	0.53	-0.03	3.64	0.16	44.90	355.00
	10/07/16 10:15:07	11220	16.34	0.86	-0.03	3.39	0.17	45.10	355.00
	10/07/16 10:15:37	11250	16.21	1.11	-0.04	3.46	0.17	45.10	355.00
	10/07/16 10:16:07	11280	16.13	1.28	-0.04	3.50	0.16	45.30	358.00
	10/07/16 10:16:37	11310	16.23	1.40	-0.04	3.44	0.16	45.30	358.00
	10/07/16 10:17:07	11340	16.24	1.61	-0.04	3.43	0.16	45.40	358.00
	10/07/16 10:17:37	11370	16.22	1.73	-0.03	3.43	0.16	45.40	358.00
	10/07/16 10:18:07	11400	16.18	1.86	-0.03	3.47	0.63	45.50	785.00
	10/07/16 10:18:37	11430	16.19	1.87	-0.04	3.45	0.63	45.50	785.00
	10/07/16 10:19:07	11460	15.18	1.83	-0.05	4.01	0.73	45.30	853.00
	10/07/16 10:19:37	11490	14.75	1.39	-0.03	4.42	0.73	45.30	853.00
	10/07/16 10:20:07	11520	14.89	0.90	-0.02	4.30	0.73	45.30	853.00
	10/07/16 10:20:37	11550	15.08	0.66	-0.03	4.23	0.73	45.30	853.00

Superior Fabrication, INC
October 7, 2016
SCD-36
Elk City Plant

Unit Data

Meas. Stack Moisture	4.9	%
Stack Exhaust Flow (M2)	55,427	SCFH

Weather Data

Barometric Pressure	28.25	in. Hg
Relative Humidity	60	%
Ambient Temperature	52	^{o}F
Specific Humidity	0.005202	lb H_2O / lb air

30-70-30 Load, Run - SCD-36 R6

Date/Time (mm/dd/yy hh:mm:ss)	Elapsed Time (seconds)	O_2 (%)	CO (ppmvd)	THC (ppmvw)	CO_2 (%)	Fuel Pressure psi	Fuel Temp. ^{o}F	Fuel Flow SCFH
10/07/16 10:21:07	11580	14.69	0.62	-0.03	4.43	0.74	45.30	851.00
10/07/16 10:21:37	11610	14.92	0.53	-0.03	4.38	0.74	45.30	851.00
10/07/16 10:22:07	11640	14.68	0.49	-0.03	4.48	0.74	45.40	851.00
10/07/16 10:22:37	11670	14.27	0.49	-0.02	4.76	0.74	45.40	851.00
10/07/16 10:23:07	11700	14.93	0.39	-0.03	4.39	0.75	45.40	848.00
10/07/16 10:23:37	11730	14.97	0.38	-0.03	4.31	0.75	45.40	848.00
10/07/16 10:24:07	11760	14.61	0.31	-0.03	4.55	0.74	45.50	851.00
10/07/16 10:24:37	11790	14.52	0.29	-0.02	4.58	0.74	45.50	851.00
10/07/16 10:25:07	11820	14.47	0.29	-0.02	4.68	0.75	45.60	848.00
10/07/16 10:25:37	11850	14.96	0.30	-0.04	4.34	0.75	45.60	848.00
10/07/16 10:26:07	11880	14.81	0.29	-0.04	4.43	0.75	45.70	848.00
10/07/16 10:26:37	11910	14.89	0.28	-0.03	4.33	0.75	45.70	848.00
10/07/16 10:27:07	11940	14.90	0.28	-0.03	4.35	0.75	45.80	848.00
10/07/16 10:27:37	11970	14.63	0.30	-0.04	4.52	0.75	45.80	848.00
10/07/16 10:28:07	12000	15.03	0.30	-0.04	4.28	0.21	45.90	416.00
10/07/16 10:28:37	12030	14.91	0.32	-0.04	4.34	0.21	45.90	416.00
10/07/16 10:29:07	12060	15.18	0.33	-0.04	4.21	0.17	46.20	352.00
10/07/16 10:29:37	12090	16.19	0.51	-0.03	3.49	0.17	46.20	352.00
10/07/16 10:30:07	12120	16.29	0.87	-0.03	3.41	0.17	46.40	357.00
10/07/16 10:30:37	12150	16.17	1.18	-0.04	3.48	0.17	46.40	357.00
10/07/16 10:31:07	12180	16.20	1.38	-0.04	3.45	0.17	46.50	355.00
RAW AVERAGE		**15.28**	**1.33**	**-0.01**	**4.06**	**0.52**	**43.63**	**668.70**

		O_2	CO	THC	CO_2	Press. Trans	Temp. Trans.	F-Flow Trans.
	Serial Number:	INSTO2-0011	INST-CO-0022	INST-TH-0002	INST-C2-0013	1434717	1434717	1434717
		(%)	(ppmvd)	(ppmvw)	(%)	(in. H_2O)	(^{o}F)	(SCFH)
Bias	Initial Zero	-0.02	0.03	-0.04	0.01			
	Final Zero	-0.03	-0.02	-0.04	-0.01			
	Avg. Zero	-0.03	0.01	-0.04	0.00			
	Initial UpScale	12.01	9.37	2.98	8.84			
	Final UpScale	12.02	9.32	2.98	8.88			
	Avg. UpScale	12.02	9.35	2.98	8.86			
Upscale Cal Gas		11.90	9.44	3.00	8.95			

EMISSIONS DATA	O_2	CO	THC	CO_2
Corrected Raw Average (ppm/% dry basis)	15.13	1.34	0.03	4.10
Corrected Raw Average (ppm/% wet basis)	14.39	1.27	0.03	3.90
Emission Rate (lb/hr)	N/A	0.01	0.00	N/A

TRIPOINT

Britt Schmidt
CHIEF EXECUTIVE OFFICER

1800 Augusta Dr, Suite 220 | Houston, TX 77057
m: 713 600 9400 | d: 832 559 0894 | c: 713 806 6100
britt.schmidt@tri-pointllc.com
tri-pointllc.com

Hello,

My name is Britt Schmidt and I am the CEO of Tri-Point, LLC. As you have likely heard, our company Tri-Point announced its purchase of Superior Fabrication (now SFI Oil & Gas Production Systems) earlier this month. I know announcements such as this bring about many questions such as "who is the company coming in" and "how will this impact my business?" I want to first and foremost ensure you that our main priority is to continue to provide you with the quality service you have come to expect. The success of your team is of utmost importance, and we are excited to partner with Superior to continue to meet your production and processing equipment and services needs.

To introduce ourselves, Tri-Point is an oil and gas production and processing equipment company headquartered in Houston, Texas. We formed Tri-Point in 2015 with the vision of developing the brand into a leading company that can compete on a national scale. To do that, we set out to find companies that shared in our bold vision and could join the Tri-Point team. We were looking for companies who were leaders in their field, excelling at providing quality products and services to best meet customer needs. Companies who do not settle for doing *just enough.* We were looking for Superior.

Superior has a strong reputation for providing engineered solutions that are tailored to fit customer needs, and they have a drive for finding ways to continuously improve and evolve to meet the changing demands of industry. These are qualities we value because they are a reflection of what we are building at Tri-Point. Additionally, after months of meeting with Terry Morse and his leadership team, we learned that Superior's most impressive differentiator was the team of people it put together – the welders, service technicians and sales representatives – that work day in and day out to support your business.

We understand that your company has relied on this team to provide quality products and services, and I assure you that will continue with Tri-Point. While there is much to be worked on as we integrate Superior into the Tri-Point family, nothing about the agreements they have in place with you today will change. Our team remains in place and committed to ensuring we deliver results for you, your projects and your business.

We look forward to working with you and hearing about the different ways we can continue to support your business needs. Should you have any questions, please don't hesitate to contact me or Terry.

Regards,



Britt Schmidt
Chief Executive Officer

From:	Adam Yow
To:	Mia, Marcia
Cc:	"Mark Axtell"; "Tim Rickel"; mlee@airhygiene.com; "Randy Morse"; "Jason Huckaby"; Garwood, Gerri
Subject:	RE: Superior Fabrication Inc. SCD-36 & SCD-60 OOOO Performance Test Results
Date:	Wednesday, June 07, 2017 1:16:31 PM
Attachments:	Superior Fabrication Cover Letter-EPA response-SCD-36.pdf

Marcia,

I have attached the updated document requested for the SCD-36. Please let me know if you need anything else.

Thanks,

Adam Yow | **Engineering**
P.O. Box 429
Elk City, OK 73648
580-243-7012 Office
adamyow@superiorfab.com

SFI
A Tri-Point Company

From: Mia, Marcia [mailto:Mia.Marcia@epa.gov]
Sent: Wednesday, May 31, 2017 1:10 PM
To: Adam Yow
Cc: 'Mark Axtell'; 'Tim Rickel'; mlee@airhygiene.com; 'Randy Morse'; 'Jason Huckaby'; Garwood, Gerri
Subject: RE: Superior Fabrication Inc. SCD-36 & SCD-60 OOOO Performance Test Results

Adam,
We have one remaining issue wrt the SCD-36 which needs reconciliation to complete our review of the 36" unit. I have excerpted it here and added the additional item in green.

1. We noted some apparent typos in the report which is complicating our review. See Table 23 which is mislabeled. Also there are similar typos on pages 33, 64-72 and Table A.1. for the 30-70-30 and 70-100-70 runs. Please provide corrected pages and tables. [Adam Yow] The corrected documents are attached. [EPA] The cover letter-EPA response.pdf file contains the relevant corrected pages; however, Table A.1 (page 5) has EC48-2S indicated on the last row and incorrect end time. Please explain the different unit name, or if error, pls provide a corrected page. Pls provide a corrected end time.

We have what we need for the 48" and the 60". I will start putting the packets together and routing them for sign off. That usually takes a couple of weeks. If they are approved for posting, I will let you know so you can be on the look-out for an updated webpage.

Marcia B Mia
Office of Compliance/Air Branch
2227A WJCS

U.S. Environmental Protection Agency
202-564-7042

From: Adam Yow [mailto:adamyow@superiorfab.com]
Sent: Wednesday, February 01, 2017 4:12 PM
To: Mia, Marcia <Mia.Marcia@epa.gov>
Cc: 'Mark Axtell' <markaxtell@superiorfab.com>; 'Tim Rickel' <timrickel@superiorfab.com>; mlee@airhygiene.com; 'Randy Morse' <randymorse@superiorfab.com>; 'Jason Huckaby' <Jason.Huckaby@erg.com>; Garwood, Gerri <Garwood.Gerri@epa.gov>
Subject: RE: Superior Fabrication Inc. SCD-36 & SCD-60 OOOO Performance Test Results

Marcia,

Please see answers below and attachments regarding the SCD-36. I am waiting on some updated reports for the SCD-60 and will send them to you when I receive them.

On another note, Superior Fabrication, Inc. was recently purchased by Tri-Point, LLC. As a result of this change in ownership, our official name has recently changed from Superior Fabrication, Inc. to SFI Oil & Gas Production Systems, LLC (EIN 81-4276363). This name change took place after we did our testing so all of our reports have listed "Superior Fabrication, Inc." I have attached the letter that we sent to all of our customers about the buyout and name change. We are trying to keep the confusion down with the name change and let everyone know the our company and products are still the same.

Can you have our name changed to "SFI Oil & Gas Production Systems, LLC" on the "Performance Testing for Combustion Control Devices Manufacturers' Performance Test New Source Performance Standards (NSPS) OOOO and Maximum Achievable Control Technology HH/HHH" document on the website so it matches our new name?

Let me know if you have any questions.

Thank You,

Adam Yow | **Engineering**
P.O. Box 429
Elk City, OK 73648
580-243-7012 Office
adamyow@superiorfab.com

SFI
A Tri-Point Company

From: Mia, Marcia [mailto:Mia.Marcia@epa.gov]
Sent: Wednesday, January 11, 2017 1:05 PM
To: Adam Yow

Cc: Mark Axtell; 'Tim Rickel'; mlee@airhygiene.com; 'Randy Morse'; Jason Huckaby; Garwood, Gerri
Subject: Superior Fabrication Inc. SCD-36 & SCD-60 OOOO Performance Test Results

Adam,
We have completed our initial review of the SCD 36 and 60 performance tests. We have the following items, for which we need additional information or clarity, in order to complete our review.

SCD-36

1. We noted some apparent typos in the report which is complicating our review. See Table 2.3 which is mislabeled. Also there are similar typos on pages 33, 64-72 and Table A.1. for the 30-70-30 and 70-100-70 runs. Please provide corrected pages and tables. ***[Adam Yow]*** The corrected documents are attached.
2. Section 60.5413(d)(4)(i) inlet fuel metering – Your report does not provide a key to the diagram components. The location of the sample port and flow meter location is not specified on the diagram. Please provide a key and locations of the sample port and inlet fuel meter location. ***[Adam Yow]*** The updated P&ID is attached.
3. Section 60.5413(d)(12)(v)(B) Fuel Gas Moisture Range – Your summary page report states that the fuel gas moisture range is >2ppm. The analysis from the supplier on page 180 has 0.05 ppm. Please reconcile the error. ***[Adam Yow]*** The corrected summary page is attached.
4. Section 60.5413(d)(12)(v)(I) pilot flame indicator – Please provide a description (manufacturer literature is acceptable) of the pilot indicator system.***[Adam Yow]*** Please see the attached document labeled "True-Lite with Overview"

SCD-60

1. Section 60.5413(d)(4)(i) inlet fuel metering – Your report does not provide a key to the diagram components. The location of the sample port and flow meter location is not specified on the diagram. Please provide a key and locations of the sample port and inlet fuel meter location.
2. Section 60.5413(d)(11)(i)(D) requires EA>150% - While your unit meets this requirement for all test conditions, we noted an anomaly for Run 7, in that the M3C results are significantly different for Run 7 (EA = 931% and O2 = 18.8%); compared to other runs (~200-270% EA and 14.1-15.4 % O2). Please provide an explanation.
3. Section 60.5413(d)(12)(v)(B) Fuel Gas Moisture Range – Your summary page report states that the fuel gas moisture range is >2ppm. The analysis from the supplier on page 180 has 0.05 ppm. Please reconcile the error.
4. Section 60.5413(d)(12)(v)(I) pilot flame indicator – Please provide a description (manufacturer literature is acceptable) of the pilot indicator system.
5. Section 60.5413(d)(12)(v)(O) requires the exit flow rate to be reported - We note an anomaly in that R4 (30-70-30) is the highest flow rate of any run at 390k dscfh, which is ~130-160k higher than the other 2 runs for this condition. Please provide an explanation.

Marcia B Mia
Office of Compliance/Air Branch
2227A WJCS

U.S. Environmental Protection Agency
202-564-7042

June 7, 2017

Adam Yow
SFI Oil & Gas Production System
801 S Eastern
Elk City, OK 73644

Mr. Yow,

Please find the attached revisions in response to Ms. Marcia Mia's May 31st, 2017 email request.

SCD-36
Item #1
There was a typo in Table A-1, please find the corrected table in the attachment. The correct time can be found on SCD-36 report on Appendix G, page 679.

If you have any questions, comments, or concerns please feel free to contact me at (918) 307-8865 office, (918) 565-5379 cell, or mlee@airhygiene.com.

Sincerely,

Min Sum Lee, QSTI
Project Manager
Air Hygiene Inc.
mlee@airhygiene.com
Office: (918) 307-8865

TABLE A.1:
EMISSIONS TESTING SCHEDULE

Unit	Load	Test Type	Run	Date	Start	Stop	Time Sync
SCD-36	90-100	CO,THC & Fuel Sampling	SCD-36 R10	10/04/16	8:02:13	9:12:13	CST
SCD-36	90-100	CO,THC & Fuel Sampling	SCD-36 R11	10/04/16	9:27:13	10:37:13	CST
SCD-36	90-100	CO,THC & Fuel Sampling	SCD-36 R12	10/04/16	10:52:00	12:02:13	CST
SCD-36	0-30-0	CO,THC & Fuel Sampling	SCD-36 R1	10/05/16	12:07:27	13:17:27	CST
SCD-36	0-30-0	CO,THC & Fuel Sampling	SCD-36 R2	10/06/16	13:17:27	14:27:27	CST
SCD-36	0-30-0	CO,THC & Fuel Sampling	SCD-36 R3	10/06/16	14:43:27	15:53:27	CST
SCD-36	70-100-70	CO,THC & Fuel Sampling	SCD-36 R7	10/05/16	17:05:27	18:15:27	CST
SCD-36	70-100-70	CO,THC & Fuel Sampling	SCD-36 R8	10/06/16	7:55:27	9:05:27	CST
SCD-36	70-100-70	CO,THC & Fuel Sampling	SCD-36 R9	10/06/16	9:25:27	10:35:27	CST
SCD-36	30-70-30	CO,THC & Fuel Sampling	SCD-36 R4	10/06/16	16:13:27	17:23:27	CST
SCD-36	30-70-30	CO,THC & Fuel Sampling	SCD-36 R5	10/07/16	7:55:07	9:05:07	CST
SCD-36	30-70-30	CO,THC & Fuel Sampling	SCD-36 R6	10/07/16	9:21:07	10:31:07	CST
SCD-36	90-100	Fixed Gas & Moisture	90-100%-1	10/04/16	8:02	9:12	CST
SCD-36	90-100	Fixed Gas & Moisture	90-100%-2	10/04/16	9:27	10:36	CST
SCD-36	90-100	Fixed Gas & Moisture	90-100%-3	10/04/16	10:52	12:02	CST
SCD-36	0-30-0	Fixed Gas & Moisture	0-30-0%-1	10/05/16	12:07	13:17	CST
SCD-36	0-30-0	Fixed Gas & Moisture	0-30-0%-2	10/06/16	13:17	14:27	CST
SCD-36	0-30-0	Fixed Gas & Moisture	0-30-0%-3	10/06/16	14:43	15:53	CST
SCD-36	70-100-70	Fixed Gas & Moisture	70-100-70%-1	10/05/16	17:05	18:15	CST
SCD-36	70-100-70	Fixed Gas & Moisture	70-100-70%-2	10/06/16	7:55	9:05	CST
SCD-36	70-100-70	Fixed Gas & Moisture	70-100-70%-3	10/06/16	9:25	10:35	CST
SCD-36	30-70-30	Fixed Gas & Moisture	30-70-30%-1	10/06/16	16:13	17:23	CST
SCD-36	30-70-30	Fixed Gas & Moisture	30-70-30%-2	10/07/16	7:55	9:05	CST
SCD-36	30-70-30	Fixed Gas & Moisture	30-70-30%-3	10/07/16	9:21	10:31	CST