

**Source Emissions Test Report  
Questar Gas Management**

**Combustor Unit  
VOC & HAP DRE**

**Wonsits Valley Compressor Station  
Uintah County, Utah**

Report prepared for:  
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## Table of Contents

|                              |   |
|------------------------------|---|
| 1. Introduction.....         | 1 |
| 2. Test Results Summary..... | 1 |
| 3. Methods.....              | 3 |
| 4. Test Program Summary..... | 4 |
| 5. Test Method Details.....  | 5 |

### Tables

|                                                              |   |
|--------------------------------------------------------------|---|
| Table 1.1 : Emissions Testing Program Contact Personnel..... | 1 |
| Table 2.1 : Test Results Summary, Combustor Unit Inlet.....  | 2 |
| Table 2.2 : Test Results Summary, Combustor Unit Outlet..... | 3 |
| Table 4.1 : Sampling and Analytical Methods Summary.....     | 5 |
| Table 5.1 : EPA Method 18 Calibration Standard Values.....   | 7 |

### Appendices

|                              |            |
|------------------------------|------------|
| Testing Parameters.....      | Appendix 1 |
| Field Data.....              | Appendix 2 |
| Calibration Information..... | Appendix 3 |
| Schematics.....              | Appendix 4 |

## 1. Introduction

Air Pollution Testing (APT) was contracted by Questar Gas Management to conduct source emissions testing services at the Wonsits Valley Compressor Station located in the southeast  $\frac{1}{4}$  of the northeast  $\frac{1}{4}$  of Section 12, T8S, R21E, in Uintah County, Utah. The Wonsits Valley facility is used in the drying and compression of natural gas. The emissions testing program was conducted at the inlet and exhaust stack of one (1) Pyrohelix combustor system. The combustor controls the effluent emissions off of the TEG Dehydrator.

The purpose of the testing program was to determine emission levels of carbon monoxide (CO), non-methane/ethane organic compounds (NMEOC) and hazardous air pollutants (HAPs – specifically n-hexane, benzene, toluene, ethylbenzene and xylene) from the exhaust stack of the combustor. Additionally, combustor inlet levels of NMEOC and HAPs were determined to calculate the combustor control efficiency for these analytes.

All testing was conducted with the facility processes and combustor running under normal operating conditions.

Key contact personnel involved in the test program are provided in Table 1.1 below.

| Questar Gas Management : Wonsits Valley Compressor Station<br>Emissions Testing Program Contact Personnel |                                                                                             |                                                                                                      |
|-----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| <i>Name, Title</i>                                                                                        | <i>Company, Affiliation Address</i>                                                         | <i>Phone, FAX, email</i>                                                                             |
| Mr. Greg W. Jones                                                                                         | Questar Gas Management<br>1050 17 <sup>th</sup> Street, Suite 500<br>Denver, Colorado 80265 | 303-672-6980,<br>303-308-3610,<br><a href="mailto:greg.jones@questar.com">greg.jones@questar.com</a> |
| Mr. Chris Keefe,<br>Operations Director                                                                   | Air Pollution Testing, Inc.<br>5530 Marshall Street<br>Arvada, Colorado 80002               | 303-420-5949 ext. 24,<br>303-420-5920,<br><a href="mailto:ckeefe@airtest.net">ckeefe@airtest.net</a> |

**Table 1.1: Emissions Testing Program Contact Personnel**

## 2. Test Results Summary

The results of the testing program are summarized in Tables 2.1 and 2.2. Any emission parameters not found in the tables may be found in *Appendix 1*. Hand calculation of the values will likely result in rounding errors. The following terms are used in the tables:

- Temp. (°F) – stack gas temperature, degrees Fahrenheit
- %vd – diluent concentration, dry volume percent
- %vw – stack gas moisture content, wet volume percent

APT Project QST9104  
Test Report – Wonsits Valley Compressor Station

- dscfm – stack gas flow rate, dry standard (one atm., 68°F) cubic feet per minute
- as C<sub>3</sub>H<sub>8</sub> – as propane
- ppmvd – parts per million, dry volume basis
- lb/hr – pollutant mass emission rate, pounds per hour
- NMEOC – non methane/ethane organic compounds
- HAP – hazardous air pollutants
- DRE – destruction removal efficiency

| Questar Gas Management : Wonsits Valley Compressor Station<br>Combustor Unit Inlet Test Results Summary – April 8, 2009 |       |         |         |         |         |
|-------------------------------------------------------------------------------------------------------------------------|-------|---------|---------|---------|---------|
|                                                                                                                         | Run # | 1       | 2       | 3       | Average |
| Start Time                                                                                                              |       | 10:30   | 11:55   | 13:20   |         |
| Stop Time                                                                                                               |       | 11:30   | 12:55   | 14:20   |         |
| Influent Stack Temp. (°F)                                                                                               |       | 66      | 67      | 67      | 67      |
| O <sub>2</sub> (%vd)                                                                                                    |       | 3.5     | 3.5     | 3.5     | 3.5     |
| CO <sub>2</sub> (%vd)                                                                                                   |       | 0.0     | 0.0     | 0.0     | 0.0     |
| H <sub>2</sub> O (%vw)                                                                                                  |       | 2.6     | 2.7     | 2.7     | 2.7     |
| Gas Flow (dscfm)                                                                                                        |       | 15      | 16      | 15      | 16      |
| <b><u>Emissions Data</u></b>                                                                                            |       |         |         |         |         |
| NMEOC (ppmvd as C <sub>3</sub> H <sub>8</sub> )                                                                         |       | 248,237 | 263,833 | 269,368 | 260,479 |
| NMEOC (lb/hr as C <sub>3</sub> H <sub>8</sub> )                                                                         |       | 26.3    | 28.2    | 28.5    | 27.7    |
| Benzene (ppmvd)                                                                                                         |       | 10,701  | 10,178  | 10,856  | 10,578  |
| Benzene (lb/hr)                                                                                                         |       | 2.0     | 1.9     | 2.0     | 2.0     |
| Toluene (ppmvd)                                                                                                         |       | 5,802   | 4,479   | 4,668   | 4,983   |
| Toluene (lb/hr)                                                                                                         |       | 1.3     | 1.0     | 1.0     | 1.1     |
| Speciated HAPs (lb/hr)*                                                                                                 |       | 3.3     | 2.9     | 3.1     | 3.1     |

\* Benzene and Toluene were the only detected HAPs

\* Benzene and Toluene were the only detected HAPs

**Table 2.1: Test Results Summary, Combustor Unit Inlet**



APT Project QST9104  
Test Report – Wonsits Valley Compressor Station

| Questar Gas Management : Wonsits Valley Compressor Station<br>Combustor Unit Outlet Test Results Summary – April 8, 2009 |       |       |       |       |         |
|--------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|---------|
|                                                                                                                          | Run # | 1     | 2     | 3     | Average |
| Start Time                                                                                                               |       | 10:30 | 11:55 | 13:20 |         |
| Stop Time                                                                                                                |       | 11:30 | 12:55 | 14:20 |         |
| Effluent Stack Temp. (°F)                                                                                                |       | 304   | 304   | 305   | 304     |
| O <sub>2</sub> (%vd)                                                                                                     |       | 19.9  | 19.9  | 19.8  | 19.8    |
| CO <sub>2</sub> (%vd)                                                                                                    |       | 0.8   | 0.7   | 0.8   | 0.8     |
| H <sub>2</sub> O (%vw)                                                                                                   |       | 2.5   | 1.8   | 1.9   | 2.1     |
| Gas Flow (dscfm)                                                                                                         |       | 1,360 | 1,378 | 1,411 | 1,383   |
| <b><u>Emissions Data</u></b>                                                                                             |       |       |       |       |         |
| CO (ppmvd)                                                                                                               |       | 21.7  | 19.9  | 21.7  | 21.1    |
| CO (lb/hr)                                                                                                               |       | 0.1   | 0.1   | 0.1   | 0.1     |
| NMEOC (ppmvd as C <sub>3</sub> H <sub>8</sub> )*                                                                         |       | 1.0   | 1.0   | 1.0   | 1.0     |
| NMEOC (lb/hr as C <sub>3</sub> H <sub>8</sub> )                                                                          |       | 0.01  | 0.01  | 0.01  | 0.01    |
| Benzene (ppmvd)                                                                                                          |       | 0.21  | 0.17  | 0.19  | 0.19    |
| Benzene (lb/hr)                                                                                                          |       | 0.003 | 0.003 | 0.003 | 0.003   |
| Toluene (ppmvd)                                                                                                          |       | 0.10  | 0.07  | 0.05  | 0.07    |
| Toluene (lb/hr)                                                                                                          |       | 0.002 | 0.001 | 0.001 | 0.001   |
| Speciated HAPs (lb/hr)**                                                                                                 |       | 0.005 | 0.004 | 0.004 | 0.005   |
| NMEOC DRE (%)                                                                                                            |       | 100.0 | 100.0 | 100.0 | 100.0   |
| HAPs DRE (%)                                                                                                             |       | 99.8  | 99.9  | 99.9  | 99.9    |
| * Methane/ethane subtractions yielded negative values. A value of 1 ppm (> 2% of span) was substituted.                  |       |       |       |       |         |
| ** Benzene and Toluene were the only detected HAPs                                                                       |       |       |       |       |         |

**Table 2.2: Test Results Summary, Combustor Unit Outlet**

### 3. Methods

All testing was conducted in accordance with the following USEPA source emissions test methods referenced in 40 CFR Part 60, Appendix A.

*Method 1 – Sample and Velocity Traverses for Stationary Sources*

*Method 2 – Determination of Stack Gas Velocity and Volumetric Flow Rate*

*Method 3A – Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources*

*Method 4 – Determination of Moisture Content in Stack Gases*

*Method 10 – Determination of Carbon Monoxide Emissions from Stationary Sources*

*Method 18 – Determination of Gaseous Organic Compound Emissions by Gas Chromatography*

*Method 25A – Determination of Total Gaseous Organic Concentration Using a Flame Ionization Detector*

#### **4. Test Program Summary**

APT provided all necessary equipment and labor for the determination of all emission parameters detailed in Table 4.1 on the following page. Triplicate, 60-minute test runs were conducted at the combustor inlet and exhaust, under normal operating conditions.

At the combustor exhaust stack, on-site gas analyzers were used to determine emission levels of oxygen (O<sub>2</sub>), carbon dioxide (CO<sub>2</sub>), CO and total volatile organic compounds (VOC). Exhaust gas flow rate measurements were conducted using an S-type pitot tube to allow calculation of mass emission rates. Integrated gas samples were collected in Tedlar bags for on-site gas chromatography, flame ionization detector (GCFID) analysis to determine concentrations of methane, ethane, and HAPs. The methane/ethane data were used to correct the VOC data to NMEOC values.

The combustor inlet gas was diluted 100:1 using an eductor and orifice assembly to allow on-scale hydrocarbon measurements. At the exhaust stack, an on-site gas analyzer was used to determine concentrations of total VOC in the diluted gas stream. Diluted gas samples were collected in Tedlar bags for on-site GCFID analysis to determine concentrations of methane, ethane, and HAPs. The methane/ethane data were used to correct the VOC data to NMEOC values. Inlet gas volumetric flow rate measurements were conducted using a standard pitot tube to calculate mass flow rates. The Tedlar bag sample analysis data were used to calculate a molecular weight for the combustor inlet gas stream.

Various operating parameters were collected throughout the testing program and can be found at the back of *Appendix 2*.

| <b>Questar Gas Management : Wonsits Valley Compressor Station<br/>Sampling and Analytical Methods</b> |                        |                                                                          |                   |
|-------------------------------------------------------------------------------------------------------|------------------------|--------------------------------------------------------------------------|-------------------|
| <i>Gas Parameter</i>                                                                                  | <i>Sampling Method</i> | <i>Analytical Method</i>                                                 | <i>Laboratory</i> |
| gas flow                                                                                              | Methods 1, 2           | draft gauge, thermocouple, pitot tube                                    | APT,<br>on-site   |
| O <sub>2</sub> , CO <sub>2</sub>                                                                      | Method 3A              | paramagnetic and non-dispersive infrared analyzer - Servomex Series 1400 |                   |
| H <sub>2</sub> O                                                                                      | Method 4               | gravimetric                                                              |                   |
| CO                                                                                                    | Method 10              | gas filter correlation, infrared analyzer                                |                   |
| Methane, ethane, HAPs                                                                                 | Method 18              | gas chromatography – on-site bags                                        |                   |
| VOC                                                                                                   | Method 25A             | flame ionization detector                                                |                   |

**Table 4.1: Sampling and Analytical Methods Summary**

## 5. Test Method Details

### 5.1. Stack Gas Velocity, Volumetric Flow Rate and Moisture

Stack gas velocity, volumetric flow rate and moisture (H<sub>2</sub>O) content were measured in accordance with EPA Methods 1, 2 and 4.

Each sampling period consisted of conducting a temperature and differential pressure traverse of the stack using a K-type thermocouple and an S-type pitot tube. Concurrent with the traverse, a sample of gas for moisture determination was extracted from the stack at a constant flow rate of no more than 0.75 cubic feet per minute (cfm). The gas sample passed through a stainless steel probe, through a series of four (4) chilled glass impingers, and through a calibrated dry gas meter. See *Appendix 4 – Schematics* for a diagram of the EPA Methods 1, 2 and 4 sampling train.

Prior to sampling, the first two impingers were each seeded with 100 milliliters of water. The third impinger was empty. The fourth impinger was seeded with 250 grams of dried silica gel. Following sampling, the moisture gain in the impingers was measured gravimetrically to determine the moisture content of the gas.

All of the above data were combined with concurrently collected diluent data to calculate the stack gas velocity and volumetric flow rate in units of feet per second (ft/sec), actual cubic feet per minute (acfm), dry standard (1 atmosphere and 68°F) cubic feet per minute (dscfm), and pounds per hour (lb/hr).

### 5.2. Diluent (O<sub>2</sub> and CO<sub>2</sub>) and Carbon Monoxide

O<sub>2</sub>, CO<sub>2</sub> and CO emission concentrations were measured in accordance with EPA Methods 3A (O<sub>2</sub> and CO<sub>2</sub>) and 10 (CO). Each sampling period consisted of extracting a



gas sample from the stack at a constant flow rate of approximately four liters per minute (lpm). The sample passed through a refrigeration-type gas conditioner to remove moisture and into the sampling port of a TECO Model 48H gas filter correlation infrared CO analyzer and a Servomex Series 1400 paramagnetic O<sub>2</sub> / non-dispersive infrared CO<sub>2</sub> analyzer. The gas concentrations were displayed on the analyzer front panels in units of either parts per million, dry volume basis (ppmvd – CO) or percent, dry volume basis (%vd – O<sub>2</sub> and CO<sub>2</sub>) and logged to a computerized data acquisition system (CDAS). Please see *Appendix 4 – Schematics* for a diagram of the EPA Methods 3A and 10 sampling train.

Before and after each sampling period, the analyzers were challenged with calibration gases to calibrate the instruments, to verify linearity of response, and to quantify zero and span drift for the previous sampling period. The calibration gases were prepared and certified in accordance with EPA Protocol 1. To ensure no system bias, the analyzer calibrations were conducted by introducing all gases to the analyzers at the sampling probe tip at stack pressure.

Following sampling, the CDAS data were averaged in one-minute increments, corrected for instrumental drift, and reported as average O<sub>2</sub>, CO<sub>2</sub> and CO emission concentrations for each sampling period in units of %vd or ppmvd. The concentration data were combined with concurrently collected stack gas flow data to calculate the CO mass emission rates in units of lb/hr.

### 5.3. TVOC and NMEOC Emissions

TVOC/NMEOC concentrations were measured in accordance with EPA Methods 18 and 25A.

Each sampling period consisted of extracting a gas sample from the stack at a constant flow rate of approximately three liters per minute using a heated Teflon line. The gas was directed into the sampling port of a JUM Model VE-7 flame ionization analyzer. TVOC concentrations were displayed on the analyzer front panel in units of parts per million, wet volume basis (ppmwv) and logged to a CDAS (see *Appendix 4 – Schematics*).

Before and after each sampling period, the analyzer was challenged with EPA Protocol 1 calibration gases to calibrate the instrument, to verify linearity of response, and to quantify zero and span drift for the previous sampling period. To ensure no system bias, the analyzer calibrations were conducted by introducing all gases to the analyzer at the sampling probe tip at stack pressure. Following sampling, the CDAS data were averaged in one-minute increments, corrected for instrumental drift, and reported as average emission concentrations for each sampling period.

Concurrent with each TVOC sampling run, APT personnel collected an integrated Tedlar bag sample for subsequent CH<sub>4</sub> and C<sub>2</sub>H<sub>6</sub> analysis with an HP Model 5890 Series II Gas Chromatograph (GC) equipped with a FID and Chemstation software on-site. The instrument was calibrated using zero air and three certified calibration gases. The CH<sub>4</sub> and



C<sub>2</sub>H<sub>6</sub> data were used to correct inlet and outlet TVOC data to non-methane/ethane organic compound (NMEOC) values. The above data were combined with concurrently collected flow data to calculate VOC emissions in units of lb/hr.

#### 5.4. BTEX and n-hexane

HAP emission levels at the unit inlet and outlet were determined in accordance with EPA Method 18 using on-site Tedlar bag sampling and analysis procedures detailed in the method. Samples were analyzed on-site with an HP Model 5890 Series II Gas Chromatograph equipped with a flame ionization detector (FID) and Chemstation software.

##### 5.4.1. GC Details

Target analytes for on-site GC analysis were specific HAP (benzene, toluene, ethylbenzene and xylenes – BTEX) compounds. BTEX were summed to calculate HAP emissions. Unknown peaks (believed to consist principally of alkane and alkene isomers) were quantified against the previous alkane calibration peak.

Gas phase calibration standards were prepared by dilution of one or more +/-2% accuracy certified gas standards. Preparation of diluted standards were conducted using a gas-tight volumetric syringe and new Tedlar bags. Table 5.1 provides information on the certified standards to be used to generate the calibration standards. A three-point calibration was conducted using the mixtures provided in the table. A reduced volume sample loop was used for the Combustor Inlet for the emission measurements to assure on-scale readings. The sample loop volume ratio (calibration loop-to-sample loop) was determined by analyzing a propane standard on each size loop; the volume ratio was then used to scale up sample concentration values.

| <b>Questar Gas Management : Wonsits Valley Compressor Station<br/>Method 18 Calibration Gas Data</b> |                          |                                                                   |
|------------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------------------------------------|
| <i>Gas Value</i>                                                                                     | <i>Calibration Value</i> | <i>Preparation</i>                                                |
| 5,000 ppm                                                                                            | 5,000 ppm C1, C2         | 2% Certified Standard                                             |
| 100 ppm                                                                                              | 100 ppm C1 – C7 alkanes  | 2% Certified Standard                                             |
|                                                                                                      | 100 ppm BTEX             | 2% Certified Standard                                             |
| 50 ppm                                                                                               | 50 ppm alkane / BTEX     | 50:50 mix of above two standards                                  |
| 5 ppm                                                                                                | 5 ppm alkane / BTEX      | 2% Certified Standard or Volumetric Dilution of 100 ppm standards |

**Table 5.1: EPA Method 18 Calibration Standard Values**

Triplicate (minimum, more if required to meet the 5% agreement limit) injections were conducted for each standard, and a calibration curve of peak area versus concentration

APT Project QST9104  
Test Report – Wonsits Valley Compressor Station

was prepared for each gas component. A least squares line ( $y=mx$ ) was fit to each data set.

The BTEX emissions were determined in accordance with EPA Method 18 using the Tedlar bag collection procedures. All samples were analyzed in triplicate.

The results of the GC analysis were used to calculate HAP emission levels in units of parts per million, wet volume basis (ppmvw). The GC data were combined with stack gas volumetric flow rate data to calculate organic emissions in units of lb/hr.

# APPENDIX 1





AIR  
POLLUTION  
TESTING, INC.

## Appendix One: Testing Parameters

**Outlet NMEOC & CO Data**  
**Inlet NMEOC Data**

Questar Gas Management  
Wonsits Valley Compressor Station  
Uintah County, Utah  
Combuster Unit - OUTLET  
04/08/09

| Field Reference Method Data |                                                                      |        |        |        |         |
|-----------------------------|----------------------------------------------------------------------|--------|--------|--------|---------|
| Run #                       |                                                                      | 1      | 2      | 3      | Average |
| Start Time                  |                                                                      | 10:30  | 11:55  | 13:20  |         |
| Stop Time                   |                                                                      | 11:30  | 12:55  | 14:20  |         |
| Sample Time                 |                                                                      | 60     | 60     | 60     |         |
| D <sub>S</sub>              | Stack Diameter (inches)                                              | 21.5   | 21.5   | 21.5   | 21.5    |
| √ΔP <sub>AVG</sub>          | Average (Delta P) <sup>1/2</sup> (" H <sub>2</sub> O) <sup>1/2</sup> | 0.2250 | 0.2267 | 0.2323 | 0.2280  |
| C <sub>P</sub>              | Pitot Tube Constant (unitless)                                       | 0.81   | 0.81   | 0.81   | 0.81    |
| T <sub>S</sub>              | Effluent Stack Temperature (°F)                                      | 304    | 304    | 305    | 304     |
| P <sub>bar</sub>            | Barometric Pressure (mbar)                                           | 834    | 834    | 834    | 834     |
| P <sub>bar</sub>            | Barometric Pressure (" Hg)                                           | 24.63  | 24.63  | 24.63  | 24.63   |
| P <sub>S</sub>              | Stack Pressure (" H <sub>2</sub> O)                                  | -0.05  | -0.05  | -0.05  | -0.05   |
| Y <sub>d</sub>              | Meter Y Factor (unitless)                                            | 0.978  | 0.978  | 0.978  | 0.978   |
| T <sub>m</sub>              | Meter Temperature (°F)                                               | 76     | 75     | 71     | 74      |
| V <sub>m</sub>              | Sample Volume (ft <sup>3</sup> )                                     | 39.404 | 40.647 | 39.558 | 39.870  |
| ΔH                          | Orifice Pressure Delta H (" H <sub>2</sub> O)                        | 1.0    | 1.0    | 1.0    | 1.0     |
| V <sub>ic</sub>             | Moisture (grams)                                                     | 17.3   | 12.8   | 12.9   | 14.3    |
| O <sub>2</sub> %vd          | O <sub>2</sub> (%vd)                                                 | 19.9   | 19.9   | 19.8   | 19.8    |
| CO <sub>2</sub> %vd         | CO <sub>2</sub> (%vd)                                                | 0.8    | 0.7    | 0.8    | 0.8     |
| N <sub>2</sub> %vd          | N <sub>2</sub> (%vd)                                                 | 79.3   | 79.4   | 79.4   | 79.4    |
| wet                         | TVOC (ppmvw as C <sub>3</sub> H <sub>8</sub> )                       | 3.5    | 3.1    | 1.3    | 2.6     |
| dry                         | CO (ppmvd)                                                           | 21.7   | 19.9   | 21.7   | 21.1    |

| Laboratory Data |       |       |       |  |         |
|-----------------|-------|-------|-------|--|---------|
| Run #           | 1     | 2     | 3     |  | Average |
| Methane (ppmvd) | 18.37 | 17.55 | 12.86 |  | 16.26   |
| Ethane (ppmvd)  | 0.40  | 0.24  | 0.16  |  | 0.27    |

| Reference Method Calculations |                                                   |        |        |        |         |
|-------------------------------|---------------------------------------------------|--------|--------|--------|---------|
| Run #                         |                                                   | 1      | 2      | 3      | Average |
| V <sub>mstd</sub>             | Sample Volume (dscf)                              | 31.352 | 32.359 | 31.777 | 31.829  |
| V <sub>wstd</sub>             | Moisture Volume (scf)                             | 0.81   | 0.60   | 0.61   | 0.67    |
| B <sub>ws</sub>               | Moisture Content (%/100)                          | 0.025  | 0.018  | 0.019  | 0.021   |
| M <sub>D</sub>                | Molecular Weight Dry (lb/lb-mole)                 | 28.92  | 28.91  | 28.92  | 28.92   |
| M <sub>A</sub>                | Molecular Weight Wet (lb/lb-mole)                 | 28.65  | 28.71  | 28.71  | 28.69   |
| V <sub>S</sub>                | Gas Velocity (ft/sec)                             | 16.2   | 16.3   | 16.7   | 16.4    |
| F <sub>ACFM</sub>             | Gas Flow (acfm)                                   | 2,453  | 2,468  | 2,531  | 2,484   |
| F <sub>DSCFM</sub>            | Gas Flow (dscfm)                                  | 1,360  | 1,378  | 1,411  | 1,383   |
| lb/hr                         | Gas Flow (lb/hr)                                  | 6,224  | 6,279  | 6,430  | 6,311   |
| F <sub>o</sub>                | F <sub>o</sub> (unitless)                         | 1.303  | 1.380  | 1.398  | 1.360   |
| dry                           | TVOC (ppmvd as C <sub>3</sub> H <sub>8</sub> )    | 3.6    | 3.2    | 1.3    | 2.7     |
| lb/hr                         | TVOC (lb/hr as C <sub>3</sub> H <sub>8</sub> )    | 0.03   | 0.03   | 0.01   | 0.03    |
| dry                           | NMEOC (ppmvd as C <sub>3</sub> H <sub>8</sub> ) * | 1.0    | 1.0    | 1.0    | 1.0     |
| lb/hr                         | NMEOC (lb/hr as C <sub>3</sub> H <sub>8</sub> )   | 0.01   | 0.01   | 0.01   | 0.01    |
| lb/hr                         | CO (lb/hr)                                        | 0.1    | 0.1    | 0.1    | 0.1     |

\* Methane/ethane subtractions yielded negative values. A value of 1 ppm (> 2% of span) was substituted.



Questar Gas Management  
Wonsits Valley Compressor Station  
Uintah County, Utah  
Combustor Unit - INLET  
04/08/09

| Field Reference Method Data |                                                                      |         |         |         |         |
|-----------------------------|----------------------------------------------------------------------|---------|---------|---------|---------|
| Run #                       |                                                                      | 1       | 2       | 3       | Average |
| Start Time                  |                                                                      | 10:30   | 11:55   | 13:20   |         |
| Stop Time                   |                                                                      | 11:30   | 12:55   | 14:20   |         |
| Sample Time                 |                                                                      | 60      | 60      | 60      |         |
| D <sub>s</sub>              | Stack Diameter (inches)                                              | 4.0     | 4.0     | 4.0     | 4.0     |
| $\sqrt{\Delta P_{AVG}}$     | Average (Delta P) <sup>1/2</sup> (" H <sub>2</sub> O) <sup>1/2</sup> | 0.05    | 0.05    | 0.05    | 0.05    |
| C <sub>P</sub>              | Pitot Tube Constant (unitless)                                       | 0.99    | 0.99    | 0.99    | 0.99    |
| T <sub>S</sub>              | Influent Stack Temperature (°F)                                      | 66      | 67      | 67      | 67      |
| P <sub>bar</sub>            | Barometric Pressure (mbar)                                           | 834     | 834     | 834     | 834     |
| P <sub>bar</sub>            | Barometric Pressure (" Hg)                                           | 24.63   | 24.63   | 24.63   | 24.63   |
| P <sub>S</sub>              | Stack Pressure (" H <sub>2</sub> O)                                  | 0.0     | 0.0     | 0.0     | 0.0     |
| Y <sub>d</sub>              | Meter Y Factor (unitless)                                            | 0.984   | 0.984   | 0.984   | 0.984   |
| T <sub>m</sub>              | Meter Temperature (°F)                                               | 75      | 77      | 72      | 75      |
| V <sub>m</sub>              | Sample Volume (ft <sup>3</sup> )                                     | 48.845  | 47.725  | 45.936  | 47.502  |
| ΔH                          | Orifice Pressure Delta H (" H <sub>2</sub> O)                        | 1.0     | 1.0     | 1.0     | 1.0     |
| V <sub>lc</sub>             | Moisture (grams)                                                     | 109.5   | 67.9    | 72.6    | 83.3    |
| O <sub>2</sub> %vd          | O <sub>2</sub> (%vd)                                                 | 3.5     | 3.5     | 3.5     | 3.5     |
| CO <sub>2</sub> %vd         | CO <sub>2</sub> (%vd)                                                | 0.0     | 0.0     | 0.0     | 0.0     |
| wet                         | TVOC (ppmvw as C <sub>3</sub> H <sub>8</sub> )                       | 593,283 | 602,939 | 601,386 | 599,202 |

| Laboratory Data                                 |         |         |         |  |         |
|-------------------------------------------------|---------|---------|---------|--|---------|
| Run #                                           | 1       | 2       | 3       |  | Average |
| C1, C2 (ppmw as C <sub>3</sub> H <sub>8</sub> ) | 351,622 | 346,157 | 339,185 |  | 345,654 |

| Reference Method Calculations |                                                 |         |         |         |         |
|-------------------------------|-------------------------------------------------|---------|---------|---------|---------|
| Run #                         |                                                 | 1       | 2       | 3       | Average |
| V <sub>mstd</sub>             | Sample Volume (dscf)                            | 39.140  | 38.076  | 37.045  | 38.087  |
| V <sub>wstd</sub>             | Moisture Volume (scf)                           | 5.15    | 3.20    | 3.42    | 3.92    |
| B <sub>ws</sub>               | Moisture Content (%/100)                        | 0.026   | 0.027   | 0.027   | 0.027   |
| M <sub>D</sub>                | Molecular Weight Dry (lb/lb-mole)               | 28.61   | 28.07   | 28.68   | 28.45   |
| M <sub>A</sub>                | Molecular Weight Wet (lb/lb-mole)               | 28.33   | 27.80   | 28.40   | 28.18   |
| V <sub>S</sub>                | Gas Velocity (ft/sec)                           | 3.7     | 3.7     | 3.7     | 3.7     |
| F <sub>ACFM</sub>             | Gas Flow (acfm)                                 | 19      | 19      | 19      | 19      |
| F <sub>DSCFM</sub>            | Gas Flow (dscfm)                                | 15      | 16      | 15      | 16      |
| lb/hr                         | Gas Flow (lb/hr)                                | 70      | 69      | 70      | 70      |
| dry                           | TVOC (ppmvd as C <sub>3</sub> H <sub>8</sub> )  | 609,428 | 619,493 | 617,825 | 615,582 |
| lb/hr                         | TVOC (lb/hr as C <sub>3</sub> H <sub>8</sub> )  | 62.9    | 64.5    | 63.7    | 63.7    |
| dry                           | NMEOC (ppmvd as C <sub>3</sub> H <sub>8</sub> ) | 248,237 | 263,833 | 269,368 | 260,479 |
| lb/hr                         | NMEOC (lb/hr as C <sub>3</sub> H <sub>8</sub> ) | 26.3    | 28.2    | 28.5    | 27.7    |

Questar Gas Management  
 Wonsits Valley Compressor Station  
 Uintah County, Utah  
 Combustor Unit  
 04/08/09

| Linearity Information |                |                 |       |                |               |
|-----------------------|----------------|-----------------|-------|----------------|---------------|
| Gas                   | O <sub>2</sub> | CO <sub>2</sub> | CO    | TVOC<br>OUTLET | TVOC<br>INLET |
| Span Gas Value/Range  | 20.9           | 19.8            | 79    | 50             | 8739          |
| Bias Gas Value        | 9.98           | 10.00           | 36.5  | 17.16          | 8739.00       |
| Bias Check (Zero)     | 0.0            | -0.1            | 0.6   | 0.0            | 0.6           |
| Bias Check (Span)     | 9.9            | 10.0            | 36.0  | 16.7           | 8735.0        |
| Gas Concentration     | %              | %               | (ppm) | (ppm)          | (ppm)         |
| 1                     | 0.00           | 0.00            | 0.0   | 0.0            | 0.0           |
| 2                     | 9.98           | 10.00           | 36.5  | 17.16          | 3017.00       |
| 3                     | 20.90          | 19.80           | 79.2  | 30.0           | 4979.00       |
| 4                     |                |                 |       | 50.1           | 8739.00       |
| Response              |                |                 |       |                |               |
| 1                     | 0.0            | 0.0             | 0.6   | 0.0            | 0.6           |
| 2                     | 9.9            | 10.0            | 36.0  | 16.7           | 3387.0        |
| 3                     | 20.9           | 19.8            | 78.1  | 29.6           | 5050.0        |
| 4                     |                |                 |       | 50.3           | 8735.0        |
| Difference            |                |                 |       |                |               |
| 1                     | 0.0            | 0.0             | 0.6   | 0.0            | 0.6           |
| 2                     | 0.1            | 0.0             | 0.5   | 0.5            | 370.0         |
| 3                     | 0.0            | 0.0             | 1.1   | 0.4            | 71.0          |
| 4                     |                |                 |       | 0.2            | 4.0           |
| Results               |                |                 |       |                |               |
| Zero Bias             | 0.00%          | 0.51%           | 0.00% | 0.00%          | 0.00%         |
| Span Bias             | 0.00%          | 0.00%           | 0.00% | 0.00%          | 0.00%         |
| Max Calibration Error | 0.38%          | 0.00%           | 1.39% | 0.92%          | 4.23%         |

Questar Gas Management  
Wonsits Valley Compressor Station  
Uintah County, Utah  
Combustor Unit  
04/08/09

Run 1

|            |              |
|------------|--------------|
| Start Time | 4/8/09 10:30 |
| Run Length | 60           |
| Stop Time  | 11:30        |

| Calibration Information |                |                 |      |      |              |
|-------------------------|----------------|-----------------|------|------|--------------|
| Gas                     | O <sub>2</sub> | CO <sub>2</sub> | CO   | TVOC | TVOC - Inlet |
| Instrument Range        | 20.9           | 19.8            | 79   | 50   | 8739         |
| Span Gas Value          | 9.98           | 10.00           | 36.5 | 17.2 | 8739.0       |
| Calibration             |                |                 |      |      |              |
| Pretest Calibration     |                |                 |      |      |              |
| Zero%                   | 0.0            | -0.1            | 0.6  | 0.0  | 0.6          |
| Span%                   | 9.9            | 10.0            | 36.0 | 16.7 | 8735.0       |
| Post Test Calibration   |                |                 |      |      |              |
| Zero%                   | 0.1            | 0.1             | 1.3  | 0.0  | 5.1          |
| Span%                   | 10.0           | 10.0            | 36.6 | 16.6 | 8546.0       |
| Results                 |                |                 |      |      |              |
| Absolute Bias (Zero)    | 0.5%           | 1.0%            | 0.9% | 0.0% | 0.1%         |
| Absolute Bias (Span)    | 0.5%           | 0.0%            | 0.8% | 0.2% | 2.2%         |
| Absolute Drift (Zero)   | 0.5%           | 1.0%            | 0.9% | 0.0% | 0.1%         |
| Absolute Drift (Span)   | 0.5%           | 0.0%            | 0.8% | 0.2% | 2.2%         |

|                      |       | Corrected O <sub>2</sub> %   | Corrected CO <sub>2</sub> %   | Corrected CO ppm   | Corrected TVOC ppm   | Corrected TVOC ppm   |
|----------------------|-------|------------------------------|-------------------------------|--------------------|----------------------|----------------------|
|                      |       | 19.9                         | 0.8                           | 21.7               | 3.5                  | 593282.6             |
| Run Length (Minutes) | Time  | Uncorrected O <sub>2</sub> % | Uncorrected CO <sub>2</sub> % | Uncorrected CO ppm | Uncorrected TVOC ppm | Uncorrected TVOC ppm |
|                      |       | 19.8                         | 0.8                           | 22.0               | 3.4                  | 586404.9             |
| 1                    | 10:30 | 19.5                         | 0.9                           | 20.9               | 3.3                  | 583619.6             |
| 2                    | 10:31 | 19.5                         | 0.9                           | 21.1               | 3.5                  | 583031.0             |
| 3                    | 10:32 | 19.6                         | 0.9                           | 21.2               | 3.2                  | 582220.9             |
| 4                    | 10:33 | 19.7                         | 0.8                           | 20.9               | 3.4                  | 581575.2             |
| 5                    | 10:34 | 19.8                         | 0.8                           | 20.7               | 3.4                  | 581907.6             |
| 6                    | 10:35 | 19.8                         | 0.8                           | 20.5               | 3.2                  | 582599.6             |
| 7                    | 10:36 | 19.8                         | 0.8                           | 20.6               | 3.9                  | 582331.3             |
| 8                    | 10:37 | 19.8                         | 0.8                           | 20.7               | 3.8                  | 582749.9             |
| 9                    | 10:38 | 19.7                         | 0.8                           | 20.9               | 5.6                  | 583375.1             |
| 10                   | 10:39 | 19.7                         | 0.8                           | 20.8               | 3.5                  | 584319.8             |
| 11                   | 10:40 | 19.7                         | 0.8                           | 20.6               | 3.3                  | 584269.8             |
| 12                   | 10:41 | 19.8                         | 0.8                           | 20.5               | 3.5                  | 583535.3             |
| 13                   | 10:42 | 19.7                         | 0.8                           | 20.4               | 3.8                  | 583931.4             |
| 14                   | 10:43 | 19.8                         | 0.8                           | 20.5               | 3.5                  | 584615.3             |
| 15                   | 10:44 | 19.8                         | 0.8                           | 20.2               | 3.2                  | 585794.1             |
| 16                   | 10:45 | 19.8                         | 0.8                           | 20.3               | 3.4                  | 586598.9             |
| 17                   | 10:46 | 19.8                         | 0.8                           | 20.5               | 3.6                  | 587772.2             |
| 18                   | 10:47 | 19.7                         | 0.8                           | 20.6               | 3.3                  | 589054.3             |
| 19                   | 10:48 | 19.7                         | 0.8                           | 20.8               | 3.3                  | 589484.6             |
| 20                   | 10:49 | 19.7                         | 0.8                           | 20.9               | 3.1                  | 589007.9             |
| 21                   | 10:50 | 19.6                         | 0.9                           | 22.8               | 3.2                  | 588876.6             |
| 22                   | 10:51 | 19.7                         | 0.8                           | 20.4               | 3.6                  | 588662.8             |
| 23                   | 10:52 | 19.7                         | 0.8                           | 20.3               | 3.5                  | 588044.8             |
| 24                   | 10:53 | 19.8                         | 0.8                           | 20.1               | 3.1                  | 587217.9             |
| 25                   | 10:54 | 19.8                         | 0.8                           | 20.0               | 2.9                  | 587108.9             |
| 26                   | 10:55 | 19.8                         | 0.8                           | 20.1               | 3.1                  | 589247.7             |
| 27                   | 10:56 | 19.8                         | 0.8                           | 19.8               | 3.0                  | 588093.8             |
| 28                   | 10:57 | 19.8                         | 0.8                           | 19.9               | 3.3                  | 589039.0             |
| 29                   | 10:58 | 19.8                         | 0.8                           | 20.4               | 3.5                  | 588401.8             |
| 30                   | 10:59 | 19.8                         | 0.8                           | 20.3               | 3.3                  | 587766.8             |
| 31                   | 11:00 | 19.9                         | 0.7                           | 19.9               | 3.4                  | 586765.2             |
| 32                   | 11:01 | 19.9                         | 0.7                           | 19.6               | 3.5                  | 586682.6             |
| 33                   | 11:02 | 19.8                         | 0.8                           | 19.7               | 3.4                  | 586900.7             |
| 34                   | 11:03 | 19.7                         | 0.8                           | 20.1               | 3.0                  | 586432.9             |
| 35                   | 11:04 | 19.7                         | 0.9                           | 19.5               | 2.7                  | 586530.0             |
| 36                   | 11:05 | 19.6                         | 0.9                           | 19.9               | 3.0                  | 587171.3             |
| 37                   | 11:06 | 19.7                         | 0.9                           | 19.9               | 2.9                  | 586815.6             |
| 38                   | 11:07 | 19.8                         | 0.8                           | 19.8               | 2.9                  | 586650.8             |
| 39                   | 11:08 | 19.8                         | 0.8                           | 20.3               | 3.3                  | 585728.3             |
| 40                   | 11:09 | 19.7                         | 0.8                           | 22.6               | 3.0                  | 585593.6             |
| 41                   | 11:10 | 19.8                         | 0.8                           | 19.6               | 3.3                  | 586258.1             |
| 42                   | 11:11 | 19.8                         | 0.8                           | 19.8               | 3.2                  | 588206.4             |
| 43                   | 11:12 | 19.7                         | 0.8                           | 19.9               | 3.4                  | 587953.7             |
| 44                   | 11:13 | 19.7                         | 0.8                           | 24.0               | 3.1                  | 587104.4             |
| 45                   | 11:14 | 19.8                         | 0.8                           | 23.9               | 3.5                  | 586372.2             |
| 46                   | 11:15 | 19.8                         | 0.8                           | 20.0               | 3.1                  | 586608.4             |
| 47                   | 11:16 | 19.8                         | 0.8                           | 19.7               | 3.1                  | 587316.2             |
| 48                   | 11:17 | 19.8                         | 0.8                           | 19.3               | 3.2                  | 587432.8             |
| 49                   | 11:18 | 19.8                         | 0.8                           | 19.6               | 3.3                  | 587291.4             |
| 50                   | 11:19 | 19.9                         | 0.7                           | 19.3               | 3.8                  | 587116.8             |
| 51                   | 11:20 | 20.0                         | 0.7                           | 22.3               | 4.0                  | 587756.9             |
| 52                   | 11:21 | 19.9                         | 0.8                           | 27.9               | 3.7                  | 587715.4             |
| 53                   | 11:22 | 19.8                         | 0.8                           | 20.3               | 3.6                  | 588355.1             |
| 54                   | 11:23 | 19.7                         | 0.9                           | 19.5               | 3.2                  | 589907.9             |
| 55                   | 11:24 | 19.7                         | 0.9                           | 25.7               | 3.4                  | 58971.6              |
| 56                   | 11:25 | 19.7                         | 0.9                           | 30.7               | 3.6                  | 586921.3             |
| 57                   | 11:26 | 19.8                         | 0.8                           | 41.9               | 3.5                  | 586676.5             |
| 58                   | 11:27 | 19.8                         | 0.8                           | 32.2               | 3.4                  | 585761.1             |
| 59                   | 11:28 | 19.8                         | 0.8                           | 41.2               | 2.9                  | 585063.8             |
| 60                   | 11:29 | 19.9                         | 0.8                           | 35.1               | 3.6                  | 585976.2             |

Questar Gas Management  
Wonsits Valley Compressor Station  
Uintah County, Utah  
Combustor Unit  
04/08/09

Run 2

|            |              |
|------------|--------------|
| Start Time | 4/8/09 11:55 |
| Run Length | 60           |
| Stop Time  | 12:55        |

| Calibration Information |                |                 |      |      |              |
|-------------------------|----------------|-----------------|------|------|--------------|
| Gas                     | O <sub>2</sub> | CO <sub>2</sub> | CO   | TVOC | TVOC - Inlet |
| Instrument Range        | 20.9           | 19.8            | 79   | 50   | 8739         |
| Span Gas Value          | 9.98           | 10.00           | 36.5 | 17.2 | 8739.0       |
| Calibration             |                |                 |      |      |              |
| Pretest Calibration     |                |                 |      |      |              |
| Zero%                   | 0.1            | 0.1             | 1.3  | 0.0  | 5.1          |
| Span%                   | 10.0           | 10.0            | 36.6 | 16.6 | 8546.0       |
| Post Test Calibration   |                |                 |      |      |              |
| Zero%                   | 0.3            | 0.1             | 0.4  | 0.0  | 83.0         |
| Span%                   | 10.1           | 10.0            | 35.3 | 16.2 | 8403.0       |
| Results                 |                |                 |      |      |              |
| Absolute Bias (Zero)    | 1.4%           | 1.0%            | 0.9% | 0.0% | 0.9%         |
| Absolute Bias (Span)    | 1.0%           | 0.0%            | 0.9% | 1.0% | 3.8%         |
| Absolute Drift (Zero)   | 1.0%           | 0.0%            | 1.1% | 0.0% | 0.9%         |
| Absolute Drift (Span)   | 0.5%           | 0.0%            | 1.6% | 0.8% | 1.6%         |

|                      |       | Corrected O <sub>2</sub> %   | Corrected CO <sub>2</sub> %   | Corrected CO ppm   | Corrected TVOC ppm   | Corrected TVOC ppm   |
|----------------------|-------|------------------------------|-------------------------------|--------------------|----------------------|----------------------|
|                      |       | 19.9                         | 0.7                           | 19.9               | 3.1                  | 602938.6             |
| Run Length (Minutes) | Time  | Uncorrected O <sub>2</sub> % | Uncorrected CO <sub>2</sub> % | Uncorrected CO ppm | Uncorrected TVOC ppm | Uncorrected TVOC ppm |
|                      |       | 19.8                         | 0.8                           | 19.9               | 3.0                  | 581694.5             |
| 1                    | 11:55 | 19.7                         | 0.9                           | 15.7               | 3.3                  | 562362.1             |
| 2                    | 11:56 | 19.8                         | 0.8                           | 18.5               | 3.3                  | 561234.3             |
| 3                    | 11:57 | 19.7                         | 0.9                           | 32.0               | 3.4                  | 565455.1             |
| 4                    | 11:58 | 19.7                         | 0.8                           | 14.1               | 3.7                  | 569838.8             |
| 5                    | 11:59 | 19.8                         | 0.8                           | 12.9               | 4.0                  | 575804.6             |
| 6                    | 12:00 | 19.8                         | 0.8                           | 18.6               | 3.6                  | 579598.6             |
| 7                    | 12:01 | 19.9                         | 0.8                           | 13.7               | 3.4                  | 581361.6             |
| 8                    | 12:02 | 19.9                         | 0.8                           | 15.5               | 3.7                  | 582942.4             |
| 9                    | 12:03 | 19.9                         | 0.8                           | 15.2               | 4.1                  | 584098.7             |
| 10                   | 12:04 | 19.9                         | 0.8                           | 13.3               | 3.9                  | 584828.9             |
| 11                   | 12:05 | 19.9                         | 0.8                           | 12.6               | 3.8                  | 585828.3             |
| 12                   | 12:06 | 19.9                         | 0.8                           | 12.6               | 3.8                  | 586173.1             |
| 13                   | 12:07 | 19.9                         | 0.8                           | 21.1               | 3.2                  | 586074.0             |
| 14                   | 12:08 | 19.9                         | 0.8                           | 29.9               | 3.1                  | 585688.3             |
| 15                   | 12:09 | 19.9                         | 0.8                           | 33.6               | 3.2                  | 586357.3             |
| 16                   | 12:10 | 19.9                         | 0.8                           | 25.0               | 3.3                  | 586355.8             |
| 17                   | 12:11 | 19.9                         | 0.8                           | 25.4               | 3.1                  | 586277.3             |
| 18                   | 12:12 | 19.8                         | 0.8                           | 18.3               | 3.3                  | 586515.7             |
| 19                   | 12:13 | 19.9                         | 0.8                           | 14.1               | 3.2                  | 586512.0             |
| 20                   | 12:14 | 19.8                         | 0.8                           | 13.9               | 3.2                  | 586143.3             |
| 21                   | 12:15 | 19.9                         | 0.8                           | 15.8               | 3.4                  | 585226.8             |
| 22                   | 12:16 | 20.1                         | 0.7                           | 20.9               | 3.7                  | 584406.3             |
| 23                   | 12:17 | 20.1                         | 0.7                           | 21.2               | 3.4                  | 583875.3             |
| 24                   | 12:18 | 19.8                         | 0.8                           | 25.3               | 2.8                  | 584474.1             |
| 25                   | 12:19 | 19.7                         | 0.9                           | 37.6               | 2.8                  | 586257.9             |
| 26                   | 12:20 | 19.7                         | 0.9                           | 30.5               | 2.7                  | 586545.4             |
| 27                   | 12:21 | 19.7                         | 0.9                           | 32.6               | 2.8                  | 586587.8             |
| 28                   | 12:22 | 19.8                         | 0.9                           | 19.2               | 2.9                  | 585030.3             |
| 29                   | 12:23 | 19.9                         | 0.8                           | 14.7               | 2.9                  | 585348.1             |
| 30                   | 12:24 | 19.9                         | 0.8                           | 18.6               | 3.0                  | 585498.8             |
| 31                   | 12:25 | 19.9                         | 0.8                           | 14.2               | 3.0                  | 584728.6             |
| 32                   | 12:26 | 19.9                         | 0.8                           | 24.8               | 2.8                  | 583429.9             |
| 33                   | 12:27 | 19.9                         | 0.8                           | 23.5               | 2.9                  | 583842.1             |
| 34                   | 12:28 | 19.8                         | 0.8                           | 23.8               | 2.8                  | 584024.3             |
| 35                   | 12:29 | 19.8                         | 0.9                           | 33.4               | 2.5                  | 583657.6             |
| 36                   | 12:30 | 19.8                         | 0.9                           | 31.6               | 2.7                  | 582045.1             |
| 37                   | 12:31 | 19.7                         | 0.9                           | 16.0               | 2.6                  | 579035.7             |
| 38                   | 12:32 | 19.7                         | 0.9                           | 26.9               | 2.9                  | 576064.8             |
| 39                   | 12:33 | 19.8                         | 0.8                           | 35.1               | 2.7                  | 578045.5             |
| 40                   | 12:34 | 19.8                         | 0.9                           | 16.1               | 2.8                  | 575448.6             |
| 41                   | 12:35 | 19.8                         | 0.8                           | 24.3               | 3.0                  | 578559.6             |
| 42                   | 12:36 | 20.0                         | 0.8                           | 13.4               | 3.4                  | 581205.3             |
| 43                   | 12:37 | 20.0                         | 0.7                           | 13.1               | 3.2                  | 581728.3             |
| 44                   | 12:38 | 20.1                         | 0.7                           | 15.6               | 3.4                  | 581926.6             |
| 45                   | 12:39 | 20.0                         | 0.8                           | 21.1               | 3.2                  | 582995.6             |
| 46                   | 12:40 | 19.8                         | 0.9                           | 16.4               | 3.0                  | 584060.3             |
| 47                   | 12:41 | 19.6                         | 1.0                           | 13.8               | 2.7                  | 584882.4             |
| 48                   | 12:42 | 19.7                         | 1.0                           | 17.3               | 2.5                  | 585024.8             |
| 49                   | 12:43 | 19.7                         | 0.9                           | 19.4               | 2.7                  | 584301.9             |
| 50                   | 12:44 | 19.6                         | 1.0                           | 15.8               | 2.6                  | 584763.1             |
| 51                   | 12:45 | 19.8                         | 0.9                           | 26.2               | 2.5                  | 584210.3             |
| 52                   | 12:46 | 19.8                         | 0.9                           | 23.6               | 2.5                  | 583754.1             |
| 53                   | 12:47 | 19.7                         | 0.9                           | 14.3               | 2.0                  | 582427.8             |
| 54                   | 12:48 | 19.7                         | 0.9                           | 13.5               | 2.3                  | 581117.6             |
| 55                   | 12:49 | 19.7                         | 0.9                           | 12.8               | 2.2                  | 579858.2             |
| 56                   | 12:50 | 19.6                         | 1.0                           | 13.7               | 2.4                  | 577960.3             |
| 57                   | 12:51 | 19.7                         | 0.9                           | 19.3               | 2.5                  | 578154.4             |
| 58                   | 12:52 | 19.7                         | 0.9                           | 17.0               | 2.5                  | 578188.6             |
| 59                   | 12:53 | 19.6                         | 1.0                           | 15.1               | 2.1                  | 577335.1             |
| 60                   | 12:54 | 19.5                         | 1.0                           | 13.2               | 1.7                  | 578194.9             |



Questar Gas Management  
Wonsits Valley Compressor Station  
Uintah County, Utah  
Combustor Unit  
04/08/09

Run 3

|            |              |
|------------|--------------|
| Start Time | 4/8/09 13:20 |
| Run Length | 60           |
| Stop Time  | 14:20        |

| Calibration Information |                |                 |      |      |              |
|-------------------------|----------------|-----------------|------|------|--------------|
| Gas                     | O <sub>2</sub> | CO <sub>2</sub> | CO   | TVOC | TVOC - Inlet |
| Instrument Range        | 20.9           | 19.8            | 79   | 50   | 8739         |
| Span Gas Value          | 9.98           | 10.00           | 36.5 | 17.2 | 8739.0       |
| Calibration             |                |                 |      |      |              |
| Pretest Calibration     |                |                 |      |      |              |
| Zero%                   | 0.3            | 0.1             | 0.4  | 0.0  | 83.0         |
| Span%                   | 10.1           | 10.0            | 35.3 | 16.2 | 8403.0       |
| Post Test Calibration   |                |                 |      |      |              |
| Zero%                   | 0.3            | 0.1             | 0.3  | 0.0  | 17.3         |
| Span%                   | 10.1           | 10.0            | 36.7 | 16.1 | 8527.0       |
| Results                 |                |                 |      |      |              |
| Absolute Bias (Zero)    | 1.4%           | 1.0%            | 0.4% | 0.0% | 0.9%         |
| Absolute Bias (Span)    | 1.0%           | 0.0%            | 0.9% | 1.2% | 3.8%         |
| Absolute Drift (Zero)   | 0.0%           | 0.0%            | 0.1% | 0.0% | 0.8%         |
| Absolute Drift (Span)   | 0.0%           | 0.0%            | 1.8% | 0.2% | 1.4%         |

|                      |       | Corrected O <sub>2</sub> %   | Corrected CO <sub>2</sub> %   | Corrected CO ppm   | Corrected TVOC ppm   | Corrected TVOC ppm   |
|----------------------|-------|------------------------------|-------------------------------|--------------------|----------------------|----------------------|
|                      |       | 19.8                         | 0.8                           | 21.7               | 1.3                  | 601385.9             |
| Run Length (Minutes) | Time  | Uncorrected O <sub>2</sub> % | Uncorrected CO <sub>2</sub> % | Uncorrected CO ppm | Uncorrected TVOC ppm | Uncorrected TVOC ppm |
|                      |       | 19.8                         | 0.9                           | 21.5               | 1.2                  | 579129.3             |
| 1                    | 13:20 | 19.6                         | 0.9                           | 21.8               | 1.2                  | 566649.4             |
| 2                    | 13:21 | 19.6                         | 0.9                           | 21.6               | 1.2                  | 570850.7             |
| 3                    | 13:22 | 19.5                         | 1.0                           | 21.9               | 1.0                  | 574435.6             |
| 4                    | 13:23 | 19.6                         | 1.0                           | 22.4               | 1.2                  | 576871.3             |
| 5                    | 13:24 | 19.7                         | 0.9                           | 22.2               | 1.4                  | 578815.9             |
| 6                    | 13:25 | 19.7                         | 0.9                           | 21.7               | 1.2                  | 580283.8             |
| 7                    | 13:26 | 19.7                         | 0.9                           | 21.2               | 1.3                  | 579850.0             |
| 8                    | 13:27 | 19.6                         | 0.9                           | 21.6               | 1.2                  | 580477.9             |
| 9                    | 13:28 | 19.7                         | 0.9                           | 21.5               | 1.4                  | 580542.8             |
| 10                   | 13:29 | 19.8                         | 0.9                           | 21.5               | 1.2                  | 578609.4             |
| 11                   | 13:30 | 19.8                         | 0.9                           | 21.7               | 1.4                  | 578507.9             |
| 12                   | 13:31 | 19.9                         | 0.8                           | 21.5               | 1.0                  | 579198.5             |
| 13                   | 13:32 | 19.9                         | 0.8                           | 21.2               | 1.1                  | 578964.1             |
| 14                   | 13:33 | 20.0                         | 0.8                           | 21.3               | 1.1                  | 579133.0             |
| 15                   | 13:34 | 20.0                         | 0.8                           | 21.4               | 1.2                  | 578701.4             |
| 16                   | 13:35 | 20.0                         | 0.7                           | 21.3               | 1.2                  | 578679.3             |
| 17                   | 13:36 | 20.0                         | 0.8                           | 21.1               | 1.2                  | 579346.4             |
| 18                   | 13:37 | 20.0                         | 0.7                           | 21.3               | 1.3                  | 578985.8             |
| 19                   | 13:38 | 19.9                         | 0.8                           | 21.2               | 1.5                  | 579181.1             |
| 20                   | 13:39 | 20.0                         | 0.8                           | 21.2               | 1.2                  | 579730.2             |
| 21                   | 13:40 | 19.9                         | 0.8                           | 21.3               | 1.3                  | 578992.7             |
| 22                   | 13:41 | 19.8                         | 0.8                           | 21.6               | 1.6                  | 578398.8             |
| 23                   | 13:42 | 19.7                         | 0.9                           | 21.3               | 1.5                  | 578098.6             |
| 24                   | 13:43 | 19.7                         | 0.9                           | 21.3               | 1.2                  | 579351.0             |
| 25                   | 13:44 | 19.6                         | 0.9                           | 21.4               | 1.5                  | 580092.8             |
| 26                   | 13:45 | 19.7                         | 0.9                           | 22.8               | 1.6                  | 580098.4             |
| 27                   | 13:46 | 19.7                         | 0.9                           | 21.7               | 1.0                  | 579999.8             |
| 28                   | 13:47 | 19.7                         | 0.9                           | 21.4               | 0.9                  | 580566.9             |
| 29                   | 13:48 | 19.8                         | 0.8                           | 21.1               | 1.3                  | 579825.5             |
| 30                   | 13:49 | 19.8                         | 0.9                           | 21.3               | 1.0                  | 579378.1             |
| 31                   | 13:50 | 19.8                         | 0.9                           | 21.3               | 1.1                  | 578441.6             |
| 32                   | 13:51 | 19.7                         | 0.9                           | 21.4               | 1.0                  | 579744.9             |
| 33                   | 13:52 | 19.7                         | 0.9                           | 21.4               | 1.0                  | 580307.4             |
| 34                   | 13:53 | 19.7                         | 0.9                           | 21.5               | 0.8                  | 580190.6             |
| 35                   | 13:54 | 19.9                         | 0.8                           | 21.4               | 1.2                  | 579983.6             |
| 36                   | 13:55 | 19.8                         | 0.8                           | 21.6               | 2.0                  | 578742.4             |
| 37                   | 13:56 | 19.9                         | 0.8                           | 22.5               | 2.1                  | 582567.7             |
| 38                   | 13:57 | 19.9                         | 0.8                           | 21.7               | 1.4                  | 580690.8             |
| 39                   | 13:58 | 19.8                         | 0.9                           | 21.2               | 1.5                  | 581719.2             |
| 40                   | 13:59 | 19.8                         | 0.9                           | 21.3               | 1.7                  | 581336.8             |
| 41                   | 14:00 | 19.8                         | 0.9                           | 21.4               | 1.4                  | 581873.5             |
| 42                   | 14:01 | 19.7                         | 0.9                           | 21.4               | 1.5                  | 583707.7             |
| 43                   | 14:02 | 19.7                         | 1.0                           | 21.2               | 1.0                  | 584531.6             |
| 44                   | 14:03 | 19.6                         | 1.0                           | 21.5               | 1.0                  | 584168.6             |
| 45                   | 14:04 | 19.7                         | 0.9                           | 21.2               | 1.3                  | 581474.0             |
| 46                   | 14:05 | 19.8                         | 0.8                           | 21.4               | 1.5                  | 580458.4             |
| 47                   | 14:06 | 19.8                         | 0.9                           | 21.9               | 1.5                  | 579200.9             |
| 48                   | 14:07 | 19.7                         | 0.9                           | 21.4               | 1.2                  | 579155.3             |
| 49                   | 14:08 | 19.7                         | 0.9                           | 21.6               | 0.9                  | 580301.8             |
| 50                   | 14:09 | 19.7                         | 0.9                           | 21.2               | 1.1                  | 579851.4             |
| 51                   | 14:10 | 19.6                         | 0.9                           | 21.4               | 1.2                  | 578932.7             |
| 52                   | 14:11 | 19.7                         | 0.9                           | 21.7               | 1.1                  | 577266.6             |
| 53                   | 14:12 | 19.8                         | 0.9                           | 21.5               | 1.3                  | 576902.8             |
| 54                   | 14:13 | 19.7                         | 0.9                           | 21.5               | 0.9                  | 577560.5             |
| 55                   | 14:14 | 19.7                         | 0.9                           | 21.6               | 1.0                  | 577435.8             |
| 56                   | 14:15 | 19.8                         | 0.9                           | 21.9               | 1.3                  | 577256.3             |
| 57                   | 14:16 | 19.7                         | 0.9                           | 22.2               | 1.1                  | 578127.5             |
| 58                   | 14:17 | 19.7                         | 0.9                           | 21.6               | 0.9                  | 577396.2             |
| 59                   | 14:18 | 19.8                         | 0.9                           | 21.5               | 1.0                  | 578012.6             |
| 60                   | 14:19 | 19.7                         | 0.9                           | 21.4               | 1.0                  | 577800.1             |

## Outlet HAPs & Methane/Ethane Data

Questar Gas Management  
Wonsits Valley Compressor Station  
Uintah County, Utah  
Combustor Unit - OUTLET  
4/8/2009

| Field Reference Method Data |                                    |        |        |        |         |
|-----------------------------|------------------------------------|--------|--------|--------|---------|
| Run #                       |                                    | 1      | 2      | 3      | Average |
| Start Time                  |                                    | 10:30  | 11:55  | 13:20  |         |
| Stop Time                   |                                    | 11:30  | 12:55  | 14:20  |         |
| Sample Time                 |                                    | 60     | 60     | 60     |         |
| D <sub>s</sub>              | Stack Diameter (inches)            | 21.5   | 21.5   | 21.5   | 21.5    |
| √ΔP <sub>AVG</sub>          | (Delta P) <sup>1/2</sup>           | 0.2250 | 0.2267 | 0.2323 | 0.2280  |
| C <sub>p</sub>              | Pitot Tube Constant (unitless)     | 0.81   | 0.81   | 0.81   | 0.81    |
| T <sub>s</sub>              | Effluent Stack Temp (°F)           | 304    | 304    | 305    | 304     |
| P <sub>bar</sub>            | Barometric Press (mbar)            | 834    | 834    | 834    | 834     |
| P <sub>bar</sub>            | Barometric Press ("Hg)             | 24.63  | 24.63  | 24.63  | 24.63   |
| P <sub>s</sub>              | Stack Pressure ("H <sub>2</sub> O) | -0.05  | -0.05  | -0.05  | -0.05   |
| Y <sub>d</sub>              | Meter Y Factor (unitless)          | 0.978  | 0.978  | 0.978  | 0.978   |
| T <sub>m</sub>              | Meter Temperature (°F)             | 76     | 75     | 71     | 74      |
| V <sub>m</sub>              | Sample Volume (ft <sup>3</sup> )   | 39.404 | 40.647 | 39.558 | 39.870  |
| ΔH                          | Delta H ("H <sub>2</sub> O)        | 1.0    | 1.0    | 1.0    | 1.0     |
| V <sub>lc</sub>             | Moisture (grams)                   | 17.3   | 12.8   | 12.9   | 14.3    |
| O <sub>2</sub> %vd          | O <sub>2</sub> (%vd)               | 19.9   | 19.9   | 19.8   | 19.8    |
| CO <sub>2</sub> %vd         | CO <sub>2</sub> (%vd)              | 0.8    | 0.7    | 0.8    | 0.8     |
| N <sub>2</sub> %vd          | N <sub>2</sub> (%vd)               | 79.3   | 79.4   | 79.4   | 79.4    |
| Method 18 GC Data           |                                    |        |        |        |         |
| MW                          | Run #                              | 1      | 2      | 3      | Average |
| 16.04                       | Methane (ppmvw)                    | 17.91  | 17.23  | 12.62  | 15.92   |
| 30.07                       | Ethane (ppmvw)                     | 0.39   | 0.24   | 0.16   | 0.27    |
| 78.11                       | Benzene (ppmvw)                    | 0.20   | 0.16   | 0.19   | 0.18    |
| 92.14                       | Toluene (ppmvw)                    | 0.09   | 0.07   | 0.05   | 0.07    |

| Reference Method Calculations |                          |        |        |        |         |
|-------------------------------|--------------------------|--------|--------|--------|---------|
| Run #                         |                          | 1      | 2      | 3      | Average |
| V <sub>mstd</sub>             | Sample Volume (dscf)     | 31.352 | 32.359 | 31.777 | 31.829  |
| V <sub>wsid</sub>             | Moisture Volume (scf)    | 0.81   | 0.60   | 0.61   | 0.67    |
| B <sub>ws</sub>               | Moisture Content (%/100) | 0.025  | 0.018  | 0.019  | 0.021   |
| M <sub>D</sub>                | Molecular Weight Dry     | 28.92  | 28.91  | 28.92  | 28.92   |
| M <sub>A</sub>                | Molecular Weight Wet     | 28.65  | 28.71  | 28.71  | 28.69   |
| V <sub>S</sub>                | Gas Velocity (ft/sec)    | 16.2   | 16.3   | 16.7   | 16.4    |
| F <sub>ACFM</sub>             | Gas Flow (acfm)          | 2,453  | 2,468  | 2,531  | 2,484   |
| F <sub>DSCFM</sub>            | Gas Flow (dscfm)         | 1,360  | 1,379  | 1,411  | 1,383   |
| lb/hr                         | Gas Flow (lb/hr)         | 6,224  | 6,279  | 6,430  | 6,311   |
|                               | Methane (ppmvd)          | 18.4   | 17.5   | 12.9   | 16.3    |
|                               | Ethane (ppmvd)           | 0.4    | 0.2    | 0.2    | 0.3     |
|                               | Benzene (ppmvd)          | 0.21   | 0.17   | 0.19   | 0.19    |
|                               | Benzene (lb/hr)          | 0.003  | 0.003  | 0.003  | 0.003   |
|                               | Toluene (ppmvd)          | 0.10   | 0.07   | 0.05   | 0.07    |
|                               | Toluene (lb/hr)          | 0.002  | 0.001  | 0.001  | 0.001   |
|                               | Speciated HAPs (lb/hr)   | 0.005  | 0.004  | 0.004  | 0.005   |

Questar Gas Management

Combustor Unit - OUTLET

4/8/2009

EPA Method 18: Determination of Gaseous Organic Compounds using Gas Chromatography

| Sample Analysis<br>OUTLET RUN 1 |        |         |        |         |        |         |         |       |     |       |
|---------------------------------|--------|---------|--------|---------|--------|---------|---------|-------|-----|-------|
| Cpd<br>ID                       | Inj. 1 |         | Inj. 2 |         | Inj. 3 |         | Average |       | OK? | ppm   |
|                                 | RT     | AC      | RT     | AC      | RT     | AC      | RT      | AC    |     |       |
| Methane                         | 1.991  | 18433.1 | 1.994  | 17221.4 | 1.997  | 17137.3 | 1.994   | 17597 | Y   | 17.91 |
| Ethane                          | 2.124  | 1124.2  | 2.126  | 1189.8  | 2.131  | 1071.9  | 2.127   | 1129  | Y   | 0.39  |
| Benzene                         | 8.216  | 1437.7  | 8.248  | 1363.8  | 8.254  | 1398.4  | 8.239   | 1400  | Y   | 0.20  |
| Toluene                         | 10.867 | 737.5   | 10.893 | 747.2   | 10.884 | 694     | 10.881  | 726   | Y   | 0.09  |
| Sample Analysis<br>OUTLET RUN 2 |        |         |        |         |        |         |         |       |     |       |
| Cpd<br>ID                       | Inj. 1 |         | Inj. 2 |         | Inj. 3 |         | Average |       | OK? | ppm   |
|                                 | RT     | AC      | RT     | AC      | RT     | AC      | RT      | AC    |     |       |
| Methane                         | 2.001  | 17027.3 | 2.006  | 17082.9 | 2.008  | 16678.8 | 2.005   | 16930 | Y   | 17.23 |
| Ethane                          | 2.148  | 667.7   | 2.147  | 689.2   | 2.136  | 698.1   | 2.144   | 685   | Y   | 0.24  |
| Benzene                         | 8.268  | 1081.3  | 8.277  | 1194.3  | 8.264  | 1142.8  | 8.270   | 1139  | Y   | 0.16  |
| Toluene                         | 10.906 | 515.5   | 10.930 | 571.7   | 10.899 | 539.6   | 10.912  | 542   | Y   | 0.07  |
| Sample Analysis<br>OUTLET RUN 3 |        |         |        |         |        |         |         |       |     |       |
| Cpd<br>ID                       | Inj. 1 |         | Inj. 2 |         | Inj. 3 |         | Average |       | OK? | ppm   |
|                                 | RT     | AC      | RT     | AC      | RT     | AC      | RT      | AC    |     |       |
| Methane                         | 2.008  | 12618.8 | 2.013  | 12418.0 | 2.013  | 12161   | 2.011   | 12399 | Y   | 12.62 |
| Ethane                          | 2.160  | 444.2   | 2.151  | 480.8   | 2.161  | 462.4   | 2.157   | 462   | Y   | 0.16  |
| Benzene                         | 8.293  | 1387.6  | 8.261  | 1311.3  | 8.170  | 1264    | 8.241   | 1321  | Y   | 0.19  |
| Toluene                         | 10.910 | 405.1   | 10.92  | 417.8   | 10.926 | 406.2   | 10.919  | 410   | Y   | 0.05  |



Questar Gas Management

Combustor Unit - OUTLET

4/8/2009

EPA Method 18: Determination of Gaseous Organic Compounds using Gas Chromatography

| Initial Three-Point Calibration |             |        |          |        |          |        |          |         |        |
|---------------------------------|-------------|--------|----------|--------|----------|--------|----------|---------|--------|
| High Level Calibration Standard |             |        |          |        |          |        |          |         |        |
| Cpd ID                          | Conc. (ppm) | Inj. 2 |          | Inj. 5 |          | Inj. 4 |          | Average |        |
|                                 |             | RT     | AC       | RT     | AC       | RT     | AC       | RT      | AC     |
| Methane                         | 102.00      | 2.064  | 99873.3  | 2.07   | 98367.6  | 2.071  | 99127.1  | 2.068   | 99123  |
| Ethane                          | 102.00      | 2.169  | 300538.0 | 2.177  | 293547   | 2.178  | 276734   | 2.175   | 290273 |
| Benzene                         | 103.00      | 8.335  | 742216.0 | 8.348  | 724924.0 | 8.351  | 677171.0 | 8.345   | 714770 |
| Toluene                         | 103.00      | 11.000 | 831283.0 | 11.007 | 811270.0 | 11.011 | 759054.0 | 11.006  | 800536 |
|                                 |             |        |          |        |          |        |          |         |        |
| Mid-Level Calibration Standard  |             |        |          |        |          |        |          |         |        |
| Cpd ID                          | Conc. (ppm) | Inj. 2 |          | Inj. 3 |          | Inj. 4 |          | Average |        |
|                                 |             | RT     | AC       | RT     | AC       | RT     | AC       | RT      | AC     |
| Methane                         | 51.50       | 2.063  | 52789.1  | 2.065  | 52167    | 2.069  | 51096.5  | 2.066   | 52018  |
| Ethane                          | 51.50       | 2.171  | 152476.0 | 2.172  | 150291   | 2.174  | 147250.0 | 2.172   | 150006 |
| Benzene                         | 51.80       | 8.330  | 374812.0 | 8.337  | 369409   | 8.341  | 363050.0 | 8.336   | 369090 |
| Toluene                         | 52.00       | 10.993 | 418799.0 | 11.000 | 411545   | 11.001 | 404223.0 | 10.998  | 411522 |
|                                 |             |        |          |        |          |        |          |         |        |
| Low-Level Calibration Standard  |             |        |          |        |          |        |          |         |        |
| Cpd ID                          | Conc. (ppm) | Inj. 1 |          | Inj. 2 |          | Inj. 4 |          | Average |        |
|                                 |             | RT     | AC       | RT     | AC       | RT     | AC       | RT      | AC     |
| Methane                         | 5.08        | 2.056  | 9267.4   | 2.058  | 9266.2   | 2.058  | 8781     | 2.057   | 9105   |
| Ethane                          | 5.07        | 2.168  | 16440.4  | 2.173  | 16383.1  | 2.167  | 15989.4  | 2.169   | 16271  |
| Benzene                         | 5.13        | 8.333  | 37118.6  | 8.335  | 36984.6  | 8.330  | 37702.5  | 8.333   | 37269  |
| Toluene                         | 5.09        | 10.996 | 40766.9  | 10.998 | 40460.8  | 10.994 | 41030.1  | 10.996  | 40753  |

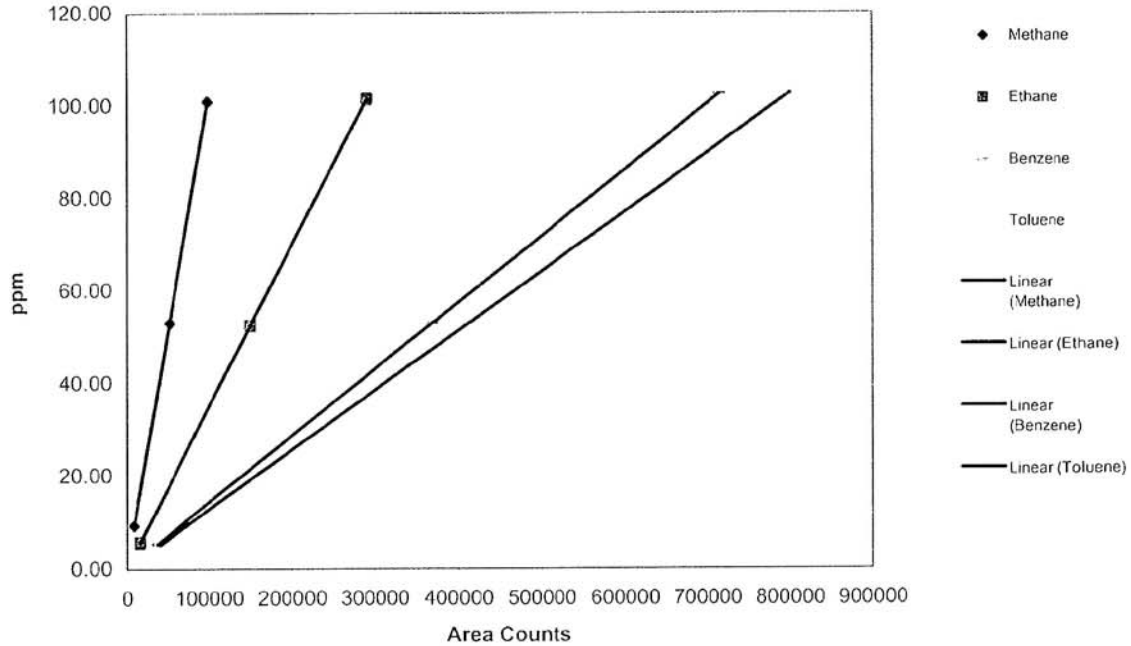
Linear Regression Calculations

| Methane       |            |                              |                |
|---------------|------------|------------------------------|----------------|
| Certified ppm | Average AC | Linear Regression Statistics | ppm from curve |
| 102.00        | 99123      | $R^2$ M                      | 100.86         |
| 51.50         | 52018      | 1.0000 0.0010176             | 52.93          |
| 5.08          | 9105       |                              | 9.26           |

| Ethane        |            |                              |                |
|---------------|------------|------------------------------|----------------|
| Certified ppm | Average AC | Linear Regression Statistics | ppm from curve |
| 102.00        | 290273     | $R^2$ M                      | 101.48         |
| 51.50         | 150006     | 0.9999 0.0003496             | 52.44          |
| 5.07          | 16271      |                              | 5.69           |

| Benzene       |            |                              |                |
|---------------|------------|------------------------------|----------------|
| Certified ppm | Average AC | Linear Regression Statistics | ppm from curve |
| 103.00        | 714770     | $R^2$ M                      | 102.43         |
| 51.80         | 369090     | 0.9998 0.0001433             | 52.89          |
| 5.13          | 37269      |                              | 5.34           |

| Toluene       |            |                              |                |
|---------------|------------|------------------------------|----------------|
| Certified ppm | Average AC | Linear Regression Statistics | ppm from curve |
| 103.00        | 800536     | $R^2$ M                      | 102.61         |
| 52.00         | 411522     | 0.9999 0.0001282             | 52.75          |
| 5.09          | 40753      |                              | 5.22           |



Questar Gas Management  
Combustor Unit - OUTLET

4/8/2009

EPA Method 18: Determination of Gaseous Organic Compounds using Gas Chromatography

| Quality Assurance                                                     |             |        |          |        |          |        |          |         |        |       |                |              |
|-----------------------------------------------------------------------|-------------|--------|----------|--------|----------|--------|----------|---------|--------|-------|----------------|--------------|
| Post Test Calibration (mid-level calibration gas to the sample probe) |             |        |          |        |          |        |          |         |        |       |                |              |
| Cpd ID                                                                | Conc. (ppm) | Inj. 1 |          | Inj. 2 |          | Inj. 3 |          | Average |        |       | Triplicate OK? | Recovery OK? |
|                                                                       |             | RT     | AC       | RT     | AC       | RT     | AC       | RT      | AC     | ppm   |                |              |
| Methane                                                               | 51.50       | 2.036  | 52132.7  | 2.037  | 53186.5  | 2.036  | 53126.1  | 2.036   | 52815  | 53.74 | Y              | Y            |
| Ethane                                                                | 51.50       | 2.141  | 152156   | 2.142  | 153908   | 2.141  | 153953   | 2.141   | 153339 | 53.61 | Y              | Y            |
| Benzene                                                               | 51.80       | 8.259  | 370320   | 8.262  | 377455.0 | 8.262  | 376689   | 8.261   | 374821 | 53.71 | Y              | Y            |
| Toluene                                                               | 52.00       | 10.941 | 404692.0 | 10.942 | 416911.0 | 10.942 | 414808.0 | 10.942  | 412137 | 52.83 | Y              | Y            |

## Inlet HAPs & Methane/Ethane (C1,C2) Data



Questar Gas Management  
Wonsits Valley Compressor Station  
Uintah County, Utah  
Combustor Unit - INLET  
04/08/09

| Field Reference Method Data |                                    |          |         |          |          |
|-----------------------------|------------------------------------|----------|---------|----------|----------|
| Run #                       |                                    | 1        | 2       | 3        | Average  |
| Start Time                  |                                    | 10:30    | 11:55   | 13:20    |          |
| Stop Time                   |                                    | 11:30    | 12:55   | 14:20    |          |
| Sample Time                 |                                    | 60       | 60      | 60       |          |
| D <sub>S</sub>              | Stack Diameter (inches)            | 4.0      | 4.0     | 4.0      | 4.0      |
| √ΔP <sub>AVG</sub>          | (Delta P) <sup>1/2</sup>           | 0.05     | 0.05    | 0.05     | 0.05     |
| C <sub>P</sub>              | Pitot Tube Constant (unitless)     | 0.99     | 0.99    | 0.99     | 0.99     |
| T <sub>S</sub>              | Influent Stack Temp (°F)           | 66       | 67      | 67       | 67       |
| P <sub>bar</sub>            | Barometric Press (mbar)            | 834      | 834     | 834      | 834      |
| P <sub>bar</sub>            | Barometric Press ("Hg)             | 24.63    | 24.63   | 24.63    | 24.63    |
| P <sub>S</sub>              | Stack Pressure ("H <sub>2</sub> O) | 0.0      | 0.0     | 0.0      | 0.0      |
| Y <sub>d</sub>              | Meter Y Factor (unitless)          | 0.984    | 0.984   | 0.984    | 0.984    |
| T <sub>m</sub>              | Meter Temperature (°F)             | 75       | 77      | 72       | 75       |
| V <sub>m</sub>              | Sample Volume (ft <sup>3</sup> )   | 48.845   | 47.725  | 45.936   | 47.502   |
| ΔH                          | Delta H ("H <sub>2</sub> O)        | 1.0      | 1.0     | 1.0      | 1.0      |
| V <sub>lc</sub>             | Moisture (grams)                   | 109.5    | 67.9    | 72.6     | 83.3     |
| O <sub>2</sub> %vd          | O <sub>2</sub> (%vd)               | 3.5      | 3.5     | 3.5      | 3.5      |
| CO <sub>2</sub> %vd         | CO <sub>2</sub> (%vd)              | 0.0      | 0.0     | 0.0      | 0.0      |
| Method 18 GC Data           |                                    |          |         |          |          |
| MW                          | Run #                              | 1        | 2       | 3        | Average  |
| 78.11                       | Benzene (ppmvw)                    | 10417.26 | 9905.49 | 10567.11 | 10296.62 |
| 92.14                       | Toluene (ppmvw)                    | 5648.65  | 4359.31 | 4544.05  | 4850.67  |

| Reference Method Calculations |                          |         |         |         |         |
|-------------------------------|--------------------------|---------|---------|---------|---------|
| Run #                         |                          | 1       | 2       | 3       | Average |
| V <sub>mstd</sub>             | Sample Volume (dscf)     | 39.140  | 38.076  | 37.045  | 38.087  |
| V <sub>wstd</sub>             | Moisture Volume (scf)    | 5.15    | 3.20    | 3.42    | 3.92    |
| B <sub>ws</sub>               | Moisture Content (%/100) | 0.026   | 0.027   | 0.027   | 0.027   |
| M <sub>D</sub>                | Molecular Weight Dry     | 28.61   | 28.07   | 28.68   | 28.45   |
| M <sub>A</sub>                | Molecular Weight Wet     | 28.33   | 27.80   | 28.40   | 28.18   |
| V <sub>S</sub>                | Gas Velocity (ft/sec)    | 3.7     | 3.7     | 3.7     | 3.7     |
| F <sub>ACFM</sub>             | Gas Flow (acfm)          | 19      | 19      | 19      | 19      |
| F <sub>DSCFM</sub>            | Gas Flow (dscfm)         | 15      | 16      | 15      | 16      |
| lb/hr                         | Gas Flow (lb/hr)         | 70      | 69      | 70      | 70      |
| Benzene (ppmvd)               |                          | 10700.8 | 10177.5 | 10856.0 | 10578.1 |
| Benzene (lb/hr)               |                          | 2.0     | 1.9     | 2.0     | 2.0     |
| Toluene (ppmvd)               |                          | 5802.4  | 4479.0  | 4668.3  | 4983.2  |
| Toluene (lb/hr)               |                          | 1.3     | 1.0     | 1.0     | 1.1     |
| Speciated HAPs (lb/hr)        |                          | 3.3     | 2.9     | 3.1     | 3.1     |

Questar Gas Management

Combustor Unit - INLET

4/8/2009

EPA Method 18: Determination of Gaseous Organic Compounds using Gas Chromatography

| Sample Analysis<br>INLET RUN 1 |            |       |     |       |               |                               |
|--------------------------------|------------|-------|-----|-------|---------------|-------------------------------|
| Cpd ID                         | Average RT | AC    | OK? | ppm   | Corrected ppm | Corr. w/ dilution factor ppm* |
| C1, C2                         | n/a        | 68390 | n/a | 20.03 | 3516.2        | 351622.2                      |
| Sample Analysis<br>INLET RUN 2 |            |       |     |       |               |                               |
| Cpd ID                         | Average RT | AC    | OK? | ppm   | Corrected ppm | Corr. w/ dilution factor ppm* |
| C1, C2                         | n/a        | 67327 | n/a | 19.72 | 3461.6        | 346156.5                      |
| Sample Analysis<br>INLET RUN 3 |            |       |     |       |               |                               |
| Cpd ID                         | Average RT | AC    | OK? | ppm   | Corrected ppm | Corr. w/ dilution factor ppm* |
| C1, C2                         | n/a        | 65971 | n/a | 19.32 | 3391.8        | 339184.8                      |

\* Concentrations scaled up by a 100:1 dilution factor

Questar Gas Management  
 Combustor Unit - INLET  
 4/8/2009  
 EPA Method 18: Determination of Gaseous Organic Compounds using Gas Chromatography

| Sample Analysis<br>INLET RUN 1 |        |        |        |        |        |        |         |      |     |      |                  |                                  |
|--------------------------------|--------|--------|--------|--------|--------|--------|---------|------|-----|------|------------------|----------------------------------|
| Cpd<br>ID                      | Inj. 4 |        | Inj. 2 |        | Inj. 3 |        | Average |      | OK? | ppm  | Corrected<br>ppm | Corr. w/ dilution factor<br>ppm* |
|                                | RT     | AC     | RT     | AC     | RT     | AC     | RT      | AC   |     |      |                  |                                  |
| Benzene                        | 8.198  | 3916.5 | 8.194  | 4342   | 8.195  | 4164.4 | 8.196   | 4141 | Y   | 0.59 | 104.2            | 10417.3                          |
| Toluene                        | 10.913 | 2517.6 | 10.909 | 2612.6 | 10.911 | 2400.8 | 10.911  | 2510 | Y   | 0.32 | 56.5             | 5648.7                           |
| Sample Analysis<br>INLET RUN 2 |        |        |        |        |        |        |         |      |     |      |                  |                                  |
| Cpd<br>ID                      | Inj. 1 |        | Inj. 2 |        | Inj. 3 |        | Average |      | OK? | ppm  | Corrected<br>ppm | Corr. w/ dilution factor<br>ppm* |
|                                | RT     | AC     | RT     | AC     | RT     | AC     | RT      | AC   |     |      |                  |                                  |
| Benzene                        | 8.200  | 3727.8 | 8.199  | 4151   | 8.2    | 3933.8 | 8.200   | 3938 | Y   | 0.56 | 99.1             | 9905.5                           |
| Toluene                        | 10.917 | 1834.3 | 10.915 | 2034.1 | 10.923 | 1943.6 | 10.918  | 1937 | Y   | 0.25 | 43.6             | 4359.3                           |
| Sample Analysis<br>INLET RUN 3 |        |        |        |        |        |        |         |      |     |      |                  |                                  |
| Cpd<br>ID                      | Inj. 1 |        | Inj. 2 |        | Inj. 3 |        | Average |      | OK? | ppm  | Corrected<br>ppm | Corr. w/ dilution factor<br>ppm* |
|                                | RT     | AC     | RT     | AC     | RT     | AC     | RT      | AC   |     |      |                  |                                  |
| Benzene                        | 8.204  | 4036.8 | 8.203  | 4271   | 8.208  | 4293.8 | 8.205   | 4201 | Y   | 0.60 | 105.7            | 10567.1                          |
| Toluene                        | 10.920 | 1952.8 | 10.923 | 2129   | 10.924 | 1976.5 | 10.922  | 2019 | Y   | 0.26 | 45.4             | 4544.0                           |

Questar Gas Management

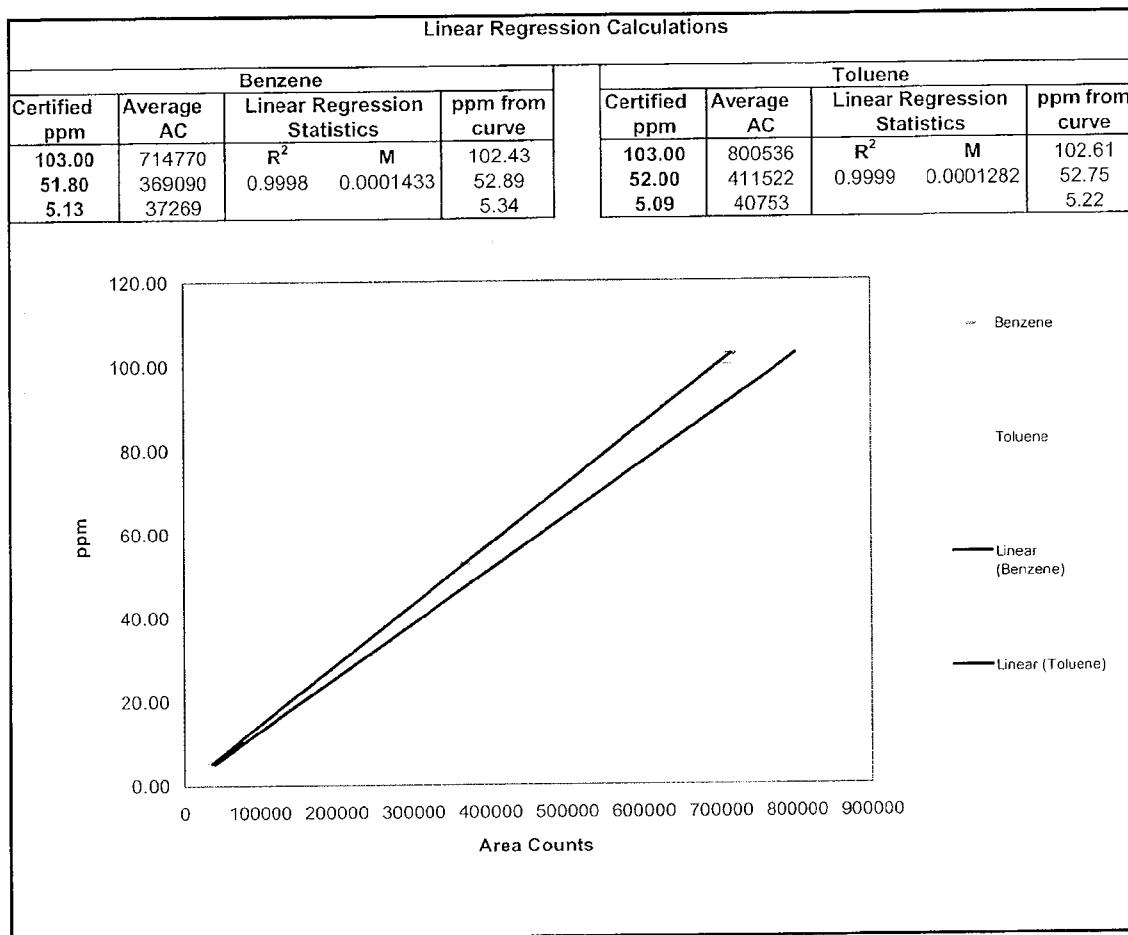
Combustor Unit - INLET

4/8/2009

EPA Method 18: Determination of Gaseous Organic Compounds using Gas Chromatography

| Initial Three-Point Calibration |             |        |          |        |          |        |          |         |        |     |
|---------------------------------|-------------|--------|----------|--------|----------|--------|----------|---------|--------|-----|
| High Level Calibration Standard |             |        |          |        |          |        |          |         |        |     |
| Cpd ID                          | Conc. (ppm) | Inj. 2 |          | Inj. 5 |          | Inj. 4 |          | Average |        | OK? |
|                                 |             | RT     | AC       | RT     | AC       | RT     | AC       | RT      | AC     |     |
| Benzene                         | 103.00      | 8.335  | 742216.0 | 8.348  | 724924.0 | 8.351  | 677171.0 | 8.345   | 714770 | Y   |
| Toluene                         | 103.00      | 11.000 | 831283.0 | 11.007 | 811270.0 | 11.011 | 759054.0 | 11.006  | 800536 | Y   |
| Mid-Level Calibration Standard  |             |        |          |        |          |        |          |         |        |     |
| Cpd ID                          | Conc. (ppm) | Inj. 2 |          | Inj. 3 |          | Inj. 4 |          | Average |        | OK? |
|                                 |             | RT     | AC       | RT     | AC       | RT     | AC       | RT      | AC     |     |
| Benzene                         | 51.80       | 8.330  | 374812.0 | 8.337  | 369409   | 8.341  | 363050.0 | 8.336   | 369090 | Y   |
| Toluene                         | 52.00       | 10.993 | 418799.0 | 11.000 | 411545   | 11.001 | 404223.0 | 10.998  | 411522 | Y   |
| Low-Level Calibration Standard  |             |        |          |        |          |        |          |         |        |     |
| Cpd ID                          | Conc. (ppm) | Inj. 1 |          | Inj. 2 |          | Inj. 4 |          | Average |        | OK? |
|                                 |             | RT     | AC       | RT     | AC       | RT     | AC       | RT      | AC     |     |
| Benzene                         | 5.13        | 8.333  | 37118.6  | 8.335  | 36984.6  | 8.330  | 37702.5  | 8.333   | 37269  | Y   |
| Toluene                         | 5.09        | 10.996 | 40766.9  | 10.998 | 40460.8  | 10.994 | 41030.1  | 10.996  | 40753  | Y   |

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 Combustor Unit - INLET  
 4/8/2009





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Combustor Unit - INLET

4/8/2009

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| Quality Assurance                                                     |             |        |          |        |          |        |          |         |        |       |                 |              |
|-----------------------------------------------------------------------|-------------|--------|----------|--------|----------|--------|----------|---------|--------|-------|-----------------|--------------|
| Post Test Calibration (mid-level calibration gas to the sample probe) |             |        |          |        |          |        |          |         |        |       |                 |              |
| Cpd ID                                                                | Conc. (ppm) | Inj. 1 |          | Inj. 2 |          | Inj. 3 |          | Average |        | ppm   | Tripplicate OK? | Recovery OK? |
|                                                                       |             | RT     | AC       | RT     | AC       | RT     | AC       | RT      | AC     |       |                 |              |
| Benzene                                                               | 51.80       | 8.259  | 370320   | 8.262  | 377455.0 | 8.262  | 376689   | 8.261   | 374821 | 53.71 | Y               | Y            |
| Toluene                                                               | 52.00       | 10.941 | 404692.0 | 10.942 | 416911.0 | 10.942 | 414808.0 | 10.942  | 412137 | 52.83 | Y               | Y            |

# APPENDIX 2



AIR  
POLLUTION  
TESTING, INC.

## Appendix Two: Field Data

Facility: Wasatch Valley Compressor Station Date: 4-8-09  
 Location: Uintah County, Utah APT ID# GST 9104  
 Unit: Combustor Page # 1/2

### Analyzer Information

| Analyzer Type     | O <sub>2</sub> | CO <sub>2</sub> | CO    | TVOC | Inlet<br>TVOC |  |
|-------------------|----------------|-----------------|-------|------|---------------|--|
| Analyzer ID #     | 1420C-3        | 1415C-1         | 48H-5 | 51-1 | VE7-3         |  |
| Analyzer Scale    | 25             | 20              | 100   | 100  | 10,000        |  |
| Calibration Range | 20.9           | 19.8            | 79.2  | 50.1 | 8739          |  |

### Calibration Gas Cylinder Information (Cylinder ID#/Expiration date and Concentration)

| Analyzer Type   | O <sub>2</sub> | CO <sub>2</sub> | CO      | TVOC    | Inlet<br>TVOC |  |
|-----------------|----------------|-----------------|---------|---------|---------------|--|
| Zero            |                |                 |         |         |               |  |
| CC#             |                |                 |         |         |               |  |
| Expiration date |                |                 |         |         |               |  |
| Low             |                |                 |         | 17.16   | 3017          |  |
| CC#             |                |                 |         | 114043- | 68272-        |  |
| Expiration date |                |                 |         | 9/6/09  | 5/10/11       |  |
| Mid             | 9.98           | 10.0            | 36.5    | 30.0    | 4979          |  |
| CC#             | 143352 →       |                 | 133300- | 257319- | 102413-       |  |
| Expiration date | 1/21/11 →      |                 | 6/6/11  | 11/5/11 | 12/23/11      |  |
| High            | 20.9           | 19.8            | 79.2    | 50.1    | 8739          |  |
| CC#             | 118467- →      |                 | 38826-  | 131241- | ALM-036240-   |  |
| Expiration date | 10/28/11 →     |                 | 1/9/11  | 11/6/11 | 3/15/12       |  |

### Calibration Error

| Analyzer Type | O <sub>2</sub> | CO <sub>2</sub> | CO   | TVOC | Inlet<br>TVOC |  |
|---------------|----------------|-----------------|------|------|---------------|--|
| Zero          | 0.0            | 0.0             | 0.6  | 0.0  | 0.6           |  |
| Low           |                |                 |      | 16.7 | 3387          |  |
| Mid           | 9.9            | 10.0            | 36.0 | 29.6 | 5050          |  |
| High          | 20.9           | 19.8            | 78.1 | 50.3 | 8735          |  |

### Initial Bias Check

| Analyzer Type | O <sub>2</sub> | CO <sub>2</sub> | CO   | TVOC | Inlet<br>TVOC |  |
|---------------|----------------|-----------------|------|------|---------------|--|
| Zero          | 0.0            | 0.0             | 0.6  | 0.0  | 0.6           |  |
| Low           |                |                 |      | 16.7 | 3387          |  |
| Mid           | 9.9            | 10.0            | 36.0 |      |               |  |
| High          |                |                 |      |      | 8735          |  |

Facility: Wonsits Valley Compressor Station Date: 4-8-09  
 Location: Uintah County, Utah APT Job #: QST 9104  
 Ut: Combustor Page #: 2/2

Run #: 1

Start Time: 1030

Stop Time: 1130

## Calibration Results

| Analyzer Type | O <sub>2</sub> | CO <sub>2</sub> | CO   | Outlet | Inlet |  |
|---------------|----------------|-----------------|------|--------|-------|--|
|               |                |                 |      | TVOC   | TVOC  |  |
| Zero          | 0.1            | 0.1             | 1.3  | 0.0    | 5.1   |  |
| Low           |                |                 |      | ↑      |       |  |
| Mid           | 10.0           | 10.0            | 36.6 | 16.6   | 8546  |  |
| High          |                |                 |      |        |       |  |

Run #: 2

Start Time: 1155

Stop Time: 1255

## Calibration Results

| Analyzer Type | O <sub>2</sub> | CO <sub>2</sub> | CO   | Outlet | Inlet |  |
|---------------|----------------|-----------------|------|--------|-------|--|
|               |                |                 |      | TVOC   | TVOC  |  |
| Zero          | 0.3            | 0.1             | 0.4  | 0.0    | 83.0  |  |
| Low           |                |                 |      | 16.2   |       |  |
| Mid           | 10.1           | 10.0            | 35.3 |        |       |  |
| High          |                |                 |      |        | 8403  |  |

Run #: 3

Start Time: 1320

Stop Time: 1420

## Calibration Results

| Analyzer Type | O <sub>2</sub> | CO <sub>2</sub> | CO   | Outlet | Inlet |  |
|---------------|----------------|-----------------|------|--------|-------|--|
|               |                |                 |      | TVOC   | TVOC  |  |
| Zero          | 0.3            | 0.1             | 0.3  | 0.0    | 17.3  |  |
| Low           |                |                 |      | 16.1   |       |  |
| Mid           | 10.1           | 10.0            | 36.7 |        |       |  |
| High          |                |                 |      |        | 8527  |  |



|                             |  |                                      |  |                                             |  |
|-----------------------------|--|--------------------------------------|--|---------------------------------------------|--|
| Job #: <u>QST9104</u>       |  | Operator: <u>TR/SZ</u>               |  | Stack Diameter (inches): <u>21.5"</u>       |  |
| Facility: <u>Questar</u>    |  | Site: <u>Outlet Combustor</u>        |  | Upstream Disturbance (inches): <u>4"</u>    |  |
| Date: <u>4-8-09</u>         |  | Points: 1 <u>2.7</u> 5 <u>16.6</u> 9 |  | Downstream Disturbance (inches): <u>16"</u> |  |
| Probe ID: <u>P-421</u>      |  | 2 <u>4.3</u> 6 <u>19.3</u> 10        |  | Schematic of Sampling Location:             |  |
| Pilot Constant: <u>83.8</u> |  | 3 <u>6.2</u> 7 <u>21.2</u> 11        |  |                                             |  |
|                             |  | 4 <u>8.9</u> 8 <u>27.8</u> 12        |  |                                             |  |

|                                                    |  |                                             |  |                                             |  |
|----------------------------------------------------|--|---------------------------------------------|--|---------------------------------------------|--|
| Run #: <u>1</u>                                    |  | Run #: <u>2</u>                             |  | Run #: <u>3</u>                             |  |
| CO2%: <u>CDAS</u>                                  |  | CO2%: <u>CDAS</u>                           |  | CO2%: <u>CDAS</u>                           |  |
| H2O%: <u>measured / estimate</u>                   |  | H2O%: <u>measured / estimate</u>            |  | H2O%: <u>measured / estimate</u>            |  |
| Ps (H2O): <u>-0.05</u>                             |  | Ps (H2O): <u>-0.05</u>                      |  | Ps (H2O): <u>-0.05</u>                      |  |
| Pb (H2O): <u>834</u>                               |  | Pb (H2O): <u>834</u>                        |  | Pb (H2O): <u>834</u>                        |  |
| Start Time: <u>10:50</u>                           |  | Start Time: <u>12:10</u>                    |  | Start Time: <u>13:30</u>                    |  |
| Stop Time: <u>10:56</u>                            |  | Stop Time: <u>12:16</u>                     |  | Stop Time: <u>13:57</u>                     |  |
| Post Test Pilot Leak Check Good? : <u>0.000494</u> |  | Post Test Pilot Leak Check Good? : <u>✓</u> |  | Post Test Pilot Leak Check Good? : <u>✓</u> |  |

| Point # | Delta P | Ts  | Notes | Point # | Delta P | Ts  | Notes |
|---------|---------|-----|-------|---------|---------|-----|-------|
| 1-1     | .03     | 304 |       | 1-1     | .03     | 304 |       |
| 2       | .04     | 305 |       | 2       | .05     | 304 |       |
| 3       | .05     | 305 |       | 3       | .05     | 305 |       |
| 4       | .06     | 304 |       | 4       | .06     | 305 |       |
| 5       | .06     | 303 |       | 5       | .06     | 305 |       |
| 6       | .07     | 303 |       | 6       | .07     | 306 |       |
| 7       | .06     | 303 |       | 7       | .07     | 305 |       |
| 8       | .05     | 307 |       | 8       | .06     | 305 |       |
| 2-1     | .03     | 303 |       | 2-1     | .03     | 303 |       |
| 2       | .02     | 304 |       | 2       | .03     | 304 |       |
| 3       | .05     | 304 |       | 3       | .05     | 304 |       |
| 4       | .06     | 305 |       | 4       | .06     | 304 |       |
| 5       | .07     | 305 |       | 5       | .07     | 305 |       |
| 6       | .07     | 304 |       | 6       | .07     | 306 |       |
| 7       | .06     | 304 |       | 7       | .07     | 305 |       |
| 8       | .05     | 304 |       | 8       | .05     | 304 |       |

|                          |                         |                         |                          |
|--------------------------|-------------------------|-------------------------|--------------------------|
| Averages: <u>10.2250</u> | Averages: <u>0.7267</u> | Averages: <u>0.7323</u> | Averages: <u>304.625</u> |
| <u>303.875</u>           | <u>303.813</u>          |                         |                          |
| low part ≈ 304           |                         |                         |                          |

| Air Pollution Testing Inc. : EPA Method 2 - Pilot Traverse Worksheet |                               |                                                |       |  |  |  |  |  |  |
|----------------------------------------------------------------------|-------------------------------|------------------------------------------------|-------|--|--|--|--|--|--|
| Job # : <u>Q519104</u>                                               | Operator : <u>TR/JZ</u>       | Stack Diameter (inches) : <u>4"</u>            |       |  |  |  |  |  |  |
| Facility : <u>Questar</u>                                            | Site : <u>Cambuster INLET</u> | Upstream Disturbance (inches) : <u>6ft</u>     |       |  |  |  |  |  |  |
| Date : <u>4-8-09</u>                                                 | Points : 1 5 9                | Downstream Disturbance (inches) : <u>12 ft</u> |       |  |  |  |  |  |  |
| Probe ID : <u>167-12</u>                                             | 2 6 10                        | Schematic of Sampling Location :               |       |  |  |  |  |  |  |
| Pilot Constant : <u>.69</u>                                          | 3 7 11                        |                                                |       |  |  |  |  |  |  |
|                                                                      | 4 8 12                        |                                                |       |  |  |  |  |  |  |
| Run # : <u>1</u>                                                     | Run # : <u>2</u>              | Run # : <u>3</u>                               |       |  |  |  |  |  |  |
| O2% : <u>3.5</u>                                                     | O2% : <u>3.5</u>              | O2% : <u>3.5</u>                               |       |  |  |  |  |  |  |
| H2O% : <u>0.0</u>                                                    | H2O% : <u>0.0</u>             | H2O% : <u>0.0</u>                              |       |  |  |  |  |  |  |
| Ps ("H2O) : <u>854</u>                                               | Ps ("H2O) : <u>834</u>        | Ps ("H2O) : <u>834</u>                         |       |  |  |  |  |  |  |
| Start Time : <u>10:40</u>                                            | Start Time : <u>12:05</u>     | Start Time : <u>13:24</u>                      |       |  |  |  |  |  |  |
| Stop Time : <u>10:48</u>                                             | Stop Time : <u>12:10</u>      | Stop Time : <u>13:29</u>                       |       |  |  |  |  |  |  |
| Post Test Pilot Leak Check Good? :                                   |                               |                                                |       |  |  |  |  |  |  |
| Post Test Pilot Leak Check Good? :                                   |                               |                                                |       |  |  |  |  |  |  |
| Post Test Pilot Leak Check Good? :                                   |                               |                                                |       |  |  |  |  |  |  |
| Point #                                                              | Delta P                       | Ts                                             | Notes |  |  |  |  |  |  |
| 1-1                                                                  | .0025                         | 66                                             |       |  |  |  |  |  |  |
| 2                                                                    | .0025                         | 67                                             |       |  |  |  |  |  |  |
| 3                                                                    | .0025                         | 66                                             |       |  |  |  |  |  |  |
| 4                                                                    | .0025                         | 67                                             |       |  |  |  |  |  |  |
| 5                                                                    | .0025                         | 67                                             |       |  |  |  |  |  |  |
| 6                                                                    | .0025                         | 66                                             |       |  |  |  |  |  |  |
| 7                                                                    | .0025                         | 66                                             |       |  |  |  |  |  |  |
| 8                                                                    | .0025                         | 66                                             |       |  |  |  |  |  |  |
| Averages : <u>0.05</u> <u>66.375</u>                                 |                               |                                                |       |  |  |  |  |  |  |
| Reviewers Signature : <u>[Signature]</u>                             |                               |                                                |       |  |  |  |  |  |  |
| Point #                                                              | Delta P                       | Ts                                             | Notes |  |  |  |  |  |  |
| 1-1                                                                  | .0025                         | 67                                             |       |  |  |  |  |  |  |
| 2                                                                    | .0025                         | 67                                             |       |  |  |  |  |  |  |
| 3                                                                    | .0025                         | 68                                             |       |  |  |  |  |  |  |
| 4                                                                    | .0025                         | 67                                             |       |  |  |  |  |  |  |
| 5                                                                    | .0025                         | 66                                             |       |  |  |  |  |  |  |
| 6                                                                    | .0025                         | 66                                             |       |  |  |  |  |  |  |
| 7                                                                    | .0025                         | 66                                             |       |  |  |  |  |  |  |
| 8                                                                    | .0025                         | 66                                             |       |  |  |  |  |  |  |
| Averages : <u>0.05</u> <u>66.625</u>                                 |                               |                                                |       |  |  |  |  |  |  |
| Reviewers Signature : <u>[Signature]</u>                             |                               |                                                |       |  |  |  |  |  |  |
| Point #                                                              | Delta P                       | Ts                                             | Notes |  |  |  |  |  |  |
| 1-1                                                                  | .0025                         | 66                                             |       |  |  |  |  |  |  |
| 2                                                                    | .0025                         | 67                                             |       |  |  |  |  |  |  |
| 3                                                                    | .0025                         | 67                                             |       |  |  |  |  |  |  |
| 4                                                                    | .0025                         | 67                                             |       |  |  |  |  |  |  |
| 5                                                                    | .0025                         | 66                                             |       |  |  |  |  |  |  |
| 6                                                                    | .0025                         | 66                                             |       |  |  |  |  |  |  |
| 7                                                                    | .0025                         | 66                                             |       |  |  |  |  |  |  |
| 8                                                                    | .0025                         | 67                                             |       |  |  |  |  |  |  |
| Averages : <u>0.05</u> <u>66.5</u>                                   |                               |                                                |       |  |  |  |  |  |  |
| Reviewers Signature : <u>[Signature]</u>                             |                               |                                                |       |  |  |  |  |  |  |



# Air Pollution Testing, Inc. : EPA 8. Moisture Determination Worksheet

APT Job #: QST9104

Date: 4/8/09

CO2%: 0

CO2%: 3.5

Location: Inlet Combustion

Operator: TR/12

Ambient Temperature (°F): 80

Barometric Pressure (inHg): 854

Run #: Meter Box Yr: 984

Meter Box ID: MS-18

Probe Length (ft): 3'

Moisture (percent): 109.5

Pre-Test Pump Leak Check: 0.00@15" Hg

Meter OHD: 1.77

Suite Pressure (°H2O): .0025

Start Time: 10:30

Post-Test Pump Leak Check: 0.00@11" Hg

Method: 4

Stop Time: 11:38

Sealant of Stack:

| Sampling Time (minutes) | Vacuum (° Hg) | Oxide Settling (° H2O) | Meter Temp. |             | Condenser Temp. (°F) | Notes   |
|-------------------------|---------------|------------------------|-------------|-------------|----------------------|---------|
|                         |               |                        | Inlet (°F)  | Outlet (°F) |                      |         |
| 5                       | 1             | 1.0                    | 70          | 68          | 36                   | 668.680 |
| 10                      | 1             | 1.0                    | 72          | 69          | 36                   | 672.83  |
| 15                      | 1             | 1.0                    | 76          | 69          | 36                   | 676.97  |
| 20                      | 1             | 1.0                    | 77          | 70          | 37                   | 681.11  |
| 25                      | 1             | 1.0                    | 78          | 71          | 37                   | 685.26  |
| 30                      | 1             | 1.0                    | 79          | 71          | 37                   | 689.40  |
| 35                      | 1             | 1.0                    | 80          | 72          | 37                   | 693.54  |
| 40                      | 1             | 1.0                    | 81          | 73          | 38                   | 697.67  |
| 45                      | 1             | 1.0                    | 81          | 74          | 38                   | 701.84  |
| 50                      | 1             | 1.0                    | 81          | 75          | 38                   | 705.80  |
| 55                      | 1             | 1.0                    | 82          | 76          | 38                   | 709.93  |
| 60                      | 1             | 1.0                    | 82          | 76          | 38                   | 713.52  |
|                         |               |                        |             |             |                      | 717.525 |

Stack ID (inches): 4"  
Upstream Disturbance (inches): 6"  
Downstream Disturbance (inches): 12"

## Moisture Determination

| Imp. # | Tare  | Final | Gain |
|--------|-------|-------|------|
| 1      | 47.55 | 435.3 | 40.2 |
| 2      | 40.5  | 535.0 | 72.5 |
| 3      | 293.0 | 323.0 | 30.0 |
| 4      | 470.2 | 517.4 | 47.2 |

Total: 109.5

Prepared Signature: [Signature]

Checked: [Signature]

38

75.083

1.0

1

60

48.845

5/17/2012

| Air Pollution Testing, Inc. : EPA Method 4 - Moisture Determination Datasheet |                         |                                      |            |                                            |                     |                                |                        |                                 |      |
|-------------------------------------------------------------------------------|-------------------------|--------------------------------------|------------|--------------------------------------------|---------------------|--------------------------------|------------------------|---------------------------------|------|
| Job # QST 9104                                                                |                         | Date 4/8/09                          |            | COC # CDAS                                 |                     | OS (%) CDAS                    |                        |                                 |      |
| Location Combustor Outlet                                                     |                         | Operator JZ                          |            | Ambient Temperature (°F) ~60               |                     | Barometric Pressure (inHg) 834 |                        |                                 |      |
| Run # 2                                                                       |                         | Meter Buz ID MS-9                    |            | Probe Length (ft) 3'                       |                     | Exposure (grams) 12.8          |                        |                                 |      |
| Meter Buz ID .978 ✓                                                           |                         | Meter DHO 1.75 ✓                     |            | Static Pressure (in H <sub>2</sub> O) -.05 |                     | Start Time 11:55               |                        |                                 |      |
| Pur Test Pump Leak Check 0.00@15"Hg                                           |                         | Post-Test Pump Leak Check 0.00@16"Hg |            | Method 4                                   |                     | Stop Time 12:55                |                        |                                 |      |
| Sampling Time (minutes)                                                       | Medium H <sub>2</sub> O | Orifice Sizing (in H <sub>2</sub> O) | Meter Temp |                                            | Condenser Temp (°F) | Notes                          |                        | Schematic of Stack              |      |
|                                                                               |                         |                                      | Inlet (°F) | Outlet (°F)                                |                     |                                |                        |                                 |      |
| 5                                                                             | 1                       | 1.0                                  | 76         | 75                                         | 37                  | 751.124                        |                        | Stack ID (inches)               | 21.5 |
| 10                                                                            | 1                       | 1.0                                  | 76         | 75                                         | 37                  | 754.41                         |                        | Upstream Disturbance (inches)   | 4'   |
| 15                                                                            | 1                       | 1.0                                  | 77         | 74                                         | 37                  | 757.73                         |                        | Downstream Disturbance (inches) | 16'  |
| 20                                                                            | 1                       | 1.0                                  | 77         | 73                                         | 37                  | 761.09                         |                        |                                 |      |
| 25                                                                            | 1                       | 1.0                                  | 77         | 72                                         | 38                  | 764.42                         |                        |                                 |      |
| 30                                                                            | 1                       | 1.0                                  | 78         | 72                                         | 38                  | 767.77                         |                        |                                 |      |
| 35                                                                            | 1                       | 1.0                                  | 78         | 72                                         | 38                  | 770.55                         |                        |                                 |      |
| 40                                                                            | 1                       | 1.0                                  | 78         | 72                                         | 38                  | 774.84                         |                        |                                 |      |
| 45                                                                            | 1                       | 1.0                                  | 78         | 72                                         | 39                  | 778.18                         |                        |                                 |      |
| 50                                                                            | 1                       | 1.0                                  | 79         | 72                                         | 39                  | 781.46                         |                        |                                 |      |
| 55                                                                            | 1                       | 1.0                                  | 79         | 72                                         | 40                  | 784.89                         |                        |                                 |      |
| 60                                                                            | 1                       | 1.0                                  | 79         | 73                                         | 40                  | 788.39                         |                        |                                 |      |
|                                                                               |                         |                                      |            |                                            |                     | 791.771                        |                        |                                 |      |
|                                                                               |                         |                                      |            |                                            |                     |                                | Moisture Determination |                                 |      |
|                                                                               |                         | Imp. #                               | Tare       | Final                                      | Gain                |                                |                        |                                 |      |
|                                                                               |                         | 1                                    | 454.5      | 458.0                                      | 3.5                 |                                |                        |                                 |      |
|                                                                               |                         | 2                                    | 423.4      | 423.6                                      | .2                  |                                |                        |                                 |      |
|                                                                               |                         | 3                                    | 300.1      | 301.8                                      | 1.7                 |                                |                        |                                 |      |
|                                                                               |                         | 4                                    | 473.7      | 481.1                                      | 7.4                 |                                |                        |                                 |      |
|                                                                               |                         | Total                                |            |                                            | 12.8                |                                |                        |                                 |      |
|                                                                               |                         | Performer's Signature                |            |                                            |                     |                                |                        |                                 |      |





APR 1001 QST 9104

Location Combustor Outlet

Run 3

Water Bar 13 178 ✓

Pilot Test Pump Leak Check 0.00 @ 13" H<sub>2</sub>O

... Date 4/8/09

Operator JZ

Meter Box ID M6-9

Meter Bar 13 178 ✓

Pilot Test Pump Leak Check 0.00 @ 13" H<sub>2</sub>O

OS (M) CDA-J

Barometric Pressure (mmHg) 834

Altitude (ft) ~55'

Static Pressure (mmHg) 12.9

Start Time 13:20

Stop Time 14:20

OS (M) CDA-J

Barometric Pressure (mmHg) 834

Altitude (ft) ~55'

Static Pressure (mmHg) 12.9

Start Time 13:20

Stop Time 14:20

| Sampling Time (min) | Vacuum (in H <sub>2</sub> O) | Orifice Setting (in H <sub>2</sub> O) | Meter Temp |             | Condenser Temp (°F) | Meter Volume (ft <sup>3</sup> ) | Notes |
|---------------------|------------------------------|---------------------------------------|------------|-------------|---------------------|---------------------------------|-------|
|                     |                              |                                       | Inlet (°F) | Outlet (°F) |                     |                                 |       |
| 5                   | 1                            | 1.0                                   | 71         | 69          | 35                  | 791.839                         |       |
| 10                  | 1                            | 1.0                                   | 71         | 69          | 36                  | 795.22                          |       |
| 15                  | 1                            | 1.0                                   | 71         | 69          | 36                  | 798.51                          |       |
| 20                  | 1                            | 1.0                                   | 72         | 69          | 36                  | 801.88                          |       |
| 25                  | 1                            | 1.0                                   | 72         | 69          | 37                  | 805.23                          |       |
| 30                  | 1                            | 1.0                                   | 72         | 69          | 37                  | 808.57                          |       |
| 35                  | 1                            | 1.0                                   | 72         | 69          | 37                  | 811.86                          |       |
| 40                  | 1                            | 1.0                                   | 73         | 69          | 38                  | 815.10                          |       |
| 45                  | 1                            | 1.0                                   | 73         | 69          | 38                  | 818.43                          |       |
| 50                  | 1                            | 1.0                                   | 73         | 69          | 38                  | 821.72                          |       |
| 55                  | 1                            | 1.0                                   | 73         | 69          | 39                  | 824.92                          |       |
| 60                  | 1                            | 1.0                                   | 73         | 69          | 39                  | 828.16                          |       |
|                     |                              |                                       |            |             |                     | 831.397                         |       |

Stack ID (inches) 21.5

Upstream Disturbance (inches) 4'

Downstream Disturbance (inches) 16'

Moisture Determination

| Imp. # | Tare  | Final | Gain |
|--------|-------|-------|------|
| 1      | 458.0 | 458.5 | .5   |
| 2      | 423.6 | 425.4 | 1.8  |
| 3      | 301.8 | 304.9 | 3.1  |
| 4      | 481.1 | 488.6 | 7.5  |

Total 12.9

Signature *[Signature]*



Questar Gas Management  
Wonsits Valley Compressor Station  
Uintah County, Utah  
Combustor Unit - INLET  
04/08/09

Dry Molecular Weight Calculations

*Run 1*

|     | <u>Raw</u> | <u>Corrected</u> | <u>MW</u> |
|-----|------------|------------------|-----------|
| C1  | 59.0%      | 50.6%            | 16.0      |
| C2  | 21.8%      | 18.7%            | 30.0      |
| C3  | 9.2%       | 7.9%             | 44.0      |
| C6+ | 9.9%       | 8.5%             | 86.0      |
| N2  | 13.2%      | 11.3%            | 28.0      |
| O2  | 3.5%       | 3.0%             | 32.0      |
|     | 116.6%     | 100.0%           | 28.61     |

Questar Gas Management  
Wonsits Valley Compressor Station  
Uintah County, Utah  
Combustor Unit - INLET  
04/08/09

Dry Molecular Weight Calculations

***Run 2***

|     | <u>Raw</u> | <u>Corrected</u> | <u>MW</u> |
|-----|------------|------------------|-----------|
| C1  | 59.5%      | 51.0%            | 16.0      |
| C2  | 21.8%      | 18.7%            | 30.0      |
| C3  | 10.0%      | 8.6%             | 44.0      |
| C6+ | 8.7%       | 7.5%             | 86.0      |
| N2  | 13.2%      | 11.3%            | 28.0      |
| O2  | 3.5%       | 3.0%             | 32.0      |
|     | 116.7%     | 100.0%           | 28.07     |

Questar Gas Management  
Wonsits Valley Compressor Station  
Uintah County, Utah  
Combustor Unit - INLET  
04/08/09

Dry Molecular Weight Calculations

***Run 3***

|     | <u>Raw</u> | <u>Corrected</u> | <u>MW</u> |
|-----|------------|------------------|-----------|
| C1  | 58.9%      | 50.4%            | 16.0      |
| C2  | 21.7%      | 18.6%            | 30.0      |
| C3  | 9.6%       | 8.2%             | 44.0      |
| C6+ | 9.9%       | 8.5%             | 86.0      |
| N2  | 13.2%      | 11.3%            | 28.0      |
| O2  | 3.5%       | 3.0%             | 32.0      |
|     | 116.8%     | 100.0%           | 28.68     |

4/10/09

QST9104

Questar, Vernal Utah

Wonsits Valley Compressor  
Station

Outlet Bag Analysis

**GC ANALYSIS**

Analyst:MS



# **Table of Contents**

**Detail : Logbook/Gas certificates**

**Detail : Pre calibration 5,50,100 ppm C1-C7  
BTEX**

**Detail :GC BAG Analysis Outlet – Three runs**

**Detail : Post calibration 50 ppm C1-C7 BTEX**

**Analyst(s) : MS**

QST9104

Questar

Wonsits Valley Compressor  
Station

- Lab book notes
- Gas certificates

4:30 - 8:30

10 10 16

7:00 - 5:00

10 10 16

4/6

7:00

10 10 16

MOBIL DEVED 4:30 AM

ARRIVE @ SITE 12:20

UNLOAD/START CAL: 13:00

4/7

MOB - 7:00

ON SITE 8:00

360.000

8.212

51

IRIS LEFT ON FROM 4/6 - 4/7 SO OPERATING  
PARAMETER SAME - SIGNAL 10.0 → 7.9

4/8 MOB 7:00 / ON SITE 8:00

IRIS SETTINGS SAME - SIGNAL: 8.2 → 7.9  
→ 7A

START

RUN 1 10:30

RUN 2 11:55

RUN 3 13:20

NOTE: ALL INLET SAMPLES  
ARE DILUTE 100:1  
PER FID (METHOD 25)  
EXHAUST.

Continued on Page \_\_\_\_\_

OUTLET

Read and Understood By \_\_\_\_\_

Signed \_\_\_\_\_

Date \_\_\_\_\_

Signed \_\_\_\_\_

Date \_\_\_\_\_

| SIGNAL SAMPLE | SAMPLE       | DESCRIPTION               | SMALL LOOP: 5ul | LARGE LOOP:           |
|---------------|--------------|---------------------------|-----------------|-----------------------|
| ✓ 0001        | Precel       | Precel 50ppm C1-C7 BTEX   | inj 1           | NG                    |
| 0002          | "            | "                         | inj 2           |                       |
| 0003          | "            | "                         | inj 3           |                       |
| 0004          | "            | "                         | inj 4           |                       |
| 0005          | Precel       | Precel 50ppm C1-C7 BTEX   | inj 1           |                       |
| 0006          | "            | "                         | inj 2           |                       |
| 0007          | "            | "                         | inj 3           |                       |
| 0008          | Precel       | Precel 100ppm C1-C7 BTEX  | inj 1           |                       |
| 0009          | "            | "                         | inj 2           |                       |
| 0010          | "            | "                         | inj 3           |                       |
| 17 0011       | Precel       | Precel 5000 ppm C1-C3     | inj 1           |                       |
| 0012          | "            | "                         | inj 2           |                       |
| 0013          | "            | "                         | inj 3           |                       |
| 0014          | Precel       | RT CHECK 50ppm C1-C7 BTEX | inj 1           |                       |
| 0015          | BAG 1 DIAG   | BAG RUN INLET DIAG        | inj 1           |                       |
| 0016          | "            | "                         | inj 2           |                       |
| 10 0017       | RT CHECK     | RT CHECK 4/08/09          | inj 1           | @ 55°C START          |
| 0018          | RT CHECK     | RT CHECK 4/08/09          | inj 2           | @ 60°C START          |
| 0019          | BLANK        | BLANK                     |                 |                       |
| 0020          | RUN 1 OUTLET | BAG RUN 1 OUTLET          | inj 1           | HANDPUMP CONTINUATION |
| 0021          | RUN 1 OUTLET | BAG RUN 1 OUTLET          | inj 2A          |                       |
| 0022          | "            | "                         | inj 2           |                       |
| 0023          | "            | "                         | inj 3           |                       |
| 0024          | RUN 2 OUTLET | BAG RUN 2 OUTLET          | inj 1           |                       |
| 0025          | "            | "                         | inj 2           |                       |
| 0026          | "            | "                         | inj 3           |                       |
| 0027          | RUN 3 OUTLET | BAG RUN 3 OUTLET          | inj 1           |                       |
| 0028          | "            | "                         | inj 2           |                       |
| 0029          | "            | "                         | inj 3           |                       |
| 0030          | LOOP CHANGE  | LARGE LOOP C3HB 50ppm     | inj 1           |                       |
| 0031          | "            | "                         | inj 2           |                       |
| 0032          | "            | SMALL LOOP C3HB 50ppm     | inj 1           |                       |
| 0033          | "            | "                         | inj 2           |                       |

Read and Understood By

Signed

Date

Signed

Date

PROJECT

QSD 9104 CONT.

Notebook No.

Continued From Page

| SIGNATURE | SAMPLE      | DESCRIPTION               |                       |
|-----------|-------------|---------------------------|-----------------------|
| 0034      | RUN 1 INLET | BAG RUN 1 INLET           | inj 1 (NG) - STRIPPED |
| 0035      | "           | "                         | inj 2                 |
| 0036      | "           | "                         | inj 3                 |
| 0037      | "           | "                         | inj 4                 |
| 0038      | RUN 2 INLET | BAG RUN 2 INLET           | inj 1                 |
| 0039      | "           | "                         | inj 2                 |
| 0040      | "           | "                         | inj 3                 |
| 0041      | RUN 3 INLET | BAG RUN 3 INLET           | inj 1                 |
| 0042      | "           | "                         | inj 2                 |
| 0043      | "           | "                         | inj 3                 |
| 0044      | LOOP CHANGE | SMALL LOOP C3H8 50.1 ppm  | inj 1                 |
| 0045      | "           | "                         | inj 2                 |
| 0046      | LOOP CHANGE | LARGE LOOP C3H8 50.1 ppm  | inj 1                 |
| 0047      | "           | "                         | inj 2                 |
| 0048      | POSTCUL     | POSTCUL 50 ppm C1-C7 BTEX | inj 1                 |
| 0049      | "           | "                         | inj 2                 |
| 0050      | "           | "                         | inj 3                 |

Continued on Page

Read and Understood By

Signed Date Signed Date



Spectra Gases, Inc.

3434 Route 22 West, Branchburg, New Jersey 08876 USA

ISO 9001:2000

SHIPPED FROM: 80 INDUSTRIAL DRIVE ALPHA, NJ. 08865

SHIPPED TO: Air Pollution Testing  
5530 Marshall St.  
Arvada, CO 80002

**CERTIFICATE  
OF  
ANALYSIS**

SGI ORDER # : 133458  
ITEM# : 1  
CERTIFICATION DATE: 08/07/2008  
P.O.# : Verbal- Matt  
BLEND TYPE: CERTIFIED

CYLINDER # : CC-237395  
CYLINDER PRES: 1400 psig  
CYLINDER VALVE: CGA 350  
PRODUCT EXPIRATION DATE: 08/07/2009

ANALYTICAL ACCURACY: +/- 2%

| COMPONENT    | REQUESTED GAS<br>CONC | ANALYSIS |
|--------------|-----------------------|----------|
| Methane      | 5.00 ppm              | 5.08 ppm |
| Ethane       | 5.00 ppm              | 5.07 ppm |
| Propane      | 5.00 ppm              | 5.11 ppm |
| Butane       | 5.00 ppm              | 5.07 ppm |
| Pentane      | 5.00 ppm              | 5.21 ppm |
| Hexane       | 5.00 ppm              | 5.15 ppm |
| Benzene      | 5.00 ppm              | 5.13 ppm |
| Heptane      | 5.00 ppm              | 5.18 ppm |
| Toluene      | 5.00 ppm              | 5.09 ppm |
| Ethylbenzene | 5.00 ppm              | 5.25 ppm |
| o-Xylene     | 5.00 ppm              | 5.25 ppm |
| Nitrogen     | Balance               | Balance  |

ANALYST: \_\_\_\_\_

Lou Lorenzetti

DATE: 08/07/2008

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

QGM498745



3434 Route 22 West, Branchburg, New Jersey 08876 USA

ISO 9001:2000

SHIPPED FROM: 80 INDUSTRIAL DRIVE ALPHA, NJ. 08865

SHIPPED TO: Air Pollution Testing  
5530 Marshall St.  
Arvada, CO 80002

### CERTIFICATE OF ANALYSIS

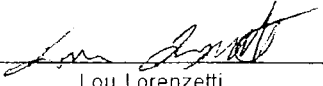
SGI ORDER # : 135110  
ITEM# : 1  
CERTIFICATION DATE: 08/28/2008  
P.O.# : Verbal- Matt  
BLEND TYPE: CERTIFIED

CYLINDER # : CC-65860  
CYLINDER PRES: 420 psig  
CYLINDER VALVE: CGA 350  
PRODUCT EXPIRATION DATE: 08/28/2009

ANALYTICAL ACCURACY: +/- 2%

| COMPONENT    | REQUESTED GAS<br>CONC | ANALYSIS |
|--------------|-----------------------|----------|
| Methane      | 50.0 ppm              | 51.5 ppm |
| Ethane       | 50.0 ppm              | 51.5 ppm |
| Propane      | 50.0 ppm              | 51.2 ppm |
| Butane       | 50.0 ppm              | 51.2 ppm |
| Pentane      | 50.0 ppm              | 51.6 ppm |
| Hexane       | 50.0 ppm              | 51.8 ppm |
| Benzene      | 50.0 ppm              | 51.8 ppm |
| Heptane      | 50.0 ppm              | 51.9 ppm |
| Toluene      | 50.0 ppm              | 52.0 ppm |
| Ethylbenzene | 50.0 ppm              | 52.0 ppm |
| o-Xylene     | 50.0 ppm              | 51.9 ppm |
| Nitrogen     | Balance               | Balance  |

SOURCE REFERENCE# 247527

ANALYST: 

Lou Lorenzetti

DATE: 08/28/2008

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

QGM498746





3434 Route 22 West, Branchburg, New Jersey 08876 USA

ISO 9001:2000

SHIPPED FROM: 80 INDUSTRIAL DRIVE ALPHA, NJ. 08865

SHIPPED TO: Air Pollution Testing  
5530 Marshall St.  
Arvada, CO 80002

**CERTIFICATE  
OF  
ANALYSIS**

|                     |              |                          |            |
|---------------------|--------------|--------------------------|------------|
| SGI ORDER # :       | 135110       | CYLINDER # :             | CC-82198   |
| ITEM# :             | 2            | CYLINDER PRES:           | 250 psig   |
| CERTIFICATION DATE: | 08/27/2008   | CYLINDER VALVE:          | CGA 350    |
| P.O.# :             | Verbal- Matt | PRODUCT EXPIRATION DATE: | 08/27/2009 |
| BLEND TYPE:         | CERTIFIED    |                          |            |

ANALYTICAL ACCURACY: +/- 2%

| COMPONENT    | REQUESTED GAS<br>CONC | ANALYSIS |
|--------------|-----------------------|----------|
| Methane      | 100 ppm               | 102 ppm  |
| Ethane       | 100 ppm               | 102 ppm  |
| Propane      | 100 ppm               | 102 ppm  |
| Butane       | 100 ppm               | 102 ppm  |
| Pentane      | 100 ppm               | 103 ppm  |
| Hexane       | 100 ppm               | 103 ppm  |
| Benzene      | 100 ppm               | 103 ppm  |
| Heptane      | 100 ppm               | 103 ppm  |
| Toluene      | 100 ppm               | 103 ppm  |
| Ethylbenzene | 100 ppm               | 103 ppm  |
| o-Xylene     | 100 ppm               | 103 ppm  |
| Nitrogen     | Balance               | Balance  |

SOURCE REFERENCE# 247527

ANALYST: 

Lou Lorenzetti

DATE: 08/27/2008

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

QGM498747

QST9104

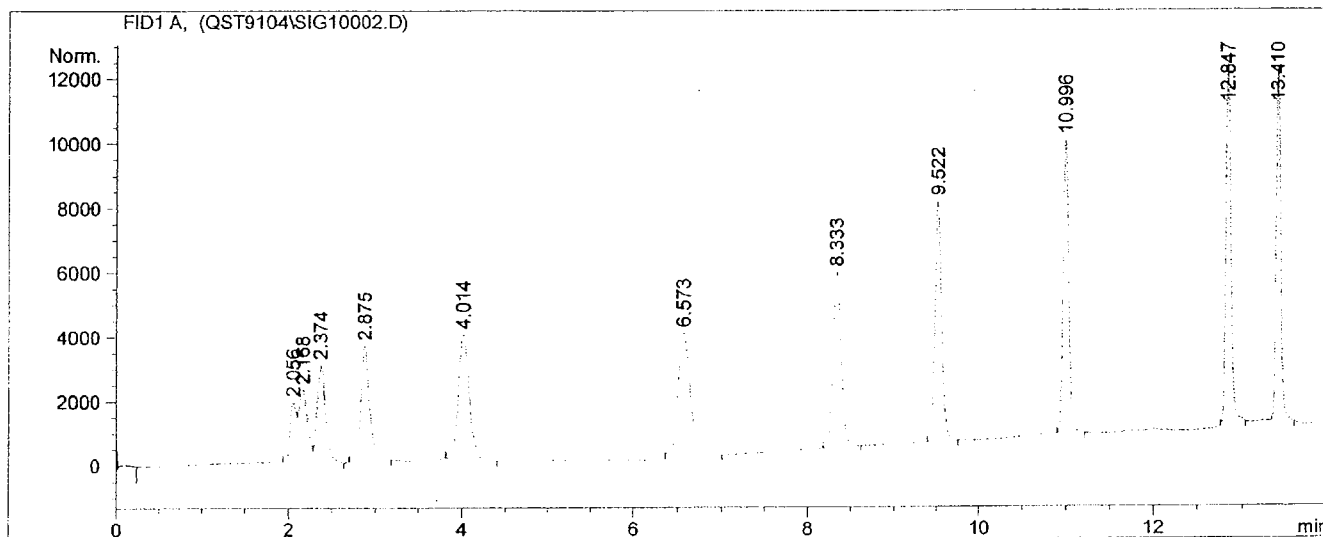
Questar

Wonsits Valley Compressor  
Station

## **Pre Calibration**

- 5,50,100 PPM C1-C7 BTEX 3 INJECTIONS EACH
- REGRESSION SPREADSHEET
- RT CHECKS

=====  
Injection Date : 4/6/2009 4:27:38 PM  
Sample Name : pre cal Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/6/2009 4:15:01 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/6/2009 4:42:52 PM by MS  
(modified after loading)  
btex  
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=====  
Area Percent Report  
=====

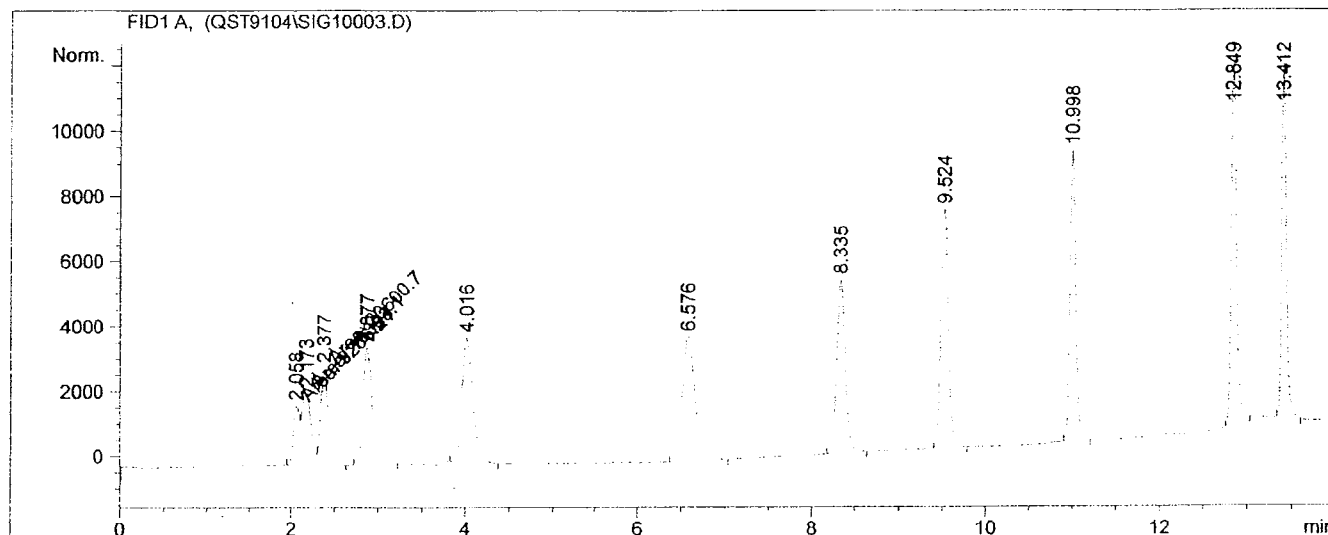
Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.056         | BV   | 0.0786      | 9267.40039    | 1878.10510      | 2.62354  |
| 2      | 2.168         | VV   | 0.1106      | 1.64404e4     | 2266.10962      | 4.65418  |
| 3      | 2.374         | VP   | 0.1051      | 2.06398e4     | 3042.35474      | 5.84300  |
| 4      | 2.875         | VB   | 0.1128      | 2.62136e4     | 3606.56738      | 7.42091  |
| 5      | 4.014         | BP   | 0.1333      | 3.44527e4     | 3967.51562      | 9.75335  |
| 6      | 6.573         | PP   | 0.1492      | 3.78371e4     | 3900.87695      | 10.71145 |
| 7      | 8.333         | BP   | 0.1075      | 3.71186e4     | 5448.65137      | 10.50803 |
| 8      | 9.522         | BB   | 0.0892      | 4.30830e4     | 7474.37549      | 12.19653 |
| 9      | 10.996        | BB   | 0.0701      | 4.07669e4     | 9125.21484      | 11.54085 |
| 10     | 12.847        | BB   | 0.0625      | 4.47682e4     | 1.12213e4       | 12.67359 |
| 11     | 13.410        | BB   | 0.0592      | 4.26521e4     | 1.10082e4       | 12.07456 |

Totals : 3.53240e5 6.29393e4

```
=====
Injection Date   : 4/6/2009 4:45:46 PM
Sample Name      : pre cal                      Location : Vial 1
Acq. Operator    : MS
Acq. Instrument  : Instrument 1                 Inj Volume : External
Acq. Method      : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/6/2009 4:42:59 PM by MS
                  (modified after loading)
Analysis Method  : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/6/2009 5:03:05 PM by MS
                  (modified after loading)
btex
=====
```



Area Percent Report

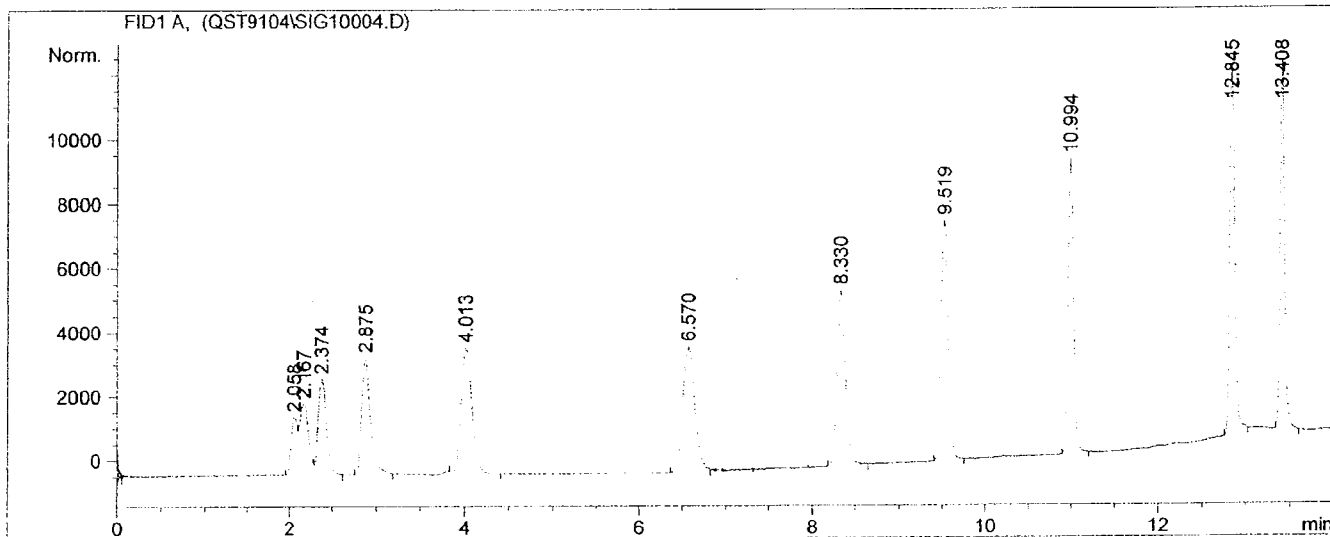
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Sorted By      : Signal
Multiplier     : 1.0000
Dilution       : 1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.058         | MF   | 0.0842      | 9266.21289    | 1833.90076      | 2.63664  |
| 2      | 2.173         | MF   | 0.1212      | 1.63831e4     | 2253.02222      | 4.66169  |
| 3      | 2.377         | FM   | 0.1139      | 2.06007e4     | 3014.85986      | 5.86180  |
| 4      | 2.877         | BB   | 0.1137      | 2.64207e4     | 3595.48364      | 7.51781  |
| 5      | 4.016         | BB   | 0.1348      | 3.36518e4     | 3894.02905      | 9.57537  |
| 6      | 6.576         | PP   | 0.1528      | 3.77484e4     | 3836.28271      | 10.74105 |
| 7      | 8.335         | BP   | 0.1066      | 3.69846e4     | 5351.48340      | 10.52371 |
| 8      | 9.524         | PP   | 0.0923      | 4.30292e4     | 7355.35840      | 12.24366 |
| 9      | 10.998        | BB   | 0.0689      | 4.04608e4     | 8928.32324      | 11.51285 |
| 10     | 12.849        | PB   | 0.0609      | 4.44812e4     | 1.10687e4       | 12.65680 |
| 11     | 13.412        | BB   | 0.0615      | 4.24140e4     | 1.08761e4       | 12.06862 |

Totals : 3.51441e5 6.20075e4

=====  
Injection Date : 4/6/2009 5:06:22 PM  
Sample Name : pre cal Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/6/2009 5:03:11 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/6/2009 5:22:16 PM by MS  
(modified after loading)  
btex  
=====



=====  
Area Percent Report  
=====

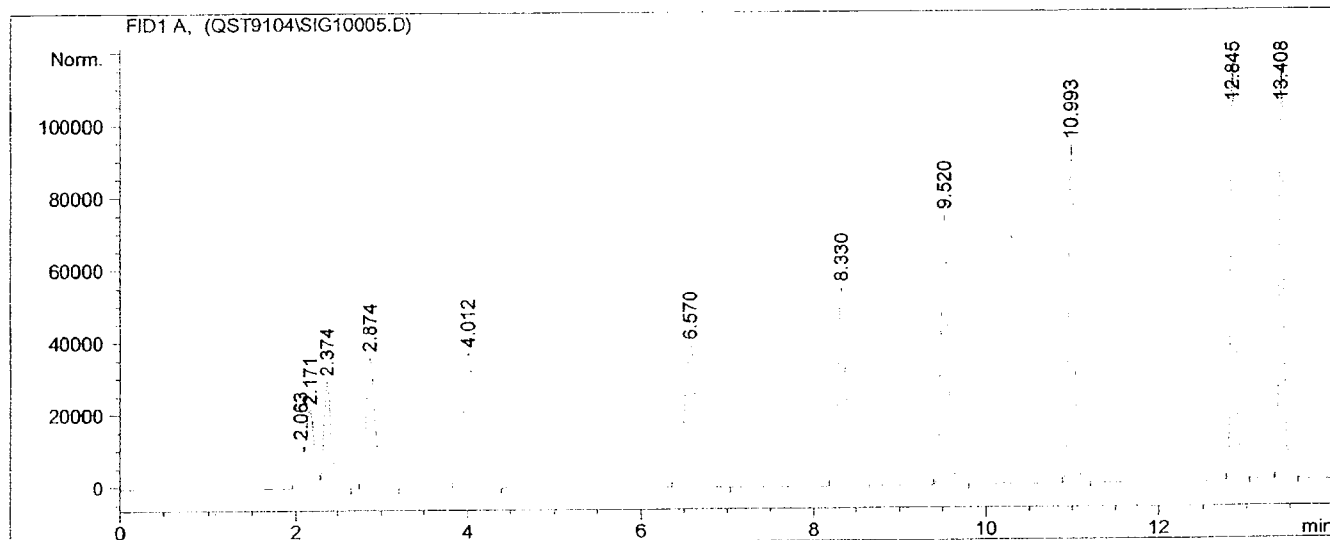
Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.058         | PV   | 0.0788      | 8780.99609    | 1802.32092      | 2.48242  |
| 2      | 2.167         | VV   | 0.1098      | 1.59894e4     | 2225.20605      | 4.52024  |
| 3      | 2.374         | VP   | 0.1047      | 2.01605e4     | 2990.37134      | 5.69944  |
| 4      | 2.875         | PB   | 0.1125      | 2.63005e4     | 3631.74731      | 7.43523  |
| 5      | 4.013         | BP   | 0.1296      | 3.27006e4     | 3910.29810      | 9.24456  |
| 6      | 6.570         | BV   | 0.1504      | 3.84456e4     | 3922.32373      | 10.86868 |
| 7      | 8.330         | PB   | 0.1061      | 3.77025e4     | 5493.30469      | 10.65861 |
| 8      | 9.519         | PB   | 0.0913      | 4.32704e4     | 7496.03174      | 12.23269 |
| 9      | 10.994        | BB   | 0.0702      | 4.10301e4     | 9175.94531      | 11.59933 |
| 10     | 12.845        | PB   | 0.0622      | 4.55280e4     | 1.15072e4       | 12.87091 |
| 11     | 13.408        | BB   | 0.0587      | 4.38194e4     | 1.14357e4       | 12.38788 |

Totals : 3.53728e5 6.35904e4

=====  
Injection Date : 4/6/2009 5:25:58 PM  
Sample Name : pre cal Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/6/2009 5:22:26 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/6/2009 5:45:23 PM by MS  
(modified after loading)  
btex  
=====



=====  
Area Percent Report  
=====

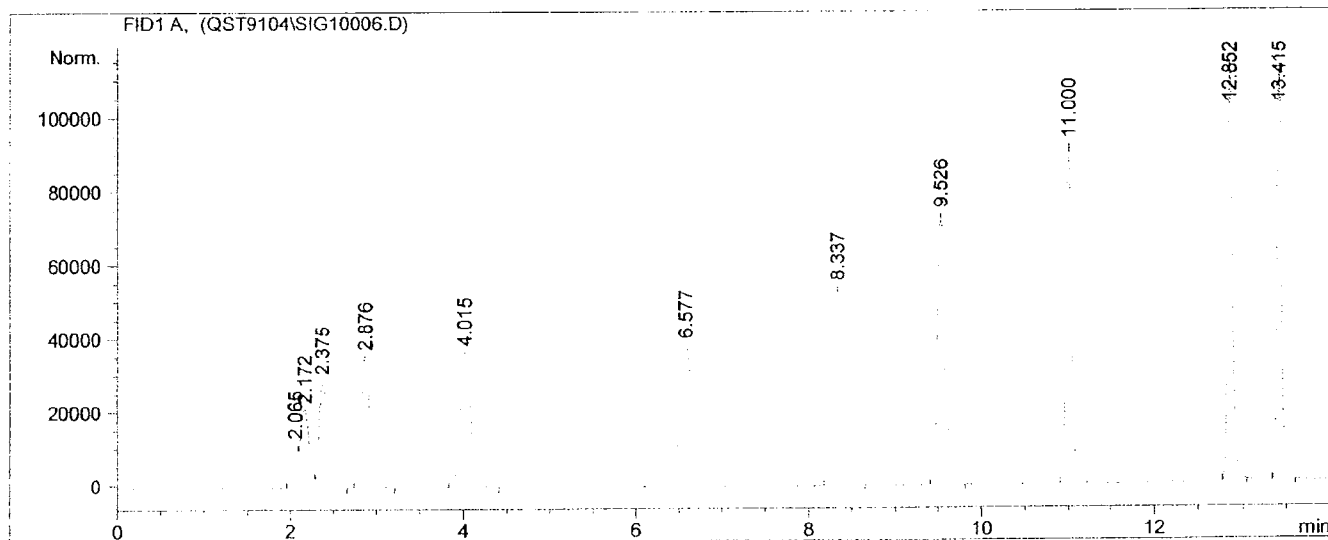
Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.063         | PV   | 0.0715      | 5.27891e4     | 1.21872e4       | 1.51727  |
| 2      | 2.171         | VV   | 0.1071      | 1.52476e5     | 2.19335e4       | 4.38249  |
| 3      | 2.374         | VB   | 0.1030      | 1.96492e5     | 2.97799e4       | 5.64762  |
| 4      | 2.874         | PB   | 0.1106      | 2.58139e5     | 3.64594e4       | 7.41947  |
| 5      | 4.012         | BB   | 0.1296      | 3.13915e5     | 3.75059e4       | 9.02259  |
| 6      | 6.570         | BB   | 0.1522      | 3.84977e5     | 3.93159e4       | 11.06507 |
| 7      | 8.330         | PB   | 0.1056      | 3.74812e5     | 5.49445e4       | 10.77292 |
| 8      | 9.520         | PB   | 0.0917      | 4.32998e5     | 7.46278e4       | 12.44530 |
| 9      | 10.993        | PB   | 0.0703      | 4.18799e5     | 9.34999e4       | 12.03718 |
| 10     | 12.845        | PB   | 0.0621      | 4.54902e5     | 1.15072e5       | 13.07488 |
| 11     | 13.408        | PB   | 0.0587      | 4.38909e5     | 1.14534e5       | 12.61521 |

Totals : 3.47921e6 6.29860e5

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=====
Injection Date   : 4/6/2009 5:49:00 PM
Sample Name     : pre cal                      Location : Vial 1
Acq. Operator   : MS
Acq. Instrument : Instrument 1                 Inj Volume : External
Acq. Method     : C:\HPCHEM\1\METHODS\BTEX.M
Last changed    : 4/6/2009 5:45:30 PM by MS
                  (modified after loading)
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M
Last changed    : 4/6/2009 6:03:27 PM by MS
                  (modified after loading)
btex
=====
```



Area Percent Report

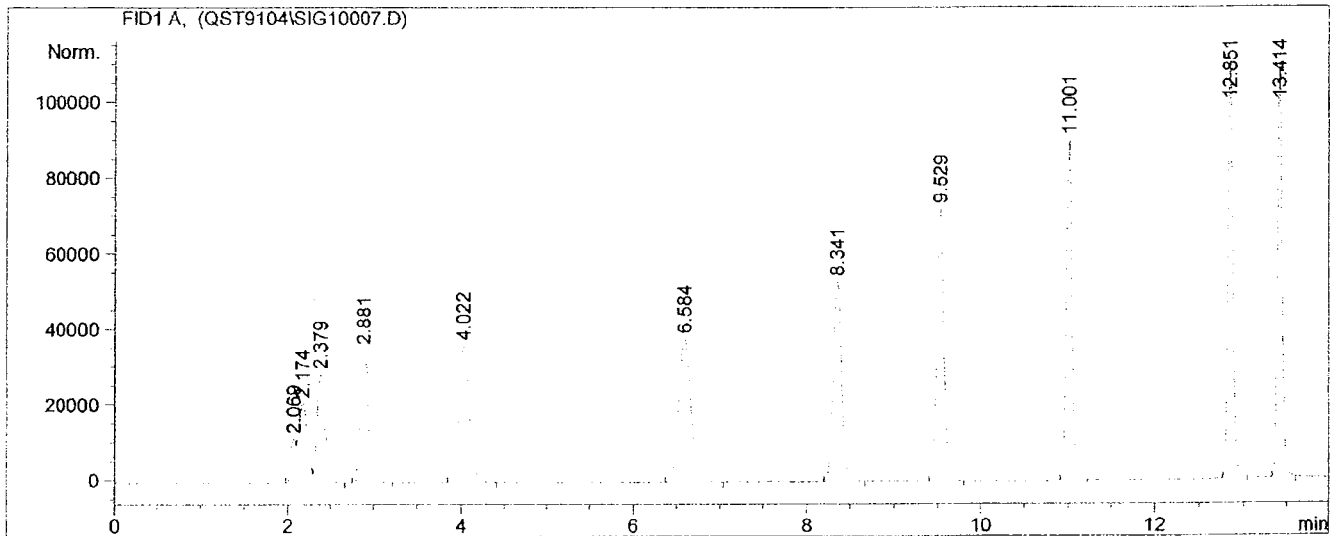
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Sorted By      : Signal
Multiplier     : 1.0000
Dilution       : 1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.065         | PV   | 0.0716      | 5.21670e4     | 1.20214e4       | 1.52336  |
| 2      | 2.172         | VV   | 0.1068      | 1.50291e5     | 2.16962e4       | 4.38872  |
| 3      | 2.375         | VB   | 0.1028      | 1.93844e5     | 2.94499e4       | 5.66052  |
| 4      | 2.876         | PB   | 0.1104      | 2.54666e5     | 3.60720e4       | 7.43662  |
| 5      | 4.015         | PB   | 0.1293      | 3.09816e5     | 3.71294e4       | 9.04709  |
| 6      | 6.577         | BB   | 0.1517      | 3.79823e5     | 3.89904e4       | 11.09141 |
| 7      | 8.337         | PB   | 0.1053      | 3.69409e5     | 5.43342e4       | 10.78730 |
| 8      | 9.526         | BB   | 0.0893      | 4.26330e5     | 7.39204e4       | 12.44948 |
| 9      | 11.000        | PB   | 0.0700      | 4.11545e5     | 9.23904e4       | 12.01774 |
| 10     | 12.852        | PB   | 0.0599      | 4.45784e5     | 1.13391e5       | 13.01755 |
| 11     | 13.415        | PB   | 0.0605      | 4.30807e5     | 1.12820e5       | 12.58021 |

Totals : 3.42448e6 6.22216e5

```
=====
Injection Date   : 4/6/2009 6:09:23 PM
Sample Name      : pre cal                      Location : Vial 1
Acq. Operator    : MS
Acq. Instrument  : Instrument 1                 Inj Volume : External
Acq. Method      : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/6/2009 6:03:45 PM by MS
                  (modified after loading)
Analysis Method  : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/6/2009 6:27:04 PM by MS
                  (modified after loading)
btex
=====
```



Area Percent Report

```
=====
Sorted By          : Signal
Multiplier         : 1.0000
Dilution           : 1.0000
Use Multiplier & Dilution Factor with ISTDs
=====
```

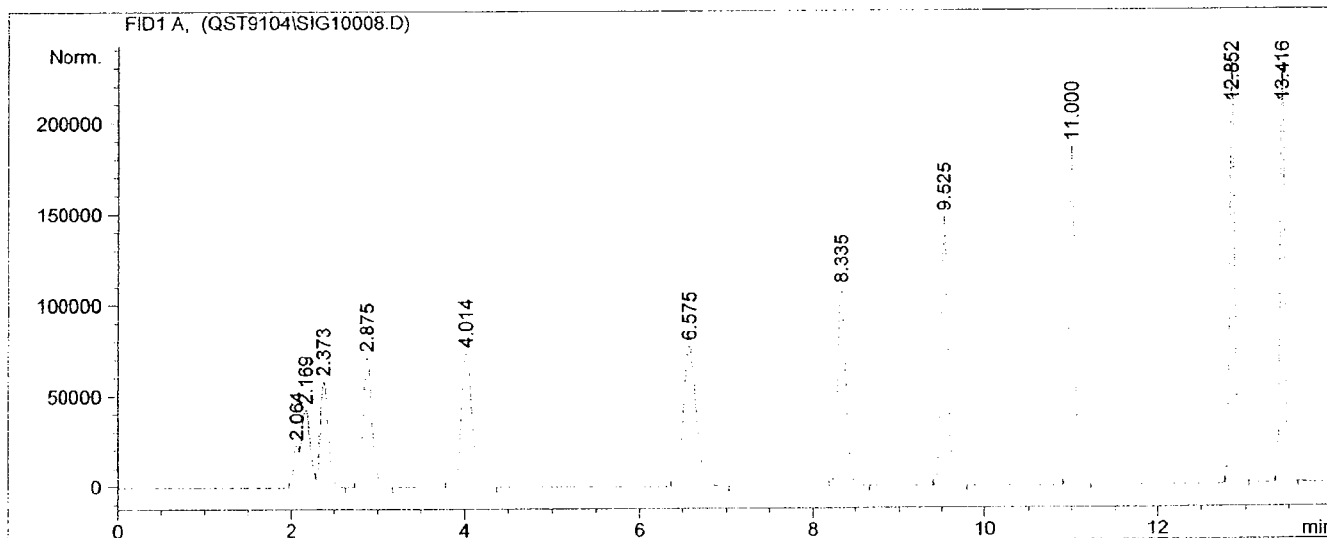
Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.069         | PV   | 0.0707      | 5.10965e4     | 1.17562e4       | 1.52086  |
| 2      | 2.174         | VV   | 0.1069      | 1.47250e5     | 2.12349e4       | 4.38283  |
| 3      | 2.379         | VB   | 0.1033      | 1.90899e5     | 2.88130e4       | 5.68202  |
| 4      | 2.881         | PB   | 0.1108      | 2.50109e5     | 3.52512e4       | 7.44437  |
| 5      | 4.022         | PB   | 0.1299      | 3.04399e5     | 3.62770e4       | 9.06032  |
| 6      | 6.584         | BB   | 0.1520      | 3.72744e5     | 3.81521e4       | 11.09457 |
| 7      | 8.341         | PB   | 0.1058      | 3.63050e5     | 5.30783e4       | 10.80603 |
| 8      | 9.529         | BB   | 0.0896      | 4.18388e5     | 7.21791e4       | 12.45312 |
| 9      | 11.001        | PB   | 0.0704      | 4.04223e5     | 9.00229e4       | 12.03151 |
| 10     | 12.851        | PB   | 0.0622      | 4.36439e5     | 1.10228e5       | 12.99041 |
| 11     | 13.414        | PB   | 0.0609      | 4.21103e5     | 1.09500e5       | 12.53394 |

Totals : 3.35970e6 6.06492e5



```
=====
Injection Date   : 4/6/2009 6:32:05 PM
Sample Name      : pre cal                      Location : Vial 1
Acq. Operator    : MS
Acq. Instrument  : Instrument 1                 Inj Volume : External
Acq. Method      : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/6/2009 6:27:10 PM by MS
                  (modified after loading)
Analysis Method  : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/6/2009 6:46:37 PM by MS
                  (modified after loading)
btex
=====
```



Area Percent Report

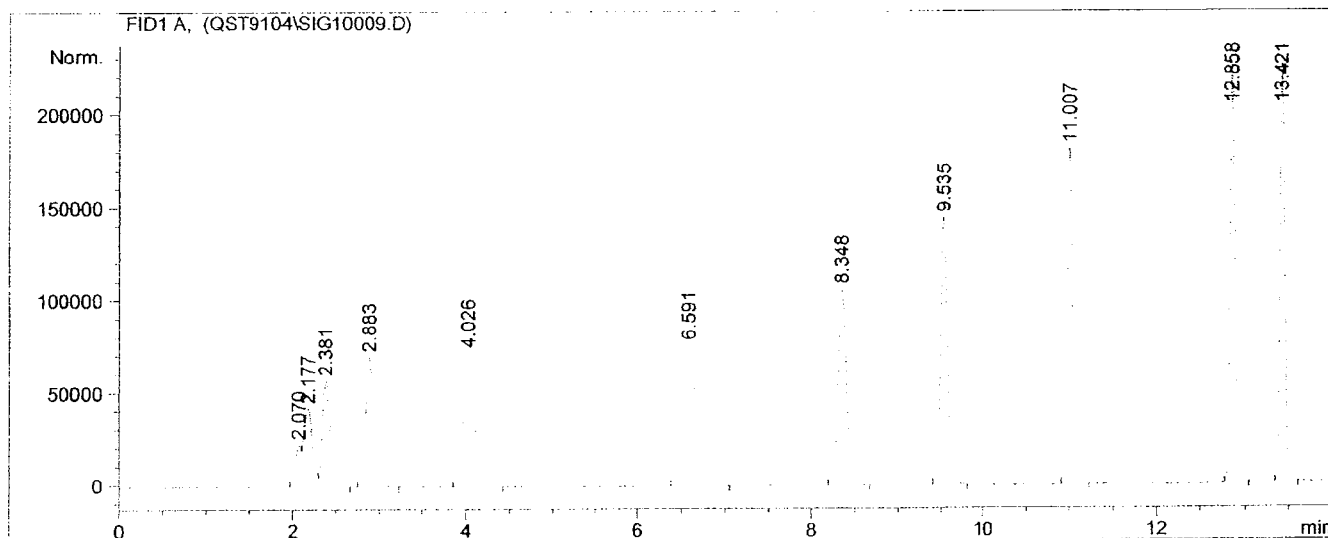
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=====
Sorted By      : Signal
Multiplier     : 1.0000
Dilution       : 1.0000
Use Multiplier & Dilution Factor with ISTDs
=====
```

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.064         | PV   | 0.0685      | 9.98733e4     | 2.35294e4       | 1.44875  |
| 2      | 2.169         | VV   | 0.1069      | 3.00538e5     | 4.33198e4       | 4.35957  |
| 3      | 2.373         | VV   | 0.1033      | 3.89667e5     | 5.88305e4       | 5.65248  |
| 4      | 2.875         | VB   | 0.1103      | 5.07629e5     | 7.19519e4       | 7.36363  |
| 5      | 4.014         | VB   | 0.1296      | 6.19603e5     | 7.40994e4       | 8.98792  |
| 6      | 6.575         | BB   | 0.1521      | 7.60288e5     | 7.77550e4       | 11.02868 |
| 7      | 8.335         | PB   | 0.1057      | 7.42216e5     | 1.08683e5       | 10.76652 |
| 8      | 9.525         | BB   | 0.0916      | 8.56174e5     | 1.47697e5       | 12.41960 |
| 9      | 11.000        | PB   | 0.0682      | 8.31283e5     | 1.85762e5       | 12.05852 |
| 10     | 12.852        | PB   | 0.0620      | 9.06765e5     | 2.30173e5       | 13.15347 |
| 11     | 13.416        | PB   | 0.0586      | 8.79700e5     | 2.30032e5       | 12.76086 |

Totals : 6.89374e6 1.25183e6

```
=====
Injection Date   : 4/6/2009 6:51:17 PM
Sample Name      : pre cal                      Location : Vial 1
Acq. Operator    : MS
Acq. Instrument  : Instrument 1                 Inj Volume : External
Acq. Method      : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/6/2009 6:46:43 PM by MS
                  (modified after loading)
Analysis Method  : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/6/2009 7:05:46 PM by MS
                  (modified after loading)
btex
=====
```



=====  
Area Percent Report  
=====

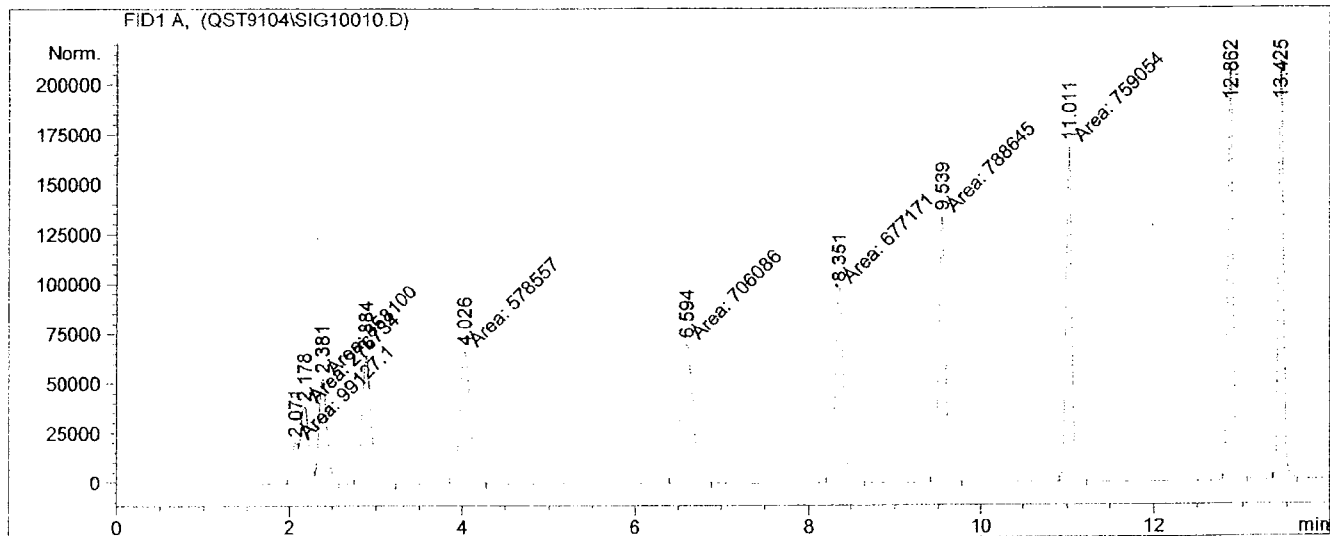
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Sorted By      : Signal
Multiplier     : 1.0000
Dilution       : 1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.070         | PV   | 0.0712      | 9.83676e4     | 2.28452e4       | 1.45850  |
| 2      | 2.177         | VV   | 0.1071      | 2.93547e5     | 4.22461e4       | 4.35244  |
| 3      | 2.381         | VB   | 0.1032      | 3.79348e5     | 5.73057e4       | 5.62461  |
| 4      | 2.883         | BB   | 0.1108      | 4.98441e5     | 7.02071e4       | 7.39042  |
| 5      | 4.026         | PB   | 0.1301      | 6.07542e5     | 7.22402e4       | 9.00806  |
| 6      | 6.591         | PB   | 0.1520      | 7.43903e5     | 7.61165e4       | 11.02990 |
| 7      | 8.348         | PB   | 0.1057      | 7.24924e5     | 1.06052e5       | 10.74849 |
| 8      | 9.535         | BB   | 0.0896      | 8.36532e5     | 1.44327e5       | 12.40331 |
| 9      | 11.007        | PB   | 0.0703      | 8.11270e5     | 1.81104e5       | 12.02875 |
| 10     | 12.858        | PB   | 0.0621      | 8.88749e5     | 2.25125e5       | 13.17754 |
| 11     | 13.421        | PB   | 0.0587      | 8.61802e5     | 2.24927e5       | 12.77799 |

Totals :                   6.74443e6 1.22250e6

=====  
Injection Date : 4/6/2009 7:10:07 PM  
Sample Name : pre cal Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/6/2009 7:05:53 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/6/2009 7:31:19 PM by MS  
(modified after loading)  
btex  
=====



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

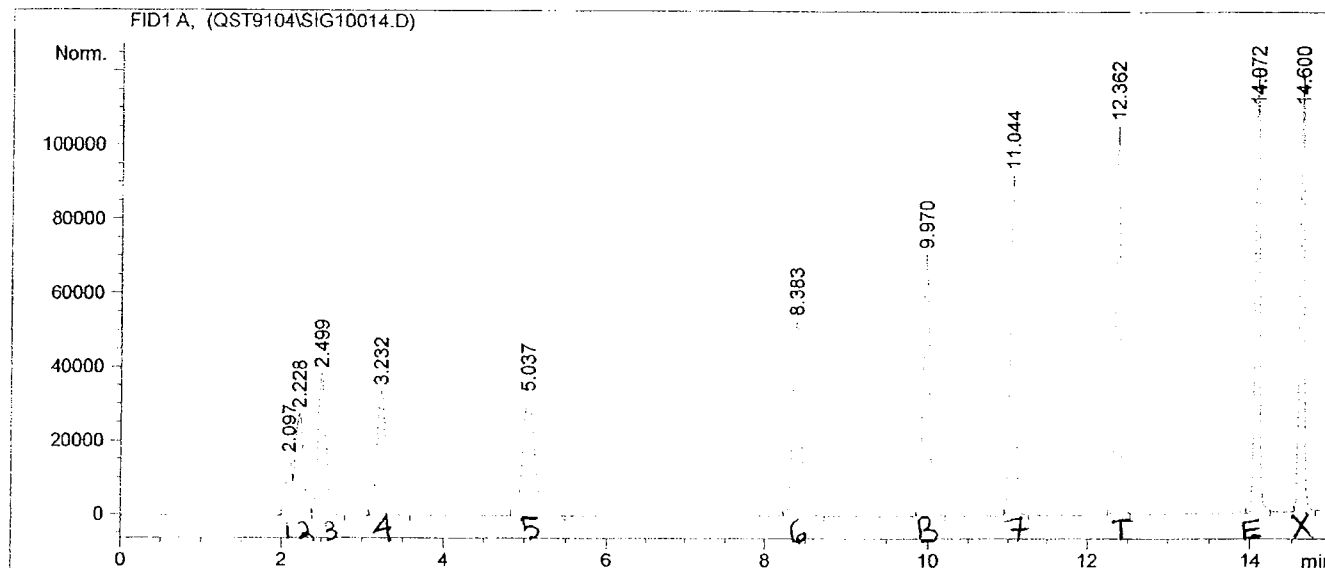
Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.071         | MF   | 0.0759      | 9.91271e4     | 2.17755e4       | 1.56436  |
| 2      | 2.178         | MF   | 0.1156      | 2.76734e5     | 3.99007e4       | 4.36723  |
| 3      | 2.381         | MF   | 0.1111      | 3.58100e5     | 5.37410e4       | 5.65130  |
| 4      | 2.884         | BB   | 0.1108      | 4.62879e5     | 6.52063e4       | 7.30485  |
| 5      | 4.026         | MM   | 0.1424      | 5.78557e5     | 6.77285e4       | 9.13040  |
| 6      | 6.594         | MM   | 0.1652      | 7.06086e5     | 7.12478e4       | 11.14297 |
| 7      | 8.351         | MM   | 0.1142      | 6.77171e5     | 9.87876e4       | 10.68666 |
| 8      | 9.539         | MM   | 0.0976      | 7.88645e5     | 1.34653e5       | 12.44586 |
| 9      | 11.011        | MM   | 0.0748      | 7.59054e5     | 1.69107e5       | 11.97888 |
| 10     | 12.862        | PB   | 0.0600      | 8.25859e5     | 2.09547e5       | 13.03316 |
| 11     | 13.425        | PB   | 0.0607      | 8.04389e5     | 2.09899e5       | 12.69432 |

Totals : 6.33660e6 1.14159e6

=====  
Injection Date : 4/7/2009 8:54:58 AM  
Sample Name : pre cal Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/7/2009 8:52:20 AM by MS  
(modified after loading)  
=====  
btex  
=====

RT CHECK



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

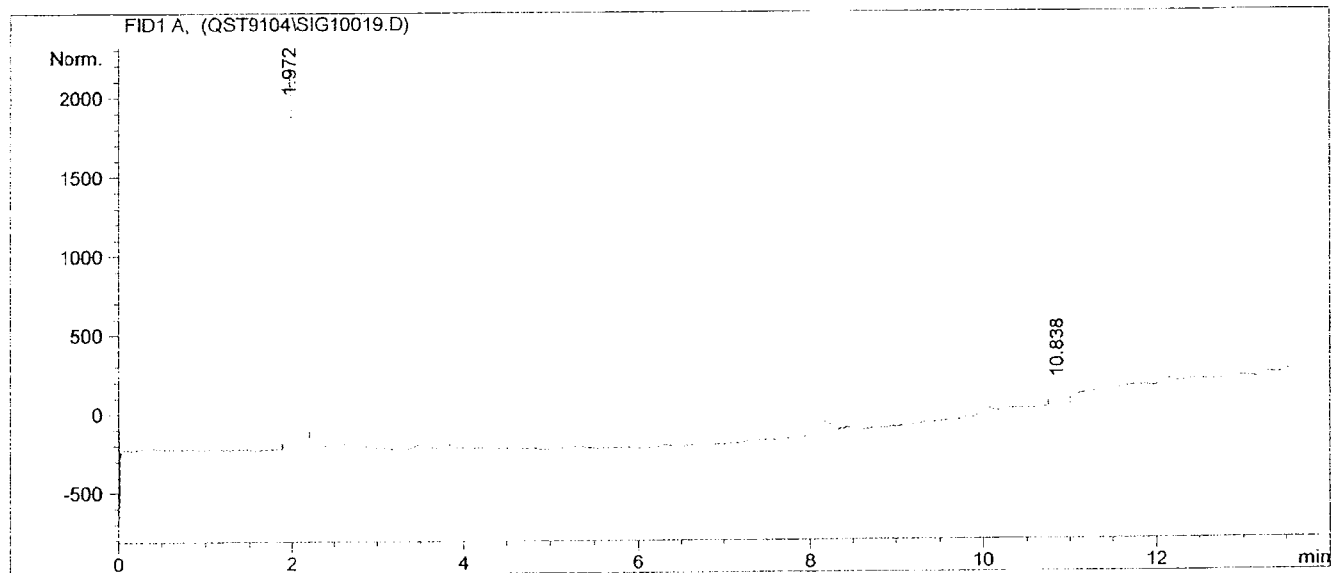
| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.097         | PV   | 0.0865      | 8.16903e4     | 1.55010e4       | 2.29048  |
| 2      | 2.228         | VV   | 0.1077      | 1.92970e5     | 2.75654e4       | 5.41062  |
| 3      | 2.499         | VB   | 0.1066      | 2.59917e5     | 3.85884e4       | 7.28772  |
| 4      | 3.232         | PB   | 0.1188      | 2.56851e5     | 3.37523e4       | 7.20176  |
| 5      | 5.037         | PB   | 0.1516      | 3.13680e5     | 3.22064e4       | 8.79516  |
| 6      | 8.383         | BB   | 0.1139      | 3.80492e5     | 5.29139e4       | 10.66848 |
| 7      | 9.970         | PB   | 0.0831      | 3.72115e5     | 7.11092e4       | 10.43359 |
| 8      | 11.044        | BB   | 0.0723      | 4.29405e5     | 9.23066e4       | 12.03993 |
| 9      | 12.362        | PB   | 0.0600      | 4.15306e5     | 1.05353e5       | 11.64462 |
| 10     | 14.072        | VB   | 0.0586      | 4.39863e5     | 1.20339e5       | 12.33315 |
| 11     | 14.600        | PB   | 0.0560      | 4.24219e5     | 1.17740e5       | 11.89451 |

Totals : 3.56651e6 7.07374e5

Results obtained with enhanced integrator!  
=====

```
=====
Injection Date   : 4/8/2009 11:03:34 AM
Sample Name      : blank                      Location : Vial 1
Acq. Operator    : MS
Acq. Instrument  : Instrument 1              Inj Volume : External
Method           : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/8/2009 11:01:56 AM by MS
                  (modified after loading)
=====
```

btex



```
=====
Area Percent Report
=====
```

```
Sorted By       : Signal
Multiplier      : 1.0000
Dilution        : 1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 1.972         | PP   | 0.0905      | 1.43599e4     | 2375.75513      | 95.10309 |
| 2      | 10.838        | PP   | 0.0893      | 739.39886     | 120.92873       | 4.89691  |

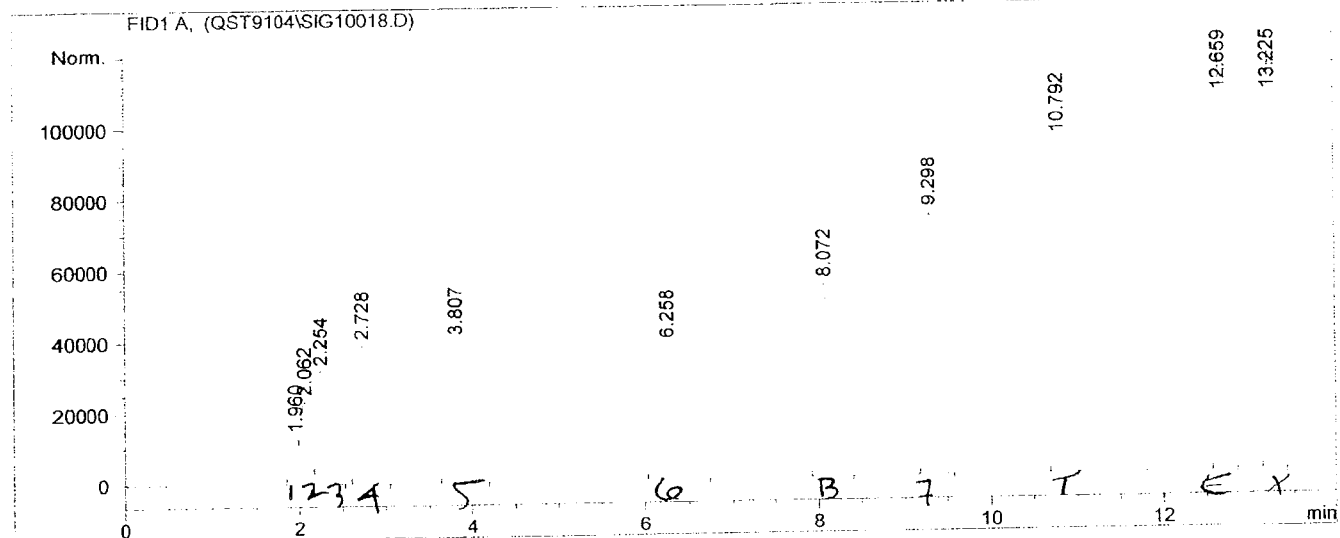
Totals : 1.50993e4 2496.68385

Results obtained with enhanced integrator!

```
=====
*** End of Report ***
=====
```

Injection Date : 4/8/2009 10:30:31 AM  
 Sample Name : rt check Location : Vial 1  
 Acq. Operator : MS  
 Acq. Instrument : Instrument 1 Inj Volume : External  
 Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
 Last changed : 4/8/2009 10:44:22 AM by MS  
 (modified after loading)  
 Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
 Last changed : 4/8/2009 10:46:24 AM by MS  
 (modified after loading)

btex



# Area Percent Report

Sorted By : Signal  
 Multiplier : 1.0000  
 Dilution : 1.0000  
 Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 1.960         | PV   | 0.0654      | 5.32767e4     | 1.31002e4       | 1.50895  |
| 2      | 2.062         | VV   | 0.1010      | 1.55376e5     | 2.35307e4       | 4.40068  |
| 3      | 2.254         | VB   | 0.0988      | 1.98684e5     | 3.18332e4       | 5.62727  |
| 4      | 2.728         | PB   | 0.1042      | 2.60800e5     | 3.89041e4       | 7.38658  |
| 5      | 3.807         | PB   | 0.1229      | 3.17462e5     | 3.98784e4       | 8.99139  |
| 6      | 6.258         | PB   | 0.1586      | 3.89019e5     | 3.82575e4       | 11.01810 |
| 7      | 8.072         | PB   | 0.1075      | 3.80465e5     | 5.44913e4       | 10.77582 |
| 8      | 9.298         | PB   | 0.0929      | 4.37556e5     | 7.40994e4       | 12.39281 |
| 9      | 10.792        | PB   | 0.0709      | 4.25068e5     | 9.38052e4       | 12.03910 |
| 10     | 12.659        | PB   | 0.0623      | 4.62501e5     | 1.16559e5       | 13.09931 |
| 11     | 13.225        | PB   | 0.0588      | 4.50521e5     | 1.17253e5       | 12.75999 |

Totals : 3.53073e6 6.41711e5

QST9104

Questar

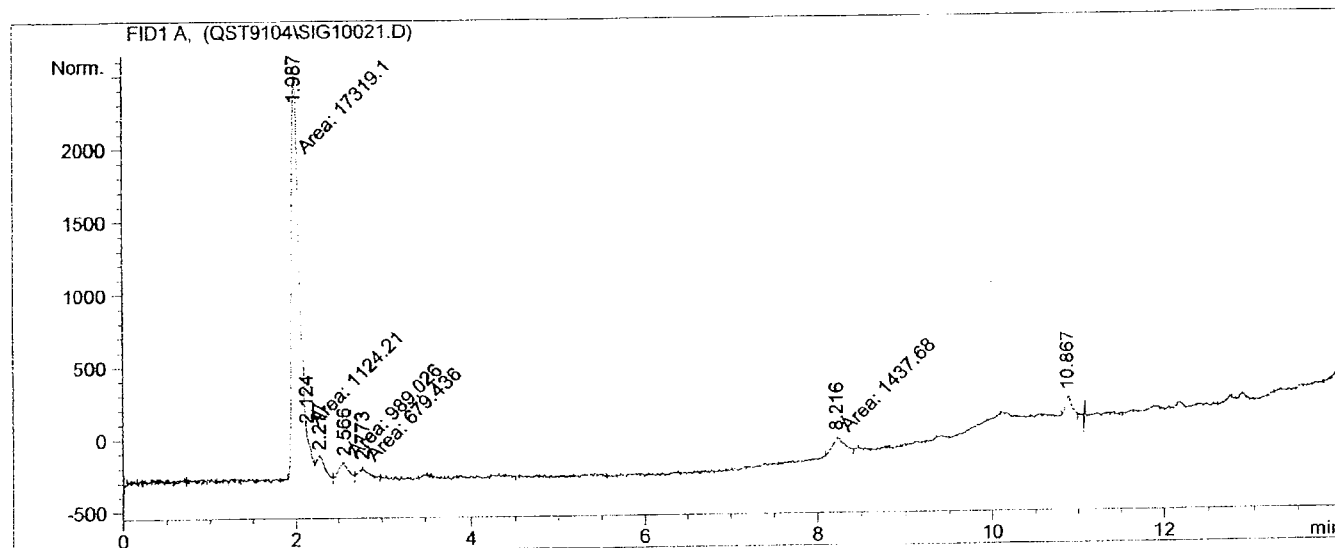
Wonsits Valley Compressor  
Station

**GC ANALYSIS**

**OUTLET  
3 RUNS**

Injection Date : 4/8/2009 12:02:40 PM  
Sample Name : run 1 outlet Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 11:39:47 AM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 12:19:03 PM by MS  
(modified after loading)

btex



# Area Percent Report

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 1.987         | MF   | 0.1037      | 1.73191e4     | 2782.35742      | 74.12543 |
| 2      | 2.124         | FM   | 0.0541      | 1124.20898    | 346.08157       | 4.81161  |
| 3      | 2.277         | VP   | 0.0886      | 1077.58960    | 155.98366       | 4.61208  |
| 4      | 2.566         | MF   | 0.1307      | 989.02631     | 126.10926       | 4.23302  |
| 5      | 2.773         | FM   | 0.1196      | 679.43573     | 94.69299        | 2.90798  |
| 6      | 8.216         | MF   | 0.1695      | 1437.68140    | 141.38713       | 6.15327  |
| 7      | 10.867        | PP   | 0.0677      | 737.53027     | 139.41443       | 3.15662  |

Totals : 2.33645e4 3786.02647

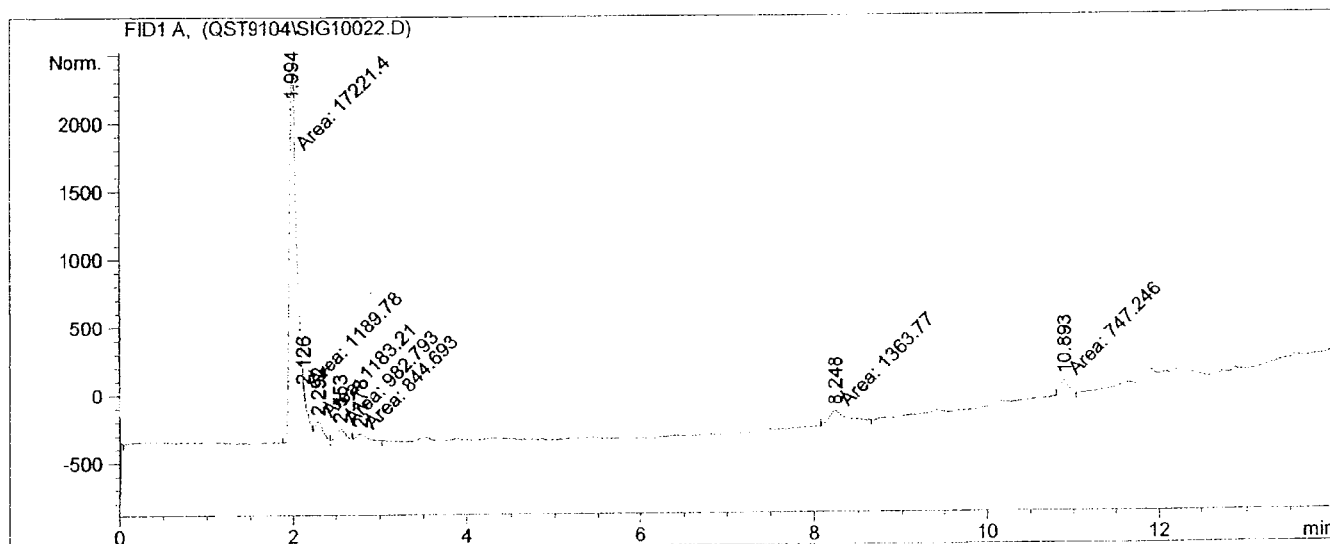
Results obtained with enhanced integrator!

\*\*\* End of Report \*\*\*



Injection Date : 4/8/2009 12:23:22 PM  
 Sample Name : run 1 outlet Location : Vial 1  
 Acq. Operator : MS  
 Acq. Instrument : Instrument 1 Inj Volume : External  
 Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
 Last changed : 4/8/2009 12:21:12 PM by MS  
 (modified after loading)  
 Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
 Last changed : 4/8/2009 12:54:15 PM by MS  
 (modified after loading)

btex



# Area Percent Report

Sorted By : Signal  
 Multiplier : 1.0000  
 Dilution : 1.0000  
 Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 1.994         | MF   | 0.1048      | 1.72214e4     | 2739.53027      | 73.18005 |
| 2      | 2.126         | MF   | 0.0500      | 1189.78345    | 396.96204       | 5.05584  |
| 3      | 2.292         | MF   | 0.1190      | 1183.21326    | 165.70830       | 5.02792  |
| 4      | 2.553         | MF   | 0.1494      | 982.79327     | 109.65788       | 4.17626  |
| 5      | 2.778         | MF   | 0.1873      | 844.69305     | 75.18326        | 3.58942  |
| 6      | 8.248         | MM   | 0.2189      | 1363.77124    | 103.84543       | 5.79518  |
| 7      | 10.893        | MM   | 0.1080      | 747.24554     | 115.34280       | 3.17533  |

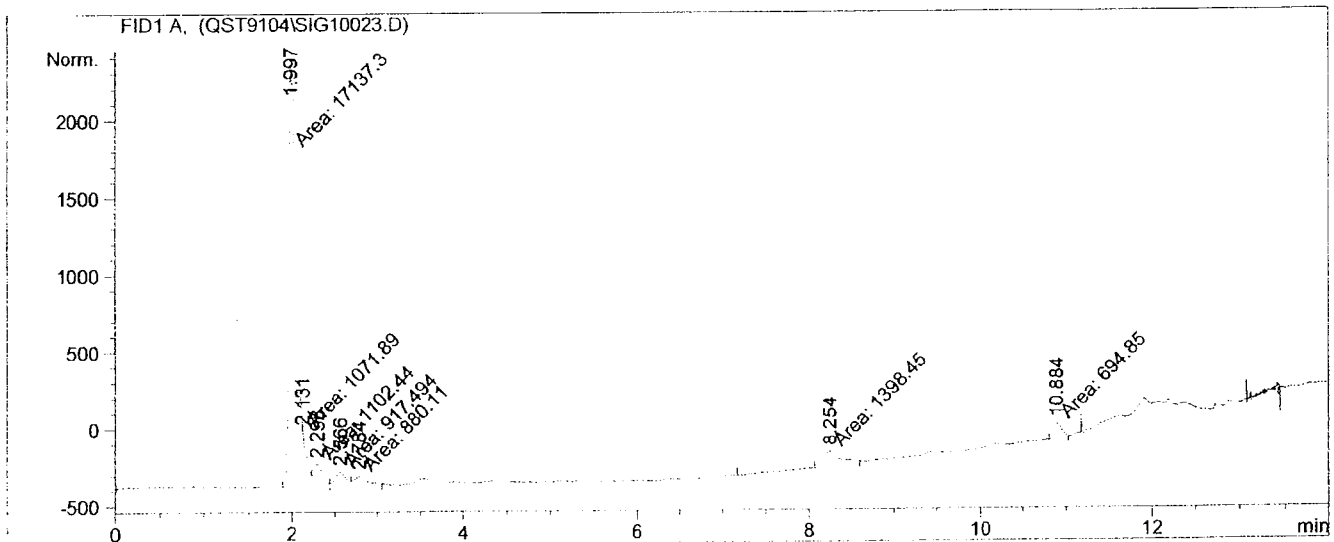
Totals : 2.35329e4 3706.22997

Results obtained with enhanced integrator!

\*\*\* End of Report \*\*\*

Injection Date : 4/8/2009 12:44:20 PM  
Sample Name : run 1 outlet Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 12:58:20 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 1:09:12 PM by MS  
(modified after loading)

btex



Area Percent Report

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 1.997         | MF   | 0.1050      | 1.71373e4     | 2719.68213      | 73.85960 |
| 2      | 2.131         | MF   | 0.0482      | 1071.89380    | 370.90710       | 4.61973  |
| 3      | 2.298         | MF   | 0.1186      | 1102.44055    | 154.94652       | 4.75138  |
| 4      | 2.566         | MF   | 0.1446      | 917.49445     | 105.72516       | 3.95428  |
| 5      | 2.784         | MF   | 0.1895      | 880.11047     | 77.41383        | 3.79316  |
| 6      | 8.254         | MM   | 0.2245      | 1398.44702    | 103.81898       | 6.02713  |
| 7      | 10.884        | MM   | 0.1091      | 694.85046     | 106.10743       | 2.99472  |

Handwritten notes: C1, C2, C3 } - 2900.0, B, +

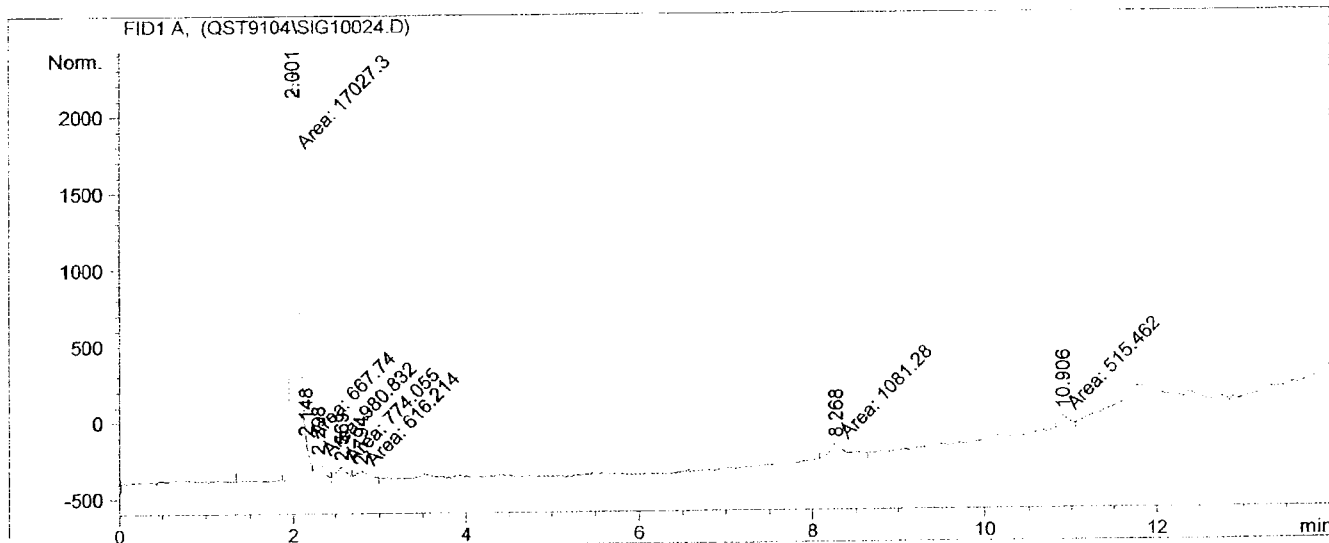
Totals : 2.32025e4 3638.60115

Results obtained with enhanced integrator!

\*\*\* End of Report \*\*\*

bag run 2 outlet inj 1

=====  
Injection Date : 4/8/2009 1:07:22 PM  
Sample Name : run 2 outlet Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 1:09:18 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 1:27:58 PM by MS  
(modified after loading)  
btex  
=====



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.001         | MF   | 0.1056      | 1.70273e4     | 2686.44678      | 78.60121 |
| 2      | 2.148         | MF   | 0.0433      | 667.73981     | 257.23059       | 3.08242  |
| 3      | 2.298         | MF   | 0.1208      | 980.83191     | 135.32291       | 4.52771  |
| 4      | 2.569         | MF   | 0.1417      | 774.05536     | 91.03603        | 3.57319  |
| 5      | 2.794         | MF   | 0.1636      | 616.21436     | 62.78586        | 2.84457  |
| 6      | 8.268         | MM   | 0.1928      | 1081.28430    | 93.45583        | 4.99142  |
| 7      | 10.906        | MM   | 0.1061      | 515.46228     | 80.95765        | 2.37948  |

Handwritten notes: C1, C2, (C3 2371.1), B, T

Totals : 2.16629e4 3407.23565

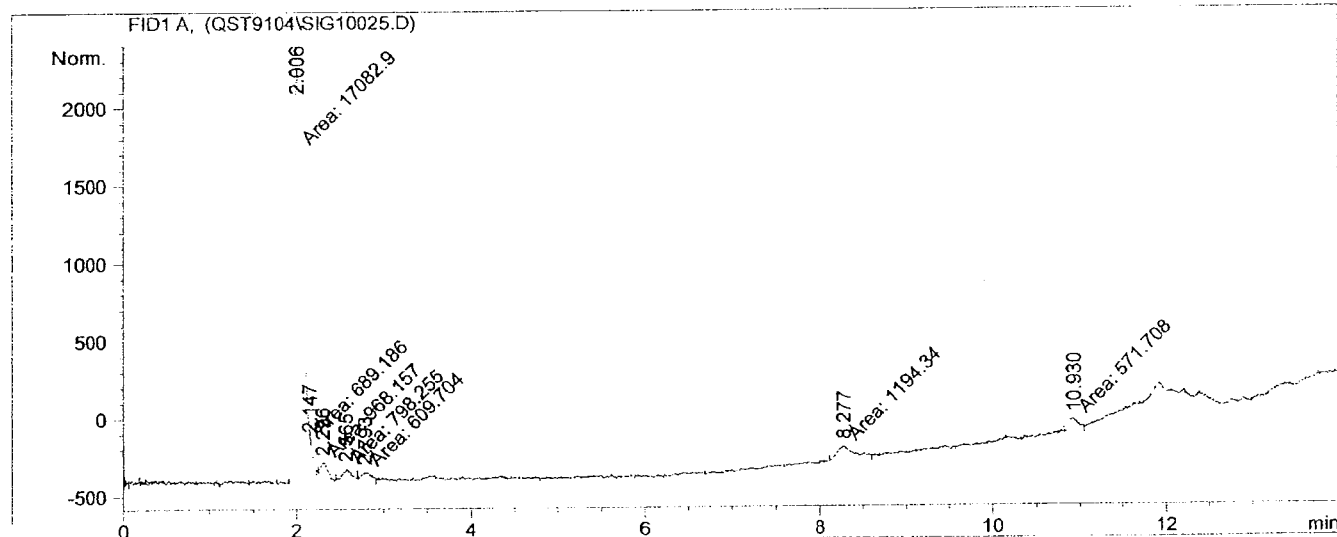
Results obtained with enhanced integrator!

=====  
\*\*\* End of Report \*\*\*  
=====

bag run 2 outlet inj 2

Injection Date : 4/8/2009 1:28:22 PM  
Sample Name : run 2 outlet Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 1:28:05 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 1:53:27 PM by MS  
(modified after loading)

btex



# Area Percent Report

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.006         | MF   | 0.1056      | 1.70829e4     | 2695.35474      | 77.95335 |
| 2      | 2.147         | MF   | 0.0385      | 689.18616     | 298.25885       | 3.14493  |
| 3      | 2.296         | MF   | 0.1112      | 968.15717     | 145.11784       | 4.41794  |
| 4      | 2.565         | MF   | 0.1321      | 798.25488     | 100.71831       | 3.64263  |
| 5      | 2.793         | MF   | 0.1316      | 609.70404     | 77.22437        | 2.78223  |
| 6      | 8.277         | MM   | 0.2018      | 1194.34265    | 98.66236        | 5.45008  |
| 7      | 10.930        | MM   | 0.1129      | 571.70758     | 84.42159        | 2.60884  |

Totals : 2.19142e4 3499.75805

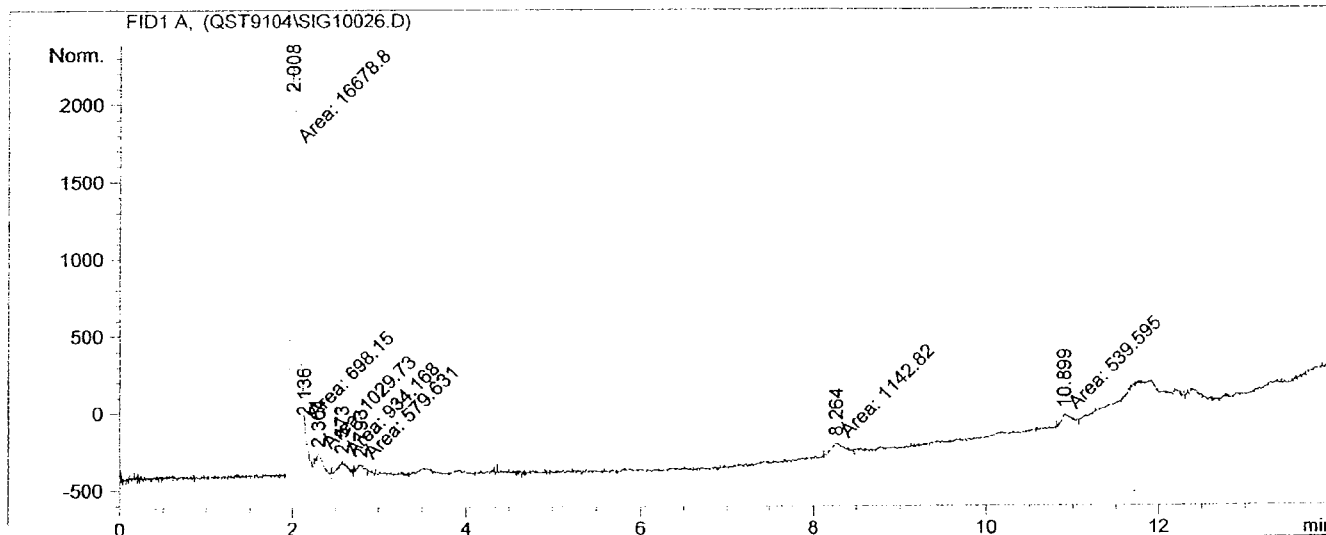
Results obtained with enhanced integrator!

\*\*\* End of Report \*\*\*

bag run 2 outlet inj 3

Injection Date : 4/8/2009 1:51:31 PM  
Sample Name : run 2 outlet Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 1:53:34 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 2:20:17 PM by MS  
(modified after loading)

btex



Area Percent Report

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |            |
|--------|---------------|------|-------------|---------------|-----------------|----------|------------|
| 1      | 2.008         | MF   | 0.1039      | 1.66788e4     | 2675.12207      | 77.20635 | C1         |
| 2      | 2.136         | MF   | 0.0324      | 698.14984     | 359.27371       | 3.23174  | C2         |
| 3      | 2.304         | FM   | 0.1059      | 1029.73352    | 162.13432       | 4.76664  | C3         |
| 4      | 2.573         | MF   | 0.1347      | 934.16797     | 115.61897       | 4.32427  | + - 2543.5 |
| 5      | 2.793         | MF   | 0.1104      | 579.63110     | 87.53869        | 2.68311  | +          |
| 6      | 8.264         | MF   | 0.1891      | 1142.81812    | 100.71062       | 5.29011  | B          |
| 7      | 10.899        | MM   | 0.1141      | 539.59534     | 78.83263        | 2.49779  | T          |

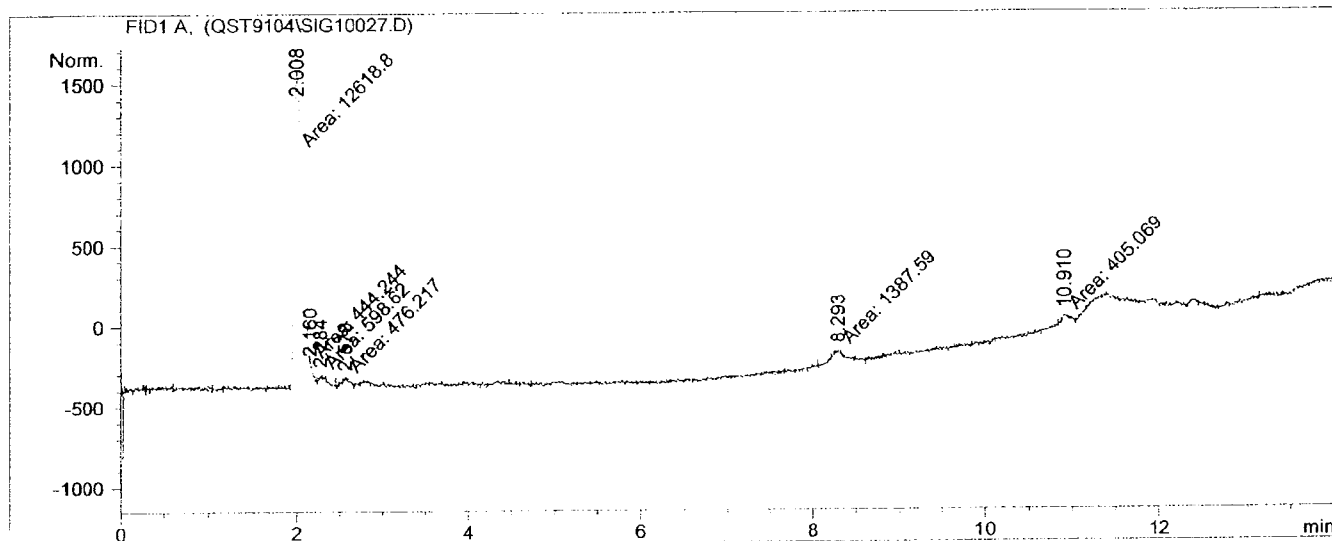
Totals : 2.16029e4 3579.23101

Results obtained with enhanced integrator!

\*\*\* End of Report \*\*\*

bag run 3 outlet inj 1

=====  
Injection Date : 4/8/2009 2:19:56 PM  
Sample Name : run 3 outlet Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 2:20:24 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 2:35:52 PM by MS  
(modified after loading)  
btex  
=====



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.008         | MF   | 0.1054      | 1.26188e4     | 1994.95984      | 79.21140 |
| 2      | 2.160         | MF   | 0.0437      | 444.24426     | 169.51329       | 2.78863  |
| 3      | 2.284         | MF   | 0.0992      | 598.62024     | 100.60657       | 3.75768  |
| 4      | 2.570         | MF   | 0.1092      | 476.21652     | 72.68394        | 2.98933  |
| 5      | 8.293         | MM   | 0.2167      | 1387.59180    | 106.72234       | 8.71025  |
| 6      | 10.910        | MM   | 0.0998      | 405.06897     | 67.63737        | 2.54272  |

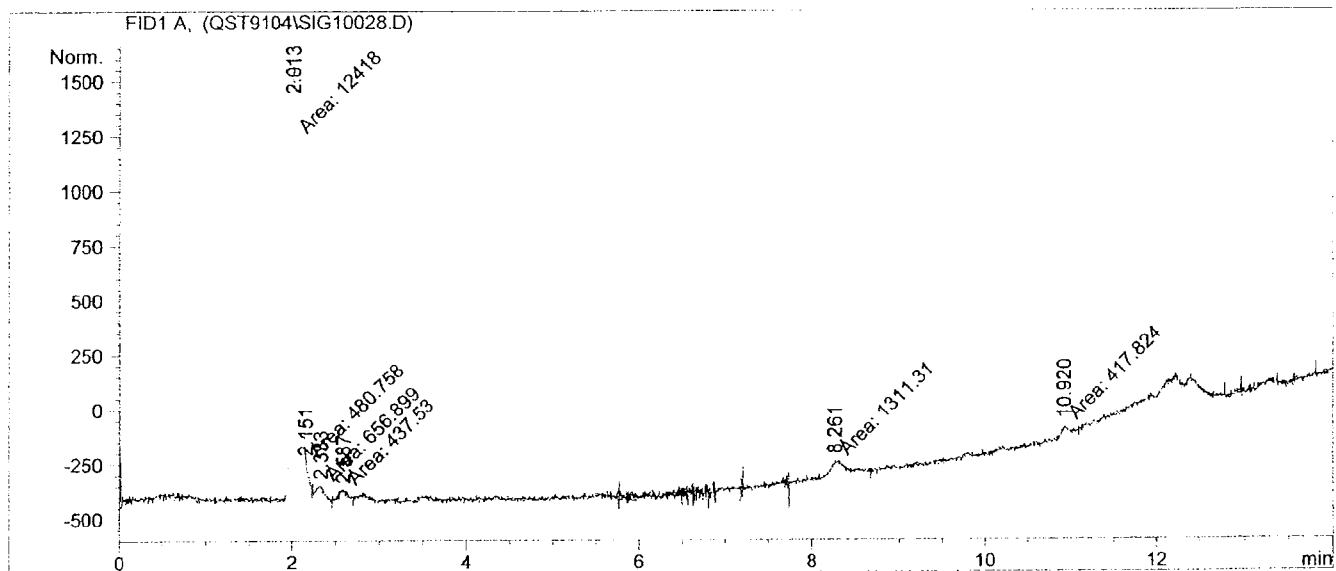
Totals : 1.59306e4 2512.12336

Results obtained with enhanced integrator!

=====  
\*\*\* End of Report \*\*\*  
=====

bag run 3 outlet inj 2

=====  
Injection Date : 4/8/2009 2:38:44 PM  
Sample Name : run 3 outlet Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 2:35:52 PM by MS  
(modified after loading)  
=====  
btex  
=====



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.013         | MF   | 0.1037      | 1.24180e4     | 1995.21057      | 78.98329 |
| 2      | 2.151         | FM   | 0.0417      | 480.75806     | 192.02965       | 3.05780  |
| 3      | 2.333         | FM   | 0.1256      | 656.89941     | 87.17471        | 4.17813  |
| 4      | 2.587         | MM   | 0.1195      | 437.53049     | 61.04747        | 2.78286  |
| 5      | 8.261         | MM   | 0.2393      | 1311.30664    | 91.34111        | 8.34040  |
| 6      | 10.920        | MM   | 0.1009      | 417.82379     | 69.04718        | 2.65752  |

C<sub>1</sub>  
C<sub>2</sub>  
C<sub>3</sub> + 1094.4  
B  
T

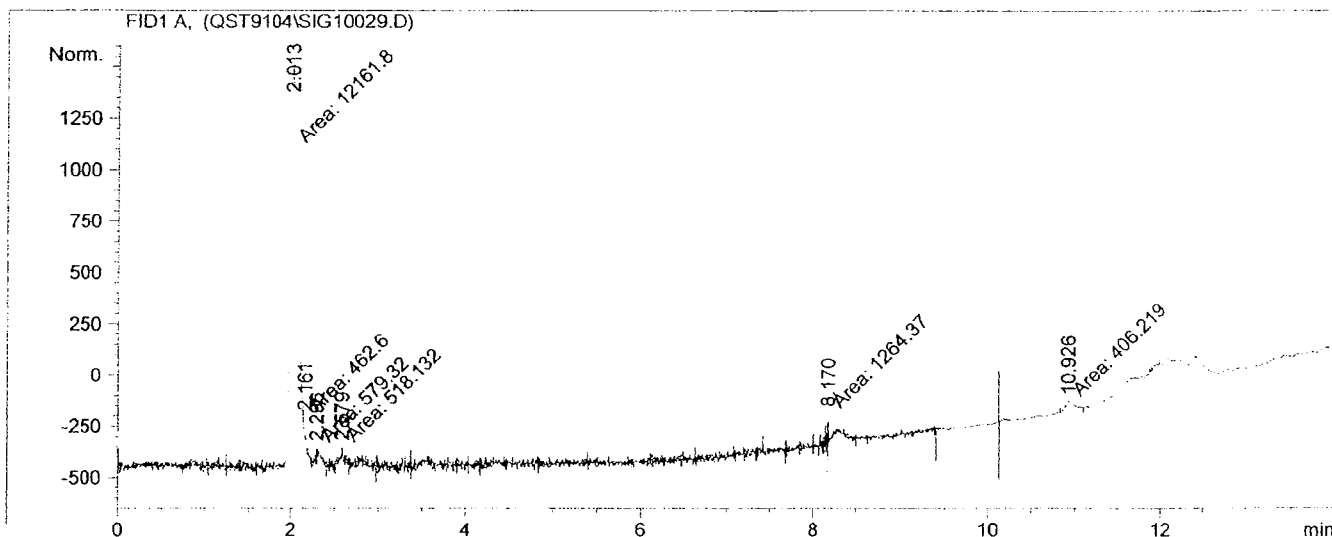
Totals : 1.57223e4 2495.85069

Results obtained with enhanced integrator!

=====  
\*\*\* End of Report \*\*\*  
=====

bag run 3 outlet inj 3

=====  
Injection Date : 4/8/2009 2:58:36 PM  
Sample Name : run 3 outlet Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 2:57:32 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 3:20:30 PM by MS  
(modified after loading)  
btex  
=====



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.013         | MF   | 0.1025      | 1.21618e4     | 1977.51770      | 79.01154 |
| 2      | 2.161         | MF   | 0.0295      | 462.60013     | 261.30023       | 3.00537  |
| 3      | 2.296         | MM   | 0.0841      | 579.31976     | 114.79823       | 3.76366  |
| 4      | 2.579         | MM   | 0.0687      | 518.13202     | 125.65630       | 3.36614  |
| 5      | 8.170         | MM   | 0.1210      | 1264.37122    | 174.08910       | 8.21422  |
| 6      | 10.926        | MM   | 0.1206      | 406.21948     | 56.14962        | 2.63908  |

Totals : 1.53925e4 2709.51117

Results obtained with enhanced integrator!

=====  
\*\*\* End of Report \*\*\*  
=====



QST9104

Questar

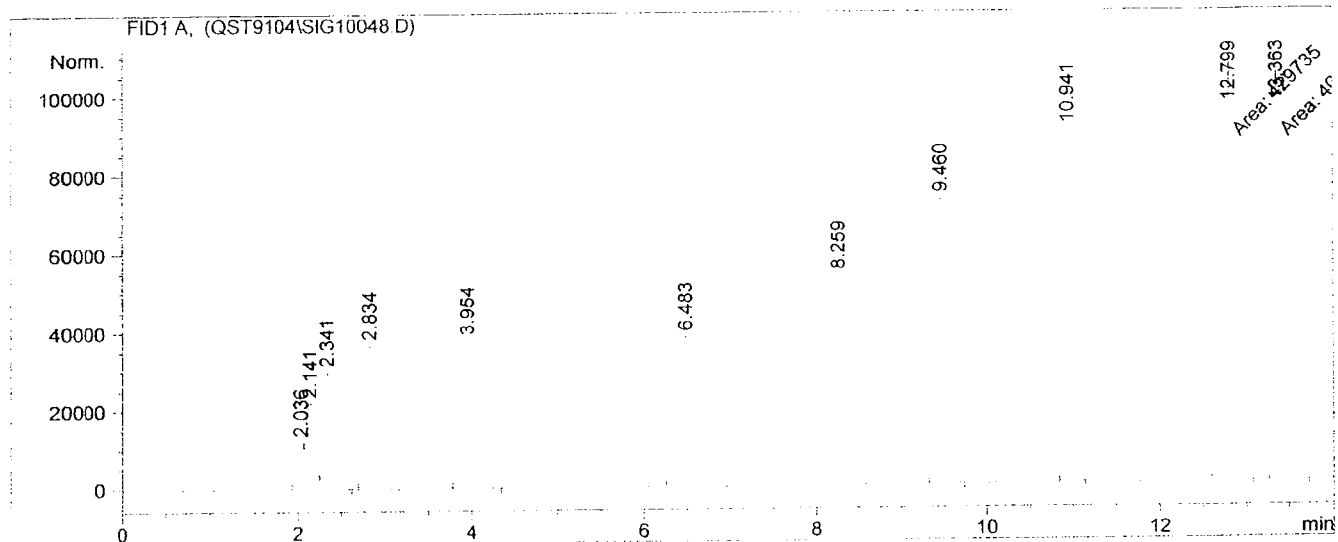
Wonsits Valley Compressor  
Station

## **Post Calibration**

➤ 50 PPM C1-C7 BTEX 3 INJECTIONS EACH

Injection Date : 4/8/2009 7:51:05 PM  
Sample Name : post cal Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 7:53:34 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 8:05:37 PM by MS  
(modified after loading)

btex



# Area Percent Report

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

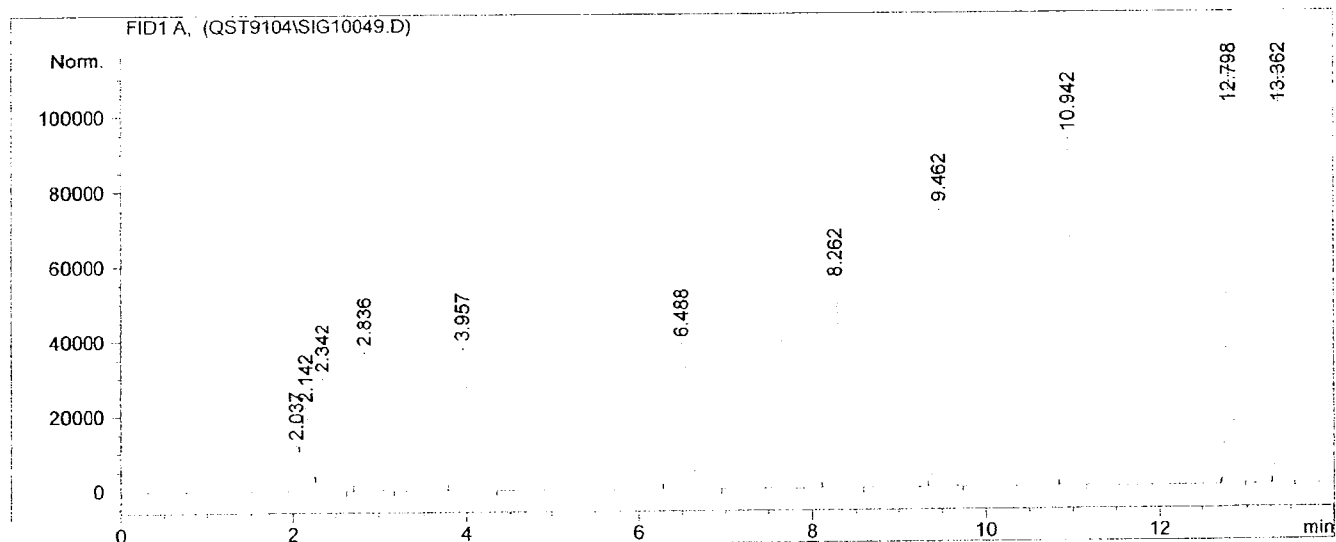
Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.036         | PV   | 0.0696      | 5.21327e4     | 1.22589e4       | 1.53659  |
| 2      | 2.141         | VV   | 0.1060      | 1.52156e5     | 2.21954e4       | 4.48473  |
| 3      | 2.341         | VB   | 0.1000      | 1.95700e5     | 3.00312e4       | 5.76818  |
| 4      | 2.834         | PB   | 0.1094      | 2.56768e5     | 3.67909e4       | 7.56815  |
| 5      | 3.954         | PB   | 0.1284      | 3.12865e5     | 3.78576e4       | 9.22157  |
| 6      | 6.483         | BB   | 0.1537      | 3.82250e5     | 3.85495e4       | 11.26665 |
| 7      | 8.259         | PB   | 0.1084      | 3.70320e5     | 5.37109e4       | 10.91505 |
| 8      | 9.460         | PB   | 0.0920      | 4.26162e5     | 7.30890e4       | 12.56097 |
| 9      | 10.941        | PB   | 0.0703      | 4.04692e5     | 9.03207e4       | 11.92814 |
| 10     | 12.799        | MM   | 0.0668      | 4.29735e5     | 1.07208e5       | 12.66628 |
| 11     | 13.363        | MM   | 0.0651      | 4.09970e5     | 1.04908e5       | 12.08369 |

Totals : 3.39275e6 6.06920e5

Injection Date : 4/8/2009 8:10:34 PM  
Sample Name : post cal Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 8:24:24 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 8:24:59 PM by MS  
(modified after loading)

btex



# Area Percent Report

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

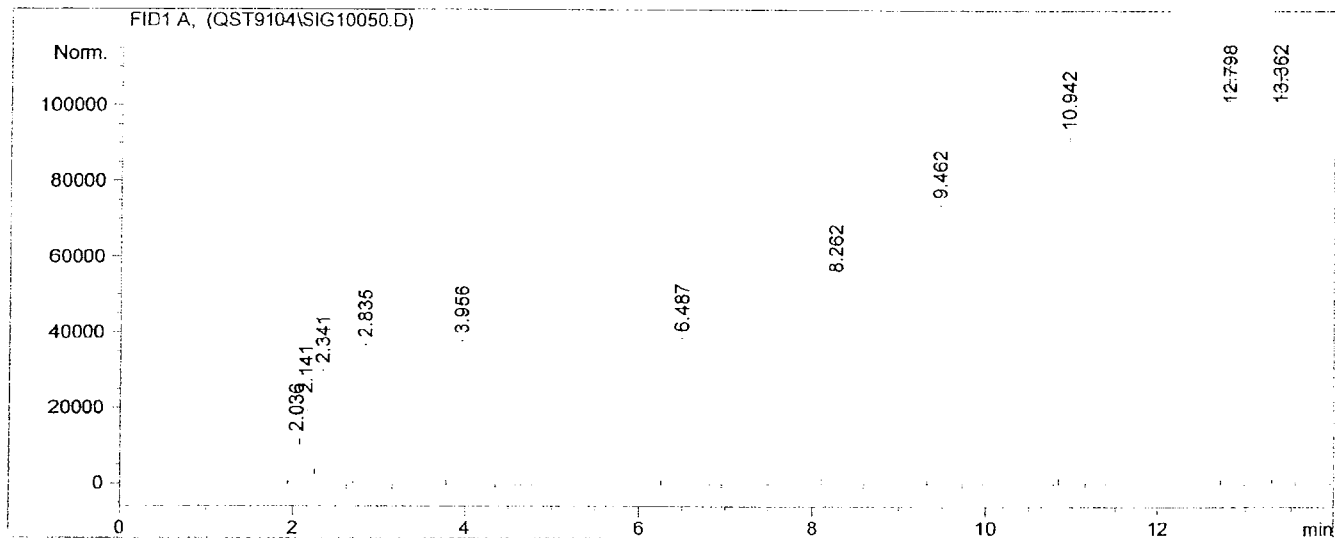
| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.037         | PV   | 0.0708      | 5.31865e4     | 1.24590e4       | 1.53411  |
| 2      | 2.142         | VV   | 0.1057      | 1.53908e5     | 2.25368e4       | 4.43930  |
| 3      | 2.342         | VB   | 0.1019      | 1.98452e5     | 3.05085e4       | 5.72413  |
| 4      | 2.836         | PB   | 0.1092      | 2.60473e5     | 3.74310e4       | 7.51305  |
| 5      | 3.957         | PB   | 0.1282      | 3.17572e5     | 3.85178e4       | 9.16003  |
| 6      | 6.488         | BB   | 0.1533      | 3.88570e5     | 3.93257e4       | 11.20789 |
| 7      | 8.262         | PB   | 0.1059      | 3.77455e5     | 5.50925e4       | 10.88727 |
| 8      | 9.462         | BB   | 0.0897      | 4.34259e5     | 7.48874e4       | 12.52574 |
| 9      | 10.942        | PB   | 0.0702      | 4.16911e5     | 9.32338e4       | 12.02535 |
| 10     | 12.798        | PB   | 0.0620      | 4.42808e5     | 1.12217e5       | 12.77231 |
| 11     | 13.362        | PB   | 0.0586      | 4.23342e5     | 1.10771e5       | 12.21083 |

Totals : 3.46694e6 6.26980e5

post cal 50ppm cl-c7 btex inj 3

Injection Date : 4/8/2009 8:30:01 PM  
Sample Name : post cal Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 8:25:05 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 8:44:34 PM by MS  
(modified after loading)

btex



#### Area Percent Report

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.036         | PV   | 0.0707      | 5.31261e4     | 1.24807e4       | 1.53760  |
| 2      | 2.141         | VV   | 0.1054      | 1.53953e5     | 2.26225e4       | 4.45577  |
| 3      | 2.341         | VB   | 0.1018      | 1.98495e5     | 3.05506e4       | 5.74494  |
| 4      | 2.835         | PB   | 0.1093      | 2.60527e5     | 3.73953e4       | 7.54029  |
| 5      | 3.956         | PB   | 0.1305      | 3.17597e5     | 3.84164e4       | 9.19205  |
| 6      | 6.487         | BB   | 0.1537      | 3.87842e5     | 3.90986e4       | 11.22511 |
| 7      | 8.262         | PB   | 0.1064      | 3.76689e5     | 5.46791e4       | 10.90231 |
| 8      | 9.462         | BB   | 0.0900      | 4.32571e5     | 7.42194e4       | 12.51967 |
| 9      | 10.942        | PB   | 0.0705      | 4.14808e5     | 9.21926e4       | 12.00558 |
| 10     | 12.798        | PB   | 0.0623      | 4.39112e5     | 1.10732e5       | 12.70899 |
| 11     | 13.362        | PB   | 0.0588      | 4.20409e5     | 1.09364e5       | 12.16768 |

Totals : 3.45513e6 6.21751e5

4/10/09

QST9104

Questar, Vernal Utah

Wonsits Valley Compressor  
Station

**GC ANALYSIS**

Inlet Bag Analysis  
BTEX

Analyst:MS

# **Table of Contents**

**Detail : Logbook/Gas certificates**

**Detail : Pre calibration 5,50,100 ppm C1-C7  
BTEX**

**Detail :GC BAG Analysis Intlet BTEX– Three  
runs**

**Detail : Post calibration 50 ppm C1-C7 BTEX**

**Analyst(s) : MS**

QST9104

Questar

## Wonsits Valley Compressor Station

- Lab book notes
- Gas certificates

4:30 - 8:30

10 10 16

7:00 - 5:00

10 10 16

7:00

10 10 16

MOBIL DENVER 4:30 AM

ARRIVE @ SITE 12:20

UNLOAD/START CAL : 13:00

4/7

MOD - 7:00

ON SITE 8:00

360,000

8.212

51

IRIS LEFT ON FROM 4/6 - 4/7 SO OPERATING  
 PARAMETER SAME - SIGNAL 10.0 → 7.9

4/8 NO 3 7:00 / ON SITE 8:00

IRIS SETTINGS SAME - SIGNAL: 8.2 → 7.9  
 → 7A

START

RUN 1 10:30

RUN 2 11:55

RUN 3 13:20

NOTE: ALL INLET SAMPLES  
 ARE DILUTE 100:1  
 PER FID (METHOD 25)  
 EXHAUST

Continued on Page

INLET BTE

Read and Understood By

Signed

Date

Signed

Date



PROJECT QST 9104 - 04/06/09  
VERMIL, UT.

Notebook No. \_\_\_\_\_

7

Continued From Page

INLET + OUTLET - BAG ANALYSIS

INSTR: IRIS AIR: 55 K<sub>2</sub>: 35 CH: 20 SIGNAL: 14.2 → 7.8  
ANALYST: MRS METHOD: BTEX

| SAMPLE | SAMPLE       | DESCRIPTION               | SMALL LOOP: 5µL | LARGE LOOP:                |
|--------|--------------|---------------------------|-----------------|----------------------------|
| 0001   | Precel       | Precel 50ppm C1-C7 BTEX   | inj 1           | (NG)                       |
| 0002   | "            | "                         | inj 2           |                            |
| 0003   | "            | "                         | inj 3           |                            |
| 0004   | "            | "                         | inj 4           |                            |
| 0005   | Precel       | Precel 50ppm C1-C7 BTEX   | inj 1           |                            |
| 0006   | "            | "                         | inj 2           |                            |
| 0007   | "            | "                         | inj 3           |                            |
| 0008   | Precel       | Precel 100ppm C1-C7 BTEX  | inj 1           |                            |
| 0009   | "            | "                         | inj 2           |                            |
| 0010   | "            | "                         | inj 3           |                            |
| 0011   | Precel       | Precel 500ppm C1-C3       | inj 1           |                            |
| 0012   | "            | "                         | inj 2           |                            |
| 0013   | "            | "                         | inj 3           |                            |
| 0014   | Precel       | RT CHECK 50ppm C1-C7 BTEX | inj 1           |                            |
| 0015   | BAG INLET    | BAG RUN INLET DIAG        | inj 1           |                            |
| 0016   | "            | "                         | inj 2           |                            |
| 0017   | RT CHECK     | RT CHECK 4/08/09          | inj 1           | @ BSE START                |
| 0018   | RT CHECK     | RT CHECK 4/08/09          | inj 2           | @ GC START                 |
| 0019   | BLANK        | BLANK                     |                 |                            |
| 0020   | RUN 1 OUTLET | BAG RUN 1 OUTLET          | inj 1           | (NG) HANDPUMP CONTINUATION |
| 0021   | RUN 1 OUTLET | BAG RUN 1 OUTLET          | inj 2A          |                            |
| 0022   | "            | "                         | inj 2           |                            |
| 0023   | "            | "                         | inj 3           |                            |
| 0024   | RUN 2 OUTLET | BAG RUN 2 OUTLET          | inj 1           |                            |
| 0025   | "            | "                         | inj 2           |                            |
| 0026   | "            | "                         | inj 3           |                            |
| 0027   | RUN 3 OUTLET | BAG RUN 3 OUTLET          | inj 1           |                            |
| 0028   | "            | "                         | inj 2           |                            |
| 0029   | "            | "                         | inj 3           |                            |
| 0030   | LOOP CHANGE  | LARGE LOOP C3HB 50ppm     | inj 1           |                            |
| 0031   | "            | "                         | inj 2           |                            |
| 0032   | "            | SMALL LOOP C3HB 50ppm     | inj 1           |                            |
| 0033   | "            | "                         | inj 2           |                            |

Continued on Page

Read and Understood By

Signed

Date

Signed

Date

PROJECT

QSD 9104 CONT.

Notebook No.

Continued From Page

| SIGNATURE | SAMPLE      | DESCRIPTION               |                       |
|-----------|-------------|---------------------------|-----------------------|
| 0034      | RUN 1 INLET | BAG RUN 1 INLET           | inj 1 (NL) - STRIPPED |
| 0035      | "           | "                         | inj 2                 |
| 0036      | "           | "                         | inj 3                 |
| 0037      | "           | "                         | inj 4                 |
| 0038      | RUN 2 INLET | BAG RUN 2 INLET           | inj 1                 |
| 0039      | "           | "                         | inj 2                 |
| 0040      | "           | "                         | inj 3                 |
| 0041      | RUN 3 INLET | BAG RUN 3 INLET           | inj 1                 |
| 0042      | "           | "                         | inj 2                 |
| 0043      | "           | "                         | inj 3                 |
| 0044      | LOOP CHANGE | SMALL LOOP C3H8 50.7 ppm  | inj 1                 |
| 0045      | "           | "                         | inj 2                 |
| 0046      | LOOP CHANGE | LARGE LOOP C3H8 50.1 ppm  | inj 1                 |
| 0047      | "           | "                         | inj 2                 |
| 0048      | POSTCAL     | POSTCAL 50 ppm C1-C7 BTEX | inj 1                 |
| 0049      | "           | "                         | inj 2                 |
| 0050      | "           | "                         | inj 3                 |

Continued on Page

Read and Understood By

Signed

Date

Signed

Date



Spectra Gases, Inc.

3434 Route 22 West, Branchburg, New Jersey 08876 USA

ISO 9001:2000

SHIPPED FROM: 80 INDUSTRIAL DRIVE ALPHA, NJ. 08865

SHIPPED TO: Air Pollution Testing  
5530 Marshall St.  
Arvada, CO 80002

**CERTIFICATE  
OF  
ANALYSIS**

|                     |              |                          |            |
|---------------------|--------------|--------------------------|------------|
| SGI ORDER # :       | 133458       | CYLINDER # :             | CC-237395  |
| ITEM# :             | 1            | CYLINDER PRES:           | 1400 psig  |
| CERTIFICATION DATE: | 08/07/2008   | CYLINDER VALVE:          | CGA 350    |
| P.O.# :             | Verbal- Matt | PRODUCT EXPIRATION DATE: | 08/07/2009 |
| BLEND TYPE:         | CERTIFIED    |                          |            |

ANALYTICAL ACCURACY: +/- 2%

| COMPONENT    | REQUESTED GAS<br>CONC | ANALYSIS |
|--------------|-----------------------|----------|
| Methane      | 5.00 ppm              | 5.08 ppm |
| Ethane       | 5.00 ppm              | 5.07 ppm |
| Propane      | 5.00 ppm              | 5.11 ppm |
| Butane       | 5.00 ppm              | 5.07 ppm |
| Pentane      | 5.00 ppm              | 5.21 ppm |
| Hexane       | 5.00 ppm              | 5.15 ppm |
| Benzene      | 5.00 ppm              | 5.13 ppm |
| Heptane      | 5.00 ppm              | 5.18 ppm |
| Toluene      | 5.00 ppm              | 5.09 ppm |
| Ethylbenzene | 5.00 ppm              | 5.25 ppm |
| o-Xylene     | 5.00 ppm              | 5.25 ppm |
| Nitrogen     | Balance               | Balance  |

ANALYST: \_\_\_\_\_

Lou Lorenzetti

DATE: 08/07/2008

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

QGM498781



3434 Route 22 West, Branchburg, New Jersey 08876 USA

ISO 9001:2000

SHIPPED FROM: 80 INDUSTRIAL DRIVE ALPHA, NJ. 08865

SHIPPED TO: Air Pollution Testing  
5530 Marshall St.  
Arvada, CO 80002

**CERTIFICATE  
OF  
ANALYSIS**

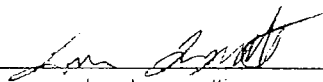
|                     |              |                          |            |
|---------------------|--------------|--------------------------|------------|
| SGI ORDER # :       | 135110       | CYLINDER # :             | CC-65860   |
| ITEM# :             | 1            | CYLINDER PRES:           | 420 psig   |
| CERTIFICATION DATE: | 08/28/2008   | CYLINDER VALVE:          | CGA 350    |
| P.O.# :             | Verbal- Matt | PRODUCT EXPIRATION DATE: | 08/28/2009 |
| BLEND TYPE:         | CERTIFIED    |                          |            |

ANALYTICAL ACCURACY: +/- 2%

| COMPONENT    | REQUESTED GAS<br>CONC | ANALYSIS |
|--------------|-----------------------|----------|
| Methane      | 50.0 ppm              | 51.5 ppm |
| Ethane       | 50.0 ppm              | 51.5 ppm |
| Propane      | 50.0 ppm              | 51.2 ppm |
| Butane       | 50.0 ppm              | 51.2 ppm |
| Pentane      | 50.0 ppm              | 51.6 ppm |
| Hexane       | 50.0 ppm              | 51.8 ppm |
| Benzene      | 50.0 ppm              | 51.8 ppm |
| Heptane      | 50.0 ppm              | 51.9 ppm |
| Toluene      | 50.0 ppm              | 52.0 ppm |
| Ethylbenzene | 50.0 ppm              | 52.0 ppm |
| o-Xylene     | 50.0 ppm              | 51.9 ppm |
| Nitrogen     | Balance               | Balance  |

SOURCE REFERENCE# 247527

ANALYST:

  
Lou Lorenzetti

DATE: 08/28/2008

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

QGM498782



3434 Route 22 West, Branchburg, New Jersey 08876 USA

ISO 9001:2000

SHIPPED FROM: 80 INDUSTRIAL DRIVE ALPHA, NJ. 08865

SHIPPED TO: Air Pollution Testing  
5530 Marshall St.  
Arvada, CO 80002

**CERTIFICATE  
OF  
ANALYSIS**

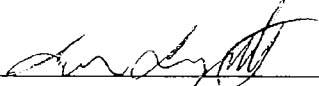
|                     |              |                          |            |
|---------------------|--------------|--------------------------|------------|
| SGI ORDER # :       | 135110       | CYLINDER # :             | CC-82198   |
| ITEM# :             | 2            | CYLINDER PRES:           | 250 psig   |
| CERTIFICATION DATE: | 08/27/2008   | CYLINDER VALVE:          | CGA 350    |
| P.O.# :             | Verbal- Matt | PRODUCT EXPIRATION DATE: | 08/27/2009 |
| BLEND TYPE:         | CERTIFIED    |                          |            |

ANALYTICAL ACCURACY: +/- 2%

| COMPONENT    | REQUESTED GAS<br>CONC | ANALYSIS |
|--------------|-----------------------|----------|
| Methane      | 100 ppm               | 102 ppm  |
| Ethane       | 100 ppm               | 102 ppm  |
| Propane      | 100 ppm               | 102 ppm  |
| Butane       | 100 ppm               | 102 ppm  |
| Pentane      | 100 ppm               | 103 ppm  |
| Hexane       | 100 ppm               | 103 ppm  |
| Benzene      | 100 ppm               | 103 ppm  |
| Heptane      | 100 ppm               | 103 ppm  |
| Toluene      | 100 ppm               | 103 ppm  |
| Ethylbenzene | 100 ppm               | 103 ppm  |
| o-Xylene     | 100 ppm               | 103 ppm  |
| Nitrogen     | Balance               | Balance  |

SOURCE REFERENCE# 247527

ANALYST:

  
Lou Lorenzetti

DATE: 08/27/2008

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

QGM498783

QST9104

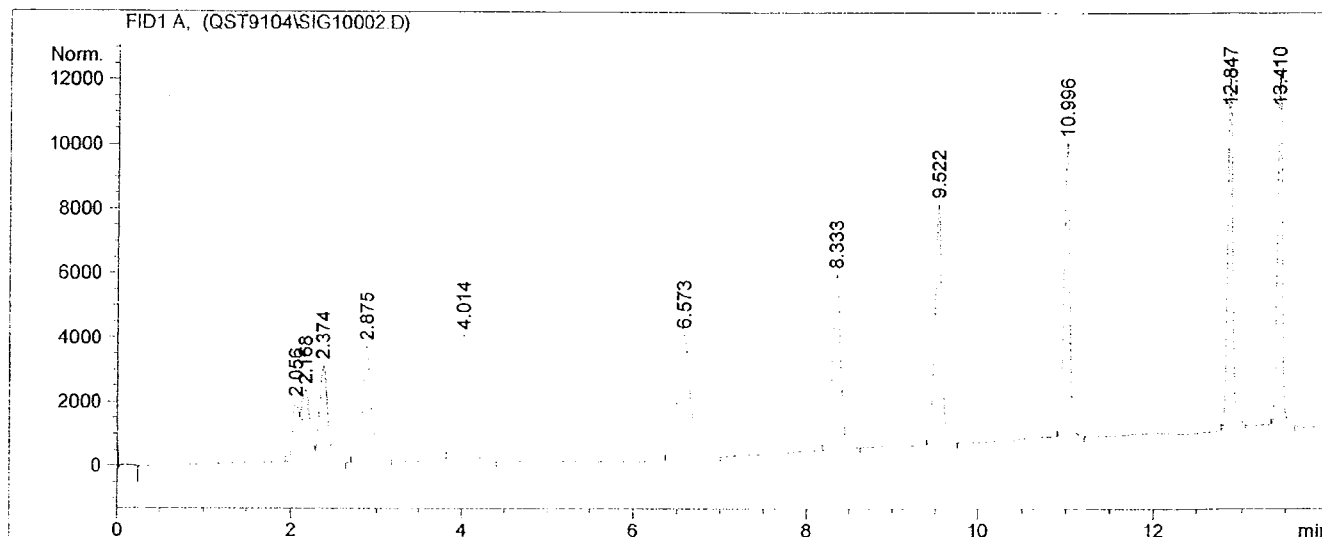
Questar

Wonsits Valley Compressor  
Station

## **Pre Calibration**

- 5,50,100 PPM C1-C7 BTEX 3 INJECTIONS EACH
- REGRESSION SPREADSHEET
- RT CHECKS
- LOOP CHANGE

```
=====
Injection Date   : 4/6/2009 4:27:38 PM
Sample Name      : pre cal                      Location : Vial 1
Acq. Operator    : MS
Acq. Instrument  : Instrument 1                 Inj Volume : External
Acq. Method      : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/6/2009 4:15:01 PM by MS
                  (modified after loading)
Analysis Method  : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/6/2009 4:42:52 PM by MS
                  (modified after loading)
btex
=====
```



Area Percent Report

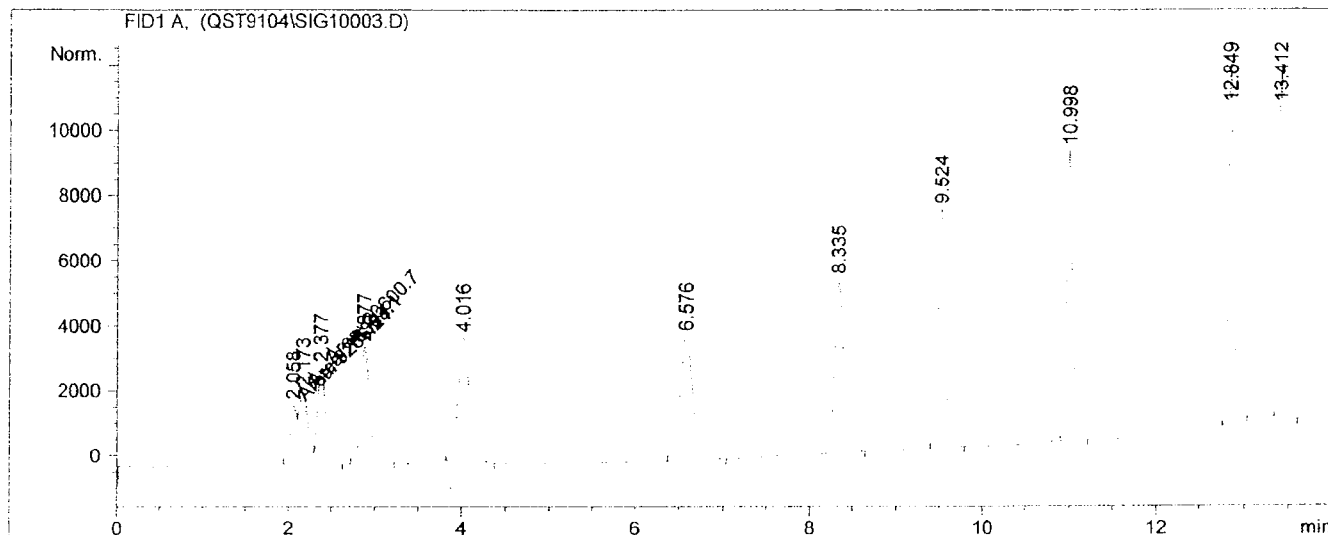
```
Sorted By      : Signal
Multiplier     : 1.0000
Dilution       : 1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.056         | BV   | 0.0786      | 9267.40039    | 1878.10510      | 2.62354  |
| 2      | 2.168         | VV   | 0.1106      | 1.64404e4     | 2266.10962      | 4.65418  |
| 3      | 2.374         | VP   | 0.1051      | 2.06398e4     | 3042.35474      | 5.84300  |
| 4      | 2.875         | VB   | 0.1128      | 2.62136e4     | 3606.56738      | 7.42091  |
| 5      | 4.014         | BP   | 0.1333      | 3.44527e4     | 3967.51562      | 9.75335  |
| 6      | 6.573         | PP   | 0.1492      | 3.78371e4     | 3900.87695      | 10.71145 |
| 7      | 8.333         | BP   | 0.1075      | 3.71186e4     | 5448.65137      | 10.50803 |
| 8      | 9.522         | BB   | 0.0892      | 4.30830e4     | 7474.37549      | 12.19653 |
| 9      | 10.996        | BB   | 0.0701      | 4.07669e4     | 9125.21484      | 11.54085 |
| 10     | 12.847        | BB   | 0.0625      | 4.47682e4     | 1.12213e4       | 12.67359 |
| 11     | 13.410        | BB   | 0.0592      | 4.26521e4     | 1.10082e4       | 12.07456 |

Totals : 3.53240e5 6.29393e4

=====  
Injection Date : 4/6/2009 4:45:46 PM  
Sample Name : pre cal Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/6/2009 4:42:59 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/6/2009 5:03:05 PM by MS  
(modified after loading)  
btex  
=====



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

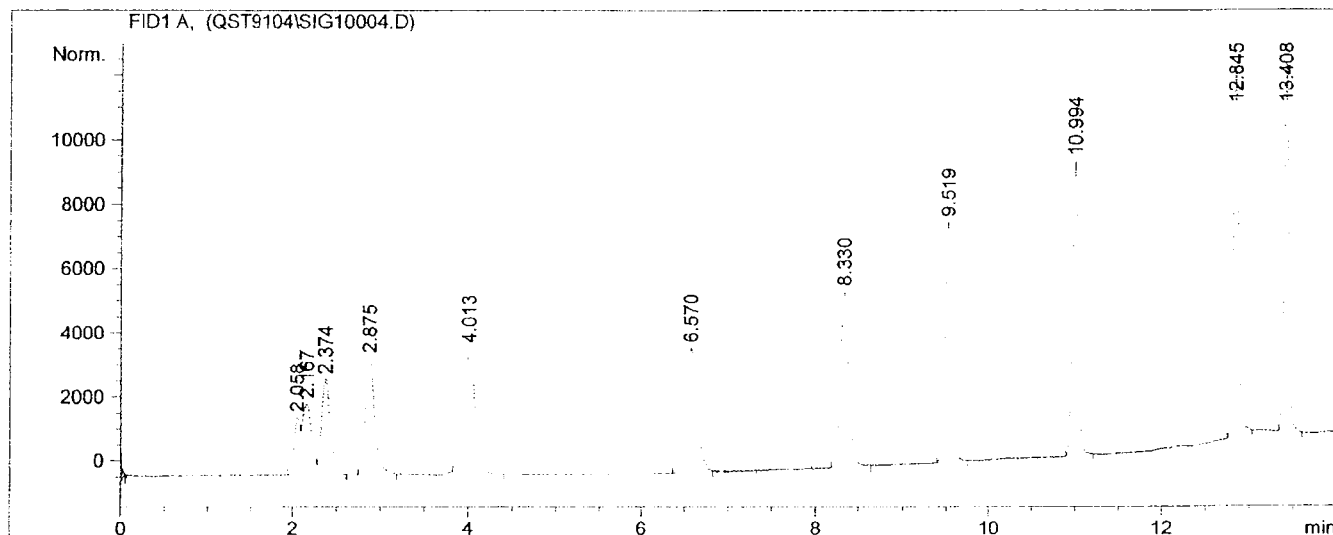
| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.058         | MF   | 0.0842      | 9266.21289    | 1833.90076      | 2.63664  |
| 2      | 2.173         | MF   | 0.1212      | 1.63831e4     | 2253.02222      | 4.66169  |
| 3      | 2.377         | FM   | 0.1139      | 2.06007e4     | 3014.85986      | 5.86180  |
| 4      | 2.877         | BB   | 0.1137      | 2.64207e4     | 3595.48364      | 7.51781  |
| 5      | 4.016         | BB   | 0.1348      | 3.36518e4     | 3894.02905      | 9.57537  |
| 6      | 6.576         | PP   | 0.1528      | 3.77484e4     | 3836.28271      | 10.74105 |
| 7      | 8.335         | BP   | 0.1066      | 3.69846e4     | 5351.48340      | 10.52371 |
| 8      | 9.524         | PP   | 0.0923      | 4.30292e4     | 7355.35840      | 12.24366 |
| 9      | 10.998        | BB   | 0.0689      | 4.04608e4     | 8928.32324      | 11.51285 |
| 10     | 12.849        | PB   | 0.0609      | 4.44812e4     | 1.10687e4       | 12.65680 |
| 11     | 13.412        | BB   | 0.0615      | 4.24140e4     | 1.08761e4       | 12.06862 |

Totals : 3.51441e5 6.20075e4



```
=====
Injection Date   : 4/6/2009 5:06:22 PM
Sample Name      : pre cal                      Location : Vial 1
Acq. Operator    : MS
Acq. Instrument  : Instrument 1                Inj Volume : External
Acq. Method      : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/6/2009 5:03:11 PM by MS
                  (modified after loading)
Analysis Method  : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/6/2009 5:22:16 PM by MS
                  (modified after loading)
=====
```

btex



Area Percent Report

```
=====
Sorted By      : Signal
Multiplier     : 1.0000
Dilution       : 1.0000
Use Multiplier & Dilution Factor with ISTDs
=====
```

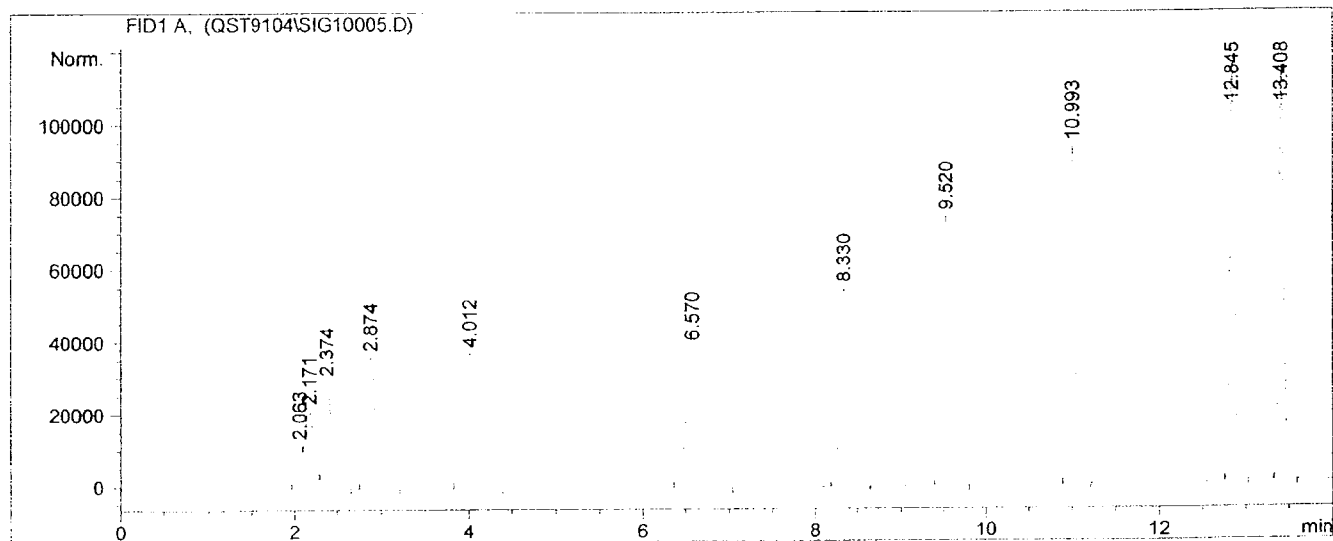
Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.058         | PV   | 0.0788      | 8780.99609    | 1802.32092      | 2.48242  |
| 2      | 2.167         | VV   | 0.1098      | 1.59894e4     | 2225.20605      | 4.52024  |
| 3      | 2.374         | VP   | 0.1047      | 2.01605e4     | 2990.37134      | 5.69944  |
| 4      | 2.875         | PB   | 0.1125      | 2.63005e4     | 3631.74731      | 7.43523  |
| 5      | 4.013         | BP   | 0.1296      | 3.27006e4     | 3910.29810      | 9.24456  |
| 6      | 6.570         | BV   | 0.1504      | 3.84456e4     | 3922.32373      | 10.86868 |
| 7      | 8.330         | PB   | 0.1061      | 3.77025e4     | 5493.30469      | 10.65861 |
| 8      | 9.519         | PB   | 0.0913      | 4.32704e4     | 7496.03174      | 12.23269 |
| 9      | 10.994        | BB   | 0.0702      | 4.10301e4     | 9175.94531      | 11.59933 |
| 10     | 12.845        | PB   | 0.0622      | 4.55280e4     | 1.15072e4       | 12.87091 |
| 11     | 13.408        | BB   | 0.0587      | 4.38194e4     | 1.14357e4       | 12.38788 |

Totals : 3.53728e5 6.35904e4

```
=====
Injection Date   : 4/6/2009 5:25:58 PM
Sample Name      : pre cal                      Location : Vial 1
Acq. Operator    : MS
Acq. Instrument  : Instrument 1                 Inj Volume : External
Acq. Method      : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/6/2009 5:22:26 PM by MS
                  (modified after loading)
Analysis Method  : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/6/2009 5:45:23 PM by MS
                  (modified after loading)
=====
```

btex



Area Percent Report

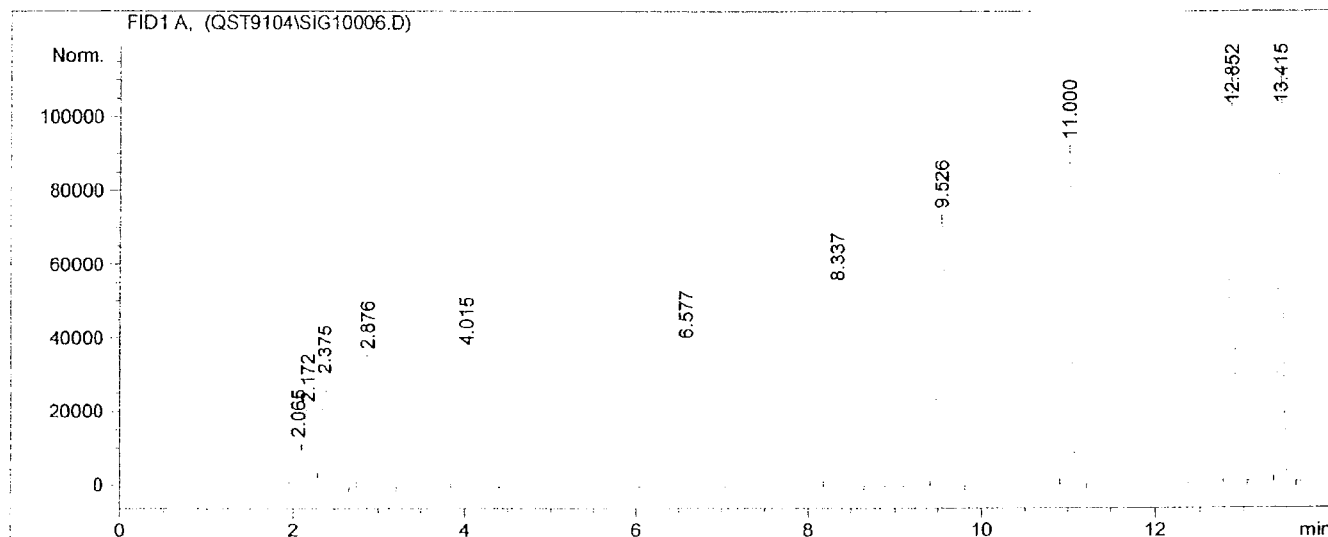
```
=====
Sorted By      : Signal
Multiplier     : 1.0000
Dilution       : 1.0000
Use Multiplier & Dilution Factor with ISTDs
=====
```

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.063         | PV   | 0.0715      | 5.27891e4     | 1.21872e4       | 1.51727  |
| 2      | 2.171         | VV   | 0.1071      | 1.52476e5     | 2.19335e4       | 4.38249  |
| 3      | 2.374         | VB   | 0.1030      | 1.96492e5     | 2.97799e4       | 5.64762  |
| 4      | 2.874         | PB   | 0.1106      | 2.58139e5     | 3.64594e4       | 7.41947  |
| 5      | 4.012         | BB   | 0.1296      | 3.13915e5     | 3.75059e4       | 9.02259  |
| 6      | 6.570         | BB   | 0.1522      | 3.84977e5     | 3.93159e4       | 11.06507 |
| 7      | 8.330         | PB   | 0.1056      | 3.74812e5     | 5.49445e4       | 10.77292 |
| 8      | 9.520         | PB   | 0.0917      | 4.32998e5     | 7.46278e4       | 12.44530 |
| 9      | 10.993        | PB   | 0.0703      | 4.18799e5     | 9.34999e4       | 12.03718 |
| 10     | 12.845        | PB   | 0.0621      | 4.54902e5     | 1.15072e5       | 13.07488 |
| 11     | 13.408        | PB   | 0.0587      | 4.38909e5     | 1.14534e5       | 12.61521 |

Totals : 3.47921e6 6.29860e5

```
=====
Injection Date   : 4/6/2009 5:49:00 PM
Sample Name     : pre cal                      Location : Vial 1
Acq. Operator   : MS
Acq. Instrument : Instrument 1                Inj Volume : External
Acq. Method     : C:\HPCHEM\1\METHODS\BTEX.M
Last changed    : 4/6/2009 5:45:30 PM by MS
                  (modified after loading)
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M
Last changed    : 4/6/2009 6:03:27 PM by MS
                  (modified after loading)
btex
=====
```



Area Percent Report

```
Sorted By      : Signal
Multiplier     : 1.0000
Dilution       : 1.0000
Use Multiplier & Dilution Factor with ISTDs
```

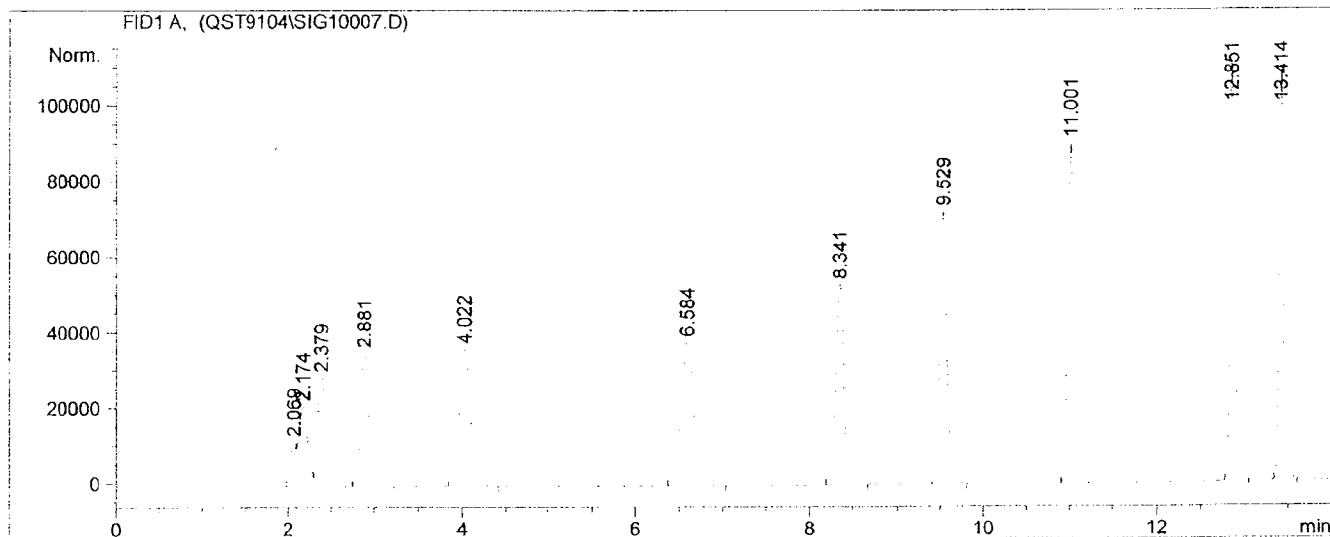
Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.065         | PV   | 0.0716      | 5.21670e4     | 1.20214e4       | 1.52336  |
| 2      | 2.172         | VV   | 0.1068      | 1.50291e5     | 2.16962e4       | 4.38872  |
| 3      | 2.375         | VB   | 0.1028      | 1.93844e5     | 2.94499e4       | 5.66052  |
| 4      | 2.876         | PB   | 0.1104      | 2.54666e5     | 3.60720e4       | 7.43662  |
| 5      | 4.015         | PB   | 0.1293      | 3.09816e5     | 3.71294e4       | 9.04709  |
| 6      | 6.577         | BB   | 0.1517      | 3.79823e5     | 3.89904e4       | 11.09141 |
| 7      | 8.337         | PB   | 0.1053      | 3.69409e5     | 5.43342e4       | 10.78730 |
| 8      | 9.526         | BB   | 0.0893      | 4.26330e5     | 7.39204e4       | 12.44948 |
| 9      | 11.000        | PB   | 0.0700      | 4.11545e5     | 9.23904e4       | 12.01774 |
| 10     | 12.852        | PB   | 0.0599      | 4.45784e5     | 1.13391e5       | 13.01755 |
| 11     | 13.415        | PB   | 0.0605      | 4.30807e5     | 1.12820e5       | 12.58021 |

Totals : 3.42448e6 6.22216e5

```
=====
Injection Date   : 4/6/2009 6:09:23 PM
Sample Name      : pre cal                      Location : Vial 1
Acq. Operator    : MS
Acq. Instrument  : Instrument 1                 Inj Volume : External
Acq. Method      : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/6/2009 6:03:45 PM by MS
                  (modified after loading)
Analysis Method  : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/6/2009 6:27:04 PM by MS
                  (modified after loading)
=====
```

btex



Area Percent Report

```
=====
Sorted By       : Signal
Multiplier      : 1.0000
Dilution        : 1.0000
Use Multiplier & Dilution Factor with ISTDs
=====
```

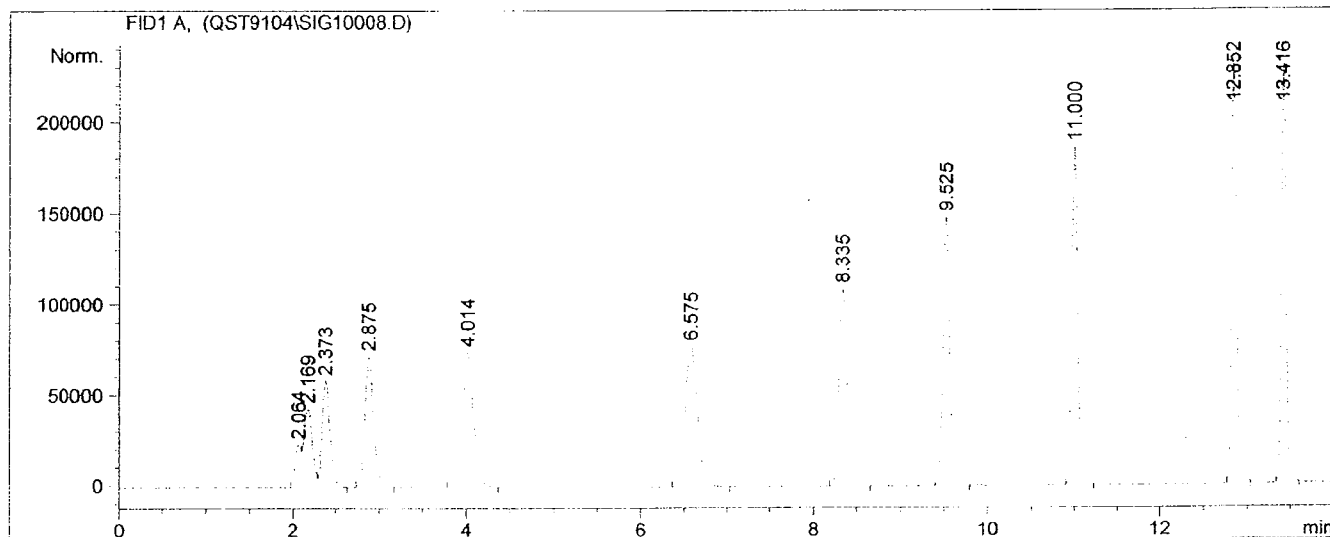
Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.069         | PV   | 0.0707      | 5.10965e4     | 1.17562e4       | 1.52086  |
| 2      | 2.174         | VV   | 0.1069      | 1.47250e5     | 2.12349e4       | 4.38283  |
| 3      | 2.379         | VB   | 0.1033      | 1.90899e5     | 2.88130e4       | 5.68202  |
| 4      | 2.881         | PB   | 0.1108      | 2.50109e5     | 3.52512e4       | 7.44437  |
| 5      | 4.022         | PB   | 0.1299      | 3.04399e5     | 3.62770e4       | 9.06032  |
| 6      | 6.584         | BB   | 0.1520      | 3.72744e5     | 3.81521e4       | 11.09457 |
| 7      | 8.341         | PB   | 0.1058      | 3.63050e5     | 5.30783e4       | 10.80603 |
| 8      | 9.529         | BB   | 0.0896      | 4.18388e5     | 7.21791e4       | 12.45312 |
| 9      | 11.001        | PB   | 0.0704      | 4.04223e5     | 9.00229e4       | 12.03151 |
| 10     | 12.851        | PB   | 0.0622      | 4.36439e5     | 1.10228e5       | 12.99041 |
| 11     | 13.414        | PB   | 0.0609      | 4.21103e5     | 1.09500e5       | 12.53394 |

Totals : 3.35970e6 6.06492e5

```
=====
Injection Date   : 4/6/2009 6:32:05 PM
Sample Name      : pre cal                      Location : Vial 1
Acq. Operator    : MS
Acq. Instrument  : Instrument 1                 Inj Volume : External
Acq. Method      : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/6/2009 6:27:10 PM by MS
                  (modified after loading)
Analysis Method  : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/6/2009 6:46:37 PM by MS
                  (modified after loading)
=====
```

btex



Area Percent Report

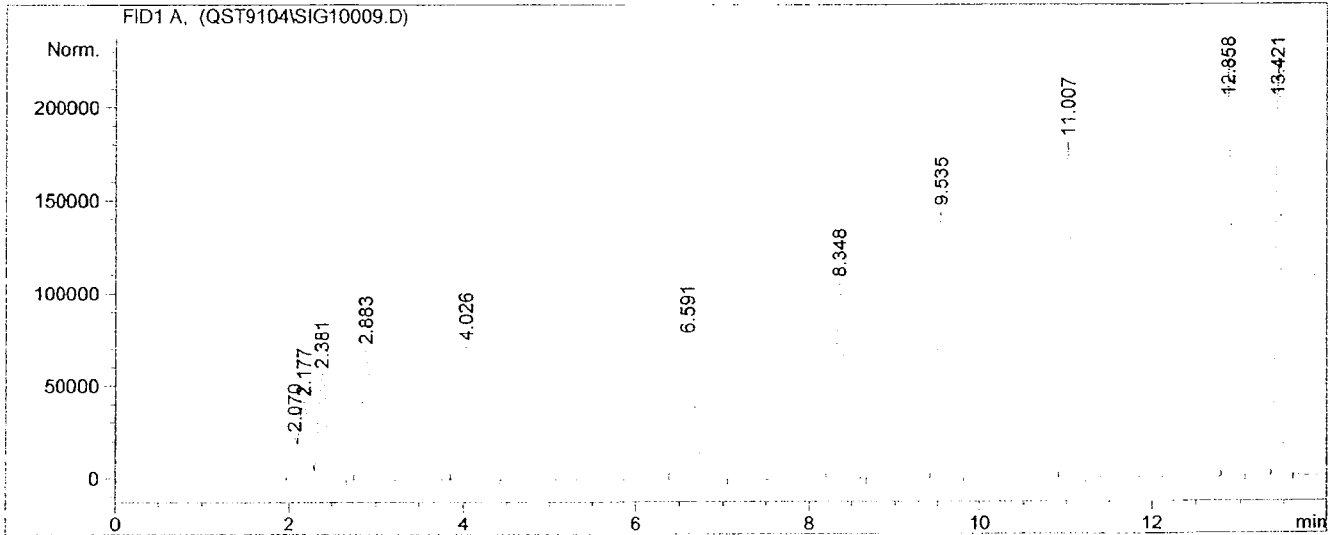
```
=====
Sorted By       : Signal
Multiplier      : 1.0000
Dilution        : 1.0000
Use Multiplier & Dilution Factor with ISTDs
=====
```

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.064         | PV   | 0.0685      | 9.98733e4     | 2.35294e4       | 1.44875  |
| 2      | 2.169         | VV   | 0.1069      | 3.00538e5     | 4.33198e4       | 4.35957  |
| 3      | 2.373         | VV   | 0.1033      | 3.89667e5     | 5.88305e4       | 5.65248  |
| 4      | 2.875         | VB   | 0.1103      | 5.07629e5     | 7.19519e4       | 7.36363  |
| 5      | 4.014         | VB   | 0.1296      | 6.19603e5     | 7.40994e4       | 8.98792  |
| 6      | 6.575         | BB   | 0.1521      | 7.60288e5     | 7.77550e4       | 11.02868 |
| 7      | 8.335         | PB   | 0.1057      | 7.42216e5     | 1.08683e5       | 10.76652 |
| 8      | 9.525         | BB   | 0.0916      | 8.56174e5     | 1.47697e5       | 12.41960 |
| 9      | 11.000        | PB   | 0.0682      | 8.31283e5     | 1.85762e5       | 12.05852 |
| 10     | 12.852        | PB   | 0.0620      | 9.06765e5     | 2.30173e5       | 13.15347 |
| 11     | 13.416        | PB   | 0.0586      | 8.79700e5     | 2.30032e5       | 12.76086 |

Totals : 6.89374e6 1.25183e6

=====  
Injection Date : 4/6/2009 6:51:17 PM  
Sample Name : pre cal Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/6/2009 6:46:43 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/6/2009 7:05:46 PM by MS  
(modified after loading)  
btex  
=====



=====  
Area Percent Report  
=====

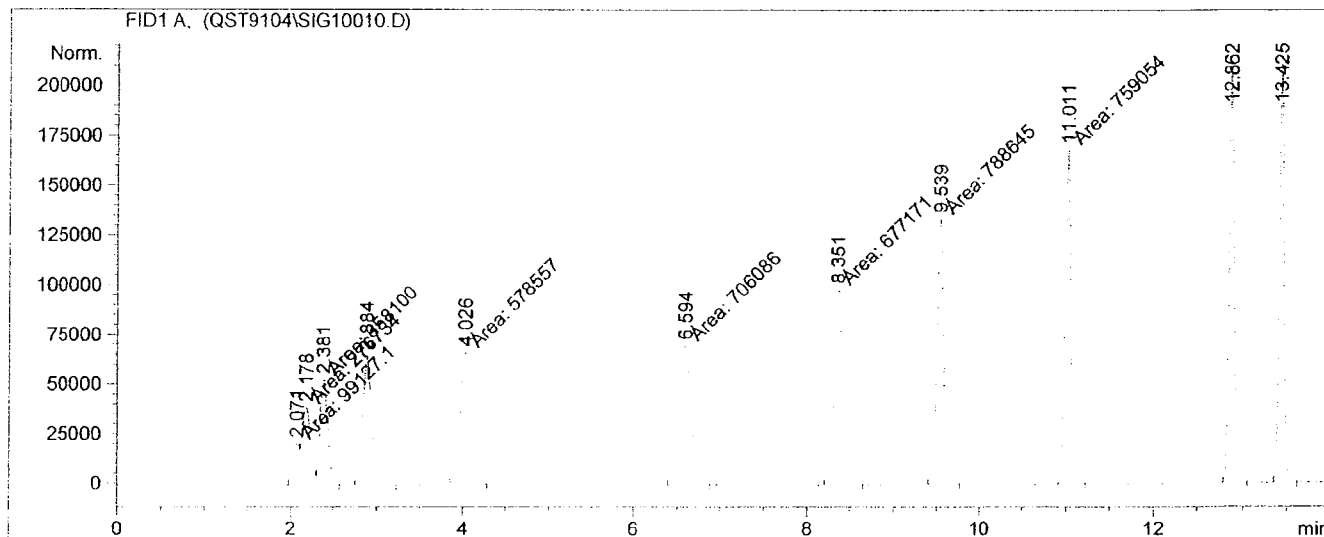
Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.070         | PV   | 0.0712      | 9.83676e4     | 2.28452e4       | 1.45850  |
| 2      | 2.177         | VV   | 0.1071      | 2.93547e5     | 4.22461e4       | 4.35244  |
| 3      | 2.381         | VB   | 0.1032      | 3.79348e5     | 5.73057e4       | 5.62461  |
| 4      | 2.883         | BB   | 0.1108      | 4.98441e5     | 7.02071e4       | 7.39042  |
| 5      | 4.026         | PB   | 0.1301      | 6.07542e5     | 7.22402e4       | 9.00806  |
| 6      | 6.591         | PB   | 0.1520      | 7.43903e5     | 7.61165e4       | 11.02990 |
| 7      | 8.348         | PB   | 0.1057      | 7.24924e5     | 1.06052e5       | 10.74849 |
| 8      | 9.535         | BB   | 0.0896      | 8.36532e5     | 1.44327e5       | 12.40331 |
| 9      | 11.007        | PB   | 0.0703      | 8.11270e5     | 1.81104e5       | 12.02875 |
| 10     | 12.858        | PB   | 0.0621      | 8.88749e5     | 2.25125e5       | 13.17754 |
| 11     | 13.421        | PB   | 0.0587      | 8.61802e5     | 2.24927e5       | 12.77799 |

Totals : 6.74443e6 1.22250e6

```
=====
Injection Date   : 4/6/2009 7:10:07 PM
Sample Name     : pre cal
Acq. Operator   : MS
Acq. Instrument : Instrument 1
Acq. Method     : C:\HPCHEM\1\METHODS\BTEX.M
Last changed    : 4/6/2009 7:05:53 PM by MS
                  (modified after loading)
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M
Last changed    : 4/6/2009 7:31:19 PM by MS
                  (modified after loading)
btex
=====
```



Area Percent Report

```
Sorted By      : Signal
Multiplier     : 1.0000
Dilution       : 1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: FID1 A,

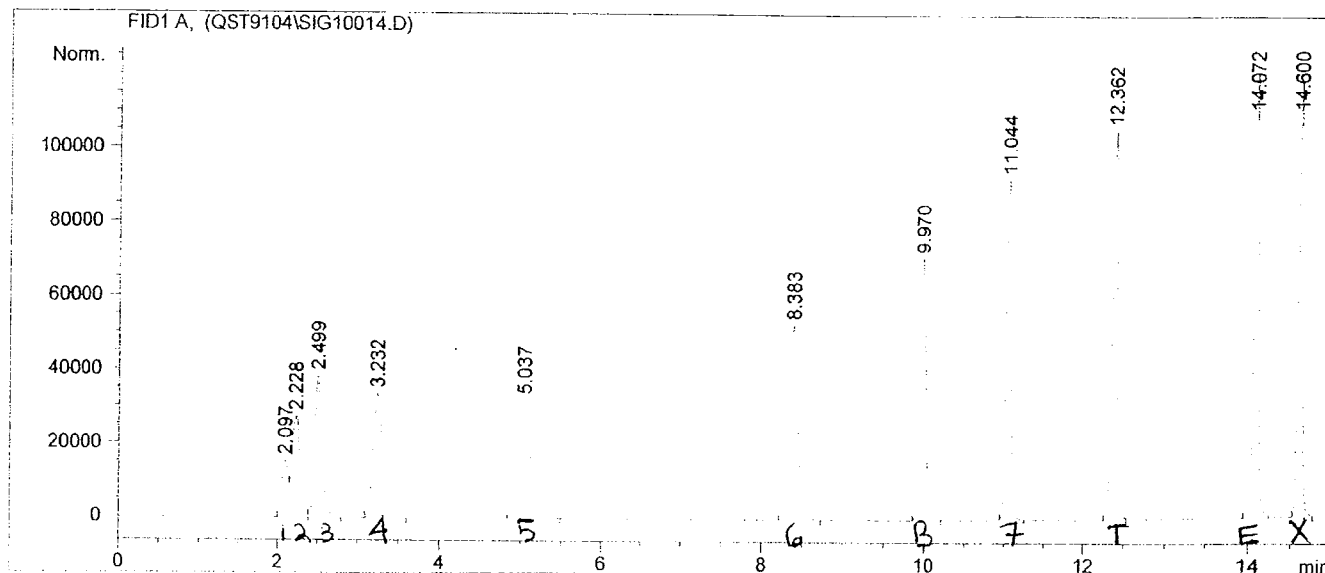
| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.071         | MF   | 0.0759      | 9.91271e4     | 2.17755e4       | 1.56436  |
| 2      | 2.178         | MF   | 0.1156      | 2.76734e5     | 3.99007e4       | 4.36723  |
| 3      | 2.381         | MF   | 0.1111      | 3.58100e5     | 5.37410e4       | 5.65130  |
| 4      | 2.884         | BB   | 0.1108      | 4.62879e5     | 6.52063e4       | 7.30485  |
| 5      | 4.026         | MM   | 0.1424      | 5.78557e5     | 6.77285e4       | 9.13040  |
| 6      | 6.594         | MM   | 0.1652      | 7.06086e5     | 7.12478e4       | 11.14297 |
| 7      | 8.351         | MM   | 0.1142      | 6.77171e5     | 9.87876e4       | 10.68666 |
| 8      | 9.539         | MM   | 0.0976      | 7.88645e5     | 1.34653e5       | 12.44586 |
| 9      | 11.011        | MM   | 0.0748      | 7.59054e5     | 1.69107e5       | 11.97888 |
| 10     | 12.862        | PB   | 0.0600      | 8.25859e5     | 2.09547e5       | 13.03316 |
| 11     | 13.425        | PB   | 0.0607      | 8.04389e5     | 2.09899e5       | 12.69432 |

Totals : 6.33660e6 1.14159e6

Injection Date : 4/7/2009 8:54:58 AM  
 Sample Name : pre cal Location : Vial 1  
 Acq. Operator : MS  
 Acq. Instrument : Instrument 1 Inj Volume : External  
 Method : C:\HPCHEM\1\METHODS\BTEX.M  
 Last changed : 4/7/2009 8:52:20 AM by MS  
 (modified after loading)

btex

RT CHECK



# Area Percent Report

Sorted By : Signal  
 Multiplier : 1.0000  
 Dilution : 1.0000  
 Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.097         | PV   | 0.0865      | 8.16903e4     | 1.55010e4       | 2.29048  |
| 2      | 2.228         | VV   | 0.1077      | 1.92970e5     | 2.75654e4       | 5.41062  |
| 3      | 2.499         | VB   | 0.1066      | 2.59917e5     | 3.85884e4       | 7.28772  |
| 4      | 3.232         | PB   | 0.1188      | 2.56851e5     | 3.37523e4       | 7.20176  |
| 5      | 5.037         | PB   | 0.1516      | 3.13680e5     | 3.22064e4       | 8.79516  |
| 6      | 8.383         | BB   | 0.1139      | 3.80492e5     | 5.29139e4       | 10.66848 |
| 7      | 9.970         | PB   | 0.0831      | 3.72115e5     | 7.11092e4       | 10.43359 |
| 8      | 11.044        | BB   | 0.0723      | 4.29405e5     | 9.23066e4       | 12.03993 |
| 9      | 12.362        | PB   | 0.0600      | 4.15306e5     | 1.05353e5       | 11.64462 |
| 10     | 14.072        | VB   | 0.0586      | 4.39863e5     | 1.20339e5       | 12.33315 |
| 11     | 14.600        | PB   | 0.0560      | 4.24219e5     | 1.17740e5       | 11.89451 |

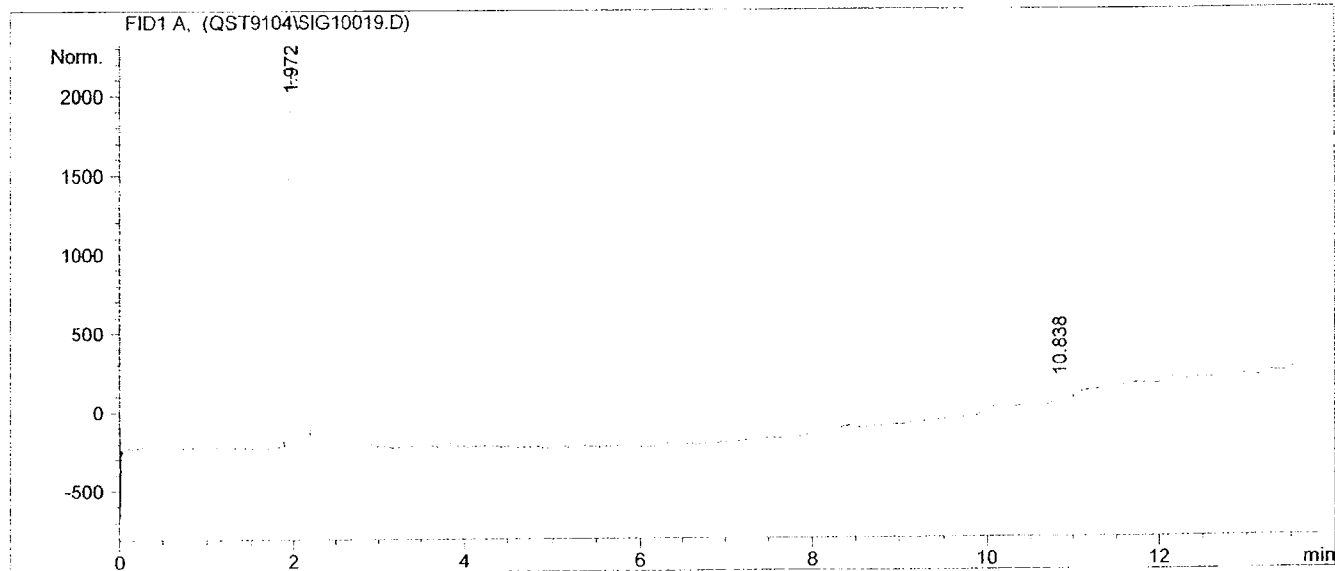
Totals : 3.56651e6 7.07374e5

Results obtained with enhanced integrator!



```
=====
Injection Date   : 4/8/2009 11:03:34 AM
Sample Name      : blank                      Location : Vial 1
Acq. Operator    : MS
Acq. Instrument  : Instrument 1              Inj Volume : External
Method           : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/8/2009 11:01:56 AM by MS
                  (modified after loading)
=====
```

btex



Area Percent Report

```
=====
Sorted By       : Signal
Multiplier      : 1.0000
Dilution        : 1.0000
Use Multiplier & Dilution Factor with ISTDs
=====
```

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 1.972         | PP   | 0.0905      | 1.43599e4     | 2375.75513      | 95.10309 |
| 2      | 10.838        | PP   | 0.0893      | 739.39886     | 120.92873       | 4.89691  |

Totals : 1.50993e4 2496.68385

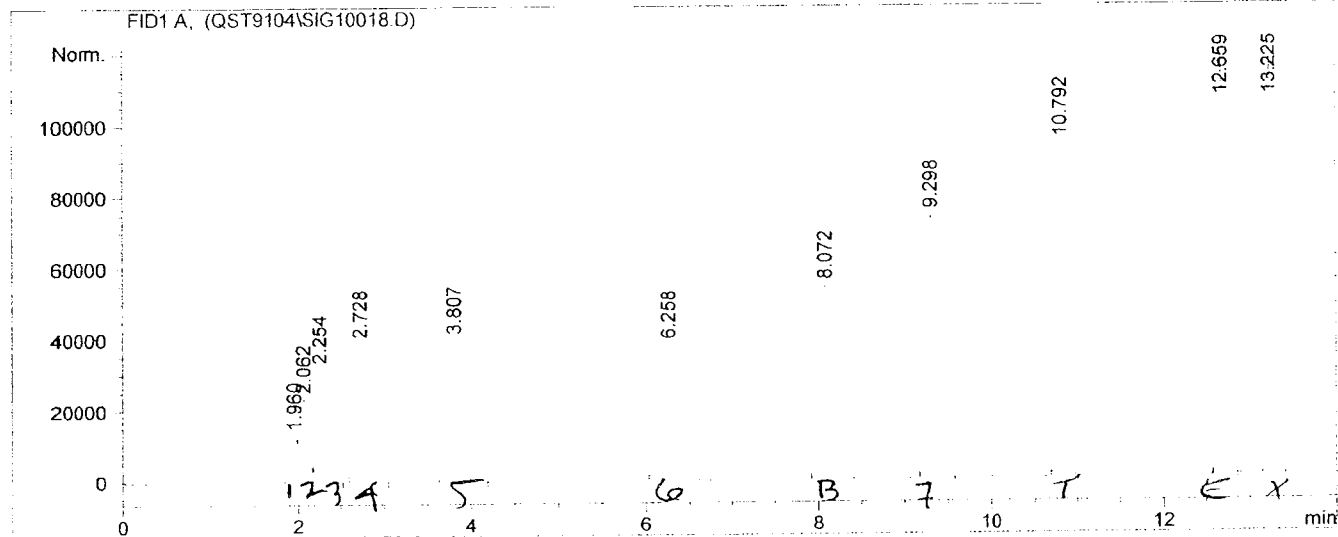
Results obtained with enhanced integrator!

\*\*\* End of Report \*\*\*

Injection Date : 4/8/2009 10:30:31 AM  
 Sample Name : rt check Location : Vial 1  
 Acq. Operator : MS  
 Acq. Instrument : Instrument 1 Inj Volume : External  
 Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
 Last changed : 4/8/2009 10:44:22 AM by MS  
 (modified after loading)  
 Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
 Last changed : 4/8/2009 10:46:24 AM by MS  
 (modified after loading)

btex

60°C  
 START



# Area Percent Report

Sorted By : Signal  
 Multiplier : 1.0000  
 Dilution : 1.0000  
 Use Multiplier & Dilution Factor with ISTDs

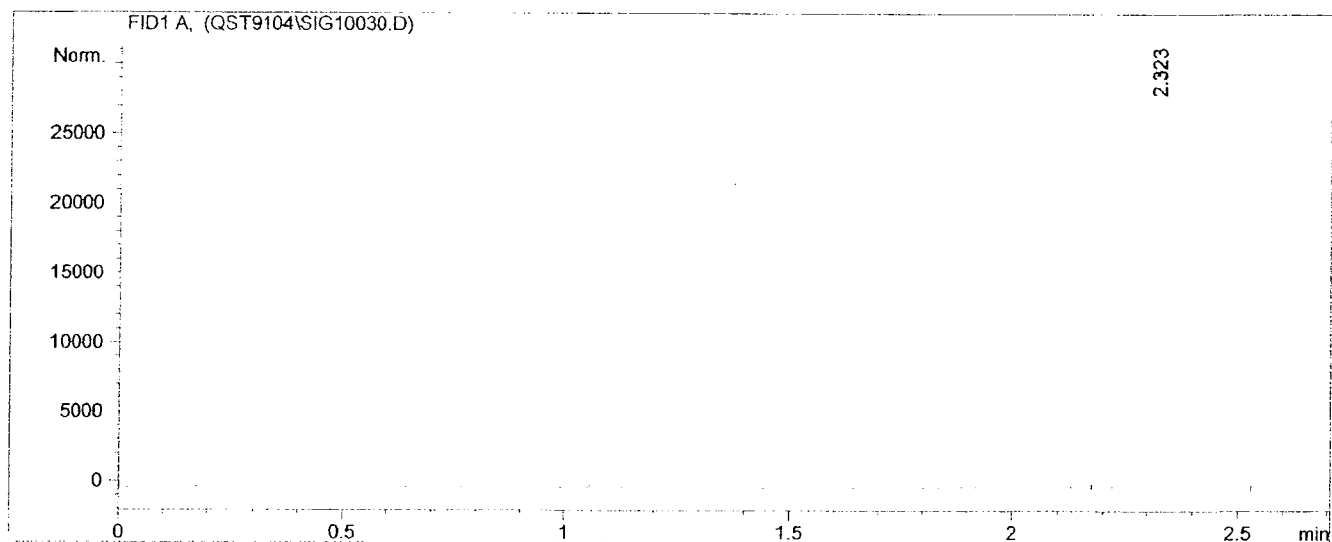
Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 1.960         | PV   | 0.0654      | 5.32767e4     | 1.31002e4       | 1.50895  |
| 2      | 2.062         | VV   | 0.1010      | 1.55376e5     | 2.35307e4       | 4.40068  |
| 3      | 2.254         | VB   | 0.0988      | 1.98684e5     | 3.18332e4       | 5.62727  |
| 4      | 2.728         | PB   | 0.1042      | 2.60800e5     | 3.89041e4       | 7.38658  |
| 5      | 3.807         | PB   | 0.1229      | 3.17462e5     | 3.98784e4       | 8.99139  |
| 6      | 6.258         | PB   | 0.1586      | 3.89019e5     | 3.82575e4       | 11.01810 |
| B      | 8.072         | PB   | 0.1075      | 3.80465e5     | 5.44913e4       | 10.77582 |
| 7      | 9.298         | PB   | 0.0929      | 4.37556e5     | 7.40994e4       | 12.39281 |
| 8      | 10.792        | PB   | 0.0709      | 4.25068e5     | 9.38052e4       | 12.03910 |
| T      | 12.659        | PB   | 0.0623      | 4.62501e5     | 1.16559e5       | 13.09931 |
| E      | 13.225        | PB   | 0.0588      | 4.50521e5     | 1.17253e5       | 12.75999 |

Totals : 3.53073e6 6.41711e5

```
=====
Injection Date   : 4/8/2009 3:27:15 PM
Sample Name      : loop change                      Location : Vial 1
Acq. Operator    : MS
Acq. Instrument  : Instrument 1                    Inj Volume : External
Acq. Method      : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/8/2009 3:27:23 PM by MS
                  (modified after loading)
Analysis Method  : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/8/2009 3:30:45 PM by MS
                  (modified after loading)
=====
```

btex



```
=====
                          Area Percent Report
=====
```

```
Sorted By      : Signal
Multiplier     : 1.0000
Dilution       : 1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %  |
|--------|---------------|------|-------------|---------------|-----------------|---------|
| 1      | 2.323         | VV   | 0.1003      | 1.92551e5     | 3.02336e4       | 1.000e2 |

Totals : 1.92551e5 3.02336e4

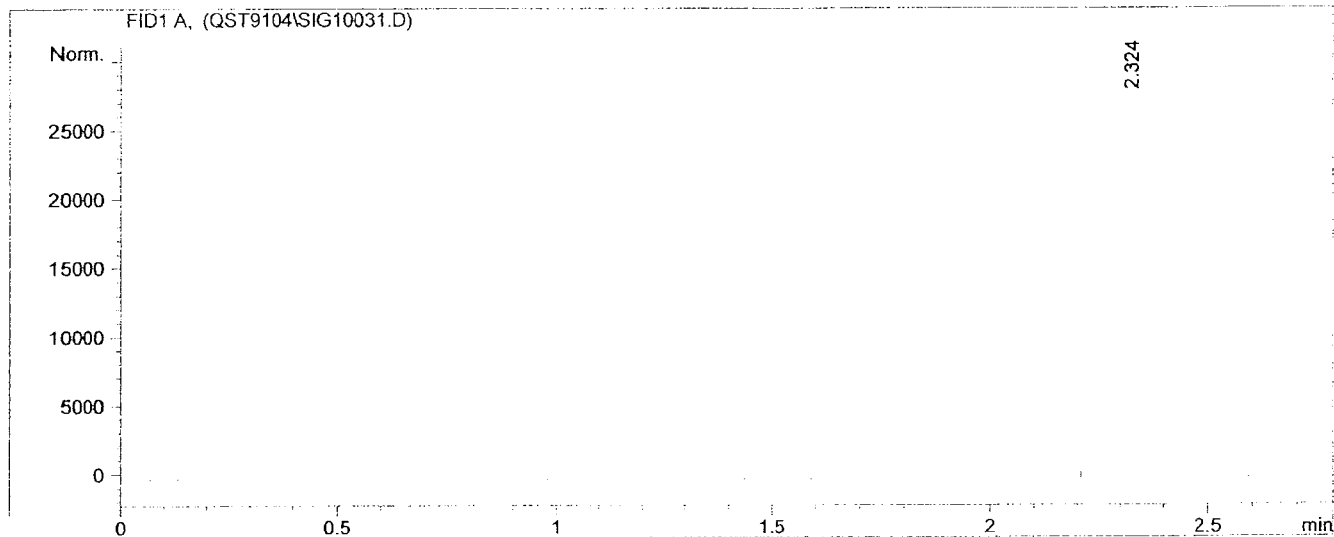
Results obtained with enhanced integrator!

```
=====
*** End of Report ***
```

```

=====
Injection Date   : 4/8/2009 3:31:02 PM
Sample Name     : loop change                Location : Vial 1
Acq. Operator   : MS
Acq. Instrument : Instrument 1              Inj Volume : External
Acq. Method     : C:\HPCHEM\1\METHODS\BTEX.M
Last changed    : 4/8/2009 3:30:51 PM by MS
                  (modified after loading)
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M
Last changed    : 4/8/2009 3:37:55 PM by MS
                  (modified after loading)
    
```

btex



# Area Percent Report

```

Sorted By      : Signal
Multiplier     : 1.0000
Dilution       : 1.0000
Use Multiplier & Dilution Factor with ISTDs
    
```

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %  |
|--------|---------------|------|-------------|---------------|-----------------|---------|
| 1      | 2.324         | VB   | 0.0974      | 1.90078e5     | 3.02279e4       | 1.000e2 |

Totals : 1.90078e5 3.02279e4

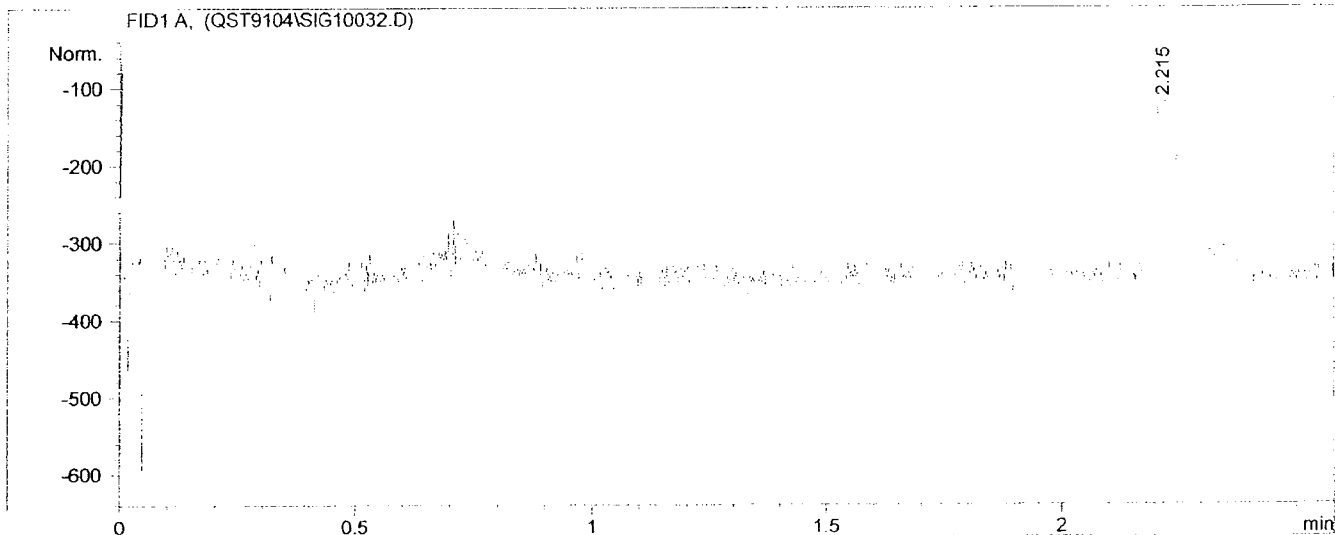
Results obtained with enhanced integrator!

\*\*\* End of Report \*\*\*

Large loop c3h8 50 ppm inj 2 1  
SMALL LOOP

Injection Date : 4/8/2009 3:39:24 PM  
Sample Name : loop change Location : Vial 1  
cq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 3:38:01 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 3:42:20 PM by MS  
(modified after loading)

btex



Area Percent Report

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %  |
|--------|---------------|------|-------------|---------------|-----------------|---------|
| 1      | 2.215         | PP   | 0.0757      | 1263.04468    | 231.36519       | 1.000e2 |

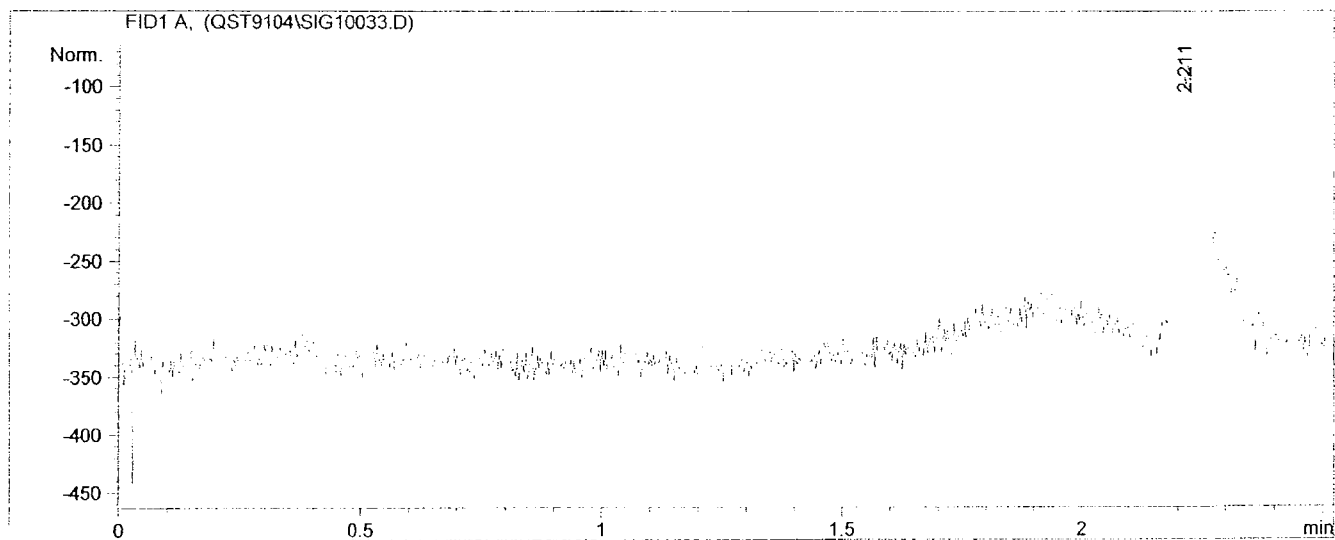
Totals : 1263.04468 231.36519

Results obtained with enhanced integrator!

\*\*\* End of Report \*\*\*

```
=====
Injection Date   : 4/8/2009 3:43:47 PM
Sample Name      : loop change                Location : Vial 1
Acq. Operator    : MS
Acq. Instrument  : Instrument 1               Inj Volume : External
Acq. Method      : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/8/2009 3:46:19 PM by MS
                  (modified after loading)
Analysis Method  : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/8/2009 3:48:24 PM by MS
                  (modified after loading)
=====
```

btex



```
=====
                          Area Percent Report
=====
```

```
Sorted By      : Signal
Multiplier     : 1.0000
Dilution       : 1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %  |
|--------|---------------|------|-------------|---------------|-----------------|---------|
| 1      | 2.211         | PP   | 0.0605      | 1131.02356    | 229.58994       | 1.000e2 |

Totals : 1131.02356 229.58994

Results obtained with enhanced integrator!

```
=====
*** End of Report ***
=====
```

QST9104

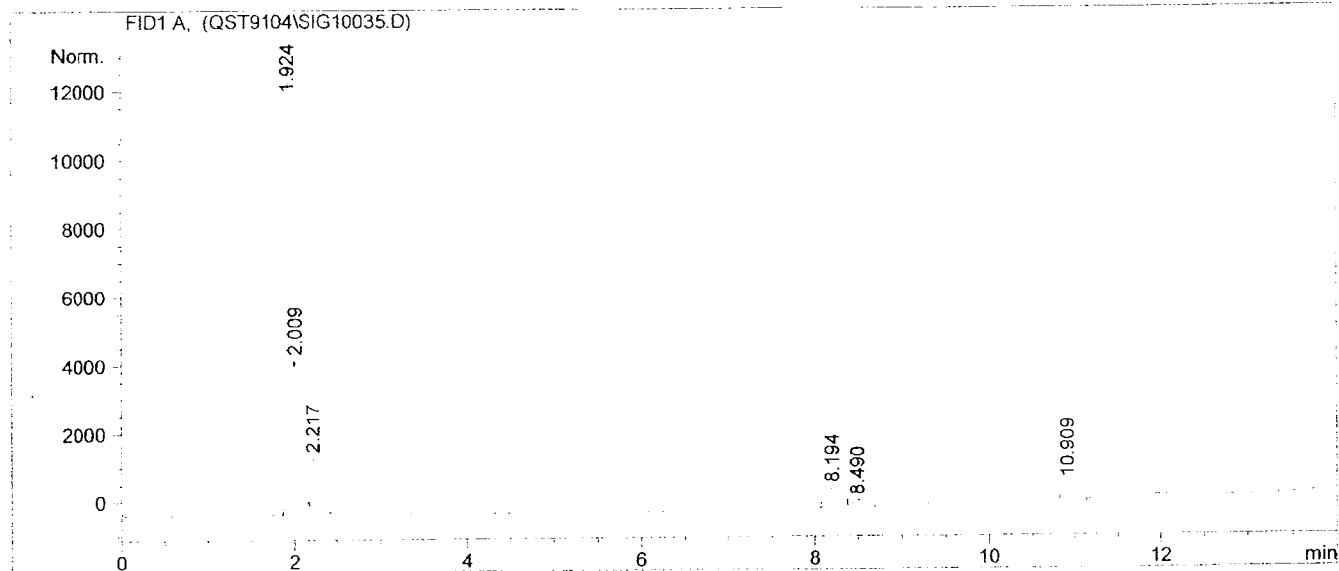
Questar

Wonsits Valley Compressor  
Station

**GC ANALYSIS**

**INLET BTEX  
3 RUNS**

=====  
Injection Date : 4/8/2009 4:14:28 PM  
Sample Name : run 1 inlet Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 4:09:15 PM by MS  
(modified after loading)  
btex  
=====



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| C1 1   | 1.924         | PV   | 0.0584      | 5.10183e4     | 1.31109e4       | 59.01743 |
| C2 2   | 2.009         | VV   | 0.0590      | 1.88856e4     | 4493.71729      | 21.84667 |
| C3 3   | 2.217         | VB   | 0.0695      | 7973.40625    | 1616.80762      | 9.22355  |
| B 4    | 8.194         | PV   | 0.1159      | 4341.96191    | 576.34045       | 5.02274  |
| C6 5   | 8.490         | VP   | 0.1314      | 1614.28601    | 178.71660       | 1.86739  |
| T 6    | 10.909        | PP   | 0.0807      | 2612.59375    | 485.75500       | 3.02222  |

Totals : 8.64462e4 2.04622e4

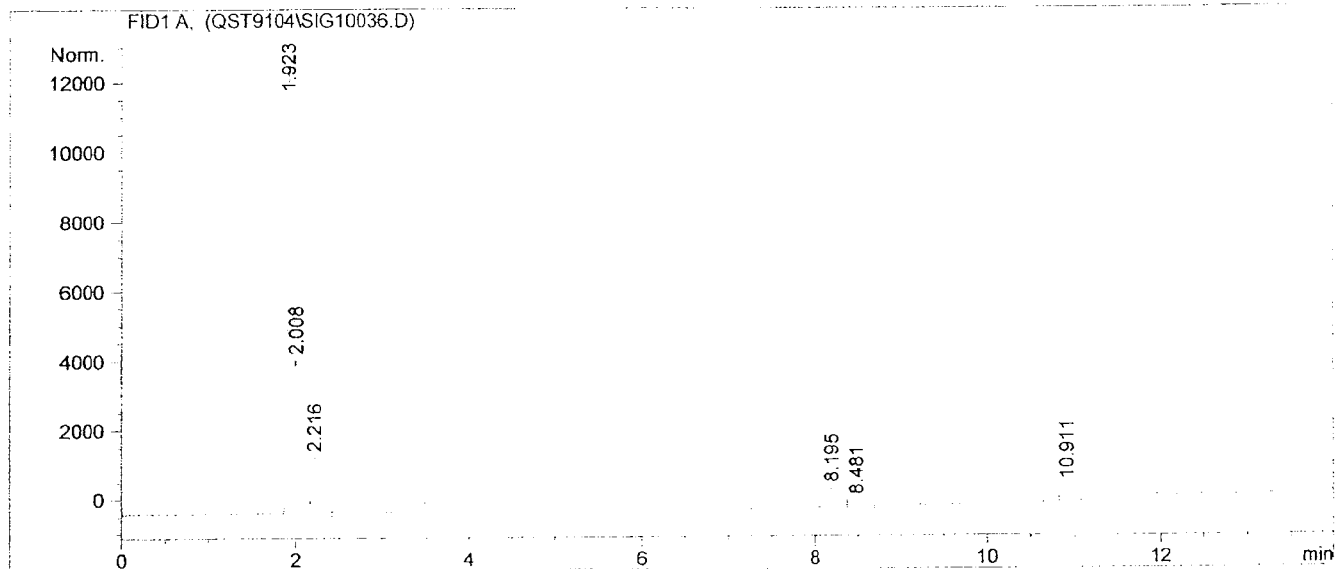
Results obtained with enhanced integrator!

=====  
\*\*\* End of Report \*\*\*  
=====



bag run 1 inlet inj 3

=====  
Injection Date : 4/8/2009 4:35:53 PM  
Sample Name : run 1 inlet Location : Vial 1  
cq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 4:09:15 PM by MS  
(modified after loading)  
btex  
=====



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| C1 1   | 1.923         | PV   | 0.0584      | 5.01726e4     | 1.28939e4       | 59.30621 |
| C2 2   | 2.008         | VV   | 0.0587      | 1.83842e4     | 4400.82764      | 21.73097 |
| C3 3   | 2.216         | VB   | 0.0695      | 7954.91406    | 1586.82153      | 9.40306  |
| B4 4   | 8.195         | PV   | 0.1094      | 4164.40771    | 568.80273       | 4.92251  |
| C6 5   | 8.481         | VP   | 0.1229      | 1522.32178    | 189.07097       | 1.79945  |
| T 6    | 10.911        | PB   | 0.0785      | 2400.75073    | 462.75690       | 2.83779  |

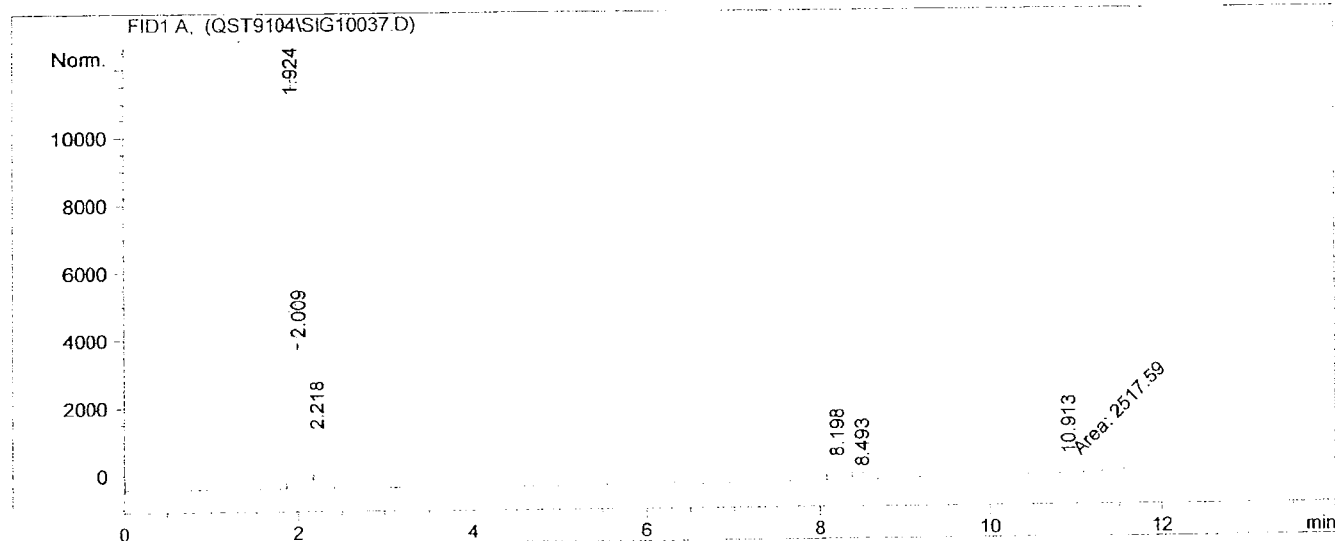
Totals : 8.45992e4 2.01022e4

Results obtained with enhanced integrator!

=====  
\*\*\* End of Report \*\*\*  
=====

```
=====
Injection Date   : 4/8/2009 4:57:17 PM
Sample Name      : run 1 inlet          Location : Vial 1
Acq. Operator    : MS
Acq. Instrument  : Instrument 1         Inj Volume : External
Acq. Method      : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/8/2009 5:11:20 PM by MS
                  (modified after loading)
Analysis Method  : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/8/2009 5:13:41 PM by MS
                  (modified after loading)
=====
```

btex



# Area Percent Report

```
Sorted By      : Signal
Multiplier     : 1.0000
Dilution       : 1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: FID1 A,

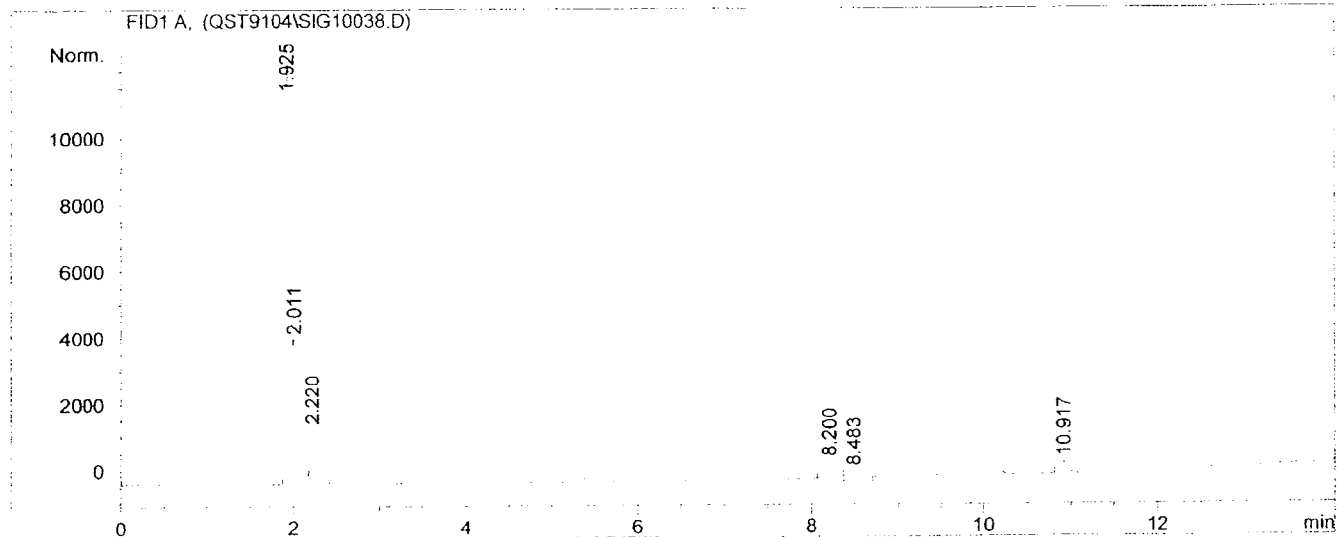
| Peak #           | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|------------------|---------------|------|-------------|---------------|-----------------|----------|
| C <sub>1</sub> 1 | 1.924         | PV   | 0.0545      | 4.85140e4     | 1.24470e4       | 58.60465 |
| C <sub>2</sub> 2 | 2.009         | VV   | 0.0574      | 1.81950e4     | 4296.34326      | 21.97953 |
| C <sub>3</sub> 3 | 2.218         | VV   | 0.0723      | 8129.91016    | 1572.23096      | 9.82090  |
| B <sub>4</sub> 4 | 8.198         | PV   | 0.1166      | 3916.47363    | 515.97015       | 4.73108  |
| C <sub>6</sub> 5 | 8.493         | VB   | 0.1301      | 1508.77271    | 179.47484       | 1.82259  |
| t <sub>6</sub> 6 | 10.913        | MM   | 0.1004      | 2517.59106    | 418.03531       | 3.04124  |

Totals : 8.27817e4 1.94291e4

Results obtained with enhanced integrator!

\*\*\* End of Report \*\*\*

=====  
Injection Date : 4/8/2009 5:17:09 PM  
Sample Name : run 2 inlet Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 5:13:49 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 5:31:42 PM by MS  
(modified after loading)  
=====  
btex  
=====



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak #           | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|------------------|---------------|------|-------------|---------------|-----------------|----------|
| C <sub>1</sub> 1 | 1.925         | PV   | 0.0576      | 4.95072e4     | 1.26584e4       | 59.49076 |
| C <sub>2</sub> 2 | 2.011         | VV   | 0.0587      | 1.81257e4     | 4343.95752      | 21.78092 |
| C <sub>3</sub> 3 | 2.220         | VV   | 0.0719      | 8349.82422    | 1627.30847      | 10.03363 |
| P <sub>4</sub> 4 | 8.200         | PV   | 0.1143      | 3727.82471    | 492.70840       | 4.47957  |
| C <sub>6</sub> 5 | 8.483         | VP   | 0.1308      | 1673.49573    | 188.10396       | 2.01097  |
| T 6              | 10.917        | PP   | 0.0851      | 1834.26514    | 328.66470       | 2.20416  |

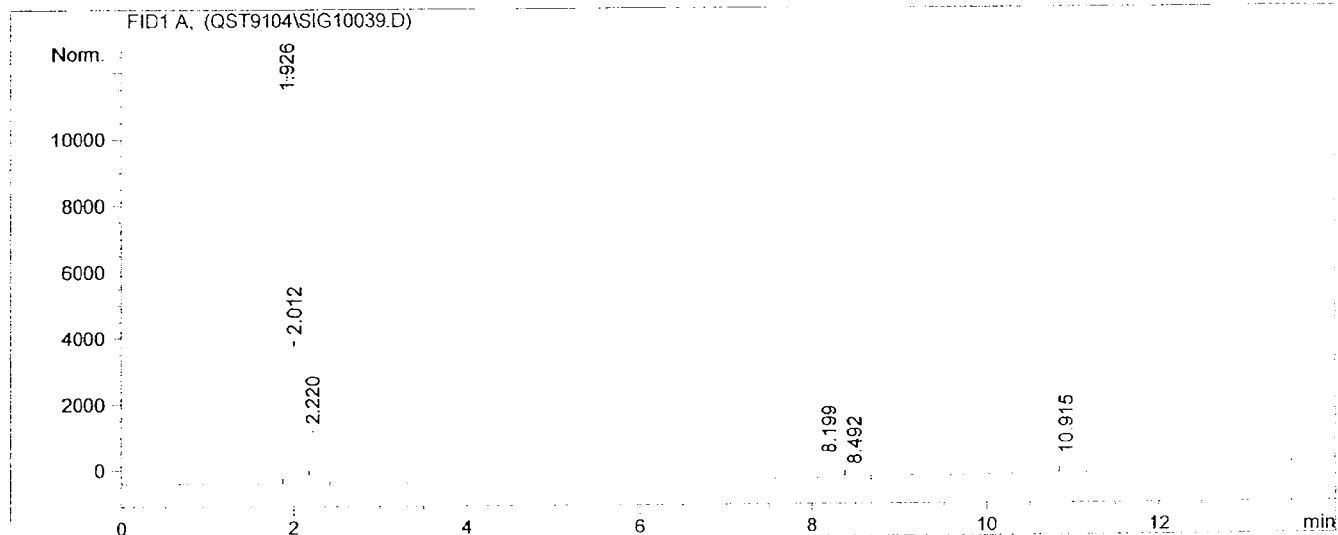
Totals : 8.32184e4 1.96391e4

Results obtained with enhanced integrator!

=====  
\*\*\* End of Report \*\*\*  
=====

```
=====
Injection Date   : 4/8/2009 5:35:38 PM
Sample Name      : run 2 inlet                Location : Vial 1
Acq. Operator    : MS
Acq. Instrument  : Instrument 1              Inj Volume : External
Acq. Method      : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/8/2009 5:31:48 PM by MS
                  (modified after loading)
Analysis Method  : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/8/2009 5:51:43 PM by MS
                  (modified after loading)
=====
```

btex



Area Percent Report

```
=====
Sorted By      : Signal
Multiplier     : 1.0000
Dilution       : 1.0000
Use Multiplier & Dilution Factor with ISTDs
=====
```

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 1.926         | PV   | 0.0573      | 4.93152e4     | 1.26929e4       | 58.98125 |
| 2      | 2.012         | VV   | 0.0587      | 1.81550e4     | 4352.12695      | 21.71344 |
| 3      | 2.220         | VV   | 0.0724      | 8360.54980    | 1615.68311      | 9.99927  |
| 4      | 8.199         | PV   | 0.1129      | 4151.04492    | 557.22192       | 4.96468  |
| 5      | 8.492         | VP   | 0.1248      | 1595.80286    | 192.27440       | 1.90859  |
| 6      | 10.915        | PB   | 0.0787      | 2034.08020    | 378.74744       | 2.43277  |

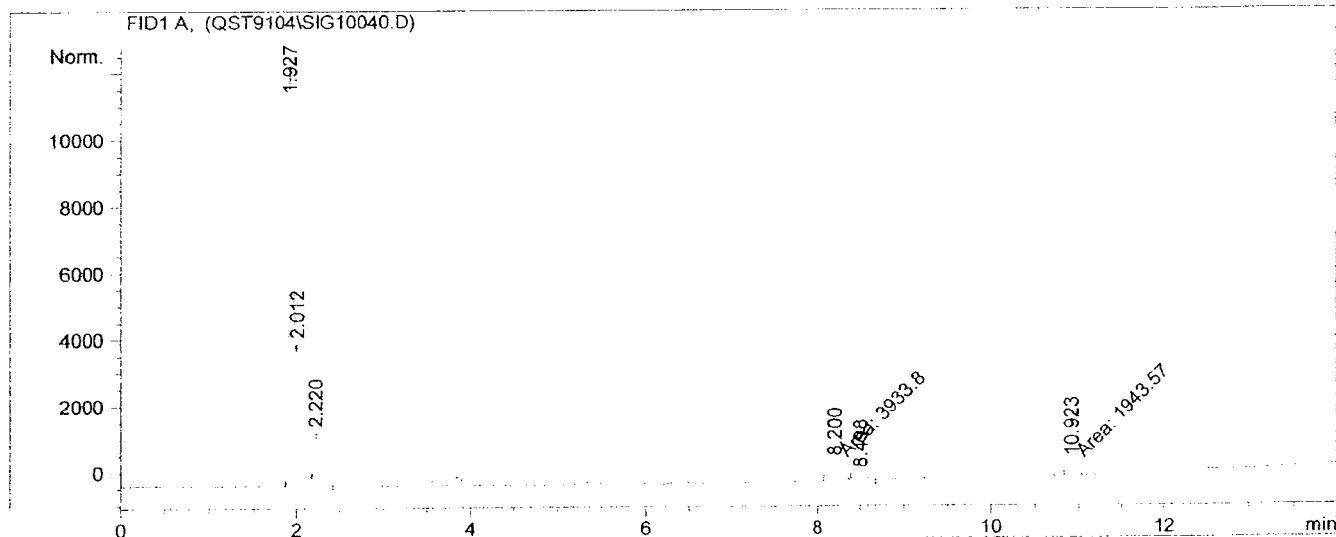
Totals : 8.36116e4 1.97889e4

Results obtained with enhanced integrator!

\*\*\* End of Report \*\*\*

bag run 2 inlet inj 3

=====  
Injection Date : 4/8/2009 5:54:06 PM  
Sample Name : run 2 inlet Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 5:51:49 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 6:16:07 PM by MS  
(modified after loading)  
btex  
=====



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 1.927         | PV   | 0.0562      | 4.90511e4     | 1.26575e4       | 59.39267 |
| 2      | 2.012         | VV   | 0.0585      | 1.78273e4     | 4289.40820      | 21.58592 |
| 3      | 2.220         | VV   | 0.0722      | 8307.53809    | 1611.02869      | 10.05905 |
| 4      | 8.200         | MM   | 0.1173      | 3933.79663    | 559.14526       | 4.76317  |
| 5      | 8.498         | VP   | 0.1137      | 1524.44226    | 189.87645       | 1.84585  |
| 6      | 10.923        | MM   | 0.0821      | 1943.57092    | 394.68188       | 2.35334  |

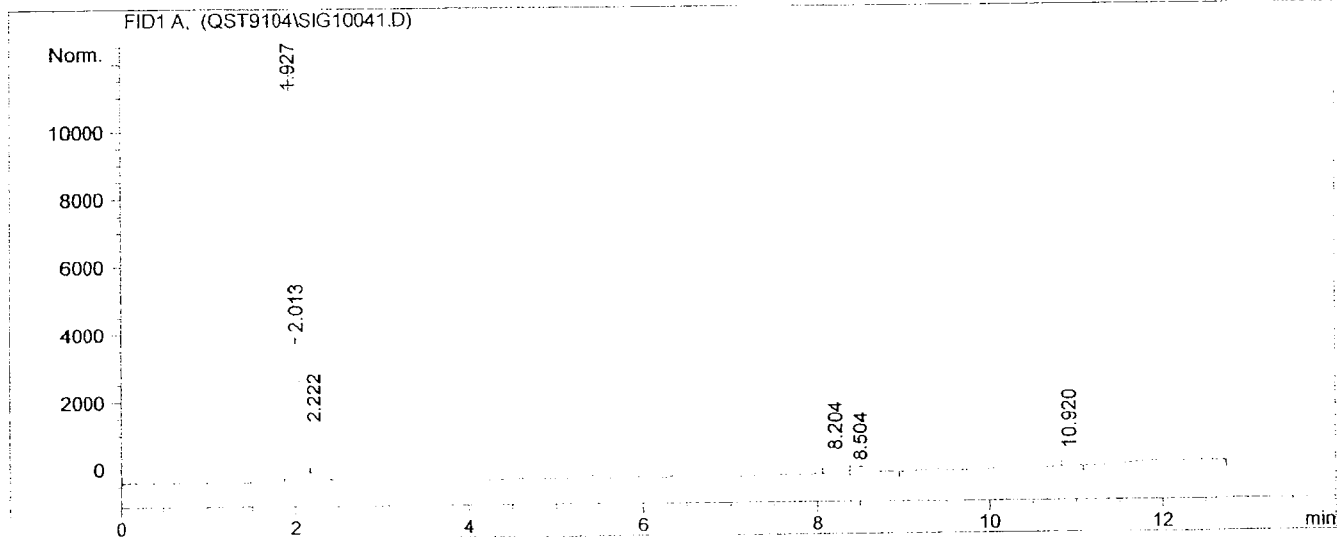
Totals : 8.25877e4 1.97017e4

Results obtained with enhanced integrator!

=====  
\*\*\* End of Report \*\*\*  
=====

bag run 3 inlet inj 1

=====  
Injection Date : 4/8/2009 6:18:19 PM  
Sample Name : run 3 inlet Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 6:16:14 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 6:32:37 PM by MS  
(modified after loading)  
=====  
btex  
=====



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 1.927         | PV   | 0.0566      | 4.84892e4     | 1.24029e4       | 58.85196 |
| 2      | 2.013         | VV   | 0.0568      | 1.78509e4     | 4270.03809      | 21.66588 |
| 3      | 2.222         | VB   | 0.0705      | 7868.63672    | 1569.85657      | 9.55026  |
| 4      | 8.204         | PV   | 0.1143      | 4036.84839    | 533.09589       | 4.89957  |
| 5      | 8.504         | VP   | 0.1640      | 2193.42847    | 188.14337       | 2.66219  |
| 6      | 10.920        | PP   | 0.0803      | 1952.79077    | 365.52222       | 2.37013  |

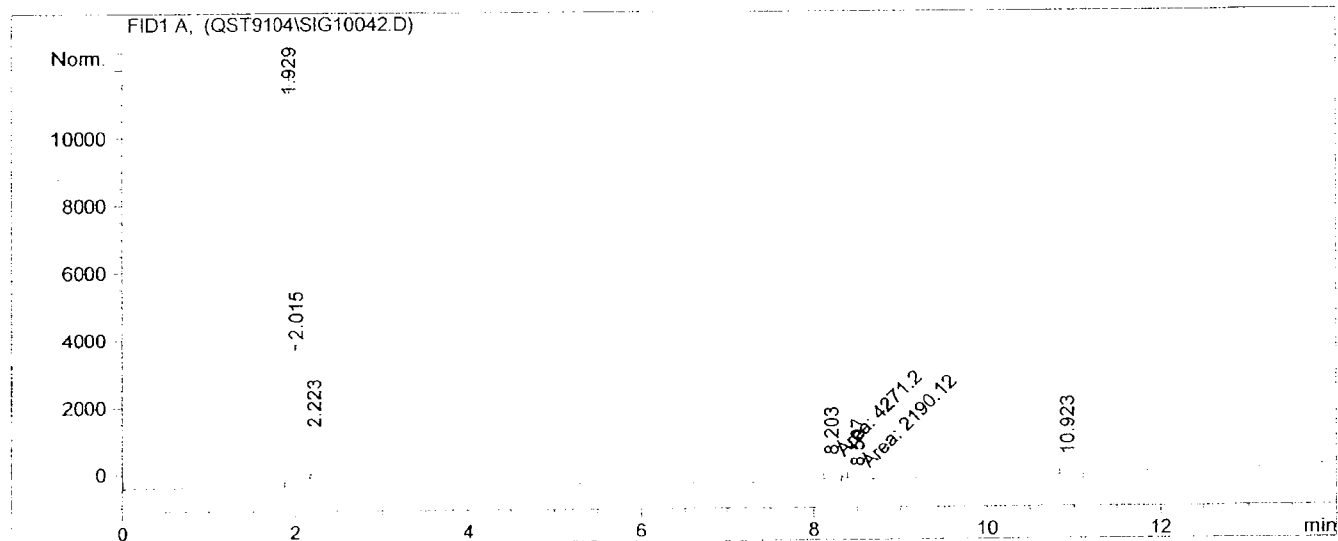
Totals : 8.23918e4 1.93295e4

Results obtained with enhanced integrator!

=====  
\*\*\* End of Report \*\*\*  
=====

bag run 3 inlet inj 2

=====  
Injection Date : 4/8/2009 6:36:37 PM  
Sample Name : run 3 inlet Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 6:32:43 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 6:56:14 PM by MS  
(modified after loading)  
=====  
btex  
=====



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

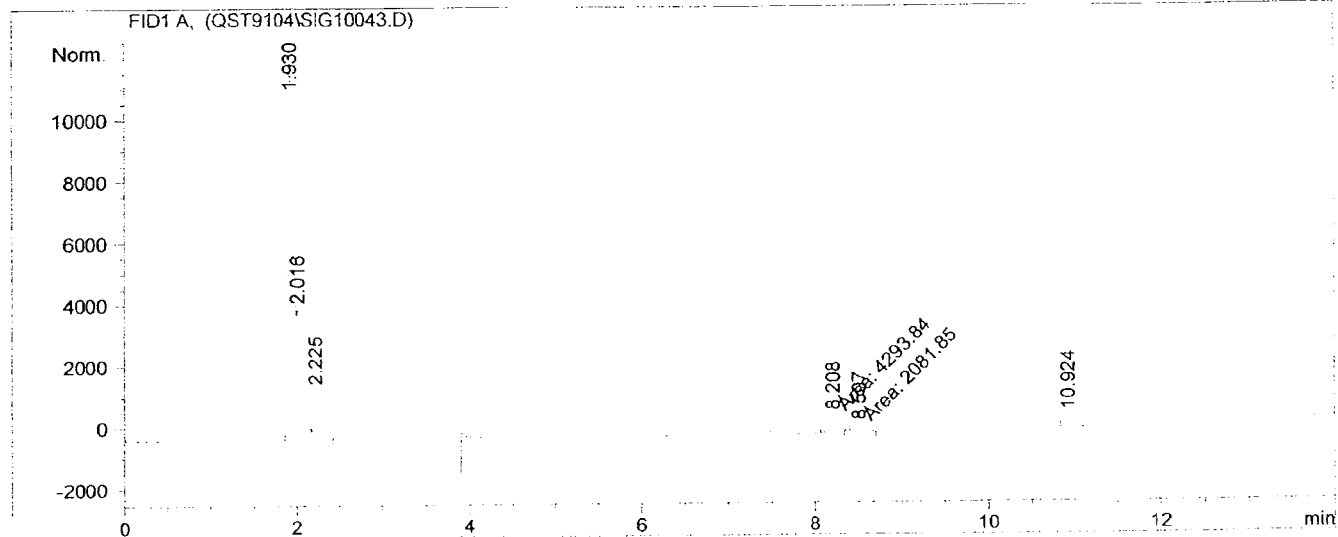
| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 1.929         | PV   | 0.0572      | 4.82729e4     | 1.24666e4       | 58.61827 |
| 2      | 2.015         | VV   | 0.0590      | 1.77620e4     | 4225.93555      | 21.56863 |
| 3      | 2.223         | VB   | 0.0692      | 7725.97852    | 1576.07214      | 9.38174  |
| 4      | 8.203         | MF   | 0.1158      | 4271.19727    | 614.71143       | 5.18656  |
| 5      | 8.507         | FM   | 0.1555      | 2190.11963    | 234.79213       | 2.65949  |
| 6      | 10.923        | PP   | 0.0784      | 2129.03809    | 411.24857       | 2.58531  |

Totals : 8.23512e4 1.95294e4

Results obtained with enhanced integrator!

=====  
\*\*\* End of Report \*\*\*  
=====

=====  
Injection Date : 4/8/2009 6:57:46 PM  
Sample Name : run 3 inlet Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\MSDCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 6:56:20 PM by MS  
(modified after loading)  
Analysis Method : C:\MSDCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 7:18:09 PM by MS  
(modified after loading)  
=====  
btex  
=====



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 1.930         | PV   | 0.0574      | 4.76388e4     | 1.22379e4       | 58.01661 |
| 2      | 2.016         | VV   | 0.0584      | 1.79005e4     | 4223.58398      | 21.80007 |
| 3      | 2.225         | VV   | 0.0724      | 8220.78613    | 1588.26807      | 10.01163 |
| 4      | 8.208         | MF   | 0.1232      | 4293.84326    | 580.80939       | 5.22923  |
| 5      | 8.507         | MM   | 0.1584      | 2081.85498    | 219.07950       | 2.53537  |
| 6      | 10.924        | PP   | 0.0824      | 1976.51880    | 369.48001       | 2.40709  |

Totals : 8.21124e4 1.92191e4

Results obtained with enhanced integrator!

=====  
\*\*\* End of Report \*\*\*  
=====



QST9104

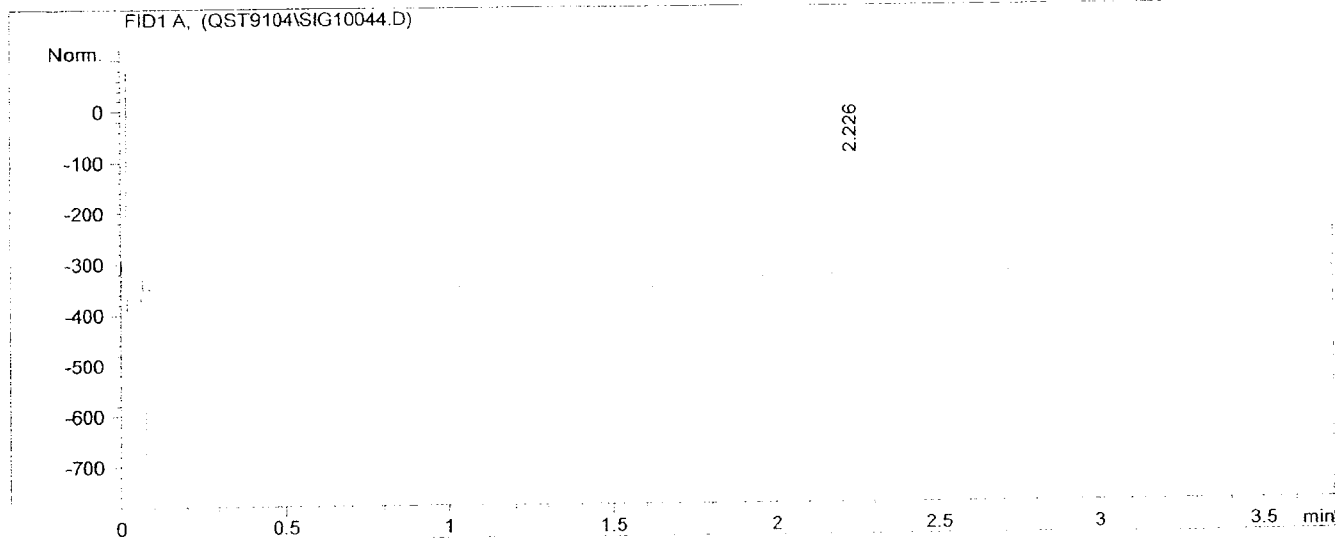
Questar

Wonsits Valley Compressor  
Station

## **Post Calibration**

- 50 PPM C1-C7 BTEX 3 INJECTIONS EACH
- LOOP CHANGE

```
=====
Injection Date   : 4/8/2009 7:23:21 PM
Sample Name     : loop change
Acq. Operator   : MS
Acq. Instrument : Instrument 1
Acq. Method     : C:\HPCHEM\1\METHODS\BTEX.M
Last changed    : 4/8/2009 7:22:57 PM by MS
                  (modified after loading)
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M
Last changed    : 4/8/2009 7:27:20 PM by MS
                  (modified after loading)
btex
=====
```



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %  |
|--------|---------------|------|-------------|---------------|-----------------|---------|
| 1      | 2.226         | PB   | 0.0565      | 1004.44122    | 223.01346       | 1.000e2 |

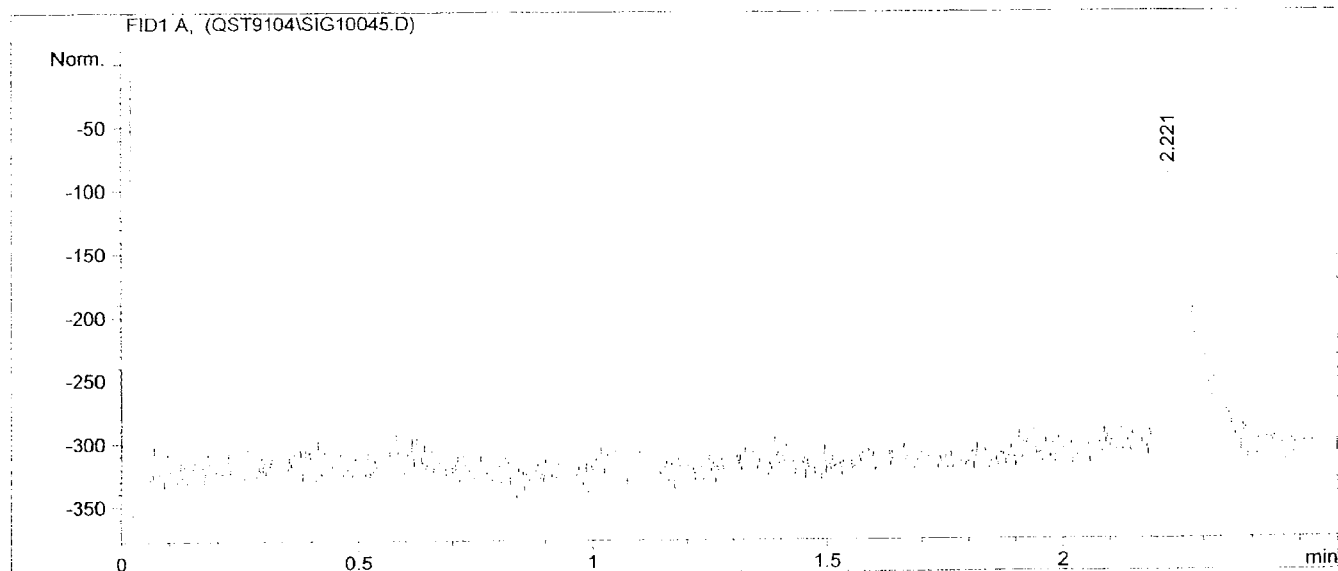
Totals : 1004.44122 223.01346

Results obtained with enhanced integrator!

=====  
\*\*\* End of Report \*\*\*

```
=====
Injection Date   : 4/8/2009 7:28:23 PM
Sample Name      : loop change                Location : Vial 1
Acq. Operator    : MS
Acq. Instrument  : Instrument 1              Inj Volume : External
Method           : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/8/2009 7:27:20 PM by MS
                  (modified after loading)
=====
```

btex



Area Percent Report

```
=====
Sorted By       : Signal
Multiplier      : 1.0000
Dilution        : 1.0000
Use Multiplier & Dilution Factor with ISTDs
=====
```

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %  |
|--------|---------------|------|-------------|---------------|-----------------|---------|
| 1      | 2.221         | PP   | 0.0589      | 1051.09534    | 223.28957       | 1.000e2 |

Totals : 1051.09534 223.28957

Results obtained with enhanced integrator!

\*\*\* End of Report \*\*\*

=====  
Injection Date : 4/8/2009 7:37:35 PM  
Sample Name : loop change Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 7:27:20 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 7:41:03 PM by MS  
(modified after loading)  
btex  
=====



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %  |
|--------|---------------|------|-------------|---------------|-----------------|---------|
| 1      | 2.343         | VB   | 0.1021      | 1.99029e5     | 3.05024e4       | 1.000e2 |

Totals : 1.99029e5 3.05024e4

Results obtained with enhanced integrator!

=====  
\*\*\* End of Report \*\*\*  
=====

data file C:\HPCHEM\1\DATA\QST9104\SIG10047.D  
large loop c3h8 50.1 ppm inj 2

=====  
Injection Date : 4/8/2009 7:43:11 PM  
Sample Name : loop change Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 7:41:03 PM by MS  
(modified after loading)  
btex  
=====



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

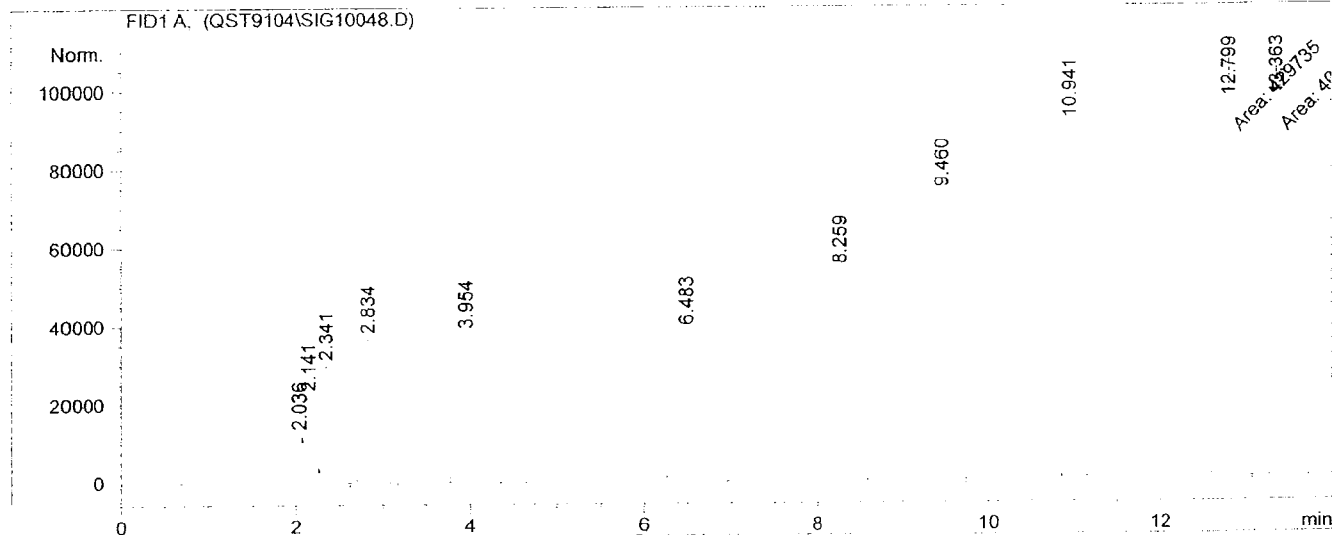
| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %  |
|--------|---------------|------|-------------|---------------|-----------------|---------|
| 1      | 2.341         | VB   | 0.1013      | 1.94142e5     | 3.00713e4       | 1.000e2 |

Totals : 1.94142e5 3.00713e4

Results obtained with enhanced integrator!

=====  
\*\*\* End of Report \*\*\*  
=====

```
=====
Injection Date   : 4/8/2009 7:51:05 PM
Sample Name      : post cal                      Location : Vial 1
Acq. Operator    : MS
Acq. Instrument  : Instrument 1                  Inj Volume : External
Acq. Method      : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/8/2009 7:53:34 PM by MS
                  (modified after loading)
Analysis Method  : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/8/2009 8:05:37 PM by MS
                  (modified after loading)
btex
=====
```



Area Percent Report

```
Sorted By      : Signal
Multiplier     : 1.0000
Dilution       : 1.0000
Use Multiplier & Dilution Factor with ISTDs
```

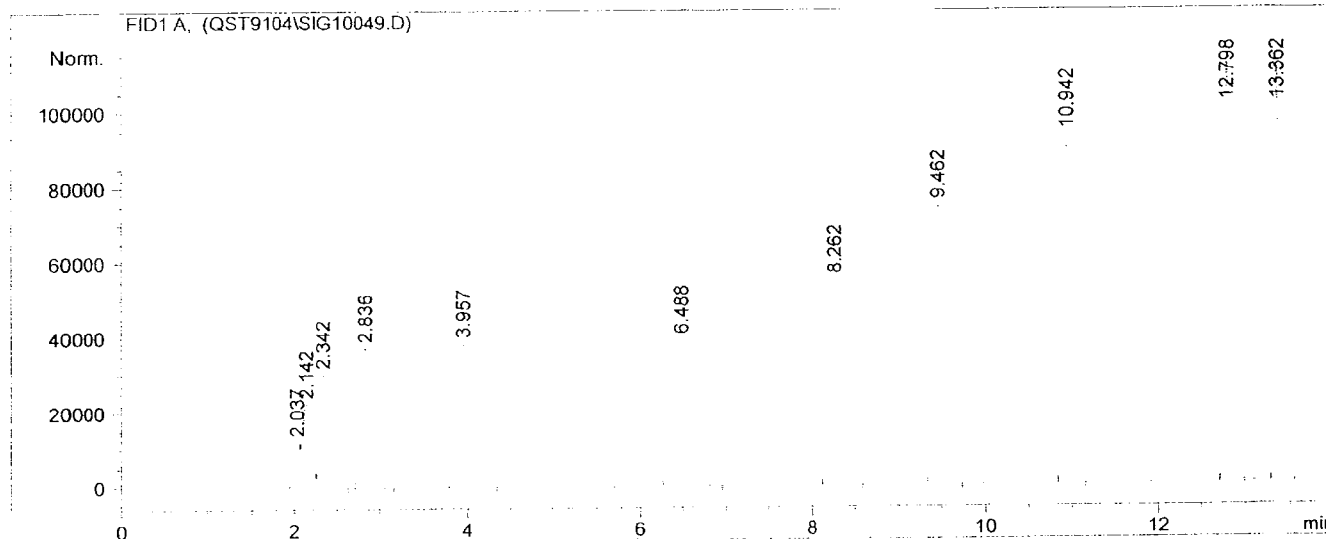
Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.036         | PV   | 0.0696      | 5.21327e4     | 1.22589e4       | 1.53659  |
| 2      | 2.141         | VV   | 0.1060      | 1.52156e5     | 2.21954e4       | 4.48473  |
| 3      | 2.341         | VB   | 0.1000      | 1.95700e5     | 3.00312e4       | 5.76818  |
| 4      | 2.834         | PB   | 0.1094      | 2.56768e5     | 3.67909e4       | 7.56815  |
| 5      | 3.954         | PB   | 0.1284      | 3.12865e5     | 3.78576e4       | 9.22157  |
| 6      | 6.483         | BB   | 0.1537      | 3.82250e5     | 3.85495e4       | 11.26665 |
| 7      | 8.259         | PB   | 0.1084      | 3.70320e5     | 5.37109e4       | 10.91505 |
| 8      | 9.460         | PB   | 0.0920      | 4.26162e5     | 7.30890e4       | 12.56097 |
| 9      | 10.941        | PB   | 0.0703      | 4.04692e5     | 9.03207e4       | 11.92814 |
| 10     | 12.799        | MM   | 0.0668      | 4.29735e5     | 1.07208e5       | 12.66628 |
| 11     | 13.363        | MM   | 0.0651      | 4.09970e5     | 1.04908e5       | 12.08369 |

Totals : 3.39275e6 6.06920e5

```
=====
Injection Date   : 4/8/2009 8:10:34 PM
Sample Name      : post cal                      Location : Vial 1
Acq. Operator    : MS
Acq. Instrument  : Instrument 1                  Inj Volume : External
Acq. Method      : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/8/2009 8:24:24 PM by MS
                  (modified after loading)
Analysis Method  : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/8/2009 8:24:59 PM by MS
                  (modified after loading)
=====
```

btex



Area Percent Report

```
Sorted By      : Signal
Multiplier     : 1.0000
Dilution       : 1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: FID1 A,

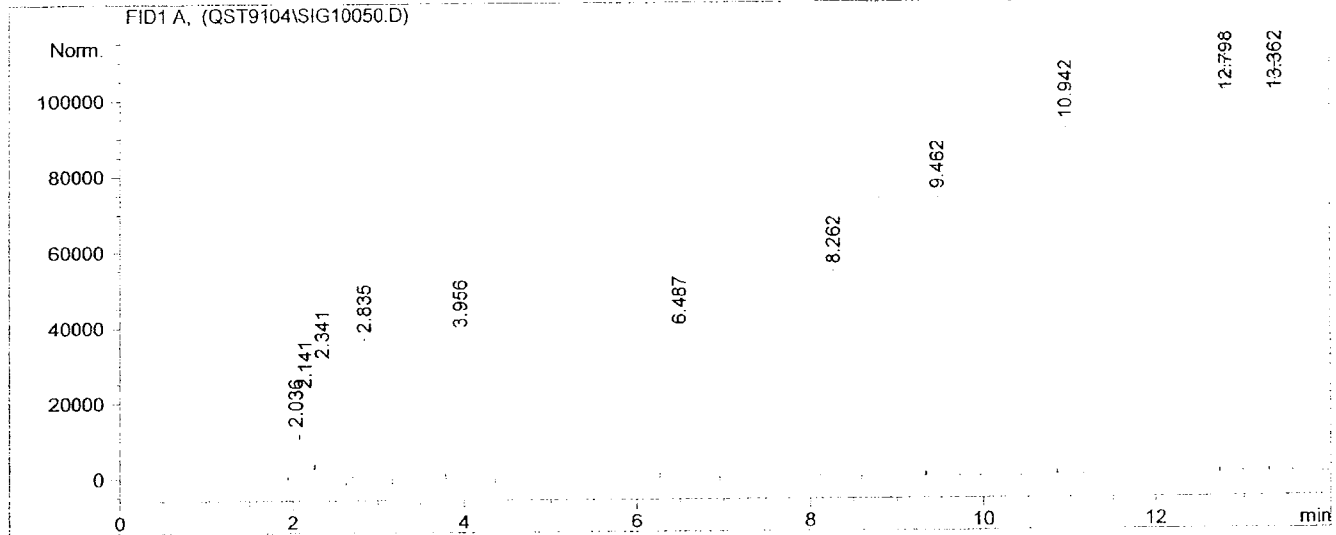
| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.037         | PV   | 0.0708      | 5.31865e4     | 1.24590e4       | 1.53411  |
| 2      | 2.142         | VV   | 0.1057      | 1.53908e5     | 2.25368e4       | 4.43930  |
| 3      | 2.342         | VB   | 0.1019      | 1.98452e5     | 3.05085e4       | 5.72413  |
| 4      | 2.836         | PB   | 0.1092      | 2.60473e5     | 3.74310e4       | 7.51305  |
| 5      | 3.957         | PB   | 0.1282      | 3.17572e5     | 3.85178e4       | 9.16003  |
| 6      | 6.488         | BB   | 0.1533      | 3.88570e5     | 3.93257e4       | 11.20789 |
| 7      | 8.262         | PB   | 0.1059      | 3.77455e5     | 5.50925e4       | 10.88727 |
| 8      | 9.462         | BB   | 0.0897      | 4.34259e5     | 7.48874e4       | 12.52574 |
| 9      | 10.942        | PB   | 0.0702      | 4.16911e5     | 9.32338e4       | 12.02535 |
| 10     | 12.798        | PB   | 0.0620      | 4.42808e5     | 1.12217e5       | 12.77231 |
| 11     | 13.362        | PB   | 0.0586      | 4.23342e5     | 1.10771e5       | 12.21083 |

Totals : 3.46694e6 6.26980e5

post cal 50ppm cl-c7 btex inj 3

Injection Date : 4/8/2009 8:30:01 PM  
Sample Name : post cal Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 8:25:05 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 8:44:34 PM by MS  
(modified after loading)

btex



# Area Percent Report

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.036         | PV   | 0.0707      | 5.31261e4     | 1.24807e4       | 1.53760  |
| 2      | 2.141         | VV   | 0.1054      | 1.53953e5     | 2.26225e4       | 4.45577  |
| 3      | 2.341         | VB   | 0.1018      | 1.98495e5     | 3.05506e4       | 5.74494  |
| 4      | 2.835         | PB   | 0.1093      | 2.60527e5     | 3.73953e4       | 7.54029  |
| 5      | 3.956         | PB   | 0.1305      | 3.17597e5     | 3.84164e4       | 9.19205  |
| 6      | 6.487         | BB   | 0.1537      | 3.87842e5     | 3.90986e4       | 11.22511 |
| 7      | 8.262         | PB   | 0.1064      | 3.76689e5     | 5.46791e4       | 10.90231 |
| 8      | 9.462         | BB   | 0.0900      | 4.32571e5     | 7.42194e4       | 12.51967 |
| 9      | 10.942        | PB   | 0.0705      | 4.14808e5     | 9.21926e4       | 12.00558 |
| 10     | 12.798        | PB   | 0.0623      | 4.39112e5     | 1.10732e5       | 12.70899 |
| 11     | 13.362        | PB   | 0.0588      | 4.20409e5     | 1.09364e5       | 12.16768 |

Totals : 3.45513e6 6.21751e5



4/10/09

QST9104

Questar, Vernal Utah

Wonsits Valley Compressor  
Station

**GC ANALYSIS**

Inlet Bag Analysis  
C1-C3

Analyst:MS

# **Table of Contents**

**Detail : Logbook/Gas certificates**

**Detail : Pre calibration 5,50,5000 ppm C1-C3**

**Detail :GC BAG Analysis Intlet C1-C3  
Three runs**

**Detail : Post calibration 50 ppm C1-C3**

**Analyst(s) : MS**

QST9104

Questar

## Wonsits Valley Compressor Station

- Lab book notes
- Gas certificates

4:30 - 8:30

10 10 16

7:00 - 5:00

10 10 16

7:00 - 10 10 16

MOB FROM DENVER 4:30 AM

ARRIVE @ SITE 12:20

UNLOAD/START CAL: 13:00

4/7 MOD - 7:00

ON SITE 8:00

760,000

8.212

51

IRIS LEFT ON FROM 4/6 - 4/7 SO OPERATING  
 PARAMETER SAME - SIGNAL 10.0 → 7.9

4/8 MOD 7:00 / ON SITE 8:00

IRIS SETTINGS SAME - SIGNAL: 8.2 → 7.9  
 → 7A

START

RUN 1 10:30

RUN 2 11:55

RUN 3 13:20

NOTE: ALL INLET SAMPLES  
 ARE DILUTE 100:1  
 PER FID (METHOD 25)  
 EXHAUST.

Continued on Page

INLET C1-C2 Read and Understood By

Signed

Date

Signed

Date

PROJECT

QST 9104 - 04/06/09

Notebook No. \_\_\_\_\_

7

VERNAL, UT.

Continued From Page

INLET + OUTLET - BAG ANALYSIS

INSTR: IRIS AIR 55  $\frac{1}{2}$ : 55 CH: 20 SIGNAL: 14.2  $\rightarrow$  7.8

ANALYST: JMS METHOD: BTEX

| SIGNAL SOURCE | SAMPLE       | DESCRIPTION               | SMALL LOOP: 5ml | LARGE LOOP:                 |
|---------------|--------------|---------------------------|-----------------|-----------------------------|
| 0001          | PRECBL       | PRECBL 50ppm C1-C7 BTEX   | inj 1           | (NG)                        |
| 0002          | "            | "                         | inj 2           |                             |
| 0003          | "            | "                         | inj 3           |                             |
| 0004          | "            | "                         | inj 4           |                             |
| 0005          | PRECBL       | PRECBL 50ppm C1-C7 BTEX   | inj 1           |                             |
| 0006          | "            | "                         | inj 2           |                             |
| 0007          | "            | "                         | inj 3           |                             |
| 0008          | PRECBL       | PRECBL 100ppm C1-C7 BTEX  | inj 1           |                             |
| 0009          | "            | "                         | inj 2           |                             |
| 0010          | "            | "                         | inj 3           |                             |
| 0011          | PRECBL       | PRECBL 500ppm C1-C3       | inj 1           |                             |
| 0012          | "            | "                         | inj 2           |                             |
| 0013          | "            | "                         | inj 3           |                             |
| 0014          | PRECBL       | RT CHECK 50ppm C1-C7 BTEX | inj 1           |                             |
| 0015          | BAG 1 DIAG   | BAG RUN INLET DIAG        | inj 1           |                             |
| 0016          | "            | "                         | inj 2           |                             |
| 0017          | RT CHECK     | RT CHECK 4/08/09          | inj 1           | @ 45°C START                |
| 0018          | RT CHECK     | RT CHECK 4/08/09          | inj 2           | @ 60°C START                |
| 0019          | BLANK        | BLANK                     |                 |                             |
| 0020          | RUN 1 OUTLET | BAG RUN 1 OUTLET          | inj 1           | (NG) HANDPUMP CONTAMINATION |
| 0021          | RUN 1 OUTLET | BAG RUN 1 OUTLET          | inj 1A          |                             |
| 0022          | "            | "                         | inj 2           |                             |
| 0023          | "            | "                         | inj 3           |                             |
| 0024          | RUN 2 OUTLET | BAG RUN 2 OUTLET          | inj 1           |                             |
| 0025          | "            | "                         | inj 2           |                             |
| 0026          | "            | "                         | inj 3           |                             |
| 0027          | RUN 3 OUTLET | BAG RUN 3 OUTLET          | inj 1           |                             |
| 0028          | "            | "                         | inj 2           |                             |
| 0029          | "            | "                         | inj 3           |                             |
| 0030          | LOOP CHANGE  | LARGE LOOP C3HB 50ppm     | inj 1           |                             |
| 0031          | "            | "                         | inj 2           |                             |
| 0032          | "            | SMALL LOOP C3HB 50ppm     | inj 1           |                             |
| 0033          | "            | "                         | inj 2           |                             |

Continued on Page

Read and Understood By

Signed

Date

Signed

Date

QGM498823

| SIGNATURE | SAMPLE      | DESCRIPTION               |       |                 |
|-----------|-------------|---------------------------|-------|-----------------|
| 0034      | RUN 1 INLET | BAG RUN 1 INLET           | inj 1 | (NL) - STRIPPED |
| 0035      | "           | "                         | inj 2 |                 |
| 0036      | "           | "                         | inj 3 |                 |
| 0037      | "           | "                         | inj 4 |                 |
| 0038      | RUN 2 INLET | BAG RUN 2 INLET           | inj 1 |                 |
| 0039      | "           | "                         | inj 2 |                 |
| 0040      | "           | "                         | inj 3 |                 |
| 0041      | RUN 3 INLET | BAG RUN 3 INLET           | inj 1 |                 |
| 0042      | "           | "                         | inj 2 |                 |
| 0043      | "           | "                         | inj 3 |                 |
| 0044      | LOOP CHANGE | SMALL LOOP C3H8 50.7 ppm  | inj 1 |                 |
| 0045      | "           | "                         | inj 2 |                 |
| 0046      | LOOP CHANGE | LARGE LOOP C3H8 50.1 ppm  | inj 1 |                 |
| 0047      | "           | "                         | inj 2 |                 |
| 0048      | POSTCAL     | POSTCAL 50 ppm C1-C7 BTEX | inj 1 |                 |
| 0049      | "           | "                         | inj 2 |                 |
| 0050      | "           | "                         | inj 3 |                 |

Continued on Page

Read and Understood By

Signed \_\_\_\_\_ Date \_\_\_\_\_ Signed \_\_\_\_\_ Date \_\_\_\_\_



Spectra Gases, Inc.

3434 Route 22 West, Branchburg, New Jersey 08876 USA

ISO 9001:2000

SHIPPED FROM: 80 INDUSTRIAL DRIVE ALPHA, NJ. 08865

SHIPPED TO: Air Pollution Testing  
5530 Marshall St.  
Arvada, CO 80002

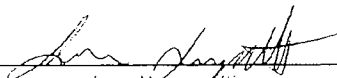
**CERTIFICATE  
OF  
ANALYSIS**

|                     |              |                          |            |
|---------------------|--------------|--------------------------|------------|
| SGI ORDER # :       | 133458       | CYLINDER # :             | CC-237395  |
| ITEM# :             | 1            | CYLINDER PRES:           | 1400 psig  |
| CERTIFICATION DATE: | 08/07/2008   | CYLINDER VALVE:          | CGA 350    |
| P.O.# :             | Verbal- Matt | PRODUCT EXPIRATION DATE: | 08/07/2009 |
| BLEND TYPE:         | CERTIFIED    |                          |            |

ANALYTICAL ACCURACY: +/- 2%

| COMPONENT    | REQUESTED GAS<br>CONC | ANALYSIS |
|--------------|-----------------------|----------|
| Methane      | 5.00 ppm              | 5.08 ppm |
| Ethane       | 5.00 ppm              | 5.07 ppm |
| Propane      | 5.00 ppm              | 5.11 ppm |
| Butane       | 5.00 ppm              | 5.07 ppm |
| Pentane      | 5.00 ppm              | 5.21 ppm |
| Hexane       | 5.00 ppm              | 5.15 ppm |
| Benzene      | 5.00 ppm              | 5.13 ppm |
| Heptane      | 5.00 ppm              | 5.18 ppm |
| Toluene      | 5.00 ppm              | 5.09 ppm |
| Ethylbenzene | 5.00 ppm              | 5.25 ppm |
| o-Xylene     | 5.00 ppm              | 5.25 ppm |
| Nitrogen     | Balance               | Balance  |

ANALYST:

  
Lou Lorenzetti

DATE: 08/07/2008

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

QGM498825



3434 Route 22 West, Branchburg, New Jersey 08876 USA

ISO 9001:2000

SHIPPED FROM: 80 INDUSTRIAL DRIVE ALPHA, NJ. 08865

SHIPPED TO: Air Pollution Testing  
5530 Marshall St.  
Arvada, CO 80002

**CERTIFICATE  
OF  
ANALYSIS**

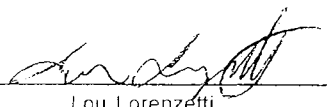
|                     |              |                          |            |
|---------------------|--------------|--------------------------|------------|
| SGI ORDER # :       | 135110       | CYLINDER # :             | CC-82198   |
| ITEM# :             | 2            | CYLINDER PRES:           | 250 psig   |
| CERTIFICATION DATE: | 08/27/2008   | CYLINDER VALVE:          | CGA 350    |
| P.O.# :             | Verbal- Matt | PRODUCT EXPIRATION DATE: | 08/27/2009 |
| BLEND TYPE:         | CERTIFIED    |                          |            |

ANALYTICAL ACCURACY: +/- 2%

| COMPONENT    | REQUESTED GAS<br>CONC | ANALYSIS |
|--------------|-----------------------|----------|
| Methane      | 100 ppm               | 102 ppm  |
| Ethane       | 100 ppm               | 102 ppm  |
| Propane      | 100 ppm               | 102 ppm  |
| Butane       | 100 ppm               | 102 ppm  |
| Pentane      | 100 ppm               | 103 ppm  |
| Hexane       | 100 ppm               | 103 ppm  |
| Benzene      | 100 ppm               | 103 ppm  |
| Heptane      | 100 ppm               | 103 ppm  |
| Toluene      | 100 ppm               | 103 ppm  |
| Ethylbenzene | 100 ppm               | 103 ppm  |
| o-Xylene     | 100 ppm               | 103 ppm  |
| Nitrogen     | Balance               | Balance  |

SOURCE REFERENCE# 247527

ANALYST:

  
Lou Lorenzetti

DATE: 08/27/2008

Tel: +1 908-252-9300 Fax: +1 908-252-0811

www.spectragases.com

QGM498826





3434 Route 22 West, Branchburg, New Jersey 08876 USA

ISO 9001:2000

SHIPPED FROM: 80 INDUSTRIAL DRIVE ALPHA, NJ. 08865

SHIPPED TO: Air Pollution Testing  
5530 Marshall St.  
Arvada, CO 80002

CERTIFICATE  
OF  
ANALYSIS

|                     |              |                          |            |
|---------------------|--------------|--------------------------|------------|
| SGI ORDER # :       | 134656       | CYLINDER # :             | CC-18310   |
| ITEM# :             | 1            | CYLINDER PRES:           | 2000 psig  |
| CERTIFICATION DATE: | 08/25/2008   | CYLINDER VALVE:          | CGA 350    |
| P.O.# :             | Verbal- Matt | PRODUCT EXPIRATION DATE: | 08/25/2009 |
| BLEND TYPE:         | CERTIFIED    |                          |            |

ANALYTICAL ACCURACY: +/- 2%

| COMPONENT | REQUESTED GAS<br>CONC | ANALYSIS |
|-----------|-----------------------|----------|
| Methane   | 5000 ppm              | 4937 ppm |
| Ethane    | 5000 ppm              | 5036 ppm |
| Propane   | 5000 ppm              | 4993 ppm |
| Nitrogen  | Balance               | Balance  |

SOURCE REFERENCE# 240400

ANALYST:

Lou Lorenzetti

DATE: 08/25/2008

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

QGM498827

QST9104

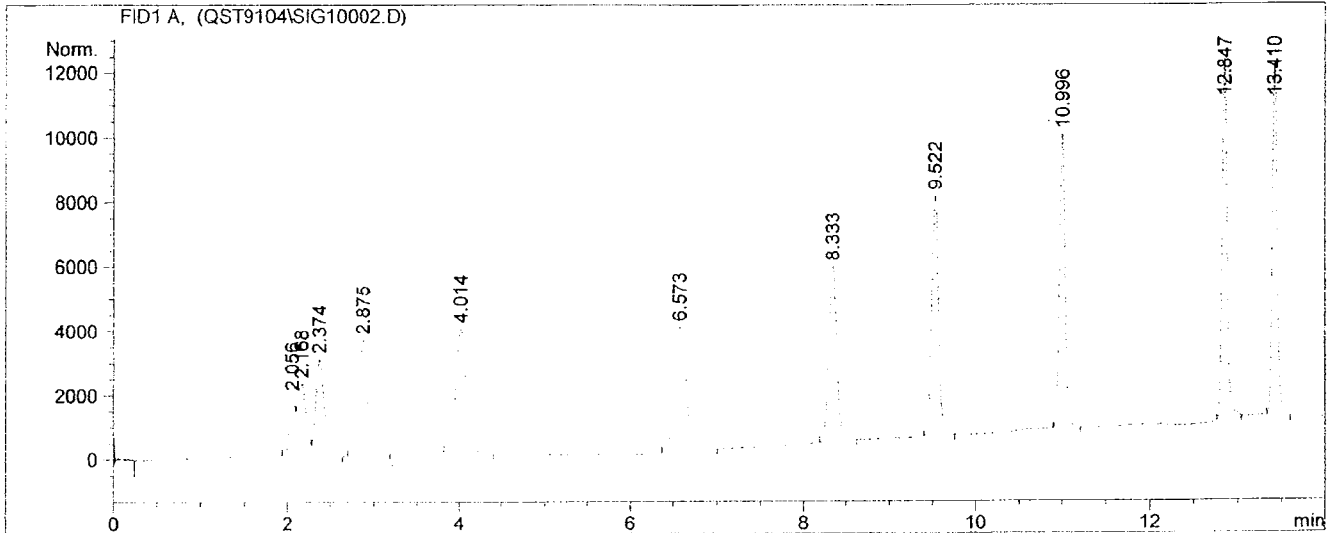
Questar

Wonsits Valley Compressor  
Station

**Pre Calibration**

- 5,50,5000 PPM C1-C3 3 INJECTIONS EACH
- REGRESSION SPREADSHEET
- RT CHECKS
- LOOP CHANGE

=====  
Injection Date : 4/6/2009 4:27:38 PM  
Sample Name : pre cal Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/6/2009 4:15:01 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/6/2009 4:42:52 PM by MS  
(modified after loading)  
btex  
=====



=====  
Area Percent Report  
=====

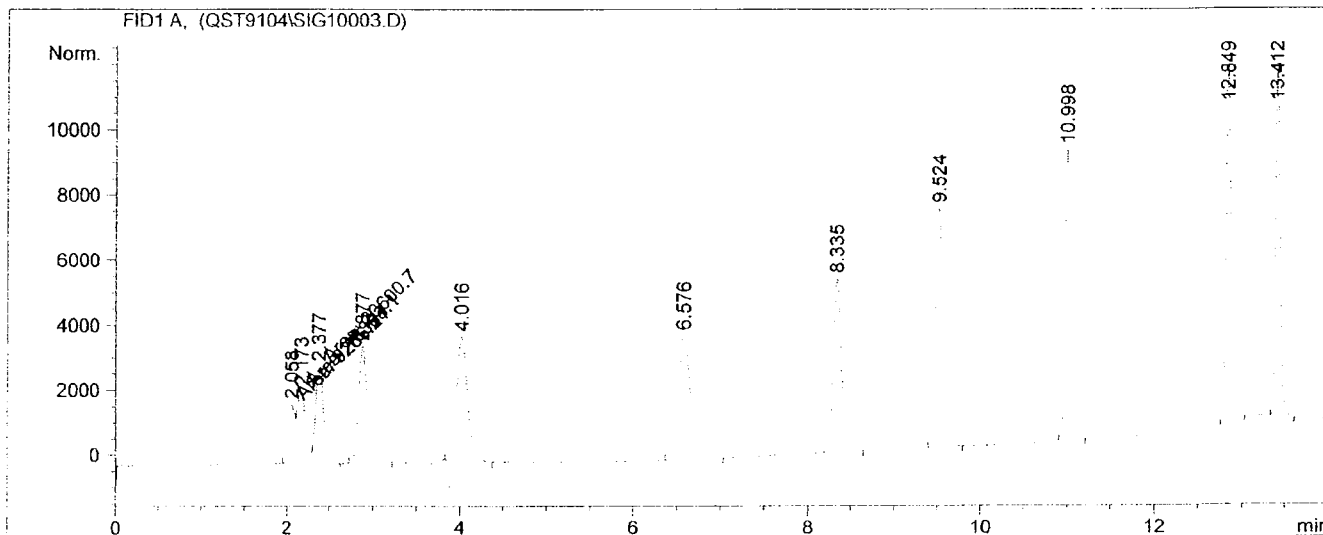
Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.056         | BV   | 0.0786      | 9267.40039    | 1878.10510      | 2.62354  |
| 2      | 2.168         | VV   | 0.1106      | 1.64404e4     | 2266.10962      | 4.65418  |
| 3      | 2.374         | VP   | 0.1051      | 2.06398e4     | 3042.35474      | 5.84300  |
| 4      | 2.875         | VB   | 0.1128      | 2.62136e4     | 3606.56738      | 7.42091  |
| 5      | 4.014         | BP   | 0.1333      | 3.44527e4     | 3967.51562      | 9.75335  |
| 6      | 6.573         | PP   | 0.1492      | 3.78371e4     | 3900.87695      | 10.71145 |
| 7      | 8.333         | BP   | 0.1075      | 3.71186e4     | 5448.65137      | 10.50803 |
| 8      | 9.522         | BB   | 0.0892      | 4.30830e4     | 7474.37549      | 12.19653 |
| 9      | 10.996        | BB   | 0.0701      | 4.07669e4     | 9125.21484      | 11.54085 |
| 10     | 12.847        | BB   | 0.0625      | 4.47682e4     | 1.12213e4       | 12.67359 |
| 11     | 13.410        | BB   | 0.0592      | 4.26521e4     | 1.10082e4       | 12.07456 |

Totals : 3.53240e5 6.29393e4

=====  
Injection Date : 4/6/2009 4:45:46 PM  
Sample Name : pre cal Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/6/2009 4:42:59 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/6/2009 5:03:05 PM by MS  
(modified after loading)  
btex  
=====



=====  
Area Percent Report  
=====

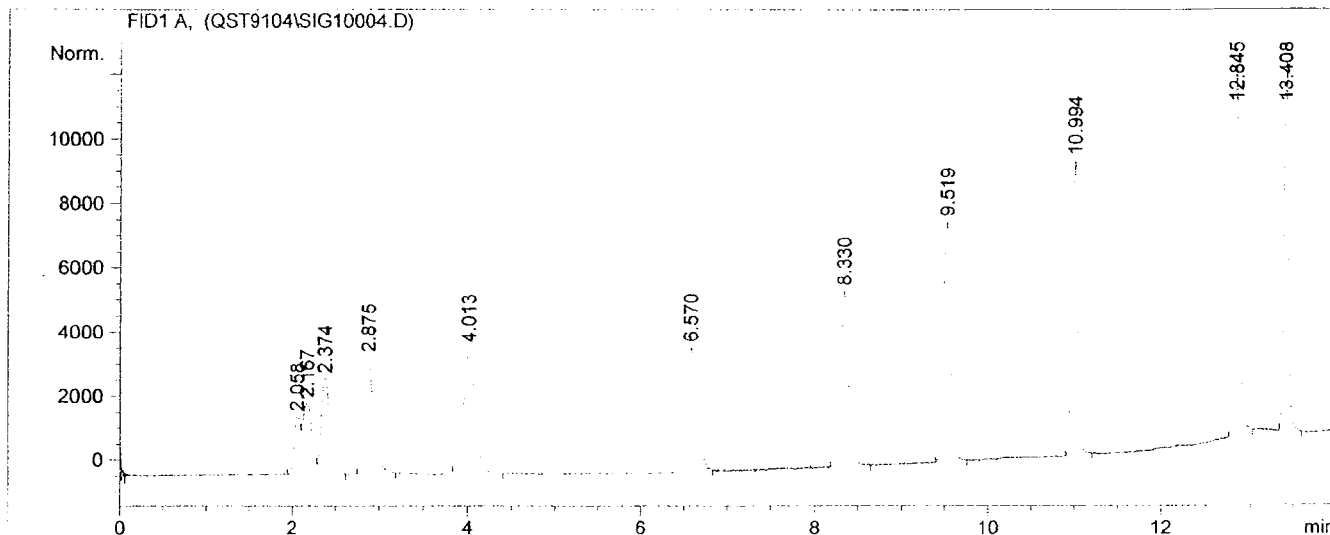
Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.058         | MF   | 0.0842      | 9266.21289    | 1833.90076      | 2.63664  |
| 2      | 2.173         | MF   | 0.1212      | 1.63831e4     | 2253.02222      | 4.66169  |
| 3      | 2.377         | FM   | 0.1139      | 2.06007e4     | 3014.85986      | 5.86180  |
| 4      | 2.877         | BB   | 0.1137      | 2.64207e4     | 3595.48364      | 7.51781  |
| 5      | 4.016         | BB   | 0.1348      | 3.36518e4     | 3894.02905      | 9.57537  |
| 6      | 6.576         | PP   | 0.1528      | 3.77484e4     | 3836.28271      | 10.74105 |
| 7      | 8.335         | BP   | 0.1066      | 3.69846e4     | 5351.48340      | 10.52371 |
| 8      | 9.524         | PP   | 0.0923      | 4.30292e4     | 7355.35840      | 12.24366 |
| 9      | 10.998        | BB   | 0.0689      | 4.04608e4     | 8928.32324      | 11.51285 |
| 10     | 12.849        | PB   | 0.0609      | 4.44812e4     | 1.10687e4       | 12.65680 |
| 11     | 13.412        | BB   | 0.0615      | 4.24140e4     | 1.08761e4       | 12.06862 |

Totals : 3.51441e5 6.20075e4

=====  
Injection Date : 4/6/2009 5:06:22 PM  
Sample Name : pre cal Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/6/2009 5:03:11 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/6/2009 5:22:16 PM by MS  
(modified after loading)  
=====  
btex  
=====



=====  
Area Percent Report  
=====

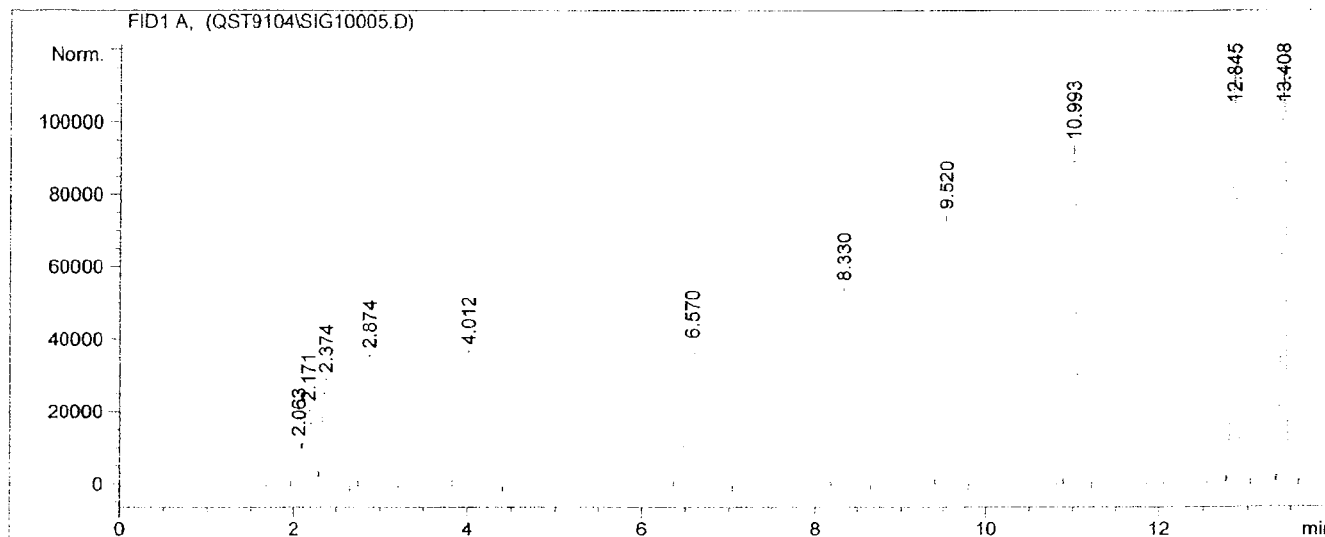
Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.058         | PV   | 0.0788      | 8780.99609    | 1802.32092      | 2.48242  |
| 2      | 2.167         | VV   | 0.1098      | 1.59894e4     | 2225.20605      | 4.52024  |
| 3      | 2.374         | VP   | 0.1047      | 2.01605e4     | 2990.37134      | 5.69944  |
| 4      | 2.875         | PB   | 0.1125      | 2.63005e4     | 3631.74731      | 7.43523  |
| 5      | 4.013         | BP   | 0.1296      | 3.27006e4     | 3910.29810      | 9.24456  |
| 6      | 6.570         | BV   | 0.1504      | 3.84456e4     | 3922.32373      | 10.86868 |
| 7      | 8.330         | PB   | 0.1061      | 3.77025e4     | 5493.30469      | 10.65861 |
| 8      | 9.519         | PB   | 0.0913      | 4.32704e4     | 7496.03174      | 12.23269 |
| 9      | 10.994        | BB   | 0.0702      | 4.10301e4     | 9175.94531      | 11.59933 |
| 10     | 12.845        | PB   | 0.0622      | 4.55280e4     | 1.15072e4       | 12.87091 |
| 11     | 13.408        | BB   | 0.0587      | 4.38194e4     | 1.14357e4       | 12.38788 |

Totals : 3.53728e5 6.35904e4

```
=====
Injection Date   : 4/6/2009 5:25:58 PM
Sample Name      : pre cal                      Location : Vial 1
Acq. Operator    : MS
Acq. Instrument  : Instrument 1                 Inj Volume : External
Acq. Method      : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/6/2009 5:22:26 PM by MS
                  (modified after loading)
Analysis Method  : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/6/2009 5:45:23 PM by MS
                  (modified after loading)
btex
=====
```



Area Percent Report

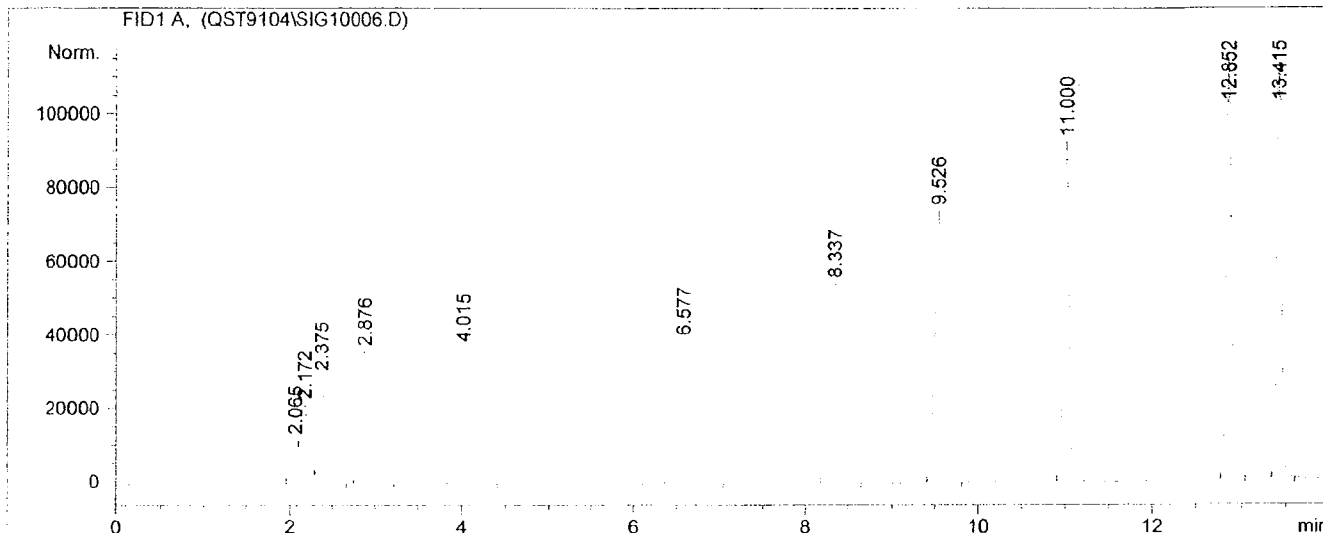
```
Sorted By      : Signal
Multiplier     : 1.0000
Dilution       : 1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.063         | PV   | 0.0715      | 5.27891e4     | 1.21872e4       | 1.51727  |
| 2      | 2.171         | VV   | 0.1071      | 1.52476e5     | 2.19335e4       | 4.38249  |
| 3      | 2.374         | VB   | 0.1030      | 1.96492e5     | 2.97799e4       | 5.64762  |
| 4      | 2.874         | PB   | 0.1106      | 2.58139e5     | 3.64594e4       | 7.41947  |
| 5      | 4.012         | BB   | 0.1296      | 3.13915e5     | 3.75059e4       | 9.02259  |
| 6      | 6.570         | BB   | 0.1522      | 3.84977e5     | 3.93159e4       | 11.06507 |
| 7      | 8.330         | PB   | 0.1056      | 3.74812e5     | 5.49445e4       | 10.77292 |
| 8      | 9.520         | PB   | 0.0917      | 4.32998e5     | 7.46278e4       | 12.44530 |
| 9      | 10.993        | PB   | 0.0703      | 4.18799e5     | 9.34999e4       | 12.03718 |
| 10     | 12.845        | PB   | 0.0621      | 4.54902e5     | 1.15072e5       | 13.07488 |
| 11     | 13.408        | PB   | 0.0587      | 4.38909e5     | 1.14534e5       | 12.61521 |

Totals : 3.47921e6 6.29860e5

=====  
Injection Date : 4/6/2009 5:49:00 PM  
Sample Name : pre cal Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/6/2009 5:45:30 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/6/2009 6:03:27 PM by MS  
(modified after loading)  
=====  
btex  
=====



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

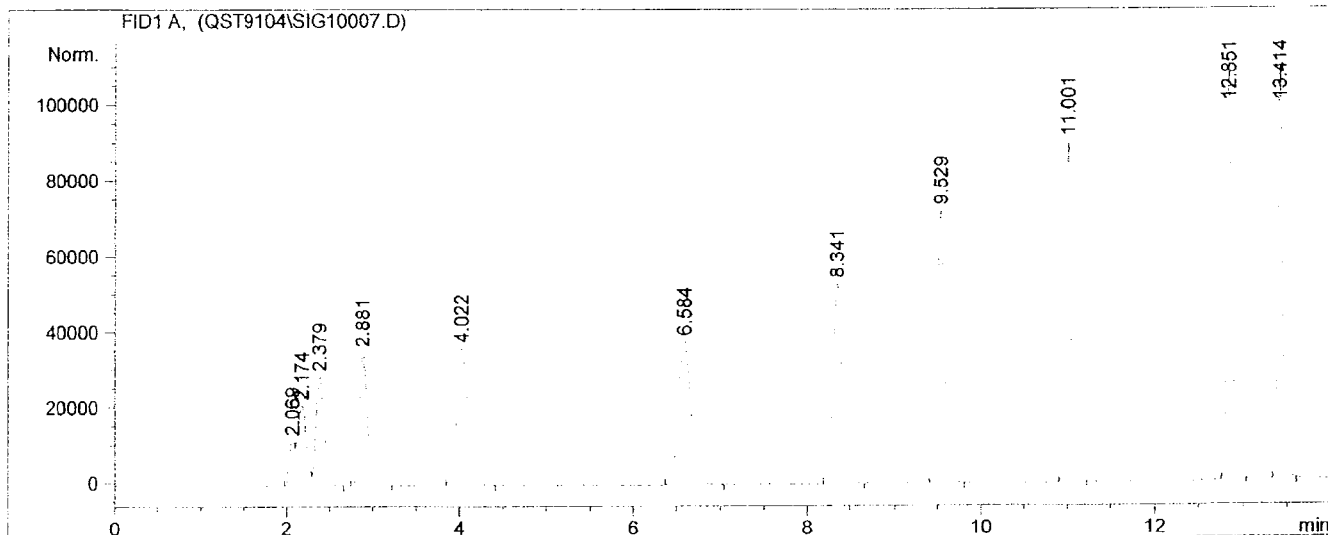
Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.065         | PV   | 0.0716      | 5.21670e4     | 1.20214e4       | 1.52336  |
| 2      | 2.172         | VV   | 0.1068      | 1.50291e5     | 2.16962e4       | 4.38872  |
| 3      | 2.375         | VB   | 0.1028      | 1.93844e5     | 2.94499e4       | 5.66052  |
| 4      | 2.876         | PB   | 0.1104      | 2.54666e5     | 3.60720e4       | 7.43662  |
| 5      | 4.015         | PB   | 0.1293      | 3.09816e5     | 3.71294e4       | 9.04709  |
| 6      | 6.577         | BB   | 0.1517      | 3.79823e5     | 3.89904e4       | 11.09141 |
| 7      | 8.337         | PB   | 0.1053      | 3.69409e5     | 5.43342e4       | 10.78730 |
| 8      | 9.526         | BB   | 0.0893      | 4.26330e5     | 7.39204e4       | 12.44948 |
| 9      | 11.000        | PB   | 0.0700      | 4.11545e5     | 9.23904e4       | 12.01774 |
| 10     | 12.852        | PB   | 0.0599      | 4.45784e5     | 1.13391e5       | 13.01755 |
| 11     | 13.415        | PB   | 0.0605      | 4.30807e5     | 1.12820e5       | 12.58021 |

Totals : 3.42448e6 6.22216e5

```
=====
Injection Date   : 4/6/2009 6:09:23 PM
Sample Name      : pre cal                      Location : Vial 1
Acq. Operator    : MS
Acq. Instrument  : Instrument 1                 Inj Volume : External
Acq. Method      : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/6/2009 6:03:45 PM by MS
                  (modified after loading)
Analysis Method  : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/6/2009 6:27:04 PM by MS
                  (modified after loading)
=====
```

btex



Area Percent Report

```
Sorted By      : Signal
Multiplier     : 1.0000
Dilution       : 1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: FID1 A,

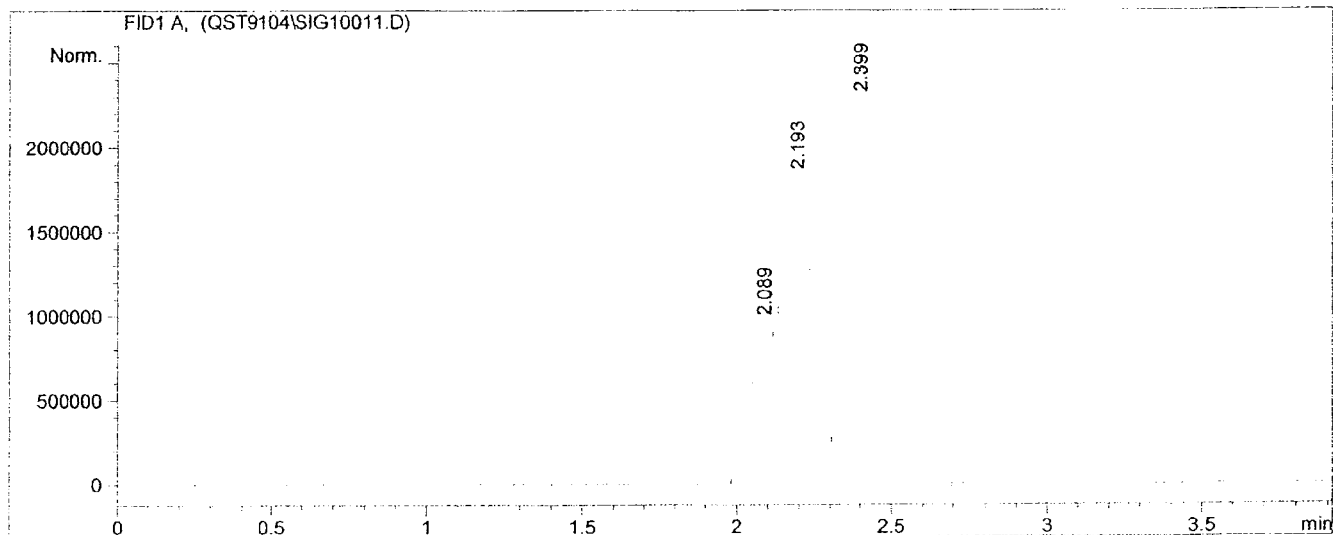
| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.069         | PV   | 0.0707      | 5.10965e4     | 1.17562e4       | 1.52086  |
| 2      | 2.174         | VV   | 0.1069      | 1.47250e5     | 2.12349e4       | 4.38283  |
| 3      | 2.379         | VB   | 0.1033      | 1.90899e5     | 2.88130e4       | 5.68202  |
| 4      | 2.881         | PB   | 0.1108      | 2.50109e5     | 3.52512e4       | 7.44437  |
| 5      | 4.022         | PB   | 0.1299      | 3.04399e5     | 3.62770e4       | 9.06032  |
| 6      | 6.584         | BB   | 0.1520      | 3.72744e5     | 3.81521e4       | 11.09457 |
| 7      | 8.341         | PB   | 0.1058      | 3.63050e5     | 5.30783e4       | 10.80603 |
| 8      | 9.529         | BB   | 0.0896      | 4.18388e5     | 7.21791e4       | 12.45312 |
| 9      | 11.001        | PB   | 0.0704      | 4.04223e5     | 9.00229e4       | 12.03151 |
| 10     | 12.851        | PB   | 0.0622      | 4.36439e5     | 1.10228e5       | 12.99041 |
| 11     | 13.414        | PB   | 0.0609      | 4.21103e5     | 1.09500e5       | 12.53394 |

Totals : 3.35970e6 6.06492e5



```
=====
Injection Date   : 4/7/2009 8:30:48 AM
Sample Name      : pre cal                      Location : Vial 1
Acq. Operator    : MS
Acq. Instrument  : Instrument 1                Inj Volume : External
Acq. Method      : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/6/2009 7:31:19 PM by MS
                  (modified after loading)
Analysis Method  : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/7/2009 8:35:14 AM by MS
                  (modified after loading)
=====
```

btex



Area Percent Report

```
=====
Sorted By       : Signal
Multiplier      : 1.0000
Dilution        : 1.0000
Use Multiplier & Dilution Factor with ISTDs
=====
```

Signal 1: FID1 A,

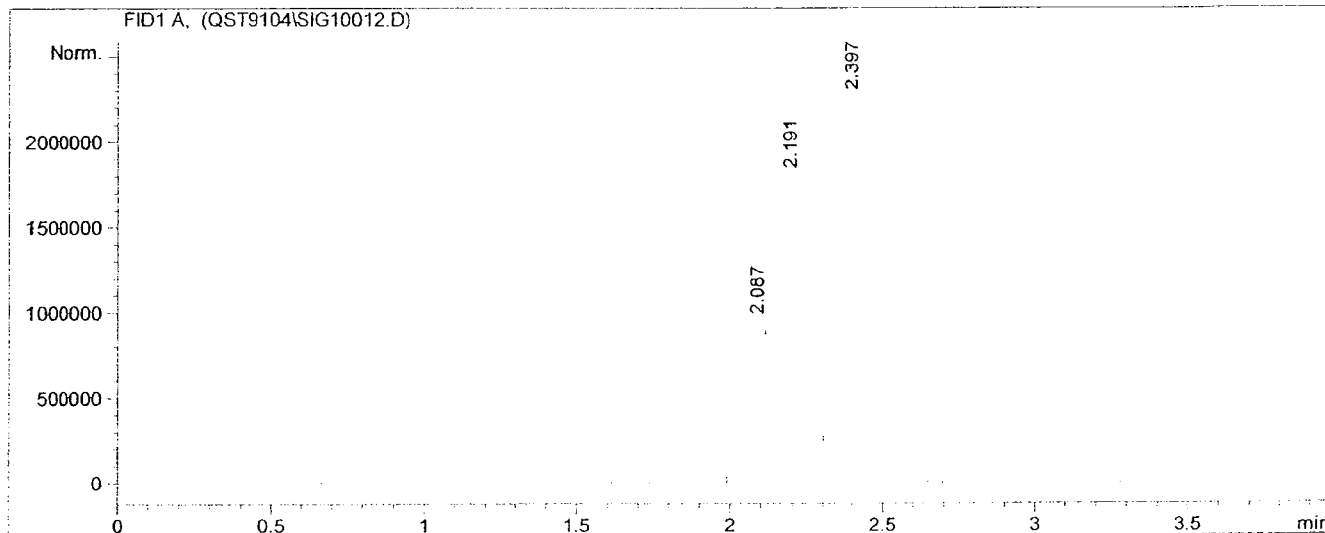
| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.089         | PV   | 0.0693      | 4.08920e6     | 9.67338e5       | 11.84515 |
| 2      | 2.193         | VV   | 0.1124      | 1.32701e7     | 1.83439e6       | 38.43938 |
| 3      | 2.399         | VB   | 0.1084      | 1.71628e7     | 2.48923e6       | 49.71547 |

Totals : 3.45222e7 5.29097e6

Results obtained with enhanced integrator!

\*\*\* End of Report \*\*\*

=====  
Injection Date : 4/7/2009 8:37:11 AM  
Sample Name : pre cal Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/7/2009 8:35:21 AM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/7/2009 8:41:41 AM by MS  
(modified after loading)  
=====  
btex  
=====



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

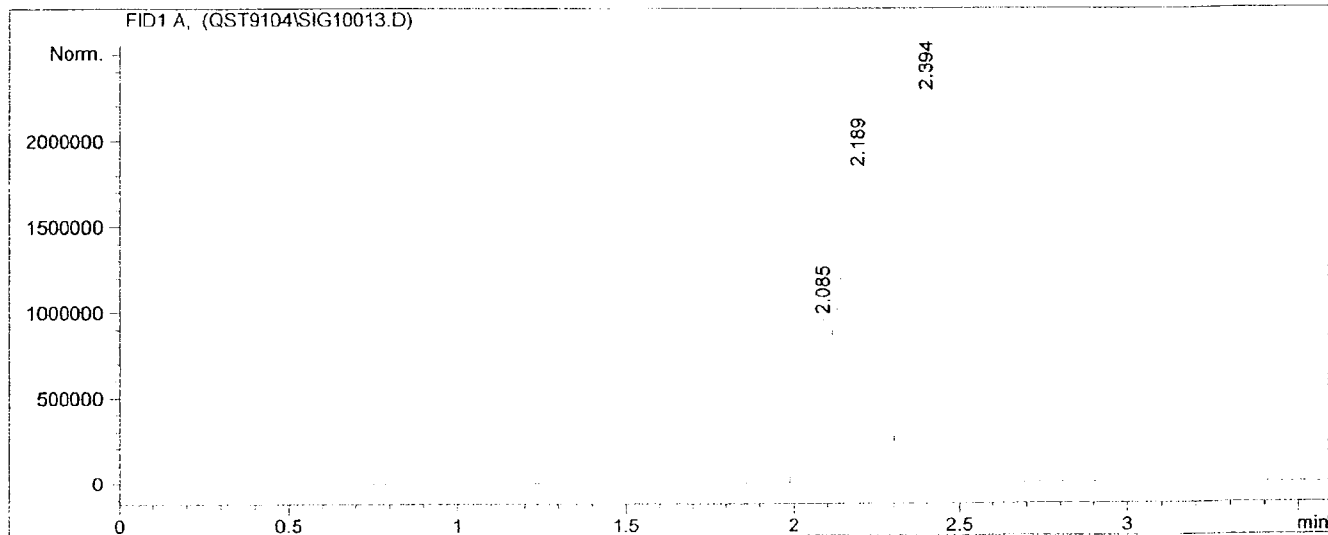
| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.087         | PV   | 0.0703      | 4.04601e6     | 9.58023e5       | 11.80669 |
| 2      | 2.191         | VV   | 0.1128      | 1.31708e7     | 1.81255e6       | 38.43381 |
| 3      | 2.397         | VB   | 0.1088      | 1.70520e7     | 2.46129e6       | 49.75950 |

Totals : 3.42688e7 5.23186e6

Results obtained with enhanced integrator!

=====  
\*\*\* End of Report \*\*\*

```
=====
Injection Date   : 4/7/2009 8:44:54 AM
Sample Name      : pre cal                      Location : Vial 1
Acq. Operator    : MS
Acq. Instrument  : Instrument 1                 Inj Volume : External
Acq. Method      : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/7/2009 8:48:28 AM by MS
                  (modified after loading)
Analysis Method  : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/7/2009 8:49:05 AM by MS
                  (modified after loading)
btex
=====
```



```
=====
Area Percent Report
=====
```

```
Sorted By      : Signal
Multiplier     : 1.0000
Dilution       : 1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.085         | PV   | 0.0692      | 4.01723e6     | 9.52170e5       | 11.80664 |
| 2      | 2.189         | VV   | 0.1102      | 1.30777e7     | 1.81240e6       | 38.43546 |
| 3      | 2.394         | VB   | 0.1087      | 1.69302e7     | 2.44714e6       | 49.75790 |

Totals : 3.40252e7 5.21172e6

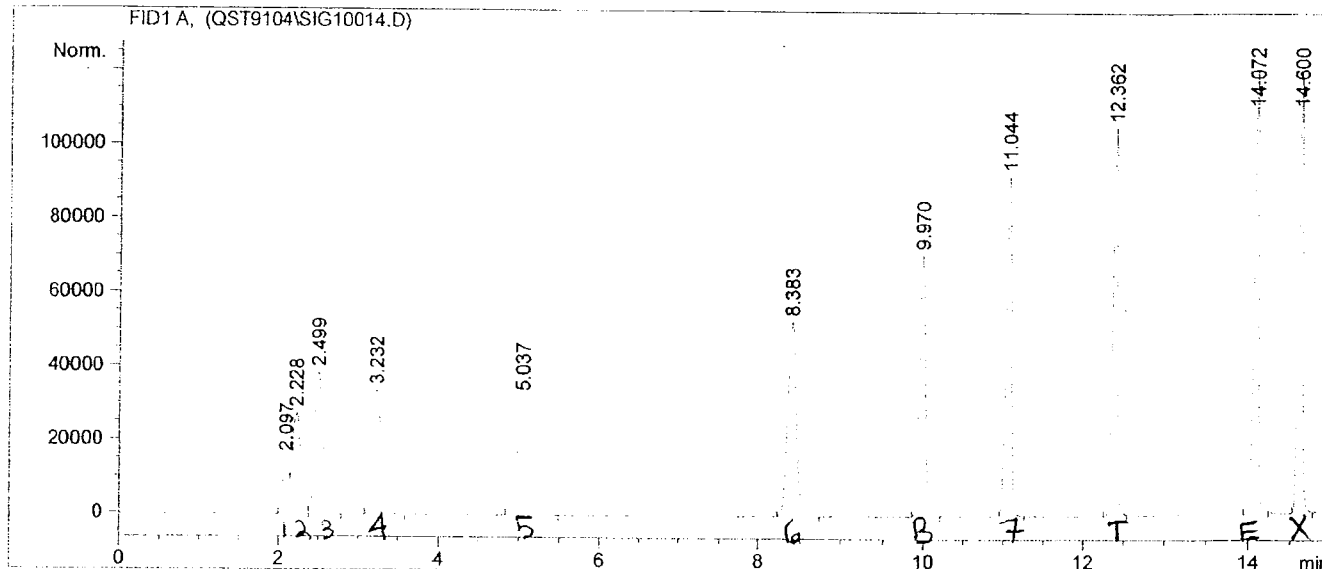
Results obtained with enhanced integrator!

```
=====
*** End of Report ***
=====
```

Injection Date : 4/7/2009 8:54:58 AM  
Sample Name : pre cal Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/7/2009 8:52:20 AM by MS  
(modified after loading)

RT CHECK

btex



# Area Percent Report

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

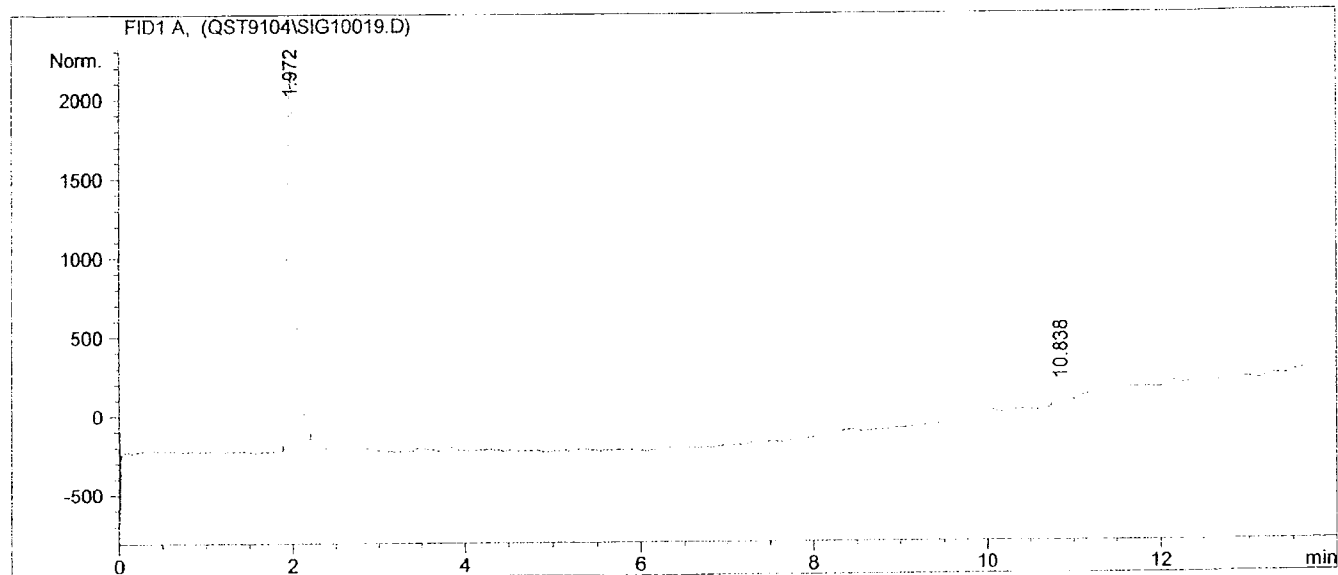
| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.097         | PV   | 0.0865      | 8.16903e4     | 1.55010e4       | 2.29048  |
| 2      | 2.228         | VV   | 0.1077      | 1.92970e5     | 2.75654e4       | 5.41062  |
| 3      | 2.499         | VB   | 0.1066      | 2.59917e5     | 3.85884e4       | 7.28772  |
| 4      | 3.232         | PB   | 0.1188      | 2.56851e5     | 3.37523e4       | 7.20176  |
| 5      | 5.037         | PB   | 0.1516      | 3.13680e5     | 3.22064e4       | 8.79516  |
| 6      | 8.383         | BB   | 0.1139      | 3.80492e5     | 5.29139e4       | 10.66848 |
| 7      | 9.970         | PB   | 0.0831      | 3.72115e5     | 7.11092e4       | 10.43359 |
| 8      | 11.044        | BB   | 0.0723      | 4.29405e5     | 9.23066e4       | 12.03993 |
| 9      | 12.362        | PB   | 0.0600      | 4.15306e5     | 1.05353e5       | 11.64462 |
| 10     | 14.072        | VB   | 0.0586      | 4.39863e5     | 1.20339e5       | 12.33315 |
| 11     | 14.600        | PB   | 0.0560      | 4.24219e5     | 1.17740e5       | 11.89451 |

Totals : 3.56651e6 7.07374e5

Results obtained with enhanced integrator!

```
=====
Injection Date   : 4/8/2009 11:03:34 AM
Sample Name      : blank                      Location : Vial 1
Acq. Operator    : MS
Acq. Instrument  : Instrument 1              Inj Volume : External
Method           : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/8/2009 11:01:56 AM by MS
                  (modified after loading)
=====
```

btex



Area Percent Report

```
=====
Sorted By       : Signal
Multiplier      : 1.0000
Dilution        : 1.0000
Use Multiplier & Dilution Factor with ISTDs
=====
```

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 1.972         | PP   | 0.0905      | 1.43599e4     | 2375.75513      | 95.10309 |
| 2      | 10.838        | PP   | 0.0893      | 739.39886     | 120.92873       | 4.89691  |

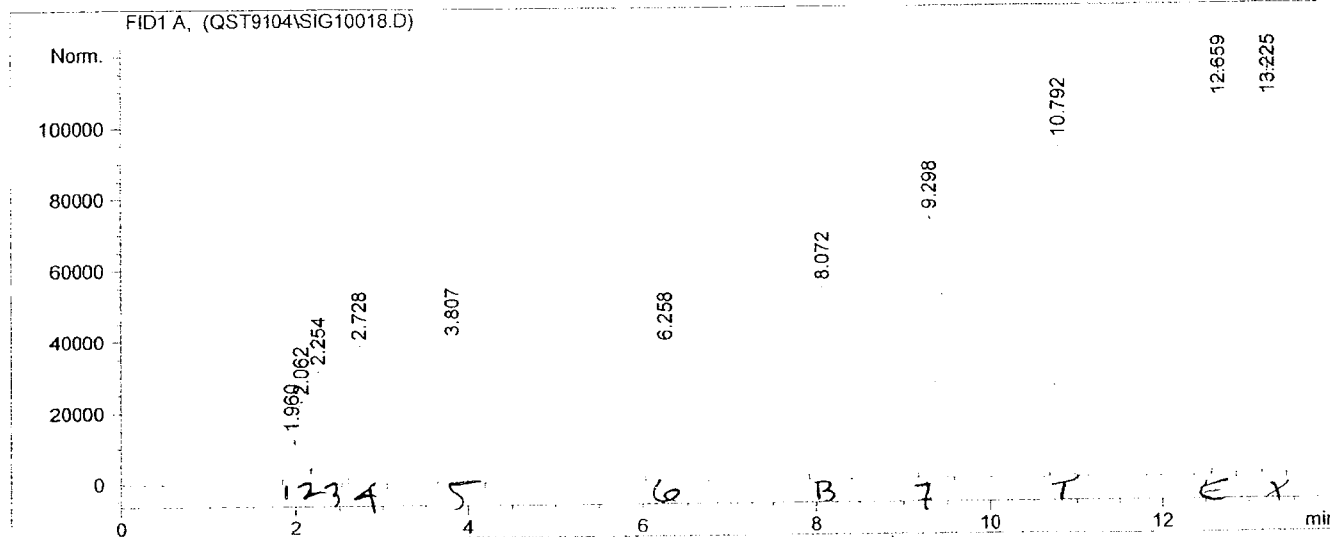
Totals : 1.50993e4 2496.68385

Results obtained with enhanced integrator!

\*\*\* End of Report \*\*\*

=====  
Injection Date : 4/8/2009 10:30:31 AM  
Sample Name : rt check Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 10:44:22 AM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 10:46:24 AM by MS  
(modified after loading)  
=====  
btex  
=====

60°C  
START



=====  
Area Percent Report  
=====

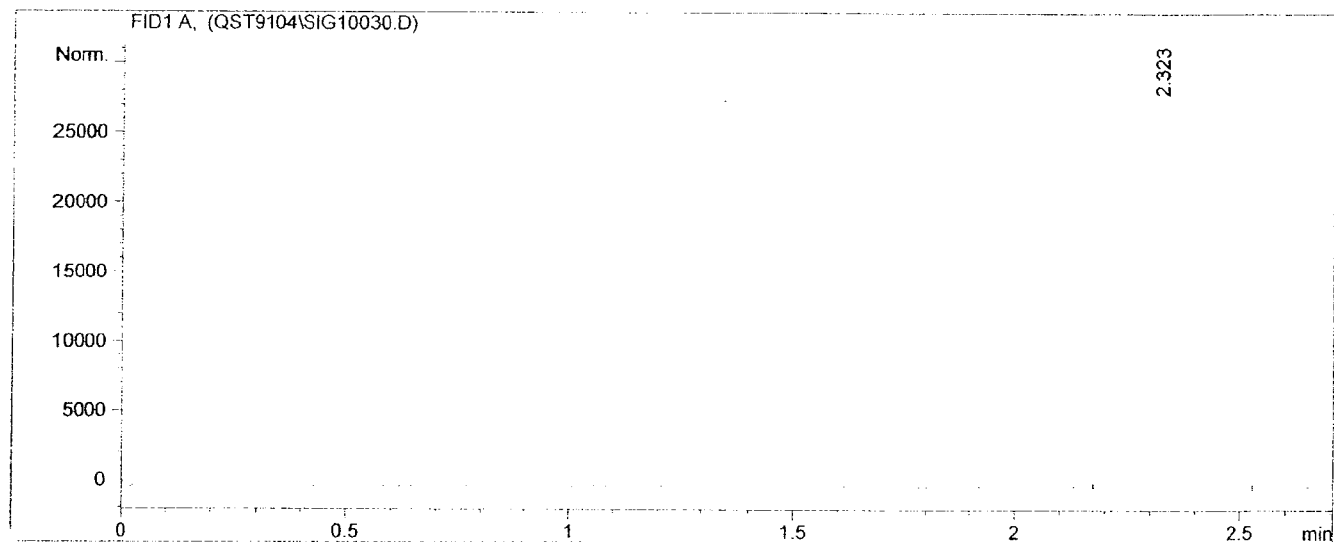
Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 1.960         | PV   | 0.0654      | 5.32767e4     | 1.31002e4       | 1.50895  |
| 2      | 2.062         | VV   | 0.1010      | 1.55376e5     | 2.35307e4       | 4.40068  |
| 3      | 2.254         | VB   | 0.0988      | 1.98684e5     | 3.18332e4       | 5.62727  |
| 4      | 2.728         | PB   | 0.1042      | 2.60800e5     | 3.89041e4       | 7.38658  |
| 5      | 3.807         | PB   | 0.1229      | 3.17462e5     | 3.98784e4       | 8.99139  |
| 6      | 6.258         | PB   | 0.1586      | 3.89019e5     | 3.82575e4       | 11.01810 |
| B      | 8.072         | PB   | 0.1075      | 3.80465e5     | 5.44913e4       | 10.77582 |
| 7      | 9.298         | PB   | 0.0929      | 4.37556e5     | 7.40994e4       | 12.39281 |
| 8      | 10.792        | PB   | 0.0709      | 4.25068e5     | 9.38052e4       | 12.03910 |
| T      | 12.659        | PB   | 0.0623      | 4.62501e5     | 1.16559e5       | 13.09931 |
| E      | 13.225        | PB   | 0.0588      | 4.50521e5     | 1.17253e5       | 12.75999 |
| X      |               |      |             |               |                 |          |

Totals : 3.53073e6 6.41711e5

```
=====
Injection Date   : 4/8/2009 3:27:15 PM
Sample Name      : loop change                Location : Vial 1
Acq. Operator    : MS
Acq. Instrument  : Instrument 1              Inj Volume : External
Acq. Method      : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/8/2009 3:27:23 PM by MS
                  (modified after loading)
Analysis Method  : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/8/2009 3:30:45 PM by MS
                  (modified after loading)
btex
=====
```



```
=====
Area Percent Report
=====
```

```
Sorted By      : Signal
Multiplier     : 1.0000
Dilution       : 1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %  |
|--------|---------------|------|-------------|---------------|-----------------|---------|
| 1      | 2.323         | VV   | 0.1003      | 1.92551e5     | 3.02336e4       | 1.000e2 |

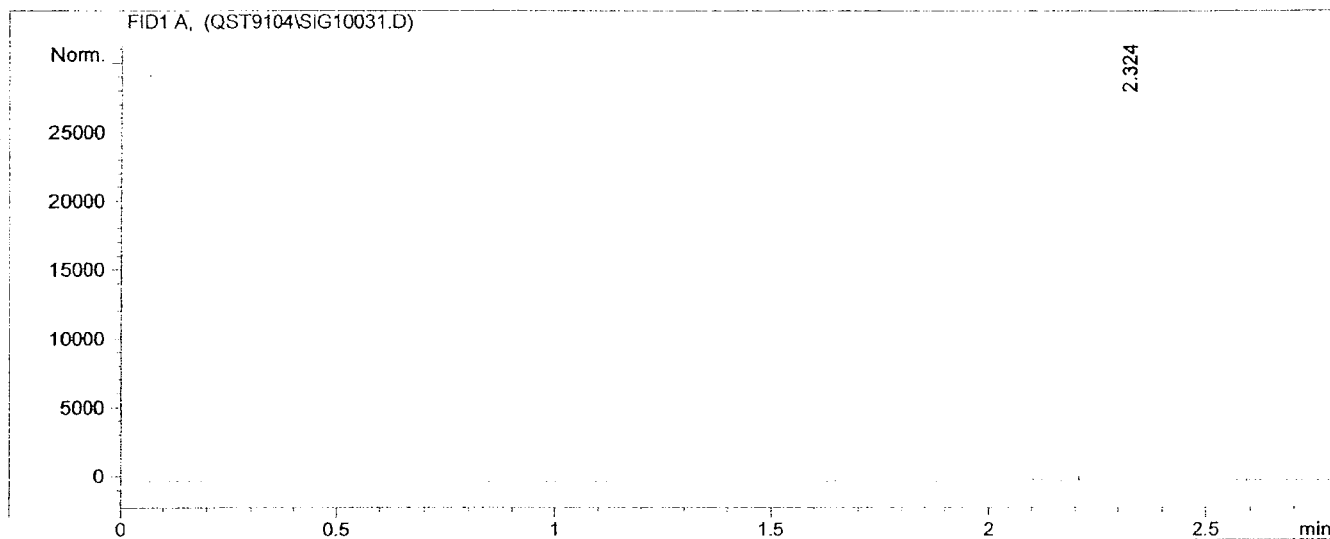
Totals : 1.92551e5 3.02336e4

Results obtained with enhanced integrator!

```
=====
*** End of Report ***
```

```
=====
Injection Date   : 4/8/2009 3:31:02 PM
Sample Name      : loop change                Location : Vial 1
Acq. Operator    : MS
Acq. Instrument  : Instrument 1              Inj Volume : External
Acq. Method      : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/8/2009 3:30:51 PM by MS
                  (modified after loading)
Analysis Method  : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/8/2009 3:37:55 PM by MS
                  (modified after loading)
=====
```

btex



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %  |
|--------|---------------|------|-------------|---------------|-----------------|---------|
| 1      | 2.324         | VB   | 0.0974      | 1.90078e5     | 3.02279e4       | 1.000e2 |

Totals : 1.90078e5 3.02279e4

Results obtained with enhanced integrator!

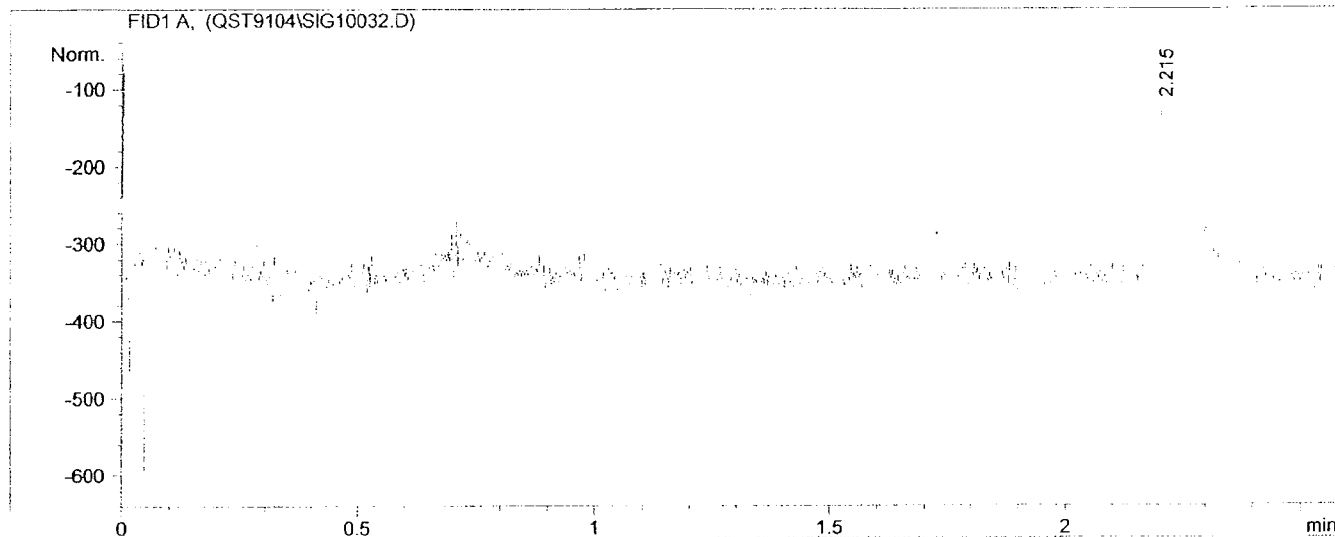
=====  
\*\*\* End of Report \*\*\*  
=====



Large loop c3h8 50 ppm inj 1  
Small loop

Injection Date : 4/8/2009 3:39:24 PM  
Sample Name : loop change Location : Vial 1  
cq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 3:38:01 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 3:42:20 PM by MS  
(modified after loading)

btex



Area Percent Report

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

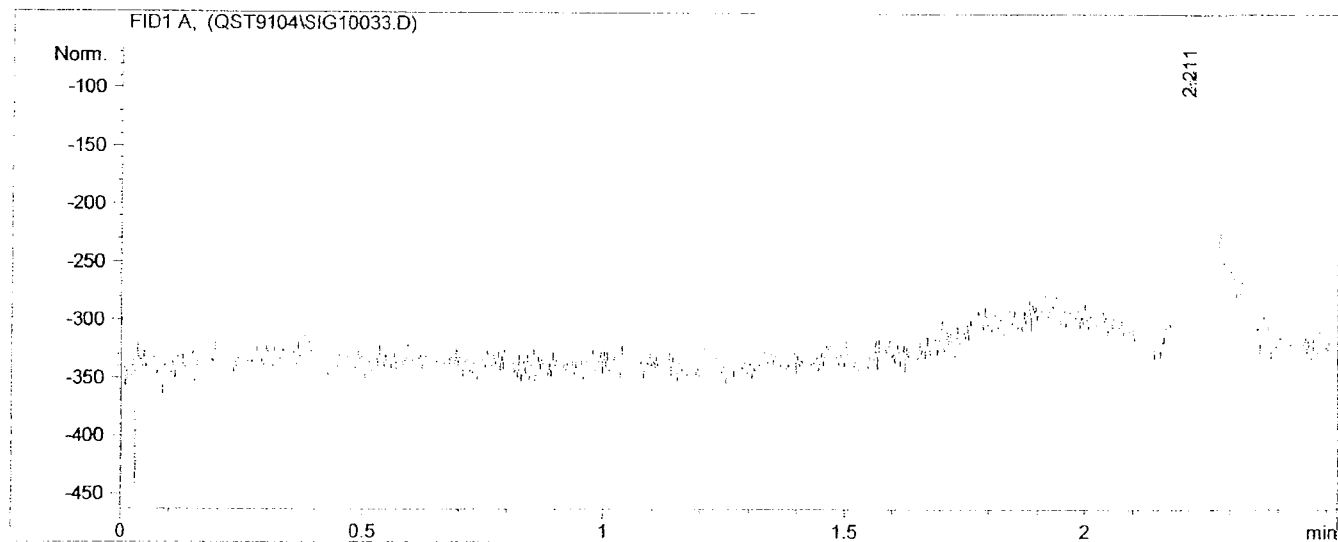
| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %  |
|--------|---------------|------|-------------|---------------|-----------------|---------|
| 1      | 2.215         | PP   | 0.0757      | 1263.04468    | 231.36519       | 1.000e2 |

Totals : 1263.04468 231.36519

Results obtained with enhanced integrator!

\*\*\* End of Report \*\*\*

```
=====
Injection Date   : 4/8/2009 3:43:47 PM
Sample Name      : loop change                      Location : Vial 1
Acq. Operator    : MS
Acq. Instrument  : Instrument 1                    Inj Volume : External
Acq. Method      : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/8/2009 3:46:19 PM by MS
                  (modified after loading)
Analysis Method  : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/8/2009 3:48:24 PM by MS
                  (modified after loading)
btex
=====
```



```
=====
Area Percent Report
=====
```

```
Sorted By      : Signal
Multiplier     : 1.0000
Dilution       : 1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %  |
|--------|---------------|------|-------------|---------------|-----------------|---------|
| 1      | 2.211         | PP   | 0.0605      | 1131.02356    | 229.58994       | 1.000e2 |

Totals : 1131.02356 229.58994

Results obtained with enhanced integrator!

```
=====
*** End of Report ***
=====
```

QST9104

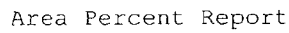
Questar

Wonsits Valley Compressor  
Station

**GC ANALYSIS**

**INLET C1-C3  
3 RUNS**

btex



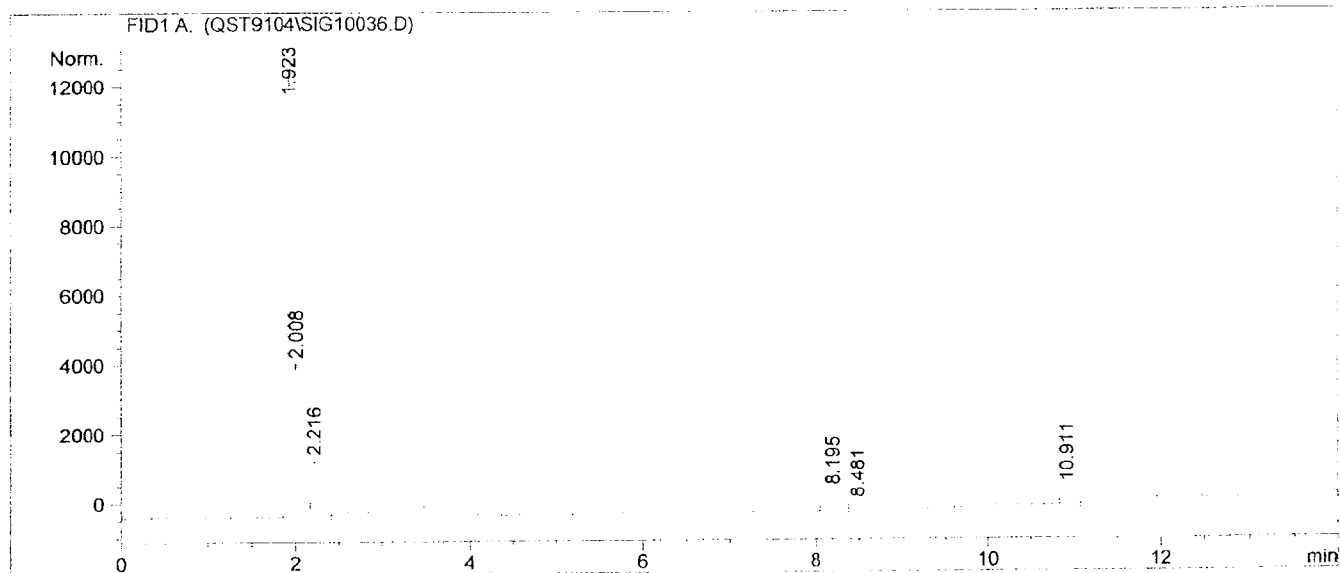
Signal 1: FID1 A,

Totals :                    8.64462e4   2.04622e4

\*\*\* End of Report \*\*\*

Injection Date : 4/8/2009 4:35:53 PM  
Sample Name : run 1 inlet Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 4:09:15 PM by MS  
(modified after loading)

btex



Area Percent Report

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 1.923         | PV   | 0.0584      | 5.01726e4     | 1.28939e4       | 59.30621 |
| 2      | 2.008         | VV   | 0.0587      | 1.83842e4     | 4400.82764      | 21.73097 |
| 3      | 2.216         | VB   | 0.0695      | 7954.91406    | 1586.82153      | 9.40306  |
| 4      | 8.195         | PV   | 0.1094      | 4164.40771    | 568.80273       | 4.92251  |
| 5      | 8.481         | VP   | 0.1229      | 1522.32178    | 189.07097       | 1.79945  |
| 6      | 10.911        | PB   | 0.0785      | 2400.75073    | 462.75690       | 2.83779  |

Totals : 8.45992e4 2.01022e4

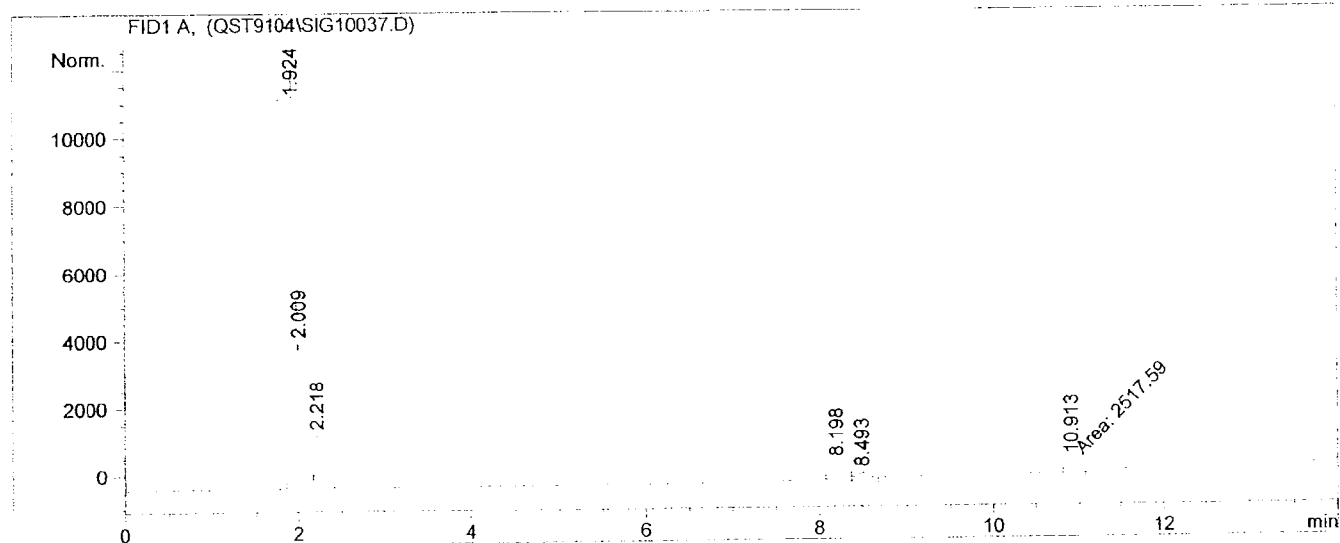
Results obtained with enhanced integrator!

\*\*\* End of Report \*\*\*

```

=====
Injection Date   : 4/8/2009 4:57:17 PM
Sample Name     : run 1 inlet
Acq. Operator   : MS
Acq. Instrument : Instrument 1
Acq. Method     : C:\HPCHEM\1\METHODS\BTEX.M
Last changed    : 4/8/2009 5:11:20 PM by MS
                  (modified after loading)
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M
Last changed    : 4/8/2009 5:13:41 PM by MS
                  (modified after loading)
  
```

btex



# Area Percent Report

```

Sorted By      : Signal
Multiplier     : 1.0000
Dilution       : 1.0000
Use Multiplier & Dilution Factor with ISTDs
  
```

Signal 1: FID1 A,

| Peak #           | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|------------------|---------------|------|-------------|---------------|-----------------|----------|
| C <sub>1</sub> 1 | 1.924         | PV   | 0.0545      | 4.85140e4     | 1.24470e4       | 58.60465 |
| C <sub>2</sub> 2 | 2.009         | VV   | 0.0574      | 1.81950e4     | 4296.34326      | 21.97953 |
| C <sub>3</sub> 3 | 2.218         | VV   | 0.0723      | 8129.91016    | 1572.23096      | 9.82090  |
| B <sub>4</sub> 4 | 8.198         | PV   | 0.1166      | 3916.47363    | 515.97015       | 4.73108  |
| C <sub>5</sub> 5 | 8.493         | VB   | 0.1301      | 1508.77271    | 179.47484       | 1.82259  |
| T <sub>6</sub> 6 | 10.913        | MM   | 0.1004      | 2517.59106    | 418.03531       | 3.04124  |

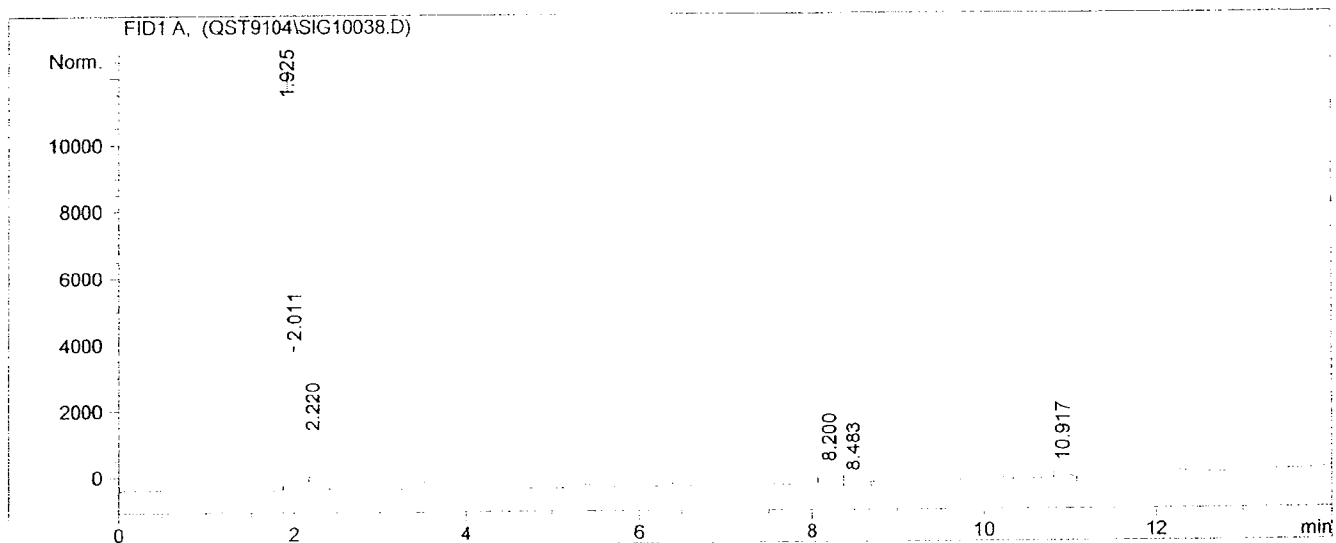
Totals : 8.27817e4 1.94291e4

Results obtained with enhanced integrator!

\*\*\* End of Report \*\*\*

Injection Date : 4/8/2009 5:17:09 PM  
Sample Name : run 2 inlet Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 5:13:49 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 5:31:42 PM by MS  
(modified after loading)

btex



Area Percent Report

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

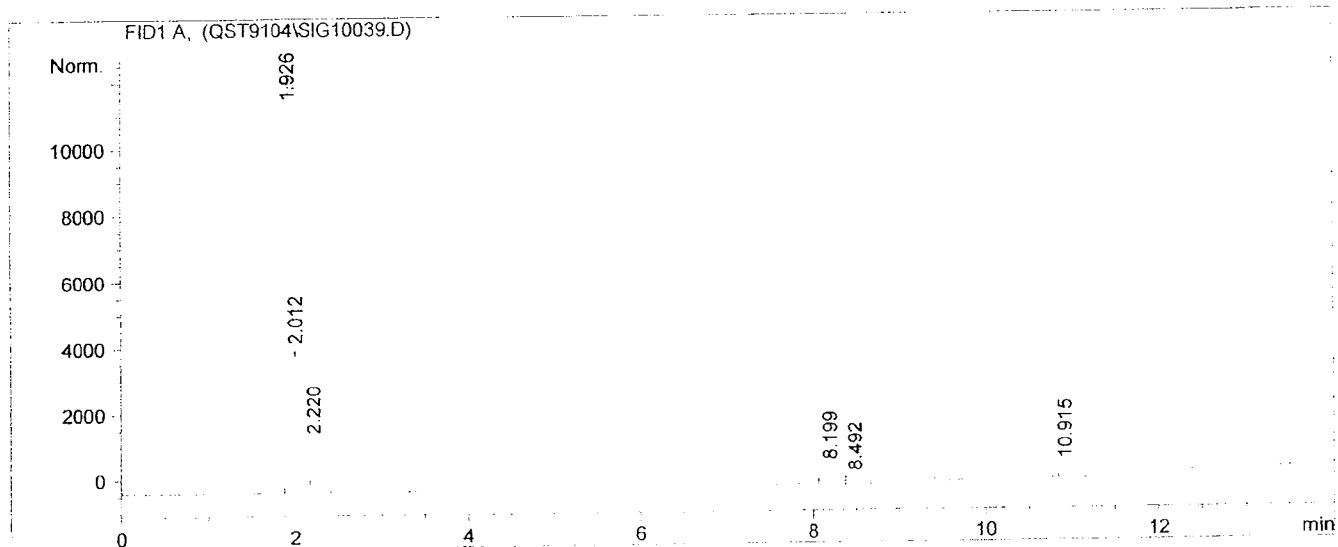
| Peak #           | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|------------------|---------------|------|-------------|---------------|-----------------|----------|
| C <sub>1</sub> 1 | 1.925         | PV   | 0.0576      | 4.95072e4     | 1.26584e4       | 59.49076 |
| C <sub>2</sub> 2 | 2.011         | VV   | 0.0587      | 1.81257e4     | 4343.95752      | 21.78092 |
| C <sub>3</sub> 3 | 2.220         | VV   | 0.0719      | 8349.82422    | 1627.30847      | 10.03363 |
| P <sub>4</sub> 4 | 8.200         | PV   | 0.1143      | 3727.82471    | 492.70840       | 4.47957  |
| C <sub>6</sub> 5 | 8.483         | VP   | 0.1308      | 1673.49573    | 188.10396       | 2.01097  |
| T 6              | 10.917        | PP   | 0.0851      | 1834.26514    | 328.66470       | 2.20416  |

Totals : 8.32184e4 1.96391e4

Results obtained with enhanced integrator!

\*\*\* End of Report \*\*\*

=====  
Injection Date : 4/8/2009 5:35:38 PM  
Sample Name : run 2 inlet Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 5:31:48 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 5:51:43 PM by MS  
(modified after loading)  
btex  
=====



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 1.926         | PV   | 0.0573      | 4.93152e4     | 1.26929e4       | 58.98125 |
| 2      | 2.012         | VV   | 0.0587      | 1.81550e4     | 4352.12695      | 21.71344 |
| 3      | 2.220         | VV   | 0.0724      | 8360.54980    | 1615.68311      | 9.99927  |
| 4      | 8.199         | PV   | 0.1129      | 4151.04492    | 557.22192       | 4.96468  |
| 5      | 8.492         | VP   | 0.1248      | 1595.80286    | 192.27440       | 1.90859  |
| 6      | 10.915        | PB   | 0.0787      | 2034.08020    | 378.74744       | 2.43277  |

Totals : 8.36116e4 1.97889e4

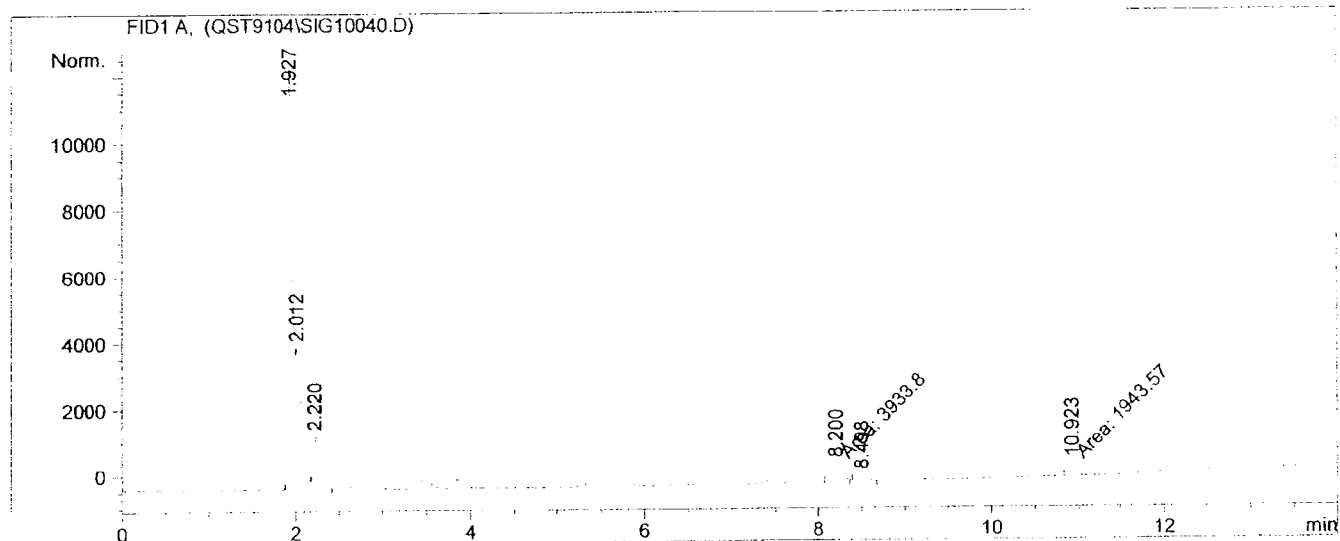
Results obtained with enhanced integrator!

=====  
\*\*\* End of Report \*\*\*



bag run 2 inlet inj 3

=====  
Injection Date : 4/8/2009 5:54:06 PM  
Sample Name : run 2 inlet Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 5:51:49 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 6:16:07 PM by MS  
(modified after loading)  
btex  
=====



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 1.927         | PV   | 0.0562      | 4.90511e4     | 1.26575e4       | 59.39267 |
| 2      | 2.012         | VV   | 0.0585      | 1.78273e4     | 4289.40820      | 21.58592 |
| 3      | 2.220         | VV   | 0.0722      | 8307.53809    | 1611.02869      | 10.05905 |
| 4      | 8.200         | MM   | 0.1173      | 3933.79663    | 559.14526       | 4.76317  |
| 5      | 8.498         | VP   | 0.1137      | 1524.44226    | 189.87645       | 1.84585  |
| 6      | 10.923        | MM   | 0.0821      | 1943.57092    | 394.68188       | 2.35334  |

Totals : 8.25877e4 1.97017e4

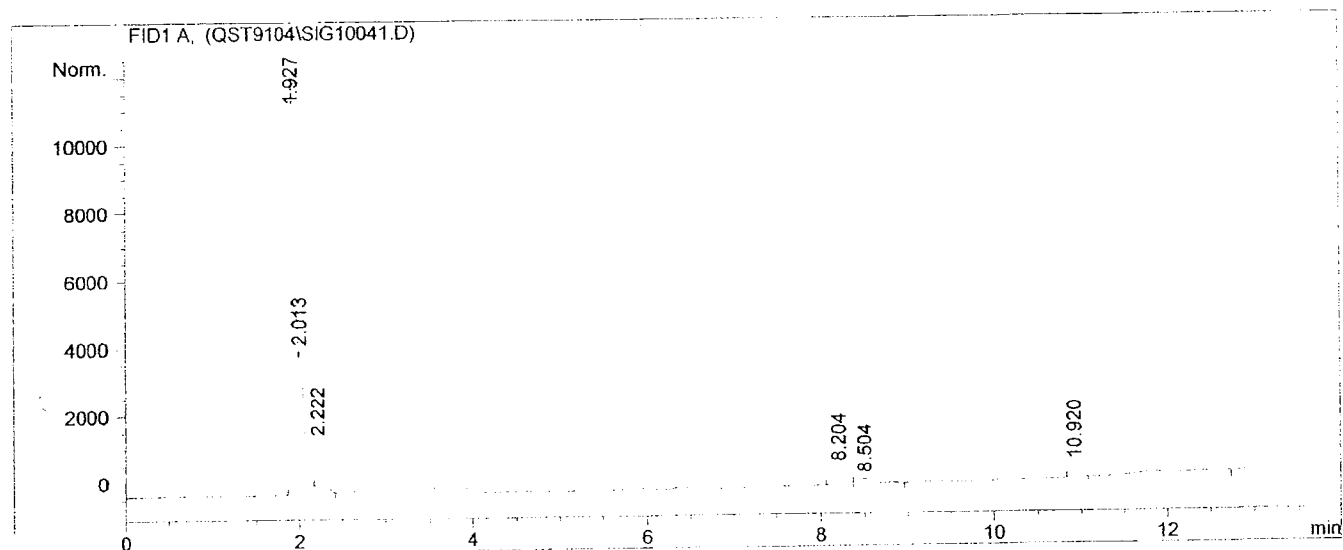
Results obtained with enhanced integrator!

=====  
\*\*\* End of Report \*\*\*

bag run 3 inlet inj 1

Injection Date : 4/8/2009 6:18:19 PM  
Sample Name : run 3 inlet Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 6:16:14 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 6:32:37 PM by MS  
(modified after loading)

btex



# Area Percent Report

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 1.927         | PV   | 0.0566      | 4.84892e4     | 1.24029e4       | 58.85196 |
| 2      | 2.013         | VV   | 0.0568      | 1.78509e4     | 4270.03809      | 21.66588 |
| 3      | 2.222         | VB   | 0.0705      | 7868.63672    | 1569.85657      | 9.55026  |
| 4      | 8.204         | PV   | 0.1143      | 4036.84839    | 533.09589       | 4.89957  |
| 5      | 8.504         | VP   | 0.1640      | 2193.42847    | 188.14337       | 2.66219  |
| 6      | 10.920        | PP   | 0.0803      | 1952.79077    | 365.52222       | 2.37013  |

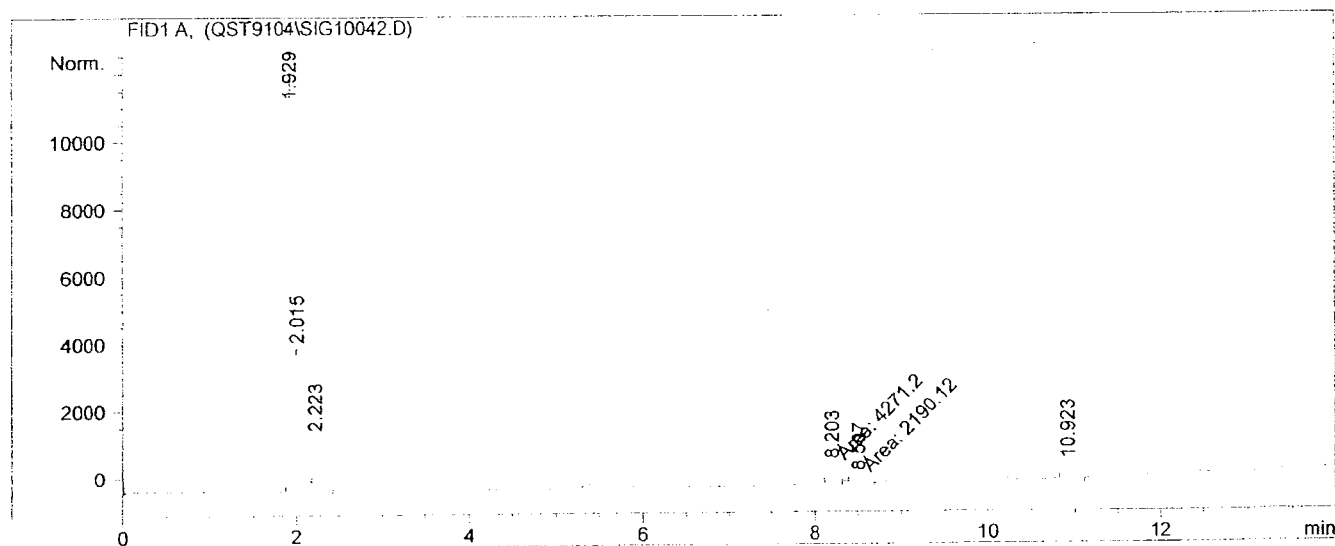
Totals : 8.23918e4 1.93295e4

Results obtained with enhanced integrator!

\*\*\* End of Report \*\*\*

bag run 3 inlet inj 2

=====  
Injection Date : 4/8/2009 6:36:37 PM  
Sample Name : run 3 inlet Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 6:32:43 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 6:56:14 PM by MS  
(modified after loading)  
=====  
btex  
=====



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 1.929         | PV   | 0.0572      | 4.82729e4     | 1.24666e4       | 58.61827 |
| 2      | 2.015         | VV   | 0.0590      | 1.77620e4     | 4225.93555      | 21.56863 |
| 3      | 2.223         | VB   | 0.0692      | 7725.97852    | 1576.07214      | 9.38174  |
| 4      | 8.203         | MF   | 0.1158      | 4271.19727    | 614.71143       | 5.18656  |
| 5      | 8.507         | FM   | 0.1555      | 2190.11963    | 234.79213       | 2.65949  |
| 6      | 10.923        | PP   | 0.0784      | 2129.03809    | 411.24857       | 2.58531  |

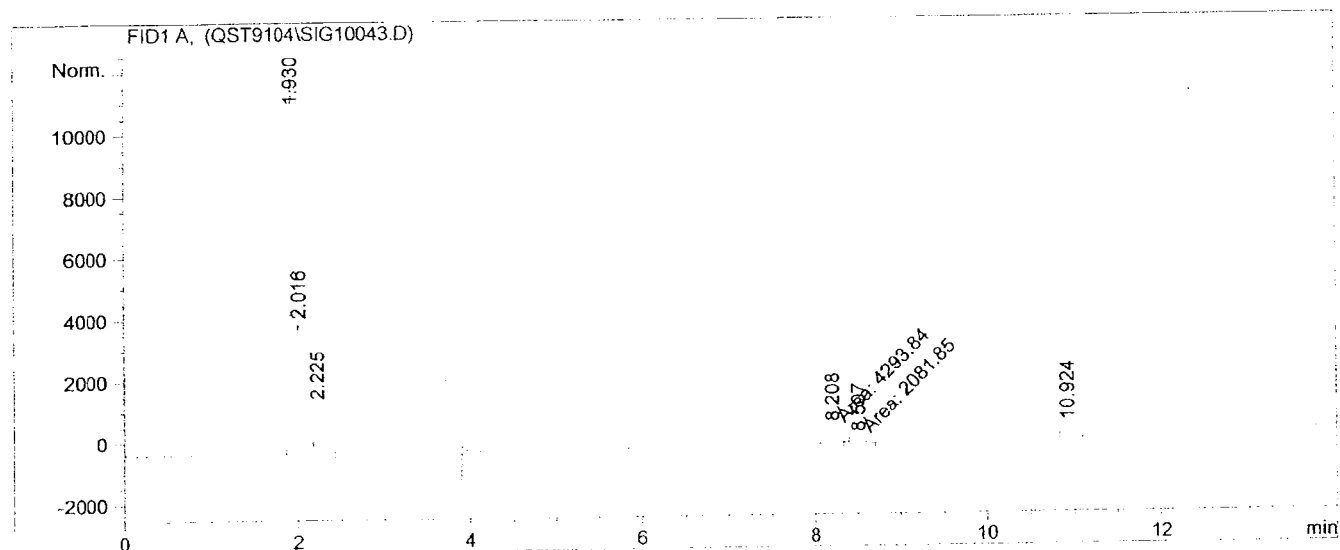
Totals : 8.23512e4 1.95294e4

Results obtained with enhanced integrator!

=====  
\*\*\* End of Report \*\*\*  
=====

```
=====
Injection Date   : 4/8/2009 6:57:46 PM
Sample Name      : run 3 inlet
Acq. Operator    : MS
Acq. Instrument  : Instrument 1
Acq. Method      : C:\MSDCHEM\1\METHODS\BTEX.M
Last changed     : 4/8/2009 6:56:20 PM by MS
                  (modified after loading)
Analysis Method  : C:\MSDCHEM\1\METHODS\BTEX.M
Last changed     : 4/8/2009 7:18:09 PM by MS
                  (modified after loading)
=====
```

btex



Area Percent Report

```
Sorted By      : Signal
Multiplier     : 1.0000
Dilution       : 1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 1.930         | PV   | 0.0574      | 4.76388e4     | 1.22379e4       | 58.01661 |
| 2      | 2.016         | VV   | 0.0584      | 1.79005e4     | 4223.58398      | 21.80007 |
| 3      | 2.225         | VV   | 0.0724      | 8220.78613    | 1588.26807      | 10.01163 |
| 4      | 8.208         | MF   | 0.1232      | 4293.84326    | 580.80939       | 5.22923  |
| 5      | 8.507         | MM   | 0.1584      | 2081.85498    | 219.07950       | 2.53537  |
| 6      | 10.924        | PP   | 0.0824      | 1976.51880    | 369.48001       | 2.40709  |

Totals : 8.21124e4 1.92191e4

Results obtained with enhanced integrator!

\*\*\* End of Report \*\*\*

QST9104

Questar

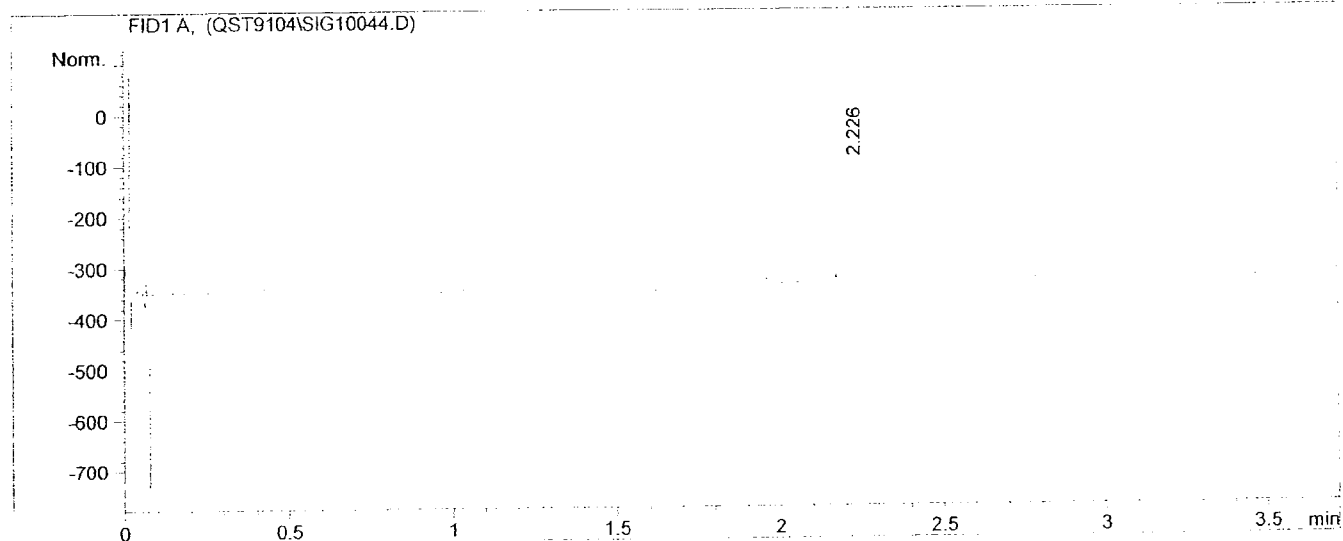
Wonsits Valley Compressor  
Station

## **Post Calibration**

- 50 PPM C1-C3 3 INJECTIONS EACH
- LOOP CHANGE

```
=====
Injection Date   : 4/8/2009 7:23:21 PM
Sample Name      : loop change
Acq. Operator    : MS
Acq. Instrument  : Instrument 1
Acq. Method      : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/8/2009 7:22:57 PM by MS
                  (modified after loading)
Analysis Method  : C:\HPCHEM\1\METHODS\BTEX.M
Last changed     : 4/8/2009 7:27:20 PM by MS
                  (modified after loading)
=====
```

btex



Area Percent Report

```
Sorted By      : Signal
Multiplier     : 1.0000
Dilution       : 1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: FID1 A,

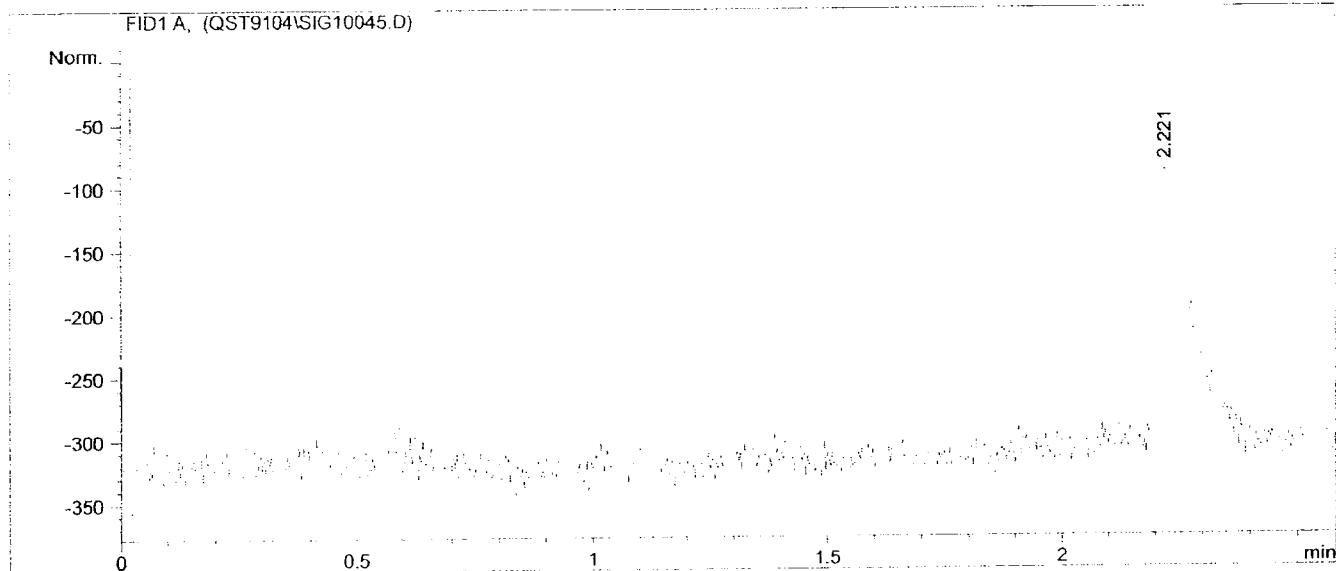
| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %  |
|--------|---------------|------|-------------|---------------|-----------------|---------|
| 1      | 2.226         | PB   | 0.0565      | 1004.44122    | 223.01346       | 1.000e2 |

Totals : 1004.44122 223.01346

Results obtained with enhanced integrator!

\*\*\* End of Report \*\*\*

=====  
Injection Date : 4/8/2009 7:28:23 PM  
Sample Name : loop change Location : Vial 1  
.cq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 7:27:20 PM by MS  
(modified after loading)  
=====  
btex  
=====



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

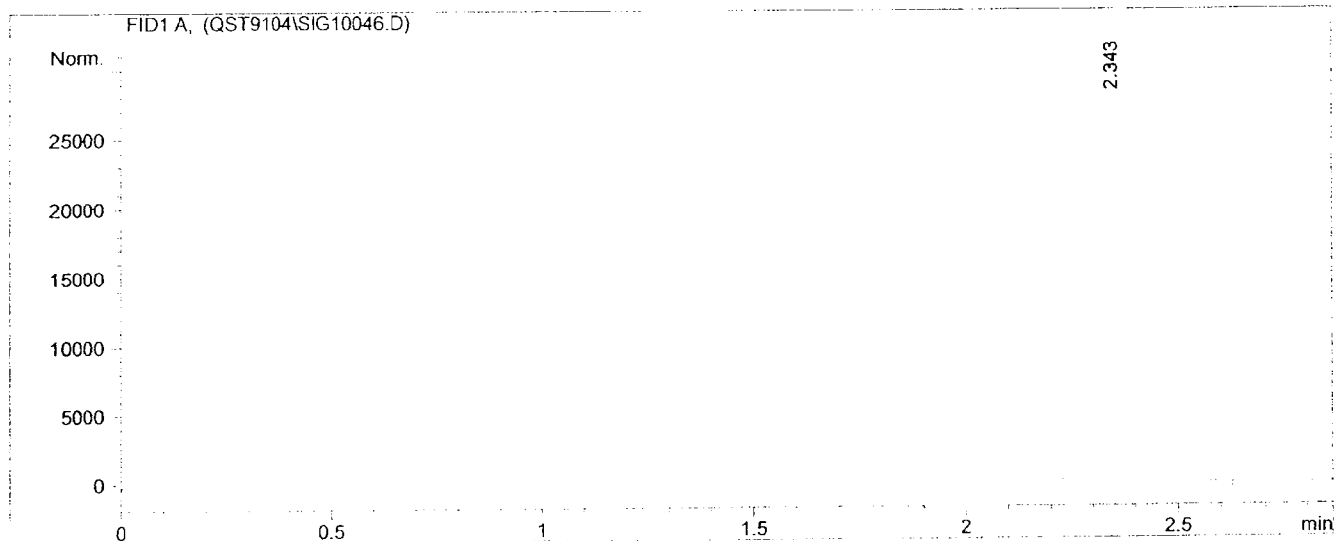
| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %  |
|--------|---------------|------|-------------|---------------|-----------------|---------|
| 1      | 2.221         | PP   | 0.0589      | 1051.09534    | 223.28957       | 1.000e2 |

Totals : 1051.09534 223.28957

Results obtained with enhanced integrator!

=====  
\*\*\* End of Report \*\*\*  
=====

=====  
Injection Date : 4/8/2009 7:37:35 PM  
Sample Name : loop change Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 7:27:20 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 7:41:03 PM by MS  
(modified after loading)  
btex  
=====



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %  |
|--------|---------------|------|-------------|---------------|-----------------|---------|
| 1      | 2.343         | VB   | 0.1021      | 1.99029e5     | 3.05024e4       | 1.000e2 |

Totals : 1.99029e5 3.05024e4

Results obtained with enhanced integrator!

=====  
\*\*\* End of Report \*\*\*  
=====



ata File C:\HPCHEM\1\DATA\QST9104\SIG10047.D  
large loop c3h8 50.1 ppm inj 2

=====  
Injection Date : 4/8/2009 7:43:11 PM  
Sample Name : loop change Location : Vial 1  
cq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 7:41:03 PM by MS  
(modified after loading)  
btex  
=====



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

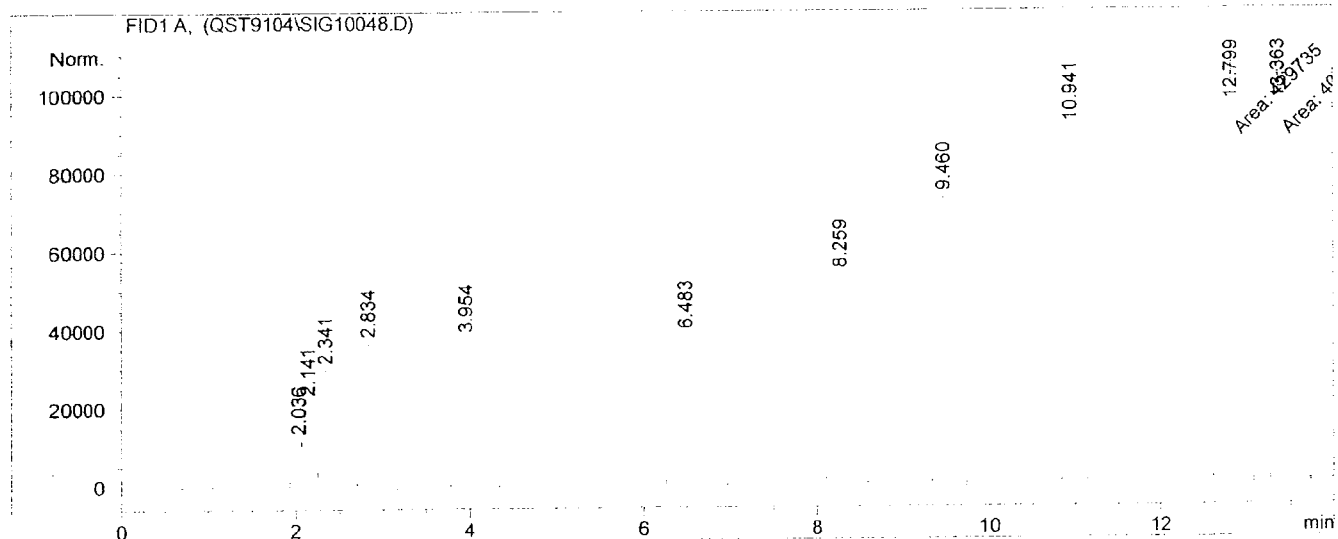
| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %  |
|--------|---------------|------|-------------|---------------|-----------------|---------|
| 1      | 2.341         | VB   | 0.1013      | 1.94142e5     | 3.00713e4       | 1.000e2 |

Totals : 1.94142e5 3.00713e4

Results obtained with enhanced integrator!

=====  
\*\*\* End of Report \*\*\*  
=====

=====  
Injection Date : 4/8/2009 7:51:05 PM  
Sample Name : post cal Location : Vial 1  
Acq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 7:53:34 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 8:05:37 PM by MS  
(modified after loading)  
btex  
=====



=====  
Area Percent Report  
=====

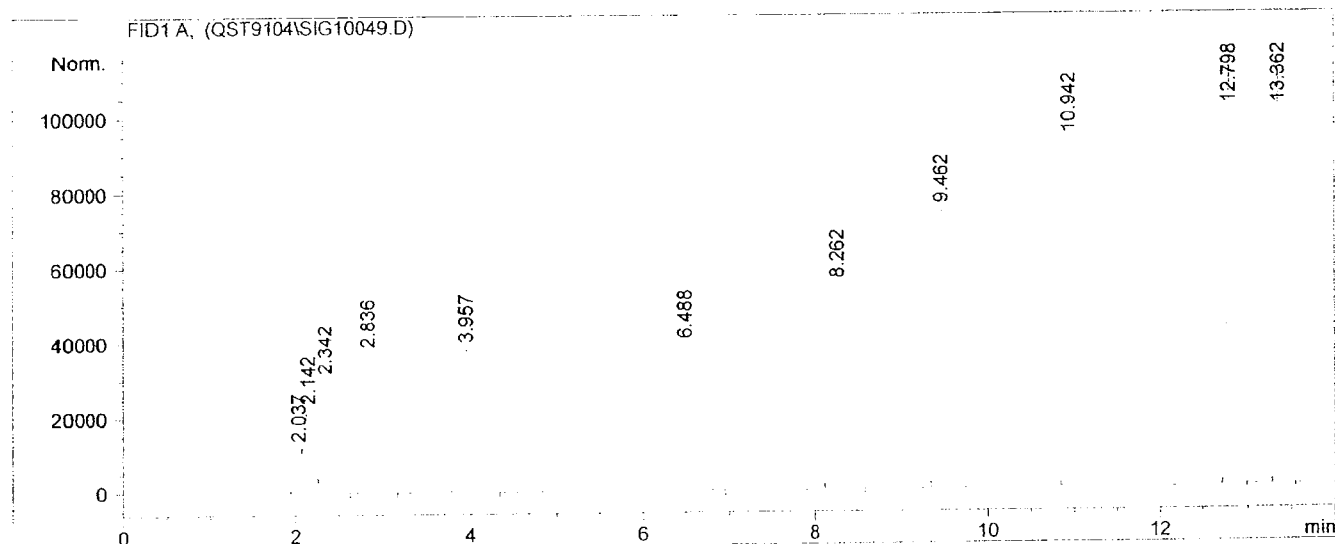
Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.036         | PV   | 0.0696      | 5.21327e4     | 1.22589e4       | 1.53659  |
| 2      | 2.141         | VV   | 0.1060      | 1.52156e5     | 2.21954e4       | 4.48473  |
| 3      | 2.341         | VB   | 0.1000      | 1.95700e5     | 3.00312e4       | 5.76818  |
| 4      | 2.834         | PB   | 0.1094      | 2.56768e5     | 3.67909e4       | 7.56815  |
| 5      | 3.954         | PB   | 0.1284      | 3.12865e5     | 3.78576e4       | 9.22157  |
| 6      | 6.483         | BB   | 0.1537      | 3.82250e5     | 3.85495e4       | 11.26665 |
| 7      | 8.259         | PB   | 0.1084      | 3.70320e5     | 5.37109e4       | 10.91505 |
| 8      | 9.460         | PB   | 0.0920      | 4.26162e5     | 7.30890e4       | 12.56097 |
| 9      | 10.941        | PB   | 0.0703      | 4.04692e5     | 9.03207e4       | 11.92814 |
| 10     | 12.799        | MM   | 0.0668      | 4.29735e5     | 1.07208e5       | 12.66628 |
| 11     | 13.363        | MM   | 0.0651      | 4.09970e5     | 1.04908e5       | 12.08369 |

Totals : 3.39275e6 6.06920e5

=====  
Injection Date : 4/8/2009 8:10:34 PM  
Sample Name : post cal Location : Vial 1  
.cq. Operator : MS  
Acq. Instrument : Instrument 1 Inj Volume : External  
Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 8:24:24 PM by MS  
(modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
Last changed : 4/8/2009 8:24:59 PM by MS  
(modified after loading)  
btex  
=====



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000  
Use Multiplier & Dilution Factor with ISTDs

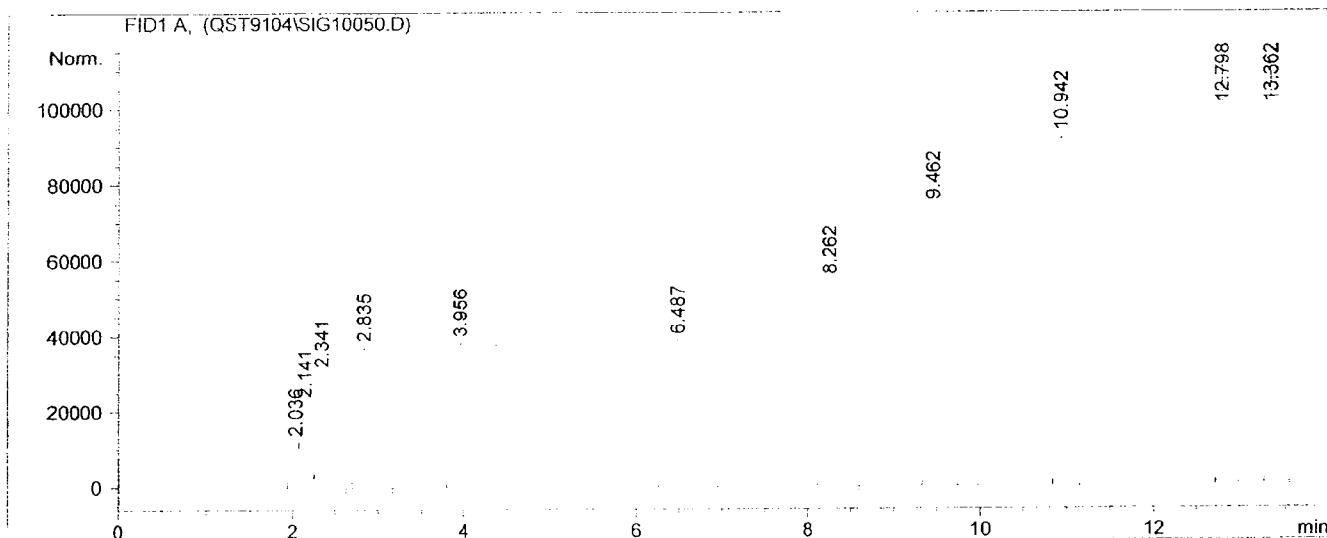
Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.037         | PV   | 0.0708      | 5.31865e4     | 1.24590e4       | 1.53411  |
| 2      | 2.142         | VV   | 0.1057      | 1.53908e5     | 2.25368e4       | 4.43930  |
| 3      | 2.342         | VB   | 0.1019      | 1.98452e5     | 3.05085e4       | 5.72413  |
| 4      | 2.836         | PB   | 0.1092      | 2.60473e5     | 3.74310e4       | 7.51305  |
| 5      | 3.957         | PB   | 0.1282      | 3.17572e5     | 3.85178e4       | 9.16003  |
| 6      | 6.488         | BB   | 0.1533      | 3.88570e5     | 3.93257e4       | 11.20789 |
| 7      | 8.262         | PB   | 0.1059      | 3.77455e5     | 5.50925e4       | 10.88727 |
| 8      | 9.462         | BB   | 0.0897      | 4.34259e5     | 7.48874e4       | 12.52574 |
| 9      | 10.942        | PB   | 0.0702      | 4.16911e5     | 9.32338e4       | 12.02535 |
| 10     | 12.798        | PB   | 0.0620      | 4.42808e5     | 1.12217e5       | 12.77231 |
| 11     | 13.362        | PB   | 0.0586      | 4.23342e5     | 1.10771e5       | 12.21083 |

Totals : 3.46694e6 6.26980e5

Injection Date : 4/8/2009 8:30:01 PM  
 Sample Name : post cal Location : Vial 1  
 Acq. Operator : MS  
 Acq. Instrument : Instrument 1 Inj Volume : External  
 Acq. Method : C:\HPCHEM\1\METHODS\BTEX.M  
 Last changed : 4/8/2009 8:25:05 PM by MS  
 (modified after loading)  
 Analysis Method : C:\HPCHEM\1\METHODS\BTEX.M  
 Last changed : 4/8/2009 8:44:34 PM by MS  
 (modified after loading)

btex



# Area Percent Report

Sorted By : Signal  
 Multiplier : 1.0000  
 Dilution : 1.0000  
 Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area counts*s | Height [counts] | Area %   |
|--------|---------------|------|-------------|---------------|-----------------|----------|
| 1      | 2.036         | PV   | 0.0707      | 5.31261e4     | 1.24807e4       | 1.53760  |
| 2      | 2.141         | VV   | 0.1054      | 1.53953e5     | 2.26225e4       | 4.45577  |
| 3      | 2.341         | VB   | 0.1018      | 1.98495e5     | 3.05506e4       | 5.74494  |
| 4      | 2.835         | PB   | 0.1093      | 2.60527e5     | 3.73953e4       | 7.54029  |
| 5      | 3.956         | PB   | 0.1305      | 3.17597e5     | 3.84164e4       | 9.19205  |
| 6      | 6.487         | BB   | 0.1537      | 3.87842e5     | 3.90986e4       | 11.22511 |
| 7      | 8.262         | PB   | 0.1064      | 3.76689e5     | 5.46791e4       | 10.90231 |
| 8      | 9.462         | BB   | 0.0900      | 4.32571e5     | 7.42194e4       | 12.51967 |
| 9      | 10.942        | PB   | 0.0705      | 4.14808e5     | 9.21926e4       | 12.00558 |
| 10     | 12.798        | PB   | 0.0623      | 4.39112e5     | 1.10732e5       | 12.70899 |
| 11     | 13.362        | PB   | 0.0588      | 4.20409e5     | 1.09364e5       | 12.16768 |

Totals : 3.45513e6 6.21751e5

Operating Parameters  
 Stack Test - Combustor  
 Wonsits Valley Compressor Station  
 April 8, 2009

| <u>Run #1</u> |                                               |                                                    |                                               |                                                |                                                             |                                              |
|---------------|-----------------------------------------------|----------------------------------------------------|-----------------------------------------------|------------------------------------------------|-------------------------------------------------------------|----------------------------------------------|
| <u>Time</u>   | <u>Instantaneous Dehy Throughput (MMCFPD)</u> | <u>Instantaneous Glycol Circulation Rate (gpm)</u> | <u>Instantaneous Reboiler Temperature (F)</u> | <u>Instantaneous Contactor Pressure (psig)</u> | <u>Instantaneous Combustor Thermocouple Temperature (F)</u> | <u>Instantaneous Ambient Temperature (F)</u> |
| 1030          | 72.711                                        | 4.22                                               | 365                                           | 1018                                           | 165                                                         | 72                                           |
| 1045          | 72.493                                        | 4.29                                               | 365                                           | 1017                                           | 163                                                         | 79                                           |
| 1100          | 72.392                                        | 4.29                                               | 365                                           | 1012                                           | 164                                                         | 80                                           |
| 1115          | 72.623                                        | 4.29                                               | 365                                           | 1014                                           | 167                                                         | 79                                           |
| 1130          |                                               | 4.29                                               | 365                                           |                                                | 179                                                         | 77                                           |
| Average       | 72.555                                        | 4.28                                               | 365                                           | 1015                                           | 166                                                         | 77                                           |

| <u>Run #2</u> |                                               |                                                    |                                               |                                                |                                                             |                                              |
|---------------|-----------------------------------------------|----------------------------------------------------|-----------------------------------------------|------------------------------------------------|-------------------------------------------------------------|----------------------------------------------|
| <u>Time</u>   | <u>Instantaneous Dehy Throughput (MMCFPD)</u> | <u>Instantaneous Glycol Circulation Rate (gpm)</u> | <u>Instantaneous Reboiler Temperature (F)</u> | <u>Instantaneous Contactor Pressure (psig)</u> | <u>Instantaneous Combustor Thermocouple Temperature (F)</u> | <u>Instantaneous Ambient Temperature (F)</u> |
| 1155          | 72.579                                        | 4.29                                               | 365                                           | 1017                                           | 178                                                         | 76                                           |
| 1210          | 72.848                                        | 4.29                                               | 370                                           | 1016                                           | 178                                                         | 76                                           |
| 1225          | 72.709                                        | 4.29                                               | 370                                           | 1015                                           | 181                                                         | 78                                           |
| 1240          | 72.205                                        | 4.35                                               | 370                                           | 1017                                           | 191                                                         | 81                                           |
| 1255          | 72.52                                         |                                                    |                                               | 1016                                           |                                                             |                                              |
| Average       | 72.572                                        | 4.31                                               | 369                                           | 1016                                           | 182                                                         | 78                                           |

| <u>Run #3</u> |                                               |                                                    |                                               |                                                |                                                             |                                              |
|---------------|-----------------------------------------------|----------------------------------------------------|-----------------------------------------------|------------------------------------------------|-------------------------------------------------------------|----------------------------------------------|
| <u>Time</u>   | <u>Instantaneous Dehy Throughput (MMCFPD)</u> | <u>Instantaneous Glycol Circulation Rate (gpm)</u> | <u>Instantaneous Reboiler Temperature (F)</u> | <u>Instantaneous Contactor Pressure (psig)</u> | <u>Instantaneous Combustor Thermocouple Temperature (F)</u> | <u>Instantaneous Ambient Temperature (F)</u> |
| 1325          | 71.731                                        | 4.69                                               | 375                                           | 1011                                           | 265                                                         | 75                                           |
| 1340          | 71.582                                        | 4.69                                               | 355                                           | 1011                                           | 245                                                         | 77                                           |
| 1355          | 71.563                                        | 4.82                                               | 335                                           | 1011                                           | 250                                                         | 75                                           |
| 1410          | 71.954                                        | 5.03                                               | 320                                           | 1012                                           | 254                                                         | 73                                           |
| 1420          | 71.96                                         | 4.96                                               | 300                                           | 1014                                           | 272                                                         | 73                                           |
| Average       | 71.722                                        | 4.84                                               | 337                                           | 1012                                           | 257                                                         | 75                                           |

# APPENDIX 3



AIR  
POLLUTION  
TESTING, INC.

## Appendix Three: Calibration Information



Environmental Supply Company, Inc.

Quality Source Sampling Systems & Accessories

## Wind Tunnel Pitot Calibration

Customer: **Air Pollution Testing**

S-type Pitot ID: **P-421**

Date: **1-Jul-04**

Standard Pitot ID: **001**

Personnel: **DH**

Cp(std): **0.99**

Cp(actual): **0.81**

Part Number: **ppst12-p-36**

P(bar): **29.70**

Test Velocity (fps): **50**

T(°F): **80.00**

|        |                                        |                                      |               |            |
|--------|----------------------------------------|--------------------------------------|---------------|------------|
| A-SIDE | $\Delta P_{(std)}$ ["H <sub>2</sub> O] | $\Delta P_{(s)}$ ["H <sub>2</sub> O] | Cp(s)         | Deviation* |
|        | <b>0.548</b>                           | <b>0.810</b>                         | <b>0.814</b>  | 0.004      |
|        | <b>0.547</b>                           | <b>0.819</b>                         | <b>0.809</b>  | -0.001     |
|        | <b>0.549</b>                           | <b>0.818</b>                         | <b>0.811</b>  | 0.001      |
|        | <b>0.547</b>                           | <b>0.824</b>                         | <b>0.807</b>  | -0.003     |
|        | <b>AVERAGE</b>                         |                                      | <b>0.810</b>  | 0.002      |
|        |                                        |                                      | Std deviation | 0.003      |

|        |                                        |                                      |               |            |
|--------|----------------------------------------|--------------------------------------|---------------|------------|
| B-SIDE | $\Delta P_{(std)}$ ["H <sub>2</sub> O] | $\Delta P_{(s)}$ ["H <sub>2</sub> O] | Cp(s)         | Deviation* |
|        | <b>0.547</b>                           | <b>0.812</b>                         | <b>0.812</b>  | 0.003      |
|        | <b>0.544</b>                           | <b>0.810</b>                         | <b>0.811</b>  | 0.002      |
|        | <b>0.540</b>                           | <b>0.812</b>                         | <b>0.807</b>  | -0.002     |
|        | <b>0.541</b>                           | <b>0.815</b>                         | <b>0.807</b>  | -0.003     |
|        | <b>AVERAGE</b>                         |                                      | <b>0.809</b>  | 0.002      |
|        |                                        |                                      | Std deviation | 0.003      |

Cp(A) - Cp(B) = **0.001**

{must be <0.010}

$$Cp_{(s)} = Cp_{(std)} \text{SQRT}[\Delta P_{(std)} / \Delta P_{(s)}]$$

$$*Deviation = |\{Cp(s) - AVG Cp(s)\}|$$

{must be <0.010}

Standard deviation of the deviations must be less than 0.02 for both sides.

Pitot tube S/N **P-421** was calibrated in accordance with  
the Code of Federal Regulations, Title 40, Part 60, Appendix A, Method 2, Section 10



Signature

**7-1-2004**

Date



AIR POLLUTION TESTING, INC.  
THERMOCOUPLE AND DRY GAS METER CALIBRATION DATA

GAS METER ID : M5-9 PRE  
DATE : 19-Sep-08  
BARO. PRESS. (MBAR) : 845

**GAS METER CALIBRATION**

| Run #1 | DH  | Vmet    | Tin | Tout | Vref    | Tref | DP   | Vac | Time    |
|--------|-----|---------|-----|------|---------|------|------|-----|---------|
| Start  | 0.5 | 804.826 | 65  | 64   | 679.054 | 66   | 0.36 | 10  | 9:17 AM |
| Stop   | 0.5 | 811.676 | 66  | 65   | 685.887 | 70   | 0.36 | 10  | 9:32 AM |
| Avg.   | 0.5 | 6.850   | 66  | 65   | 6.833   | 68   | 0.36 | 10  | 15.0    |

| Run #2 | DH  | Vmet    | Tin | Tout | Vref    | Tref | DP   | Vac | Time    |
|--------|-----|---------|-----|------|---------|------|------|-----|---------|
| Start  | 1.5 | 812.515 | 67  | 65   | 686.716 | 71   | 0.83 | 10  | 9:36 AM |
| Stop   | 1.5 | 821.685 | 69  | 67   | 695.892 | 73   | 0.83 | 10  | 9:48 AM |
| Avg.   | 1.5 | 9.170   | 68  | 66   | 9.176   | 72   | 0.83 | 10  | 12.0    |

| Run #3 | DH  | Vmet    | Tin | Tout | Vref    | Tref | DP   | Vac | Time     |
|--------|-----|---------|-----|------|---------|------|------|-----|----------|
| Start  | 3.0 | 822.186 | 70  | 67   | 696.394 | 74   | 1.50 | 10  | 9:50 AM  |
| Stop   | 3.0 | 832.992 | 71  | 68   | 707.248 | 75   | 1.5  | 10  | 10:00 AM |
| Avg.   | 3.0 | 10.806  | 71  | 68   | 10.854  | 75   | 1.50 | 10  | 10.0     |

|      | Run #1 | Run #2 | Run #3 | Average |
|------|--------|--------|--------|---------|
| Yref | 0.993  | 0.993  | 0.993  | 0.993   |
| Yd   | 0.982  | 0.978  | 0.974  | 0.978   |
| DH@  | 1.66   | 1.79   | 1.79   | 1.75    |

**THERMOCOUPLE CALIBRATION**

| Calibration<br>Temperature Reading<br>(F) | Pyrometer<br>Reading<br>(F) | ABS (Relative Difference)<br>% R |
|-------------------------------------------|-----------------------------|----------------------------------|
| 0                                         | -1                          | 0.2                              |
| 400                                       | 398                         | 0.2                              |
| 800                                       | 801                         | 0.1                              |
| Max Absolute Difference %                 |                             | 0.2                              |

**PITOT LEAK CHECK**

|                        |   |
|------------------------|---|
| 0.00 @ 3" H2O Positive | x |
| 0.00 @ 3" H2O Negative | x |

Technician: ACB

AIR POLLUTION TESTING, INC.  
THERMOCOUPLE AND DRY GAS METER CALIBRATION DATA

GAS METER ID : M5-9 Post  
DATE : 9-Apr-09  
BARO. PRESS. (MBAR) : 831

**GAS METER CALIBRATION**

| Run #1 | DH  | Vmet    | Tin | Tout | Vref    | Tref | DP   | Vac | Time     |
|--------|-----|---------|-----|------|---------|------|------|-----|----------|
| Start  | 1.5 | 831.742 | 51  | 50   | 445.545 | 58   | 0.90 | 10  | 12:00 PM |
| Stop   | 1.5 | 839.138 | 54  | 52   | 453.118 | 58   | 0.90 | 10  | 12:10 PM |
| Avg.   | 1.5 | 7.396   | 53  | 51   | 7.573   | 58   | 0.90 | 10  | 10.0     |

| Run #2 | DH  | Vmet    | Tin | Tout | Vref    | Tref | DP   | Vac | Time     |
|--------|-----|---------|-----|------|---------|------|------|-----|----------|
| Start  | 1.5 | 839.138 | 54  | 52   | 453.118 | 58   | 0.90 | 10  | 12:11 PM |
| Stop   | 1.5 | 846.627 | 58  | 54   | 460.685 | 58   | 0.90 | 10  | 12:21 PM |
| Avg.   | 1.5 | 7.389   | 56  | 53   | 7.567   | 58   | 0.90 | 10  | 10.0     |

| Run #3 | DH  | Vmet    | Tin | Tout | Vref    | Tref | DP   | Vac | Time     |
|--------|-----|---------|-----|------|---------|------|------|-----|----------|
| Start  | 1.5 | 846.527 | 58  | 54   | 460.685 | 58   | 0.90 | 10  | 12:22 PM |
| Stop   | 1.5 | 853.984 | 59  | 56   | 468.295 | 59   | 0.90 | 10  | 12:32 PM |
| Avg.   | 1.5 | 7.457   | 59  | 55   | 7.610   | 59   | 0.90 | 10  | 10.0     |

|      | Run #1 | Run #2 | Run #3 | Average |
|------|--------|--------|--------|---------|
| Yref | 0.990  | 0.990  | 0.990  | 0.990   |
| Yd   | 0.994  | 1.000  | 1.000  | 0.998   |
| DH@  | 1.82   | 1.82   | 1.79   | 1.81    |

| Post vs. Pre Calibration Check |                     |                         |
|--------------------------------|---------------------|-------------------------|
| Pre Y <sub>d</sub>             | Post Y <sub>d</sub> | Diff. in Y <sub>d</sub> |
| 0.978                          | 0.998               | 1.99%                   |

**THERMOCOUPLE CALIBRATION**

| Calibration Temperature Reading (F) | Pyrometer Reading (F) | ABS (Relative Difference) % R |
|-------------------------------------|-----------------------|-------------------------------|
| 0                                   | 3                     | 0.7                           |
| 400                                 | 396                   | 0.5                           |
| 800                                 | 800                   | 0.0                           |
| Max Absolute Difference %           |                       | 0.7                           |

M5 TEST ☒

**PITOT LEAK CHECK**

|                                     |   |
|-------------------------------------|---|
| 0.00 @ 6" H <sub>2</sub> O Positive | x |
| 0.00 @ 6" H <sub>2</sub> O Negative | x |

Technician: SLS

AIR POLLUTION TESTING, INC.  
THERMOCOUPLE AND DRY GAS METER CALIBRATION DATA

GAS METER ID : M5-18 PRE  
DATE : 5-Jan-09  
BARO. PRESS. (MBAR) : 826

**GAS METER CALIBRATION**

| Run #1 | DH  | Vmet    | Tin | Tout | Vref    | Tref | DP   | Vac | Time     |
|--------|-----|---------|-----|------|---------|------|------|-----|----------|
| Start  | 0.5 | 134.799 | 62  | 62   | 907.810 | 61   | 0.39 | 10  | 10:29 AM |
| Stop   | 0.5 | 143.869 | 64  | 63   | 916.812 | 60   | 0.39 | 10  | 10:49 AM |
| Avg.   | 0.5 | 9.070   | 63  | 63   | 9.002   | 61   | 0.39 | 10  | 20.0     |

| Run #2 | DH  | Vmet    | Tin | Tout | Vref    | Tref | DP   | Vac | Time    |
|--------|-----|---------|-----|------|---------|------|------|-----|---------|
| Start  | 1.5 | 112.306 | 65  | 62   | 885.425 | 61   | 0.87 | 10  | 2:05 PM |
| Stop   | 1.5 | 119.980 | 67  | 63   | 893.058 | 60   | 0.87 | 10  | 2:15 PM |
| Avg.   | 1.5 | 7.674   | 66  | 63   | 7.633   | 61   | 0.87 | 10  | 10.0    |

| Run #3 | DH  | Vmet    | Tin | Tout | Vref    | Tref | DP   | Vac | Time     |
|--------|-----|---------|-----|------|---------|------|------|-----|----------|
| Start  | 3.0 | 144.884 | 65  | 63   | 917.833 | 61   | 1.60 | 10  | 10:51 AM |
| Stop   | 3.0 | 155.509 | 65  | 64   | 928.475 | 61   | 1.6  | 10  | 11:01 AM |
| Avg.   | 3.0 | 10.625  | 65  | 64   | 10.642  | 61   | 1.60 | 10  | 10.0     |

|      | Run #1 | Run #2 | Run #3 | Average |
|------|--------|--------|--------|---------|
| Yref | 0.990  | 0.990  | 0.990  | 0.990   |
| Yd   | 0.984  | 0.985  | 0.984  | 0.984   |
| DH@  | 1.71   | 1.78   | 1.83   | 1.77    |

**THERMOCOUPLE CALIBRATION**

| Calibration Temperature Reading (F) | Pyrometer Reading (F) | ABS (Relative Difference) % R |
|-------------------------------------|-----------------------|-------------------------------|
| 0                                   | 0                     | 0.0                           |
| 400                                 | 399                   | 0.1                           |
| 800                                 | 799                   | 0.1                           |
| Max Absolute Difference %           |                       | 0.1                           |

**PITOT LEAK CHECK**

0.00 @ 6" H2O Positive  
0.00 @ 6" H2O Negative

Technician: SLS

AIR POLLUTION TESTING, INC.  
THERMOCOUPLE AND DRY GAS METER CALIBRATION DATA

GAS METER ID : M5-18  
DATE : 9-Apr-09  
BARO. PRESS. (MBAR) : 831

**GAS METER CALIBRATION**

| Run #1 | DH  | Vmet    | Tin | Tout | Vref    | Tref | DP   | Vac | Time     |
|--------|-----|---------|-----|------|---------|------|------|-----|----------|
| Start  | 1.5 | 813.092 | 53  | 53   | 422.057 | 58   | 0.9  | 10  | 11:13 AM |
| Stop   | 1.5 | 820.470 | 55  | 54   | 429.548 | 58   | 0.9  | 10  | 11:23 AM |
| Avg.   | 1.5 | 7.378   | 54  | 54   | 7.491   | 58   | 0.90 | 10  | 10.0     |

| Run #2 | DH  | Vmet    | Tin | Tout | Vref    | Tref | DP   | Vac | Time     |
|--------|-----|---------|-----|------|---------|------|------|-----|----------|
| Start  | 1.5 | 820.470 | 55  | 54   | 429.548 | 58   | 0.90 | 10  | 11:24 AM |
| Stop   | 1.5 | 828.565 | 57  | 55   | 437.751 | 59   | 0.90 | 10  | 11:35 AM |
| Avg.   | 1.5 | 8.095   | 56  | 55   | 8.203   | 59   | 0.90 | 10  | 11.0     |

| Run #3 | DH  | Vmet    | Tin | Tout | Vref    | Tref | DP   | Vac | Time     |
|--------|-----|---------|-----|------|---------|------|------|-----|----------|
| Start  | 1.5 | 828.565 | 57  | 55   | 437.751 | 59   | 0.90 | 10  | 11:35 AM |
| Stop   | 1.5 | 835.947 | 60  | 57   | 445.203 | 59   | 0.90 | 10  | 11:45 AM |
| Avg.   | 1.5 | 7.382   | 59  | 56   | 7.452   | 59   | 0.90 | 10  | 10.0     |

|      | Run #1 | Run #2 | Run #3 | Avg.  |
|------|--------|--------|--------|-------|
| Yref | 0.990  | 0.990  | 0.990  | 0.990 |
| Yd   | 0.990  | 0.990  | 0.989  | 0.989 |
| DH@  | 1.85   | 1.87   | 1.87   | 1.86  |

| Post vs. Pre Calibration Check |         |             |
|--------------------------------|---------|-------------|
| Pre Yd                         | Post Yd | Diff. in Yd |
| 0.984                          | 0.989   | 0.55%       |

**THERMOCOUPLE CALIBRATION**

| Calibration Temperature Reading (F) | Pyrometer Reading (F) | ABS (Relative Difference) % R |
|-------------------------------------|-----------------------|-------------------------------|
| 20                                  | 1                     | 0.2                           |
| 400                                 | 394                   | 0.7                           |
| 800                                 | 795                   | 0.4                           |
| Max Absolute Difference %           |                       | 0.7                           |

M5 TEST ☒

**PITOT LEAK CHECK**

|                        |   |
|------------------------|---|
| 0.00 @ 6" H2O Positive | x |
| 0.00 @ 6" H2O Negative | x |

Technician: SLS



3434 Route 22 West, Branchburg, New Jersey 08876 USA

ISO 9001:2000

Shipped from: 80 Industrial Drive, Alpha, NJ 08865

## CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE  
PROCEDURE #: G1

CUSTOMER: Air Pollution Testing  
SGI ORDER #: 0138740  
ITEM#: 2  
P.O.#: VERBAL-JOHN

CYLINDER #: CC-143352  
CYLINDER PRES: 2000 PSIG  
CGA OUTLET: 590

CERTIFICATION DATE: 11/26/2008

EXPIRATION DATE: 11/21/2011

### CERTIFICATION HISTORY

| COMPONENT      | DATE OF ASSAY | MEAN CONCENTRATION | CERTIFIED CONCENTRATION | ANALYTICAL ACCURACY |
|----------------|---------------|--------------------|-------------------------|---------------------|
| Carbon Dioxide | 11/26/2008    | 10.00 %            | 10.00%                  | +/- 1%              |
| Oxygen         | 11/21/2008    | 9.98 %             | 9.98 %                  | +/- 1%              |
|                |               |                    |                         |                     |
|                |               |                    |                         |                     |

BALANCE Nitrogen  
PREVIOUS CERTIFICATION DATES: None

### REFERENCE STANDARDS

| COMPONENT      | SRM/NTRM# | CYLINDER# | CONCENTRATION |
|----------------|-----------|-----------|---------------|
| Carbon Dioxide | GMIS-1    | CC-117398 | 10.03 %       |
| Oxygen         | GMIS-1    | CC-94583  | 10.00 %       |
|                |           |           |               |
|                |           |           |               |

### INSTRUMENTATION

| COMPONENT      | MAKE/MODEL | SERIAL # | DETECTOR | CALIBRATION DATE(S) |
|----------------|------------|----------|----------|---------------------|
| Carbon Dioxide | CAI-300    | S03001   | NDIR     | 10/27/2008          |
| Oxygen         | CAI-300    | S03001   | PM       | 10/28/2008          |
|                |            |          |          |                     |
|                |            |          |          |                     |

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

ANALYST: 

CODY HAMLIN

DATE: 11/26/2008

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

QGM498871



3434 Route 22 West, Branchburg, New Jersey 08876 USA

ISO 9001:2000

Shipped from: 80 Industrial Drive, Alpha, NJ 08865

## CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE  
PROCEDURE #: G1

CUSTOMER: Air Pollution Testing  
SGI ORDER #: 0138131  
ITEM#: 1  
P.O.#: DOOFC

CYLINDER #: CC-118467  
CYLINDER PRES: 1900 PSIG  
CGA OUTLET: 590

CERTIFICATION DATE: 10/28/2008  
EXPIRATION DATE: 10/28/2011

### CERTIFICATION HISTORY

| COMPONENT      | DATE OF ASSAY | MEAN CONCENTRATION | CERTIFIED CONCENTRATION | ANALYTICAL ACCURACY |
|----------------|---------------|--------------------|-------------------------|---------------------|
| Carbon Dioxide | 10/28/2008    | 19.8 %             | 19.8 %                  | +/- 1%              |
| Oxygen         | 10/28/2008    | 20.9 %             | 20.9 %                  | +/- 1%              |
|                |               |                    |                         |                     |
|                |               |                    |                         |                     |

BALANCE Nitrogen  
PREVIOUS CERTIFICATION DATES: None

### REFERENCE STANDARDS

| COMPONENT      | SRM/NTRM#    | CYLINDER# | CONCENTRATION |
|----------------|--------------|-----------|---------------|
| Carbon Dioxide | NTRM-7100110 | CC-237244 | 24.52 %       |
| Oxygen         | NTRM-7100110 | CC-237244 | 24.52 %       |
|                |              |           |               |
|                |              |           |               |

### INSTRUMENTATION

| COMPONENT      | MAKE/MODEL | SERIAL # | DETECTOR | CALIBRATION DATE(S) |
|----------------|------------|----------|----------|---------------------|
| Carbon Dioxide | CAI-300    | S03001   | NDIR     | 10/28/2008          |
| Oxygen         | CAI-300    | S03001   | PM       | 9/30/2008           |
|                |            |          |          |                     |
|                |            |          |          |                     |

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

ANALYST: Matthew Booth  
MATTHEW BOOTH

DATE: 10/28/2008



3434 Route 22 West, Branchburg, New Jersey 08876 USA

ISO 9001:2000

Shipped from: 80 Industrial Drive, Alpha, NJ 08865

## CERTIFICATE OF ANALYSIS

## EPA PROTOCOL MIXTURE PROCEDURE #: G1

**CUSTOMER:** Air Pollution Testing  
**SGI ORDER #:** 0129600  
**ITEM#:** 15  
**P.O.#:** D00FC

**CYLINDER #:** CC-133300  
**CYLINDER PRES:** 2000 PSIG  
**CGA OUTLET:** 350

**CERTIFICATION DATE:** 6/6/2008

**EXPIRATION DATE:** 6/6/2011

### CERTIFICATION HISTORY

| COMPONENT       | DATE OF<br>ASSAY      | MEAN<br>CONCENTRATION  | CERTIFIED<br>CONCENTRATION | ANALYTICAL<br>ACCURACY |
|-----------------|-----------------------|------------------------|----------------------------|------------------------|
| Carbon Monoxide | 5/30/2008<br>6/6/2008 | 36.48 ppm<br>36.47 ppm | 36.5 ppm                   | +/- 1%                 |
|                 |                       |                        |                            |                        |
|                 |                       |                        |                            |                        |
|                 |                       |                        |                            |                        |

**BALANCE** Nitrogen  
**PREVIOUS CERTIFICATION DATES:** None

### REFERENCE STANDARDS

| COMPONENT       | SRM/NTRM# | CYLINDER# | CONCENTRATION |
|-----------------|-----------|-----------|---------------|
| Carbon Monoxide | GMIS-1    | CC-63263  | 50.1 ppm      |
|                 |           |           |               |
|                 |           |           |               |
|                 |           |           |               |

### INSTRUMENTATION

| COMPONENT       | MAKE/MODEL | SERIAL #        | DETECTOR | CALIBRATION<br>DATE(S) |
|-----------------|------------|-----------------|----------|------------------------|
| Carbon Monoxide | Thermo 48C | 48CTL-69941-364 | GFC-IR   | 5/7/2008               |
|                 |            |                 |          |                        |
|                 |            |                 |          |                        |
|                 |            |                 |          |                        |

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

**ANALYST:**

*Cheryl L. Patino*

**CHERYL PATINO**

**DATE:** 6/6/2008



3434 Route 22 West, Branchburg, New Jersey 08876 USA

ISO 9001:2000

Shipped from: 80 Industrial Drive, Alpha, NJ 08865

## CERTIFICATE OF ANALYSIS

## EPA PROTOCOL MIXTURE

PROCEDURE #: G1

CUSTOMER: Air Pollution Testing  
SGI ORDER #: 0121701  
ITEM#: 8  
P.O.#: VERBAL-RYAN

CYLINDER #: CC-38266  
CYLINDER PRES: 2000 PSIG  
CGA OUTLET: 350

CERTIFICATION DATE: 1/9/2008

EXPIRATION DATE: 1/9/2011

### CERTIFICATION HISTORY

| COMPONENT       | DATE OF ASSAY | MEAN CONCENTRATION | CERTIFIED CONCENTRATION | ANALYTICAL ACCURACY |
|-----------------|---------------|--------------------|-------------------------|---------------------|
| Carbon Monoxide | 1/2/2008      | 79.15 ppm          | 79.2 ppm                | +/- 1%              |
|                 | 1/9/2008      | 79.25 ppm          |                         |                     |
|                 |               |                    |                         |                     |
|                 |               |                    |                         |                     |
|                 |               |                    |                         |                     |

### BALANCE

Nitrogen

PREVIOUS CERTIFICATION DATES: None

### REFERENCE STANDARDS

| COMPONENT       | SRM/NTRM#  | CYLINDER# | CONCENTRATION |
|-----------------|------------|-----------|---------------|
| Carbon Monoxide | NTRM-81679 | CC-135142 | 101 ppm       |
|                 |            |           |               |
|                 |            |           |               |
|                 |            |           |               |

### INSTRUMENTATION

| COMPONENT       | MAKE/MODEL     | SERIAL # | DETECTOR | CALIBRATION DATE(S) |
|-----------------|----------------|----------|----------|---------------------|
| Carbon Monoxide | Horiba VIA-510 | H0002L2Y | NDIR     | 12/10/2007          |
|                 |                |          |          |                     |
|                 |                |          |          |                     |
|                 |                |          |          |                     |

THIS STANDARD IS NIST TRACEABLE IT WAS CERTIFIED ACCORDING TO THE EPA PROTOCOL PROCEDURES.

DO NOT USE THIS STANDARD IF THE CYLINDER PRESSURE IS LESS THAN 150 PSIG.

ANALYST: Cheryl L. Patino

CHERYL PATINO

DATE: 1/9/2008





3434 Route 22 West, Branchburg, New Jersey 08876 USA

ISO 9001:2000

Shipped from: 80 Industrial Drive, Alpha, NJ 08865

## CERTIFICATE OF ANALYSIS

EPA PROTOCOL MIXTURE  
PROCEDURE #: G1

CUSTOMER: Air Pollution Testing  
SGI ORDER #: 0138195  
ITEM#: 9  
P.O.#: D00FC

CYLINDER #: CC-237319  
CYLINDER PRES: 2000 PSIG  
CGA OUTLET: 350

CERTIFICATION DATE: 11/5/2008

EXPIRATION DATE: 11/5/2011

### CERTIFICATION HISTORY

| COMPONENT | DATE OF ASSAY | MEAN CONCENTRATION | CERTIFIED CONCENTRATION | ANALYTICAL ACCURACY |
|-----------|---------------|--------------------|-------------------------|---------------------|
| Propane   | 11/5/2008     | 30.0 ppm           | 30.0 ppm                | +/- 1%              |
|           |               |                    |                         |                     |
|           |               |                    |                         |                     |
|           |               |                    |                         |                     |

### BALANCE

Nitrogen

PREVIOUS CERTIFICATION DATES: None

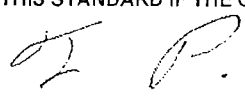
### REFERENCE STANDARDS

| COMPONENT | SRM/NTRM# | CYLINDER# | CONCENTRATION |
|-----------|-----------|-----------|---------------|
| Propane   | GMIS-1    | CC-128776 | 50.0 ppm      |
|           |           |           |               |
|           |           |           |               |
|           |           |           |               |

### INSTRUMENTATION

| COMPONENT | MAKE/MODEL      | SERIAL #   | DETECTOR | CALIBRATION DATE(S) |
|-----------|-----------------|------------|----------|---------------------|
| Propane   | H. Packard 6890 | US00001434 | GC - FID | 10/7/2008           |
|           |                 |            |          |                     |
|           |                 |            |          |                     |
|           |                 |            |          |                     |

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

ANALYST: 

FRED PIKULA

DATE: 11/5/2008



3434 Route 22 West, Branchburg, New Jersey 08876 USA

ISO 9001:2000

Shipped from: 80 Industrial Drive, Alpha, NJ 08865

## CERTIFICATE OF ANALYSIS

## EPA PROTOCOL MIXTURE PROCEDURE #: G1

CUSTOMER: Air Pollution Testing  
SGI ORDER #: 0138195  
ITEM#: 10  
P.O.#: D00FC

CYLINDER #: CC-131241  
CYLINDER PRES: 2000 PSIG  
CGA OUTLET: 350

CERTIFICATION DATE: 11/6/2008

EXPIRATION DATE: 11/6/2011

### CERTIFICATION HISTORY

| COMPONENT | DATE OF ASSAY | MEAN CONCENTRATION | CERTIFIED CONCENTRATION | ANALYTICAL ACCURACY |
|-----------|---------------|--------------------|-------------------------|---------------------|
| Propane   | 11/6/2008     | 50.1 ppm           | 50.1 ppm                | +/- 1%              |
|           |               |                    |                         |                     |
|           |               |                    |                         |                     |
|           |               |                    |                         |                     |

BALANCE Nitrogen  
PREVIOUS CERTIFICATION DATES: None

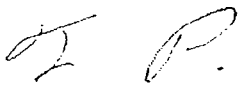
### REFERENCE STANDARDS

| COMPONENT | SRM/NTRM# | CYLINDER# | CONCENTRATION |
|-----------|-----------|-----------|---------------|
| Propane   | GMIS-1    | CC-113884 | 100.4 ppm     |
|           |           |           |               |
|           |           |           |               |
|           |           |           |               |

### INSTRUMENTATION

| COMPONENT | MAKE/MODEL      | SERIAL #   | DETECTOR | CALIBRATION DATE(S) |
|-----------|-----------------|------------|----------|---------------------|
| Propane   | H. Packard 6890 | US00001434 | GC - FID | 11/6/2008           |
|           |                 |            |          |                     |
|           |                 |            |          |                     |
|           |                 |            |          |                     |

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

ANALYST: 

FRED PIKULA

DATE: 11/6/2008

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

QGM498876



Spectra Gases, Inc.

3434 Route 22 West, Branchburg, New Jersey 08876 USA

ISO 9001:2000

Shipped from: 80 Industrial Drive, Alpha, NJ 08865

## CERTIFICATE OF ANALYSIS

## EPA PROTOCOL MIXTURE PROCEDURE #: G1

CUSTOMER: Air Pollution Testing  
SGI ORDER #: 127952  
ITEM#: 7  
P.O.#: DOOFC

CYLINDER #: CC-68272  
CYLINDER PRES: 2000 PSIG  
CGA OUTLET: 350

CERTIFICATION DATE: 5/1/2008  
EXPIRATION DATE: 5/1/2011

### CERTIFICATION HISTORY

| COMPONENT | DATE OF ASSAY | MEAN CONCENTRATION | CERTIFIED CONCENTRATION | ANALYTICAL ACCURACY |
|-----------|---------------|--------------------|-------------------------|---------------------|
| Propane   | 5/1/2008      | 3017 ppm           | 3017 ppm                | +/- 1%              |
|           |               |                    |                         |                     |
|           |               |                    |                         |                     |
|           |               |                    |                         |                     |

BALANCE Nitrogen

PREVIOUS CERTIFICATION DATES: None

### REFERENCE STANDARDS

| COMPONENT | SRM/NTRM# | CYLINDER# | CONCENTRATION |
|-----------|-----------|-----------|---------------|
| Propane   | GMIS-1    | CC-79858  | 1.002 %       |
|           |           |           |               |
|           |           |           |               |
|           |           |           |               |

### INSTRUMENTATION

| COMPONENT | MAKE/MODEL      | SERIAL #   | DETECTOR | CALIBRATION DATE(S) |
|-----------|-----------------|------------|----------|---------------------|
| Propane   | H. Packard 6890 | US00001434 | GC - FID | 5/1/2008            |
|           |                 |            |          |                     |
|           |                 |            |          |                     |
|           |                 |            |          |                     |

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

ANALYST:

CHERYL PATINO

DATE: 5/1/2008

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

QGM498877

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

500 WEAVER PARK RD, LONGMONT, CO 80501

Phone: 888-253-1635

Fax: 303-772-7673

**CERTIFICATE OF ACCURACY: EPA Protocol Gas**Assay LaboratoryP.O. No.: D00FC  
AIR LIQUIDE AMERICA SPECIALTY GASES LLC Project No.: 08-73652-007  
500 WEAVER PARK RD  
LONGMONT, CO 80501CustomerAIR POLLUTION TESTING INC  
JOHN MILLER  
5530 MARSHALL STREET  
ARVADA CO 80002**ANALYTICAL INFORMATION**

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

Cylinder Number: ALM036240 Certification Date: 16Mar2009 Exp. Date: 15Mar2012  
Cylinder Pressure\*\*\*: 2000 PSIG

| <u>COMPONENT</u> | <u>CERTIFIED CONCENTRATION (Moles)</u> |         | <u>ANALYTICAL</u> | <u>TRACEABILITY</u> |
|------------------|----------------------------------------|---------|-------------------|---------------------|
|                  |                                        |         | <u>ACCURACY**</u> |                     |
| PROPANE          | 8,739                                  | PPM     | +/- 2%            | NIST and NMI        |
| NITROGEN         |                                        | BALANCE |                   |                     |

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

\*\* Analytical accuracy is based on the requirements of EPA Protocol procedures, September 1997.

**REFERENCE STANDARD**

| <u>TYPE/SRM NO.</u> | <u>EXPIRATION DATE</u> | <u>CYLINDER NUMBER</u> | <u>CONCENTRATION</u> | <u>COMPONENT</u> |
|---------------------|------------------------|------------------------|----------------------|------------------|
| NTRM 1669           | 02Dec2010              | ALM020021              | 497.0 PPM            | PROPANE          |

**INSTRUMENTATION**

| <u>INSTRUMENT/MODEL/SERIAL#</u> | <u>DATE LAST CALIBRATED</u> | <u>ANALYTICAL PRINCIPLE</u> |
|---------------------------------|-----------------------------|-----------------------------|
| HP/6890/US00034440              | 20Feb2009                   | TCD/FID                     |

APPROVED BY: \_\_\_\_\_

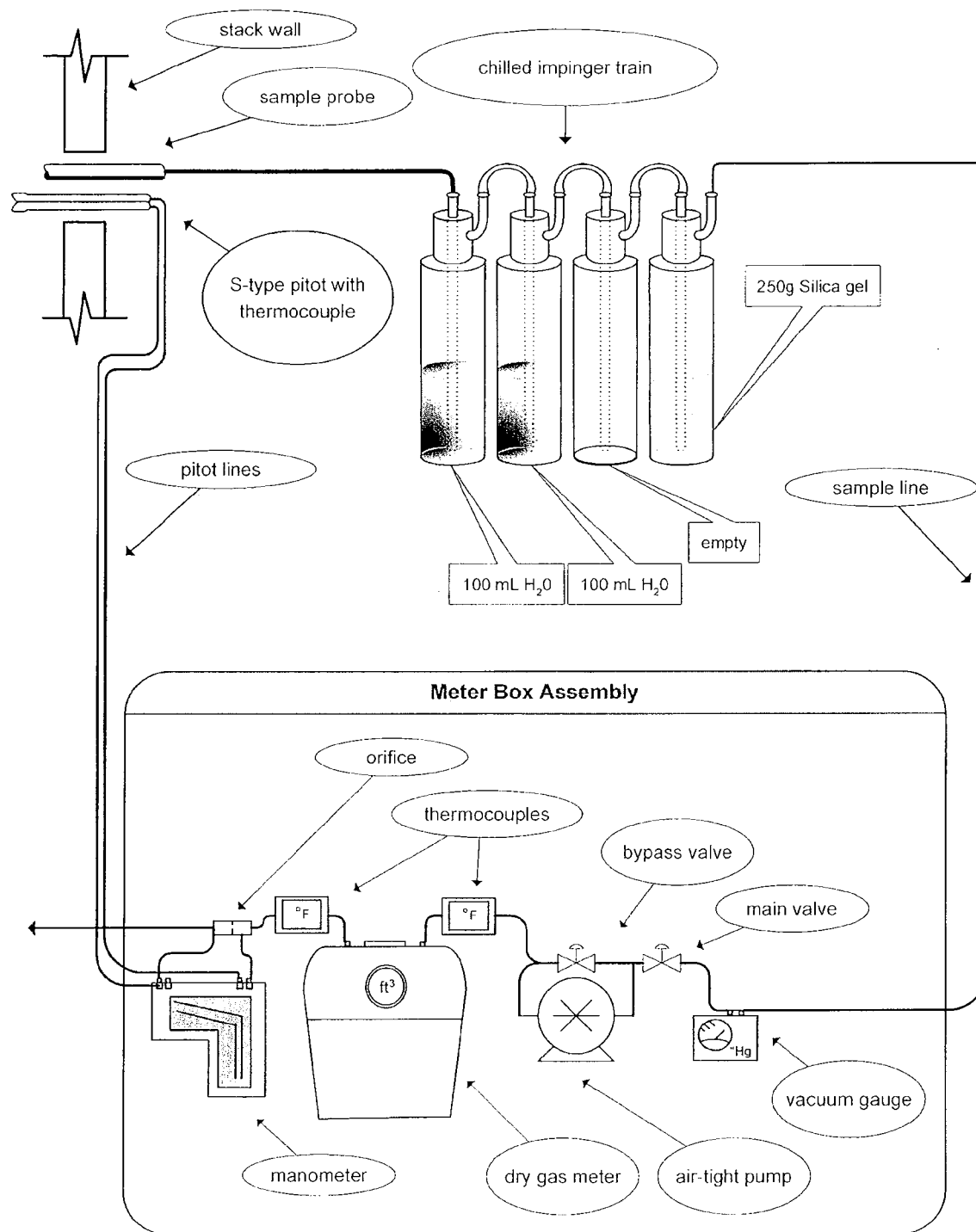
JOHN ROZOF

# APPENDIX 4

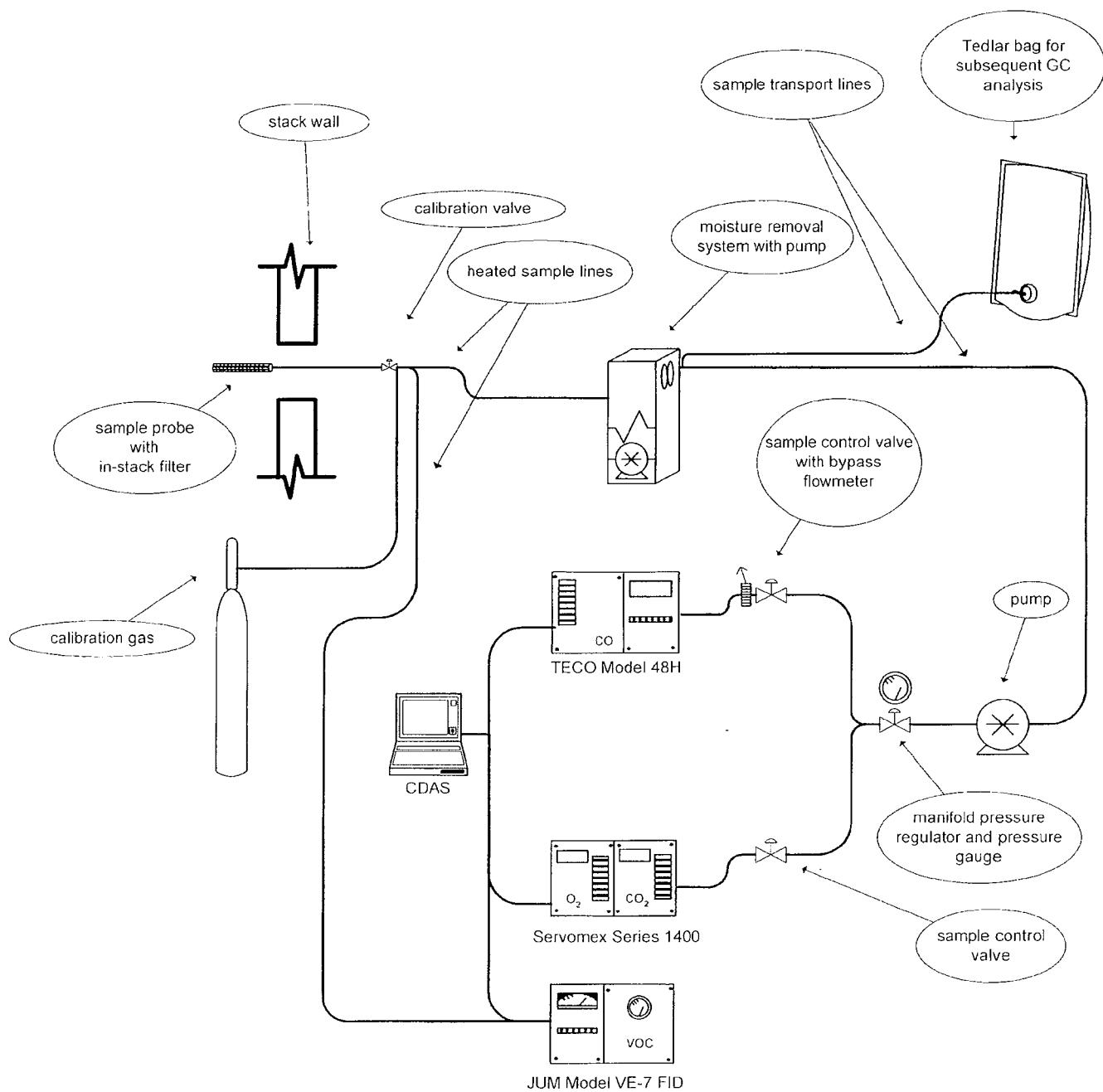


AIR  
POLLUTION  
TESTING, INC.

## Appendix Four: Schematics



EPA Methods 1,2, & 4  
sampling train schematic



EPA Methods 3A, 10, 18 & 25A  
sampling train schematic