HY-BON Stack Test Summary Section

Item	Description	Data
1	Manufacturer's name, address and contact information.	HY-BON Engineering 100 Ayers Blvd Belpre, OH 45714 Mr. Corey Haney PH: (740) 401-4000
2	Model name / model number of the control device being tested.	CH10.0
3	Date and location of the test.	June 22, 23, and 24, 2015
4	Maximum net heat input rating of the control device model, in MMBtu per hour:	10.0 MMBTU/HR
5	Maximum fuel input flow rate of the control device, in standard cubic feet per minute or hour.	69.5 SCFM or 4170 SCFH
5	Minimum fuel input flow rate of the control device, in standard cubic feet per minute or hour.	35 SCFM OR 2100 SCFH

Item	Description	Sections and Page Number of Report
6	Chart or table showing the VOC destruction efficiency of the control device being tested for each of the four testing conditions.	See Summary of Results - Pages 3 and 5
7	Tabular results of the Method 22 visible emissions observations for each of the twelve test runs.	Page 4
8	Tabular results of the Method 25A tests for average THC emissions, in ppmvw THC as propane corrected to 3.0 percent CO_2, and strip chart representations of the THC emissions, for each of the twelve test runs.	See Summary of Results - Page 3
9	Tabular results of the Method 10 tests for average CO emissions, in ppmvd, corrected to 3.0 percent CO_2, and strip chart representations of the CO emissions, for each of the twelve test runs.	See Summary of Results - Page 3
10	Tabular results of the calculated excess combustion air, in percent, for each of the twelve test runs	See Summary of Results - Page 3

Note: Some references in the CH10.0 model's report use the terms HB75 (a preliminary label for this model).

HY-BON Stack Test Map for Report Content
Model: CH10.0

Item	Data Requirements for EPA Checklist for NSPS Quad O/MACT HH/ HHH Stack Testing Report	Sections and Page Number of Report
1	Strip chart of the operational data (fuel flow and temperature)	Pages 10, 15, 20, 25
2	Evidence that all test runs were at least 60 minutes in duration. This is evidenced by duration of Method 10/25A test, Method 4 tests, fuel meter readings, etc.	Pages 63 to 69 and Pages 93 to 126
3	For each test run, inlet fuel pressure and temperature (if the fuel meter is not temperature and pressure compensated), recorded at least at five minute intervals.	Not applicable. Meter used was temperature and pressure compensated.
4	For each test run, the inlet fuel flow rate measurement for the control device model, using Method 2A, recorded at least at five minute intervals.	Appendix H, Page 888
5	A diagram showing the fuel supply tank, piping, fuel sampling location, inlet metering location, and combustor, with distances clearly marked.	Page 31
5	The calibration test report for the inlet fuel flow meter, as well as the inlet fuel temperature probe and pressure gauge (as applicable) used in the test.	Appendix H, Page 874 - 886
6.a	For each firing rate setting (test condition), provide evidence (start/stop times and start/stop cannister pressure) that the inlet fuel sampling was conducted over the entire 3 hour test period.	Pages 5, 6, 11, 16, 21
6.b	The lab analysis for each of these four fuel samples must include: hydrocarbon compounds containing between one and five atoms of carbon plus benzene using ASTM D1945-03, hydrogen (H2), carbon monoxide (CO), carbon dioxide (CO2), nitrogen (N2), oxygen (O2) using ASTM D1945-03, and higher heating value using ASTM D3588-98 or ASTM D4891-89. This lab analysis cannot be conducted by the control device manufacturer or the fuel supplier.	Appendix E. Pages 127, 131, 132
7	The inlet fuel samples must be taken in Silonite-coated stainless steel evacuated canisters.	Page 42, 43
8	The signed chain of custody forms for each of the four fuel samples and twelve tedlar bag samples.	Appendix J Pages 929 to 935

Item	Data Requirements for EPA Checklist for NSPS Quad O/MACT HH/ HHH Stack Testing Report	Sections and Page Number of Report
9	For each test run, Method 3C integrated bag sampling for O2 and CO2 co-incident with the Method 4 traverse for both ports. The report must include the time the sampling probe was at each traverse point. The report must include a diagram or chart showing the traverse point locations and distances from the stack wall. These samples must be taken in tedlar bags.	Pages 33, 34, 38, 47, 48
10	For each test run, Method 10 measurements for CO emissions using a 3 point traverse. The report must include the time the sampling probe was at each traverse point. The report must include a diagram or chart showing the traverse point locations and distances from the stack wall.	Pages 49 and 50
11	For each test run, Method 25A measurements for THC emissions using a 3-point traverse. The report must include the time the sampling probe was at each traverse point.	Pages 49 and 50
12	For each test run, the exhaust gas temperature, calculated from the data points collected during the Method 4 test.	Pages 7, 12, 17 and 22
13	For each test run, the exhaust gas moisture content, recorded at least at five minute intervals.	Pages 7, 12, 17 and 22, 33, 34 and Appendix D, Pages 93 to 117
14	For each test run, the exhaust gas flow rate, calculated from the data points collected during the Method 4 test must be determined Method 2.	Pages 7, 12, 17, 22; Pages 52 to 56
15	Include a diagram or chart showing the location of the traverse points for both ports, and the distances from the stack wall.	Pages 47 to 50
16	For the exhaust gas flow rate and moisture measurement, include evidence that the traverse of both ports was completed within the testing period. The field data sheet for a combined Method 2 and 4 test will meet this requirement.	Pages 61, 63 65, 67 and Pages 92 to 117
17	Supporting calibration data for thermocouples, Pitot tubes, gas meters, and manometers used in the test.	Appendix C, Pages 76 to 87 and Appendix F, Pages 757 to 765
18	For each test run, provide strip chart representations of the inlet fuel flow rate, combustor operating temperature, THC emissions, and CO emissions data.	Pages 9, 10, 14, 15, 19, 20, 24, 25

Item	Data Requirements for EPA Checklist for NSPS Quad O/MACT HH/ HHH Stack Testing Report	Sections and Page Number of Report
19	For the control device being tested provide a diagram or blueprint of the device showing the burner location, the highest flame point, the two sampling ports, and the exhaust point. Clearly label the dimensions of the diameter of the device and distances between the burner, sampling ports, and exhaust point.	Appendix I; Pages 900, and 901
20	A supplier's certification of the propene/propylene gas used in the test. The certification should include notation of the gas moisture (%H_2O) content, gas heat content (Btu/scf), gas purity, and any impurities.	Pages 891 and 891a
21	For each test run, provide evidence that the integrated bag sample used for analysis of the stack exhaust gases was using Method 4, collecting representative volumes from each traverse location (i.e. constant sample rate at each traverse point), purging the sampling line with stack gas before beginning to fill the bag (e.g. start collecting the bag sample one mintue into the test), labeling each bag, and recording sample information on a chain of custody form.	Pages 34, 38; Appendix E, Pages 167 to 173
22	For each test run, analyze the bag sample using a gas chromatograph-thermal conductivity detector that has been calibrated using Method 3C, as modified by using EPA Alt-045.	Pages 162, 163
23	For each test run, report the concentration of oxygen, carbon dioxide, methane, and nitrogen in the integrated bag sample. Calculate the molecular weight of the stack gas using the Method 3C concentration data. Moisture must be determined using Method 4. Ambient air must not be introduced into the Method 3C integrated bag sample during the port change.	Appendix B, Pages 51 to 75
24	For each test run, determine excess air using resultant data from the EPA Method 3C tests and EPA Method 3B, 40 CFR part 60, appendix A, equation 3B-1.	Pages 3, 7, 12, 17 and 22, See equation used at Page 55
25	For each test run, determine carbon monoxide using Method 10. Run the test simultaneously with the Method 2, 3C, 4, and 25A tests, using the same probe and/or sampling points as the 25A test. An instrument range of 0-10 parts per million by volume-dry (ppmvd) is recommended.	Pages 34, 35, 39
26	Documentation and calculation of these (for Method 10 - CO measurements) three traverse point locations must be included in the test report, in the form of a diagram or chart.	Appendix A, Pages 49, 50; Appendix C, Pages 88 and 89; Appendix F, Pages 758 to 763

Item	Data Requirements for EPA Checklist for NSPS Quad O/MACT HH/ HHH Stack Testing Report	Sections and Page Number of Report
27	Continuously record the CO concentration during each of the test runs, and present the CO test results in a strip chart showing time elapsed and CO concentration. Include these twelve strip charts in the test report. Also report average CO concentration, corrected to 3% CO2 in tabular form in the report.	Pages 3, 9, 14, 19, 24 and Appendix F, Page 758
28.a	For each 60-minute test run, conduct THC sampling using Method 25A. A valid test must consist of 12 Method 25A tests, each no less than 60 minutes in duration.	Pages 3, 5, 8, 13, 18, 23, 35 and 36
28.b	For Method 25A, the THC probe must be traversed to 16.7 percent, 50 percent, and 83.3 percent of the stack diameter during each test run. You may use the same probe and must use the same sampling points as the Method 10 tests. A valid test must consist of 12 Method 25A tests, each no less than 60 minutes in duration.	Pages 8, 13, 18. 23; Pages 40, 49 and 50
29	THC measurements must be reported in terms of ppmvw as propane. THC results must be corrected to 3 percent CO2, as measured by Method 3C, using the formula in 40 C.F.R. 60.5413(d)(9).	Pages 3, 8, 13, 18, 23 and Appendix F, Page 759
30	Include in the test report the certificates for the calibrations gases. Calibration gases for THC must be propane in air. All calibration gasses must be certified through EPA Protocol 1—"EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards," September 1997, as amended August 25, 1999, EPA-600/R-97/121(or more recent if updated since 1999).	Appendix C, Pages 88 to 92
31	For each test run, provide data on the combustion zone temperature range, if your control device monitors this parameter.	Appendix H, Pages 875 to 886
32	For the laboratory analysis, provide all QA/QC control data, calibration values, and calibration standard certifications.	Appendix E, Pages 125 to 166 and Pages 174 to 888
33	For each test run, provide visible emissions observer log sheets showing: date, run #, observation begin and end time, observation period duration, wind velocity and direction, visible emissions observations, and name and signature of the observer. Be sure to sum each column, both duration of readings and time of observed visible emissions.	Appendix G, Pages 838 to 873
34	One color digital photograph of the exhaust point taken during each test run (12 total), showing date and time.	Appendix G, Pages 838 to 873

Item	Data Requirements for EPA Checklist for NSPS Quad O/MACT HH/ HHH Stack Testing Report	Sections and Page Number of Report
35	Information on pilot flame indicator and pilot flame fuel usage during test.	Pages 900 to 928
36	If the device does not use a pilot flame, provide a description of the ignition device and justification of how said device is the equivalent of a continuous pilot flame.	N/A - pilot flame used

METCO
ENVIRONMENTAL

SOURCE EMISSIONS SURVEY
OF
HY-BON ENGINEERING COMPANY, INC.
75" THERMAL COMBUSTOR INLET DUCT
AND OUTLET STACK
BELPRE, OHIO

JUNE 2015

TESTING COMPANY: METCO ENVIRONMENTAL
3226 COMMANDER DR.
CARROLLTON, TEXAS 75006
972-931-7127
FILE NUMBER 15-162

"I certify that I have personally checked and am familiar with the information submitted herein. The analytical results for laboratory methods performed by METCO Environmental met all the requirements of NELAC Standard, if applicable. Based on my inquiries of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate, and complete"

James R. Monfries
Senior Quality Assurance Manager

TABLE OF CONTENTS

SOURCE EMISSIONS SURVEY
HY-BON ENGINEERING COMPANY, INC.
75" THERMAL COMBUSTOR INLET DUCT
AND OUTLET STACK
BELPRE, OHIO
FILE NUMBER 15-162

INTRODUCTION

METCO Environmental, 3226 Commander Dr., Carrollton, Texas, conducted an NSPS Subpart OOOO manufacturer certification test of HY-BON Engineering Company, Inc., 75" Combustor, located in Belpre, Ohio, on June 22, 23, and 24, 2015. The purpose of these tests was to determine the concentrations of carbon monoxide and total hydrocarbons being emitted to the atmosphere via the 75" Thermal Combustor Outlet Stack, in order to meet the requirements of 40 CFR 60 Subpart OOOO. The visible emissions were also determined. The concentrations of total hydrocarbons were also determined at the 75" Thermal Combustor Inlet Duct in order to determine the removal efficiency. The testing was performed at four different operating conditions. Condition 1 was performed while the unit was operating at 0-30% of the maximum design rate; Condition 2 at 30-70%; Condition 3 at 70-100%; and Condition 4 at 90-100%. The fuel used during the testing was 100% propylene gas.

METCO Environmental is an accredited Air Emission Testing Body (AETB) having demonstrated conformance to the ASTM D-7036-04 standard by the Stack Accreditation Council (Certificate Number 2007.003.0113.1217). The sampling was performed by the following METCO personnel: Ryan Adam – Project Supervisor, Brandon Hopper, Jeffrey Wollrab, and Jordan McCall. Ryan Adam served as the Qualified Individual on-site. The credentials for the Qualified Individual can be found in Appendix K of the report.

The sampling was performed according to Sampling Protocol 15-162 following the procedures set forth in the Code of Federal Regulations, Title 40, Chapter I, Part 60,

Appendix A, Methods 1, 2, 3C, 4, 10, 18, 22, and 25A; and Subpart OOOO. Any modifications are described in the Sampling and Analytical Procedures section of the report.

SUMMARY OF RESULTS

75" Thermal Combustor Outlet Stack

Emission Parameter	Condition-Run Number 1-1	Condition-Run Number 1-2	Condition-Run Number 1-3	Average	Allowable
Carbon Monoxide Emissions – ppmvd[1]	0.36	0.95	0.65	0.65	≤ 10
Total Hydrocarbons Emissions as Propane – ppmvw[1]	0.35	< 0.01	< 0.01	< 0.12	≤ 10
Excess Air @ Sampling Point - %	363.4	410.7	398.6	390.9	≥ 150
Total Hydrocarbons Destruction Efficiency - %	99.99	> 99.99	> 99.99	> 99.99	≥ 95

Emission Parameter	Condition-Run Number 2-1	Condition-Run Number 2-2	Condition-Run Number 2-3	Average	Allowable
Carbon Monoxide Emissions – ppmvd[1]	0.26	0.15	0.29	0.23	≤ 10
Total Hydrocarbons Emissions as Propane – ppmvw[1]	< 0.01	< 0.01	0.09	< 0.04	≤ 10
Excess Air @ Sampling Point - %	332.8	332.8	361.2	342.3	≥ 150
Total Hydrocarbons Destruction Efficiency - %	> 99.99	> 99.99	99.99	> 99.99	≥ 95

Emission Parameter	Condition-Run Number 3-1	Condition-Run Number 3-2	Condition-Run Number 3-3	Average	Allowable
Carbon Monoxide Emissions – ppmvd[1]	0.82	0.06	0.10	0.33	≤ 10
Total Hydrocarbons Emissions as Propane – ppmvw[1]	0.27	< 0.01	0.04	< 0.11	≤ 10
Excess Air @ Sampling Point - %	282.6	307.7	282.6	291.0	≥ 150
Total Hydrocarbons Destruction Efficiency - %	99.99	> 99.99	99.99	> 99.99	≥ 95

Emission Parameter	Condition-Run Number 4-1	Condition-Run Number 4-2	Condition-Run Number 4-3	Average	Allowable
Carbon Monoxide Emissions – ppmvd[1]	0.41	0.10	< 0.01	< 0.17	≤ 10
Total Hydrocarbons Emissions as Propane – ppmvw[1]	0.10	0.18	< 0.01	< 0.10	≤ 10
Excess Air @ Sampling Point - %	255.6	282.6	275.8	271.3	≥ 150
Total Hydrocarbons Destruction Efficiency - %	99.99	99.99	> 99.99	> 99.99	≥ 95

[1] Corrected to 3% carbon dioxide.

SUMMARY OF RESULTS

75" Thermal Combustor Outlet Stack

Condition-Run Number	Date	Time	Visible Emissions (min:sec)
1-1	06/23/15	0855-0955	00:00
1-2	06/23/15	1035-1135	00:00
1-3	06/23/15	1210-1310	00:00
Average			00:00
2-1	06/23/15	1355-1455	00:00
2-2	06/23/15	1530-1630	00:00
2-3	06/23/15	1700-1800	00:00
Average			00:00
3-1	06/24/15	0825-0925	00:00
3-2	06/24/15	1006-1106	00:00
3-3	06/24/15	1135-1235	00:00
Average			00:00
4-1	06/24/15	1315-1415	00:00
4-2	06/24/15	1445-1545	00:00
4-3	06/24/15	1620-1720	00:00
Average			00:00
Allowable Visible Emissions			02:00

SUMMARY OF RESULTS

75" Thermal Combustor

Condition-Run Number	Inlet Duct Average Total Hydrocarbons Concentration as Propylene (lbs/hr)	Outlet Stack Average Total Hydrocarbons Emissions as Propylene (lbs/hr)	Destruction Efficiency (%)
1-1	245.87	0.013	99.99
1-2	245.87	< 0.001	> 99.99
1-3	245.87	< 0.001	> 99.99
Average	245.87	< 0.005	> 99.99
2-1	293.86	< 0.001	> 99.99
2-2	293.86	< 0.001	> 99.99
2-3	293.86	0.006	99.99
Average	293.86	< 0.003	> 99.99
3-1	357.68	0.023	99.99
3-2	357.68	< 0.001	> 99.99
3-3	357.68	0.003	99.99
Average	357.68	< 0.009	> 99.99
4-1	373.86	0.009	99.99
4-2	373.86	0.016	99.99
4-3	373.86	< 0.001	> 99.99
Average	373.86	< 0.009	> 99.99

Note: Only one canister sample was collected over the duration of the testing condition.

SUMMARY OF RESULTS

75" Thermal Combustor Inlet Duct

Condition-Run Number	1-1	1-2	1-3	Average
Date	06/23/15	06/23/15	06/23/15	----
Time	0855-0959	1035-1139	1210-1314	----
Flow Rate – SCFM[1]	39.8	37.8	38.5	38.7
% Carbon Dioxide - % Vol. (Canister)	----	----	----	0.480
% Hydrogen - % Vol. (Canister)	----	----	----	< 0.248
% Carbon Monoxide - % Vol. (Canister)	----	----	----	< 0.185
% Nitrogen - % Vol. (Canister)	----	----	----	1.03
% Oxygen - % Vol. (Canister)	----	----	----	0.266
% Methane - % Vol. (Canister)	----	----	----	< 0.000244
Higher Heating Value – Btu/scf	----	----	----	2,227
Duct Temperature -°F[1]	72	71	84	76
Total Hydrocarbons Concentration as Propylene - ppmv	----	----	----	968,778
Total Hydrocarbons Concentration as Propylene - lbs/hr	----	----	----	245.87

[1] Provided by HY-BON Engineering Company, Inc.
Note: Only one canister sample was collected over the duration of the testing condition.

SUMMARY OF RESULTS

75" Thermal Combustor Outlet Stack

Condition-Run Number	1-1	1-2	1-3	Average
Date	06/23/15	06/23/15	06/23/15	----
Time	0855-0959	1035-1139	1210-1314	----
Stack Flow Rate – ACFM	13,247	17,152	18,288	16,229
Stack Flow Rate – DSCFM[1]	3,811	4,937	5,664	4,804
% Water Vapor - % Volume	6.68	5.88	6.31	6.29
% Carbon Dioxide - % Vol.[2]	4.1	3.8	3.9	3.9
% Oxygen - % Vol.[2]	16.5	16.9	16.8	16.7
% Nitrogen - % Vol.[2]	79.4	79.3	79.3	79.3
% Methane - % Vol.	< 0.0310	< 0.0310	< 0.0310	< 0.0310
Molecular Weight – lb/lb-mole	28.56	28.62	28.58	28.59
% Excess Air @ Sampling Point	363.4	410.7	398.6	390.9
Stack Temperature -°F	1,216	1,229	1,103	1,183
Stack Pressure - "Hg	29.16	29.16	29.17	29.16

[1] 29.92 "Hg, 68°F (760 mm Hg, 20°C)
[2] Method 3C analytical results are normalized to 100%

SUMMARY OF RESULTS

75" Thermal Combustor Outlet Stack

Condition-Run Number	1-1	1-2	1-3	Average
Date	06/23/15	06/23/15	06/23/15	----
Time	0855-0955	1035-1135	1210-1310	----
Stack Flow Rate – DSCFM[1]	3,811	4,937	5,664	4,804
% Carbon Dioxide - % Vol. (Int. Bag)	4.1	3.8	3.9	3.9
% Water Vapor - % Volume	6.68	5.88	6.31	6.29
Carbon Monoxide Emissions - ppmvd	0.49	1.20	0.85	0.85
Carbon Monoxide Emissions - ppmvd[2]	0.36	0.95	0.65	0.65
Carbon Monoxide Emissions - lbs/hr	0.008	0.026	0.021	0.018
Total Hydrocarbons Emissions as Propane - ppmvw	0.48	< 0.01	< 0.01	< 0.17
Total Hydrocarbons Emissions as Propane - ppmvw[2]	0.35	< 0.01	< 0.01	< 0.12
Total Hydrocarbons Emissions as Propane - ppmvd	0.51	< 0.01	< 0.01	< 0.18
Total Hydrocarbons Emissions as Propylene - lbs/hr	0.013	< 0.001	< 0.001	< 0.005

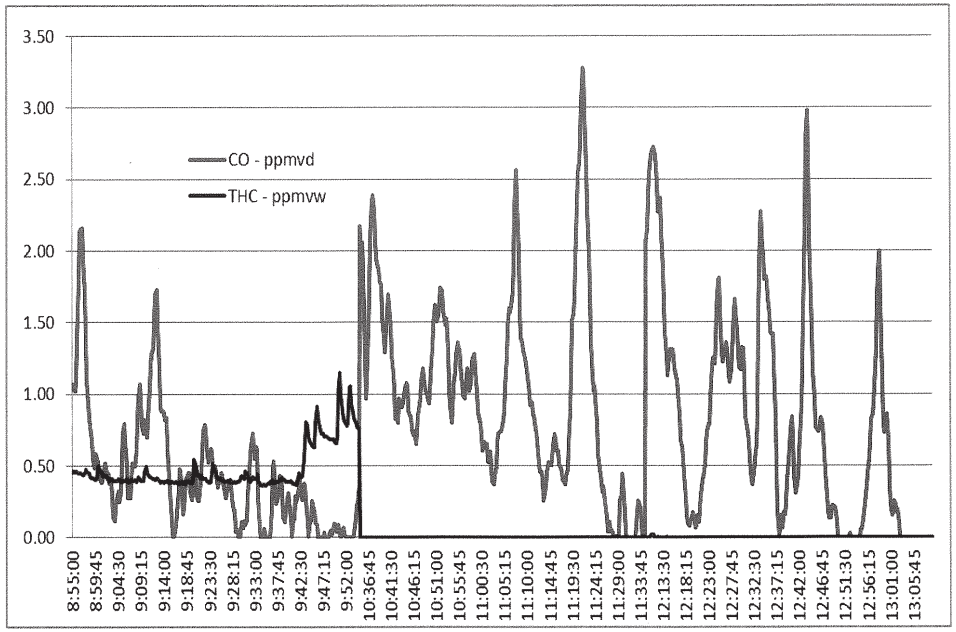
[1] 29.92 "Hg, 68°F (760 mm Hg, 20°C)
[2] Corrected to 3% carbon dioxide

SUMMARY OF RESULTS

75" Thermal Combustor Outlet Stack

Condition 1

Reference Method Monitors CO and THC Graph Summary

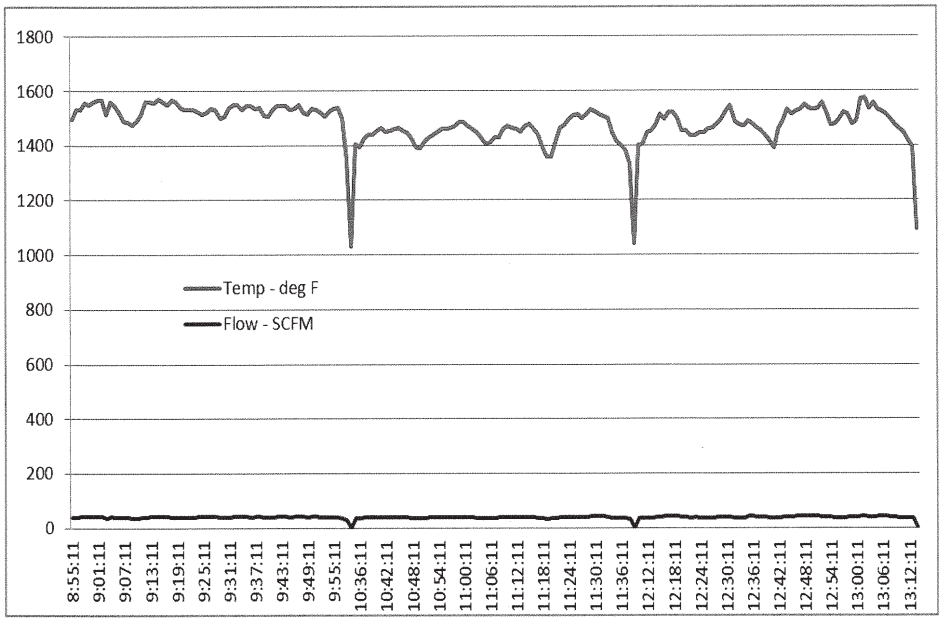


SUMMARY OF RESULTS

75" Thermal Combustor Outlet Stack

Condition 1

Plant Operational Data Graph Summary



SUMMARY OF RESULTS

75" Thermal Combustor Inlet Duct

Condition-Run Number	2-1	2-2	2-3	Average
Date	06/23/15	06/23/15	06/23/15	----
Time	1355-1459	1530-1634	1700-1804	----
Flow Rate – SCFM[1]	46.7	46.9	47.6	47.1
% Carbon Dioxide - % Vol. (Canister)	----	----	----	0.612
% Hydrogen - % Vol. (Canister)	----	----	----	< 0.369
% Carbon Monoxide - % Vol. (Canister)	----	----	----	< 0.275
% Nitrogen - % Vol. (Canister)	----	----	----	2.11
% Oxygen - % Vol. (Canister)	----	----	----	0.553
% Methane - % Vol. (Canister)	----	----	----	< 0.000363
Higher Heating Value – Btu/scf	----	----	----	2,185
Duct Temperature -°F[1]	83	70	67	73
Total Hydrocarbons Concentration as Propylene - ppmv	----	----	----	951,382
Total Hydrocarbons Concentration as Propylene - lbs/hr	----	----	----	293.86

[1] Provided by HY-BON Engineering Company, Inc.
Note: Only one canister sample was collected over the duration of the testing condition.

SUMMARY OF RESULTS

75" Thermal Combustor Outlet Stack

Condition-Run Number	2-1	2-2	2-3	Average
Date	06/23/15	06/23/15	06/23/15	----
Time	1355-1459	1530-1634	1700-1804	----
Stack Flow Rate – ACFM	23,882	24,051	23,433	23,789
Stack Flow Rate – DSCFM[1]	6,657	7,215	6,956	6,943
% Water Vapor - % Volume	6.11	5.57	5.70	5.79
% Carbon Dioxide - % Vol.[2]	4.3	4.3	4.1	4.2
% Oxygen - % Vol.[2]	16.2	16.2	16.5	16.3
% Nitrogen - % Vol.[2]	79.5	79.5	79.4	79.5
% Methane - % Vol.	< 0.0310	< 0.0310	< 0.0310	< 0.0310
Molecular Weight – lb/lb-mole	28.64	28.70	28.67	28.67
% Excess Air @ Sampling Point	332.8	332.8	361.2	342.3
Stack Temperature -°F	1,280	1,165	1,181	1,209
Stack Pressure - "Hg	29.17	29.15	29.16	29.16

[1] 29.92 "Hg, 68°F (760 mm Hg, 20°C)
[2] Method 3C analytical results are normalized to 100%

SUMMARY OF RESULTS

75" Thermal Combustor Outlet Stack

Condition-Run Number	2-1	2-2	2-3	Average
Date	06/23/15	06/23/15	06/23/15	----
Time	1355-1455	1530-1630	1700-1800	----
Stack Flow Rate – DSCFM[1]	6,657	7,215	6,956	6,943
% Carbon Dioxide - % Vol. (Int. Bag)	4.3	4.3	4.1	4.2
% Water Vapor - % Volume	6.11	5.57	5.70	5.79
Carbon Monoxide Emissions - ppmvd	0.37	0.21	0.39	0.32
Carbon Monoxide Emissions - ppmvd[2]	0.26	0.15	0.29	0.23
Carbon Monoxide Emissions - lbs/hr	0.011	0.007	0.012	0.010
Total Hydrocarbons Emissions as Propane - ppmvw	< 0.01	< 0.01	0.12	< 0.05
Total Hydrocarbons Emissions as Propane - ppmvw[2]	< 0.01	< 0.01	0.09	< 0.04
Total Hydrocarbons Emissions as Propane - ppmvd	< 0.01	< 0.01	0.13	< 0.05
Total Hydrocarbons Emissions as Propylene - lbs/hr	< 0.001	< 0.001	0.006	< 0.003

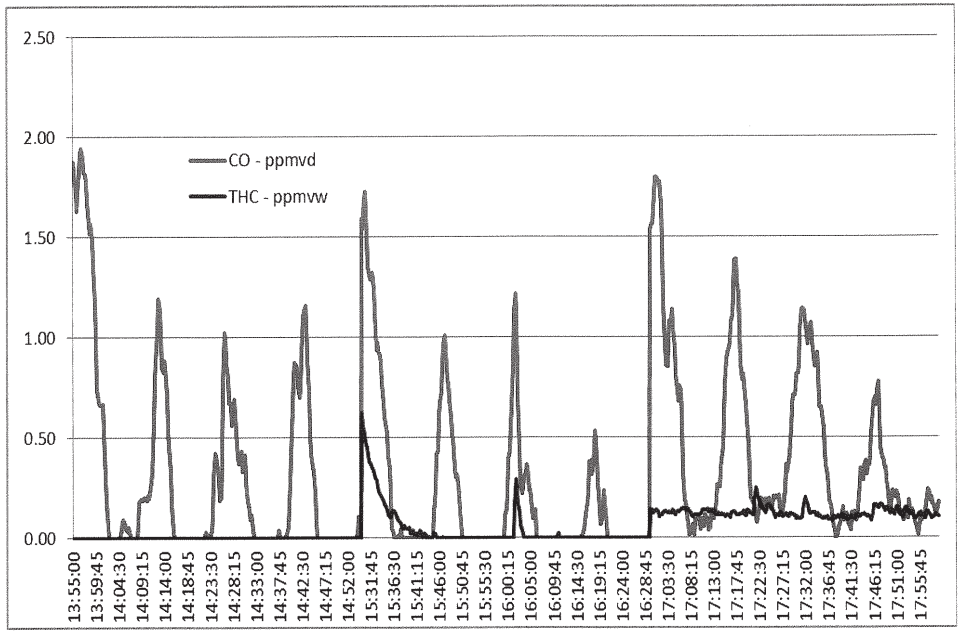
[1] 29.92 "Hg, 68°F (760 mm Hg, 20°C)
[2] Corrected to 3% carbon dioxide

SUMMARY OF RESULTS

75" Thermal Combustor Outlet Stack

Condition 2

Reference Method Monitors CO and THC Graph Summary

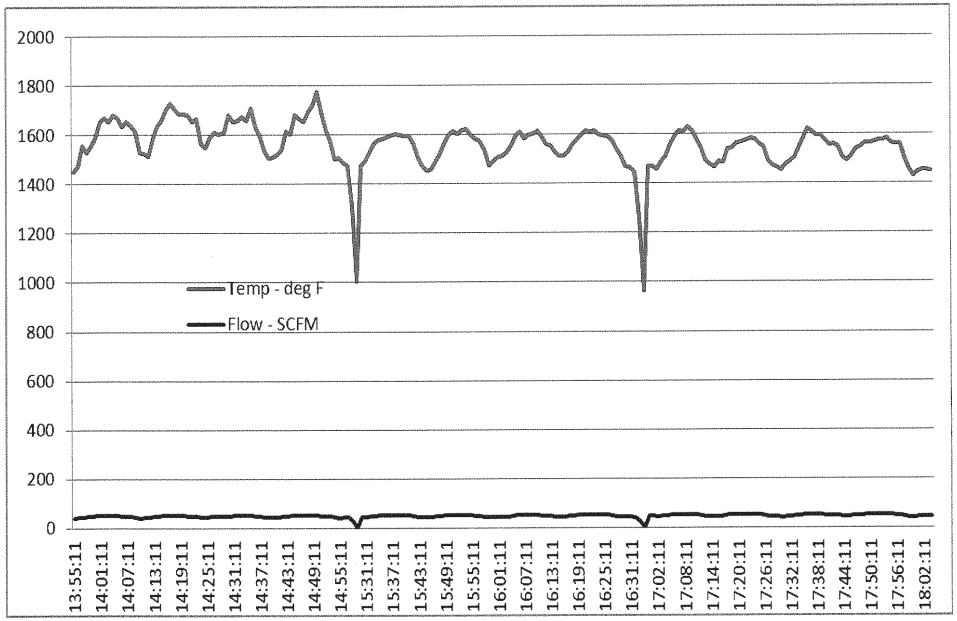


SUMMARY OF RESULTS

75" Thermal Combustor Outlet Stack

Condition 2

Plant Operational Data Graph Summary



SUMMARY OF RESULTS

75" Thermal Combustor Inlet Duct

Condition-Run Number	3-1	3-2	3-3	Average
Date	06/24/15	06/24/15	06/24/15	----
Time	0825-0929	1006-1109	1135-1239	----
Flow Rate – SCFM[1]	61.2	61.2	61.8	61.4
% Carbon Dioxide - % Vol. (Canister)	----	----	----	< 0.207
% Hydrogen - % Vol. (Canister)	----	----	----	< 0.194
% Carbon Monoxide - % Vol. (Canister)	----	----	----	< 0.145
% Nitrogen - % Vol. (Canister)	----	----	----	0.373
% Oxygen - % Vol. (Canister)	----	----	----	< 0.207
% Methane - % Vol. (Canister)	----	----	----	< 0.000191
Higher Heating Value – Btu/scf	----	----	----	2,041
Duct Temperature -°F[1]	59	73	85	72
Total Hydrocarbons Concentration as Propylene - ppmv	----	----	----	888,287
Total Hydrocarbons Concentration as Propylene - lbs/hr	----	----	----	357.68

[1] Provided by HY-BON Engineering Company, Inc.
Note: Only one canister sample was collected over the duration of the testing condition.

SUMMARY OF RESULTS

75" Thermal Combustor Outlet Stack

Condition-Run Number	3-1	3-2	3-3	Average
Date	06/24/15	06/24/15	06/24/15	----
Time	0825-0929	1005-1109	1135-1239	----
Stack Flow Rate – ACFM	26,666	26,699	26,313	26,559
Stack Flow Rate – DSCFM[1]	7,952	7,477	7,545	7,658
% Water Vapor - % Volume	5.60	6.17	6.04	5.94
% Carbon Dioxide - % Vol.[2]	4.7	4.6	4.7	4.7
% Oxygen - % Vol.[2]	15.6	15.9	15.6	15.7
% Nitrogen - % Vol.[2]	79.7	79.5	79.7	79.6
% Methane - % Vol.	< 0.0310	< 0.0310	< 0.0310	< 0.0310
Molecular Weight – lb/lb-mole	28.74	28.67	28.69	28.70
% Excess Air @ Sampling Point	282.6	307.7	282.6	291.0
Stack Temperature -°F	1,186	1,283	1,245	1,238
Stack Pressure - "Hg	29.35	29.37	29.37	29.36

[1] 29.92 "Hg, 68°F (760 mm Hg, 20°C)
[2] Method 3C analytical results are normalized to 100%

SUMMARY OF RESULTS

75" Thermal Combustor Outlet Stack

Condition-Run Number	3-1	3-2	3-3	Average
Date	06/24/15	06/24/15	06/24/15	----
Time	0825-0925	1005-1105	1135-1235	----
Stack Flow Rate – DSCFM[1]	7,952	7,477	7,545	7,658
% Carbon Dioxide - % Vol.	4.7	4.6	4.7	4.7
% Water Vapor - % Volume	5.60	6.17	6.04	5.94
Carbon Monoxide Emissions - ppmvd	1.29	0.09	0.16	0.51
Carbon Monoxide Emissions - ppmvd[2]	0.82	0.06	0.10	0.33
Carbon Monoxide Emissions - lbs/hr	0.045	0.003	0.005	0.018
Total Hydrocarbons Emissions as Propane - ppmvw	0.42	< 0.01	0.06	< 0.16
Total Hydrocarbons Emissions as Propane - ppmvw[2]	0.27	< 0.01	0.04	< 0.11
Total Hydrocarbons Emissions as Propane - ppmvd	0.44	< 0.01	0.06	< 0.17
Total Hydrocarbons Emissions as Propylene - lbs/hr	0.023	< 0.001	0.003	< 0.009

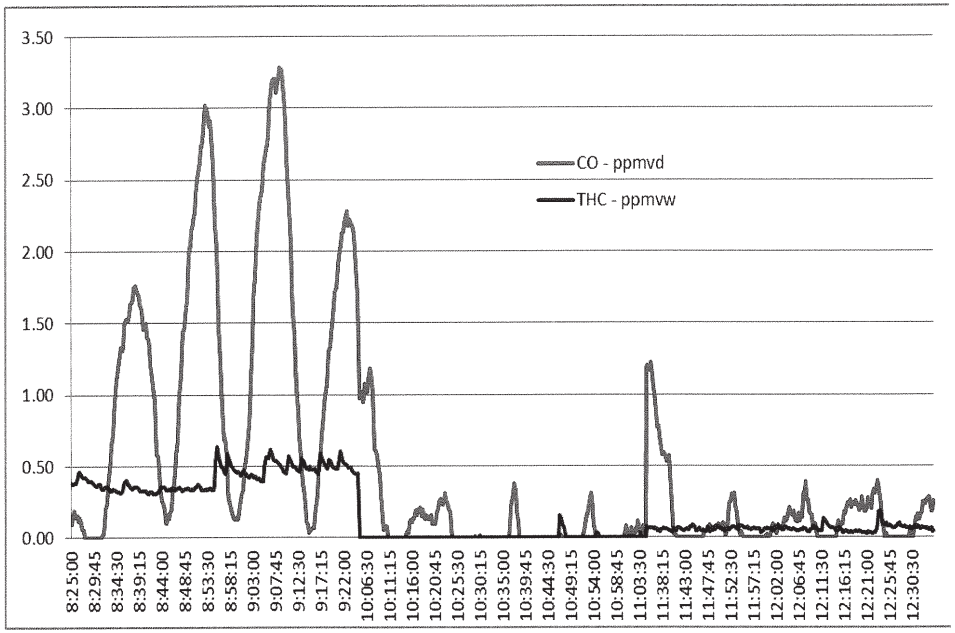
[1] 29.92 "Hg, 68°F (760 mm Hg, 20°C)
[2] Corrected to 3% carbon dioxide

SUMMARY OF RESULTS

75" Thermal Combustor Outlet Stack

Condition 3

Reference Method Monitors CO and THC Graph Summary

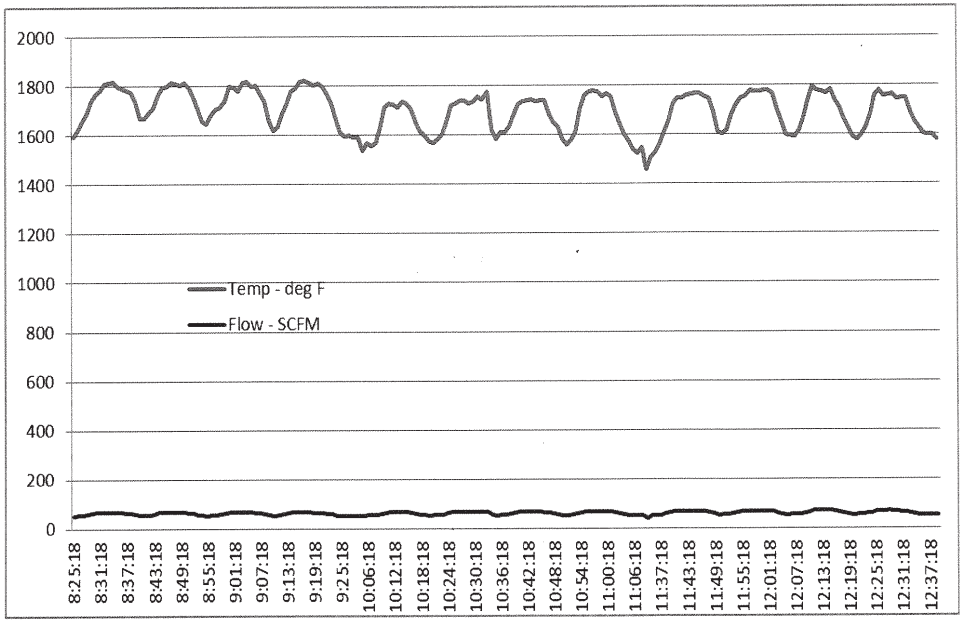


SUMMARY OF RESULTS

75" Thermal Combustor Outlet Stack

Condition 3

Plant Operational Data Graph Summary



SUMMARY OF RESULTS

75" Thermal Combustor Inlet Duct

Condition-Run Number	4-1	4-2	4-3	Average
Date	06/24/15	06/24/15	06/24/15	----
Time	1315-1419	1445-1549	1615-1719	----
Flow Rate – SCFM[1]	68.4	69.3	69.3	69.0
% Carbon Dioxide - % Vol. (Canister)	----	----	----	< 0.341
% Hydrogen - % Vol. (Canister)	----	----	----	< 0.320
% Carbon Monoxide - % Vol. (Canister)	----	----	----	< 0.238
% Nitrogen - % Vol. (Canister)	----	----	----	2.09
% Oxygen - % Vol. (Canister)	----	----	----	0.572
% Methane - % Vol. (Canister)	----	----	----	< 0.000314
Higher Heating Value – Btu/scf	----	----	----	1,898
Duct Temperature -°F[1]	82	88	84	85
Total Hydrocarbons Concentration as Propylene - ppmv	----	----	----	826,205
Total Hydrocarbons Concentration as Propylene - lbs/hr	----	----	----	373.86

[1] Provided by HY-BON Engineering Company, Inc.

Note: Only one canister sample was collected over the duration of the testing condition.

SUMMARY OF RESULTS

75" Thermal Combustor Outlet Stack

Condition-Run Number	4-1	4-2	4-3	Average
Date	06/24/15	06/24/15	06/24/15	----
Time	1315-1419	1445-1549	1615-1719	----
Stack Flow Rate – ACFM	27,719	27,318	27,735	27,591
Stack Flow Rate – DSCFM[1]	7,971	8,115	7,984	8,023
% Water Vapor - % Volume	6.62	6.29	6.34	6.42
% Carbon Dioxide - % Vol.[2]	5.0	4.7	4.8	4.8
% Oxygen - % Vol.[2]	15.2	15.6	15.5	15.4
% Nitrogen - % Vol.[2]	79.8	79.7	79.7	79.7
% Methane - % Vol.	< 0.0310	< 0.0310	< 0.0310	< 0.0310
Molecular Weight – lb/lb-mole	28.65	28.66	28.67	28.66
% Excess Air @ Sampling Point	255.6	282.6	275.8	271.3
Stack Temperature -°F	1,230	1,181	1,232	1,214
Stack Pressure - "Hg	29.38	29.36	29.36	29.37

[1] 29.92 "Hg, 68°F (760 mm Hg, 20°C)
[2] Method 3C analytical results are normalized to 100%

SUMMARY OF RESULTS

75" Thermal Combustor Outlet Stack

Condition-Run Number	4-1	4-2	4-3	Average
Date	06/24/15	06/24/15	06/24/15	----
Time	1315-1415	1445-1545	1615-1715	----
Stack Flow Rate – DSCFM[1]	7,971	8,115	7,984	8,023
% Carbon Dioxide - % Vol.	5.0	4.7	4.8	4.8
% Water Vapor - % Volume	6.62	6.29	6.34	6.42
Carbon Monoxide Emissions - ppmvd	0.68	0.15	< 0.01	< 0.28
Carbon Monoxide Emissions - ppmvd[2]	0.41	0.10	< 0.01	< 0.17
Carbon Monoxide Emissions - lbs/hr	0.024	0.005	< 0.001	< 0.010
Total Hydrocarbons Emissions as Propane - ppmvw	0.17	0.28	< 0.01	< 0.15
Total Hydrocarbons Emissions as Propane - ppmvw[2]	0.10	0.18	< 0.01	< 0.10
Total Hydrocarbons Emissions as Propane - ppmvd	0.18	0.30	< 0.01	< 0.16
Total Hydrocarbons Emissions as Propylene - lbs/hr	0.009	0.016	< 0.001	< 0.009

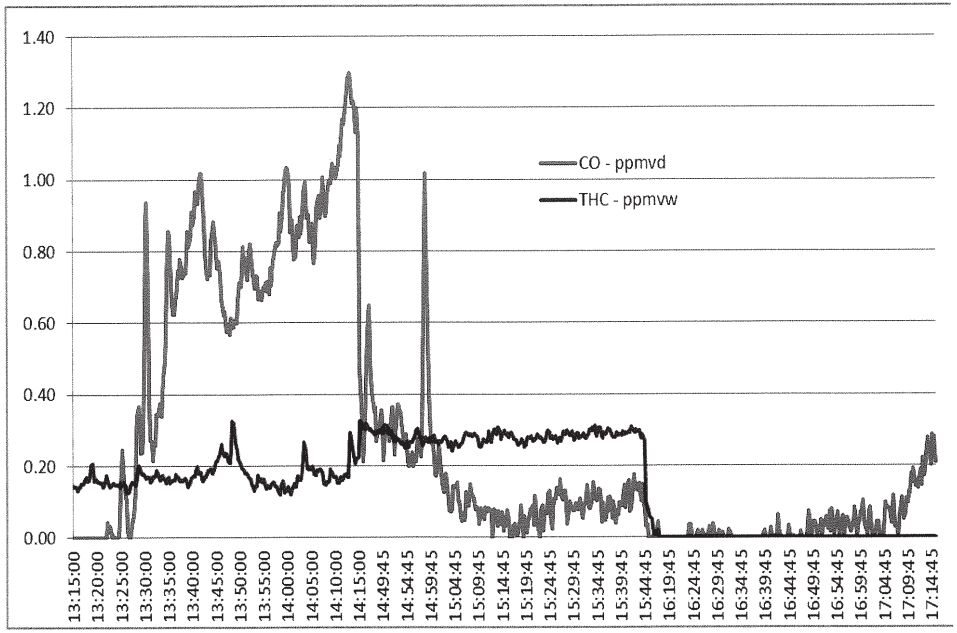
[1] 29.92 "Hg, 68°F (760 mm Hg, 20°C)
[2] Corrected to 3% carbon dioxide

SUMMARY OF RESULTS

75" Thermal Combustor Outlet Stack

Condition 4

Reference Method Monitors CO and THC Graph Summary

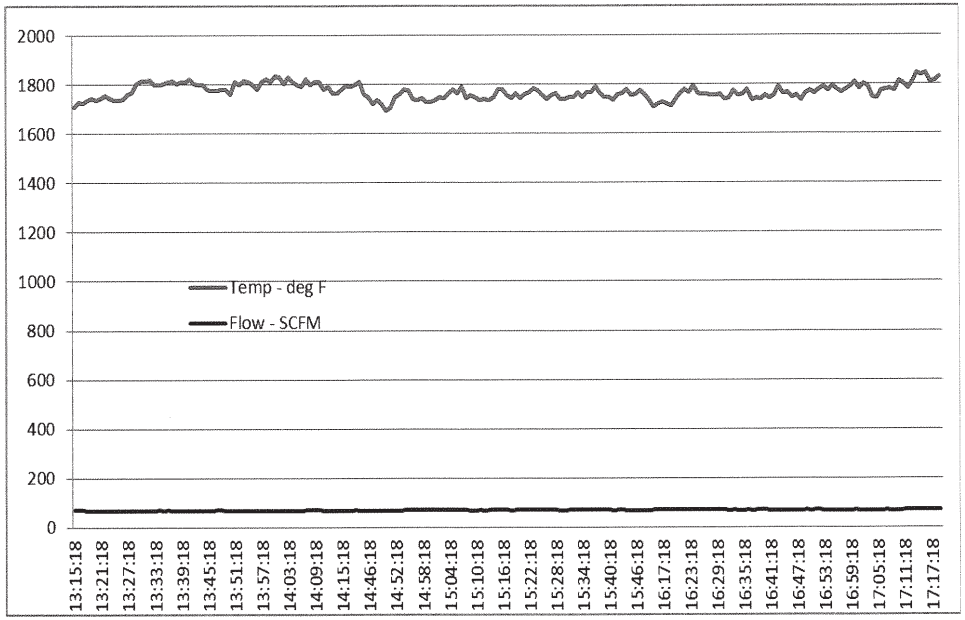


SUMMARY OF RESULTS

75" Thermal Combustor Outlet Stack

Condition 4

Plant Operational Data Graph Summary



DISCUSSION OF RESULTS

75" Thermal Combustor Inlet Duct

The test for total hydrocarbons and fixed gases at each of the four operating conditions appeared to be valid representations of the actual inlet duct hydrocarbons amounts during the tests. All leak checks performed on the canister sampling system showed no leaks before or after each test.

75" Thermal Combustor Outlet Stack

Condition 1

The three tests for carbon monoxide, total hydrocarbons, and fixed gases appeared to be valid representations of the actual emissions during the tests. All leak checks performed on the sampling train, the pitot tubes, the integrated bag sampling system, and the reference method monitors sampling systems showed no leaks before or after each test. The zero and calibration drift tests of the reference method monitors were stable with no variations greater than 3.0 percent. The calibration error check and the sampling system bias check performed on the reference method monitors prior to testing were valid. The indicative parameters calculated from the field data were in close agreement. The moisture percentages for the three tests were within 6.5 percent of the mean value. The measured flow rates (Q_s) for the tests were within 20.7 percent of the mean value.

The calculated emissions (pounds per hour) of carbon monoxide for the three tests showed a range of -56.4 percent to +41.8 percent variation from the mean value.

The concentrations of total hydrocarbons for two of the three tests were below the minimum detectable limit of the method.

Condition 2

The three tests for carbon monoxide, total hydrocarbons, and fixed gases appeared to be valid representations of the actual emissions during the tests. All leak checks performed on the sampling train, the pitot tubes, the integrated bag sampling system, and the reference method monitors sampling systems showed no leaks before or after each test. The zero and calibration drift tests of the reference method monitors were stable with no variations greater than 3.0 percent. The calibration error check and the sampling system bias check performed on the reference method monitors prior to testing were valid. The indicative parameters calculated from the field data were in close agreement. The moisture percentages for the three tests were within 5.5 percent of the mean value. The measured flow rates (Q_s) for the tests were within 4.1 percent of the mean value.

The calculated emissions (pounds per hour) of carbon monoxide for the three tests showed a range of -30.0 percent to +20.0 percent variation from the mean value.

The concentrations of total hydrocarbons for two of the three tests were below the minimum detectable limit of the method.

Condition 3

The three tests for carbon monoxide, total hydrocarbons, and fixed gases appeared to be valid representations of the actual emissions during the tests. All leak checks performed on the sampling train, the pitot tubes, the integrated bag sampling system, and the reference method monitors sampling systems showed no leaks before or after each test. The zero and calibration drift tests of the reference method monitors were stable with no variations greater than 3.0 percent. The calibration error check and the sampling system bias check performed on the reference method monitors prior to testing were valid. The indicative parameters calculated from the field data were in close agreement. The moisture percentages for the three tests were within 5.7 percent of the mean value. The measured flow rates (Q_s) for the tests were within 3.8 percent of the

mean value.

The calculated emissions (pounds per hour) of carbon monoxide for the three tests showed a range of -83.0 percent to +154.7 percent variation from the mean value. The large variation was due to the higher carbon monoxide concentrations measured during Run Number 1.

The concentrations of total hydrocarbons for one of the three tests were below the minimum detectable limit of the method.

Condition 4

The three tests for carbon monoxide, total hydrocarbons, and fixed gases appeared to be valid representations of the actual emissions during the tests. All leak checks performed on the sampling train, the pitot tubes, the integrated bag sampling system, and the reference method monitors sampling systems showed no leaks before or after each test. The zero and calibration drift tests of the reference method monitors were stable with no variations greater than 3.0 percent. The calibration error check and the sampling system bias check performed on the reference method monitors prior to testing were valid. The indicative parameters calculated from the field data were in close agreement. The moisture percentages for the three tests were within 3.2 percent of the mean value. The measured flow rates (Q_s) for the tests were within 1.1 percent of the mean value.

The concentrations of carbon monoxide for one of the three tests were below the minimum detectable limit of the method.

The concentrations of total hydrocarbons for one of the three tests were below the minimum detectable limit of the method.

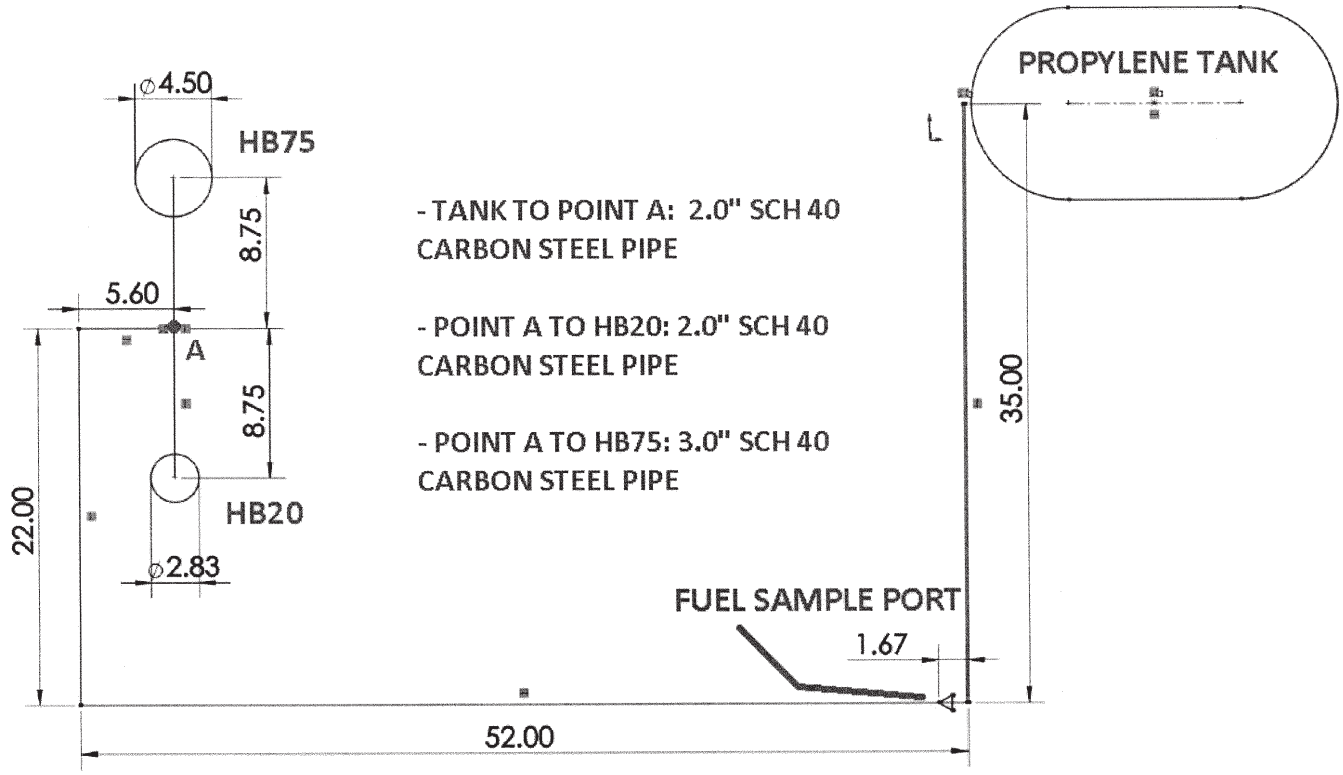
DESCRIPTION OF PROCESS

The HB75 operates based on 3 criterions: pilot status, inlet pressure, stack temperature. The pilot ensures a continuous ability to ignite fuel; adequate inlet pressure ensures proper combustion efficiencies; healthy stack temperature ensures fuel ignition and safe operation. The pilot flame must be present at all times and serves as a constant prerequisite for the operation of the VCU. If at any time the pilot flame is not detected, the operation will stop regardless if adequate inlet pressure is present. Once the pilot it detected, the VCU will turn its focus on inlet pressure. If adequate inlet pressure is present, the main gas fuel is allowed into the VCU. If adequate inlet pressure is NOT present, the main gas line will remain closed or close if it was previously open. Lastly, once fuel is introduced the VCU looks at the stack temperature. If the temperature is below the default 300F, the main gas line will close. If the stack temperature is greater than or equal to 2200F, the main gas line will close.

DESCRIPTION OF SAMPLING LOCATIONS

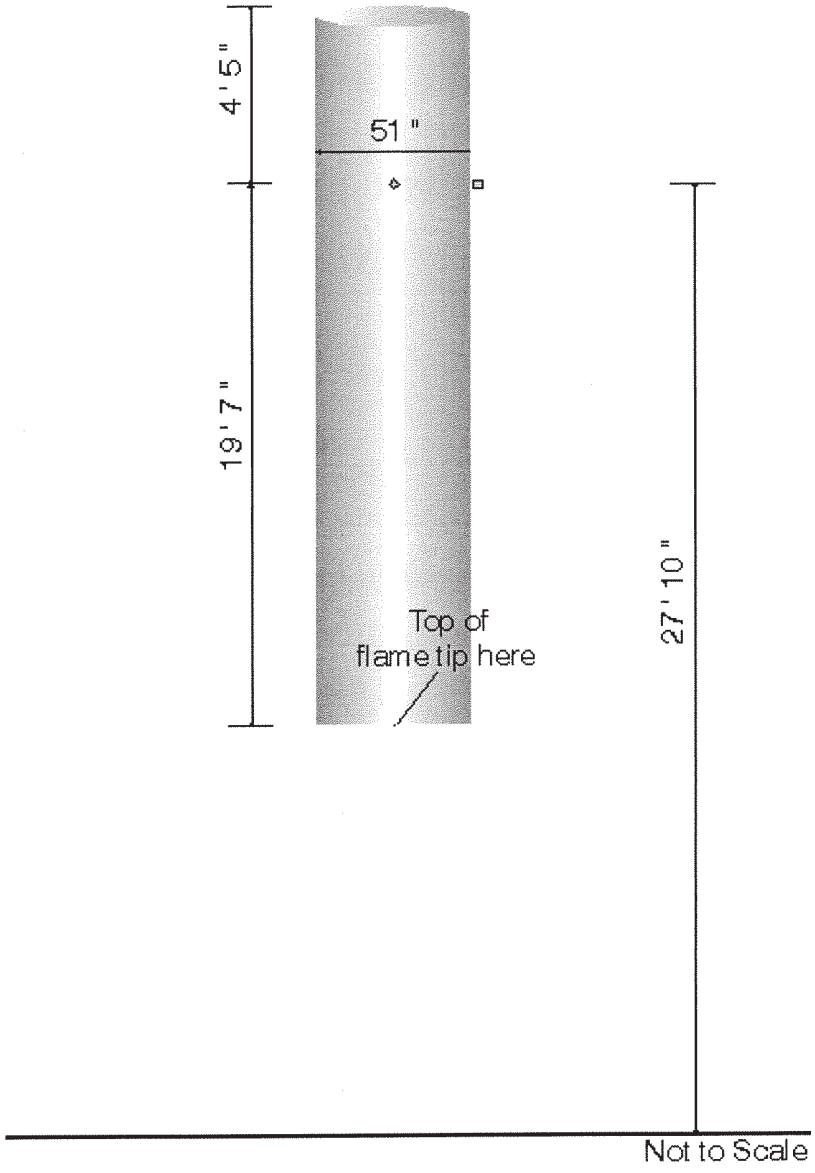
The sampling location on the 75" Thermal Combustor Inlet is located at ground level. The inlet sample location was approximately 35 feet from the propylene trailer. The inlet pipe from the propylene trailer to Point "A" was a 2 inch SCH 40 carbon steel pipe. After Point "A", the pipe was 3 inches in diameter. A schematic can be found on the following page.

The sampling location on the 75" Thermal Combustor Outlet Stack is 27 feet 10 inches above the ground. The sampling ports are located 19 feet 7 inches (4.61 stack diameters) downstream from the top of the flame tip in the stack and 4 feet 5 inches (1.04 stack diameters) upstream from the outlet to the stack.


PROPYLENE TANK
⌀4.50
HB75
8.75
5.60
A
8.75
HB20
⌀2.83
22.00
- TANK TO POINT A: 2.0" SCH 40 CARBON STEEL PIPE
- POINT A TO HB20: 2.0" SCH 40 CARBON STEEL PIPE
- POINT A TO HB75: 3.0" SCH 40 CARBON STEEL PIPE
35.00
FUEL SAMPLE PORT
1.67
52.00

SAMPLING LOCATION

75" Thermal Combustor Outlet Stack



SAMPLING AND ANALYTICAL PROCEDURES

The sampling followed the procedures set forth in the Code of Federal Regulations, Title 40, Chapter I, Part 60, Appendix A, Methods 1, 2, 3C, 4, 10, 18, 22, and 25A; and Subpart OOOO.

A velocity traverse was made at each of the two ports on the 75" Thermal Combustor Outlet Stack, in order to determine the uniformity and magnitude of the flow during each test. Several traverse points were checked for cyclonic flow and none was found to be present. Eight traverse points were sampled from each of the two ports for a total of sixteen traverse points.

The sampling trains were leak-checked before each test and again after each test. This was done to predetermine the possibility of a diluted sample.

The pitot tube lines were checked for leaks before and after each test under both a vacuum and a pressure. The lines were also checked for clearance and the manometer was zeroed before each test.

The reference method monitors sampling system was leak checked prior to testing.

Moisture

Triplicate samples for moisture were collected from the stack at each of the four operating conditions. The samples were taken according to EPA Methods 1, 2, 3C, and 4. For each run, samples of four-minute duration were taken at each of the sixteen traverse points for a total sampling time of 64 minutes.

The " front-half " of the sampling train contained the following components:

Stainless Steel Probe w/ glass wool plug
Teflon Sample Line

The " back-half " of the sampling train contained the following components:

Impinger Number	Contents	Amount	Parameter Collected
1	Deionized Water	100 ml	Moisture
2	Deionized Water	100 ml	Moisture
3	Empty	----	Moisture
4	Silica Gel	200 g	Moisture

Fixed Gases

Triplicate samples for fixed gases were collected from the stack at each of the four operating conditions. The samples were taken according to EPA Method 3C. For each run, samples of four-minute duration were taken at each of the sixteen traverse points for a total sampling time of 64 minutes. The reference method sampling system consisted of a stainless steel probe, Teflon sample line, a Teflon pump, and a Tedlar bag. The samples were analyzed by GC/TCD by Enthalpy's Analytical Laboratory in Durham, North Carolina. The analytical report can be found in Appendix E.

Total Hydrocarbons and Fixed Gases

One integrated sample for total hydrocarbons and fixed gases was collected from the inlet duct at each of the four operating conditions. The samples were taken according to EPA Method 18. The reference method sampling system consisted of a stainless steel probe, Teflon sample line, and an evacuated canister. The samples were analyzed by GC/FID by Enthalpy's Analytical Laboratory in Durham, North Carolina. The analytical report can be found in Appendix E.

Carbon Monoxide

The carbon monoxide sampling was performed according to EPA Method 10 using the continuous sampling procedure. A Thermo Environmental Model 48C Carbon Monoxide Analyzer (Serial Number 48C-73225-373) was used to monitor the concentrations of carbon monoxide during each run. The reference method analyzer was operated at a range of 0 to 10 parts per million, with a calibration span of

9.17 parts per million. A multi-point calibration was performed on the reference method analyzer prior to testing. An analyzer calibration error check and a sampling system bias check were also conducted prior to testing. After each run, the zero and calibration drift of the reference method monitor was checked. The calibration gases were as follows:

Zero Nitrogen
5.13 ppm CO in N_2 (CC 66094)
9.17 ppm CO in N_2 (ALM 5790)

The reference method sampling system consisted of a heated probe, a heated Teflon sample line, a chilled condenser, and an electronic chiller prior to the reference method monitors manifold system. The calibration gases for the bias and drift checks were introduced upstream of the heated Teflon sample line.

Calibration gas certifications are included in Appendix C.

Total Hydrocarbons

The total hydrocarbons sampling was performed according to EPA Method 25A. A Total Hydrocarbon Model 51i Analyzer (Serial Number 1215252823) was used to monitor the concentrations of total hydrocarbons during each run. The reference method analyzer was operated at a range of 10 parts per million. A multi-point calibration was performed on the reference method analyzer prior to testing. An analyzer calibration error check and a sampling system bias check were also conducted prior to testing. After each run, the zero and calibration drift of the reference method monitor was checked. The calibration gases were as follows:

Zero Nitrogen
3.08 ppm C_3H_8 in N_2 (CC64067)
5.08 ppm C_3H_8 in N_2 (ALM 22989)
8.64 ppm C_3H_8 in N_2 (BAL 4190)

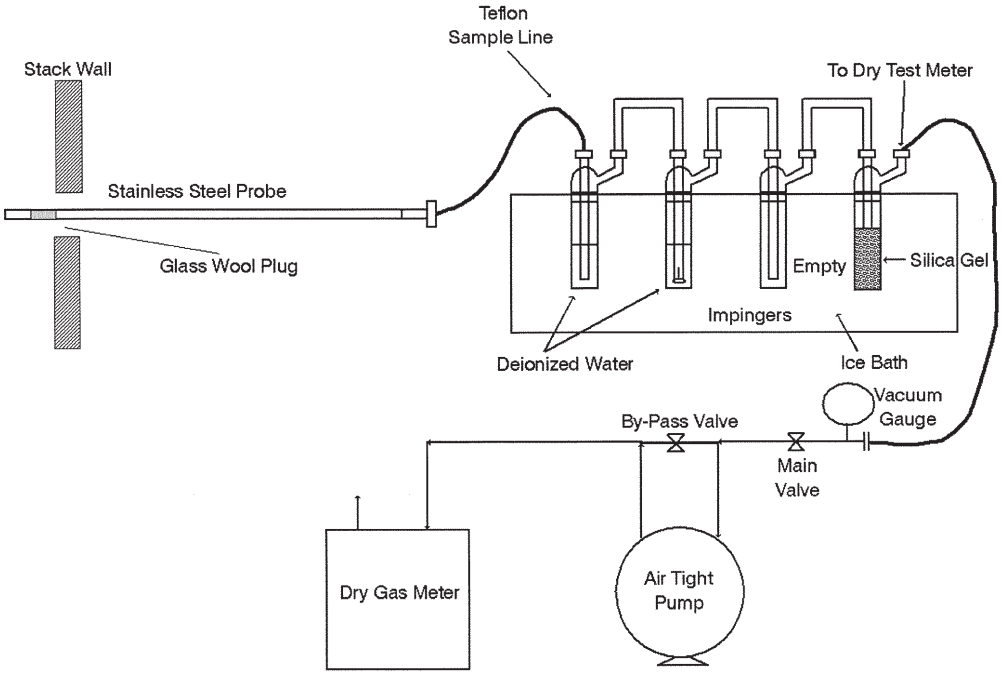
The reference method sampling system consisted of a heated probe and a heated Teflon sample line. The calibration gases for the bias and drift checks were introduced upstream of the heated Teflon sample line.

Calibration gas certifications are included in Appendix C.

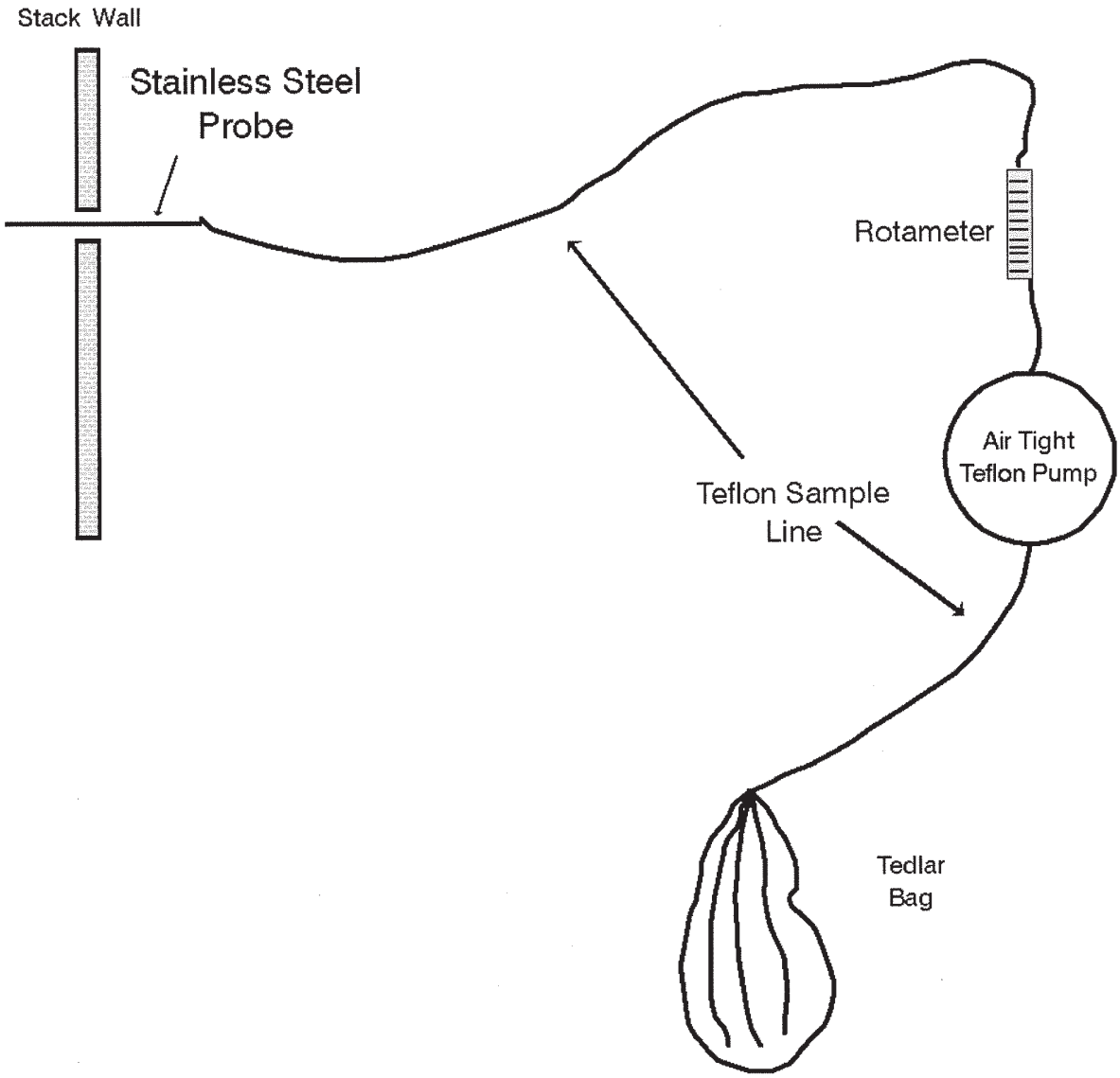
Visible Emissions

Visible emissions observations were taken according to EPA Method 22. For each of the three runs at each of the four operating conditions, visible emissions were observed over a one-hour period. No visible emissions were observed during any of the test runs.

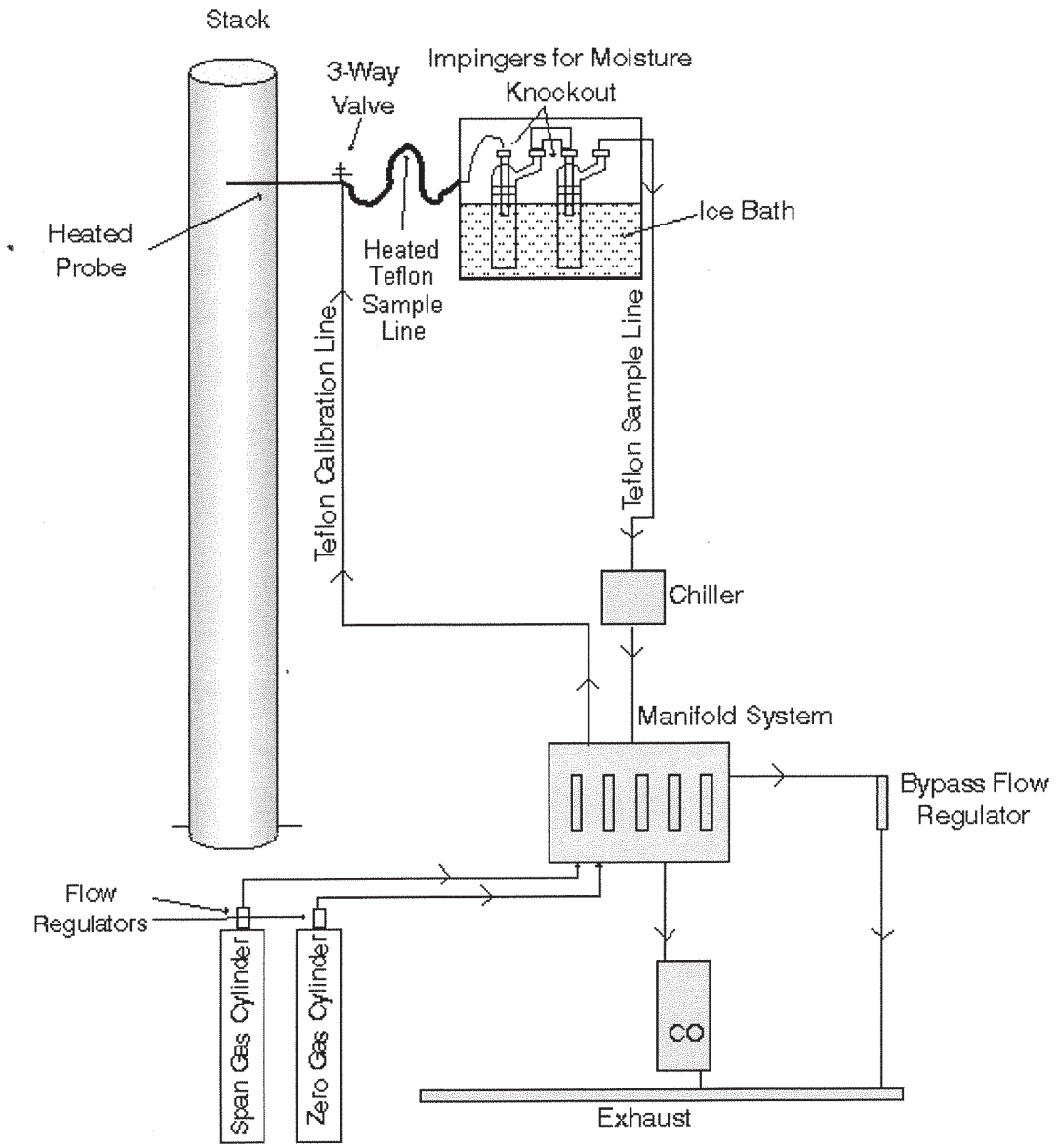
Schematic Diagram of the EPA Method 4 Sampling Train



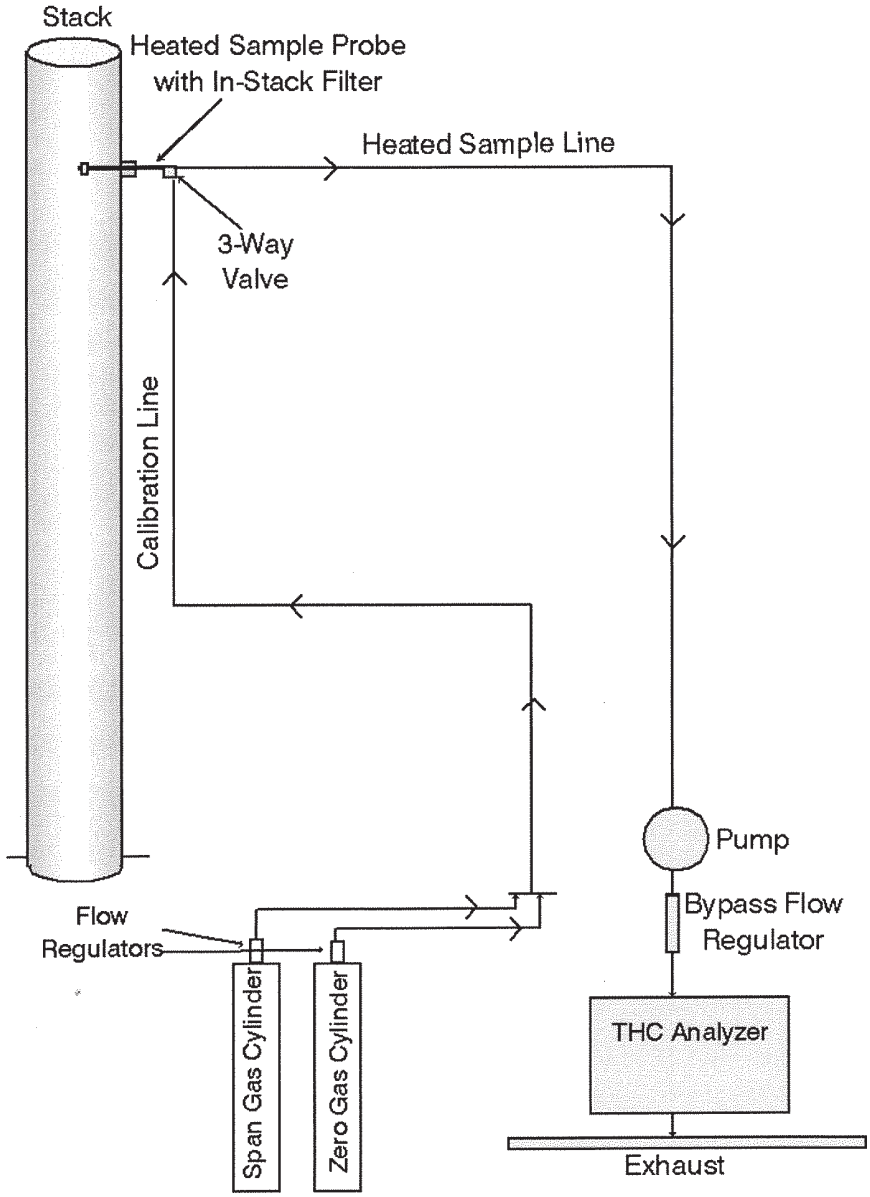
EPA Method 3C (Integrated Bag) Sampling Train



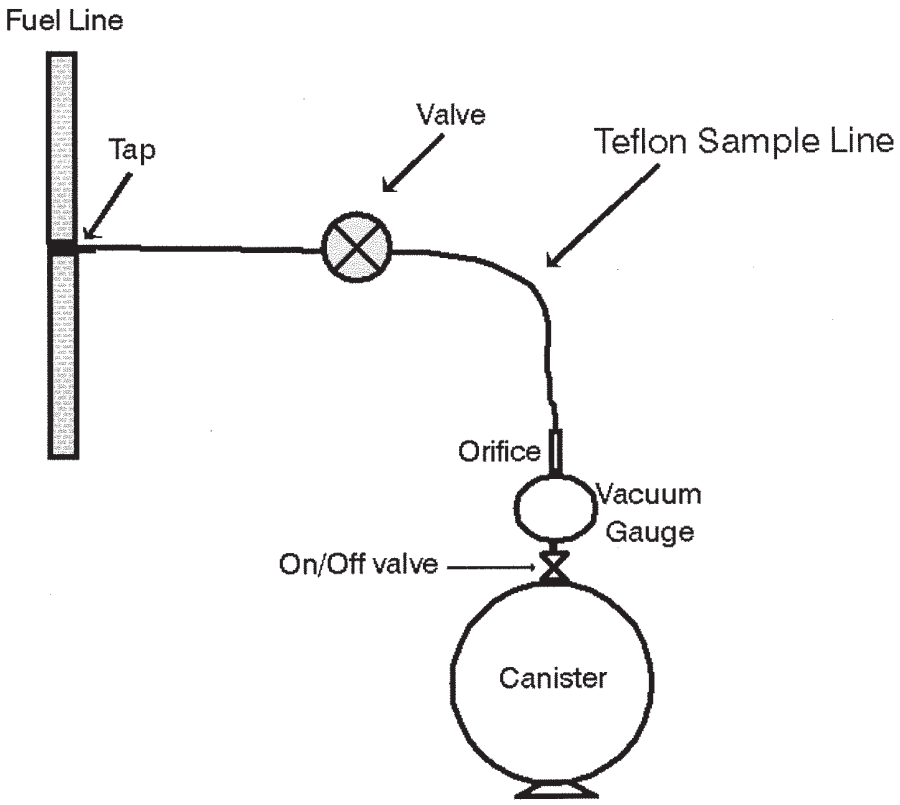
Reference Method Monitor Sampling System
(EPA Method 10)



Total Hydrocarbon CEMs (EPA Method 25A)



Method 18 Canister Sampling System
on the Inlet (Fuel Line)



TO-Can® Air Sampling Canisters with RAVE™ Valve

Optimized for Methods TO-14A, TO-15, IP-1A, ASTM D5466, OSHA PV 2120, and NJ DEP Low Level TO-15

- Proprietary electropolished surface maintains compound stability.
- High-quality, metal-to-metal seal, 2/3-turn valve with stainless steel diaphragms prevent sample adsorption for more-accurate results.
- Both 2-port and 3-port valves available; 3-port valve includes -30"Hg/60 psi vacuum/pressure gauge (other gauges available).
- SUMMA canister equivalent.
- Featuring the proven long life, leak-free performance, and effortless operation of the new RAVE™ valve.

U.S. EPA Methods TO-14A and TO-15 regulate the collection, storage, and analysis of volatile organic compounds (VOCs) using treated air sampling canisters. Restek offers a complete line of TO-Can®canisters (SUMMA can equivalent), electropolished using a proprietary process and extensively cleaned using an ultrasonic method. This ensures a high-quality, passivated surface that maintains the stability of TO-14A/TO-15 compounds during storage. A frame surrounds the electropolished canister, eliminating the need for weld marks on the sphere, thereby preventing active sites on the canister. The RAVE™ valve supports the excellent performance of the canister.
A unique holder attaches the handle and base to the canister without welds and protects the canister,

tube stub, and valve. The 2/3-turn diaphragm valve has a metal-to-metal seat and a temperature limit of 250 °C. Each canister is slightly pressurized with contaminant-free nitrogen prior to shipment.

Dimensions/Weights of Air Canisters
Can Volume— Dimensions: height x sphere diameter— Weight
1 liter— 8.5 x 5.25" (21.6 x 13.3 cm)— 2.25 lbs (1.02 kg)
3 liter— 11.5 x 7.25" (29.2 x 18.4 cm)— 3.50 lbs (1.59 kg)
6 liter— 12.5 x 9.25" (31.8 x 23.5 cm)— 5.75 lbs (2.61 kg)
15 liter— 17.0 x 12.25" (43.2 x 31.1 cm)— 11.75 lbs (5.33 kg)

*Range of standard gauge is –30" Hg to 60 psi.

Do not exceed canister maximum pressure of 40 psig (2.75 bar).

DESCRIPTION OF TESTS

Personnel from METCO Environmental arrived at the plant at 7:30 a.m. on Monday, June 22, 2015. After meeting with plant personnel and attending a brief safety orientation, the equipment was moved onto the 75" Thermal Combustor Inlet Duct and Outlet Stack. The equipment was secured for the night and all work was completed at 4:45 p.m.

On Tuesday, June 23, work began at 6:30 a.m. The reference method monitors were calibrated and the equipment was prepared for testing. The first set of tests (Condition 1) for carbon monoxide, total hydrocarbons, fixed gases, and visible emissions on the stack; and for total hydrocarbons and fixed gases on the inlet duct began at 8:55 a.m. Testing continued until completion of the third set of tests (Condition 2) at 6:04 p.m. The reference method monitors were calibrated and the samples were recovered. The equipment was secured for the night and all work was completed at 6:30 p.m.

On Wednesday, June 24, work began at 6:30 a.m. The reference method monitors were calibrated and the equipment was prepared for testing. The first set of tests (Condition 3) for carbon monoxide, total hydrocarbons, fixed gases, and visible emissions on the stack; and for total hydrocarbons and fixed gases on the inlet duct began at 8:25 a.m. Testing continued until completion of the third set of tests (Condition 4) at 5:19 p.m.

The reference method monitors were calibrated. The equipment was moved off of the sampling locations and loaded into the sampling van. The samples were recovered and transported to METCO Environmental's laboratory in Carrollton, Texas, for analysis and evaluation.

Field operations at HY-BON Engineering Company, Inc., 75" Thermal Combustor Inlet Duct and Outlet Stack, located in Belpre, Ohio, were completed at 6:45 p.m. on Wednesday, June 24, 2015.

APPENDICES

A. Location of Sampling Points
B. Source Emissions Calculations
C. Calibration Data
D. Field Testing Data
E. Analytical Data
F. Reference Method Monitors Data
G. Visible Emissions Data
H. Plant Operational Data
I. Combustor Specifications and Report Checklist
J. Chain of Custody
K. Resumes of Test Personnel

METCO ENVIRONMENTAL

APPENDIX A

Location of Velocity and Method 3C Sampling Points
75" Thermal Combustor Outlet Stack

The sampling ports are located 19 feet 7 inches (4.61 stack diameters) downstream from the top of the flame tip in the stack and 4 feet 5 inches (1.04 stack diameters) upstream from the outlet to the stack. The locations of the sampling points were calculated as follows:

Port and Wall Thickness = 3 1/4 inches

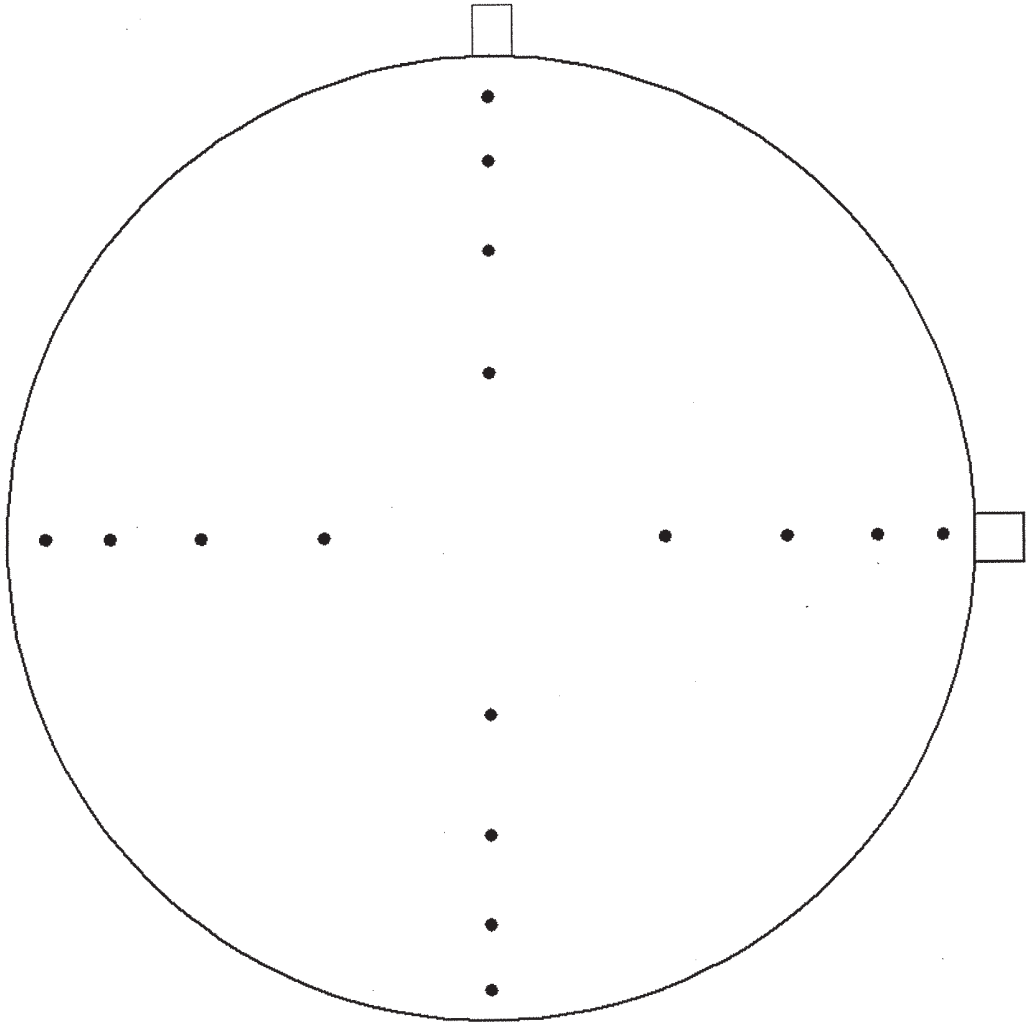
Inside Stack Diameter = 51 inches

Point Number	Percent of Diameter From Wall	Distance From Wall
1	3.2	1 5/8 "
2	10.5	5 3/8 "
3	19.4	9 7/8 "
4	32.3	16 1/2 "
5	67.7	34 1/2 "
6	80.6	41 1/8 "
7	89.5	45 5/8 "
8	96.8	49 3/8 "

APPENDIX A

Location of Velocity and Method 3C Sampling Points

75" Thermal Combustor Outlet Stack



APPENDIX A

Location of Reference Method Monitors Sampling Points
75" Thermal Combustor Outlet Stack

The sampling ports are located 19 feet 7 inches (4.61 stack diameters) downstream from the top of the flame tip in the stack and 4 feet 5 inches (1.04 stack diameters) upstream from the outlet to the stack. The locations of the sampling points were calculated as follows:

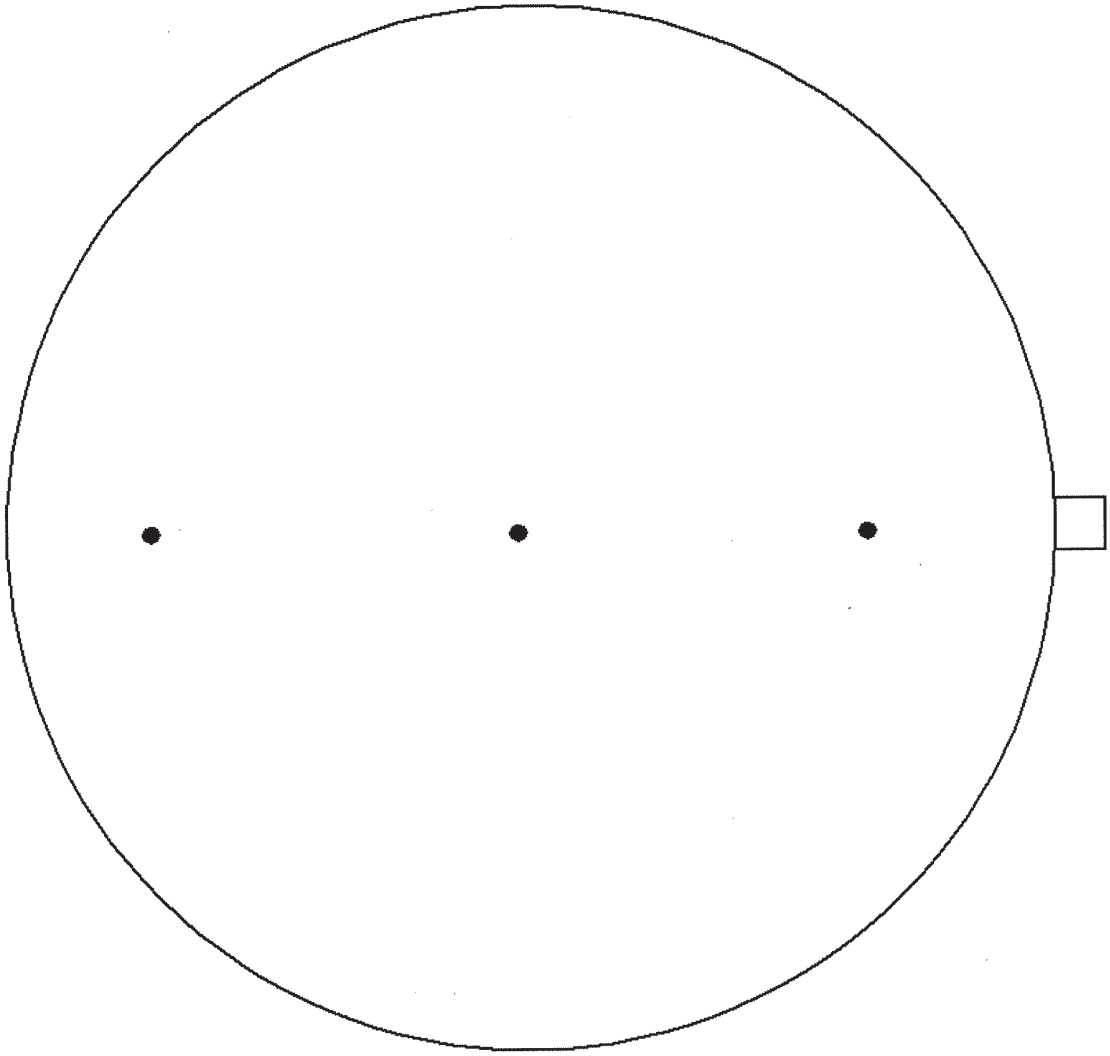
Port and Wall Thickness	=	3 1/4 inches
Inside Stack Diameter	=	51 inches

Point Number	Percent of Diameter From Wall	Distance From Wall
1	16.7	8 1/2 "
2	50.0	25 1/2 "
3	83.3	42 1/2 "

APPENDIX A

Location of Reference Method Monitors Sampling Points

75" Thermal Combustor Outlet Stack



APPENDIX B

Nomenclature and Equations for Calculation of Source Emissions

NOMENCLATURE FOR FLOW RATE CALCULATIONS

Symbol	English Units	Metric Units	Description
A_s	$in.^2$	m^2	Stack Area
C_p			Pitot Tube Calibration Factor
%EA			Percent Excess Air @ Sampling Point
g	32.174 ft/sec^2		Acceleration of Gravity
%M			Percent Moisture in the stack gas by Volume
M_d			Mole fraction of dry gas
M_{water}	18 lb/lb-mole		Molecular Weight of water
MW	lb/lb-mole	g/g-mole	Molecular Weight of stack gas
MW_{air}	28.96 lb/lb-mole		Molecular Weight of air
MW_d	lb/lb-mole	g/g-mole	Molecular Weight of dry stack gas
P_b	"Hg Absolute	mm Hg	Barometric Pressure
P_m	"H_2O	mm H_2O	Orifice Pressure Drop
Ps	"Hg Absolute	mm Hg	Stack Pressure
ΔP	"H_2O	mm H_2O	Velocity Head of stack gas
P_{std}	29.92"Hg	760 mmHg	Standard Barometric Pressure
Q_a	ACFM	m^3/hr	Stack Gas Volume at actual stack conditions
Q_s	DSCFM*	dscm/hr*	Stack Gas Volume at 29.92"Hg, 528°R, dry
R	21.83 "Hg-ft^3/lb-mole °R		Universal Gas Constant
T_m	°F	°C	Average Gas Meter Temperature
T_t	min	min	Net time of test
T_s	°F	°C	Stack Temperature
T_{std}	528°R	293°K	Standard Temperature

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

Symbol	English Units	Metric Units	Description
V_m	ft^3	m^3	Volume of dry gas sampled @ meter conditions
Vm_{std}	dscf*	dscm*	Volume of dry gas sampled @ standard conditions
V_s	fpm	m/sec	Stack velocity @ stack conditions
V_w	ml	ml	Total water collected in impingers and silica gel
Vw_{gas}	scf*	scm*	Volume of water vapor collected @ standard conditions
ρ_{air}	0.0752 lbs/ ft^3		Density of Air
ρ_{water}	1 g/ml		Density of Water
ρ_{man}	62.32 lbs/ft^3		Density of Manometer Oil

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

EXAMPLE CALCULATIONS

1. Volume of dry gas sampled at standard conditions.*

$$Vm_{std} = Vm\left(\frac{T_{std}}{T_m + 460}\right)\left[\frac{P_b + \frac{P_m}{13.6}}{P_{std}}\right]$$

$$Vm_{std} = 17.65\,Vm\left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = \text{dscf}\ *$$

$$Vm_{std} = \text{dscf} \times 0.028317 = \text{dscm}\ *$$

2. Volume of water vapor collected at standard conditions.*

$$Vw_{gas} = \frac{\left(V_w - \text{grams } SO_2\ **\right) \times \rho_{water} \times R \times T_{std}}{P_{std} \times M_{water} \times 453.6}$$

$$Vw_{gas} = 0.0472\left(V_w - \text{grams } SO_2\ **\right) = \text{scf}\ *$$

$$Vw_{gas} = \text{scf} \times 0.028317 = \text{scm}\ *$$

3. Percent moisture in stack gas.

$$\%M = \left(\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}}\right) \times 100 = \%$$

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

** Grams SO_2 subtracted only when SO_2 is collected in the sampling train being used to determine the volume of water vapor collected.

4. Mole fraction of dry gas.

$$M_d = \left(\frac{100 - \%M}{100}\right)$$

5. Average molecular weight of dry stack gas.

$$MW_d = \left[\%CO_2 \times \frac{44}{100}\right] + \left[\%O_2 \times \frac{32}{100}\right] + \left[\%N_2 \times \frac{28}{100}\right] + \left[\%CO \times \frac{28}{100}\right] = lb/lb - mole$$

$$= g/g\text{-}mole$$

6. Molecular weight of stack gas.

$$MW = MW_d \times M_d + 18\left(1 - M_d\right) = \frac{lb}{lb - mole} = g/g - mole$$

7. Percent excess air at sampling point.

$$\%EA = \frac{100\left[\%O2 - (0.5\%CO)\right]}{0.265\ (\%N_2) - \left[\%O_2 - (0.5\%CO)\right]}$$

8. Stack Pressure.

$$P_s = P_b + \frac{\text{Stack Pressure } "H_2O}{13.6} = "Hg \text{ Absolute}$$

$$P_s = "Hg \text{ Abs.} \times 25.4 = mm\,Hg$$

9. Stack velocity at stack conditions.

$$V_s = C_p \times 60 \left[\frac{2g \times \rho_{man} \times P_{std} \times MW_{air} \times (T_s + 460)}{12 \times \rho_{air} \times P_s \times MW \times T_{std}}\right]^{1/2} \times \sqrt{\Delta P}\ \text{average}$$

$$V_s = 5{,}123.8 \times C_p \left[\frac{(T_s + 460)}{P_s \times MW}\right]^{1/2} \times \sqrt{\Delta P}\ \text{average} = fpm$$

$$V_s = fpm \times 0.00508 = m/sec$$

10. Dry stack gas volume at standard conditions.*

$$Q_s = \frac{1}{144} V_s \times A_s \times M_d \times \frac{T_{std}}{T_s + 460} \times \frac{P_s}{P_{std}}$$

$$Q_s = \frac{0.123 V_s \times A_s \times M_d \times P_s}{T_s + 460} = \text{DSCFM}$$

$$Q_s = \text{DSCFM} \times 1.6990 = \text{dscm/hr}$$

11. Actual stack gas volume at stack conditions.

$$Q_a = \frac{V_s \times A_s}{144} = \text{ACFM}$$

$$Q_a = \text{ACFM} \times 1.6990 = m^3/\text{hr}$$

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

EXAMPLE CALCULATIONS

*lbs/hr = ppm x CF x 60 min/hr x DSCFM**

*CF = Conversion Factor for ppm to lbs/scf**

Compound	*Conversion Factor*
CO	7.273×10^{-8}
THC as Propylene	1.093×10^{-7}

$$ppmvd = \frac{ppmvw}{M_d}$$

M_d = mole fraction of dry gas

** 29.92 "Hg, 68°F (760 mm Hg, 20°C)*

EXAMPLE CALCULATIONS

$$E\ corr. = E\ meas. \times \frac{3\%CO_2}{(\%CO_2\ meas.)}$$

E corr. = *Emission Rate corrected for Carbon Dioxide*
E meas. = *Emission Rate measured*
% CO_2 corr. = *The Carbon Dioxide content to be corrected to (ie. 3.0%CO_2)*
% CO_2 meas. = *The Carbon Dioxide content measured*

EXAMPLE CALCULATIONS

$$\% \text{ DRE} = \frac{\text{mass rate of pollutant in (lbs/hr) - mass rate of pollutant emitted (lbs/hr)}}{\text{mass rate of pollutant in (lbs/hr)}} \times 100$$

% DRE = percent destruction removal efficiency.
mass rate of pollutant in (lbs/hr) = mass rate of pollutant into the unit as determined by the applicable testing method and flow rate determination.
mass rate of pollutant out (lbs/hr) = mass rate of pollutant emitted from the unit as determined by the applicable testing method and flow rate determination.

EXAMPLE CALCULATIONS

MJ/scm = ppmv x Kcal/g mole x K

MJ/scm = Net heating value of sample component

ppmv = concentration of sample component in ppm on a wet basis

Kcal/g mole = Net heat of combustion of sample component

K = constant 1.740×10^{-7} (1/ppm) (g mole/scm) (MJ/Kcal)

For Example: Condition 1 - (TVOC as Propylene)

MJ/scm = 968,778 ppmv x 492.06 Kcal/g mole x 1.740×10^{-7} (1/ppm) (g mole/scm) (MJ/Kcal)

*TVOC as Propylene = 82.945 MJ/scm**

** 29.92 "Hg, 68°F (760 mm Hg, 20°C)*

EXAMPLE CALCULATIONS

Compound	Molecular Weight (g/mole)	Net Heat of Combustion (Btu/lb**)	Net Heat of Combustion (kcal/g-mole)
Methane	16.04	21,510	191.68
Propylene	42.08	21,048	492.06
Ethane	30.07	20,425	341.21
Propane	44.10	19,920	488.04
Butanes	58.12	19,657	634.70
Pentanes	72.15	19,495	781.42
Hexanes+*	86.18	19,391	928.40
Hydrogen	2.02	51,625	57.93
Hydrogen Sulfide	34.08	6,537	123.77
Nitrogen	28.01	----	----
Oxygen	32.00	----	----
Carbon Dioxide	44.01	----	----

* As hexane.

** At 25° C, Table 10, " Gas Tables - Thermodynamic Properties of Air Products of Combustion and Component Gases, Second Edition".

(Btu/lb)(0.252 kcal/Btu)(1 lb/453.6 g)(MW g mole) = kcal/gmole

Example for methane:

(21,510 Btu/lb)(0.252 kcal/Btu)(1 lb/453.6 g)(16.04 g mole) = 191.68 kcal/gmole

EXAMPLE CALCULATIONS

Equation 7E-5

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

Where: C_{gas} = *Effluent gas concentration - dry basis (ppm)*

$\overline{C}$ = *Average gas concentration indicated by gas analyzer - dry basis (ppm)*

C_o = *Average of initial and final system calibration bias check responses for the zero gas (ppm)*

C_m = *Average of initial and final system calibration bias check responses for the upscale calibration gas (ppm)*

C_{ma} = *Actual concentration of the upscale calibration gas (ppm)*

SOURCE EMISSION SURVEY

JOB NUMBER: 15-162
JOB NAME: HY-BON
LOCATION: BELPRE, OHIO
UNIT TESTED: 75" STACK C1

SOURCE EMISSION CALCULATIONS

			RUN NUMBER		
SYMBOL	DESCRIPTION	UNITS	1	2	3
DATE			06/23/15	06/23/15	06/23/15
BEGIN TIME			0855	1035	1210
END TIME			0959	1139	1314
P(b)	BAROMETRIC PRESSURE	"Hg Abs.	29.17	29.17	29.18
		(mm Hg)	(741.00)	(741.00)	(741.00)
P(m)	ORIFICE PRESSURE DROP	"H2O	0.750	0.750	0.750
		(mm H2O)	(19.100)	(19.100)	(19.100)
	DGM CALIBRATION FACTOR		0.994	0.994	0.994
V(m)	VOLUME DRY GAS SAMPLED	ft.^3	30.660	30.591	30.857
	@ METER CONDITIONS	(m^3)	(0.868)	(0.866)	(0.874)
	LEAK CHECK VOLUME	ft.^3	0.000	0.000	0.000
T(m)	AVERAGE GAS METER	DEG.F	80	84	86
	TEMPERATURE	(DEG.C)	(27)	(29)	(30)
V(m[std])*	VOLUME DRY GAS SAMPLED	DSCF	29.287	29.007	29.162
	@ STANDARD CONDITIONS*	(DSCM)	(0.829)	(0.821)	(0.826)
V(w)	TOTAL WATER COLLECTED,	ml	44.4	38.4	41.6
	IMPINGERS & SILICA GEL				
V(w[gas])	VOLUME WATER VAPOR	SCF	2.096	1.812	1.964
	COLLECTED @ STANDARD	(SCM)	(0.059)	(0.051)	(0.056)
	CONDITIONS*				
%M	MOISTURE IN STACK GAS	%	6.68	5.88	6.31
	BY VOLUME				
Md	MOL FRACTION OF DRY GAS		0.9332	0.9412	0.9369
Tt	NET TIME OF TEST	MINUTES	64	64	64

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION CALCULATIONS

JOB NUMBER: 15-162
JOB NAME: HY-BON
LOCATION: BELPRE, OHIO
UNIT TESTED: 75" STACK C1

			RUN NUMBER		
SYMBOL	DESCRIPTION	UNITS	1	2	3
CO2		%	4.1	3.8	3.9
O2		%	16.5	16.9	16.8
CO		%	0.0	0.0	0.0
N2		%	79.4	79.3	79.3
%EA	EXCESS AIR @ SAMPLING POINT	%	363.4	410.7	398.6
MWd	MOLECULAR WEIGHT OF DRY STACK GAS	LB/LB-MOLE (g/g-MOLE)	29.32 (29.32)	29.28 (29.28)	29.30 (29.30)
MW	MOLECULAR WEIGHT OF STACK GAS	LB/LB-MOLE (g/g-MOLE)	28.56 (28.56)	28.62 (28.62)	28.58 (28.58)
Cp	PITOT TUBE CALIBRATION		0.813	0.813	0.813
DELTA P	VELOCITY HEAD OF STACK GAS	"H2O (mm H20)	0.028 (0.700)	0.046 (1.200)	0.053 (1.300)
DELTA P ^(1/2)		"H2O	0.158	0.204	0.226
Ts	STACK TEMPERATURE	DEG. F (DEG. C)	1,216 (658)	1,229 (665)	1,103 (595)
Ps	STACK PRESSURE	"Hg Abs. (mm Hg) "H20	29.16 (741.00) -0.20	29.16 (741.00) -0.20	29.17 (741.00) -0.20
Vs	STACK VELOCITY @ STACK CONDITIONS	FPM (m/SEC.)	934 (5)	1,209 (6)	1,289 (7)
As	STACK AREA	(SQ.INCHES) (SQ.METERS)	2,043 (1)	2,043 (1)	2,043 (1)
Qs	DRY STACK GAS VOLUME @ STANDARD CONDITIONS* WET STACK GAS VOLUME @ STANDARD CONDITIONS*	DSCFM (DSCM/HR) WSCFH	3,811 (6,475) 245,028	4,937 (8,388) 314,726	5,664 (9,623) 362,728
Qa	ACTUAL STACK GAS VOLUME @ STACK CONDITIONS	ACFM (m^3/HR)	13,247 (22,507)	17,152 (29,141)	18,288 (31,071)

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

SOURCE EMISSION SURVEY

JOB NUMBER: 15-162
JOB NAME: HY-BON
LOCATION: BELPRE, OHIO
UNIT TESTED: 75" STACK C2

SOURCE EMISSION CALCULATIONS

			RUN NUMBER		
SYMBOL	DESCRIPTION	UNITS	1	2	3
DATE			06/23/15	06/23/15	06/23/15
BEGIN TIME			1355	1530	1700
END TIME			1459	1634	1804
P(b)	BAROMETRIC PRESSURE	"Hg Abs.	29.18	29.16	29.17
		(mm Hg)	(741.00)	(741.00)	(741.00)
P(m)	ORIFICE PRESSURE DROP	"H2O	0.750	0.750	0.750
		(mm H2O)	(19.100)	(19.100)	(19.100)
	DGM CALIBRATION FACTOR		0.994	0.994	0.994
V(m)	VOLUME DRY GAS SAMPLED	ft.^3	30.891	30.889	30.630
	@ METER CONDITIONS	(m^3)	(0.875)	(0.875)	(0.867)
	LEAK CHECK VOLUME	ft.^3	0.000	0.000	0.000
T(m)	AVERAGE GAS METER	DEG.F	91	91	88
	TEMPERATURE	(DEG.C)	(33)	(33)	(31)
V(m[std])*	VOLUME DRY GAS SAMPLED	DSCF	28.929	28.907	28.832
	@ STANDARD CONDITIONS*	(DSCM)	(0.819)	(0.819)	(0.816)
V(w)	TOTAL WATER COLLECTED,	ml	39.9	36.1	36.9
	IMPINGERS & SILICA GEL				
V(w[gas])	VOLUME WATER VAPOR	SCF	1.883	1.704	1.742
	COLLECTED @ STANDARD	(SCM)	(0.053)	(0.048)	(0.049)
	CONDITIONS*				
%M	MOISTURE IN STACK GAS	%	6.11	5.57	5.70
	BY VOLUME				
Md	MOL FRACTION OF DRY GAS		0.9389	0.9443	0.9430
Tt	NET TIME OF TEST	MINUTES	64	64	64

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION CALCULATIONS

JOB NUMBER: 15-162
JOB NAME: HY-BON
LOCATION: BELPRE, OHIO
UNIT TESTED: 75" STACK C2

			RUN NUMBER		
SYMBOL	DESCRIPTION	UNITS	1	2	3
CO2		%	4.3	4.3	4.1
O2		%	16.2	16.2	16.5
CO		%	0.0	0.0	0.0
N2		%	79.5	79.5	79.4
%EA	EXCESS AIR @ SAMPLING POINT	%	332.8	332.8	363.4
MWd	MOLECULAR WEIGHT OF DRY STACK GAS	LB/LB-MOLE (g/g-MOLE)	29.34 (29.34)	29.34 (29.34)	29.32 (29.32)
MW	MOLECULAR WEIGHT OF STACK GAS	LB/LB-MOLE (g/g-MOLE)	28.64 (28.64)	28.70 (28.70)	28.67 (28.67)
Cp	PITOT TUBE CALIBRATION		0.813	0.813	0.813
DELTA P	VELOCITY HEAD OF STACK GAS	"H2O (mm H20)	0.080 (2.000)	0.086 (2.200)	0.082 (2.100)
DELTA P ^(1/2)		"H2O	0.280	0.292	0.283
Ts	STACK TEMPERATURE	DEG. F (DEG. C)	1,280 (693)	1,165 (629)	1,181 (638)
Ps	STACK PRESSURE	"Hg Abs. (mm Hg) "H20	29.17 (741.00) -0.20	29.15 (740.00) -0.20	29.16 (741.00) -0.20
Vs	STACK VELOCITY @ STACK CONDITIONS	FPM (m/SEC.)	1,683 (9)	1,695 (9)	1,652 (8)
As	STACK AREA	(SQ.INCHES) (SQ.METERS)	2,043 (1)	2,043 (1)	2,043 (1)
Qs	DRY STACK GAS VOLUME @ STANDARD CONDITIONS* WET STACK GAS VOLUME @ STANDARD CONDITIONS*	DSCFM (DSCM/HR) WSCFH	6,657 (11,310) 425,413	7,215 (12,258) 458,435	6,956 (11,818) 442,587
Qa	ACTUAL STACK GAS VOLUME @ STACK CONDITIONS	ACFM (m^3/HR)	23,882 (40,576)	24,051 (40,863)	23,433 (39,813)

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION SURVEY

JOB NUMBER: 15-162
JOB NAME: HY-BON
LOCATION: BELPRE, OHIO
UNIT TESTED: 75" STACK C3

SOURCE EMISSION CALCULATIONS

			RUN NUMBER		
SYMBOL	DESCRIPTION	UNITS	1	2	3
DATE			06/24/15	06/24/15	06/24/15
BEGIN TIME			0825	1005	1135
END TIME			0929	1109	1239
P(b)	BAROMETRIC PRESSURE	"Hg Abs.	29.36	29.38	29.38
		(mm Hg)	(746.00)	(746.00)	(746.00)
P(m)	ORIFICE PRESSURE DROP	"H2O	0.750	0.750	0.750
		(mm H2O)	(19.100)	(19.100)	(19.100)
	DGM CALIBRATION FACTOR		0.994	0.994	0.994
V(m)	VOLUME DRY GAS SAMPLED	ft.^3	30.000	30.318	30.846
	@ METER CONDITIONS	(m^3)	(0.850)	(0.859)	(0.873)
	LEAK CHECK VOLUME	ft.^3	0.000	0.000	0.000
T(m)	AVERAGE GAS METER	DEG.F	73	79	84
	TEMPERATURE	(DEG.C)	(23)	(26)	(29)
V(m[std])*	VOLUME DRY GAS SAMPLED	DSCF	29.222	29.223	29.459
	@ STANDARD CONDITIONS*	(DSCM)	(0.827)	(0.828)	(0.834)
V(w)	TOTAL WATER COLLECTED,	ml	36.7	40.7	40.1
	IMPINGERS & SILICA GEL				
V(w[gas])	VOLUME WATER VAPOR	SCF	1.732	1.921	1.893
	COLLECTED @ STANDARD	(SCM)	(0.049)	(0.054)	(0.054)
	CONDITIONS*				
%M	MOISTURE IN STACK GAS	%	5.60	6.17	6.04
	BY VOLUME				
Md	MOL FRACTION OF DRY GAS		0.9440	0.9383	0.9396
Tt	NET TIME OF TEST	MINUTES	64	64	64

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION CALCULATIONS

JOB NUMBER: 15-162
JOB NAME: HY-BON
LOCATION: BELPRE, OHIO
UNIT TESTED: 75" STACK C3

			RUN NUMBER		
SYMBOL	DESCRIPTION	UNITS	1	2	3
CO2		%	4.7	4.6	4.7
O2		%	15.6	15.9	15.6
CO		%	0.0	0.0	0.0
N2		%	79.7	79.5	79.7
%EA	EXCESS AIR @ SAMPLING POINT	%	282.6	307.7	282.6
MWd	MOLECULAR WEIGHT OF DRY STACK GAS	LB/LB-MOLE (g/g-MOLE)	29.38 (29.38)	29.37 (29.37)	29.38 (29.38)
MW	MOLECULAR WEIGHT OF STACK GAS	LB/LB-MOLE (g/g-MOLE)	28.74 (28.74)	28.67 (28.67)	28.69 (28.69)
Cp	PITOT TUBE CALIBRATION		0.813	0.813	0.813
DELTA P	VELOCITY HEAD OF STACK GAS	"H2O (mm H20)	0.105 (2.700)	0.099 (2.500)	0.098 (2.500)
DELTA P ^(1/2)		"H2O	0.323	0.314	0.313
Ts	STACK TEMPERATURE	DEG. F (DEG. C)	1,186 (641)	1,283 (695)	1,245 (674)
Ps	STACK PRESSURE	"Hg Abs. (mm Hg) "H20	29.35 (745.00) -0.10	29.37 (746.00) -0.10	29.37 (746.00) -0.10
Vs	STACK VELOCITY @ STACK CONDITIONS	FPM (m/SEC.)	1,880 (10)	1,882 (10)	1,855 (9)
As	STACK AREA	(SQ.INCHES) (SQ.METERS)	2,043 (1)	2,043 (1)	2,043 (1)
Qs	DRY STACK GAS VOLUME @ STANDARD CONDITIONS* (DSCM/HR) WET STACK GAS VOLUME @ STANDARD CONDITIONS*	DSCFM WSCFH	7,952 (13,510) 505,424	7,477 (12,703) 478,120	7,545 (12,819) 481,801
Qa	ACTUAL STACK GAS VOLUME @ STACK CONDITIONS	ACFM (m^3/HR)	26,666 (45,306)	26,699 (45,362)	26,313 (44,706)

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION SURVEY

JOB NUMBER: 15-162
JOB NAME: HY-BON
LOCATION: BELPRE, OHIO
UNIT TESTED: 75" STACK C4

SOURCE EMISSION CALCULATIONS

			RUN NUMBER		
SYMBOL	DESCRIPTION	UNITS	1	2	3
DATE			06/24/15	06/24/15	06/24/15
BEGIN TIME			1315	1445	1615
END TIME			1419	1549	1719
P(b)	BAROMETRIC PRESSURE	"Hg Abs.	29.39	29.37	29.37
		(mm Hg)	(747.00)	(746.00)	(746.00)
P(m)	ORIFICE PRESSURE DROP	"H2O	0.750	0.750	0.750
		(mm H2O)	(19.100)	(19.100)	(19.100)
	DGM CALIBRATION FACTOR		0.994	0.994	0.994
V(m)	VOLUME DRY GAS SAMPLED	ft.^3	30.330	30.573	30.364
	@ METER CONDITIONS	(m^3)	(0.859)	(0.866)	(0.860)
	LEAK CHECK VOLUME	ft.^3	0.000	0.000	0.000
T(m)	AVERAGE GAS METER	DEG.F	88	91	93
	TEMPERATURE	(DEG.C)	(31)	(33)	(34)
V(m[std])*	VOLUME DRY GAS SAMPLED	DSCF	28.764	28.817	28.517
	@ STANDARD CONDITIONS*	(DSCM)	(0.815)	(0.816)	(0.808)
V(w)	TOTAL WATER COLLECTED,	ml	43.2	41.0	40.9
	IMPINGERS & SILICA GEL				
V(w[gas])	VOLUME WATER VAPOR	SCF	2.039	1.935	1.930
	COLLECTED @ STANDARD	(SCM)	(0.058)	(0.055)	(0.055)
	CONDITIONS*				
%M	MOISTURE IN STACK GAS	%	6.62	6.29	6.34
	BY VOLUME				
Md	MOL FRACTION OF DRY GAS		0.9338	0.9371	0.9366
Tt	NET TIME OF TEST	MINUTES	64	64	64

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

SOURCE EMISSION CALCULATIONS

JOB NUMBER: 15-162
JOB NAME: HY-BON
LOCATION: BELPRE, OHIO
UNIT TESTED: 75" STACK C4

			RUN NUMBER		
SYMBOL	DESCRIPTION	UNITS	1	2	3
CO2		%	5.0	4.7	4.8
O2		%	15.2	15.6	15.5
CO		%	0.0	0.0	0.0
N2		%	79.8	79.7	79.7
%EA	EXCESS AIR @ SAMPLING POINT	%	255.6	282.6	275.8
MWd	MOLECULAR WEIGHT OF DRY STACK GAS	LB/LB-MOLE (g/g-MOLE)	29.41 (29.41)	29.38 (29.38)	29.39 (29.39)
MW	MOLECULAR WEIGHT OF STACK GAS	LB/LB-MOLE (g/g-MOLE)	28.65 (28.65)	28.66 (28.66)	28.67 (28.67)
Cp	PITOT TUBE CALIBRATION		0.813	0.813	0.813
DELTA P	VELOCITY HEAD OF STACK GAS	"H2O (mm H20)	0.109 (2.800)	0.109 (2.800)	0.109 (2.800)
DELTA P ^(1/2)		"H2O	0.331	0.331	0.331
Ts	STACK TEMPERATURE	DEG. F (DEG. C)	1,230 (666)	1,181 (638)	1,232 (667)
Ps	STACK PRESSURE	"Hg Abs. (mm Hg) "H20	29.38 (746.00) -0.10	29.36 (746.00) -0.10	29.36 (746.00) -0.10
Vs	STACK VELOCITY @ STACK CONDITIONS	FPM (m/SEC.)	1,954 (10)	1,926 (10)	1,955 (10)
As	STACK AREA	(SQ.INCHES) (SQ.METERS)	2,043 (1)	2,043 (1)	2,043 (1)
Qs	DRY STACK GAS VOLUME @ STANDARD CONDITIONS* WET STACK GAS VOLUME @ STANDARD CONDITIONS*	DSCFM (DSCM/HR) WSCFH	7,971 (13,543) 512,165	8,115 (13,787) 519,582	7,984 (13,565) 511,467
Qa	ACTUAL STACK GAS VOLUME @ STACK CONDITIONS	ACFM (m^3/HR)	27,719 (47,095)	27,318 (46,413)	27,735 (47,122)

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

Normalization of Method 3C Data - 75" Combustor

Condition 1

	Run 1 Actual	Run 1 Normalized	Run 2 Actual	Run 2 Normalized	Run 3 Actual	Run 3 Normalized
Hydrogen	0	***0***	0	***0***	0	***0***
Oxygen	15.8	***16.5***	16.0	***16.9***	15.9	***16.8***
Nitrogen	75.8	***79.4***	75.3	***79.3***	74.9	***79.3***
Carbon Monoxide	0	***0***	0	***0***	0	***0***
Methane	0	***0***	0	***0***	0	***0***
Carbon Dioxide	3.88	***4.1***	3.62	***3.8***	3.66	***3.9***
Total	95.48	100	94.92	100	94.46	100

Condition 2

	Run 1 Actual	Run 1 Normalized	Run 2 Actual	Run 2 Normalized	Run 3 Actual	Run 3 Normalized
Hydrogen	0	***0***	0	***0***	0	***0***
Oxygen	15.4	***16.2***	15.3	***16.2***	15.7	***16.5***
Nitrogen	75.7	***79.5***	75.3	***79.5***	75.7	***79.4***
Carbon Monoxide	0	***0***	0	***0***	0	***0***
Methane	0	***0***	0	***0***	0	***0***
Carbon Dioxide	4.11	***4.3***	4.11	***4.3***	3.91	***4.1***
Total	95.21	100	94.71	100	95.31	100

Condition 3

	Run 1 Actual	Run 1 Normalized	Run 2 Actual	Run 2 Normalized	Run 3 Actual	Run 3 Normalized
Hydrogen	0	***0***	0	***0***	0	***0***
Oxygen	14.8	***15.6***	15.0	***15.9***	14.9	***15.6***
Nitrogen	75.7	***79.7***	75.3	***79.6***	76.2	***79.7***
Carbon Monoxide	0	***0***	0	***0***	0	***0***
Methane	0	***0***	0	***0***	0	***0***
Carbon Dioxide	4.49	***4.7***	4.32	***4.6***	4.52	***4.7***
Total	94.99	100	94.62	100.1	95.62	100

Condition 4

	Run 1 Actual	Run 1 Normalized	Run 2 Actual	Run 2 Normalized	Run 3 Actual	Run 3 Normalized
Hydrogen	0	***0***	0	***0***	0	***0***
Oxygen	14.4	***15.2***	14.7	***15.6***	14.8	***15.5***
Nitrogen	75.7	***79.8***	75.1	***79.7***	76.3	***79.8***
Carbon Monoxide	0	***0***	0	***0***	0	***0***
Methane	0	***0***	0	***0***	0	***0***
Carbon Dioxide	4.75	***5.0***	4.45	***4.7***	4.56	***4.8***
Total	94.85	100	94.25	100	95.66	100.1

Condition 1
Canister 1158
75 " Inlet Duct

Fd Factor Calculations

	Specific Gravity	Btu/ft3	%Vol.	Specific Gravity Ratio	(% wt.)	O2%	C%	H%	S%
Hydrogen	0.0696	324.9		0.0000	0.00			100.0	
Oxygen	1.1100		0.266	0.0030	0.21	100.0			
Nitrogen	0.9672		1.03	0.0100	0.70				
Carbon Monoxide	0.9671	321.3		0.0000	0.00	57.1	42.9		
Carbon Dioxide	1.5194		0.480	0.0073	0.51	72.7	27.3		
Hydrogen Sulfide	1.1765	638.6		0.0000	0.00			5.9	94.1
Methane (C1)	0.5539	1012.0		0.0000	0.00		75.0	25.0	
Ethane (C2)	1.0382	1772.9	0.00513	0.0001	0.01		80.0	20.0	
Ethylene (C2=)	0.9686	1602.9		0.0000	0.00		85.7	14.3	
Propane (C3)	1.5224	2523.0		0.0000	0.00		81.8	18.2	
Propadiene	1.3833	2333.0		0.0000	0.00		89.9	10.1	
Propylene (C3=)	1.4528	2339.0	96.9	1.4078	98.57		85.7	14.3	
Butanes (IC4+NC4+Other)	2.0067	3265.0		0.0000	0.00		82.8	17.2	
Butenes (IC4=+TC4=2+CC4=2)	1.9371	3080.1		0.0000	0.00		85.7	14.3	
Butadiene (C4=13)	1.8675	2887.7		0.0000	0.00		88.9	11.1	
Pentanes (IC5+NC5)	2.4910	4014.0		0.0000	0.00		83.3	16.7	
Pentenes (C5=)	2.4215	3824.0		0.0000	0.00		85.6	14.4	
Hexanes+ (C6+)	2.9753	4758.0		0.0000	0.00		83.7	16.3	
Cyclohexane	2.9056	4397.0		0.0000	0.00		85.6	14.3	
Acetylene	0.8990	1476.2		0.0000	0.00		92.3	7.7	
Benzene	2.6968	3750.6		0.0000	0.00		92.3	7.7	
Xylene	1.0616	5155.0		0.0000	0.00		90.5	9.5	
Toluene	3.1820	4485.2		0.0000	0.00		91.3	8.7	
H2O	0.0622			0.0000	0.00	85.7		14.3	
COS	2.0715	594.0		0.0000	0.00	26.7	20.0		53.3
Sum =			98.681	1.4282	100.00				

Specific Gravity = 1.4282
Btu/ft3* = 2,227
Btu/lb* = 20,735

C% = 84.62
H% = 14.10
O% = 0.58
N% = 0.70
S% = 0.00

Sum = 100.00

$$\text{Fd factor} = \frac{1{,}000{,}000[3.64(\%H)+1.53(\%C)+0.57(\%S)+0.14(\%N)-0.46(\%O)}{\text{^Btu/lb}}$$

Fd factor = 8,711 dscf*/million Btu

*29.92 "Hg, 68 Deg.F (760 mm Hg, 20 Deg.C)

Condition 2
Canister 1124
75 " Inlet Duct

Fd Factor Calculations

	Specific Gravity	Btu/ft3	%Vol.	Specific Gravity Ratio	(% wt.)	O2%	C%	H%	S%
Hydrogen	0.0696	324.9		0.0000	0.00			100.0	
Oxygen	1.1100		0.553	0.0061	0.43	100.0			
Nitrogen	0.9672		2.11	0.0204	1.44				
Carbon Monoxide	0.9671	321.3		0.0000	0.00	57.1	42.9		
Carbon Dioxide	1.5194		0.612	0.0093	0.66	72.7	27.3		
Hydrogen Sulfide	1.1765	638.6		0.0000	0.00			5.9	94.1
Methane (C1)	0.5539	1012.0		0.0000	0.00		75.0	25.0	
Ethane (C2)	1.0382	1772.9	0.00435	0.0000	0.00		80.0	20.0	
Ethylene (C2=)	0.9686	1602.9		0.0000	0.00		85.7	14.3	
Propane (C3)	1.5224	2523.0		0.0000	0.00		81.8	18.2	
Propadiene	1.3833	2333.0		0.0000	0.00		89.9	10.1	
Propylene (C3=)	1.4528	2339.0	95.1	1.3816	97.47		85.7	14.3	
Butanes (IC4+NC4+Other)	2.0067	3265.0		0.0000	0.00		82.8	17.2	
Butenes (IC4=+TC4=2+CC4=2)	1.9371	3080.1		0.0000	0.00		85.7	14.3	
Butadiene (C4=13)	1.8675	2887.7		0.0000	0.00		88.9	11.1	
Pentanes (IC5+NC5)	2.4910	4014.0		0.0000	0.00		83.3	16.7	
Pentenes (C5=)	2.4215	3824.0		0.0000	0.00		85.6	14.4	
Hexanes+ (C6+)	2.9753	4758.0		0.0000	0.00		83.7	16.3	
Cyclohexane	2.9056	4397.0		0.0000	0.00		85.6	14.3	
Acetylene	0.8990	1476.2		0.0000	0.00		92.3	7.7	
Benzene	2.6968	3750.6		0.0000	0.00		92.3	7.7	
Xylene	1.0616	5155.0		0.0000	0.00		90.5	9.5	
Toluene	3.1820	4485.2		0.0000	0.00		91.3	8.7	
H2O	0.0622			0.0000	0.00	85.7		14.3	
COS	2.0715	594.0		0.0000	0.00	26.7	20.0		53.3
Sum =			98.379	1.4174	100.00				

Specific Gravity = 1.4174
Btu/ft3* = 2,185
Btu/lb* = 20,499

C% = 83.71
H% = 13.94
O% = 0.91
N% = 1.44
S% = 0.00

Sum = 100.00

$$\text{Fd factor} = \frac{1{,}000{,}000[3.64(\%H)+1.53(\%C)+0.57(\%S)+0.14(\%N)-0.46(\%O)}{\text{^Btu/lb}}$$

Fd factor = 8,713 dscf*/million Btu

*29.92 "Hg, 68 Deg.F (760 mm Hg, 20 Deg.C)

Condition 3
Canister 1368
75 " Inlet Duct

Fd Factor Calculations

	Specific Gravity	Btu/ft3	%Vol.	Specific Gravity Ratio	(% wt.)	O2%	C%	H%	S%
Hydrogen	0.0696	324.9		0.0000	0.00			100.0	
Oxygen	1.1100			0.0000	0.00	100.0			
Nitrogen	0.9672		0.373	0.0036	0.28				
Carbon Monoxide	0.9671	321.3		0.0000	0.00	57.1	42.9		
Carbon Dioxide	1.5194			0.0000	0.00	72.7	27.3		
Hydrogen Sulfide	1.1765	638.6		0.0000	0.00			5.9	94.1
Methane (C1)	0.5539	1012.0		0.0000	0.00		75.0	25.0	
Ethane (C2)	1.0382	1772.9	0.00426	0.0000	0.00		80.0	20.0	
Ethylene (C2=)	0.9686	1602.9		0.0000	0.00		85.7	14.3	
Propane (C3)	1.5224	2523.0		0.0000	0.00		81.8	18.2	
Propadiene	1.3833	2333.0		0.0000	0.00		89.9	10.1	
Propylene (C3=)	1.4528	2339.0	88.8	1.2901	99.72		85.7	14.3	
Butanes (IC4+NC4+Other)	2.0067	3265.0		0.0000	0.00		82.8	17.2	
Butenes (IC4=+TC4=2+CC4=2)	1.9371	3080.1		0.0000	0.00		85.7	14.3	
Butadiene (C4=13)	1.8675	2887.7		0.0000	0.00		88.9	11.1	
Pentanes (IC5+NC5)	2.4910	4014.0		0.0000	0.00		83.3	16.7	
Pentenes (C5=)	2.4215	3824.0		0.0000	0.00		85.6	14.4	
Hexanes+ (C6+)	2.9753	4758.0		0.0000	0.00		83.7	16.3	
Cyclohexane	2.9056	4397.0		0.0000	0.00		85.6	14.3	
Acetylene	0.8990	1476.2		0.0000	0.00		92.3	7.7	
Benzene	2.6968	3750.6		0.0000	0.00		92.3	7.7	
Xylene	1.0616	5155.0		0.0000	0.00		90.5	9.5	
Toluene	3.1820	4485.2		0.0000	0.00		91.3	8.7	
H2O	0.0622			0.0000	0.00	85.7		14.3	
COS	2.0715	594.0		0.0000	0.00	26.7	20.0		53.3
Sum =			89.177	1.2937	100.00				
Specific Gravity =	1.2937					C% =	85.46		
Btu/ft3* =	2,041					H% =	14.26		
Btu/lb* =	20,979					O% =	0.00		
						N% =	0.28		
						S% =	0.00		
						Sum =	100.00		

$$\text{Fd factor} = \frac{1{,}000{,}000[3.64(\%H)+1.53(\%C)+0.57(\%S)+0.14(\%N)-0.46(\%O)}{\text{^Btu/lb}}$$

Fd factor = 8,709 dscf*/million Btu

*29.92 "Hg, 68 Deg.F (760 mm Hg, 20 Deg.C)

Condition 4
Canister 1630
75 " Inlet Duct

Fd Factor Calculations

	Specific Gravity	Btu/ft3	%Vol.	Specific Gravity Ratio	(% wt.)	O2%	C%	H%	S%
Hydrogen	0.0696	324.9		0.0000	0.00			100.0	
Oxygen	1.1100		0.572	0.0063	0.51	100.0			
Nitrogen	0.9672		2.09	0.0202	1.65				
Carbon Monoxide	0.9671	321.3		0.0000	0.00	57.1	42.9		
Carbon Dioxide	1.5194			0.0000	0.00	72.7	27.3		
Hydrogen Sulfide	1.1765	638.6		0.0000	0.00			5.9	94.1
Methane (C1)	0.5539	1012.0		0.0000	0.00		75.0	25.0	
Ethane (C2)	1.0382	1772.9	0.00394	0.0000	0.00		80.0	20.0	
Ethylene (C2=)	0.9686	1602.9		0.0000	0.00		85.7	14.3	
Propane (C3)	1.5224	2523.0		0.0000	0.00		81.8	18.2	
Propadiene	1.3833	2333.0		0.0000	0.00		89.9	10.1	
Propylene (C3=)	1.4528	2339.0	82.6	1.2000	97.84		85.7	14.3	
Butanes (IC4+NC4+Other)	2.0067	3265.0		0.0000	0.00		82.8	17.2	
Butenes (IC4=+TC4=2+CC4=2)	1.9371	3080.1		0.0000	0.00		85.7	14.3	
Butadiene (C4=13)	1.8675	2887.7		0.0000	0.00		88.9	11.1	
Pentanes (IC5+NC5)	2.4910	4014.0		0.0000	0.00		83.3	16.7	
Pentenes (C5=)	2.4215	3824.0		0.0000	0.00		85.6	14.4	
Hexanes+ (C6+)	2.9753	4758.0		0.0000	0.00		83.7	16.3	
Cyclohexane	2.9056	4397.0		0.0000	0.00		85.6	14.3	
Acetylene	0.8990	1476.2		0.0000	0.00		92.3	7.7	
Benzene	2.6968	3750.6		0.0000	0.00		92.3	7.7	
Xylene	1.0616	5155.0		0.0000	0.00		90.5	9.5	
Toluene	3.1820	4485.2		0.0000	0.00		91.3	8.7	
H2O	0.0622			0.0000	0.00	85.7		14.3	
COS	2.0715	594.0		0.0000	0.00	26.7	20.0		53.3
Sum =			85.266	1.2265	100.00				

Specific Gravity = 1.2265
Btu/ft3* = 1,898
Btu/lb* = 20,578

C% = 83.85
H% = 13.99
O% = 0.51
N% = 1.65
S% = 0.00

Sum = 100.00

$$\text{Fd factor} = \frac{1{,}000{,}000[3.64(\%H)+1.53(\%C)+0.57(\%S)+0.14(\%N)-0.46(\%O)}{\text{^Btu/lb}}$$

Fd factor = 8,709 dscf*/million Btu

*29.92 "Hg, 68 Deg.F (760 mm Hg, 20 Deg.C)

APPENDIX C

Calibration Data

Equipment	Calibration Factor	Calibration Date
Pitot Tube #8-10-1	0.813	05/28/15
Dry Gas Meter #M8-1	0.994	05/28/15
Stack Unit Orifice #M8-1		05/28/15
Digital Temperature Indicator #M8-1		05/28/15
Barometer #M8-1		06/22/15

METCO ENVIRONMENTAL

Pitot Tube Calibration

Date: 5/28/15 Time: 1100

Pitot No: S-10--1 T_s: 74

Pitot Dimensions: 10' C_{pstd}: 0.990

Pitot Inspections

Pitot tips level and perpendicular (YES) / NO

Pitot tips free from obstruction (YES) / NO

Pitot tips damaged YES / (NO)

Motor Setting	fps mark	Calibration Standard Start	Calibration Standard End	√Standard Average	High	√High	Cal. Factor	Low	√Low	Cal. Factor
7	20	0.10	0.10	0.316	0.15	0.387	0.808	0.15	0.387	0.808
14	30	0.20	0.20	0.447	0.30	0.548	0.808	0.30	0.548	0.808
20	40	0.36	0.36	0.600	054	0.735	0.808	0.54	0.721	0.824
28	50	0.56	0.56	0.748	0.82	0.906	0.818	0.83	0.911	0.813
35	60	0.80	0.80	0.894	1.20	1.095	0.808	1.20	1.095	0.808
41	70	1.10	1.10	1.049	1.60	1.265	0.821	1.60	1.265	0.821
50	80	1.40	1.40	1.183	2.10	1.449	0.808	2.10	1.449	0.808
62	90	1.40	1.40	1.342	2.60	1.612	0.824	2.60	1.612	0.824
28*	**50***	0.56	0.56	0.748	0.82	0.906	0.818	0.83	0.911	0.813
28*	**50***	0.56	0.56	0.748	0.82	0.906	0.818	0.83	0.911	0.813
Average							0.813			0.814

***not included in average**

$$C_p = C_{pstd}\left(\frac{\sqrt{\Delta P_{std}}}{\sqrt{\Delta P}}\right)$$

Summary of Results:

Normal high side calibration factor 0.813

variation + 1.35% variation - 0.62%

Normal low side calibration factor 0.814

variation + 1.23% variation - 0.74%

Calibrator: Martindale

Office: Dallas

QA/QC Check

Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: Trent Burkhalter

Version 2
March 2008

METCO
ENVIRONMENTAL

Dry Gas Meter Calibration

Dry Gas Meter Number MB-1

Date: 5/28/15

ΔH ("H_2O)	C_{dg}
0.50	0.994
1.00	0.997
1.50	0.994
2.00	0.997
3.00	0.991
4.00	0.987
Average	0.994

Variation: + 0.503 %

- 0.704 %

Adjustment Required: Yes X No

Calibrator: Frohman

Office: Dallas

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by:

METCO
ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: MB-1 Wet Test Meter No: 4

Date: 5/28/15 Calibrator: Frohman

$$\text{Wet Test Meter } VM_{std} = 17.65 \times V_m \frac{P_b + \frac{P_m}{13.6}}{T_m + 460} \times C_f = \_\_\_\_ \text{ scfm}$$

$$\text{Dry Test Meter } VM_{std} = 17.65 \times V_m \frac{P_b + \frac{P_m}{13.6}}{T_m + 460} = \_\_\_\_ \text{ scfm}$$

Run No: 1@ 0.50 "H_2O P_b: 29.46 "Hg

Wet Test Meter C_f: 0.999 Control Module Vacuum: -5.0 "Hg

	Wet Test Meter					Dry Gas Meter				
	Time	Meter Reading	T_m	P_m		Meter Reading	T_m Inlet	T_m Outlet	P_m	
End	1530	5.320	75 °F	-1.2	"H_2O	017.343	83 °F	83 °F	~~-5.0~~ 0.5	"H_2O
Start	0.00	0.000	75 °F	-1.2	"H_2O	011.940	83 °F	83 °F	~~-5.0~~ 0.5	"H_2O
		5.320 cf^{Δ}	75 °F$_{avg}$	-1.2	"H_2O_{avg}	5.403 cf^{Δ}		83 °F$_{avg}$	0.5	"H_2O_{avg}

$cf^{\Delta} = V_m$

Wet Test Meter VM_{std} = 17.65 x 5.320 $\frac{29.40 + \frac{-1.2}{13.6}}{75 + 460}$ x 0.999 C_f = ~~5.161~~ 5.139 scfm

Dry Gas Meter VM_{std} = 17.65 x 5.403 $\frac{29.40 + \frac{0.5}{13.6}}{83 + 460}$ = 5.170 scfm

Calibration Factor (C_{dg}) = $\frac{\text{Wet Test Meter } VM_{std}}{\text{Dry Gas Meter } VM_{std}}$ $C_{dg} = \frac{5.139}{5.170} = 0.994$

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: [signature]

METCO
ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: MB-1 Wet Test Meter No : 4

Date: 5/28/15 Calibrator: Frohman

$$\text{Wet Test Meter } VM_{std} = 17.65 \times V_m \frac{P_b + \frac{P_m}{13.6}}{T_m + 460} \times C_f = \_\_\_\_ \text{ scfm}$$

$$\text{Dry Test Meter } VM_{std} = 17.65 \times V_m \frac{P_b + \frac{P_m}{13.6}}{T_m + 460} = \_\_\_\_ \text{ scfm}$$

Run No: 1@ 1.0 "H_2O P_b: 29.40 "Hg

Wet Test Meter C_f: 0.999 Control Module Vacuum: -5.0 "Hg

	Wet Test Meter					Dry Gas Meter				
	Time	Meter Reading	T_m	P_m		Meter Reading	T_m Inlet	T_m Outlet	P_m	
End	22.20	12.485	75 °F	-1.6	"H_2O	030.924	83 °F	85 °F	1.0	"H_2O
Start	0.00	0.000	75 °F	-1.6	"H_2O	018.315	83 °F	83 °F	1.0	"H_2O
		12.485 cf^{Δ}	75 $°F_{avg}$	-1.6	"H_2O_{avg}	12.609 cf^{Δ}		83 $°F_{avg}$	1.0	"H_2O_{avg}

$cf^{\Delta} = V_m$

$$\text{Wet Test Meter } VM_{std} = 17.65 \times 12.485 \frac{29.40 + \frac{-1.6}{13.6}}{75 + 460} \times 0.999 C_f = 12.049 \text{ scfm}$$

$$\text{Dry Gas Meter } VM_{std} = 17.65 \times 12.609 \frac{29.40 + \frac{1.0}{13.6}}{83 + 460} = 12.080 \text{ scfm}$$

$$\text{Calibration Factor } (C_{dg}) = \frac{\text{Wet Test Meter } VM_{std}}{\text{Dry Gas Meter } VM_{std}} \quad C_{dg} = \frac{12.049}{12.080} = 0.997$$

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by:

METCO
ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: M8-1 Wet Test Meter No : 4

Date: 5/28/15 Calibrator: Frohman

$$\text{Wet Test Meter } VM_{std} = 17.65 \times V_m \frac{P_b + \frac{P_m}{13.6}}{T_m + 460} \times C_f = \_\_\_\_ \text{ scfm}$$

$$\text{Dry Test Meter } VM_{std} = 17.65 \times V_m \frac{P_b + \frac{P_m}{13.6}}{T_m + 460} = \_\_\_\_ \text{ scfm}$$

Run No: 1 @ 1.50 "H_2O P_b: 29.46 "Hg

Wet Test Meter C_f: 0.999 Control Module Vacuum: -5.0 "Hg

	Wet Test Meter					Dry Gas Meter				
	Time	Meter Reading	T_m	P_m		Meter Reading	T_m Inlet	T_m Outlet	P_m	
End	10.30	12.160	75 °F	-1.9	"H_2O	044.704 032.417	85 °F	85 °F	1.5	"H_2O
Start	0.00	0.000	75 °F	-1.9	"H_2O	~~031.20~~	85 °F	85 °F	1.5	"H_2O
		12.160 cf^{Δ}	75 °F$_{avg}$	-1.9	"H_2O_{avg}	12.287 cf^{Δ}		85 °F$_{avg}$	1.5	"H_2O_{avg}

$cf^{\Delta} = V_m$

$$\text{Wet Test Meter } VM_{std} = 17.65 \times \frac{12.160}{} \frac{29.40 + \frac{-1.9}{13.6}}{75 + 460} \times 0.999 \; C_f = 11.727 \text{ scfm}$$

$$\text{Dry Gas Meter } VM_{std} = 17.65 \times 12.287 \frac{29.40 + \frac{1.5}{13.6}}{85 + 460} = 11.743 \text{ scfm}$$

$$\text{Calibration Factor } (C_{dg}) = \frac{\text{Wet Test Meter } VM_{std}}{\text{Dry Gas Meter } VM_{std}} \quad C_{dg} = \frac{11.727}{11.743} = 0.999$$

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by:

METCO
ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: MG-1 Wet Test Meter No : 4

Date: 5/28/15 Calibrator: Frohman

$$\text{Wet Test Meter } VM_{std} = 17.65 \times V_m \frac{P_b + \frac{P_m}{13.6}}{T_m + 460} \times C_f = \_\_\_\_ \text{ scfm}$$

$$\text{Dry Test Meter } VM_{std} = 17.65 \times V_m \frac{P_b + \frac{P_m}{13.6}}{T_m + 460} = \_\_\_\_ \text{ scfm}$$

Run No: 1 @ 2.00 "H_2O P_b: 29.40 "Hg

Wet Test Meter C_f: 0.999 Control Module Vacuum: -5.0 "Hg

Wet Test Meter

	Time	Meter Reading	T_m	P_m
End	16:34	11.775	75 °F	-2.3 "H_2O
Start	0.00	0.000	75 °F	-2.3 "H_2O
	16:34	11.775 cf^{Δ}	75 °F_{avg}	-2.3 "H_2O_{avg}

Dry Gas Meter

	Meter Reading	T_m Inlet	T_m Outlet	P_m
End	057.012	85 °F	85 °F	2.0 "H_2O
Start	045.126	85 °F	85 °F	2.0 "H_2O
	11.886 cf^{Δ}	85 °F_{avg}		2.0 "H_2O_{avg}

$cf^{\Delta} = V_m$

Wet Test Meter VM_{std} = 17.65 x 11.775 $\frac{29.40 + \frac{-2.3}{13.6}}{75 + 460}$ X 0.999 C_f = 11.349 scfm

Dry Gas Meter VM_{std} = 17.65 x 11.886 $\frac{29.40 + \frac{2.0}{13.6}}{85 + 460}$ = 11.374 scfm

Calibration Factor (C_{dg}) = $\frac{\text{Wet Test Meter } VM_{std}}{\text{Dry Gas Meter } VM_{std}}$ $C_{dg} = \frac{11.349}{11.374} = 0.997$

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: [signature]

METCO
ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: NB-1 Wet Test Meter No : 4

Date: 5/28/15 Calibrator: Frohman

$$\text{Wet Test Meter } VM_{std} = 17.65 \times V_m \frac{P_b + \frac{P_m}{13.6}}{T_m + 460} \times C_f = \_\_\_\_ \text{ scfm}$$

$$\text{Dry Test Meter } VM_{std} = 17.65 \times V_m \frac{P_b + \frac{P_m}{13.6}}{T_m + 460} = \_\_\_\_ \text{ scfm}$$

Run No: 1@ 3.0 "H_2O P_b: 29.40 "Hg

Wet Test Meter C_f: 0.999 Control Module Vacuum: -5.0 "Hg

Wet Test Meter

	Time	Meter Reading	T_m	P_m
End	12.02	11.165	75 °F	-3.0 "H_2O
Start	0.00	0.000	75 °F	-3.0 "H_2O
		11.165 cf^{Δ}	75 $°F_{avg}$	-3.0 "H_2O_{avg}

Dry Gas Meter

	Meter Reading	T_m Inlet	T_m Outlet	P_m
End	068.540	83 °F	83 °F	3.0 "H_2O
Start	057.297	83 °F	83 °F	3.0 "H_2O
	11.243 cf^{Δ}		83 $°F_{avg}$	3.0 "H_2O_{avg}

$cf^{\Delta} = V_m$

Wet Test Meter VM_{std} = 17.65 x 11.165 $\frac{29.40 + \frac{-3.0}{13.6}}{75 + 460}$ x 0.999 C_f = 10.737 scfm

Dry Gas Meter VM_{std} = 17.65 x 11.243 $\frac{29.40 + \frac{3.0}{13.6}}{83 + 460}$ = ~~10.737~~ 10.825 scfm

Calibration Factor $(C_{dg}) = \frac{\text{Wet Test Meter } VM_{std}}{\text{Dry Gas Meter } VM_{std}}$ $C_{dg} = \frac{10.737}{10.825} = 0.991$

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: [signature]

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: MB-1 Wet Test Meter No : 4

Date: 5/28/15 Calibrator: Frohman

$$\text{Wet Test Meter } VM_{std} = 17.65 \times V_m \frac{P_b + \frac{P_m}{13.6}}{T_m + 460} \times C_f = \_\_\_\_ \text{ scfm}$$

$$\text{Dry Test Meter } VM_{std} = 17.65 \times V_m \frac{P_b + \frac{P_m}{13.6}}{T_m + 460} = \_\_\_\_ \text{ scfm}$$

Run No: 1 @ 4.00 "H_2O P_b: 29.40 "Hg

Wet Test Meter C_f: 0.999 Control Module Vacuum: -5.0 "Hg

	Wet Test Meter				Dry Gas Meter			
	Time	Meter Reading	T_m	P_m	Meter Reading	T_m Inlet	T_m Outlet	P_m
End	9.30	13.750	75 °F	-3.8 "H_2O	682.764	83 °F	83 °F	4.0 "H_2O
Start	0.000	0.000	75 °F	-3.8 "H_2O	668.913	83 °F	83 °F	4.0 "H_2O
$cf^{\Delta} = V_m$		13.750 cf^{Δ}	75 $°F_{avg}$	"H_2O_{avg}	13.851 cf^{Δ}		83 $°F_{avg}$	4.0 "H_2O_{avg}

$$\text{Wet Test Meter } VM_{std} = 17.65 \times 13.750 \frac{29.40 + \frac{-3.8}{13.6}}{75 + 460} \times 0.999 C_f = 13.197 \text{ scfm}$$

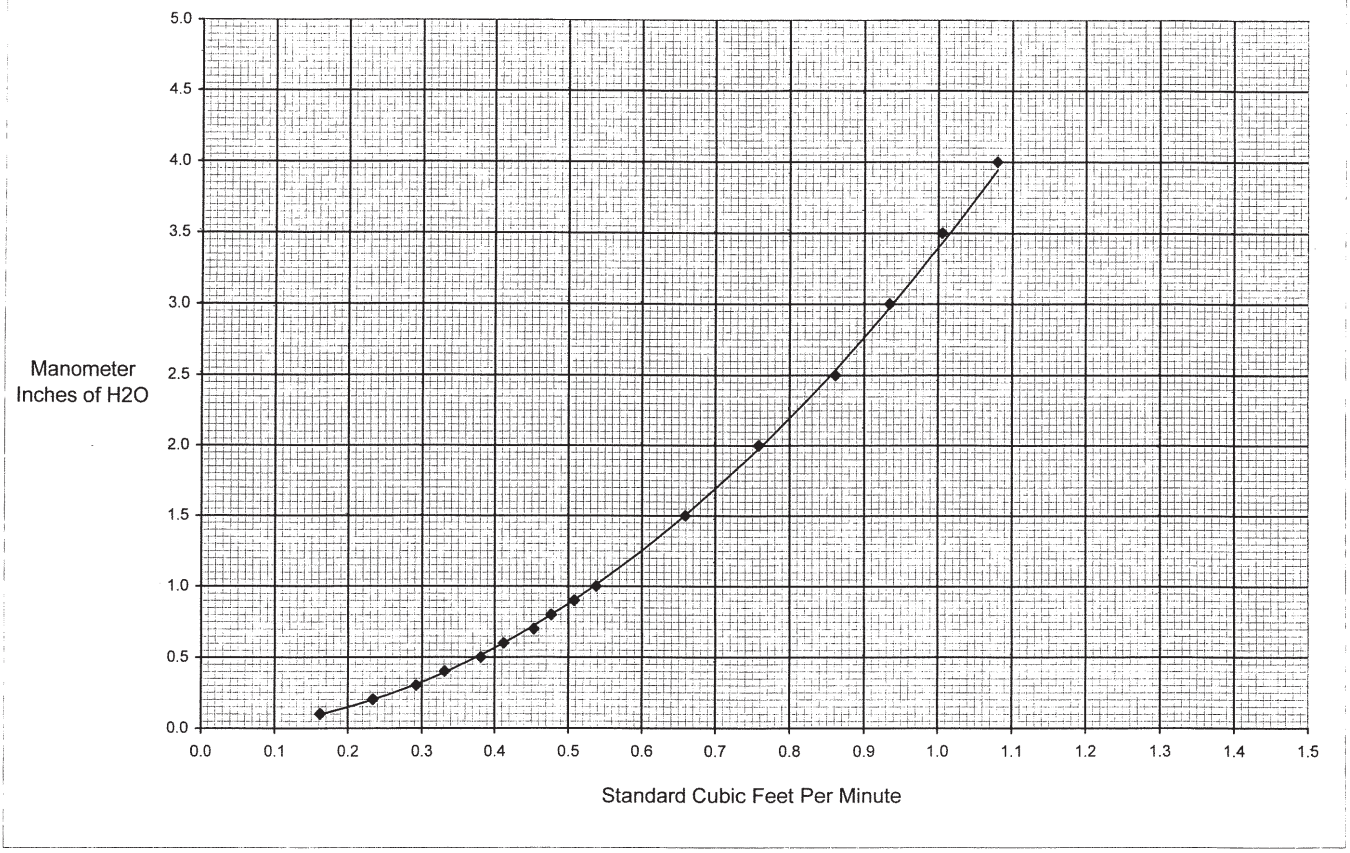
$$\text{Dry Gas Meter } VM_{std} = 17.65 \times 13.851 \frac{29.40 + \frac{4.0}{13.6}}{83 + 460} = 13.369 \text{ scfm}$$

$$\text{Calibration Factor } (C_{dg}) = \frac{\text{Wet Test Meter } VM_{std}}{\text{Dry Gas Meter } VM_{std}} \quad C_{dg} = \frac{13.197}{13.369} = 0.987$$

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: [signature]

STACK UNIT ORIFICE NO: **M8-1** DATE: **05/28/15** CALIBRATED BY: **Frohman** CHECKED BY:



METCO ENVIRONMENTAL

Digital Temperature Indicator No. M8-1

Calibration Data

Date: 5/28/15

Reference Thermometer No. T-228285

Media	Time	Reference Thermometer (°F)	DTI (°F)
Ambient Air	845	73	74
Ice Bath	846	34	34
Boiling Water	847	209	211
Oven	851	250	251
Oven	857	259	301
Oven	903	347	349
Oven	907	371	372

Meter Adjusted? YES X NO ____

Calibrator Frohman

Office: Dallas

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: [signature]

METCO ENVIRONMENTAL

Barometer Calibration

Barometer Number	M8-1
Date	6/22/2015
Time	8:30
Location	Belpre, OH
Latitude	32.97601
Longitude	96.84418
E_o - Elevation	629

Name of Closest Weather Station	Prestonwood
P_{bws} - Elevation of Weather Station (ft above sea level)	636
E_{ws} - Barometric Pressure at Weather Station[1] ("Hg)	30.42
P_{ba} - Absolute Barometric Pressure @ Weather Station ("Hg)	29.784
P_b - Absolute Barometric Pressure @ Location ("Hg)	29.791
Reading on Barometer ("Hg)	
Difference Actual and Barometer Reading[2]	29.791
Reading on Barometer after Correction (if applicable)	

[1] corrected to sea level

[2] no correction necessary if reading is within 0.05"Hg

Calculations:

$$P_{ba} = P_{bws} - \frac{E_{ws}}{1000} \qquad P_b = P_{ba} + \frac{E_{ws} - E_o}{1000}$$

Calibrated by

AIR LIQUIDE Air Liquide America Specialty Gases LLC | Scott™

RATA CLASS

Dual-Analyzed Calibration Standard

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: A22013
AIR LIQUIDE AMERICA SPECIALTY GASES LLC
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: 60505-71-65000
Document # : 50538822-001

Customer
CLEAN AIR ENGINEERING

GARY ZAPEL
500 WEST WOOD STREET
PALATINE IL 60067
US

ANALYTICAL INFORMATION Gas Type : NONE

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

Cylinder Number: CC66094
Cylinder Pressure***: 2000 PSIG
Certification Date: 14May2013
Exp. Date: 15May2021
Batch No: TRO0081918

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
CARBON MONOXIDE	5.13 PPM	+/- 1%	Direct NIST and VSL
NITROGEN	BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1677	14Mar2018	KAL003992	9.855 PPM	CARBON MONOXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
SIEMENS I/ULTRAMAT 6E/N1-VN-0545	06May2013	NDIR

ANALYZER READINGS

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

First Triad Analysis

CARBON MONOXIDE
Date: 07May2013 Response Unit: MV
Z1=0.00000 R1=25.40000 T1=4.78000
R2=25.40000 Z2=0.00000 T2=4.78000
Z3=0.00000 T3=4.78000 R3=25.40000
Avg. Concentration: 5.131 PPM

Second Triad Analysis

Date: 14May2013 Response Unit: MV
Z1=0.00000 R1=9.83000 T1=4.93000
R2=9.80000 Z2=0.00000 T2=4.95000
Z3=0.00000 T3=4.97000 R3=9.83000
Avg. Concentration: 5.135 PPM

Calibration Curve

Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.999999
Constants: A=0.0016069
B=1.14035876 C=-0.0290384
D=0.001494587 E=0

Special Notes: DELIVERY DOC# IS 50538813

APPROVED BY: JEFF CROTEAU

Page 1 of 1

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.: 61517-70-65000
Document # : 56532412-001

Customer
CLEAN AIR ENGINEERING
500 WEST WOOD STREET
PALATINE IL 60067
US

ANALYTICAL INFORMATION Gas Type : CO,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: ALM005790 **Certification Date:** 29Aug2014 **Exp. Date:** 30Aug2022
Cylinder Pressure: 2015 PSIG **Batch No:** TRO0116531

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY (ABSOLUTE / RELATIVE)
CARBON MONOXIDE	9.17 PPM	0.1 PPM / 1.0 %
NITROGEN	BALANCE	

TRACEABILITY

REFERENCE STANDARD

COMPONENT	CONCENTRATION	UNCERTAINTY	CYLINDER	TYPE/SRM SAMPLE	EXP. DATE
CARBON MONOXIDE	48.6000 PPM	0.2400 PPM	KAL003772	NTRM 1678	14Nov2017

ANALYTICAL METHOD

1st Analysis: 29Aug2014

COMPONENT	INSTRUMENT	ANALYTICAL/PRINCIPLE	CALIBRATED	CONCENTRATION
CARBON MONOXIDE	MKS/2030/0928621	FOURIER-TRANSFORM IR	07Aug2014	9.170 PPM

APPROVED BY: _____
ROBERT MCCRANDALL

Page 1 of 1

Download as...

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

RATA CLASS

Dual-Analyzed Calibration Standard

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A22010
AIR LIQUIDE AMERICA SPECIALTY GASES LLC
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: 58250-71-65000
Project No.: 05-89250-010

Customer
CLEAN AIR ENGINEERING
DON ALLEN
500 W. WOOD STREET
PALATINE IL 60067

ANALYTICAL INFORMATION Gas Type : NONE

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

Cylinder Number: CC64067 **Certification Date:** 12Jul2010 **Exp. Date:** 13Jul2018
Cylinder Pressure*:** 2000 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
PROPANE	3.08 PPM	+/- 1%	Direct NIST and VSL
NITROGEN	BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1668	02Oct2012	ALM029313	98.80 PPM	PROPANE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
VARIAN/3400/7506	25Jun2010	TCD/FID

ANALYZER READINGS

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

First Triad Analysis
PROPANE
Date: 12Jul2010 Response Unit: AREA
Z1=0.00000 R1=2625267. T1=82350.00
R2=2625176. Z2=0.00000 T2=82566.00
Z3=0.00000 T3=82327.00 R3=2628865.
Avg. Concentration: 3.080 PPM

Second Triad Analysis

Calibration Curve
Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.999999161
Constants: A=-0.02044045
B=3.78737E-05 C=0
D=0 E=0

Special Notes:
The expiration date has been extended without re-assay per EPA 600/R23-23/542.

QUALITY ASSURANCE

APPROVED BY: SARAH HERBERT
(signature on file)

Download as...

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

RATA CLASS

Dual-Analyzed Calibration Standard

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A22010
AIR LIQUIDE AMERICA SPECIALTY GASES LLC
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: 58278-71-65000
Project No.: 05-89582-015

Customer
CLEAN AIR ENGINEERING
DON ALLEN
500 W. WOOD STREET
PALATINE IL 60067

ANALYTICAL INFORMATION Gas Type : NONE

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

Cylinder Number: ALM022989
Cylinder Pressure*:** 2000 PSIG

Certification Date: 19Jul2010

Exp. Date: 20Jul2018
Batch No: TRO0000320

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
PROPANE	5.08 PPM	+/- 1%	Direct NIST and VSL
NITROGEN	BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1668	02Oct2012	ALM029313	98.80 PPM	PROPANE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
VARIAN/3400/7506	25Jun2010	TCD/FID

ANALYZER READINGS

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

First Triad Analysis
PROPANE
Date: 19Jul2010 Response Unit: AREA
Z1=0.00000 R1=2602744. T1=134286.0
R2=2602029. Z2=0.00000 T2=134160.0
Z3=0.00000 T3=134019.0 R3=2598209.
Avg. Concentration: 5.080 PPM

Second Triad Analysis

Calibration Curve
Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.999999161
Constants: A=-0.02044045
B=3.78737E-05 C=0
D=0 E=0

Special Notes:
The expiration date has been extended without re-assay per EPA 600/R23-23/542.

QUALITY ASSURANCE

APPROVED BY: SARAH HERBERT
(signature on file)

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: A22015
AIR LIQUIDE AMERICA SPECIALTY GASES LLC
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: 800622
Document # : 59397751-001
Folio #:FOLIO# 0915

Customer
TESTAMERICA AIR EMISSIONS DALLAS
3226 COMMANDER DR.
CARROLLTON TX 75006
US

ANALYTICAL INFORMATION Gas Type : PPN,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: BAL4190
Cylinder Pressure: 2000 PSIG
Certification Date: 17Apr2015
Exp. Date: 18Apr2023
Batch No: TRO0130791

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY (ABSOLUTE / RELATIVE)
PROPANE	8.64 PPM	0.1 PPM / 1.3 %
NITROGEN	BALANCE	

TRACEABILITY

REFERENCE STANDARD

COMPONENT	CONCENTRATION	UNCERTAINTY	CYLINDER	TYPE/SRM SAMPLE	EXP. DATE
PROPANE	99.5000 PPM	0.9000 PPM	ALM008863	NTRM 1668	06Jun2019

ANALYTICAL METHOD

1st Analysis: 17Apr2015

COMPONENT	INSTRUMENT	ANALYTICAL/PRINCIPLE	CALIBRATED	CONCENTRATION
PROPANE	VARIAN/3400/7506	TCD/FID	17Apr2015	8.640 PPM

APPROVED BY: ROBERT LESNIAK

Page 1 of 1

APPENDIX D

Field Testing Data

METCO Environmental

Job Number	15-162		1-4	Field Data	Ambient Temperature - °F	75	
Job Name	~~6-23-15~~ Hg/Low		Balance ID	M8-1	Assumed Moisture - %	5	
Run Number	1 Lead 1		Check Weight ID	M8-2000.0	Probe Length	6'	
Unit	75 Combustor		Actual Mass (g)	2000.0	C Factor	—	to reference
Date	6-23-15		Measured Mass (g)	2000.2	Initial Leak @	19.00	"Hg = 0.000 cfm
Operator	Hoppe / McCall / Adam		Difference (g)*	0.2	Final Leak @	10.00	"Hg = 0.000 cfm
Sample Box #	34	Meter # 0.994 M8	Pitot Leak Check: Initial	✓	Final	✓	Pitot Tips Damaged during Test? Yes/No
Purge To (cf):	—		Purge Time	—			

Note: Read and record at the start of each test point

* must be equal to or less than 0.5 g

Point	Clock Time	Dry Gas Meter (cf)	ΔP Pitot "H2O"	ΔP Orifice ΔH "H2O Desired	ΔP Orifice ΔH "H2O Actual	Pump Vacuum "Hg	Ts Stack Temp. °F	Probe Temp. °F	Oven/ Filter Temp. °F	Effluent Temp. °F	Tm Dry Gas Inlet Temp. °F	Tm Dry Gas Outlet Temp. °F	Aux Temp. °F	ΔP Remarks	3C Rate
D 1	855	529.373	~~0.093~~	0.75	0.75	2.6	1277	—	—	76	78	79	—	0.0092	0.2
2	859	531.18	~~0.038~~	0.75	0.75	2.0	1153	—	—	~~85~~63	76	80	—	0.0038	0.2
3	903	533.31	~~0.081~~	0.75	0.75	2.0	1242	—	—	62	77	80	—	0.0081	0.2
4	907	535.20	~~0.116~~	0.75	0.75	2.0	1215	—	—	61	77	80	—	0.0110	0.2
5D	911	537.00	~~0.091~~	0.75	0.75	2.0	1204		—	60	78	80	—	0.0291	0.2
6	915	536.80	~~0.383~~	0.75	0.75	2.0	1353	—	—	60	78	80	—	0.0383	0.2
7D	919	540.72	~~0.349~~	0.75	0.75	2.0	1343	—	—	61	79	80	—	0.0349	0.2
8	923	542.73	~~0.200~~	0.75	0.75	2.0	1328	—	—	63	79	81	—	0.0300	0.2
~~D~~ 9	~~927~~ 927	544.31	~~0.337~~	0.75	0.75	2.0	1331	—	—	63	79	81	—	0.0321	0.2
A 2	~~931~~ 931	546.47	~~0.371~~	0.75	0.75	2.0	1291	—	—	64	81	81	—	0.0371	0.2
3D	~~935~~ 935	548.33	~~0.205~~	0.75	0.75	2.0	1767	—	—	64	81	81	—	0.0205	0.2
4	939	550.40	~~0.151~~	0.75	0.75	2.0	880	—	—	65	81	82	—	0.0151	0.2
5	943	552.61	~~0.210~~	0.75	0.75	2.0	911	—	—	66	82	82	—	0.0210	0.2
6	947	553.81	~~0.491~~	0.75	0.75	2.0	1209	—	—	66	82	82	—	0.0491	0.2
7	951	556.12	~~0.500~~	0.75	0.75	2.0	1255	—	—	67	82	82	—	0.0500	0.2
8	955	558.13	~~0.513~~	0.75	0.75	2.0	1241	—	—	67	82	82	—	0.0513	0.2
End	959	560.168	-	-	-	-	-	-	-	-	-	-	-		LPM

A2 D2

C_p Pitot Tube Cal. Factor	0.813	Pitot Tube #	8-10-1	Barometer #	M8-1	Nozzle #	—		
V_m Volume Collected - cf	30.660	P_b Barometric Pressure – "Hg	29.17	Total Volume of leak checks after start – cf	—				
V_w Water Collected - ml	44.4	D_n Nozzle Diameter – in.	—	V_m = (DGM Cal Factor)	0.994	x (Net Volume Collected)	30.845		
T_t Time of Test – min.	64	%CO_2	~~4.2~~ 4.1	%CO	0.0	A_s = Area of Stack – in^2	2,043		
P_s Stack Pressure – "H_2O	-0.2	%O_2	~~15.0~~ 16.5	%N_2	~~80.8~~ 79.4	{Dry Gas Meter Reading_____ft3 – (Tt_____ min. X Leak Rate _____cfm)}			

QA/QC Check Completeness ✓ Legibility ✓ Accuracy ✓ Specification ✓ Reasonableness ✓ Checked By

15-162

Version 3
April 2013

Impinger Box No. 34

			Water Weight Gain	
Impinger 1	Final Weight	732.7	Impinger 1	24.0
	Initial Weight	708.7	Impinger 2	5.9
	Increase			
Impinger 2	Final Weight	748.5	Impinger 3	4.2
	Initial Weight	742.6	Impinger 4	16.3
	Increase			
Impinger 3	Final Weight	667.6	Impinger 5	
	Initial Weight	663.4	Impinger 6	
	Increase			
Impinger 4	Final Weight	1060.3	Impinger 7	
	Initial Weight	990.0		
	Increase		Total	44.4 = V_w
Impinger 5	Final Weight			
	Initial Weight			
	Increase			
Impinger 6	Final Weight			
	Initial Weight			
	Increase			
Impinger 7	Final Weight			
	Initial Weight			
	Increase			

SO_2 correction (if applicable)

V_w = ______
g SO_2 - ______
V_w = ______

P_b =	29.17	%CO_2 =	~~4.2~~ 4.1	
V_m =	30.660	%O_2 =	~~15.0~~ 16.5	TR 7-27
V_w =	44.4	%CO =	~~0.0~~	
P_m =	0.75	% N_2 =	~~80.8~~ 79.4	
Avg ΔP =	~~0.243~~ ~~0.158~~ 0.158 (~~50.028~~)	A_s =	2043	
Avg √ΔP =	~~0.486~~ ~~0.028~~ RA	D_n =	—	
C_p =	0.813	T_t =	164	
P_s =	-0.2 "H_2O		29.16 "Hg	
T_m =	80 °F		540 °R	
T_s =	1216 °F		1676 °R	

Moisture Content: %M = 6.68 M_d = 0.9332 MW_d = ~~29.272~~ 29.316 MW = 28.526 (TR 7-27)

$$Vm_{std} = 17.65 \times V_m \left| \frac{Pb + \frac{Pm}{13.6}}{Tm + 460} \right| = 17.65 \times 30660 \times \left| \frac{29.17 + \frac{0.750}{13.6}}{80 + 460} \right| = 29.287 \text{ sft}^3$$

0.458 scfm

$Vw_{gas} = 0.0472 \times V_w = 0.0472 \times$ 44.4 = 2.0957 sft³

$$\% \text{ Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{2.0957}{29.287 + 2.0957} \times 100 = 6.68 \%$$

$V_s = 5123.8 \times$ ~~0.486~~ ~~0.028~~ 0.158 $\sqrt{\frac{1676}{29.16 \times 28.526}} \times 0.813$ = ~~2874~~ ~~166~~ RA 934 fpm

ACFM = ~~40775~~ RA ~~23449~~ RA 13256 47 (TR 7-27-15)

SCFM = ~~11726~~ ~~677~~ RA 3811

%EA = 363.4

%I = 1039 x ______ x ______ / x ______ x ______ x ______ x ( )² = — %

$$V_s = 5123.8 \times \text{Avg} \sqrt{\Delta P} \times \sqrt{\frac{Ts(R)}{Ps(''Hg)xMW}} \times C_p = \text{fpm}$$

ACFM = (V_s x A_s)/144

$$SCFM = \frac{0.123 \times V_s \times A_s \times M_d \times P_s}{T_s}$$

$$\%I = \frac{1039 \times Vm_{std} \times T_s(°R)}{P_s(''Hg) \times M_d \times V_s \times T_t \times (D_n)^2}$$

Version 2
July 2011

METCO Environmental

Job Number	15-162	1-4 Field Data		Ambient Temperature - °F	80
Job Name	Hyben	Balance ID	M8	Assumed Moisture - %	7
Run Number	2nd Load 1	Check Weight ID	M8-2000-1	Probe Length	6'
Unit	75 Combustor	Actual Mass (g)	2000.0	C Factor	— to reference
Date	6-23-15	Measured Mass (g)	2000.7	Initial Leak @ 17.00 "Hg =	0.000 cfm
Operator	Hopper/McCall / Adam	Difference (g)*	0.7	Final Leak @ 17.00 "Hg =	0.000 cfm
Sample Box #	34 Meter # M8-1	Pitot Leak Check: Initial	/ Final /	Pitot Tips Damaged during Test?	Yes (No)
Purge To (cf):	—	Purge Time	—		

Note: Read and record at the start of each test point

* must be equal to or less than 0.5 g

Point	Clock Time	Dry Gas Meter (cf)	ΔP Pitot "H2O"	ΔP Orifice ΔH "H2O Desired	ΔP Orifice ΔH "H2O Actual	Pm Pump Vacuum "Hg	Ts Stack Temp. °F	Probe Temp. °F	Oven/ Filter Temp. °F	Effluent Temp. °F	Dry Gas Inlet Temp. °F	Tm Dry Gas Outlet Temp. °F	Aux Temp. °F	ΔP Remarks	3L Rate
B1	1035	560.465	0.758	0.75	0.75	2.0	1207	—	—	78	87	84	—	0.0758	0.2
2	1039	562.42	0.837	0.75	0.75	2.0	1221	—	—	67	84	84	—	0.0837	0.2
3	1043	564.30	0.778	0.75	0.75	2.0	1223	—	—	66	83	84	—	0.0778	0.2
4	1047	566.10	0.592	0.75	0.75	2.0	1217	—	—	65	84	84	—	0.0592	0.2
5	1051	568.12	0.316	0.75	0.75	2.0	1230	—	—	64	83	84	—	0.0316	0.2
6	1055	569.60	0.145	0.75	0.75	2.0	1253	—	—	64	83	84	—	0.0145	0.2
7	1059	571.02	0.238	0.75	0.75	2.0	1271	—	—	63	84	84	—	0.0238	0.2
8	1103	572.91	0.109	0.75	0.75	2.0	1289	—	—	62	84	84	—	0.0109	0.2
D-4 1107 A 1	1107	578.56	0.148	0.75	0.75	2.0	1270	—	—	62	84	84	—	0.0148	0.2
2	1111	577.93	0.268	0.75	0.75	2.0	1241	—	—	62	84	84	—	0.0268	0.2
1115 3	1115	579.17	0.431	0.75	0.75	2.0	1197	—	—	63	84	84	—	0.0431	0.2
4	1119	581.91	0.753	0.75	0.75	2.0	1118	—	—	64	84	84	—	0.0753	0.2
5	1123	583.49	0.730	0.75	0.75	2.0	1180	—	—	64	84	84	—	0.0730	0.2
6	1127	585.44	0.656	0.75	0.75	2.0	1260	—	—	65	85	84	—	0.0656	0.2
7	1131	587.31	0.328	0.75	0.75	2.0	1253	—	—	66	85	84	—	0.0328	0.2
8	1135	587.37	0.215	0.75	0.75	2.0	1231	—	—	66	85	84	—	0.0215	0.2
End	1139	591.241	—	—	—	—	—	—	—	—	—	—	—		LPM

C_p Pitot Tube Cal. Factor	~~0.841~~ 0.813	Pitot Tube #	S-10.1	Barometer #	M8-1	Nozzle #	—
V_m Volume Collected - cf	36.691	P_b Barometric Pressure – "Hg	29.17	Total Volume of leak checks after start – cf	—		
V_w Water Collected - ml	38.4	D_n Nozzle Diameter – in.	—	V_m = (DGM Cal Factor)	0.994 x (Net Volume Collected)	36.776	
T_t Time of Test – min.	~~60~~ 64	%CO_2	~~4.1~~ 3.8 %CO	0.0	A_s = Area of Stack – in^2	7043	
P_s Stack Pressure – "H_2O	-0.2	%O_2	~~15.3~~ 16.9 %N_2	~~80.6~~ 79.3	{Dry Gas Meter Reading ____ ft3 – (Tt ____ min. X Leak Rate ____ cfm)}		

QA/QC Check Completeness ✓ Legibility ✓ Accuracy 1R 7.27 ✓ Specification ✓ Reasonableness ✓ Checked By ✓

15-162

Version 3
April 2013

Impinger Box No. 34

Impinger 1	Final Weight	760.2	
	Initial Weight	732.7	
	Increase		
Impinger 2	Final Weight	753.6	
	Initial Weight	748.5	
	Increase		
Impinger 3	Final Weight	666.7	
	Initial Weight	667.6	
	Increase		
Impinger 4	Final Weight	1007.0	
	Initial Weight	1000.3	
	Increase		
Impinger 5	Final Weight		
	Initial Weight		
	Increase		
Impinger 6	Final Weight		
	Initial Weight		
	Increase		
Impinger 7	Final Weight		
	Initial Weight		
	Increase		

Water Weight Gain

Impinger 1	27.5
Impinger 2	5.1
Impinger 3	-0.9
Impinger 4	6.7
Impinger 5	–
Impinger 6	–
Impinger 7	–
Total	38.4 = V_w

SO_2 correction (if applicable)

V_w = ______
g SO_2 - ______
V_w = ______

P_b = 29.17
V_m = 30.591
V_w = 38.4
P_m = 0.75
Avg ΔP = ~~0.456~~ 0.046
Avg $\sqrt{\Delta P}$ = ~~0.645~~ 0.204
C_p = 0.813
P_s = -0.2 "H_2O — 29.16 "Hg
T_m = 84 °F — 544 °R
T_s = 1229 °F — 1689 °R

%CO_2 = ~~4.1~~ 3.8
%O_2 = ~~15.3~~ 16.9 TR 7-27
%CO = 0.0
% N_2 = ~~80.6~~ 79.3
A_s = 2043
D_n = –
T_t = 64

Moisture Content: %M = 5.88 M_d = 0.9412 MW_d = 29.268 TR 7-27 MW = 28.612

Vm_{std} = 17.65 x V_m $\left|\frac{Pb + \frac{Pm}{13.6}}{Tm + 460}\right|$ = 17.65 x 30.591 x $\left|\frac{29.17 + \frac{0.75}{13.6}}{84 + 460}\right|$ = 29.007 sft³ 0.483 scfm

Vw_{gas} = 0.0472 x V_w = 0.0472 x 38.4 = 1.8125 sft³

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}}$ x 100 = $\frac{1.8125}{29.007 + 1.8125}$ x 100 = 5.88 %

V_s = 5123.8 x ~~0.645~~ 0.204 $\sqrt{\frac{1689}{29.16 \times 28.612}}$ x 0.813 = ~~3823~~ 1209 fpm ACFM = ~~54239~~ 17158 TR 7-27-15

SCFM = ~~15611~~ 4937

%I = 1039 x x = ______ %

%EA = – 410.7

V_s = 5123.8 x Avg $\sqrt{\Delta P}$ x $\sqrt{\frac{Ts(R)}{Ps("Hg)xMW}}$ x C_p = fpm

ACFM = (V_s x A_s)/144

SCFM = $\frac{0.123 \times V_s \times A_s \times M_d \times P_s}{T_s}$

%I = $\frac{1039 \times Vm_{std} \times T_s(°R)}{P_s("Hg) \times M_d \times V_s \times T_t \times (D_n)^2}$

Version 2
July 2011

METCO Environmental

Job Number	15-162	1-4	Field Data	Ambient Temperature - °F	82
Job Name	Hyton	Balance ID	MB	Assumed Moisture - %	7
Run Number	3 load 1	Check Weight ID	MB-2000-1	Probe Length	6'
Unit	75 Combustor	Actual Mass (g)	2000.0	C Factor	— to reference
Date	6-23-15	Measured Mass (g)	2000.2	Initial Leak @ 10.00 "Hg =	0.000 cfm
Operator	Hyton/McGill / Adam	Difference (g)*	0.2	Final Leak @ 10.00 "Hg =	0.000 cfm
Sample Box #	54 Meter # MB-1	Pitot Leak Check: Initial ✓	Final ✓	Pitot Tips Damaged during Test?	Yes (No)
Purge To (cf):	—	Purge Time	—		

Note: Read and record at the start of each test point

* must be equal to or less than 0.5 g

			ΔP		P_m		T_s			T_m				ΔP	.36 Rate
Point	Clock Time	Dry Gas Meter (cf)	Pitot "H_2O"	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg	Stack Temp. °F	Probe Temp. °F	Oven/ Filter Temp. °F	Effluent Temp. °F	Dry Gas Inlet Temp. °F	Dry Gas Outlet Temp. °F	Aux Temp. °F	Remarks	
B1	1210	591.489	~~0.782~~	0.75	0.75	2.0	1068	—	-	80	84	85	—	0.0782	0.2
2	1214	593.60	~~0.303~~	0.75	0.75	2.0	1197	—	-	66	84	84	—	0.0303	0.2
3	1218	595.69	~~0.661~~	0.75	0.75	2.0	1200	—	-	68	84	84	—	0.0661	0.2
4	1222	597.41	~~0.611~~	0.75	0.75	2.0	1152	—	-	64	84	84	—	0.0611	0.2
5	1226	599.31	~~0.236~~	~~0.075~~ 0.75	0.75	2.0	1204	—	-	63	85	85	—	0.0236	0.2
6	1230	601.40	~~0.770~~	0.75	0.75	2.0	1232	—	-	62	85	84	—	0.0270	0.2
7	1234	603.10	~~0.532~~	0.75	0.75	2.0	1214	—	-	61	86	86	—	0.0532	0.2
8	1238	604.97	~~0.344~~	0.75	0.75	2.0	1255	—	-	62	86	86	—	0.0344	0.2
A 1	1242	606.91	~~0.611~~	0.75	0.75	2.0	1195	—	—	63	86	86	—	0.0611	0.2
2	1246	608.71	~~0.388~~	0.75	0.75	2.0	1284	—	-	64	86	87	—	0.0388	0.2
3	1250	611.00	~~0.427~~	0.75	0.75	2.0	1164	-	-	64	86	87	—	0.0427	0.2
4	1254	612.80	~~0.466~~	0.75	0.75	2.0	910	—	-	~~0~~364	87	87	—	0.0466	0.2
5	1258	614.60	~~0.511~~	0.75	0.75	2.0	1013	—	-	65	87	87	—	0.0511	0.2
6	1302	616.51	~~0.711~~	0.75	0.75	2.0	903	—	-	65	87	87	—	0.0711	0.2
7	1306	618.81	~~0.813~~	0.75	0.75	2.0	804	—	-	66	87	88	—	0.0813	0.2
8	1310	620.46	~~0.754~~	0.75	0.75	2.0	855	—	-	67	87	88	—	0.0754	0.2
End	1314	622.932	—	—	—	—	—	—	—	—	—	—	—		LPM

C_p Pitot Tube Cal. Factor	0.813 ✓	Pitot Tube #	8.10-1 ✓	Barometer #	MB-1 ✓	Nozzle #	—
V_m Volume Collected - cf	30.857 ✓	P_b Barometric Pressure – "Hg	29.18 ✓	Total Volume of leak checks after start – cf		—	
V_w Water Collected - ml	41.6 ✓	D_n Nozzle Diameter – in.	—	V_m = (DGM Cal Factor)	0.994 ✓	x (Net Volume Collected)	31.043
T_t Time of Test – min.	64 ✓	%CO_2 ~~4.1~~ 3.9 ✓	%CO 0.0	A_s = Area of Stack – in^2	7043 ✓		
P_s Stack Pressure – "H_2O	-0.2 ✓	%O_2 ~~15.2~~ 16.8 ✓	%N_2 ~~80.7~~ 79.3 ✓ TR 7-27	{Dry Gas Meter Reading ____ ft3 – (Tt ____ min. X Leak Rate ____ cfm)}			

QA/QC Check Completeness ✓ Legibility ✓ Accuracy ✓ Specification ✓ Reasonableness ✓ Checked By ✓

Version 3
April 2013

D-6

15-162

Impinger Box No. 34

			Water Weight Gain	
Impinger 1	Final Weight	786.5		Impinger 1 26.3
	Initial Weight	760.2		
	Increase			Impinger 2 4.0
Impinger 2	Final Weight	757.6		Impinger 3 2.8
	Initial Weight	753.6	SO_2 correction (if applicable)	Impinger 4 8.5
	Increase			
Impinger 3	Final Weight	669.5	V_w =	Impinger 5 /
	Initial Weight	666.7	g SO_2 -	
	Increase		V_w =	Impinger 6 /
Impinger 4	Final Weight	1015.5		Impinger 7 /
	Initial Weight	1007.6		
	Increase			Total 41.6 / = V_w
Impinger 5	Final Weight			
	Initial Weight			
	Increase			
Impinger 6	Final Weight			
	Initial Weight			
	Increase			
Impinger 7	Final Weight			
	Initial Weight			
	Increase			

P_b =	29.18 /	%CO_2 =	4.1 3.9 /	
V_m =	30.857 /	%O_2 =	15.2 16.8 /	TR 1.27
V_w =	41.6 /	%CO =	- 0.0 /	
P_m =	0.75 /	% N_2 =	80.7 79.3 /	
Avg ΔP =	0.315 / 0.053	A_s =	3643	
		D_n =	-	
Avg $\sqrt{\Delta P}$ =	0.707 / 0.266	T_t =	64 /	
C_p =	0.813 /			
P_s =	-0.2 /	"H_2O	29.17 /	"Hg
T_m =	86 /	°F	546 /	°R
T_s =	1103 /	°F	1563 / 296 / TR 1.27	°R

Moisture Content: %M = 6.31 / M_d = 0.9369 MW_d = 29.264 MW = 28.58 /

$$Vm_{std} = 17.65 \times V_m \left| \frac{Pm}{Pb + 13.6} \right| = 17.65 \times 30.857 \times \left| \frac{29.18 + \frac{0.750}{13.6}}{86 + 460} \right| = \frac{29.162 \text{ sft}^3}{0.456 \text{ scfm}}$$

$$Vw_{gas} = 0.0472 \times V_w = 0.0472 \times 41.6 = 1.9635 \text{ sft}^3$$

$$\% \text{ Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{1.9635}{29.162 + 1.9635} \times 100 = 6.31 \%$$

$$V_s = 5123.8 \times \frac{0.226}{0.707} \sqrt{\frac{1563}{29.17 \times 28.58}} \times 0.813 = 4035 \text{ fpm} \quad (1289 / TR_{1.27})$$

ACFM = 57242 (5,664 / TR 7-27-15)

SCFM = 17729 (18288 /)

$$\%I = \frac{1039 \times \quad \times \quad}{\times \quad \times \quad \times \quad \times (\quad)^2} = \quad \%$$

%EA = 398.6 /

$$V_s = 5123.8 \times Avg\ \sqrt{\Delta P} \times \sqrt{\frac{Ts(R)}{Ps(\text{"}Hg) \times MW}} \times C_p = \text{fpm}$$

$$ACFM = (V_s \times A_s)/144$$

$$SCFM = \frac{0.123 \times V_s \times A_s \times M_d \times P_s}{T_s}$$

$$\%I = \frac{1039 \times Vm_{std} \times T_s(^\circ R)}{P_s(\text{"}Hg) \times M_d \times V_s \times T_t \times (D_n)^2}$$

Version 2
July 2011

METCO Environmental

Field Data

Job Number	15-162	1-4		Ambient Temperature - °F	90
Job Name	Hagan	Balance ID	M8-1	Assumed Moisture - %	6
Run Number	1 Load 2	Check Weight ID	M8-2000	Probe Length	6'
Unit	75 Combustor	Actual Mass (g)	2000.0	C Factor	— to reference
Date	6/23/15	Measured Mass (g)	2000.2	Initial Leak @	17.0 "Hg = 0.001 cfm
Operator	Hopper/Pedall/Adam	Difference (g)*	0.2	Final Leak @	12.0 "Hg = 0.000 cfm
Sample Box #	34 Meter # M8-1	Pitot Leak Check: Initial	✓ Final ✓	Pitot Tips Damaged during Test?	Yes/No (No circled)
Purge To (cf):	—	Purge Time	—		

Note: Read and record at the start of each test point

* must be equal to or less than 0.5 g

Point	Clock Time	Dry Gas Meter (cf)	ΔP Pitot "H_2O"	Orifice ΔH "H_2O Desired	P_m Orifice ΔH "H_2O Actual	Pump Vacuum "Hg	T_s Stack Temp. °F	Probe Temp. °F	Oven/ Filter Temp. °F	Effluent Temp. °F	T_m Dry Gas Inlet Temp. °F	Dry Gas Outlet Temp. °F	Aux Temp. °F	ΔP Remarks	3L Rate
B 1	1355	622.891	~~0.521~~	0.75	0.75	2.0	1159	—	—	89	88	89	—	0.0521	0.2
2	1359	624.30	~~0.788~~	0.75	0.75	2.0	1256	—	—	68	88	89	—	0.0788	0.2
3	1403	626.21	~~0.993~~	0.75	0.75	2.0	1340	—	—	66	89	90	—	0.0993	0.2
4	1407	628.61	~~1.27~~	0.75	0.75	2.0	1364	—	—	63	89	90	—	0.1270	0.2
5	1411	630.42	~~0.651~~	0.75	0.75	2.0	1287	—	—	61	89	90	—	0.0651	0.2
6	1415	632.31	~~1.526~~	0.75	0.75	2.0	1347	—	—	60	90	91	—	0.1526	0.2
7	1419	634.50	~~0.571~~	0.75	0.75	2.0	1427	—	—	62	90	91	—	0.0571	0.2
8	1423	636.13	~~0.502~~	0.75	0.75	2.0	1425	—	—	62	90	91	—	0.0502	0.2
A 1	1427	638.07	~~0.521~~	0.75	0.75	2.0	1351	—	—	63	91	92	—	0.0521	0.2
2	1431	640.00	~~0.713~~	0.75	0.75	2.0	1419	—	—	63	91	92	—	0.0713	0.2
3	1435	641.93	~~0.830~~	0.75	0.75	2.0	1440	—	—	63	91	92	—	0.0830	0.2
4	1439	644.00	~~0.974~~	0.75	0.75	2.0	1253	—	—	64	91	93	—	0.0974	0.2
5	1443	645.31	~~0.617~~	0.75	0.75	2.0	1216	—	—	64	91	92	—	0.0617	0.2
6	1447	647.92	~~0.740~~	0.75	0.75	2.0	1051	—	—	64	92	93	—	0.0740	0.2
7	1451	650.13	~~0.830~~	0.75	0.75	2.0	~~0~~1175	—	—	66	92	93	—	0.0830	0.2
8	1455	652.12	~~0.811~~	0.75	0.75	2.0	8974	—	—	66	92	93	—	0.0811	0.2
End	1459	653.968	—	—	—	—	—	—	—	—	—	—			LPM

C_p Pitot Tube Cal. Factor	0.813	Pitot Tube #	8-10-1	Barometer #	M8-1
V_m Volume Collected - cf	30.891	P_b Barometric Pressure – "Hg	29.18	Total Volume of leak checks after start – cf	—
V_w Water Collected - ml	39.9	D_n Nozzle Diameter – in.	—	V_m = (DGM Cal Factor) 0.994 x (Net Volume Collected)	31.077
T_t Time of Test – min.	~~60~~ 64	%CO_2 ~~4.5~~ 4.3	%CO 0.0	A_s = Area of Stack – in²	2043
P_s Stack Pressure – "H_2O	-0.2	%O_2 ~~14.7~~ 16.2	%N_2 ~~80.8~~ 79.5	{Dry Gas Meter Reading ______ ft3 – (Tt ______ min. X Leak Rate ______ cfm)}	

Nozzle # —

1R 7.27

QA/QC Check Completeness ✓ Legibility ✓ Accuracy ✓ Specification ✓ Reasonableness ✓ Checked By [signature]

Version 3
April 2013

D-8

15-162

Impinger Box No. 34

			Water Weight Gain	
Impinger 1	Final Weight	816.8		Impinger 1 30.3
	Initial Weight	786.5		Impinger 2 3.3
	Increase			Impinger 3 0.2
Impinger 2	Final Weight	760.9	SO_2 correction	Impinger 4 6.1
	Initial Weight	757.6	(if applicable)	Impinger 5 –
	Increase		V_w =	Impinger 6 –
Impinger 3	Final Weight	669.7	g SO_2 -	Impinger 7 /
	Initial Weight	669.5	V_w =	
	Increase			Total 39.9 = V_w
Impinger 4	Final Weight	~~1091.6~~ 1091.6		
	Initial Weight	1015.5		
	Increase			
Impinger 5	Final Weight			
	Initial Weight			
	Increase			
Impinger 6	Final Weight			
	Initial Weight			
	Increase			
Impinger 7	Final Weight			
	Initial Weight			
	Increase			

P_b =	29.18	$\%CO_2$ =	~~4.8~~ 4.3	TR 7-27-15
V_m =	30.891	$\%O_2$ =	~~14.7~~ 16.2	
V_w =	39.9	%CO =	~~–~~ 0.0	
P_m =	0.75	% N_2 =	~~80.8~~ 79.5	
Avg ΔP =	~~0.803~~ 0.080	A_s =	2043	
		D_n =	–	
Avg $\sqrt{\Delta P}$ =	~~0.895~~ 0.280	T_t =	64	
C_p =	0.813			
P_s =	-0.2 "H_2O		29.17 "Hg	
T_m =	91 °F		551 °R	
T_s =	1280 °F		1740 °R	

Moisture Content: %M = 6.11 M_d = 0.9389 MW_d = 29.308 (36) MW = 28.624 (TR 7-27)

$$Vm_{std} = 17.65 \times V_m \left| \frac{Pm}{Pb + 13.6} \right| = 17.65 \times 30.891 \times \left| \frac{29.18 + \frac{0.750}{13.6}}{91 + 460} \right| = \frac{28.93}{0.452} \begin{matrix} (29)\ sft^3 \\ scfm \end{matrix}$$

$$Vw_{gas} = 0.0472 \times V_w = 0.0472 \times 39.9 = 1.8833\ (1)\ sft^3$$

$$\% \text{ Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{1.8833}{28.93 + 1.8833} \times 100 = 6.11\ (1)\ \%$$

$$V_s = 5123.8 \times \text{~~0.895~~ 0.280} \sqrt{\frac{1740}{29.17 \times 28.624}} \times 0.813 = 5382\ (1683\ (1)\ TR\ 7-27-15)\ fpm$$

ACFM = 75510 (23882 (1)) SCFM = 21050 (6,657 (1) TR 7-27-15)

$$\%I = \frac{1039 \times \quad \times \quad \times \quad \times (\quad)^2}{\quad \times \quad \times \quad \times \quad} = \quad \%$$

%EA = 332.8 (1)

$$V_s = 5123.8 \times \text{Avg } \sqrt{\Delta P} \times \sqrt{\frac{Ts(R)}{Ps(\text{"}Hg) \times MW}} \times C_p = \text{fpm}$$

$$ACFM = (V_s \times A_s)/144$$

$$SCFM = \frac{0.123 \times V_s \times A_s \times M_d \times P_s}{T_s}$$

$$\%I = \frac{1039 \times Vm_{std} \times T_s(^\circ R)}{P_s(\text{"}Hg) \times M_d \times V_s \times T_t \times (D_n)^2}$$

Version 2
July 2011

METCO Environmental

Job Number	15-162	Field Data	1-4	Ambient Temperature - °F	90
Job Name	Hogan	Balance ID	M8	Assumed Moisture - %	6
Run Number	2 Load 2	Check Weight ID	M8-2000-1	Probe Length	6'
Unit	75 Combustor	Actual Mass (g)	2000.0	C Factor	— to reference
Date	6/23/15	Measured Mass (g)	2000.2	Initial Leak @	16:00 "Hg = 0.000 cfm
Operator	Hoffer/McCall / Adam	Difference (g)*	0.2	Final Leak @	11:00 "Hg = 0.008 cfm
Sample Box #	24 Meter # M8-1	Pitot Leak Check: Initial	— Final —	Pitot Tips Damaged during Test?	Yes/(No)
Purge To (cf):	— —	Purge Time	—		

Note: Read and record at the start of each test point

* must be equal to or less than 0.5 g

Point	Clock Time	Dry Gas Meter (cf)	ΔP Pitot "H_2O"	Orifice ΔH "H_2O Desired	P_m Orifice ΔH "H_2O Actual	Pump Vacuum "Hg	T_s Stack Temp. °F	Probe Temp. °F	Oven/ Filter Temp. °F	Effluent Temp. °F	T_m Dry Gas Inlet Temp. °F	Dry Gas Outlet Temp. °F	Aux Temp. °F	ΔP Remarks	3C Rate
B 1	1536	654.344	~~H8~~	0.75	0.75	2-0	1060	—	—	79	90	~~92~~	—	~~0.0718~~ 0.1180	0.2
2	1534	656.47	~~H1~~	0.75	0.75	2-0	1175	—	—	66	91	91	—	0.1110	0.2
3	1538	658.37	~~1.10~~	0.75	0.75	2-0	1163	—	—	64	91	91	—	0.1100	0.2
4	1542	660.36	~~0.918~~	0.75	0.75	2-0	1230	—	—	61	91	91	—	0.0918	0.2
5	1546	662.26	~~0.857~~	0.75	0.75	2-0	1156	—	—	60	91	91	—	0.0857	0.2
6	1550	664.15	~~0.591~~	0.75	0.75	2-0	1276	—	—	62	91	91	—	0.0541	0.2
7	1554	666.21	~~0.719~~	0.75	0.75	2-0	1270	—	—	62	91	91	—	0.0713	0.2
8	1558	668.18	~~0.857~~	0.75	0.75	2-0	1247	—	—	63	91	91	—	0.0857	0.2
A 1	1602	669.79	~~0.991~~	0.75	0.75	2-0	1201	—	—	63	91	91	—	0.0941	0.2
2	1606	671.92	~~0.658~~	0.75	0.75	2-0	1251	—	—	65	90	91	—	0.0688	0.2
3	1610	673.80	~~0.741~~	0.75	0.75	2-0	860	—	—	66	91	90	—	0.0741	0.2
4	1614	676.00	~~0.919~~	0.75	0.75	2-0	773	—	—	61	91	90	—	0.0919	0.2
5	1618	677.80	~~0.981~~	0.75	0.75	2-0	1213	—	—	61	91	90	—	0.0981	0.2
6	1622	679.79	~~0.971~~	0.75	~~0.75~~	2-0	1278	—	—	62	91	90	—	0.0971	0.2
7	1626	681.41	~~0.653~~	0.75	0.75	2-0	1283	—	—	62	91	90	—	0.0653	0.2
8	1630	683.45	~~0.643~~	0.75	0.75	2-0	1261	—	—	64	91	90	—	0.0643	0.2
End	1634	685.419	—	—	—	—	—	—	—	—	—	—	—		LPM

C_p Pitot Tube Cal. Factor	0.813	Pitot Tube #	S-10-1	Barometer #	M8-1	Nozzle #	—
V_m Volume Collected - cf	30.889	P_b Barometric Pressure – "Hg	29.16	Total Volume of leak checks after start – cf	—		
V_w Water Collected - ml	36.1	D_n Nozzle Diameter – in.	—	V_m = (DGM Cal Factor)	0.994	x (Net Volume Collected)	31.075
T_t Time of Test – min.	100 64	%CO_2	4.3	%CO	0.0	A_s = Area of Stack – in^2	2043
P_s Stack Pressure – "H_2O	-0.20	%O_2	16.2	%N_2	79.5	{Dry Gas Meter Reading____ft3 – (Tt____ min. X Leak Rate ____cfm)}	

QA/QC Check Completeness ___ Legibility ___ Accuracy ___ Specification ___ Reasonableness ___ Checked By ___

Version 3
April 2013

Impinger Box No. 34

			Water Weight Gain	
Impinger 1	Final Weight	839.3		Impinger 1 22.5
	Initial Weight	816.8		Impinger 2 3.4
	Increase			Impinger 3 1.7
Impinger 2	Final Weight	764.3	SO_2 correction (if applicable)	Impinger 4 8.5
	Initial Weight	760.9		Impinger 5 -
	Increase		V_w =	Impinger 6 -
Impinger 3	Final Weight	671.4	g SO_2 -	Impinger 7 /
	Initial Weight	669.7	V_w =	
	Increase			Total 36.1 / = V_w
Impinger 4	Final Weight	1030.1		
	Initial Weight	1021.6		
	Increase			
Impinger 5	Final Weight			
	Initial Weight			
	Increase			
Impinger 6	Final Weight			
	Initial Weight			
	Increase			
Impinger 7	Final Weight			
	Initial Weight			
	Increase			

P_b = 29.16 /
V_m = 30.889 /
V_w = 36.1 /
P_m = 0.75 /
Avg ΔP = ~~0.863~~ 0.086 /
Avg $\sqrt{\Delta P}$ = ~~0.929~~ 0.292 /
C_p = ~~0.83~~ 0.813
P_s = -0.2 / "H_2O
T_m = 91 / °F
T_s = 1165 / °F

%CO_2 = 4.3 /
%O_2 = 16.2 /
%CO = - 0.0 /
% N_2 = 79.5 /
A_s = 2043 /
D_n = -
T_t = 64 /

29.15 / "Hg
551 ~~558~~ / °R
~~1625~~ 1625 / °R

Moisture Content: %M = 5.57 / M_d = 0.9443 / MW_d = 29.336 / MW = 28.70 /

$$Vm_{std} = 17.65 \times V_m \left| \frac{Pm}{Pb + 13.6 \over Tm + 460} \right| = 17.65 \times 30.889 \times \left| \frac{0.75}{29.16 + 13.6 \over 91 + 460} \right| = \frac{28.907}{0.4527} \text{ sft}^3 \text{ scfm}$$

$Vw_{gas} = 0.0472 \times V_w = 0.0472 \times 36.1 = 1.7039$ / sft^3

$$\% \text{ Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{1.7039}{28.907 + 1.7039} \times 100 = 5.57 \%$$

$$V_s = 5123.8 \times \text{~~0.929~~ 0.292} \sqrt{\frac{1625}{29.15 \times 28.70}} \times 0.813 = 1695 \text{ fpm}$$

ACFM = 24051 /
SCFM = 7215 /
%EA = 332.8 /

%I = 1039 x ___ x ___ x ___ x ( )^2 = - %

$$V_s = 5123.8 \times \text{Avg } \sqrt{\Delta P} \times \sqrt{\frac{Ts(R)}{Ps(\text{"}Hg) \times MW}} \times C_p = \text{fpm}$$

$$ACFM = (V_s \times A_s)/144$$

$$SCFM = \frac{0.123 \times V_s \times A_s \times M_d \times P_s}{T_s}$$

$$\%I = \frac{1039 \times Vm_{std} \times T_s(^\circ R)}{P_s(\text{"}Hg) \times M_d \times V_s \times T_t \times (D_n)^2}$$

Version 2
July 2011

METCO Environmental

Job Number	15-162	Field Data	1-4	Ambient Temperature - °F	95
Job Name	Hyben	Balance ID	MB1	Assumed Moisture - %	6
Run Number	3 Load 2	Check Weight ID	MB2000	Probe Length	6'
Unit	75 Combustor	Actual Mass (g)	2000.0	C Factor	— to reference
Date	6/23/15	Measured Mass (g)	2000.2	Initial Leak @ 19.50 "Hg =	0.000 cfm
Operator	Hoffer/McColl / Adam	Difference (g)*	0.2	Final Leak @ 11.06 "Hg =	0.000 cfm
Sample Box #	3-11 Meter # MB-1	Pitot Leak Check: Initial ✓	Final ✓	Pitot Tips Damaged during Test?	Yes/No
Purge To (cf):	—	Purge Time	—		

Note: Read and record at the start of each test point

* must be equal to or less than 0.5 g

ΔP	Point	Clock TIme	Dry Gas Meter (cf)	ΔP Pitot "H_2O"	Orifice ΔH "H_2O Desired	P_m Orifice ΔH "H_2O Actual	Pump Vacuum "Hg	T_s Stack Temp. °F	Probe Temp. °F	Oven/ Filter Temp. °F	Effluent Temp. °F	T_m Dry Gas Inlet Temp. °F	Dry Gas Outlet Temp. °F	Aux Temp. °F	Remarks	3C Rate
0.0911	1	1700	685.542	~~0.911~~	0.75	0.75	2.0	1145	—	—	79	87	88	—	FC0516	0.2
0.1130	2	1704	687.61	~~1.15~~	0.75	0.75	2.0	1088	—	—	61	87	88	—	Micrometer	0.2
0.1000	3	1708	689.11	~~1.00~~	0.75	0.75	2.0	1151	—	—	66	87	87	—		0.2
0.0913	4	1712	691.48	~~0.913~~	0.75	0.75	2.0	1170	—	—	60	87	87	—	Sh: 702163	0.2
0.0651	5	1716	693.79	~~0.651~~	0.75	0.75	2.0	1185	—	—	60	87	87	—		0.2
0.0713	6	1720	695.11	~~0.713~~	0.75	0.75	2.0	1234	—	—	61	87	88	—		0.2
0.0615	7	1724	697.21	~~0.615~~	0.75	0.75	2.0	1332	—	—	61	88	88	—		0.2
0.0991	8	1728	698.91	~~0.991~~	0.75	0.75	2.0	1333	—	—	61	88	88	—		0.2
0.0950	10	1732	~~6~~700.31	~~0.95~~	0.75	0.75	2.0	1105	—	—	62	88	88	—		0.2
0.0956	9	1736	703.00	~~0.956~~	0.75	0.75	2.0	988	—	—	62	88	88	—		0.2
0.1210	3	1740	705.01	~~1.210~~	0.75	0.75	2.0	1031	—	—	62	88	88	—		0.2
0.0919	4	1744	707.11	~~0.919~~	0.75	0.75	2.0	1204	—	—	63	89	88	—		0.2
0.0721	5	1748	709.00	~~0.721~~	0.75	0.75	2.0	1230	—	—	63	89	87	—		0.2
0.0513	6	1752	710.19	~~0.513~~	0.75	0.75	2.0	1201	—	—	63	89	88	—		0.2
0.0749	7	1756	~~8~~712.51	~~0.749~~	0.75	0.75	2.0	1290	—	—	65	89	88	—		0.2
0.0231	8	1800	714.71	~~0.231~~	0.75	0.75	2.0	1254	—	—	65	89	88	—		0.2
	End	1804	716.357	—	—	—	—	—	—	—	—	—	—	—		~~0.2~~ LPM

C_p Pitot Tube Cal. Factor 0.813 ✓ Pitot Tube # S-1-01 ✓ Barometer # MB-16 ✓ Nozzle # —

V_m Volume Collected - cf 30.630 ✓ P_b Barometric Pressure – "Hg 29.17 ✓ Total Volume of leak checks after start – cf —

V_w Water Collected - ml 36.9 ✓ D_n Nozzle Diameter – in. — V_m = (DGM Cal Factor) 0.994 ✓ x (Net Volume Collected) 30.815

T_t Time of Test – min. 64 ✓ %CO_2 ~~4.3~~ 4.1 %CO 0.0 7/28/15 A_s = Area of Stack – in² 2043 ✓

P_s Stack Pressure – "H_2O -0.20 ✓ %O_2 16.85 %N_2 79.1 {Dry Gas Meter Reading ____ ft3 – (Tt ____ min. X Leak Rate ____ cfm)}

QA/QC Check Completeness ✓ Legibility ✓ Accuracy ✓ Specification ✓ Reasonableness ✓ Checked By ✓

15-162

Version 3
April 2013

Impinger Box No. 34

			Water Weight Gain	
Impinger 1	Final Weight	868.5		Impinger 1 29.2
	Initial Weight	839.3		Impinger 2 3003.0
	Increase			Impinger 3 1.6
Impinger 2	Final Weight	767.3	SO_2 correction (if applicable)	Impinger 4 3.1
	Initial Weight	764.3		Impinger 5
	Increase		V_w =	Impinger 6
Impinger 3	Final Weight	673.0	g SO_2 -	Impinger 7
	Initial Weight	671.4	V_w =	
	Increase			Total 36.9 = V_w
Impinger 4	Final Weight	1033.2		
	Initial Weight	1030.1		
	Increase			
Impinger 5	Final Weight			
	Initial Weight			
	Increase			
Impinger 6	Final Weight			
	Initial Weight			
	Increase			
Impinger 7	Final Weight			
	Initial Weight			
	Increase			

P_b =	29.17	%CO_2 =	4.3
V_m =	30.630	%O_2 =	16.4
V_w =	36.9	%CO =	0.0
P_m =	0.75	% N_2 =	79.3
Avg ΔP =	0.082	A_s =	2043
		D_n =	
Avg $\sqrt{\Delta P}$ =	0.283	T_t =	64
C_p =	0.813		
P_s =	-0.7 "H_2O		29.16 "Hg
T_m =	88 °F		548 °R
T_s =	1181 °F		1641 °R

Moisture Content: %M = 5.70 M_d = 0.9430 MW_d = 29.344 MW = 28.701

$$Vm_{std} = 17.65 \times V_m \left| \frac{Pm}{Pb + 13.6} \right| = 17.65 \times 30.630 \times \left| \frac{29.17 + 13.6}{88 + 460} \right| = 28.830 \text{ sft}^3 = 0.4501 \text{ scfm}$$

$$Vw_{gas} = 0.0472 \times V_w = 0.0472 \times 36.9 = 1.7417 \text{ sft}^3$$

$$\% \text{ Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{1.7417}{+ 1.7417} \times 100 = 5.70\%$$

$$V_s = 5123.8 \times 0.283 \sqrt{\frac{1641}{29.16 \times \frac{28.70}{67}}} \times 0.813 = 1,652 \text{ fpm}$$

ACFM = 23428

SCFM = 6,958

$$\%I = \frac{1039 \times \quad \times \quad}{\times \quad \times \quad \times \quad \times (\quad)^2} = \quad \%$$

%EA = 355.4 361.2

$$V_s = 5123.8 \times \text{Avg } \sqrt{\Delta P} \times \sqrt{\frac{Ts(R)}{Ps(\text{"}Hg) \times MW}} \times C_p = \text{fpm}$$

$$ACFM = (V_s \times A_s)/144$$

$$SCFM = \frac{0.123 \times V_s \times A_s \times M_d \times P_s}{T_s}$$

$$\%I = \frac{1039 \times Vm_{std} \times T_s(^\circ R)}{P_s(\text{"}Hg) \times M_d \times V_s \times T_t \times (D_n)^2}$$

Version 2
July 2011

METCO Environmental

Job Number 15-162 / 1-4
Job Name Hyder /
Run Number 1 Load 3 /
Unit 0 15 comb. /
Date 6/24/19 /
Operator Hyder/McCall/~~Adkins~~ Adkins /
Sample Box # 34 Meter # M8-1 /
Purge To (cf): —

Field Data
Balance ID M8-2 1
Check Weight ID M8-2000
Actual Mass (g) 2000.0
Measured Mass (g) 2000.2
Difference (g)* 0.2
Pitot Leak Check: Initial ✓ Final ✓
Purge Time —

Ambient Temperature - °F 75
Assumed Moisture - % 6
Probe Length 6'
C Factor — to reference
Initial Leak @ 15:50 "Hg = 0.001 cfm
Final Leak @ 15:00 "Hg = 0.001 cfm
Pitot Tips Damaged during Test? Yes/No

Note: Read and record at the start of each test point

* must be equal to or less than 0.5 g

			ΔP		P_m		T_s				T_m				3C Rate
Point	Clock Time	Dry Gas Meter (cf)	Pitot "H_2O"	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg	Stack Temp. °F	Probe Temp. °F	Oven/ Filter Temp. °F	Effluent Temp. °F	Dry Gas Inlet Temp. °F	Dry Gas Outlet Temp. °F	Aux Temp. °F	Remarks	
B 1	825	716.569	0.124	0.75	0.75	2.0	1416	—	—	73	71	72	—		0.2
2	829	718.71	0.099	0.75	0.75	2.0	1547	—	—	63	71	72	—		0.2
3	833	720.03	0.081	0.75	0.75	2.0	1554	—	—	62	71	72	—		0.2
4	837	721.90	0.133	0.75	0.75	2.0	1487	—	—	60	71	72	—		0.2
5	841	724.02	0.110	0.75	0.75	2.0	1393	—	—	54	72	72	—		0.2
6	845	725.82	~~0.079~~	0.75	0.75	2.0	1428	—	—	60	73	72	—		0.2
7	849	727.78	0.093	0.75	0.75	2.0	1377	—	—	60	73	73	—		0.2
8	853	729.51	0.096	0.75	0.75	2.0	1351	—	—	60	73	73	—		0.2
A 1	857	731.48	0.130	0.75	0.75	2.0	880	—	—	61	74	73	—		0.2
2	901	733.16	0.121	0.75	0.75	2.0	843	—	—	62	74	73	—		0.2
3	905	735.27	0.110	0.75	0.75	2.0	811	—	—	62	74	73	—		0.2
4	909	736.98	0.103	0.75	0.75	2.0	~~975~~ 975	—	—	62	74	73	—		0.2
5	913	738.61	0.098	0.75	0.75	2.0	903	—	—	64	75	74	—		0.2
6	917	741.00	0.099	0.75	0.75	2.0	1160	—	—	64	75	74	—		0.2
7	921	743.10	0.100	0.75	0.75	2.0	888	—	—	65	75	75	—		0.2
8	925	744.81	0.095	0.75	0.75	2.0	961	—	—	65	75	76	—		0.2
End	929	746.750	—	—	—	—	—	—	—	—	—	—	—		Lpm

0.091 Q

C_p Pitot Tube Cal. Factor 0.813 / Pitot Tube # S-101 / Barometer # M8-1 / Nozzle # —

V_m Volume Collected - cf 30.000 / P_b Barometric Pressure – "Hg 29.36 / Total Volume of leak checks after start – cf —

V_w Water Collected - ml 36.7 / D_n Nozzle Diameter – in. — / V_m = (DGM Cal Factor) 0.994 / x (Net Volume Collected) 30.181

T_t Time of Test – min. 64 / %CO_2 4.7 / %CO 0.0 / A_s = Area of Stack – in^2 7043 /

P_s Stack Pressure – "H_2O -0.10 / %O_2 15.6 / %N_2 79.7 / {Dry Gas Meter Reading ____ ft3 – (Tt ____ min. X Leak Rate ____ cfm)}

QA/QC Check Completeness ✓ Legibility ✓ Accuracy ✓ Specification ✓ Reasonableness ✓ Checked By ✓

Version 3
April 2013

D-14

15-162

Impinger Box No. 34

			Water Weight Gain	
Impinger 1	Final Weight	771.8		Impinger 1 26.8
	Initial Weight	745.0		
	Increase			Impinger 2 3.4
Impinger 2	Final Weight	769.9		
	Initial Weight	2450 7665	SO_2 correction (if applicable)	Impinger 3 1.1
	Increase			Impinger 4 5.4
Impinger 3	Final Weight	673.4	V_w =	Impinger 5 –
	Initial Weight	672.3	g SO_2 -	
	Increase		V_w =	Impinger 6 –
Impinger 4	Final Weight	990.9		Impinger 7 ✓
	Initial Weight	985.5 985.5		
	Increase			Total 36.7 ✓ = V_w
Impinger 5	Final Weight		P_b = 29.36 ✓	$\%CO_2$ = 5.2 4.7 ✓
	Initial Weight		V_m = 30.000 ✓	$\%O_2$ = 13.7 15.6 ✓ TR 7-27
	Increase		V_w = 36.7 ✓	%CO = – 0 ✓
Impinger 6	Final Weight		P_m = 0.75 ✓	$\%N_2$ = 81.1 79.7 ✓
	Initial Weight		Avg ΔP = 0.105 ✓	A_s = 2043 ✓
	Increase			D_n = –
			Avg $\sqrt{\Delta P}$ = 0.323 ✓	T_t = 64 ✓
Impinger 7	Final Weight		C_p = 0.813 ✓	29.35 ✓ "Hg
	Initial Weight		P_s = –0.1 ✓ "H_2O	533 ✓ °R
	Increase		T_m = 73 ✓ °F	1646 ✓ °R
			T_s = 1186 ✓ °F	

Moisture Content: %M = 5.60 ✓ M_d = 0.9440 ✓ MW_d = 29.376 ✓ MW = 28.74 ✓

$$Vm_{std} = 17.65 \times V_m \left| \frac{Pm}{Pb + 13.6} \right| = 17.65 \times 30.000 \times \left| \frac{29.36 \frac{0.75}{+ 13.6}}{73 + 460} \right| = \frac{29.222 \text{ sft}^3}{0.757 \text{ scfm}}$$

$Vw_{gas} = 0.0472 \times V_w = 0.0472 \times 36.7 = 1.7322$ sft³

$$\% \text{ Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{1.7322}{+ 1.7322} \times 100 = 5.60\ \%$$

$$V_s = 5123.8 \times 0.323 \sqrt{\frac{1646}{29.35 \times 28.74}} \times 0.813 = 1880 \text{ fpm}$$

ACFM = 26,666 ✓

SCFM = 7952 ✓

$$\%I = \frac{1039 \times \quad \times \quad}{\times \quad \times \quad \times \quad \times (\quad)^2} = \quad \%$$

%EA = 282.6 ✓

$$V_s = 5123.8 \times \text{Avg } \sqrt{\Delta P} \times \sqrt{\frac{Ts(R)}{Ps(\text{"Hg}) \times MW}} \times C_p = \text{fpm}$$

$$ACFM = (V_s \times A_s)/144$$

$$SCFM = \frac{0.123 \times V_s \times A_s \times M_d \times P_s}{T_s}$$

$$\%I = \frac{1039 \times Vm_{std} \times T_s(^\circ R)}{P_s(\text{"Hg}) \times M_d \times V_s \times T_t \times (D_n)^2}$$

Version 2
July 2011

METCO Environmental

Field Data

Job Number	15-162		1-4	Ambient Temperature - °F	80
Job Name	Hyban	Balance ID	MS1	Assumed Moisture - %	6
Run Number	2 Load 3	Check Weight ID	MS-200	Probe Length	6'
Unit	75 Comb.	Actual Mass (g)	2000.0	C Factor	— to reference
Date	6/24/15	Measured Mass (g)	2000.2	Initial Leak @	15.5 "Hg = 0.000 cfm
Operator	Hoff/McCall/Adam	Difference (g)*	0.2	Final Leak @	9.00 "Hg = 0.000 cfm
Sample Box #	34 Meter # MS-1	Pitot Leak Check: Initial	✓ Final ✓	Pitot Tips Damaged during Test?	Yes/No (No circled)
Purge To (cf):	—	Purge Time	—		

Note: Read and record at the start of each test point

* must be equal to or less than 0.5 g

Point	Clock Time	Dry Gas Meter (cf)	ΔP Pitot "H_2O"	Orifice ΔH "H_2O Desired	P_m Orifice ΔH "H_2O Actual	Pump Vacuum "Hg	T_s Stack Temp. °F	Probe Temp. °F	Oven/ Filter Temp. °F	Effluent Temp. °F	Dry Gas Inlet Temp. °F	T_m Dry Gas Outlet Temp. °F	Aux Temp. °F	Remarks	3C Rate
B 1	1005	747.00	0.091	0.75	0.75	2.0	1297	—	—	79	75	76	—		0.2
2	1009	748.92	0.089	0.75	0.75	2.0	1358	—	—	68	76	77	—		0.2
3	1013	750.67	0.088	0.75	0.75	2.0	1496	—	—	63	76	77	—		0.2
4	1017	752.62	0.103	0.75	0.75	2.0	1461	—	—	59	77	77	—		0.2
5	1021	754.55	0.111	0.75	0.75	2.0	1333	—	—	59	77	78	—		0.2
6	1025	756.71	0.109	0.75	0.75	2.0	1328	—	—	60	77	78	—		0.2
7	1029	758.39	0.089	0.75	0.75	2.0	1048	—	—	60	77	78	—		0.2
8	1033	760.28	0.091	0.75	0.75	2.0	916	—	—	60	78	79	—		0.2
A 1	1037	762.00	0.099	0.75	0.75	2.0	1034	—	—	62	79	79	—		0.2
2	1041	764.08	0.116	0.75	0.75	2.0	1234	—	—	62	79	79	—		0.2
3	1045	766.00	0.103	0.75	0.75	2.0	1482	—	—	62	80	80	—		0.2
4	1049	767.91	0.101	0.75	0.75	2.0	1480	—	—	63	80	80	—		0.2
5	1053	769.80	0.104	0.75	0.75	2.0	1371	—	—	63	80	80	—		0.2
6	1057	771.73	0.097	0.75	0.75	2.0	1302	—	—	64	81	81	—		0.2
7	1101	773.61	0.096	0.75	0.75	2.0	1332	—	—	64	81	81	—		0.2
8	1105	775.41	0.100	0.75	0.75	2.0	1051	—	—	63	81	81	—		0.2
End	1109	777.501	—	—	—	—	—	—	—	—	—	—	—	—	LPM

C_p Pitot Tube Cal. Factor	0.813	Pitot Tube #	8-10-1	Barometer #	MS-1
				Nozzle #	—
V_m Volume Collected - cf	30.318	P_b Barometric Pressure – "Hg	29.38	Total Volume of leak checks after start – cf	—
V_w Water Collected - ml	40.7	D_n Nozzle Diameter – in.	—	V_m = (DGM Cal Factor) 0.994 x (Net Volume Collected)	30.501
T_t Time of Test – min.	64	$\%CO_2$ 4.6	%CO 0.0	A_s = Area of Stack – in^2	2043
P_s Stack Pressure – "H_2O	-0.1	$\%O_2$ 15.9	$\%N_2$ 79.6	**{Dry Gas Meter Reading_____ft3 – (Tt_____ min. X Leak Rate _____cfm)}**	

QA/QC Check Completeness ✓ Legibility ✓ Accuracy ✓ Specification ✓ Reasonableness ✓ Checked By [signature]

Version 3
April 2013

D-162

15-162

Impinger Box No. 34

Impinger 1	Final Weight	801.7
	Initial Weight	771.8
	Increase	
Impinger 2	Final Weight	773.8
	Initial Weight	769.9
	Increase	
Impinger 3	Final Weight	673.8
	Initial Weight	673.4
	Increase	
Impinger 4	Final Weight	997.4
	Initial Weight	990.9
	Increase	
Impinger 5	Final Weight	
	Initial Weight	
	Increase	
Impinger 6	Final Weight	
	Initial Weight	
	Increase	
Impinger 7	Final Weight	
	Initial Weight	
	Increase	

Water Weight Gain

Impinger 1	29.9
Impinger 2	3.9
Impinger 3	0.4
Impinger 4	6.5
Impinger 5	–
Impinger 6	–
Impinger 7	–
Total	40.7 = V_w

SO_2 correction (if applicable)

V_w = ______
g SO_2 - ______
V_w = ______

P_b =	29.38	$\%CO_2$ =	4.6
V_m =	30.318	$\%O_2$ =	15.9
V_w =	40.7	%CO =	–
P_m =	0.75	% N_2 =	79.5
Avg ΔP =	0.099	A_s =	2043
		D_n =	–
Avg √ΔP =	0.3154	T_t =	64
C_p =	0.813		
P_s =	-0.1 "H_2O		29.37 "Hg
T_m =	79 °F		539 °R
T_s =	1283 °F		1743 °R

Moisture Content: %M = 6.167 TR 7-27 M_d = 0.9383 MW_d = 29.372 MW = 28.67

$$Vm_{std} = 17.65 \times V_m \left| \frac{Pb + \frac{Pm}{13.6}}{Tm + 460} \right| = 17.65 \times 30.318 \times \left| \frac{29.38 + \frac{0.75}{13.6}}{79 + 460} \right| =$$ 29.241 (223 TR 7-27-15) sft³, 0.457 scfm

$Vw_{gas} = 0.0472 \times V_w = 0.0472 \times$ 40.7 = 1.9210 sft³

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100$ = $\frac{1.9210}{29.241 + 1.9210}$ (23 TR 7-27) x 100 = 6.167 (TR 7-27) %

$V_s = 5123.8 \times$ 0.3154 (TR 7-27) $\sqrt{\frac{1743}{29.37 \times 28.67}}$ x 0.813 = 1882 fpm ACFM = 26,699

SCFM = 7477

%I = $\frac{1039 \times \quad \times}{\times \quad \times \quad \times \quad \times (\quad)^2}$ = ______ %   %EA = 307.7

$$V_s = 5123.8 \times \text{Avg } \sqrt{\Delta P} \times \sqrt{\frac{Ts(R)}{Ps("Hg)xMW}} \times C_p = \text{fpm}$$

$$ACFM = (V_s \times A_s)/144$$

$$SCFM = \frac{0.123 \times V_s \times A_s \times M_d \times P_s}{T_s}$$

$$\%I = \frac{1039 \times Vm_{std} \times T_s(°R)}{P_s("Hg) \times M_d \times V_s \times T_t \times (D_n)^2}$$

Version 2
July 2011

METCO Environmental

Job Number	15-162	1-4 Field Data		Ambient Temperature - °F	80
Job Name	Hyden	Balance ID	MS-1	Assumed Moisture - %	6
Run Number	3 Load 3	Check Weight ID	MS-3000	Probe Length	6'
Unit	75 Camb.	Actual Mass (g)	3000.0	C Factor	— to reference
Date	6/29/15	Measured Mass (g)	3000.7	Initial Leak @ 17.00 "Hg =	0.000 cfm
Operator	Hyde/McCall/Adam	Difference (g)*	0.7	Final Leak @ 17.00 "Hg =	0.000 cfm
Sample Box #	39 Meter # MS-1	Pitot Leak Check: Initial	✓ Final ✓	Pitot Tips Damaged during Test?	Yes (No)
Purge To (cf):	—	Purge Time	—		

Note: Read and record at the start of each test point

* must be equal to or less than 0.5 g

			ΔP		P_m		T_s				T_m				
Point	Clock TIme	Dry Gas Meter (cf)	Pitot "H_2O"	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg	Stack Temp. °F	Probe Temp. °F	Oven/ Filter Temp. °F	Effluent Temp. °F	Dry Gas Inlet Temp. °F	Dry Gas Outlet Temp. °F	Aux Temp. °F	Remarks	QC Rate
1	1135	777.35	0.096	0.75	0.75	2.0	1295	—	-	75	80	82	—		0.2
2	1139	779.60	0.108	0.75	0.75	2.0	1331	—	-	67	81	82	—		0.2
3	1143	781.76	0.113	0.75	0.75	2.0	1459	—	-	64	82	83	—		0.2
4	1147	783.77	0.111	0.75	0.75	2.0	1476	—	-	63	82	83	—		0.2
5	1151	785.49	0.097	0.75	0.75	2.0	1220	—	-	62	83	84	—		0.2
6	1155	787.21	0.096	0.75	0.75	2.0	1233	—	-	61	83	84	—		0.2
7	1159	789.40	0.089	0.75	0.75	2.0	1001	—	-	60	84	85	—		0.2
8	1203	791.34	0.093	0.75	0.75	2.0	917	—	-	62	84	85	—		0.2
A 1	1207	793.06	0.088	0.75	0.75	2.0	857	—	-	63	84	85	—		0.2
2	1211	795.11	0.099	0.75	0.75	2.0	1519	—	-	64	85	85	—		0.2
3	1215	797.04	0.103	0.75	0.75	2.0	1521	—	-	66	85	85	—		0.2
4	1219	799.13	0.100	0.75	0.75	2.0	1484	—	-	66	85	86	—		0.2
5	1223	800.79	0.119	0.75	0.75	2.0	1276	—	-	64	86	86	—		0.2
6	1227	803.00	0.105	0.75	0.75	2.0	1336	—	-	64	87	86	—		0.2
7	1231	805.—	0.083	0.75	0.75	2.0	1114	—	-	65	87	86	—		0.2
8	1235	806.63	0.071	0.75	0.75	2.0	936	—	-	65	87	87	—		0.2
End	1239	808.382	-	-	-	-	-	-	-	-	-	-	-		LPM

C_p Pitot Tube Cal. Factor	0.813	Pitot Tube #	S-10-1	Barometer #	MS-1	Nozzle #	—
V_m Volume Collected - cf	30.846	P_b Barometric Pressure – "Hg	29.38	Total Volume of leak checks after start – cf			
V_w Water Collected - ml	40.1	D_n Nozzle Diameter – in.	—	V_m = (DGM Cal Factor)	0.994	x (Net Volume Collected)	31.032
T_t Time of Test – min.	64	%CO_2 4.7	%CO 0.0	A_s = Area of Stack – in^2	2043		
P_s Stack Pressure – "H_2O	-0.1	%O_2 15.6	%N_2 79.7	{Dry Gas Meter Reading ____ ft3 – (Tt ____ min. X Leak Rate ____ cfm)}			

QA/QC Check Completeness ✓ Legibility ✓ Accuracy ✓ Specification ✓ Reasonableness ✓ Checked By ✓

Version 3
April 2013

Impinger Box No. 34

			Water Weight Gain	
Impinger 1	Final Weight	837.0		Impinger 1 30.3
	Initial Weight	801.7		Impinger 2 2.5
	Increase			Impinger 3 1.6
Impinger 2	Final Weight	776.3	SO_2 correction (if applicable)	Impinger 4 5.7
	Initial Weight	773.8		Impinger 5 –
	Increase		V_w =	Impinger 6 –
Impinger 3	Final Weight	675.4	g SO_2 -	Impinger 7 ✓
	Initial Weight	673.8	V_w =	
	Increase			Total 40.1 = V_w
Impinger 4	Final Weight	1003.1		
	Initial Weight	997.4		
	Increase			
Impinger 5	Final Weight			
	Initial Weight			
	Increase			
Impinger 6	Final Weight			
	Initial Weight			
	Increase			
Impinger 7	Final Weight			
	Initial Weight			
	Increase			

P_b =	29.38 ✓	%CO_2 =	4.7 ✓
V_m =	30.846 ✓	%O_2 =	15.6 ✓
V_w =	40.1 ✓	%CO =	0.0 ✓
P_m =	0.77 ✓	% N_2 =	79.7 ✓
Avg ΔP =	0.098 ✓	A_s =	2043 ✓
		D_n =	–
Avg $\sqrt{\Delta P}$ =	0.313 ✓	T_t =	64 ✓
C_p =	0.813 ✓		
P_s =	-0.1 ✓ "H_2O		29.37 ✓ "Hg
T_m =	~~86~~ 84 ✓ °F TR 1-27		5464 ✓ °R
T_s =	1245 ✓ °F		1705 ✓ °R

Moisture Content: %M = 6.06 (4 ✓) M_d = 0.9396 ✓ MW_d = 29.376 ✓ MW = 28.69 ✓

$$Vm_{std} = 17.65 \times V_m \left| \frac{Pm}{\frac{Pb + 13.6}{Tm + 460}} \right| = 17.65 \times 30.846 \times \left| \frac{29.38 + \frac{0.75}{13.6}}{86_{4\ TR\ 1-27} + 460} \right| = \frac{29.35 \text{ sft}^3}{0.4601 \text{ scfm}}$$

(459 ✓ TR 1-27)

$Vw_{gas} = 0.0472 \times V_w = 0.0472 \times 40.1 = 1.8927$ ✓ sft^3

$$\% \text{ Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{1.8927}{29.35 + 1.8927} \times 100 = 6.06\ (4\ ✓\ TR\ 1-27)\ \%$$

(459 TR 1-27)

$$V_s = 5123.8 \times 0.313 \sqrt{\frac{1705}{29.37 \times 28.69}} \times 0.813 = 1,855 \text{ ✓ fpm} \quad ACFM = 26313 \text{ ✓}$$

$$\%I = \frac{1039 \times \quad \times \quad}{\times \quad \times \quad \times \quad \times (\quad)^2} = \quad \% \quad (\checkmark)$$

SCFM = 7,545 ✓

%EA = 282.6 ✓

$$V_s = 5123.8 \times Avg\ \sqrt{\Delta P} \times \sqrt{\frac{Ts(R)}{Ps(\text{"}Hg) \times MW}} \times C_p = fpm$$

$$ACFM = (V_s \times A_s)/144$$

$$SCFM = \frac{0.123 \times V_s \times A_s \times M_d \times P_s}{T_s}$$

$$\%I = \frac{1039 \times Vm_{std} \times T_s(^\circ R)}{P_s(\text{"}Hg) \times M_d \times V_s \times T_t \times (D_n)^2}$$

Version 2
July 2011

METCO Environmental

Job Number	15-162		1-4	Field Data	
Job Name	Hyden	Balance ID	MS-1	Ambient Temperature - °F	85
Run Number	1 Load 4	Check Weight ID	MS Tech	Assumed Moisture - %	6
Unit	75 Comb	Actual Mass (g)	10000	Probe Length	6'
Date	6/24/15 6/24/15	Measured Mass (g)	10000.8	C Factor	— to reference
Operator	Hyden/McCall/Adam	Difference (g)*	0.8	Initial Leak @ 16.50 "Hg =	0.000 cfm
Sample Box #	34 Meter # MS-1	Pitot Leak Check: Initial ✓ Final ✓		Final Leak @ 7.00 "Hg =	0.000 cfm
Purge To (cf):	—	Purge Time	—	Pitot Tips Damaged during Test?	Yes/No

Note: Read and record at the start of each test point

* must be equal to or less than 0.5 g

Point	Clock Time	Dry Gas Meter (cf)	ΔP Pitot "H_2O"	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	P_m Pump Vacuum "Hg	T_s Stack Temp. °F	Probe Temp. °F	Oven/ Filter Temp. °F	Effluent Temp. °F	T_m Dry Gas Inlet Temp. °F	Dry Gas Outlet Temp. °F	Aux Temp. °F	Remarks	3C Rat
10 1	1315	808.637	0.110	0.75	0.74	2.6	1451	—	—	74	86	87	—		0.2
2	1319	810.41	0.113	0.75	0.75	2.0	1442	—	—	68	86	87	—		0.2
3	1323	812.42	0.105	0.74	0.75	2.0	1443	—	—	65	87	87	—		0.2
4	1327	814.39	0.100	0.75	0.75	2.0	1464	—	—	64	87	87	—		0.2
5	1331	816.42	0.109	0.75	0.75	2.0	1155	—	—	65	87	87	—		0.2
6	1335	818.35	0.111	0.75	0.75	2.0	1912	—	—	63	87	87	—		0.2
7	1339	820.21	0.110	0.75	0.74	2.0	913	—	—	64	88	88	—		0.2
8	1343	822.162	0.115	0.74	0.75	2.0	901	—	—	64	88	88	—		0.2
A 1	1347	824.19	0.113	0.75	0.75	2.0	821	—	—	65	88	88	—		0.2
2	1351	826.23	0.111	0.74	0.74	2.0	1443	—	—	66	89	88	—		0.2
3	1355	827.90	0.116	0.75	0.75	2.0	1524	—	—	67	89	88	—		0.2
4	1359	830.01	0.099	0.74	0.75	2.0	1413	—	—	6667	87	88	—		0.2
5	1403	831.81	0.110	0.75	0.75	2.0	1523	—	—	64	0588	58	—		0.2
6	1407	833.71	0.120	0.75	0.74	2.0	1480	—	—	68	88	88	—		0.2
7	1411	835.69	0.109	0.74	0.75	2.0	841	—	—	68	88	88	—		0.2
8	1415	837.51	0.090	0.75	0.74	2.0	899	—	—	67	88	89	—		0.2
end	1419	839.145	—	—	—	—	—	—	—	—	—	—	—		LPM
			0.099												

C_p Pitot Tube Cal. Factor 0.813 ✓ Pitot Tube # S-16-1 ✓ Barometer # MS-1 ✓ Nozzle # —

V_m Volume Collected - cf 30.330 ✓ P_b Barometric Pressure – "Hg 29.39 Total Volume of leak checks after start – cf —

V_w Water Collected - ml 43.2 ✓ D_n Nozzle Diameter – in. — V_m = (DGM Cal Factor) 0.994 ✓ x (Net Volume Collected) 30.513

T_t Time of Test – min. 64 ✓ %CO_2 5.0 ✓ %CO ≈0.0 A_s = Area of Stack – in² 0043 ✓

P_s Stack Pressure – "H_2O -0.10 ✓ %O_2 15.2 ✓ %N_2 79.8 ✓ {Dry Gas Meter Reading_____ft3 – (Tt _____ min. X Leak Rate _____cfm)]

QA/QC Check Completeness ✓ Legibility ✓ Accuracy ✓ Specification ✓ Reasonableness ✓ Checked By ✓

Version 3
April 2013

Impinger Box No. 54

			Water Weight Gain	
Impinger 1	Final Weight	865.2		Impinger 1 33.2
	Initial Weight	832.0		
	Increase			Impinger 2 2.4
Impinger 2	Final Weight	778.7		Impinger 3 0.5
	Initial Weight	776.3	SO_2 correction (if applicable)	
	Increase			Impinger 4 2.1
Impinger 3	Final Weight	675.9	V_w =	Impinger 5 —
	Initial Weight	675.4	g SO_2 -	
	Increase		V_w =	Impinger 6 —
Impinger 4	Final Weight	1010.2		Impinger 7 —
	Initial Weight	1003.1		
	Increase			Total 43.2 = V_w
Impinger 5	Final Weight			
	Initial Weight			
	Increase			
Impinger 6	Final Weight			
	Initial Weight			
	Increase			
Impinger 7	Final Weight			
	Initial Weight			
	Increase			

P_b =	29.39	$\%CO_2$ =	5.0
V_m =	30.330	$\%O_2$ =	15.2
V_w =	43.2	%CO =	0.0
P_m =	0.75	% N_2 =	79.8
Avg ΔP =	0.109	A_s =	2043
		D_n =	—
Avg $\sqrt{\Delta P}$ =	0.331	T_t =	64
C_p =	0.813		
P_s =	-0.1 "H_2O		29.38 "Hg
T_m =	88 °F		548 °R
T_s =	1230 °F		1690 °R

Moisture Content: %M = 6.63 M_d = 0.9338 MW_d = 29.418 MW = 28.65

$$Vm_{std} = 17.65 \times V_m \left| \frac{Pm}{Pb + 13.6} \right| = 17.65 \times 30.330 \times \left| \frac{29.39 - 0.75}{Tm + 460} \right| = \frac{28.712}{0.499} \text{ sft}^3 \text{ scfm}$$

$$Vw_{gas} = 0.0472 \times V_w = 0.0472 \times 43.2 = 2.0390 \text{ sft}^3$$

$$\% \text{ Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{2.039}{28.712 + 2.039} \times 100 = 6.63 \%$$

$$V_s = 5123.8 \times 0.331 \sqrt{\frac{1690}{29.38 \times 28.65}} \times 0.813 = 1954 \text{ fpm} \quad ACFM = 27719$$

$$SCFM = 7971$$

$$\%I = \frac{1039 \times \quad \times \quad \times \quad \times (\quad)^2}{\quad} = \quad \% \quad \%EA = 255.6$$

$$V_s = 5123.8 \times \text{Avg } \sqrt{\Delta P} \times \sqrt{\frac{Ts(R)}{Ps(\text{"}Hg) \times MW}} \times C_p = \text{fpm}$$

$$ACFM = (V_s \times A_s)/144$$

$$SCFM = \frac{0.123 \times V_s \times A_s \times M_d \times P_s}{T_s}$$

$$\%I = \frac{1039 \times Vm_{std} \times T_s(^\circ R)}{P_s(\text{"}Hg) \times M_d \times V_s \times T_t \times (D_n)^2}$$

Version 2
July 2011

METCO Environmental

Job Number: 15-167 / Job Name: Hyden / Run Number: 2 Load 4 / Unit: 25 Comb. / Date: 6/23/15 / Operator: Hafer/McCall/Aden / Sample Box #: 24 / Meter #: M8-1 / Purge To (cf): —

Note: Read and record at the start of each test point

1-4 Field Data

Balance ID: M8-1 / Check Weight ID: M8-2006 / Actual Mass (g): 2000.0 / Measured Mass (g): 2000.2 / Difference (g)*: 0.2 / Pitot Leak Check: Initial ✓ Final ✓ / Purge Time: —

Ambient Temperature - °F: 90 / Assumed Moisture - %: 6 / Probe Length: 6' / C Factor: — to reference / Initial Leak @ 19.00 "Hg = 0.000 cfm / Final Leak @ 18.00 "Hg = 0.000 cfm / Pitot Tips Damaged during Test? Yes (No)

* must be equal to or less than 0.5 g

Point	Clock TIme	Dry Gas Meter (cf)	ΔP Pitot "H_2O"	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	P_m Pump Vacuum "Hg	T_s Stack Temp. °F	Probe Temp. °F	Oven/ Filter Temp. °F	Effluent Temp. °F	T_m Dry Gas Inlet Temp. °F	Dry Gas Outlet Temp. °F	Aux Temp. °F	Remarks	3C Rate
5 1	1445	839.537	0.111	0.75	0.75	2.0	1963	—	—	79	88	89	—		0.2
2	1449	841.41	0.109	0.75	0.75	2.0	1471	—	—	68	89	89	—		0.2
3	1453	843.31	0.103	0.75	0.75	2.0	1469	—	—	65	89	90	—		0.2
4	1457	845.47	0.109	0.75	0.75	2.0	1480	—	—	64	89	90	—		0.2
5	1501	847.37	0.117	0.75	0.75	2.0	1467	—	—	64	89	90	—		0.2
6	1505	849.19	0.115	0.75	0.75	2.0	1218	—	—	64	89	90	—		0.2
7	1509	851.37	0.119	0.75	0.75	2.0	893	—	—	64	90	91	—		0.2
8	1513	853.41	0.117	0.75	0.75	2.0	945	—	—	65	91	92	—		0.2
4 1	1517	854.96	0.099	0.75	0.75	2.0	1034	—	—	65	91	92	—		0.2
2	1521	856.81	0.101	0.75	0.75	2.0	1257	—	—	65	91	93	—		0.2
3	1525	858.71	0.110	0.75	0.75	2.0	1414	—	—	65	91	93	—		0.2
4	1529	860.81	0.113	0.75	0.75	2.0	1201	—	—	66	92	92	—		0.2
5	1533	862.96	0.098	0.75	0.75	2.0	886	—	—	66	92	92	—		0.2
6	1537	864.91	0.108	0.75	0.75	2.0	913	—	—	66	92	92	—		0.2
7	1541	866.54	0.110	0.75	0.75	2.0	914	—	—	66	92	93	—		0.2
8	1545	868.39	0.112	0.75	0.75	2.0	1001	—	—	67	92	93	—		0.2
End	1549	870.295	—	—	—	—	—	—	—	—	—	—	—		LPM

C_p Pitot Tube Cal. Factor: 0.813 / Pitot Tube #: S-16-1 / Barometer #: M8-1 / Nozzle #: —

V_m Volume Collected - cf: 30.573 / P_b Barometric Pressure – "Hg: 29.37 / Total Volume of leak checks after start – cf: —

V_w Water Collected - ml: 41.0 / D_n Nozzle Diameter – in.: — / V_m = (DGM Cal Factor) 0.994 x (Net Volume Collected) 30.758

T_t Time of Test – min.: 64 / %CO_2: 4.7 / %CO: 0.0 / A_s = Area of Stack – in^2: 2043

P_s Stack Pressure – "H_2O: -0.1 / %O_2: 15.6 / %N_2: 79.7 / {Dry Gas Meter Reading_____ft3 – (Tt _____ min. X Leak Rate _____cfm)}

QA/QC Check Completeness ✓ / Legibility ✓ / Accuracy ✓ / Specification ✓ / Reasonableness ✓ / Checked By

Version 3
April 2013

D-22

15-162

Impinger Box No. 34

			Water Weight Gain	
Impinger 1	Final Weight	894.5		Impinger 1 29.3
	Initial Weight	865.2		Impinger 2 3.2
	Increase			Impinger 3 1.7
Impinger 2	Final Weight	781.9	SO_2 correction (if applicable)	Impinger 4 6.8
	Initial Weight	778.7		Impinger 5 –
	Increase		V_w =	Impinger 6 –
Impinger 3	Final Weight	677.6	g SO_2 -	Impinger 7 –
	Initial Weight	675.9	V_w =	
	Increase			Total 41.6 = V_w
Impinger 4	Final Weight	1017.0		
	Initial Weight	1016.2		
	Increase			
Impinger 5	Final Weight			
	Initial Weight			
	Increase			
Impinger 6	Final Weight			
	Initial Weight			
	Increase			
Impinger 7	Final Weight			
	Initial Weight			
	Increase			

P_b =	29.37	%CO_2 =	4.7	
V_m =	30.573	%O_2 =	15.6	
V_w =	41.0	%CO =	–	
P_m =	0.75	% N_2 =	79.7	
Avg ΔP =	0.109	A_s =	2043	
		D_n =	–	
Avg $\sqrt{\Delta P}$ =	0.331	T_t =	64	
C_p =	0.813			
P_s =	-0.1	"H_2O	29.36	"Hg
T_m =	91	°F	551	°R
T_s =	1181	°F	1641	°R

Moisture Content: %M = 6.29 M_d = 0.9371 MW_d = 29.376 MW = 28.66

$$Vm_{std} = 17.65 \times V_m \left| \frac{Pm}{\frac{Pb + 13.6}{Tm + 460}} \right| = 17.65 \times 30.573 \times \left| \frac{0.75}{\frac{29.37 + 13.6}{91 + 460}} \right| = \frac{28.817}{0.450} \text{ sft}^3 \text{ scfm}$$

$$Vw_{gas} = 0.0472 \times V_w = 0.0472 \times 41.0 = 1.9352 \text{ sft}^3$$

$$\% \text{ Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{1.9352}{28.817 + 1.9352} \times 100 = 6.29 \%$$

$$V_s = 5123.8 \times 0.331 \sqrt{\frac{1641}{29.36 \times 28.66}} \times 0.813 = 1926 \text{ fpm} \quad ACFM = 27318$$

$$SCFM = 8115$$

$$\%I = \frac{1039 \times \quad \times \quad \times \quad \times (\quad)^2}{\quad \times \quad \times \quad \times} = \quad \%$$

$$\%EA = 282.6$$

$$V_s = 5123.8 \times \text{Avg } \sqrt{\Delta P} \times \sqrt{\frac{Ts(R)}{Ps(\text{"}Hg) \times MW}} \times C_p = \text{fpm}$$

$$ACFM = (V_s \times A_s)/144$$

$$SCFM = \frac{0.123 \times V_s \times A_s \times M_d \times P_s}{T_s}$$

$$\%I = \frac{1039 \times Vm_{std} \times T_s(^\circ R)}{P_s(\text{"Hg}) \times M_d \times V_s \times T_t \times (D_n)^2}$$

Version 2
July 2011

METCO Environmental

Job Number	15-162		Field Data	Ambient Temperature - °F	91
Job Name	Hyton	Balance ID	M8-1	Assumed Moisture - %	6
Run Number	3 Load 4	Check Weight ID	M8 2000.0	Probe Length	6
Unit	75 Comb.	Actual Mass (g)	2000.0	C Factor	— to reference
Date	6/24/15	Measured Mass (g)	2000.2	Initial Leak @ 17.00 "Hg =	0.000 cfm
Operator	Hyer/McCall/Adam	Difference (g)*	0.2	Final Leak @ 17.06 "Hg =	0.000 cfm
Sample Box #	3C1 Meter # M8-1	Pitot Leak Check: Initial	/ Final /	Pitot Tips Damaged during Test?	Yes/No
Purge To (cf):	—	Purge Time	—		

Note: Read and record at the start of each test point

* must be equal to or less than 0.5 g

Point	Clock TIme	Dry Gas Meter (cf)	ΔP Pitot "H_2O"	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	P_m Pump Vacuum "Hg	T_s Stack Temp. °F	Probe Temp. °F	Oven/ Filter Temp. °F	Effluent Temp. °F	Dry Gas Inlet Temp. °F	T_m Dry Gas Outlet Temp. °F	Aux Temp. °F	Remarks	3C Rate
1	1615	870.574	0.115	0.75	0.75	2.0	1374	—	—	77	91	93	—		0.2
2	1619	872.42	0.108	0.75	0.75	2.0	1475	—	—	66	91	93	—		0.2
3	1623	874.31	0.111	0.75	0.75	2.0	1441	—	—	61	92	93	—		0.2
4	1627	876.32	0.110	0.75	0.75	2.0	1470	—	—	60	93	93	—		0.2
5	1631	878.41	0.098	0.75	0.75	2.0	945	—	—	61	93	93	—		0.2
6	1635	880.10	0.119	0.75	0.75	2.0	999	—	—	62	93	93	—		0.2
7	1639	882.18	0.113	0.75	0.75	2.0	891	—	—	63	93	94	—		0.2
8	1643	884.15	0.114	0.75	0.75	2.0	987	—	—	64	93	94	—		0.2
A 1	1647	886.06	0.113	0.75	0.75	2.0	1400	—	— 85	65	93	94	—		0.2
2	1651	888.12	0.168	0.75	0.75	2.0	1479	—	—	66	93	94	—		0.2
3	1655	890.13	0.113	0.75	0.75	2.0	1457	—	—	67	94	94	—		0.2
4	1659	891.79	0.101	0.75	0.75	2.0	1295	—	—	63	93	93	—		0.2
5	1703	893.71	0.109	0.75	0.75	2.0	1373	—	—	62	93	93	—		0.2
6	1707	895.76	0.111	0.75	0.75	2.0	1178	—	—	62	93	93	—		0.2
7	1711	897.89	0.108	0.75	0.75	2.0	1011	—	—	62	93	93	—		0.2
8	1715	899.71	0.099	0.75	0.75	2.0	981	—	—	62	93	93	—		0.2
9	1719	901.171	—	—	—	—	—	—	—	—	—	—	—		LPM

C_p Pitot Tube Cal. Factor	0.813	Pitot Tube #	S-10-1	Barometer #	M8-1 / Nozzle # —
V_m Volume Collected - cf	30.364	P_b Barometric Pressure – "Hg	29.37	Total Volume of leak checks after start – cf	—
V_w Water Collected - ml	40.9	D_n Nozzle Diameter – in.	—	V_m = (DGM Cal Factor) 0.994 x (Net Volume Collected)	30.547
T_t Time of Test – min.	64	%CO_2 4.8	%CO 0.0	A_s = Area of Stack – in^2	2043
P_s Stack Pressure – "H_2O	-0.1	%O_2 15.5	%N_2 79.8	{Dry Gas Meter Reading____ft3 – (Tt____ min. X Leak Rate____cfm)]	

QA/QC Check Completeness / Legibility / Accuracy / Specification / Reasonableness / Checked By

Impinger Box No. 34

			Water Weight Gain	
Impinger 1	Final Weight	923.1		Impinger 1 28.6
	Initial Weight	894.5		Impinger 2 2.9
	Increase			Impinger 3 1.9
Impinger 2	Final Weight	784.8	SO_2 correction	Impinger 4 7.5
	Initial Weight	781.9	(if applicable)	Impinger 5 —
	Increase			Impinger 6 —
Impinger 3	Final Weight	679.5	V_w =	Impinger 7 —
	Initial Weight	677.6	g SO_2 -	
	Increase		V_w =	Total 40.9 = V_w
Impinger 4	Final Weight	1079.5		
	Initial Weight	1017.0		
	Increase			
Impinger 5	Final Weight			
	Initial Weight			
	Increase			
Impinger 6	Final Weight			
	Initial Weight			
	Increase			
Impinger 7	Final Weight			
	Initial Weight			
	Increase			

P_b =	29.37	$\%CO_2$ =	4.8	
V_m =	30.364	$\%O_2$ =	15.5	
V_w =	40.9	%CO =	-.00	
P_m =	0.75	$\%N_2$ =	79.7	
Avg ΔP =	0.109	A_s =	0.2043	
		D_n =	—	
Avg $\sqrt{\Delta P}$ =	0.331	T_t =	64	
C_p =	0.813			
P_s =	-0.1 "H_2O		29.36	"Hg
T_m =	93 °F		553	°R
T_s =	1032 °F		1692	°R

Moisture Content: %M = 6.34 M_d = 0.9366 MW_d = 29.388 MW = 28.67

$$Vm_{std} = 17.65 \times V_m \left| \frac{Pm}{\frac{Pb + 13.6}{Tm + 460}} \right| = 17.65 \times 30.364 \times \left| \frac{29.37 + \frac{0.75}{13.6}}{93 + 460} \right| = \frac{28.517}{0.446} \text{ sft}^3 \text{ scfm}$$

$$Vw_{gas} = 0.0472 \times V_w = 0.0472 \times 40.9 = 1.9305 \text{ sft}^3$$

$$\% \text{ Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{1.9305}{1.9305 + 28.517} \times 100 = 6.34 \%$$

$$V_s = 5123.8 \times 0.331 \sqrt{\frac{1692}{29.36 \times 28.67}} \times 0.813 = 1955 \text{ fpm} \quad ACFM = 27735$$

$$\%I = \frac{1039 \times \quad \times \quad \times \quad \times (\quad)^2}{\times \quad \times \quad \times \quad} = \quad \% \quad SCFM = 7984 \quad \%EA = 275.8$$

$$V_s = 5123.8 \times \text{Avg } \sqrt{\Delta P} \times \sqrt{\frac{Ts(R)}{Ps(\text{"}Hg) \times MW}} \times C_p = \text{fpm}$$

$$ACFM = (V_s \times A_s)/144$$

$$SCFM = \frac{0.123 \times V_s \times A_s \times M_d \times P_s}{T_s}$$

$$\%I = \frac{1039 \times Vm_{std} \times T_s(^\circ R)}{P_s(\text{"}Hg) \times M_d \times V_s \times T_t \times (D_n)^2}$$

Version 2
July 2011

Low Volume Field Data

Job Number: 15-162 | Method: 18 | Probe Length: N/A

Job Name: Hy-Bon | Operator: [illegible] | Sample Point: Fuel line

Run Number: ONE | Ambient Temp (°F): — | Barometric Pressure (P_b): 29.17 "Hg

Location: 75 combuster | Date: 6/23/15 | Initial Leak Check @ — "Hg= — Δ"Hg

Barometer Number: M-8-1 | Meter Number: — | Final Leak Check @ — "Hg= — Δ"Hg

Canister or Bag Number: RILI Canister | Orifice or Rotometer Number: EQM [illegible] 14.6 | Orifice Rate or Meter Calibration Factor: —

P_m T_m

Point	Clock Time	Dry Gas Meter (liters)	Dry Gas Meter Pressure ("H_2O)	Rotometer Reading	Vacuum Pressure ("Hg)	Stack Temperature (°F)	Probe Temperature (°F)	Dry Gas Temperature (°F) Inlet	Dry Gas Temperature (°F) Outlet	Remarks
0	8:55				30.0					Summa CAN
5	9:00				29.5					
10	9:05				29.0					
15	9:10				28.5					
20	9:15				28.0					
25	9:20				27.5					
30	9:25				27.0					Picture taken
35	9:30				26.5					
40	9:35				26.0					
45	9:40				25.5					
50	9:45				25.0					
55	9:50				24.5					
60	9:55				24.0					TARK 0550 9:55

V_m = Meter Calibration Factor ____ x ____ = — Collected Condensate + Rinse = — ml

$$Vm_{std} = 17.65 \times V_m \times \frac{P_b + (P_m/13.6)}{(T_m + 460)} = 17.65 \times \_\_\_\_ \times \frac{\_\_\_\_ (\_\_\_\_/13.6)}{\_\_\_\_ + 460} = \_\_\_\_ \text{ liters}$$

Volume Collected = Avg. Rotometer Reading (l/min) x Time of Test (min) = ____ x ____ = — liters or

Volume Collected = Orifice Rate (l/min) x Time of Test (min) = ____ x ____ = — liters

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓ Checked by: [illegible]

Low Volume Field Data

Job Number: 15-162 | Method: 18 | Probe Length: N/A

Job Name: Hy-Bon | Operator: [illegible] | Sample Point: Fuel line

Run Number: Two | Ambient Temp (°F): — | Barometric Pressure (P_b): 29.17 "Hg

Location: 75 Combuster | Date: 6/23/15 | Initial Leak Check @ — "Hg= — Δ"Hg

Barometer Number: M-8-1 | Meter Number: — | Final Leak Check @ — "Hg= — Δ"Hg

Canister or Bag Number: RTL7 canister | Orifice or Rotometer Number: Eam 14.6 | Orifice Rate or Meter Calibration Factor: —

P_m T_m

Point	Clock Time	Dry Gas Meter (liters)	Dry Gas Meter Pressure ("H_2O)	Rotometer Reading	Vacuum Pressure ("Hg)	Stack Temperature (°F)	Probe Temperature (°F)	Dry Gas Temperature (°F) Inlet	Dry Gas Temperature (°F) Outlet	Remarks
0	10:35				23.5					Tank on @ 10:35
5	10:40				23.0					
10	10:45				22.5					
15	10:50				22.0					
20	10:55				21.5					
25	11:00				21.0					
30	11:05				20.5					Took Picture
35	11:10				20.0					
40	11:15				19.5					
45	11:20				19.0					
50	11:25				18.5					
55	11:30				18.0					
60	11:35				17.5					Tank off

V_m = Meter Calibration Factor _____ x _____ = —

Collected Condensate + Rinse = — ml

$$Vm_{std} = 17.65 \times V_m \times \frac{P_b + (P_m/13.6)}{(T_m + 460)} = 17.65 \times \_\_\_\_ \times \frac{\_\_\_\_ + (\_\_\_\_/13.6)}{\_\_\_\_ + 460} = \_\_\_\_ \text{ liters}$$

Volume Collected = Avg. Rotometer Reading (l/min) x Time of Test (min) = _____ x _____ = — liters or

Volume Collected = Orifice Rate (l/min) x Time of Test (min) = _____ x _____ = — liters

QA/QC Check

Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓ Checked by: ✓

Low Volume Field Data

Job Number: 15-162 | Method: 18 | Probe Length: N/A

Job Name: Hyloon | Operator: [signature] | Sample Point: Fuel Line

Run Number: Three | Ambient Temp (°F): — | Barometric Pressure (P_b): 29.18 "Hg

Location: 75 Canister | Date: 6/23/15 | Initial Leak Check @ — "Hg= — Δ"Hg

Barometer Number: M-8-1 | Meter Number: — | Final Leak Check @ — "Hg= — Δ"Hg

Canister or Bag Number: R1L1 Canister | Orifice or Rotometer Number: EQM 14.6 | Orifice Rate or Meter Calibration Factor: —

P_m T_m

Point	Clock Time	Dry Gas Meter (liters)	Dry Gas Meter Pressure ("H_2O)	Rotometer Reading	Vacuum Pressure ("Hg)	Stack Temperature (°F)	Probe Temperature (°F)	Dry Gas Temperature (°F) Inlet	Dry Gas Temperature (°F) Outlet	Remarks
0	12:10	—	—	—	17.0			—	—	
5	12:15				16.5					
10	12:20				16.0					
15	12:25				15.5					
20	12:30				15.0					
25	12:35				14.5					
30	12:40				14.0					(Took Picture)
35	12:45				13.5					
40	12:50				13.0					
45	12:55				12.5					
50	13:00				12.0					
55	13:05				11.5					
60	13:10				11.0					Tank off

V_m = Meter Calibration Factor _____ x _____ = _____ Collected Condensate + Rinse = — ml

$$Vm_{std} = 17.65 \times V_m \times \frac{P_b + (P_m/13.6)}{(T_m + 460)} = 17.65 \times \_\_\_\_ \times \frac{\_\_\_\_ + (\_\_\_\_/13.6)}{\_\_\_\_ + 460} = \_\_\_\_ \text{ liters}$$

Volume Collected = Avg. Rotometer Reading (l/min) x Time of Test (min) = _____ x _____ = — liters or

Volume Collected = Orifice Rate (l/min) x Time of Test (min) = _____ x _____ = — liters

QA/QC Check

Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓ Checked by: [signature]

Low Volume Field Data

Job Number: 15-162
Job Name: Hy-Bon
Run Number: R-1 L-2
Location: 75 Combuster
Barometer Number: M-B-1
Canister or Bag Number: R1L2 canister

Method: 18
Operator: [illegible]
Ambient Temp (°F): —
Date: 6/23/15
Meter Number: —
Orifice or Rotometer Number: EQM 14.06

Probe Length: N/A
Sample Point: Fuel line
Barometric Pressure (P_b): 29.18 "Hg
Initial Leak Check @ — "Hg= — Δ"Hg
Final Leak Check @ — "Hg= — Δ"Hg
Orifice Rate or Meter Calibration Factor: —

Point	Clock Time	Dry Gas Meter (P_m) (liters)	Dry Gas Meter Pressure ("H_2O)	Rotometer Reading	Vacuum Pressure ("Hg)	Stack Temperature (°F)	Probe Temperature (°F)	Dry Gas Temperature (T_m) (°F) Inlet	Dry Gas Temperature (T_m) (°F) Outlet	Remarks
0	13:55	—	—	—	29.0		—	—	—	TANK ON 29.0
5	14:00				28.5					
10	14:05				28.0					
15	14:10				27.5					
20	14:15				27.0					
25	14:20				26.5					
30	14:25				26.0					(Took Picture)
35	14:30				25.5					
40	14:35				25.0					
45	14:40				24.5					
50	14:45				24.0					
55	14:50				23.5					
60	14:55				23.0					TANK OFF

V_m = Meter Calibration Factor _____ x _____ = _____ Collected Condensate + Rinse = — ml

$$Vm_{std} = 17.65 \times V_m \times \frac{P_b + (P_m/13.6)}{(T_m + 460)} = 17.65 \times \_\_\_\_ \times \frac{\_\_\_\_ (\_\_\_\_/13.6)}{\_\_\_\_ + 460} = \_\_\_\_ \text{ liters}$$

Volume Collected = Avg. Rotometer Reading (l/min) x Time of Test (min) = _____ x _____ = — liters or

Volume Collected = Orifice Rate (l/min) x Time of Test (min) = _____ x _____ = _____ liters

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓ Checked by: [signature]

Low Volume Field Data (Page 2)

Job Number: 15-162 Run Number: 2+3 R-1 L-2 canister

Point	Clock Time	Dry Gas Meter (liters)	Dry Gas Meter Pressure ("H_2O)	Rotometer Reading	Vacuum Pressure ("Hg)	Stack Temperature (°F)	Probe Temperature (°F)	Dry Gas Temperature (°F) Inlet	Dry Gas Temperature (°F) Outlet	Remarks
0	15:30	–	–	–	22.5		–	–	–	TANK ON Pb 29.16 R-2
5	15:35				22.0					
10	15:40				21.5					
15	15:45				21.0					
20	15:50				19.5					
25	15:55				19.0					
(30)	16:00				18.5					TOOK Picture
35	16:05				18.0					
40	16:10				17.5					
45	16:15				17.0					
50	16:20				16.5					
55	16:25				16.0					
60	16:30				15.5					TANK off
–	–	–	–	–	–	–	–	–	–	– R-3
0	17:00				15.5					TANK ON
5	17:05				15.0					
10	17:10				14.5					
15	17:15				14.0					
20	17:20				13.5					
25	17:25				13.0					
(30)	17:30				12.5					TOOK Picture
35	17:35				12.0					
40	17:40				11.5					
45	17:45				11.0					
50	17:50				10.5					
55	17:55				10.0					
60	18:00				9.5					TANK off

Low Volume Field Data

Job Number: 15-162 Method: 18 Probe Length: N/A

Job Name: Hybon Operator: [illegible] Sample Point: Fuel Line

Run Number: 1, 2, +3 Ambient Temp (°F): — Barometric Pressure (P_b): 29.36 "Hg

Location: TS Combuster Date: 6/24/15 Initial Leak Check @ — "Hg= — Δ"Hg

Barometer Number: M-8-1 Meter Number: — Final Leak Check @ — "Hg= — Δ"Hg

Canister or Bag Number: R-1 L-3 Orifice or Rotometer Number: Gumm 8-424 Orifice Rate or Meter Calibration Factor: —

Point	Clock Time	Dry Gas Meter (liters)	Dry Gas Meter Pressure ("H_2O) (P_m)	Rotometer Reading	Vacuum Pressure ("Hg)	Stack Temperature (°F)	Probe Temperature (°F)	Dry Gas Temperature (°F) (T_m) Inlet	Dry Gas Temperature (°F) (T_m) Outlet	Remarks
0	8:25	-	-	-	22.0		-	-	-	TANK ON
5	8:30				21.5					
10	8:35				21.0					
15	8:40				20.5					
20	8:45				20.0					
25	8:50				19.5					
30	8:55				19.0					Took Picture [illegible]
35	9:00				18.5					
40	9:05				18.0					
45	9:10				17.5					
50	9:15				17.0					
55	9:20				16.5					
60	9:25				16.0					TANK off

V_m = Meter Calibration Factor _____ x _____ = —

Collected Condensate + Rinse = — ml

$$Vm_{std} = 17.65 \times V_m \times \frac{P_b + (P_m/13.6)}{(T_m + 460)} = 17.65 \times \_\_\_\_ \times \frac{\_\_\_\_ (\_\_\_\_ /13.6)}{\_\_\_\_ + 460} = \_\_\_\_ \text{ liters}$$

Volume Collected = Avg. Rotometer Reading (l/min) x Time of Test (min) = _____ x _____ = — liters or

Volume Collected = Orifice Rate (l/min) x Time of Test (min) = _____ x _____ = — liters

QA/QC Check

Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓ Checked by: [signature]

6/24/15

R-1 L-3

Low Volume Field Data (Page 2)

Job Number: 15-162

Run Number: 2+3

Point	Clock Time	Dry Gas Meter (liters)	Dry Gas Meter Pressure ("H_2O)	Rotometer Reading	Vacuum Pressure ("Hg)	Stack Temperature (°F)	Probe Temperature (°F)	Dry Gas Temperature (°F)		Remarks
								Inlet	Outlet	
0	10:06				16.0					TANK ON
5	10:11				15.5					
10	10:16				15.0					
15	10:21				14.5					
20	10:26				14.0					
25	10:31				13.5					
(30)	10:36				13.0					Took Picture
35	10:41				12.5					
40	10:46				12.0					
45	10:51				11.5					
50	10:56				11.0					
55	11:01				10.5					
60	11:06				10.0					TANK off
0	11:35				10.0					TANK ON
5	11:40				9.5					
10	11:45				9.0					
15	11:50				8.5					
20	11:55				8.0					
25	12:00				7.5					
(30)	12:05				7.0					Took Picture
35	12:10				6.5					
40	12:15				6.0					
45	12:20				5.5					
50	12:25				5.0					
55	12:30				4.5					
60	12:35				4.0					TANK OFF

Low Volume Field Data

Job Number: 15-162 | Method: 18 | Probe Length: N/A
Job Name: Hyboss | Operator: [illegible] | Sample Point: Fuel line
Run Number: 1,2+3 | Ambient Temp (°F): — | Barometric Pressure (P_b): 29.39 "Hg
Location: 75 Combuster | Date: 6/24/15 | Initial Leak Check @ — "Hg= ____ Δ"Hg
Barometer Number: M-8-1 | Meter Number: — | Final Leak Check @ — "Hg= ____ Δ"Hg
Canister or Bag Number: R-1 L-4 | Orifice or Rotometer Number: EQM 14.06 | Orifice Rate or Meter Calibration Factor: —

Point	Clock Time	Dry Gas Meter (liters)	Dry Gas Meter Pressure ("H_2O) (P_m)	Rotometer Reading	Vacuum Pressure ("Hg)	Stack Temperature (°F)	Probe Temperature (°F)	Dry Gas Temperature (°F) Inlet (T_m)	Dry Gas Temperature (°F) Outlet	Remarks
0	13:15	—	—	—	22.0	—	—	—	—	TANK ON
5	13:20				21.5					
10	13:25				21.0					
15	13:30				20.5					
20	13:35				20.0					
25	13:40				19.5					
(30)	13:45				19.0					Tank Picture
35	13:50				18.5					
40	13:55				18.25					
45	14:00				18.0					
50	14:05				17.75					
55	14:10				17.50					
60	14:15				17.0					TANK OFF

V_m = Meter Calibration Factor ____ x ____ = ____ Collected Condensate + Rinse = — ml

$$Vm_{std} = 17.65 \times V_m \times \frac{P_b + (P_m/13.6)}{(T_m + 460)} = 17.65 \times \_\_\_\_ \times \frac{\_\_\_\_ (\_\_\_\_/13.6)}{\_\_\_\_ + 460} = \_\_\_\_ \text{ liters}$$

Volume Collected = Avg. Rotometer Reading (l/min) x Time of Test (min) = ____ x ____ = — liters or

Volume Collected = Orifice Rate (l/min) x Time of Test (min) = ____ x ____ = — liters

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓ Checked by: [signature]

6/24/15

R-1 L-4

Low Volume Field Data (Page 2)

Job Number: 15-162

Run Number: 2+3

Point	Clock Time	Dry Gas Meter (liters)	Dry Gas Meter Pressure ("H_2O)	Rotometer Reading	Vacuum Pressure ("Hg)	Stack Temperature (°F)	Probe Temperature (°F)	Dry Gas Temperature (°F)		Remarks
								Inlet	Outlet	
0	14:45				17.0					TANK ON
5	14:50				16.5					
10	14:55				16.25					
15	15:00				16.0					
20	15:05				15.75					
25	15:10				15.50					
(30)	15:15				15.0					Took Picture
35	15:20				14.75					
40	15:25				14.50					
45	15:30				14.25					
50	15:35				14.0					
55	15:40				13.75					
60	15:45				13.50					TANK OFF
—	—	—	—	—	—	—	—	—	—	—
0	16:20				13.50					TANK ON
5	16:25				13.25					
10	16:30				13.0					
15	16:35				12.75					
20	16:40				12.0					
25	16:45				11.0					
(30)	16:50				10.5					Took Picture
35	16:55				10.25					
40	17:00				10.0					
45	17:05				9.75					
50	17:10				9.50					
55	17:15				9.25					
60	17:20				9.0					TANK off

APPENDIX E

Analytical Data

METCO Environmental

3226 Commander Drive
Carrollton, TX 75006

Hy-Bon: Belpre, OH
Large Combustor
Project # 15-162

Analytical Report
(0615-125B)

EPA Method 3C (Bags)
Carbon dioxide, Carbon monoxide, Hydrogen,
Methane, Nitrogen, and Oxygen

EPA Method 18-Type (Canisters)
Methane, Ethane, Propane, Butane, Pentane, Hexane, Benzene, Others
as Cx Compounds, TVOC as Propane, and TVOC as Propylene

ASTM D1946-90 (Canisters)
Carbon dioxide, Carbon monoxide, Hydrogen,
Methane, Nitrogen, and Oxygen

Enthalpy Analytical, Inc.
Phone: (919) 850 - 4392 / Fax: (919) 850 - 9012 / www.enthalpy.com
800-1 Capitola Drive Durham, NC 27713-4385

I certify that to the best of my knowledge all analytical data presented in this report:

- Have been checked for completeness
- Are accurate, error-free, and legible
- Have been conducted in accordance with approved protocol, and that all deviations and analytical problems are summarized in the appropriate narrative(s)

This analytical report was prepared in Portable Document Format (.PDF) and contains 629 pages.

Kristen H Bounds

QA Reviewed by – Kristen H. Bounds

Report Issued: 07/24/2015

Summary of Results

Enthalpy Analytical

Company: METCO Environmental
Job No.: 0615-125 - EPA Method 3C
Project No.: 15-162

Summary Table - EPA Method 3C

Sample Name	*Large - L1- R1*		*Large - L1- R2*		*Large - L1- R3*		*Large - L2- R1*		*Large - L2- R2*		*Large - L2- R3*	
Compound	Sample Conc (%)		Sample Conc (%)		Sample Conc (%)		Sample Conc (%)		Sample Conc (%)		Sample Conc (%)	
Carbon Dioxide	3.88		3.62		3.66		4.11		4.11		3.91	
Carbon monoxide	0.0380	ND	0.0380	ND	0.0380	ND	0.0380	ND	0.0380	ND	0.0380	ND
Hydrogen	0.0360	ND	0.0360	ND	0.0360	ND	0.0360	ND	0.0360	ND	0.0360	ND
Methane	0.0310	ND	0.0310	ND	0.0310	ND	0.0310	ND	0.0310	ND	0.0310	ND
Nitrogen	75.8		75.3		74.9		75.7		75.3		75.7	
Oxygen	15.8		16.0		15.9		15.4		15.3		15.7	

Sample Name	*Large - L3- R1*		*Large - L3- R2*		*Large - L3- R3*		*Large - L4- R1*		*Large - L4- R2*		*Large - L4- R3*	
Compound	Sample Conc (%)		Sample Conc (%)		Sample Conc (%)		Sample Conc (%)		Sample Conc (%)		Sample Conc (%)	
Carbon Dioxide	4.49		4.32		4.52		4.75		4.45		4.56	
Carbon monoxide	0.0380	ND	0.0380	ND	0.0380	ND	0.0380	ND	0.0380	ND	0.0380	ND
Hydrogen	0.0360	ND	0.0360	ND	0.0360	ND	0.0360	ND	0.0360	ND	0.0360	ND
Methane	0.0310	ND	0.0310	ND	0.0310	ND	0.0310	ND	0.0310	ND	0.0310	ND
Nitrogen	75.7		75.3		76.2		75.7		75.1		76.3	
Oxygen	14.8		15.0		14.9		14.4		14.7		14.8	

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0615-125 ASTM D1946-90 Canisters

Client No.: 15-162

Summary Table - ASTM D1946-90 Canisters

Sample Name	*Large - L1 - R1 - 1158*		*Large - L2 - R1 - 1124*		*Large - L3 - R1 - 1368*		*Large - L4 - R1 - 1630*	
Compound	Sample Concentration %							
Carbon dioxide	0.480	J	0.612	J	0.207	ND	0.341	ND
Carbon monoxide	0.185	ND	0.275	ND	0.145	ND	0.238	ND
Hydrogen	0.248	ND	0.369	ND	0.194	ND	0.320	ND
Nitrogen	1.03	J	2.11	J	0.373	J	2.09	J
Oxygen	0.266	J	0.553	J	0.207	ND	0.572	J

Company	METCO Environmental
Analyst	DDC
Parameters	EPA Method 18-Type

Client #	15-162
Job #	0615-125
# Samples	4 Canisters

Compound	Sample ID / Sample Concentration (ppm)		
	Large - L1 - R1 - 1158.Can	***Large - L2 - R1 - 1124.Can***	***Large - L3 - R1 - 1368.Can***
Methane	2.44 ND	3.63 ND	1.91 ND
Ethane	2.43 ND	3.62 ND	1.90 ND
C2 as Ethane	51.3	43.5	42.9
Propane	2.44 ND	3.63 ND	1.91 ND
C3 as Propane	978,700	960,581	897,034
Butane	2.44 ND	3.63 ND	1.91 ND
C4 as Butane	2.44 ND	3.63 ND	1.91 ND
Pentane	2.43 ND	3.62 ND	1.90 ND
C5 as Pentane	2.43 ND	3.62 ND	1.90 ND
Hexane	2.43 ND	3.62 ND	1.90 ND
C6 as Hexane	2.43 ND	3.62 ND	1.90 ND
Benzene	2.50 ND	3.73 ND	1.96 ND
TVOC as Propane	979,951	961,760	898,193
TVOC as Propylene	968,778	951,382	888,287

	Large - L4 - R1 - 1630.Can
Methane	3.14 ND
Ethane	3.14 ND
C2 as Ethane	39.4
Propane	3.15 ND
C3 as Propane	833,776
Butane	3.14 ND
C4 as Butane	3.14 ND
Pentane	3.14 ND
C5 as Pentane	3.14 ND
Hexane	3.14 ND
C6 as Hexane	3.14 ND
Benzene	3.23 ND
TVOC as Propane	834,799
TVOC as Propylene	826,205

Results

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0615-125 - EPA Method 3C

Project No.: 15-162

Carbon Dioxide

Client's Sample Name	Filename #1	Filename #2	Filename #3	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc #1	Conc #2	Conc #3	%dif conc	DF	Avg Conc %	Flag
Large - L1 - R1	003F0101.D	003F0102.D	003F0103.D	BETTYP209_FGA_CRYO.M	0.544	10.0	0.0544	19.51	19.51	19.50	0.0	3.88	3.89	3.86	0.4	1	3.88	
Large - L1 - R2	007F0501.D	007F0502.D	007F0503.D	BETTYP209_FGA_CRYO.M	0.544	10.0	0.0544	19.51	19.51	19.51	0.0	3.62	3.61	3.62	0.1	1	3.62	
Large - L1 - R3	012F0901.D	012F0902.D	012F0903.D	BETTYP209_FGA_CRYO.M	0.544	10.0	0.0544	19.51	19.51	19.51	0.0	3.65	3.66	3.66	0.1	1	3.66	
Large - L2 - R1	004F0201.D	004F0202.D	004F0203.D	BETTYP209_FGA_CRYO.M	0.544	10.0	0.0544	19.50	19.50	19.50	0.0	4.12	4.10	4.10	0.2	1	4.11	
Large - L2 - R2	008F0601.D	008F0602.D	008F0603.D	BETTYP209_FGA_CRYO.M	0.544	10.0	0.0544	19.50	19.50	19.50	0.0	4.11	4.12	4.10	0.3	1	4.11	
Large - L2 - R3	003F1601.D	003F1602.D	003F1603.D	BETTYP209_FGA_CRYO.M	0.544	10.0	0.0544	19.51	19.51	19.51	0.0	3.91	3.92	3.91	0.2	1	3.91	
Large - L3 - R1	005F0301.D	005F0302.D	005F0303.D	BETTYP209_FGA_CRYO.M	0.544	10.0	0.0544	19.50	19.49	19.50	0.0	4.50	4.47	4.49	0.3	1	4.49	
Large - L3 - R2	010F0701.D	010F0702.D	010F0703.D	BETTYP209_FGA_CRYO.M	0.544	10.0	0.0544	19.50	19.50	19.50	0.0	4.33	4.31	4.31	0.4	1	4.32	
Large - L3 - R3	004F1701.D	004F1702.D	004F1703.D	BETTYP209_FGA_CRYO.M	0.544	10.0	0.0544	19.50	19.50	19.50	0.0	4.52	4.52	4.52	0.1	1	4.52	
Large - L4 - R1	006F0401.D	006F0402.D	006F0403.D	BETTYP209_FGA_CRYO.M	0.544	10.0	0.0544	19.49	19.49	19.49	0.0	4.75	4.74	4.75	0.2	1	4.75	
Large - L4 - R2	011F0801.D	011F0802.D	011F0803.D	BETTYP209_FGA_CRYO.M	0.544	10.0	0.0544	19.49	19.50	19.50	0.0	4.45	4.43	4.46	0.3	1	4.45	
Large - L4 - R3	005F1801.D	005F1802.D	005F1803.D	BETTYP209_FGA_CRYO.M	0.544	10.0	0.0544	19.50	19.50	19.50	0.0	4.57	4.56	4.56	0.1	1	4.56	

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0615-125 - EPA Method 3C

Project No.: 15-162

Carbon monoxide

Client's Sample Name	Filename #1	Filename #2	Filename #3	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc #1	Conc #2	Conc #3	%dif conc	DF	Avg Conc %	Flag
Large - L1 - R1	003F0101.D	003F0102.D	003F0103.D	BETTYP209_FGA_CRYO.M	0.380	10.0	0.0380	NA	NA	NA	NA	0.0380	0.0380	0.0380	NA	1	0.0380	ND
Large - L1 - R2	007F0501.D	007F0502.D	007F0503.D	BETTYP209_FGA_CRYO.M	0.380	10.0	0.0380	NA	NA	NA	NA	0.0380	0.0380	0.0380	NA	1	0.0380	ND
Large - L1 - R3	012F0901.D	012F0902.D	012F0903.D	BETTYP209_FGA_CRYO.M	0.380	10.0	0.0380	NA	NA	NA	NA	0.0380	0.0380	0.0380	NA	1	0.0380	ND
Large - L2 - R1	004F0201.D	004F0202.D	004F0203.D	BETTYP209_FGA_CRYO.M	0.380	10.0	0.0380	NA	NA	NA	NA	0.0380	0.0380	0.0380	NA	1	0.0380	ND
Large - L2 - R2	008F0601.D	008F0602.D	008F0603.D	BETTYP209_FGA_CRYO.M	0.380	10.0	0.0380	NA	NA	NA	NA	0.0380	0.0380	0.0380	NA	1	0.0380	ND
Large - L2 - R3	003F1601.D	003F1602.D	003F1603.D	BETTYP209_FGA_CRYO.M	0.380	10.0	0.0380	NA	NA	NA	NA	0.0380	0.0380	0.0380	NA	1	0.0380	ND
Large - L3 - R1	005F0301.D	005F0302.D	005F0303.D	BETTYP209_FGA_CRYO.M	0.380	10.0	0.0380	NA	NA	NA	NA	0.0380	0.0380	0.0380	NA	1	0.0380	ND
Large - L3 - R2	010F0701.D	010F0702.D	010F0703.D	BETTYP209_FGA_CRYO.M	0.380	10.0	0.0380	NA	NA	NA	NA	0.0380	0.0380	0.0380	NA	1	0.0380	ND
Large - L3 - R3	004F1701.D	004F1702.D	004F1703.D	BETTYP209_FGA_CRYO.M	0.380	10.0	0.0380	NA	NA	NA	NA	0.0380	0.0380	0.0380	NA	1	0.0380	ND
Large - L4 - R1	006F0401.D	006F0402.D	006F0403.D	BETTYP209_FGA_CRYO.M	0.380	10.0	0.0380	NA	NA	NA	NA	0.0380	0.0380	0.0380	NA	1	0.0380	ND
Large - L4 - R2	011F0801.D	011F0802.D	011F0803.D	BETTYP209_FGA_CRYO.M	0.380	10.0	0.0380	NA	NA	NA	NA	0.0380	0.0380	0.0380	NA	1	0.0380	ND
Large - L4 - R3	005F1801.D	005F1802.D	005F1803.D	BETTYP209_FGA_CRYO.M	0.380	10.0	0.0380	NA	NA	NA	NA	0.0380	0.0380	0.0380	NA	1	0.0380	ND

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0615-125 - EPA Method 3C

Project No.: 15-162

Hydrogen

Client's Sample Name	Filename #1	Filename #2	Filename #3	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc #1	Conc #2	Conc #3	%dif conc	DF	Avg Conc %	Flag
Large - L1 - R1	003F0101.D	003F0102.D	003F0103.D	BETTYP209_FGA_CRYO.M	0.310	8.20	0.0360	NA	NA	NA	NA	0.0360	0.0360	0.0360	NA	1	0.0360	ND
Large - L1 - R2	007F0501.D	007F0502.D	007F0503.D	BETTYP209_FGA_CRYO.M	0.310	8.20	0.0360	NA	NA	NA	NA	0.0360	0.0360	0.0360	NA	1	0.0360	ND
Large - L1 - R3	012F0901.D	012F0902.D	012F0903.D	BETTYP209_FGA_CRYO.M	0.310	8.20	0.0360	NA	NA	NA	NA	0.0360	0.0360	0.0360	NA	1	0.0360	ND
Large - L2 - R1	004F0201.D	004F0202.D	004F0203.D	BETTYP209_FGA_CRYO.M	0.310	8.20	0.0360	NA	NA	NA	NA	0.0360	0.0360	0.0360	NA	1	0.0360	ND
Large - L2 - R2	008F0601.D	008F0602.D	008F0603.D	BETTYP209_FGA_CRYO.M	0.310	8.20	0.0360	NA	NA	NA	NA	0.0360	0.0360	0.0360	NA	1	0.0360	ND
Large - L2 - R3	003F1601.D	003F1602.D	003F1603.D	BETTYP209_FGA_CRYO.M	0.310	8.20	0.0360	NA	NA	NA	NA	0.0360	0.0360	0.0360	NA	1	0.0360	ND
Large - L3 - R1	005F0301.D	005F0302.D	005F0303.D	BETTYP209_FGA_CRYO.M	0.310	8.20	0.0360	NA	NA	NA	NA	0.0360	0.0360	0.0360	NA	1	0.0360	ND
Large - L3 - R2	010F0701.D	010F0702.D	010F0703.D	BETTYP209_FGA_CRYO.M	0.310	8.20	0.0360	NA	NA	NA	NA	0.0360	0.0360	0.0360	NA	1	0.0360	ND
Large - L3 - R3	004F1701.D	004F1702.D	004F1703.D	BETTYP209_FGA_CRYO.M	0.310	8.20	0.0360	NA	NA	NA	NA	0.0360	0.0360	0.0360	NA	1	0.0360	ND
Large - L4 - R1	006F0401.D	006F0402.D	006F0403.D	BETTYP209_FGA_CRYO.M	0.310	8.20	0.0360	NA	NA	NA	NA	0.0360	0.0360	0.0360	NA	1	0.0360	ND
Large - L4 - R2	011F0801.D	011F0802.D	011F0803.D	BETTYP209_FGA_CRYO.M	0.310	8.20	0.0360	NA	NA	NA	NA	0.0360	0.0360	0.0360	NA	1	0.0360	ND
Large - L4 - R3	005F1801.D	005F1802.D	005F1803.D	BETTYP209_FGA_CRYO.M	0.310	8.20	0.0360	NA	NA	NA	NA	0.0360	0.0360	0.0360	NA	1	0.0360	ND

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0615-125 - EPA Method 3C

Project No.: 15-162

Methane

Client's Sample Name	Filename #1	Filename #2	Filename #3	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc #1	Conc #2	Conc #3	%dif conc	DF	Avg Conc %	Flag
Large - L1 - R1	003F0101.D	003F0102.D	003F0103.D	BETTYP209_FGA_CRYO.M	0.310	8.00	0.0310	NA	NA	NA	NA	0.0310	0.0310	0.0310	NA	1	0.0310	ND
Large - L1 - R2	007F0501.D	007F0502.D	007F0503.D	BETTYP209_FGA_CRYO.M	0.310	8.00	0.0310	NA	NA	NA	NA	0.0310	0.0310	0.0310	NA	1	0.0310	ND
Large - L1 - R3	012F0901.D	012F0902.D	012F0903.D	BETTYP209_FGA_CRYO.M	0.310	8.00	0.0310	NA	NA	NA	NA	0.0310	0.0310	0.0310	NA	1	0.0310	ND
Large - L2 - R1	004F0201.D	004F0202.D	004F0203.D	BETTYP209_FGA_CRYO.M	0.310	8.00	0.0310	NA	NA	NA	NA	0.0310	0.0310	0.0310	NA	1	0.0310	ND
Large - L2 - R2	008F0601.D	008F0602.D	008F0603.D	BETTYP209_FGA_CRYO.M	0.310	8.00	0.0310	NA	NA	NA	NA	0.0310	0.0310	0.0310	NA	1	0.0310	ND
Large - L2 - R3	003F1601.D	003F1602.D	003F1603.D	BETTYP209_FGA_CRYO.M	0.310	8.00	0.0310	NA	NA	NA	NA	0.0310	0.0310	0.0310	NA	1	0.0310	ND
Large - L3 - R1	005F0301.D	005F0302.D	005F0303.D	BETTYP209_FGA_CRYO.M	0.310	8.00	0.0310	NA	NA	NA	NA	0.0310	0.0310	0.0310	NA	1	0.0310	ND
Large - L3 - R2	010F0701.D	010F0702.D	010F0703.D	BETTYP209_FGA_CRYO.M	0.310	8.00	0.0310	NA	NA	NA	NA	0.0310	0.0310	0.0310	NA	1	0.0310	ND
Large - L3 - R3	004F1701.D	004F1702.D	004F1703.D	BETTYP209_FGA_CRYO.M	0.310	8.00	0.0310	NA	NA	NA	NA	0.0310	0.0310	0.0310	NA	1	0.0310	ND
Large - L4 - R1	006F0401.D	006F0402.D	006F0403.D	BETTYP209_FGA_CRYO.M	0.310	8.00	0.0310	NA	NA	NA	NA	0.0310	0.0310	0.0310	NA	1	0.0310	ND
Large - L4 - R2	011F0801.D	011F0802.D	011F0803.D	BETTYP209_FGA_CRYO.M	0.310	8.00	0.0310	NA	NA	NA	NA	0.0310	0.0310	0.0310	NA	1	0.0310	ND
Large - L4 - R3	005F1801.D	005F1802.D	005F1803.D	BETTYP209_FGA_CRYO.M	0.310	8.00	0.0310	NA	NA	NA	NA	0.0310	0.0310	0.0310	NA	1	0.0310	ND

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0615-125 - EPA Method 3C

Project No.: 15-162

Nitrogen

Client's Sample Name	Filename #1	Filename #2	Filename #3	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc #1	Conc #2	Conc #3	%dif conc	DF	Avg Conc %	Flag
Large - L1 - R1	003F0101.D	003F0102.D	003F0103.D	BETTYP209_FGA_CRYO.M	0.380	99.9	0.0380	9.52	9.52	9.52	0.0	75.8	75.9	75.8	0.1	1	75.8	
Large - L1 - R2	007F0501.D	007F0502.D	007F0503.D	BETTYP209_FGA_CRYO.M	0.380	99.9	0.0380	9.52	9.52	9.52	0.0	75.3	75.1	75.4	0.2	1	75.3	
Large - L1 - R3	012F0901.D	012F0902.D	012F0903.D	BETTYP209_FGA_CRYO.M	0.380	99.9	0.0380	9.52	9.52	9.52	0.0	74.8	75.0	74.9	0.1	1	74.9	
Large - L2 - R1	004F0201.D	004F0202.D	004F0203.D	BETTYP209_FGA_CRYO.M	0.380	99.9	0.0380	9.52	9.52	9.52	0.0	75.9	75.9	75.5	0.4	1	75.7	
Large - L2 - R2	008F0601.D	008F0602.D	008F0603.D	BETTYP209_FGA_CRYO.M	0.380	99.9	0.0380	9.52	9.52	9.52	0.0	75.5	75.4	75.2	0.2	1	75.3	
Large - L2 - R3	003F1601.D	003F1602.D	003F1603.D	BETTYP209_FGA_CRYO.M	0.380	99.9	0.0380	9.52	9.52	9.52	0.0	75.8	75.7	75.6	0.1	1	75.7	
Large - L3 - R1	005F0301.D	005F0302.D	005F0303.D	BETTYP209_FGA_CRYO.M	0.380	99.9	0.0380	9.52	9.52	9.52	0.0	75.7	75.8	75.6	0.1	1	75.7	
Large - L3 - R2	010F0701.D	010F0702.D	010F0703.D	BETTYP209_FGA_CRYO.M	0.380	99.9	0.0380	9.52	9.52	9.52	0.0	75.4	75.1	75.3	0.2	1	75.3	
Large - L3 - R3	004F1701.D	004F1702.D	004F1703.D	BETTYP209_FGA_CRYO.M	0.380	99.9	0.0380	9.52	9.52	9.51	0.0	76.0	76.0	76.5	0.4	1	76.2	
Large - L4 - R1	006F0401.D	006F0402.D	006F0403.D	BETTYP209_FGA_CRYO.M	0.380	99.9	0.0380	9.52	9.52	9.52	0.0	75.7	75.5	75.9	0.2	1	75.7	
Large - L4 - R2	011F0801.D	011F0802.D	011F0803.D	BETTYP209_FGA_CRYO.M	0.380	99.9	0.0380	9.52	9.52	9.52	0.0	75.1	75.2	75.1	0.1	1	75.1	
Large - L4 - R3	005F1801.D	005F1802.D	005F1803.D	BETTYP209_FGA_CRYO.M	0.380	99.9	0.0380	9.52	9.52	9.51	0.0	76.6	76.2	76.2	0.3	1	76.3	

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0615-125 - EPA Method 3C

Project No.: 15-162

Oxygen

Client's Sample Name	Filename #1	Filename #2	Filename #3	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc #1	Conc #2	Conc #3	%dif conc	DF	Avg Conc %	Flag
Large - L1 - R1	003F0101.D	003F0102.D	003F0103.D	BETTYP209_FGA_CRYO.M	0.544	100	0.0544	8.70	8.70	8.70	0.0	15.8	15.8	15.7	0.1	1	15.8	
Large - L1 - R2	007F0501.D	007F0502.D	007F0503.D	BETTYP209_FGA_CRYO.M	0.544	100	0.0544	8.70	8.70	8.70	0.0	16.0	16.0	16.0	0.1	1	16.0	
Large - L1 - R3	012F0901.D	012F0902.D	012F0903.D	BETTYP209_FGA_CRYO.M	0.544	100	0.0544	8.70	8.70	8.70	0.0	15.8	15.9	15.8	0.2	1	15.9	
Large - L2 - R1	004F0201.D	004F0202.D	004F0203.D	BETTYP209_FGA_CRYO.M	0.544	100	0.0544	8.71	8.71	8.71	0.0	15.4	15.4	15.3	0.4	1	15.4	
Large - L2 - R2	008F0601.D	008F0602.D	008F0603.D	BETTYP209_FGA_CRYO.M	0.544	100	0.0544	8.70	8.71	8.71	0.0	15.3	15.3	15.3	0.1	1	15.3	
Large - L2 - R3	003F1601.D	003F1602.D	003F1603.D	BETTYP209_FGA_CRYO.M	0.544	100	0.0544	8.70	8.70	8.70	0.0	15.7	15.7	15.7	0.2	1	15.7	
Large - L3 - R1	005F0301.D	005F0302.D	005F0303.D	BETTYP209_FGA_CRYO.M	0.544	100	0.0544	8.71	8.71	8.71	0.0	14.8	14.8	14.8	0.1	1	14.8	
Large - L3 - R2	010F0701.D	010F0702.D	010F0703.D	BETTYP209_FGA_CRYO.M	0.544	100	0.0544	8.71	8.71	8.71	0.0	15.0	14.9	15.0	0.1	1	15.0	
Large - L3 - R3	004F1701.D	004F1702.D	004F1703.D	BETTYP209_FGA_CRYO.M	0.544	100	0.0544	8.71	8.71	8.71	0.0	14.8	14.8	14.9	0.4	1	14.9	
Large - L4 - R1	006F0401.D	006F0402.D	006F0403.D	BETTYP209_FGA_CRYO.M	0.544	100	0.0544	8.72	8.72	8.72	0.0	14.4	14.4	14.4	0.1	1	14.4	
Large - L4 - R2	011F0801.D	011F0802.D	011F0803.D	BETTYP209_FGA_CRYO.M	0.544	100	0.0544	8.71	8.71	8.71	0.0	14.7	14.7	14.7	0.1	1	14.7	
Large - L4 - R3	005F1801.D	005F1802.D	005F1803.D	BETTYP209_FGA_CRYO.M	0.544	100	0.0544	8.71	8.71	8.71	0.0	14.9	14.8	14.8	0.3	1	14.8	

Enthalpy Analytical

Company: METCO Environmental
Job No.: 0615-125 ASTM D1946-90 Canisters
Client No.: 15-162

Carbon Dioxide

Sample ID	Filename #1	Filename #2	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	%dif RT	DF	Conc #1	Conc #2	%dif conc	Avg Conc %	Final Conc %	Flag
Large - L1 - R1 - 1158	008F1301.D	008F1302.D	BETTYP191_FGA.M	0.540	100	0.0544	12.86	12.85	0.0	4.863	0.0969	0.101	1.9	0.0987	0.480	J
Large - L2 - R1 - 1124	010F1402.D	010F1403.D	BETTYP191_FGA.M	0.540	100	0.0544	12.85	12.86	0.1	7.238	0.0851	0.0840	0.6	0.0845	0.612	J
Large - L3 - R1 - 1368	004F0101.D	004F0102.D	BETTYP191_FGA.M	0.540	100	0.0544	NA	NA	NA	3.806	0.0544	0.0544	NA	0.0544	0.207	ND
Large - L4 - R1 - 1630	005F0301.D	005F0302.D	BETTYP191_FGA.M	0.540	100	0.0544	NA	NA	NA	6.275	0.0544	0.0544	NA	0.0544	0.341	ND

Enthalpy Analytical

Company: METCO Environmental
Job No.: 0615-125 ASTM D1946-90 Canisters
Client No.: 15-162

Carbon monoxide

Sample ID	Filename #1	Filename #2	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	%dif RT	DF	Conc #1	Conc #2	%dif conc	Avg Conc %	Final Conc %	Flag
Large - L1 - R1 - 1158	008F1301.D	008F1302.D	BETTYP191_FGA.M	0.380	99.5	0.0380	NA	NA	NA	4.863	0.0380	0.0380	NA	0.0380	0.185	ND
Large - L2 - R1 - 1124	010F1402.D	010F1403.D	BETTYP191_FGA.M	0.380	99.5	0.0380	NA	NA	NA	7.238	0.0380	0.0380	NA	0.0380	0.275	ND
Large - L3 - R1 - 1368	004F0101.D	004F0102.D	BETTYP191_FGA.M	0.380	99.5	0.0380	NA	NA	NA	3.806	0.0380	0.0380	NA	0.0380	0.145	ND
Large - L4 - R1 - 1630	005F0301.D	005F0302.D	BETTYP191_FGA.M	0.380	99.5	0.0380	NA	NA	NA	6.275	0.0380	0.0380	NA	0.0380	0.238	ND

Enthalpy Analytical

Company: METCO Environmental
Job No.: 0615-125 ASTM D1946-90 Canisters
Client No.: 15-162

Hydrogen

Sample ID	Filename #1	Filename #2	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	%dif RT	DF	Conc #1	Conc #2	%dif conc	Avg Conc %	Final Conc %	Flag
Large - L1 - R1 - 1158	008F1301.D	008F1302.D	BETTYP191_FGA.M	0.790	28.5	0.0510	NA	NA	NA	4.863	0.0510	0.0510	NA	0.0510	0.248	ND
Large - L2 - R1 - 1124	010F1402.D	010F1403.D	BETTYP191_FGA.M	0.790	28.5	0.0510	NA	NA	NA	7.238	0.0510	0.0510	NA	0.0510	0.369	ND
Large - L3 - R1 - 1368	004F0101.D	004F0102.D	BETTYP191_FGA.M	0.790	28.5	0.0510	NA	NA	NA	3.806	0.0510	0.0510	NA	0.0510	0.194	ND
Large - L4 - R1 - 1630	005F0301.D	005F0302.D	BETTYP191_FGA.M	0.790	28.5	0.0510	NA	NA	NA	6.275	0.0510	0.0510	NA	0.0510	0.320	ND

Enthalpy Analytical

Company: METCO Environmental
Job No.: 0615-125 ASTM D1946-90 Canisters
Client No.: 15-162

Nitrogen

Sample ID	Filename #1	Filename #2	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	%dif RT	DF	Conc #1	Conc #2	%dif conc	Avg Conc %	Final Conc %	Flag
Large - L1 - R1 - 1158	008F1301.D	008F1302.D	BETTYP191_FGA.M	0.380	99.9	0.0382	4.90	4.90	0.0	4.863	0.213	0.209	0.8	0.211	1.03	J
Large - L2 - R1 - 1124	010F1402.D	010F1403.D	BETTYP191_FGA.M	0.380	99.9	0.0382	4.90	4.90	0.0	7.238	0.293	0.289	0.6	0.291	2.11	J
Large - L3 - R1 - 1368	004F0101.D	004F0102.D	BETTYP191_FGA.M	0.380	99.9	0.0382	4.90	4.90	0.0	3.806	0.0991	0.0971	1.0	0.0981	0.373	J
Large - L4 - R1 - 1630	005F0301.D	005F0302.D	BETTYP191_FGA.M	0.380	99.9	0.0382	4.89	4.89	0.0	6.275	0.331	0.334	0.5	0.333	2.09	J

Enthalpy Analytical

Company: METCO Environmental
Job No.: 0615-125 ASTM D1946-90 Canisters
Client No.: 15-162

Oxygen

Sample ID	Filename #1	Filename #2	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	%dif RT	DF	Conc #1	Conc #2	%dif conc	Avg Conc %	Final Conc %	Flag
Large - L1 - R1 - 1158	008F1301.D	008F1302.D	BETTYP191_FGA.M	0.544	100	0.0544	NA	4.55	0.1	4.863	0.0544	0.0550	NA	0.0547	0.266	J
Large - L2 - R1 - 1124	010F1402.D	010F1403.D	BETTYP191_FGA.M	0.544	100	0.0544	4.55	4.55	0.0	7.238	0.0766	0.0762	0.3	0.0764	0.553	J
Large - L3 - R1 - 1368	004F0101.D	004F0102.D	BETTYP191_FGA.M	0.544	100	0.0544	NA	NA	0.1	3.806	0.0544	0.0544	NA	0.0544	0.207	ND
Large - L4 - R1 - 1630	005F0301.D	005F0302.D	BETTYP191_FGA.M	0.544	100	0.0544	4.55	4.54	0.0	6.275	0.0913	0.0909	0.2	0.0911	0.572	J

Company	METCO Environmental
Analyst	DDC
Parameters	EPA Method 18-Type

Client #	15-162
Job #	0615-125
# Samples	4 Canisters

MDL 0.501 (ppm)
LOQ 5.01 (ppm)
Compound Methane

Lower Curve Limit 5.01 (ppm)
Upper Curve Limit 51,300 (ppm)

Sample ID	Lab ID # 1	Lab ID # 2	Lab ID # 3	Analysis Method	Ret Time (min)	Ret Time (min)	Ret Time (min)	% Diff Ret	Conc # 1 (ppm)	Conc # 2 (ppm)	Conc # 3 (ppm)	% Diff Conc	Avg Conc (ppm)	DF	Tank Dilution	Sample Conc (ppm)	Qual
Large - L1 - R1 - 1158.Can	003F1701.D	003F1702.D	003F1703.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.501	0.501	0.501	0.0	0.501	1	4.863	2.44	ND
Large - L2 - R1 - 1124.Can	004F1801.D	004F1802.D	004F1803.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.501	0.501	0.501	0.0	0.501	1	7.238	3.63	ND
Large - L3 - R1 - 1368.Can	002F0702.D	002F0703.D	003F0201.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.501	0.501	0.501	0.0	0.501	1	3.806	1.91	ND
Large - L4 - R1 - 1630.Can	004F0301.D	004F0302.D	004F0303.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.501	0.501	0.501	0.0	0.501	1	6.275	3.14	ND
zero air blank	014F0701.D	014F0702.D	014F0703.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.501	0.501	0.501	0.0	0.501	1	1	0.501	ND

Company	METCO Environmental
Analyst	DDC
Parameters	EPA Method 18-Type

Client #	15-162
Job #	0615-125
# Samples	4 Canisters

MDL 0.501 (ppm)
LOQ 5.01 (ppm)
Compound Ethane

Lower Curve Limit 5.01 (ppm)
Upper Curve Limit 51,300 (ppm)

Sample ID	Lab ID # 1	Lab ID # 2	Lab ID # 3	Analysis Method	Ret Time (min)	Ret Time (min)	Ret Time (min)	% Diff Ret	Conc # 1 (ppm)	Conc # 2 (ppm)	Conc # 3 (ppm)	% Diff Conc	Avg Conc (ppm)	DF	Tank Dilution	Sample Conc (ppm)	Qual
Large - L1 - R1 - 1158.Can	003F1701.D	003F1702.D	003F1703.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.501	0.501	0.501	0.0	0.501	1	4.863	2.43	ND
Large - L2 - R1 - 1124.Can	004F1801.D	004F1802.D	004F1803.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.501	0.501	0.501	0.0	0.501	1	7.238	3.62	ND
Large - L3 - R1 - 1368.Can	002F0702.D	002F0703.D	003F0201.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.501	0.501	0.501	0.0	0.501	1	3.806	1.90	ND
Large - L4 - R1 - 1630.Can	004F0301.D	004F0302.D	004F0303.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.501	0.501	0.501	0.0	0.501	1	6.275	3.14	ND
zero air blank	014F0701.D	014F0702.D	014F0703.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.501	0.501	0.501	0.0	0.501	1	1	0.501	ND

Company	METCO Environmental
Analyst	DDC
Parameters	EPA Method 18-Type

Client #	15-162
Job #	0615-125
# Samples	4 Canisters

MDL 0.501 (ppm)
LOQ 5.01 (ppm)
Compound C2 as Ethane

Sample ID	Lab ID # 1	Lab ID # 2	Lab ID # 3	Analysis Method	Conc # 1 (ppm)	Conc # 2 (ppm)	Conc # 3 (ppm)	% Diff Conc	Avg Conc (ppm)	DF	Tank Dilution	Sample Conc (ppm)	Qual
Large - L1 - R1 - 1158.Can	003F1701.D	003F1702.D	003F1703.D	EDITHP121F_C1-C6_BENZENE	10.8	10.3	10.5	2.4	10.5	1	4.863	51.3	
Large - L2 - R1 - 1124.Can	004F1801.D	004F1802.D	004F1803.D	EDITHP121F_C1-C6_BENZENE	6.42	6.30	5.30	11.8	6.01	1	7.238	43.5	
Large - L3 - R1 - 1368.Can	002F0702.D	002F0703.D	003F0201.D	EDITHP121F_C1-C6_BENZENE	11.3	11.6	11.0	2.8	11.3	1	3.806	42.9	
Large - L4 - R1 - 1630.Can	004F0301.D	004F0302.D	004F0303.D	EDITHP121F_C1-C6_BENZENE	6.28	6.28	6.25	0.4	6.27	1	6.275	39.4	
zero air blank	014F0701.D	014F0702.D	014F0703.D	EDITHP121F_C1-C6_BENZENE	0.501	0.501	0.501	0.0	0.501	1	1	0.501	ND

Company	METCO Environmental
Analyst	DDC
Parameters	EPA Method 18-Type

Client #	15-162
Job #	0615-125
# Samples	4 Canisters

MDL 0.502 (ppm)
LOQ 5.02 (ppm)
Compound Propane

Lower Curve Limit 5.02 (ppm)
Upper Curve Limit 51,300 (ppm)

Sample ID	Lab ID # 1	Lab ID # 2	Lab ID # 3	Analysis Method	Ret Time (min)	Ret Time (min)	Ret Time (min)	% Diff Ret	Conc # 1 (ppm)	Conc # 2 (ppm)	Conc # 3 (ppm)	% Diff Conc	Avg Conc (ppm)	DF	Tank Dilution	Sample Conc (ppm)	Qual
Large - L1 - R1 - 1158.Can	003F1701.D	003F1702.D	003F1703.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.502	0.502	0.502	0.0	0.502	1	4.863	2.44	ND
Large - L2 - R1 - 1124.Can	004F1801.D	004F1802.D	004F1803.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.502	0.502	0.502	0.0	0.502	1	7.238	3.63	ND
Large - L3 - R1 - 1368.Can	002F0702.D	002F0703.D	003F0201.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.502	0.502	0.502	0.0	0.502	1	3.806	1.91	ND
Large - L4 - R1 - 1630.Can	004F0301.D	004F0302.D	004F0303.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.502	0.502	0.502	0.0	0.502	1	6.275	3.15	ND
zero air blank	014F0701.D	014F0702.D	014F0703.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.502	0.502	0.502	0.0	0.502	1	1	0.502	ND

Company	METCO Environmental
Analyst	DDC
Parameters	EPA Method 18-Type

Client #	15-162
Job #	0615-125
# Samples	4 Canisters

MDL 0.502 (ppm)
LOQ 5.02 (ppm)
Compound C3 as Propane

Sample ID	Lab ID # 1	Lab ID # 2	Lab ID # 3	Analysis Method	Conc # 1 (ppm)	Conc # 2 (ppm)	Conc # 3 (ppm)	% Diff Conc	Avg Conc (ppm)	DF	Tank Dilution	Sample Conc (ppm)	Qual
Large - L1 - R1 - 1158.Can	010F1101.D	010F1102.D	010F1103.D	EDITHP108F_C1-C6_XAS.M	403	401	401	0.2	402	501	4.863	978,700	
Large - L2 - R1 - 1124.Can	012F1201.D	012F1202.D	012F1203.D	EDITHP108F_C1-C6_XAS.M	265	266	264	0.2	265	501	7.238	960,581	
Large - L3 - R1 - 1368.Can	013F1301.D	013F1302.D	013F1303.D	EDITHP108F_C1-C6_XAS.M	470	471	470	0.1	470	501	3.806	897,034	
Large - L4 - R1 - 1630.Can	015F1401.D	015F1402.D	015F1403.D	EDITHP108F_C1-C6_XAS.M	266	265	265	0.1	265	501	6.275	833,776	
zero air blank	014F0701.D	014F0702.D	014F0703.D	EDITHP121F_C1-C6_BENZENE	0.502	0.502	0.502	0.0	0.502	1	1	0.502	ND

Company	METCO Environmental
Analyst	DDC
Parameters	EPA Method 18-Type

Client #	15-162
Job #	0615-125
# Samples	4 Canisters

MDL 0.501 (ppm)
LOQ 5.01 (ppm)
Compound Butane

Lower Curve Limit 5.01 (ppm)
Upper Curve Limit 10,300 (ppm)

Sample ID	Lab ID # 1	Lab ID # 2	Lab ID # 3	Analysis Method	Ret Time (min)	Ret Time (min)	Ret Time (min)	% Diff Ret	Conc # 1 (ppm)	Conc # 2 (ppm)	Conc # 3 (ppm)	% Diff Conc	Avg Conc (ppm)	DF	Tank Dilution	Sample Conc (ppm)	Qual
Large - L1 - R1 - 1158.Can	003F1701.D	003F1702.D	003F1703.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.501	0.501	0.501	0.0	0.501	1	4.863	2.44	ND
Large - L2 - R1 - 1124.Can	004F1801.D	004F1802.D	004F1803.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.501	0.501	0.501	0.0	0.501	1	7.238	3.63	ND
Large - L3 - R1 - 1368.Can	002F0702.D	002F0703.D	003F0201.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.501	0.501	0.501	0.0	0.501	1	3.806	1.91	ND
Large - L4 - R1 - 1630.Can	004F0301.D	004F0302.D	004F0303.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.501	0.501	0.501	0.0	0.501	1	6.275	3.14	ND
zero air blank	014F0701.D	014F0702.D	014F0703.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.501	0.501	0.501	0.0	0.501	1	1	0.501	ND

Company	METCO Environmental
Analyst	DDC
Parameters	EPA Method 18-Type

Client #	15-162
Job #	0615-125
# Samples	4 Canisters

MDL 0.501 (ppm)
LOQ 5.01 (ppm)
Compound C4 as Butane

Sample ID	Lab ID # 1	Lab ID # 2	Lab ID # 3	Analysis Method	Conc # 1 (ppm)	Conc # 2 (ppm)	Conc # 3 (ppm)	% Diff Conc	Avg Conc (ppm)	DF	Tank Dilution	Sample Conc (ppm)	Qual
Large - L1 - R1 - 1158.Can	003F1701.D	003F1702.D	003F1703.D	EDITHP121F_C1-C6_BENZENE	0.501	0.501	0.501	0.0	0.501	1	4.863	2.44	ND
Large - L2 - R1 - 1124.Can	004F1801.D	004F1802.D	004F1803.D	EDITHP121F_C1-C6_BENZENE	0.501	0.501	0.501	0.0	0.501	1	7.238	3.63	ND
Large - L3 - R1 - 1368.Can	002F0702.D	002F0703.D	003F0201.D	EDITHP121F_C1-C6_BENZENE	0.501	0.501	0.501	0.0	0.501	1	3.806	1.91	ND
Large - L4 - R1 - 1630.Can	004F0301.D	004F0302.D	004F0303.D	EDITHP121F_C1-C6_BENZENE	0.501	0.501	0.501	0.0	0.501	1	6.275	3.14	ND
zero air blank	014F0701.D	014F0702.D	014F0703.D	EDITHP121F_C1-C6_BENZENE	0.501	0.501	0.501	0.0	0.501	1	1	0.501	ND

Company	METCO Environmental
Analyst	DDC
Parameters	EPA Method 18-Type

Client #	15-162
Job #	0615-125
# Samples	4 Canisters

MDL 0.500 (ppm)
LOQ 5.00 (ppm)
Compound Pentane

Lower Curve Limit 5.00 (ppm)
Upper Curve Limit 5,200 (ppm)

Sample ID	Lab ID # 1	Lab ID # 2	Lab ID # 3	Analysis Method	Ret Time (min)	Ret Time (min)	Ret Time (min)	% Diff Ret	Conc # 1 (ppm)	Conc # 2 (ppm)	Conc # 3 (ppm)	% Diff Conc	Avg Conc (ppm)	DF	Tank Dilution	Sample Conc (ppm)	Qual
Large - L1 - R1 - 1158.Can	003F1701.D	003F1702.D	003F1703.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.500	0.500	0.500	0.0	0.500	1	4.863	2.43	ND
Large - L2 - R1 - 1124.Can	004F1801.D	004F1802.D	004F1803.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.500	0.500	0.500	0.0	0.500	1	7.238	3.62	ND
Large - L3 - R1 - 1368.Can	002F0702.D	002F0703.D	003F0201.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.500	0.500	0.500	0.0	0.500	1	3.806	1.90	ND
Large - L4 - R1 - 1630.Can	004F0301.D	004F0302.D	004F0303.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.500	0.500	0.500	0.0	0.500	1	6.275	3.14	ND
zero air blank	014F0701.D	014F0702.D	014F0703.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.500	0.500	0.500	0.0	0.500	1	1	0.500	ND

Company	METCO Environmental
Analyst	DDC
Parameters	EPA Method 18-Type

Client #	15-162
Job #	0615-125
# Samples	4 Canisters

MDL 0.500 (ppm)
LOQ 5.00 (ppm)
Compound C5 as Pentane

Sample ID	Lab ID # 1	Lab ID # 2	Lab ID # 3	Analysis Method	Conc # 1 (ppm)	Conc # 2 (ppm)	Conc # 3 (ppm)	% Diff Conc	Avg Conc (ppm)	DF	Tank Dilution	Sample Conc (ppm)	Qual
Large - L1 - R1 - 1158.Can	003F1701.D	003F1702.D	003F1703.D	EDITHP121F_C1-C6_BENZENE	0.500	0.500	0.500	0.0	0.500	1	4.863	2.43	ND
Large - L2 - R1 - 1124.Can	004F1801.D	004F1802.D	004F1803.D	EDITHP121F_C1-C6_BENZENE	0.500	0.500	0.500	0.0	0.500	1	7.238	3.62	ND
Large - L3 - R1 - 1368.Can	002F0702.D	002F0703.D	003F0201.D	EDITHP121F_C1-C6_BENZENE	0.500	0.500	0.500	0.0	0.500	1	3.806	1.90	ND
Large - L4 - R1 - 1630.Can	004F0301.D	004F0302.D	004F0303.D	EDITHP121F_C1-C6_BENZENE	0.500	0.500	0.500	0.0	0.500	1	6.275	3.14	ND
zero air blank	014F0701.D	014F0702.D	014F0703.D	EDITHP121F_C1-C6_BENZENE	0.500	0.500	0.500	0.0	0.500	1	1	0.500	ND

Company	METCO Environmental
Analyst	DDC
Parameters	EPA Method 18-Type

Client #	15-162
Job #	0615-125
# Samples	4 Canisters

MDL 0.501 (ppm)
LOQ 5.01 (ppm)
Compound Hexane

Lower Curve Limit 5.01 (ppm)
Upper Curve Limit 4,100 (ppm)

Sample ID	Lab ID # 1	Lab ID # 2	Lab ID # 3	Analysis Method	Ret Time (min)	Ret Time (min)	Ret Time (min)	% Diff Ret	Conc # 1 (ppm)	Conc # 2 (ppm)	Conc # 3 (ppm)	% Diff Conc	Avg Conc (ppm)	DF	Tank Dilution	Sample Conc (ppm)	Qual
Large - L1 - R1 - 1158.Can	003F1701.D	003F1702.D	003F1703.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.501	0.501	0.501	0.0	0.501	1	4.863	2.43	ND
Large - L2 - R1 - 1124.Can	004F1801.D	004F1802.D	004F1803.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.501	0.501	0.501	0.0	0.501	1	7.238	3.62	ND
Large - L3 - R1 - 1368.Can	002F0702.D	002F0703.D	003F0201.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.501	0.501	0.501	0.0	0.501	1	3.806	1.90	ND
Large - L4 - R1 - 1630.Can	004F0301.D	004F0302.D	004F0303.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.501	0.501	0.501	0.0	0.501	1	6.275	3.14	ND
zero air blank	014F0701.D	014F0702.D	014F0703.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.501	0.501	0.501	0.0	0.501	1	1	0.501	ND

Company	METCO Environmental
Analyst	DDC
Parameters	EPA Method 18-Type

Client #	15-162
Job #	0615-125
# Samples	4 Canisters

MDL 0.501 (ppm)
LOQ 5.01 (ppm)
Compound C6 as Hexane

Sample ID	Lab ID # 1	Lab ID # 2	Lab ID # 3	Analysis Method	Conc # 1 (ppm)	Conc # 2 (ppm)	Conc # 3 (ppm)	% Diff Conc	Avg Conc (ppm)	DF	Tank Dilution	Sample Conc (ppm)	Qual
Large - L1 - R1 - 1158.Can	003F1701.D	003F1702.D	003F1703.D	EDITHP121F_C1-C6_BENZENE	0.501	0.501	0.501	0.0	0.501	1	4.863	2.43	ND
Large - L2 - R1 - 1124.Can	004F1801.D	004F1802.D	004F1803.D	EDITHP121F_C1-C6_BENZENE	0.501	0.501	0.501	0.0	0.501	1	7.238	3.62	ND
Large - L3 - R1 - 1368.Can	002F0702.D	002F0703.D	003F0201.D	EDITHP121F_C1-C6_BENZENE	0.501	0.501	0.501	0.0	0.501	1	3.806	1.90	ND
Large - L4 - R1 - 1630.Can	004F0301.D	004F0302.D	004F0303.D	EDITHP121F_C1-C6_BENZENE	0.501	0.501	0.501	0.0	0.501	1	6.275	3.14	ND
zero air blank	014F0701.D	014F0702.D	014F0703.D	EDITHP121F_C1-C6_BENZENE	0.501	0.501	0.501	0.0	0.501	1	1	0.501	ND

Company	METCO Environmental
Analyst	DDC
Parameters	EPA Method 18-Type

Client #	15-162
Job #	0615-125
# Samples	4 Canisters

MDL 0.515 (ppm)
LOQ 5.15 (ppm)
Compound Benzene

Lower Curve Limit 5.15 (ppm)
Upper Curve Limit 531 (ppm)

Sample ID	Lab ID # 1	Lab ID # 2	Lab ID # 3	Analysis Method	Ret Time (min)	Ret Time (min)	Ret Time (min)	% Diff Ret	Conc # 1 (ppm)	Conc # 2 (ppm)	Conc # 3 (ppm)	% Diff Conc	Avg Conc (ppm)	DF	Tank Dilution	Sample Conc (ppm)	Qual
Large - L1 - R1 - 1158.Can	003F1701.D	003F1702.D	003F1703.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.515	0.515	0.515	0.0	0.515	1	4.863	2.50	ND
Large - L2 - R1 - 1124.Can	004F1801.D	004F1802.D	004F1803.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.515	0.515	0.515	0.0	0.515	1	7.238	3.73	ND
Large - L3 - R1 - 1368.Can	002F0702.D	002F0703.D	003F0201.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.515	0.515	0.515	0.0	0.515	1	3.806	1.96	ND
Large - L4 - R1 - 1630.Can	004F0301.D	004F0302.D	004F0303.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.515	0.515	0.515	0.0	0.515	1	6.275	3.23	ND
zero air blank	014F0701.D	014F0702.D	014F0703.D	EDITHP121F_C1-C6_BENZENE	NA	NA	NA	NA	0.515	0.515	0.515	0.0	0.515	1	1	0.515	ND

Company	METCO Environmental
Analyst	DDC
Parameters	EPA Method 18-Type

Client #	15-162
Job #	0615-125
# Samples	4 Canisters

MDL 0.502 (ppm)
LOQ 5.02 (ppm)
Compound TVOC as Propane

Sample ID	Lab ID # 1	Lab ID # 2	Lab ID # 3	Analysis Method	Conc # 1 (ppm)	Conc # 2 (ppm)	Conc # 3 (ppm)	% Diff Conc	Avg Conc (ppm)	DF	Tank Dilution	Sample Conc (ppm)	Qual
Large - L1 - R1 - 1158.Can	010F1101.D	010F1102.D	010F1103.D	EDITHP108F_TVOCASP	403	402	402	0.2	402	501	4.863	979,951	
Large - L2 - R1 - 1124.Can	012F1201.D	012F1202.D	012F1203.D	EDITHP108F_TVOCASP	265	266	265	0.2	265	501	7.238	961,760	
Large - L3 - R1 - 1368.Can	013F1301.D	013F1302.D	013F1303.D	EDITHP108F_TVOCASP	471	471	471	0.1	471	501	3.806	898,193	
Large - L4 - R1 - 1630.Can	015F1401.D	015F1402.D	015F1403.D	EDITHP108F_TVOCASP	266	265	266	0.1	266	501	6.275	834,799	
zero air blank	014F1501.D	014F1502.D	014F1503.D	EDITHP108F_TVOCASP	0.502	0.502	0.502	0.0	0.502	1	1	0.502	ND

Company	METCO Environmental
Analyst	DDC
Parameters	EPA Method 18-Type

Client #	15-162
Job #	0615-125
# Samples	4 Canisters

MDL 0.0730 (ppm)
LOQ 0.730 (ppm)
Compound TVOC as Propylene

Sample ID	Lab ID # 1	Lab ID # 2	Lab ID # 3	Analysis Method	Conc # 1 (ppm)	Conc # 2 (ppm)	Conc # 3 (ppm)	% Diff Conc	Avg Conc (ppm)	DF	Tank Dilution	Sample Conc (ppm)	Qual
Large - L1 - R1 - 1158.Can	026B1101.D	026B1102.D	026B1103.D	EDITHP275R_HRVOC_TVOCASP	399	397	397	0.2	398	501	4.863	968,778	
Large - L2 - R1 - 1124.Can	028B1201.D	028B1202.D	028B1203.D	EDITHP275R_HRVOC_TVOCASP	262	263	262	0.1	262	501	7.238	951,382	
Large - L3 - R1 - 1368.Can	029B1301.D	029B1302.D	029B1303.D	EDITHP275R_HRVOC_TVOCASP	465	467	466	0.2	466	501	3.806	888,287	
Large - L4 - R1 - 1630.Can	031B1401.D	031B1402.D	031B1403.D	EDITHP275R_HRVOC_TVOCASP	263	263	263	0.1	263	501	6.275	826,205	
zero air blank	030B1501.D	030B1502.D	030B1503.D	EDITHP275R_HRVOC_TVOCASP	0.114	0.164	0.141	18.5	0.140	1	1	0.140	J

Enthalpy Analytical -- Canister Pressurization

Job No.	0615-125
Company	METCO Environmental
Site	Hy-Bon: Belpre, OH

Can Number	1158	1124	1368	1630
Job	0615-125	0615-125	0615-125	0615-125
Sample ID	Large - L1 - R1 - 1158	Large - L2 - R1 - 1124	Large - L3 - R1 - 1368	Large - L4 - R1 - 1630
CleanDate	05/07/15	06/11/15	05/07/15	06/11/15
LeakCheckDate	05/07/15	06/11/15	05/07/15	06/11/15
LeakCheckAnalyst	SDM	SDM	SDM	SDM
BlankCheckRef	GUmmo421	Gummo426	Gummo421	Gummo426
Can Size (L)	6	6	6	6
Evac Temp (F)	73.0	73.0	73.0	73.0
Evac Pbar (mmHg)	756	756	756	756
Evac Gauge (mmHg)	-746	-746	-746	-746
Evac Analyst	SDM	SDM	SDM	SDM
Evac Time	06/16/15 13:12	06/16/15 12:57	06/16/15 13:12	06/16/15 12:58
Evac Vol (L)	0.078	0.078	0.078	0.078
Recd. Temp (F)	72.5	72.5	71.5	72.0
Recd. Pbar (mmHg)	753	753	757	757
Recd. Gauge (mmHg)	-307	-448	-224	-420
Recd Vol (L)	3.490	2.383	4.187	2.642
P1 Temp (F)	72.5	72.5	72.0	71.5
P1 Pbar (mmHg)	753	753	757	757
P1 Gauge (mmHg)	1,367	1,378	1,238	1,294
P1 Analyst	CCB	CCB	DDC	DDC
P1 Time	06/30/15 13:56	06/30/15 14:06	07/08/15 17:53	07/08/15 17:56
P1 Vol (L)	16.593	16.683	15.635	16.090
P1 Dilution Factor	4.863	7.238	3.806	6.275

Narrative Summary

Enthalpy Analytical Narrative Summary

Company	METCO Environmental
Analyst	CCB
Parameters	EPA Method 3C

Client #	15-162
Job #	0615-125
# Samples	12 Bags

Custody

Bryan Tyler of Enthalpy Analytical, Inc. received the samples on 6/27/15 at ambient temperature after being relinquished by METCO Environmental. The samples were received in good condition. Prior to, during, and after analysis, the samples were kept under lock with access only to authorized personnel by Enthalpy Analytical, Inc.

Analysis

The samples were analyzed for carbon dioxide, carbon monoxide, hydrogen, methane, nitrogen, and oxygen using the analytical procedures in EPA Method 3C, Determination of Carbon Dioxide, Methane, Nitrogen, and Oxygen from Stationary Sources.

The Agilent Technologies Model 6890N, Gas Chromatograph "Betty" (S/N US10430048) was used for these analyses.

Calibration

The calibration curve is located in the Raw Data section of this report and referenced in the Analysis Method column on the Detailed Results page.

For each calibration curve used, the first page of the curve contains all method specific parameters (i.e., curve type, origin, weight, etc.) used to quantify the samples. The calibration curve section also includes a table with the Retention Time (RetTime), Level (Lvl), Amount (corresponding units), Area, Response Factor (Amt/Area) and the analyte Name. The calibration table is used to identify (by retention time) and quantify each target compound.

Chromatographic Conditions

The acquisition method BETTYP017_CAL.M is included in the Raw Data section of this report.

QC Notes

The analyses of the laboratory helium blanks showed no analytes of interest at concentrations greater than the detection limit.

Reporting Notes

These analyses met the requirements of the TNI Standard. Any deviations from the requirements of the reference method or TNI Standard have been stated above.

The results presented in this report are representative of the samples as provided to the laboratory.

Enthalpy Analytical Narrative Summary

Company	METCO Environmental
Analyst	CCB
Parameters	ASTM D1946-90

Client #	15-162
Job #	0615-125
# Samples	4 Cans

Custody

Bryan Tyler and Summer Mims of Enthalpy Analytical, Inc. received the samples on 6/27/15 and 7/6/15, respectively, after being relinquished by METCO Environmental. The samples were received at ambient temperature and in good condition. Prior to, during, and after analysis, the samples were kept under lock with access only to authorized personnel by Enthalpy Analytical, Inc.

Analysis

The samples were analyzed for carbon dioxide, carbon monoxide, hydrogen, methane, nitrogen, and oxygen using the analytical procedures in ASTM D1946 – 90 (Reapproved 2000), Standard Practice for Analysis of Reformed Gas by Gas Chromatography.

The samples were analyzed following the procedures in Section 8.0, Procedure.

All samples and standards were introduced directly to the column using an automated multi-port Valco gas sampling valve equipped with a stainless steel loop. All target analytes were referenced to certified gas phase standards.

Upon receipt, the canister pressures were measured and recorded. The cans were then pressurized and a dilution ratio was calculated for each can (see Canister Pressurization Sheet).

The Agilent Technologies Model 6890N, Gas Chromatograph "Betty" (S/N US10430048) was used for these analyses.

Calibration

The calibration curve is located in the Raw Data section of this report and referenced in the Analysis Method column on the Detailed Results page.

For each calibration curve used, the first page of the curve contains all method specific parameters (i.e., curve type, origin, weight, etc.) used to quantify the samples. The calibration curve section also includes a table with the Retention Time (RetTime), Level (Lvl), Amount (corresponding units), Area, Response Factor (Amt/Area) and the analyte Name. The calibration table is used to identify (by retention time) and quantify each target compound.

Enthalpy Analytical Narrative Summary
(continued)

Chromatographic Conditions

The acquisition method GC142P133_CAL.M is included in the Raw Data section of this report.

QC Notes

The analyses of the laboratory helium blanks showed no analytes of interest at concentrations greater than the detection limit.

Reporting Notes

Due to the low levels of methane present in these samples, the methane results were reported from the Method 18-type analyses.

These analyses met the requirements of the TNI Standard. Any deviations from the requirements of the reference method or TNI Standard have been stated above.

The results presented in this report are representative of the samples as provided to the laboratory.

Enthalpy Analytical Narrative Summary

Company	METCO Environmental
Analyst	DDC
Parameters	EPA Method 18-Type

Client #	15-162
Job #	0615-125
# Samples	4 Cans

Custody

Bryan Tyler and Summer Mims of Enthalpy Analytical, Inc. received the samples on 6/27/15 and 7/6/15, respectively, after being relinquished by METCO Environmental. The samples were received at ambient temperature and in good condition. Prior to, during, and after analysis, the samples were kept under lock with access only to authorized personnel by Enthalpy Analytical, Inc.

Analysis

The samples were analyzed for methane, ethane, propane, butane, pentane, hexane, benzene, others as C_X compounds, total VOC as propane, and total VOC as propylene using the general analytical procedures in EPA Method 18, Measurement of Gaseous Organic Compound Emissions by Gas Chromatography (40 CFR Part 60, Appendix A).

All samples and standards were introduced directly to the column using an automated multi-port Valco gas sampling valve equipped with a stainless steel loop. The C_1-C_6 n-alkanes and benzene were referenced to certified gas phase standards.

The n-alkane retention times are used to generate retention time windows for other hydrocarbons, which are reported 'as' the nearest n-alkane. For example, the areas for all peaks between 3.714 and 5.209 minutes (except the n-pentane peak) are summed, the total referenced to the calibrated n-pentane response, and then the result is labeled 'C5 as pentane'.

Total VOC as propane results were determined by referencing the areas for all peaks to the calibrated propane response, and summing the results.

Total VOC as propylene results were determined by referencing the areas for all peaks to the calibrated propylene response, and summing the results.

Upon receipt, the canister pressures were measured and recorded. The cans were then pressurized and a dilution ratio was calculated for each can (see Canister Pressurization Sheet).

The Agilent Technologies Model 7890A, Gas Chromatograph "Edith" (S/N CN10722006) was used for these analyses.

Enthalpy Analytical Narrative Summary
(continued)

Calibration

The calibration curves are located in the Raw Data section of this report and referenced in the Analysis Method column on the Detailed Results page.

For each calibration curve used, the first page of the curve contains all method specific parameters (i.e., curve type, origin, weight, etc.) used to quantify the samples. The calibration curve section also includes a table with the Retention Time (RetTime), Level (Lvl), Amount (corresponding units), Area, Response Factor (Amt/Area) and the analyte Name. The calibration table is used to identify (by retention time) and quantify each target compound.

Chromatographic Conditions

The acquisition methods AQ_EDITHP274_HRVOC_SHORT.M, AQ_EDITHP274_HRVOC_LONG.M, AQ_EDITHP274_HRVOC.M, and GC139P039_HRVOC.M, and are included in the Raw Data section of this report.

QC Notes

The analyses of the laboratory zero air blanks showed no analytes of interest at levels greater than the LOQ.

Reporting Notes

The results presented in this report are representative of the samples as provided to the laboratory.

General Reporting Notes

The following are general reporting notes that are applicable to all Enthalpy Analytical, Inc. data reports, unless specifically noted otherwise.

- Any analysis which refers to the method as ***"Type"*** represents a planned deviation from the reference method. For instance a Hydrogen Sulfide assay from a Tedlar bag would be labeled as "EPA Method 16-Type" because Tedlar bags are not mentioned as one of the collection options in EPA Method 16.
- The acronym ***MDL*** represents the Minimum Detection Limit. Below this value the laboratory cannot determine the presence of the analyte of interest reliably.
- The acronym ***LOQ*** represents the Limit of Quantification. Below this value the laboratory cannot quantitate the analyte of interest within the criteria of the method.
- The acronym ***ND*** following a value indicates a non-detect or analytical result below the MDL.
- The letter ***J*** in the Qualifier or Flag column in the results indicates that the value is between the MDL and the LOQ. The laboratory can positively identify the analyte of interest as present, but the value should be considered an estimate.
- The letter ***E*** in the Qualifier or Flag column indicates an analytical result exceeding 100% of the highest calibration point. The associated value should be considered as an estimate.
- The acronym ***DF*** represents Dilution Factor. This number represents dilution of the sample during the preparation and/or analysis process. The analytical result taken from a laboratory instrument is multiplied by the DF to determine the final undiluted sample results.
- The addition of ***MS*** to the Sample ID represents a Matrix Spike. An aliquot of an actual sample is spiked with a known amount of analyte so that a percent recovery value can be determined. The MS analysis indicates what effect the sample matrix may have on the target analyte, i.e. whether or not anything in the sample matrix interferes with the analysis of the analyte(s).
- The addition of ***MSD*** to the Sample ID represents a Matrix Spike Duplicate. Prepared in the same manner as a MS, the use of duplicate matrix spikes allows further confirmation of laboratory quality by showing the consistency of results gained by performing the same steps multiple times.
- The addition of ***LD*** to the Sample ID represents a Laboratory Duplicate. The analyst prepares an additional aliquot of sample for testing and the results of the duplicate analysis are compared to the initial result. The result should have a difference value of within 10% of the initial result (if the results of the original analysis are greater than the LOQ).
- The addition of ***AD*** to the Sample ID represents an Alternate Dilution. The analyst prepares an additional aliquot at a different dilution factor (usually double the initial factor). This analysis helps confirm that no additional compound is present and coeluting or sharing absorbance with the analyte of interest, as they would have a different response/absorbance than the analyte of interest.

General Reporting Notes

(continued)

- The Sample ID ***LCS*** represents a Laboratory Control Sample. Clean matrix, similar to the client sample matrix, prepared and analyzed by the laboratory using the same reagents, spiking standards and procedures used for the client samples. The LCS is used to assess the control of the laboratory's analytical system. Whenever spikes are prepared for our client projects, two spikes are retained as LCSs. The LCSs are labeled with the associated project number and kept in-house at the appropriate temperature conditions. When the project samples are received for analysis, the LCSs are analyzed to confirm that the analyte could be recovered from the media, separate from the samples which were used on the project and which may have been affected by source matrix, sample collection and/or sample transport.
- **Significant Figures**: Where the reported value is much greater than unity (1.00) in the units expressed, the number is rounded to a whole number of units, rather than to 3 significant figures. For example, a value of 10,456.45 ug catch is rounded to 10,456 ug. There are five significant digits displayed, but no confidence should be placed on more than two significant digits.
- **Manual Integration**: The data systems used for processing will flag manually integrated peaks with an "M". There are several reasons a peak may be manually integrated. These reasons will be identified by the following two letter designations on sample chromatograms, if provided in the report. The peak was ***not integrated*** by the software **"NI"**, the peak was ***integrated incorrectly*** by the software **"II"** or the ***wrong peak*** was integrated by the software **"WP"**. These codes will accompany the analyst's manual integration stamp placed next to the compound name on the chromatogram.

Sample Custody

MACTEC Environmental

CHAIN OF CUSTODY RECORD

Page of

Job No.: 15-162
Job Name: Hy Bon
Location: Bolpre, OH
Unit: 75th Combustor - Large Combustor

Project Manager: M. Hutcherson
Project Supervisor: Ryan Adam
Method: 3C

SAMPLE I.D.	DATE	TIME	# OF CONT.	Absorb. Solution	Initial Vol.	SAMPLE ANALYSIS REQUIRED: PART	HCL	CL2	SO2	SO3	MW, O2, CO2, Meth, N2, EA	Recovered by	REMARKS (Specific Compounds/Methods)
R1L1 Bag	6/23/15	1000	1								✓	RAdam	
R1L1 Bag Dup.	6/23/15	1000	1								✓	RAdam	
R2L1 Bag	6/23/15	1145	1								✓	RAdam	
R2L1 Bag Dup.	6/23/15	1145	1								✓	RAdam	
R3L1 Bag 1	6/23/15	1315	1								✓	RAdam	
R3L1 Bag Dup.	6/23/15	1315	1								✓	RAdam	
R1L2 Bag	6/23/15	1500									✓		

Samples Received for Transport/Shipment by:	Doug Mast	Date: 6/26/15	Time: 1530
Samples Received for Transport/Shipment by:		Date: 6/26/15	Time:
Samples Received for Transport/Shipment by:		Date:	Time:
Samples Shipped Via:		Date:	Time:
Samples Received at Laboratory by:	[illegible]	Date: 6/27/15	Time: 1600
Samples Analyzed by:		Date:	Time:
Samples Analyzed by:		Date:	Time:
Data Checked by:		Date:	Time:

VERSION 2
10 MARCH 2003

MACTEC Environmental

CHAIN OF CUSTODY RECORD

Page of

Job No.: 15-162
Job Name: Hy Bon
Location: Belpre, OH
Unit: 75 MW Combustor - Large Combustor

Project Manager: M. Hutcherson
Project Supervisor: Ryan Adam

Method: 3C

SAMPLE I.D.	DATE	TIME	# OF CONT.	Absorb. Solution	Initial Vol.	SAMPLE ANALYSIS REQUIRED: PART	HCL	CL2	SO2	SO3	Meth, O2, CO2 MW, N2, EA	Recovered by	REMARKS (Specific Compounds/Methods)
R1L2 Bag Dup.	6/23/15	1500	1								✓	R. Adam	
R2L2 Bag	6/23/15	1640	1								✓	R. Adam	
R2L2 Bag Dup.	6/23/15	1640	1								✓	R. Adam	
R3L2 Bag	6/23/15	1805	1								✓	R Adam	
R3L2 Bag Dup.	6/23/15	1805	1								✓	R Adam	

Samples Received for Transport/Shipment by:		Date: 6/26/15	Time: 1530
Samples Received for Transport/Shipment by:		Date: 6/26/15	Time:
Samples Received for Transport/Shipment by:		Date:	Time:
Samples Shipped Via:		Date:	Time:
Samples Received at Laboratory by:	BDS	Date: 6/27/15	Time: 1600
Samples Analyzed by:		Date:	Time:
Samples Analyzed by:		Date:	Time:
Data Checked by:		Date:	Time:

VERSION 2
10 MARCH 2003

MACTEC Environmental

CHAIN OF CUSTODY RECORD

Page of

Job No.: 15-162
Job Name: Hybon
Location: Belpre, OH
Unit: 75" Combustor - Large Combustor

Project Manager: M. Hutcherson
Project Supervisor: Ryan Adam

Method: 3C

SAMPLE I.D.	DATE	TIME	# OF CONT.	Absorb. Solution	Initial Vol.	SAMPLE ANALYSIS REQUIRED: PART	HCL	CL2	SO2	SO3	Moist, O2, CO2, Mw, N2, EA	Recovered by	REMARKS (Specific Compounds/Methods)
R1 L3 Bag	6/24/15	0930	1								✓	RAdam	
R1 L3 Bag Dup.	6/24/15	0930	1								✓	R. Adam	
R2 L3 Bag	6/24/15	1115	1								✓	R. Adam	
R2 L3 Bag. Dup.	6/24/15	1115	1								✓	R. Adam	
R3 L3 Bag	6/24/15	1240	1								✓	RAdam	
R3 L3 Bag Dup.	6/24/15	1240	1								✓	R. Adam	
R1 L4 Bag	6/24/15	1420	1								✓	RAdam	

Samples Received for Transport/Shipment by:		Date:	6/26/15	Time: 1530
Samples Received for Transport/Shipment by:		Date:	6/26/15	Time:
Samples Received for Transport/Shipment by:		Date:		Time:
Samples Shipped Via:		Date:		Time:
Samples Received at Laboratory by:	BDB	Date:	6/27/15	Time: 1600
Samples Analyzed by:		Date:		Time:
Samples Analyzed by:		Date:		Time:
Data Checked by:		Date:		Time:

VERSION 2
10 MARCH 2003

E-46

15-162

MACTEC Environmental

CHAIN OF CUSTODY RECORD

Page of

Job No.: 15-162
Job Name: Hybon
Location: Belpre, OH
Unit: 75" Combustor, - Large Combustor

Project Manager: M. Hutcherson
Project Supervisor: Ryan Adam

Method: 3C

SAMPLE I.D.	DATE	TIME	# OF CONT.	Absorb. Solution	Initial Vol.	SAMPLE ANALYSIS REQUIRED: PART	HCL	CL2	SO2	SO3	meth, O2, CO2, MW, Na, EA	Recovered by	REMARKS (Specific Compounds/Methods)
R1 L4 Bag. Dup	6/24/15	1420	1								✓	RAdam	
R2 L4 Bag	6/24/15	1550	1								✓	R Adam	
R2 L4 Bag Dup	6/24/15	1550	1								✓	RAdam	
R3 L4 Bag	6/24/15	1720	1								✓	RAdam	
R3 L4 Bag Dup.	6/24/15	1720	1								✓	R.Adam	

Samples Received for Transport/Shipment by:	Dan Mede	Date: 6/26/15	Time: 1530
Samples Received for Transport/Shipment by:		Date: 6/26/15	Time:
Samples Received for Transport/Shipment by:		Date:	Time:
Samples Shipped Via:		Date:	Time:
Samples Received at Laboratory by:	BDY	Date: 6/27/15	Time: 1600
Samples Analyzed by:		Date:	Time:
Samples Analyzed by:		Date:	Time:
Data Checked by:		Date:	Time:

VERSION 2
10 MARCH 2003

MACTEC Environmental

CHAIN OF CUSTODY RECORD

Page of

Job No.: 15-162
Job Name: Hy-Bon
Location: Belpre, OH
Unit: 75" Combustor - Large Combuster

Project Manager: M. Hutcherson
Project Supervisor: Ryan Adam

Method: 18 / ASTM 1945-03, ASTM D3588-98

SAMPLE I.D.	DATE	TIME	# OF CONT.	Absorb. Solution	Initial Vol.	SAMPLE ANALYSIS REQUIRED: PART	HCL	CL2	SO2	SO3			Recovered by	REMARKS (Specific Compounds/Methods)
RIL1 Canister	6/23/15	1315	1											1158
RIL2 Canister	6/23/15	1805	1											1124
RIL3 Canister	6/24/15	1240	1											
RIL4 Canister	6/24/15	1720	1											

Samples Received for Transport/Shipment by:		Date: 6/26/15	Time: 1530
Samples Received for Transport/Shipment by:		Date: 6/26/15	Time:
Samples Received for Transport/Shipment by:		Date:	Time:
Samples Shipped Via:		Date:	Time:
Samples Received at Laboratory by:	BDS	Date: 6/27/15	Time: 1600
Samples Analyzed by:		Date:	Time:
Samples Analyzed by:		Date:	Time:
Data Checked by:		Date:	Time:

VERSION 2
10 MARCH 2003

NICO Environmental ©

CHAIN OF CUSTODY RECORD

Page of

Job No.: 15-162	Project Manager: M Hutcherson	18/ASTM 1745-03,	
Job Name: Hybon	Project Supervisor: Ryan Adam	Method: ASTM D3588-98	
Location: Belpre, OH			
Unit: large combustor -75''			

SAMPLE I.D.	DATE	TIME	# OF CONT.	Absorb. Solution	Initial Vol.	SAMPLE ANALYSIS REQUIRED: PART	HCL	CL2	SO2	SO3			Recovered by	REMARKS (Specific Compounds/Methods)
RIL3 Canister 1368	6/30/15	0830	1										RAdam	
RIL4 Canister 1630	6/30/15	0830	1										RAdam	
(SM)														

Samples Received for Transport/Shipment by:		Date:		Time:
Samples Received for Transport/Shipment by:		Date:		Time:
Samples Received for Transport/Shipment by:		Date:		Time:
Samples Shipped Via:	FED EX → ENTHALPY OB	Date:	6-29-15	Time: 1500
Samples Received at Laboratory by:		Date:	7-6-15	Time: 1230
Samples Analyzed by:		Date:		Time:
Samples Analyzed by:		Date:		Time:
Data Checked by:		Date:		Time:

VERSION 2
10 MARCH 2003

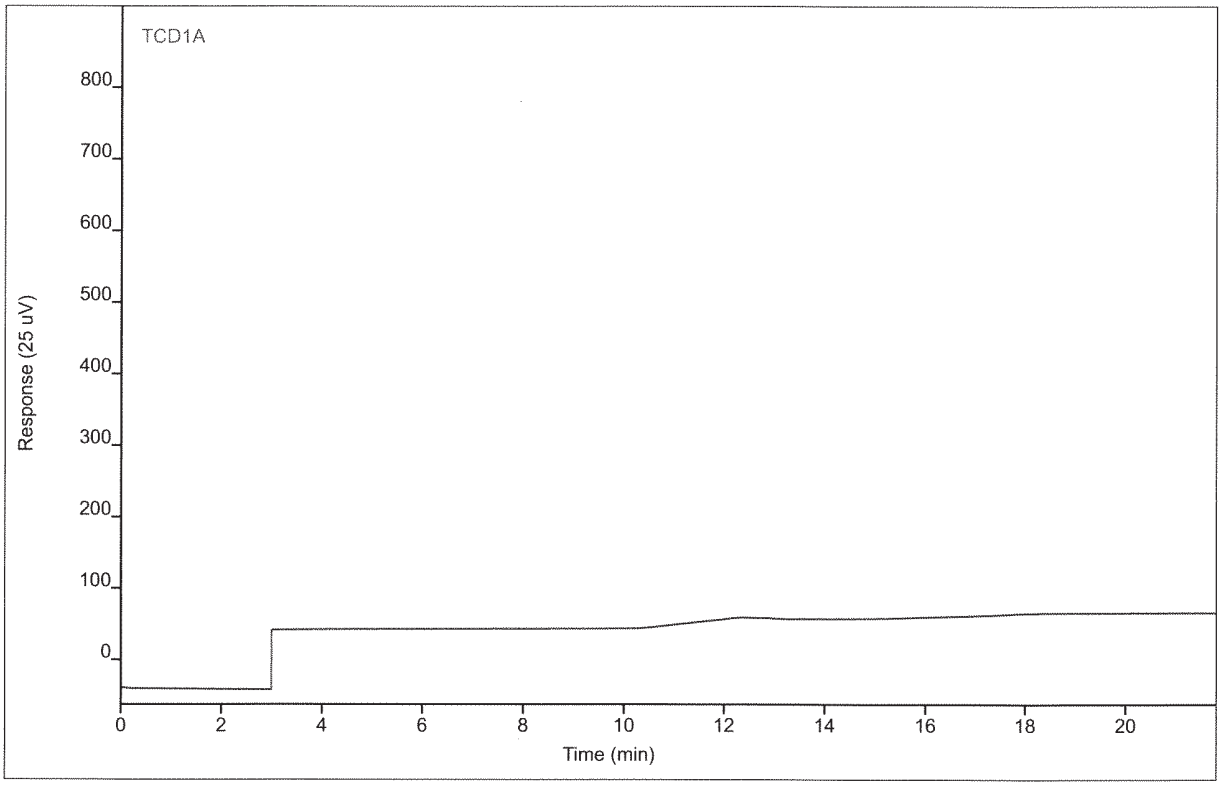
Raw Data

Chromatogram Report

Enthalpy Analytical

Sample Name	He Blank #LB
Sequence Name	BETTYP211 ver.10
Data File	001F1801.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/27/2015 10:34 AM
File Modified	7/1/2015 3:02 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Sample
Vial Number	Vial 1
Injection Volume	250
Injection	1 of 4
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	6/25/2015 12:38 PM
Printed	7/23/2015 3:29 PM



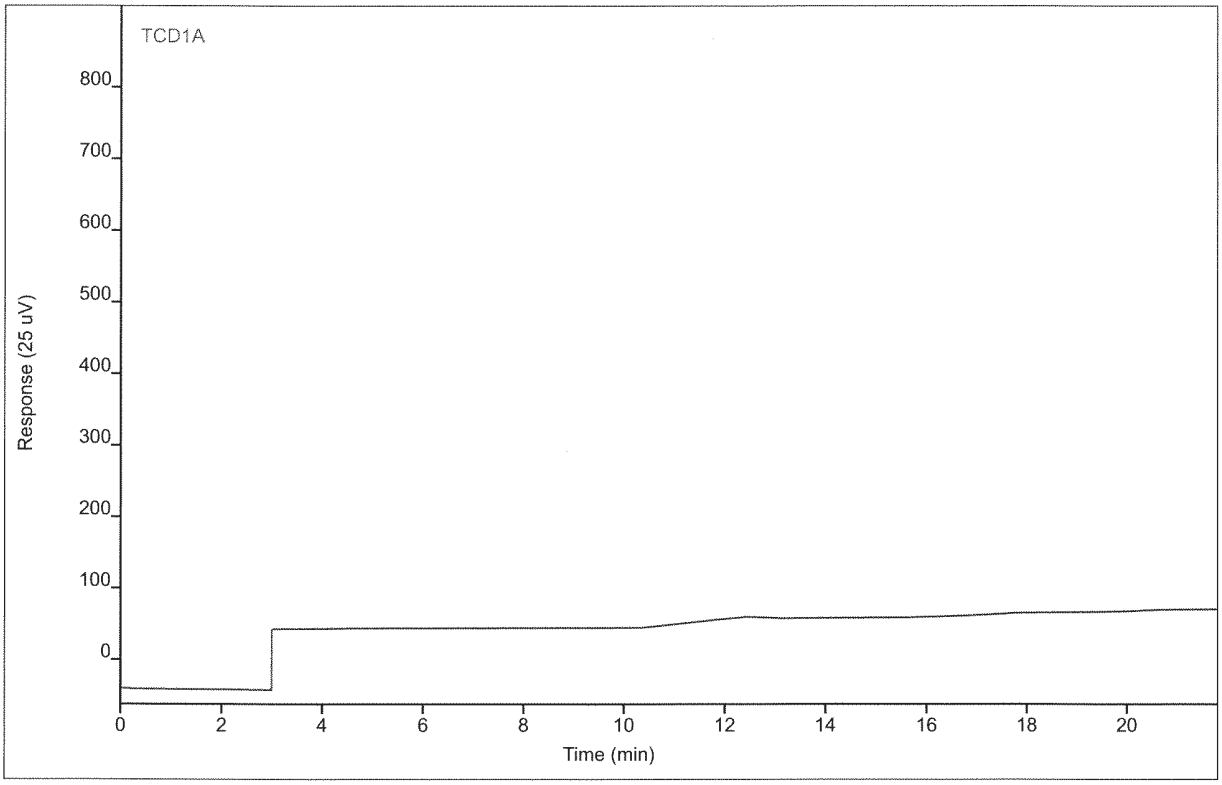
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.06)				1		
Oxygen		(8.90)				1		
Nitrogen		(10.13)				1		
Carbon monoxide		(12.65)				1		
Methane		(16.46)				1		
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	He Blank #LB
Sequence Name	BETTYP211 ver.10
Data File	001F1802.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/27/2015 11:02 AM
File Modified	7/1/2015 3:02 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Sample
Vial Number	Vial 1
Injection Volume	250
Injection	2 of 4
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	6/25/2015 12:38 PM
Printed	7/23/2015 3:29 PM



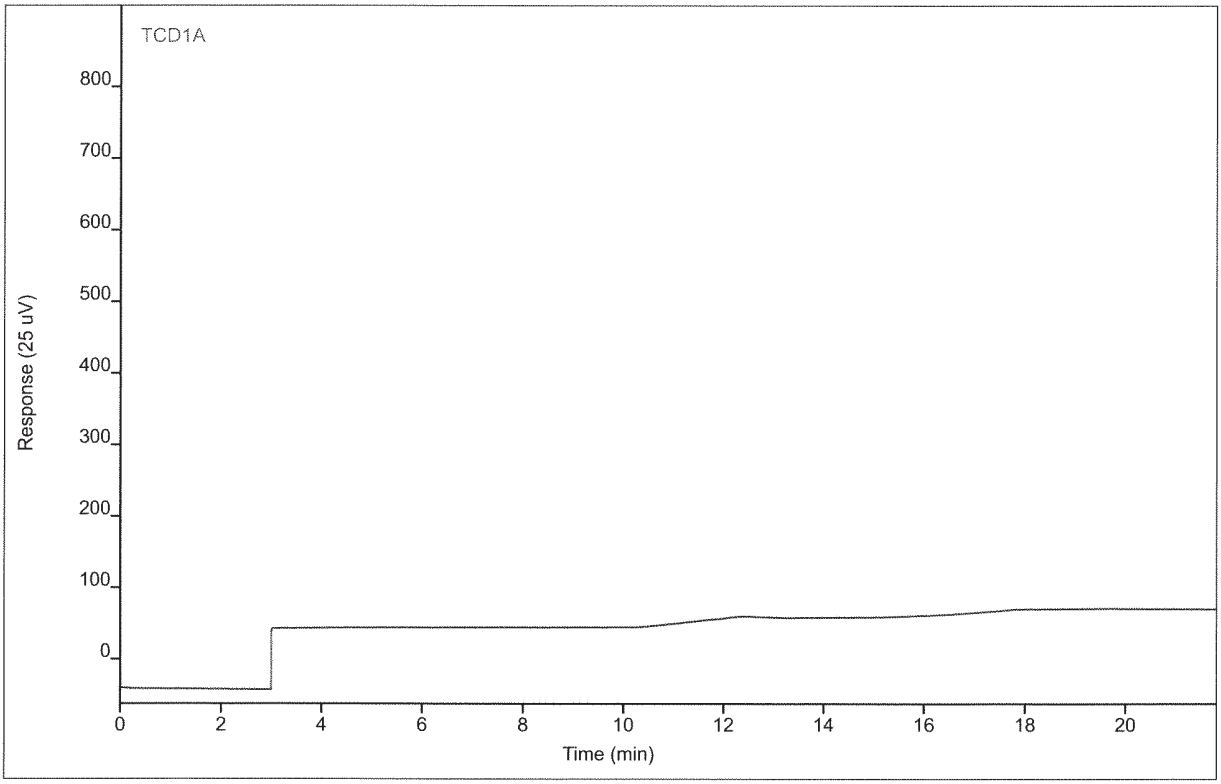
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.06)				1		
Oxygen		(8.90)				1		
Nitrogen		(10.13)				1		
Carbon monoxide		(12.65)				1		
Methane		(16.46)				1		
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	He Blank #LB
Sequence Name	BETTYP211 ver.10
Data File	001F1803.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/27/2015 11:29 AM
File Modified	7/1/2015 3:02 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Sample
Vial Number	Vial 1
Injection Volume	250
Injection	3 of 4
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	6/25/2015 12:38 PM
Printed	7/23/2015 3:29 PM



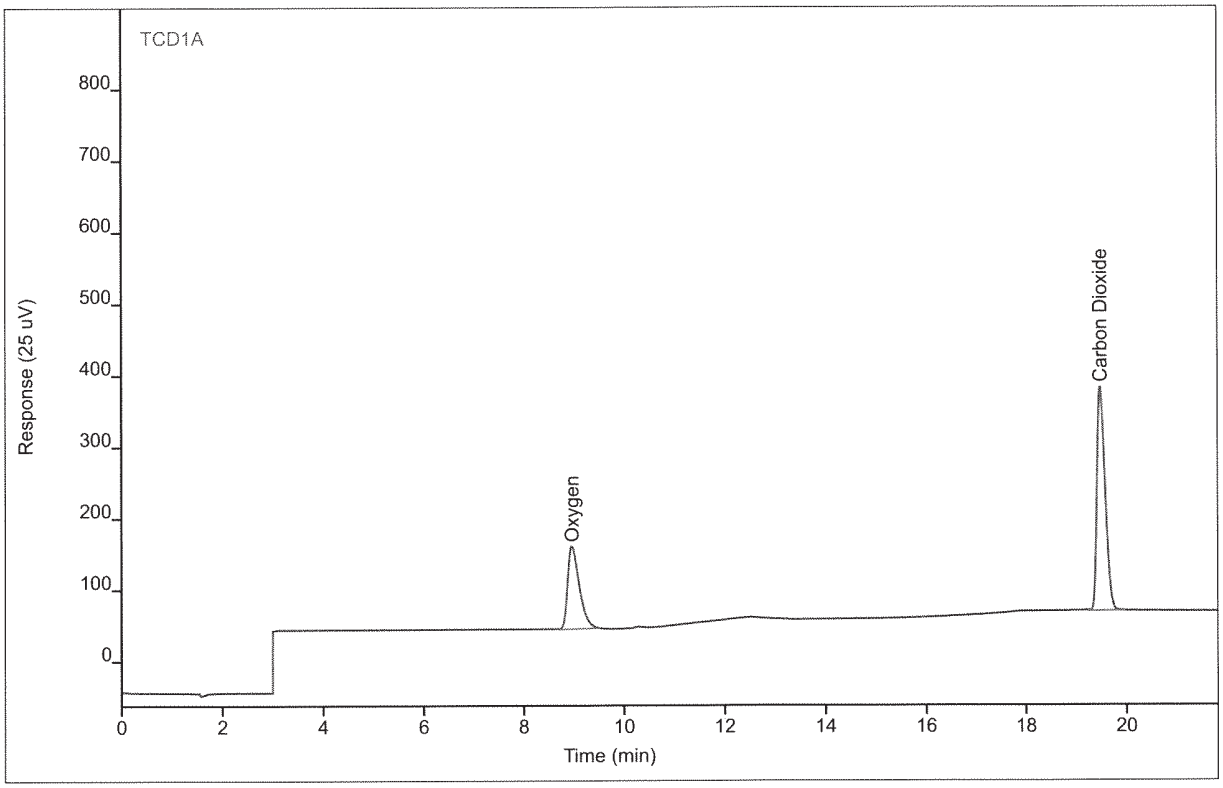
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.06)				1		
Oxygen		(8.90)				1		
Nitrogen		(10.13)				1		
Carbon monoxide		(12.65)				1		
Methane		(16.46)				1		
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)
Sequence Name	BETTYP211 ver.10
Data File	009F1901.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/27/2015 12:26 PM
File Modified	7/23/2015 12:53 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 4
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	6/25/2015 12:38 PM
Printed	7/23/2015 3:29 PM

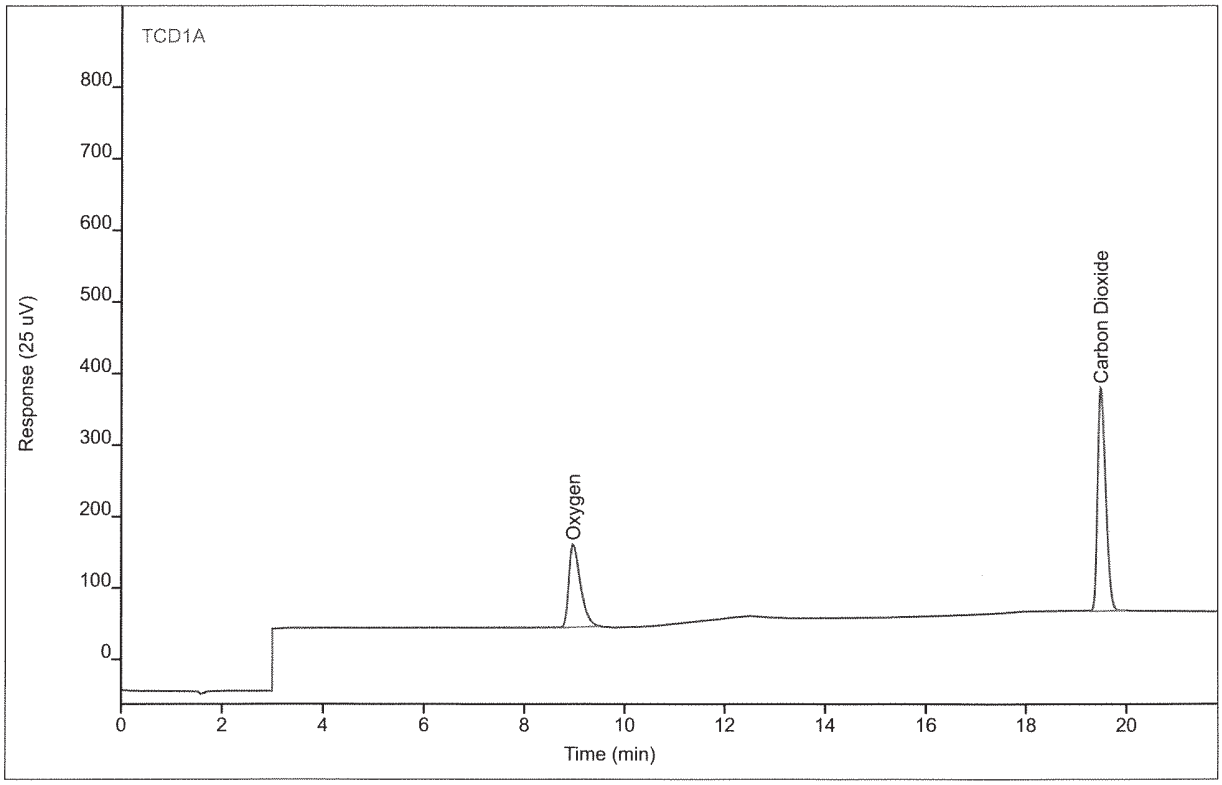


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	8.97	1887.66	116.057	4.91521	1	4.91521	%
Carbon Dioxide	MM	19.49	3502.80	313.487	4.85711	1	4.85711	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)	Sample Type	Calibration
Sequence Name	BETTYP211 ver.10	Vial Number	Vial 9
Data File	009F1902.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	2 of 4
Injection Date	6/27/2015 12:56 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	7/23/2015 12:53 PM	Analysis Method	BETTYP209_FGA_CRYO.M
Instrument	Betty	Method Modified	6/25/2015 12:38 PM
Operator	Chester Burnett	Printed	7/23/2015 3:29 PM



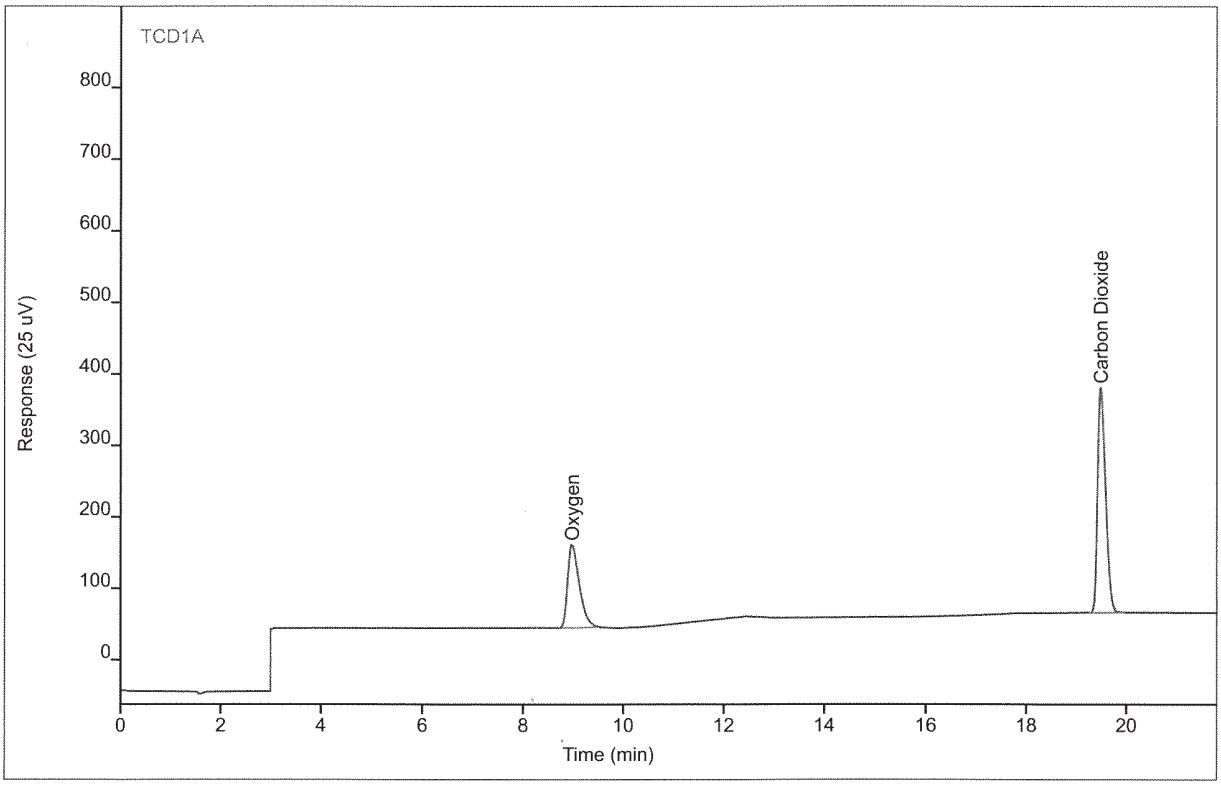
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	8.97	1882.41	116.013	4.90146	1	4.90146	%
Carbon Dioxide	MM	19.49	3498.03	312.668	4.85042	1	4.85042	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)
Sequence Name	BETTYP211 ver.10
Data File	009F1903.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/27/2015 1:26 PM
File Modified	7/23/2015 12:53 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	6/25/2015 12:38 PM
Printed	7/23/2015 3:29 PM



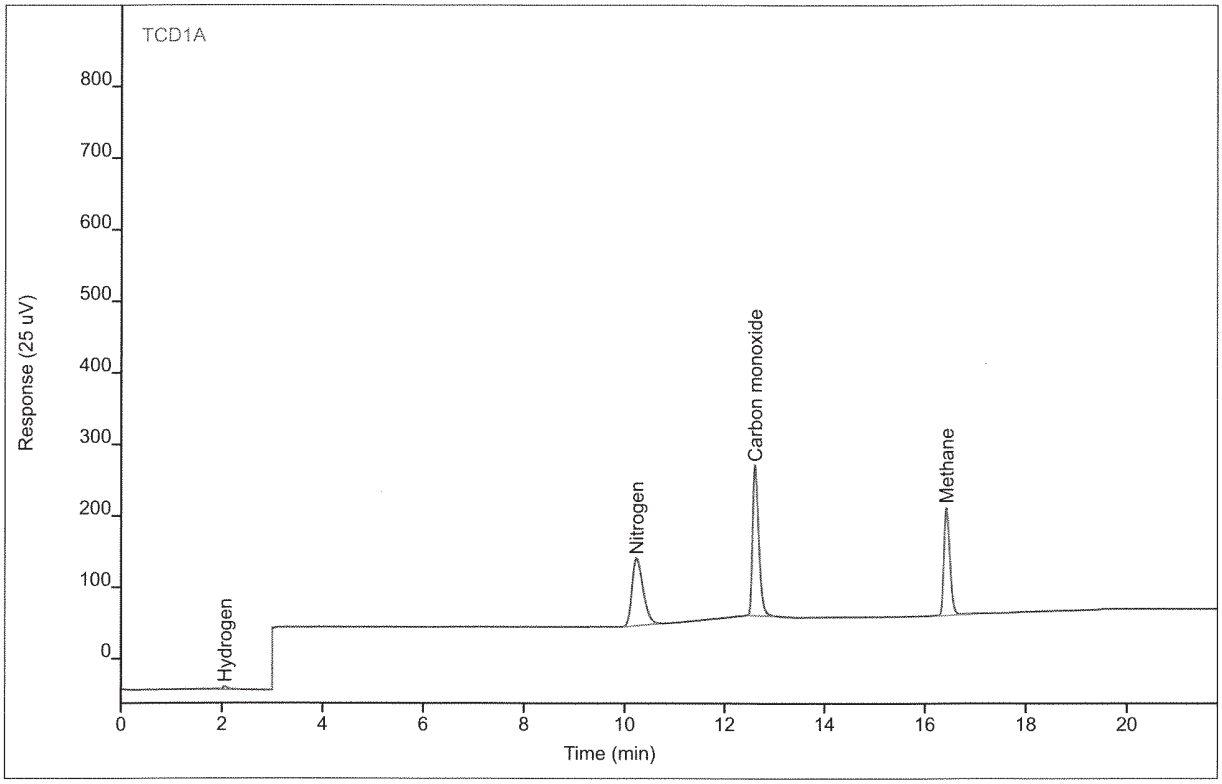
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	8.97	1894.01	116.458	4.93182	1	4.93182	%
Carbon Dioxide	MM	19.49	3516.93	315.027	4.87695	1	4.87695	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP211 ver.10
Data File	009F2001.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/27/2015 2:25 PM
File Modified	7/23/2015 12:53 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	6/25/2015 12:38 PM
Printed	7/23/2015 3:29 PM



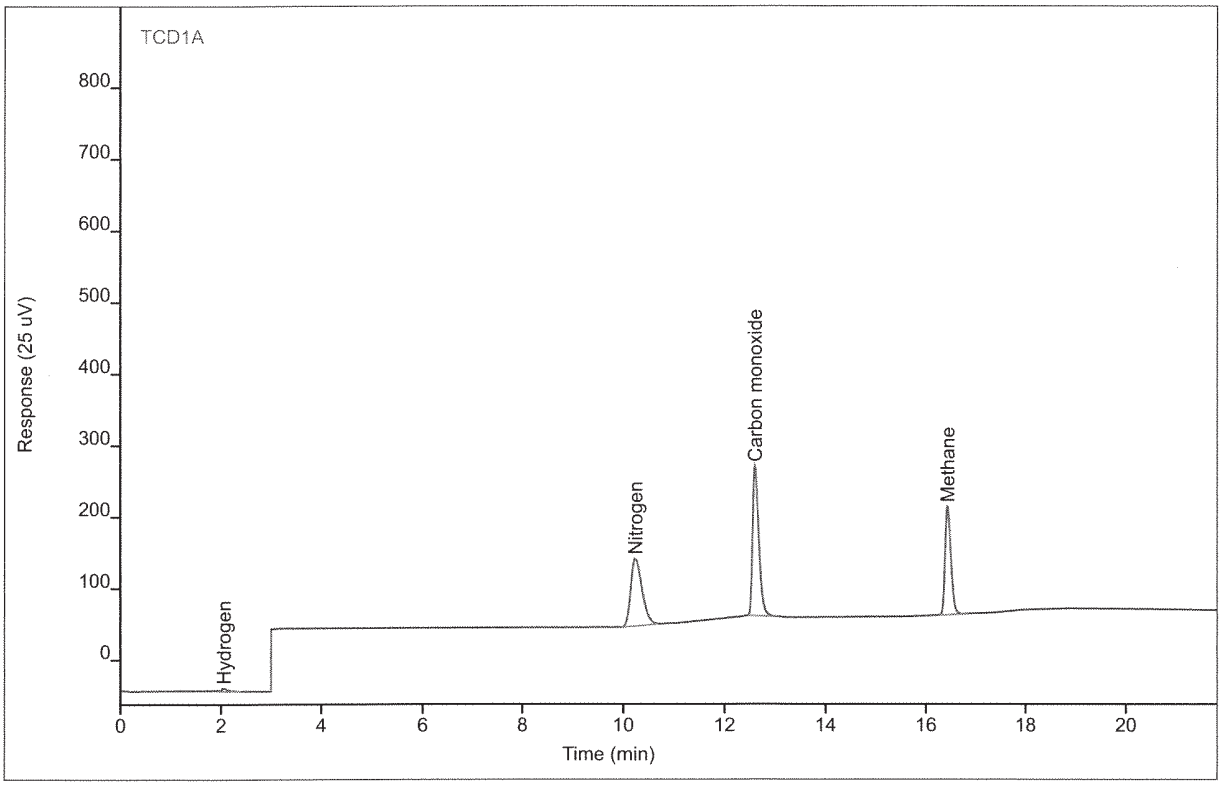
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.06	40.6450	4.89636	2.86618	1	2.86618	%
Nitrogen	BB	10.24	1464.52	94.1004	3.46194	1	3.46194	%
Carbon monoxide	MM	12.61	1805.77	210.103	3.42022	1	3.42022	%
Methane	MM	16.43	1243.22	151.294	2.75151	1	2.75151	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP211 ver.10
Data File	009F2002.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/27/2015 2:55 PM
File Modified	7/23/2015 12:53 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	6/25/2015 12:38 PM
Printed	7/23/2015 3:29 PM



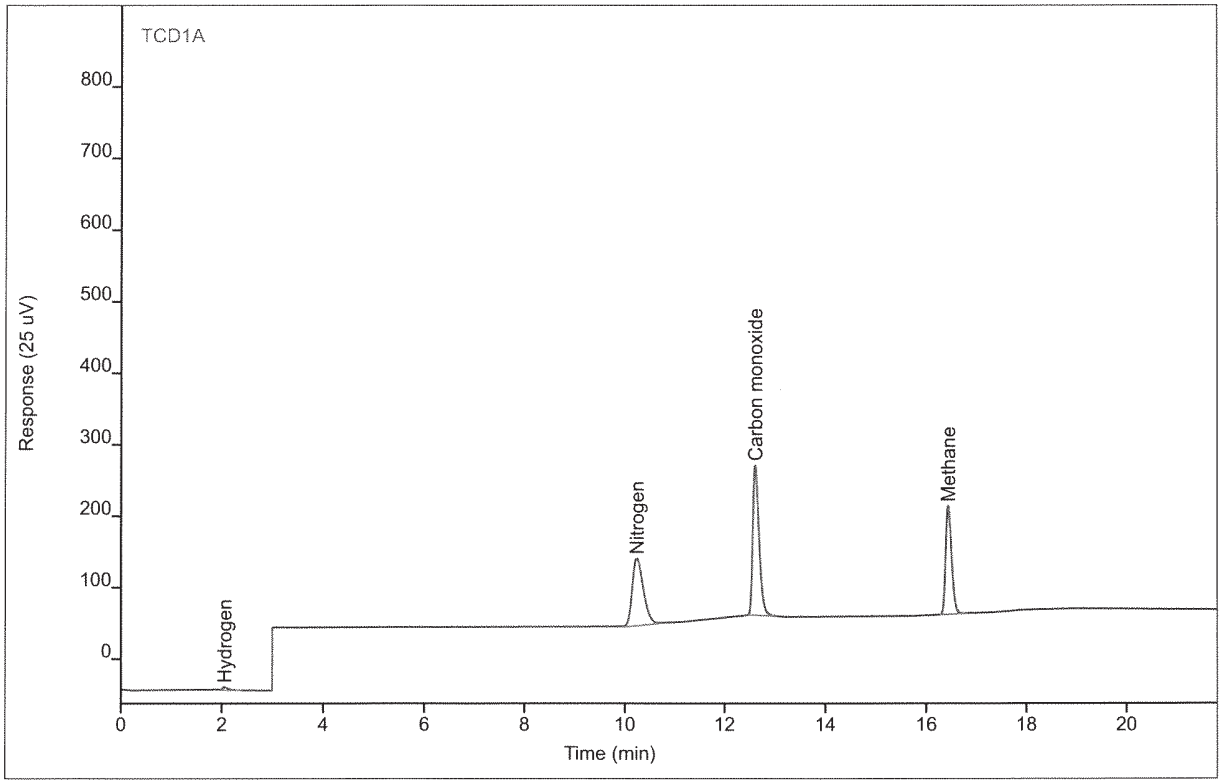
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.06	41.3716	4.88972	2.91725	1	2.91725	%
Nitrogen	BB	10.24	1469.05	94.6478	3.47266	1	3.47266	%
Carbon monoxide	MM	12.61	1811.13	209.691	3.43040	1	3.43040	%
Methane	MM	16.43	1247.02	151.923	2.75998	1	2.75998	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP211 ver.10
Data File	009F2003.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/27/2015 3:25 PM
File Modified	7/23/2015 12:53 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	6/25/2015 12:38 PM
Printed	7/23/2015 3:29 PM



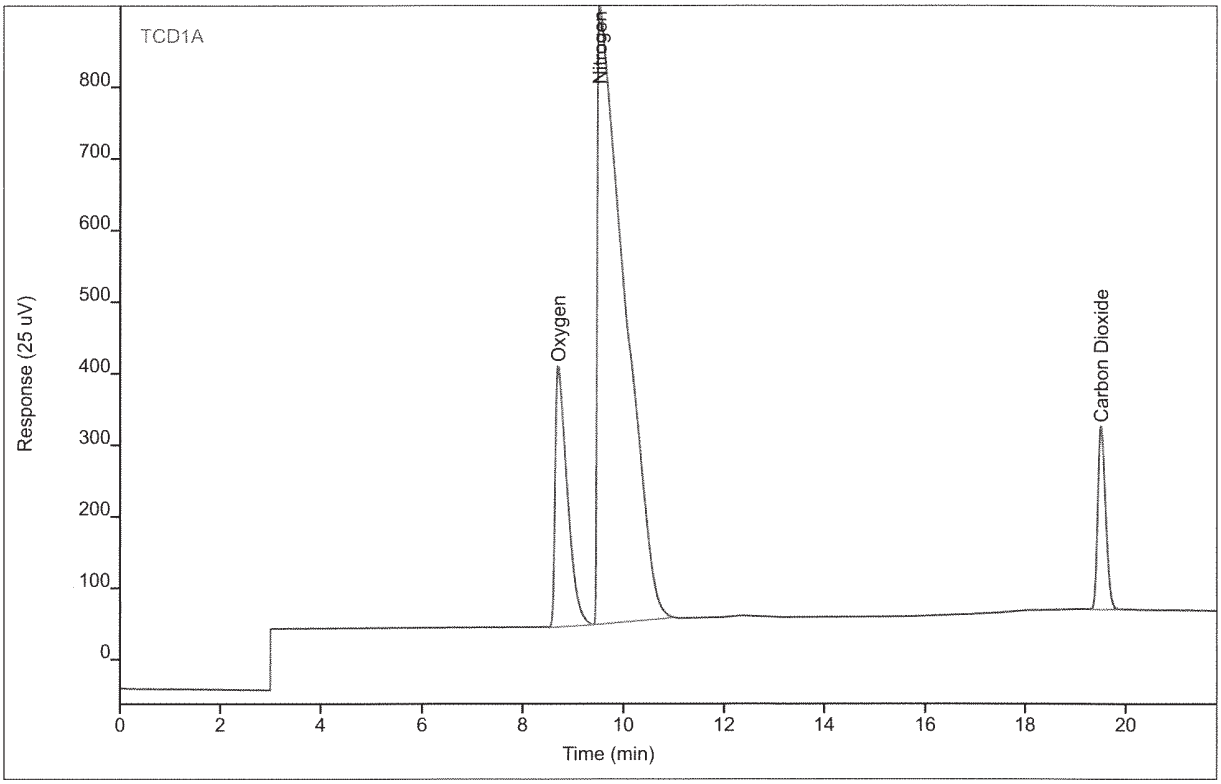
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.06	41.5837	4.95371	2.93216	1	2.93216	%
Nitrogen	BB	10.24	1479.98	94.6226	3.49848	1	3.49848	%
Carbon monoxide	MM	12.61	1806.20	210.204	3.42104	1	3.42104	%
Methane	MM	16.44	1240.03	151.803	2.74441	1	2.74441	%

Chromatogram Report

Sample Name	0615-125.Large - L1- R1.Bag
Sequence Name	BETTYP212 ver.6
Data File	003F0101.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/27/2015 4:03 PM
File Modified	7/23/2015 3:11 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 3
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



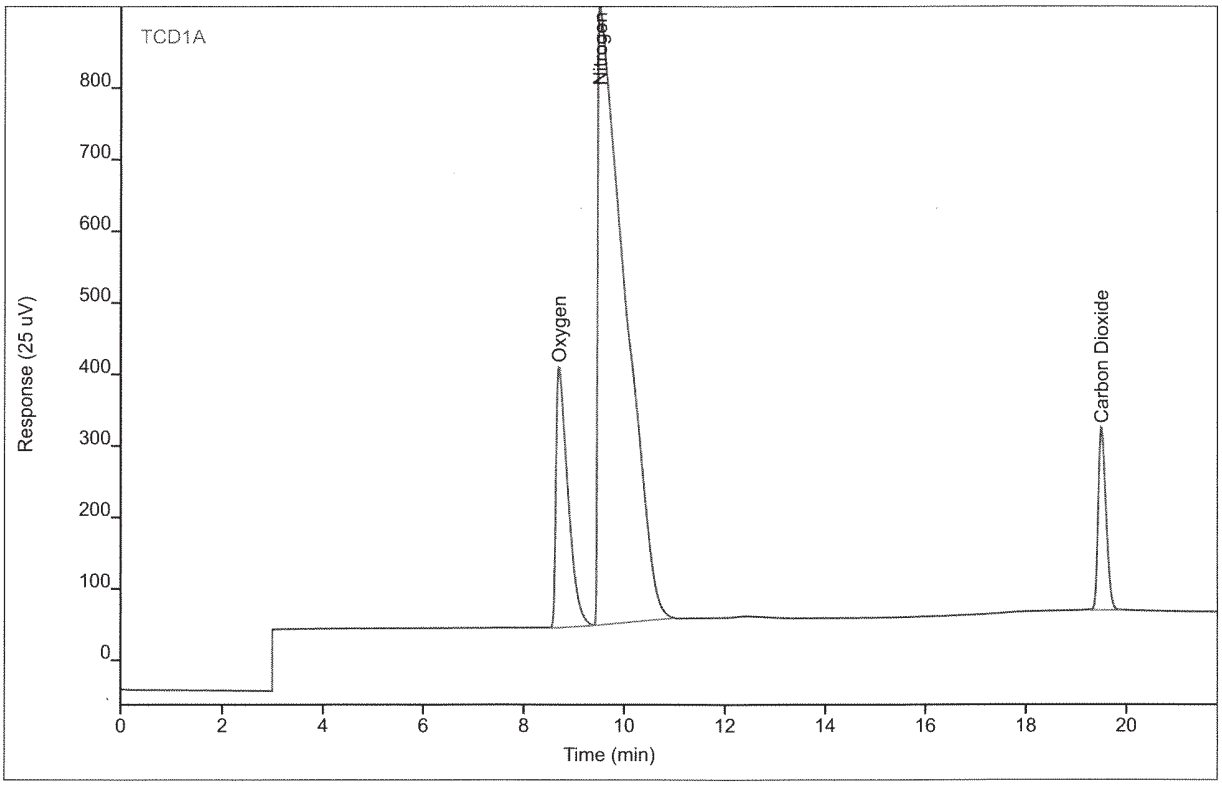
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.70	6031.44	365.220	15.7656	1	15.7656	%
Nitrogen	BB	9.52	32061.0	864.790	75.7948	1	75.7948	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.51	2809.95	256.327	3.88484	1	3.88484	%

Chromatogram Report

Sample Name	0615-125.Large - L1- R1.Bag
Sequence Name	BETTYP212 ver.6
Data File	003F0102.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/27/2015 4:30 PM
File Modified	7/23/2015 3:11 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 3
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



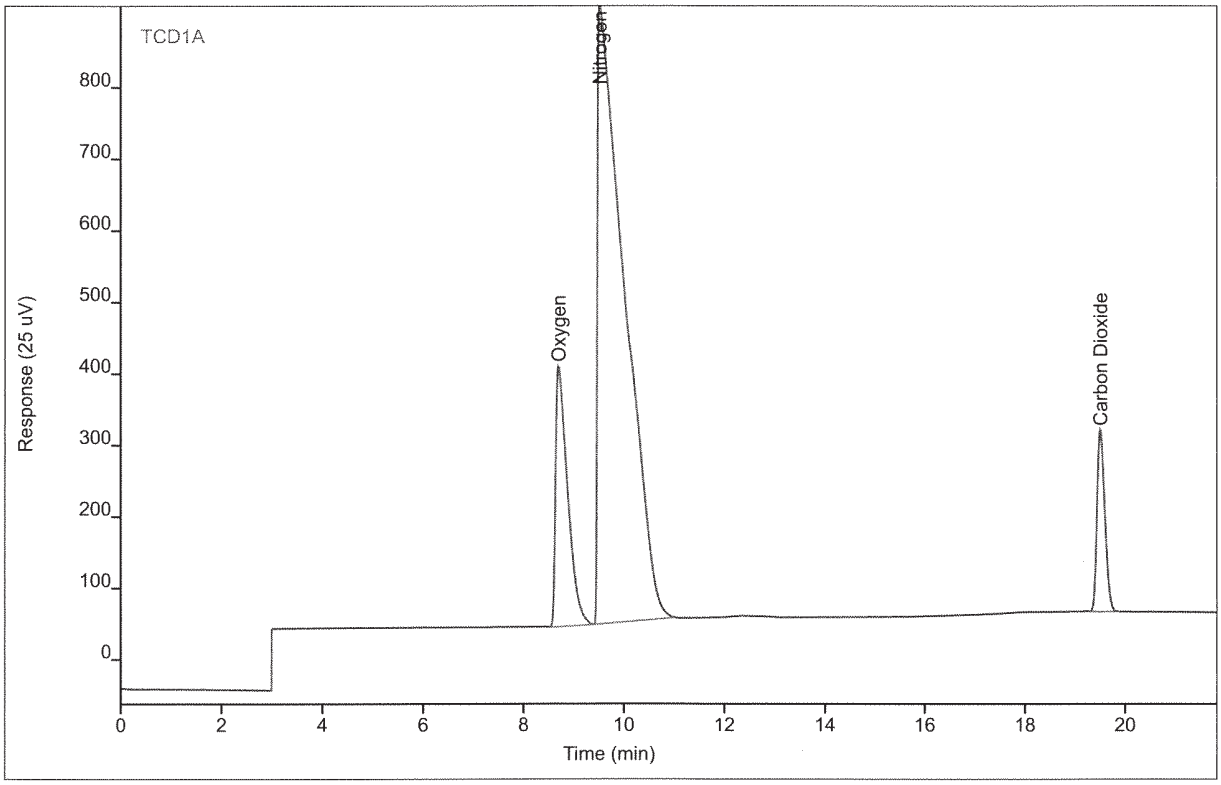
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.70	6034.41	365.518	15.7733	1	15.7733	%
Nitrogen	BB	9.52	32093.8	867.287	75.8723	1	75.8723	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.51	2811.08	255.719	3.88643	1	3.88643	%

Chromatogram Report

Enthalpy Analytical

Sample Name	0615-125.Large - L1- R1.Bag
Sequence Name	BETTYP212 ver.6
Data File	003F0103.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/27/2015 4:58 PM
File Modified	7/23/2015 3:11 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Sample
Vial Number	Vial 3
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



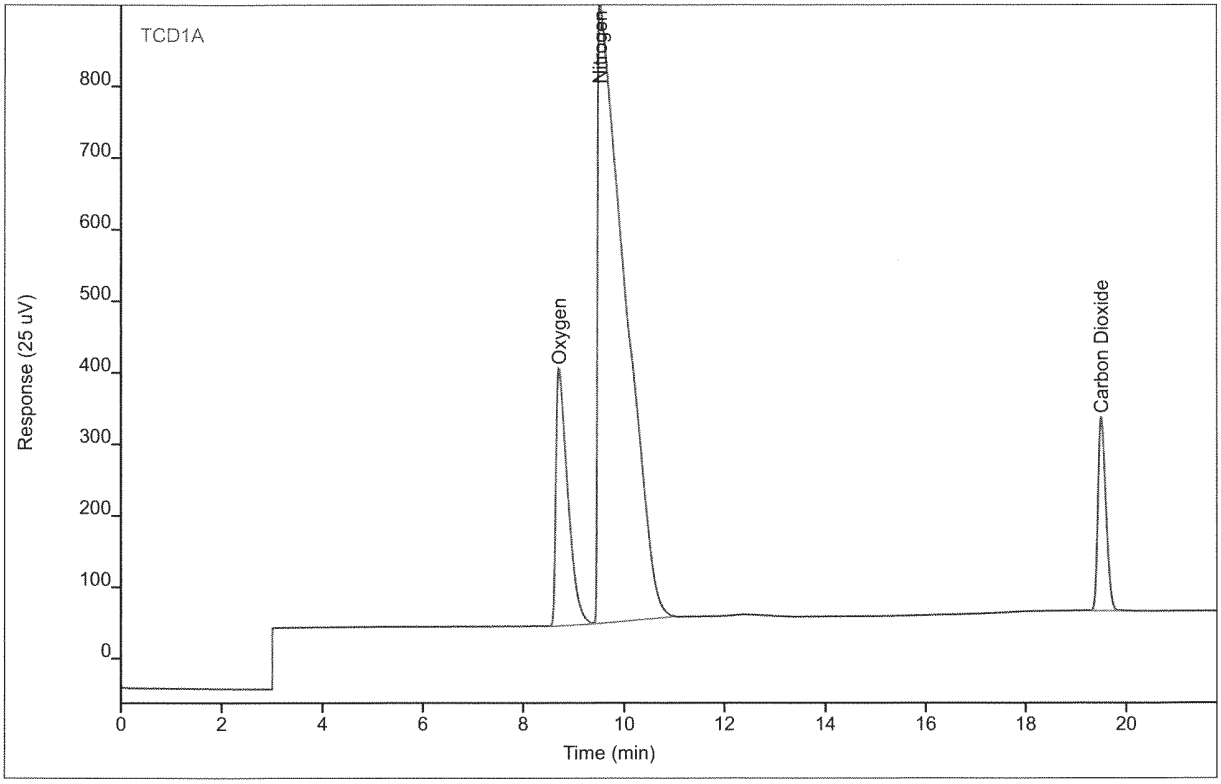
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.70	6023.05	365.170	15.7436	1	15.7436	%
Nitrogen	BB	9.52	32060.7	866.086	75.7942	1	75.7942	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.50	2794.37	254.447	3.86298	1	3.86298	%

Chromatogram Report

Enthalpy Analytical

Sample Name	0615-125.Large - L2- R1.Bag
Sequence Name	BETTYP212 ver.6
Data File	004F0201.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/27/2015 5:25 PM
File Modified	7/23/2015 3:11 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Sample
Vial Number	Vial 4
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



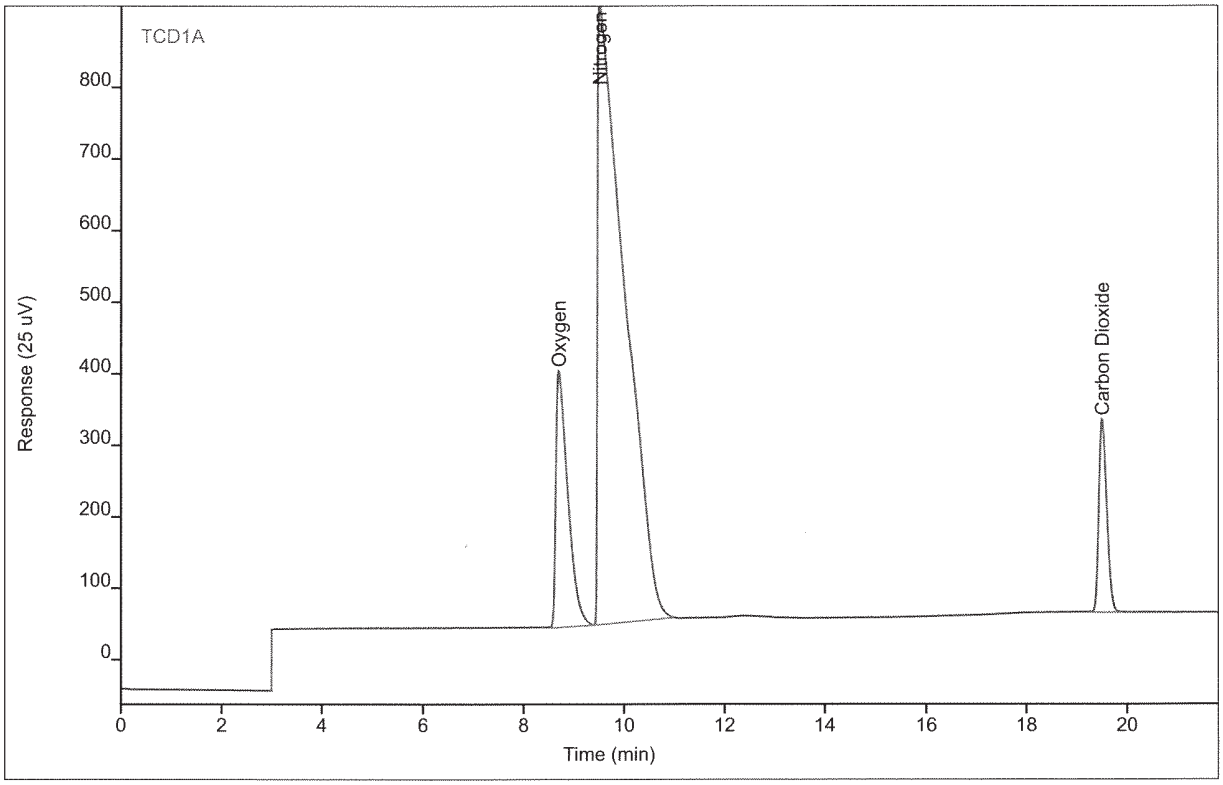
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.71	5899.04	360.262	15.4189	1	15.4189	%
Nitrogen	BB	9.52	32093.1	869.074	75.8708	1	75.8708	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.50	2975.39	270.823	4.11701	1	4.11701	%

Chromatogram Report

Sample Name	0615-125.Large - L2- R1.Bag
Sequence Name	BETTYP212 ver.6
Data File	004F0202.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/27/2015 5:52 PM
File Modified	7/23/2015 3:11 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 4
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



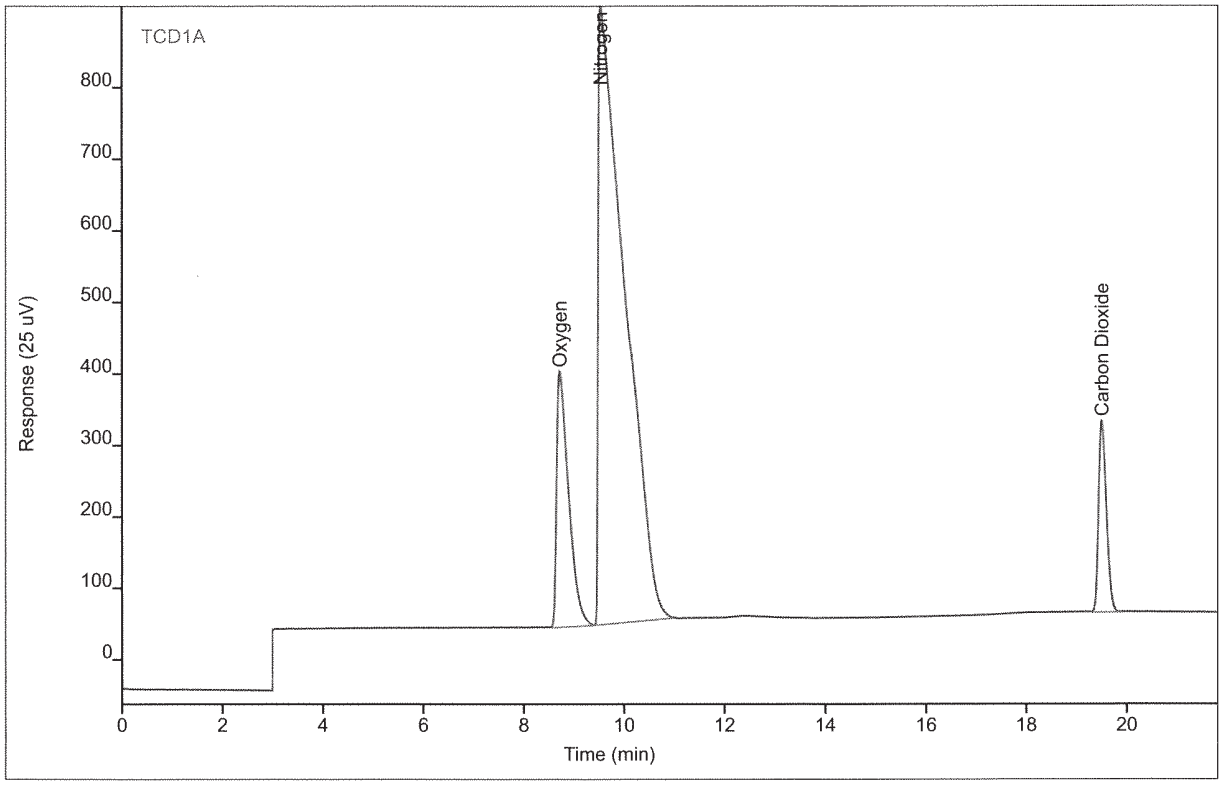
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.71	5887.49	358.612	15.3886	1	15.3886	%
Nitrogen	BB	9.52	32088.2	867.134	75.8593	1	75.8593	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.50	2966.42	269.444	4.10442	1	4.10442	%

Chromatogram Report

Enthalpy Analytical

Sample Name	0615-125.Large - L2- R1.Bag
Sequence Name	BETTYP212 ver.6
Data File	004F0203.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/27/2015 6:20 PM
File Modified	7/23/2015 3:11 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Sample
Vial Number	Vial 4
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



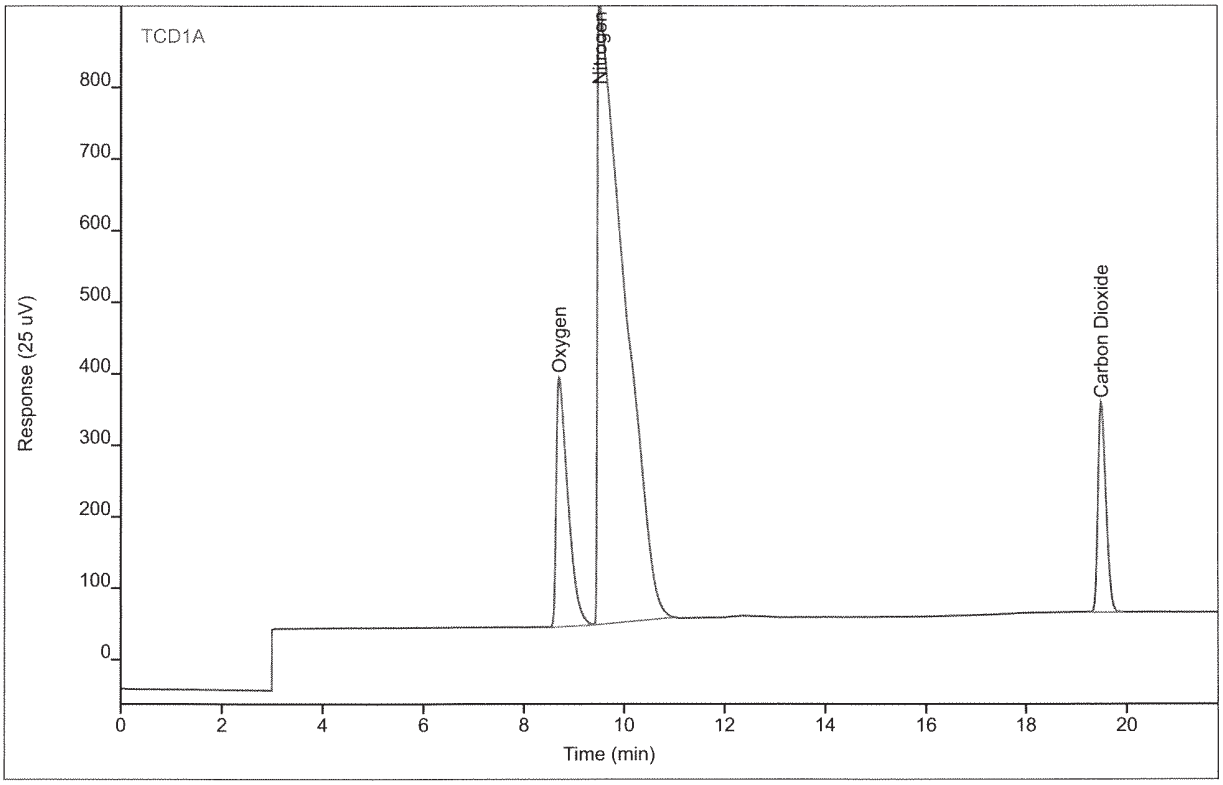
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.71	5861.53	358.376	15.3207	1	15.3207	%
Nitrogen	BB	9.52	31915.5	864.158	75.4510	1	75.4510	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.50	2964.45	268.128	4.10165	1	4.10165	%

Chromatogram Report

Sample Name	0615-125.Large - L3- R1.Bag
Sequence Name	BETTYP212 ver.6
Data File	005F0301.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/27/2015 6:47 PM
File Modified	7/23/2015 3:11 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 5
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



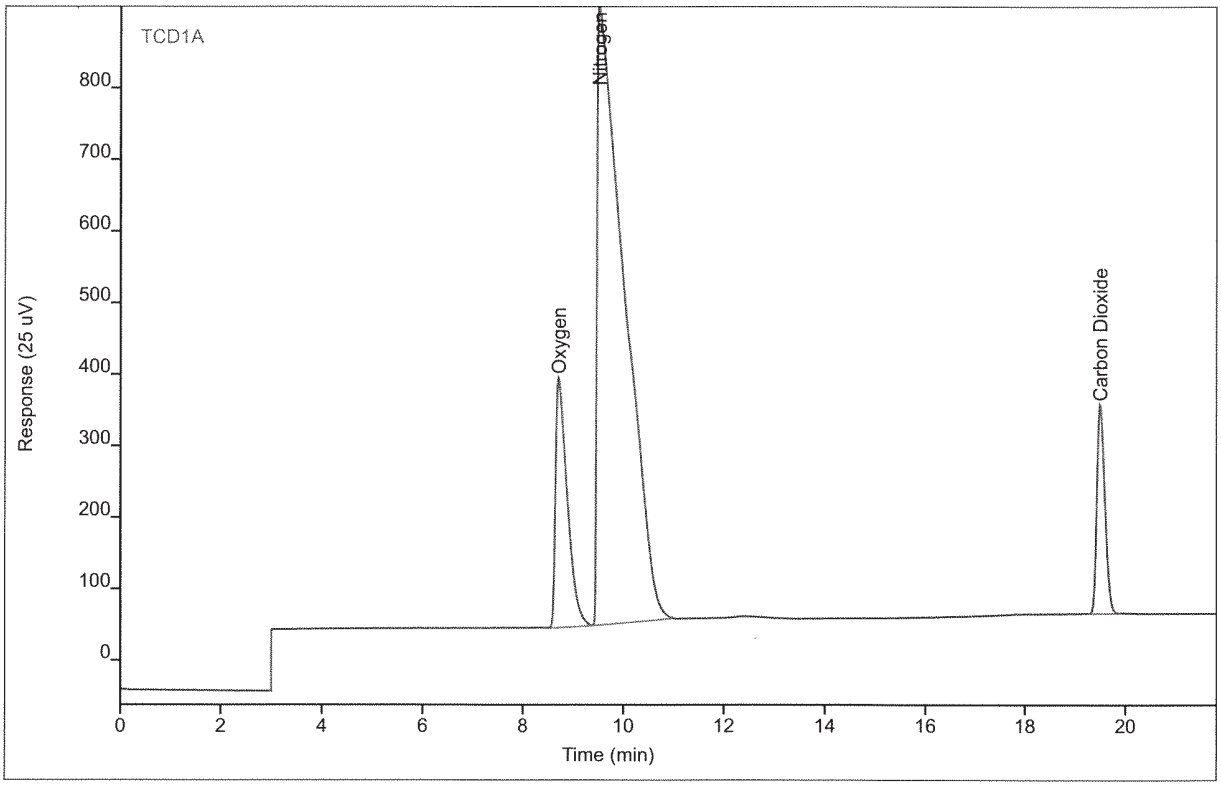
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.71	5659.15	349.787	14.7907	1	14.7907	%
Nitrogen	BB	9.52	32009.0	867.476	75.6719	1	75.6719	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.50	3246.75	293.998	4.49780	1	4.49780	%

Chromatogram Report

Enthalpy Analytical

Sample Name	0615-125.Large - L3- R1.Bag
Sequence Name	BETTYP212 ver.6
Data File	005F0302.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/27/2015 7:15 PM
File Modified	7/23/2015 3:11 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Sample
Vial Number	Vial 5
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



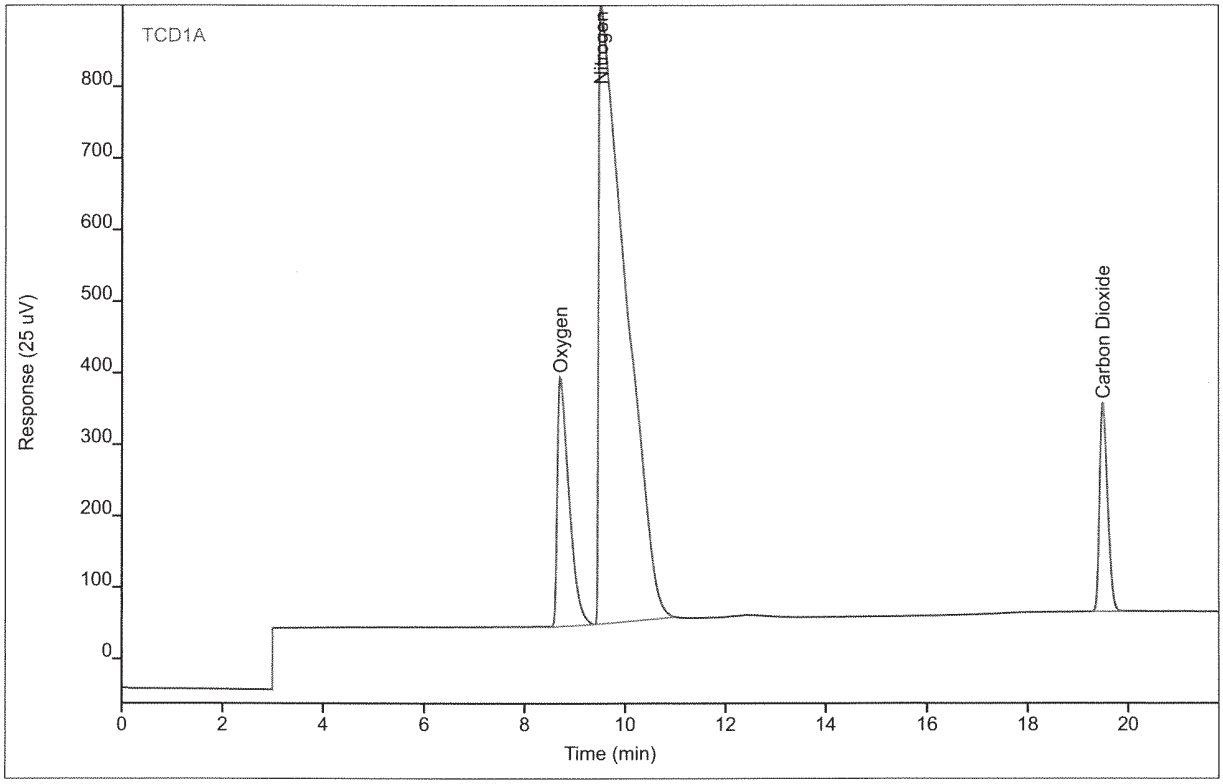
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.71	5670.97	349.421	14.8217	1	14.8217	%
Nitrogen	BB	9.52	32052.7	865.911	75.7753	1	75.7753	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.49	3229.97	292.010	4.47425	1	4.47425	%

Chromatogram Report

Sample Name	0615-125.Large - L3- R1.Bag
Sequence Name	BETTYP212 ver.6
Data File	005F0303.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/27/2015 7:42 PM
File Modified	7/23/2015 3:11 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 5
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



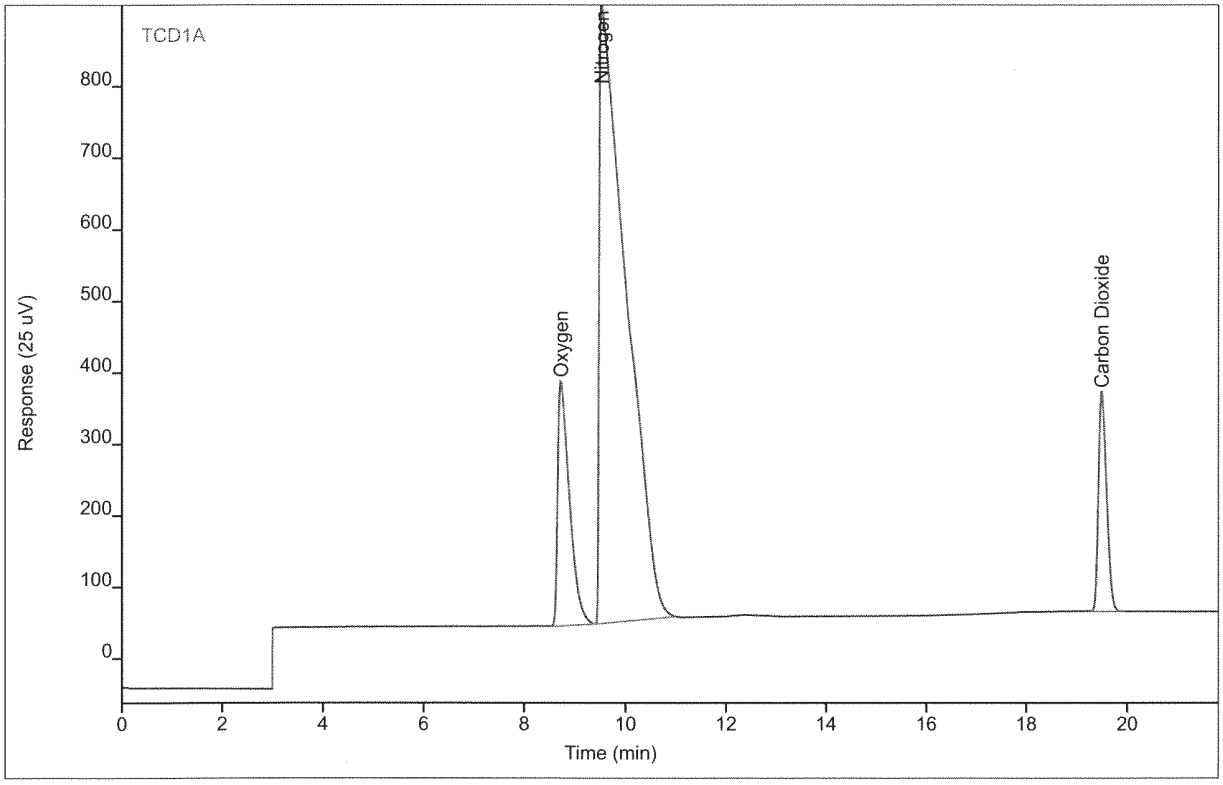
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.71	5659.16	349.290	14.7908	1	14.7908	%
Nitrogen	BB	9.52	31986.8	865.332	75.6194	1	75.6194	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.50	3238.13	292.154	4.48571	1	4.48571	%

Chromatogram Report

Enthalpy Analytical

Sample Name	0615-125.Large - L4- R1.Bag
Sequence Name	BETTYP212 ver.6
Data File	006F0401.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/27/2015 8:09 PM
File Modified	7/23/2015 3:11 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Sample
Vial Number	Vial 6
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



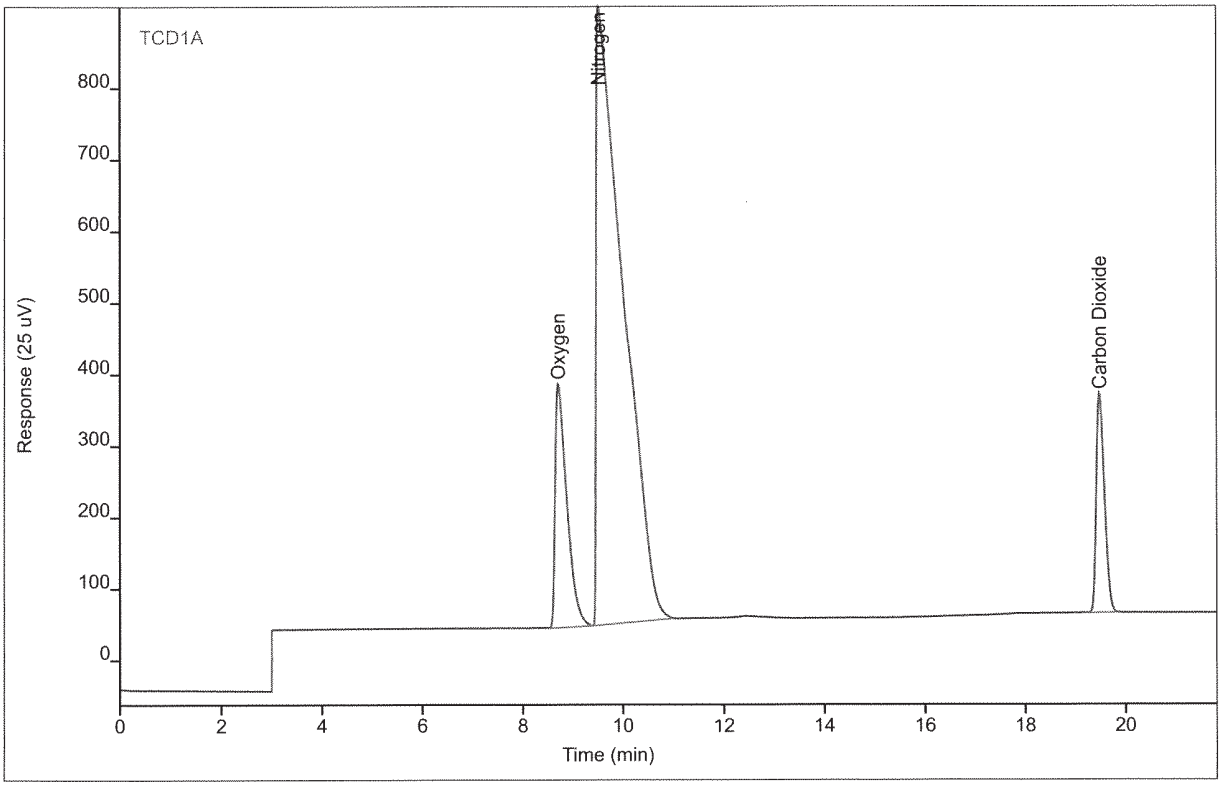
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.72	5510.68	342.481	14.4020	1	14.4020	%
Nitrogen	BB	9.52	32031.8	867.123	75.7259	1	75.7259	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.49	3426.39	307.410	4.74989	1	4.74989	%

Chromatogram Report

Sample Name	0615-125.Large - L4- R1.Bag
Sequence Name	BETTYP212 ver.6
Data File	006F0402.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/27/2015 8:37 PM
File Modified	7/23/2015 3:12 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 6
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



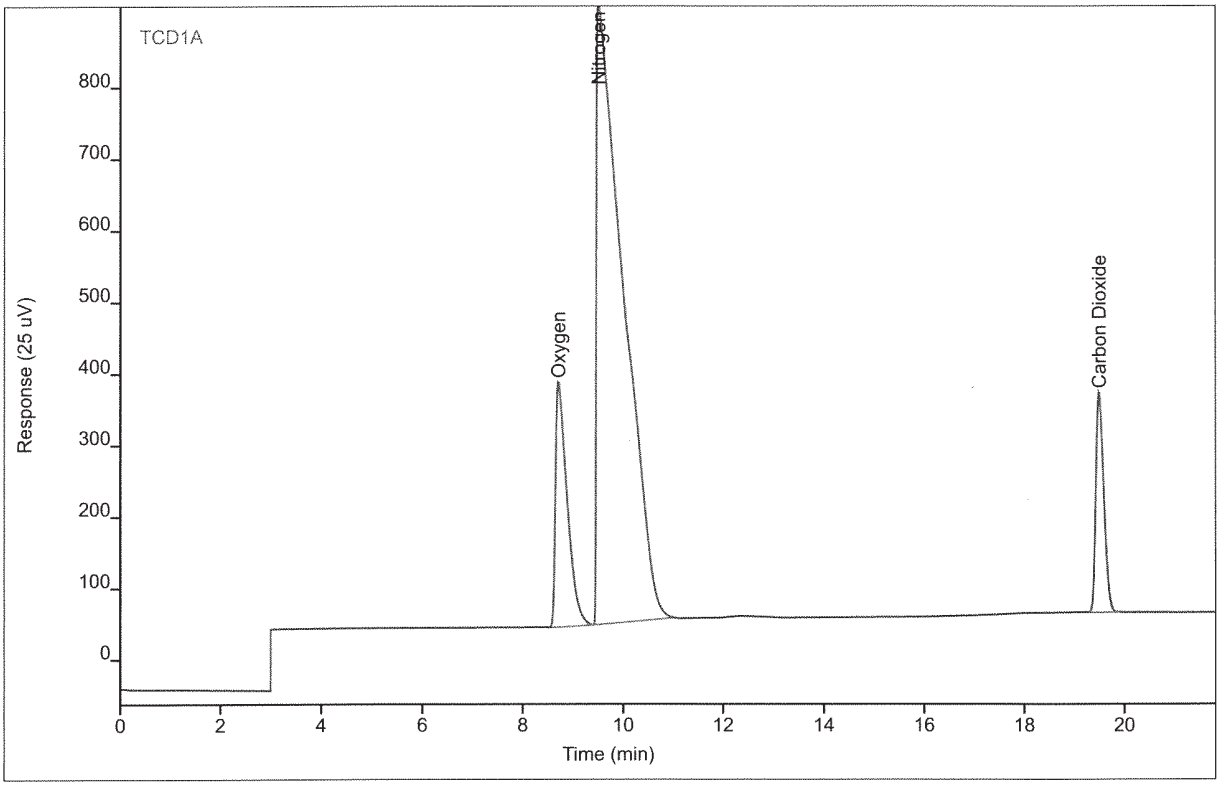
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.72	5501.91	341.702	14.3790	1	14.3790	%
Nitrogen	BB	9.52	31950.6	865.002	75.5338	1	75.5338	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.49	3418.47	306.633	4.73878	1	4.73878	%

Chromatogram Report

Sample Name	0615-125.Large - L4- R1.Bag
Sequence Name	BETTYP212 ver.6
Data File	006F0403.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/27/2015 9:04 PM
File Modified	7/23/2015 3:12 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 6
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



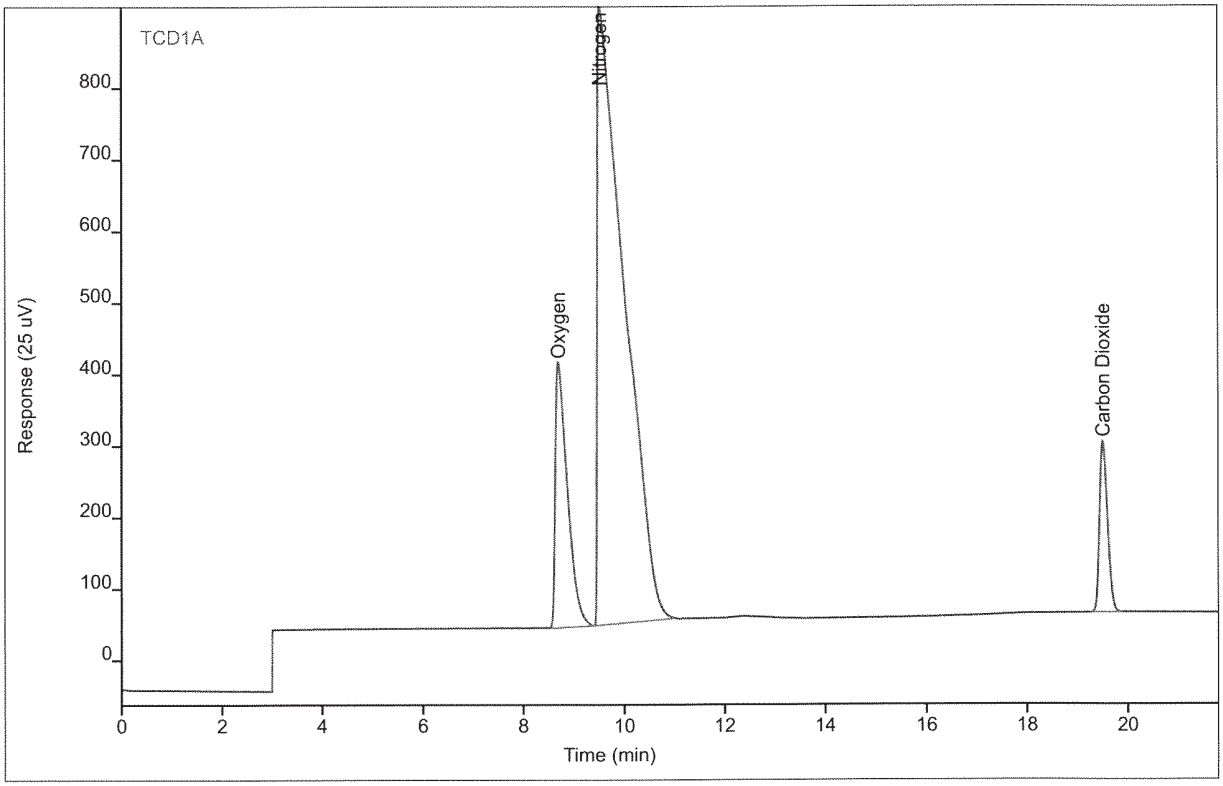
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.72	5516.57	342.811	14.4174	1	14.4174	%
Nitrogen	BB	9.52	32092.4	869.489	75.8690	1	75.8690	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.49	3427.98	307.893	4.75212	1	4.75212	%

Chromatogram Report

Sample Name	0615-125.Large - L1- R2.Bag
Sequence Name	BETTYP212 ver.6
Data File	007F0501.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/27/2015 9:31 PM
File Modified	7/23/2015 3:12 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 7
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



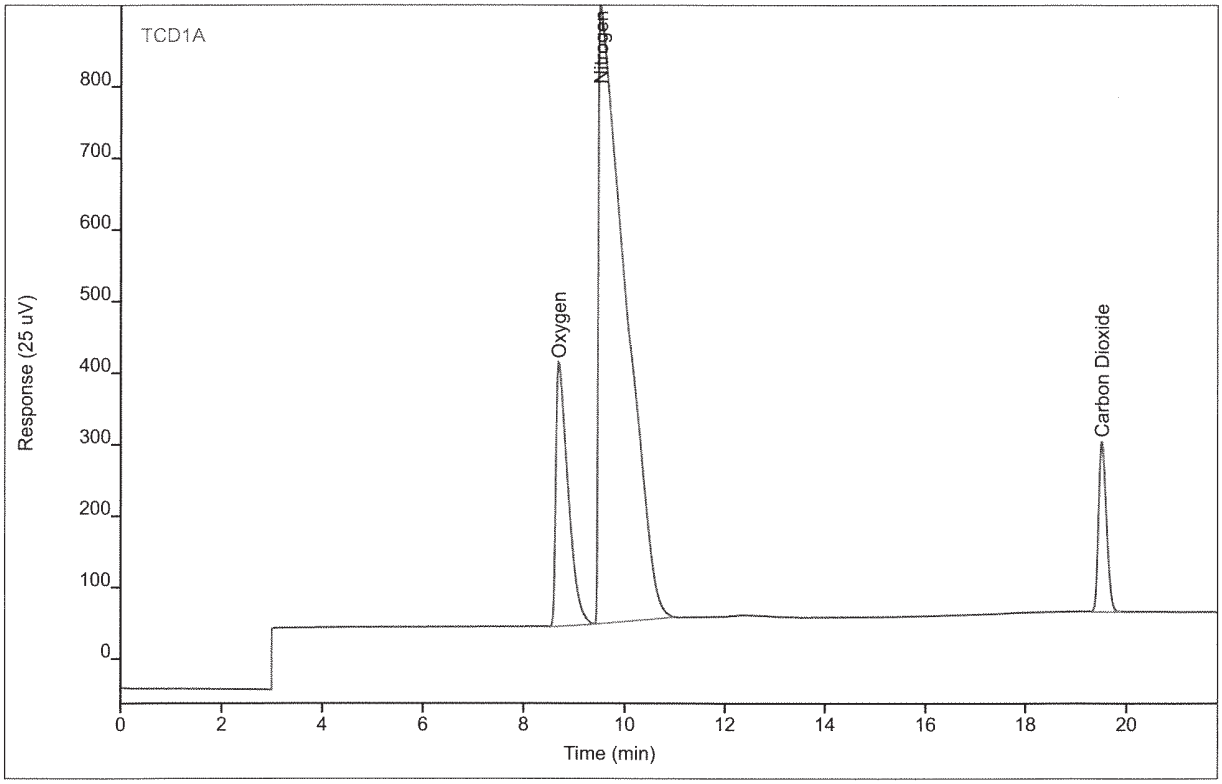
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.70	6134.50	371.257	16.0354	1	16.0354	%
Nitrogen	BB	9.52	31852.6	864.138	75.3021	1	75.3021	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.51	2622.60	239.420	3.62194	1	3.62194	%

Chromatogram Report

Enthalpy Analytical

Sample Name	0615-125.Large - L1- R2.Bag
Sequence Name	BETTYP212 ver.6
Data File	007F0502.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/27/2015 9:59 PM
File Modified	7/23/2015 3:12 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Sample
Vial Number	Vial 7
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



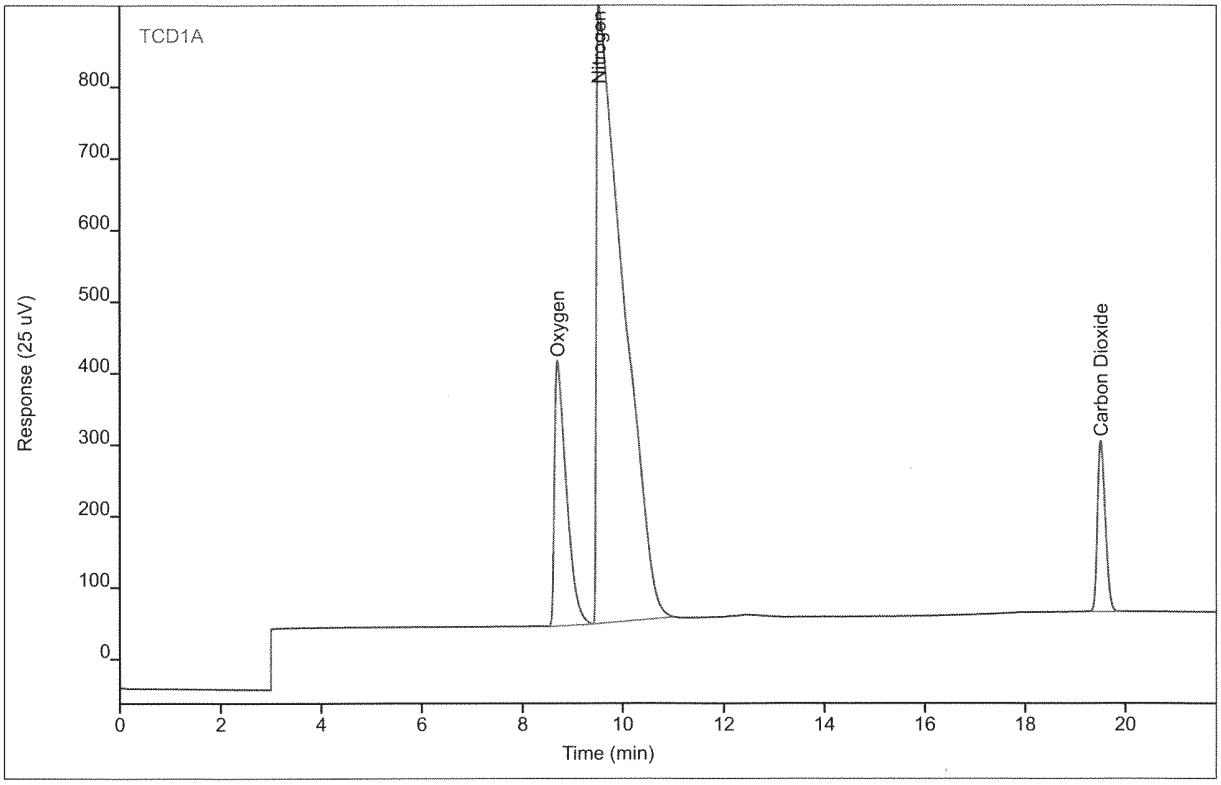
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.70	6122.39	369.613	16.0037	1	16.0037	%
Nitrogen	BB	9.52	31783.5	863.713	75.1389	1	75.1389	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.51	2615.91	238.848	3.61255	1	3.61255	%

Chromatogram Report

Sample Name	0615-125.Large - L1- R2.Bag
Sequence Name	BETTYP212 ver.6
Data File	007F0503.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/27/2015 10:26 PM
File Modified	7/23/2015 3:12 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 7
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



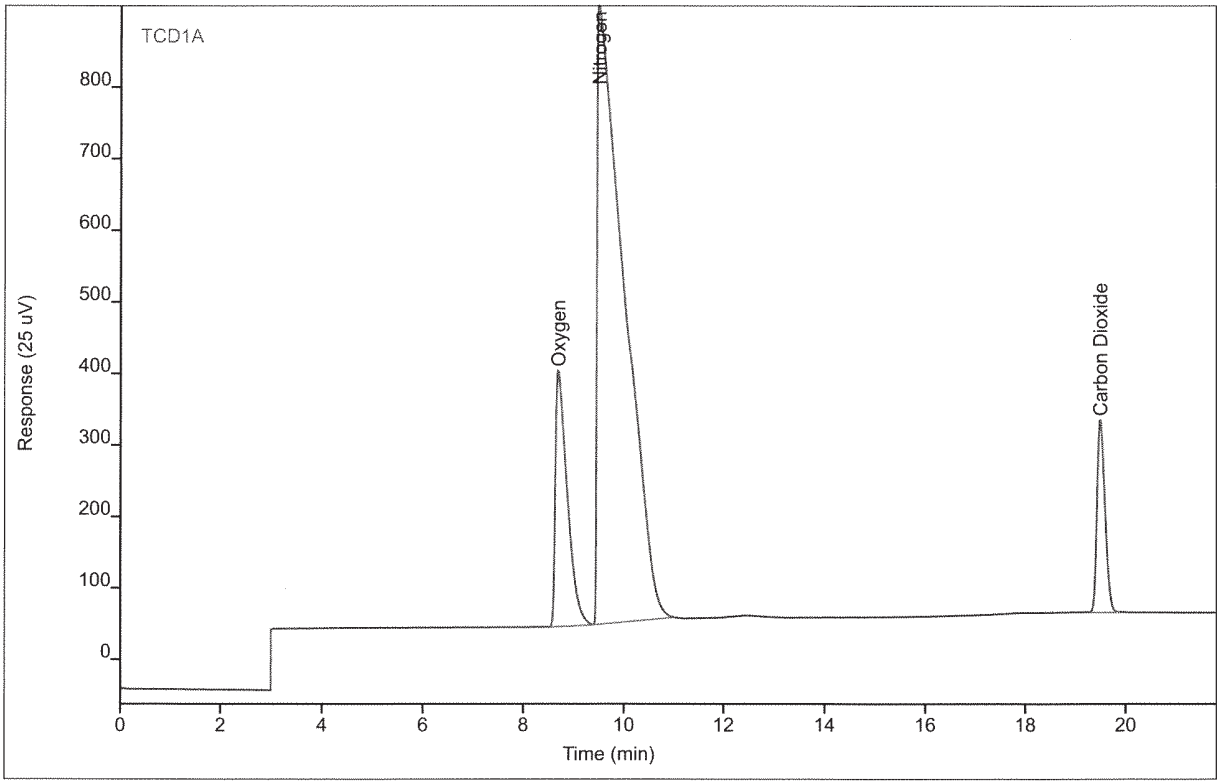
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.70	6131.48	370.832	16.0275	1	16.0275	%
Nitrogen	BB	9.52	31884.9	864.020	75.3785	1	75.3785	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.51	2619.69	239.263	3.61785	1	3.61785	%

Chromatogram Report

Sample Name	0615-125.Large - L2- R2.Bag
Sequence Name	BETTYP212 ver.6
Data File	008F0601.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/27/2015 10:53 PM
File Modified	7/23/2015 3:12 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 8
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



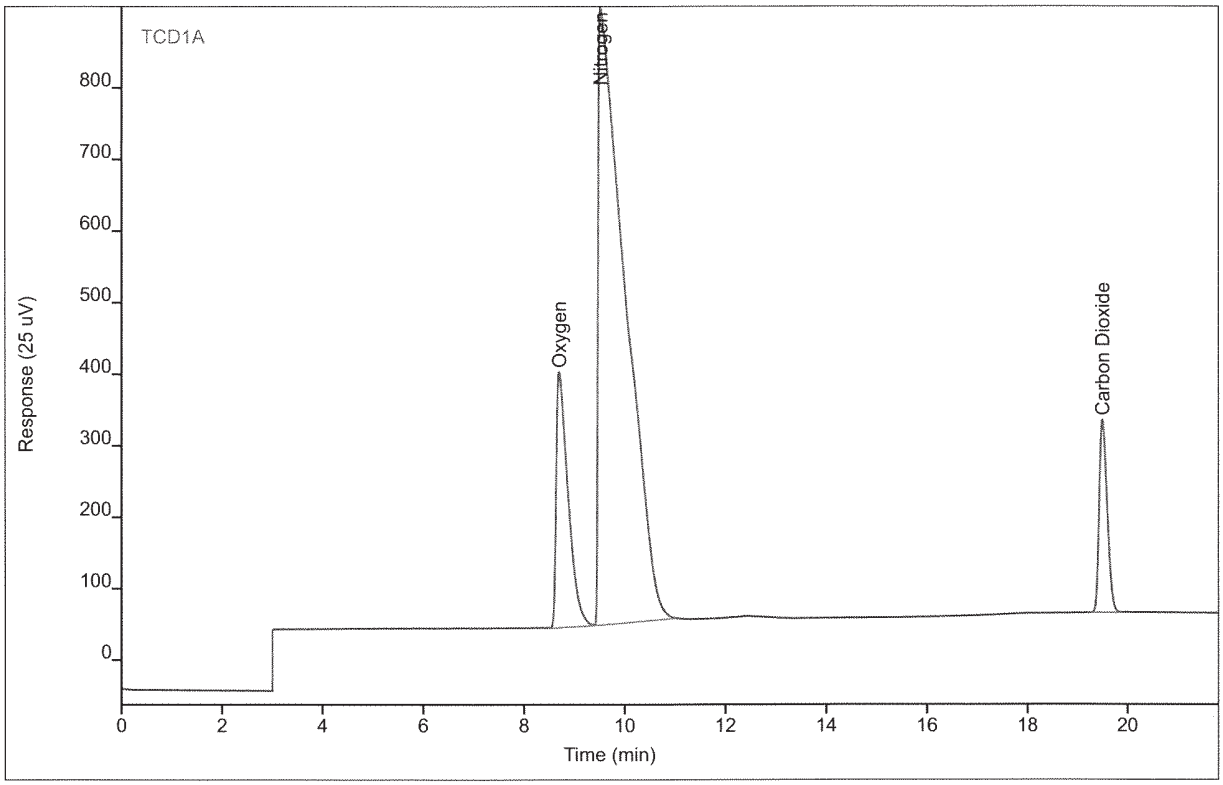
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.70	5853.19	358.458	15.2988	1	15.2988	%
Nitrogen	BB	9.52	31917.8	865.358	75.4564	1	75.4564	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.50	2971.57	269.184	4.11164	1	4.11164	%

Chromatogram Report

Sample Name	0615-125.Large - L2- R2.Bag
Sequence Name	BETTYP212 ver.6
Data File	008F0602.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/27/2015 11:21 PM
File Modified	7/23/2015 3:12 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 8
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



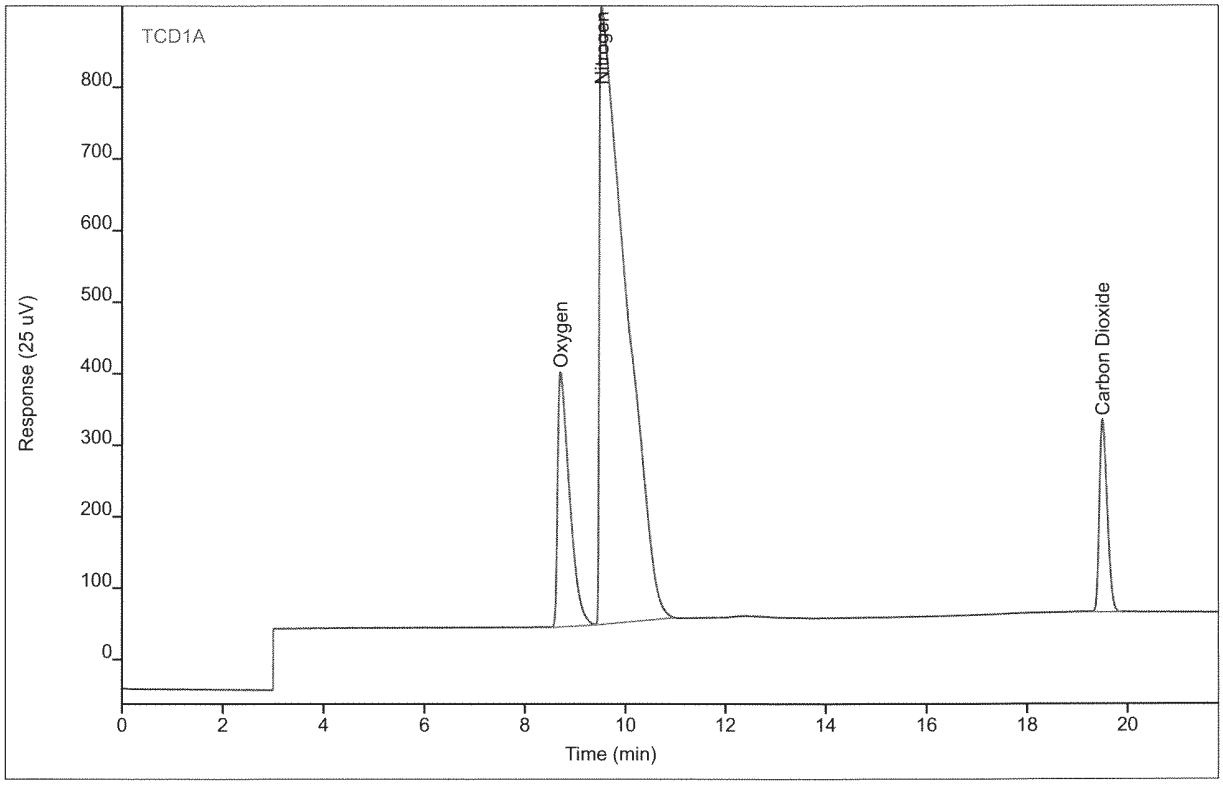
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.71	5848.57	358.173	15.2867	1	15.2867	%
Nitrogen	BB	9.52	31892.3	862.856	75.3962	1	75.3962	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.50	2975.18	269.835	4.11671	1	4.11671	%

Chromatogram Report

Sample Name	0615-125.Large - L2- R2.Bag
Sequence Name	BETTYP212 ver.6
Data File	008F0603.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/27/2015 11:48 PM
File Modified	7/23/2015 3:12 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 8
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



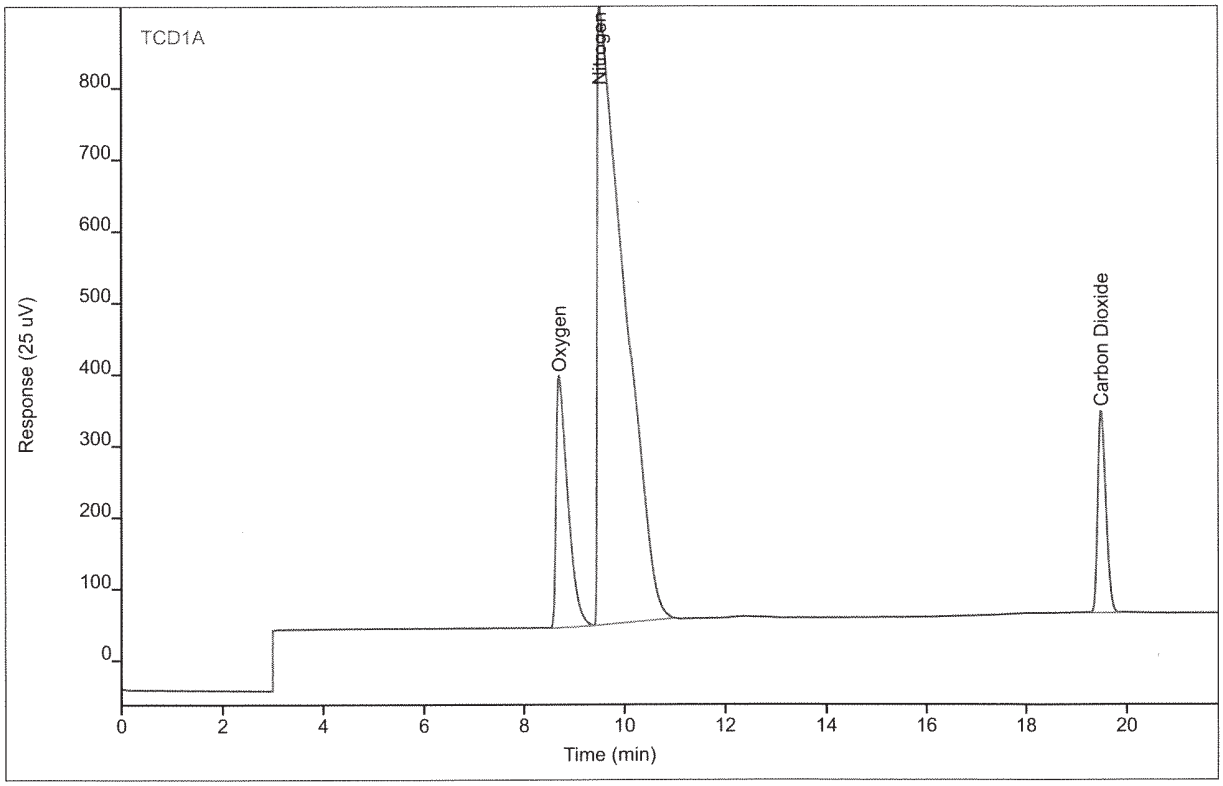
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.71	5838.51	356.966	15.2604	1	15.2604	%
Nitrogen	BB	9.52	31795.1	863.380	75.1662	1	75.1662	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.50	2960.88	269.020	4.09664	1	4.09664	%

Chromatogram Report

Sample Name	0615-125.Large - L3- R2.Bag
Sequence Name	BETTYP212 ver.6
Data File	010F0701.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/28/2015 12:16 AM
File Modified	7/23/2015 3:12 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 10
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



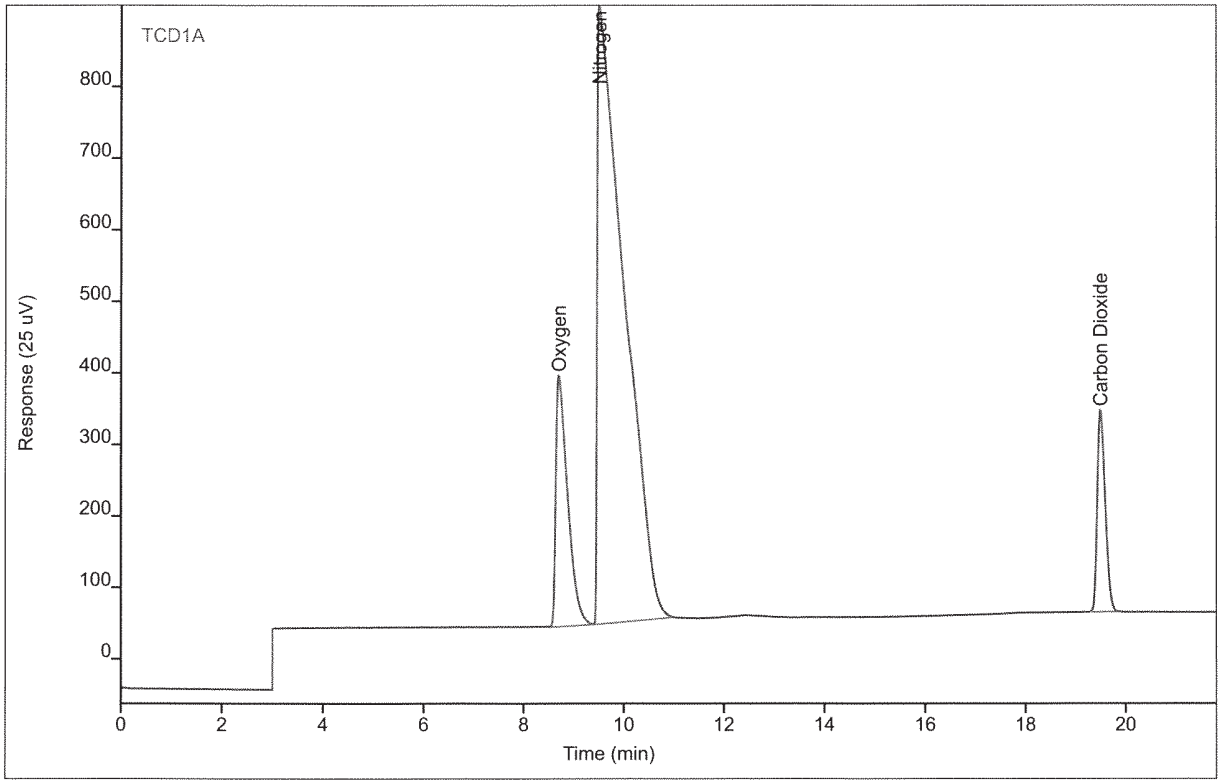
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.71	5720.16	352.017	14.9505	1	14.9505	%
Nitrogen	BB	9.52	31888.5	866.540	75.3871	1	75.3871	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.50	3130.50	283.016	4.33467	1	4.33467	%

Chromatogram Report

Sample Name	0615-125.Large - L3- R2.Bag
Sequence Name	BETTYP212 ver.6
Data File	010F0702.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/28/2015 12:43 AM
File Modified	7/23/2015 3:12 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 10
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



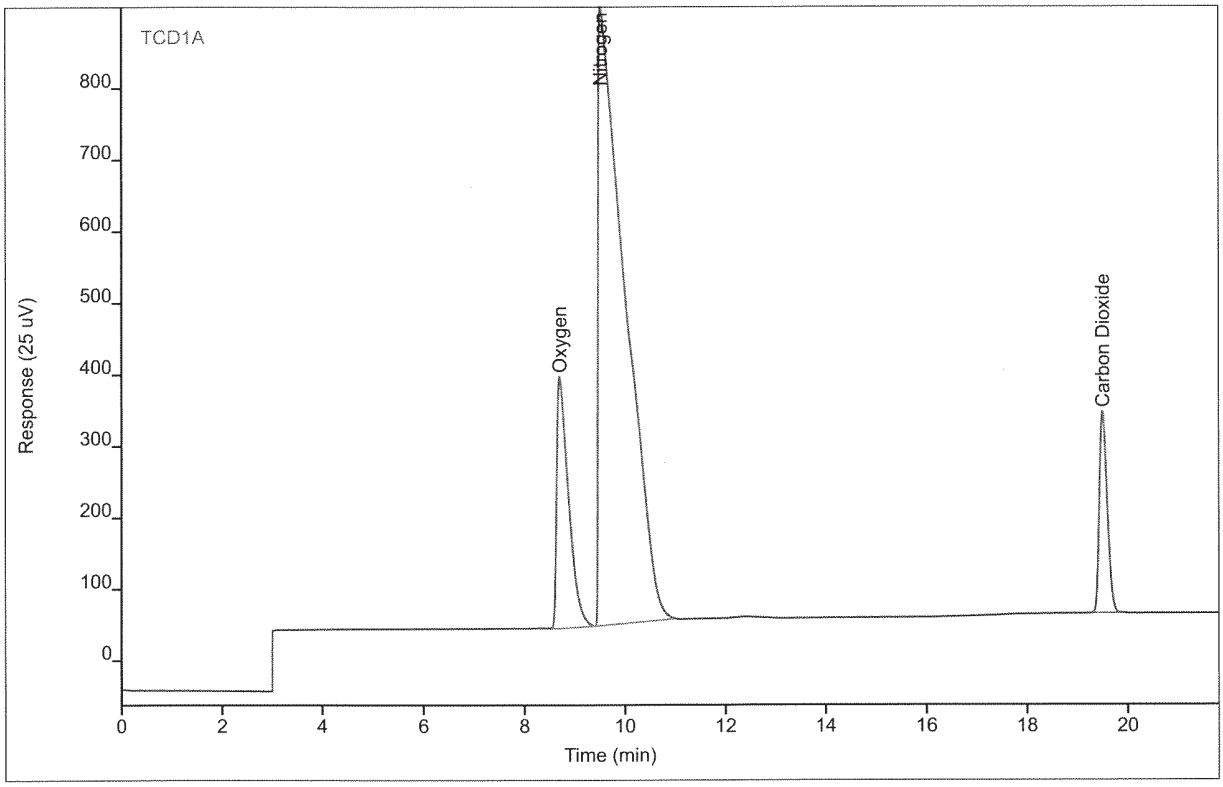
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.71	5717.74	350.997	14.9441	1	14.9441	%
Nitrogen	BB	9.52	31784.3	863.173	75.1406	1	75.1406	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.50	3111.77	281.842	4.30839	1	4.30839	%

Chromatogram Report

Sample Name	0615-125.Large - L3- R2.Bag
Sequence Name	BETTYP212 ver.6
Data File	010F0703.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/28/2015 1:10 AM
File Modified	7/23/2015 3:12 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 10
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



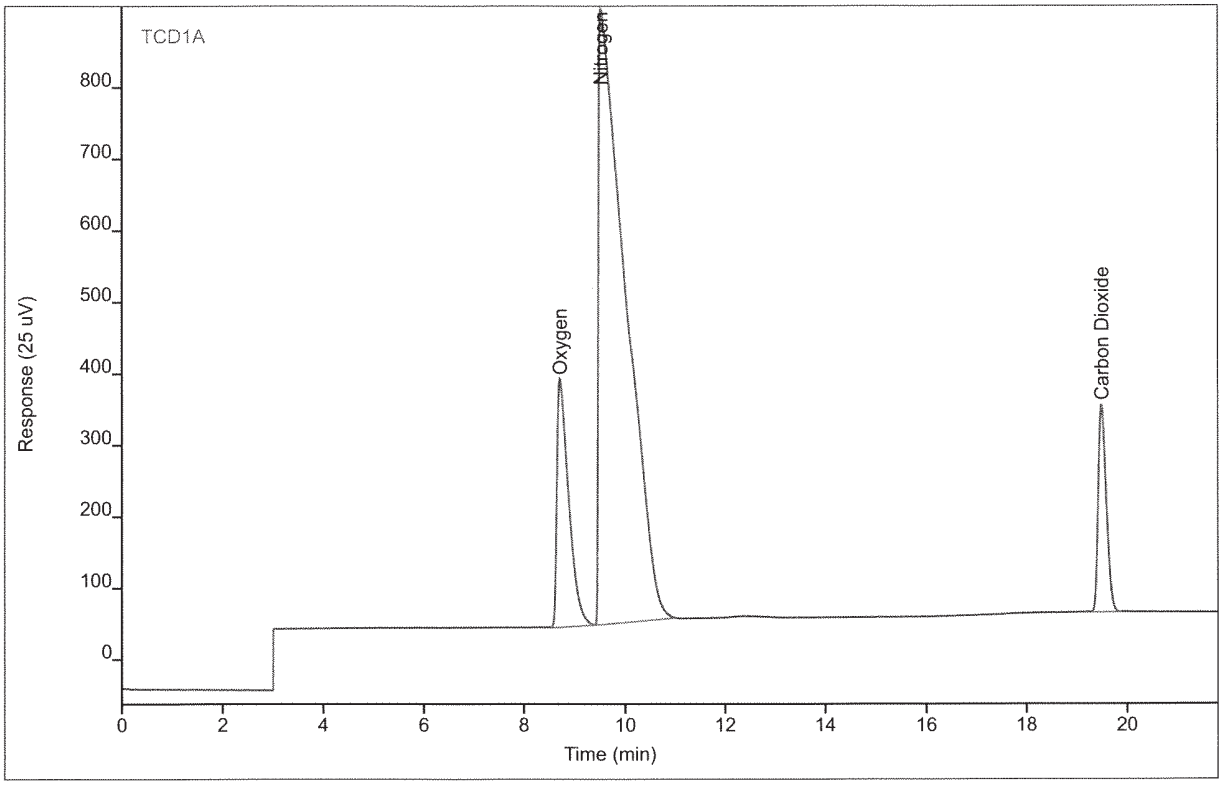
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.71	5724.09	352.176	14.9608	1	14.9608	%
Nitrogen	BB	9.52	31838.5	864.782	75.2689	1	75.2689	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.50	3116.31	281.798	4.31476	1	4.31476	%

Chromatogram Report

Sample Name	0615-125.Large - L4- R2.Bag
Sequence Name	BETTYP212 ver.6
Data File	011F0801.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/28/2015 1:38 AM
File Modified	7/23/2015 3:12 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 11
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



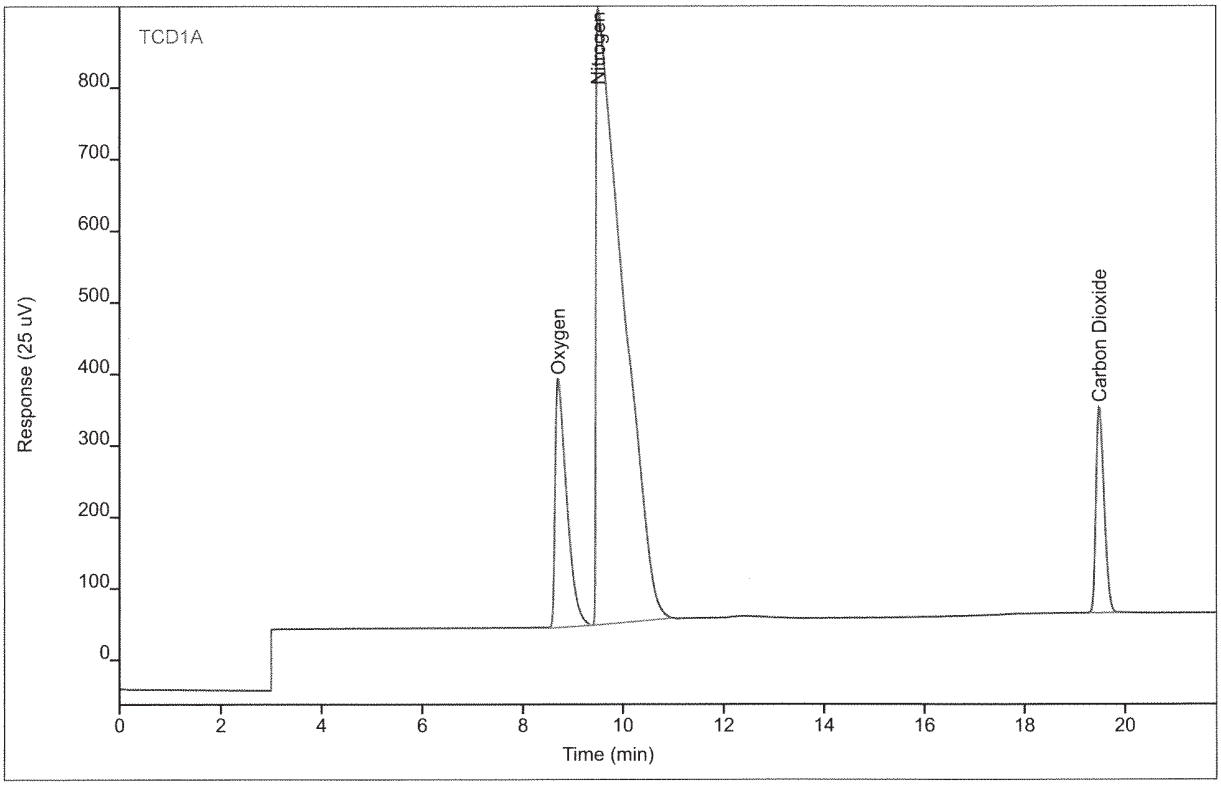
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.71	5627.70	347.693	14.7084	1	14.7084	%
Nitrogen	BB	9.52	31748.3	860.878	75.0555	1	75.0555	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.49	3209.82	290.773	4.44597	1	4.44597	%

Chromatogram Report

Sample Name	0615-125.Large - L4- R2.Bag
Sequence Name	BETTYP212 ver.6
Data File	011F0802.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/28/2015 2:05 AM
File Modified	7/23/2015 3:12 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 11
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



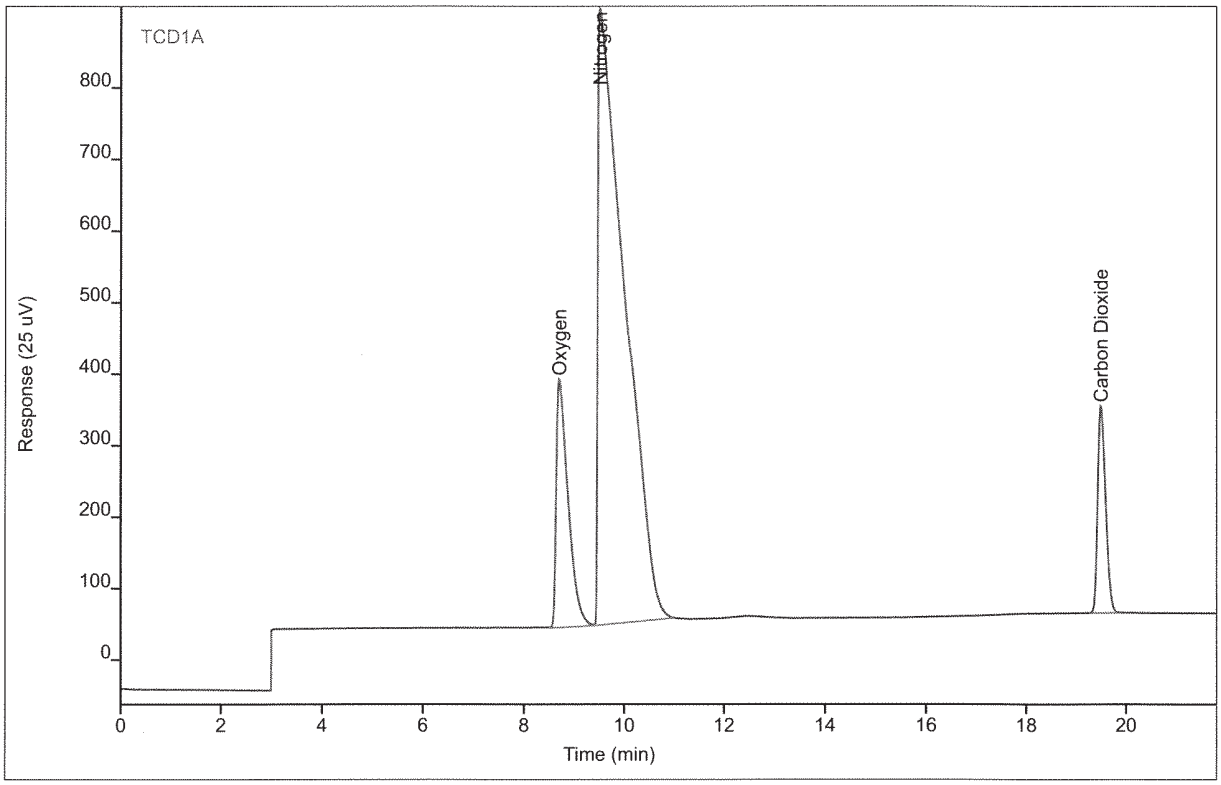
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.71	5633.45	348.155	14.7234	1	14.7234	%
Nitrogen	BB	9.52	31814.7	861.185	75.2126	1	75.2126	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.50	3200.66	288.889	4.43312	1	4.43312	%

Chromatogram Report

Enthalpy Analytical

Sample Name	0615-125.Large - L4- R2.Bag
Sequence Name	BETTYP212 ver.6
Data File	011F0803.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/28/2015 2:32 AM
File Modified	7/23/2015 3:12 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Sample
Vial Number	Vial 11
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



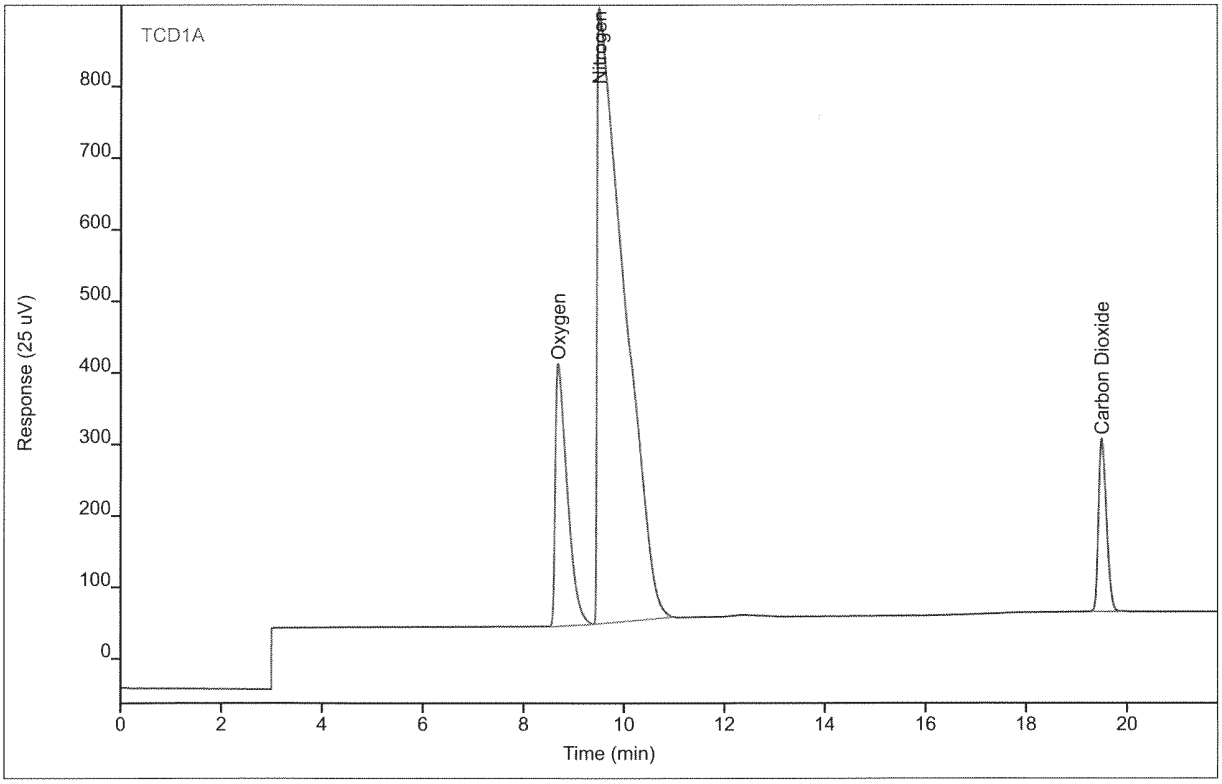
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.71	5627.02	347.116	14.7066	1	14.7066	%
Nitrogen	BB	9.52	31771.7	861.501	75.1110	1	75.1110	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.50	3218.47	289.370	4.45811	1	4.45811	%

Chromatogram Report

Sample Name	0615-125.Large - L1- R3.Bag
Sequence Name	BETTYP212 ver.6
Data File	012F0901.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/28/2015 3:00 AM
File Modified	7/23/2015 3:13 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 12
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



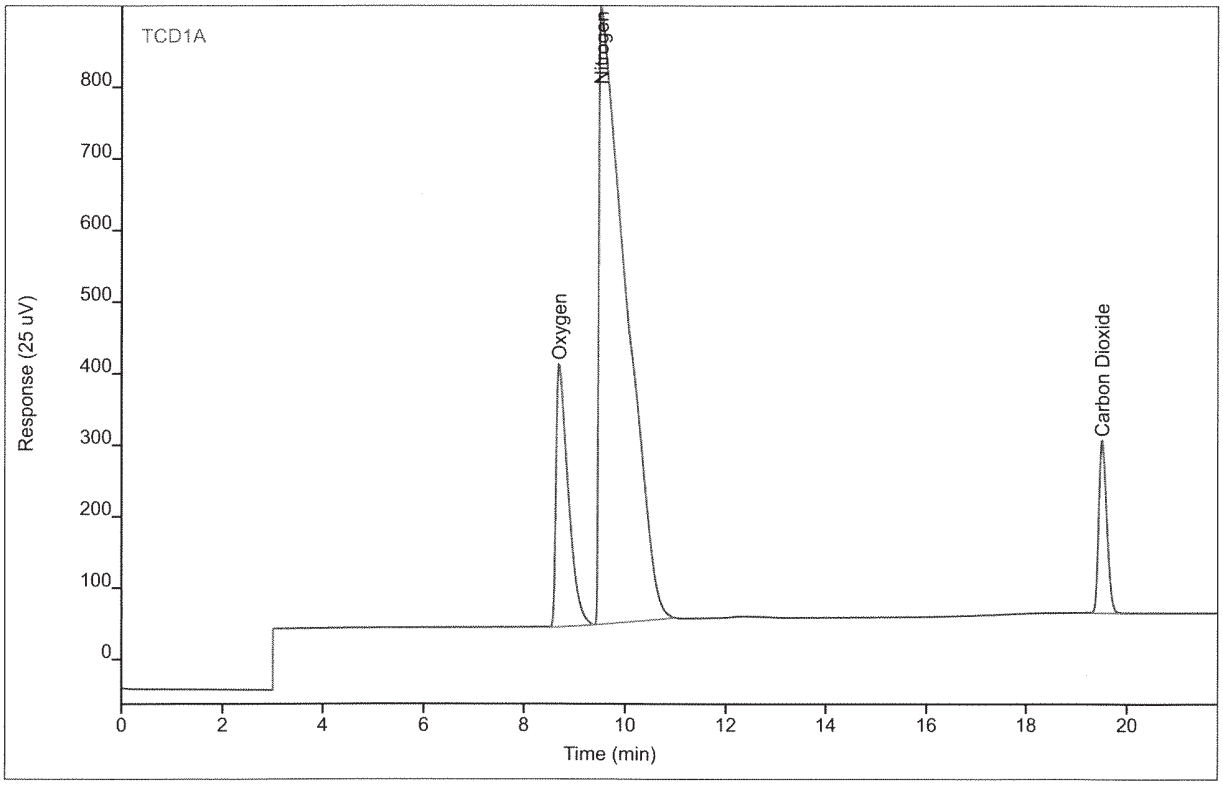
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.70	6059.93	367.354	15.8402	1	15.8402	%
Nitrogen	BB	9.52	31645.9	860.613	74.8134	1	74.8134	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.51	2644.04	242.019	3.65203	1	3.65203	%

Chromatogram Report

Enthalpy Analytical

Sample Name	0615-125.Large - L1- R3.Bag
Sequence Name	BETTYP212 ver.6
Data File	012F0902.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/28/2015 3:27 AM
File Modified	7/23/2015 3:13 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Sample
Vial Number	Vial 12
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



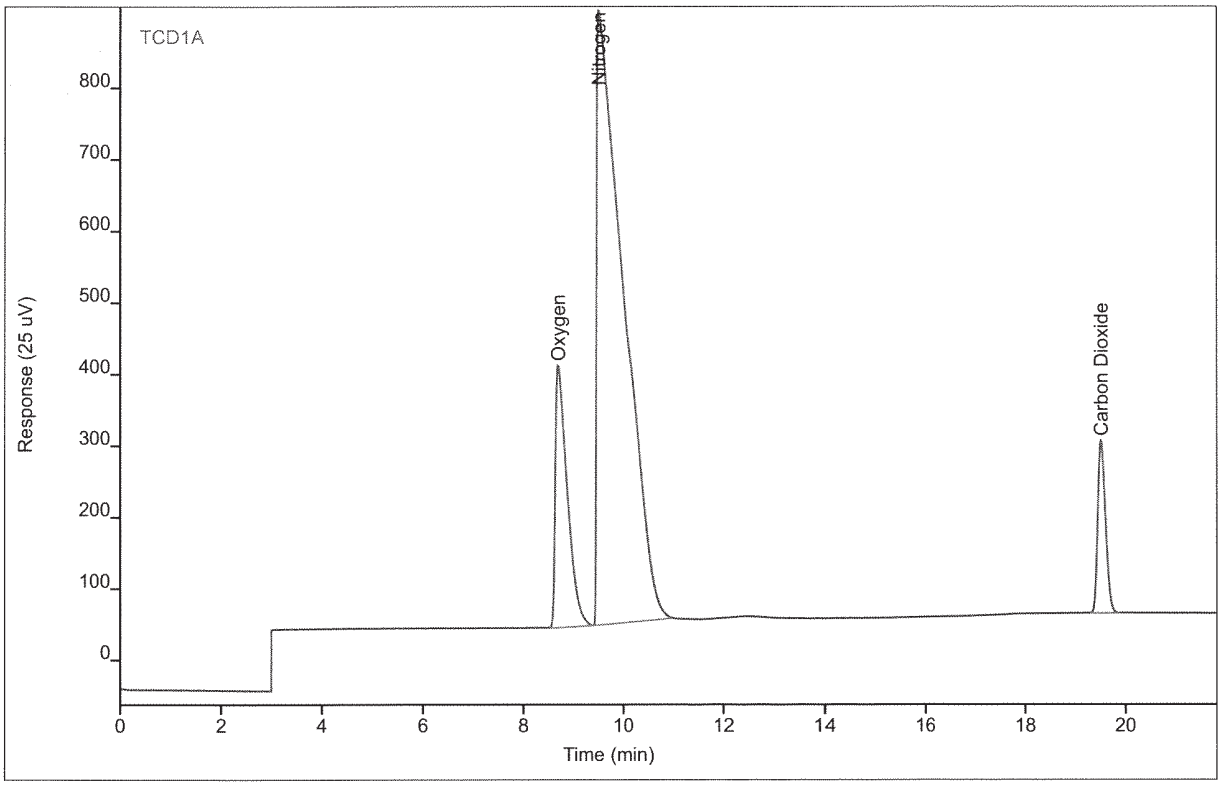
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.70	6081.95	367.866	15.8978	1	15.8978	%
Nitrogen	BB	9.52	31715.8	862.711	74.9788	1	74.9788	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.51	2646.99	241.395	3.65617	1	3.65617	%

Chromatogram Report

Sample Name	0615-125.Large - L1- R3.Bag
Sequence Name	BETTYP212 ver.6
Data File	012F0903.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/28/2015 3:55 AM
File Modified	7/23/2015 3:13 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 12
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



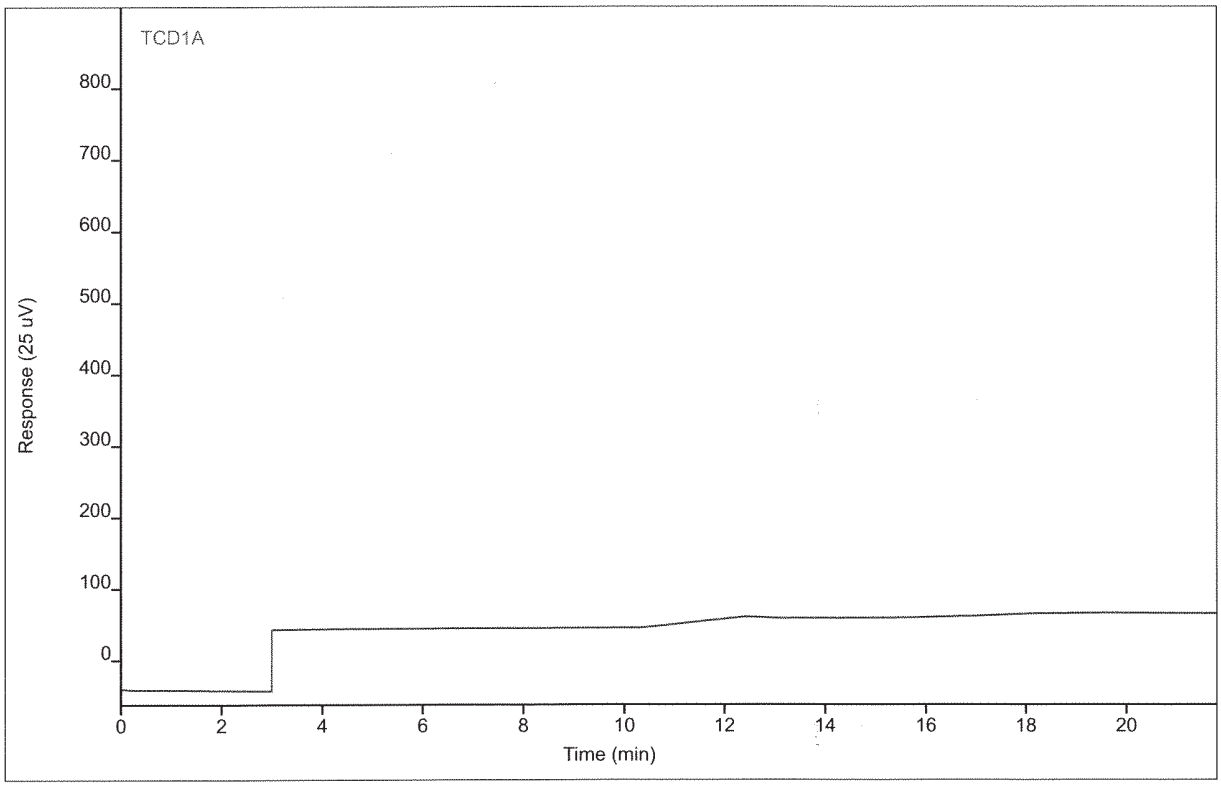
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.70	6061.30	367.426	15.8437	1	15.8437	%
Nitrogen	BB	9.52	31673.7	859.489	74.8793	1	74.8793	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.51	2648.21	242.136	3.65788	1	3.65788	%

Chromatogram Report

Enthalpy Analytical

Sample Name	He Blank #LB
Sequence Name	BETTYP212 ver.6
Data File	001F1101.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/28/2015 5:45 AM
File Modified	7/23/2015 1:06 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Sample
Vial Number	Vial 1
Injection Volume	250
Injection	1 of 4
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



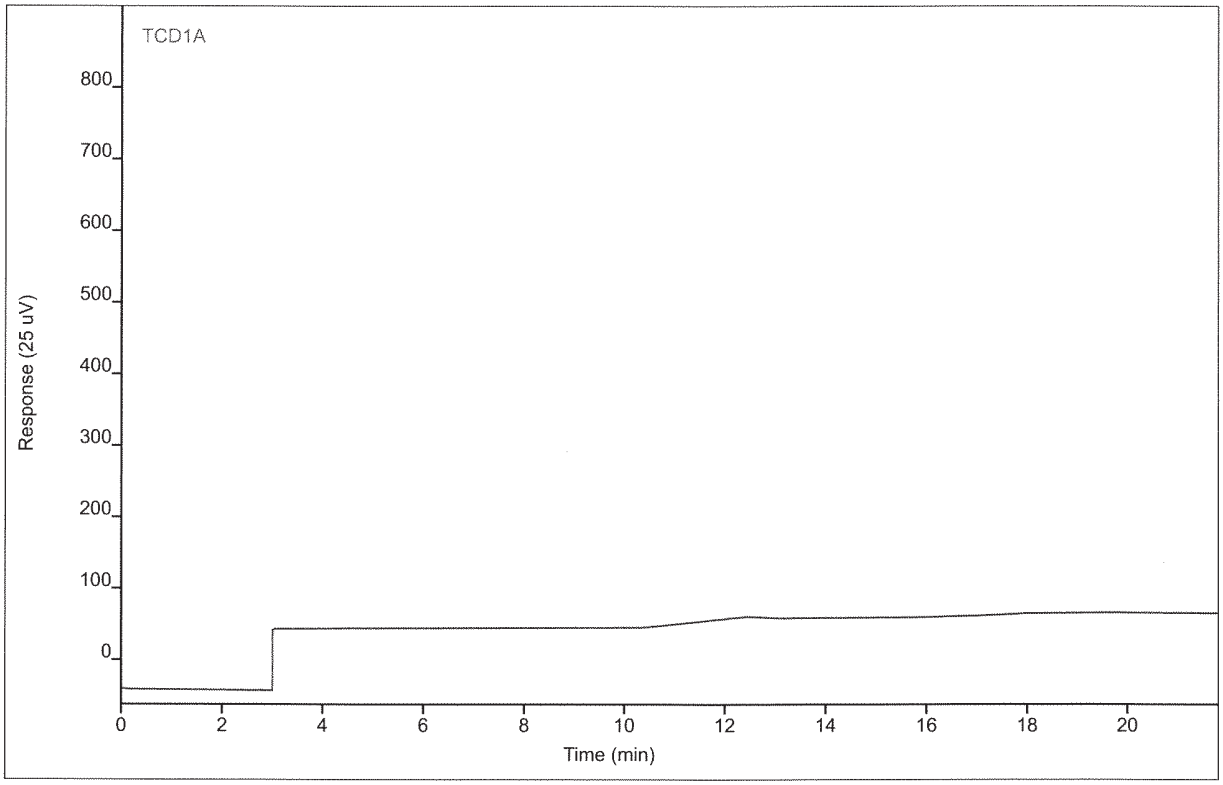
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen		(8.97)				1		
Nitrogen		(10.13)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	He Blank #LB
Sequence Name	BETTYP212 ver.6
Data File	001F1102.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/28/2015 6:12 AM
File Modified	7/23/2015 1:06 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Sample
Vial Number	Vial 1
Injection Volume	250
Injection	2 of 4
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



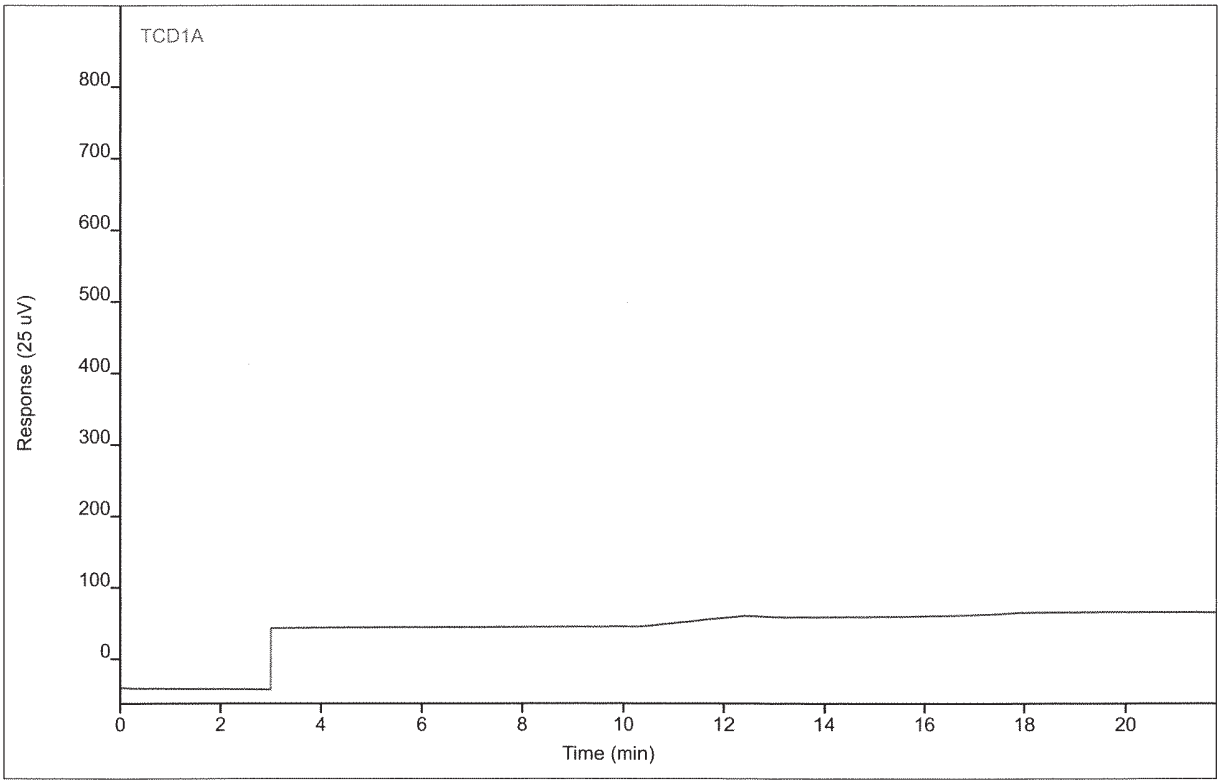
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen		(8.97)				1		
Nitrogen		(10.13)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	He Blank #LB
Sequence Name	BETTYP212 ver.6
Data File	001F1103.D
File Location	GC/2015/Betty/Quarter 2
Injection Date *	6/28/2015 6:40 AM
File Modified	7/23/2015 1:06 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Sample
Vial Number	Vial 1
Injection Volume	250
Injection	3 of 4
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



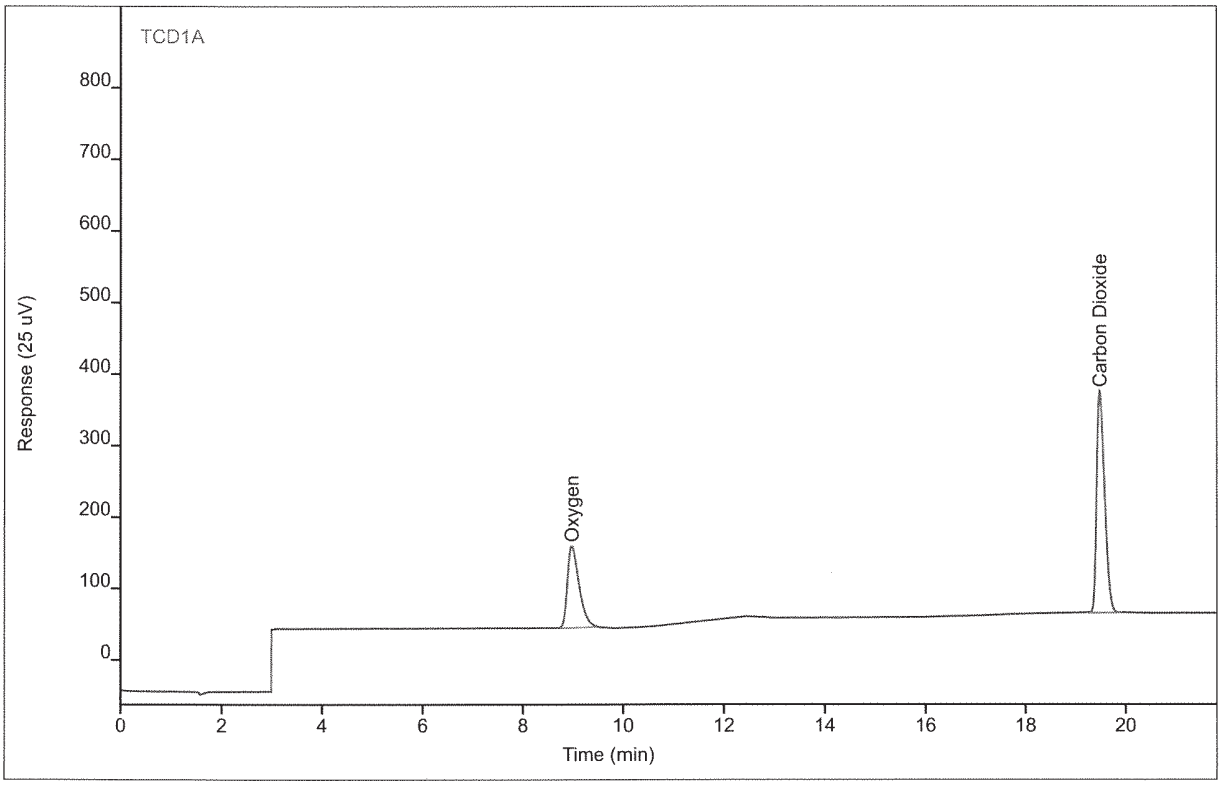
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen		(8.97)				1		
Nitrogen		(10.13)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)
Sequence Name	BETTYP212 ver.6
Data File	009F1201.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/28/2015 7:37 AM
File Modified	7/23/2015 1:06 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM

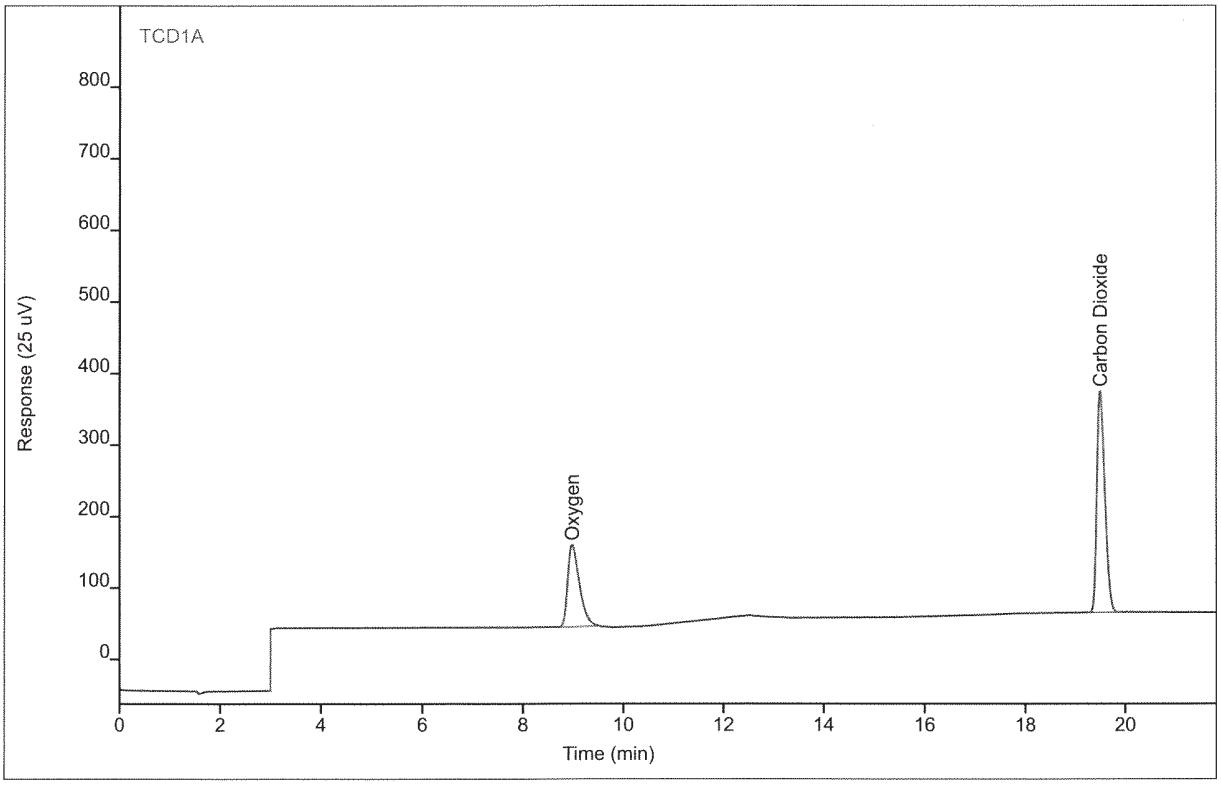


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	8.98	1859.35	114.498	4.84106	1	4.84106	%
Carbon Dioxide	MM	19.49	3457.39	309.945	4.79340	1	4.79340	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)	Sample Type	Calibration
Sequence Name	BETTYP212 ver.6	Vial Number	Vial 9
Data File	009F1202.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	2 of 3
Injection Date	6/28/2015 8:07 AM	Acquisition Method	BETTYP017_CAL.M
File Modified	7/23/2015 1:06 PM	Analysis Method	BETTYP209_FGA_CRYO.M
Instrument	Betty	Method Modified	7/23/2015 12:56 PM
Operator	Chester Burnett	Printed	7/23/2015 3:29 PM



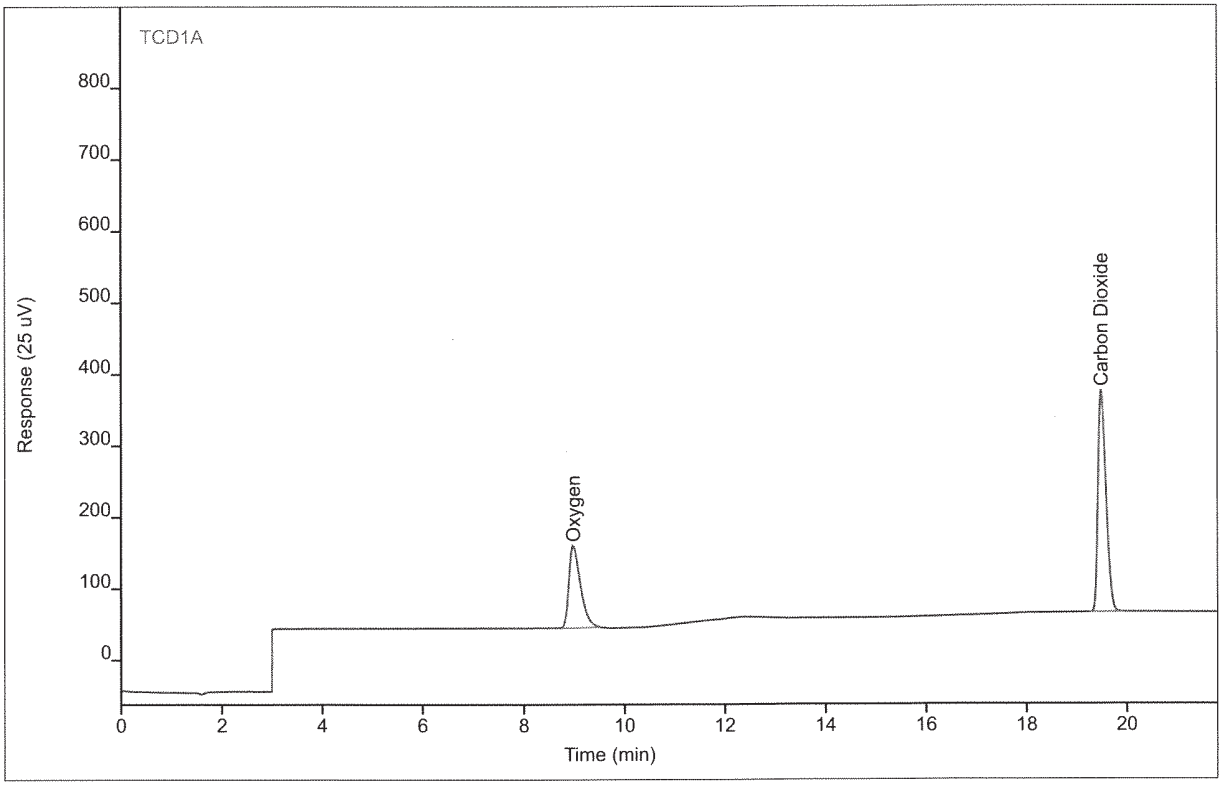
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	8.98	1867.03	115.199	4.86117	1	4.86117	%
Carbon Dioxide	MM	19.49	3459.03	310.121	4.79569	1	4.79569	%

Chromatogram Report

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)
Sequence Name	BETTYP212 ver.6
Data File	009F1203.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/28/2015 8:37 AM
File Modified	7/23/2015 1:06 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



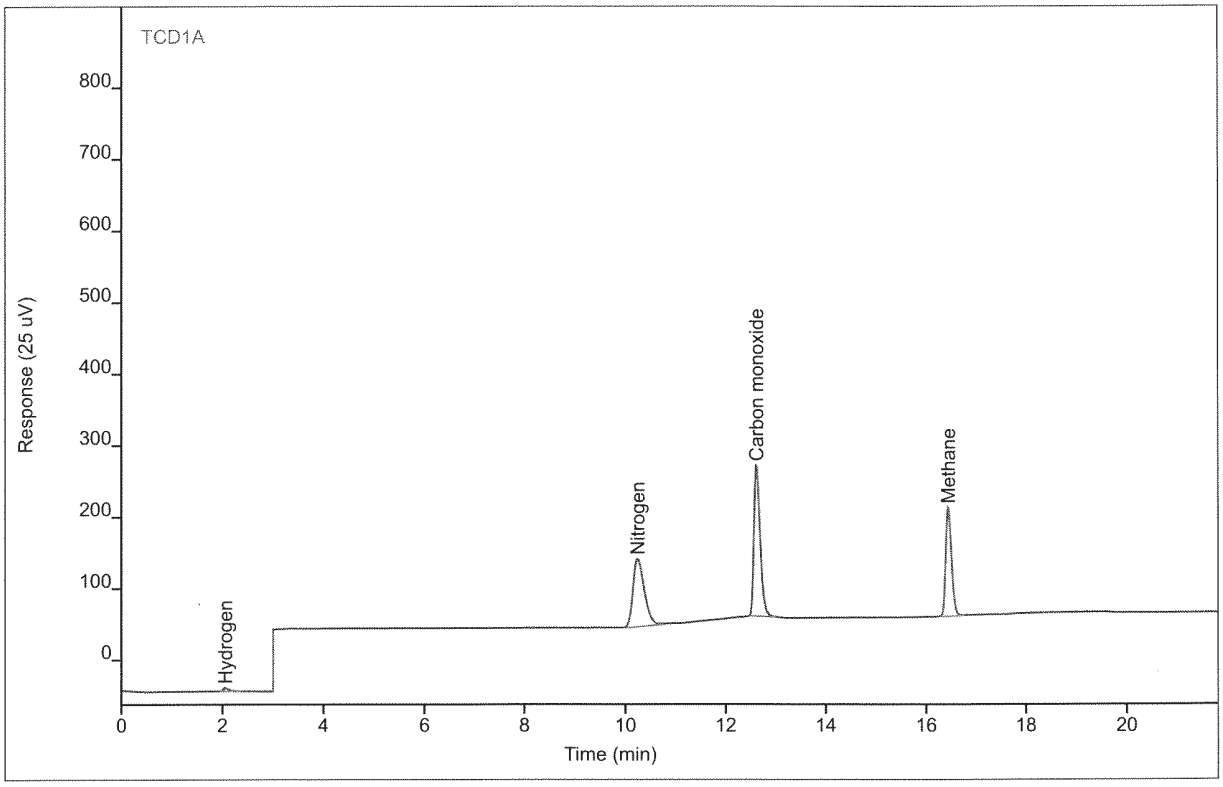
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	8.98	1867.23	114.996	4.86172	1	4.86172	%
Carbon Dioxide	MM	19.49	3459.72	309.669	4.79666	1	4.79666	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP212 ver.6
Data File	009F1401.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/28/2015 10:48 AM
File Modified	7/23/2015 3:14 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



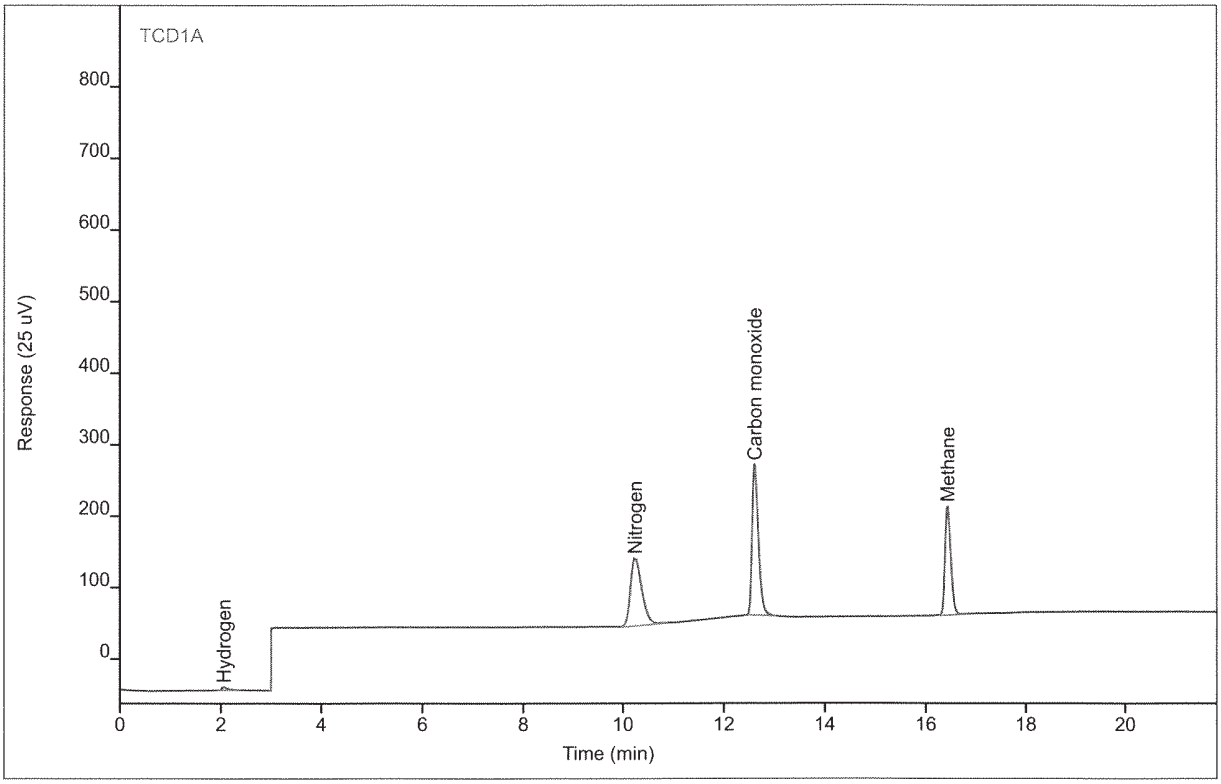
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.06	41.6551	4.96905	2.93718	1	2.93718	%
Nitrogen	MM	10.24	1494.94	95.4430	3.53384	1	3.53384	%
Carbon monoxide	MM	12.61	1810.87	211.186	3.42990	1	3.42990	%
Methane	MM	16.44	1241.30	152.300	2.74722	1	2.74722	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP212 ver.6
Data File	009F1402.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/28/2015 11:18 AM
File Modified	7/23/2015 1:06 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM

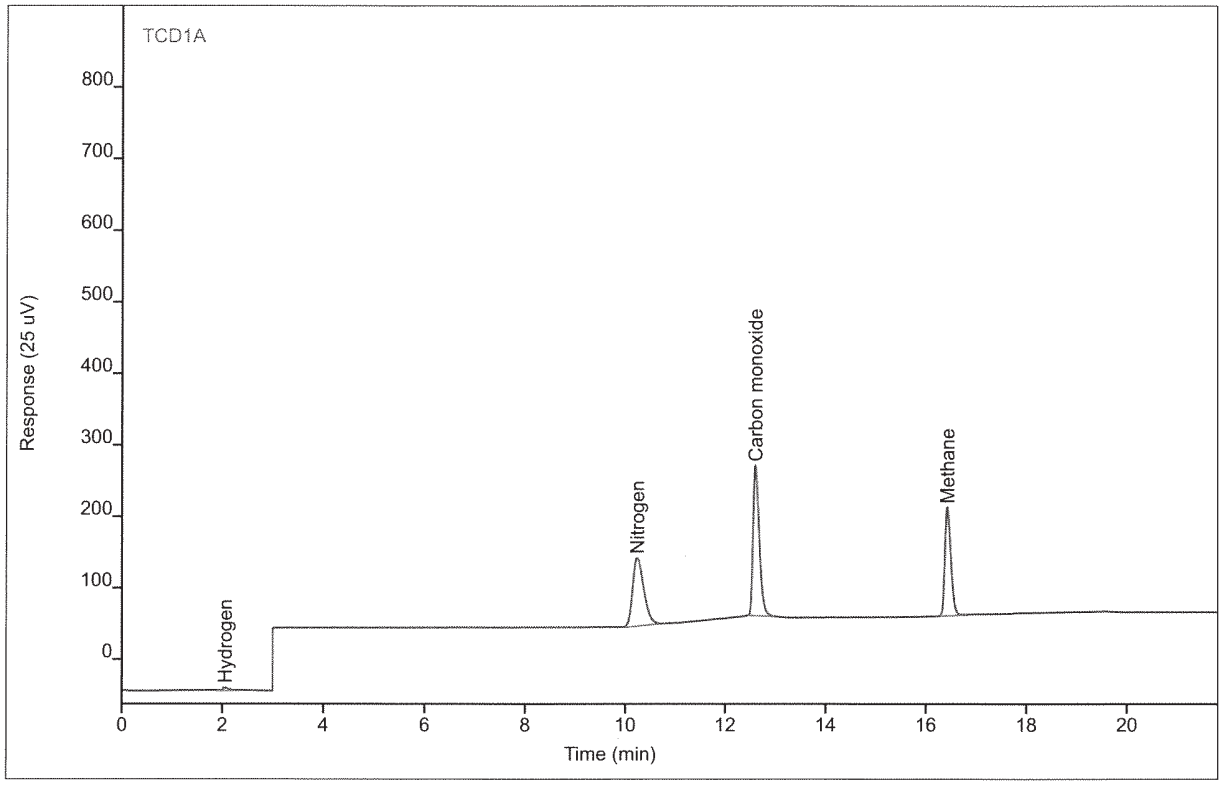


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.06	42.4777	4.95290	2.99500	1	2.99500	%
Nitrogen	MM	10.24	1503.86	95.3314	3.55493	1	3.55493	%
Carbon monoxide	MM	12.61	1822.56	210.990	3.45208	1	3.45208	%
Methane	MM	16.44	1244.28	152.571	2.75388	1	2.75388	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG7 ENV(1=530,3=319.09)	Sample Type	Calibration
Sequence Name	BETTYP212 ver.6	Vial Number	Vial 9
Data File	009F1403.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	3 of 3
Injection Date	6/28/2015 11:49 AM	Acquisition Method	BETTYP017_CAL.M
File Modified	7/23/2015 1:06 PM	Analysis Method	BETTYP209_FGA_CRYO.M
Instrument	Betty	Method Modified	7/23/2015 12:56 PM
Operator	Chester Burnett	Printed	7/23/2015 3:29 PM



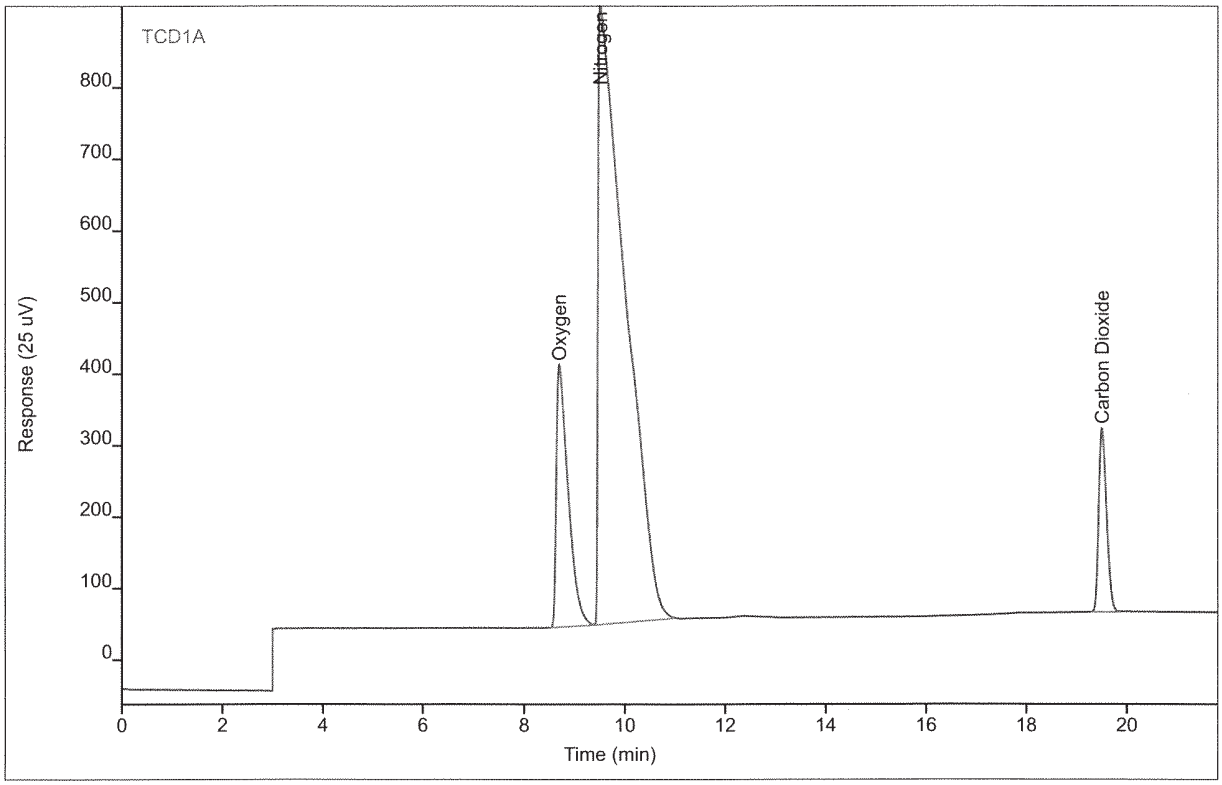
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.06	43.4078	4.99552	3.06038	1	3.06038	%
Nitrogen	BB	10.24	1483.38	95.8086	3.50653	1	3.50653	%
Carbon monoxide	MM	12.61	1811.67	210.083	3.43143	1	3.43143	%
Methane	MM	16.44	1244.63	151.593	2.75465	1	2.75465	%

Chromatogram Report

Enthalpy Analytical

Sample Name	0615-125.Large - L2- R3.Bag
Sequence Name	BETTYP212 ver.6
Data File	003F1601.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/28/2015 12:18 PM
File Modified	7/23/2015 3:14 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Sample
Vial Number	Vial 3
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



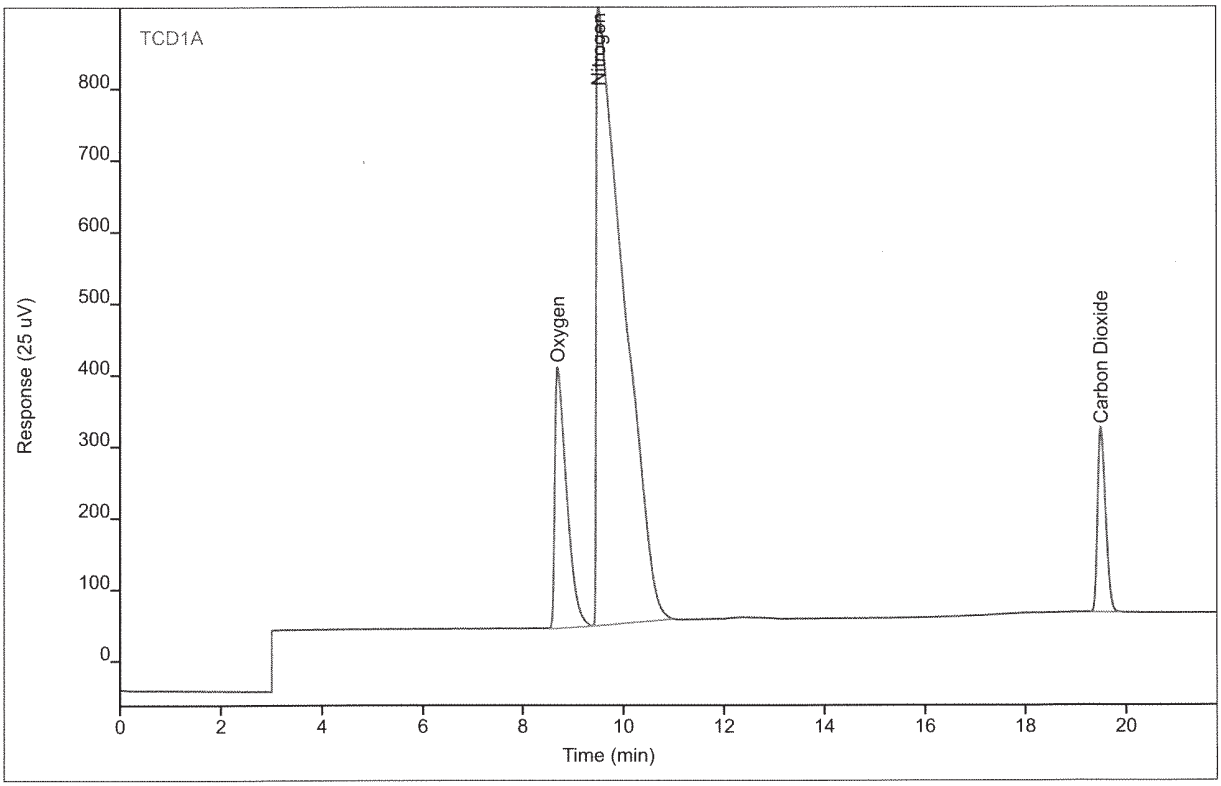
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.70	6020.13	367.175	15.7360	1	15.7360	%
Nitrogen	BB	9.52	32073.8	864.274	75.8252	1	75.8252	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.51	2826.85	257.548	3.90857	1	3.90857	%

Chromatogram Report

Sample Name	0615-125.Large - L2- R3.Bag
Sequence Name	BETTYP212 ver.6
Data File	003F1602.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/28/2015 12:46 PM
File Modified	7/23/2015 3:14 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 3
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



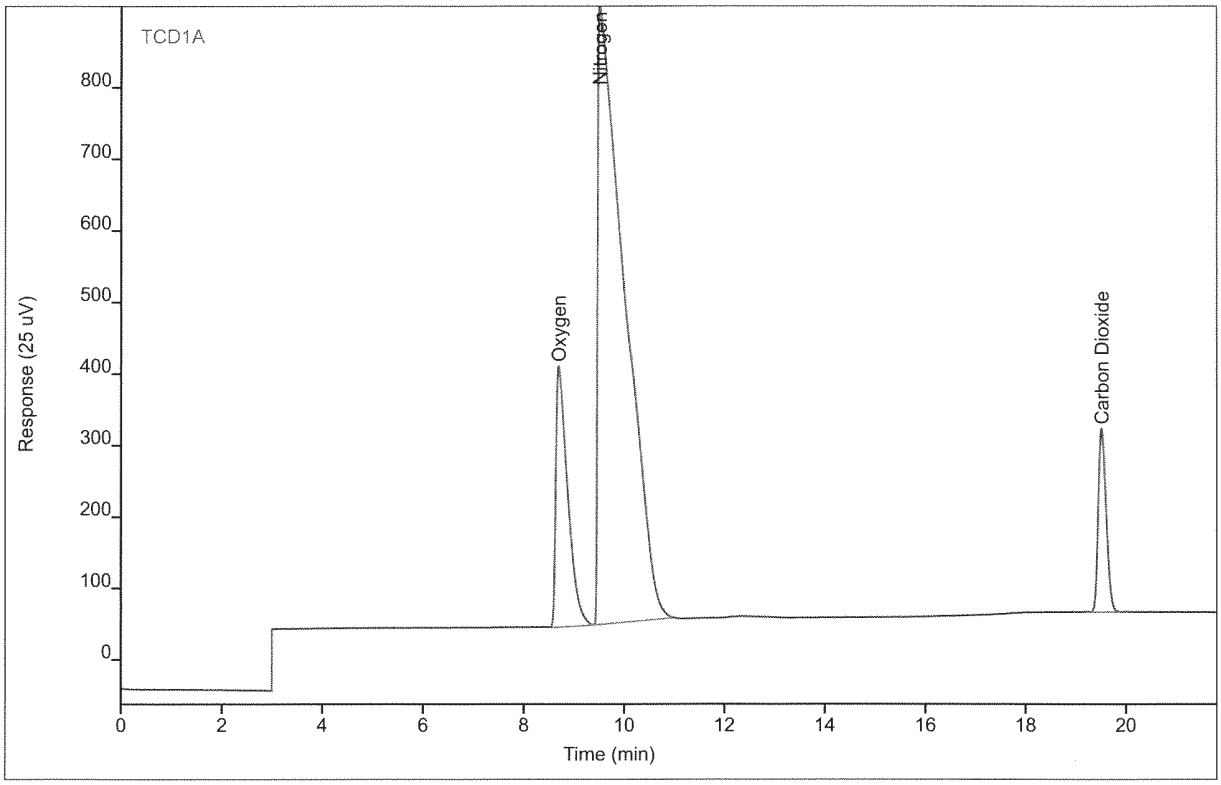
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.70	6016.46	366.070	15.7263	1	15.7263	%
Nitrogen	BB	9.52	32028.9	863.401	75.7189	1	75.7189	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.51	2836.59	257.621	3.92222	1	3.92222	%

Chromatogram Report

Sample Name	0615-125.Large - L2- R3.Bag
Sequence Name	BETTYP212 ver.6
Data File	003F1603.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/28/2015 1:14 PM
File Modified	7/23/2015 3:14 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 3
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



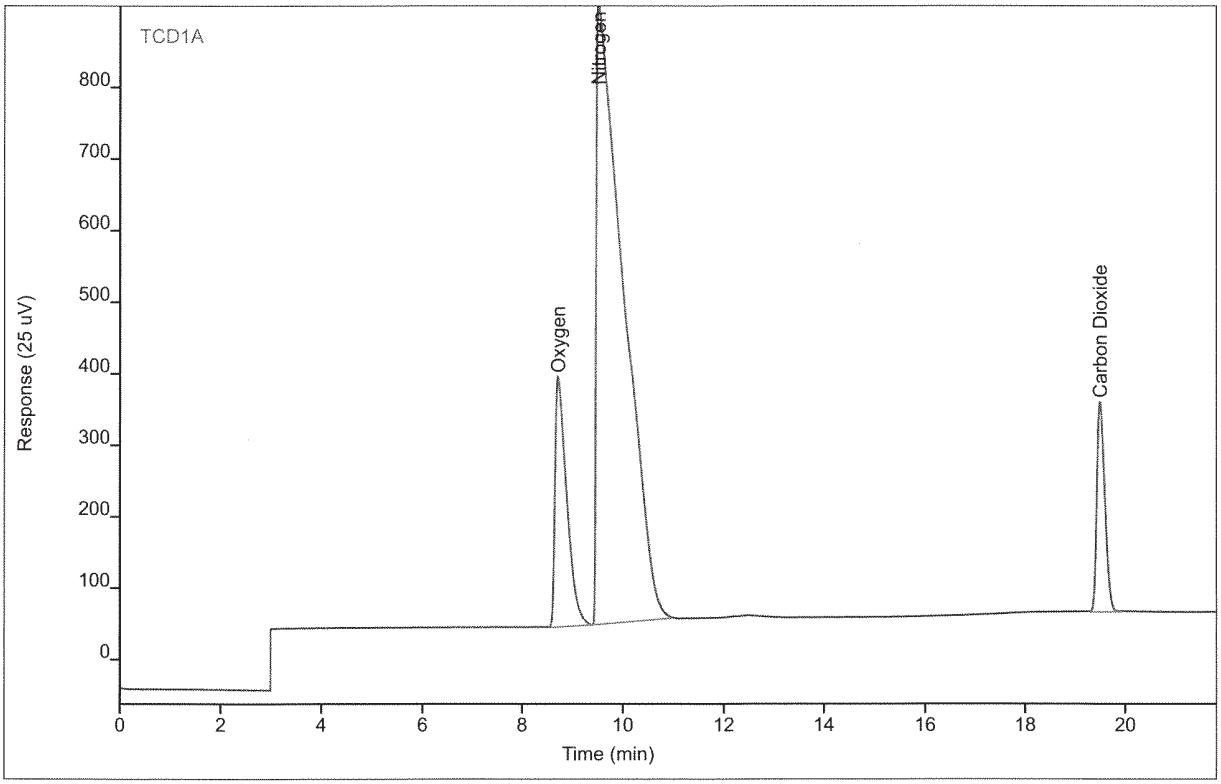
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.70	6000.73	365.670	15.6851	1	15.6851	%
Nitrogen	BB	9.52	31988.2	865.333	75.6228	1	75.6228	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.51	2830.40	257.214	3.91354	1	3.91354	%

Chromatogram Report

Sample Name	0615-125.Large - L3- R3.Bag
Sequence Name	BETTYP212 ver.6
Data File	004F1701.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/28/2015 1:42 PM
File Modified	7/23/2015 3:14 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 4
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



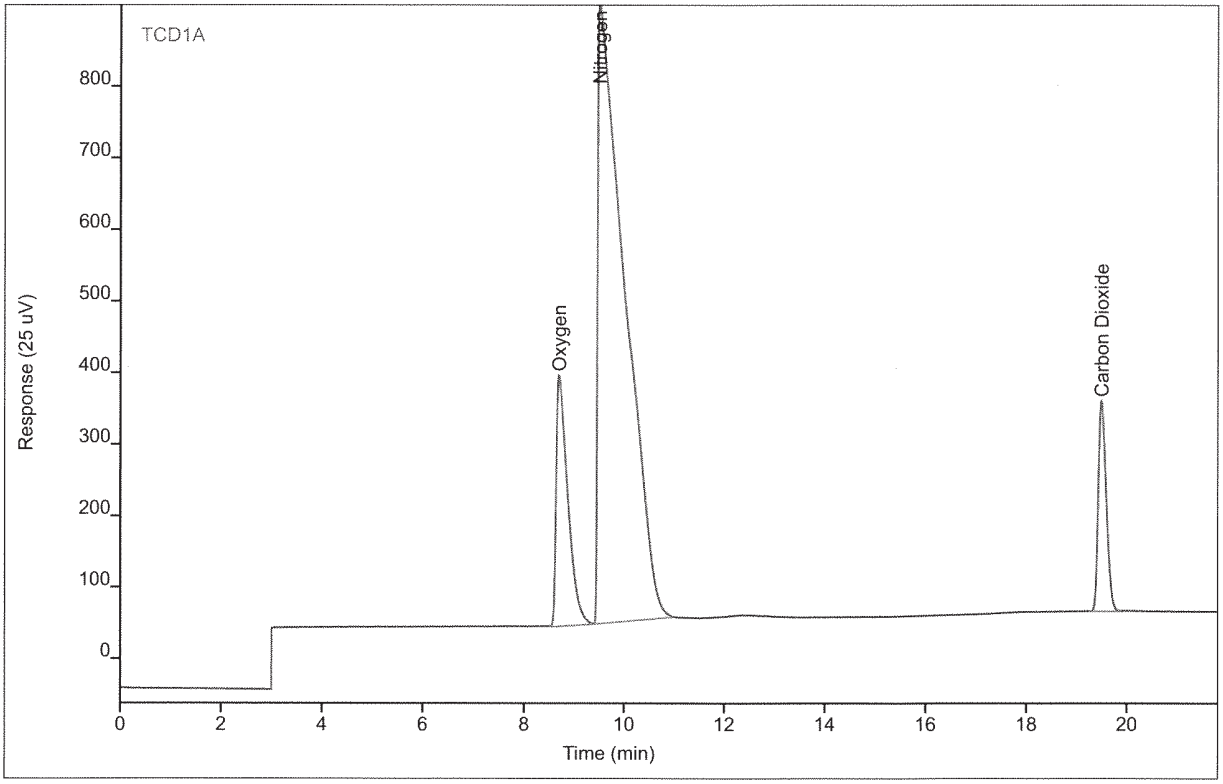
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.71	5673.22	350.266	14.8276	1	14.8276	%
Nitrogen	BB	9.52	32137.8	868.675	75.9764	1	75.9764	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.50	3264.51	293.979	4.52273	1	4.52273	%

Chromatogram Report

Enthalpy Analytical

Sample Name	0615-125.Large - L3- R3.Bag
Sequence Name	BETTYP212 ver.6
Data File	004F1702.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/28/2015 2:10 PM
File Modified	7/23/2015 3:14 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Sample
Vial Number	Vial 4
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



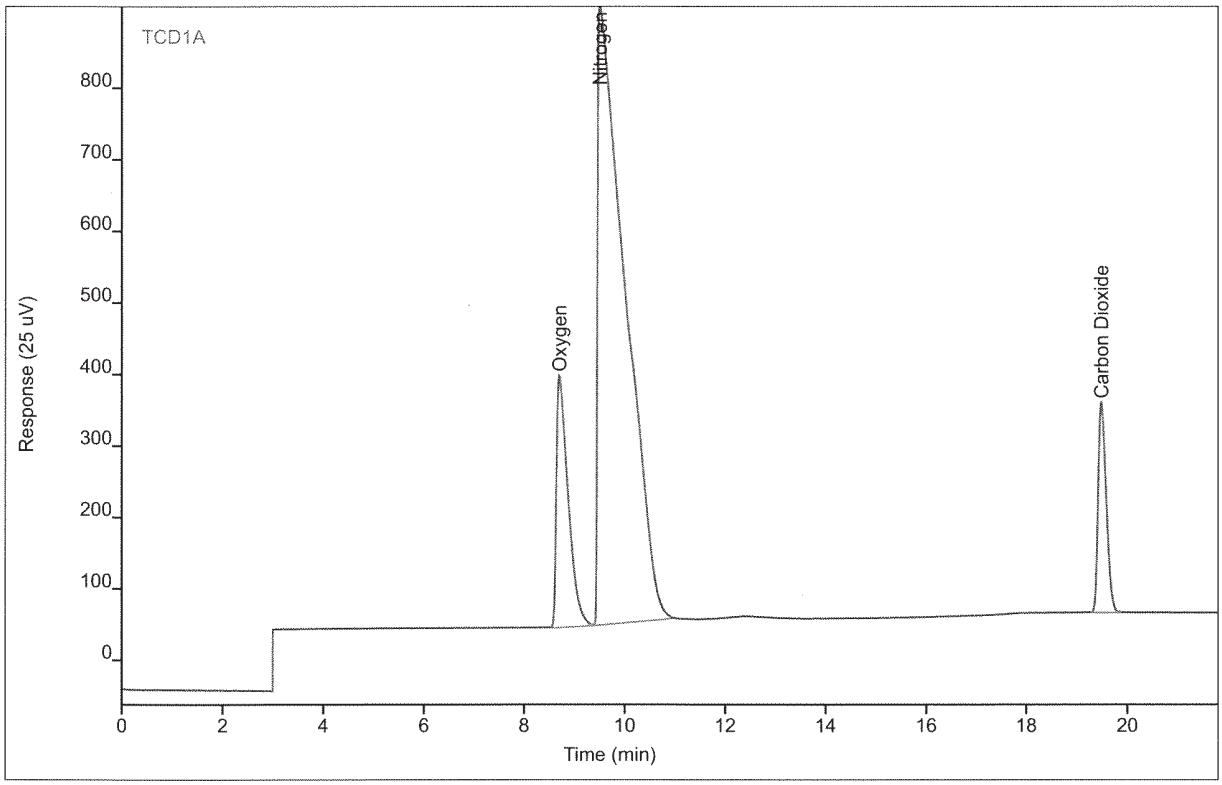
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.71	5675.43	351.084	14.8334	1	14.8334	%
Nitrogen	BB	9.52	32167.5	870.230	76.0467	1	76.0467	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.50	3261.28	294.215	4.51819	1	4.51819	%

Chromatogram Report

Sample Name	0615-125.Large - L3- R3.Bag
Sequence Name	BETTYP212 ver.6
Data File	004F1703.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/28/2015 2:38 PM
File Modified	7/23/2015 3:14 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 4
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



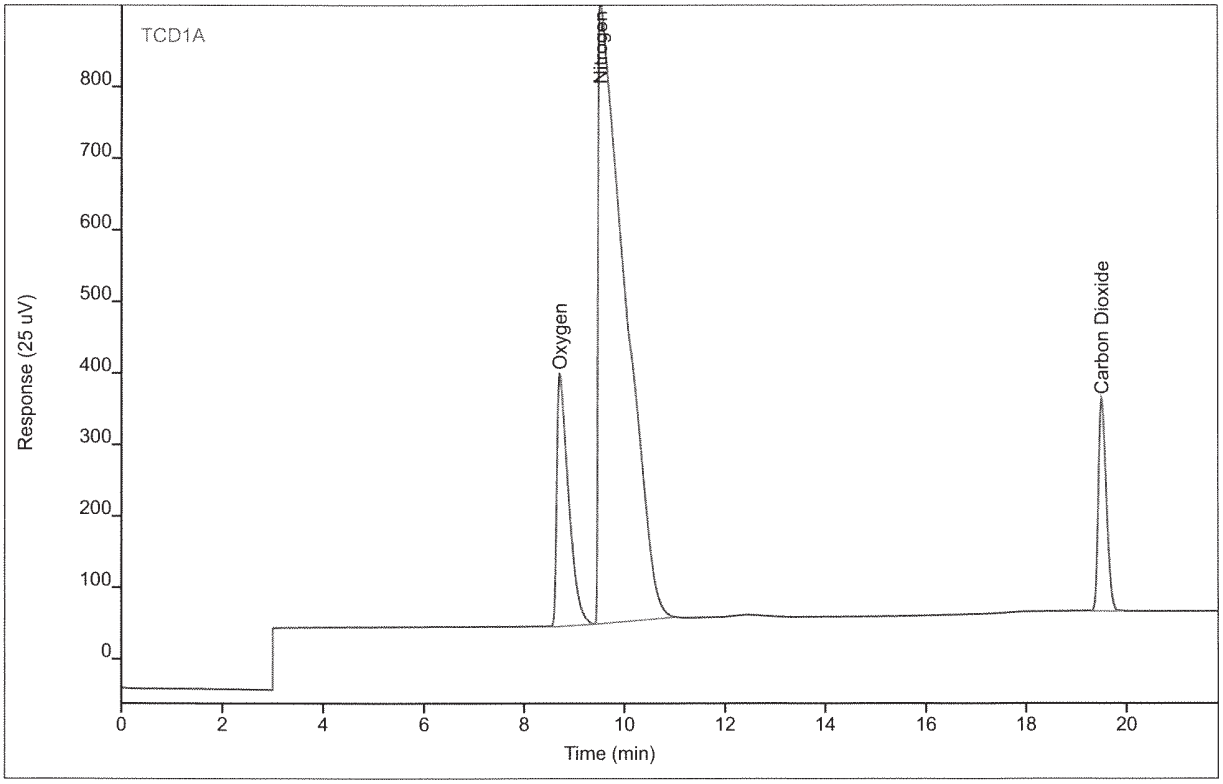
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.71	5711.42	352.470	14.9276	1	14.9276	%
Nitrogen	BB	9.51	32340.4	869.203	76.4553	1	76.4553	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.50	3265.92	293.783	4.52470	1	4.52470	%

Chromatogram Report

Sample Name	0615-125.Large - L4- R3.Bag
Sequence Name	BETTYP212 ver.6
Data File	005F1801.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/28/2015 3:05 PM
File Modified	7/23/2015 3:14 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 5
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



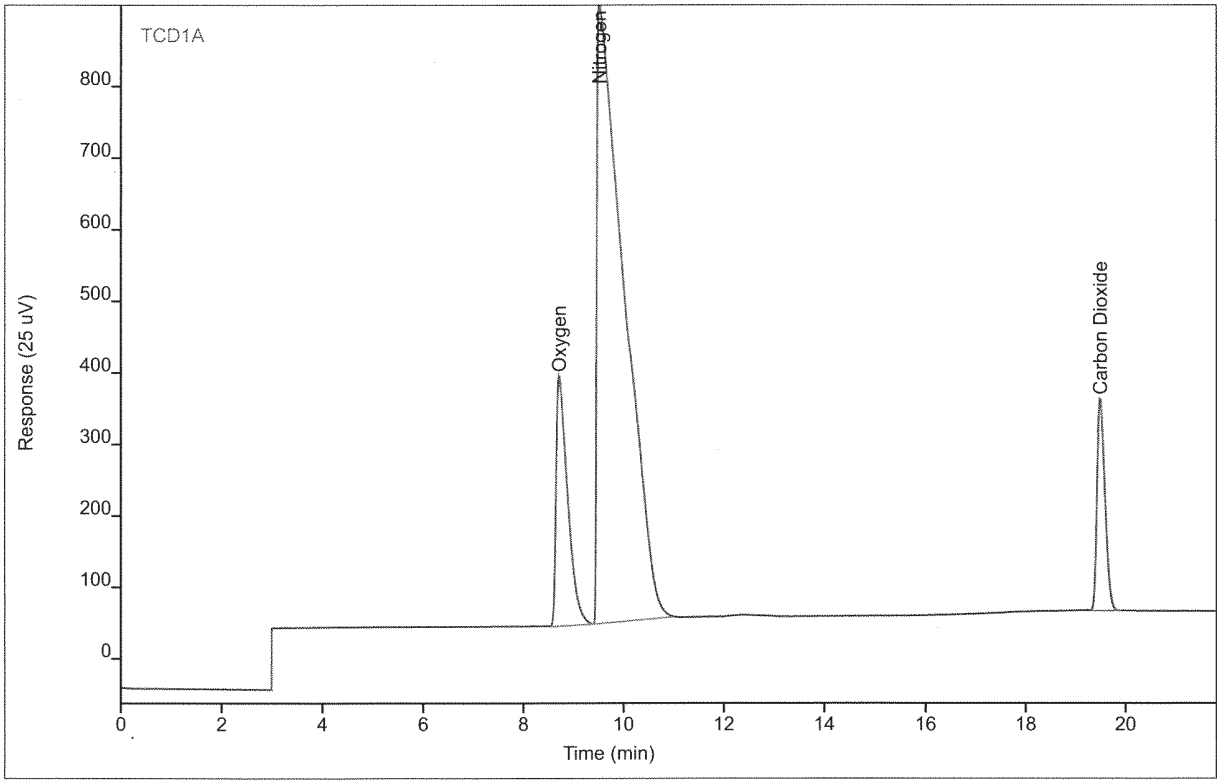
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.71	5693.35	353.630	14.8803	1	14.8803	%
Nitrogen	BB	9.52	32381.3	871.457	76.5521	1	76.5521	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.50	3296.71	297.598	4.56791	1	4.56791	%

Chromatogram Report

Sample Name	0615-125.Large - L4- R3.Bag
Sequence Name	BETTYP212 ver.6
Data File	005F1802.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/28/2015 3:33 PM
File Modified	7/23/2015 3:15 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 5
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



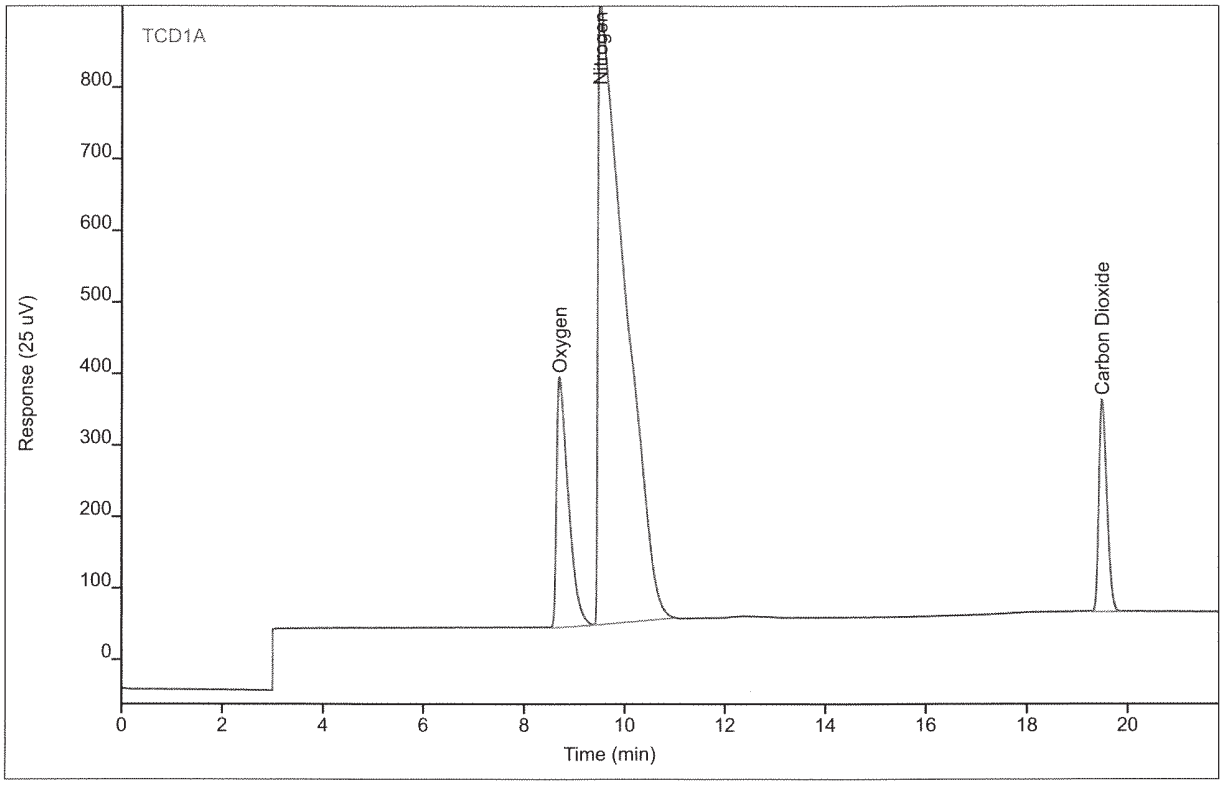
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.71	5668.36	350.167	14.8148	1	14.8148	%
Nitrogen	BB	9.52	32219.2	868.190	76.1688	1	76.1688	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.50	3290.66	296.797	4.55942	1	4.55942	%

Chromatogram Report

Sample Name	0615-125.Large - L4- R3.Bag
Sequence Name	BETTYP212 ver.6
Data File	005F1803.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/28/2015 4:01 PM
File Modified	7/23/2015 3:15 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 5
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



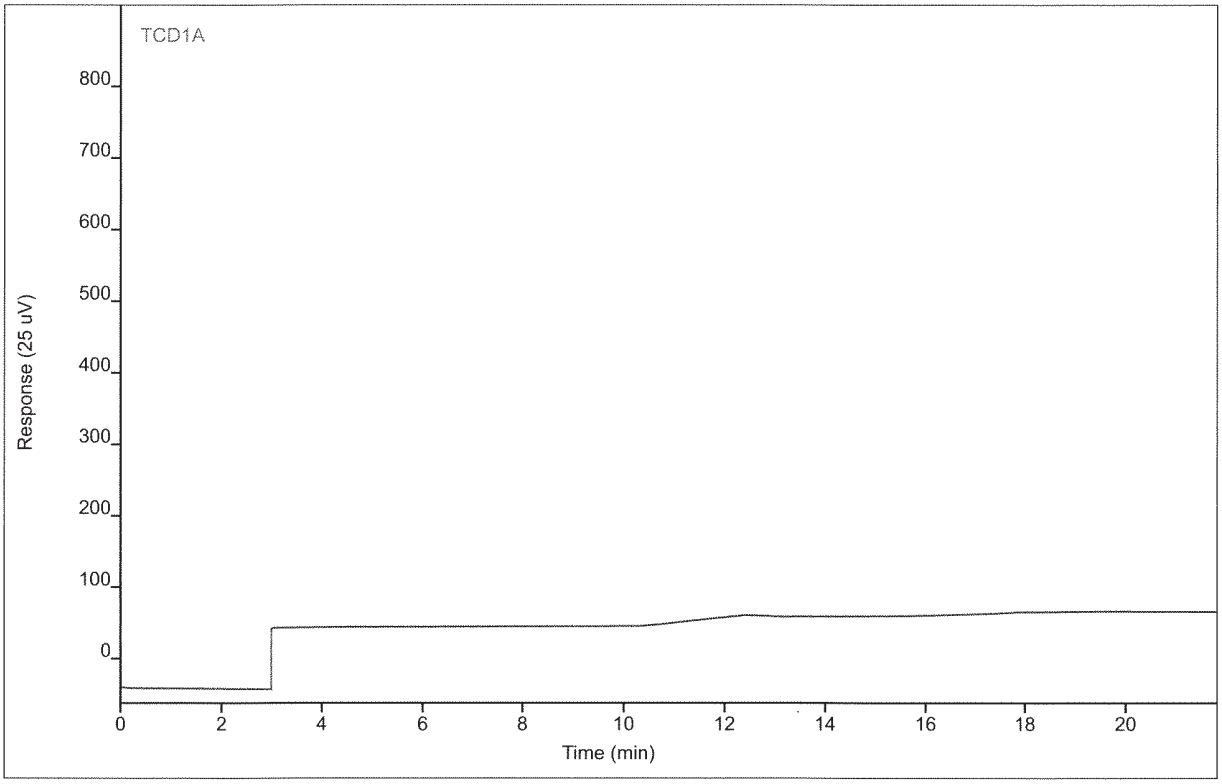
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.71	5663.31	350.185	14.8016	1	14.8016	%
Nitrogen	BB	9.51	32226.2	869.208	76.1855	1	76.1855	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.50	3290.12	297.056	4.55866	1	4.55866	%

Chromatogram Report

Enthalpy Analytical

Sample Name	He Blank #LB
Sequence Name	BETTYP212 ver.6
Data File	001F2601.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/29/2015 2:16 AM
File Modified	7/23/2015 1:10 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Sample
Vial Number	Vial 1
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



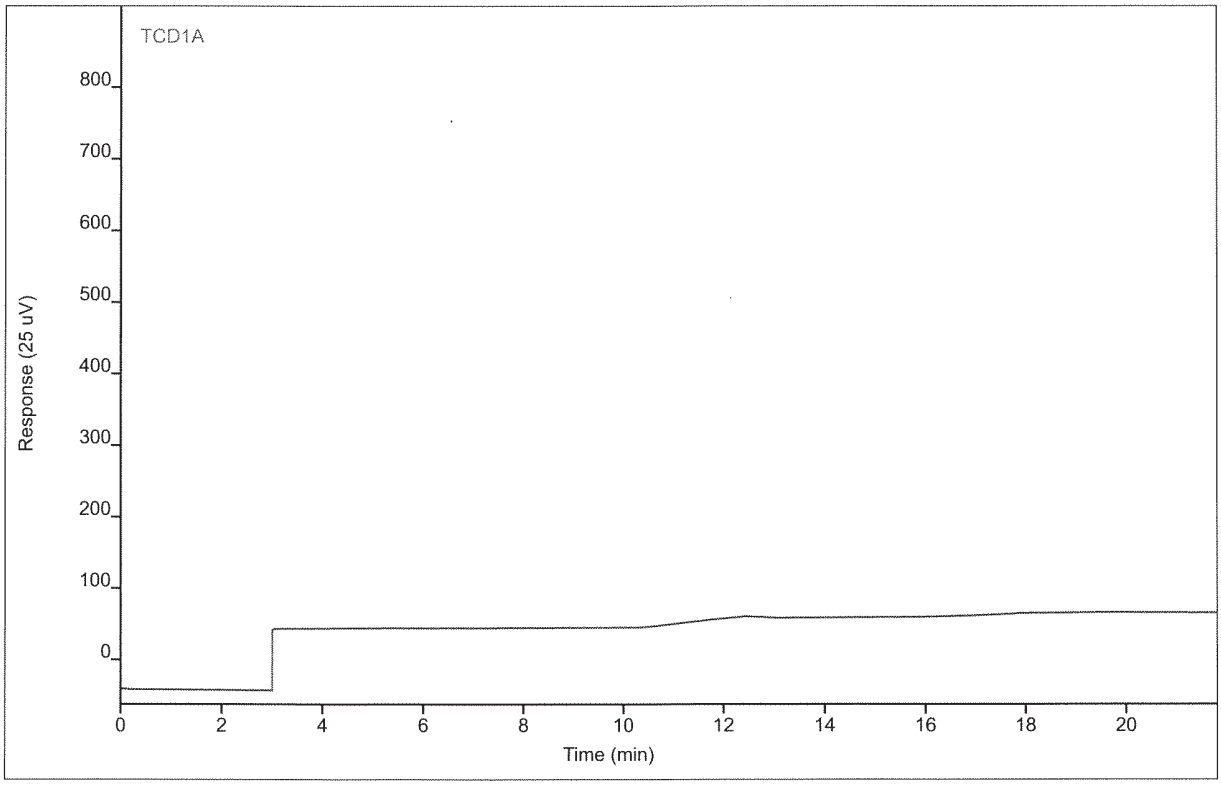
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen		(8.97)				1		
Nitrogen		(10.13)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	He Blank #LB
Sequence Name	BETTYP212 ver.6
Data File	001F2602.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/29/2015 2:44 AM
File Modified	7/23/2015 1:10 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Sample
Vial Number	Vial 1
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



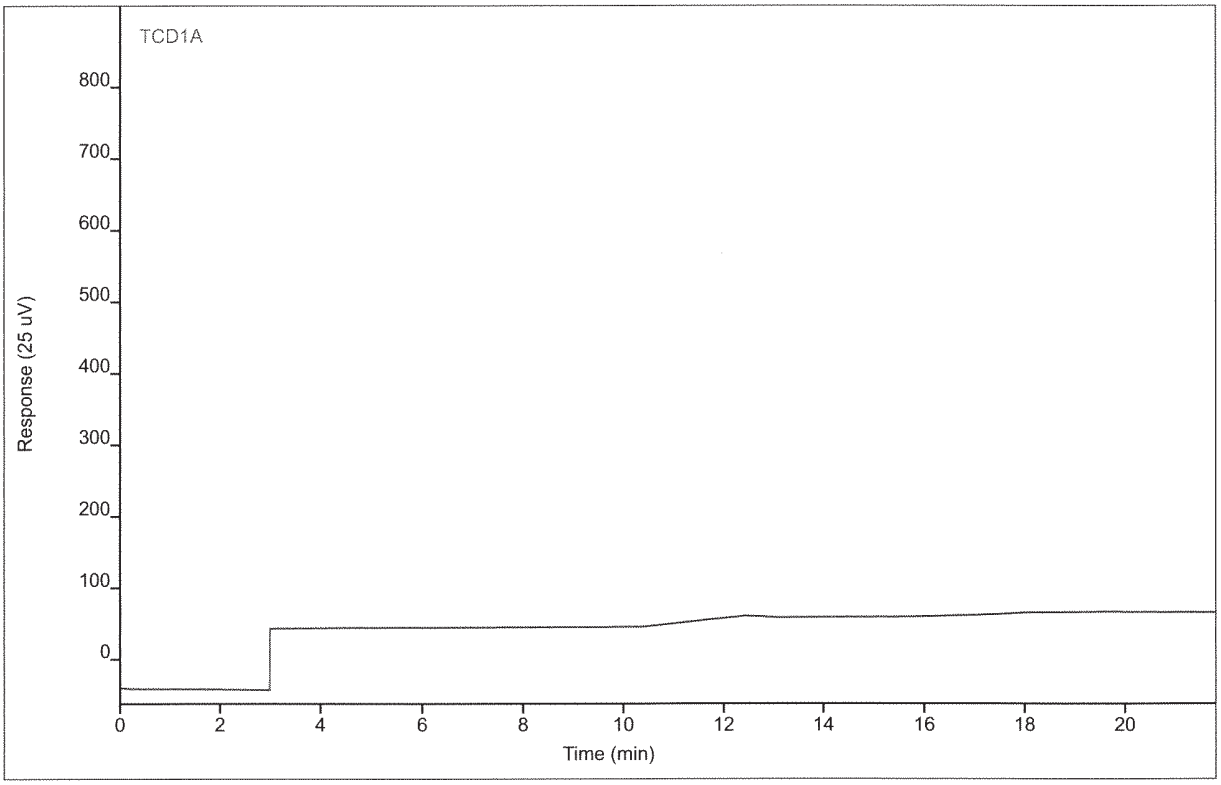
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen		(8.97)				1		
Nitrogen		(10.13)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Sample Name	He Blank #LB
Sequence Name	BETTYP212 ver.6
Data File	001F2603.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/29/2015 3:12 AM
File Modified	7/23/2015 1:10 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 1
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



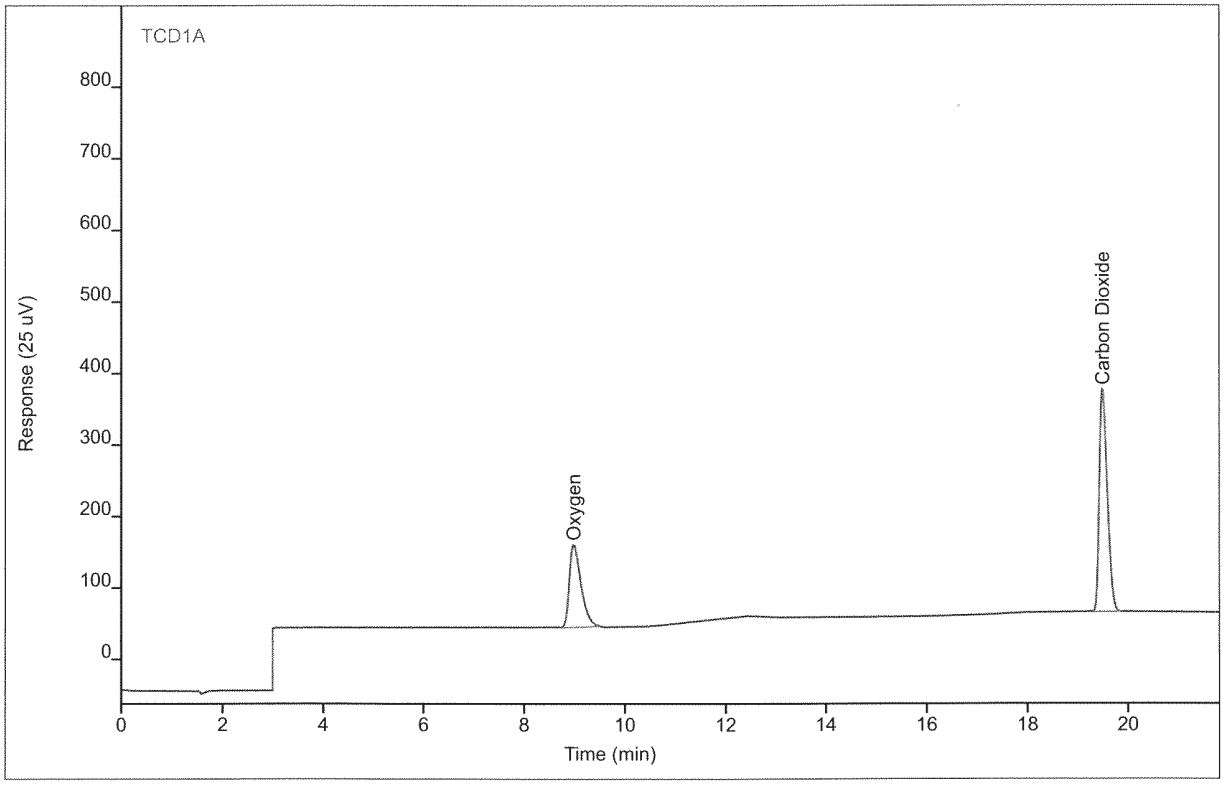
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen		(8.97)				1		
Nitrogen		(10.13)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)
Sequence Name	BETTYP212 ver.6
Data File	009F2701.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/29/2015 3:43 AM
File Modified	7/23/2015 1:10 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



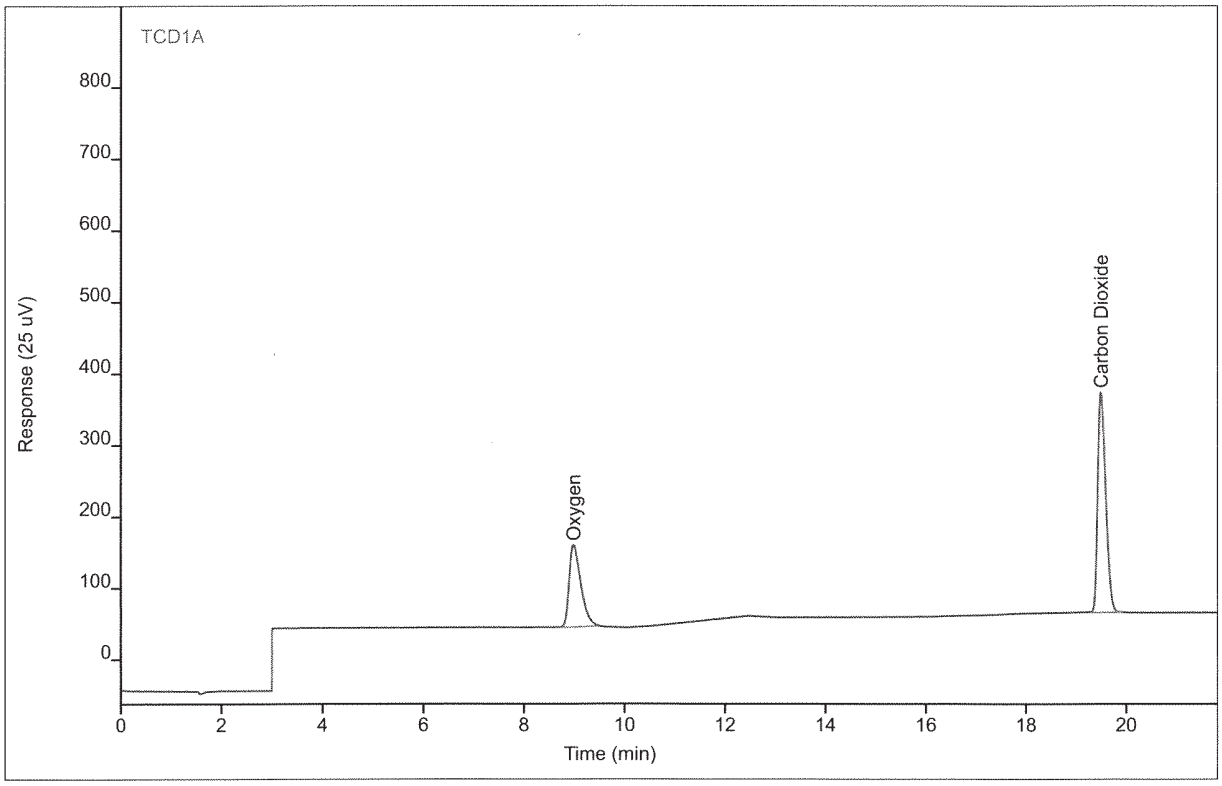
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	8.98	1889.26	116.098	4.91939	1	4.91939	%
Carbon Dioxide	MM	19.49	3471.30	311.611	4.81291	1	4.81291	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)
Sequence Name	BETTYP212 ver.6
Data File	009F2702.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/29/2015 4:13 AM
File Modified	7/23/2015 1:10 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



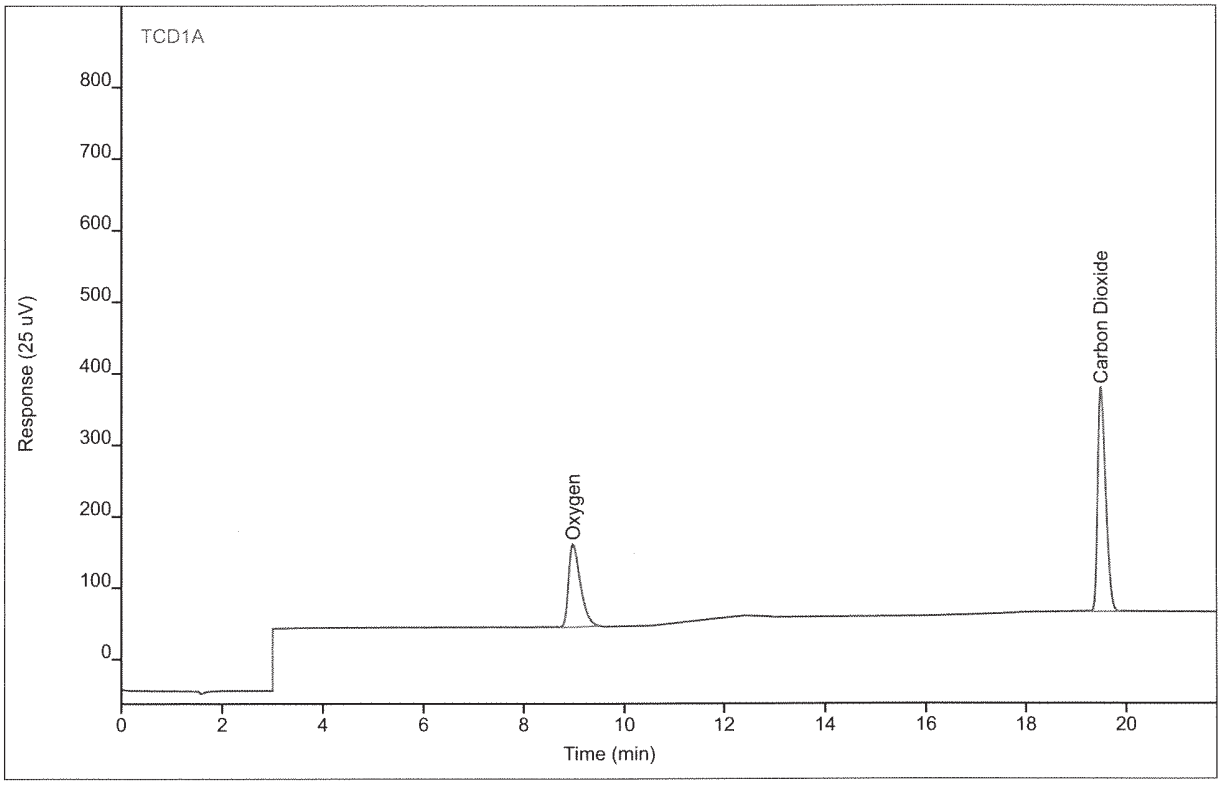
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	8.98	1869.02	114.962	4.86639	1	4.86639	%
Carbon Dioxide	MM	19.49	3447.05	308.457	4.77888	1	4.77888	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)
Sequence Name	BETTYP212 ver.6
Data File	009F2703.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/29/2015 4:44 AM
File Modified	7/23/2015 1:10 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



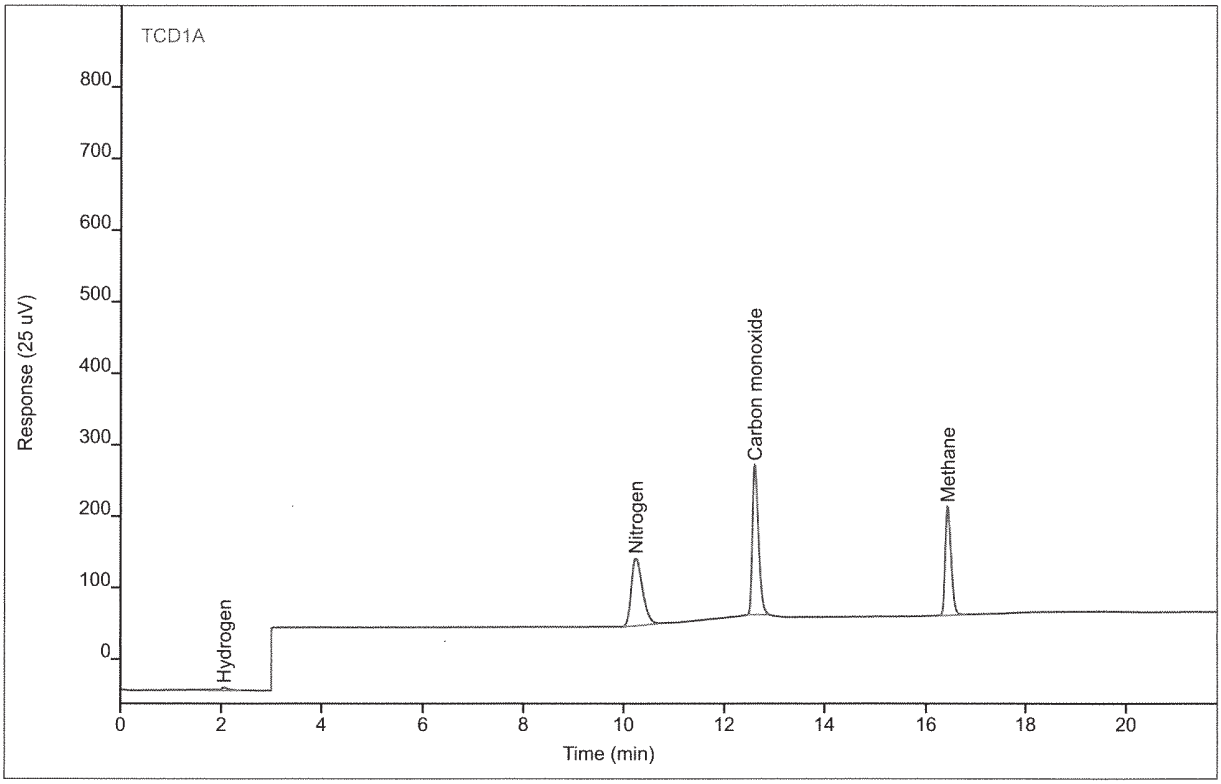
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	8.98	1888.55	115.998	4.91753	1	4.91753	%
Carbon Dioxide	MM	19.49	3481.61	313.084	4.82738	1	4.82738	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP212 ver.6
Data File	009F2801.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/29/2015 5:14 AM
File Modified	7/23/2015 1:10 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



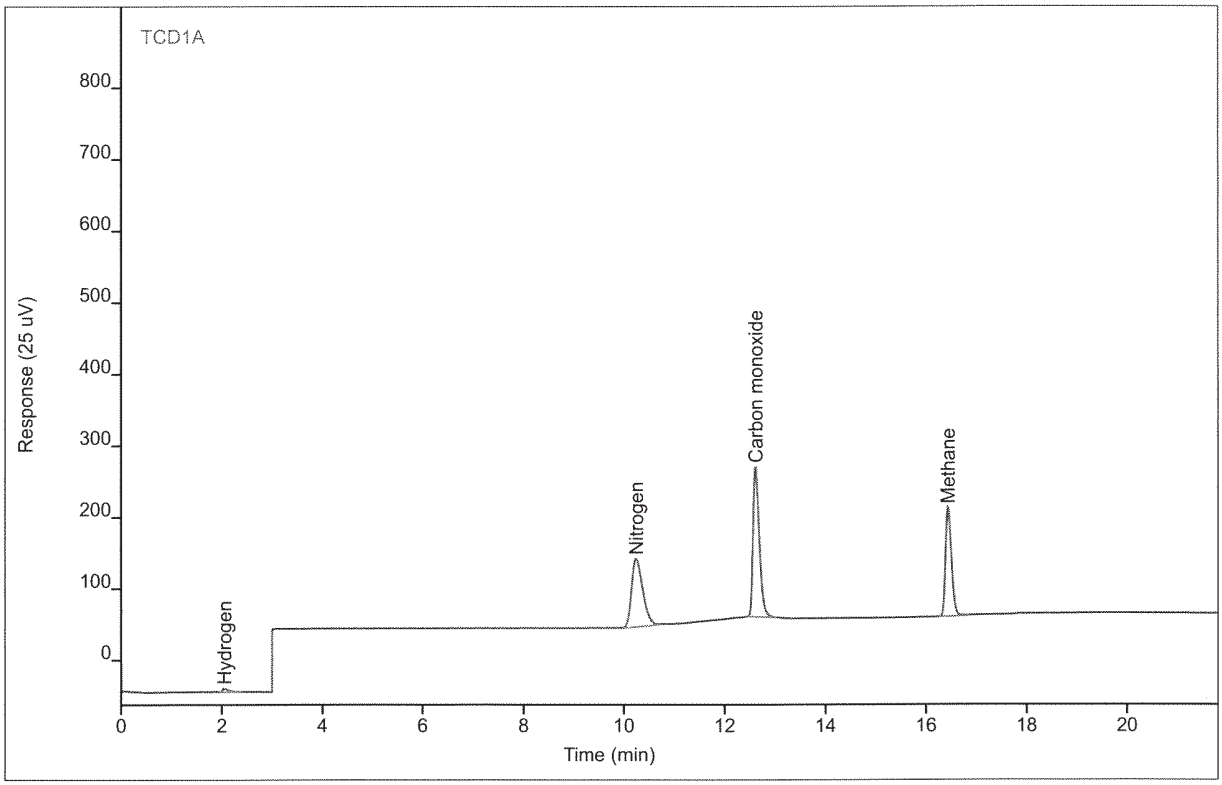
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.06	42.1474	4.96876	2.97179	1	2.97179	%
Nitrogen	BB	10.25	1476.60	95.2207	3.49049	1	3.49049	%
Carbon monoxide	MM	12.62	1766.60	209.626	3.34589	1	3.34589	%
Methane	MM	16.44	1250.14	152.613	2.76694	1	2.76694	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP212 ver.6
Data File	009F2802.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/29/2015 5:44 AM
File Modified	7/23/2015 1:11 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



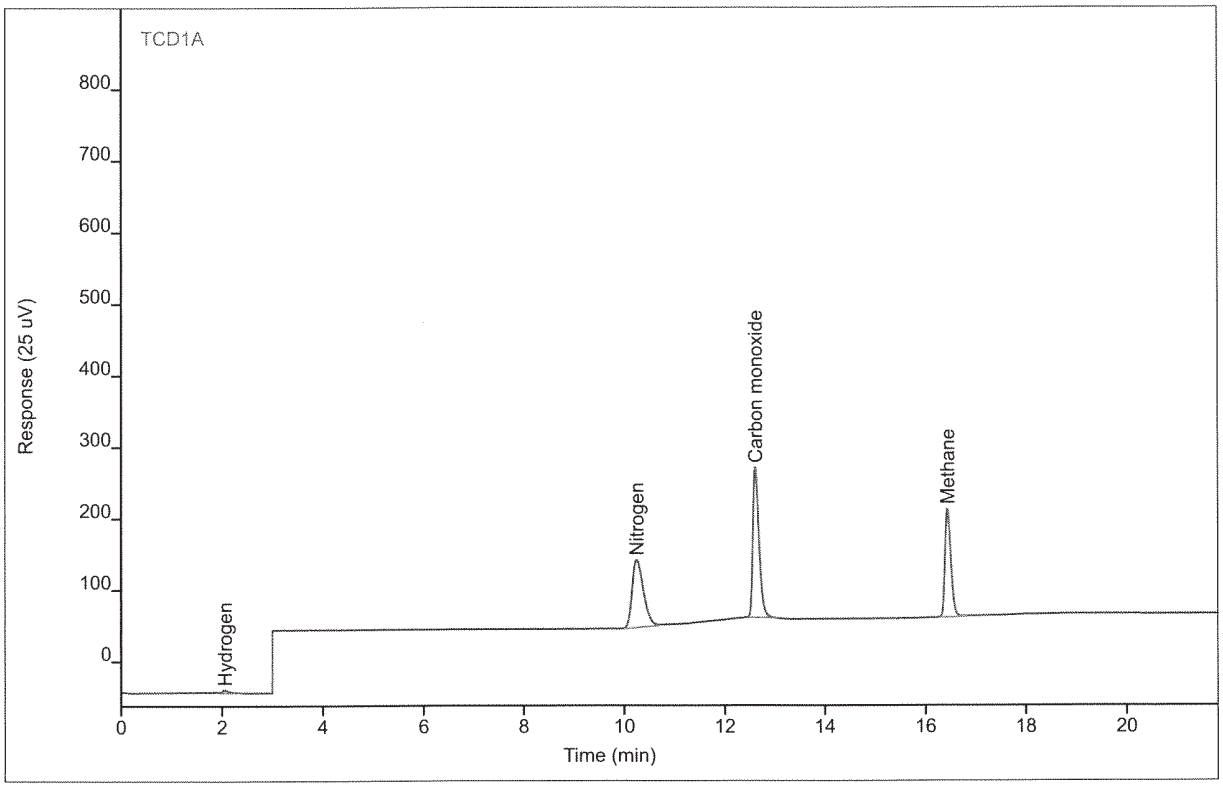
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.06	41.7474	4.93907	2.94367	1	2.94367	%
Nitrogen	BB	10.25	1481.26	95.4494	3.50152	1	3.50152	%
Carbon monoxide	MM	12.62	1815.33	209.957	3.43837	1	3.43837	%
Methane	MM	16.44	1244.82	152.133	2.75509	1	2.75509	%

Chromatogram Report

Sample Name	BettyP191 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP212 ver.6
Data File	009F2803.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/29/2015 6:15 AM
File Modified	7/23/2015 1:11 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:56 PM
Printed	7/23/2015 3:29 PM



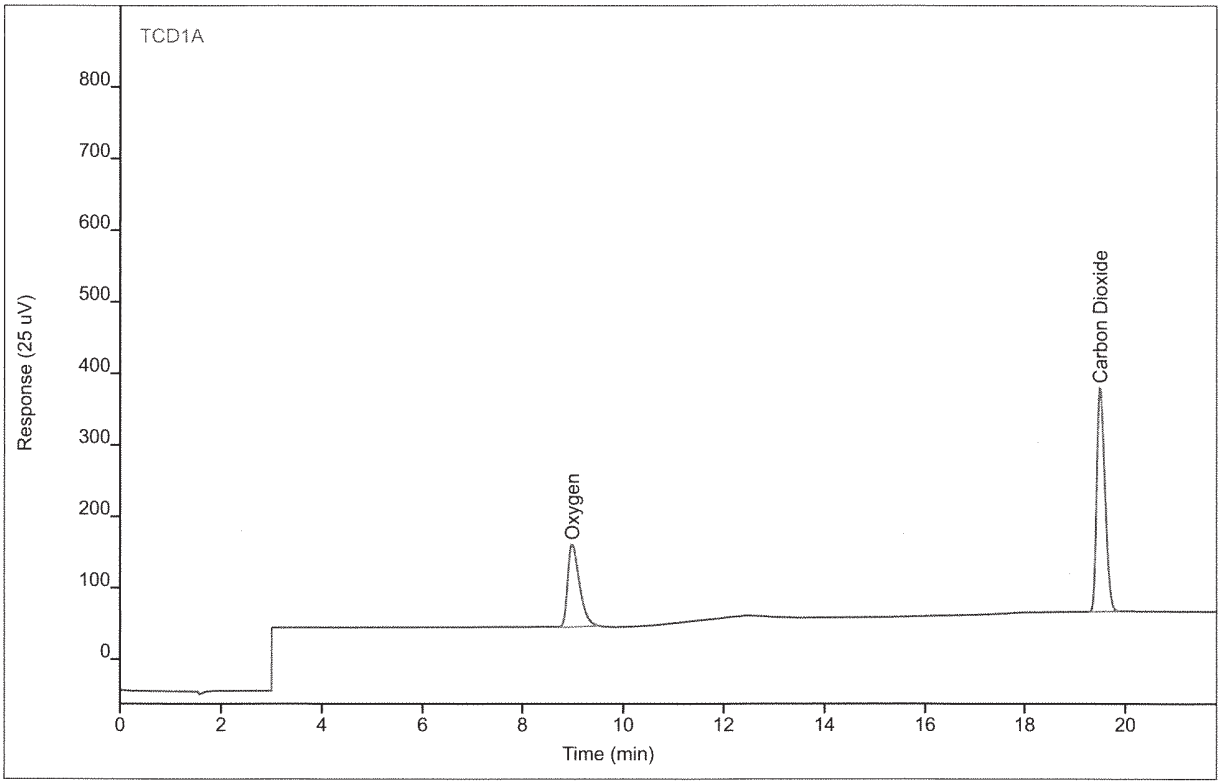
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.06	40.6377	4.87909	2.86567	1	2.86567	%
Nitrogen	BB	10.25	1475.34	95.2201	3.48752	1	3.48752	%
Carbon monoxide	MM	12.62	1810.68	210.378	3.42953	1	3.42953	%
Methane	MM	16.44	1246.05	152.193	2.75781	1	2.75781	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)
Sequence Name	BETTYP212B ver.7
Data File	009F0301.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/29/2015 3:47 PM
File Modified	7/23/2015 1:15 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 6
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 3:15 PM
Printed	7/23/2015 3:29 PM



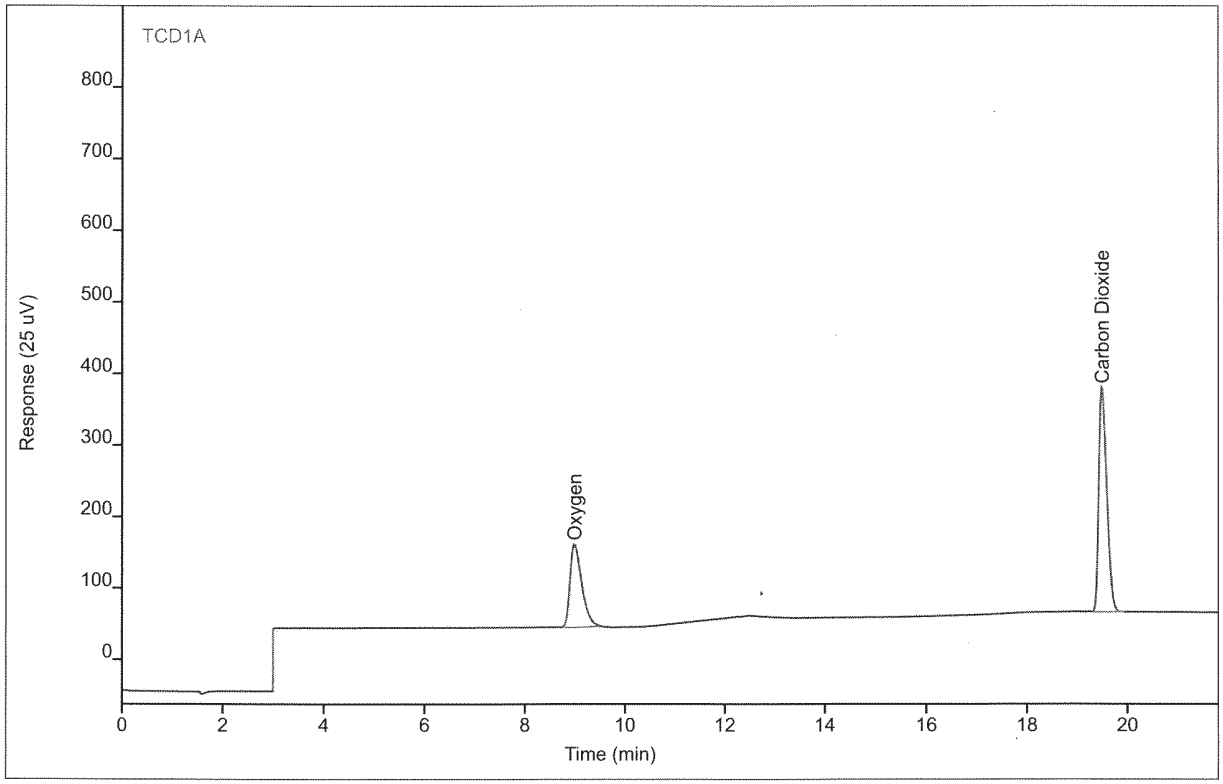
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	8.98	1883.69	116.194	4.90481	1	4.90481	%
Carbon Dioxide	MM	19.49	3505.61	313.790	4.86106	1	4.86106	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)
Sequence Name	BETTYP212B ver.7
Data File	009F0302.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/29/2015 4:17 PM
File Modified	7/23/2015 1:15 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 6
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 3:15 PM
Printed	7/23/2015 3:29 PM



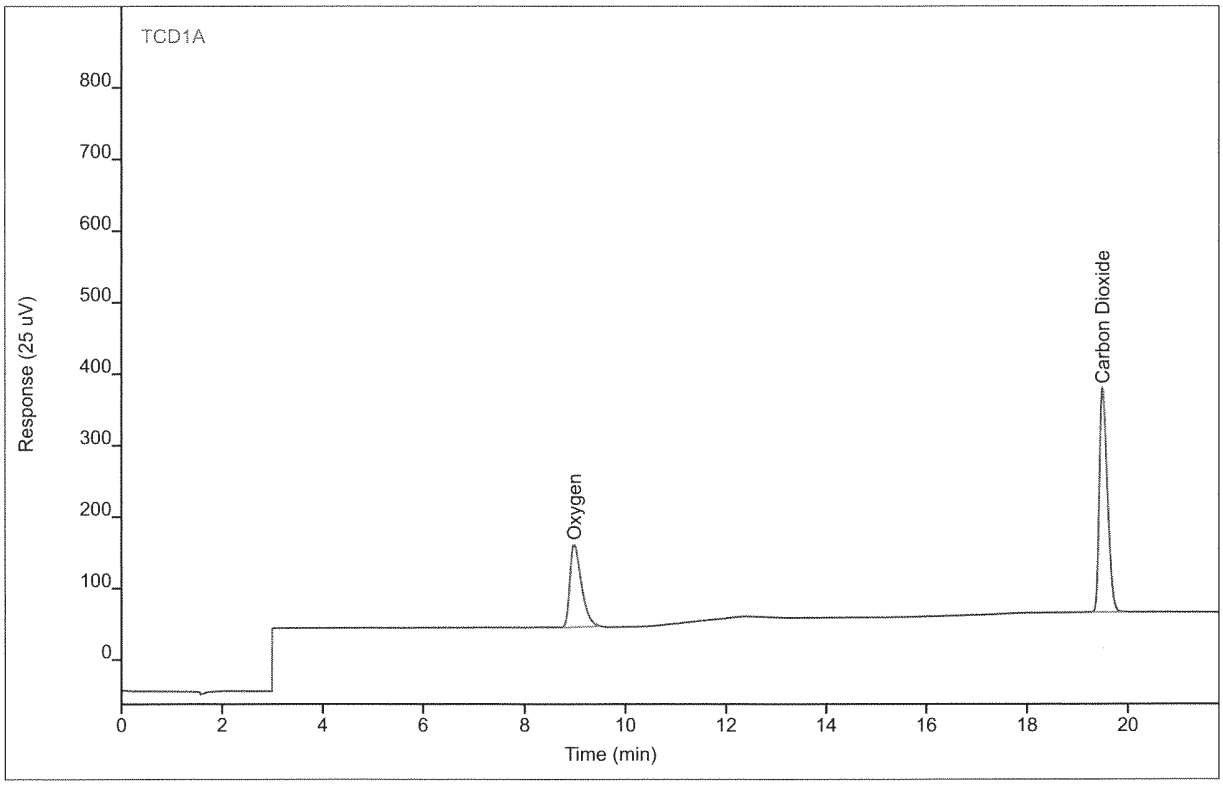
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	8.99	1892.25	116.120	4.92721	1	4.92721	%
Carbon Dioxide	MM	19.50	3506.27	314.003	4.86198	1	4.86198	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)
Sequence Name	BETTYP212B ver.7
Data File	009F0303.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/29/2015 4:47 PM
File Modified	7/23/2015 1:15 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 6
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 3:15 PM
Printed	7/23/2015 3:29 PM



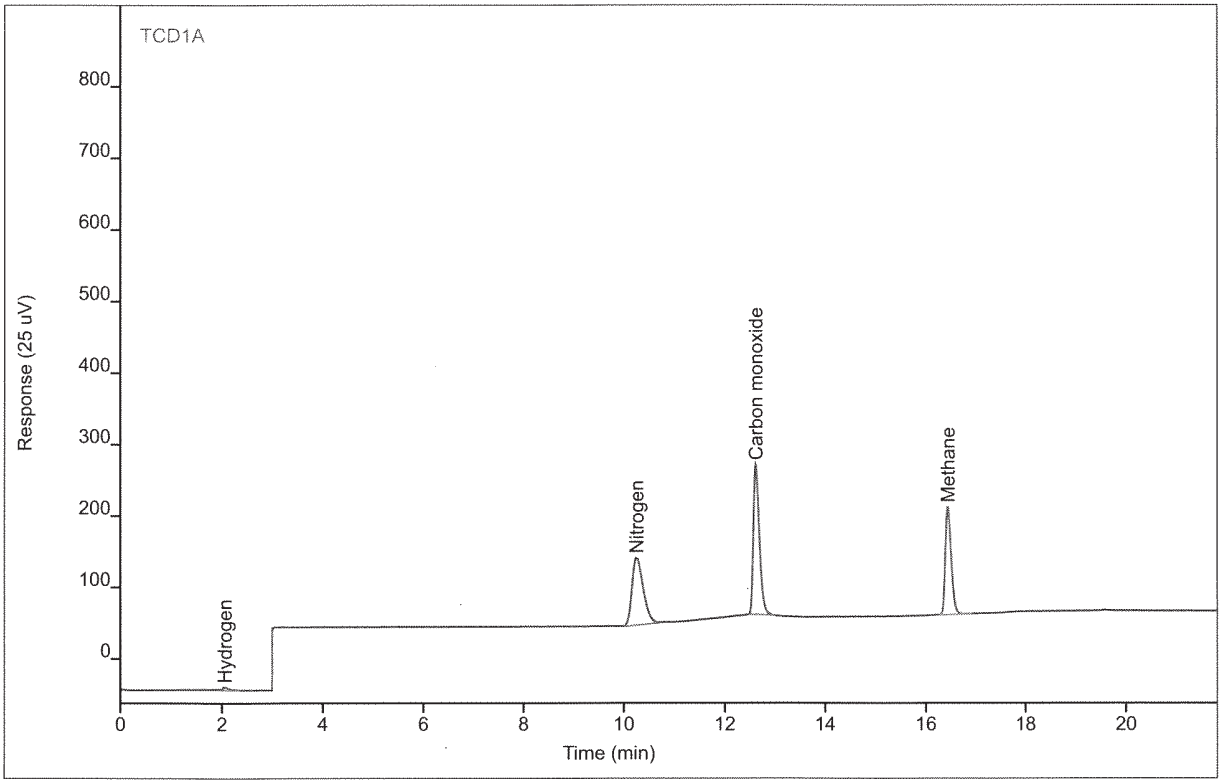
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	8.98	1886.13	116.377	4.91121	1	4.91121	%
Carbon Dioxide	MM	19.49	3507.92	313.868	4.86429	1	4.86429	%

Chromatogram Report

Sample Name	BettyP191 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP212B ver.7
Data File	009F0401.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/29/2015 6:47 PM
File Modified	7/23/2015 1:16 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 6
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 3:15 PM
Printed	7/23/2015 3:29 PM



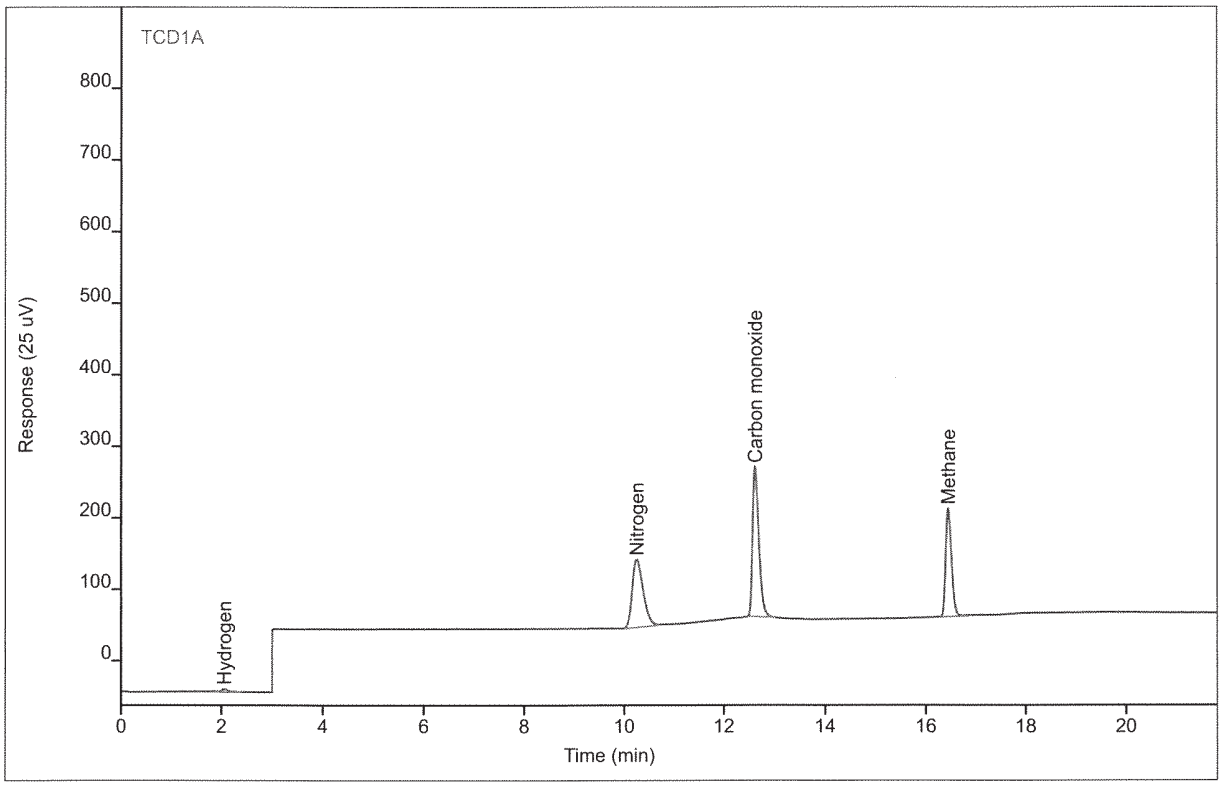
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.06	40.1236	4.85627	2.82953	1	2.82953	%
Nitrogen	BB	10.25	1469.89	94.9987	3.47463	1	3.47463	%
Carbon monoxide	MM	12.62	1793.56	210.203	3.39705	1	3.39705	%
Methane	MM	16.45	1246.05	151.576	2.75782	1	2.75782	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP212B ver.7
Data File	009F0402.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/29/2015 7:17 PM
File Modified	7/23/2015 1:16 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 6
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 3:15 PM
Printed	7/23/2015 3:29 PM



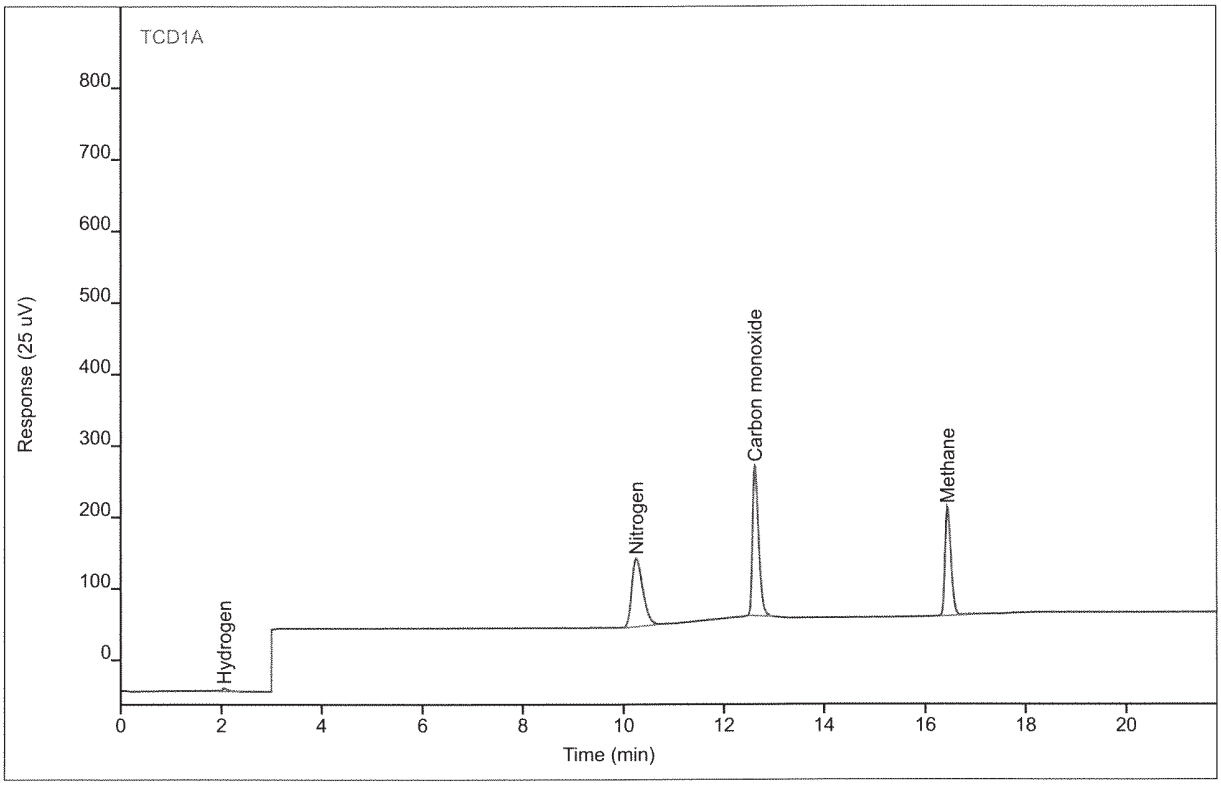
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.06	41.1647	4.88465	2.90271	1	2.90271	%
Nitrogen	BB	10.25	1472.26	95.2265	3.48024	1	3.48024	%
Carbon monoxide	MM	12.62	1795.54	209.404	3.40081	1	3.40081	%
Methane	MM	16.44	1239.13	151.320	2.74241	1	2.74241	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP212B ver.7
Data File	009F0403.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/29/2015 7:47 PM
File Modified	7/23/2015 1:16 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 6
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 3:15 PM
Printed	7/23/2015 3:29 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.06	39.3984	4.81117	2.77856	1	2.77856	%
Nitrogen	BB	10.25	1481.74	95.4515	3.50265	1	3.50265	%
Carbon monoxide	MM	12.62	1791.14	209.832	3.39247	1	3.39247	%
Methane	MM	16.45	1243.15	151.490	2.75135	1	2.75135	%

Calibration Table

Calib. Data Modified : 7/23/2015 10:28:55 AM

Rel. Reference Window : 2.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 2.000 %
Abs. Non-ref. Window : 0.200 min
Uncalibrated Peaks : not reported
Partial Calibration : Yes, identified peaks are recalibrated
Correct All Ret. Times: No, only for identified peaks

Curve Type : Linear
Origin : Connected
Weight : Quadratic (Amnt)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Signal 1: TCD1 A,
Signal 2: FID2 B,

RetTime [min]	Sig	Lvl	Amount [%]	Area	Amt/Area	Ref	Grp	Name
2.066	1	5	3.10000e-1	4.29596	7.21608e-2			Hydrogen
		6	7.90000e-1	10.95397	7.21199e-2			
		7	2.76000	39.63594	6.96338e-2			
		8	8.20000	116.15842	7.05932e-2			
8.903	1	1	5.44000e-1	215.66828	2.52239e-3			Oxygen
		2	1.33000	532.64663	2.49697e-3			
		3	4.81000	1881.28426	2.55676e-3			
		4	10.01000	3778.10091	2.64948e-3			
		23	99.99900	3.74652e4	2.66912e-3			
10.130	1	5	3.80000e-1	158.57031	2.39641e-3			Nitrogen
		6	9.60000e-1	417.95578	2.29689e-3			
		7	3.37000	1470.46065	2.29180e-3			
		8	10.00000	4171.89779	2.39699e-3			
		22	99.90000	4.08941e4	2.44290e-3			
12.661	1	5	3.80000e-1	201.54537	1.88543e-3			Carbon monoxide
		6	9.60000e-1	520.52222	1.84430e-3			
		7	3.37000	1820.15723	1.85149e-3			
		8	10.00000	5087.61963	1.96556e-3			
16.472	1	5	3.10000e-1	146.13598	2.12131e-3			Methane
		6	7.70000e-1	362.51900	2.12403e-3			
		7	2.70000	1249.25891	2.16128e-3			
		8	8.00000	3464.31649	2.30926e-3			
19.573	1	1	5.44000e-1	423.74036	1.28381e-3			Carbon Dioxide
		2	1.33000	1022.49255	1.30074e-3			
		3	4.81000	3525.11686	1.36449e-3			
		4	10.01000	6909.76790	1.44867e-3			

More compound-specific settings:

Compound: Hydrogen
  Time Window : From 1.947 min To 2.184 min

Compound: Oxygen
  Time Window : From 8.620 min To 9.059 min

Compound: Nitrogen
  Time Window : From 9.790 min To 10.330 min

Compound: Carbon monoxide
  Time Window : From 12.061 min To 12.811 min

Compound: Methane
  Time Window : From 16.054 min To 16.822 min

Compound: Carbon Dioxide
  Time Window : From 18.958 min To 19.804 min

==========

Peak Sum Table

==========

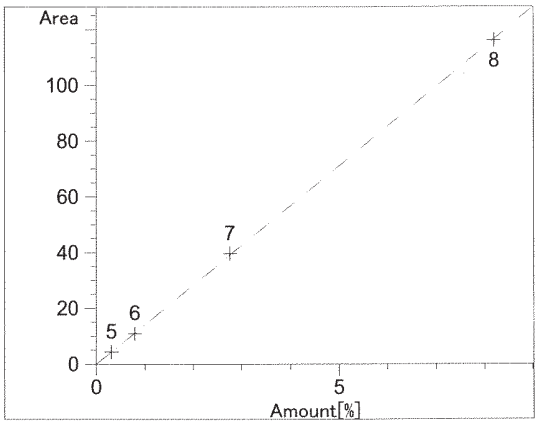
No Entries in table

==========

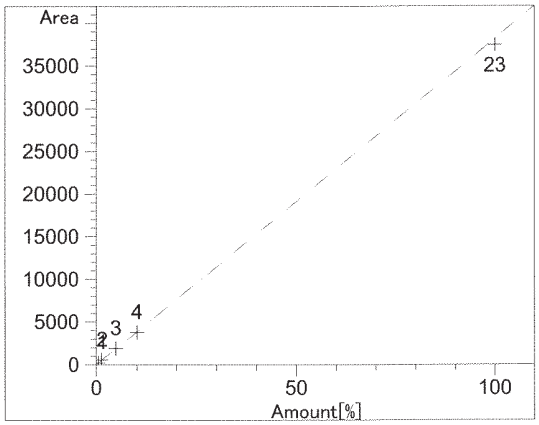
==========

Calibration Curves

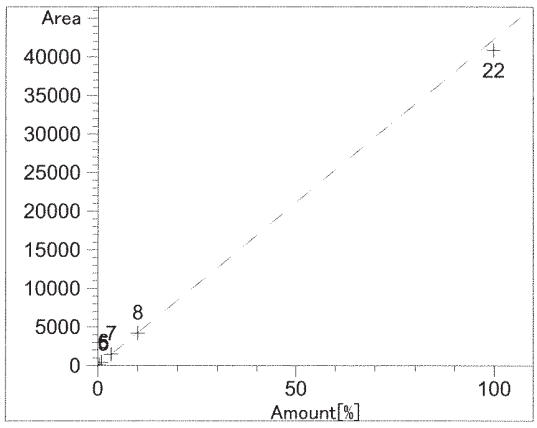
==========



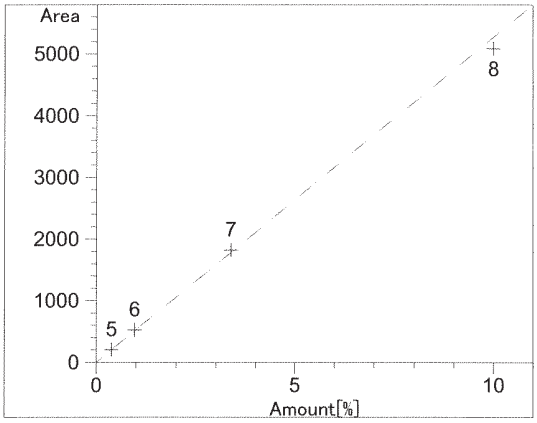
Hydrogen at exp. RT: 2.066
TCD1 A,
Correlation: 0.99990
Residual Std. Dev.: 0.45437
Formula: y = mx + b
m: 14.22701
b: -1.32198e-1
x: Amount
y: Area
Calibration Level Weights:
Level 5 : 1
Level 6 : 0.153982
Level 7 : 0.012616
Level 8 : 0.001429



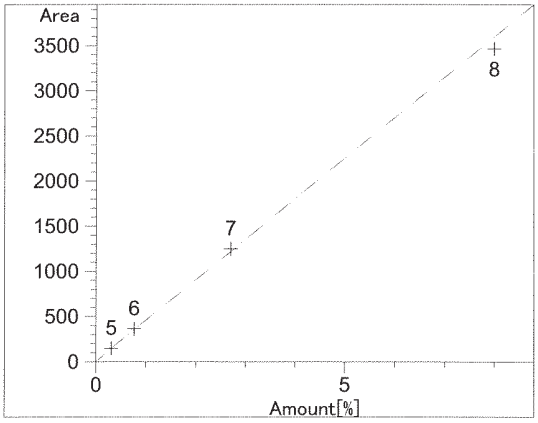
Oxygen at exp. RT: 8.903
TCD1 A,
Correlation: 0.99968
Residual Std. Dev.: 426.21037
Formula: y = mx + b
m: 381.90247
b: 10.53345
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.167299
Level 3 : 0.012791
Level 4 : 0.002953
Level 23 : 0.00003



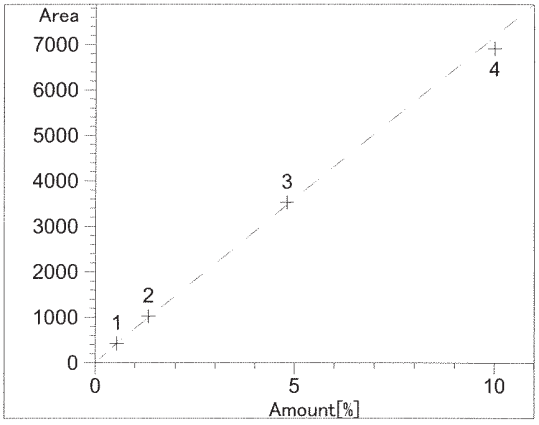
Nitrogen at exp. RT: 10.130
TCD1 A,
Correlation: 0.99945
Residual Std. Dev.: 788.24980
Formula: y = mx + b
m: 422.99506
b: 1.38249e-1
x: Amount
y: Area
Calibration Level Weights:
Level 5 : 1
Level 6 : 0.156684
Level 7 : 0.012715
Level 8 : 0.001444
Level 22 : 0.000014



Carbon monoxide at exp. RT: 12.661
TCD1 A,
Correlation: 0.99939
Residual Std. Dev.: 134.69685
Formula: y = mx + b
m: 527.00169
b: 3.30576
x: Amount
y: Area
Calibration Level Weights:
Level 5 : 1
Level 6 : 0.156684
Level 7 : 0.012715
Level 8 : 0.001444



Methane at exp. RT: 16.472
TCD1 A,
Correlation: 0.99931
Residual Std. Dev.: 97.12926
Formula: y = mx + b
m: 448.71128
b: 8.58451
x: Amount
y: Area
Calibration Level Weights:
Level 5 : 1
Level 6 : 0.162085
Level 7 : 0.013182
Level 8 : 0.001502



Carbon Dioxide at exp. RT: 19.573
TCD1 A,
Correlation: 0.99919
Residual Std. Dev.: 193.00669
Formula: y = mx + b
m: 712.61305
b: 41.55839
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.167299
Level 3 : 0.012791
Level 4 : 0.002953

Enthalpy Analytical

Company: METCO Environmental
Job No.: 0615-125 - EPA Method 3C
Project No.: 15-162

Carbon Dioxide -- Calibration Standards, Laboratory Blanks and Controls

SAMPLE NAME	Filename #1	Filename #2	Filename #3	Analysis Method	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc # 1	Conc # 2	Conc # 3	%dif conc	Avg Conc %	Standard Tag	% Tag
He Blank #LB	001F1801.D	001F1802.D	001F1803.D	BETTYP209_FGA_CRYO.M	NA	NA	NA	NA	0.0544	0.0544	0.0544	0.0	0.0544	NA	NA
BettyP070 #FG3 ENV(1=374.56,2=391.18)	009F1901.D	009F1902.D	009F1903.D	BETTYP209_FGA_CRYO.M	19.49	19.49	19.49	0.0	4.86	4.85	4.88	0.3	4.86	4.81	101
He Blank #LB	001F1101.D	001F1102.D	001F1103.D	BETTYP209_FGA_CRYO.M	NA	NA	NA	NA	0.0544	0.0544	0.0544	0.0	0.0544	NA	NA
BettyP070 #FG3 ENV(1=374.56,2=391.18)	009F1201.D	009F1202.D	009F1203.D	BETTYP209_FGA_CRYO.M	19.49	19.49	19.49	0.0	4.79	4.80	4.80	0.0	4.80	4.81	99.7
He Blank #LB	001F2601.D	001F2602.D	001F2603.D	BETTYP209_FGA_CRYO.M	NA	NA	NA	NA	0.0544	0.0544	0.0544	0.0	0.0544	NA	NA
BettyP070 #FG3 ENV(1=374.56,2=391.18)	009F2701.D	009F2702.D	009F2703.D	BETTYP209_FGA_CRYO.M	19.49	19.49	19.49	0.0	4.81	4.78	4.83	0.6	4.81	4.81	99.9
BettyP070 #FG3 ENV(1=374.56,2=391.18)	009F0301.D	009F0302.D	009F0303.D	BETTYP209_FGA_CRYO.M	19.49	19.50	19.49	0.0	4.86	4.86	4.86	0.0	4.86	4.81	101

Enthalpy Analytical

Company: METCO Environmental
Job No.: 0615-125 - EPA Method 3C
Project No.: 15-162

Carbon monoxide -- Calibration Standards, Laboratory Blanks and Controls

SAMPLE NAME	Filename #1	Filename #2	Filename #3	Analysis Method	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc # 1	Conc # 2	Conc # 3	%dif conc	Avg Conc %	Standard Tag	% Tag
He Blank #LB	001F1801.D	001F1802.D	001F1803.D	BETTYP209_FGA_CRYO.M	NA	NA	NA	NA	0.0380	0.0380	0.0380	0.0	0.0380	NA	NA
BettyP191 #FG7 ENV(1=530,3=319.09)	009F2001.D	009F2002.D	009F2003.D	BETTYP209_FGA_CRYO.M	12.61	12.61	12.61	0.0	3.42	3.43	3.42	0.2	3.42	3.37	102
He Blank #LB	001F1101.D	001F1102.D	001F1103.D	BETTYP209_FGA_CRYO.M	NA	NA	NA	NA	0.0380	0.0380	0.0380	0.0	0.0380	NA	NA
BettyP191 #FG7 ENV(1=530,3=319.09)	009F1401.D	009F1402.D	009F1403.D	BETTYP209_FGA_CRYO.M	12.61	12.61	12.61	0.0	3.43	3.45	3.43	0.4	3.44	3.37	102
He Blank #LB	001F2601.D	001F2602.D	001F2603.D	BETTYP209_FGA_CRYO.M	NA	NA	NA	NA	0.0380	0.0380	0.0380	0.0	0.0380	NA	NA
BettyP191 #FG7 ENV(1=530,3=319.09)	009F2801.D	009F2802.D	009F2803.D	BETTYP209_FGA_CRYO.M	12.62	12.62	12.62	0.0	3.35	3.44	3.43	1.7	3.40	3.37	101
BettyP191 #FG7 ENV(1=530,3=319.09)	009F0401.D	009F0402.D	009F0403.D	BETTYP209_FGA_CRYO.M	12.62	12.62	12.62	0.0	3.40	3.40	3.39	0.1	3.40	3.37	101

Enthalpy Analytical

Company: METCO Environmental
Job No.: 0615-125 - EPA Method 3C
Project No.: 15-162

Hydrogen -- Calibration Standards, Laboratory Blanks and Controls

SAMPLE NAME	Filename #1	Filename #2	Filename #3	Analysis Method	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc # 1	Conc # 2	Conc # 3	%dif conc	Avg Conc %	Standard Tag	% Tag
He Blank #LB	001F1801.D	001F1802.D	001F1803.D	BETTYP209_FGA_CRYO.M	NA	NA	NA	NA	0.0360	0.0360	0.0360	0.0	0.0360	NA	NA
BettyP191 #FG7 ENV(1=530,3=319.09)	009F2001.D	009F2002.D	009F2003.D	BETTYP209_FGA_CRYO.M	2.06	2.06	2.06	0.0	2.78	2.83	2.84	1.3	2.81	2.76	102
He Blank #LB	001F1101.D	001F1102.D	001F1103.D	BETTYP209_FGA_CRYO.M	NA	NA	NA	NA	0.0360	0.0360	0.0360	0.0	0.0360	NA	NA
BettyP191 #FG7 ENV(1=530,3=319.09)	009F1401.D	009F1402.D	009F1403.D	BETTYP209_FGA_CRYO.M	2.06	2.06	2.06	0.0	2.84	2.90	2.96	2.1	2.90	2.76	105
He Blank #LB	001F2601.D	001F2602.D	001F2603.D	BETTYP209_FGA_CRYO.M	NA	NA	NA	NA	0.0360	0.0360	0.0360	0.0	0.0360	NA	NA
BettyP191 #FG7 ENV(1=530,3=319.09)	009F2801.D	009F2802.D	009F2803.D	BETTYP209_FGA_CRYO.M	2.06	2.06	2.06	0.1	2.88	2.85	2.78	2.1	2.84	2.76	103
BettyP191 #FG7 ENV(1=530,3=319.09)	009F0401.D	009F0402.D	009F0403.D	BETTYP209_FGA_CRYO.M	2.06	2.06	2.06	0.0	2.74	2.81	2.69	2.3	2.75	2.76	99.6

Enthalpy Analytical

Company: METCO Environmental
Job No.: 0615-125 - EPA Method 3C
Project No.: 15-162

Methane -- Calibration Standards, Laboratory Blanks and Controls

SAMPLE NAME	Filename #1	Filename #2	Filename #3	Analysis Method	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc # 1	Conc # 2	Conc # 3	%dif conc	Avg Conc %	Standard Tag	% Tag
He Blank #LB	001F1801.D	001F1802.D	001F1803.D	BETTYP209_FGA_CRYO.M	NA	NA	NA	NA	0.0310	0.0310	0.0310	0.0	0.0310	NA	NA
BettyP191 #FG7 ENV(1=530,3=319.09)	009F2001.D	009F2002.D	009F2003.D	BETTYP209_FGA_CRYO.M	16.43	16.43	16.44	0.0	2.75	2.76	2.74	0.3	2.75	2.70	102
He Blank #LB	001F1101.D	001F1102.D	001F1103.D	BETTYP209_FGA_CRYO.M	NA	NA	NA	NA	0.0310	0.0310	0.0310	0.0	0.0310	NA	NA
BettyP191 #FG7 ENV(1=530,3=319.09)	009F1401.D	009F1402.D	009F1403.D	BETTYP209_FGA_CRYO.M	16.44	16.44	16.44	0.0	2.75	2.75	2.75	0.2	2.75	2.70	102
He Blank #LB	001F2601.D	001F2602.D	001F2603.D	BETTYP209_FGA_CRYO.M	NA	NA	NA	NA	0.0310	0.0310	0.0310	0.0	0.0310	NA	NA
BettyP191 #FG7 ENV(1=530,3=319.09)	009F2801.D	009F2802.D	009F2803.D	BETTYP209_FGA_CRYO.M	16.44	16.44	16.44	0.0	2.77	2.76	2.76	0.3	2.76	2.70	102
BettyP191 #FG7 ENV(1=530,3=319.09)	009F0401.D	009F0402.D	009F0403.D	BETTYP209_FGA_CRYO.M	16.45	16.44	16.45	0.0	2.76	2.74	2.75	0.3	2.75	2.70	102

Enthalpy Analytical

Company: METCO Environmental
Job No.: 0615-125 - EPA Method 3C
Project No.: 15-162

Nitrogen -- Calibration Standards, Laboratory Blanks and Controls

SAMPLE NAME	Filename #1	Filename #2	Filename #3	Analysis Method	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc # 1	Conc # 2	Conc # 3	%dif conc	Avg Conc %	Standard Tag	% Tag
He Blank #LB	001F1801.D	001F1802.D	001F1803.D	BETTYP209_FGA_CRYO.M	NA	NA	NA	NA	0.0380	0.0380	0.0380	0.0	0.0380	NA	NA
BettyP191 #FG7 ENV(1=530,3=319.09)	009F2001.D	009F2002.D	009F2003.D	BETTYP209_FGA_CRYO.M	10.24	10.24	10.24	0.0	3.46	3.47	3.50	0.6	3.48	3.37	103
He Blank #LB	001F1101.D	001F1102.D	001F1103.D	BETTYP209_FGA_CRYO.M	NA	NA	NA	NA	0.0380	0.0380	0.0380	0.0	0.0380	NA	NA
BettyP191 #FG7 ENV(1=530,3=319.09)	009F1401.D	009F1402.D	009F1403.D	BETTYP209_FGA_CRYO.M	10.24	10.24	10.24	0.0	3.53	3.55	3.51	0.7	3.53	3.37	105
He Blank #LB	001F2601.D	001F2602.D	001F2603.D	BETTYP209_FGA_CRYO.M	NA	NA	NA	NA	0.0380	0.0380	0.0380	0.0	0.0380	NA	NA
BettyP191 #FG7 ENV(1=530,3=319.09)	009F2801.D	009F2802.D	009F2803.D	BETTYP209_FGA_CRYO.M	10.25	10.25	10.25	0.0	3.49	3.50	3.49	0.2	3.49	3.37	104
BettyP191 #FG7 ENV(1=530,3=319.09)	009F0401.D	009F0402.D	009F0403.D	BETTYP209_FGA_CRYO.M	10.25	10.25	10.25	0.0	3.47	3.48	3.50	0.5	3.49	3.37	103

Enthalpy Analytical

Company: METCO Environmental
Job No.: 0615-125 - EPA Method 3C
Project No.: 15-162

Oxygen -- Calibration Standards, Laboratory Blanks and Controls

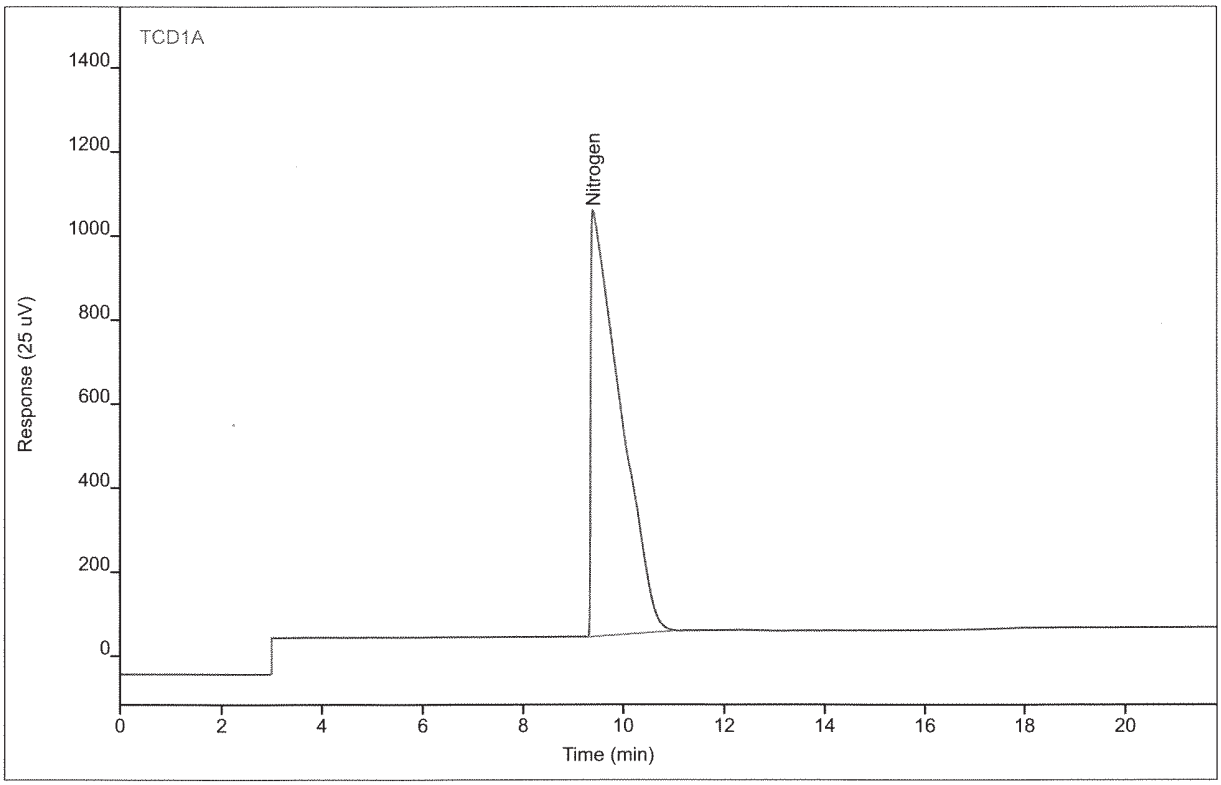
SAMPLE NAME	Filename #1	Filename #2	Filename #3	Analysis Method	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc # 1	Conc # 2	Conc # 3	%dif conc	Avg Conc %	Standard Tag	% Tag
He Blank #LB	001F1801.D	001F1802.D	001F1803.D	BETTYP209_FGA_CRYO.M	NA	NA	NA	NA	0.0544	0.0544	0.0544	0.0	0.0544	NA	NA
BettyP070 #FG3 ENV(1=374.56,2=391.18)	009F1901.D	009F1902.D	009F1903.D	BETTYP209_FGA_CRYO.M	8.97	8.97	8.97	0.0	4.92	4.90	4.93	0.3	4.92	4.81	102
He Blank #LB	001F1101.D	001F1102.D	001F1103.D	BETTYP209_FGA_CRYO.M	NA	NA	NA	NA	0.0544	0.0544	0.0544	0.0	0.0544	NA	NA
BettyP070 #FG3 ENV(1=374.56,2=391.18)	009F1201.D	009F1202.D	009F1203.D	BETTYP209_FGA_CRYO.M	8.98	8.98	8.98	0.0	4.84	4.86	4.86	0.3	4.85	4.81	101
He Blank #LB	001F2601.D	001F2602.D	001F2603.D	BETTYP209_FGA_CRYO.M	NA	NA	NA	NA	0.0544	0.0544	0.0544	0.0	0.0544	NA	NA
BettyP070 #FG3 ENV(1=374.56,2=391.18)	009F2701.D	009F2702.D	009F2703.D	BETTYP209_FGA_CRYO.M	8.98	8.98	8.98	0.0	4.92	4.87	4.92	0.7	4.90	4.81	102
BettyP070 #FG3 ENV(1=374.56,2=391.18)	009F0301.D	009F0302.D	009F0303.D	BETTYP209_FGA_CRYO.M	8.98	8.99	8.98	0.0	4.90	4.93	4.91	0.3	4.91	4.81	102

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP187 #FG22 ENV(1=0,4=450)
Sequence Name	BETTYP209 ver.15
Data File	009F0101.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 10:01 AM
File Modified	7/23/2015 12:10 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM



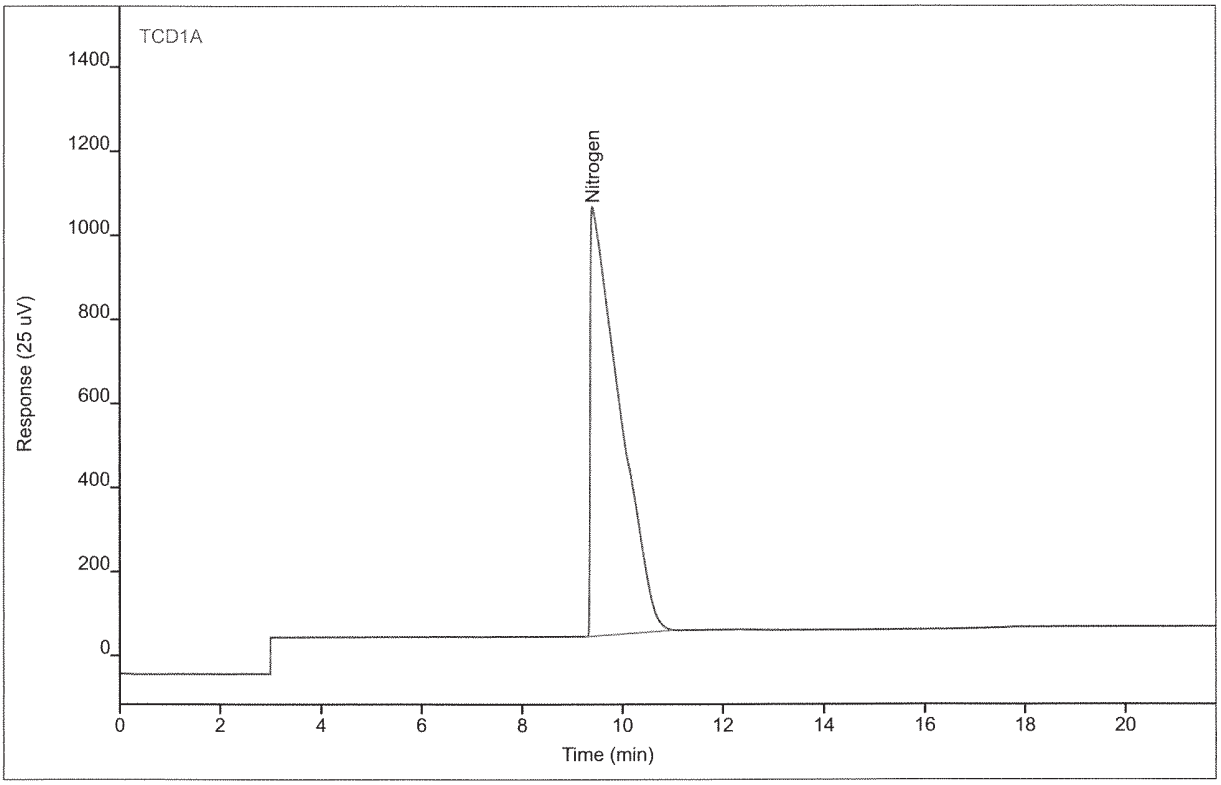
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen		(8.90)				1		
Nitrogen	BB	9.41	40654.2	1015.60	96.1099	1	96.1099	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP187 #FG22 ENV(1=0,4=450)
Sequence Name	BETTYP209 ver.15
Data File	009F0102.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 10:31 AM
File Modified	7/23/2015 12:10 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM



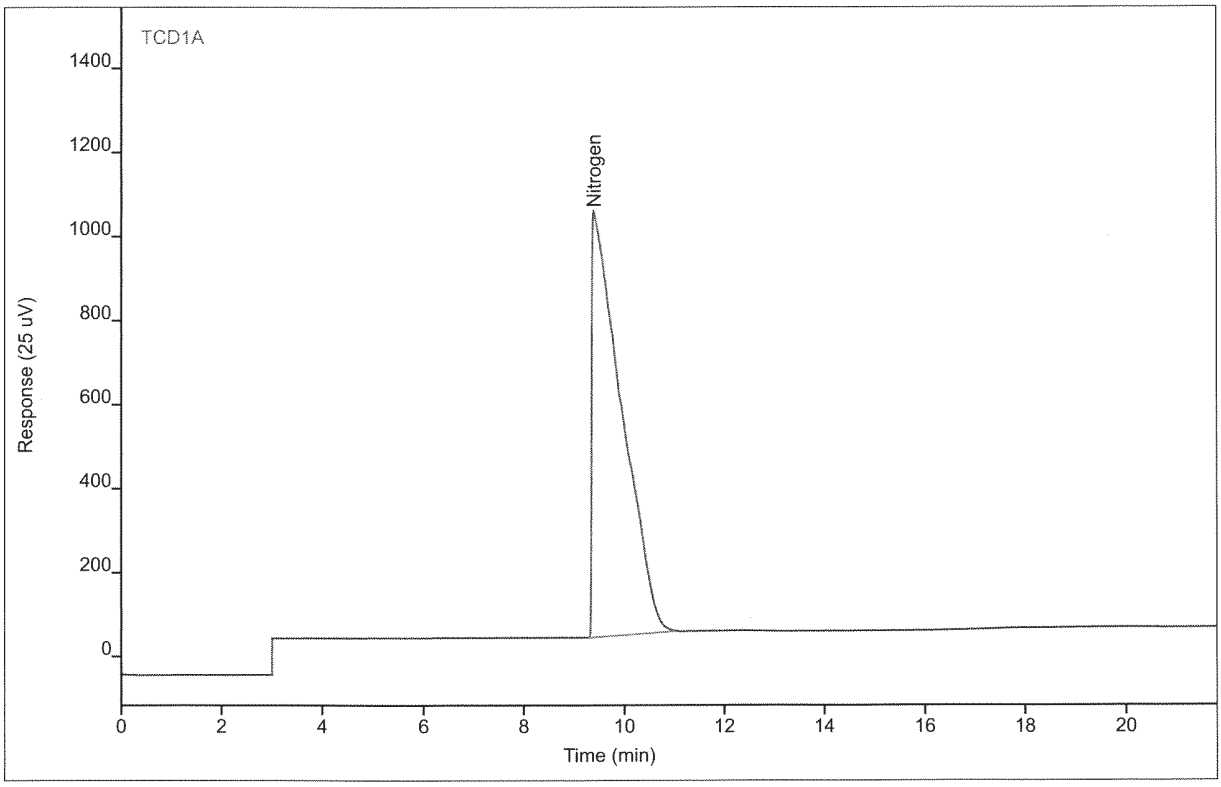
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen		(8.90)				1		
Nitrogen	BB	9.40	41065.0	1022.29	97.0812	1	97.0812	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Sample Name	BettyP187 #FG22 ENV(1=0,4=450)
Sequence Name	BETTYP209 ver.15
Data File	009F0103.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 11:01 AM
File Modified	7/23/2015 12:10 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM



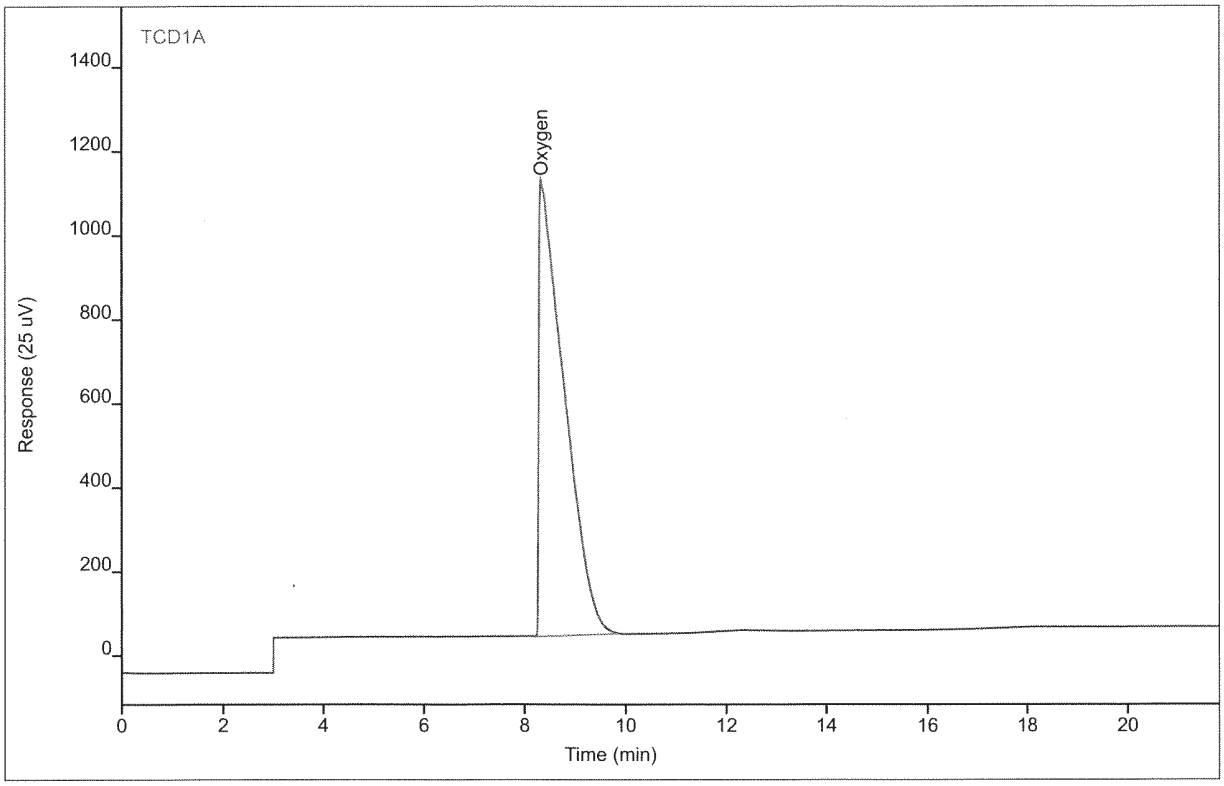
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen		(8.90)				1		
Nitrogen	BB	9.40	40963.1	1014.63	96.8403	1	96.8403	%
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	O2 99.999% #FG23
Sequence Name	BETTYP209 ver.15
Data File	016F0301.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 11:28 AM
File Modified	7/23/2015 12:11 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 16
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM



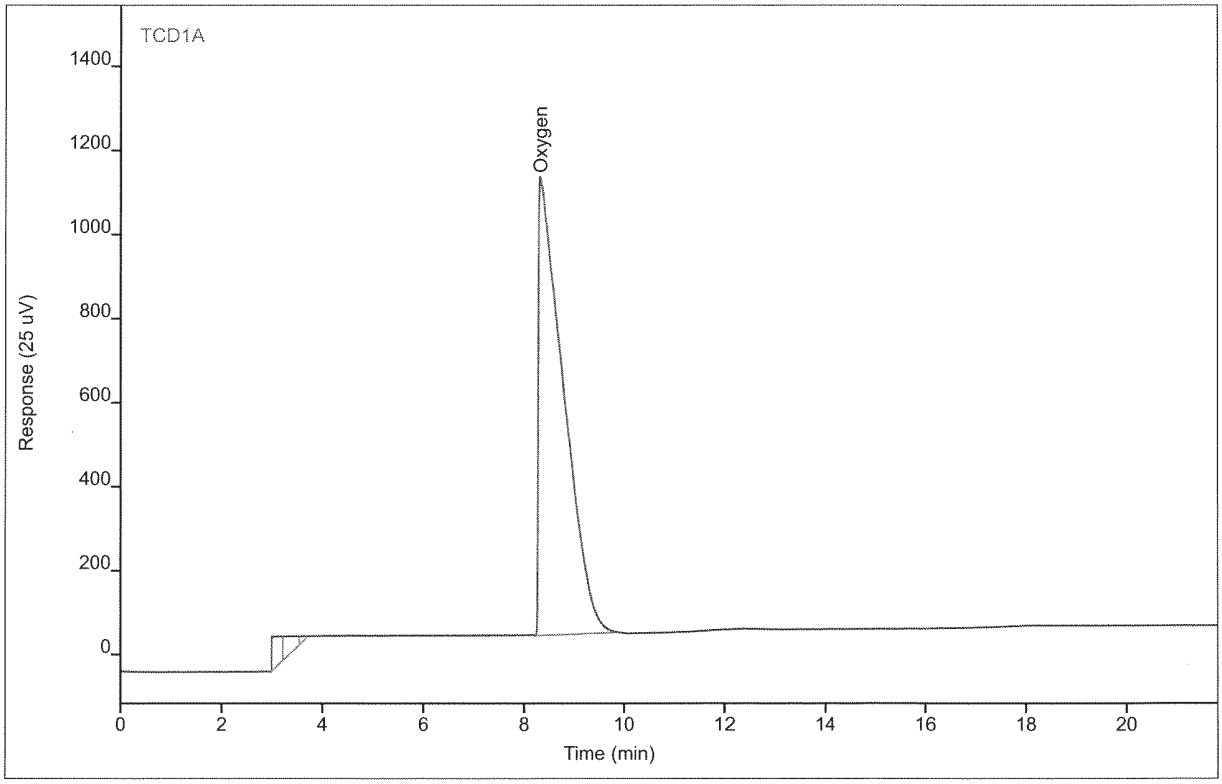
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.33	37554.3	1087.29	98.3071	1	98.3071	%
Nitrogen		(9.41)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Sample Name	O2 99.999% #FG23
Sequence Name	BETTYP209 ver.15
Data File	016F0302.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 11:56 AM
File Modified	7/23/2015 12:11 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 16
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM



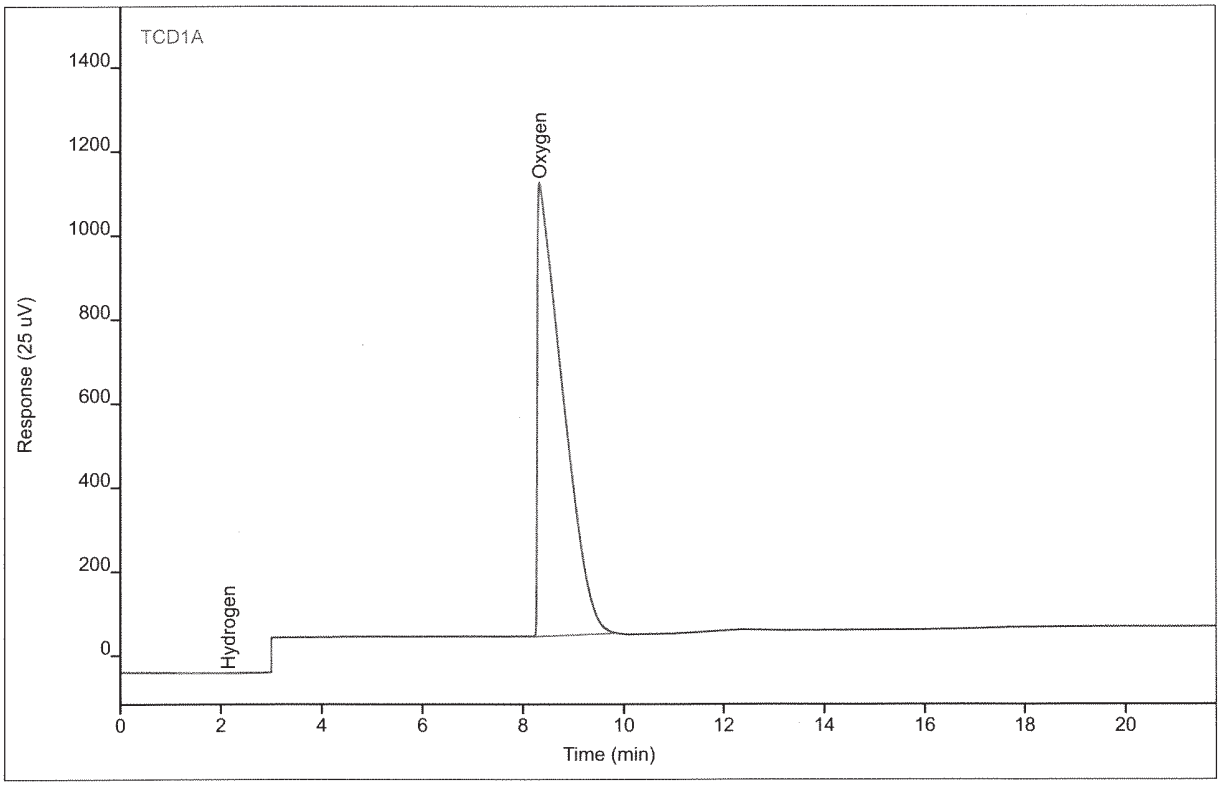
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	VV	3.51	771.074	25.0036		1		
?	VB	3.59	103.631	16.1120		1		
?	BV	3.20	928.600	60.9281		1		
Hydrogen		(2.07)				1		
Oxygen	BB	8.33	37575.0	1091.96	98.3614	1	98.3614	%
Nitrogen		(9.41)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	O2 99.999% #FG23
Sequence Name	BETTYP209 ver.15
Data File	016F0303.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 12:23 PM
File Modified	7/23/2015 12:11 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 16
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM



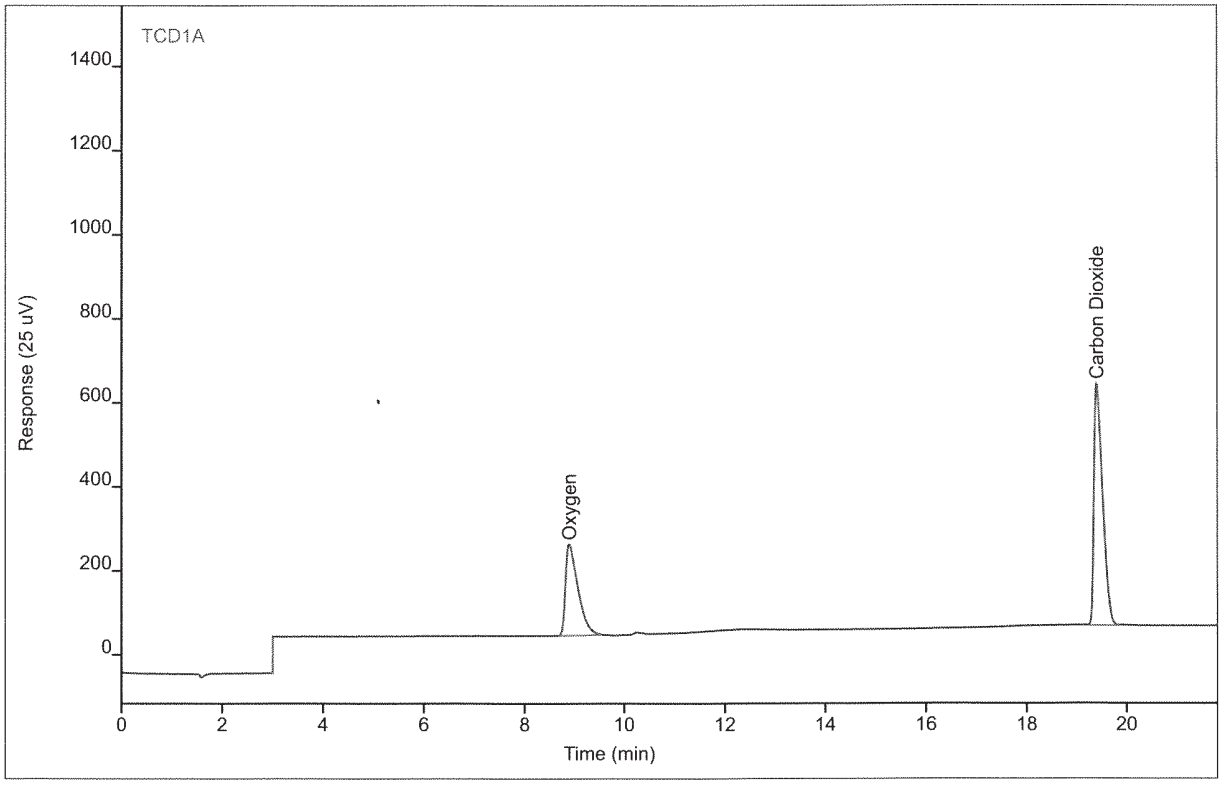
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BV	1.44	35.8647	1.00630		1		
Hydrogen	VB	2.14	2.56380	0.30871	0.18578	1	0.18578	%
Oxygen	BB	8.33	37266.3	1080.49	97.5530	1	97.5530	%
Nitrogen		(9.41)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG4 ENV(1=0,2=358.99)
Sequence Name	BETTYP209 ver.15
Data File	009F0401.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 12:53 PM
File Modified	7/23/2015 11:29 AM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM



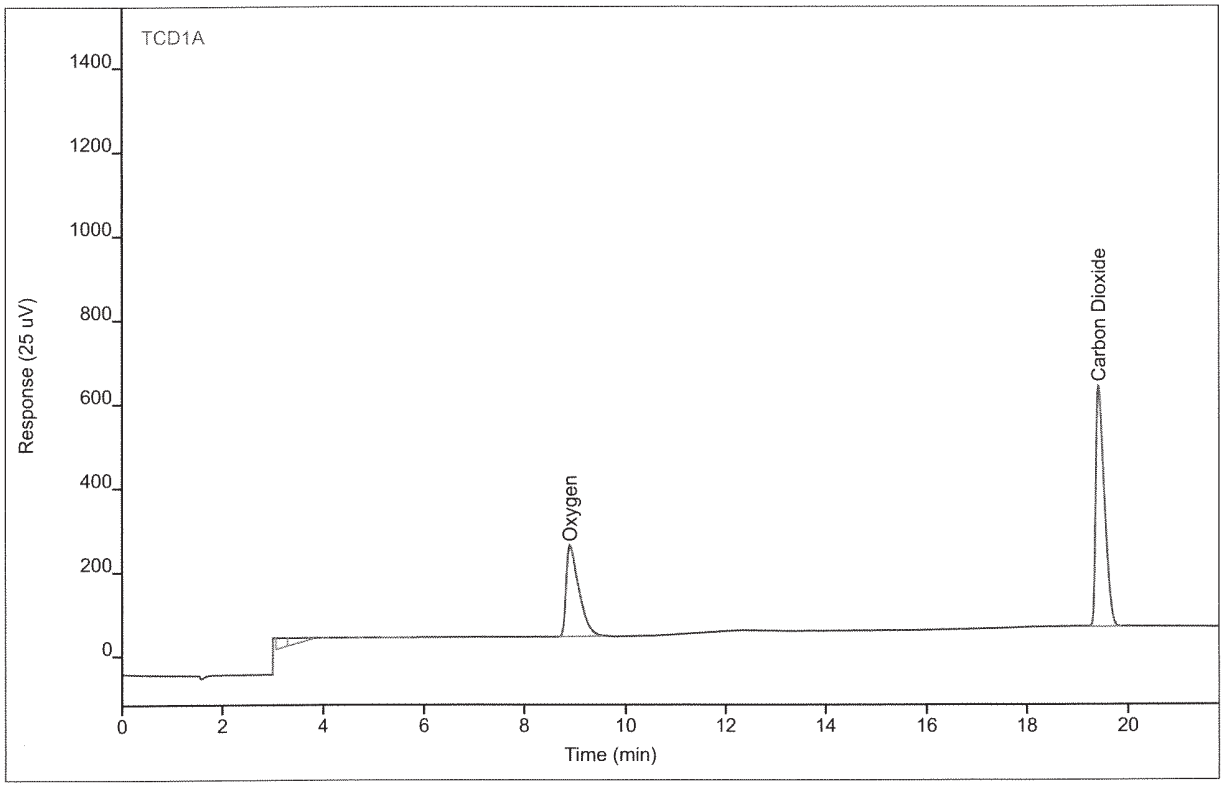
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.12)				1		
Oxygen	BB	8.90	3794.10	218.358	9.90714	1	9.90714	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.41	6917.48	576.146	9.65631	1	9.65631	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG4 ENV(1=0,2=358.99)
Sequence Name	BETTYP209 ver.15
Data File	009F0402.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 1:23 PM
File Modified	7/23/2015 11:29 AM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM



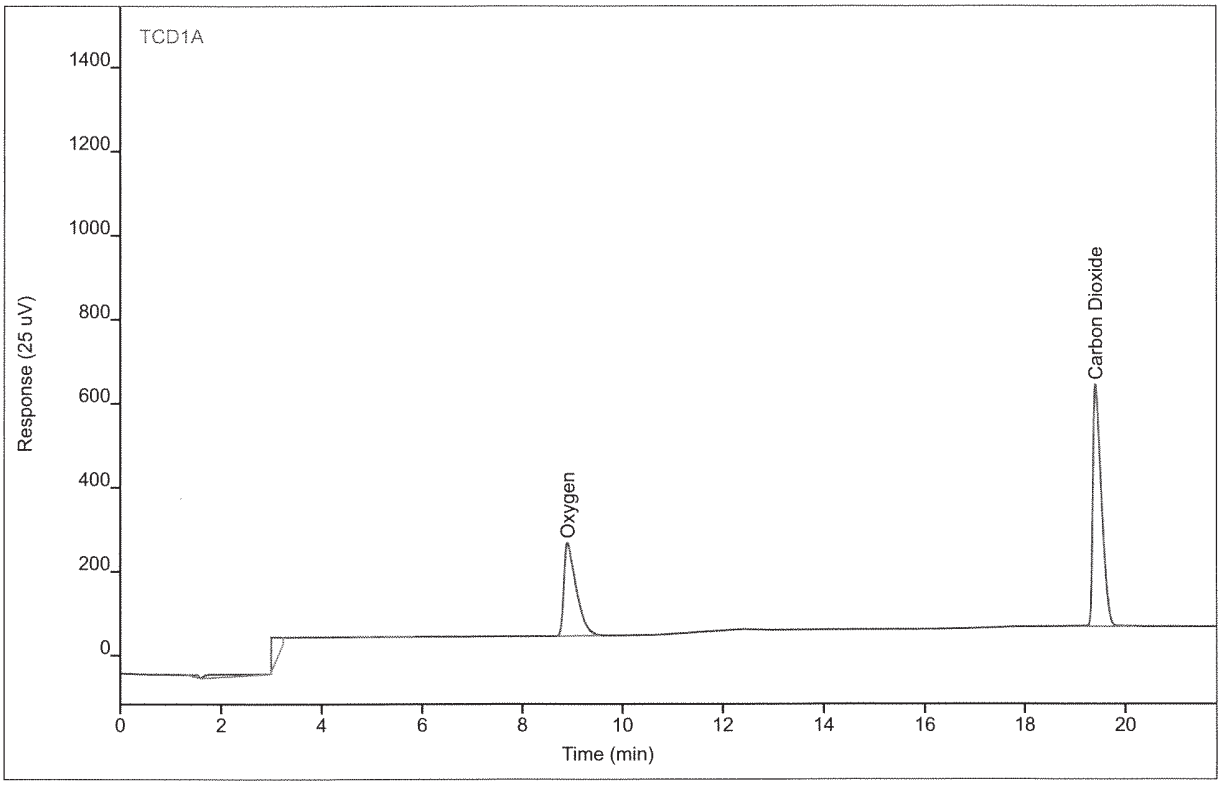
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BV	4.74	4.04918	0.40809		1		
?	BV	4.10	1.30274	0.27732		1		
?	BV	3.23	332.033	22.6362		1		
?	VV	5.53	1.69649	0.24561		1		
?	BV	5.24	2.99967	0.39018		1		
?	VB	5.63	1.11602	0.26381		1		
?	VB	3.45	322.496	15.1499		1		
?	BB	3.74	28.3920	4.98907		1		
Hydrogen		(2.12)				1		
Oxygen	BB	8.91	3749.89	216.664	9.79139	1	9.79139	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.41	6854.54	573.042	9.56788	1	9.56788	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG4 ENV(1=0,2=358.99)
Sequence Name	BETTYP209 ver.15
Data File	009F0403.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 1:52 PM
File Modified	7/23/2015 11:29 AM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM

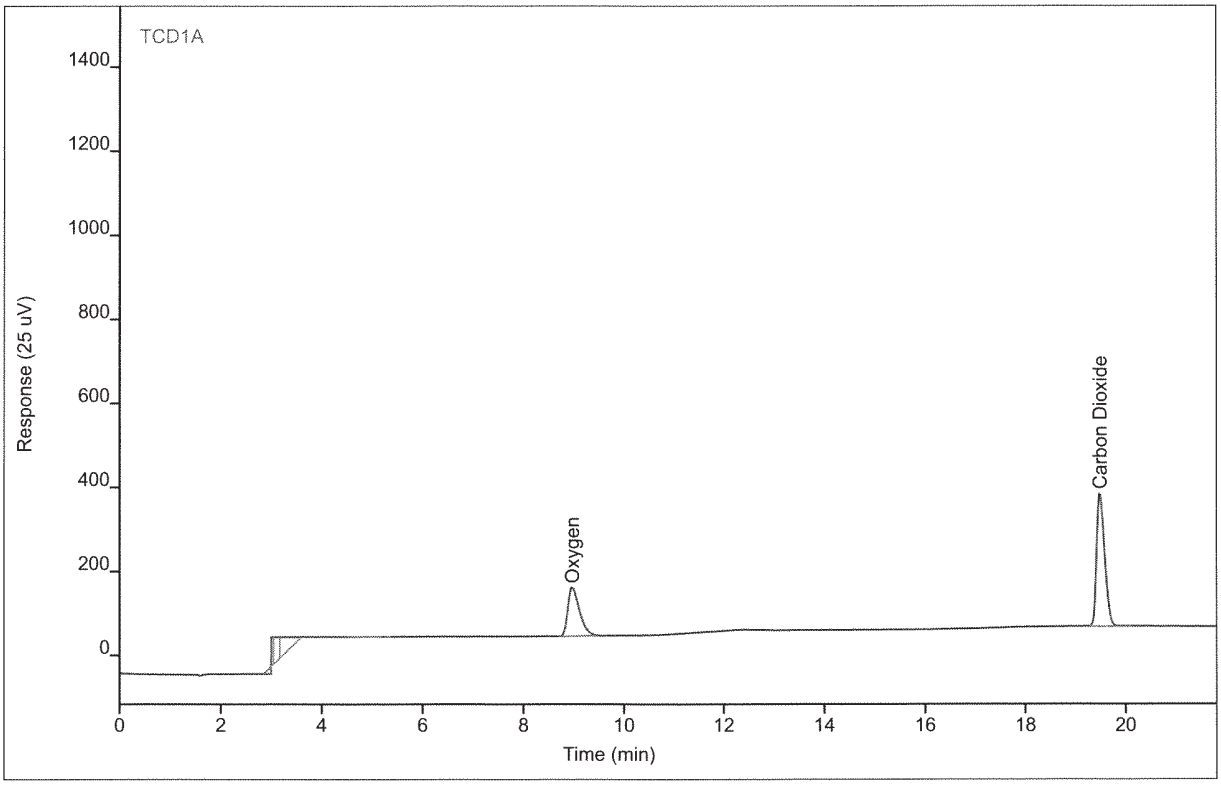


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BV	5.59	1.76345	0.28809		1		
?	BB	5.30	1.09445	0.26829		1		
?	VB	5.73	1.08640	0.35516		1		
?	BV	1.48	66.5766	6.47789		1		
?	BV	4.77	4.11549	0.40070		1		
?	VV	2.47	403.496	4.35509		1		
?	VB	3.07	725.880	64.1523		1		
?	VB	4.90	2.13294	0.36700		1		
Hydrogen		(2.12)				1		
Oxygen	BB	8.91	3790.32	223.265	9.89725	1	9.89725	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.41	6957.29	577.325	9.71225	1	9.71225	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)	Sample Type	Calibration
Sequence Name	BETTYP209 ver.15	Vial Number	Vial 9
Data File	009F0501.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	1 of 3
Injection Date	6/24/2015 2:22 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	7/23/2015 11:29 AM	Analysis Method	BETTYP209_FGA_CRYO.M
Instrument	Betty	Method Modified	7/23/2015 12:10 PM
Operator	Chester Burnett	Printed	7/23/2015 12:47 PM



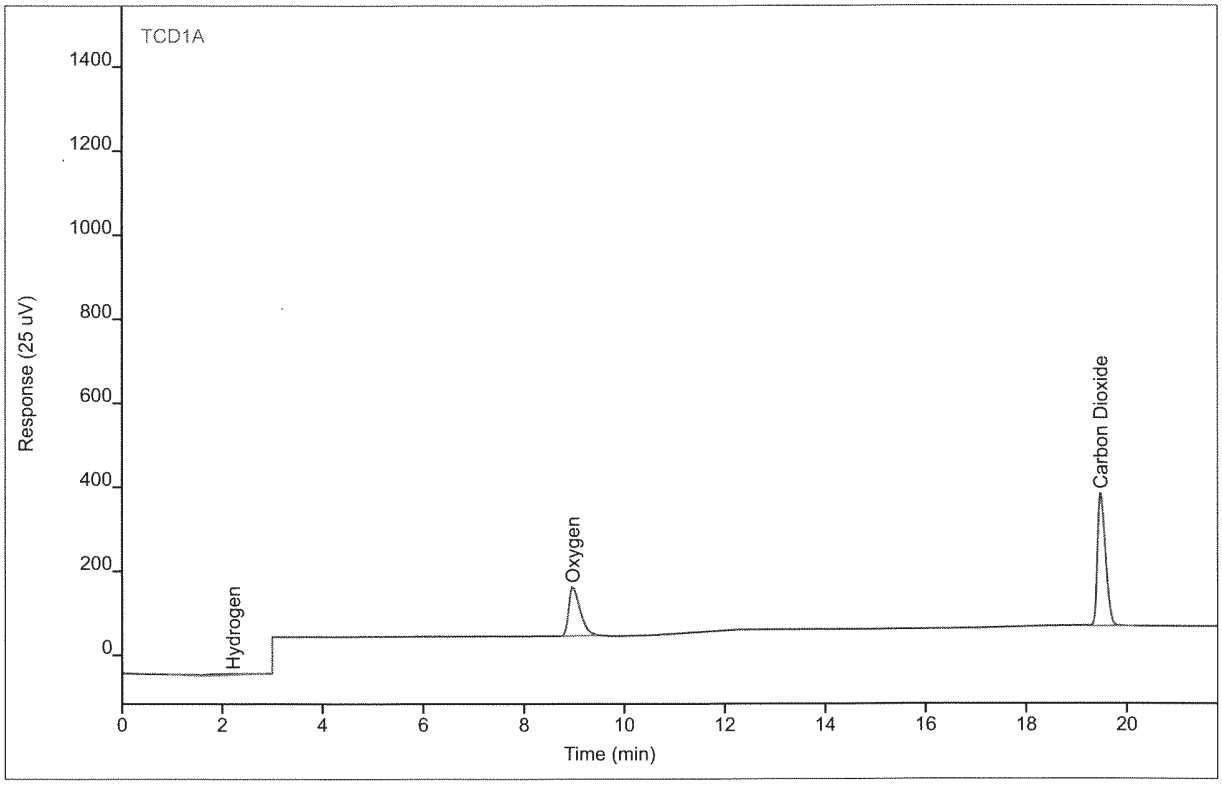
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BV	3.02	119.761	70.5758		1		
?	VV	4.72	4.83026	0.62773		1		
?	BB	5.05	4.73888	0.46953		1		
?	VB	3.29	671.787	37.7567		1		
?	VV	3.12	439.998	57.6324		1		
?	VB	4.84	1.76323	0.45602		1		
?	BV	4.60	1.15390	0.35488		1		
?	BB	5.31	1.09147	0.22290		1		
Hydrogen		(2.12)				1		
Oxygen	BB	8.97	1886.74	116.525	4.91280	1	4.91280	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.48	3534.71	317.187	4.90362	1	4.90362	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)
Sequence Name	BETTYP209 ver.15
Data File	009F0502.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 2:52 PM
File Modified	7/23/2015 11:29 AM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM



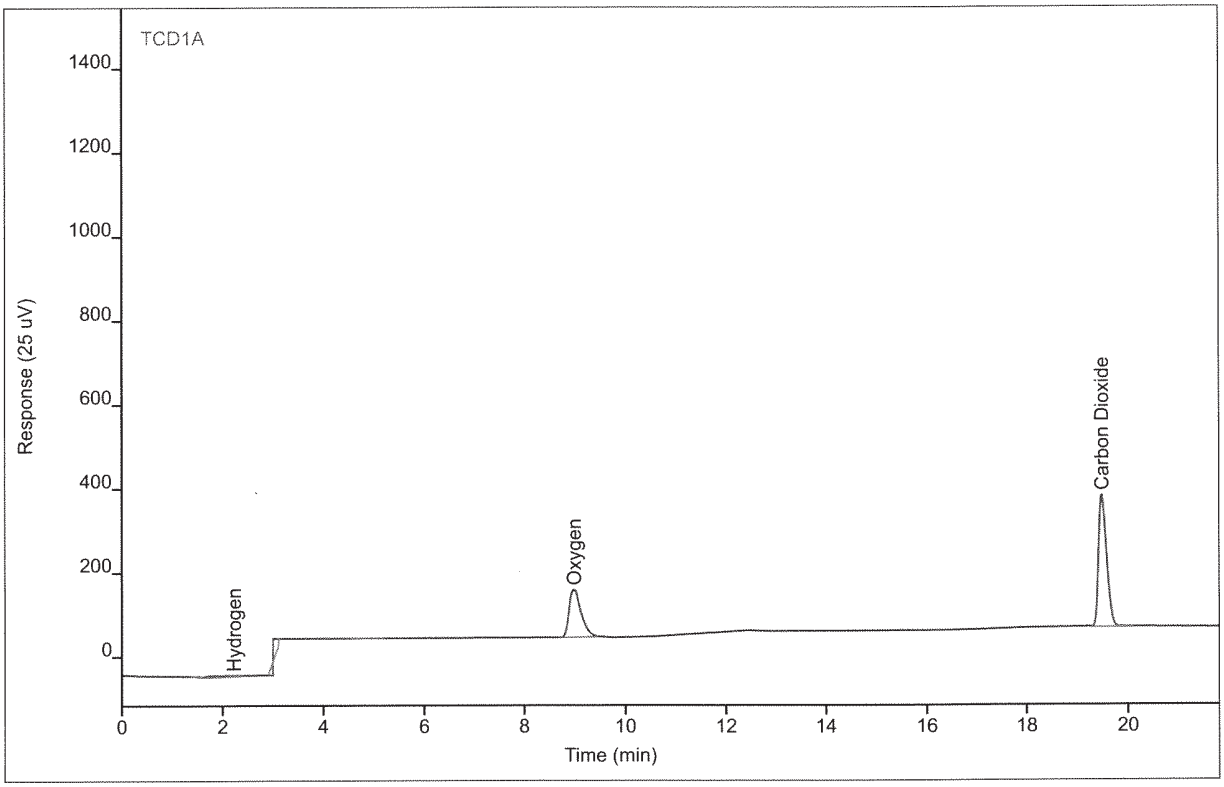
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	VV	1.50	87.2012	4.63347		1		
?	BV	1.11	33.1340	2.56250		1		
Hydrogen	VV	2.22	180.488	2.86920	11.9571	1	11.9571	%
Oxygen	BB	8.97	1879.79	116.870	4.89460	1	4.89460	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.48	3520.38	316.168	4.88348	1	4.88348	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)
Sequence Name	BETTYP209 ver.15
Data File	009F0503.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 3:22 PM
File Modified	7/23/2015 11:30 AM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM



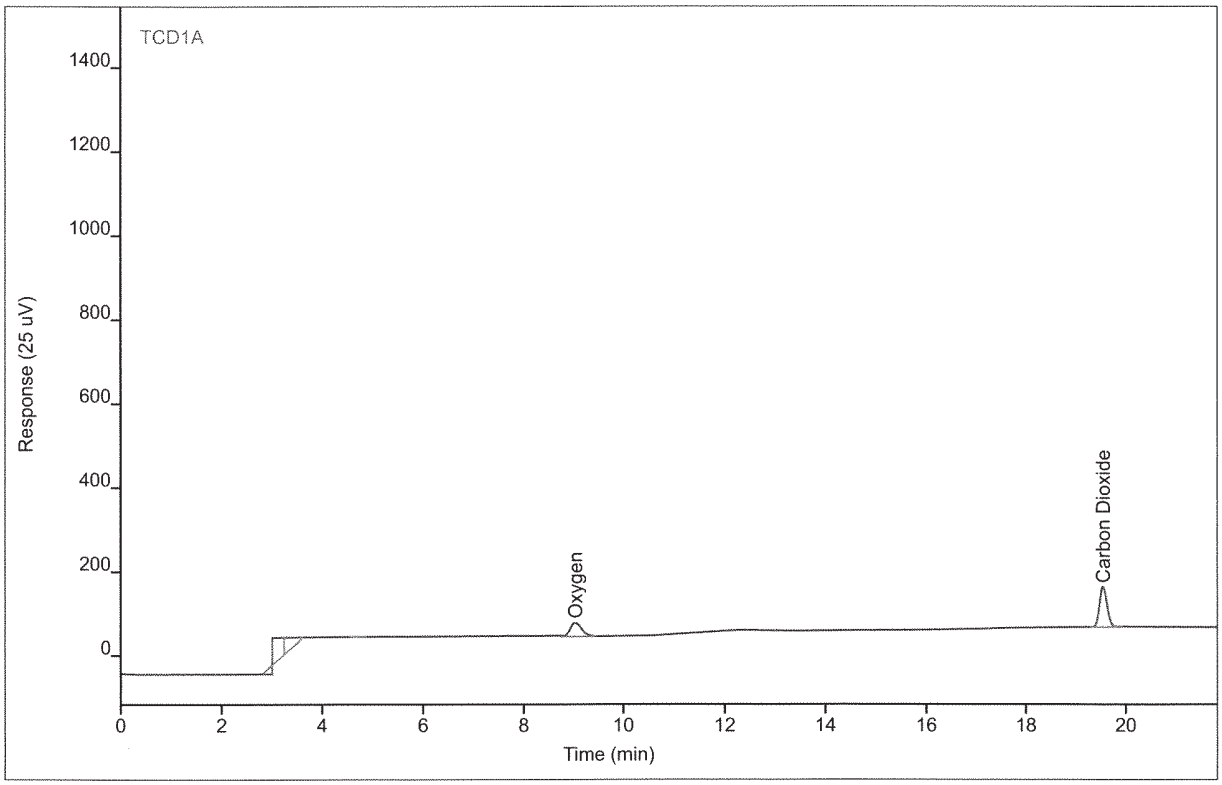
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	VV	4.90	3.31082	0.43548		1		
?	BV	1.46	29.2454	2.75103		1		
?	VB	5.02	2.90801	0.32670		1		
?	BB	3.02	154.023	50.7444		1		
?	VV	4.69	4.26213	0.46804		1		
Hydrogen	VV	2.23	135.263	2.45799	8.96517	1	8.96517	%
Oxygen	BB	8.99	1877.32	114.333	4.88811	1	4.88811	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.48	3520.26	315.360	4.88331	1	4.88331	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG2 ENV(1=1272.08,2=219.94)
Sequence Name	BETTYP209 ver.15
Data File	009F0601.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 3:52 PM
File Modified	7/23/2015 11:30 AM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM



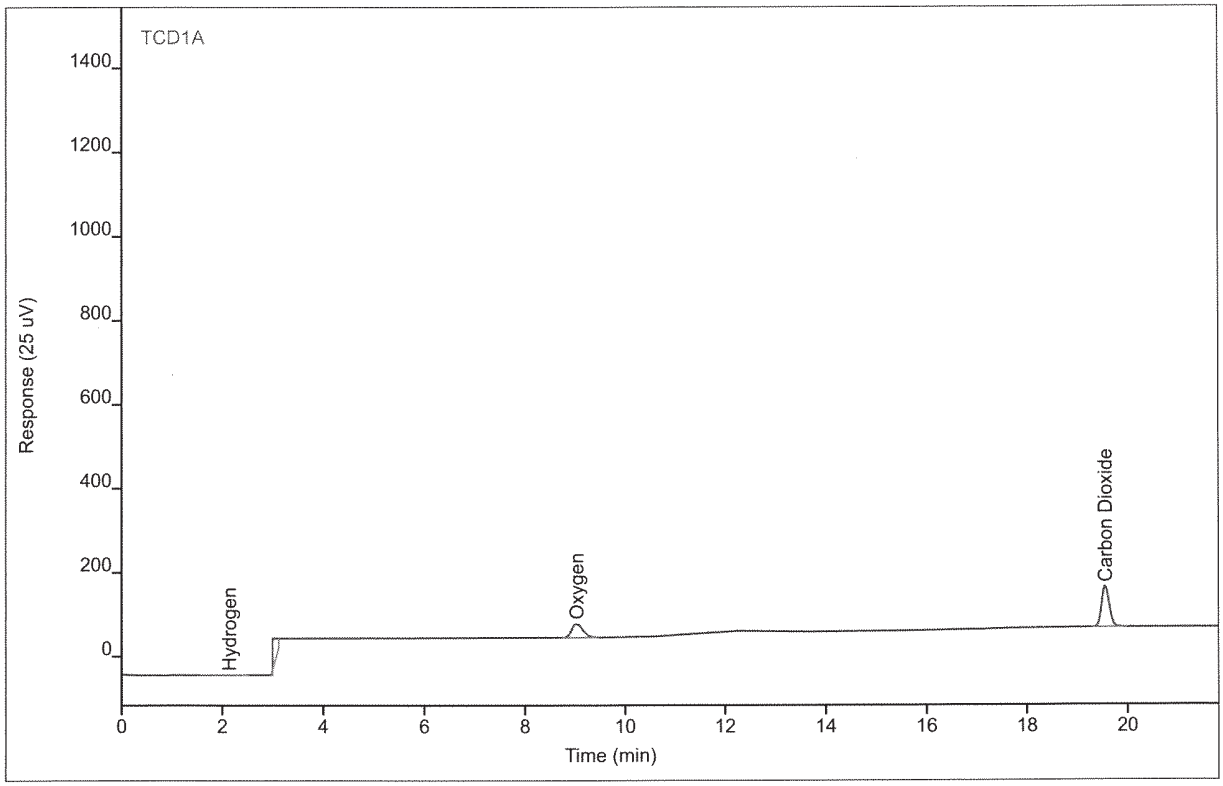
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	VB	3.36	480.188	29.2607		1		
?	BB	4.72	2.62776	0.42083		1		
?	BV	3.02	643.563	65.7392		1		
Hydrogen		(2.12)				1		
Oxygen	BB	9.03	529.673	33.9172	1.35935	1	1.35935	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.55	1015.25	96.0081	1.36384	1	1.36384	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG2 ENV(1=1272.08,2=219.94)
Sequence Name	BETTYP209 ver.15
Data File	009F0602.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 4:21 PM
File Modified	7/23/2015 11:30 AM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM

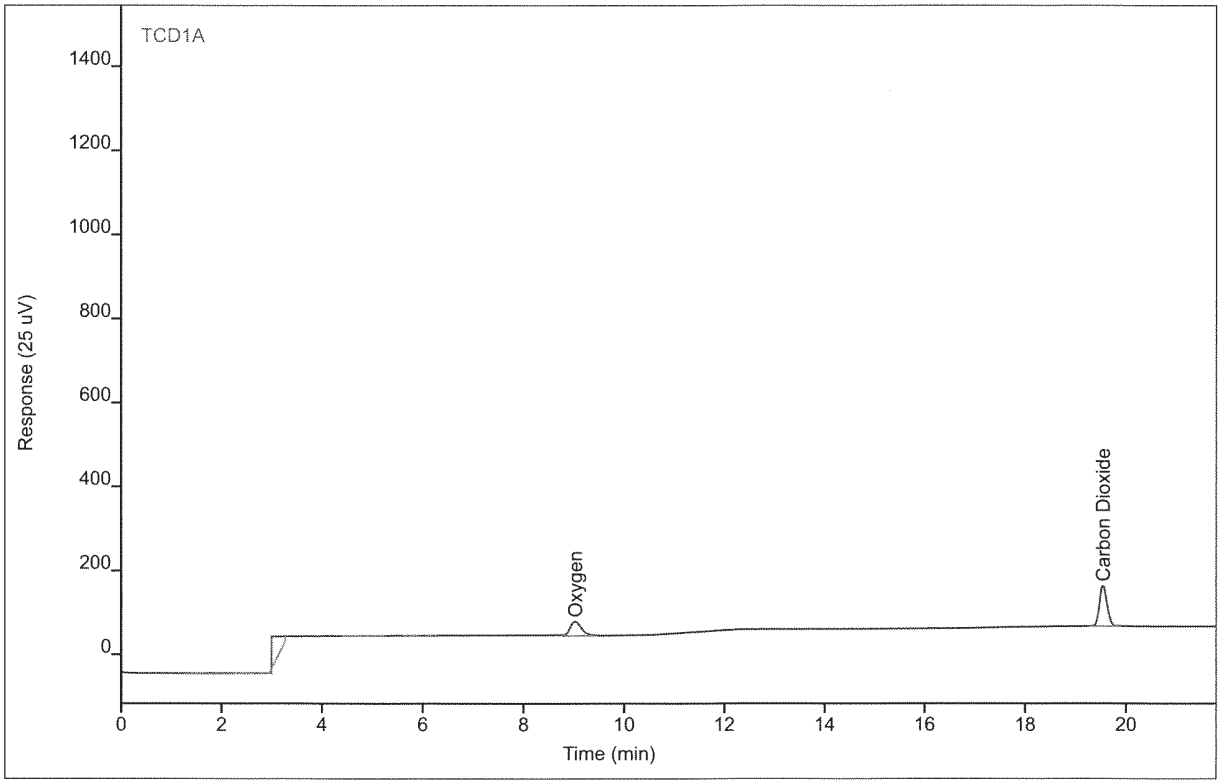


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	VB	2.43	1.90608	0.28758		1		
?	VV	2.26	2.81387	0.41121		1		
?	BB	3.02	365.282	71.3322		1		
Hydrogen	BV	2.14	12.6786	0.60943	0.85551	1	0.85551	%
Oxygen	BB	9.03	532.716	34.0263	1.36732	1	1.36732	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.55	1027.99	96.6383	1.38175	1	1.38175	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG2 ENV(1=1272.08,2=219.94)	Sample Type	Calibration
Sequence Name	BETTYP209 ver.15	Vial Number	Vial 9
Data File	009F0603.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	3 of 3
Injection Date	6/24/2015 4:51 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	7/23/2015 11:30 AM	Analysis Method	BETTYP209_FGA_CRYO.M
Instrument	Betty	Method Modified	7/23/2015 12:10 PM
Operator	Chester Burnett	Printed	7/23/2015 12:47 PM

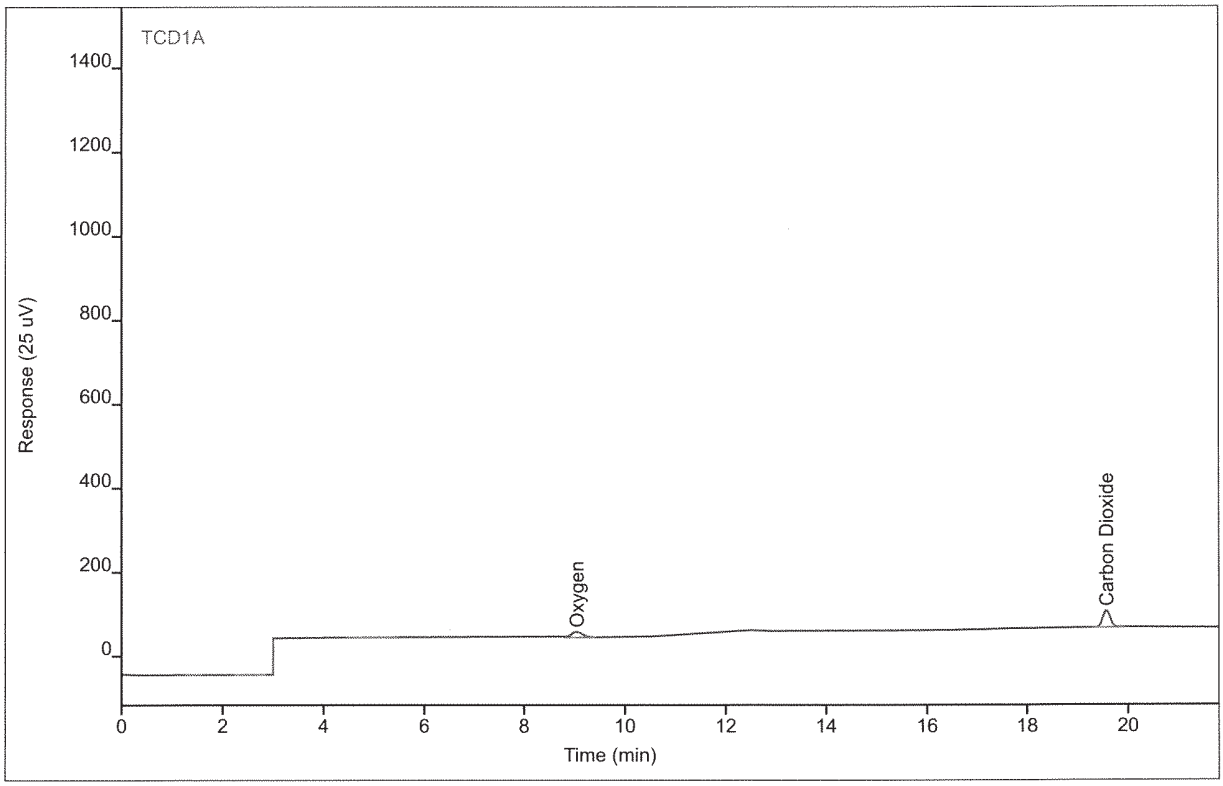


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	VB	5.79	1.92117	0.37755		1		
?	VV	5.00	2.66323	0.43564		1		
?	VV	2.64	5.97584	0.62839		1		
?	BV	4.62	1.99308	0.38828		1		
?	VV	2.27	61.2127	1.14749		1		
?	VB	5.11	1.54117	0.31966		1		
?	VV	2.88	1.60954	0.35413		1		
?	BV	1.46	18.9470	1.37617		1		
?	VB	3.07	728.380	62.1411		1		
?	VB	6.13	2.70757	0.37252		1		
?	BV	5.64	1.14716	0.31755		1		
?	VV	4.76	4.01393	0.39793		1		
Hydrogen		(2.12)				1		
Oxygen	BB	9.03	535.550	34.8530	1.37474	1	1.37474	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.55	1024.24	96.9965	1.37647	1	1.37647	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG1 ENV(1=3392.23,2=219.94)	Sample Type	Calibration
Sequence Name	BETTYP209 ver.15	Vial Number	Vial 9
Data File	009F0701.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	1 of 8
Injection Date	6/24/2015 5:21 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	7/23/2015 11:30 AM	Analysis Method	BETTYP209_FGA_CRYO.M
Instrument	Betty	Method Modified	7/23/2015 12:10 PM
Operator	Chester Burnett	Printed	7/23/2015 12:47 PM

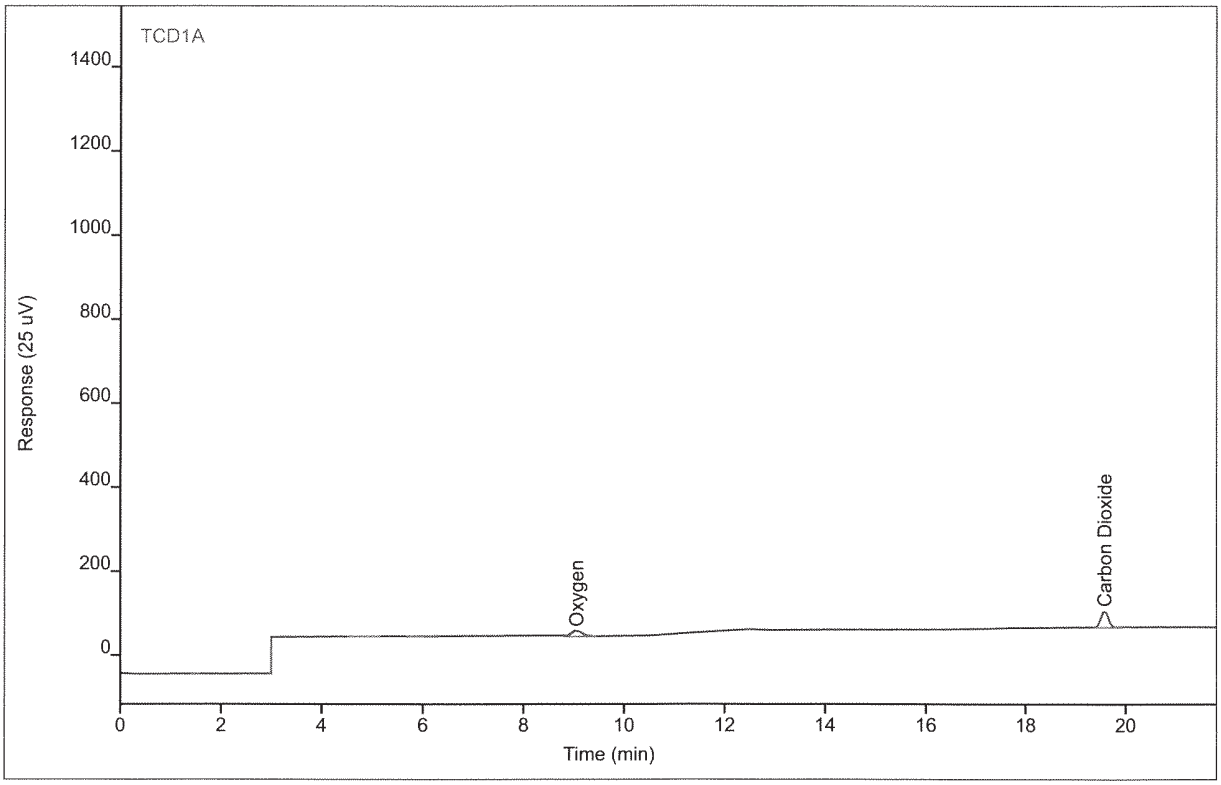


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BV	4.99	17.6586	0.54161		1		
?	BV	2.32	5.57168	0.59586		1		
?	BV	1.51	5.65855	0.50313		1		
?	VV	2.61	3.12562	0.38332		1		
?	VV	2.78	1.54822	0.30933		1		
?	VV	2.47	2.12618	0.45412		1		
Hydrogen		(2.12)				1		
Oxygen	BB	9.05	214.725	13.9341	0.53512	1	0.53512	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.57	423.172	40.1297	0.53283	1	0.53283	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG1 ENV(1=3392.23,2=219.94)	Sample Type	Calibration
Sequence Name	BETTYP209 ver.15	Vial Number	Vial 9
Data File	009F0702.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	2 of 8
Injection Date	6/24/2015 5:51 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	7/23/2015 11:30 AM	Analysis Method	BETTYP209_FGA_CRYO.M
Instrument	Betty	Method Modified	7/23/2015 12:10 PM
Operator	Chester Burnett	Printed	7/23/2015 12:47 PM

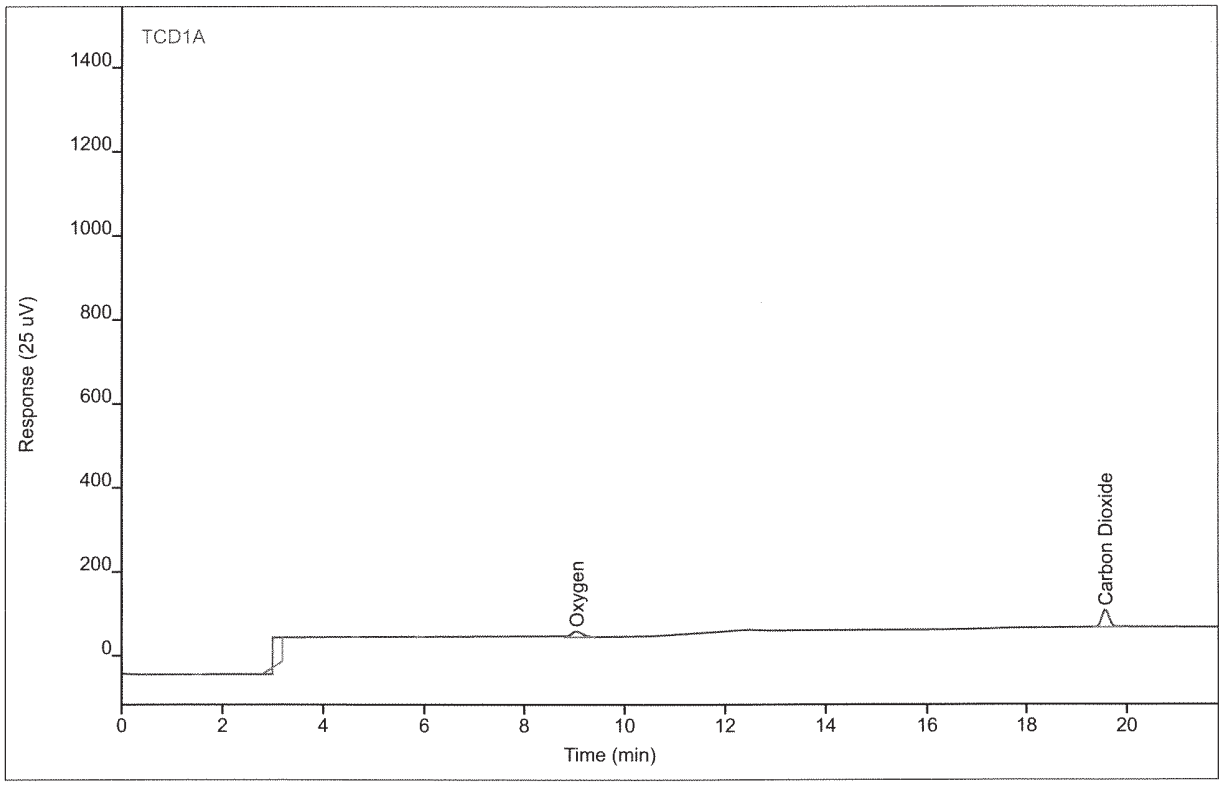


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BV	1.45	3.15087	0.44002		1		
?	BV	4.72	4.20614	0.48932		1		
?	VB	5.02	2.55183	0.27862		1		
?	BB	6.14	1.24686	0.23469		1		
?	BB	5.82	1.51287	0.22623		1		
?	VV	4.90	2.86163	0.44424		1		
Hydrogen		(2.12)				1		
Oxygen	BB	9.05	215.668	13.8467	0.53747	1	0.53747	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.57	420.526	39.8516	0.52949	1	0.52949	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG1 ENV(1=3392.23,2=219.94)	Sample Type	Calibration
Sequence Name	BETTYP209 ver.15	Vial Number	Vial 9
Data File	009F0703.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	3 of 8
Injection Date	6/24/2015 6:20 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	7/23/2015 11:30 AM	Analysis Method	BETTYP209_FGA_CRYO.M
Instrument	Betty	Method Modified	7/23/2015 12:10 PM
Operator	Chester Burnett	Printed	7/23/2015 12:47 PM



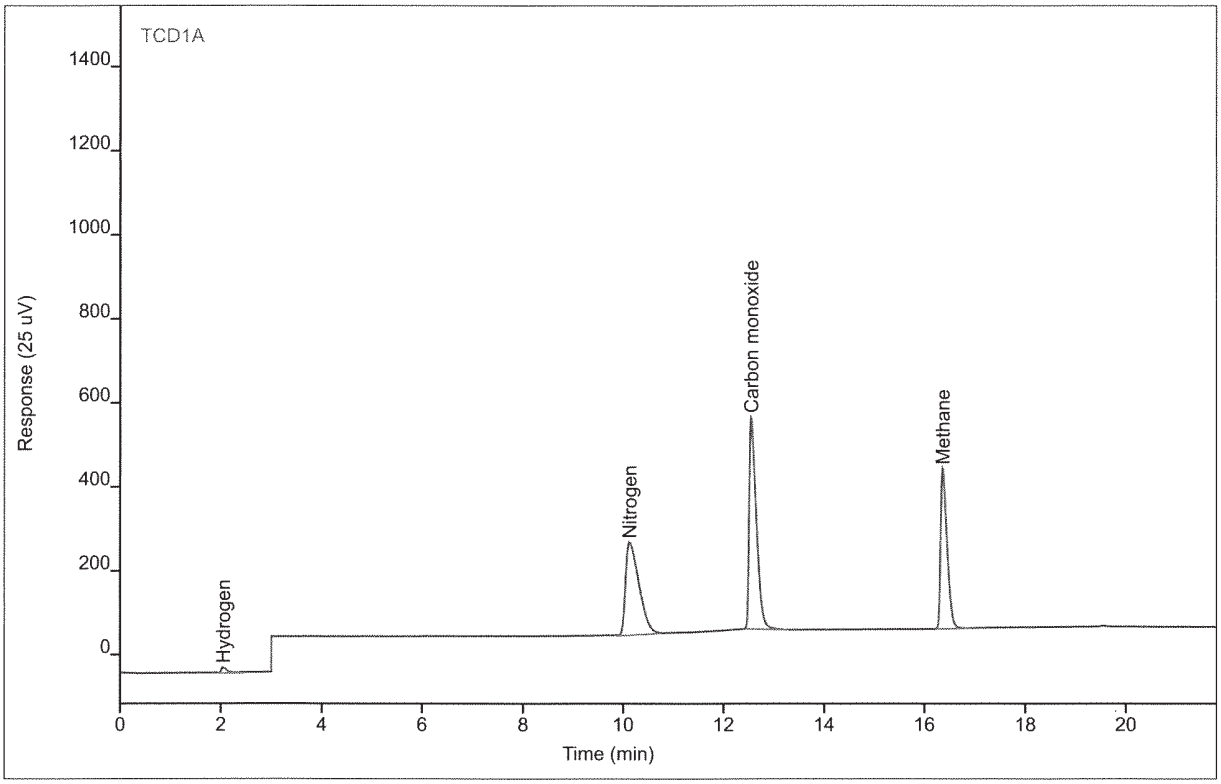
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	VB	3.04	668.472	70.3759		1		
?	BB	4.62	1.62261	0.34018		1		
?	BV	1.50	3.80463	0.53505		1		
?	VB	5.89	1.40129	0.35491		1		
Hydrogen		(2.12)				1		
Oxygen	BB	9.05	216.612	14.2341	0.53982	1	0.53982	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.57	427.523	40.6313	0.53830	1	0.53830	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG8 ENV(1=0,3=319.09)
Sequence Name	BETTYP209 ver.15
Data File	009F0801.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 9:19 PM
File Modified	7/23/2015 12:21 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM



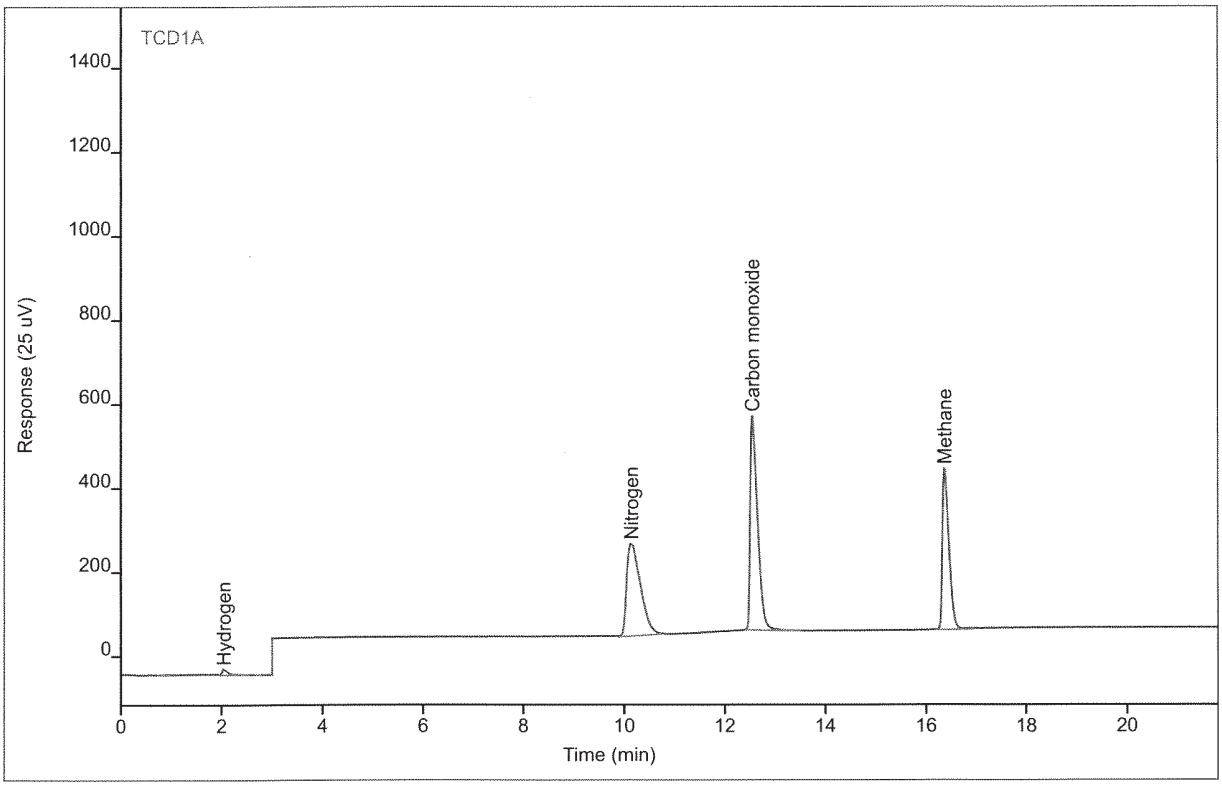
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.05	114.309	13.6021	8.04397	1	8.04397	%
Oxygen		(8.33)				1		
Nitrogen	BB	10.13	4135.81	221.916	9.77711	1	9.77711	%
Carbon monoxide	MM	12.55	5031.52	505.303	9.54118	1	9.54118	%
Methane	MM	16.37	3444.36	382.263	7.65699	1	7.65699	%
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG8 ENV(1=0,3=319.09)
Sequence Name	BETTYP209 ver.15
Data File	009F0802.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 9:49 PM
File Modified	7/23/2015 12:21 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM



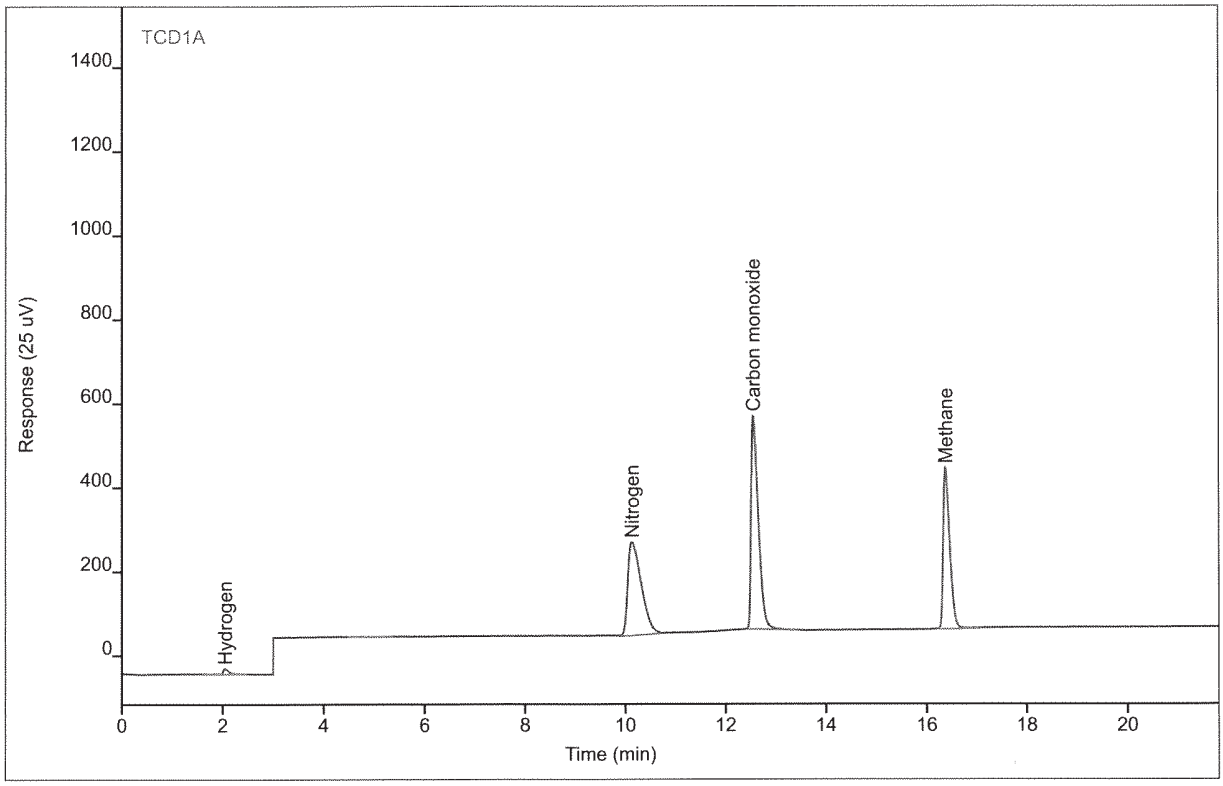
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	VV	0.93	2.24023	0.21825		1		
?	VV	2.69	1.66086	0.36052		1		
?	VV	1.08	1.20176	0.30002		1		
Hydrogen	MM	2.05	114.697	13.8098	8.07121	1	8.07121	%
Oxygen		(8.33)				1		
Nitrogen	BB	10.14	4183.85	220.373	9.89069	1	9.89069	%
Carbon monoxide	MM	12.55	5133.08	510.180	9.73388	1	9.73388	%
Methane	MM	16.37	3466.46	384.589	7.70623	1	7.70623	%
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG8 ENV(1=0,3=319.09)
Sequence Name	BETTYP209 ver.15
Data File	009F0803.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 10:18 PM
File Modified	7/23/2015 12:21 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM

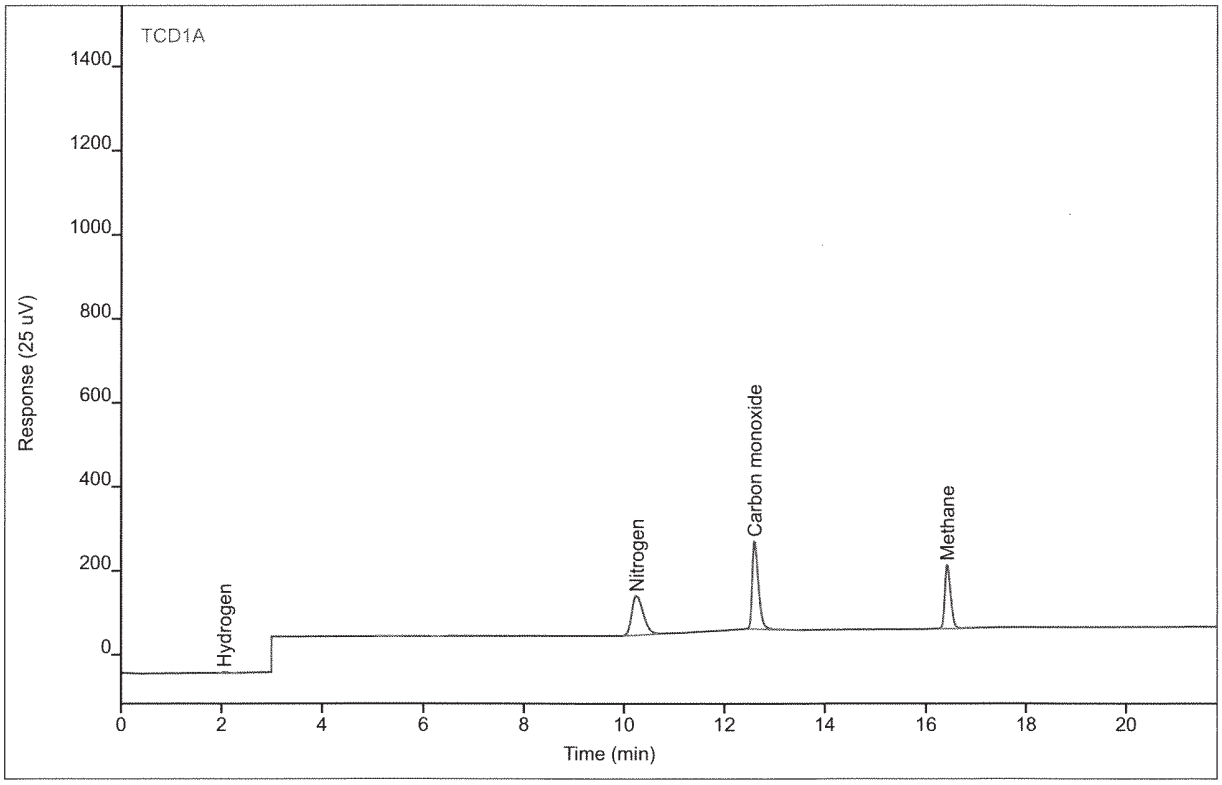


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	VV	4.96	7.75796	0.57994		1		
?	VB	5.19	2.91598	0.40690		1		
?	VV	4.74	6.98797	0.61846		1		
Hydrogen	BV	2.05	119.469	13.8994	8.40661	1	8.40661	%
Oxygen		(8.33)				1		
Nitrogen	BB	10.13	4196.03	223.363	9.91949	1	9.91949	%
Carbon monoxide	MM	12.55	5098.26	508.557	9.66781	1	9.66781	%
Methane	MM	16.37	3482.13	385.090	7.74116	1	7.74116	%
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG7 ENV(1=530,3=319.09)	Sample Type	Calibration
Sequence Name	BETTYP209 ver.15	Vial Number	Vial 9
Data File	009F0901.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	1 of 3
Injection Date	6/24/2015 10:48 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	7/23/2015 12:21 PM	Analysis Method	BETTYP209_FGA_CRYO.M
Instrument	Betty	Method Modified	7/23/2015 12:10 PM
Operator	Chester Burnett	Printed	7/23/2015 12:47 PM



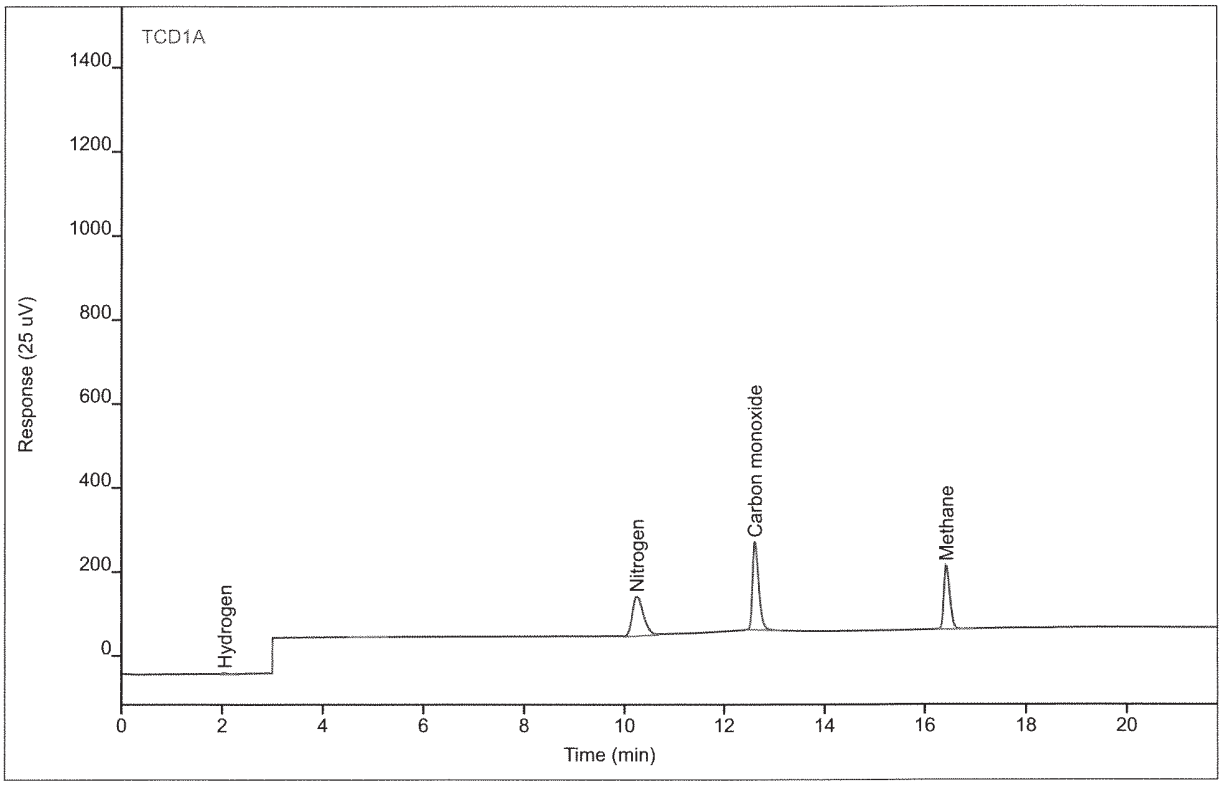
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	VB	6.26	1.14409	0.26224		1		
?	BB	5.13	3.44645	0.30434		1		
Hydrogen	BB	2.05	40.4230	4.81458	2.85058	1	2.85058	%
Oxygen		(8.33)				1		
Nitrogen	BB	10.25	1468.68	94.1200	3.47177	1	3.47177	%
Carbon monoxide	MM	12.62	1826.45	210.477	3.45946	1	3.45946	%
Methane	MM	16.43	1253.70	152.738	2.77486	1	2.77486	%
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP209 ver.15
Data File	009F0902.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 11:18 PM
File Modified	7/23/2015 12:21 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM

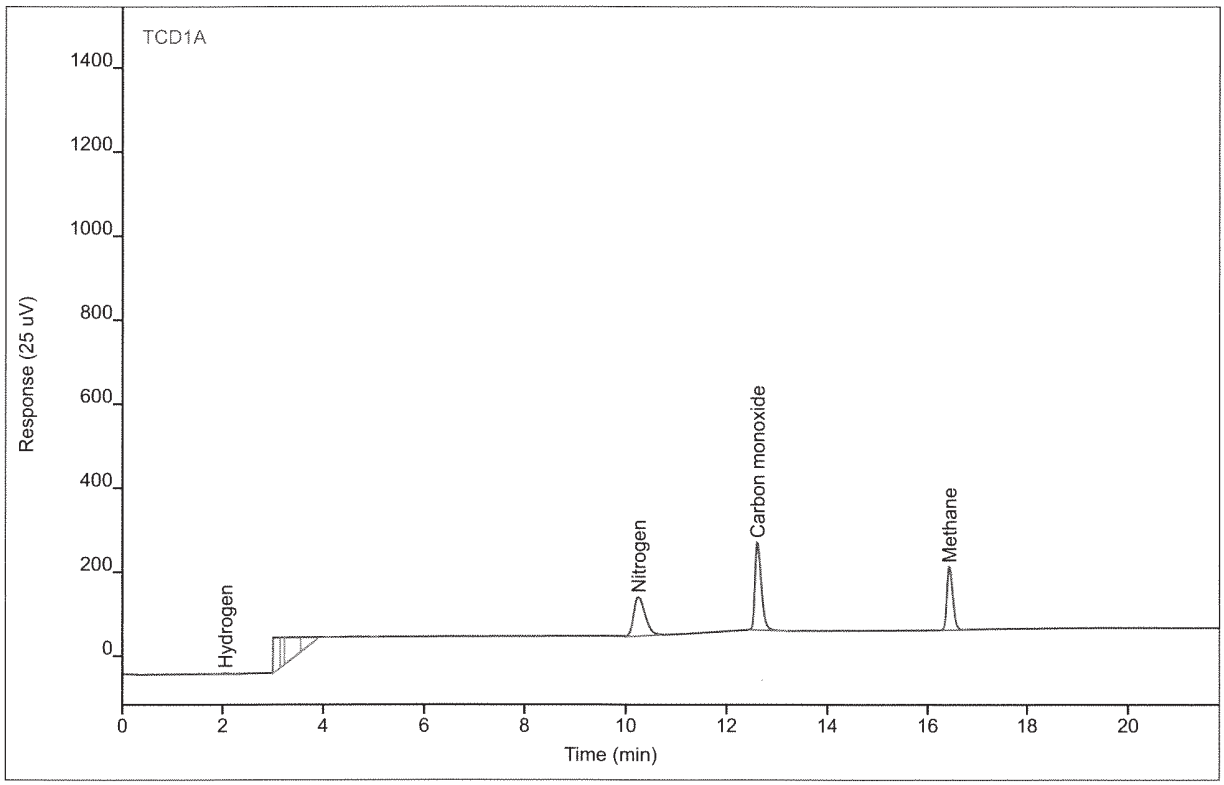


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BB	5.09	4.31511	0.42889		1		
?	BB	4.68	8.91829	0.58805		1		
Hydrogen	BB	2.05	38.4105	4.74236	2.70912	1	2.70912	%
Oxygen		(8.33)				1		
Nitrogen	BB	10.25	1470.85	95.9010	3.47691	1	3.47691	%
Carbon monoxide	MM	12.62	1820.85	211.107	3.44884	1	3.44884	%
Methane	MM	16.43	1256.76	152.925	2.78168	1	2.78168	%
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG7 ENV(1=530,3=319.09)	Sample Type	Calibration
Sequence Name	BETTYP209 ver.15	Vial Number	Vial 9
Data File	009F0903.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	3 of 3
Injection Date	6/24/2015 11:47 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	7/23/2015 12:21 PM	Analysis Method	BETTYP209_FGA_CRYO.M
Instrument	Betty	Method Modified	7/23/2015 12:10 PM
Operator	Chester Burnett	Printed	7/23/2015 12:47 PM



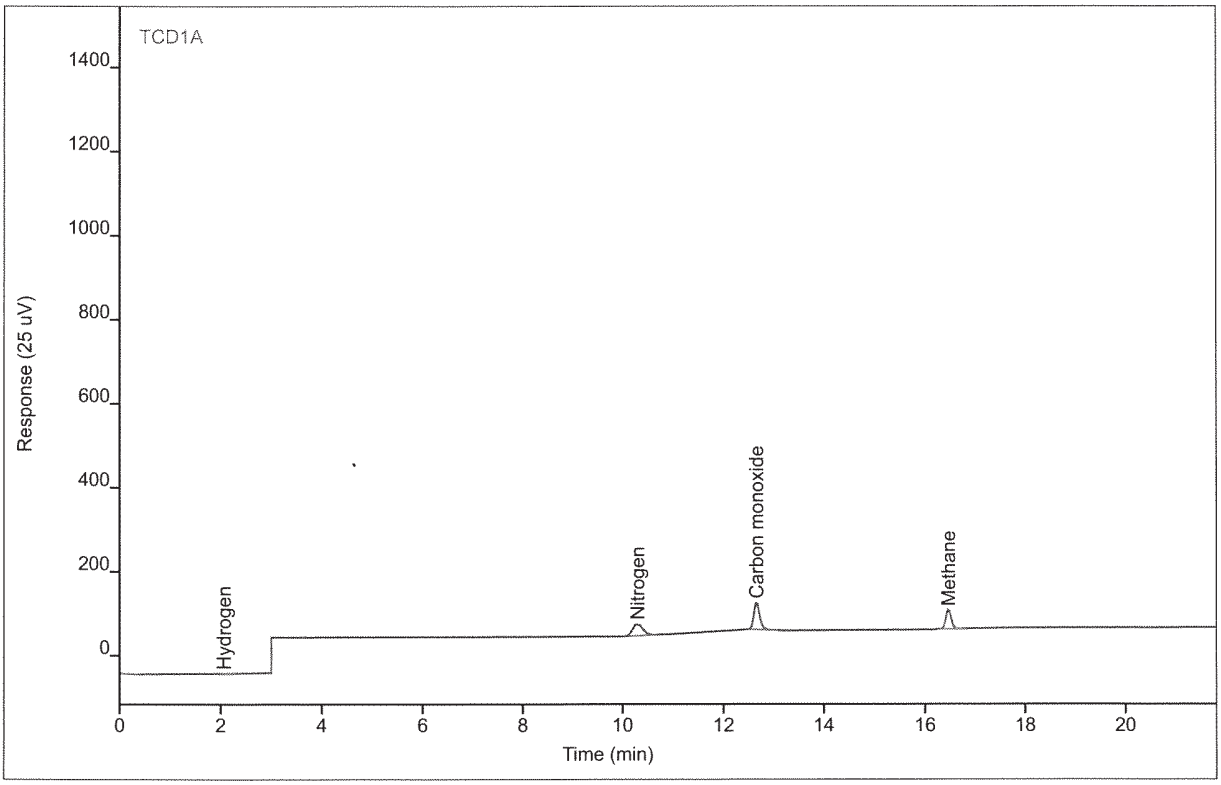
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BV	4.28	2.96042	0.28258		1		
?	VV	3.37	973.208	53.0891		1		
?	VV	3.20	369.478	68.9683		1		
?	BB	4.98	1.41172	0.24039		1		
?	VV	3.12	685.525	76.3709		1		
?	VB	3.67	404.600	25.2769		1		
Hydrogen	BB	2.06	40.0743	4.80821	2.82607	1	2.82607	%
Oxygen		(8.33)				1		
Nitrogen	BB	10.25	1471.85	94.0355	3.47926	1	3.47926	%
Carbon monoxide	MM	12.62	1813.17	209.941	3.43427	1	3.43427	%
Methane	MM	16.43	1237.32	151.742	2.73837	1	2.73837	%
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG6 ENV(1=1271.99,3=159.55)
Sequence Name	BETTYP209 ver.15
Data File	009F1001.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/25/2015 12:17 AM
File Modified	7/23/2015 12:22 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM



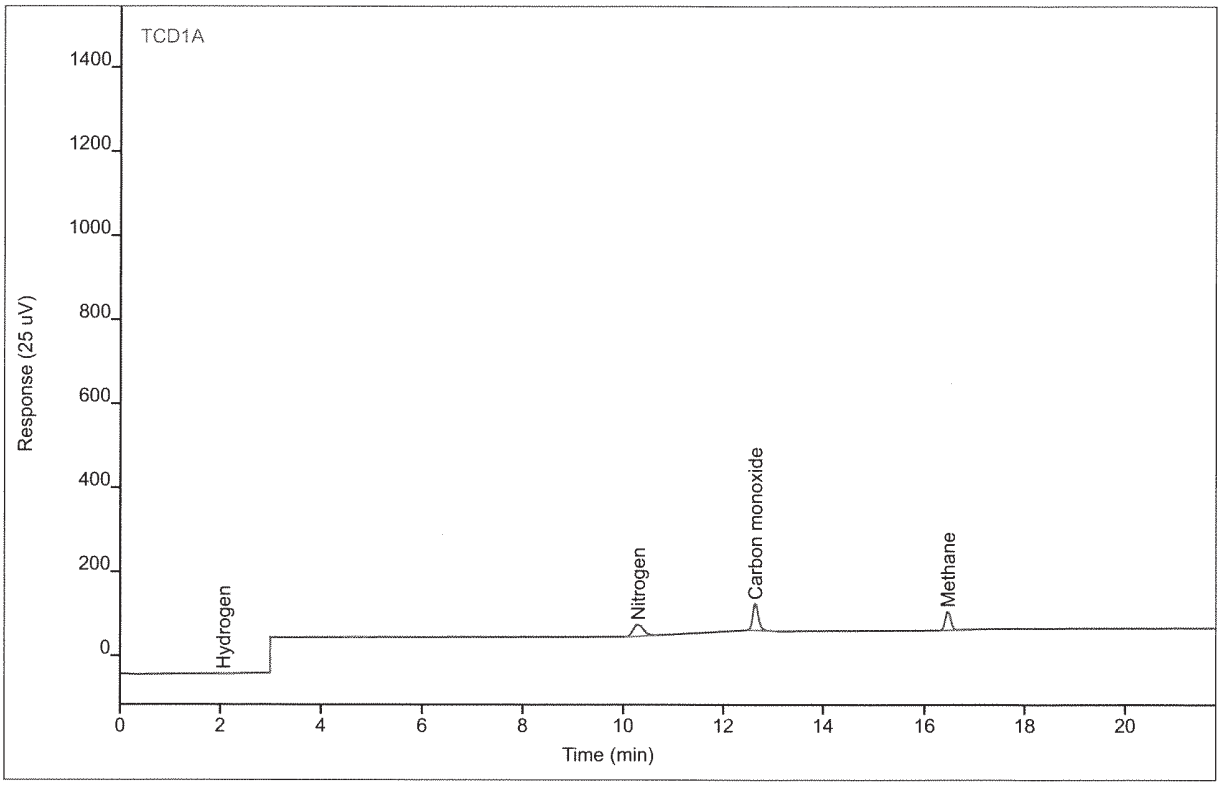
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BB	0.05	1.25925	0.32883		1		
Hydrogen	MM	2.06	11.0265	1.35354	0.78433	1	0.78433	%
Oxygen		(8.33)				1		
Nitrogen	BB	10.30	417.900	29.1402	0.98763	1	0.98763	%
Carbon monoxide	MM	12.65	519.999	63.9338	0.98044	1	0.98044	%
Methane	MM	16.46	361.305	45.6278	0.78608	1	0.78608	%
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG6 ENV(1=1271.99,3=159.55)
Sequence Name	BETTYP209 ver.15
Data File	009F1002.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/25/2015 12:47 AM
File Modified	7/23/2015 12:22 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM

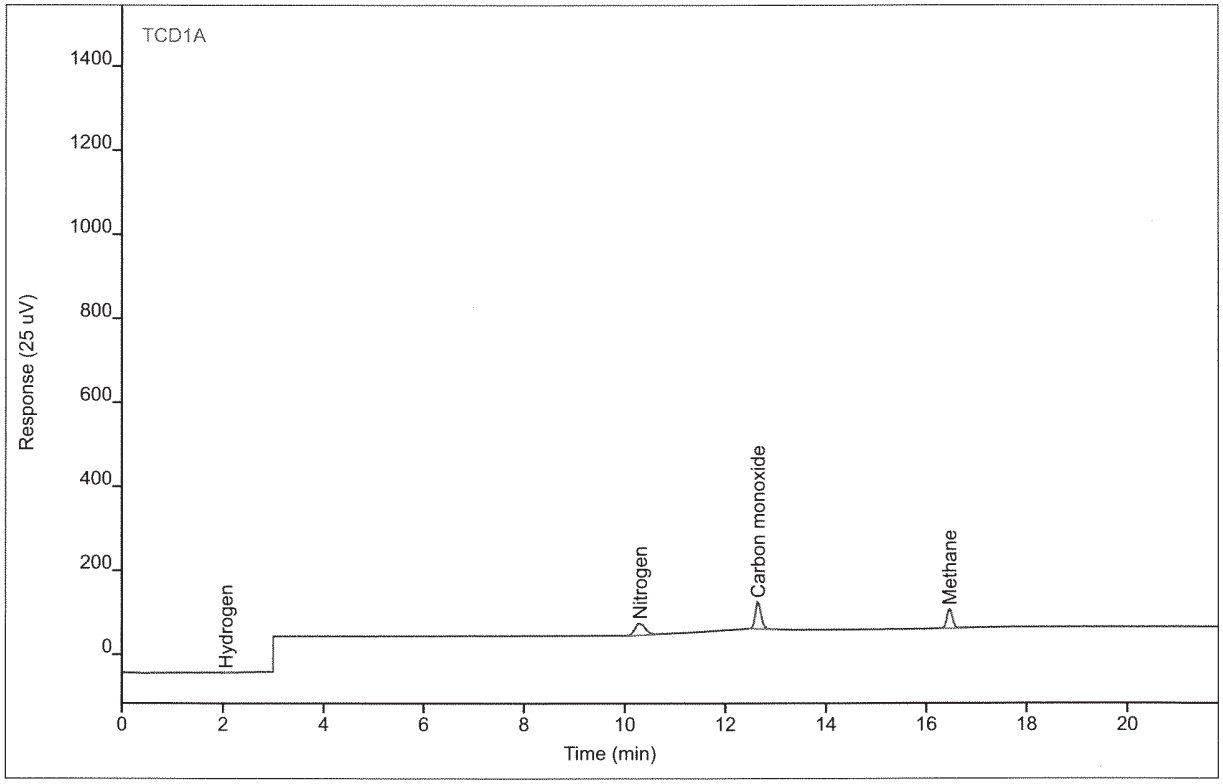


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BV	4.73	5.42654	0.35173		1		
Hydrogen	MM	2.06	10.6474	1.34891	0.75769	1	0.75769	%
Oxygen		(8.33)				1		
Nitrogen	BB	10.30	417.042	28.8991	0.98560	1	0.98560	%
Carbon monoxide	MM	12.65	513.122	63.6411	0.96739	1	0.96739	%
Methane	MM	16.46	358.781	45.4199	0.78045	1	0.78045	%
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG6 ENV(1=1271.99,3=159.55)	Sample Type	Calibration
Sequence Name	BETTYP209 ver.15	Vial Number	Vial 9
Data File	009F1003.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	3 of 3
Injection Date	6/25/2015 1:17 AM	Acquisition Method	BETTYP017_CAL.M
File Modified	7/23/2015 12:22 PM	Analysis Method	BETTYP209_FGA_CRYO.M
Instrument	Betty	Method Modified	7/23/2015 12:10 PM
Operator	Chester Burnett	Printed	7/23/2015 12:47 PM

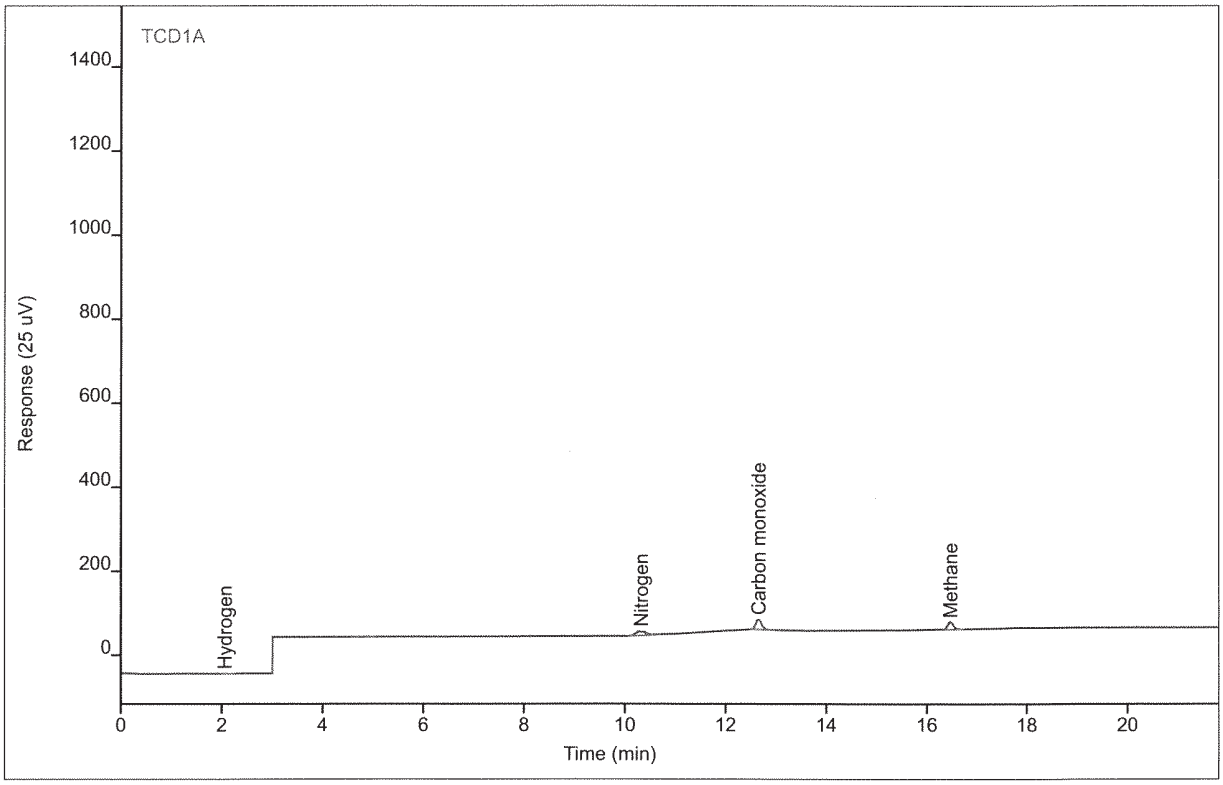


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.06	11.1880	1.31110	0.79568	1	0.79568	%
Oxygen		(8.33)				1		
Nitrogen	BB	10.30	418.925	29.3652	0.99005	1	0.99005	%
Carbon monoxide	MM	12.65	528.445	64.5112	0.99647	1	0.99647	%
Methane	MM	16.46	367.470	46.1559	0.79981	1	0.79981	%
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG5 ENV(1=3391.99,3=159.55)	Sample Type	Calibration
Sequence Name	BETTYP209 ver.15	Vial Number	Vial 9
Data File	009F1101.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	1 of 8
Injection Date	6/25/2015 1:47 AM	Acquisition Method	BETTYP017_CAL.M
File Modified	7/23/2015 12:22 PM	Analysis Method	BETTYP209_FGA_CRYO.M
Instrument	Betty	Method Modified	7/23/2015 12:10 PM
Operator	Chester Burnett	Printed	7/23/2015 12:47 PM



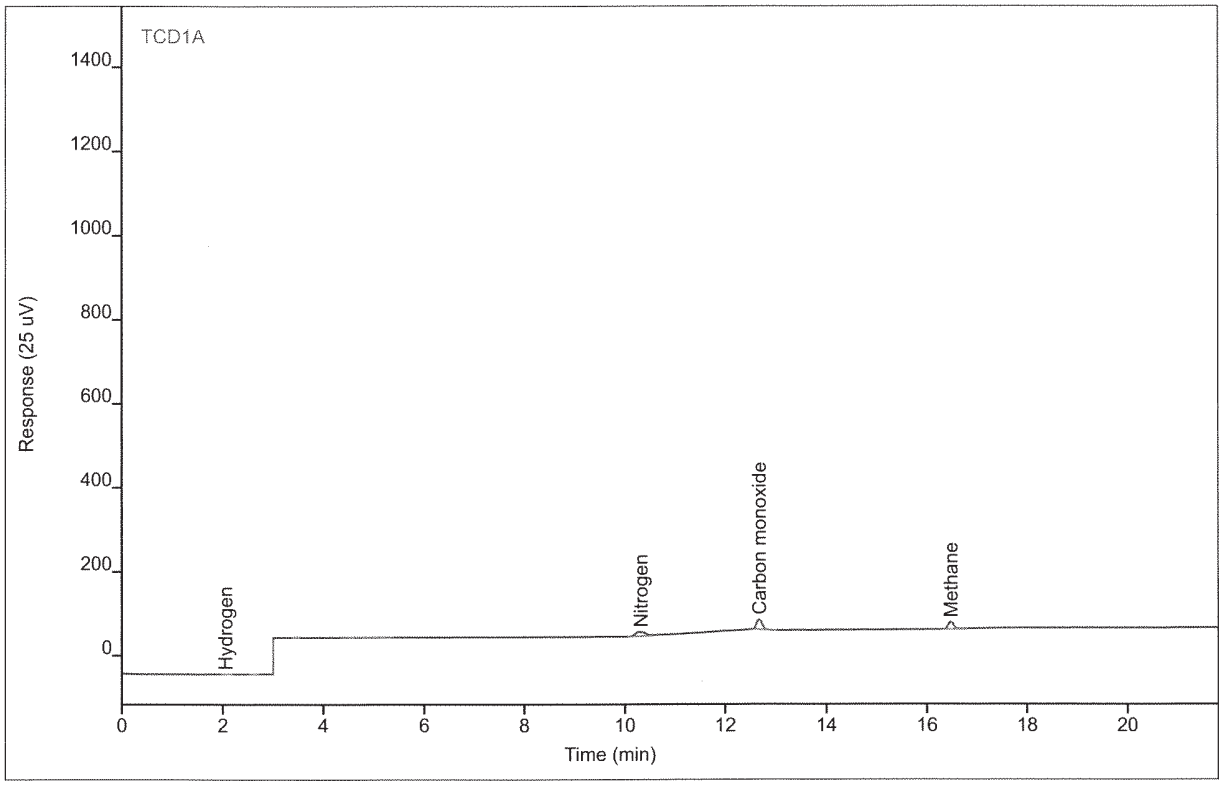
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BB	4.75	5.18987	0.32510		1		
Hydrogen	MM	2.06	4.31035	0.59346	0.31226	1	0.31226	%
Oxygen		(8.33)				1		
Nitrogen	BB	10.32	159.760	11.7679	0.37736	1	0.37736	%
Carbon monoxide	MM	12.66	203.822	25.3727	0.38049	1	0.38049	%
Methane	MM	16.47	145.453	18.3945	0.30531	1	0.30531	%
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG5 ENV(1=3391.99,3=159.55)
Sequence Name	BETTYP209 ver.15
Data File	009F1102.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/25/2015 2:16 AM
File Modified	7/23/2015 12:22 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 8
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM

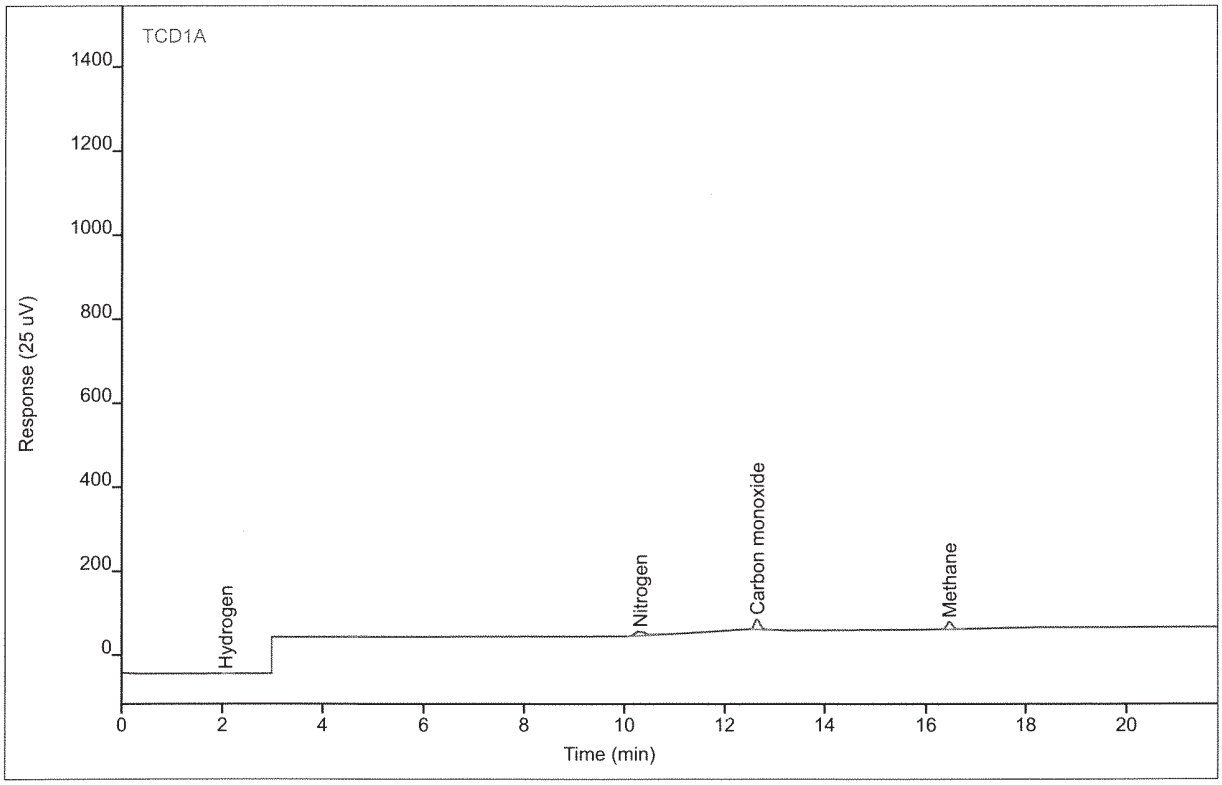


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BB	4.78	10.6439	0.38659		1		
?	BB	3.45	1.20793	0.26293		1		
?	VV	2.57	1.72542	0.24421		1		
Hydrogen	BB	2.05	4.16984	0.60439	0.30215	1	0.30215	%
Oxygen		(8.33)				1		
Nitrogen	BB	10.32	159.454	11.7016	0.37664	1	0.37664	%
Carbon monoxide	MM	12.66	198.695	25.2840	0.37091	1	0.37091	%
Methane	MM	16.47	144.715	18.3174	0.30377	1	0.30377	%
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG5 ENV(1=3391.99,3=159.55)	Sample Type	Calibration
Sequence Name	BETTYP209 ver.15	Vial Number	Vial 9
Data File	009F1103.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	3 of 8
Injection Date	6/25/2015 2:46 AM	Acquisition Method	BETTYP017_CAL.M
File Modified	7/23/2015 12:22 PM	Analysis Method	BETTYP209_FGA_CRYO.M
Instrument	Betty	Method Modified	7/23/2015 12:10 PM
Operator	Chester Burnett	Printed	7/23/2015 12:47 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BB	4.69	3.17746	0.33140		1		
Hydrogen	MM	2.07	4.40770	0.56874	0.31910	1	0.31910	%
Oxygen		(8.33)				1		
Nitrogen	BB	10.32	156.497	11.3809	0.36966	1	0.36966	%
Carbon monoxide	MM	12.66	202.118	25.1585	0.37730	1	0.37730	%
Methane	MM	16.47	148.240	18.4616	0.31124	1	0.31124	%
Carbon Dioxide		(19.57)				1		

PRAXAIR
Making our planet more productive

Praxair Distribution Inc.
10210 North Freeway
Houston, TX 77037

Issue Date: 12-08-2014

To:

Attn:

Praxair Order Number:
Customer Order Number:
Customer Reference Number:

Product Lot Number: 1124002724A1
Product Part Number: ME 5.0RS-G

CERTIFICATE OF ANALYSIS

(Methane 99.999%, Research)

Cylinder Serial Number	*Analytes*	*Specification*	
RA071907	Methane	99.999	%
RA072283	Ethane	ND < 0.1	ppm
*RA072293	Nitrogen	ND < 0.1	ppm
RA072328	Oxygen	0.1	ppm
	Moisture	0.3	ppm
	Other Hydrocarbons	ND < 0.1	ppm

Cylinder Style: G
Cylinder Pressure @70°F (21°C): 2000 PSI
Cylinder Volume: 40 Cubic Feet

Valve Outlet Connection: 350 CGA
Filling Method: Pressure

Approved Signer: _____
Patrick Philpot

This analysis of the product described herein was prepared by Praxair Distribution using instruments whose calibration is certified using Praxair Reference Materials. Praxair Reference Materials are prepared either by weights traceable to the National Institute of Standards and Technology (NIST), Measurement Canada or by using NIST Standard Reference Materials where available.

Note: All expressions for concentration (e.g., % or ppm) are for gas phase, by volume (e.g., ppmv) unless otherwise noted

*Key to Analytical Principle:

A. Flame Ionization with Methanizer
B. Gas Chromatography with Discharge Ionization Detector
C. Gas Chromatography with Electrolytic Conductivity Detector
D. Gas Chromatography with Flame Ionization Detector
E. Gas Chromatography with Flame Photometric Detector
F. Gas Chromatography with Helium Ionization Detector
G. Gas Chromatography with Methanizer Carbonizer
H. Gas Chromatography with Photoionization Detector
I. Gas Chromatography with Reduction Gas Analyzer
J. Gas Chromatography with Thermal Conductivity Detector
K. Gas Chromatography with Ultrasonic Detector
L. Gravimetrical Methods
M. Infrared – FTIR or NDIR
N. Mass Spectrometry – MS or GC/MS
O. Paramagnetic
P. Electrochemical
Q. Total Hydrocarbon Analyzer
R. Wet Chemical
S. Detector Tube
T. Odor

CUSTOMGAS
SOLUTIONS

1750 East Club Boulevard
Durham, NC 27704
Phone: (919) 220-2570
Fax: (919) 220-4540

Certificate of Analysis

Customer:

Enthalpy Analytical, Inc.
800-1 Capitola Drive
Durham, NC 27713

Tel: (919) 595-1377

Cylinder Number: XC010510B
Cylinder Size/CGA: 150/590
Fill Pressure: 2015 PSIA
Gas Volume:3700 liters
Date of Mfg: 02/04/14
Expiration Date: 02/04/16

Customer Number	Ship VIA	Job No.	Customer PO	Mixture Type
00127703NC	Pick up	011614-004	01151401	Gravimetric

Component	Nominal Concentration	Actual Concentration*	Mixture Type
Oxygen	10 %	10.01 % +/- 0.2 %	Gravimetric Master Gas
Carbon Dioxide	10 %	10.01 % +/- 0.2 %	
Helium	balance	balance	

NOTES:

Blend Tolerance: +/- 2 %

Analytical Tolerance: +/- 2 %

Traceability: NIST by weight set. NIST Traceability No MT5061.
Internal Standards by analysis

Reactive Mixtures: Analyzed twice with required agreement between analyses of 2%.
Required wait time between analyses of >7 days.

Caution: Do not use below 150 PSIG.

Authorized Signature:

Joseph A. Ernst

*Every effort has been made to establish the actual concentration of the components using master gas blending technology however, Custom Gas Solutions shall have no liability in excess of the established charge for this material.

AIR LIQUIDE Air Liquide America Specialty Gases LLC Scott

CERTIFIED MASTER CLASS
Single-Certified Calibration Standard

6141 EASTON ROAD, BLDG 1, PLUMSTEADVILLE, PA 18949-0310 Phone: 800-331-4953 Fax: 215-766-7226

CERTIFICATE OF ACCURACY: Certified Master Class Calibration Standard

Product Information
Document # : 55814398-001
Item No.: MC500418-P-44
P.O. No.: 06181401

Cylinder Number: NKA197
Cylinder Size: 44
Certification Date: 30Jun2014
Expiration Date: 01Jul2017
Lot Number: PLU0288940

Customer

ENTHALPY ANALYTICAL, INC.
GREG TATE
800-1 CAPITOLA DRIVE
DURHAM, NC 27703
US

CERTIFIED CONCENTRATION

Component Name	Concentration (Moles)		Accuracy (+/-%)
CARBON MONOXIDE	10.0	%	2
HYDROGEN	8.2	%	2
METHANE	8.0	%	2
NITROGEN	10.0	%	2
HELIUM		BALANCE	

TRACEABILITY

Traceable To

Scott Reference Standard

APPROVED BY: LAMONT SHIELDS DATE: 7-3-14

==========

6890 GC METHOD

==========

OVEN
- Initial temp: -15 C (On)
- Initial time: 10.00 min
- Ramps:

#	Rate	Final temp	Final time
1	30.00	220	4.00
2	0 (Off)		

- Post temp: 40 C
- Post time: 0.00 min
- Run time: 21.83 min
- Maximum temp: 250 C
- Equilibration time: 0.50 min

CRYO (N2)
- Cryo: On
- Cryo fault: On
- Cryo timeout: 40.00 min (On)
- Quick cryo cool: Off
- Ambient temp: 30 C

FRONT INLET (SPLIT/SPLITLESS)
- Mode: Splitless
- Initial temp: 200 C (On)
- Pressure: 58.0 psi (On)
- Purge flow: 0.0 mL/min
- Purge time: 0.00 min
- Total flow: 12.3 mL/min
- Gas saver: Off
- Gas type: Helium

BACK INLET (SPLIT/SPLITLESS)
- Mode: Split
- Initial temp: 200 C (On)
- Pressure: 9.0 psi (On)
- Split ratio: 5:1
- Split flow: 12.3 mL/min
- Total flow: 17.6 mL/min
- Gas saver: Off
- Gas type: Helium

COLUMN 1
- Packed Column
- Model Number: 19808
- Description: Rt-ShinCarbon 2m x 1mm I
- Max temperature: 250 C
- Mode: constant pressure
- Pressure: 58.0 psi
- Inlet: Front Inlet
- Outlet: Front Detector
- Outlet pressure: ambient

COLUMN 2
- Capillary Column
- Model Number: 10198
- Description: Rtx-1 30m x 0.32mm x 4um
- Max temperature: 250 C
- Nominal length: 30.0 m
- Nominal diameter: 320.00 um
- Nominal film thickness: 4.00 um
- Mode: constant flow
- Initial flow: 2.5 mL/min
- Nominal init pressure: 9.0 psi
- Average velocity: 35 cm/sec
- Inlet: Back Inlet
- Outlet: (other)
- Outlet pressure: ambient

FRONT DETECTOR (TCD)
- Temperature: 275 C (On)
- Reference flow: 20.0 mL/min (On)
- Mode: Constant makeup flow
- Makeup flow: 10.0 mL/min (On)
- Makeup Gas Type: Helium
- Filament: On
- Negative polarity: On

BACK DETECTOR (FID)
- Temperature: 250 C (On)
- Hydrogen flow: 60.0 mL/min (On)
- Air flow: 450.0 mL/min (On)
- Mode: Constant makeup flow
- Makeup flow: 40.0 mL/min (On)
- Makeup Gas Type: Nitrogen
- Flame: On
- Electrometer: On
- Lit offset: 2.0

SIGNAL 1
- Data rate: 20 Hz
- Type: front detector
- Save Data: On

SIGNAL 2
- Data rate: 20 Hz
- Type: back detector
- Save Data: On

THERMAL AUX 1
- Use: Valve Box Heater
- Initial temp: 130 C (On)

VALVES
- Valve 1 Gas Sampling
  - Loop Volume: 0.250 mL

POST RUN
- Post Time: 0.00 min

)dified on: 6/30/2014 at 5:46:14 PM
Load Time: 0.10 min
Inject Time: 0.50 min
Inlet: Front Inlet
Valve 2 Gas Sampling
Loop Volume: 0.250 mL
Load Time: 0.10 min
Inject Time: 0.50 min
Inlet: Front Inlet

TIME TABLE

Time(min)	Parameter & Setpoint	
3.00	Front Detector Polarity:	Off

SPECIFICATIONS

Component Name	Requested Concentration (Moles)		Certified Concentration (Moles)		Blend Tolerance Result (+/- %)	Certified Accuracy Result (+/- %)
CARBON MONOXIDE	10.	%	10.0	%	.0	2.00
HYDROGEN	8.	%	8.2	%	2.5	2.00
METHANE	8.	%	8.0	%	.0	2.00
NITROGEN	10.	%	10.0	%	.0	2.00
HELIUM		BAL		BAL		

TRACEABILITY

Traceable To
Scott Reference Standard

PHYSICAL PROPERTIES

Cylinder Size: 44

Pressure: 2015 PSIG
Expiration Date: 01Jul2017

Valve Connection: CGA 350

SPECIAL HANDLING INSTRUCTIONS

Do not use or store cylinder at or below the stated dew point temperature. Possible condensation of heavier components could result. In the event the cylinder has been exposed to temperatures at or below the dew point, place cylinder in heated area for 24 hours and then roll cylinder for 15 minutes to re-mix.

Use of calibration standards at or below dew point temperature may result in calibration error.

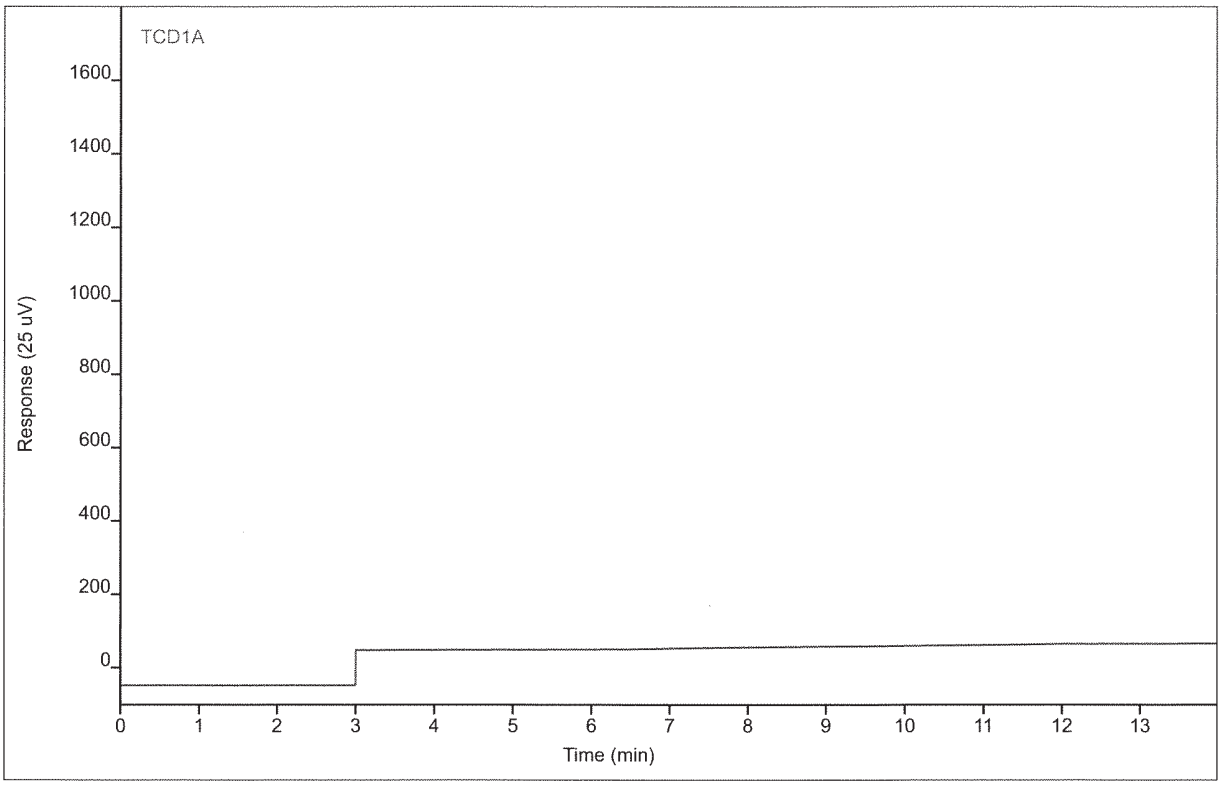
Raw Data

Chromatogram Report

Enthalpy Analytical

Sample Name	He Blank #LB
Sequence Name	BETTYP212B ver.5
Data File	001F0603.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/30/2015 1:46 AM
File Modified	7/9/2015 12:23 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Sample
Vial Number	Vial 1
Injection Volume	250
Injection	3 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	7/9/2015 12:20 PM
Printed	7/9/2015 1:12 PM



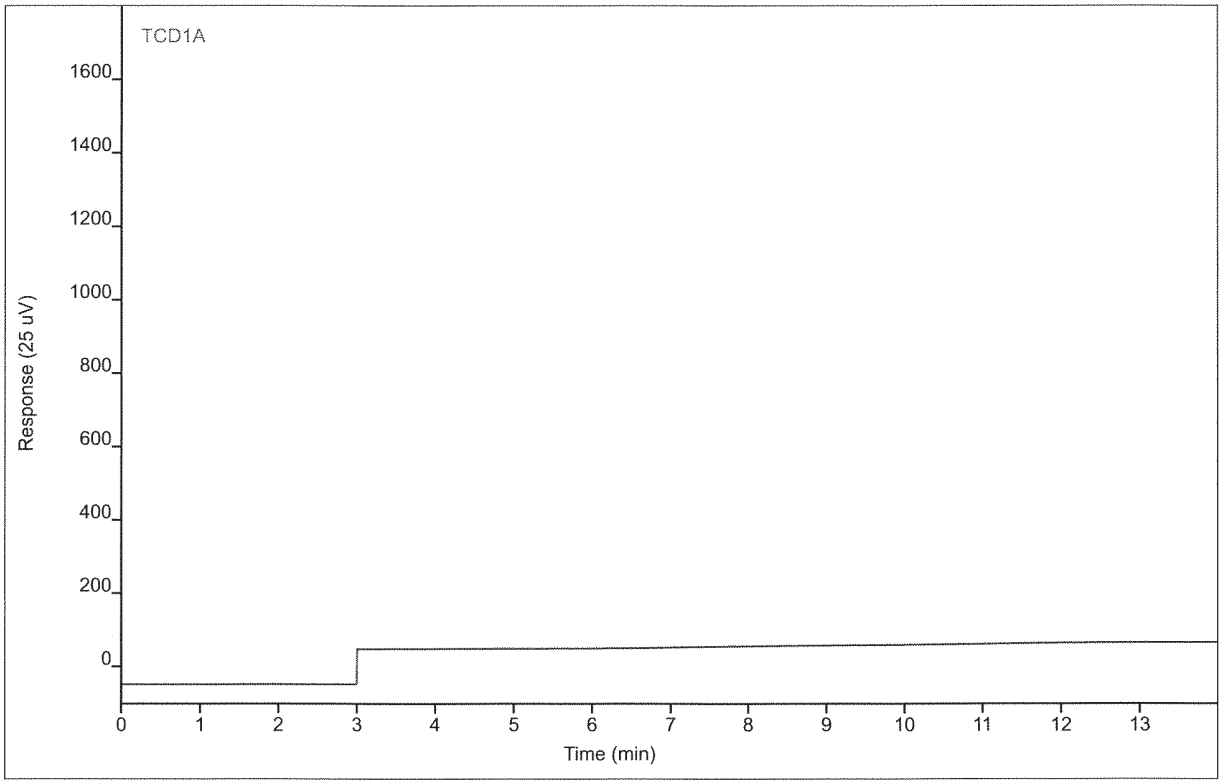
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(1.86)				1		
Oxygen		(4.57)				1		
Nitrogen		(4.85)				1		
Carbon monoxide		(6.28)				1		
Methane		(9.88)				1		
Carbon Dioxide		(13.19)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	He Blank #LB
Sequence Name	BETTYP212B ver.5
Data File	001F0604.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/30/2015 2:06 AM
File Modified	7/9/2015 12:22 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Sample
Vial Number	Vial 1
Injection Volume	250
Injection	4 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	7/9/2015 12:20 PM
Printed	7/9/2015 1:12 PM

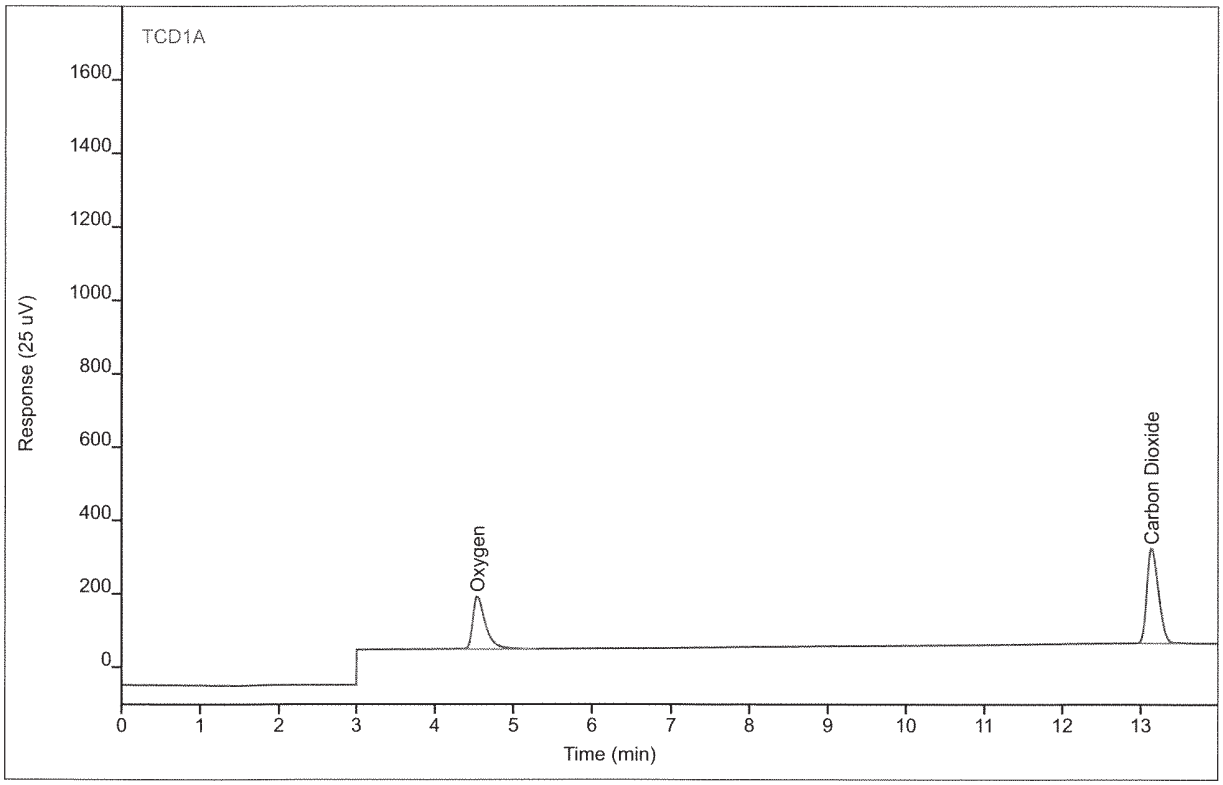


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(1.86)				1		
Oxygen		(4.57)				1		
Nitrogen		(4.85)				1		
Carbon monoxide		(6.28)				1		
Methane		(9.88)				1		
Carbon Dioxide		(13.19)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)	Sample Type	Calibration
Sequence Name	BETTYP212B ver.5	Vial Number	Vial 9
Data File	009F0701.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	1 of 3
Injection Date	6/30/2015 2:29 AM	Acquisition Method	GC142P133_CAL.M
File Modified	7/9/2015 12:23 PM	Analysis Method	BETTYP191_FGA.M
Instrument	Betty	Method Modified	7/9/2015 12:20 PM
Operator	Chester Burnett	Printed	7/9/2015 1:12 PM



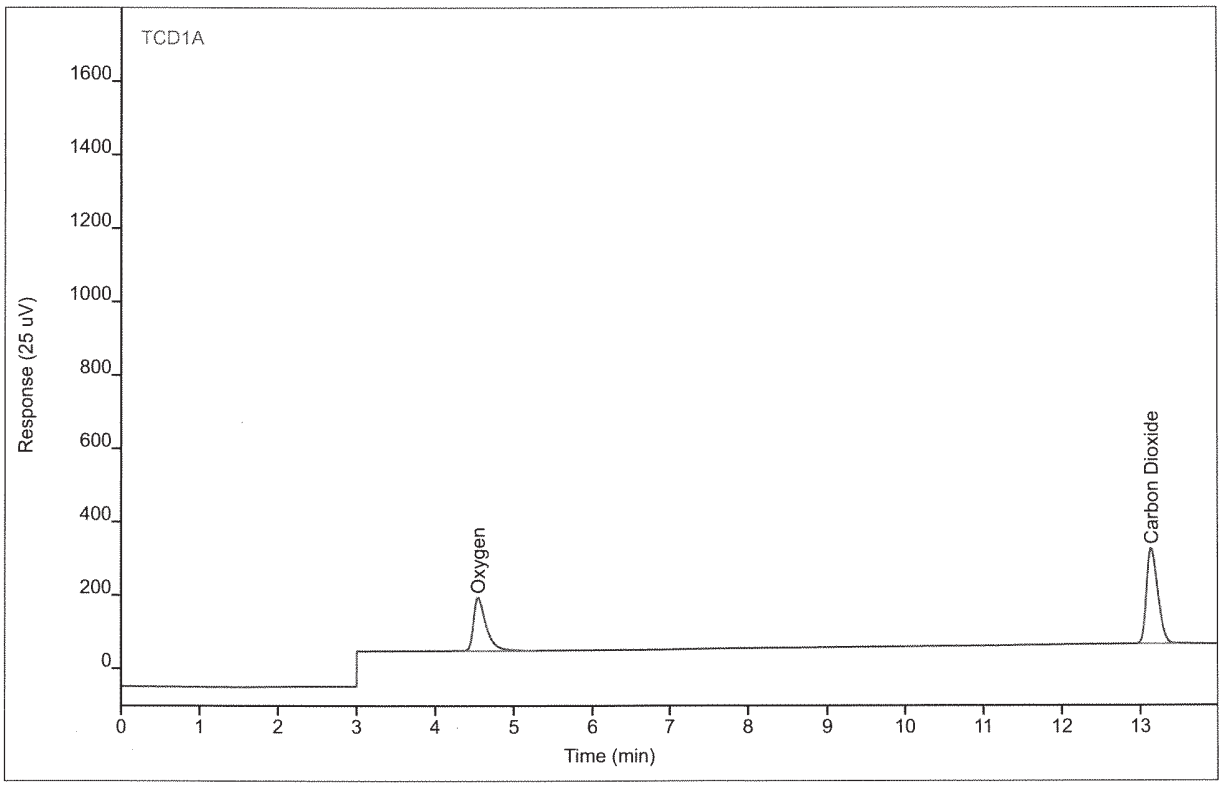
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.54	1649.69	144.924	4.94193	1	4.94193	%
Carbon Dioxide	BB	13.14	2636.61	258.865	4.96809	1	4.96809	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)
Sequence Name	BETTYP212B ver.5
Data File	009F0702.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/30/2015 2:53 AM
File Modified	7/9/2015 12:24 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	7/9/2015 12:20 PM
Printed	7/9/2015 1:12 PM



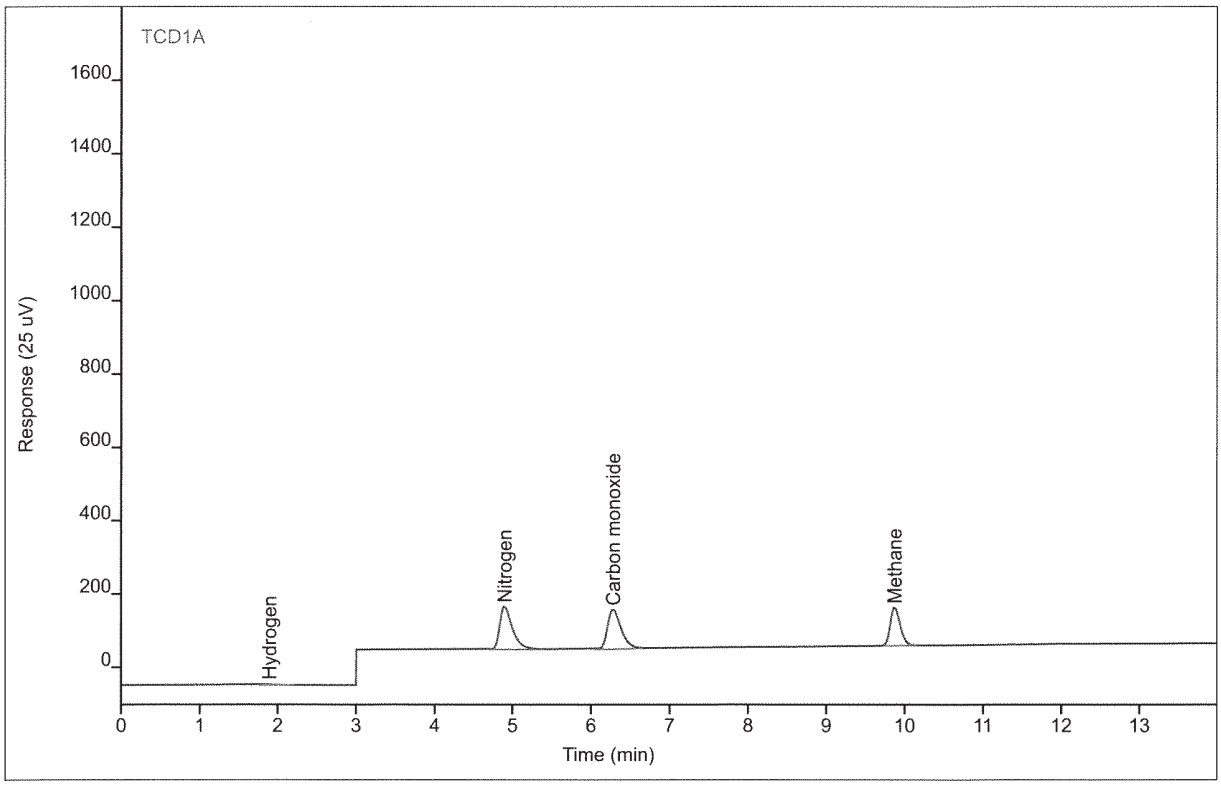
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.54	1654.42	145.664	4.95622	1	4.95622	%
Carbon Dioxide	BB	13.14	2648.79	260.258	4.99129	1	4.99129	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP212B ver.5
Data File	009F0801.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/30/2015 3:39 AM
File Modified	7/9/2015 12:24 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	7/9/2015 12:20 PM
Printed	7/9/2015 1:12 PM



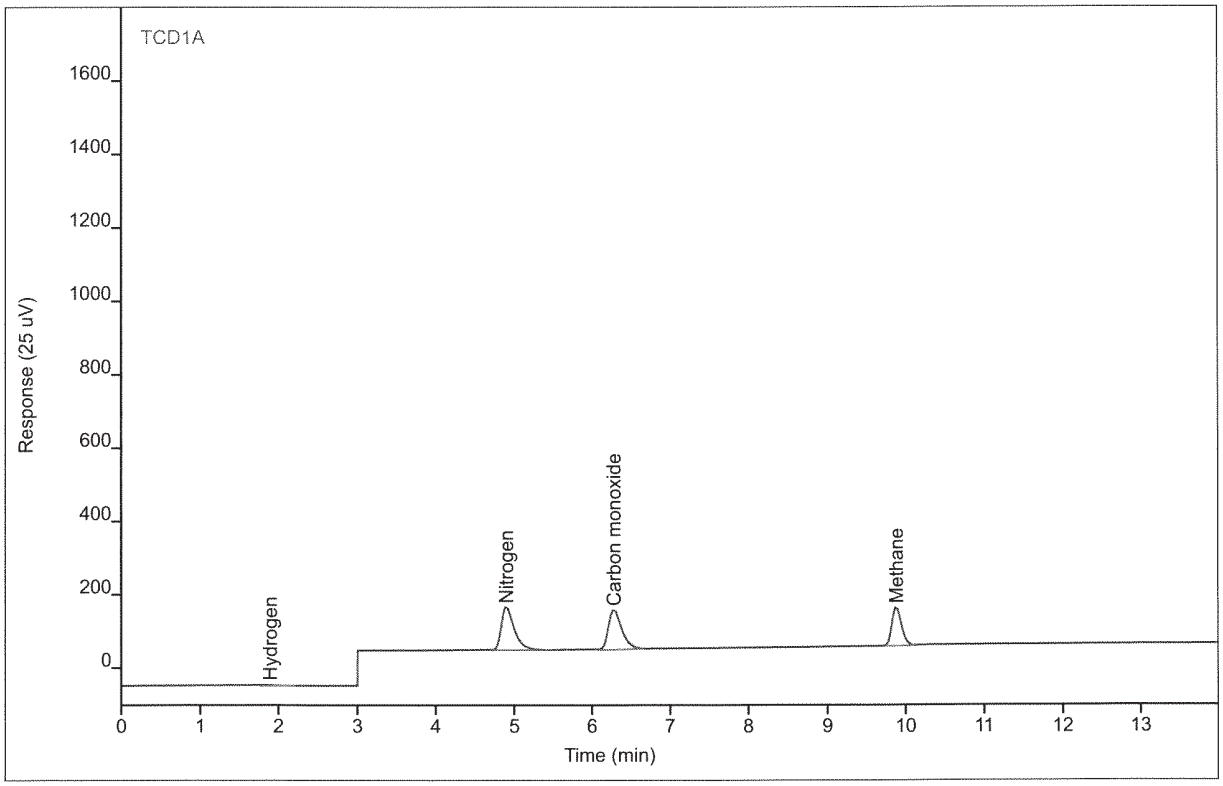
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.89	33.9893	3.67799	2.76320	1	2.76320	%
Nitrogen	VB	4.90	1347.56	117.321	3.50596	1	3.50596	%
Carbon monoxide	BB	6.28	1300.60	108.218	3.47789	1	3.47789	%
Methane	BB	9.88	916.817	104.517	2.80692	1	2.80692	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP212B ver.5
Data File	009F0802.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/30/2015 4:02 AM
File Modified	7/9/2015 12:24 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	7/9/2015 12:20 PM
Printed	7/9/2015 1:12 PM



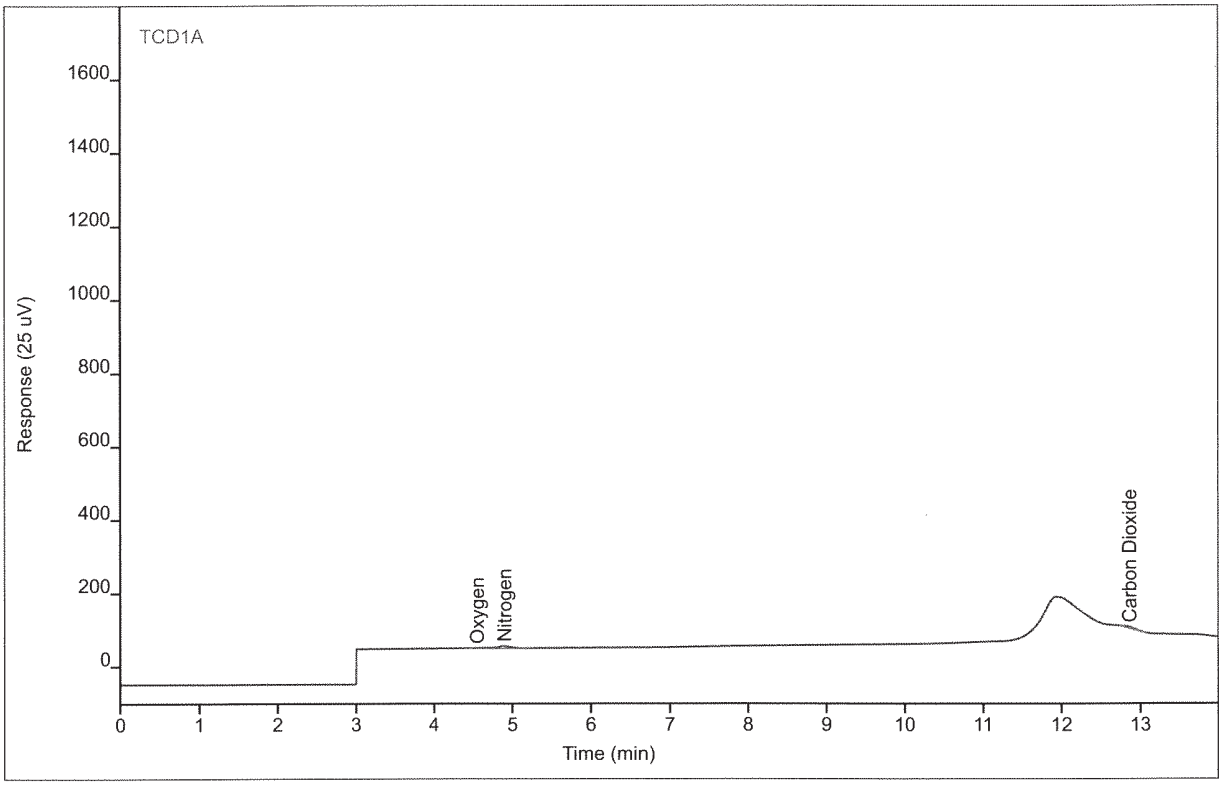
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.89	34.8283	3.74721	2.83365	1	2.83365	%
Nitrogen	BB	4.90	1344.68	117.393	3.49836	1	3.49836	%
Carbon monoxide	BB	6.28	1305.77	108.482	3.49173	1	3.49173	%
Methane	BB	9.88	916.596	104.862	2.80624	1	2.80624	%

Chromatogram Report

Enthalpy Analytical

Sample Name	0615-125.Large - L1 - R1 - 1158.Can
Sequence Name	BETTYP213 ver.3
Data File	008F1301.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/30/2015 6:26 PM
File Modified	7/9/2015 12:50 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Sample
Vial Number	Vial 8
Injection Volume	250
Injection	1 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	7/6/2015 8:46 AM
Printed	7/9/2015 1:12 PM



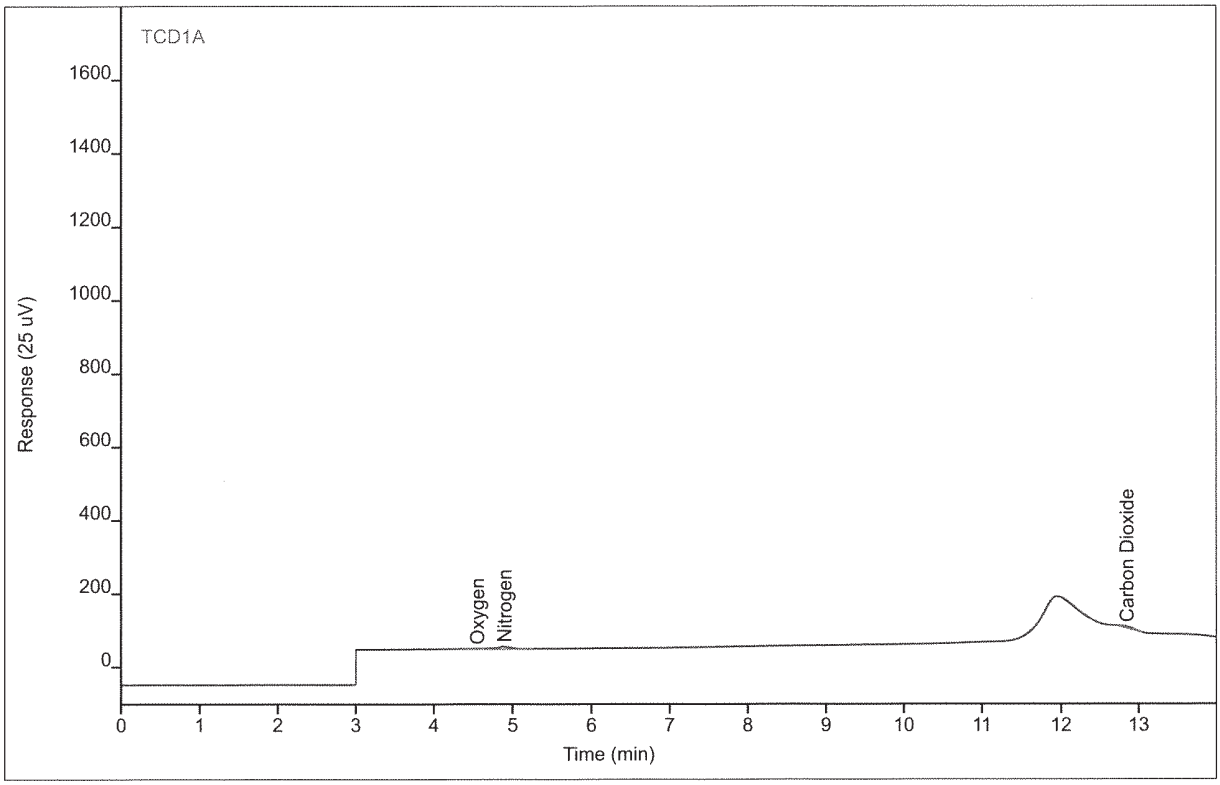
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(1.86)				1		
Oxygen	BV	4.55	19.1358	1.90967	0.05337	1	0.05337	%
Nitrogen	VB	4.90	91.6366	8.11917	0.21302	1	0.21302	%
Carbon monoxide		(6.28)				1		
Methane		(9.88)				1		
Carbon Dioxide	MM	12.86	56.1786	4.64933	0.09689	1	0.09689	%

Chromatogram Report

Enthalpy Analytical

Sample Name	0615-125.Large - L1 - R1 - 1158.Can
Sequence Name	BETTYP213 ver.3
Data File	008F1302.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/30/2015 6:46 PM
File Modified	7/9/2015 12:50 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Sample
Vial Number	Vial 8
Injection Volume	250
Injection	2 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	7/6/2015 8:46 AM
Printed	7/9/2015 1:12 PM



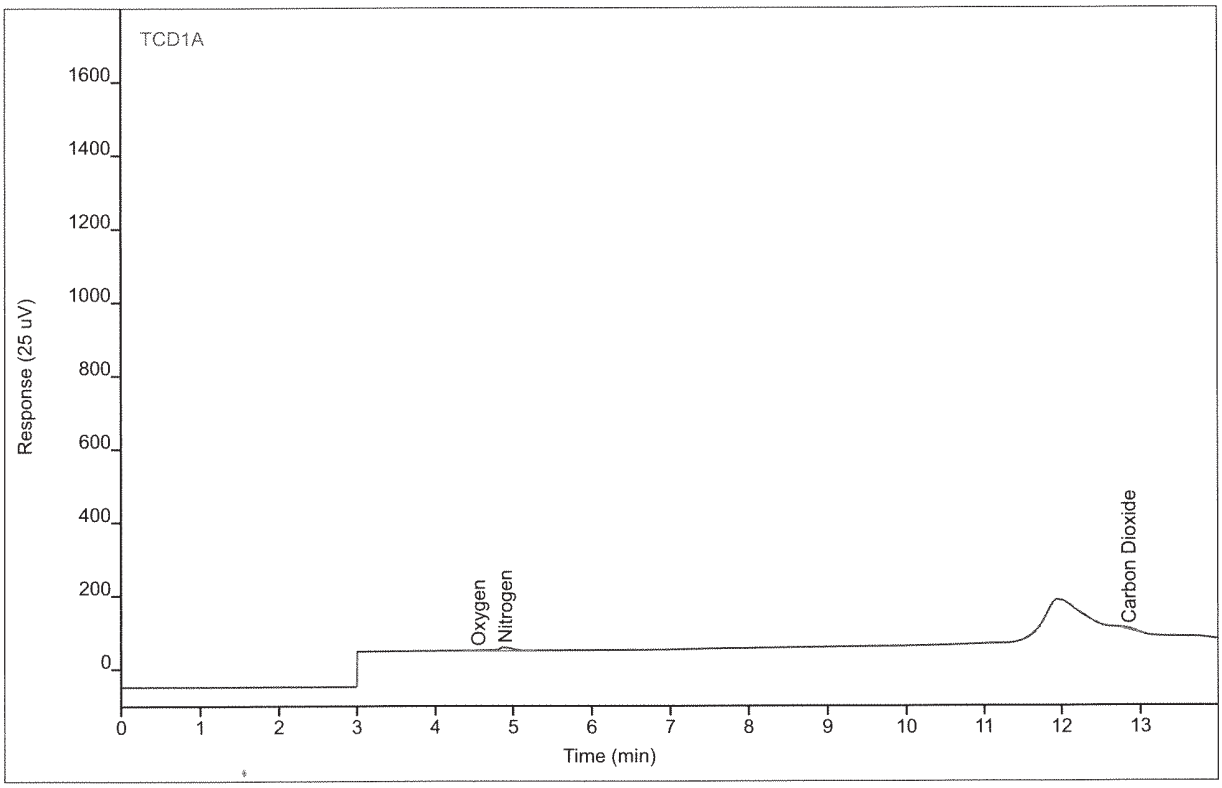
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(1.86)				1		
Oxygen	BV	4.55	19.7168	1.95684	0.05499	1	0.05499	%
Nitrogen	VB	4.90	90.0948	8.06691	0.20944	1	0.20944	%
Carbon monoxide		(6.28)				1		
Methane		(9.88)				1		
Carbon Dioxide	MM	12.85	58.3092	4.91876	0.10057	1	0.10057	%

Chromatogram Report

Enthalpy Analytical

Sample Name	0615-125.Large - L2 - R1 - 1124.Can
Sequence Name	BETTYP213 ver.3
Data File	010F1402.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/30/2015 7:49 PM
File Modified	7/9/2015 12:50 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Sample
Vial Number	Vial 10
Injection Volume	250
Injection	2 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	7/6/2015 8:46 AM
Printed	7/9/2015 1:12 PM



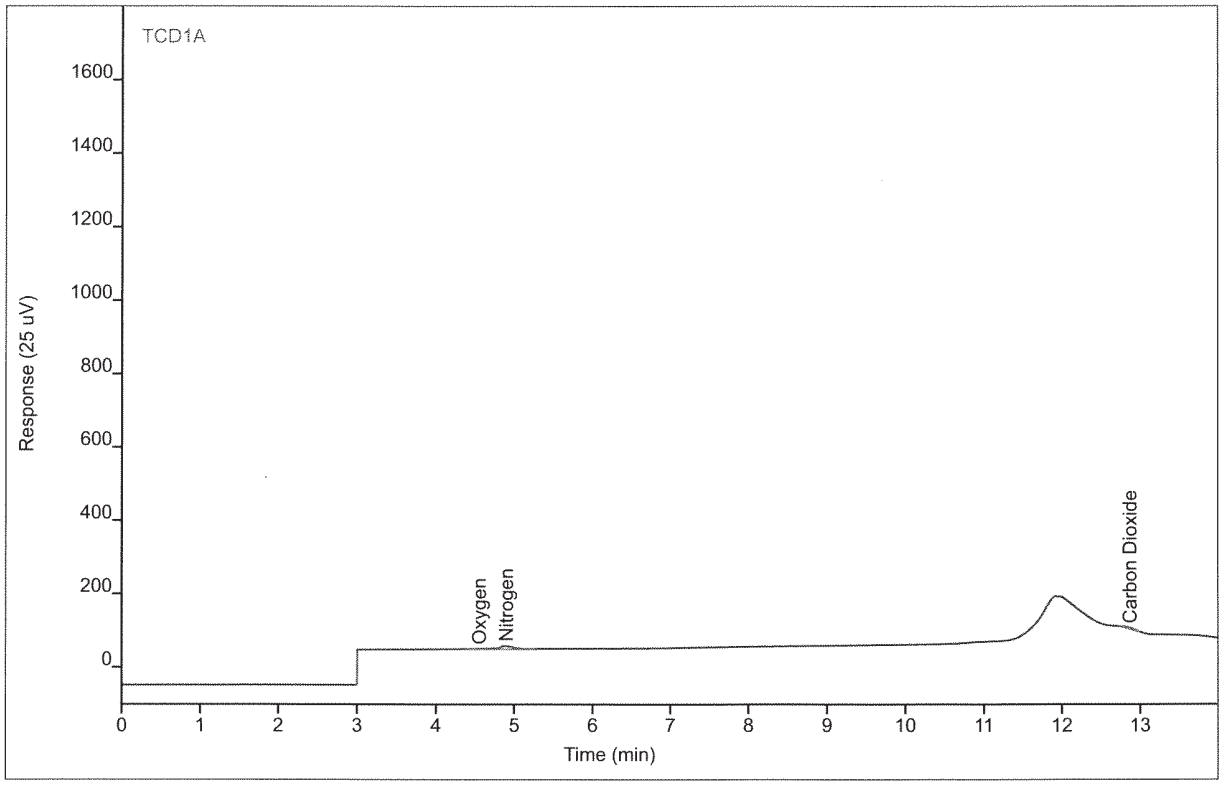
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(1.86)				1		
Oxygen	BV	4.55	27.4746	2.66493	0.07663	1	0.07663	%
Nitrogen	VB	4.90	125.891	11.1450	0.29265	1	0.29265	%
Carbon monoxide		(6.28)				1		
Methane		(9.88)				1		
Carbon Dioxide	MM	12.85	49.3119	4.43541	0.08505	1	0.08505	%

Chromatogram Report

Enthalpy Analytical

Sample Name	0615-125.Large - L2 - R1 - 1124.Can
Sequence Name	BETTYP213 ver.3
Data File	010F1403.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/30/2015 8:10 PM
File Modified	7/9/2015 12:50 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Sample
Vial Number	Vial 10
Injection Volume	250
Injection	3 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	7/6/2015 8:46 AM
Printed	7/9/2015 1:12 PM

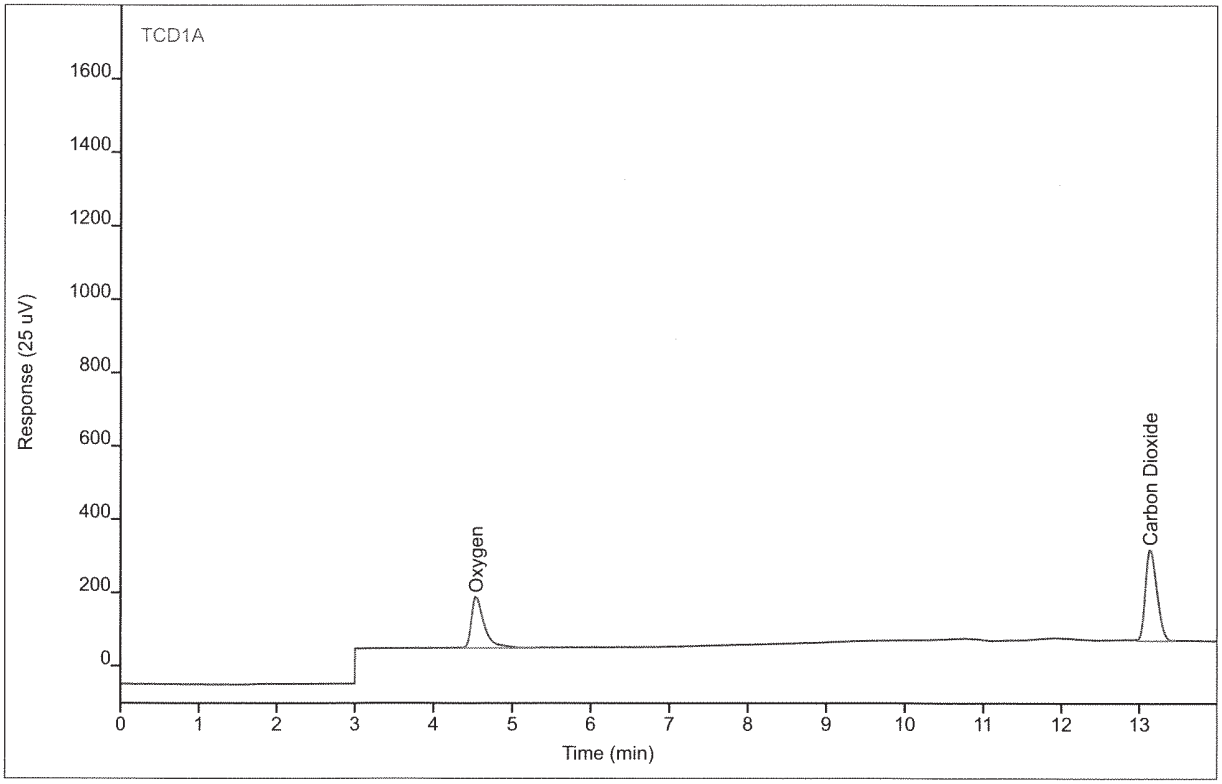


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(1.86)				1		
Oxygen	BV	4.55	27.3083	2.65352	0.07616	1	0.07616	%
Nitrogen	VB	4.90	124.389	10.9971	0.28916	1	0.28916	%
Carbon monoxide		(6.28)				1		
Methane		(9.88)				1		
Carbon Dioxide	MM	12.86	48.6982	4.40861	0.08399	1	0.08399	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)	Sample Type	Calibration
Sequence Name	BETTYP213 ver.3	Vial Number	Vial 9
Data File	009F1701.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	1 of 3
Injection Date	7/1/2015 1:31 AM	Acquisition Method	GC142P133_CAL.M
File Modified	7/9/2015 12:17 PM	Analysis Method	BETTYP191_FGA.M
Instrument	Betty	Method Modified	7/6/2015 8:46 AM
Operator	Chester Burnett	Printed	7/9/2015 1:12 PM



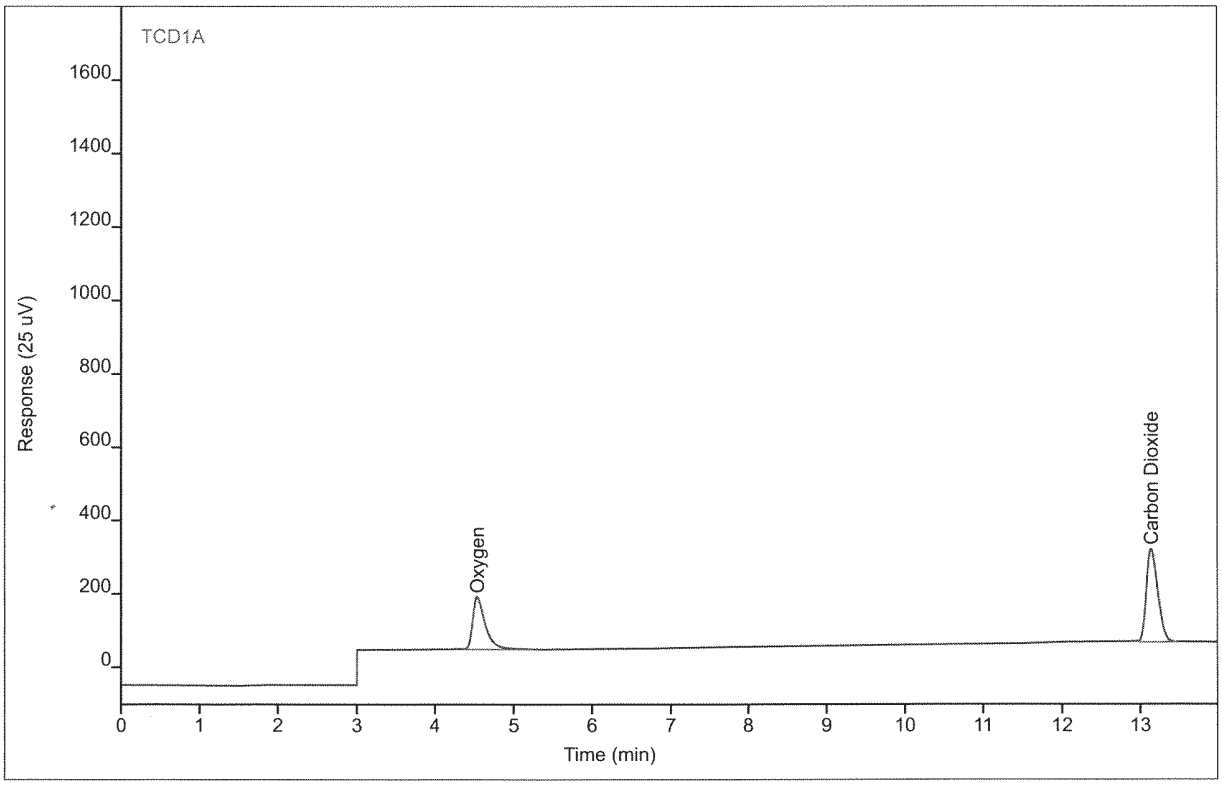
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.54	1620.61	140.264	4.85399	1	4.85399	%
Carbon Dioxide	BB	13.14	2524.47	249.335	4.75437	1	4.75437	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)
Sequence Name	BETTYP213 ver.3
Data File	009F1702.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	7/1/2015 1:54 AM
File Modified	7/9/2015 12:17 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	7/6/2015 8:46 AM
Printed	7/9/2015 1:12 PM

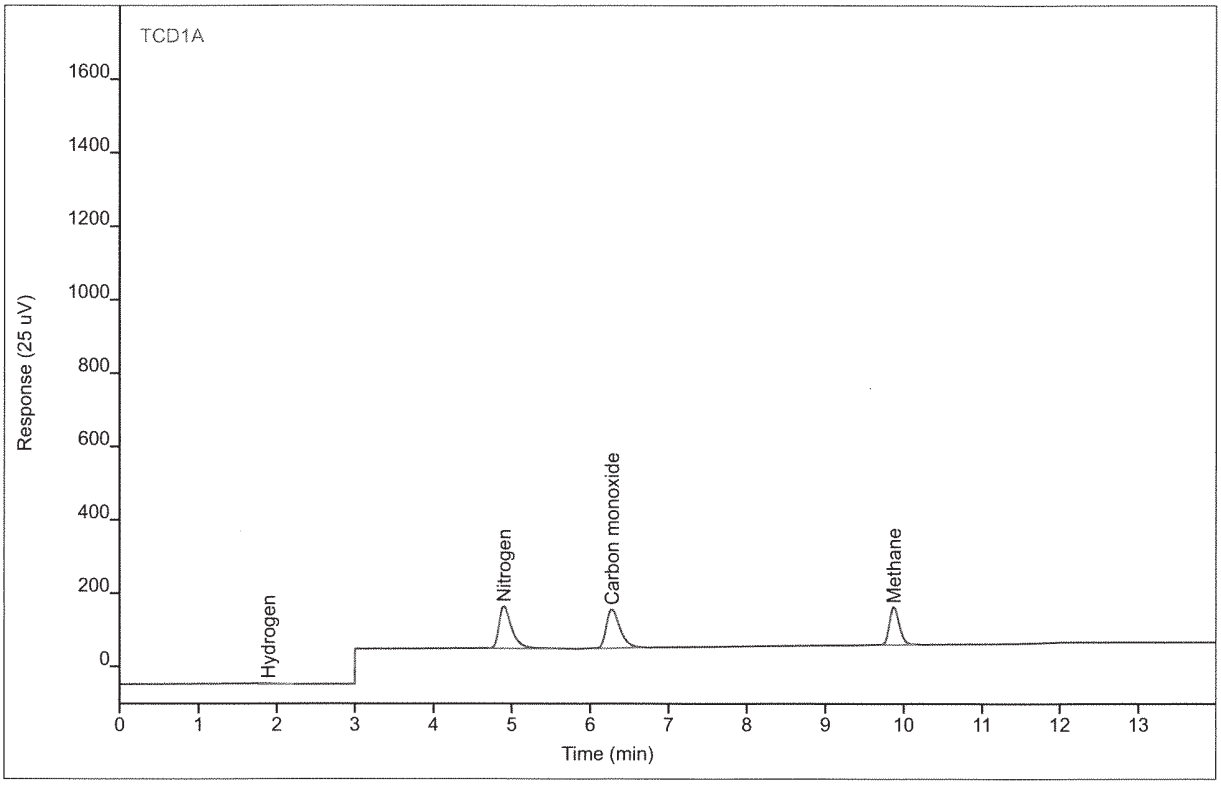


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.54	1617.35	142.573	4.84414	1	4.84414	%
Carbon Dioxide	BB	13.14	2578.91	253.725	4.85811	1	4.85811	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG7 ENV(1=530,3=319.09)	Sample Type	Calibration
Sequence Name	BETTYP213 ver.3	Vial Number	Vial 9
Data File	009F1801.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	1 of 3
Injection Date	7/1/2015 2:40 AM	Acquisition Method	GC142P133_CAL.M
File Modified	7/9/2015 12:18 PM	Analysis Method	BETTYP191_FGA.M
Instrument	Betty	Method Modified	7/6/2015 8:46 AM
Operator	Chester Burnett	Printed	7/9/2015 1:12 PM



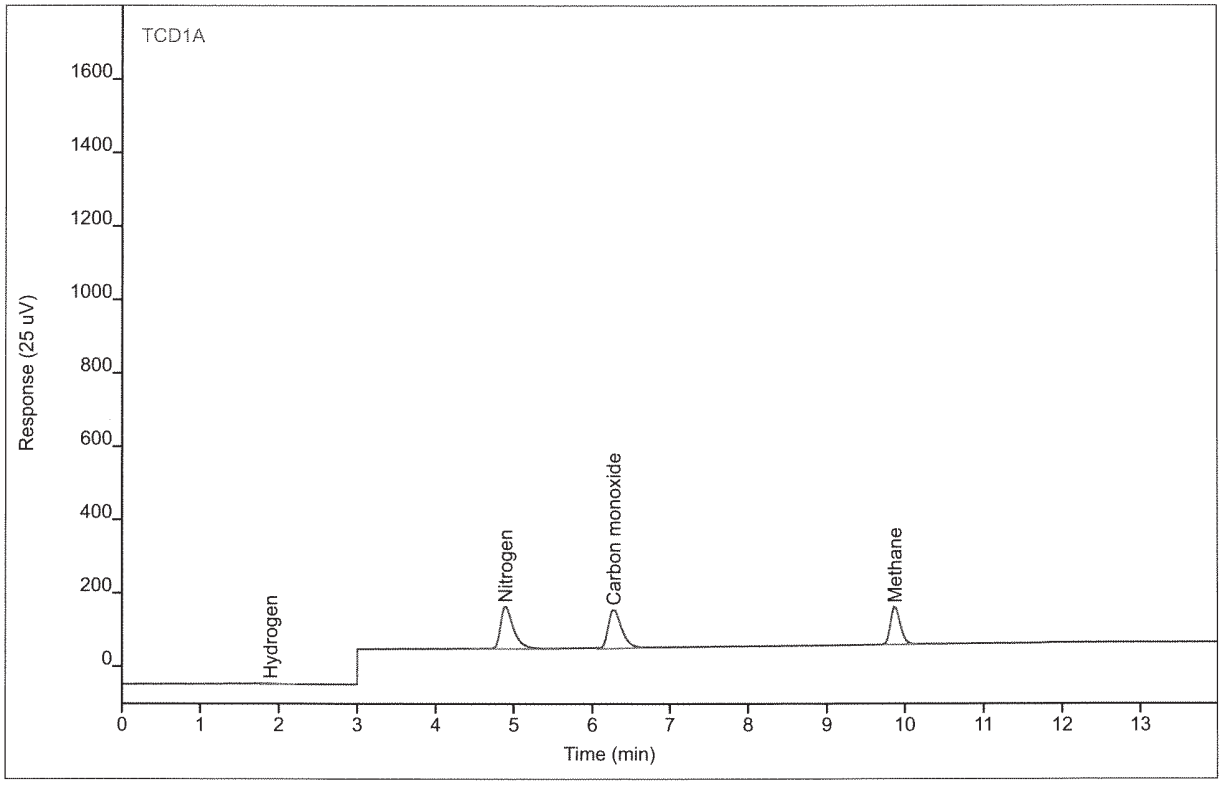
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.89	34.3975	3.70211	2.79747	1	2.79747	%
Nitrogen	VB	4.90	1327.73	116.025	3.45360	1	3.45360	%
Carbon monoxide	BB	6.28	1284.07	106.961	3.43364	1	3.43364	%
Methane	BB	9.87	904.564	103.183	2.76898	1	2.76898	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP213 ver.3
Data File	009F1802.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	7/1/2015 3:03 AM
File Modified	7/9/2015 12:18 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	7/6/2015 8:46 AM
Printed	7/9/2015 1:12 PM



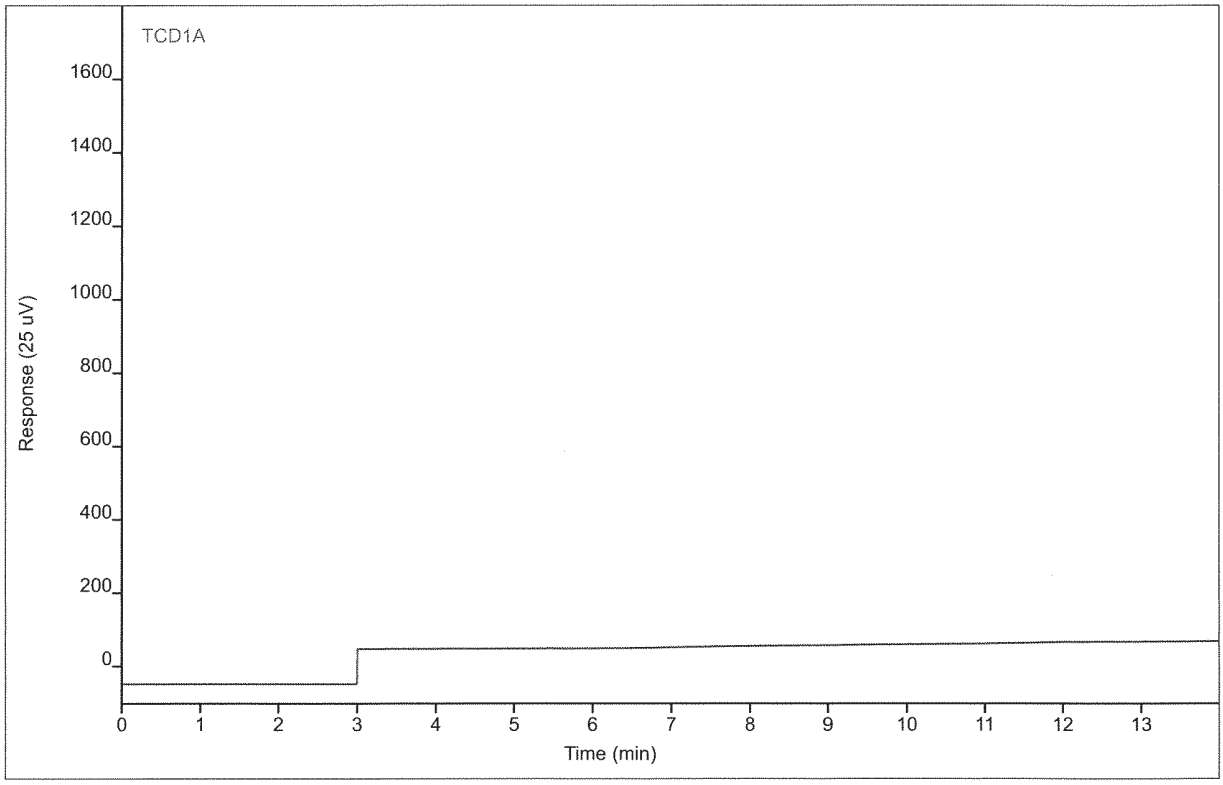
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.89	35.0107	3.68284	2.84896	1	2.84896	%
Nitrogen	BB	4.90	1335.53	116.160	3.47419	1	3.47419	%
Carbon monoxide	BB	6.28	1284.50	106.894	3.43478	1	3.43478	%
Methane	BB	9.87	904.366	103.274	2.76836	1	2.76836	%

Chromatogram Report

Enthalpy Analytical

Sample Name	He Blank #LB
Sequence Name	BETTYP219 ver.2
Data File	001F2501.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	7/9/2015 12:44 AM
File Modified	7/9/2015 12:27 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Sample
Vial Number	Vial 1
Injection Volume	250
Injection	1 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	7/6/2015 8:46 AM
Printed	7/9/2015 1:12 PM



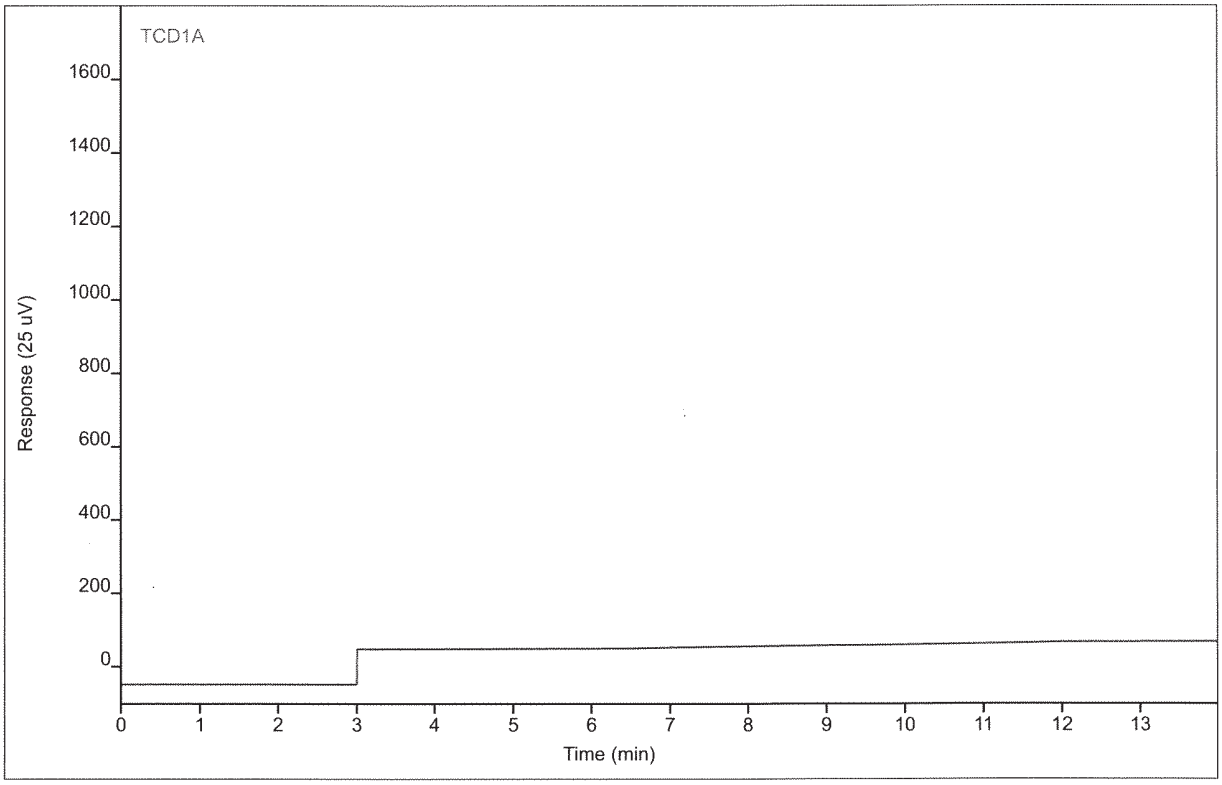
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(1.86)				1		
Oxygen		(4.57)				1		
Nitrogen		(4.85)				1		
Carbon monoxide		(6.28)				1		
Methane		(9.88)				1		
Carbon Dioxide		(13.19)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	He Blank #LB
Sequence Name	BETTYP219 ver.2
Data File	001F2502.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	7/9/2015 1:05 AM
File Modified	7/9/2015 12:27 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Sample
Vial Number	Vial 1
Injection Volume	250
Injection	2 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	7/6/2015 8:46 AM
Printed	7/9/2015 1:12 PM

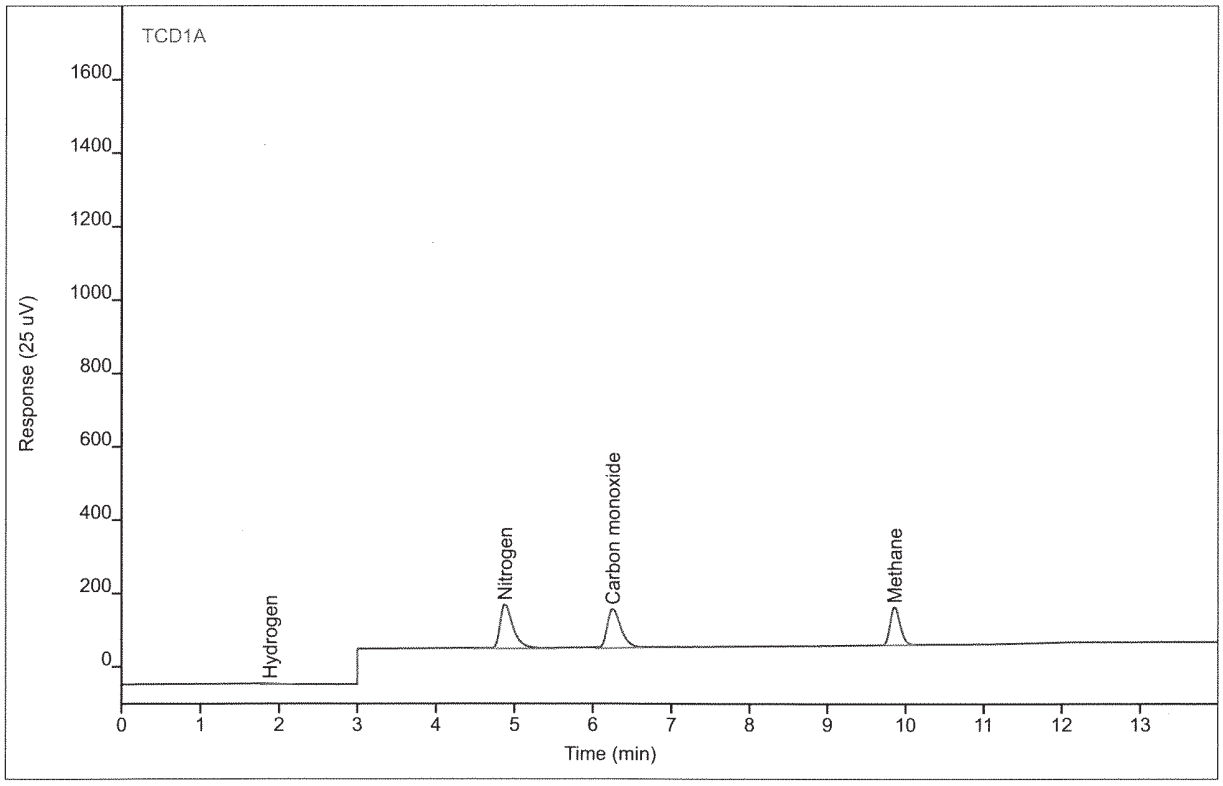


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(1.86)				1		
Oxygen		(4.57)				1		
Nitrogen		(4.85)				1		
Carbon monoxide		(6.28)				1		
Methane		(9.88)				1		
Carbon Dioxide		(13.19)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG7 ENV(1=530,3=319.09)	Sample Type	Calibration
Sequence Name	BETTYP219 ver.2	Vial Number	Vial 9
Data File	009F2601.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	1 of 3
Injection Date	7/9/2015 2:10 AM	Acquisition Method	GC142P133_CAL.M
File Modified	7/9/2015 12:27 PM	Analysis Method	BETTYP191_FGA.M
Instrument	Betty	Method Modified	7/6/2015 8:46 AM
Operator	Chester Burnett	Printed	7/9/2015 1:12 PM



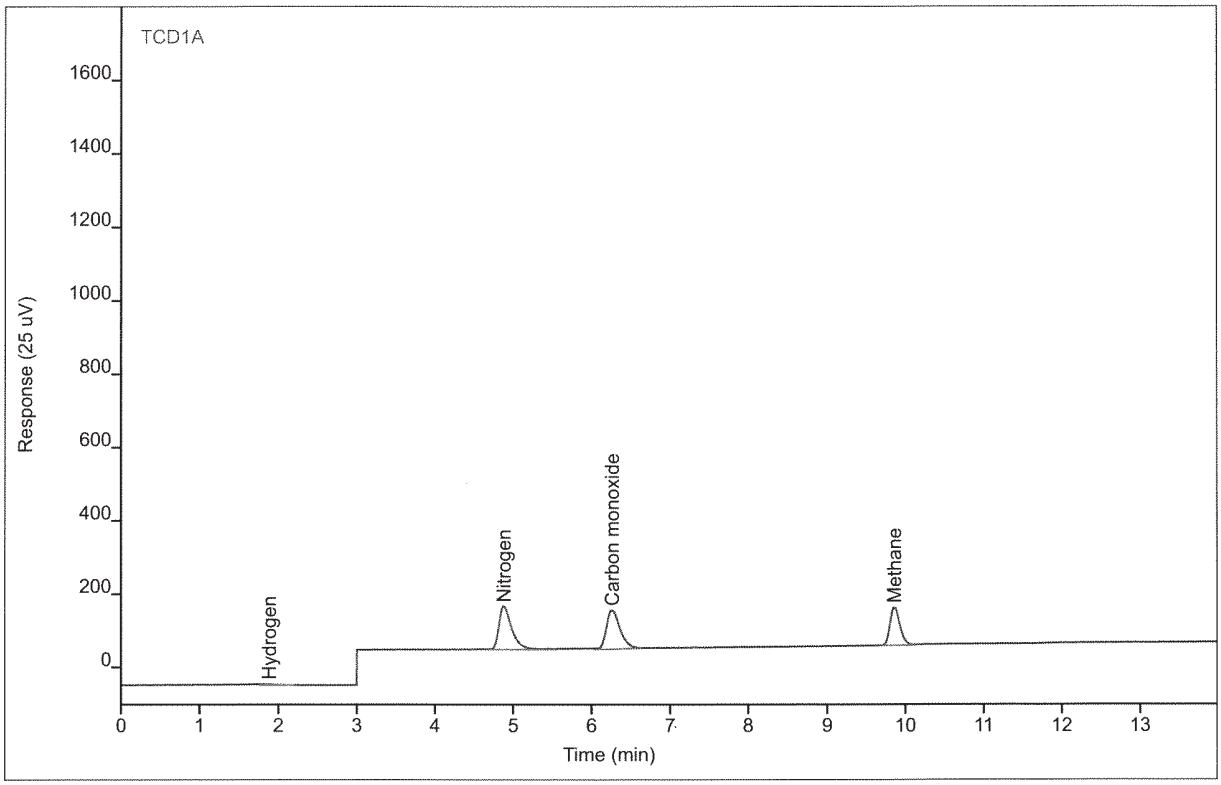
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.89	33.4042	3.67927	2.71408	1	2.71408	%
Nitrogen	BB	4.88	1392.48	121.283	3.62455	1	3.62455	%
Carbon monoxide	BB	6.26	1296.62	107.396	3.46723	1	3.46723	%
Methane	BB	9.86	911.874	104.335	2.79162	1	2.79162	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP219 ver.2
Data File	009F2602.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	7/9/2015 2:33 AM
File Modified	7/9/2015 12:27 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	7/6/2015 8:46 AM
Printed	7/9/2015 1:12 PM

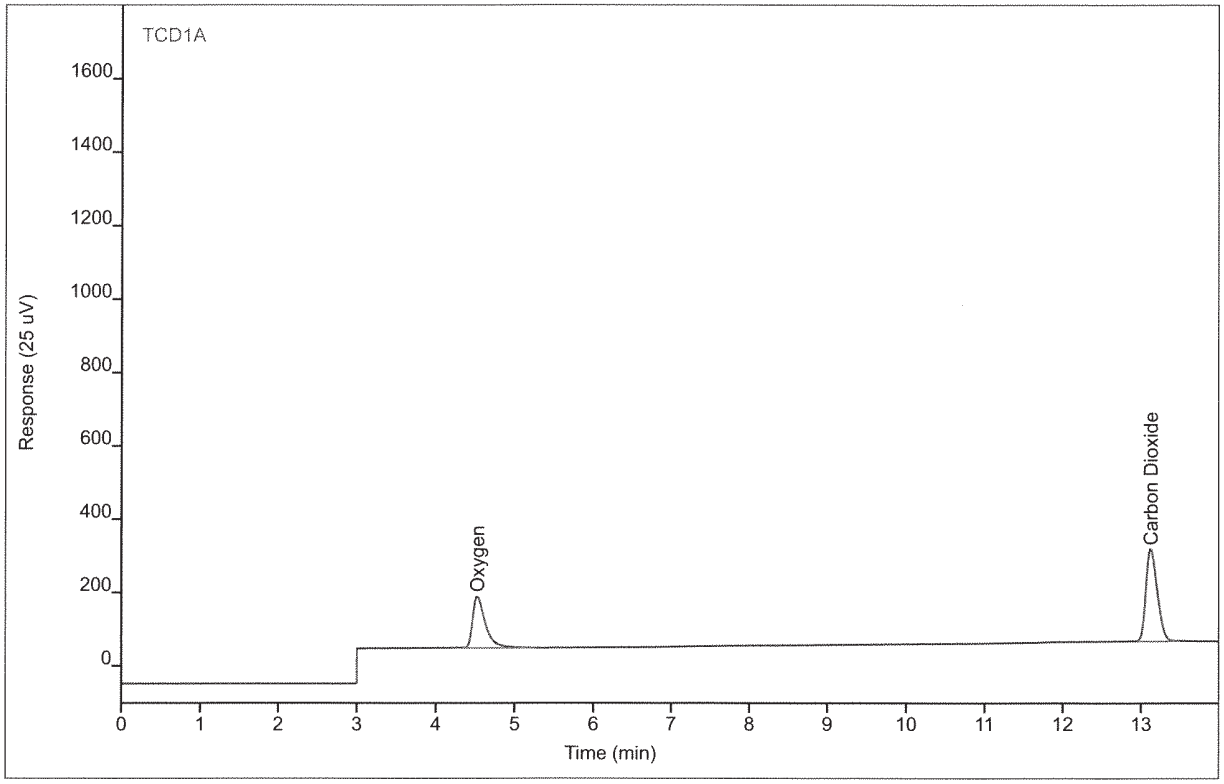


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.88	34.1418	3.72849	2.77601	1	2.77601	%
Nitrogen	BB	4.88	1354.98	118.380	3.52554	1	3.52554	%
Carbon monoxide	BB	6.26	1300.00	107.393	3.47628	1	3.47628	%
Methane	BB	9.86	917.917	104.422	2.81033	1	2.81033	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP217 #FG3 ENV(1=374.56,2=391.07)	Sample Type	Calibration
Sequence Name	BETTYP219 ver.2	Vial Number	Vial 9
Data File	009F2701.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	1 of 3
Injection Date	7/9/2015 3:19 AM	Acquisition Method	GC142P133_CAL.M
File Modified	7/9/2015 12:27 PM	Analysis Method	BETTYP191_FGA.M
Instrument	Betty	Method Modified	7/6/2015 8:46 AM
Operator	Chester Burnett	Printed	7/9/2015 1:12 PM



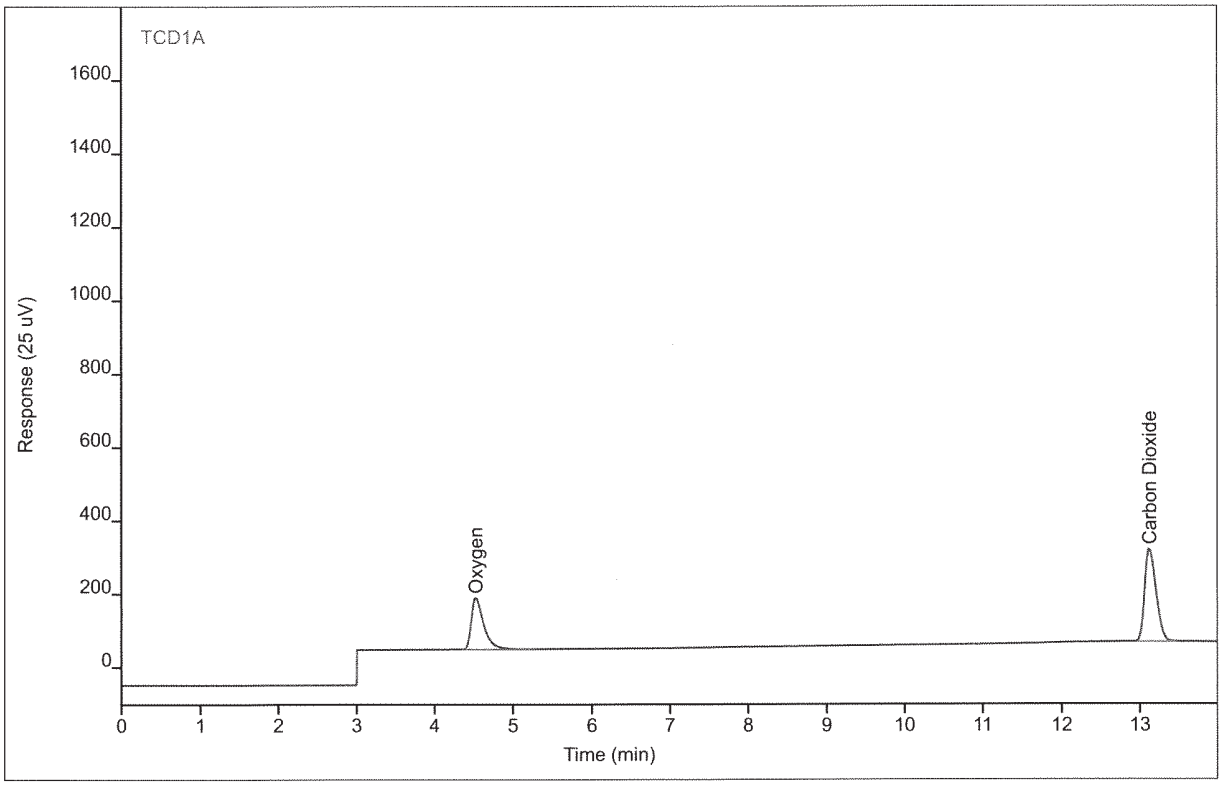
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.53	1609.60	141.785	4.82073	1	4.82073	%
Carbon Dioxide	BB	13.12	2549.04	251.386	4.80119	1	4.80119	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP217 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP219 ver.2
Data File	009F2702.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	7/9/2015 3:43 AM
File Modified	7/9/2015 12:27 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	7/6/2015 8:46 AM
Printed	7/9/2015 1:12 PM

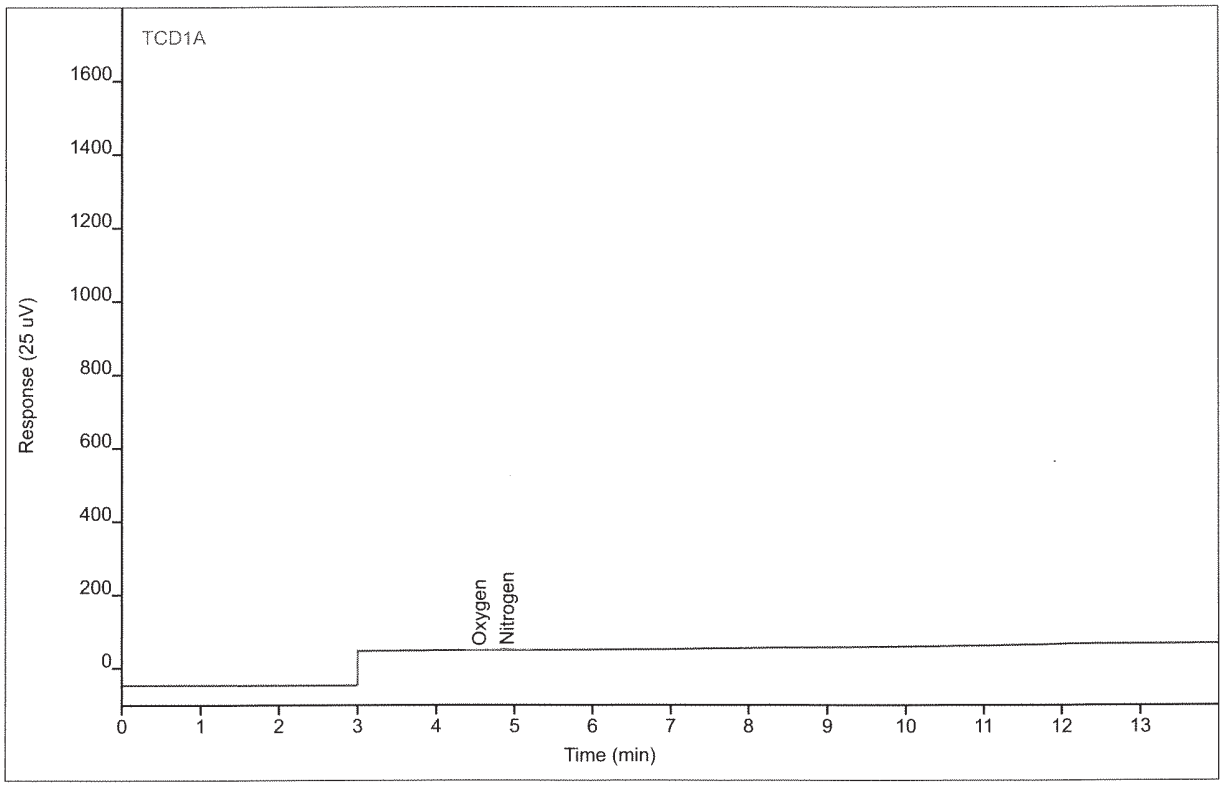


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.53	1611.19	142.124	4.82551	1	4.82551	%
Carbon Dioxide	BB	13.12	2568.93	253.225	4.83910	1	4.83910	%

Chromatogram Report

Enthalpy Analytical

Sample Name	0615-125.R1L3 Canister 1368.Can	Sample Type	Sample
Sequence Name	BETTYP220 ver.1	Vial Number	Vial 4
Data File	004F0101.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	1 of 2
Injection Date	7/9/2015 6:53 AM	Acquisition Method	GC142P133_CAL.M
File Modified	7/9/2015 10:04 AM	Analysis Method	BETTYP191_FGA.M
Instrument		Method Modified	7/6/2015 8:46 AM
Operator	Chester Burnett	Printed	7/9/2015 1:12 PM

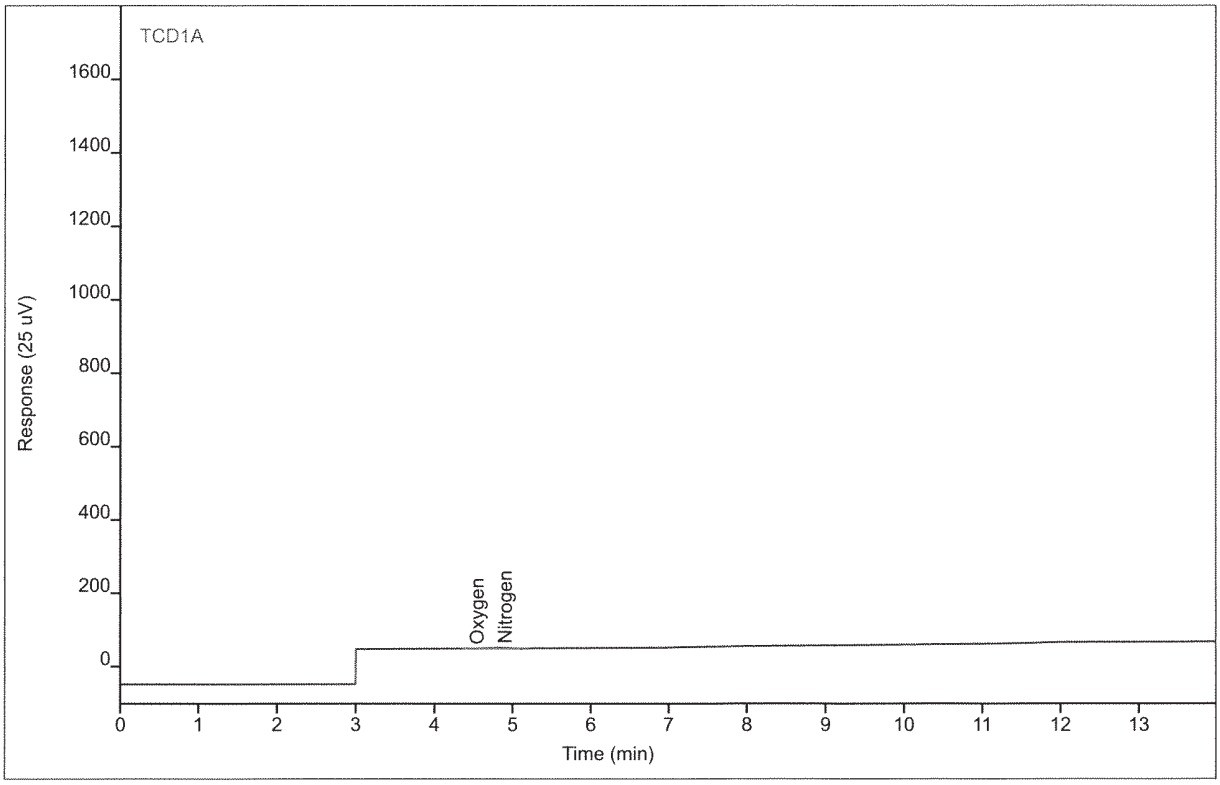


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(1.86)				1		
Oxygen	BV	4.55	9.71225	0.99228	0.02709	1	0.02709	%
Nitrogen	VB	4.90	42.6377	3.68095	0.09912	1	0.09912	%
Carbon monoxide		(6.28)				1		
Methane		(9.88)				1		
Carbon Dioxide		(13.19)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	0615-125.R1L3 Canister 1368.Can	Sample Type	Sample
Sequence Name	BETTYP220 ver.1	Vial Number	Vial 4
Data File	004F0102.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	2 of 2
Injection Date	7/9/2015 7:13 AM	Acquisition Method	GC142P133_CAL.M
File Modified	7/9/2015 10:04 AM	Analysis Method	BETTYP191_FGA.M
Instrument		Method Modified	7/6/2015 8:46 AM
Operator	Chester Burnett	Printed	7/9/2015 1:12 PM

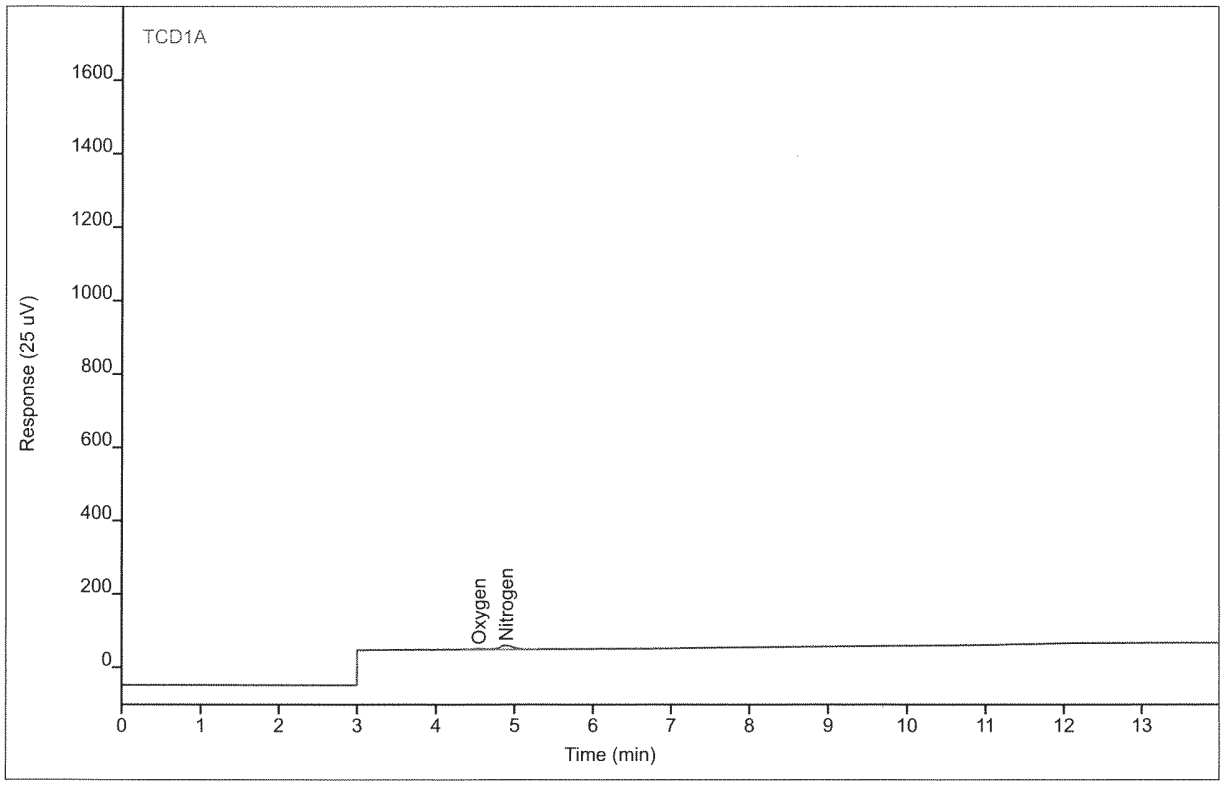


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(1.86)				1		
Oxygen	BV	4.54	10.2347	0.96514	0.02854	1	0.02854	%
Nitrogen	VB	4.90	41.7832	3.66735	0.09713	1	0.09713	%
Carbon monoxide		(6.28)				1		
Methane		(9.88)				1		
Carbon Dioxide		(13.19)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	0615-125.R1L4 Canister 1630.Can	Sample Type	Sample
Sequence Name	BETTYP220 ver.1	Vial Number	Vial 5
Data File	005F0301.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	1 of 2
Injection Date	7/9/2015 7:36 AM	Acquisition Method	GC142P133_CAL.M
File Modified	7/9/2015 10:05 AM	Analysis Method	BETTYP191_FGA.M
Instrument		Method Modified	7/6/2015 8:46 AM
Operator	Chester Burnett	Printed	7/9/2015 1:12 PM

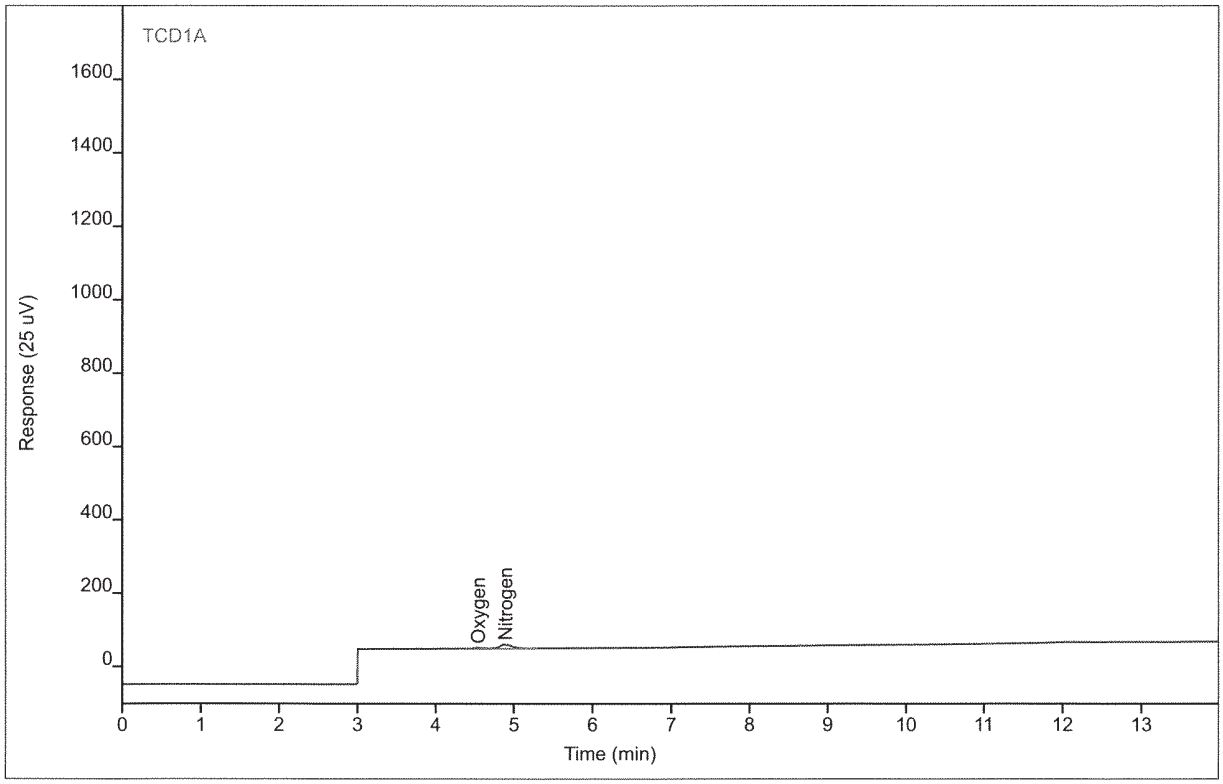


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(1.86)				1		
Oxygen	BV	4.55	32.7366	3.12099	0.09130	1	0.09130	%
Nitrogen	VB	4.89	142.284	12.5540	0.33076	1	0.33076	%
Carbon monoxide		(6.28)				1		
Methane		(9.88)				1		
Carbon Dioxide		(13.19)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	0615-125.R1L4 Canister 1630.Can	Sample Type	Sample
Sequence Name	BETTYP220 ver.1	Vial Number	Vial 5
Data File	005F0302.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	2 of 2
Injection Date	7/9/2015 7:57 AM	Acquisition Method	GC142P133_CAL.M
File Modified	7/9/2015 10:05 AM	Analysis Method	BETTYP191_FGA.M
Instrument		Method Modified	7/6/2015 8:46 AM
Operator	Chester Burnett	Printed	7/9/2015 1:12 PM



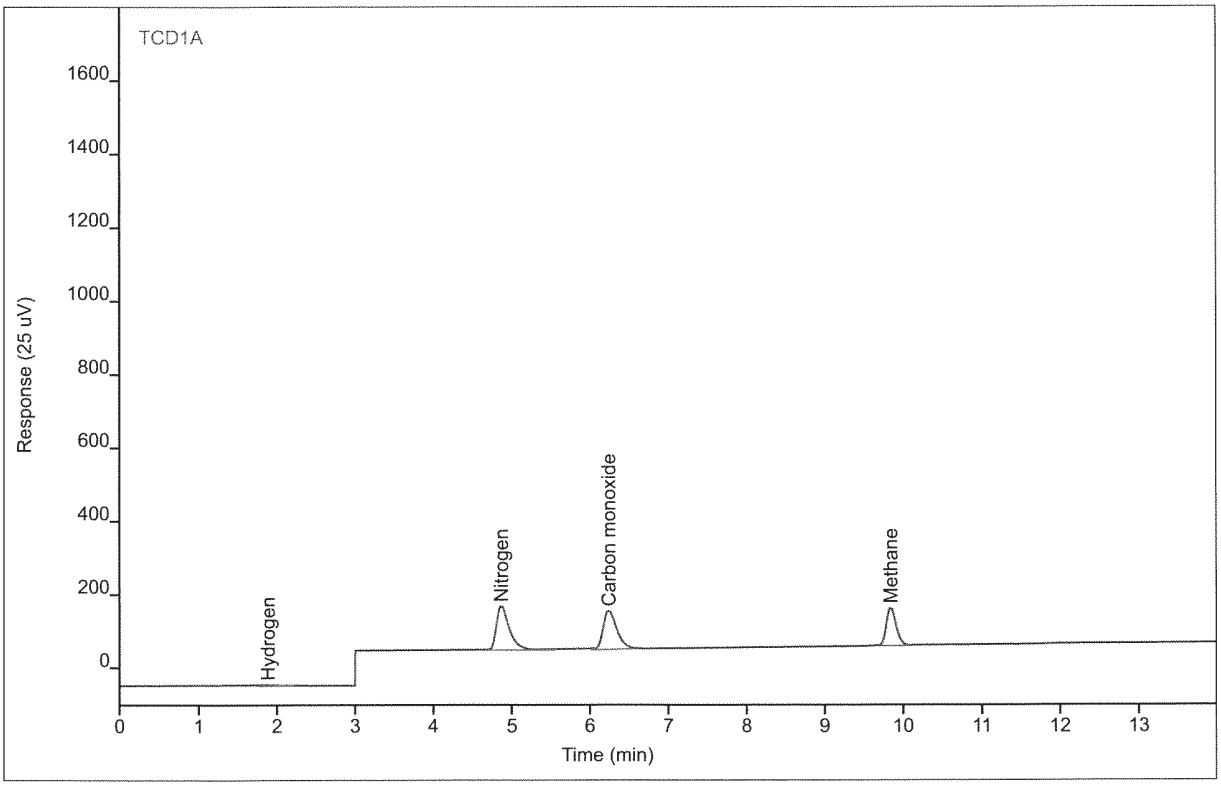
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(1.86)				1		
Oxygen	BV	4.54	32.5920	3.14054	0.09090	1	0.09090	%
Nitrogen	VB	4.89	143.819	12.6019	0.33433	1	0.33433	%
Carbon monoxide		(6.28)				1		
Methane		(9.88)				1		
Carbon Dioxide		(13.19)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP220 ver.1
Data File	009F0501.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	7/9/2015 8:21 AM
File Modified	7/9/2015 10:05 AM
Instrument	
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 2
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	7/6/2015 8:46 AM
Printed	7/9/2015 1:12 PM

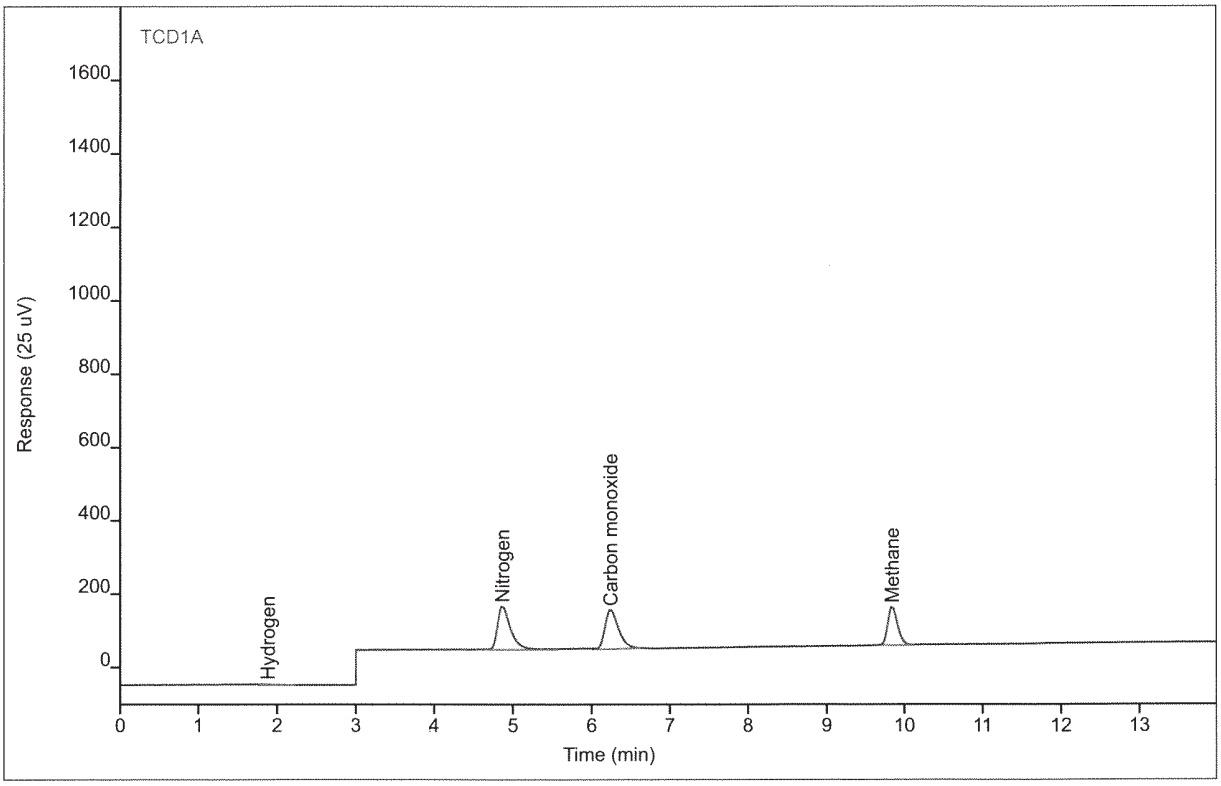


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.88	34.5832	3.71006	2.81307	1	2.81307	%
Nitrogen	BB	4.87	1374.88	120.478	3.57809	1	3.57809	%
Carbon monoxide	BB	6.24	1288.22	106.124	3.44473	1	3.44473	%
Methane	BB	9.84	912.185	104.175	2.79258	1	2.79258	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG7 ENV(1=530,3=319.09)	Sample Type	Calibration
Sequence Name	BETTYP220 ver.1	Vial Number	Vial 9
Data File	009F0502.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	2 of 2
Injection Date	7/9/2015 8:44 AM	Acquisition Method	GC142P133_CAL.M
File Modified	7/9/2015 10:05 AM	Analysis Method	BETTYP191_FGA.M
Instrument		Method Modified	7/6/2015 8:46 AM
Operator	Chester Burnett	Printed	7/9/2015 1:12 PM

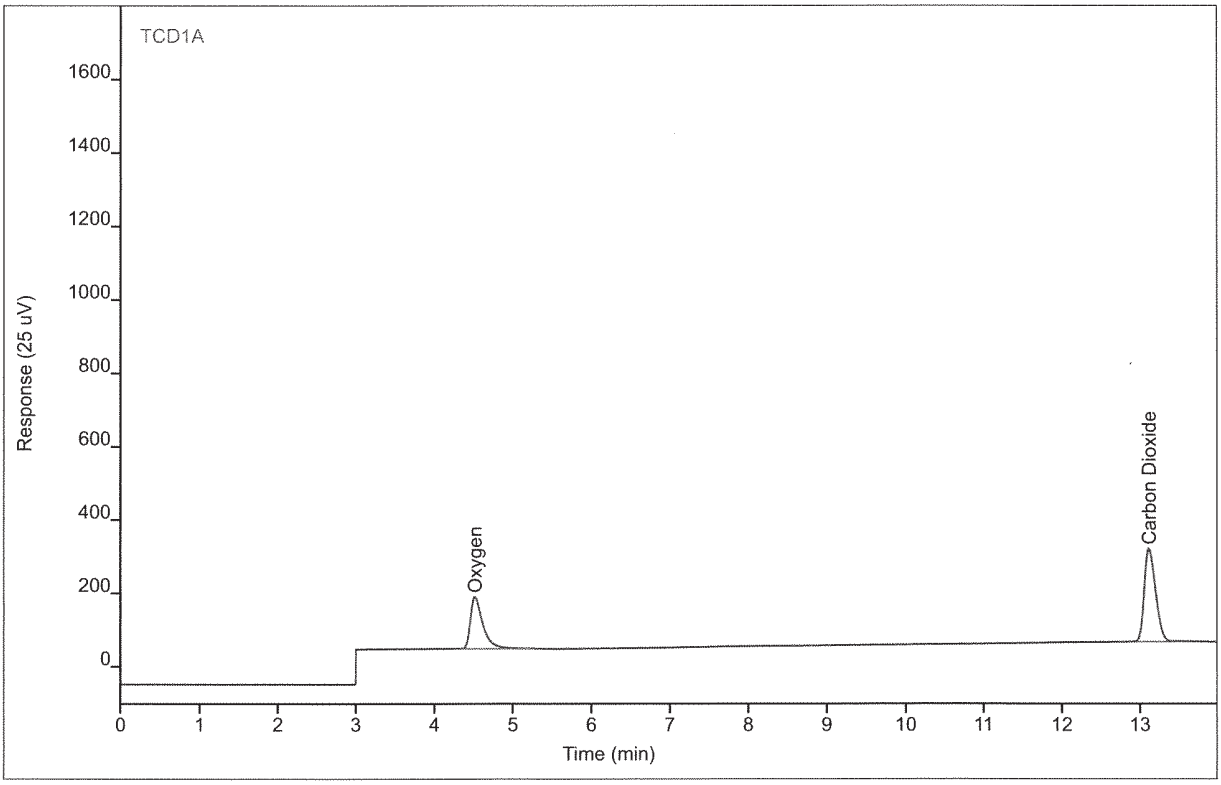


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.88	35.5605	3.74200	2.89513	1	2.89513	%
Nitrogen	BB	4.87	1352.78	118.440	3.51973	1	3.51973	%
Carbon monoxide	BB	6.24	1296.25	106.773	3.46625	1	3.46625	%
Methane	BB	9.84	919.547	104.849	2.81538	1	2.81538	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP217 #FG3 ENV(1=374.56,2=391.07)	Sample Type	Calibration
Sequence Name	BETTYP220 ver.1	Vial Number	Vial 9
Data File	009F0701.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	1 of 2
Injection Date	7/9/2015 9:08 AM	Acquisition Method	GC142P133_CAL.M
File Modified	7/9/2015 10:05 AM	Analysis Method	BETTYP191_FGA.M
Instrument		Method Modified	7/6/2015 8:46 AM
Operator	Chester Burnett	Printed	7/9/2015 1:12 PM

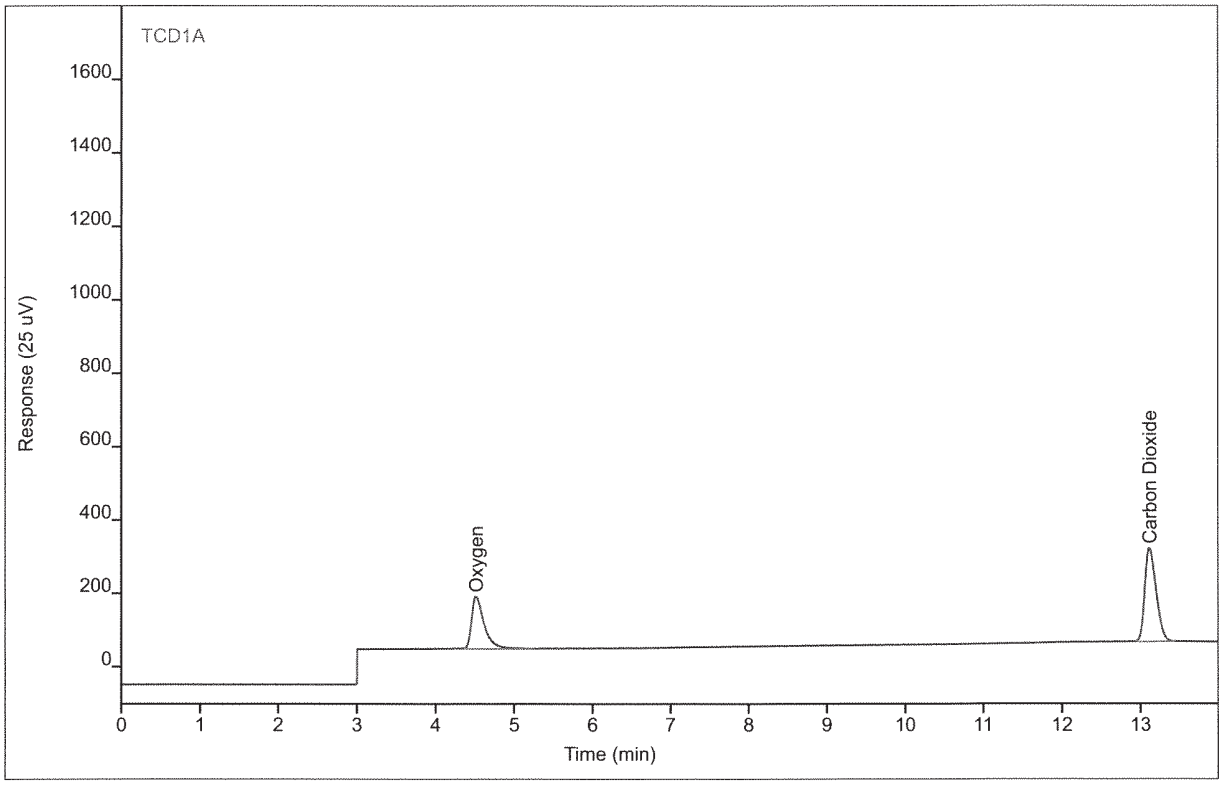


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.52	1607.70	141.864	4.81497	1	4.81497	%
Carbon Dioxide	BB	13.12	2565.11	253.498	4.83182	1	4.83182	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP217 #FG3 ENV(1=374.56,2=391.07)	Sample Type	Calibration
Sequence Name	BETTYP220 ver.1	Vial Number	Vial 9
Data File	009F0702.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	2 of 2
Injection Date	7/9/2015 9:31 AM	Acquisition Method	GC142P133_CAL.M
File Modified	7/9/2015 10:05 AM	Analysis Method	BETTYP191_FGA.M
Instrument		Method Modified	7/6/2015 8:46 AM
Operator	Chester Burnett	Printed	7/9/2015 1:12 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.52	1621.97	143.347	4.85811	1	4.85811	%
Carbon Dioxide	BB	13.12	2586.47	255.632	4.87254	1	4.87254	%

Calibration Table

Calib. Data Modified : 5/28/2015 1:58:50 PM

Rel. Reference Window : 2.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 2.000 %
Abs. Non-ref. Window : 0.200 min
Uncalibrated Peaks : not reported
Partial Calibration : Yes, identified peaks are recalibrated
Correct All Ret. Times: No, only for identified peaks

Curve Type : Linear
Origin : Connected
Weight : Quadratic (Amnt)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Signal 1: TCD1 A,
Signal 2: FID2 B,

RetTime [min]	Sig	Lvl	Amount [%]	Area	Amt/Area	Ref	Grp	Name
1.863	1	6	7.90000e-1	10.55663	7.48345e-2			Hydrogen
		7	2.76000	33.39214	8.26542e-2			
		8	8.20000	95.18646	8.61467e-2			
		29	28.54000	356.70263	8.00106e-2			
4.400	1	1	5.44000e-1	192.25404	2.82959e-3			Oxygen
		2	1.33000	468.48898	2.83891e-3			
		3	4.81000	1659.45650	2.89854e-3			
		4	10.01000	3293.83057	3.03901e-3			
		23	99.99900	3.18043e4	3.14419e-3			
4.850	1	5	3.80000e-1	160.43450	2.36857e-3			Nitrogen
		6	9.60000e-1	397.47324	2.41526e-3			
		7	3.37000	1361.10368	2.47593e-3			
		8	10.00000	3808.13444	2.62596e-3			
		22	99.90000	3.52345e4	2.83529e-3			
6.285	1	5	3.80000e-1	141.37458	2.68789e-3			Carbon monoxide
		6	9.60000e-1	371.60539	2.58339e-3			
		7	3.37000	1313.43583	2.56579e-3			
		8	10.00000	3732.70890	2.67902e-3			
		25	99.50000	3.50863e4	2.83586e-3			
9.879	1	5	3.10000e-1	108.20988	2.86480e-3			Methane
		6	7.70000e-1	269.39182	2.85829e-3			
		7	2.70000	932.23621	2.89626e-3			
		8	8.00000	2597.92847	3.07938e-3			
		24	99.99900	2.98047e4	3.35514e-3			
13.188	1	1	5.40000e-1	309.16476	1.74664e-3			Carbon Dioxide
		2	1.33000	748.12923	1.77777e-3			
		3	4.81000	2617.92716	1.83733e-3			

RetTime [min]	Sig	Lvl	Amount [%]	Area	Amt/Area	Ref Grp	Name
		4	10.01000	5205.04036	1.92314e-3		
		21	99.99000	5.11169e4	1.95610e-3		

More compound-specific settings:

Compound: Hydrogen
  Time Window : From 1.745 min To 1.982 min

Compound: Oxygen
  Time Window : From 4.117 min To 4.556 min

Compound: Nitrogen
  Time Window : From 4.510 min To 5.050 min

Compound: Carbon monoxide
  Time Window : From 5.685 min To 6.435 min

Compound: Methane
  Time Window : From 9.461 min To 10.229 min

Compound: Carbon Dioxide
  Time Window : From 12.573 min To 13.419 min

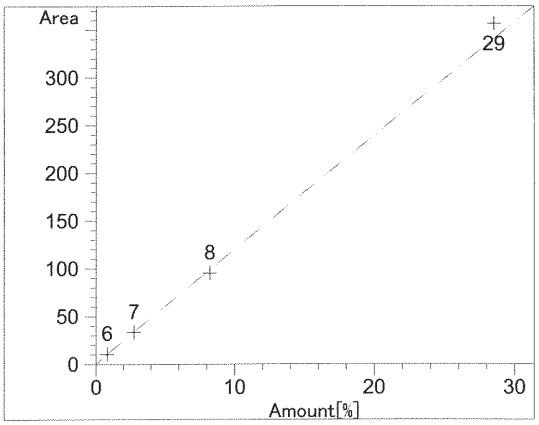
1 Warnings or Errors :

Warning : Overlapping peak time windows at 4.4 min, signal 1

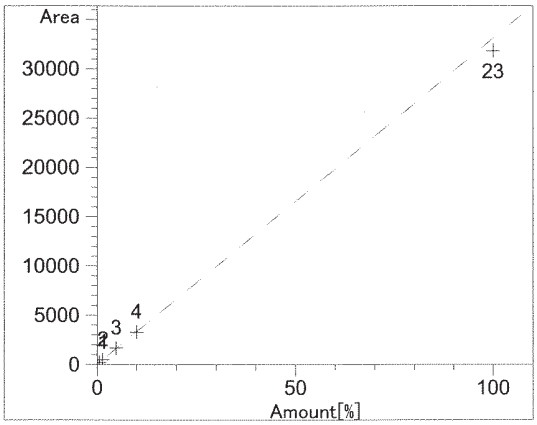
Peak Sum Table

No Entries in table

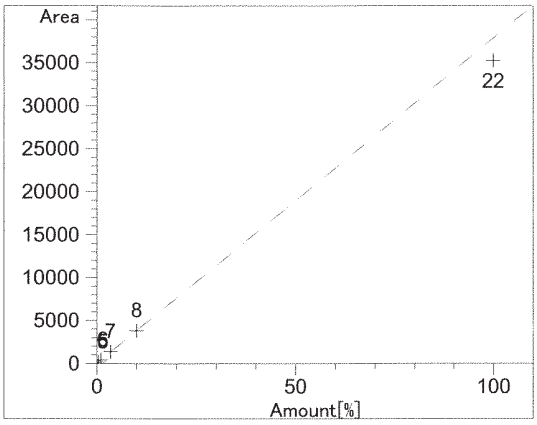
Calibration Curves



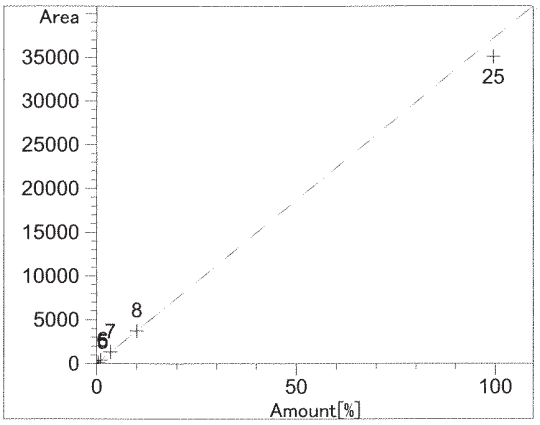
Hydrogen at exp. RT: 1.863
TCD1 A,
Correlation: 0.99913
Residual Std. Dev.: 11.41001
Formula: y = mx + b
m: 11.90927
b: 1.08160
x: Amount
y: Area
Calibration Level Weights:
Level 6 : 1
Level 7 : 0.081929
Level 8 : 0.009282
Level 29 : 0.000766



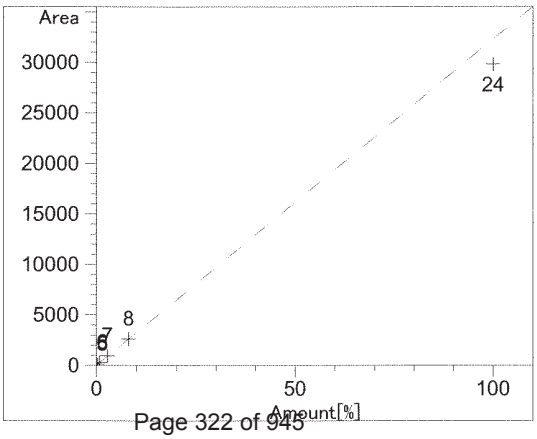
Oxygen at exp. RT: 4.400
TCD1 A,
Correlation: 0.99932
Residual Std. Dev.: 743.35382
Formula: y = mx + b
m: 330.75496
b: 15.12517
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.167299
Level 3 : 0.012791
Level 4 : 0.002953
Level 23 : 0.00003



Nitrogen at exp. RT: 4.850
TCD1 A,
Correlation: 0.99841
Residual Std. Dev.: 1516.94372
Formula: y = mx + b
m: 378.79428
b: 19.52424
x: Amount
y: Area
Calibration Level Weights:
Level 5 : 1
Level 6 : 0.156684
Level 7 : 0.012715
Level 8 : 0.001444
Level 22 : 0.000014

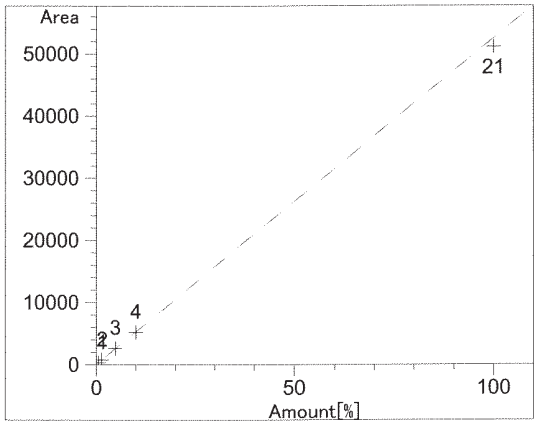


Carbon monoxide at exp. RT: 6.285
TCD1 A,
Correlation: 0.99896
Residual Std. Dev.: 1196.18513
Formula: y = mx + b
m: 373.42280
b: 1.87596
x: Amount
y: Area
Calibration Level Weights:
Level 5 : 1
Level 6 : 0.156684
Level 7 : 0.012715
Level 8 : 0.001444
Level 25 : 0.000015



Methane at exp. RT: 9.879
TCD1 A,
Correlation: 0.99804
Residual Std. Dev.: 1441.82468
Formula: y = mx + b
m: 322.91427
b: 10.42100
x: Amount
y: Area
Calibration Level Weights:
Level 5 : 1
Level 6 : 0.162085
Level 7 : 0.013182
Level 8 : 0.001502

Level 24 : 9.61019e-006



Carbon Dioxide at exp. RT: 13.188
TCD1 A,
Correlation: 0.99955
Residual Std. Dev.: 798.88329
Formula: y = mx + b
m: 524.72321
b: 29.74000
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.164848
Level 3 : 0.012604
Level 4 : 0.00291
Level 21 : 0.000029

==========

Enthalpy Analytical

Company: METCO Environmental
Job No.: 0615-125 ASTM D1946-90 Canisters
Client No.: 15-162

Carbon Dioxide -- Calibration Standards, Laboratory Blanks and Controls

Sample Name	Filename #1	Filename #2	Analysis Method	Ret Time (min)	Ret Time (min)	%dif RT	Conc # 1	Conc # 2	%dif conc	Avg Conc %	Standard Tag	% Tag
He Blank #LB	001F0603.D	001F0604.D	BETTYP191_FGA.M	NA	NA	NA	0.540	0.540	NA	0.540		
BettyP070 #FG3 ENV(1=374.56,2=391.18)	009F0701.D	009F0702.D	BETTYP191_FGA.M	13.14	13.14	0.0	4.97	4.99	0.2	4.98	4.81	104
BettyP070 #FG3 ENV(1=374.56,2=391.18)	009F1701.D	009F1702.D	BETTYP191_FGA.M	13.14	13.14	0.0	4.75	4.86	1.1	4.81	4.81	99.9
He Blank #LB	001F2501.D	001F2502.D	BETTYP191_FGA.M	NA	NA	NA	0.540	0.540	NA	0.540		
BettyP217 #FG3 ENV(1=374.56,2=391.07)	009F2701.D	009F2702.D	BETTYP191_FGA.M	13.12	13.12	0.0	4.80	4.84	0.4	4.82	4.80	100
BettyP217 #FG3 ENV(1=374.56,2=391.07)	009F0701.D	009F0702.D	BETTYP191_FGA.M	13.12	13.12	0.0	4.83	4.87	0.4	4.85	4.80	101

Enthalpy Analytical

Company: METCO Environmental
Job No.: 0615-125 ASTM D1946-90 Canisters
Client No.: 15-162

Carbon monoxide -- Calibration Standards, Laboratory Blanks and Controls

Sample Name	Filename #1	Filename #2	Analysis Method	Ret Time (min)	Ret Time (min)	%dif RT	Conc # 1	Conc # 2	%dif conc	Avg Conc %	Standard Tag	% Tag
He Blank #LB	001F0603.D	001F0604.D	BETTYP191_FGA.M	NA	NA	NA	0.380	0.380	NA	0.380		
BettyP191 #FG7 ENV(1=530,3=319.09)	009F0801.D	009F0802.D	BETTYP191_FGA.M	6.28	6.28	0.0	3.48	3.49	0.2	3.48	3.37	103
BettyP191 #FG7 ENV(1=530,3=319.09)	009F1801.D	009F1802.D	BETTYP191_FGA.M	6.28	6.28	0.0	3.43	3.43	0.0	3.43	3.37	102
He Blank #LB	001F2501.D	001F2502.D	BETTYP191_FGA.M	NA	NA	NA	0.380	0.380	NA	0.380		
BettyP191 #FG7 ENV(1=530,3=319.09)	009F2601.D	009F2602.D	BETTYP191_FGA.M	6.26	6.26	0.0	3.47	3.48	0.1	3.47	3.37	103
BettyP191 #FG7 ENV(1=530,3=319.09)	009F0501.D	009F0502.D	BETTYP191_FGA.M	6.24	6.24	0.0	3.44	3.47	0.3	3.46	3.37	103

Enthalpy Analytical

Company: METCO Environmental
Job No.: 0615-125 ASTM D1946-90 Canisters
Client No.: 15-162

Hydrogen -- Calibration Standards, Laboratory Blanks and Controls

Sample Name	Filename #1	Filename #2	Analysis Method	Ret Time (min)	Ret Time (min)	%dif RT	Conc # 1	Conc # 2	%dif conc	Avg Conc %	Standard Tag	% Tag
He Blank #LB	001F0603.D	001F0604.D	BETTYP191_FGA.M	NA	NA	NA	0.790	0.790	NA	0.790		
BettyP191 #FG7 ENV(1=530,3=319.09)	009F0801.D	009F0802.D	BETTYP191_FGA.M	1.89	1.89	0.0	2.76	2.83	1.3	2.80	2.76	101
BettyP191 #FG7 ENV(1=530,3=319.09)	009F1801.D	009F1802.D	BETTYP191_FGA.M	1.89	1.89	0.1	2.80	2.85	0.9	2.82	2.76	102
He Blank #LB	001F2501.D	001F2502.D	BETTYP191_FGA.M	NA	NA	NA	0.790	0.790	NA	0.790		
BettyP191 #FG7 ENV(1=530,3=319.09)	009F2601.D	009F2602.D	BETTYP191_FGA.M	1.89	1.88	0.1	2.71	2.78	1.1	2.75	2.76	99.5
BettyP191 #FG7 ENV(1=530,3=319.09)	009F0501.D	009F0502.D	BETTYP191_FGA.M	1.88	1.88	0.0	2.81	2.90	1.4	2.85	2.76	103

Enthalpy Analytical

Company: METCO Environmental
Job No.: 0615-125 ASTM D1946-90 Canisters
Client No.: 15-162

Methane -- Calibration Standards, Laboratory Blanks and Controls

Sample Name	Filename #1	Filename #2	Analysis Method	Ret Time (min)	Ret Time (min)	%dif RT	Conc # 1	Conc # 2	%dif conc	Avg Conc %	Standard Tag	% Tag
He Blank #LB	001F0603.D	001F0604.D	BETTYP191_FGA.M	NA	NA	NA	0.310	0.310	NA	0.310		
BettyP191 #FG7 ENV(1=530,3=319.09)	009F0801.D	009F0802.D	BETTYP191_FGA.M	9.88	9.88	0.0	2.81	2.81	0.0	2.81	2.70	104
BettyP191 #FG7 ENV(1=530,3=319.09)	009F1801.D	009F1802.D	BETTYP191_FGA.M	9.87	9.87	0.0	2.77	2.77	0.0	2.77	2.70	103
He Blank #LB	001F2501.D	001F2502.D	BETTYP191_FGA.M	NA	NA	NA	0.310	0.310	NA	0.310		
BettyP191 #FG7 ENV(1=530,3=319.09)	009F2601.D	009F2602.D	BETTYP191_FGA.M	9.86	9.86	0.0	2.79	2.81	0.3	2.80	2.70	104
BettyP191 #FG7 ENV(1=530,3=319.09)	009F0501.D	009F0502.D	BETTYP191_FGA.M	9.84	9.84	0.0	2.79	2.82	0.4	2.80	2.70	104

Enthalpy Analytical

Company: METCO Environmental
Job No.: 0615-125 ASTM D1946-90 Canisters
Client No.: 15-162

Nitrogen -- Calibration Standards, Laboratory Blanks and Controls

Sample Name	Filename #1	Filename #2	Analysis Method	Ret Time (min)	Ret Time (min)	%dif RT	Conc # 1	Conc # 2	%dif conc	Avg Conc %	Standard Tag	% Tag
He Blank #LB	001F0603.D	001F0604.D	BETTYP191_FGA.M	NA	NA	NA	0.380	0.380	NA	0.380		
BettyP191 #FG7 ENV(1=530,3=319.09)	009F0801.D	009F0802.D	BETTYP191_FGA.M	4.90	4.90	0.0	3.51	3.50	0.1	3.50	3.37	104
BettyP191 #FG7 ENV(1=530,3=319.09)	009F1801.D	009F1802.D	BETTYP191_FGA.M	4.90	4.90	0.0	3.45	3.47	0.3	3.46	3.37	103
He Blank #LB	001F2501.D	001F2502.D	BETTYP191_FGA.M	NA	NA	NA	0.380	0.380	NA	0.380		
BettyP191 #FG7 ENV(1=530,3=319.09)	009F2601.D	009F2602.D	BETTYP191_FGA.M	4.88	4.88	0.0	3.62	3.53	1.4	3.58	3.37	106
BettyP191 #FG7 ENV(1=530,3=319.09)	009F0501.D	009F0502.D	BETTYP191_FGA.M	4.87	4.87	0.0	3.58	3.52	0.8	3.55	3.37	105

Enthalpy Analytical

Company: METCO Environmental
Job No.: 0615-125 ASTM D1946-90 Canisters
Client No.: 15-162

Oxygen -- Calibration Standards, Laboratory Blanks and Controls

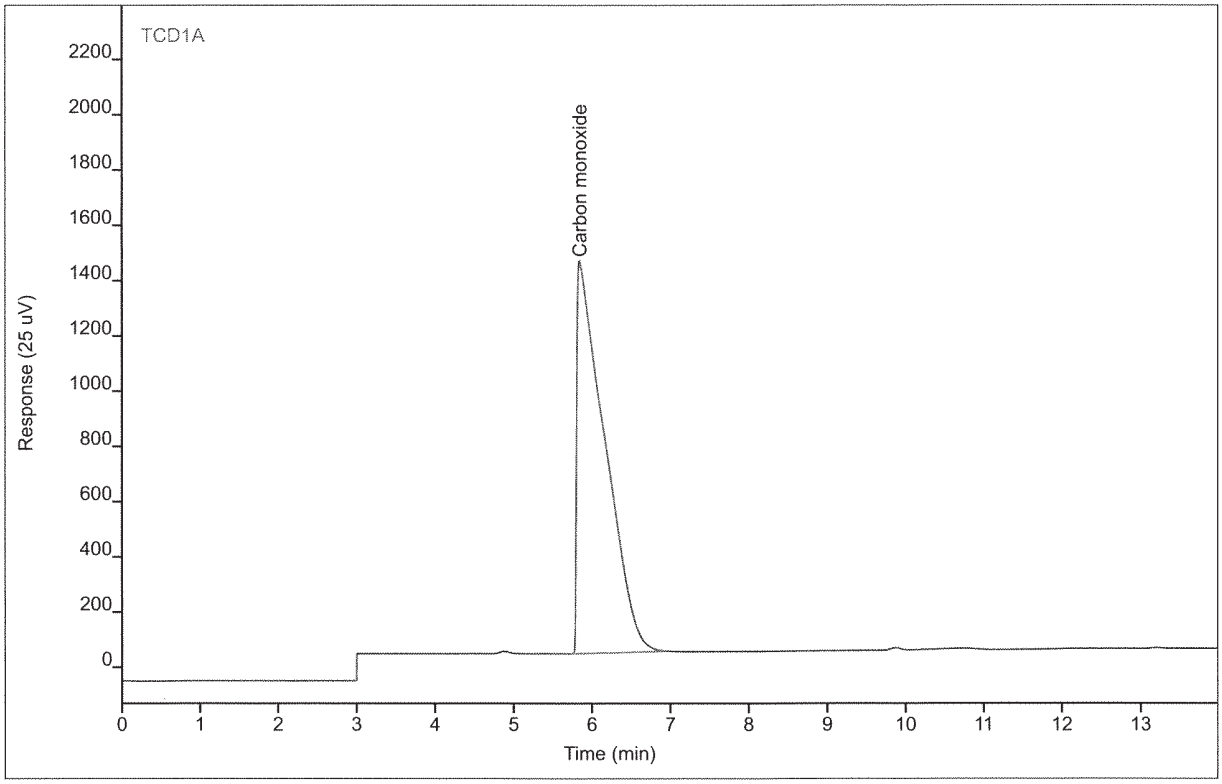
Sample Name	Filename #1	Filename #2	Analysis Method	Ret Time (min)	Ret Time (min)	%dif RT	Conc # 1	Conc # 2	%dif conc	Avg Conc %	Standard Tag	% Tag
He Blank #LB	001F0603.D	001F0604.D	BETTYP191_FGA.M	NA	NA	NA	0.544	0.544	NA	0.544		
BettyP070 #FG3 ENV(1=374.56,2=391.18)	009F0701.D	009F0702.D	BETTYP191_FGA.M	4.54	4.54	0.0	4.94	4.96	0.1	4.95	4.81	103
BettyP070 #FG3 ENV(1=374.56,2=391.18)	009F1701.D	009F1702.D	BETTYP191_FGA.M	4.54	4.54	0.0	4.85	4.84	0.1	4.85	4.81	101
He Blank #LB	001F2501.D	001F2502.D	BETTYP191_FGA.M	NA	NA	NA	0.544	0.544	NA	0.544		
BettyP217 #FG3 ENV(1=374.56,2=391.07)	009F2701.D	009F2702.D	BETTYP191_FGA.M	4.53	4.53	0.0	4.82	4.83	0.0	4.82	4.80	100
BettyP217 #FG3 ENV(1=374.56,2=391.07)	009F0701.D	009F0702.D	BETTYP191_FGA.M	4.52	4.52	0.0	4.81	4.86	0.4	4.84	4.80	101

Chromatogram Report

Sample Name	BettyP091 #FG25 CO 99.9%
Sequence Name	BETTYP191 ver.24
Data File	016F0102.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	5/21/2015 9:55 AM
File Modified	5/28/2015 2:02 PM
Instrument	
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 16
Injection Volume	250
Injection	2 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	5/28/2015 2:01 PM
Printed	5/28/2015 2:12 PM



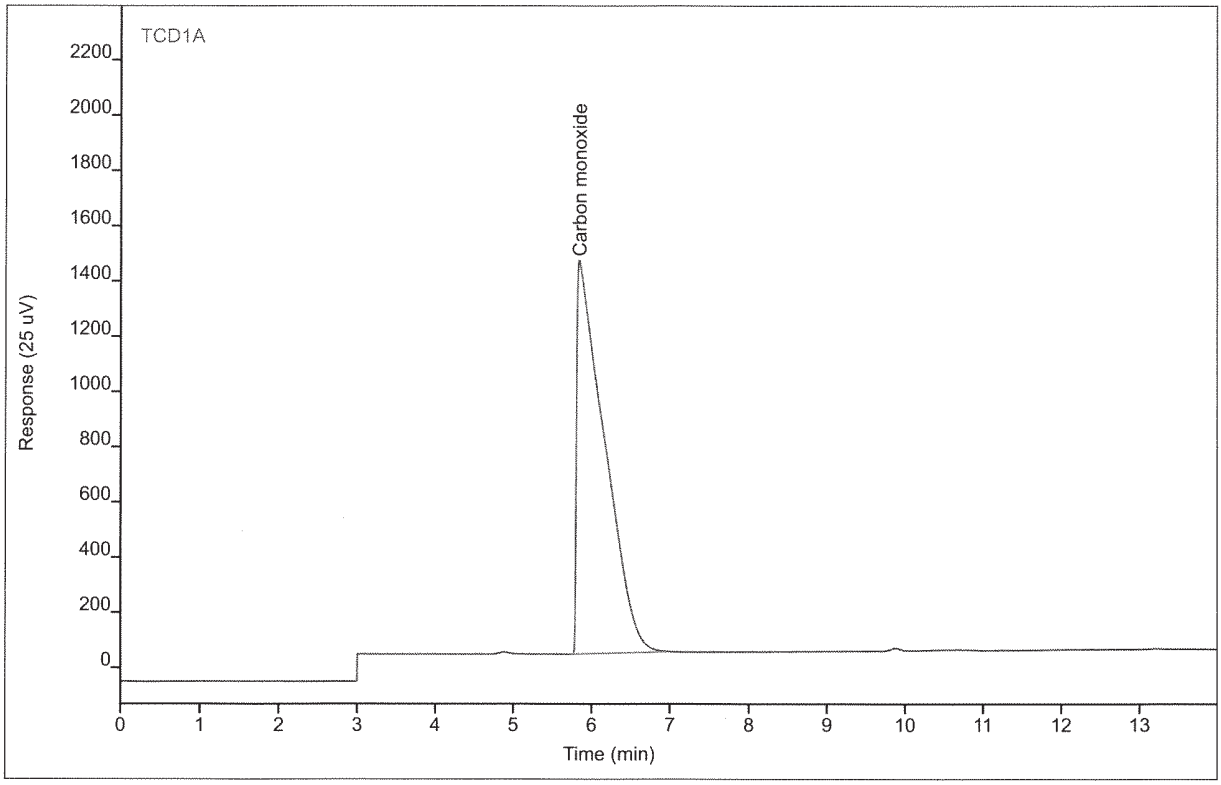
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Carbon monoxide	VB	5.84	35005.0	1422.37	93.7358	1	93.7358	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP091 #FG25 CO 99.9%
Sequence Name	BETTYP191 ver.24
Data File	016F0103.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	5/21/2015 10:17 AM
File Modified	5/28/2015 2:02 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 16
Injection Volume	250
Injection	3 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	5/28/2015 2:01 PM
Printed	5/28/2015 2:12 PM



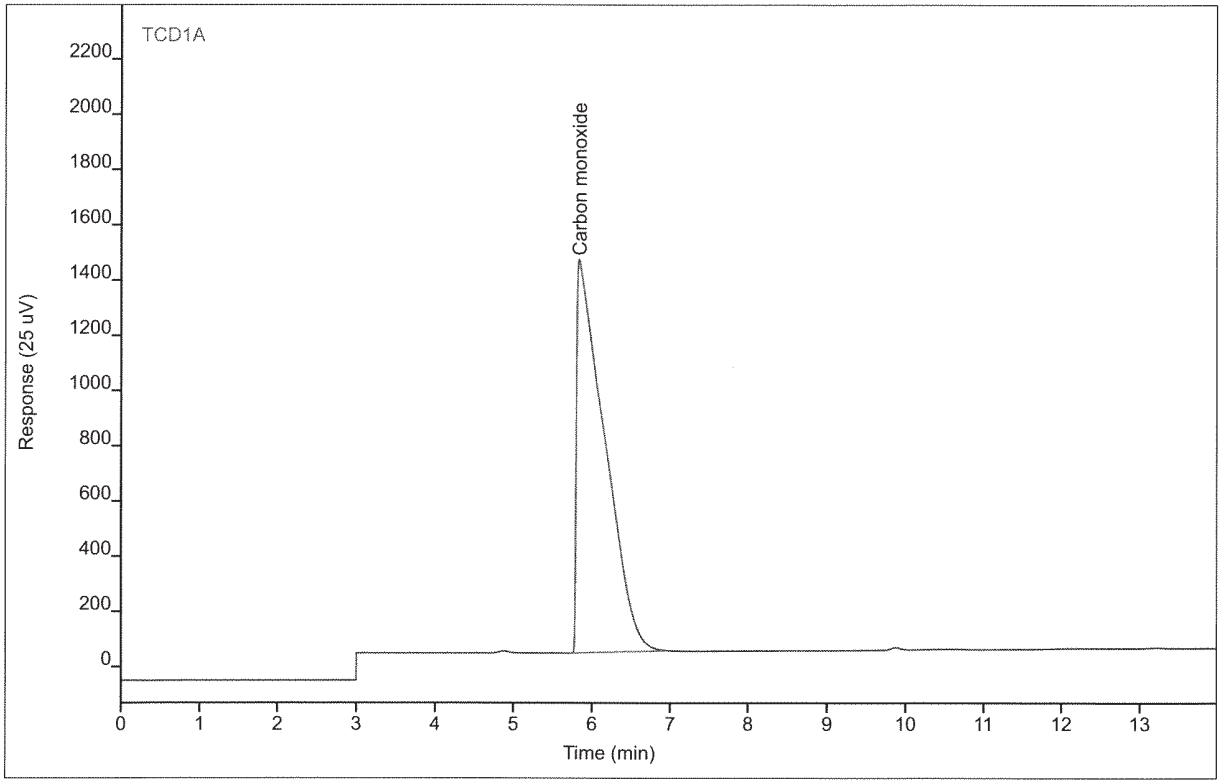
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Carbon monoxide	BB	5.84	35093.2	1426.37	93.9722	1	93.9722	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP091 #FG25 CO 99.9%
Sequence Name	BETTYP191 ver.24
Data File	016F0104.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	5/21/2015 10:39 AM
File Modified	5/28/2015 2:03 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 16
Injection Volume	250
Injection	4 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	5/28/2015 2:01 PM
Printed	5/28/2015 2:12 PM



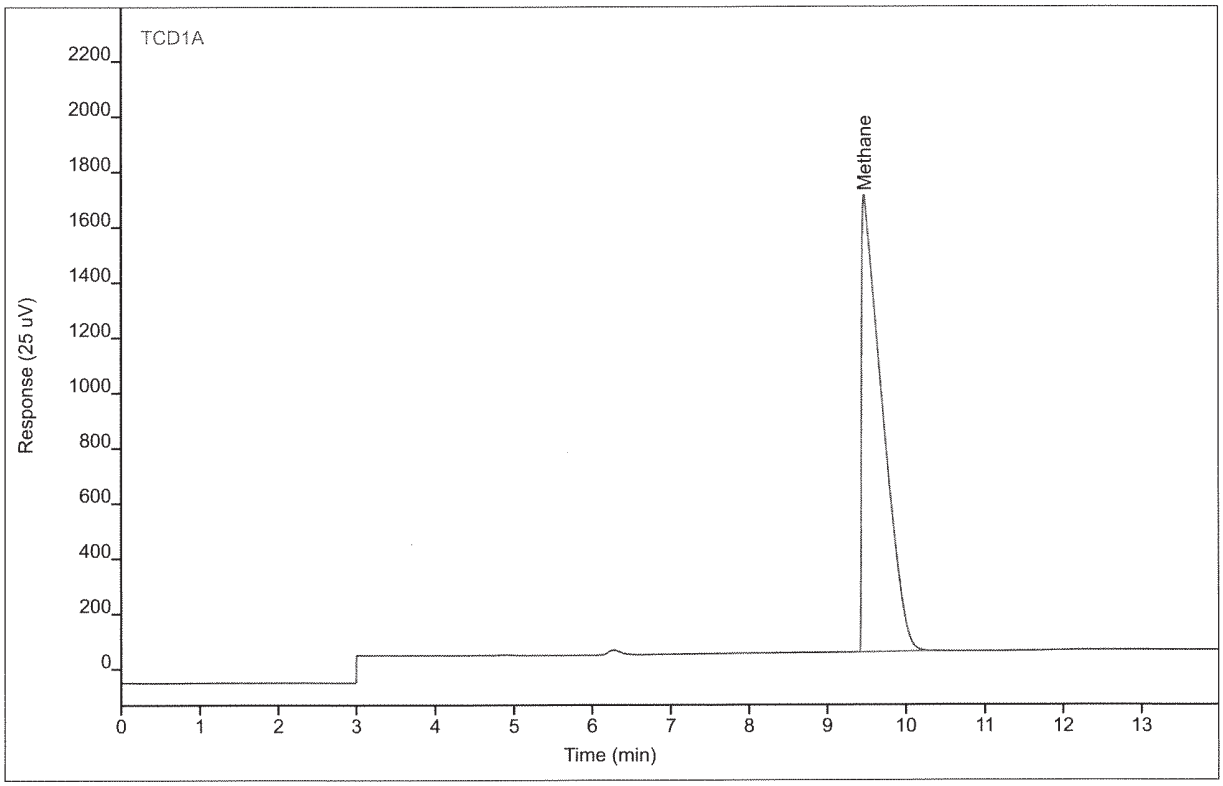
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Carbon monoxide	BB	5.84	35160.7	1425.32	94.1529	1	94.1529	%

Chromatogram Report

Enthalpy Analytical

Sample Name	Methane 99.999% #FG24
Sequence Name	BETTYP191 ver.24
Data File	016F0304.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	5/21/2015 12:16 PM
File Modified	5/28/2015 2:03 PM
Instrument	
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 16
Injection Volume	250
Injection	4 of 6
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	5/28/2015 2:01 PM
Printed	5/28/2015 2:12 PM



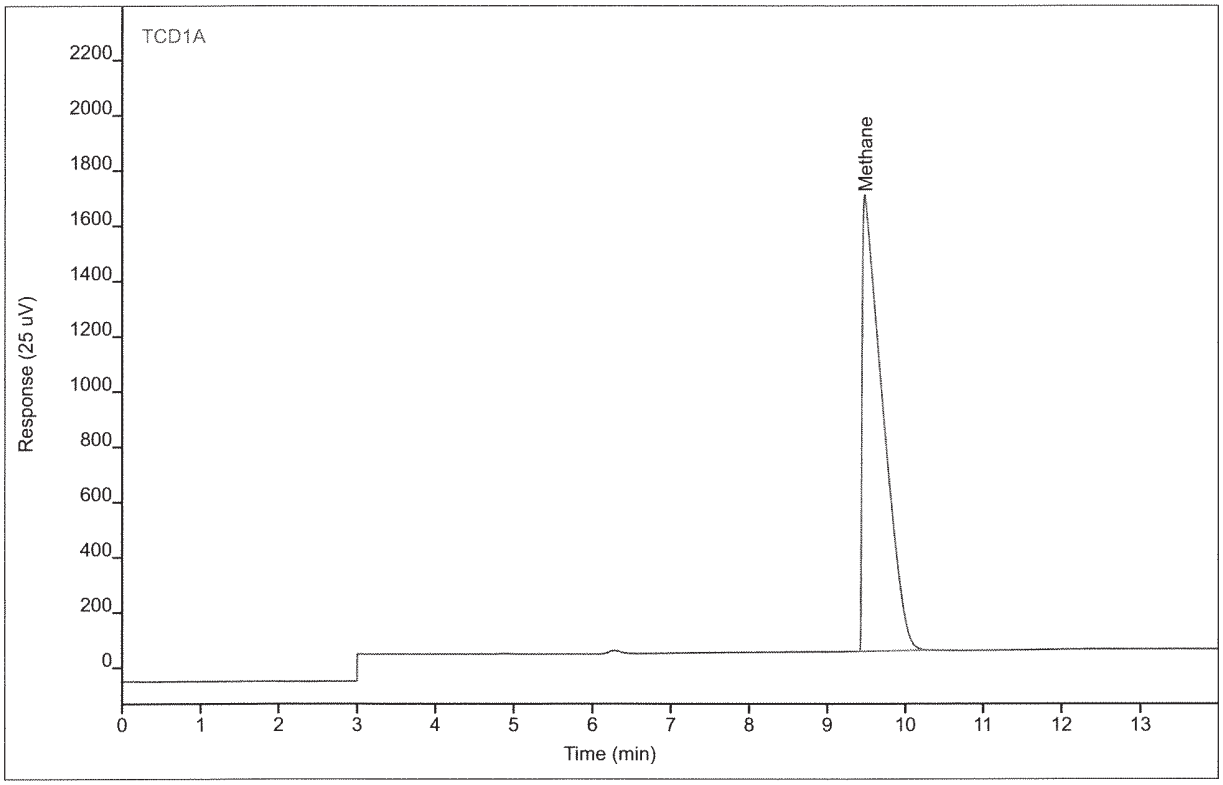
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	BB	9.49	29802.2	1655.32	92.2592	1	92.2592	%

Chromatogram Report

Enthalpy Analytical

Sample Name	Methane 99.999% #FG24
Sequence Name	BETTYP191 ver.24
Data File	016F0305.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	5/21/2015 12:38 PM
File Modified	5/28/2015 2:03 PM
Instrument	
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 16
Injection Volume	250
Injection	5 of 6
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	5/28/2015 2:01 PM
Printed	5/28/2015 2:12 PM



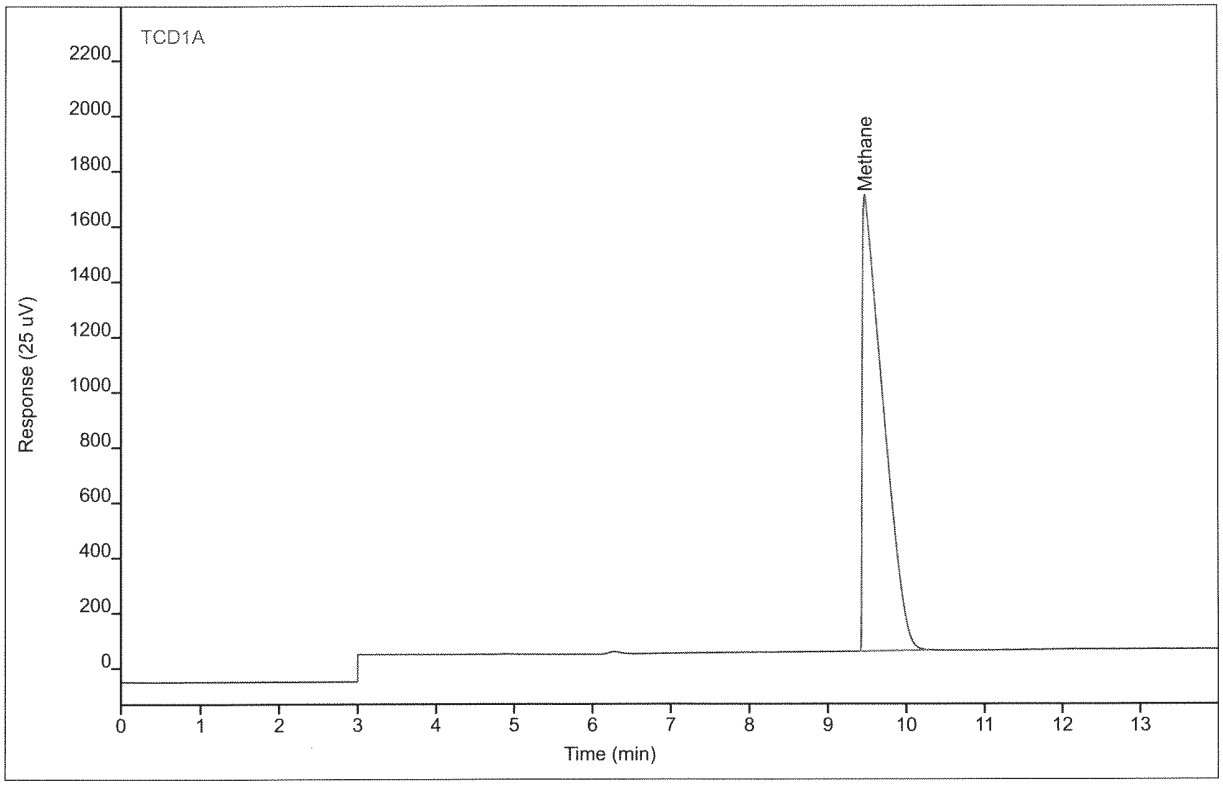
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	BB	9.48	29871.2	1650.03	92.4727	1	92.4727	%

Chromatogram Report

Sample Name	Methane 99.999% #FG24
Sequence Name	BETTYP191 ver.24
Data File	016F0306.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	5/21/2015 12:59 PM
File Modified	5/28/2015 2:03 PM
Instrument	
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 16
Injection Volume	250
Injection	6 of 6
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	5/28/2015 2:01 PM
Printed	5/28/2015 2:12 PM



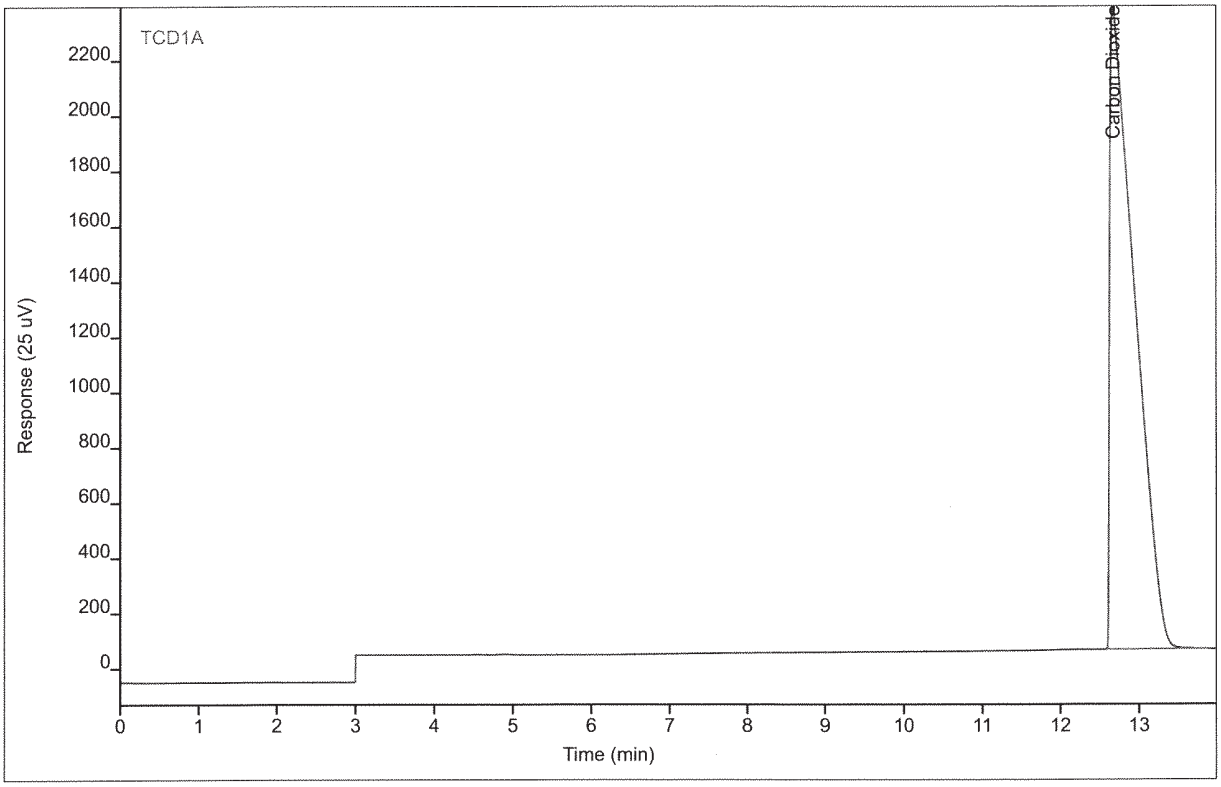
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	BB	9.48	29740.8	1649.27	92.0690	1	92.0690	%

Chromatogram Report

Sample Name	CO2 99.99% #FG21
Sequence Name	BETTYP191 ver.24
Data File	013F0504.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	5/21/2015 2:35 PM
File Modified	5/28/2015 2:03 PM
Instrument	
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 13
Injection Volume	250
Injection	4 of 6
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	5/28/2015 2:01 PM
Printed	5/28/2015 2:12 PM



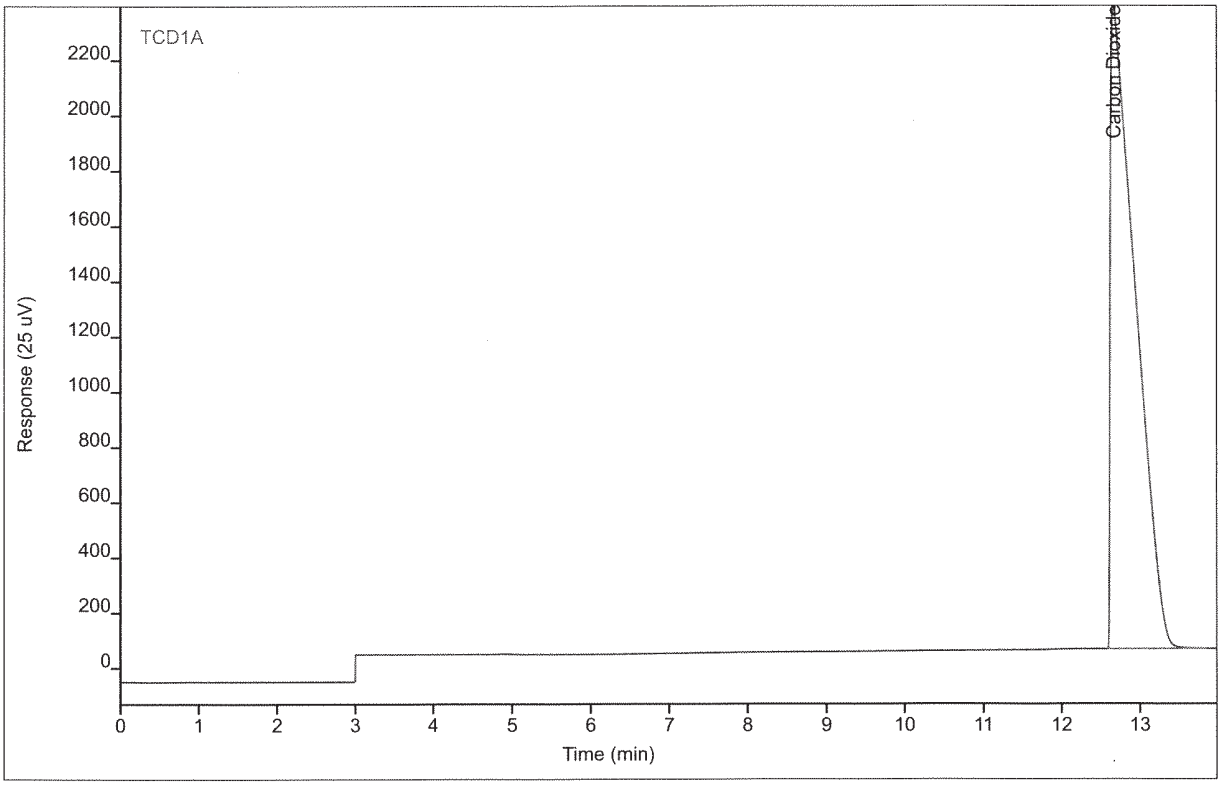
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Carbon Dioxide	MM	12.67	51110.9	2324.53	97.3488	1	97.3488	%

Chromatogram Report

Sample Name	CO2 99.99% #FG21
Sequence Name	BETTYP191 ver.24
Data File	013F0505.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	5/21/2015 2:57 PM
File Modified	5/28/2015 2:04 PM
Instrument	
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 13
Injection Volume	250
Injection	5 of 6
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	5/28/2015 2:01 PM
Printed	5/28/2015 2:12 PM



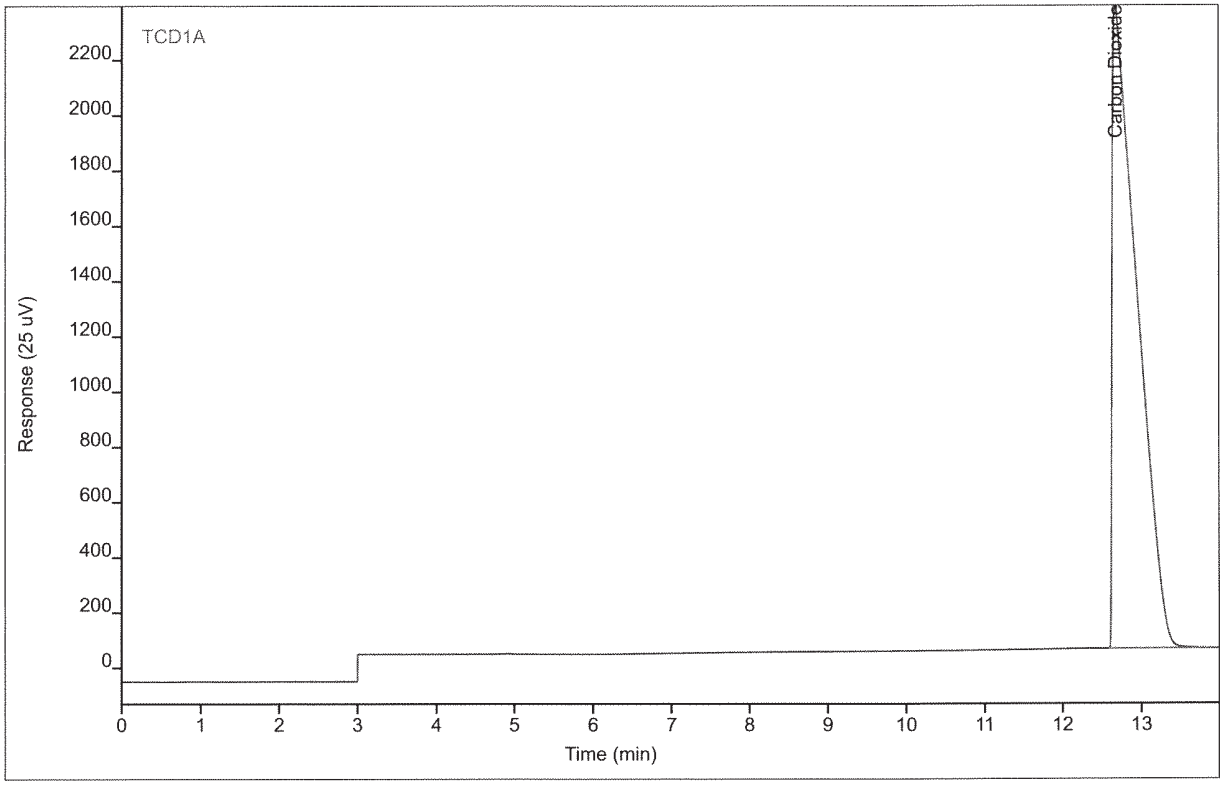
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Carbon Dioxide	MM	12.67	51086.8	2329.14	97.3028	1	97.3028	%

Chromatogram Report

Enthalpy Analytical

Sample Name	CO2 99.99% #FG21
Sequence Name	BETTYP191 ver.24
Data File	013F0506.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	5/21/2015 3:19 PM
File Modified	5/28/2015 2:04 PM
Instrument	
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 13
Injection Volume	250
Injection	6 of 6
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	5/28/2015 2:01 PM
Printed	5/28/2015 2:12 PM



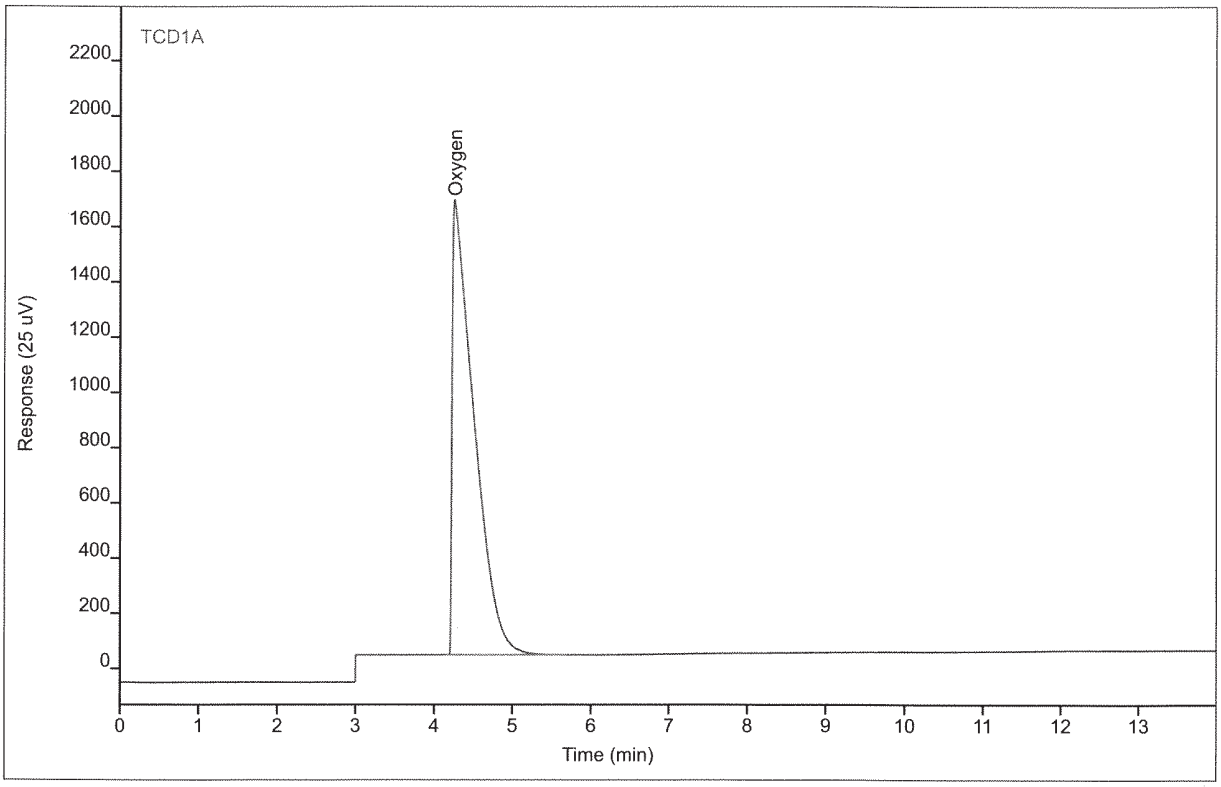
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Carbon Dioxide	MM	12.67	51153.1	2333.76	97.4292	1	97.4292	%

Chromatogram Report

Enthalpy Analytical

Sample Name	O2 99.999% #FG23
Sequence Name	BETTYP191 ver.24
Data File	016F0604.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	5/21/2015 4:46 PM
File Modified	5/28/2015 2:04 PM
Instrument	
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 16
Injection Volume	250
Injection	4 of 6
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	5/28/2015 2:01 PM
Printed	5/28/2015 2:12 PM



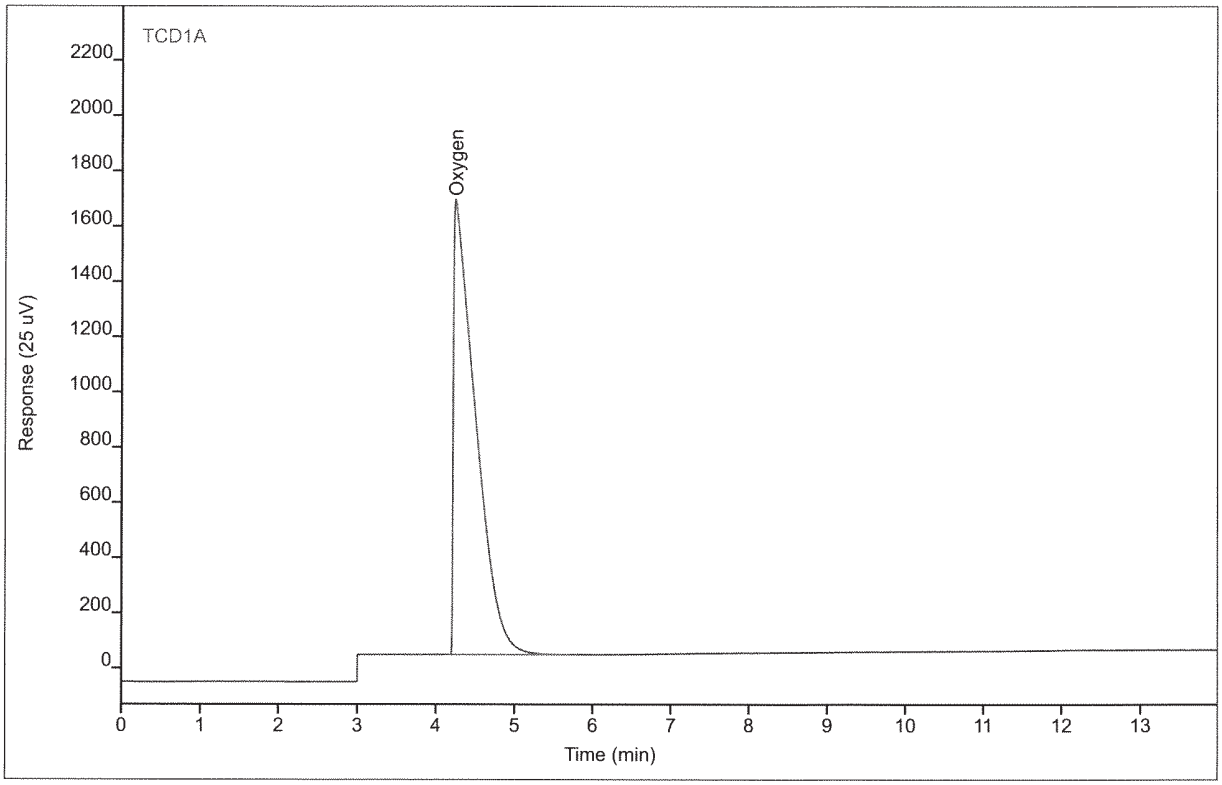
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.26	31777.7	1646.23	96.0306	1	96.0306	%

Chromatogram Report

Enthalpy Analytical

Sample Name	O2 99.999% #FG23
Sequence Name	BETTYP191 ver.24
Data File	016F0605.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	5/21/2015 5:07 PM
File Modified	5/28/2015 2:04 PM
Instrument	
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 16
Injection Volume	250
Injection	5 of 6
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	5/28/2015 2:01 PM
Printed	5/28/2015 2:12 PM



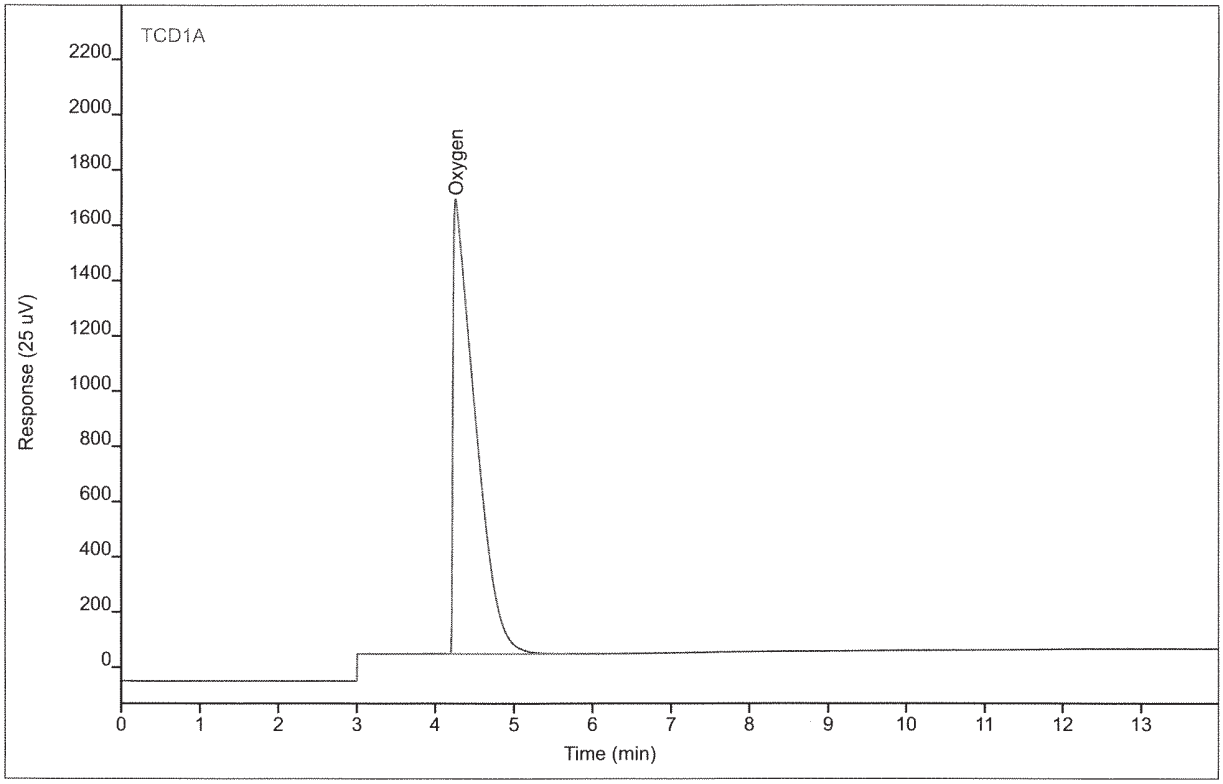
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.26	31826.1	1645.51	96.1767	1	96.1767	%

Chromatogram Report

Enthalpy Analytical

Sample Name	O2 99.999% #FG23
Sequence Name	BETTYP191 ver.24
Data File	016F0606.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	5/21/2015 5:29 PM
File Modified	5/28/2015 2:04 PM
Instrument	
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 16
Injection Volume	250
Injection	6 of 6
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	5/28/2015 2:01 PM
Printed	5/28/2015 2:12 PM

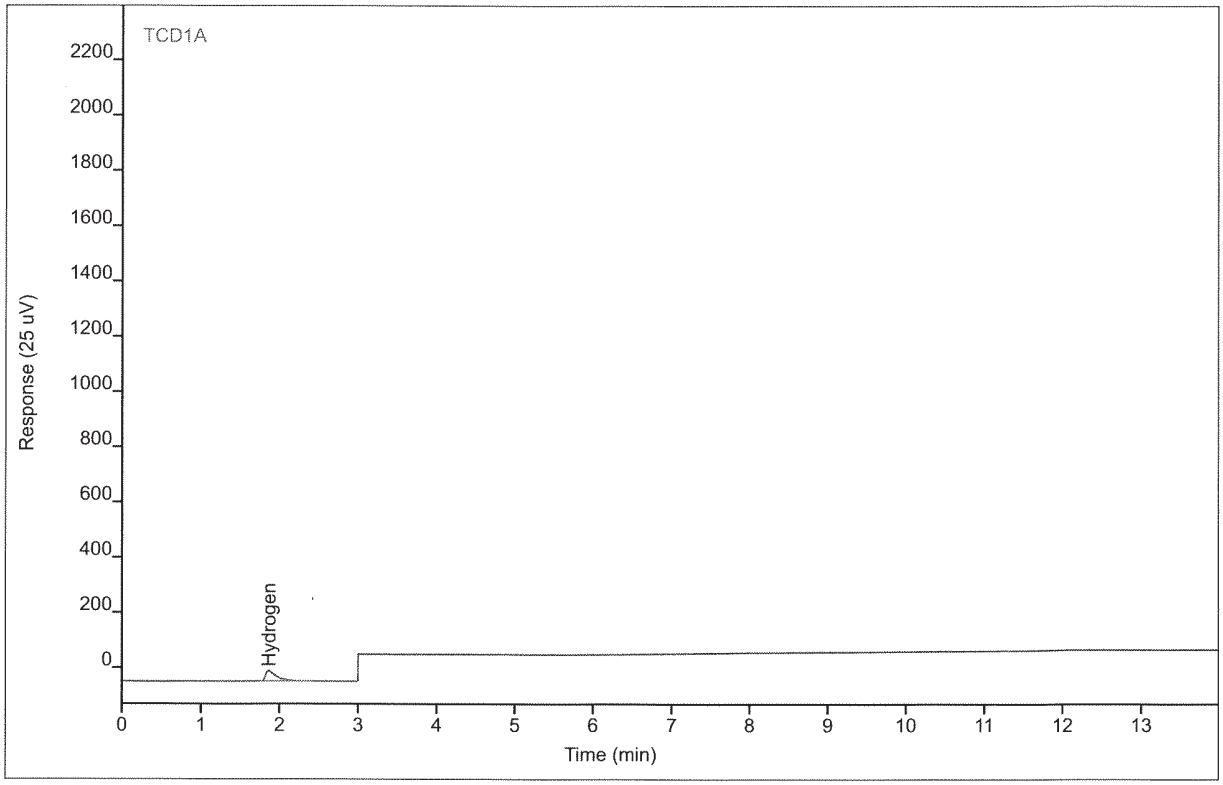


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.26	31809.3	1644.86	96.1259	1	96.1259	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP162 #FG29 ENV(1=706.66,6=396.04)	Sample Type	Calibration
Sequence Name	BETTYP191 ver.24	Vial Number	Vial 9
Data File	009F0704.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	4 of 6
Injection Date	5/21/2015 7:06 PM	Acquisition Method	GC142P133_CAL.M
File Modified	5/28/2015 2:04 PM	Analysis Method	BETTYP191_FGA.M
Instrument		Method Modified	5/28/2015 2:01 PM
Operator	Chester Burnett	Printed	5/28/2015 2:12 PM

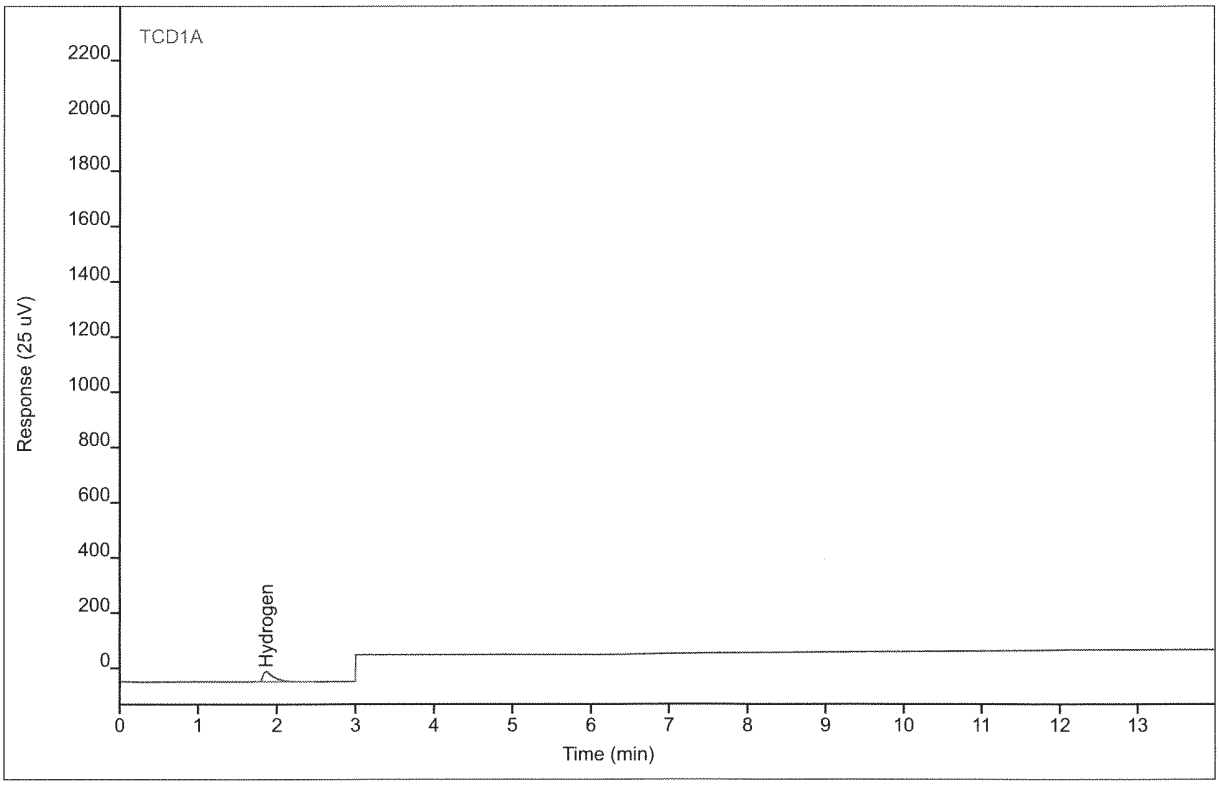


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.86	359.166	37.2030	30.0677	1	30.0677	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP162 #FG29 ENV(1=706.66,6=396.04)	Sample Type	Calibration
Sequence Name	BETTYP191 ver.24	Vial Number	Vial 9
Data File	009F0705.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	5 of 6
Injection Date	5/21/2015 7:30 PM	Acquisition Method	GC142P133_CAL.M
File Modified	5/28/2015 2:04 PM	Analysis Method	BETTYP191_FGA.M
Instrument		Method Modified	5/28/2015 2:01 PM
Operator	Chester Burnett	Printed	5/28/2015 2:12 PM

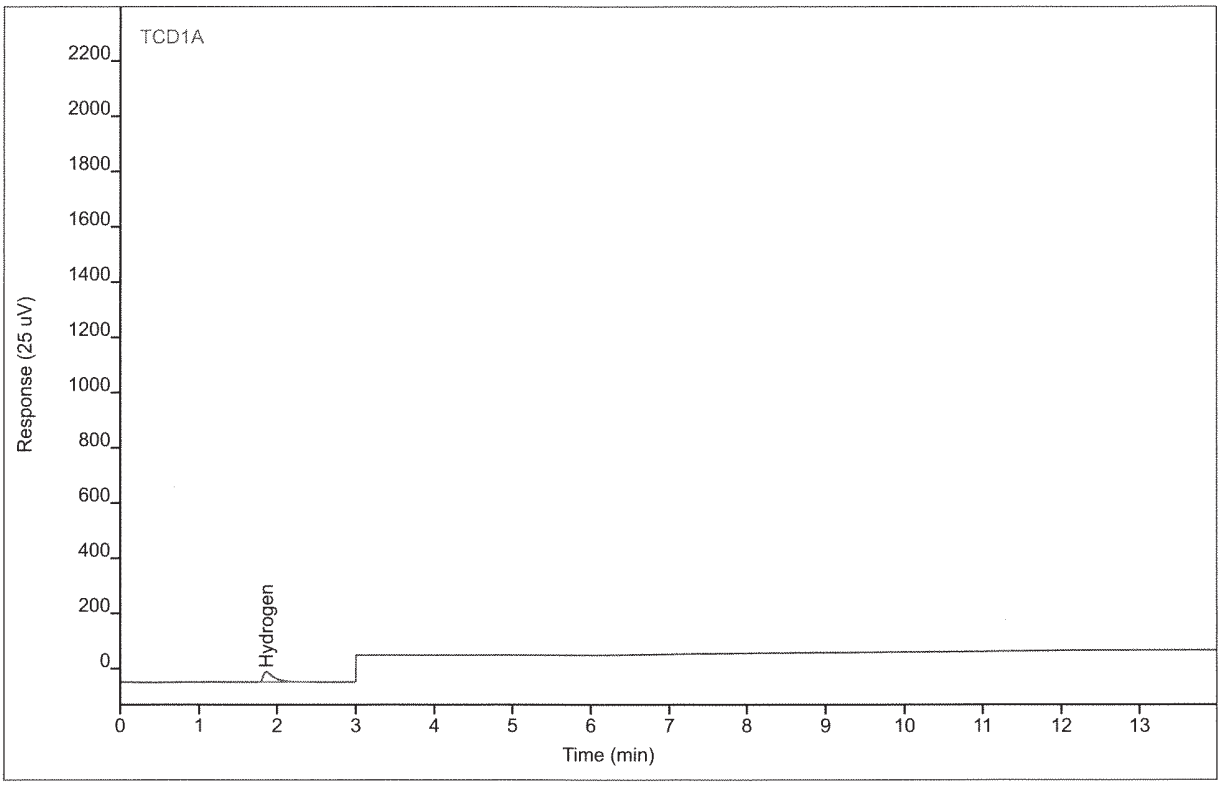


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.86	356.175	36.9151	29.8166	1	29.8166	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP162 #FG29 ENV(1=706.66,6=396.04)	Sample Type	Calibration
Sequence Name	BETTYP191 ver.24	Vial Number	Vial 9
Data File	009F0706.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	6 of 6
Injection Date	5/21/2015 7:54 PM	Acquisition Method	GC142P133_CAL.M
File Modified	5/28/2015 2:05 PM	Analysis Method	BETTYP191_FGA.M
Instrument		Method Modified	5/28/2015 2:01 PM
Operator	Chester Burnett	Printed	5/28/2015 2:12 PM

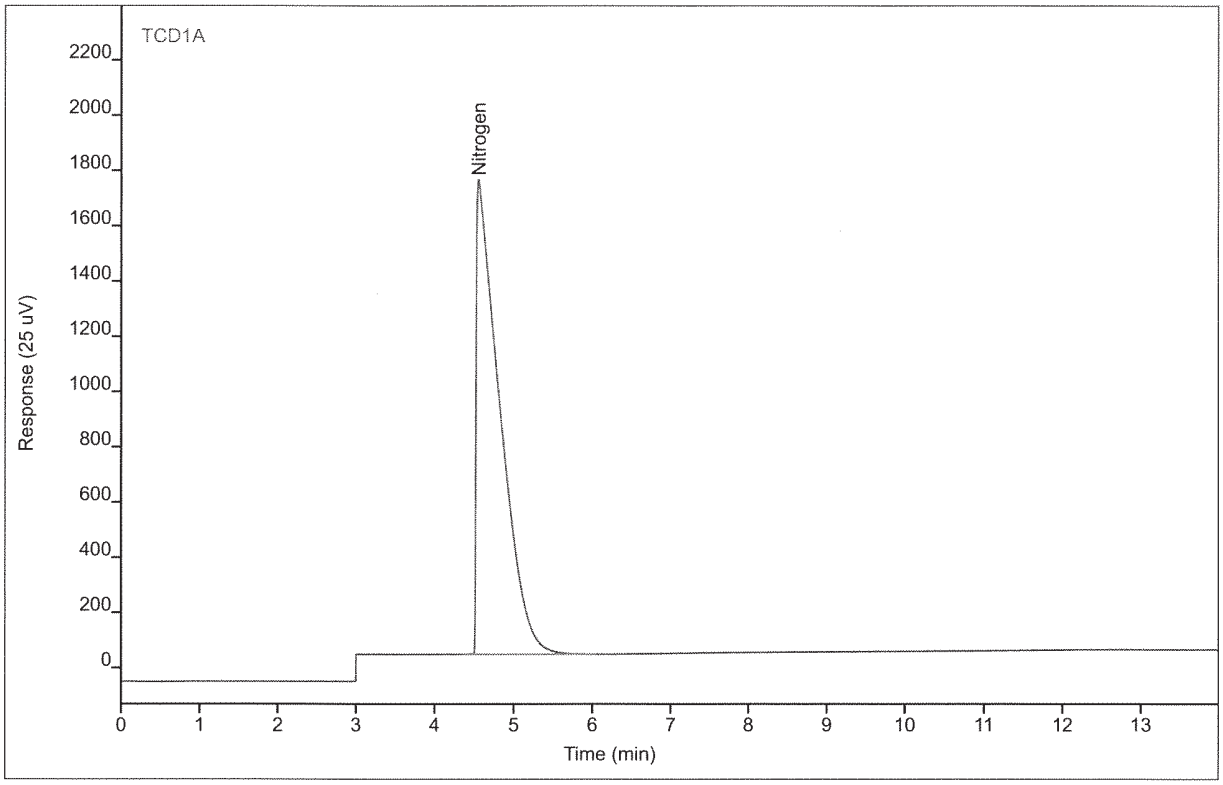


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.86	354.767	36.9121	29.6983	1	29.6983	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP187 #FG22 ENV(1=0,4=450)	Sample Type	Calibration
Sequence Name	BETTYP191 ver.24	Vial Number	Vial 9
Data File	009F0804.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	4 of 6
Injection Date	5/21/2015 9:31 PM	Acquisition Method	GC142P133_CAL.M
File Modified	5/28/2015 2:05 PM	Analysis Method	BETTYP191_FGA.M
Instrument		Method Modified	5/28/2015 2:01 PM
Operator	Chester Burnett	Printed	5/28/2015 2:12 PM



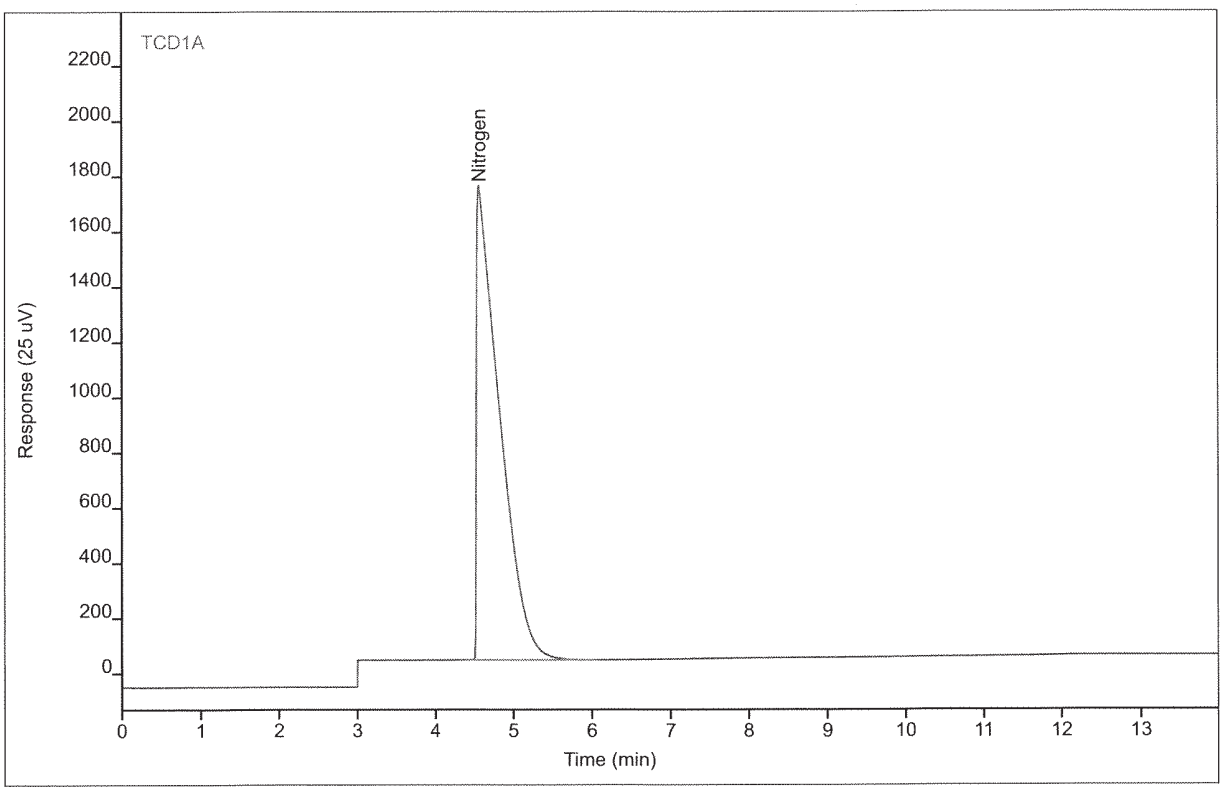
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Nitrogen	BB	4.56	35328.0	1719.18	93.2128	1	93.2128	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP187 #FG22 ENV(1=0,4=450)
Sequence Name	BETTYP191 ver.24
Data File	009F0805.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	5/21/2015 9:55 PM
File Modified	5/28/2015 2:05 PM
Instrument	
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	5 of 6
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	5/28/2015 2:01 PM
Printed	5/28/2015 2:12 PM



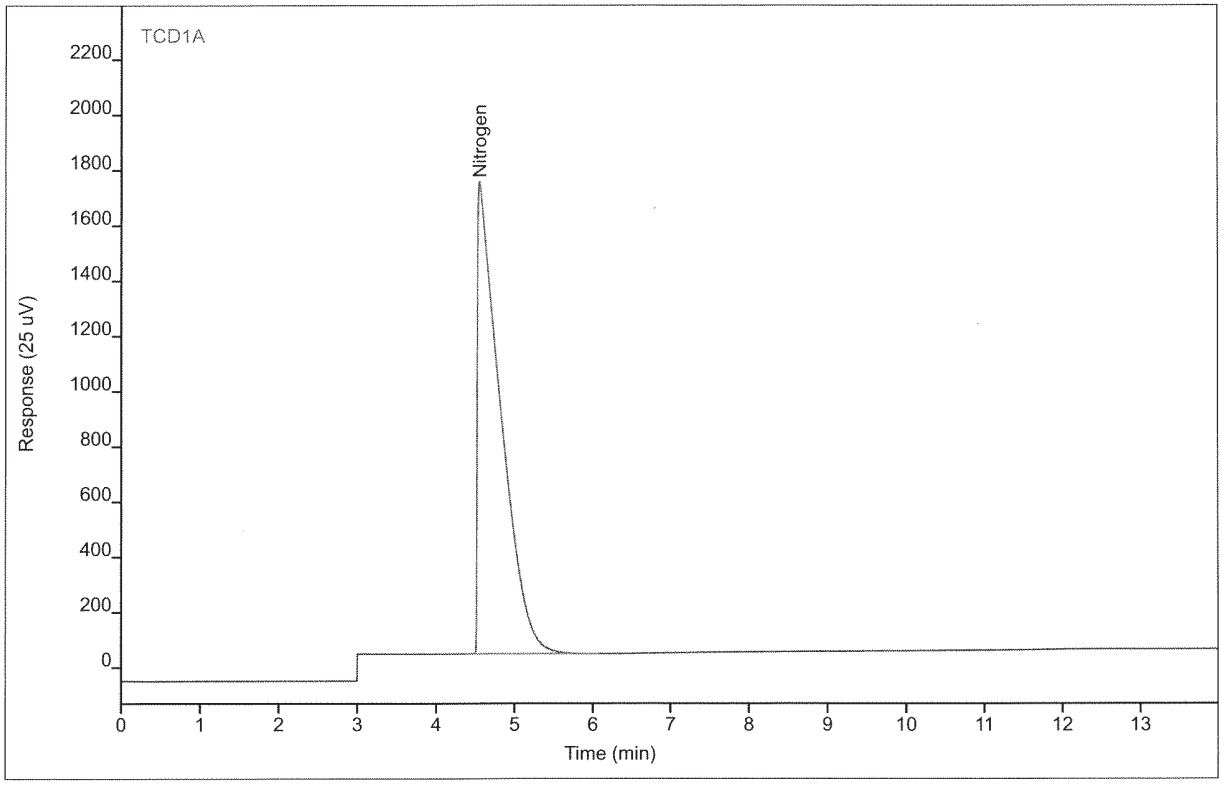
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Nitrogen	BB	4.56	35220.2	1716.23	92.9281	1	92.9281	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP187 #FG22 ENV(1=0,4=450)
Sequence Name	BETTYP191 ver.24
Data File	009F0806.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	5/21/2015 10:19 PM
File Modified	5/28/2015 2:05 PM
Instrument	
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	6 of 6
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	5/28/2015 2:01 PM
Printed	5/28/2015 2:12 PM

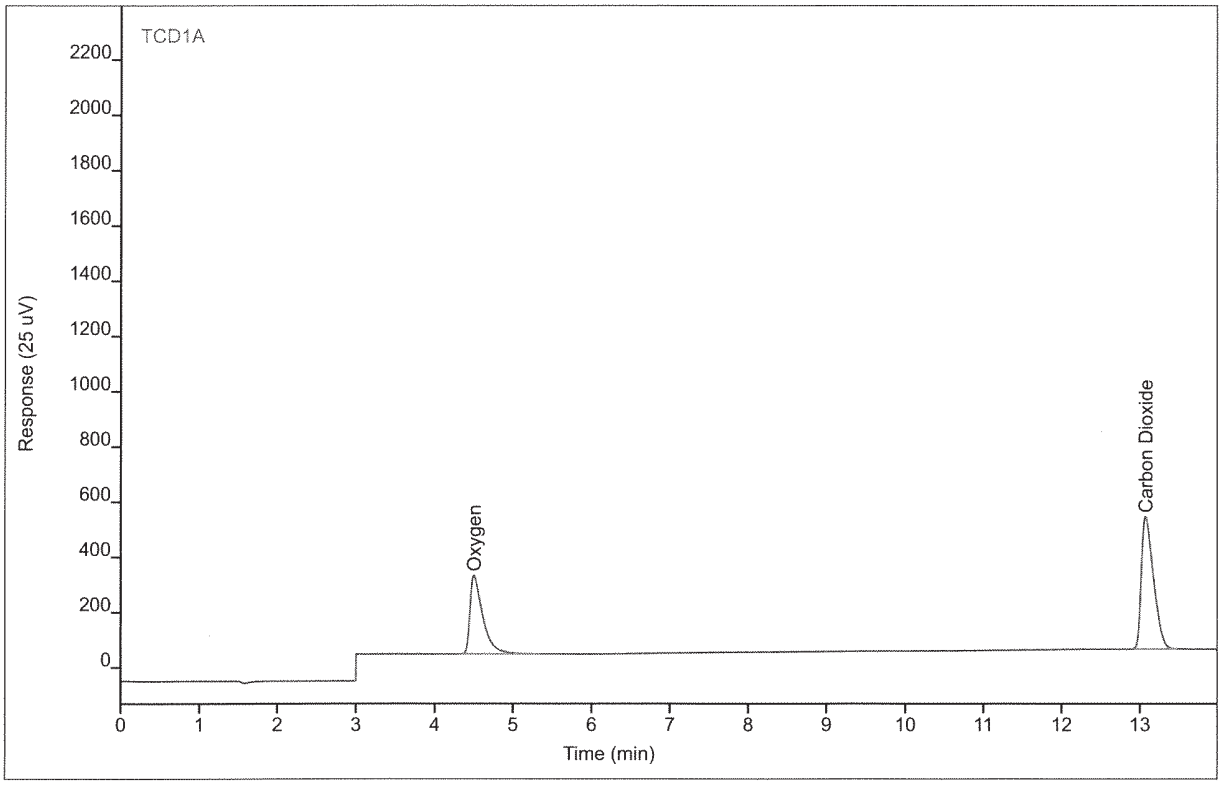


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Nitrogen	BB	4.56	35155.3	1710.07	92.7569	1	92.7569	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG4 ENV(1=0,2=358.99)	Sample Type	Calibration
Sequence Name	BETTYP191 ver.24	Vial Number	Vial 9
Data File	009F0902.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	2 of 4
Injection Date	5/21/2015 11:07 PM	Acquisition Method	GC142P133_CAL.M
File Modified	5/28/2015 2:05 PM	Analysis Method	BETTYP191_FGA.M
Instrument		Method Modified	5/28/2015 2:01 PM
Operator	Chester Burnett	Printed	5/28/2015 2:12 PM



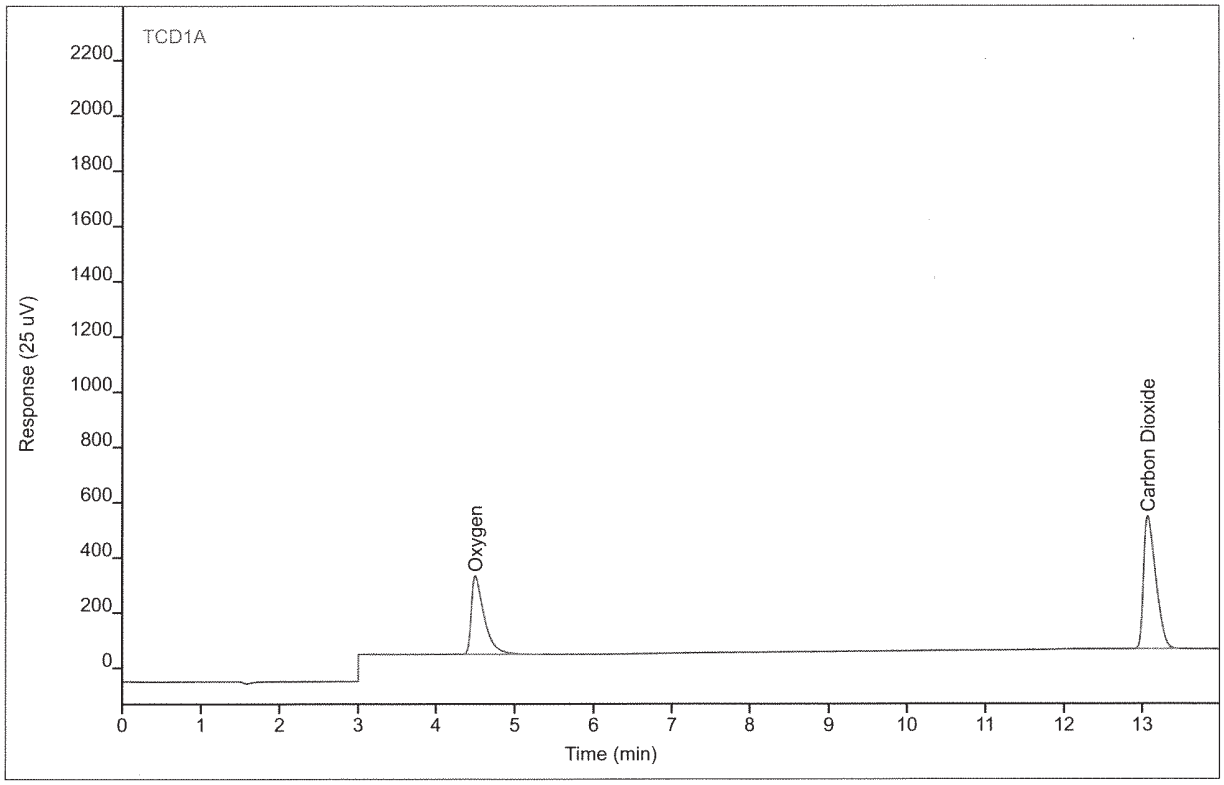
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.50	3290.00	284.475	9.90122	1	9.90122	%
Carbon Dioxide	BB	13.07	5195.48	478.962	9.84469	1	9.84469	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG4 ENV(1=0,2=358.99)
Sequence Name	BETTYP191 ver.24
Data File	009F0903.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	5/21/2015 11:32 PM
File Modified	5/28/2015 2:05 PM
Instrument	
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	5/28/2015 2:01 PM
Printed	5/28/2015 2:12 PM

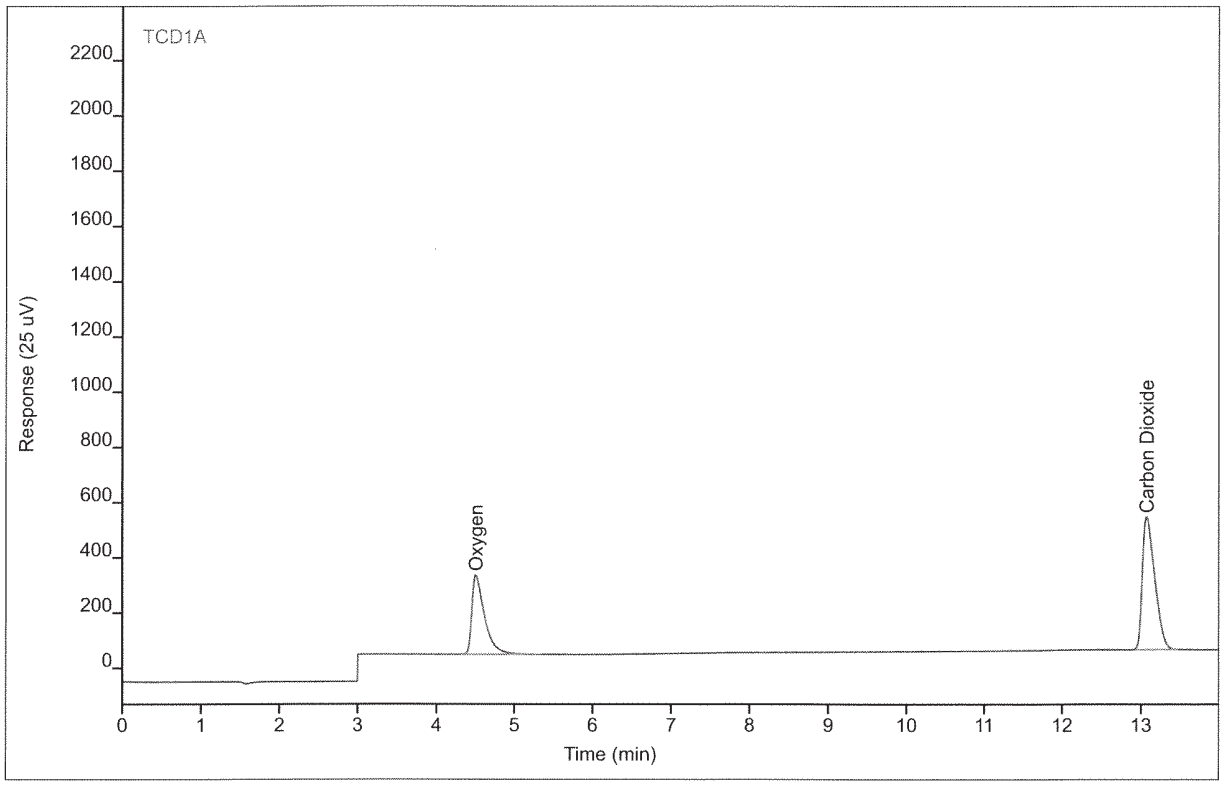


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.50	3277.43	283.756	9.86319	1	9.86319	%
Carbon Dioxide	BB	13.07	5194.01	480.430	9.84189	1	9.84189	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG4 ENV(1=0,2=358.99)	Sample Type	Calibration
Sequence Name	BETTYP191 ver.24	Vial Number	Vial 9
Data File	009F0904.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	4 of 4
Injection Date	5/21/2015 11:56 PM	Acquisition Method	GC142P133_CAL.M
File Modified	5/28/2015 2:05 PM	Analysis Method	BETTYP191_FGA.M
Instrument		Method Modified	5/28/2015 2:01 PM
Operator	Chester Burnett	Printed	5/28/2015 2:12 PM



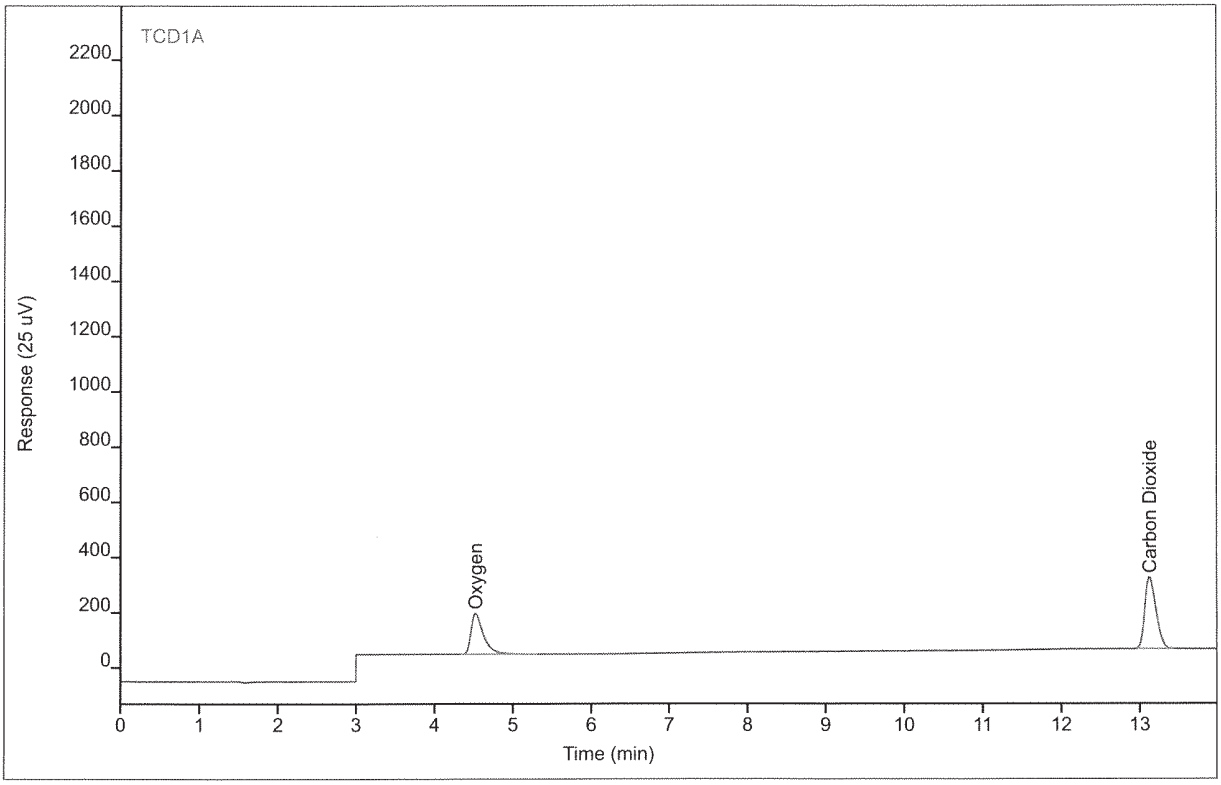
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.50	3314.06	286.504	9.97397	1	9.97397	%
Carbon Dioxide	BB	13.07	5225.64	480.399	9.90217	1	9.90217	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)
Sequence Name	BETTYP191 ver.24
Data File	009F1002.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	5/22/2015 12:44 AM
File Modified	5/28/2015 2:05 PM
Instrument	
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	5/28/2015 2:01 PM
Printed	5/28/2015 2:12 PM

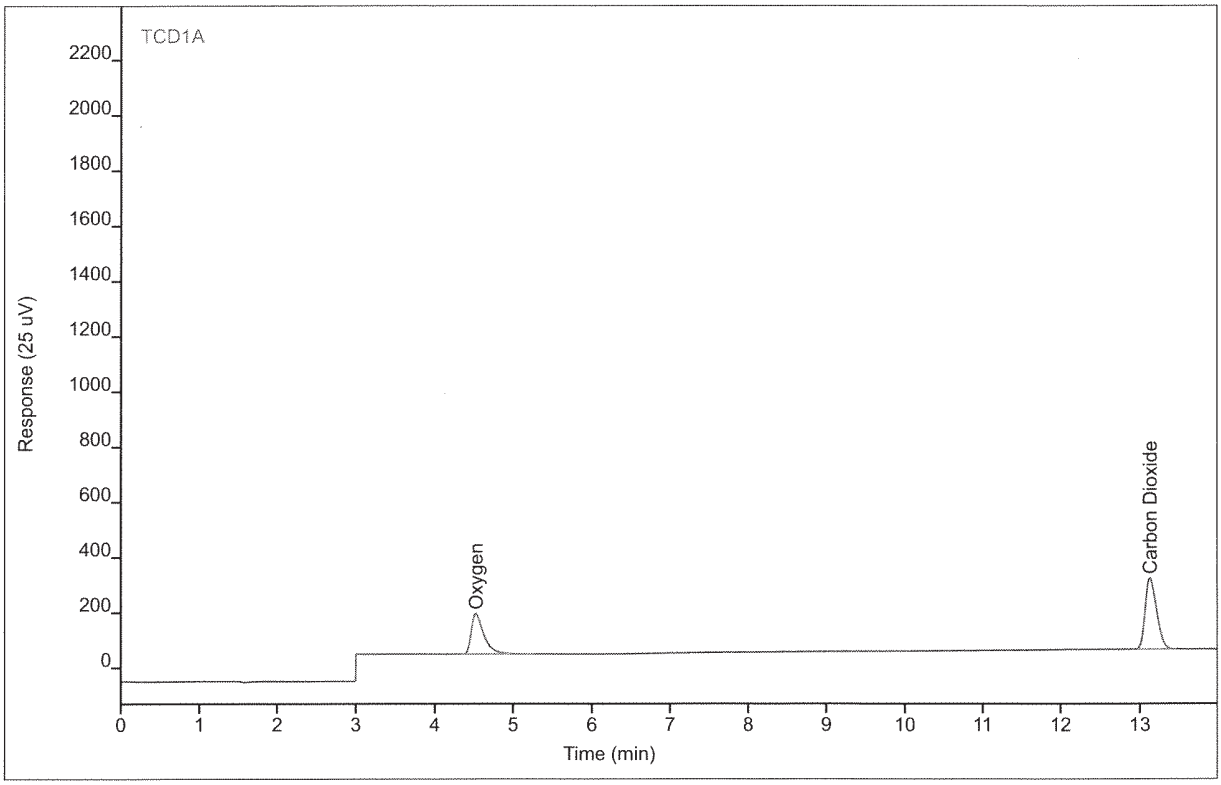


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.52	1664.87	147.238	4.98780	1	4.98780	%
Carbon Dioxide	BB	13.13	2628.86	258.598	4.95331	1	4.95331	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)	Sample Type	Calibration
Sequence Name	BETTYP191 ver.24	Vial Number	Vial 9
Data File	009F1003.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	3 of 4
Injection Date	5/22/2015 1:08 AM	Acquisition Method	GC142P133_CAL.M
File Modified	5/28/2015 2:05 PM	Analysis Method	BETTYP191_FGA.M
Instrument		Method Modified	5/28/2015 2:01 PM
Operator	Chester Burnett	Printed	5/28/2015 2:12 PM



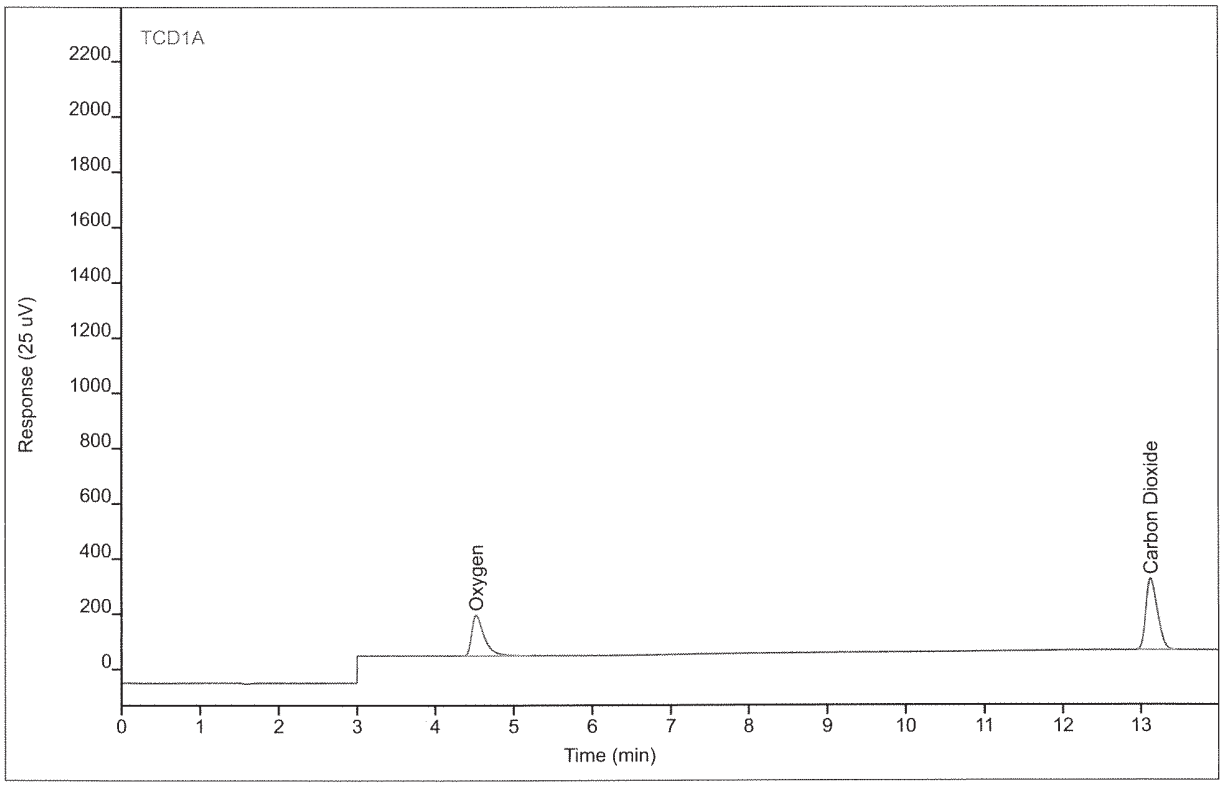
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.53	1649.82	146.187	4.94231	1	4.94231	%
Carbon Dioxide	BB	13.13	2608.66	257.233	4.91481	1	4.91481	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)
Sequence Name	BETTYP191 ver.24
Data File	009F1004.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	5/22/2015 1:32 AM
File Modified	5/28/2015 2:06 PM
Instrument	
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	4 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	5/28/2015 2:01 PM
Printed	5/28/2015 2:12 PM

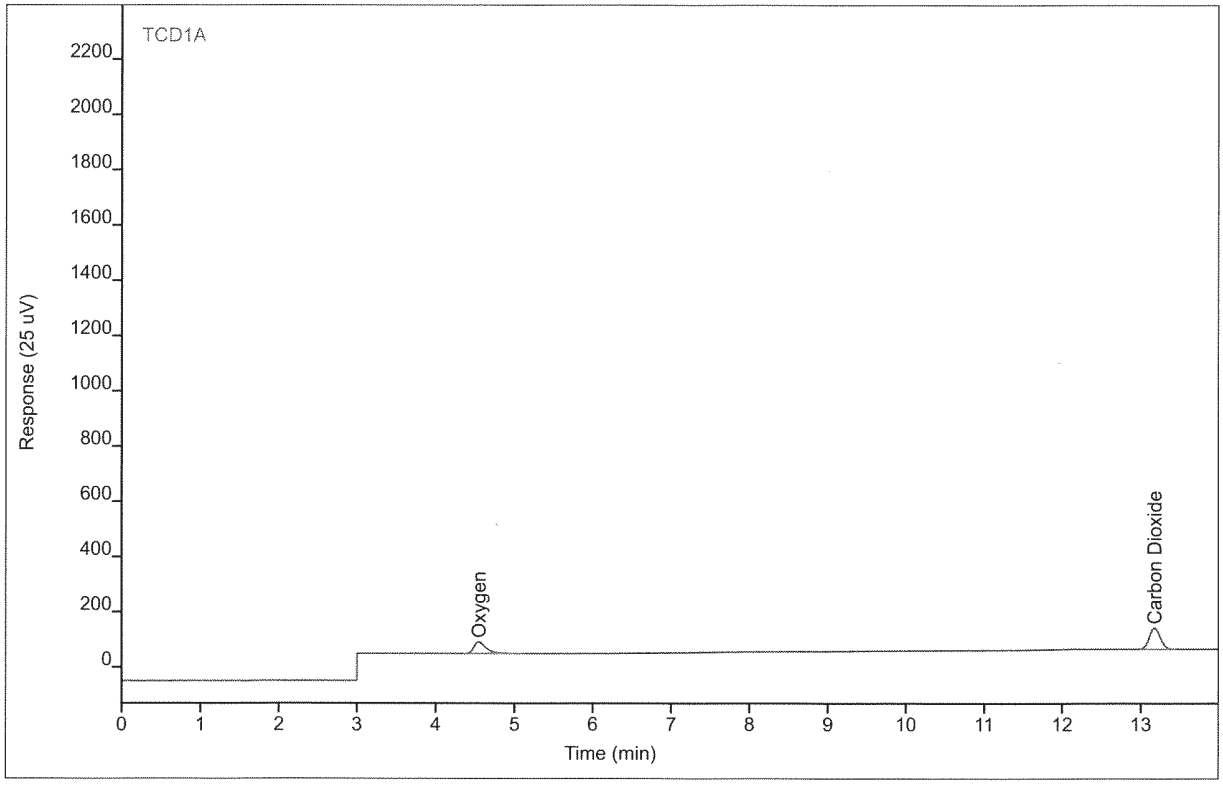


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.52	1663.69	147.540	4.98424	1	4.98424	%
Carbon Dioxide	BB	13.13	2616.27	257.728	4.92932	1	4.92932	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG2 ENV(1=1272.08,2=219.94)	Sample Type	Calibration
Sequence Name	BETTYP191 ver.24	Vial Number	Vial 9
Data File	009F1102.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	2 of 4
Injection Date	5/22/2015 2:21 AM	Acquisition Method	GC142P133_CAL.M
File Modified	5/28/2015 2:06 PM	Analysis Method	BETTYP191_FGA.M
Instrument		Method Modified	5/28/2015 2:01 PM
Operator	Chester Burnett	Printed	5/28/2015 2:12 PM

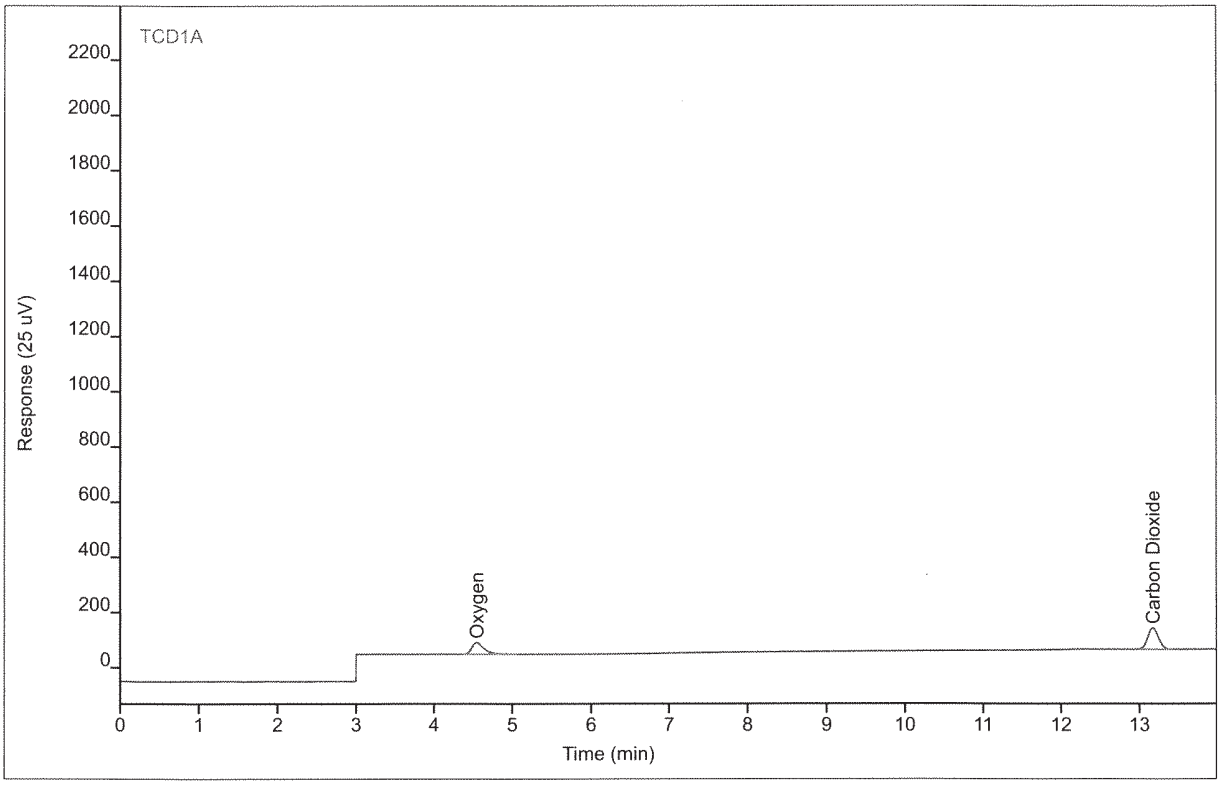


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.54	467.044	41.8271	1.36633	1	1.36633	%
Carbon Dioxide	BB	13.17	744.216	76.5006	1.36162	1	1.36162	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG2 ENV(1=1272.08,2=219.94)	Sample Type	Calibration
Sequence Name	BETTYP191 ver.24	Vial Number	Vial 9
Data File	009F1103.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	3 of 4
Injection Date	5/22/2015 2:45 AM	Acquisition Method	GC142P133_CAL.M
File Modified	5/28/2015 2:06 PM	Analysis Method	BETTYP191_FGA.M
Instrument		Method Modified	5/28/2015 2:01 PM
Operator	Chester Burnett	Printed	5/28/2015 2:12 PM

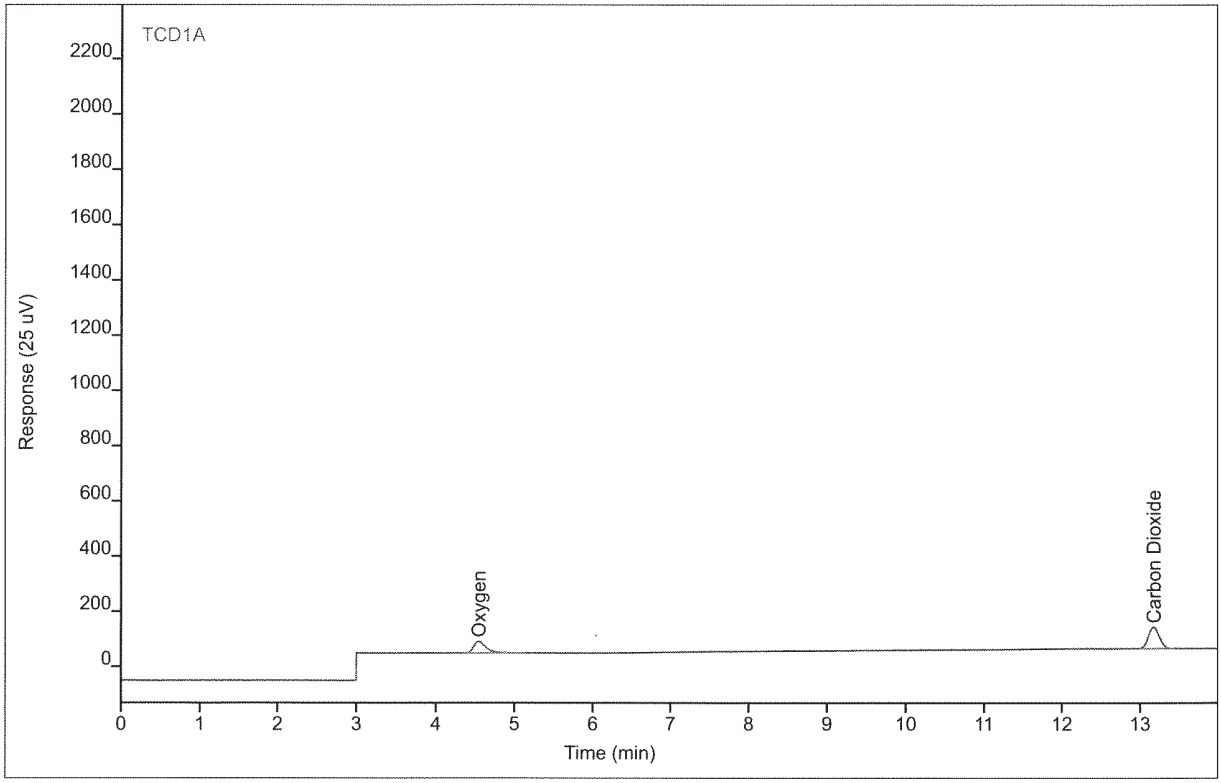


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.54	466.354	41.9037	1.36424	1	1.36424	%
Carbon Dioxide	BB	13.17	747.311	76.9877	1.36752	1	1.36752	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG2 ENV(1=1272.08,2=219.94)	Sample Type	Calibration
Sequence Name	BETTYP191 ver.24	Vial Number	Vial 9
Data File	009F1104.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	4 of 4
Injection Date	5/22/2015 3:09 AM	Acquisition Method	GC142P133_CAL.M
File Modified	5/28/2015 2:06 PM	Analysis Method	BETTYP191_FGA.M
Instrument		Method Modified	5/28/2015 2:01 PM
Operator	Chester Burnett	Printed	5/28/2015 2:12 PM

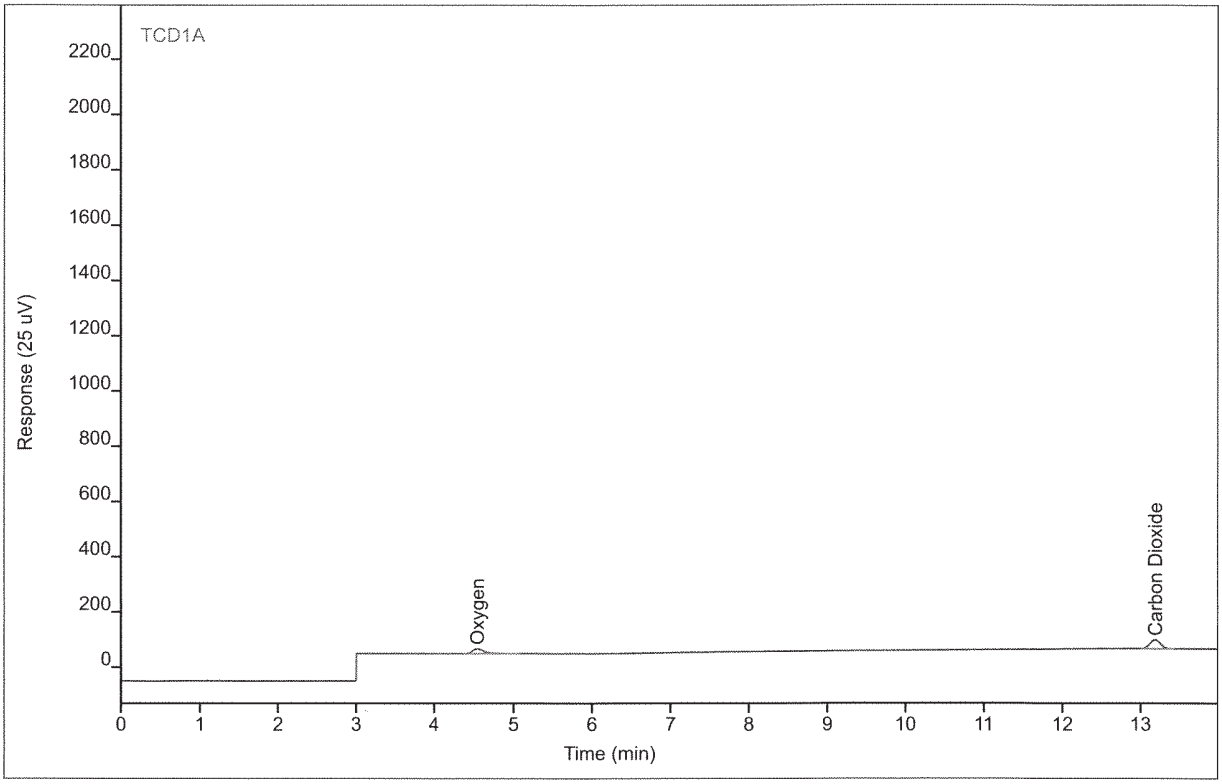


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.55	472.069	42.1554	1.38152	1	1.38152	%
Carbon Dioxide	BB	13.18	752.861	77.3172	1.37810	1	1.37810	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG1 ENV(1=3392.23,2=219.94)	Sample Type	Calibration
Sequence Name	BETTYP191 ver.24	Vial Number	Vial 9
Data File	009F1202.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	2 of 4
Injection Date	5/22/2015 3:57 AM	Acquisition Method	GC142P133_CAL.M
File Modified	5/28/2015 2:06 PM	Analysis Method	BETTYP191_FGA.M
Instrument		Method Modified	5/28/2015 2:01 PM
Operator	Chester Burnett	Printed	5/28/2015 2:12 PM

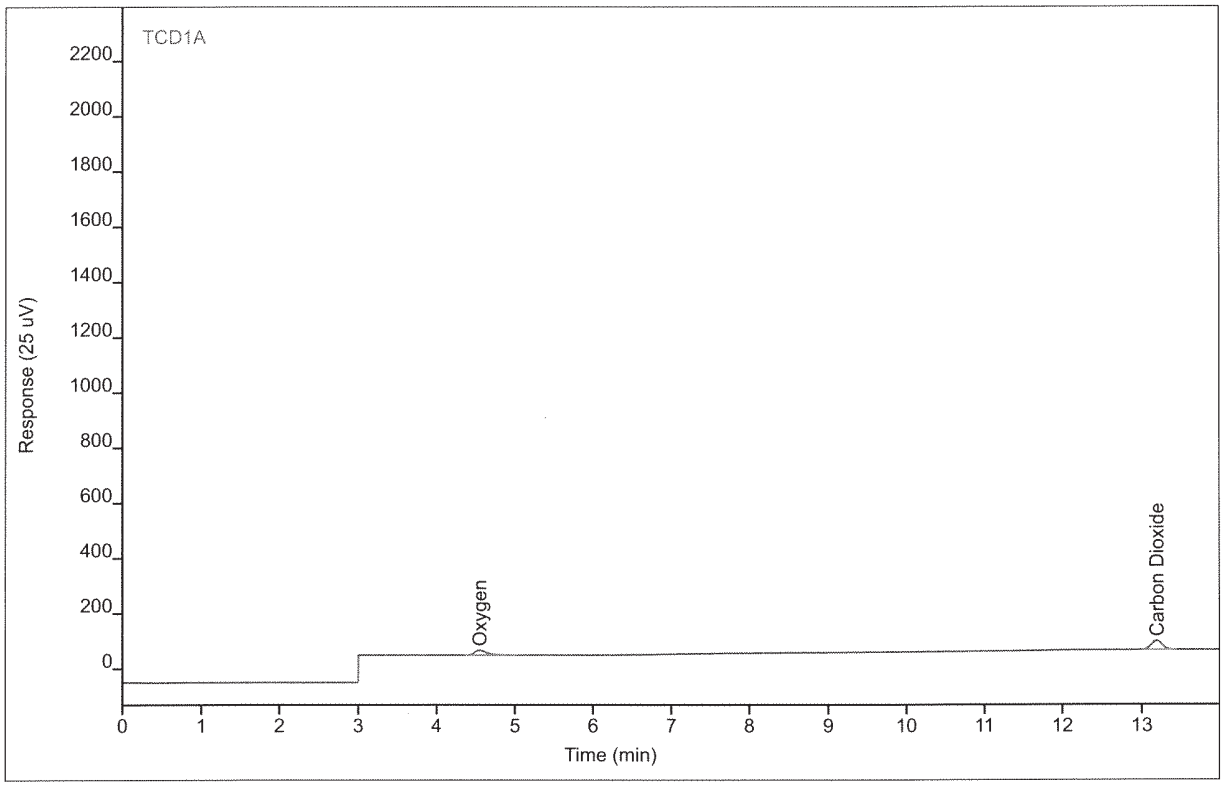


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.55	194.411	17.2916	0.54220	1	0.54220	%
Carbon Dioxide	BB	13.19	308.873	31.9128	0.53273	1	0.53273	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG1 ENV(1=3392.23,2=219.94)	Sample Type	Calibration
Sequence Name	BETTYP191 ver.24	Vial Number	Vial 9
Data File	009F1203.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	3 of 4
Injection Date	5/22/2015 4:21 AM	Acquisition Method	GC142P133_CAL.M
File Modified	5/28/2015 2:06 PM	Analysis Method	BETTYP191_FGA.M
Instrument		Method Modified	5/28/2015 2:01 PM
Operator	Chester Burnett	Printed	5/28/2015 2:12 PM

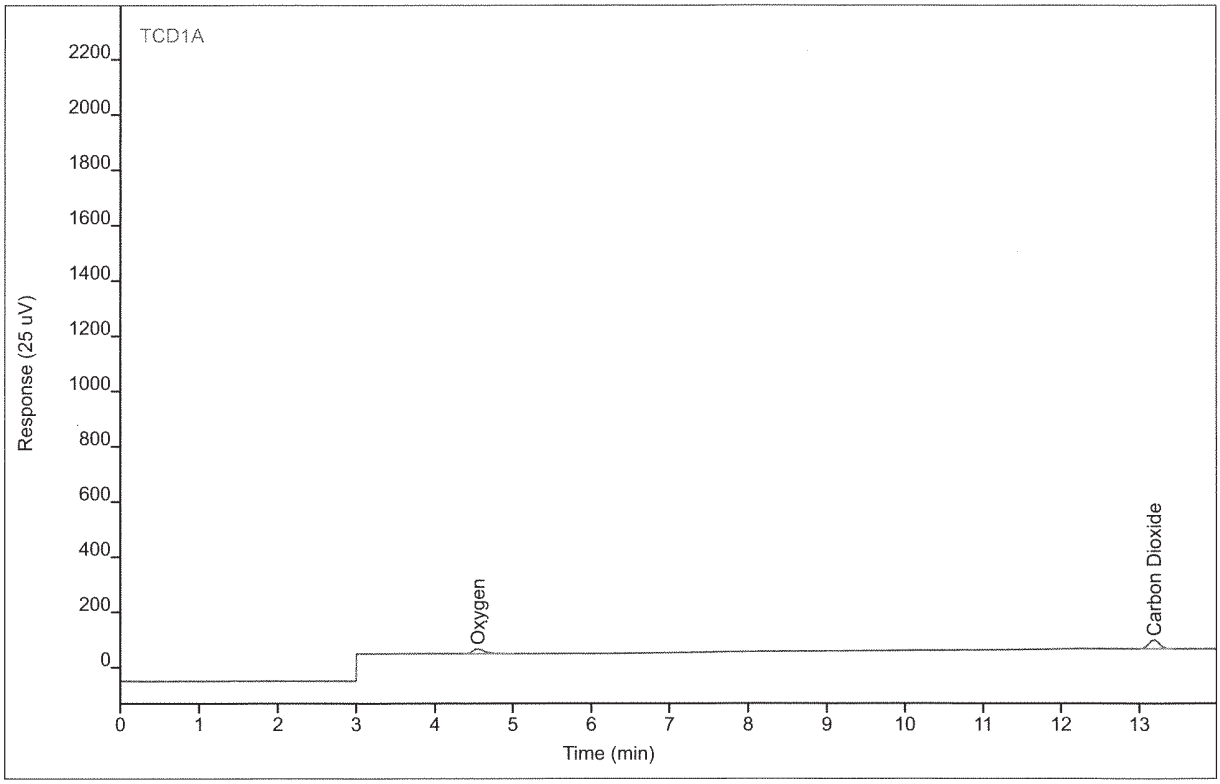


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.55	192.380	17.2202	0.53654	1	0.53654	%
Carbon Dioxide	BB	13.19	310.176	32.1003	0.53497	1	0.53497	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG1 ENV(1=3392.23,2=219.94)	Sample Type	Calibration
Sequence Name	BETTYP191 ver.24	Vial Number	Vial 9
Data File	009F1204.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	4 of 4
Injection Date	5/22/2015 4:45 AM	Acquisition Method	GC142P133_CAL.M
File Modified	5/28/2015 2:06 PM	Analysis Method	BETTYP191_FGA.M
Instrument		Method Modified	5/28/2015 2:01 PM
Operator	Chester Burnett	Printed	5/28/2015 2:12 PM

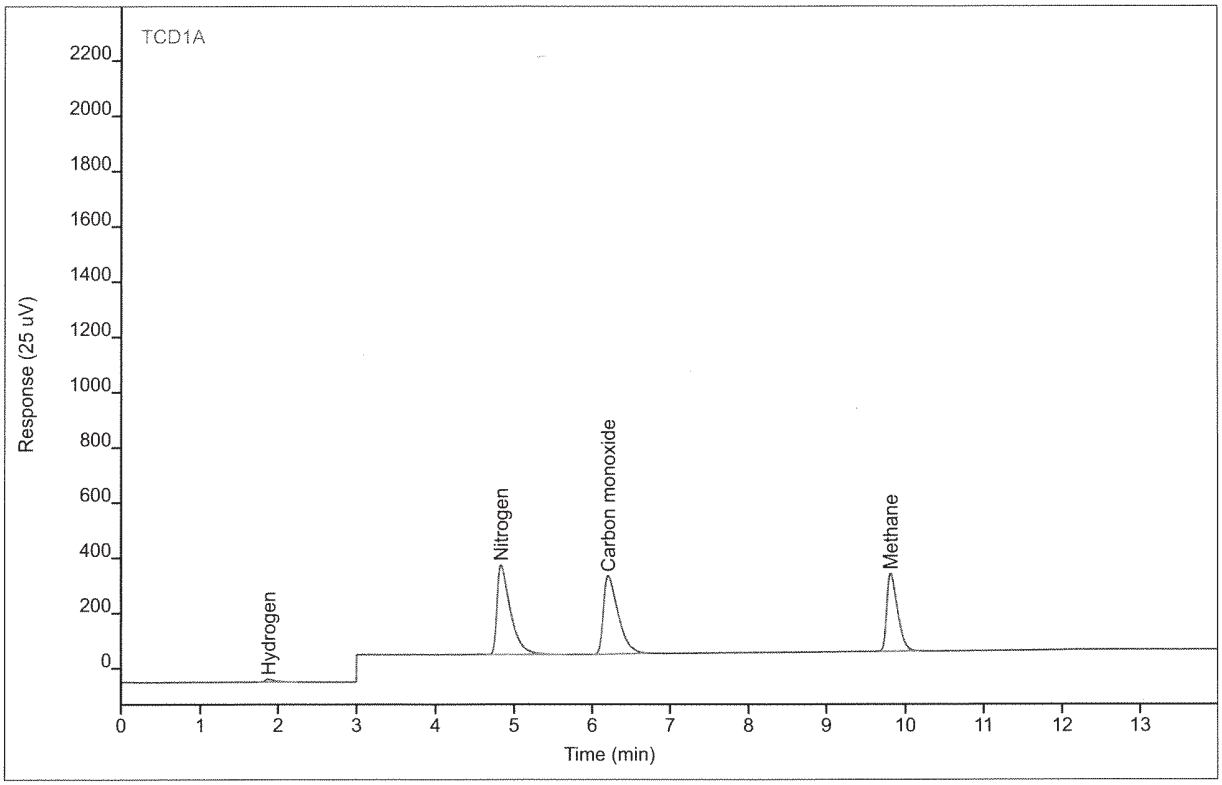


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.55	189.971	17.1785	0.52982	1	0.52982	%
Carbon Dioxide	BB	13.19	308.445	31.8710	0.53199	1	0.53199	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG8 ENV(1=0,3=319.02)	Sample Type	Calibration
Sequence Name	BETTYP191 ver.24	Vial Number	Vial 9
Data File	009F1302.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	2 of 4
Injection Date	5/22/2015 5:34 AM	Acquisition Method	GC142P133_CAL.M
File Modified	5/28/2015 2:06 PM	Analysis Method	BETTYP191_FGA.M
Instrument		Method Modified	5/28/2015 2:01 PM
Operator	Chester Burnett	Printed	5/28/2015 2:12 PM



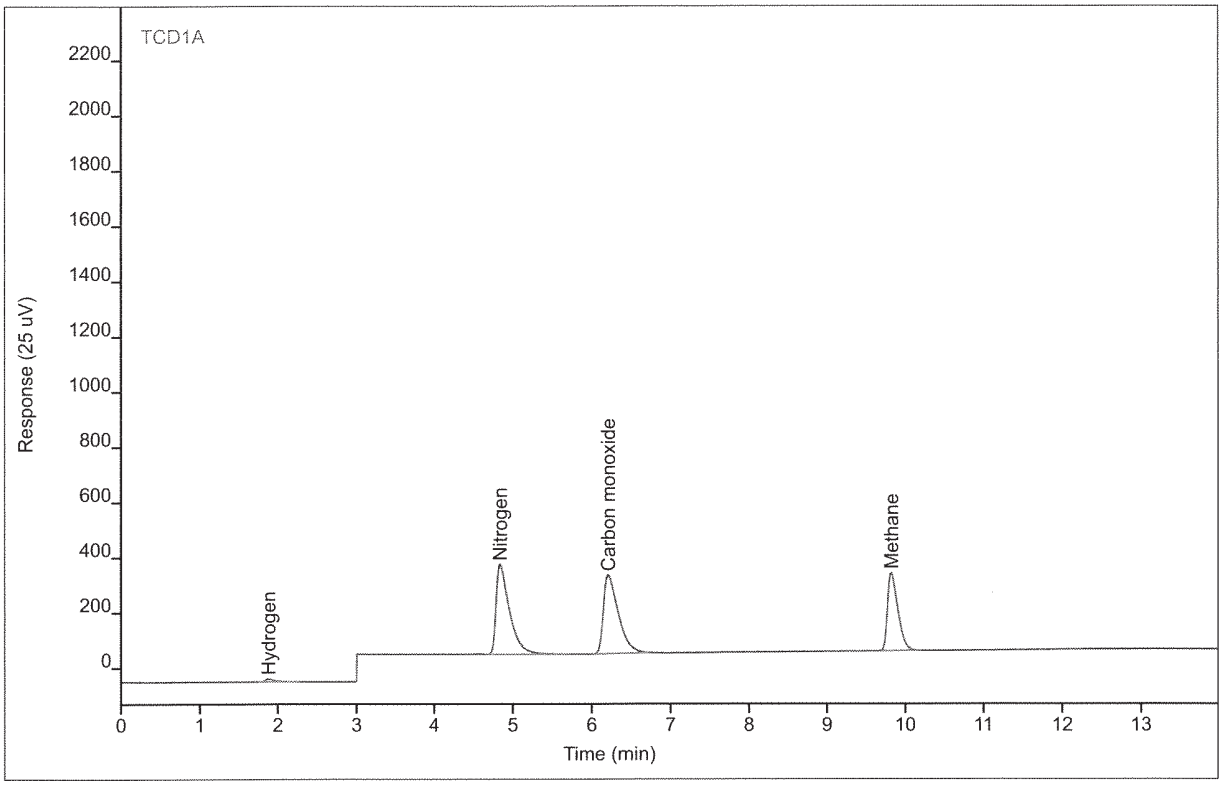
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	VB	1.88	95.9133	10.3980	7.96285	1	7.96285	%
Nitrogen	VB	4.84	3800.13	324.309	9.98063	1	9.98063	%
Carbon monoxide	BB	6.21	3731.49	283.717	9.98763	1	9.98763	%
Methane	BB	9.82	2598.67	281.739	8.01529	1	8.01529	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG8 ENV(1=0,3=319.02)
Sequence Name	BETTYP191 ver.24
Data File	009F1303.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	5/22/2015 5:58 AM
File Modified	5/28/2015 2:06 PM
Instrument	
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	5/28/2015 2:01 PM
Printed	5/28/2015 2:12 PM



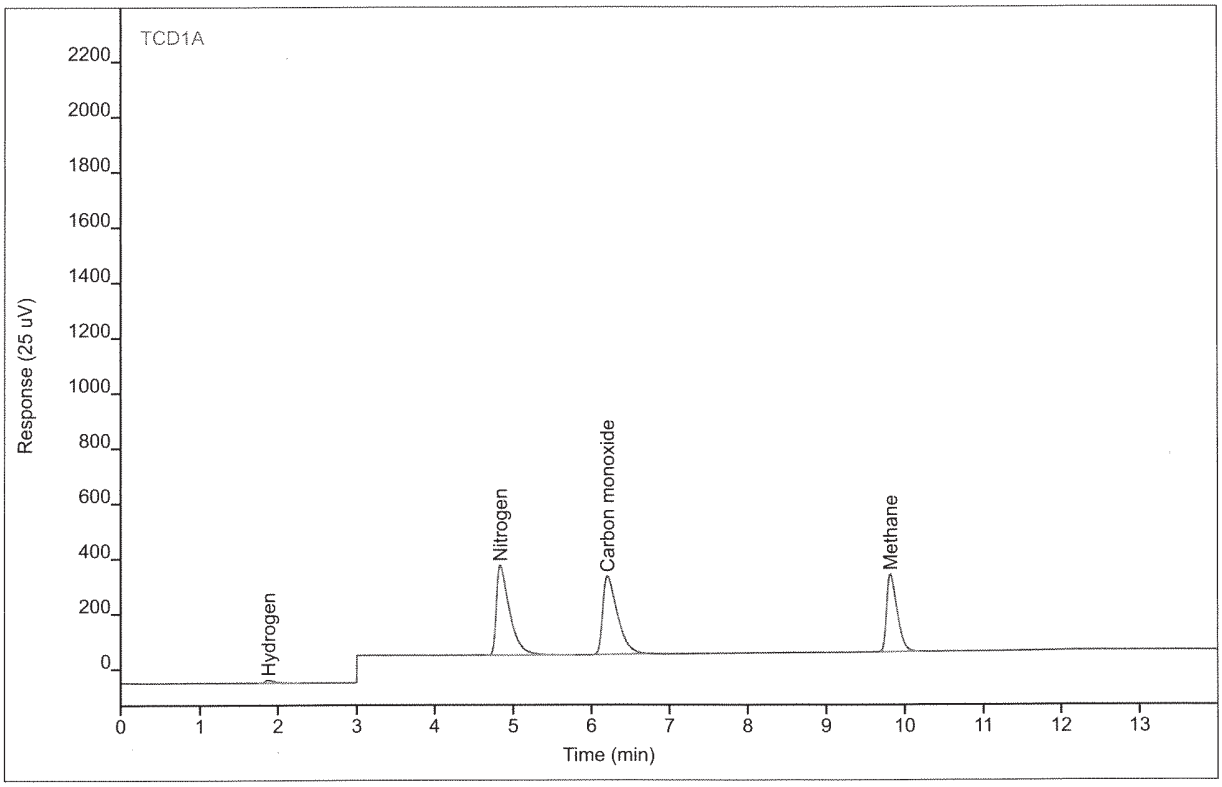
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.88	94.7301	10.2978	7.86349	1	7.86349	%
Nitrogen	VB	4.84	3813.65	325.180	10.0163	1	10.0163	%
Carbon monoxide	BB	6.21	3742.01	284.620	10.0158	1	10.0158	%
Methane	BB	9.82	2597.46	281.763	8.01154	1	8.01154	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG8 ENV(1=0,3=319.02)
Sequence Name	BETTYP191 ver.24
Data File	009F1304.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	5/22/2015 6:22 AM
File Modified	5/28/2015 2:07 PM
Instrument	
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	4 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	5/28/2015 2:01 PM
Printed	5/28/2015 2:12 PM



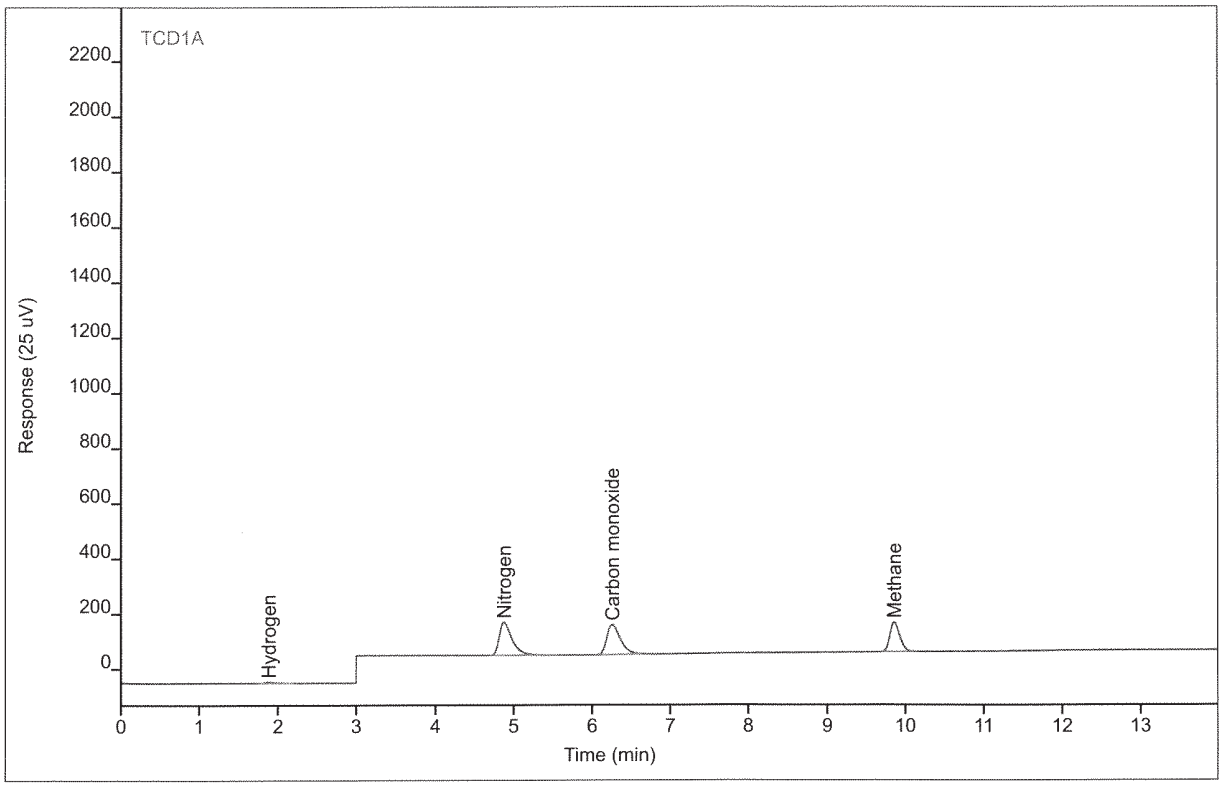
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.88	94.9161	10.2594	7.87911	1	7.87911	%
Nitrogen	VB	4.84	3810.63	325.127	10.0083	1	10.0083	%
Carbon monoxide	BB	6.21	3724.63	283.533	9.96927	1	9.96927	%
Methane	BB	9.82	2597.65	280.944	8.01212	1	8.01212	%

Chromatogram Report

Sample Name	BettyP191 #FG7 ENV(1=530,3=319.02)
Sequence Name	BETTYP191 ver.24
Data File	009F1402.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	5/22/2015 7:10 AM
File Modified	5/28/2015 2:07 PM
Instrument	
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	5/28/2015 2:01 PM
Printed	5/28/2015 2:12 PM



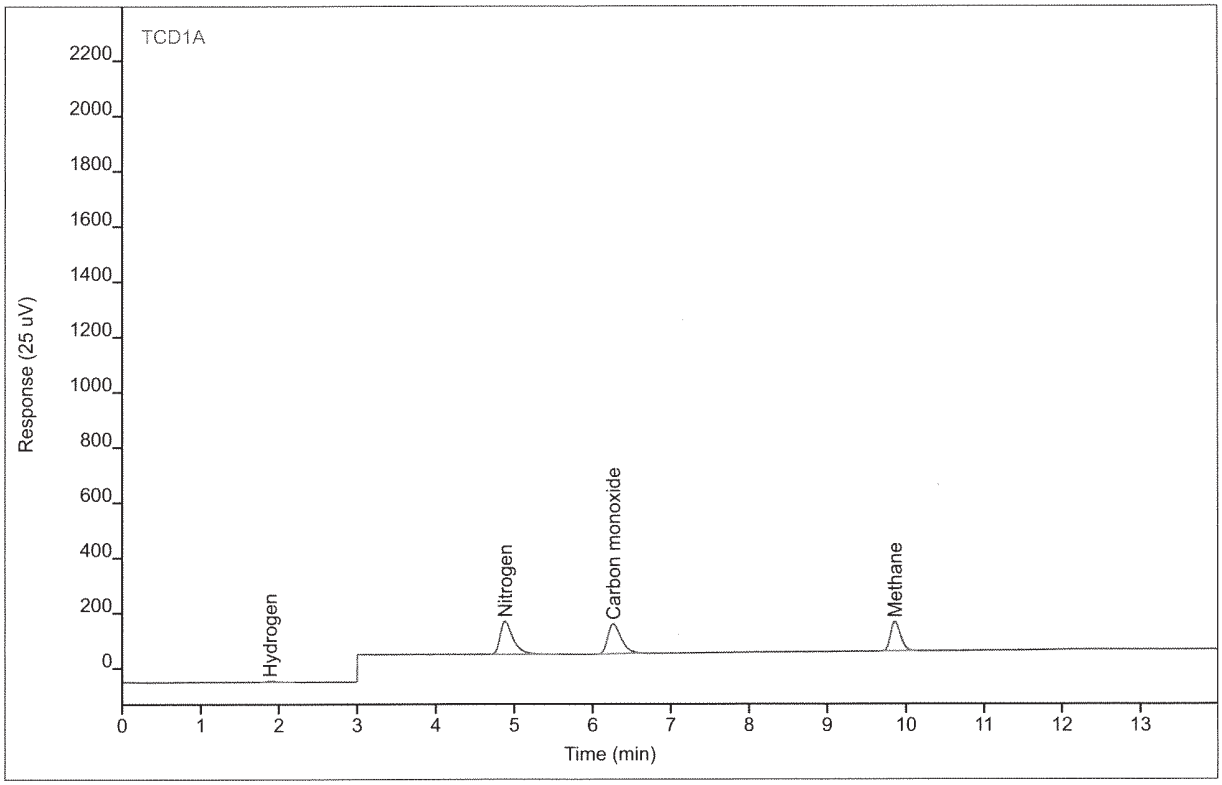
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.89	33.2794	3.61437	2.70359	1	2.70359	%
Nitrogen	BB	4.88	1361.08	119.289	3.54165	1	3.54165	%
Carbon monoxide	BB	6.26	1311.13	108.606	3.50608	1	3.50608	%
Methane	BB	9.86	932.222	106.466	2.85463	1	2.85463	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG7 ENV(1=530,3=319.02)
Sequence Name	BETTYP191 ver.24
Data File	009F1403.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	5/22/2015 7:35 AM
File Modified	5/28/2015 2:07 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	5/28/2015 2:01 PM
Printed	5/28/2015 2:12 PM



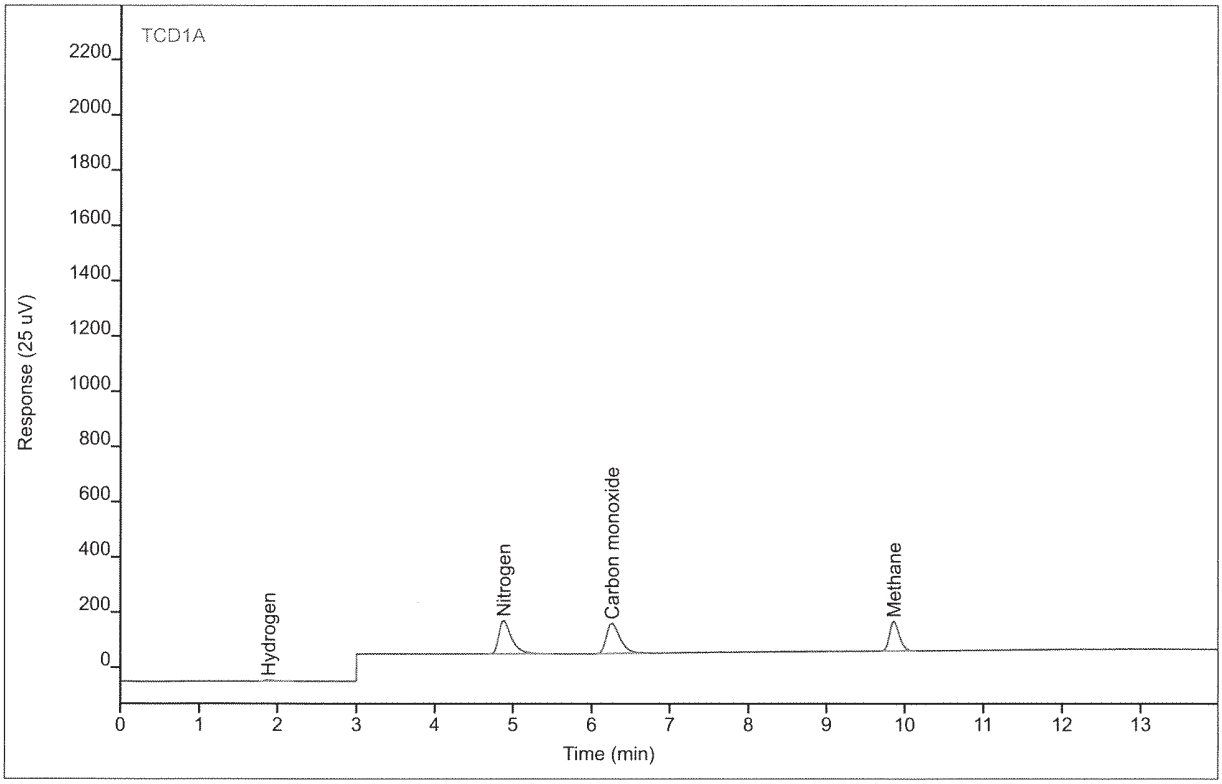
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.89	32.6332	3.54797	2.64933	1	2.64933	%
Nitrogen	BB	4.89	1355.08	119.087	3.52582	1	3.52582	%
Carbon monoxide	BB	6.26	1308.71	108.339	3.49961	1	3.49961	%
Methane	BB	9.86	930.782	106.221	2.85017	1	2.85017	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG7 ENV(1=530,3=319.02)
Sequence Name	BETTYP191 ver.24
Data File	009F1404.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	5/22/2015 7:59 AM
File Modified	5/28/2015 2:07 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	4 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	5/28/2015 2:01 PM
Printed	5/28/2015 2:12 PM



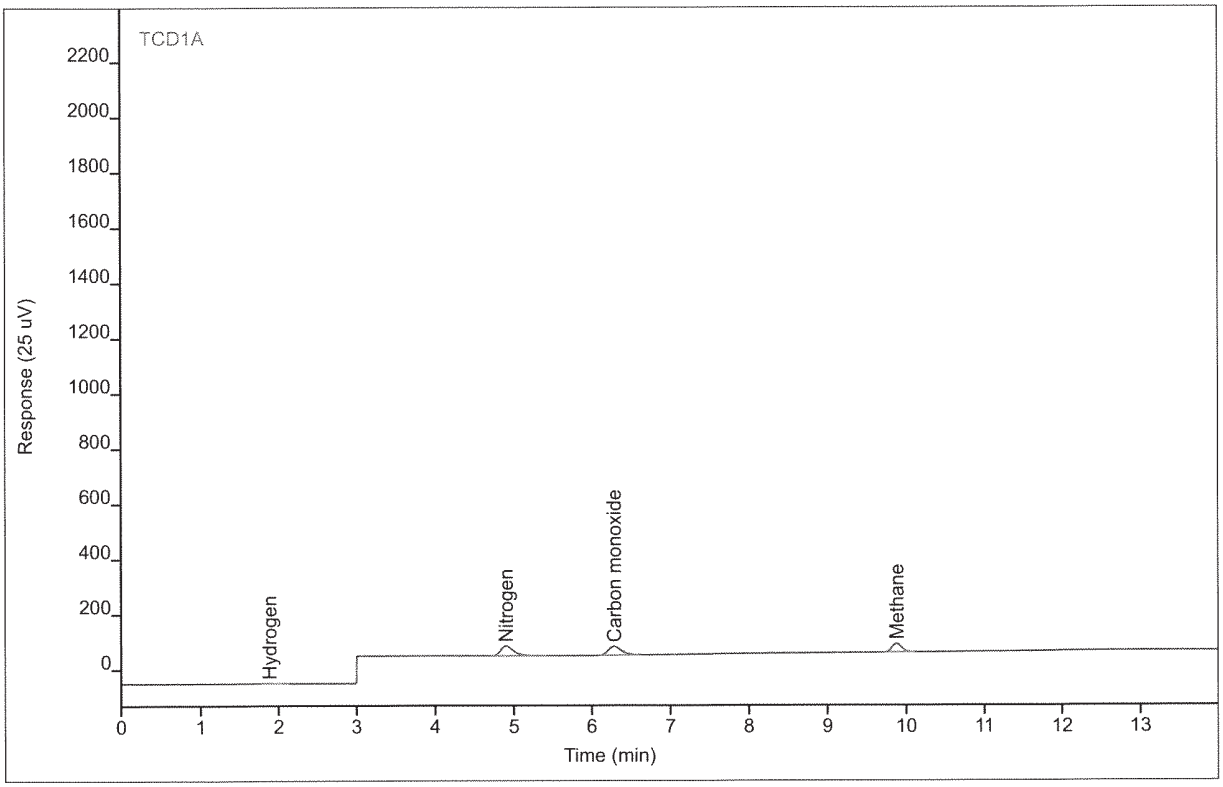
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.89	34.2639	3.64810	2.78626	1	2.78626	%
Nitrogen	BB	4.88	1367.15	120.002	3.55767	1	3.55767	%
Carbon monoxide	BB	6.26	1320.47	109.284	3.53111	1	3.53111	%
Methane	BB	9.86	933.704	106.727	2.85922	1	2.85922	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG6 ENV(1=1271.99,3=159.51)
Sequence Name	BETTYP191 ver.24
Data File	009F1501.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	5/22/2015 8:23 AM
File Modified	5/28/2015 2:07 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP191_FGA.M
Method Modified	5/28/2015 2:01 PM
Printed	5/28/2015 2:12 PM

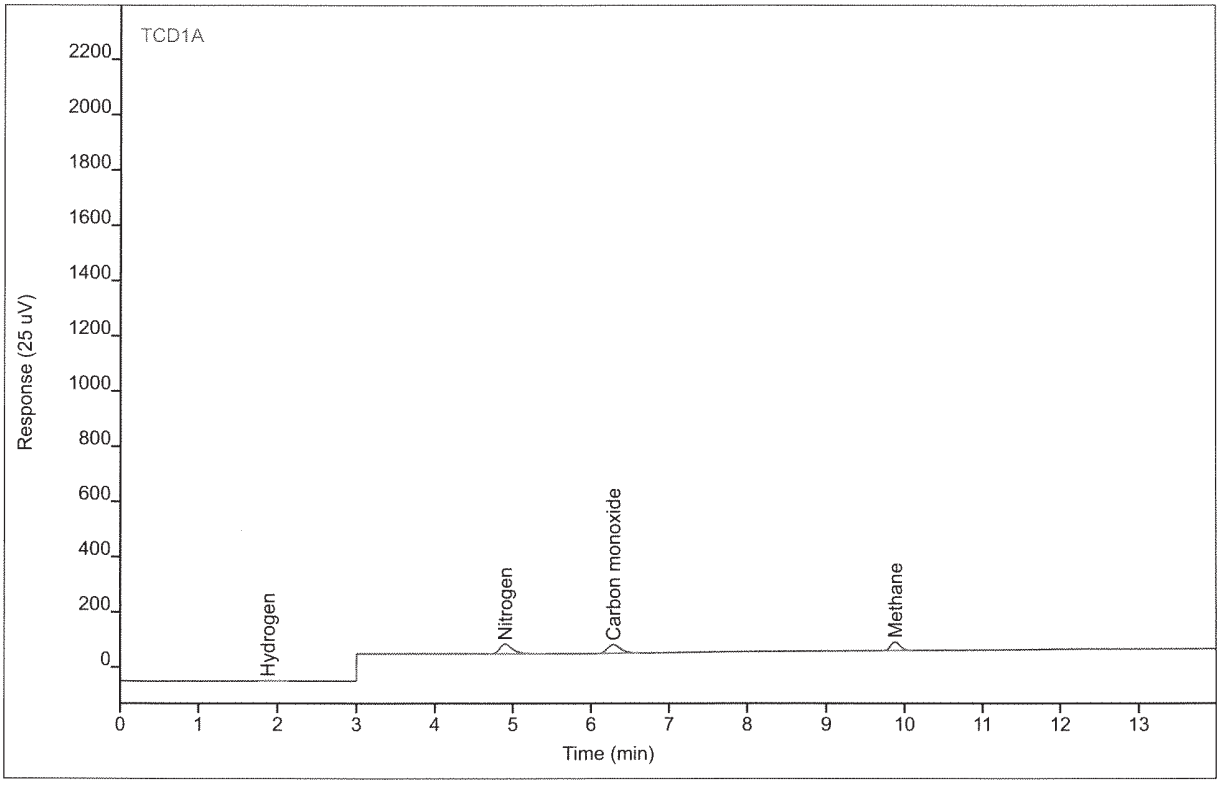


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.88	10.4663	1.14114	0.78822	1	0.78822	%
Nitrogen	BB	4.90	398.656	35.2223	1.00089	1	1.00089	%
Carbon monoxide	BB	6.28	373.161	32.2334	0.99428	1	0.99428	%
Methane	BB	9.88	269.088	31.2473	0.80104	1	0.80104	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG6 ENV(1=1271.99,3=159.51)	Sample Type	Calibration
Sequence Name	BETTYP191 ver.24	Vial Number	Vial 9
Data File	009F1502.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	2 of 4
Injection Date	5/22/2015 8:47 AM	Acquisition Method	GC142P133_CAL.M
File Modified	5/28/2015 2:07 PM	Analysis Method	BETTYP191_FGA.M
Instrument		Method Modified	5/28/2015 2:01 PM
Operator	Justin Guenzler	Printed	5/28/2015 2:12 PM

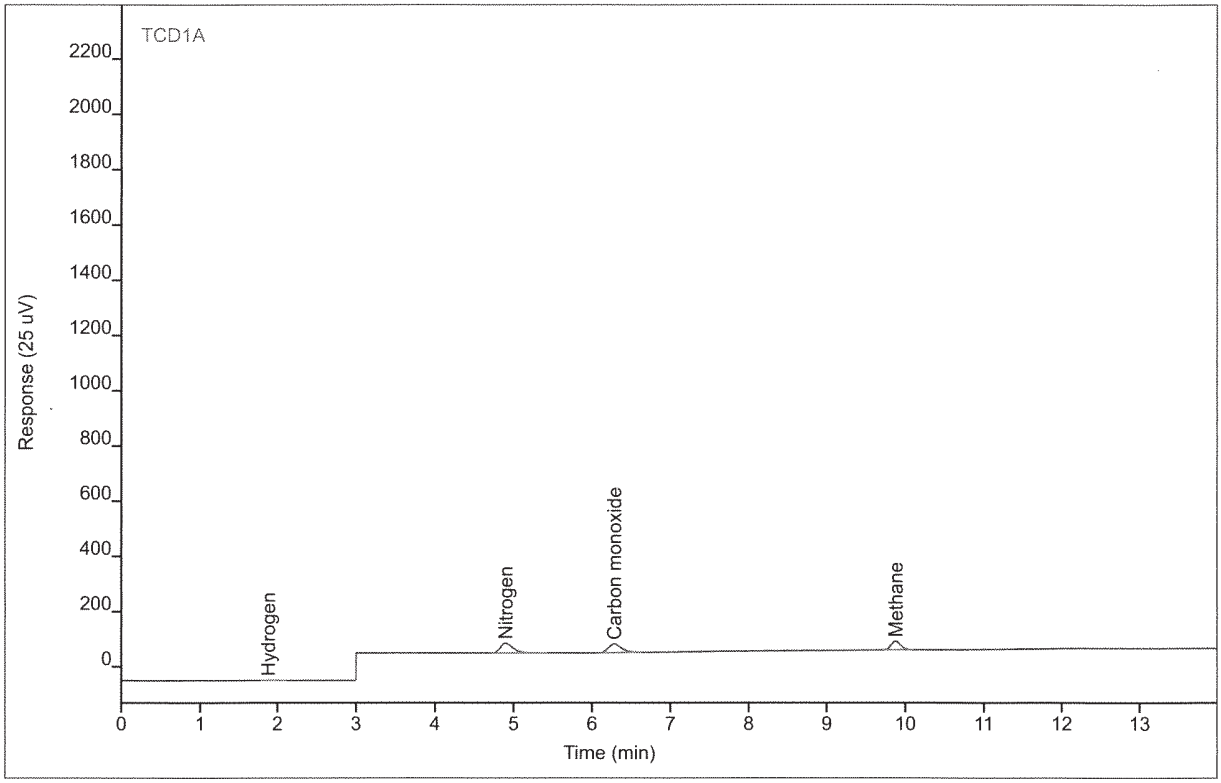


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.88	10.6222	1.09287	0.80111	1	0.80111	%
Nitrogen	BB	4.90	396.200	34.9826	0.99441	1	0.99441	%
Carbon monoxide	BB	6.29	369.226	31.7981	0.98374	1	0.98374	%
Methane	BB	9.88	269.108	31.2826	0.80110	1	0.80110	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG6 ENV(1=1271.99,3=159.51)	Sample Type	Calibration
Sequence Name	BETTYP191 ver.24	Vial Number	Vial 9
Data File	009F1503.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	3 of 4
Injection Date	5/22/2015 9:11 AM	Acquisition Method	GC142P133_CAL.M
File Modified	5/28/2015 2:07 PM	Analysis Method	BETTYP191_FGA.M
Instrument		Method Modified	5/28/2015 2:01 PM
Operator	Clint Thrasher	Printed	5/28/2015 2:12 PM

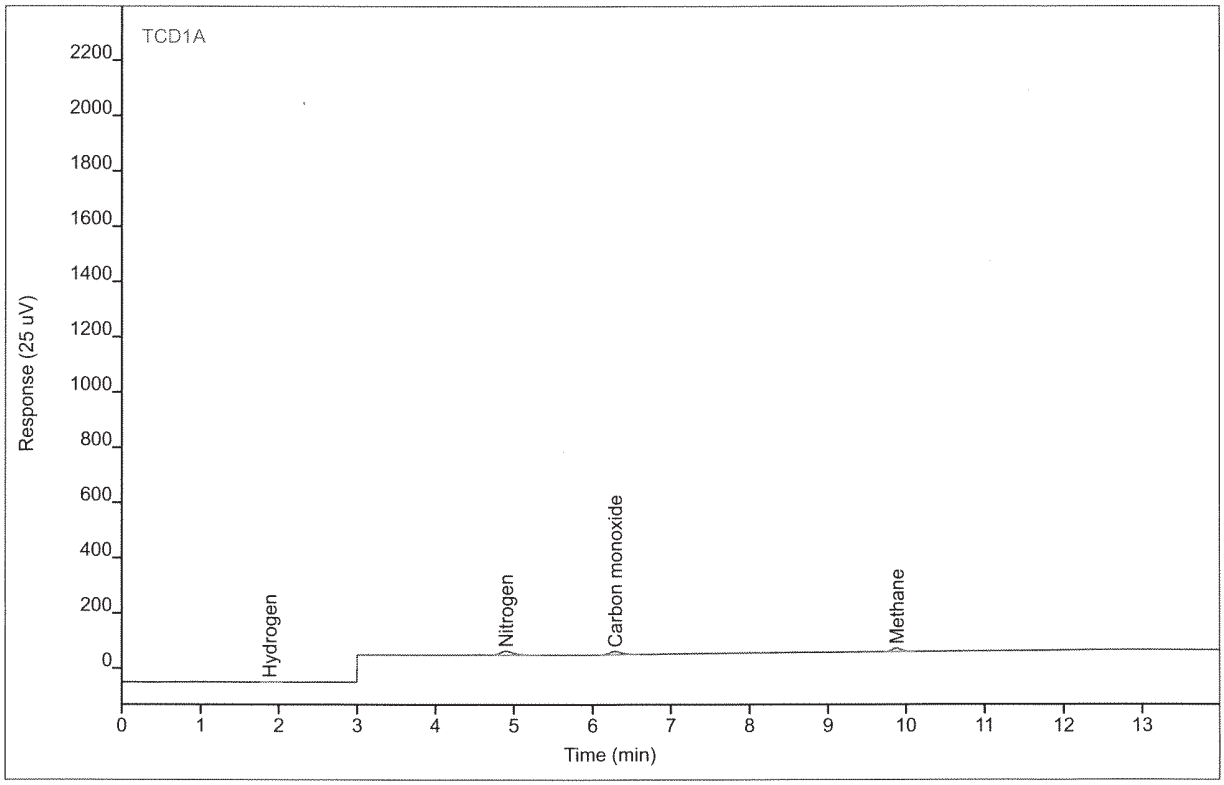


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.88	10.5814	1.09425	0.79768	1	0.79768	%
Nitrogen	BB	4.90	397.564	35.1403	0.99801	1	0.99801	%
Carbon monoxide	BB	6.28	372.429	32.0631	0.99231	1	0.99231	%
Methane	BB	9.88	269.980	31.5062	0.80380	1	0.80380	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG5 ENV(1=3391.99,3=159.31)	Sample Type	Calibration
Sequence Name	BETTYP191 ver.24	Vial Number	Vial 9
Data File	009F1601.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	1 of 4
Injection Date	5/22/2015 10:00 AM	Acquisition Method	GC142P133_CAL.M
File Modified	5/28/2015 2:07 PM	Analysis Method	BETTYP191_FGA.M
Instrument		Method Modified	5/28/2015 2:01 PM
Operator	Clint Thrasher	Printed	5/28/2015 2:12 PM

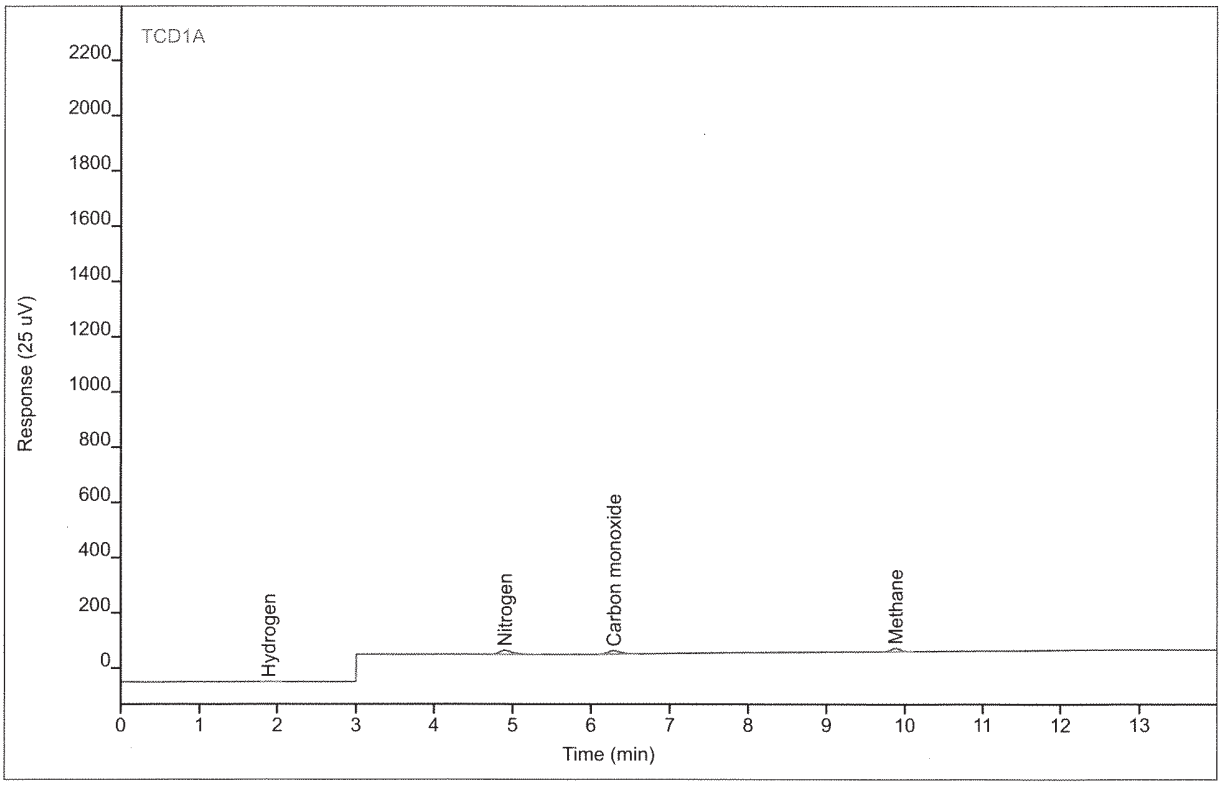


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.89	4.54577	0.53616	0.34234	1	0.34234	%
Nitrogen	BB	4.90	160.948	14.1521	0.37415	1	0.37415	%
Carbon monoxide	BB	6.29	141.026	12.4312	0.37273	1	0.37273	%
Methane	BB	9.88	108.161	12.6010	0.30337	1	0.30337	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG5 ENV(1=3391.99,3=159.31)	Sample Type	Calibration
Sequence Name	BETTYP191 ver.24	Vial Number	Vial 9
Data File	009F1602.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	2 of 4
Injection Date	5/22/2015 10:24 AM	Acquisition Method	GC142P133_CAL.M
File Modified	5/28/2015 2:07 PM	Analysis Method	BETTYP191_FGA.M
Instrument		Method Modified	5/28/2015 2:01 PM
Operator	Clint Thrasher	Printed	5/28/2015 2:12 PM

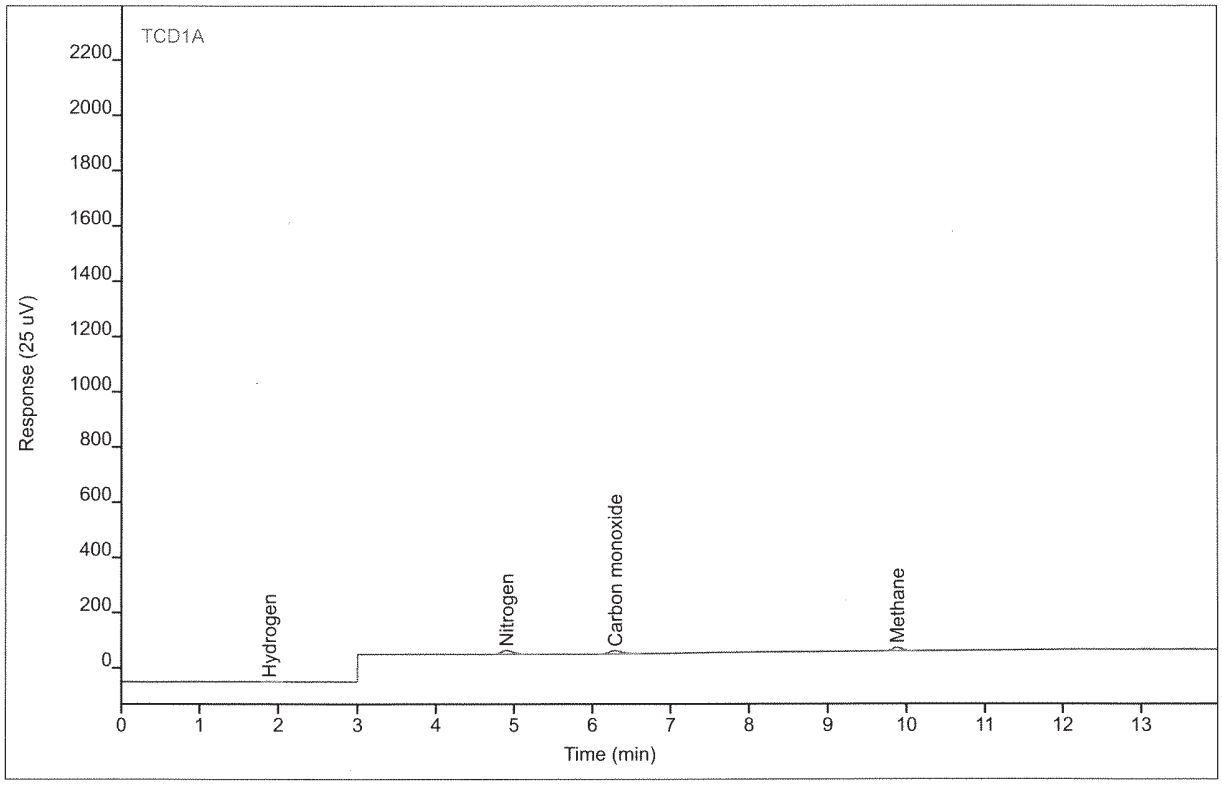


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.89	4.45150	0.51973	0.33524	1	0.33524	%
Nitrogen	BB	4.90	161.006	14.2298	0.37428	1	0.37428	%
Carbon monoxide	BB	6.29	141.120	12.4445	0.37298	1	0.37298	%
Methane	BB	9.88	109.003	12.6973	0.30573	1	0.30573	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP191 #FG5 ENV(1=3391.99,3=159.31)	Sample Type	Calibration
Sequence Name	BETTYP191 ver.24	Vial Number	Vial 9
Data File	009F1603.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	3 of 4
Injection Date	5/22/2015 10:48 AM	Acquisition Method	GC142P133_CAL.M
File Modified	5/28/2015 2:07 PM	Analysis Method	BETTYP191_FGA.M
Instrument		Method Modified	5/28/2015 2:01 PM
Operator	Clint Thrasher	Printed	5/28/2015 2:12 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.89	4.53337	0.51466	0.34141	1	0.34141	%
Nitrogen	BB	4.91	159.349	14.2277	0.37043	1	0.37043	%
Carbon monoxide	BB	6.29	141.978	12.4759	0.37525	1	0.37525	%
Methane	BB	9.88	107.466	12.5785	0.30142	1	0.30142	%

PRAXAIR
Making our planet more productive

Praxair Distribution Inc.
10210 North Freeway
Houston, TX 77037

Issue Date: 12-08-2014

To:

Attn:

Praxair Order Number:
Customer Order Number:
Customer Reference Number:

Product Lot Number: 1124002724A1
Product Part Number: ME 5.0RS-G

CERTIFICATE OF ANALYSIS

(Methane 99.999%, Research)

Cylinder Serial Number	*Analytes*	*Specification*	
RA071907	Methane	99.999	%
RA072283	Ethane	ND < 0.1	ppm
*RA072293	Nitrogen	ND < 0.1	ppm
RA072328	Oxygen	0.1	ppm
	Moisture	0.3	ppm
	Other Hydrocarbons	ND < 0.1	ppm

Cylinder Style: G
Cylinder Pressure @70°F (21°C): 2000 PSI
Cylinder Volume: 40 Cubic Feet

Valve Outlet Connection: 350 CGA
Filling Method: Pressure

Approved Signer: _____
Patrick Philpot

This analysis of the product described herein was prepared by Praxair Distribution using instruments whose calibration is certified using Praxair Reference Materials. Praxair Reference Materials are prepared either by weights traceable to the National Institute of Standards and Technology (NIST), Measurement Canada or by using NIST Standard Reference Materials where available.

Note: All expressions for concentration (e.g., % or ppm) are for gas phase, by volume (e.g., ppmv) unless otherwise noted

*Key to Analytical Principle:

A. Flame Ionization with Methanizer
B. Gas Chromatography with Discharge Ionization Detector
C. Gas Chromatography with Electrolytic Conductivity Detector
D. Gas Chromatography with Flame Ionization Detector
E. Gas Chromatography with Flame Photometric Detector
F. Gas Chromatography with Helium Ionization Detector
G. Gas Chromatography with Methanizer Carbonizer
H. Gas Chromatography with Photoionization Detector
I. Gas Chromatography with Reduction Gas Analyzer
J. Gas Chromatography with Thermal Conductivity Detector
K. Gas Chromatography with Ultrasonic Detector
L. Gravimetrical Methods
M. Infrared – FTIR or NDIR
N. Mass Spectrometry – MS or GC/MS
O. Paramagnetic
P. Electrochemical
Q. Total Hydrocarbon Analyzer
R. Wet Chemical
S. Detector Tube
T. Odor

CUSTOMGAS
SOLUTIONS

1750 East Club Boulevard
Durham, NC 27704
Phone: (919) 220-2570
Fax: (919) 220-4540

Certificate of Analysis

Customer:

Enthalpy Analytical, Inc.
800-1 Capitola Drive
Durham, NC 27713

Tel: (919) 595-1377

Cylinder Number: XC010510B
Cylinder Size/CGA: 150/590
Fill Pressure: 2015 PSIA
Gas Volume:3700 liters
Date of Mfg: 02/04/14
Expiration Date: 02/04/16

Customer Number	Ship VIA	Job No.	Customer PO	Mixture Type
00127703NC	Pick up	011614-004	01151401	Gravimetric

Component	Nominal Concentration	Actual Concentration*	Mixture Type
Oxygen	10 %	10.01 % +/- 0.2 %	Gravimetric Master Gas
Carbon Dioxide	10 %	10.01 % +/- 0.2 %	
Helium	balance	balance	

NOTES:

Blend Tolerance: +/- 2 %

Analytical Tolerance: +/- 2 %

Traceability: NIST by weight set. NIST Traceability No MT5061.
Internal Standards by analysis

Reactive Mixtures: Analyzed twice with required agreement between analyses of 2%.
Required wait time between analyses of >7 days.

Caution: Do not use below 150 PSIG.

Authorized Signature:

Joseph A. Ernst

*Every effort has been made to establish the actual concentration of the components using master gas blending technology however, Custom Gas Solutions shall have no liability in excess of the established charge for this material.

AIR LIQUIDE Air Liquide America Specialty Gases LLC Scott

6141 EASTON ROAD, BLDG 1, PLUMSTEADVILLE, PA 18949-0310 Phone: 800-331-4953 Fax: 215-766-7226

CERTIFIED MASTER CLASS
Single-Certified Calibration Standard

CERTIFICATE OF ACCURACY: Certified Master Class Calibration Standard

Product Information
Document # : 55814398-001
Item No.: MC500418-P-44
P.O. No.: 06181401

Cylinder Number: NKA197
Cylinder Size: 44
Certification Date: 30Jun2014
Expiration Date: 01Jul2017
Lot Number: PLU0288940

Customer

ENTHALPY ANALYTICAL, INC.
GREG TATE
800-1 CAPITOLA DRIVE
DURHAM, NC 27703
US

CERTIFIED CONCENTRATION

Component Name	Concentration (Moles)		Accuracy (+/-%)
CARBON MONOXIDE	10.0	%	2
HYDROGEN	8.2	%	2
METHANE	8.0	%	2
NITROGEN	10.0	%	2
HELIUM		BALANCE	

TRACEABILITY

Traceable To

Scott Reference Standard

APPROVED BY: D T Shields
LAMONT SHIELDS

DATE: 7-3-14

SPECIFICATIONS

Component Name	Requested Concentration (Moles)		Certified Concentration (Moles)		Blend Tolerance Result (+/- %)	Certified Accuracy Result (+/- %)
CARBON MONOXIDE	10.	%	10.0	%	.0	2.00
HYDROGEN	8.	%	8.2	%	2.5	2.00
METHANE	8.	%	8.0	%	.0	2.00
NITROGEN	10.	%	10.0	%	.0	2.00
HELIUM		BAL		BAL		

TRACEABILITY

Traceable To
Scott Reference Standard

PHYSICAL PROPERTIES

Cylinder Size: 44

Pressure: 2015 PSIG
Expiration Date: 01Jul2017

Valve Connection: CGA 350

SPECIAL HANDLING INSTRUCTIONS

Do not use or store cylinder at or below the stated dew point temperature. Possible condensation of heavier components could result. In the event the cylinder has been exposed to temperatures at or below the dew point, place cylinder in heated area for 24 hours and then roll cylinder for 15 minutes to re-mix.

Use of calibration standards at or below dew point temperature may result in calibration error.

Airgas

Airgas USA, LLC
4822 Industry Lane
Durham, NC 27713
(919) 544-3772
www.airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: PRIMARY STANDARD

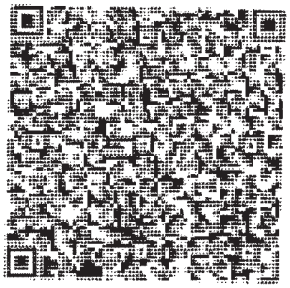
Part Number:	X03HE80P15A01P0	Reference Number:	132-400547915-1
Cylinder Number:	CC159401.	Cylinder Volume:	132.9 CF
Laboratory:	NWS - Durham - NC	Cylinder Pressure:	2014 PSIG
Analysis Date:	Jun 02, 2015	Valve Outlet:	590
Lot Number:	132-400547915-1		

Expiration Date: Jun 02, 2018

Primary Standard Gas Mixtures are traceable to N.I.S.T. weights and/or N.I.S.T. Gas Mixture reference materials.

ANALYTICAL RESULTS

Component	Req Conc	Actual Concentration (Mole %)	Analytical Uncertainty
CARBON DIOXIDE	10.00 %	9.988 %	+/- 0.02% abs
OXYGEN	10.00 %	10.00 %	+/- 0.02% abs
HELIUM	Balance		



Approved for Release

dified on: 5/5/2014 at 7:51:02 AM

==========

6890 GC METHOD

==========

OVEN
- Initial temp: 40 C (On)
- Initial time: 6.00 min
- Ramps:

#	Rate	Final temp	Final time
1	30.00	220	2.00
2	0 (Off)		

- Post temp: 40 C
- Post time: 0.00 min
- Run time: 14.00 min
- Maximum temp: 250 C
- Equilibration time: 0.50 min

CRYO (N2)
- Cryo: Off
- Cryo fault: On
- Cryo timeout: 40.00 min (On)
- Quick cryo cool: Off
- Ambient temp: 30 C

FRONT INLET (SPLIT/SPLITLESS)
- Mode: Splitless
- Initial temp: 200 C (On)
- Pressure: 60.0 psi (On)
- Purge flow: 0.0 mL/min
- Purge time: 0.00 min
- Total flow: 12.3 mL/min
- Gas saver: Off
- Gas type: Helium

BACK INLET (SPLIT/SPLITLESS)
- Mode: Split
- Initial temp: 200 C (On)
- Pressure: 11.6 psi (On)
- Split ratio: 5:1
- Split flow: 12.3 mL/min
- Total flow: 17.6 mL/min
- Gas saver: Off
- Gas type: Helium

COLUMN 1
- Packed Column
- Model Number: 19808
- Description: Rt-ShinCarbon 2m x 1mm I
- Max temperature: 250 C
- Mode: constant pressure
- Pressure: 60.0 psi
- Inlet: Front Inlet
- Outlet: Front Detector
- Outlet pressure: ambient

COLUMN 2
- Capillary Column
- Model Number: 10198
- Description: Rtx-1 30m x 0.32mm x 4um
- Max temperature: 250 C
- Nominal length: 30.0 m
- Nominal diameter: 320.00 um
- Nominal film thickness: 4.00 um
- Mode: constant flow
- Initial flow: 2.5 mL/min
- Nominal init pressure: 11.6 psi
- Average velocity: 39 cm/sec
- Inlet: Back Inlet
- Outlet: (other)
- Outlet pressure: ambient

FRONT DETECTOR (TCD)
- Temperature: 275 C (On)
- Reference flow: 20.0 mL/min (On)
- Mode: Constant makeup flow
- Makeup flow: 10.0 mL/min (On)
- Makeup Gas Type: Helium
- Filament: On
- Negative polarity: On

BACK DETECTOR (FID)
- Temperature: 250 C (On)
- Hydrogen flow: 60.0 mL/min (On)
- Air flow: 450.0 mL/min (On)
- Mode: Constant makeup flow
- Makeup flow: 40.0 mL/min (On)
- Makeup Gas Type: Nitrogen
- Flame: On
- Electrometer: On
- Lit offset: 2.0

SIGNAL 1
- Data rate: 20 Hz
- Type: front detector
- Save Data: On

SIGNAL 2
- Data rate: 20 Hz
- Type: back detector
- Save Data: On

THERMAL AUX 1
- Use: Valve Box Heater
- Initial temp: 130 C (On)

VALVES
- Valve 1 Gas Sampling
  - Loop Volume: 0.250 mL

POST RUN
- Post Time: 0.00 min

)dified on: 5/5/2014 at 7:51:02 AM
Load Time: 0.10 min
Inject Time: 0.50 min
Inlet: Front Inlet
Valve 2 Gas Sampling
Loop Volume: 0.250 mL
Load Time: 0.10 min
Inject Time: 0.50 min
Inlet: Front Inlet

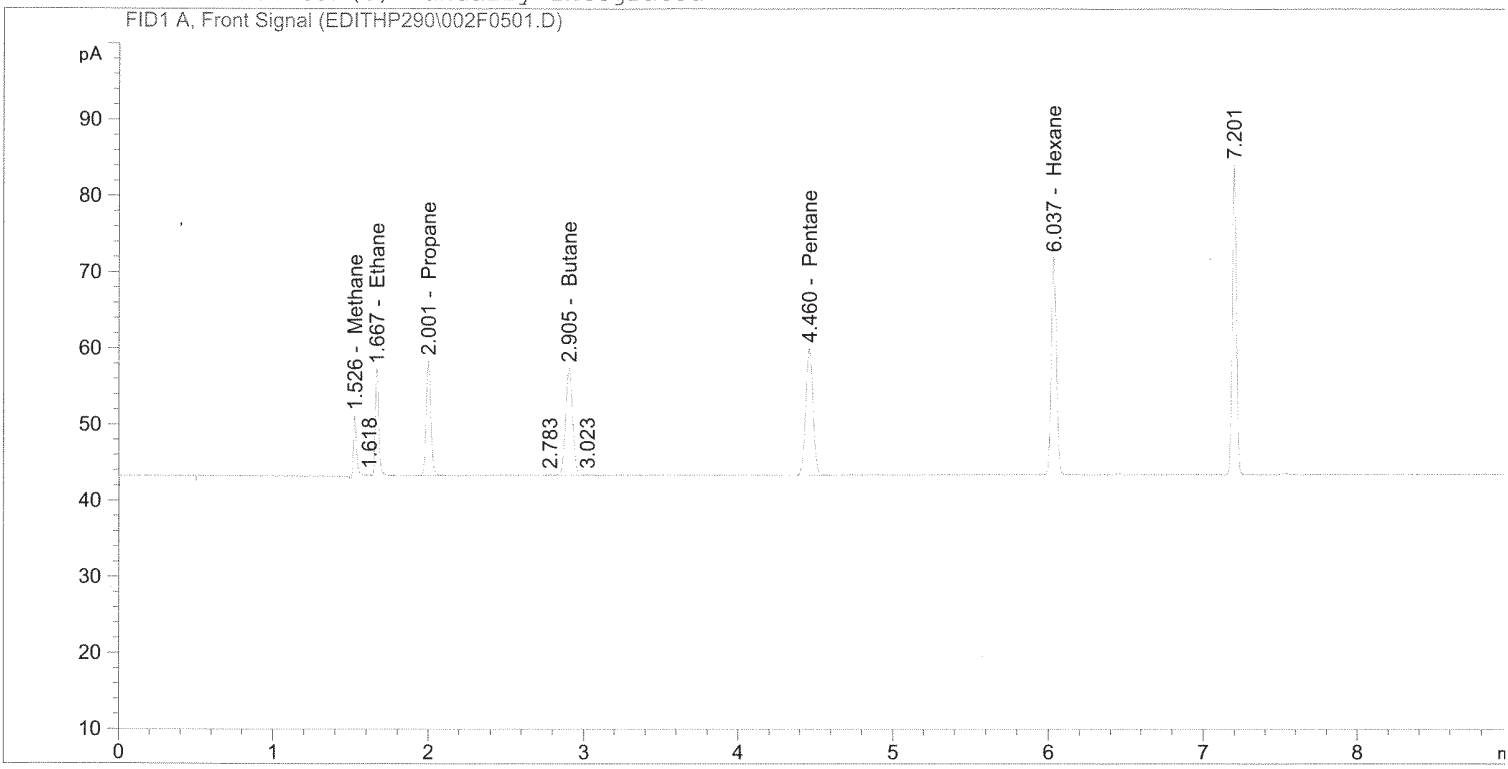
TIME TABLE

Time(min)	Parameter & Setpoint	
3.00	Front Detector Polarity:	Off

Raw Data

ımple Name: EdithP280 #C3 ENV(1=600,2=400)

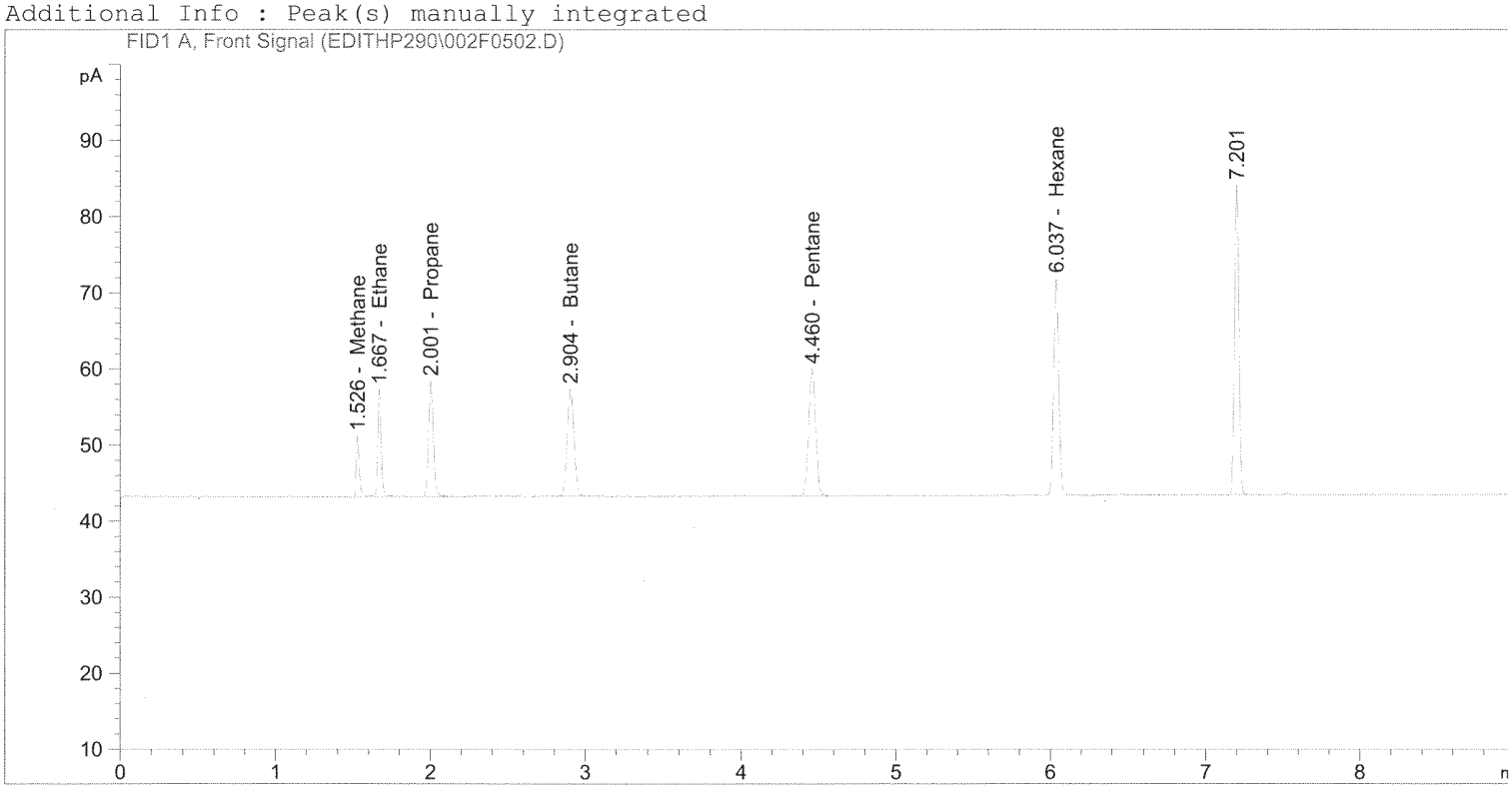
```
==========================================================================
Acq. Operator   : Daniel Clayton                  Seq. Line :   5
Acq. Instrument : Edith                           Location : Vial 2
Injection Date  : 7/7/2015 1:51:59 AM                 Inj :   1
                                                Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP290\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 8:58:52 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:58:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|-----------------
  1.526 PV       10.92762    3.69463   40.37353    Methane
  1.667 VB       22.13343    1.89040   41.84099    Ethane
  2.001 PB       32.80369    1.27357   41.77775    Propane
  2.905 VV       43.69223 9.60691e-1   41.97473    Butane
  4.460 BB       54.26878 7.77662e-1   42.20274    Pentane
  6.037 BB       65.62569 6.64430e-1   43.60368    Hexane
  6.763             -          -         -        Benzene

Totals :                                251.77342

Uncalibrated Peaks    :      using compound Propane
```

mple Name: EdithP280 #C3 ENV(1=600,2=400)

```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :   5
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 7/7/2015 2:08:12 AM                    Inj :   2
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP290\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 8:58:52 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```



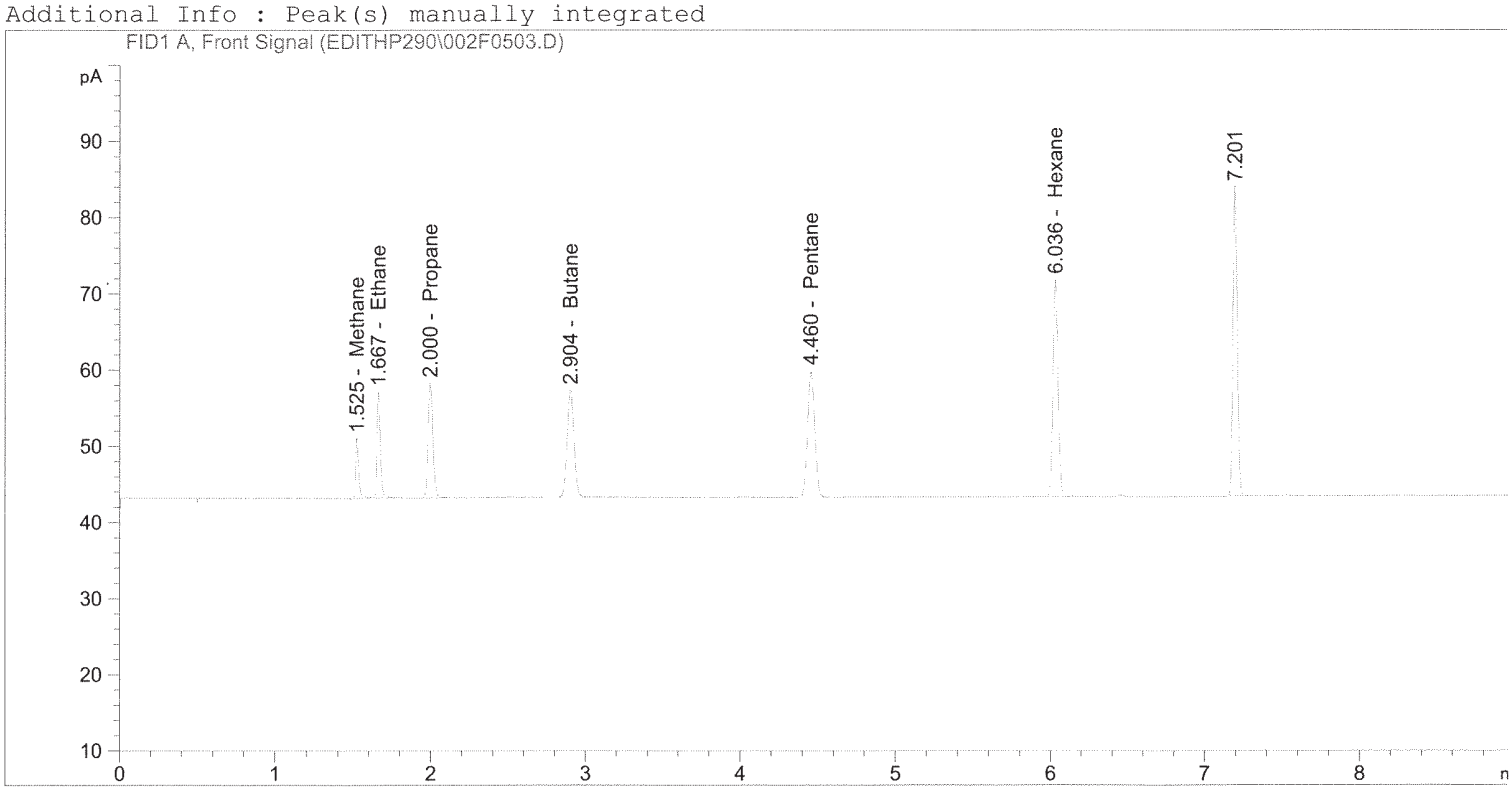

```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:58:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.526	PB	10.96580	3.69452	40.51338		Methane
1.667	PB	21.93692	1.89037	41.46891		Ethane
2.001	BB	32.73579	1.27357	41.69119		Propane
2.904	BB	43.36981	9.60677e-1	41.66438		Butane
4.460	BB	54.04811	7.77633e-1	42.02958		Pentane
6.037	BB	65.80003	6.64441e-1	43.72026		Hexane
6.763		-	-	-		Benzene

```
Totals :                                  251.08770

Uncalibrated Peaks    :      using compound Propane
```

mple Name: EdithP280 #C3 ENV(1=600,2=400)

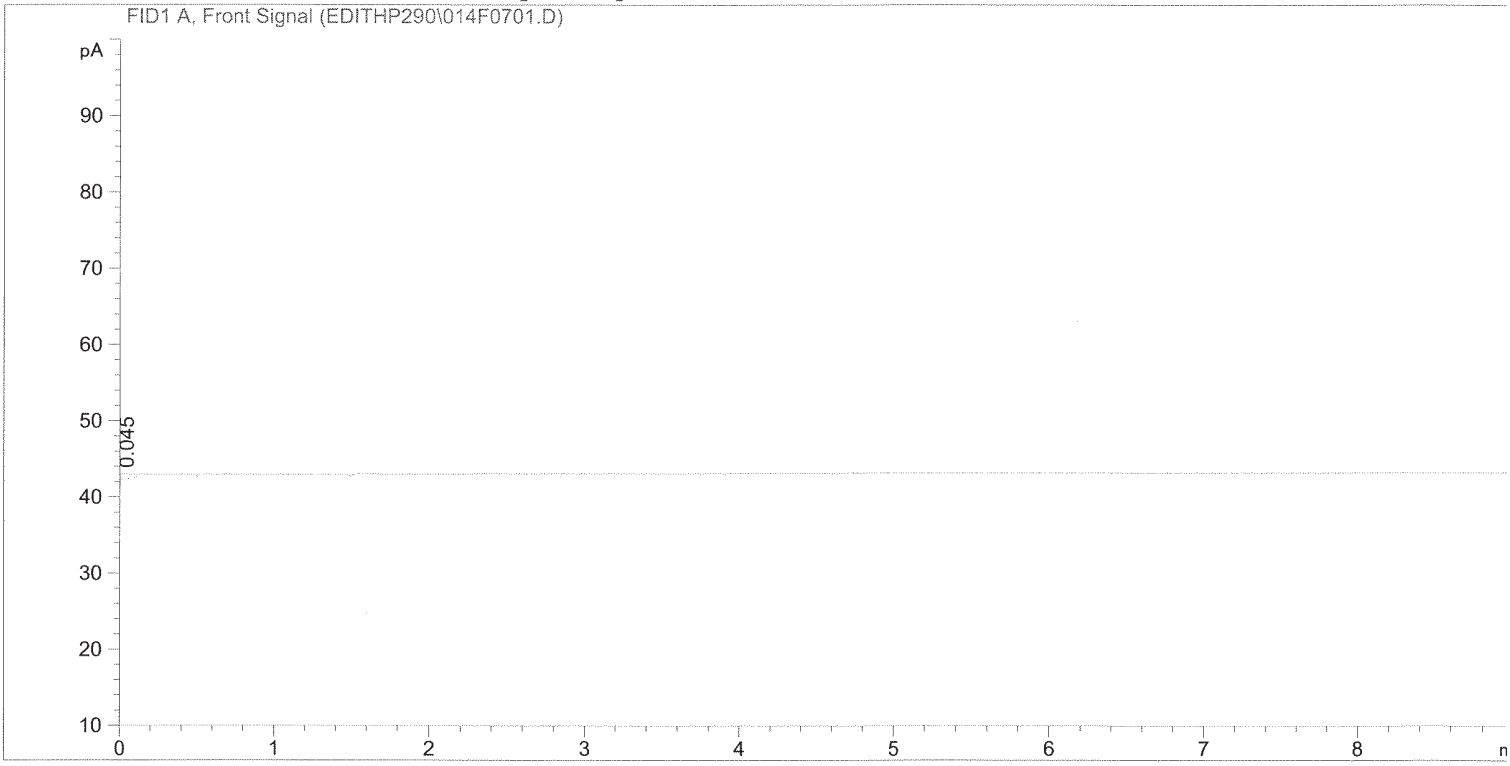
```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :   5
Acq. Instrument : Edith                             Location : Vial 2
Injection Date  : 7/7/2015 2:24:24 AM                    Inj :   3
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP290\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 8:58:52 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:58:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.525 PB       10.87019    3.69480   40.16317    Methane
  1.667 BB       21.71875    1.89034   41.05580    Ethane
  2.000 BB       32.70544    1.27357   41.65251    Propane
  2.904 BB       43.56567 9.60686e-1   41.85291    Butane
  4.460 BB       53.88296 7.77611e-1   41.89998    Pentane
  6.036 BB       65.46719 6.64420e-1   43.49769    Hexane
  6.763             -          -         -         Benzene

Totals :                                250.12206

Uncalibrated Peaks    :      using compound Propane
```

ımple Name: zero air blank

```
================================================================================
Acq. Operator   : Daniel Clayton                 Seq. Line :   7
Acq. Instrument : Edith                           Location : Vial 14
Injection Date  : 7/7/2015 3:43:23 AM                  Inj :   1
                                                 Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP290\AQ_EDITHP274_HRVOC_LONG.M
Last changed    : 6/9/2015 1:23:07 PM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 8:56:52 AM by Justin Guenzler
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:56:38 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|---------|----------|----------|--|------------------
  1.548           -           -          -          Methane
  1.700           -           -          -          Ethane
  2.001           -           -          -          Propane
  2.905           -           -          -          Butane
  4.460           -           -          -          Pentane
  6.037           -           -          -          Hexane
  6.763           -           -          -          Benzene

Totals :                                  0.00000

Uncalibrated Peaks    :      using compound Propane
```

mple Name: zero air blank

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
0.045	BV	3.74642	1.26492	4.73891	?	

Uncalib. totals : 4.73891

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID1 A, Front Signal

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Benzene	0.00000	0.0000

Totals : 0.0000

Area Percent Report

Sorted By : Signal
Calib. Data Modified : 7/10/2015 8:56:38 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.548		0.0000	0.00000	0.00000	Methane
2	1.700		0.0000	0.00000	0.00000	Ethane
3	2.001		0.0000	0.00000	0.00000	Propane
4	2.905		0.0000	0.00000	0.00000	Butane
5	4.460		0.0000	0.00000	0.00000	Pentane
6	6.037		0.0000	0.00000	0.00000	Hexane
7	6.763		0.0000	0.00000	0.00000	Benzene

mple Name: zero air blank

Totals : 0.00000 0.0000

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	0.045	BV	0.0677	3.74642	1.000e2	?

Uncalib. totals : 3.74642 100.0000

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID1 A, Front Signal

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

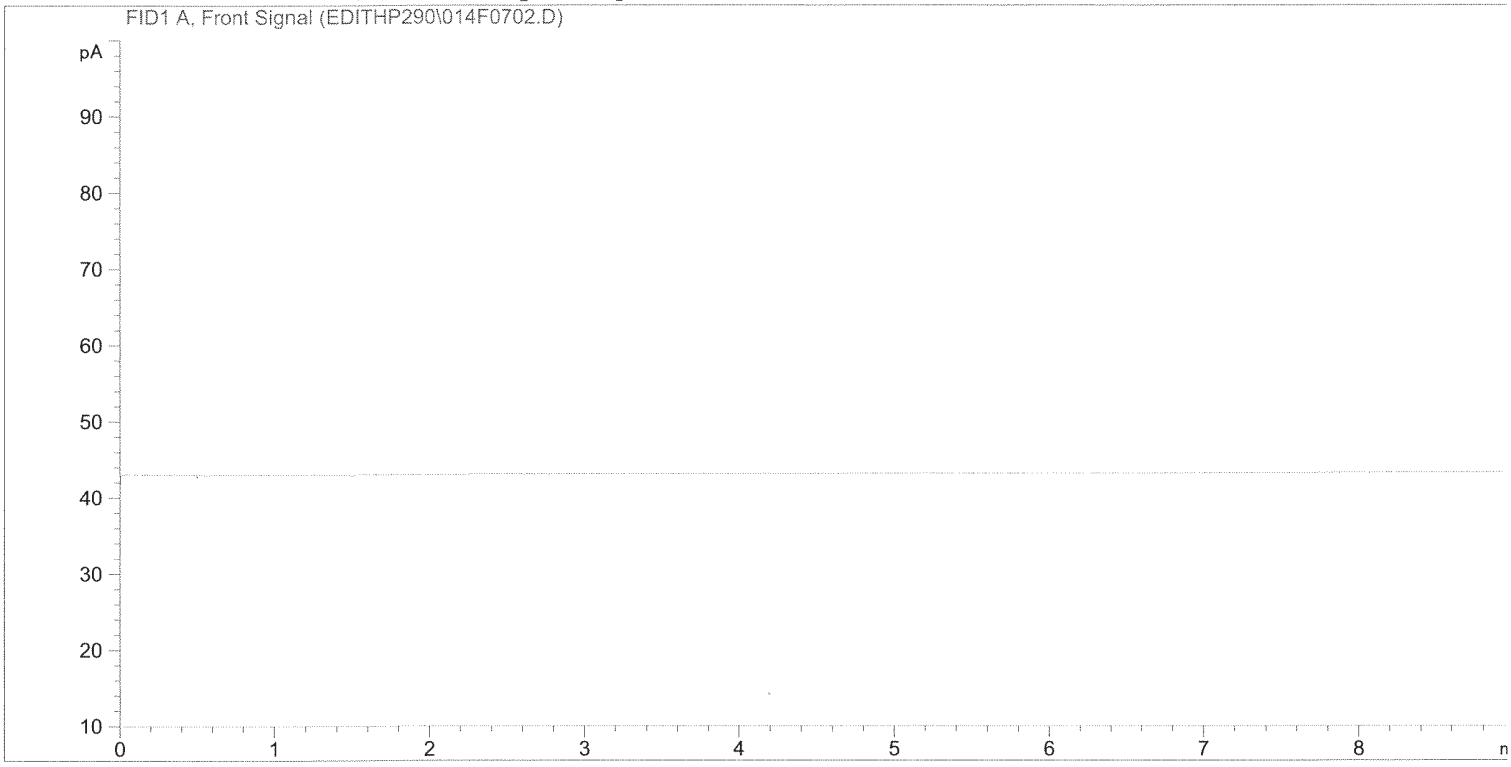
Name	Total Area [pA*s]	Area %
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Benzene	0.00000	0.0000

Totals : 0.0000

*** End of Report ***

mple Name: zero air blank

```
================================================================================
Acq. Operator   : Daniel Clayton                  Seq. Line :   7
Acq. Instrument : Edith                            Location : Vial 14
Injection Date  : 7/7/2015 4:01:48 AM                   Inj :   2
                                                 Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP290\AQ_EDITHP274_HRVOC_LONG.M
Last changed    : 6/9/2015 1:23:07 PM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 8:56:52 AM by Justin Guenzler
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:56:38 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.548            -           -          -          Methane
  1.700            -           -          -          Ethane
  2.001            -           -          -          Propane
  2.905            -           -          -          Butane
  4.460            -           -          -          Pentane
  6.037            -           -          -          Hexane
  6.763            -           -          -          Benzene

Totals :                                  0.00000

Uncalibrated Peaks    :      using compound Propane
```

mple Name: zero air blank

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Benzene	0.00000	0.0000
Totals :		0.0000

==========

Area Percent Report

==========

Sorted By : Signal
Calib. Data Modified : 7/10/2015 8:56:38 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.548		0.0000	0.00000	0.00000	Methane
2	1.700		0.0000	0.00000	0.00000	Ethane
3	2.001		0.0000	0.00000	0.00000	Propane
4	2.905		0.0000	0.00000	0.00000	Butane
5	4.460		0.0000	0.00000	0.00000	Pentane
6	6.037		0.0000	0.00000	0.00000	Hexane
7	6.763		0.0000	0.00000	0.00000	Benzene
Totals :				0.00000	0.0000	

Uncalibrated Peaks: n.a.

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

mple Name: zero air blank

Summed Peaks Report

Signal 1: FID1 A, Front Signal

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

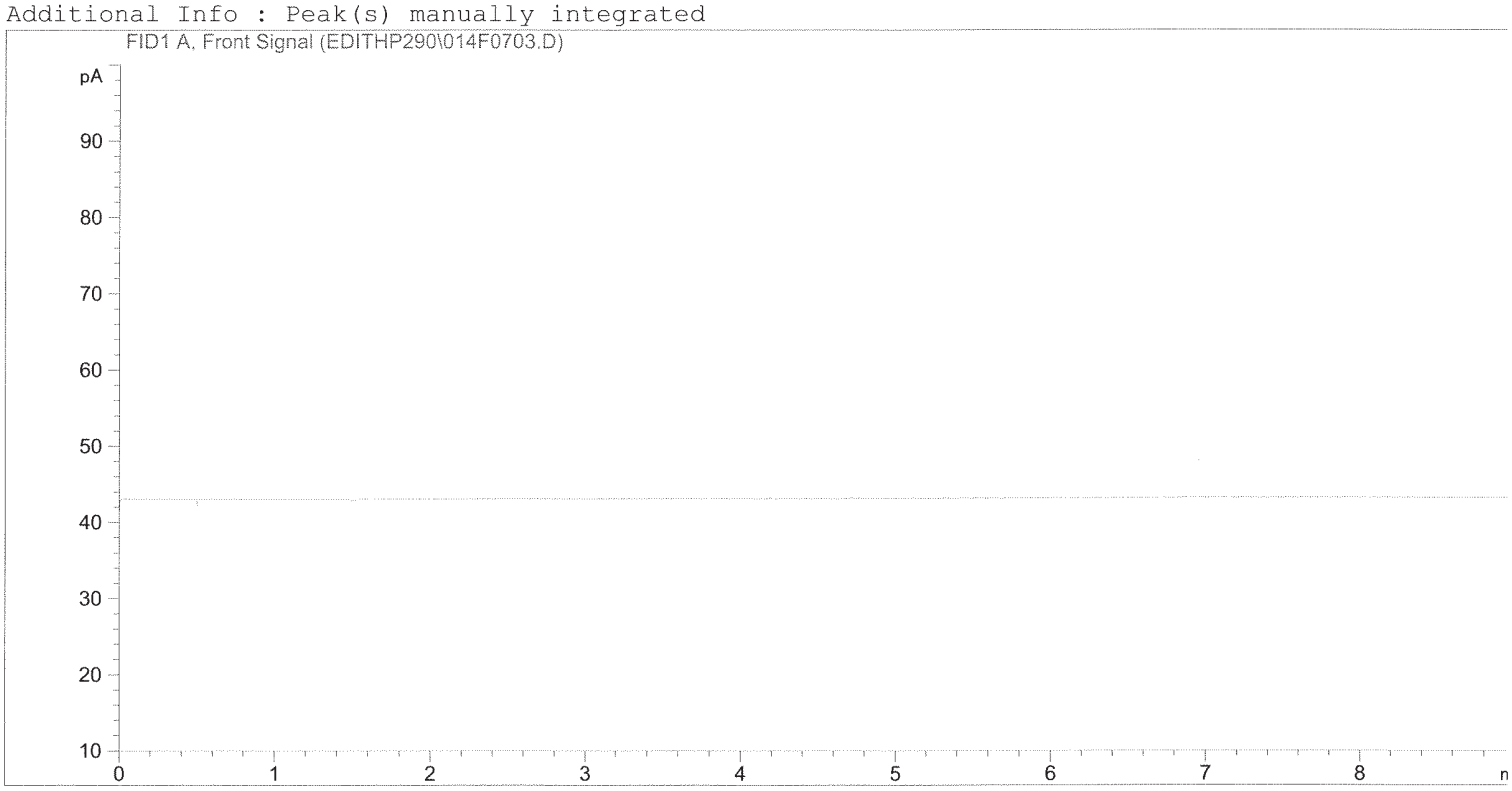
Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Area %
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Benzene	0.00000	0.0000
Totals :		0.0000

*** End of Report ***

ımple Name: zero air blank

```
================================================================================
Acq. Operator   : Daniel Clayton                  Seq. Line :   7
Acq. Instrument : Edith                            Location : Vial 14
Injection Date  : 7/7/2015 4:20:19 AM                   Inj :   3
                                                 Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP290\AQ_EDITHP274_HRVOC_LONG.M
Last changed    : 6/9/2015 1:23:07 PM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 8:56:52 AM by Justin Guenzler
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:56:38 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.548            -          -          -          Methane
  1.700            -          -          -          Ethane
  2.001            -          -          -          Propane
  2.905            -          -          -          Butane
  4.460            -          -          -          Pentane
  6.037            -          -          -          Hexane
  6.763            -          -          -          Benzene

Totals :                                  0.00000

Uncalibrated Peaks    :      using compound Propane
```

mple Name: zero air blank

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Benzene	0.00000	0.0000
Totals :		0.0000

==========

Area Percent Report

==========

Sorted By : Signal
Calib. Data Modified : 7/10/2015 8:56:38 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.548		0.0000	0.00000	0.00000	Methane
2	1.700		0.0000	0.00000	0.00000	Ethane
3	2.001		0.0000	0.00000	0.00000	Propane
4	2.905		0.0000	0.00000	0.00000	Butane
5	4.460		0.0000	0.00000	0.00000	Pentane
6	6.037		0.0000	0.00000	0.00000	Hexane
7	6.763		0.0000	0.00000	0.00000	Benzene
Totals :				0.00000	0.0000	

Uncalibrated Peaks: n.a.

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

ımple Name: zero air blank

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

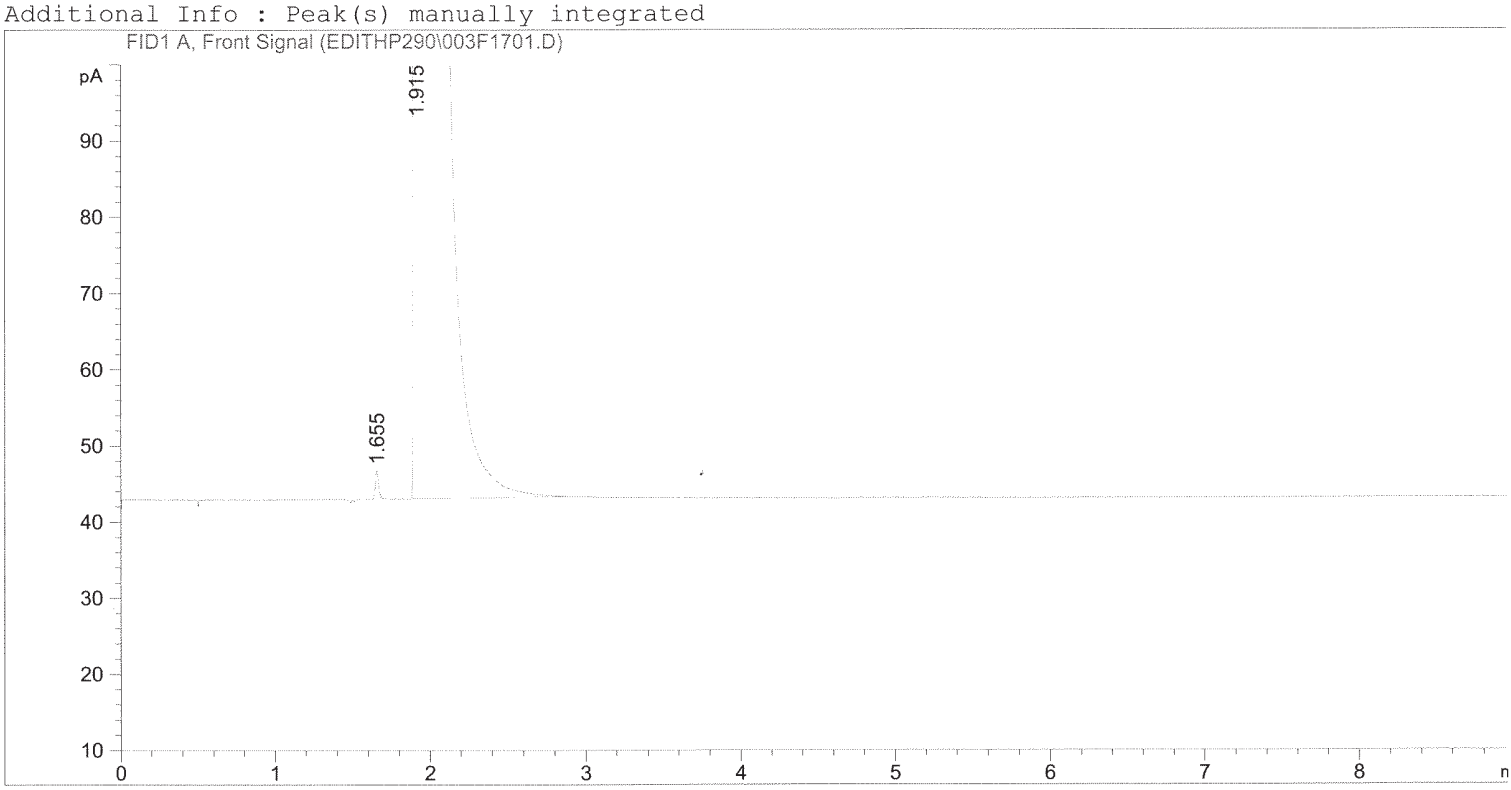
Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Area %
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Benzene	0.00000	0.0000
Totals :		0.0000

*** End of Report ***

mple Name: 0615-125.Large - L1 - R1 - 1158.Can

```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  17
Acq. Instrument : Edith                              Location : Vial 3
Injection Date  : 7/7/2015 4:28:52 PM                    Inj :   1
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP290\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 9:00:24 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:58:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.548           -          -          -          Methane
  1.685           -          -          -          Ethane
  2.001           -          -          -          Propane
  2.905           -          -          -          Butane
  4.460           -          -          -          Pentane
  6.037           -          -          -          Hexane
  6.763           -          -          -          Benzene

Totals :                                 0.00000

Uncalibrated Peaks    :      using compound Propane
```

mple Name: 0615-125.Large - L1 - R1 - 1158.Can

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.655	PV	5.71694	1.26793	7.24868	?	
1.915	BB	1.69029e5	1.27476	2.15471e5	?	

Uncalib. totals : 2.15478e5

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Ethane	1.550	1.855	5.71694	10.7958
as Propane	1.855	2.479	1.69029e5	2.152e5

Totals : 2.1519e5

Report From Diluted Analysis (JKG)

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Ethane	5.71694	10.7958
as Propane	1.69029e5	2.152e5
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Benzene	0.00000	0.0000

Totals : 2.1519e5

Area Percent Report

Sorted By : Signal
Calib. Data Modified : 7/10/2015 8:58:52 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.548		0.0000	0.00000	0.00000	Methane
2	1.685		0.0000	0.00000	0.00000	Ethane
3	2.001		0.0000	0.00000	0.00000	Propane
4	2.905		0.0000	0.00000	0.00000	Butane
5	4.460		0.0000	0.00000	0.00000	Pentane
6	6.037		0.0000	0.00000	0.00000	Hexane
7	6.763		0.0000	0.00000	0.00000	Benzene
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.655	PV	0.0224	5.71694	0.00338	?
2	1.915	BB	0.0404	1.69029e5	99.99662	?
Uncalib. totals :				1.69034e5	100.0000	

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Area %
as Ethane	1.550	1.855	5.71694	3.382e-3
as Propane	1.855	2.479	1.69029e5	99.9966
Totals :				100.0000

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Area %
as Ethane	5.71694	3.382e-3
as Propane	1.69029e5	99.9966
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

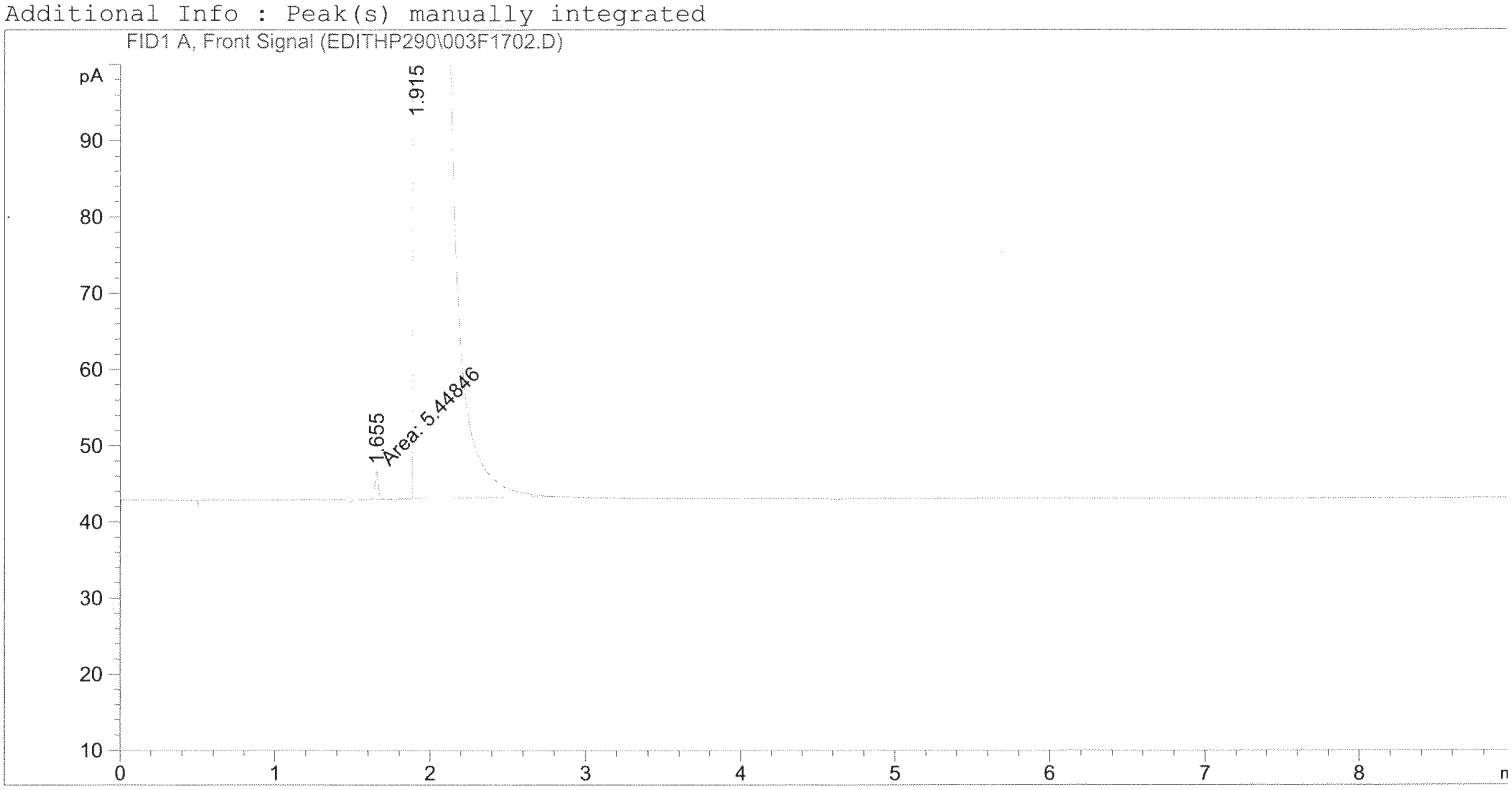
mple Name: 0615-125.Large - L1 - R1 - 1158.Can

Name	Total Area [pA*s]	Area %
Benzene	0.00000	0.0000
Totals :		100.0000

*** End of Report ***

mple Name: 0615-125.Large - L1 - R1 - 1158.Can

```
==========================================================================
Acq. Operator   : Daniel Clayton                 Seq. Line :  17
Acq. Instrument : Edith                           Location : Vial 3
Injection Date  : 7/7/2015 4:43:15 PM                 Inj :   2
                                                Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP290\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 9:00:24 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
==========================================================================
                      External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:58:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.548           -          -          -          Methane
  1.685           -          -          -          Ethane
  2.001           -          -          -          Propane
  2.905           -          -          -          Butane
  4.460           -          -          -          Pentane
  6.037           -          -          -          Hexane
  6.763           -          -          -          Benzene

Totals :                                0.00000

Uncalibrated Peaks    :      using compound Propane
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.655	MM	5.44846	1.26759	6.90643	?	
1.915	BB	1.68274e5	1.27476	2.14508e5	?	

Uncalib. totals : 2.14515e5

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Ethane	1.550	1.855	5.44846	10.2888
~~as Propane~~	~~1.855~~	~~2.479~~	~~1.68274e5~~	~~2.142e5~~

Totals : 2.1422e5

Report From Diluted Analysis (JKG)

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Ethane	5.44846	10.2888
as Propane	1.68274e5	2.142e5
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Benzene	0.00000	0.0000

Totals : 2.1422e5

==========

Area Percent Report

==========

Sorted By : Signal
Calib. Data Modified : 7/10/2015 8:58:52 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.548		0.0000	0.00000	0.00000	Methane
2	1.685		0.0000	0.00000	0.00000	Ethane
3	2.001		0.0000	0.00000	0.00000	Propane
4	2.905		0.0000	0.00000	0.00000	Butane
5	4.460		0.0000	0.00000	0.00000	Pentane
6	6.037		0.0000	0.00000	0.00000	Hexane
7	6.763		0.0000	0.00000	0.00000	Benzene
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.655	MM	0.0236	5.44846	0.00324	?
2	1.915	BB	0.0403	1.68274e5	99.99676	?
Uncalib. totals :				1.68279e5	100.0000	

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Area %
as Ethane	1.550	1.855	5.44846	3.238e-3
as Propane	1.855	2.479	1.68274e5	99.9968
Totals :				100.0000

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

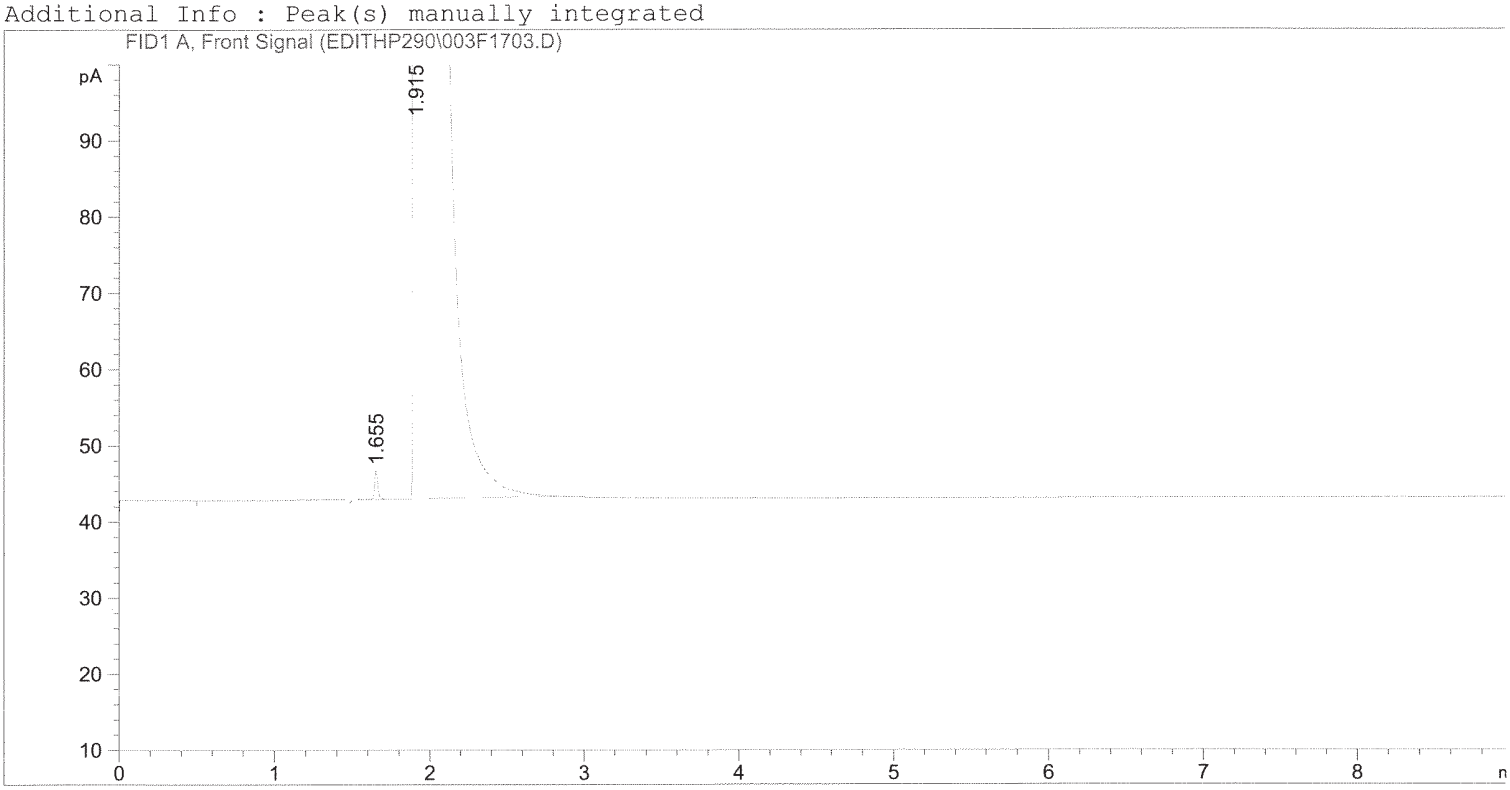
Name	Total Area [pA*s]	Area %
as Ethane	5.44846	3.238e-3
as Propane	1.68274e5	99.9968
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

ample Name: 0615-125.Large - L1 - R1 - 1158.Can

Name	Total Area [pA*s]	Area %
Benzene	0.00000	0.0000
Totals :		100.0000

*** End of Report ***

```
Acq. Operator    : Daniel Clayton                Seq. Line :  17
Acq. Instrument  : Edith                          Location : Vial 3
Injection Date   : 7/7/2015 4:57:40 PM                 Inj :   3
                                                 Inj Volume : 250 µl
Acq. Method      : C:\GC\2015\EDITH\QUARTER 3\EDITHP290\AQ_EDITHP274_HRVOC.M
Last changed     : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method  : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed     : 7/10/2015 9:00:24 AM by Justin Guenzler
                   (modified after loading)
Additional Info  : Peak(s) manually integrated
```



External Standard Report

```
Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:58:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type      Area      Amt/Area    Amount    Grp   Name
 [min]           [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.548            -          -          -          Methane
  1.685            -          -          -          Ethane
  2.001            -          -          -          Propane
  2.905            -          -          -          Butane
  4.460            -          -          -          Pentane
  6.037            -          -          -          Hexane
  6.763            -          -          -          Benzene

Totals :                                  0.00000

Uncalibrated Peaks    :      using compound Propane
```

mple Name: 0615-125.Large - L1 - R1 - 1158.Can

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.655	PB	5.58357	1.26777	7.07865	?	
1.915	BB	1.68148e5	1.27476	2.14348e5	?	

Uncalib. totals : 2.14355e5

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Ethane	1.550	1.855	5.58357	10.5439
as Propane	1.855	2.479	1.68148e5	2.141e5

Totals : 2.1406e5

Report From Diluted Analysis (JKG)

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Ethane	5.58357	10.5439
as Propane	1.68148e5	2.141e5
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Benzene	0.00000	0.0000

Totals : 2.1406e5

Area Percent Report

Sorted By : Signal
Calib. Data Modified : 7/10/2015 8:58:52 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

mple Name: 0615-125.Large - L1 - R1 - 1158.Can

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.548		0.0000	0.00000	0.00000	Methane
2	1.685		0.0000	0.00000	0.00000	Ethane
3	2.001		0.0000	0.00000	0.00000	Propane
4	2.905		0.0000	0.00000	0.00000	Butane
5	4.460		0.0000	0.00000	0.00000	Pentane
6	6.037		0.0000	0.00000	0.00000	Hexane
7	6.763		0.0000	0.00000	0.00000	Benzene
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.655	PB	0.0221	5.58357	0.00332	?
2	1.915	BB	0.0403	1.68148e5	99.99668	?
Uncalib. totals :				1.68153e5	100.0000	

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Area %
as Ethane	1.550	1.855	5.58357	3.321e-3
as Propane	1.855	2.479	1.68148e5	99.9967
Totals :				100.0000

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Area %
as Ethane	5.58357	3.321e-3
as Propane	1.68148e5	99.9967
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

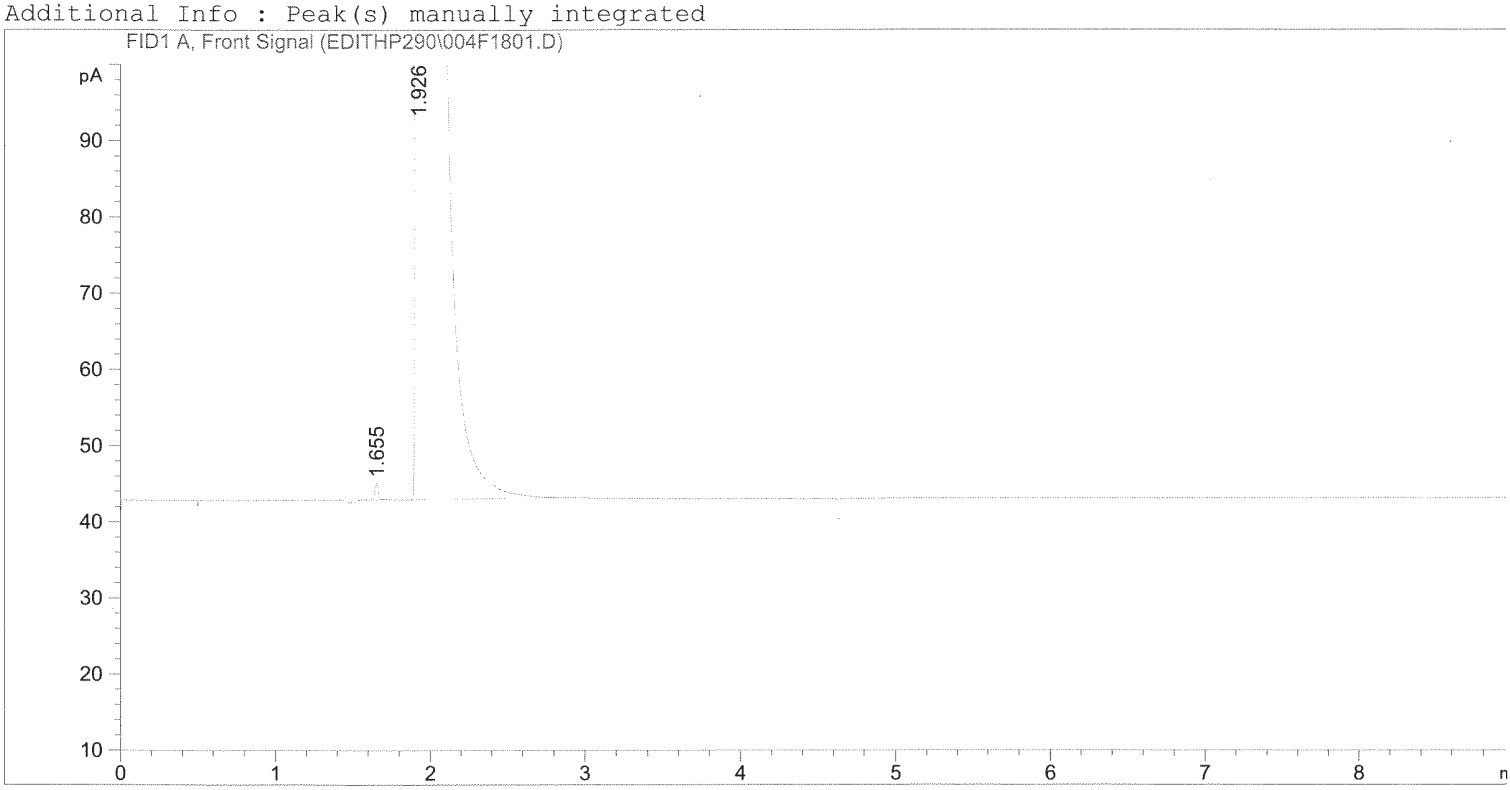
mple Name: 0615-125.Large - L1 - R1 - 1158.Can

Name	Total Area [pA*s]	Area %
Benzene	0.00000	0.0000
Totals :		100.0000

*** End of Report ***

mple Name: 0615-125.Large - L2 - R1 - 1124.Can

```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  18
Acq. Instrument : Edith                              Location : Vial 4
Injection Date  : 7/7/2015 5:12:06 PM                    Inj :   1
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP290\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 9:00:24 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:58:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  1.548           -          -          -          Methane
  1.685           -          -          -          Ethane
  2.001           -          -          -          Propane
  2.905           -          -          -          Butane
  4.460           -          -          -          Pentane
  6.037           -          -          -          Hexane
  6.763           -          -          -          Benzene

Totals :                                0.00000

Uncalibrated Peaks    :      using compound Propane
```

mple Name: 0615-125.Large - L2 - R1 - 1124.Can

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.655	PB	3.40068	1.26492	4.30158	?	
1.926	PB	1.09008e5	1.27476	1.38959e5	?	

Uncalib. totals : 1.38963e5

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Ethane	1.550	1.855	3.40068	6.4218
as Propane	1.855	2.479	1.09008e5	1.388e5

Totals : 1.3877e5

Report From Diluted Analysis (JKG)

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Ethane	3.40068	6.4218
as Propane	1.09008e5	1.388e5
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Benzene	0.00000	0.0000

Totals : 1.3877e5

==========

Area Percent Report

==========

Sorted By : Signal
Calib. Data Modified : 7/10/2015 8:58:52 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.548		0.0000	0.00000	0.00000	Methane
2	1.685		0.0000	0.00000	0.00000	Ethane
3	2.001		0.0000	0.00000	0.00000	Propane
4	2.905		0.0000	0.00000	0.00000	Butane
5	4.460		0.0000	0.00000	0.00000	Pentane
6	6.037		0.0000	0.00000	0.00000	Hexane
7	6.763		0.0000	0.00000	0.00000	Benzene
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.655	PB	0.0230	3.40068	0.00312	?
2	1.926	PB	0.0366	1.09008e5	99.99688	?
Uncalib. totals :				1.09012e5	100.0000	

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Area %
as Ethane	1.550	1.855	3.40068	3.120e-3
as Propane	1.855	2.479	1.09008e5	99.9969
Totals :				100.0000

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Area %
as Ethane	3.40068	3.120e-3
as Propane	1.09008e5	99.9969
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

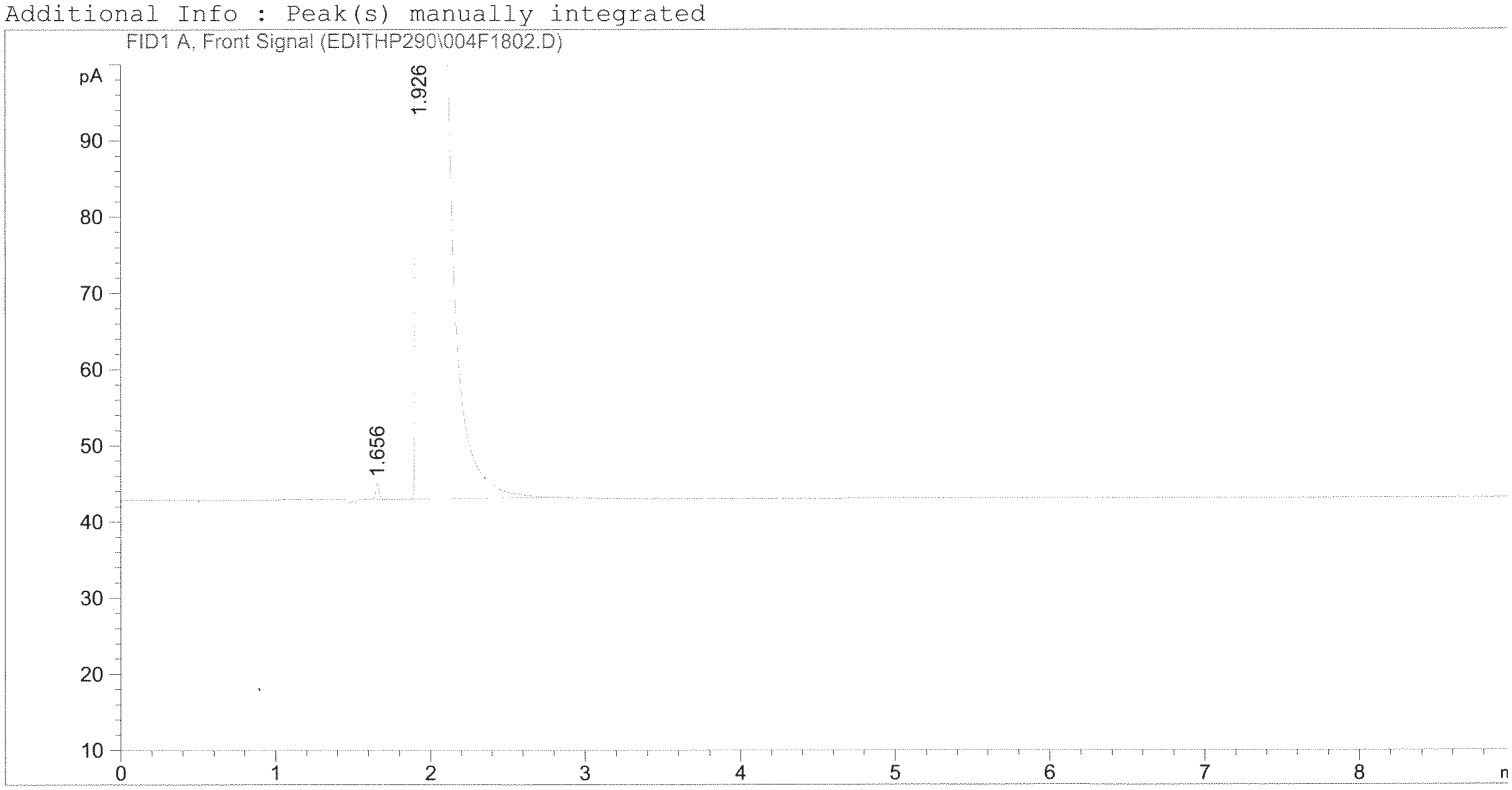
mple Name: 0615-125.Large - L2 - R1 - 1124.Can

Name	Total Area [pA*s]	Area %
Benzene	0.00000	0.0000
Totals :		100.0000

*** End of Report ***

mple Name: 0615-125.Large - L2 - R1 - 1124.Can

```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  18
Acq. Instrument : Edith                              Location : Vial 4
Injection Date  : 7/7/2015 5:26:33 PM                     Inj :  2
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP290\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 9:00:24 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:58:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  1.548           -           -          -          Methane
  1.685           -           -          -          Ethane
  2.001           -           -          -          Propane
  2.905           -           -          -          Butane
  4.460           -           -          -          Pentane
  6.037           -           -          -          Hexane
  6.763           -           -          -          Benzene

Totals :                                  0.00000

Uncalibrated Peaks    :      using compound Propane
```

ımple Name: 0615-125.Large - L2 - R1 - 1124.Can

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.656	PB	3.33707	1.26492	4.22112	?	
1.926	BB	1.09264e5	1.27476	1.39286e5	?	

Uncalib. totals : 1.39290e5

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Ethane	1.550	1.855	3.33707	6.3017
as Propane	1.855	2.479	1.09264e5	1.391e5

Totals : 1.3910e5

Report From Diluted Analysis (JKG)

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Ethane	3.33707	6.3017
as Propane	1.09264e5	1.391e5
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Benzene	0.00000	0.0000

Totals : 1.3910e5

==========

Area Percent Report

==========

Sorted By : Signal
Calib. Data Modified : 7/10/2015 8:58:52 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.548		0.0000	0.00000	0.00000	Methane
2	1.685		0.0000	0.00000	0.00000	Ethane
3	2.001		0.0000	0.00000	0.00000	Propane
4	2.905		0.0000	0.00000	0.00000	Butane
5	4.460		0.0000	0.00000	0.00000	Pentane
6	6.037		0.0000	0.00000	0.00000	Hexane
7	6.763		0.0000	0.00000	0.00000	Benzene
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.656	PB	0.0227	3.33707	0.00305	?
2	1.926	BB	0.0366	1.09264e5	99.99695	?
Uncalib. totals :				1.09268e5	100.0000	

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Area %
as Ethane	1.550	1.855	3.33707	3.054e-3
as Propane	1.855	2.479	1.09264e5	99.9969
Totals :				100.0000

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Area %
as Ethane	3.33707	3.054e-3
as Propane	1.09264e5	99.9969
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

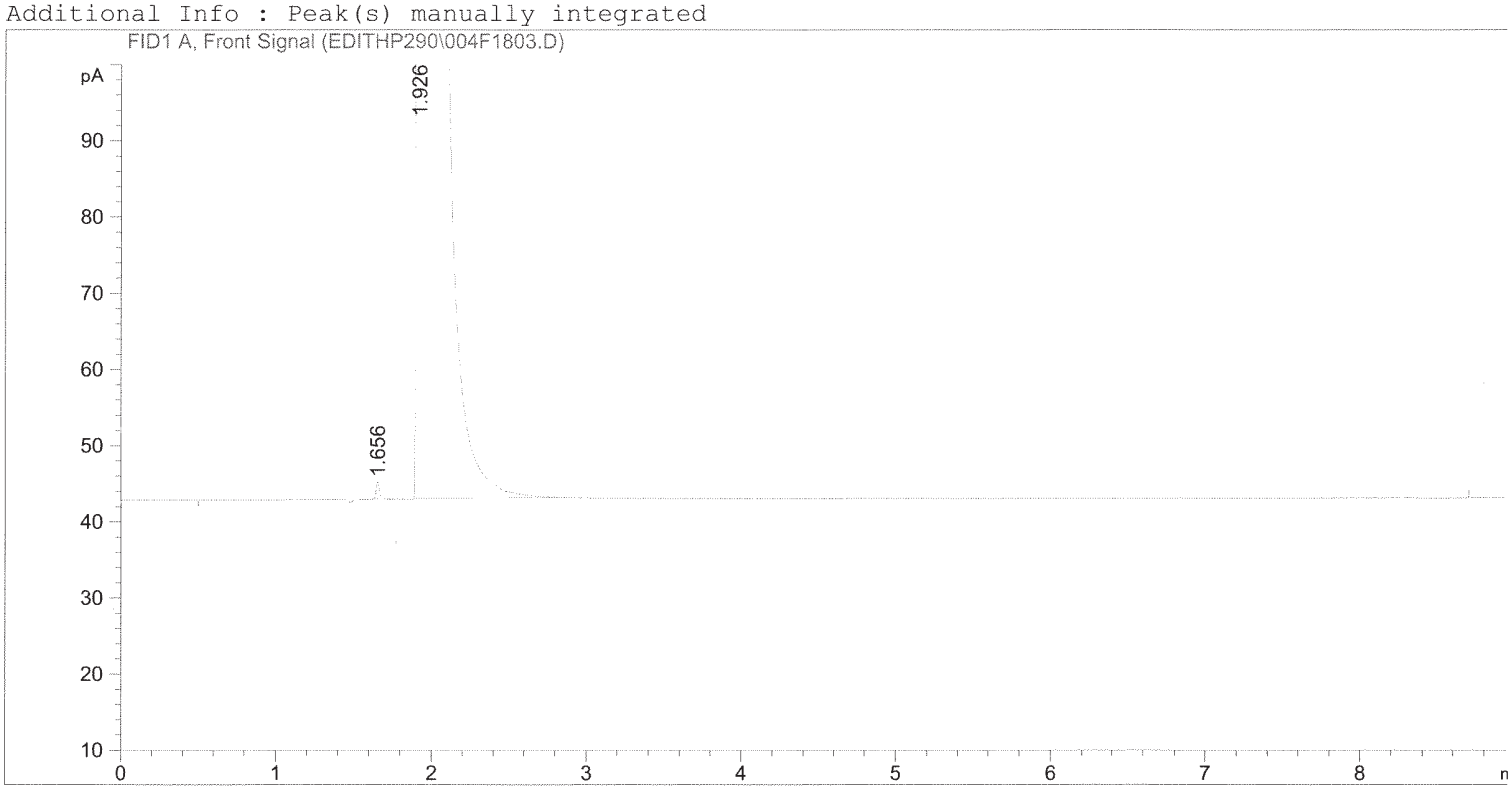
ample Name: 0615-125.Large - L2 - R1 - 1124.Can

Name	Total Area [pA*s]	Area %
Benzene	0.00000	0.0000
Totals :		100.0000

*** End of Report ***

ample Name: 0615-125.Large - L2 - R1 - 1124.Can

Acq. Operator : Daniel Clayton Seq. Line : 18
Acq. Instrument : Edith Location : Vial 4
Injection Date : 7/7/2015 5:40:57 PM Inj : 3
Inj Volume : 250 µl
Acq. Method : C:\GC\2015\EDITH\QUARTER 3\EDITHP290\AQ_EDITHP274_HRVOC.M
Last changed : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed : 7/10/2015 9:00:24 AM by Justin Guenzler
(modified after loading)
Additional Info : Peak(s) manually integrated



External Standard Report

Sorted By : Signal
Calib. Data Modified : 7/10/2015 8:58:52 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.548		-	-	-		Methane
1.685		-	-	-		Ethane
2.001		-	-	-		Propane
2.905		-	-	-		Butane
4.460		-	-	-		Pentane
6.037		-	-	-		Hexane
6.763		-	-	-		Benzene

Totals : 0.00000

Uncalibrated Peaks : using compound Propane

ımple Name: 0615-125.Large - L2 - R1 - 1124.Can

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.656	PB	2.80772	1.26492	3.55154	?	
1.926	BB	1.09314e5	1.27476	1.39349e5	?	

Uncalib. totals : 1.39353e5

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Ethane	1.550	1.855	2.80772	5.3021
as Propane	1.855	2.479	1.09314e5	1.392e5

Totals : 1.3916e5

Report From Diluted Analysis (JKG)

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Ethane	2.80772	5.3021
as Propane	1.09314e5	1.392e5
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Benzene	0.00000	0.0000

Totals : 1.3916e5

==========

Area Percent Report

==========

Sorted By : Signal
Calib. Data Modified : 7/10/2015 8:58:52 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.548		0.0000	0.00000	0.00000	Methane
2	1.685		0.0000	0.00000	0.00000	Ethane
3	2.001		0.0000	0.00000	0.00000	Propane
4	2.905		0.0000	0.00000	0.00000	Butane
5	4.460		0.0000	0.00000	0.00000	Pentane
6	6.037		0.0000	0.00000	0.00000	Hexane
7	6.763		0.0000	0.00000	0.00000	Benzene
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.656	PB	0.0201	2.80772	0.00257	?
2	1.926	BB	0.0366	1.09314e5	99.99743	?
Uncalib. totals :				1.09317e5	100.0000	

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Area %
as Ethane	1.550	1.855	2.80772	2.568e-3
as Propane	1.855	2.479	1.09314e5	99.9974
Totals :				100.0000

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Area %
as Ethane	2.80772	2.568e-3
as Propane	1.09314e5	99.9974
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

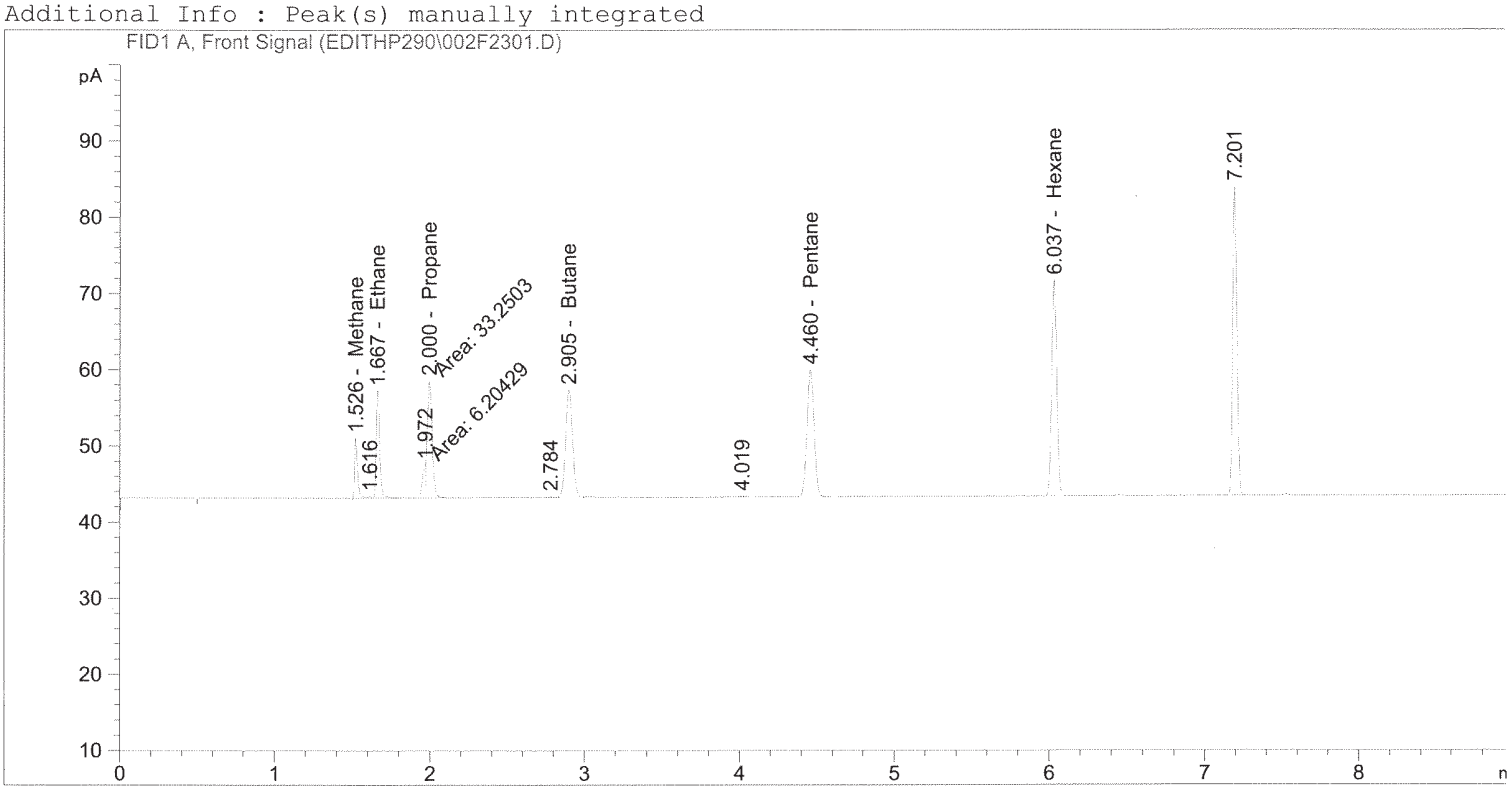
mple Name: 0615-125.Large - L2 - R1 - 1124.Can

Name	Total Area [pA*s]	Area %
Benzene	0.00000	0.0000
Totals :		100.0000

*** End of Report ***

mple Name: EdithP280 #C3 ENV(1=600,2=400)

```
==========================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  23
Acq. Instrument : Edith                             Location : Vial 2
Injection Date  : 7/8/2015 1:52:01 AM                    Inj :  1
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP290\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 9:01:36 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```

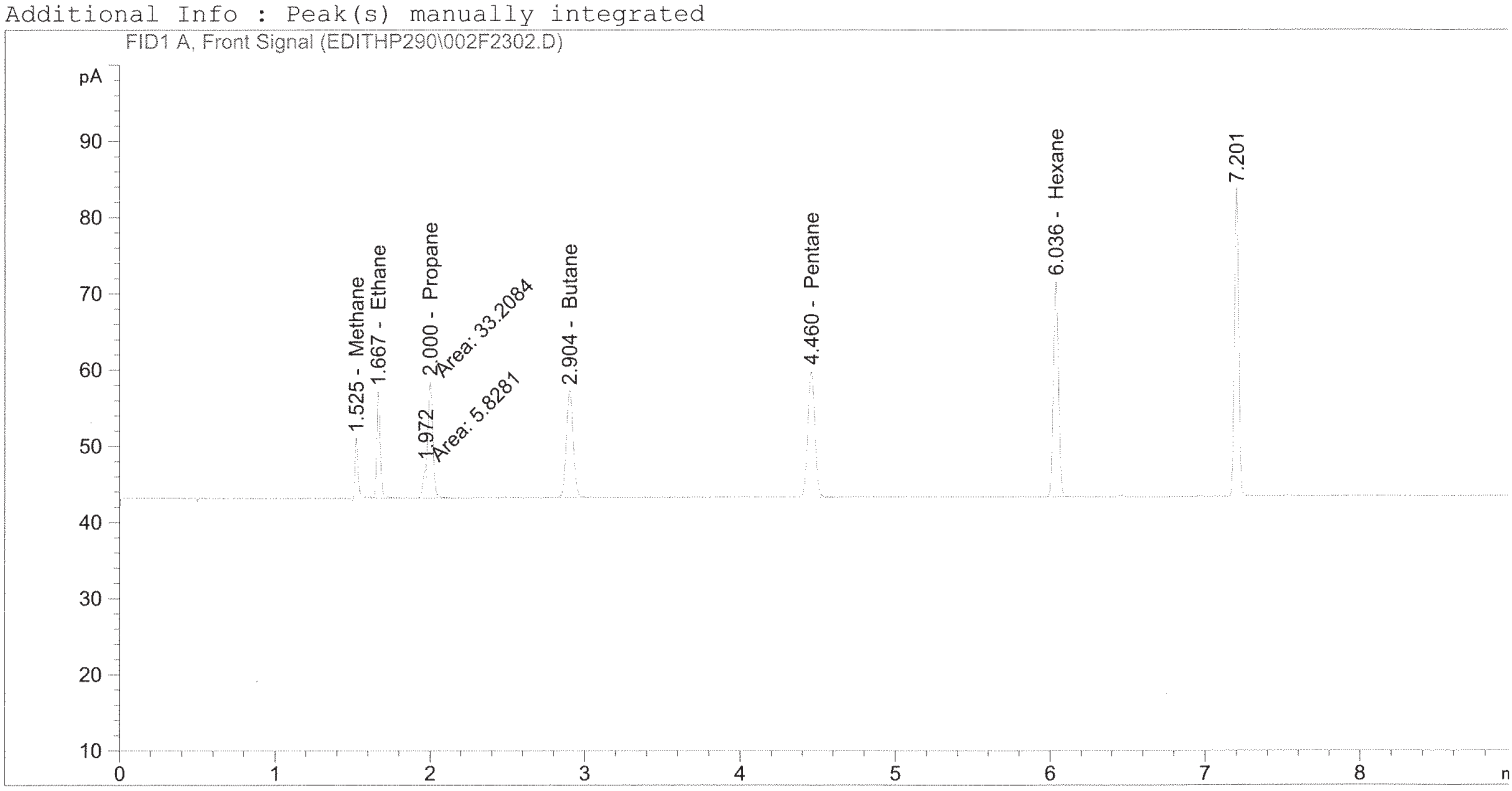



```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 9:01:56 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.526 PV       10.79432    3.69502   39.88526    Methane
  1.667 VB       21.97213    1.89038   41.53557    Ethane
  2.000 FM       33.25026    1.27358   42.34702    Propane
  2.905 VV       43.59082 9.60687e-1   41.87712    Butane
  4.460 BB       53.97448 7.77623e-1   41.97180    Pentane
  6.037 VB       65.67365 6.64433e-1   43.63576    Hexane
  6.763            -          -         -         Benzene

Totals :                                251.25254

Uncalibrated Peaks    :      using compound Propane
```

Manual Int. "II" (DDC)

mple Name: EdithP280 #C3 ENV(1=600,2=400)

```
==========================================================================
Acq. Operator   : Daniel Clayton                 Seq. Line :  23
Acq. Instrument : Edith                          Location : Vial 2
Injection Date  : 7/8/2015 2:08:17 AM                 Inj :   2
                                                Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP290\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 9:08:10 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 9:08:10 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

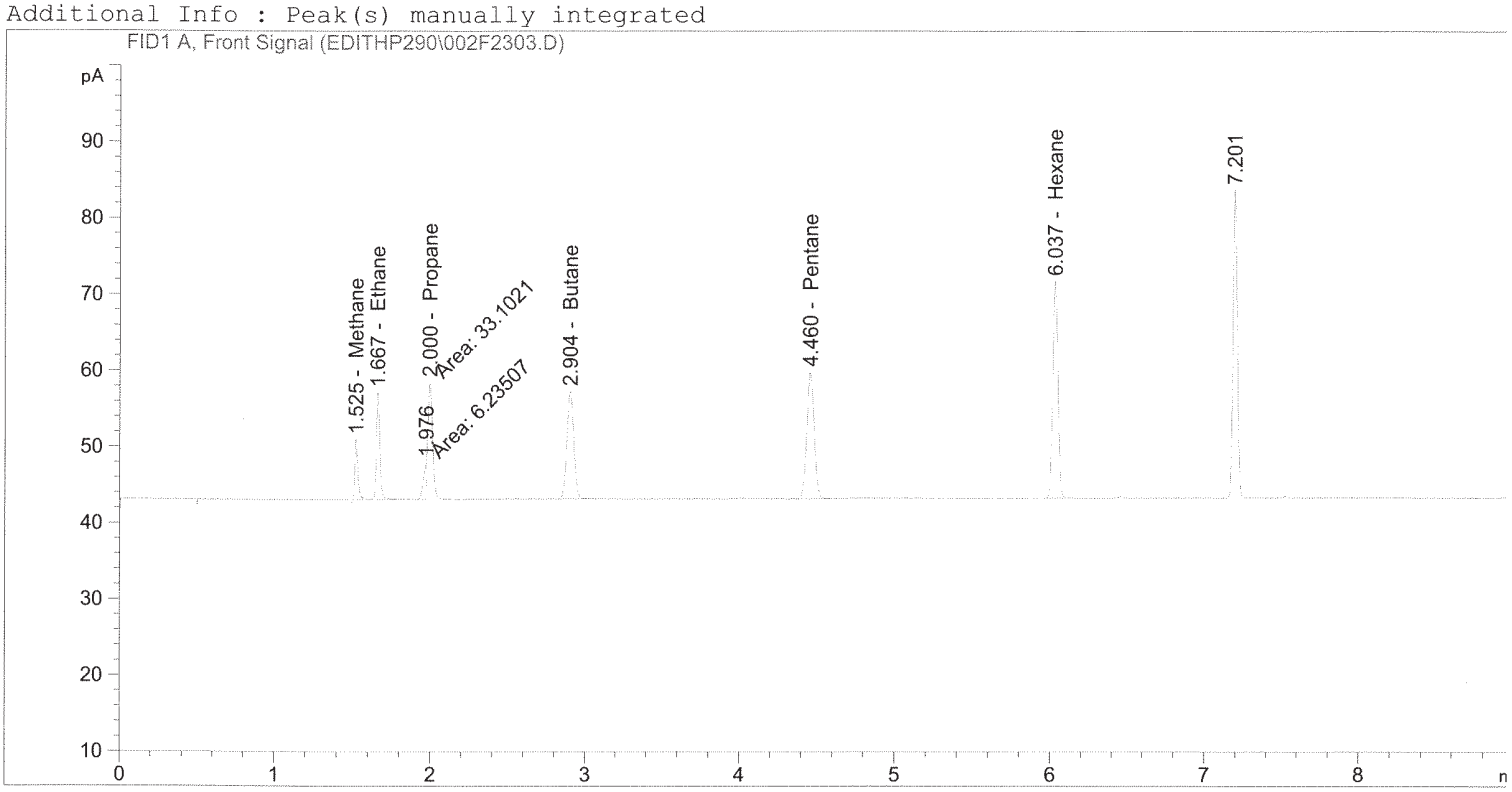
RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.525	PV	11.06039	3.69425	40.85989		Methane
1.667	VB	21.94136	1.89037	41.47731		Ethane
2.000	FM	33.20840	1.27358	42.29366		Propane
2.904	BB	43.17651	9.60669e-1	41.47832		Butane
4.460	BV	54.15779	7.77647e-1	42.11565		Pentane
6.036	BB	65.46806	6.64420e-1	43.49827		Hexane
6.763		-	-	-		Benzene

Manual Int. "II" (DDC)

```
Totals :                                  251.72309

Uncalibrated Peaks    :      using compound Propane
```

ımple Name: EdithP280 #C3 ENV(1=600,2=400)

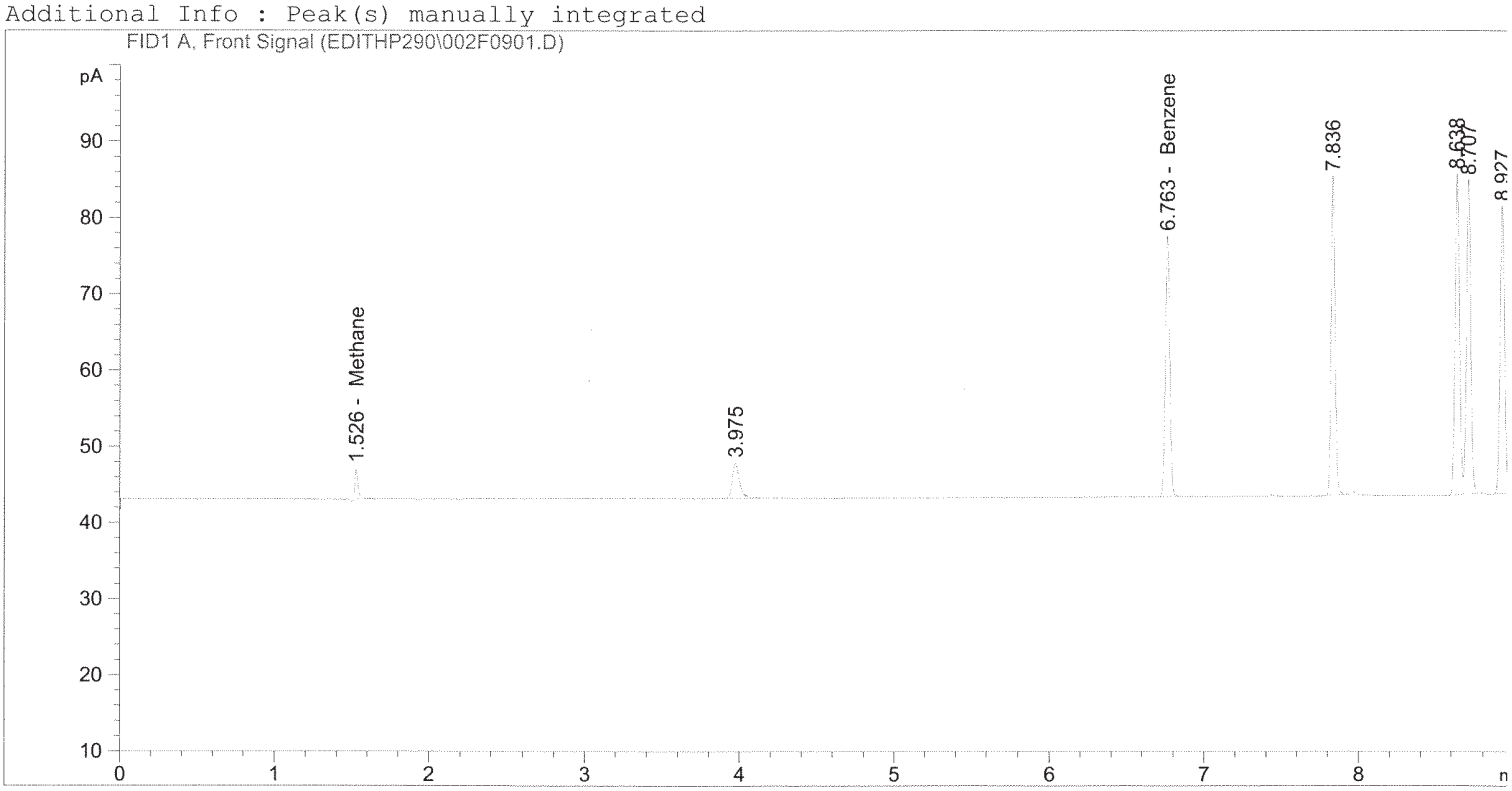
```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  23
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 7/8/2015 2:24:53 AM                    Inj :  3
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP290\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 9:08:10 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 9:08:10 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.525 PV       11.07247    3.69422   40.90412     Methane
  1.667 VB       22.00146    1.89038   41.59111     Ethane
  2.000 FM       33.10212    1.27358   42.15818     Propane
  2.904 BB       43.53782 9.60684e-1   41.82610     Butane
  4.460 BB       54.21241 7.77654e-1   42.15851     Pentane
  6.037 BB       65.64871 6.64432e-1   43.61908     Hexane
  6.763             -          -         -          Benzene

Totals :                                252.25710

Uncalibrated Peaks    :      using compound Propane
```

Manual Int. "II" (DDC)

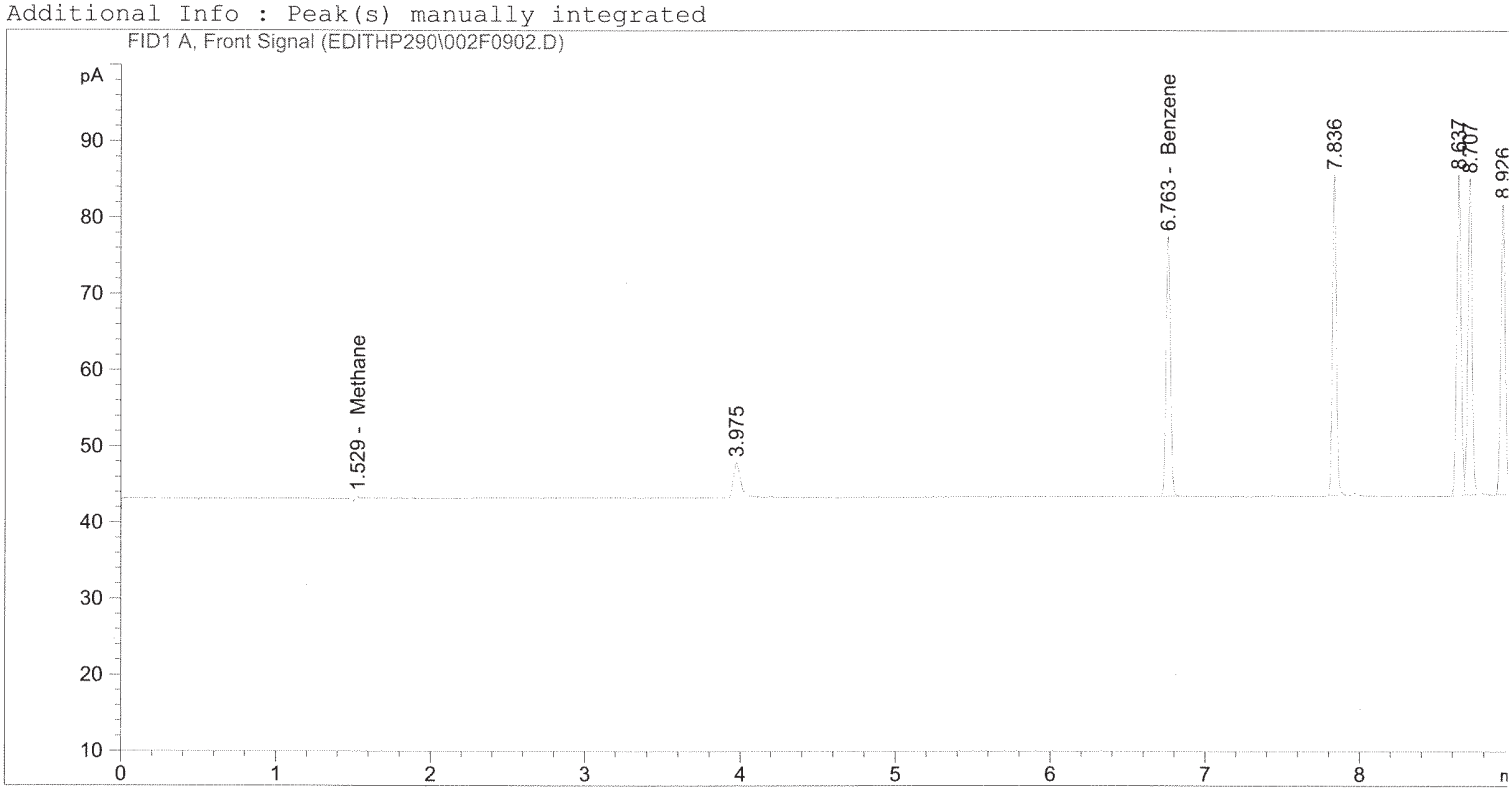
```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :   9
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 7/7/2015 10:06:45 AM                    Inj :   1
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP290\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 8:56:52 AM by Justin Guenzler
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:56:38 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.526 PV        5.90705    3.72154   21.98333    Methane
  1.700             -          -         -         Ethane
  2.001             -          -         -         Propane
  2.905             -          -         -         Butane
  4.460             -          -         -         Pentane
  6.037             -          -         -         Hexane
  6.763 BB       67.66104 6.31563e-1   42.73222    Benzene

Totals :                                64.71556

Uncalibrated Peaks    :      using compound Propane
```

ample Name: EdithP053 #B3 ENV(1=600,5=400)

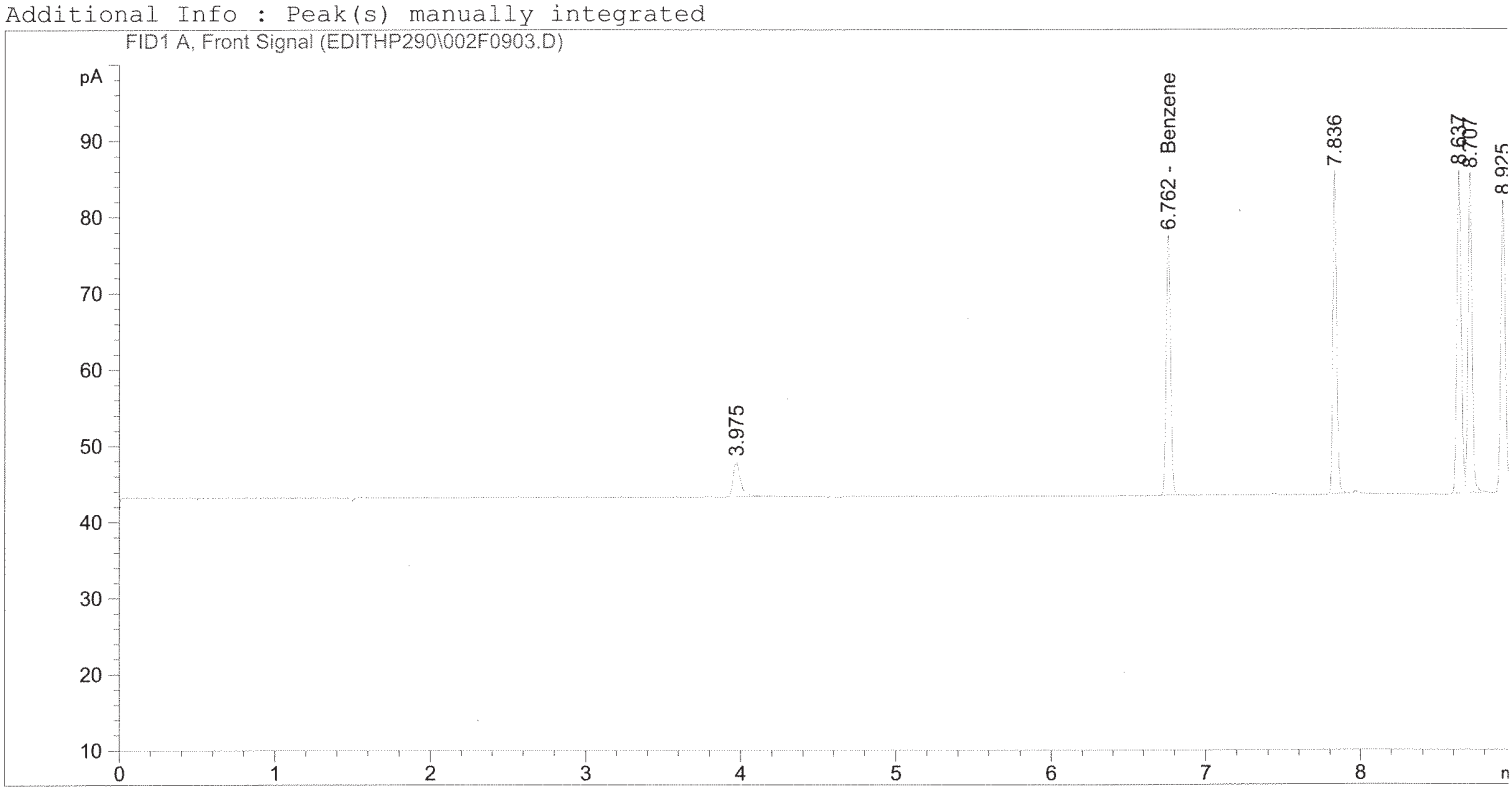
```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :   9
Acq. Instrument : Edith                             Location : Vial 2
Injection Date  : 7/7/2015 10:22:48 AM                   Inj :   2
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP290\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 8:56:52 AM by Justin Guenzler
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                          External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:56:38 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.529 PB     4.42219e-1    3.93469    1.74000    Methane
  1.700           -             -          -       Ethane
  2.001           -             -          -       Propane
  2.905           -             -          -       Butane
  4.460           -             -          -       Pentane
  6.037           -             -          -       Hexane
  6.763 BB       67.45853 6.31561e-1   42.60415    Benzene

Totals :                                 44.34415

Uncalibrated Peaks    :      using compound Propane
```

mple Name: EdithP053 #B3 ENV(1=600,5=400)

```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :   9
Acq. Instrument : Edith                             Location : Vial 2
Injection Date  : 7/7/2015 10:39:01 AM                   Inj :   3
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP290\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 8:56:52 AM by Justin Guenzler
Additional Info : Peak(s) manually integrated
```



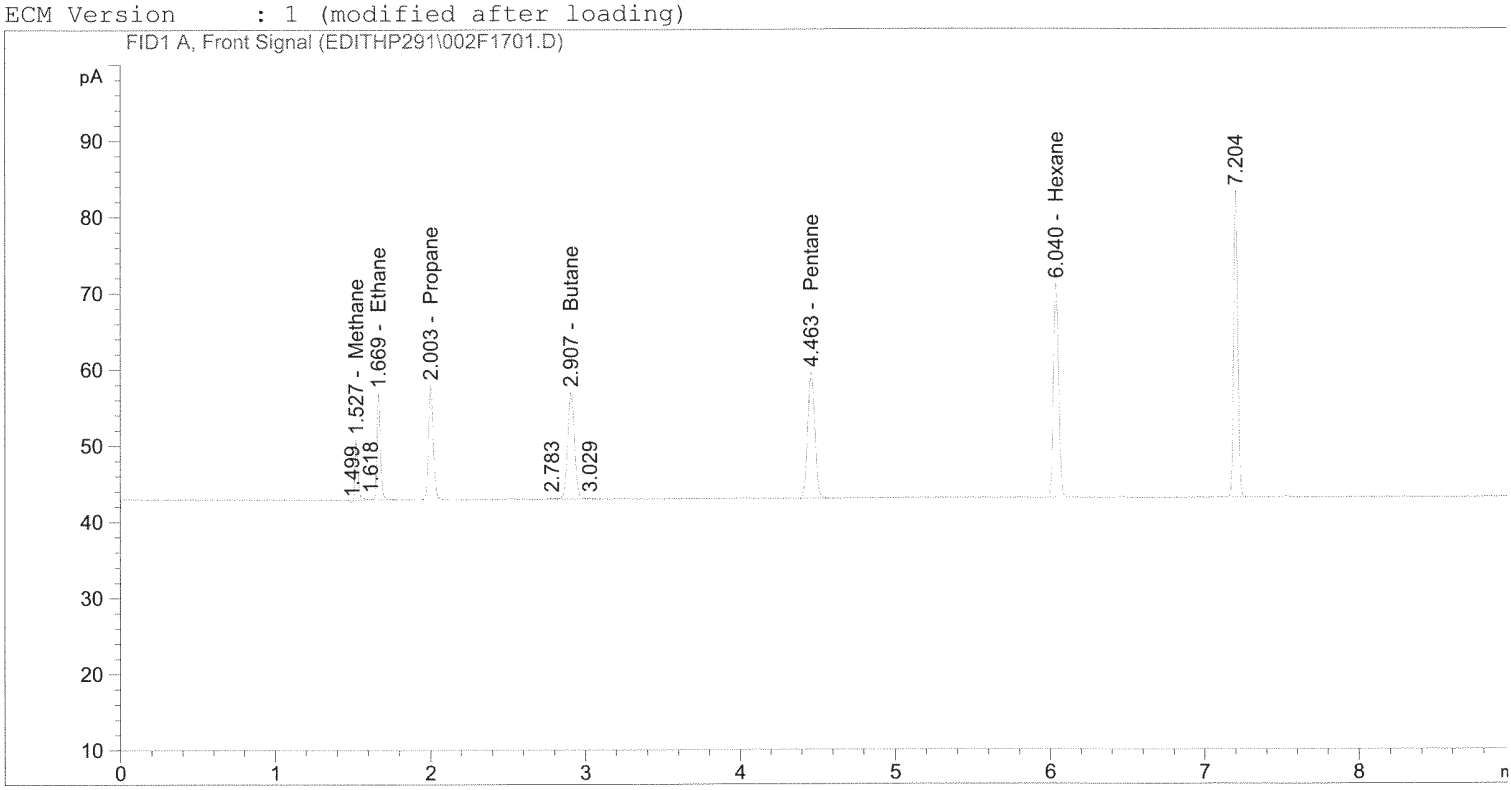

```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:56:38 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.548		-	-	-		Methane
1.700		-	-	-		Ethane
2.001		-	-	-		Propane
2.905		-	-	-		Butane
4.460		-	-	-		Pentane
6.037		-	-	-		Hexane
6.762	BB	67.41690	6.31560e-1	42.57783		Benzene

```
Totals :                                  42.57783

Uncalibrated Peaks    :      using compound Propane
```

mple Name: EdithP280 #C3 ENV(1=600,2=400)

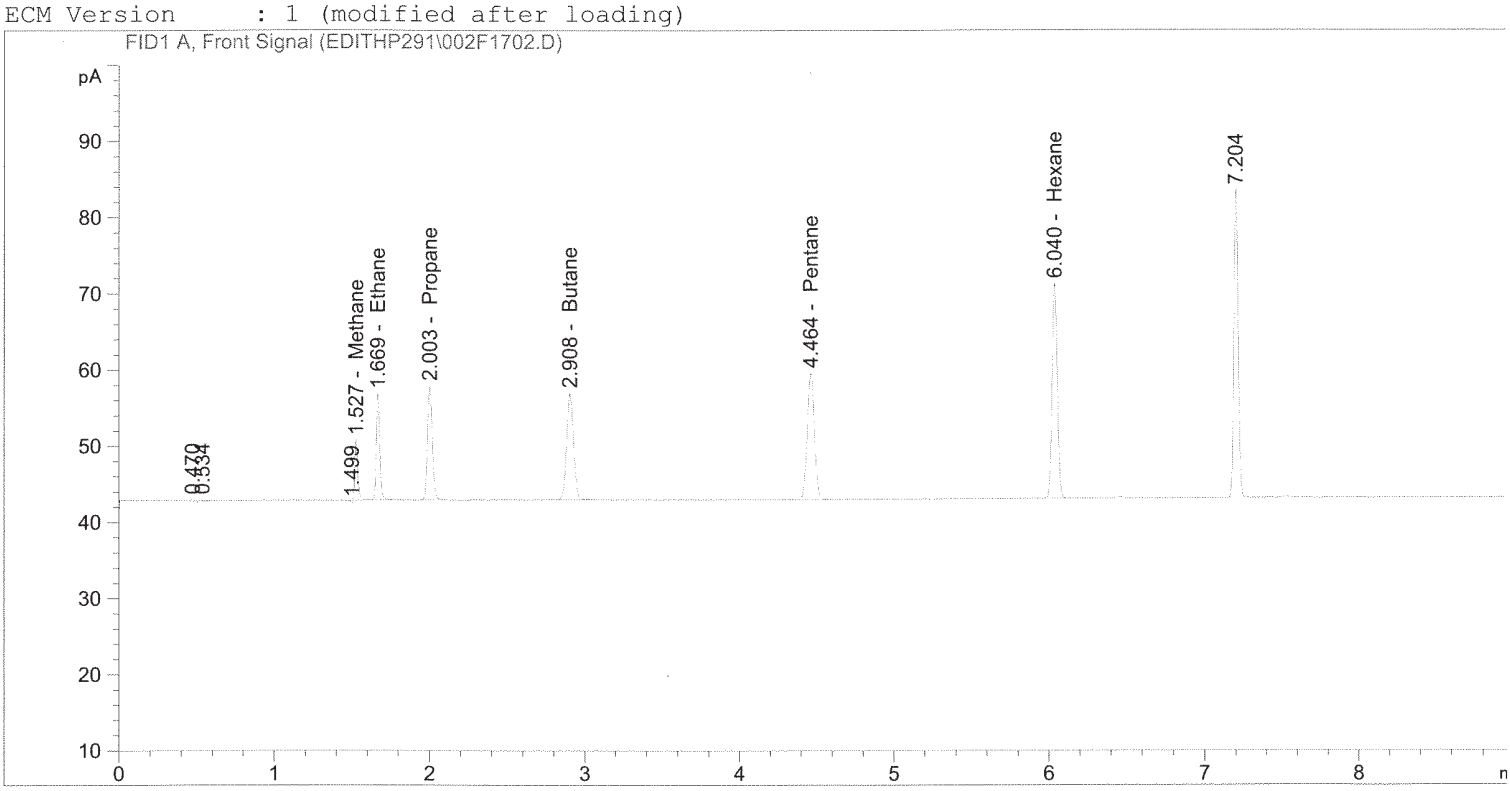
```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  17
Acq. Instrument : Edith                             Location : Vial 2
Injection Date  : 7/9/2015 2:46:40 AM                    Inj :   1
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 9:08:10 AM by Justin Guenzler
ECM Server      : http://ecm-server/enthalpy
ECM Operator    : Justin Guenzler
ECM Path        : GC\2015\Edith\Quarter 3\EDITHP291.SC.SSIzip
ECM Version     : 1 (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 9:08:10 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.527 PV       10.82283    3.69494   39.98969    Methane
  1.669 VB       21.92982    1.89037   41.45546    Ethane
  2.003 PB       32.74423    1.27357   41.70195    Propane
  2.907 VV       43.21511 9.60670e-1   41.51547    Butane
  4.463 BB       53.54078 7.77565e-1   41.63146    Pentane
  6.040 BB       64.90324 6.64382e-1   43.12057    Hexane
  6.763             -          -         -        Benzene

Totals :                                249.41462
```

ımple Name: EdithP280 #C3 ENV(1=600,2=400)

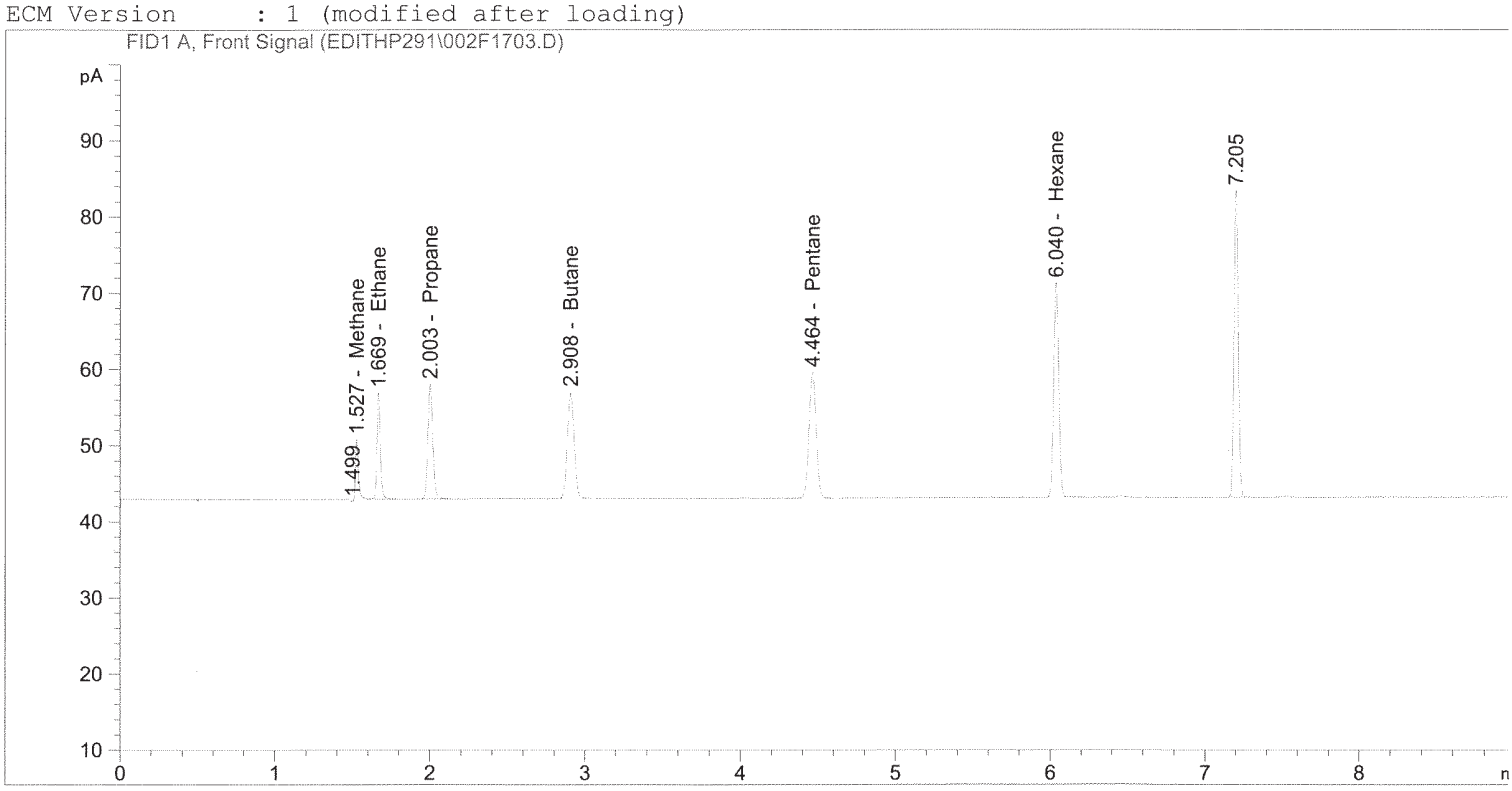
```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  17
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 7/9/2015 3:02:57 AM                    Inj :   2
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 9:08:10 AM by Justin Guenzler
ECM Server      : http://ecm-server/enthalpy
ECM Operator    : Justin Guenzler
ECM Path        : GC\2015\Edith\Quarter 3\EDITHP291.SC.SSIzip
ECM Version     : 1 (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 9:08:10 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.527 PV       10.98695    3.69446   40.59088    Methane
  1.669 VB       21.68633    1.89033   40.99441    Ethane
  2.003 PB       32.41837    1.27355   41.28656    Propane
  2.908 BB       43.09701 9.60665e-1   41.40180    Butane
  4.464 BB       53.53771 7.77565e-1   41.62906    Pentane
  6.040 VB       65.07630 6.64394e-1   43.23630    Hexane
  6.763            -          -         -         Benzene

Totals :                                249.13900
```

ımple Name: EdithP280 #C3 ENV(1=600,2=400)

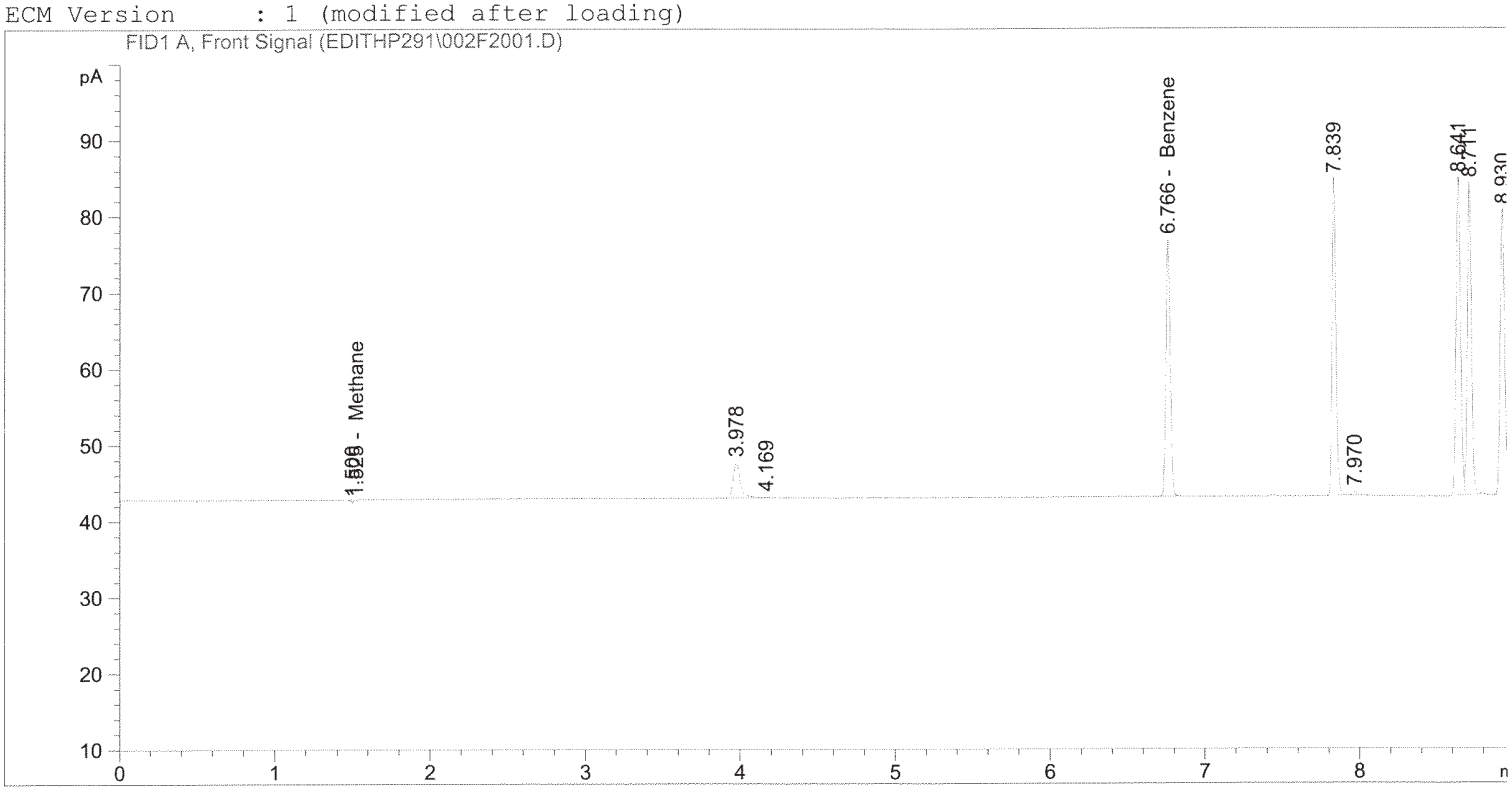
```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  17
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 7/9/2015 3:19:09 AM                    Inj :   3
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 9:08:10 AM by Justin Guenzler
ECM Server      : http://ecm-server/enthalpy
ECM Operator    : Justin Guenzler
ECM Path        : GC\2015\Edith\Quarter 3\EDITHP291.SC.SSIzip
ECM Version     : 1 (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 9:08:10 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.527 PB       10.88052    3.69477   40.20101    Methane
  1.669 BB       21.76710    1.89035   41.14735    Ethane
  2.003 PB       32.54996    1.27356   41.45430    Propane
  2.908 BB       43.00133 9.60661e-1   41.30969    Butane
  4.464 BB       53.55896 7.77568e-1   41.64573    Pentane
  6.040 BB       65.11338 6.64396e-1   43.26109    Hexane
  6.763             -          -         -         Benzene

Totals :                                249.01918
```

ımple Name: EdithP053 #B3 ENV(1=600,5=400)

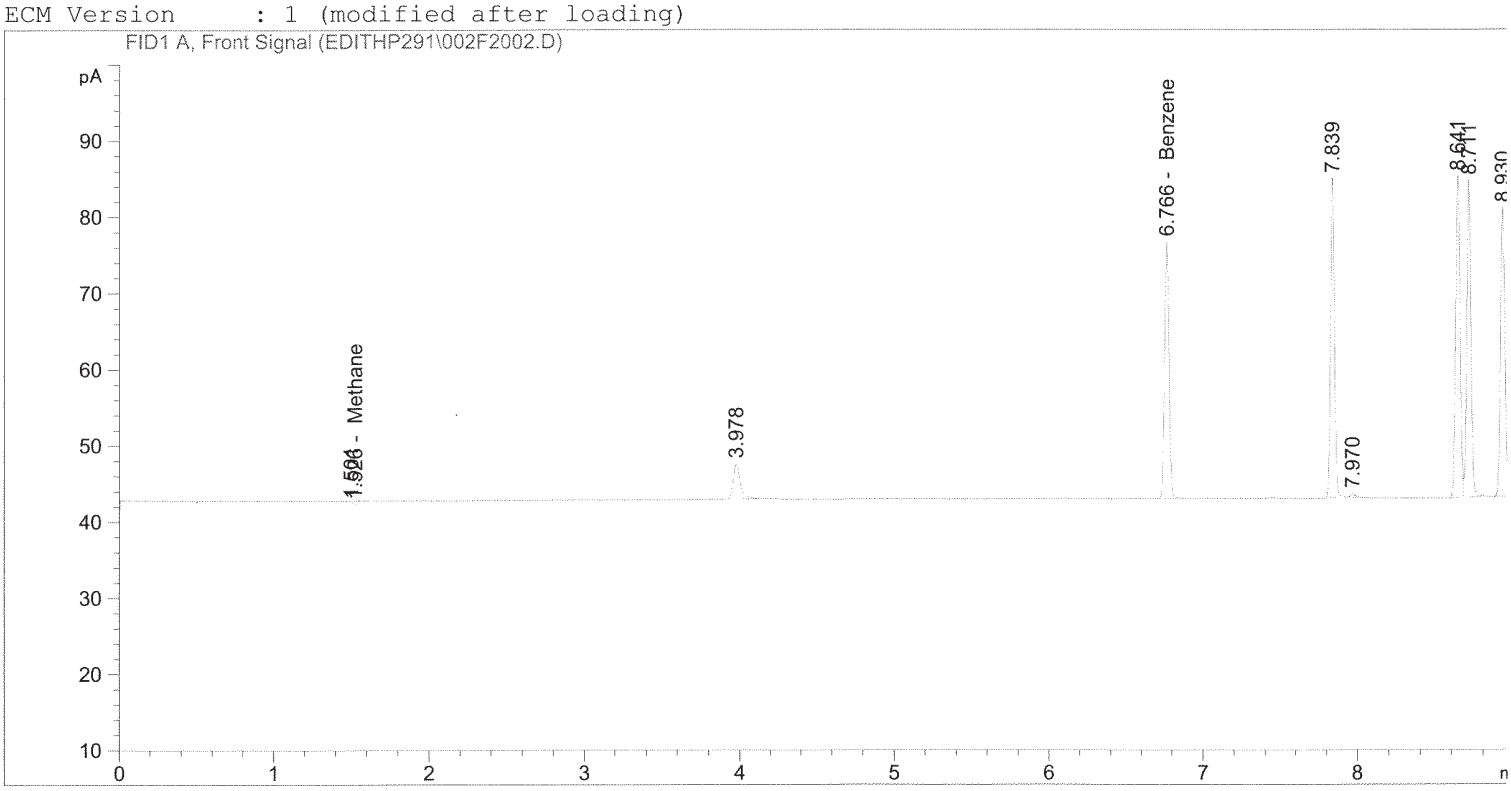
```
==========================================================================
Acq. Operator   : Daniel Clayton                  Seq. Line :  20
Acq. Instrument : Edith                           Location : Vial 2
Injection Date  : 7/9/2015 5:29:46 AM                  Inj :  1
                                                 Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 9:08:10 AM by Justin Guenzler
ECM Server      : http://ecm-server/enthalpy
ECM Operator    : Justin Guenzler
ECM Path        : GC\2015\Edith\Quarter 3\EDITHP291.SC.SSIzip
ECM Version     : 1 (modified after loading)
```




```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 9:08:10 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type      Area      Amt/Area    Amount    Grp   Name
 [min]           [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.525 VP N   3.78976e-1    3.93469    1.49115     Methane
  1.680            -           -          -         Ethane
  2.001            -           -          -         Propane
  2.905            -           -          -         Butane
  4.460            -           -          -         Pentane
  6.037            -           -          -         Hexane
  6.766 BB       66.36356 6.31547e-1   41.91169     Benzene

Totals :                                 43.40284
```

mple Name: EdithP053 #B3 ENV(1=600,5=400)

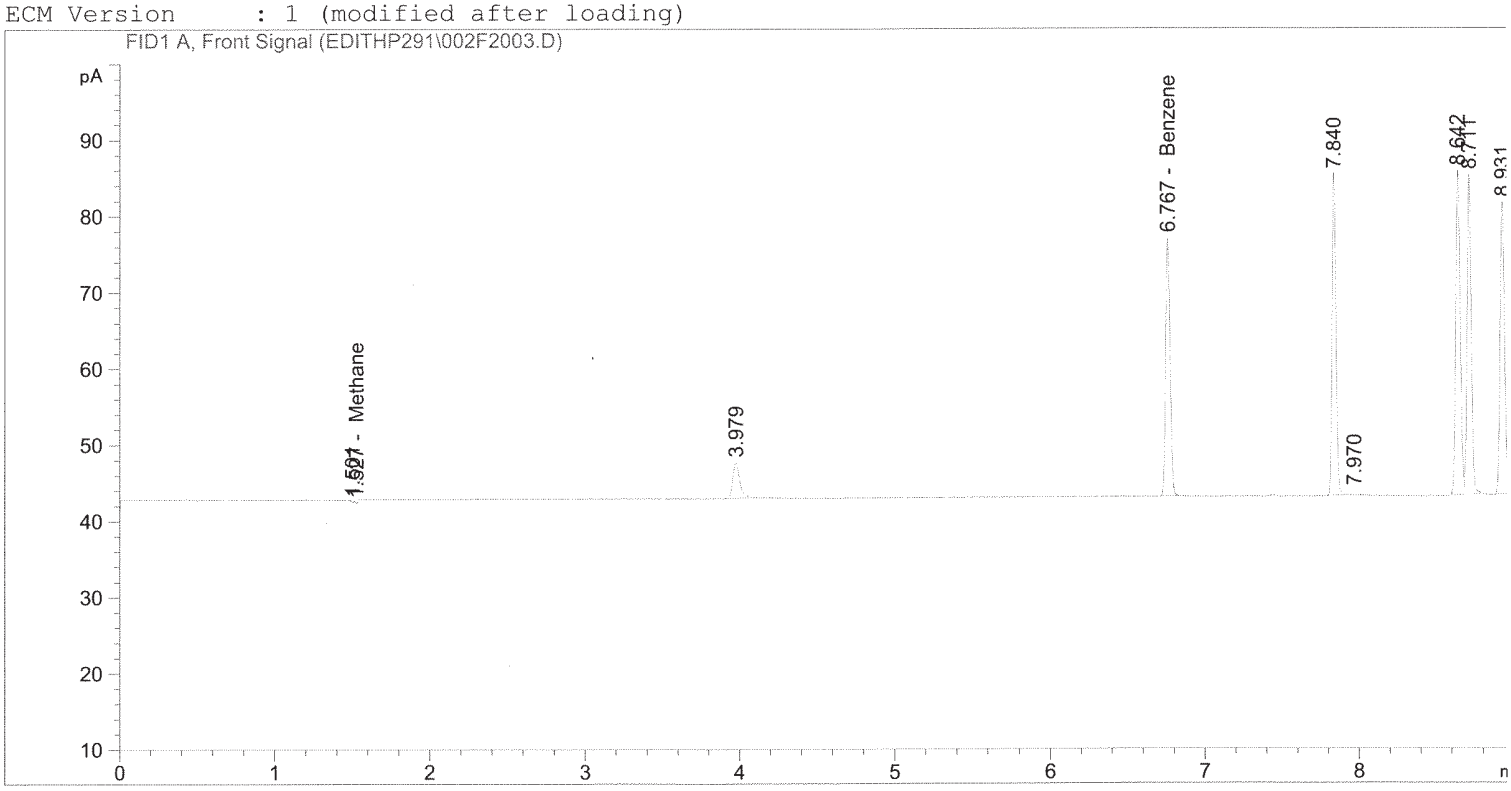
```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  20
Acq. Instrument : Edith                             Location : Vial 2
Injection Date  : 7/9/2015 5:46:03 AM                    Inj :   2
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 9:08:10 AM by Justin Guenzler
ECM Server      : http://ecm-server/enthalpy
ECM Operator    : Justin Guenzler
ECM Path        : GC\2015\Edith\Quarter 3\EDITHP291.SC.SSIzip
ECM Version     : 1 (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 9:08:10 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|-----------------
  1.526 VP N   6.24374e-1    3.93469    2.45672    Methane
  1.680            -           -          -        Ethane
  2.001            -           -          -        Propane
  2.905            -           -          -        Butane
  4.460            -           -          -        Pentane
  6.037            -           -          -        Hexane
  6.766 BB      66.56532 6.31549e-1   42.03928    Benzene

Totals :                                44.49600
```

mple Name: EdithP053 #B3 ENV(1=600,5=400)

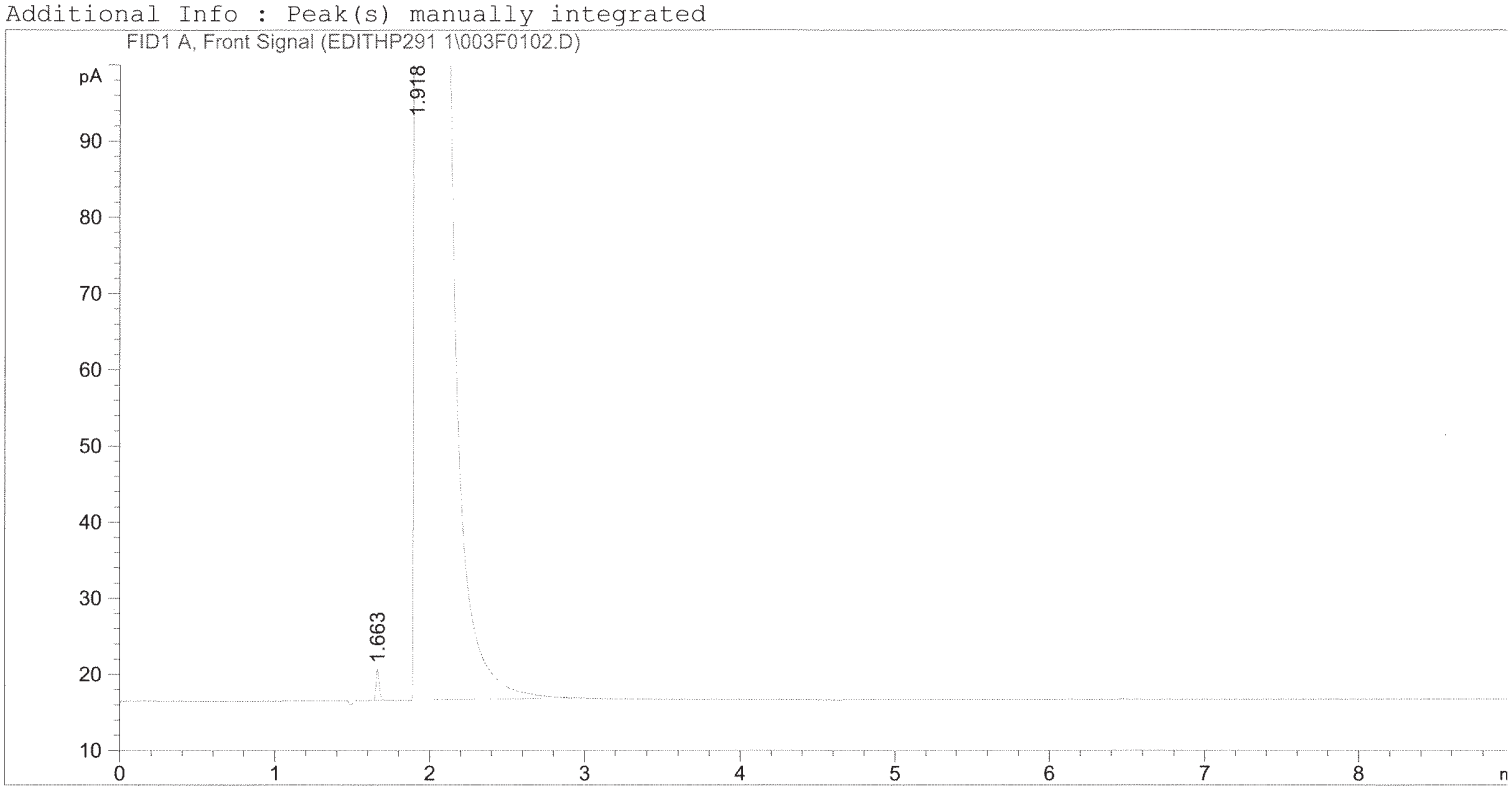
```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  20
Acq. Instrument : Edith                             Location : Vial 2
Injection Date  : 7/9/2015 6:02:22 AM                    Inj :   3
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 9:08:10 AM by Justin Guenzler
ECM Server      : http://ecm-server/enthalpy
ECM Operator    : Justin Guenzler
ECM Path        : GC\2015\Edith\Quarter 3\EDITHP291.SC.SSIzip
ECM Version     : 1 (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 9:08:10 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type      Area      Amt/Area    Amount    Grp   Name
 [min]           [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  1.527 VP N   5.97095e-1    3.93469    2.34939    Methane
  1.680            -           -          -        Ethane
  2.001            -           -          -        Propane
  2.905            -           -          -        Butane
  4.460            -           -          -        Pentane
  6.037            -           -          -        Hexane
  6.767 BB      66.88905 6.31554e-1   42.24401    Benzene

Totals :                                 44.59340
```

ımple Name: 0615-125.Large - L3 - R1 - 1368.Can

```
================================================================================
Acq. Operator   : Daniel Clayton                  Seq. Line :   1
Acq. Instrument : Edith                            Location : Vial 3
Injection Date  : 7/9/2015 10:12:48 AM                  Inj :   2
                                                 Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291 1\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 9:27:01 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 9:08:10 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|-----------------
  1.548            -          -          -          Methane
  1.689            -          -          -          Ethane
  2.001            -          -          -          Propane
  2.905            -          -          -          Butane
  4.460            -          -          -          Pentane
  6.037            -          -          -          Hexane
  6.763            -          -          -          Benzene

Totals :                                  0.00000

Uncalibrated Peaks    :      using compound Propane
```

mple Name: 0615-125.Large - L3 - R1 - 1368.Can

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.663	PB	5.97192	1.26822	7.57371	?	
1.918	BB	2.04952e5	1.27476	2.61264e5	?	

Uncalib. totals : 2.61272e5

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========
Summed Peaks Report
==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Ethane	1.550	1.855	5.97192	11.2773
as Propane	1.855	2.479	2.04952e5	2.609e5

Totals : 2.6092e5

Report From Diluted Analysis (JKG)

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========
Final Summed Peaks Report
==========

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Ethane	5.97192	11.2773
as Propane	2.04952e5	2.609e5
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Benzene	0.00000	0.0000

Totals : 2.6092e5

==========
Area Percent Report
==========

Sorted By : Signal
Calib. Data Modified : 7/10/2015 9:08:10 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.548		0.0000	0.00000	0.00000	Methane
2	1.689		0.0000	0.00000	0.00000	Ethane
3	2.001		0.0000	0.00000	0.00000	Propane
4	2.905		0.0000	0.00000	0.00000	Butane
5	4.460		0.0000	0.00000	0.00000	Pentane
6	6.037		0.0000	0.00000	0.00000	Hexane
7	6.763		0.0000	0.00000	0.00000	Benzene
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.663	PB	0.0228	5.97192	0.00291	?
2	1.918	BB	0.0429	2.04952e5	99.99709	?
Uncalib. totals :				2.04958e5	100.0000	

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Area %
as Ethane	1.550	1.855	5.97192	2.914e-3
as Propane	1.855	2.479	2.04952e5	99.9971
Totals :				100.0000

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Area %
as Ethane	5.97192	2.914e-3
as Propane	2.04952e5	99.9971
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

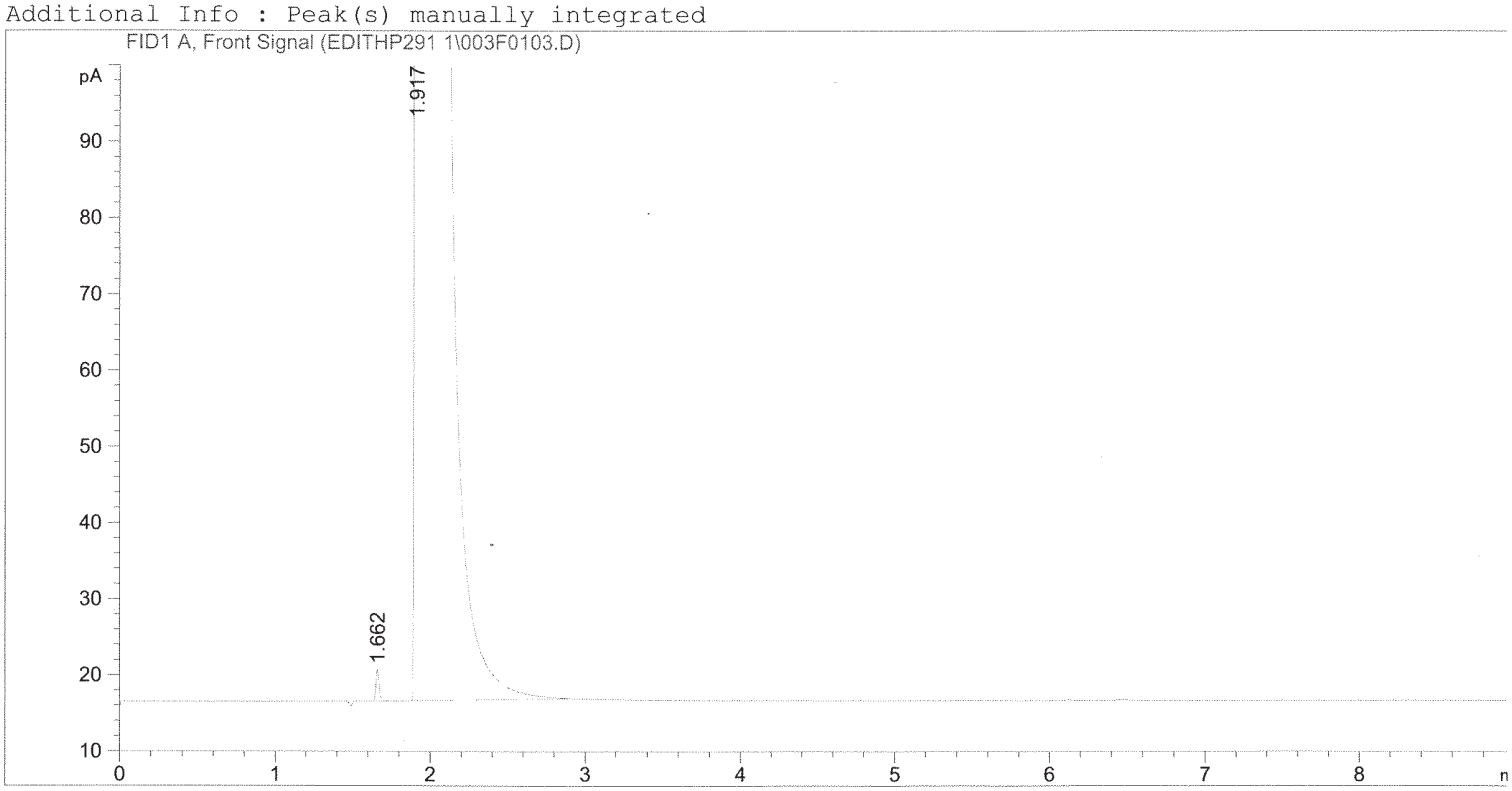
mple Name: 0615-125.Large - L3 - R1 - 1368.Can

Name	Total Area [pA*s]	Area %
Benzene	0.00000	0.0000
Totals :		100.0000

*** End of Report ***

ımple Name: 0615-125.Large - L3 - R1 - 1368.Can

```
==========================================================================
Acq. Operator   : Daniel Clayton                  Seq. Line :   1
Acq. Instrument : Edith                            Location : Vial 3
Injection Date  : 7/9/2015 10:27:51 AM                  Inj :   3
                                                 Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291 1\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 9:27:01 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 9:27:08 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type      Area      Amt/Area    Amount    Grp   Name
 [min]           [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  1.548            -           -          -          Methane
  1.689            -           -          -          Ethane
  2.001            -           -          -          Propane
  2.905            -           -          -          Butane
  4.460            -           -          -          Pentane
  6.037            -           -          -          Hexane
  6.763            -           -          -          Benzene

Totals :                                  0.00000

Uncalibrated Peaks    :      using compound Propane
```

mple Name: 0615-125.Large - L3 - R1 - 1368.Can

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.662	PB	6.13457	1.26839	7.78105	?	
1.917	BB	2.05191e5	1.27476	2.61569e5	?	

Uncalib. totals : 2.61577e5

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Ethane	1.550	1.855	6.13457	11.5844
as Propane	1.855	2.479	2.05191e5	2.612e5

Totals : 2.6122e5

Report From Diluted Analysis (JKG)

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Ethane	6.13457	11.5844
as Propane	2.05191e5	2.612e5
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Benzene	0.00000	0.0000

Totals : 2.6122e5

Area Percent Report

Sorted By : Signal
Calib. Data Modified : 7/10/2015 9:27:08 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.548		0.0000	0.00000	0.00000	Methane
2	1.689		0.0000	0.00000	0.00000	Ethane
3	2.001		0.0000	0.00000	0.00000	Propane
4	2.905		0.0000	0.00000	0.00000	Butane
5	4.460		0.0000	0.00000	0.00000	Pentane
6	6.037		0.0000	0.00000	0.00000	Hexane
7	6.763		0.0000	0.00000	0.00000	Benzene
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.662	PB	0.0222	6.13457	0.00299	?
2	1.917	BB	0.0426	2.05191e5	99.99701	?
Uncalib. totals :				2.05197e5	100.0000	

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Area %
as Ethane	1.550	1.855	6.13457	2.990e-3
as Propane	1.855	2.479	2.05191e5	99.9970
Totals :				100.0000

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Area %
as Ethane	6.13457	2.990e-3
as Propane	2.05191e5	99.9970
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

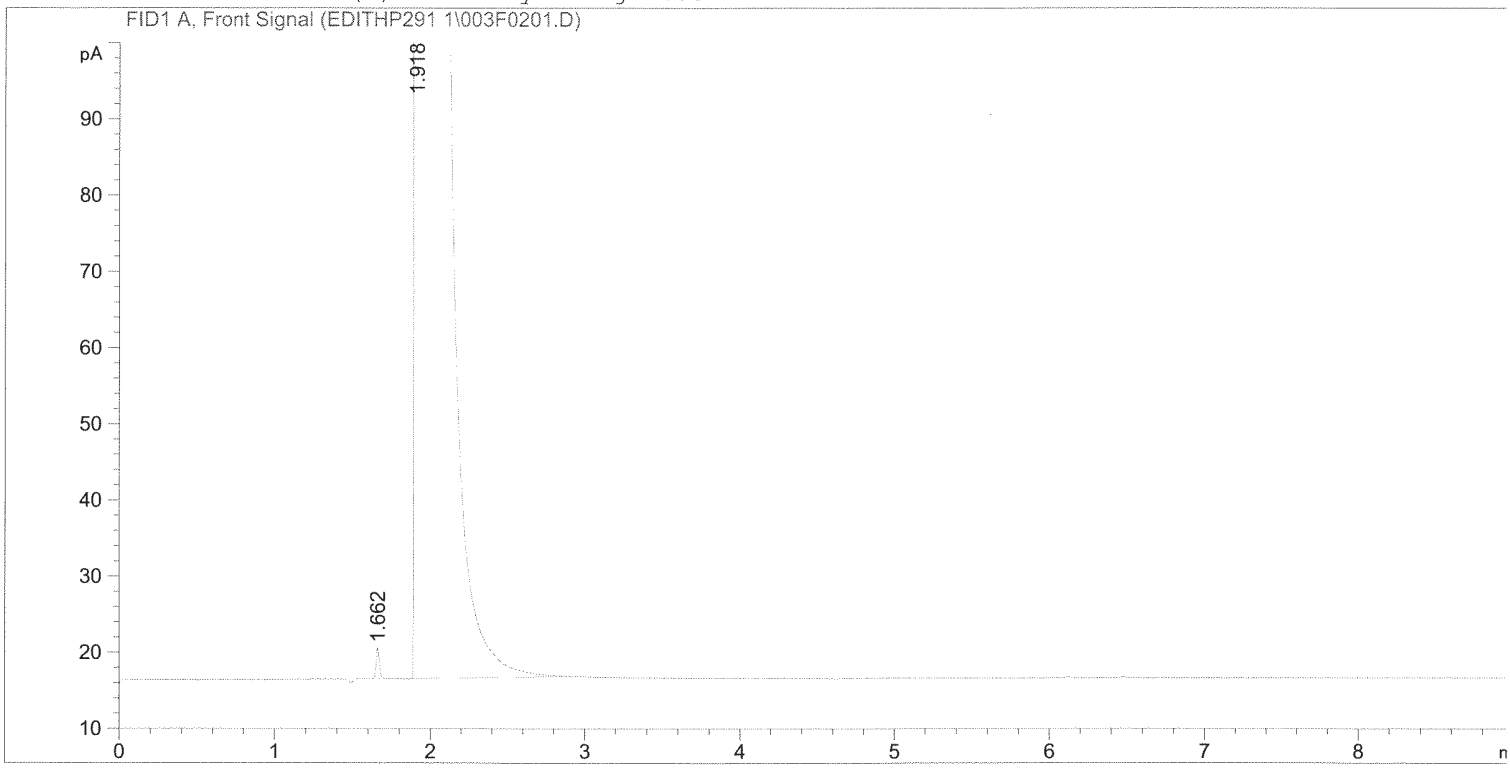
mple Name: 0615-125.Large - L3 - R1 - 1368.Can

Name	Total Area [pA*s]	Area %
Benzene	0.00000	0.0000
Totals :		100.0000

*** End of Report ***

ımple Name: 0615-125.Large - L3 - R1 - 1368.Can

```
==========================================================================
Acq. Operator   : Daniel Clayton                  Seq. Line :   2
Acq. Instrument : Edith                            Location : Vial 3
Injection Date  : 7/9/2015 10:42:15 AM                  Inj :   1
                                                 Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291 1\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 9:27:01 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 9:27:08 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.548            -          -          -          Methane
  1.689            -          -          -          Ethane
  2.001            -          -          -          Propane
  2.905            -          -          -          Butane
  4.460            -          -          -          Pentane
  6.037            -          -          -          Hexane
  6.763            -          -          -          Benzene

Totals :                                 0.00000

Uncalibrated Peaks    :      using compound Propane
```

mple Name: 0615-125.Large - L3 - R1 - 1368.Can

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.662	VB	5.80400	1.26803	7.35965	?	
1.918	BB	1.98799e5	1.27476	2.53421e5	?	

Uncalib. totals : 2.53428e5

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Ethane	1.550	1.855	5.80400	10.9602
~~as Propane~~	~~1.855~~	~~2.479~~	~~1.98799e5~~	~~2.531e5~~

Totals : 2.5308e5

Report From Diluted Analysis (JKG)

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Ethane	5.80400	10.9602
as Propane	1.98799e5	2.531e5
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Benzene	0.00000	0.0000

Totals : 2.5308e5

Area Percent Report

Sorted By : Signal
Calib. Data Modified : 7/10/2015 9:27:08 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.548		0.0000	0.00000	0.00000	Methane
2	1.689		0.0000	0.00000	0.00000	Ethane
3	2.001		0.0000	0.00000	0.00000	Propane
4	2.905		0.0000	0.00000	0.00000	Butane
5	4.460		0.0000	0.00000	0.00000	Pentane
6	6.037		0.0000	0.00000	0.00000	Hexane
7	6.763		0.0000	0.00000	0.00000	Benzene
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.662	VB	0.0239	5.80400	0.00292	?
2	1.918	BB	0.0426	1.98799e5	99.99708	?
Uncalib. totals :				1.98805e5	100.0000	

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Area %
as Ethane	1.550	1.855	5.80400	2.919e-3
as Propane	1.855	2.479	1.98799e5	99.9971
Totals :				100.0000

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Area %
as Ethane	5.80400	2.919e-3
as Propane	1.98799e5	99.9971
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

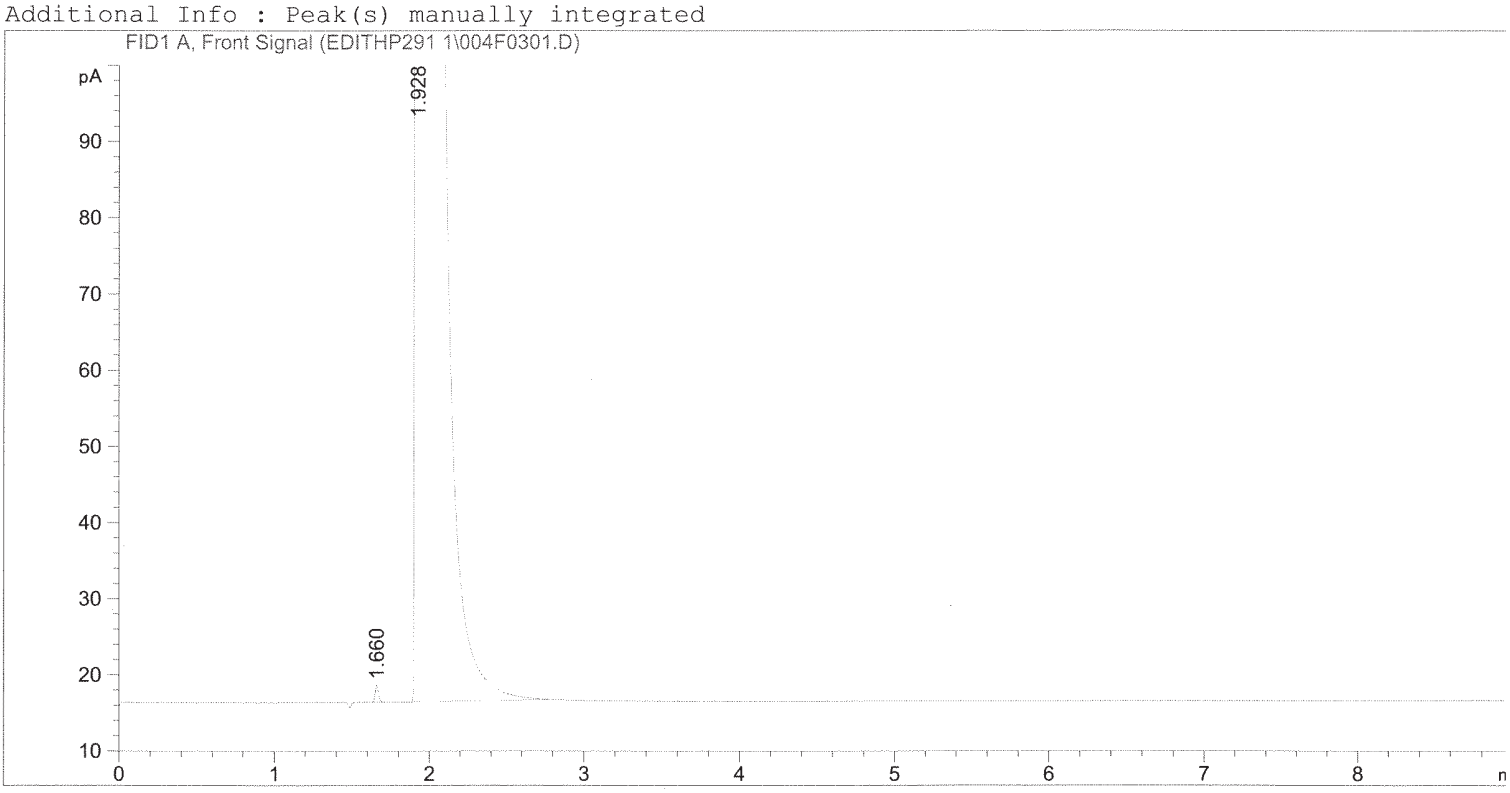
mple Name: 0615-125.Large - L3 - R1 - 1368.Can

Name	Total Area [pA*s]	Area %
Benzene	0.00000	0.0000
Totals :		100.0000

*** End of Report ***

ample Name: 0615-125.Large - L4 - R1 - 1630.Can

```
==========================================================================
Acq. Operator   : Daniel Clayton                 Seq. Line :   3
Acq. Instrument : Edith                          Location : Vial 4
Injection Date  : 7/9/2015 10:56:40 AM                Inj :   1
                                               Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291 1\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 9:27:01 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 9:27:08 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|-----------------
  1.548           -          -          -          Methane
  1.689           -          -          -          Ethane
  2.001           -          -          -          Propane
  2.905           -          -          -          Butane
  4.460           -          -          -          Pentane
  6.037           -          -          -          Hexane
  6.763           -          -          -          Benzene

Totals :                                0.00000

Uncalibrated Peaks    :      using compound Propane
```

mple Name: 0615-125.Large - L4 - R1 - 1630.Can

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.660	PB	3.32771	1.26492	4.20928	?	
1.928	BB	1.24089e5	1.27476	1.58183e5	?	

Uncalib. totals : 1.58187e5

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Ethane	1.550	1.855	3.32771	6.2840
as Propane	1.855	2.479	1.24089e5	1.580e5

Totals : 1.5797e5

Report From Diluted Analysis (JKG)

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Ethane	3.32771	6.2840
as Propane	1.24089e5	1.580e5
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Benzene	0.00000	0.0000

Totals : 1.5797e5

Area Percent Report

Sorted By : Signal
Calib. Data Modified : 7/10/2015 9:27:08 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.548		0.0000	0.00000	0.00000	Methane
2	1.689		0.0000	0.00000	0.00000	Ethane
3	2.001		0.0000	0.00000	0.00000	Propane
4	2.905		0.0000	0.00000	0.00000	Butane
5	4.460		0.0000	0.00000	0.00000	Pentane
6	6.037		0.0000	0.00000	0.00000	Hexane
7	6.763		0.0000	0.00000	0.00000	Benzene
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.660	PB	0.0233	3.32771	0.00268	?
2	1.928	BB	0.0380	1.24089e5	99.99732	?
Uncalib. totals :				1.24092e5	100.0000	

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Area %
as Ethane	1.550	1.855	3.32771	2.682e-3
as Propane	1.855	2.479	1.24089e5	99.9973
Totals :				100.0000

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Area %
as Ethane	3.32771	2.682e-3
as Propane	1.24089e5	99.9973
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

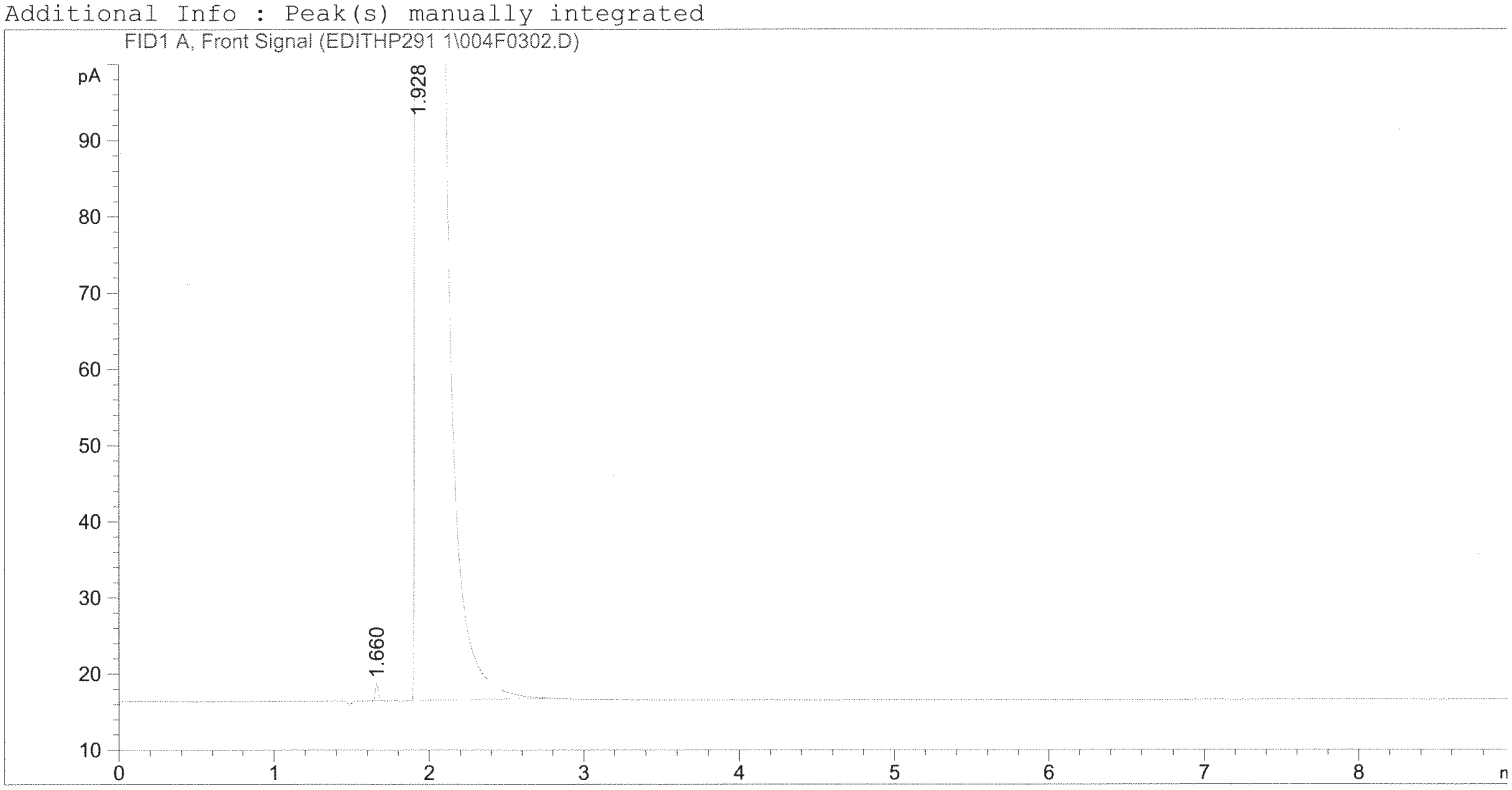
mple Name: 0615-125.Large - L4 - R1 - 1630.Can

Name	Total Area [pA*s]	Area %
Benzene	0.00000	0.0000
Totals :		100.0000

*** End of Report ***

mple Name: 0615-125.Large - L4 - R1 - 1630.Can

```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :   3
Acq. Instrument : Edith                              Location : Vial 4
Injection Date  : 7/9/2015 11:11:07 AM                    Inj :   2
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291 1\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 9:27:01 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 9:27:08 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  1.548            -          -          -          Methane
  1.689            -          -          -          Ethane
  2.001            -          -          -          Propane
  2.905            -          -          -          Butane
  4.460            -          -          -          Pentane
  6.037            -          -          -          Hexane
  6.763            -          -          -          Benzene

Totals :                                  0.00000

Uncalibrated Peaks    :      using compound Propane
```

mple Name: 0615-125.Large - L4 - R1 - 1630.Can

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.660	PB	3.32756	1.26492	4.20909	?	
1.928	BB	1.24093e5	1.27476	1.58188e5	?	

Uncalib. totals : 1.58193e5

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Ethane	1.550	1.855	3.32756	6.2837
as Propane	1.855	2.479	1.24093e5	1.580e5

Totals : 1.5798e5

Report From Diluted Analysis (JKG)

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Ethane	3.32756	6.2837
as Propane	1.24093e5	1.580e5
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Benzene	0.00000	0.0000

Totals : 1.5798e5

==========

Area Percent Report

==========

Sorted By : Signal
Calib. Data Modified : 7/10/2015 9:27:08 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.548		0.0000	0.00000	0.00000	Methane
2	1.689		0.0000	0.00000	0.00000	Ethane
3	2.001		0.0000	0.00000	0.00000	Propane
4	2.905		0.0000	0.00000	0.00000	Butane
5	4.460		0.0000	0.00000	0.00000	Pentane
6	6.037		0.0000	0.00000	0.00000	Hexane
7	6.763		0.0000	0.00000	0.00000	Benzene
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.660	PB	0.0233	3.32756	0.00268	?
2	1.928	BB	0.0380	1.24093e5	99.99732	?
Uncalib. totals :				1.24096e5	100.0000	

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Area %
as Ethane	1.550	1.855	3.32756	2.681e-3
as Propane	1.855	2.479	1.24093e5	99.9973
Totals :				100.0000

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Area %
as Ethane	3.32756	2.681e-3
as Propane	1.24093e5	99.9973
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

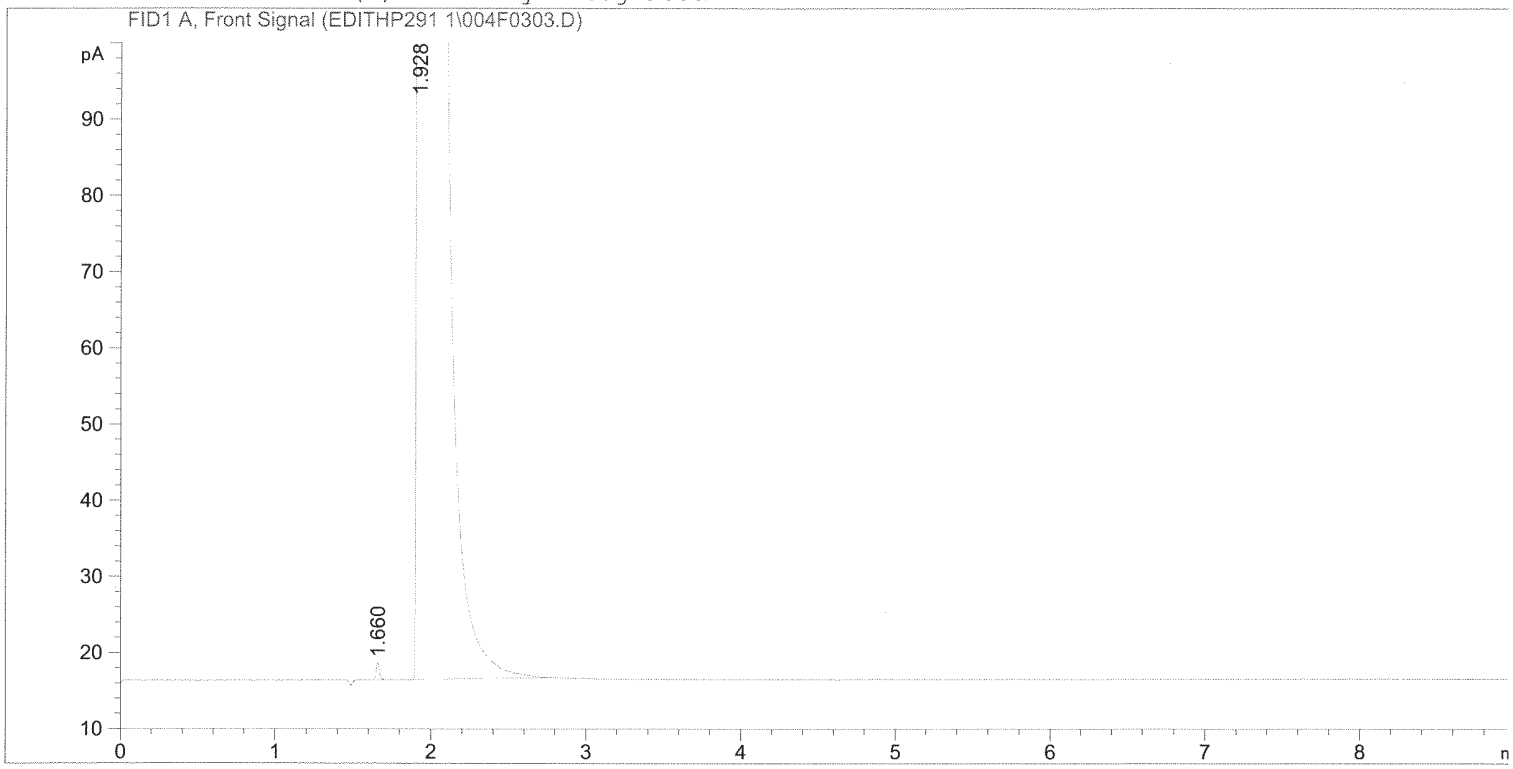
ımple Name: 0615-125.Large - L4 - R1 - 1630.Can

Name	Total Area [pA*s]	Area %
Benzene	0.00000	0.0000
Totals :		100.0000

*** End of Report ***

ample Name: 0615-125.Large - L4 - R1 - 1630.Can

```
================================================================================
Acq. Operator   : Daniel Clayton                  Seq. Line :   3
Acq. Instrument : Edith                            Location : Vial 4
Injection Date  : 7/9/2015 11:25:39 AM                  Inj :   3
                                                 Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291 1\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 9:27:01 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 9:27:08 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type      Area      Amt/Area    Amount    Grp   Name
 [min]           [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.548            -           -          -          Methane
  1.689            -           -          -          Ethane
  2.001            -           -          -          Propane
  2.905            -           -          -          Butane
  4.460            -           -          -          Pentane
  6.037            -           -          -          Hexane
  6.763            -           -          -          Benzene

Totals :                                  0.00000

Uncalibrated Peaks    :      using compound Propane
```

ımple Name: 0615-125.Large - L4 - R1 - 1630.Can

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.660	PB	3.30967	1.26492	4.18647	?	
1.928	BB	1.23935e5	1.27476	1.57988e5	?	

Uncalib. totals : 1.57992e5

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Ethane	1.550	1.855	3.30967	6.2499
as Propane	1.855	2.479	1.23935e5	1.578e5

Totals : 1.5778e5

Report From Diluted Analysis (JKG)

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Ethane	3.30967	6.2499
as Propane	1.23935e5	1.578e5
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Benzene	0.00000	0.0000

Totals : 1.5778e5

Area Percent Report

Sorted By : Signal
Calib. Data Modified : 7/10/2015 9:27:08 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.548		0.0000	0.00000	0.00000	Methane
2	1.689		0.0000	0.00000	0.00000	Ethane
3	2.001		0.0000	0.00000	0.00000	Propane
4	2.905		0.0000	0.00000	0.00000	Butane
5	4.460		0.0000	0.00000	0.00000	Pentane
6	6.037		0.0000	0.00000	0.00000	Hexane
7	6.763		0.0000	0.00000	0.00000	Benzene
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.660	PB	0.0234	3.30967	0.00267	?
2	1.928	BB	0.0380	1.23935e5	99.99733	?
Uncalib. totals :				1.23939e5	100.0000	

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Area %
as Ethane	1.550	1.855	3.30967	2.670e-3
as Propane	1.855	2.479	1.23935e5	99.9973
Totals :				100.0000

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Area %
as Ethane	3.30967	2.670e-3
as Propane	1.23935e5	99.9973
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

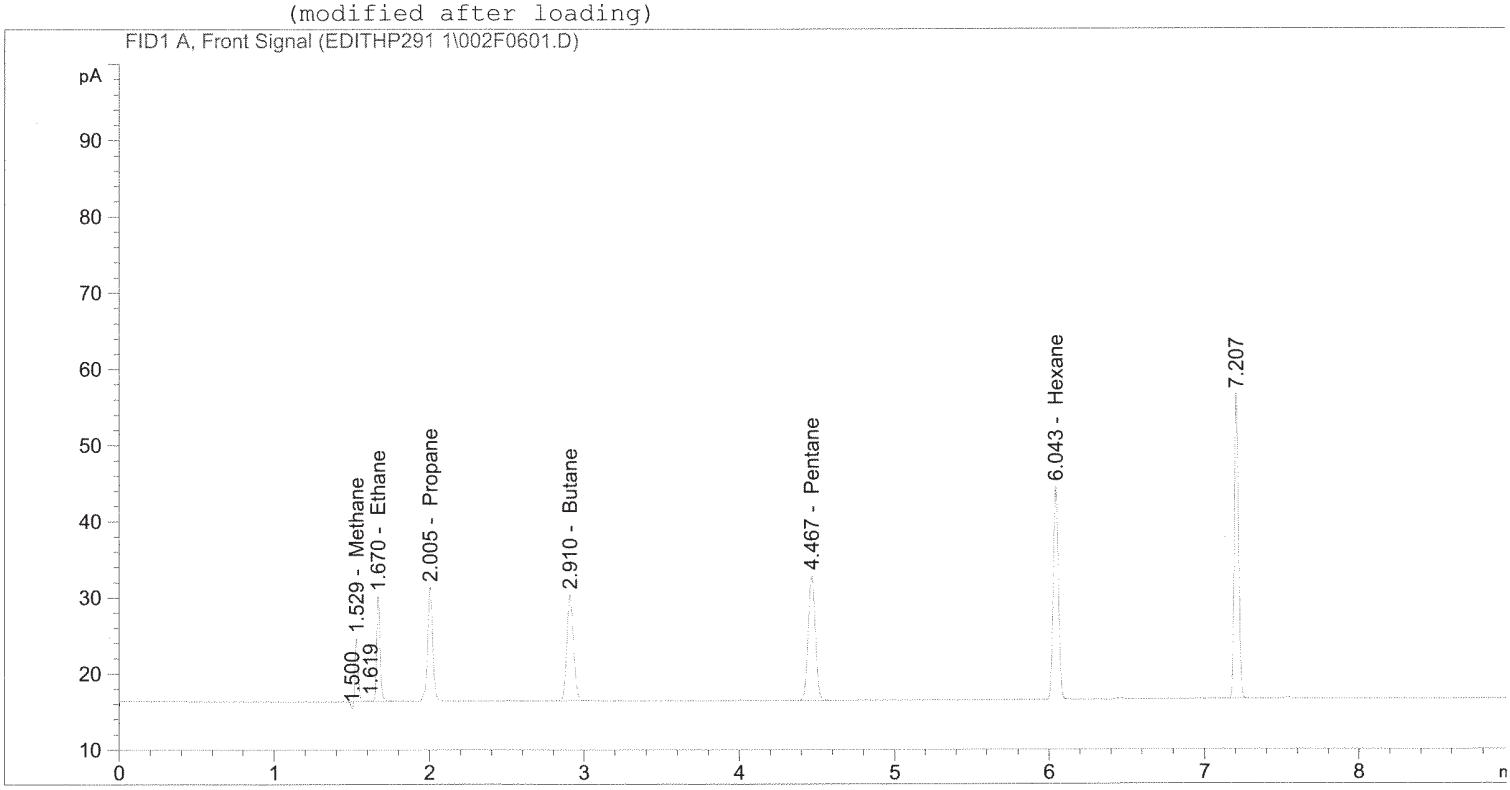
mple Name: 0615-125.Large - L4 - R1 - 1630.Can

Name	Total Area [pA*s]	Area %
Benzene	0.00000	0.0000
Totals :		100.0000

*** End of Report ***

mple Name: EdithP280 #C3 ENV(1=600,2=400)

```
Acq. Operator   : Daniel Clayton                  Seq. Line :   6
Acq. Instrument : Edith                           Location : Vial 2
Injection Date  : 7/9/2015 12:43:37 PM                 Inj :   1
                                                 Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291 1\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 9:27:01 AM by Justin Guenzler
                  (modified after loading)
```



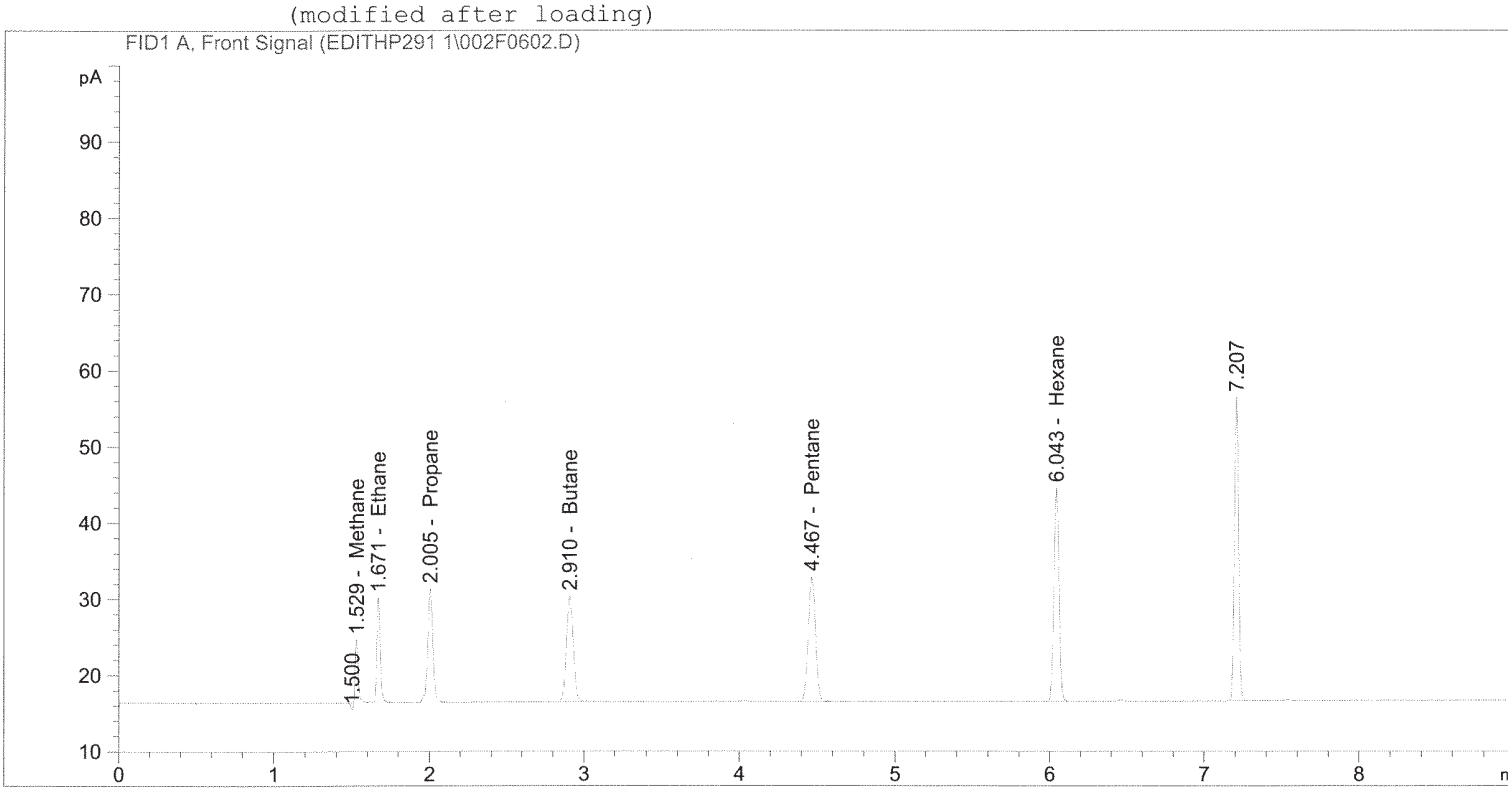

```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 9:27:08 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.529	PV	11.08727	3.69418	40.95834		Methane
1.670	VB	21.50008	1.89031	40.64174		Ethane
2.005	PB	34.04385	1.27361	43.35866		Propane
2.910	VB	42.53059	9.60640e-1	40.85658		Butane
4.467	BB	53.13236	7.77510e-1	41.31097		Pentane
6.043	BB	64.68221	6.64368e-1	42.97276		Hexane
6.763		-	-	-		Benzene

```
Totals :                                250.09905

Uncalibrated Peaks    :      using compound Propane
```

ımple Name: EdithP280 #C3 ENV(1=600,2=400)

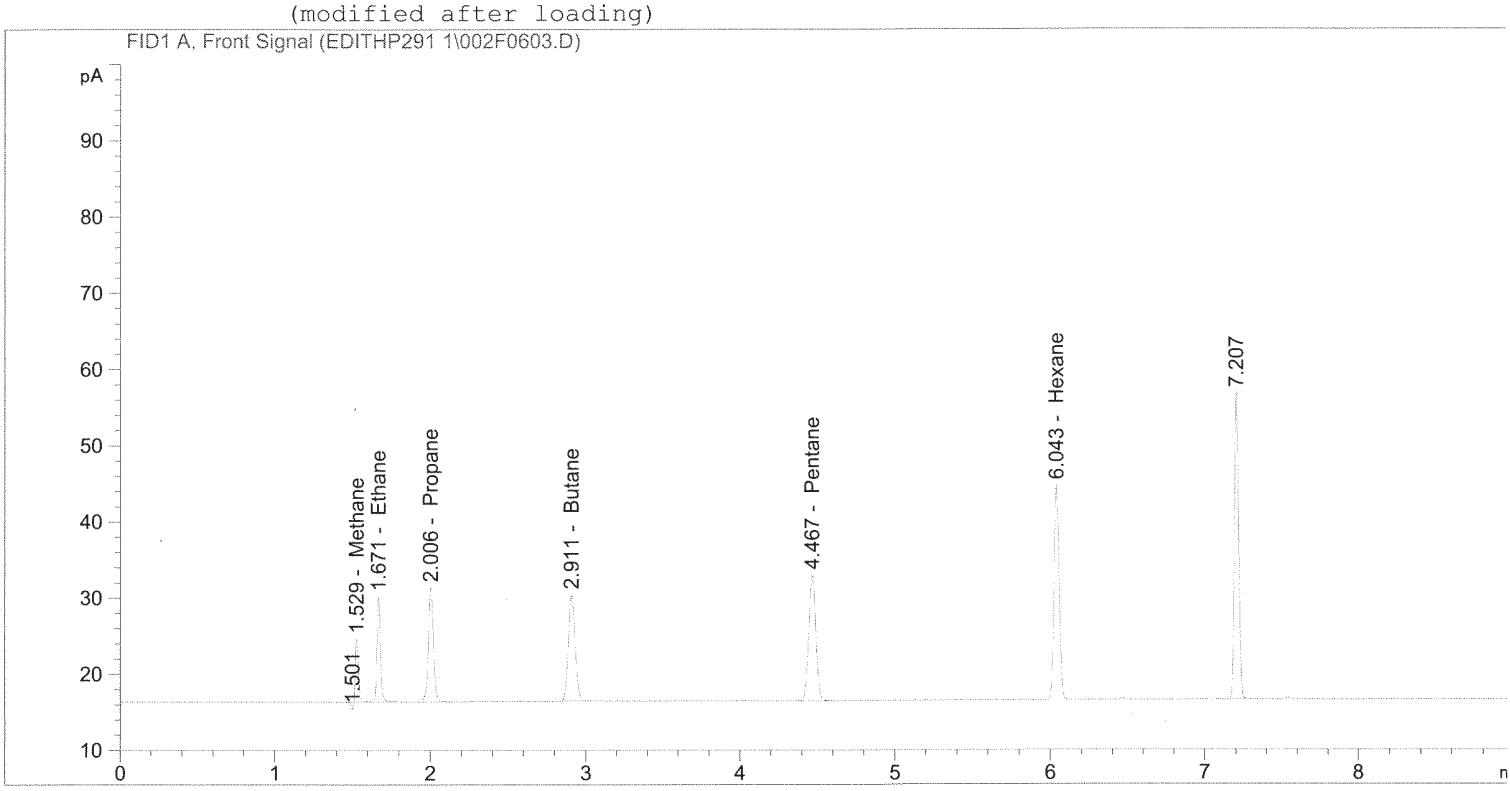
```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :   6
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 7/9/2015 1:02:50 PM                    Inj :   2
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291 1\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 9:27:01 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 9:27:08 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.529 PV       11.06531    3.69424   40.87790    Methane
  1.671 VB       21.46051    1.89030   40.56681    Ethane
  2.005 BB       33.77713    1.27360   43.01865    Propane
  2.910 BB       42.54459 9.60641e-1   40.87006    Butane
  4.467 BV       53.34330 7.77539e-1   41.47650    Pentane
  6.043 BB       64.64948 6.64365e-1   42.95088    Hexane
  6.763             -          -         -        Benzene

Totals :                                249.76079

Uncalibrated Peaks    :      using compound Propane
```

mple Name: EdithP280 #C3 ENV(1=600,2=400)

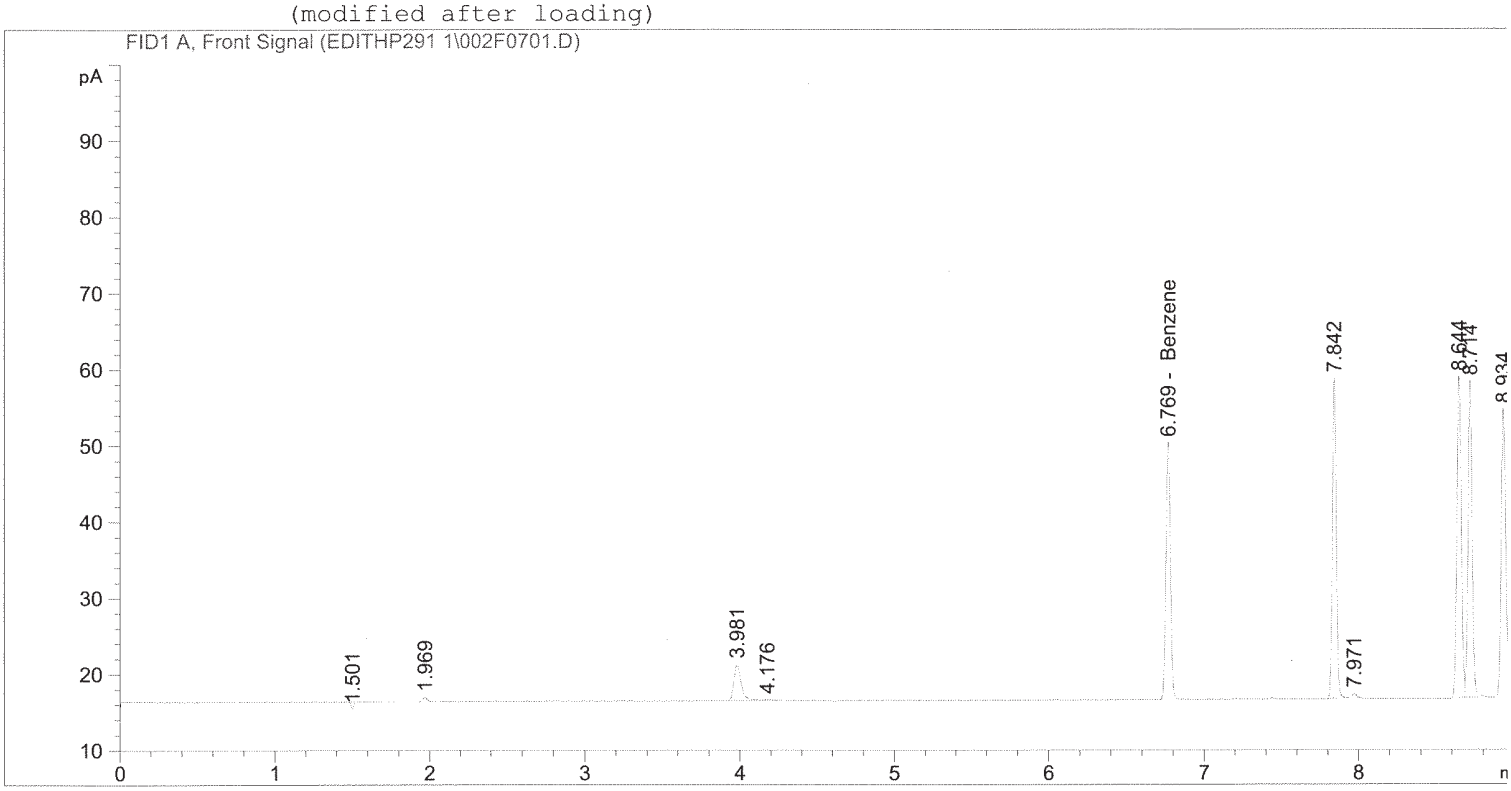
```
==========================================================================
Acq. Operator   : Daniel Clayton                  Seq. Line :   6
Acq. Instrument : Edith                           Location : Vial 2
Injection Date  : 7/9/2015 1:19:07 PM                  Inj :   3
                                                 Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291 1\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 9:27:01 AM by Justin Guenzler
                  (modified after loading)
```




```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 9:27:08 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|---------|----------|----------|--|------------------
  1.529 PV       11.18668    3.69390   41.32249    Methane
  1.671 VB       21.49427    1.89031   40.63074    Ethane
  2.006 BB       33.71619    1.27360   42.94097    Propane
  2.911 BV       43.05608 9.60663e-1   41.36239    Butane
  4.467 BB       53.51999 7.77563e-1   41.61514    Pentane
  6.043 BB       64.91711 6.64383e-1   43.12984    Hexane
  6.763             -          -         -        Benzene

Totals :                                251.00158

Uncalibrated Peaks    :      using compound Propane
```

mple Name: EdithP053 #B3 ENV(1=600,5=400)

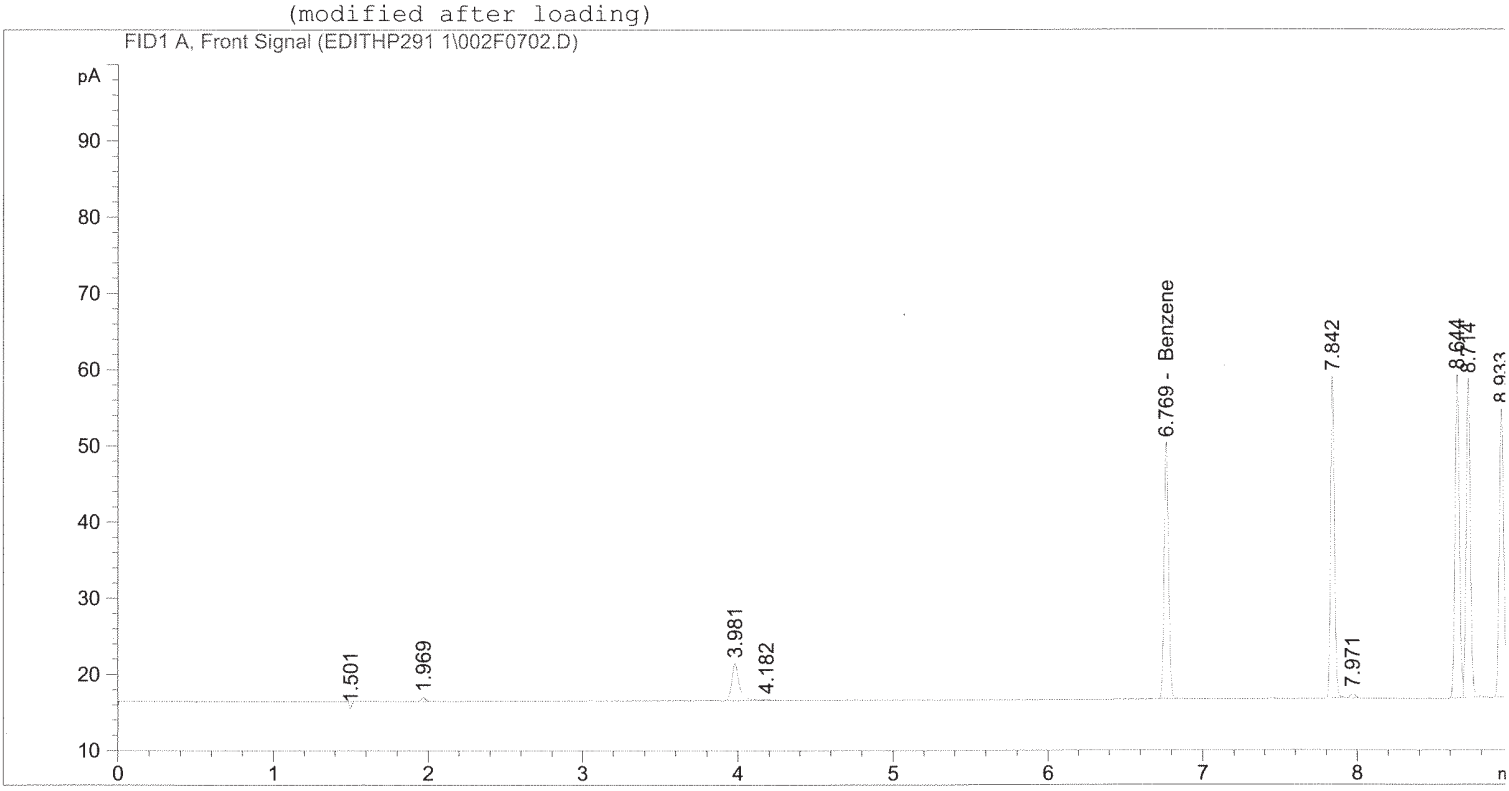
```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :   7
Acq. Instrument : Edith                             Location : Vial 2
Injection Date  : 7/9/2015 1:35:27 PM                    Inj :   1
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291 1\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 9:27:01 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 9:27:08 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.548           -           -          -          Methane
  1.689           -           -          -          Ethane
  2.001           -           -          -          Propane
  2.905           -           -          -          Butane
  4.460           -           -          -          Pentane
  6.037           -           -          -          Hexane
  6.769 BB    66.29758 6.31546e-1   41.86996        Benzene

Totals :                            41.86996

Uncalibrated Peaks    :      using compound Propane
```

ımple Name: EdithP053 #B3 ENV(1=600,5=400)

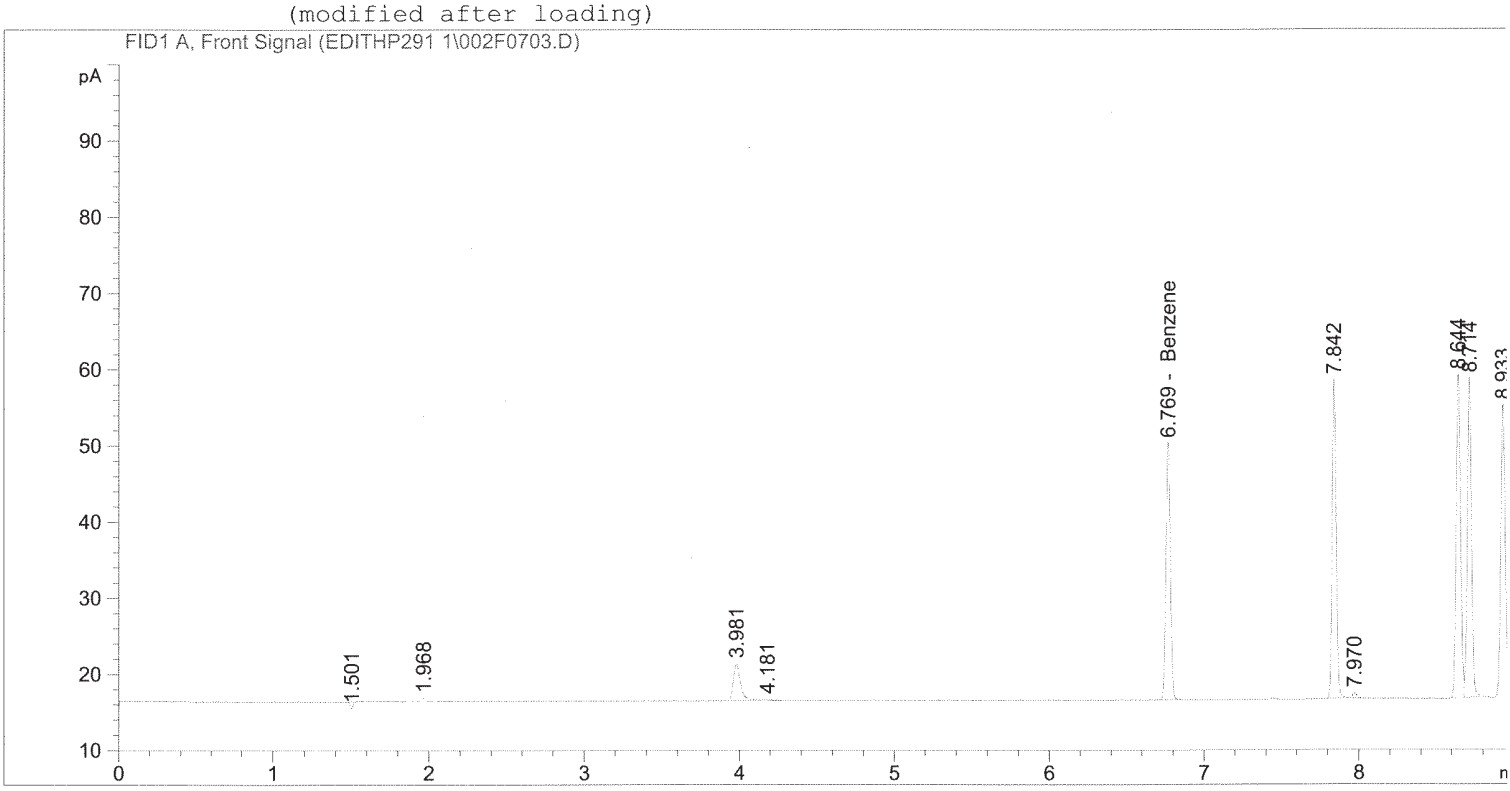
```
==========================================================================
Acq. Operator    : Daniel Clayton                    Seq. Line :   7
Acq. Instrument  : Edith                              Location : Vial 2
Injection Date   : 7/9/2015 1:51:54 PM                    Inj :   2
                                                   Inj Volume : 250 µl
Acq. Method      : C:\GC\2015\EDITH\QUARTER 3\EDITHP291 1\AQ_EDITHP274_HRVOC.M
Last changed     : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method  : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed     : 7/10/2015 9:27:01 AM by Justin Guenzler
                   (modified after loading)
```




```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 9:27:08 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  1.548           -           -          -          Methane
  1.689           -           -          -          Ethane
  2.001           -           -          -          Propane
  2.905           -           -          -          Butane
  4.460           -           -          -          Pentane
  6.037           -           -          -          Hexane
  6.769 BB       66.47907 6.31548e-1    41.98474    Benzene

Totals :                                 41.98474

Uncalibrated Peaks    :      using compound Propane
```

mple Name: EdithP053 #B3 ENV(1=600,5=400)

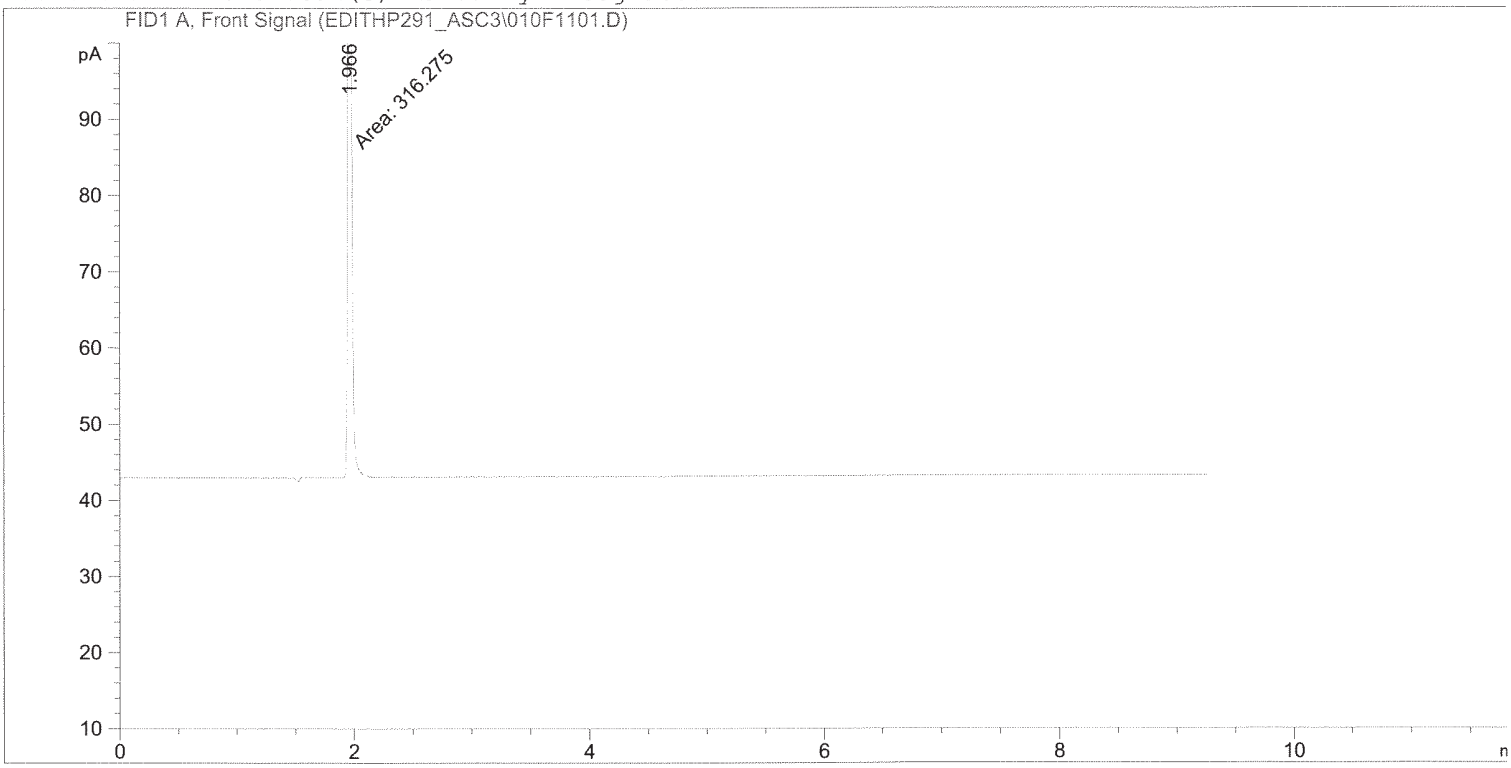
```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :   7
Acq. Instrument : Edith                             Location : Vial 2
Injection Date  : 7/9/2015 2:08:20 PM                    Inj :   3
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291 1\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP121F_C1-C6_BENZENE.M
Last changed    : 7/10/2015 9:27:01 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 9:27:08 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.548            -          -          -          Methane
  1.689            -          -          -          Ethane
  2.001            -          -          -          Propane
  2.905            -          -          -          Butane
  4.460            -          -          -          Pentane
  6.037            -          -          -          Hexane
  6.769 BB      66.33765 6.31546e-1   41.89530       Benzene

Totals :                               41.89530

Uncalibrated Peaks    :      using compound Propane
```

mple Name: 0615-125.Large - L1 - R1 - 1158.Can *501

```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  11
Acq. Instrument : Edith                              Location : Vial 10
Injection Date  : 7/8/2015 10:09:23 PM                    Inj :  1
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_C1-C6_XAS.M
Last changed    : 7/24/2015 10:10:47 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/24/2015 10:10:42 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
 1.514            -           -           -          Methane
 1.656            -           -           -          Ethane
 1.995            -           -           -          Propane
 2.895            -           -           -          Butane
 4.445            -           -           -          Pentane
 6.036                                               Hexane

Totals :                                    0.00000

Uncalibrated Peaks    :      using compound Methane
```

Report From Undiluted Analysis (KHB)

mple Name: 0615-125.Large - L1 - R1 - 1158.Can *501

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.966	MM	316.27533	3.66407	1158.85365		?

Uncalib. totals : 1158.85365

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Propane	1.855	2.479	316.27533	402.6213

Totals : 402.6213

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Propane	316.27533	402.6213
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

Totals : 402.6213

Area Percent Report

Sorted By : Signal
Calib. Data Modified : 7/24/2015 10:10:42 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

ımple Name: 0615-125.Large - L1 - R1 - 1158.Can *501

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.514		0.0000	0.00000	0.00000	Methane
2	1.656		0.0000	0.00000	0.00000	Ethane
3	1.995		0.0000	0.00000	0.00000	Propane
4	2.895		0.0000	0.00000	0.00000	Butane
5	4.445		0.0000	0.00000	0.00000	Pentane
6	6.036		0.0000	0.00000	0.00000	Hexane

Totals : 0.00000 0.0000

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.966	MM	0.0309	316.27533	1.000e2	?

Uncalib. totals : 316.27533 100.0000

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Area %
as Propane	1.855	2.479	316.27533	100.0000

Totals : 100.0000

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

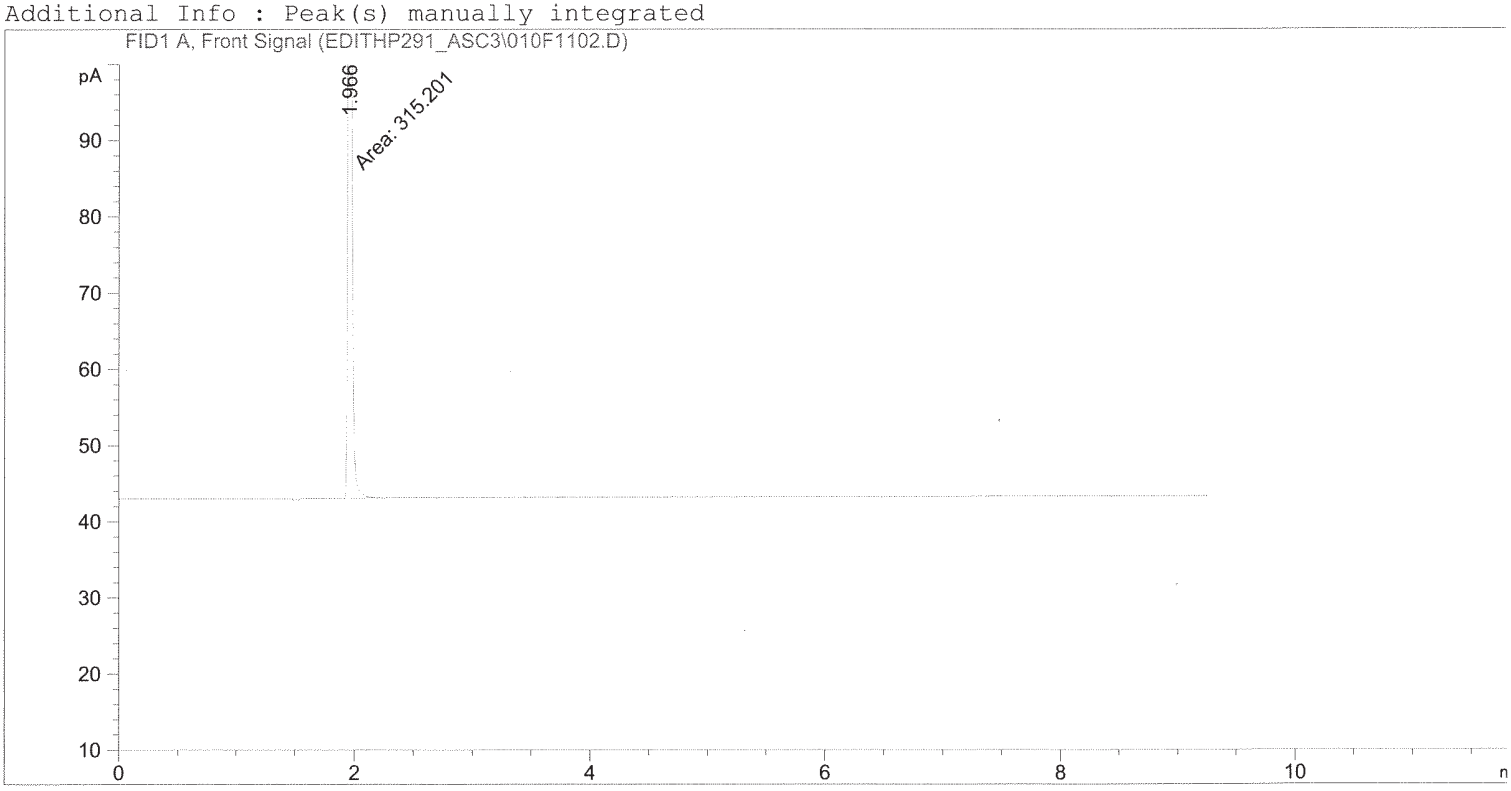
Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Area %
as Propane	316.27533	100.0000
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

Totals : 100.0000

*** End of Report ***

```
Acq. Operator   : Daniel Clayton                 Seq. Line :  11
Acq. Instrument : Edith                          Location : Vial 10
Injection Date  : 7/8/2015 10:23:36 PM                Inj :   2
                                                Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_C1-C6_XAS.M
Last changed    : 7/24/2015 10:10:47 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```



External Standard Report

```
Sorted By             :      Signal
Calib. Data Modified  :      7/24/2015 10:10:42 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
~~1.514~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~Methane~~
1.656	-	-	-	-		Ethane
1.995	-	-	-	-		Propane
2.895	-	-	-	-		Butane
4.445	-	-	-	-		Pentane
~~6.036~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~Hexane~~

```
Totals :                                  0.00000
```

Report From Undiluted Analysis (KHB)

```
Uncalibrated Peaks    :      using compound Methane
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.966	MM	315.20139	3.66407	1154.91982		?

Uncalib. totals : 1154.91982

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Propane	1.855	2.479	315.20139	401.2542

Totals : 401.2542

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Propane	315.20139	401.2542
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

Totals : 401.2542

Area Percent Report

Sorted By : Signal
Calib. Data Modified : 7/24/2015 10:10:42 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

ımple Name: 0615-125.Large - L1 - R1 - 1158.Can *501

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.514		0.0000	0.00000	0.00000	Methane
2	1.656		0.0000	0.00000	0.00000	Ethane
3	1.995		0.0000	0.00000	0.00000	Propane
4	2.895		0.0000	0.00000	0.00000	Butane
5	4.445		0.0000	0.00000	0.00000	Pentane
6	6.036		0.0000	0.00000	0.00000	Hexane
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.966	MM	0.0309	315.20139	1.000e2	?
Uncalib. totals :				315.20139	100.0000	

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Area %
as Propane	1.855	2.479	315.20139	100.0000
Totals :				100.0000

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

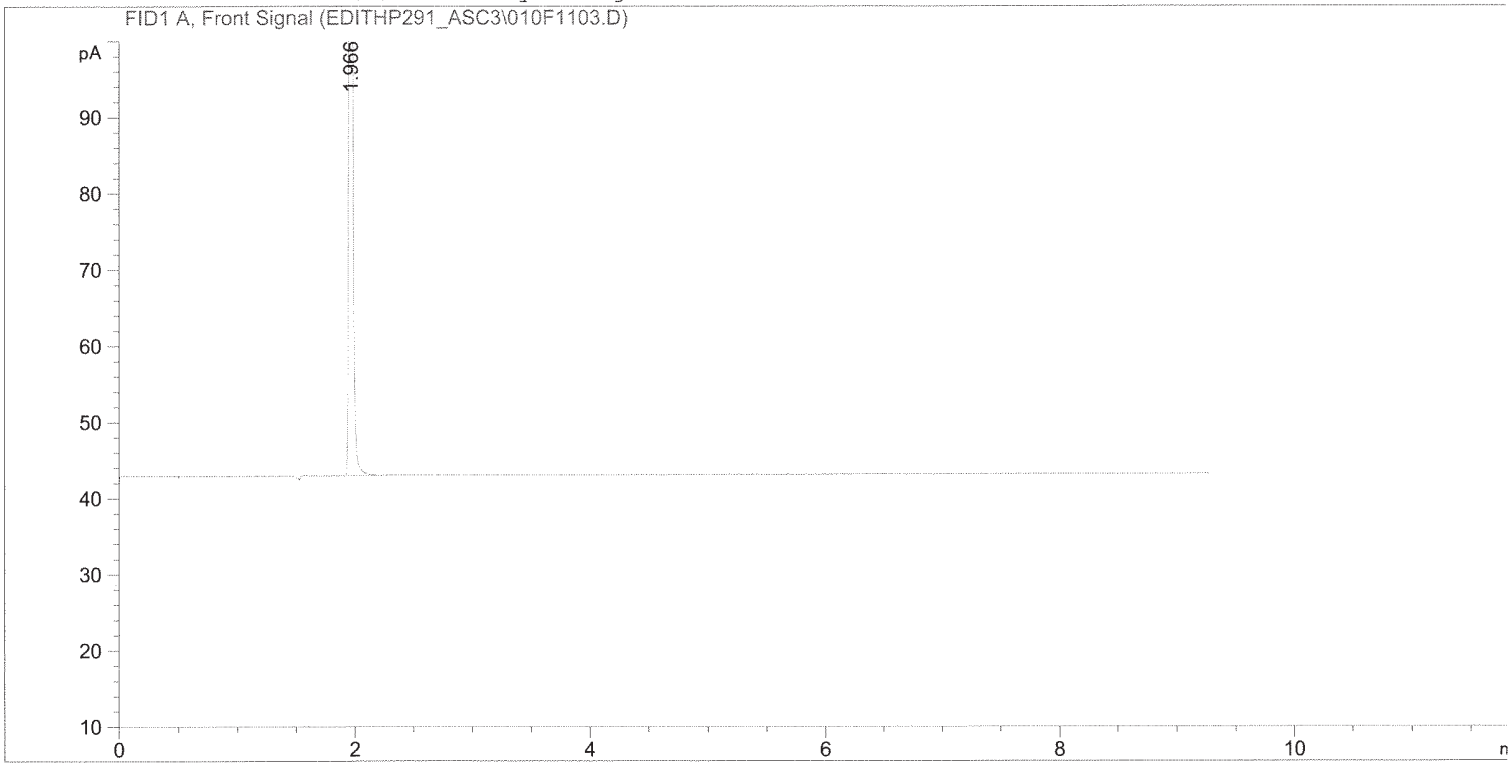
Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Area %
as Propane	315.20139	100.0000
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Totals :	100.0000	

*** End of Report ***

mple Name: 0615-125.Large - L1 - R1 - 1158.Can *501

```
==========================================================================
Acq. Operator   : Daniel Clayton                  Seq. Line :  11
Acq. Instrument : Edith                           Location : Vial 10
Injection Date  : 7/8/2015 10:37:51 PM                 Inj :  3
                                                Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_C1-C6_XAS.M
Last changed    : 7/24/2015 10:10:47 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
==========================================================================
                      External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/24/2015 10:10:42 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]           [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  1.514                                          Methane
  1.656           -          -          -        Ethane
  1.995           -          -          -        Propane
  2.895           -          -          -        Butane
  4.445           -          -          -        Pentane
  6.036                                          Hexane

Totals :                                 0.00000

Uncalibrated Peaks    :      using compound Methane
```

Report From Undiluted Analysis (KHB)

mple Name: 0615-125.Large - L1 - R1 - 1158.Can *501

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.966	BV	315.17191	3.66407	1154.81184		?

Uncalib. totals : 1154.81184

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Propane	1.855	2.479	315.17191	401.2167

Totals : 401.2167

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Propane	315.17191	401.2167
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

Totals : 401.2167

Area Percent Report

Sorted By : Signal
Calib. Data Modified : 7/24/2015 10:10:42 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.514		0.0000	0.00000	0.00000	Methane
2	1.656		0.0000	0.00000	0.00000	Ethane
3	1.995		0.0000	0.00000	0.00000	Propane
4	2.895		0.0000	0.00000	0.00000	Butane
5	4.445		0.0000	0.00000	0.00000	Pentane
6	6.036		0.0000	0.00000	0.00000	Hexane
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.966	BV	0.0287	315.17191	1.000e2	?
Uncalib. totals :				315.17191	100.0000	

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Area %
as Propane	1.855	2.479	315.17191	100.0000
Totals :				100.0000

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

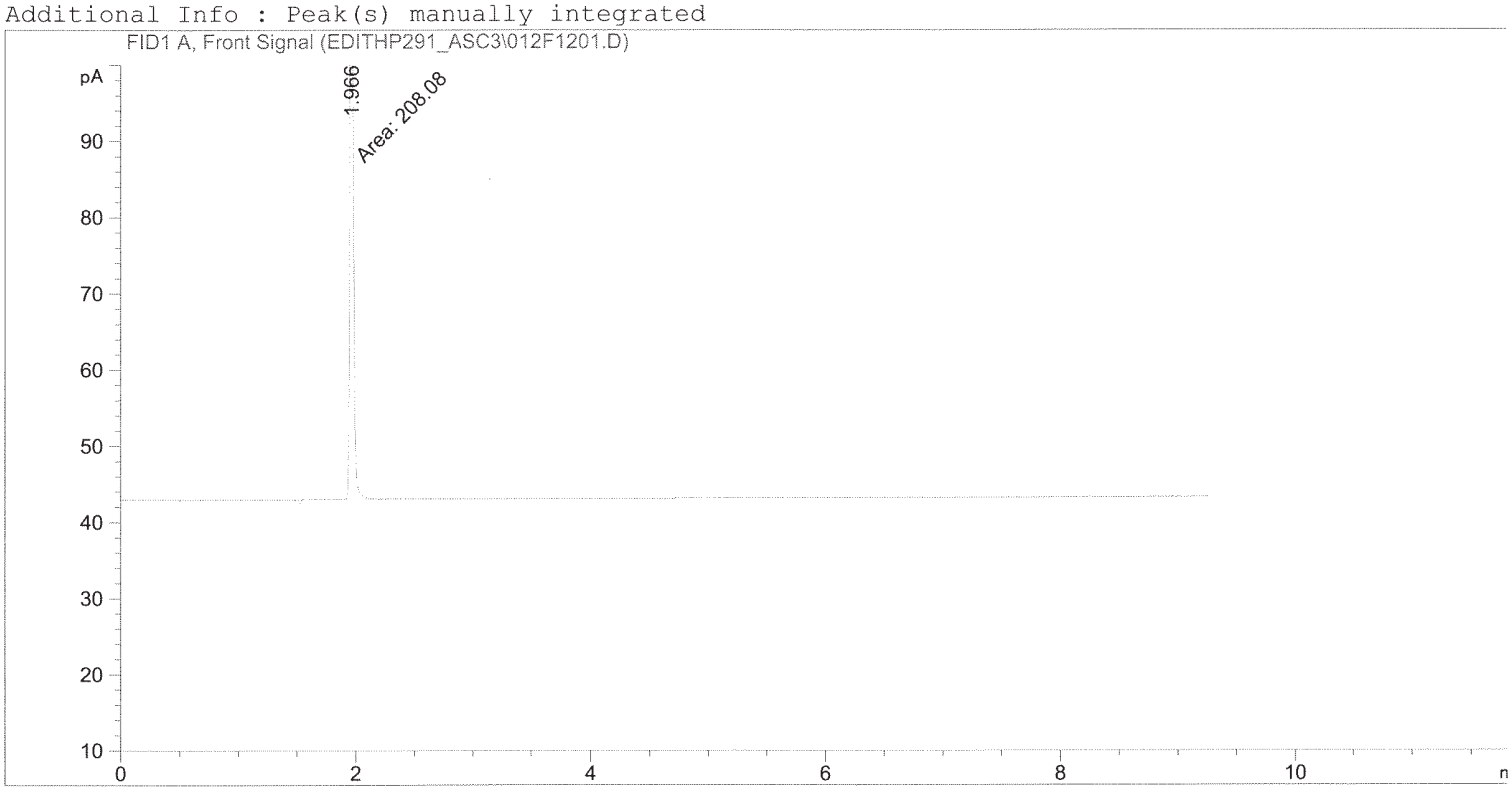
Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Area %
as Propane	315.17191	100.0000
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Totals :		100.0000

*** End of Report ***

mple Name: 0615-125.Large - L2 - R1 - 1124.Can *501

```
==========================================================================
Acq. Operator   : Daniel Clayton                  Seq. Line :  12
Acq. Instrument : Edith                           Location : Vial 12
Injection Date  : 7/8/2015 10:52:09 PM                 Inj :   1
                                                 Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_C1-C6_XAS.M
Last changed    : 7/24/2015 10:10:47 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/24/2015 10:10:42 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.514                                          Methane
  1.656           -          -          -        Ethane
  1.995           -          -          -        Propane
  2.895           -          -          -        Butane
  4.445           -          -          -        Pentane
  6.036           -          -          -        Hexane

Totals :                                0.00000

Uncalibrated Peaks    :      using compound Methane
```

Report From Undiluted Analysis (KHB)

mple Name: 0615-125.Large - L2 - R1 - 1124.Can *501

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.966	MM	208.08047	3.66463	762.53893		?

Uncalib. totals : 762.53893

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Propane	1.855	2.479	208.08047	264.8883

Totals : 264.8883

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Propane	208.08047	264.8883
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

Totals : 264.8883

Area Percent Report

Sorted By : Signal
Calib. Data Modified : 7/24/2015 10:10:42 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

ample Name: 0615-125.Large - L2 - R1 - 1124.Can *501

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.514		0.0000	0.00000	0.00000	Methane
2	1.656		0.0000	0.00000	0.00000	Ethane
3	1.995		0.0000	0.00000	0.00000	Propane
4	2.895		0.0000	0.00000	0.00000	Butane
5	4.445		0.0000	0.00000	0.00000	Pentane
6	6.036		0.0000	0.00000	0.00000	Hexane

Totals : 0.00000 0.0000

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.966	MM	0.0308	208.08047	1.000e2	?

Uncalib. totals : 208.08047 100.0000

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Area %
as Propane	1.855	2.479	208.08047	100.0000

Totals : 100.0000

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

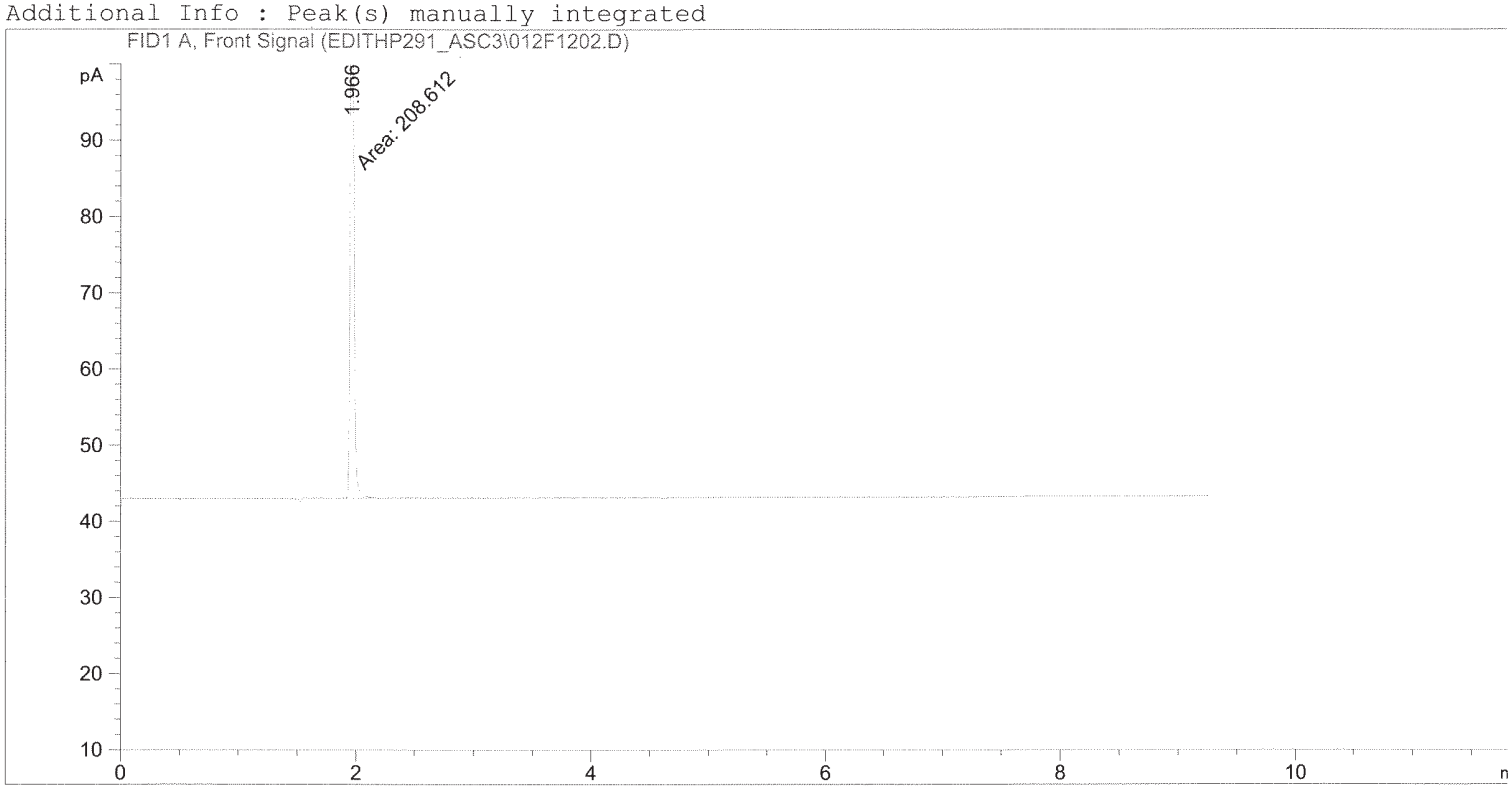
Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Area %
as Propane	208.08047	100.0000
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

Totals : 100.0000

*** End of Report ***

```
Acq. Operator   : Daniel Clayton                  Seq. Line :  12
Acq. Instrument : Edith                          Location : Vial 12
Injection Date  : 7/8/2015 11:06:26 PM                Inj :   2
                                                 Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_C1-C6_XAS.M
Last changed    : 7/24/2015 10:10:47 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```



External Standard Report

```
Sorted By             :      Signal
Calib. Data Modified  :      7/24/2015 10:10:42 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
~~1.514~~	~~-~~	~~-~~	~~-~~	~~-~~	~~--~~	~~Methane~~
1.656	-	-	-	-		Ethane
1.995	-	-	-	-		Propane
2.895	-	-	-	-		Butane
4.445	-	-	-	-		Pentane
~~6.036~~	~~-~~	~~-~~	~~-~~	~~-~~	~~--~~	~~Hexane~~

```
Totals :                                  0.00000
```

Report From Undiluted Analysis (KHB)

```
Uncalibrated Peaks    :      using compound Methane
```

mple Name: 0615-125.Large - L2 - R1 - 1124.Can *501

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.966	MM	208.61212	3.66463	764.48633		?

Uncalib. totals : 764.48633

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Propane	1.855	2.479	208.61212	265.5651

Totals : 265.5651

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Propane	208.61212	265.5651
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

Totals : 265.5651

Area Percent Report

Sorted By : Signal
Calib. Data Modified : 7/24/2015 10:10:42 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

mple Name: 0615-125.Large - L2 - R1 - 1124.Can *501

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.514		0.0000	0.00000	0.00000	Methane
2	1.656		0.0000	0.00000	0.00000	Ethane
3	1.995		0.0000	0.00000	0.00000	Propane
4	2.895		0.0000	0.00000	0.00000	Butane
5	4.445		0.0000	0.00000	0.00000	Pentane
6	6.036		0.0000	0.00000	0.00000	Hexane
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.966	MM	0.0308	208.61212	1.000e2	?
Uncalib. totals :				208.61212	100.0000	

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Area %
as Propane	1.855	2.479	208.61212	100.0000
Totals :				100.0000

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

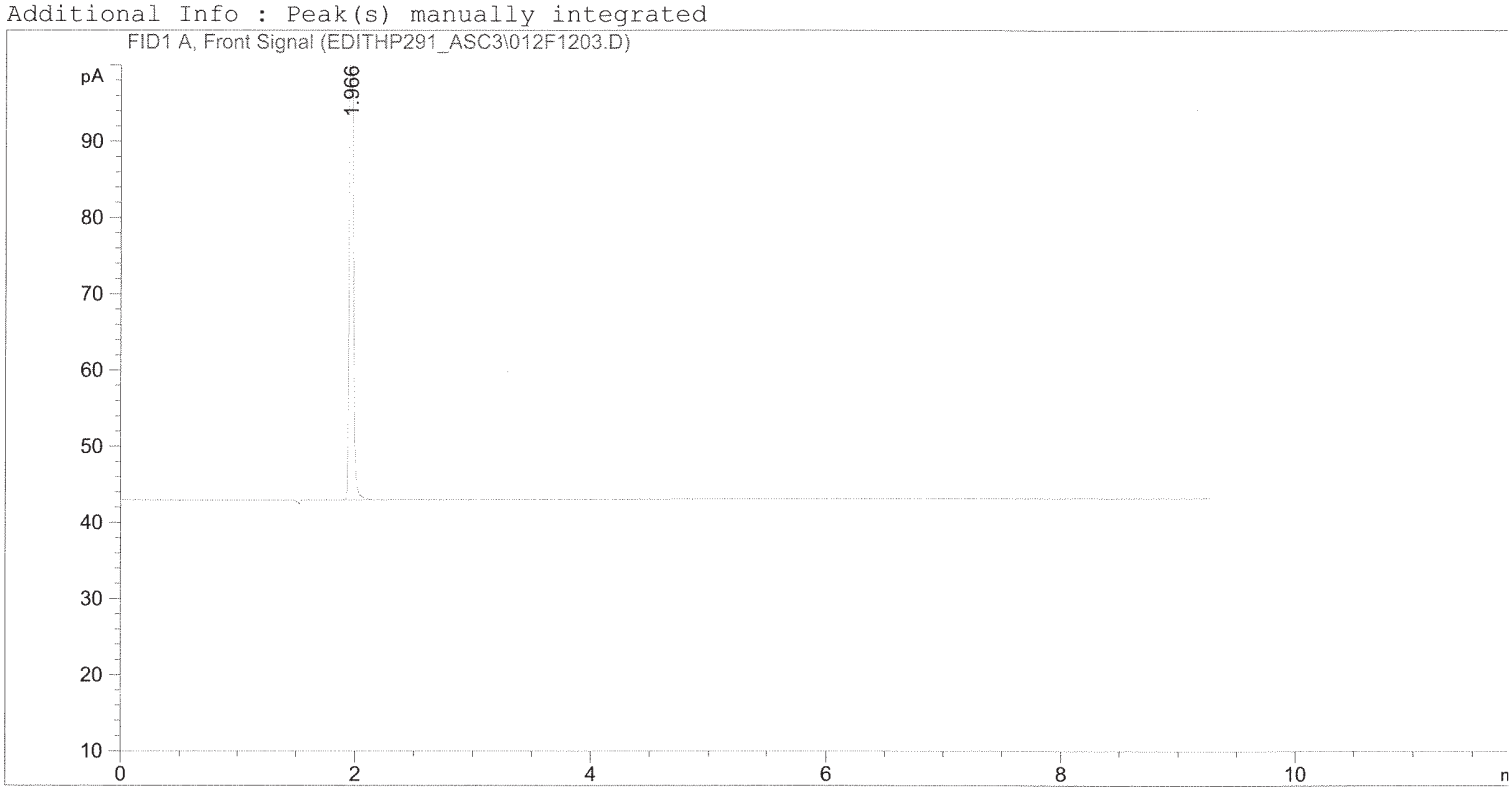
Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Area %
as Propane	208.61212	100.0000
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Totals :		100.0000

*** End of Report ***

ımple Name: 0615-125.Large - L2 - R1 - 1124.Can *501

```
==========================================================================
Acq. Operator   : Daniel Clayton                 Seq. Line :  12
Acq. Instrument : Edith                           Location : Vial 12
Injection Date  : 7/8/2015 11:20:47 PM                 Inj :   3
                                                 Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_C1-C6_XAS.M
Last changed    : 7/24/2015 10:10:47 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
==========================================================================
                      External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/24/2015 10:10:42 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
1.514                -          -          -          Methane
1.656                -          -          -          Ethane
1.995                -          -          -          Propane
2.895                -          -          -          Butane
4.445                -          -          -          Pentane
6.036                -          -          -          Hexane

Totals :                                  0.00000

Uncalibrated Peaks    :      using compound Methane
```

Report From Undiluted Analysis (KHB)

mple Name: 0615-125.Large - L2 - R1 - 1124.Can *501

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.966	BB	207.59515	3.66464	760.76121		?

Uncalib. totals : 760.76121

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Propane	1.855	2.479	207.59515	264.2705

Totals : 264.2705

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Propane	207.59515	264.2705
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

Totals : 264.2705

Area Percent Report

Sorted By : Signal
Calib. Data Modified : 7/24/2015 10:10:42 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

mple Name: 0615-125.Large - L2 - R1 - 1124.Can *501

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.514		0.0000	0.00000	0.00000	Methane
2	1.656		0.0000	0.00000	0.00000	Ethane
3	1.995		0.0000	0.00000	0.00000	Propane
4	2.895		0.0000	0.00000	0.00000	Butane
5	4.445		0.0000	0.00000	0.00000	Pentane
6	6.036		0.0000	0.00000	0.00000	Hexane
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.966	BB	0.0287	207.59515	1.000e2	?
Uncalib. totals :				207.59515	100.0000	

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Area %
as Propane	1.855	2.479	207.59515	100.0000
Totals :				100.0000

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

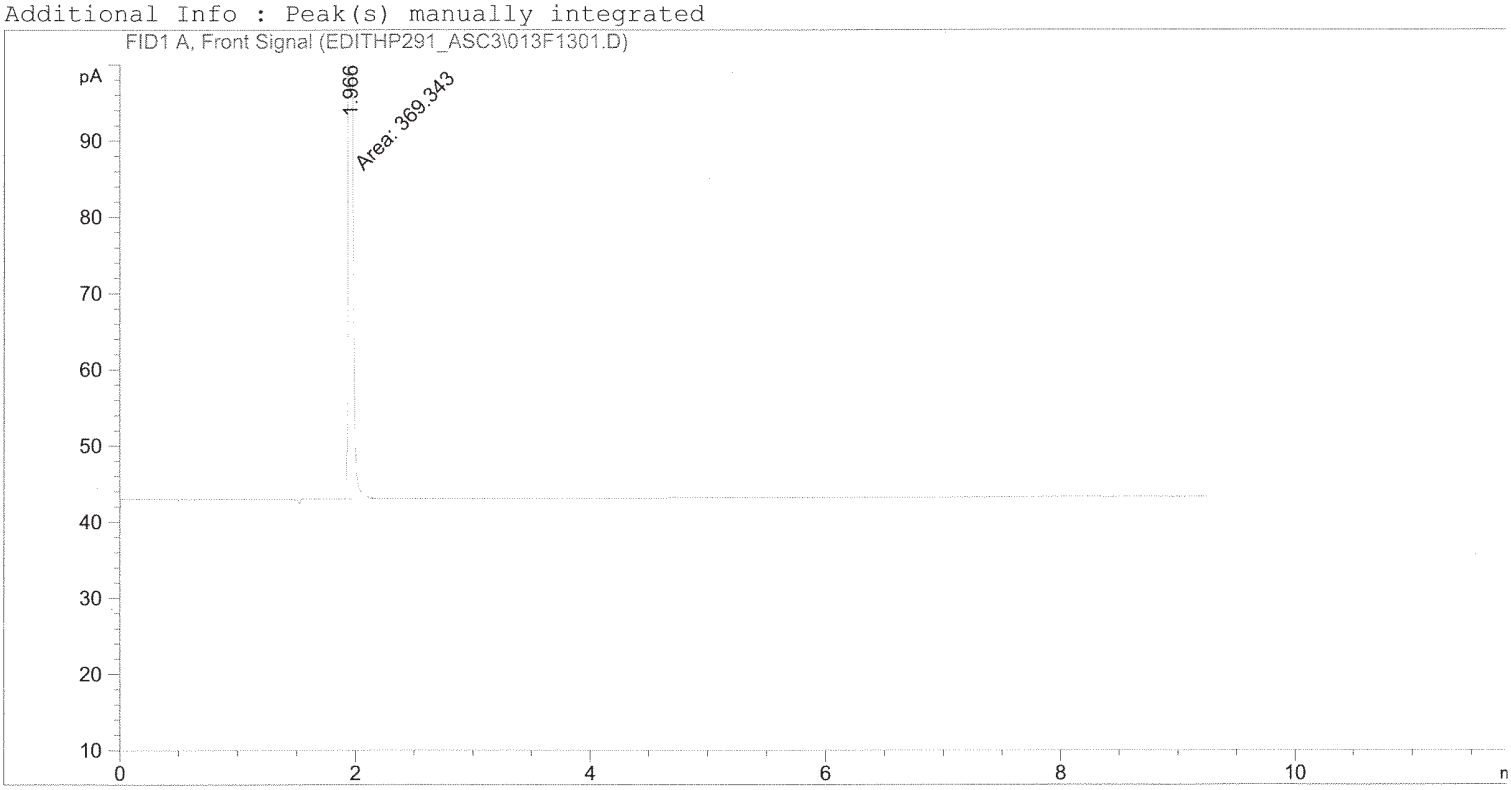
Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Area %
as Propane	207.59515	100.0000
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Totals :		100.0000

*** End of Report ***

ample Name: 0615-125.Large - L3 - R1 - 1368.Can *501

Acq. Operator : Daniel Clayton Seq. Line : 13
Acq. Instrument : Edith Location : Vial 13
Injection Date : 7/8/2015 11:35:01 PM Inj : 1
Inj Volume : 250 µl
Acq. Method : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_C1-C6_XAS.M
Last changed : 7/24/2015 10:10:47 AM by Justin Guenzler
(modified after loading)
Additional Info : Peak(s) manually integrated



External Standard Report

Sorted By : Signal
Calib. Data Modified : 7/24/2015 10:10:42 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
~~1.514~~						~~Methane~~
1.656		-	-	-		Ethane
1.995		-	-	-		Propane
2.895		-	-	-		Butane
4.445		-	-	-		Pentane
~~6.056~~		-	-	-		~~Hexane~~

Totals : 0.00000

Report From Undiluted Analysis (KHB)

Uncalibrated Peaks : using compound Methane

ımple Name: 0615-125.Large - L3 - R1 - 1368.Can *501

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.966	MM	369.34326	3.66391	1353.24000		?

Uncalib. totals : 1353.24000

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Propane	1.855	2.479	369.34326	470.1773

Totals : 470.1773

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Propane	369.34326	470.1773
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

Totals : 470.1773

Area Percent Report

Sorted By : Signal
Calib. Data Modified : 7/24/2015 10:10:42 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

mple Name: 0615-125.Large - L3 - R1 - 1368.Can *501

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.514		0.0000	0.00000	0.00000	Methane
2	1.656		0.0000	0.00000	0.00000	Ethane
3	1.995		0.0000	0.00000	0.00000	Propane
4	2.895		0.0000	0.00000	0.00000	Butane
5	4.445		0.0000	0.00000	0.00000	Pentane
6	6.036		0.0000	0.00000	0.00000	Hexane
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.966	MM	0.0308	369.34326	1.000e2	?
Uncalib. totals :				369.34326	100.0000	

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Area %
as Propane	1.855	2.479	369.34326	100.0000
Totals :				100.0000

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

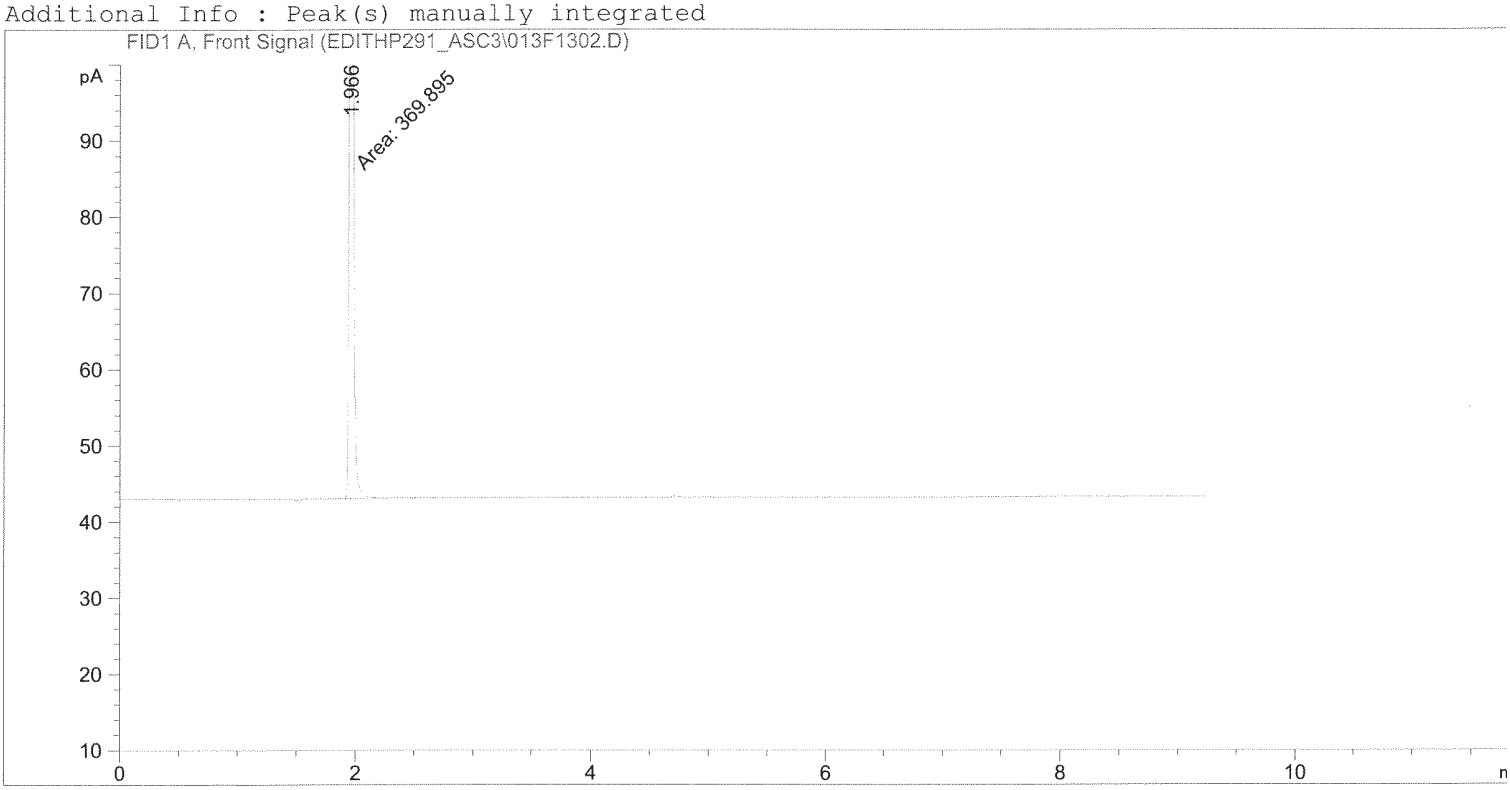
Name	Total Area [pA*s]	Area %
as Propane	369.34326	100.0000
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Totals :		100.0000

*** End of Report ***

mple Name: 0615-125.Large - L3 - R1 - 1368.Can *501

==========

Acq. Operator : Daniel Clayton Seq. Line : 13
Acq. Instrument : Edith Location : Vial 13
Injection Date : 7/8/2015 11:49:17 PM Inj : 2
Inj Volume : 250 µl
Acq. Method : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_C1-C6_XAS.M
Last changed : 7/24/2015 10:10:47 AM by Justin Guenzler
(modified after loading)
Additional Info : Peak(s) manually integrated



==========

External Standard Report

==========

Sorted By : Signal
Calib. Data Modified : 7/24/2015 10:10:42 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
~~1.514~~						~~Methane~~
1.656		-	-	-		Ethane
1.995		-	-	-		Propane
2.895		-	-	-		Butane
4.445		-	-	-		Pentane
~~6.036~~						~~Hexane~~

Totals : 0.00000

Report From Undiluted Analysis (KHB)

Uncalibrated Peaks : using compound Methane

ımple Name: 0615-125.Large - L3 - R1 - 1368.Can *501

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.966	MM	369.89459	3.66391	1355.25951		?

Uncalib. totals : 1355.25951

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Propane	1.855	2.479	369.89459	470.8791

Totals : 470.8791

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Propane	369.89459	470.8791
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

Totals : 470.8791

Area Percent Report

Sorted By : Signal
Calib. Data Modified : 7/24/2015 10:10:42 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.514		0.0000	0.00000	0.00000	Methane
2	1.656		0.0000	0.00000	0.00000	Ethane
3	1.995		0.0000	0.00000	0.00000	Propane
4	2.895		0.0000	0.00000	0.00000	Butane
5	4.445		0.0000	0.00000	0.00000	Pentane
6	6.036		0.0000	0.00000	0.00000	Hexane
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.966	MM	0.0308	369.89459	1.000e2	?
Uncalib. totals :				369.89459	100.0000	

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Area %
as Propane	1.855	2.479	369.89459	100.0000
Totals :				100.0000

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

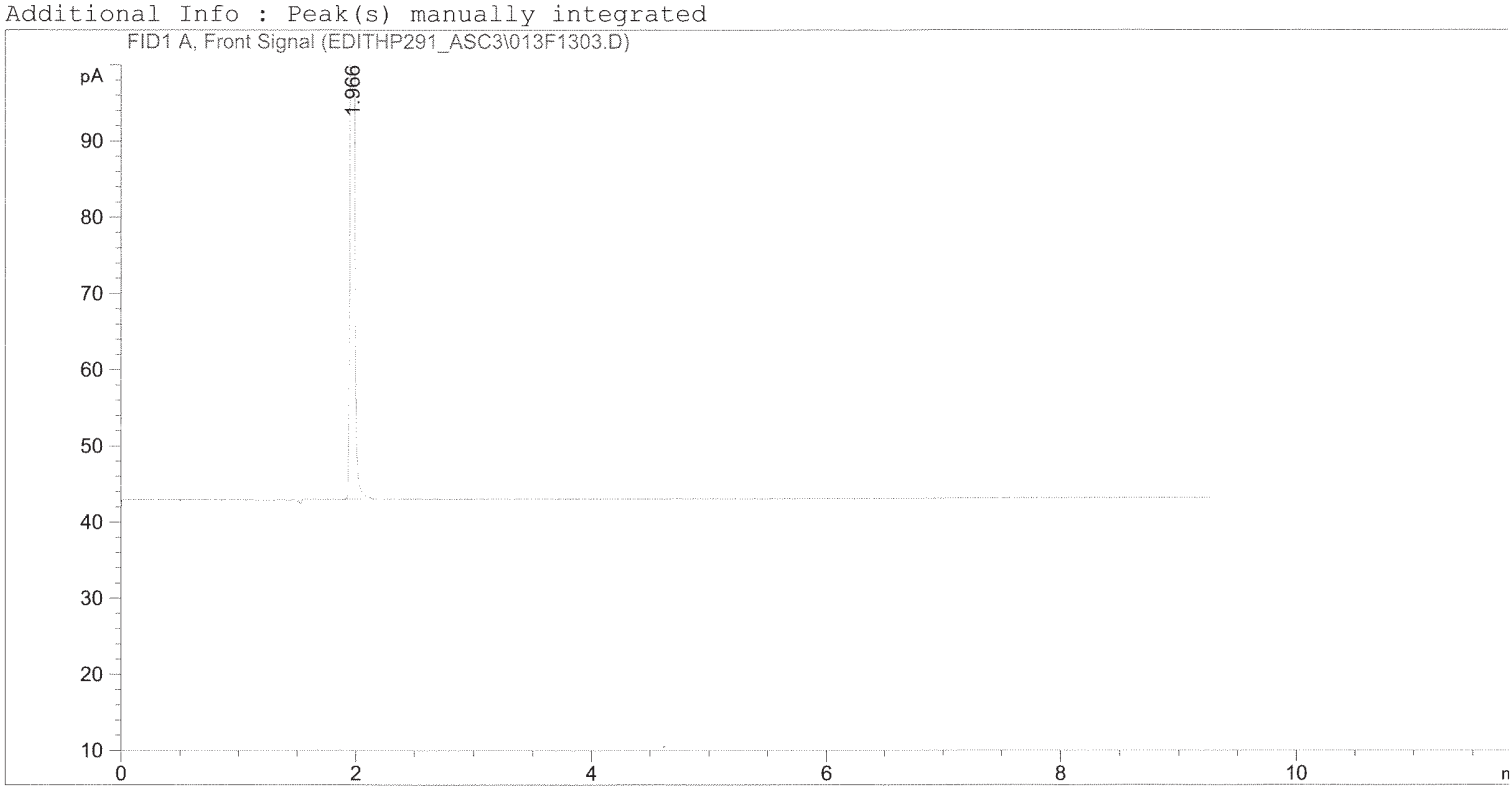
Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Area %
as Propane	369.89459	100.0000
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Totals :		100.0000

*** End of Report ***

ımple Name: 0615-125.Large - L3 - R1 - 1368.Can *501

```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  13
Acq. Instrument : Edith                              Location : Vial 13
Injection Date  : 7/9/2015 12:03:35 AM                    Inj :  3
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_C1-C6_XAS.M
Last changed    : 7/24/2015 10:10:47 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/24/2015 10:10:42 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.514            -           -          -          Methane
  1.656            -           -          -          Ethane
  1.995            -           -          -          Propane
  2.895            -           -          -          Butane
  4.445            -           -          -          Pentane
  6.036            -           -          -          Hexane

Totals :                                   0.00000

Uncalibrated Peaks    :      using compound Methane
```

Report From Undiluted Analysis (KHB)

mple Name: 0615-125.Large - L3 - R1 - 1368.Can *501

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.966	VB	369.54291	3.66391	1353.97130		?

Uncalib. totals : 1353.97130

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Propane	1.855	2.479	369.54291	470.4314

Totals : 470.4314

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Propane	369.54291	470.4314
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

Totals : 470.4314

Area Percent Report

Sorted By : Signal
Calib. Data Modified : 7/24/2015 10:10:42 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.514		0.0000	0.00000	0.00000	Methane
2	1.656		0.0000	0.00000	0.00000	Ethane
3	1.995		0.0000	0.00000	0.00000	Propane
4	2.895		0.0000	0.00000	0.00000	Butane
5	4.445		0.0000	0.00000	0.00000	Pentane
6	6.036		0.0000	0.00000	0.00000	Hexane
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.966	VB	0.0309	369.54291	1.000e2	?
Uncalib. totals :				369.54291	100.0000	

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Area %
as Propane	1.855	2.479	369.54291	100.0000
Totals :				100.0000

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

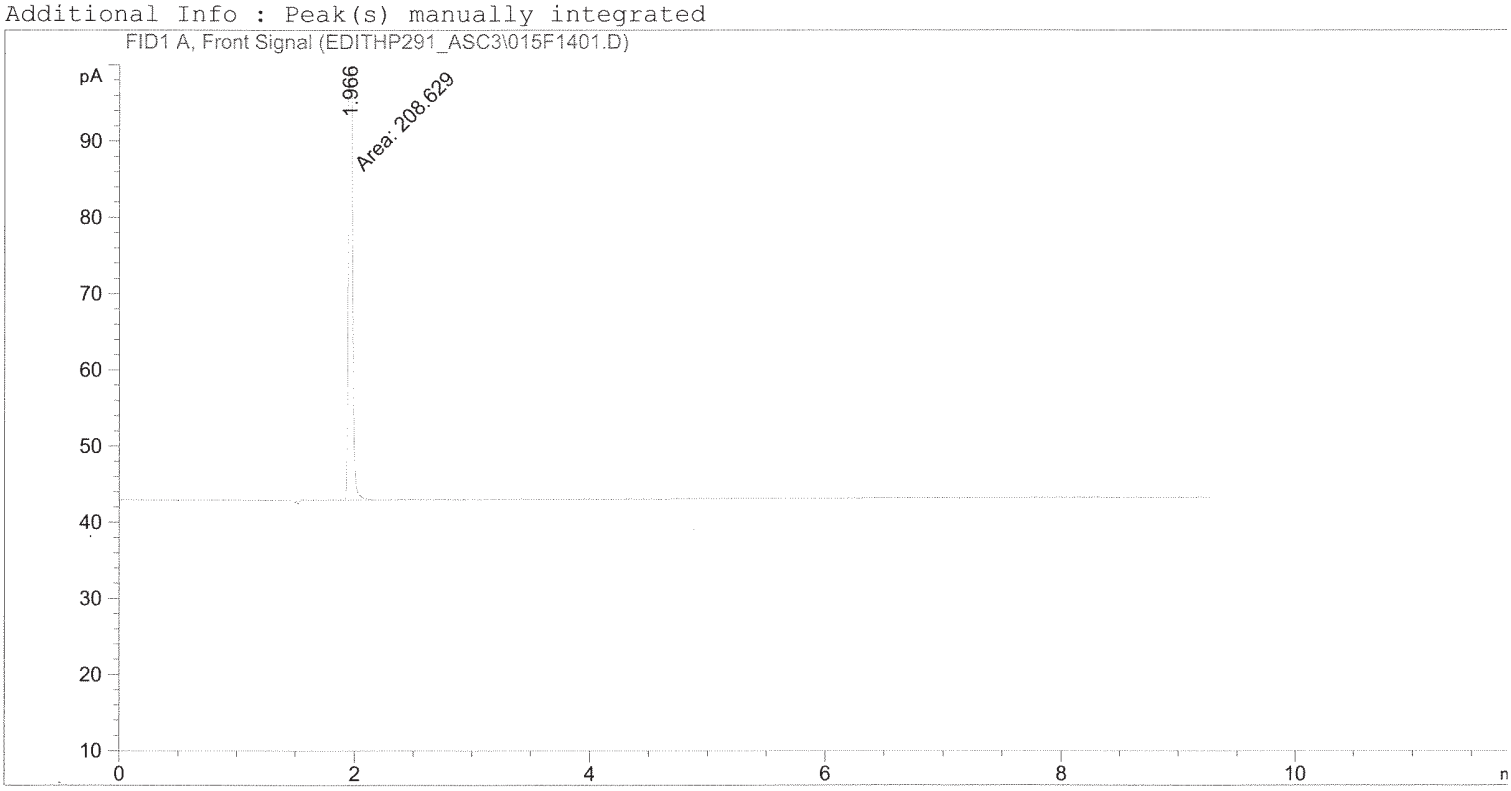
Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Area %
as Propane	369.54291	100.0000
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Totals :		100.0000

*** End of Report ***

mple Name: 0615-125.Large - L4 - R1 - 1630.Can *501

Acq. Operator : Daniel Clayton Seq. Line : 14
Acq. Instrument : Edith Location : Vial 15
Injection Date : 7/9/2015 12:17:54 AM Inj : 1
Inj Volume : 250 µl
Acq. Method : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_C1-C6_XAS.M
Last changed : 7/24/2015 10:10:47 AM by Justin Guenzler
(modified after loading)
Additional Info : Peak(s) manually integrated



External Standard Report

Sorted By : Signal
Calib. Data Modified : 7/24/2015 10:10:42 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
~~1.514~~	~~-~~	~~-~~	~~-~~	~~-~~		~~Methane~~
1.656	-	-	-	-		Ethane
1.995	-	-	-	-		Propane
2.895	-	-	-	-		Butane
4.445	-	-	-	-		Pentane
~~6.036~~	~~-~~	~~-~~	~~-~~	~~-~~		~~Hexane~~

Totals : 0.00000

Report From Undiluted Analysis (KHB)

Uncalibrated Peaks : using compound Methane

mple Name: 0615-125.Large - L4 - R1 - 1630.Can *501

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.966	MM	208.62944	3.66463	764.54977	?	

Uncalib. totals : 764.54977

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Propane	1.855	2.479	208.62944	265.5872

Totals : 265.5872

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Propane	208.62944	265.5872
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

Totals : 265.5872

Area Percent Report

Sorted By : Signal
Calib. Data Modified : 7/24/2015 10:10:42 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

mple Name: 0615-125.Large - L4 - R1 - 1630.Can *501

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.514		0.0000	0.00000	0.00000	Methane
2	1.656		0.0000	0.00000	0.00000	Ethane
3	1.995		0.0000	0.00000	0.00000	Propane
4	2.895		0.0000	0.00000	0.00000	Butane
5	4.445		0.0000	0.00000	0.00000	Pentane
6	6.036		0.0000	0.00000	0.00000	Hexane
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.966	MM	0.0307	208.62944	1.000e2	?
Uncalib. totals :				208.62944	100.0000	

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Area %
as Propane	1.855	2.479	208.62944	100.0000
Totals :				100.0000

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

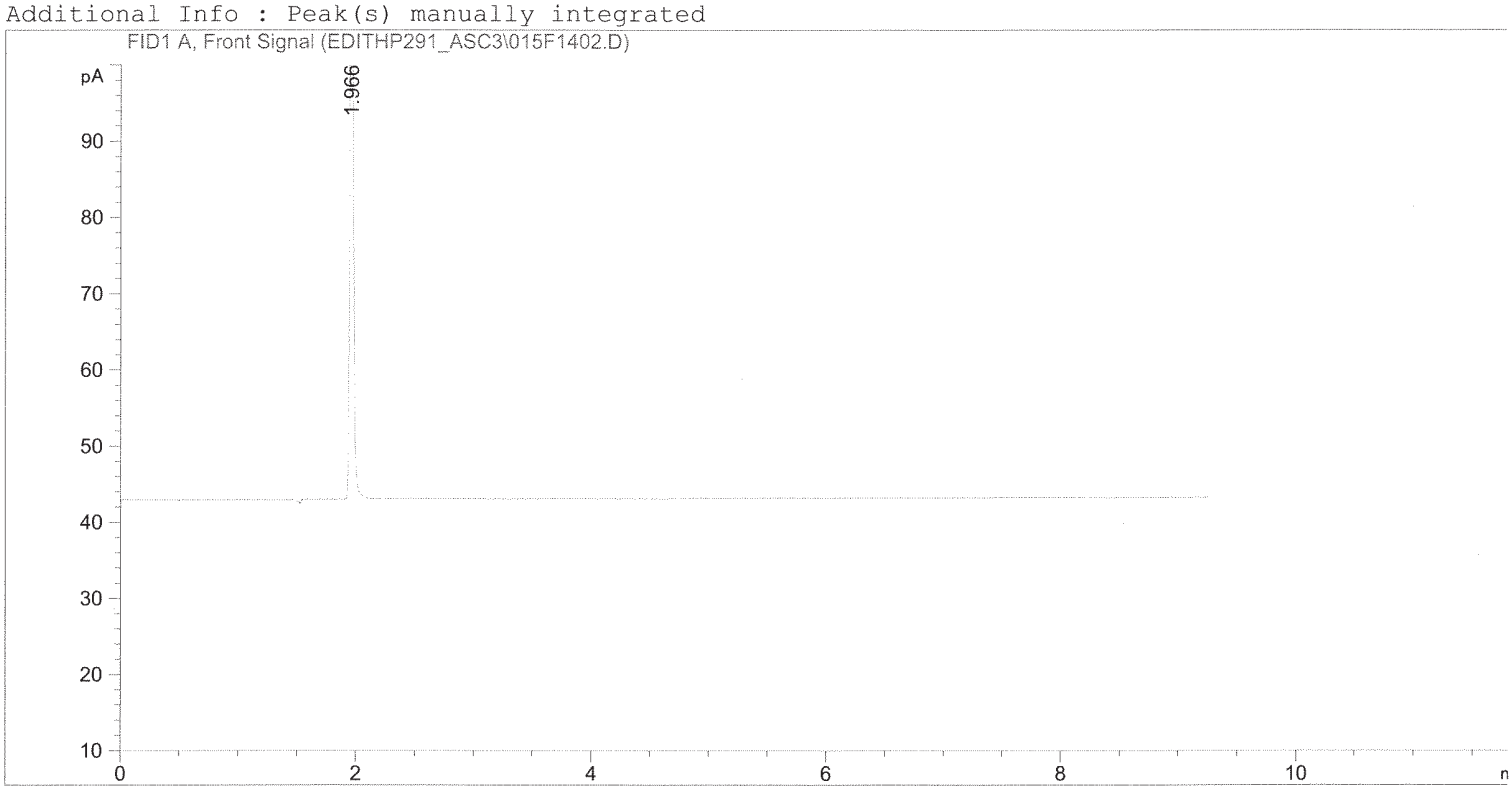
Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Area %
as Propane	208.62944	100.0000
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Totals :		100.0000

*** End of Report ***

ımple Name: 0615-125.Large - L4 - R1 - 1630.Can *501

```
================================================================================
Acq. Operator   : Daniel Clayton                 Seq. Line :  14
Acq. Instrument : Edith                           Location : Vial 15
Injection Date  : 7/9/2015 12:32:10 AM                 Inj :   2
                                                 Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_C1-C6_XAS.M
Last changed    : 7/24/2015 10:10:47 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/24/2015 10:10:42 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type      Area      Amt/Area    Amount    Grp   Name
 [min]           [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.514            -           -           -          Methane
  1.656            -           -           -          Ethane
  1.995            -           -           -          Propane
  2.895            -           -           -          Butane
  4.445            -           -           -          Pentane
  6.036            -           -           -          Hexane

Totals :                                    0.00000

Uncalibrated Peaks    :      using compound Methane
```

Report From Undiluted Analysis (KHB)

mple Name: 0615-125.Large - L4 - R1 - 1630.Can *501

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.966	PB	208.05696	3.66463	762.45280		?

Uncalib. totals : 762.45280

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Propane	1.855	2.479	208.05696	264.8584

Totals : 264.8584

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Propane	208.05696	264.8584
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

Totals : 264.8584

Area Percent Report

Sorted By : Signal
Calib. Data Modified : 7/24/2015 10:10:42 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

mple Name: 0615-125.Large - L4 - R1 - 1630.Can *501

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.514		0.0000	0.00000	0.00000	Methane
2	1.656		0.0000	0.00000	0.00000	Ethane
3	1.995		0.0000	0.00000	0.00000	Propane
4	2.895		0.0000	0.00000	0.00000	Butane
5	4.445		0.0000	0.00000	0.00000	Pentane
6	6.036		0.0000	0.00000	0.00000	Hexane

Totals : 0.00000 0.0000

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.966	PB	0.0286	208.05696	1.000e2	?

Uncalib. totals : 208.05696 100.0000

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Area %
as Propane	1.855	2.479	208.05696	100.0000

Totals : 100.0000

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

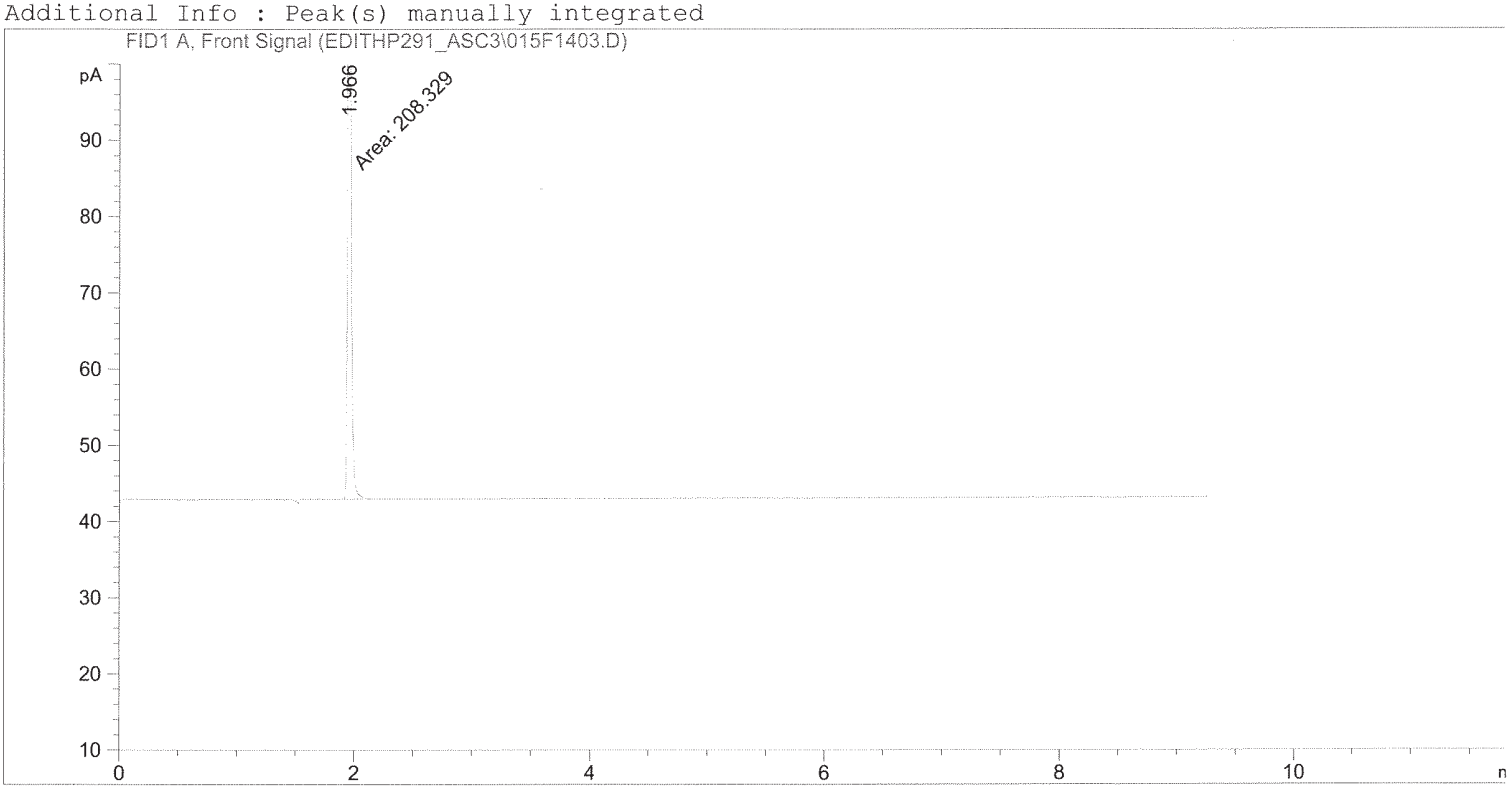
Name	Total Area [pA*s]	Area %
as Propane	208.05696	100.0000
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

Totals : 100.0000

*** End of Report ***

mple Name: 0615-125.Large - L4 - R1 - 1630.Can *501

```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  14
Acq. Instrument : Edith                              Location : Vial 15
Injection Date  : 7/9/2015 12:46:28 AM                    Inj :   3
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_C1-C6_XAS.M
Last changed    : 7/24/2015 10:10:47 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/24/2015 10:10:42 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type      Area      Amt/Area    Amount    Grp   Name
 [min]           [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.514                                          Methane
  1.656            -          -          -       Ethane
  1.995            -          -          -       Propane
  2.895            -          -          -       Butane
  4.445            -          -          -       Pentane
  6.036                                          Hexane

Totals :                                 0.00000
```

Report From Undiluted Analysis (KHB)

Uncalibrated Peaks : using compound Methane

ample Name: 0615-125.Large - L4 - R1 - 1630.Can *501

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.966	MM	208.32866	3.66463	763.44802		?

Uncalib. totals : 763.44802

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Propane	1.855	2.479	208.32866	265.2043

Totals : 265.2043

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Propane	208.32866	265.2043
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

Totals : 265.2043

Area Percent Report

Sorted By : Signal
Calib. Data Modified : 7/24/2015 10:10:42 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

ımple Name: 0615-125.Large - L4 - R1 - 1630.Can *501

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.514		0.0000	0.00000	0.00000	Methane
2	1.656		0.0000	0.00000	0.00000	Ethane
3	1.995		0.0000	0.00000	0.00000	Propane
4	2.895		0.0000	0.00000	0.00000	Butane
5	4.445		0.0000	0.00000	0.00000	Pentane
6	6.036		0.0000	0.00000	0.00000	Hexane

Totals : 0.00000 0.0000

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.966	MM	0.0307	208.32866	1.000e2	?

Uncalib. totals : 208.32866 100.0000

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Area %
as Propane	1.855	2.479	208.32866	100.0000

Totals : 100.0000

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Area %
as Propane	208.32866	100.0000
Methane	0.00000	0.0000
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000

Totals : 100.0000

*** End of Report ***

Calibration Table

Calib. Data Modified : 7/10/2015 8:56:38 AM

Rel. Reference Window : 0.000 %
Abs. Reference Window : 0.100 min
Rel. Non-ref. Window : 0.000 %
Abs. Non-ref. Window : 0.050 min
Uncalibrated Peaks : Separately calculated (see below)
Partial Calibration : Yes, identified peaks are recalibrated
Correct All Ret. Times: No, only for identified peaks

Curve Type : Linear
Origin : Connected
Weight : Quadratic (Amnt)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Signal 1: FID1 A, Front Signal
Uncalibrated Peaks : using compound Propane
Signal 2: FID3 B, Back Signal
Uncalibrated Peaks : not reported

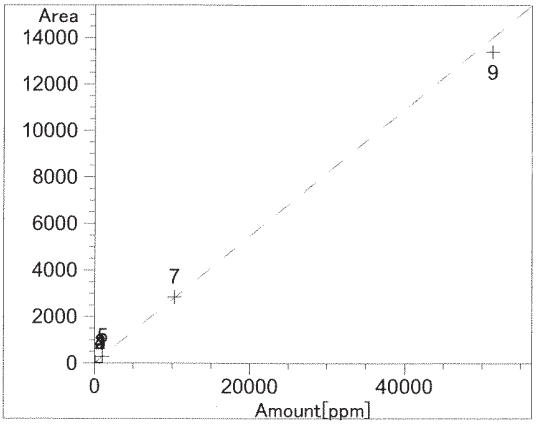
RetTime [min]	Sig	Lvl	Amount [ppm]	Area	Amt/Area	Ref	Grp	Name
1.548	1	1	5.01000	1.24640	4.01958			Methane
		2	10.02000	2.73780	3.65988			
		3	40.08000	11.00137	3.64318			
		4	100.20000	27.38345	3.65914			
		5	1026.00000	279.47185	3.67121			
		7	1.02600e4	2831.91227	3.62299			
		9	5.13000e4	1.33966e4	3.82933			
1.700	1	1	5.00500	2.64095	1.89515			Ethane
		2	10.01000	5.43771	1.84085			
		3	40.04000	21.75508	1.84049			
		4	100.10000	53.44088	1.87310			
		5	1026.00000	539.84916	1.90053			
		7	1.02600e4	5461.77913	1.87851			
		9	5.13000e4	2.57779e4	1.99008			
2.001	1	1	5.02000	3.93552	1.27556			Propane
		2	10.04000	7.98325	1.25763			
		3	40.16000	32.24148	1.24560			
		4	100.40000	79.98379	1.25525			
		5	1026.00000	801.90285	1.27946			
		7	1.02600e4	8146.17285	1.25949			
		9	5.13000e4	3.83387e4	1.33807			
2.905	1	1	5.01000	5.26892	9.50859e-1			Butane
		2	10.02000	10.51788	9.52664e-1			
		3	40.08000	42.46952	9.43736e-1			
		4	100.20000	105.51465	9.49631e-1			

RetTime [min]	Sig	Lvl	Amount [ppm]	Area	Amt/Area	Ref Grp	Name
		5	206.00000	213.97933	9.62710e-1		
		7	2060.00000	2170.61491	9.49040e-1		
		9	1.03000e4	1.02448e4	1.00539		
4.460	1	1	5.00000	6.79984	7.35311e-1		Pentane
		2	10.00000	13.34243	7.49489e-1		
		3	40.00000	53.24072	7.51305e-1		
		4	100.00000	131.72862	7.59136e-1		
		5	104.00000	131.05394	7.93566e-1		
		7	1040.00000	1331.66182	7.80979e-1		
		9	5200.00000	6271.82715	8.29104e-1		
6.037	1	1	5.00500	7.78685	6.42751e-1		Hexane
		2	10.01000	15.63340	6.40296e-1		
		3	40.04000	63.01467	6.35408e-1		
		4	100.10000	156.35443	6.40212e-1		
		7	820.00000	1210.28654	6.77526e-1		
		9	4100.00000	5675.94564	7.22347e-1		
6.763	1	21	5.15000	8.18262	6.29383e-1		Benzene
		22	20.60000	33.20670	6.20357e-1		
		23	41.20000	66.32658	6.21169e-1		
		24	103.00000	163.96829	6.28170e-1		
		25	530.96000	811.71106	6.54124e-1		

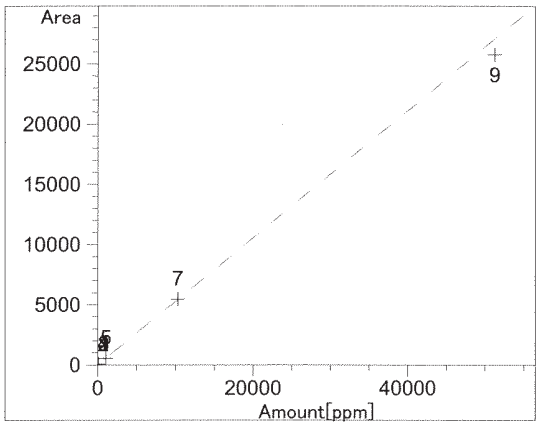
Peak Sum Table

Name	StartTime [min]	EndTime [min]	Use Reference	Response factor	Multiplier	ISTD Peak
as Ethane	1.550	1.855	None	1.8884	1.8884	None
as Propane	1.855	2.479	None	1.2730	1.2730	None
as Butane	2.479	3.714	None	9.5915e-1	0.9591	None
as Pentane	3.714	5.209	None	7.7127e-1	0.7713	None
as Hexane	5.209	13.000	None	6.5976e-1	0.6598	None

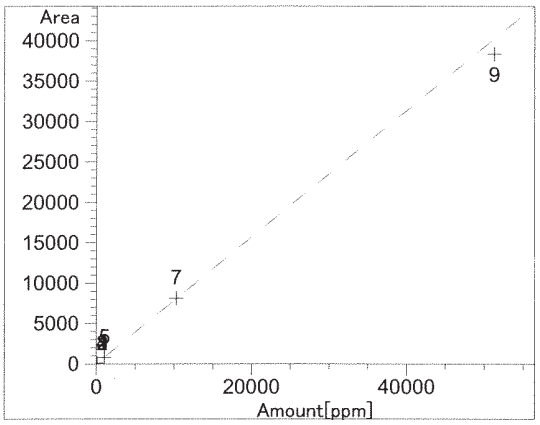
Calibration Curves



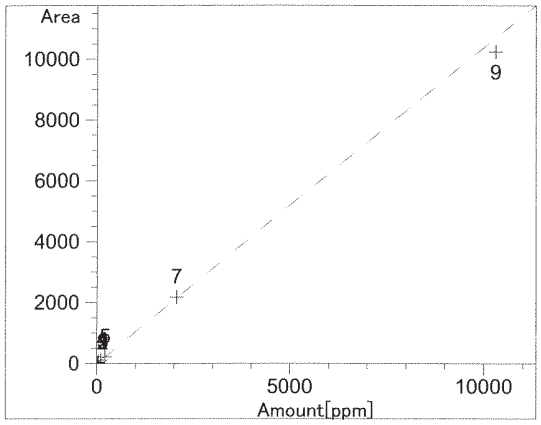
Methane at exp. RT: 1.548
FID1 A, Front Signal
Correlation: 0.99959
Residual Std. Dev.: 272.40560
Formula: y = mx + b
m: 2.73002e-1
b: -9.44523e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025
Level 5 : 0.000024
Level 7 : 2.38441e-007
Level 9 : 9.53764e-009



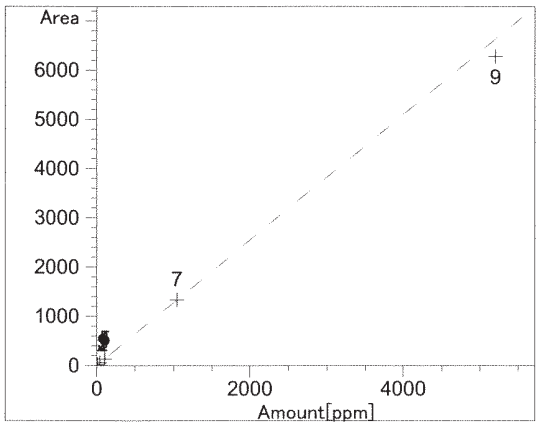
Ethane at exp. RT: 1.700
FID1 A, Front Signal
Correlation: 0.99959
Residual Std. Dev.: 588.10314
Formula: y = mx + b
m: 5.28113e-1
b: 3.66515e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025
Level 5 : 0.000024
Level 7 : 2.37965e-007
Level 9 : 9.51861e-009



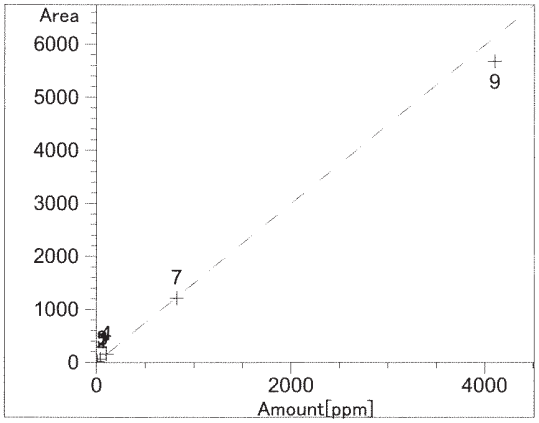
Propane at exp. RT: 2.001
FID1 A, Front Signal
Correlation: 0.99965
Residual Std. Dev.: 852.69660
Formula: y = mx + b
m: 7.84462e-1
b: 3.06331e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025
Level 5 : 0.000024
Level 7 : 2.39394e-007
Level 9 : 9.57575e-009



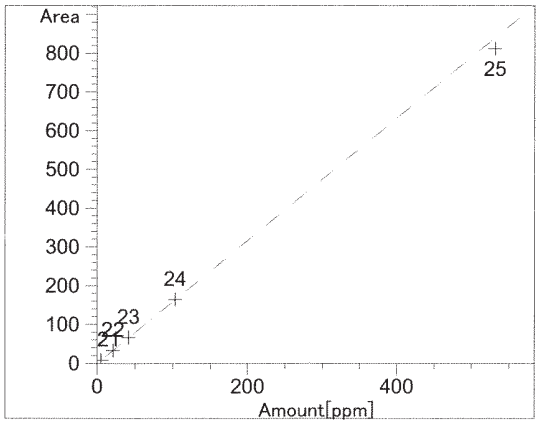
Butane at exp. RT: 2.905
FID1 A, Front Signal
Correlation: 0.99973
Residual Std. Dev.: 204.33121
Formula: y = mx + b
m: 1.03890
b: 8.48570e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025
Level 5 : 0.000591
Level 7 : 5.91481e-006
Level 9 : 2.36593e-007



Pentane at exp. RT: 4.460
FID1 A, Front Signal
Correlation: 0.99942
Residual Std. Dev.: 158.88295
Formula: y = mx + b
m: 1.27433
b: 4.88422e-1
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025
Level 5 : 0.002311
Level 7 : 0.000023
Level 9 : 9.24556e-007



Hexane at exp. RT: 6.037
FID1 A, Front Signal
Correlation: 0.99867
Residual Std. Dev.: 228.00851
Formula: y = mx + b
m: 1.49541
b: 4.20132e-1
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025
Level 7 : 0.000037
Level 9 : 1.49019e-006



Benzene at exp. RT: 6.763
FID1 A, Front Signal
Correlation: 0.99972
Residual Std. Dev.: 16.17396
Formula: y = mx + b
m: 1.58127
b: 8.98928e-2
x: Amount
y: Area
Calibration Level Weights:
Level 21 : 1
Level 22 : 0.0625
Level 23 : 0.015625
Level 24 : 0.0025
Level 25 : 0.000094

==========

Calibration Table

Calib. Data Modified : Monday, October 06, 2014 1:00:58 PM

Rel. Reference Window : 0.000 %
Abs. Reference Window : 0.100 min
Rel. Non-ref. Window : 0.000 %
Abs. Non-ref. Window : 0.050 min
Uncalibrated Peaks : Separately calculated (see below)
Partial Calibration : Yes, identified peaks are recalibrated
Correct All Ret. Times: No, only for identified peaks

Curve Type : Linear
Origin : Connected
Weight : Quadratic (Amnt)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Signal 1: FID1 A, Front Signal
Uncalibrated Peaks : using compound Propane
Signal 2: FID3 B, Back Signal
Uncalibrated Peaks : not reported

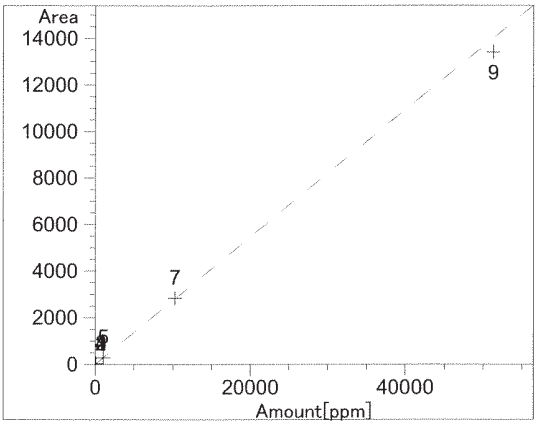
RetTime [min]	Sig	Lvl	Amount [ppm]	Area	Amt/Area	Ref	Grp	Name
1.548	1	1	5.01000	1.24640	4.01958			Methane
		2	10.02000	2.73780	3.65988			
		3	40.08000	11.00137	3.64318			
		4	100.20000	27.38345	3.65914			
		5	1026.00000	279.47185	3.67121			
		7	1.02600e4	2831.91227	3.62299			
		9	5.13000e4	1.33966e4	3.82933			
1.688	1	1	5.00500	2.64095	1.89515			Ethane
		2	10.01000	5.43771	1.84085			
		3	40.04000	21.75508	1.84049			
		4	100.10000	53.44088	1.87310			
		5	1026.00000	539.84916	1.90053			
		7	1.02600e4	5461.77913	1.87851			
		9	5.13000e4	2.57779e4	1.99008			
2.023	1	1	5.02000	3.93552	1.27556			Propane
		2	10.04000	7.98325	1.25763			
		3	40.16000	32.24148	1.24560			
		4	100.40000	79.98379	1.25525			
		5	1026.00000	801.90285	1.27946			
		7	1.02600e4	8146.17285	1.25949			
		9	5.13000e4	3.83387e4	1.33807			
2.932	1	1	5.01000	5.26892	9.50859e-1			Butane
		2	10.02000	10.51788	9.52664e-1			
		3	40.08000	42.46952	9.43736e-1			
		4	100.20000	105.51465	9.49631e-1			

RetTime [min]	Sig	Lvl	Amount [ppm]	Area	Amt/Area	Ref Grp	Name
		5	206.00000	213.97933	9.62710e-1		
		7	2060.00000	2170.61491	9.49040e-1		
		9	1.03000e4	1.02448e4	1.00539		
4.493	1	1	5.00000	6.79984	7.35311e-1		Pentane
		2	10.00000	13.34243	7.49489e-1		
		3	40.00000	53.24072	7.51305e-1		
		4	100.00000	131.72862	7.59136e-1		
		5	104.00000	131.05394	7.93566e-1		
		7	1040.00000	1331.66182	7.80979e-1		
		9	5200.00000	6271.82715	8.29104e-1		
6.067	1	1	5.00500	7.78685	6.42751e-1		Hexane
		2	10.01000	15.63340	6.40296e-1		
		3	40.04000	63.01467	6.35408e-1		
		4	100.10000	156.35443	6.40212e-1		
		7	820.00000	1210.28654	6.77526e-1		
		9	4100.00000	5675.94564	7.22347e-1		
6.795	1	21	5.15000	8.18262	6.29383e-1		Benzene
		22	20.60000	33.20670	6.20357e-1		
		23	41.20000	66.32658	6.21169e-1		
		24	103.00000	163.96829	6.28170e-1		
		25	530.96000	811.71106	6.54124e-1		
7.232	1	1	4.99100	9.07234	5.50134e-1		Heptane
		2	9.98200	18.20331	5.48362e-1		
		3	39.92800	73.48394	5.43357e-1		
		4	99.82000	182.12613	5.48082e-1		

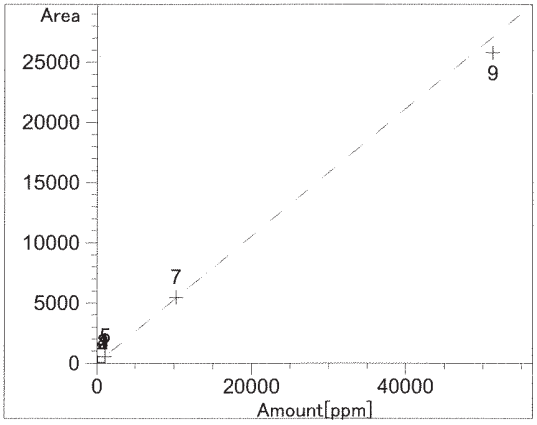
Peak Sum Table

Name	StartTime [min]	EndTime [min]	Use Reference	Response factor	Multiplier	ISTD Peak
as Ethane	1.550	1.855	None	1.8884	1.8884	None
as Propane	1.855	2.479	None	1.2730	1.2730	None
as Butane	2.479	3.714	None	9.5915e-1	0.9591	None
as Pentane	3.714	5.209	None	7.7127e-1	0.7713	None
as Hexane	5.209	6.650	None	6.5976e-1	0.6598	None
as Heptane	6.650	13.000	None	5.4785e-1	0.5475	None

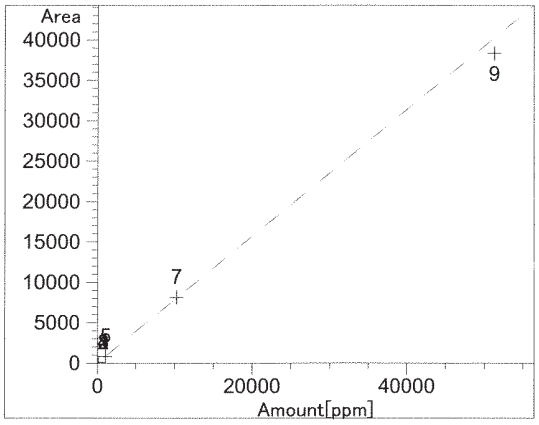
Calibration Curves



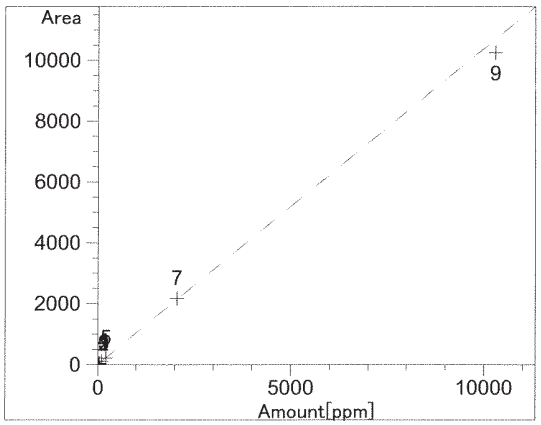
Methane at exp. RT: 1.548
FID1 A, Front Signal
Correlation: 0.99959
Residual Std. Dev.: 272.40560
Formula: y = mx + b
m: 2.73002e-1
b: -9.44523e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025
Level 5 : 0.000024
Level 7 : 2.38441e-007
Level 9 : 9.53764e-009



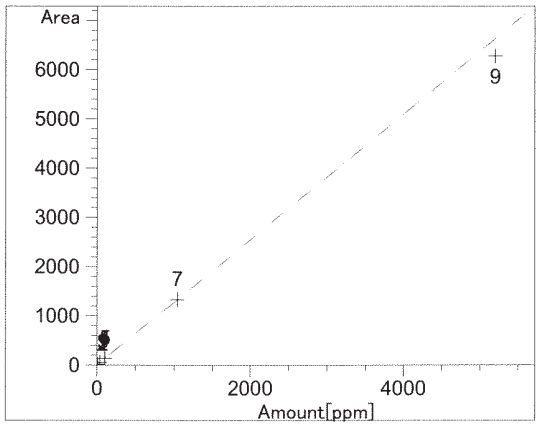
Ethane at exp. RT: 1.688
FID1 A, Front Signal
Correlation: 0.99959
Residual Std. Dev.: 588.10314
Formula: y = mx + b
m: 5.28113e-1
b: 3.66515e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025
Level 5 : 0.000024
Level 7 : 2.37965e-007
Level 9 : 9.51861e-009



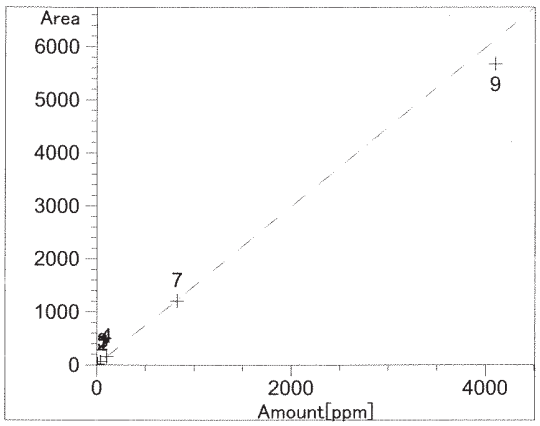
Propane at exp. RT: 2.023
FID1 A, Front Signal
Correlation: 0.99965
Residual Std. Dev.: 852.69660
Formula: y = mx + b
m: 7.84462e-1
b: 3.06331e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025
Level 5 : 0.000024
Level 7 : 2.39394e-007
Level 9 : 9.57575e-009



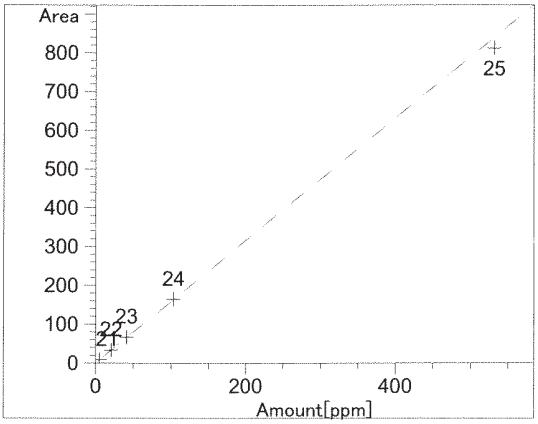
Butane at exp. RT: 2.932
FID1 A, Front Signal
Correlation: 0.99973
Residual Std. Dev.: 204.33121
Formula: y = mx + b
m: 1.03890
b: 8.48570e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025
Level 5 : 0.000591
Level 7 : 5.91481e-006
Level 9 : 2.36593e-007



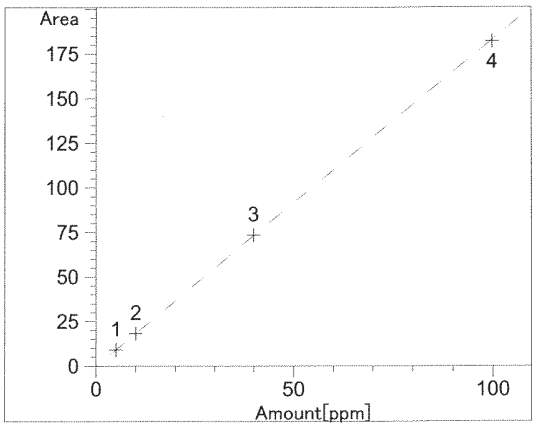
Pentane at exp. RT: 4.493
FID1 A, Front Signal
Correlation: 0.99942
Residual Std. Dev.: 158.88295
Formula: y = mx + b
m: 1.27433
b: 4.88422e-1
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025
Level 5 : 0.002311
Level 7 : 0.000023
Level 9 : 9.24556e-007



Hexane at exp. RT: 6.067
FID1 A, Front Signal
Correlation: 0.99867
Residual Std. Dev.: 228.00851
Formula: y = mx + b
m: 1.49541
b: 4.20132e-1
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025
Level 7 : 0.000037
Level 9 : 1.49019e-006



Benzene at exp. RT: 6.795
FID1 A, Front Signal
Correlation: 0.99972
Residual Std. Dev.: 16.17396
Formula: y = mx + b
m: 1.58127
b: 8.98928e-2
x: Amount
y: Area
Calibration Level Weights:
Level 21 : 1
Level 22 : 0.0625
Level 23 : 0.015625
Level 24 : 0.0025
Level 25 : 0.000094

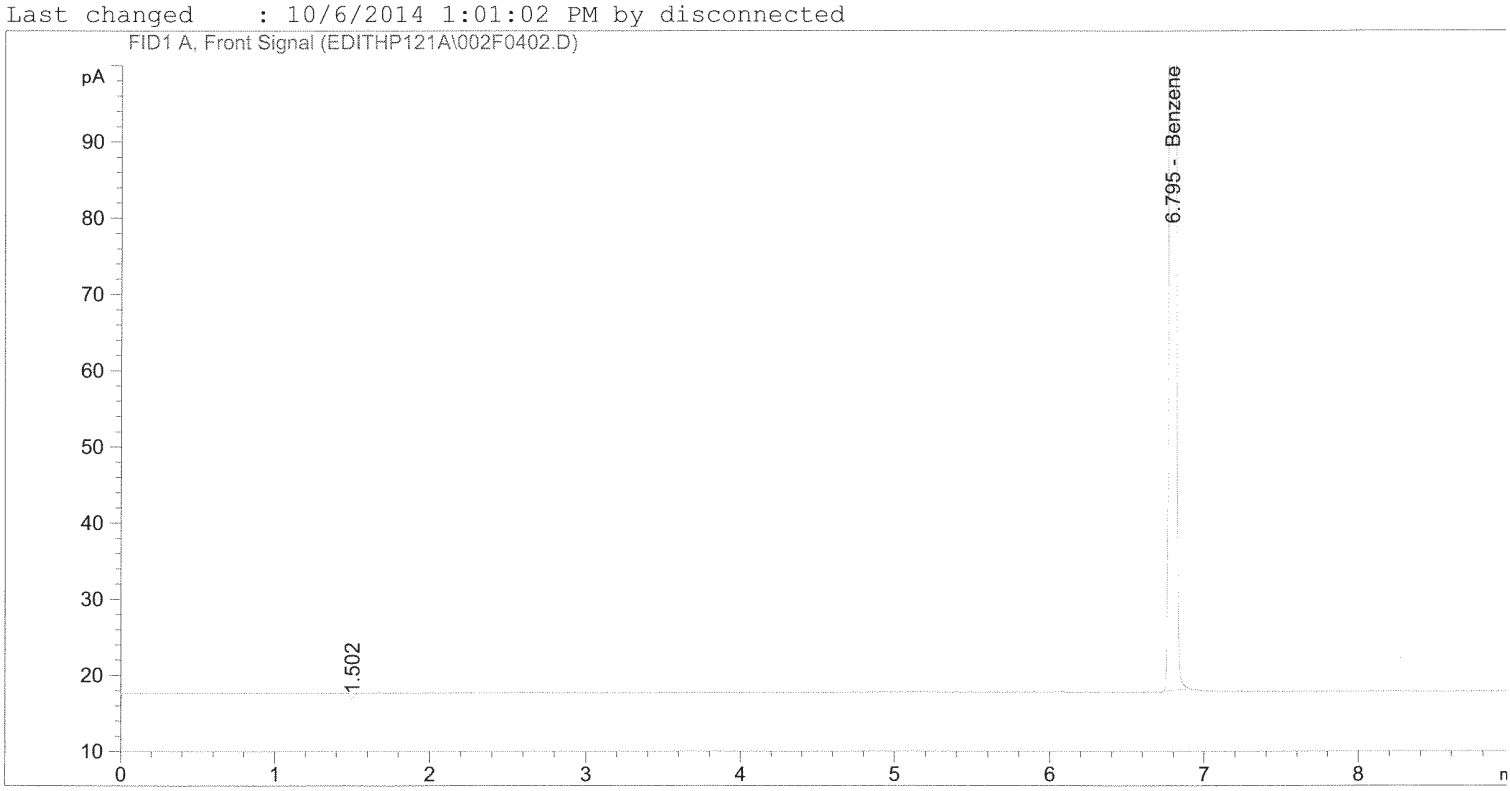


Heptane at exp. RT: 7.232
FID1 A, Front Signal
Correlation: 0.99999
Residual Std. Dev.: 0.60330
Formula: y = mx + b
m: 1.83300
b: -7.65536e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025

==========

ımple Name: EdithP053 #B5 ENV(1=0,5=400)

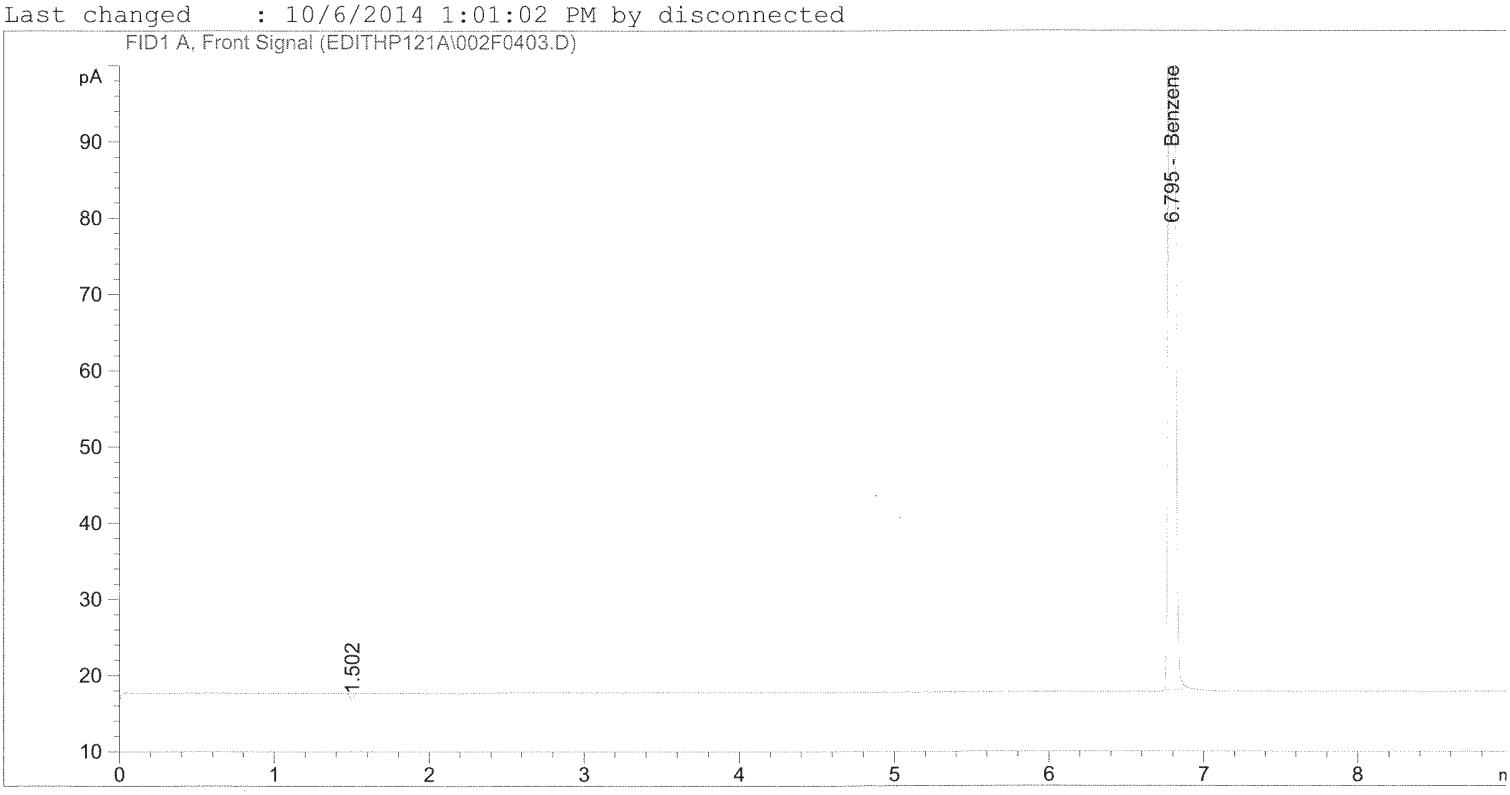
```
================================================================================
Acq. Operator   : disconnected                    Seq. Line :   4
Acq. Instrument : Edith                           Location : Vial 2
Injection Date  : 10/6/2014 10:19:37 AM                Inj :   2
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 4\EDITHP121A\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP121F_C1-C7_BENZENE.M
Last changed    : 10/6/2014 1:01:02 PM by disconnected
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Monday, October 06, 2014 1:00:58 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.548           -          -          -          Methane
  1.688           -          -          -          Ethane
  2.023           -          -          -          Propane
  2.932           -          -          -          Butane
  4.493           -          -          -          Pentane
  6.067           -          -          -          Hexane
  6.795 BB    808.59595 6.32333e-1  511.30197     Benzene
  7.232           -          -          -          Heptane

Totals :                              511.30197

Uncalibrated Peaks    :      using compound Propane
```

ımple Name: EdithP053 #B5 ENV(1=0,5=400)

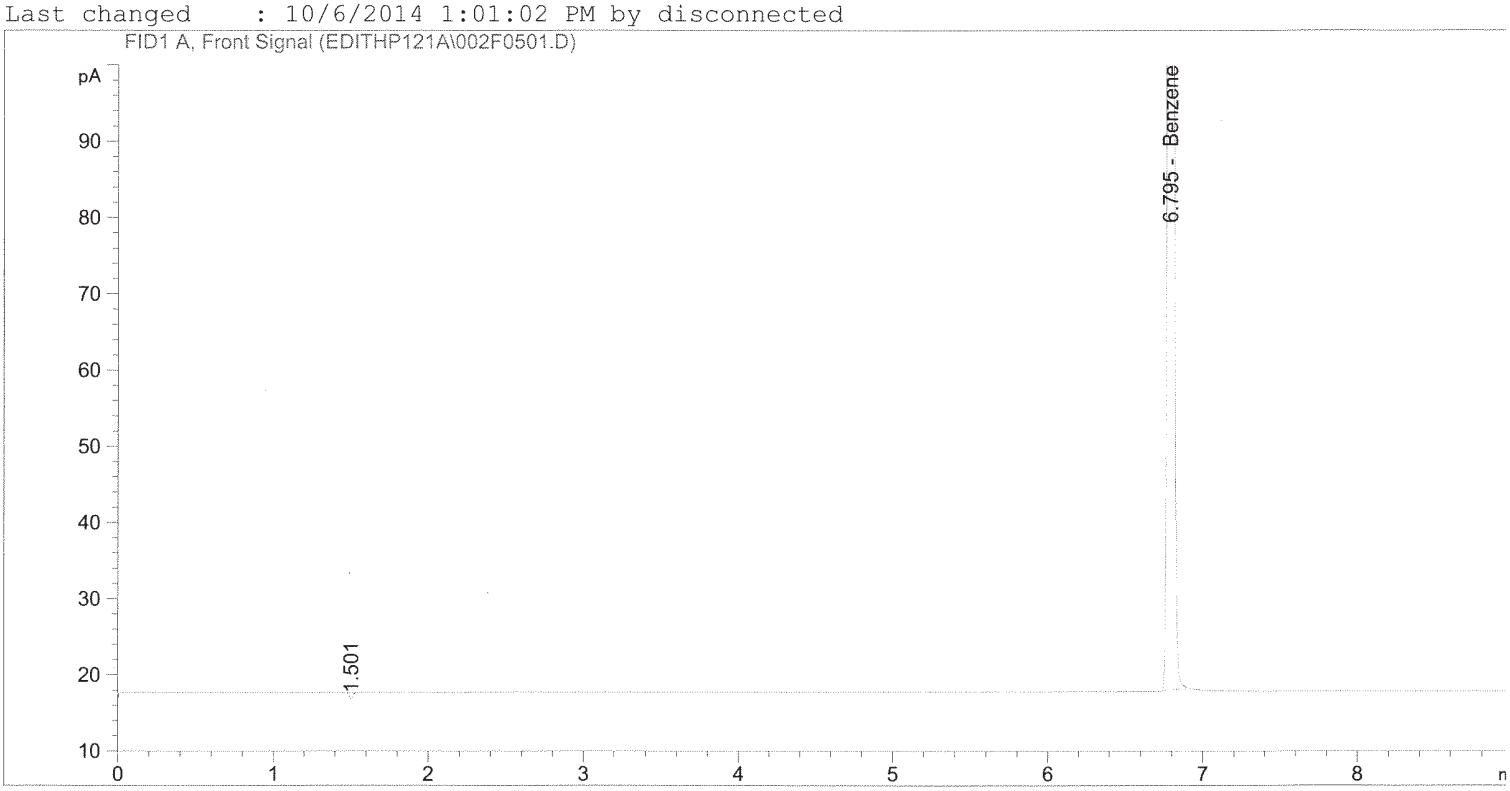
```
================================================================================
Acq. Operator   : disconnected                      Seq. Line :   4
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 10/6/2014 10:36:29 AM                   Inj :   3
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 4\EDITHP121A\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP121F_C1-C7_BENZENE.M
Last changed    : 10/6/2014 1:01:02 PM by disconnected
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Monday, October 06, 2014 1:00:58 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.548           -           -          -          Methane
  1.688           -           -          -          Ethane
  2.023           -           -          -          Propane
  2.932           -           -          -          Butane
  4.493           -           -          -          Pentane
  6.067           -           -          -          Hexane
  6.795 BB      812.98889 6.32333e-1  514.08009     Benzene
  7.232           -           -          -          Heptane

Totals :                                514.08009

Uncalibrated Peaks    :      using compound Propane
```

ımple Name: EdithP053 #B5 ENV(1=0,5=400)

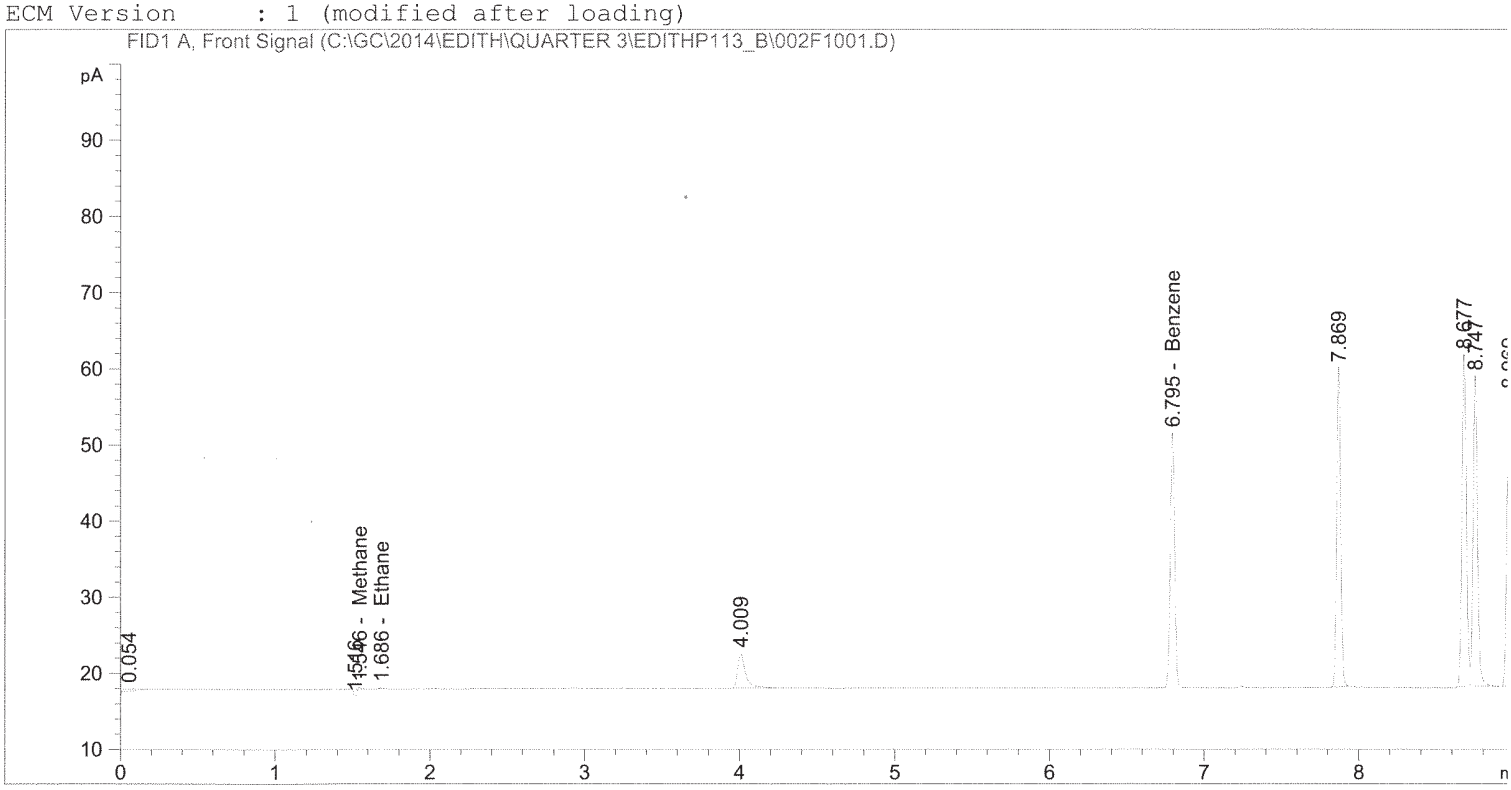
```
================================================================================
Acq. Operator   : disconnected                      Seq. Line :   5
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 10/6/2014 10:53:02 AM                   Inj :   1
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 4\EDITHP121A\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP121F_C1-C7_BENZENE.M
Last changed    : 10/6/2014 1:01:02 PM by disconnected
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Monday, October 06, 2014 1:00:58 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.548           -          -          -          Methane
  1.688           -          -          -          Ethane
  2.023           -          -          -          Propane
  2.932           -          -          -          Butane
  4.493           -          -          -          Pentane
  6.067           -          -          -          Hexane
  6.795 BB      813.54834 6.32334e-1  514.43388    Benzene
  7.232           -          -          -          Heptane

Totals :                                514.43388

Uncalibrated Peaks    :      using compound Propane
```

ample Name: EdithP053 #B3 ENV(1=600,4=400)

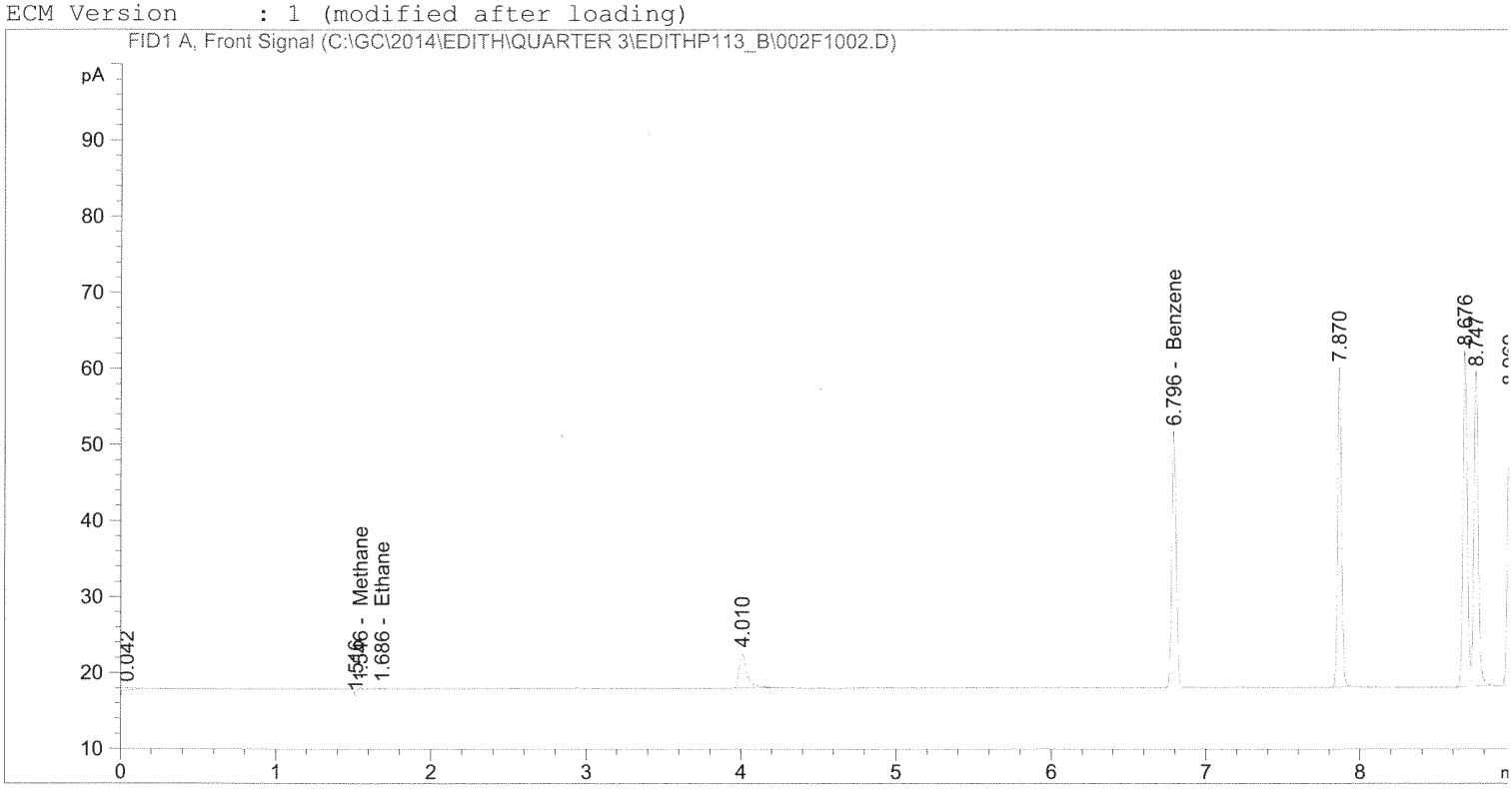
```
==========================================================================
Acq. Operator   : disconnected                    Seq. Line :  10
Acq. Instrument : Edith                          Location : Vial 2
Injection Date  : 9/29/2014 4:40:48 AM                Inj :  1
                                                 Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP113_B\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP121F_C1-C7_BENZENE.M
Last changed    : 10/6/2014 1:01:02 PM by disconnected
ECM Server      : http://ecm-server/enthalpy
ECM Operator    : disconnected
ECM Path        : GC\2014\Edith\Quarter 3\EDITHP113_B.SC.SSIzip
ECM Version     : 1 (modified after loading)
```




```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Monday, October 06, 2014 1:00:58 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type      Area      Amt/Area    Amount    Grp   Name
 [min]           [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  1.546 PB     2.77666e-1    3.93469    1.09253     Methane
  1.686 BP     1.97041e-1    1.86764 3.68001e-1     Ethane
  2.023           -             -          -        Propane
  2.932           -             -          -        Butane
  4.493           -             -          -        Pentane
  6.067           -             -          -        Hexane
  6.795 BB       66.19027 6.31545e-1   41.80210     Benzene
  7.232           -             -          -        Heptane
```

ımple Name: EdithP053 #B3 ENV(1=600,4=400)

```
================================================================================
Acq. Operator   : disconnected                      Seq. Line :  10
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 9/29/2014 4:56:57 AM                    Inj :   2
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP113_B\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP121F_C1-C7_BENZENE.M
Last changed    : 10/6/2014 1:01:02 PM by disconnected
ECM Server      : http://ecm-server/enthalpy
ECM Operator    : disconnected
ECM Path        : GC\2014\Edith\Quarter 3\EDITHP113_B.SC.SSIzip
ECM Version     : 1 (modified after loading)
```

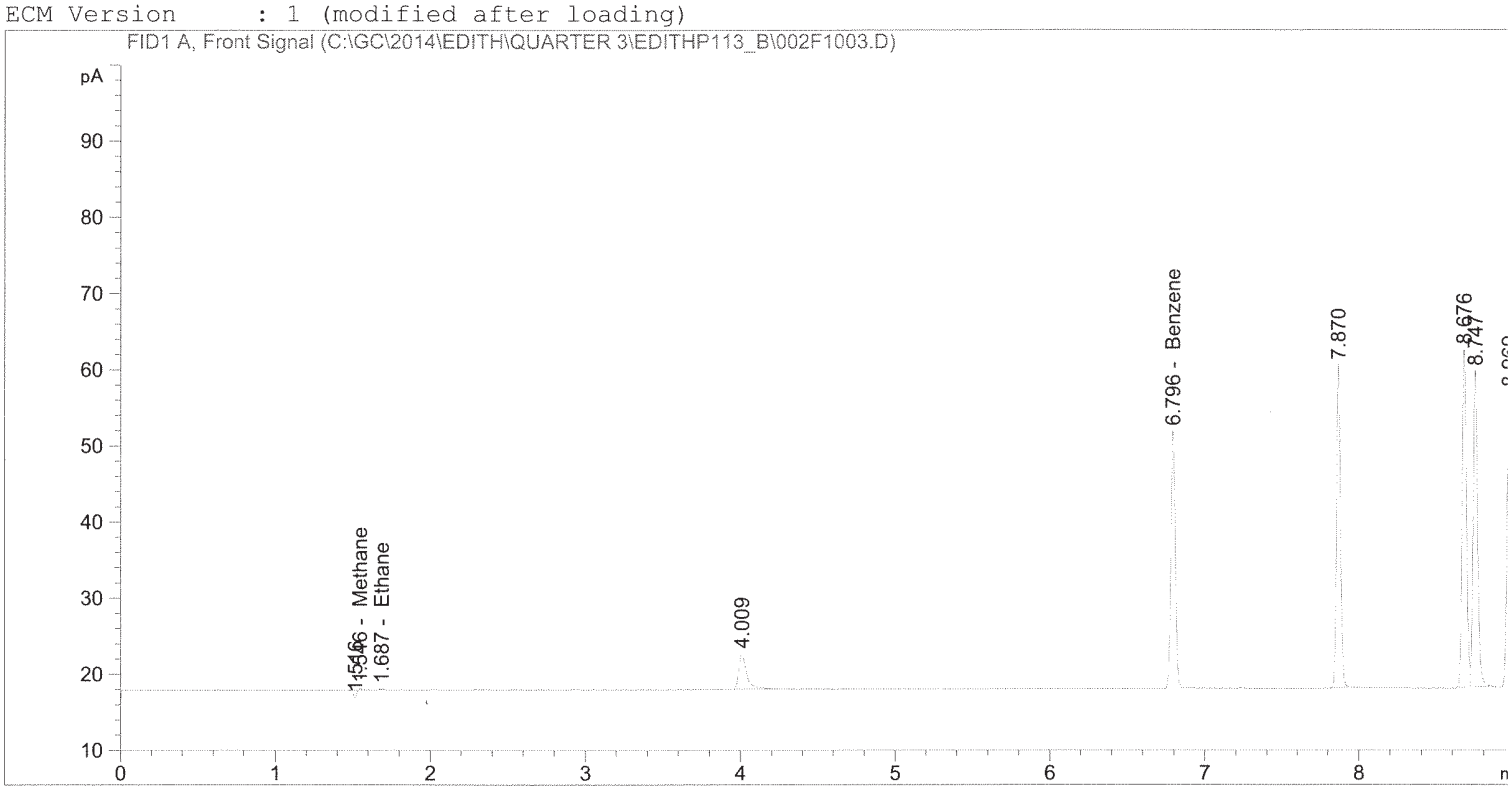



```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Monday, October 06, 2014 1:00:58 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.546	PB	2.69513e-1	3.93469	1.06045		Methane
1.686	BP	1.90026e-1	1.86764	3.54900e-1		Ethane
2.023		-	-	-		Propane
2.932		-	-	-		Butane
4.493		-	-	-		Pentane
6.067		-	-	-		Hexane
6.796	BB	66.28467	6.31546e-1	41.86180		Benzene
7.232		-	-	-		Heptane

mple Name: EdithP053 #B3 ENV(1=600,4=400)

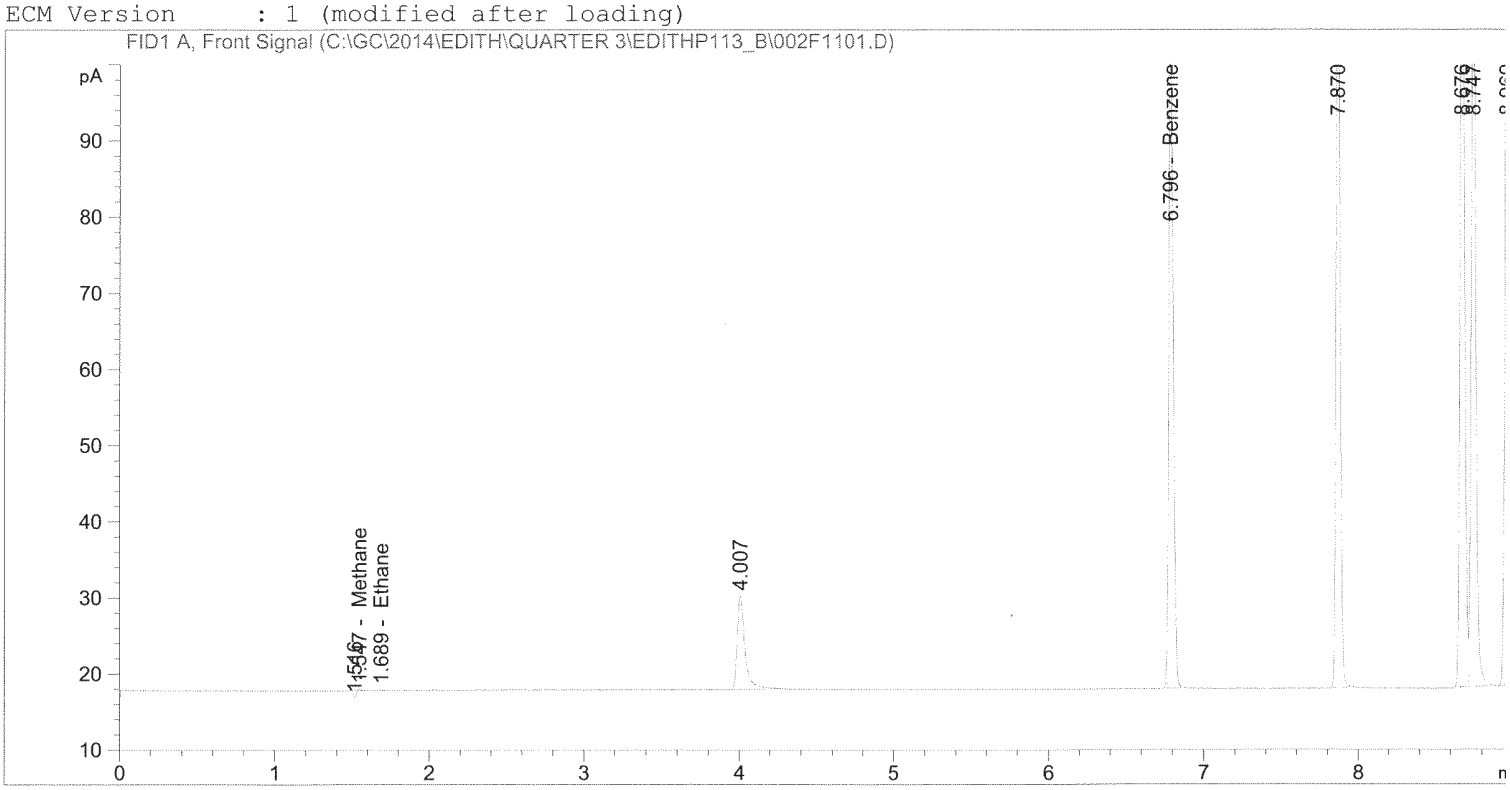
```
================================================================================
Acq. Operator   : disconnected                    Seq. Line :  10
Acq. Instrument : Edith                           Location : Vial 2
Injection Date  : 9/29/2014 5:13:06 AM                 Inj :  3
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP113_B\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP121F_C1-C7_BENZENE.M
Last changed    : 10/6/2014 1:01:02 PM by disconnected
ECM Server      : http://ecm-server/enthalpy
ECM Operator    : disconnected
ECM Path        : GC\2014\Edith\Quarter 3\EDITHP113_B.SC.SSIzip
ECM Version     : 1 (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Monday, October 06, 2014 1:00:58 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type      Area      Amt/Area    Amount    Grp   Name
 [min]           [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.546 PB     2.38932e-1    3.93469 9.40122e-1    Methane
  1.687 BP     1.45382e-1    1.86764 2.71520e-1    Ethane
  2.023            -             -          -      Propane
  2.932            -             -          -      Butane
  4.493            -             -          -      Pentane
  6.067            -             -          -      Hexane
  6.796 BB       66.50481 6.31549e-1   42.00102    Benzene
  7.232            -             -          -      Heptane
```

ımple Name: EdithP053 #B4 ENV(1=0,4=450)

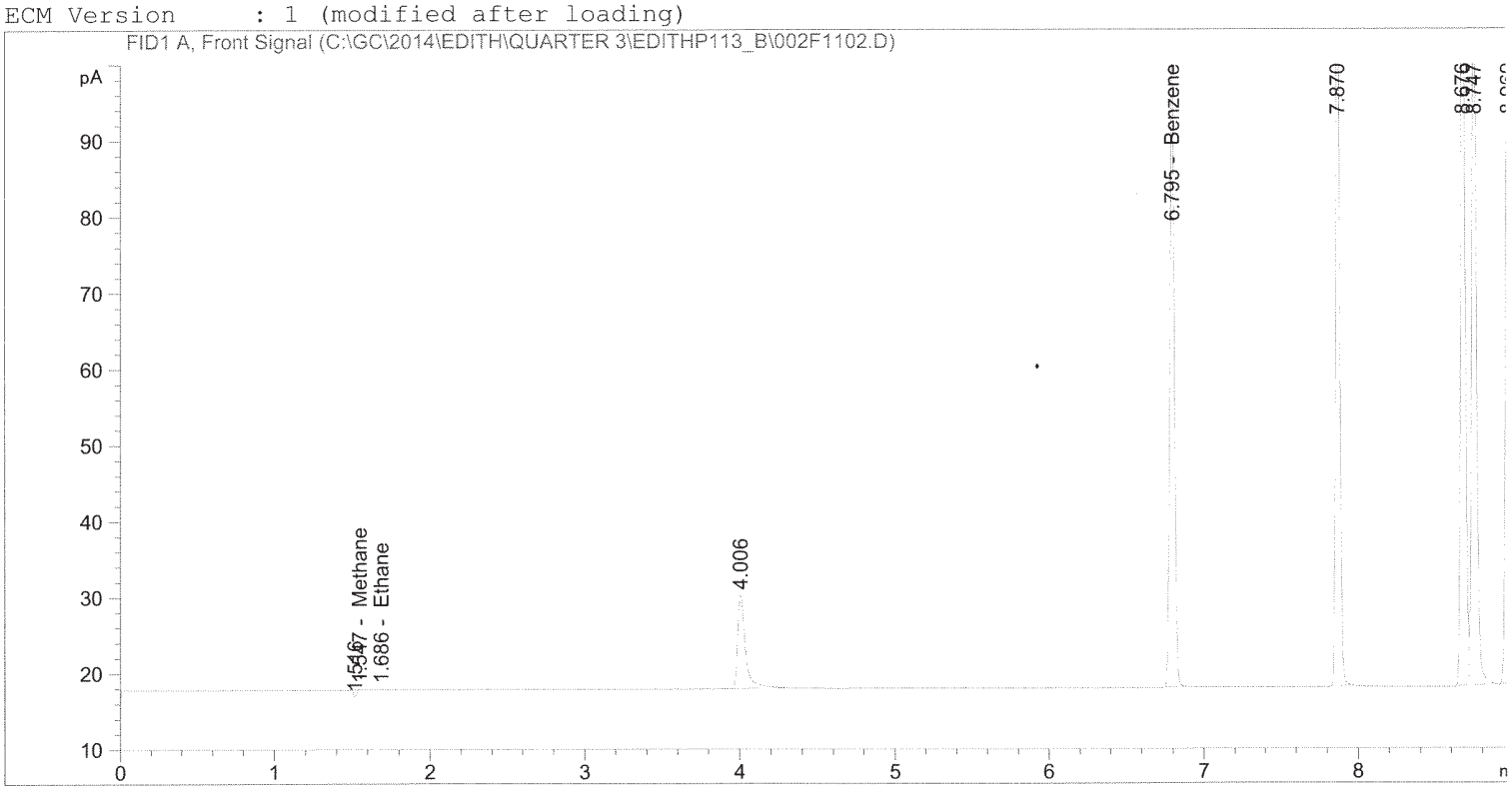
```
================================================================================
Acq. Operator   : disconnected                    Seq. Line :  11
Acq. Instrument : Edith                           Location : Vial 2
Injection Date  : 9/29/2014 5:45:18 AM                 Inj :  1
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP113_B\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP121F_C1-C7_BENZENE.M
Last changed    : 10/6/2014 1:01:02 PM by disconnected
ECM Server      : http://ecm-server/enthalpy
ECM Operator    : disconnected
ECM Path        : GC\2014\Edith\Quarter 3\EDITHP113_B.SC.SSIzip
ECM Version     : 1 (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Monday, October 06, 2014 1:00:58 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type      Area      Amt/Area    Amount   Grp   Name
 [min]           [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.547 PB     2.39760e-1    3.93469 9.43382e-1    Methane
  1.689 BP     1.55965e-1    1.86764 2.91286e-1    Ethane
  2.023             -           -          -       Propane
  2.932             -           -          -       Butane
  4.493             -           -          -       Pentane
  6.067             -           -          -       Hexane
  6.796 BB      164.68761 6.32058e-1  104.09215    Benzene
  7.232             -           -          -       Heptane
```

ample Name: EdithP053 #B4 ENV(1=0,4=450)

```
================================================================================
Acq. Operator   : disconnected                    Seq. Line :  11
Acq. Instrument : Edith                           Location : Vial 2
Injection Date  : 9/29/2014 6:01:24 AM                Inj :   2
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP113_B\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP121F_C1-C7_BENZENE.M
Last changed    : 10/6/2014 1:01:02 PM by disconnected
ECM Server      : http://ecm-server/enthalpy
ECM Operator    : disconnected
ECM Path        : GC\2014\Edith\Quarter 3\EDITHP113_B.SC.SSIzip
ECM Version     : 1 (modified after loading)
```

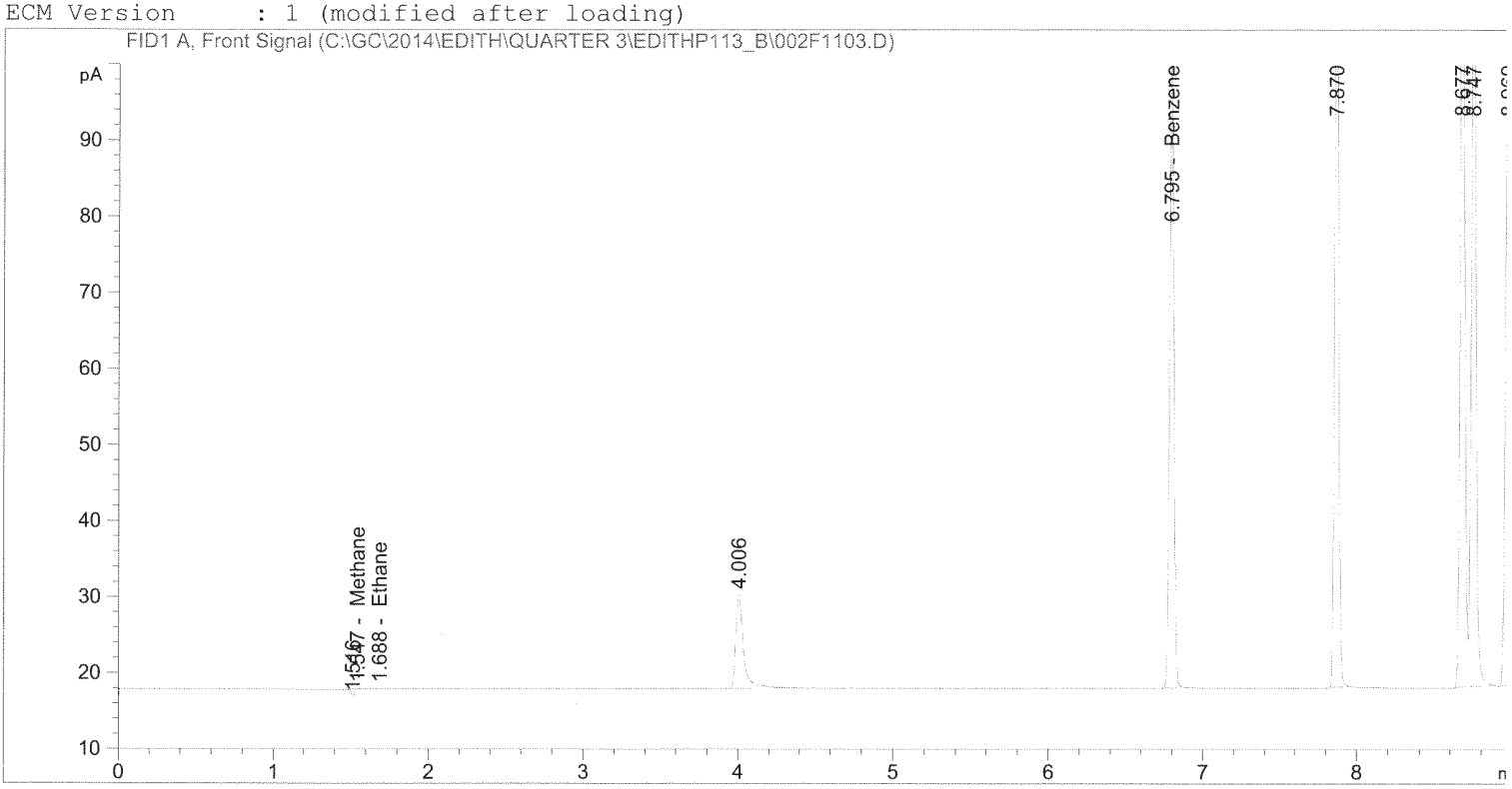



```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Monday, October 06, 2014 1:00:58 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.547	PB	2.24066e-1	3.93469	8.81630e-1		Methane
1.686	BP	1.60971e-1	1.86764	3.00635e-1		Ethane
2.023		-	-	-		Propane
2.932		-	-	-		Butane
4.493		-	-	-		Pentane
6.067		-	-	-		Hexane
6.795	BB	163.53508	6.32056e-1	103.36329		Benzene
7.232		-	-	-		Heptane

ample Name: EdithP053 #B4 ENV(1=0,4=450)

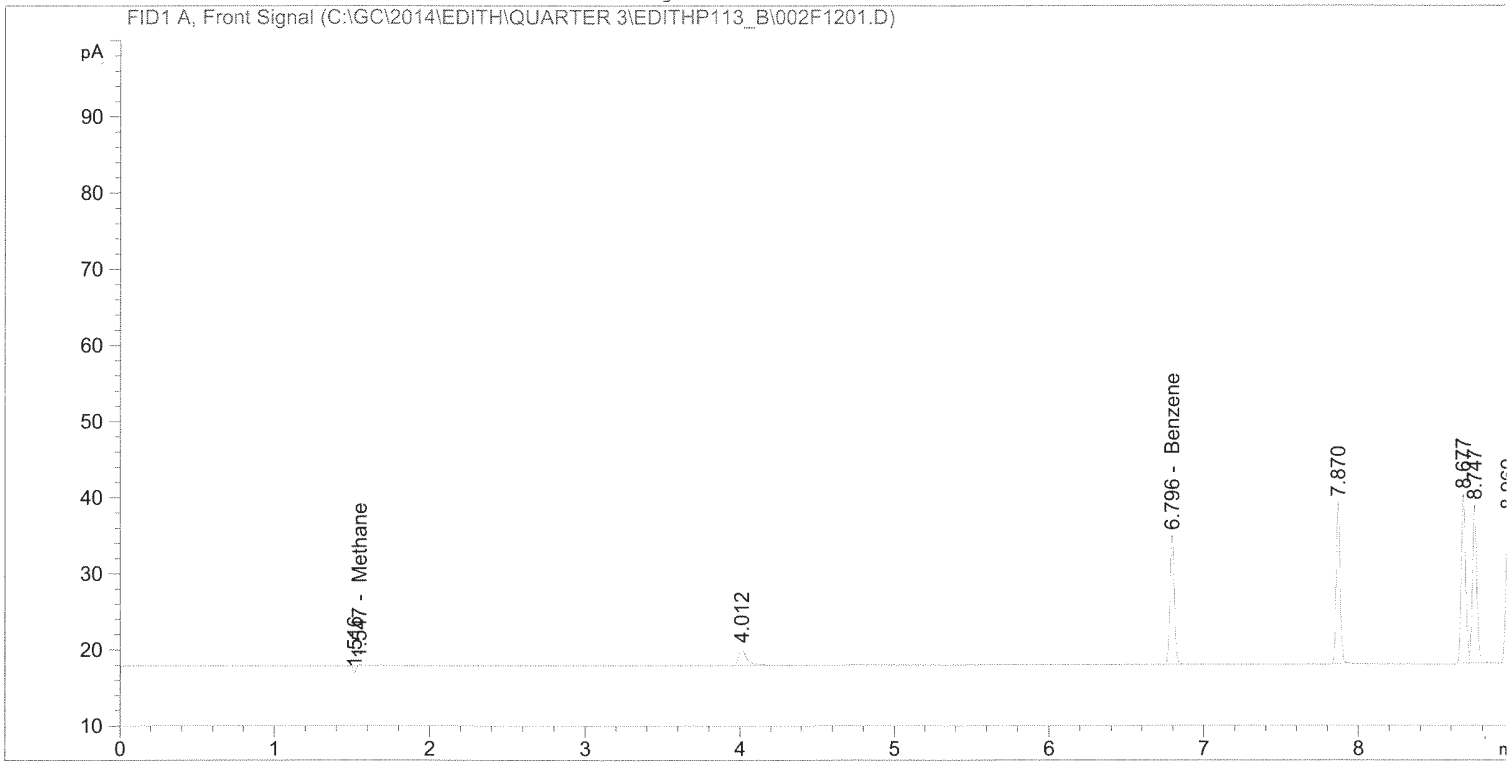
```
================================================================================
Acq. Operator    : disconnected                      Seq. Line :  11
Acq. Instrument  : Edith                              Location : Vial 2
Injection Date   : 9/29/2014 6:17:34 AM                   Inj :   3
                                                    Inj Volume : 250 µl
Acq. Method      : C:\GC\2014\EDITH\QUARTER 3\EDITHP113_B\GC139P039_HRVOC.M
Last changed     : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method  : C:\GC\2014\EDITH\METHODS\EDITHP121F_C1-C7_BENZENE.M
Last changed     : 10/6/2014 1:01:02 PM by disconnected
ECM Server       : http://ecm-server/enthalpy
ECM Operator     : disconnected
ECM Path         : GC\2014\Edith\Quarter 3\EDITHP113_B.SC.SSIzip
ECM Version      : 1 (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Monday, October 06, 2014 1:00:58 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type      Area      Amt/Area    Amount    Grp   Name
 [min]           [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.547 PB     1.88374e-1    3.93469 7.41194e-1     Methane
  1.688 BP     1.57342e-1    1.86764 2.93857e-1     Ethane
  2.023            -             -          -       Propane
  2.932            -             -          -       Butane
  4.493            -             -          -       Pentane
  6.067            -             -          -       Hexane
  6.795 BB      163.68217 6.32056e-1  103.45631     Benzene
  7.232            -             -          -       Heptane
```

ımple Name: EdithP053 #B2 ENV(1=800,4=200)

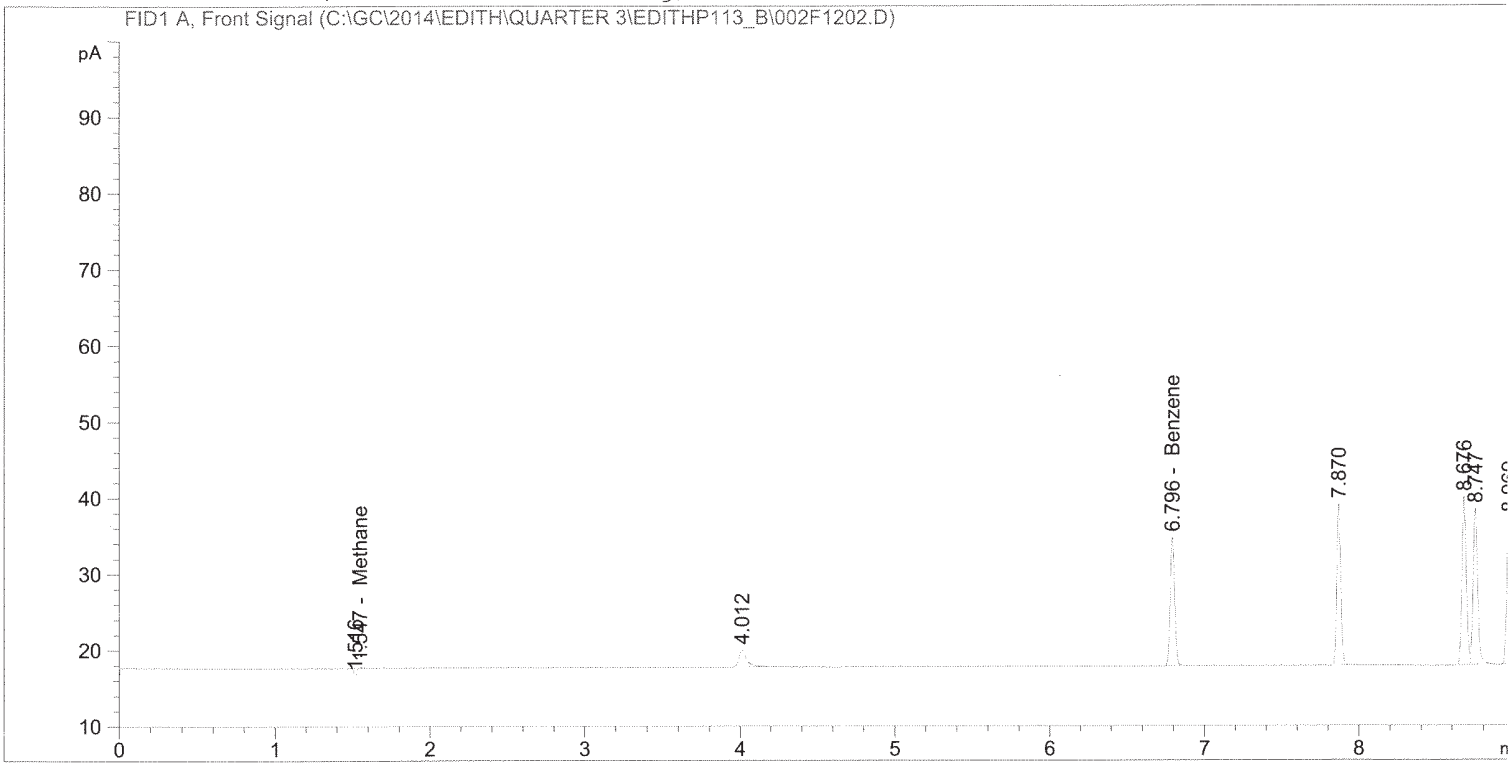
```
================================================================================
Acq. Operator   : disconnected                      Seq. Line :  12
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 9/29/2014 6:49:50 AM                    Inj :   1
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP113_B\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP121F_C1-C7_BENZENE.M
Last changed    : 10/6/2014 1:01:02 PM by disconnected
ECM Server      : http://ecm-server/enthalpy
ECM Operator    : disconnected
ECM Path        : GC\2014\Edith\Quarter 3\EDITHP113_B.SC.SSIzip
ECM Version     : 1 (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Monday, October 06, 2014 1:00:58 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.547 PB     1.84994e-1    3.93469 7.27894e-1     Methane
  1.688           -             -          -        Ethane
  2.023           -             -          -        Propane
  2.932           -             -          -        Butane
  4.493           -             -          -        Pentane
  6.067           -             -          -        Hexane
  6.796 BB       33.24083 6.30693e-1   20.96477     Benzene
  7.232           -             -          -        Heptane
```

ample Name: EdithP053 #B2 ENV(1=800,4=200)

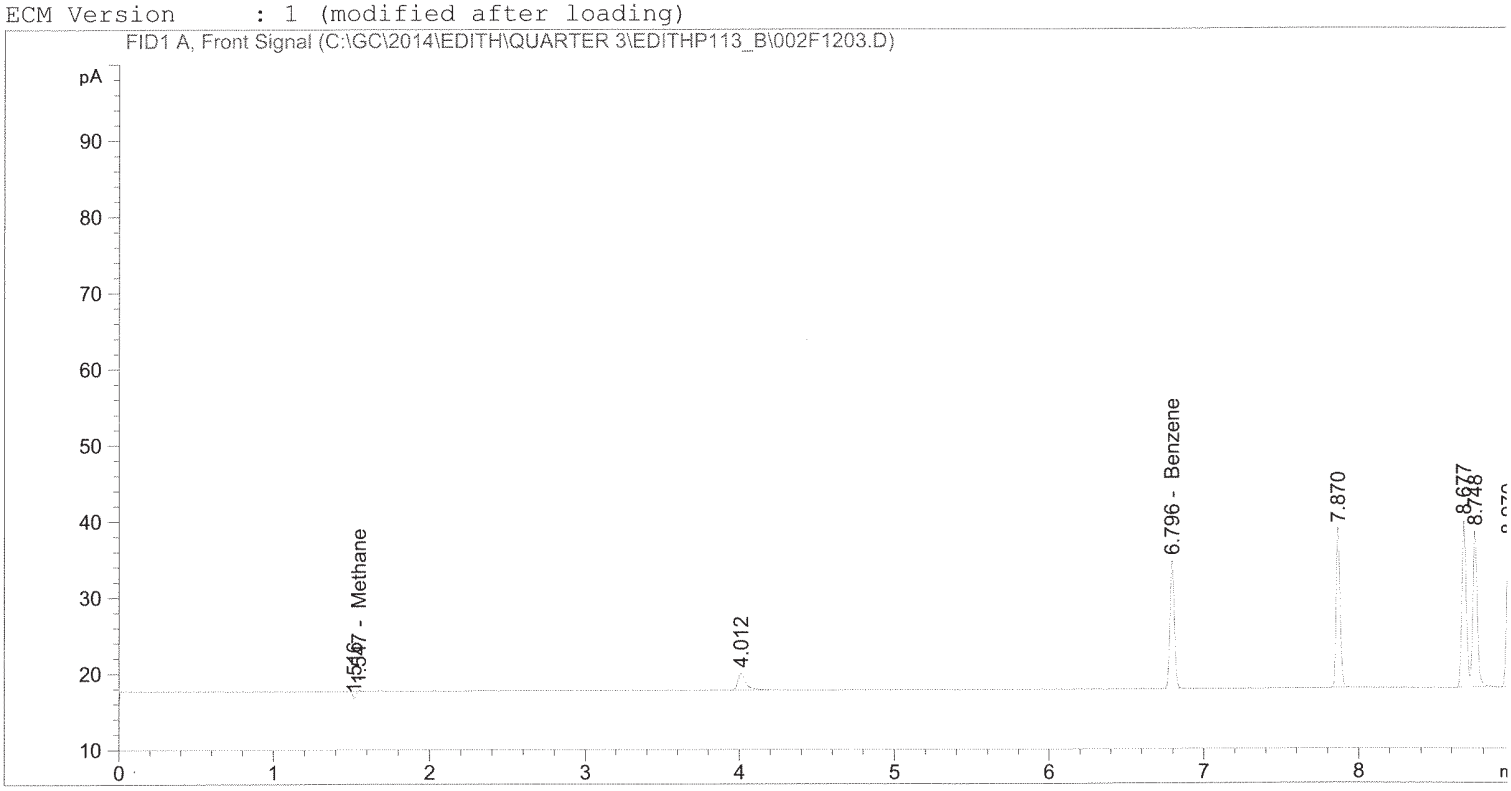
```
==========================================================================
Acq. Operator   : disconnected                    Seq. Line :  12
Acq. Instrument : Edith                           Location : Vial 2
Injection Date  : 9/29/2014 7:06:01 AM                 Inj :  2
                                                Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP113_B\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP121F_C1-C7_BENZENE.M
Last changed    : 10/6/2014 1:01:02 PM by disconnected
ECM Server      : http://ecm-server/enthalpy
ECM Operator    : disconnected
ECM Path        : GC\2014\Edith\Quarter 3\EDITHP113_B.SC.SSIzip
ECM Version     : 1 (modified after loading)
```




```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Monday, October 06, 2014 1:00:58 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type      Area      Amt/Area    Amount    Grp   Name
 [min]           [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  1.547 PB     1.97984e-1    3.93469 7.79004e-1     Methane
  1.688           -             -          -        Ethane
  2.023           -             -          -        Propane
  2.932           -             -          -        Butane
  4.493           -             -          -        Pentane
  6.067           -             -          -        Hexane
  6.796 BB       33.20566 6.30691e-1   20.94252     Benzene
  7.232           -             -          -        Heptane
```

ample Name: EdithP053 #B2 ENV(1=800,4=200)

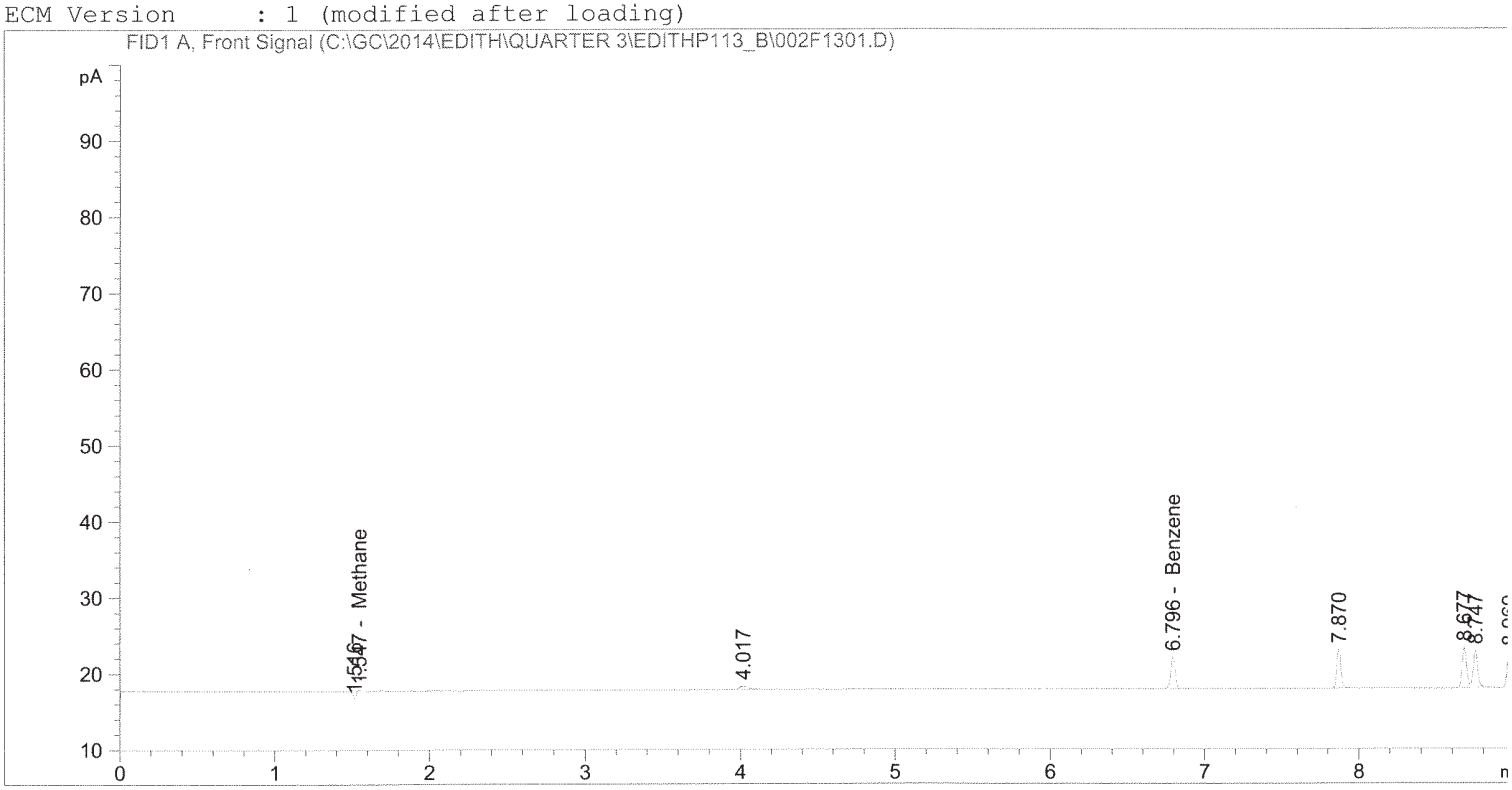
```
==========================================================================
Acq. Operator    : disconnected                      Seq. Line :  12
Acq. Instrument  : Edith                              Location : Vial 2
Injection Date   : 9/29/2014 7:22:06 AM                    Inj :   3
                                                    Inj Volume : 250 µl
Acq. Method      : C:\GC\2014\EDITH\QUARTER 3\EDITHP113_B\GC139P039_HRVOC.M
Last changed     : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method  : C:\GC\2014\EDITH\METHODS\EDITHP121F_C1-C7_BENZENE.M
Last changed     : 10/6/2014 1:01:02 PM by disconnected
ECM Server       : http://ecm-server/enthalpy
ECM Operator     : disconnected
ECM Path         : GC\2014\Edith\Quarter 3\EDITHP113_B.SC.SSIzip
ECM Version      : 1 (modified after loading)
```




```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Monday, October 06, 2014 1:00:58 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  1.547 PB     1.87729e-1    3.93469 7.38654e-1     Methane
  1.688           -             -         -         Ethane
  2.023           -             -         -         Propane
  2.932           -             -         -         Butane
  4.493           -             -         -         Pentane
  6.067           -             -         -         Hexane
  6.796 BB       33.17360 6.30690e-1   20.92225     Benzene
  7.232           -             -         -         Heptane
```

ample Name: EdithP053 #B1 ENV(1=1900,4=100)

```
==========================================================================
Acq. Operator   : disconnected                    Seq. Line :  13
Acq. Instrument : Edith                           Location : Vial 2
Injection Date  : 9/29/2014 7:54:18 AM                 Inj :  1
                                                Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP113_B\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP121F_C1-C7_BENZENE.M
Last changed    : 10/6/2014 1:01:02 PM by disconnected
ECM Server      : http://ecm-server/enthalpy
ECM Operator    : disconnected
ECM Path        : GC\2014\Edith\Quarter 3\EDITHP113_B.SC.SSIzip
ECM Version     : 1 (modified after loading)
```

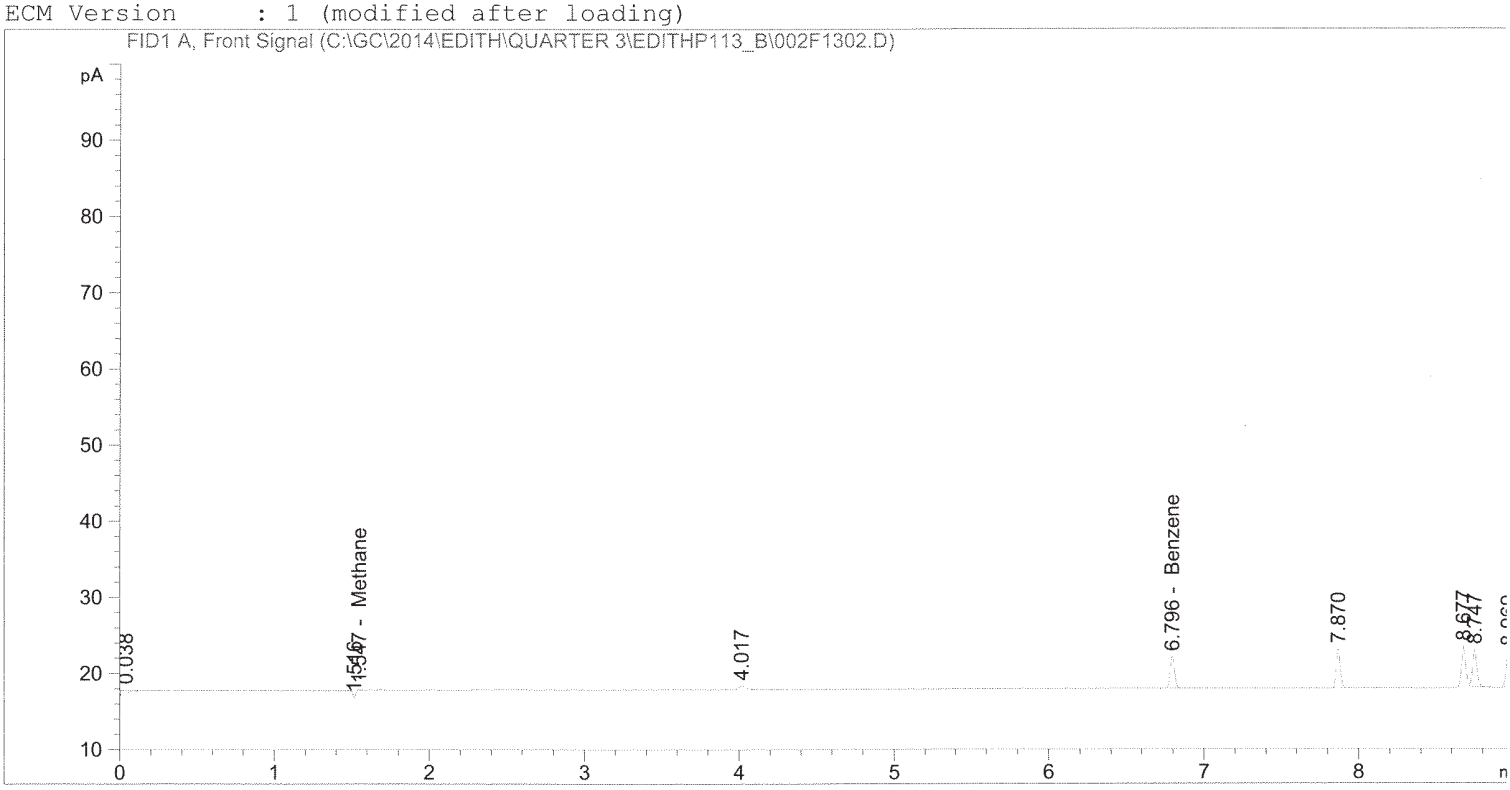



```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Monday, October 06, 2014 1:00:58 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.547	PB	1.80748e-1	3.93469	7.11187e-1		Methane
1.688		-	-	-		Ethane
2.023		-	-	-		Propane
2.932		-	-	-		Butane
4.493		-	-	-		Pentane
6.067		-	-	-		Hexane
6.796	BB	8.18025	6.25499e-1	5.11673		Benzene
7.232		-	-	-		Heptane

ample Name: EdithP053 #B1 ENV(1=1900,4=100)

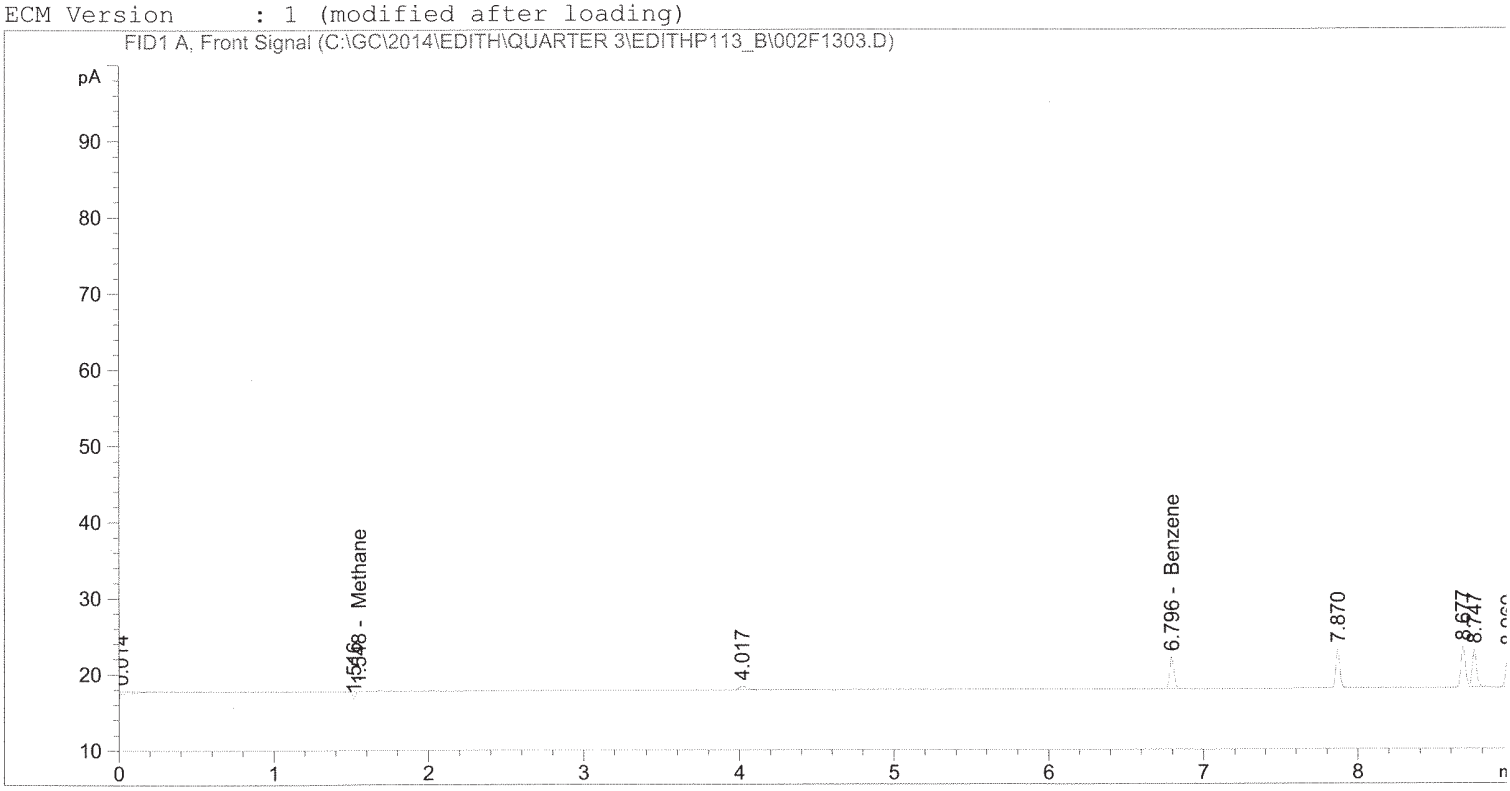
```
================================================================================
Acq. Operator   : disconnected                      Seq. Line :  13
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 9/29/2014 8:10:31 AM                    Inj :   2
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP113_B\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP121F_C1-C7_BENZENE.M
Last changed    : 10/6/2014 1:01:02 PM by disconnected
ECM Server      : http://ecm-server/enthalpy
ECM Operator    : disconnected
ECM Path        : GC\2014\Edith\Quarter 3\EDITHP113_B.SC.SSIzip
ECM Version     : 1 (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Monday, October 06, 2014 1:00:58 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type      Area      Amt/Area    Amount    Grp   Name
 [min]           [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  1.547 PB     1.90451e-1    3.93469 7.49365e-1     Methane
  1.688            -             -          -        Ethane
  2.023            -             -          -        Propane
  2.932            -             -          -        Butane
  4.493            -             -          -        Pentane
  6.067            -             -          -        Hexane
  6.796 BB       8.17010 6.25499e-1    5.11039     Benzene
  7.232            -             -          -        Heptane
```

ample Name: EdithP053 #B1 ENV(1=1900,4=100)

```
================================================================================
Acq. Operator    : disconnected                      Seq. Line :  13
Acq. Instrument  : Edith                              Location : Vial 2
Injection Date   : 9/29/2014 8:26:35 AM                    Inj :   3
                                                    Inj Volume : 250 µl
Acq. Method      : C:\GC\2014\EDITH\QUARTER 3\EDITHP113_B\GC139P039_HRVOC.M
Last changed     : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method  : C:\GC\2014\EDITH\METHODS\EDITHP121F_C1-C7_BENZENE.M
Last changed     : 10/6/2014 1:01:02 PM by disconnected
ECM Server       : http://ecm-server/enthalpy
ECM Operator     : disconnected
ECM Path         : GC\2014\Edith\Quarter 3\EDITHP113_B.SC.SSIzip
ECM Version      : 1 (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      Monday, October 06, 2014 1:00:58 PM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.548	PB	1.53631e-1	3.93469	6.04490e-1		Methane
1.688		-	-	-		Ethane
2.023		-	-	-		Propane
2.932		-	-	-		Butane
4.493		-	-	-		Pentane
6.067		-	-	-		Hexane
6.796	BB	8.19751	6.25499e-1	5.12753		Benzene
7.232		-	-	-		Heptane

THE LINDE GROUP

SHIPPED TO: Enthalpy Analytical Inc.
800 Capitola Dr. Ste 1
Durham, NC 27713-4385

PAGE: 1 of 1

CERTIFICATE OF ANALYSIS

Sales#:	111524232	**Cylinder Size:**	2A (8" X 47.5")
Production#:	1293572	**Cylinder # :**	CC-88503
Certification Date:	Apr-15-2014	**Cylinder Pressure:**	1000 psig
P.O.# :	04031401	**Cylinder Valve:**	CGA 350 / Steel
Blend Type:	CERTIFIED	**Cylinder Volume:**	29.5 Liter
Material#:	24086389	**Cylinder Material:**	Aluminum
Traceability:	NIST by weight	**Gas Volume:**	2000 Liters
Expiration Date:	Apr-15-2015	**Blend Tolerance:**	5% Relative
Do NOT use under:	150 psig	**Analytical Accuracy:**	2% Relative

COMPONENT	CAS NUMBER	REQUESTED CONC	CERTIFIED CONC
Acetone	67-64-1	100 ppm	104 ppm
Benzene	71-43-2	100 ppm	103 ppm
Toluene	108-88-3	100 ppm	103 ppm
Ethylbenzene	100-41-4	100 ppm	104 ppm
p-xylene	106-42-3	100 ppm	103 ppm
o-xylene	95-47-6	100 ppm	102 ppm
Nitrogen	7727-37-9	Balance	Balance

ANALYST: _____
Lou Lorenzetti

DATE: Apr-15-2014

Linde Gas North America LLC

(908) 329-9700 Main (908) 329-9740 Fax
www.Lindeus.com

Agilent 7890A

Oven	
Equilibration Time	0.3 min
Max Temperature	200 degrees C
Slow Fan	Disabled
Oven Program	On
35 °C for 2.2 min	
#1 then 15 °C/min to 70 °C for 0.07 min	
#2 then 30 °C/min to 180 °C for 1 min	
Run Time	9.27 min
Sample Overlap	
Sample overlap is not enabled	
Front SS Inlet H2	
Mode	Split
Heater	On 200 °C
Pressure	On 5.1931 psi
Total Flow	On 15.6 mL/min
Septum Purge Flow	On 3 mL/min
Gas Saver	Off
Split Ratio	5 :1
Split Flow	10.5 mL/min
Back SS Inlet H2	
Mode	Split
Heater	On 200 °C
Pressure	On 4.9511 psi
Total Flow	On 9.6 mL/min
Septum Purge Flow	On 3 mL/min
Gas Saver	Off
Split Ratio	2 :1
Split Flow	0 mL/min
Column #1	
Restek 10198Rtx-1 S/N 806941	
280 °C: 30 m x 320 µm x 4 µm	
In: Front SS Inlet H2	
Out: Front Detector FID	
(Initial)	35 °C
Pressure	5.1931 psi
Flow	2.1 mL/min
Average Velocity	39.91 cm/sec
Holdup Time	1.2528 min
Flow Program	On
2.1 mL/min for 0 min	
Run Time	9.27 min
Column #2	
Restek 19701Alumina S/N 156109	
280 °C: 30 m x 320 µm x 10 µm	
In: Front SS Inlet H2	
Out: Back Detector FID	
(Initial)	35 °C
Pressure	6.1868 psi
Flow	2.2 mL/min
Average Velocity	43.848 cm/sec
Holdup Time	1.1403 min
Flow Program	On

odified on: 1/14/2014 at 3:15:15 PM

2.2 mL/min for 0 min		
Run Time	9.27 min	
Front Detector FID		
Heater	On	300 °C
H2 Flow	On	50 mL/min
Air Flow	On	450 mL/min
Makeup Flow	On	35 mL/min
Const Col + Makeup	Off	
Flame	On	
Electrometer	On	
Back Detector FID		
Heater	On	200 °C
H2 Flow	On	50 mL/min
Air Flow	On	450 mL/min
Makeup Flow	On	35 mL/min
Const Col + Makeup	Off	
Flame	On	
Electrometer	On	
Valve 1		
Gas Sampling Valve	Off	
GSV Loop Volume	0.25 mL	
Load Time	1.5 min	
Inject Time	0.5 min	
Valve 2		
Gas Sampling Valve	Off	
GSV Loop Volume	0.25 mL	
Load Time	1.5 min	
Inject Time	0.5 min	
Valve Box		
Heater	On	150 °C
Signals		
Signal #1: Front Signal	Save On	
	20 Hz	
Signal #2: Test Plot	Save Off	
	50 Hz	
Signal #3: Back Signal	Save On	
	20 Hz	
Signal #4: Test Plot	Save Off	
	50 Hz	

Calibration Table

Calib. Data Modified : 9/23/2014 7:13:51 AM

Rel. Reference Window : 0.000 %
Abs. Reference Window : 0.100 min
Rel. Non-ref. Window : 0.000 %
Abs. Non-ref. Window : 0.050 min
Uncalibrated Peaks : Separately calculated (see below)
Partial Calibration : Yes, identified peaks are recalibrated
Correct All Ret. Times: No, only for identified peaks

Curve Type : Linear
Origin : Connected
Weight : Quadratic (Amnt)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Signal 1: FID1 A, Front Signal
Uncalibrated Peaks : using compound Propane
Signal 2: FID3 B, Back Signal
Uncalibrated Peaks : not reported

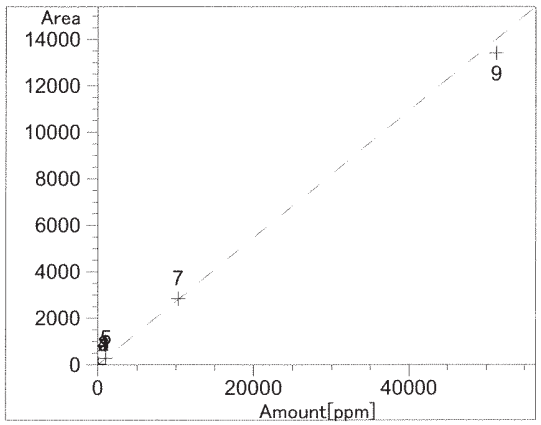
RetTime [min]	Sig	Lvl	Amount [ppm]	Area	Amt/Area	Ref	Grp	Name
1.543	1	1	5.01000	1.24640	4.01958			Methane
		2	10.02000	2.73780	3.65988			
		3	40.08000	11.00137	3.64318			
		4	100.20000	27.38345	3.65914			
		5	1026.00000	279.47185	3.67121			
		7	1.02600e4	2831.91227	3.62299			
		9	5.13000e4	1.33966e4	3.82933			
1.685	1	1	5.00500	2.64095	1.89515			Ethane
		2	10.01000	5.43771	1.84085			
		3	40.04000	21.75508	1.84049			
		4	100.10000	53.44088	1.87310			
		5	1026.00000	539.84916	1.90053			
		7	1.02600e4	5461.77913	1.87851			
		9	5.13000e4	2.57779e4	1.99008			
2.023	1	1	5.02000	3.93552	1.27556			Propane
		2	10.04000	7.98325	1.25763			
		3	40.16000	32.24148	1.24560			
		4	100.40000	79.98379	1.25525			
		5	1026.00000	801.90285	1.27946			
		7	1.02600e4	8146.17285	1.25949			
		9	5.13000e4	3.83387e4	1.33807			
2.932	1	1	5.01000	5.26892	9.50859e-1			Butane
		2	10.02000	10.51788	9.52664e-1			
		3	40.08000	42.46952	9.43736e-1			
		4	100.20000	105.51465	9.49631e-1			

RetTime [min]	Sig	Lvl	Amount [ppm]	Area	Amt/Area	Ref Grp	Name
		5	206.00000	213.97933	9.62710e-1		
		7	2060.00000	2170.61491	9.49040e-1		
		9	1.03000e4	1.02448e4	1.00539		
4.493	1	1	5.00000	6.79984	7.35311e-1		Pentane
		2	10.00000	13.34243	7.49489e-1		
		3	40.00000	53.24072	7.51305e-1		
		4	100.00000	131.72862	7.59136e-1		
		5	104.00000	131.05394	7.93566e-1		
		7	1040.00000	1331.66182	7.80979e-1		
		9	5200.00000	6271.82715	8.29104e-1		
6.067	1	1	5.00500	7.78685	6.42751e-1		Hexane
		2	10.01000	15.63340	6.40296e-1		
		3	40.04000	63.01467	6.35408e-1		
		4	100.10000	156.35443	6.40212e-1		
		7	820.00000	1210.28654	6.77526e-1		
		9	4100.00000	5675.94564	7.22347e-1		
7.232	1	1	4.99100	9.07234	5.50134e-1		Heptane
		2	9.98200	18.20331	5.48362e-1		
		3	39.92800	73.48394	5.43357e-1		
		4	99.82000	182.12613	5.48082e-1		

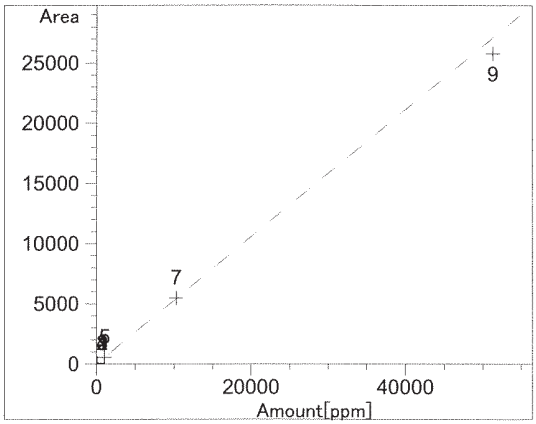
Peak Sum Table

Name	StartTime [min]	EndTime [min]	Use Reference	Response factor	Multiplier	ISTD Peak
as Ethane	1.550	1.855	None	1.8884	1.8884	None
as Propane	1.855	2.479	None	1.2730	1.2730	None
as Butane	2.479	3.714	None	9.5915e-1	0.9591	None
as Pentane	3.714	5.209	None	7.7127e-1	0.7713	None
as Hexane	5.209	6.650	None	6.5976e-1	0.6598	None
as Heptane	6.650	13.000	None	5.4785e-1	0.5475	None

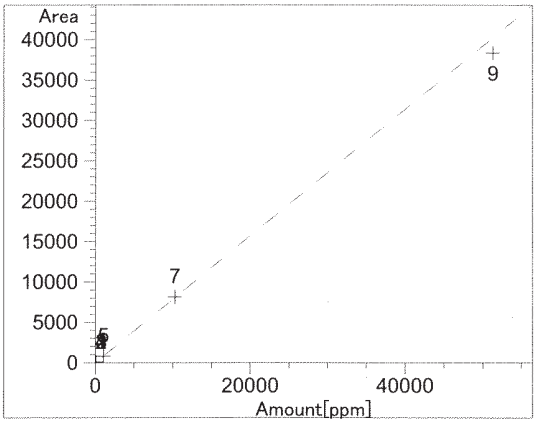
Calibration Curves



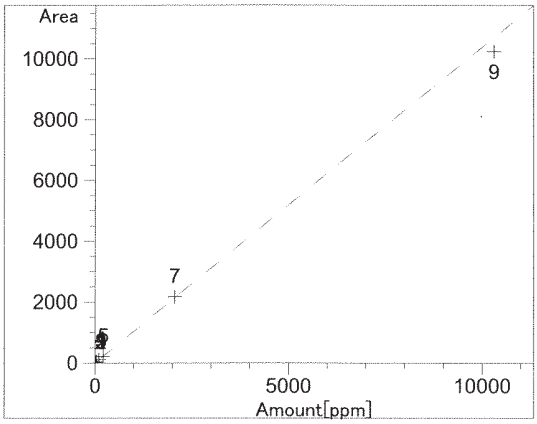
Methane at exp. RT: 1.543
FID1 A, Front Signal
Correlation: 0.99959
Residual Std. Dev.: 272.40560
Formula: y = mx + b
m: 2.73002e-1
b: -9.44523e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025
Level 5 : 0.000024
Level 7 : 2.38441e-007
Level 9 : 9.53764e-009



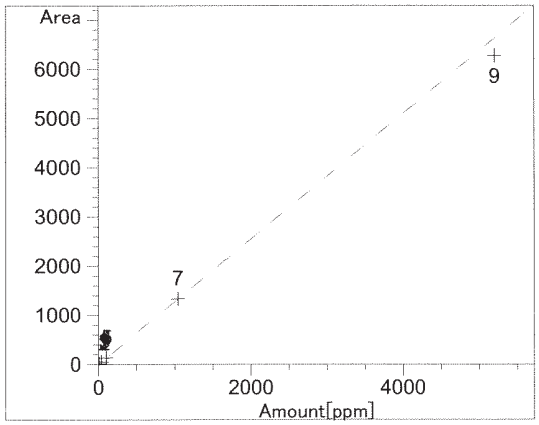
Ethane at exp. RT: 1.685
FID1 A, Front Signal
Correlation: 0.99959
Residual Std. Dev.: 588.10314
Formula: y = mx + b
m: 5.28113e-1
b: 3.66515e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025
Level 5 : 0.000024
Level 7 : 2.37965e-007
Level 9 : 9.51861e-009



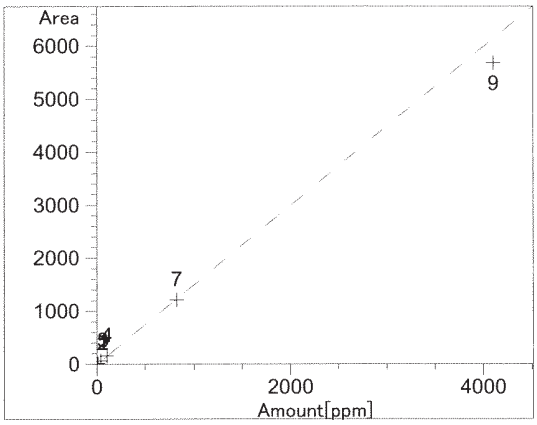
Propane at exp. RT: 2.023
FID1 A, Front Signal
Correlation: 0.99965
Residual Std. Dev.: 852.69660
Formula: y = mx + b
m: 7.84462e-1
b: 3.06331e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025
Level 5 : 0.000024
Level 7 : 2.39394e-007
Level 9 : 9.57575e-009



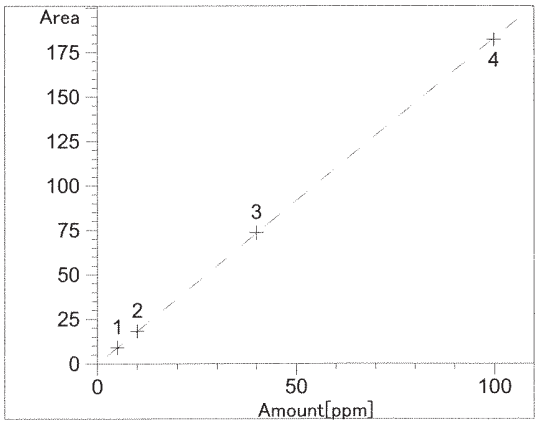
Butane at exp. RT: 2.932
FID1 A, Front Signal
Correlation: 0.99973
Residual Std. Dev.: 204.33121
Formula: y = mx + b
m: 1.03890
b: 8.48570e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025
Level 5 : 0.000591
Level 7 : 5.91481e-006
Level 9 : 2.36593e-007



Pentane at exp. RT: 4.493
FID1 A, Front Signal
Correlation: 0.99942
Residual Std. Dev.: 158.88295
Formula: y = mx + b
m: 1.27433
b: 4.88422e-1
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025
Level 5 : 0.002311
Level 7 : 0.000023
Level 9 : 9.24556e-007



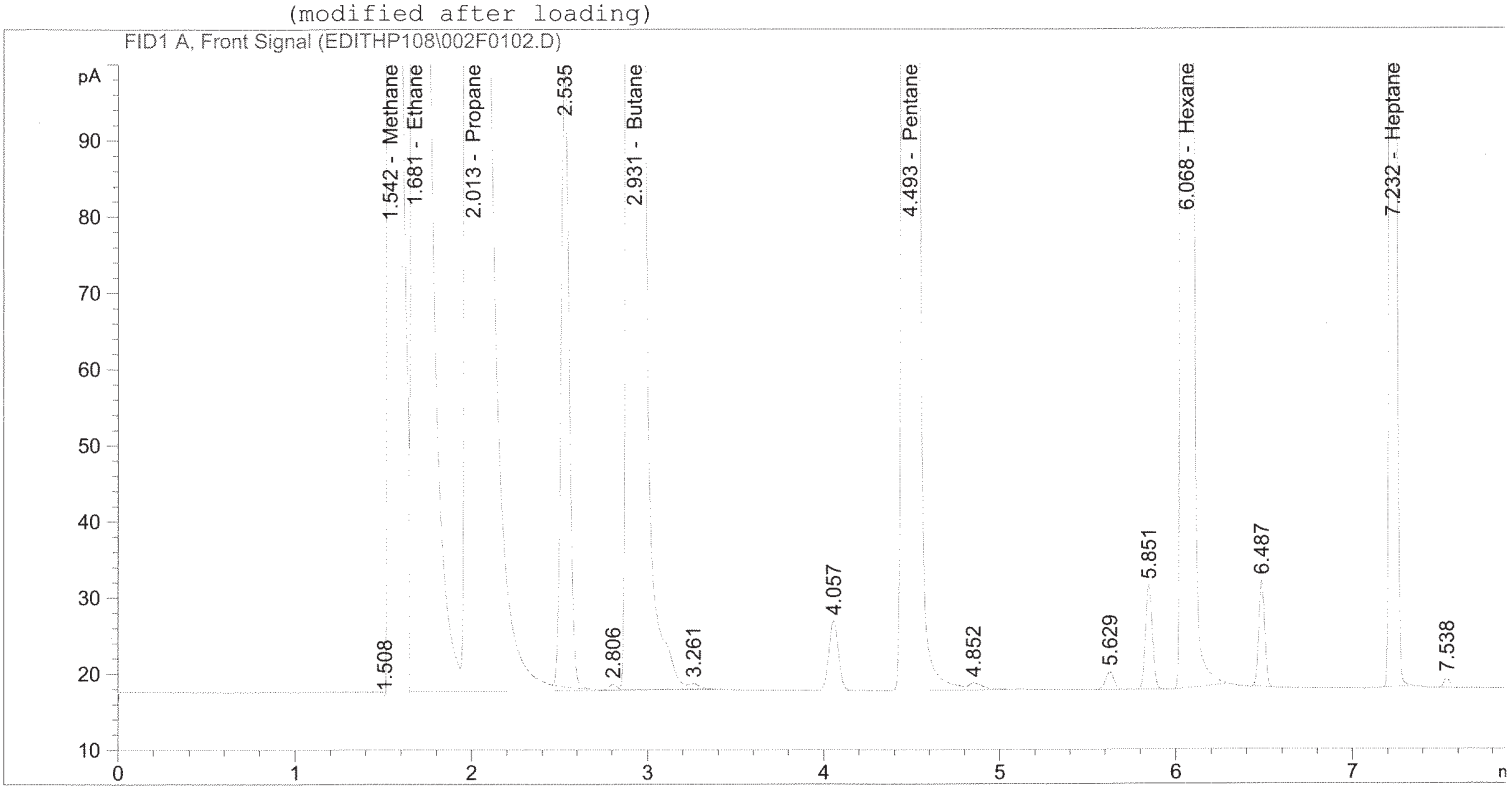
Hexane at exp. RT: 6.067
FID1 A, Front Signal
Correlation: 0.99867
Residual Std. Dev.: 228.00851
Formula: y = mx + b
m: 1.49541
b: 4.20132e-1
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025
Level 7 : 0.000037
Level 9 : 1.49019e-006



Heptane at exp. RT: 7.232
FID1 A, Front Signal
Correlation: 0.99999
Residual Std. Dev.: 0.60330
Formula: y = mx + b
m: 1.83300
b: -7.65536e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025

ımple Name: EdithP108 #C9 ENV(1=0,6=400)

```
================================================================================
Acq. Operator   : disconnected                      Seq. Line :   1
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 9/19/2014 10:11:23 AM                   Inj :   2
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.542 PV     1.35438e4     3.66300 4.96110e4     Methane
  1.681 VV     2.60609e4     1.89353 4.93471e4     Ethane
  2.013 VB S   3.87471e4     1.27476 4.93932e4     Propane
  2.931 VV T   1.03501e4  9.62552e-1 9962.51135    Butane
  4.493 BV     6329.58447 7.84664e-1 4966.59403    Pentane
  6.068 BB     5713.65137 6.68662e-1 3820.50129    Hexane
  7.232 BB      769.60168 5.45608e-1  419.90076    Heptane

Totals :                              1.67521e5

Uncalibrated Peaks    :      using compound Propane
```

ımple Name: EdithP108 #C9 ENV(1=0,6=400)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.508	PP N	4.18803e-1	1.26492	5.29752e-1		?
2.535	BB X	265.56903	1.27461	338.49748		?
2.806	BV T	2.11725	1.26492	2.67815		?
3.261	VB T	3.10334	1.26492	3.92547		?
4.057	BB	34.32124	1.27362	43.71227		?
4.852	VB	5.78772	1.26801	7.33890		?
5.629	BB	7.69984	1.26969	9.77639		?
5.851	BB	37.88299	1.27373	48.25263		?
6.487	BB	32.84457	1.27357	41.82986		?
7.538	BB	3.14729	1.26492	3.98107		?

Uncalib. totals : 500.52198

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Butane	2.400	3.700	270.78962	276.3657
as Pentane	3.700	5.300	40.10896	32.3588
as Hexane	5.300	6.600	78.42740	54.1561
as Heptane	6.600	13.000	3.14729	1.8504

Totals : 364.7311

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

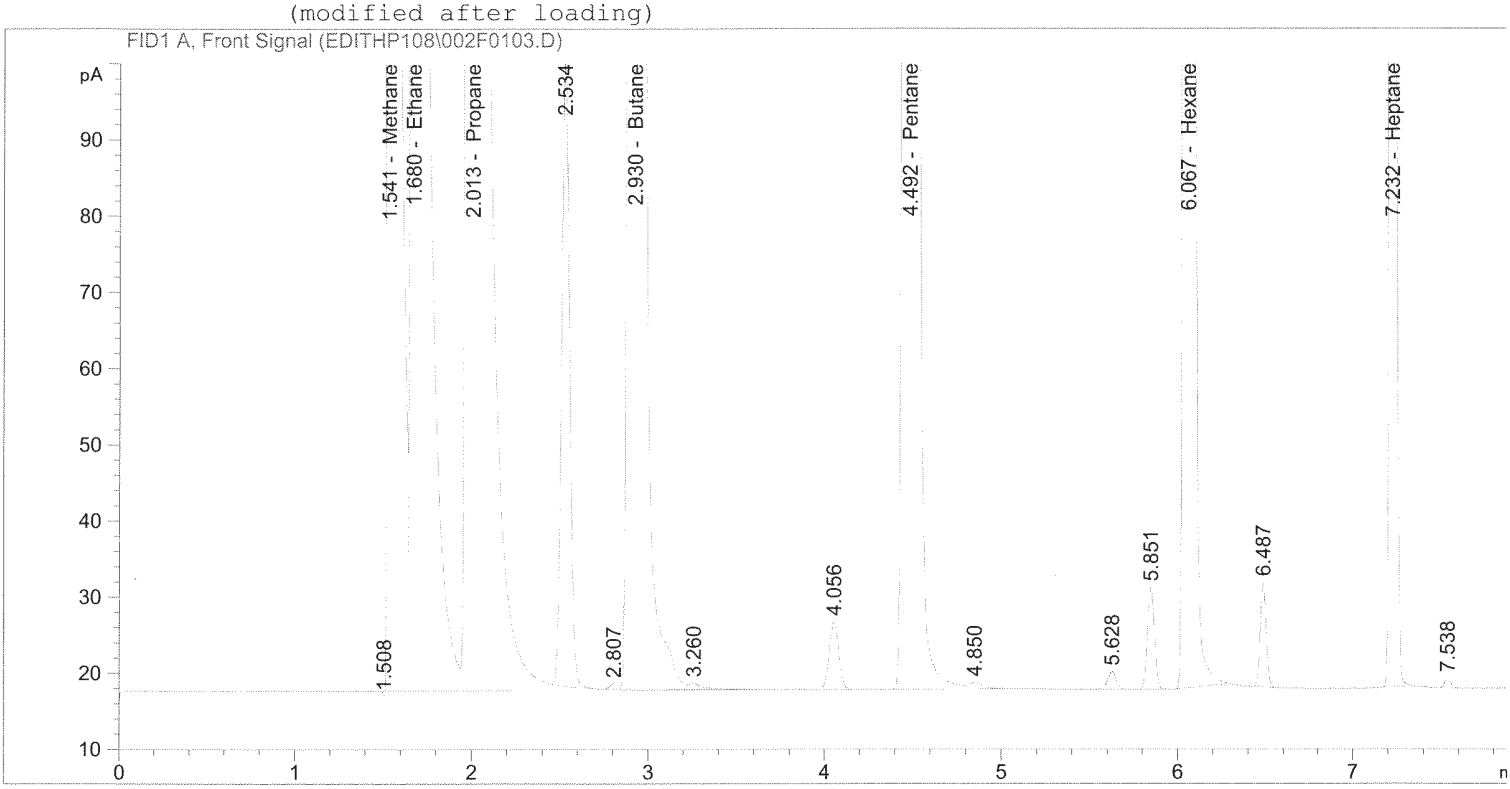
Name	Total Area [pA*s]	Amount [ppm]
as Butane	270.78962	276.3657
as Pentane	40.10896	32.3588
as Hexane	78.42740	54.1561
as Heptane	3.14729	1.8504
Methane	1.35438e4	4.961e4
Ethane	2.60609e4	4.935e4
Propane	3.87471e4	4.939e4
Butane	1.03501e4	9.963e3
Pentane	6329.58447	4.967e3
Hexane	5713.65137	3.821e3
Heptane	769.60168	419.9008

Totals : 1.6789e5

*** End of Report ***

ample Name: EdithP108 #C9 ENV(1=0,6=400)

```
================================================================================
Acq. Operator   : disconnected                      Seq. Line :   1
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 9/19/2014 10:27:35 AM                   Inj :   3
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type      Area      Amt/Area    Amount    Grp   Name
 [min]           [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.541 PV     1.32962e4     3.66300 4.87040e4     Methane
  1.680 VV     2.55747e4     1.89353 4.84265e4     Ethane
  2.013 VB S   3.80294e4     1.27476 4.84783e4     Propane
  2.930 VV X   1.01608e4  9.62552e-1 9780.26314    Butane
  4.492 BV     6221.71289 7.84662e-1 4881.94461    Pentane
  6.067 BB     5630.36670 6.68661e-1 3764.80790    Hexane
  7.232 BB      764.27332 5.45608e-1  416.99385    Heptane

Totals :                              1.64453e5

Uncalibrated Peaks    :      using compound Propane
```

ample Name: EdithP108 #C9 ENV(1=0,6=400)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.508	BP N	3.70898e-1	1.26492	4.69157e-1		?
2.534	BB X	260.52020	1.27461	332.06144		?
2.807	BV X	2.15459	1.26492	2.72539		?
3.260	VB T	5.46515	1.26761	6.92770		?
4.056	BB	33.59258	1.27360	42.78340		?
4.850	VB	4.94411	1.26686	6.26350		?
5.628	BB	7.50741	1.26956	9.53109		?
5.851	BB	37.18023	1.27371	47.35678		?
6.487	BB	32.33476	1.27355	41.17998		?
7.538	BB	3.21634	1.26492	4.06841		?

Uncalib. totals : 493.36685

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Butane	2.400	3.700	268.13994	273.6615
as Pentane	3.700	5.300	38.53670	31.0904
as Hexane	5.300	6.600	77.02240	53.1859
as Heptane	6.600	13.000	3.21634	1.8910

Totals : 359.8288

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

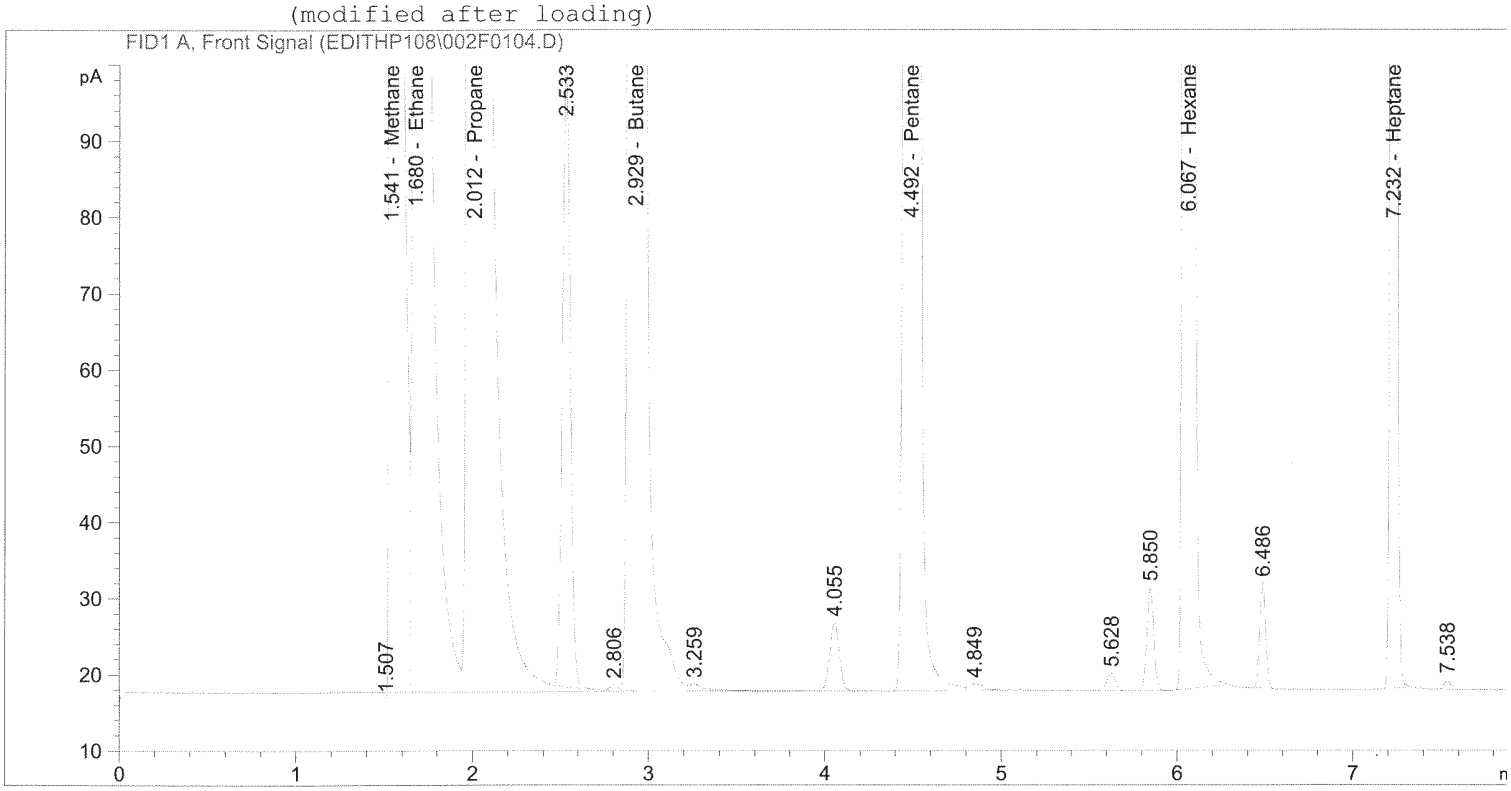
Name	Total Area [pA*s]	Amount [ppm]
as Butane	268.13994	273.6615
as Pentane	38.53670	31.0904
as Hexane	77.02240	53.1859
as Heptane	3.21634	1.8910
Methane	1.32962e4	4.870e4
Ethane	2.55747e4	4.843e4
Propane	3.80294e4	4.848e4
Butane	1.01608e4	9.780e3
Pentane	6221.71289	4.882e3
Hexane	5630.36670	3.765e3
Heptane	764.27332	416.9938

Totals : 1.6481e5

*** End of Report ***

ample Name: EdithP108 #C9 ENV(1=0,6=400)

```
================================================================================
Acq. Operator    : disconnected                      Seq. Line :   1
Acq. Instrument  : Edith                              Location : Vial 2
Injection Date   : 9/19/2014 10:43:55 AM                  Inj :   4
                                                    Inj Volume : 250 µl
Acq. Method      : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed     : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method  : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed     : 9/22/2014 10:21:52 AM by Justin Guenzler
                   (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.541	PV	1.33497e4	3.66300	4.89001e4		Methane
1.680	VV	2.56982e4	1.89353	4.86603e4		Ethane
2.012	VB S	3.82397e4	1.27476	4.87463e4		Propane
2.929	VV X	1.02236e4	9.62552e-1	9840.78036		Butane
4.492	BV	6264.18408	7.84663e-1	4915.27277		Pentane
6.067	VB	5683.81885	6.68662e-1	3800.55195		Hexane
7.232	BB	774.91528	5.45608e-1	422.79961		Heptane

```
Totals :                                1.65286e5

Uncalibrated Peaks    :      using compound Propane
```

ample Name: EdithP108 #C9 ENV(1=0,6=400)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.507	BP N	3.68159e-1	1.26492	4.65692e-1		?
2.533	BB X	261.63516	1.27461	333.48275		?
2.806	BV X	2.16156	1.26492	2.73420		?
3.259	VV X	6.30059	1.26856	7.99269		?
4.055	VB T	34.12494	1.27361	43.46203		?
4.849	VB	4.99038	1.26693	6.32248		?
5.628	BB	7.64277	1.26965	9.70365		?
5.850	BV	37.59710	1.27372	47.88820		?
6.486	BB	32.65027	1.27356	41.58218		?
7.538	BB	3.15404	1.26492	3.98961		?

Uncalib. totals : 497.62347

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Butane	2.400	3.700	270.09732	275.6592
as Pentane	3.700	5.300	39.11532	31.5572
as Hexane	5.300	6.600	77.89015	53.7851
as Heptane	6.600	13.000	3.15404	1.8544

Totals : 362.8559

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

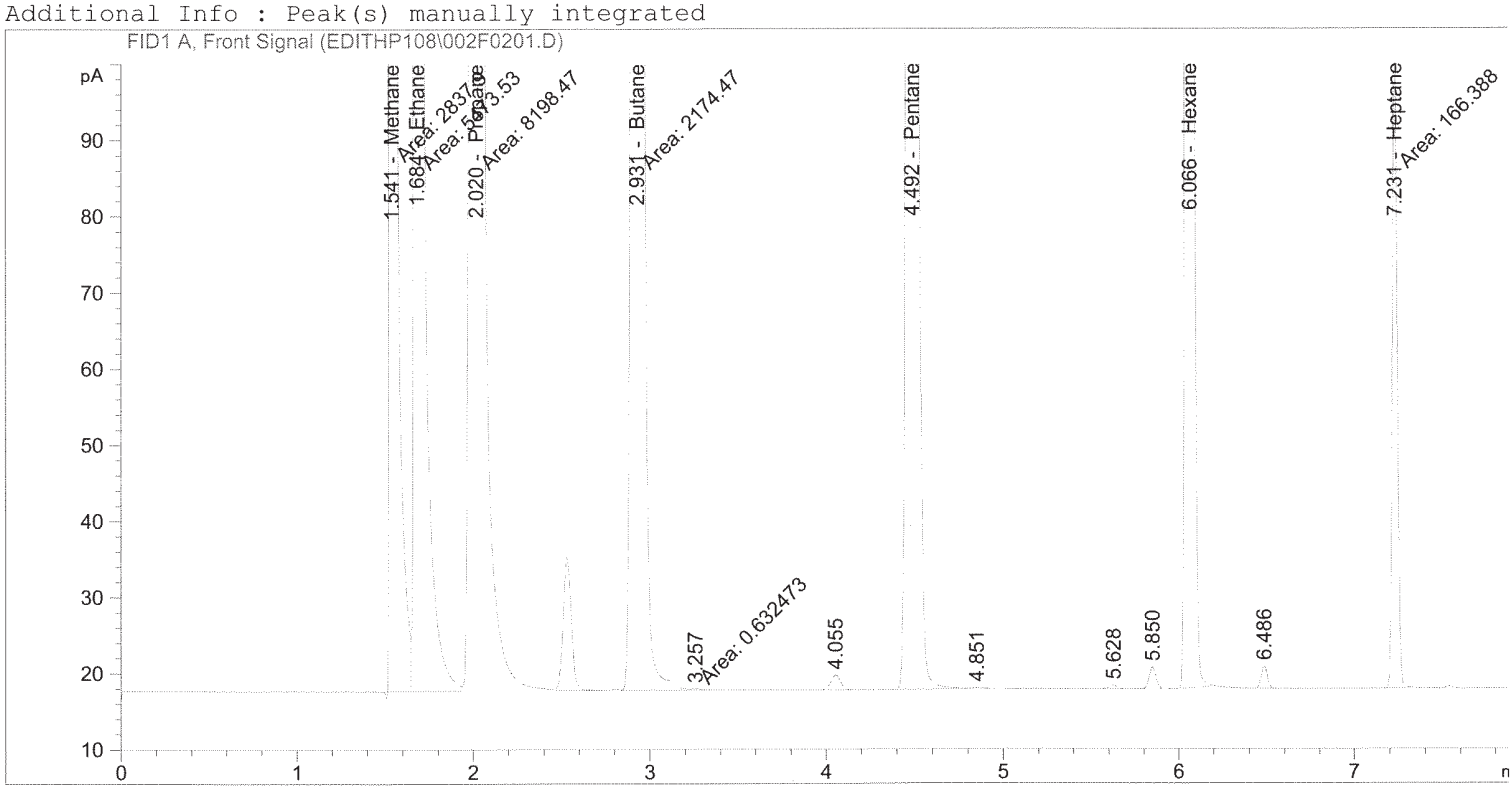
Name	Total Area [pA*s]	Amount [ppm]
as Butane	270.09732	275.6592
as Pentane	39.11532	31.5572
as Hexane	77.89015	53.7851
as Heptane	3.15404	1.8544
Methane	1.33497e4	4.890e4
Ethane	2.56982e4	4.866e4
Propane	3.82397e4	4.875e4
Butane	1.02236e4	9.841e3
Pentane	6264.18408	4.915e3
Hexane	5683.81885	3.801e3
Heptane	774.91528	422.7996

Totals : 1.6565e5

*** End of Report ***

```
==========================================================================
Acq. Operator   : disconnected                    Seq. Line :   2
Acq. Instrument : Edith                           Location : Vial 2
Injection Date  : 9/19/2014 11:00:20 AM               Inj :   1
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```

Manual Int. "II" (JKG)




```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.541 MF     2837.89941    3.66309 1.03955e4     Methane
  1.684 FM     5473.52734    1.89352 1.03642e4     Ethane
  2.020 FM     8198.47168    1.27475 1.04510e4     Propane
  2.931 MF     2174.47192 9.62523e-1 2092.97885    Butane
  4.492 BB     1333.55444 7.84437e-1 1046.08900    Pentane
  6.066 BB     1210.79712 6.68479e-1  809.39256    Hexane
  7.231 MM      166.38818 5.45805e-1   90.81544    Heptane

Totals :                              3.52500e4

Uncalibrated Peaks    :      using compound Propane
```

ample Name: EdithP108 #C7 ENV(1=800,6=243.33)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
3.257	FM	6.32473e-1	1.26492	8.00028e-1		?
4.055	BB	7.19889	1.26933	9.13780		?
4.851	BB	1.12338	1.26492	1.42098		?
5.628	BB	1.65493	1.26492	2.09335		?
5.850	BB	7.91996	1.26983	10.05700		?
6.486	BB	6.91590	1.26911	8.77706		?

Uncalib. totals : 32.28620

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Butane	2.400	3.700	6.32473e-1	0.6455
as Pentane	3.700	5.300	8.32226	6.7142
as Hexane	5.300	6.600	16.49079	11.3873

Totals : 18.7470

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Butane	6.32473e-1	0.6455
as Pentane	8.32226	6.7142
as Hexane	16.49079	11.3873
Methane	2837.89941	1.040e4
Ethane	5473.52734	1.036e4
Propane	8198.47168	1.045e4
Butane	2174.47192	2.093e3
Pentane	1333.55444	1.046e3
Hexane	1210.79712	809.3926
Heptane	166.38818	90.8154

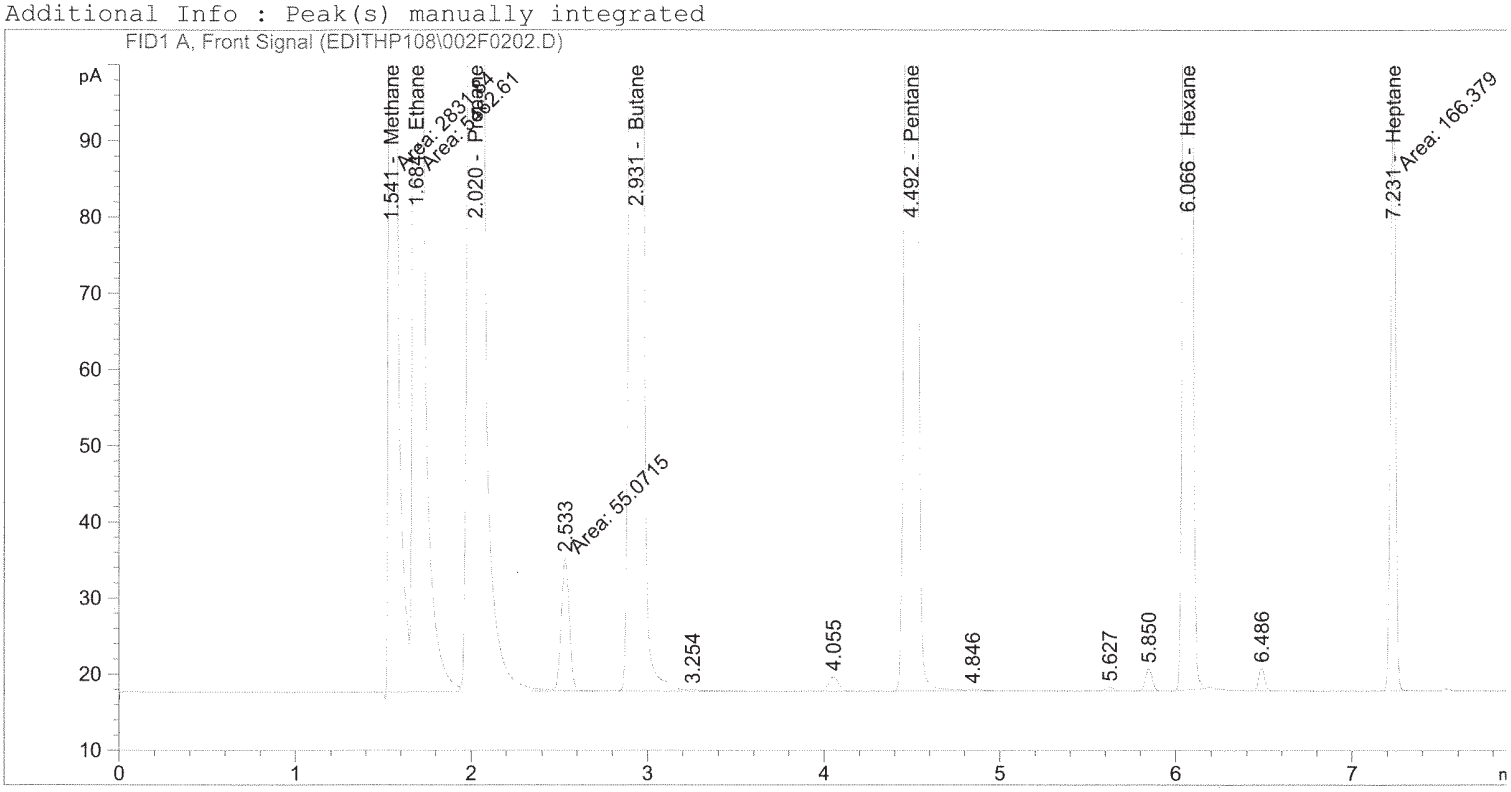
Totals : 3.5269e4

*** End of Report ***

ample Name: EdithP108 #C7 ENV(1=800,6=243.33)

```
================================================================================
Acq. Operator   : disconnected                      Seq. Line :   2
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 9/19/2014 11:16:47 AM                   Inj :   2
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```

Manual Int. "II" (JKG)




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.541 MF     2831.83716    3.66309 1.03733e4     Methane
  1.684 MF     5462.61475    1.89352 1.03436e4     Ethane
  2.020 FM R   8128.95898    1.27475 1.03624e4     Propane
  2.931 VV X   2171.11353 9.62523e-1 2089.74619    Butane
  4.492 BB     1331.40698 7.84436e-1 1044.40383    Pentane
  6.066 BB     1209.52686 6.68479e-1  808.54312    Hexane
  7.231 MM      166.37857 5.45805e-1   90.81020    Heptane

Totals :                                3.51128e4

Uncalibrated Peaks    :      using compound Propane
```

ample Name: EdithP108 #C7 ENV(1=800,6=243.33)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
2.533	MM T	55.07153	1.27405	70.16388		?
3.254	VB T	1.46397	1.26492	1.85180		?
4.055	BB	7.19456	1.26933	9.13228		?
4.846	BB	1.24461	1.26492	1.57433		?
5.627	BB	1.63600	1.26492	2.06940		?
5.850	BB	7.97587	1.26986	10.12826		?
6.486	BB	6.90483	1.26910	8.76294		?

Uncalib. totals : 103.68290

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Butane	2.400	3.700	56.53550	57.6997
as Pentane	3.700	5.300	8.43917	6.8085
as Hexane	5.300	6.600	16.51669	11.4052

Totals : 75.9134

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Butane	56.53550	57.6997
as Pentane	8.43917	6.8085
as Hexane	16.51669	11.4052
Methane	2831.83716	1.037e4
Ethane	5462.61475	1.034e4
Propane	8128.95898	1.036e4
Butane	2171.11353	2.090e3
Pentane	1331.40698	1.044e3
Hexane	1209.52686	808.5431
Heptane	166.37857	90.8102

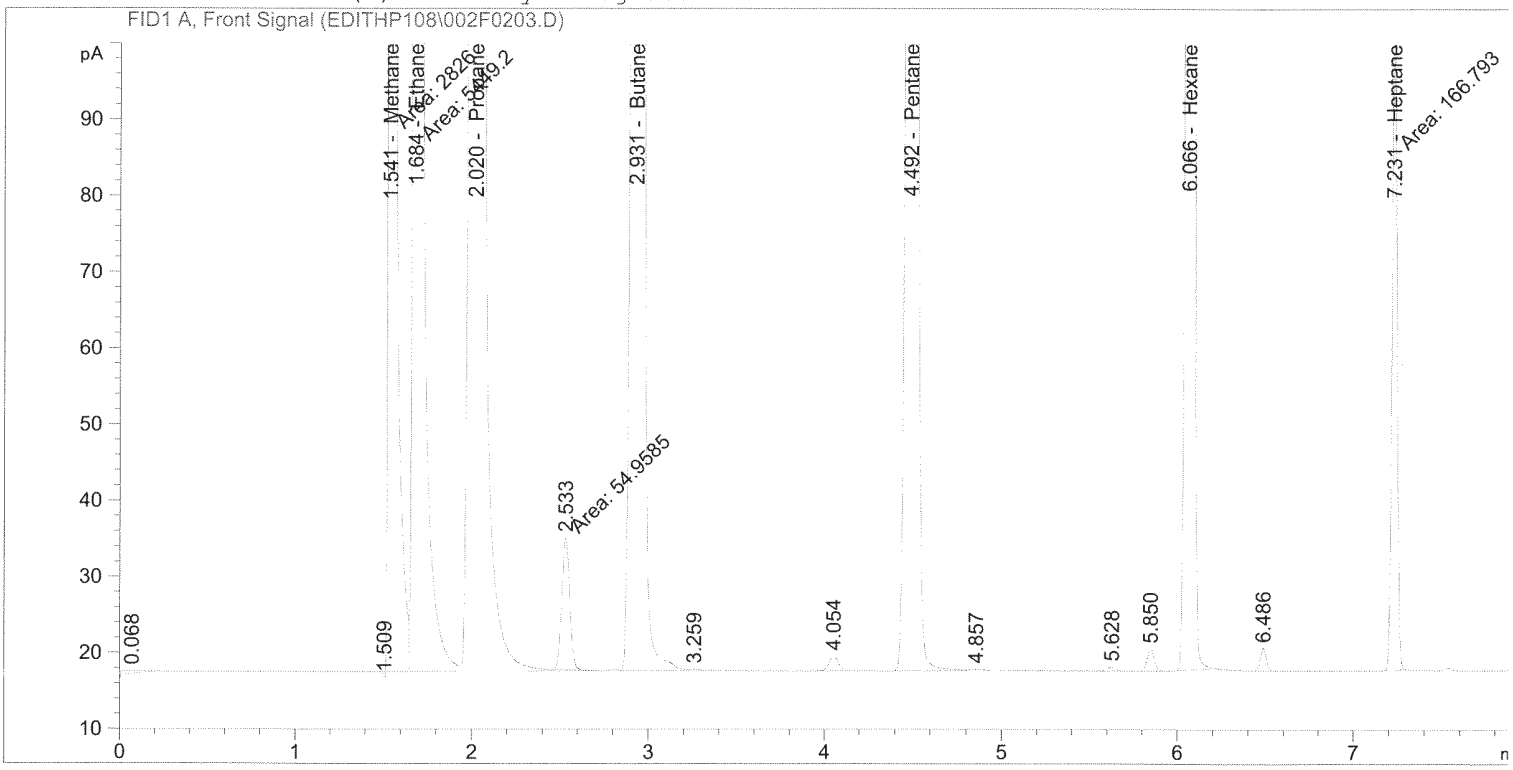
Totals : 3.5189e4

*** End of Report ***

ample Name: EdithP108 #C7 ENV(1=800,6=243.33)

```
================================================================================
Acq. Operator   : disconnected                      Seq. Line :   2
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 9/19/2014 11:33:11 AM                   Inj :   3
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```

Manual Int. "II" (JKG)




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.541 MF     2826.00024    3.66309 1.03519e4     Methane
  1.684 MF     5449.19531    1.89352 1.03182e4     Ethane
  2.020 FM R   8111.08789    1.27475 1.03396e4     Propane
  2.931 VV T   2166.25928 9.62523e-1 2085.07368    Butane
  4.492 BV     1330.02405 7.84436e-1 1043.31861    Pentane
  6.066 BB     1210.53564 6.68479e-1  809.21771    Hexane
  7.231 MM      166.79295 5.45804e-1   91.03627    Heptane

Totals :                                3.50384e4

Uncalibrated Peaks    :      using compound Propane
```

ımple Name: EdithP108 #C7 ENV(1=800,6=243.33)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
0.068	BB	2.98571	1.26492	3.77668	?	
1.509	BP N	5.60743e-1	1.26492	7.09295e-1	?	
2.533	MM T	54.95855	1.27405	70.01985	?	
3.259	VB T	6.22596e-1	1.26492	7.87533e-1	?	
4.054	BV	7.35849	1.26945	9.34125	?	
4.857	VB	1.16596	1.26492	1.47484	?	
5.628	BB	1.61657	1.26492	2.04483	?	
5.850	BB	8.00895	1.26988	10.17043	?	
6.486	BB	6.94798	1.26914	8.81795	?	

Uncalib. totals : 107.14267

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Butane	2.400	3.700	55.58114	56.7257
as Pentane	3.700	5.300	8.52444	6.8773
as Hexane	5.300	6.600	16.57350	11.4444

Totals : 75.0474

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

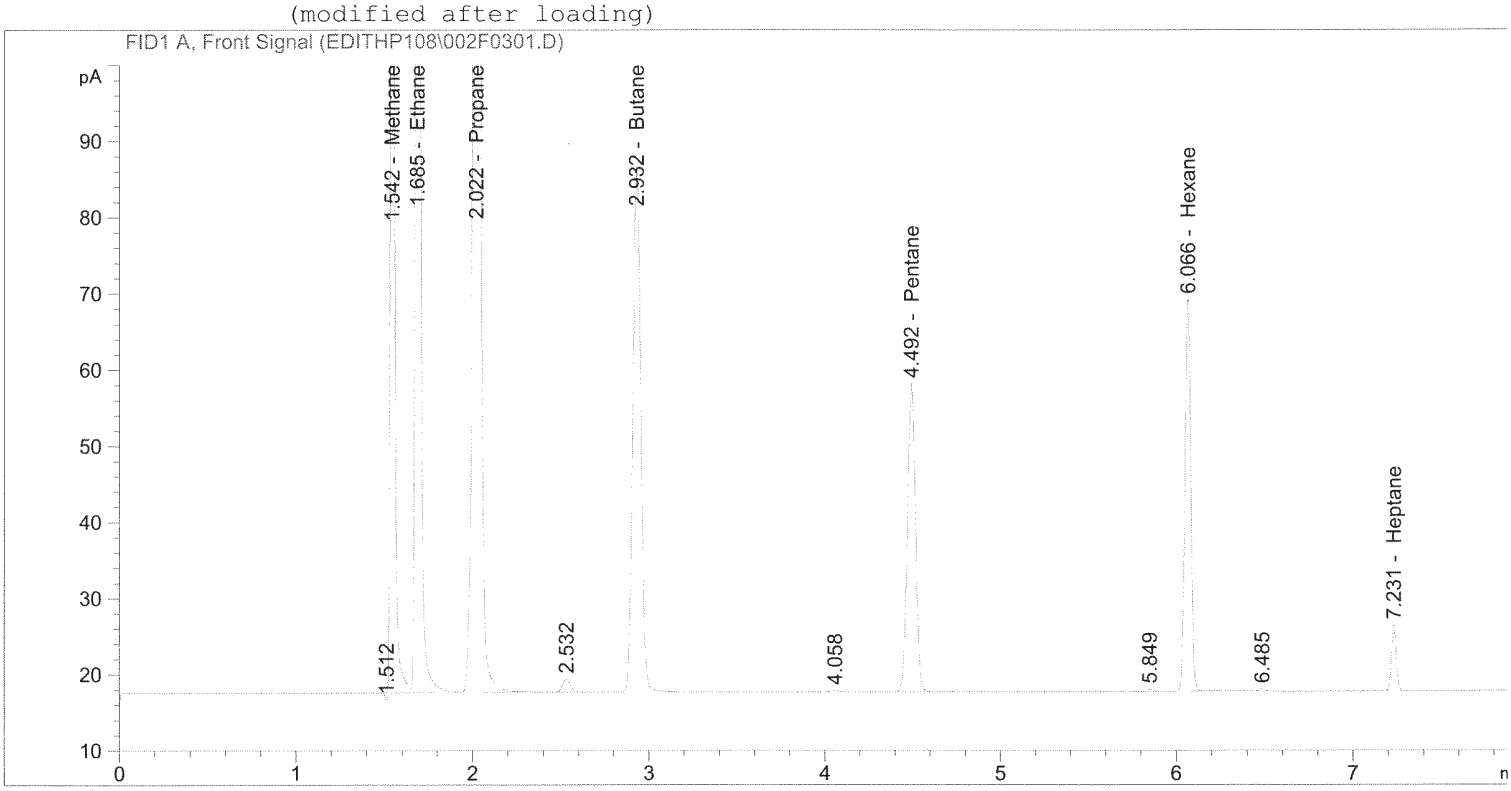
Name	Total Area [pA*s]	Amount [ppm]
as Butane	55.58114	56.7257
as Pentane	8.52444	6.8773
as Hexane	16.57350	11.4444
Methane	2826.00024	1.035e4
Ethane	5449.19531	1.032e4
Propane	8111.08789	1.034e4
Butane	2166.25928	2.085e3
Pentane	1330.02405	1.043e3
Hexane	1210.53564	809.2177
Heptane	166.79295	91.0363

Totals : 3.5113e4

*** End of Report ***

ımple Name: EdithP108 #C5 ENV(1=4900,6=121.67)

```
==========================================================================
Acq. Operator    : disconnected                      Seq. Line :   3
Acq. Instrument  : Edith                              Location : Vial 2
Injection Date   : 9/19/2014 11:49:30 AM                   Inj :   1
                                                   Inj Volume : 250 µl
Acq. Method      : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed     : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method  : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed     : 9/22/2014 10:21:52 AM by Justin Guenzler
                   (modified after loading)
```




```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.542 PV      279.65533    3.66421 1024.71563    Methane
  1.685 VV      540.20013    1.89341 1022.81792    Ethane
  2.022 VB      802.41431    1.27471 1022.84587    Propane
  2.932 BB      214.20848 9.62179e-1  206.10692    Butane
  4.492 BB      130.77841 7.81793e-1  102.24169    Pentane
  6.066 BB      119.46789 6.66359e-1   79.60856    Hexane
  7.231 BB       16.45404 5.48092e-1    9.01832    Heptane

Totals :                              3467.35491

Uncalibrated Peaks    :      using compound Propane
```

ample Name: EdithP108 #C5 ENV(1=4900,6=121.67)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.512	BP N	7.72924e-1	1.26492	9.77687e-1		?
2.532	BB	5.37431	1.26749	6.81190		?
4.058	VB	9.06267e-1	1.26492	1.14635		?
5.849	BB	7.83291e-1	1.26492	9.90800e-1		?
6.485	BB	6.78864e-1	1.26492	8.58709e-1		?

Uncalib. totals : 10.78545

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Butane	2.400	3.700	5.37431	5.4850
as Pentane	3.700	5.300	9.06267e-1	0.7312
as Hexane	5.300	6.600	1.46216	1.0097

Totals : 7.2258

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

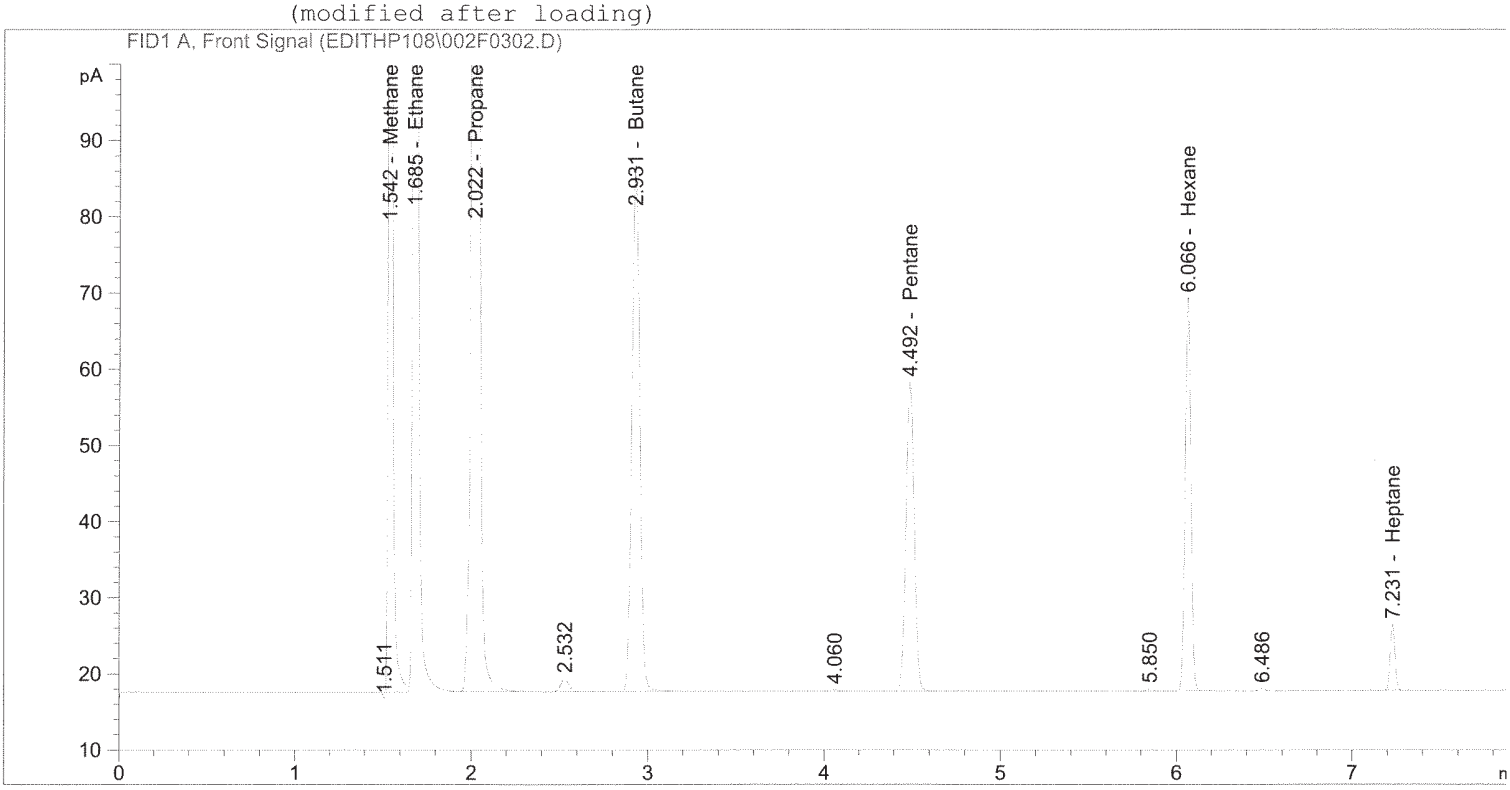
Name	Total Area [pA*s]	Amount [ppm]
as Butane	5.37431	5.4850
as Pentane	9.06267e-1	0.7312
as Hexane	1.46216	1.0097
Methane	279.65533	1.025e3
Ethane	540.20013	1.023e3
Propane	802.41431	1.023e3
Butane	214.20848	206.1069
Pentane	130.77841	102.2417
Hexane	119.46789	79.6086
Heptane	16.45404	9.0183

Totals : 3474.5807

*** End of Report ***

ample Name: EdithP108 #C5 ENV(1=4900,6=121.67)

```
================================================================================
Acq. Operator   : disconnected                      Seq. Line :   3
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 9/19/2014 12:05:46 PM                  Inj :   2
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.542	PV	279.70560	3.66421	1024.89974		Methane
1.685	VB	540.25098	1.89341	1022.91419		Ethane
2.022	BB	802.57178	1.27471	1023.04660		Propane
2.931	BB	213.83063	9.62178e-1	205.74321		Butane
4.492	BB	131.31786	7.81805e-1	102.66501		Pentane
6.066	BB	119.85897	6.66367e-1	79.87008		Hexane
7.231	BB	16.56271	5.48075e-1	9.07761		Heptane

```
Totals :                                3468.21645

Uncalibrated Peaks    :      using compound Propane
```

ımple Name: EdithP108 #C5 ENV(1=4900,6=121.67)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.511	BP N	7.70508e-1	1.26492	9.74630e-1		?
2.532	BB	5.38442	1.26751	6.82479		?
4.060	BB	8.02487e-1	1.26492	1.01508		?
5.850	BB	8.78099e-1	1.26492	1.11072		?
6.486	BB	6.96806e-1	1.26492	8.81403e-1		?

Uncalib. totals : 10.80663

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Butane	2.400	3.700	5.38442	5.4953
as Pentane	3.700	5.300	8.02487e-1	0.6474
as Hexane	5.300	6.600	1.57491	1.0875

Totals : 7.2302

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

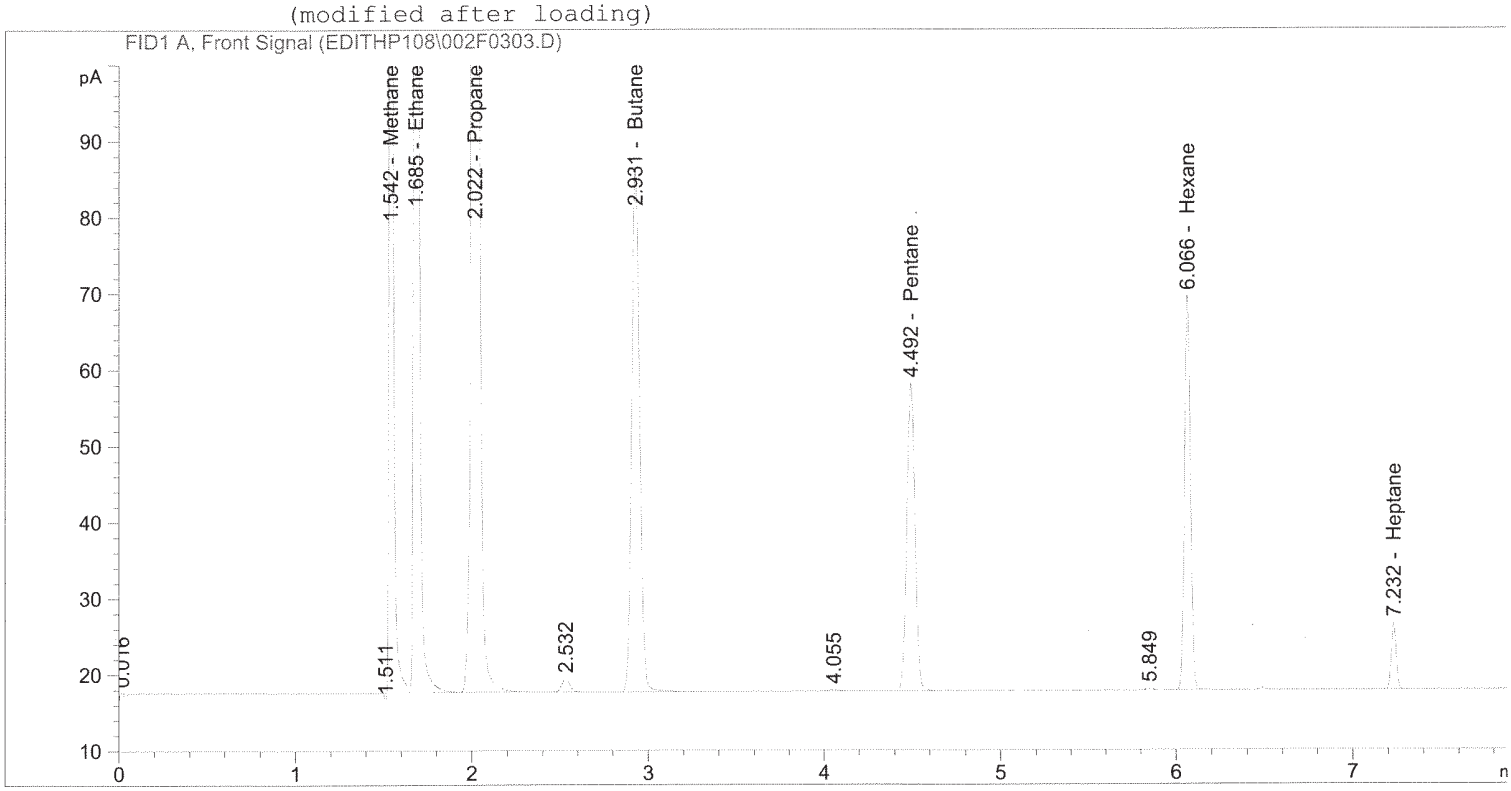
Name	Total Area [pA*s]	Amount [ppm]
as Butane	5.38442	5.4953
as Pentane	8.02487e-1	0.6474
as Hexane	1.57491	1.0875
Methane	279.70560	1.025e3
Ethane	540.25098	1.023e3
Propane	802.57178	1.023e3
Butane	213.83063	205.7432
Pentane	131.31786	102.6650
Hexane	119.85897	79.8701
Heptane	16.56271	9.0776

Totals : 3475.4467

*** End of Report ***

ample Name: EdithP108 #C5 ENV(1=4900,6=121.67)

```
================================================================================
Acq. Operator   : disconnected                      Seq. Line :   3
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 9/19/2014 12:22:56 PM                  Inj :   3
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.542 PV      279.05463    3.66421 1022.51526    Methane
  1.685 VB      539.09637    1.89341 1020.72791    Ethane
  2.022 BB      800.72247    1.27471 1020.68919    Propane
  2.931 BB      213.89888 9.62179e-1  205.80891    Butane
  4.492 BV      131.06555 7.81800e-1  102.46702    Pentane
  6.066 BB      119.81548 6.66366e-1   79.84099    Hexane
  7.232 BB       16.59894 5.48070e-1    9.09738    Heptane

Totals :                              3461.14665

Uncalibrated Peaks    :      using compound Propane
```

ımple Name: EdithP108 #C5 ENV(1=4900,6=121.67)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
0.016	BB	8.67494e-1	1.26492	1.09731	?	
1.511	BP N	7.72846e-1	1.26492	9.77588e-1	?	
2.532	BB	5.35825	1.26747	6.79143	?	
4.055	BB	7.85258e-1	1.26492	9.93288e-1	?	
5.849	BB	7.89094e-1	1.26492	9.98140e-1	?	

Uncalib. totals : 10.85776

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Butane	2.400	3.700	5.35825	5.4686
as Pentane	3.700	5.300	7.85258e-1	0.6335
as Hexane	5.300	6.600	7.89094e-1	0.5449

Totals : 6.6470

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

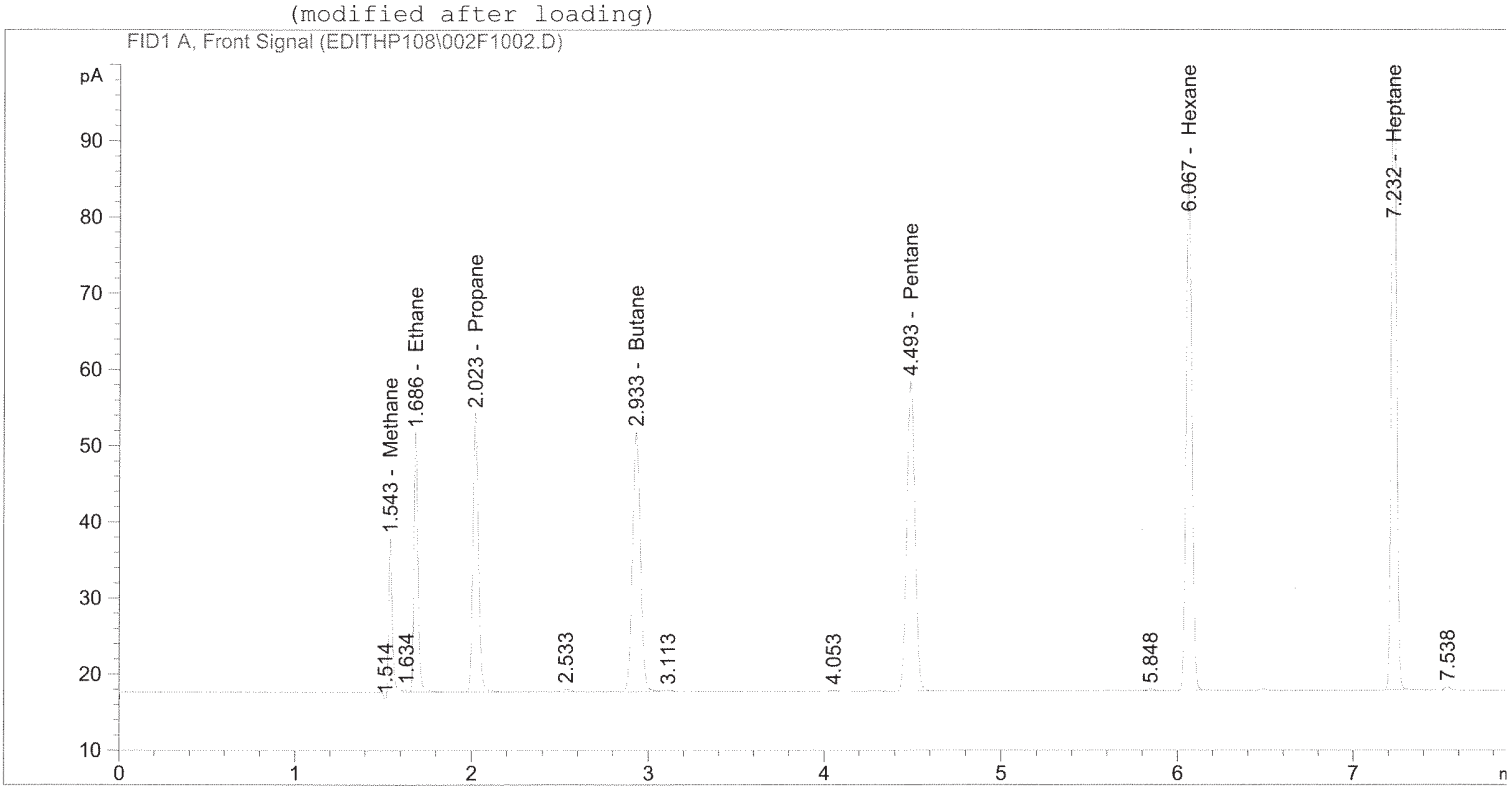
Name	Total Area [pA*s]	Amount [ppm]
as Butane	5.35825	5.4686
as Pentane	7.85258e-1	0.6335
as Hexane	7.89094e-1	0.5449
Methane	279.05463	1.023e3
Ethane	539.09637	1.021e3
Propane	800.72247	1.021e3
Butane	213.89888	205.8089
Pentane	131.06555	102.4670
Hexane	119.81548	79.8410
Heptane	16.59894	9.0974

Totals : 3467.7937

*** End of Report ***

ample Name: EdithP108 #C4 ENV(1=0,2=450)

```
Acq. Operator   : disconnected                    Seq. Line :  10
Acq. Instrument : Edith                           Location : Vial 2
Injection Date  : 9/19/2014 2:34:27 PM                 Inj :   2
                                                 Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
```



External Standard Report

```
Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.543 PV       27.44783    3.67558  100.88661    Methane
  1.686 VB       53.68153    1.89224  101.57839    Ethane
  2.023 BB       80.46478    1.27427  102.53415    Propane
  2.933 BV      105.75439 9.61788e-1  101.71331    Butane
  4.493 BB      131.92094 7.81819e-1  103.13826    Pentane
  6.067 BB      156.57463 6.66917e-1  104.42225    Hexane
  7.232 BB      182.24956 5.45783e-1   99.46867    Heptane

Totals :                              713.74165

Uncalibrated Peaks    :      using compound Propane
```

ımple Name: EdithP108 #C4 ENV(1=0,2=450)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.514	BP N	9.40663e-1	1.26492	1.18986		?
1.634	VV	4.80986e-1	1.26492	6.08408e-1		?
2.533	BB	1.08576	1.26492	1.37339		?
3.113	VB	7.46504e-1	1.26492	9.44267e-1		?
4.053	BB	4.56221e-1	1.26492	5.77082e-1		?
5.848	BB	5.27333e-1	1.26492	6.67033e-1		?
7.538	BB	9.92297e-1	1.26492	1.25518		?

Uncalib. totals : 6.61522

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Ethane	1.550	1.850	4.80986e-1	0.9835
as Butane	2.400	3.700	1.83226	1.8700
as Pentane	3.700	5.300	4.56221e-1	0.3681
as Hexane	5.300	6.600	5.27333e-1	0.3641
as Heptane	6.600	13.000	9.92297e-1	0.5834

Totals : 4.1691

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

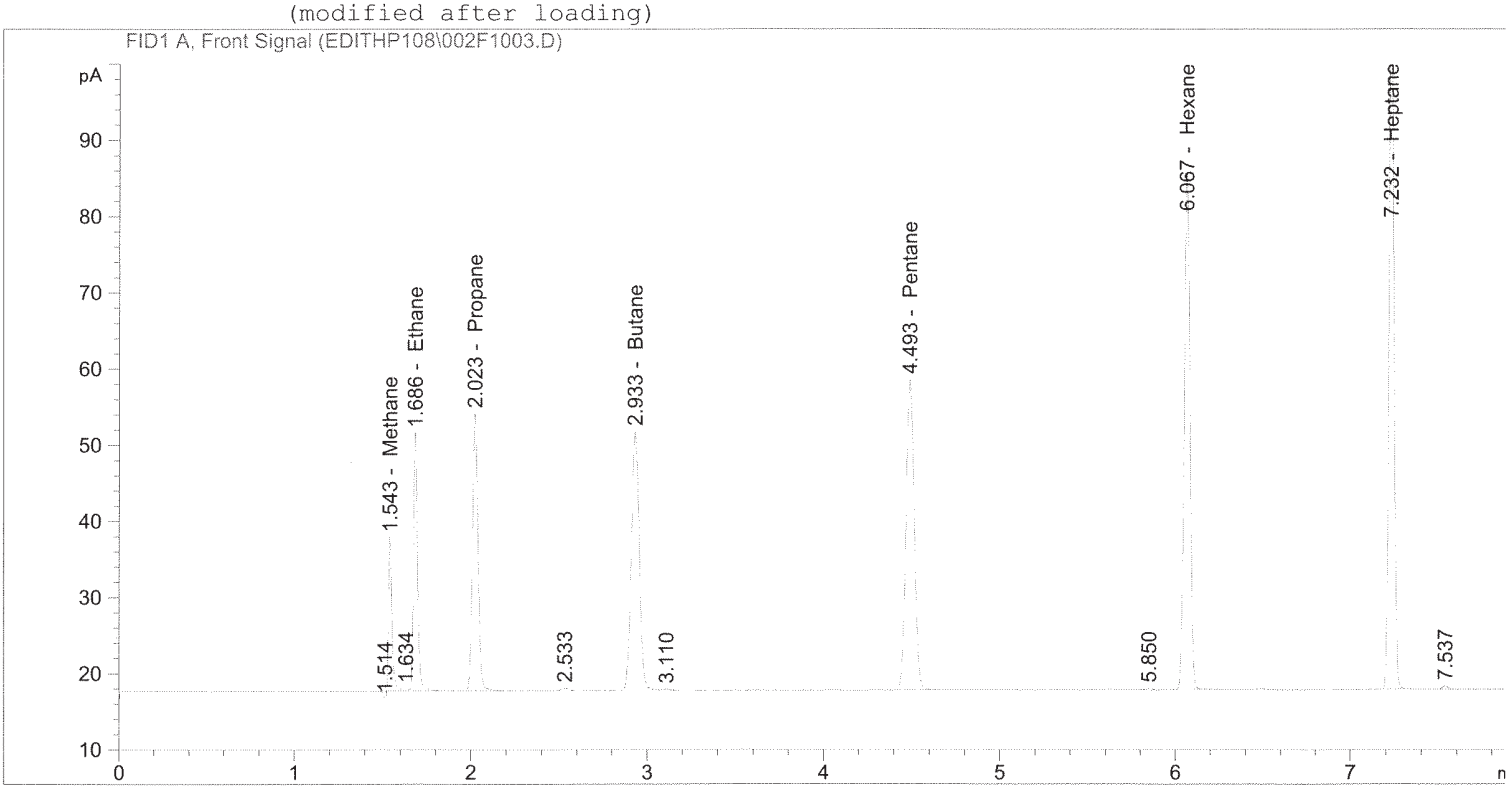
Name	Total Area [pA*s]	Amount [ppm]
as Ethane	4.80986e-1	0.9835
as Butane	1.83226	1.8700
as Pentane	4.56221e-1	0.3681
as Hexane	5.27333e-1	0.3641
as Heptane	9.92297e-1	0.5834
Methane	27.44783	100.8866
Ethane	53.68153	101.5784
Propane	80.46478	102.5342
Butane	105.75439	101.7133
Pentane	131.92094	103.1383
Hexane	156.57463	104.4223
Heptane	182.24956	99.4687

Totals : 717.9108

*** End of Report ***

ample Name: EdithP108 #C4 ENV(1=0,2=450)

```
================================================================================
Acq. Operator   : disconnected                    Seq. Line :  10
Acq. Instrument : Edith                           Location : Vial 2
Injection Date  : 9/19/2014 2:50:31 PM                 Inj :  3
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.543 PV       27.37074    3.67561  100.60423    Methane
  1.686 VB       53.33620    1.89223  100.92452    Ethane
  2.023 BB       79.96803    1.27427  101.90093    Propane
  2.933 VV      105.60441 9.61787e-1  101.56894    Butane
  4.493 BB      131.71680 7.81814e-1  102.97807    Pentane
  6.067 BB      156.46011 6.66915e-1  104.34567    Hexane
  7.232 BB      182.34998 5.45783e-1   99.52346    Heptane

Totals :                              711.84581

Uncalibrated Peaks    :      using compound Propane
```

ımple Name: EdithP108 #C4 ENV(1=0,2=450)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.514	BP N	9.42002e-1	1.26492	1.19156	?	
1.634	VV	4.76327e-1	1.26492	6.02516e-1	?	
2.533	BB	1.05936	1.26492	1.34000	?	
3.110	VB	7.18170e-1	1.26492	9.08427e-1	?	
5.850	BB	5.55074e-1	1.26492	7.02123e-1	?	
7.537	BB	9.72606e-1	1.26492	1.23027	?	

Uncalib. totals : 5.97489

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Ethane	1.550	1.850	4.76327e-1	0.9740
as Butane	2.400	3.700	1.77753	1.8141
as Hexane	5.300	6.600	5.55074e-1	0.3833
as Heptane	6.600	13.000	9.72606e-1	0.5718

Totals : 3.7433

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

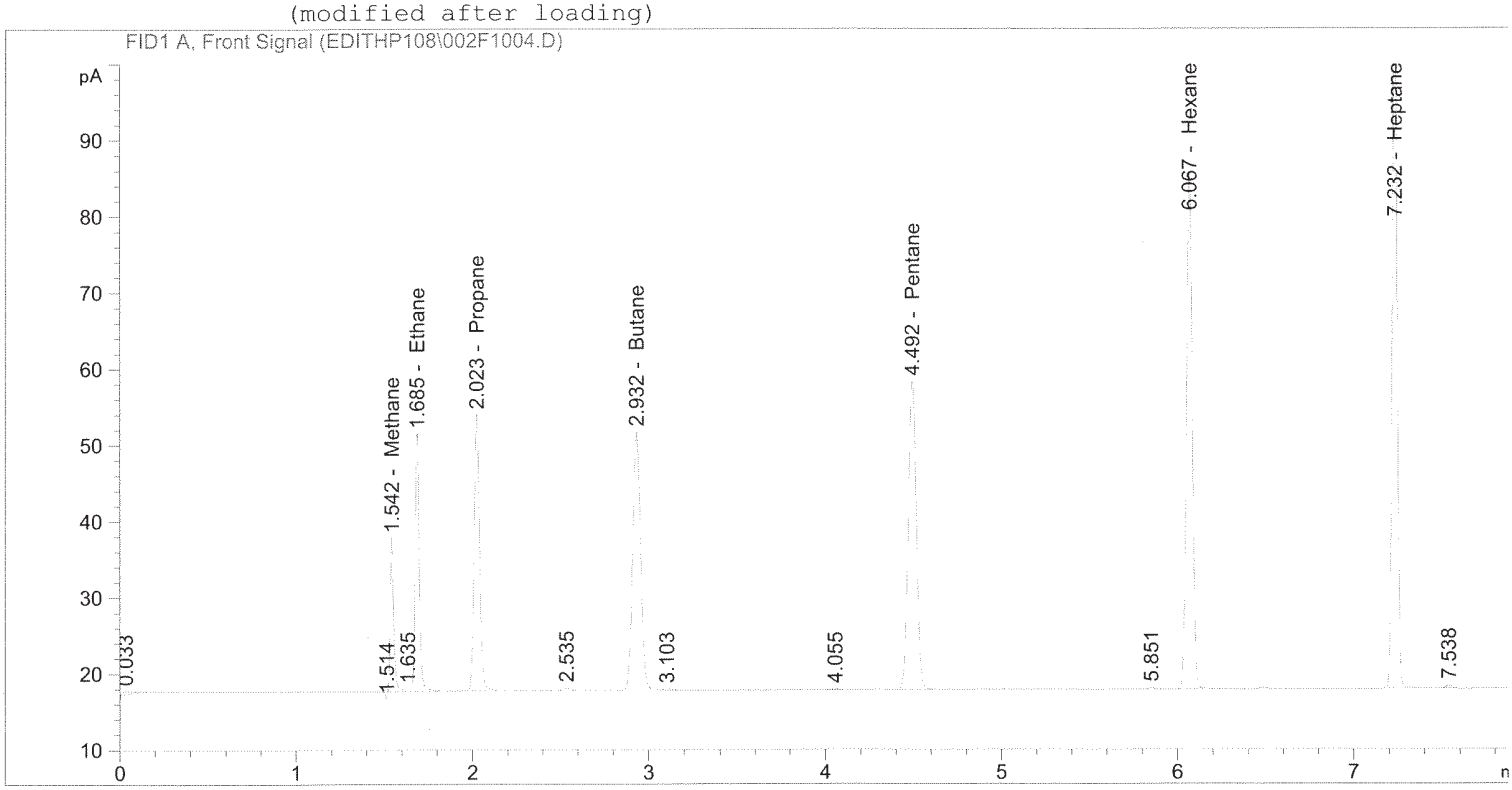
Name	Total Area [pA*s]	Amount [ppm]
as Ethane	4.76327e-1	0.9740
as Butane	1.77753	1.8141
as Hexane	5.55074e-1	0.3833
as Heptane	9.72606e-1	0.5718
Methane	27.37074	100.6042
Ethane	53.33620	100.9245
Propane	79.96803	101.9009
Butane	105.60441	101.5689
Pentane	131.71680	102.9781
Hexane	156.46011	104.3457
Heptane	182.34998	99.5235

Totals : 715.5891

*** End of Report ***

ımple Name: EdithP108 #C4 ENV(1=0,2=450)

```
================================================================================
Acq. Operator   : disconnected                    Seq. Line :  10
Acq. Instrument : Edith                           Location : Vial 2
Injection Date  : 9/19/2014 3:06:36 PM                 Inj :  4
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.542	PV	27.33177	3.67563	100.46148		Methane
1.685	VB	53.30490	1.89223	100.86524		Ethane
2.023	PB	79.51855	1.27427	101.32795		Propane
2.932	BV	105.18516	9.61784e-1	101.16539		Butane
4.492	BB	131.54813	7.81810e-1	102.84571		Pentane
6.067	BB	156.02853	6.66911e-1	104.05707		Hexane
7.232	BB	181.77887	5.45783e-1	99.21189		Heptane

```
Totals :                                  709.93472

Uncalibrated Peaks    :      using compound Propane
```

ample Name: EdithP108 #C4 ENV(1=0,2=450)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
0.033	BB	1.72203	1.26492	2.17823	?	
1.514	BP N	9.34361e-1	1.26492	1.18189	?	
1.635	VV	5.10190e-1	1.26492	6.45349e-1	?	
2.535	BB	1.03156	1.26492	1.30484	?	
3.103	VB	6.35190e-1	1.26492	8.03464e-1	?	
4.055	BB	3.93774e-1	1.26492	4.98092e-1	?	
5.851	BB	5.56474e-1	1.26492	7.03894e-1	?	
7.538	BB	9.77187e-1	1.26492	1.23606	?	

Uncalib. totals : 8.55182

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Ethane	1.550	1.850	5.10190e-1	1.0432
as Butane	2.400	3.700	1.66675	1.7011
as Pentane	3.700	5.300	3.93774e-1	0.3177
as Hexane	5.300	6.600	5.56474e-1	0.3843
as Heptane	6.600	13.000	9.77187e-1	0.5745

Totals : 4.0208

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

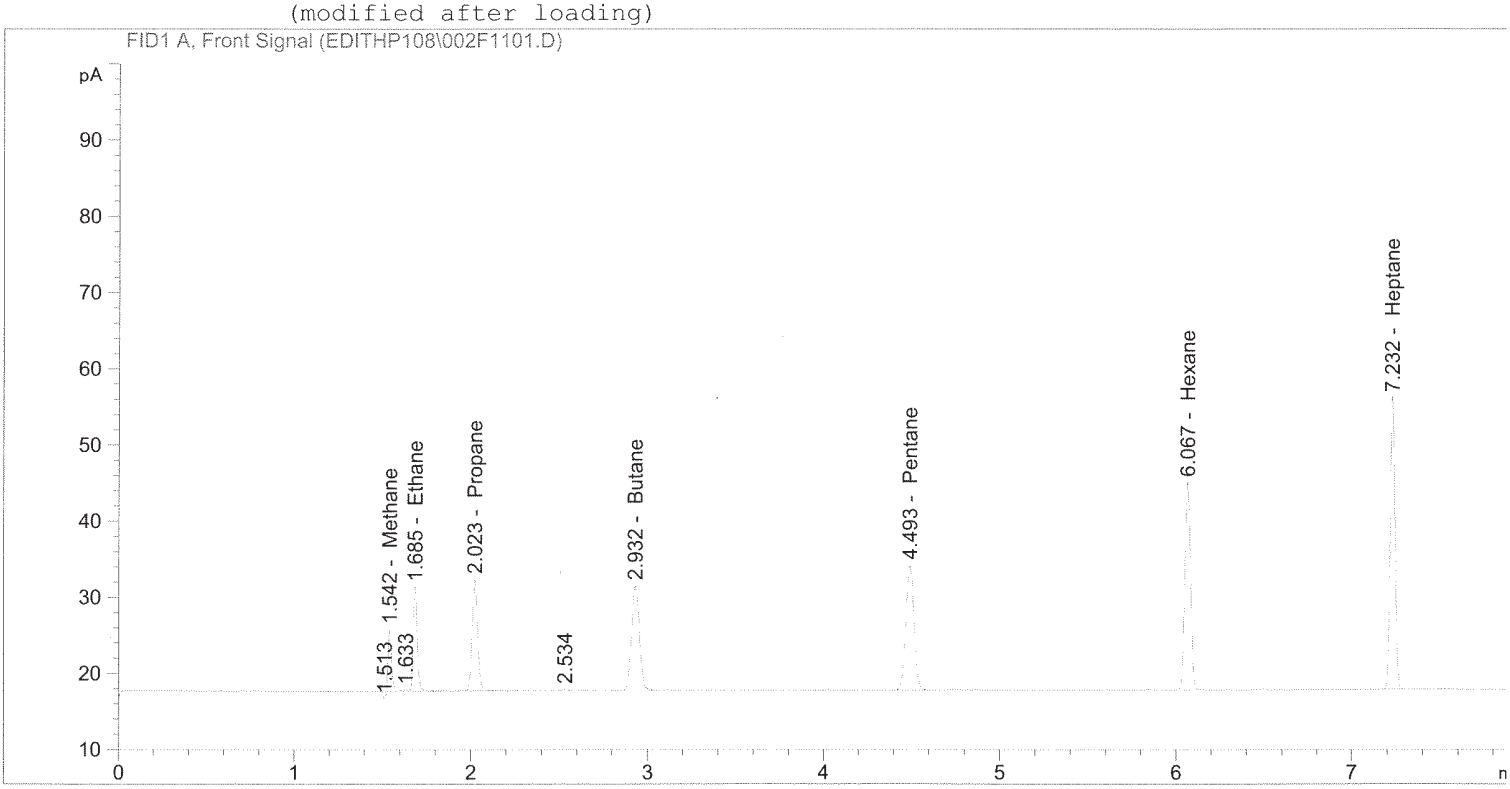
Name	Total Area [pA*s]	Amount [ppm]
as Ethane	5.10190e-1	1.0432
as Butane	1.66675	1.7011
as Pentane	3.93774e-1	0.3177
as Hexane	5.56474e-1	0.3843
as Heptane	9.77187e-1	0.5745
Methane	27.33177	100.4615
Ethane	53.30490	100.8652
Propane	79.51855	101.3279
Butane	105.18516	101.1654
Pentane	131.54813	102.8457
Hexane	156.02853	104.0571
Heptane	181.77887	99.2119

Totals : 713.9555

*** End of Report ***

ample Name: EdithP108 #C3 ENV(1=600,2=400)

```
================================================================================
Acq. Operator   : disconnected                      Seq. Line :  11
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 9/19/2014 3:22:56 PM                    Inj :   1
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.542	PV	11.00137	3.69442	40.64369		Methane
1.685	VB	21.75508	1.89034	41.12459		Ethane
2.023	PB	32.24148	1.27355	41.06107		Propane
2.932	BB	42.46952	9.60637e-1	40.79780		Butane
4.493	BB	53.24072	7.77525e-1	41.39600		Pentane
6.067	BB	63.01467	6.64253e-1	41.85766		Hexane
7.232	BB	73.48394	5.46122e-1	40.13119		Heptane

Totals : 287.01200

Uncalibrated Peaks : using compound Propane

ample Name: EdithP108 #C3 ENV(1=600,2=400)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.513	BP N	9.78457e-1	1.26492	1.23767	?	
1.633	VV	2.68972e-1	1.26492	3.40228e-1	?	
2.534	BB	4.14086e-1	1.26492	5.23786e-1	?	

Uncalib. totals : 2.10168

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Ethane	1.550	1.850	2.68972e-1	0.5500
as Butane	2.400	3.700	4.14086e-1	0.4226

Totals : 9.7261e-1

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

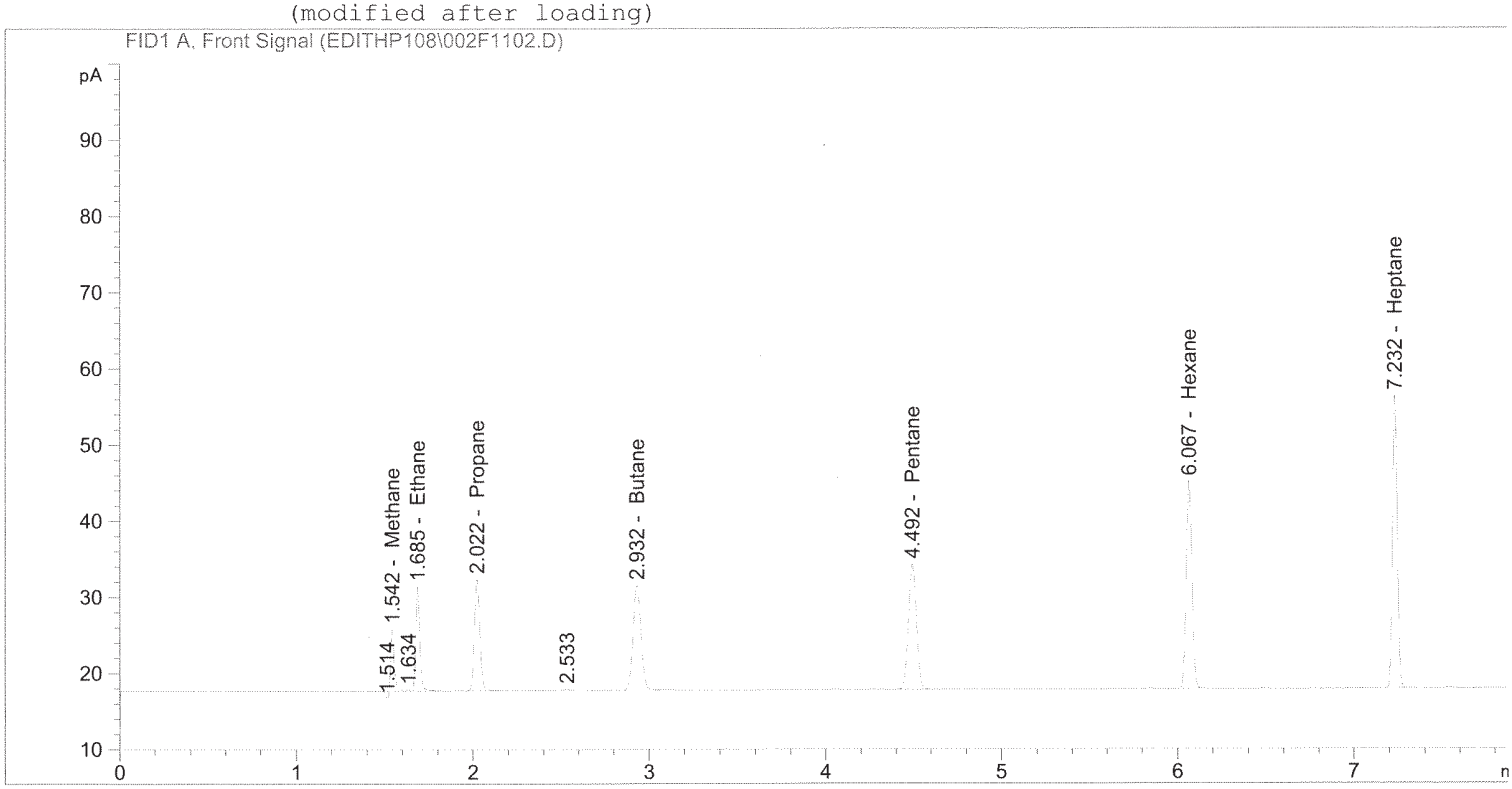
Name	Total Area [pA*s]	Amount [ppm]
as Ethane	2.68972e-1	0.5500
as Butane	4.14086e-1	0.4226
Methane	11.00137	40.6437
Ethane	21.75508	41.1246
Propane	32.24148	41.0611
Butane	42.46952	40.7978
Pentane	53.24072	41.3960
Hexane	63.01467	41.8577
Heptane	73.48394	40.1312

Totals : 287.9846

*** End of Report ***

mple Name: EdithP108 #C3 ENV(1=600,2=400)

```
================================================================================
Acq. Operator   : disconnected                      Seq. Line :  11
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 9/19/2014 3:39:01 PM                    Inj :   2
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.542	PV	11.02327	3.69436	40.72390		Methane
1.685	VB	21.73584	1.89034	41.08815		Ethane
2.022	PB	32.31124	1.27355	41.14999		Propane
2.932	BV	42.66705	9.60646e-1	40.98794		Butane
4.492	BV	53.34929	7.77540e-1	41.48120		Pentane
6.067	BB	63.19386	6.64265e-1	41.97749		Hexane
7.232	BB	73.63406	5.46121e-1	40.21309		Heptane

```
Totals :                                  287.62175

Uncalibrated Peaks    :      using compound Propane
```

mple Name: EdithP108 #C3 ENV(1=600,2=400)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.514	BP N	9.94072e-1	1.26492	1.25742	?	
1.634	VV	2.72370e-1	1.26492	3.44526e-1	?	
2.533	BB	4.36528e-1	1.26492	5.52172e-1	?	

Uncalib. totals : 2.15412

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Ethane	1.550	1.850	2.72370e-1	0.5569
as Butane	2.400	3.700	4.36528e-1	0.4455
Totals :				1.0025

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

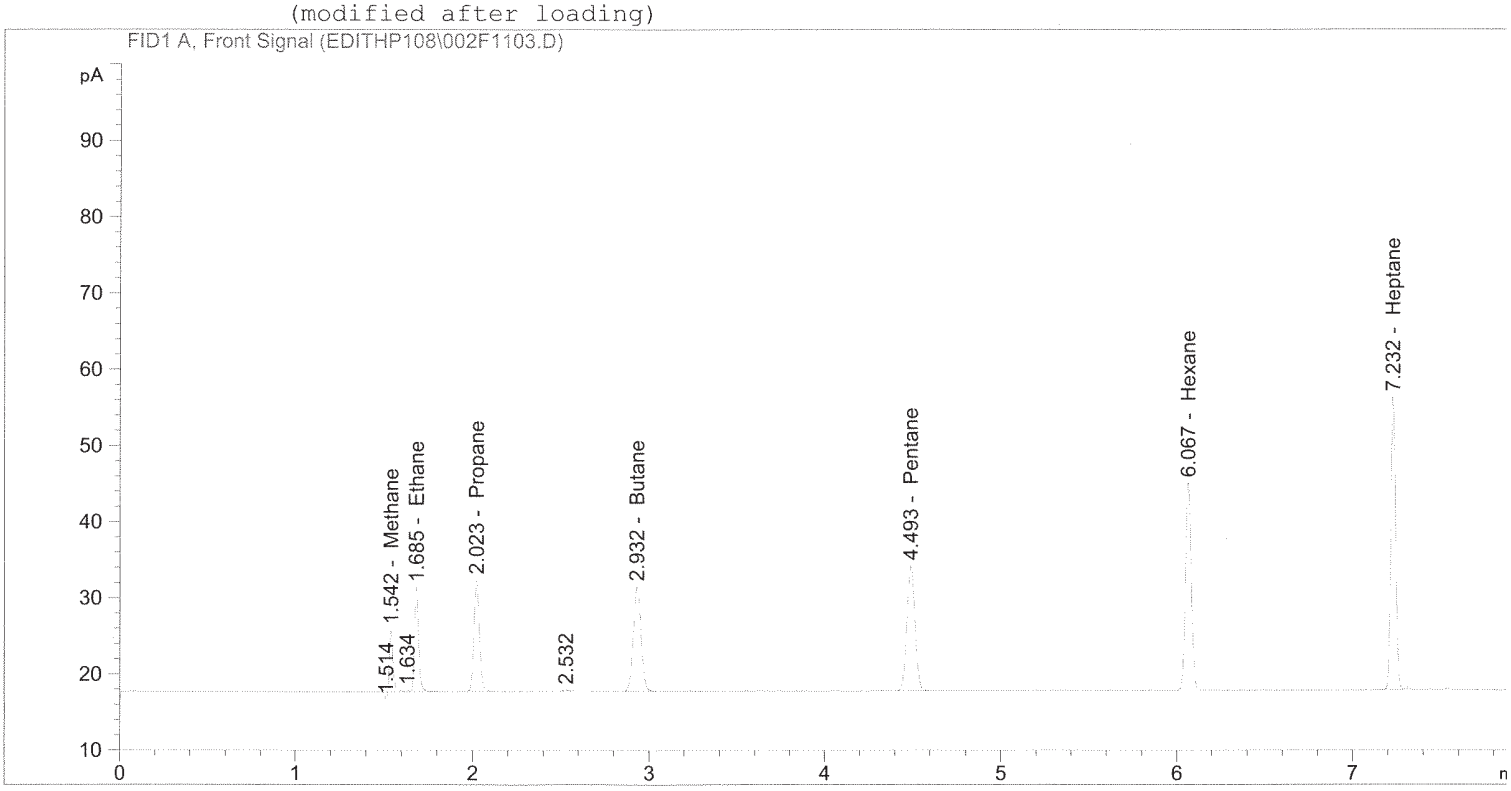
Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Ethane	2.72370e-1	0.5569
as Butane	4.36528e-1	0.4455
Methane	11.02327	40.7239
Ethane	21.73584	41.0881
Propane	32.31124	41.1500
Butane	42.66705	40.9879
Pentane	53.34929	41.4812
Hexane	63.19386	41.9775
Heptane	73.63406	40.2131
Totals :		288.6242

*** End of Report ***

ample Name: EdithP108 #C3 ENV(1=600,2=400)

```
================================================================================
Acq. Operator   : disconnected                      Seq. Line :  11
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 9/19/2014 3:55:26 PM                    Inj :   3
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.542	PV	11.00070	3.69442	40.64121		Methane
1.685	VB	21.52324	1.89031	40.68559		Ethane
2.023	BB	32.06316	1.27354	40.83375		Propane
2.932	BB	42.35880	9.60632e-1	40.69123		Butane
4.493	BV	53.31446	7.77535e-1	41.45386		Pentane
6.067	BB	63.17406	6.64264e-1	41.96425		Hexane
7.232	BB	73.57939	5.46121e-1	40.18327		Heptane
Totals :				286.45316		

```
Uncalibrated Peaks    :      using compound Propane
```

ample Name: EdithP108 #C3 ENV(1=600,2=400)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.514	BP N	1.00316	1.26492	1.26892		?
1.634	VV	2.18718e-1	1.26492	2.76660e-1		?
2.532	BB	4.07677e-1	1.26492	5.15678e-1		?

Uncalib. totals : 2.06126

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Ethane	1.550	1.850	2.18718e-1	0.4472
as Butane	2.400	3.700	4.07677e-1	0.4161

Totals : 8.6331e-1

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

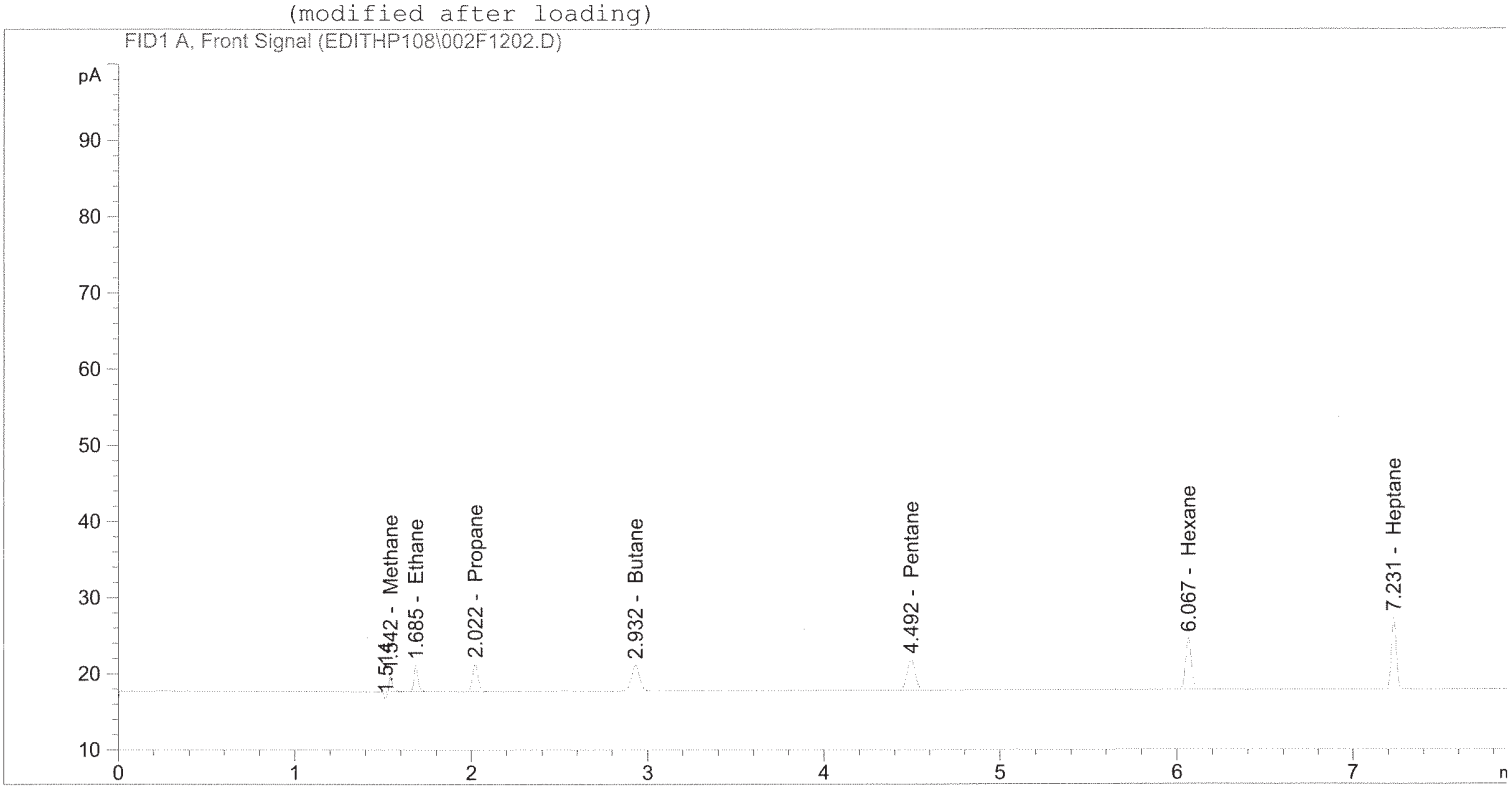
Name	Total Area [pA*s]	Amount [ppm]
as Ethane	2.18718e-1	0.4472
as Butane	4.07677e-1	0.4161
Methane	11.00070	40.6412
Ethane	21.52324	40.6856
Propane	32.06316	40.8337
Butane	42.35880	40.6912
Pentane	53.31446	41.4539
Hexane	63.17406	41.9643
Heptane	73.57939	40.1833

Totals : 287.3165

*** End of Report ***

ımple Name: EdithP108 #C2 ENV(1=900,2=100)

```
================================================================================
Acq. Operator   : disconnected                    Seq. Line :  12
Acq. Instrument : Edith                           Location : Vial 2
Injection Date  : 9/19/2014 4:27:54 PM                 Inj :   2
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.542	PB	2.72163	3.79009	10.31524		Methane
1.685	BB	5.34763	1.88056	10.05652		Ethane
2.022	BB	7.96017	1.26985	10.10825		Propane
2.932	BB	10.48665	9.54771e-1	10.01235		Butane
4.492	BB	13.31481	7.55938e-1	10.06518		Pentane
6.067	BB	15.69162	6.50807e-1	10.21221		Hexane
7.231	BB	18.25233	5.47842e-1	9.99939		Heptane

```
Totals :                                  70.76913

Uncalibrated Peaks    :      using compound Propane
```

ample Name: EdithP108 #C2 ENV(1=900,2=100)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.514	BP N	1.10081	1.26492	1.39244	?	

Uncalib. totals : 1.39244

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

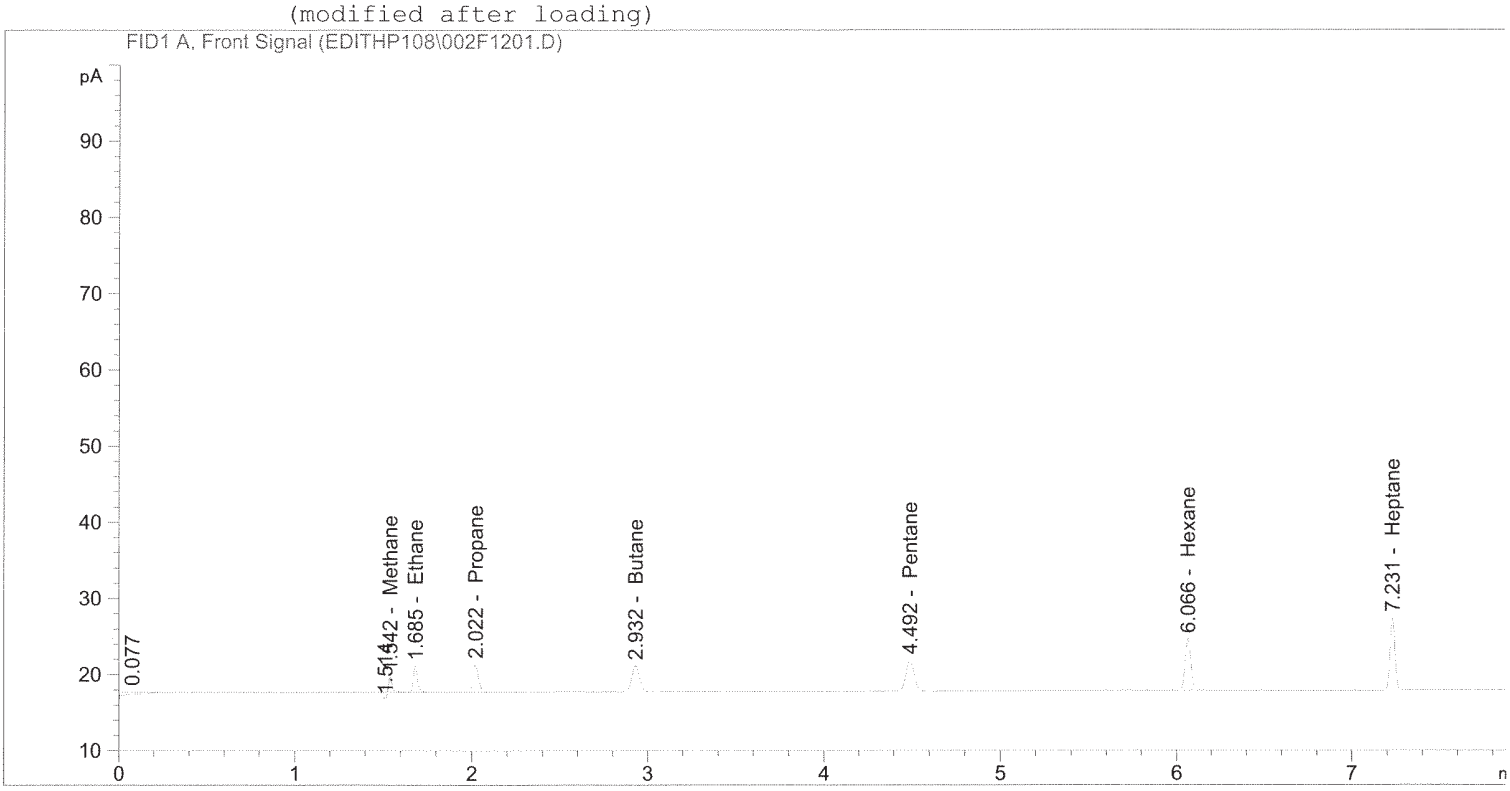
Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
Methane	2.72163	10.3152
Ethane	5.34763	10.0565
Propane	7.96017	10.1083
Butane	10.48665	10.0124
Pentane	13.31481	10.0652
Hexane	15.69162	10.2122
Heptane	18.25233	9.9994
Totals :		70.7691

*** End of Report ***

ımple Name: EdithP108 #C2 ENV(1=900,2=100)

```
================================================================================
Acq. Operator   : disconnected                    Seq. Line :  12
Acq. Instrument : Edith                           Location : Vial 2
Injection Date  : 9/19/2014 4:11:37 PM                 Inj :   1
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.542 PB        2.73122    3.78965   10.35035    Methane
  1.685 BB        5.38953    1.88066   10.13586    Ethane
  2.022 BB        7.97306    1.26986   10.12468    Propane
  2.932 BB       10.55341 9.54821e-1   10.07662    Butane
  4.492 BB       13.33021 7.55972e-1   10.07726    Pentane
  6.066 BB       15.62524 6.50731e-1   10.16783    Hexane
  7.231 BB       18.17946 5.47851e-1    9.95964    Heptane

Totals :                               70.89222

Uncalibrated Peaks    :      using compound Propane
```

ample Name: EdithP108 #C2 ENV(1=900,2=100)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
0.077	BB	2.96837	1.26492	3.75475	?	
1.514	BP N	1.06279	1.26492	1.34435	?	

Uncalib. totals : 5.09910

Summed Peaks Report

Signal 1: FID1 A, Front Signal

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

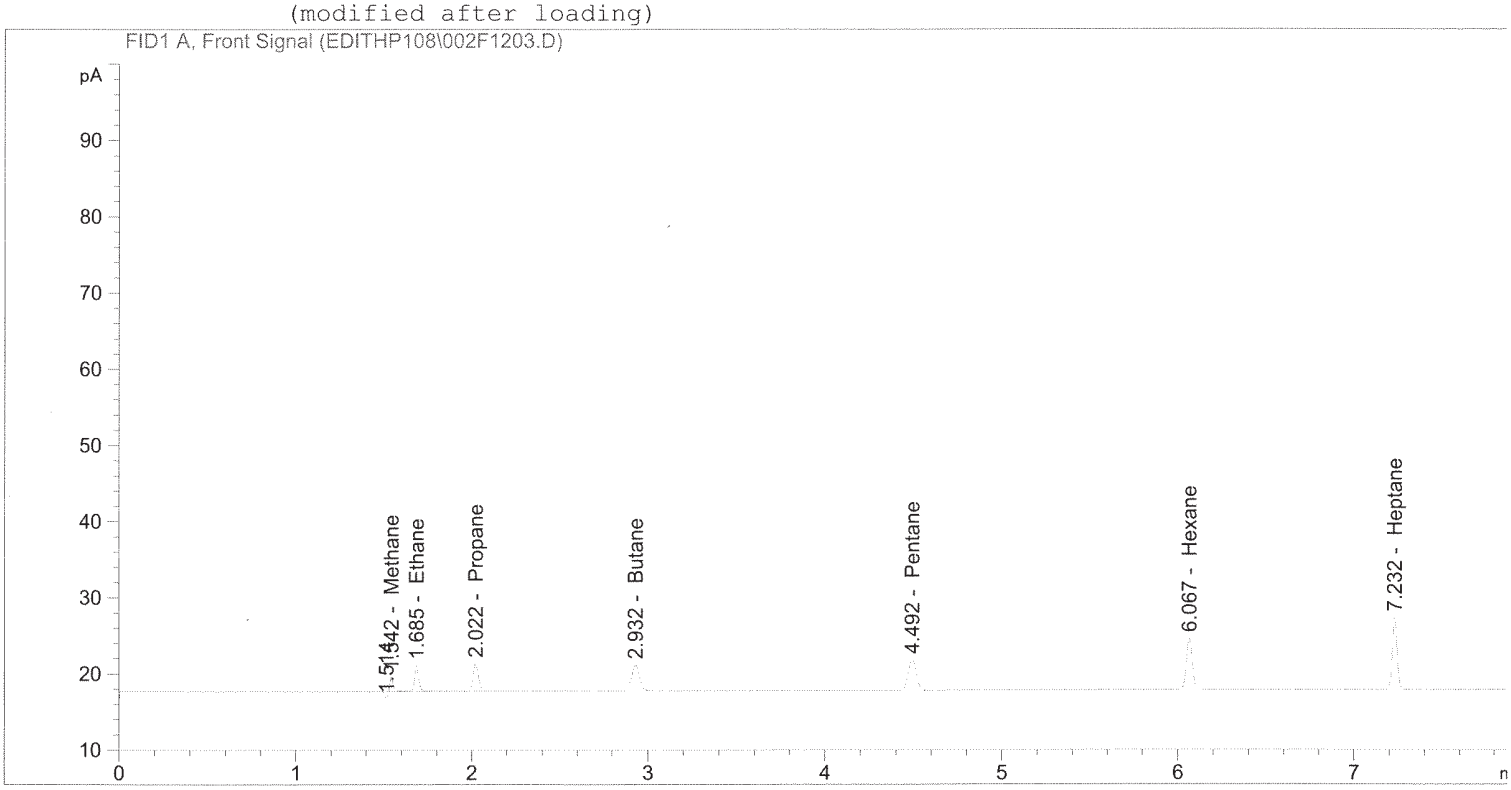
Name	Total Area [pA*s]	Amount [ppm]
Methane	2.73122	10.3503
Ethane	5.38953	10.1359
Propane	7.97306	10.1247
Butane	10.55341	10.0766
Pentane	13.33021	10.0773
Hexane	15.62524	10.1678
Heptane	18.17946	9.9596

Totals : 70.8922

*** End of Report ***

ample Name: EdithP108 #C2 ENV(1=900,2=100)

```
================================================================================
Acq. Operator   : disconnected                    Seq. Line :  12
Acq. Instrument : Edith                           Location : Vial 2
Injection Date  : 9/19/2014 4:44:08 PM                 Inj :   3
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.542 PB        2.76054    3.78830   10.45775    Methane
  1.685 PB        5.57597    1.88109   10.48888    Ethane
  2.022 PB        8.01652    1.26989   10.18009    Propane
  2.932 BB       10.51357 9.54791e-1   10.03826    Butane
  4.492 BB       13.38227 7.56083e-1   10.11811    Pentane
  6.067 BB       15.58333 6.50682e-1   10.13980    Hexane
  7.232 BB       18.17815 5.47851e-1    9.95892    Heptane

Totals :                               71.38182

Uncalibrated Peaks    :      using compound Propane
```

ımple Name: EdithP108 #C2 ENV(1=900,2=100)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.514	BP N	1.06684	1.26492	1.34946		?

Uncalib. totals : 1.34946

Summed Peaks Report

Signal 1: FID1 A, Front Signal

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

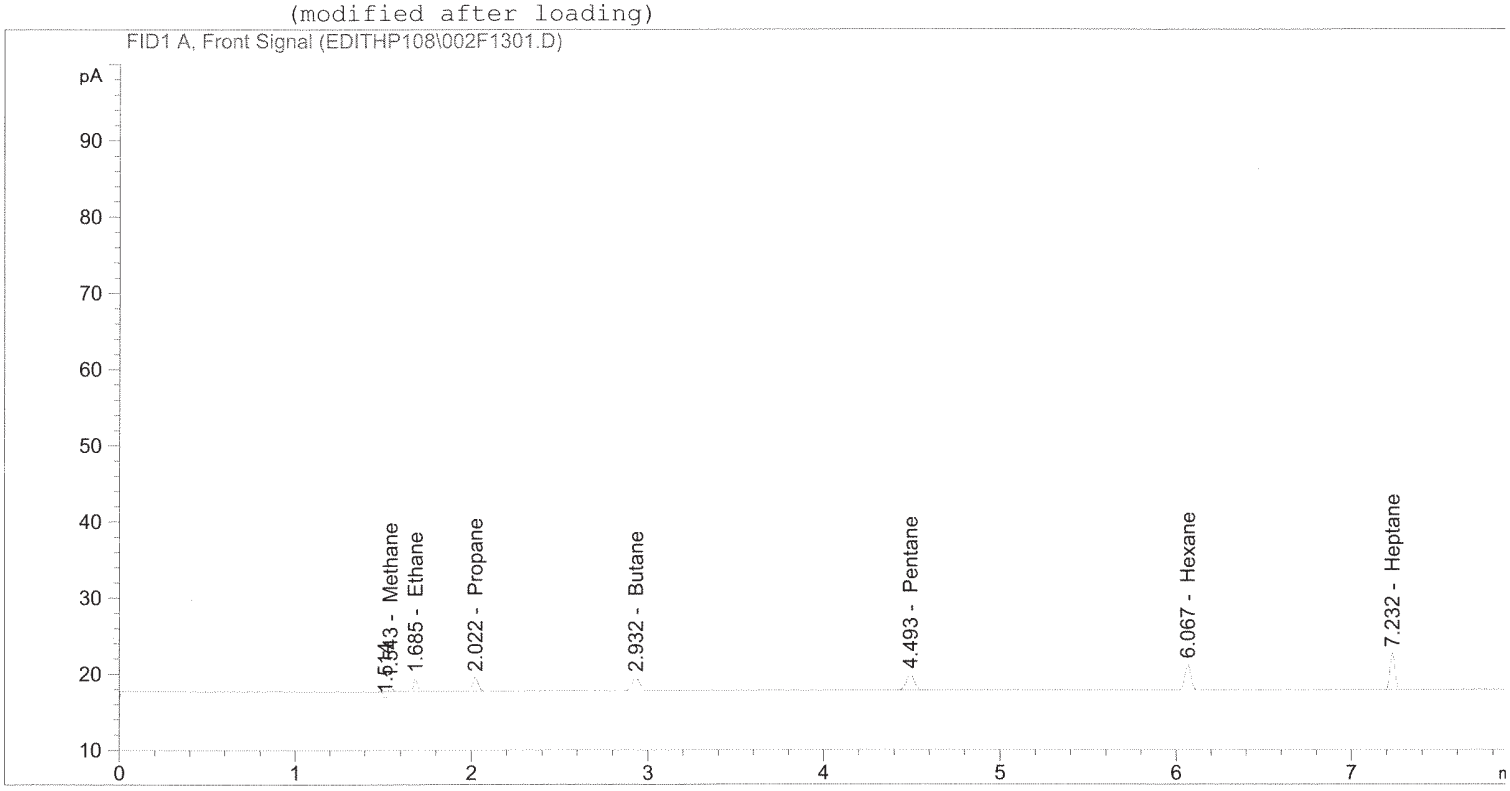
Name	Total Area [pA*s]	Amount [ppm]
Methane	2.76054	10.4577
Ethane	5.57597	10.4889
Propane	8.01652	10.1801
Butane	10.51357	10.0383
Pentane	13.38227	10.1181
Hexane	15.58333	10.1398
Heptane	18.17815	9.9589

Totals : 71.3818

*** End of Report ***

ımple Name: EdithP108 #C1 ENV(1=1900,2=100)

```
================================================================================
Acq. Operator   : disconnected                      Seq. Line :  13
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 9/19/2014 5:00:11 PM                    Inj :   1
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.543	PB	1.21230	3.93469	4.77003		Methane
1.685	BP	2.56303	1.86764	4.78680		Ethane
2.022	VB	3.83415	1.26492	4.84989		Propane
2.932	BB	5.30351	9.47159e-1	5.02327		Butane
4.493	BB	6.80569	7.28854e-1	4.96035		Pentane
6.067	BB	7.81790	6.33169e-1	4.95005		Hexane
7.232	BB	9.08140	5.50152e-1	4.99616		Heptane

```
Totals :                                  34.33655

Uncalibrated Peaks    :      using compound Propane
```

ample Name: EdithP108 #C1 ENV(1=1900,2=100)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.514	PP N	1.17246	1.26492	1.48307	?	

Uncalib. totals : 1.48307

Summed Peaks Report

Signal 1: FID1 A, Front Signal

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

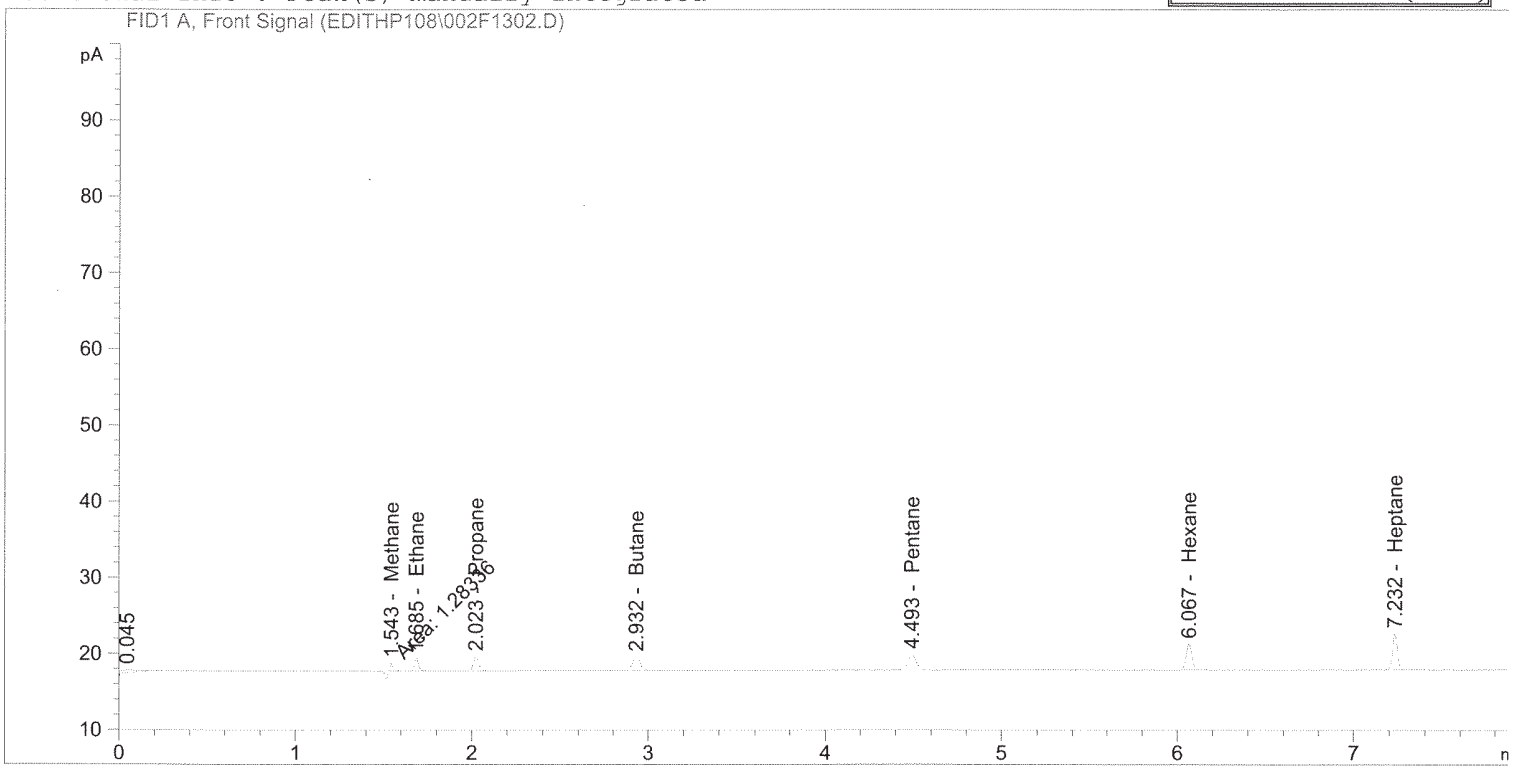
Name	Total Area [pA*s]	Amount [ppm]
Methane	1.21230	4.7700
Ethane	2.56303	4.7868
Propane	3.83415	4.8499
Butane	5.30351	5.0233
Pentane	6.80569	4.9604
Hexane	7.81790	4.9501
Heptane	9.08140	4.9962
Totals :		34.3366

*** End of Report ***

ample Name: EdithP108 #C1 ENV(1=1900,2=100)

```
================================================================================
Acq. Operator    : disconnected                      Seq. Line :  13
Acq. Instrument  : Edith                              Location : Vial 2
Injection Date   : 9/19/2014 5:16:17 PM                   Inj :   2
                                                   Inj Volume : 250 µl
Acq. Method      : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed     : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method  : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed     : 9/22/2014 10:21:52 AM by Justin Guenzler
                   (modified after loading)
Additional Info  : Peak(s) manually integrated
```

Manual Int. "II" (JKG)




```
================================================================================
                        External Standard Report
================================================================================

Sorted By              :      Signal
Calib. Data Modified   :      9/22/2014 10:21:52 AM
Multiplier             :      1.0000
Dilution               :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.543	MM	1.28336	3.93256	5.04688		Methane
1.685	BB	2.69641	1.86780	5.03635		Ethane
2.023	BB	3.98421	1.26496	5.03986		Propane
2.932	BB	5.27217	9.47119e-1	4.99337		Butane
4.493	BB	6.72683	7.28854e-1	4.90288		Pentane
6.067	BB	7.75067	6.33169e-1	4.90749		Hexane
7.232	BB	9.07698	5.50155e-1	4.99375		Heptane

Totals : 34.92058

Uncalibrated Peaks : using compound Propane

ample Name: EdithP108 #C1 ENV(1=1900,2=100)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
0.045	BB	2.29596	1.26492	2.90421	?	

Uncalib. totals : 2.90421

Summed Peaks Report

Signal 1: FID1 A, Front Signal

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
Methane	1.28336	5.0469
Ethane	2.69641	5.0363
Propane	3.98421	5.0399
Butane	5.27217	4.9934
Pentane	6.72683	4.9029
Hexane	7.75067	4.9075
Heptane	9.07698	4.9937

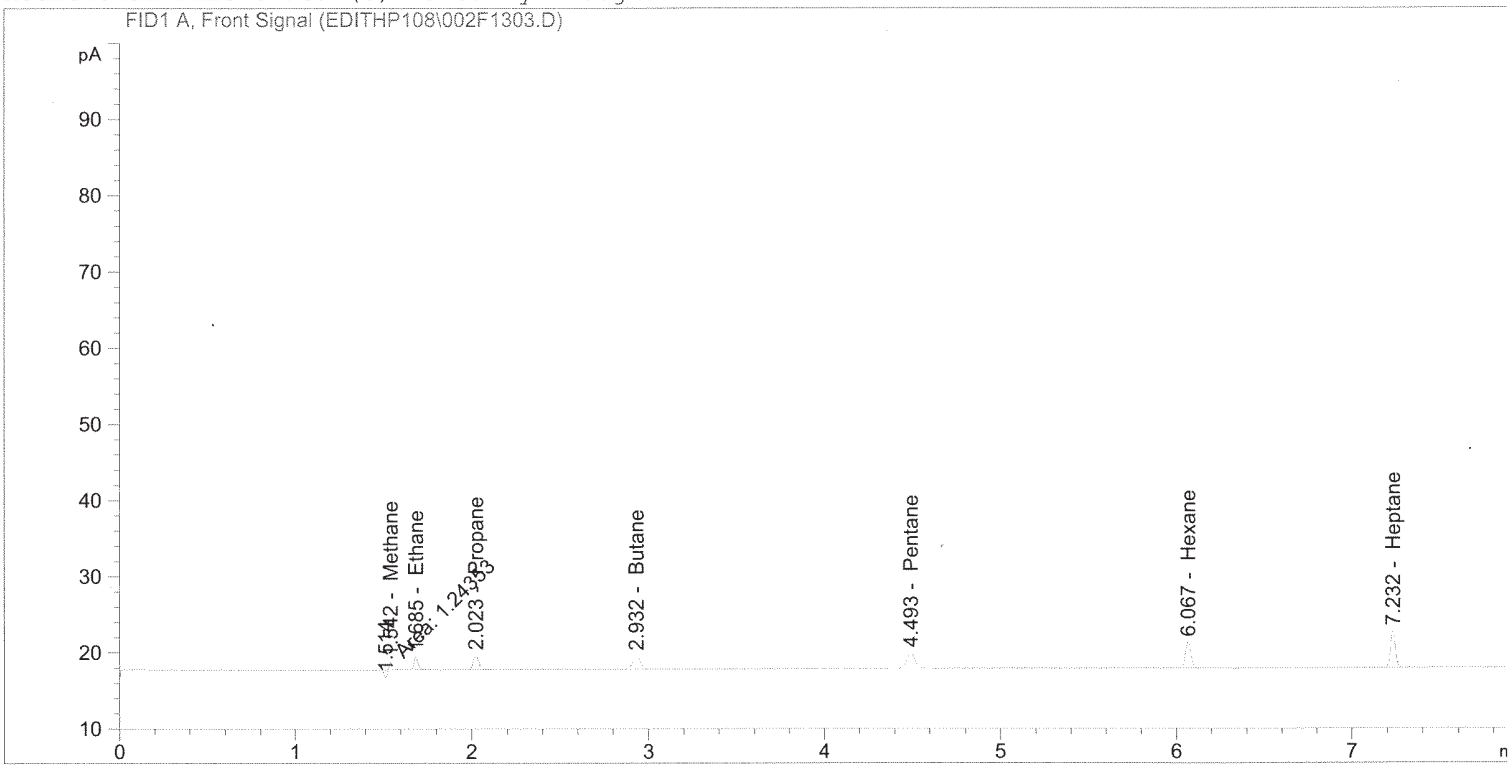
Totals : 34.9206

*** End of Report ***

ımple Name: EdithP108 #C1 ENV(1=1900,2=100)

```
================================================================================
Acq. Operator   : disconnected                      Seq. Line :  13
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 9/19/2014 5:32:35 PM                    Inj :  3
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```

Manual Int. "II" (JKG)




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.542	MM	1.24353	3.93469	4.89291		Methane
1.685	BB	2.66340	1.86764	4.97426		Ethane
2.023	BB	3.98818	1.26497	5.04492		Propane
2.932	BB	5.23108	9.47119e-1	4.95446		Butane
4.493	BB	6.86699	7.28910e-1	5.00542		Pentane
6.067	BB	7.79197	6.33169e-1	4.93364		Hexane
7.232	BB	9.05862	5.50157e-1	4.98366		Heptane
Totals :				34.78928		

```
Uncalibrated Peaks    :      using compound Propane
```

ımple Name: EdithP108 #C1 ENV(1=1900,2=100)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.514	BP N	1.11667	1.26492	1.41250	?	

Uncalib. totals : 1.41250

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
Methane	1.24353	4.8929
Ethane	2.66340	4.9743
Propane	3.98818	5.0449
Butane	5.23108	4.9545
Pentane	6.86699	5.0054
Hexane	7.79197	4.9336
Heptane	9.05862	4.9837

Totals : 34.7893

*** End of Report ***

THE LINDE GROUP

SHIPPED TO: Enthalpy Analytical Inc.
800 Capitola Dr. Ste 1
Durham, NC 27713-4385

PAGE: 1 of 1

CERTIFICATE OF ANALYSIS

Sales#:	111957073	**Cylinder Size:**	2 (9" X 51")
Production#:	1308627	**Cylinder # :**	9819192
Certification Date:	Aug-28-2014	**Cylinder Pressure:**	525 psig
P.O.# :	08111418	**Cylinder Valve:**	CGA 350 / Brass
Blend Type:	CERTIFIED	**Cylinder Volume:**	44 Liter
Material#:	24094007	**Cylinder Material:**	Steel
Traceability:	NIST by weight	**Gas Volume:**	1572 Liters
Expiration Date:	Aug-28-2015	**Blend Tolerance:**	5% Relative
Do NOT use under:	150 psig	**Analytical Accuracy:**	2% Relative

COMPONENT	CAS NUMBER	REQUESTED CONC	CERTIFIED CONC
Methane	74-82-8	5.00 %	5.13 %
Ethane	74-84-0	5.00 %	5.13 %
Propane	74-98-6	5.00 %	5.13 %
Butane	106-97-8	1.00 %	1.03 %
Pentane	109-66-0	0.50 %	0.52 %
Hexane	110-54-3	0.40 %	0.41 %
Heptane	142-82-5	500 ppm	519 ppm
Nitrogen	7727-37-9	Balance	Balance

ANALYST: _____
Lou Lorenzetti

DATE: Aug-28-2014

Linde Gas North America LLC

(908) 329 9700 Main (908) 329-9740 Fax
www.Lindeus.com

CUSTOMGAS
SOLUTIONS

1750 East Club Boulevard
Durham, NC 27704
Phone: (919) 220-2570
Fax: (919) 220-4540

Certificate of Analysis

Customer:

Enthalpy Analytical, Inc.
800-1 Capitola Drive
Durham, NC 27713

Tel: (919) 595-1377

Cylinder Number: SX25635
Cylinder Size/CGA: 150/350
Fill Pressure: 2015 PSIA
Gas Volume: 3700 liters
Date of Mfg: 02/04/14
Expiration Date: 02/04/16

Customer Number	Ship VIA	Job No.	Customer PO	Mixture Type
00127703NC	Pick up	011714-003	01171401	Gravimetric

Component	Nominal Concentration	Actual Concentration*	Mixture Type
Heptane	100 ppm	99.82 ppm +/- 2 ppm	Gravimetric Master Gas
Hexane	100 ppm	100.1 ppm +/- 2 ppm	
Pentane	100 ppm	100.0 ppm +/- 2 ppm	
Methane	100 ppm	100.2 ppm +/- 2 ppm	
Ethane	100 ppm	100.1 ppm +/- 2 ppm	
Propane	100 ppm	100.4 ppm +/- 2 ppm	
Butane	100 ppm	100.2 ppm +/- 2 ppm	
Nitrogen	balance		

NOTES:

Blend Tolerance: +/- 2 %

Analytical Tolerance: +/- 2 %

Traceability: NIST by weight set. NIST Traceability No MT5061.
Internal Standards by analysis

Reactive Mixtures: Analyzed twice with required agreement between analyses of 2%.
Required wait time between analyses of >7 days.

Caution: Do not use below 150 PSIG.

Authorized Signature:

Joseph A. Ernst

*Every effort has been made to establish the actual concentration of the components using master gas blending technology however, Custom Gas Solutions shall have no liability in excess of the established charge for this material.

Agilent 7890A

Oven	
Equilibration Time	0.3 min
Max Temperature	200 degrees C
Slow Fan	Disabled
Oven Program	On
35 °C for 2.2 min	
#1 then 15 °C/min to 70 °C for 0.07 min	
#2 then 30 °C/min to 180 °C for 1 min	
Run Time	9.27 min
Sample Overlap	
Sample overlap is not enabled	
Front SS Inlet H2	
Mode	Split
Heater	On 200 °C
Pressure	On 5.1931 psi
Total Flow	On 15.6 mL/min
Septum Purge Flow	On 3 mL/min
Gas Saver	Off
Split Ratio	5 :1
Split Flow	10.5 mL/min
Back SS Inlet H2	
Mode	Split
Heater	On 200 °C
Pressure	On 4.9511 psi
Total Flow	On 9.6 mL/min
Septum Purge Flow	On 3 mL/min
Gas Saver	Off
Split Ratio	2 :1
Split Flow	0 mL/min
Column #1	
Restek 10198Rtx-1 S/N 806941	
280 °C: 30 m x 320 µm x 4 µm	
In: Front SS Inlet H2	
Out: Front Detector FID	
(Initial)	35 °C
Pressure	5.1931 psi
Flow	2.1 mL/min
Average Velocity	39.91 cm/sec
Holdup Time	1.2528 min
Flow Program	On
2.1 mL/min for 0 min	
Run Time	9.27 min
Column #2	
Restek 19701Alumina S/N 156109	
280 °C: 30 m x 320 µm x 10 µm	
In: Front SS Inlet H2	
Out: Back Detector FID	
(Initial)	35 °C
Pressure	6.1868 psi
Flow	2.2 mL/min
Average Velocity	43.848 cm/sec
Holdup Time	1.1403 min
Flow Program	On

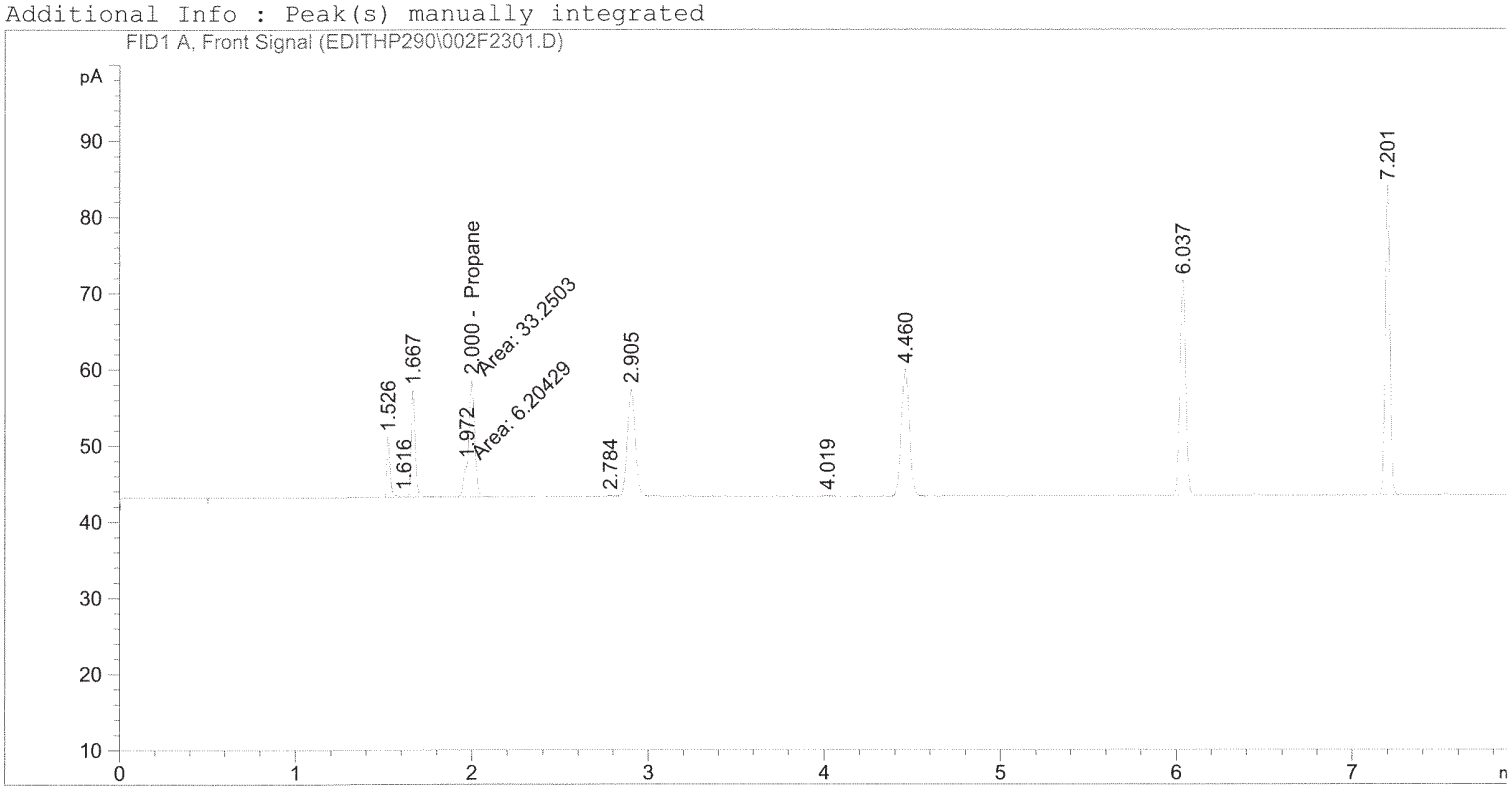
odified on: 1/14/2014 at 3:15:15 PM
2.2 mL/min for 0 min

Run Time	9.27 min
Front Detector FID	
Heater	On 300 °C
H2 Flow	On 50 mL/min
Air Flow	On 450 mL/min
Makeup Flow	On 35 mL/min
Const Col + Makeup	Off
Flame	On
Electrometer	On
Back Detector FID	
Heater	On 200 °C
H2 Flow	On 50 mL/min
Air Flow	On 450 mL/min
Makeup Flow	On 35 mL/min
Const Col + Makeup	Off
Flame	On
Electrometer	On
Valve 1	
Gas Sampling Valve	Off
GSV Loop Volume	0.25 mL
Load Time	1.5 min
Inject Time	0.5 min
Valve 2	
Gas Sampling Valve	Off
GSV Loop Volume	0.25 mL
Load Time	1.5 min
Inject Time	0.5 min
Valve Box	
Heater	On 150 °C
Signals	
Signal #1: Front Signal	Save On 20 Hz
Signal #2: Test Plot	Save Off 50 Hz
Signal #3: Back Signal	Save On 20 Hz
Signal #4: Test Plot	Save Off 50 Hz

Raw Data

ample Name: EdithP280 #C3 ENV(1=600,2=400)

```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  23
Acq. Instrument : Edith                             Location : Vial 2
Injection Date  : 7/8/2015 1:52:01 AM                    Inj :  1
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP290\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_TVOCASP.M
Last changed    : 7/10/2015 7:47:51 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```

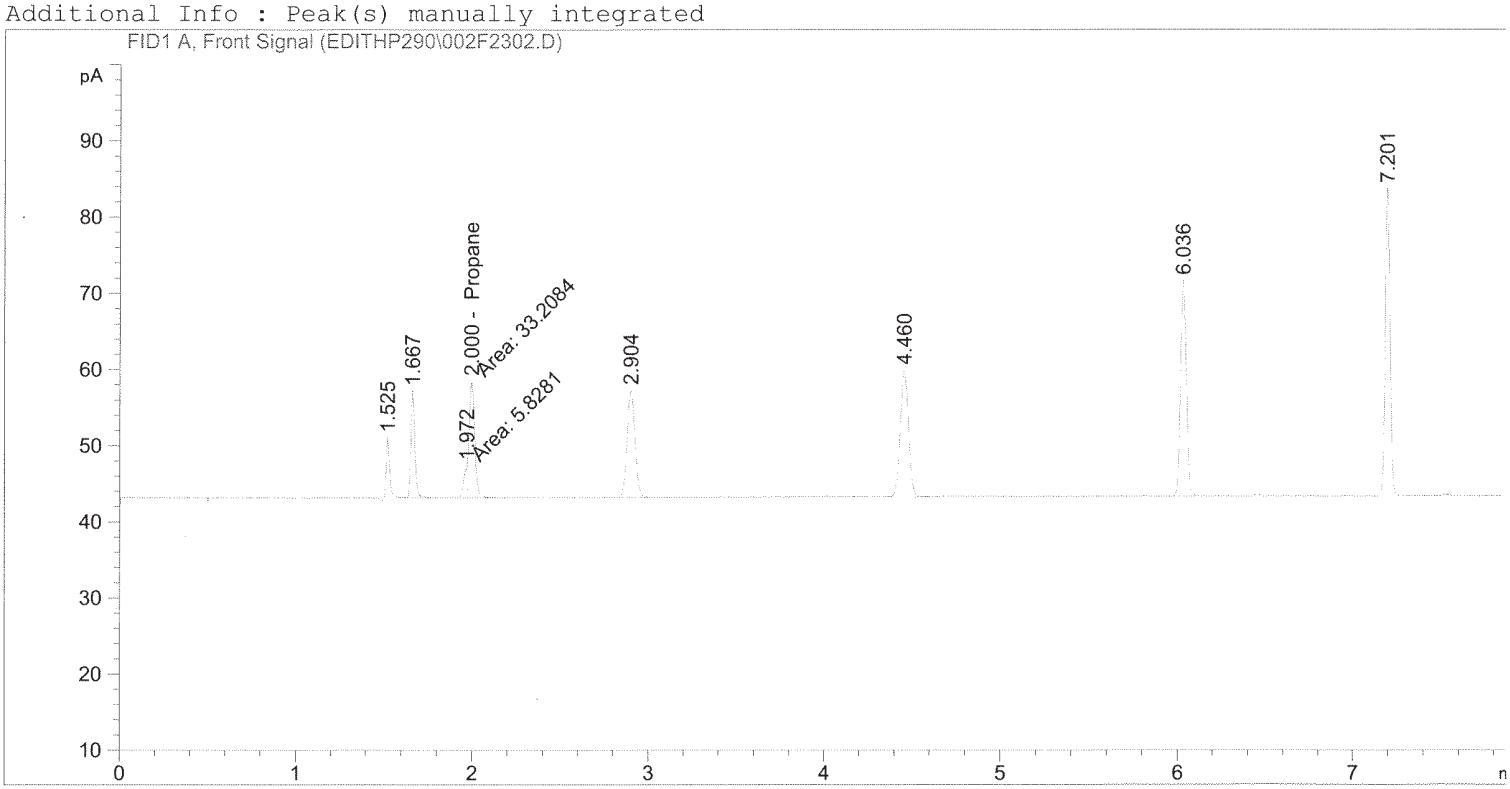



```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 7:47:51 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|-----------------
  2.000 FM       33.25026    1.27358   42.34702     Propane

Totals :                                 42.34702

Uncalibrated Peaks    :      using compound Propane

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|-----------------
  1.526 PV       10.79432    1.27114   13.72111     ?
  1.616 VV     2.43104e-1    1.26492 3.07506e-1     ?
```

Manual Int. "II" (JKG)

ample Name: EdithP280 #C3 ENV(1=600,2=400)

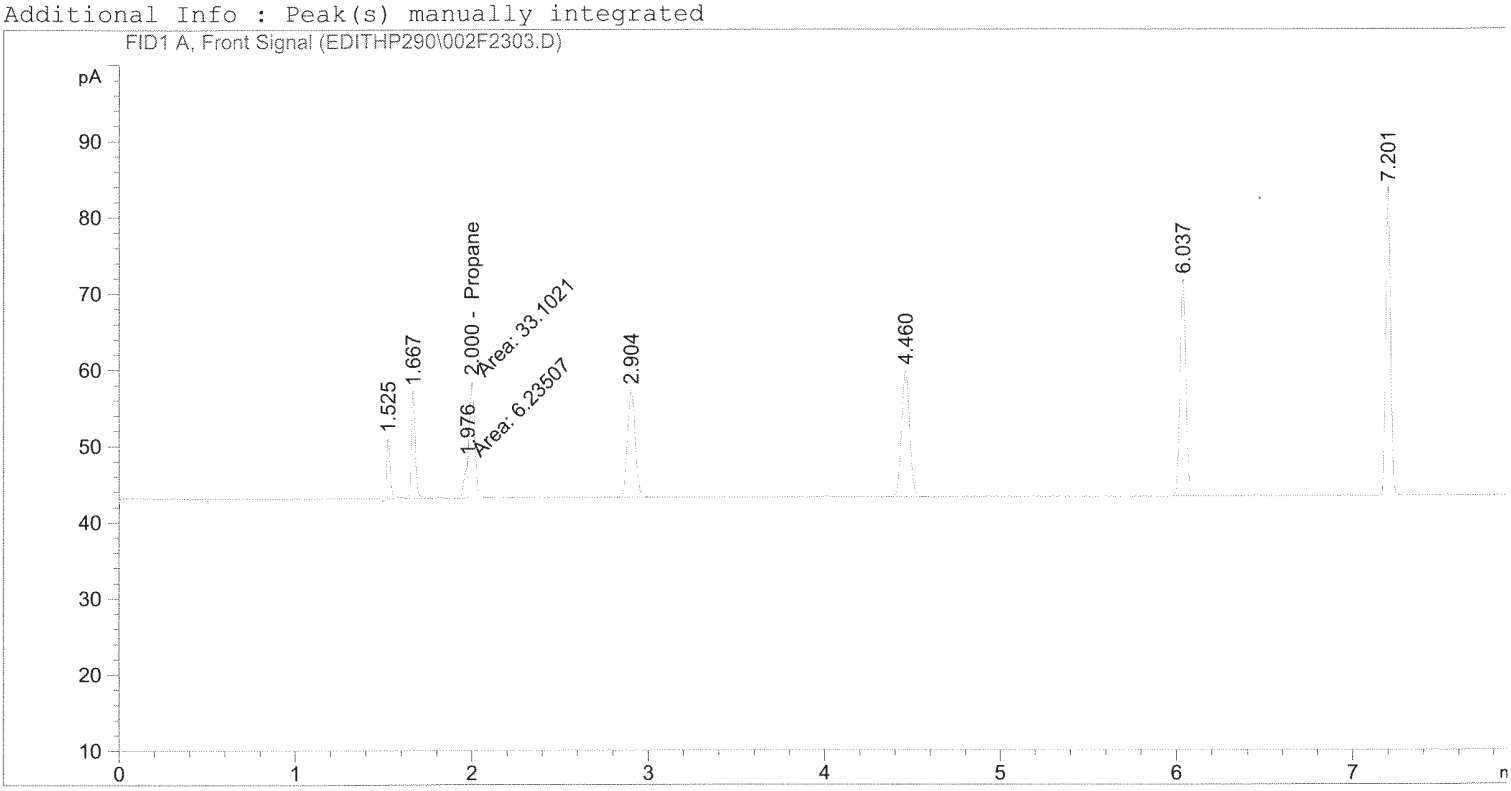
```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  23
Acq. Instrument : Edith                             Location : Vial 2
Injection Date  : 7/8/2015 2:08:17 AM                    Inj :   2
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP290\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_TVOCASP.M
Last changed    : 7/10/2015 7:47:51 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 7:47:51 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|--------------------
  2.000 FM       33.20840    1.27358   42.29366     Propane Manual Int. "II" (JKG)

Totals :                                42.29366

Uncalibrated Peaks    :      using compound Propane

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  1.525 PV       11.06039    1.27123   14.06029     ?
  1.667 VB       21.94136    1.27298   27.93090     ?
```

ımple Name: EdithP280 #C3 ENV(1=600,2=400)

```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  23
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 7/8/2015 2:24:53 AM                    Inj :  3
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP290\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_TVOCASP.M
Last changed    : 7/10/2015 7:47:51 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```

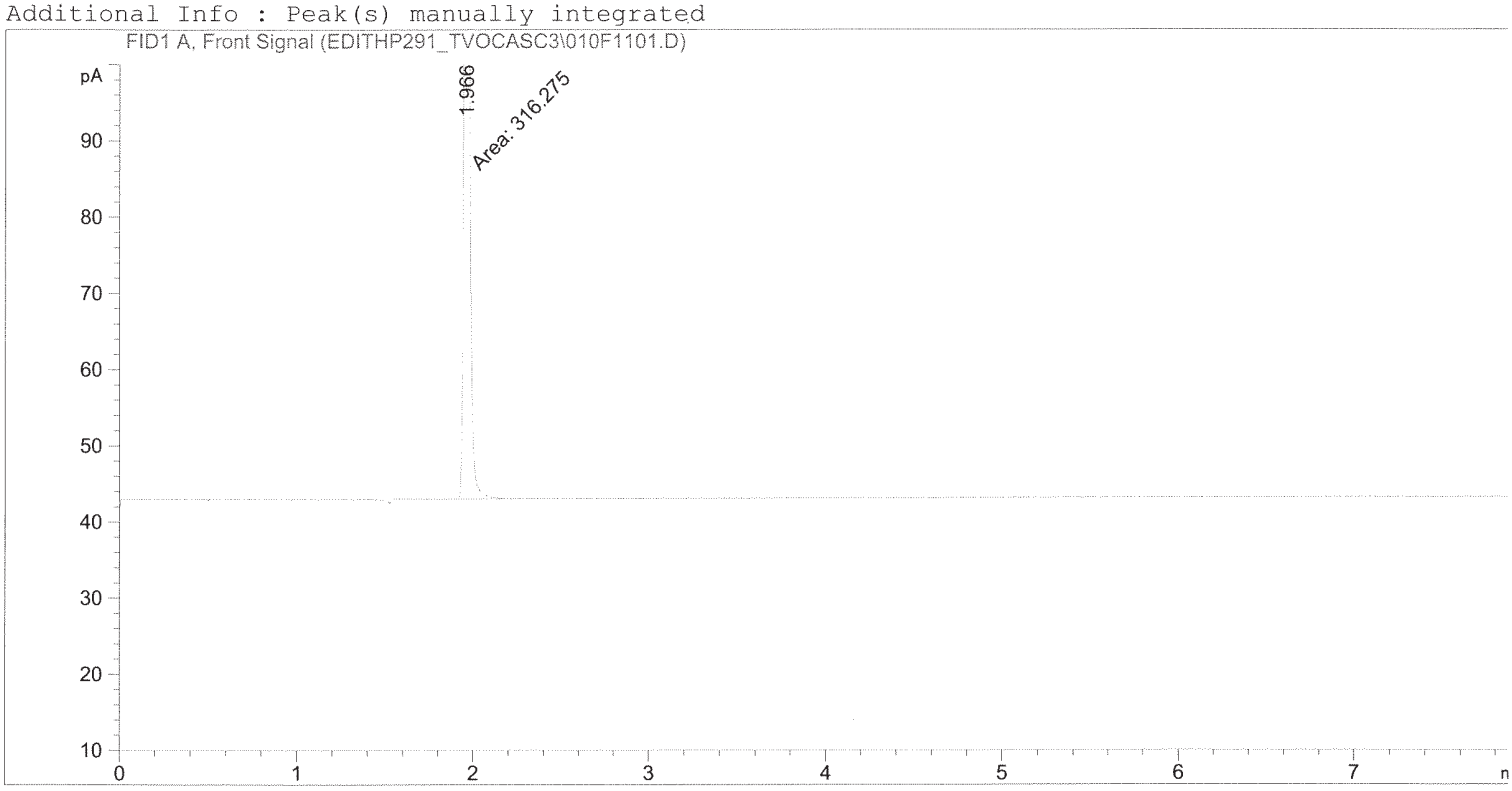



```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 7:47:51 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  2.000 FM       33.10212    1.27358   42.15818     Propane

Totals :                                 42.15818

Uncalibrated Peaks    :      using compound Propane

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  1.525 PV       11.07247    1.27123   14.07568     ?
  1.667 VB       22.00146    1.27298   28.00751     ?
```

Manual Int. "II" (JKG)

ımple Name: 0615-125.Large - L1 - R1 - 1158.Can *501

```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  11
Acq. Instrument : Edith                              Location : Vial 10
Injection Date  : 7/8/2015 10:09:23 PM                    Inj :   1
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_TVOCASP.M
Last changed    : 7/10/2015 7:54:27 AM by Justin Guenzler
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 7:50:29 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  2.000            -          -          -          Propane

Totals :                                  0.00000

Uncalibrated Peaks    :      using compound Propane

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  1.966 MM      316.27533    1.27464  403.13580    ?

Uncalib. totals :                      403.13580
```

Manual Int. "II" (JKG)

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========
==========

Area Percent Report

==========

Sorted By : Signal
Calib. Data Modified : 7/10/2015 7:50:29 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	2.000		0.0000	0.00000	0.00000	Propane
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.966	MM	0.0309	316.27533	1.000e2	?
Uncalib. totals :				316.27533	100.0000	

1 Warnings or Errors :

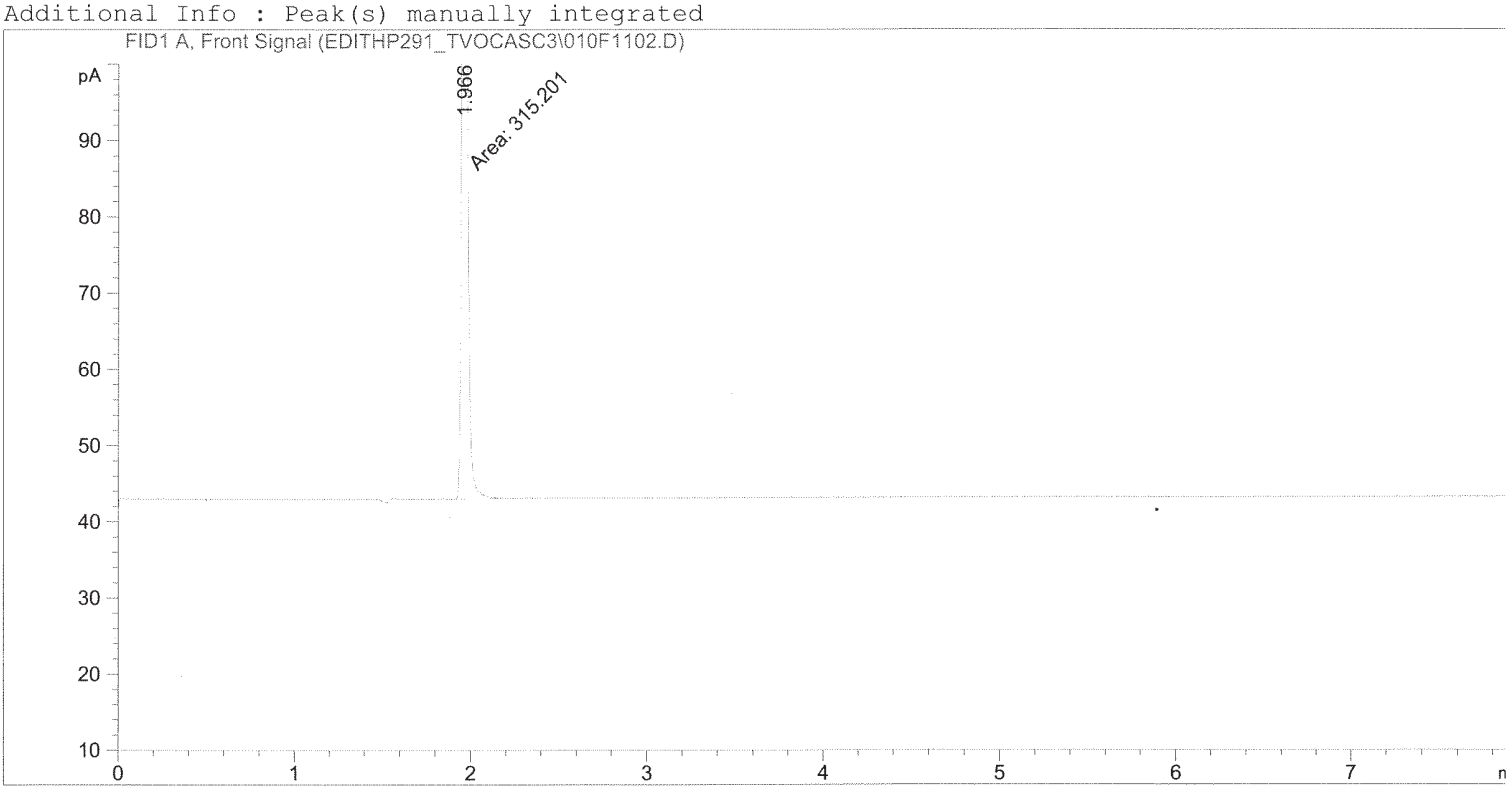
Warning : Calibrated compound(s) not found

==========

*** End of Report ***

ımple Name: 0615-125.Large - L1 - R1 - 1158.Can *501

```
==========================================================================
Acq. Operator    : Daniel Clayton                  Seq. Line :  11
Acq. Instrument  : Edith                            Location : Vial 10
Injection Date   : 7/8/2015 10:23:36 PM                 Inj :   2
                                                  Inj Volume : 250 µl
Acq. Method      : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed     : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method  : C:\GC\2015\EDITH\METHODS\EDITHP108F_TVOCASP.M
Last changed     : 7/10/2015 7:54:27 AM by Justin Guenzler
Additional Info  : Peak(s) manually integrated
```




```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 7:50:29 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  2.000            -          -          -          Propane

Totals :                                 0.00000

Uncalibrated Peaks    :      using compound Propane

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  1.966 MM      315.20139    1.27464  401.76678    ?   Manual Int. "II" (JKG)

Uncalib. totals :                      401.76678
```

mple Name: 0615-125.Large - L1 - R1 - 1158.Can *501

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========
==========
Area Percent Report
==========

Sorted By : Signal
Calib. Data Modified : 7/10/2015 7:50:29 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	2.000		0.0000	0.00000	0.00000	Propane
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.966	MM	0.0309	315.20139	1.000e2	?
Uncalib. totals :				315.20139	100.0000	

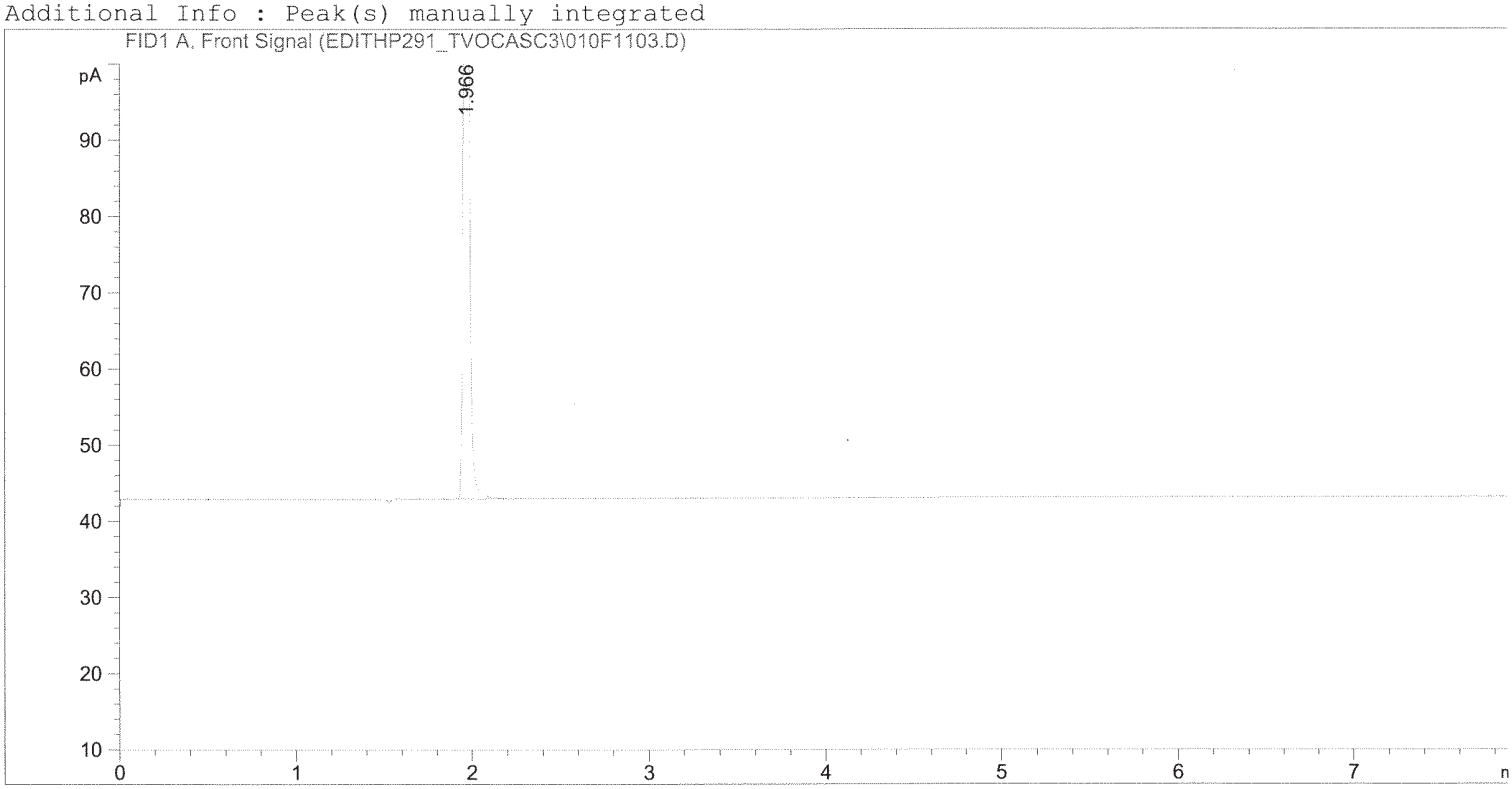
1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========
*** End of Report ***

mple Name: 0615-125.Large - L1 - R1 - 1158.Can *501

```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  11
Acq. Instrument : Edith                              Location : Vial 10
Injection Date  : 7/8/2015 10:37:51 PM                    Inj :   3
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_TVOCASP.M
Last changed    : 7/10/2015 7:54:27 AM by Justin Guenzler
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 7:50:29 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  2.000            -          -          -          Propane

Totals :                                 0.00000

Uncalibrated Peaks    :      using compound Propane

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  1.966 BV      315.17191    1.27464  401.72920    ?

Uncalib. totals :                      401.72920
```

ample Name: 0615-125.Large - L1 - R1 - 1158.Can *501

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========
==========
Area Percent Report
==========

Sorted By : Signal
Calib. Data Modified : 7/10/2015 7:50:29 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	2.000		0.0000	0.00000	0.00000	Propane

Totals : 0.00000 0.0000

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.966	BV	0.0287	315.17191	1.000e2	?

Uncalib. totals : 315.17191 100.0000

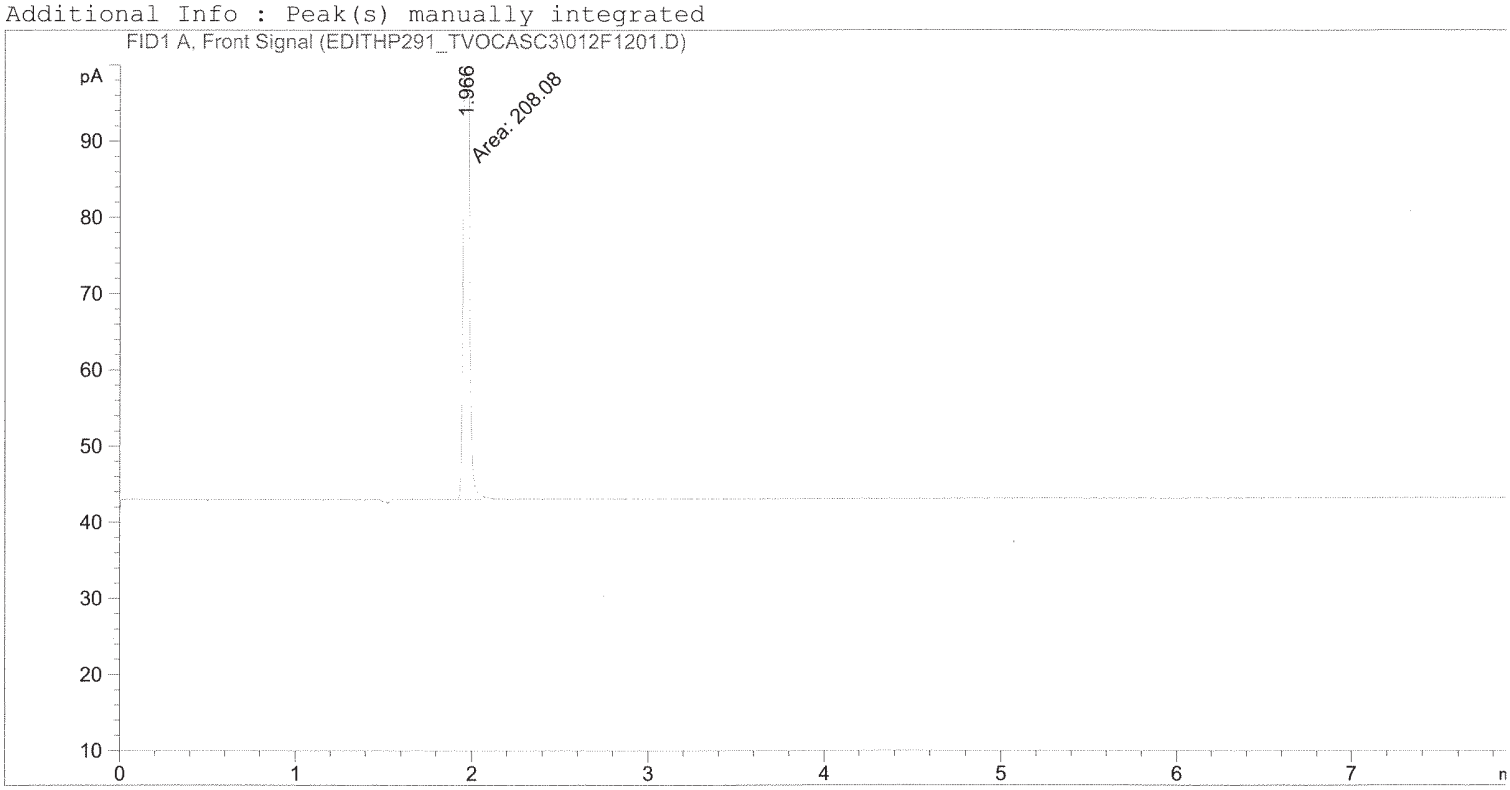
1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========
*** End of Report ***

ample Name: 0615-125.Large - L2 - R1 - 1124.Can *501

```
==========================================================================
Acq. Operator   : Daniel Clayton                  Seq. Line :  12
Acq. Instrument : Edith                           Location : Vial 12
Injection Date  : 7/8/2015 10:52:09 PM                 Inj :  1
                                                Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_TVOCASP.M
Last changed    : 7/10/2015 7:54:27 AM by Justin Guenzler
Additional Info : Peak(s) manually integrated
```




```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 7:50:29 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  2.000            -          -          -          Propane

Totals :                                 0.00000

Uncalibrated Peaks    :      using compound Propane

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  1.966 MM      208.08047    1.27457  265.21342    ?
```

Manual Int. "II" (JKG)

```
Uncalib. totals :                      265.21342
```

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========

==========

Area Percent Report

==========

Sorted By : Signal
Calib. Data Modified : 7/10/2015 7:50:29 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	2.000		0.0000	0.00000	0.00000	Propane
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.966	MM	0.0308	208.08047	1.000e2	?
Uncalib. totals :				208.08047	100.0000	

1 Warnings or Errors :

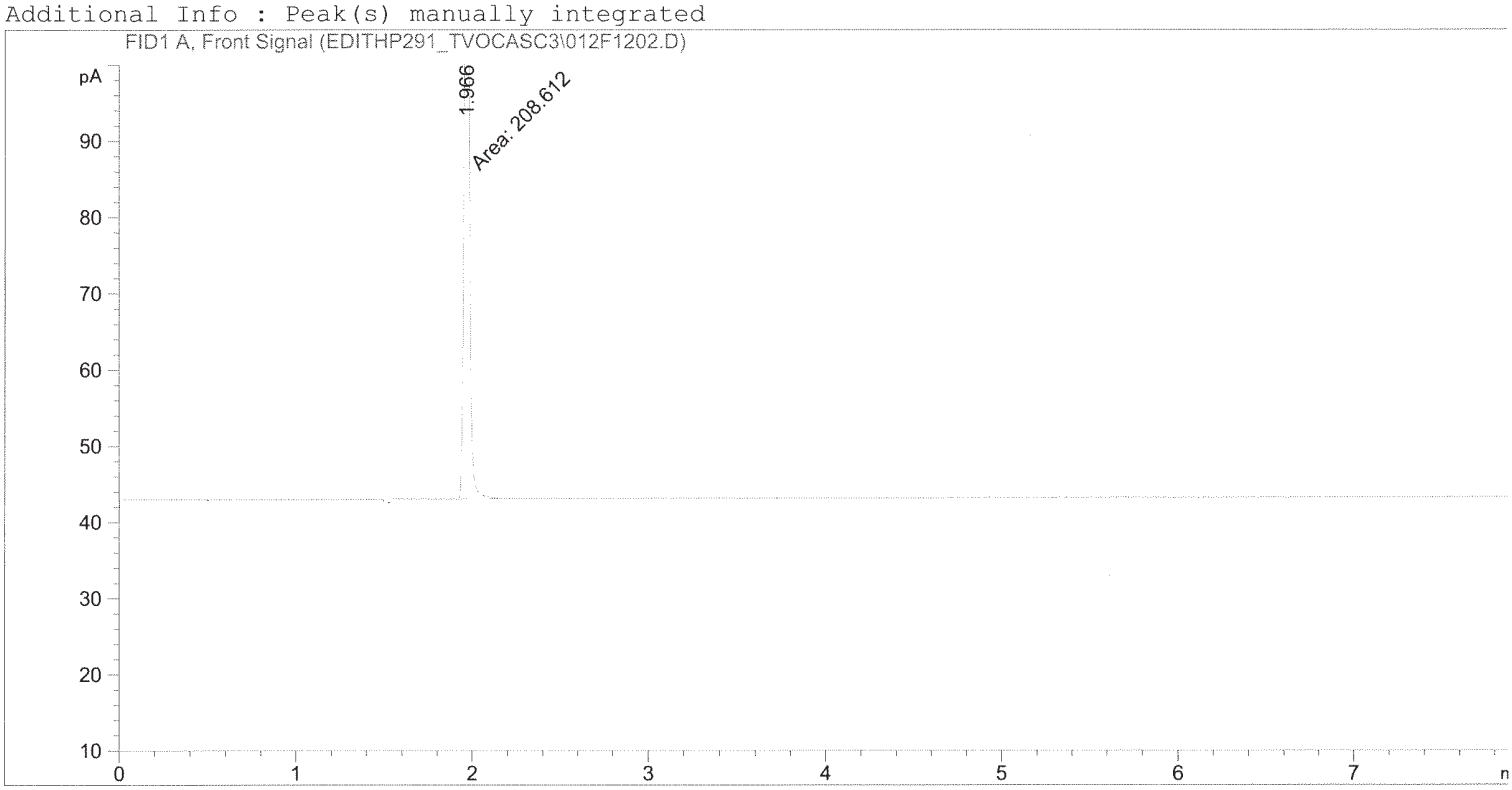
Warning : Calibrated compound(s) not found

==========

*** End of Report ***

ımple Name: 0615-125.Large - L2 - R1 - 1124.Can *501

Acq. Operator	: Daniel Clayton	Seq. Line	: 12
Acq. Instrument	: Edith	Location	: Vial 12
Injection Date	: 7/8/2015 11:06:26 PM	Inj	: 2
		Inj Volume	: 250 µl
Acq. Method	: C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M		
Last changed	: 6/9/2015 10:42:00 AM by Justin Guenzler		
Analysis Method	: C:\GC\2015\EDITH\METHODS\EDITHP108F_TVOCASP.M		
Last changed	: 7/10/2015 7:54:27 AM by Justin Guenzler		
Additional Info	: Peak(s) manually integrated		



External Standard Report

Sorted By	:	Signal
Calib. Data Modified	:	7/10/2015 7:50:29 AM
Multiplier	:	1.0000
Dilution	:	1.0000

Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
2.000		-	-	-		Propane

Totals : 0.00000

Uncalibrated Peaks : using compound Propane

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.966	MM	208.61212	1.27457	265.89114	?	

Manual Int. "II" (JKG)

Uncalib. totals : 265.89114

ımple Name: 0615-125.Large - L2 - R1 - 1124.Can *501

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========
==========

Area Percent Report

==========

Sorted By : Signal
Calib. Data Modified : 7/10/2015 7:50:29 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	2.000		0.0000	0.00000	0.00000	Propane

Totals : 0.00000 0.0000

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.966	MM	0.0308	208.61212	1.000e2	?

Uncalib. totals : 208.61212 100.0000

1 Warnings or Errors :

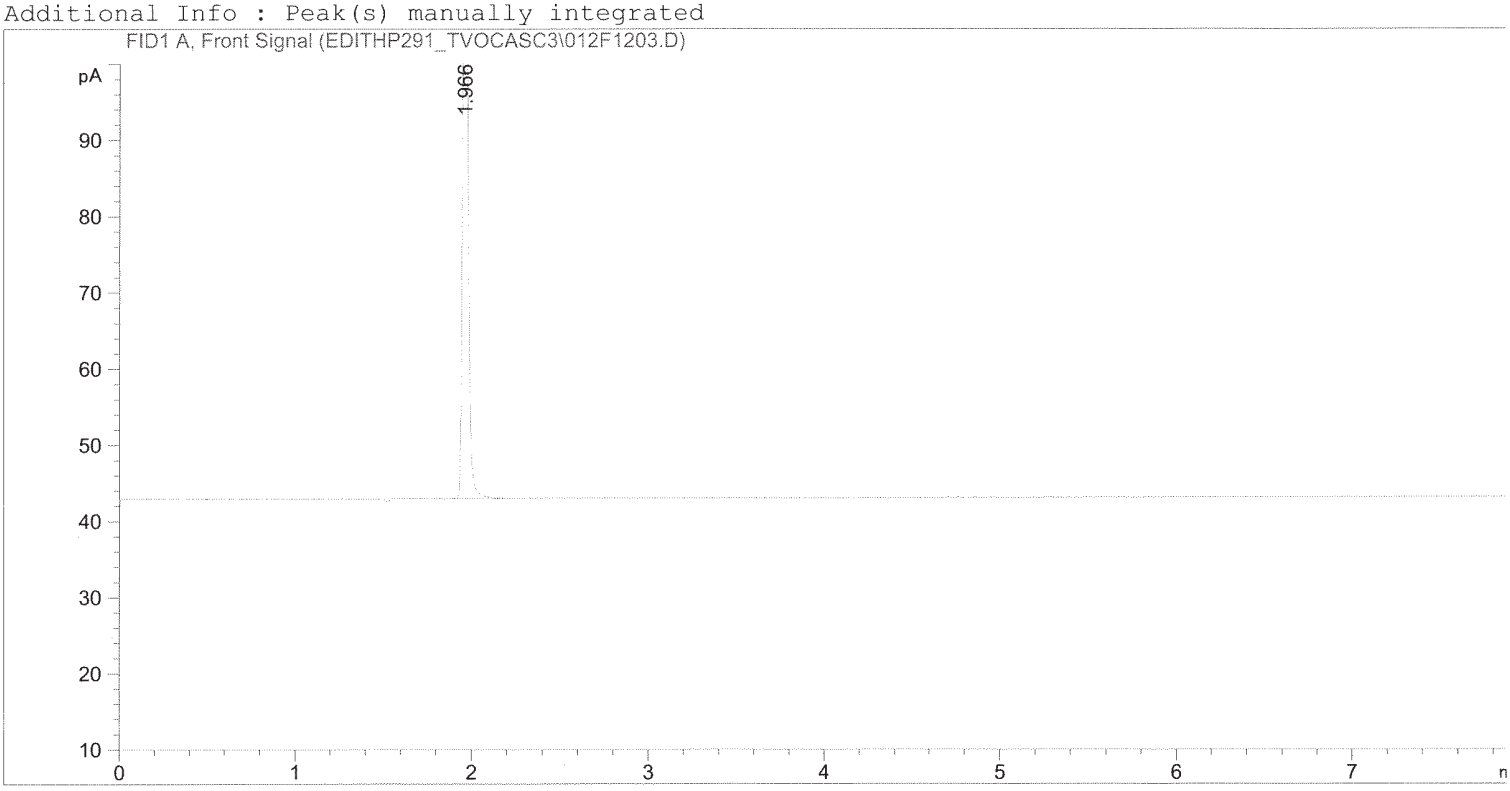
Warning : Calibrated compound(s) not found

==========

*** End of Report ***

mple Name: 0615-125.Large - L2 - R1 - 1124.Can *501

Acq. Operator : Daniel Clayton Seq. Line : 12
Acq. Instrument : Edith Location : Vial 12
Injection Date : 7/8/2015 11:20:47 PM Inj : 3
Inj Volume : 250 µl
Acq. Method : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_TVOCASP.M
Last changed : 7/10/2015 7:54:27 AM by Justin Guenzler
Additional Info : Peak(s) manually integrated



External Standard Report

Sorted By : Signal
Calib. Data Modified : 7/10/2015 7:50:29 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
2.000		-	-	-		Propane

Totals : 0.00000

Uncalibrated Peaks : using compound Propane

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.966	BB	207.59515	1.27457	264.59476		?

Uncalib. totals : 264.59476

ımple Name: 0615-125.Large - L2 - R1 - 1124.Can *501

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========
==========

Area Percent Report

==========

Sorted By : Signal
Calib. Data Modified : 7/10/2015 7:50:29 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	2.000		0.0000	0.00000	0.00000	Propane
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.966	BB	0.0287	207.59515	1.000e2	?
Uncalib. totals :				207.59515	100.0000	

1 Warnings or Errors :

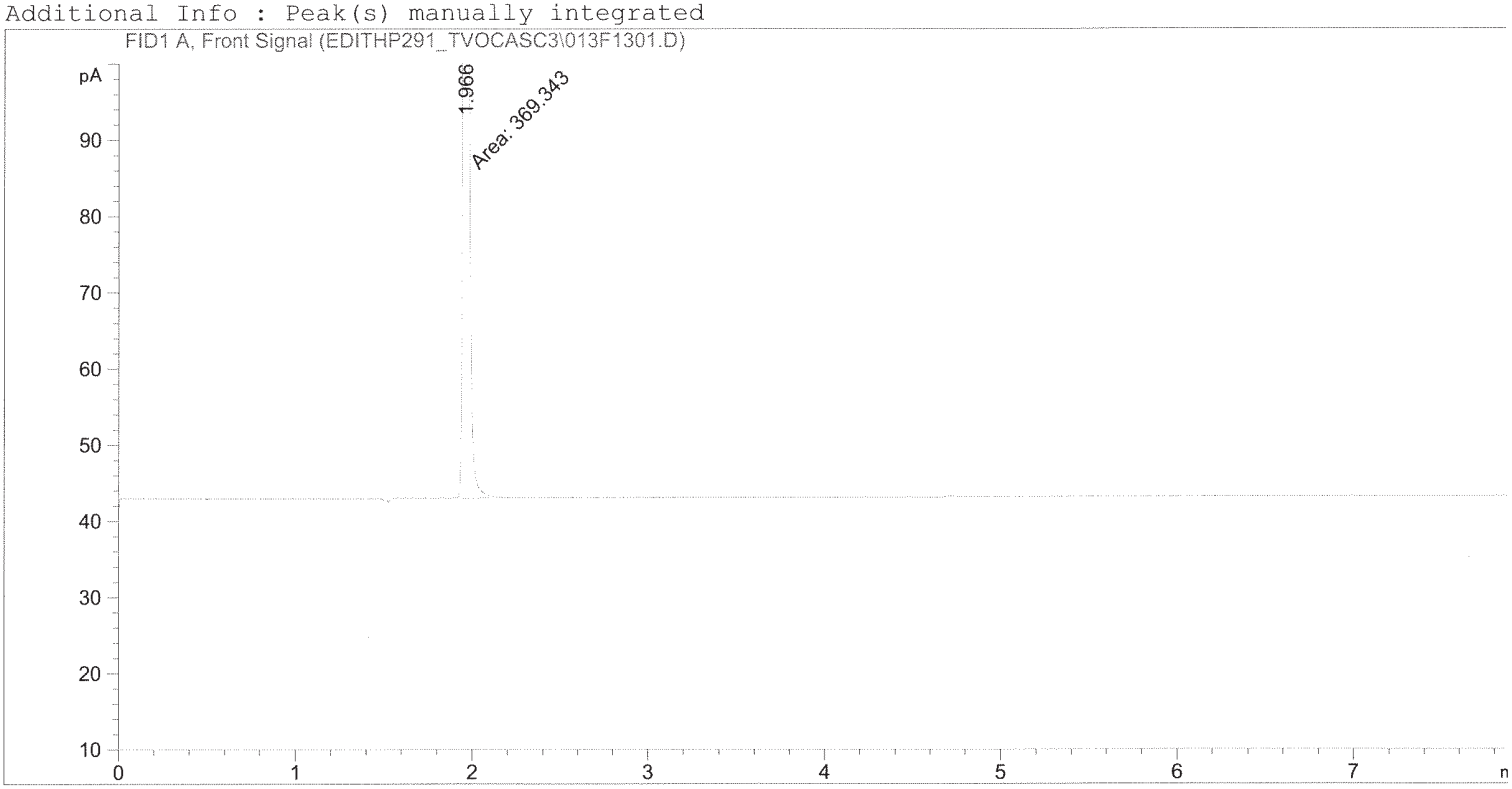
Warning : Calibrated compound(s) not found

==========

*** End of Report ***

ımple Name: 0615-125.Large - L3 - R1 - 1368.Can *501

```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  13
Acq. Instrument : Edith                              Location : Vial 13
Injection Date  : 7/8/2015 11:35:01 PM                    Inj :  1
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_TVOCASP.M
Last changed    : 7/10/2015 7:54:27 AM by Justin Guenzler
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 7:50:29 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  2.000            -          -          -          Propane

Totals :                                  0.00000

Uncalibrated Peaks    :      using compound Propane

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  1.966 MM      369.34326    1.27465  470.78462    ?

Uncalib. totals :                      470.78462
```

Manual Int. "II" (JKG)

ample Name: 0615-125.Large - L3 - R1 - 1368.Can *501

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========
==========
Area Percent Report
==========

Sorted By : Signal
Calib. Data Modified : 7/10/2015 7:50:29 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	2.000		0.0000	0.00000	0.00000	Propane
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.966	MM	0.0308	369.34326	1.000e2	?
Uncalib. totals :				369.34326	100.0000	

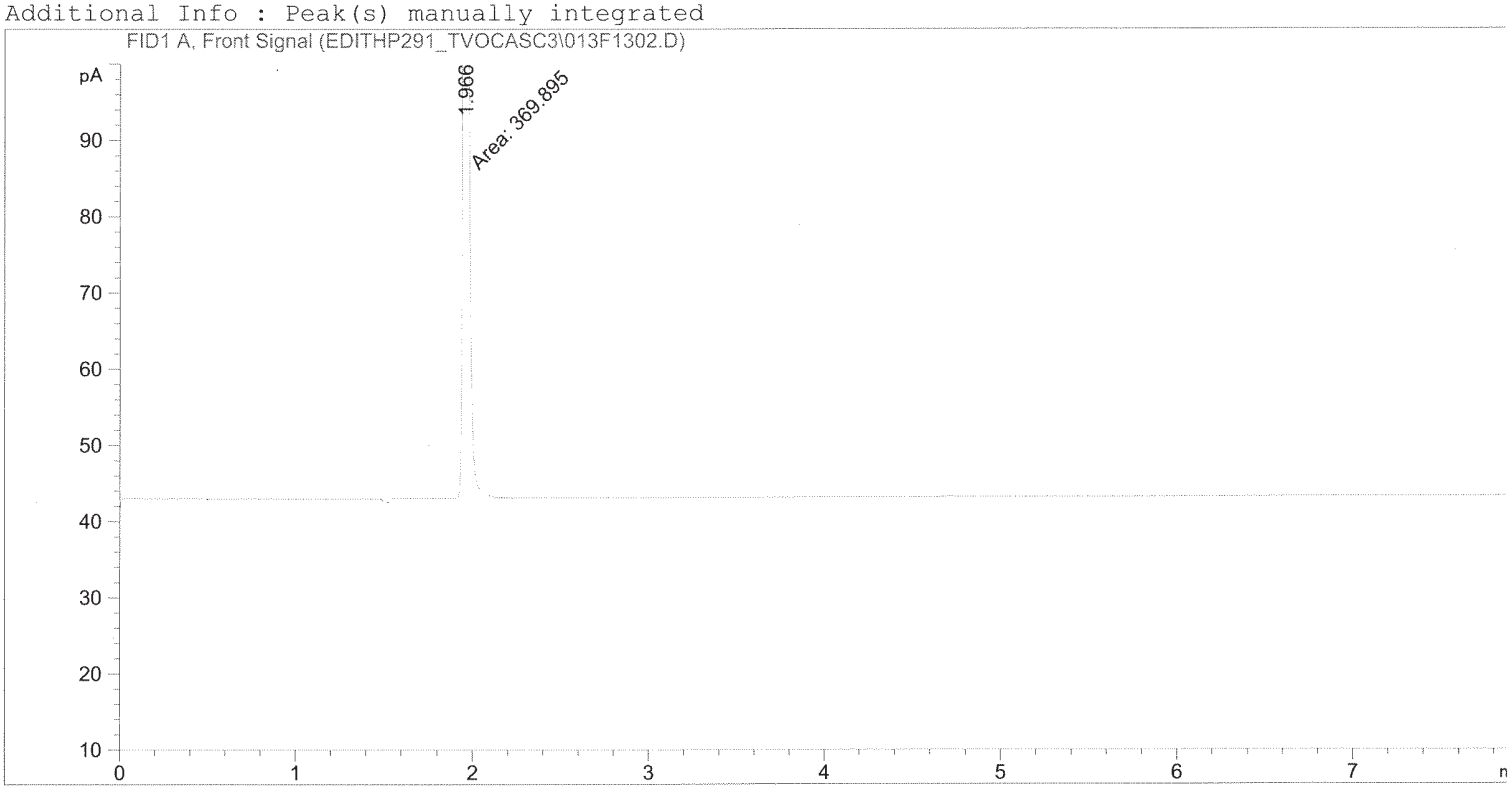
1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========
*** End of Report ***

ımple Name: 0615-125.Large - L3 - R1 - 1368.Can *501

```
==========================================================================
Acq. Operator   : Daniel Clayton                 Seq. Line :  13
Acq. Instrument : Edith                           Location : Vial 13
Injection Date  : 7/8/2015 11:49:17 PM                 Inj :   2
                                                 Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_TVOCASP.M
Last changed    : 7/10/2015 7:54:27 AM by Justin Guenzler
Additional Info : Peak(s) manually integrated
```




```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 7:50:29 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  2.000            -          -          -          Propane

Totals :                                 0.00000

Uncalibrated Peaks    :      using compound Propane

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  1.966 MM      369.89459    1.27465  471.48744    ?

Uncalib. totals :                      471.48744
```

Manual Int. "II" (JKG)

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========
==========

Area Percent Report

==========

Sorted By : Signal
Calib. Data Modified : 7/10/2015 7:50:29 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	2.000		0.0000	0.00000	0.00000	Propane
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.966	MM	0.0308	369.89459	1.000e2	?
Uncalib. totals :				369.89459	100.0000	

1 Warnings or Errors :

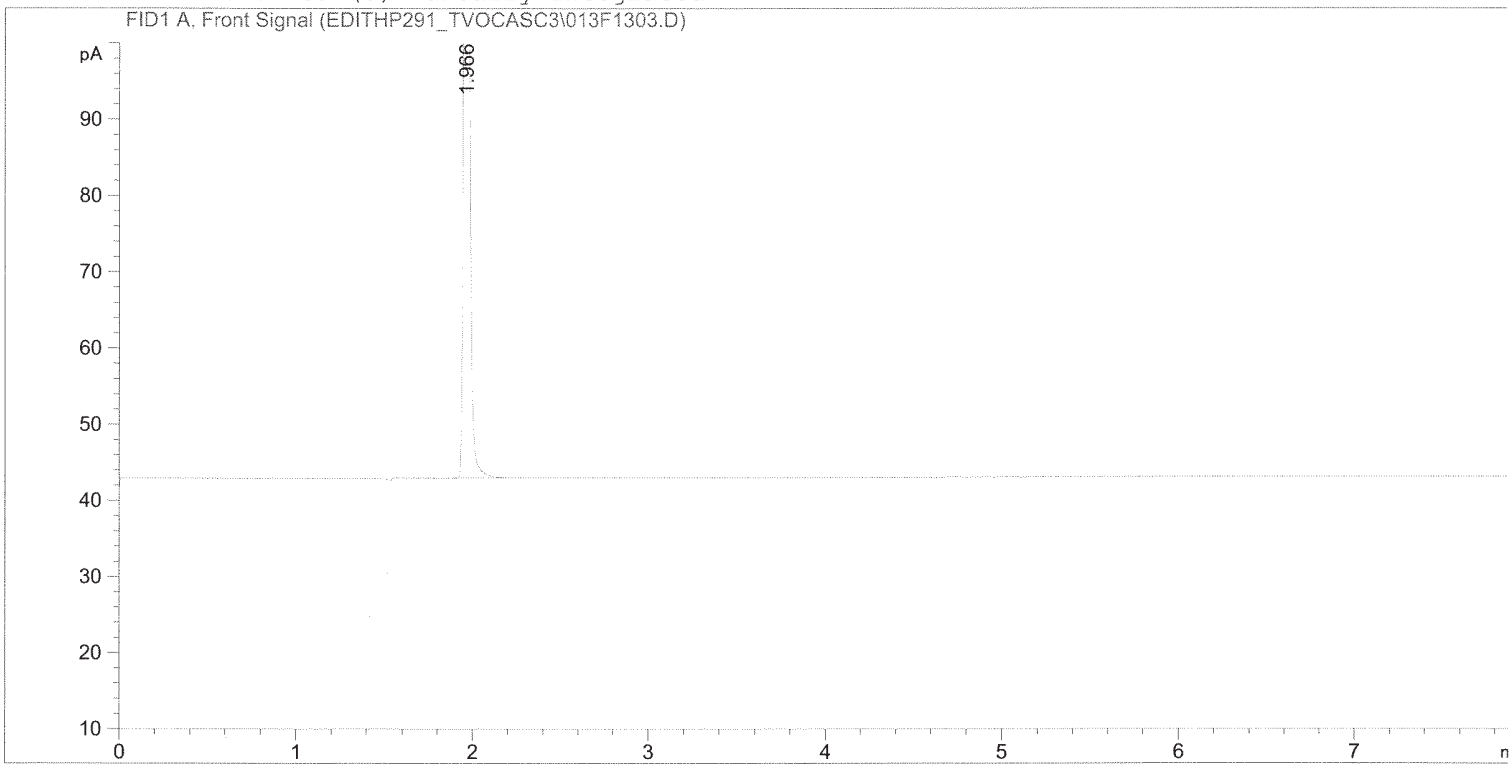
Warning : Calibrated compound(s) not found

==========

*** End of Report ***

ample Name: 0615-125.Large - L3 - R1 - 1368.Can *501

```
==========================================================================
Acq. Operator   : Daniel Clayton                 Seq. Line :  13
Acq. Instrument : Edith                           Location : Vial 13
Injection Date  : 7/9/2015 12:03:35 AM                 Inj :   3
                                                Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_TVOCASP.M
Last changed    : 7/10/2015 7:54:27 AM by Justin Guenzler
Additional Info : Peak(s) manually integrated
```




```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 7:50:29 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  2.000            -          -          -          Propane

Totals :                                 0.00000

Uncalibrated Peaks    :      using compound Propane

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  1.966 VB      369.54291    1.27465  471.03912    ?

Uncalib. totals :                      471.03912
```

ample Name: 0615-125.Large - L3 - R1 - 1368.Can *501

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========
==========
Area Percent Report
==========

Sorted By : Signal
Calib. Data Modified : 7/10/2015 7:50:29 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	2.000		0.0000	0.00000	0.00000	Propane
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.966	VB	0.0309	369.54291	1.000e2	?
Uncalib. totals :				369.54291	100.0000	

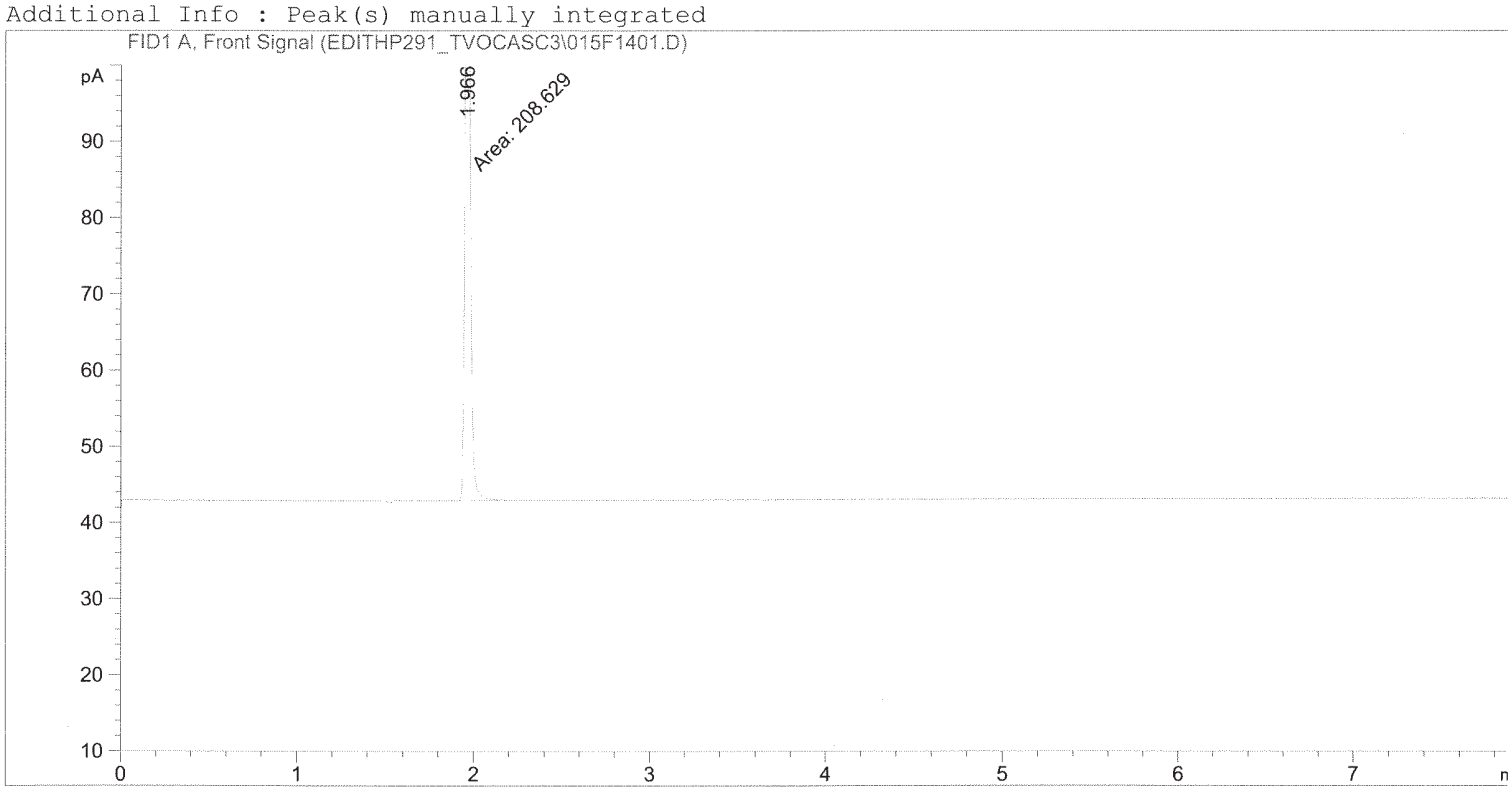
1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========
*** End of Report ***

ample Name: 0615-125.Large - L4 - RT - 1630.Can *501

```
==========================================================================
Acq. Operator   : Daniel Clayton                  Seq. Line :  14
Acq. Instrument : Edith                           Location : Vial 15
Injection Date  : 7/9/2015 12:17:54 AM                 Inj :   1
                                                 Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_TVOCASP.M
Last changed    : 7/10/2015 7:54:27 AM by Justin Guenzler
Additional Info : Peak(s) manually integrated
```




```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 7:50:29 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type      Area      Amt/Area     Amount    Grp   Name
 [min]           [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  2.000             -           -          -          Propane

Totals :                                   0.00000

Uncalibrated Peaks    :      using compound Propane

RetTime  Type      Area      Amt/Area     Amount    Grp   Name
 [min]           [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.966 MM      208.62944    1.27457  265.91322    ?

Uncalib. totals :                         265.91322
```

Manual Int. "II" (JKG)

ımple Name: 0615-125.Large - L4 - R1 - 1630.Can *501

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========
==========
Area Percent Report
==========

Sorted By : Signal
Calib. Data Modified : 7/10/2015 7:50:29 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	2.000		0.0000	0.00000	0.00000	Propane
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.966	MM	0.0307	208.62944	1.000e2	?
Uncalib. totals :				208.62944	100.0000	

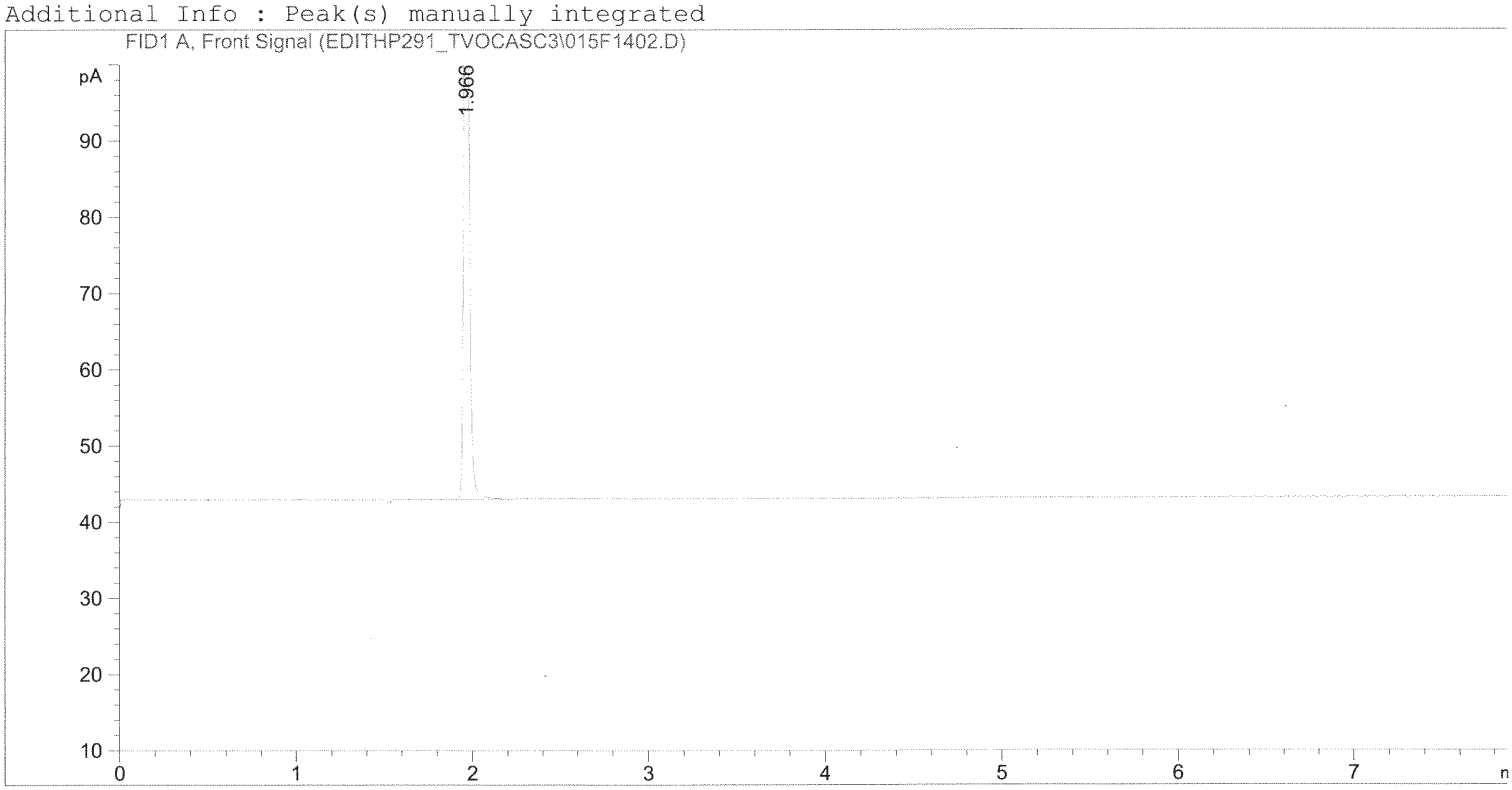
1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========
*** End of Report ***

mple Name: 0615-125.Large - L4 - R1 - 1630.Can *501

```
==========================================================================
Acq. Operator   : Daniel Clayton                Seq. Line :  14
Acq. Instrument : Edith                          Location : Vial 15
Injection Date  : 7/9/2015 12:32:10 AM                Inj :   2
                                                Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_TVOCASP.M
Last changed    : 7/10/2015 7:54:27 AM by Justin Guenzler
Additional Info : Peak(s) manually integrated
```




```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 7:50:29 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  2.000            -          -          -          Propane

Totals :                                  0.00000

Uncalibrated Peaks    :      using compound Propane

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  1.966 PB      208.05696    1.27457  265.18345    ?

Uncalib. totals :                        265.18345
```

mple Name: 0615-125.Large - L4 - R1 - 1630.Can *501

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========
==========
Area Percent Report
==========

Sorted By : Signal
Calib. Data Modified : 7/10/2015 7:50:29 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	2.000		0.0000	0.00000	0.00000	Propane
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.966	PB	0.0286	208.05696	1.000e2	?
Uncalib. totals :				208.05696	100.0000	

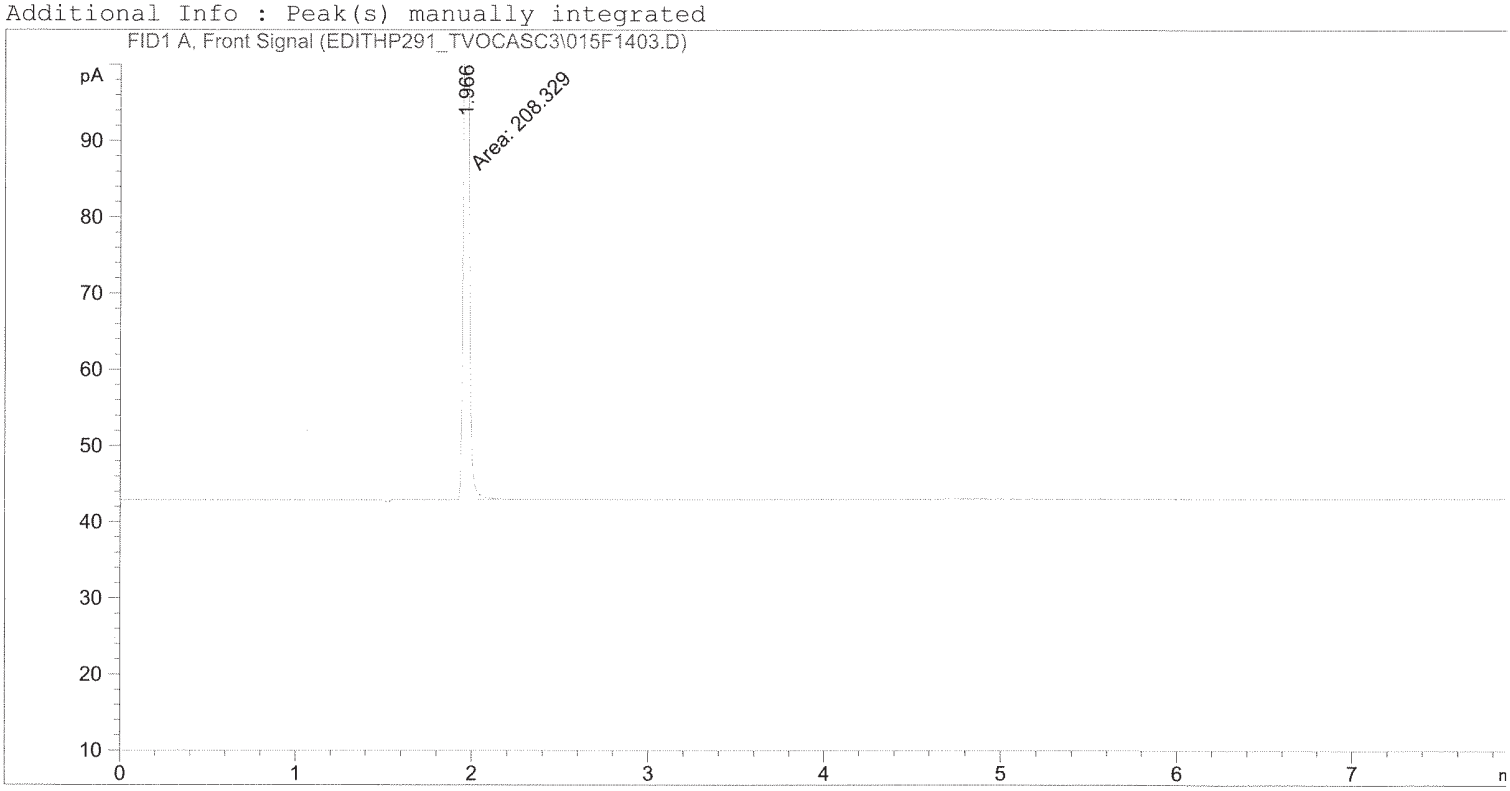
1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========
*** End of Report ***

ample Name: 0615-125.Large - L4 - R1 - 1630.Can *501

```
================================================================================
Acq. Operator   : Daniel Clayton                  Seq. Line :  14
Acq. Instrument : Edith                            Location : Vial 15
Injection Date  : 7/9/2015 12:46:28 AM                  Inj :   3
                                                 Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_TVOCASP.M
Last changed    : 7/10/2015 7:54:27 AM by Justin Guenzler
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 7:50:29 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  2.000            -          -          -          Propane

Totals :                                 0.00000

Uncalibrated Peaks    :      using compound Propane

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  1.966 MM      208.32866    1.27457  265.52980    ?

Uncalib. totals :                      265.52980
```

Manual Int. "II" (JKG)

ımple Name: 0615-125.Large - L4 - R1 - 1630.Can *501

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========
==========
Area Percent Report
==========

Sorted By : Signal
Calib. Data Modified : 7/10/2015 7:50:29 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	2.000		0.0000	0.00000	0.00000	Propane
Totals :				0.00000	0.0000	

Uncalibrated Peaks:

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	1.966	MM	0.0307	208.32866	1.000e2	?
Uncalib. totals :				208.32866	100.0000	

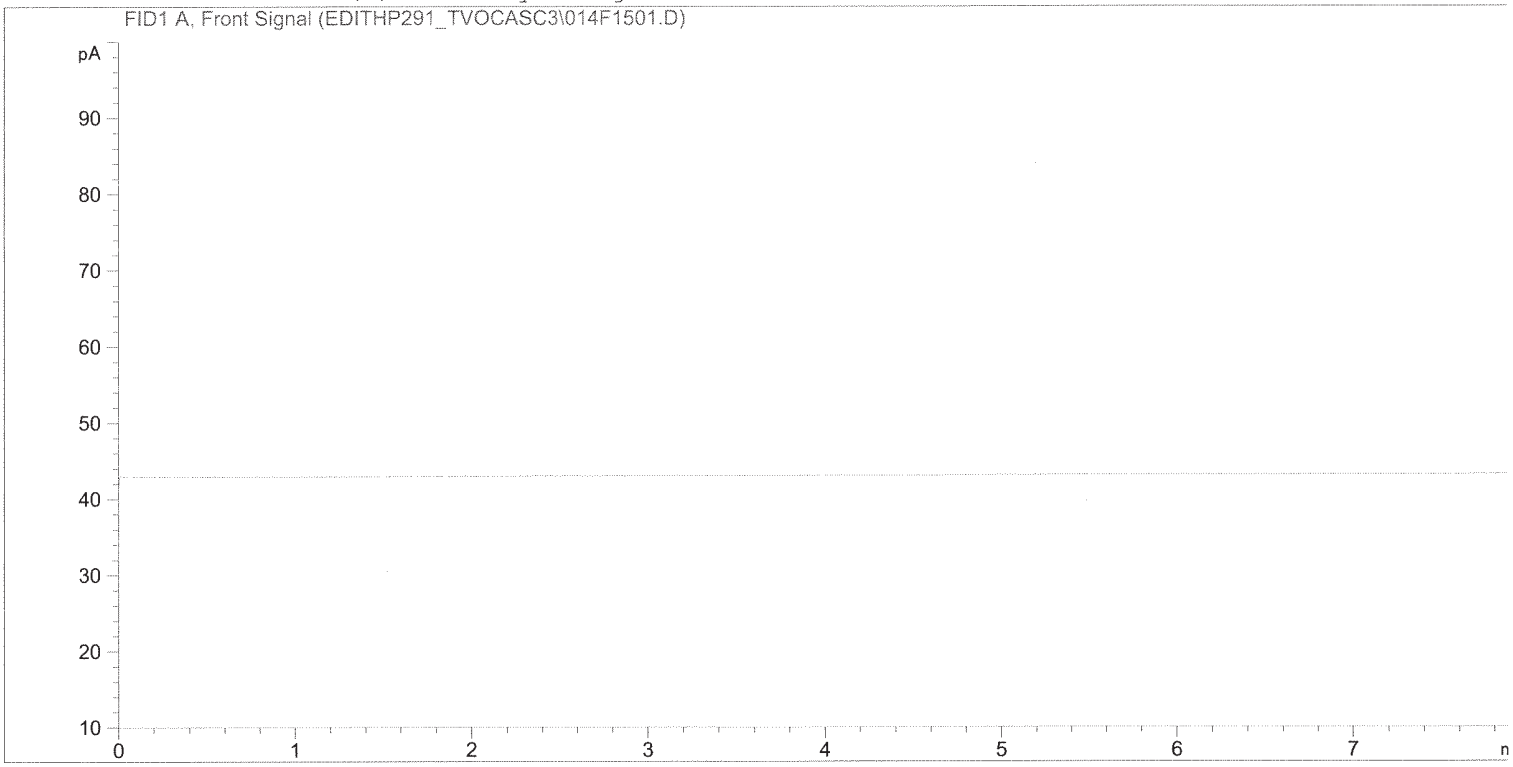
1 Warnings or Errors :

Warning : Calibrated compound(s) not found

==========
*** End of Report ***

ımple Name: zero air blank

```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  15
Acq. Instrument : Edith                              Location : Vial 14
Injection Date  : 7/9/2015 1:00:48 AM                     Inj :   1
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC_LONG.M
Last changed    : 6/9/2015 1:23:07 PM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_TVOCASP.M
Last changed    : 7/10/2015 7:54:27 AM by Justin Guenzler
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 7:50:29 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  2.000            -          -          -          Propane

Totals :                                 0.00000

Uncalibrated Peaks    :      using compound Propane

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

================================================================================
```

ample Name: zero air blank

==========

Area Percent Report

==========

Sorted By : Signal
Calib. Data Modified : 7/10/2015 7:50:29 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	2.000		0.0000	0.00000	0.00000	Propane

Totals : 0.00000 0.0000
Uncalibrated Peaks: n.a.

1 Warnings or Errors :

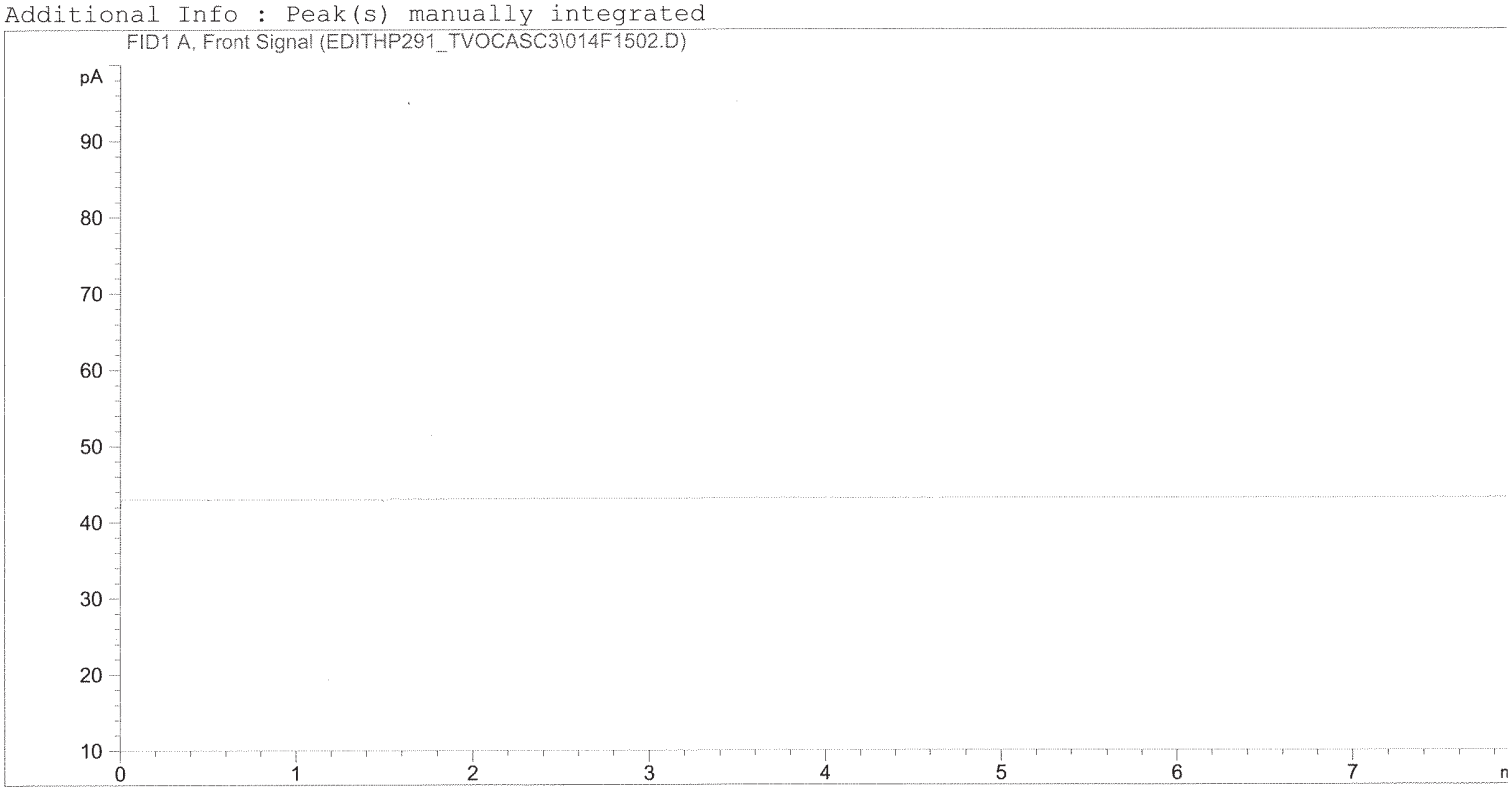
Warning : Calibrated compound(s) not found

==========

*** End of Report ***

ımple Name: zero air blank

```
================================================================================
Acq. Operator   : Daniel Clayton                 Seq. Line :  15
Acq. Instrument : Edith                           Location : Vial 14
Injection Date  : 7/9/2015 1:19:12 AM                  Inj :   2
                                                 Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC_LONG.M
Last changed    : 6/9/2015 1:23:07 PM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_TVOCASP.M
Last changed    : 7/10/2015 7:54:27 AM by Justin Guenzler
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 7:50:29 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  2.000            -          -          -          Propane

Totals :                                 0.00000

Uncalibrated Peaks    :      using compound Propane

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

================================================================================
```

==========

Area Percent Report

==========

Sorted By : Signal
Calib. Data Modified : 7/10/2015 7:50:29 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	2.000		0.0000	0.00000	0.00000	Propane

Totals : 0.00000 0.0000
Uncalibrated Peaks: n.a.

1 Warnings or Errors :

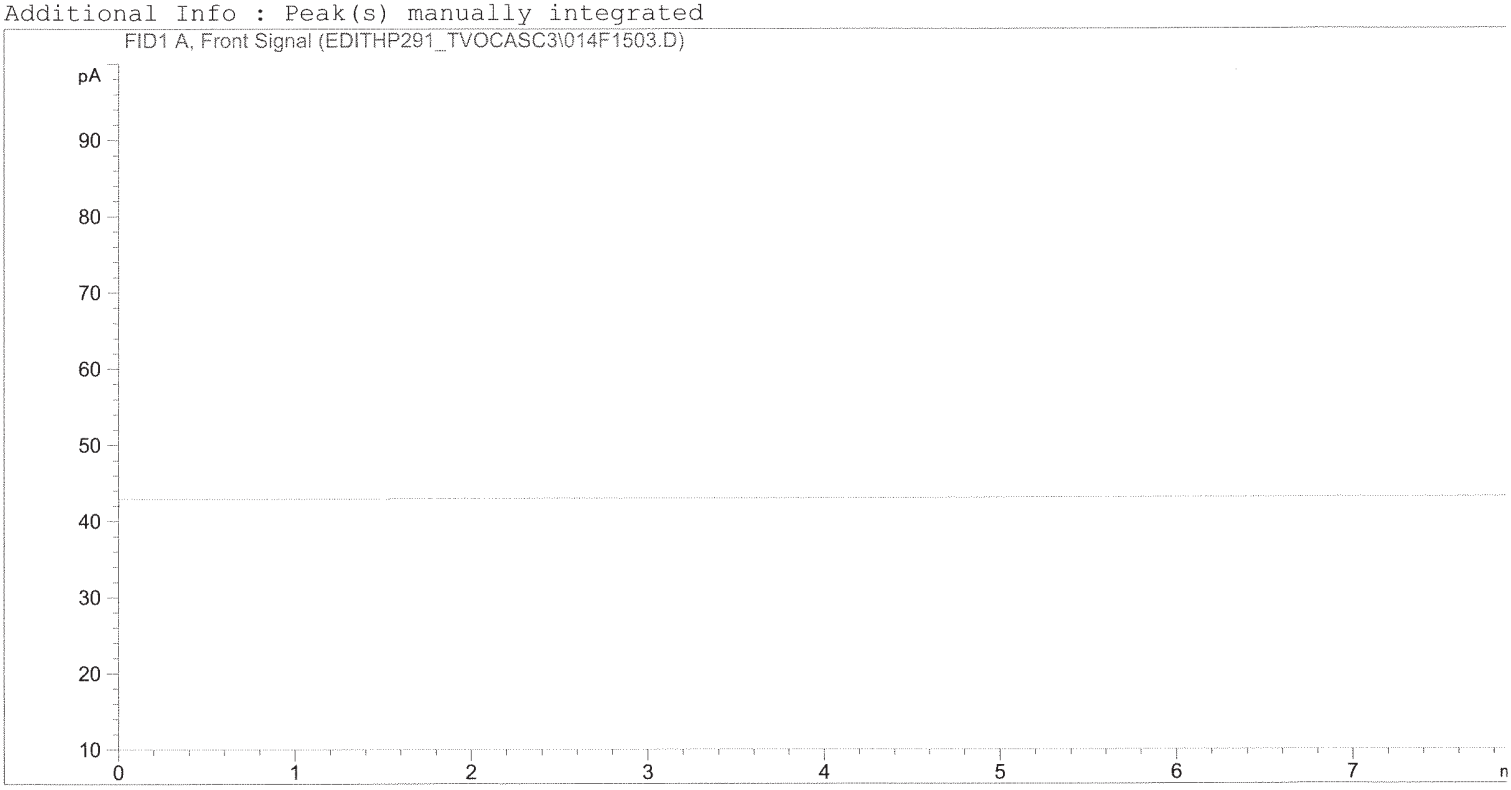
Warning : Calibrated compound(s) not found

==========

*** End of Report ***

ımple Name: zero air blank

```
================================================================================
Acq. Operator   : Daniel Clayton                  Seq. Line :  15
Acq. Instrument : Edith                            Location : Vial 14
Injection Date  : 7/9/2015 1:37:36 AM                   Inj :   3
                                                 Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC_LONG.M
Last changed    : 6/9/2015 1:23:07 PM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_TVOCASP.M
Last changed    : 7/10/2015 7:54:27 AM by Justin Guenzler
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 7:50:29 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  2.000            -          -          -          Propane

Totals :                                 0.00000

Uncalibrated Peaks    :      using compound Propane

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

================================================================================
```

ımple Name: zero air blank

==========

Area Percent Report

==========

Sorted By : Signal
Calib. Data Modified : 7/10/2015 7:50:29 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	2.000		0.0000	0.00000	0.00000	Propane
Totals :				0.00000	0.0000	

Uncalibrated Peaks: n.a.

1 Warnings or Errors :

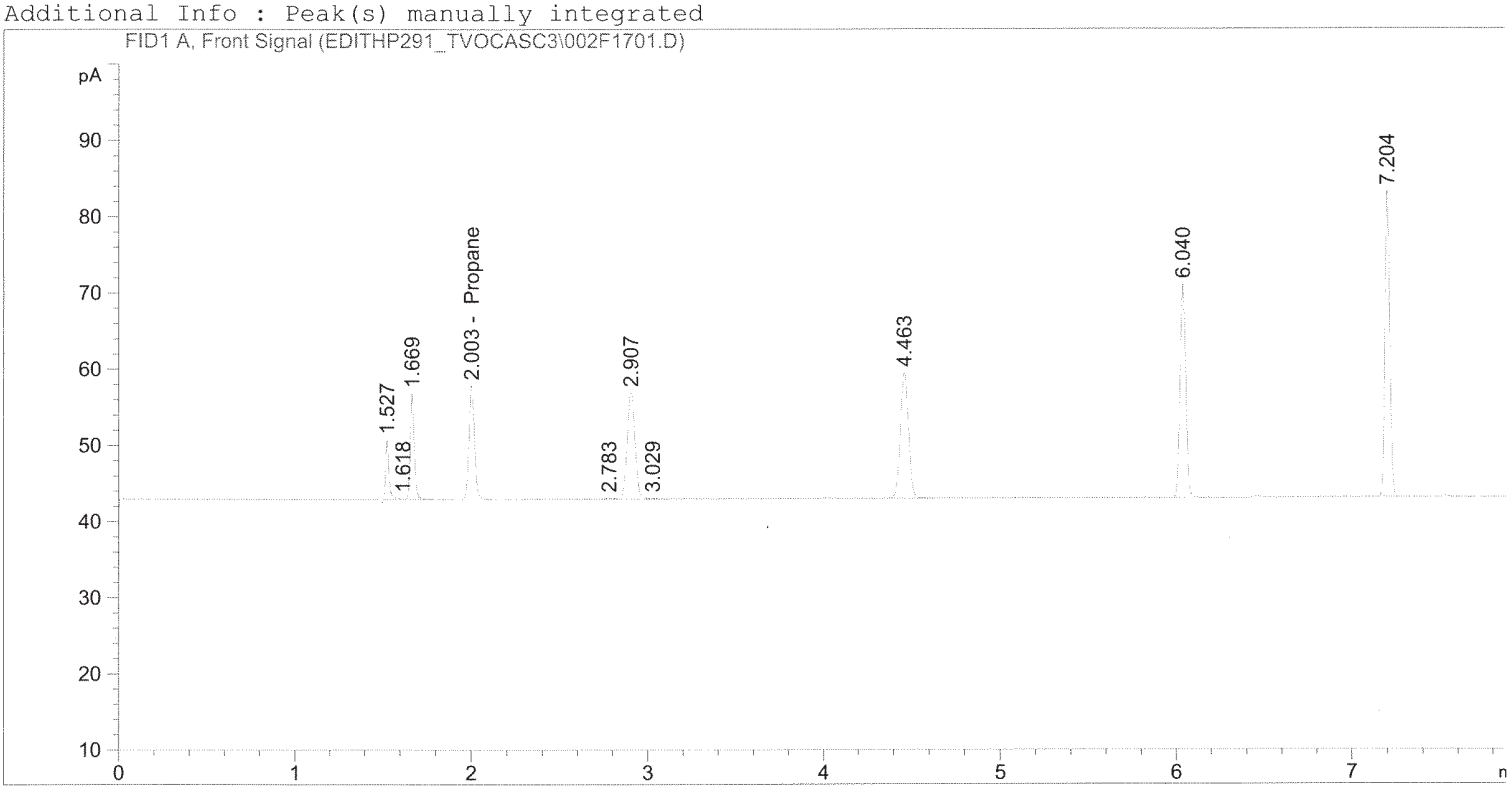
Warning : Calibrated compound(s) not found

==========

*** End of Report ***

ample Name: EdithP280 #C3 ENV(1=600,2=400)

```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  17
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 7/9/2015 2:46:40 AM                    Inj :   1
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_TVOCASP.M
Last changed    : 7/10/2015 7:54:27 AM by Justin Guenzler
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 7:50:29 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  2.003 PB       32.74423    1.27357   41.70195     Propane

Totals :                                 41.70195

Uncalibrated Peaks    :      using compound Propane

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  1.527 PV       10.82283    1.27115   13.75745     ?
  1.618 VV     3.36775e-1    1.26492 4.25993e-1     ?
  1.669 VB       21.92982    1.27298   27.91619     ?
```

ımple Name: EdithP280 #C3 ENV(1=600,2=400)

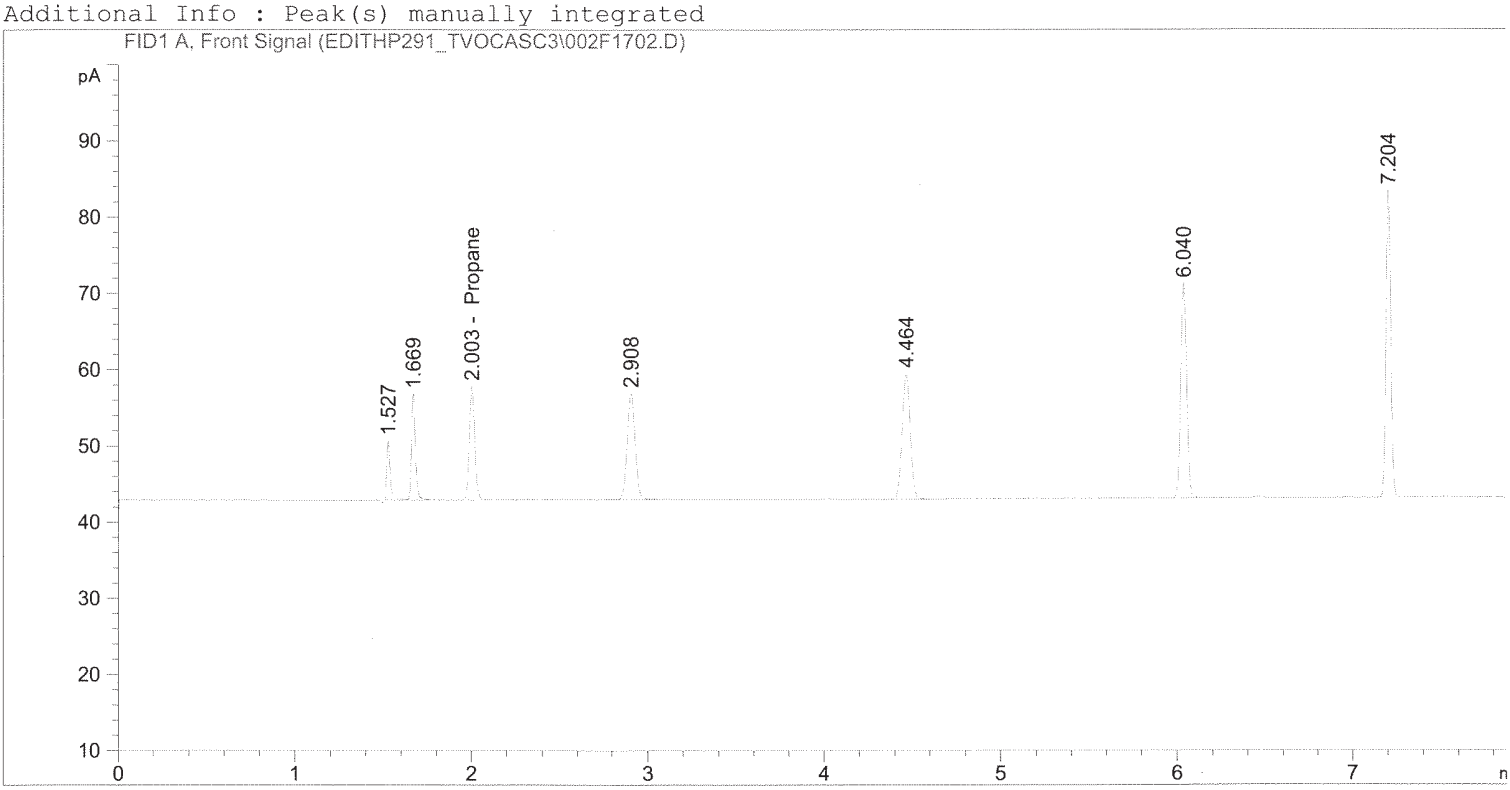
RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
2.783	BV	3.18875e-1	1.26492	4.03352e-1		?
2.907	VV	43.21511	1.27386	55.04980		?
3.029	VB	3.37105e-1	1.26492	4.26411e-1		?
4.463	BB	53.54078	1.27403	68.21255		?
6.040	BB	64.90324	1.27416	82.69695		?
7.204	BB	76.79359	1.27425	97.85427		?

Uncalib. totals : 346.74296

*** End of Report ***

ımple Name: EdithP280 #C3 ENV(1=600,2=400)

```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  17
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 7/9/2015 3:02:57 AM                    Inj :   2
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP108F_TVOCASP.M
Last changed    : 7/10/2015 7:54:27 AM by Justin Guenzler
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 7:50:29 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  2.003 PB       32.41837    1.27355   41.28656    Propane

Totals :                                41.28656

Uncalibrated Peaks    :      using compound Propane

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  1.527 PV       10.98695    1.27120   13.96667    ?
  1.669 VB       21.68633    1.27296   27.60580    ?
  2.908 BB       43.09701    1.27385   54.89926    ?
```

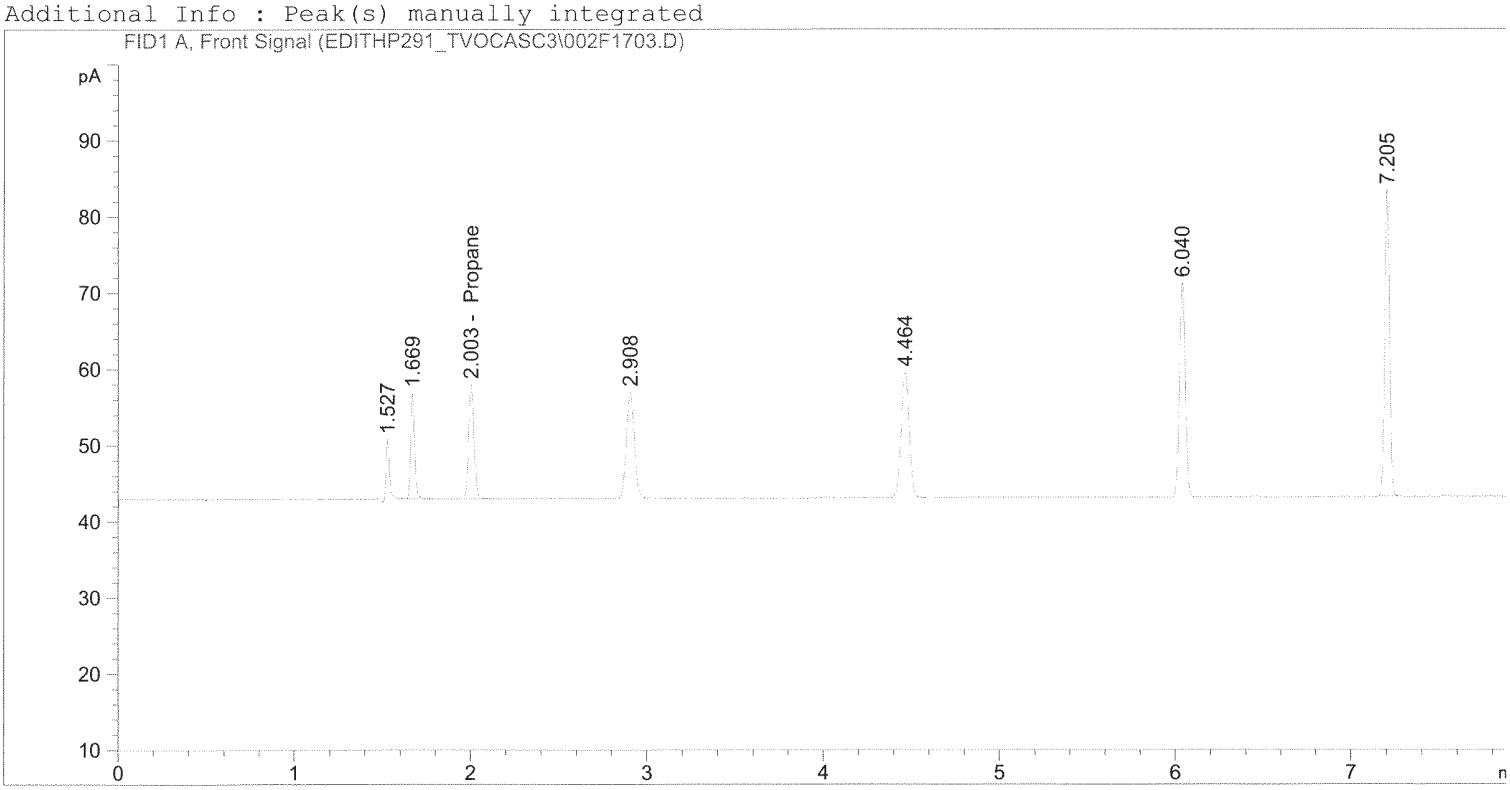
ımple Name: EdithP280 #C3 ENV(1=600,2=400)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
4.464	BB	53.53771	1.27403	68.20863	?	
6.040	VB	65.07630	1.27416	82.91756	?	
7.204	BB	76.97405	1.27425	98.08432	?	

Uncalib. totals : 345.68224

*** End of Report ***

```
Acq. Operator    : Daniel Clayton                  Seq. Line :  17
Acq. Instrument  : Edith                            Location : Vial 2
Injection Date   : 7/9/2015 3:19:09 AM                   Inj :   3
                                                  Inj Volume : 250 µl
Acq. Method      : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed     : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method  : C:\GC\2015\EDITH\METHODS\EDITHP108F_TVOCASP.M
Last changed     : 7/10/2015 7:54:27 AM by Justin Guenzler
Additional Info  : Peak(s) manually integrated
```



External Standard Report

```
Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 7:50:29 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
2.003	PB	32.54996	1.27356	41.45430		Propane

Totals : 41.45430

Uncalibrated Peaks : using compound Propane

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.527	PB	10.88052	1.27117	13.83099		?
1.669	BB	21.76710	1.27297	27.70876		?
2.908	BB	43.00133	1.27385	54.77728		?

ample Name: EdithP280 #C3 ENV(1=600,2=400)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
4.464	BB	53.55896	1.27403	68.23573	?	
6.040	BB	65.11338	1.27416	82.96482	?	
7.205	BB	77.11272	1.27425	98.26109	?	

Uncalib. totals : 345.77866

*** End of Report ***

Calibration Table

Calib. Data Modified : 7/10/2015 7:47:51 AM

Rel. Reference Window : 0.000 %
Abs. Reference Window : 0.100 min
Rel. Non-ref. Window : 0.000 %
Abs. Non-ref. Window : 0.050 min
Uncalibrated Peaks : Separately calculated (see below)
Partial Calibration : Yes, identified peaks are recalibrated
Correct All Ret. Times: No, only for identified peaks

Curve Type : Linear
Origin : Connected
Weight : Quadratic (Amnt)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Signal 1: FID1 A, Front Signal
Uncalibrated Peaks : using compound Propane
Signal 2: FID3 B, Back Signal
Uncalibrated Peaks : not reported

RetTime [min]	Sig	Lvl	Amount [ppm]	Area	Amt/Area	Ref	Grp	Name
2.000	1	1	5.02000	3.93552	1.27556			Propane
		2	10.04000	7.98325	1.25763			
		3	40.16000	32.24148	1.24560			
		4	100.40000	79.98379	1.25525			
		5	1026.00000	801.90285	1.27946			
		7	1.02600e4	8146.17285	1.25949			
		9	5.13000e4	3.83387e4	1.33807			

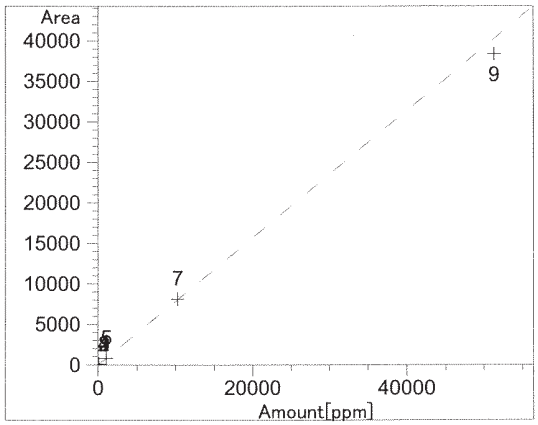
1 Warnings or Errors :

Warning : Cal. table open and changed while report was generated.

Peak Sum Table

Name	StartTime [min]	EndTime [min]	Use Reference	Response factor	Multiplier	ISTD Peak
as Ethane	1.550	1.855	None	1.8884	1.8884	None
as Propane	1.855	2.479	None	1.2730	1.2730	None
as Butane	2.479	3.714	None	9.5915e-1	0.9591	None
as Pentane	3.714	5.209	None	7.7127e-1	0.7713	None
as Hexane	5.209	6.650	None	6.5976e-1	0.6598	None
as Heptane	6.650	13.000	None	5.4785e-1	0.5475	None

Calibration Curves



Propane at exp. RT: 2.000
FID1 A, Front Signal
Correlation: 0.99965
Residual Std. Dev.: 852.69660
Formula: y = mx + b
m: 7.84462e-1
b: 3.06331e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025
Level 5 : 0.000024
Level 7 : 2.39394e-007
Level 9 : 9.57575e-009

Calibration Table

Calib. Data Modified : 9/23/2014 7:13:51 AM

Rel. Reference Window : 0.000 %
Abs. Reference Window : 0.100 min
Rel. Non-ref. Window : 0.000 %
Abs. Non-ref. Window : 0.050 min
Uncalibrated Peaks : Separately calculated (see below)
Partial Calibration : Yes, identified peaks are recalibrated
Correct All Ret. Times: No, only for identified peaks

Curve Type : Linear
Origin : Connected
Weight : Quadratic (Amnt)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Signal 1: FID1 A, Front Signal
Uncalibrated Peaks : using compound Propane
Signal 2: FID3 B, Back Signal
Uncalibrated Peaks : not reported

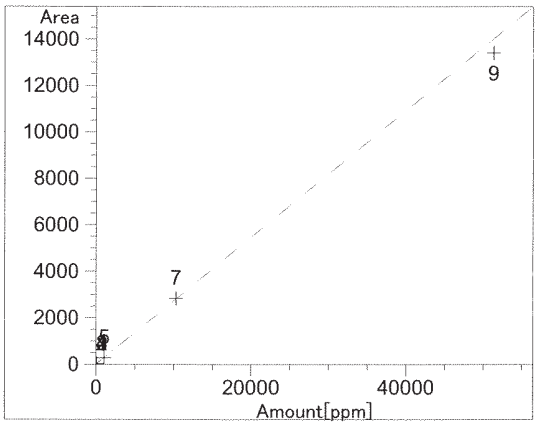
RetTime [min]	Sig	Lvl	Amount [ppm]	Area	Amt/Area	Ref	Grp	Name
1.543	1	1	5.01000	1.24640	4.01958			Methane
		2	10.02000	2.73780	3.65988			
		3	40.08000	11.00137	3.64318			
		4	100.20000	27.38345	3.65914			
		5	1026.00000	279.47185	3.67121			
		7	1.02600e4	2831.91227	3.62299			
		9	5.13000e4	1.33966e4	3.82933			
1.685	1	1	5.00500	2.64095	1.89515			Ethane
		2	10.01000	5.43771	1.84085			
		3	40.04000	21.75508	1.84049			
		4	100.10000	53.44088	1.87310			
		5	1026.00000	539.84916	1.90053			
		7	1.02600e4	5461.77913	1.87851			
		9	5.13000e4	2.57779e4	1.99008			
2.023	1	1	5.02000	3.93552	1.27556			Propane
		2	10.04000	7.98325	1.25763			
		3	40.16000	32.24148	1.24560			
		4	100.40000	79.98379	1.25525			
		5	1026.00000	801.90285	1.27946			
		7	1.02600e4	8146.17285	1.25949			
		9	5.13000e4	3.83387e4	1.33807			
2.932	1	1	5.01000	5.26892	9.50859e-1			Butane
		2	10.02000	10.51788	9.52664e-1			
		3	40.08000	42.46952	9.43736e-1			
		4	100.20000	105.51465	9.49631e-1			

RetTime [min]	Sig	Lvl	Amount [ppm]	Area	Amt/Area	Ref Grp	Name
		5	206.00000	213.97933	9.62710e-1		
		7	2060.00000	2170.61491	9.49040e-1		
		9	1.03000e4	1.02448e4	1.00539		
4.493	1	1	5.00000	6.79984	7.35311e-1		Pentane
		2	10.00000	13.34243	7.49489e-1		
		3	40.00000	53.24072	7.51305e-1		
		4	100.00000	131.72862	7.59136e-1		
		5	104.00000	131.05394	7.93566e-1		
		7	1040.00000	1331.66182	7.80979e-1		
		9	5200.00000	6271.82715	8.29104e-1		
6.067	1	1	5.00500	7.78685	6.42751e-1		Hexane
		2	10.01000	15.63340	6.40296e-1		
		3	40.04000	63.01467	6.35408e-1		
		4	100.10000	156.35443	6.40212e-1		
		7	820.00000	1210.28654	6.77526e-1		
		9	4100.00000	5675.94564	7.22347e-1		
7.232	1	1	4.99100	9.07234	5.50134e-1		Heptane
		2	9.98200	18.20331	5.48362e-1		
		3	39.92800	73.48394	5.43357e-1		
		4	99.82000	182.12613	5.48082e-1		

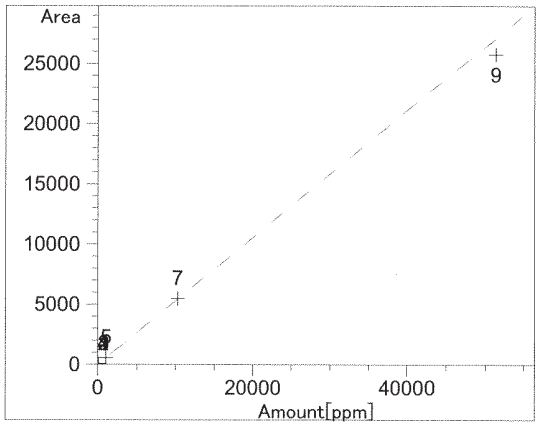
Peak Sum Table

Name	StartTime [min]	EndTime [min]	Use Reference	Response factor	Multiplier	ISTD Peak
as Ethane	1.550	1.855	None	1.8884	1.8884	None
as Propane	1.855	2.479	None	1.2730	1.2730	None
as Butane	2.479	3.714	None	9.5915e-1	0.9591	None
as Pentane	3.714	5.209	None	7.7127e-1	0.7713	None
as Hexane	5.209	6.650	None	6.5976e-1	0.6598	None
as Heptane	6.650	13.000	None	5.4785e-1	0.5475	None

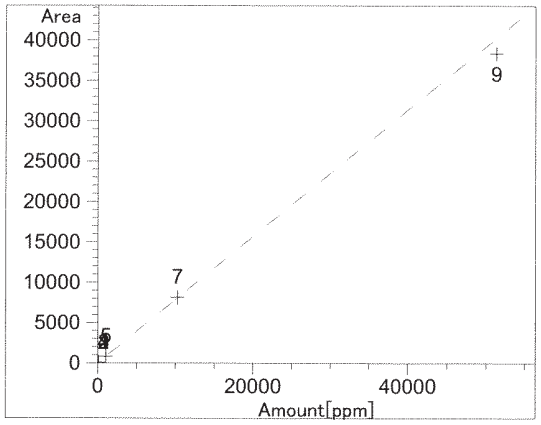
Calibration Curves



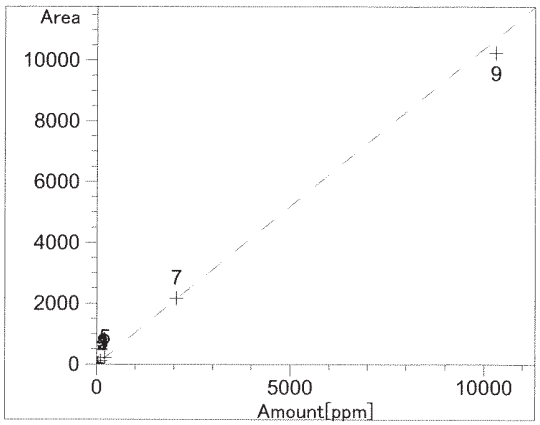
Methane at exp. RT: 1.543
FID1 A, Front Signal
Correlation: 0.99959
Residual Std. Dev.: 272.40560
Formula: y = mx + b
m: 2.73002e-1
b: -9.44523e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025
Level 5 : 0.000024
Level 7 : 2.38441e-007
Level 9 : 9.53764e-009



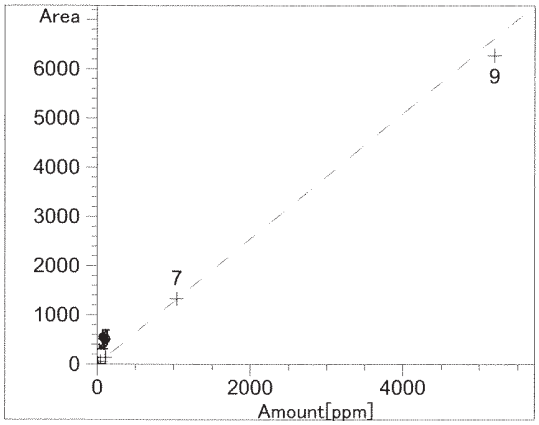
Ethane at exp. RT: 1.685
FID1 A, Front Signal
Correlation: 0.99959
Residual Std. Dev.: 588.10314
Formula: y = mx + b
m: 5.28113e-1
b: 3.66515e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025
Level 5 : 0.000024
Level 7 : 2.37965e-007
Level 9 : 9.51861e-009



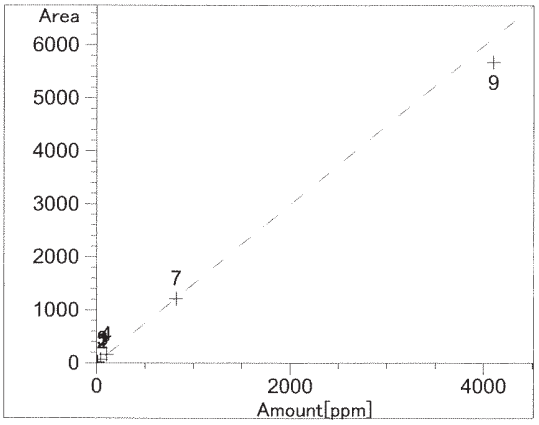
Propane at exp. RT: 2.023
FID1 A, Front Signal
Correlation: 0.99965
Residual Std. Dev.: 852.69660
Formula: y = mx + b
m: 7.84462e-1
b: 3.06331e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025
Level 5 : 0.000024
Level 7 : 2.39394e-007
Level 9 : 9.57575e-009



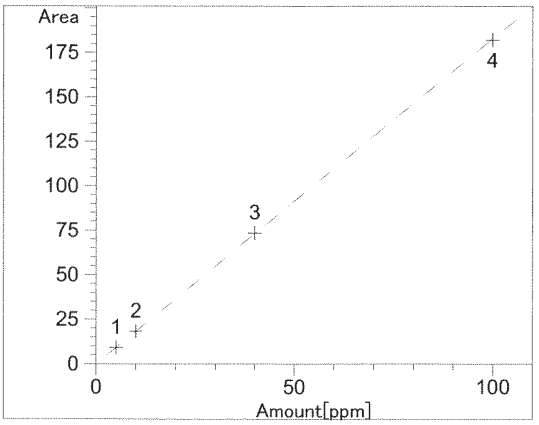
Butane at exp. RT: 2.932
FID1 A, Front Signal
Correlation: 0.99973
Residual Std. Dev.: 204.33121
Formula: y = mx + b
m: 1.03890
b: 8.48570e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025
Level 5 : 0.000591
Level 7 : 5.91481e-006
Level 9 : 2.36593e-007



Pentane at exp. RT: 4.493
FID1 A, Front Signal
Correlation: 0.99942
Residual Std. Dev.: 158.88295
Formula: y = mx + b
m: 1.27433
b: 4.88422e-1
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025
Level 5 : 0.002311
Level 7 : 0.000023
Level 9 : 9.24556e-007



Hexane at exp. RT: 6.067
FID1 A, Front Signal
Correlation: 0.99867
Residual Std. Dev.: 228.00851
Formula: y = mx + b
m: 1.49541
b: 4.20132e-1
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025
Level 7 : 0.000037
Level 9 : 1.49019e-006

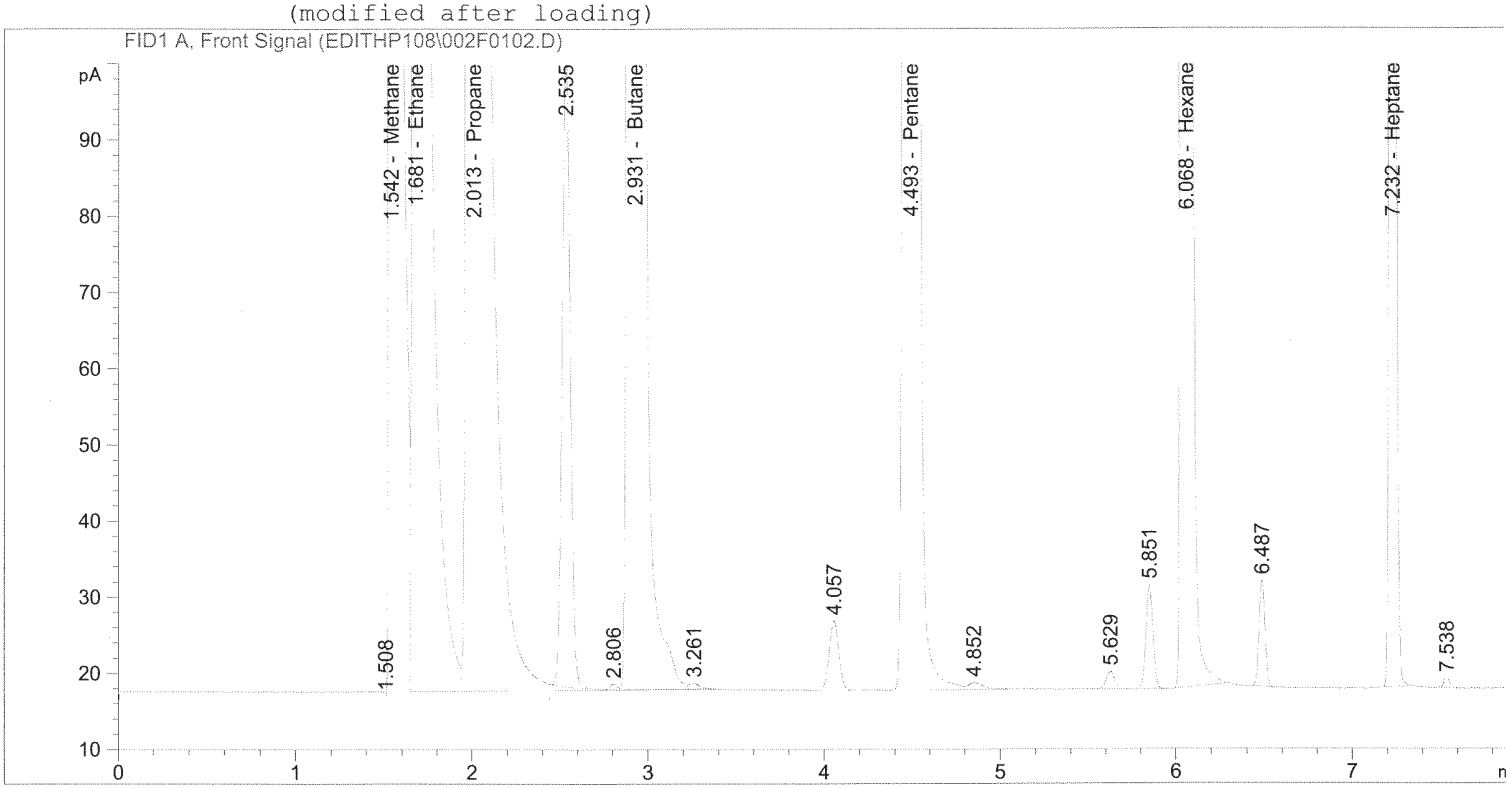


Heptane at exp. RT: 7.232
FID1 A, Front Signal
Correlation: 0.99999
Residual Std. Dev.: 0.60330
Formula: y = mx + b
m: 1.83300
b: -7.65536e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.25
Level 3 : 0.015625
Level 4 : 0.0025

==========

ample Name: EdithP108 #C9 ENV(1=0,6=400)

```
================================================================================
Acq. Operator   : disconnected                      Seq. Line :   1
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 9/19/2014 10:11:23 AM                  Inj :   2
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.542 PV     1.35438e4     3.66300 4.96110e4     Methane
  1.681 VV     2.60609e4     1.89353 4.93471e4     Ethane
  2.013 VB S   3.87471e4     1.27476 4.93932e4     Propane
  2.931 VV T   1.03501e4  9.62552e-1 9962.51135    Butane
  4.493 BV     6329.58447 7.84664e-1 4966.59403    Pentane
  6.068 BB     5713.65137 6.68662e-1 3820.50129    Hexane
  7.232 BB      769.60168 5.45608e-1  419.90076    Heptane

Totals :                              1.67521e5

Uncalibrated Peaks    :      using compound Propane
```

ample Name: EdithP108 #C9 ENV(1=0,6=400)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.508	PP N	4.18803e-1	1.26492	5.29752e-1		?
2.535	BB X	265.56903	1.27461	338.49748		?
2.806	BV T	2.11725	1.26492	2.67815		?
3.261	VB T	3.10334	1.26492	3.92547		?
4.057	BB	34.32124	1.27362	43.71227		?
4.852	VB	5.78772	1.26801	7.33890		?
5.629	BB	7.69984	1.26969	9.77639		?
5.851	BB	37.88299	1.27373	48.25263		?
6.487	BB	32.84457	1.27357	41.82986		?
7.538	BB	3.14729	1.26492	3.98107		?

Uncalib. totals : 500.52198

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Butane	2.400	3.700	270.78962	276.3657
as Pentane	3.700	5.300	40.10896	32.3588
as Hexane	5.300	6.600	78.42740	54.1561
as Heptane	6.600	13.000	3.14729	1.8504

Totals : 364.7311

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

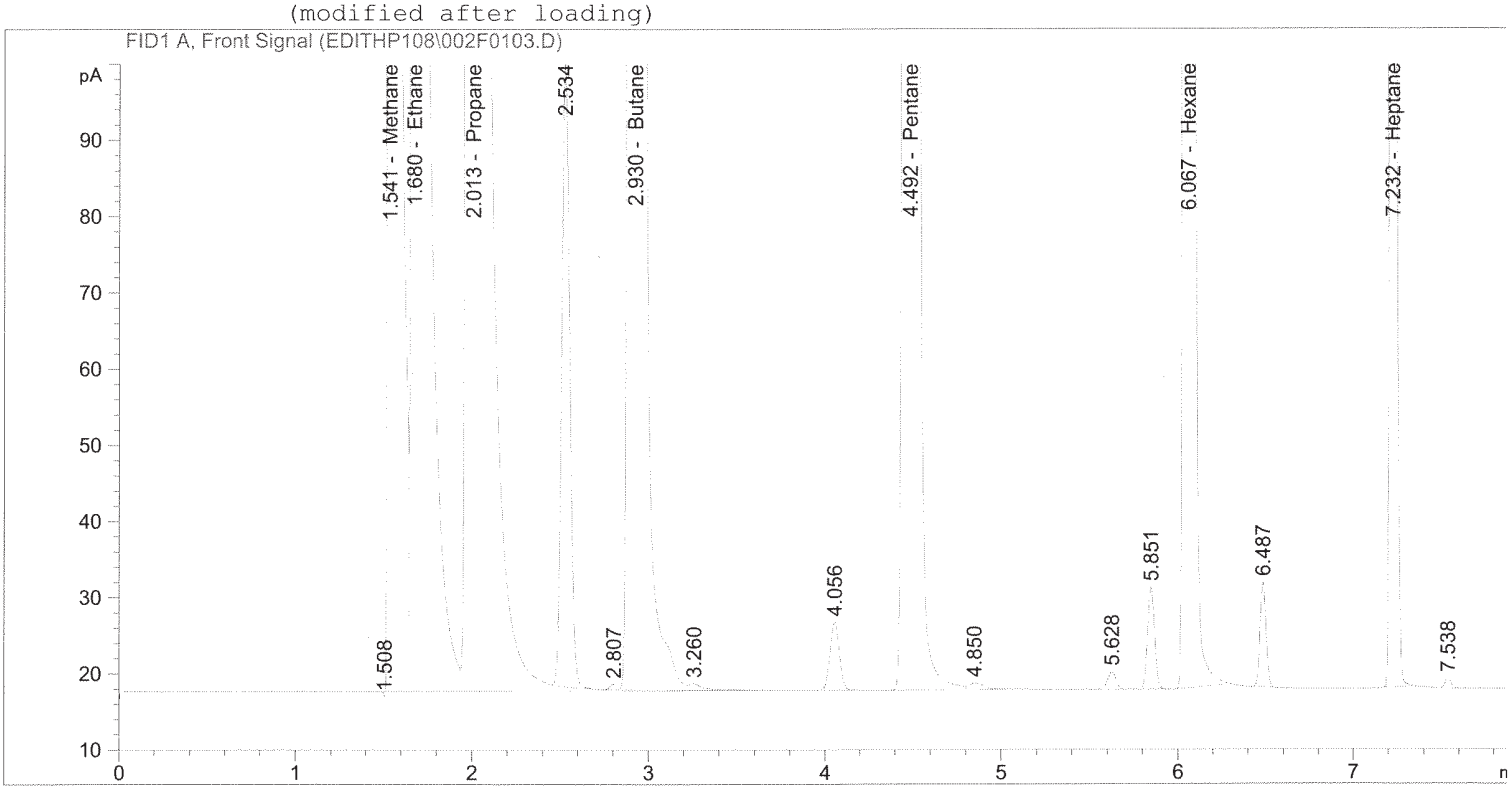
Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Butane	270.78962	276.3657
as Pentane	40.10896	32.3588
as Hexane	78.42740	54.1561
as Heptane	3.14729	1.8504
Methane	1.35438e4	4.961e4
Ethane	2.60609e4	4.935e4
Propane	3.87471e4	4.939e4
Butane	1.03501e4	9.963e3
Pentane	6329.58447	4.967e3
Hexane	5713.65137	3.821e3
Heptane	769.60168	419.9008

Totals : 1.6789e5

*** End of Report ***

```
================================================================================
Acq. Operator   : disconnected                    Seq. Line :   1
Acq. Instrument : Edith                           Location : Vial 2
Injection Date  : 9/19/2014 10:27:35 AM               Inj :   3
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.541 PV     1.32962e4     3.66300 4.87040e4     Methane
  1.680 VV     2.55747e4     1.89353 4.84265e4     Ethane
  2.013 VB S   3.80294e4     1.27476 4.84783e4     Propane
  2.930 VV X   1.01608e4  9.62552e-1 9780.26314    Butane
  4.492 BV     6221.71289 7.84662e-1 4881.94461    Pentane
  6.067 BB     5630.36670 6.68661e-1 3764.80790    Hexane
  7.232 BB      764.27332 5.45608e-1  416.99385    Heptane

Totals :                              1.64453e5

Uncalibrated Peaks    :      using compound Propane
```

ımple Name: EdithP108 #C9 ENV(1=0,6=400)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.508	BP N	3.70898e-1	1.26492	4.69157e-1		?
2.534	BB X	260.52020	1.27461	332.06144		?
2.807	BV X	2.15459	1.26492	2.72539		?
3.260	VB T	5.46515	1.26761	6.92770		?
4.056	BB	33.59258	1.27360	42.78340		?
4.850	VB	4.94411	1.26686	6.26350		?
5.628	BB	7.50741	1.26956	9.53109		?
5.851	BB	37.18023	1.27371	47.35678		?
6.487	BB	32.33476	1.27355	41.17998		?
7.538	BB	3.21634	1.26492	4.06841		?

Uncalib. totals : 493.36685

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Butane	2.400	3.700	268.13994	273.6615
as Pentane	3.700	5.300	38.53670	31.0904
as Hexane	5.300	6.600	77.02240	53.1859
as Heptane	6.600	13.000	3.21634	1.8910

Totals : 359.8288

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

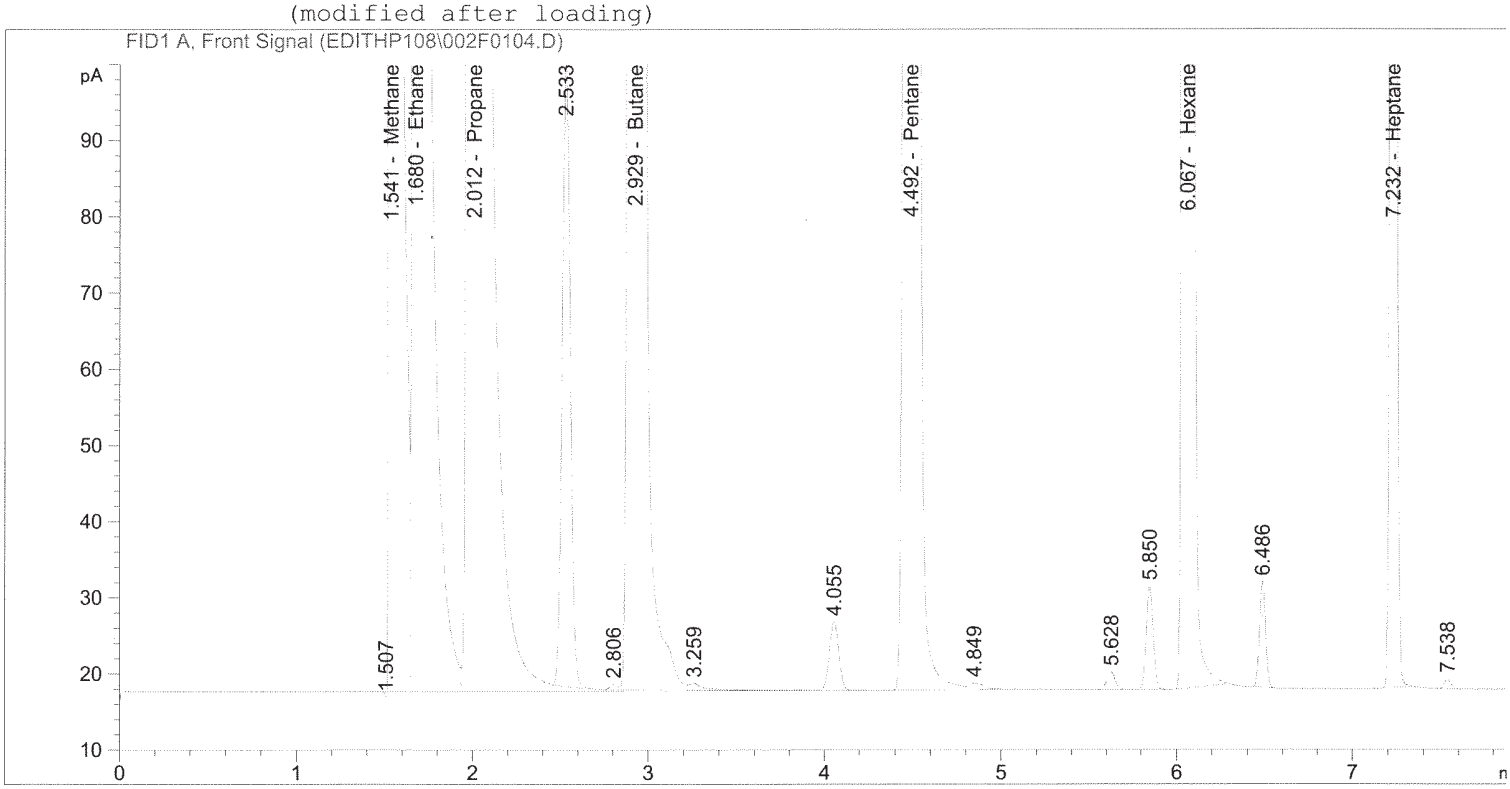
Name	Total Area [pA*s]	Amount [ppm]
as Butane	268.13994	273.6615
as Pentane	38.53670	31.0904
as Hexane	77.02240	53.1859
as Heptane	3.21634	1.8910
Methane	1.32962e4	4.870e4
Ethane	2.55747e4	4.843e4
Propane	3.80294e4	4.848e4
Butane	1.01608e4	9.780e3
Pentane	6221.71289	4.882e3
Hexane	5630.36670	3.765e3
Heptane	764.27332	416.9938

Totals : 1.6481e5

*** End of Report ***

ample Name: EdithP108 #C9 ENV(1=0,6=400)

```
================================================================================
Acq. Operator   : disconnected                      Seq. Line :   1
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 9/19/2014 10:43:55 AM                   Inj :   4
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.541 PV     1.33497e4     3.66300 4.89001e4     Methane
  1.680 VV     2.56982e4     1.89353 4.86603e4     Ethane
  2.012 VB S   3.82397e4     1.27476 4.87463e4     Propane
  2.929 VV X   1.02236e4  9.62552e-1 9840.78036    Butane
  4.492 BV     6264.18408 7.84663e-1 4915.27277    Pentane
  6.067 VB     5683.81885 6.68662e-1 3800.55195    Hexane
  7.232 BB      774.91528 5.45608e-1  422.79961    Heptane

Totals :                          1.65286e5

Uncalibrated Peaks    :      using compound Propane
```

ımple Name: EdithP108 #C9 ENV(1=0,6=400)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.507	BP N	3.68159e-1	1.26492	4.65692e-1		?
2.533	BB X	261.63516	1.27461	333.48275		?
2.806	BV X	2.16156	1.26492	2.73420		?
3.259	VV X	6.30059	1.26856	7.99269		?
4.055	VB T	34.12494	1.27361	43.46203		?
4.849	VB	4.99038	1.26693	6.32248		?
5.628	BB	7.64277	1.26965	9.70365		?
5.850	BV	37.59710	1.27372	47.88820		?
6.486	BB	32.65027	1.27356	41.58218		?
7.538	BB	3.15404	1.26492	3.98961		?

Uncalib. totals : 497.62347

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Butane	2.400	3.700	270.09732	275.6592
as Pentane	3.700	5.300	39.11532	31.5572
as Hexane	5.300	6.600	77.89015	53.7851
as Heptane	6.600	13.000	3.15404	1.8544

Totals : 362.8559

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Butane	270.09732	275.6592
as Pentane	39.11532	31.5572
as Hexane	77.89015	53.7851
as Heptane	3.15404	1.8544
Methane	1.33497e4	4.890e4
Ethane	2.56982e4	4.866e4
Propane	3.82397e4	4.875e4
Butane	1.02236e4	9.841e3
Pentane	6264.18408	4.915e3
Hexane	5683.81885	3.801e3
Heptane	774.91528	422.7996

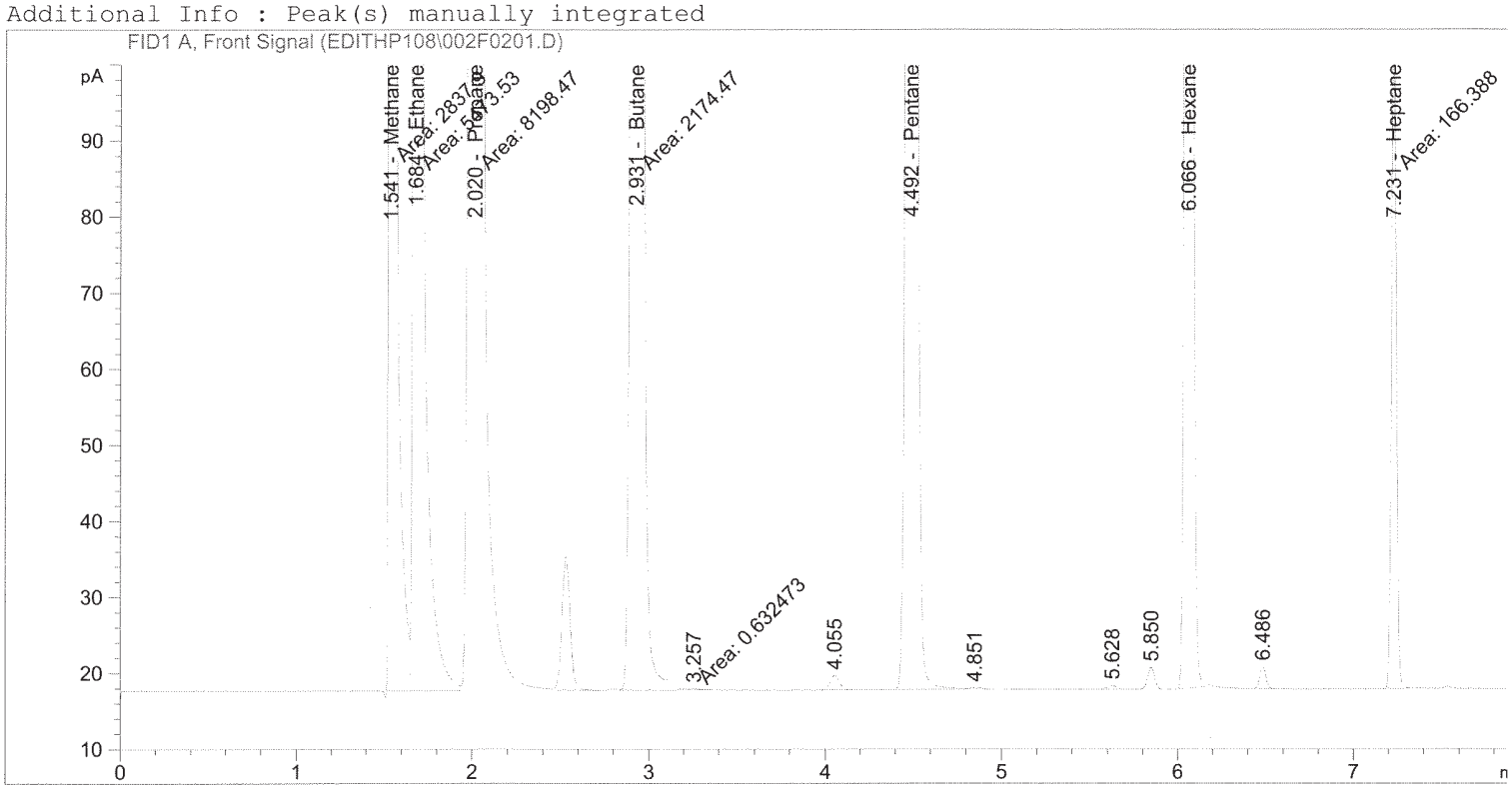
Totals : 1.6565e5

*** End of Report ***

ample Name: EdithP108 #C7 ENV(1=800,6=243.33)

```
================================================================================
Acq. Operator   : disconnected                      Seq. Line :   2
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 9/19/2014 11:00:20 AM                  Inj :   1
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```

Manual Int. "II" (JKG)




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.541	MF	2837.89941	3.66309	1.03955e4		Methane
1.684	FM	5473.52734	1.89352	1.03642e4		Ethane
2.020	FM	8198.47168	1.27475	1.04510e4		Propane
2.931	MF	2174.47192	9.62523e-1	2092.97885		Butane
4.492	BB	1333.55444	7.84437e-1	1046.08900		Pentane
6.066	BB	1210.79712	6.68479e-1	809.39256		Hexane
7.231	MM	166.38818	5.45805e-1	90.81544		Heptane

Totals : 3.52500e4

Uncalibrated Peaks : using compound Propane

ample Name: EdithP108 #C7 ENV(1=800,6=243.33)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
3.257	FM	6.32473e-1	1.26492	8.00028e-1		?
4.055	BB	7.19889	1.26933	9.13780		?
4.851	BB	1.12338	1.26492	1.42098		?
5.628	BB	1.65493	1.26492	2.09335		?
5.850	BB	7.91996	1.26983	10.05700		?
6.486	BB	6.91590	1.26911	8.77706		?

Uncalib. totals : 32.28620

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Butane	2.400	3.700	6.32473e-1	0.6455
as Pentane	3.700	5.300	8.32226	6.7142
as Hexane	5.300	6.600	16.49079	11.3873

Totals : 18.7470

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Butane	6.32473e-1	0.6455
as Pentane	8.32226	6.7142
as Hexane	16.49079	11.3873
Methane	2837.89941	1.040e4
Ethane	5473.52734	1.036e4
Propane	8198.47168	1.045e4
Butane	2174.47192	2.093e3
Pentane	1333.55444	1.046e3
Hexane	1210.79712	809.3926
Heptane	166.38818	90.8154

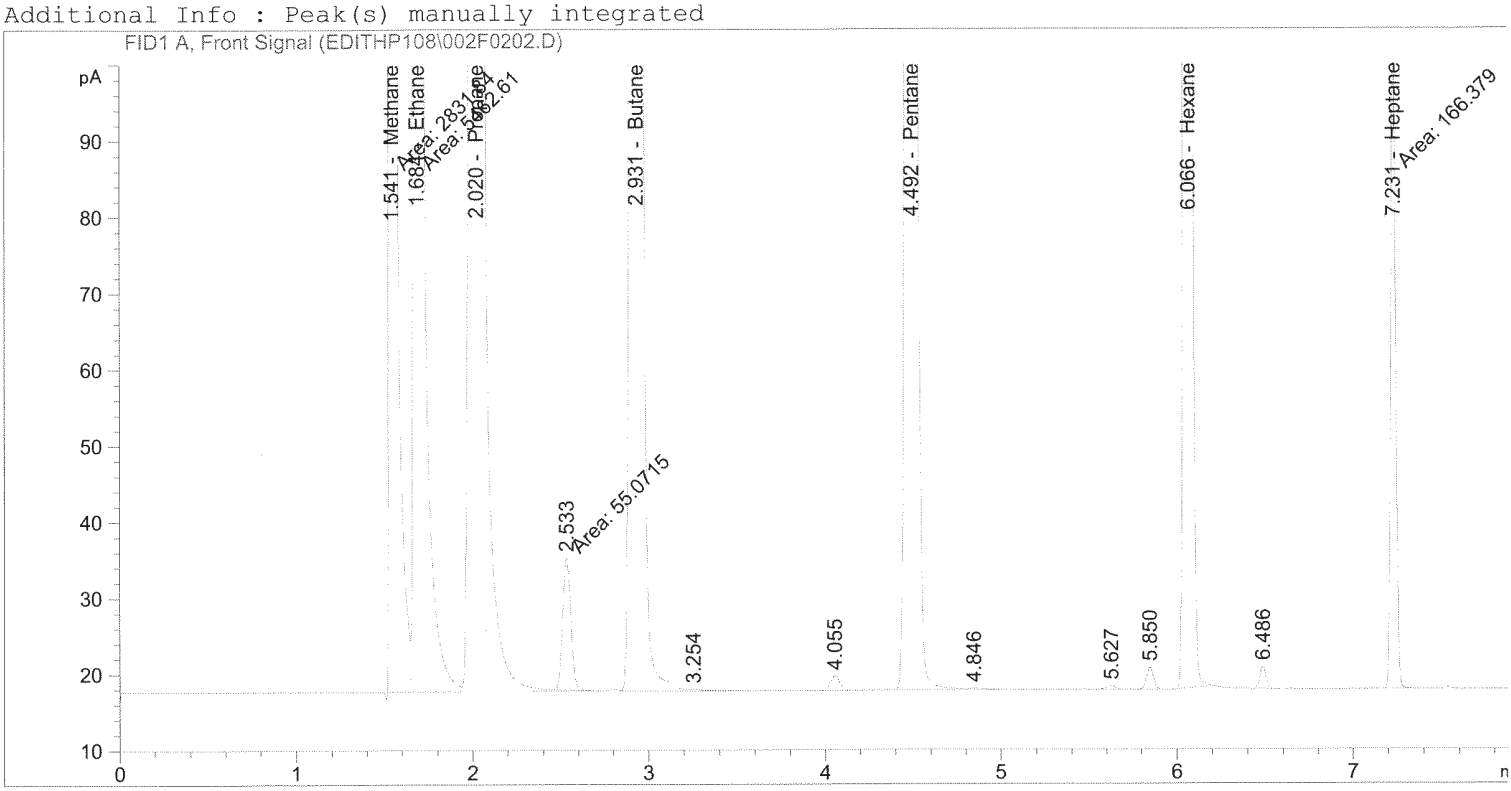
Totals : 3.5269e4

*** End of Report ***

ımple Name: EdithP108 #C7 ENV(1=800,6=243.33)

```
================================================================================
Acq. Operator   : disconnected                      Seq. Line :   2
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 9/19/2014 11:16:47 AM                  Inj :   2
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```

Manual Int. "II" (JKG)




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.541	MF	2831.83716	3.66309	1.03733e4		Methane
1.684	MF	5462.61475	1.89352	1.03436e4		Ethane
2.020	FM R	8128.95898	1.27475	1.03624e4		Propane
2.931	VV X	2171.11353	9.62523e-1	2089.74619		Butane
4.492	BB	1331.40698	7.84436e-1	1044.40383		Pentane
6.066	BB	1209.52686	6.68479e-1	808.54312		Hexane
7.231	MM	166.37857	5.45805e-1	90.81020		Heptane

Totals : 3.51128e4

Uncalibrated Peaks : using compound Propane

mple Name: EdithP108 #C7 ENV(1=800,6=243.33)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
2.533	MM T	55.07153	1.27405	70.16388		?
3.254	VB T	1.46397	1.26492	1.85180		?
4.055	BB	7.19456	1.26933	9.13228		?
4.846	BB	1.24461	1.26492	1.57433		?
5.627	BB	1.63600	1.26492	2.06940		?
5.850	BB	7.97587	1.26986	10.12826		?
6.486	BB	6.90483	1.26910	8.76294		?

Uncalib. totals : 103.68290

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Butane	2.400	3.700	56.53550	57.6997
as Pentane	3.700	5.300	8.43917	6.8085
as Hexane	5.300	6.600	16.51669	11.4052

Totals : 75.9134

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Butane	56.53550	57.6997
as Pentane	8.43917	6.8085
as Hexane	16.51669	11.4052
Methane	2831.83716	1.037e4
Ethane	5462.61475	1.034e4
Propane	8128.95898	1.036e4
Butane	2171.11353	2.090e3
Pentane	1331.40698	1.044e3
Hexane	1209.52686	808.5431
Heptane	166.37857	90.8102

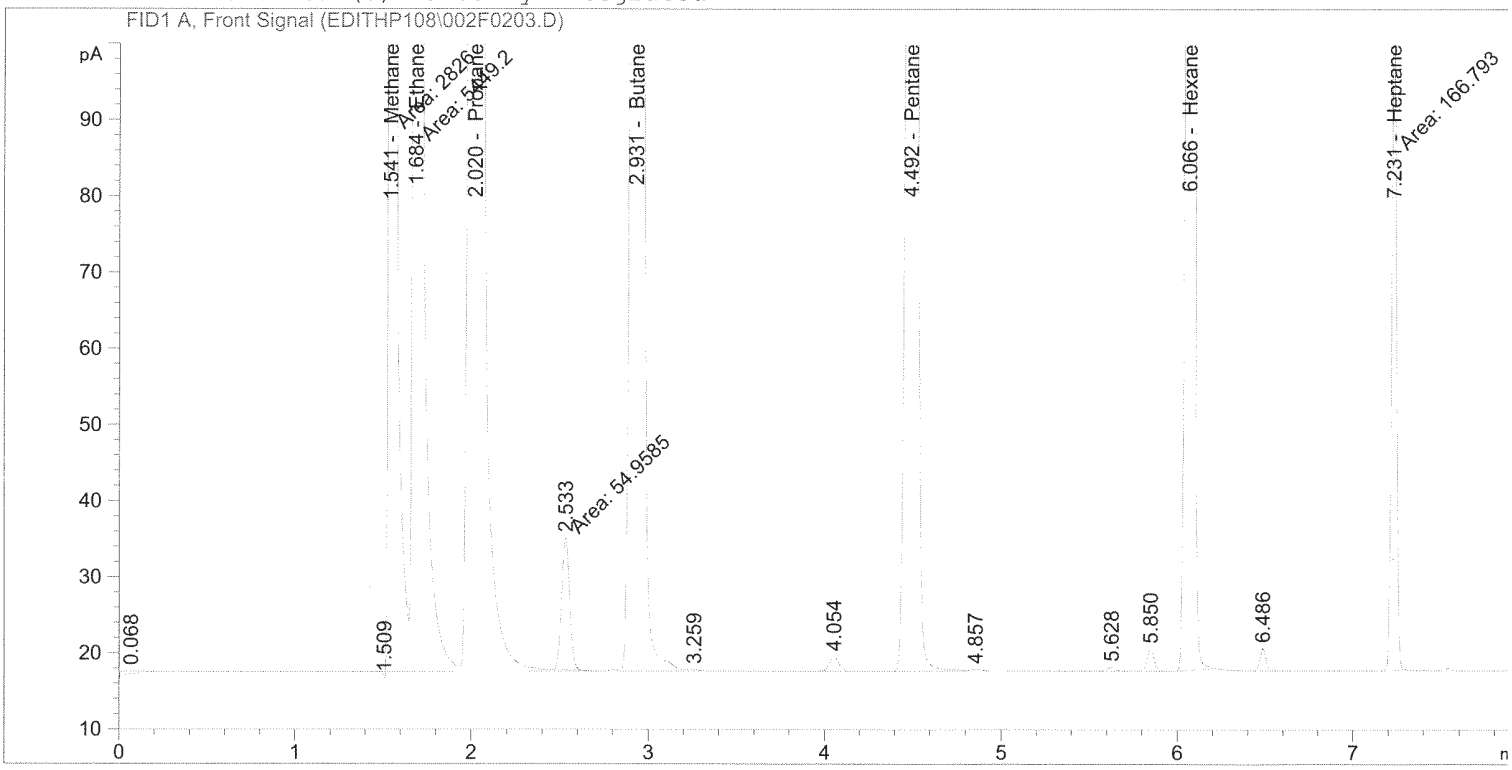
Totals : 3.5189e4

*** End of Report ***

ample Name: EdithP108 #C7 ENV(1=800,6=243.33)

```
================================================================================
Acq. Operator    : disconnected                      Seq. Line :   2
Acq. Instrument  : Edith                              Location : Vial 2
Injection Date   : 9/19/2014 11:33:11 AM                  Inj :   3
                                                   Inj Volume : 250 µl
Acq. Method      : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed     : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method  : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed     : 9/22/2014 10:21:52 AM by Justin Guenzler
                   (modified after loading)
Additional Info  : Peak(s) manually integrated
```

Manual Int. "II" (JKG)




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.541 MF     2826.00024    3.66309 1.03519e4     Methane
  1.684 MF     5449.19531    1.89352 1.03182e4     Ethane
  2.020 FM R   8111.08789    1.27475 1.03396e4     Propane
  2.931 VV T   2166.25928 9.62523e-1 2085.07368    Butane
  4.492 BV     1330.02405 7.84436e-1 1043.31861    Pentane
  6.066 BB     1210.53564 6.68479e-1  809.21771    Hexane
  7.231 MM      166.79295 5.45804e-1   91.03627    Heptane

Totals :                              3.50384e4

Uncalibrated Peaks    :      using compound Propane
```

ımple Name: EdithP108 #C7 ENV(1=800,6=243.33)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
0.068	BB	2.98571	1.26492	3.77668	?	
1.509	BP N	5.60743e-1	1.26492	7.09295e-1	?	
2.533	MM T	54.95855	1.27405	70.01985	?	
3.259	VB T	6.22596e-1	1.26492	7.87533e-1	?	
4.054	BV	7.35849	1.26945	9.34125	?	
4.857	VB	1.16596	1.26492	1.47484	?	
5.628	BB	1.61657	1.26492	2.04483	?	
5.850	BB	8.00895	1.26988	10.17043	?	
6.486	BB	6.94798	1.26914	8.81795	?	

Uncalib. totals : 107.14267

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Butane	2.400	3.700	55.58114	56.7257
as Pentane	3.700	5.300	8.52444	6.8773
as Hexane	5.300	6.600	16.57350	11.4444

Totals : 75.0474

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

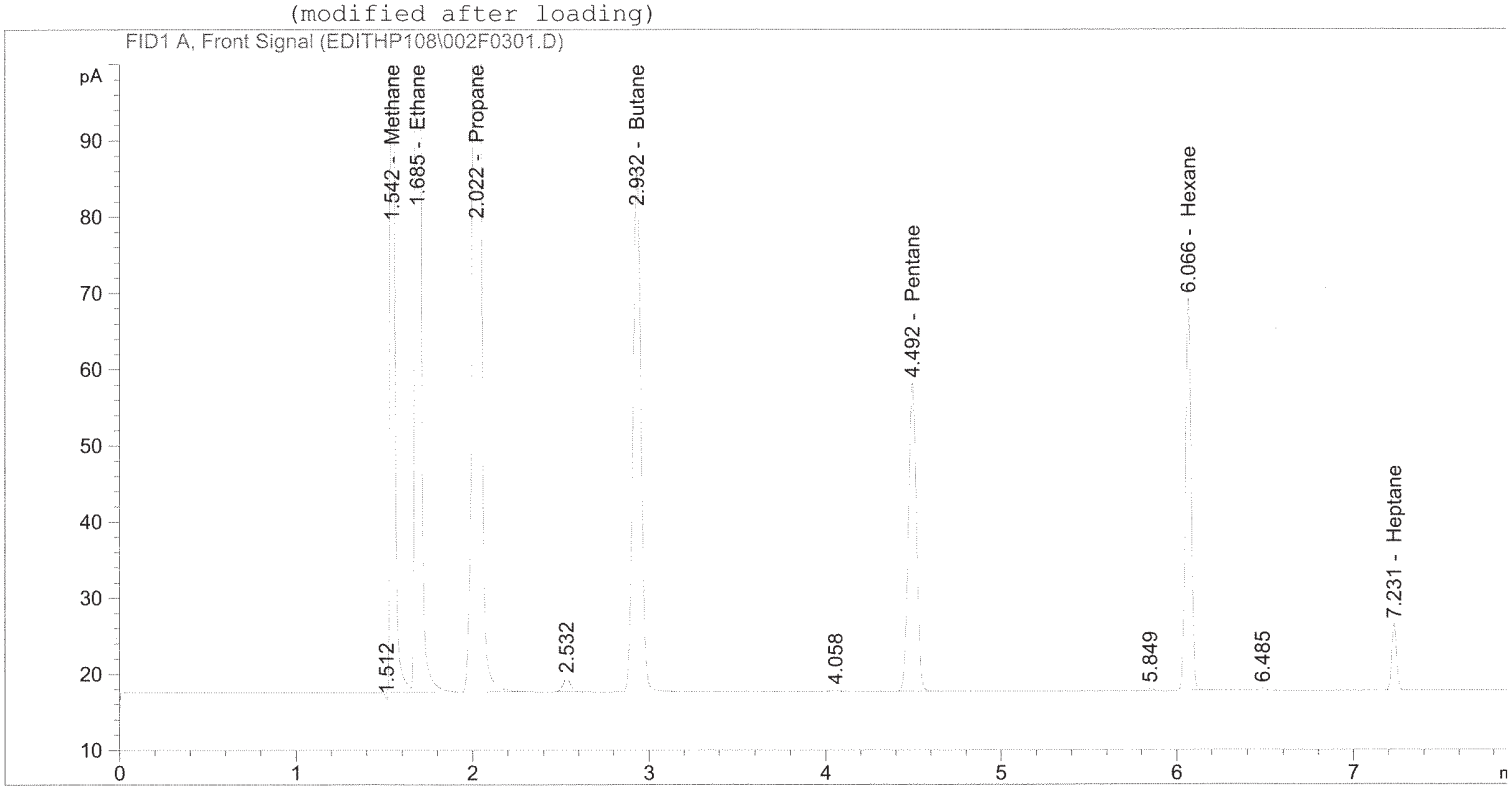
Name	Total Area [pA*s]	Amount [ppm]
as Butane	55.58114	56.7257
as Pentane	8.52444	6.8773
as Hexane	16.57350	11.4444
Methane	2826.00024	1.035e4
Ethane	5449.19531	1.032e4
Propane	8111.08789	1.034e4
Butane	2166.25928	2.085e3
Pentane	1330.02405	1.043e3
Hexane	1210.53564	809.2177
Heptane	166.79295	91.0363

Totals : 3.5113e4

*** End of Report ***

ımple Name: EdithP108 #C5 ENV(1=4900,6=121.67)

```
================================================================================
Acq. Operator   : disconnected                      Seq. Line :   3
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 9/19/2014 11:49:30 AM                 Inj :   1
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|-----------------
  1.542 PV      279.65533    3.66421 1024.71563    Methane
  1.685 VV      540.20013    1.89341 1022.81792    Ethane
  2.022 VB      802.41431    1.27471 1022.84587    Propane
  2.932 BB      214.20848 9.62179e-1  206.10692    Butane
  4.492 BB      130.77841 7.81793e-1  102.24169    Pentane
  6.066 BB      119.46789 6.66359e-1   79.60856    Hexane
  7.231 BB       16.45404 5.48092e-1    9.01832    Heptane

Totals :                              3467.35491

Uncalibrated Peaks    :      using compound Propane
```

ample Name: EdithP108 #C5 ENV(1=4900,6=121.67)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.512	BP N	7.72924e-1	1.26492	9.77687e-1		?
2.532	BB	5.37431	1.26749	6.81190		?
4.058	VB	9.06267e-1	1.26492	1.14635		?
5.849	BB	7.83291e-1	1.26492	9.90800e-1		?
6.485	BB	6.78864e-1	1.26492	8.58709e-1		?

Uncalib. totals : 10.78545

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Butane	2.400	3.700	5.37431	5.4850
as Pentane	3.700	5.300	9.06267e-1	0.7312
as Hexane	5.300	6.600	1.46216	1.0097

Totals : 7.2258

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

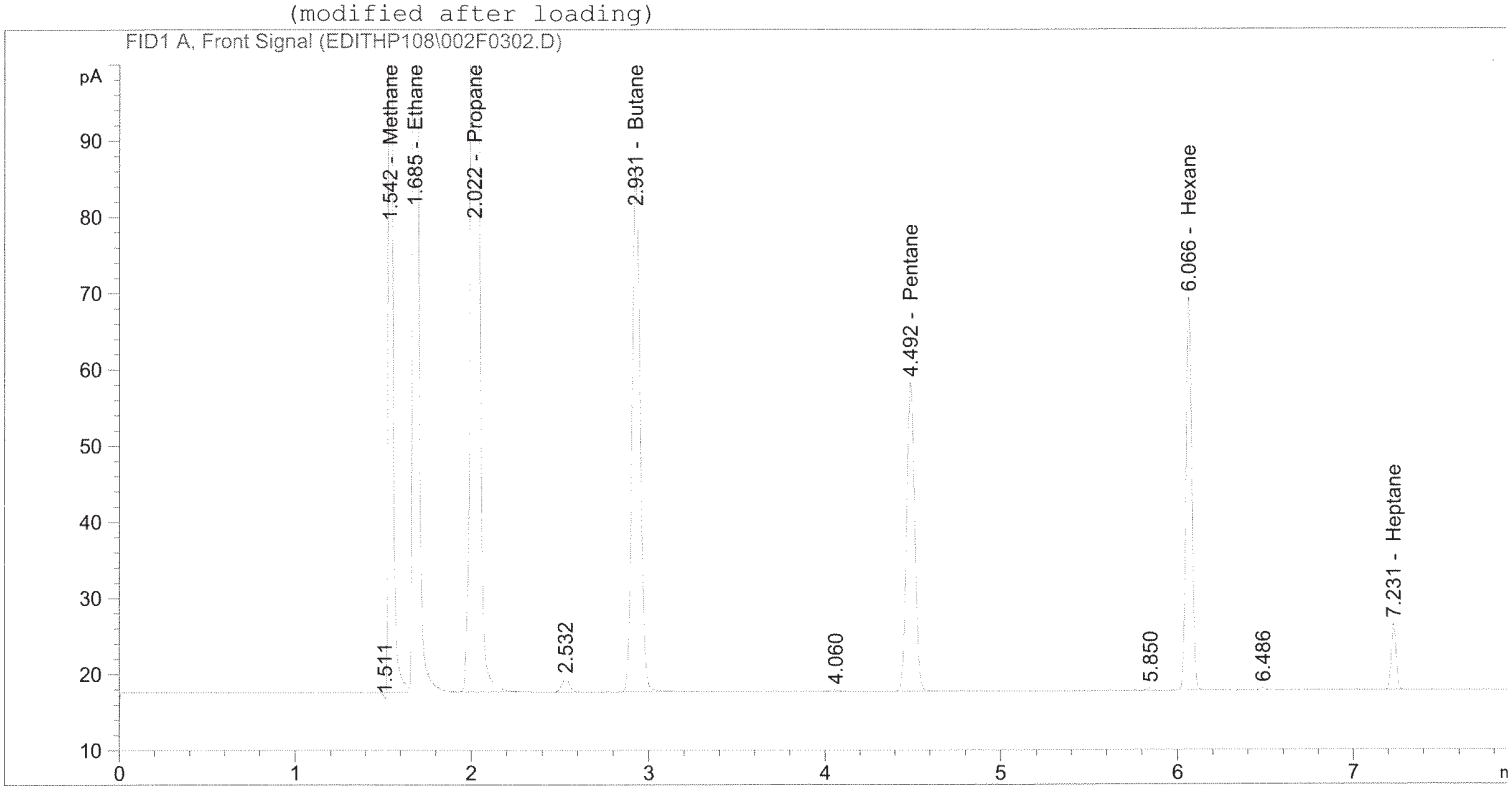
Name	Total Area [pA*s]	Amount [ppm]
as Butane	5.37431	5.4850
as Pentane	9.06267e-1	0.7312
as Hexane	1.46216	1.0097
Methane	279.65533	1.025e3
Ethane	540.20013	1.023e3
Propane	802.41431	1.023e3
Butane	214.20848	206.1069
Pentane	130.77841	102.2417
Hexane	119.46789	79.6086
Heptane	16.45404	9.0183

Totals : 3474.5807

*** End of Report ***

ımple Name: EdithP108 #C5 ENV(1=4900,6=121.67)

```
================================================================================
Acq. Operator   : disconnected                      Seq. Line :   3
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 9/19/2014 12:05:46 PM                  Inj :   2
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.542 PV      279.70560    3.66421 1024.89974    Methane
  1.685 VB      540.25098    1.89341 1022.91419    Ethane
  2.022 BB      802.57178    1.27471 1023.04660    Propane
  2.931 BB      213.83063 9.62178e-1  205.74321    Butane
  4.492 BB      131.31786 7.81805e-1  102.66501    Pentane
  6.066 BB      119.85897 6.66367e-1   79.87008    Hexane
  7.231 BB       16.56271 5.48075e-1    9.07761    Heptane

Totals :                              3468.21645

Uncalibrated Peaks    :      using compound Propane
```

ımple Name: EdithP108 #C5 ENV(1=4900,6=121.67)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.511	BP N	7.70508e-1	1.26492	9.74630e-1		?
2.532	BB	5.38442	1.26751	6.82479		?
4.060	BB	8.02487e-1	1.26492	1.01508		?
5.850	BB	8.78099e-1	1.26492	1.11072		?
6.486	BB	6.96806e-1	1.26492	8.81403e-1		?

Uncalib. totals : 10.80663

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Butane	2.400	3.700	5.38442	5.4953
as Pentane	3.700	5.300	8.02487e-1	0.6474
as Hexane	5.300	6.600	1.57491	1.0875

Totals : 7.2302

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

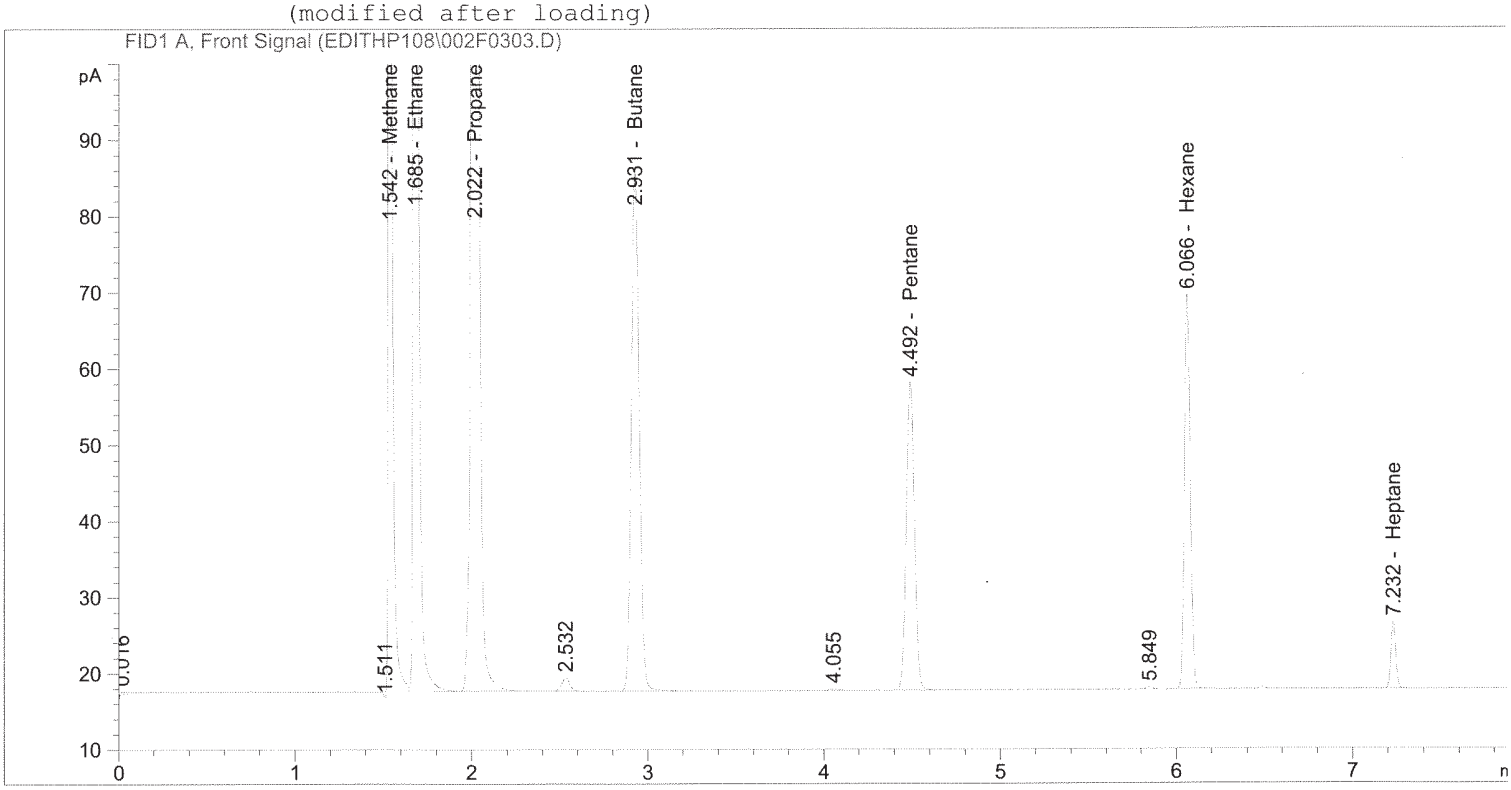
Name	Total Area [pA*s]	Amount [ppm]
as Butane	5.38442	5.4953
as Pentane	8.02487e-1	0.6474
as Hexane	1.57491	1.0875
Methane	279.70560	1.025e3
Ethane	540.25098	1.023e3
Propane	802.57178	1.023e3
Butane	213.83063	205.7432
Pentane	131.31786	102.6650
Hexane	119.85897	79.8701
Heptane	16.56271	9.0776

Totals : 3475.4467

*** End of Report ***

ımple Name: EdithP108 #C5 ENV(1=4900,6=121.67)

```
================================================================================
Acq. Operator   : disconnected                      Seq. Line :   3
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 9/19/2014 12:22:56 PM                  Inj :   3
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.542 PV      279.05463    3.66421 1022.51526    Methane
  1.685 VB      539.09637    1.89341 1020.72791    Ethane
  2.022 BB      800.72247    1.27471 1020.68919    Propane
  2.931 BB      213.89888 9.62179e-1  205.80891    Butane
  4.492 BV      131.06555 7.81800e-1  102.46702    Pentane
  6.066 BB      119.81548 6.66366e-1   79.84099    Hexane
  7.232 BB       16.59894 5.48070e-1    9.09738    Heptane

Totals :                              3461.14665

Uncalibrated Peaks    :      using compound Propane
```

ımple Name: EdithP108 #C5 ENV(1=4900,6=121.67)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
0.016	BB	8.67494e-1	1.26492	1.09731	?	
1.511	BP N	7.72846e-1	1.26492	9.77588e-1	?	
2.532	BB	5.35825	1.26747	6.79143	?	
4.055	BB	7.85258e-1	1.26492	9.93288e-1	?	
5.849	BB	7.89094e-1	1.26492	9.98140e-1	?	

Uncalib. totals : 10.85776

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Butane	2.400	3.700	5.35825	5.4686
as Pentane	3.700	5.300	7.85258e-1	0.6335
as Hexane	5.300	6.600	7.89094e-1	0.5449

Totals : 6.6470

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

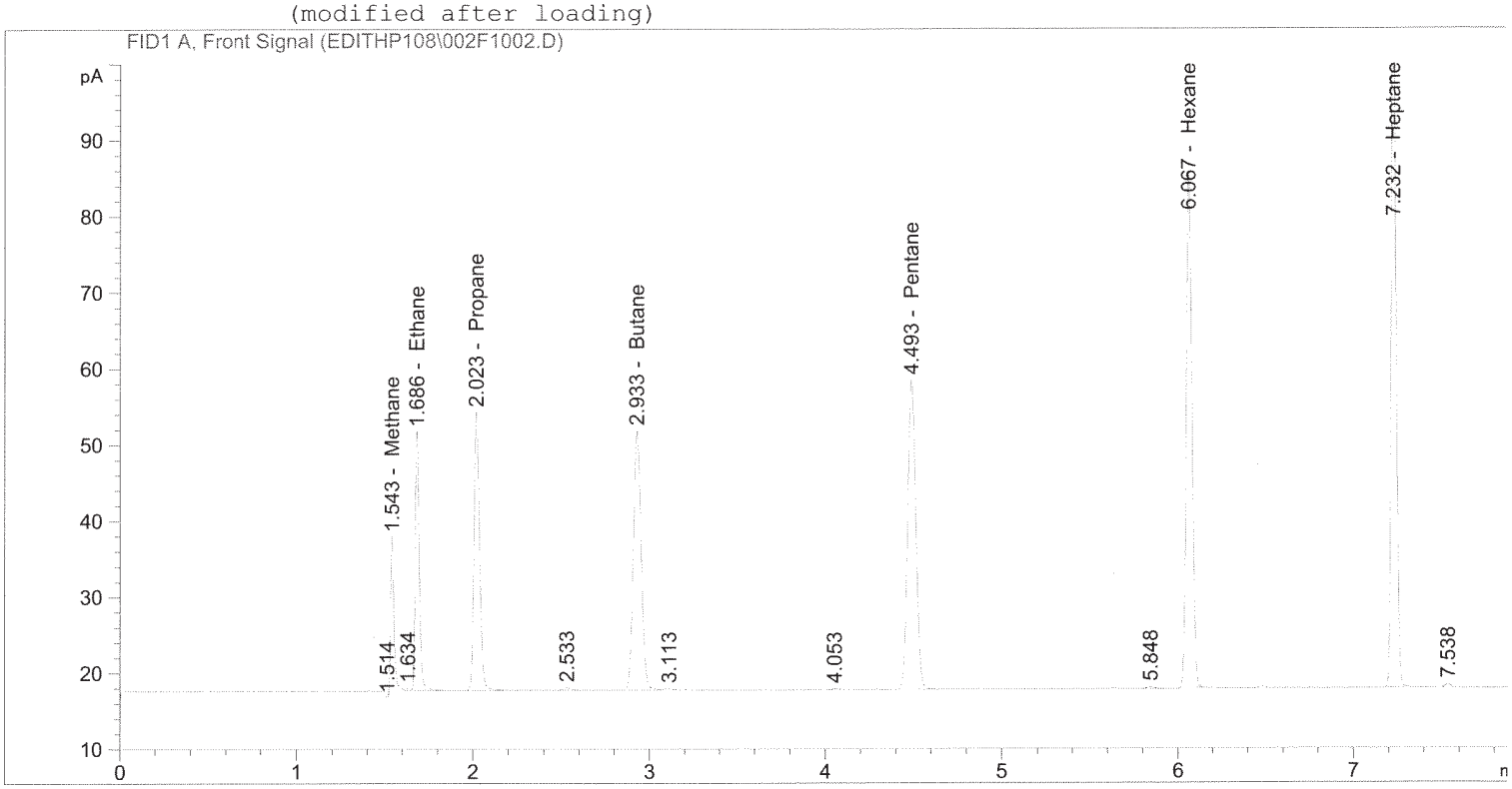
Name	Total Area [pA*s]	Amount [ppm]
as Butane	5.35825	5.4686
as Pentane	7.85258e-1	0.6335
as Hexane	7.89094e-1	0.5449
Methane	279.05463	1.023e3
Ethane	539.09637	1.021e3
Propane	800.72247	1.021e3
Butane	213.89888	205.8089
Pentane	131.06555	102.4670
Hexane	119.81548	79.8410
Heptane	16.59894	9.0974

Totals : 3467.7937

*** End of Report ***

ample Name: EdithP108 #C4 ENV(1=0,2=450)

```
================================================================================
Acq. Operator   : disconnected                      Seq. Line :  10
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 9/19/2014 2:34:27 PM                    Inj :   2
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.543	PV	27.44783	3.67558	100.88661		Methane
1.686	VB	53.68153	1.89224	101.57839		Ethane
2.023	BB	80.46478	1.27427	102.53415		Propane
2.933	BV	105.75439	9.61788e-1	101.71331		Butane
4.493	BB	131.92094	7.81819e-1	103.13826		Pentane
6.067	BB	156.57463	6.66917e-1	104.42225		Hexane
7.232	BB	182.24956	5.45783e-1	99.46867		Heptane

```
Totals :                                  713.74165

Uncalibrated Peaks    :      using compound Propane
```

ample Name: EdithP108 #C4 ENV(1=0,2=450)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.514	BP N	9.40663e-1	1.26492	1.18986	?	
1.634	VV	4.80986e-1	1.26492	6.08408e-1	?	
2.533	BB	1.08576	1.26492	1.37339	?	
3.113	VB	7.46504e-1	1.26492	9.44267e-1	?	
4.053	BB	4.56221e-1	1.26492	5.77082e-1	?	
5.848	BB	5.27333e-1	1.26492	6.67033e-1	?	
7.538	BB	9.92297e-1	1.26492	1.25518	?	

Uncalib. totals : 6.61522

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Ethane	1.550	1.850	4.80986e-1	0.9835
as Butane	2.400	3.700	1.83226	1.8700
as Pentane	3.700	5.300	4.56221e-1	0.3681
as Hexane	5.300	6.600	5.27333e-1	0.3641
as Heptane	6.600	13.000	9.92297e-1	0.5834

Totals : 4.1691

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

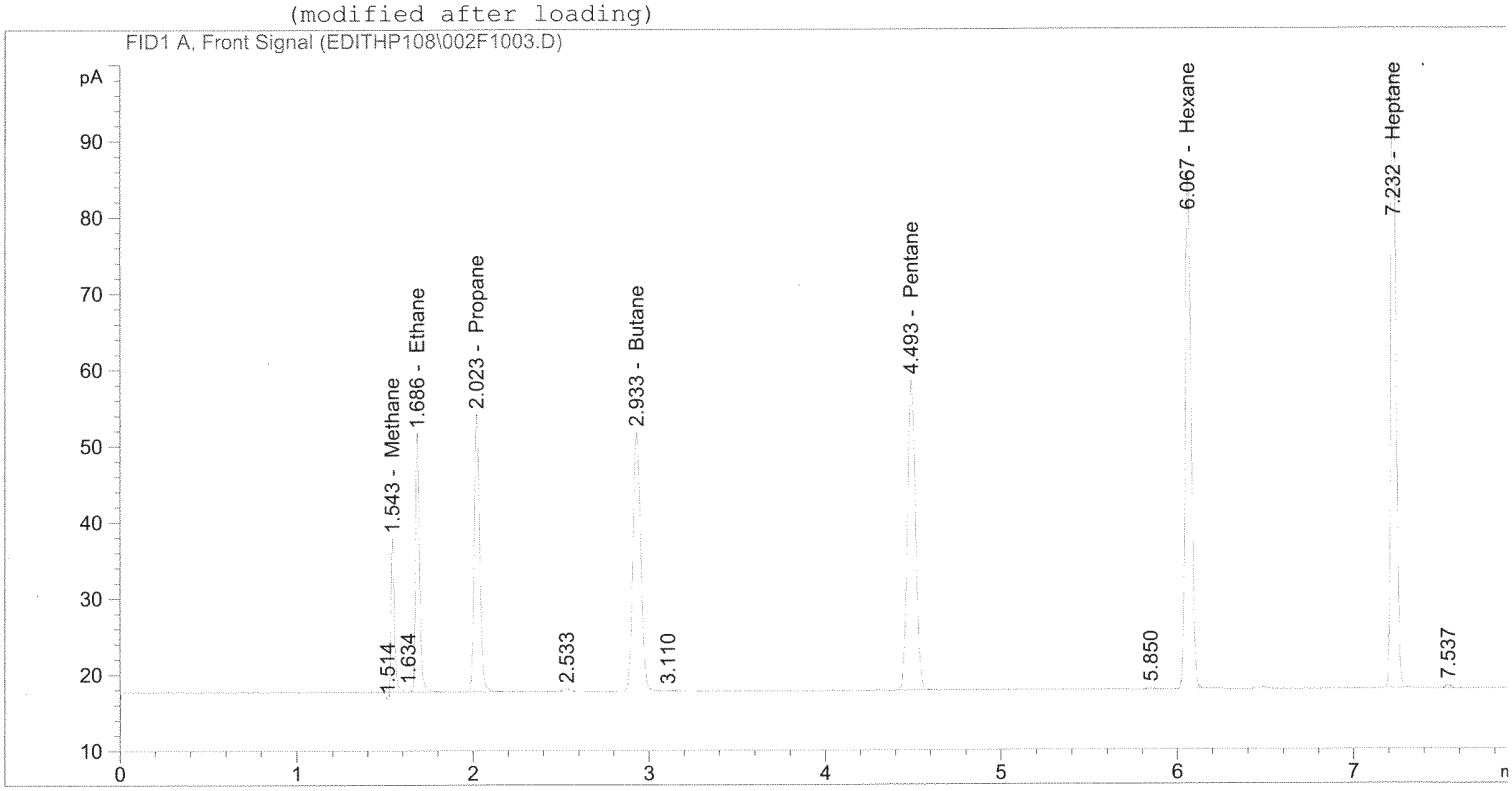
Name	Total Area [pA*s]	Amount [ppm]
as Ethane	4.80986e-1	0.9835
as Butane	1.83226	1.8700
as Pentane	4.56221e-1	0.3681
as Hexane	5.27333e-1	0.3641
as Heptane	9.92297e-1	0.5834
Methane	27.44783	100.8866
Ethane	53.68153	101.5784
Propane	80.46478	102.5342
Butane	105.75439	101.7133
Pentane	131.92094	103.1383
Hexane	156.57463	104.4223
Heptane	182.24956	99.4687

Totals : 717.9108

*** End of Report ***

mple Name: EdithP108 #C4 ENV(1=0,2=450)

```
================================================================================
Acq. Operator   : disconnected                    Seq. Line :  10
Acq. Instrument : Edith                           Location : Vial 2
Injection Date  : 9/19/2014 2:50:31 PM                 Inj :   3
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                          External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.543 PV       27.37074    3.67561  100.60423    Methane
  1.686 VB       53.33620    1.89223  100.92452    Ethane
  2.023 BB       79.96803    1.27427  101.90093    Propane
  2.933 VV      105.60441 9.61787e-1  101.56894    Butane
  4.493 BB      131.71680 7.81814e-1  102.97807    Pentane
  6.067 BB      156.46011 6.66915e-1  104.34567    Hexane
  7.232 BB      182.34998 5.45783e-1   99.52346    Heptane

Totals :                              711.84581

Uncalibrated Peaks    :      using compound Propane
```

ımple Name: EdithP108 #C4 ENV(1=0,2=450)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.514	BP N	9.42002e-1	1.26492	1.19156	?	
1.634	VV	4.76327e-1	1.26492	6.02516e-1	?	
2.533	BB	1.05936	1.26492	1.34000	?	
3.110	VB	7.18170e-1	1.26492	9.08427e-1	?	
5.850	BB	5.55074e-1	1.26492	7.02123e-1	?	
7.537	BB	9.72606e-1	1.26492	1.23027	?	

Uncalib. totals : 5.97489

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Ethane	1.550	1.850	4.76327e-1	0.9740
as Butane	2.400	3.700	1.77753	1.8141
as Hexane	5.300	6.600	5.55074e-1	0.3833
as Heptane	6.600	13.000	9.72606e-1	0.5718

Totals : 3.7433

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

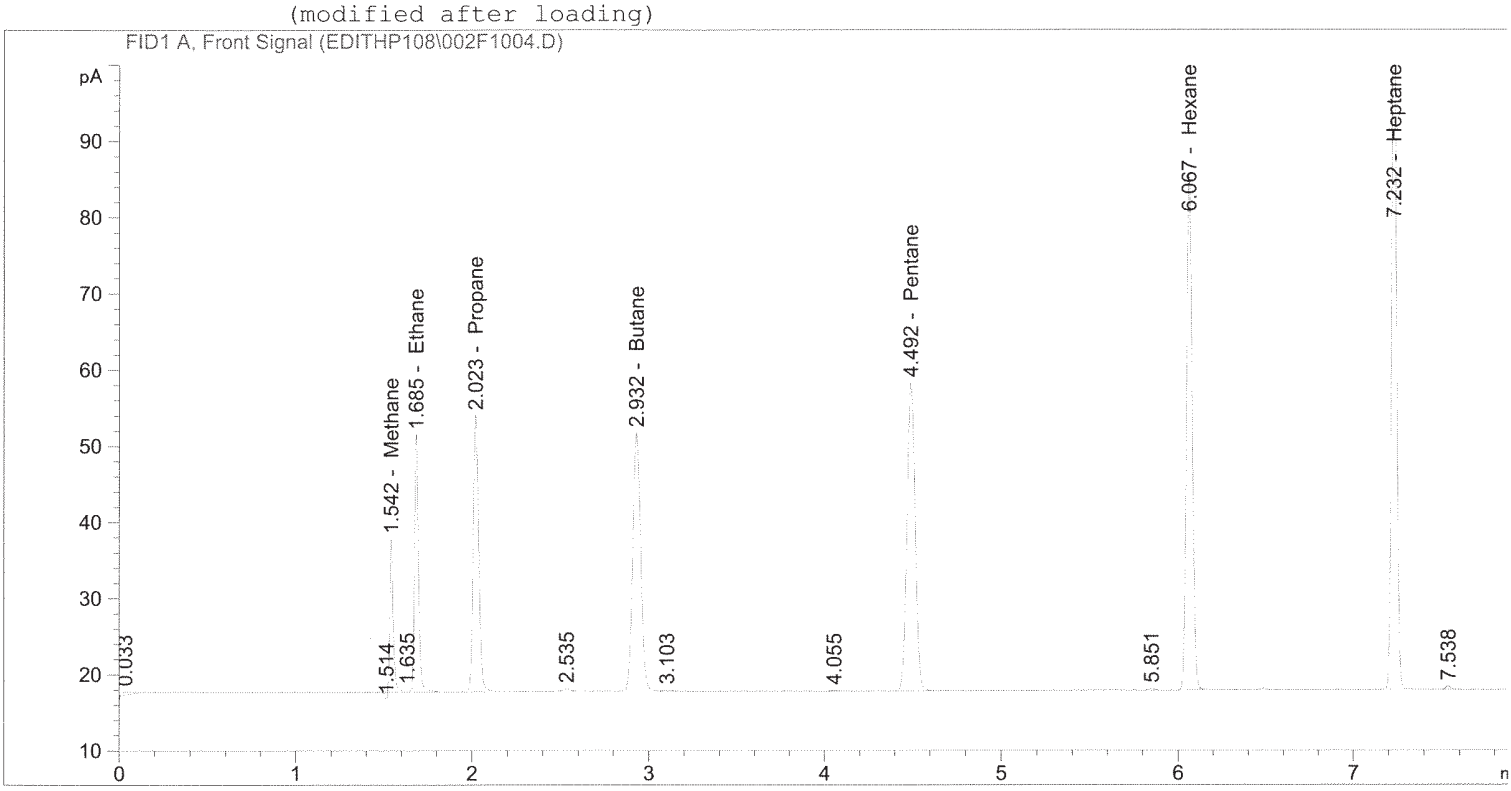
Name	Total Area [pA*s]	Amount [ppm]
as Ethane	4.76327e-1	0.9740
as Butane	1.77753	1.8141
as Hexane	5.55074e-1	0.3833
as Heptane	9.72606e-1	0.5718
Methane	27.37074	100.6042
Ethane	53.33620	100.9245
Propane	79.96803	101.9009
Butane	105.60441	101.5689
Pentane	131.71680	102.9781
Hexane	156.46011	104.3457
Heptane	182.34998	99.5235

Totals : 715.5891

*** End of Report ***

ımple Name: EdithP108 #C4 ENV(1=0,2=450)

```
================================================================================
Acq. Operator   : disconnected                    Seq. Line :  10
Acq. Instrument : Edith                           Location : Vial 2
Injection Date  : 9/19/2014 3:06:36 PM                 Inj :   4
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.542 PV       27.33177    3.67563  100.46148    Methane
  1.685 VB       53.30490    1.89223  100.86524    Ethane
  2.023 PB       79.51855    1.27427  101.32795    Propane
  2.932 BV      105.18516 9.61784e-1  101.16539    Butane
  4.492 BB      131.54813 7.81810e-1  102.84571    Pentane
  6.067 BB      156.02853 6.66911e-1  104.05707    Hexane
  7.232 BB      181.77887 5.45783e-1   99.21189    Heptane

Totals :                              709.93472

Uncalibrated Peaks    :      using compound Propane
```

ımple Name: EdithP108 #C4 ENV(1=0,2=450)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
0.033	BB	1.72203	1.26492	2.17823	?	
1.514	BP N	9.34361e-1	1.26492	1.18189	?	
1.635	VV	5.10190e-1	1.26492	6.45349e-1	?	
2.535	BB	1.03156	1.26492	1.30484	?	
3.103	VB	6.35190e-1	1.26492	8.03464e-1	?	
4.055	BB	3.93774e-1	1.26492	4.98092e-1	?	
5.851	BB	5.56474e-1	1.26492	7.03894e-1	?	
7.538	BB	9.77187e-1	1.26492	1.23606	?	

Uncalib. totals : 8.55182

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Ethane	1.550	1.850	5.10190e-1	1.0432
as Butane	2.400	3.700	1.66675	1.7011
as Pentane	3.700	5.300	3.93774e-1	0.3177
as Hexane	5.300	6.600	5.56474e-1	0.3843
as Heptane	6.600	13.000	9.77187e-1	0.5745

Totals : 4.0208

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

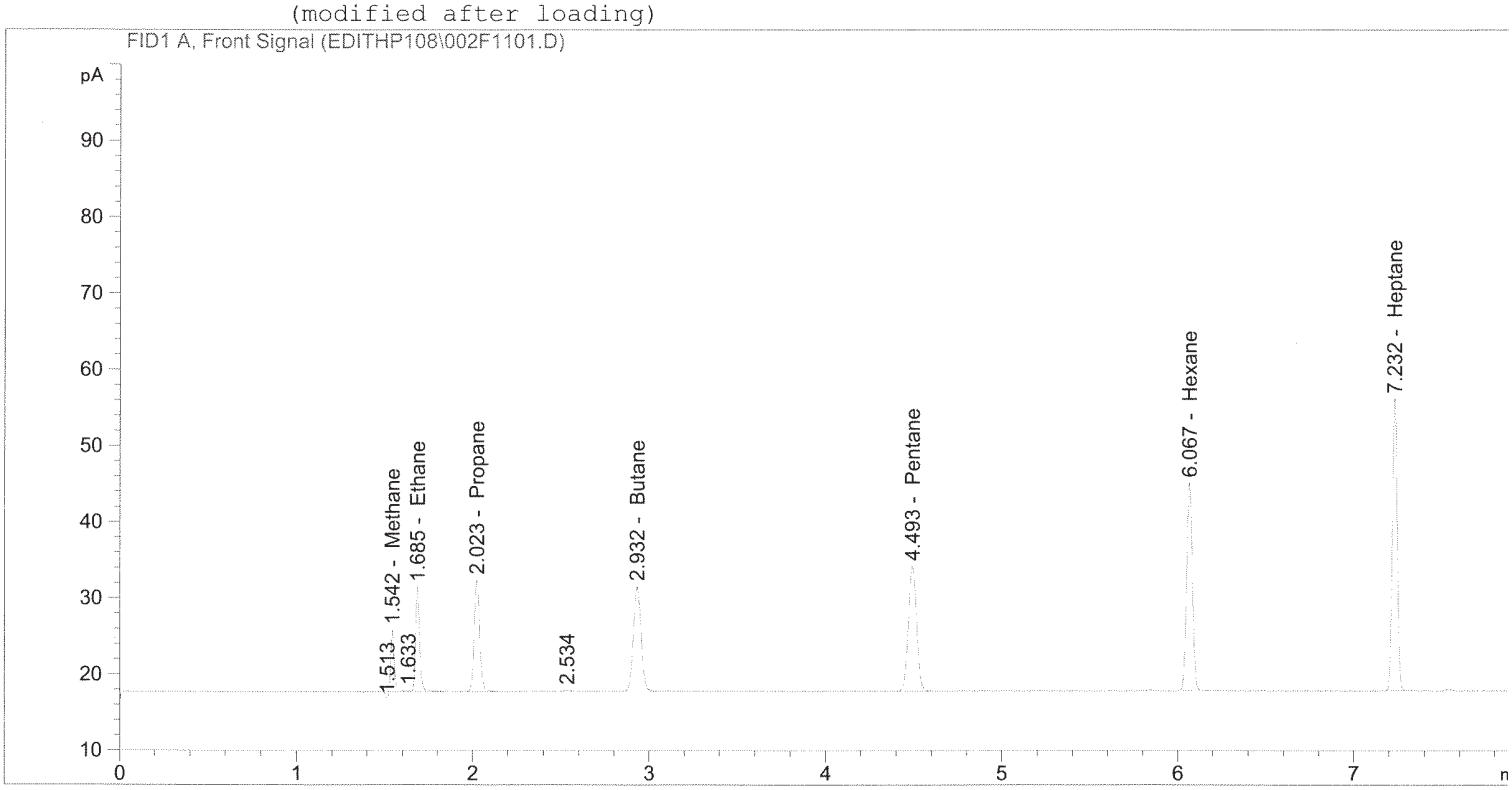
Name	Total Area [pA*s]	Amount [ppm]
as Ethane	5.10190e-1	1.0432
as Butane	1.66675	1.7011
as Pentane	3.93774e-1	0.3177
as Hexane	5.56474e-1	0.3843
as Heptane	9.77187e-1	0.5745
Methane	27.33177	100.4615
Ethane	53.30490	100.8652
Propane	79.51855	101.3279
Butane	105.18516	101.1654
Pentane	131.54813	102.8457
Hexane	156.02853	104.0571
Heptane	181.77887	99.2119

Totals : 713.9555

*** End of Report ***

ample Name: EdithP108 #C3 ENV(1=600,2=400)

```
================================================================================
Acq. Operator    : disconnected                      Seq. Line :  11
Acq. Instrument  : Edith                              Location : Vial 2
Injection Date   : 9/19/2014 3:22:56 PM                   Inj :   1
                                                    Inj Volume : 250 µl
Acq. Method      : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed     : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method  : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed     : 9/22/2014 10:21:52 AM by Justin Guenzler
                   (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.542	PV	11.00137	3.69442	40.64369		Methane
1.685	VB	21.75508	1.89034	41.12459		Ethane
2.023	PB	32.24148	1.27355	41.06107		Propane
2.932	BB	42.46952	9.60637e-1	40.79780		Butane
4.493	BB	53.24072	7.77525e-1	41.39600		Pentane
6.067	BB	63.01467	6.64253e-1	41.85766		Hexane
7.232	BB	73.48394	5.46122e-1	40.13119		Heptane

```
Totals :                                  287.01200

Uncalibrated Peaks    :      using compound Propane
```

ample Name: EdithP108 #C3 ENV(1=600,2=400)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.513	BP N	9.78457e-1	1.26492	1.23767	?	
1.633	VV	2.68972e-1	1.26492	3.40228e-1	?	
2.534	BB	4.14086e-1	1.26492	5.23786e-1	?	

Uncalib. totals : 2.10168

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Ethane	1.550	1.850	2.68972e-1	0.5500
as Butane	2.400	3.700	4.14086e-1	0.4226

Totals : 9.7261e-1

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

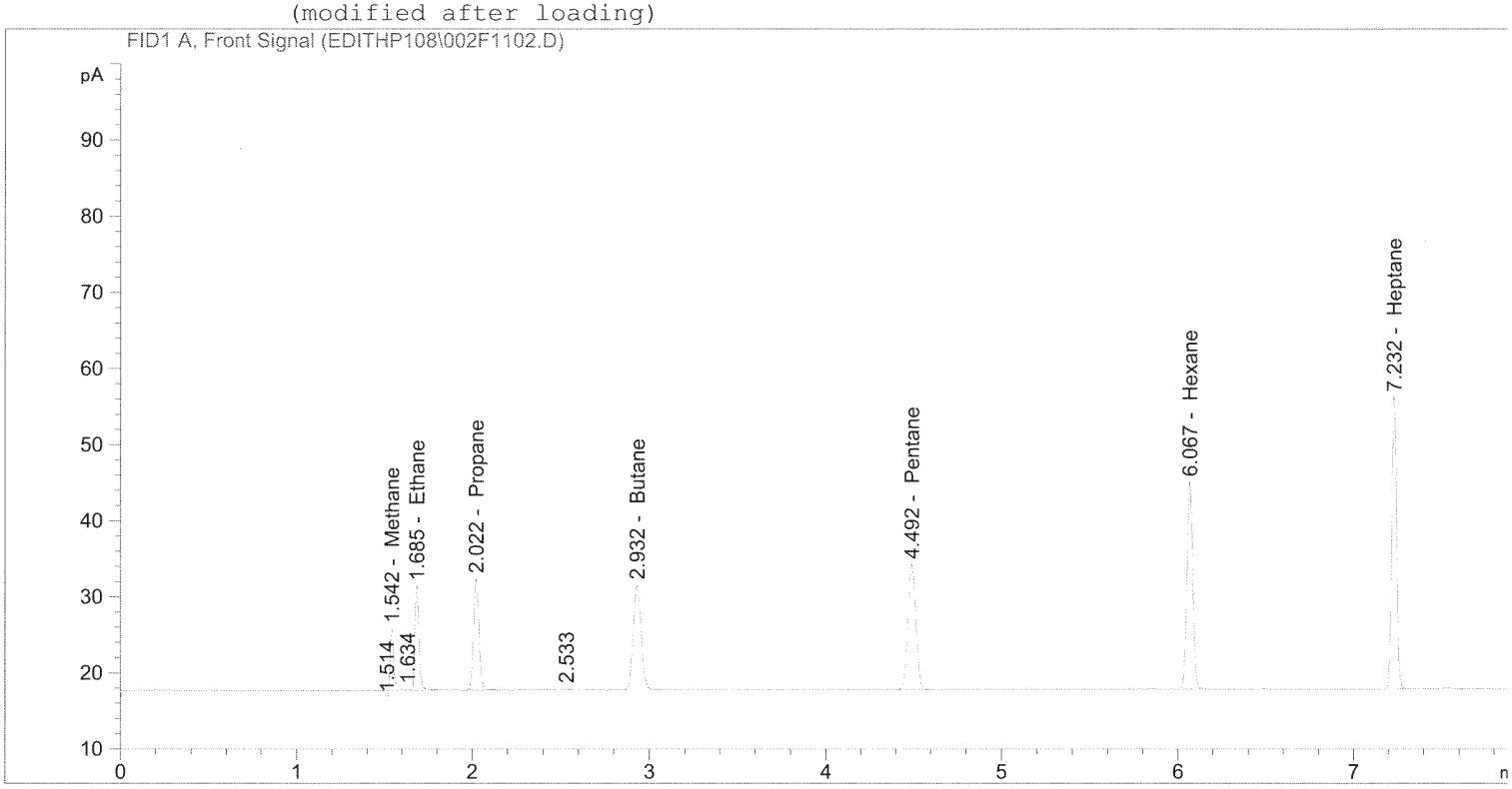
Name	Total Area [pA*s]	Amount [ppm]
as Ethane	2.68972e-1	0.5500
as Butane	4.14086e-1	0.4226
Methane	11.00137	40.6437
Ethane	21.75508	41.1246
Propane	32.24148	41.0611
Butane	42.46952	40.7978
Pentane	53.24072	41.3960
Hexane	63.01467	41.8577
Heptane	73.48394	40.1312

Totals : 287.9846

*** End of Report ***

ample Name: EdithP108 #C3 ENV(1=600,2=400)

```
================================================================================
Acq. Operator   : disconnected                      Seq. Line :  11
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 9/19/2014 3:39:01 PM                    Inj :   2
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.542	PV	11.02327	3.69436	40.72390		Methane
1.685	VB	21.73584	1.89034	41.08815		Ethane
2.022	PB	32.31124	1.27355	41.14999		Propane
2.932	BV	42.66705	9.60646e-1	40.98794		Butane
4.492	BV	53.34929	7.77540e-1	41.48120		Pentane
6.067	BB	63.19386	6.64265e-1	41.97749		Hexane
7.232	BB	73.63406	5.46121e-1	40.21309		Heptane

```
Totals :                                  287.62175

Uncalibrated Peaks    :      using compound Propane
```

ımple Name: EdithP108 #C3 ENV(1=600,2=400)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.514	BP N	9.94072e-1	1.26492	1.25742		?
1.634	VV	2.72370e-1	1.26492	3.44526e-1		?
2.533	BB	4.36528e-1	1.26492	5.52172e-1		?

Uncalib. totals : 2.15412

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Ethane	1.550	1.850	2.72370e-1	0.5569
as Butane	2.400	3.700	4.36528e-1	0.4455
Totals :				1.0025

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

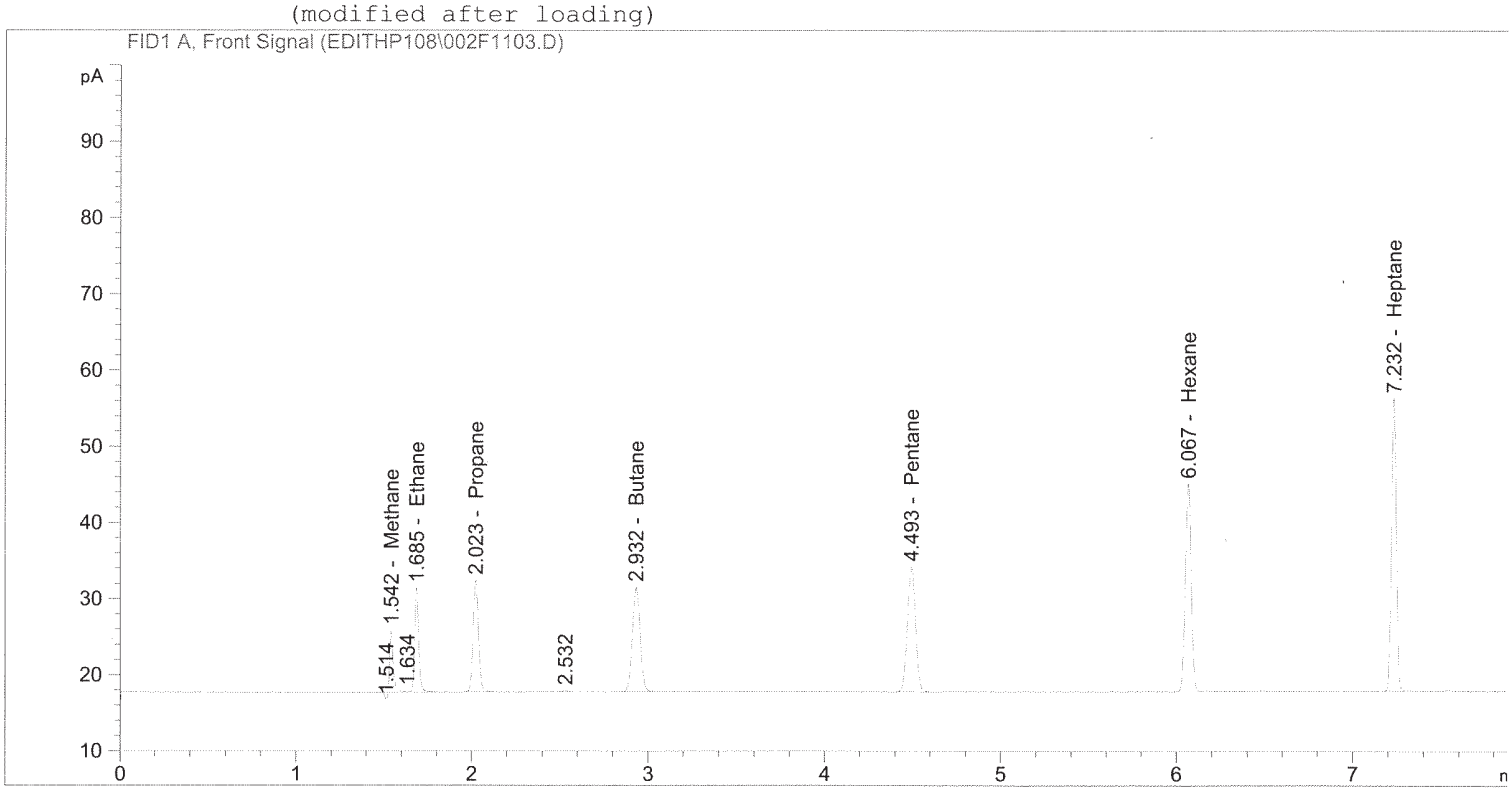
Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
as Ethane	2.72370e-1	0.5569
as Butane	4.36528e-1	0.4455
Methane	11.02327	40.7239
Ethane	21.73584	41.0881
Propane	32.31124	41.1500
Butane	42.66705	40.9879
Pentane	53.34929	41.4812
Hexane	63.19386	41.9775
Heptane	73.63406	40.2131
Totals :		288.6242

*** End of Report ***

ample Name: EdithP108 #C3 ENV(1=600,2=400)

```
================================================================================
Acq. Operator    : disconnected                        Seq. Line :  11
Acq. Instrument  : Edith                                Location : Vial 2
Injection Date   : 9/19/2014 3:55:26 PM                      Inj :   3
                                                      Inj Volume : 250 µl
Acq. Method      : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed     : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method  : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed     : 9/22/2014 10:21:52 AM by Justin Guenzler
                   (modified after loading)
```




```
================================================================================
                          External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.542	PV	11.00070	3.69442	40.64121		Methane
1.685	VB	21.52324	1.89031	40.68559		Ethane
2.023	BB	32.06316	1.27354	40.83375		Propane
2.932	BB	42.35880	9.60632e-1	40.69123		Butane
4.493	BV	53.31446	7.77535e-1	41.45386		Pentane
6.067	BB	63.17406	6.64264e-1	41.96425		Hexane
7.232	BB	73.57939	5.46121e-1	40.18327		Heptane

Totals : 286.45316

Uncalibrated Peaks : using compound Propane

mple Name: EdithP108 #C3 ENV(1=600,2=400)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.514	BP N	1.00316	1.26492	1.26892	?	
1.634	VV	2.18718e-1	1.26492	2.76660e-1	?	
2.532	BB	4.07677e-1	1.26492	5.15678e-1	?	

Uncalib. totals : 2.06126

Summed Peaks Report

Signal 1: FID1 A, Front Signal

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Ethane	1.550	1.850	2.18718e-1	0.4472
as Butane	2.400	3.700	4.07677e-1	0.4161

Totals : 8.6331e-1

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

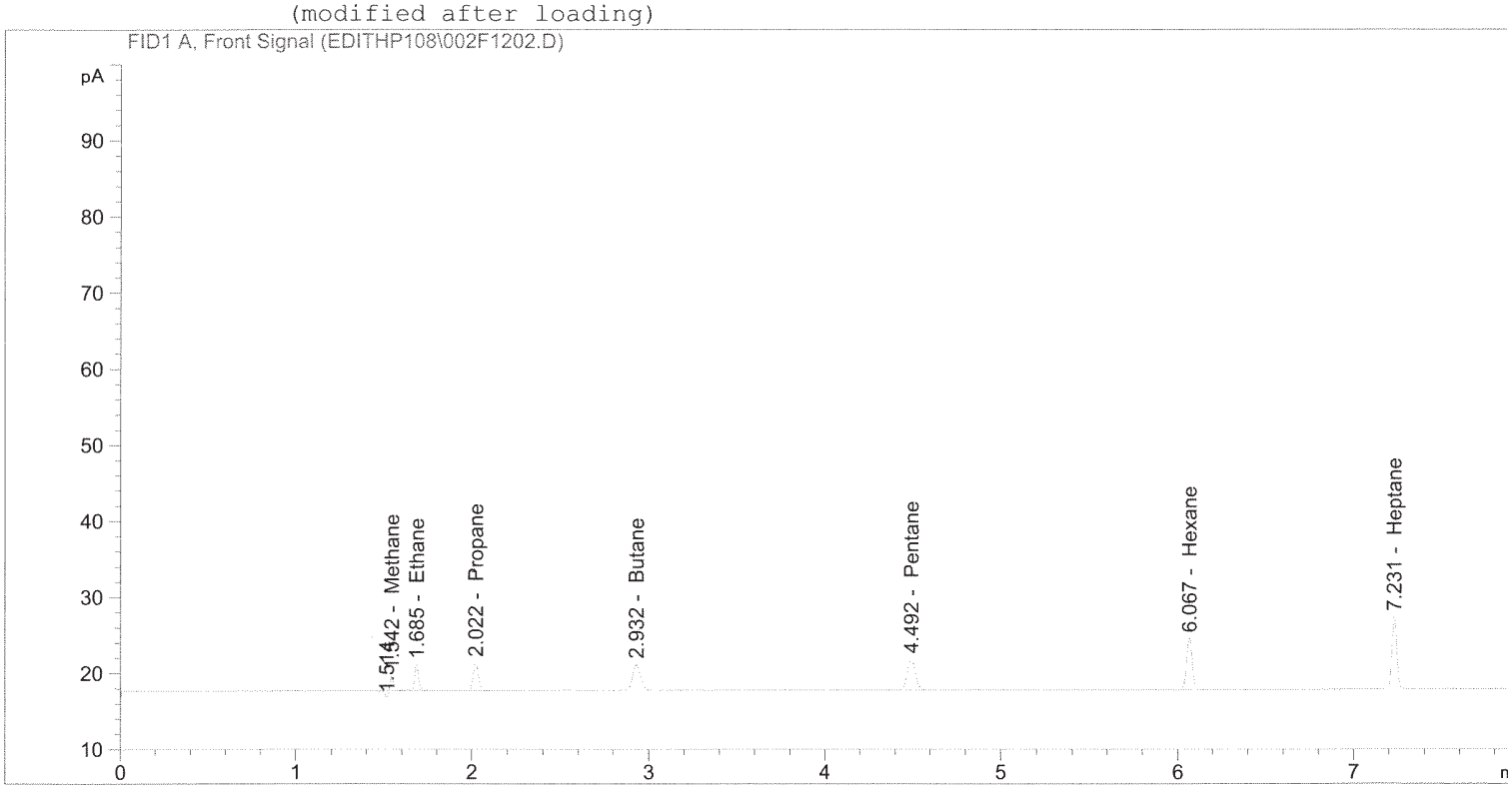
Name	Total Area [pA*s]	Amount [ppm]
as Ethane	2.18718e-1	0.4472
as Butane	4.07677e-1	0.4161
Methane	11.00070	40.6412
Ethane	21.52324	40.6856
Propane	32.06316	40.8337
Butane	42.35880	40.6912
Pentane	53.31446	41.4539
Hexane	63.17406	41.9643
Heptane	73.57939	40.1833

Totals : 287.3165

*** End of Report ***

ımple Name: EdithP108 #C2 ENV(1=900,2=100)

```
================================================================================
Acq. Operator   : disconnected                    Seq. Line :  12
Acq. Instrument : Edith                            Location : Vial 2
Injection Date  : 9/19/2014 4:27:54 PM                  Inj :   2
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.542	PB	2.72163	3.79009	10.31524		Methane
1.685	BB	5.34763	1.88056	10.05652		Ethane
2.022	BB	7.96017	1.26985	10.10825		Propane
2.932	BB	10.48665	9.54771e-1	10.01235		Butane
4.492	BB	13.31481	7.55938e-1	10.06518		Pentane
6.067	BB	15.69162	6.50807e-1	10.21221		Hexane
7.231	BB	18.25233	5.47842e-1	9.99939		Heptane

Totals : 70.76913

Uncalibrated Peaks : using compound Propane

ımple Name: EdithP108 #C2 ENV(1=900,2=100)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.514	BP N	1.10081	1.26492	1.39244	?	

Uncalib. totals : 1.39244

Summed Peaks Report

Signal 1: FID1 A, Front Signal

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

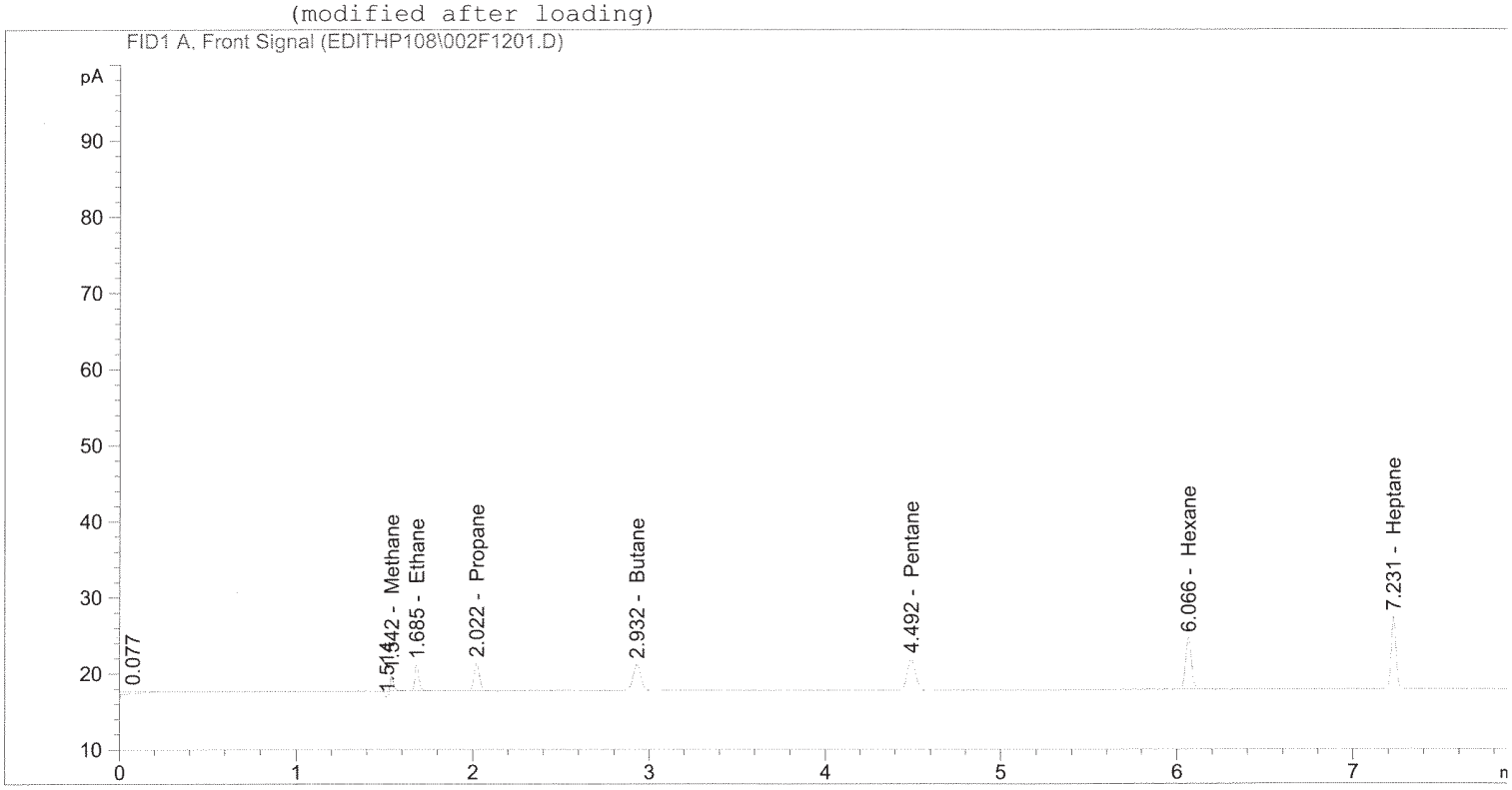
Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
Methane	2.72163	10.3152
Ethane	5.34763	10.0565
Propane	7.96017	10.1083
Butane	10.48665	10.0124
Pentane	13.31481	10.0652
Hexane	15.69162	10.2122
Heptane	18.25233	9.9994
Totals :		70.7691

*** End of Report ***

ample Name: EdithP108 #C2 ENV(1=900,2=100)

```
================================================================================
Acq. Operator    : disconnected                      Seq. Line :  12
Acq. Instrument  : Edith                              Location : Vial 2
Injection Date   : 9/19/2014 4:11:37 PM                    Inj :   1
                                                    Inj Volume : 250 µl
Acq. Method      : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed     : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method  : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed     : 9/22/2014 10:21:52 AM by Justin Guenzler
                   (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.542 PB        2.73122    3.78965   10.35035    Methane
  1.685 BB        5.38953    1.88066   10.13586    Ethane
  2.022 BB        7.97306    1.26986   10.12468    Propane
  2.932 BB       10.55341 9.54821e-1   10.07662    Butane
  4.492 BB       13.33021 7.55972e-1   10.07726    Pentane
  6.066 BB       15.62524 6.50731e-1   10.16783    Hexane
  7.231 BB       18.17946 5.47851e-1    9.95964    Heptane

Totals :                               70.89222

Uncalibrated Peaks    :      using compound Propane
```

ımple Name: EdithP108 #C2 ENV(1=900,2=100)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
0.077	BB	2.96837	1.26492	3.75475	?	
1.514	BP N	1.06279	1.26492	1.34435	?	

Uncalib. totals : 5.09910

Summed Peaks Report

Signal 1: FID1 A, Front Signal

1 Warnings or Errors :

Warning : Reference compound(s) not found

Final Summed Peaks Report

Signal 1: FID1 A, Front Signal

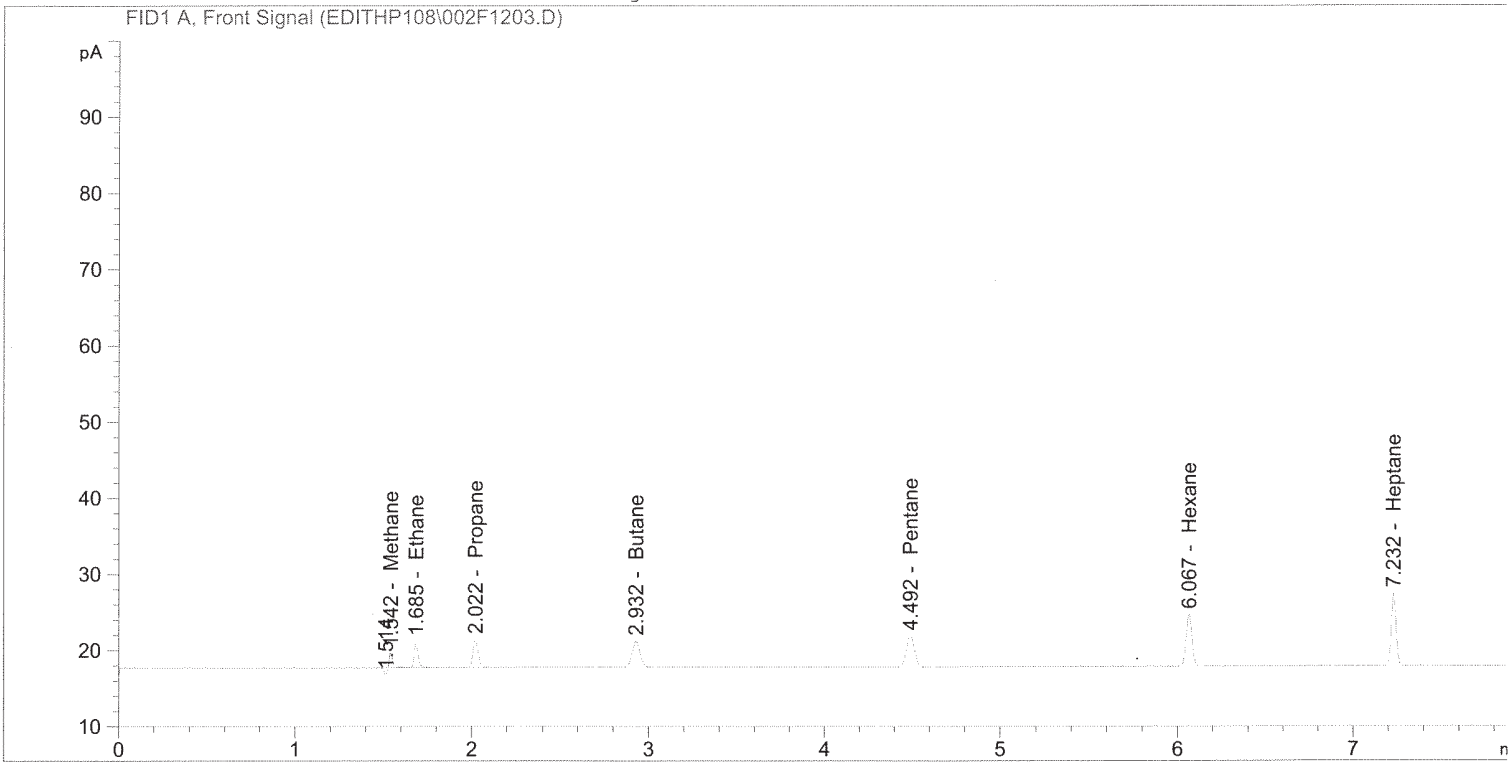
Name	Total Area [pA*s]	Amount [ppm]
Methane	2.73122	10.3503
Ethane	5.38953	10.1359
Propane	7.97306	10.1247
Butane	10.55341	10.0766
Pentane	13.33021	10.0773
Hexane	15.62524	10.1678
Heptane	18.17946	9.9596

Totals : 70.8922

*** End of Report ***

ample Name: EdithP108 #C2 ENV(1=900,2=100)

```
================================================================================
Acq. Operator   : disconnected                    Seq. Line :  12
Acq. Instrument : Edith                           Location : Vial 2
Injection Date  : 9/19/2014 4:44:08 PM                 Inj :   3
                                                Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  1.542 PB        2.76054    3.78830   10.45775    Methane
  1.685 PB        5.57597    1.88109   10.48888    Ethane
  2.022 PB        8.01652    1.26989   10.18009    Propane
  2.932 BB       10.51357 9.54791e-1   10.03826    Butane
  4.492 BB       13.38227 7.56083e-1   10.11811    Pentane
  6.067 BB       15.58333 6.50682e-1   10.13980    Hexane
  7.232 BB       18.17815 5.47851e-1    9.95892    Heptane

Totals :                               71.38182

Uncalibrated Peaks    :      using compound Propane
```

ımple Name: EdithP108 #C2 ENV(1=900,2=100)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.514	BP N	1.06684	1.26492	1.34946	?	

Uncalib. totals : 1.34946

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

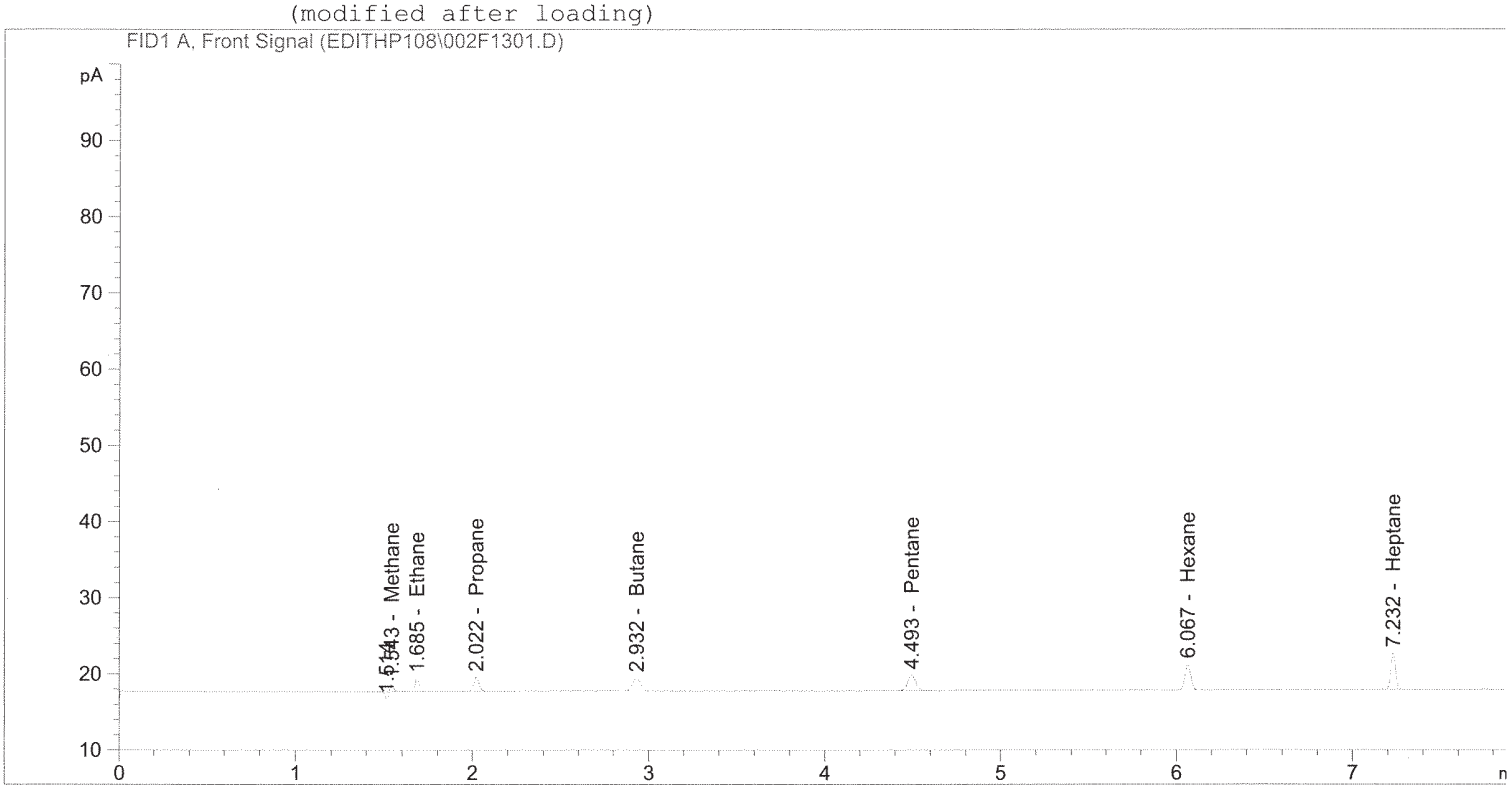
Name	Total Area [pA*s]	Amount [ppm]
Methane	2.76054	10.4577
Ethane	5.57597	10.4889
Propane	8.01652	10.1801
Butane	10.51357	10.0383
Pentane	13.38227	10.1181
Hexane	15.58333	10.1398
Heptane	18.17815	9.9589

Totals : 71.3818

*** End of Report ***

ample Name: EdithP108 #C1 ENV(1=1900,2=100)

```
================================================================================
Acq. Operator   : disconnected                    Seq. Line :  13
Acq. Instrument : Edith                           Location : Vial 2
Injection Date  : 9/19/2014 5:00:11 PM                 Inj :   1
                                                 Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.543	PB	1.21230	3.93469	4.77003		Methane
1.685	BP	2.56303	1.86764	4.78680		Ethane
2.022	VB	3.83415	1.26492	4.84989		Propane
2.932	BB	5.30351	9.47159e-1	5.02327		Butane
4.493	BB	6.80569	7.28854e-1	4.96035		Pentane
6.067	BB	7.81790	6.33169e-1	4.95005		Hexane
7.232	BB	9.08140	5.50152e-1	4.99616		Heptane

```
Totals :                                  34.33655

Uncalibrated Peaks    :      using compound Propane
```

ımple Name: EdithP108 #C1 ENV(1=1900,2=100)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.514	PP N	1.17246	1.26492	1.48307	?	

Uncalib. totals : 1.48307

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
Methane	1.21230	4.7700
Ethane	2.56303	4.7868
Propane	3.83415	4.8499
Butane	5.30351	5.0233
Pentane	6.80569	4.9604
Hexane	7.81790	4.9501
Heptane	9.08140	4.9962

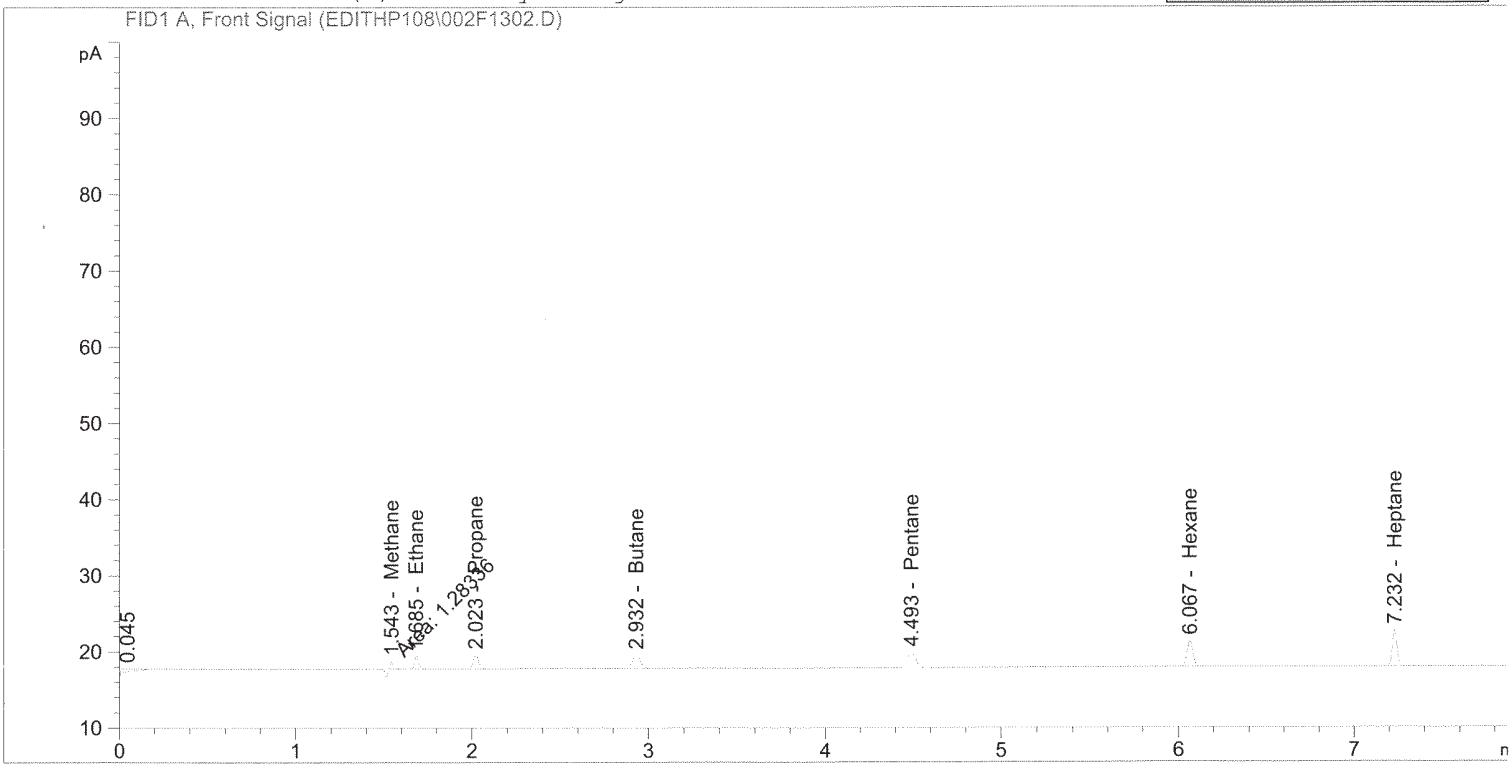
Totals : 34.3366

*** End of Report ***

ımple Name: EdithP108 #C1 ENV(1=1900,2=100)

```
================================================================================
Acq. Operator   : disconnected                    Seq. Line :  13
Acq. Instrument : Edith                           Location : Vial 2
Injection Date  : 9/19/2014 5:16:17 PM                 Inj :   2
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```

Manual Int. "II" (JKG)




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.543	MM	1.28336	3.93256	5.04688		Methane
1.685	BB	2.69641	1.86780	5.03635		Ethane
2.023	BB	3.98421	1.26496	5.03986		Propane
2.932	BB	5.27217	9.47119e-1	4.99337		Butane
4.493	BB	6.72683	7.28854e-1	4.90288		Pentane
6.067	BB	7.75067	6.33169e-1	4.90749		Hexane
7.232	BB	9.07698	5.50155e-1	4.99375		Heptane

```
Totals :                                  34.92058

Uncalibrated Peaks    :      using compound Propane
```

ımple Name: EdithP108 #C1 ENV(1=1900,2=100)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
0.045	BB	2.29596	1.26492	2.90421		?

Uncalib. totals : 2.90421

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
Methane	1.28336	5.0469
Ethane	2.69641	5.0363
Propane	3.98421	5.0399
Butane	5.27217	4.9934
Pentane	6.72683	4.9029
Hexane	7.75067	4.9075
Heptane	9.07698	4.9937

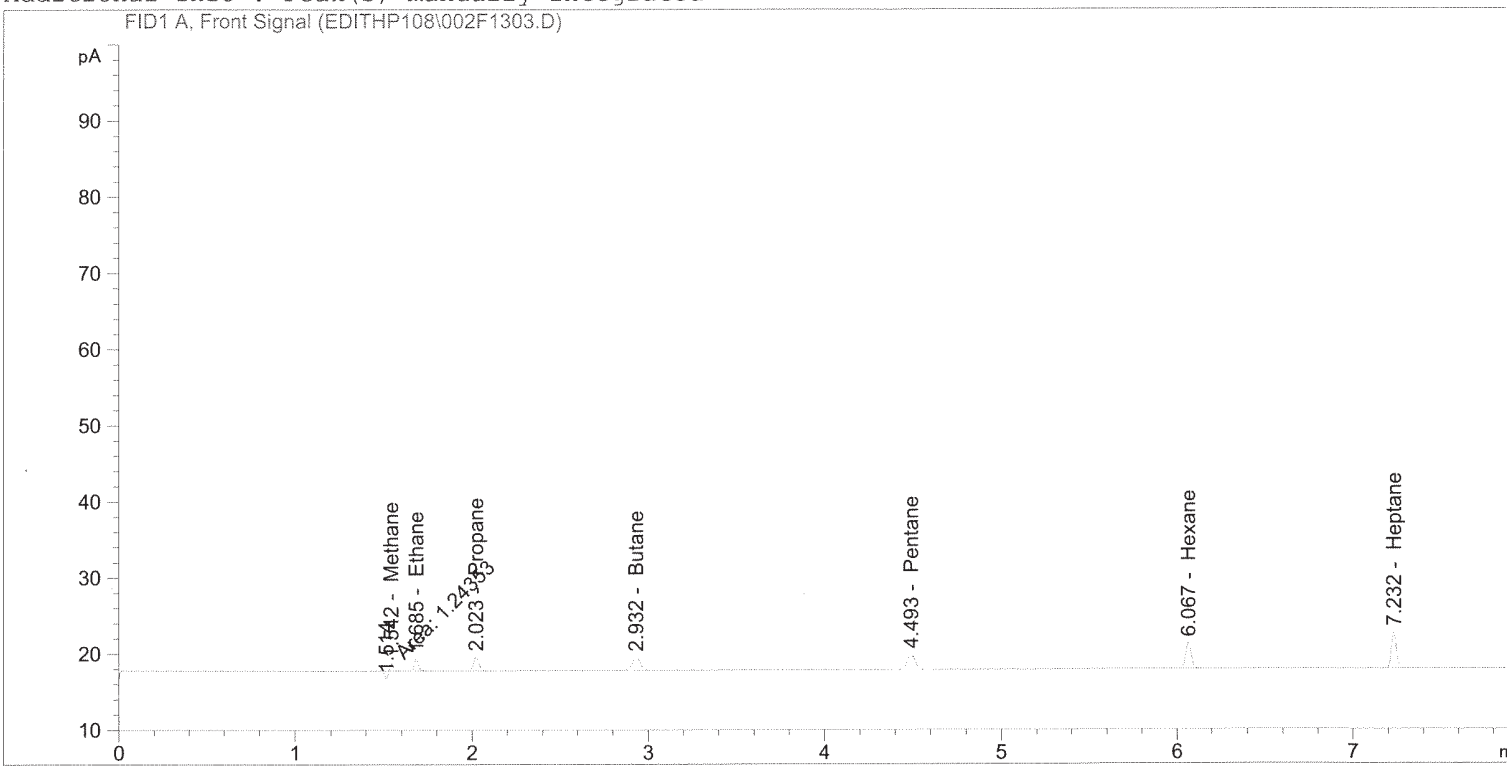
Totals : 34.9206

*** End of Report ***

ample Name: EdithP108 #C1 ENV(1=1900,2=100)

```
================================================================================
Acq. Operator   : disconnected                      Seq. Line :  13
Acq. Instrument : Edith                              Location : Vial 2
Injection Date  : 9/19/2014 5:32:35 PM                    Inj :  3
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2014\EDITH\QUARTER 3\EDITHP108\GC139P039_HRVOC.M
Last changed    : 5/5/2014 7:30:03 AM by Todd Huml
Analysis Method : C:\GC\2014\EDITH\METHODS\EDITHP108F_C1-C7.M
Last changed    : 9/22/2014 10:21:52 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```

Manual Int. "II" (JKG)




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      9/22/2014 10:21:52 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A, Front Signal
```

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.542	MM	1.24353	3.93469	4.89291		Methane
1.685	BB	2.66340	1.86764	4.97426		Ethane
2.023	BB	3.98818	1.26497	5.04492		Propane
2.932	BB	5.23108	9.47119e-1	4.95446		Butane
4.493	BB	6.86699	7.28910e-1	5.00542		Pentane
6.067	BB	7.79197	6.33169e-1	4.93364		Hexane
7.232	BB	9.05862	5.50157e-1	4.98366		Heptane
Totals :				34.78928		

```
Uncalibrated Peaks    :      using compound Propane
```

ample Name: EdithP108 #C1 ENV(1=1900,2=100)

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
1.514	BP N	1.11667	1.26492	1.41250	?	

Uncalib. totals : 1.41250

==========

Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

1 Warnings or Errors :

Warning : Reference compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID1 A, Front Signal

Name	Total Area [pA*s]	Amount [ppm]
Methane	1.24353	4.8929
Ethane	2.66340	4.9743
Propane	3.98818	5.0449
Butane	5.23108	4.9545
Pentane	6.86699	5.0054
Hexane	7.79197	4.9336
Heptane	9.05862	4.9837

Totals : 34.7893

*** End of Report ***

THE LINDE GROUP

Linde

SHIPPED TO: Enthalpy Analytical Inc.
800 Capitola Dr. Ste 1
Durham, NC 27713-4385

PAGE: 1 of 1

CERTIFICATE OF ANALYSIS

Sales#:	111957073	**Cylinder Size:**	2 (9" X 51")
Production#:	1308627	**Cylinder # :**	9819192
Certification Date:	Aug-28-2014	**Cylinder Pressure:**	525 psig
P.O.# :	08111418	**Cylinder Valve:**	CGA 350 / Brass
Blend Type:	CERTIFIED	**Cylinder Volume:**	44 Liter
Material#:	24094007	**Cylinder Material:**	Steel
Traceability:	NIST by weight	**Gas Volume:**	1572 Liters
Expiration Date:	Aug-28-2015	**Blend Tolerance:**	5% Relative
Do NOT use under:	150 psig	**Analytical Accuracy:**	2% Relative

COMPONENT	CAS NUMBER	REQUESTED CONC	CERTIFIED CONC
Methane	74-82-8	5.00 %	5.13 %
Ethane	74-84-0	5.00 %	5.13 %
Propane	74-98-6	5.00 %	5.13 %
Butane	106-97-8	1.00 %	1.03 %
Pentane	109-66-0	0.50 %	0.52 %
Hexane	110-54-3	0.40 %	0.41 %
Heptane	142-82-5	500 ppm	519 ppm
Nitrogen	7727-37-9	Balance	Balance

ANALYST: _____
Lou Lorenzetti

DATE: Aug-28-2014

Linde Gas North America LLC

(908) 329-9700 Main (908) 329-9740 Fax
www.Lindeus.com

CUSTOMGAS
SOLUTIONS

1750 East Club Boulevard
Durham, NC 27704
Phone: (919) 220-2570
Fax: (919) 220-4540

Certificate of Analysis

Customer:

Enthalpy Analytical, Inc.
800-1 Capitola Drive
Durham, NC 27713

Tel: (919) 595-1377

Cylinder Number: SX25635
Cylinder Size/CGA: 150/350
Fill Pressure: 2015 PSIA
Gas Volume: 3700 liters
Date of Mfg: 02/04/14
Expiration Date: 02/04/16

Customer Number	Ship VIA	Job No.	Customer PO	Mixture Type
00127703NC	Pick up	011714-003	01171401	Gravimetric

Component	Nominal Concentration	Actual Concentration*	Mixture Type
Heptane	100 ppm	99.82 ppm +/- 2 ppm	Gravimetric Master Gas
Hexane	100 ppm	100.1 ppm +/- 2 ppm	
Pentane	100 ppm	100.0 ppm +/- 2 ppm	
Methane	100 ppm	100.2 ppm +/- 2 ppm	
Ethane	100 ppm	100.1 ppm +/- 2 ppm	
Propane	100 ppm	100.4 ppm +/- 2 ppm	
Butane	100 ppm	100.2 ppm +/- 2 ppm	
Nitrogen	balance		

NOTES:

Blend Tolerance: +/- 2 %

Analytical Tolerance: +/- 2 %

Traceability: NIST by weight set. NIST Traceability No MT5061.
Internal Standards by analysis

Reactive Mixtures: Analyzed twice with required agreement between analyses of 2%.
Required wait time between analyses of >7 days.

Caution: Do not use below 150 PSIG.

Authorized Signature:

Joseph A. Ernst

*Every effort has been made to establish the actual concentration of the components using master gas blending technology however, Custom Gas Solutions shall have no liability in excess of the established charge for this material.

Agilent 7890A

Oven	
Equilibration Time	0.3 min
Max Temperature	200 degrees C
Slow Fan	Disabled
Oven Program	On
35 °C for 2.2 min	
#1 then 15 °C/min to 70 °C for 0.07 min	
#2 then 30 °C/min to 180 °C for 1 min	
Run Time	9.27 min
Sample Overlap	
Sample overlap is not enabled	
Front SS Inlet H2	
Mode	Split
Heater	On 200 °C
Pressure	On 5.1931 psi
Total Flow	On 15.6 mL/min
Septum Purge Flow	On 3 mL/min
Gas Saver	Off
Split Ratio	5 :1
Split Flow	10.5 mL/min
Back SS Inlet H2	
Mode	Split
Heater	On 200 °C
Pressure	On 4.9511 psi
Total Flow	On 9.6 mL/min
Septum Purge Flow	On 3 mL/min
Gas Saver	Off
Split Ratio	2 :1
Split Flow	0 mL/min
Column #1	
Restek 10198Rtx-1 S/N 806941	
280 °C: 30 m x 320 µm x 4 µm	
In: Front SS Inlet H2	
Out: Front Detector FID	
(Initial)	35 °C
Pressure	5.1931 psi
Flow	2.1 mL/min
Average Velocity	39.91 cm/sec
Holdup Time	1.2528 min
Flow Program	On
2.1 mL/min for 0 min	
Run Time	9.27 min
Column #2	
Restek 19701Alumina S/N 156109	
280 °C: 30 m x 320 µm x 10 µm	
In: Front SS Inlet H2	
Out: Back Detector FID	
(Initial)	35 °C
Pressure	6.1868 psi
Flow	2.2 mL/min
Average Velocity	43.848 cm/sec
Holdup Time	1.1403 min
Flow Program	On

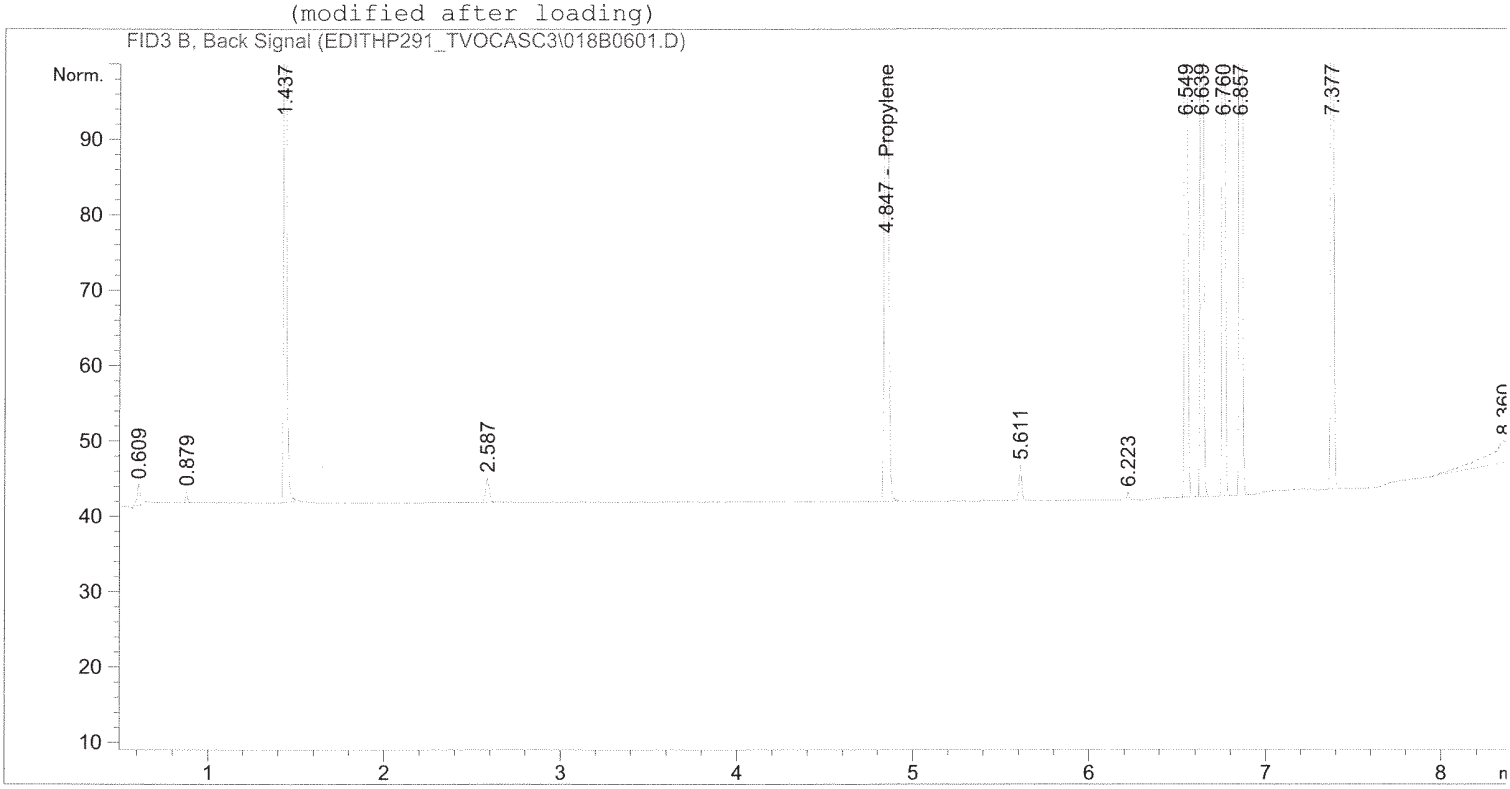
)dified on: 1/14/2014 at 3:15:15 PM
2.2 mL/min for 0 min

Run Time	9.27 min
Front Detector FID	
Heater	On 300 °C
H2 Flow	On 50 mL/min
Air Flow	On 450 mL/min
Makeup Flow	On 35 mL/min
Const Col + Makeup	Off
Flame	On
Electrometer	On
Back Detector FID	
Heater	On 200 °C
H2 Flow	On 50 mL/min
Air Flow	On 450 mL/min
Makeup Flow	On 35 mL/min
Const Col + Makeup	Off
Flame	On
Electrometer	On
Valve 1	
Gas Sampling Valve	Off
GSV Loop Volume	0.25 mL
Load Time	1.5 min
Inject Time	0.5 min
Valve 2	
Gas Sampling Valve	Off
GSV Loop Volume	0.25 mL
Load Time	1.5 min
Inject Time	0.5 min
Valve Box	
Heater	On 150 °C
Signals	
Signal #1: Front Signal	Save On 20 Hz
Signal #2: Test Plot	Save Off 50 Hz
Signal #3: Back Signal	Save On 20 Hz
Signal #4: Test Plot	Save Off 50 Hz

Raw Data

ample Name: EdithP275 #HR5 ENV(1=0,4=450)

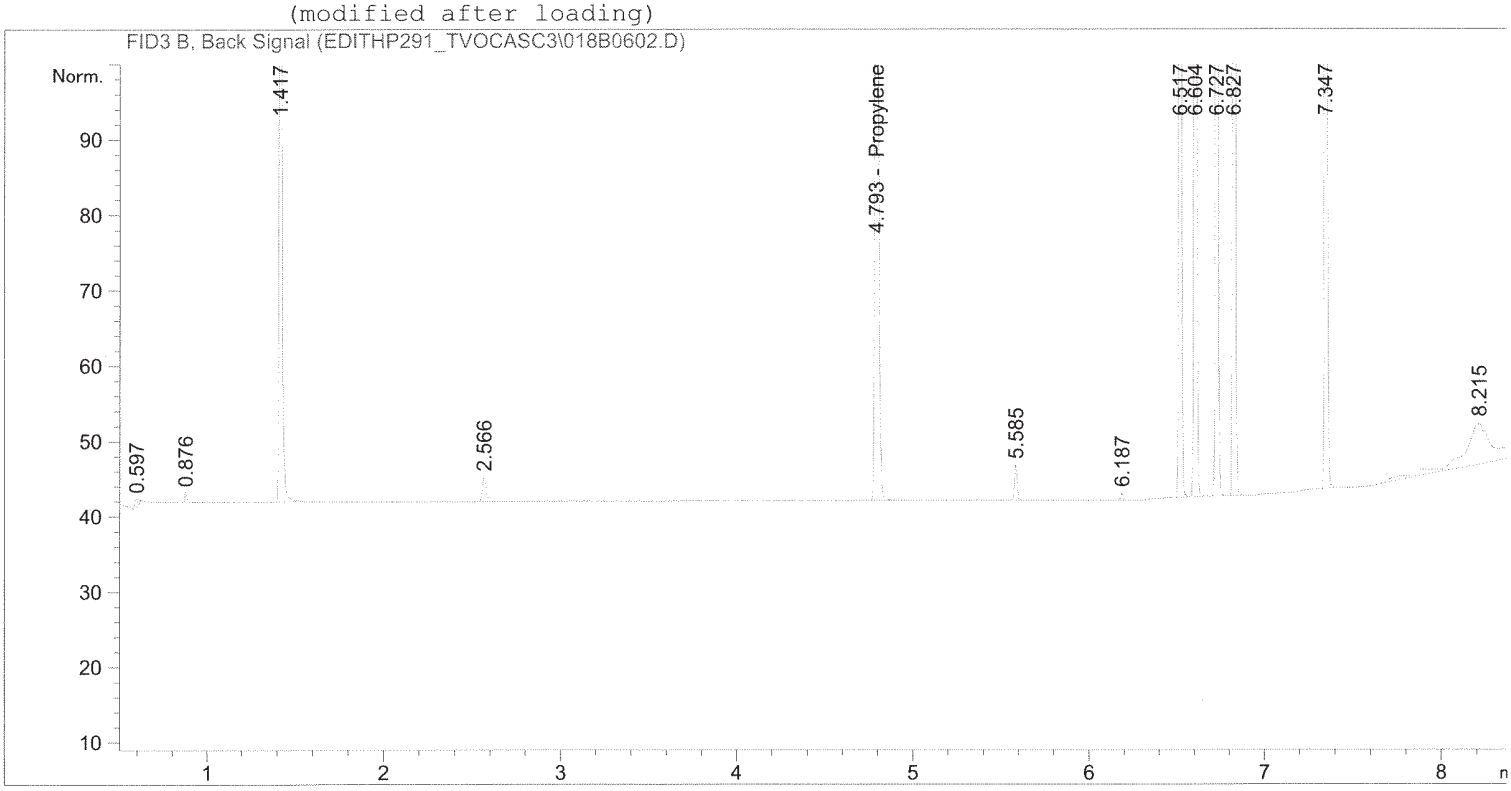
```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :   6
Acq. Instrument : Edith                             Location : Vial 18
Injection Date  : 7/8/2015 6:30:15 PM                    Inj :   1
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP275R_HRVOC_TVOCASP.M
Last changed    : 7/10/2015 8:04:41 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:04:41 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID3 B, Back Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|-----------------
  4.847 BB      164.22424 5.79980e-1   95.24677     Propylene

Totals :                               95.24677


================================================================================
                          *** End of Report ***
```

ample Name: EdithP275 #HR5 ENV(1=0,4=450)

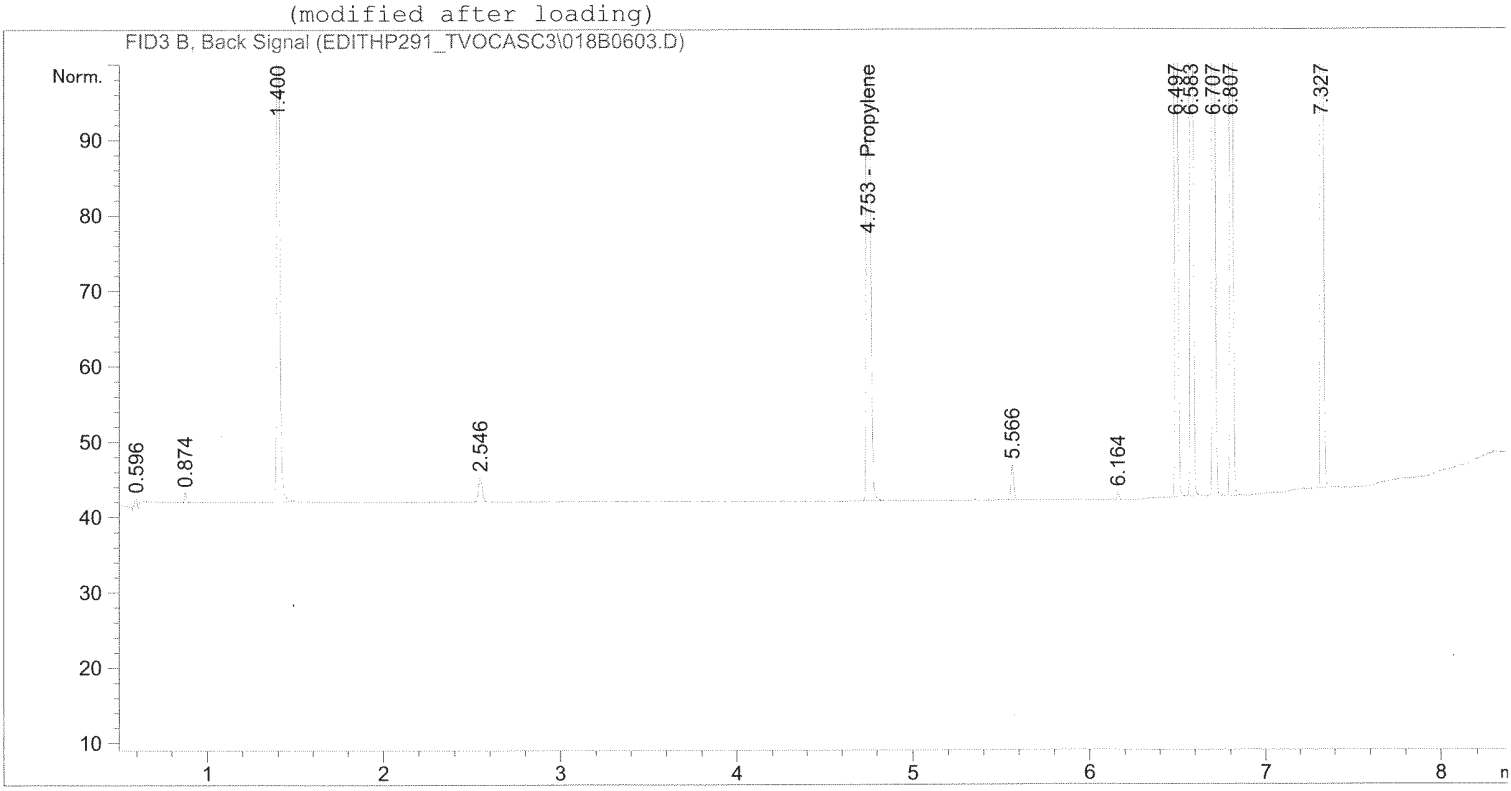
```
================================================================================
Acq. Operator   : Daniel Clayton                  Seq. Line :   6
Acq. Instrument : Edith                           Location : Vial 18
Injection Date  : 7/8/2015 6:46:30 PM                 Inj :   2
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP275R_HRVOC_TVOCASP.M
Last changed    : 7/10/2015 8:04:52 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:04:41 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID3 B, Back Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  4.793 BB      165.32846 5.79980e-1   95.88726     Propylene

Totals :                               95.88726

================================================================================
                          *** End of Report ***
```

ımple Name: EdithP275 #HR5 ENV(1=0,4=450)

```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :   6
Acq. Instrument : Edith                              Location : Vial 18
Injection Date  : 7/8/2015 7:02:48 PM                    Inj :   3
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP275R_HRVOC_TVOCASP.M
Last changed    : 7/10/2015 8:05:01 AM by Justin Guenzler
                  (modified after loading)
```

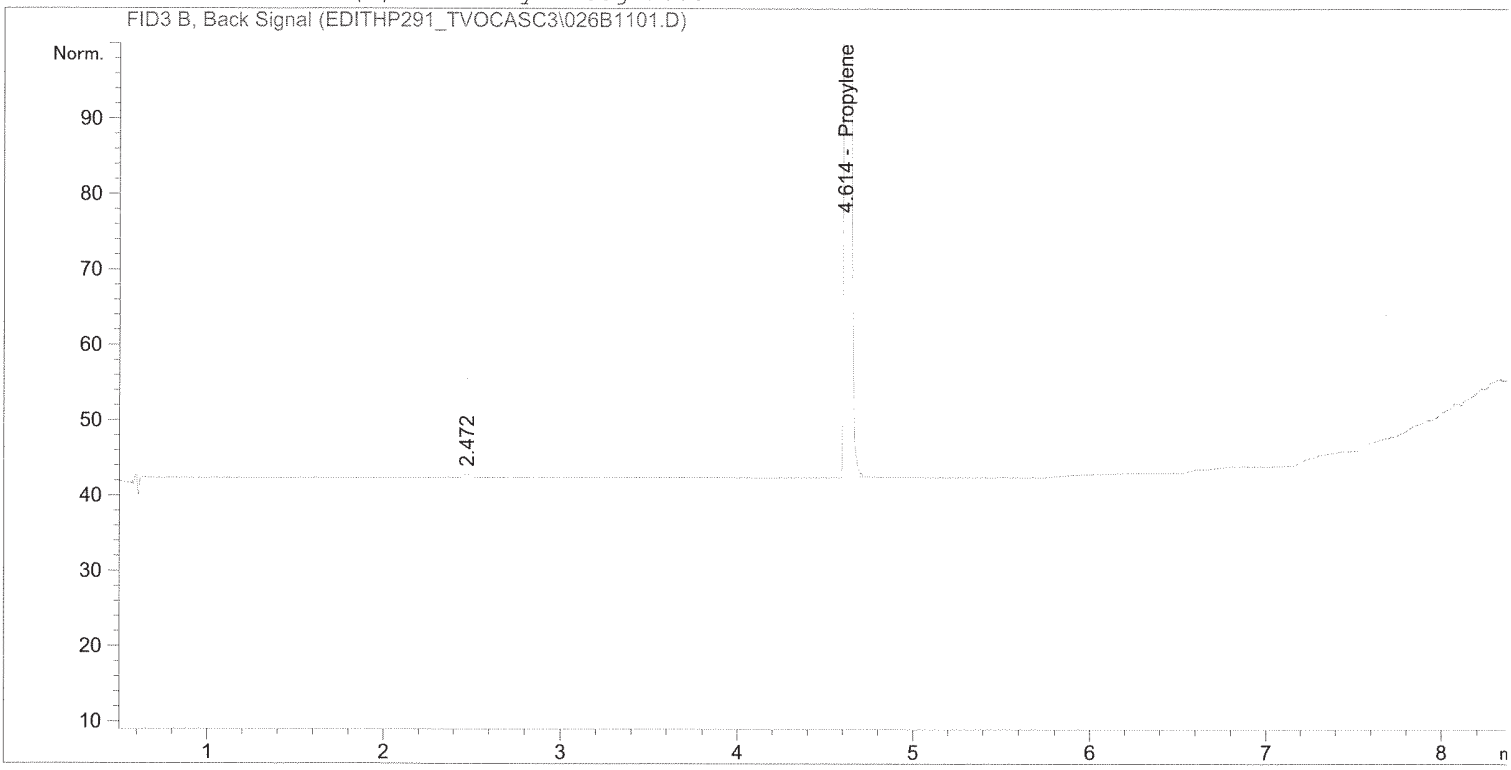



```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:04:41 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID3 B, Back Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  4.753 BB      165.57687 5.79980e-1   96.03135     Propylene

Totals :                                96.03135

================================================================================
                          *** End of Report ***
```

ample Name: 0615-125.Large - L1 - R1 - 1158.Can *501

Acq. Operator	: Daniel Clayton	Seq. Line	: 11
Acq. Instrument	: Edith	Location	: Vial 26
Injection Date	: 7/8/2015 10:09:23 PM	Inj	: 1
		Inj Volume	: 250 µl

Acq. Method : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP275R_HRVOC_TVOCASP.M
Last changed : 7/10/2015 8:17:21 AM by Justin Guenzler
(modified after loading)
Additional Info : Peak(s) manually integrated



External Standard Report

Sorted By : Signal
Calib. Data Modified : 7/10/2015 8:17:38 AM
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID3 B, Back Signal

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [ppm]	Grp	Name
4.614	BB	686.24854	5.80025e-1	398.04116		Propylene

Totals : 398.04116

Summed Peaks Report

Signal 1: FID3 B, Back Signal

ımple Name: 0615-125.Large - L1 - R1 - 1158.Can *501

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Propylene	0.590	13.000	9.49222e-1	0.5497
Totals :				5.4969e-1

2 Warnings or Errors :

Warning : Reference compound(s) not found
Warning : ISTD compound(s) not found

==========

Final Summed Peaks Report

==========

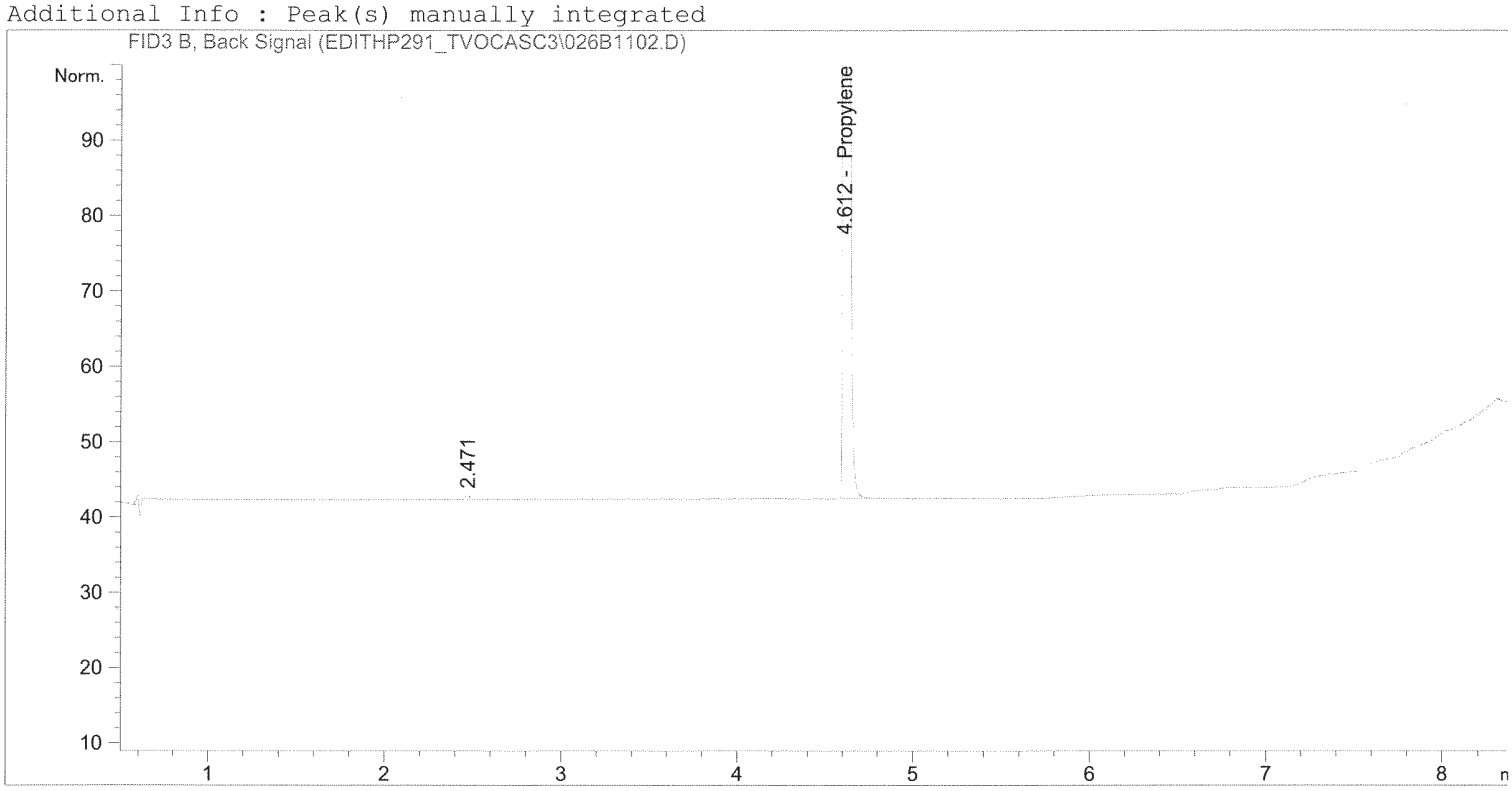
Signal 1: FID3 B, Back Signal

Name	Total Area [pA*s]	Amount [ppm]
as Propylene	9.49222e-1	0.5497
Propylene	686.24854	398.0412
Totals :		398.5909

*** End of Report ***

ample Name: 0615-125.Large - L1 - R1 - 1158.Can *501

```
================================================================================
Acq. Operator   : Daniel Clayton                  Seq. Line :  11
Acq. Instrument : Edith                           Location : Vial 26
Injection Date  : 7/8/2015 10:23:36 PM                 Inj :   2
                                                Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP275R_HRVOC_TVOCASP.M
Last changed    : 7/10/2015 8:17:21 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:17:38 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID3 B, Back Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  4.612 BB      684.06293 5.80025e-1  396.77342     Propylene

Totals :                              396.77342


================================================================================
                          Summed Peaks Report
================================================================================

Signal 1: FID3 B, Back Signal
```

ample Name: 0615-125.Large - L1 - R1 - 1158.Can *501

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Propylene	0.590	13.000	9.66136e-1	0.5595
Totals :				5.5949e-1

2 Warnings or Errors :

Warning : Reference compound(s) not found
Warning : ISTD compound(s) not found

==========

Final Summed Peaks Report

==========

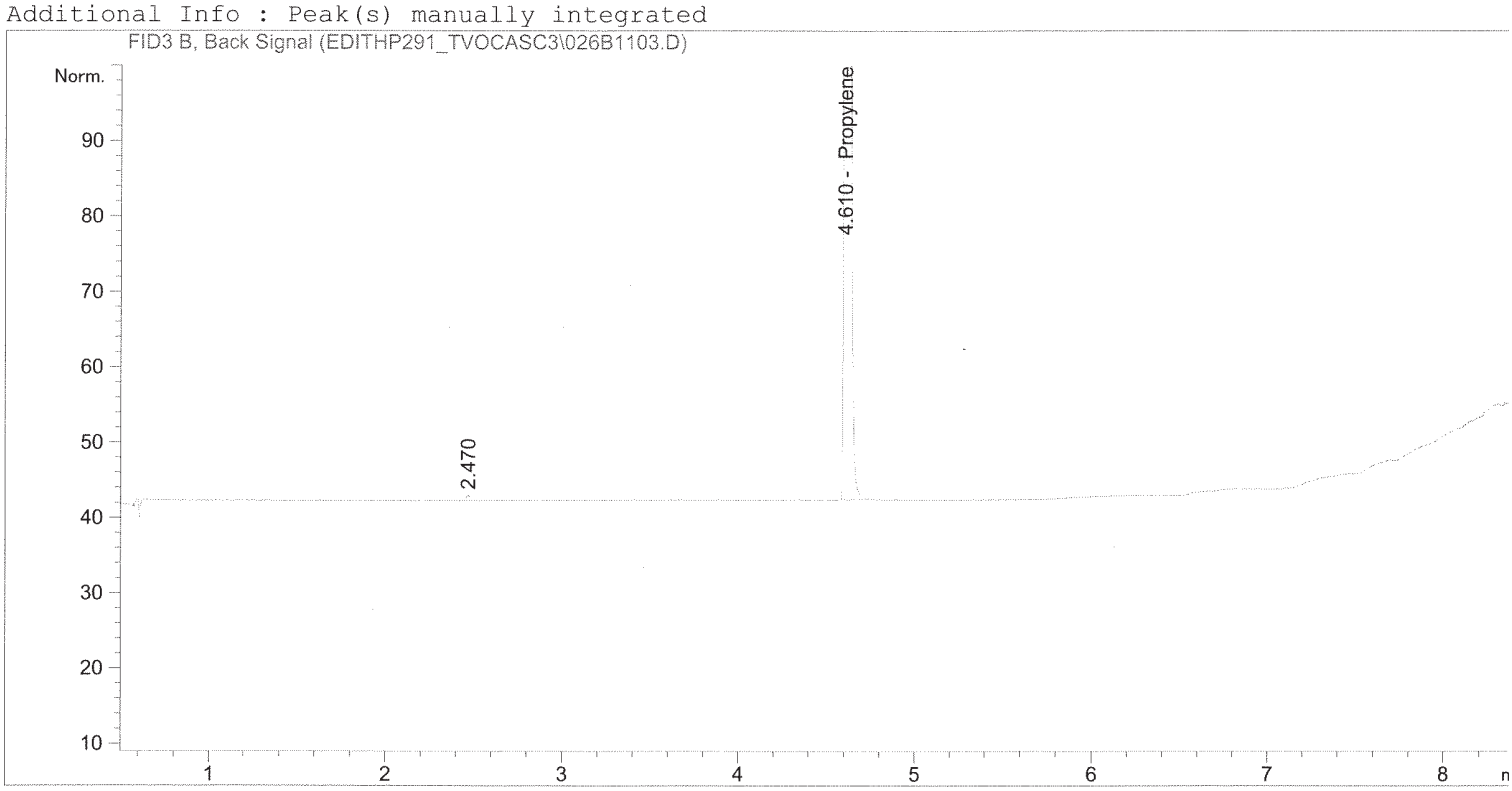
Signal 1: FID3 B, Back Signal

Name	Total Area [pA*s]	Amount [ppm]
as Propylene	9.66136e-1	0.5595
Propylene	684.06293	396.7734
Totals :		397.3329

*** End of Report ***

ample Name: 0615-125.Large - L1 - R1 - 1158.Can *501

```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  11
Acq. Instrument : Edith                              Location : Vial 26
Injection Date  : 7/8/2015 10:37:51 PM                    Inj :  3
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP275R_HRVOC_TVOCASP.M
Last changed    : 7/10/2015 8:17:21 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:17:38 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID3 B, Back Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  4.610 BB      683.40027 5.80025e-1  396.38905     Propylene

Totals :                              396.38905


================================================================================
                           Summed Peaks Report
================================================================================

Signal 1: FID3 B, Back Signal
```

mple Name: 0615-125.Large - L1 - R1 - 1158.Can *501

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Propylene	0.590	13.000	9.70669e-1	0.5621
Totals :				5.6211e-1

2 Warnings or Errors :

Warning : Reference compound(s) not found
Warning : ISTD compound(s) not found

==========

Final Summed Peaks Report

==========

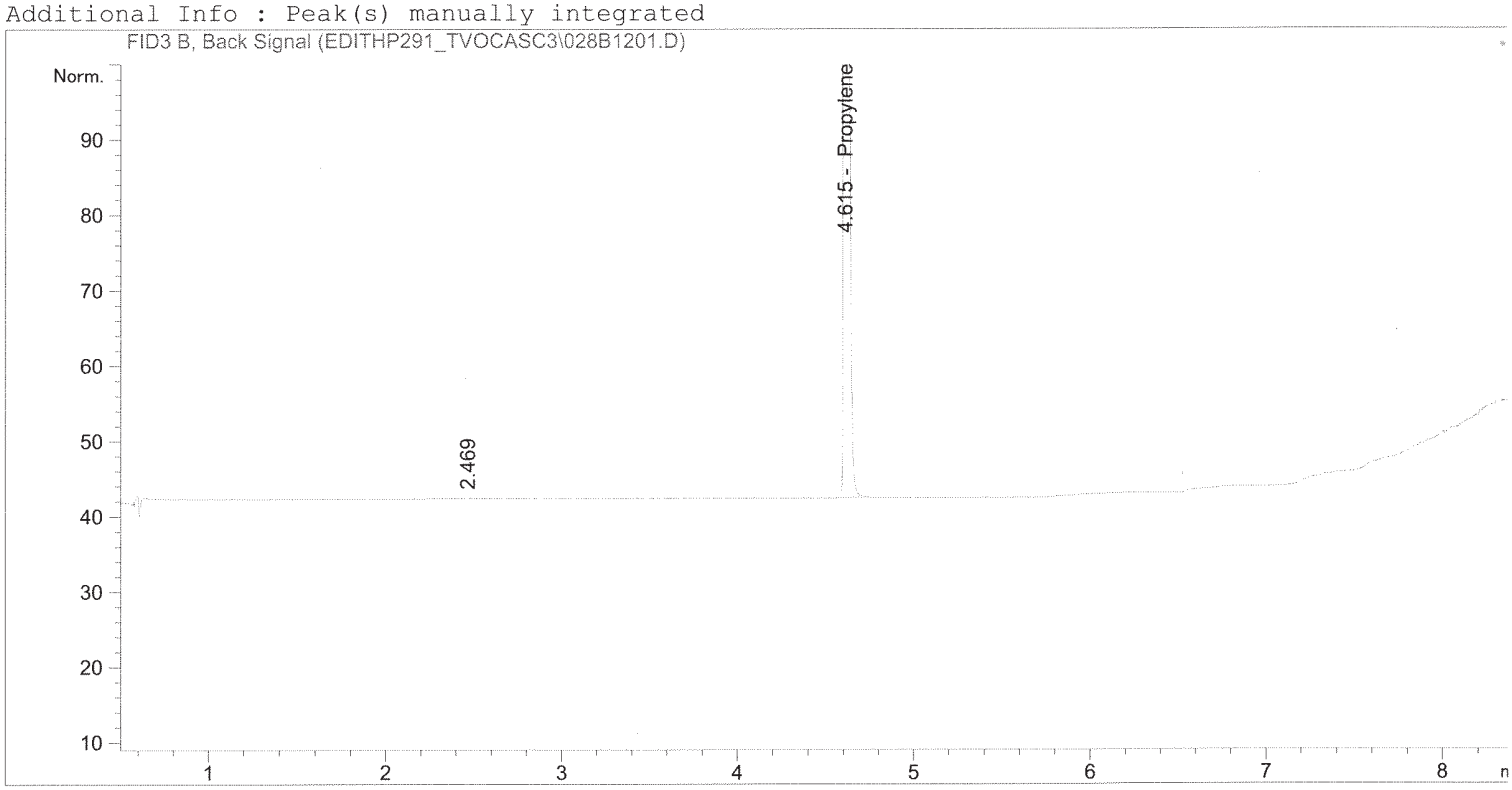
Signal 1: FID3 B, Back Signal

Name	Total Area [pA*s]	Amount [ppm]
as Propylene	9.70669e-1	0.5621
Propylene	683.40027	396.3891
Totals :		396.9512

*** End of Report ***

ımple Name: 0615-125.Large - L2 - R1 - 1124.Can *501

```
==========================================================================
Acq. Operator    : Daniel Clayton                    Seq. Line :  12
Acq. Instrument  : Edith                              Location : Vial 28
Injection Date   : 7/8/2015 10:52:09 PM                    Inj :  1
                                                    Inj Volume : 250 µl
Acq. Method      : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed     : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method  : C:\GC\2015\EDITH\METHODS\EDITHP275R_HRVOC_TVOCASP.M
Last changed     : 7/10/2015 8:17:21 AM by Justin Guenzler
                   (modified after loading)
Additional Info  : Peak(s) manually integrated
```




```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:17:38 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID3 B, Back Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  4.615 BB      451.69733 5.80017e-1  261.99234     Propylene

Totals :                               261.99234


==========================================================================
                          Summed Peaks Report
==========================================================================

Signal 1: FID3 B, Back Signal
```

ımple Name: 0615-125.Large - L2 - R1 - 1124.Can *501

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Propylene	0.590	13.000	6.67277e-1	0.3864
Totals :				3.8642e-1

2 Warnings or Errors :

Warning : Reference compound(s) not found
Warning : ISTD compound(s) not found

==========

Final Summed Peaks Report

==========

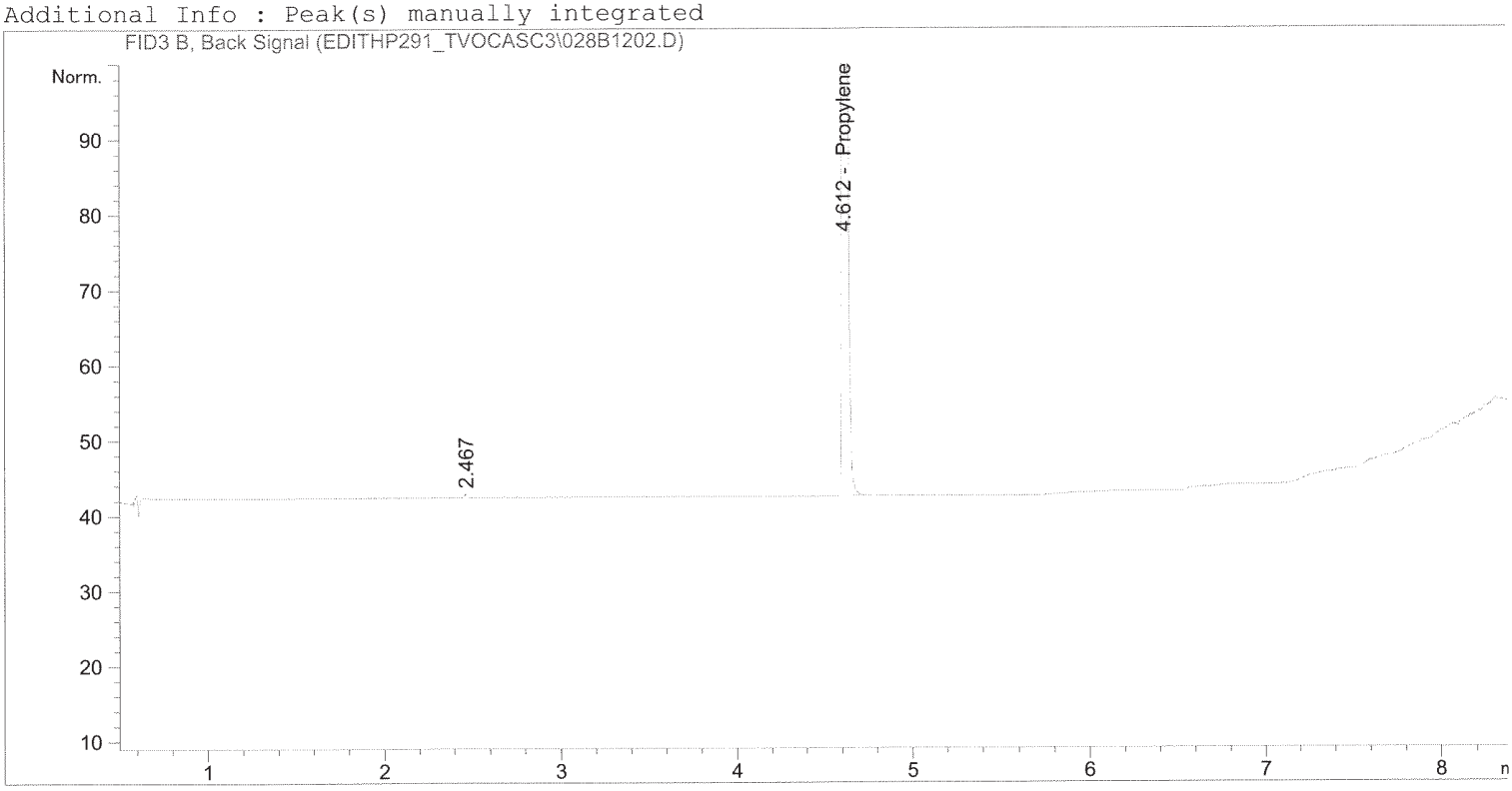
Signal 1: FID3 B, Back Signal

Name	Total Area [pA*s]	Amount [ppm]
as Propylene	6.67277e-1	0.3864
Propylene	451.69733	261.9923
Totals :		262.3788

*** End of Report ***

mple Name: 0615-125.Large - L2 - R1 - 1124.Can *501

```
==========================================================================
Acq. Operator    : Daniel Clayton                  Seq. Line :  12
Acq. Instrument  : Edith                            Location : Vial 28
Injection Date   : 7/8/2015 11:06:26 PM                 Inj :   2
                                                  Inj Volume : 250 µl
Acq. Method      : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed     : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method  : C:\GC\2015\EDITH\METHODS\EDITHP275R_HRVOC_TVOCASP.M
Last changed     : 7/10/2015 8:17:21 AM by Justin Guenzler
                   (modified after loading)
Additional Info  : Peak(s) manually integrated
```




```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:17:38 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID3 B, Back Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  4.612 BB      452.19470 5.80017e-1  262.28083     Propylene

Totals :                              262.28083


==========================================================================
                          Summed Peaks Report
==========================================================================

Signal 1: FID3 B, Back Signal
```

ample Name: 0615-125.Large - L2 - R1 - 1124.Can *501

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Propylene	0.590	13.000	6.59940e-1	0.3822
Totals :				3.8217e-1

2 Warnings or Errors :

Warning : Reference compound(s) not found
Warning : ISTD compound(s) not found

==========

Final Summed Peaks Report

==========

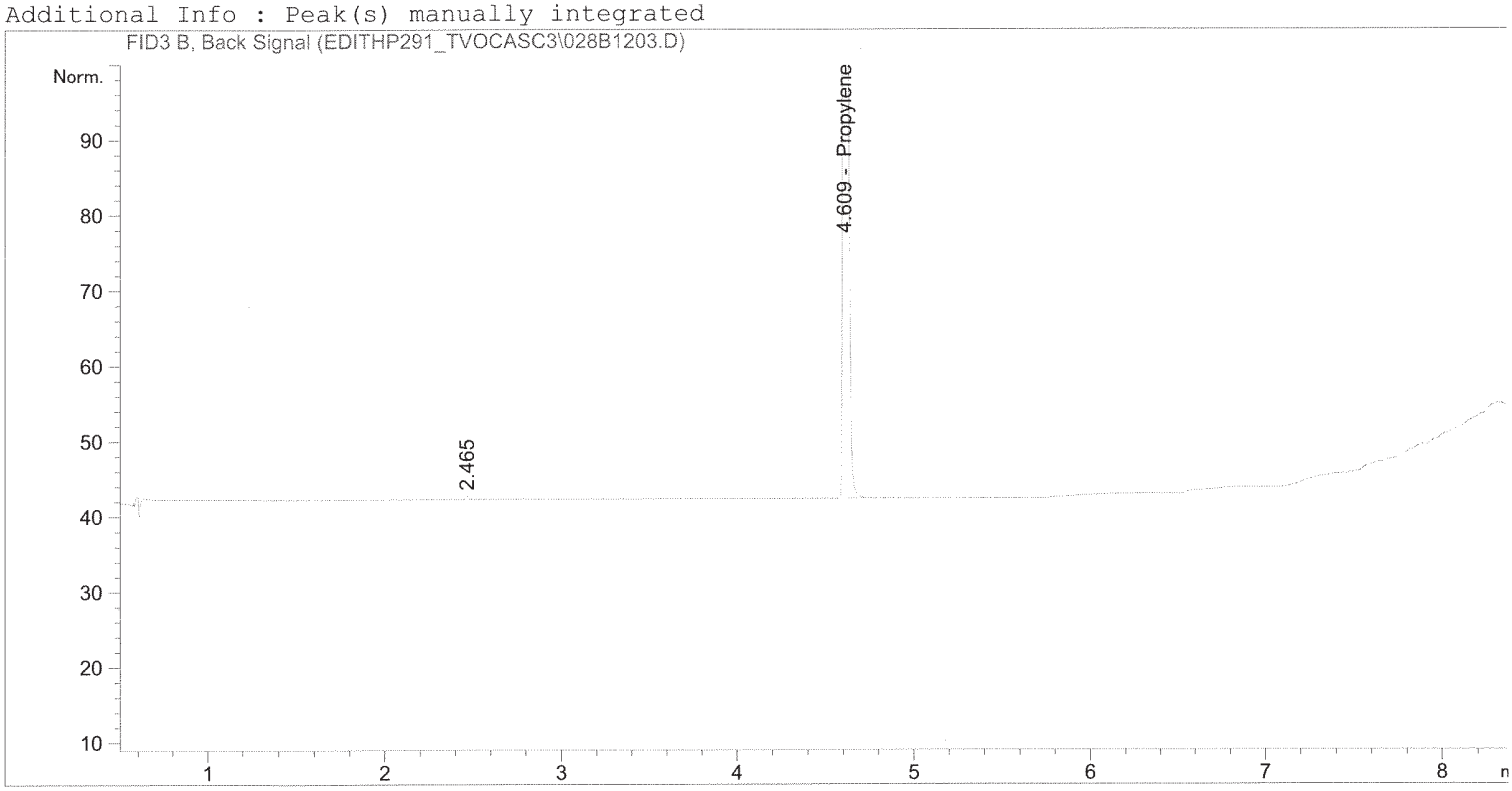
Signal 1: FID3 B, Back Signal

Name	Total Area [pA*s]	Amount [ppm]
as Propylene	6.59940e-1	0.3822
Propylene	452.19470	262.2808
Totals :		262.6630

*** End of Report ***

ample Name: 0615-125.Large - L2 - R1 - 1124.Can *501

```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  12
Acq. Instrument : Edith                              Location : Vial 28
Injection Date  : 7/8/2015 11:20:47 PM                    Inj :  3
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP275R_HRVOC_TVOCASP.M
Last changed    : 7/10/2015 8:17:21 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:17:38 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID3 B, Back Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  4.609 BB      451.19748 5.80017e-1  261.70241     Propylene

Totals :                              261.70241


================================================================================
                           Summed Peaks Report
================================================================================

Signal 1: FID3 B, Back Signal
```

ample Name: 0615-125.Large - L2 - R1 - 1124.Can *501

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Propylene	0.590	13.000	6.37099e-1	0.3689
Totals :				3.6894e-1

2 Warnings or Errors :

Warning : Reference compound(s) not found
Warning : ISTD compound(s) not found

==========

Final Summed Peaks Report

==========

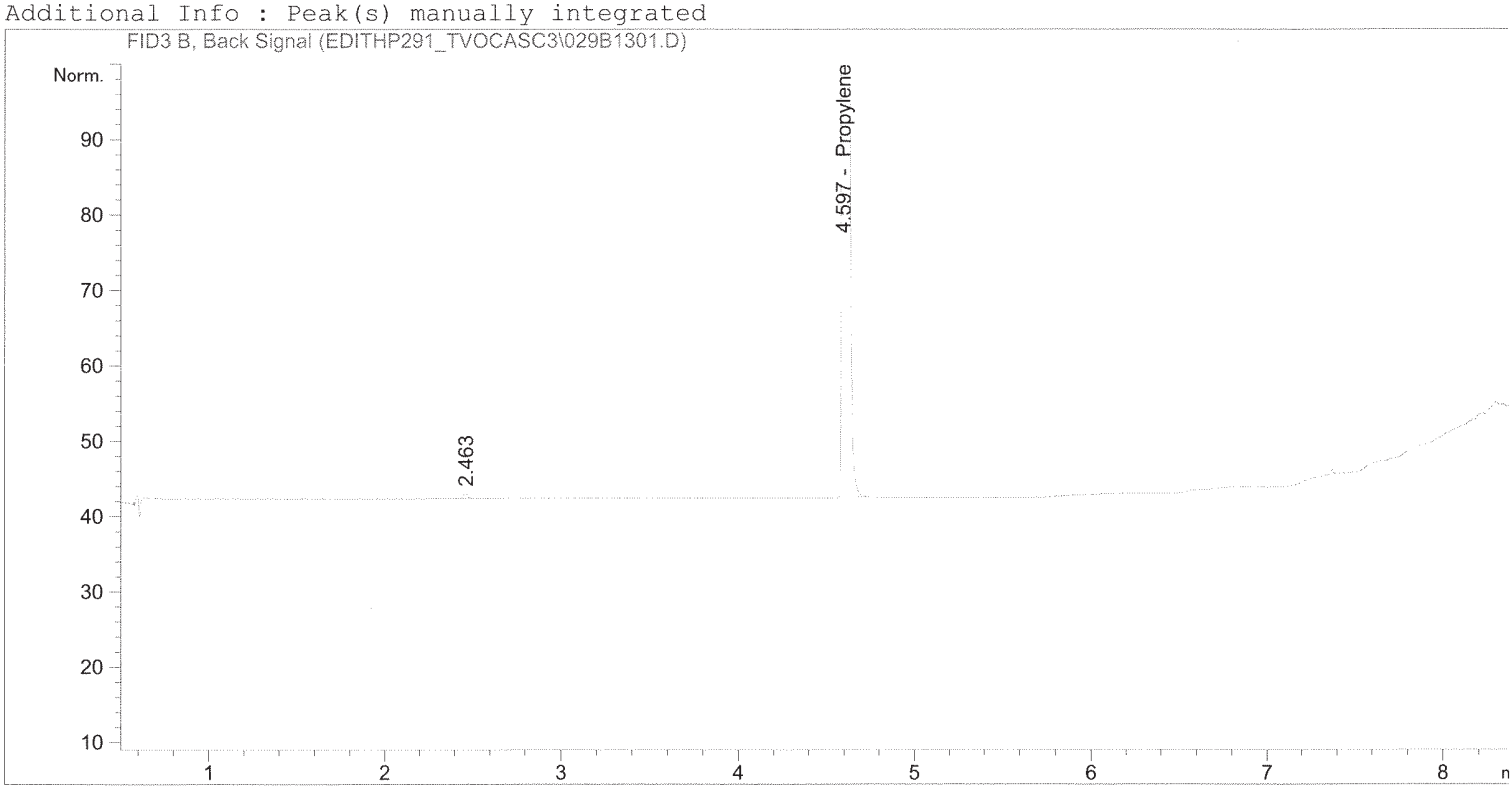
Signal 1: FID3 B, Back Signal

Name	Total Area [pA*s]	Amount [ppm]
as Propylene	6.37099e-1	0.3689
Propylene	451.19748	261.7024
Totals :		262.0714

*** End of Report ***

ımple Name: 0615-125.Large - L3 - R1 - 1368.Can *501

```
================================================================================
Acq. Operator    : Daniel Clayton                    Seq. Line :  13
Acq. Instrument  : Edith                              Location : Vial 29
Injection Date   : 7/8/2015 11:35:01 PM                    Inj :  1
                                                    Inj Volume : 250 µl
Acq. Method      : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed     : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method  : C:\GC\2015\EDITH\METHODS\EDITHP275R_HRVOC_TVOCASP.M
Last changed     : 7/10/2015 8:17:21 AM by Justin Guenzler
                   (modified after loading)
Additional Info  : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:17:38 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID3 B, Back Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|-----------------
  4.597 BB      800.80389 5.80027e-1  464.48772     Propylene

Totals :                              464.48772


================================================================================
                           Summed Peaks Report
================================================================================

Signal 1: FID3 B, Back Signal
```

ımple Name: 0615-125.Large - L3 - R1 - 1368.Can *501

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Propylene	0.590	13.000	1.21349	0.7027
Totals :				7.0273e-1

2 Warnings or Errors :

Warning : Reference compound(s) not found
Warning : ISTD compound(s) not found

==========

Final Summed Peaks Report

==========

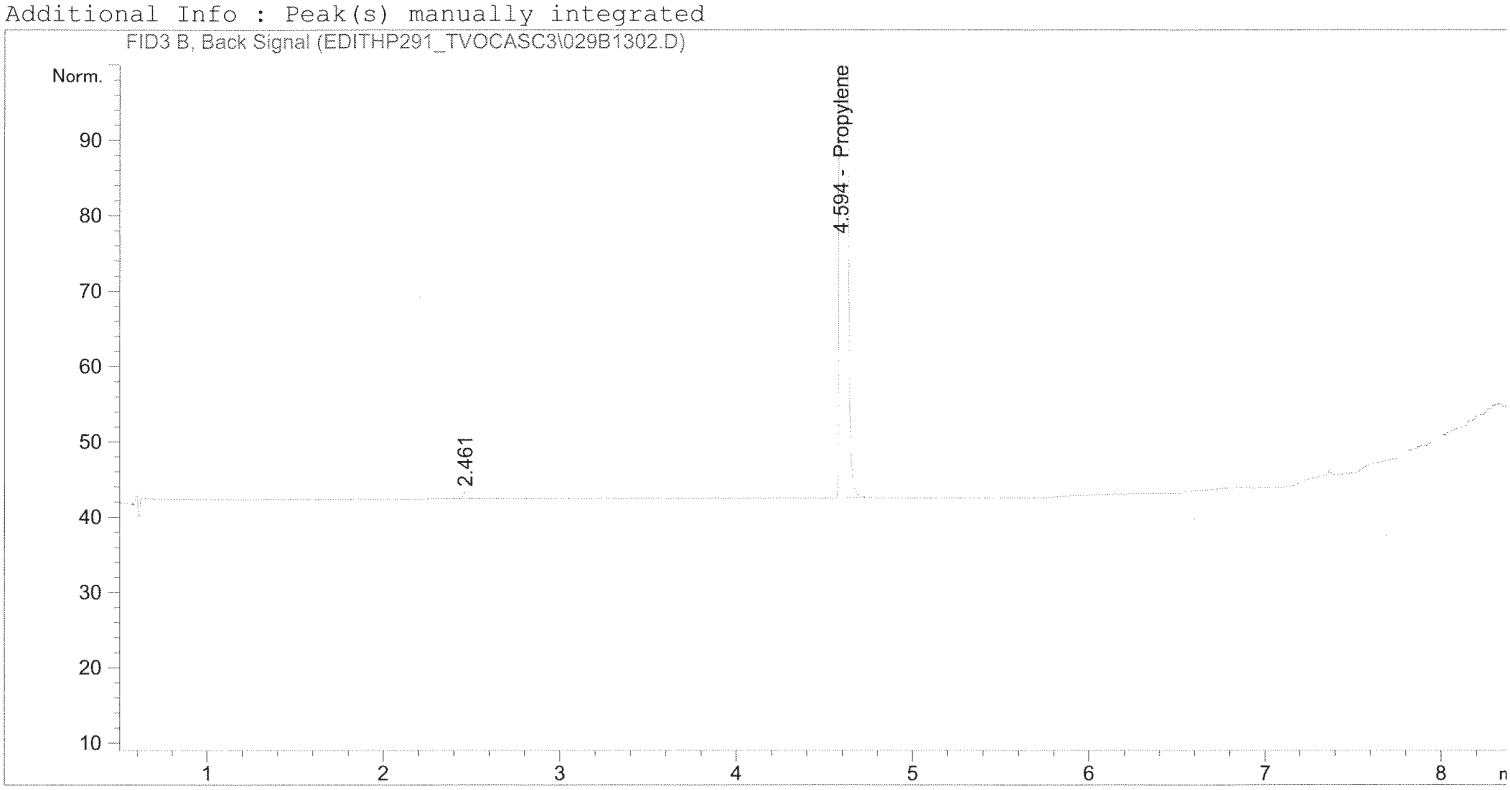
Signal 1: FID3 B, Back Signal

Name	Total Area [pA*s]	Amount [ppm]
as Propylene	1.21349	0.7027
Propylene	800.80389	464.4877
Totals :		465.1904

*** End of Report ***

ample Name: 0615-125.Large - L3 - R1 - 1368.Can *501

```
==========================================================================
Acq. Operator    : Daniel Clayton                  Seq. Line :  13
Acq. Instrument  : Edith                            Location : Vial 29
Injection Date   : 7/8/2015 11:49:17 PM                 Inj :   2
                                                  Inj Volume : 250 µl
Acq. Method      : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed     : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method  : C:\GC\2015\EDITH\METHODS\EDITHP275R_HRVOC_TVOCASP.M
Last changed     : 7/10/2015 8:17:21 AM by Justin Guenzler
                   (modified after loading)
Additional Info  : Peak(s) manually integrated
```




```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:17:38 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID3 B, Back Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  4.594 BB      803.94098 5.80027e-1  466.30735     Propylene

Totals :                               466.30735


==========================================================================
                          Summed Peaks Report
==========================================================================

Signal 1: FID3 B, Back Signal
```

ample Name: 0615-125.Large - L3 - R1 - 1368.Can *501

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Propylene	0.590	13.000	1.22679	0.7104
Totals :				7.1043e-1

2 Warnings or Errors :

Warning : Reference compound(s) not found
Warning : ISTD compound(s) not found

==========

Final Summed Peaks Report

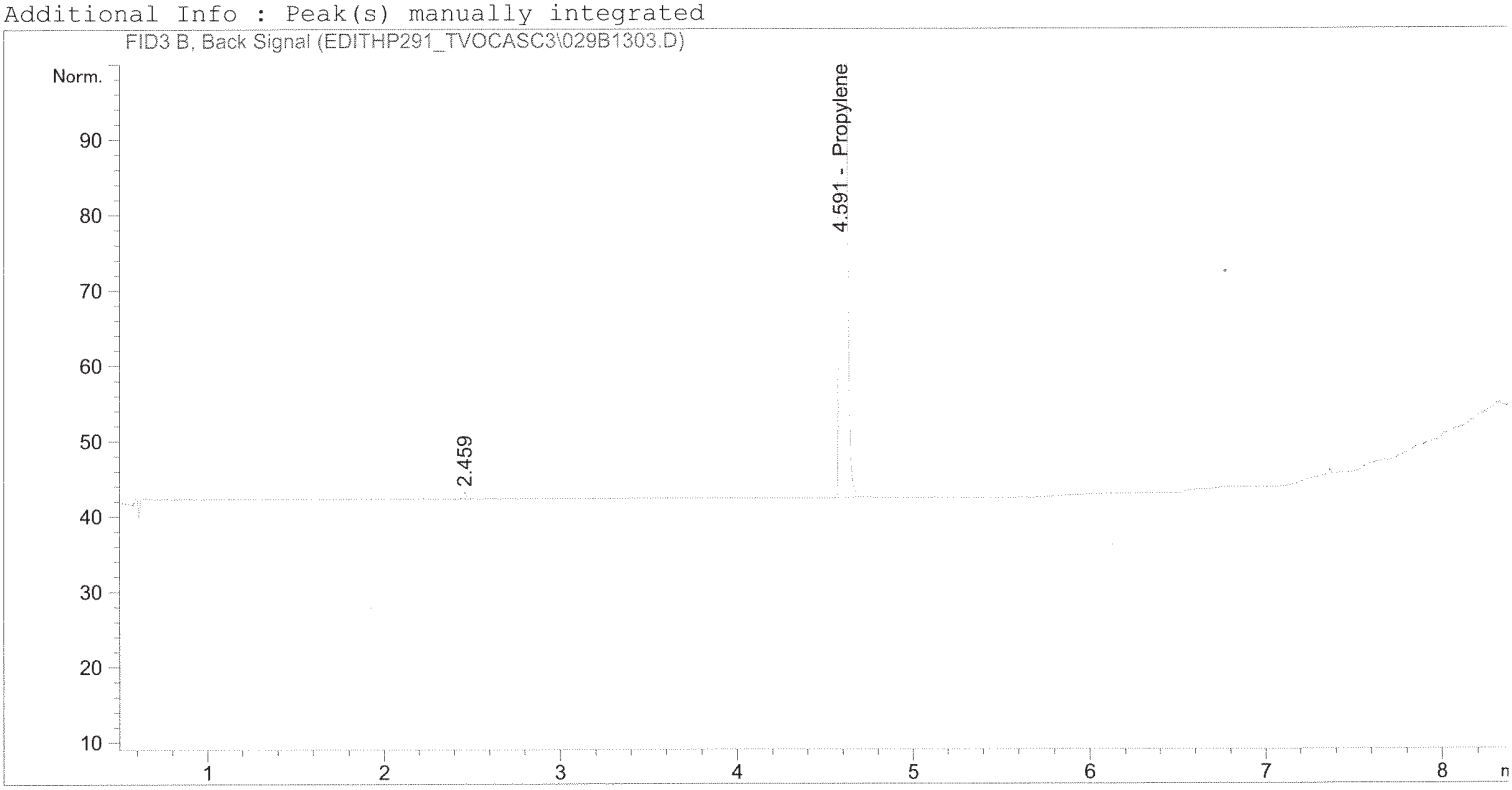
==========

Signal 1: FID3 B, Back Signal

Name	Total Area [pA*s]	Amount [ppm]
as Propylene	1.22679	0.7104
Propylene	803.94098	466.3073
Totals :		467.0178

*** End of Report ***

```
Acq. Operator   : Daniel Clayton                Seq. Line :  13
Acq. Instrument : Edith                         Location : Vial 29
Injection Date  : 7/9/2015 12:03:35 AM               Inj :   3
                                               Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP275R_HRVOC_TVOCASP.M
Last changed    : 7/10/2015 8:24:17 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```



External Standard Report

```
Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:24:17 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID3 B, Back Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  4.591 BB      801.33380 5.80027e-1  464.79509     Propylene

Totals :                              464.79509
```

Summed Peaks Report

Signal 1: FID3 B, Back Signal

ample Name: 0615-125.Large - L3 - R1 - 1368.Can *501

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Propylene	0.590	13.000	1.24395	0.7204
Totals :				7.2037e-1

2 Warnings or Errors :

Warning : Reference compound(s) not found
Warning : ISTD compound(s) not found

==========

Final Summed Peaks Report

==========

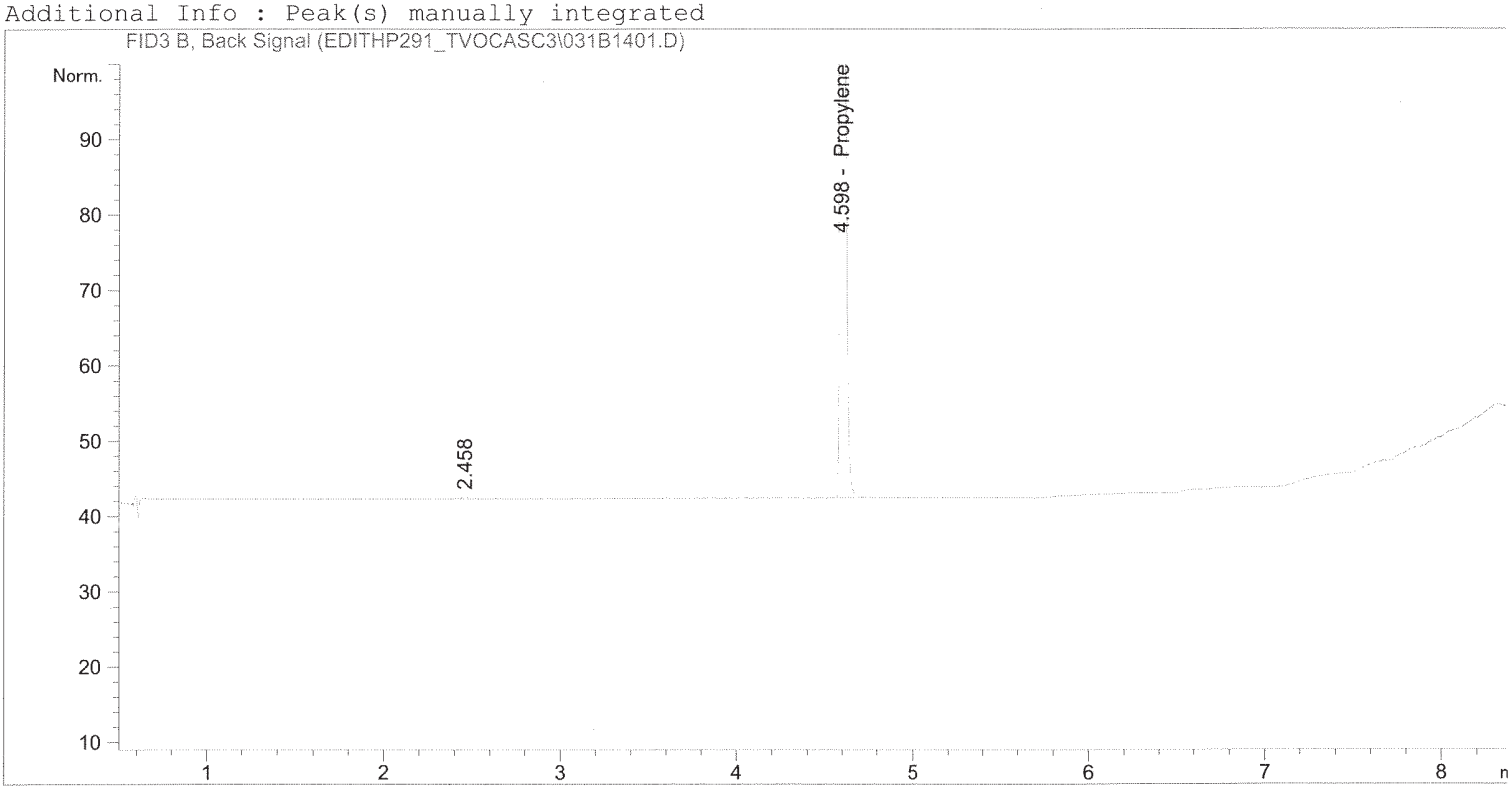
Signal 1: FID3 B, Back Signal

Name	Total Area [pA*s]	Amount [ppm]
as Propylene	1.24395	0.7204
Propylene	801.33380	464.7951
Totals :		465.5155

*** End of Report ***

ample Name: 0615-125.Large - L4 - R1 - 1630.Can *501

```
================================================================================
Acq. Operator   : Daniel Clayton                  Seq. Line :  14
Acq. Instrument : Edith                           Location : Vial 31
Injection Date  : 7/9/2015 12:17:54 AM                 Inj :  1
                                                Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP275R_HRVOC_TVOCASP.M
Last changed    : 7/10/2015 8:17:21 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:17:38 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID3 B, Back Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  4.598 BB      452.86411 5.80018e-1  262.66911     Propylene

Totals :                              262.66911


================================================================================
                           Summed Peaks Report
================================================================================

Signal 1: FID3 B, Back Signal
```

mple Name: 0615-125.Large - L4 - R1 - 1630.Can *501

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Propylene	0.590	13.000	6.49043e-1	0.3759
Totals :				3.7586e-1

2 Warnings or Errors :

Warning : Reference compound(s) not found
Warning : ISTD compound(s) not found

==========

Final Summed Peaks Report

==========

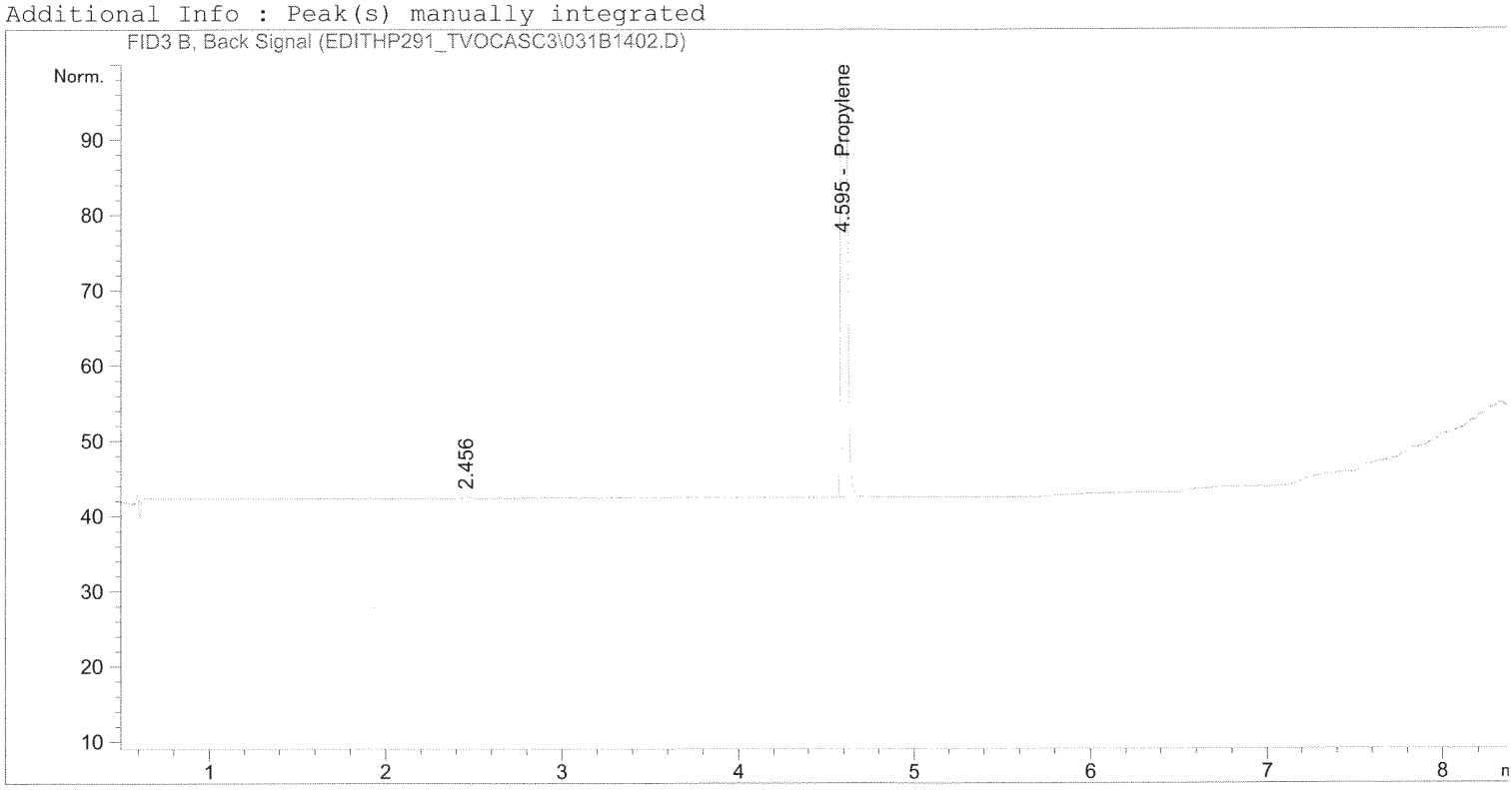
Signal 1: FID3 B, Back Signal

Name	Total Area [pA*s]	Amount [ppm]
as Propylene	6.49043e-1	0.3759
Propylene	452.86411	262.6691
Totals :		263.0450

*** End of Report ***

mple Name: 0615-125.Large - L4 - R1 - 1630.Can *501

```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  14
Acq. Instrument : Edith                              Location : Vial 31
Injection Date  : 7/9/2015 12:32:10 AM                    Inj :   2
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP275R_HRVOC_TVOCASP.M
Last changed    : 7/10/2015 8:17:21 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:17:38 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID3 B, Back Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  4.595 BB      452.15369 5.80017e-1  262.25704    Propylene

Totals :                              262.25704


================================================================================
                           Summed Peaks Report
================================================================================

Signal 1: FID3 B, Back Signal
```

ımple Name: 0615-125.Large - L4 - R1 - 1630.Can *501

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Propylene	0.590	13.000	6.46669e-1	0.3745
Totals :				3.7449e-1

2 Warnings or Errors :

Warning : Reference compound(s) not found
Warning : ISTD compound(s) not found

==========

Final Summed Peaks Report

==========

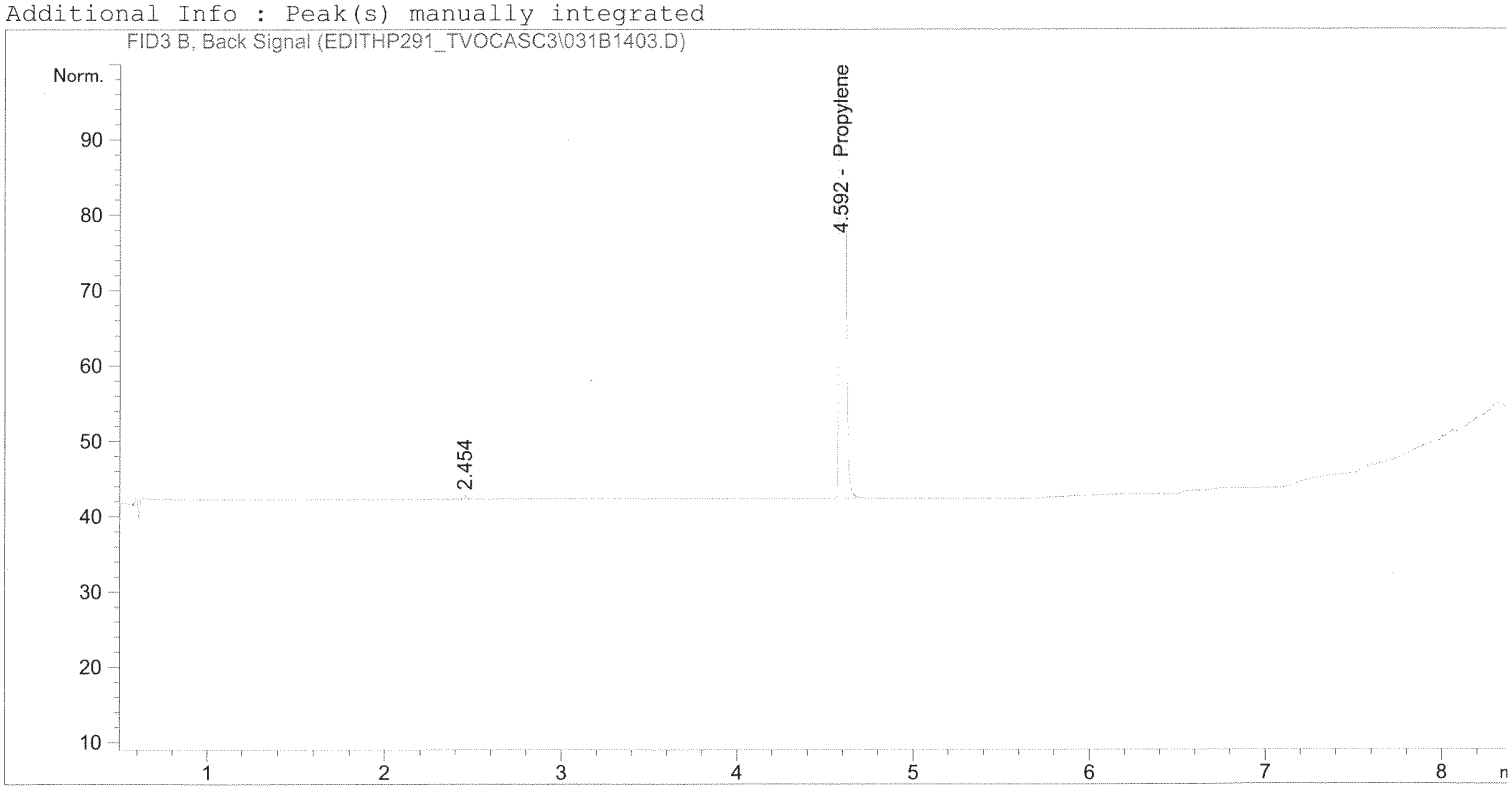
Signal 1: FID3 B, Back Signal

Name	Total Area [pA*s]	Amount [ppm]
as Propylene	6.46669e-1	0.3745
Propylene	452.15369	262.2570
Totals :		262.6315

*** End of Report ***

ample Name: 0615-125.Large - L4 - R1 - 1630.Can *501

```
================================================================================
Acq. Operator   : Daniel Clayton                  Seq. Line :  14
Acq. Instrument : Edith                           Location : Vial 31
Injection Date  : 7/9/2015 12:46:28 AM                 Inj :  3
                                                Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP275R_HRVOC_TVOCASP.M
Last changed    : 7/10/2015 8:19:21 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:19:21 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID3 B, Back Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|-----------------
  4.592 BB      452.35190 5.80017e-1  262.37201    Propylene

Totals :                               262.37201


================================================================================
                           Summed Peaks Report
================================================================================

Signal 1: FID3 B, Back Signal
```

ımple Name: 0615-125.Large - L4 - R1 - 1630.Can *501

Name	Start Time [min]	End Time [min]	Total Area [pA*s]	Amount [ppm]
as Propylene	0.590	13.000	6.50860e-1	0.3769
Totals :				3.7691e-1

2 Warnings or Errors :

Warning : Reference compound(s) not found
Warning : ISTD compound(s) not found

==========

Final Summed Peaks Report

==========

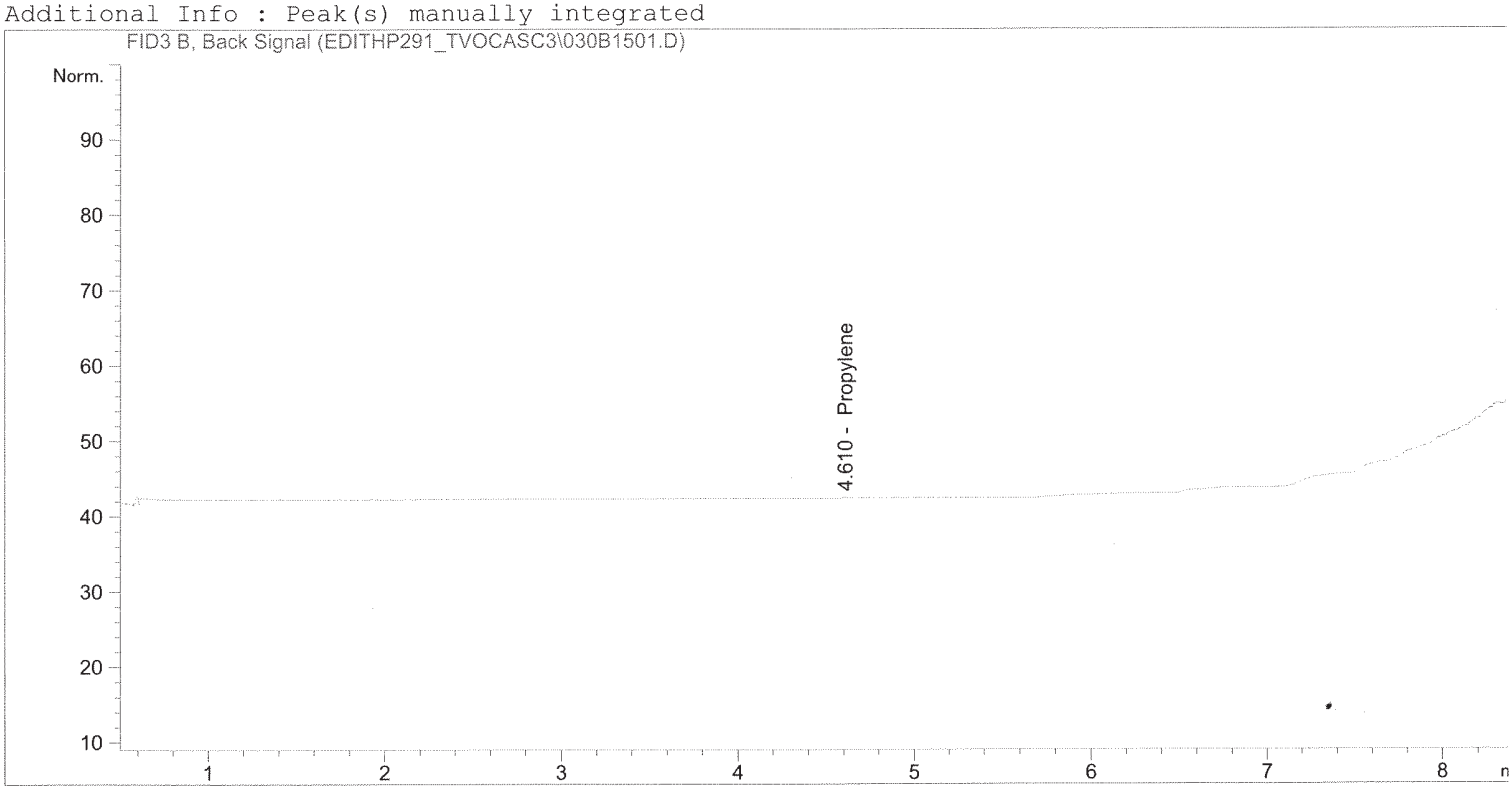
Signal 1: FID3 B, Back Signal

Name	Total Area [pA*s]	Amount [ppm]
as Propylene	6.50860e-1	0.3769
Propylene	452.35190	262.3720
Totals :		262.7489

*** End of Report ***

ımple Name: zero air blank

```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  15
Acq. Instrument : Edith                              Location : Vial 30
Injection Date  : 7/9/2015 1:00:48 AM                     Inj :  1
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC_LONG.M
Last changed    : 6/9/2015 1:23:07 PM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP275R_HRVOC_TVOCASP.M
Last changed    : 7/10/2015 8:24:17 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:24:50 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID3 B, Back Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|-----------------
  4.610 BB     1.99009e-1 5.72454e-1 1.13924e-1     Propylene

Totals :                               1.13924e-1


================================================================================
                           Summed Peaks Report
================================================================================

Signal 1: FID3 B, Back Signal
```

ımple Name: zero air blank

2 Warnings or Errors :

Warning : Reference compound(s) not found
Warning : ISTD compound(s) not found

==========

Final Summed Peaks Report

==========

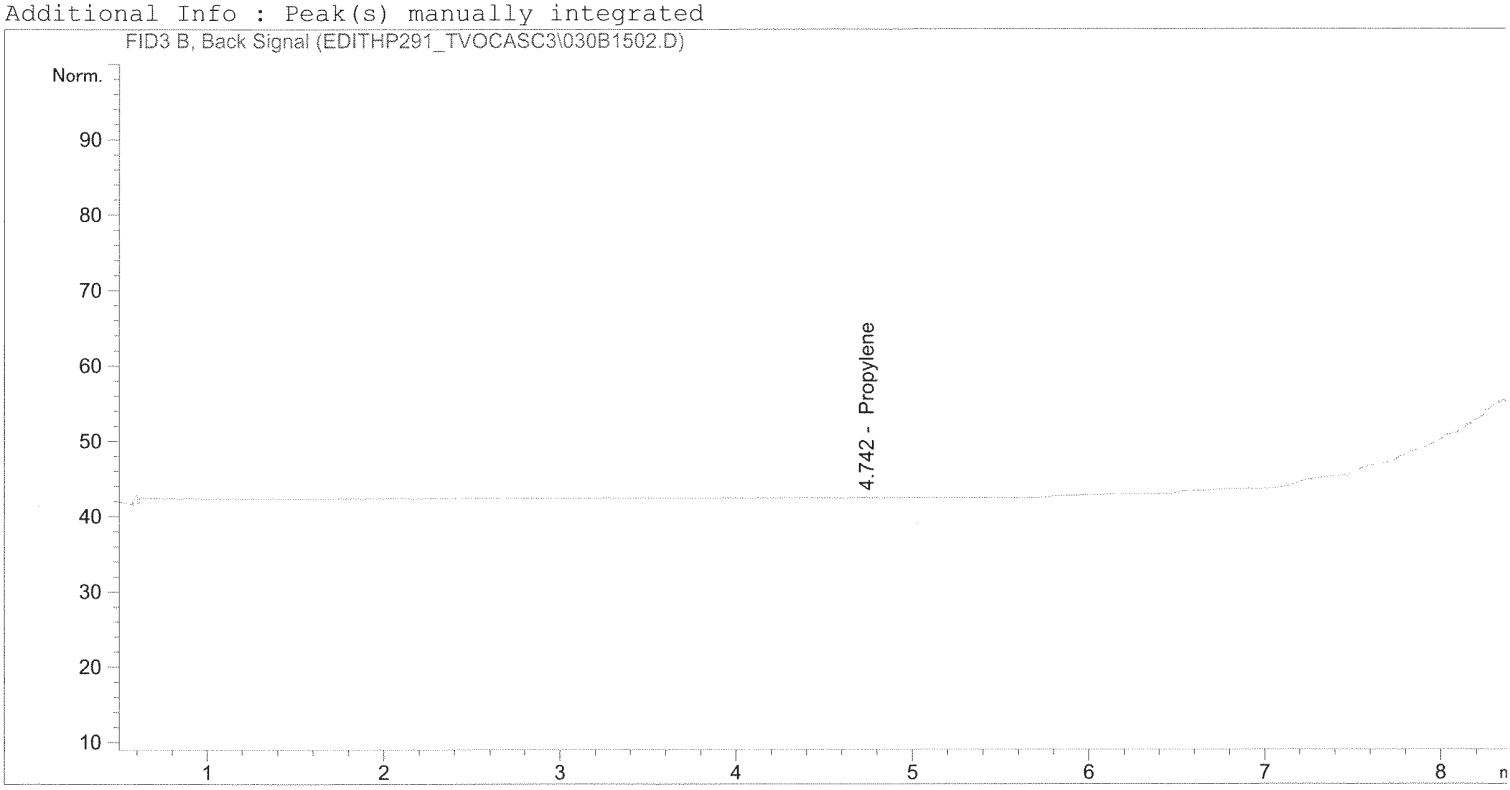
Signal 1: FID3 B, Back Signal

Name	Total Area [pA*s]	Amount [ppm]
Propylene	1.99009e-1	0.1139
Totals :	1.1392e-1	

*** End of Report ***

ample Name: zero air blank

```
================================================================================
Acq. Operator   : Daniel Clayton                 Seq. Line :  15
Acq. Instrument : Edith                           Location : Vial 30
Injection Date  : 7/9/2015 1:19:12 AM                  Inj :   2
                                                 Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC_LONG.M
Last changed    : 6/9/2015 1:23:07 PM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP275R_HRVOC_TVOCASP.M
Last changed    : 7/10/2015 8:25:16 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:25:16 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID3 B, Back Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|-----------------
  4.742 BB     2.87022e-1 5.72454e-1 1.64307e-1     Propylene

Totals :                               1.64307e-1


================================================================================
                           Summed Peaks Report
================================================================================

Signal 1: FID3 B, Back Signal
```

ample Name: zero air blank

2 Warnings or Errors :

Warning : Reference compound(s) not found
Warning : ISTD compound(s) not found

==========

Final Summed Peaks Report

==========

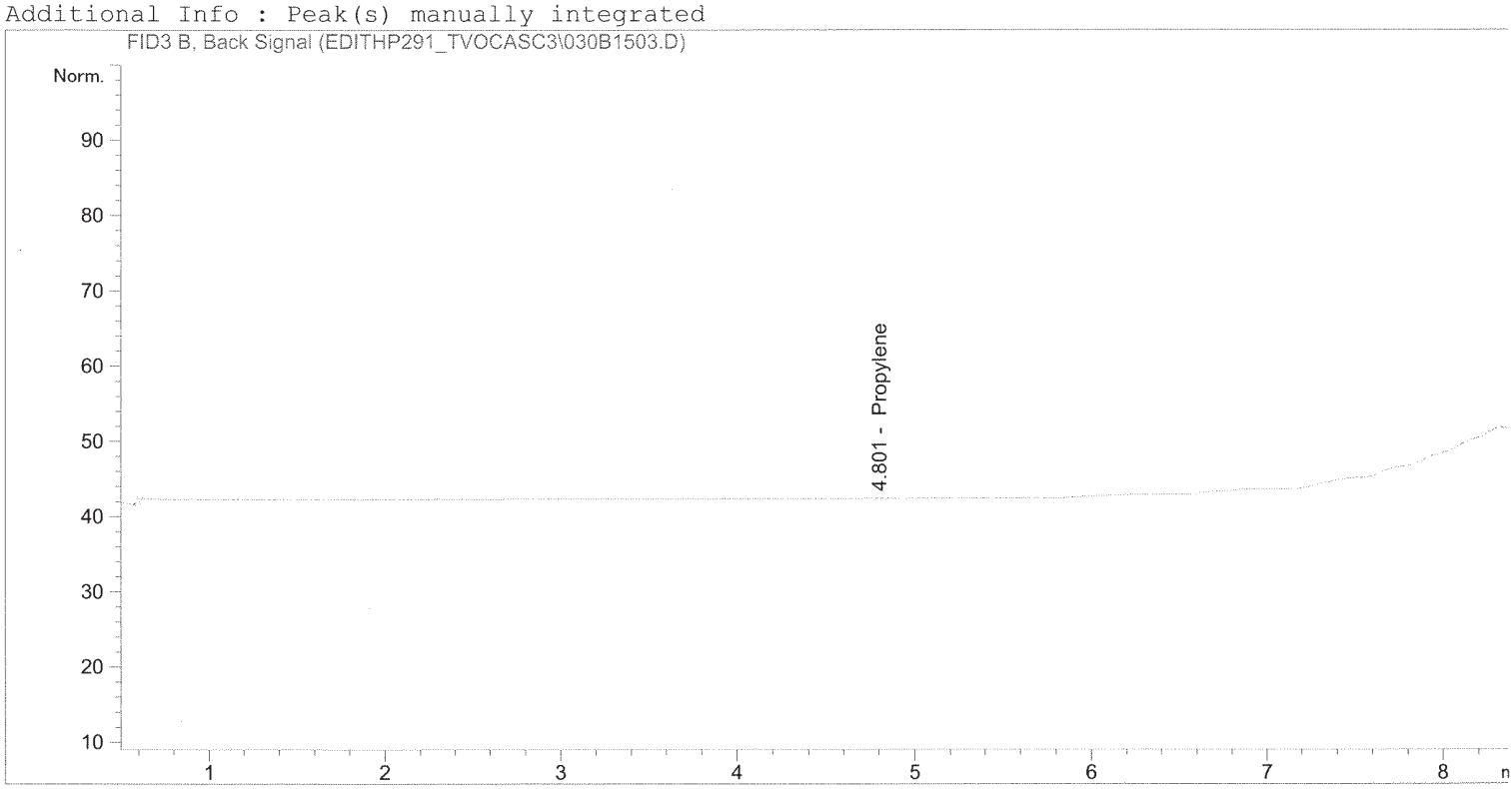
Signal 1: FID3 B, Back Signal

Name	Total Area [pA*s]	Amount [ppm]
Propylene	2.87022e-1	0.1643
Totals :	1.6431e-1	

*** End of Report ***

ımple Name: zero air blank

```
================================================================================
Acq. Operator   : Daniel Clayton                 Seq. Line :  15
Acq. Instrument : Edith                           Location : Vial 30
Injection Date  : 7/9/2015 1:37:36 AM                  Inj :   3
                                                 Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC_LONG.M
Last changed    : 6/9/2015 1:23:07 PM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP275R_HRVOC_TVOCASP.M
Last changed    : 7/10/2015 8:25:23 AM by Justin Guenzler
                  (modified after loading)
Additional Info : Peak(s) manually integrated
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:25:16 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID3 B, Back Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                  [ppm]
-------|------|----------|----------|----------|--|------------------
  4.801 BB     2.46680e-1 5.72454e-1 1.41213e-1     Propylene

Totals :                               1.41213e-1


================================================================================
                           Summed Peaks Report
================================================================================

Signal 1: FID3 B, Back Signal
```

ımple Name: zero air blank

2 Warnings or Errors :

Warning : Reference compound(s) not found
Warning : ISTD compound(s) not found

==========

Final Summed Peaks Report

==========

Signal 1: FID3 B, Back Signal

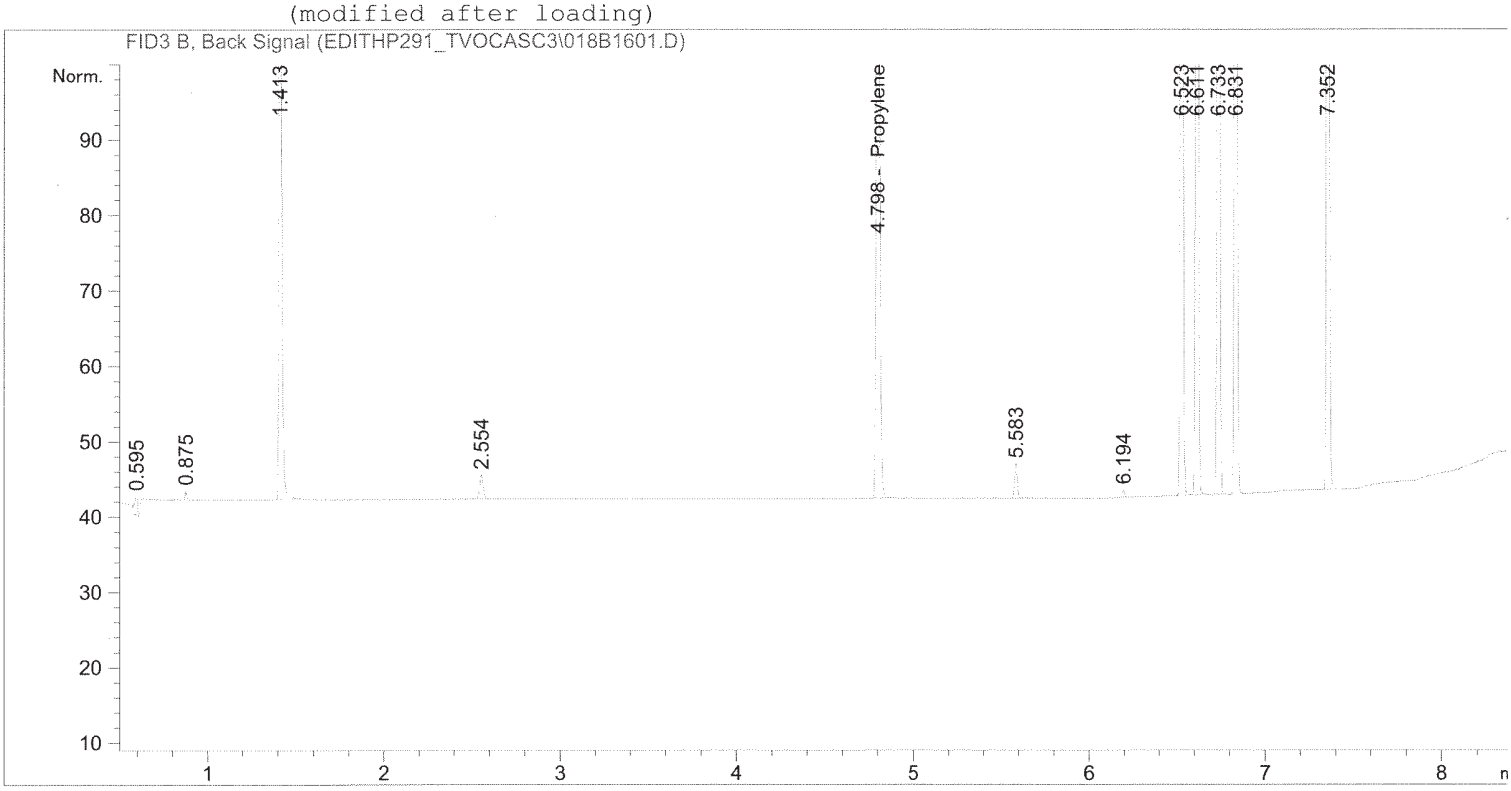
Name	Total Area [pA*s]	Amount [ppm]
Propylene	2.46680e-1	0.1412

Totals : 1.4121e-1

*** End of Report ***

ample Name: EdithP275 #HR5 ENV(1=0,4=450)

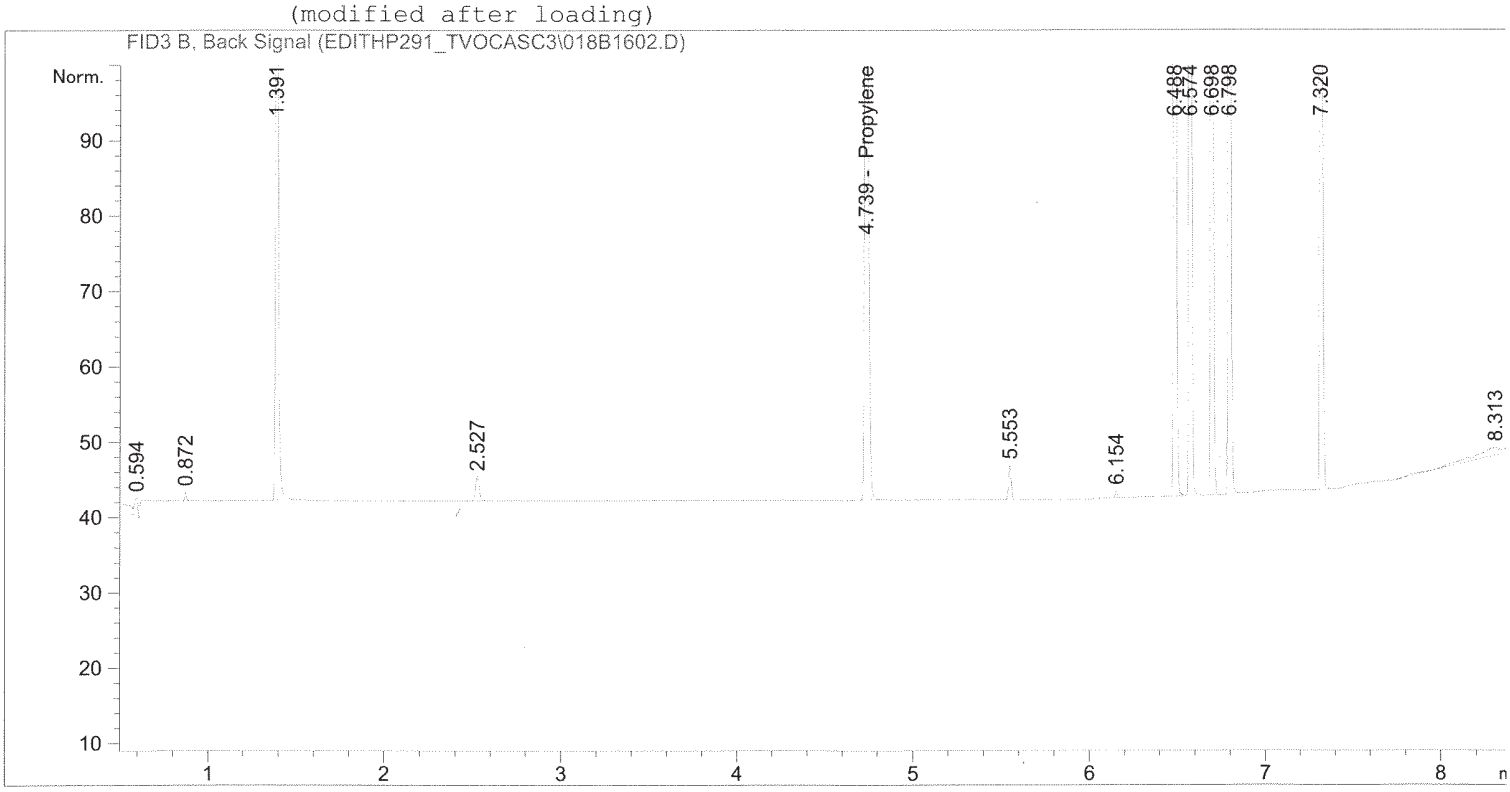
```
==========================================================================
Acq. Operator    : Daniel Clayton                    Seq. Line :  16
Acq. Instrument  : Edith                              Location : Vial 18
Injection Date   : 7/9/2015 1:58:01 AM                    Inj :   1
                                                    Inj Volume : 250 µl
Acq. Method      : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed     : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method  : C:\GC\2015\EDITH\METHODS\EDITHP275R_HRVOC_TVOCASP.M
Last changed     : 7/10/2015 8:11:29 AM by Justin Guenzler
                   (modified after loading)
```




```
==========================================================================
                        External Standard Report
==========================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:11:10 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID3 B, Back Signal

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  4.798 BB      164.03455 5.79980e-1   95.13674     Propylene

Totals :                               95.13674

==========================================================================
                        *** End of Report ***
```

ample Name: EdithP275 #HR5 ENV(1=0,4=450)

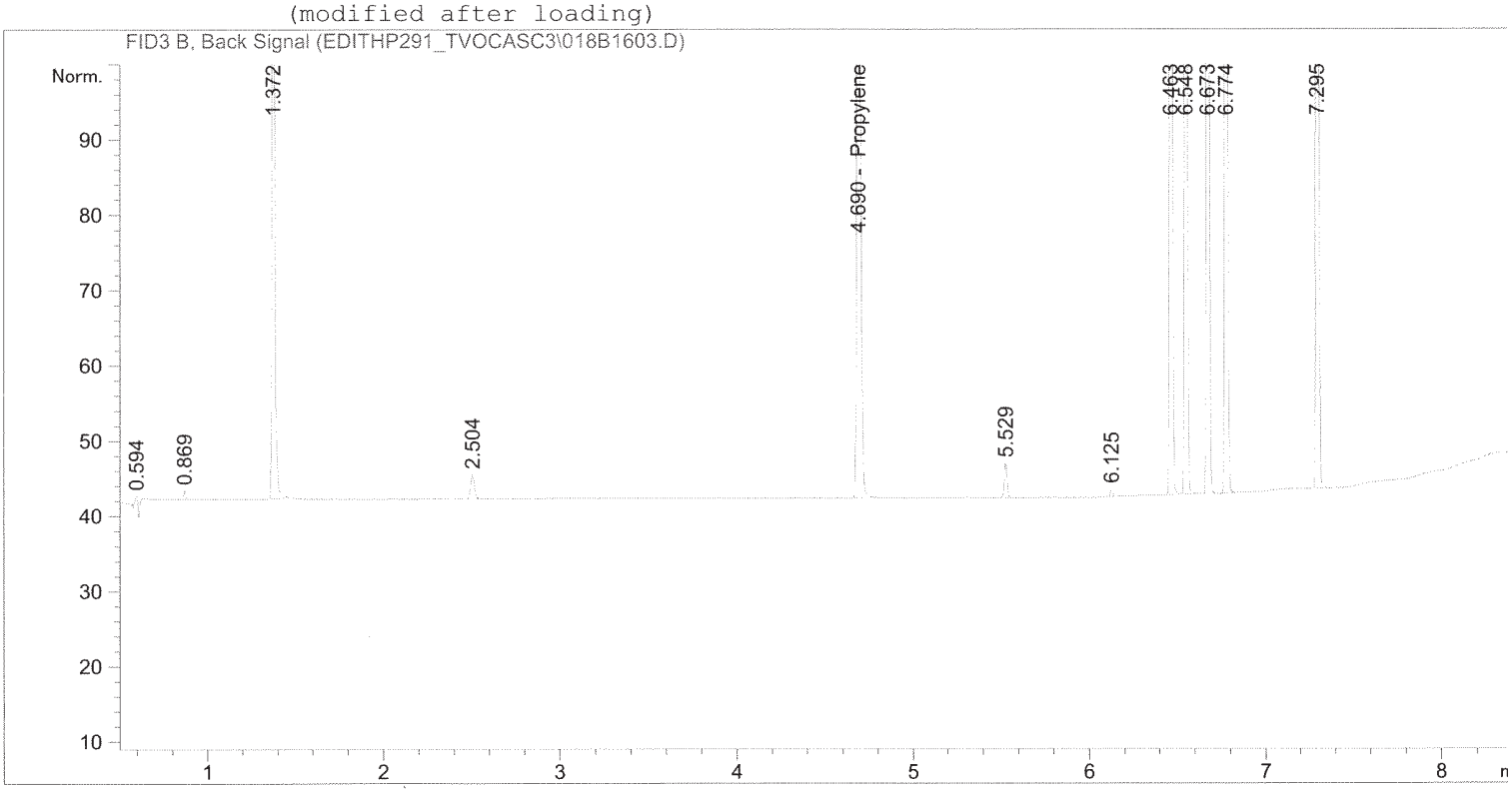
```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  16
Acq. Instrument : Edith                             Location : Vial 18
Injection Date  : 7/9/2015 2:14:17 AM                    Inj :  2
                                                  Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP275R_HRVOC_TVOCASP.M
Last changed    : 7/10/2015 8:12:06 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:11:10 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID3 B, Back Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  4.739 BB      165.10031 5.79980e-1   95.75493     Propylene

Totals :                               95.75493

================================================================================
                          *** End of Report ***
```

ımple Name: EdithP275 #HR5 ENV(1=0,4=450)

```
================================================================================
Acq. Operator   : Daniel Clayton                    Seq. Line :  16
Acq. Instrument : Edith                              Location : Vial 18
Injection Date  : 7/9/2015 2:30:29 AM                    Inj :   3
                                                   Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\EDITH\QUARTER 3\EDITHP291\AQ_EDITHP274_HRVOC.M
Last changed    : 6/9/2015 10:42:00 AM by Justin Guenzler
Analysis Method : C:\GC\2015\EDITH\METHODS\EDITHP275R_HRVOC_TVOCASP.M
Last changed    : 7/10/2015 8:12:25 AM by Justin Guenzler
                  (modified after loading)
```




```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      7/10/2015 8:11:10 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID3 B, Back Signal

RetTime  Type     Area      Amt/Area    Amount    Grp   Name
 [min]          [pA*s]                 [ppm]
-------|------|----------|----------|----------|--|------------------
  4.690 BB      165.97043 5.79981e-1   96.25963     Propylene

Totals :                                96.25963


================================================================================
                          *** End of Report ***
```

Calibration Table

Calib. Data Modified : 7/10/2015 8:04:41 AM

Rel. Reference Window : 0.000 %
Abs. Reference Window : 0.100 min
Rel. Non-ref. Window : 0.000 %
Abs. Non-ref. Window : 0.050 min
Uncalibrated Peaks : not reported
Partial Calibration : Yes, identified peaks are recalibrated
Correct All Ret. Times: No, only for identified peaks

Curve Type : Linear
Origin : Connected
Weight : Quadratic (Amnt)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

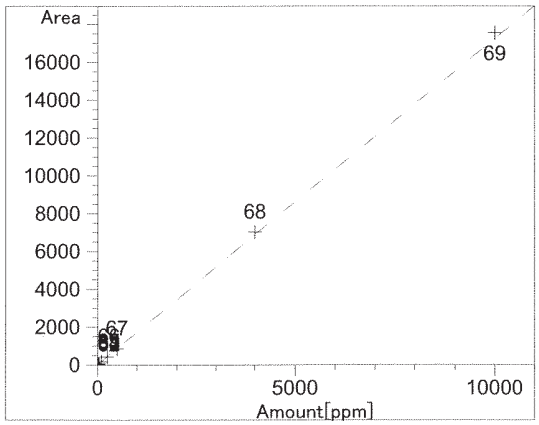
Signal 1: FID1 A, Front Signal
Signal 2: FID3 B, Back Signal

RetTime [min]	Sig	Lvl	Amount [ppm]	Area	Amt/Area	Ref	Grp	Name
4.753	2	61	7.30000e-1	1.27809	5.71165e-1			Propylene
		62	4.99000	8.47477	5.88806e-1			
		63	19.94000	34.55643	5.77027e-1			
		64	39.90000	69.35013	5.75341e-1			
		65	99.70000	169.32610	5.88805e-1			
		66	250.00000	427.19675	5.85210e-1			
		67	500.00000	854.97780	5.84811e-1			
		68	4000.00000	7013.08870	5.70362e-1			
		69	1.00000e4	1.75326e4	5.70365e-1			

Peak Sum Table

Name	StartTime [min]	EndTime [min]	Use Reference	Response factor	Multiplier	ISTD Peak
as Propyle	0.590	13.000	None	5.7910e-1	0.5791	None

Calibration Curves



Propylene at exp. RT: 4.753
FID3 B, Back Signal
Correlation: 0.99991
Residual Std. Dev.: 119.07743
Formula: y = mx + b
m: 1.72402
b: 1.66760e-2
x: Amount
y: Area
Calibration Level Weights:
Level 61 : 1
Level 62 : 0.021402
Level 63 : 0.00134
Level 64 : 0.000335
Level 65 : 0.000054
Level 66 : 8.5264e-006
Level 67 : 2.1316e-006
Level 68 : 3.33063e-008
Level 69 : 5.329e-009

Calibration Table

Calib. Data Modified : 6/15/2015 10:50:36 AM

Rel. Reference Window : 0.000 %
Abs. Reference Window : 0.100 min
Rel. Non-ref. Window : 0.000 %
Abs. Non-ref. Window : 0.050 min
Uncalibrated Peaks : not reported
Partial Calibration : Yes, identified peaks are recalibrated
Correct All Ret. Times: No, only for identified peaks

Curve Type : Linear
Origin : Connected
Weight : Quadratic (Amnt)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Signal 1: FID1 A, Front Signal
Signal 2: FID3 B, Back Signal

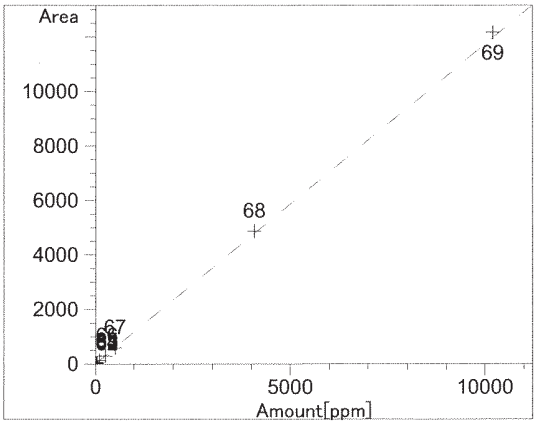
RetTime [min]	Sig	Lvl	Amount [ppm]	Area	Amt/Area	Ref	Grp	Name
1.509	2	61	7.58000e-1	8.96499e-1	8.45511e-1			Ethylene
		62	5.15000	5.92099	8.69787e-1			
		63	20.60000	24.19355	8.51467e-1			
		64	41.20000	48.76814	8.44814e-1			
		65	103.00000	119.87731	8.59212e-1			
		66	255.00000	296.00642	8.61468e-1			
		67	510.00000	593.05119	8.59959e-1			
		68	4080.00000	4868.71973	8.38003e-1			
		69	1.02000e4	1.21599e4	8.38820e-1			
4.946	2	61	7.30000e-1	1.27809	5.71165e-1			Propylene
		62	4.99000	8.47477	5.88806e-1			
		63	19.94000	34.55643	5.77027e-1			
		64	39.90000	69.35013	5.75341e-1			
		65	99.70000	169.32610	5.88805e-1			
		66	250.00000	427.19675	5.85210e-1			
		67	500.00000	854.97780	5.84811e-1			
		68	4000.00000	7013.08870	5.70362e-1			
		69	1.00000e4	1.75326e4	5.70365e-1			
5.826	2	51	2.50000	3.67024	6.81154e-1			Acetylene
		52	14.70600	21.70452	6.77555e-1			
		53	125.00000	185.39789	6.74226e-1			
		54	250.00000	361.58141	6.91407e-1			
6.580	2	61	7.41000e-1	1.75315	4.22669e-1			trans-2-Butene
		62	5.15000	11.60817	4.43653e-1			
		63	20.60000	47.33496	4.35196e-1			
		64	41.20000	95.06718	4.33378e-1			
		65	98.80000	232.16192	4.25565e-1			

RetTime [min]	Sig	Lvl	Amount [ppm]	Area	Amt/Area	Ref	Grp	Name
		66	255.00000	587.56394	4.33995e-1			
		67	510.00000	1177.73759	4.33034e-1			
		68	4080.00000	9648.58659	4.22860e-1			
		69	1.02000e4	2.40749e4	4.23678e-1			
6.680	2	61	7.58000e-1	1.82293	4.15815e-1			1-Butene
		62	5.20000	12.07673	4.30580e-1			
		63	20.80000	49.23788	4.22439e-1			
		64	41.60000	98.86663	4.20769e-1			
		65	101.00000	241.47322	4.18266e-1			
		66	253.00000	580.06803	4.36156e-1			
		67	505.00000	1161.59859	4.34746e-1			
		68	4040.00000	9514.26497	4.24626e-1			
		69	1.01000e4	2.37650e4	4.24994e-1			
6.800	2	61	7.58000e-1	1.80035	4.21028e-1			Isobutylene
		62	5.20000	11.88286	4.37605e-1			
		63	20.80000	48.38923	4.29848e-1			
		64	41.60000	97.12261	4.28325e-1			
		65	104.00000	237.17148	4.38501e-1			
		66	253.00000	575.56083	4.39571e-1			
		67	505.00000	1152.22876	4.38281e-1			
		68	4040.00000	9439.99609	4.27966e-1			
		69	1.01000e4	2.35695e4	4.28520e-1			
6.907	2	61	7.73000e-1	1.85617	4.16449e-1			cis-2-Butene
		62	5.25000	12.35157	4.25047e-1			
		63	21.00000	50.38663	4.16777e-1			
		64	42.00000	101.15663	4.15198e-1			
		65	105.00000	247.11693	4.24900e-1			
		66	253.00000	584.78687	4.32636e-1			
		67	505.00000	1172.43148	4.30729e-1			
		68	4040.00000	9622.67090	4.19842e-1			
		69	1.01000e4	2.40499e4	4.19960e-1			
7.419	2	61	7.37000e-1	1.73995	4.23576e-1			1,3-Butadiene
		62	5.05000	11.43071	4.41792e-1			
		63	20.20000	46.63541	4.33147e-1			
		64	40.40000	94.20041	4.28873e-1			
		65	101.00000	230.45488	4.38264e-1			
		66	255.00000	574.94476	4.43521e-1			
		67	510.00000	1154.15625	4.41881e-1			
		68	4080.00000	9481.25586	4.30323e-1			
		69	1.02000e4	2.36926e4	4.30513e-1			

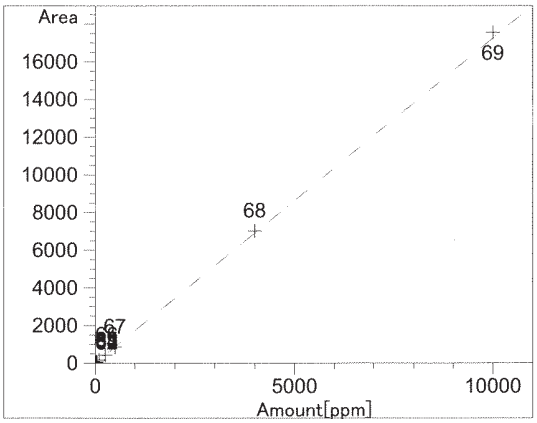
Peak Sum Table

No Entries in table

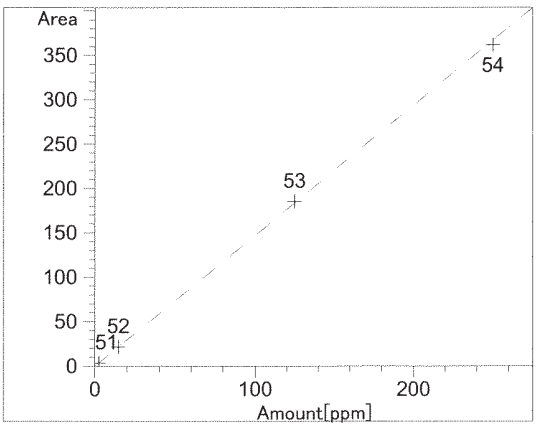
Calibration Curves



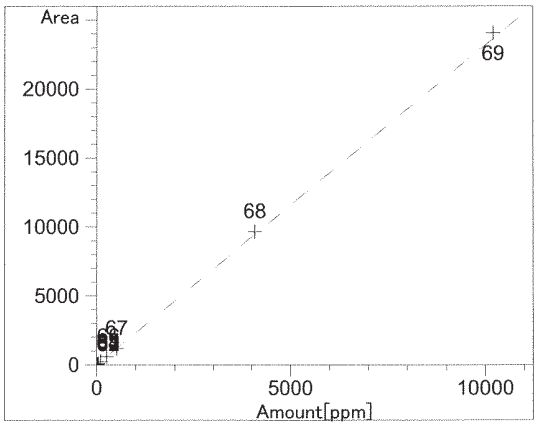
Ethylene at exp. RT: 1.509
FID3 B, Back Signal
Correlation: 0.99991
Residual Std. Dev.: 80.82988
Formula: y = mx + b
m: 1.17286
b: 4.88767e-3
x: Amount
y: Area
Calibration Level Weights:
Level 61 : 1
Level 62 : 0.021663
Level 63 : 0.001354
Level 64 : 0.000338
Level 65 : 0.000054
Level 66 : 8.83605e-006
Level 67 : 2.20901e-006
Level 68 : 3.45158e-008
Level 69 : 5.52253e-009



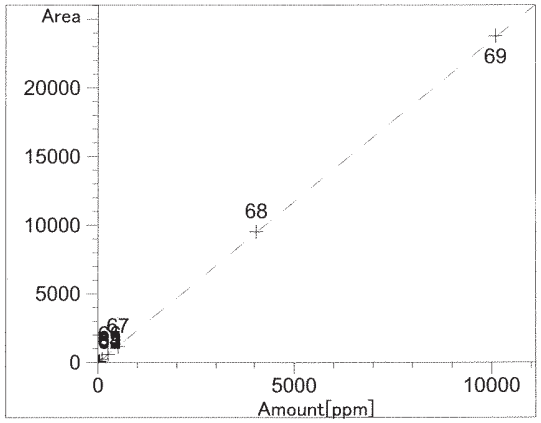
Propylene at exp. RT: 4.946
FID3 B, Back Signal
Correlation: 0.99991
Residual Std. Dev.: 119.07743
Formula: y = mx + b
m: 1.72402
b: 1.66760e-2
x: Amount
y: Area
Calibration Level Weights:
Level 61 : 1
Level 62 : 0.021402
Level 63 : 0.00134
Level 64 : 0.000335
Level 65 : 0.000054
Level 66 : 8.5264e-006
Level 67 : 2.1316e-006
Level 68 : 3.33063e-008
Level 69 : 5.329e-009



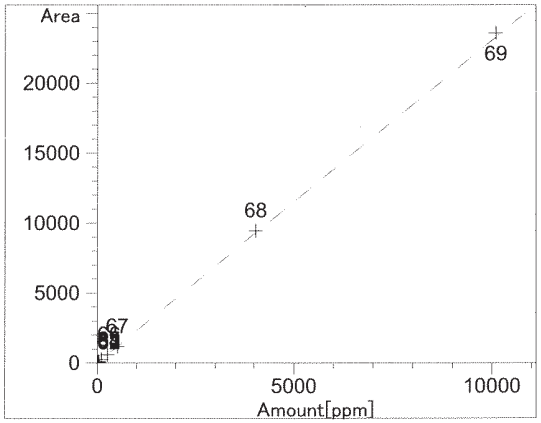
Acetylene at exp. RT: 5.826
FID3 B, Back Signal
Correlation: 0.99993
Residual Std. Dev.: 4.04762
Formula: y = mx + b
m: 1.46789
b: 4.01787e-3
x: Amount
y: Area
Calibration Level Weights:
Level 51 : 1
Level 52 : 0.0289
Level 53 : 0.0004
Level 54 : 0.0001



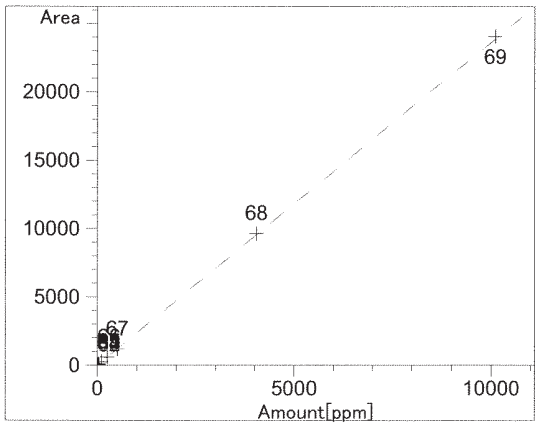
trans-2-Butene at exp. RT: 6.580
FID3 B, Back Signal
Correlation: 0.99987
Residual Std. Dev.: 174.65978
Formula: y = mx + b
m: 2.31888
b: 2.67662e-2
x: Amount
y: Area
Calibration Level Weights:
Level 61 : 1
Level 62 : 0.020702
Level 63 : 0.001294
Level 64 : 0.000323
Level 65 : 0.000056
Level 66 : 8.44415e-006
Level 67 : 2.11104e-006
Level 68 : 3.2985e-008
Level 69 : 5.2776e-009



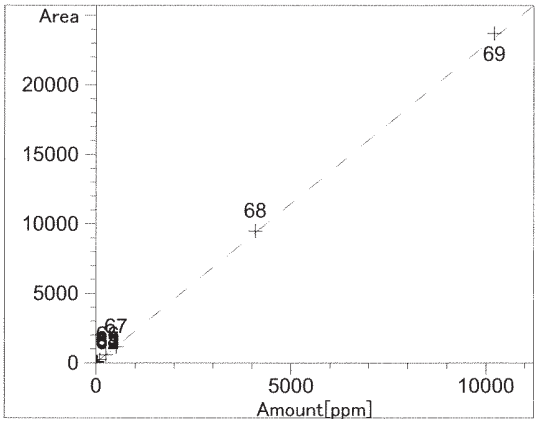
1-Butene at exp. RT: 6.680
FID3 B, Back Signal
Correlation: 0.99989
Residual Std. Dev.: 41.17659
Formula: y = mx + b
m: 2.34355
b: 4.43837e-2
x: Amount
y: Area
Calibration Level Weights:
Level 61 : 1
Level 62 : 0.021249
Level 63 : 0.001328
Level 64 : 0.000332
Level 65 : 0.000056
Level 66 : 8.9763e-006
Level 67 : 2.25297e-006
Level 68 : 3.52027e-008
Level 69 : 5.63243e-009



Isobutylene at exp. RT: 6.800
FID3 B, Back Signal
Correlation: 0.99993
Residual Std. Dev.: 118.01348
Formula: y = mx + b
m: 2.30537
b: 5.02552e-2
x: Amount
y: Area
Calibration Level Weights:
Level 61 : 1
Level 62 : 0.021249
Level 63 : 0.001328
Level 64 : 0.000332
Level 65 : 0.000053
Level 66 : 8.9763e-006
Level 67 : 2.25297e-006
Level 68 : 3.52027e-008
Level 69 : 5.63243e-009



cis-2-Butene at exp. RT: 6.907
FID3 B, Back Signal
Correlation: 0.99990
Residual Std. Dev.: 76.48167
Formula: y = mx + b
m: 2.36280
b: 2.93524e-2
x: Amount
y: Area
Calibration Level Weights:
Level 61 : 1
Level 62 : 0.021679
Level 63 : 0.001355
Level 64 : 0.000339
Level 65 : 0.000054
Level 66 : 9.33508e-006
Level 67 : 2.34302e-006
Level 68 : 3.66097e-008
Level 69 : 5.85755e-009



1,3-Butadiene at exp. RT: 7.419
FID3 B, Back Signal
Correlation: 0.99991
Residual Std. Dev.: 126.02190
Formula: y = mx + b
m: 2.29264
b: 4.68518e-2
x: Amount
y: Area
Calibration Level Weights:
Level 61 : 1
Level 62 : 0.021299
Level 63 : 0.001331
Level 64 : 0.000333
Level 65 : 0.000053
Level 66 : 8.35323e-006
Level 67 : 2.08831e-006
Level 68 : 3.26298e-008
Level 69 : 5.22077e-009

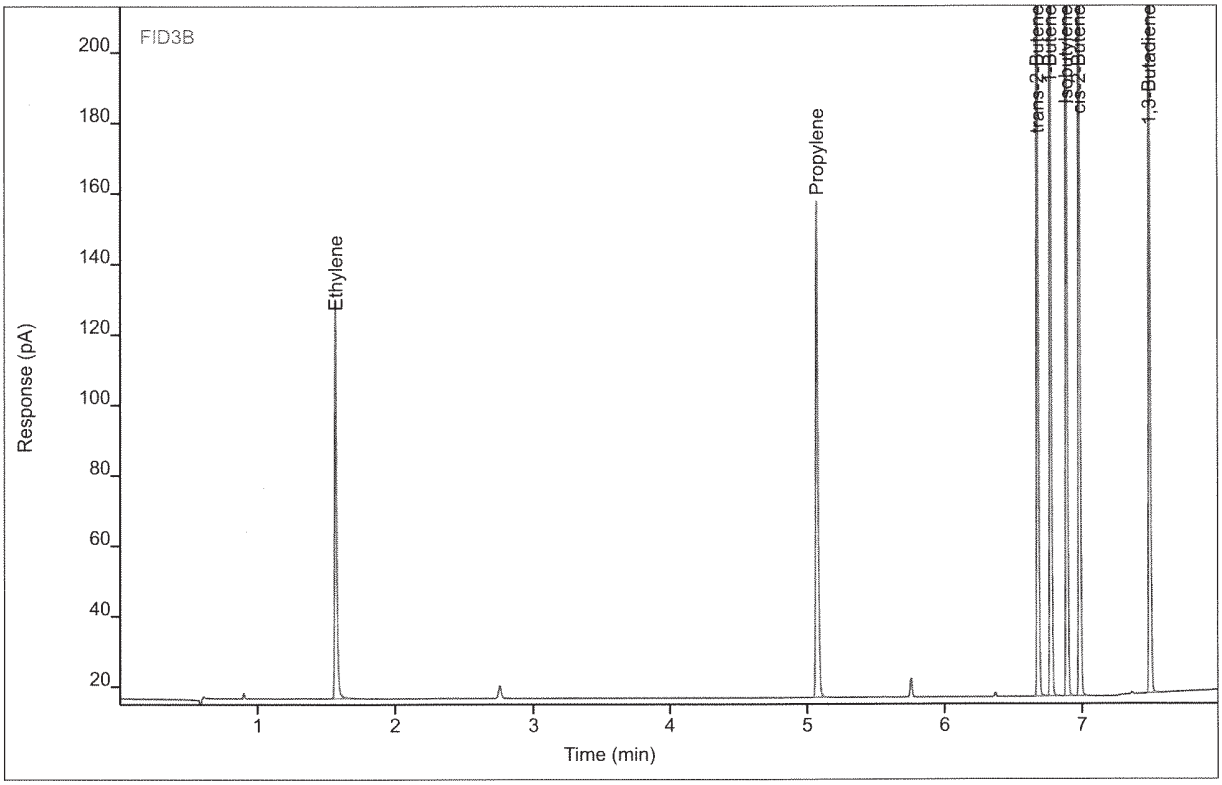
==========

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #HR5 ENV(1=0,4=450)
Sequence Name	EDITHP275 ver.2
Data File	018B0101.D
File Location	GC/2015/Edith/Quarter 2
Injection Date	6/9/2015 11:34 AM
File Modified	6/15/2015 10:51 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	1 of 3
Acquisition Method	AQ_EDITHP274_HRVOC.M
Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Method Modified	6/11/2015 11:54 AM
Printed	6/15/2015 11:17 AM

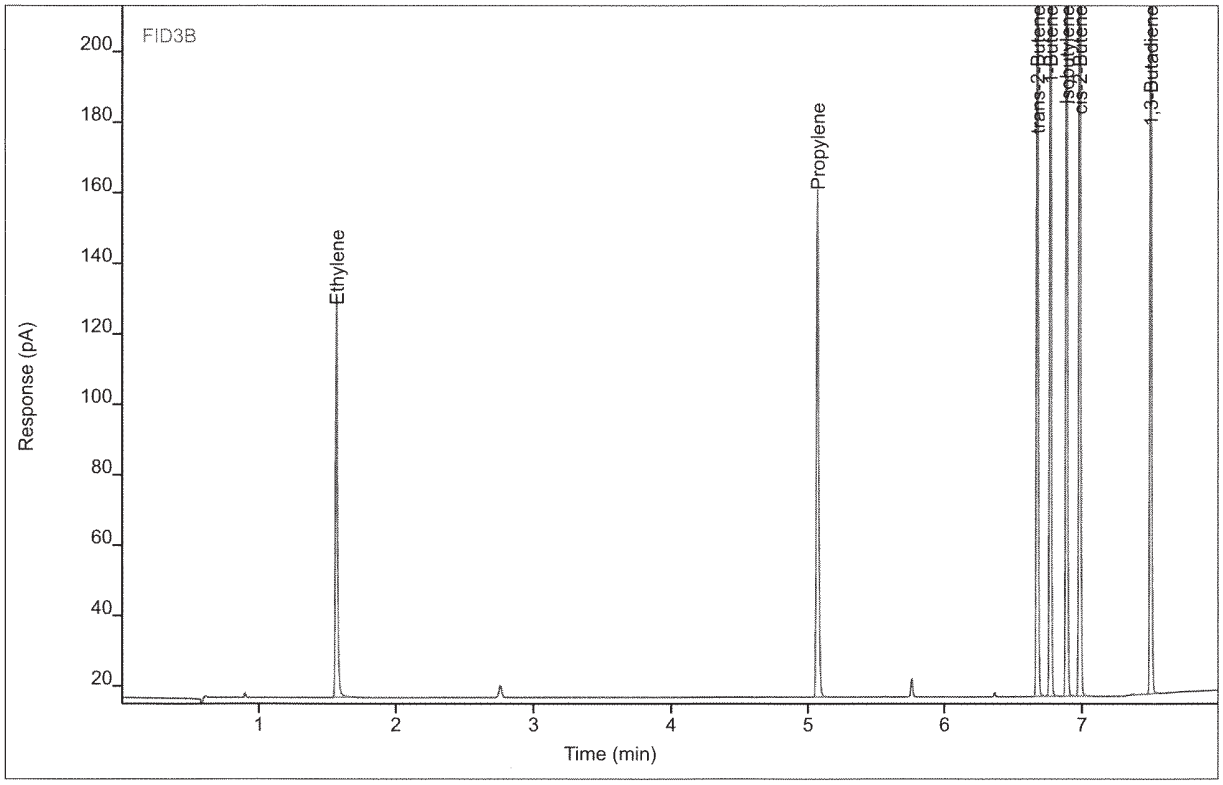


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.57	119.943	109.052	102.261	1	102.261	ppm
Propylene	BB	5.07	169.233	141.359	98.1521	1	98.1521	ppm
trans-2-Butene	BB	6.68	232.401	265.215	100.210	1	100.210	ppm
1-Butene	BB	6.77	241.758	274.794	103.140	1	103.140	ppm
Isobutylene	BB	6.89	237.447	268.104	102.976	1	102.976	ppm
cis-2-Butene	BB	6.98	247.486	268.823	104.730	1	104.730	ppm
1,3-Butadiene	BB	7.50	229.964	258.383	100.285	1	100.285	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #HR5 ENV(1=0,4=450)	Sample Type	Calibration
Sequence Name	EDITHP275 ver.2	Vial Number	Vial 18
Data File	018B0102.D	Injection Volume	250
File Location	GC/2015/Edith/Quarter 2	Injection	2 of 3
Injection Date	6/9/2015 11:50 AM	Acquisition Method	AQ_EDITHP274_HRVOC.M
File Modified	6/15/2015 10:51 AM	Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Instrument		Method Modified	6/11/2015 11:54 AM
Operator	Justin Guenzler	Printed	6/15/2015 11:17 AM

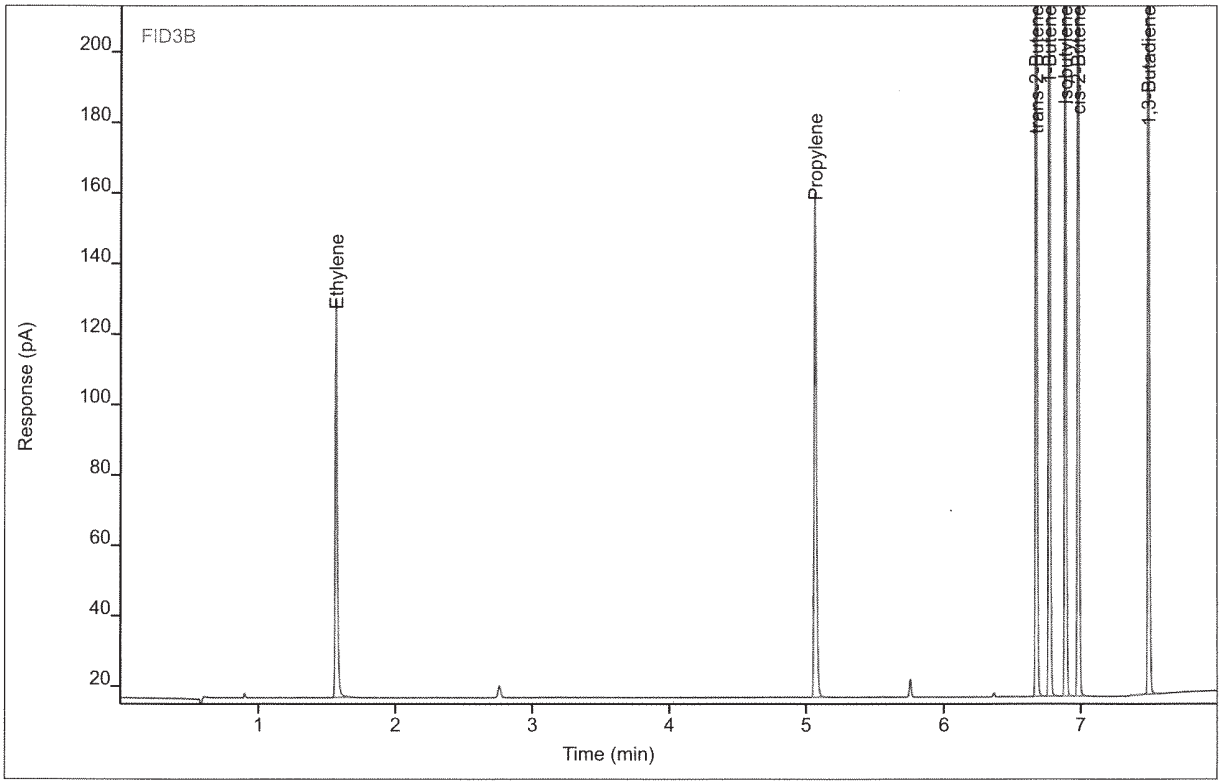


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.57	119.725	110.270	102.076	1	102.076	ppm
Propylene	BB	5.07	168.823	142.828	97.9140	1	97.9140	ppm
trans-2-Butene	BB	6.68	231.752	263.400	99.9301	1	99.9301	ppm
1-Butene	BB	6.77	241.091	274.858	102.855	1	102.855	ppm
Isobutylene	BB	6.89	236.834	263.078	102.710	1	102.710	ppm
cis-2-Butene	BB	6.98	246.712	273.087	104.402	1	104.402	ppm
1,3-Butadiene	BB	7.50	230.278	254.521	100.422	1	100.422	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #HR5 ENV(1=0,4=450)	Sample Type	Calibration
Sequence Name	EDITHP275 ver.2	Vial Number	Vial 18
Data File	018B0103.D	Injection Volume	250
File Location	GC/2015/Edith/Quarter 2	Injection	3 of 3
Injection Date	6/9/2015 12:06 PM	Acquisition Method	AQ_EDITHP274_HRVOC.M
File Modified	6/15/2015 10:51 AM	Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Instrument		Method Modified	6/11/2015 11:54 AM
Operator	Justin Guenzler	Printed	6/15/2015 11:17 AM

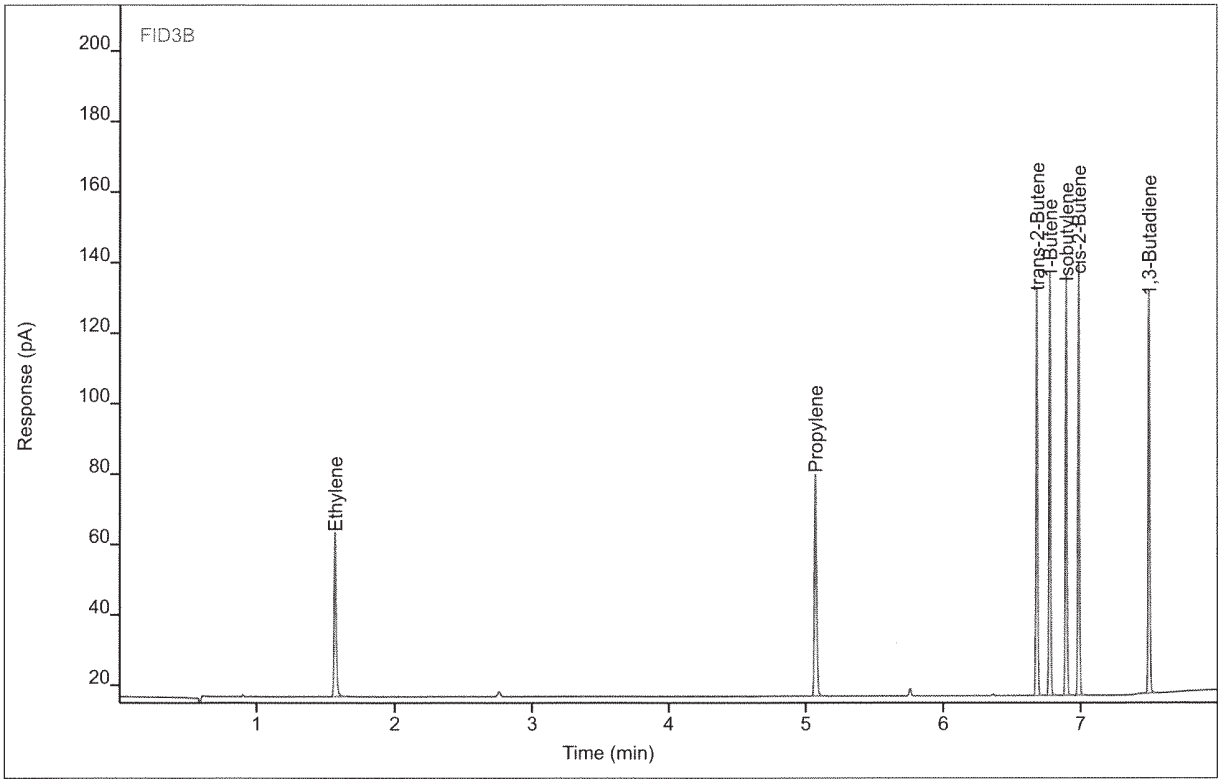


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.57	119.964	109.142	102.279	1	102.279	ppm
Propylene	BB	5.07	169.126	139.891	98.0902	1	98.0902	ppm
trans-2-Butene	BB	6.68	232.333	261.078	100.180	1	100.180	ppm
1-Butene	BB	6.77	241.571	274.588	103.060	1	103.060	ppm
Isobutylene	BB	6.89	237.233	271.096	102.883	1	102.883	ppm
cis-2-Butene	BB	6.98	247.153	276.183	104.589	1	104.589	ppm
1,3-Butadiene	BB	7.50	231.122	262.677	100.790	1	100.790	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #HR4 ENV(1=600,4=400)	Sample Type	Calibration
Sequence Name	EDITHP275 ver.2	Vial Number	Vial 18
Data File	018B0201.D	Injection Volume	250
File Location	GC/2015/Edith/Quarter 2	Injection	1 of 3
Injection Date	6/9/2015 12:23 PM	Acquisition Method	AQ_EDITHP274_HRVOC.M
File Modified	6/15/2015 10:51 AM	Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Instrument		Method Modified	6/11/2015 11:54 AM
Operator	Justin Guenzler	Printed	6/15/2015 11:17 AM



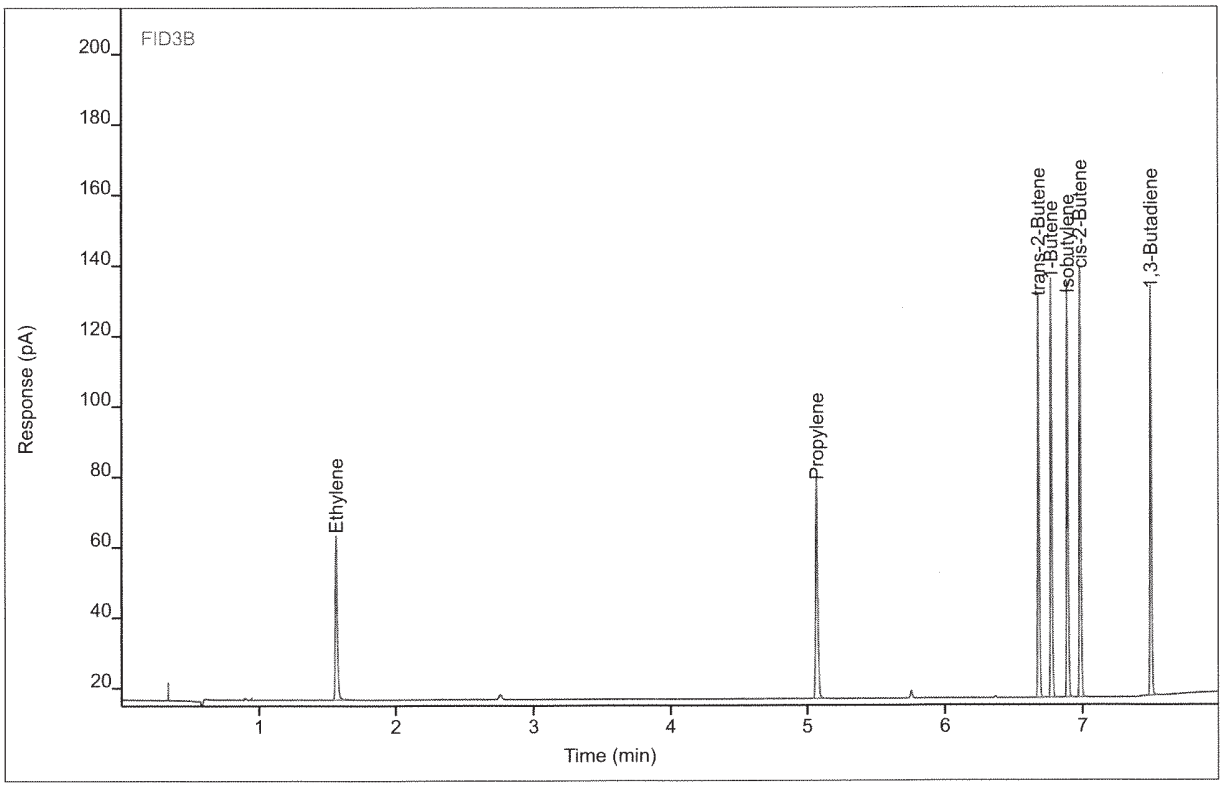
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.57	48.7789	45.7260	41.5857	1	41.5857	ppm
Propylene	BB	5.07	69.2572	62.3835	40.1622	1	40.1622	ppm
trans-2-Butene	BB	6.68	95.1077	113.874	41.0030	1	41.0030	ppm
1-Butene	BB	6.78	98.9253	117.486	42.1928	1	42.1928	ppm
Isobutylene	BB	6.90	97.1316	116.351	42.1110	1	42.1110	ppm
cis-2-Butene	BB	6.99	101.241	118.502	42.8354	1	42.8354	ppm
1,3-Butadiene	BB	7.50	94.2566	111.737	41.0922	1	41.0922	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #HR4 ENV(1=600,4=400)
Sequence Name	EDITHP275 ver.2
Data File	018B0202.D
File Location	GC/2015/Edith/Quarter 2
Injection Date	6/9/2015 12:39 PM
File Modified	6/15/2015 10:51 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	2 of 3
Acquisition Method	AQ_EDITHP274_HRVOC.M
Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Method Modified	6/11/2015 11:54 AM
Printed	6/15/2015 11:17 AM

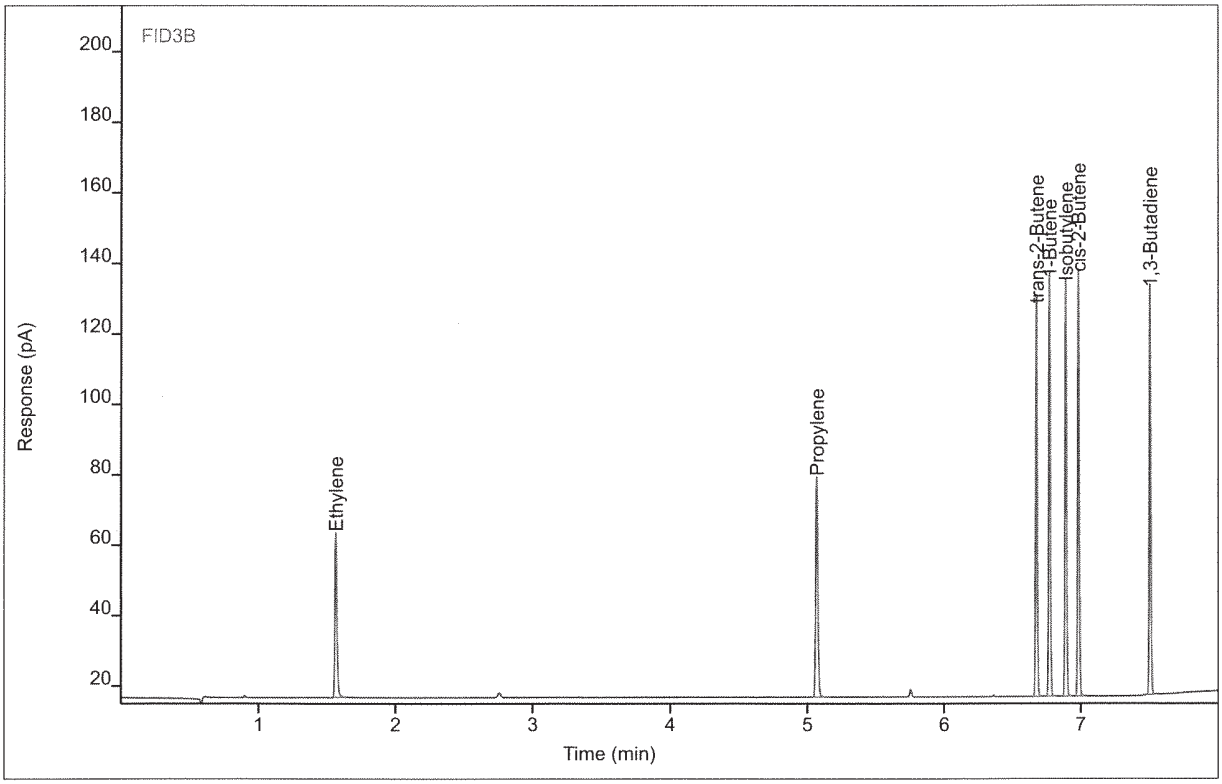


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.57	48.6947	46.1825	41.5139	1	41.5139	ppm
Propylene	BB	5.07	69.2100	60.9684	40.1348	1	40.1348	ppm
trans-2-Butene	BB	6.68	94.9672	112.865	40.9424	1	40.9424	ppm
1-Butene	BB	6.78	98.7546	117.486	42.1200	1	42.1200	ppm
Isobutylene	BB	6.89	97.0592	113.458	42.0796	1	42.0796	ppm
cis-2-Butene	BB	6.99	101.066	120.536	42.7615	1	42.7615	ppm
1,3-Butadiene	BB	7.50	94.1449	114.295	41.0435	1	41.0435	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #HR4 ENV(1=600,4=400)	Sample Type	Calibration
Sequence Name	EDITHP275 ver.2	Vial Number	Vial 18
Data File	018B0203.D	Injection Volume	250
File Location	GC/2015/Edith/Quarter 2	Injection	3 of 3
Injection Date	6/9/2015 12:55 PM	Acquisition Method	AQ_EDITHP274_HRVOC.M
File Modified	6/15/2015 10:51 AM	Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Instrument		Method Modified	6/11/2015 11:54 AM
Operator	Justin Guenzler	Printed	6/15/2015 11:17 AM



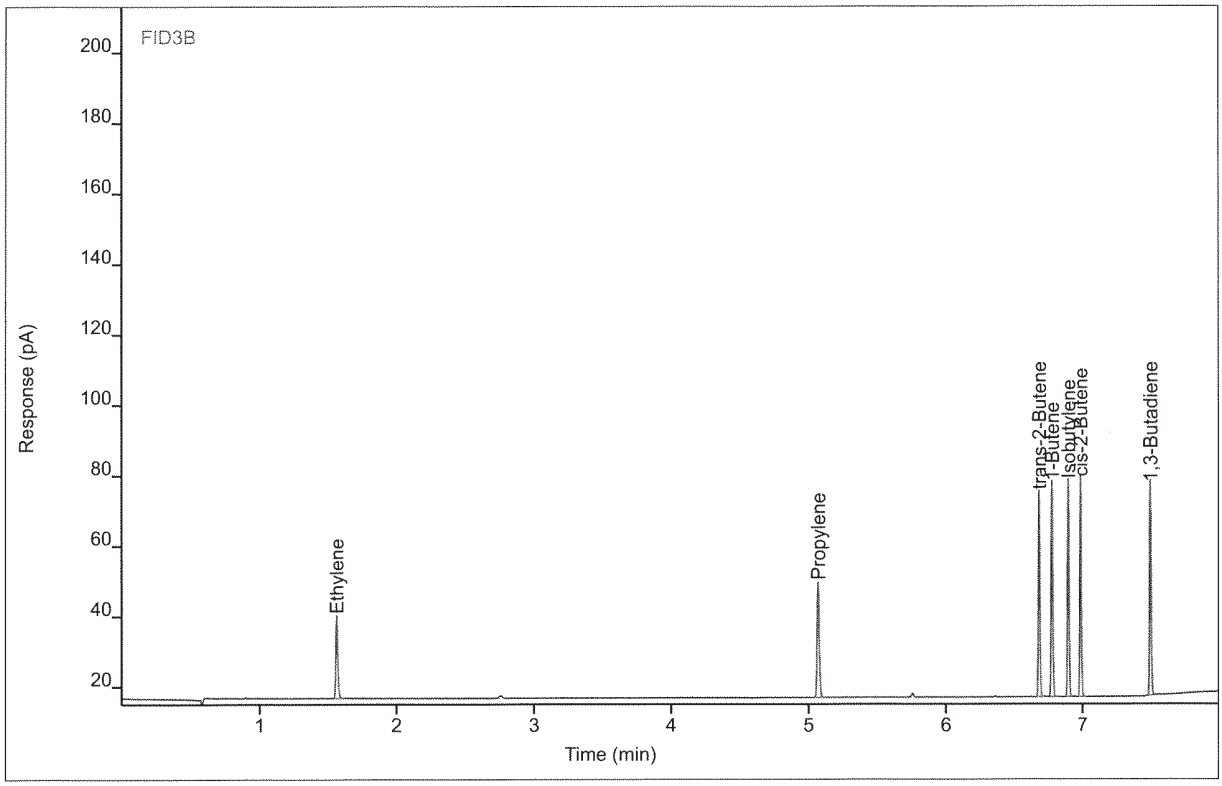
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.57	48.8308	46.0220	41.6299	1	41.6299	ppm
Propylene	BB	5.07	69.2603	61.7519	40.1640	1	40.1640	ppm
trans-2-Butene	BB	6.68	95.1266	110.528	41.0111	1	41.0111	ppm
1-Butene	BB	6.77	98.9199	117.689	42.1905	1	42.1905	ppm
Isobutylene	BB	6.89	97.1770	116.714	42.1307	1	42.1307	ppm
cis-2-Butene	BB	6.99	101.162	119.282	42.8021	1	42.8021	ppm
1,3-Butadiene	BB	7.50	94.1998	114.471	41.0675	1	41.0675	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #HR3 ENV(1=800,4=200)
Sequence Name	EDITHP275 ver.2
Data File	018B0301.D
File Location	GC/2015/Edith/Quarter 2
Injection Date	6/9/2015 1:12 PM
File Modified	6/15/2015 10:51 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	1 of 3
Acquisition Method	AQ_EDITHP274_HRVOC.M
Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Method Modified	6/11/2015 11:54 AM
Printed	6/15/2015 11:17 AM

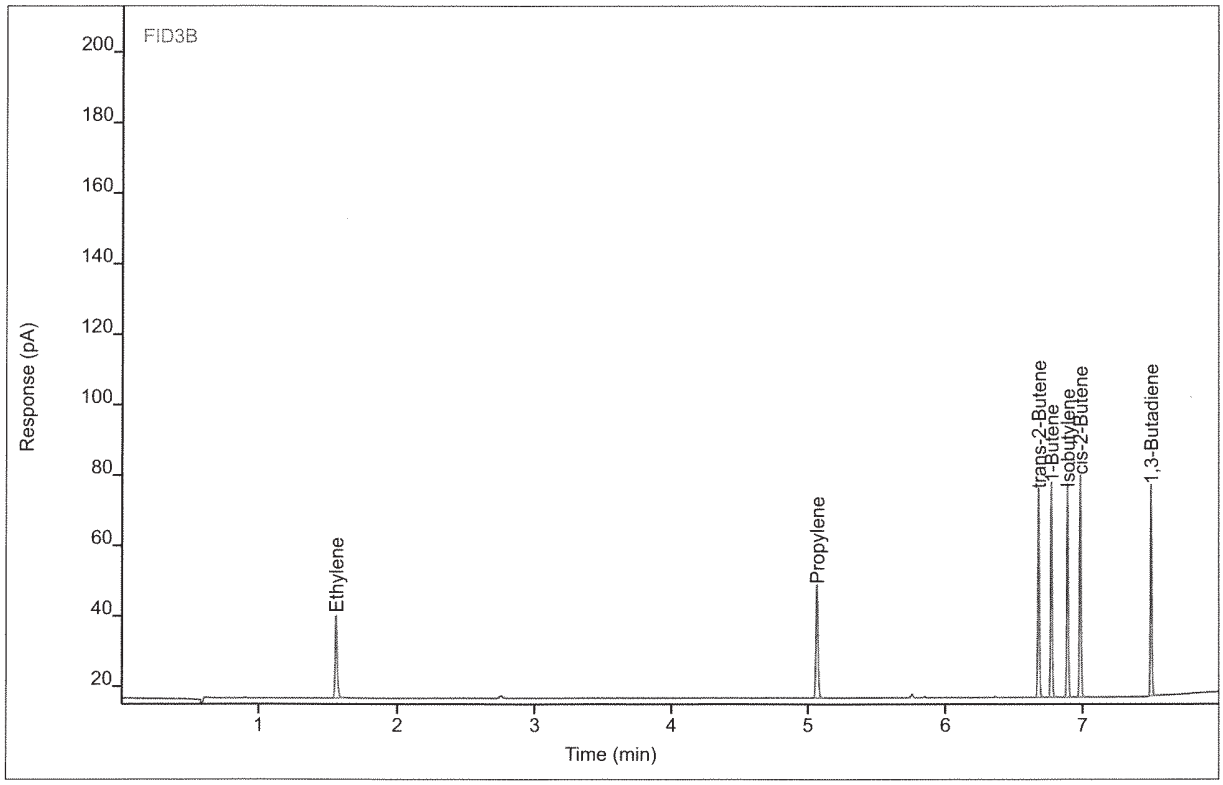


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.56	24.2358	22.9091	20.6598	1	20.6598	ppm
Propylene	BB	5.07	34.4989	32.2584	20.0011	1	20.0011	ppm
trans-2-Butene	BB	6.68	47.3873	57.7503	20.4239	1	20.4239	ppm
1-Butene	BB	6.78	49.2850	60.2143	21.0111	1	21.0111	ppm
Isobutylene	BB	6.90	48.4051	60.7990	20.9749	1	20.9749	ppm
cis-2-Butene	BB	6.99	50.4043	61.3380	21.3200	1	21.3200	ppm
1,3-Butadiene	BB	7.50	46.9071	59.4335	20.4394	1	20.4394	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #HR3 ENV(1=800,4=200)	Sample Type	Calibration
Sequence Name	EDITHP275 ver.2	Vial Number	Vial 18
Data File	018B0302.D	Injection Volume	250
File Location	GC/2015/Edith/Quarter 2	Injection	2 of 3
Injection Date	6/9/2015 1:28 PM	Acquisition Method	AQ_EDITHP274_HRVOC.M
File Modified	6/15/2015 10:51 AM	Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Instrument		Method Modified	6/11/2015 11:54 AM
Operator	Justin Guenzler	Printed	6/15/2015 11:17 AM



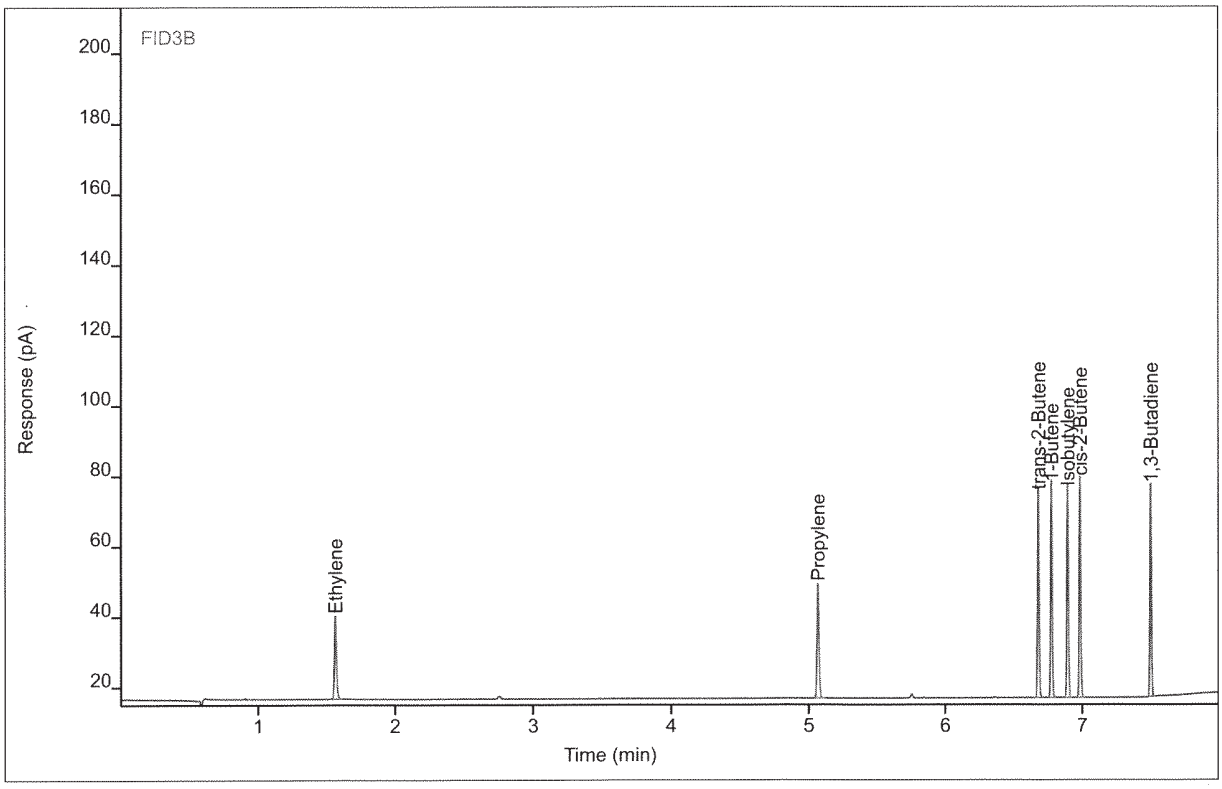
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.56	24.1411	23.1199	20.5790	1	20.5790	ppm
Propylene	BB	5.07	34.4615	31.3487	19.9793	1	19.9793	ppm
trans-2-Butene	BB	6.68	47.2948	58.2556	20.3840	1	20.3840	ppm
1-Butene	BB	6.77	49.1805	59.7832	20.9666	1	20.9666	ppm
Isobutylene	BB	6.89	48.3813	58.3712	20.9646	1	20.9646	ppm
cis-2-Butene	BB	6.99	50.3561	62.0716	21.2996	1	21.2996	ppm
1,3-Butadiene	BB	7.50	46.5075	58.9312	20.2651	1	20.2651	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #HR3 ENV(1=800,4=200)
Sequence Name	EDITHP275 ver.2
Data File	018B0303.D
File Location	GC/2015/Edith/Quarter 2
Injection Date	6/9/2015 1:45 PM
File Modified	6/15/2015 10:51 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	3 of 3
Acquisition Method	AQ_EDITHP274_HRVOC.M
Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Method Modified	6/11/2015 11:54 AM
Printed	6/15/2015 11:17 AM



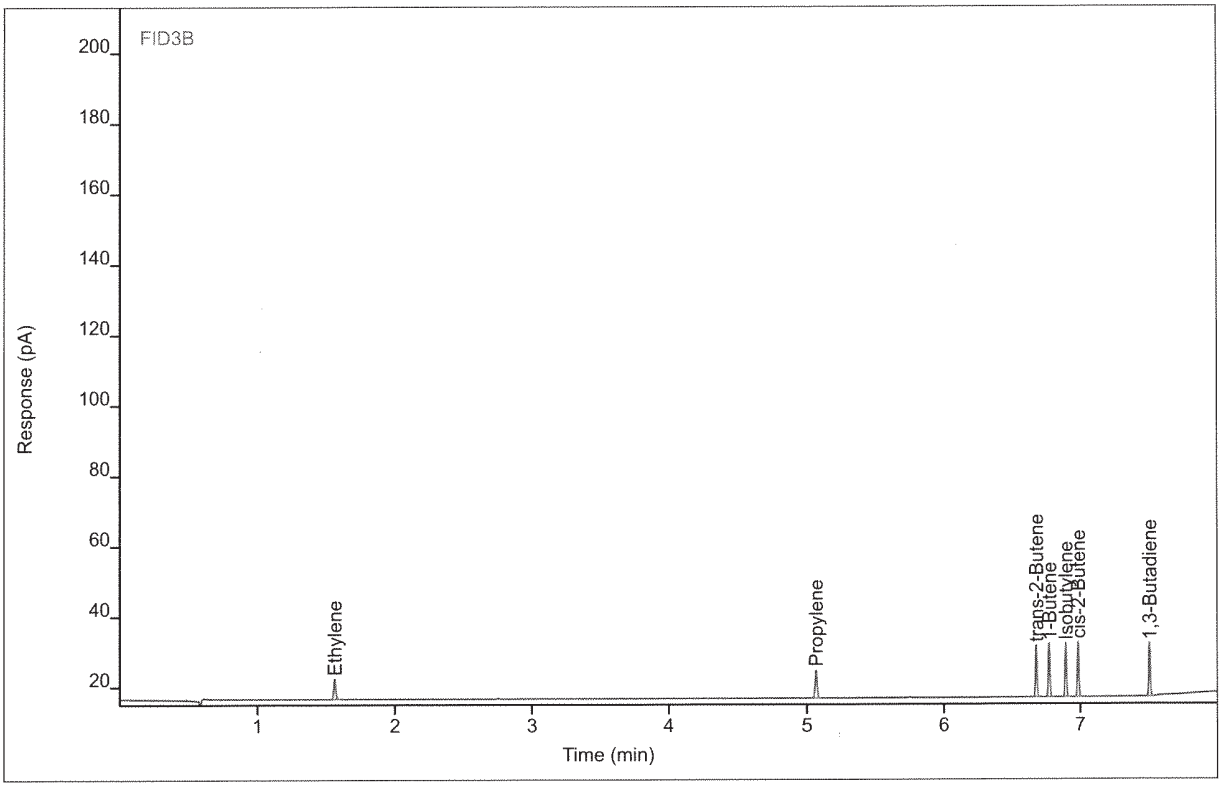
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.56	24.2037	23.1324	20.6324	1	20.6324	ppm
Propylene	BB	5.07	34.5032	32.1091	20.0035	1	20.0035	ppm
trans-2-Butene	BB	6.68	47.3228	57.9486	20.3961	1	20.3961	ppm
1-Butene	BB	6.77	49.2482	60.1067	20.9954	1	20.9954	ppm
Isobutylene	BB	6.89	48.3812	58.8604	20.9645	1	20.9645	ppm
cis-2-Butene	BB	6.99	50.3995	61.8291	21.3180	1	21.3180	ppm
1,3-Butadiene	BB	7.50	46.4916	59.5421	20.2582	1	20.2582	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #HR2 ENV(1=1900,4=100)
Sequence Name	EDITHP275 ver.2
Data File	018B0401.D
File Location	GC/2015/Edith/Quarter 2
Injection Date	6/9/2015 2:01 PM
File Modified	6/15/2015 10:51 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	1 of 3
Acquisition Method	AQ_EDITHP274_HRVOC.M
Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Method Modified	6/11/2015 11:54 AM
Printed	6/15/2015 11:17 AM



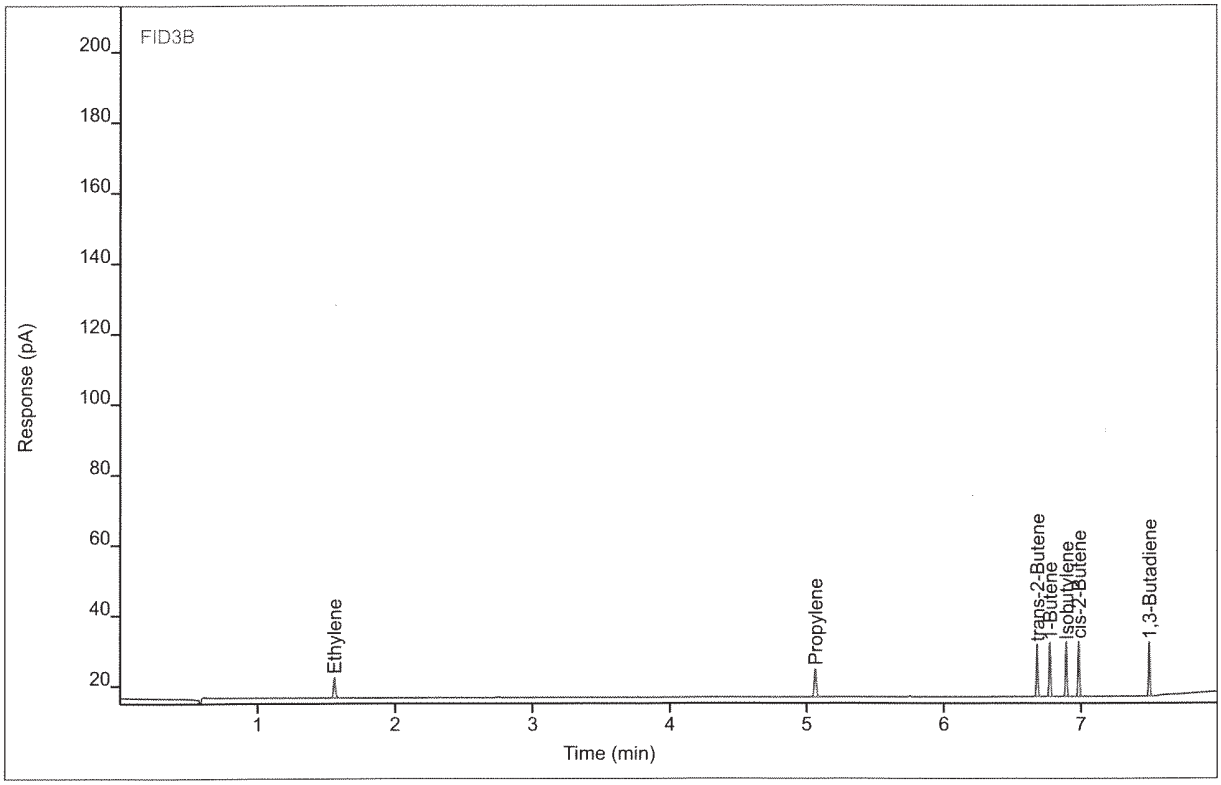
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.56	5.92133	5.60768	5.04447	1	5.04447	ppm
Propylene	BB	5.07	8.46597	7.82586	4.90092	1	4.90092	ppm
trans-2-Butene	BB	6.68	11.6190	14.4196	4.99906	1	4.99906	ppm
1-Butene	BB	6.77	12.0838	14.8232	5.13728	1	5.13728	ppm
Isobutylene	BB	6.89	11.9072	14.8782	5.14320	1	5.14320	ppm
cis-2-Butene	BB	6.99	12.3631	15.3482	5.21995	1	5.21995	ppm
1,3-Butadiene	BB	7.50	11.4336	14.7472	4.96664	1	4.96664	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #HR2 ENV(1=1900,4=100)
Sequence Name	EDITHP275 ver.2
Data File	018B0402.D
File Location	GC/2015/Edith/Quarter 2
Injection Date	6/9/2015 2:17 PM
File Modified	6/15/2015 10:51 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	2 of 3
Acquisition Method	AQ_EDITHP274_HRVOC.M
Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Method Modified	6/11/2015 11:54 AM
Printed	6/15/2015 11:17 AM

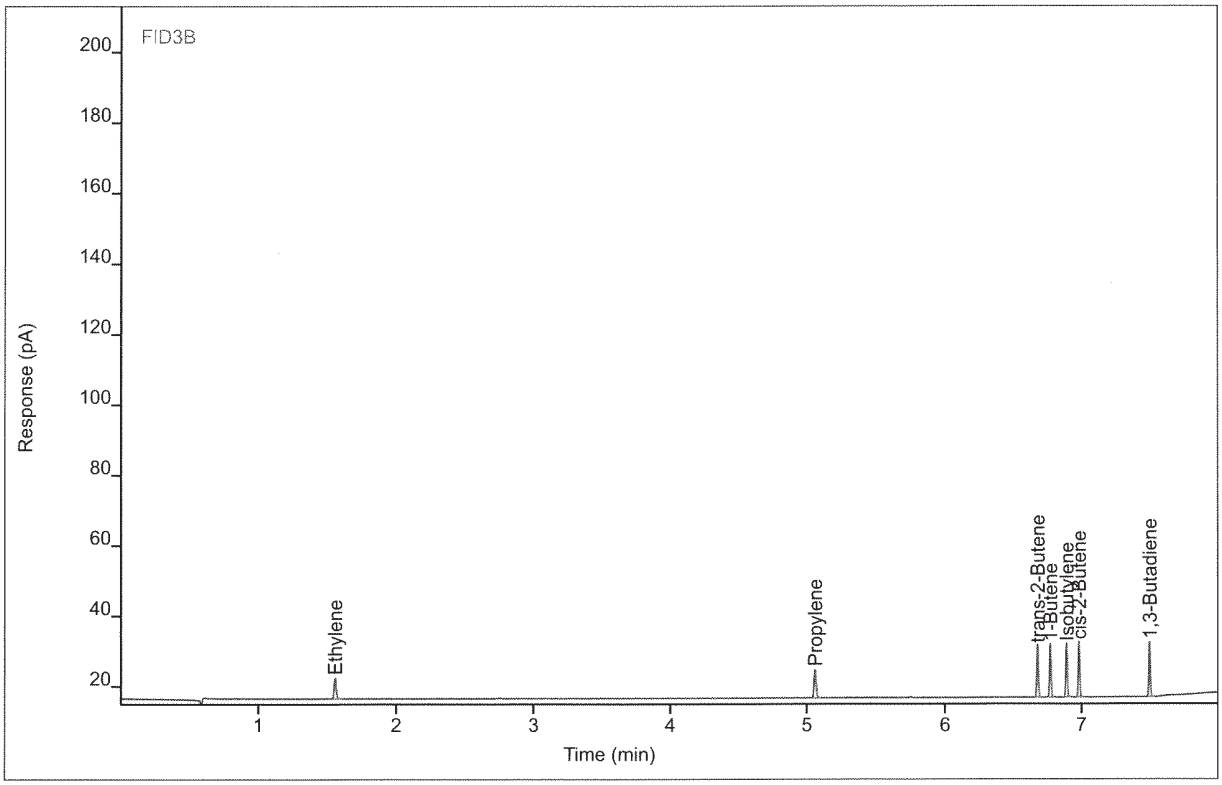


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.56	5.92002	5.68889	5.04336	1	5.04336	ppm
Propylene	BB	5.06	8.47249	7.80988	4.90470	1	4.90470	ppm
trans-2-Butene	BB	6.68	11.5956	14.5294	4.98898	1	4.98898	ppm
1-Butene	BB	6.77	12.0833	14.8689	5.13705	1	5.13705	ppm
Isobutylene	BB	6.89	11.8765	14.9200	5.12989	1	5.12989	ppm
cis-2-Butene	BB	6.99	12.3424	15.3009	5.21121	1	5.21121	ppm
1,3-Butadiene	BB	7.50	11.4084	14.9055	4.95567	1	4.95567	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #HR2 ENV(1=1900,4=100)	Sample Type	Calibration
Sequence Name	EDITHP275 ver.2	Vial Number	Vial 18
Data File	018B0403.D	Injection Volume	250
File Location	GC/2015/Edith/Quarter 2	Injection	3 of 3
Injection Date	6/9/2015 2:34 PM	Acquisition Method	AQ_EDITHP274_HRVOC.M
File Modified	6/15/2015 10:51 AM	Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Instrument		Method Modified	6/11/2015 11:54 AM
Operator	Justin Guenzler	Printed	6/15/2015 11:17 AM

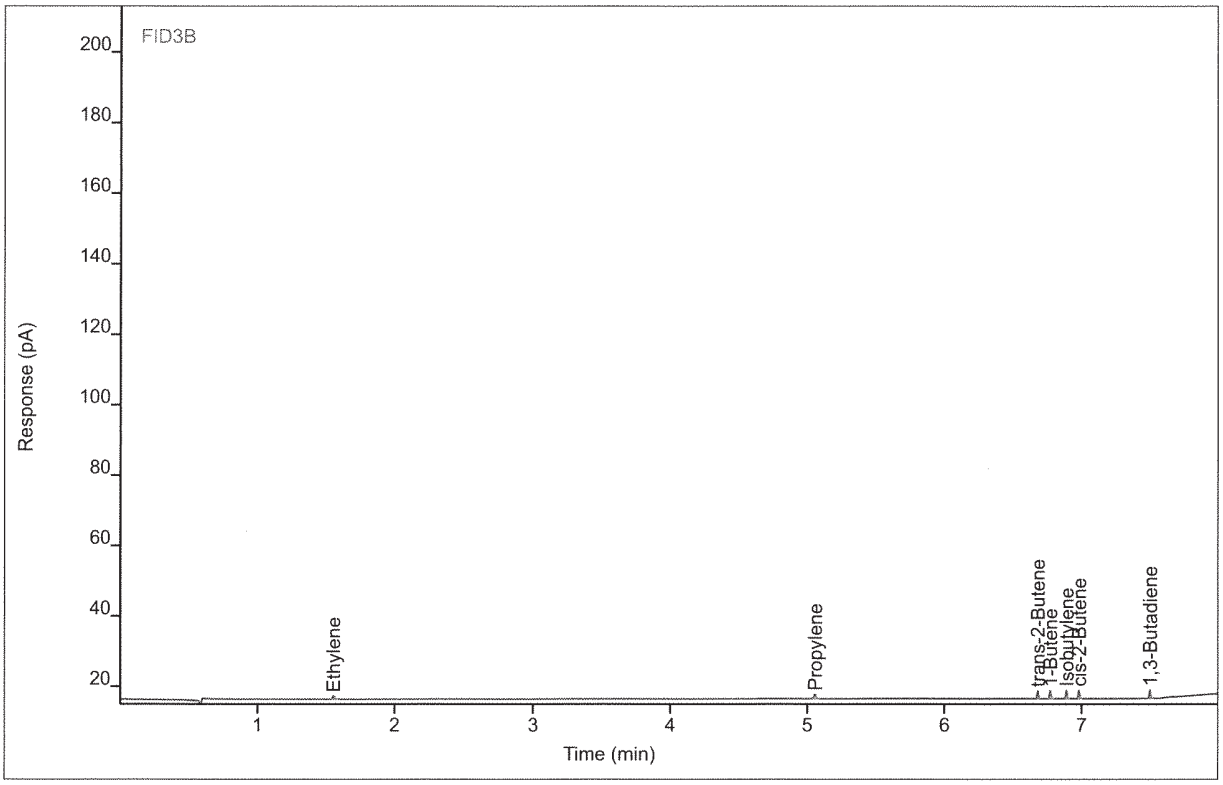


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.56	5.92162	5.67871	5.04472	1	5.04472	ppm
Propylene	BB	5.06	8.43072	7.86531	4.88047	1	4.88047	ppm
trans-2-Butene	BB	6.68	11.6099	14.2950	4.99516	1	4.99516	ppm
1-Butene	BB	6.77	12.0630	14.6371	5.12840	1	5.12840	ppm
Isobutylene	BB	6.89	11.8648	14.7179	5.12480	1	5.12480	ppm
cis-2-Butene	BB	6.98	12.3492	15.2619	5.21408	1	5.21408	ppm
1,3-Butadiene	BB	7.50	11.4501	15.2027	4.97387	1	4.97387	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #HR1 ENV(1=3970,4=30)	Sample Type	Calibration
Sequence Name	EDITHP275 ver.2	Vial Number	Vial 18
Data File	018B0504.D	Injection Volume	250
File Location	GC/2015/Edith/Quarter 2	Injection	4 of 8
Injection Date	6/9/2015 3:40 PM	Acquisition Method	AQ_EDITHP274_HRVOC.M
File Modified	6/15/2015 10:52 AM	Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Instrument		Method Modified	6/11/2015 11:54 AM
Operator	Justin Guenzler	Printed	6/15/2015 11:17 AM



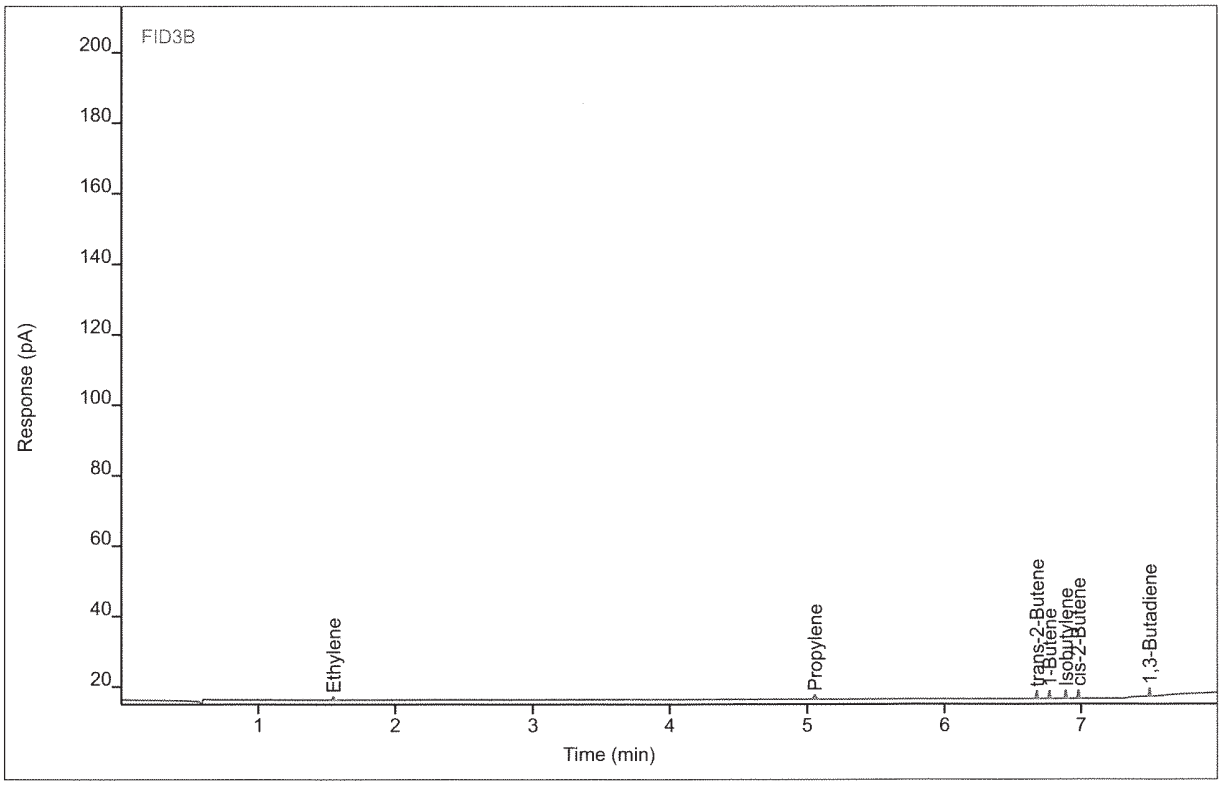
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.55	0.88913	0.85970	0.75395	1	0.75395	ppm
Propylene	BB	5.06	1.27956	1.18192	0.73252	1	0.73252	ppm
trans-2-Butene	BB	6.68	1.76116	2.19154	0.74795	1	0.74795	ppm
1-Butene	BB	6.77	1.82987	2.22087	0.76187	1	0.76187	ppm
Isobutylene	BB	6.89	1.80046	2.30374	0.75919	1	0.75919	ppm
cis-2-Butene	BB	6.98	1.86094	2.32732	0.77518	1	0.77518	ppm
1,3-Butadiene	BB	7.50	1.75211	2.28158	0.74380	1	0.74380	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #HR1 ENV(1=3970,4=30)
Sequence Name	EDITHP275 ver.2
Data File	018B0505.D
File Location	GC/2015/Edith/Quarter 2
Injection Date	6/9/2015 3:56 PM
File Modified	6/15/2015 10:52 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	5 of 8
Acquisition Method	AQ_EDITHP274_HRVOC.M
Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Method Modified	6/11/2015 11:54 AM
Printed	6/15/2015 11:17 AM

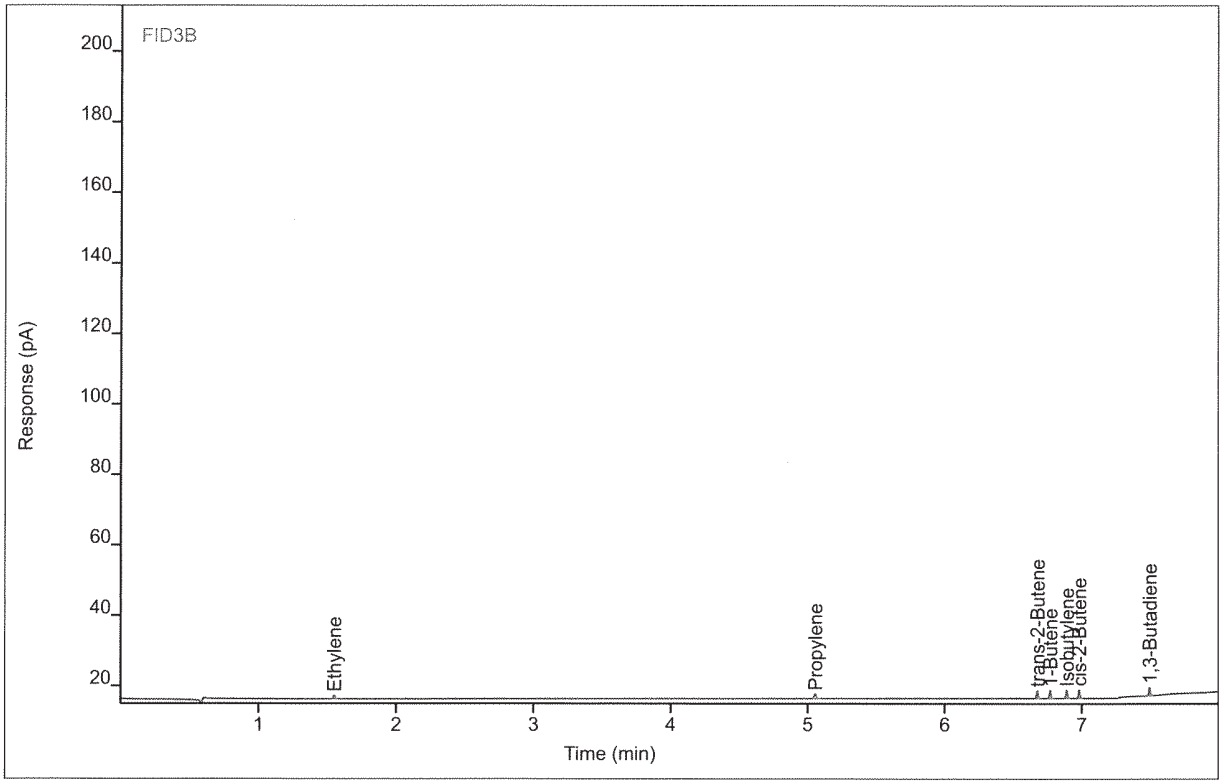


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.55	0.91211	0.86174	0.77352	1	0.77352	ppm
Propylene	BB	5.06	1.27964	1.18431	0.73257	1	0.73257	ppm
trans-2-Butene	BB	6.68	1.75221	2.17329	0.74408	1	0.74408	ppm
1-Butene	BB	6.77	1.81733	2.21136	0.75656	1	0.75656	ppm
Isobutylene	BB	6.89	1.81193	2.23318	0.76416	1	0.76416	ppm
cis-2-Butene	BB	6.98	1.85066	2.30715	0.77086	1	0.77086	ppm
1,3-Butadiene	BB	7.50	1.78711	2.25990	0.75906	1	0.75906	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #HR1 ENV(1=3970,4=30)	Sample Type	Calibration
Sequence Name	EDITHP275 ver.2	Vial Number	Vial 18
Data File	018B0506.D	Injection Volume	250
File Location	GC/2015/Edith/Quarter 2	Injection	6 of 8
Injection Date	6/9/2015 4:13 PM	Acquisition Method	AQ_EDITHP274_HRVOC.M
File Modified	6/15/2015 10:52 AM	Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Instrument		Method Modified	6/11/2015 11:54 AM
Operator	Justin Guenzler	Printed	6/15/2015 11:17 AM



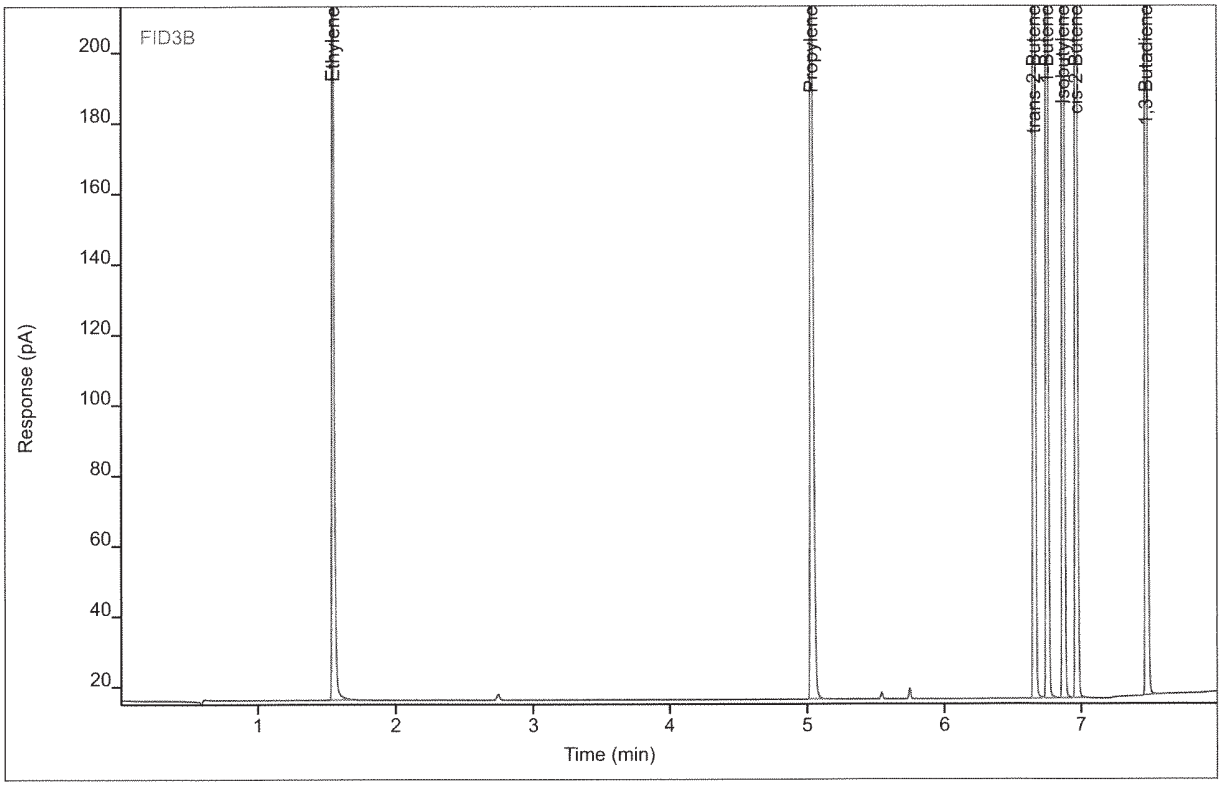
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.55	0.88825	0.84797	0.75320	1	0.75320	ppm
Propylene	BB	5.06	1.27508	1.16889	0.72992	1	0.72992	ppm
trans-2-Butene	BB	6.68	1.74607	2.14749	0.74144	1	0.74144	ppm
1-Butene	BB	6.77	1.82158	2.20488	0.75834	1	0.75834	ppm
Isobutylene	BB	6.89	1.78868	2.21792	0.75418	1	0.75418	ppm
cis-2-Butene	BB	6.98	1.85691	2.33113	0.77347	1	0.77347	ppm
1,3-Butadiene	BB	7.50	1.68062	2.25176	0.71327	1	0.71327	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #HR6 ENV(1=3900,5=112.58)
Sequence Name	EDITHP275 ver.2
Data File	018B0602.D
File Location	GC/2015/Edith/Quarter 2
Injection Date	6/9/2015 5:18 PM
File Modified	6/15/2015 10:52 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	2 of 4
Acquisition Method	AQ_EDITHP274_HRVOC.M
Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Method Modified	6/11/2015 11:54 AM
Printed	6/15/2015 11:17 AM

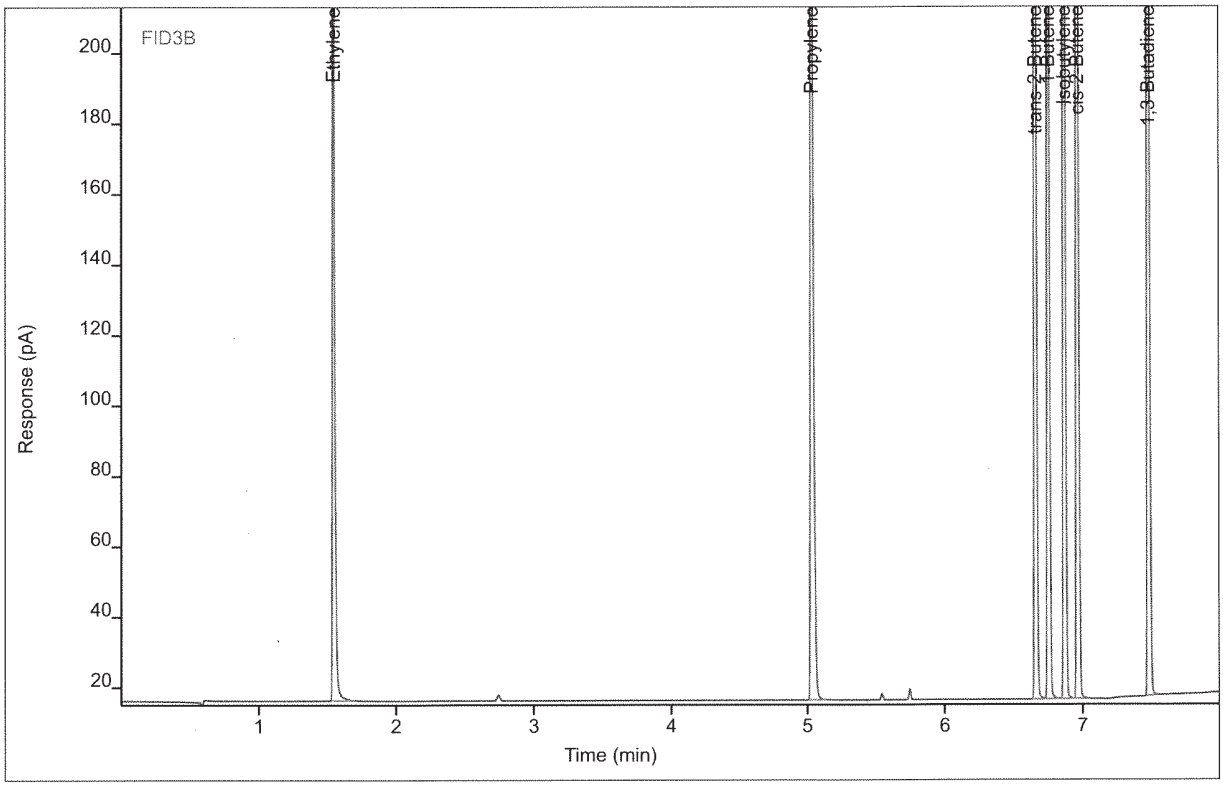


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.54	294.564	276.115	251.147	1	251.147	ppm
Propylene	BB	5.03	425.087	295.321	246.557	1	246.557	ppm
trans-2-Butene	BB	6.66	584.000	584.515	251.834	1	251.834	ppm
1-Butene	BB	6.75	577.035	574.280	246.204	1	246.204	ppm
Isobutylene	BB	6.87	572.588	569.479	248.350	1	248.350	ppm
cis-2-Butene	BB	6.96	581.397	556.994	246.050	1	246.050	ppm
1,3-Butadiene	BB	7.48	571.554	556.668	249.279	1	249.279	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #HR6 ENV(1=3900,5=112.58)	Sample Type	Calibration
Sequence Name	EDITHP275 ver.2	Vial Number	Vial 18
Data File	018B0603.D	Injection Volume	250
File Location	GC/2015/Edith/Quarter 2	Injection	3 of 4
Injection Date	6/9/2015 5:35 PM	Acquisition Method	AQ_EDITHP274_HRVOC.M
File Modified	6/15/2015 10:52 AM	Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Instrument		Method Modified	6/11/2015 11:54 AM
Operator	Justin Guenzler	Printed	6/15/2015 11:17 AM

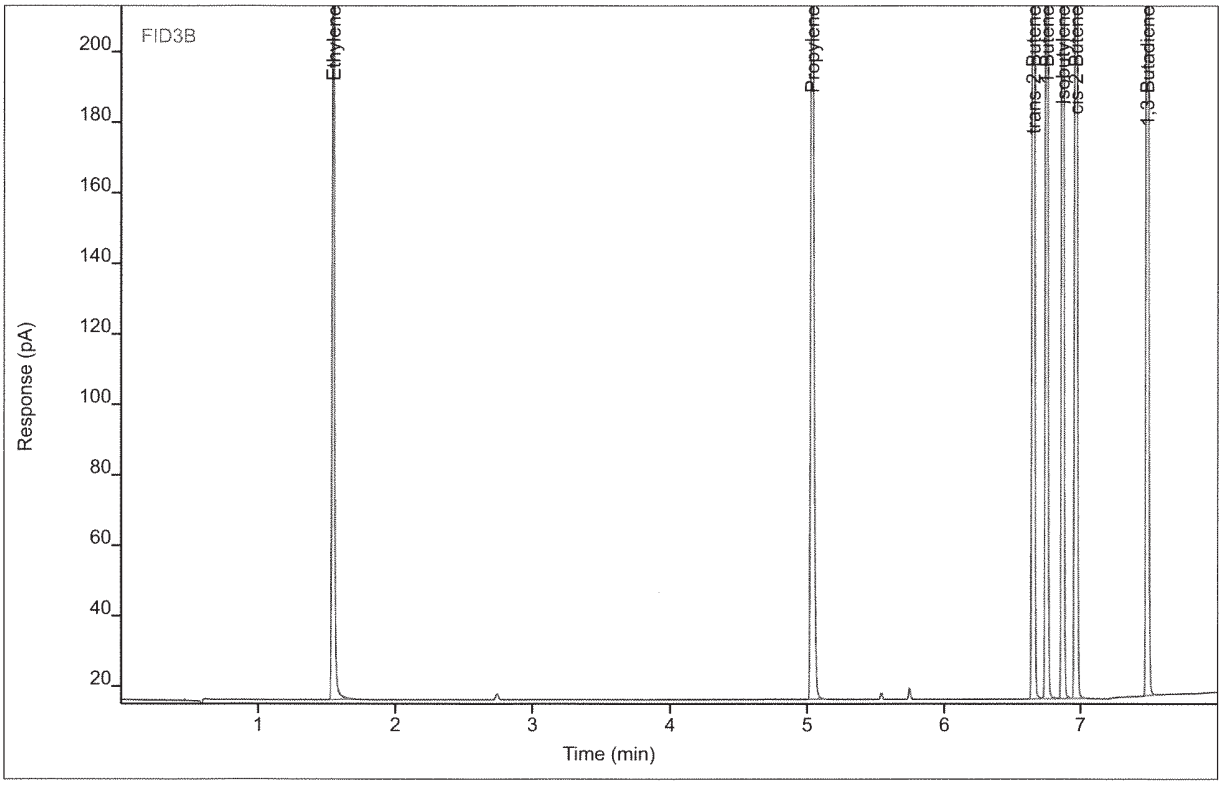


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.54	296.226	277.137	252.564	1	252.564	ppm
Propylene	BB	5.03	427.525	299.428	247.971	1	247.971	ppm
trans-2-Butene	BB	6.66	588.211	599.530	253.650	1	253.650	ppm
1-Butene	BB	6.75	580.556	592.101	247.706	1	247.706	ppm
Isobutylene	BB	6.87	576.075	577.998	249.862	1	249.862	ppm
cis-2-Butene	BB	6.96	585.398	554.162	247.743	1	247.743	ppm
1,3-Butadiene	BB	7.48	575.552	563.100	251.023	1	251.023	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #HR6 ENV(1=3900,5=112.58)	Sample Type	Calibration
Sequence Name	EDITHP275 ver.2	Vial Number	Vial 18
Data File	018B0604.D	Injection Volume	250
File Location	GC/2015/Edith/Quarter 2	Injection	4 of 4
Injection Date	6/9/2015 5:51 PM	Acquisition Method	AQ_EDITHP274_HRVOC.M
File Modified	6/15/2015 10:52 AM	Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Instrument		Method Modified	6/11/2015 11:54 AM
Operator	Justin Guenzler	Printed	6/15/2015 11:17 AM

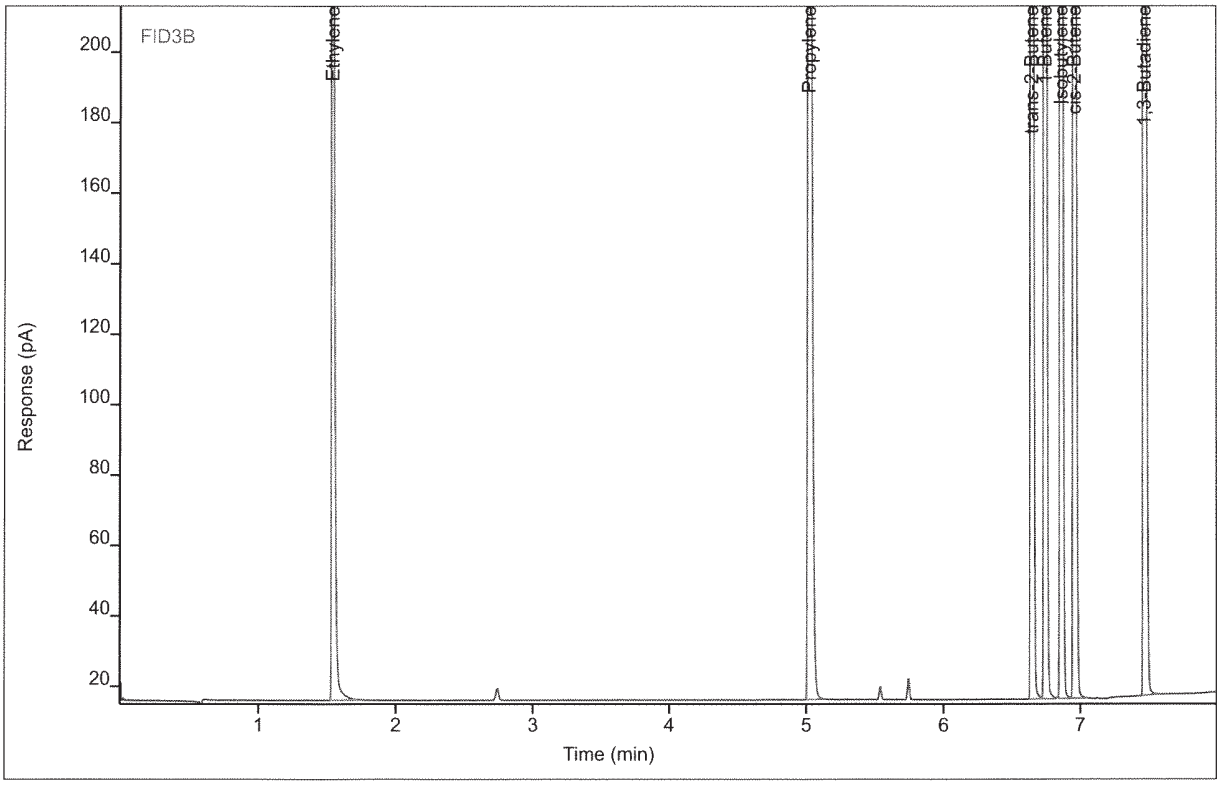


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.54	297.229	262.736	253.419	1	253.419	ppm
Propylene	BB	5.03	428.979	299.519	248.815	1	248.815	ppm
trans-2-Butene	BB	6.66	590.481	602.154	254.629	1	254.629	ppm
1-Butene	BB	6.75	582.613	576.591	248.584	1	248.584	ppm
Isobutylene	BB	6.87	578.019	570.925	250.706	1	250.706	ppm
cis-2-Butene	BB	6.96	587.566	547.174	248.660	1	248.660	ppm
1,3-Butadiene	BB	7.48	577.728	559.809	251.972	1	251.972	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #HR7 ENV(1=1900,5=112.58)	Sample Type	Calibration
Sequence Name	EDITHP275 ver.2	Vial Number	Vial 18
Data File	018B0702.D	Injection Volume	250
File Location	GC/2015/Edith/Quarter 2	Injection	2 of 4
Injection Date	6/9/2015 6:24 PM	Acquisition Method	AQ_EDITHP274_HRVOC.M
File Modified	6/15/2015 10:53 AM	Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Instrument		Method Modified	6/11/2015 11:54 AM
Operator	Justin Guenzler	Printed	6/15/2015 11:17 AM

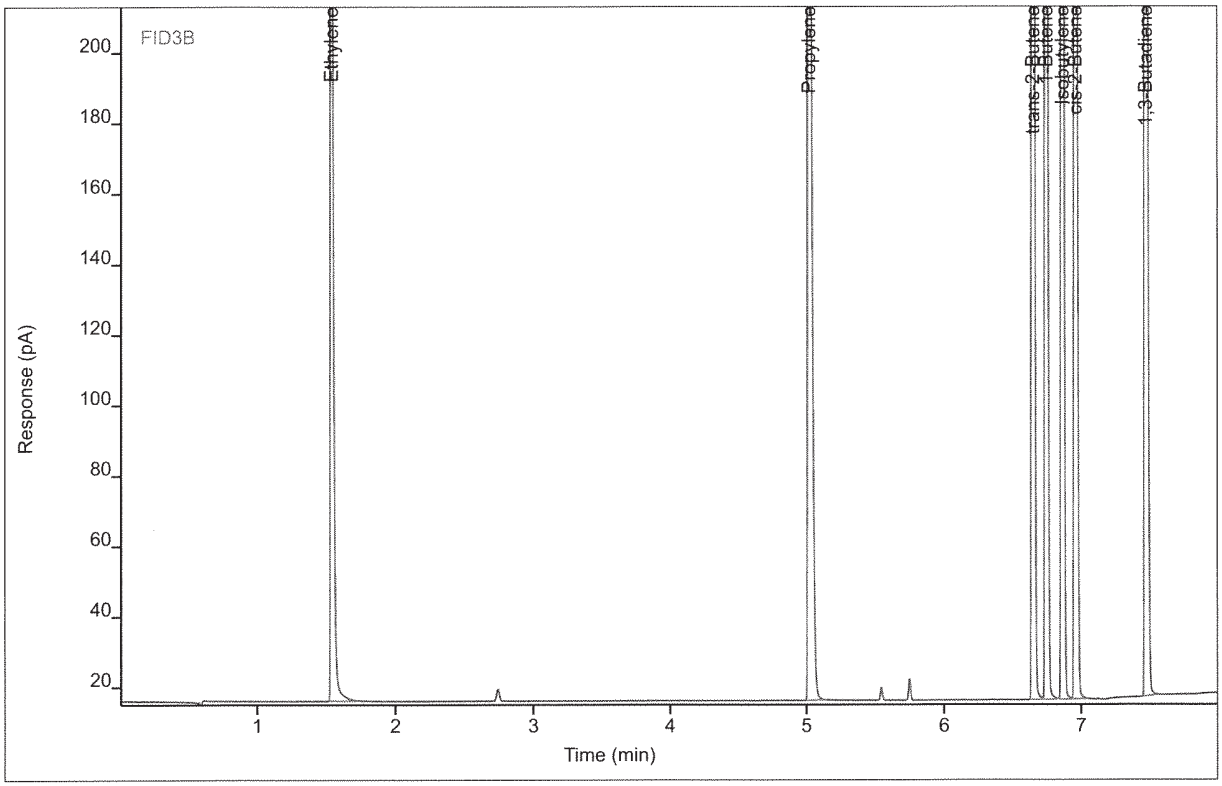


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.54	592.790	513.872	505.420	1	505.420	ppm
Propylene	BB	5.02	854.414	501.277	495.584	1	495.584	ppm
trans-2-Butene	BV	6.65	1177.04	1020.62	507.577	1	507.577	ppm
1-Butene	VB	6.74	1161.08	1006.15	495.417	1	495.417	ppm
Isobutylene	BV	6.86	1151.67	980.694	499.537	1	499.537	ppm
cis-2-Butene	VB	6.96	1171.67	990.010	495.870	1	495.870	ppm
1,3-Butadiene	BB	7.47	1153.34	901.121	503.039	1	503.039	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #HR7 ENV(1=1900,5=112.58)	Sample Type	Calibration
Sequence Name	EDITHP275 ver.2	Vial Number	Vial 18
Data File	018B0703.D	Injection Volume	250
File Location	GC/2015/Edith/Quarter 2	Injection	3 of 4
Injection Date	6/9/2015 6:40 PM	Acquisition Method	AQ_EDITHP274_HRVOC.M
File Modified	6/15/2015 10:53 AM	Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Instrument		Method Modified	6/11/2015 11:54 AM
Operator	Justin Guenzler	Printed	6/15/2015 11:17 AM

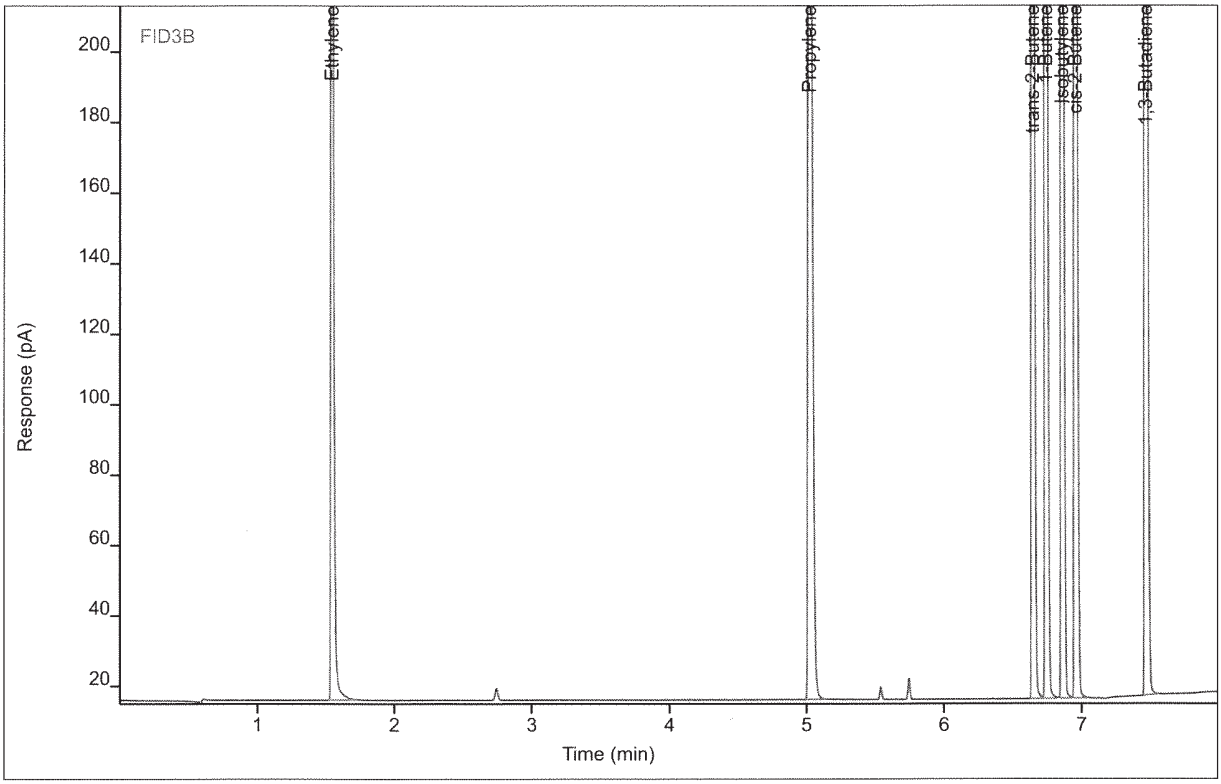


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.54	594.220	520.489	506.640	1	506.640	ppm
Propylene	BB	5.02	856.488	512.245	496.787	1	496.787	ppm
trans-2-Butene	BV	6.65	1179.85	1035.24	508.789	1	508.789	ppm
1-Butene	VB	6.74	1163.63	1021.04	496.505	1	496.505	ppm
Isobutylene	BV	6.86	1154.24	994.305	500.654	1	500.654	ppm
cis-2-Butene	VB	6.96	1174.50	996.828	497.066	1	497.066	ppm
1,3-Butadiene	BB	7.47	1156.28	921.197	504.325	1	504.325	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #HR7 ENV(1=1900,5=112.58)	Sample Type	Calibration
Sequence Name	EDITHP275 ver.2	Vial Number	Vial 18
Data File	018B0704.D	Injection Volume	250
File Location	GC/2015/Edith/Quarter 2	Injection	4 of 4
Injection Date	6/9/2015 6:57 PM	Acquisition Method	AQ_EDITHP274_HRVOC.M
File Modified	6/15/2015 10:53 AM	Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Instrument		Method Modified	6/11/2015 11:54 AM
Operator	Justin Guenzler	Printed	6/15/2015 11:17 AM

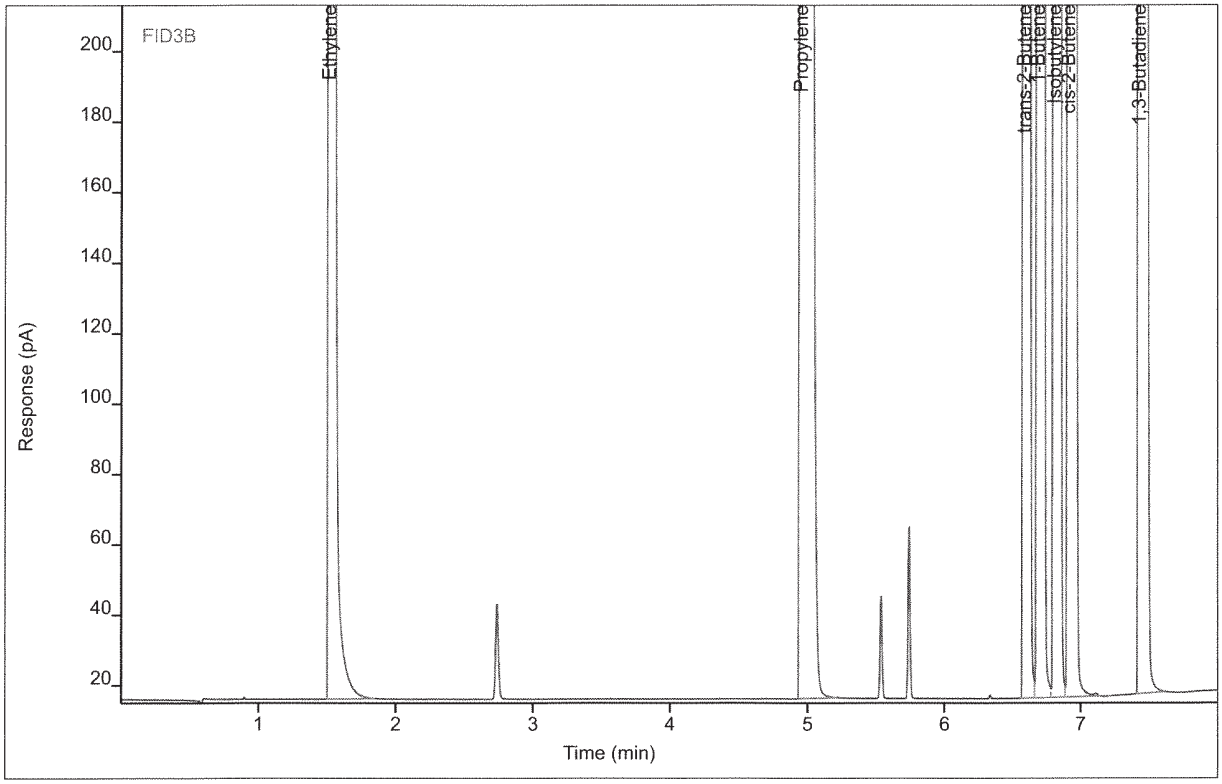


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.54	592.143	513.795	504.869	1	504.869	ppm
Propylene	BB	5.02	854.031	501.962	495.361	1	495.361	ppm
trans-2-Butene	BV	6.65	1176.33	1033.97	507.273	1	507.273	ppm
1-Butene	VB	6.74	1160.09	998.934	494.995	1	494.995	ppm
Isobutylene	BV	6.86	1150.78	1000.56	499.151	1	499.151	ppm
cis-2-Butene	VB	6.96	1171.12	976.805	495.637	1	495.637	ppm
1,3-Butadiene	BB	7.47	1152.85	892.677	502.827	1	502.827	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #HR8 ENV(1=600,5=450.33)	Sample Type	Calibration
Sequence Name	EDITHP275 ver.2	Vial Number	Vial 18
Data File	018B0802.D	Injection Volume	250
File Location	GC/2015/Edith/Quarter 2	Injection	2 of 4
Injection Date	6/9/2015 7:29 PM	Acquisition Method	AQ_EDITHP274_HRVOC.M
File Modified	6/15/2015 10:54 AM	Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Instrument		Method Modified	6/11/2015 11:54 AM
Operator	Justin Guenzler	Printed	6/15/2015 11:17 AM



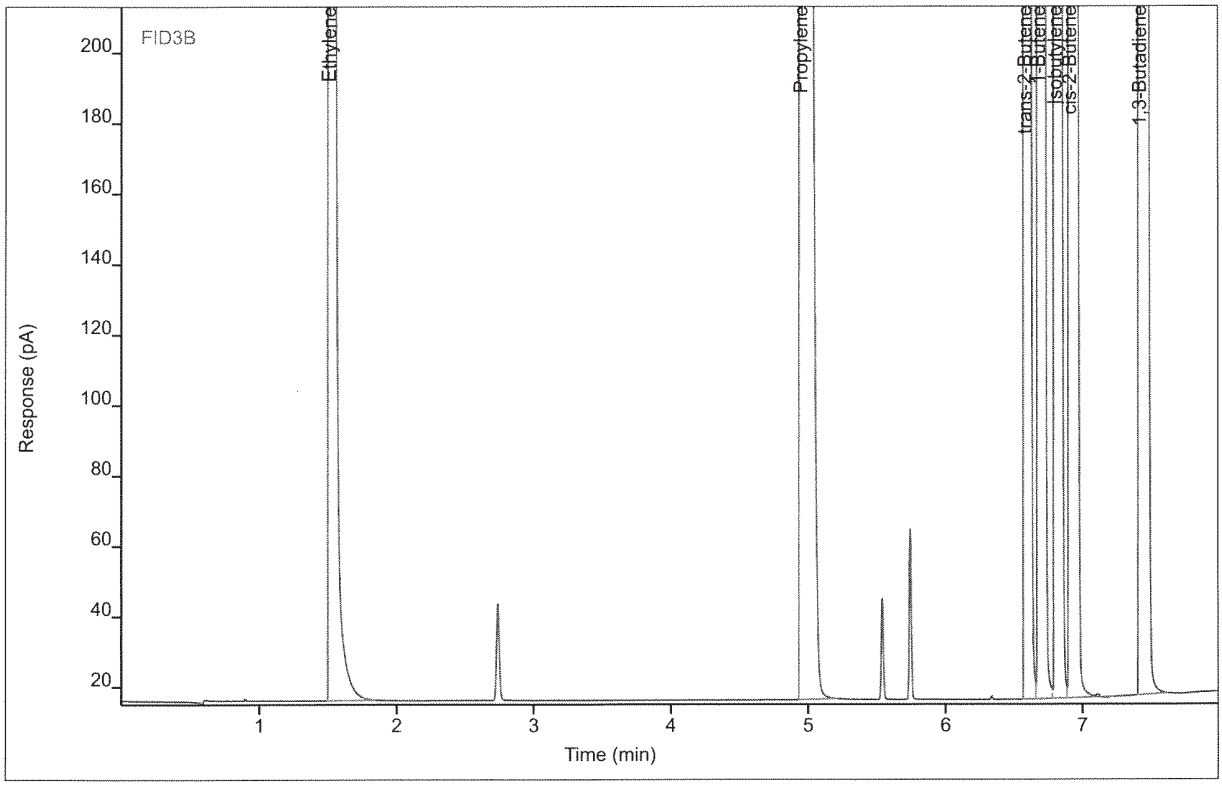
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB S	1.51	4863.73	2423.65	4146.91	1	4146.91	ppm
Propylene	BB S	4.95	7003.53	1993.71	4062.31	1	4062.31	ppm
trans-2-Butene	BV S	6.58	9634.04	4970.53	4154.60	1	4154.60	ppm
1-Butene	VV S	6.68	9500.25	4799.97	4053.77	1	4053.77	ppm
Isobutylene	VV S	6.80	9425.82	4515.83	4088.62	1	4088.62	ppm
cis-2-Butene	VB S	6.91	9608.17	4293.04	4066.41	1	4066.41	ppm
1,3-Butadiene	BB S	7.42	9466.10	3941.71	4128.89	1	4128.89	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #HR8 ENV(1=600,5=450.33)
Sequence Name	EDITHP275 ver.2
Data File	018B0803.D
File Location	GC/2015/Edith/Quarter 2
Injection Date	6/9/2015 7:46 PM
File Modified	6/15/2015 10:54 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	3 of 4
Acquisition Method	AQ_EDITHP274_HRVOC.M
Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Method Modified	6/11/2015 11:54 AM
Printed	6/15/2015 11:17 AM

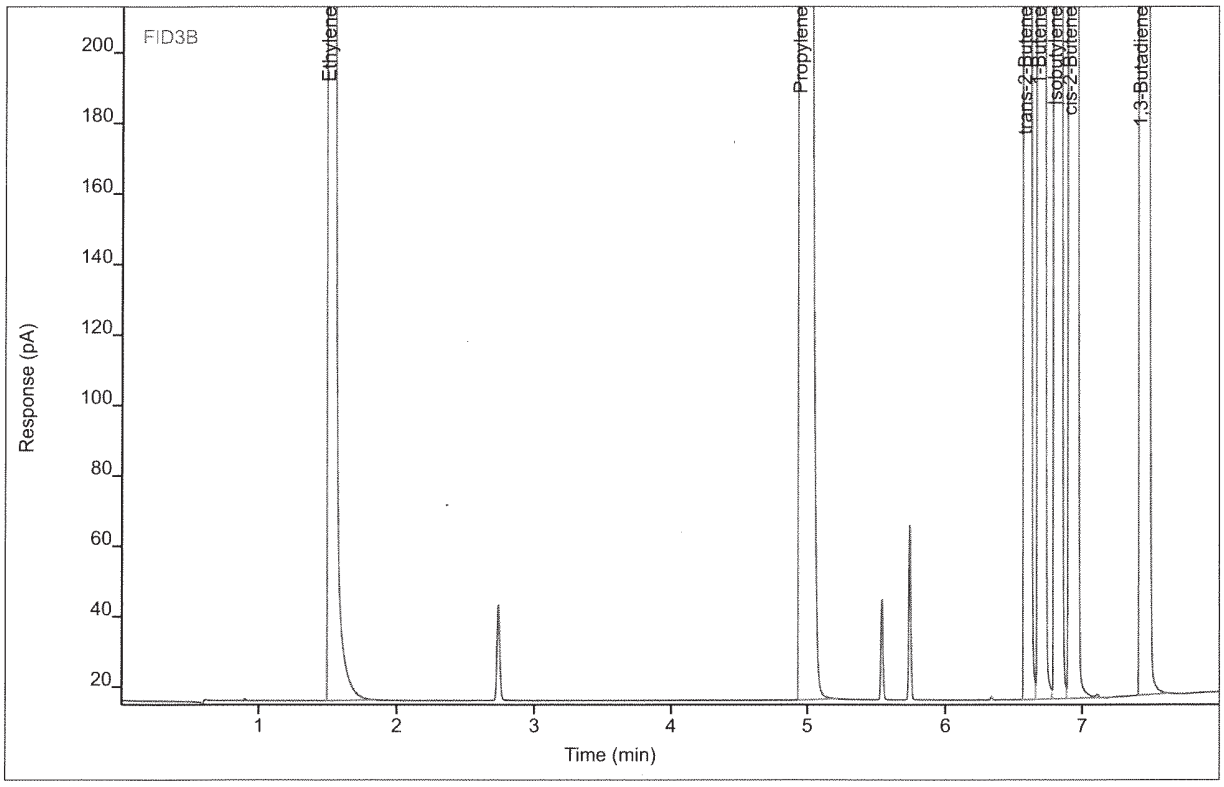


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB S	1.51	4875.96	2439.67	4157.34	1	4157.34	ppm
Propylene	BB S	4.95	7024.61	2000.01	4074.54	1	4074.54	ppm
trans-2-Butene	BV S	6.58	9664.07	4999.04	4167.55	1	4167.55	ppm
1-Butene	VV S	6.68	9529.43	4753.96	4066.22	1	4066.22	ppm
Isobutylene	VV S	6.80	9455.23	4456.74	4101.38	1	4101.38	ppm
cis-2-Butene	VB S	6.91	9638.04	4310.99	4079.06	1	4079.06	ppm
1,3-Butadiene	BB S	7.42	9496.99	3907.64	4142.36	1	4142.36	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #HR8 ENV(1=600,5=450.33)	Sample Type	Calibration
Sequence Name	EDITHP275 ver.2	Vial Number	Vial 18
Data File	018B0804.D	Injection Volume	250
File Location	GC/2015/Edith/Quarter 2	Injection	4 of 4
Injection Date	6/9/2015 8:02 PM	Acquisition Method	AQ_EDITHP274_HRVOC.M
File Modified	6/15/2015 10:54 AM	Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Instrument		Method Modified	6/11/2015 11:54 AM
Operator	Justin Guenzler	Printed	6/15/2015 11:17 AM



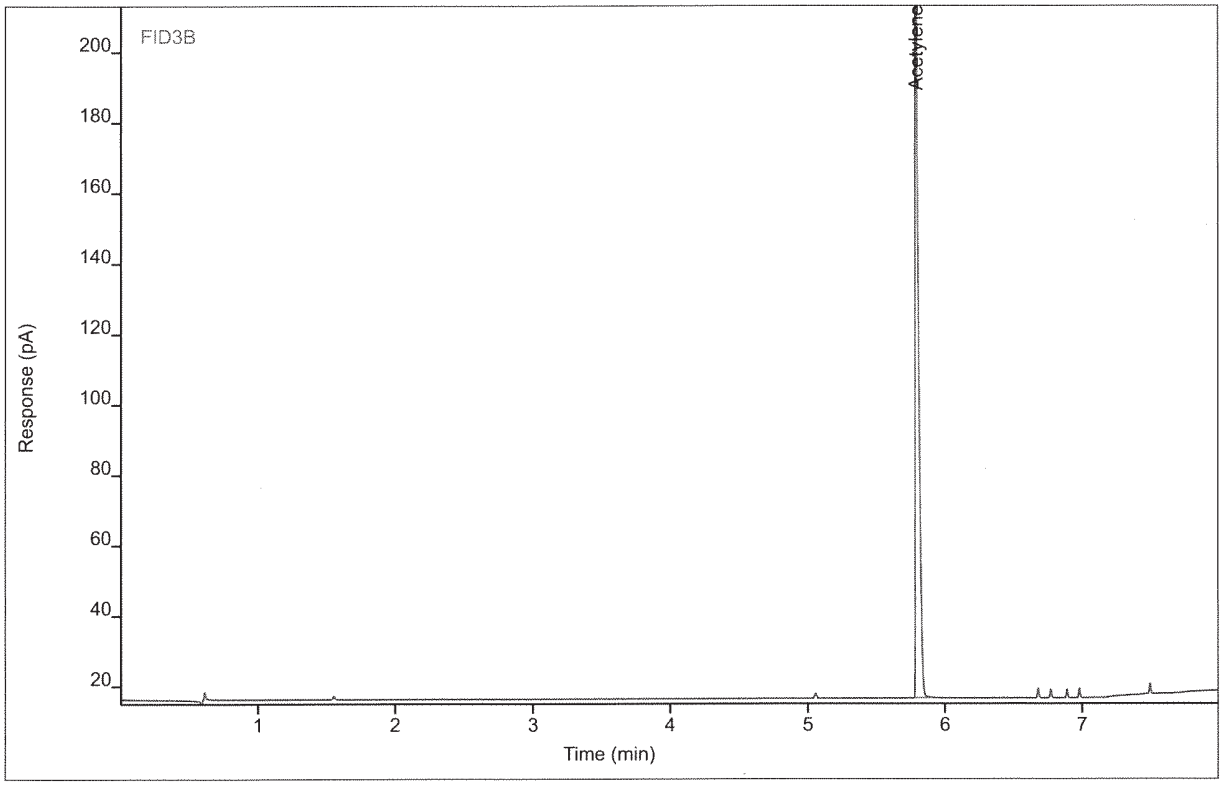
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB S	1.51	4866.46	2443.22	4149.23	1	4149.23	ppm
Propylene	BB S	4.95	7011.13	2022.67	4066.72	1	4066.72	ppm
trans-2-Butene	BV S	6.58	9647.65	5072.67	4160.47	1	4160.47	ppm
1-Butene	VV S	6.68	9513.11	4504.67	4059.26	1	4059.26	ppm
Isobutylene	VV S	6.80	9438.93	4503.64	4094.30	1	4094.30	ppm
cis-2-Butene	VB S	6.91	9621.80	4360.54	4072.18	1	4072.18	ppm
1,3-Butadiene	BB S	7.42	9480.68	3962.73	4135.24	1	4135.24	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #A4 ENV(1=0,6=450)
Sequence Name	EDITHP275 ver.2
Data File	018B1002.D
File Location	GC/2015/Edith/Quarter 2
Injection Date	6/9/2015 9:40 PM
File Modified	6/15/2015 10:55 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	2 of 4
Acquisition Method	AQ_EDITHP274_HRVOC.M
Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Method Modified	6/11/2015 11:54 AM
Printed	6/15/2015 11:17 AM



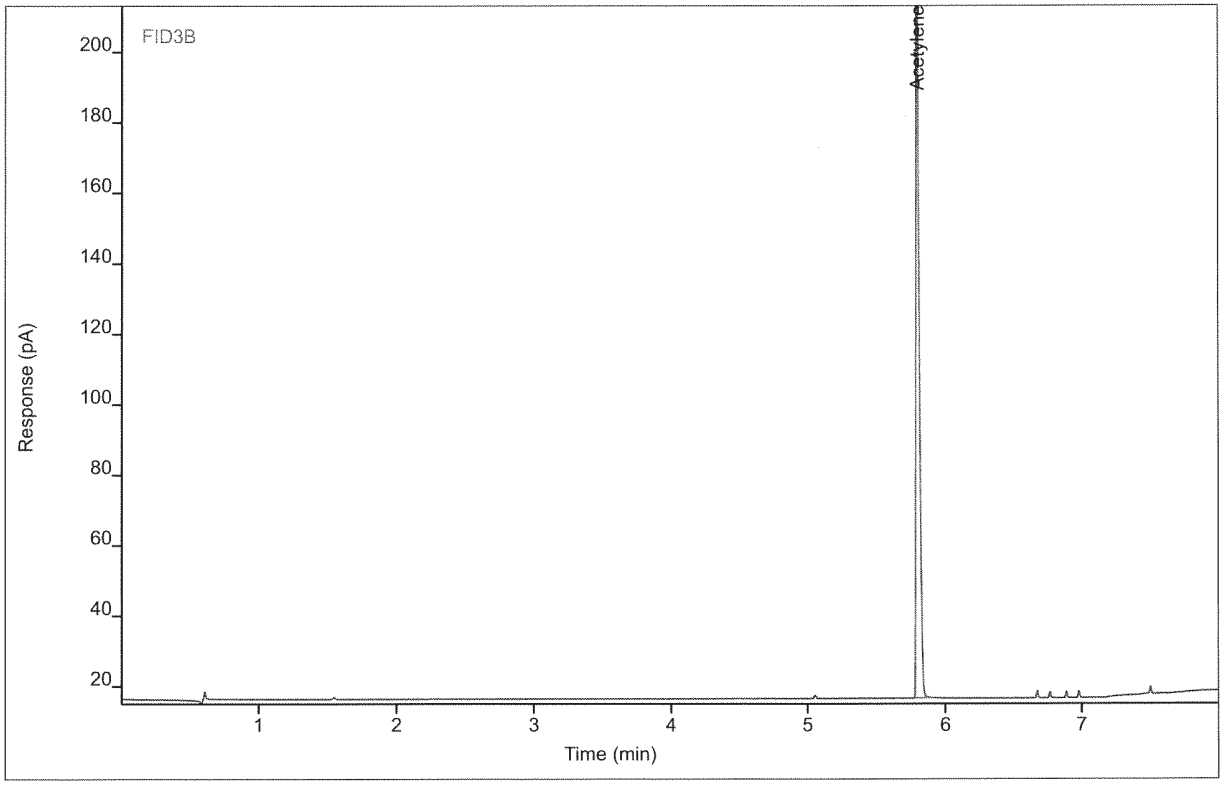
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetylene	BB	5.79	360.706	238.804	245.728	1	245.728	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #A4 ENV(1=0,6=450)
Sequence Name	EDITHP275 ver.2
Data File	018B1003.D
File Location	GC/2015/Edith/Quarter 2
Injection Date	6/9/2015 9:57 PM
File Modified	6/15/2015 10:55 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	3 of 4
Acquisition Method	AQ_EDITHP274_HRVOC.M
Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Method Modified	6/11/2015 11:54 AM
Printed	6/15/2015 11:17 AM



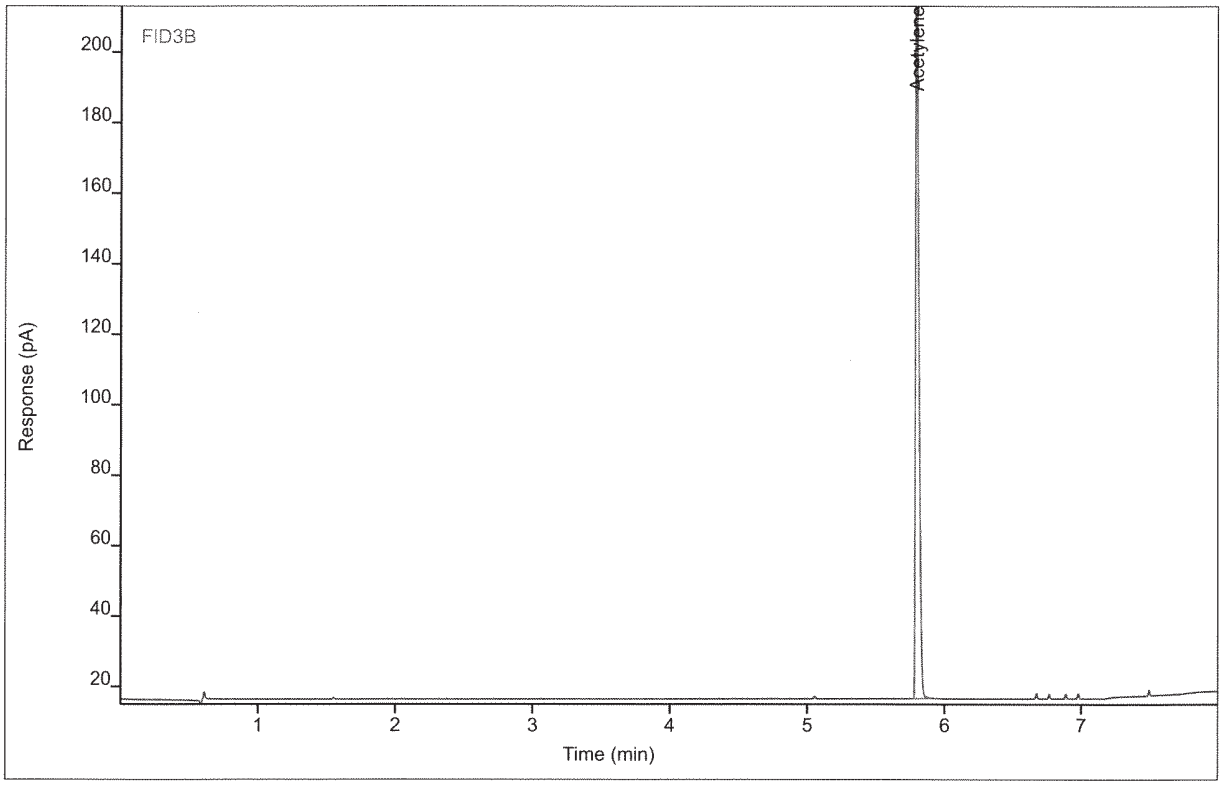
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetylene	BB	5.79	362.659	237.684	247.058	1	247.058	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #A4 ENV(1=0,6=450)
Sequence Name	EDITHP275 ver.2
Data File	018B1004.D
File Location	GC/2015/Edith/Quarter 2
Injection Date	6/9/2015 10:13 PM
File Modified	6/15/2015 10:55 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	4 of 4
Acquisition Method	AQ_EDITHP274_HRVOC.M
Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Method Modified	6/11/2015 11:54 AM
Printed	6/15/2015 11:17 AM



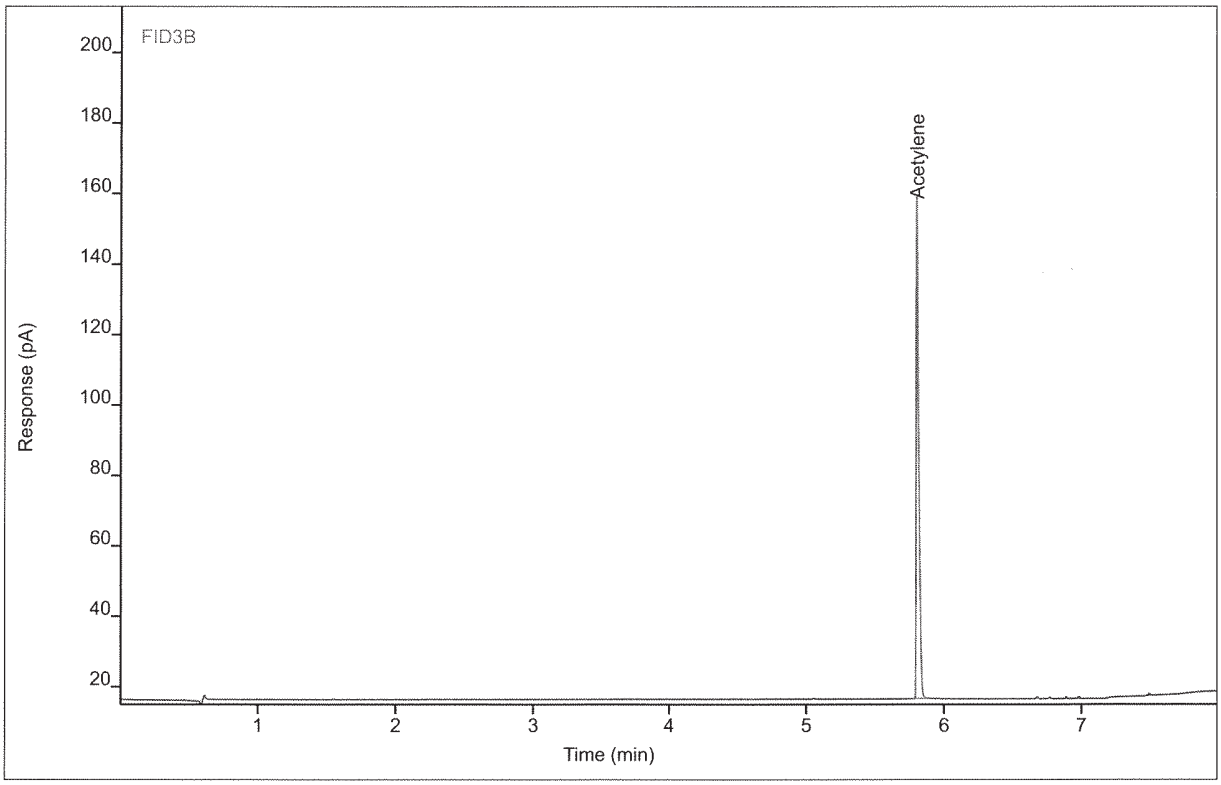
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetylene	BB	5.79	361.379	221.160	246.186	1	246.186	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #A3 ENV(1=400,6=400)
Sequence Name	EDITHP275 ver.2
Data File	018B1102.D
File Location	GC/2015/Edith/Quarter 2
Injection Date	6/9/2015 10:45 PM
File Modified	6/15/2015 10:55 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	2 of 4
Acquisition Method	AQ_EDITHP274_HRVOC.M
Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Method Modified	6/11/2015 11:54 AM
Printed	6/15/2015 11:17 AM

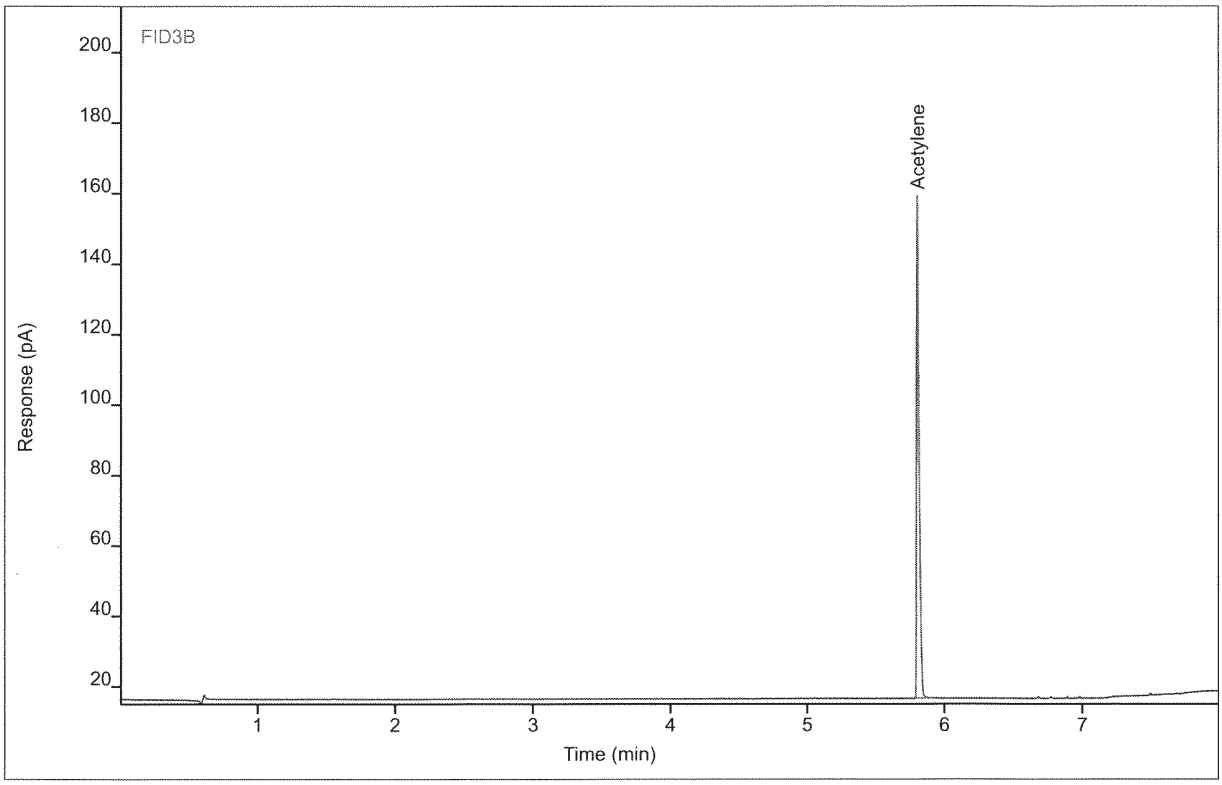


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetylene	BB	5.81	185.100	140.774	126.096	1	126.096	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #A3 ENV(1=400,6=400)	Sample Type	Calibration
Sequence Name	EDITHP275 ver.2	Vial Number	Vial 18
Data File	018B1103.D	Injection Volume	250
File Location	GC/2015/Edith/Quarter 2	Injection	3 of 4
Injection Date	6/9/2015 11:02 PM	Acquisition Method	AQ_EDITHP274_HRVOC.M
File Modified	6/15/2015 10:55 AM	Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Instrument		Method Modified	6/11/2015 11:54 AM
Operator	Justin Guenzler	Printed	6/15/2015 11:17 AM



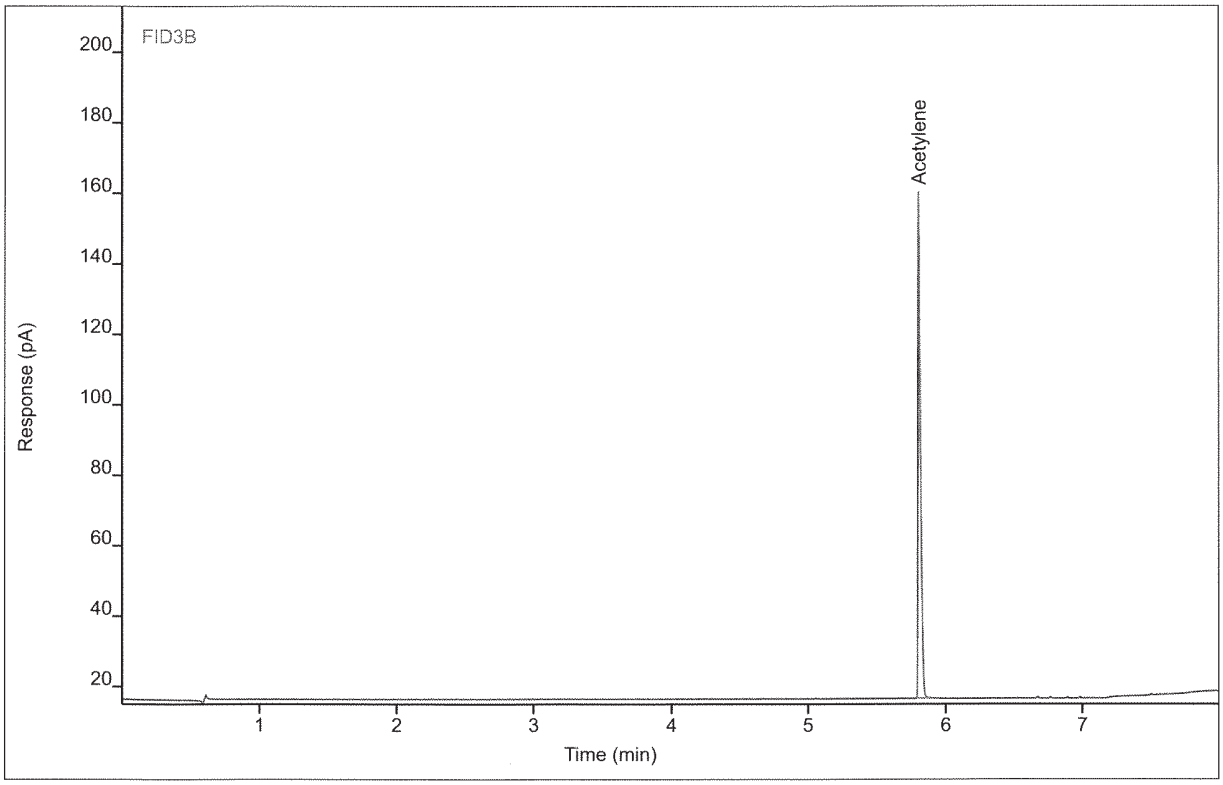
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetylene	BB	5.81	185.705	143.327	126.509	1	126.509	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #A3 ENV(1=400,6=400)
Sequence Name	EDITHP275 ver.2
Data File	018B1104.D
File Location	GC/2015/Edith/Quarter 2
Injection Date	6/9/2015 11:18 PM
File Modified	6/15/2015 10:55 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	4 of 4
Acquisition Method	AQ_EDITHP274_HRVOC.M
Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Method Modified	6/11/2015 11:54 AM
Printed	6/15/2015 11:17 AM



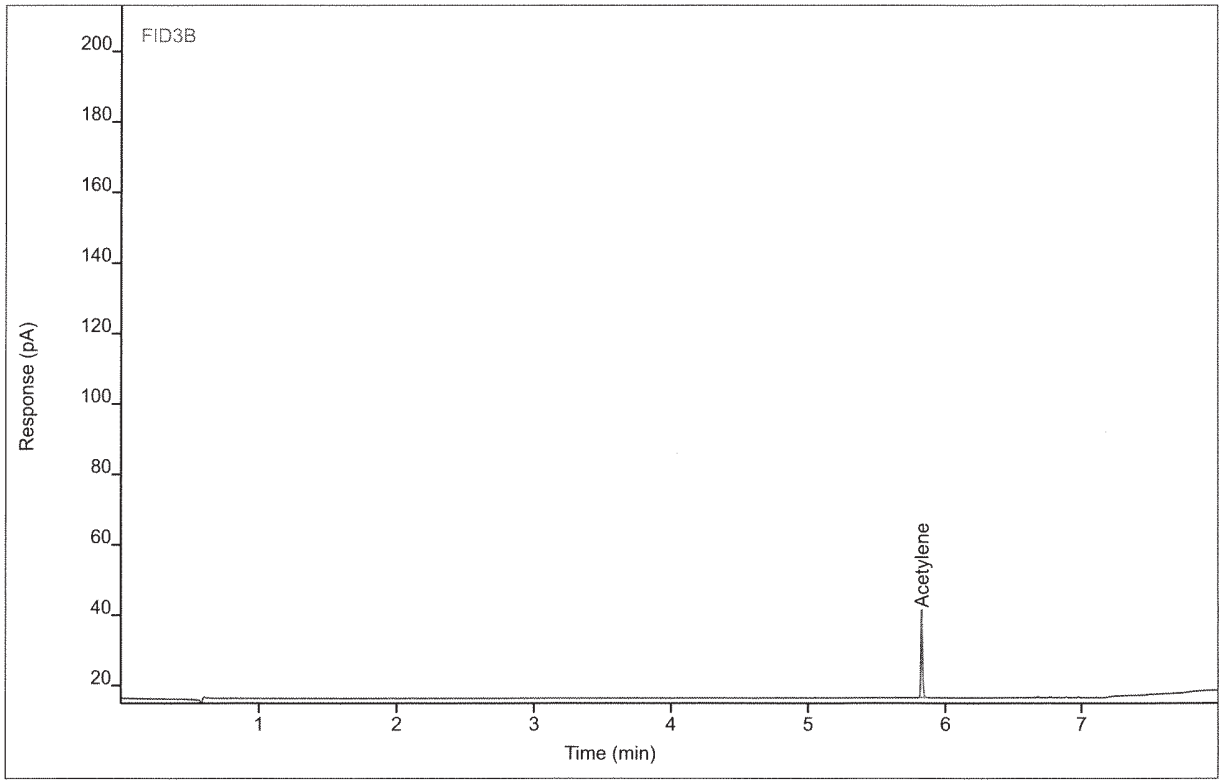
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetylene	BB	5.81	185.388	144.601	126.293	1	126.293	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #A2 ENV(1=800,6=50)
Sequence Name	EDITHP275 ver.2
Data File	018B1202.D
File Location	GC/2015/Edith/Quarter 2
Injection Date	6/9/2015 11:51 PM
File Modified	6/15/2015 10:55 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	2 of 4
Acquisition Method	AQ_EDITHP274_HRVOC.M
Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Method Modified	6/11/2015 11:54 AM
Printed	6/15/2015 11:17 AM



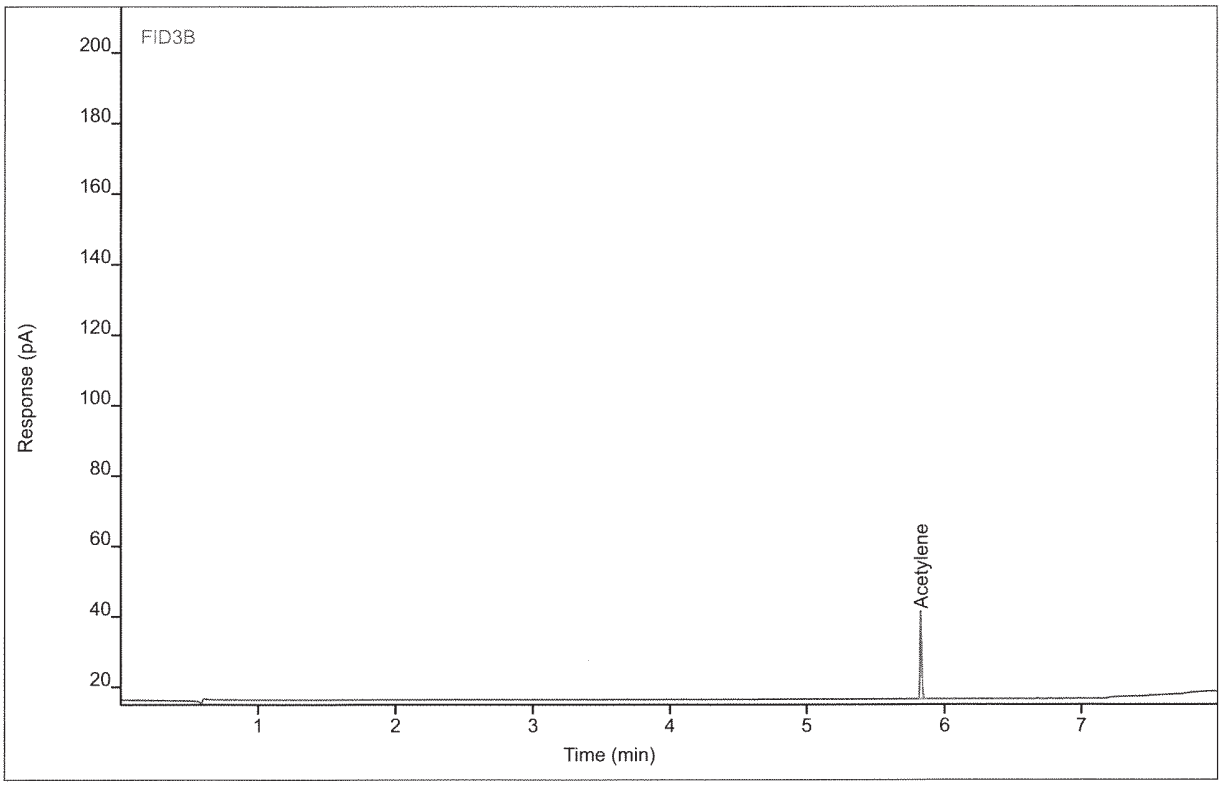
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetylene	BB	5.83	21.7188	24.4594	14.7932	1	14.7932	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #A2 ENV(1=800,6=50)
Sequence Name	EDITHP275 ver.2
Data File	018B1203.D
File Location	GC/2015/Edith/Quarter 2
Injection Date	6/10/2015 12:07 AM
File Modified	6/15/2015 10:55 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	3 of 4
Acquisition Method	AQ_EDITHP274_HRVOC.M
Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Method Modified	6/11/2015 11:54 AM
Printed	6/15/2015 11:17 AM



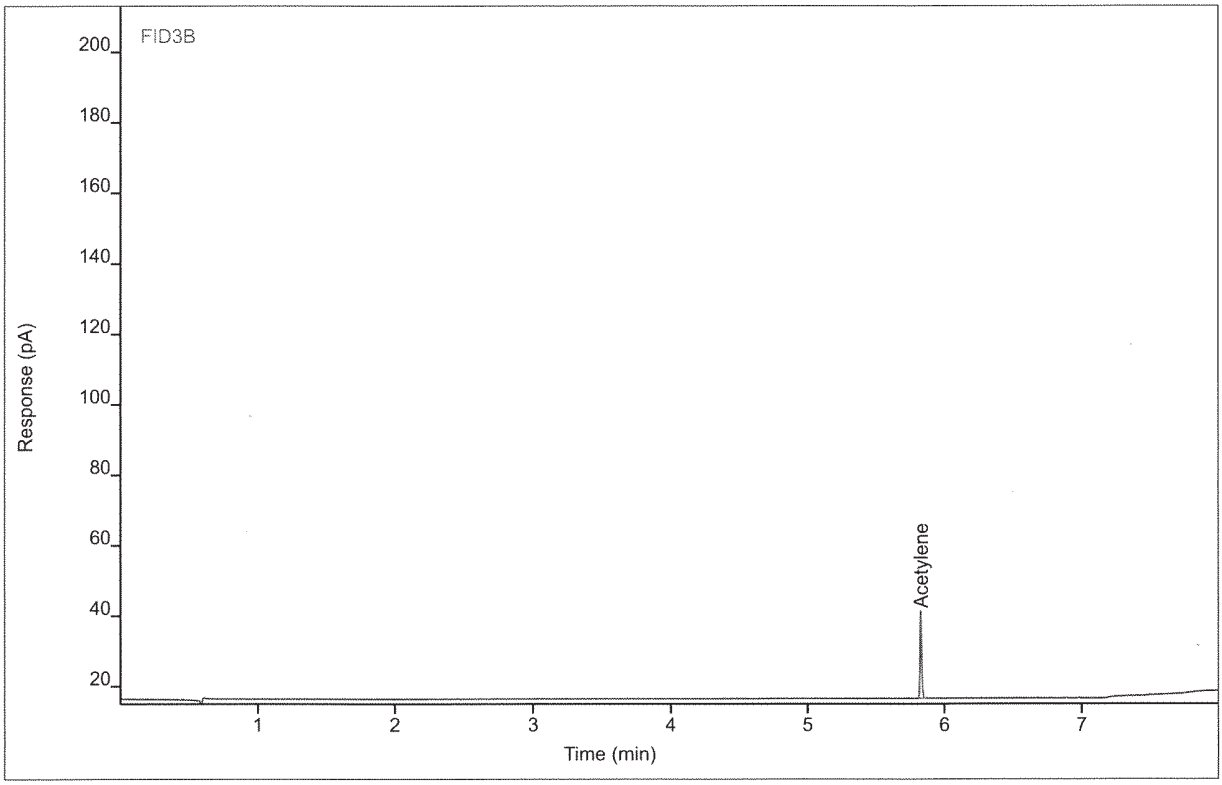
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetylene	BB	5.83	21.6722	24.4125	14.7614	1	14.7614	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #A2 ENV(1=800,6=50)
Sequence Name	EDITHP275 ver.2
Data File	018B1204.D
File Location	GC/2015/Edith/Quarter 2
Injection Date	6/10/2015 12:23 AM
File Modified	6/15/2015 10:55 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	4 of 4
Acquisition Method	AQ_EDITHP274_HRVOC.M
Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Method Modified	6/11/2015 11:54 AM
Printed	6/15/2015 11:17 AM



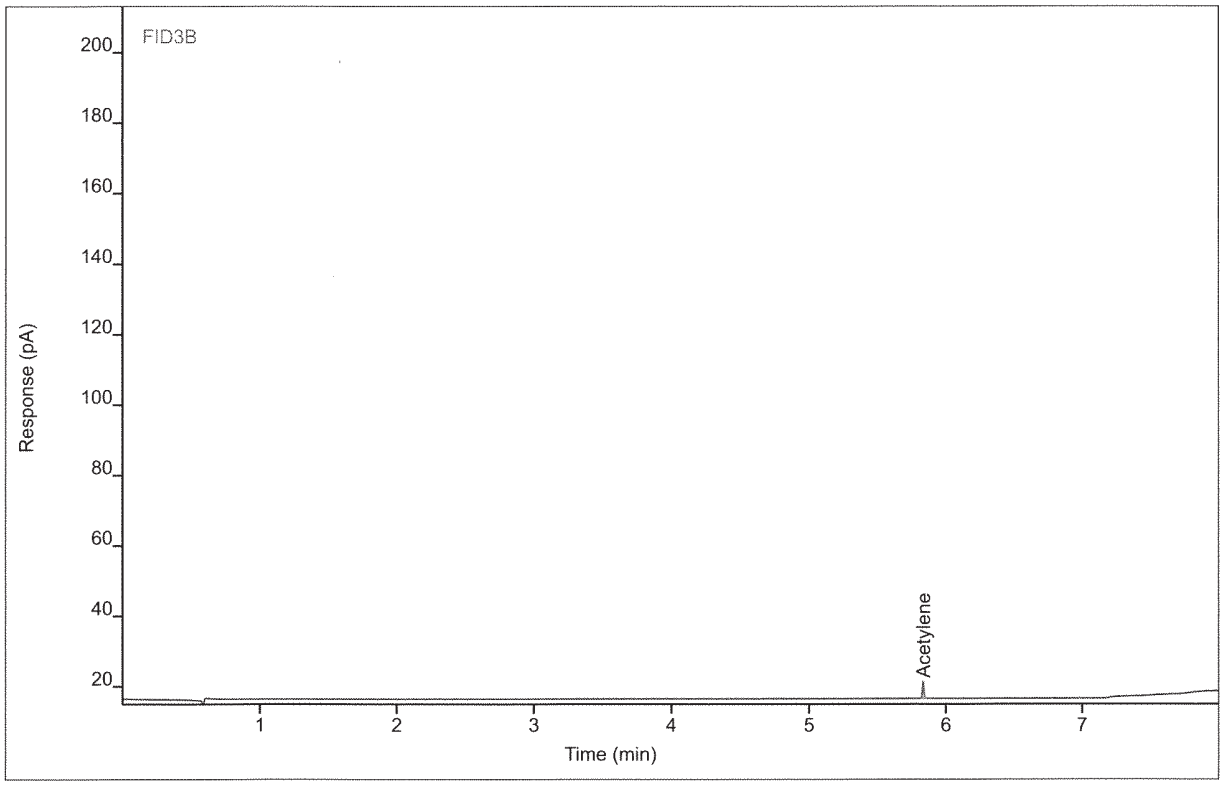
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetylene	BB	5.83	21.7225	24.4800	14.7957	1	14.7957	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #A1 ENV(1=4950,6=50)
Sequence Name	EDITHP275 ver.2
Data File	018B1302.D
File Location	GC/2015/Edith/Quarter 2
Injection Date	6/10/2015 12:56 AM
File Modified	6/15/2015 10:55 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	2 of 8
Acquisition Method	AQ_EDITHP274_HRVOC.M
Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Method Modified	6/11/2015 11:54 AM
Printed	6/15/2015 11:17 AM



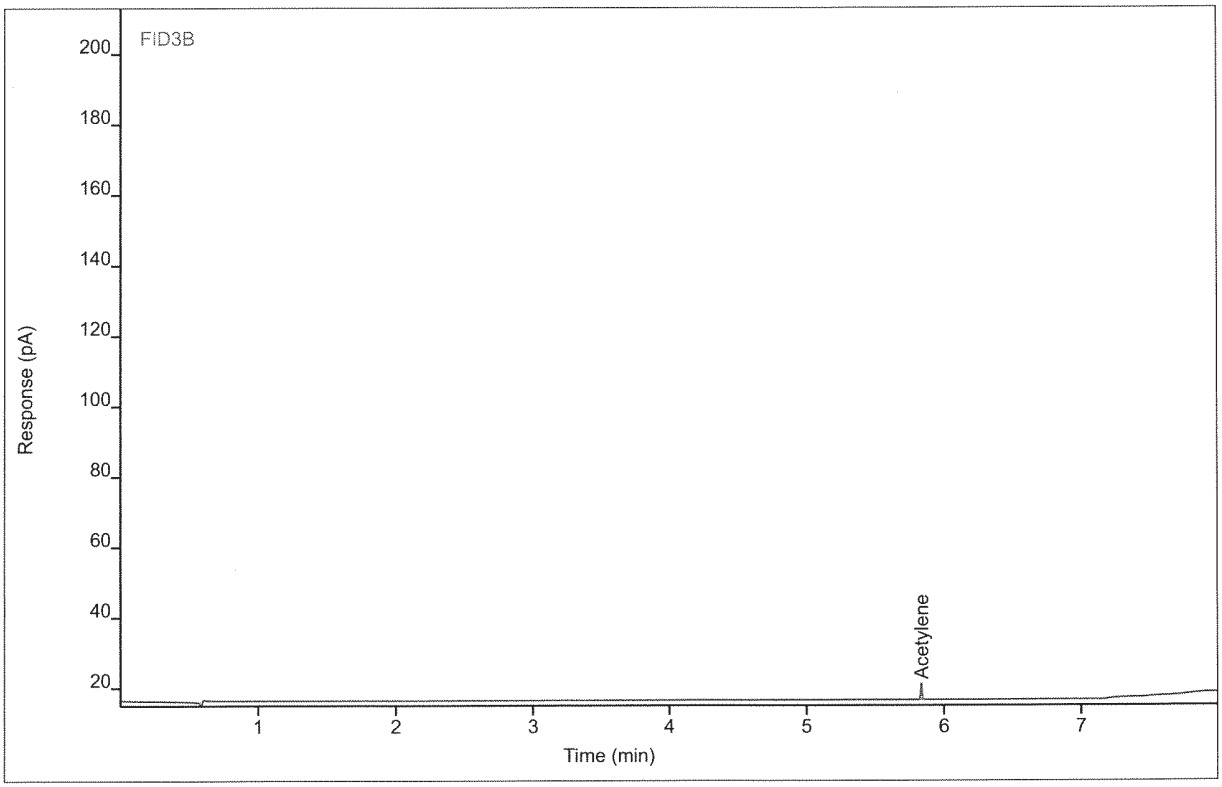
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetylene	BB	5.84	3.66017	4.69573	2.49076	1	2.49076	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #A1 ENV(1=4950,6=50)
Sequence Name	EDITHP275 ver.2
Data File	018B1303.D
File Location	GC/2015/Edith/Quarter 2
Injection Date	6/10/2015 1:12 AM
File Modified	6/15/2015 10:56 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	3 of 8
Acquisition Method	AQ_EDITHP274_HRVOC.M
Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Method Modified	6/11/2015 11:54 AM
Printed	6/15/2015 11:17 AM

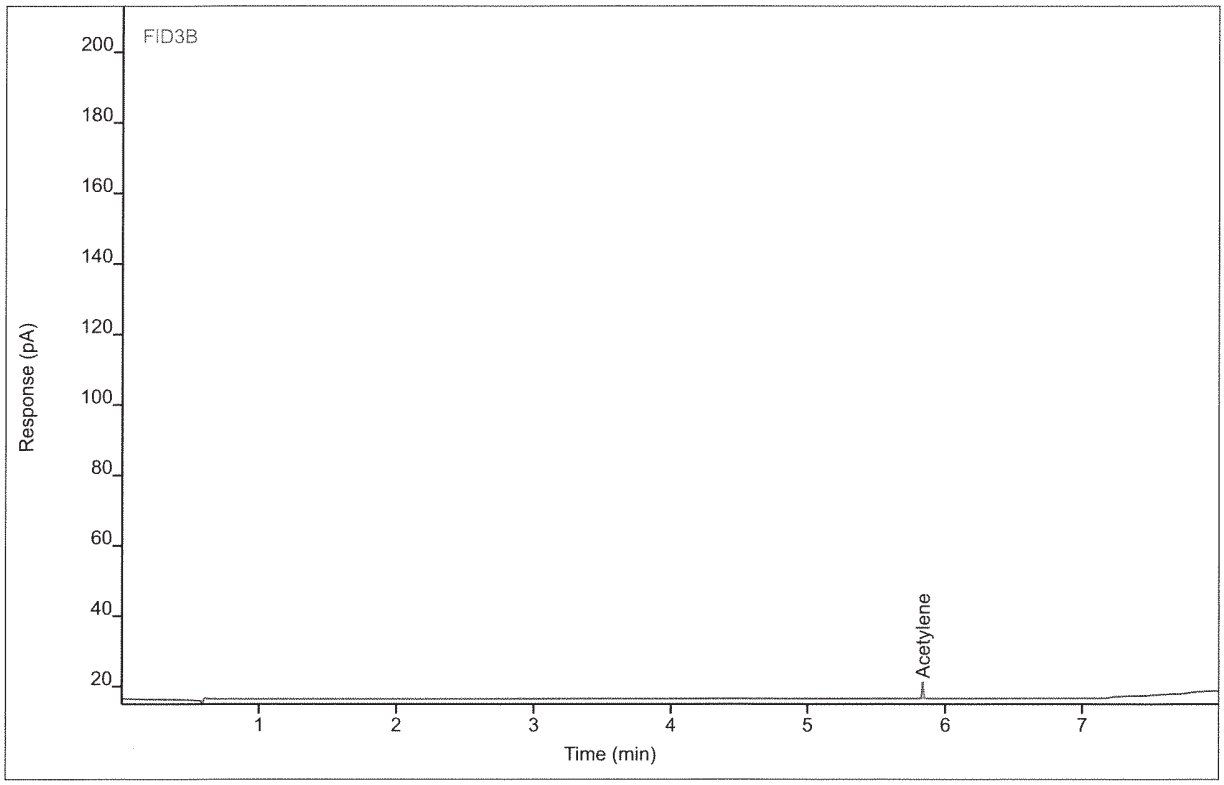


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetylene	BB	5.84	3.67250	4.59424	2.49915	1	2.49915	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #A1 ENV(1=4950,6=50)	Sample Type	Calibration
Sequence Name	EDITHP275 ver.2	Vial Number	Vial 18
Data File	018B1304.D	Injection Volume	250
File Location	GC/2015/Edith/Quarter 2	Injection	4 of 8
Injection Date	6/10/2015 1:28 AM	Acquisition Method	AQ_EDITHP274_HRVOC.M
File Modified	6/15/2015 10:56 AM	Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Instrument		Method Modified	6/11/2015 11:54 AM
Operator	Justin Guenzler	Printed	6/15/2015 11:17 AM



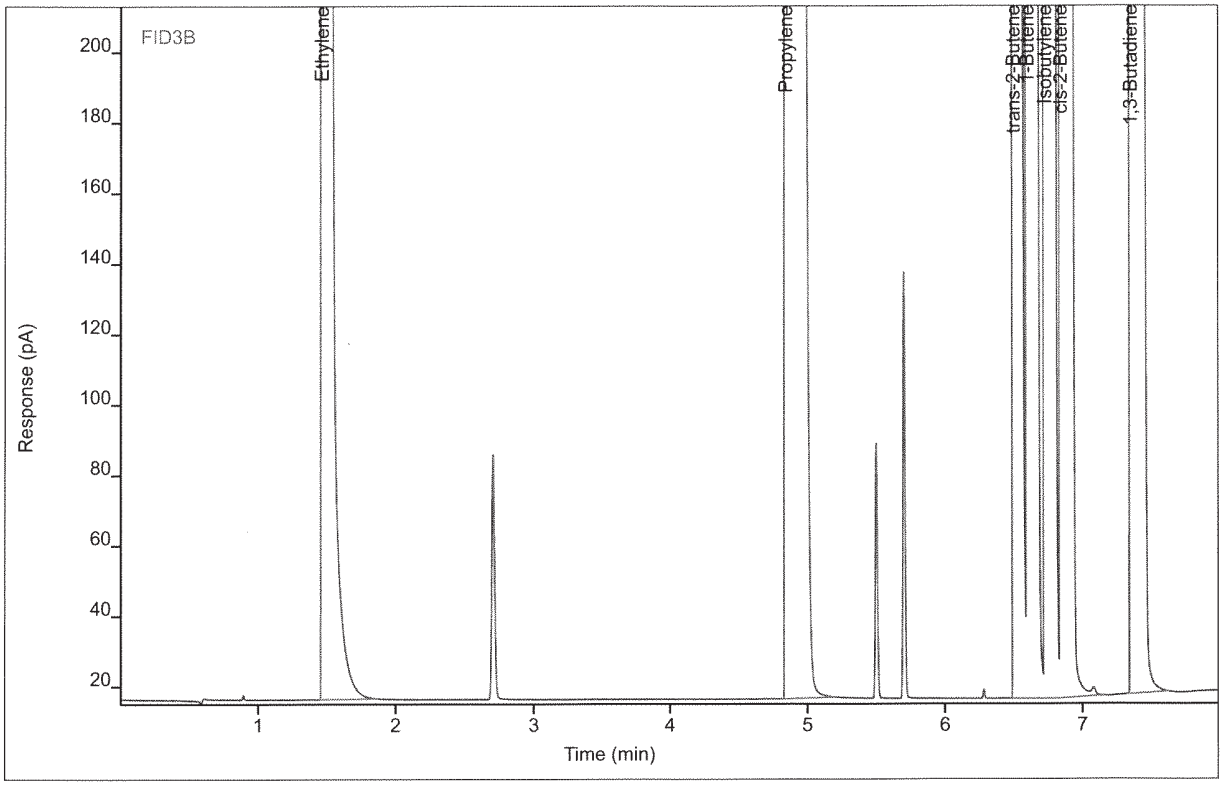
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetylene	BB	5.84	3.67807	4.60222	2.50294	1	2.50294	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #HR9 ENV(1=0,5=450)
Sequence Name	EDITHP275 ver.2
Data File	018B1702.D
File Location	GC/2015/Edith/Quarter 2
Injection Date	6/10/2015 2:33 PM
File Modified	6/15/2015 10:43 AM
Instrument	
Operator	Clint Thrasher

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	2 of 4
Acquisition Method	AQ_EDITHP274_HRVOC.M
Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Method Modified	6/11/2015 11:54 AM
Printed	6/15/2015 11:17 AM



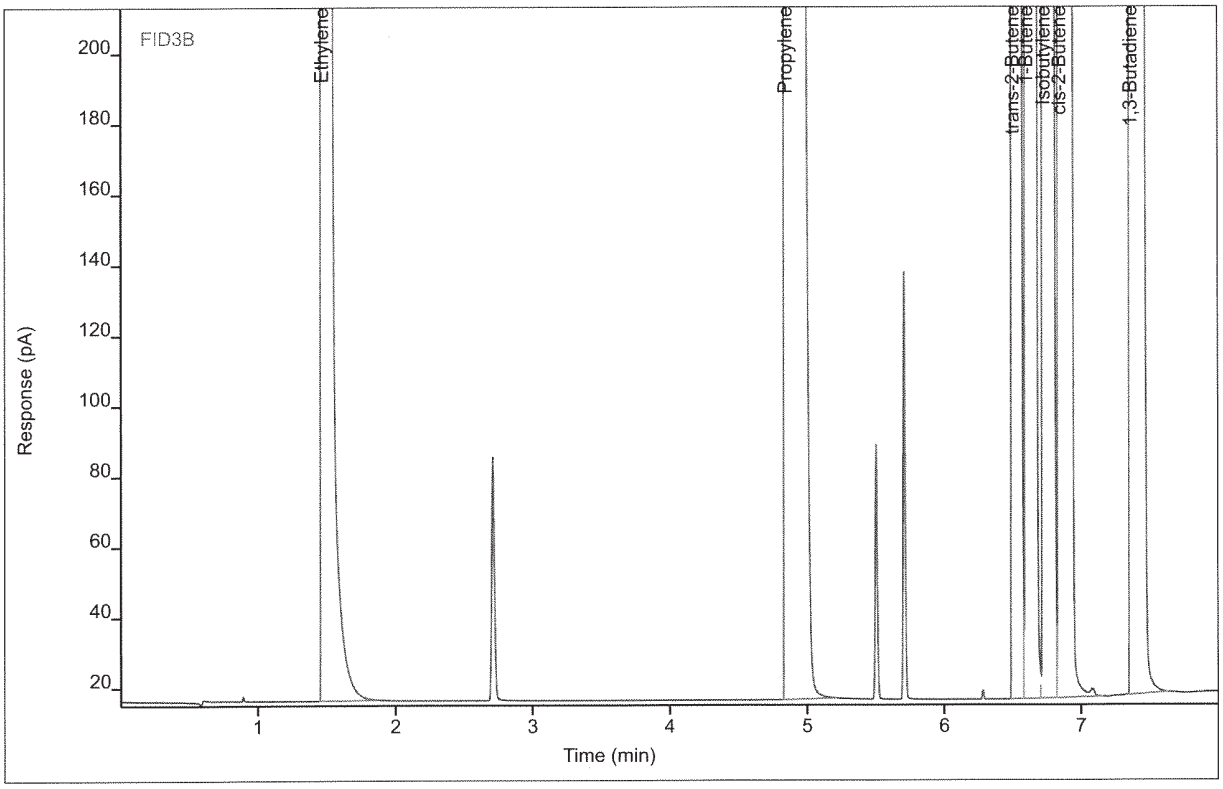
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB S	1.46	12163.9	4812.09	10371.1	1	10371.1	ppm
Propylene	BB S	4.84	17538.5	3623.87	10173.0	1	10173.0	ppm
trans-2-Butene	BV S	6.50	24081.1	8951.79	10384.8	1	10384.8	ppm
1-Butene	VV S	6.60	23778.3	8385.19	10146.3	1	10146.3	ppm
Isobutylene	VV S	6.72	23580.9	8258.67	10228.6	1	10228.6	ppm
cis-2-Butene	VB S	6.84	24055.0	7582.51	10180.7	1	10180.7	ppm
1,3-Butadiene	BB S	7.35	23696.8	7015.64	10336.0	1	10336.0	ppm

Chromatogram Report

Sample Name	EdithP275 #HR9 ENV(1=0,5=450)
Sequence Name	EDITHP275 ver.2
Data File	018B1703.D
File Location	GC/2015/Edith/Quarter 2
Injection Date	6/10/2015 2:50 PM
File Modified	6/15/2015 10:43 AM
Instrument	
Operator	Clint Thrasher

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	3 of 4
Acquisition Method	AQ_EDITHP274_HRVOC.M
Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Method Modified	6/11/2015 11:54 AM
Printed	6/15/2015 11:17 AM



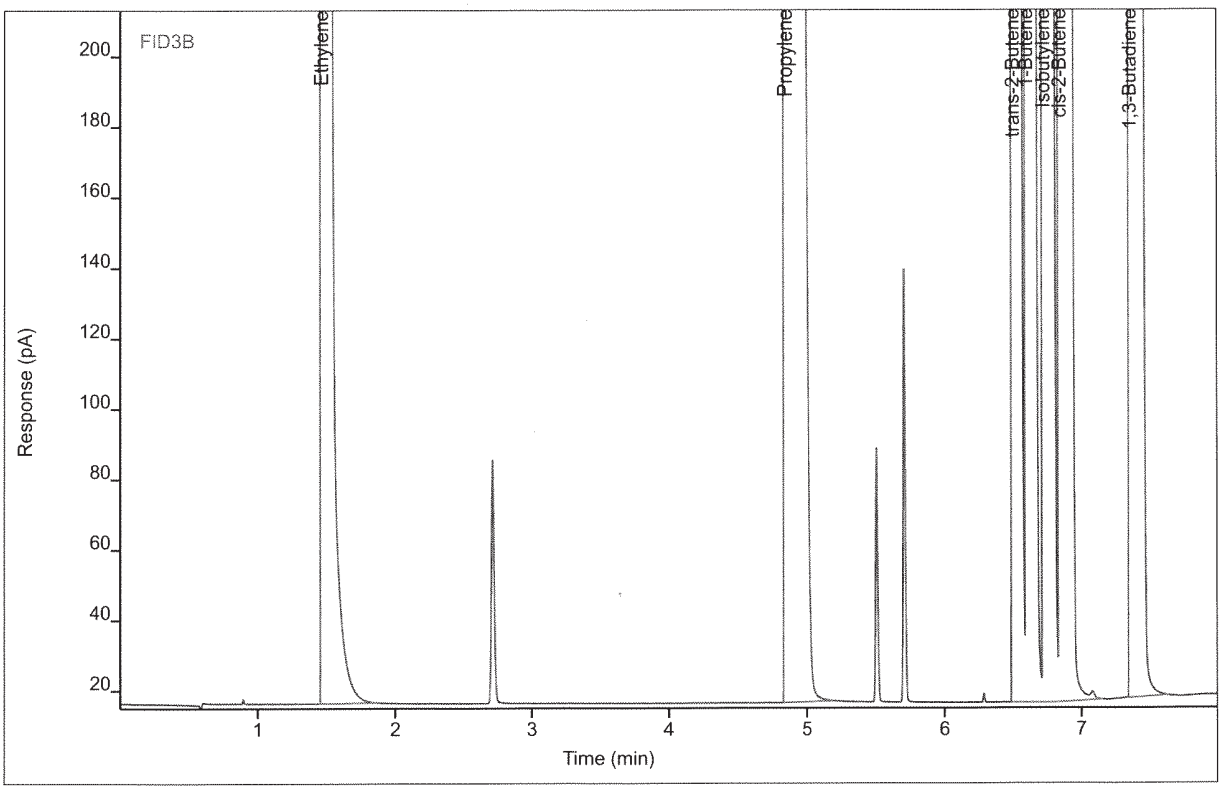
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB S	1.46	12138.3	4838.65	10349.3	1	10349.3	ppm
Propylene	BB S	4.84	17502.3	3488.23	10152.0	1	10152.0	ppm
trans-2-Butene	BV S	6.50	24032.5	9300.10	10363.8	1	10363.8	ppm
1-Butene	VV S	6.60	23721.0	8385.70	10121.8	1	10121.8	ppm
Isobutylene	VV S	6.73	23525.4	8169.71	10204.6	1	10204.6	ppm
cis-2-Butene	VB S	6.84	24005.7	7472.02	10159.8	1	10159.8	ppm
1,3-Butadiene	BB S	7.36	23649.4	7249.91	10315.3	1	10315.3	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	EdithP275 #HR9 ENV(1=0,5=450)
Sequence Name	EDITHP275 ver.2
Data File	018B1704.D
File Location	GC/2015/Edith/Quarter 2
Injection Date	6/10/2015 3:06 PM
File Modified	6/15/2015 10:43 AM
Instrument	
Operator	Clint Thrasher

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	4 of 4
Acquisition Method	AQ_EDITHP274_HRVOC.M
Analysis Method	EDITHP275R_HRVOC_ACETYLENE.M
Method Modified	6/11/2015 11:54 AM
Printed	6/15/2015 11:17 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB S	1.46	12177.7	4863.52	10382.9	1	10382.9	ppm
Propylene	BB S	4.84	17557.1	3570.90	10183.8	1	10183.8	ppm
trans-2-Butene	BV S	6.50	24111.0	9015.85	10397.7	1	10397.7	ppm
1-Butene	VV S	6.60	23795.8	8838.80	10153.7	1	10153.7	ppm
Isobutylene	VV S	6.73	23602.2	8507.63	10237.9	1	10237.9	ppm
cis-2-Butene	VB S	6.84	24089.0	7294.93	10195.1	1	10195.1	ppm
1,3-Butadiene	BB S	7.36	23731.7	7072.37	10351.2	1	10351.2	ppm

THE LINDE GROUP

SHIPPED TO: Enthalpy Analytical Inc.
800 Capitola Dr., Ste 1
Durham, NC 27713-4385

PAGE: 1 of 1

CERTIFICATE OF ANALYSIS

Sales#:	112822034	**Cylinder Size:**	2 (9" X 51")
Production#:	1337733	**Cylinder # :**	9851414
Certification Date:	May-20-2015	**Cylinder Pressure:**	900 psig
P.O.# :	02051501	**Cylinder Valve:**	CGA 350 / Steel
Blend Type:	CERTIFIED	**Cylinder Volume:**	44 Liter
Material#:	24095118	**Cylinder Material:**	Steel
Traceability:	NIST by weight	**Gas Volume:**	2694 Liters
Expiration Date:	May-20-2016	**Blend Tolerance:**	5% Relative
Do NOT use under:	150 psig	**Analytical Accuracy:**	2% Relative

COMPONENT	CAS NUMBER	REQUESTED CONC	CERTIFIED CONC
Ethylene	74-85-1	1.00 %	1.02 %
Propylene	115-07-1	1.00 %	1.00 %
1-Butene	106-98-9	1.00 %	1.01 %
Isobutylene	115-11-7	1.00 %	1.01 %
1,3-Butadiene	106-99-0	1.00 %	1.02 %
Trans-2-Butene	624-64-6	1.00 %	1.02 %
Cis-2-Butene	590-18-1	1.00 %	1.01 %
Nitrogen	7727-37-9	Balance	Balance

ANALYST: Lou Lorenzetti

DATE: May-20-2015

Linde Gas North America LLC

(908) 329-9700 Main (908) 329-9740 Fax
www.Lindeus.com

CUSTOMGAS
SOLUTIONS

1750 East Club Boulevard
Durham, NC 27704
Phone: (919) 220-2570
Fax: (919) 220-4540

Certificate of Analysis

Customer:

Enthalpy Analytical, Inc.
800-1 Capitola Drive
Durham, NC 27713

Tel: (919) 595-1377

Cylinder Number: CAL-013629
Cylinder Size/CGA: AL33/350
Fill Pressure: 2015 PSIA
Gas Volume: 750 liters
Date of Mfg: 05/16/14
Expiration Date: 05/16/16

Customer Number	Ship VIA	Job No.	Customer PO	Mixture Type
00127703NC	Pick up	050914-003	05081403	Gravimetric

Component	Nominal Concentration	Actual Concentration*	Mixture Type
Acetylene	250 ppm	250 ppm +/- 5 ppm	Gravimetric Master Gas
Nitrogen	balance	balance	

NOTES: **Blend Tolerance:** +/- 2 %
Analytical Tolerance: +/- 2 %
Traceability: NIST by weight set. NIST Traceability No MT5061.
Internal Standards by analysis
Reactive Mixtures: Analyzed twice with required agreement between analyses of 2%.
Required wait time between analyses of >7 days.
Caution: Do not use below 150 PSIG.

Authorized Signature:

Joseph A. Ernst

*Every effort has been made to establish the actual concentration of the components using master gas blending technology however, Custom Gas Solutions shall have no liability in excess of the established charge for this material.

THE LINDE GROUP

Linde

SHIPPED TO: Enthalpy Analytical Inc
800 Capitola Dr Ste 1
Durham, NC 27713-4385

PAGE: 1 of 1

CERTIFICATE OF ANALYSIS

Sales#:	112643015	**Cylinder Size:**	2A (8" X 47.5")
Production#:	1335155	**Cylinder # :**	CC-197222
Certification Date:	Apr-09-2015	**Cylinder Pressure:**	2000 psig
P.O.# :	03051501	**Cylinder Valve:**	CGA 350 / Steel
Blend Type:	CERTIFIED	**Cylinder Volume:**	29.5 Liter
Material#:	24086389	**Cylinder Material:**	Aluminum
Traceability:	NIST by weight	**Gas Volume:**	4000 Liters
Expiration Date:	Apr-09-2017	**Blend Tolerance:**	5% Relative
Do NOT use under:	150 psig	**Analytical Accuracy:**	2% Relative

COMPONENT	CAS NUMBER	REQUESTED CONC	CERTIFIED CONC
Ethylene	74-85-1	100 ppm	101 ppm
Propylene	115-07-1	100 ppm	97.3 ppm
Isobutylene	115-11-7	100 ppm	101 ppm
1-Butene	106-98-9	100 ppm	101 ppm
1,3-Butadiene	106-99-0	100 ppm	98.3 ppm
Trans-2-butene	624-64-6	100 ppm	98.8 ppm
Cis-2-Butene	590-18-1	100 ppm	103 ppm
Nitrogen	7727-37-9	Balance	Balance

ANALYST: Matthew Booth

DATE: Apr-09-2015

Linde Gas North America LLC

(908) 329-9700 Main (908) 329-9740 Fax
www.Lindeus.com

Agilent 7890A

Oven	
Equilibration Time	0.3 min
Max Temperature	200 degrees C
Slow Fan	Disabled
Oven Program	On
35 °C for 2.2 min	
#1 then 15 °C/min to 70 °C for 0.07 min	
#2 then 30 °C/min to 180 °C for 1 min	
Run Time	9.27 min
Sample Overlap	
Sample overlap is not enabled	
Front SS Inlet H2	
Mode	Split
Heater	On 200 °C
Pressure	On 5.1931 psi
Total Flow	On 15.6 mL/min
Septum Purge Flow	On 3 mL/min
Gas Saver	Off
Split Ratio	5 :1
Split Flow	10.5 mL/min
Back SS Inlet H2	
Mode	Split
Heater	On 200 °C
Pressure	On 14.935 psi
Total Flow	On 25.632 mL/min
Septum Purge Flow	On 3 mL/min
Gas Saver	Off
Split Ratio	2 :1
Split Flow	15.088 mL/min
Column #1	
Restek 10198Rtx-1 S/N 806941	
280 °C: 30 m x 320 µm x 4 µm	
In: Front SS Inlet H2	
Out: Front Detector FID	
(Initial)	35 °C
Pressure	5.1931 psi
Flow	2.1 mL/min
Average Velocity	39.91 cm/sec
Holdup Time	1.2528 min
Flow Program	On
2.1 mL/min for 0 min	
Run Time	9.27 min
Column #2	
Restek 19757Rt-Alumina BOND/Na2SO4	
200 °C: 30 m x 320 µm x 5 µm	
In: Back SS Inlet H2	
Out: Back Detector FID	
(Initial)	35 °C
Pressure	14.935 psi
Flow	7.5439 mL/min
Average Velocity	110 cm/sec
Holdup Time	0.45455 min
Flow Program	On

odified on: 6/9/2015 at 10:42:00 AM

7.5439 mL/min for 0 min	
Run Time	9.27 min
Front Detector FID	
Heater	On 300 °C
H2 Flow	On 50 mL/min
Air Flow	On 450 mL/min
Makeup Flow	On 35 mL/min
Const Col + Makeup	Off
Flame	On
Electrometer	On
Back Detector FID	
Heater	On 200 °C
H2 Flow	On 50 mL/min
Air Flow	On 450 mL/min
Makeup Flow	On 35 mL/min
Const Col + Makeup	Off
Flame	On
Electrometer	On
Valve 1	
Gas Sampling Valve	Off
GSV Loop Volume	0.25 mL
Load Time	1.5 min
Inject Time	0.5 min
Valve 2	
Gas Sampling Valve	Off
GSV Loop Volume	0.25 mL
Load Time	1.5 min
Inject Time	0.5 min
Valve Box	
Heater	On 150 °C
Signals	
Signal #1: Front Signal	Save On 20 Hz
Signal #2: Test Plot	Save Off 50 Hz
Signal #3: Back Signal	Save On 20 Hz
Signal #4: Test Plot	Save Off 50 Hz

Agilent 7890A

Oven	
Equilibration Time	0.3 min
Max Temperature	200 degrees C
Slow Fan	Disabled
Oven Program	On
35 °C for 2.2 min	
#1 then 15 °C/min to 70 °C for 0.07 min	
#2 then 30 °C/min to 180 °C for 4.73 min	
Run Time	13 min
Sample Overlap	
Sample overlap is not enabled	
Front SS Inlet H2	
Mode	Split
Heater	On 200 °C
Pressure	On 5.1931 psi
Total Flow	On 15.6 mL/min
Septum Purge Flow	On 3 mL/min
Gas Saver	Off
Split Ratio	5 :1
Split Flow	10.5 mL/min
Back SS Inlet H2	
Mode	Split
Heater	On 200 °C
Pressure	On 14.935 psi
Total Flow	On 25.632 mL/min
Septum Purge Flow	On 3 mL/min
Gas Saver	Off
Split Ratio	2 :1
Split Flow	15.088 mL/min
Column #1	
Restek 10198Rtx-1 S/N 806941	
280 °C: 30 m x 320 µm x 4 µm	
In: Front SS Inlet H2	
Out: Front Detector FID	
(Initial)	35 °C
Pressure	5.1931 psi
Flow	2.1 mL/min
Average Velocity	39.91 cm/sec
Holdup Time	1.2528 min
Flow Program	On
2.1 mL/min for 0 min	
Run Time	13 min
Column #2	
Restek 19757Rt-Alumina BOND/Na2SO4	
200 °C: 30 m x 320 µm x 5 µm	
In: Back SS Inlet H2	
Out: Back Detector FID	
(Initial)	35 °C
Pressure	14.935 psi
Flow	7.5439 mL/min
Average Velocity	110 cm/sec
Holdup Time	0.45455 min
Flow Program	On

odified on: 6/9/2015 at 1:23:07 PM

7.5439 mL/min for 0 min	
Run Time	13 min
Front Detector FID	
Heater	On 300 °C
H2 Flow	On 50 mL/min
Air Flow	On 450 mL/min
Makeup Flow	On 35 mL/min
Const Col + Makeup	Off
Flame	On
Electrometer	On
Back Detector FID	
Heater	On 200 °C
H2 Flow	On 50 mL/min
Air Flow	On 450 mL/min
Makeup Flow	On 35 mL/min
Const Col + Makeup	Off
Flame	On
Electrometer	On
Valve 1	
Gas Sampling Valve	Unknown
GSV Loop Volume	0.25 mL
Load Time	1.5 min
Inject Time	0.5 min
Valve 2	
Gas Sampling Valve	Unknown
GSV Loop Volume	0.25 mL
Load Time	1.5 min
Inject Time	0.5 min
Valve Box	
Heater	On 150 °C
Signals	
Signal #1: Front Signal	Save On 20 Hz
Signal #2: Test Plot	Save Off 50 Hz
Signal #3: Back Signal	Save On 20 Hz
Signal #4: Test Plot	Save Off 50 Hz

Agilent 7890A

Oven

Equilibration Time	0.3 min
Max Temperature	200 degrees C
Slow Fan	Disabled
Oven Program	On
35 °C for 2.2 min	
then 15 °C/min to 70 °C for 0.07 min	
Run Time	4.6033 min

Sample Overlap

Sample overlap is not enabled

Front SS Inlet H2

Mode	Split
Heater	On 200 °C
Pressure	On 5.1931 psi
Total Flow	On 15.6 mL/min
Septum Purge Flow	On 3 mL/min
Gas Saver	Off
Split Ratio	5 :1
Split Flow	10.5 mL/min

Back SS Inlet H2

Mode	Split
Heater	On 200 °C
Pressure	On 14.935 psi
Total Flow	On 25.632 mL/min
Septum Purge Flow	On 3 mL/min
Gas Saver	Off
Split Ratio	2 :1
Split Flow	15.088 mL/min

Column #1

Restek 10198Rtx-1 S/N 806941

280 °C: 30 m x 320 µm x 4 µm

In: Front SS Inlet H2

Out: Front Detector FID

(Initial)	35 °C
Pressure	5.1931 psi
Flow	2.1 mL/min
Average Velocity	39.91 cm/sec
Holdup Time	1.2528 min
Flow Program	On
2.1 mL/min for 0 min	
Run Time	4.6033 min

Column #2

Restek 19757Rt-Alumina BOND/Na2SO4

200 °C: 30 m x 320 µm x 5 µm

In: Back SS Inlet H2

Out: Back Detector FID

(Initial)	35 °C
Pressure	14.935 psi
Flow	7.5439 mL/min
Average Velocity	110 cm/sec
Holdup Time	0.45455 min
Flow Program	On
7.5439 mL/min for 0 min	

›dified on: 6/9/2015 at 1:23:32 PM

Run Time	4.6033 min
Front Detector FID	
Heater	On 300 °C
H2 Flow	On 50 mL/min
Air Flow	On 450 mL/min
Makeup Flow	On 35 mL/min
Const Col + Makeup	Off
Flame	On
Electrometer	On
Back Detector FID	
Heater	On 200 °C
H2 Flow	On 50 mL/min
Air Flow	On 450 mL/min
Makeup Flow	On 35 mL/min
Const Col + Makeup	Off
Flame	On
Electrometer	On
Valve 1	
Gas Sampling Valve	Unknown
GSV Loop Volume	0.25 mL
Load Time	1.5 min
Inject Time	0.5 min
Valve 2	
Gas Sampling Valve	Unknown
GSV Loop Volume	0.25 mL
Load Time	1.5 min
Inject Time	0.5 min
Valve Box	
Heater	On 150 °C
Signals	
Signal #1: Front Signal	Save On 20 Hz
Signal #2: Test Plot	Save Off 50 Hz
Signal #3: Back Signal	Save On 20 Hz
Signal #4: Test Plot	Save Off 50 Hz

This Is The Last Page Of This Report.

APPENDIX F

Reference Method Monitors Data

75" Thermal Combustor Outlet Stack
Carbon Monoxide
Concentration

Condition-Run Number	Measured (ppm)	Adjusted (ppm*)
1-1	0.43	0.49
1-2	1.02	1.20
1-3	0.77	0.85
2-1	0.31	0.37
2-2	0.14	0.21
2-3	0.45	0.39
3-1	1.26	1.29
3-2	0.04	0.09
3-3	0.12	0.16
4-1	0.60	0.68
4-2	0.16	0.15
4-3	0.02	< 0.01

*Calculated according to equation 7E-5.

75" Thermal Combustor Outlet Stack
Total Hydrocarbons
Concentration

Condition-Run Number	Measured (wet ppm)
1-1	0.48
1-2	< 0.01
1-3	< 0.01
2-1	< 0.01
2-2	< 0.01
2-3	0.12
3-1	0.42
3-2	< 0.01
3-3	0.06
4-1	0.17
4-2	0.28
4-3	< 0.01

75" Thermal Combustor Outlet Stack
Calibration Summary
Carbon Monoxide

Condition - Run Number	CO Calibration Initial Drift Check (ppm)	CO Calibration Final Drift Check (ppm)	CO Calibration Average (ppm)	CO Zero Initial Drift Check (ppm)	CO Zero Final Drift Check (ppm)	CO Zero Average (ppm)	Actual CO Calibration Value (ppm)	Actual CO Zero Value (ppm)
1-1	5.16	5.09	5.13	0.09	-0.23	-0.07	5.13	0.00
1-2	5.09	5.14	5.12	-0.23	-0.23	-0.23	5.13	0.00
1-3	5.14	5.22	5.18	-0.23	0.01	-0.11	5.13	0.00
2-1	5.22	5.05	5.14	0.01	-0.12	-0.06	5.13	0.00
2-2	5.05	5.24	5.15	-0.12	-0.02	-0.07	5.13	0.00
2-3	5.24	5.11	5.18	-0.02	0.13	0.06	5.13	0.00
3-1	5.19	5.20	5.20	-0.01	-0.13	-0.07	5.13	0.00
3-2	5.20	5.15	5.18	-0.13	0.03	-0.05	5.13	0.00
3-3	5.15	5.06	5.11	0.03	-0.11	-0.04	5.13	0.00
4-1	5.06	5.19	5.13	-0.11	-0.06	-0.09	5.13	0.00
4-2	5.19	5.13	5.16	-0.06	0.07	0.01	5.13	0.00
4-3	5.13	4.98	5.06	0.07	0.00	0.04	5.13	0.00

75" Thermal Combustor Outlet Stack
System Calibration Bias and Drift Data
Carbon Monoxide
Calibration Span = 9.17 ppm

Condition - Run Number	CO Calibration Initial Response (ppm)	Initial Bias (%*)	Final Response (ppm)	Final Bias (%*)	Drift (%*)	CO Zero Initial Response (ppm)	Initial Bias (%*)	Final Response (ppm)	Final Bias (%*)	Drift (%*)	Analyzer Calibration Response Mid Level (ppm)	Analyzer Calibration Response Zero Level (ppm)
1-1	5.16	0.22	5.09	0.55	0.76	0.09	2.07	-0.23	1.42	3.49	5.14	-0.10
1-2	5.09	0.55	5.14	0.00	0.55	-0.23	1.42	-0.23	1.42	0.00	5.14	-0.10
1-3	5.14	0.00	5.22	0.87	0.87	-0.23	1.42	0.01	1.20	2.62	5.14	-0.10
2-1	5.22	0.87	5.05	0.98	1.85	0.01	1.20	-0.12	0.22	1.42	5.14	-0.10
2-2	5.05	0.98	5.24	1.09	2.07	-0.12	0.22	-0.02	0.87	1.09	5.14	-0.10
2-3	5.24	1.09	5.11	0.33	1.42	-0.02	0.87	0.13	2.51	1.64	5.14	-0.10
3-1	5.19	0.55	5.20	0.65	0.11	-0.01	0.44	-0.13	1.74	1.31	5.14	0.03
3-2	5.20	0.65	5.15	0.11	0.55	-0.13	1.74	0.03	0.00	1.74	5.14	0.03
3-3	5.15	0.11	5.06	0.87	0.98	0.03	0.00	-0.11	1.53	1.53	5.14	0.03
4-1	5.06	0.87	5.19	0.55	1.42	-0.11	1.53	-0.06	0.98	0.55	5.14	0.03
4-2	5.19	0.55	5.13	0.11	0.65	-0.06	0.98	0.07	0.44	1.42	5.14	0.03
4-3	5.13	0.11	4.98	1.74	1.64	0.07	0.44	0.00	0.33	0.76	5.14	0.03

* PERCENT OF CALIBRATION SPAN

75" Thermal Combustor Outlet Stack
Analyzer Calibration Data
Carbon Monoxide

Date 06/23/15

Calibration Span = 9.17 ppm

Gas Range	Actual Calibration Value (ppm)	Analyzer Calibration Response (ppm)	Absolute Difference (ppm)	Difference (%*)
Low	0.00	-0.10	0.10	1.09
Mid	5.13	5.14	0.01	0.11
High	9.17	9.23	0.06	0.65

* Percent of calibration span

75" Thermal Combustor Outlet Stack
Analyzer Calibration Data
Carbon Monoxide

Date 06/24/15

Calibration Span = 9.17 ppm

Gas Range	Actual Calibration Value (ppm)	Analyzer Calibration Response (ppm)	Absolute Difference (ppm)	Difference (%*)
Low	0.00	0.03	0.03	0.33
Mid	5.13	5.14	0.01	0.11
High	9.17	9.20	0.03	0.33

* Percent of calibration span

75" Thermal Combustor Outlet Stack
Analyzer Calibration Data
Total Hydrocarbons

Date 06/23/15

Span = 10 ppm

Gas Range	Actual Calibration Value (ppm)	Analyzer Calibration Response (ppm)	Absolute Difference (ppm)	Difference (%*)
Zero	0.00	0.00	0.00	----
Low	3.08	3.02	0.06	1.95
Mid	5.08	5.00	0.08	1.57
High	8.64	8.65	0.01	----

* Percent of span gas

75" Thermal Combustor Outlet Stack
Analyzer Calibration Data
Total Hydrocarbons

Date 06/24/15

Span = 10 ppm

Gas Range	Actual Calibration Value (ppm)	Analyzer Calibration Response (ppm)	Absolute Difference (ppm)	Difference (%*)
Zero	0.00	-0.08	0.08	----
Low	3.08	3.06	0.02	0.65
Mid	5.08	5.04	0.04	0.79
High	8.64	8.74	0.10	----

* Percent of span gas

filename		6/22/2015	7:55:01							
testby1	Metco Environmental									
testby2	Dallas, TX									
testby3	M8									
testby4	Ryan Adam									
testfor1	Hy-Bon									
testfor2										
testfor3	75" Thermal Combustor									
testfor4	Belpre, OH									
name				3 CO	6 THC 12152523					
sn				48C-73225-373	~~1425748714~~ TR 7-29-15					
offset				0	0					
fullscale				10	10					
train				1	1					
gastype				co 10	thc 25a					
dcg1		6/23/2015	6:56:00	1.54	0.00	CC429811/cg1	N2	0		0
dcg1		6/23/2015	6:56:15	1.44	0.00	CC429811/cg1	N2	0		0
dcg1		6/23/2015	6:56:30	1.41	0.00	CC429811/cg1	N2	0		0
dcg1		6/23/2015	6:56:45	1.32	0.00	CC429811/cg1	N2	0		0
dcg1		6/23/2015	6:57:00	1.26	0.00	CC429811/cg1	N2	0		0
dcg1		6/23/2015	6:57:15	1.20	0.00	CC429811/cg1	N2	0		0
dcg1		6/23/2015	6:57:30	0.79	0.00	CC429811/cg1	N2	0		0
dcg1		6/23/2015	6:57:45	-0.02	0.00	CC429811/cg1	N2	0		0
dcg1		6/23/2015	6:58:00	-0.10	0.00	CC429811/cg1	N2	0		0
o2ezero1		6/23/2015	6:58:00	-0.10	0.00	CC429811/cg1	N2	0		0
co2ezero1		6/23/2015	6:58:00	-0.10	0.00	CC429811/cg1	N2	0		0
coezero1		6/23/2015	6:58:00	-0.10	0.00	CC429811/cg1	N2	0		0
noxezero1		6/23/2015	6:58:00	-0.10	0.00	CC429811/cg1	N2	0		0
dcg8		6/23/2015	6:58:30	-0.13	0.00	ALM005790/cg8	CO	9.17		0
dcg8		6/23/2015	6:58:45	-0.14	0.00	ALM005790/cg8	CO	9.17		0
dcg8		6/23/2015	6:59:00	-0.09	0.00	ALM005790/cg8	CO	9.17		0
dcg8		6/23/2015	6:59:15	-0.06	0.00	ALM005790/cg8	CO	9.17		0
dcg8		6/23/2015	6:59:30	0.03	0.00	ALM005790/cg8	CO	9.17		0
dcg8		6/23/2015	6:59:45	0.10	0.00	ALM005790/cg8	CO	9.17		0
dcg8		6/23/2015	7:00:00	0.13	0.00	ALM005790/cg8	CO	9.17		0
dcg8		6/23/2015	7:00:15	0.21	0.00	ALM005790/cg8	CO	9.17		0
dcg8		6/23/2015	7:00:30	0.37	0.00	ALM005790/cg8	CO	9.17		0
dcg8		6/23/2015	7:00:45	0.45	0.00	ALM005790/cg8	CO	9.17		0
dcg8		6/23/2015	7:01:00	0.48	0.00	ALM005790/cg8	CO	9.17		0
dcg8		6/23/2015	7:01:15	0.55	0.00	ALM005790/cg8	CO	9.17		0
dcg8		6/23/2015	7:01:30	1.36	0.00	ALM005790/cg8	CO	9.17		0
dcg8		6/23/2015	7:01:45	5.60	0.00	ALM005790/cg8	CO	9.17		0
dcg8		6/23/2015	7:02:00	9.37	0.00	ALM005790/cg8	CO	9.17		0
dcg8		6/23/2015	7:02:15	9.99	0.00	ALM005790/cg8	CO	9.17		0
dcg8		6/23/2015	7:02:30	9.99	0.00	ALM005790/cg8	CO	9.17		0
dcg8		6/23/2015	7:02:45	9.99	0.00	ALM005790/cg8	CO	9.17		0
dcg8		6/23/2015	7:03:00	9.74	0.00	ALM005790/cg8	CO	9.17		0
dcg8		6/23/2015	7:03:15	9.51	0.00	ALM005790/cg8	CO	9.17		0
dcg8		6/23/2015	7:03:30	9.45	0.00	ALM005790/cg8	CO	9.17		0
dcg8		6/23/2015	7:03:45	9.38	0.00	ALM005790/cg8	CO	9.17		0
dcg8		6/23/2015	7:04:00	9.16	0.00	ALM005790/cg8	CO	9.17		0
dcg8		6/23/2015	7:04:15	9.23	0.00	ALM005790/cg8	CO	9.17		0
cohigh1		6/23/2015	7:04:15	9.23	0.00	ALM005790/cg8	CO	9.17		0
dcg9		6/23/2015	7:04:30	9.14	0.00	LL23441/cg9	CO	5.13		0
dcg9		6/23/2015	7:04:45	8.88	0.00	LL23441/cg9	CO	5.13		0
dcg9		6/23/2015	7:05:00	7.81	0.00	LL23441/cg9	CO	5.13		0
dcg9		6/23/2015	7:05:15	6.29	0.00	LL23441/cg9	CO	5.13		0
dcg9		6/23/2015	7:05:30	5.17	0.00	LL23441/cg9	CO	5.13		0
dcg9		6/23/2015	7:05:45	4.61	0.00	LL23441/cg9	CO	5.13		0
dcg9		6/23/2015	7:06:00	4.57	0.00	LL23441/cg9	CO	5.13		0
dcg9		6/23/2015	7:06:15	4.55	0.00	LL23441/cg9	CO	5.13		0
dcg9		6/23/2015	7:06:30	4.93	0.00	LL23441/cg9	CO	5.13		0
dcg9		6/23/2015	7:06:45	5.10	0.00	LL23441/cg9	CO	5.13		0
dcg9		6/23/2015	7:07:00	5.14	0.00	LL23441/cg9 cc66094	CO	5.13		0
comid1		6/23/2015	7:07:00	5.14	0.00	~~LL23441~~/cg9	CO	5.13		0
dcg11		6/23/2015	7:07:15	5.13	0.00	ALM017523/cg11	O2	19.88	CO2	19.69

dcg11	6/23/2015	7:07:30	5.04	0.00	ALM017523/cg11	O2	19.88	CO2	19.69
dcg11	6/23/2015	7:07:45	3.47	0.00	ALM017523/cg11	O2	19.88	CO2	19.69
dcg11	6/23/2015	7:08:00	0.68	0.00	ALM017523/cg11	O2	19.88	CO2	19.69
dcg11	6/23/2015	7:08:15	-0.23	0.00	ALM017523/cg11	O2	19.88	CO2	19.69
dcg11	6/23/2015	7:08:30	-0.23	0.00	ALM017523/cg11	O2	19.88	CO2	19.69
dcg11	6/23/2015	7:08:45	-0.23	0.00	ALM017523/cg11	O2	19.88	CO2	19.69
o2high1	6/23/2015	7:08:45	-0.23	0.00	ALM017523/cg11	O2	19.88	CO2	19.69
co2high1	6/23/2015	7:08:45	-0.23	0.00	ALM017523/cg11	O2	19.88	CO2	19.69
dcg10	6/23/2015	7:09:00	-0.23	0.00	ALM008899/cg10	O2	11.06	CO2	11.16
dcg10	6/23/2015	7:09:15	-0.23	0.00	ALM008899/cg10	O2	11.06	CO2	11.16
dcg10	6/23/2015	7:09:30	-0.23	0.00	ALM008899/cg10	O2	11.06	CO2	11.16
dcg10	6/23/2015	7:09:45	-0.23	0.00	ALM008899/cg10	O2	11.06	CO2	11.16
dcg10	6/23/2015	7:10:00	-0.23	0.00	ALM008899/cg10	O2	11.06	CO2	11.16
dcg10	6/23/2015	7:10:15	-0.23	0.00	ALM008899/cg10	O2	11.06	CO2	11.16
dcg10	6/23/2015	7:10:30	-0.23	0.00	ALM008899/cg10	O2	11.06	CO2	11.16
dcg10	6/23/2015	7:10:45	-0.23	0.00	ALM008899/cg10	O2	11.06	CO2	11.16
dcg10	6/23/2015	7:11:00	-0.23	0.00	ALM008899/cg10	O2	11.06	CO2	11.16
o2mid1	6/23/2015	7:11:00	-0.23	0.00	ALM008899/cg10	O2	11.06	CO2	11.16
co2mid1	6/23/2015	7:11:00	-0.23	0.00	ALM008899/cg10	O2	11.06	CO2	11.16
dcg3	6/23/2015	7:11:30	-0.23	0.00	ALM010404/cg3	NOx	224		0
dcg3	6/23/2015	7:11:45	-0.23	0.00	ALM010404/cg3	NOx	224		0
dcg3	6/23/2015	7:12:00	-0.23	0.00	ALM010404/cg3	NOx	224		0
dcg3	6/23/2015	7:12:15	-0.23	0.00	ALM010404/cg3	NOx	224		0
dcg3	6/23/2015	7:12:30	-0.23	0.00	ALM010404/cg3	NOx	224		0
dcg3	6/23/2015	7:12:45	-0.23	0.00	ALM010404/cg3	NOx	224		0
dcg3	6/23/2015	7:13:00	-0.23	0.00	ALM010404/cg3	NOx	224		0
dcg3	6/23/2015	7:13:15	-0.23	0.00	ALM010404/cg3	NOx	224		0
dcg3	6/23/2015	7:13:30	-0.23	0.00	ALM010404/cg3	NOx	224		0
noxhigh1	6/23/2015	7:13:30	-0.23	0.00	ALM010404/cg3	NOx	224		0
dcg2	6/23/2015	7:13:45	-0.23	0.00	ALM059355/cg2	NOx	96.8		0
dcg2	6/23/2015	7:14:00	-0.23	0.00	ALM059355/cg2	NOx	96.8		0
dcg2	6/23/2015	7:14:15	-0.23	0.00	ALM059355/cg2	NOx	96.8		0
dcg2	6/23/2015	7:14:30	-0.23	0.00	ALM059355/cg2	NOx	96.8		0
dcg2	6/23/2015	7:14:45	-0.23	0.00	ALM059355/cg2	NOx	96.8		0
dcg2	6/23/2015	7:15:00	-0.23	0.00	ALM059355/cg2	NOx	96.8		0
dcg2	6/23/2015	7:15:15	-0.23	0.00	ALM059355/cg2	NOx	96.8		0
dcg2	6/23/2015	7:15:30	-0.23	0.00	ALM059355/cg2	NOx	96.8		0
dcg2	6/23/2015	7:15:45	-0.23	0.00	ALM059355/cg2	NOx	96.8		0
dcg2	6/23/2015	7:16:00	-0.23	0.00	ALM059355/cg2	NOx	96.8		0
noxmid1	6/23/2015	7:16:00	-0.23	0.00	ALM059355/cg2	NOx	96.8		0
dcg4	6/23/2015	7:16:15	-0.23	0.00	ALM021093(NO2)/cg4	NOx	50.2		0
dcg4	6/23/2015	7:16:30	-0.23	0.00	ALM021093(NO2)/cg4	NOx	50.2		0
dcg4	6/23/2015	7:16:45	-0.23	0.00	ALM021093(NO2)/cg4	NOx	50.2		0
dcg4	6/23/2015	7:17:00	-0.23	0.00	ALM021093(NO2)/cg4	NOx	50.2		0
dcg4	6/23/2015	7:17:15	-0.23	0.00	ALM021093(NO2)/cg4	NOx	50.2		0
dcg4	6/23/2015	7:17:30	-0.23	0.00	ALM021093(NO2)/cg4	NOx	50.2		0
dcg4	6/23/2015	7:17:45	-0.23	0.00	ALM021093(NO2)/cg4	NOx	50.2		0
dcg4	6/23/2015	7:18:00	-0.23	0.00	ALM021093(NO2)/cg4	NOx	50.2		0
dcg4	6/23/2015	7:18:15	-0.23	0.00	ALM021093(NO2)/cg4	NOx	50.2		0
dcg4	6/23/2015	7:18:30	-0.23	0.00	ALM021093(NO2)/cg4	NOx	50.2		0
dcg4	6/23/2015	7:18:45	-0.23	0.00	ALM021093(NO2)/cg4	NOx	50.2		0
dcg4	6/23/2015	7:19:00	-0.23	0.00	ALM021093(NO2)/cg4	NOx	50.2		0
dcg4	6/23/2015	7:19:15	-0.23	0.00	ALM021093(NO2)/cg4	NOx	50.2		0
dcg4	6/23/2015	7:19:30	-0.23	0.00	ALM021093(NO2)/cg4	NOx	50.2		0
dcg4	6/23/2015	7:19:45	-0.23	0.00	ALM021093(NO2)/cg4	NOx	50.2		0
dcg4	6/23/2015	7:20:00	-0.23	0.00	ALM021093(NO2)/cg4	NOx	50.2		0
dcg4	6/23/2015	7:20:15	-0.23	0.00	ALM021093(NO2)/cg4	NOx	50.2		0
dcg4	6/23/2015	7:20:30	-0.23	0.00	ALM021093(NO2)/cg4	NOx	50.2		0
dcg4	6/23/2015	7:20:45	-0.23	0.00	ALM021093(NO2)/cg4	NOx	50.2		0
dcg4	6/23/2015	7:21:00	-0.23	0.00	ALM021093(NO2)/cg4	NOx	50.2		0
dcg4	6/23/2015	7:21:15	-0.23	0.00	ALM021093(NO2)/cg4	NOx	50.2		0
dcg4	6/23/2015	7:21:30	-0.23	0.00	ALM021093(NO2)/cg4	NOx	50.2		0
dcg4	6/23/2015	7:21:45	-0.23	0.00	ALM021093(NO2)/cg4	NOx	50.2		0
dcg4	6/23/2015	7:22:00	-0.23	0.00	ALM021093(NO2)/cg4	NOx	50.2		0
dcg4	6/23/2015	7:22:15	-0.23	0.00	ALM021093(NO2)/cg4	NOx	50.2		0
dcg4	6/23/2015	7:22:30	-0.23	0.00	ALM021093(NO2)/cg4	NOx	50.2		0

dcg4	6/23/2015	7:22:45	-0.23	0.00	ALM021093(NO2)/cg4	NOx	50.2	0
dcg1	6/23/2015	7:23:45	-0.23	0.00	CC429811/cg1	N2	0	0
dcg1	6/23/2015	7:24:00	-0.23	0.00	CC429811/cg1	N2	0	0
dcg1	6/23/2015	7:24:15	-0.23	0.00	CC429811/cg1	N2	0	0
dcg1	6/23/2015	7:24:30	-0.23	0.00	CC429811/cg1	N2	0	0
dcg1	6/23/2015	7:24:45	-0.23	0.00	CC429811/cg1	N2	0	0
dcg1	6/23/2015	7:25:00	-0.23	0.00	CC429811/cg1	N2	0	0
dcg1	6/23/2015	7:25:15	-0.23	0.00	CC429811/cg1	N2	0	0
dcg1	6/23/2015	7:25:30	-0.23	0.00	CC429811/cg1	N2	0	0
thcezero1	6/23/2015	7:25:30	-0.23	0.00	CC429811/cg1	N2	0	0
dcg5	6/23/2015	7:30:45	-0.23	8.60	BAL4190/cg5	THC	8.64	0
dcg5	6/23/2015	7:31:00	-0.23	8.65	BAL4190/cg5	THC	8.64	0
dcg5	6/23/2015	7:31:15	-0.23	8.65	BAL4190/cg5	THC	8.64	0
dcg5	6/23/2015	7:31:30	-0.23	8.65	BAL4190/cg5	THC	8.64	0
thchigh1	6/23/2015	7:31:30	-0.23	8.65	BAL4190/cg5	THC	8.64	0
dcg6	6/23/2015	7:32:45	-0.23	8.65	ALM02298/cg6	THC	5.08	0
dcg6	6/23/2015	7:33:00	-0.23	8.65	ALM02298/cg6	THC	5.08	0
dcg6	6/23/2015	7:33:15	-0.23	8.65	ALM02298/cg6	THC	5.08	0
dcg6	6/23/2015	7:33:30	-0.23	6.54	ALM02298/cg6	THC	5.08	0
dcg6	6/23/2015	7:33:45	-0.23	2.70	ALM02298/cg6	THC	5.08	0
dcg6	6/23/2015	7:34:00	-0.23	3.94	ALM02298/cg6	THC	5.08	0
dcg6	6/23/2015	7:34:15	-0.23	5.36	ALM02298/cg6	THC	5.08	0
dcg6	6/23/2015	7:34:30	-0.23	4.99	ALM02298/cg6	THC	5.08	0
dcg6	6/23/2015	7:34:45	-0.23	4.96	ALM02298/cg6	THC	5.08	0
dcg6	6/23/2015	7:35:00	-0.23	5.00	ALM02298/cg6	THC	5.08	0
thcmid1	6/23/2015	7:35:00	-0.23	5.00	ALM02298/cg6	THC	5.08	0
dcg7	6/23/2015	7:36:15	-0.23	4.98	CC64067/cg7	THC	3.08	0
dcg7	6/23/2015	7:36:30	-0.23	4.97	CC64067/cg7	THC	3.08	0
dcg7	6/23/2015	7:36:45	-0.23	4.94	CC64067/cg7	THC	3.08	0
dcg7	6/23/2015	7:37:00	-0.23	3.26	CC64067/cg7	THC	3.08	0
dcg7	6/23/2015	7:37:15	-0.23	2.13	CC64067/cg7	THC	3.08	0
dcg7	6/23/2015	7:37:30	-0.23	3.18	CC64067/cg7	THC	3.08	0
dcg7	6/23/2015	7:37:45	-0.23	3.09	CC64067/cg7	THC	3.08	0
dcg7	6/23/2015	7:38:00	-0.23	2.91	CC64067/cg7	THC	3.08	0
dcg7	6/23/2015	7:38:15	-0.23	3.00	CC64067/cg7	THC	3.08	0
dcg7	6/23/2015	7:38:30	-0.23	3.02	CC64067/cg7	THC	3.08	0
thclow1	6/23/2015	7:38:30	-0.23	3.02	CC64067/cg7	THC	3.08	0
scg2	6/23/2015	7:39:15	-0.23	2.99	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:39:30	-0.23	2.99	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:39:45	-0.23	2.98	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:40:00	-0.23	2.98	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:40:15	-0.23	2.97	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:40:30	-0.23	2.96	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:40:45	-0.23	2.96	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:41:00	-0.23	2.96	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:41:15	-0.23	2.97	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:41:30	-0.23	2.98	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:41:45	-0.23	2.55	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:42:00	-0.23	2.36	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:42:15	-0.23	1.83	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:42:30	-0.23	1.36	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:42:45	-0.23	1.37	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:43:00	-0.23	1.40	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:43:15	-0.23	1.38	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:43:30	-0.23	1.39	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:43:45	-0.23	1.45	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:44:00	-0.23	1.48	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:44:15	-0.23	1.48	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:44:30	-0.23	1.40	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:46:00	-0.23	1.26	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:46:15	-0.23	1.24	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:46:30	-0.23	1.23	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:46:45	-0.23	1.22	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:47:00	-0.23	1.22	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:47:15	-0.23	1.20	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	7:47:30	-0.22	1.18	ALM059355/cg2	NOx	96.8	0

scg2	6/23/2015	7:47:45	0.10	1.19	ALM059355/cg2	NOx	96.8		0
scg2	6/23/2015	7:48:00	0.11	1.15	ALM059355/cg2	NOx	96.8		0
scg2	6/23/2015	7:48:15	0.12	1.14	ALM059355/cg2	NOx	96.8		0
scg2	6/23/2015	7:48:30	0.00	1.12	ALM059355/cg2	NOx	96.8		0
scg2	6/23/2015	7:48:45	0.05	1.11	ALM059355/cg2	NOx	96.8		0
scg2	6/23/2015	7:49:00	0.11	1.12	ALM059355/cg2	NOx	96.8		0
scg2	6/23/2015	7:49:15	0.06	1.09	ALM059355/cg2	NOx	96.8		0
scg2	6/23/2015	7:49:30	0.04	1.08	ALM059355/cg2	NOx	96.8		0
scg2	6/23/2015	7:49:45	0.01	1.06	ALM059355/cg2	NOx	96.8		0
scg2	6/23/2015	7:50:00	0.09	1.06	ALM059355/cg2	NOx	96.8		0
o2zero1	6/23/2015	7:50:00	0.09	1.06	ALM059355/cg2	NOx	96.8		0
co2zero1	6/23/2015	7:50:00	0.09	1.06	ALM059355/cg2	NOx	96.8		0
cozero1	6/23/2015	7:50:00	0.09	1.06	ALM059355/cg2	NOx	96.8		0
noxspan1	6/23/2015	7:50:00	0.09	1.06	ALM059355/cg2	NOx	96.8		0
scg9	6/23/2015	7:50:15	0.08	1.05	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	7:50:30	-0.01	1.03	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	7:50:45	0.00	1.03	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	7:51:00	0.05	1.00	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	7:51:15	0.09	1.01	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	7:51:30	0.36	1.00	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	7:51:45	1.41	0.99	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	7:52:00	3.26	0.99	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	7:52:15	4.52	1.00	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	7:52:30	5.19	1.01	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	7:52:45	5.39	1.00	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	7:53:00	5.15	0.99	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	7:53:15	5.11	0.95	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	7:53:30	5.17	0.91	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	7:53:45	5.16	0.94	LL23441/cg9	CO	5.13		0
noxzero1	6/23/2015	7:53:45	5.16	0.94	LL23441/cg9	CO	5.13		0
cospan1	6/23/2015	7:53:45	5.16	0.94	LL23441/cg9	CO	5.13		0
scg10	6/23/2015	7:54:30	5.20	0.96	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	7:54:45	5.14	0.93	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	7:55:00	5.13	0.92	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	7:55:15	4.70	0.92	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	7:55:30	3.35	0.88	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	7:55:45	2.09	0.89	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	7:56:00	0.96	0.89	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	7:56:15	0.36	0.90	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	7:56:30	-0.14	0.87	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	7:56:45	-0.23	0.86	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	7:57:00	-0.23	0.87	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	7:57:15	-0.23	0.87	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	7:57:30	-0.23	0.85	ALM008899/cg10	O2	11.06	CO2	11.16
o2span1	6/23/2015	7:57:30	-0.23	0.85	ALM008899/cg10	O2	11.06	CO2	11.16
co2span1	6/23/2015	7:57:30	-0.23	0.85	ALM008899/cg10	O2	11.06	CO2	11.16
scg6	6/23/2015	7:58:00	-0.23	0.88	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	7:58:15	-0.23	0.90	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	7:58:30	-0.23	0.86	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	7:58:45	-0.23	0.85	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	7:59:00	-0.23	0.86	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	7:59:15	-0.23	0.81	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	7:59:30	-0.23	3.69	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	7:59:45	-0.21	5.57	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	8:00:00	-0.19	5.23	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	8:00:15	-0.11	5.16	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	8:00:30	-0.03	5.12	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	8:00:45	0.01	5.09	ALM02298/cg6	THC	5.08		0
thcspan1	6/23/2015	8:00:45	0.01	5.09	ALM02298/cg6	THC	5.08		0
scg1	6/23/2015	8:02:00	-0.01	5.05	CC429811/cg1	N2	0		0
scg1	6/23/2015	8:02:15	0.02	5.05	CC429811/cg1	N2	0		0
scg1	6/23/2015	8:02:30	0.04	5.06	CC429811/cg1	N2	0		0
scg1	6/23/2015	8:02:45	0.02	3.88	CC429811/cg1	N2	0		0
scg1	6/23/2015	8:03:00	0.03	1.48	CC429811/cg1	N2	0		0
scg1	6/23/2015	8:03:15	0.01	1.47	CC429811/cg1	N2	0		0
scg1	6/23/2015	8:03:30	-0.03	-0.32	CC429811/cg1	N2	0		0

scg1	6/23/2015	8:03:45	-0.05	-0.49	CC429811/cg1	N2	0	0
scg1	6/23/2015	8:04:00	0.04	-0.53	CC429811/cg1	N2	0	0
scg1	6/23/2015	8:04:15	0.04	-0.04	CC429811/cg1	N2	0	0
scg1	6/23/2015	8:04:30	0.00	-0.03	CC429811/cg1	N2	0	0
thczero1	6/23/2015	8:04:30	0.00	-0.03	CC429811/cg1	N2	0	0
run1	6/23/2015	8:55:00	1.07	0.46				
run1	6/23/2015	8:55:15	1.03	0.46				
run1	6/23/2015	8:55:30	1.02	0.46				
run1	6/23/2015	8:55:45	1.10	0.46				
run1	6/23/2015	8:56:00	1.38	0.45				
run1	6/23/2015	8:56:15	1.79	0.45				
run1	6/23/2015	8:56:30	2.13	0.45				
run1	6/23/2015	8:56:45	2.15	0.45				
run1	6/23/2015	8:57:00	2.16	0.44				
run1	6/23/2015	8:57:15	1.93	0.44				
run1	6/23/2015	8:57:30	1.71	0.45				
run1	6/23/2015	8:57:45	1.38	0.47				
run1	6/23/2015	8:58:00	1.10	0.46				
run1	6/23/2015	8:58:15	0.93	0.45				
run1	6/23/2015	8:58:30	0.82	0.45				
run1	6/23/2015	8:58:45	0.77	0.43				
run1	6/23/2015	8:59:00	0.68	0.41				
run1	6/23/2015	8:59:15	0.55	0.41				
run1	6/23/2015	8:59:30	0.48	0.41				
run1	6/23/2015	8:59:45	0.58	0.41				
run1	6/23/2015	9:00:00	0.57	0.41				
run1	6/23/2015	9:00:15	0.52	0.49				
run1	6/23/2015	9:00:30	0.45	0.50				
run1	6/23/2015	9:00:45	0.41	0.47				
run1	6/23/2015	9:01:00	0.38	0.46				
run1	6/23/2015	9:01:15	0.39	0.45				
run1	6/23/2015	9:01:30	0.46	0.43				
run1	6/23/2015	9:01:45	0.51	0.43				
run1	6/23/2015	9:02:00	0.48	0.43				
run1	6/23/2015	9:02:15	0.42	0.41				
run1	6/23/2015	9:02:30	0.44	0.40				
run1	6/23/2015	9:02:45	0.37	0.41				
run1	6/23/2015	9:03:00	0.38	0.41				
run1	6/23/2015	9:03:15	0.27	0.41				
run1	6/23/2015	9:03:30	0.14	0.40				
run1	6/23/2015	9:03:45	0.11	0.40				
run1	6/23/2015	9:04:00	0.22	0.40				
run1	6/23/2015	9:04:15	0.29	0.40				
run1	6/23/2015	9:04:30	0.32	0.41				
run1	6/23/2015	9:04:45	0.25	0.40				
run1	6/23/2015	9:05:00	0.32	0.40				
run1	6/23/2015	9:05:15	0.52	0.39				
run1	6/23/2015	9:05:30	0.73	0.40				
run1	6/23/2015	9:05:45	0.79	0.40				
run1	6/23/2015	9:06:00	0.66	0.40				
run1	6/23/2015	9:06:15	0.49	0.40				
run1	6/23/2015	9:06:30	0.27	0.40				
run1	6/23/2015	9:06:45	0.29	0.39				
run1	6/23/2015	9:07:00	0.28	0.40				
run1	6/23/2015	9:07:15	0.41	0.40				
run1	6/23/2015	9:07:30	0.52	0.40				
run1	6/23/2015	9:07:45	0.50	0.40				
run1	6/23/2015	9:08:00	0.50	0.40				
run1	6/23/2015	9:08:15	0.61	0.39				
run1	6/23/2015	9:08:30	0.81	0.40				
run1	6/23/2015	9:08:45	0.97	0.42				
run1	6/23/2015	9:09:00	1.07	0.41				
run1	6/23/2015	9:09:15	0.94	0.39				
run1	6/23/2015	9:09:30	0.79	0.39				
run1	6/23/2015	9:09:45	0.73	0.39				
run1	6/23/2015	9:10:00	0.82	0.46				

run1	6/23/2015	9:10:15	0.80	0.49
run1	6/23/2015	9:10:30	0.70	0.46
run1	6/23/2015	9:10:45	0.84	0.44
run1	6/23/2015	9:11:00	1.04	0.43
run1	6/23/2015	9:11:15	1.22	0.42
run1	6/23/2015	9:11:30	1.28	0.41
run1	6/23/2015	9:11:45	1.32	0.41
run1	6/23/2015	9:12:00	1.49	0.41
run1	6/23/2015	9:12:15	1.70	0.40
run1	6/23/2015	9:12:30	1.73	0.42
run1	6/23/2015	9:12:45	1.47	0.41
run1	6/23/2015	9:13:00	1.17	0.39
run1	6/23/2015	9:13:15	0.91	0.39
run1	6/23/2015	9:13:30	0.88	0.39
run1	6/23/2015	9:13:45	0.88	0.39
run1	6/23/2015	9:14:00	0.87	0.38
run1	6/23/2015	9:14:15	0.82	0.39
run1	6/23/2015	9:14:30	0.83	0.39
run1	6/23/2015	9:14:45	0.61	0.39
run1	6/23/2015	9:15:00	0.41	0.39
run1	6/23/2015	9:15:15	0.32	0.38
run1	6/23/2015	9:15:30	0.21	0.39
run1	6/23/2015	9:15:45	0.03	0.39
run1	6/23/2015	9:16:00	-0.01	0.38
run1	6/23/2015	9:16:15	0.01	0.39
run1	6/23/2015	9:16:30	0.10	0.39
run1	6/23/2015	9:16:45	0.17	0.38
run1	6/23/2015	9:17:00	0.33	0.37
run1	6/23/2015	9:17:15	0.48	0.39
run1	6/23/2015	9:17:30	0.46	0.38
run1	6/23/2015	9:17:45	0.28	0.38
run1	6/23/2015	9:18:00	0.16	0.39
run1	6/23/2015	9:18:15	0.22	0.38
run1	6/23/2015	9:18:30	0.40	0.38
run1	6/23/2015	9:18:45	0.42	0.39
run1	6/23/2015	9:19:00	0.45	0.39
run1	6/23/2015	9:19:15	0.45	0.39
run1	6/23/2015	9:19:30	0.32	0.38
run1	6/23/2015	9:19:45	0.26	0.38
run1	6/23/2015	9:20:00	0.33	0.40
run1	6/23/2015	9:20:15	0.39	0.54
run1	6/23/2015	9:20:30	0.49	0.52
run1	6/23/2015	9:20:45	0.30	0.48
run1	6/23/2015	9:21:00	0.25	0.44
run1	6/23/2015	9:21:15	0.25	0.43
run1	6/23/2015	9:21:30	0.33	0.41
run1	6/23/2015	9:21:45	0.48	0.43
run1	6/23/2015	9:22:00	0.60	0.42
run1	6/23/2015	9:22:15	0.74	0.41
run1	6/23/2015	9:22:30	0.79	0.41
run1	6/23/2015	9:22:45	0.75	0.41
run1	6/23/2015	9:23:00	0.63	0.40
run1	6/23/2015	9:23:15	0.53	0.39
run1	6/23/2015	9:23:30	0.57	0.38
run1	6/23/2015	9:23:45	0.62	0.39
run1	6/23/2015	9:24:00	0.60	0.45
run1	6/23/2015	9:24:15	0.49	0.51
run1	6/23/2015	9:24:30	0.46	0.47
run1	6/23/2015	9:24:45	0.49	0.46
run1	6/23/2015	9:25:00	0.44	0.44
run1	6/23/2015	9:25:15	0.35	0.41
run1	6/23/2015	9:25:30	0.40	0.41
run1	6/23/2015	9:25:45	0.40	0.41
run1	6/23/2015	9:26:00	0.45	0.40
run1	6/23/2015	9:26:15	0.42	0.40
run1	6/23/2015	9:26:30	0.35	0.39

run1	6/23/2015	9:26:45	0.31	0.39
run1	6/23/2015	9:27:00	0.28	0.39
run1	6/23/2015	9:27:15	0.34	0.40
run1	6/23/2015	9:27:30	0.36	0.40
run1	6/23/2015	9:27:45	0.40	0.39
run1	6/23/2015	9:28:00	0.36	0.40
run1	6/23/2015	9:28:15	0.27	0.39
run1	6/23/2015	9:28:30	0.19	0.38
run1	6/23/2015	9:28:45	0.19	0.39
run1	6/23/2015	9:29:00	0.04	0.38
run1	6/23/2015	9:29:15	0.05	0.39
run1	6/23/2015	9:29:30	0.01	0.39
run1	6/23/2015	9:29:45	0.00	0.39
run1	6/23/2015	9:30:00	0.04	0.43
run1	6/23/2015	9:30:15	0.11	0.43
run1	6/23/2015	9:30:30	0.06	0.41
run1	6/23/2015	9:30:45	0.11	0.41
run1	6/23/2015	9:31:00	0.09	0.46
run1	6/23/2015	9:31:15	0.12	0.44
run1	6/23/2015	9:31:30	0.29	0.42
run1	6/23/2015	9:31:45	0.47	0.39
run1	6/23/2015	9:32:00	0.60	0.39
run1	6/23/2015	9:32:15	0.64	0.40
run1	6/23/2015	9:32:30	0.73	0.42
run1	6/23/2015	9:32:45	0.63	0.41
run1	6/23/2015	9:33:00	0.55	0.41
run1	6/23/2015	9:33:15	0.63	0.41
run1	6/23/2015	9:33:30	0.60	0.44
run1	6/23/2015	9:33:45	0.29	0.40
run1	6/23/2015	9:34:00	0.05	0.38
run1	6/23/2015	9:34:15	-0.03	0.37
run1	6/23/2015	9:34:30	-0.16	0.36
run1	6/23/2015	9:34:45	-0.09	0.37
run1	6/23/2015	9:35:00	0.06	0.37
run1	6/23/2015	9:35:15	-0.02	0.36
run1	6/23/2015	9:35:30	-0.05	0.37
run1	6/23/2015	9:35:45	-0.14	0.38
run1	6/23/2015	9:36:00	-0.13	0.37
run1	6/23/2015	9:36:15	-0.09	0.39
run1	6/23/2015	9:36:30	0.20	0.39
run1	6/23/2015	9:36:45	0.48	0.39
run1	6/23/2015	9:37:00	0.53	0.38
run1	6/23/2015	9:37:15	0.34	0.38
run1	6/23/2015	9:37:30	0.23	0.39
run1	6/23/2015	9:37:45	0.26	0.39
run1	6/23/2015	9:38:00	0.30	0.40
run1	6/23/2015	9:38:15	0.43	0.40
run1	6/23/2015	9:38:30	0.42	0.40
run1	6/23/2015	9:38:45	0.29	0.41
run1	6/23/2015	9:39:00	0.14	0.41
run1	6/23/2015	9:39:15	0.10	0.40
run1	6/23/2015	9:39:30	0.21	0.39
run1	6/23/2015	9:39:45	0.22	0.39
run1	6/23/2015	9:40:00	0.31	0.39
run1	6/23/2015	9:40:15	0.24	0.39
run1	6/23/2015	9:40:30	0.14	0.40
run1	6/23/2015	9:40:45	0.00	0.39
run1	6/23/2015	9:41:00	0.10	0.38
run1	6/23/2015	9:41:15	0.14	0.37
run1	6/23/2015	9:41:30	0.29	0.37
run1	6/23/2015	9:41:45	0.25	0.37
run1	6/23/2015	9:42:00	0.31	0.41
run1	6/23/2015	9:42:15	0.36	0.45
run1	6/23/2015	9:42:30	0.40	0.44
run1	6/23/2015	9:42:45	0.29	0.42
run1	6/23/2015	9:43:00	0.26	0.43

run1	6/23/2015	9:43:15	0.38	0.55					
run1	6/23/2015	9:43:30	0.36	0.68					
run1	6/23/2015	9:43:45	0.25	0.80					
run1	6/23/2015	9:44:00	0.11	0.79					
run1	6/23/2015	9:44:15	0.01	0.71					
run1	6/23/2015	9:44:30	0.10	0.68					
run1	6/23/2015	9:44:45	0.12	0.66					
run1	6/23/2015	9:45:00	0.25	0.64					
run1	6/23/2015	9:45:15	0.19	0.63					
run1	6/23/2015	9:45:30	0.18	0.63					
run1	6/23/2015	9:45:45	0.10	0.80					
run1	6/23/2015	9:46:00	0.09	0.91					
run1	6/23/2015	9:46:15	-0.01	0.84					
run1	6/23/2015	9:46:30	0.01	0.80					
run1	6/23/2015	9:46:45	-0.05	0.75					
run1	6/23/2015	9:47:00	-0.06	0.72					
run1	6/23/2015	9:47:15	-0.01	0.72					
run1	6/23/2015	9:47:30	0.03	0.71					
run1	6/23/2015	9:47:45	-0.06	0.70					
run1	6/23/2015	9:48:00	-0.05	0.71					
run1	6/23/2015	9:48:15	-0.06	0.70					
run1	6/23/2015	9:48:30	0.00	0.69					
run1	6/23/2015	9:48:45	0.05	0.68					
run1	6/23/2015	9:49:00	0.01	0.68					
run1	6/23/2015	9:49:15	0.05	0.68					
run1	6/23/2015	9:49:30	0.09	0.68					
run1	6/23/2015	9:49:45	0.09	0.67					
run1	6/23/2015	9:50:00	0.04	0.66					
run1	6/23/2015	9:50:15	0.04	0.71					
run1	6/23/2015	9:50:30	0.09	1.02					
run1	6/23/2015	9:50:45	0.01	1.15					
run1	6/23/2015	9:51:00	-0.03	1.00					
run1	6/23/2015	9:51:15	0.06	0.88					
run1	6/23/2015	9:51:30	0.07	0.84					
run1	6/23/2015	9:51:45	0.02	0.81					
run1	6/23/2015	9:52:00	-0.07	0.79					
run1	6/23/2015	9:52:15	-0.16	0.78					
run1	6/23/2015	9:52:30	-0.05	0.80					
run1	6/23/2015	9:52:45	-0.02	1.05					
run1	6/23/2015	9:53:00	-0.06	1.05					
run1	6/23/2015	9:53:15	-0.10	0.94					
run1	6/23/2015	9:53:30	-0.09	0.87					
run1	6/23/2015	9:53:45	0.03	0.83					
run1	6/23/2015	9:54:00	0.13	0.81					
run1	6/23/2015	9:54:15	0.23	0.78					
run1	6/23/2015	9:54:30	0.23	0.76					
run1	6/23/2015	9:54:45	0.37	0.76					
averun1	6/23/2015	8:55:00	0.43	0.48		60			
scg2	6/23/2015	9:55:00	0.47	0.74	ALM059355/cg2	NOx	96.8	0	
scg2	6/23/2015	9:55:15	0.44	0.74	ALM059355/cg2	NOx	96.8	0	
scg2	6/23/2015	9:55:30	0.39	0.74	ALM059355/cg2	NOx	96.8	0	
scg2	6/23/2015	9:55:45	0.54	0.74	ALM059355/cg2	NOx	96.8	0	
scg2	6/23/2015	9:56:00	0.60	0.74	ALM059355/cg2	NOx	96.8	0	
scg2	6/23/2015	9:56:15	0.41	0.73	ALM059355/cg2	NOx	96.8	0	
scg2	6/23/2015	9:56:30	0.09	0.71	ALM059355/cg2	NOx	96.8	0	
scg2	6/23/2015	9:56:45	-0.18	0.69	ALM059355/cg2	NOx	96.8	0	
scg2	6/23/2015	9:57:00	-0.23	0.69	ALM059355/cg2	NOx	96.8	0	
scg2	6/23/2015	9:57:15	-0.23	0.69	ALM059355/cg2	NOx	96.8	0	
scg2	6/23/2015	9:57:30	-0.23	0.68	ALM059355/cg2	NOx	96.8	0	
scg2	6/23/2015	9:57:45	-0.23	0.68	ALM059355/cg2	NOx	96.8	0	
scg2	6/23/2015	9:58:00	-0.23	0.74	ALM059355/cg2	NOx	96.8	0	
scg2	6/23/2015	9:58:15	-0.23	1.11	ALM059355/cg2	NOx	96.8	0	
scg2	6/23/2015	9:58:30	-0.23	1.09	ALM059355/cg2	NOx	96.8	0	
scg2	6/23/2015	9:58:45	-0.23	1.10	ALM059355/cg2	NOx	96.8	0	
scg2	6/23/2015	9:59:00	-0.23	0.98	ALM059355/cg2	NOx	96.8	0	
o2zero1	6/23/2015	9:59:00	-0.23	0.98	ALM059355/cg2	NOx	96.8	0	

co2zero1	6/23/2015	9:59:00	-0.23	0.98	ALM059355/cg2	NOx	96.8		0
cozero1	6/23/2015	9:59:00	-0.23	0.98	ALM059355/cg2	NOx	96.8		0
noxspan1	6/23/2015	9:59:00	-0.23	0.98	ALM059355/cg2	NOx	96.8		0
scg9	6/23/2015	9:59:30	-0.23	0.86	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	9:59:45	-0.23	0.83	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	10:00:00	-0.23	0.80	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	10:00:15	-0.23	0.79	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	10:00:30	-0.18	0.79	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	10:00:45	0.73	0.79	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	10:01:00	2.09	0.97	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	10:01:15	3.47	2.00	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	10:01:30	4.12	1.60	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	10:01:45	4.41	1.59	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	10:02:00	4.51	1.52	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	10:02:15	4.60	1.64	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	10:02:30	4.82	1.58	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	10:02:45	5.15	1.64	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	10:03:00	5.04	2.04	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	10:03:15	5.09	2.45	LL23441/cg9	CO	5.13		0
noxzero1	6/23/2015	10:03:15	5.09	2.45	LL23441/cg9	CO	5.13		0
cospan1	6/23/2015	10:03:15	5.09	2.45	LL23441/cg9	CO	5.13		0
scg10	6/23/2015	10:03:30	5.10	2.26	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	10:03:45	5.09	2.49	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	10:04:00	5.16	2.05	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	10:04:15	5.04	2.14	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	10:04:30	5.10	2.23	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	10:04:45	4.84	2.00	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	10:05:00	3.70	2.00	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	10:05:15	1.78	2.08	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	10:05:30	0.31	2.01	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	10:05:45	-0.23	2.11	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	10:06:00	-0.23	1.72	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	10:06:15	-0.23	1.96	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	10:06:30	-0.23	1.70	ALM008899/cg10	O2	11.06	CO2	11.16
o2span1	6/23/2015	10:06:30	-0.23	1.70	ALM008899/cg10	O2	11.06	CO2	11.16
co2span1	6/23/2015	10:06:30	-0.23	1.70	ALM008899/cg10	O2	11.06	CO2	11.16
scg1	6/23/2015	10:06:45	-0.23	1.82	CC429811/cg1	N2	0		0
scg1	6/23/2015	10:07:00	-0.23	1.71	CC429811/cg1	N2	0		0
scg1	6/23/2015	10:07:15	-0.23	1.68	CC429811/cg1	N2	0		0
scg1	6/23/2015	10:07:30	-0.23	1.62	CC429811/cg1	N2	0		0
scg1	6/23/2015	10:07:45	-0.23	1.49	CC429811/cg1	N2	0		0
scg1	6/23/2015	10:08:00	-0.23	1.54	CC429811/cg1	N2	0		0
scg1	6/23/2015	10:08:15	-0.23	1.68	CC429811/cg1	N2	0		0
scg1	6/23/2015	10:08:30	-0.23	5.70	CC429811/cg1	N2	0		0
scg1	6/23/2015	10:08:45	-0.15	2.07	CC429811/cg1	N2	0		0
scg1	6/23/2015	10:09:00	0.04	1.59	CC429811/cg1	N2	0		0
scg1	6/23/2015	10:09:15	0.04	1.36	CC429811/cg1	N2	0		0
scg1	6/23/2015	10:09:30	0.04	1.32	CC429811/cg1	N2	0		0
scg1	6/23/2015	10:09:45	0.07	1.74	CC429811/cg1	N2	0		0
scg1	6/23/2015	10:10:00	0.07	1.60	CC429811/cg1	N2	0		0
scg1	6/23/2015	10:10:15	0.11	1.36	CC429811/cg1	N2	0		0
scg1	6/23/2015	10:10:30	0.19	1.23	CC429811/cg1	N2	0		0
scg1	6/23/2015	10:10:45	0.13	1.14	CC429811/cg1	N2	0		0
scg1	6/23/2015	10:11:00	0.13	1.08	CC429811/cg1	N2	0		0
scg1	6/23/2015	10:11:15	0.04	0.97	CC429811/cg1	N2	0		0
scg1	6/23/2015	10:11:30	0.02	-0.09	CC429811/cg1	N2	0		0
scg1	6/23/2015	10:11:45	0.08	-0.13	CC429811/cg1	N2	0		0
scg1	6/23/2015	10:12:00	0.07	-0.18	CC429811/cg1	N2	0		0
thczero1	6/23/2015	10:12:00	0.07	-0.18	CC429811/cg1	N2	0		0
scg6	6/23/2015	10:13:30	0.29	-0.31	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	10:13:45	0.20	-0.33	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	10:14:00	0.25	-0.29	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	10:14:15	0.31	0.90	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	10:14:30	0.18	0.79	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	10:14:45	0.16	2.63	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	10:15:00	0.10	6.10	ALM02298/cg6	THC	5.08		0

scg6	6/23/2015	10:15:15	0.17	6.13	ALM02298/cg6	THC	5.08	0
scg6	6/23/2015	10:15:30	0.12	5.21	ALM02298/cg6	THC	5.08	0
scg6	6/23/2015	10:15:45	0.04	5.01	ALM02298/cg6	THC	5.08	0
scg6	6/23/2015	10:16:00	0.04	5.00	ALM02298/cg6	THC	5.08	0
thcspan1	6/23/2015	10:16:00	0.04	5.00	ALM02298/cg6	THC	5.08	0
run2	6/23/2015	10:35:00	2.17	-0.39				
run2	6/23/2015	10:35:15	2.07	-0.39				
run2	6/23/2015	10:35:30	2.06	-0.38				
run2	6/23/2015	10:35:45	1.80	-0.39				
run2	6/23/2015	10:36:00	1.28	-0.40				
run2	6/23/2015	10:36:15	0.96	-0.42				
run2	6/23/2015	10:36:30	1.10	-0.40				
run2	6/23/2015	10:36:45	1.45	-0.42				
run2	6/23/2015	10:37:00	1.73	-0.41				
run2	6/23/2015	10:37:15	2.09	-0.42				
run2	6/23/2015	10:37:30	2.35	-0.42				
run2	6/23/2015	10:37:45	2.39	-0.40				
run2	6/23/2015	10:38:00	2.27	-0.41				
run2	6/23/2015	10:38:15	2.07	-0.41				
run2	6/23/2015	10:38:30	1.94	-0.41				
run2	6/23/2015	10:38:45	1.89	-0.42				
run2	6/23/2015	10:39:00	1.87	-0.42				
run2	6/23/2015	10:39:15	1.79	-0.43				
run2	6/23/2015	10:39:30	1.76	-0.43				
run2	6/23/2015	10:39:45	1.54	-0.45				
run2	6/23/2015	10:40:00	1.39	-0.45				
run2	6/23/2015	10:40:15	1.29	-0.46				
run2	6/23/2015	10:40:30	1.38	-0.47				
run2	6/23/2015	10:40:45	1.58	-0.47				
run2	6/23/2015	10:41:00	1.69	-0.48				
run2	6/23/2015	10:41:15	1.61	-0.49				
run2	6/23/2015	10:41:30	1.46	-0.50				
run2	6/23/2015	10:41:45	1.27	-0.47				
run2	6/23/2015	10:42:00	1.13	-0.47				
run2	6/23/2015	10:42:15	1.02	-0.48				
run2	6/23/2015	10:42:30	0.83	-0.47				
run2	6/23/2015	10:42:45	0.82	-0.48				
run2	6/23/2015	10:43:00	0.80	-0.49				
run2	6/23/2015	10:43:15	0.96	-0.49				
run2	6/23/2015	10:43:30	0.93	-0.51				
run2	6/23/2015	10:43:45	0.91	-0.51				
run2	6/23/2015	10:44:00	0.91	-0.51				
run2	6/23/2015	10:44:15	0.98	-0.51				
run2	6/23/2015	10:44:30	1.04	-0.50				
run2	6/23/2015	10:44:45	1.07	-0.50				
run2	6/23/2015	10:45:00	1.06	-0.49				
run2	6/23/2015	10:45:15	0.88	-0.48				
run2	6/23/2015	10:45:30	0.85	-0.50				
run2	6/23/2015	10:45:45	0.84	-0.50				
run2	6/23/2015	10:46:00	0.75	-0.50				
run2	6/23/2015	10:46:15	0.71	-0.51				
run2	6/23/2015	10:46:30	0.74	-0.52				
run2	6/23/2015	10:46:45	0.65	-0.52				
run2	6/23/2015	10:47:00	0.74	-0.50				
run2	6/23/2015	10:47:15	0.85	-0.51				
run2	6/23/2015	10:47:30	0.93	-0.52				
run2	6/23/2015	10:47:45	0.97	-0.53				
run2	6/23/2015	10:48:00	1.09	-0.51				
run2	6/23/2015	10:48:15	1.17	-0.52				
run2	6/23/2015	10:48:30	1.11	-0.53				
run2	6/23/2015	10:48:45	1.02	-0.53				
run2	6/23/2015	10:49:00	1.01	-0.54				
run2	6/23/2015	10:49:15	0.98	-0.53				
run2	6/23/2015	10:49:30	0.94	-0.52				
run2	6/23/2015	10:49:45	1.02	-0.52				
run2	6/23/2015	10:50:00	1.16	-0.53				

run2	6/23/2015	10:50:15	1.32	-0.53
run2	6/23/2015	10:50:30	1.49	-0.53
run2	6/23/2015	10:50:45	1.62	-0.53
run2	6/23/2015	10:51:00	1.61	-0.53
run2	6/23/2015	10:51:15	1.50	-0.53
run2	6/23/2015	10:51:30	1.55	-0.53
run2	6/23/2015	10:51:45	1.65	-0.53
run2	6/23/2015	10:52:00	1.74	-0.53
run2	6/23/2015	10:52:15	1.72	-0.53
run2	6/23/2015	10:52:30	1.58	-0.53
run2	6/23/2015	10:52:45	1.52	-0.53
run2	6/23/2015	10:53:00	1.48	-0.53
run2	6/23/2015	10:53:15	1.53	-0.53
run2	6/23/2015	10:53:30	1.30	-0.53
run2	6/23/2015	10:53:45	1.04	-0.53
run2	6/23/2015	10:54:00	0.91	-0.36
run2	6/23/2015	10:54:15	0.80	-0.36
run2	6/23/2015	10:54:30	0.91	-0.43
run2	6/23/2015	10:54:45	1.06	-0.49
run2	6/23/2015	10:55:00	1.15	-0.50
run2	6/23/2015	10:55:15	1.28	-0.52
run2	6/23/2015	10:55:30	1.36	-0.53
run2	6/23/2015	10:55:45	1.30	-0.53
run2	6/23/2015	10:56:00	1.31	-0.53
run2	6/23/2015	10:56:15	1.11	-0.53
run2	6/23/2015	10:56:30	1.08	-0.53
run2	6/23/2015	10:56:45	0.99	-0.53
run2	6/23/2015	10:57:00	0.97	-0.53
run2	6/23/2015	10:57:15	1.07	-0.53
run2	6/23/2015	10:57:30	1.18	-0.53
run2	6/23/2015	10:57:45	1.14	-0.53
run2	6/23/2015	10:58:00	1.02	-0.53
run2	6/23/2015	10:58:15	1.08	-0.53
run2	6/23/2015	10:58:30	1.22	-0.53
run2	6/23/2015	10:58:45	1.25	-0.53
run2	6/23/2015	10:59:00	1.27	-0.53
run2	6/23/2015	10:59:15	1.15	-0.53
run2	6/23/2015	10:59:30	1.02	-0.53
run2	6/23/2015	10:59:45	0.87	-0.53
run2	6/23/2015	11:00:00	0.84	-0.53
run2	6/23/2015	11:00:15	0.79	-0.53
run2	6/23/2015	11:00:30	0.71	-0.53
run2	6/23/2015	11:00:45	0.61	-0.53
run2	6/23/2015	11:01:00	0.67	-0.53
run2	6/23/2015	11:01:15	0.63	-0.53
run2	6/23/2015	11:01:30	0.65	-0.53
run2	6/23/2015	11:01:45	0.53	-0.53
run2	6/23/2015	11:02:00	0.52	-0.53
run2	6/23/2015	11:02:15	0.60	-0.53
run2	6/23/2015	11:02:30	0.47	-0.53
run2	6/23/2015	11:02:45	0.39	-0.53
run2	6/23/2015	11:03:00	0.37	-0.53
run2	6/23/2015	11:03:15	0.44	-0.53
run2	6/23/2015	11:03:30	0.49	-0.53
run2	6/23/2015	11:03:45	0.67	-0.53
run2	6/23/2015	11:04:00	0.73	-0.53
run2	6/23/2015	11:04:15	0.74	-0.53
run2	6/23/2015	11:04:30	0.74	-0.53
run2	6/23/2015	11:04:45	0.75	-0.53
run2	6/23/2015	11:05:00	0.83	-0.53
run2	6/23/2015	11:05:15	0.89	-0.53
run2	6/23/2015	11:05:30	1.05	-0.53
run2	6/23/2015	11:05:45	1.26	-0.53
run2	6/23/2015	11:06:00	1.47	-0.53
run2	6/23/2015	11:06:15	1.60	-0.53
run2	6/23/2015	11:06:30	1.57	-0.53

run2	6/23/2015	11:06:45	1.62	-0.53
run2	6/23/2015	11:07:00	1.71	-0.53
run2	6/23/2015	11:07:15	1.91	-0.53
run2	6/23/2015	11:07:30	2.30	-0.53
run2	6/23/2015	11:07:45	2.56	-0.53
run2	6/23/2015	11:08:00	2.32	-0.53
run2	6/23/2015	11:08:15	1.98	-0.53
run2	6/23/2015	11:08:30	1.58	-0.53
run2	6/23/2015	11:08:45	1.39	-0.53
run2	6/23/2015	11:09:00	1.35	-0.53
run2	6/23/2015	11:09:15	1.30	-0.53
run2	6/23/2015	11:09:30	1.27	-0.53
run2	6/23/2015	11:09:45	1.21	-0.53
run2	6/23/2015	11:10:00	1.17	-0.53
run2	6/23/2015	11:10:15	1.06	-0.53
run2	6/23/2015	11:10:30	0.99	-0.53
run2	6/23/2015	11:10:45	0.92	-0.53
run2	6/23/2015	11:11:00	0.94	-0.53
run2	6/23/2015	11:11:15	0.85	-0.54
run2	6/23/2015	11:11:30	0.85	-0.53
run2	6/23/2015	11:11:45	0.75	-0.53
run2	6/23/2015	11:12:00	0.73	-0.53
run2	6/23/2015	11:12:15	0.59	-0.53
run2	6/23/2015	11:12:30	0.51	-0.53
run2	6/23/2015	11:12:45	0.46	-0.53
run2	6/23/2015	11:13:00	0.46	-0.53
run2	6/23/2015	11:13:15	0.40	-0.53
run2	6/23/2015	11:13:30	0.25	-0.53
run2	6/23/2015	11:13:45	0.31	-0.53
run2	6/23/2015	11:14:00	0.37	-0.53
run2	6/23/2015	11:14:15	0.46	-0.53
run2	6/23/2015	11:14:30	0.52	-0.53
run2	6/23/2015	11:14:45	0.51	-0.53
run2	6/23/2015	11:15:00	0.50	-0.53
run2	6/23/2015	11:15:15	0.55	-0.53
run2	6/23/2015	11:15:30	0.64	-0.53
run2	6/23/2015	11:15:45	0.72	-0.53
run2	6/23/2015	11:16:00	0.68	-0.54
run2	6/23/2015	11:16:15	0.61	-0.53
run2	6/23/2015	11:16:30	0.60	-0.53
run2	6/23/2015	11:16:45	0.51	-0.53
run2	6/23/2015	11:17:00	0.48	-0.53
run2	6/23/2015	11:17:15	0.45	-0.54
run2	6/23/2015	11:17:30	0.40	-0.54
run2	6/23/2015	11:17:45	0.38	-0.54
run2	6/23/2015	11:18:00	0.37	-0.53
run2	6/23/2015	11:18:15	0.43	-0.53
run2	6/23/2015	11:18:30	0.48	-0.53
run2	6/23/2015	11:18:45	0.65	-0.53
run2	6/23/2015	11:19:00	0.89	-0.53
run2	6/23/2015	11:19:15	1.18	-0.53
run2	6/23/2015	11:19:30	1.51	-0.53
run2	6/23/2015	11:19:45	1.56	-0.53
run2	6/23/2015	11:20:00	1.68	-0.53
run2	6/23/2015	11:20:15	1.93	-0.53
run2	6/23/2015	11:20:30	2.32	-0.53
run2	6/23/2015	11:20:45	2.54	-0.53
run2	6/23/2015	11:21:00	2.62	-0.53
run2	6/23/2015	11:21:15	2.78	-0.53
run2	6/23/2015	11:21:30	3.04	-0.53
run2	6/23/2015	11:21:45	3.27	-0.53
run2	6/23/2015	11:22:00	3.25	-0.54
run2	6/23/2015	11:22:15	2.94	-0.49
run2	6/23/2015	11:22:30	2.58	-0.31
run2	6/23/2015	11:22:45	2.29	-0.45
run2	6/23/2015	11:23:00	1.98	-0.53

run2	6/23/2015	11:23:15	1.73	-0.53				
run2	6/23/2015	11:23:30	1.35	-0.53				
run2	6/23/2015	11:23:45	1.12	-0.53				
run2	6/23/2015	11:24:00	1.02	-0.53				
run2	6/23/2015	11:24:15	1.05	-0.53				
run2	6/23/2015	11:24:30	0.87	-0.53				
run2	6/23/2015	11:24:45	0.80	-0.53				
run2	6/23/2015	11:25:00	0.58	-0.53				
run2	6/23/2015	11:25:15	0.47	-0.53				
run2	6/23/2015	11:25:30	0.44	-0.53				
run2	6/23/2015	11:25:45	0.32	-0.53				
run2	6/23/2015	11:26:00	0.36	-0.53				
run2	6/23/2015	11:26:15	0.30	-0.53				
run2	6/23/2015	11:26:30	0.19	-0.53				
run2	6/23/2015	11:26:45	0.14	-0.53				
run2	6/23/2015	11:27:00	0.04	-0.53				
run2	6/23/2015	11:27:15	0.11	-0.53				
run2	6/23/2015	11:27:30	0.04	-0.53				
run2	6/23/2015	11:27:45	0.05	-0.53				
run2	6/23/2015	11:28:00	0.03	-0.53				
run2	6/23/2015	11:28:15	-0.06	-0.53				
run2	6/23/2015	11:28:30	-0.06	-0.53				
run2	6/23/2015	11:28:45	0.01	-0.53				
run2	6/23/2015	11:29:00	0.01	-0.53				
run2	6/23/2015	11:29:15	0.02	-0.53				
run2	6/23/2015	11:29:30	0.25	-0.53				
run2	6/23/2015	11:29:45	0.30	-0.53				
run2	6/23/2015	11:30:00	0.44	-0.53				
run2	6/23/2015	11:30:15	0.37	-0.53				
run2	6/23/2015	11:30:30	0.16	-0.53				
run2	6/23/2015	11:30:45	0.03	-0.53				
run2	6/23/2015	11:31:00	-0.04	-0.53				
run2	6/23/2015	11:31:15	-0.06	-0.53				
run2	6/23/2015	11:31:30	-0.12	-0.53				
run2	6/23/2015	11:31:45	-0.14	-0.53				
run2	6/23/2015	11:32:00	-0.17	-0.53				
run2	6/23/2015	11:32:15	-0.12	-0.53				
run2	6/23/2015	11:32:30	-0.11	-0.53				
run2	6/23/2015	11:32:45	-0.11	-0.53				
run2	6/23/2015	11:33:00	0.10	-0.53				
run2	6/23/2015	11:33:15	0.25	-0.53				
run2	6/23/2015	11:33:30	0.24	-0.53				
run2	6/23/2015	11:33:45	0.20	-0.53				
run2	6/23/2015	11:34:00	0.08	-0.53				
run2	6/23/2015	11:34:15	-0.01	-0.53				
run2	6/23/2015	11:34:30	0.02	-0.53				
run2	6/23/2015	11:34:45	-0.03	-0.53				
averun2	6/23/2015	10:35:00	1.02	-0.51		60		
scg2	6/23/2015	11:35:00	0.08	-0.53	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	11:35:15	0.04	-0.53	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	11:35:30	0.22	-0.53	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	11:35:45	0.36	-0.53	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	11:36:00	0.64	-0.53	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	11:36:15	0.52	-0.53	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	11:36:30	-0.03	-0.53	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	11:36:45	-0.23	-0.53	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	11:37:00	-0.23	-0.53	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	11:37:15	-0.23	-0.53	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	11:37:30	-0.23	-0.53	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	11:37:45	-0.23	-0.53	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	11:38:00	-0.23	-0.53	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	11:38:15	-0.23	-0.53	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	11:38:30	-0.23	-0.53	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	11:38:45	-0.23	-0.53	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	11:39:00	-0.23	-0.53	ALM059355/cg2	NOx	96.8	0
o2zero1	6/23/2015	11:38:45	-0.23	-0.53	ALM059355/cg2	NOx	96.8	0

co2zero1	6/23/2015	11:38:45	-0.23	-0.53	ALM059355/cg2	NOx	96.8		0
cozero1	6/23/2015	11:38:45	-0.23	-0.53	ALM059355/cg2	NOx	96.8		0
noxspan1	6/23/2015	11:38:45	-0.23	-0.53	ALM059355/cg2	NOx	96.8		0
scg9	6/23/2015	11:39:30	-0.23	-0.53	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	11:39:45	-0.23	-0.53	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	11:40:00	-0.23	-0.53	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	11:40:15	-0.23	-0.53	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	11:40:30	0.09	-0.53	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	11:40:45	1.44	-0.53	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	11:41:00	3.21	-0.53	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	11:41:15	4.14	-0.14	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	11:41:30	4.58	0.67	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	11:41:45	4.81	0.47	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	11:42:00	4.81	0.27	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	11:42:15	4.92	0.24	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	11:42:30	4.96	0.53	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	11:42:45	4.87	1.37	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	11:43:00	4.90	0.62	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	11:43:16	4.98	0.34	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	11:43:30	4.89	0.20	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	11:43:45	4.95	0.21	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	11:44:00	5.14	0.30	LL23441/cg9	CO	5.13		0
noxzero1	6/23/2015	11:44:00	5.14	0.30	LL23441/cg9	CO	5.13		0
cospan1	6/23/2015	11:44:00	5.14	0.30	LL23441/cg9	CO	5.13		0
scg10	6/23/2015	11:44:15	5.21	0.33	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	11:44:30	5.18	0.30	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	11:44:45	5.10	0.24	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	11:45:00	5.11	0.07	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	11:45:15	4.99	0.12	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	11:45:30	3.90	0.05	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	11:45:45	2.06	0.01	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	11:46:00	0.26	0.00	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	11:46:15	-0.23	0.24	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	11:46:30	-0.23	0.42	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	11:46:45	-0.23	0.36	ALM008899/cg10	O2	11.06	CO2	11.16
o2span1	6/23/2015	11:46:45	-0.23	0.36	ALM008899/cg10	O2	11.06	CO2	11.16
co2span1	6/23/2015	11:46:45	-0.23	0.36	ALM008899/cg10	O2	11.06	CO2	11.16
scg6	6/23/2015	11:47:00	-0.23	0.23	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	11:47:15	-0.23	0.16	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	11:47:30	-0.23	0.12	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	11:47:45	-0.23	0.15	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	11:48:00	-0.23	0.12	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	11:48:15	-0.23	0.19	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	11:48:30	-0.23	0.46	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	11:48:45	-0.23	5.69	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	11:49:00	-0.23	4.89	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	11:49:15	-0.18	4.80	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	11:49:30	-0.12	4.98	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	11:49:45	-0.12	4.97	ALM02298/cg6	THC	5.08		0
thcspan1	6/23/2015	11:49:45	-0.12	4.97	ALM02298/cg6	THC	5.08		0
scg1	6/23/2015	11:50:00	-0.10	4.93	CC429811/cg1	N2	0		0
scg1	6/23/2015	11:50:15	-0.06	4.90	CC429811/cg1	N2	0		0
scg1	6/23/2015	11:50:30	-0.03	4.87	CC429811/cg1	N2	0		0
scg1	6/23/2015	11:50:45	-0.10	4.86	CC429811/cg1	N2	0		0
scg1	6/23/2015	11:51:00	-0.13	4.83	CC429811/cg1	N2	0		0
scg1	6/23/2015	11:51:15	-0.05	4.83	CC429811/cg1	N2	0		0
scg1	6/23/2015	11:51:30	-0.06	4.79	CC429811/cg1	N2	0		0
scg1	6/23/2015	11:51:45	-0.01	4.48	CC429811/cg1	N2	0		0
scg1	6/23/2015	11:52:00	0.02	0.89	CC429811/cg1	N2	0		0
scg1	6/23/2015	11:52:15	0.04	0.25	CC429811/cg1	N2	0		0
scg1	6/23/2015	11:52:30	0.04	0.61	CC429811/cg1	N2	0		0
scg1	6/23/2015	11:52:45	0.10	-0.53	CC429811/cg1	N2	0		0
scg1	6/23/2015	11:53:00	0.09	-0.41	CC429811/cg1	N2	0		0
scg1	6/23/2015	11:53:15	0.01	-0.09	CC429811/cg1	N2	0		0
scg1	6/23/2015	11:53:30	-0.05	-0.10	CC429811/cg1	N2	0		0
thczero1	6/23/2015	11:53:30	-0.05	-0.10	CC429811/cg1	N2	0		0

run3	6/23/2015	12:10:00	2.06	-0.01
run3	6/23/2015	12:10:15	2.15	-0.02
run3	6/23/2015	12:10:30	2.39	-0.01
run3	6/23/2015	12:10:45	2.54	-0.01
run3	6/23/2015	12:11:00	2.67	0.02
run3	6/23/2015	12:11:15	2.70	0.02
run3	6/23/2015	12:11:30	2.72	0.02
run3	6/23/2015	12:11:45	2.69	-0.01
run3	6/23/2015	12:12:00	2.66	-0.01
run3	6/23/2015	12:12:15	2.48	0.00
run3	6/23/2015	12:12:30	2.27	0.01
run3	6/23/2015	12:12:45	2.29	-0.02
run3	6/23/2015	12:13:00	2.37	-0.02
run3	6/23/2015	12:13:15	2.12	-0.03
run3	6/23/2015	12:13:30	1.86	-0.03
run3	6/23/2015	12:13:45	1.62	-0.06
run3	6/23/2015	12:14:00	1.43	-0.04
run3	6/23/2015	12:14:15	1.26	0.00
run3	6/23/2015	12:14:30	1.13	-0.01
run3	6/23/2015	12:14:45	1.21	-0.04
run3	6/23/2015	12:15:00	1.31	-0.05
run3	6/23/2015	12:15:15	1.26	-0.06
run3	6/23/2015	12:15:30	1.31	-0.04
run3	6/23/2015	12:15:45	1.24	-0.05
run3	6/23/2015	12:16:00	1.17	-0.07
run3	6/23/2015	12:16:15	1.12	-0.06
run3	6/23/2015	12:16:30	1.10	-0.07
run3	6/23/2015	12:16:45	1.00	-0.07
run3	6/23/2015	12:17:00	0.86	-0.07
run3	6/23/2015	12:17:15	0.68	-0.06
run3	6/23/2015	12:17:30	0.63	-0.06
run3	6/23/2015	12:17:45	0.54	-0.07
run3	6/23/2015	12:18:00	0.43	-0.07
run3	6/23/2015	12:18:15	0.28	-0.08
run3	6/23/2015	12:18:30	0.16	-0.06
run3	6/23/2015	12:18:45	0.10	-0.04
run3	6/23/2015	12:19:00	0.08	-0.03
run3	6/23/2015	12:19:15	0.11	-0.03
run3	6/23/2015	12:19:30	0.14	-0.04
run3	6/23/2015	12:19:45	0.17	-0.06
run3	6/23/2015	12:20:00	0.14	-0.06
run3	6/23/2015	12:20:15	0.07	-0.07
run3	6/23/2015	12:20:30	0.09	-0.07
run3	6/23/2015	12:20:45	0.16	-0.07
run3	6/23/2015	12:21:00	0.11	-0.07
run3	6/23/2015	12:21:15	0.21	-0.05
run3	6/23/2015	12:21:30	0.30	-0.04
run3	6/23/2015	12:21:45	0.41	-0.05
run3	6/23/2015	12:22:00	0.42	-0.07
run3	6/23/2015	12:22:15	0.51	-0.07
run3	6/23/2015	12:22:30	0.67	-0.08
run3	6/23/2015	12:22:45	0.74	-0.09
run3	6/23/2015	12:23:00	0.79	-0.10
run3	6/23/2015	12:23:15	0.79	-0.09
run3	6/23/2015	12:23:30	0.96	-0.10
run3	6/23/2015	12:23:45	1.21	-0.09
run3	6/23/2015	12:24:00	1.25	-0.10
run3	6/23/2015	12:24:15	1.21	-0.09
run3	6/23/2015	12:24:30	1.36	-0.08
run3	6/23/2015	12:24:45	1.59	-0.08
run3	6/23/2015	12:25:00	1.79	-0.09
run3	6/23/2015	12:25:15	1.81	-0.10
run3	6/23/2015	12:25:30	1.56	-0.10
run3	6/23/2015	12:25:45	1.29	-0.09
run3	6/23/2015	12:26:00	1.22	-0.11
run3	6/23/2015	12:26:15	1.28	-0.11

run3	6/23/2015	12:26:30	1.31	-0.11
run3	6/23/2015	12:26:45	1.35	-0.12
run3	6/23/2015	12:27:00	1.25	-0.11
run3	6/23/2015	12:27:15	1.13	-0.13
run3	6/23/2015	12:27:30	1.08	-0.13
run3	6/23/2015	12:27:45	1.18	-0.12
run3	6/23/2015	12:28:00	1.30	-0.12
run3	6/23/2015	12:28:15	1.58	-0.13
run3	6/23/2015	12:28:30	1.66	-0.12
run3	6/23/2015	12:28:45	1.56	-0.11
run3	6/23/2015	12:29:00	1.44	-0.12
run3	6/23/2015	12:29:15	1.28	-0.13
run3	6/23/2015	12:29:30	1.18	-0.12
run3	6/23/2015	12:29:45	1.17	-0.13
run3	6/23/2015	12:30:00	1.33	-0.14
run3	6/23/2015	12:30:15	1.32	-0.12
run3	6/23/2015	12:30:30	1.08	-0.12
run3	6/23/2015	12:30:45	0.84	-0.11
run3	6/23/2015	12:31:00	0.77	-0.11
run3	6/23/2015	12:31:15	0.73	-0.11
run3	6/23/2015	12:31:30	0.66	-0.12
run3	6/23/2015	12:31:45	0.46	-0.12
run3	6/23/2015	12:32:00	0.39	-0.10
run3	6/23/2015	12:32:15	0.37	-0.10
run3	6/23/2015	12:32:30	0.46	-0.12
run3	6/23/2015	12:32:45	0.55	-0.08
run3	6/23/2015	12:33:00	0.65	-0.13
run3	6/23/2015	12:33:15	0.89	-0.14
run3	6/23/2015	12:33:30	1.56	-0.14
run3	6/23/2015	12:33:45	2.14	-0.14
run3	6/23/2015	12:34:00	2.27	-0.16
run3	6/23/2015	12:34:15	2.10	-0.15
run3	6/23/2015	12:34:30	1.96	-0.13
run3	6/23/2015	12:34:45	1.80	-0.13
run3	6/23/2015	12:35:00	1.82	-0.14
run3	6/23/2015	12:35:15	1.77	-0.15
run3	6/23/2015	12:35:30	1.67	-0.15
run3	6/23/2015	12:35:45	1.55	-0.14
run3	6/23/2015	12:36:00	1.43	-0.14
run3	6/23/2015	12:36:15	1.42	-0.14
run3	6/23/2015	12:36:30	1.42	-0.15
run3	6/23/2015	12:36:45	1.21	-0.15
run3	6/23/2015	12:37:00	0.84	-0.16
run3	6/23/2015	12:37:15	0.47	-0.16
run3	6/23/2015	12:37:30	0.18	-0.15
run3	6/23/2015	12:37:45	0.00	-0.14
run3	6/23/2015	12:38:00	0.08	-0.07
run3	6/23/2015	12:38:15	0.15	-0.04
run3	6/23/2015	12:38:30	0.07	-0.06
run3	6/23/2015	12:38:45	0.17	-0.08
run3	6/23/2015	12:39:00	0.16	-0.11
run3	6/23/2015	12:39:15	0.25	-0.11
run3	6/23/2015	12:39:30	0.40	-0.13
run3	6/23/2015	12:39:45	0.55	-0.14
run3	6/23/2015	12:40:00	0.63	-0.15
run3	6/23/2015	12:40:15	0.76	-0.15
run3	6/23/2015	12:40:30	0.84	-0.15
run3	6/23/2015	12:40:45	0.69	-0.17
run3	6/23/2015	12:41:00	0.43	-0.17
run3	6/23/2015	12:41:15	0.31	-0.17
run3	6/23/2015	12:41:30	0.34	-0.18
run3	6/23/2015	12:41:45	0.44	-0.19
run3	6/23/2015	12:42:00	0.59	-0.19
run3	6/23/2015	12:42:15	0.70	-0.18
run3	6/23/2015	12:42:30	0.93	-0.19
run3	6/23/2015	12:42:45	1.21	-0.21

run3	6/23/2015	12:43:00	1.57	-0.21
run3	6/23/2015	12:43:15	2.18	-0.20
run3	6/23/2015	12:43:30	2.77	-0.20
run3	6/23/2015	12:43:45	2.98	-0.19
run3	6/23/2015	12:44:00	2.69	-0.15
run3	6/23/2015	12:44:15	2.09	-0.17
run3	6/23/2015	12:44:30	1.68	-0.19
run3	6/23/2015	12:44:45	1.44	-0.20
run3	6/23/2015	12:45:00	1.16	-0.19
run3	6/23/2015	12:45:15	0.97	-0.15
run3	6/23/2015	12:45:30	0.76	-0.13
run3	6/23/2015	12:45:45	0.75	-0.10
run3	6/23/2015	12:46:00	0.74	-0.10
run3	6/23/2015	12:46:15	0.76	-0.13
run3	6/23/2015	12:46:30	0.83	-0.18
run3	6/23/2015	12:46:45	0.81	-0.20
run3	6/23/2015	12:47:00	0.78	-0.19
run3	6/23/2015	12:47:15	0.58	-0.18
run3	6/23/2015	12:47:30	0.44	-0.19
run3	6/23/2015	12:47:45	0.28	-0.16
run3	6/23/2015	12:48:00	0.19	-0.16
run3	6/23/2015	12:48:15	0.13	-0.17
run3	6/23/2015	12:48:30	0.13	-0.17
run3	6/23/2015	12:48:45	0.21	-0.21
run3	6/23/2015	12:49:00	0.22	-0.21
run3	6/23/2015	12:49:15	0.21	-0.21
run3	6/23/2015	12:49:30	0.21	-0.20
run3	6/23/2015	12:49:45	0.11	-0.20
run3	6/23/2015	12:50:00	0.00	-0.20
run3	6/23/2015	12:50:15	-0.05	-0.21
run3	6/23/2015	12:50:30	-0.09	-0.21
run3	6/23/2015	12:50:45	-0.10	-0.20
run3	6/23/2015	12:51:00	-0.11	-0.20
run3	6/23/2015	12:51:15	-0.04	-0.20
run3	6/23/2015	12:51:30	-0.10	-0.20
run3	6/23/2015	12:51:45	-0.09	-0.20
run3	6/23/2015	12:52:00	-0.09	-0.19
run3	6/23/2015	12:52:15	-0.07	-0.19
run3	6/23/2015	12:52:30	0.03	-0.19
run3	6/23/2015	12:52:45	-0.04	-0.17
run3	6/23/2015	12:53:00	-0.16	-0.15
run3	6/23/2015	12:53:15	-0.23	-0.16
run3	6/23/2015	12:53:30	-0.23	-0.16
run3	6/23/2015	12:53:45	-0.22	-0.16
run3	6/23/2015	12:54:00	-0.21	-0.18
run3	6/23/2015	12:54:15	-0.06	-0.21
run3	6/23/2015	12:54:30	-0.02	-0.20
run3	6/23/2015	12:54:45	0.05	-0.18
run3	6/23/2015	12:55:00	0.05	-0.18
run3	6/23/2015	12:55:15	0.13	-0.19
run3	6/23/2015	12:55:30	0.18	-0.20
run3	6/23/2015	12:55:45	0.24	-0.18
run3	6/23/2015	12:56:00	0.36	-0.18
run3	6/23/2015	12:56:15	0.45	-0.18
run3	6/23/2015	12:56:30	0.56	-0.18
run3	6/23/2015	12:56:45	0.68	-0.19
run3	6/23/2015	12:57:00	0.83	-0.18
run3	6/23/2015	12:57:15	0.86	-0.19
run3	6/23/2015	12:57:30	0.94	-0.19
run3	6/23/2015	12:57:45	1.06	-0.18
run3	6/23/2015	12:58:00	1.33	-0.18
run3	6/23/2015	12:58:15	1.67	-0.19
run3	6/23/2015	12:58:30	1.98	-0.20
run3	6/23/2015	12:58:45	2.00	-0.18
run3	6/23/2015	12:59:00	1.63	-0.19
run3	6/23/2015	12:59:15	1.08	-0.18

run3	6/23/2015	12:59:30	0.79	-0.18				
run3	6/23/2015	12:59:45	0.73	-0.18				
run3	6/23/2015	13:00:00	0.77	-0.16				
run3	6/23/2015	13:00:15	0.86	-0.17				
run3	6/23/2015	13:00:30	0.67	-0.18				
run3	6/23/2015	13:00:45	0.36	-0.19				
run3	6/23/2015	13:01:00	0.24	-0.20				
run3	6/23/2015	13:01:15	0.15	-0.19				
run3	6/23/2015	13:01:30	0.17	-0.19				
run3	6/23/2015	13:01:45	0.26	-0.18				
run3	6/23/2015	13:02:00	0.23	-0.19				
run3	6/23/2015	13:02:15	0.18	-0.20				
run3	6/23/2015	13:02:30	0.19	-0.20				
run3	6/23/2015	13:02:45	0.09	-0.19				
run3	6/23/2015	13:03:00	-0.06	-0.18				
run3	6/23/2015	13:03:15	-0.23	-0.18				
run3	6/23/2015	13:03:30	-0.23	-0.19				
run3	6/23/2015	13:03:45	-0.23	-0.20				
run3	6/23/2015	13:04:00	-0.23	-0.20				
run3	6/23/2015	13:04:15	-0.23	-0.17				
run3	6/23/2015	13:04:30	-0.23	-0.15				
run3	6/23/2015	13:04:45	-0.23	-0.15				
run3	6/23/2015	13:05:00	-0.23	-0.15				
run3	6/23/2015	13:05:15	-0.23	-0.16				
run3	6/23/2015	13:05:30	-0.23	-0.16				
run3	6/23/2015	13:05:45	-0.22	-0.16				
run3	6/23/2015	13:06:00	-0.22	-0.17				
run3	6/23/2015	13:06:15	-0.17	-0.17				
run3	6/23/2015	13:06:30	-0.18	-0.18				
run3	6/23/2015	13:06:45	-0.19	-0.16				
run3	6/23/2015	13:07:00	-0.21	-0.17				
run3	6/23/2015	13:07:15	-0.23	-0.16				
run3	6/23/2015	13:07:30	-0.23	-0.17				
run3	6/23/2015	13:07:45	-0.23	-0.17				
run3	6/23/2015	13:08:00	-0.23	-0.17				
run3	6/23/2015	13:08:15	-0.23	-0.17				
run3	6/23/2015	13:08:30	-0.23	-0.16				
run3	6/23/2015	13:08:45	-0.23	-0.18				
run3	6/23/2015	13:09:00	-0.23	-0.18				
run3	6/23/2015	13:09:15	-0.21	-0.18				
run3	6/23/2015	13:09:30	-0.18	-0.16				
run3	6/23/2015	13:09:45	-0.18	-0.16				
averun3	6/23/2015	12:10:00	0.77	-0.13		60		
scg2	6/23/2015	13:10:00	-0.12	-0.16	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	13:10:15	0.05	-0.17	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	13:10:30	0.11	-0.17	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	13:10:45	0.45	-0.17	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	13:11:00	0.65	-0.17	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	13:11:15	0.43	-0.17	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	13:11:30	0.00	-0.17	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	13:11:45	-0.23	-0.18	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	13:12:00	-0.23	-0.16	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	13:12:15	-0.23	-0.17	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	13:12:30	-0.23	-0.16	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	13:12:45	-0.23	-0.15	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	13:13:00	-0.23	-0.17	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	13:13:15	-0.23	-0.17	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	13:13:30	-0.13	-0.18	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	13:13:45	0.04	-0.18	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	13:14:00	0.05	-0.18	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	13:14:15	0.07	-0.18	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	13:14:30	0.01	-0.18	ALM059355/cg2	NOx	96.8	0
o2zero1	6/23/2015	13:14:30	0.01	-0.18	ALM059355/cg2	NOx	96.8	0
co2zero1	6/23/2015	13:14:30	0.01	-0.18	ALM059355/cg2	NOx	96.8	0
cozero1	6/23/2015	13:14:30	0.01	-0.18	ALM059355/cg2	NOx	96.8	0
noxspan1	6/23/2015	13:14:30	0.01	-0.18	ALM059355/cg2	NOx	96.8	0

scg9	6/23/2015	13:14:45	0.01	-0.19	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	13:15:00	-0.03	-0.18	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	13:15:15	0.04	-0.17	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	13:15:30	0.05	-0.16	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	13:15:45	0.22	-0.15	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	13:16:00	0.95	-0.16	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	13:16:15	2.90	-0.10	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	13:16:30	4.31	0.78	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	13:16:45	5.29	1.12	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	13:17:00	5.62	0.99	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	13:17:15	5.14	0.99	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	13:17:30	5.08	0.93	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	13:17:45	5.22	0.96	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	13:18:00	5.17	1.00	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	13:18:15	5.20	1.00	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	13:18:30	5.17	0.85	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	13:18:45	5.22	0.84	LL23441/cg9	CO	5.13		0
noxzero1	6/23/2015	13:18:45	5.22	0.84	LL23441/cg9	CO	5.13		0
cospan1	6/23/2015	13:18:45	5.22	0.84	LL23441/cg9	CO	5.13		0
scg10	6/23/2015	13:19:00	5.26	1.23	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	13:19:15	5.24	0.95	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	13:19:30	5.24	0.71	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	13:19:45	5.25	0.68	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	13:20:00	5.17	0.64	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	13:20:15	4.61	0.79	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	13:20:30	3.31	0.75	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	13:20:45	1.56	0.62	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	13:21:00	0.54	0.69	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	13:21:15	-0.12	0.64	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	13:21:30	-0.23	0.67	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	13:21:45	-0.23	0.66	ALM008899/cg10	O2	11.06	CO2	11.16
o2span1	6/23/2015	13:21:45	-0.23	0.66	ALM008899/cg10	O2	11.06	CO2	11.16
co2span1	6/23/2015	13:21:45	-0.23	0.66	ALM008899/cg10	O2	11.06	CO2	11.16
scg1	6/23/2015	13:22:00	-0.23	0.67	CC429811/cg1	N2	0		0
scg1	6/23/2015	13:22:15	-0.23	0.63	CC429811/cg1	N2	0		0
scg1	6/23/2015	13:22:30	-0.23	1.76	CC429811/cg1	N2	0		0
scg1	6/23/2015	13:22:45	-0.23	1.23	CC429811/cg1	N2	0		0
scg1	6/23/2015	13:23:00	-0.23	0.13	CC429811/cg1	N2	0		0
scg1	6/23/2015	13:23:15	-0.14	0.05	CC429811/cg1	N2	0		0
scg1	6/23/2015	13:23:30	0.27	-0.02	CC429811/cg1	N2	0		0
scg1	6/23/2015	13:23:45	0.81	-0.08	CC429811/cg1	N2	0		0
thczero1	6/23/2015	13:23:30	0.27	-0.02	CC429811/cg1	N2	0		0
scg6	6/23/2015	13:25:00	0.75	-0.21	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	13:25:15	0.56	-0.21	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	13:25:30	0.44	-0.21	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	13:25:45	0.48	0.21	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	13:26:00	0.51	0.72	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	13:26:15	0.62	2.88	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	13:26:30	0.61	4.55	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	13:26:45	0.57	4.57	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	13:27:00	0.54	4.58	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	13:27:15	0.54	4.98	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	13:27:30	0.56	5.08	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	13:27:45	0.48	5.08	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	13:28:00	0.47	5.07	ALM02298/cg6	THC	5.08		0
thcspan1	6/23/2015	13:28:00	0.47	5.07	ALM02298/cg6	THC	5.08		0
run4	6/23/2015	13:55:00	1.87	-0.13					
run4	6/23/2015	13:55:15	1.81	-0.14					
run4	6/23/2015	13:55:30	1.73	-0.13					
run4	6/23/2015	13:55:45	1.63	-0.13					
run4	6/23/2015	13:56:00	1.72	-0.16					
run4	6/23/2015	13:56:15	1.83	-0.16					
run4	6/23/2015	13:56:30	1.92	-0.18					
run4	6/23/2015	13:56:45	1.94	-0.16					
run4	6/23/2015	13:57:00	1.89	-0.14					
run4	6/23/2015	13:57:15	1.82	-0.16					

run4	6/23/2015	13:57:30	1.81	-0.16
run4	6/23/2015	13:57:45	1.77	-0.16
run4	6/23/2015	13:58:00	1.67	-0.15
run4	6/23/2015	13:58:15	1.57	-0.14
run4	6/23/2015	13:58:30	1.52	-0.13
run4	6/23/2015	13:58:45	1.56	-0.10
run4	6/23/2015	13:59:00	1.48	-0.15
run4	6/23/2015	13:59:15	1.36	-0.16
run4	6/23/2015	13:59:30	1.17	-0.16
run4	6/23/2015	13:59:45	0.98	-0.16
run4	6/23/2015	14:00:00	0.74	-0.17
run4	6/23/2015	14:00:15	0.68	-0.17
run4	6/23/2015	14:00:30	0.67	-0.18
run4	6/23/2015	14:00:45	0.66	-0.16
run4	6/23/2015	14:01:00	0.66	-0.15
run4	6/23/2015	14:01:15	0.67	-0.17
run4	6/23/2015	14:01:30	0.52	-0.17
run4	6/23/2015	14:01:45	0.30	-0.16
run4	6/23/2015	14:02:00	0.17	-0.15
run4	6/23/2015	14:02:15	0.05	-0.16
run4	6/23/2015	14:02:30	0.00	-0.15
run4	6/23/2015	14:02:45	-0.07	-0.15
run4	6/23/2015	14:03:00	-0.13	-0.18
run4	6/23/2015	14:03:15	-0.11	-0.18
run4	6/23/2015	14:03:30	-0.06	-0.18
run4	6/23/2015	14:03:45	-0.07	-0.17
run4	6/23/2015	14:04:00	-0.01	-0.17
run4	6/23/2015	14:04:15	-0.02	-0.18
run4	6/23/2015	14:04:30	-0.05	-0.19
run4	6/23/2015	14:04:45	-0.01	-0.19
run4	6/23/2015	14:05:00	0.04	-0.18
run4	6/23/2015	14:05:15	0.08	-0.19
run4	6/23/2015	14:05:30	0.09	-0.19
run4	6/23/2015	14:05:45	0.07	-0.18
run4	6/23/2015	14:06:00	0.04	-0.17
run4	6/23/2015	14:06:15	0.03	-0.18
run4	6/23/2015	14:06:30	0.05	-0.19
run4	6/23/2015	14:06:45	0.03	-0.17
run4	6/23/2015	14:07:00	-0.01	-0.18
run4	6/23/2015	14:07:15	-0.05	-0.19
run4	6/23/2015	14:07:30	-0.07	-0.19
run4	6/23/2015	14:07:45	-0.07	-0.18
run4	6/23/2015	14:08:00	-0.02	-0.17
run4	6/23/2015	14:08:15	-0.03	-0.17
run4	6/23/2015	14:08:30	0.09	-0.16
run4	6/23/2015	14:08:45	0.18	-0.17
run4	6/23/2015	14:09:00	0.19	-0.15
run4	6/23/2015	14:09:15	0.19	-0.16
run4	6/23/2015	14:09:30	0.19	-0.17
run4	6/23/2015	14:09:45	0.20	-0.19
run4	6/23/2015	14:10:00	0.20	-0.19
run4	6/23/2015	14:10:15	0.19	-0.16
run4	6/23/2015	14:10:30	0.21	-0.17
run4	6/23/2015	14:10:45	0.19	-0.19
run4	6/23/2015	14:11:00	0.25	-0.16
run4	6/23/2015	14:11:15	0.28	-0.18
run4	6/23/2015	14:11:30	0.33	-0.17
run4	6/23/2015	14:11:45	0.57	-0.15
run4	6/23/2015	14:12:00	0.79	-0.05
run4	6/23/2015	14:12:15	0.88	-0.04
run4	6/23/2015	14:12:30	1.02	-0.06
run4	6/23/2015	14:12:45	1.19	-0.10
run4	6/23/2015	14:13:00	1.13	-0.14
run4	6/23/2015	14:13:15	1.01	-0.14
run4	6/23/2015	14:13:30	0.85	-0.15
run4	6/23/2015	14:13:45	0.83	-0.15

run4	6/23/2015	14:14:00	0.88	-0.16
run4	6/23/2015	14:14:15	0.85	-0.15
run4	6/23/2015	14:14:30	0.71	-0.16
run4	6/23/2015	14:14:45	0.53	-0.16
run4	6/23/2015	14:15:00	0.39	-0.15
run4	6/23/2015	14:15:15	0.32	-0.15
run4	6/23/2015	14:15:30	0.16	-0.15
run4	6/23/2015	14:15:45	0.03	-0.15
run4	6/23/2015	14:16:00	-0.11	-0.16
run4	6/23/2015	14:16:15	-0.09	-0.17
run4	6/23/2015	14:16:30	-0.05	-0.18
run4	6/23/2015	14:16:45	-0.10	-0.18
run4	6/23/2015	14:17:00	-0.07	-0.19
run4	6/23/2015	14:17:15	-0.19	-0.18
run4	6/23/2015	14:17:30	-0.16	-0.18
run4	6/23/2015	14:17:45	-0.17	-0.17
run4	6/23/2015	14:18:00	-0.11	-0.19
run4	6/23/2015	14:18:15	-0.11	-0.19
run4	6/23/2015	14:18:30	-0.12	-0.18
run4	6/23/2015	14:18:45	-0.14	-0.17
run4	6/23/2015	14:19:00	-0.16	-0.17
run4	6/23/2015	14:19:15	-0.17	-0.19
run4	6/23/2015	14:19:30	-0.16	-0.17
run4	6/23/2015	14:19:45	-0.10	-0.17
run4	6/23/2015	14:20:00	-0.05	-0.17
run4	6/23/2015	14:20:15	-0.07	-0.17
run4	6/23/2015	14:20:30	-0.07	-0.17
run4	6/23/2015	14:20:45	-0.07	-0.16
run4	6/23/2015	14:21:00	-0.09	-0.16
run4	6/23/2015	14:21:15	-0.07	-0.18
run4	6/23/2015	14:21:30	-0.06	-0.17
run4	6/23/2015	14:21:45	-0.11	-0.18
run4	6/23/2015	14:22:00	-0.09	-0.19
run4	6/23/2015	14:22:15	-0.09	-0.20
run4	6/23/2015	14:22:30	0.03	-0.20
run4	6/23/2015	14:22:45	0.02	-0.20
run4	6/23/2015	14:23:00	0.01	-0.19
run4	6/23/2015	14:23:15	0.01	-0.19
run4	6/23/2015	14:23:30	0.00	-0.18
run4	6/23/2015	14:23:45	0.04	-0.18
run4	6/23/2015	14:24:00	0.11	-0.17
run4	6/23/2015	14:24:15	0.30	-0.16
run4	6/23/2015	14:24:30	0.42	-0.17
run4	6/23/2015	14:24:45	0.41	-0.18
run4	6/23/2015	14:25:00	0.37	-0.17
run4	6/23/2015	14:25:15	0.31	-0.18
run4	6/23/2015	14:25:30	0.19	-0.17
run4	6/23/2015	14:25:45	0.20	-0.16
run4	6/23/2015	14:26:00	0.42	-0.15
run4	6/23/2015	14:26:15	0.77	-0.14
run4	6/23/2015	14:26:30	1.02	-0.16
run4	6/23/2015	14:26:45	0.99	-0.16
run4	6/23/2015	14:27:00	0.86	-0.14
run4	6/23/2015	14:27:15	0.80	-0.17
run4	6/23/2015	14:27:30	0.67	-0.16
run4	6/23/2015	14:27:45	0.67	-0.16
run4	6/23/2015	14:28:00	0.56	-0.17
run4	6/23/2015	14:28:15	0.62	-0.16
run4	6/23/2015	14:28:30	0.69	-0.15
run4	6/23/2015	14:28:45	0.60	-0.14
run4	6/23/2015	14:29:00	0.53	-0.16
run4	6/23/2015	14:29:15	0.40	-0.17
run4	6/23/2015	14:29:30	0.37	-0.15
run4	6/23/2015	14:29:45	0.40	-0.10
run4	6/23/2015	14:30:00	0.43	-0.07
run4	6/23/2015	14:30:15	0.33	-0.07

run4	6/23/2015	14:30:30	0.35	-0.09
run4	6/23/2015	14:30:45	0.41	-0.12
run4	6/23/2015	14:31:00	0.28	-0.14
run4	6/23/2015	14:31:15	0.18	-0.14
run4	6/23/2015	14:31:30	0.17	-0.14
run4	6/23/2015	14:31:45	0.09	-0.15
run4	6/23/2015	14:32:00	0.11	-0.16
run4	6/23/2015	14:32:15	0.08	-0.14
run4	6/23/2015	14:32:30	0.00	-0.15
run4	6/23/2015	14:32:45	-0.04	-0.19
run4	6/23/2015	14:33:00	-0.08	-0.20
run4	6/23/2015	14:33:15	-0.10	-0.19
run4	6/23/2015	14:33:30	-0.08	-0.17
run4	6/23/2015	14:33:45	-0.08	-0.17
run4	6/23/2015	14:34:00	-0.03	-0.18
run4	6/23/2015	14:34:15	-0.02	-0.19
run4	6/23/2015	14:34:30	0.00	-0.20
run4	6/23/2015	14:34:45	-0.09	-0.20
run4	6/23/2015	14:35:00	-0.15	-0.20
run4	6/23/2015	14:35:15	-0.20	-0.20
run4	6/23/2015	14:35:30	-0.17	-0.19
run4	6/23/2015	14:35:45	-0.20	-0.19
run4	6/23/2015	14:36:00	-0.19	-0.21
run4	6/23/2015	14:36:15	-0.10	-0.22
run4	6/23/2015	14:36:30	-0.11	-0.23
run4	6/23/2015	14:36:45	-0.10	-0.22
run4	6/23/2015	14:37:00	-0.10	-0.22
run4	6/23/2015	14:37:15	-0.09	-0.22
run4	6/23/2015	14:37:30	-0.03	-0.22
run4	6/23/2015	14:37:45	0.04	-0.22
run4	6/23/2015	14:38:00	-0.01	-0.22
run4	6/23/2015	14:38:15	-0.02	-0.23
run4	6/23/2015	14:38:30	-0.07	-0.22
run4	6/23/2015	14:38:45	-0.08	-0.21
run4	6/23/2015	14:39:00	-0.06	-0.21
run4	6/23/2015	14:39:15	0.02	-0.21
run4	6/23/2015	14:39:30	0.04	-0.20
run4	6/23/2015	14:39:45	0.05	-0.22
run4	6/23/2015	14:40:00	0.28	-0.22
run4	6/23/2015	14:40:15	0.41	-0.21
run4	6/23/2015	14:40:30	0.65	-0.23
run4	6/23/2015	14:40:45	0.80	-0.23
run4	6/23/2015	14:41:00	0.87	-0.21
run4	6/23/2015	14:41:15	0.86	-0.21
run4	6/23/2015	14:41:30	0.84	-0.20
run4	6/23/2015	14:41:45	0.76	-0.21
run4	6/23/2015	14:42:00	0.70	-0.20
run4	6/23/2015	14:42:15	0.75	-0.19
run4	6/23/2015	14:42:30	0.93	-0.20
run4	6/23/2015	14:42:45	1.10	-0.20
run4	6/23/2015	14:43:00	1.13	-0.20
run4	6/23/2015	14:43:15	1.15	-0.20
run4	6/23/2015	14:43:30	1.06	-0.21
run4	6/23/2015	14:43:45	0.89	-0.20
run4	6/23/2015	14:44:00	0.72	-0.20
run4	6/23/2015	14:44:15	0.52	-0.19
run4	6/23/2015	14:44:30	0.42	-0.13
run4	6/23/2015	14:44:45	0.36	-0.09
run4	6/23/2015	14:45:00	0.33	-0.10
run4	6/23/2015	14:45:15	0.22	-0.15
run4	6/23/2015	14:45:30	0.08	-0.16
run4	6/23/2015	14:45:45	-0.02	-0.18
run4	6/23/2015	14:46:00	-0.11	-0.19
run4	6/23/2015	14:46:15	-0.13	-0.20
run4	6/23/2015	14:46:30	-0.14	-0.19
run4	6/23/2015	14:46:45	-0.15	-0.19

run4	6/23/2015	14:47:00	-0.10	-0.21				
run4	6/23/2015	14:47:15	-0.17	-0.20				
run4	6/23/2015	14:47:30	-0.18	-0.20				
run4	6/23/2015	14:47:45	-0.22	-0.21				
run4	6/23/2015	14:48:00	-0.23	-0.19				
run4	6/23/2015	14:48:15	-0.21	-0.19				
run4	6/23/2015	14:48:30	-0.22	-0.18				
run4	6/23/2015	14:48:45	-0.22	-0.20				
run4	6/23/2015	14:49:00	-0.23	-0.19				
run4	6/23/2015	14:49:15	-0.23	-0.18				
run4	6/23/2015	14:49:30	-0.11	-0.19				
run4	6/23/2015	14:49:45	-0.10	-0.21				
run4	6/23/2015	14:50:00	-0.12	-0.22				
run4	6/23/2015	14:50:15	-0.18	-0.21				
run4	6/23/2015	14:50:30	-0.22	-0.22				
run4	6/23/2015	14:50:45	-0.23	-0.23				
run4	6/23/2015	14:51:00	-0.22	-0.25				
run4	6/23/2015	14:51:15	-0.21	-0.24				
run4	6/23/2015	14:51:30	-0.20	-0.23				
run4	6/23/2015	14:51:45	-0.23	-0.22				
run4	6/23/2015	14:52:00	-0.23	-0.23				
run4	6/23/2015	14:52:15	-0.23	-0.22				
run4	6/23/2015	14:52:30	-0.21	-0.23				
run4	6/23/2015	14:52:45	-0.20	-0.23				
run4	6/23/2015	14:53:00	-0.16	-0.24				
run4	6/23/2015	14:53:15	-0.14	-0.24				
run4	6/23/2015	14:53:30	-0.06	-0.23				
run4	6/23/2015	14:53:45	-0.05	-0.24				
run4	6/23/2015	14:54:00	0.02	-0.23				
run4	6/23/2015	14:54:15	0.11	-0.21				
run4	6/23/2015	14:54:30	0.03	-0.22				
run4	6/23/2015	14:54:45	0.03	-0.23				
averun4	6/23/2015	13:55:00	0.31	-0.18		60		
scg2	6/23/2015	14:55:00	0.05	-0.20	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	14:55:15	0.17	-0.20	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	14:55:30	0.29	-0.22	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	14:55:45	0.41	-0.22	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	14:56:00	0.42	-0.22	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	14:56:15	0.43	-0.22	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	14:56:30	0.21	-0.22	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	14:56:45	0.08	-0.24	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	14:57:00	-0.11	-0.24	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	14:57:15	-0.07	-0.23	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	14:57:30	-0.12	-0.23	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	14:57:45	-0.08	-0.23	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	14:58:00	-0.11	-0.22	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	14:58:15	-0.18	-0.22	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	14:58:30	-0.16	-0.22	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	14:58:45	-0.15	-0.21	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	14:59:00	-0.09	-0.20	ALM059355/cg2	NOx	96.8	0
scg2	6/23/2015	14:59:15	-0.12	-0.22	ALM059355/cg2	NOx	96.8	0
o2zero1	6/23/2015	14:59:15	-0.12	-0.22	ALM059355/cg2	NOx	96.8	0
co2zero1	6/23/2015	14:59:15	-0.12	-0.22	ALM059355/cg2	NOx	96.8	0
cozero1	6/23/2015	14:59:15	-0.12	-0.22	ALM059355/cg2	NOx	96.8	0
noxspan1	6/23/2015	14:59:15	-0.12	-0.22	ALM059355/cg2	NOx	96.8	0
scg9	6/23/2015	14:59:30	-0.12	-0.22	LL23441/cg9	CO	5.13	0
scg9	6/23/2015	14:59:45	-0.14	-0.19	LL23441/cg9	CO	5.13	0
scg9	6/23/2015	15:00:00	-0.17	-0.20	LL23441/cg9	CO	5.13	0
scg9	6/23/2015	15:00:15	-0.10	-0.17	LL23441/cg9	CO	5.13	0
scg9	6/23/2015	15:00:30	-0.04	-0.08	LL23441/cg9	CO	5.13	0
scg9	6/23/2015	15:00:45	0.15	0.04	LL23441/cg9	CO	5.13	0
scg9	6/23/2015	15:01:00	1.26	0.86	LL23441/cg9	CO	5.13	0
scg9	6/23/2015	15:01:15	2.50	0.87	LL23441/cg9	CO	5.13	0
scg9	6/23/2015	15:01:30	3.92	0.82	LL23441/cg9	CO	5.13	0
scg9	6/23/2015	15:01:45	4.53	1.14	LL23441/cg9	CO	5.13	0
scg9	6/23/2015	15:02:00	4.79	0.97	LL23441/cg9	CO	5.13	0

scg9	6/23/2015	15:02:15	4.89	0.77	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	15:02:30	5.04	0.96	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	15:02:45	4.98	0.73	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	15:03:00	5.03	1.10	LL23441/cg9	CO	5.13		0
scg9	6/23/2015	15:03:15	5.05	0.90	LL23441/cg9	CO	5.13		0
noxzero1	6/23/2015	15:03:15	5.05	0.90	LL23441/cg9	CO	5.13		0
cospan1	6/23/2015	15:03:15	5.05	0.90	LL23441/cg9	CO	5.13		0
scg10	6/23/2015	15:03:30	5.01	0.95	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	15:03:45	5.09	0.74	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	15:04:00	5.04	0.70	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	15:04:15	5.02	0.69	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	15:04:30	5.01	0.76	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	15:04:45	4.68	0.82	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	15:05:00	3.28	0.65	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	15:05:15	1.76	0.61	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	15:05:30	0.39	0.63	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	15:05:45	-0.16	0.84	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	15:06:00	-0.23	0.65	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	15:06:15	-0.23	0.59	ALM008899/cg10	O2	11.06	CO2	11.16
o2span1	6/23/2015	15:06:15	-0.23	0.59	ALM008899/cg10	O2	11.06	CO2	11.16
co2span1	6/23/2015	15:06:15	-0.23	0.59	ALM008899/cg10	O2	11.06	CO2	11.16
scg6	6/23/2015	15:06:30	-0.23	0.56	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	15:06:45	-0.23	0.62	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	15:07:00	-0.23	0.64	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	15:07:15	-0.23	0.56	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	15:07:30	-0.23	0.57	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	15:07:45	-0.23	0.61	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	15:08:00	-0.23	2.34	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	15:08:15	-0.21	5.76	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	15:08:30	0.04	5.12	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	15:08:45	0.18	5.06	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	15:09:00	0.29	4.99	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	15:09:15	0.33	4.95	ALM02298/cg6	THC	5.08		0
thcspan1	6/23/2015	15:09:15	0.33	4.95	ALM02298/cg6	THC	5.08		0
scg1	6/23/2015	15:09:45	0.46	4.94	CC429811/cg1	N2	0		0
scg1	6/23/2015	15:10:00	0.47	4.93	CC429811/cg1	N2	0		0
scg1	6/23/2015	15:10:15	0.45	4.91	CC429811/cg1	N2	0		0
scg1	6/23/2015	15:10:30	0.36	4.89	CC429811/cg1	N2	0		0
scg1	6/23/2015	15:10:45	0.36	4.89	CC429811/cg1	N2	0		0
scg1	6/23/2015	15:11:00	0.33	4.89	CC429811/cg1	N2	0		0
scg1	6/23/2015	15:11:15	0.32	4.81	CC429811/cg1	N2	0		0
scg1	6/23/2015	15:11:30	0.39	1.92	CC429811/cg1	N2	0		0
scg1	6/23/2015	15:11:45	0.28	0.84	CC429811/cg1	N2	0		0
scg1	6/23/2015	15:12:00	0.31	1.12	CC429811/cg1	N2	0		0
scg1	6/23/2015	15:12:15	0.36	0.24	CC429811/cg1	N2	0		0
scg1	6/23/2015	15:12:30	0.40	-0.22	CC429811/cg1	N2	0		0
scg1	6/23/2015	15:12:45	0.40	-0.12	CC429811/cg1	N2	0		0
scg1	6/23/2015	15:13:00	0.43	-0.08	CC429811/cg1	N2	0		0
scg1	6/23/2015	15:13:15	0.38	-0.10	CC429811/cg1	N2	0		0
thczero1	6/23/2015	15:13:15	0.38	-0.10	CC429811/cg1	N2	0		0
run5	6/23/2015	15:30:00	1.59	0.62					
run5	6/23/2015	15:30:15	1.54	0.56					
run5	6/23/2015	15:30:30	1.69	0.52					
run5	6/23/2015	15:30:45	1.72	0.48					
run5	6/23/2015	15:31:00	1.50	0.45					
run5	6/23/2015	15:31:15	1.35	0.41					
run5	6/23/2015	15:31:30	1.33	0.38					
run5	6/23/2015	15:31:45	1.29	0.37					
run5	6/23/2015	15:32:00	1.29	0.36					
run5	6/23/2015	15:32:15	1.32	0.35					
run5	6/23/2015	15:32:30	1.24	0.32					
run5	6/23/2015	15:32:45	1.12	0.30					
run5	6/23/2015	15:33:00	0.94	0.29					
run5	6/23/2015	15:33:15	0.97	0.26					
run5	6/23/2015	15:33:30	0.93	0.23					
run5	6/23/2015	15:33:45	0.91	0.21					

run5	6/23/2015	15:34:00	0.87	0.21
run5	6/23/2015	15:34:15	0.77	0.20
run5	6/23/2015	15:34:30	0.67	0.18
run5	6/23/2015	15:34:45	0.60	0.17
run5	6/23/2015	15:35:00	0.54	0.15
run5	6/23/2015	15:35:15	0.52	0.14
run5	6/23/2015	15:35:30	0.41	0.12
run5	6/23/2015	15:35:45	0.34	0.11
run5	6/23/2015	15:36:00	0.20	0.11
run5	6/23/2015	15:36:15	0.05	0.12
run5	6/23/2015	15:36:30	0.03	0.13
run5	6/23/2015	15:36:45	-0.01	0.13
run5	6/23/2015	15:37:00	0.00	0.11
run5	6/23/2015	15:37:15	-0.02	0.11
run5	6/23/2015	15:37:30	0.01	0.09
run5	6/23/2015	15:37:45	0.00	0.08
run5	6/23/2015	15:38:00	0.04	0.08
run5	6/23/2015	15:38:15	0.01	0.06
run5	6/23/2015	15:38:30	-0.04	0.05
run5	6/23/2015	15:38:45	-0.07	0.06
run5	6/23/2015	15:39:00	-0.13	0.05
run5	6/23/2015	15:39:15	-0.20	0.05
run5	6/23/2015	15:39:30	-0.18	0.05
run5	6/23/2015	15:39:45	-0.17	0.05
run5	6/23/2015	15:40:00	-0.13	0.02
run5	6/23/2015	15:40:15	-0.15	0.02
run5	6/23/2015	15:40:30	-0.19	0.04
run5	6/23/2015	15:40:45	-0.22	0.02
run5	6/23/2015	15:41:00	-0.23	0.02
run5	6/23/2015	15:41:15	-0.23	0.02
run5	6/23/2015	15:41:30	-0.23	0.01
run5	6/23/2015	15:41:45	-0.23	0.02
run5	6/23/2015	15:42:00	-0.22	0.04
run5	6/23/2015	15:42:15	-0.19	0.03
run5	6/23/2015	15:42:30	-0.19	0.00
run5	6/23/2015	15:42:45	-0.15	0.02
run5	6/23/2015	15:43:00	-0.09	0.03
run5	6/23/2015	15:43:15	-0.07	0.01
run5	6/23/2015	15:43:30	-0.06	-0.01
run5	6/23/2015	15:43:45	-0.07	0.00
run5	6/23/2015	15:44:00	-0.09	0.00
run5	6/23/2015	15:44:15	-0.09	0.00
run5	6/23/2015	15:44:30	-0.04	0.00
run5	6/23/2015	15:44:45	0.02	0.01
run5	6/23/2015	15:45:00	0.13	0.03
run5	6/23/2015	15:45:15	0.24	0.02
run5	6/23/2015	15:45:30	0.42	0.00
run5	6/23/2015	15:45:45	0.44	-0.02
run5	6/23/2015	15:46:00	0.61	-0.03
run5	6/23/2015	15:46:15	0.68	-0.02
run5	6/23/2015	15:46:30	0.73	-0.03
run5	6/23/2015	15:46:45	0.86	0.00
run5	6/23/2015	15:47:00	0.96	-0.01
run5	6/23/2015	15:47:15	1.01	-0.01
run5	6/23/2015	15:47:30	0.92	-0.02
run5	6/23/2015	15:47:45	0.78	-0.01
run5	6/23/2015	15:48:00	0.77	-0.03
run5	6/23/2015	15:48:15	0.69	-0.03
run5	6/23/2015	15:48:30	0.60	-0.02
run5	6/23/2015	15:48:45	0.51	-0.02
run5	6/23/2015	15:49:00	0.50	-0.02
run5	6/23/2015	15:49:15	0.34	-0.02
run5	6/23/2015	15:49:30	0.30	-0.01
run5	6/23/2015	15:49:45	0.32	-0.03
run5	6/23/2015	15:50:00	0.27	-0.02
run5	6/23/2015	15:50:15	0.20	-0.04

run5	6/23/2015	15:50:30	0.06	-0.04
run5	6/23/2015	15:50:45	0.02	-0.04
run5	6/23/2015	15:51:00	-0.03	-0.05
run5	6/23/2015	15:51:15	-0.07	-0.05
run5	6/23/2015	15:51:30	-0.18	-0.04
run5	6/23/2015	15:51:45	-0.21	-0.03
run5	6/23/2015	15:52:00	-0.19	-0.05
run5	6/23/2015	15:52:15	-0.22	-0.05
run5	6/23/2015	15:52:30	-0.20	-0.04
run5	6/23/2015	15:52:45	-0.22	-0.03
run5	6/23/2015	15:53:00	-0.22	-0.03
run5	6/23/2015	15:53:15	-0.23	-0.03
run5	6/23/2015	15:53:30	-0.23	-0.02
run5	6/23/2015	15:53:45	-0.23	-0.03
run5	6/23/2015	15:54:00	-0.23	-0.04
run5	6/23/2015	15:54:15	-0.23	-0.05
run5	6/23/2015	15:54:30	-0.23	-0.04
run5	6/23/2015	15:54:45	-0.23	-0.05
run5	6/23/2015	15:55:00	-0.23	-0.06
run5	6/23/2015	15:55:15	-0.22	-0.06
run5	6/23/2015	15:55:30	-0.21	-0.06
run5	6/23/2015	15:55:45	-0.19	-0.05
run5	6/23/2015	15:56:00	-0.22	-0.04
run5	6/23/2015	15:56:15	-0.20	-0.05
run5	6/23/2015	15:56:30	-0.19	-0.06
run5	6/23/2015	15:56:45	-0.17	-0.07
run5	6/23/2015	15:57:00	-0.21	-0.06
run5	6/23/2015	15:57:15	-0.21	-0.05
run5	6/23/2015	15:57:30	-0.18	-0.05
run5	6/23/2015	15:57:45	-0.17	-0.06
run5	6/23/2015	15:58:00	-0.14	-0.06
run5	6/23/2015	15:58:15	-0.14	-0.06
run5	6/23/2015	15:58:30	-0.14	-0.06
run5	6/23/2015	15:58:45	-0.18	-0.04
run5	6/23/2015	15:59:00	-0.13	-0.04
run5	6/23/2015	15:59:15	-0.06	-0.05
run5	6/23/2015	15:59:30	-0.04	-0.06
run5	6/23/2015	15:59:45	0.11	-0.08
run5	6/23/2015	16:00:00	0.14	-0.07
run5	6/23/2015	16:00:15	0.23	-0.06
run5	6/23/2015	16:00:30	0.39	-0.06
run5	6/23/2015	16:00:45	0.44	-0.05
run5	6/23/2015	16:01:00	0.56	-0.05
run5	6/23/2015	16:01:15	0.77	-0.04
run5	6/23/2015	16:01:30	0.85	-0.02
run5	6/23/2015	16:01:45	1.13	0.17
run5	6/23/2015	16:02:00	1.22	0.29
run5	6/23/2015	16:02:15	1.11	0.24
run5	6/23/2015	16:02:30	0.70	0.17
run5	6/23/2015	16:02:45	0.44	0.13
run5	6/23/2015	16:03:00	0.25	0.06
run5	6/23/2015	16:03:15	0.22	0.03
run5	6/23/2015	16:03:30	0.26	0.02
run5	6/23/2015	16:03:45	0.31	0.00
run5	6/23/2015	16:04:00	0.32	-0.02
run5	6/23/2015	16:04:15	0.37	-0.03
run5	6/23/2015	16:04:30	0.35	-0.03
run5	6/23/2015	16:04:45	0.23	-0.05
run5	6/23/2015	16:05:00	0.24	-0.05
run5	6/23/2015	16:05:15	0.15	-0.04
run5	6/23/2015	16:05:30	0.10	-0.04
run5	6/23/2015	16:05:45	0.13	-0.05
run5	6/23/2015	16:06:00	0.14	-0.05
run5	6/23/2015	16:06:15	-0.04	-0.05
run5	6/23/2015	16:06:30	-0.08	-0.06
run5	6/23/2015	16:06:45	-0.12	-0.07

run5	6/23/2015	16:07:00	-0.14	-0.06
run5	6/23/2015	16:07:15	-0.16	-0.08
run5	6/23/2015	16:07:30	-0.16	-0.10
run5	6/23/2015	16:07:45	-0.18	-0.09
run5	6/23/2015	16:08:00	-0.20	-0.08
run5	6/23/2015	16:08:15	-0.22	-0.07
run5	6/23/2015	16:08:30	-0.20	-0.06
run5	6/23/2015	16:08:45	-0.16	-0.08
run5	6/23/2015	16:09:00	-0.14	-0.09
run5	6/23/2015	16:09:15	-0.07	-0.08
run5	6/23/2015	16:09:30	-0.07	-0.07
run5	6/23/2015	16:09:45	-0.06	-0.07
run5	6/23/2015	16:10:00	-0.09	-0.06
run5	6/23/2015	16:10:15	-0.08	-0.06
run5	6/23/2015	16:10:30	-0.11	0.01
run5	6/23/2015	16:10:45	-0.16	0.02
run5	6/23/2015	16:11:00	-0.18	0.00
run5	6/23/2015	16:11:15	-0.13	-0.03
run5	6/23/2015	16:11:30	-0.19	-0.05
run5	6/23/2015	16:11:45	-0.23	-0.07
run5	6/23/2015	16:12:00	-0.23	-0.07
run5	6/23/2015	16:12:15	-0.23	-0.06
run5	6/23/2015	16:12:30	-0.23	-0.07
run5	6/23/2015	16:12:45	-0.22	-0.08
run5	6/23/2015	16:13:00	-0.15	-0.09
run5	6/23/2015	16:13:15	-0.16	-0.10
run5	6/23/2015	16:13:30	-0.15	-0.10
run5	6/23/2015	16:13:45	-0.19	-0.10
run5	6/23/2015	16:14:00	-0.22	-0.09
run5	6/23/2015	16:14:15	-0.13	-0.10
run5	6/23/2015	16:14:30	-0.09	-0.09
run5	6/23/2015	16:14:45	-0.08	-0.09
run5	6/23/2015	16:15:00	-0.09	-0.08
run5	6/23/2015	16:15:15	-0.08	-0.08
run5	6/23/2015	16:15:30	0.01	-0.09
run5	6/23/2015	16:15:45	0.01	-0.08
run5	6/23/2015	16:16:00	0.04	-0.08
run5	6/23/2015	16:16:15	0.08	-0.10
run5	6/23/2015	16:16:30	0.12	-0.09
run5	6/23/2015	16:16:45	0.18	-0.09
run5	6/23/2015	16:17:00	0.22	-0.09
run5	6/23/2015	16:17:15	0.38	-0.11
run5	6/23/2015	16:17:30	0.38	-0.10
run5	6/23/2015	16:17:45	0.32	-0.10
run5	6/23/2015	16:18:00	0.37	-0.09
run5	6/23/2015	16:18:15	0.47	-0.10
run5	6/23/2015	16:18:30	0.53	-0.12
run5	6/23/2015	16:18:45	0.40	-0.11
run5	6/23/2015	16:19:00	0.27	-0.09
run5	6/23/2015	16:19:15	0.21	-0.10
run5	6/23/2015	16:19:30	0.06	-0.09
run5	6/23/2015	16:19:45	0.07	-0.08
run5	6/23/2015	16:20:00	0.10	-0.09
run5	6/23/2015	16:20:15	0.23	-0.10
run5	6/23/2015	16:20:30	0.17	-0.11
run5	6/23/2015	16:20:45	0.07	-0.11
run5	6/23/2015	16:21:00	-0.08	-0.11
run5	6/23/2015	16:21:15	-0.14	-0.10
run5	6/23/2015	16:21:30	-0.21	-0.09
run5	6/23/2015	16:21:45	-0.17	-0.09
run5	6/23/2015	16:22:00	-0.16	-0.09
run5	6/23/2015	16:22:15	-0.14	-0.10
run5	6/23/2015	16:22:30	-0.17	-0.10
run5	6/23/2015	16:22:45	-0.18	-0.10
run5	6/23/2015	16:23:00	-0.18	-0.10
run5	6/23/2015	16:23:15	-0.19	-0.10

run5	6/23/2015	16:23:30	-0.16	-0.05						
run5	6/23/2015	16:23:45	-0.21	-0.01						
run5	6/23/2015	16:24:00	-0.22	-0.02						
run5	6/23/2015	16:24:15	-0.22	-0.03						
run5	6/23/2015	16:24:30	-0.22	-0.05						
run5	6/23/2015	16:24:45	-0.15	-0.06						
run5	6/23/2015	16:25:00	-0.18	-0.08						
run5	6/23/2015	16:25:15	-0.21	-0.10						
run5	6/23/2015	16:25:30	-0.18	-0.11						
run5	6/23/2015	16:25:45	-0.20	-0.10						
run5	6/23/2015	16:26:00	-0.21	-0.09						
run5	6/23/2015	16:26:15	-0.20	-0.10						
run5	6/23/2015	16:26:30	-0.16	-0.08						
run5	6/23/2015	16:26:45	-0.10	-0.08						
run5	6/23/2015	16:27:00	-0.01	-0.10						
run5	6/23/2015	16:27:15	-0.09	-0.10						
run5	6/23/2015	16:27:30	-0.07	-0.09						
run5	6/23/2015	16:27:45	-0.12	-0.10						
run5	6/23/2015	16:28:00	-0.15	-0.10						
run5	6/23/2015	16:28:15	-0.10	-0.10						
run5	6/23/2015	16:28:30	-0.12	-0.10						
run5	6/23/2015	16:28:45	-0.13	-0.10						
run5	6/23/2015	16:29:00	-0.08	-0.10						
run5	6/23/2015	16:29:15	-0.03	-0.10						
run5	6/23/2015	16:29:30	0.01	-0.11						
run5	6/23/2015	16:29:45	0.07	-0.10						
averun5	6/23/2015	15:30:00	0.14	0.00		60				
scg2	6/23/2015	16:30:15	0.10	-0.09	ALM059355/cg2	NOx	96.8		0	
scg2	6/23/2015	16:30:30	0.06	-0.09	ALM059355/cg2	NOx	96.8		0	
scg2	6/23/2015	16:30:45	0.13	-0.08	ALM059355/cg2	NOx	96.8		0	
scg2	6/23/2015	16:31:00	0.25	-0.10	ALM059355/cg2	NOx	96.8		0	
scg2	6/23/2015	16:31:15	0.23	-0.11	ALM059355/cg2	NOx	96.8		0	
scg2	6/23/2015	16:31:30	0.10	-0.11	ALM059355/cg2	NOx	96.8		0	
scg2	6/23/2015	16:31:45	-0.06	-0.10	ALM059355/cg2	NOx	96.8		0	
scg2	6/23/2015	16:32:00	-0.14	-0.10	ALM059355/cg2	NOx	96.8		0	
scg2	6/23/2015	16:32:15	-0.17	-0.10	ALM059355/cg2	NOx	96.8		0	
scg2	6/23/2015	16:32:30	-0.19	-0.11	ALM059355/cg2	NOx	96.8		0	
scg2	6/23/2015	16:32:45	-0.18	-0.11	ALM059355/cg2	NOx	96.8		0	
scg2	6/23/2015	16:33:00	-0.20	-0.11	ALM059355/cg2	NOx	96.8		0	
scg2	6/23/2015	16:33:15	-0.17	-0.12	ALM059355/cg2	NOx	96.8		0	
scg2	6/23/2015	16:33:30	-0.02	-0.11	ALM059355/cg2	NOx	96.8		0	
o2zero1	6/23/2015	16:33:30	-0.02	-0.11	ALM059355/cg2	NOx	96.8		0	
co2zero1	6/23/2015	16:33:30	-0.02	-0.11	ALM059355/cg2	NOx	96.8		0	
cozero1	6/23/2015	16:33:30	-0.02	-0.11	ALM059355/cg2	NOx	96.8		0	
noxspan1	6/23/2015	16:33:30	-0.02	-0.11	ALM059355/cg2	NOx	96.8		0	
scg9	6/23/2015	16:33:45	0.17	-0.12	LL23441/cg9	CO	5.13		0	
scg9	6/23/2015	16:34:00	0.11	-0.12	LL23441/cg9	CO	5.13		0	
scg9	6/23/2015	16:34:15	0.08	-0.09	LL23441/cg9	CO	5.13		0	
scg9	6/23/2015	16:34:30	0.08	-0.03	LL23441/cg9	CO	5.13		0	
scg9	6/23/2015	16:34:45	0.02	-0.03	LL23441/cg9	CO	5.13		0	
scg9	6/23/2015	16:35:00	0.20	-0.04	LL23441/cg9	CO	5.13		0	
scg9	6/23/2015	16:35:15	1.32	-0.06	LL23441/cg9	CO	5.13		0	
scg9	6/23/2015	16:35:30	2.68	-0.07	LL23441/cg9	CO	5.13		0	
scg9	6/23/2015	16:35:45	4.10	0.33	LL23441/cg9	CO	5.13		0	
scg9	6/23/2015	16:36:00	4.74	1.19	LL23441/cg9	CO	5.13		0	
scg9	6/23/2015	16:36:15	5.07	1.02	LL23441/cg9	CO	5.13		0	
scg9	6/23/2015	16:36:30	5.20	0.91	LL23441/cg9	CO	5.13		0	
scg9	6/23/2015	16:36:45	5.24	0.88	LL23441/cg9	CO	5.13		0	
noxzero1	6/23/2015	16:36:45	5.24	0.88	LL23441/cg9	CO	5.13		0	
cospan1	6/23/2015	16:36:45	5.24	0.88	LL23441/cg9	CO	5.13		0	
scg10	6/23/2015	16:37:00	5.21	0.90	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/23/2015	16:37:15	5.26	0.86	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/23/2015	16:37:30	5.27	0.95	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/23/2015	16:37:45	5.29	0.88	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/23/2015	16:38:00	5.36	0.90	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/23/2015	16:38:15	4.73	0.89	ALM008899/cg10	O2	11.06	CO2	11.16	

scg10	6/23/2015	16:38:30	3.61	0.90	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	16:38:45	1.73	1.46	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	16:39:00	0.64	0.77	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	16:39:15	-0.03	-0.08	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	16:39:30	-0.21	-0.13	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	16:39:45	-0.23	-0.15	ALM008899/cg10	O2	11.06	CO2	11.16
o2span1	6/23/2015	16:39:45	-0.23	-0.15	ALM008899/cg10	O2	11.06	CO2	11.16
co2span1	6/23/2015	16:39:45	-0.23	-0.15	ALM008899/cg10	O2	11.06	CO2	11.16
scg1	6/23/2015	16:40:00	-0.23	-0.17	CC429811/cg1	N2	0		0
scg1	6/23/2015	16:40:15	-0.23	-0.18	CC429811/cg1	N2	0		0
scg1	6/23/2015	16:40:30	-0.23	-0.20	CC429811/cg1	N2	0		0
scg1	6/23/2015	16:40:45	-0.23	-0.12	CC429811/cg1	N2	0		0
scg1	6/23/2015	16:41:00	-0.23	-0.04	CC429811/cg1	N2	0		0
scg1	6/23/2015	16:41:15	-0.23	-0.06	CC429811/cg1	N2	0		0
scg1	6/23/2015	16:41:30	-0.22	-0.09	CC429811/cg1	N2	0		0
scg1	6/23/2015	16:41:45	-0.02	-0.10	CC429811/cg1	N2	0		0
scg1	6/23/2015	16:42:00	0.20	-0.10	CC429811/cg1	N2	0		0
scg1	6/23/2015	16:42:15	0.41	-0.10	CC429811/cg1	N2	0		0
thczero1	6/23/2015	16:42:00	0.20	-0.10	CC429811/cg1	N2	0		0
scg6	6/23/2015	16:42:30	0.45	-0.09	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	16:42:45	0.51	-0.09	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	16:43:00	0.54	-0.09	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	16:43:15	0.51	-0.10	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	16:43:30	0.54	-0.11	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	16:43:45	0.57	-0.11	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	16:44:00	0.49	-0.11	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	16:44:15	0.48	0.48	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	16:44:30	0.48	1.14	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	16:44:45	0.55	1.09	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	16:45:00	0.49	1.15	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	16:45:15	0.54	1.70	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	16:45:30	0.49	4.74	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	16:45:45	0.48	4.94	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	16:46:00	0.54	4.94	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	16:46:15	0.48	4.96	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	16:46:30	0.50	4.96	ALM02298/cg6	THC	5.08		0
thcspan1	6/23/2015	16:46:30	0.50	4.96	ALM02298/cg6	THC	5.08		0
run6	6/23/2015	17:00:00	1.54	0.14					
run6	6/23/2015	17:00:15	1.56	0.14					
run6	6/23/2015	17:00:30	1.56	0.12					
run6	6/23/2015	17:00:45	1.64	0.13					
run6	6/23/2015	17:01:00	1.80	0.14					
run6	6/23/2015	17:01:15	1.80	0.14					
run6	6/23/2015	17:01:30	1.78	0.13					
run6	6/23/2015	17:01:45	1.78	0.11					
run6	6/23/2015	17:02:00	1.77	0.11					
run6	6/23/2015	17:02:15	1.66	0.12					
run6	6/23/2015	17:02:30	1.44	0.13					
run6	6/23/2015	17:02:45	1.16	0.13					
run6	6/23/2015	17:03:00	0.97	0.13					
run6	6/23/2015	17:03:15	0.86	0.13					
run6	6/23/2015	17:03:30	0.85	0.13					
run6	6/23/2015	17:03:45	1.00	0.13					
run6	6/23/2015	17:04:00	1.08	0.12					
run6	6/23/2015	17:04:15	1.09	0.12					
run6	6/23/2015	17:04:30	1.14	0.14					
run6	6/23/2015	17:04:45	1.04	0.13					
run6	6/23/2015	17:05:00	0.94	0.12					
run6	6/23/2015	17:05:15	0.81	0.13					
run6	6/23/2015	17:05:30	0.73	0.13					
run6	6/23/2015	17:05:45	0.68	0.13					
run6	6/23/2015	17:06:00	0.76	0.13					
run6	6/23/2015	17:06:15	0.73	0.14					
run6	6/23/2015	17:06:30	0.59	0.14					
run6	6/23/2015	17:06:45	0.32	0.15					
run6	6/23/2015	17:07:00	0.19	0.14					

run6	6/23/2015	17:07:15	0.18	0.14
run6	6/23/2015	17:07:30	0.09	0.14
run6	6/23/2015	17:07:45	0.07	0.14
run6	6/23/2015	17:08:00	0.01	0.13
run6	6/23/2015	17:08:15	0.03	0.13
run6	6/23/2015	17:08:30	0.04	0.11
run6	6/23/2015	17:08:45	0.07	0.11
run6	6/23/2015	17:09:00	0.02	0.11
run6	6/23/2015	17:09:15	0.09	0.12
run6	6/23/2015	17:09:30	0.09	0.12
run6	6/23/2015	17:09:45	0.10	0.12
run6	6/23/2015	17:10:00	0.11	0.12
run6	6/23/2015	17:10:15	0.04	0.12
run6	6/23/2015	17:10:30	0.06	0.13
run6	6/23/2015	17:10:45	0.09	0.14
run6	6/23/2015	17:11:00	0.05	0.14
run6	6/23/2015	17:11:15	0.11	0.14
run6	6/23/2015	17:11:30	0.10	0.14
run6	6/23/2015	17:11:45	0.10	0.14
run6	6/23/2015	17:12:00	0.04	0.13
run6	6/23/2015	17:12:15	0.05	0.14
run6	6/23/2015	17:12:30	0.12	0.14
run6	6/23/2015	17:12:45	0.10	0.14
run6	6/23/2015	17:13:00	0.09	0.13
run6	6/23/2015	17:13:15	0.14	0.12
run6	6/23/2015	17:13:30	0.14	0.12
run6	6/23/2015	17:13:45	0.26	0.11
run6	6/23/2015	17:14:00	0.26	0.12
run6	6/23/2015	17:14:15	0.25	0.11
run6	6/23/2015	17:14:30	0.35	0.11
run6	6/23/2015	17:14:45	0.39	0.12
run6	6/23/2015	17:15:00	0.46	0.12
run6	6/23/2015	17:15:15	0.61	0.11
run6	6/23/2015	17:15:30	0.77	0.11
run6	6/23/2015	17:15:45	0.89	0.11
run6	6/23/2015	17:16:00	0.92	0.12
run6	6/23/2015	17:16:15	0.95	0.11
run6	6/23/2015	17:16:30	0.98	0.10
run6	6/23/2015	17:16:45	1.07	0.12
run6	6/23/2015	17:17:00	1.11	0.13
run6	6/23/2015	17:17:15	1.22	0.13
run6	6/23/2015	17:17:30	1.39	0.13
run6	6/23/2015	17:17:45	1.39	0.12
run6	6/23/2015	17:18:00	1.27	0.11
run6	6/23/2015	17:18:15	1.21	0.11
run6	6/23/2015	17:18:30	1.02	0.12
run6	6/23/2015	17:18:45	0.87	0.12
run6	6/23/2015	17:19:00	0.79	0.12
run6	6/23/2015	17:19:15	0.82	0.13
run6	6/23/2015	17:19:30	0.76	0.11
run6	6/23/2015	17:19:45	0.66	0.11
run6	6/23/2015	17:20:00	0.58	0.14
run6	6/23/2015	17:20:15	0.46	0.13
run6	6/23/2015	17:20:30	0.29	0.12
run6	6/23/2015	17:20:45	0.20	0.12
run6	6/23/2015	17:21:00	0.18	0.12
run6	6/23/2015	17:21:15	0.17	0.12
run6	6/23/2015	17:21:30	0.17	0.19
run6	6/23/2015	17:21:45	0.10	0.25
run6	6/23/2015	17:22:00	0.07	0.23
run6	6/23/2015	17:22:15	0.10	0.21
run6	6/23/2015	17:22:30	0.15	0.18
run6	6/23/2015	17:22:45	0.20	0.17
run6	6/23/2015	17:23:00	0.19	0.15
run6	6/23/2015	17:23:15	0.15	0.15
run6	6/23/2015	17:23:30	0.15	0.14

run6	6/23/2015	17:23:45	0.19	0.12
run6	6/23/2015	17:24:00	0.18	0.14
run6	6/23/2015	17:24:15	0.17	0.16
run6	6/23/2015	17:24:30	0.20	0.16
run6	6/23/2015	17:24:45	0.17	0.15
run6	6/23/2015	17:25:00	0.16	0.14
run6	6/23/2015	17:25:15	0.16	0.14
run6	6/23/2015	17:25:30	0.21	0.13
run6	6/23/2015	17:25:45	0.19	0.10
run6	6/23/2015	17:26:00	0.21	0.11
run6	6/23/2015	17:26:15	0.20	0.12
run6	6/23/2015	17:26:30	0.21	0.11
run6	6/23/2015	17:26:45	0.15	0.12
run6	6/23/2015	17:27:00	0.11	0.11
run6	6/23/2015	17:27:15	0.14	0.11
run6	6/23/2015	17:27:30	0.16	0.11
run6	6/23/2015	17:27:45	0.24	0.12
run6	6/23/2015	17:28:00	0.37	0.12
run6	6/23/2015	17:28:15	0.33	0.11
run6	6/23/2015	17:28:30	0.38	0.11
run6	6/23/2015	17:28:45	0.42	0.12
run6	6/23/2015	17:29:00	0.55	0.12
run6	6/23/2015	17:29:15	0.67	0.11
run6	6/23/2015	17:29:30	0.71	0.11
run6	6/23/2015	17:29:45	0.71	0.11
run6	6/23/2015	17:30:00	0.75	0.10
run6	6/23/2015	17:30:15	0.81	0.10
run6	6/23/2015	17:30:30	0.82	0.09
run6	6/23/2015	17:30:45	0.87	0.10
run6	6/23/2015	17:31:00	1.04	0.10
run6	6/23/2015	17:31:15	1.14	0.10
run6	6/23/2015	17:31:30	1.14	0.14
run6	6/23/2015	17:31:45	1.13	0.19
run6	6/23/2015	17:32:00	1.08	0.20
run6	6/23/2015	17:32:15	1.06	0.18
run6	6/23/2015	17:32:30	0.96	0.16
run6	6/23/2015	17:32:45	1.01	0.13
run6	6/23/2015	17:33:00	1.04	0.12
run6	6/23/2015	17:33:15	1.07	0.12
run6	6/23/2015	17:33:30	0.97	0.12
run6	6/23/2015	17:33:45	0.90	0.13
run6	6/23/2015	17:34:00	0.85	0.12
run6	6/23/2015	17:34:15	0.90	0.11
run6	6/23/2015	17:34:30	0.92	0.12
run6	6/23/2015	17:34:45	0.82	0.11
run6	6/23/2015	17:35:00	0.65	0.11
run6	6/23/2015	17:35:15	0.65	0.10
run6	6/23/2015	17:35:30	0.61	0.10
run6	6/23/2015	17:35:45	0.54	0.10
run6	6/23/2015	17:36:00	0.42	0.10
run6	6/23/2015	17:36:15	0.36	0.10
run6	6/23/2015	17:36:30	0.31	0.11
run6	6/23/2015	17:36:45	0.25	0.09
run6	6/23/2015	17:37:00	0.19	0.09
run6	6/23/2015	17:37:15	0.16	0.09
run6	6/23/2015	17:37:30	0.12	0.08
run6	6/23/2015	17:37:45	0.05	0.11
run6	6/23/2015	17:38:00	0.05	0.10
run6	6/23/2015	17:38:15	-0.02	0.10
run6	6/23/2015	17:38:30	0.01	0.10
run6	6/23/2015	17:38:45	0.02	0.11
run6	6/23/2015	17:39:00	0.05	0.10
run6	6/23/2015	17:39:15	0.08	0.11
run6	6/23/2015	17:39:30	0.10	0.11
run6	6/23/2015	17:39:45	0.15	0.11
run6	6/23/2015	17:40:00	0.08	0.10

run6	6/23/2015	17:40:15	0.10	0.11
run6	6/23/2015	17:40:30	0.12	0.10
run6	6/23/2015	17:40:45	0.10	0.09
run6	6/23/2015	17:41:00	0.07	0.10
run6	6/23/2015	17:41:15	0.05	0.10
run6	6/23/2015	17:41:30	0.04	0.10
run6	6/23/2015	17:41:45	0.12	0.10
run6	6/23/2015	17:42:00	0.10	0.10
run6	6/23/2015	17:42:15	0.13	0.10
run6	6/23/2015	17:42:30	0.09	0.11
run6	6/23/2015	17:42:45	0.11	0.11
run6	6/23/2015	17:43:00	0.15	0.12
run6	6/23/2015	17:43:15	0.27	0.10
run6	6/23/2015	17:43:30	0.34	0.11
run6	6/23/2015	17:43:45	0.32	0.11
run6	6/23/2015	17:44:00	0.29	0.12
run6	6/23/2015	17:44:15	0.36	0.12
run6	6/23/2015	17:44:30	0.38	0.11
run6	6/23/2015	17:44:45	0.32	0.11
run6	6/23/2015	17:45:00	0.36	0.11
run6	6/23/2015	17:45:15	0.37	0.11
run6	6/23/2015	17:45:30	0.43	0.10
run6	6/23/2015	17:45:45	0.52	0.09
run6	6/23/2015	17:46:00	0.63	0.12
run6	6/23/2015	17:46:15	0.68	0.16
run6	6/23/2015	17:46:30	0.70	0.16
run6	6/23/2015	17:46:45	0.66	0.16
run6	6/23/2015	17:47:00	0.73	0.15
run6	6/23/2015	17:47:15	0.78	0.15
run6	6/23/2015	17:47:30	0.61	0.16
run6	6/23/2015	17:47:45	0.45	0.17
run6	6/23/2015	17:48:00	0.40	0.16
run6	6/23/2015	17:48:15	0.40	0.15
run6	6/23/2015	17:48:30	0.35	0.13
run6	6/23/2015	17:48:45	0.35	0.15
run6	6/23/2015	17:49:00	0.28	0.15
run6	6/23/2015	17:49:15	0.22	0.13
run6	6/23/2015	17:49:30	0.16	0.14
run6	6/23/2015	17:49:45	0.12	0.13
run6	6/23/2015	17:50:00	0.22	0.14
run6	6/23/2015	17:50:15	0.23	0.13
run6	6/23/2015	17:50:30	0.22	0.11
run6	6/23/2015	17:50:45	0.20	0.13
run6	6/23/2015	17:51:00	0.23	0.15
run6	6/23/2015	17:51:15	0.21	0.14
run6	6/23/2015	17:51:30	0.15	0.12
run6	6/23/2015	17:51:45	0.13	0.11
run6	6/23/2015	17:52:00	0.13	0.11
run6	6/23/2015	17:52:15	0.12	0.10
run6	6/23/2015	17:52:30	0.08	0.12
run6	6/23/2015	17:52:45	0.12	0.15
run6	6/23/2015	17:53:00	0.15	0.15
run6	6/23/2015	17:53:15	0.09	0.13
run6	6/23/2015	17:53:30	0.19	0.12
run6	6/23/2015	17:53:45	0.15	0.12
run6	6/23/2015	17:54:00	0.12	0.12
run6	6/23/2015	17:54:15	0.14	0.12
run6	6/23/2015	17:54:30	0.12	0.11
run6	6/23/2015	17:54:45	0.08	0.10
run6	6/23/2015	17:55:00	0.07	0.10
run6	6/23/2015	17:55:15	0.04	0.10
run6	6/23/2015	17:55:30	0.01	0.12
run6	6/23/2015	17:55:45	0.05	0.12
run6	6/23/2015	17:56:00	0.11	0.12
run6	6/23/2015	17:56:15	0.09	0.11
run6	6/23/2015	17:56:30	0.10	0.11

run6	6/23/2015	17:56:45	0.10	0.11						
run6	6/23/2015	17:57:00	0.13	0.10						
run6	6/23/2015	17:57:15	0.20	0.13						
run6	6/23/2015	17:57:30	0.24	0.13						
run6	6/23/2015	17:57:45	0.24	0.12						
run6	6/23/2015	17:58:00	0.18	0.11						
run6	6/23/2015	17:58:15	0.20	0.09						
run6	6/23/2015	17:58:30	0.17	0.10						
run6	6/23/2015	17:58:45	0.16	0.11						
run6	6/23/2015	17:59:00	0.13	0.11						
run6	6/23/2015	17:59:15	0.13	0.11						
run6	6/23/2015	17:59:30	0.16	0.11						
run6	6/23/2015	17:59:45	0.17	0.10						
averun6	6/23/2015	17:00:00	0.45	0.12		60				
scg2	6/23/2015	18:00:00	0.30	0.10	ALM059355/cg2	NOx	96.8			0
scg2	6/23/2015	18:00:15	0.42	0.11	ALM059355/cg2	NOx	96.8			0
scg2	6/23/2015	18:00:30	0.54	0.10	ALM059355/cg2	NOx	96.8			0
scg2	6/23/2015	18:00:45	0.66	0.10	ALM059355/cg2	NOx	96.8			0
scg2	6/23/2015	18:01:00	0.84	0.10	ALM059355/cg2	NOx	96.8			0
scg2	6/23/2015	18:01:15	0.79	0.09	ALM059355/cg2	NOx	96.8			0
scg2	6/23/2015	18:01:30	0.53	0.10	ALM059355/cg2	NOx	96.8			0
scg2	6/23/2015	18:01:45	0.30	0.11	ALM059355/cg2	NOx	96.8			0
scg2	6/23/2015	18:02:00	0.12	0.11	ALM059355/cg2	NOx	96.8			0
scg2	6/23/2015	18:02:15	0.10	0.10	ALM059355/cg2	NOx	96.8			0
scg2	6/23/2015	18:02:30	0.14	0.11	ALM059355/cg2	NOx	96.8			0
scg2	6/23/2015	18:02:45	0.12	0.10	ALM059355/cg2	NOx	96.8			0
scg2	6/23/2015	18:03:00	0.12	0.10	ALM059355/cg2	NOx	96.8			0
scg2	6/23/2015	18:03:15	0.12	0.11	ALM059355/cg2	NOx	96.8			0
scg2	6/23/2015	18:03:30	0.13	0.09	ALM059355/cg2	NOx	96.8			0
o2zero1	6/23/2015	18:03:30	0.13	0.09	ALM059355/cg2	NOx	96.8			0
co2zero1	6/23/2015	18:03:30	0.13	0.09	ALM059355/cg2	NOx	96.8			0
cozero1	6/23/2015	18:03:30	0.13	0.09	ALM059355/cg2	NOx	96.8			0
noxspan1	6/23/2015	18:03:30	0.13	0.09	ALM059355/cg2	NOx	96.8			0
scg6	6/23/2015	18:04:00	0.19	0.10	ALM02298/cg6	THC	5.08			0
scg6	6/23/2015	18:04:15	0.11	0.10	ALM02298/cg6	THC	5.08			0
scg6	6/23/2015	18:04:30	0.11	0.10	ALM02298/cg6	THC	5.08			0
scg6	6/23/2015	18:04:45	0.11	0.09	ALM02298/cg6	THC	5.08			0
scg6	6/23/2015	18:05:00	0.21	0.10	ALM02298/cg6	THC	5.08			0
scg6	6/23/2015	18:05:15	0.33	0.11	ALM02298/cg6	THC	5.08			0
scg9	6/23/2015	18:05:30	0.56	0.11	LL23441/cg9	CO	5.13			0
scg9	6/23/2015	18:05:45	0.78	0.15	LL23441/cg9	CO	5.13			0
scg9	6/23/2015	18:06:00	1.01	0.20	LL23441/cg9	CO	5.13			0
scg9	6/23/2015	18:06:15	1.15	0.31	LL23441/cg9	CO	5.13			0
scg9	6/23/2015	18:06:30	1.13	0.42	LL23441/cg9	CO	5.13			0
scg9	6/23/2015	18:06:45	1.23	0.35	LL23441/cg9	CO	5.13			0
scg9	6/23/2015	18:07:00	2.02	0.27	LL23441/cg9	CO	5.13			0
scg9	6/23/2015	18:07:15	3.18	0.23	LL23441/cg9	CO	5.13			0
scg9	6/23/2015	18:07:30	4.23	0.23	LL23441/cg9	CO	5.13			0
scg9	6/23/2015	18:07:45	4.81	0.51	LL23441/cg9	CO	5.13			0
scg9	6/23/2015	18:08:00	5.07	3.67	LL23441/cg9	CO	5.13			0
scg9	6/23/2015	18:08:15	5.18	3.31	LL23441/cg9	CO	5.13			0
scg9	6/23/2015	18:08:30	5.26	1.50	LL23441/cg9	CO	5.13			0
scg9	6/23/2015	18:08:45	5.20	1.25	LL23441/cg9	CO	5.13			0
scg9	6/23/2015	18:09:00	5.12	1.25	LL23441/cg9	CO	5.13			0
scg9	6/23/2015	18:09:15	5.11	1.38	LL23441/cg9	CO	5.13			0
scg9	6/23/2015	18:09:30	5.11	1.33	LL23441/cg9	CO	5.13			0
noxzero1	6/23/2015	18:09:15	5.11	1.38	LL23441/cg9	CO	5.13			0
cospan1	6/23/2015	18:09:15	5.11	1.38	LL23441/cg9	CO	5.13			0
scg10	6/23/2015	18:09:45	5.09	1.45	ALM008899/cg10	O2	11.06	CO2		11.16
scg10	6/23/2015	18:10:00	5.21	1.70	ALM008899/cg10	O2	11.06	CO2		11.16
scg10	6/23/2015	18:10:15	5.11	1.30	ALM008899/cg10	O2	11.06	CO2		11.16
scg10	6/23/2015	18:10:30	5.19	2.04	ALM008899/cg10	O2	11.06	CO2		11.16
scg10	6/23/2015	18:10:45	5.09	1.59	ALM008899/cg10	O2	11.06	CO2		11.16
scg10	6/23/2015	18:11:00	4.13	1.76	ALM008899/cg10	O2	11.06	CO2		11.16
scg10	6/23/2015	18:11:15	2.79	1.37	ALM008899/cg10	O2	11.06	CO2		11.16
scg10	6/23/2015	18:11:30	1.27	2.01	ALM008899/cg10	O2	11.06	CO2		11.16

scg10	6/23/2015	18:11:45	0.42	1.38	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	18:12:00	-0.09	1.86	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	18:12:15	-0.23	1.11	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	18:12:30	-0.22	0.99	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	18:12:45	-0.23	0.95	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	18:13:00	-0.23	0.98	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/23/2015	18:13:15	-0.23	0.97	ALM008899/cg10	O2	11.06	CO2	11.16
o2span1	6/23/2015	18:13:15	-0.23	0.97	ALM008899/cg10	O2	11.06	CO2	11.16
co2span1	6/23/2015	18:13:15	-0.23	0.97	ALM008899/cg10	O2	11.06	CO2	11.16
scg1	6/23/2015	18:13:30	-0.23	0.93	CC429811/cg1	N2	0		0
scg1	6/23/2015	18:13:45	-0.23	1.01	CC429811/cg1	N2	0		0
scg1	6/23/2015	18:14:00	-0.23	1.27	CC429811/cg1	N2	0		0
scg1	6/23/2015	18:14:15	-0.23	1.11	CC429811/cg1	N2	0		0
scg1	6/23/2015	18:14:30	-0.23	0.92	CC429811/cg1	N2	0		0
scg1	6/23/2015	18:14:45	-0.23	0.98	CC429811/cg1	N2	0		0
scg1	6/23/2015	18:15:00	-0.21	1.98	CC429811/cg1	N2	0		0
scg1	6/23/2015	18:15:15	-0.16	5.34	CC429811/cg1	N2	0		0
scg9	6/23/2015	18:15:30	0.04	5.15	LL23441/cg9	CO	5.13		0
scg6	6/23/2015	18:15:45	0.08	5.12	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	18:16:00	0.12	5.10	ALM02298/cg6	THC	5.08		0
scg6	6/23/2015	18:16:15	0.25	5.08	ALM02298/cg6	THC	5.08		0
thcspan1	6/23/2015	18:16:15	0.25	5.08	ALM02298/cg6	THC	5.08		0
scg1	6/23/2015	18:16:30	0.22	5.08	CC429811/cg1	N2	0		0
scg1	6/23/2015	18:16:45	0.21	5.06	CC429811/cg1	N2	0		0
scg1	6/23/2015	18:17:00	0.26	5.05	CC429811/cg1	N2	0		0
scg1	6/23/2015	18:17:15	0.26	5.05	CC429811/cg1	N2	0		0
scg1	6/23/2015	18:17:30	0.30	5.05	CC429811/cg1	N2	0		0
scg1	6/23/2015	18:17:45	0.25	5.05	CC429811/cg1	N2	0		0
scg1	6/23/2015	18:18:00	0.27	5.04	CC429811/cg1	N2	0		0
scg1	6/23/2015	18:18:15	0.22	4.80	CC429811/cg1	N2	0		0
scg1	6/23/2015	18:18:30	0.29	1.67	CC429811/cg1	N2	0		0
scg1	6/23/2015	18:18:45	0.26	1.01	CC429811/cg1	N2	0		0
scg1	6/23/2015	18:19:00	0.25	1.42	CC429811/cg1	N2	0		0
scg1	6/23/2015	18:19:15	0.25	0.27	CC429811/cg1	N2	0		0
scg1	6/23/2015	18:19:30	0.19	0.08	CC429811/cg1	N2	0		0
scg1	6/23/2015	18:19:45	0.28	0.05	CC429811/cg1	N2	0		0
thczero1	6/23/2015	18:19:45	0.28	0.05	CC429811/cg1	N2	0		0
dcg1	6/24/2015	6:54:00	0.55	1.47	CC429811/cg1	N2	0		0
dcg1	6/24/2015	6:54:15	0.59	1.47	CC429811/cg1	N2	0		0
dcg1	6/24/2015	6:54:30	0.57	1.49	CC429811/cg1	N2	0		0
dcg1	6/24/2015	6:54:45	0.49	1.71	CC429811/cg1	N2	0		0
dcg1	6/24/2015	6:55:00	0.47	1.74	CC429811/cg1	N2	0		0
dcg1	6/24/2015	6:55:15	0.46	1.73	CC429811/cg1	N2	0		0
dcg1	6/24/2015	6:55:30	0.43	1.77	CC429811/cg1	N2	0		0
dcg1	6/24/2015	6:55:45	0.34	1.79	CC429811/cg1	N2	0		0
dcg1	6/24/2015	6:56:00	0.04	1.83	CC429811/cg1	N2	0		0
dcg1	6/24/2015	6:56:15	0.03	1.86	CC429811/cg1	N2	0		0
dcg1	6/24/2015	6:56:30	-0.01	1.89	CC429811/cg1	N2	0		0
dcg1	6/24/2015	6:56:45	-0.02	1.92	CC429811/cg1	N2	0		0
dcg1	6/24/2015	6:57:00	0.03	1.94	CC429811/cg1	N2	0		0
dcg1	6/24/2015	6:57:15	0.04	1.97	CC429811/cg1	N2	0		0
o2ezero1	6/24/2015	6:57:00	0.03	1.94	CC429811/cg1	N2	0		0
co2ezero1	6/24/2015	6:57:00	0.03	1.94	CC429811/cg1	N2	0		0
coezero1	6/24/2015	6:57:00	0.03	1.94	CC429811/cg1	N2	0		0
noxezero1	6/24/2015	6:57:00	0.03	1.94	CC429811/cg1	N2	0		0
dcg3	6/24/2015	6:59:30	0.09	2.25	ALM010404/cg3	NOx	224		0
dcg3	6/24/2015	6:59:45	0.10	2.03	ALM010404/cg3	NOx	224		0
dcg3	6/24/2015	7:00:00	0.09	1.86	ALM010404/cg3	NOx	224		0
dcg3	6/24/2015	7:00:15	-0.02	1.72	ALM010404/cg3	NOx	224		0
dcg3	6/24/2015	7:00:30	-0.11	1.64	ALM010404/cg3	NOx	224		0
dcg3	6/24/2015	7:00:45	-0.01	1.60	ALM010404/cg3	NOx	224		0
dcg3	6/24/2015	7:01:00	-0.03	1.55	ALM010404/cg3	NOx	224		0
dcg3	6/24/2015	7:01:15	-0.05	1.53	ALM010404/cg3	NOx	224		0
dcg3	6/24/2015	7:01:30	-0.03	1.54	ALM010404/cg3	NOx	224		0
dcg3	6/24/2015	7:01:45	0.03	1.54	ALM010404/cg3	NOx	224		0
dcg3	6/24/2015	7:02:00	0.01	1.49	ALM010404/cg3	NOx	224		0

noxhigh1	6/24/2015	7:02:00	0.01	1.49	ALM010404/cg3	NOx	224			0
dcg2	6/24/2015	7:02:15	0.00	1.48	ALM059355/cg2	NOx	96.8			0
dcg2	6/24/2015	7:02:30	-0.04	1.44	ALM059355/cg2	NOx	96.8			0
dcg2	6/24/2015	7:02:45	-0.01	1.41	ALM059355/cg2	NOx	96.8			0
dcg2	6/24/2015	7:03:00	-0.05	1.39	ALM059355/cg2	NOx	96.8			0
dcg2	6/24/2015	7:03:15	-0.09	1.38	ALM059355/cg2	NOx	96.8			0
dcg2	6/24/2015	7:03:30	-0.08	1.35	ALM059355/cg2	NOx	96.8			0
dcg2	6/24/2015	7:03:45	-0.07	1.35	ALM059355/cg2	NOx	96.8			0
dcg2	6/24/2015	7:04:00	-0.06	1.34	ALM059355/cg2	NOx	96.8			0
dcg2	6/24/2015	7:04:15	-0.06	1.35	ALM059355/cg2	NOx	96.8			0
dcg2	6/24/2015	7:04:30	-0.08	1.35	ALM059355/cg2	NOx	96.8			0
dcg2	6/24/2015	7:04:45	-0.04	1.34	ALM059355/cg2	NOx	96.8			0
noxmid1	6/24/2015	7:04:45	-0.04	1.34	ALM059355/cg2	NOx	96.8			0
dcg11	6/24/2015	7:05:00	-0.09	1.35	ALM017523/cg11	O2	19.88	CO2	19.69	
dcg11	6/24/2015	7:05:15	-0.06	1.35	ALM017523/cg11	O2	19.88	CO2	19.69	
dcg11	6/24/2015	7:05:30	-0.15	1.33	ALM017523/cg11	O2	19.88	CO2	19.69	
dcg11	6/24/2015	7:05:45	-0.23	1.32	ALM017523/cg11	O2	19.88	CO2	19.69	
dcg11	6/24/2015	7:06:00	-0.23	1.32	ALM017523/cg11	O2	19.88	CO2	19.69	
dcg11	6/24/2015	7:06:15	-0.23	1.30	ALM017523/cg11	O2	19.88	CO2	19.69	
dcg11	6/24/2015	7:06:30	-0.23	1.30	ALM017523/cg11	O2	19.88	CO2	19.69	
dcg11	6/24/2015	7:06:45	-0.23	1.30	ALM017523/cg11	O2	19.88	CO2	19.69	
o2high1	6/24/2015	7:06:45	-0.23	1.30	ALM017523/cg11	O2	19.88	CO2	19.69	
co2high1	6/24/2015	7:06:45	-0.23	1.30	ALM017523/cg11	O2	19.88	CO2	19.69	
dcg10	6/24/2015	7:07:00	-0.23	1.34	ALM008899/cg10	O2	11.06	CO2	11.16	
dcg10	6/24/2015	7:07:15	-0.23	1.32	ALM008899/cg10	O2	11.06	CO2	11.16	
dcg10	6/24/2015	7:07:30	-0.23	1.32	ALM008899/cg10	O2	11.06	CO2	11.16	
dcg10	6/24/2015	7:07:45	-0.23	1.33	ALM008899/cg10	O2	11.06	CO2	11.16	
dcg10	6/24/2015	7:08:00	-0.23	1.33	ALM008899/cg10	O2	11.06	CO2	11.16	
dcg10	6/24/2015	7:08:15	-0.23	1.33	ALM008899/cg10	O2	11.06	CO2	11.16	
dcg10	6/24/2015	7:08:30	-0.23	1.34	ALM008899/cg10	O2	11.06	CO2	11.16	
dcg10	6/24/2015	7:08:45	-0.23	1.36	ALM008899/cg10	O2	11.06	CO2	11.16	
o2mid1	6/24/2015	7:08:45	-0.23	1.36	ALM008899/cg10	O2	11.06	CO2	11.16	
co2mid1	6/24/2015	7:08:45	-0.23	1.36	ALM008899/cg10	O2	11.06	CO2	11.16	
dcg8	6/24/2015	7:09:15	-0.23	1.36	ALM005790/cg8	CO	9.17			0
dcg8	6/24/2015	7:09:30	-0.23	1.35	ALM005790/cg8	CO	9.17			0
dcg8	6/24/2015	7:09:45	0.41	1.34	ALM005790/cg8	CO	9.17			0
dcg8	6/24/2015	7:10:00	4.13	1.35	ALM005790/cg8	CO	9.17			0
dcg8	6/24/2015	7:10:15	7.03	1.32	ALM005790/cg8	CO	9.17			0
dcg8	6/24/2015	7:10:30	8.60	1.33	ALM005790/cg8	CO	9.17			0
dcg8	6/24/2015	7:10:45	8.85	1.33	ALM005790/cg8	CO	9.17			0
dcg8	6/24/2015	7:11:00	9.08	1.36	ALM005790/cg8	CO	9.17			0
dcg8	6/24/2015	7:11:15	9.22	1.35	ALM005790/cg8	CO	9.17			0
dcg8	6/24/2015	7:11:30	9.20	1.30	ALM005790/cg8	CO	9.17			0
cohigh1	6/24/2015	7:11:30	9.20	1.30	ALM005790/cg8	CO	9.17			0
dcg9	6/24/2015	7:11:45	9.08	1.28	LL23441/cg9	CO	5.13			0
dcg9	6/24/2015	7:12:00	8.48	1.28	LL23441/cg9	CO	5.13			0
dcg9	6/24/2015	7:12:15	6.95	1.28	LL23441/cg9	CO	5.13			0
dcg9	6/24/2015	7:12:30	5.48	1.31	LL23441/cg9	CO	5.13			0
dcg9	6/24/2015	7:12:45	5.05	1.28	LL23441/cg9	CO	5.13			0
dcg9	6/24/2015	7:13:00	5.07	1.33	LL23441/cg9	CO	5.13			0
dcg9	6/24/2015	7:13:15	5.14	1.34	LL23441/cg9	CO	5.13			0
comid1	6/24/2015	7:13:15	5.14	1.34	LL23441/cg9	CO	5.13			0
dcg4	6/24/2015	7:13:30	5.14	1.32	ALM021093(NO2)/cg4	NOx	50.2			0
dcg4	6/24/2015	7:13:45	4.99	1.32	ALM021093(NO2)/cg4	NOx	50.2			0
dcg4	6/24/2015	7:14:00	3.22	1.30	ALM021093(NO2)/cg4	NOx	50.2			0
dcg4	6/24/2015	7:14:15	1.45	1.29	ALM021093(NO2)/cg4	NOx	50.2			0
dcg4	6/24/2015	7:14:30	0.29	1.28	ALM021093(NO2)/cg4	NOx	50.2			0
dcg4	6/24/2015	7:14:45	0.06	1.27	ALM021093(NO2)/cg4	NOx	50.2			0
dcg4	6/24/2015	7:15:00	0.07	1.28	ALM021093(NO2)/cg4	NOx	50.2			0
dcg4	6/24/2015	7:15:15	0.04	1.29	ALM021093(NO2)/cg4	NOx	50.2			0
dcg4	6/24/2015	7:15:30	0.03	1.28	ALM021093(NO2)/cg4	NOx	50.2			0
dcg4	6/24/2015	7:15:45	-0.01	1.25	ALM021093(NO2)/cg4	NOx	50.2			0
dcg4	6/24/2015	7:16:00	0.01	1.31	ALM021093(NO2)/cg4	NOx	50.2			0
dcg4	6/24/2015	7:16:15	0.02	1.32	ALM021093(NO2)/cg4	NOx	50.2			0
dcg1	6/24/2015	7:16:45	0.05	1.33	CC429811/cg1	N2	0			0
dcg1	6/24/2015	7:17:00	0.04	1.32	CC429811/cg1	N2	0			0

dcg1	6/24/2015	7:17:15	0.17	1.28	CC429811/cg1	N2	0	0
dcg1	6/24/2015	7:17:30	0.20	1.32	CC429811/cg1	N2	0	0
dcg1	6/24/2015	7:17:45	0.17	1.29	CC429811/cg1	N2	0	0
dcg1	6/24/2015	7:18:00	0.27	1.32	CC429811/cg1	N2	0	0
dcg1	6/24/2015	7:18:15	0.34	4.55	CC429811/cg1	N2	0	0
dcg1	6/24/2015	7:18:30	0.19	0.70	CC429811/cg1	N2	0	0
dcg1	6/24/2015	7:18:45	0.12	-0.27	CC429811/cg1	N2	0	0
dcg1	6/24/2015	7:19:00	0.09	-0.23	CC429811/cg1	N2	0	0
dcg1	6/24/2015	7:19:15	0.09	-0.06	CC429811/cg1	N2	0	0
dcg1	6/24/2015	7:19:30	0.04	-0.08	CC429811/cg1	N2	0	0
dcg1	6/24/2015	7:19:45	0.05	-0.09	CC429811/cg1	N2	0	0
thcezero1	6/24/2015	7:19:30	0.04	-0.08	CC429811/cg1	N2	0	0
dcg5	6/24/2015	7:21:30	0.11	-0.12	BAL4190/cg5	THC	8.64	0
dcg5	6/24/2015	7:21:45	0.09	-0.12	BAL4190/cg5	THC	8.64	0
dcg5	6/24/2015	7:22:00	0.17	-0.12	BAL4190/cg5	THC	8.64	0
dcg5	6/24/2015	7:22:15	0.14	-0.09	BAL4190/cg5	THC	8.64	0
dcg5	6/24/2015	7:22:30	0.08	1.06	BAL4190/cg5	THC	8.64	0
dcg5	6/24/2015	7:22:45	0.12	6.44	BAL4190/cg5	THC	8.64	0
dcg5	6/24/2015	7:23:00	0.07	9.30	BAL4190/cg5	THC	8.64	0
dcg5	6/24/2015	7:23:15	0.11	9.33	BAL4190/cg5	THC	8.64	0
dcg5	6/24/2015	7:23:30	0.14	8.72	BAL4190/cg5	THC	8.64	0
dcg5	6/24/2015	7:23:45	0.11	8.71	BAL4190/cg5	THC	8.64	0
dcg5	6/24/2015	7:24:00	0.14	8.72	BAL4190/cg5	THC	8.64	0
dcg5	6/24/2015	7:24:15	0.15	8.74	BAL4190/cg5	THC	8.64	0
thchigh1	6/24/2015	7:24:15	0.15	8.74	BAL4190/cg5	THC	8.64	0
dcg6	6/24/2015	7:25:15	0.14	8.73	ALM02298/cg6	THC	5.08	0
dcg6	6/24/2015	7:25:30	0.12	8.75	ALM02298/cg6	THC	5.08	0
dcg6	6/24/2015	7:25:45	0.10	8.76	ALM02298/cg6	THC	5.08	0
dcg6	6/24/2015	7:26:00	0.19	8.77	ALM02298/cg6	THC	5.08	0
dcg6	6/24/2015	7:26:15	0.12	8.31	ALM02298/cg6	THC	5.08	0
dcg6	6/24/2015	7:26:30	0.10	2.94	ALM02298/cg6	THC	5.08	0
dcg6	6/24/2015	7:26:45	0.11	5.45	ALM02298/cg6	THC	5.08	0
dcg6	6/24/2015	7:27:00	0.12	5.24	ALM02298/cg6	THC	5.08	0
dcg6	6/24/2015	7:27:15	0.15	5.17	ALM02298/cg6	THC	5.08	0
dcg6	6/24/2015	7:27:30	0.12	5.08	ALM02298/cg6	THC	5.08	0
dcg6	6/24/2015	7:27:45	0.09	5.04	ALM02298/cg6	THC	5.08	0
thcmid1	6/24/2015	7:27:45	0.09	5.04	ALM02298/cg6	THC	5.08	0
dcg7	6/24/2015	7:28:45	0.11	5.05	CC64067/cg7	THC	3.08	0
dcg7	6/24/2015	7:29:00	0.15	5.05	CC64067/cg7	THC	3.08	0
dcg7	6/24/2015	7:29:15	0.16	5.05	CC64067/cg7	THC	3.08	0
dcg7	6/24/2015	7:29:30	0.16	5.04	CC64067/cg7	THC	3.08	0
dcg7	6/24/2015	7:29:45	0.15	4.97	CC64067/cg7	THC	3.08	0
dcg7	6/24/2015	7:30:00	0.20	2.32	CC64067/cg7	THC	3.08	0
dcg7	6/24/2015	7:30:15	0.09	2.85	CC64067/cg7	THC	3.08	0
dcg7	6/24/2015	7:30:30	0.14	3.33	CC64067/cg7	THC	3.08	0
dcg7	6/24/2015	7:30:45	0.17	3.09	CC64067/cg7	THC	3.08	0
dcg7	6/24/2015	7:31:00	0.15	3.06	CC64067/cg7	THC	3.08	0
thclow1	6/24/2015	7:31:00	0.15	3.06	CC64067/cg7	THC	3.08	0
scg1	6/24/2015	7:31:30	0.09	3.06	CC429811/cg1	N2	0	0
scg2	6/24/2015	7:31:45	0.13	3.06	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	7:32:00	0.12	3.06	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	7:32:15	0.16	3.06	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	7:32:30	0.11	3.05	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	7:32:45	0.14	3.05	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	7:33:00	0.15	3.05	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	7:33:15	0.06	3.05	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	7:33:30	0.00	3.05	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	7:33:45	0.02	3.04	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	7:34:00	0.01	3.04	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	7:34:15	-0.03	3.04	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	7:34:30	-0.03	3.04	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	7:34:45	0.01	3.04	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	7:35:00	-0.01	3.04	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	7:35:15	-0.01	3.04	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	7:35:30	0.00	3.04	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	7:35:45	-0.02	3.05	ALM059355/cg2	NOx	96.8	0

scg2	6/24/2015	7:36:00	-0.01	3.05	ALM059355/cg2	NOx	96.8			0
o2zero1	6/24/2015	7:36:00	-0.01	3.05	ALM059355/cg2	NOx	96.8			0
co2zero1	6/24/2015	7:36:00	-0.01	3.05	ALM059355/cg2	NOx	96.8			0
cozero1	6/24/2015	7:36:00	-0.01	3.05	ALM059355/cg2	NOx	96.8			0
noxspan1	6/24/2015	7:36:00	-0.01	3.05	ALM059355/cg2	NOx	96.8			0
scg9	6/24/2015	7:36:15	-0.05	3.05	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	7:36:30	-0.04	3.05	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	7:36:45	-0.02	3.05	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	7:37:00	-0.04	3.05	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	7:37:15	0.05	3.05	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	7:37:30	0.54	3.05	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	7:37:45	1.87	3.05	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	7:38:00	3.44	3.04	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	7:38:15	4.39	3.04	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	7:38:30	4.86	3.03	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	7:38:45	5.02	3.03	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	7:39:00	5.14	3.05	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	7:39:15	5.13	3.04	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	7:39:30	5.18	3.05	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	7:39:45	5.19	3.05	LL23441/cg9	CO	5.13			0
noxzero1	6/24/2015	7:39:45	5.19	3.05	LL23441/cg9	CO	5.13			0
cospan1	6/24/2015	7:39:45	5.19	3.05	LL23441/cg9	CO	5.13			0
scg10	6/24/2015	7:40:00	5.22	3.04	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	7:40:15	5.21	3.03	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	7:40:30	5.22	2.90	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	7:40:45	5.26	1.79	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	7:41:00	5.24	2.38	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	7:41:15	4.82	1.78	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	7:41:30	3.55	1.66	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	7:41:45	1.85	1.62	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	7:42:00	0.44	1.57	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	7:42:15	-0.15	1.58	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	7:42:30	-0.23	1.60	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	7:42:45	-0.23	1.56	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	7:43:00	-0.23	1.53	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	7:43:15	-0.23	1.51	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	7:43:30	-0.23	1.48	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	7:43:45	-0.23	1.47	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	7:44:00	-0.23	1.48	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	7:44:15	-0.23	1.46	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	7:44:30	-0.23	1.46	ALM008899/cg10	O2	11.06	CO2	11.16	
o2span1	6/24/2015	7:44:15	-0.23	1.46	ALM008899/cg10	O2	11.06	CO2	11.16	
co2span1	6/24/2015	7:44:15	-0.23	1.46	ALM008899/cg10	O2	11.06	CO2	11.16	
scg6	6/24/2015	7:44:45	-0.23	1.46	ALM02298/cg6	THC	5.08			0
scg6	6/24/2015	7:45:00	-0.23	1.46	ALM02298/cg6	THC	5.08			0
scg6	6/24/2015	7:45:15	-0.23	1.43	ALM02298/cg6	THC	5.08			0
scg6	6/24/2015	7:45:30	-0.23	1.42	ALM02298/cg6	THC	5.08			0
scg6	6/24/2015	7:45:45	-0.23	1.46	ALM02298/cg6	THC	5.08			0
scg6	6/24/2015	7:46:00	-0.23	1.42	ALM02298/cg6	THC	5.08			0
scg6	6/24/2015	7:46:15	-0.23	1.48	ALM02298/cg6	THC	5.08			0
scg6	6/24/2015	7:46:30	-0.22	3.69	ALM02298/cg6	THC	5.08			0
scg6	6/24/2015	7:46:45	-0.13	4.95	ALM02298/cg6	THC	5.08			0
scg6	6/24/2015	7:47:00	0.03	4.97	ALM02298/cg6	THC	5.08			0
scg6	6/24/2015	7:47:15	0.09	4.99	ALM02298/cg6	THC	5.08			0
thcspan1	6/24/2015	7:47:15	0.09	4.99	ALM02298/cg6	THC	5.08			0
scg1	6/24/2015	7:47:45	0.17	4.99	CC429811/cg1	N2	0			0
scg1	6/24/2015	7:48:00	0.16	5.00	CC429811/cg1	N2	0			0
scg1	6/24/2015	7:48:15	0.09	4.99	CC429811/cg1	N2	0			0
scg1	6/24/2015	7:48:30	0.14	4.99	CC429811/cg1	N2	0			0
scg1	6/24/2015	7:48:45	0.11	4.99	CC429811/cg1	N2	0			0
scg1	6/24/2015	7:49:00	0.04	5.00	CC429811/cg1	N2	0			0
scg1	6/24/2015	7:49:15	-0.02	4.94	CC429811/cg1	N2	0			0
scg1	6/24/2015	7:49:30	0.01	2.31	CC429811/cg1	N2	0			0
scg1	6/24/2015	7:49:45	-0.01	2.03	CC429811/cg1	N2	0			0
scg1	6/24/2015	7:50:00	-0.05	0.54	CC429811/cg1	N2	0			0
scg1	6/24/2015	7:50:15	0.04	-0.02	CC429811/cg1	N2	0			0

scg1	6/24/2015	7:50:30	0.03	-0.06	CC429811/cg1	N2	0	0
thczero1	6/24/2015	7:50:30	0.03	-0.06	CC429811/cg1	N2	0	0
run7	6/24/2015	8:25:00	0.10	0.38				
run7	6/24/2015	8:25:15	0.14	0.38				
run7	6/24/2015	8:25:30	0.19	0.38				
run7	6/24/2015	8:25:45	0.14	0.38				
run7	6/24/2015	8:26:00	0.14	0.38				
run7	6/24/2015	8:26:15	0.15	0.42				
run7	6/24/2015	8:26:30	0.11	0.45				
run7	6/24/2015	8:26:45	0.14	0.46				
run7	6/24/2015	8:27:00	0.10	0.44				
run7	6/24/2015	8:27:15	0.06	0.43				
run7	6/24/2015	8:27:30	0.05	0.42				
run7	6/24/2015	8:27:45	0.00	0.42				
run7	6/24/2015	8:28:00	-0.03	0.42				
run7	6/24/2015	8:28:15	-0.04	0.41				
run7	6/24/2015	8:28:30	-0.07	0.40				
run7	6/24/2015	8:28:45	-0.12	0.39				
run7	6/24/2015	8:29:00	-0.09	0.39				
run7	6/24/2015	8:29:15	-0.04	0.40				
run7	6/24/2015	8:29:30	-0.09	0.39				
run7	6/24/2015	8:29:45	-0.14	0.37				
run7	6/24/2015	8:30:00	-0.14	0.37				
run7	6/24/2015	8:30:15	-0.06	0.36				
run7	6/24/2015	8:30:30	-0.13	0.37				
run7	6/24/2015	8:30:45	-0.10	0.37				
run7	6/24/2015	8:31:00	-0.06	0.37				
run7	6/24/2015	8:31:15	-0.02	0.35				
run7	6/24/2015	8:31:30	0.01	0.34				
run7	6/24/2015	8:31:45	0.03	0.34				
run7	6/24/2015	8:32:00	0.11	0.36				
run7	6/24/2015	8:32:15	0.20	0.35				
run7	6/24/2015	8:32:30	0.24	0.36				
run7	6/24/2015	8:32:45	0.37	0.35				
run7	6/24/2015	8:33:00	0.49	0.34				
run7	6/24/2015	8:33:15	0.56	0.33				
run7	6/24/2015	8:33:30	0.65	0.33				
run7	6/24/2015	8:33:45	0.73	0.34				
run7	6/24/2015	8:34:00	0.87	0.33				
run7	6/24/2015	8:34:15	0.95	0.33				
run7	6/24/2015	8:34:30	1.11	0.33				
run7	6/24/2015	8:34:45	1.14	0.32				
run7	6/24/2015	8:35:00	1.25	0.32				
run7	6/24/2015	8:35:15	1.27	0.31				
run7	6/24/2015	8:35:30	1.33	0.31				
run7	6/24/2015	8:35:45	1.31	0.33				
run7	6/24/2015	8:36:00	1.34	0.37				
run7	6/24/2015	8:36:15	1.49	0.39				
run7	6/24/2015	8:36:30	1.52	0.40				
run7	6/24/2015	8:36:45	1.53	0.40				
run7	6/24/2015	8:37:00	1.51	0.38				
run7	6/24/2015	8:37:15	1.56	0.37				
run7	6/24/2015	8:37:30	1.63	0.35				
run7	6/24/2015	8:37:45	1.65	0.34				
run7	6/24/2015	8:38:00	1.67	0.35				
run7	6/24/2015	8:38:15	1.74	0.36				
run7	6/24/2015	8:38:30	1.76	0.35				
run7	6/24/2015	8:38:45	1.73	0.35				
run7	6/24/2015	8:39:00	1.71	0.35				
run7	6/24/2015	8:39:15	1.68	0.34				
run7	6/24/2015	8:39:30	1.63	0.33				
run7	6/24/2015	8:39:45	1.59	0.33				
run7	6/24/2015	8:40:00	1.52	0.33				
run7	6/24/2015	8:40:15	1.46	0.33				
run7	6/24/2015	8:40:30	1.47	0.33				
run7	6/24/2015	8:40:45	1.50	0.33				

run7	6/24/2015	8:41:00	1.40	0.32
run7	6/24/2015	8:41:15	1.39	0.31
run7	6/24/2015	8:41:30	1.33	0.32
run7	6/24/2015	8:41:45	1.21	0.32
run7	6/24/2015	8:42:00	1.11	0.32
run7	6/24/2015	8:42:15	1.06	0.31
run7	6/24/2015	8:42:30	0.95	0.31
run7	6/24/2015	8:42:45	0.75	0.31
run7	6/24/2015	8:43:00	0.58	0.32
run7	6/24/2015	8:43:15	0.56	0.32
run7	6/24/2015	8:43:30	0.47	0.33
run7	6/24/2015	8:43:45	0.35	0.35
run7	6/24/2015	8:44:00	0.25	0.36
run7	6/24/2015	8:44:15	0.25	0.36
run7	6/24/2015	8:44:30	0.20	0.35
run7	6/24/2015	8:44:45	0.12	0.35
run7	6/24/2015	8:45:00	0.10	0.34
run7	6/24/2015	8:45:15	0.16	0.34
run7	6/24/2015	8:45:30	0.14	0.34
run7	6/24/2015	8:45:45	0.17	0.34
run7	6/24/2015	8:46:00	0.20	0.35
run7	6/24/2015	8:46:15	0.31	0.34
run7	6/24/2015	8:46:30	0.34	0.34
run7	6/24/2015	8:46:45	0.46	0.33
run7	6/24/2015	8:47:00	0.58	0.34
run7	6/24/2015	8:47:15	0.68	0.35
run7	6/24/2015	8:47:30	0.89	0.35
run7	6/24/2015	8:47:45	1.01	0.36
run7	6/24/2015	8:48:00	1.14	0.34
run7	6/24/2015	8:48:15	1.32	0.33
run7	6/24/2015	8:48:30	1.44	0.34
run7	6/24/2015	8:48:45	1.47	0.35
run7	6/24/2015	8:49:00	1.56	0.34
run7	6/24/2015	8:49:15	1.67	0.35
run7	6/24/2015	8:49:30	1.82	0.35
run7	6/24/2015	8:49:45	1.98	0.34
run7	6/24/2015	8:50:00	2.05	0.34
run7	6/24/2015	8:50:15	2.15	0.34
run7	6/24/2015	8:50:30	2.16	0.34
run7	6/24/2015	8:50:45	2.25	0.34
run7	6/24/2015	8:51:00	2.26	0.36
run7	6/24/2015	8:51:15	2.40	0.35
run7	6/24/2015	8:51:30	2.51	0.37
run7	6/24/2015	8:51:45	2.55	0.37
run7	6/24/2015	8:52:00	2.63	0.36
run7	6/24/2015	8:52:15	2.74	0.33
run7	6/24/2015	8:52:30	2.73	0.34
run7	6/24/2015	8:52:45	2.84	0.33
run7	6/24/2015	8:53:00	2.94	0.33
run7	6/24/2015	8:53:15	3.02	0.34
run7	6/24/2015	8:53:30	2.99	0.33
run7	6/24/2015	8:53:45	2.96	0.34
run7	6/24/2015	8:54:00	2.87	0.35
run7	6/24/2015	8:54:15	2.91	0.34
run7	6/24/2015	8:54:30	2.80	0.34
run7	6/24/2015	8:54:45	2.60	0.34
run7	6/24/2015	8:55:00	2.41	0.38
run7	6/24/2015	8:55:15	2.18	0.53
run7	6/24/2015	8:55:30	2.01	0.64
run7	6/24/2015	8:55:45	1.77	0.61
run7	6/24/2015	8:56:00	1.48	0.56
run7	6/24/2015	8:56:15	1.21	0.52
run7	6/24/2015	8:56:30	1.05	0.50
run7	6/24/2015	8:56:45	0.77	0.48
run7	6/24/2015	8:57:00	0.69	0.47
run7	6/24/2015	8:57:15	0.70	0.45

run7	6/24/2015	8:57:30	0.57	0.52
run7	6/24/2015	8:57:45	0.34	0.58
run7	6/24/2015	8:58:00	0.27	0.56
run7	6/24/2015	8:58:15	0.22	0.53
run7	6/24/2015	8:58:30	0.19	0.50
run7	6/24/2015	8:58:45	0.14	0.49
run7	6/24/2015	8:59:00	0.13	0.48
run7	6/24/2015	8:59:15	0.13	0.47
run7	6/24/2015	8:59:30	0.14	0.46
run7	6/24/2015	8:59:45	0.13	0.46
run7	6/24/2015	9:00:00	0.13	0.46
run7	6/24/2015	9:00:15	0.23	0.45
run7	6/24/2015	9:00:30	0.26	0.44
run7	6/24/2015	9:00:45	0.30	0.45
run7	6/24/2015	9:01:00	0.33	0.47
run7	6/24/2015	9:01:15	0.47	0.46
run7	6/24/2015	9:01:30	0.54	0.45
run7	6/24/2015	9:01:45	0.59	0.45
run7	6/24/2015	9:02:00	0.65	0.43
run7	6/24/2015	9:02:15	0.80	0.42
run7	6/24/2015	9:02:30	0.91	0.43
run7	6/24/2015	9:02:45	1.11	0.44
run7	6/24/2015	9:03:00	1.39	0.43
run7	6/24/2015	9:03:15	1.67	0.43
run7	6/24/2015	9:03:30	1.83	0.43
run7	6/24/2015	9:03:45	1.98	0.42
run7	6/24/2015	9:04:00	2.10	0.41
run7	6/24/2015	9:04:15	2.26	0.41
run7	6/24/2015	9:04:30	2.33	0.41
run7	6/24/2015	9:04:45	2.38	0.40
run7	6/24/2015	9:05:00	2.43	0.40
run7	6/24/2015	9:05:15	2.53	0.39
run7	6/24/2015	9:05:30	2.61	0.50
run7	6/24/2015	9:05:45	2.69	0.57
run7	6/24/2015	9:06:00	2.72	0.56
run7	6/24/2015	9:06:15	2.80	0.56
run7	6/24/2015	9:06:30	2.96	0.59
run7	6/24/2015	9:06:45	3.06	0.62
run7	6/24/2015	9:07:00	3.16	0.59
run7	6/24/2015	9:07:15	3.19	0.56
run7	6/24/2015	9:07:30	3.20	0.55
run7	6/24/2015	9:07:45	3.20	0.54
run7	6/24/2015	9:08:00	3.10	0.54
run7	6/24/2015	9:08:15	3.20	0.53
run7	6/24/2015	9:08:30	3.20	0.52
run7	6/24/2015	9:08:45	3.28	0.51
run7	6/24/2015	9:09:00	3.26	0.49
run7	6/24/2015	9:09:15	3.26	0.48
run7	6/24/2015	9:09:30	3.16	0.46
run7	6/24/2015	9:09:45	3.00	0.46
run7	6/24/2015	9:10:00	2.88	0.45
run7	6/24/2015	9:10:15	2.65	0.49
run7	6/24/2015	9:10:30	2.41	0.57
run7	6/24/2015	9:10:45	2.30	0.56
run7	6/24/2015	9:11:00	2.04	0.53
run7	6/24/2015	9:11:15	1.75	0.51
run7	6/24/2015	9:11:30	1.58	0.50
run7	6/24/2015	9:11:45	1.41	0.50
run7	6/24/2015	9:12:00	1.20	0.49
run7	6/24/2015	9:12:15	1.05	0.47
run7	6/24/2015	9:12:30	0.88	0.47
run7	6/24/2015	9:12:45	0.72	0.46
run7	6/24/2015	9:13:00	0.56	0.53
run7	6/24/2015	9:13:15	0.47	0.55
run7	6/24/2015	9:13:30	0.38	0.55
run7	6/24/2015	9:13:45	0.29	0.53

run7	6/24/2015	9:14:00	0.23	0.50				
run7	6/24/2015	9:14:15	0.11	0.48				
run7	6/24/2015	9:14:30	0.09	0.49				
run7	6/24/2015	9:14:45	0.03	0.48				
run7	6/24/2015	9:15:00	0.05	0.49				
run7	6/24/2015	9:15:15	0.06	0.48				
run7	6/24/2015	9:15:30	0.07	0.48				
run7	6/24/2015	9:15:45	0.07	0.48				
run7	6/24/2015	9:16:00	0.16	0.48				
run7	6/24/2015	9:16:15	0.21	0.47				
run7	6/24/2015	9:16:30	0.30	0.45				
run7	6/24/2015	9:16:45	0.45	0.45				
run7	6/24/2015	9:17:00	0.52	0.49				
run7	6/24/2015	9:17:15	0.62	0.58				
run7	6/24/2015	9:17:30	0.72	0.56				
run7	6/24/2015	9:17:45	0.86	0.53				
run7	6/24/2015	9:18:00	0.93	0.52				
run7	6/24/2015	9:18:15	0.99	0.50				
run7	6/24/2015	9:18:30	1.08	0.48				
run7	6/24/2015	9:18:45	1.18	0.50				
run7	6/24/2015	9:19:00	1.30	0.54				
run7	6/24/2015	9:19:15	1.34	0.53				
run7	6/24/2015	9:19:30	1.43	0.51				
run7	6/24/2015	9:19:45	1.48	0.49				
run7	6/24/2015	9:20:00	1.62	0.49				
run7	6/24/2015	9:20:15	1.71	0.48				
run7	6/24/2015	9:20:30	1.75	0.48				
run7	6/24/2015	9:20:45	1.82	0.48				
run7	6/24/2015	9:21:00	1.91	0.52				
run7	6/24/2015	9:21:15	2.02	0.61				
run7	6/24/2015	9:21:30	2.04	0.58				
run7	6/24/2015	9:21:45	2.12	0.54				
run7	6/24/2015	9:22:00	2.14	0.52				
run7	6/24/2015	9:22:15	2.20	0.51				
run7	6/24/2015	9:22:30	2.25	0.51				
run7	6/24/2015	9:22:45	2.28	0.50				
run7	6/24/2015	9:23:00	2.18	0.49				
run7	6/24/2015	9:23:15	2.22	0.49				
run7	6/24/2015	9:23:30	2.20	0.49				
run7	6/24/2015	9:23:45	2.19	0.47				
run7	6/24/2015	9:24:00	2.16	0.45				
run7	6/24/2015	9:24:15	2.11	0.45				
run7	6/24/2015	9:24:30	1.99	0.45				
run7	6/24/2015	9:24:45	1.79	0.45				
run7	6/24/2015	9:25:00	1.69	0.45				
averun7	6/24/2015	8:25:00	1.26	0.42		60		
scg2	6/24/2015	9:25:15	1.63	0.45	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	9:25:30	1.45	0.45	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	9:25:45	1.33	0.44	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	9:26:00	1.19	0.44	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	9:26:15	1.06	0.44	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	9:26:30	0.85	0.44	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	9:26:45	0.46	0.43	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	9:27:00	0.18	0.43	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	9:27:15	-0.03	0.42	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	9:27:30	-0.09	0.40	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	9:27:45	-0.20	0.42	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	9:28:00	-0.17	0.42	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	9:28:15	-0.14	0.42	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	9:28:30	-0.13	0.40	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	9:28:45	-0.16	0.39	ALM059355/cg2	NOx	96.8	0
o2zero1	6/24/2015	9:28:30	-0.13	0.40	ALM059355/cg2	NOx	96.8	0
co2zero1	6/24/2015	9:28:30	-0.13	0.40	ALM059355/cg2	NOx	96.8	0
cozero1	6/24/2015	9:28:30	-0.13	0.40	ALM059355/cg2	NOx	96.8	0
noxspan1	6/24/2015	9:28:30	-0.13	0.40	ALM059355/cg2	NOx	96.8	0
scg9	6/24/2015	9:29:00	-0.19	0.39	LL23441/cg9	CO	5.13	0

scg9	6/24/2015	9:29:15	-0.13	0.39	LL23441/cg9	CO	5.13		0
scg9	6/24/2015	9:29:30	-0.12	0.38	LL23441/cg9	CO	5.13		0
scg9	6/24/2015	9:29:45	-0.20	0.37	LL23441/cg9	CO	5.13		0
scg9	6/24/2015	9:30:00	-0.11	0.42	LL23441/cg9	CO	5.13		0
scg9	6/24/2015	9:30:15	0.57	0.48	LL23441/cg9	CO	5.13		0
scg9	6/24/2015	9:30:30	1.87	0.47	LL23441/cg9	CO	5.13		0
scg9	6/24/2015	9:30:45	3.37	0.46	LL23441/cg9	CO	5.13		0
scg9	6/24/2015	9:31:00	4.23	0.44	LL23441/cg9	CO	5.13		0
scg9	6/24/2015	9:31:15	4.77	0.42	LL23441/cg9	CO	5.13		0
scg9	6/24/2015	9:31:30	4.97	0.46	LL23441/cg9	CO	5.13		0
scg9	6/24/2015	9:31:45	4.97	0.56	LL23441/cg9	CO	5.13		0
scg9	6/24/2015	9:32:00	5.08	0.53	LL23441/cg9	CO	5.13		0
scg9	6/24/2015	9:32:15	5.14	0.50	LL23441/cg9	CO	5.13		0
scg9	6/24/2015	9:32:30	5.20	0.52	LL23441/cg9	CO	5.13		0
noxzero1	6/24/2015	9:32:30	5.20	0.52	LL23441/cg9	CO	5.13		0
cospan1	6/24/2015	9:32:30	5.20	0.52	LL23441/cg9	CO	5.13		0
scg10	6/24/2015	9:33:00	5.21	0.50	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	9:33:15	5.24	0.48	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	9:33:30	5.22	0.48	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	9:33:45	5.25	0.47	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	9:34:00	4.93	0.59	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	9:34:15	3.58	1.07	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	9:34:30	1.83	1.11	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	9:34:45	0.40	1.23	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	9:35:00	-0.17	1.27	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	9:35:15	-0.23	0.55	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	9:35:30	-0.23	0.49	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	9:35:45	-0.23	0.43	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	9:36:00	-0.23	0.40	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	9:36:15	-0.23	0.39	ALM008899/cg10	O2	11.06	CO2	11.16
o2span1	6/24/2015	9:36:15	-0.23	0.39	ALM008899/cg10	O2	11.06	CO2	11.16
co2span1	6/24/2015	9:36:15	-0.23	0.39	ALM008899/cg10	O2	11.06	CO2	11.16
scg1	6/24/2015	9:37:00	-0.23	0.34	CC429811/cg1	N2	0		0
scg1	6/24/2015	9:37:15	-0.23	0.46	CC429811/cg1	N2	0		0
scg1	6/24/2015	9:37:30	-0.23	0.53	CC429811/cg1	N2	0		0
scg1	6/24/2015	9:37:45	-0.23	0.47	CC429811/cg1	N2	0		0
scg1	6/24/2015	9:38:00	-0.23	0.43	CC429811/cg1	N2	0		0
scg1	6/24/2015	9:38:15	-0.20	0.40	CC429811/cg1	N2	0		0
scg1	6/24/2015	9:38:30	-0.02	0.38	CC429811/cg1	N2	0		0
scg1	6/24/2015	9:38:45	0.14	0.36	CC429811/cg1	N2	0		0
scg1	6/24/2015	9:39:00	0.23	0.07	CC429811/cg1	N2	0		0
scg1	6/24/2015	9:39:15	0.32	-0.04	CC429811/cg1	N2	0		0
scg1	6/24/2015	9:39:30	0.44	-0.05	CC429811/cg1	N2	0		0
scg1	6/24/2015	9:39:45	0.40	-0.04	CC429811/cg1	N2	0		0
scg1	6/24/2015	9:40:00	0.43	-0.06	CC429811/cg1	N2	0		0
scg1	6/24/2015	9:40:15	0.36	-0.05	CC429811/cg1	N2	0		0
scg1	6/24/2015	9:40:30	0.40	-0.06	CC429811/cg1	N2	0		0
thczero1	6/24/2015	9:39:45	0.40	-0.04	CC429811/cg1	N2	0		0
scg6	6/24/2015	9:40:45	0.37	-0.07	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	9:41:00	0.40	-0.07	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	9:41:15	0.34	-0.08	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	9:41:30	0.35	-0.11	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	9:41:45	0.41	-0.11	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	9:42:00	0.44	-0.11	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	9:42:15	0.44	-0.13	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	9:42:30	0.43	0.16	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	9:42:45	0.39	0.97	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	9:43:00	0.30	1.29	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	9:43:15	0.25	4.39	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	9:43:30	0.35	4.81	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	9:43:45	0.34	4.82	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	9:44:00	0.31	4.83	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	9:44:15	0.33	4.94	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	9:44:30	0.32	5.07	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	9:44:45	0.32	5.07	ALM02298/cg6	THC	5.08		0
thcspan1	6/24/2015	9:44:45	0.32	5.07	ALM02298/cg6	THC	5.08		0

run8	6/24/2015	10:05:00	0.97	-0.02
run8	6/24/2015	10:05:15	1.01	-0.02
run8	6/24/2015	10:05:30	1.02	-0.02
run8	6/24/2015	10:05:45	0.95	-0.04
run8	6/24/2015	10:06:00	0.98	-0.04
run8	6/24/2015	10:06:15	1.07	-0.03
run8	6/24/2015	10:06:30	1.01	-0.02
run8	6/24/2015	10:06:45	1.02	-0.03
run8	6/24/2015	10:07:00	1.10	-0.03
run8	6/24/2015	10:07:15	1.19	-0.03
run8	6/24/2015	10:07:30	1.15	-0.03
run8	6/24/2015	10:07:45	1.01	-0.04
run8	6/24/2015	10:08:00	0.81	-0.05
run8	6/24/2015	10:08:15	0.62	-0.05
run8	6/24/2015	10:08:30	0.60	-0.05
run8	6/24/2015	10:08:45	0.57	-0.05
run8	6/24/2015	10:09:00	0.50	-0.05
run8	6/24/2015	10:09:15	0.44	-0.05
run8	6/24/2015	10:09:30	0.30	-0.05
run8	6/24/2015	10:09:45	0.13	-0.05
run8	6/24/2015	10:10:00	0.05	-0.03
run8	6/24/2015	10:10:15	0.06	-0.05
run8	6/24/2015	10:10:30	0.08	-0.06
run8	6/24/2015	10:10:45	0.07	-0.06
run8	6/24/2015	10:11:00	-0.02	-0.05
run8	6/24/2015	10:11:15	-0.11	-0.04
run8	6/24/2015	10:11:30	-0.18	-0.06
run8	6/24/2015	10:11:45	-0.09	-0.06
run8	6/24/2015	10:12:00	-0.20	-0.06
run8	6/24/2015	10:12:15	-0.23	-0.06
run8	6/24/2015	10:12:30	-0.23	-0.06
run8	6/24/2015	10:12:45	-0.23	-0.06
run8	6/24/2015	10:13:00	-0.23	-0.06
run8	6/24/2015	10:13:15	-0.23	-0.06
run8	6/24/2015	10:13:30	-0.23	-0.06
run8	6/24/2015	10:13:45	-0.21	-0.04
run8	6/24/2015	10:14:00	-0.16	-0.04
run8	6/24/2015	10:14:15	-0.09	-0.04
run8	6/24/2015	10:14:30	-0.07	-0.04
run8	6/24/2015	10:14:45	0.01	-0.04
run8	6/24/2015	10:15:00	0.04	-0.06
run8	6/24/2015	10:15:15	0.03	-0.07
run8	6/24/2015	10:15:30	0.11	-0.07
run8	6/24/2015	10:15:45	0.12	-0.05
run8	6/24/2015	10:16:00	0.11	-0.05
run8	6/24/2015	10:16:15	0.13	-0.05
run8	6/24/2015	10:16:30	0.13	-0.06
run8	6/24/2015	10:16:45	0.19	-0.06
run8	6/24/2015	10:17:00	0.15	-0.05
run8	6/24/2015	10:17:15	0.19	-0.05
run8	6/24/2015	10:17:30	0.17	-0.05
run8	6/24/2015	10:17:45	0.21	-0.05
run8	6/24/2015	10:18:00	0.15	-0.06
run8	6/24/2015	10:18:15	0.19	-0.06
run8	6/24/2015	10:18:30	0.15	-0.06
run8	6/24/2015	10:18:45	0.13	-0.06
run8	6/24/2015	10:19:00	0.16	-0.06
run8	6/24/2015	10:19:15	0.13	-0.06
run8	6/24/2015	10:19:30	0.13	-0.05
run8	6/24/2015	10:19:45	0.14	-0.05
run8	6/24/2015	10:20:00	0.15	-0.06
run8	6/24/2015	10:20:15	0.09	-0.06
run8	6/24/2015	10:20:30	0.10	-0.06
run8	6/24/2015	10:20:45	0.10	-0.05
run8	6/24/2015	10:21:00	0.10	-0.05
run8	6/24/2015	10:21:15	0.17	-0.06

run8	6/24/2015	10:21:30	0.20	-0.05
run8	6/24/2015	10:21:45	0.25	-0.05
run8	6/24/2015	10:22:00	0.27	-0.06
run8	6/24/2015	10:22:15	0.26	-0.04
run8	6/24/2015	10:22:30	0.23	-0.03
run8	6/24/2015	10:22:45	0.26	-0.03
run8	6/24/2015	10:23:00	0.31	-0.03
run8	6/24/2015	10:23:15	0.25	-0.04
run8	6/24/2015	10:23:30	0.23	-0.04
run8	6/24/2015	10:23:45	0.20	-0.04
run8	6/24/2015	10:24:00	0.17	-0.04
run8	6/24/2015	10:24:15	0.06	-0.05
run8	6/24/2015	10:24:30	-0.01	-0.06
run8	6/24/2015	10:24:45	-0.13	-0.07
run8	6/24/2015	10:25:00	-0.09	-0.06
run8	6/24/2015	10:25:15	-0.15	-0.06
run8	6/24/2015	10:25:30	-0.14	-0.06
run8	6/24/2015	10:25:45	-0.17	-0.07
run8	6/24/2015	10:26:00	-0.14	-0.08
run8	6/24/2015	10:26:15	-0.10	-0.09
run8	6/24/2015	10:26:30	-0.16	-0.07
run8	6/24/2015	10:26:45	-0.21	-0.06
run8	6/24/2015	10:27:00	-0.23	-0.07
run8	6/24/2015	10:27:15	-0.22	-0.08
run8	6/24/2015	10:27:30	-0.21	-0.07
run8	6/24/2015	10:27:45	-0.20	-0.07
run8	6/24/2015	10:28:00	-0.17	-0.06
run8	6/24/2015	10:28:15	-0.13	-0.06
run8	6/24/2015	10:28:30	-0.12	-0.08
run8	6/24/2015	10:28:45	-0.10	-0.08
run8	6/24/2015	10:29:00	-0.01	-0.07
run8	6/24/2015	10:29:15	0.01	-0.09
run8	6/24/2015	10:29:30	-0.07	-0.10
run8	6/24/2015	10:29:45	-0.06	-0.09
run8	6/24/2015	10:30:00	-0.06	-0.09
run8	6/24/2015	10:30:15	0.02	-0.09
run8	6/24/2015	10:30:30	-0.07	-0.09
run8	6/24/2015	10:30:45	-0.03	-0.10
run8	6/24/2015	10:31:00	-0.01	-0.09
run8	6/24/2015	10:31:15	-0.06	-0.05
run8	6/24/2015	10:31:30	-0.08	0.01
run8	6/24/2015	10:31:45	-0.07	0.02
run8	6/24/2015	10:32:00	-0.15	0.01
run8	6/24/2015	10:32:15	-0.11	0.00
run8	6/24/2015	10:32:30	-0.14	-0.02
run8	6/24/2015	10:32:45	-0.09	-0.03
run8	6/24/2015	10:33:00	-0.20	-0.04
run8	6/24/2015	10:33:15	-0.13	-0.05
run8	6/24/2015	10:33:30	-0.16	-0.06
run8	6/24/2015	10:33:45	-0.11	-0.06
run8	6/24/2015	10:34:00	-0.17	-0.07
run8	6/24/2015	10:34:15	-0.12	-0.06
run8	6/24/2015	10:34:30	-0.10	-0.07
run8	6/24/2015	10:34:45	-0.12	-0.08
run8	6/24/2015	10:35:00	-0.15	-0.06
run8	6/24/2015	10:35:15	-0.17	-0.07
run8	6/24/2015	10:35:30	-0.06	-0.08
run8	6/24/2015	10:35:45	-0.10	-0.09
run8	6/24/2015	10:36:00	-0.06	-0.09
run8	6/24/2015	10:36:15	-0.05	-0.09
run8	6/24/2015	10:36:30	0.08	-0.10
run8	6/24/2015	10:36:45	0.21	-0.09
run8	6/24/2015	10:37:00	0.28	-0.09
run8	6/24/2015	10:37:15	0.30	-0.10
run8	6/24/2015	10:37:30	0.37	-0.11
run8	6/24/2015	10:37:45	0.32	-0.11

run8	6/24/2015	10:38:00	0.18	-0.10
run8	6/24/2015	10:38:15	0.10	-0.11
run8	6/24/2015	10:38:30	0.01	-0.10
run8	6/24/2015	10:38:45	-0.06	-0.11
run8	6/24/2015	10:39:00	-0.04	-0.10
run8	6/24/2015	10:39:15	-0.11	-0.09
run8	6/24/2015	10:39:30	-0.08	-0.10
run8	6/24/2015	10:39:45	-0.09	-0.10
run8	6/24/2015	10:40:00	-0.10	-0.10
run8	6/24/2015	10:40:15	-0.20	-0.11
run8	6/24/2015	10:40:30	-0.17	-0.10
run8	6/24/2015	10:40:45	-0.14	-0.09
run8	6/24/2015	10:41:00	-0.21	-0.10
run8	6/24/2015	10:41:15	-0.21	-0.10
run8	6/24/2015	10:41:30	-0.22	-0.10
run8	6/24/2015	10:41:45	-0.19	-0.09
run8	6/24/2015	10:42:00	-0.22	-0.08
run8	6/24/2015	10:42:15	-0.23	-0.08
run8	6/24/2015	10:42:30	-0.23	-0.08
run8	6/24/2015	10:42:45	-0.23	-0.09
run8	6/24/2015	10:43:00	-0.21	-0.09
run8	6/24/2015	10:43:15	-0.20	-0.09
run8	6/24/2015	10:43:30	-0.23	-0.10
run8	6/24/2015	10:43:45	-0.20	-0.11
run8	6/24/2015	10:44:00	-0.19	-0.10
run8	6/24/2015	10:44:15	-0.15	-0.09
run8	6/24/2015	10:44:30	-0.14	-0.09
run8	6/24/2015	10:44:45	-0.08	-0.08
run8	6/24/2015	10:45:00	-0.09	-0.06
run8	6/24/2015	10:45:15	-0.08	-0.03
run8	6/24/2015	10:45:30	-0.08	-0.04
run8	6/24/2015	10:45:45	-0.09	-0.05
run8	6/24/2015	10:46:00	0.02	-0.05
run8	6/24/2015	10:46:15	-0.04	-0.08
run8	6/24/2015	10:46:30	-0.05	-0.08
run8	6/24/2015	10:46:45	-0.02	0.01
run8	6/24/2015	10:47:00	0.02	0.16
run8	6/24/2015	10:47:15	0.02	0.14
run8	6/24/2015	10:47:30	-0.04	0.09
run8	6/24/2015	10:47:45	-0.02	0.07
run8	6/24/2015	10:48:00	-0.07	0.04
run8	6/24/2015	10:48:15	-0.01	0.01
run8	6/24/2015	10:48:30	0.00	-0.02
run8	6/24/2015	10:48:45	-0.04	-0.02
run8	6/24/2015	10:49:00	-0.07	-0.02
run8	6/24/2015	10:49:15	-0.03	-0.03
run8	6/24/2015	10:49:30	-0.10	-0.03
run8	6/24/2015	10:49:45	-0.10	-0.05
run8	6/24/2015	10:50:00	-0.09	-0.06
run8	6/24/2015	10:50:15	-0.08	-0.07
run8	6/24/2015	10:50:30	-0.02	-0.07
run8	6/24/2015	10:50:45	-0.08	-0.08
run8	6/24/2015	10:51:00	-0.14	-0.07
run8	6/24/2015	10:51:15	-0.07	-0.06
run8	6/24/2015	10:51:30	-0.05	-0.06
run8	6/24/2015	10:51:45	-0.02	-0.06
run8	6/24/2015	10:52:00	0.04	-0.06
run8	6/24/2015	10:52:15	0.09	-0.06
run8	6/24/2015	10:52:30	0.16	-0.07
run8	6/24/2015	10:52:45	0.16	-0.07
run8	6/24/2015	10:53:00	0.21	-0.08
run8	6/24/2015	10:53:15	0.27	-0.07
run8	6/24/2015	10:53:30	0.31	-0.07
run8	6/24/2015	10:53:45	0.27	-0.07
run8	6/24/2015	10:54:00	0.07	-0.07
run8	6/24/2015	10:54:15	0.07	-0.07

run8	6/24/2015	10:54:30	-0.05	-0.03				
run8	6/24/2015	10:54:45	-0.02	0.04				
run8	6/24/2015	10:55:00	-0.12	0.03				
run8	6/24/2015	10:55:15	-0.15	0.00				
run8	6/24/2015	10:55:30	-0.16	-0.02				
run8	6/24/2015	10:55:45	-0.20	-0.02				
run8	6/24/2015	10:56:00	-0.23	-0.02				
run8	6/24/2015	10:56:15	-0.23	-0.02				
run8	6/24/2015	10:56:30	-0.23	-0.02				
run8	6/24/2015	10:56:45	-0.23	-0.02				
run8	6/24/2015	10:57:00	-0.23	-0.03				
run8	6/24/2015	10:57:15	-0.23	-0.04				
run8	6/24/2015	10:57:30	-0.23	-0.06				
run8	6/24/2015	10:57:45	-0.23	-0.05				
run8	6/24/2015	10:58:00	-0.23	-0.05				
run8	6/24/2015	10:58:15	-0.23	-0.06				
run8	6/24/2015	10:58:30	-0.23	-0.05				
run8	6/24/2015	10:58:45	-0.21	-0.06				
run8	6/24/2015	10:59:00	-0.15	-0.06				
run8	6/24/2015	10:59:15	-0.12	-0.06				
run8	6/24/2015	10:59:30	-0.10	-0.07				
run8	6/24/2015	10:59:45	-0.08	-0.06				
run8	6/24/2015	11:00:00	-0.04	-0.06				
run8	6/24/2015	11:00:15	-0.03	-0.06				
run8	6/24/2015	11:00:30	0.02	-0.06				
run8	6/24/2015	11:00:45	0.08	-0.07				
run8	6/24/2015	11:01:00	0.03	-0.08				
run8	6/24/2015	11:01:15	0.04	-0.06				
run8	6/24/2015	11:01:30	0.00	-0.05				
run8	6/24/2015	11:01:45	0.00	-0.06				
run8	6/24/2015	11:02:00	0.06	-0.07				
run8	6/24/2015	11:02:15	-0.01	-0.08				
run8	6/24/2015	11:02:30	0.01	-0.09				
run8	6/24/2015	11:02:45	0.06	-0.09				
run8	6/24/2015	11:03:00	0.05	-0.09				
run8	6/24/2015	11:03:15	0.11	-0.06				
run8	6/24/2015	11:03:30	0.04	0.00				
run8	6/24/2015	11:03:45	0.02	0.03				
run8	6/24/2015	11:04:00	0.05	0.01				
run8	6/24/2015	11:04:15	0.08	-0.01				
run8	6/24/2015	11:04:30	0.07	-0.03				
run8	6/24/2015	11:04:45	0.00	-0.03				
averun8	6/24/2015	10:05:00	0.04	-0.06		60		
scg2	6/24/2015	11:05:00	0.01	-0.04	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	11:05:15	0.05	-0.05	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	11:05:30	0.00	-0.06	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	11:05:45	-0.03	-0.07	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	11:06:00	0.02	-0.06	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	11:06:15	-0.08	-0.04	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	11:06:30	-0.13	-0.04	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	11:06:45	-0.15	-0.06	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	11:07:00	-0.22	-0.06	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	11:07:15	-0.22	-0.05	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	11:07:30	-0.23	-0.05	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	11:07:45	-0.23	-0.06	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	11:08:00	-0.07	-0.07	ALM059355/cg2	NOx	96.8	0
scg2	6/24/2015	11:08:15	0.03	-0.08	ALM059355/cg2	NOx	96.8	0
o2zero1	6/24/2015	11:08:15	0.03	-0.08	ALM059355/cg2	NOx	96.8	0
co2zero1	6/24/2015	11:08:15	0.03	-0.08	ALM059355/cg2	NOx	96.8	0
cozero1	6/24/2015	11:08:15	0.03	-0.08	ALM059355/cg2	NOx	96.8	0
noxspan1	6/24/2015	11:08:15	0.03	-0.08	ALM059355/cg2	NOx	96.8	0
scg9	6/24/2015	11:08:30	0.10	-0.07	LL23441/cg9	CO	5.13	0
scg9	6/24/2015	11:08:45	0.04	-0.08	LL23441/cg9	CO	5.13	0
scg9	6/24/2015	11:09:00	0.02	-0.09	LL23441/cg9	CO	5.13	0
scg9	6/24/2015	11:09:15	0.03	-0.09	LL23441/cg9	CO	5.13	0
scg9	6/24/2015	11:09:30	0.10	-0.09	LL23441/cg9	CO	5.13	0

scg9	6/24/2015	11:09:45	0.21	-0.09	LL23441/cg9	CO	5.13		0
scg9	6/24/2015	11:10:00	1.19	-0.08	LL23441/cg9	CO	5.13		0
scg9	6/24/2015	11:10:15	2.60	-0.02	LL23441/cg9	CO	5.13		0
scg9	6/24/2015	11:10:30	4.13	0.00	LL23441/cg9	CO	5.13		0
scg9	6/24/2015	11:10:45	4.77	-0.01	LL23441/cg9	CO	5.13		0
scg9	6/24/2015	11:11:00	5.09	-0.03	LL23441/cg9	CO	5.13		0
scg9	6/24/2015	11:11:15	5.28	-0.04	LL23441/cg9	CO	5.13		0
scg9	6/24/2015	11:11:30	5.30	-0.05	LL23441/cg9	CO	5.13		0
scg9	6/24/2015	11:11:45	5.14	-0.05	LL23441/cg9	CO	5.13		0
scg9	6/24/2015	11:12:00	5.15	-0.05	LL23441/cg9	CO	5.13		0
scg9	6/24/2015	11:12:15	5.15	0.32	LL23441/cg9	CO	5.13		0
noxzero1	6/24/2015	11:12:15	5.15	0.32	LL23441/cg9	CO	5.13		0
cospan1	6/24/2015	11:12:15	5.15	0.32	LL23441/cg9	CO	5.13		0
scg10	6/24/2015	11:12:45	5.20	0.66	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	11:13:00	5.14	0.86	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	11:13:15	5.18	0.80	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	11:13:30	5.24	0.75	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	11:13:45	4.88	0.79	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	11:14:00	3.68	1.17	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	11:14:15	2.14	1.25	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	11:14:30	0.62	0.97	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	11:14:45	0.00	1.54	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	11:15:00	-0.23	0.89	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	11:15:15	-0.23	0.78	ALM008899/cg10	O2	11.06	CO2	11.16
o2span1	6/24/2015	11:15:15	-0.23	0.78	ALM008899/cg10	O2	11.06	CO2	11.16
co2span1	6/24/2015	11:15:15	-0.23	0.78	ALM008899/cg10	O2	11.06	CO2	11.16
scg6	6/24/2015	11:15:30	-0.23	0.99	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	11:15:45	-0.23	0.97	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	11:16:00	-0.23	0.77	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	11:16:15	-0.23	0.94	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	11:16:30	-0.23	0.83	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	11:16:45	-0.23	1.15	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	11:17:00	-0.23	1.31	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	11:17:15	-0.01	4.14	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	11:17:30	0.16	4.94	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	11:17:45	0.34	4.97	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	11:18:00	0.47	4.97	ALM02298/cg6	THC	5.08		0
thcspan1	6/24/2015	11:18:00	0.47	4.97	ALM02298/cg6	THC	5.08		0
scg1	6/24/2015	11:19:15	0.48	4.91	CC429811/cg1	N2	0		0
scg1	6/24/2015	11:19:30	0.47	4.91	CC429811/cg1	N2	0		0
scg1	6/24/2015	11:19:45	0.58	4.91	CC429811/cg1	N2	0		0
scg1	6/24/2015	11:20:00	0.63	4.27	CC429811/cg1	N2	0		0
scg1	6/24/2015	11:20:15	0.61	1.20	CC429811/cg1	N2	0		0
scg1	6/24/2015	11:20:30	0.63	0.93	CC429811/cg1	N2	0		0
scg1	6/24/2015	11:20:45	0.62	1.27	CC429811/cg1	N2	0		0
scg1	6/24/2015	11:21:00	0.66	-0.10	CC429811/cg1	N2	0		0
scg1	6/24/2015	11:21:15	0.68	-0.22	CC429811/cg1	N2	0		0
scg1	6/24/2015	11:21:30	0.66	-0.08	CC429811/cg1	N2	0		0
scg1	6/24/2015	11:21:45	0.56	-0.08	CC429811/cg1	N2	0		0
scg1	6/24/2015	11:22:00	0.58	-0.09	CC429811/cg1	N2	0		0
scg1	6/24/2015	11:22:15	0.59	-0.10	CC429811/cg1	N2	0		0
thczero1	6/24/2015	11:22:15	0.59	-0.10	CC429811/cg1	N2	0		0
run9	6/24/2015	11:35:00	1.18	0.08					
run9	6/24/2015	11:35:15	1.20	0.06					
run9	6/24/2015	11:35:30	1.17	0.06					
run9	6/24/2015	11:35:45	1.18	0.07					
run9	6/24/2015	11:36:00	1.22	0.07					
run9	6/24/2015	11:36:15	1.13	0.06					
run9	6/24/2015	11:36:30	1.04	0.06					
run9	6/24/2015	11:36:45	1.00	0.06					
run9	6/24/2015	11:37:00	0.88	0.06					
run9	6/24/2015	11:37:15	0.77	0.04					
run9	6/24/2015	11:37:30	0.78	0.05					
run9	6/24/2015	11:37:45	0.71	0.04					
run9	6/24/2015	11:38:00	0.66	0.05					
run9	6/24/2015	11:38:15	0.58	0.06					

run9	6/24/2015	11:38:30	0.59	0.07
run9	6/24/2015	11:38:45	0.59	0.06
run9	6/24/2015	11:39:00	0.57	0.06
run9	6/24/2015	11:39:15	0.53	0.06
run9	6/24/2015	11:39:30	0.53	0.06
run9	6/24/2015	11:39:45	0.57	0.05
run9	6/24/2015	11:40:00	0.44	0.04
run9	6/24/2015	11:40:15	0.23	0.04
run9	6/24/2015	11:40:30	0.10	0.05
run9	6/24/2015	11:40:45	0.03	0.06
run9	6/24/2015	11:41:00	0.02	0.05
run9	6/24/2015	11:41:15	0.01	0.05
run9	6/24/2015	11:41:30	-0.02	0.06
run9	6/24/2015	11:41:45	-0.07	0.07
run9	6/24/2015	11:42:00	-0.13	0.06
run9	6/24/2015	11:42:15	-0.12	0.05
run9	6/24/2015	11:42:30	-0.20	0.05
run9	6/24/2015	11:42:45	-0.19	0.05
run9	6/24/2015	11:43:00	-0.19	0.05
run9	6/24/2015	11:43:15	-0.14	0.06
run9	6/24/2015	11:43:30	-0.16	0.06
run9	6/24/2015	11:43:45	-0.20	0.05
run9	6/24/2015	11:44:00	-0.15	0.07
run9	6/24/2015	11:44:15	-0.15	0.07
run9	6/24/2015	11:44:30	-0.12	0.08
run9	6/24/2015	11:44:45	-0.10	0.08
run9	6/24/2015	11:45:00	-0.14	0.07
run9	6/24/2015	11:45:15	-0.08	0.05
run9	6/24/2015	11:45:30	-0.05	0.04
run9	6/24/2015	11:45:45	-0.08	0.05
run9	6/24/2015	11:46:00	-0.05	0.06
run9	6/24/2015	11:46:15	-0.02	0.05
run9	6/24/2015	11:46:30	-0.01	0.05
run9	6/24/2015	11:46:45	-0.02	0.05
run9	6/24/2015	11:47:00	0.04	0.04
run9	6/24/2015	11:47:15	0.04	0.05
run9	6/24/2015	11:47:30	0.04	0.06
run9	6/24/2015	11:47:45	0.07	0.07
run9	6/24/2015	11:48:00	0.06	0.05
run9	6/24/2015	11:48:15	0.08	0.04
run9	6/24/2015	11:48:30	0.07	0.05
run9	6/24/2015	11:48:45	0.05	0.06
run9	6/24/2015	11:49:00	0.06	0.06
run9	6/24/2015	11:49:15	0.07	0.06
run9	6/24/2015	11:49:30	0.08	0.07
run9	6/24/2015	11:49:45	0.08	0.07
run9	6/24/2015	11:50:00	0.09	0.07
run9	6/24/2015	11:50:15	0.08	0.07
run9	6/24/2015	11:50:30	0.06	0.06
run9	6/24/2015	11:50:45	0.09	0.05
run9	6/24/2015	11:51:00	0.10	0.05
run9	6/24/2015	11:51:15	0.09	0.05
run9	6/24/2015	11:51:30	0.01	0.05
run9	6/24/2015	11:51:45	0.06	0.05
run9	6/24/2015	11:52:00	0.15	0.06
run9	6/24/2015	11:52:15	0.23	0.06
run9	6/24/2015	11:52:30	0.26	0.07
run9	6/24/2015	11:52:45	0.30	0.07
run9	6/24/2015	11:53:00	0.30	0.08
run9	6/24/2015	11:53:15	0.31	0.07
run9	6/24/2015	11:53:30	0.22	0.07
run9	6/24/2015	11:53:45	0.17	0.06
run9	6/24/2015	11:54:00	0.07	0.05
run9	6/24/2015	11:54:15	0.05	0.08
run9	6/24/2015	11:54:30	0.01	0.08
run9	6/24/2015	11:54:45	0.04	0.08

run9	6/24/2015	11:55:00	0.02	0.08
run9	6/24/2015	11:55:15	-0.10	0.07
run9	6/24/2015	11:55:30	-0.01	0.07
run9	6/24/2015	11:55:45	-0.08	0.07
run9	6/24/2015	11:56:00	-0.11	0.07
run9	6/24/2015	11:56:15	-0.12	0.06
run9	6/24/2015	11:56:30	-0.13	0.06
run9	6/24/2015	11:56:45	-0.20	0.05
run9	6/24/2015	11:57:00	-0.18	0.06
run9	6/24/2015	11:57:15	-0.16	0.07
run9	6/24/2015	11:57:30	-0.18	0.06
run9	6/24/2015	11:57:45	-0.11	0.06
run9	6/24/2015	11:58:00	-0.09	0.06
run9	6/24/2015	11:58:15	-0.10	0.06
run9	6/24/2015	11:58:30	-0.09	0.06
run9	6/24/2015	11:58:45	-0.09	0.03
run9	6/24/2015	11:59:00	-0.07	0.04
run9	6/24/2015	11:59:15	-0.06	0.05
run9	6/24/2015	11:59:30	-0.06	0.06
run9	6/24/2015	11:59:45	0.01	0.06
run9	6/24/2015	12:00:00	0.02	0.06
run9	6/24/2015	12:00:15	0.00	0.06
run9	6/24/2015	12:00:30	0.00	0.06
run9	6/24/2015	12:00:45	0.01	0.06
run9	6/24/2015	12:01:00	0.06	0.06
run9	6/24/2015	12:01:15	0.10	0.05
run9	6/24/2015	12:01:30	0.09	0.05
run9	6/24/2015	12:01:45	0.05	0.06
run9	6/24/2015	12:02:00	0.03	0.07
run9	6/24/2015	12:02:15	0.04	0.08
run9	6/24/2015	12:02:30	0.08	0.06
run9	6/24/2015	12:02:45	0.07	0.06
run9	6/24/2015	12:03:00	0.06	0.06
run9	6/24/2015	12:03:15	0.07	0.05
run9	6/24/2015	12:03:30	0.09	0.05
run9	6/24/2015	12:03:45	0.13	0.07
run9	6/24/2015	12:04:00	0.11	0.07
run9	6/24/2015	12:04:15	0.12	0.07
run9	6/24/2015	12:04:30	0.16	0.06
run9	6/24/2015	12:04:45	0.20	0.06
run9	6/24/2015	12:05:00	0.18	0.05
run9	6/24/2015	12:05:15	0.16	0.05
run9	6/24/2015	12:05:30	0.15	0.06
run9	6/24/2015	12:05:45	0.18	0.06
run9	6/24/2015	12:06:00	0.12	0.06
run9	6/24/2015	12:06:15	0.14	0.05
run9	6/24/2015	12:06:30	0.11	0.05
run9	6/24/2015	12:06:45	0.17	0.05
run9	6/24/2015	12:07:00	0.12	0.05
run9	6/24/2015	12:07:15	0.14	0.05
run9	6/24/2015	12:07:30	0.14	0.05
run9	6/24/2015	12:07:45	0.30	0.07
run9	6/24/2015	12:08:00	0.33	0.06
run9	6/24/2015	12:08:15	0.39	0.06
run9	6/24/2015	12:08:30	0.26	0.05
run9	6/24/2015	12:08:45	0.26	0.04
run9	6/24/2015	12:09:00	0.18	0.04
run9	6/24/2015	12:09:15	0.16	0.06
run9	6/24/2015	12:09:30	0.15	0.06
run9	6/24/2015	12:09:45	0.06	0.06
run9	6/24/2015	12:10:00	0.07	0.07
run9	6/24/2015	12:10:15	0.09	0.07
run9	6/24/2015	12:10:30	0.04	0.06
run9	6/24/2015	12:10:45	-0.02	0.06
run9	6/24/2015	12:11:00	-0.08	0.05
run9	6/24/2015	12:11:15	-0.09	0.04

run9	6/24/2015	12:11:30	-0.08	0.05
run9	6/24/2015	12:11:45	-0.14	0.10
run9	6/24/2015	12:12:00	-0.14	0.14
run9	6/24/2015	12:12:15	-0.21	0.12
run9	6/24/2015	12:12:30	-0.21	0.11
run9	6/24/2015	12:12:45	-0.17	0.08
run9	6/24/2015	12:13:00	-0.18	0.08
run9	6/24/2015	12:13:15	-0.21	0.07
run9	6/24/2015	12:13:30	-0.19	0.07
run9	6/24/2015	12:13:45	-0.05	0.07
run9	6/24/2015	12:14:00	0.00	0.07
run9	6/24/2015	12:14:15	-0.02	0.06
run9	6/24/2015	12:14:30	0.00	0.04
run9	6/24/2015	12:14:45	0.02	0.04
run9	6/24/2015	12:15:00	0.12	0.05
run9	6/24/2015	12:15:15	0.05	0.07
run9	6/24/2015	12:15:30	0.08	0.06
run9	6/24/2015	12:15:45	0.10	0.05
run9	6/24/2015	12:16:00	0.09	0.03
run9	6/24/2015	12:16:15	0.18	0.04
run9	6/24/2015	12:16:30	0.17	0.05
run9	6/24/2015	12:16:45	0.19	0.04
run9	6/24/2015	12:17:00	0.24	0.04
run9	6/24/2015	12:17:15	0.23	0.04
run9	6/24/2015	12:17:30	0.26	0.04
run9	6/24/2015	12:17:45	0.21	0.04
run9	6/24/2015	12:18:00	0.24	0.03
run9	6/24/2015	12:18:15	0.24	0.04
run9	6/24/2015	12:18:30	0.23	0.04
run9	6/24/2015	12:18:45	0.26	0.05
run9	6/24/2015	12:19:00	0.22	0.04
run9	6/24/2015	12:19:15	0.22	0.04
run9	6/24/2015	12:19:30	0.18	0.05
run9	6/24/2015	12:19:45	0.21	0.04
run9	6/24/2015	12:20:00	0.28	0.03
run9	6/24/2015	12:20:15	0.21	0.03
run9	6/24/2015	12:20:30	0.18	0.03
run9	6/24/2015	12:20:45	0.18	0.03
run9	6/24/2015	12:21:00	0.21	0.03
run9	6/24/2015	12:21:15	0.28	0.04
run9	6/24/2015	12:21:30	0.24	0.03
run9	6/24/2015	12:21:45	0.25	0.03
run9	6/24/2015	12:22:00	0.20	0.03
run9	6/24/2015	12:22:15	0.29	0.03
run9	6/24/2015	12:22:30	0.34	0.03
run9	6/24/2015	12:22:45	0.31	0.04
run9	6/24/2015	12:23:00	0.35	0.06
run9	6/24/2015	12:23:15	0.40	0.10
run9	6/24/2015	12:23:30	0.36	0.18
run9	6/24/2015	12:23:45	0.27	0.18
run9	6/24/2015	12:24:00	0.21	0.14
run9	6/24/2015	12:24:15	0.10	0.13
run9	6/24/2015	12:24:30	0.06	0.10
run9	6/24/2015	12:24:45	-0.02	0.08
run9	6/24/2015	12:25:00	0.02	0.10
run9	6/24/2015	12:25:15	-0.05	0.08
run9	6/24/2015	12:25:30	-0.08	0.08
run9	6/24/2015	12:25:45	-0.10	0.08
run9	6/24/2015	12:26:00	-0.12	0.08
run9	6/24/2015	12:26:15	-0.11	0.07
run9	6/24/2015	12:26:30	-0.13	0.06
run9	6/24/2015	12:26:45	-0.16	0.06
run9	6/24/2015	12:27:00	-0.21	0.07
run9	6/24/2015	12:27:15	-0.23	0.08
run9	6/24/2015	12:27:30	-0.23	0.09
run9	6/24/2015	12:27:45	-0.20	0.10

run9	6/24/2015	12:28:00	-0.16	0.08					
run9	6/24/2015	12:28:15	-0.16	0.08					
run9	6/24/2015	12:28:30	-0.14	0.07					
run9	6/24/2015	12:28:45	-0.13	0.07					
run9	6/24/2015	12:29:00	-0.15	0.08					
run9	6/24/2015	12:29:15	-0.11	0.07					
run9	6/24/2015	12:29:30	-0.05	0.07					
run9	6/24/2015	12:29:45	-0.04	0.07					
run9	6/24/2015	12:30:00	0.05	0.08					
run9	6/24/2015	12:30:15	0.06	0.06					
run9	6/24/2015	12:30:30	-0.01	0.07					
run9	6/24/2015	12:30:45	0.01	0.06					
run9	6/24/2015	12:31:00	0.06	0.07					
run9	6/24/2015	12:31:15	0.14	0.08					
run9	6/24/2015	12:31:30	0.12	0.07					
run9	6/24/2015	12:31:45	0.16	0.08					
run9	6/24/2015	12:32:00	0.12	0.07					
run9	6/24/2015	12:32:15	0.16	0.06					
run9	6/24/2015	12:32:30	0.18	0.07					
run9	6/24/2015	12:32:45	0.25	0.07					
run9	6/24/2015	12:33:00	0.25	0.07					
run9	6/24/2015	12:33:15	0.23	0.07					
run9	6/24/2015	12:33:30	0.26	0.06					
run9	6/24/2015	12:33:45	0.26	0.06					
run9	6/24/2015	12:34:00	0.28	0.05					
run9	6/24/2015	12:34:15	0.26	0.06					
run9	6/24/2015	12:34:30	0.18	0.06					
run9	6/24/2015	12:34:45	0.20	0.04					
run9	6/24/2015	12:35:00	0.25	0.04					
averun9	6/24/2015	11:35:00	0.12	0.06		60			
scg2	6/24/2015	12:35:15	0.24	0.05	ALM059355/cg2	NOx	96.8	0	
scg2	6/24/2015	12:35:30	0.17	0.04	ALM059355/cg2	NOx	96.8	0	
scg2	6/24/2015	12:35:45	0.18	0.04	ALM059355/cg2	NOx	96.8	0	
scg2	6/24/2015	12:36:00	0.23	0.05	ALM059355/cg2	NOx	96.8	0	
scg2	6/24/2015	12:36:15	0.23	0.05	ALM059355/cg2	NOx	96.8	0	
scg2	6/24/2015	12:36:30	0.08	0.03	ALM059355/cg2	NOx	96.8	0	
scg2	6/24/2015	12:36:45	-0.02	0.02	ALM059355/cg2	NOx	96.8	0	
scg2	6/24/2015	12:37:00	-0.15	0.03	ALM059355/cg2	NOx	96.8	0	
scg2	6/24/2015	12:37:15	-0.17	0.04	ALM059355/cg2	NOx	96.8	0	
scg2	6/24/2015	12:37:30	-0.14	0.04	ALM059355/cg2	NOx	96.8	0	
scg2	6/24/2015	12:37:45	-0.18	0.02	ALM059355/cg2	NOx	96.8	0	
scg2	6/24/2015	12:38:00	-0.16	0.03	ALM059355/cg2	NOx	96.8	0	
scg2	6/24/2015	12:38:15	-0.12	0.04	ALM059355/cg2	NOx	96.8	0	
scg2	6/24/2015	12:38:30	-0.13	0.05	ALM059355/cg2	NOx	96.8	0	
scg2	6/24/2015	12:38:45	-0.11	0.03	ALM059355/cg2	NOx	96.8	0	
o2zero1	6/24/2015	12:38:45	-0.11	0.03	ALM059355/cg2	NOx	96.8	0	
co2zero1	6/24/2015	12:38:45	-0.11	0.03	ALM059355/cg2	NOx	96.8	0	
cozero1	6/24/2015	12:38:45	-0.11	0.03	ALM059355/cg2	NOx	96.8	0	
noxspan1	6/24/2015	12:38:45	-0.11	0.03	ALM059355/cg2	NOx	96.8	0	
scg9	6/24/2015	12:39:15	-0.11	0.02	LL23441/cg9	CO	5.13	0	
scg9	6/24/2015	12:39:30	-0.15	0.01	LL23441/cg9	CO	5.13	0	
scg9	6/24/2015	12:39:45	-0.10	0.03	LL23441/cg9	CO	5.13	0	
scg9	6/24/2015	12:40:00	-0.13	0.04	LL23441/cg9	CO	5.13	0	
scg9	6/24/2015	12:40:15	-0.01	0.04	LL23441/cg9	CO	5.13	0	
scg9	6/24/2015	12:40:30	0.88	0.04	LL23441/cg9	CO	5.13	0	
scg9	6/24/2015	12:40:45	2.40	0.04	LL23441/cg9	CO	5.13	0	
scg9	6/24/2015	12:41:00	3.58	0.04	LL23441/cg9	CO	5.13	0	
scg9	6/24/2015	12:41:15	4.43	0.04	LL23441/cg9	CO	5.13	0	
scg9	6/24/2015	12:41:30	4.66	0.04	LL23441/cg9	CO	5.13	0	
scg9	6/24/2015	12:41:45	4.87	0.04	LL23441/cg9	CO	5.13	0	
scg9	6/24/2015	12:42:00	4.83	0.03	LL23441/cg9	CO	5.13	0	
scg9	6/24/2015	12:42:15	4.98	0.03	LL23441/cg9	CO	5.13	0	
scg9	6/24/2015	12:42:30	5.05	0.03	LL23441/cg9	CO	5.13	0	
scg9	6/24/2015	12:42:45	5.13	0.04	LL23441/cg9	CO	5.13	0	
scg9	6/24/2015	12:43:00	5.13	0.04	LL23441/cg9	CO	5.13	0	
scg9	6/24/2015	12:43:15	5.06	0.03	LL23441/cg9	CO	5.13	0	

noxzero1	6/24/2015	12:43:15	5.06	0.03	LL23441/cg9	CO	5.13		0
cospan1	6/24/2015	12:43:15	5.06	0.03	LL23441/cg9	CO	5.13		0
scg10	6/24/2015	12:43:45	5.14	0.03	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	12:44:00	5.13	0.04	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	12:44:15	5.09	0.35	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	12:44:30	5.12	0.76	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	12:44:45	4.78	0.74	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	12:45:00	3.86	0.72	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	12:45:15	1.96	0.87	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	12:45:30	0.57	0.93	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	12:45:45	-0.14	0.91	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	12:46:00	-0.23	0.82	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	12:46:15	-0.23	0.85	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	12:46:30	-0.23	0.84	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	12:46:45	-0.23	0.96	ALM008899/cg10	O2	11.06	CO2	11.16
o2span1	6/24/2015	12:46:45	-0.23	0.96	ALM008899/cg10	O2	11.06	CO2	11.16
co2span1	6/24/2015	12:46:45	-0.23	0.96	ALM008899/cg10	O2	11.06	CO2	11.16
scg6	6/24/2015	12:47:00	-0.23	0.90	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	12:47:15	-0.23	1.06	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	12:47:30	-0.23	1.68	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	12:47:45	-0.23	1.77	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	12:48:00	-0.23	0.86	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	12:48:15	-0.23	0.79	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	12:48:30	-0.23	1.11	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	12:48:45	-0.14	0.76	ALM02298/cg6	THC	5.08		0
scg1	6/24/2015	12:49:00	0.04	0.02	CC429811/cg1	N2	0		0
scg1	6/24/2015	12:49:15	0.20	-0.02	CC429811/cg1	N2	0		0
scg1	6/24/2015	12:49:30	0.30	-0.04	CC429811/cg1	N2	0		0
scg1	6/24/2015	12:49:45	0.35	-0.07	CC429811/cg1	N2	0		0
scg1	6/24/2015	12:50:00	0.37	-0.09	CC429811/cg1	N2	0		0
scg1	6/24/2015	12:50:15	0.37	-0.08	CC429811/cg1	N2	0		0
thczero1	6/24/2015	12:50:00	0.37	-0.09	CC429811/cg1	N2	0		0
scg9	6/24/2015	12:50:30	0.41	-0.09	LL23441/cg9	CO	5.13		0
scg9	6/24/2015	12:50:45	0.44	-0.08	LL23441/cg9	CO	5.13		0
scg9	6/24/2015	12:51:00	0.42	-0.09	LL23441/cg9	CO	5.13		0
scg6	6/24/2015	12:51:15	0.44	-0.10	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	12:51:30	0.41	-0.10	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	12:51:45	0.40	-0.12	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	12:52:00	0.31	-0.13	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	12:52:15	0.29	0.22	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	12:52:30	0.31	1.67	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	12:52:45	0.44	4.53	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	12:53:00	0.42	4.67	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	12:53:15	0.49	4.69	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	12:53:30	0.49	4.71	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	12:53:45	0.46	4.78	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	12:54:00	0.44	5.09	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	12:54:15	0.46	5.09	ALM02298/cg6	THC	5.08		0
thcspan1	6/24/2015	12:54:15	0.46	5.09	ALM02298/cg6	THC	5.08		0
run10	6/24/2015	13:15:00	-0.19	0.14					
run10	6/24/2015	13:15:15	-0.20	0.14					
run10	6/24/2015	13:15:30	-0.22	0.14					
run10	6/24/2015	13:15:45	-0.22	0.14					
run10	6/24/2015	13:16:00	-0.23	0.13					
run10	6/24/2015	13:16:15	-0.22	0.14					
run10	6/24/2015	13:16:30	-0.18	0.14					
run10	6/24/2015	13:16:45	-0.17	0.15					
run10	6/24/2015	13:17:00	-0.17	0.15					
run10	6/24/2015	13:17:15	-0.15	0.15					
run10	6/24/2015	13:17:30	-0.17	0.16					
run10	6/24/2015	13:17:45	-0.22	0.17					
run10	6/24/2015	13:18:00	-0.21	0.16					
run10	6/24/2015	13:18:15	-0.18	0.16					
run10	6/24/2015	13:18:30	-0.19	0.17					
run10	6/24/2015	13:18:45	-0.11	0.20					
run10	6/24/2015	13:19:00	-0.03	0.21					

run10	6/24/2015	13:19:15	-0.08	0.19
run10	6/24/2015	13:19:30	-0.14	0.16
run10	6/24/2015	13:19:45	-0.17	0.16
run10	6/24/2015	13:20:00	-0.08	0.16
run10	6/24/2015	13:20:15	-0.14	0.16
run10	6/24/2015	13:20:30	-0.14	0.16
run10	6/24/2015	13:20:45	-0.07	0.15
run10	6/24/2015	13:21:00	-0.03	0.15
run10	6/24/2015	13:21:15	-0.08	0.14
run10	6/24/2015	13:21:30	-0.05	0.15
run10	6/24/2015	13:21:45	0.00	0.16
run10	6/24/2015	13:22:00	-0.05	0.18
run10	6/24/2015	13:22:15	0.04	0.16
run10	6/24/2015	13:22:30	0.02	0.15
run10	6/24/2015	13:22:45	0.03	0.14
run10	6/24/2015	13:23:00	0.02	0.15
run10	6/24/2015	13:23:15	-0.04	0.15
run10	6/24/2015	13:23:30	0.00	0.15
run10	6/24/2015	13:23:45	-0.01	0.15
run10	6/24/2015	13:24:00	-0.04	0.15
run10	6/24/2015	13:24:15	-0.04	0.15
run10	6/24/2015	13:24:30	0.01	0.15
run10	6/24/2015	13:24:45	0.05	0.14
run10	6/24/2015	13:25:00	0.13	0.15
run10	6/24/2015	13:25:15	0.24	0.15
run10	6/24/2015	13:25:30	0.19	0.15
run10	6/24/2015	13:25:45	0.15	0.15
run10	6/24/2015	13:26:00	0.11	0.14
run10	6/24/2015	13:26:15	0.10	0.13
run10	6/24/2015	13:26:30	0.02	0.13
run10	6/24/2015	13:26:45	-0.04	0.13
run10	6/24/2015	13:27:00	-0.09	0.15
run10	6/24/2015	13:27:15	0.04	0.16
run10	6/24/2015	13:27:30	0.05	0.15
run10	6/24/2015	13:27:45	0.06	0.15
run10	6/24/2015	13:28:00	0.13	0.15
run10	6/24/2015	13:28:15	0.29	0.15
run10	6/24/2015	13:28:30	0.34	0.17
run10	6/24/2015	13:28:45	0.37	0.20
run10	6/24/2015	13:29:00	0.34	0.20
run10	6/24/2015	13:29:15	0.24	0.19
run10	6/24/2015	13:29:30	0.24	0.18
run10	6/24/2015	13:29:45	0.30	0.18
run10	6/24/2015	13:30:00	0.60	0.17
run10	6/24/2015	13:30:15	0.87	0.17
run10	6/24/2015	13:30:30	0.94	0.17
run10	6/24/2015	13:30:45	0.66	0.17
run10	6/24/2015	13:31:00	0.39	0.17
run10	6/24/2015	13:31:15	0.27	0.15
run10	6/24/2015	13:31:30	0.27	0.16
run10	6/24/2015	13:31:45	0.22	0.17
run10	6/24/2015	13:32:00	0.26	0.17
run10	6/24/2015	13:32:15	0.26	0.17
run10	6/24/2015	13:32:30	0.34	0.19
run10	6/24/2015	13:32:45	0.34	0.18
run10	6/24/2015	13:33:00	0.36	0.17
run10	6/24/2015	13:33:15	0.37	0.16
run10	6/24/2015	13:33:30	0.34	0.17
run10	6/24/2015	13:33:45	0.40	0.17
run10	6/24/2015	13:34:00	0.45	0.16
run10	6/24/2015	13:34:15	0.49	0.16
run10	6/24/2015	13:34:30	0.57	0.15
run10	6/24/2015	13:34:45	0.73	0.16
run10	6/24/2015	13:35:00	0.86	0.17
run10	6/24/2015	13:35:15	0.84	0.15
run10	6/24/2015	13:35:30	0.71	0.16

run10	6/24/2015	13:35:45	0.66	0.16
run10	6/24/2015	13:36:00	0.62	0.16
run10	6/24/2015	13:36:15	0.62	0.16
run10	6/24/2015	13:36:30	0.67	0.18
run10	6/24/2015	13:36:45	0.67	0.17
run10	6/24/2015	13:37:00	0.75	0.17
run10	6/24/2015	13:37:15	0.72	0.16
run10	6/24/2015	13:37:30	0.78	0.16
run10	6/24/2015	13:37:45	0.75	0.16
run10	6/24/2015	13:38:00	0.73	0.16
run10	6/24/2015	13:38:15	0.74	0.16
run10	6/24/2015	13:38:30	0.75	0.17
run10	6/24/2015	13:38:45	0.74	0.16
run10	6/24/2015	13:39:00	0.86	0.14
run10	6/24/2015	13:39:15	0.81	0.15
run10	6/24/2015	13:39:30	0.82	0.15
run10	6/24/2015	13:39:45	0.85	0.17
run10	6/24/2015	13:40:00	0.91	0.17
run10	6/24/2015	13:40:15	0.87	0.17
run10	6/24/2015	13:40:30	0.90	0.17
run10	6/24/2015	13:40:45	0.96	0.19
run10	6/24/2015	13:41:00	0.96	0.20
run10	6/24/2015	13:41:15	0.93	0.18
run10	6/24/2015	13:41:30	0.99	0.18
run10	6/24/2015	13:41:45	1.02	0.18
run10	6/24/2015	13:42:00	1.02	0.17
run10	6/24/2015	13:42:15	0.97	0.16
run10	6/24/2015	13:42:30	0.89	0.17
run10	6/24/2015	13:42:45	0.80	0.17
run10	6/24/2015	13:43:00	0.76	0.17
run10	6/24/2015	13:43:15	0.72	0.19
run10	6/24/2015	13:43:30	0.74	0.18
run10	6/24/2015	13:43:45	0.74	0.19
run10	6/24/2015	13:44:00	0.82	0.19
run10	6/24/2015	13:44:15	0.85	0.18
run10	6/24/2015	13:44:30	0.88	0.19
run10	6/24/2015	13:44:45	0.84	0.20
run10	6/24/2015	13:45:00	0.84	0.21
run10	6/24/2015	13:45:15	0.75	0.22
run10	6/24/2015	13:45:30	0.76	0.22
run10	6/24/2015	13:45:45	0.77	0.23
run10	6/24/2015	13:46:00	0.73	0.25
run10	6/24/2015	13:46:15	0.67	0.26
run10	6/24/2015	13:46:30	0.65	0.24
run10	6/24/2015	13:46:45	0.62	0.23
run10	6/24/2015	13:47:00	0.63	0.24
run10	6/24/2015	13:47:15	0.58	0.23
run10	6/24/2015	13:47:30	0.59	0.22
run10	6/24/2015	13:47:45	0.60	0.21
run10	6/24/2015	13:48:00	0.57	0.21
run10	6/24/2015	13:48:15	0.61	0.26
run10	6/24/2015	13:48:30	0.59	0.33
run10	6/24/2015	13:48:45	0.59	0.32
run10	6/24/2015	13:49:00	0.61	0.30
run10	6/24/2015	13:49:15	0.60	0.27
run10	6/24/2015	13:49:30	0.60	0.25
run10	6/24/2015	13:49:45	0.66	0.22
run10	6/24/2015	13:50:00	0.71	0.21
run10	6/24/2015	13:50:15	0.70	0.20
run10	6/24/2015	13:50:30	0.70	0.20
run10	6/24/2015	13:50:45	0.81	0.19
run10	6/24/2015	13:51:00	0.77	0.19
run10	6/24/2015	13:51:15	0.78	0.18
run10	6/24/2015	13:51:30	0.75	0.18
run10	6/24/2015	13:51:45	0.72	0.18
run10	6/24/2015	13:52:00	0.78	0.17

run10	6/24/2015	13:52:15	0.82	0.16
run10	6/24/2015	13:52:30	0.79	0.15
run10	6/24/2015	13:52:45	0.73	0.14
run10	6/24/2015	13:53:00	0.72	0.13
run10	6/24/2015	13:53:15	0.70	0.14
run10	6/24/2015	13:53:30	0.73	0.15
run10	6/24/2015	13:53:45	0.73	0.17
run10	6/24/2015	13:54:00	0.67	0.17
run10	6/24/2015	13:54:15	0.67	0.16
run10	6/24/2015	13:54:30	0.69	0.16
run10	6/24/2015	13:54:45	0.66	0.15
run10	6/24/2015	13:55:00	0.70	0.16
run10	6/24/2015	13:55:15	0.69	0.15
run10	6/24/2015	13:55:30	0.71	0.14
run10	6/24/2015	13:55:45	0.69	0.14
run10	6/24/2015	13:56:00	0.71	0.14
run10	6/24/2015	13:56:15	0.68	0.14
run10	6/24/2015	13:56:30	0.75	0.14
run10	6/24/2015	13:56:45	0.70	0.15
run10	6/24/2015	13:57:00	0.77	0.16
run10	6/24/2015	13:57:15	0.78	0.15
run10	6/24/2015	13:57:30	0.80	0.15
run10	6/24/2015	13:57:45	0.82	0.14
run10	6/24/2015	13:58:00	0.81	0.13
run10	6/24/2015	13:58:15	0.82	0.12
run10	6/24/2015	13:58:30	0.91	0.12
run10	6/24/2015	13:58:45	0.86	0.15
run10	6/24/2015	13:59:00	0.90	0.16
run10	6/24/2015	13:59:15	0.96	0.15
run10	6/24/2015	13:59:30	0.97	0.13
run10	6/24/2015	13:59:45	1.02	0.13
run10	6/24/2015	14:00:00	1.03	0.13
run10	6/24/2015	14:00:15	1.03	0.14
run10	6/24/2015	14:00:30	0.97	0.13
run10	6/24/2015	14:00:45	0.85	0.12
run10	6/24/2015	14:01:00	0.89	0.14
run10	6/24/2015	14:01:15	0.82	0.14
run10	6/24/2015	14:01:30	0.78	0.15
run10	6/24/2015	14:01:45	0.79	0.14
run10	6/24/2015	14:02:00	0.83	0.16
run10	6/24/2015	14:02:15	0.87	0.17
run10	6/24/2015	14:02:30	0.84	0.16
run10	6/24/2015	14:02:45	0.89	0.16
run10	6/24/2015	14:03:00	0.85	0.17
run10	6/24/2015	14:03:15	0.91	0.22
run10	6/24/2015	14:03:30	0.96	0.27
run10	6/24/2015	14:03:45	0.99	0.25
run10	6/24/2015	14:04:00	0.94	0.22
run10	6/24/2015	14:04:15	0.89	0.19
run10	6/24/2015	14:04:30	0.90	0.19
run10	6/24/2015	14:04:45	0.82	0.20
run10	6/24/2015	14:05:00	0.85	0.19
run10	6/24/2015	14:05:15	0.88	0.20
run10	6/24/2015	14:05:30	0.79	0.19
run10	6/24/2015	14:05:45	0.77	0.18
run10	6/24/2015	14:06:00	0.83	0.18
run10	6/24/2015	14:06:15	0.91	0.19
run10	6/24/2015	14:06:30	0.94	0.18
run10	6/24/2015	14:06:45	0.96	0.19
run10	6/24/2015	14:07:00	0.89	0.19
run10	6/24/2015	14:07:15	0.93	0.18
run10	6/24/2015	14:07:30	1.01	0.17
run10	6/24/2015	14:07:45	0.95	0.15
run10	6/24/2015	14:08:00	0.90	0.15
run10	6/24/2015	14:08:15	0.91	0.16
run10	6/24/2015	14:08:30	0.96	0.15

run10	6/24/2015	14:08:45	0.99	0.16						
run10	6/24/2015	14:09:00	1.00	0.19						
run10	6/24/2015	14:09:15	0.99	0.19						
run10	6/24/2015	14:09:30	1.04	0.18						
run10	6/24/2015	14:09:45	1.01	0.17						
run10	6/24/2015	14:10:00	1.03	0.17						
run10	6/24/2015	14:10:15	1.01	0.17						
run10	6/24/2015	14:10:30	1.02	0.15						
run10	6/24/2015	14:10:45	1.05	0.15						
run10	6/24/2015	14:11:00	1.10	0.16						
run10	6/24/2015	14:11:15	1.06	0.17						
run10	6/24/2015	14:11:30	1.15	0.16						
run10	6/24/2015	14:11:45	1.17	0.17						
run10	6/24/2015	14:12:00	1.15	0.18						
run10	6/24/2015	14:12:15	1.20	0.18						
run10	6/24/2015	14:12:30	1.22	0.17						
run10	6/24/2015	14:12:45	1.28	0.17						
run10	6/24/2015	14:13:00	1.29	0.25						
run10	6/24/2015	14:13:15	1.30	0.29						
run10	6/24/2015	14:13:30	1.23	0.27						
run10	6/24/2015	14:13:45	1.21	0.25						
run10	6/24/2015	14:14:00	1.22	0.23						
run10	6/24/2015	14:14:15	1.19	0.21						
run10	6/24/2015	14:14:30	1.13	0.22						
run10	6/24/2015	14:14:45	1.20	0.22						
run10	6/24/2015	14:15:00	1.11	0.23						
averun10	6/24/2015	13:15:00	0.60	0.17		60				
scg2	6/24/2015	14:15:15	1.16	0.23	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	14:15:30	1.15	0.22	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	14:15:45	1.16	0.22	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	14:16:00	1.12	0.21	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	14:16:15	1.07	0.21	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	14:16:30	0.79	0.21	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	14:16:45	0.42	0.21	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	14:17:00	0.10	0.20	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	14:17:15	-0.11	0.20	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	14:17:30	-0.21	0.20	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	14:17:45	-0.22	0.20	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	14:18:00	-0.09	0.20	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	14:18:15	-0.06	0.20	ALM059355/cg2	NOx	96.8			0
o2zero1	6/24/2015	14:18:15	-0.06	0.20	ALM059355/cg2	NOx	96.8			0
co2zero1	6/24/2015	14:18:15	-0.06	0.20	ALM059355/cg2	NOx	96.8			0
cozero1	6/24/2015	14:18:15	-0.06	0.20	ALM059355/cg2	NOx	96.8			0
noxspan1	6/24/2015	14:18:15	-0.06	0.20	ALM059355/cg2	NOx	96.8			0
scg9	6/24/2015	14:18:30	-0.06	0.21	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	14:18:45	-0.06	0.22	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	14:19:00	-0.10	0.22	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	14:19:15	-0.12	0.21	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	14:19:30	0.01	0.22	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	14:19:45	0.57	0.23	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	14:20:00	2.07	0.23	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	14:20:15	3.28	0.23	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	14:20:30	4.40	0.23	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	14:20:45	4.82	0.22	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	14:21:00	4.97	0.22	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	14:21:15	5.09	0.22	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	14:21:30	5.13	0.21	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	14:21:45	5.12	0.23	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	14:22:00	5.20	0.23	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	14:22:15	5.21	0.23	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	14:22:30	5.19	0.26	LL23441/cg9	CO	5.13			0
noxzero1	6/24/2015	14:22:30	5.19	0.26	LL23441/cg9	CO	5.13			0
cospan1	6/24/2015	14:22:30	5.19	0.26	LL23441/cg9	CO	5.13			0
scg10	6/24/2015	14:22:45	5.10	0.67	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	14:23:00	5.23	0.84	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	14:23:15	5.21	0.91	ALM008899/cg10	O2	11.06	CO2	11.16	

scg10	6/24/2015	14:23:30	5.19	0.92	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	14:23:45	5.14	0.97	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	14:24:00	4.43	1.38	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	14:24:15	2.99	1.24	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	14:24:30	1.23	1.19	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	14:24:45	0.21	1.35	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	14:25:00	-0.23	1.04	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	14:25:15	-0.23	1.16	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	14:25:30	-0.23	1.71	ALM008899/cg10	O2	11.06	CO2	11.16
o2span1	6/24/2015	14:25:30	-0.23	1.71	ALM008899/cg10	O2	11.06	CO2	11.16
co2span1	6/24/2015	14:25:30	-0.23	1.71	ALM008899/cg10	O2	11.06	CO2	11.16
scg6	6/24/2015	14:25:45	-0.23	1.23	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	14:26:00	-0.23	1.13	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	14:26:15	-0.23	1.24	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	14:26:30	-0.23	1.28	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	14:26:45	-0.23	1.09	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	14:27:00	-0.23	0.99	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	14:27:15	-0.22	1.65	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	14:27:30	-0.11	5.06	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	14:27:45	0.02	5.36	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	14:28:00	0.13	5.27	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	14:28:15	0.30	5.06	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	14:28:30	0.38	5.04	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	14:28:45	0.37	5.01	ALM02298/cg6	THC	5.08		0
thcspan1	6/24/2015	14:28:45	0.37	5.01	ALM02298/cg6	THC	5.08		0
scg1	6/24/2015	14:29:00	0.28	5.01	CC429811/cg1	N2	0		0
scg1	6/24/2015	14:29:15	0.25	5.01	CC429811/cg1	N2	0		0
scg1	6/24/2015	14:29:30	0.26	4.98	CC429811/cg1	N2	0		0
scg1	6/24/2015	14:29:45	0.30	4.99	CC429811/cg1	N2	0		0
scg1	6/24/2015	14:30:00	0.31	4.99	CC429811/cg1	N2	0		0
scg1	6/24/2015	14:30:15	0.34	4.99	CC429811/cg1	N2	0		0
scg1	6/24/2015	14:30:30	0.28	4.98	CC429811/cg1	N2	0		0
scg1	6/24/2015	14:30:45	0.28	4.95	CC429811/cg1	N2	0		0
scg1	6/24/2015	14:31:00	0.39	2.61	CC429811/cg1	N2	0		0
scg1	6/24/2015	14:31:15	0.36	1.27	CC429811/cg1	N2	0		0
scg1	6/24/2015	14:31:30	0.34	1.21	CC429811/cg1	N2	0		0
scg1	6/24/2015	14:31:45	0.32	1.43	CC429811/cg1	N2	0		0
scg1	6/24/2015	14:32:00	0.34	0.23	CC429811/cg1	N2	0		0
scg1	6/24/2015	14:32:15	0.29	0.15	CC429811/cg1	N2	0		0
scg1	6/24/2015	14:32:30	0.38	0.11	CC429811/cg1	N2	0		0
scg1	6/24/2015	14:32:45	0.42	0.12	CC429811/cg1	N2	0		0
thczero1	6/24/2015	14:32:45	0.42	0.12	CC429811/cg1	N2	0		0
run11	6/24/2015	14:45:00	0.47	0.33					
run11	6/24/2015	14:45:15	0.37	0.32					
run11	6/24/2015	14:45:30	0.32	0.31					
run11	6/24/2015	14:45:45	0.21	0.31					
run11	6/24/2015	14:46:00	0.33	0.30					
run11	6/24/2015	14:46:15	0.41	0.31					
run11	6/24/2015	14:46:30	0.49	0.32					
run11	6/24/2015	14:46:45	0.62	0.30					
run11	6/24/2015	14:47:00	0.65	0.30					
run11	6/24/2015	14:47:15	0.49	0.30					
run11	6/24/2015	14:47:30	0.41	0.29					
run11	6/24/2015	14:47:45	0.39	0.30					
run11	6/24/2015	14:48:00	0.35	0.29					
run11	6/24/2015	14:48:15	0.36	0.29					
run11	6/24/2015	14:48:30	0.27	0.29					
run11	6/24/2015	14:48:45	0.31	0.29					
run11	6/24/2015	14:49:00	0.31	0.29					
run11	6/24/2015	14:49:15	0.32	0.29					
run11	6/24/2015	14:49:30	0.35	0.30					
run11	6/24/2015	14:49:45	0.32	0.29					
run11	6/24/2015	14:50:00	0.22	0.29					
run11	6/24/2015	14:50:15	0.29	0.31					
run11	6/24/2015	14:50:30	0.31	0.31					
run11	6/24/2015	14:50:45	0.31	0.31					

run11	6/24/2015	14:51:00	0.31	0.29
run11	6/24/2015	14:51:15	0.27	0.30
run11	6/24/2015	14:51:30	0.32	0.29
run11	6/24/2015	14:51:45	0.36	0.29
run11	6/24/2015	14:52:00	0.36	0.28
run11	6/24/2015	14:52:15	0.23	0.27
run11	6/24/2015	14:52:30	0.29	0.28
run11	6/24/2015	14:52:45	0.32	0.28
run11	6/24/2015	14:53:00	0.37	0.27
run11	6/24/2015	14:53:15	0.36	0.27
run11	6/24/2015	14:53:30	0.35	0.26
run11	6/24/2015	14:53:45	0.32	0.26
run11	6/24/2015	14:54:00	0.30	0.26
run11	6/24/2015	14:54:15	0.26	0.26
run11	6/24/2015	14:54:30	0.27	0.25
run11	6/24/2015	14:54:45	0.29	0.26
run11	6/24/2015	14:55:00	0.21	0.27
run11	6/24/2015	14:55:15	0.20	0.25
run11	6/24/2015	14:55:30	0.23	0.27
run11	6/24/2015	14:55:45	0.23	0.26
run11	6/24/2015	14:56:00	0.24	0.27
run11	6/24/2015	14:56:15	0.20	0.27
run11	6/24/2015	14:56:30	0.23	0.28
run11	6/24/2015	14:56:45	0.21	0.30
run11	6/24/2015	14:57:00	0.28	0.30
run11	6/24/2015	14:57:15	0.26	0.30
run11	6/24/2015	14:57:30	0.26	0.28
run11	6/24/2015	14:57:45	0.23	0.28
run11	6/24/2015	14:58:00	0.29	0.27
run11	6/24/2015	14:58:15	0.47	0.26
run11	6/24/2015	14:58:30	0.84	0.27
run11	6/24/2015	14:58:45	1.02	0.28
run11	6/24/2015	14:59:00	0.82	0.27
run11	6/24/2015	14:59:15	0.58	0.26
run11	6/24/2015	14:59:30	0.41	0.28
run11	6/24/2015	14:59:45	0.28	0.27
run11	6/24/2015	15:00:00	0.26	0.27
run11	6/24/2015	15:00:15	0.27	0.28
run11	6/24/2015	15:00:30	0.23	0.28
run11	6/24/2015	15:00:45	0.17	0.27
run11	6/24/2015	15:01:00	0.17	0.27
run11	6/24/2015	15:01:15	0.20	0.27
run11	6/24/2015	15:01:30	0.26	0.26
run11	6/24/2015	15:01:45	0.24	0.27
run11	6/24/2015	15:02:00	0.18	0.27
run11	6/24/2015	15:02:15	0.15	0.27
run11	6/24/2015	15:02:30	0.13	0.28
run11	6/24/2015	15:02:45	0.17	0.28
run11	6/24/2015	15:03:00	0.18	0.28
run11	6/24/2015	15:03:15	0.13	0.27
run11	6/24/2015	15:03:30	0.10	0.25
run11	6/24/2015	15:03:45	0.07	0.26
run11	6/24/2015	15:04:00	0.07	0.27
run11	6/24/2015	15:04:15	0.08	0.24
run11	6/24/2015	15:04:30	0.14	0.25
run11	6/24/2015	15:04:45	0.14	0.26
run11	6/24/2015	15:05:00	0.14	0.27
run11	6/24/2015	15:05:15	0.15	0.26
run11	6/24/2015	15:05:30	0.10	0.25
run11	6/24/2015	15:05:45	0.10	0.25
run11	6/24/2015	15:06:00	0.06	0.26
run11	6/24/2015	15:06:15	0.05	0.26
run11	6/24/2015	15:06:30	0.07	0.27
run11	6/24/2015	15:06:45	0.05	0.28
run11	6/24/2015	15:07:00	0.06	0.29
run11	6/24/2015	15:07:15	0.12	0.29

run11	6/24/2015	15:07:30	0.11	0.29
run11	6/24/2015	15:07:45	0.09	0.28
run11	6/24/2015	15:08:00	0.15	0.29
run11	6/24/2015	15:08:15	0.12	0.29
run11	6/24/2015	15:08:30	0.12	0.28
run11	6/24/2015	15:08:45	0.11	0.29
run11	6/24/2015	15:09:00	0.09	0.29
run11	6/24/2015	15:09:15	0.08	0.29
run11	6/24/2015	15:09:30	0.08	0.28
run11	6/24/2015	15:09:45	0.07	0.27
run11	6/24/2015	15:10:00	0.04	0.26
run11	6/24/2015	15:10:15	0.08	0.25
run11	6/24/2015	15:10:30	0.06	0.25
run11	6/24/2015	15:10:45	0.06	0.27
run11	6/24/2015	15:11:00	0.05	0.27
run11	6/24/2015	15:11:15	0.08	0.27
run11	6/24/2015	15:11:30	0.07	0.27
run11	6/24/2015	15:11:45	0.08	0.27
run11	6/24/2015	15:12:00	0.08	0.29
run11	6/24/2015	15:12:15	0.07	0.27
run11	6/24/2015	15:12:30	0.08	0.27
run11	6/24/2015	15:12:45	0.00	0.28
run11	6/24/2015	15:13:00	0.08	0.30
run11	6/24/2015	15:13:15	0.07	0.30
run11	6/24/2015	15:13:30	0.05	0.29
run11	6/24/2015	15:13:45	0.03	0.31
run11	6/24/2015	15:14:00	0.07	0.31
run11	6/24/2015	15:14:15	0.05	0.30
run11	6/24/2015	15:14:30	0.04	0.27
run11	6/24/2015	15:14:45	0.07	0.29
run11	6/24/2015	15:15:00	0.02	0.29
run11	6/24/2015	15:15:15	0.06	0.30
run11	6/24/2015	15:15:30	0.03	0.29
run11	6/24/2015	15:15:45	0.07	0.29
run11	6/24/2015	15:16:00	0.06	0.29
run11	6/24/2015	15:16:15	0.05	0.28
run11	6/24/2015	15:16:30	-0.04	0.29
run11	6/24/2015	15:16:45	-0.02	0.29
run11	6/24/2015	15:17:00	0.03	0.28
run11	6/24/2015	15:17:15	0.01	0.27
run11	6/24/2015	15:17:30	0.04	0.27
run11	6/24/2015	15:17:45	0.01	0.27
run11	6/24/2015	15:18:00	0.01	0.26
run11	6/24/2015	15:18:15	0.02	0.26
run11	6/24/2015	15:18:30	0.05	0.26
run11	6/24/2015	15:18:45	0.09	0.27
run11	6/24/2015	15:19:00	0.06	0.27
run11	6/24/2015	15:19:15	-0.03	0.27
run11	6/24/2015	15:19:30	0.06	0.25
run11	6/24/2015	15:19:45	0.02	0.26
run11	6/24/2015	15:20:00	0.01	0.27
run11	6/24/2015	15:20:15	0.05	0.28
run11	6/24/2015	15:20:30	0.06	0.28
run11	6/24/2015	15:20:45	0.08	0.28
run11	6/24/2015	15:21:00	0.08	0.28
run11	6/24/2015	15:21:15	0.09	0.27
run11	6/24/2015	15:21:30	0.03	0.27
run11	6/24/2015	15:21:45	0.12	0.27
run11	6/24/2015	15:22:00	0.06	0.28
run11	6/24/2015	15:22:15	0.04	0.29
run11	6/24/2015	15:22:30	0.01	0.28
run11	6/24/2015	15:22:45	-0.01	0.28
run11	6/24/2015	15:23:00	0.08	0.28
run11	6/24/2015	15:23:15	0.09	0.27
run11	6/24/2015	15:23:30	0.02	0.27
run11	6/24/2015	15:23:45	0.07	0.27

run11	6/24/2015	15:24:00	0.07	0.28
run11	6/24/2015	15:24:15	0.07	0.29
run11	6/24/2015	15:24:30	0.12	0.30
run11	6/24/2015	15:24:45	0.13	0.29
run11	6/24/2015	15:25:00	0.07	0.28
run11	6/24/2015	15:25:15	0.02	0.28
run11	6/24/2015	15:25:30	0.08	0.27
run11	6/24/2015	15:25:45	0.11	0.28
run11	6/24/2015	15:26:00	0.11	0.28
run11	6/24/2015	15:26:15	0.14	0.27
run11	6/24/2015	15:26:30	0.12	0.26
run11	6/24/2015	15:26:45	0.12	0.28
run11	6/24/2015	15:27:00	0.16	0.28
run11	6/24/2015	15:27:15	0.12	0.27
run11	6/24/2015	15:27:30	0.10	0.29
run11	6/24/2015	15:27:45	0.13	0.29
run11	6/24/2015	15:28:00	0.13	0.29
run11	6/24/2015	15:28:15	0.09	0.29
run11	6/24/2015	15:28:30	0.04	0.30
run11	6/24/2015	15:28:45	0.08	0.29
run11	6/24/2015	15:29:00	0.10	0.29
run11	6/24/2015	15:29:15	0.09	0.29
run11	6/24/2015	15:29:30	0.08	0.30
run11	6/24/2015	15:29:45	0.08	0.29
run11	6/24/2015	15:30:00	0.08	0.27
run11	6/24/2015	15:30:15	0.09	0.28
run11	6/24/2015	15:30:30	0.08	0.29
run11	6/24/2015	15:30:45	0.08	0.29
run11	6/24/2015	15:31:00	0.10	0.28
run11	6/24/2015	15:31:15	0.11	0.28
run11	6/24/2015	15:31:30	0.07	0.28
run11	6/24/2015	15:31:45	0.05	0.28
run11	6/24/2015	15:32:00	0.09	0.29
run11	6/24/2015	15:32:15	0.09	0.28
run11	6/24/2015	15:32:30	0.11	0.28
run11	6/24/2015	15:32:45	0.14	0.28
run11	6/24/2015	15:33:00	0.08	0.29
run11	6/24/2015	15:33:15	0.08	0.30
run11	6/24/2015	15:33:30	0.10	0.30
run11	6/24/2015	15:33:45	0.11	0.31
run11	6/24/2015	15:34:00	0.15	0.30
run11	6/24/2015	15:34:15	0.11	0.31
run11	6/24/2015	15:34:30	0.11	0.29
run11	6/24/2015	15:34:45	0.10	0.28
run11	6/24/2015	15:35:00	0.13	0.31
run11	6/24/2015	15:35:15	0.13	0.30
run11	6/24/2015	15:35:30	0.13	0.31
run11	6/24/2015	15:35:45	0.04	0.28
run11	6/24/2015	15:36:00	0.10	0.28
run11	6/24/2015	15:36:15	0.06	0.29
run11	6/24/2015	15:36:30	0.05	0.29
run11	6/24/2015	15:36:45	0.06	0.29
run11	6/24/2015	15:37:00	0.11	0.30
run11	6/24/2015	15:37:15	0.08	0.30
run11	6/24/2015	15:37:30	0.11	0.30
run11	6/24/2015	15:37:45	0.09	0.29
run11	6/24/2015	15:38:00	0.05	0.28
run11	6/24/2015	15:38:15	0.10	0.28
run11	6/24/2015	15:38:30	0.05	0.28
run11	6/24/2015	15:38:45	0.04	0.28
run11	6/24/2015	15:39:00	0.08	0.29
run11	6/24/2015	15:39:15	0.06	0.28
run11	6/24/2015	15:39:30	0.10	0.29
run11	6/24/2015	15:39:45	0.09	0.29
run11	6/24/2015	15:40:00	0.09	0.29
run11	6/24/2015	15:40:15	0.11	0.30

run11	6/24/2015	15:40:30	0.14	0.29						
run11	6/24/2015	15:40:45	0.08	0.29						
run11	6/24/2015	15:41:00	0.13	0.29						
run11	6/24/2015	15:41:15	0.15	0.29						
run11	6/24/2015	15:41:30	0.16	0.30						
run11	6/24/2015	15:41:45	0.07	0.29						
run11	6/24/2015	15:42:00	0.08	0.31						
run11	6/24/2015	15:42:15	0.12	0.30						
run11	6/24/2015	15:42:30	0.17	0.30						
run11	6/24/2015	15:42:45	0.13	0.29						
run11	6/24/2015	15:43:00	0.15	0.30						
run11	6/24/2015	15:43:15	0.13	0.30						
run11	6/24/2015	15:43:30	0.14	0.29						
run11	6/24/2015	15:43:45	0.15	0.30						
run11	6/24/2015	15:44:00	0.10	0.28						
run11	6/24/2015	15:44:15	0.15	0.29						
run11	6/24/2015	15:44:30	0.10	0.28						
run11	6/24/2015	15:44:45	0.08	0.27						
averun11	6/24/2015	14:45:00	0.16	0.28		60				
scg2	6/24/2015	15:45:00	0.11	0.27	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	15:45:15	0.09	0.28	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	15:45:30	0.09	0.29	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	15:45:45	0.11	0.29	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	15:46:00	0.13	0.29	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	15:46:15	0.06	0.28	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	15:46:30	-0.05	0.28	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	15:46:45	-0.19	0.28	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	15:47:00	-0.19	0.27	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	15:47:15	-0.19	0.29	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	15:47:30	-0.19	0.30	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	15:47:45	-0.14	0.29	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	15:48:00	0.07	0.29	ALM059355/cg2	NOx	96.8			0
o2zero1	6/24/2015	15:48:00	0.07	0.29	ALM059355/cg2	NOx	96.8			0
co2zero1	6/24/2015	15:48:00	0.07	0.29	ALM059355/cg2	NOx	96.8			0
cozero1	6/24/2015	15:48:00	0.07	0.29	ALM059355/cg2	NOx	96.8			0
noxspan1	6/24/2015	15:48:00	0.07	0.29	ALM059355/cg2	NOx	96.8			0
scg9	6/24/2015	15:48:15	0.08	0.29	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	15:48:30	0.05	0.30	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	15:48:45	0.04	0.31	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	15:49:00	0.03	0.30	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	15:49:15	0.17	0.30	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	15:49:30	0.72	0.30	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	15:49:45	2.25	0.29	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	15:50:00	3.61	0.28	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	15:50:15	4.59	0.27	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	15:50:30	4.92	0.29	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	15:50:45	5.14	0.28	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	15:51:00	5.16	0.30	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	15:51:15	5.19	0.31	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	15:51:30	5.25	0.30	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	15:51:45	5.28	0.28	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	15:52:00	5.08	0.28	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	15:52:15	5.12	0.29	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	15:52:30	5.13	0.28	LL23441/cg9	CO	5.13			0
noxzero1	6/24/2015	15:52:30	5.13	0.28	LL23441/cg9	CO	5.13			0
cospan1	6/24/2015	15:52:30	5.13	0.28	LL23441/cg9	CO	5.13			0
scg10	6/24/2015	15:52:45	5.12	0.29	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	15:53:00	5.08	0.29	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	15:53:15	5.14	0.29	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	15:53:30	5.18	0.30	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	15:53:45	4.90	0.29	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	15:54:00	4.12	0.28	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	15:54:15	2.30	0.28	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	15:54:30	0.97	0.28	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	15:54:45	0.04	0.30	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	15:55:00	-0.21	0.66	ALM008899/cg10	O2	11.06	CO2	11.16	

scg10	6/24/2015	15:55:15	-0.23	0.86	ALM008899/cg10	O2	11.06	CO2	11.16
scg10	6/24/2015	15:55:30	-0.23	0.88	ALM008899/cg10	O2	11.06	CO2	11.16
o2span1	6/24/2015	15:55:30	-0.23	0.88	ALM008899/cg10	O2	11.06	CO2	11.16
co2span1	6/24/2015	15:55:30	-0.23	0.88	ALM008899/cg10	O2	11.06	CO2	11.16
scg1	6/24/2015	15:55:45	-0.23	0.96	CC429811/cg1	N2	0		0
scg1	6/24/2015	15:56:00	-0.23	1.07	CC429811/cg1	N2	0		0
scg1	6/24/2015	15:56:15	-0.23	1.06	CC429811/cg1	N2	0		0
scg1	6/24/2015	15:56:30	-0.23	1.09	CC429811/cg1	N2	0		0
scg1	6/24/2015	15:56:45	-0.23	1.30	CC429811/cg1	N2	0		0
scg1	6/24/2015	15:57:00	-0.23	1.00	CC429811/cg1	N2	0		0
scg1	6/24/2015	15:57:15	0.14	1.48	CC429811/cg1	N2	0		0
scg1	6/24/2015	15:57:30	0.43	0.94	CC429811/cg1	N2	0		0
scg1	6/24/2015	15:57:45	0.74	0.47	CC429811/cg1	N2	0		0
scg1	6/24/2015	15:58:00	0.73	0.42	CC429811/cg1	N2	0		0
scg1	6/24/2015	15:58:15	0.84	0.25	CC429811/cg1	N2	0		0
scg1	6/24/2015	15:58:30	0.83	-0.08	CC429811/cg1	N2	0		0
scg1	6/24/2015	15:58:45	0.83	-0.12	CC429811/cg1	N2	0		0
thczero1	6/24/2015	15:58:45	0.83	-0.12	CC429811/cg1	N2	0		0
scg6	6/24/2015	15:59:00	0.83	-0.16	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	15:59:15	0.85	-0.15	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	15:59:30	0.79	-0.15	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	15:59:45	0.76	-0.17	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	16:00:00	0.71	-0.19	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	16:00:15	0.63	-0.20	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	16:00:30	0.63	-0.20	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	16:00:45	0.63	-0.21	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	16:01:00	0.52	0.35	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	16:01:15	0.52	0.74	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	16:01:30	0.57	3.70	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	16:01:45	0.50	4.80	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	16:02:00	0.50	4.88	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	16:02:15	0.51	5.11	ALM02298/cg6	THC	5.08		0
scg6	6/24/2015	16:02:30	0.49	5.13	ALM02298/cg6	THC	5.08		0
thcspan1	6/24/2015	16:02:30	0.49	5.13	ALM02298/cg6	THC	5.08		0
run12	6/24/2015	16:15:00	0.03	0.10					
run12	6/24/2015	16:15:15	0.03	0.08					
run12	6/24/2015	16:15:30	0.00	0.07					
run12	6/24/2015	16:15:45	-0.06	0.06					
run12	6/24/2015	16:16:00	-0.02	0.05					
run12	6/24/2015	16:16:15	-0.01	0.05					
run12	6/24/2015	16:16:30	-0.04	0.03					
run12	6/24/2015	16:16:45	0.01	0.01					
run12	6/24/2015	16:17:00	0.00	0.01					
run12	6/24/2015	16:17:15	0.00	0.01					
run12	6/24/2015	16:17:30	0.04	0.02					
run12	6/24/2015	16:17:45	0.00	0.01					
run12	6/24/2015	16:18:00	-0.07	-0.03					
run12	6/24/2015	16:18:15	-0.05	-0.01					
run12	6/24/2015	16:18:30	-0.07	-0.03					
run12	6/24/2015	16:18:45	-0.11	-0.04					
run12	6/24/2015	16:19:00	-0.04	-0.03					
run12	6/24/2015	16:19:15	-0.04	-0.04					
run12	6/24/2015	16:19:30	-0.01	-0.04					
run12	6/24/2015	16:19:45	-0.06	-0.05					
run12	6/24/2015	16:20:00	-0.08	-0.05					
run12	6/24/2015	16:20:15	-0.06	-0.05					
run12	6/24/2015	16:20:30	-0.05	-0.05					
run12	6/24/2015	16:20:45	-0.03	-0.05					
run12	6/24/2015	16:21:00	-0.03	-0.06					
run12	6/24/2015	16:21:15	-0.05	-0.06					
run12	6/24/2015	16:21:30	-0.09	-0.05					
run12	6/24/2015	16:21:45	-0.05	-0.07					
run12	6/24/2015	16:22:00	-0.07	-0.05					
run12	6/24/2015	16:22:15	-0.05	-0.06					
run12	6/24/2015	16:22:30	-0.04	-0.07					
run12	6/24/2015	16:22:45	-0.03	-0.08					

run12	6/24/2015	16:23:00	-0.04	-0.06
run12	6/24/2015	16:23:15	-0.01	-0.06
run12	6/24/2015	16:23:30	0.00	-0.07
run12	6/24/2015	16:23:45	0.00	-0.07
run12	6/24/2015	16:24:00	0.03	-0.07
run12	6/24/2015	16:24:15	0.03	-0.08
run12	6/24/2015	16:24:30	-0.01	-0.08
run12	6/24/2015	16:24:45	-0.03	-0.07
run12	6/24/2015	16:25:00	0.00	-0.08
run12	6/24/2015	16:25:15	0.00	-0.08
run12	6/24/2015	16:25:30	0.00	-0.09
run12	6/24/2015	16:25:45	0.02	-0.09
run12	6/24/2015	16:26:00	0.00	-0.08
run12	6/24/2015	16:26:15	0.01	-0.08
run12	6/24/2015	16:26:30	0.01	-0.09
run12	6/24/2015	16:26:45	0.02	-0.10
run12	6/24/2015	16:27:00	-0.04	-0.09
run12	6/24/2015	16:27:15	-0.03	-0.09
run12	6/24/2015	16:27:30	0.00	-0.09
run12	6/24/2015	16:27:45	0.00	-0.10
run12	6/24/2015	16:28:00	0.02	-0.09
run12	6/24/2015	16:28:15	0.03	-0.08
run12	6/24/2015	16:28:30	-0.02	-0.08
run12	6/24/2015	16:28:45	0.00	-0.09
run12	6/24/2015	16:29:00	0.04	-0.08
run12	6/24/2015	16:29:15	-0.01	-0.07
run12	6/24/2015	16:29:30	-0.04	-0.08
run12	6/24/2015	16:29:45	0.01	-0.09
run12	6/24/2015	16:30:00	-0.01	-0.09
run12	6/24/2015	16:30:15	0.02	-0.11
run12	6/24/2015	16:30:30	0.00	-0.10
run12	6/24/2015	16:30:45	0.00	-0.08
run12	6/24/2015	16:31:00	0.01	-0.10
run12	6/24/2015	16:31:15	-0.01	-0.11
run12	6/24/2015	16:31:30	-0.02	-0.12
run12	6/24/2015	16:31:45	-0.04	-0.11
run12	6/24/2015	16:32:00	-0.05	-0.12
run12	6/24/2015	16:32:15	0.02	-0.12
run12	6/24/2015	16:32:30	0.01	-0.11
run12	6/24/2015	16:32:45	-0.10	-0.11
run12	6/24/2015	16:33:00	-0.05	-0.10
run12	6/24/2015	16:33:15	-0.10	-0.12
run12	6/24/2015	16:33:30	-0.07	-0.13
run12	6/24/2015	16:33:45	-0.07	-0.11
run12	6/24/2015	16:34:00	-0.03	-0.11
run12	6/24/2015	16:34:15	-0.04	-0.11
run12	6/24/2015	16:34:30	-0.09	-0.11
run12	6/24/2015	16:34:45	-0.04	-0.11
run12	6/24/2015	16:35:00	-0.04	-0.12
run12	6/24/2015	16:35:15	-0.04	-0.12
run12	6/24/2015	16:35:30	-0.07	-0.13
run12	6/24/2015	16:35:45	-0.05	-0.13
run12	6/24/2015	16:36:00	-0.05	-0.13
run12	6/24/2015	16:36:15	-0.05	-0.11
run12	6/24/2015	16:36:30	-0.06	-0.11
run12	6/24/2015	16:36:45	-0.10	-0.10
run12	6/24/2015	16:37:00	-0.10	-0.09
run12	6/24/2015	16:37:15	-0.06	-0.11
run12	6/24/2015	16:37:30	-0.03	-0.11
run12	6/24/2015	16:37:45	-0.04	-0.10
run12	6/24/2015	16:38:00	-0.01	-0.10
run12	6/24/2015	16:38:15	-0.02	-0.12
run12	6/24/2015	16:38:30	-0.03	-0.12
run12	6/24/2015	16:38:45	0.00	-0.11
run12	6/24/2015	16:39:00	-0.02	-0.11
run12	6/24/2015	16:39:15	-0.03	-0.09

run12	6/24/2015	16:39:30	0.01	-0.08
run12	6/24/2015	16:39:45	0.02	-0.08
run12	6/24/2015	16:40:00	-0.04	-0.09
run12	6/24/2015	16:40:15	-0.02	-0.12
run12	6/24/2015	16:40:30	-0.01	-0.10
run12	6/24/2015	16:40:45	-0.02	-0.12
run12	6/24/2015	16:41:00	0.03	-0.12
run12	6/24/2015	16:41:15	-0.05	-0.11
run12	6/24/2015	16:41:30	-0.02	-0.10
run12	6/24/2015	16:41:45	0.00	-0.09
run12	6/24/2015	16:42:00	0.00	-0.11
run12	6/24/2015	16:42:15	-0.01	-0.10
run12	6/24/2015	16:42:30	0.06	-0.11
run12	6/24/2015	16:42:45	0.02	-0.10
run12	6/24/2015	16:43:00	-0.04	-0.09
run12	6/24/2015	16:43:15	-0.04	-0.11
run12	6/24/2015	16:43:30	-0.01	-0.11
run12	6/24/2015	16:43:45	-0.03	-0.11
run12	6/24/2015	16:44:00	-0.01	-0.10
run12	6/24/2015	16:44:15	-0.03	-0.10
run12	6/24/2015	16:44:30	-0.03	-0.10
run12	6/24/2015	16:44:45	0.03	-0.10
run12	6/24/2015	16:45:00	-0.07	-0.09
run12	6/24/2015	16:45:15	-0.04	-0.11
run12	6/24/2015	16:45:30	-0.02	-0.11
run12	6/24/2015	16:45:45	0.00	-0.10
run12	6/24/2015	16:46:00	-0.07	-0.11
run12	6/24/2015	16:46:15	-0.06	-0.09
run12	6/24/2015	16:46:30	-0.05	-0.11
run12	6/24/2015	16:46:45	-0.05	-0.11
run12	6/24/2015	16:47:00	-0.06	-0.10
run12	6/24/2015	16:47:15	0.02	-0.09
run12	6/24/2015	16:47:30	-0.04	-0.10
run12	6/24/2015	16:47:45	0.00	-0.08
run12	6/24/2015	16:48:00	-0.03	-0.10
run12	6/24/2015	16:48:15	-0.01	-0.11
run12	6/24/2015	16:48:30	-0.03	-0.12
run12	6/24/2015	16:48:45	0.04	-0.12
run12	6/24/2015	16:49:00	0.07	-0.13
run12	6/24/2015	16:49:15	0.03	-0.13
run12	6/24/2015	16:49:30	-0.01	-0.13
run12	6/24/2015	16:49:45	0.04	-0.12
run12	6/24/2015	16:50:00	0.04	-0.12
run12	6/24/2015	16:50:15	0.04	-0.11
run12	6/24/2015	16:50:30	0.02	-0.12
run12	6/24/2015	16:50:45	0.00	-0.12
run12	6/24/2015	16:51:00	0.03	-0.11
run12	6/24/2015	16:51:15	0.02	-0.12
run12	6/24/2015	16:51:30	0.05	-0.14
run12	6/24/2015	16:51:45	0.01	-0.14
run12	6/24/2015	16:52:00	0.04	-0.14
run12	6/24/2015	16:52:15	0.03	-0.13
run12	6/24/2015	16:52:30	0.06	-0.13
run12	6/24/2015	16:52:45	0.05	-0.14
run12	6/24/2015	16:53:00	0.02	-0.13
run12	6/24/2015	16:53:15	0.07	-0.13
run12	6/24/2015	16:53:30	0.02	-0.17
run12	6/24/2015	16:53:45	0.08	-0.16
run12	6/24/2015	16:54:00	0.04	-0.15
run12	6/24/2015	16:54:15	0.01	-0.14
run12	6/24/2015	16:54:30	0.04	-0.15
run12	6/24/2015	16:54:45	0.05	-0.16
run12	6/24/2015	16:55:00	0.07	-0.15
run12	6/24/2015	16:55:15	-0.01	-0.13
run12	6/24/2015	16:55:30	0.03	-0.12
run12	6/24/2015	16:55:45	0.04	-0.14

run12	6/24/2015	16:56:00	0.06	-0.15
run12	6/24/2015	16:56:15	-0.05	-0.13
run12	6/24/2015	16:56:30	0.02	-0.13
run12	6/24/2015	16:56:45	0.05	-0.14
run12	6/24/2015	16:57:00	0.05	-0.13
run12	6/24/2015	16:57:15	0.04	-0.14
run12	6/24/2015	16:57:30	0.03	-0.16
run12	6/24/2015	16:57:45	0.02	-0.16
run12	6/24/2015	16:58:00	0.04	-0.17
run12	6/24/2015	16:58:15	0.03	-0.16
run12	6/24/2015	16:58:30	0.08	-0.16
run12	6/24/2015	16:58:45	0.04	-0.17
run12	6/24/2015	16:59:00	-0.01	-0.16
run12	6/24/2015	16:59:15	0.03	-0.16
run12	6/24/2015	16:59:30	0.05	-0.16
run12	6/24/2015	16:59:45	0.07	-0.16
run12	6/24/2015	17:00:00	0.06	-0.16
run12	6/24/2015	17:00:15	0.10	-0.17
run12	6/24/2015	17:00:30	0.05	-0.18
run12	6/24/2015	17:00:45	0.03	-0.17
run12	6/24/2015	17:01:00	0.02	-0.16
run12	6/24/2015	17:01:15	0.00	-0.17
run12	6/24/2015	17:01:30	0.07	-0.19
run12	6/24/2015	17:01:45	0.08	-0.19
run12	6/24/2015	17:02:00	0.05	-0.19
run12	6/24/2015	17:02:15	-0.01	-0.17
run12	6/24/2015	17:02:30	0.02	-0.15
run12	6/24/2015	17:02:45	-0.01	-0.18
run12	6/24/2015	17:03:00	0.02	-0.17
run12	6/24/2015	17:03:15	0.04	-0.17
run12	6/24/2015	17:03:30	0.04	-0.16
run12	6/24/2015	17:03:45	0.01	-0.17
run12	6/24/2015	17:04:00	0.01	-0.17
run12	6/24/2015	17:04:15	-0.01	-0.17
run12	6/24/2015	17:04:30	-0.02	-0.18
run12	6/24/2015	17:04:45	0.02	-0.19
run12	6/24/2015	17:05:00	0.10	-0.19
run12	6/24/2015	17:05:15	0.08	-0.18
run12	6/24/2015	17:05:30	0.08	-0.19
run12	6/24/2015	17:05:45	0.08	-0.19
run12	6/24/2015	17:06:00	0.07	-0.18
run12	6/24/2015	17:06:15	0.04	-0.19
run12	6/24/2015	17:06:30	0.08	-0.18
run12	6/24/2015	17:06:45	0.11	-0.16
run12	6/24/2015	17:07:00	0.03	-0.17
run12	6/24/2015	17:07:15	0.04	-0.17
run12	6/24/2015	17:07:30	0.03	-0.18
run12	6/24/2015	17:07:45	0.00	-0.16
run12	6/24/2015	17:08:00	0.06	-0.17
run12	6/24/2015	17:08:15	0.07	-0.16
run12	6/24/2015	17:08:30	0.11	-0.17
run12	6/24/2015	17:08:45	0.07	-0.18
run12	6/24/2015	17:09:00	0.05	-0.20
run12	6/24/2015	17:09:15	0.07	-0.19
run12	6/24/2015	17:09:30	0.11	-0.17
run12	6/24/2015	17:09:45	0.10	-0.17
run12	6/24/2015	17:10:00	0.12	-0.17
run12	6/24/2015	17:10:15	0.12	-0.17
run12	6/24/2015	17:10:30	0.18	-0.17
run12	6/24/2015	17:10:45	0.15	-0.19
run12	6/24/2015	17:11:00	0.19	-0.18
run12	6/24/2015	17:11:15	0.16	-0.18
run12	6/24/2015	17:11:30	0.14	-0.19
run12	6/24/2015	17:11:45	0.16	-0.17
run12	6/24/2015	17:12:00	0.14	-0.16
run12	6/24/2015	17:12:15	0.16	-0.17

run12	6/24/2015	17:12:30	0.19	-0.17						
run12	6/24/2015	17:12:45	0.14	-0.17						
run12	6/24/2015	17:13:00	0.22	-0.18						
run12	6/24/2015	17:13:15	0.17	-0.18						
run12	6/24/2015	17:13:30	0.19	-0.17						
run12	6/24/2015	17:13:45	0.23	-0.19						
run12	6/24/2015	17:14:00	0.28	-0.19						
run12	6/24/2015	17:14:15	0.25	-0.19						
run12	6/24/2015	17:14:30	0.24	-0.18						
run12	6/24/2015	17:14:45	0.20	-0.16						
run12	6/24/2015	17:15:00	0.28	-0.16						
run12	6/24/2015	17:15:15	0.28	-0.17						
run12	6/24/2015	17:15:30	0.23	-0.17						
run12	6/24/2015	17:15:45	0.21	-0.17						
averun12	6/24/2015	16:15:00	0.02	-0.12		60				
scg2	6/24/2015	17:16:15	0.23	-0.17	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	17:16:30	0.24	-0.17	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	17:16:45	0.25	-0.16	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	17:17:00	0.26	-0.17	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	17:17:15	0.24	-0.18	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	17:17:30	0.09	-0.19	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	17:17:45	0.01	-0.19	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	17:18:00	-0.05	-0.18	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	17:18:15	-0.05	-0.18	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	17:18:30	-0.08	-0.18	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	17:18:45	-0.08	-0.19	ALM059355/cg2	NOx	96.8			0
scg2	6/24/2015	17:19:00	0.00	-0.20	ALM059355/cg2	NOx	96.8			0
o2zero1	6/24/2015	17:19:00	0.00	-0.20	ALM059355/cg2	NOx	96.8			0
co2zero1	6/24/2015	17:19:00	0.00	-0.20	ALM059355/cg2	NOx	96.8			0
cozero1	6/24/2015	17:19:00	0.00	-0.20	ALM059355/cg2	NOx	96.8			0
noxspan1	6/24/2015	17:19:00	0.00	-0.20	ALM059355/cg2	NOx	96.8			0
scg9	6/24/2015	17:19:15	-0.03	-0.21	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	17:19:30	-0.01	-0.19	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	17:19:45	-0.03	-0.17	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	17:20:00	0.00	-0.15	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	17:20:15	0.01	-0.17	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	17:20:30	0.81	-0.18	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	17:20:45	2.06	-0.18	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	17:21:00	3.55	-0.19	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	17:21:15	4.32	-0.21	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	17:21:30	4.71	-0.20	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	17:21:45	4.86	-0.19	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	17:22:00	4.88	-0.17	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	17:22:15	5.00	-0.17	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	17:22:30	4.99	-0.18	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	17:22:45	5.01	-0.18	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	17:23:00	5.05	-0.19	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	17:23:15	5.01	-0.19	LL23441/cg9	CO	5.13			0
scg9	6/24/2015	17:23:30	4.98	-0.19	LL23441/cg9	CO	5.13			0
noxzero1	6/24/2015	17:23:30	4.98	-0.19	LL23441/cg9	CO	5.13			0
cospan1	6/24/2015	17:23:30	4.98	-0.19	LL23441/cg9	CO	5.13			0
scg10	6/24/2015	17:23:45	5.04	-0.20	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	17:24:00	5.06	-0.22	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	17:24:15	5.01	-0.22	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	17:24:30	5.02	-0.21	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	17:24:45	5.00	-0.19	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	17:25:00	4.30	-0.19	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	17:25:15	2.97	-0.19	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	17:25:30	1.23	-0.19	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	17:25:45	0.29	-0.18	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	17:26:00	-0.21	-0.19	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	17:26:15	-0.23	-0.19	ALM008899/cg10	O2	11.06	CO2	11.16	
scg10	6/24/2015	17:26:30	-0.23	-0.21	ALM008899/cg10	O2	11.06	CO2	11.16	
o2span1	6/24/2015	17:26:15	-0.23	-0.19	ALM008899/cg10	O2	11.06	CO2	11.16	
co2span1	6/24/2015	17:26:15	-0.23	-0.19	ALM008899/cg10	O2	11.06	CO2	11.16	
scg6	6/24/2015	17:26:45	-0.23	-0.21	ALM02298/cg6	THC	5.08			0

scg6	6/24/2015	17:27:00	-0.23	-0.19	ALM02298/cg6	THC	5.08	0
scg6	6/24/2015	17:27:15	-0.23	-0.19	ALM02298/cg6	THC	5.08	0
scg6	6/24/2015	17:27:30	-0.23	-0.20	ALM02298/cg6	THC	5.08	0
scg6	6/24/2015	17:27:45	-0.23	-0.20	ALM02298/cg6	THC	5.08	0
scg6	6/24/2015	17:28:00	0.10	-0.21	ALM02298/cg6	THC	5.08	0
scg6	6/24/2015	17:28:15	0.54	1.92	ALM02298/cg6	THC	5.08	0
scg6	6/24/2015	17:28:30	0.94	5.20	ALM02298/cg6	THC	5.08	0
scg6	6/24/2015	17:28:45	1.10	5.27	ALM02298/cg6	THC	5.08	0
scg6	6/24/2015	17:29:00	1.07	5.27	ALM02298/cg6	THC	5.08	0
scg6	6/24/2015	17:29:15	1.10	5.15	ALM02298/cg6	THC	5.08	0
scg6	6/24/2015	17:29:30	1.12	5.03	ALM02298/cg6	THC	5.08	0
scg6	6/24/2015	17:29:45	1.05	5.02	ALM02298/cg6	THC	5.08	0
scg6	6/24/2015	17:30:00	1.02	5.01	ALM02298/cg6	THC	5.08	0
thcspan1	6/24/2015	17:30:00	1.02	5.01	ALM02298/cg6	THC	5.08	0
scg1	6/24/2015	17:30:15	1.11	5.02	CC429811/cg1	N2	0	0
scg1	6/24/2015	17:30:30	1.12	4.99	CC429811/cg1	N2	0	0
scg1	6/24/2015	17:30:45	1.13	4.97	CC429811/cg1	N2	0	0
scg1	6/24/2015	17:31:00	1.10	4.98	CC429811/cg1	N2	0	0
scg1	6/24/2015	17:31:15	1.08	4.96	CC429811/cg1	N2	0	0
scg1	6/24/2015	17:31:30	1.21	4.95	CC429811/cg1	N2	0	0
scg1	6/24/2015	17:31:45	1.35	4.95	CC429811/cg1	N2	0	0
scg1	6/24/2015	17:32:00	1.44	4.39	CC429811/cg1	N2	0	0
scg1	6/24/2015	17:32:15	1.41	0.42	CC429811/cg1	N2	0	0
scg1	6/24/2015	17:32:30	1.33	0.00	CC429811/cg1	N2	0	0
scg1	6/24/2015	17:32:45	1.28	0.49	CC429811/cg1	N2	0	0
scg1	6/24/2015	17:33:00	1.40	0.62	CC429811/cg1	N2	0	0
scg1	6/24/2015	17:33:15	1.51	-0.03	CC429811/cg1	N2	0	0
scg1	6/24/2015	17:33:30	1.53	-0.17	CC429811/cg1	N2	0	0
thczero1	6/24/2015	17:33:30	1.53	-0.17	CC429811/cg1	N2	0	0
so2zero								
so2span								
noxzero								
noxspan								
co2zero								
co2span								
o2zero								
o2span								
thczero								
thcspan								
cozero								
cospan								

so2ezero	Parameter Not Found
so2mid	Parameter Not Found
so2high	Parameter Not Found
noxezero	Parameter Not Found
noxlow	Parameter Not Found
noxmid	Parameter Not Found
noxhigh	Parameter Not Found
co2ezero	Parameter Not Found
co2mid	Parameter Not Found
co2high	Parameter Not Found
o2ezero	Parameter Not Found
o2mid	Parameter Not Found
o2high	Parameter Not Found
thcezero	Parameter Not Found
thclow	Parameter Not Found
thcmid	Parameter Not Found
thchigh	Parameter Not Found
coezero	Parameter Not Found
colow	Parameter Not Found
comid	Parameter Not Found
cohigh	Parameter Not Found

End

METCO ENVIRONMENTAL

ELECTRONIC PROJECT LOG

Project Start Date			
Truck(s) #:	8		
Project Number	15-162		
Project Name	Hy-bon		
Project Supervisor(s)	Ryan Adam		
Project Manager	Mike Hutcherson		
Location:	Belpre, OH		
Latitude	32.97601	**Longitude**	96.84418
Elevation	629		
Sample Location(s)	20" and 75" Combustor		
Sampling Personnel:			

Plant Contact (Name):		**Email**		**Phone**	
Alternate Plant Contact (Name):		**Email**		**Phone**	
Third Party Observers (Name):		**Email**		**Phone**	
Contract Sampling Personnel (Name):		**Email**		**Phone**	

Critical Occurances/Method Deviations
Scope Changes

Reference Method Monitors Used

Parameter (Select)	Make	Model	S/N	Range	Remarks (eg. Rental, Instrument Malfunction, etc...)
Oxygen	Horriba	VA-3000	Y51RBAJE	0-25	
Carbon Dioxide	Horriba	VA-3000	Y51RBAJE	0-25	
Oxides of Nitrogen	Thermo	42i	1013042019	0-250	
Carbon Monoxide	Thermo			0-10	
Total Hydrocarbon	Thermo	51i	1215252823	0-10	

Calibration Gas Cylinders Used

Calibration Cylinder S/N	ppmv or % (Select)	Zero, Low, Mid, Span	Component 1	Component 1 Conc.	Component 2	Component 2 Conc.	Remarks
ALM008899	%	Mid	CO2	11.16	O2	11.06	
ALM017523	%	High	CO2	19.69	O2	19.88	
CC66094	ppmv	Mid	CO	5.13			
ALM005790	ppmv	High	CO	9.17			
CC64067	ppmv	Low	Propane	3.08			
ALM022989	ppmv	Mid	Propane	5.08			
BAL4190	ppmv	High	Propane	8.64			
ALM059355	ppmv	Mid	NOx	96.8			
ALM010404	ppmv	High	NOx	224			
ALM021093	ppmv		NO2	50.2			
CC429811	ppmv	Zero	N2				
EB0007479	ppmv	Zero	N2				

METCO ENVIRONMENTAL

ELECTRONIC PROJECT LOG

Reference Method Monitor System Information Used

Reference Method Monitor System # 1	System Order from Stack to Manifold (select)	Date	Leak Check @ ("Hg)	Leak Check Rate (Δ"Hg)	Probe Temp. - °F	Heated Line Temp. - °F	Chiller Temp. - °F	System Flow Rate - LPM
Component # 1	In-Stack Filter	06/22/15	15	0		250	42	3.5
Component # 2	Stainless Probe							
Component # 3	Heated Teflon Sample Line							
Component # 4	Condensate Impingers							
Component # 5	Electronic Chiller System							
Component # 6	Manifold System							
Component # 7								
Component # 8								
Reference Method Monitor System Remarks								

Reference Method Monitor System # 2	System Order from Stack to Manifold (select)	Date	Leak Check @ ("Hg)	Leak Check Rate (Δ"Hg)	Probe Temp. - °F	Heated Line Temp. - °F	Chiller Temp. - °F	System Flow Rate - LPM
Component # 1								
Component # 2								
Component # 3								
Component # 4								
Component # 5								
Component # 6								
Component # 7								
Component # 8								
Reference Method Monitor System Remarks								

Calibrated Sampling Equipment Used (Wet Trains)

Equipment Description (select)	Equipment Number	Calibration Factor	Calibration Date	Remarks
Control Module - Dry Gas Mete	M8-1	0.994	5/28/2015	
Pitot Tube	8/10/2001	0.813		
Pitot Tube				

Reageants and Solvents Used

Reag./Solv. Description (select)	Manufacturer	Lot No.	Expiration Date	Remarks

Daily Log -

Date 6/21/2015 Total Time 9:30

Time Log (Facility Time Only)				Run Times			
Description (select)	Start	Stop	Remarks	Run #	Start	Stop	Methods
Travel	1:00	10:30					

METCO ENVIRONMENTAL

ELECTRONIC PROJECT LOG

Notable Comments

Daily Log -

Date 6/22/2015 Total Time 10:15

Time Log (Facility Time Only)				Run Times			
Description (select)	Start	Stop	Remarks	Run #	Start	Stop	Methods
Travel	6:45	7:15					
Move-on/Set-up	7:15	16:45	CO analyzer fubar-replacement sent				
Travel	16:45	17:00					

Notable Comments

Daily Log -

Date 6/23/2015 Total Time 12:45

Time Log (Facility Time Only)				Run Times			
Description (select)	Start	Stop	Remarks	Run #	Start	Stop	Methods
Travel	6:00	6:30	Large Combustor	1	8:55	9:55	Load 1 (0-30-0)
Move-on/Set-up	6:30	8:50		2	10:35	11:35	Load 1 (0-30-0)
Testing	8:50	18:30		3	12:10	13:10	Load 1 (0-30-0)
Travel	18:30	18:45		1	13:55	14:55	Load 2 (30-70-30)
				2	15:30	16:30	Load 2 (30-70-30)
				3	17:00	18:00	Load 2 (30-70-30)

Notable Comments

Daily Log -

Date 6/24/2015 Total Time 12:45

Time Log (Facility Time Only)				Run Times			
Description (select)	Start	Stop	Remarks	Run #	Start	Stop	Methods

METCO ENVIRONMENTAL

ELECTRONIC PROJECT LOG

Travel	6:00	6:30	Large Combustor	1	8:25	9:25	Load 3 (70-100-70)
Move-on/Set-up	6:30	8:30		2	10:05	11:05	Load 3 (70-100-70)
Testing	8:30	17:30		3	11:35	12:35	Load 3 (70-100-70)
Move-on/Set-up	17:30	18:30		1	13:15	14:15	Load 4 (100)
Travel	18:30	18:45		2	14:45	15:45	Load 4 (100)
				3	16:15	17:15	Load 4 (100)

Notable Comments

Daily Log -

Date 6/25/2015 Total Time 0:00

Time Log (Facility Time Only)				Run Times			
Description (select)	Start	Stop	Remarks	Run #	Start	Stop	Methods
Travel	6:00	6:30	Small Combustor	1	10:30	11:30	Load 1 (0-30-0)
Move-on/Set-up	6:30	10:30		2	11:50	12:50	Load 1 (0-30-0)
Testing	10:30	20:00		3	13:10	14:10	Load 1 (0-30-0)
Travel	20:00	20:15		1	14:30	15:30	Load 2 (30-70-30)
				2	15:50	16:50	Load 2 (30-70-30)
				3	17:10	18:10	Load 2 (30-70-30)
				1	18:40	19:40	Load 3 (70-100-70)

Notable Comments

Daily Log -

Date 6/26/2015 Total Time 0:00

Time Log (Facility Time Only)				Run Times			
Description (select)	Start	Stop	Remarks	Run #	Start	Stop	Methods
Travel	6:00	6:30	small combustor	2	8:00	9:00	Load 3 (70-100-70)
Move-on/Set-up	6:30	8:00		3	9:25	10:25	Load 3 (70-100-70)
Testing	8:00	14:30		1	10:45	11:45	Load 4 (100)
Move-Off	14:30	16:15		2	12:05	13:05	Load 4 (100)
Travel	16:15	0:00		3	13:25	14:25	Load 4 (100)
Travel	0:00	2:30					

Notable Comments

APPENDIX G

Visible Emission Data

METCO ENVIRONMENTAL

R-1

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

Method 22

COMPANY Hy-Bon OBSERVER [illegible]

LOCATION 75 Combuster AFFILIATION —

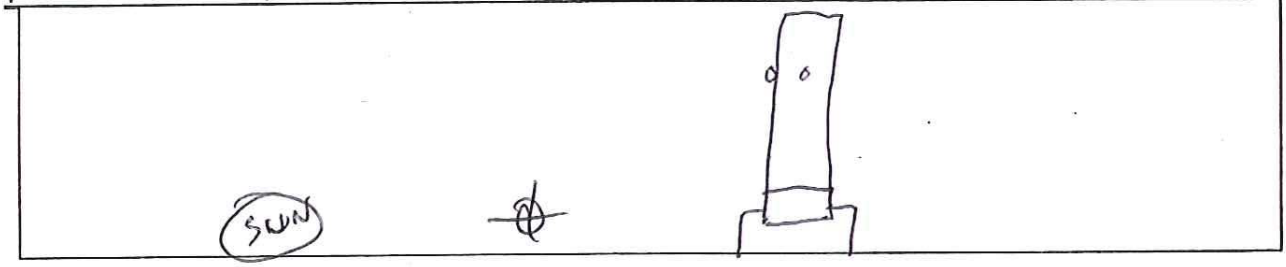
COMPANY REPRESENTATIVE — DATE 6/23/15

Sky Conditions Cloudy Wind Direction west

Precipitation n/a Wind Speed 5-7

INDUSTRY — PROCESS UNIT —

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	8:55	0	0
	9:00	5	0
	9:05	10	0
	9:10	15	0
	9:15	20	0
Break, Bowlon took over →	9:20	25	0
	9:25	30	0 (took picture)
	9:30	35	0
[illegible] took over →	9:35	40	0
End Observation	9:40	45	0

Page 2
R-1

METCO ENVIRONMENTAL

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

R-1 Method 22

COMPANY Hy-Bon OBSERVER [signature]

LOCATION 75 combustor AFFILIATION

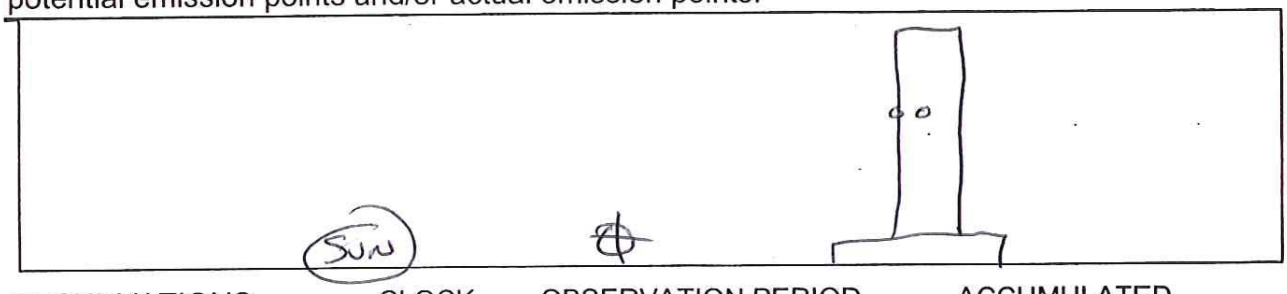
COMPANY REPRESENTATIVE — DATE 6/23/15

Sky Conditions Cloudy Wind Direction West

Precipitation N/A Wind Speed 5-7

INDUSTRY PROCESS UNIT

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	9:45	50	0
	9:50	55	0
	9:55	60	0
End Observation			


06/23/2015 09:25

Page one
Run 2

METCO ENVIRONMENTAL

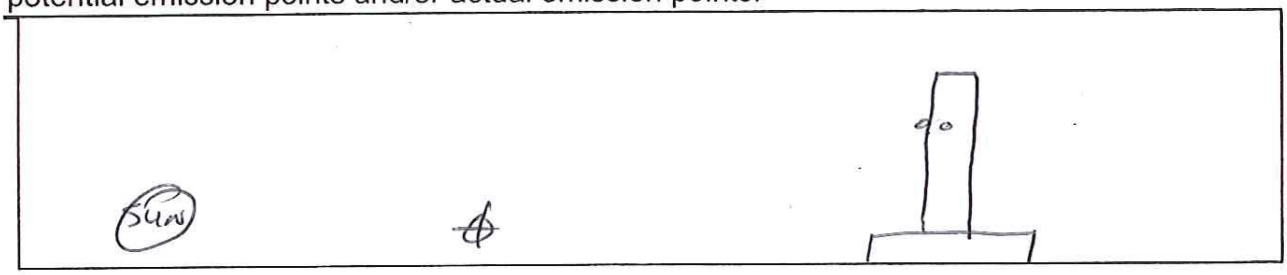
FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION Method 22

COMPANY Hy-Bon OBSERVER [signature]
LOCATION 7S Combustor AFFILIATION —
COMPANY REPRESENTATIVE — DATE 6/23/15

Sky Conditions Cloudy Wind Direction west
Precipitation n/a Wind Speed 5-7

INDUSTRY — PROCESS UNIT —

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	10:35	0	0
	10:40	5	0
	10:45	10	0
	10:50	15	0
	10:55	20	0
Burners switched →	11:00	25	0
	11:05	30	0 (Took picture)
	11:10	35	0
Switched back →	11:15	40	0
End Observation	11:20	45	0

P2 R2

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

COMPANY Hy-Bon OBSERVER [signature]

LOCATION 7S Combustor AFFILIATION —

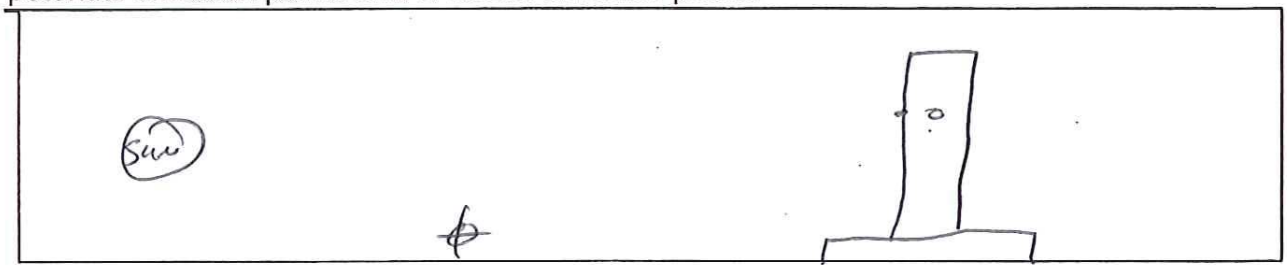
COMPANY REPRESENTATIVE — DATE 6/23/15

Sky Conditions Cloudy Wind Direction west

Precipitation N/A Wind Speed 5-7

INDUSTRY — PROCESS UNIT —

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	11:25	50	0
	11:30	55	0
	11:35	60	0
End Observation			


06/23/2015 11:06

Page 1
R-3

METCO ENVIRONMENTAL

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

Method 22

COMPANY Hy-Bon OBSERVER [signature]

LOCATION 75 Combustor AFFILIATION —

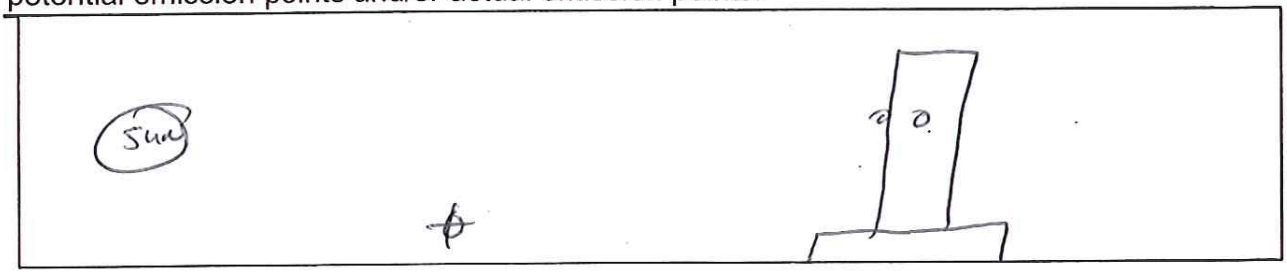
COMPANY REPRESENTATIVE — DATE 6/23/15

Sky Conditions Cloudy Wind Direction west

Precipitation N/A Wind Speed 5-7

INDUSTRY — PROCESS UNIT —

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	12:10	0	0
	12:15	5	0
	12:20	10	0
	12:25	15	0
Brandon Switch	12:30	20	0
	12:35	25	0
	12:40	30	0
	12:45	35	0
Field Switch	12:50	40	0
End Observation	12:55	45	0

Page 2
R-3

METCO ENVIRONMENTAL

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

Method 22

COMPANY Hy-Bon OBSERVER [signature]

LOCATION 75 combustor AFFILIATION —

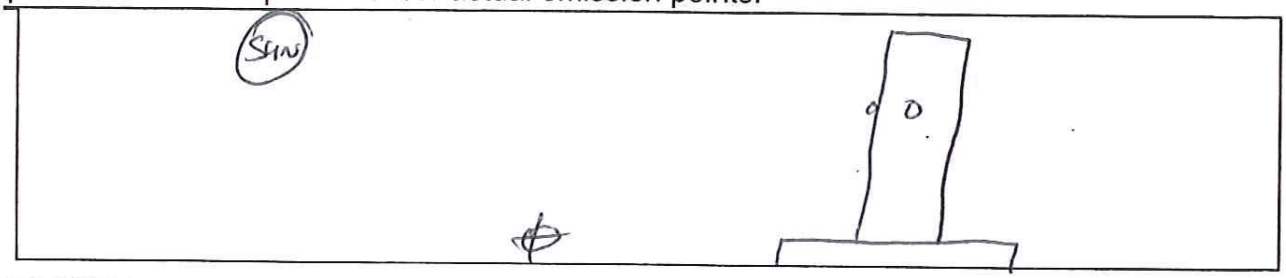
COMPANY REPRESENTATIVE — DATE 6/23/15

Sky Conditions cloudy Wind Direction west

Precipitation N/A Wind Speed 5-7

INDUSTRY — PROCESS UNIT —

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	13:00	5'0	0
	13:05	55	0
	13:10	60	0
End Observation			

G-10

R-1 L-2
Page 1

R4

METCO ENVIRONMENTAL

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

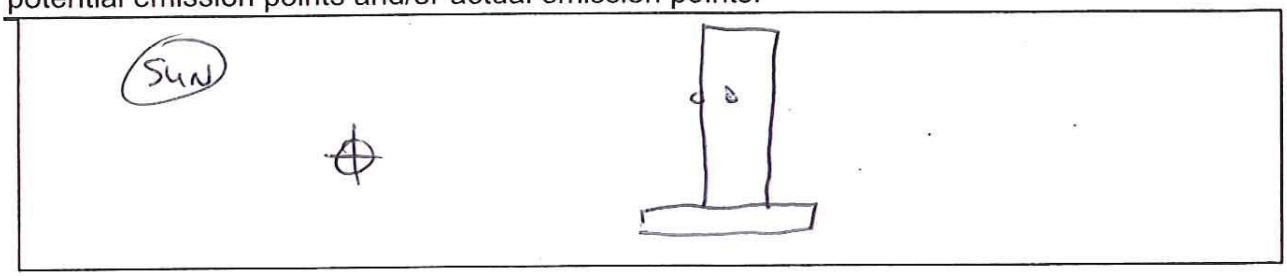
R-1 L-2 Method 22

COMPANY Hy Bon OBSERVER [signature]
LOCATION 75 Combuster AFFILIATION —
COMPANY REPRESENTATIVE — DATE 6/23/15

Sky Conditions Partly Cloudy Wind Direction West
Precipitation N/A Wind Speed 5-7

INDUSTRY — PROCESS UNIT —

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	1355	0	0
	14:00	5	0
	14:05	10	0
	14:10	15	0
Brandon	14:15	20	0
	14:20	25	0
	14:25	30	(took picture) 0
	14:30	35	0
[signature]	14:35	40	0
End Observation	14:40	45	0

R-1 L-2
Page 2

R-4 R-1 L-2

METCO ENVIRONMENTAL

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

Method 22

COMPANY Hy Bon OBSERVER [illegible]

LOCATION 75 Combustor AFFILIATION —

COMPANY REPRESENTATIVE — DATE 6/23/15

Sky Conditions Partly Cloudy Wind Direction west

Precipitation N/A Wind Speed 5-7

INDUSTRY — PROCESS UNIT —

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.

OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	14:45	50	0
	14:50	55	0
	14:55	60	0
End Observation			


06/23/2015 14:28

RS

METCO ENVIRONMENTAL

Page 1 of 2

R-2 L-2

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

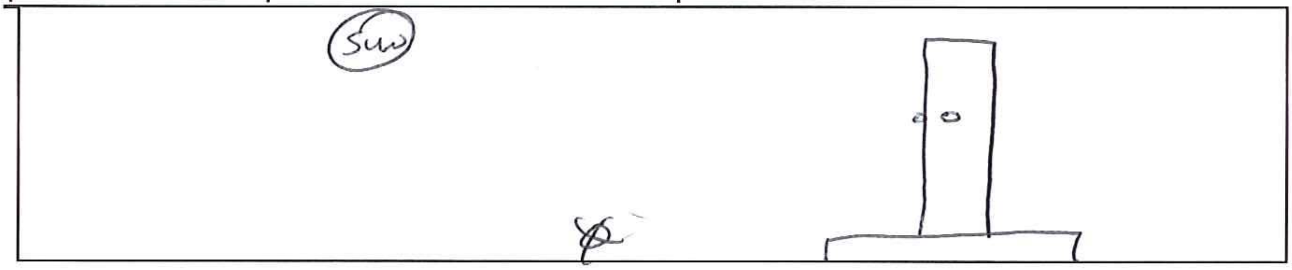
method 22

COMPANY Hy-Bon OBSERVER [signature]
LOCATION 75 Combustor AFFILIATION —
COMPANY REPRESENTATIVE — DATE 6/23/15

Sky Conditions Partly Cloudy Wind Direction west
Precipitation N/A Wind Speed 5-7

INDUSTRY — PROCESS UNIT —

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC	
Begin Observation [initials]	15:30	0	0	
	15:35	5	0	
	15:40	10	0	
	15:45	15	0	
Brandon	15:50	20	0	
	15:55	25	0	
	16:00	30	0	took picture
	16:05	35	0	
[initials]	16:10	40	0	
End Observation	16:15	45	0	

QA/QC Check
Completeness / Legibility / Accuracy / Specifications / Reasonableness /

Checked by: [signature]

R-5

METCO ENVIRONMENTAL

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

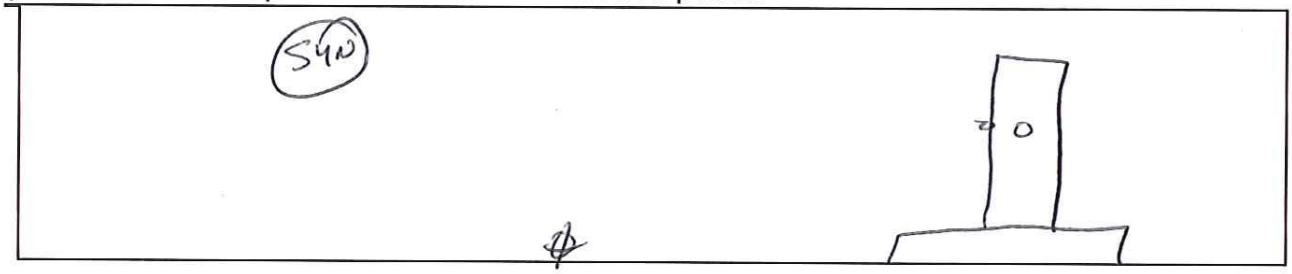
R-2 C-2 Method 22

COMPANY Hy-Bon **OBSERVER** [redacted]
LOCATION 75 combustor **AFFILIATION** —
COMPANY REPRESENTATIVE — **DATE** 6/23/15

Sky Conditions cloudy Wind Direction west
Precipitation N/A Wind Speed 5-7

INDUSTRY — PROCESS UNIT —

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	16:20	50	0
	16:25	55	0
	16:30	60	0
End Observation			

QA/QC Check
Completeness / Legibility / Accuracy / Specifications / Reasonableness /

Checked by: [redacted]


06/23/2015 16:01

R-4

METCO ENVIRONMENTAL

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

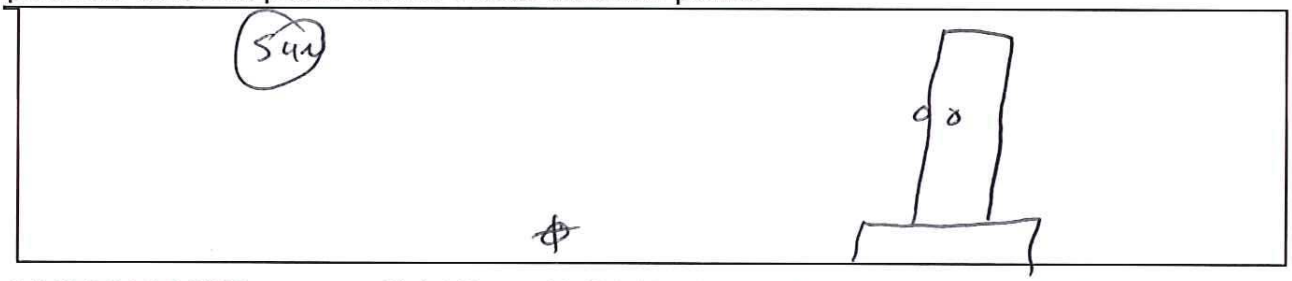
R-3 L-3 method 22

COMPANY Hy-Bon OBSERVER [signature]
LOCATION 75 combustor AFFILIATION —
COMPANY REPRESENTATIVE — DATE 6/23/15

Sky Conditions cloudy Wind Direction west
Precipitation N/A Wind Speed 5-7

INDUSTRY — PROCESS UNIT —

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC	
Begin Observation [signature]	17:00	6	0	
	17:05	5	0	
	17:10	10	0	
	17:15	15	0	
Brandon	17:20	20	0	
	17:25	25	0	
	17:30	30	6	took Picture
	17:35	35	0	
[signature]	17:40	40	6	
End Observation	17:45	45	6	

QA/QC Check
Completeness 1 Legibility 1 Accuracy 1 Specifications 1 Reasonableness 1

Checked by: [signature]

R-4

METCO ENVIRONMENTAL

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

R-3 L-3

COMPANY Hy Bon OBSERVER JMD

LOCATION 75 Combustor AFFILIATION —

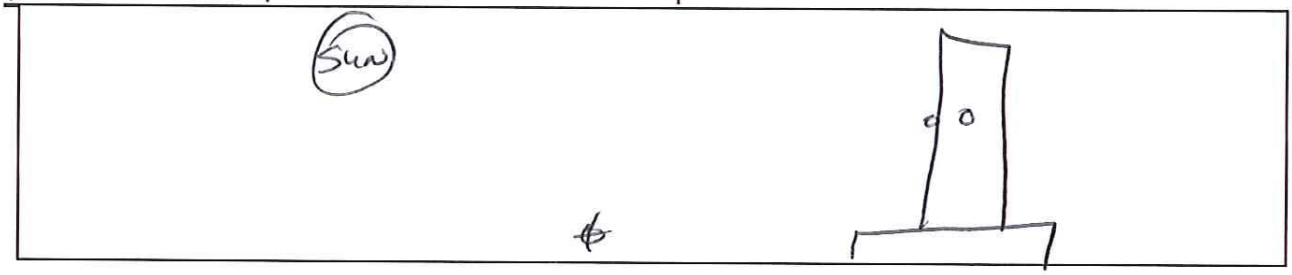
COMPANY REPRESENTATIVE — DATE 6/23/15

Sky Conditions cloudy Wind Direction west

Precipitation N/A Wind Speed 5-7

INDUSTRY — PROCESS UNIT —

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	17:50	50	0
	17:55	55	0
	18:00	60	0
End Observation			

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: ✓


06/23/2015 17:30

METCO ENVIRONMENTAL

R-7 Page 1 of 3

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

Method 22

COMPANY HyBon **OBSERVER** [signature]

LOCATION 75 combustor **AFFILIATION** —

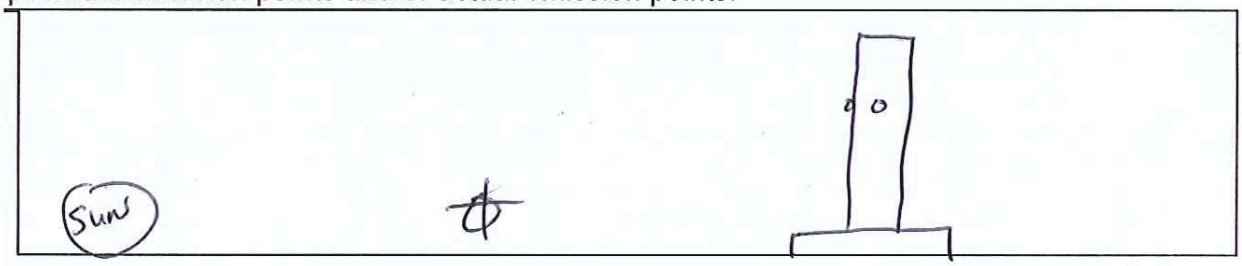
COMPANY REPRESENTATIVE — **DATE** 6/24/15

Sky Conditions Partly Cloudy Wind Direction N/A

Precipitation N/A Wind Speed 0

INDUSTRY — PROCESS UNIT —

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC	
Begin Observation [signature]	8:25	0	0	
	8:30	5	0	
	8:35	10	0	
	8:40	15	0	
Brandon	8:45	20	0	
	8:50	25	0	
	8:55	30	0	Took picture
	9:00	35	0	
	9:05	40	0	
End Observation [signature]	9:10	45	0	

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: [signature]

VERSION 2
1 February 2008

METCO ENVIRONMENTAL

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

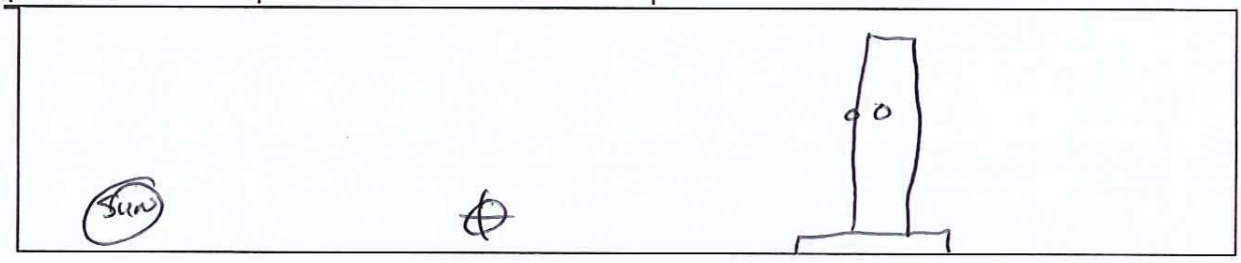
R-7 Page 2 of 3 — Method 22

COMPANY Hy Bon — OBSERVER [signature]
LOCATION TS Combustor — AFFILIATION —
COMPANY REPRESENTATIVE [signature] — DATE 6/24/15

Sky Conditions Partly Cloudy — Wind Direction N/A
Precipitation N/A — Wind Speed 0

INDUSTRY — — PROCESS UNIT —

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	9:15	50	0
	9:20	55	0
	9:25	60	0
End Observation			

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: [signature]


06/24/2015 08:56

METCO ENVIRONMENTAL

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

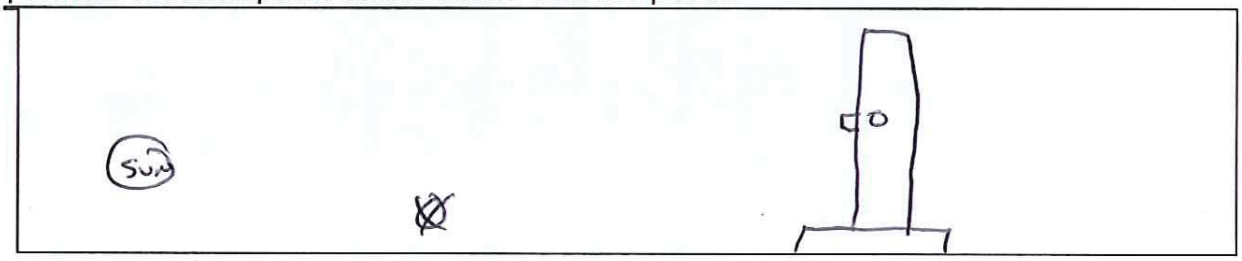
R-8 Page 1 of 3 — Method 22

COMPANY Hypon — OBSERVER JHP
LOCATION 75 Combustek — AFFILIATION —
COMPANY REPRESENTATIVE — — DATE 6/24/15

Sky Conditions Partly Cloudy — Wind Direction West
Precipitation N/A — Wind Speed 0-5

INDUSTRY — — PROCESS UNIT —

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC	
Begin Observation JHP	10:06	0	0	
	10:11	5	0	
	10:16	10	0	
	10:21	15	0	
Brandon	10:26	20	0	
	10:31	25	0	
	10:36	30	0	Took picture
	10:41	35	0	
	10:46	40	0	
End Observation JHP	10:51	45	0	

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: ✓

VERSION 2
1 February 2008

METCO ENVIRONMENTAL

FUGITIVE OR SMOKE EMISSION INSPECTION

R-8 Pase2 c-3 **OUTDOOR LOCATION** method 22

COMPANY Hy Bon **OBSERVER** JMP

LOCATION TS combustor **AFFILIATION** —

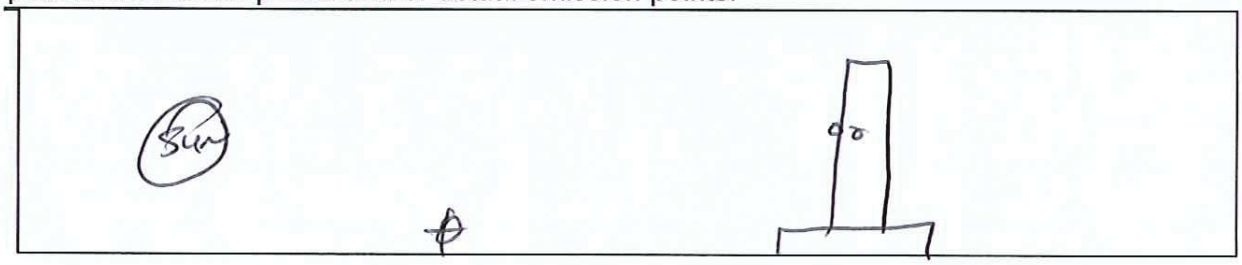
COMPANY REPRESENTATIVE — **DATE** 6/24/15

Sky Conditions Partly cloudy Wind Direction west

Precipitation N/A Wind Speed 0-5

INDUSTRY — PROCESS UNIT —

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	10:56	50	0
	11:01	55	0
	11:06	60	0
End Observation			

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: ✓


06/24/2015 10:37

METCO ENVIRONMENTAL

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

R-9 Page 1 of 3 — Method 22

COMPANY Hy Bon — OBSERVER JMP

LOCATION TS combustor — AFFILIATION —

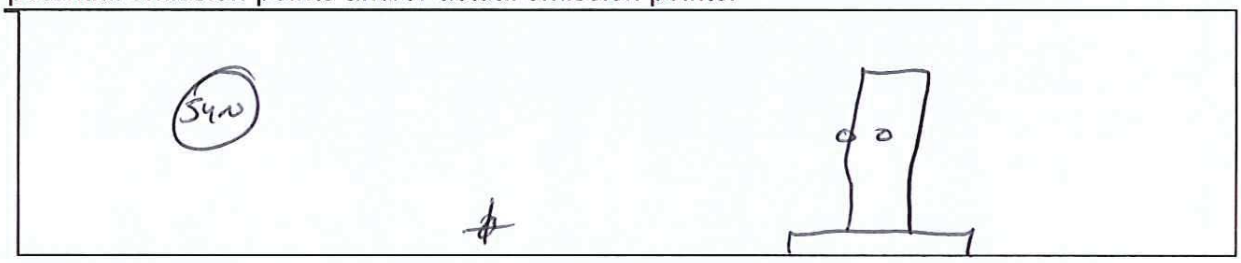
COMPANY REPRESENTATIVE — — DATE 6/24/15

Sky Conditions Partly Cloudy — Wind Direction west

Precipitation n/a — Wind Speed 0-5

INDUSTRY — — PROCESS UNIT —

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation JMP	11:35	0	0
	11:40	5	0
	11:45	10	0
	11:50	15	0
Brandon	11:55	20	0
	12:00	25	0
	12:05	30	0
	12:10	35	0 picture
	12:15	40	0
End Observation JMP	12:20	45	0

QA/QC Check
Completeness / Legibility / Accuracy / Specifications / Reasonableness /

Checked by: _____

VERSION 2
1 February 2008

METCO ENVIRONMENTAL

R-9 Page 2 — **FUGITIVE OR SMOKE EMISSION INSPECTION** — method 22

OUTDOOR LOCATION

L-3

COMPANY Hy Bon — OBSERVER [signature]

LOCATION 7S combustor — AFFILIATION —

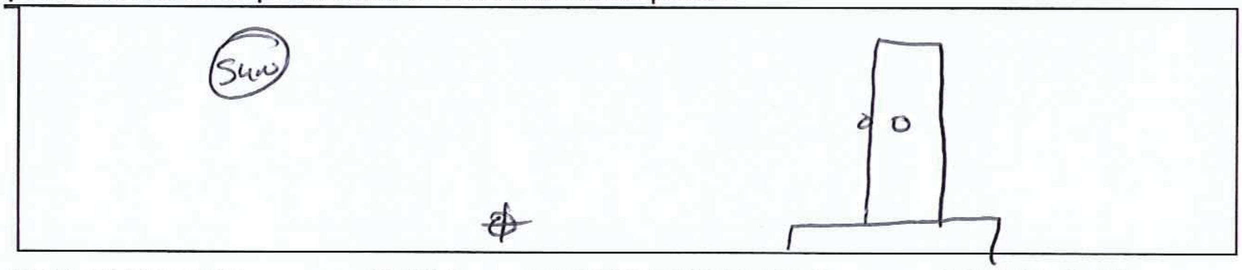
COMPANY REPRESENTATIVE — — DATE 6/24/15

Sky Conditions Partly Cloudy — Wind Direction west

Precipitation N/A — Wind Speed 0-5

INDUSTRY — — PROCESS UNIT —

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	12:25	50	0
	12:30	55	0
	12:35	60	0
End Observation			

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: [signature]

VERSION 2
1 February 2008

06/24/2015 12:06

METCO ENVIRONMENTAL

Page 1 of 2

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

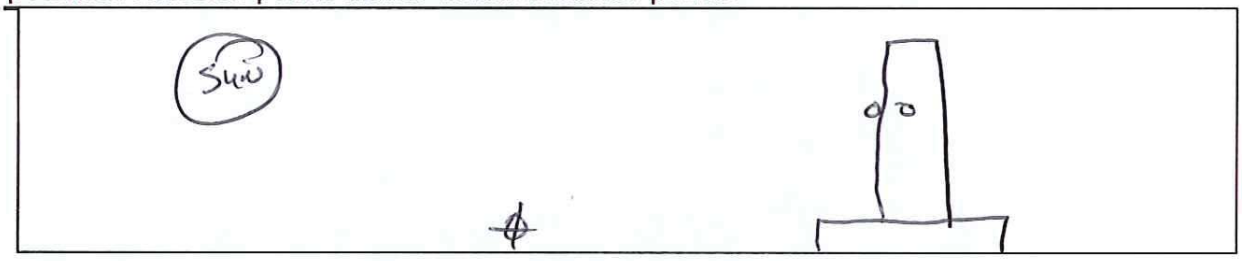
Run 10 L-4 Method 22

COMPANY Hy Bon OBSERVER [illegible]
LOCATION 75 Combustor AFFILIATION —
COMPANY REPRESENTATIVE — DATE 6/24/15

Sky Conditions Cloudy Wind Direction west
Precipitation N/A Wind Speed 0-5

INDUSTRY — PROCESS UNIT —

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation [illegible]	13:15	0	0
	13:20	5	0
	13:25	10	0
	13:30	15	0
	13:35	20	0
Brandon	13:40	25	0
	13:45	30	0
	13:50	35	0
	13:55	40	0
End Observation [illegible]	14:00	45	0

QA/QC Check
Completeness / Legibility / Accuracy / Specifications / Reasonableness /

Checked by: [illegible]

METCO ENVIRONMENTAL

FUGITIVE OR SMOKE EMISSION INSPECTION

Runs 10 L-4 — **OUTDOOR LOCATION** — Method 22

COMPANY Hy Bon **OBSERVER** [signature]

LOCATION 25 combustor **AFFILIATION** —

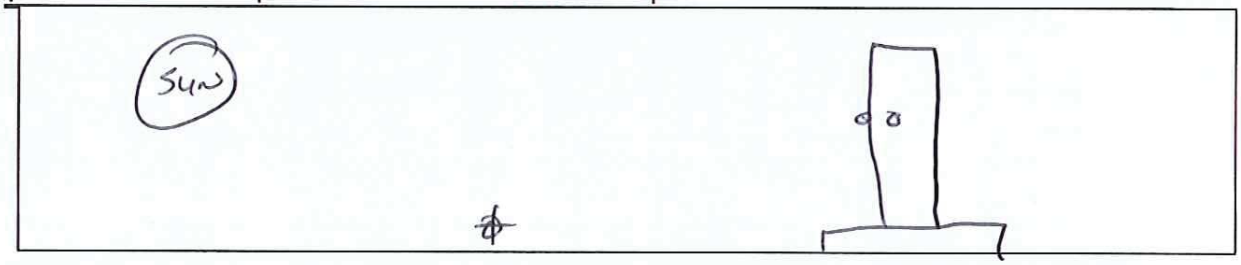
COMPANY REPRESENTATIVE — **DATE** 6/24/15

Sky Conditions Cloudy Wind Direction west

Precipitation N/A Wind Speed 0-5

INDUSTRY — PROCESS UNIT —

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	14:05	50	0
	14:10	55	0
	14:15	60	0
End Observation			

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: [signature]

06/24/2015 13:46

METCO ENVIRONMENTAL

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

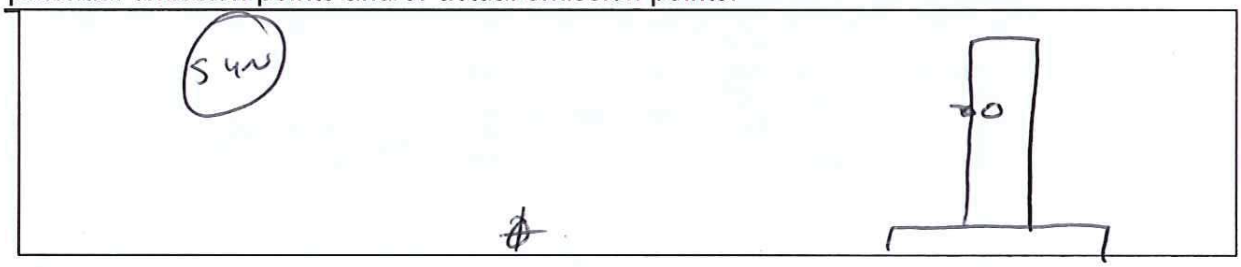
Runs 11 L-4 Method 22

COMPANY Hy Bon OBSERVER JMP
LOCATION TS combustor AFFILIATION —
COMPANY REPRESENTATIVE — DATE 6/24/15

Sky Conditions cloudy Wind Direction west
Precipitation N/A Wind Speed 0-5

INDUSTRY — PROCESS UNIT —

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation JMP	14:45	0	0
	14:50	5	0
	14:55	10	0
	15:00	15	0
Brackets	15:05	20	0
	15:10	25	0
	15:15	30	0
	15:20	35	0
	15:25	40	0
End Observation JMP	15:30	45	0

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: ✓

VERSION 2
1 February 2008

METCO ENVIRONMENTAL

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

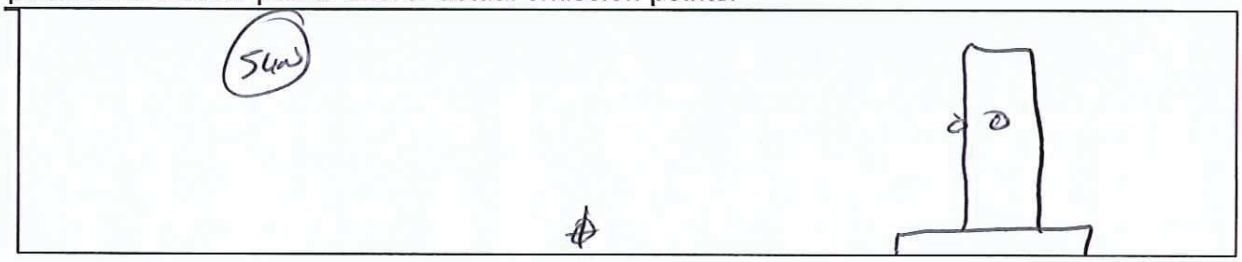
Run 11 L-4 Method 22

COMPANY Hy Bon OBSERVER [redacted]
LOCATION 75 combustor AFFILIATION —
COMPANY REPRESENTATIVE — DATE 6/24/15

Sky Conditions cloudy Wind Direction west
Precipitation N/A Wind Speed 0-5

INDUSTRY — PROCESS UNIT —

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	15:35	50	0
	15:40	55	0
	15:45	60	0
End Observation			

QA/QC Check
Completeness / Legibility / Accuracy / Specifications / Reasonableness /

Checked by: [redacted]

06/24/2015 15:17

METCO ENVIRONMENTAL

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

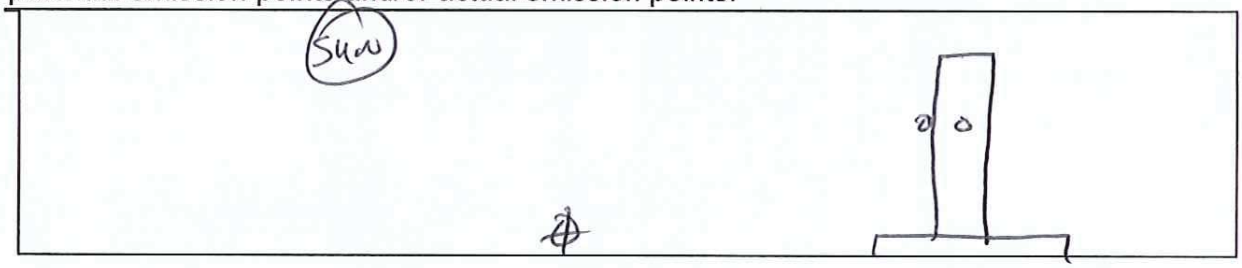
Runs 12 & 4 — Method 22

COMPANY Hy Bon — OBSERVER [signature]
LOCATION TS combustor — AFFILIATION —
COMPANY REPRESENTATIVE — — DATE 6/24/15

Sky Conditions Cloudy — Wind Direction West
Precipitation N/A — Wind Speed 0-5

INDUSTRY — — PROCESS UNIT —

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation [signature]	16:20	0	0
	16:25	5	0
	16:30	10	0
	16:35	15	0
Brandon	16:40	20	0
	16:45	25	0
	16:50	30	0
	16:55	35	0
[signature]	17:00	40	0
End Observation	17:05	45	0

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: [signature]

METCO ENVIRONMENTAL

Page 2 of 2

Runs 12 L-4

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

Method 22

COMPANY Hy Bon **OBSERVER** [signature]

LOCATION 75 combustor **AFFILIATION** —

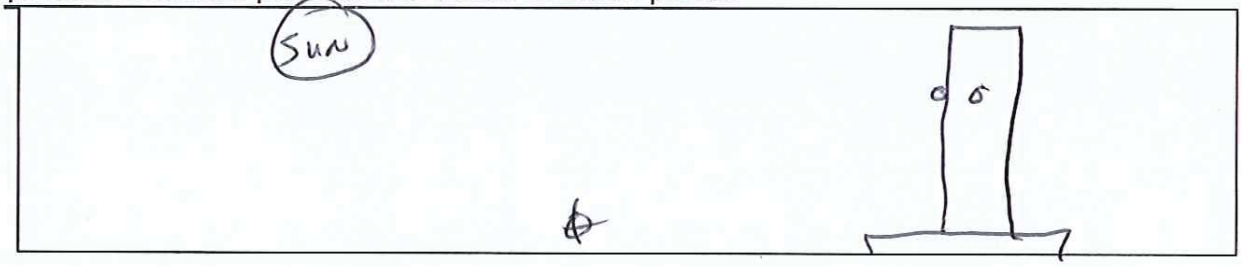
COMPANY REPRESENTATIVE — **DATE** 6/24/15

Sky Conditions cloudy Wind Direction west

Precipitation N/A Wind Speed 0-5

INDUSTRY — PROCESS UNIT —

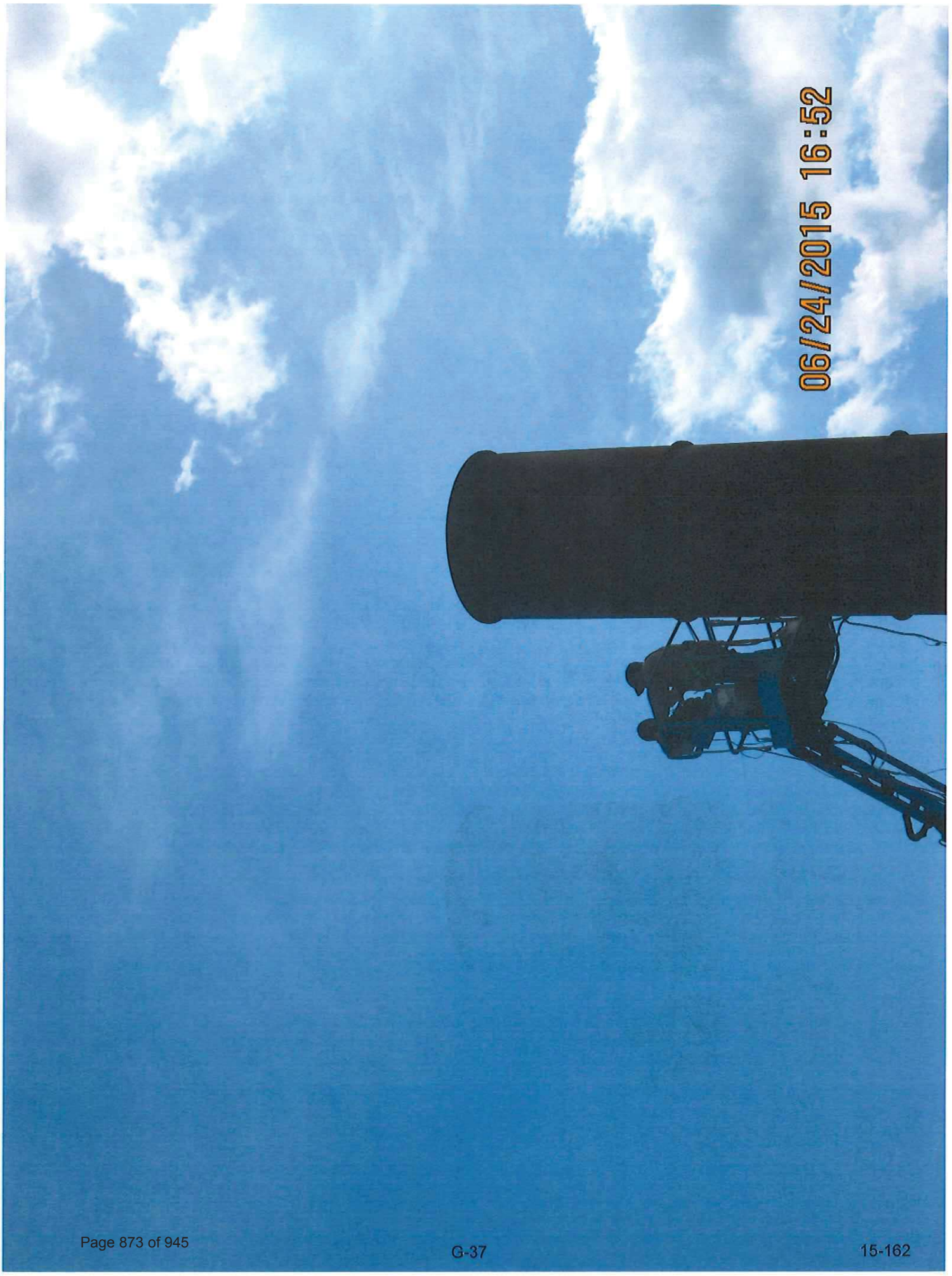
Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	17:10	58	0
	17:15	55	0
	17:20	60	0
End Observation			

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: [signature]


06/24/2015 16:52

APPENDIX H

Plant Operational Data

CONDITION #1, RUN 1 OF 3

DATE	TIME	INLET PRESSURE	STACK TEMPERATURE	AVERAGE FUEL RATE	INST FUEL RATE	FUEL TEMP	TOT. FLOW
mm/dd/yyyy	hh:mm:ss	inH2O	°F	SCFM	INST RATE	°F	SCF
6/23/2015	8:55:11	4.7	1495	37.8	40.5	67.7	13059
6/23/2015	8:56:11	4.7	1530	40	39.4	67.9	13099
6/23/2015	8:57:11	5.2	1530	42.2	42.6	67.8	13141
6/23/2015	8:58:11	5.1	1555	43.9	44.7	67.9	13185
6/23/2015	8:59:11	5.2	1550	41.6	41.4	68.2	13227
6/23/2015	9:00:11	5.3	1560	41.4	39.9	68.4	13268
6/23/2015	9:01:11	4.9	1565	43.2	42.5	68.4	13312
6/23/2015	9:02:11	4.7	1565	41.1	42.1	68.6	13353
6/23/2015	9:03:11	4.9	1515	37.5	38.7	69	13391
6/23/2015	9:04:11	5	1560	43	42.4	68.9	13434
6/23/2015	9:05:11	4.8	1545	40.7	39.4	69.1	13474
6/23/2015	9:06:11	4.2	1520	37.9	37.4	69.3	13512
6/23/2015	9:07:11	4.2	1490	38.2	36.7	69.6	13551
6/23/2015	9:08:11	4.2	1485	37.7	38	69.6	13589
6/23/2015	9:09:11	3.7	1475	37.1	36.9	69.9	13626
6/23/2015	9:10:11	4.8	1490	36.3	39.7	70.2	13662
6/23/2015	9:11:11	4.9	1515	38.5	38.5	70.2	13701
6/23/2015	9:12:11	5.2	1560	39.8	40.8	70.4	13741
6/23/2015	9:13:11	5	1560	42.7	41.6	70.7	13784
6/23/2015	9:14:11	4.9	1555	42.5	42.3	70.8	13826
6/23/2015	9:15:11	5.2	1570	41.9	43.5	71	13868
6/23/2015	9:16:11	4.9	1560	42.1	41.5	71.2	13911
6/23/2015	9:17:11	4.5	1550	41.3	40.6	71.7	13952
6/23/2015	9:18:11	5	1565	40.7	41.8	71.8	13993
6/23/2015	9:19:11	4.5	1560	40.7	39.6	71.9	14034
6/23/2015	9:20:11	5	1540	38.2	40	72.1	14072
6/23/2015	9:21:11	4.9	1530	39.5	39.7	72.3	14111
6/23/2015	9:22:11	4.7	1530	39.7	38.9	72.7	14151
6/23/2015	9:23:11	5.2	1530	40.8	43.7	72.5	14192
6/23/2015	9:24:11	5.3	1525	41.4	44	72.6	14234
6/23/2015	9:25:11	4.9	1515	41.6	39.4	72.8	14276
6/23/2015	9:26:11	5	1520	42	40	72.6	14317
6/23/2015	9:27:11	4.9	1535	42.7	40.3	72.6	14360
6/23/2015	9:28:11	4.8	1530	41.7	40.2	72.5	14402
6/23/2015	9:29:11	4.7	1500	40.2	40	72.3	14442
6/23/2015	9:30:11	4.9	1505	39.6	39.3	72	14482
6/23/2015	9:31:11	5	1540	40.1	40.5	72.3	14522
6/23/2015	9:32:11	5	1550	42.6	42	72.5	14565
6/23/2015	9:33:11	5.4	1550	42.1	43.2	72.8	14607
6/23/2015	9:34:11	5.2	1530	42	39.7	73.1	14649
6/23/2015	9:35:11	5	1545	41.8	39.4	73.2	14691
6/23/2015	9:36:11	5.4	1545	39.7	41.2	73.2	14731
6/23/2015	9:37:11	4.8	1535	42.1	39.3	73.5	14773
6/23/2015	9:38:11	5.2	1540	41.1	44.4	73.7	14814
6/23/2015	9:39:11	4.8	1510	40.8	39.5	74.2	14855
6/23/2015	9:40:11	5.1	1505	39.4	40.4	74.3	14895
6/23/2015	9:41:11	5.3	1530	40.2	44.7	74.3	14935
6/23/2015	9:42:11	5.4	1545	42	42.9	74.2	14977
6/23/2015	9:43:11	5.5	1545	41.9	43.8	73.9	15019
6/23/2015	9:44:11	5	1545	42.6	43.4	73.6	15062
6/23/2015	9:45:11	5.6	1530	40.5	43.2	73.4	15103
6/23/2015	9:46:11	5.6	1535	41.4	40.9	73.2	15144
6/23/2015	9:47:11	5.1	1550	42.6	40.7	72.9	15187
6/23/2015	9:48:11	5.1	1520	41.1	41.5	72.5	15228
6/23/2015	9:49:11	5.5	1515	41	43.8	72.3	15269
6/23/2015	9:50:11	5.2	1535	42.2	41.5	72.3	15312
6/23/2015	9:51:11	4.9	1530	41.9	39.7	72.3	15354
6/23/2015	9:52:11	4.8	1520	40.7	38.9	72.1	15395
6/23/2015	9:53:11	4.7	1505	39.4	38.1	72	15434
6/23/2015	9:54:11	4.8	1525	39.5	40.3	72	15474
6/23/2015	9:55:11	5.1	1535	39.2	42.4	72.1	15513
6/23/2015	9:56:11	4.8	1540	40.2	41	72.5	15553
6/23/2015	9:57:11	4.1	1500	36.5	34.8	72.9	15590
6/23/2015	9:58:11	1.2	1345	28.1	0.2	74.6	15618
6/23/2015	9:59:11	1.7	1030	0.1	0.1	79	15618
AVERAGE		**4.8**	**1522**	**39.8**	**39.5**	**71.7**	**14363**

CONDITION #1, RUN 2 OF 3

DATE	TIME	INLET PRESSURE	STACK TEMPERATURE	AVERAGE FUEL RATE	INST FUEL RATE	FUEL TEMP	TOT. FLOW
mm/dd/yyyy	hh:mm:ss	inH2O	°F	SCFM	INST RATE	°F	SCF
6/23/2015	10:35:11	3.9	1405	34.3	35.8	71.7	16292
6/23/2015	10:36:11	4	1395	36.5	36.1	71.4	16328
6/23/2015	10:37:11	4.2	1425	37.9	39.2	71.1	16367
6/23/2015	10:38:11	4.1	1440	38.3	37.9	70.9	16405
6/23/2015	10:39:11	4.4	1440	38.5	40	70.8	16444
6/23/2015	10:40:11	4.4	1455	39.7	39	70.6	16484
6/23/2015	10:41:11	4.5	1465	39.7	39.6	70.5	16523
6/23/2015	10:42:11	4.5	1450	39.7	38.7	70.4	16563
6/23/2015	10:43:11	4.5	1455	39.6	38.9	70.3	16603
6/23/2015	10:44:11	4.5	1460	39.4	39.2	70.2	16642
6/23/2015	10:45:11	4.3	1465	39.5	39.1	70.2	16682
6/23/2015	10:46:11	4.4	1455	39.4	38.7	69.9	16721
6/23/2015	10:47:11	4.1	1445	37.9	37.3	69.8	16759
6/23/2015	10:48:11	4	1425	37.4	37.4	69.8	16797
6/23/2015	10:49:11	3.9	1395	36.8	37	69.7	16834
6/23/2015	10:50:11	3.8	1390	36.5	36.6	69.7	16871
6/23/2015	10:51:11	4.1	1415	37.3	38.7	69.7	16908
6/23/2015	10:52:11	4.2	1430	38.3	38.8	69.7	16946
6/23/2015	10:53:11	4.4	1440	38.9	38.9	69.4	16985
6/23/2015	10:54:11	4.5	1450	39.3	39.3	69.4	17025
6/23/2015	10:55:11	4.5	1460	40.3	40.3	69.4	17065
6/23/2015	10:56:11	4.4	1460	39.8	40.1	69.5	17105
6/23/2015	10:57:11	4.6	1465	39.8	39.6	69.4	17145
6/23/2015	10:58:11	4.6	1470	40	39.8	69.3	17185
6/23/2015	10:59:11	4.7	1485	40.2	40.3	69.1	17225
6/23/2015	11:00:11	4.6	1485	39.9	38.8	68.9	17265
6/23/2015	11:01:11	4.5	1470	39.8	39.5	68.8	17306
6/23/2015	11:02:11	4.3	1460	39.6	38.9	68.6	17345
6/23/2015	11:03:11	4	1445	37.4	35.1	68.6	17383
6/23/2015	11:04:11	3.8	1425	35.3	35	68.7	17418
6/23/2015	11:05:11	4	1405	34.4	35.2	68.6	17453
6/23/2015	11:06:11	4.1	1410	36.7	36.5	68.8	17490
6/23/2015	11:07:11	4.2	1430	37.3	37.9	68.9	17527
6/23/2015	11:08:11	4.5	1430	38.3	38.5	69	17565
6/23/2015	11:09:11	4.7	1460	39.5	40.5	69.2	17605
6/23/2015	11:10:11	4.6	1470	40.1	38.7	69.4	17645
6/23/2015	11:11:11	4.6	1465	40	40.5	69.7	17685
6/23/2015	11:12:11	4.5	1460	39.8	40	69.8	17725
6/23/2015	11:13:11	4.6	1450	39.8	40	69.9	17765
6/23/2015	11:14:11	4.6	1470	39.9	40.1	70.2	17805
6/23/2015	11:15:11	4.6	1480	40.1	39.7	70.3	17846
6/23/2015	11:16:11	4.1	1460	39	37	70.6	17885
6/23/2015	11:17:11	4	1440	36.1	36.1	70.9	17921
6/23/2015	11:18:11	3.5	1395	34.8	33.4	71.1	17956
6/23/2015	11:19:11	3.7	1360	32.9	32.6	71.5	17989
6/23/2015	11:20:11	4	1360	34.2	35.8	71.8	18023
6/23/2015	11:21:11	4.7	1415	37.4	38	72.3	18060
6/23/2015	11:22:11	4.7	1465	39.1	38.7	72.7	18100
6/23/2015	11:23:11	4.9	1475	39.7	40.4	73	18139
6/23/2015	11:24:11	4.9	1495	39.5	39.3	73.6	18179
6/23/2015	11:25:11	5	1510	39.9	39.9	73.9	18219
6/23/2015	11:26:11	5	1515	40.4	40.6	74.2	18260
6/23/2015	11:27:11	5.1	1500	40.8	40.8	74.5	18301
6/23/2015	11:28:11	4.7	1515	40.7	41.2	74.8	18342
6/23/2015	11:29:11	5.2	1530	41.4	41.7	75	18383
6/23/2015	11:30:11	5	1525	41.8	42.3	74.9	18425
6/23/2015	11:31:11	4.8	1515	41.7	42.2	74.7	18467
6/23/2015	11:32:11	4.9	1505	41.5	40.8	74.6	18508
6/23/2015	11:33:11	4.3	1500	40	38.2	74.4	18548
6/23/2015	11:34:11	4	1445	36.3	34.6	74.4	18584
6/23/2015	11:35:11	3.9	1415	34.9	34.2	74.1	18620
6/23/2015	11:36:11	3.8	1400	34.2	33.5	74	18654
6/23/2015	11:37:11	3.8	1385	34.6	34.6	74	18689
6/23/2015	11:38:11	0.5	1335	33.5	5.2	74.2	18722
6/23/2015	11:39:11	1.3	1040	0.3	0.1	78.5	18723
AVERAGE		**4.3**	**1442**	**37.8**	**37.3**	**71.2**	**17530**

CONDITION #1, RUN 3 OF 3

DATE	TIME	INLET PRESSURE	STACK TEMPERATURE	AVERAGE FUEL RATE	INST FUEL RATE	FUEL TEMP	TOT. FLOW
mm/dd/yyyy	hh:mm:ss	inH2O	°F	SCFM	INST RATE	°F	SCF
6/23/2015	12:10:11	3.9	1400	35.1	35.5	77.9	19331
6/23/2015	12:11:11	4.1	1405	35.3	36.1	78.6	19366
6/23/2015	12:12:11	4.2	1445	36.6	37.1	79	19403
6/23/2015	12:13:11	4.4	1455	37.4	37.3	79.4	19440
6/23/2015	12:14:11	4.4	1475	38.3	39.1	79.6	19479
6/23/2015	12:15:11	4.8	1515	40.6	42.9	79.9	19520
6/23/2015	12:16:11	4.8	1495	42.9	43.2	80.1	19563
6/23/2015	12:17:11	4.9	1520	43.2	43.3	80.5	19606
6/23/2015	12:18:11	4.8	1520	42.9	43.4	80.7	19649
6/23/2015	12:19:11	4.4	1500	42	40.4	81	19691
6/23/2015	12:20:11	4.2	1455	39.8	40	81.3	19731
6/23/2015	12:21:11	4	1455	37.9	37.9	81.7	19769
6/23/2015	12:22:11	4.1	1435	37.4	37.7	82.2	19807
6/23/2015	12:23:11	4.1	1435	37.8	38.3	82.4	19844
6/23/2015	12:24:11	4.3	1445	37.1	35.8	82.3	19882
6/23/2015	12:25:11	3.9	1445	36.7	35.4	81.7	19918
6/23/2015	12:26:11	4.1	1460	34.7	35.3	82.1	19954
6/23/2015	12:27:11	4.1	1465	36.2	36.2	82.2	19990
6/23/2015	12:28:11	4.4	1480	39.2	40.7	82	20029
6/23/2015	12:29:11	4.4	1495	40.6	40.7	82.3	20070
6/23/2015	12:30:11	4.6	1525	41	42.9	82.6	20111
6/23/2015	12:31:11	3.6	1545	38.8	32.3	83	20150
6/23/2015	12:32:11	4.1	1485	34.2	34.6	83.3	20184
6/23/2015	12:33:11	4.1	1475	35.5	35.9	83.6	20220
6/23/2015	12:34:11	4.9	1470	36.7	43	83.7	20257
6/23/2015	12:35:11	4.9	1490	44	43.5	83.8	20300
6/23/2015	12:36:11	4.4	1480	41.5	41.3	84.1	20342
6/23/2015	12:37:11	4.4	1465	40.1	40.4	84.1	20382
6/23/2015	12:38:11	4.3	1455	39.5	38.7	83.7	20422
6/23/2015	12:39:11	4.1	1435	38.7	37.9	84.1	20460
6/23/2015	12:40:11	3.7	1415	35.8	34.5	84.5	20496
6/23/2015	12:41:11	3.8	1390	34.2	34.2	84.6	20531
6/23/2015	12:42:11	4.1	1460	36.2	37.3	84.9	20567
6/23/2015	12:43:11	4.3	1490	37.9	39.1	85.1	20605
6/23/2015	12:44:11	4.5	1530	40.6	40.1	85.3	20646
6/23/2015	12:45:11	4.6	1515	40.4	41.9	85.4	20686
6/23/2015	12:46:11	4.7	1525	41.4	42.4	85.6	20728
6/23/2015	12:47:11	4.7	1530	42	42.1	85.8	20770
6/23/2015	12:48:11	4.9	1550	42	41.9	85.9	20812
6/23/2015	12:49:11	4.9	1535	42.3	43.2	86.1	20855
6/23/2015	12:50:11	5	1530	42.6	42.5	86.1	20897
6/23/2015	12:51:11	4.7	1535	42.6	41.1	85.4	20940
6/23/2015	12:52:11	4.6	1555	40.4	38.6	85.1	20980
6/23/2015	12:53:11	4.4	1520	39.2	38.3	85.3	21020
6/23/2015	12:54:11	4.1	1475	38.8	37	85.5	21059
6/23/2015	12:55:11	4	1480	37.2	36.6	85.8	21096
6/23/2015	12:56:11	3.9	1495	34.6	34.9	86.2	21131
6/23/2015	12:57:11	4	1520	36.7	37.7	86.4	21168
6/23/2015	12:58:11	4.5	1515	39.6	39.4	86.4	21207
6/23/2015	12:59:11	4.7	1480	39.9	39.9	86.8	21247
6/23/2015	13:00:11	5.1	1490	40.6	41.6	86.9	21288
6/23/2015	13:01:11	5.4	1570	42.8	43.9	87.1	21331
6/23/2015	13:02:11	4.9	1575	43.3	40.1	87.5	21374
6/23/2015	13:03:11	4.8	1535	40.4	41.1	87.7	21415
6/23/2015	13:04:11	5	1555	41	42	87.4	21456
6/23/2015	13:05:11	5.1	1530	41.3	40.8	87.7	21497
6/23/2015	13:06:11	5	1525	41.7	42.3	87.8	21539
6/23/2015	13:07:11	5.1	1515	42.4	42.9	87.8	21582
6/23/2015	13:08:11	4.7	1495	40.4	40.4	87.9	21622
6/23/2015	13:09:11	4.1	1475	38.2	37.1	88.2	21661
6/23/2015	13:10:11	3.8	1460	36.2	34.5	88.5	21697
6/23/2015	13:11:11	3.8	1445	34.9	35.8	88.9	21732
6/23/2015	13:12:11	3.8	1420	34.8	34.8	89.1	21767
6/23/2015	13:13:11	3.8	1395	35	35	89.2	21802
6/23/2015	13:14:11	0.7	1095	5.3	0.1	92.4	21808
AVERAGE		**4.4**	**1481**	**38.5**	**38.5**	**84.4**	**20583**

CONDITION #2, RUN 1 OF 3

DATE	TIME	INLET PRESSURE	STACK TEMPERATURE	AVERAGE FUEL RATE	INST FUEL RATE	FUEL TEMP	TOT. FLOW
mm/dd/yyyy	hh:mm:ss	inH2O	°F	SCFM	INST RATE	°F	SCF
6/23/2015	13:55:11	4.5	1450	41.6	42.7	80.3	23122
6/23/2015	13:56:11	4.8	1475	42.3	44.2	80.8	23166
6/23/2015	13:57:11	5.3	1555	45	46.2	80.8	23211
6/23/2015	13:58:11	5.7	1530	46.9	47.5	80.7	23258
6/23/2015	13:59:11	6.6	1555	47.7	47.9	81.1	23305
6/23/2015	14:00:11	6.9	1590	50.9	52.7	81.1	23356
6/23/2015	14:01:11	6.8	1655	53.1	52.2	81	23410
6/23/2015	14:02:11	6.5	1670	50.2	49.7	81.4	23460
6/23/2015	14:03:11	6.4	1655	49.8	49.1	81.6	23510
6/23/2015	14:04:11	6.7	1680	49.7	49.6	82	23560
6/23/2015	14:05:11	6.8	1670	49.7	49.2	82.5	23610
6/23/2015	14:06:11	6.4	1635	49.2	48.1	83.1	23659
6/23/2015	14:07:11	5.9	1655	48.6	48.4	83	23708
6/23/2015	14:08:11	4.9	1640	46.8	43.5	83.1	23755
6/23/2015	14:09:11	4.7	1615	43.2	42.3	83.7	23798
6/23/2015	14:10:11	5.1	1530	41.1	43.4	84.4	23839
6/23/2015	14:11:11	5.1	1525	44.7	44.9	84.9	23884
6/23/2015	14:12:11	5.8	1515	45.6	46.2	85.3	23930
6/23/2015	14:13:11	6.3	1585	48	48.3	85.8	23978
6/23/2015	14:14:11	6.8	1635	49.1	51.1	86.1	24027
6/23/2015	14:15:11	6.5	1660	53.4	49.7	86.1	24080
6/23/2015	14:16:11	6.8	1700	50.5	51.4	86.2	24132
6/23/2015	14:17:11	6.7	1730	51.4	51.2	85.9	24183
6/23/2015	14:18:11	6.7	1705	50.9	53.3	85.2	24234
6/23/2015	14:19:11	6.6	1685	50.3	49.8	84.8	24284
6/23/2015	14:20:11	6.5	1685	49.8	49.4	85.2	24334
6/23/2015	14:21:11	6.5	1680	48.9	50.4	85.4	24383
6/23/2015	14:22:11	5.9	1655	49.1	48.1	85	24433
6/23/2015	14:23:11	5.5	1665	47.6	47.8	84.6	24480
6/23/2015	14:24:11	4.8	1565	41.9	42.5	84.4	24522
6/23/2015	14:25:11	5.4	1550	44.1	45.7	84.4	24566
6/23/2015	14:26:11	5.5	1590	46.5	46.9	84.3	24613
6/23/2015	14:27:11	5.7	1610	47.6	48.4	83.9	24661
6/23/2015	14:28:11	5.6	1605	47.5	47.7	83.5	24709
6/23/2015	14:29:11	6.3	1610	48.6	49.3	83	24757
6/23/2015	14:30:11	6.6	1680	49.3	49	82.6	24807
6/23/2015	14:31:11	6.8	1655	50.7	51.4	82.6	24858
6/23/2015	14:32:11	6.9	1660	52	52.2	82	24910
6/23/2015	14:33:11	6.9	1675	51.7	51.7	81.5	24962
6/23/2015	14:34:11	6.6	1660	50.7	50.4	81.1	25012
6/23/2015	14:35:11	6.3	1710	49.6	49.5	80.8	25062
6/23/2015	14:36:11	6	1635	48	47.7	80.8	25111
6/23/2015	14:37:11	5.3	1595	47.8	45.2	81.1	25159
6/23/2015	14:38:11	4.9	1535	43.9	40.1	81.9	25203
6/23/2015	14:39:11	4.9	1505	42	42.3	82.3	25245
6/23/2015	14:40:11	4.8	1510	42	41.9	82.4	25287
6/23/2015	14:41:11	5.4	1520	43.1	45.2	82.7	25330
6/23/2015	14:42:11	5.9	1540	46.6	47.3	82.5	25376
6/23/2015	14:43:11	6.5	1615	49.1	49.1	82.1	25425
6/23/2015	14:44:11	6.6	1605	49.7	50.2	81.6	25475
6/23/2015	14:45:11	6.9	1680	51.4	52.9	81.1	25526
6/23/2015	14:46:11	7	1665	51.8	52.4	80.8	25579
6/23/2015	14:47:11	6.9	1655	51.5	50.1	80.6	25630
6/23/2015	14:48:11	6.9	1695	51.2	51.8	80.9	25681
6/23/2015	14:49:11	7	1720	51.5	51.7	80.7	25733
6/23/2015	14:50:11	6.6	1775	51.5	48.8	80.5	25785
6/23/2015	14:51:11	6.1	1695	48.9	47.3	80.2	25834
6/23/2015	14:52:11	5.8	1625	46.8	46.9	80.4	25881
6/23/2015	14:53:11	5.2	1575	45.8	44.6	80.6	25926
6/23/2015	14:54:11	4.7	1500	42.2	39.7	80.8	25969
6/23/2015	14:55:11	5	1505	41.2	41.8	81.1	26010
6/23/2015	14:56:11	5	1485	41.8	41.5	81.4	26052
6/23/2015	14:57:11	4.9	1475	42.1	41.9	81.3	26094
6/23/2015	14:58:11	1	1310	29.6	0.1	82.7	26124
6/23/2015	14:59:11	1.3	1005	0.1	0.1	86.4	26124
AVERAGE		**5.8**	**1600**	**46.7**	**46.2**	**82.6**	**24663**

CONDITION #2, RUN 2 OF 3

DATE	TIME	INLET PRESSURE	STACK TEMPERATURE	AVERAGE FUEL RATE	INST FUEL RATE	FUEL TEMP	TOT. FLOW
mm/dd/yyyy	hh:mm:ss	inH2O	°F	SCFM	INST RATE	°F	SCF
6/23/2015	15:30:11	4.9	1475	44.2	44.9	76.5	26774
6/23/2015	15:31:11	5.1	1495	45.1	45.6	76.1	26819
6/23/2015	15:32:11	5.6	1530	46.6	46.5	75.7	26866
6/23/2015	15:33:11	6	1565	47.4	48.3	75.5	26914
6/23/2015	15:34:11	6.2	1580	50.7	51.6	74.9	26965
6/23/2015	15:35:11	6.2	1585	51.1	51.9	74.7	27016
6/23/2015	15:36:11	6.4	1590	49.7	51.3	74.4	27066
6/23/2015	15:37:11	6.7	1600	51.1	49.5	74.1	27117
6/23/2015	15:38:11	6.5	1605	50.5	52.4	73.8	27167
6/23/2015	15:39:11	6.7	1600	51.7	51.7	73.5	27219
6/23/2015	15:40:11	6.2	1595	50.6	51	73.3	27270
6/23/2015	15:41:11	6.1	1595	49.9	48.6	73.1	27320
6/23/2015	15:42:11	5.5	1565	48.5	47.2	72.7	27369
6/23/2015	15:43:11	4.9	1510	44.8	42.9	72.5	27414
6/23/2015	15:44:11	4.8	1475	42	42.1	72.4	27456
6/23/2015	15:45:11	4.9	1455	42	43.2	72.3	27498
6/23/2015	15:46:11	5.3	1460	44	44.9	72	27541
6/23/2015	15:47:11	6.2	1490	45.7	47.4	71.7	27587
6/23/2015	15:48:11	6.2	1520	48.2	48.9	71.5	27636
6/23/2015	15:49:11	6.4	1565	49.8	51.5	71.4	27685
6/23/2015	15:50:11	6.8	1600	50.9	51.3	71.2	27736
6/23/2015	15:51:11	6.7	1615	51.1	50.8	71.1	27788
6/23/2015	15:52:11	6.6	1605	51	50.5	70.8	27839
6/23/2015	15:53:11	6.7	1620	51.3	52	70.6	27890
6/23/2015	15:54:11	6.5	1625	51.4	49.9	70.4	27942
6/23/2015	15:55:11	6.2	1600	49.9	49.4	70.1	27992
6/23/2015	15:56:11	6.3	1585	49.2	49	69.8	28041
6/23/2015	15:57:11	5.8	1575	48	47.2	69.6	28089
6/23/2015	15:58:11	5	1535	44.7	42.7	69.5	28134
6/23/2015	15:59:11	4.4	1475	42.6	39.7	69.5	28177
6/23/2015	16:00:11	5.5	1495	43.5	44.9	69.3	28221
6/23/2015	16:01:11	5.2	1510	45.2	44.1	69.1	28266
6/23/2015	16:02:11	5.3	1515	44.4	44.1	69.3	28310
6/23/2015	16:03:11	6.1	1530	45.2	46.5	69.1	28356
6/23/2015	16:04:11	6.2	1555	48.8	49.4	68.7	28404
6/23/2015	16:05:11	6.4	1595	49.9	50	68.5	28455
6/23/2015	16:06:11	6.5	1610	50.6	50.1	68.3	28506
6/23/2015	16:07:11	6.5	1585	50.5	51.6	68.2	28556
6/23/2015	16:08:11	6.8	1600	51.4	50.3	68.1	28608
6/23/2015	16:09:11	6.7	1605	51.3	52	68	28659
6/23/2015	16:10:11	6.4	1615	50.4	49.2	67.9	28710
6/23/2015	16:11:11	6	1590	48.6	47.6	67.7	28758
6/23/2015	16:12:11	6	1560	47.5	47.9	67.5	28806
6/23/2015	16:13:11	5.7	1555	47	46.1	67.5	28853
6/23/2015	16:14:11	5.1	1530	44.9	43	67.4	28898
6/23/2015	16:15:11	5.1	1515	42.7	43.2	67.3	28941
6/23/2015	16:16:11	5.7	1515	44.2	45.5	67.2	28985
6/23/2015	16:17:11	5.7	1530	46	48.1	67.2	29032
6/23/2015	16:18:11	6.5	1560	48.4	51.7	67	29080
6/23/2015	16:19:11	6.6	1580	52	52.9	66.7	29132
6/23/2015	16:20:11	6.3	1600	52.2	52.5	66.7	29185
6/23/2015	16:21:11	6.4	1615	51.5	51.2	66.9	29236
6/23/2015	16:22:11	6.4	1610	51.8	52.6	66.7	29288
6/23/2015	16:23:11	6.5	1615	51.6	52.2	66.6	29340
6/23/2015	16:24:11	6.6	1600	52	53.3	66.4	29392
6/23/2015	16:25:11	6.6	1595	51.8	51.9	66.3	29444
6/23/2015	16:26:11	6.2	1590	51.3	50	66.2	29495
6/23/2015	16:27:11	5.9	1575	48.7	47.1	66.2	29544
6/23/2015	16:28:11	5.3	1540	45.4	44.9	66.1	29590
6/23/2015	16:29:11	4.8	1515	43.5	42.6	66.2	29634
6/23/2015	16:30:11	4.7	1470	42.2	41.7	66.2	29676
6/23/2015	16:31:11	4.6	1465	41.8	41.3	66.2	29718
6/23/2015	16:32:11	4.6	1445	41.6	41.7	66.3	29759
6/23/2015	16:33:11	1.2	1260	24.7	0.1	68.6	29784
6/23/2015	16:34:11	1.6	965	0.1	0.1	72.6	29784
AVERAGE		**5.8**	**1543**	**46.9**	**46.5**	**69.8**	**28319**

CONDITION #2, RUN 3 OF 3

DATE	TIME	INLET PRESSURE	STACK TEMPERATURE	AVERAGE FUEL RATE	INST FUEL RATE	FUEL TEMP	TOT. FLOW
mm/dd/yyyy	hh:mm:ss	inH2O	°F	SCFM	INST RATE	°F	SCF
6/23/2015	17:00:11	5.5	1470	46.6	48.3	66.8	30447
6/23/2015	17:01:11	4.8	1470	46.1	43.9	66.7	30493
6/23/2015	17:02:11	5.1	1460	44.4	46.4	66.5	30538
6/23/2015	17:03:11	5.2	1490	46.1	47.3	66.5	30584
6/23/2015	17:04:11	6.7	1515	48	51.3	66.5	30632
6/23/2015	17:05:11	6.8	1560	51.4	50.9	66.4	30684
6/23/2015	17:06:11	6.7	1590	51	51.2	66.1	30735
6/23/2015	17:07:11	6.7	1615	51.2	49.6	66.1	30786
6/23/2015	17:08:11	6.7	1610	51	51.6	66.1	30837
6/23/2015	17:09:11	6.8	1630	51.2	51.4	66	30889
6/23/2015	17:10:11	6.5	1615	51.3	51.1	66.2	30940
6/23/2015	17:11:11	5.8	1580	50.6	47.9	66.4	30991
6/23/2015	17:12:11	5.5	1545	47.4	46.6	66.4	31039
6/23/2015	17:13:11	5	1495	44.9	43	66.6	31084
6/23/2015	17:14:11	4.8	1480	42.9	42.5	66.8	31127
6/23/2015	17:15:11	5	1465	42.2	43.5	66.9	31169
6/23/2015	17:16:11	5.3	1490	44.5	46.1	67	31214
6/23/2015	17:17:11	5.9	1485	45.9	46.8	67.2	31260
6/23/2015	17:18:11	6.2	1540	49.6	49.8	67.1	31309
6/23/2015	17:19:11	6.4	1545	50.7	51.4	67.3	31360
6/23/2015	17:20:11	6.4	1565	51.6	52.5	67.3	31412
6/23/2015	17:21:11	6.2	1570	51.6	52	67.3	31464
6/23/2015	17:22:11	6.3	1575	51.5	51.8	67.2	31515
6/23/2015	17:23:11	6.5	1585	51.9	52.5	67.1	31567
6/23/2015	17:24:11	6.5	1580	51.5	52.2	67.1	31619
6/23/2015	17:25:11	5.8	1560	50	48.3	67.1	31669
6/23/2015	17:26:11	5.3	1550	48.1	45.2	67.3	31717
6/23/2015	17:27:11	4.9	1495	44	41.8	67.3	31762
6/23/2015	17:28:11	4.9	1475	42.6	42.3	67.3	31804
6/23/2015	17:29:11	4.7	1465	42.1	42.7	67.3	31846
6/23/2015	17:30:11	4.7	1455	41.6	41.1	67.5	31888
6/23/2015	17:31:11	5	1480	42.9	42.8	67.4	31931
6/23/2015	17:32:11	5.2	1490	43.7	44.6	67.4	31975
6/23/2015	17:33:11	5.8	1505	46.3	47.1	67.2	32021
6/23/2015	17:34:11	6.5	1545	48.3	50.7	67.1	32070
6/23/2015	17:35:11	6.4	1585	52.1	51.8	66.8	32122
6/23/2015	17:36:11	6.6	1625	51.9	52.5	66.8	32174
6/23/2015	17:37:11	6.6	1610	52	52.8	66.8	32226
6/23/2015	17:38:11	6.5	1595	52.2	52.6	66.6	32279
6/23/2015	17:39:11	6.3	1595	52.4	52.2	66.4	32331
6/23/2015	17:40:11	6	1575	48.4	48	66.5	32380
6/23/2015	17:41:11	5.8	1555	48	47.3	66.3	32428
6/23/2015	17:42:11	5.7	1560	47.9	48	66.2	32476
6/23/2015	17:43:11	5	1550	46.5	44	66.4	32522
6/23/2015	17:44:11	4.8	1505	42.5	42.7	66.5	32565
6/23/2015	17:45:11	5.6	1495	44.5	47.1	66.5	32610
6/23/2015	17:46:11	5.8	1515	46.9	47.5	66.5	32656
6/23/2015	17:47:11	5.9	1540	47.3	48.5	66.5	32704
6/23/2015	17:48:11	6.5	1550	47.8	47	66.4	32752
6/23/2015	17:49:11	6.4	1565	51.7	51.8	66.2	32804
6/23/2015	17:50:11	6.4	1565	51.4	50.7	66.1	32856
6/23/2015	17:51:11	6.5	1570	50	52.4	66	32906
6/23/2015	17:52:11	6.5	1575	51.2	52	65.9	32956
6/23/2015	17:53:11	6.4	1575	51.2	50.8	65.8	33007
6/23/2015	17:54:11	6.5	1585	51.3	50.3	65.7	33059
6/23/2015	17:55:11	6.3	1565	49.8	48.2	65.7	33109
6/23/2015	17:56:11	6.1	1560	47.5	47	65.7	33156
6/23/2015	17:57:11	5.5	1560	47.5	46.5	65.6	33204
6/23/2015	17:58:11	4.8	1500	43.4	42.6	65.7	33248
6/23/2015	17:59:11	4.7	1460	41.7	41.8	65.6	33290
6/23/2015	18:00:11	4.6	1430	41.4	40.8	65.7	33331
6/23/2015	18:01:11	5	1445	43	44.3	65.7	33374
6/23/2015	18:02:11	5.1	1455	43.7	44.2	65.6	33418
6/23/2015	18:03:11	4.9	1455	43.5	43.9	65.6	33462
6/23/2015	18:04:11	4.8	1450	42.7	42.4	65.7	33504
AVERAGE		**5.8**	**1534**	**47.6**	**47.7**	**66.5**	**31989**

CONDITION #3, RUN 1 OF 3

DATE	TIME	INLET PRESSURE	STACK TEMPERATURE	AVERAGE FUEL RATE	INST FUEL RATE	FUEL TEMP	TOT. FLOW
mm/dd/yyyy	hh:mm:ss	inH2O	°F	SCFM	INST RATE	°F	SCF
6/24/2015	8:25:18	7.6	1595	53	53.8	55.9	35446
6/24/2015	8:26:18	8.1	1625	54.4	54.6	56	35500
6/24/2015	8:27:18	8.7	1660	55.4	56.3	56.1	35556
6/24/2015	8:28:18	9.1	1690	60.9	60.1	55.9	35617
6/24/2015	8:29:18	10.4	1740	63.6	66.8	55.7	35681
6/24/2015	8:30:18	10.4	1770	67.5	67.1	55.5	35748
6/24/2015	8:31:18	10.6	1785	66.9	66.5	55.3	35816
6/24/2015	8:32:18	10.6	1810	66.7	66.3	55.3	35883
6/24/2015	8:33:18	10.8	1815	67.3	67.1	55.2	35950
6/24/2015	8:34:18	10.7	1820	67.7	69.1	55.1	36018
6/24/2015	8:35:18	10.2	1800	66.4	66.2	55	36084
6/24/2015	8:36:18	9.8	1790	65.8	65.4	55	36150
6/24/2015	8:37:18	10.1	1785	64.5	64.6	55	36215
6/24/2015	8:38:18	9.7	1775	64.3	62.9	55.1	36279
6/24/2015	8:39:18	8.1	1735	59.1	57.1	55.3	36338
6/24/2015	8:40:18	7.8	1670	53.5	53.1	55.7	36392
6/24/2015	8:41:18	8.3	1670	54.4	56.2	55.9	36446
6/24/2015	8:42:18	9	1695	56.3	57.2	56.1	36503
6/24/2015	8:43:18	10	1715	61.3	65.1	56.1	36564
6/24/2015	8:44:18	10	1765	65.7	65.5	56.2	36630
6/24/2015	8:45:18	10.4	1795	66.5	66.4	56.3	36697
6/24/2015	8:46:18	10.6	1800	66.9	67.5	56.3	36764
6/24/2015	8:47:18	10.8	1815	66.6	67.1	56.5	36831
6/24/2015	8:48:18	10.4	1810	66.8	67.4	56.8	36898
6/24/2015	8:49:18	10.7	1805	66.8	66.9	57	36965
6/24/2015	8:50:18	10.1	1815	67	65.9	57.3	37032
6/24/2015	8:51:18	9.8	1795	64	62.5	57.6	37096
6/24/2015	8:52:18	8.8	1755	61.9	58.7	57.9	37158
6/24/2015	8:53:18	8.2	1710	56.7	54.3	58.1	37215
6/24/2015	8:54:18	6.3	1660	53.8	49.8	58.4	37269
6/24/2015	8:55:18	7.8	1645	51.2	52.9	58.8	37320
6/24/2015	8:56:18	8.2	1680	54.2	55.4	59.2	37374
6/24/2015	8:57:18	8.9	1705	57.3	61.7	59.3	37432
6/24/2015	8:58:18	9.6	1715	61.1	61.8	59.5	37493
6/24/2015	8:59:18	10.2	1740	62.9	65.1	59.5	37556
6/24/2015	9:00:18	10.4	1800	67	66.4	59.4	37623
6/24/2015	9:01:18	10.2	1795	65.9	66.3	59.5	37689
6/24/2015	9:02:18	10.5	1780	66.3	66.5	59.5	37755
6/24/2015	9:03:18	10.4	1815	66.2	66.4	59.6	37822
6/24/2015	9:04:18	10.5	1820	66	66	59.8	37888
6/24/2015	9:05:18	10.3	1800	66	65.7	60.1	37954
6/24/2015	9:06:18	10.1	1805	64.8	64.1	60.4	38019
6/24/2015	9:07:18	9	1770	62.2	61.4	60.6	38081
6/24/2015	9:08:18	8.5	1735	59.7	57.6	60.8	38141
6/24/2015	9:09:18	7.1	1660	54	50.9	61.2	38195
6/24/2015	9:10:18	7.5	1620	49.9	52.1	61.3	38246
6/24/2015	9:11:18	8.1	1635	54.3	55.5	61.3	38300
6/24/2015	9:12:18	8.9	1690	57.4	60.6	61.4	38358
6/24/2015	9:13:18	10	1730	61.5	63.1	61.6	38419
6/24/2015	9:14:18	10.4	1780	65.9	67.1	61.6	38485
6/24/2015	9:15:18	10.7	1790	66.6	66.4	61.5	38552
6/24/2015	9:16:18	10.5	1820	66.9	66.6	61.3	38619
6/24/2015	9:17:18	10.5	1825	66.7	66.9	61.2	38686
6/24/2015	9:18:18	10.4	1815	67	66	61.2	38752
6/24/2015	9:19:18	10.5	1805	64.6	65.4	61.1	38816
6/24/2015	9:20:18	10.2	1810	65.2	64.8	61.2	38882
6/24/2015	9:21:18	10	1800	62.9	63.2	61.4	38945
6/24/2015	9:22:18	8.9	1770	60.9	60.5	61.7	39006
6/24/2015	9:23:18	8.3	1730	58.6	56	62.1	39065
6/24/2015	9:24:18	7	1665	53.2	49.5	62.7	39118
6/24/2015	9:25:18	7.3	1610	50.9	52.2	63.2	39169
6/24/2015	9:26:18	7.1	1595	52.1	51.6	63.4	39222
6/24/2015	9:27:18	7.3	1600	51.9	52.7	63.6	39274
6/24/2015	9:28:18	7.2	1590	52.6	53	63.8	39326
6/24/2015	9:29:18	7.3	1590	52.4	52.4	63.8	39379
AVERAGE		**9.3**	**1739**	**61.2**	**61.3**	**58.8**	**37442**

CONDITION #3, RUN 2 OF 3

DATE	TIME	INLET PRESSURE	STACK TEMPERATURE	AVERAGE FUEL RATE	INST FUEL RATE	FUEL TEMP	TOT. FLOW
mm/dd/yyyy	hh:mm:ss	inH2O	°F	SCFM	INST RATE	°F	SCF
6/24/2015	10:05:18	7.1	1535	52.3	55.4	69.9	40422
6/24/2015	10:06:18	7.2	1570	54.2	53	69.9	40476
6/24/2015	10:07:18	7.3	1555	54.6	55	69.7	40531
6/24/2015	10:08:18	8.3	1570	55.4	59.8	69.5	40587
6/24/2015	10:09:18	9.1	1630	60.4	62.7	69.4	40647
6/24/2015	10:10:18	10.5	1715	65	68.3	69	40713
6/24/2015	10:11:18	9.8	1730	68.1	67.4	69	40781
6/24/2015	10:12:18	9.7	1725	67.4	68.4	69.1	40848
6/24/2015	10:13:18	9.8	1715	67.6	67.9	69.1	40916
6/24/2015	10:14:18	10	1735	66.8	66.8	69.4	40983
6/24/2015	10:15:18	9.6	1730	66	62.3	69.8	41049
6/24/2015	10:16:18	8.9	1705	62.5	62.4	70.1	41112
6/24/2015	10:17:18	8.5	1655	60.1	59.9	70.3	41172
6/24/2015	10:18:18	7.6	1615	57.3	55.1	70.6	41229
6/24/2015	10:19:18	7.4	1600	55.1	54.3	70.8	41285
6/24/2015	10:20:18	7.2	1575	53	53.2	70.9	41338
6/24/2015	10:21:18	7.3	1570	53.8	53.9	71.3	41391
6/24/2015	10:22:18	8	1585	56.1	56.5	71.3	41447
6/24/2015	10:23:18	8.3	1605	57.2	59.2	71.1	41505
6/24/2015	10:24:18	9.4	1655	62	62.9	70.9	41567
6/24/2015	10:25:18	10	1720	65.5	66.2	70.9	41632
6/24/2015	10:26:18	10.1	1730	68.1	68.9	71	41701
6/24/2015	10:27:18	10.4	1740	67.9	69.4	71	41769
6/24/2015	10:28:18	10.1	1740	68.4	68.7	71	41837
6/24/2015	10:29:18	10.1	1730	68.2	68.9	70.9	41905
6/24/2015	10:30:18	10.2	1735	68	67	71	41973
6/24/2015	10:31:18	10.2	1755	68.3	67.2	71	42042
6/24/2015	10:32:18	10.4	1745	68.1	67.1	71	42110
6/24/2015	10:33:18	10.1	1775	67.8	69.6	71	42178
6/24/2015	10:34:18	6.9	1625	56	52.6	71.5	42235
6/24/2015	10:35:18	8	1585	52.6	55.5	71.8	42287
6/24/2015	10:36:18	8	1610	56.3	56.2	72.2	42344
6/24/2015	10:37:18	7.9	1610	57.2	58.5	72.5	42401
6/24/2015	10:38:18	8.8	1635	59.1	60.9	72.7	42460
6/24/2015	10:39:18	10.1	1680	62.8	67.2	73	42523
6/24/2015	10:40:18	10.1	1725	67.9	68.7	73	42591
6/24/2015	10:41:18	10.1	1735	68.1	69.1	73.1	42659
6/24/2015	10:42:18	10.1	1740	67.6	67.6	73.3	42727
6/24/2015	10:43:18	10.3	1745	67.8	68.6	73.4	42795
6/24/2015	10:44:18	10.5	1735	67.6	67.4	73.4	42862
6/24/2015	10:45:18	10.1	1740	66.4	64.2	73.5	42930
6/24/2015	10:46:18	9.7	1740	64.8	64.8	73.5	42994
6/24/2015	10:47:18	8.4	1685	62.2	60.6	73.6	43057
6/24/2015	10:48:18	8.1	1650	59.5	57.3	73.8	43116
6/24/2015	10:49:18	7.3	1635	56.6	53.1	74	43173
6/24/2015	10:50:18	7	1585	53.1	51.9	74.2	43226
6/24/2015	10:51:18	7.4	1560	53	54.7	74.4	43279
6/24/2015	10:52:18	8.1	1580	56.1	57.3	74.5	43336
6/24/2015	10:53:18	9.1	1610	59.2	61.3	74.7	43395
6/24/2015	10:54:18	10.5	1705	64.6	65.3	74.7	43459
6/24/2015	10:55:18	10.9	1760	67.6	68.6	74.7	43527
6/24/2015	10:56:18	10.8	1775	68.2	67.5	74.9	43596
6/24/2015	10:57:18	11.1	1780	68.8	68.6	75.1	43665
6/24/2015	10:58:18	10.5	1775	68	67	75.2	43733
6/24/2015	10:59:18	10.3	1755	66.8	65.2	75.3	43800
6/24/2015	11:00:18	10.4	1770	67	67.2	75.4	43867
6/24/2015	11:01:18	9.7	1755	66	65.2	75.5	43933
6/24/2015	11:02:18	8.4	1695	61.7	60.6	75.6	43995
6/24/2015	11:03:18	7.5	1645	57.4	55.2	76	44053
6/24/2015	11:04:18	7.2	1605	53.6	54.4	76.2	44106
6/24/2015	11:05:18	6.8	1575	52.8	51.9	76.3	44159
6/24/2015	11:06:18	6.6	1540	51.8	51.8	76.6	44211
6/24/2015	11:07:18	6.5	1525	51.8	51.5	76.9	44263
6/24/2015	11:08:18	7.2	1550	53.2	53.3	77.1	44317
6/24/2015	11:09:18	1.6	1460	41.6	0.2	78.4	44358
AVERAGE		**8.8**	**1667**	**61.2**	**60.7**	**72.6**	**42409**

CONDITION #3, RUN 3 OF 3

DATE	TIME	INLET PRESSURE	STACK TEMPERATURE	AVERAGE FUEL RATE	INST FUEL RATE	FUEL TEMP	TOT. FLOW
mm/dd/yyyy	hh:mm:ss	inH2O	°F	SCFM	INST RATE	°F	SCF
6/24/2015	11:35:18	6.5	1510	50.8	51.6	83.9	45075
6/24/2015	11:36:18	6.6	1530	52.5	52.5	83.9	45127
6/24/2015	11:37:18	7.5	1565	53.1	57.6	83.8	45181
6/24/2015	11:38:18	8.3	1610	57.8	60.4	83.7	45238
6/24/2015	11:39:18	8.6	1655	61.9	64.3	83.5	45300
6/24/2015	11:40:18	10.1	1725	66.6	66.6	83.3	45368
6/24/2015	11:41:18	10	1750	67.4	67.6	83.2	45435
6/24/2015	11:42:18	10.2	1750	67.9	68	83.2	45503
6/24/2015	11:43:18	10	1760	68.2	67.7	83.1	45571
6/24/2015	11:44:18	10.5	1765	67.6	68.1	83.1	45639
6/24/2015	11:45:18	10.1	1770	67.7	68	83.1	45707
6/24/2015	11:46:18	9.8	1770	67.6	66.7	83.1	45775
6/24/2015	11:47:18	9.8	1755	67.2	66.2	83.1	45842
6/24/2015	11:48:18	8.8	1750	64.6	61	83.2	45907
6/24/2015	11:49:18	7.3	1695	58.8	54.3	83.4	45966
6/24/2015	11:50:18	7.3	1610	52.6	53	83.6	46018
6/24/2015	11:51:18	7.6	1605	55.4	57.2	83.6	46074
6/24/2015	11:52:18	8	1620	57	57.2	83.7	46131
6/24/2015	11:53:18	8.6	1680	58.8	60	83.8	46190
6/24/2015	11:54:18	10	1720	62.9	66.2	83.9	46253
6/24/2015	11:55:18	10.6	1750	67.7	67.1	83.9	46321
6/24/2015	11:56:18	10.2	1755	68.2	67.6	83.9	46389
6/24/2015	11:57:18	10.2	1780	67.9	68.4	84	46457
6/24/2015	11:58:18	10.5	1775	68	68	84.1	46525
6/24/2015	11:59:18	10.4	1775	68	66.5	84	46594
6/24/2015	12:00:18	10.5	1780	67.9	68.1	84.1	46662
6/24/2015	12:01:18	10.6	1780	68.2	69.6	84.1	46730
6/24/2015	12:02:18	9.3	1770	67.4	66	84.2	46798
6/24/2015	12:03:18	8.1	1705	60.9	57.6	84.5	46859
6/24/2015	12:04:18	7.4	1655	56.8	53.7	84.7	46916
6/24/2015	12:05:18	7.2	1600	53.3	52.3	84.9	46969
6/24/2015	12:06:18	7.4	1595	53.8	54.8	85.2	47023
6/24/2015	12:07:18	7.4	1590	54.2	54.7	85.4	47077
6/24/2015	12:08:18	8	1615	56.1	57.1	85.6	47134
6/24/2015	12:09:18	8.9	1665	59.9	62.6	85.7	47194
6/24/2015	12:10:18	11.6	1735	64	67.9	85.7	47258
6/24/2015	12:11:18	10	1795	70.2	69.6	85.5	47328
6/24/2015	12:12:18	10.1	1780	69.3	70.1	85.5	47398
6/24/2015	12:13:18	10.3	1775	69.4	69.5	85.5	47467
6/24/2015	12:14:18	10.1	1770	69.4	69.8	85.6	47537
6/24/2015	12:15:18	10	1785	69.2	69.8	85.7	47606
6/24/2015	12:16:18	9.4	1740	66.8	64.5	85.9	47673
6/24/2015	12:17:18	8.5	1715	64.1	59.2	86.1	47737
6/24/2015	12:18:18	7.7	1665	58.3	55.7	86.4	47796
6/24/2015	12:19:18	7.6	1630	55.7	55.6	86.7	47851
6/24/2015	12:20:18	6.8	1590	52.5	52	87	47904
6/24/2015	12:21:18	7.4	1580	53.7	54.7	87.2	47958
6/24/2015	12:22:18	8	1600	56	58.2	87.3	48014
6/24/2015	12:23:18	8.2	1630	58.7	59.6	87.5	48073
6/24/2015	12:24:18	9.2	1680	61	66.8	87.5	48134
6/24/2015	12:25:18	9.8	1760	67.3	68.4	87.4	48202
6/24/2015	12:26:18	9.9	1780	68.8	68.7	87.4	48271
6/24/2015	12:27:18	10.2	1755	69.1	69	87.5	48340
6/24/2015	12:28:18	9.9	1760	69.6	69	87.5	48409
6/24/2015	12:29:18	9.9	1765	68.9	69.5	87.6	48477
6/24/2015	12:30:18	9.6	1745	69	66.1	87.6	48546
6/24/2015	12:31:18	9.2	1750	65.2	63.3	87.8	48612
6/24/2015	12:32:18	8.5	1750	61.9	60.2	87.9	48674
6/24/2015	12:33:18	7.8	1695	58.7	57.2	88	48733
6/24/2015	12:34:18	7.3	1655	55.5	53.7	88.2	48789
6/24/2015	12:35:18	7	1630	52.3	51.9	88.4	48841
6/24/2015	12:36:18	7	1605	51.6	51.9	88.6	48893
6/24/2015	12:37:18	7	1600	51.7	51.6	88.8	48945
6/24/2015	12:38:18	6.8	1600	51.7	52.2	89	48996
6/24/2015	12:39:18	6.8	1580	51.5	51.7	89.3	49048
AVERAGE		**8.8**	**1694**	**61.8**	**61.8**	**85.4**	**47084**

CONDITION #4, RUN 1 OF 3

DATE	TIME	INLET PRESSURE	STACK TEMPERATURE	AVERAGE FUEL RATE	INST FUEL RATE	FUEL TEMP	TOT. FLOW
mm/dd/yyyy	hh:mm:ss	inH2O	°F	SCFM	INST RATE	°F	SCF
6/24/2015	13:15:18	9.5	1710	69.6	69.6	81.1	50212
6/24/2015	13:16:18	9.5	1730	69.6	69.1	80.6	50282
6/24/2015	13:17:18	9.7	1725	69.2	69.1	80.1	50352
6/24/2015	13:18:18	9.7	1735	69	69.9	79.5	50421
6/24/2015	13:19:18	9.7	1745	68.6	68.2	79.1	50489
6/24/2015	13:20:18	9.8	1735	68.2	67.4	79.3	50558
6/24/2015	13:21:18	9.9	1745	67.1	66.5	80.1	50625
6/24/2015	13:22:18	9.8	1755	66.9	66	81	50692
6/24/2015	13:23:18	9.7	1745	66.6	67.2	81.7	50759
6/24/2015	13:24:18	9.8	1735	67	66.8	82.3	50826
6/24/2015	13:25:18	9.7	1735	66.7	66.9	82.9	50893
6/24/2015	13:26:18	10	1740	67	67.2	83.4	50960
6/24/2015	13:27:18	10.2	1760	66.9	67.5	83.8	51027
6/24/2015	13:28:18	10	1770	67.2	67.4	84.3	51094
6/24/2015	13:29:18	10.9	1805	68.9	68.8	83.9	51163
6/24/2015	13:30:18	11	1815	69	69.9	83.4	51233
6/24/2015	13:31:18	11.1	1815	68.8	68.3	82.8	51301
6/24/2015	13:32:18	11.1	1820	68.4	68.9	82.9	51370
6/24/2015	13:33:18	10.9	1800	68.9	68.5	82.3	51438
6/24/2015	13:34:18	11	1800	69.2	70.4	81.4	51507
6/24/2015	13:35:18	11.2	1805	69.1	69.6	80.6	51576
6/24/2015	13:36:18	11.1	1810	69.5	69.6	79.9	51646
6/24/2015	13:37:18	11.1	1815	68.4	68.3	80.1	51715
6/24/2015	13:38:18	10.9	1805	67.7	67	80.6	51783
6/24/2015	13:39:18	11	1810	67.3	67.7	81.1	51850
6/24/2015	13:40:18	11	1810	68.6	68.4	80.7	51919
6/24/2015	13:41:18	11.1	1825	68.5	68.7	80.1	51987
6/24/2015	13:42:18	11.1	1805	68.5	68.2	79.8	52056
6/24/2015	13:43:18	11.2	1800	67.3	66.1	80.2	52123
6/24/2015	13:44:18	11.1	1800	66.6	66.6	81	52190
6/24/2015	13:45:18	11	1780	66.7	66.5	81.8	52257
6/24/2015	13:46:18	11.1	1775	66.5	66.6	82.4	52324
6/24/2015	13:47:18	11.2	1775	70.7	70.2	82.1	52395
6/24/2015	13:48:18	10.7	1780	69.9	69.2	81.9	52465
6/24/2015	13:49:18	10.8	1780	68.9	68.2	81.1	52534
6/24/2015	13:50:18	10.9	1760	68.3	67.9	80.4	52602
6/24/2015	13:51:18	10.8	1810	69	68.8	79.6	52671
6/24/2015	13:52:18	10.8	1800	68.7	67.9	78.9	52740
6/24/2015	13:53:18	11.1	1815	68.4	69.3	78.2	52809
6/24/2015	13:54:18	10.8	1810	68.7	69.3	77.7	52878
6/24/2015	13:55:18	11.1	1800	68.9	69.2	77.2	52947
6/24/2015	13:56:18	10.8	1780	67.9	67.3	77.3	53015
6/24/2015	13:57:18	10.8	1810	67.5	67.3	77.6	53082
6/24/2015	13:58:18	10.8	1825	67.3	66.7	78.3	53149
6/24/2015	13:59:18	10.8	1810	66.8	66.5	79.2	53217
6/24/2015	14:00:18	10.9	1835	66.5	66.9	80	53284
6/24/2015	14:01:18	11.1	1830	66.7	67.8	80.6	53350
6/24/2015	14:02:18	11.6	1805	67.3	70.3	81.1	53418
6/24/2015	14:03:18	11.3	1830	68.4	67	81.7	53486
6/24/2015	14:04:18	11.1	1810	67.5	67.4	82.1	53554
6/24/2015	14:05:18	11.3	1800	67.4	67.6	82.5	53621
6/24/2015	14:06:18	11.6	1790	66.9	70.5	82.9	53688
6/24/2015	14:07:18	11.5	1825	72.3	73.1	83.1	53761
6/24/2015	14:08:18	11.5	1800	73	73.8	83.4	53834
6/24/2015	14:09:18	11.3	1810	72.8	72.7	83.7	53907
6/24/2015	14:10:18	10.8	1810	71.4	67.1	84	53979
6/24/2015	14:11:18	10.7	1780	67.6	67.1	84.3	54047
6/24/2015	14:12:18	10.8	1790	67.8	68.2	84.6	54114
6/24/2015	14:13:18	11.1	1765	68.5	68	84.8	54183
6/24/2015	14:14:18	11	1765	69	69.4	84.9	54252
6/24/2015	14:15:18	11.2	1780	68.9	68.8	85.1	54321
6/24/2015	14:16:18	11.1	1795	68.3	69.3	85.2	54389
6/24/2015	14:17:18	11.1	1790	68	67.7	85.3	54458
6/24/2015	14:18:18	11.5	1800	69.5	67.6	85.4	54527
6/24/2015	14:19:18	11.2	1810	68.9	69.1	85.4	54597
AVERAGE		**10.8**	**1788**	**68.4**	**68.4**	**81.6**	**52398**

CONDITION #4, RUN 2 OF 3

DATE	TIME	INLET PRESSURE	STACK TEMPERATURE	AVERAGE FUEL RATE	INST FUEL RATE	FUEL TEMP	TOT. FLOW
mm/dd/yyyy	hh:mm:ss	inH2O	°F	SCFM	INST RATE	°F	SCF
6/24/2015	14:45:18	9.3	1760	68.8	68.2	89.7	55397
6/24/2015	14:46:18	9.2	1750	68.2	68	89.5	55465
6/24/2015	14:47:18	9.3	1720	68	67.9	89.3	55534
6/24/2015	14:48:18	9.2	1735	68.2	68.4	89.1	55602
6/24/2015	14:49:18	9.2	1720	68.2	67.8	89	55671
6/24/2015	14:50:18	9.4	1695	67.9	68.4	88.9	55739
6/24/2015	14:51:18	9.4	1705	68.8	68.3	88.8	55808
6/24/2015	14:52:18	9.5	1750	68.5	69.3	88.7	55876
6/24/2015	14:53:18	9.7	1760	68.9	70.3	88.6	55945
6/24/2015	14:54:18	9.8	1780	69.9	69.7	88.6	56015
6/24/2015	14:55:18	9.8	1775	69.7	69.7	88.5	56085
6/24/2015	14:56:18	10	1740	69.8	70.8	88.4	56155
6/24/2015	14:57:18	10	1735	70.3	70.3	88.1	56226
6/24/2015	14:58:18	9.9	1745	70	69.9	88	56296
6/24/2015	14:59:18	9.9	1730	70	70.1	87.9	56366
6/24/2015	15:00:18	9.9	1730	69.7	70	87.9	56436
6/24/2015	15:01:18	9.9	1735	70	70.2	87.6	56506
6/24/2015	15:02:18	10.1	1750	69.8	69.9	87.5	56576
6/24/2015	15:03:18	9.8	1745	69.5	69.4	87.6	56646
6/24/2015	15:04:18	9.8	1765	69.6	69.6	87.6	56715
6/24/2015	15:05:18	9.9	1780	69.2	69.7	87.5	56785
6/24/2015	15:06:18	10	1765	69.8	69.8	87.4	56854
6/24/2015	15:07:18	9.9	1790	69.6	69.9	87.3	56925
6/24/2015	15:08:18	9.9	1745	69.3	68.7	87.4	56994
6/24/2015	15:09:18	9.7	1755	68.9	68.4	87.6	57063
6/24/2015	15:10:18	10	1750	69.1	69.5	87.7	57132
6/24/2015	15:11:18	9.9	1735	69.5	69.6	87.7	57202
6/24/2015	15:12:18	9.9	1740	68.9	68.6	87.8	57271
6/24/2015	15:13:18	10	1735	69.4	68.9	87.8	57340
6/24/2015	15:14:18	10.2	1750	69.5	70.5	87.9	57410
6/24/2015	15:15:18	10.2	1780	69.3	69.6	88	57479
6/24/2015	15:16:18	10	1780	69.3	69.3	88.1	57549
6/24/2015	15:17:18	10.1	1755	69.4	69.5	88.2	57619
6/24/2015	15:18:18	10.2	1745	69.1	69.3	88.2	57688
6/24/2015	15:19:18	10	1765	69.4	69.2	88.2	57757
6/24/2015	15:20:18	10.3	1745	69.2	69.8	88.2	57827
6/24/2015	15:21:18	10	1760	69.7	69.6	88.1	57897
6/24/2015	15:22:18	10.2	1770	69.4	69.6	88	57966
6/24/2015	15:23:18	10.1	1785	69.4	69	88.1	58036
6/24/2015	15:24:18	10.2	1775	69.7	70.2	87.9	58105
6/24/2015	15:25:18	10.1	1755	69.7	69.8	87.7	58175
6/24/2015	15:26:18	9.9	1740	69.8	68.5	87.7	58246
6/24/2015	15:27:18	10.2	1755	69.2	69.1	87.8	58315
6/24/2015	15:28:18	10.1	1765	69.5	68.6	87.9	58384
6/24/2015	15:29:18	10	1740	69	69.5	88	58454
6/24/2015	15:30:18	10.1	1740	69.1	69.8	88.2	58523
6/24/2015	15:31:18	10.3	1750	69.6	69.4	88.3	58592
6/24/2015	15:32:18	9.9	1750	69.3	69.4	88	58662
6/24/2015	15:33:18	9.9	1770	69.6	69.7	87.8	58732
6/24/2015	15:34:18	10.1	1750	69.5	70.2	87.7	58801
6/24/2015	15:35:18	10.1	1770	69.9	69.5	87.4	58872
6/24/2015	15:36:18	10.1	1770	69.2	68.6	87.4	58941
6/24/2015	15:37:18	10.1	1790	69.2	69	87.5	59010
6/24/2015	15:38:18	10.1	1765	69.5	69.6	87.5	59080
6/24/2015	15:39:18	10.2	1750	69.3	69.1	87.5	59148
6/24/2015	15:40:18	10.2	1750	69.2	69.8	87.5	59217
6/24/2015	15:41:18	10	1735	69.1	70	87.6	59287
6/24/2015	15:42:18	10.1	1760	69.2	69.5	87.7	59356
6/24/2015	15:43:18	10	1765	69.2	69.4	87.7	59425
6/24/2015	15:44:18	10.3	1780	68.9	69.5	87.7	59494
6/24/2015	15:45:18	10	1755	69.1	68.6	87.8	59564
6/24/2015	15:46:18	10.1	1760	68.8	69	87.9	59633
6/24/2015	15:47:18	10.2	1775	69.1	68.5	87.9	59702
6/24/2015	15:48:18	10.2	1760	68.9	69.4	87.9	59771
6/24/2015	15:49:18	10.1	1735	69	68.9	87.9	59840
AVERAGE		**9.9**	**1753**	**69.3**	**69.3**	**88.0**	**57618**

CONDITION #4, RUN 3 OF 3

DATE	TIME	INLET PRESSURE	STACK TEMPERATURE	AVERAGE FUEL RATE	INST FUEL RATE	FUEL TEMP	TOT. FLOW
mm/dd/yyyy	hh:mm:ss	inH2O	°F	SCFM	INST RATE	°F	SCF
6/24/2015	16:15:18	9.4	1710	69.4	70.3	89.2	60639
6/24/2015	16:16:18	9.3	1720	69.7	70.5	89	60709
6/24/2015	16:17:18	9.3	1730	70.1	69.8	88.7	60779
6/24/2015	16:18:18	9.3	1720	69.5	69.6	88.5	60849
6/24/2015	16:19:18	9.5	1715	69.9	70.8	88.3	60919
6/24/2015	16:20:18	9.7	1740	70.7	71.4	88.1	60990
6/24/2015	16:21:18	9.7	1765	70.5	70.2	87.8	61061
6/24/2015	16:22:18	9.5	1780	70.1	70.3	87.7	61131
6/24/2015	16:23:18	9.6	1770	69.7	69.6	87.6	61201
6/24/2015	16:24:18	9.8	1795	70	69.1	87.3	61271
6/24/2015	16:25:18	9.7	1765	70	69.8	87	61341
6/24/2015	16:26:18	9.7	1760	69.7	70.1	86.9	61411
6/24/2015	16:27:18	9.6	1760	69.8	70.5	86.4	61481
6/24/2015	16:28:18	9.8	1755	69.6	69.4	86	61551
6/24/2015	16:29:18	9.6	1755	69.5	69.4	85.8	61621
6/24/2015	16:30:18	9.7	1760	69.6	70.2	85.7	61690
6/24/2015	16:31:18	9.6	1740	69.5	69.5	85.7	61760
6/24/2015	16:32:18	9.8	1745	69.1	69.5	85.6	61829
6/24/2015	16:33:18	9.8	1775	69.5	69.6	85.5	61899
6/24/2015	16:34:18	9.7	1755	69	68.8	85.5	61968
6/24/2015	16:35:18	9.7	1760	69.1	69.8	85.3	62037
6/24/2015	16:36:18	9.7	1780	69.3	69.2	85.3	62107
6/24/2015	16:37:18	9.8	1735	68.9	69.7	85.2	62176
6/24/2015	16:38:18	9.7	1745	69.4	68.9	85	62246
6/24/2015	16:39:18	9.9	1740	69.2	69.1	84.9	62315
6/24/2015	16:40:18	9.8	1755	69.2	69.2	84.8	62384
6/24/2015	16:41:18	9.7	1745	68.8	69.5	84.8	62453
6/24/2015	16:42:18	9.7	1755	68.9	68.6	84.9	62521
6/24/2015	16:43:18	9.7	1790	68.1	68.1	84.9	62589
6/24/2015	16:44:18	9.9	1765	68.7	69	84.8	62658
6/24/2015	16:45:18	9.7	1770	68.7	68.3	84.8	62727
6/24/2015	16:46:18	9.8	1750	69	68.3	84.6	62796
6/24/2015	16:47:18	9.7	1755	68.7	68.8	84.4	62865
6/24/2015	16:48:18	9.9	1735	68.8	69.5	84.3	62934
6/24/2015	16:49:18	10	1765	69.2	68.9	84.1	63003
6/24/2015	16:50:18	9.8	1775	69.1	70.2	83.7	63073
6/24/2015	16:51:18	10.1	1765	69.6	69.5	83	63142
6/24/2015	16:52:18	9.9	1780	69.6	69.6	82.5	63212
6/24/2015	16:53:18	10	1790	69	68.7	82.1	63281
6/24/2015	16:54:18	9.8	1775	68.7	68.8	81.9	63350
6/24/2015	16:55:18	9.9	1795	68.9	68.9	81.5	63419
6/24/2015	16:56:18	9.8	1780	68.9	68.5	81.5	63488
6/24/2015	16:57:18	9.8	1770	68.5	69.1	81.6	63557
6/24/2015	16:58:18	9.9	1780	68.5	68.7	81.6	63626
6/24/2015	16:59:18	9.9	1790	68.4	68.9	81.6	63694
6/24/2015	17:00:18	9.9	1810	69.3	68.4	81.7	63764
6/24/2015	17:01:18	10	1785	68.7	69.6	81.8	63832
6/24/2015	17:02:18	10	1805	68.4	69.1	81.9	63901
6/24/2015	17:03:18	9.9	1790	68.5	69.3	81.9	63969
6/24/2015	17:04:18	10.1	1750	68.4	68.4	82	64038
6/24/2015	17:05:18	9.9	1745	68.3	67.6	81.9	64106
6/24/2015	17:06:18	9.8	1775	68.4	67.9	81.9	64175
6/24/2015	17:07:18	10.3	1780	69.3	69.8	81.8	64245
6/24/2015	17:08:18	10.1	1785	69	68.7	81.7	64314
6/24/2015	17:09:18	10.5	1775	68.7	68.7	81.7	64383
6/24/2015	17:10:18	10.2	1815	69.1	69.9	81.7	64452
6/24/2015	17:11:18	10.7	1805	69.3	69.1	81.8	64521
6/24/2015	17:12:18	10.6	1785	69.6	69.7	81.7	64591
6/24/2015	17:13:18	10.8	1810	70.4	71.7	81	64661
6/24/2015	17:14:18	10.3	1845	69.9	70.3	80.5	64731
6/24/2015	17:15:18	10.3	1840	70.2	69.5	79.9	64802
6/24/2015	17:16:18	10.6	1845	70.1	68.3	79.4	64872
6/24/2015	17:17:18	10.4	1810	69.7	70.9	79	64942
6/24/2015	17:18:18	10.3	1815	69.4	69.4	78.6	65012
6/24/2015	17:19:18	11.8	1830	69.5	73.6	78.4	65081
AVERAGE		**9.9**	**1772**	**69.3**	**69.4**	**83.9**	**62864**

Flow Meter Calibration

SAGE METERING INC.

PRODUCT QUALITY CERTIFICATE OF CONFORMANCE

Product Inspection & Quality Statement

All individual parts and components which make up the product being provided have been inspected and approved for manufacture. In addition, subassemblies have been inspected, tested, and accepted for final assembly. Each completed assembly has been final tested and approved for shipment.

Conformance Statement

SAGE Metering Incorporated certifies this instrument was tested in compliance with ANSI/NCSL Z540 and ISO/IEC 17025 requirements. SAGE Metering, Inc. calibration services are derived from MIL-STD-45662A. The Prime DC24 model is Met Labs approved and Met Labs is a Nationally Recognized Testing Laboratory (NRTL) which is recognized by OSHA. The tests are performed using measuring & test equipment with certified NIST traceability. (Applicable NIST numbers are available upon request). Reproduction of the complete certificate is allowed. Parts of the certificate may only be reproduced after written permission is granted by SAGE Metering, Inc.

CUSTOMER:	**Electronic Design for Industry, Inc.**	
PURCHASE ORDER:	**032515DAVID**	
SAGE SALES ORDER:	**19417**	
MODEL:	**SIP-05-06-DC24-PROPYLENE**	
POWER REQUIREMENT:	**DC24**	
OPTIONAL OUTPUT:	**Flow, 4 - 20mA**	**10 SCF/PULSE, 250 ms**
SAGE UNIT/SENSOR SERIAL NUMBERS:	**67315-34238**	**Slave ID = 31 HEX**
TAG:		
PRIME BAUD RATE / PRIME PARITY	**19200.00**	**EVEN**
SUGGESTED CALIB/VALIDATION INTERVAL:	**12 months after Calibration**	
CALIBRATION DATE:	**3/26/2015**	
OPERATING PRESSURE RANGE:	**(14.7 PSIA + PSIG) ± 20%**	
MAXIMUM PRESSURE RATING:	**500 PSIG**	
SENSOR TEMPERATURE RANGE:	**STD: -40 to 200 F**	
ELECTRONICS TEMPERATURE RANGE:	**0° to +150°F (-18° to +65.56°C)**	
ACCURACY REFERENCED TO 70°F (21°C):	**+/- 1% Rdg + 0.5% FS**	
CALIBRATION REFERENCE CONDITIONS:	**60°F and 14.7 PSIA**	
PROCESS GAS:	**PROPYLENE**	
PROCESS FLOW (FS, 4-20 mA)/LowFlowCutoff	**0 - 100 SCFM**	
CALIBRATED FLOW	**100 SCFM**	
PROCESS LINE SIZE	**2 in sch 40**	
PROCESS TEMPERATURE:	**70 F**	
PROCESS PRESSURE:	**1 PSIG**	
CALIBRATION TECHNICIANS:	**RPG**	
HOFFER FLOW CONTROLS TURBINES	**1" SN:11718 2" SN:109420 3" SN:98491**	
DMM's	**DMM #1 & #2**	
FLOW CALIBRATION PROCEDURE USED:	**100-0164**	
TEMP CALIBRATION PROCEDURE USED:	**100-0089**	

SPECIAL NOTES:

SOFTWARE REV#	**2.31**	
AMBIENT AIR ZERO in mW/GAS FLOW ZERO in mW	**88**	**105**

Authorization:  **Date:** **March 26, 2015**

Propylene Fuel Analysis

Car Number:	TILX 302407	Product:	Polymer Grade Propylene
Total Lbs:		Net Lbs:	

Sample Date:	3/20/2015 16:06		
Sample			
Storage			
Quantity		Measurement:	Western Inter.
Propylene	99.70	mol %	99.5 min
Propane	0.297	mol %	0.5 max
Water	0.13	ppm wt.	5.0 max
Methane	1.05	ppm mol	300.0 max
Acetylene	0.00	ppm mol	4.8 max
Ethylene	0.00	ppm mol	25.0 max
Ethane	45.46	ppm mol	450.0 max
Methyl Acetylene	0.38	ppm mol	4.0 max
Propadiene	0.00	ppm mol	4.0 max
Butadiene	0.00	ppm mol	7.8 max
Carbonyl Sulfide	28.55	ppb wt.	60.0 max
Hydrogen Sulfide	0.00	ppm wt.	0.5 max
Methyl Mercaptan	0.00	ppm wt.	0.5 max
Ethyl Mercaptan	0.00	ppm wt.	0.5 max
t-Butyl Mercaptan	0.00	ppm wt.	0.5 max
*Total Sulphurs***	*0.02*	*ppm wtS.*	*0.5 max****
Oxygenated Compounds	0.19	ppm wt.	5.0 max
Total Butenes	0.00	ppm mol	7.5 max
Oxygen	0.70	ppm wt.	4.0 max
Carbon Monoxide	0.00	ppm wt.	0.1 max
Carbon Dioxide	0.09	ppm wt.	1.0 max
Arsine & Phosphine	0.00	ppb wt.	20.0 max
Ammonia	0.00	ppm wt.	1.0 max
Iso Butane	0.00	ppm mol	100.0 total C4
N-Butane	0.00	ppm mol	100.0 total C4
C5 & Heavier	0.00	ppm mol	11.6 max
Halides(as Chlorides)	0.00	ppm wt	no spec max
Hydrogen	0.04	ppm wt.	1.0 max
Analyst	Shanna Lavigne		

* Time based on 24hr Clock Mountain Standard Time
**Report Based on Grab Sample Stream results on AIT5303 & AIT5405 on Shipping Date & Time

****Total Sulfur** is based on the on the following components: COS+H2S+MM+EM IsoPropyl and Propyl Mercaptan+ Sulfides+ Di Sulfides (coverted to weight Sulfur)*

Calculation of BTU/scf for Propylene Based on Chemical Analysis by Matheson Tri-Gas

Chemical Component	Mole %	Chemical BTU/scf (gross)	(Mole%)(BTU/scf)
Propylene	99.70%	2333	2326.001
Methane	0.00011%	1010	0.001
Ethane	0.00455%	1769.7	0.080
Propane	0.297%	2516.2	7.473
Total	100.002%	Gas BTU/scf:	2333.555

Propylene MSDS

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MATHESON TRI-GAS, INC.
150 Allen Road Suite 302
Basking Ridge, New Jersey 07920
Information: 1-800-416-2505

Emergency Contact:
CHEMTREC 1-800-424-9300
Calls Originating Outside the US:
703-527-3887 (Collect Calls Accepted)

SUBSTANCE: PROPYLENE

TRADE NAMES/SYNONYMS:
MTG MSDS 77; PROPENE; METHYLETHENE; METHYLETHYLENE; 1-PROPYLENE; 1-PROPENE; UN 1077; C3H6; MAT19830; RTECS UC6740000

CHEMICAL FAMILY: hydrocarbons, aliphatic

CREATION DATE: Jan 24 1989
REVISION DATE: Dec 11 2008

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: PROPYLENE
CAS NUMBER: 115-07-1
PERCENTAGE: 100.0

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=1 FIRE=4 REACTIVITY=1

EMERGENCY OVERVIEW:
COLOR: colorless
PHYSICAL FORM: gas
MAJOR HEALTH HAZARDS: central nervous system depression, difficulty breathing
PHYSICAL HAZARDS: Flammable gas. May cause flash fire.

POTENTIAL HEALTH EFFECTS:
INHALATION:
SHORT TERM EXPOSURE: tearing, nausea, vomiting, symptoms of drunkenness, suffocation, convulsions, coma
LONG TERM EXPOSURE: no information on significant adverse effects

SKIN CONTACT:
SHORT TERM EXPOSURE: blisters, frostbite
LONG TERM EXPOSURE: no information is available
EYE CONTACT:
SHORT TERM EXPOSURE: frostbite, blurred vision
LONG TERM EXPOSURE: no information is available
INGESTION:
SHORT TERM EXPOSURE: frostbite
LONG TERM EXPOSURE: no information is available

4. FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

SKIN CONTACT: If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.

EYE CONTACT: Contact with liquid: Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

INGESTION: If a large amount is swallowed, get medical attention.

NOTE TO PHYSICIAN: For inhalation, consider oxygen.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Severe fire hazard. Vapor/air mixtures are explosive above flash point. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back. Electrostatic discharges may be generated by flow or agitation resulting in ignition or explosion.

EXTINGUISHING MEDIA: carbon dioxide, regular dry chemical

Large fires: Flood with fine water spray.

FIRE FIGHTING: Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck: Stop leak if possible without personal risk. Let burn unless leak can be stopped immediately. For smaller tanks or cylinders, extinguish and isolate from

other flammables. Evacuation radius: 800 meters (1/2 mile). Stop flow of gas.

FLASH POINT: -162 F (-108 C)
LOWER FLAMMABLE LIMIT: 2.0%
UPPER FLAMMABLE LIMIT: 11.1%
AUTOIGNITION: 851 F (455 C)

6. ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL RELEASE:
Avoid heat, flames, sparks and other sources of ignition. Do not touch spilled material. Stop leak if possible without personal risk. Reduce vapors with water spray. Keep unnecessary people away, isolate hazard area and deny entry. Remove sources of ignition. Ventilate closed spaces before entering.

7. HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.110. Protect from physical damage. Store in a cool, dry place. Store in a well-ventilated area. Avoid heat, flames, sparks and other sources of ignition. Store outside or in a detached building. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:
PROPYLENE:
500 ppm ACGIH TWA

VENTILATION: Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.

GLOVES: Wear insulated gloves.

RESPIRATOR: Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before

use.

For Unknown Concentrations or Immediately Dangerous to Life or Health -
Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: gas
COLOR: colorless
ODOR: Not available
MOLECULAR WEIGHT: 42.08
MOLECULAR FORMULA: C-H3-C-H-C-H2
BOILING POINT: -53 F (-47 C)
FREEZING POINT: -301 F (-185 C)
VAPOR PRESSURE: 7828 mmHg @ 21.1 C
VAPOR DENSITY (air=1): 1.5
SPECIFIC GRAVITY: Not applicable
DENSITY: 1.7855 g/L
WATER SOLUBILITY: 45%
PH: Not applicable
VOLATILITY: Not applicable
ODOR THRESHOLD: Not available
EVAPORATION RATE: Not applicable
VISCOSITY: 0.140 cP @ -40 C
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not applicable
SOLVENT SOLUBILITY:
Soluble: alcohol, ether, acetic acid

10. STABILITY AND REACTIVITY

REACTIVITY: May polymerize. May react on contact with air, heat, light or water.

CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition. Minimize contact with material. Containers may rupture or explode if exposed to heat.

INCOMPATIBILITIES: oxidizing materials, halo carbons, halogens, acids

HAZARDOUS DECOMPOSITION:
Thermal decomposition products: miscellaneous decomposition products

POLYMERIZATION: May polymerize. Avoid contact with heat, light, air, water or incompatible materials. Polymerizes with evolution of heat.

11. TOXICOLOGICAL INFORMATION

PROPYLENE:
CARCINOGEN STATUS: IARC: Human Inadequate Evidence, Animal Inadequate Evidence, Group 3; ACGIH: A4 -Not Classifiable as a Human Carcinogen
TARGET ORGANS: central nervous system
TUMORIGENIC DATA: Available.
MUTAGENIC DATA: Available.
ADDITIONAL DATA: Stimulants such as epinephrine may induce ventricular fibrillation.

12. ECOLOGICAL INFORMATION

FATE AND TRANSPORT:
KOW: 223.87 (log = 2.35) (estimated from water solubility)

KOC: 533.33 (log = 2.73) (estimated from water solubility)

HENRY'S LAW CONSTANT: 9.6 E -4 atm-m3/mol

BIOCONCENTRATION: 0.40 (estimated from water solubility)

AQUATIC PROCESSES: 1.6862069 hours (River Model: 1 m deep, 1 m/s flow, 3 m/s wind)

ENVIRONMENTAL SUMMARY: Relatively non-persistent in the environment. Leaches through the soil or the sediment at a slow rate. Accumulates very little in the bodies of living organisms. Moderately volatile from water.

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:
PROPER SHIPPING NAME: Propylene
ID NUMBER: UN1077
HAZARD CLASS OR DIVISION: 2.1
LABELING REQUIREMENTS: 2.1

QUANTITY LIMITATIONS:
PASSENGER AIRCRAFT OR RAILCAR: Forbidden
CARGO AIRCRAFT ONLY: 150 kg

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:
SHIPPING NAME: Propylene
UN NUMBER: UN1077
CLASS: 2.1

15. REGULATORY INFORMATION

U.S. REGULATIONS:
CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4): Not regulated.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart B): Not regulated.

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart C): Not regulated.

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B and C):
ACUTE: Yes
CHRONIC: No
FIRE: Yes
REACTIVE: No
SUDDEN RELEASE: Yes

SARA TITLE III SECTION 313 (40 CFR 372.65):
PROPYLENE

OSHA PROCESS SAFETY (29 CFR 1910.119): Not regulated.

STATE REGULATIONS:
California Proposition 65: Not regulated.

CANADIAN REGULATIONS:
WHMIS CLASSIFICATION: A, B1.

NATIONAL INVENTORY STATUS:
U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

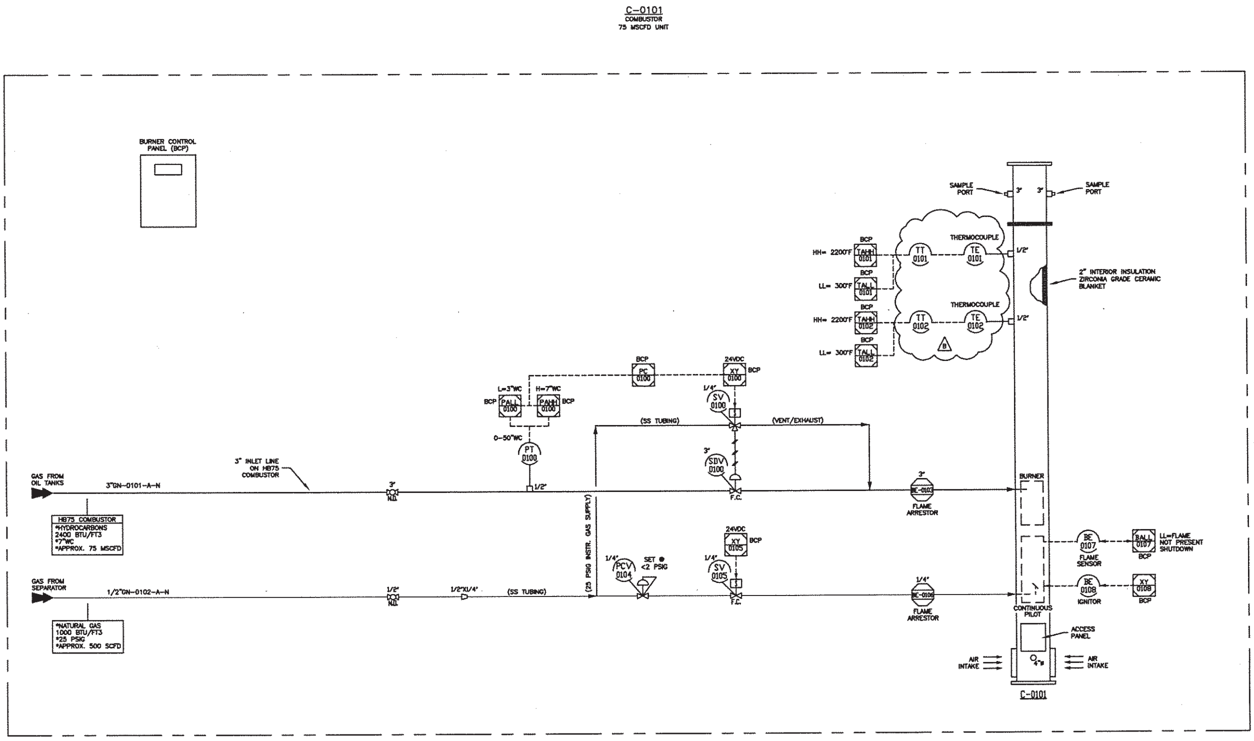
CANADA INVENTORY (DSL/NDSL): Listed on inventory.

16. OTHER INFORMATION

MATHESON TRI-GAS, INC. MAKES NO EXPRESS OR IMPLIED WARRANTIES, GUARANTEES OR REPRESENTATIONS REGARDING THE PRODUCT OR THE INFORMATION HEREIN, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR USE. MATHESON TRI-GAS, INC. SHALL NOT BE LIABLE FOR ANY PERSONAL INJURY, PROPERTY OR OTHER DAMAGES OF ANY NATURE, WHETHER COMPENSATORY, CONSEQUENTIAL, EXEMPLARY, OR OTHERWISE, RESULTING FROM ANY PUBLICATION, USE OR RELIANCE UPON THE INFORMATION HEREIN.

APPENDIX I

Combustor Specifications and Report Checklist



DESIGN CONDITIONS

Q2 = 75 MSCFD

NOTES:

1. ...
2. ...
3. ...
4. ...
5. ...
6. ...
7. ...

EDI

ELECTRONIC DESIGN FOR INDUSTRY
100 AYERS BLVD
BELPRE, OHIO 45714
(740)-401-4000

NO.	BY	DATE	DESCRIPTION	CHK'D	APP'D
C	DJH	7/17/15	SEPERATED DWGS FOR HB20T & HB75T		–
B	SE	3/27/15	REVISED (TT'S) FOR SHOP TEST	CH	CH
A	SE	3/26/15	ISSUED FOR SHOP TEST	CH	CH

REVISIONS

HY-BON ENGINEERING COMPANY, INC.

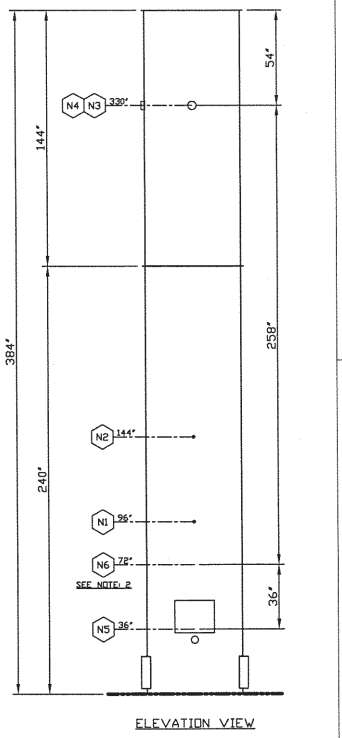
PIPING & INSTRUMENTATION DIAGRAM

COMBUSTOR SYSTEM SCHEMATIC
HY-BON/EDI MODELS HB75T

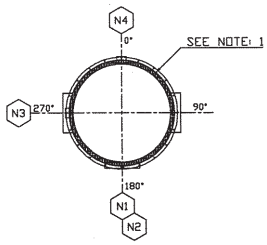
DRAWN:	DATE:	SCALE:	CHK'D:	APP'D:	W.O. NO.:
DJH	7/17/15	NONE	–	–	N/A

CUSTOMER: HY-BON

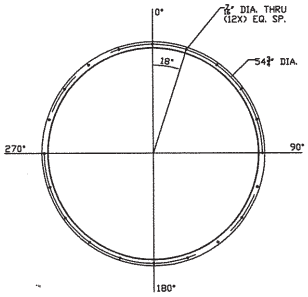
DWG. NO.: HB75T-01-001 | 1 OF 1 | REV. C



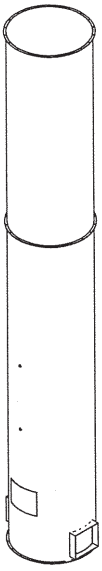
ELEVATION VIEW

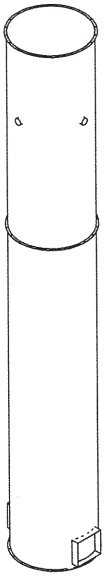


TRUE ORIENTATION
TOP VIEW



BOTTOM FLANGE
HOLE SPACING





NOTES:
1. INSULATION: ZIRCONIA GRADE CERAMIC BLANKET 2" THICK ACTUAL COMBUSTOR SHELL ID 30"
2. ID: 50.0"; 4×ID=200.0"

MK	QTY	SERVICE	SIZE	RATING	TYPE	BORE	PROJECTION O.S.	PROJECTION I.S.	WELD DET.	WELD SIZE A	WELD SIZE B	WELD SIZE C
N6	1	FLAME LENGTH	--	--	--	--	--	--	--	--	--	--
N5	1	BURNER HEIGHT	--	--	--	--	--	--	--	--	--	--
N4	1	SAMPLE PORT	3"	--	COUP	--	--	--	--	--	--	--
N3	1	SAMPLE PORT	3"	--	COUP	--	--	--	--	--	--	--
N2	1	THERMOCOUPLE PORT	1/2"	--	COUP	--	--	--	--	--	--	--
N1	1	THERMOCOUPLE PORT	1/2"	--	COUP	--	--	--	--	--	--	--

NOZZLE SCHEDULE

QTY	DESCRIPTION	MATERIAL

MATERIAL LIST

SPECIFICATIONS

DESIGN PRESSURE INTERNAL ____ PSIG @ TEMP.____ F MIN/MAX
OPER. PRESSURE INTERNAL ____ PSIG @ TEMP.____ F MIN/MAX
MAWP PRESSURE INTERNAL ____ PSIG @ TEMP.____ F MIN/MAX
DESIGN PRESSURE EXTERNAL ____ PSIG @ TEMP.____ F MIN/MAX
OPER. PRESSURE EXTERNAL ____ PSIG @ TEMP.____ F MIN/MAX
MAWP PRESSURE EXTERNAL ____ PSIG @ TEMP.____ F MIN/MAX
HYDRO PRESSURE INTERNAL ____ PSIG

CORROSION ALLOWANCE ____
J.E. LONG. SEAMS ____
J.E. ROUND SEAMS ____
RADIOGRAPHY ____
STRESS RELIEVE ____
INSPECTION BY ____
YEAR BUILT ____
SERIAL NUMBER ____
NAT. BD. NUMBER ____
WELD PROC. ____
INSULATION ____
CODE ____
SURFACE PREP. ____

SHELL MAT'L. SPEC. ____
HEAD MAT'L. SPEC. ____
FLANGE MAT'L. SPEC. ____
CPLG. MAT'L. SPEC. ____
PIPE MAT'L. SPEC. ____
REPAD MAT'L. SPEC. ____
FLANGE RATING ____
COUPLING RATING ____
FIT. MAT'L. SPEC. ____
EMPTY WEIGHT ____
FULL LIQUID WEIGHT ____

ELECTRONIC DESIGN FOR INDUSTRY
100 AYERS BLVD
DELPHOS, OHIO 45714
(740)-692-4000

NO.	BY	DATE	DESCRIPTION	CHK'D	APP'D
B	DJH	7/17/15	ADDED ACCESS PANEL AND VENT	--	--
A	J.C	05/26/15	ISSUED FOR REVIEW	C.H	C.H

REVISIONS

HY-BON ENGINEERING COMPANY, INC.

GENERAL LAYOUT
HY-BON/EDI
TEST COMBUSTER

DRAWN:	DATE:	SCALE:	CHK'D:	APP'D:	W.O. NO.:
DJH	7/17/15	NONE	--	--	HB75T

CUSTOMER:
HY-BON/EDI ENGINEERING

DWG. NO.: HB75T-02-001 | 1 OF 1 | REV. B

I-3

15-162

Continuous Pilot Control Philosophy

The following information explains the control philosophy for the Continuous Pilot Protocol. At the heart of the control philosophy is maintaining a continuously present pilot flame.

INITIAL PILOT FLAME IGNITION AND DETECTION

1. The EDI burner control panel (BCP) is placed into "ON" mode by switching from "OFF" to "ON" on the control panel
2. Once in "ON" mode, there is a 5 second safety delay to allow the operator an opportunity to cancel the operation
3. The pilot Solenoid Valve (SV-0105) opens and allows the pilot fuel to enter into the pilot burner
4. After a one second delay, the BCP energizes the Ignition Transformer (BE 0108) to ignite the pilot fuel within the pilot burner for 15 seconds
5. Once fuel is introduced the following situations may occur:

	True Detection	**False Detection**
True Ignition	TT	TF
False Ignition	FT	FF

   a. Scenario TT: The fuel is successfully ignited and the flame is detected by the Fireye Ionization Sensor (BE 0107). A signal is sent to the BCP, confirming the presence of a flame
   b. Scenario TF: The fuel is successfully ignited but the flame is NOT detected by the Fireye Ionization Sensor (BE 0107). If the BCP does not receive a signal from BE 0107 within 15 seconds after fuel is introduced the BCP concludes the pilot has failed to light.
      i. The BE 0108 de-energizes and the SV 0105 is closed. A 15 second timer starts. This allows for pilot fuel to dissipate before BCP attempts to ignite the pilot again.
      ii. Steps 3-5 will repeat until a set number of failures occur. This is a user defined parameter.
      iii. Once the number of failed pilot attempts is met, the BCP will abort pilot ignition sequence and cease operation until the operator manually resets the sequence.
   c. Scenario FF: The fuel fails to ignite and, therefore, the Fireye Ionization Sensor (BE 0107) does NOT detect a flame. If the BCP does not receive a signal from BE 0107 within 15 seconds after fuel is introduced the BCP concludes the pilot has failed to light.
      i. The BE 0108 de-energizes and the SV 0105 is closed. A 15 second timer starts. This allows for pilot fuel to dissipate before BCP attempts to ignite the pilot again.
      ii. Steps 3-5 will repeat until a set number of failures occur. This is a user defined parameter.
      iii. Once the number of failed pilot attempts is met, the BCP will abort pilot ignition sequence and cease operation until the operator manually resets the sequence.
   d. Scenario FT: This scenario is not possible due to the design of the Fireye Ionization Sensor (BE 0107). BE 0107 detects a flame not by the absence of a signal, but by a partial, returning signal. This partial, returning signal is only generated by the presence of a flame and, therefore, could not be accidently created during normal operation. A graphical representation of the returning signal is located in the NOTES section.

6. Once step 5a is achieved (true ignition and true detection), the BCP then waits for adequate inlet fuel pressure. The pilot is continually monitored even after step 5a is met

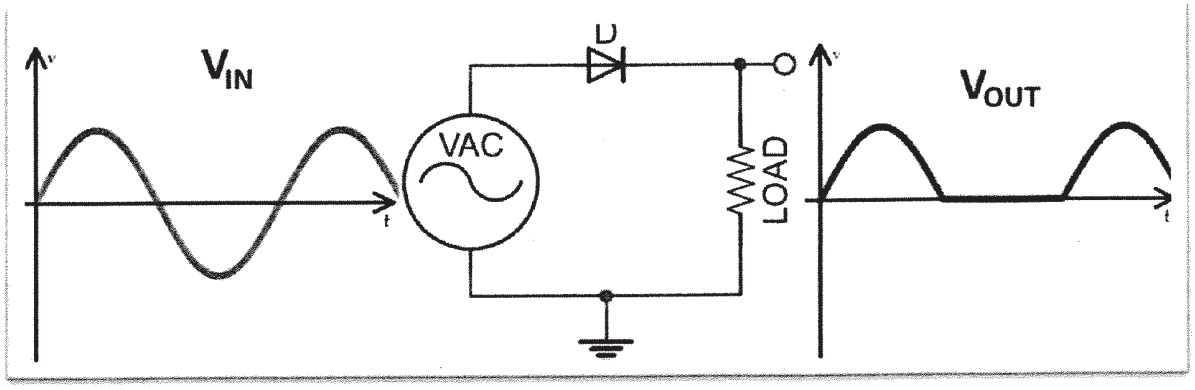
POST-SUCCESSFUL PILOT DETECTION

1. If the BE 0107 fails to detect the flame for more than 2 seconds while waiting for adequate inlet fuel pressure, the failure is treated as if step 5b or 5c has occurred.
2. If the BE 0107 fails to detect the flame for more than 2 seconds after adequate inlet pressure has been met and the main gas line control valve (SDV 0100) has opened, the BCP will close the SDV 0100 and treat the failure as if step 5b or 5c has occurred

NOTES:

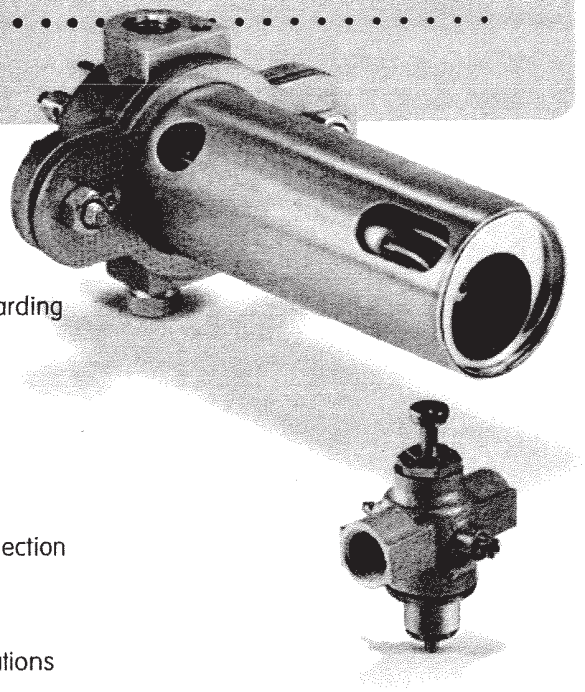
BE 0107 operates in the following way:

An alternating current (AC) signal is sent into the flame. The flame behaves like a diode and resistor (illustrated in green). If a flame is detected, the returning signal is only the positive sections of the original AC signal. In summary, without the presence of a flame, the accepted, returning signal cannot be detected. Therefore, false detection cannot be created.



Control valve S11T
Pilot burners ZTA, ZT 40 and ZTI 55

Technical Information · GB
9 Edition 01.12



Control valve S11T

- Independent of mains power supply due to thermo-electric safeguarding
- Available with contact switch for ignition with electrode
- Control valve S11T..R15 suitable for gas inlet pressures up to 1.5 bar

Pilot burners ZTA, ZT 40 and ZTI 55

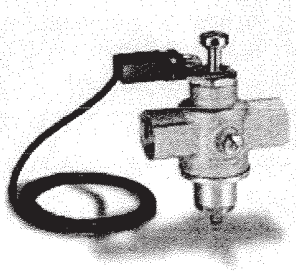
- Flame monitoring using a thermocouple, and in the case of ZTI 55 also using an ionization electrode
- Thermo pilot burners, optionally available with forced draught connection
- Electrical ignition with an electrode
- Save space due to their compact dimensions
- Different lengths make them suitable for individual installation situations

Contents

= To be continued

1 Application

1.1 Control valve S11T



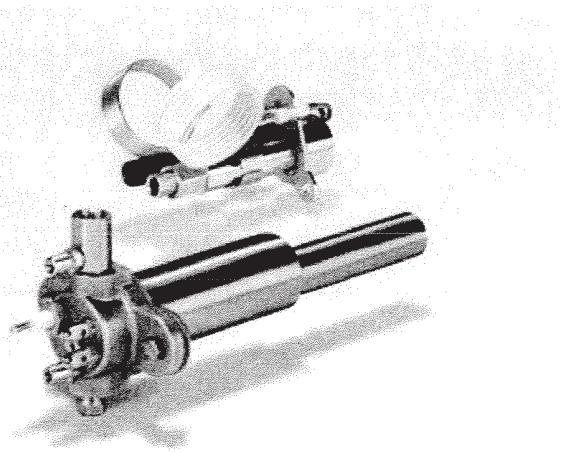
Control valve S11T..S with switch to control an ignition transformer

For thermo-electric safeguarding of gas-fired installations of any kind in conjunction with thermo pilot burners ZT.

The control valve S11T operates independently of mains power supply.

The control valve S11T..S is fitted with a switch to control an ignition transformer.

1.2 Pilot burners



Pilot burner ZTA with grounding cable and thermo-cable, pilot burner ZT 40 with protective tube and air nozzle

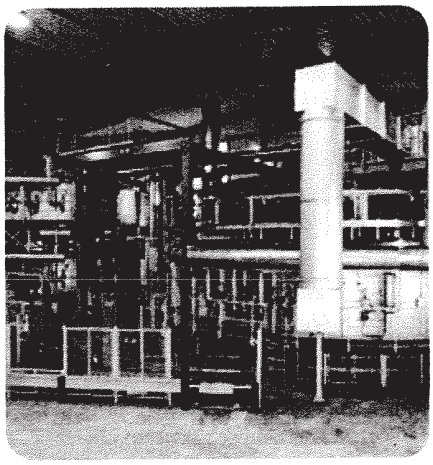
For safe ignition and thermo-electric safeguarding in conjunction with control valve S11T of atmospheric gas burners on furnaces in the metal, ceramics and non-ferrous metal industries, on heat treatment installations or in applications without voltage supply.

Suitable for operation with natural gas, town gas or LPG.

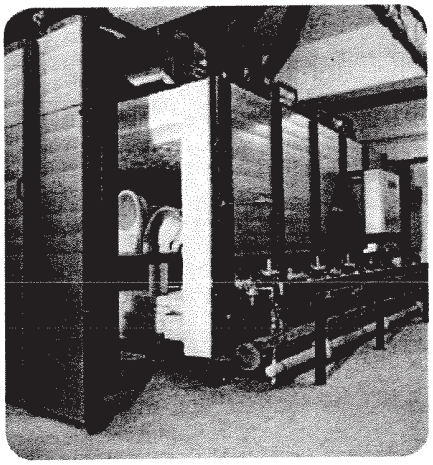
The pilot burners are ignited using an ignition electrode.

In the case of pilot burners ZTI 55, the flame is monitored via a thermocouple. An ionization electrode is also fitted, whose signal current may be used to release an additional valve, for example.

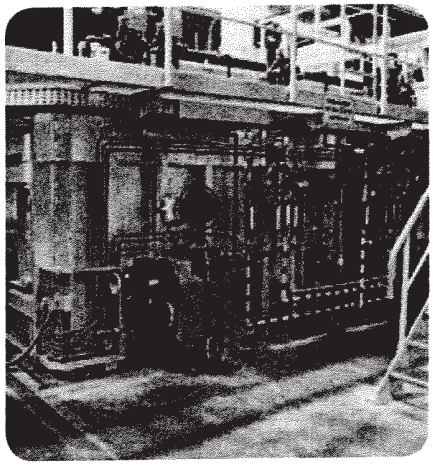
Wheel rim hardening installation



Annealing furnace



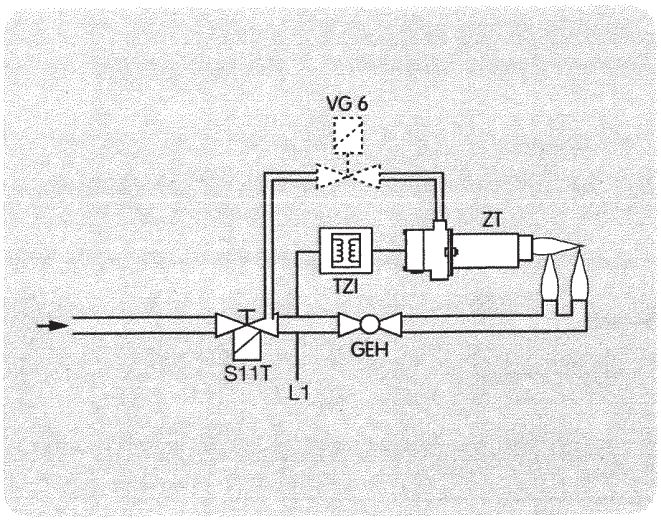
Intermittent shuttle kiln in the ceramics industry



Pusher furnace

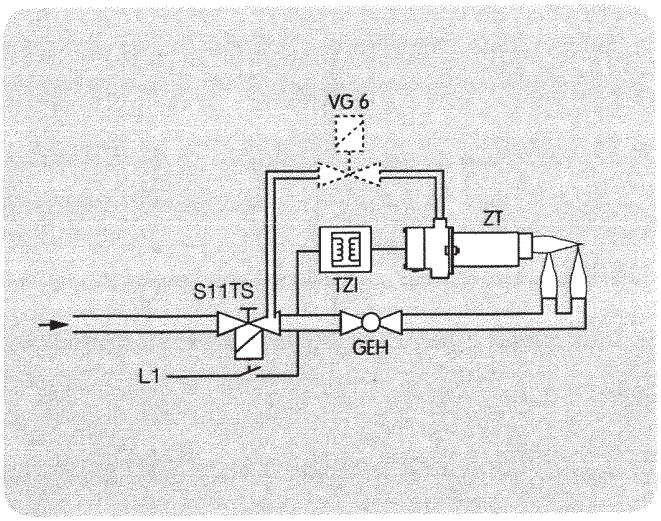
1.3 Examples of application

1.3.1 Thermo-electric safeguarding



As soon as voltage is supplied to the ignition transformer, the pilot burner is ignited using an ignition spark. An additional gas solenoid valve VG 6 can be used as a safety valve, e.g. for overtemperature shut-down or power shortage cut-out.

1.3.2 Thermo-electric safeguarding with electrical ignition via control valve



A contact is closed via the switch on the control valve S11T..S so that voltage is supplied to the ignition transformer. The pilot burner is ignited using an ignition spark.

An additional gas solenoid valve VG 6 can be used as a safety valve, e.g. for overtemperature shut-down or power shortage cut-out.

2 Certification

S11T

EC type-tested and certified

CE

pursuant to

- Gas Appliances Directive (90/396/EEC) in conjunction with EN 125

Meets the requirements of the

- Low Voltage Directive (2006/95/EC)

S11T, ZTA, ZT 40 and ZTI 55

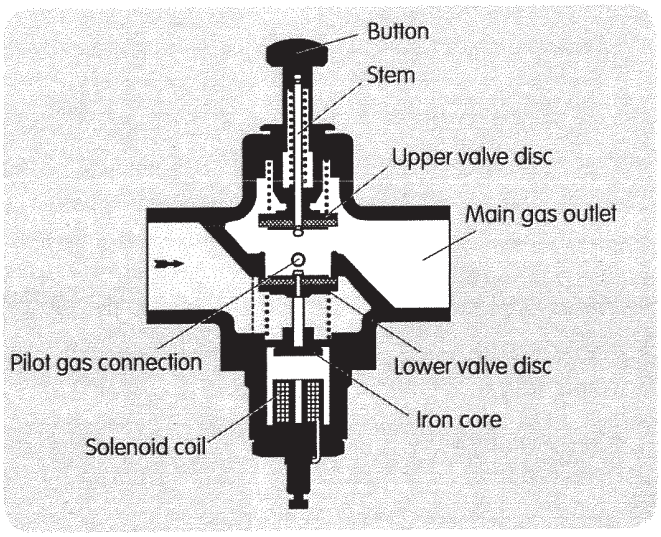
Approval for Russia

Certified by Gosstandart pursuant to GOST-TR.

Approved by Rostekhnadzor (RTN).

3 Function

3.1 Control valve S11T



The upper valve disc closes off the gas outlet when the button is pressed all the way down. The stem pushes the lower valve disc down until the iron core rests on the solenoid coil. Gas can now flow to the pilot burner via the pilot gas connection.

After the burner is ignited, the button is held down until thermo-electric voltage is applied to the solenoid coil, which attracts the iron core and thus holds the lower valve disc open.

As soon as the button is released, the upper valve disc opens the main gas outlet. The main gas can ignite.

If the thermo-electric voltage drops out, e.g. in the event of a flame failure, the iron core is no longer attracted. The pilot gas outlet and main gas outlet are closed by the lower valve disc.

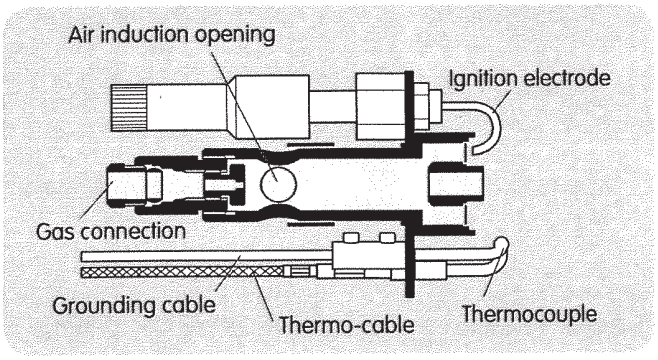
3.2 Pilot burner

Gas flows from the gas connection to the burner head. Air from the surrounding atmosphere is inducted and is mixed with the combustion gas.

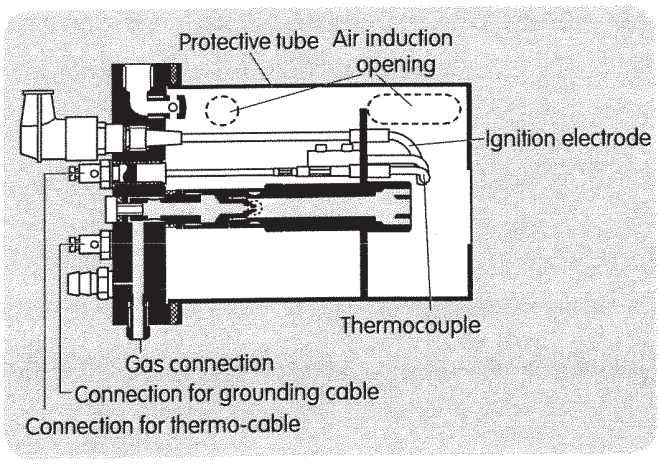
The gas/air mixture is ignited using an ignition electrode at the burner head. The flame heats the thermocouple. This produces a thermo-electric voltage on the thermocouple. A current flows via the thermo-cable to control valve S11T in order to keep this open.

In the event of flame failure, the thermocouple is no longer heated and the thermo-electric voltage drops out. The control valve closes.

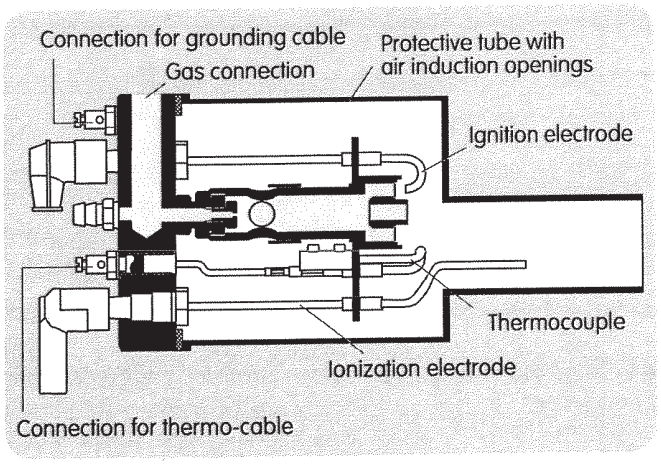
3.2.1 ZTA



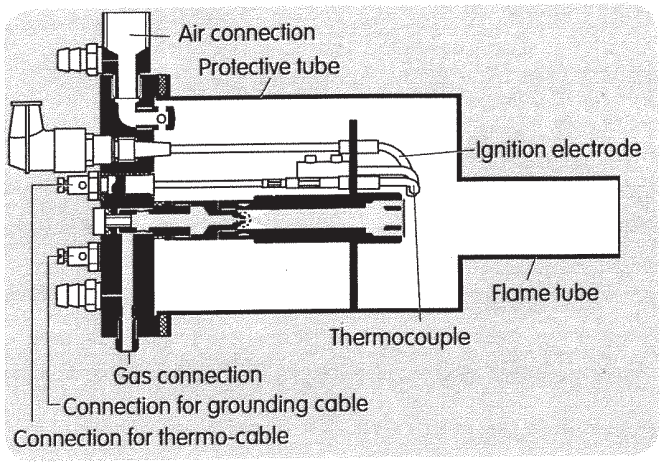
3.2.2 ZT 40..A

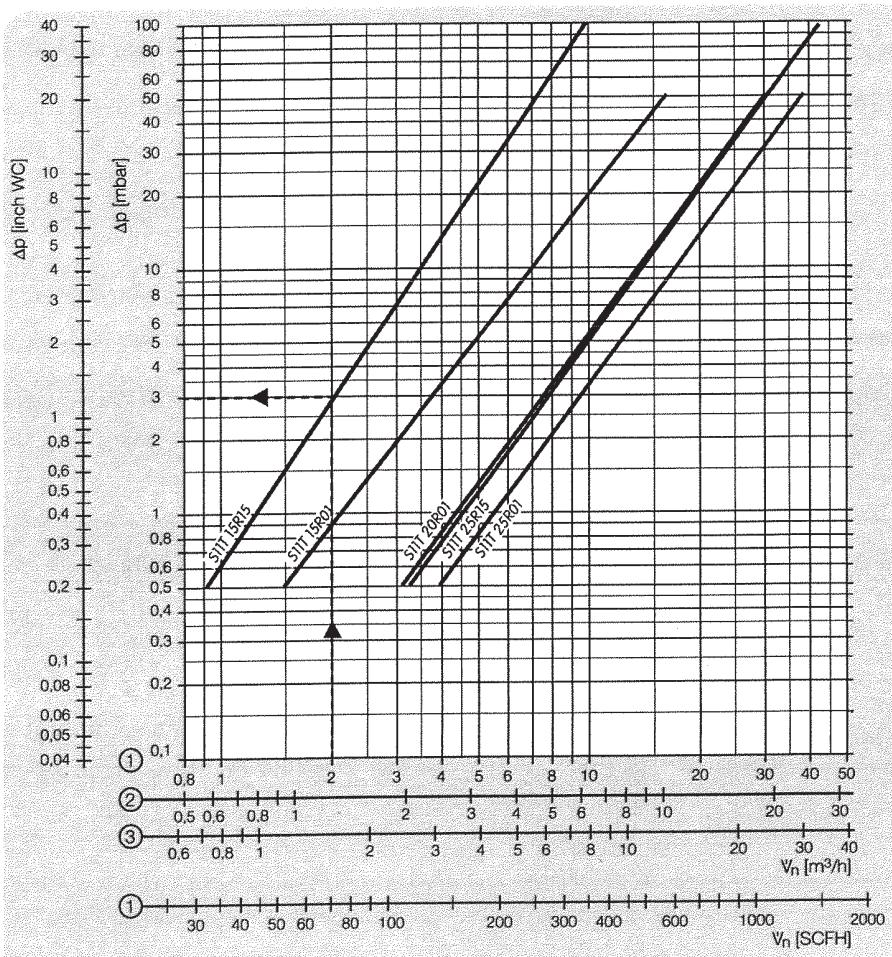


3.2.4 ZTI 55



3.2.3 ZT 40../100





4 Flow rate

S11T

When determining the pressure loss, operating cubic metres must be entered. Then the pressure loss Δp read must be multiplied by the absolute pressure in bar (positive pressure + 1) to account for the change in the medium's density.

Example:
inlet pressure p_u (positive pressure) = 1 bar,
gas type = natural gas,
operating flow rate $\dot{V}$ = 2 m³/h,
Δp in the diagram = 3 mbar,
Δp = 3 mbar x (1 + 1) = 6 mbar
on S11T R15.

5 Selection

5.1 Pilot burner capacity

Burner	Operation with	Gas pressure [mbar]	P_{rated} [kW]
ZTA	Natural gas	12 – 40*	1
	LPG	12 – 40*	1
	Town gas**	20 – 40*	1
ZT 40..A	Natural gas	20 – 35*	1
	LPG	40 – 60*	1
	Town gas	12 – 28*	1
ZT 40../100	Natural gas	20 – 40*	1
	LPG	40 – 60*	1
	Town gas	12 – 28*	1
ZTI 55	Natural gas	12 – 50	3.3
	LPG	12 – 50	2.5
	Town gas	20 – 60	2.3

** In the case of higher gas pressures, fit a gas restrictor orifice.*

*** Replace gas nozzle.*

For pilot burners ZTA, a gas nozzle is installed at the factory for operation with natural gas or LPG. When using town gas, a gas nozzle has to be ordered separately for ZTA B, see page 15 (Gas nozzle).

5.2 Selection table Control valve S11T

	15	20	25	R	01	15	S*
S11T	●	●	●	●	●	●	○[1]

** If "none", this specification is omitted.*

[1] S11T 20R15 and S11T 25R15 are not available with switch.

● = standard, ○ = available

Order example

S11T 25R15

5.3 Type code Control valve S11T

Code	Description
S11T	Control valve
	Nominal diameter
15	15
20	20
25	25
R	Rp internal thread
	Inlet pressure p_u
01	max. 100 mbar
15	max. 1500 mbar
S	With switch

5.4 Selection table Atmospheric pilot burner ZTA

	B	G
ZTA	●	●

● = *standard*, ○ = *available*

Order example

ZTA G

5.5 Type code Atmospheric pilot burner ZTA

Code	Description
ZTA	Thermo pilot burner for control valve S11T
B	Natural gas
G	Propane/propane, butane/butane

5.6 Selection table Pilot burner ZT 40 with protective tube, either atmospheric or with forced air supply

	B	D	G	-200	/100*	A*
ZT 40	●	●	●	●	●	●

** Available either as ZT 40../100 or as ZT 40..A.*

● = *standard*, ○ = *available*

Order example

ZT 40B-200A

5.7 Type code Pilot burner ZT 40 with protective tube, either atmospheric or with forced air supply

Code	Description
ZT 40	Thermo pilot burner with protective tube
B	Natural gas
D	Town gas
G	LPG
-200	Protective tube length [mm]
/100*	Protective tube length [mm]
A*	Atmospheric

** Available either with flame tube and air line connection or as an atmospheric burner.*

5.8 Selection table Atmospheric pilot burner with ionization electrode ZTI 55

	B	G	-105	/120	A
ZTI 55	●	●	●	●	●

● = *standard*, ○ = *available*

Order example

ZTI 55B-105/120A

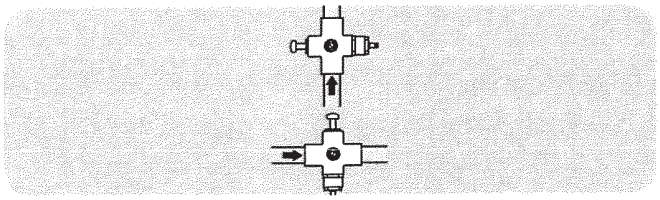
5.9 Type code Atmospheric pilot burner with ionization electrode ZTI 55

Code	Description
ZTI 55	Thermo pilot burner with ionization electrode
B	Natural gas
G	LPG
D	Coke oven gas, town gas
105	Protective tube length [mm]
/120	Protective tube length [mm]
A	Atmospheric

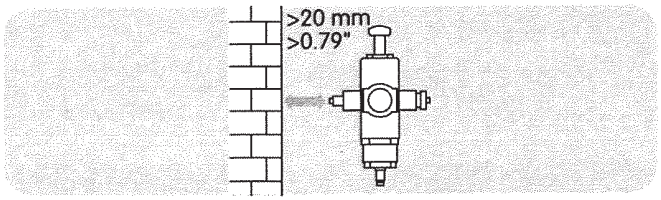
6 Project planning information

6.1 Installation

6.1.1 Control valve S11T



Installation position: the button for activating the valve must point upwards or to the side. It must not point downwards.



The control valve must not be in contact with masonry. Minimum clearance 20 mm.

6.1.2 Pilot burner

ZT 40, ZTI 55 installation position: horizontal or vertical, when installing in the vertical position, the burner head must be facing upwards.

ZTA installation position: vertical or horizontal, when installing in the horizontal position, the thermocouple must be facing upwards; when installing in the vertical position, the burner head must be facing upwards.

Ensure that the pilot burner is not thermally overheated and that air flow to the atmospheric burners ZTA, ZT 40..A and ZTI 55 via the air induction openings is sufficient.

For ZT 40../100, we recommend installing an adjusting cock GEH 8 in the air line upstream of the burner for adjusting the required air pressure.

For higher gas and air pressures and an optimal gas and air pressure ratio, gas and air restrictor orifices are available, see page 14 (Accessories)

Install the pilot burner so that the thermocouple is not in contact with the main burner flame.

Pilot burner ZTA is fitted with thermo-cables to transfer the thermo-electric voltage to the control valve.

6.2 Connecting to the gas train and the thermo-cable

Use an 8 × 1 tube as pilot gas line from the control valve to the pilot burner. A solenoid valve VG 6 can be used as an additional safety valve, e.g. for overtemperature shut-down or power shortage cut-out.

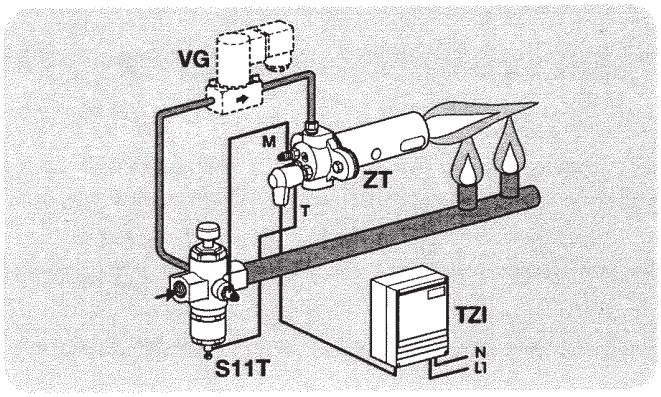
Use copper cable with a suitable cross-section for transferring the thermo-electric voltage and for grounding, see page 15 (Thermo-cable and grounding cable).

Cable length	Cable cross-section	Cable diameter
2–3 m	6 mm²	2.9 mm

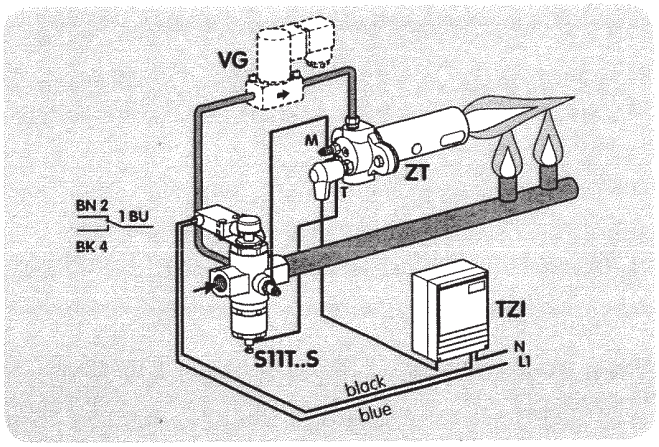
The ZTA is supplied with a fitted thermo-cable and grounding cable.

M = grounding cable connection,
T = thermocable connection.

6.2.1 S11T



6.2.2 S11T..S



7 Accessories

7.1 Gas restrictor orifice, air restrictor orifice

For adjusting the gas or air volume to increased supply pressures, a gas or air restrictor orifice is to be installed upstream of the burner.

7.1.1 Gas restrictor orifice

For ZTA

With internal thread: M12 x 1 (for 8 x 1 tube).

Hole [mm]	For gas pressures for operation with natural gas [mbar]	propane [mbar]	town gas [mbar]	Order No.
1.1	–	–	40 – 60	74451461
0.8	–	–	60 – 100	74451462
0.65	4 – 120	–	100 – 300	74451466
0.47	120 – 300	40 – 120	300 – 900	74451469
0.36	300 – 700	120 – 300	900 – 1500	74451471
0.31	700 – 1500	–	–	74451472
0.27	–	300 – 700	–	74451474
0.24	–	700 – 1500	–	74451475

For ZT 40

With internal thread: M12 x 1 (for 8 x 1 tube).

Hole [mm]	For gas pressures for operation with natural gas [mbar]	propane [mbar]	town gas [mbar]	Order No.
1.1	–	–	28 – 70	74451461
0.8	–	–	70 – 160	74451462
0.65	40 – 120	60 – 80	160 – 420	74451466
0.47	120 – 350	80 – 160	420 – 1500	74451469
0.36	350 – 1000	160 – 300	–	74451471
0.31	1000 – 1500	300 – 500	–	74451472
0.27	–	500 – 800	–	74451474
0.24	–	800 – 1200	–	74451475
0.21	–	1200 – 1500	–	74451476

7.1.2 Air restrictor orifice

For ZT 40../100

We recommend installing an adjusting cock GEH 8 for adjusting the required air pressure. For air supply pressures > 800 mbar, we also recommend installing an air restrictor orifice upstream of the adjusting cock.

With Rp 1/4" connecting thread, 1.5 mm hole.

The pressure loss of the orifice is 700 mbar at 1.5 m^3/h of air.

Order No. 74452742

7.2 High-voltage cable

For ignition cable.

FZLSi 1/7, -50 to 180°C (-58 to 356°F),

Order No. 04250410, or

FZLK 1/7, -5 to 80°C (23 to 176°F),

Order No. 04250409.

7.3 Thermo-cable and grounding cable

For transferring the thermo-electric voltage from the thermocouple of burners ZT 40 and ZTI 55 to the thermo-cable connection of the control valve S11T and for grounding.

Cable cross-section 6 mm^2,
Order No. 04250404

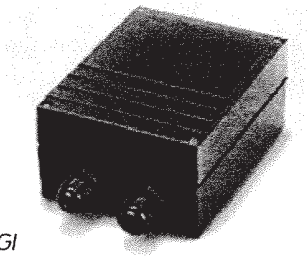
7.4 Gas nozzle

For ZTA B for operation with town gas, diameter = 1.1 mm.

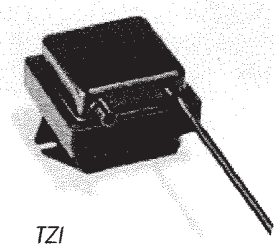
Order No. 75457938

7.5 Ignition transformer

When using the control valve S11T..S for electrical ignition.



TGI



TZI

E.g. TGI 7.5-12/100 or TZI 7.5-12/100.

High voltage: ≥ 7.5 kV, output current: 12 mA at 50 Hz (9 mA at 60 Hz).

8 Technical data

8.1 Control valve S11T

Gas types: natural gas, town gas or LPG.

Pilot gas connection: for 8x1 tube.

Opening time: 10–15 s.

Closing time (decrease of thermo-electric voltage + valve closing time): < 30 s.

Ambient temperature: -20 to +60°C.

Thermo-electric voltage:
extinction voltage: 8 mV.

Max. inlet pressure p_u:
S11T..01 = 100 mbar,
S11T..15 = 1.5 bar.

8.2 Pilot burner

Burner	Operation with	Gas pressure [mbar]	Prated [kW]
ZTA B	Natural gas	12–40*	1
ZTA G	LPG	12–40*	1
ZTA B	Town gas**	20–40*	1
ZT 40B..A	Natural gas	20–35*	1
ZT 40G..A	LPG	40–60*	1
ZT 40D..A	Town gas	12–28*	1
ZT 40B../100	Natural gas	20–40*	1
ZT 40G../100	LPG	40–60*	1
ZT 40D../100	Town gas	12–28*	1
ZTI 55B	Natural gas	12–50	3.3
ZTI 55G	LPG	12–50	2.5
ZTI 55D	Town gas	20–60	2.3

** In the case of higher gas pressures, fit a gas restrictor orifice, see page 14 (Gas restrictor orifice).*

*** For this, the gas nozzle must be replaced, see page 15 (Gas nozzle).*

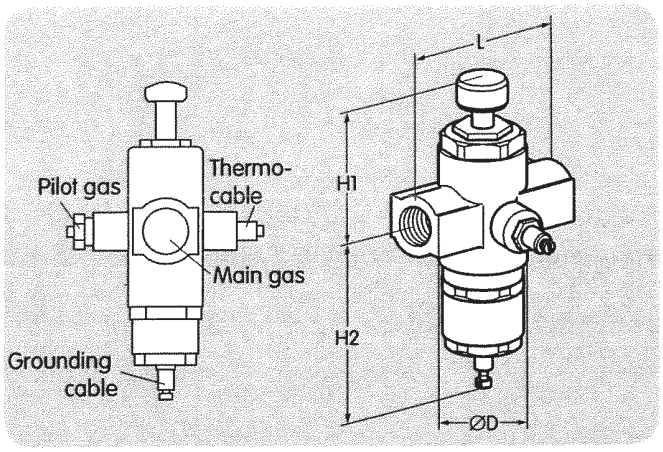
Gas connection: compression fitting for tube d = 8 mm.

Thermo-electric voltage:
under load: 10–15 mV,
in idle state: 20–25 mV.

Extinction voltage: < 8 mV.

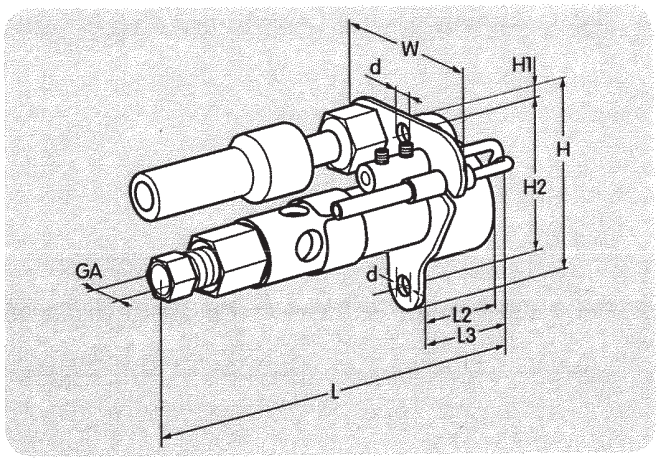
8.3 Dimensions

8.3.1 S11T



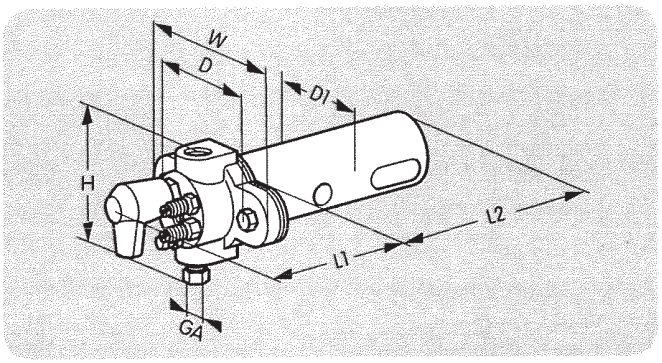
Connection			Dimensions				$p_{u\ max.}$	Weight
Main gas		Pilot gas	L	ØD	H1	H2		
DN	Rp		mm	mm	mm	mm	mbar	kg
15	½	8x1	75	42	55	75	100	0.9
15	½	8x1	75	42	55	75	1500	1.1
20	¾	8x1	90	50	60	80	100	1.1
25	1	8x1	110	56	70	85	100	1.3
25	1	8x1	110	56	110	88	1500	1.7

8.3.2 ZTA



Connection	Dimensions								Weight
GA	L	L2	L3	d	W	H	H1	H2	
	mm	mm	mm	mm	mm	mm	mm	mm	kg
8x1	116	20	27	6.1	54	58	7	46	0.33

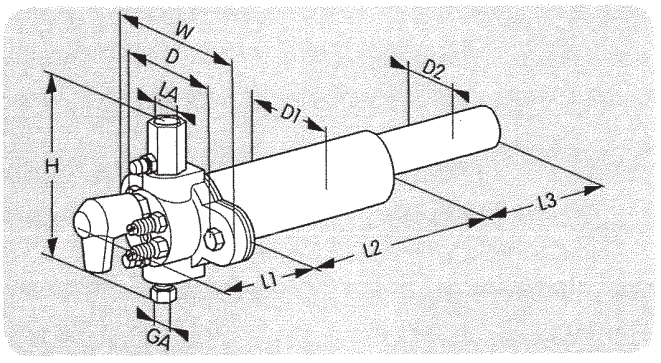
8.3.3 ZT 40..A



Connections		Dimensions [mm]								Weight
Gas GA		L1	L2	L3	D1	D2	D	W	H	kg
8 × 1		70	100	–	40	–	72	95	60	0.5
8 × 1		70	150	–	40	–	72	95	60	0.6
8 × 1		70	200	–	40	–	72	95	60	0.7
8 × 1		70	300	–	40	–	72	95	60	0.8
8 × 1		70	400	–	40	–	72	95	60	1.0
8 × 1		70	500	–	40	–	72	95	60	1.1

Other burner lengths on request.

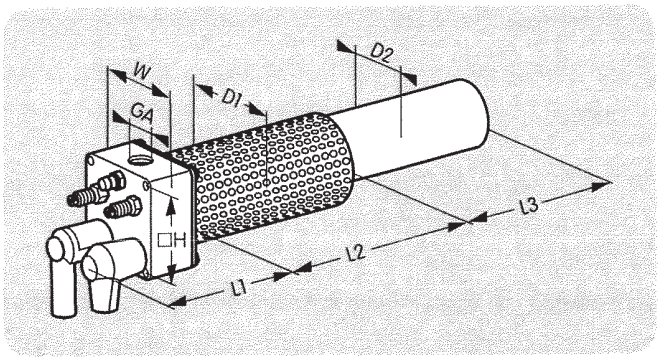
8.3.4 ZT 40../100



Connections		Dimensions [mm]								Weight
Gas GA	Air LA	L1	L2	L3	D1	D2	D	W	H	kg
8 × 1	Rp ¼	70	100	100	40	24	72	95	60	0.6
8 × 1	Rp ¼	70	150	100	40	24	72	95	60	0.7
8 × 1	Rp ¼	70	200	100	40	24	72	95	60	0.8
8 × 1	Rp ¼	70	300	100	40	24	72	95	60	0.9
8 × 1	Rp ¼	70	400	100	40	24	72	95	60	1.1
8 × 1	Rp ¼	70	500	100	40	24	72	95	60	1.2

Other burner lengths on request.

8.3.5 ZTI 55



Connections	Dimensions [mm]							Weight
Gas GA	L1	L2	L3	D1	D2	W	□H	kg
Rp ¼	70	105	120	55	37	59	45	0.82

9 Maintenance cycles

The system requires little servicing. Check the safety time of S11T/S11T..S once a year.

Feedback

Finally, we are offering you the opportunity to assess this "Technical Information (TI)" and to give us your opinion, so that we can improve our documents further and suit them to your needs.

inter active

Clarity
- ○ Found information quickly
- ○ Searched for a long time
- ○ Didn't find information

  What is missing?
- ◉ No answer

Comprehension
- ○ Coherent
- ○ Too complicated
- ○ No answer

Scope
- ○ Too little
- ○ Sufficient
- ○ Too wide
- ○ No answer

Use
- ☐ To get to know the product
- ☐ To choose a product
- ☐ Planning
- ☐ To look for information

Navigation
- ○ I can find my way around
- ○ I got "lost"
- ○ No answer

My scope of functions
- ○ Technical department
- ○ Sales
- ○ No answer

Remarks

ascascasc

(Adobe Reader 7 or higher required)
www.adobe.com

elster Kromschröder

Contact

Elster GmbH
Postfach 2809 · 49018 Osnabrück
Strotheweg 1 · 49504 Lotte (Büren)
Germany
T +49 541 1214-0
F +49 541 1214-370
info@kromschroeder.com
www.kromschroeder.com

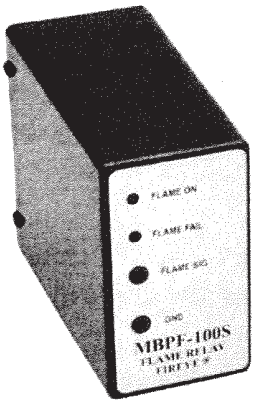
The current addresses of our international agents are available on the Internet:
www.kromschroeder.de/index.php?id=718&L=1

We reserve the right to make technical modifications in the interests of progress.

S11T, ZTA, ZT 40, ZTI 55 · Edition 01.12

MBPF-1001
APRIL 4, 2013

MBPF-100S
MB-600PF
MBPF-200S
MBPF-202S
Sensor Modules



FM APPROVED

DESCRIPTION

The MBPF-100S, MB-600PF, MBPF-200S and MBPF-202S modules provide visual indication and electrical output that signal the user regarding flame presence in a combustion chamber. The module uses Fireye optical ultra-violet scanners and/or flame rod to sense flame presence independently or as components in a burner management system. Many operational characteristics are provided including:

- UL recognized and FM approved-MBPF-100S, MB-600PF
- FM approved - MBPF-200S, MBPF-202S
- Self-contained: 120 VAC, 50/60: MBPF-100S, MB-600PF
  220 VAC, 50/60: MBPF-200S, MBPF-202S
- UV detection or flame rod or both
- Flame ON LED
- User controlled Flame Fail LED
- Analog output test points permits direct reading of flame signal
- Uses standard 11-pin relay base
- Panel surface or DIN-rail mounting
- Remote testing of contacts available
- Self-check scanner available for MBPF-100S and MB-600PF

Check with Fireye for more details by contacting your local distributor or by checking the Fireye home page at www.fireye.com.

NOTE: *When the MBPF modules are used, additional means must be furnished to provide those functions usually provided by flame safeguard control systems to meet local regulations (i.e.: safe start check, valve closure, starting and running interlocks, safety timings, etc.).*

NOTICE: When Fireye products are combined with equipment manufactured by others and/or integrated into systems designed or manufactured by others, the Fireye warranty, as stated in its General Terms and Conditions of Sale, pertains only to the Fireye products and not to any other equipment or to the combined system or it's overall performance.

ORDERING INFORMATION

PART NUMBER	DESCRIPTION	BULLETIN
	Flame Sensor	
MBPF-100S	Single channel module, 120VAC 50/60 Hz, use with UV detection or flame rod or both.	MBPF-1001
MB-600PF	Single channel module, 120VAC 50/60 Hz, use with UV detection or flame rod or both. Mounting ears provided for use with MB-600S multiburner programming module.	MB-6001
MBPF-200S	Single channel module, 220VAC 50/60 Hz, use with UV detection or flame rod or both.	MBPF-1001
MBPF-202S	Single channel module, 220VAC 50/60 Hz, use with UV detection or flame rod or both, 2 sec. FFRT.	MBPF-1001
	Wiring Base	
60-2726	Socket, 11-pin, DIN rail or panel surface mounting.	133-647
129-172	Kit, retaining, secures module on socket, 60-2627.	133-658
	Mounting Rails	
60-2539-12	DIN style mounting rail, 12 inches., mounts up to 4 modules.	
60-2539-24	DIN style mounting rail, 24 inches., mounts up to 8 modules.	
60-2539-36	DIN style mounting rail, 36 inches., mounts up to 12 modules.	
	Scanners	
UV7A4	Ultra-violet scanner, non-self check applications, 1/2" NPT mount, 4' lead with insulating coupling.	SC-107
UV7A4W	Ultra-violet scanner, non-self check applications, NEMA 4, 1/2" NPT mount, 4' lead with insulating coupling.	SC-107
UV7R4	Ultra-violet scanner, non-self check applications, 1/2" NPT, 90°, 6' lead with insulating coupling.	SC-107
UV7SC	Ultraviolet scanner, self check applications, 120VAC, 1" NPT mount. (MBPF-100S only).	SC-107
59-504-010	Cable/connector for self-check scanner, 10 foot.	SC-107
	Flame Rods	
69ND1-1000K4	Flame rod 1/2"NPT mount, 12" length.	SC-103
69ND1-1000K6	Flame rod 1/2"NPT mount, 18" length.	SC-103
69ND1-1000K8	Flame rod 1/2"NPT mount, 21" length.	SC-103

PRODUCT SPECIFICATIONS

Supply Voltage: MBPF-100S/MB-600PF - 120 VAC (+10%, -15%), 50/60 Hz (@ 0.1 Amp consumption)
MBPF-200S/MBPF-202S - 220 VAC (+10%, -15%), 50/60 Hz (@ 0.1 Amp consumption)

Flame Relay Output: SPDT 2 Amp Resistive @ 240VAC, 3Amp @ 24VDC

Flame Fail Response Time: 3 seconds: MBPF-100S, MB-600PF, MBPF-200S
2 seconds: MBPF-202S

Operating Temperature: - 40° F to 140° F (- 40° C to 60° C)

Storage Temperature: - 40° F to 176° F (- 40° C to 80° C)

Humidity: 85% RH (max), non-condensing.

Agency Approvals:

MBPF-100S: Underwriters Laboratories (UR)
Factory Mutual (FM)

MBPF-200S: Factory Mutual (FM)

MBPF-202S: Factory Mutual (FM)

Shipping Weight: 1 lb (.5 Kg)

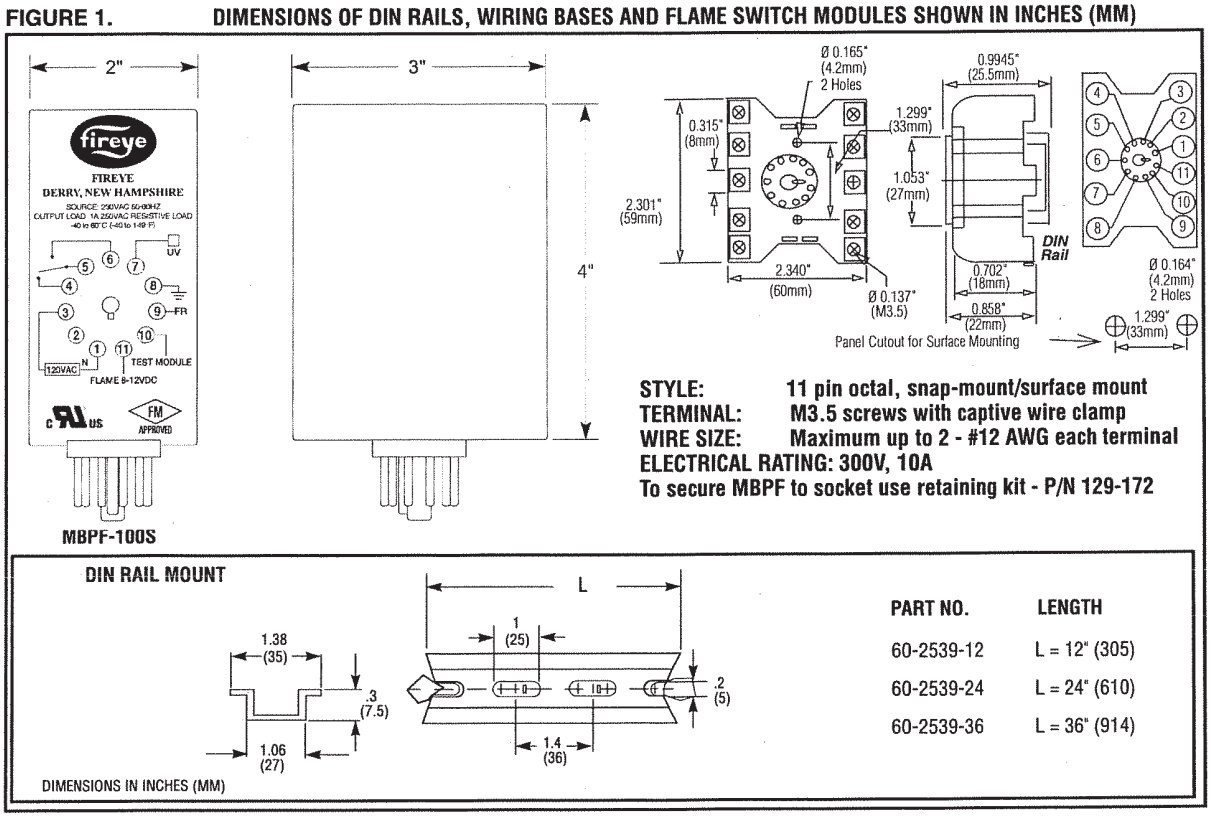
Scanner Voltage:

Ultra-Violet
Terminals 7 & 8: 460 VDC - 530VDC

Flame Rod:
Terminals 9 & 8: 120 - 150VAC
Note: Measured with digital VOM
Terminals 1 and 8 are internally connected.

Sensitivity: Flame Rod - 3μAmps (80 Meg ohms), Vmeter ~ 3.0 VDC
Ultra-Violet - 50 pW/cm^2@210nm, Vmeter ~ 8.0 VDC

FIGURE 1. DIMENSIONS OF DIN RAILS, WIRING BASES AND FLAME SWITCH MODULES SHOWN IN INCHES (MM)



PART NO.	LENGTH
60-2539-12	L = 12" (305)
60-2539-24	L = 24" (610)
60-2539-36	L = 36" (914)

SENSOR INSTALLATION

WARNING: Incorrect sensor installation may cause the sensor to generate a false flame signal, causing unburned fuel to collect in the combustion chamber. The result can be explosions, injuries and property damage. Be certain that the flame sensor detects only pilot and main flames, not glowing refractory, burner or ignition parts.

Route sensor wiring a sufficient distance from ignition and other high voltage or high current wiring to avoid electrical interference. Interference from ground currents, nearby conductors, radio-frequency emitters (wireless devices), and inverter drives can induce false flame signals. Shielded cables can help reduce interference with the shield connected to ground at the control end only. The wire type and its capacitance (picofarads or microfarads) to ground may cause low signal problems, so a grounded shield may decrease the signal due to the cable's internal capacitance. Multiple UV tube-type sensor leads run together without shielding may interfere or "cross talk", so the shield or flexible armor must be grounded to prevent this situation. For flame rod sensor runs approximately 100 feet (30 meters) or greater, use Belden P/N 8254-RG62 coax cable. To achieve the maximum wiring distance, the shield should not be grounded (keep in mind that an underground shield provides less protection against electrical interference). Depending on field connections, sensor wiring can be up to 200 feet (61 meters).

Do not ground the shield to terminal GND.

Unshielded sensor wiring must not be run in common with other wires; it must be run in separate conduit. Multiple flame sensor wiring must not be run together in a common conduit or wireway. Use #14 to #18 AWG wire suitable for 90°C (194°F) and 600 volt insulation, and run each pair of leads in its own shielded cable. Multiple shielded cables can be run in a common conduit.

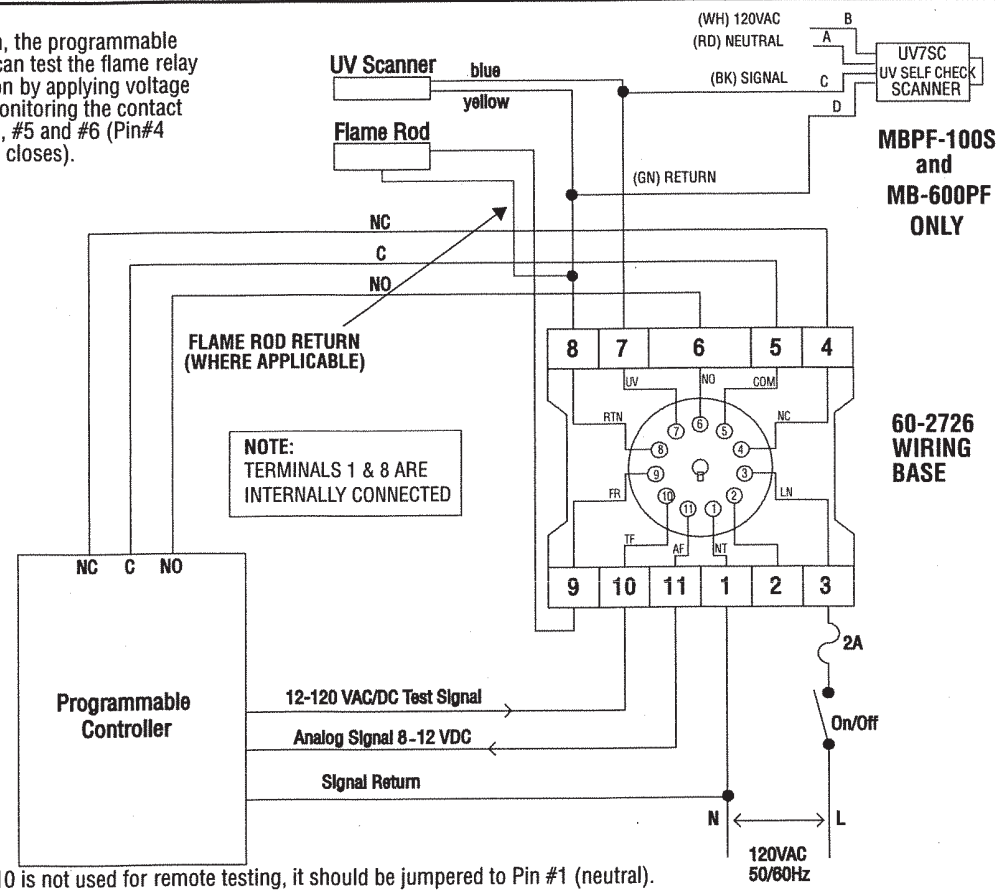
Flame rods should be used only on gas burners. They accumulate soot on oil burners, causing nuisance shutdowns and unsafe operating conditions.

See the burner manufacturer's literature for flame rod mounting location.

Use only Fireye scanner models UV7A4, UV7R4 & UV7SC. Consult the burner manufacturer's instructions for mounting location.

FIGURE 2. TYPICAL APPLICATION - MBPF-100S

In this application, the programmable controller (PLC) can test the flame relay for proper function by applying voltage to Pin #10 and monitoring the contact action on Pins #4, #5 and #6 (Pin#4 opens and Pin #6 closes).



NOTE: If Pin #10 is not used for remote testing, it should be jumpered to Pin #1 (neutral).

SPECIAL CONDITIONS OF USE

1. The equipment shall be installed in compliance with the enclosure, mounting spacing and segregation requirements of the ultimate application.
2. Line voltage and extra-low voltage wiring to and from this device is intended to be wired in the field to become part of a Class 1 circuit only.

Test Signal Terminal #10	Flame Condition	RF Relay	"FLAME ON" LED	"FLAME FAIL" LED
0	OFF	OFF	OFF	OFF
0	ON	ON	ON	OFF
12-120 vac/vdc	OFF	ON	OFF	ON
12-120 vac/vdc	ON	ON	OFF	ON

WARRANTIES

FIREYE guarantees for *one year from the date of installation or 18 months from date of manufacture* of its products to replace, or, at its option, to repair any product or part thereof (except lamps, electronic tubes and photocells) which is found defective in material or workmanship or which otherwise fails to conform to the description of the product on the face of its sales order. **THE FOREGOING IS IN LIEU OF ALL OTHER WARRANTIES AND FIREYE MAKES NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED.** Except as specifically stated in these general terms and conditions of sale, remedies with respect to any product or part number manufactured or sold by Fireye shall be limited exclusively to the right to replacement or repair as above provided. In no event shall Fireye be liable for consequential or special damages of any nature that may arise in connection with such product or part.

FIREYE
3 Manchester Road
Derry, New Hampshire 03038 USA
www.fireye.com

MBPF-1001
APRIL 4, 2013
Supersedes September 12, 2011

METCO ENVIRONMENTAL

APPENDIX J

Chain of Custody

MACTEC Environmental

CHAIN OF CUSTODY RECORD

Page of

Job No.: 15-162
Job Name: Hy Bon
Location: Bolpre, OH
Unit: 75" Combustor - Large Combustor

Project Manager: M. Hutcherson
Project Supervisor: Ryan Adam

Method: 3C

SAMPLE I.D.	DATE	TIME	# OF CONT.	Absorb. Solution	Initial Vol.	SAMPLE ANALYSIS REQUIRED: PART	HCL	CL2	SO2	SO3	MW, O2, CO2, Meth, N2, EA	Recovered by	REMARKS (Specific Compounds/Methods)
R1L1 Bag	6/23/15	1000	1								✓	RAdam	
R1L1 Bag Dup.	6/23/15	1000	1								✓	RAdam	
R2L1 Bag	6/23/15	1145	1								✓	RAdam	
R2L1 Bag Dup.	6/23/15	1145	1								✓	RAdam	
R3L1 Bag 1	6/23/15	1315	1								✓	RAdam	
R3L1 Bag Dup.	6/23/15	1315	1								✓	RAdam	
R1L2 Bag	6/23/15	1500									✓		

Samples Received for Transport/Shipment by:		Date: 6/26/15	Time: 1530
Samples Received for Transport/Shipment by:		Date: 6/26/15	Time:
Samples Received for Transport/Shipment by:		Date:	Time:
Samples Shipped Via:		Date:	Time:
Samples Received at Laboratory by:		Date: 6/27/15	Time: 1600
Samples Analyzed by:		Date:	Time:
Samples Analyzed by:		Date:	Time:
Data Checked by:		Date: 07/28/15	Time: 1415

J-2

15-162

MACTEC Environmental

CHAIN OF CUSTODY RECORD

Page of

Job No.: 15-162
Job Name: Hy Bon
Location: Belpre, OH
Unit: 75 MW Combustor - Large Combustor

Project Manager: M. Hutcherson
Project Supervisor: Ryan Adam

Method: 3C

SAMPLE I.D.	DATE	TIME	# OF CONT.	Absorb. Solution	Initial Vol.	SAMPLE ANALYSIS REQUIRED: PART	HCL	CL2	SO2	SO3	Meth, O2, CO2 MW, N2, EA	Recovered by	REMARKS (Specific Compounds/Methods)
R1L2 Bag Dup.	6/23/15	1500	1								✓	R. Adam	
R2L2 Bag	6/23/15	1640	1								✓	R. Adam	
R2L2 Bag Dup.	6/23/15	1640	1								✓	R. Adam	
R3L2 Bag	6/23/15	1805	1								✓	R Adam	
R3L2 Bag Dup.	6/23/15	1805	1								✓	R Adam	

Samples Received for Transport/Shipment by:		Date: 6/26/15	Time: 1530
Samples Received for Transport/Shipment by:		Date: 6/30/15	Time:
Samples Received for Transport/Shipment by:		Date:	Time:
Samples Shipped Via:		Date:	Time:
Samples Received at Laboratory by:	BDS	Date: 6/27/15	Time: 1600
Samples Analyzed by:		Date:	Time:
Samples Analyzed by:		Date:	Time:
Data Checked by:		Date: 7/28/15	Time: 1415

J-3

15-162

MACTEC Environmental

CHAIN OF CUSTODY RECORD

Page of

Job No.: 15-162
Job Name: Hyton
Location: Belpre, OH
Unit: 75" Combustor - Large Combustor

Project Manager: M. Hutcherson
Project Supervisor: Ryan Adam

Method: 3C

SAMPLE I.D.	DATE	TIME	# OF CONT	Absorb. Solution	Initial Vol.	SAMPLE ANALYSIS REQUIRED: PART	HCL	CL2	SO2	SO3	Moist, O2, CO2 Mw, N2, EA	Recovered by	REMARKS (Specific Compounds/Methods)
R1 L3 Bag	6/24/15	0930	1								✓	RAdam	
R1 L3 Bag Dup.	6/24/15	0930	1								✓	R. Adam	
R2 L3 Bag	6/24/15	1115	1								✓	R. Adam	
R2 L3 Bag. Dup.	6/24/15	1115	1								✓	R. Adam	
R3 L3 Bag	6/24/15	1240	1								✓	RAdam	
R3 L3 Bag Dup.	6/24/15	1240	1								✓	R. Adam	
R1 L4 Bag	6/24/15	1420	1								✓	RAdam	

Samples Received for Transport/Shipment by:		Date: 6/26/15	Time: 1530
Samples Received for Transport/Shipment by:		Date: 6/26/15	Time:
Samples Received for Transport/Shipment by:		Date:	Time:
Samples Shipped Via:		Date:	Time:
Samples Received at Laboratory by:	BTDB	Date: 6/27/15	Time: 1600
Samples Analyzed by:		Date:	Time:
Samples Analyzed by:		Date:	Time:
Data Checked by:		Date: 07/28/15	Time: 1413

J-4

15-162

MACTEC Environmental

CHAIN OF CUSTODY RECORD

Page of

Job No.: 15-162
Job Name: Hybon
Location: Belpre, OH
Unit: 75" Combustor, - Large Combustor

Project Manager: M. Hutcherson
Project Supervisor: Ryan Adam

Method: 3C

SAMPLE I.D.	DATE	TIME	# OF CONT.	Absorb. Solution	Initial Vol.	SAMPLE ANALYSIS REQUIRED: PART	HCL	CL2	SO2	SO3	meth, O2, CO2, MW, Na, EA	Recovered by	REMARKS (Specific Compounds/Methods)
R1 L4 Bag. Dup	6/24/15	1420	1								✓	R Adam	
R2 L4 Bag	6/24/15	1550	1								✓	R Adam	
R2 L4 Bag Dup	6/24/15	1550	1								✓	R Adam	
R3 L4 Bag	6/24/15	1720	1								✓	R Adam	
R3 L4 Bag Dup.	6/24/15	1720	1								✓	R. Adam	

Samples Received for Transport/Shipment by:	[signature]	Date: 6/26/15	Time: 1530
Samples Received for Transport/Shipment by:	[signature]	Date: 6/29/15	Time:
Samples Received for Transport/Shipment by:		Date:	Time:
Samples Shipped Via:		Date:	Time:
Samples Received at Laboratory by:	BDS	Date: 6/27/15	Time: 1600
Samples Analyzed by:		Date:	Time:
Samples Analyzed by:		Date:	Time:
Data Checked by:	[signature]	Date: 7/28/15	Time: 1415

J-5

15-162

MACTEC Environmental ®

CHAIN OF CUSTODY RECORD

Page of

Job No.: 15-162
Job Name: Hy-Bon
Location: Belpre, OH
Unit: 75" Combustor - Large Combustor

Project Manager: M. Hutcherson
Project Supervisor: Ryan Adam

Method: 18 / ASTM 1945-03, ASTM D3588-98

SAMPLE I.D.	DATE	TIME	# OF CONT.	Absorb. Solution	Initial Vol.	SAMPLE ANALYSIS REQUIRED: PART	HCL	CL2	SO2	SO3			Recovered by	REMARKS (Specific Compounds/Methods)
RIL1 Canister	6/23/15	1315	1											1158
RIL2 Canister	6/23/15	1805	1											1124
RIL3 Canister	6/24/15	1240	1											
RIL4 Canister	6/24/15	1720	1											

Samples Received for Transport/Shipment by:		Date: 6/26/15	Time: 1530
Samples Received for Transport/Shipment by:		Date: 6/26/15	Time:
Samples Received for Transport/Shipment by:		Date:	Time:
Samples Shipped Via:		Date:	Time:
Samples Received at Laboratory by:	BDS	Date: 6/27/15	Time: 1600
Samples Analyzed by:		Date:	Time:
Samples Analyzed by:		Date:	Time:
Data Checked by:		Date: 07/28/15	Time: 1415

J-6

15-162

NiCO Environmental ©

CHAIN OF CUSTODY RECORD

Page of

Job No.: 15-162	Project Manager: M Hutcherson	18/ASTM 1745-03,	
Job Name: Hybon	Project Supervisor: Ryan Adam	Method: ASTM D3588-98	
Location: Belpre, OH			
Unit: large combustor -75''			

SAMPLE I.D.	DATE	TIME	# OF CONT.	Absorb. Solution	Initial Vol.	SAMPLE ANALYSIS REQUIRED: PART	HCL	CL2	SO2	SO3			Recovered by	REMARKS (Specific Compounds/Methods)
RIL3 Canister 1368	6/30/15	0830	1										RAdam	
RIL4 Canister 1630	6/30/15	0830	1										RAdam	
(SAM)														

Samples Received for Transport/Shipment by:		Date:	Time:
Samples Received for Transport/Shipment by:		Date:	Time:
Samples Received for Transport/Shipment by:		Date:	Time:
Samples Shipped Via:	FED EX → ENTHALPY OR	Date: 5-29-15	Time: 1500
Samples Received at Laboratory by:		Date: 7-8-15	Time: 1220
Samples Analyzed by:		Date:	Time:
Samples Analyzed by:		Date:	Time:
Data Checked by:		Date: 07/28/15	Time: 1415

J-7

15-162

APPENDIX K

Resumes of Test Personnel

ROBERT M. PATTERSON; President

Education	B. S. 1983, Central Michigan University; Mt. Pleasant, Michigan, in Geology and Earth Science-Meteorology.
Professional Training Courses	Attended a two-day short course, "Performing and Observing Source Sampling" in Dallas, Texas. Attended a one-day short course on basic supervision. Attended a four-week management course presented by the American Management Association, 1991-1992.
Certification	Certified Visible Emissions Evaluator Certified Cabot Full-Face Respirator Fit Tester
Professional Memberships	Source Evaluation Society American Management Association
Technical Experience	Participated in the sampling of over 1,000 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures, 1986-present. Over twenty-six years experience with EPA and Texas Air Control Board methods of sampling - both stationary sources and ambient air. CFR, Title 40, Chapter I, Part 60, EPA Methods 1 through 25, and 101 through 110. Performance Specifications 1 through 5. CFR, Title 40, Chapter I, Part 50, Appendix A through F. "Sampling Procedures Manual, Texas Air Control Board, January 1983." Parts 1-1 through 14-6, Appendix B through Appendix M. Experienced with sampling Method 0010, Modified Method 5 Sampling Train; Method 0030, Volatile Organic Sampling Train; and various EPA and "Site Specific" multiple metal and acid gas sampling trains.

(continued)

PATTERSON, Rob (cont'd)

Technical Experience (cont'd)

Over twenty-six years experience with EPA and Texas Air Control Board methods of analysis of both stationary and ambient air samples. Particulate matter, SO_3, SO_2, H_2SO_4, NO_x, CO, CO_2, O_2, H_2S, F, TRS, HCl, Cl_2, NH_3, VOC, C_1-C_7, and other organics. Both laboratory and on-site analyses were performed.

Experienced in the sampling and analysis of commercial calibration gas cylinders for sulfur dioxide, oxides of nitrogen, carbon dioxide, oxygen, carbon monoxide, and C_1-C_7 hydrocarbons.

Thoroughly trained in the operation and routine maintenance of the following:

- MSA LIRA Model 202S Infrared Analyzer
- Analytical Instrument Development, Inc. Model 340A Calibration System
- Shimadzu GC-Mini 2 Gas Chromatograph
- Thermo Environmental Model 10AR Oxides of Nitrogen Analyzer
- Thermo Oxygen Analyzer
- Teledyne Model 326 Oxygen Analyzer
- Thermo Environmental Model 48 Carbon Monoxide Analyzer
- Thermo Environmental Model 40 Sulfur Dioxide Analyzer
- Ratfisch Model RS 100 Total Hydrocarbon Analyzer
- Western Research Model 721AT Sulfur Dioxide Analyzer
- Horiba Model PIR 2000 Carbon Dioxide Analyzer
- Ratfisch Model RS 55 Total Hydrocarbon Analyzer
- J.U.M. Model VE-7 Total Hydrocarbon Analyzer

JAMES R. MONFRIES; Senior Quality Assurance Manager

Education	B. S. 1975, University of Texas at Arlington; Arlington, Texas, in Biology with a minor in Chemistry. Graduate work at the University of Texas at Dallas in the Environmental Science Department.
Professional Training Courses	Attended a two-day short course, "Performing and Observing Source Sampling" in Dallas, Texas, July 1976.
Certification	Qualified Individual (Groups I, II, III, and IV) Certified Visible Emissions Evaluator
Professional Memberships	Air and Waste Management Association Source Evaluation Society - Past President
Technical Experience	Participated in the sampling of over 700 sources, serving in the supervisory capacity on over 500 sources. Many of the sources were sampled simultaneously using more than one sampling train at several points in the flue gas stream, 1976-present. Also supervised several ambient air monitoring studies, including a permanent five-station high volume air sampling network in South Texas, a permanent four-station high volume air sampling network in Pennsylvania, and a permanent seven-station sulfur dioxide sampling network in East Texas. Was Quality Assurance Manager for several ambient air monitoring studies; including a four-station high volume air sampling network for TSP and PM10 in Midlothian, Texas; a single-station high volume air sampling network for PM10 in South Texas, a two-station high volume air sampling network for TSP in Wichita Falls, Texas, and a four-station continuous air sampling network for TSP and PM10 in Jewett, Texas using Thermo Andersen FH 62 C14 Beta Gauge Dust Monitors.

(continued)

MONFRIES, James (cont'd)

Thirty years experience with EPA and Texas Commission on Environmental Quality methods of analysis of both source and ambient air samples for particulates, SO_2, SO_3, H_2SO_4, H_2S, HCl, Cl_2, NO_x, Hydrocarbons, and TRS.

Experienced in the analysis of commercial calibration gas cylinders for sulfur dioxide and oxides of nitrogen.

Experienced with VOST and Modified Method 5 Sampling Procedures.

Thoroughly trained in the operation and routine maintenance of the following:

- Lear Siegler, Inc. SM800 Stack Gas Monitor
- Du Pont Model 460/1 Photometric Analyzer System
- Lear Siegler, Inc. SM1000 Ambient SO_2 Monitor
- Calibrated Instruments Ultragas SO_2 Monitor
- Meloy 285E SO_2 Analyzer
- Meloy SA-700 Fluorescent SO_2 Analyzer
- MSA LIRA Model 202S Infrared Analyzer
- Analytical Instrument Development, Inc. Model 340A Calibration System
- Shimadzu GC-Mini 2 Gas Chromatograph
- Thermo Environmental Model 10S NO_x Analyzer
- Thermo Oxygen Analyzer
- Teledyne Model 326 Oxygen Analyzer
- Thermo Environmental Model 48 Carbon Monoxide Analyzer
- Thermo Environmental Model 40 Sulfur Dioxide Analyzer
- Ratfisch Model RS 103 Total Hydrocarbon Analyzer
- Western Research Model 721AT Sulfur Dioxide Analyzer
- Horiba Model PIR 2000 Carbon Dioxide Analyzer
- Ratfisch Model RS 55 Total Hydrocarbon Analyzer
- J.U.M. Model VE-7 Total Hydrocarbon Analyzer
- Thermo Andersen Model FH 62 C14 Dust Monitor

RYAN ADAM; Environmental Scientist II

Education	B. S. in Geography, August 2012; the University of North Texas in Denton, Texas
Technical Experience	Participated in the sampling of over 50 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures, 2011-present.

METCO
ENVIRONMENTAL

ATTESTATION OF COMPLIANCE
(QUALIFIED INDIVIDUAL)

I, Ryan Adam of TestAmerica Air Emission Corp. (DBA METCO Environmental
(Qualified Individual)

Understand and acknowledge that all test projects conducted under his/her supervision will conform to the METCO Environmental's quality manual and to this practice [ASTM D 7036-04] in all respects.

I, Ned Shappley of TestAmerica Air Emission Corp. (DBA METCO Environmental
(Technical Director)

I certify the aforementioned qualified individual has participated in at least 10 tests employing the methods for which they are qualified and passed the qualification exam(s).

(2/21/14) Ryan Adam
(Qualified Individual Signature/Date) (Printed Name)

2/21/14 N Shappley
(Technical Director Signature/Date) (Printed Name)

The relevant external qualification exam(s) were administered by the Source Evaluation Society.

Group 1 Exam Date 2/6/14 # 10607 QSTI Number (if applicable)_____

Group 2 Exam Date 2/6/14 # 10602 QSTI Number (if applicable)_____

Group 3 Exam Date 7/3/13 # 09653 QSTI Number (if applicable)_____

Group 4 Exam Date 10/9/15 # 11437 QSTI Number (if applicable)_____

Group 5 Exam Date_____ QSTI Number (if applicable)_____

Version 2
February 2013

JEFFREY L WOLLRAB; Project Supervisor I

Education	Associate of Science: Applied Science, Indian Hills University, Ottumwa, IA QSTI 1 & 4
Technical Experience	Participated in the sampling of over 25 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures, 2013-present.

BRANDON HOPPER; Environmental Scientist II

Education	B. S. in Environmental Geoscience, December 2011; Texas A&M University in College Station, Texas.
Technical Experience	Participated in the sampling of over 50 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures, 2011-present.

Jordan Leon McCall; Environmental Scientist I

Education	B. S. in Geology; Oklahoma State University, Stillwater, OK
Technical Experience	Participated in the sampling of over 25 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures, 2013-present.

From:	jvoorhis@hy-bon.com
To:	Mia, Marcia
Cc:	Garwood, Gerri; Jason Huckaby
Subject:	RE: Status of Combustor testing for HY-BON/EDI
Date:	Thursday, November 05, 2015 1:20:09 PM
Attachments:	Test Layout with FM.pdf CH2.5 and CH10.0 pilot gas.xlsx CH2.5 and CH10.0 pilot gas.pdf

---

Thanks Marcia: Please find our response below. If you have any further questions we will be happy to answer. Have a great weekend

20" Combustor

1. Please confirm the name by which you want the unit listed. In some places it is called the CH2.5 and in other places it is called the HB20in . **(The CH2.5 is the name of the combustor; it is the same unit as HB20 or HB20in.)**

2. §60.5413(d)(4)(i) - Please indicate the location of the inlet fuel meter on the inlet fuel meter diagram (page 39). **(The flow meter was approximately 10 feet from the sample port. Please find the attached an updated drawing and jpeg picture at test location)**

3. §60.5413(d)(5)(ii)(C) – The higher heating value for the inlet gas must be determined using ASTM D3588-98 or ASTM 4891-89. We could not find where this was determined in the test report. Please explain . **(Yes, the HHV for the inlet gas was determined using ASTM D3588-98. We had Enthalpy calculate using D3588-98 and it cross-referenced correctly with our spreadsheet calculations..)**

4. §60.5413(d)(7)(i)(D) – The GC-TCD calibration procedure in Method 3C must be modified using EPA Alt-045. Please confirm that this was done. An affirmative response, if applicable, is sufficient . **(Yes, Enthalpy followed Alt-045 procedures for the EPA Method 3C analysis.)**

5. §60.5413(d)(12)(v)(J) – The pilot flame design fuel and calculated or measured pilot fuel usage during testing is required to be reported. We could not find where this was described and determined. Please provide . **(The pilot orifice size is 0.0256 inches (0.65 mm) and the pressure was approximately 1psig of propane. This yields approximately 3.7 ft^3/hr at STP. Each test run was an hour long, which means approximately 3.7 ft^3 of propane was used per test run. Please find the attached table on the actual propane gas usage during the tests)**

75" Combustor

1. Please confirm the name by which you want the unit listed. In some places it is called the CH10.0 and in other places it is called the 75" or the HB75. . **(The CH10 is the name of the combustor; it is the same unit as 75 or HB75)**

2. §60.5413(d)(4)(i) - Please indicate the location of the inlet fuel meter on the inlet fuel meter diagram (page 39). **(The flow meter was approximately 10 feet from the sample port. Please find the attached an updated drawing and jpeg picture at test location)**

3. §60.5413(d)(5)(ii)(C) – The higher heating value for the inlet gas must be determined using ASTM D3588-98 or ASTM 4891-89. We could not find where this was determined in the test report. Please explain. **(Yes, the HHV for the inlet gas was determined using ASTM D3588-98. We had Enthalpy calculate using D3588-98 and it cross-referenced correctly with our spreadsheet calculations..)**

4. §60.5413(d)(7)(i)(D) – The GC-TCD calibration procedure in Method 3C must be modified using EPA Alt-045. Please confirm that this was done. An affirmative response, if applicable, is sufficient . **(Yes, Enthalpy followed Alt-045 procedures for the EPA Method 3C analysis.)**

5. §60.5413(d)(12)(v)(J) – The pilot flame design fuel and calculated or measured pilot fuel usage during testing is required to be reported. We could not find where this was described and determined. Please provide . **(The pilot orifice size is 0.0256 inches (0.65 mm) and the pressure was approximately 1psig of propane. This yields approximately 3.7 ft^3/hr at STP. Each test run was an hour long, which means approximately 3.7 ft^3 of propane was used per test run. Please find the attached table on the propane gas used)**

Jeff Voorhis P.E., EMS-LA

Corporate Sales Austin
HY-BON Engineering Company

Office: 432-520-2292-Midland
Cell: 512-694-8455- Austin

EXPERTS IN VENT GAS MANAGEMENT

HY-BON/EDI is a REGAL BELOIT Company

-----"Mia, Marcia" <Mia.Marcia@epa.gov> wrote: -----

> To: "jvoorhis@hy-bon.com" <jvoorhis@hy-bon.com>, "Garwood, Gerri" <Garwood.Gerri@epa.gov>
> From: "Mia, Marcia" <Mia.Marcia@epa.gov>
> Date: 10/27/2015 03:04PM
> Cc: Jason Huckaby <Jason.Huckaby@erg.com>
> Subject: RE: Status of Combustor testing for HY-BON/EDI
>
> Jeff,

We have completed our initial review of the HY-BON/EDI units which you submitted on 09/16/15. We have the following questions:

20" Combustor

1. Please confirm the name by which you want the unit listed. In some places it is called the CH2.5 and in other places it is called the HB20in.
2. §60.5413(d)(4)(i) - Please indicate the location of the inlet fuel meter on the inlet fuel meter diagram (page 39).
3. §60.5413(d)(5)(ii)(C) – The higher heating value for the inlet gas must be determined using ASTM D3588-98 or ASTM 4891-89. We could not find where this was determined in the test report. Please explain.
4. §60.5413(d)(7)(i)(D) – The GC-TCD calibration procedure in Method 3C must be modified using EPA Alt-045. Please confirm that this was done. An affirmative response, if applicable, is sufficient.
5. §60.5413(d)(12)(v)(J) – The pilot flame design fuel and calculated or measured pilot fuel usage during testing is required to be reported. We could not find where this was described and determined. Please provide.

75" Combustor

1. Please confirm the name by which you want the unit listed. In some places it is called the CH10.0 and in other places it is called the 75" or the HB75.
2. §60.5413(d)(4)(i) - Please indicate the location of the inlet fuel meter on the inlet fuel meter diagram (page 39).
3. §60.5413(d)(5)(ii)(C) – The higher heating value for the inlet gas must be determined using ASTM D3588-98 or ASTM 4891-89. We could not find where this was determined in the test report. Please explain.
4. §60.5413(d)(7)(i)(D) – The GC-TCD calibration procedure in Method 3C must be modified using EPA Alt-045. Please confirm that this was done. An affirmative response, if applicable, is sufficient.
5. §60.5413(d)(12)(v)(J) – The pilot flame design fuel and calculated or measured pilot fuel usage during testing is required to be reported. We could not find where this was described and determined. Please provide.

I believe that these can be dealt with via email response, but if you wish to schedule a call to discuss, please let me know.

Marcia B Mia

Office of Compliance/Air Branch

2227A WJCS

U.S. Environmental Protection Agency

202-564-7042

From: jvoorhis@hy-bon.com [mailto:jvoorhis@hy-bon.com]
Sent: Monday, October 26, 2015 4:21 PM
To: Garwood, Gerri <Garwood.Gerri@epa.gov>
Cc: Jason Huckaby <Jason.Huckaby@erg.com>; Mia, Marcia <Mia.Marcia@epa.gov>
Subject: RE: Status of Combustor testing for HY-BON/EDI

Any update on status- Thanks

Jeff Voorhis P.E., EMS-LA

Corporate Sales Austin
HY-BON Engineering Company

Office: 432-520-2292-Midland
Cell: 512-694-8455- Austin

EXPERTS IN VENT GAS MANAGEMENT

HY-BON/EDI is a REGAL BELOIT Company

-----"Garwood, Gerri" < Garwood.Gerri@epa.gov> wrote: -----

To: "jvoorhis@hy-bon.com" < jvoorhis@hy-bon.com>
From: "Garwood, Gerri" < Garwood.Gerri@epa.gov>
Date: 10/06/2015 04:19PM
Cc: "Mia, Marcia" < Mia.Marcia@epa.gov>, Jason Huckaby < Jason.Huckaby@erg.com>
Subject: RE: Status of Combustor testing for HY-BON/EDI

Hi Jeff,

The HY-BON submittal is next in our review queue. It will probably be a couple of more weeks before we are ready to discuss the results of our review.

Sincerely,

Gerri G. Garwood, P.E.

U.S. Environmental Protection Agency

OAR/OAQPS/SPPD

Measurement Policy Group

Ph: 919-541-2406 Fax: 919-541-3207

From: jvoorhis@hy-bon.com [mailto:jvoorhis@hy-bon.com]
Sent: Tuesday, October 06, 2015 3:42 PM
To: Garwood, Gerri
Subject: Status of Combustor testing for HY-BON/EDI
Importance: High

Gerri: Can you give me an update on the status of the review for HY-BON/EDI submittal. Thanks

Jeff Voorhis P.E., EMS-LA

Corporate Sales Austin
HY-BON Engineering Company

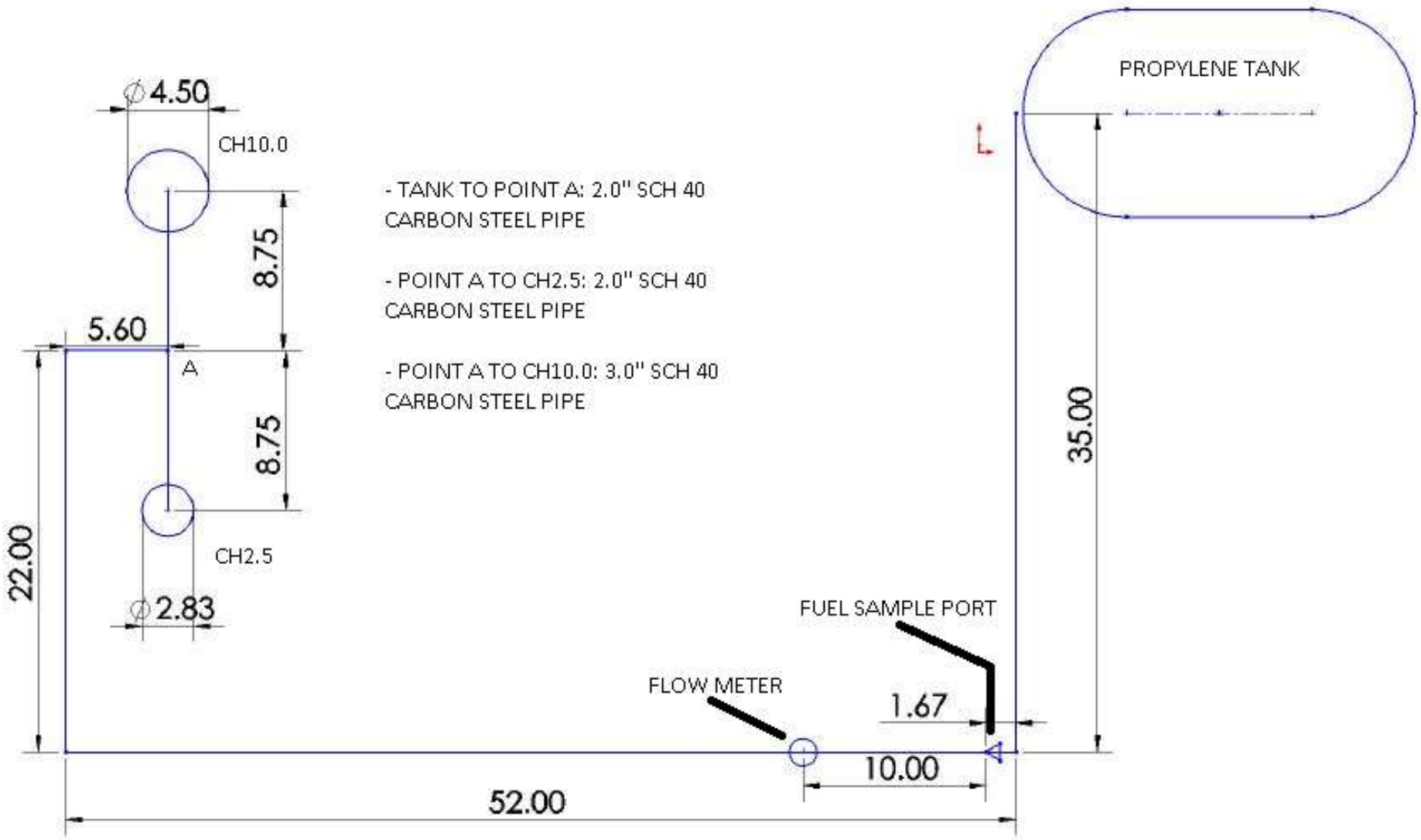
Office: 432-520-2292-Midland
Cell: 512-694-8455- Austin

EXPERTS IN VENT GAS MANAGEMENT

HY-BON/EDI is a REGAL BELOIT Company

This email and any attachments may be confidential or legally privileged and are intended solely for the use of the individual or entity addressed. If you have received this email in error please notify the sender and delete it from your email system. Additionally, you are notified that disclosing, copying, distributing or taking any action or reliance on the contents of this information is strictly prohibited.

This email and any attachments may be confidential or legally privileged and are intended solely for the use of the individual or entity addressed. If you have received this email in error please notify the sender and delete it from your email system. Additionally, you are notified that disclosing, copying, distributing or taking any action or reliance on the contents of this information is strictly prohibited.


PROPYLENE TANK
∅4.50
CH10.0
8.75
5.60
A
8.75
CH2.5
22.00
∅2.83
- TANK TO POINT A: 2.0" SCH 40 CARBON STEEL PIPE
- POINT A TO CH2.5: 2.0" SCH 40 CARBON STEEL PIPE
- POINT A TO CH10.0: 3.0" SCH 40 CARBON STEEL PIPE
35.00
FUEL SAMPLE PORT
FLOW METER
1.67
10.00
52.00


PROPYLENE
CONTAINER LIQUID
EMERGENCY SHUT
UP TO OPERATE
DOWN TO SHUTOF
06/23/2015 07:29

HY-BON Combustor CH10.0
Design Fuel Calculated

Pilot fuel usage:	3.7	standard cubic feet (SCF) per hour of propane

Test	Test Duration (minutes)	Pilot Total (SCF)
1-1	64	3.95
1-2	64	3.95
1-3	64	3.95
2-1	64	3.95
2-2	64	3.95
2-3	64	3.95
3-1	64	3.95
3-2	64	3.95
3-3	64	3.95
4-1	64	3.95
4-2	64	3.95
4-3	64	3.95
	Total:	47.4 SCF